

Advanced Test Reactor Complex Facilities Radioactive Waste Management Basis and DOE Manual 435.1-1 Compliance Tables

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**Advanced Test Reactor Complex Facilities
Radioactive Waste Management Basis and DOE
Manual 435.1-1 Compliance Tables**

November 2011

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ABSTRACT

U.S. 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 Advanced Test Reactor Complex facilities that manage radioactive waste. The radioactive waste management basis for a facility comprises existing laboratory-wide and facility-specific documents. U.S. 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 to develop the radioactive waste management basis.

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Advanced Test Reactor 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 Advanced Test Reactor (ATR) Complex facilities that manage radioactive waste and DOE Manual 435.1-1 facility compliance information tables for the ATR Complex facilities. The facility RWMB comprises existing laboratory-wide and facility-specific documents. The DOE Manual 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-3638) for the facilities managing radioactive waste at the ATR Complex. The summary RWMB is to be submitted to the DOE field element manager for approval.

2. METHODOLOGY

The following methodology was used to prepare RWMB and facility compliance information tables for the ATR Complex:

- A kick-off meeting was held with ATR Complex officials. At this meeting, a preliminary list of ATR Complex facilities that should be included in this effort was verified. Based on the information obtained at this meeting, the list of facilities was modified slightly. The ATR Complex 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 April 12 and April 13, 2010.
- Based on the information received from the interviews; analysis of the procedures cited by the facility POCs; and information 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 conducted with the facility POCs and BEA management officials. These review meetings served as verification of the information presented in the initial draft tables, which were based on information obtained from the POC interviews and analysis of documents from the Electronic Document Management System. The meetings also allowed 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 Idaho National Laboratory [INL]-wide procedures or programs). The review meetings were held between May 14 and May 18, 2010.
- The tables were revised based on 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 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 ATR Complex facilities were identified as managing radioactive waste and are included in this study:

- TRA-605, Effluent Processing Facility
- TRA-605 Radioactive Materials Storage Area
- TRA-617 Radioactive Materials Storage Area
- TRA-621, Nuclear Materials Inspection and Storage (NMIS) Facility
- TRA-666, Safety and Tritium Applied Research (STAR) Facility
- TRA-670, ATR, includes the TRA-605, Effluent Processing Facility; TRA-1005, ATR Storage Pad; and TRA-1006, Storage Area Southwest of TRA-670
- TRA-678, Radiation Measurement Laboratory
- TRA-715, Evaporation Ponds
- TRA-780, (includes TRA-681, 682, 683, 684, 685, and 686) Resource Conservation and Recovery Act (RCRA) 90-Day Storage Area.

The following ATR Complex facilities were identified as new facilities that are expected to manage radioactive waste after the facility begins operations:

- TRA-1627, Radioanalytical Chemistry Laboratory
- TRA-1710, Radioactive Materials Storage Area.

Based on the information obtained from the primary POCs regarding these facilities and a search for documentation through the Electronic Document Management System, no facility documentation pertaining to intended facility operations was identified that would enable an assessment of whether the facility has procedures or programs in place to comply with DOE Manual 435.1-1 requirements. Therefore, compliance tables were not developed for these facilities.

Prior to the kick-off meeting, the following facilities were identified as facilities that manage radioactive waste. However, information obtained during the kick-off meeting that was 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:

- TRA-604, Basement
- TRA-1624, (building name not identified).

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 ATR Complex facilities:

- TRA-605 Radioactive Materials Storage Area (Subsection 4.1)
- TRA-617 Radioactive Materials Storage Area (Subsection 4.2)
- TRA-621, NMIS Facility (Subsection 4.3)
- TRA-666, STAR Facility (Subsection 4.4)

- TRA-670, ATR, including TRA-605, Effluent Processing Facility; TRA-1005, ATR Storage Pad; and TRA-1006, Storage Area Southwest of TRA-670 (Subsection 4.5)
- TRA-678, Radiation Measurement Laboratory (Subsection 4.6)
- TRA-715, Evaporation Ponds (Subsection 4.7)
- TRA-780, (includes TRA-681, 682, 683, and 684) RCRA 90-Day Storage Area (Subsection 4.8).

For each ATR Complex 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 ATR Complex 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 TRA-605 Radioactive Materials Storage Area

1. **Facility description:** The TRA-605 Radioactive Materials Storage Area is a fenced outside storage area located 40 ft east of TRA-605. The area is approximately 27×31 m (74×86 ft) with a non-gated entrance in the southwest corner. Waste Generator Services (WGS) is the Radioactive Materials Storage Area custodian for this facility. Although this facility is identified with the same building number as the TRA-605, Effluent Processing Facility, also known as the Warm Waste Treatment Facility (WWTF), for the purposes of the RWMB, they are considered two separate and distinct waste management facilities. TRA-605, Effluent Processing Facility, is included in Section 5.4, TRA-670, ATR, to maintain consistency with the facility's safety basis documentation.
2. **Hazard category:** Less-than-Hazard-Category-3 (LTHC3) (radiological)
3. **Radioactive waste managed at this facility:** Remote-handled legacy LLW (solid) and remote-handled legacy TRU waste (solid) are stored at this facility. Routine contact-handled LLW and Toxic Substances Control Act (TSCA)-regulated LLW also may be accepted at this facility.
4. **RWMB documents/programs:**
 - a) Safety basis/hazard analysis:
 - HAD-277, "Reactor Technology Complex Radioactive Materials Storage Areas (TRA-617 and the Fenced Area East of TRA-605)"
 - SD-24.1.3, "ATR Complex Facilities and Site Services Safety Basis Administrative Controls"
 - b) Laboratory-wide:
 - Form 435.A01, "Radioactive Waste Container Inspection Checklist"
 - 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”
- 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:

- IAG-443, “Tenant Use Agreement Between Facility Management Services, Laboratory Support Complex at the Advanced Test Reactor Complex and Waste Generator Services/Energy Solutions in Materials Storage Areas TRA-617 And Fenced Area East of TRA-605”
- For legacy remote-handled TRU waste: the TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the DOE Office of Environmental Management (EM) contractor for their management and disposition. Acceptable knowledge and characterization information will be provided to demonstrate compliance with the DOE-EM waste acceptance criteria for the receiving organization. The program is described in *Excess Legacy Materials Inventory Report for the Idaho National Laboratory* (INL 2010).

TRU waste and LLW are managed at this facility. Table 1 shows the facility compliance information for DOE Manual 435.1-1 Chapter III, “Transuranic Waste Requirements,” and Table 2 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 1. TRA-605 Radioactive Materials Storage Area DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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: (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.)	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. See J. below.
(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 1. (continued).

TRA-605 Radioactive Materials Storage Area	
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: 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.	Not applicable (NA); mixed TRU waste is not managed at this facility.
(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.
<p>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.</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>	Not a facility-specific requirement. DOE Manual 435.1-1 §1.2.B and §1.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<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: 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>TRU waste management is addressed in PDD-17000. Routine waste management activities are conducted in accordance with LI-435.</p> <p>This facility is a LTHC3 facility (HAD-277).</p> <p>SD-24.1.3 identifies administrative controls, method of compliance, and responsible organization so that the hazard classification is maintained.</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; TRU waste is not generated at this facility.</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 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</p>	<p>NA; TRU waste is not treated at this facility.</p>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic 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 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: 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>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>HAD-277 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3, Appendix B addresses the use of Integrated Waste Tracking System (IWTS) to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</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>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<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 §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</p>	<p>See F. above.</p>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>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>(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 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>HAD-277 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3, Appendix B provides the procedure for ensuring that stored waste limits are not exceeded and delegates this responsibility to the Radioactive Material Storage Area custodian.</p> <p>IAG-443 establishes WGS as the Radioactive Material Storage Area custodian. Appendix A, Article II outlines requirements for controlling radiological material inventories.</p> <p>The TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the EM contractor for their management and disposition. Additional TRU waste is not planned to be received at this facility.</p>
<p>(a) Allowable activities and/or concentrations of specific radionuclides;</p>	<p>See (1) above.</p>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
(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.	Exceptions to the radioactive material inventory limits are not permitted.
<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>SD-24.1.3, Appendix B addresses the use of IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>Nonconforming waste is not permitted.</p>
H. <u>Waste Generation Planning</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(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 transuranic waste streams.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this</p>	NA; TRU waste is not generated at this facility.

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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>(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 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>	NA; TRU waste is not generated at this facility.
(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</p>	<p>IAG-443 establishes WGS as the Radioactive Material Storage Area custodian.</p> <p>IAG-443, Appendix B, establishes WGS' functional responsibilities for waste, which are to arrange for the removal and disposition of waste generated and characterized by others.</p> <p>The waste acceptance criteria will be established by the</p>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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.	DOE-EM contractor to which this waste is proposed to be transferred. Acceptable knowledge and characterization information will be provided to demonstrate compliance with these criteria.
<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>	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 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>IAG-443 establishes WGS as the Radioactive Material Storage Area custodian.</p> <p>IAG-443, Appendix B, establishes WGS' functional responsibilities for waste, which are to arrange for the removal and disposition of waste generated and characterized by others. 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>From DOE G 435.1-1 Chapter III: Compliance with the development and documentation portion of the</p>	<p>NA; no certification program for this waste. The TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the DOE-EM contractor for their management and disposition.</p> <p>Acceptable knowledge and characterization information will be provided to demonstrate compliance with the DOE-EM waste acceptance criteria for the receiving</p>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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.	organization to enable the transfer of ownership.
<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.
(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	<p>See J. above.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of</p>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>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>radioactive material.</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 the waste containers are available and accurate, and that documented transfer of responsibility occurs.</p>	<p>Waste transfer for TRU waste at this facility is limited to the one-time transfer of the legacy remote-handled TRU waste managed at this facility. A waste-specific agreement will be developed to transfer management responsibility to the DOE-EM contractor for this 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: 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: 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>

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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>The TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the DOE-EM contractor for their management and disposition. Acceptable knowledge and characterization information will be provided to demonstrate compliance with the DOE-EM waste acceptance criteria for the receiving organization to enable transfer of ownership. These criteria would include requirements for packaging. The acceptable knowledge documentation is expected to indicate that the waste is defense waste.</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.	See (1) above.
<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</p>	See (1) above.

