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The following document was too large to scan as one unit; therefore, it has been broken down into sections.

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SECTION 1 of 2

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Gap Analysis for DOE Order 435.1

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Fluor Hanford

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RELEASE AUTHORIZATION

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This document, reviewed in accordance with DOE Order 241.1, "Scientific and Technical Information Management," and DOE G 241.1-1, "Guide to the Management of Scientific and Technical Information," does not contain classified or sensitive unclassified information and is:

APPROVED FOR PUBLIC RELEASE

Karen G. Noland — 2/25/2000

K. G. Noland — Date

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ATTACHMENTS

TABLE

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1.0 INTRODUCTION

The U.S. Department of Energy (DOE) issued Order DOE 435.1, *Radioactive Waste Management* and DOE M 435.1, *Radioactive Waste Management Manual*, on July 9, 1999, to replace DOE Order 5820.2A, *Radioactive Waste Management*. Compliance is required by July 9, 2000, where compliance is defined as "implementing the requirements, or an approved implementation, or corrective action plan" (DOE M 435.1). The DOE, Richland Operations Office (DOE-RL) requested contractors to prepare impact assessments and related information necessary to provide an implementation plan. Fluor Hanford (FH) was assigned the lead to coordinate preparation of a gap analysis by February 28, 2000, and to determine requirements already met by existing operations [99-WPD-304, Sally A. Sieracki (DOE-RL) to R. D. Hanson (FHI), dated August 19, 1999]. Based on the impact assessment, FH also was requested to identify cost and operational changes needed to accomplish full compliance, and to prepare an implementation plan for DOE-RL approval by May 15, 2000. This document provides the requested gap analysis for the Hanford Site contractors including FH, Bechtel Hanford, Inc. (BHI), Pacific Northwest National Laboratory (PNNL), and CH2M HILL Hanford Group, Inc. (CHG).

2.0 DISCUSSION

FH prepared a tabular format for the gap analysis, listing each requirement in DOE M 435.1, and requested the affected contractors to prepare a response to these items. Those contractor responses are provided in attachments to this document, which list each individual requirement and compliance status and gaps. For FH, responses were divided into Waste Programs and Analytical Services (Attachment 1), K Basins (Attachment 2), Plutonium Finishing Plant (Attachment 3), Fast Flux Test Facility (Attachment 4), and the River Corridor Project (Attachment 8). Other responses were for PNNL (Attachment 5), BHI (Attachment 6), and CHG (Attachment 7).

One issue that arose concerns DOE Orders that are cited and required by DOE Order 435.1 but are not in current contracts. Compliance has not been evaluated for those sections that cite such Orders. An evaluation will be made whenever the contracts are revised to contain these cited Orders. Table 1 lists the Orders in question and the status (Y/N) of the Orders being in the contracts for each project. FH is a recent combination of several contractors, so the status might vary from project to project. In some cases, the safety/requirements identification document (S/RID) has accepted requirements that are not yet in the contract. For those cases, the status is "Y", since the requirement has been incorporated.

Some contractors chose to provide additional information, which is located at the front of each Attachment. FH provided a summary of issues and assumptions, a proposed implementation plan for the 90-day staging limit, a position paper on high-activity liquid waste, and a facility activity matrix. PNNL provided a summary of key items and a list of DOE Orders not in their contract. In some of the responses, it was noted that DOE Orders cited in DOE Order 435.1 might replace DOE Orders for which compliance currently is achieved, and other DOE Orders could have been superceded. CHG expanded the format to include a 'crosswalk' of requirements in the new order against those in the old order. CHG also provided cost estimates for preparing the implementation plan up to July 2000, and started a column for future compliance costs, to be included as impacts are assessed and costs determined. The 'proposed implementation for 90-Day Staging Limit' is provided in Attachment 1 and actually applies to all facilities, except those managed under the *Comprehensive Environmental Response, Compensation, and Liability Act*.

The following attachments provide the responses from the individual contractors for the Gap Analysis. The Gap Analysis will be the basis for preparation of an implementation plan, which will expand on the proposed Actions/Plans to provide an integrated response and overall plan for the DOE-RL.

Table 1. Orders in Contracts and SRIDS Matrix for 435 Gap Analysis.