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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.	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. 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 from this facility to an offsite facility for final disposition.
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	See M. above.

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
requirements and guidelines specified in applicable requirements.	
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.	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.	IAG-443, Appendix A, addresses limitations on chemicals that can be stored in 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: Compliance with this	LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of radioactive material.

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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: 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>	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.
(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.	NA; this facility is not an earthen-covered storage facility.
<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. <u>Disposal</u> . Transuranic waste shall be disposed in accordance with the requirements of 40 CFR Part 191, Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes.	NA; TRU waste is not disposed of at this facility.
Q. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual.	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	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

Table 1. (continued).

TRA-605 Radioactive Materials Storage Area	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>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>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: 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>HAD-277 §3.1 states that the hazards associated with radiological material are controlled and monitored by an inventory control program and by the INL Radiation Protection Program.</p> <p>SD-24.1.3, Appendix B provides the procedure for ensuring that stored waste limits are not exceeded and delegates this responsibility to the Radioactive Material Storage Area custodian.</p> <p>IAG-443 establishes WGS as the Radioactive Material Storage Area custodian. Appendix A, Article II outlines requirements for controlling radiological material inventories.</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 2. TRA-605 Radioactive Materials Storage Area DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-605 Radioactive Materials Storage Area	
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>	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>	NA. This facility does not manage mixed LLW.
<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>This facility may manage TSCA-regulated waste. Compliance with TSCA regulations is addressed by WGS in its waste management services role in MCP-17000 and 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>	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 this Manual.</p>	NA; this facility does not manage naturally occurring radioactive material.
<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>	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.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
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>LLW management is addressed in PDD-17000. Routine waste management activities are conducted in accordance with LI-435.</p> <p>This facility is a LTHC3 facility (HAD-277).</p> <p>SD-24.1.3 identifies administrative controls, a method of compliance, and the responsible organization so that the hazard classification is maintained.</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; LLW is not generated at this 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 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>(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</p>	<p>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>HAD-277 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method</p>

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3, Appendix B addresses the use of IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>MCP-17000 §4 specifies the use of IWTS, which tracks the waste inventory.</p>
(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)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the site-wide 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 or treat liquid waste in tanks.
(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard	NA; this facility does not store or treat liquid waste in tanks.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW 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>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>	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</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
management basis. 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.	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.
(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.	HAD-277 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1. SD-24.1.3, Appendix B provides the procedure for ensuring that stored waste limits are not exceeded and delegates this responsibility to the Radioactive Material Storage Area custodian. IAG-443 establishes WGS as the Radioactive Material Storage Area custodian. Appendix A, Article II outlines requirements for controlling radiological material inventories. The Radioactive Material Storage Area custodian manages LLW in accordance with MCP-17000.
(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	See (d) above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	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.
<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>	Exceptions to the radioactive material inventory limits are not permitted.
<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</p>	<p>SD-24.1.3, Appendix B addresses the use of the IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>Nonconforming waste is not permitted.</p>

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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. <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) 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.	NA; LLW is not generated at this facility.
(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; LLW is not generated at this facility.
(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	IAG-443 establishes WGS as the Radioactive Material Storage Area custodian. IAG-443, Appendix B establishes WGS' functional responsibilities for waste, which are to arrange for the removal and disposition of waste generated and

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	characterized by others. MCP-17000 addresses waste characterization. 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) 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.
(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.
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. From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the	MCP-17000 cites a waste certification program for LLW destined for the Nevada National Security Site (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

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	(§2). Container procurement is addressed in MCP-17000 §4.6. MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS. Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only. 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.
(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. 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.	See J. above. MCP-17500 §§2 and 5 address certification records for shipments to NNSS.
(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. 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.	See J. above. MCP-17500 §4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.
(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.	See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500. LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	radioactive material.
<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>Requirements controlling waste transfers into the facility are established in SD-24.1.3 and in IAG-443. 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>	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.
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.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
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.
(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.
<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>
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,	See M. above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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 subject to contamination with radioactive or other hazardous materials shall be designed to facilitate	See M. above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
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	IAG-443, Appendix A addresses limitations on

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>chemicals that can be stored in the facility.</p> <p>The NNSS waste acceptance criteria does not allow such waste (MCP-17500); therefore, this waste would not be 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 environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste.</p>	<p>MCP-17000 §4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year. Legacy remote-handled LLW is stored at this facility.</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> <p>Form 435.A01 documents compliance inspections.</p>

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
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:</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>LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of radioactive material.</p> <p>Form 435.A01 documents compliance inspections.</p>

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
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.	SD-24.1.3 and MCP-17000 §§4 and 5 address the use of IWTS and records.
(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. Form 435.A01 documents compliance inspections.
(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 mixed LLW.
(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 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. Staging longer than 90 days must be justified, the	NA; waste is not staged at this facility.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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.
<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</p>	See P. above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
a reasonable expectation that the 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 analyses shall use performance measures for chronic and acute exposure	See P. above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
(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 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
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.
(d) Operations are to be conducted so that active waste	See P. above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
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. 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 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	See Q. above.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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>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	NA; liquid waste is not stored at this facility.

Table 2. (continued).

Facility Name: TRA-605 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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; 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.

4.2 TRA-617 Radioactive Materials Storage Area

1. **Facility description:** The TRA-617 Radioactive Materials Storage Area is an outside storage area approximately 24 × 24 m. The area is part of a support building initially constructed during construction of ATR. The building structure has been removed and the concrete pad remains. The portion of the pad used for low-level radioactive material storage is cordoned off from the rest of the area in accordance with radiological control procedures. WGS is the Radioactive Materials Storage Area Custodian (IAG-443) for this facility.
2. **Hazard category:** LTHC3 (radiological)
3. **Radioactive waste managed at this facility:** Routine contact-handled LLW (solid) is stored at this facility. TSCA-regulated LLW may be stored at this facility.
4. **RWMB documents/programs:**
 - a) Safety basis/hazard analysis:
 - HAD-277, “Reactor Technology Complex Radioactive Materials Storage Areas (TRA-617 and the Fenced Area East of TRA-605)”
 - SD-24.1.3, “ATR Complex Facilities and Site Services Safety Basis Administrative Controls”
 - b) Laboratory-wide:
 - Form 435.A01, “Radioactive Waste Container Inspection Checklist”
 - 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”
- 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”
- PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
- PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”

c) Facility-specific:

- IAG-443, “Tenant Use Agreement Between Facility Management Services, Laboratory Support Complex at the Advanced Test Reactor Complex and Waste Generator Services/Energy Solutions in Materials Storage Areas TRA-617 And Fenced Area East of TRA-605.”

Table 3 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 3. TRA-617 Radioactive Materials Storage Area DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-617 Radioactive Materials Storage Area	
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>	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>	NA; this facility does not manage mixed LLW.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 may manage TSCA-regulated waste. Compliance with TSCA regulations is addressed by WGS in its waste management services role in MCP-17000 and MCP-17410.
(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 (HAD-277). SD-24.1.3 identifies administrative controls, a method of compliance, and the responsible organization so that the hazard classification is maintained.
(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; waste is not generated at this facility.
(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	NA; waste is not treated at this facility.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW 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 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 for waste acceptance and waste certification program requirements.</p> <p>HAD-277 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3, Appendix B addresses the use of IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>MCP-17000 §4 specifies the use of IWTS, which tracks the 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 site-wide 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</p>	<p>NA; this facility does not store or treat liquid waste in tanks.</p>

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>(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 waste in tanks.
<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>	See F. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW 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>HAD-277 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3, Appendix B provides the procedure for ensuring that stored waste limits are not exceeded and delegates this responsibility to the Radioactive Material Storage Area custodian.</p> <p>IAG-443 establishes WGS as the Radioactive Material Storage Area custodian. Appendix A, Article II outlines requirements for controlling radiological material inventories.</p> <p>The Radioactive Material Storage Area custodian manages LLW in accordance with MCP-17000.</p>
<p>(a) Allowable activities and/or concentrations of specific</p>	<p>See (1) above.</p>

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
radionuclides.	
(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. [<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.	Exceptions to the radioactive material inventory limits are not permitted.
From DOE G 435.1-1 Chapter IV: Waste acceptance	

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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>(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>SD-24.1.3, Appendix B addresses the use of IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>Nonconforming waste is not permitted.</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)].	Not a facility-specific requirement. 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: 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>	NA; LLW is not generated at this facility.
(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	NA; LLW is not generated at this facility.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
which, at a minimum, shall address:	
(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: 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>IAG-443 establishes WGS as the Radioactive Material Storage Area custodian.</p> <p>IAG-443, Appendix B, establishes WGS' functional responsibilities for waste, which are to arrange for the removal and disposition of waste generated and characterized by others.</p> <p>MCP-17000 addresses waste characterization.</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>	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>	<p>MCP-17000 §§4.2, 4.3, and 4.4 provide waste characterization requirements. Information on absorbent media is required in §§4.5 and 4.7.</p> <p>MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</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.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 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.
(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before	See J. above. MCP-17500 §4.3.6 addresses controls for certification before transfer for LLW to be

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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 and §5.1.7 addresses outdoor storage of radioactive material.</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>Requirements controlling waste transfers into the facility are established in SD-24.1.3 and in IAG-443. 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>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be</p>	<p>See K. above.</p>

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
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, Rev. 1, §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.	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	NA; this requirement addresses new radioactive waste

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
requirements are in addition to those in Chapter I of this Manual.	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 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-	See M. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to	See M. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
the extent practical, the need for active 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)].	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>	<p>IAG-443, Appendix A addresses limitations on chemicals that can be stored in the facility.</p> <p>The NNSS waste acceptance criteria does not allow such waste (MCP-17500); therefore, such waste would not be 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</p>	MCP-17000 §4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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 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</p>	<p>LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of radioactive material.</p> <p>Form 435.A01 documents compliance inspections.</p>

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
radioactive waste management basis for the activity, particular attention to protection of workers is needed. 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 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.	SD-24.1.3 and MCP-17000 §§4 and 5 address the use of IWTS and records.
(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. Form 435.A01 documents compliance inspections.
(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 mixed LLW.
(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 waste	NA; waste is not staged at this facility.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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.
<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.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 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	See P. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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	See P. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	
(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 disposal units shall be filled to the extent practical.	See P. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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. 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 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	See Q. above.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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>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	NA; liquid waste is not stored at this facility.

Table 3. (continued).

Facility Name: TRA-617 Radioactive Materials Storage Area	
Chapter IV, LLW Requirements	Facility Compliance Information
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; 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.

4.3 TRA-621, Nuclear Materials Inspection and Storage Facility

1. **Facility description:** The NMIS Facility, TRA-621, is a fuel storage and safeguards and security facility that consolidates the storage of special nuclear materials, consolidates the fuel inspection activities of quality assurance, and consolidates the nondestructive assay activities of Safeguards and Security. Facility activities include making and receiving shipments, inspecting nuclear material, records storage, surveillances, inventory, confirmatory measurements, storing material, and performing safeguards-related assays.
2. **Hazard category:** Hazard Category 2 Nuclear Facility
3. **Radioactive waste management activities at this facility:** No radioactive waste has been recently generated from this facility. There is a potential that examinations conducted in this facility could generate LLW; therefore, the facility is included as a LLW generator in Table 4. As a potential LLW generator, the standard possibilities to generate mixed LLW and TSCA-regulated LLW exist and the appropriate management procedures are identified.
4. **RWMB documents/programs:**
 - a) Safety basis/hazards analysis:
 - IAG-50, “INL Authorization Agreement for the Advanced Test Reactor (ATR) Complex Nuclear Materials Inspection and Storage (NMIS) Facility”
 - LST-119, “INL Safety Basis List for the Nuclear Material Inspection And Storage (NMIS) Facility”

- LST-213, “NMIS Nuclear Safety Basis Implementation Matrix”
 - SAR-154, “Safety Analysis Report for the Nuclear Materials Inspection And Storage (NMIS) Facility TRA-621”
- b) Laboratory-wide:
- LI-435, “Waste Management Routine Field Activities”
 - 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-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
- c) Facility-specific:
- None.

Table 4 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 4. TRA-621, Nuclear Materials Inspection and Storage Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-621, Nuclear Materials Inspection and Storage 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) <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>If generated, this facility would manage mixed LLW in SAA. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed in MCP-17000.</p>

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.	If generated, this facility would manage TSCA-regulated waste in accordance with MCP-17410 and 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.
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. LLW management is addressed in PDD-17000. Routine waste management activities are conducted in accordance with LI-435. SAR-154 establishes this facility as a Hazard Category 2 Nuclear facility.
(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.
(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	NA; this facility is not a radioactive waste treatment facility.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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:</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>	NA; this facility is not a radioactive waste storage facility.
<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 radioactive waste disposal facility.
<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>	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.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<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:</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 liquid LLW 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 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 liquid LLW 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:</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</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).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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:</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>	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:</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>	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:</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</p>	NA; this facility does not receive LLW for storage, treatment, or disposal; therefore, it is not subject to this requirement.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
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	NA; this facility does not accept waste from others

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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:</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>	<p>NA; this facility does not store, treat, or dispose of LLW.</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:</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 appropriate records justifying the newly generated low-level waste stream(s), and site personnel</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).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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><u>I. 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>Characterization is addressed in MCP-17000 §4.3.</p> <p>LLW currently is not being generated in this facility. In the case generation does occur, generator requirements to establish a new waste generating activity are addressed in LWP-8000, with generator responsibilities found in LWP-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:</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 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>

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW 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 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>	Characterization is addressed in MCP-17000 §4.3.
(a) Physical and chemical characteristics;	MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on physical and chemical characteristics is generally required.
(b) Volume, including the waste and any stabilization or absorbent media;	MCP-17000 §4.2 requires generator information on the volume of waste expected to be generated. Information on absorbent media is required in §§4.5 and 4.7.
(c) Weight of the container and contents;	MCP-17000 §4.7.8 requires weight information if waste from different generators is being consolidated into one container. This is not the case in TRA-621.
(d) Identities, activities, and concentrations of major radionuclides;	MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on major radionuclides is generally required.
(e) Characterization date;	MCP-17000 generally requires the date that a form is signed or an entry is made into a log or IWTS to be captured. The date that the characterization is performed is not explicitly required to be captured.
(f) Generating source; and	Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on the generating source is generally required.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	MCP-17000 does not specifically describe information needed to address disposal facility performance assessment and performance objectives.
<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 portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the</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-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>

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>(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>MCP-17500 §§2 and 5 identify which specific records of certification must be obtained and maintained.</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 transferred.</p>	<p>MCP-17500 §4.3.6 provides the controls for certification prior to transfer for LLW destined for disposition 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:</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-</p>	<p>MCP-17500 does not appear to address this requirement.</p>

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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>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>	WGS manages certification of waste generated at INL (MCP-17000 §1.1).
<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.
<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.
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)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<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 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>	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.
<p>(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.</p>	MCP-17000 §4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite 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	See M. above.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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 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.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.
(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:	NA; this facility does not store LLW. See N. (7) below for staging requirements.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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>(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 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</p>	See (1) above.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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>	See (1) above.
(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	See (1) above.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
requirements of this Chapter, to ensure safe storage, and to facilitate 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:</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 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:</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>	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>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	See (1) above.
<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</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>

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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:</p> <p>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 is not a LLW treatment facility.
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; this facility is not a LLW disposal 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	See P. above

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and	See P. above

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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	See P. above

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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	See P. above.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	See (1) below.
(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:	NA; this facility is not a LLW disposal facility.
(a) Be updated as required during the operational life of the facility.	See (1) 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 (1) above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See (1) 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.	NA; this facility is not a LLW disposal facility.
(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 (2) 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 (2) 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 (2) above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See (2) 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.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(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>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 is not a LLW storage 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; 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,	See (3) above.

Table 4. (continued).

Facility Name: TRA-621, Nuclear Materials Inspection and Storage Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	
(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 TRA-666, Safety and Tritium Applied Research Facility

1. **Facility description:** The STAR facility is a 4,000-ft² laboratory facility that supports fusion safety research involving tritium and molten salts and other research and development activities. Existing experimental systems include steam reactivity; molten salt safety; salt preparation and purification; ion implantation; thermal desorption spectroscopy; and Brunauer, Emmett, and Teller surface examination. Assembly of experiments for use in ATR or other activities for a multi-programmatic laboratory also are conducted in the facility.
2. **Hazard category:** LTHC3 (radiological)
3. **Radioactive waste management activities at this facility:** Contact-handled LLW and mixed LLW from routine operations are generated at this facility. The routine contact-handled LLW is accumulated for disposition by WGS. The mixed LLW is accumulated in a satellite accumulation area for disposition.
4. **RWMB documents/programs:**
 - a) Safety basis/hazards analysis:
 - HAD-179, “Safety and Tritium Applied Research Facility”
 - EDF-4037, “TRA-666 and TRA-666A STAR Facility, Radiological Control Program Requirements”
 - b) Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - 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:
 - None.

Table 5 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 5. TRA-666, Safety and Tritium Applied Research Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-666, STAR 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) <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 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>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>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</p>	<p>This facility does not manage naturally occurring radioactive material.</p>

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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 information in this table will be used in the development of the RWMB for this facility. HAD-179 establishes this facility as a LTHC3 radiological facility. EDF-4037 addresses the necessary radiological controls that are implemented by the ATR Complex Radiological Controls Organization and the R&D personnel associated with the STAR Facility.
(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.
(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.	NA; this facility is not a radioactive waste 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	NA; this facility is not a radioactive waste storage facility.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>	
(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 radioactive waste 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)].	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>(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; TRA-666 does not manage liquid LLW waste streams.
(2) Transfer Equipment. Pipelines and auxiliary facilities	See (1) above.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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>	See F. above.
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain,</p>	The approved RWMB establishes the current compliance status at each radioactive waste management

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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 any 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>
<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 water with waste. Void spaces within the waste and, if</p>	<p>See (d) above.</p>

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
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. [<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 receive LLW from others.
(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	NA; this facility does not receive LLW from others.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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)].	Not a facility-specific requirement. 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. <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.	MCP-17000 addresses waste characterization.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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>(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;	MCP-17000, including §§ 4.2, 4.3, and 4.4, addresses waste characterization. Information on physical and chemical characteristics is generally required.
(b) Volume, including the waste and any stabilization or absorbent media;	MCP-17000, §4.2 requires generator information on the volume of waste expected to be generated. Information on absorbent media is required in §§ 4.5 and 4.7.
(c) Weight of the container and contents;	MCP-17000, Rev. 1, §4.7.8 requires weight information if waste from different generators is being consolidated into one container. This is not the case in TRA-666.
(d) Identities, activities, and concentrations of major radionuclides;	MCP-17000, including §§ 4.2, 4.3, and 4.4, addresses waste characterization. Information on major radionuclides is generally required.
(e) Characterization date;	MCP-17000 generally requires the date that a form is signed or an entry is made into a log or IWTS to be captured. The date that characterization is performed is not explicitly required to be captured.
(f) Generating source; and	MCP-17000, including §§ 4.2, 4.3, and 4.4, addresses waste characterization. Information on the generating source is generally required.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance	MCP-17000 requires characterization, providing all necessary characterization information.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
assessment, or demonstrate compliance with applicable performance objectives.	
<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.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</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</p>	<p>See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.</p>

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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>(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. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.
<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>(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.
(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.	See K. above.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
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)].	Not a facility-specific requirement. 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 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 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.
M. <u>Site Evaluation and Facility Design</u> . The following	NA; this requirement addresses new radioactive waste

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
requirements are in addition to those in Chapter I of this Manual.	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 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	See M. above.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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.
(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.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.
<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; this facility does not store LLW. See N. (7) below for staging requirements.
<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>	See (1) above.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<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 exposure.</p>	See (1) above.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<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>	
(4) Waste Characterization for Storage.	—
(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.
(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, "Container Start Date and Storage Prohibitions," restricts staging LLW to 90 days maximum at any generator or treatment facility prior to

Table 5. (continued).