DOE Directives	Contract and SRIDs References															
	FH Contract	327/324	B-Plant	CSB	FH Site Operations	FFTF	K-Basins	LLBG	PFP	PUREX	Spent Nuclear Fuels	Tank Farms	WESF	WMH Waste Facilities and Labs	PNNL	BHI
DOE 4330.4B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5400.1	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5400.5	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5420.21	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DQE 5480.19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5480.20A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5480.22	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5480.23	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOE 5632.1C	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y
DOE 5633.3B	Y	N	N	Y	Y	Y	Y	N	Y	Y	N	Y	N	N	N	Y
DOE M 251.1-1A	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE M 411.1-1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE M 450.3-1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N
DOE O 151.1	Y	Y	N	N	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y
DOE O 200.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 210.1	N	Y	N	N	Y	Y	N	N	Y	N	Y	Y	Y	Y	N	N
DOE O 231.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N
DOE O 232.1A	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
DOE O 360.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 414.1	Y	N	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N
DOE O 420.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 425.1A	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 430.1A	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 440.1A	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 451.1A	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE O 460.1A	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N
DOE O 460.2	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N
DOE O 470.1	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N
DOE O 5480.21	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOE P 450.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE P 450.4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE P 450.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE-EM-STD-5502	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE-STD-1027-92	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Exec. Order 12856	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Exec. Order 13101	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
RW-0333P	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N	N	N
DOE/EM-0093	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE/RW-0351P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DOE-STD-1090-96	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

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ATTACHMENT 1

FLUOR HANFORD, WASTE MANAGEMENT AND ANALYTICAL SERVICES PROJECTS

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THE 435.1 WASTE MANAGEMENT AND ANALYTICAL SERVICES PROJECTS SIGNIFICANT IMPACTS LIST

1. 'Authorization' of all waste management activities by DOE via the Radioactive Waste Management Basis Statement.

2. Institution of a 90-day clock low-level waste staging.

3. Institution of the "Waste Incidental to Reprocessing" evaluation process for all waste derived from or associated with HLW. The outcome determines if WESF and PUREX tunnels are HLW storage facilities and also the status of waste that is sent to solid and liquid waste facilities.

4. Application of treatment and storage requirements to generating facilities. Some facilities also store waste they generate. The definition of treatment is so broad that almost all facilities engage in treatment of wastes that are generated.

5. The institution of a 1-year storage limit for low-level waste. A waiver needs to be provided to store waste longer than one year at solid and liquid waste facilities, including waste with no path forward. Material awaiting disposition is not waste and not subject to this requirement.

6. Current authorization to use ATG treatment for mixed waste must be recognized as a waiver, or a waiver requested.

7. The PUREX tunnels are old facilities that in many ways are not compliant with modern engineering and operational requirements.

8. A waste generation planning process needs to be completed prior to commencing the activity generating the waste.

9. Waste acceptance and generation processes need to be upgraded to implement the DQO process or equivalent to waste characterization activities, waste transfer authorization, waste certification, etc.

10. The application of DOE Orders called out in the DOE Order 435.1 but not in the FH contract must be resolved. Resolution may result in addition of a dozen new Orders to contract.

11. The application of contingency storage, design and monitoring requirements at TSDs must be clarified. Strict application of these requirements could result in significant facility and operational changes.

12. The prohibition on commingling of mixed and low-level waste must be waived at the liquid treatment facilities and implemented at all other facilities. Implementation includes separation of containers of each waste type which is currently not in operating procedures.

13. Implement a process to minimize the number of waste shipments.

ASSUMPTIONS

The gap analysis provided herein are based on the following:

1. The radioactive waste management activities performed pursuant to this Order are listed by facility in Table 1-I.
2. Waste generated then treated or stored at the facility of generation will employ a graded approach in applying treatment and storage requirements found in the Order. In general, waste acceptance, certification, and waste transfer requirements will be tailored to the facility.
3. Waste currently received for storage, treatment, or disposal that are derived from high-level waste (HLW) will be successfully evaluated, per the process of Chapter II B, to be Incidental to Reprocessing.
4. For the purposes of this gap analysis WESF capsules and some PUREX tunnel waste are HLW, that is the waste Incidental to Reprocessing evaluation process will not be successful for these cases.
5. The WESF stores HLW and PUREX tunnels store all waste types but will not transfer these wastes in or out of the facility. A graded approach in the application of these storage requirements will be employed. In general waste acceptance, certification, and waste transfer requirements will be tailored to the facility. WESF waste eventually will be transferred to BNFL.
6. Based on the guidance, the requirements of Chapters III and IV sections E and M(2) (d) and (e) applies to liquids in tanks or in bulk containers of 55 gallons or larger. The requirement does not apply to liquids in lab pack form.
7. The processing vessels located in the T plant cells were flushed and do not contain waste, and are stored as radioactive material.
8. Radioactive material and radioactively contaminated material and equipment that is out of service or not being used is not considered waste until it is being collected in preparation for treatment, storage or disposal.
9. Confinement specified per Chapter II P(2)(b) and ventilation per Chapters III and IV M(2)(b)(1) means control or retention within the designated boundary not secondary containment.
10. Waste preexisting to the Order implementation will not be required to comply with requirements of the Order; for example characterization, DQO for no path forward waste in storage, and planning.
11. The actions taken on the part of the DOE to comply with Chapter I sections 2 A through F will not impact the contractor.
12. Waste received or retrieved (includes retrievably stored earthen covered waste) from the low-level burial grounds (LLBG) is considered disposed and not stored even though it may not be permanently placed.
13. The 90-day clock for staging of low-level waste will be implemented as per the paper entitled "Proposed Implementation for 90-day Storage Limit" on page ATT 1-5.
14. As per the guidance a no path forward waste is one without a route to and/or not possessing a final disposal facility including either existing facilities or new facility construction that is a line item on the Congressional budget. Those waste types determined to be without a path forward are: non-defense related TRU, TSCA regulated TRU, classified TRU, TRU items that can not be packaged per TRUPACT II requirements, greater than class 3 low-level waste that can not be demonstrated as compliant, and mixed waste that does not have a treatment path. It is assumed that D001 through D003 TRU waste can be processed by INEL and RH TRU waste can be processed by Oak Ridge.
15. The LLBG consists of 4 units: west area and east area units E-10, E-12B, and Navy trench. All of these units are active status.
16. The WRAP, Evaporator, CWC, T Plant, and LWPF will not 90-day stage low-level waste but will place directly into storage. The LLBG will 90-day stage waste generated from operations.
17. The requirements of Chapters III section Q(3) and IV section R(2), as per the guidance, applies to tank storage of liquids not containers.

PROPOSED IMPLEMENTATION FOR 90-DAY STAGING LIMIT

Purpose

The purpose of this proposal is to describe the implementation of the DOE Order 435.1 requirement of less than 90-day staging time limit of low level-waste.

Definition

Generator: Operator of the facility who generates low-level waste during facility cleanup, upgrade, surveillance, monitoring or maintenance.

Container: Any container used to accumulate waste such as drum, box, conex box, plastic bag or plastic wrapped item.

Full Container: Container considered full per manufacturer, SAR, or operating procedures as appropriate

Discussion

This proposal allows generators of low-level waste to accumulate waste, then ship the waste to a treatment, storage or disposal facility within 90-days from the start of the generation date. The generation date is established when the container is full or no longer needed. Waste will be collected in various size containers that meets the needs of generators. There will be no volume restriction. The volume will be limited to the size of the container only.

The generator will have the choice either to set up a container at each generation point to collect the waste or set up a centralized collection container where the waste will be collected from all the generating points and placed in containers. This will be allowed to meet the generators needs, be cost effective, and meet the waste minimization requirements. When a container is full or no longer needed, this establishes the generation date, and starts the 90-day staging time limit. The generator will have 90 days to complete the characterization and ship the container to a treatment, storage, or disposal facility. For large size items that do not fit in a container and will be shipped under the flexible material SARP, the generation date is established when the generator declares the item as waste. At that point, the generator has 90 days to ship the waste. The start of the 90-day staging period is when a container is full or no longer is needed to the time the container is placed in shipment to treatment, storage, or disposal facilities.

The 90-day staging time limit is applied to a container of waste, as classification is accomplished on a container basis, rather than to the waste components inside the container. During repackaging, if a waste item is removed and packaged in a different container, the start date of the 90-day staging time limit will start when the new container is full or no longer needed.