Facility Name: TRA-666, STAR 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>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>	NA; TRA-666 is not a LLW treatment facility.
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; TRA-666 is not a LLW disposal 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

Table 5. (continued).

Facility Name: TRA-666, STAR 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.
(g) For purposes of establishing limits on radionuclides	See P. above

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
that may be disposed of near-surface, the performance 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 5. (continued).

Facility Name: TRA-666, STAR Facility	
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 protect the public, workers, and the environment; ensure	See P. above

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	See (1) below.
(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:	NA; TRA-666 is not a LLW disposal facility.
(a) Be updated as required during the operational life of the facility.	See (1) 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 (1) above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See (1) above.

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.	NA; TRA-666 is not a LLW disposal facility.
(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 (2) 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 (2) 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 (2) above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See (2) 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</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>

Table 5. (continued).

Facility Name: TRA-666, STAR Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
management basis as a condition for operation and documented appropriately. 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.	
(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; TRA-666 is not a LLW storage 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; TRA-666 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.

4.5 TRA-670, Advanced Test Reactor

1. **Description:** The ATR and ancillary systems are housed in the ATR facility. ATR is designed for use in testing advanced nuclear fuel systems and materials. The reactor provides a high neutron flux (up to 1×10^{15} n/cm²/s thermal) environment for flux traps that may contain inpile tubes for high-pressure loops or other flux trap irradiation facilities.

In addition to the nine flux traps, space is provided in the neck shim housing and reflector for experiments of various sizes. ATR incorporates several design features unique in test reactor technology that improve experiment performance. These features include the use of flux trapping to provide high thermal neutron populations in the nine irradiation locations; incorporation of special

shim designs to minimize perturbations to the axial flux symmetry throughout a fuel cycle; and regional power measurement and control to shift power (within limits) in the core lobes, thereby optimizing neutron flux for particular experiments.

Included in the RWMB analysis for this facility is TRA-605, Effluent Processing Facility. The liquid effluent stream from ATR can be transferred from the ATR warm or hot waste tanks to process tanks in TRA-605 for conditioning pending transfer to the Evaporation Pond (TRA-715). The major components of TRA-605 include a WWTF identical to the ATR WWTF, a warm waste feed tank, a hot waste storage tank, and the ancillary equipment.

The ATR ancillary systems are housed in the following buildings:

- TRA-670, ATR Reactor Building (excluding ATR Critical Facility)
- TRA-671, ATR Cooling Tower Pumphouse
- TRA-609, Compressor Building Switchgear and Compressor Room
- TRA-674, Diesel Building
- TRA-608, Demineralizer Building
- TRA-619, Raw Water Pumphouse
- TRA-633, Firewater Pumphouse
- TRA-634, ATR Storage Facility
- TRA-605, Effluent Processing Facility
- TRA-688, Firewater Pumphouse.

Also included in the RWMB analysis for the TRA-670 facility is TRA-1005, ATR Storage Pad. The TRA-1005 storage pad is considered part of TRA-670 in the safety basis documentation.

2. **Hazard category:** Hazard Category 1 Nuclear Facility
3. **Radioactive waste management activities at this facility:** Contact-handled liquid LLW and mixed LLW is generated and staged at TRA-670. Remote-handled LLW is generated and stored. The mixed LLW is accumulated in an SAA for disposition.

At TRA-605, contact-handled liquid and solid LLW are generated and staged.

At the TRA-1005, remote-handled legacy TRU waste and remote-handled legacy LLW is stored. (Some incidental contact-handled LLW is being used to fill the container volume in a waste box of some of the remote-handled legacy LLW.)

4. **RWMB documents/programs:**

- a) Laboratory-wide:
 - SAR-153, “Upgraded Final Safety Analysis Report for the Advanced Test Reactor”
- 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”
 - 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:
- OMM-7.11.13.8.1, “TRA-605 Warm Waste Treatment Facility Operation”
 - OMM-7.11.13.8.2, “Sampling Warm Waste Treatment system Effluent”
 - OMM-7.11.13.8.4, “TRA-605 Effluent Radiation Monitor (ERM) Normal Operation”
 - OMM-7.11.13.8.9, “TRA-605 Effluent Radiation Monitor (ERM) System ATR Warm Waste Effluent Grab Sample”
 - SD-24.1.3, “ATR Complex Facilities And Site Services Safety Basis Administrative Controls.”

TRU waste and LLW are managed at this facility. Table 6 shows the facility compliance information for DOE Manual 435.1-1 Chapter III, “Transuranic Waste Requirements,” and Table 7 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 6. TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>A. Definition of Transuranic Waste. 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. 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: Compliance with</p>	See below.

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
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.	
(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.	NA; mixed TRU waste is not managed at this facility.
(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.
<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>	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: 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,</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>SAR-153 establishes the facility as a Hazard Category 1 nuclear facility and states that TRA-1005 was considered in this safety basis. SAR-153 §§ 1.1.2 and 11.5.3 indicate that TRA-1005 is part of the ATR facility.</p>

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>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.</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>	NA; waste is not generated at this facility.
<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>	NA; waste is not treated at this facility.
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p>	See G. and J. below for waste acceptance and waste certification program requirements.

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<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>Waste stored at this facility is tracked in IWTS. However, the waste is designated as ATR rather than TRA-1005.</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</p>	<p>NA; this facility does not store or treat liquid waste in tanks.</p>

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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.	
(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.	NA; this facility does not store or treat liquid waste in tanks.
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: 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: 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</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>

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
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shutdown) have been placed on activities and operations that do not have or are operating outside the conditions of an approved radio	
G. <u>Waste Acceptance</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(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: 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>SAR-153 establishes the facility as a Hazard Category 1 nuclear facility and states that TRA-1005 was considered in this safety basis. SAR-153 §§ 1.1.2 and 11.5.3 indicate that TRA-1005 is part of the ATR facility.</p> <p>The TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the DOE-EM contractor for management and disposition. Additional TRU waste is not planned to be received at this 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.	NA; this facility is a Hazard Category 1 nuclear facility. Therefore, radioactive material inventory limits are not tracked for this facility.
(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	This facility is a Hazard Category 1 nuclear facility. Therefore, radioactive material inventory limits are not tracked for this facility.

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>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>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>NA; TRU waste is not generated at this facility.</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</p>	<p>NA; TRU waste is not generated at this facility.</p>

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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.	
(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>	The waste acceptance criteria will be established by the DOE-EM contractor to which this waste is proposed to be transferred. Acceptable knowledge and characterization information will be provided to demonstrate compliance with these criteria.
<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>	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 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</p>	MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.

TRA-670, Advanced Test Reactor, and TRA-1005, Advanced Test Reactor Storage Pad	
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consistent with the minimum characterization data requirements.	
(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><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 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>NA; no certification program for this waste. The TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the DOE-EM contractor for management and disposition. Acceptable knowledge and characterization information will be provided to demonstrate compliance with the DOE-EM waste acceptance criteria for the receiving organization to enable transfer of ownership.</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,	See J. above.

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<p>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>	
<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>	See J. 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: 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</p>	<p>Waste transfer for TRU waste at this facility is limited to the one-time transfer of the legacy remote-handled TRU waste managed at this facility. A waste-specific agreement will be developed to transfer management responsibility to the DOE-EM contractor for this waste.</p>

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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>	The TRU waste at this facility is legacy remote-handled TRU waste that is being proposed for transfer to the DOE-EM contractor for management and disposition. Acceptable knowledge and characterization information will be provided to demonstrate compliance with the DOE-EM waste acceptance criteria for the receiving organization to enable transfer of ownership. These criteria would include requirements for packaging. The acceptable knowledge documentation is expected to indicate the waste is defense waste.
(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.

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(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.	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.
(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 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.

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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.
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.	A facility-specific procedure addressing this requirement was not identified.
2) Storage Integrity. Transuranic waste shall be stored in a location and manner that protects the integrity of	LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of

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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.	radioactive material.
(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. 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.	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.
(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.	NA; this facility is not an earthen-covered storage facility.
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. 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.	NA; TRU waste is not treated at this facility.
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> .	NA; TRU waste is not disposed of at this facility.
Q. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual.	See (1), (2), and (3) below.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include:	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to

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<p>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>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: 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>This facility is part of ATR and, as such, is considered under SAR-153.</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 7. TRA-670, Advanced Test Reactor, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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 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) 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. <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>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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>(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>SAR-153 establishes this facility as a Hazard Category 1 nuclear facility and states that TRA-1005 and TRA-605 were considered in this safety basis. SAR-153 §§1.1.2 and 11.5.3 indicate that TRA-1005 and TRA-605 are part of the ATR 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 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</p>	<p>For TRA-670, see G. and J. below for waste acceptance and waste certification program requirements.</p> <p>SAR-153 establishes this facility as a Hazard Category 1 nuclear facility and states that TRA-1005 and TRA-605 were considered in this safety basis. SAR-153 §§1.1.2 and 11.5.3 indicate that TRA-1005 and TRA-605 are part of the ATR facility.</p> <p>SD-24.1.3 identifies administrative controls, a method of compliance, and the responsible organization so that the</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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>hazard classification is maintained.</p> <p>For TRA-605, NA; this facility is not a radioactive waste storage facility.</p> <p>For TRA-1005, see G. and J. below for waste acceptance and waste certification program requirements.</p> <p>Waste stored at this facility is tracked in IWTS. However, the waste is designated as ATR rather than TRA-1005.</p> <p>MCP-17000 §4 specifies the use of IWTS that tracks the waste inventory.</p>
(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 radioactive waste 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)].	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>(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>For TRA-670, NA; TRA-670 does not manage liquid LLW.</p> <p>For TRA-605, NA; TRA-605 processes the liquid effluent stream from ATR. While the effluent is held in the TRA-605 process batching tanks, it is considered in process effluent and not waste. The point of generation for where the effluent stream becomes liquid waste is upon discharge from TRA-605 to the TRA-715 evaporation pond.</p> <p>For TRA-1005, NA; TRA-1005 does not manage 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.	See (1) above.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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>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>	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</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.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
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>	<p>For TRA-670, NA; this facility generates LLW but does not receive any radioactive waste from other sources.</p> <p>For TRA-605, NA; this facility generates LLW but does not receive any radioactive waste from other sources.</p> <p>For TRA-1005, SAR-153 establishes the facility as a Hazard Category 1 nuclear facility and states that TRA-1005 was considered in this safety basis. SAR-153 §§1.1.2 and 11.5.3 indicate that TRA-1005 is part of the ATR facility.</p> <p>WGS manages LLW in accordance with MCP-17000.</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:	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.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
<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 is a Hazard Category 1 nuclear facility. Therefore, radioactive material inventory limits are not tracked for this facility.
<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>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</p>	NA; this facility is a Hazard Category 1 nuclear facility. Therefore, radioactive material inventory limits are not tracked for this facility.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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)].	Not a facility-specific requirement. 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. <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	MCP-17000 addresses waste characterization. For the liquid LLW generated at TRA-605, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to the transfer of TRA-605 contents to TRA-715, Evaporation Ponds.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>OMM-7.11.13.8.2 provides the operational procedure for sample collection.</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 that documents characterization data in an IWTS profile.</p> <p>For the liquid LLW generated at TRA-605, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to the transfer of TRA-605 contents to TRA-715.</p> <p>OMM-7.11.13.8.2 provides the operational procedure for sample collection.</p> <p>OMM-7.11.13.8.4 provides sample collection via automated system operation.</p> <p>OMM-7.11.13.8.9 provides sample collection via grab sample.</p>
<p>(a) Physical and chemical characteristics;</p>	<p>MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on physical and chemical characteristics is generally required.</p> <p>For the liquid LLW generated at TRA-605, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to the transfer of TRA-605 contents to TRA-715.</p> <p>OMM-7.11.13.8.4 provides sample collection via automated system operation.</p> <p>OMM-7.11.13.8.9 provides sample collection via grab sample.</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
(b) Volume, including the waste and any stabilization or absorbent media;	<p>MCP-17000 §4.2 requires generator information on the volume of waste expected to be generated. Information on absorbent media is required in §§4.5 and 4.7.</p> <p>For the liquid LLW treated at TRA-605, OMM-7.11.13.8.2 §4.21 and §4.25 prescribe the volumes of liquid effluent samples to be collected for characterization.</p>
(c) Weight of the container and contents;	<p>MCP-17000 §4.7.8 requires weight information if waste from different generators is being consolidated into one container. This is not the case for these facilities.</p> <p>For liquid LLW treated at TRA-605, it is not a containerized waste stream; therefore, this requirement is NA.</p>
(d) Identities, activities, and concentrations of major radionuclides;	<p>MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on major radionuclides is generally required.</p> <p>For the liquid LLW treated at TRA-605, OMM-7.11.13.8.4 provides sample collection via automated system operation.</p> <p>OMM-7.11.13.8.9 provides sample collection via grab sample.</p>
(e) Characterization date;	<p>MCP-17000 generally requires the date that a form is signed or an entry is made into a log or IWTS to be captured. The date that the characterization is performed is not explicitly required to be captured.</p>
(f) Generating source; and	<p>MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on the generating source is generally required.</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>MCP-17000 requires characterization, providing all necessary characterization information.</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>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 cites a waste certification program for LLW destined for NNSS.</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</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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>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 waste</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 and §5.1.7 addresses outdoor storage of radioactive material.</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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>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>	Not a facility-specific requirement. 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)</p>	<p>MCP-17000 §4 addresses packaging requirements.</p> <p>For the liquid LLW treated at TRA-605, it is not a containerized waste stream; therefore, this requirement</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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.)	is NA.
(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.
<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 the waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel.</p> <p>For the liquid LLW treated at TRA-605, it is not a containerized waste stream; therefore, this requirement is NA.</p>
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,	See M. above.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
<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>For TRA-670, a facility-specific procedure addressing this requirement was not identified.</p> <p>For TRA-605, NA; this facility does not store LLW. See N. (7) below for staging requirements.</p> <p>For TRA-1005, a facility-specific procedure addressing this requirement was not identified.</p> <p>However, the NNSS waste acceptance criteria does not allow such waste (MCP-17500); therefore, such waste would not be 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</p>	<p>For TRA-605, NA; this facility does not store LLW. See N. (7) below for staging requirements.</p> <p>For TRA-1005, MCP-17000 §4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year. Legacy remote-handled LLW is stored at this facility.</p> <p>COMPLIANCE CONSIDERATION</p> <p>For TRA-670 and TRA-1005, BEA will include a justification for storage longer than 1 year in the RWMB because the waste is remote-handled legacy LLW.</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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 developing a</p>	<p>For TRA-670, LWP-15011 §5 provides general radioactive storage area requirements.</p> <p>For TRA-605, NA, this facility does not store LLW. See N. (7) below for staging requirements.</p> <p>For TRA-670, LWP-15011 §5 provides general</p>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
radioactive waste management basis for the activity, particular attention to protection of workers is needed. 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.	radioactive storage area requirements and §5.1.7 addresses outdoor storage of radioactive material.
(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.	For TRA-670, this facility does not store LLW that does not have an identified path to disposal. For TRA-605, NA; this facility does not store LLW. See N. (7) below for staging requirements. For TRA-1005, 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.	For TRA-670, NA; MCP-17000 §§4 and 5 address the use of IWTS and records. For TRA-605, NA; this facility does not store LLW. See N. (7) below for staging requirements. For TRA-1005, MCP-17000 §§4 and 5 address the use of IWTS and records.
(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.	For TRA-670, this facility does not store mixed LLW. For TRA-605, NA; this facility does not store LLW. See N. (7) below for staging requirements. For TRA-1005, NA; this facility does not store mixed LLW.
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste	Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000,

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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; TRA-670 is not a LLW treatment facility.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; TRA-670 is not a LLW disposal 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>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
(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
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
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	See P. above

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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	See P. above

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	See (1) below.
(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:	NA; TRA-670 is not a LLW disposal facility.
(a) Be updated as required during the operational life of the facility.	See (1) above.

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 (1) above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See (1) 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.	NA; TRA-670 is not a LLW disposal facility.
(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 (2) 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 (2) 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 (2) above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See (2) 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</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>

Table 7. (continued).

Facility Name: TRA-670, ATR Reactor Facility (includes TRA-605, Warm Waste Treatment Facility, and TRA-1005, Advanced Test Reactor Storage Pad)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>	
(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; TRA-670 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; TRA-670 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.

4.6 TRA-678, Radiation Measurements Laboratory

1. **Description:** TRA-678, Radiation Measurements Laboratory, houses the ATR gamma-ray spectroscopy capabilities, which include a radiation measurement area; one tritium analysis and sample preparation area; four-channel counting equipment, sample receiving, and storage; field radiography photo development; two iron rooms; a radiological control office; and an instrument laboratory. The samples submitted for analysis encompass a wide range of support for programs within ATR and INL as a whole.
2. **Hazard category:** LTHC3 (radiological)
3. **Radioactive waste management activities at this facility:** LLW and mixed LLW from routine laboratory operations are generated and staged at this facility. TSCA-regulated LLW may be generated and staged at this facility.
4. **RWMB documents/programs:**
 - a) Safety basis/hazard analysis:
 - ECAR-484, “Hazard Categorization Document for the New Radiation Measurement Laboratory (TRA-678) at the ATR Complex”
 - b) Laboratory-wide:
 - LI-435, “Waste Management Routine Field Activities”
 - 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-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”
 - c) Facility-specific:
 - ACLP-10.10, “RTC Radioanalytical Sample Management.”

Table 8 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 8. TRA-678, Radiation Measurements Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
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>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</p>

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
	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 (1), (2), (3), and (4) 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 manages mixed LLW in SAAs. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed 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 may manage TSCA-regulated waste. Such waste would be managed in accordance with MCP-17410 and 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.
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. ECAR-484 establishes this facility as a LTHC3 (radiological) facility.
(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	See J. below for waste certification program requirements.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</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>	NA; this facility is not a radioactive waste treatment facility.
<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</p>	NA; this facility is not a radioactive waste storage facility.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
disposal facility.	
(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 radioactive waste 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)].	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>(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:</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>	NA; this facility does not store liquid LLW in tanks.
<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>	NA; this facility does not store liquid LLW in tanks.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW 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>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, 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:</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>	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:</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>	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	Not a facility-specific requirement. DOE Manual

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	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:</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 result in acceptable waste at subsequent steps in managing the low-level waste.)</p>	NA; TRA-678 does not receive LLW for storage, treatment, or disposal; therefore, it is not subject to this requirement.
(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 8. (continued).

Facility Name: TRA-678, Radiation Measurements 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:</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>	NA; this facility does not accept waste from others.
<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>	NA; this facility does not store, treat, or dispose of LLW.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
<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 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>	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.
<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>	Management of SAAs is addressed in MCP-17410 and characterization is addressed in MCP-17000 §4.3.

Table 8. (continued).

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<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 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:</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>ACLP-10.10 specifies methods for labeling, logging, and storing samples at this facility. NOTE: Although this procedure is the one by which characterization data is currently managed, it was written when the analyses were conducted in multiple facilities and therefore requires revision to reflect these activities as only being conducted in TRA-678.</p> <p>Management of SAAs is addressed in MCP-17410 and characterization is addressed in MCP-17000 §4.3.</p>
(a) Physical and chemical characteristics;	MCP-17000, including §§4.2, 4.3, and 4.4, address waste characterization. Information on physical and chemical characteristics is generally required.
(b) Volume, including the waste and any stabilization or absorbent media;	MCP-17000 §4.2 requires generator information on the volume of waste expected to be generated. Information on absorbent media is required in §§4.5 and 4.7.
(c) Weight of the container and contents;	MCP-17000 §4.7.8 requires weight information if waste from different generators is being consolidated into one container. This is not the case in this facility.
(d) Identities, activities, and concentrations of major radionuclides;	MCP-17000, Rev. 1, including §§4.2, 4.3, 4.4, address waste characterization. Information on major radionuclides is generally required.
(e) Characterization date;	MCP-17000 generally requires the date that a form is signed or an entry is made into a log or IWTS be captured. The date that the characterization is performed is not explicitly required to be captured.
(f) Generating source; and	Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on the generating source is generally required.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance	MCP-17000 does not specifically describe information needed to address disposal facility performance assessment and performance objectives.

Table 8. (continued).

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objectives.	
<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 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. A waste certification program for other storage, treatment, or disposal facilities is not addressed.</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>
<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>MCP-17500 §§2 and 5 identify which specific records of certification must be obtained and maintained.</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</p>	<p>MCP-17500 §4.3.6 provides the controls for certification prior to transfer for LLW destined for disposition at NNSS.</p>

Table 8. (continued).

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the release of waste for transfer, and by dated records showing that waste was certified before being 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>	MCP-17500 does not appear to address this requirement.
<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>	WGS manages certification of waste generated at INL (MCP-17000 §1.1).
<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.
<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</p>	See K. above.

Table 8. (continued).

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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)].	Not a facility-specific requirement. 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.	MCP-17000 §4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite 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	See M. above.

Table 8. (continued).

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should be avoided or must be considered in facility design and analyses.	
(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 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 8. (continued).

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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 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) 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	NA; this facility does not store LLW. See N. (7) below for staging requirements.

Table 8. (continued).

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<p>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>(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 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</p>	See (1) above.

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<p>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>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>	See (1) above.

Table 8. (continued).

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(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-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. 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	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. 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.

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management basis for the facility. 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.	
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. 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.	NA; this facility is not a LLW treatment facility.
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; this facility is not a LLW disposal 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	See P. above

Table 8. (continued).

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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 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 8. (continued).

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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 assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above

Table 8. (continued).

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(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.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.	See (1) below.
(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:	NA; this facility is not a LLW disposal facility.
(a) Be updated as required during the operational life of the facility.	See (1) 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 (1) above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See (1) 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.	NA; this facility is not a LLW disposal facility.
(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 (2) 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 (2) 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 (2) above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See (2) above.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
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:</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 is not a LLW storage 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; this facility is not a LLW disposal facility.

Table 8. (continued).

Facility Name: TRA-678, Radiation Measurements 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.

4.7 TRA-715, Evaporation Ponds

1. **Description:** TRA-715, Evaporation Ponds, is a fenced 5-acre lined pond located approximately 1,500 ft east of the ATR Complex. The pond receives and treats the liquid effluent stream resulting primarily from TRA-670 operations. These waste streams result from canal waste water, primary coolant leakage, and activities associated with the ATR power monitoring (N-16) system. The N-16 waste stream is treated by the ATR WWTF system, but this system does not remove tritium. The waste from the ATR WWTF containing tritium and activation and fission products can be sent to TRA-605, or if below the volatile and nonvolatile release limits established by the State of Idaho, released to TRA-715.

The pond is divided into two compartments and each compartment measures 550 ft by 225 ft and is 10 ft deep. The combined volume of both compartments is approximately 17 million gallons. The compartments of the evaporation pond are double lined. Evaporation pond leak detection is by perforated pipes buried between the two liners of the pond that drain into two manholes located in the center of the berm that runs between the two compartments. Effluent management within the pond is performed by opening and closing manually operated liquid effluent isolation valves. The evaporation pond is operated under a Permit to Construct issued by the State of Idaho.

2. **Hazard category:** Hazard Category 1 Nuclear Facility
3. **Radioactive waste management activities at this facility:** LLW from routine operations is generated at this facility. Liquid LLW is treated at this facility.
4. **RWMB documents/programs:**
 - a) Safety basis/hazard analysis:
 - SAR-153, “Upgraded Final Safety Analysis Report for the Advanced Test Reactor”
 - b) Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LWP-13840, “Management of Issues”
 - 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”
 - c) Facility-specific:
 - OMM-7.6.13.1.12, “Warm Waste Treatment System Operation”
 - OMM-7.11.13.1.3, “Evaporation Pond Sampling and Monitoring”
 - OMM-7.11.13.8.1, “TRA-605 Warm Waste Treatment Facility Operation”
 - OMM-7.11.13.8.2, “Sampling Warm Waste Treatment system Effluent”
 - OMM-7.11.13.8.4, “TRA-605 Effluent Radiation Monitor (ERM) Normal Operation”
 - OMM-7.11.13.8.9, “TRA-605 Effluent Radiation Monitor (ERM) System ATR Warm Waste Effluent Grab Sample”

- Permit No. 023-00001, “State of Idaho Permit to Construct an Air Pollution Emitting Source”
- SP-10.6.5.8, “RTC Non-Containerized Wastewater Management and Control”
- SP-10.6.5.10, “RTC Ponds Wastewater Acceptance Criteria”

Table 9 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 9. TRA-715, Evaporation Ponds, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: TRA-715, Evaporation Ponds	
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) <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>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 waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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. SAR-153 provides the safety basis coverage for this facility as an ancillary system to ATR, which is classified as a Hazard Category 1 nuclear facility.
(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.
(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 G. (1) below for waste acceptance requirements.
(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	NA; this facility is not a radioactive waste storage facility.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>	
(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 radioactive waste 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)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the site-wide 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>	<p>Documentation of a facility-specific contingency plan or procedure for transfer of the liquid waste disposed of in the evaporation pond to contingency storage in the event of facility upset or an off-normal event was not identified.</p> <p>SAR-153 § 11.3.2.5 provides description of TRA-715. The pond is divided into two compartments and each compartment measures 550 ft by 225 ft and is 10 ft deep. The combined volume of both compartments is approximately 17 million gallons.</p> <p>OMM-7.11.13.8.1 provides operational procedures directing transfers to/from the WWTF to either the west side evaporation pond or the east side evaporation pond.</p> <p>OMM-7.6.13.1.12 provides operational procedures directing transfers to/from the west side evaporation pond or the east side evaporation pond and prescribes training requirements.</p> <p>Records regarding staff training to these procedures and maintenance of the transfer capability being kept in operating condition were not identified.</p>
(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard	OMM-7.11.13.8.1 provides operational procedures directing transfers to/from the WWTF to either the west

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW 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>side evaporation pond or the east side evaporation pond.</p> <p>OMM-7.6.13.1.12 provides operational procedures directing transfers to/from the west side evaporation pond or the east side evaporation pond and prescribes training requirements.</p> <p>Records regarding staff training to these procedures and maintenance of the transfer capability being kept in operating condition were not identified.</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>A facility-specific procedure that addresses LLW was not identified.</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</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
management basis. 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.	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.
(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.)	Permit No. 023-00001 prescribes the liquid effluent concentration limits for TRA-715. OMM-OMM-7.11.13.8.1 § 3.6 and Appendix A provide the acceptance criteria and liquid effluent concentration limits to be met prior to the transfer of TRA-605 contents to TRA-715. SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.
(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	NA; this requirement is not applicable to liquid effluent evaporation ponds.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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 requirement is perceived as not applicable to liquid effluent evaporation ponds.
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.	NA; this requirement is perceived as not applicable to liquid effluent evaporation ponds.
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>]	NA; this requirement is perceived as not applicable to liquid effluent evaporation ponds.
(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; exception from the waste acceptance requirements for this facility has not been pursued.
(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	OMM-7.11.13.8.1 § 3.6 and Appendix A provide the acceptance criteria and liquid effluent concentration limits to be met prior to transfer of TRA-605 contents to TRA-715. SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715. SP-10.6.5.8 addresses review and approval of wastewater discharges made to the ATR Complex pond systems. OMM-7.11.13.8.2 provides the operational procedure for sample collection. OMM-7.11.13.8.4 provides sampling of the liquid LLW effluent stream from TRA-605 WWTF prior to

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	discharge to TRA-715 via the ERM automated system.
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) 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. <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	Regarding the liquid low level waste received, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to transfer of TRA-605 contents to TRA-715. OMM-7.11.13.8.2 provides the operational procedure for sample collection. OMM-7.11.13.8.4 provides sampling of the liquid LLW

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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>effluent stream from TRA-605 WWTF prior to discharge to TRA-715 via the ERM automated system.</p> <p>SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>SP-10.6.5.8 addresses review and approval of wastewater discharges made to ATR Complex pond systems.</p> <p>Facility-specific procedures addressing management of records regarding the TRA-715 liquid effluents were not identified.</p> <p>Regarding routine solid LLW streams generated subsequent to TRA-715 operations, MCP-17000 addresses waste characterization. Appendix A shows a process flow diagram that includes waste characterization.</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 received, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to transfer of TRA-605 contents to the TRA-715.</p> <p>SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>SP-10.6.5.8 addresses review and approval of wastewater discharges made to the ATR Complex pond systems.</p> <p>OMM-7.11.13.8.2 provides the operational procedure for sample collection.</p> <p>OMM-7.11.13.8.4 provides sampling of the liquid LLW effluent stream from TRA-605 WWTF prior to discharge to TRA-715 via the ERM automated system.</p> <p>Facility-specific procedures addressing management of records regarding the TRA-715 WWTF liquid effluents were not identified.</p> <p>Regarding the routine solid LLW streams generated subsequent to TRA-715 operations, MCP-17000 addresses waste characterization. Appendix A shows a</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
	process flow diagram that includes waste characterization.
(a) Physical and chemical characteristics;	<p>Regarding the liquid LLW received, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to transfer of TRA-605 contents to the TRA-715.</p> <p>SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>SP-10.6.5.8 addresses review and approval of wastewater discharges made to the ATR Complex pond systems.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on physical and chemical characteristics is generally required.</p>
(b) Volume, including the waste and any stabilization or absorbent media;	<p>Regarding the liquid LLW received, OMM-7.11.13.8.2 §4.21 and §4.25 prescribe the volumes of liquid effluent samples to be collected for characterization.</p> <p>SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>SP-10.6.5.8 addresses review and approval of wastewater discharges made to the ATR Complex pond systems.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000 §4.2 requires generator information on the volume of waste expected to be generated. Information on absorbent media is required in §§4.5 and 4.7.</p>
(c) Weight of the container and contents;	<p>Regarding the liquid LLW received: The liquid LLW is not a containerized waste stream; therefore, this requirement is NA.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000 §4.7.8 requires weight information if waste from different generators is being consolidated into one container. This is not the case in TRA-715.</p>
(d) Identities, activities, and concentrations of major radionuclides;	<p>Regarding the liquid LLW received, OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to transfer of TRA-605 contents to TRA-715.</p> <p>SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>SP-10.6.5.8 addresses review and approval of wastewater discharges made to the ATR Complex pond</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
	<p>systems.</p> <p>Facility-specific procedures addressing the proper labeling or recording of sample data were not identified.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on major radionuclides is generally required.</p>
(e) Characterization date;	<p>Regarding the liquid LLW received, it is not a containerized waste stream; therefore, this requirement is NA.</p> <p>Facility-specific procedures addressing the proper labeling or recording of sample data were identified.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000 generally requires the date that a form is signed or an entry is made into a log or IWTS be captured. The date that the characterization is performed is not explicitly required to be captured.</p>
(f) Generating source; and	<p>Regarding the liquid LLW received, SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000, including §§4.2, 4.3, and 4.4, addresses waste characterization. Information on the generating source is generally required.</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>Regarding the liquid LLW received, SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>Facility-specific procedures addressing the proper labeling or recording of sample data were identified.</p> <p>Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000 does not specifically describe information needed to address disposal facility performance assessment and performance objectives.</p>
<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</p>	<p>OMM-7.11.13.8.1 § 3.6 and Appendix A provide the guidelines and liquid effluent concentration limits to be met prior to transfer of TRA-605 contents to TRA-715.</p> <p>SP-10.6.5.10 provides the waste acceptance criteria for liquid effluents being discharged to TRA-715.</p> <p>SP-10.6.5.8 addresses review and approval of wastewater discharges made to the ATR Complex pond systems.</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>OMM-7.11.13.8.2 provides the operational procedure for sample collection for analysis to ensure the effluent concentration limits are met prior to transfer of TRA-605 contents to TRA-715.</p> <p>OMM-7.11.13.8.4 provides sample collection via automated system operation.</p> <p>OMM-7.11.13.8.9 provides sample collection via grab sample.</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-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> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</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>Regarding the liquid LLW received, see J. above.</p> <p>MCP-17500 §§2 and 5 identify which specific records of certification must be obtained and maintained</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</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>Regarding the liquid LLW received, see (J) above.</p> <p>Regarding the solid LLW stream generated subsequent to operations, MCP-17500 §4.3.6 provides the controls for certification prior to transfer for LLW destined for disposition at NNSS.</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
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>Regarding the liquid LLW received, see (J) above.</p> <p>Regarding the solid LLW stream generated subsequent to operations, MCP-17500 does not appear to address this requirement.</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>SP-10.6.5.8 provides the wastewater approval process used to identify, review, and approve proposed wastewater discharges to TRA-715.</p> <p>SP-10.6.5.10 provides the roles and responsibilities for WMA review and approval of effluent streams being discharged to TRA-715.</p> <p>Regarding the solid LLW stream generated subsequent to operations, a facility-specific procedure for transferring the waste was not identified.</p> <p>MCP-17000 §4.8.15 specifies requirements for interfacility transfers.</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>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
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)].	Not a facility-specific requirement. 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.)	Regarding the liquid LLW received, it is not a containerized waste stream; therefore, this requirement is NA. Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000 § 4.7 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.	Regarding the liquid LLW received, it is not a containerized waste stream; therefore, this requirement is NA.
(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.	Regarding the liquid LLW received, it is not a containerized waste stream; therefore, this requirement is NA. Regarding the routine solid LLW streams generated subsequent to operations, MCP-17000 § 4.9 addresses transportation requirements.
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.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.
(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 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
<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>	NA; this facility is not a LLW storage facility.
<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 heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in</p>	NA; this facility is not a LLW storage facility.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
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>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if sites have storage</p>	<p>NA; this facility is not a LLW storage facility.</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	—
(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 is not a LLW storage facility.
(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.	NA; this facility is not a LLW storage facility.
(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.	NA; this facility is not a LLW storage facility.
(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 is not a LLW storage 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 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	NA; this facility is not a LLW staging facility.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>	<p>NA; Although TRA-715 treats the liquid LLW effluents from TRA-605, this waste is not transferred to a separate disposal facility for disposition. Therefore, there are no “additional disposal facility-specific waste acceptance requirements” for a receiving facility.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; this facility is not a LLW disposal 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</p>	<p>See P. above.</p>

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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	See P. above

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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	See P. above

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	
(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

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.	See (1) below.
(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:	NA; this facility is not a LLW disposal facility.
(a) Be updated as required during the operational life of the facility.	See (1) 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 (1) above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See (1) 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.	NA; this facility is not a LLW disposal facility.
(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 (2) above.

Table 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
Chapter IV, LLW 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 (2) 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 (2) above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See (2) 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>OMM-7.11.13.1.3 provides instructions for sampling and monitoring the evaporation ponds in accordance with this permit and other RP documentation. Instructions are covered in this procedure for collecting daily proportional samples, taking pond water level measurements, measuring contamination, and calculating, recording, and reporting the results. This procedure is used on a daily, weekly, monthly, and quarterly basis to perform the monitoring activities required to ensure compliance with the State of Idaho Permit to Construct.</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 9. (continued).

Facility Name: TRA-715, Evaporation Ponds	
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 is not a LLW storage 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; 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.

4.8 TRA-780 (includes TRA-681, 682, 683, and 684), Resource Conservation and Recovery Act 90-Day Storage Area

1. **Facility description:** TRA-780 comprises six modular, single-story, steel storage buildings (i.e., TRA-681, 682, 683, 684, 685, 686). The storage buildings are on a concrete pad approximately 44-ft × 54-ft × 6-in. thick. The buildings are bolted to the concrete pad at the corners. The interior dimensions are approximately 6 ft × 10 ft 7 in. with a height of approximately 7 ft ¾ in. Radioactive waste is managed in TRA-681, 682, 683, and 684. Building TRA-685 is used to store non-waste equipment and TRA-686 is for non-combustible waste only. WGS is the custodian for this facility.
2. **Hazard category:** LTHC3 (radiological)
3. **Radioactive waste managed at this facility:** Routine contact-handled LLW (solid), contact-handled LLW (liquid), mixed LLW, and TSCA-regulated LLW is stored at this facility.
4. **RWMB documents/programs:**
 - a) Safety basis/hazard analysis:
 - HAD-310, “Reactor Technology Complex TRA-780 RCRA 90-Day Storage Area”
 - SD-24.1.3, “ATR Complex Facilities and Site Services Safety Basis Administrative Controls”

b) Laboratory-wide:

- Form 435.A01, “Radioactive Waste Container Inspection Checklist”
- Form 441.A34, “INL Radiological Control Required Surveys”
- Form 450.02, “Waste Management Unit Registration Form”
- Form 450.33, “Temporary Accumulation Area Registration Form”
- 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:

- IAG-451, “Tenant Use Agreement Between Facility Management Services, Laboratory Support Complex at the Advanced Test Reactor Complex and Waste Generator Services/Energy Solutions in Temporary Waste Management Area Buildings TRA-681, 682, 683, 684, 685, 686 and TRA-780”
- PLN-114-5, “INL Emergency Plan/RCRA Contingency Plan Advanced Test Reactor Complex Appendix L6 TAA TRA-STR-780-1.”

Table 10 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 10. TRA-780, Resource Conservation and Recovery Act 90-Day Storage Area, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
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 U.S Department of Energy 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>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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 (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.	Mixed 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. 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.	TSCA-regulated waste is managed at this facility. 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.
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:	<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 (HAD-310).</p> <p>SD-24.1.3 identifies administrative controls, a method of compliance, and the responsible organization so that the hazard classification is maintained.</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	NA; waste is not generated at this facility.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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>(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).</p> <p>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 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).</p> <p>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</p>	<p>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>HAD-310 establishes the facility as a LTHC3 facility and requires the facility manager to implement a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3 Appendix B addresses the use of IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>MCP-17000 §4 specifies the use of IWTS that tracks the waste inventory.</p>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
tracking the waste inventory at a storage, treatment, or disposal facility.	
(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)].	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>(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>	NA; this facility does not store or treat liquid waste in tanks.
<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 waste in tanks.
F. <u>Corrective Actions</u> . I of this Manual. The following	The INL-wide procedure addressing problem

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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>	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>	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<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>HAD-310 establishes the facility as a LTHC3 facility and requires a method of tracking and controlling the radioactive material inventory so that the sum-of-the-ratios does not exceed 1.</p> <p>SD-24.1.3, Appendix A provides the procedure for ensuring that stored waste limits are not exceeded and delegates this responsibility to the storage area custodian.</p> <p>IAG-451 establishes WGS as the custodian. Appendix A, Article II, outlines requirements for controlling radiological material inventories.</p> <p>The storage area custodian manages LLW in accordance with MCP-17000. Temporary accumulation areas and management of polychlorinated biphenyl waste are managed under MCP-17410. Requirements for registering the storage areas include listing the emergency plan Appendix L information. Forms 450.02 and 450.33 are used to register storage areas.</p> <p>PLN-114-5 documents the waste type and forms that are to be stored in the area.</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:	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 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
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>	Exceptions to the radioactive material inventory limits are not permitted. IAG-451 states that in no case will storage of radioactive material exceed the LTHC3 threshold.
<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>SD-24.1.3, Appendix A addresses the use of IWTS to track the radionuclide quantity limits and the establishment of an alarm/warning limit in IWTS.</p> <p>Acceptance is based on the waste meeting the parameters of PLN-114-5 and the LTHC3 limit.</p> <p>MCP-17410 addresses the acceptance of unknown waste.</p>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.
<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>	NA; LLW is not generated at this facility.
(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; LLW is not generated at this facility.
(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: 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>IAG-451 establishes WGS as the custodian.</p> <p>IAG-451, Appendix B, establishes WGS' functional responsibilities for waste, which are to arrange for the removal of regulated waste and to provide information and funding, as needed, to complete disposition of special or unique waste.</p> <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	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	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.
(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.
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. 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	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). Container procurement is addressed in MCP-17000 §4.6. MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS. Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only. PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	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>(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, 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 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 and §5.1.7 addresses outdoor storage of radioactive material.</p>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<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>Requirements controlling waste transfers into the facility are established in SD-24.1.3 and in IAG-451.</p> <p>MCP-17000 §4.8.15 specifies requirements for interfacility transfers. 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) 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</p>	<p>MCP-17000 §4 addresses packaging requirements. MCP-17410 §§4.3.2 and 4.3.3 address waste packaging and labeling for temporary accumulation areas in general.</p>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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 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	See M. above.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
in the zone of water table fluctuation; and	
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.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and	IAG-451, Appendix A, addresses limitations on chemicals that can be stored in the facility. The NNSS waste acceptance criteria does not allow such

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>waste (MCP-17500); therefore, such waste would not be stored at this facility.</p> <p>Mixed waste that could be reactive may be stored at the facility in accordance with RCRA 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 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</p>	<p>MCP-17000 §4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year. Appendix F, "Container Start Date and Storage Prohibitions," addresses storage time limits.</p>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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>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>LWP-15011 §5 provides general radioactive storage area requirements and §5.1.7 addresses outdoor storage of radioactive material.</p>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
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.	SD-24.1.3 and MCP-17000 §§4 and 5 address the use of IWTS and records.
(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.	MCP-17000 requires containers to have a unique IWTS barcode that results in the segregation of the waste by container.
(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 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.	NA; waste is not staged at this facility.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<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><u>O. 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>	Treatment is not performed in this facility.
<p><u>P. Disposal.</u> Low-level waste disposal facilities shall meet the following requirements.</p>	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.
<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</p>	See P. above.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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.	
(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	See P. above.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>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.</p>	
<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.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 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.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
(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.	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.

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
(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 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>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>

Table 10. (continued).

TRA-780, RCRA 90-Day Storage Area (Radioactive Waste is Managed in the TRA-681, 682, 683, and 684 Storage Buildings)	
Chapter IV, LLW Requirements	Facility Compliance Information
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>(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>From DOE G 435.1-1 Chapter IV: The objective of this requirement is to mandate regular observation of parameters that indicate the quantity of liquid low-level waste stored in tanks.</p>	NA; liquid waste is not stored at this facility in tanks.
(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.

5. REFERENCES

- ACLP-10.10, "RTC Radioanalytical Sample Management," Idaho National Laboratory.
- DOE Guide 435.1-1, "Implementation Guide for Use with DOE M 435.1-1," U.S. Department of Energy, July 1999.
- DOE Manual 435.1-1, "Radioactive Waste Management Manual," U.S. Department of Energy, July 1999.
- DOE Order 435.1, "Radioactive Waste Management," U.S. Department of Energy, July 1999.
- ECAR-484, "Hazard Categorization Document for the New Radiation Measurement Laboratory (TRA-678) at the ATR Complex," Idaho National Laboratory.
- EDF-4037, "TRA-666 and TRA-666A STAR Facility, Radiological Control Program Requirements," Idaho National Laboratory.
- Form 435.A01, "Radioactive Waste Container Inspection Checklist," Idaho National Laboratory.
- Form 435.39, "Waste Determination and Disposition Form (WDDF)," Idaho National Laboratory.
- Form 435.42, "Radioactive Waste Inventory Sheet," Idaho National Laboratory.
- Form 441.A34, "INL Radiological Control Required Surveys," Idaho National Laboratory.
- Form 450.02, "Waste Management Unit Registration Form," Idaho National Laboratory.
- Form 450.33, "Temporary Accumulation Area Registration Form," Idaho National Laboratory.
- HAD-179, "Safety and Tritium Applied Research Facility," Idaho National Laboratory.
- HAD-277, "Reactor Technology Complex Radioactive Materials Storage Areas (TRA-617 and the Fenced Area East of TRA-605)," Idaho National Laboratory.
- HAD-310, "Reactor Technology Complex TRA-780 RCRA 90-Day Storage Area," Idaho National Laboratory.
- IAG-50, "INL Authorization Agreement for the Advanced Test Reactor (ATR) Complex Nuclear Materials Inspection and Storage (NMIS) Facility," Idaho National Laboratory.
- IAG-443, "Tenant Use Agreement Between Facility Management Services, Laboratory Support Complex at the Advanced Test Reactor Complex and Waste Generator Services/Energy Solutions in Materials Storage Areas TRA-617 And Fenced Area East of TRA-605," Idaho National Laboratory.
- IAG-451, "Tenant Use Agreement Between Facility Management Services, Laboratory Support Complex at the Advanced Test Reactor Complex and Waste Generator Services/Energy Solutions in Temporary Waste Management Area Buildings TRA-681, 682, 683, 684, 685, 686 and TRA-780," Idaho National Laboratory.
- INL, 2010, *Excess Legacy Materials Inventory Report for the Idaho National Laboratory*, Idaho National Laboratory.
- LI-435, "Waste Management Routine Field Activities," Idaho National Laboratory.
- LRD-15001, "Radiological Control Manual," Idaho National Laboratory.
- LST-119, "INL Safety Basis List for the Nuclear Material Inspection And Storage (NMIS) Facility," Idaho National Laboratory.
- LST-213, "NMIS Nuclear Safety Basis Implementation Matrix," Idaho National Laboratory.
- LWP-8000, "Environmental Instructions for Facilities, Processes, Materials and Equipment," Idaho National Laboratory.

LWP-13840, "Management of Issues, Observations, and Noteworthy Practices," Idaho National Laboratory.

LWP-14002, "Timeout and Stop Work Authority," Idaho National Laboratory.

LWP-15011, "Radioactive Material Areas and Radioactive Storage Areas," Idaho National Laboratory.

LWP-17000, "Waste Management," Idaho National Laboratory.

MCP-139, "Radiological Surveys," Idaho National Laboratory.

MCP-17000, "Waste Generator Services Waste Management," Idaho National Laboratory.

MCP-17410, "Management of Waste Storage Areas," Idaho National Laboratory.

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

OMM-7.6.13.1.12, "Warm Waste Treatment System Operation," Idaho National Laboratory.

OMM-7.11.13.1.3, "Evaporation Pond Sampling and Monitoring," Idaho National Laboratory.

OMM-7.11.13.8.1, "TRA-605 Warm Waste Treatment Facility Operation," Idaho National Laboratory.

OMM-7.11.13.8.2, "Sampling Warm Waste Treatment system Effluent," Idaho National Laboratory.

OMM-7.11.13.8.4, "TRA-605 Effluent Radiation Monitor (ERM) Normal Operation," Idaho National Laboratory.

OMM-7.11.13.8.9, "TRA-605 Effluent Radiation Monitor (ERM) System ATR Warm Waste Effluent Grab Sample," Idaho National Laboratory.

Permit No. 023-00001, "State of Idaho Permit to Construct an Air Pollution Emitting Source."

PDD-17000, "Waste Management Program," Idaho National Laboratory.

PLN-114, "INL Emergency Plan/RCRA Contingency Plan," Idaho National Laboratory.

PLN-114-5, "INL Emergency Plan/RCRA Contingency Plan Advanced Test Reactor Complex Appendix L6 TAA TRA-STR-780-1," Idaho National Laboratory.

PLN-522, "Quality Assurance Program Plan for the Waste Management/Waste Certification Program," Idaho National Laboratory.

PLN-3638, "Advanced Test Reactor Complex Radioactive Waste Management Basis," Idaho National Laboratory.

SAR-153, "Upgraded Final Safety Analysis Report for the Advanced Test Reactor," Idaho National Laboratory.

SAR-154, "Safety Analysis Report for the Nuclear Materials Inspection And Storage (NMIS) Facility TRA-621," Idaho National Laboratory.

SD-24.1.3, "ATR Complex Facilities and Site Services Safety Basis Administrative Controls," Idaho National Laboratory.

SP-10.6.5.8, "RTC Non-Containerized Wastewater Management and Control," Idaho National Laboratory.

SP-10.6.5.10, "RTC Ponds Wastewater Acceptance Criteria," Idaho National Laboratory.