For bulk low-level waste, the generation date will be established when the generator has a quantity of waste that constitutes a shipment or the project is ending. The quantity of waste that constitutes a shipment will be determined on a case-by-case basis.

In cases where a waste package is reclassified due to repackaging, change in characterization, etc., the generation date will be applied to the container as the date the determination was made without regard to the previous classification of the container.

In the case where the generator cannot meet the 90-day staging time limit, the generator will request an extension or waiver from DOE-RL. The request will be in writing before the 90-day time limit has expired. Justification for the request will be included.

Waste Pre-existing to 435.1 Implementation

For waste that exists at the generator facility prior to the implementation of the DOE Order 435.1, the generator will have 1 year from the implementation date of DOE Order 435.1 to ship all of pre-existing waste to a treatment or disposal facility, or provide an approved workoff plan.

Determination of High Activity and High Hazard Low-Level Liquid Waste Pursuant to Manual 435.1-1 Chapter IV E

The requirement was derived from contingency requirements applied to the storage of liquid high-level waste (435.1-1 Appendix A, page A-165) but applied to low-level liquid waste to cover inadequacy of 420.1 and for consistency. Obviously, high-level waste possesses high dose and radioactive inventory, which few if any low-level waste liquids will approach.

The 435.1-1 guidance for determination of "high activity and high hazard" is:

> "Liquid low-level waste is considered high activity if procedural or physical controls are required to protect workers from radiation exposure. Liquid low-level waste is considered a hazard if it presents a situation that has the potential to adversely impact the health and safety of personnel, the public, or the environment. High hazards are those with the potential for onsite and offsite impacts to large numbers of persons or with the potential for major impacts to the environment or national security."

The procedural and physical controls to protect workers describes the entire radiation control program and is not useful in identifying a useful trigger.

High radiological activity and hazard is considered in the determination of facility hazard category per EM standard 5502. Based on description per guidance above and the standard the trigger should be if the low-level liquid would result in a facility hazard category 1.

High chemical or toxic hazard and impact to the environment is similar to EPCRA threshold planning quantity for extremely hazardous substances per 40 CFR 355.

Major impact to national security has not been evaluated.

Table 1-I. Radioactive Waste Management Activity Versus Facility Applicability Matrix
Waste Management and Analytical Services Project.

Facility	High-Level Waste - Chapter II								Transuranic Waste - Chapter III								Low-Level Waste - Chapter IV							
	Generator		Treatment		Storage		Disposal		Generator		Treatment		Storage		Disposal		Generator		Treatment		Storage		Disposal	
	S	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L'*	*S*	*L*
T plant	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y[d]	Y	Y[k]	Y	Y[d]	N	N
CWC	N	N	N	N	N	N	N	N	Y	Y	N	N	Y	Y	N	N	Y	Y[d]	N	N	Y	Y[d]	N	N
WRAP	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y[d]	Y	Y[k]	Y	Y[d]	N	N
LLBG	N	N	N	N	N	N	N	N	N[i]	N	N	N	Y[j]	N	N	N	Y	Y	N	N	N[h]	N	Y	Y
WESF	N[a]	N[a]	N	N	Y[f]	N	N	N	N	N	N	N	N	N	N	N	Y	Y[d]	N	Y[k]	N	Y[d]	N	N
PUREX Tunnels	N[a]	N[a]	N	N	Y	Y	N	N	Y[e]	Y[e]	N	N	Y	Y	N	N	Y	Y	N	N	Y	Y[d]	N	N
Evaporator	N[a]	N[a]	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y[d]	N	Y[k]	N	Y[d]	N	N
LWPF	N	N	N[a]	N[a]	N[a]	N[a]	N	N	N	N	N	N	N	N	N	N	Y	Y[d]	N	Y[k]	Y	Y[d]	N	N
222S	N[a]	N[a]	N	N	N[a]	N[a]	N	N	Y[b]	Y[b]	N	Y	Y[b]	Y[b]	N	N	Y	Y[d]	N	Y[c]	Y[g]	Y[d]	N	N
WSCF	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y[d]	N	Y[c]	N	Y[d]	N	N

Legend:

Y - The radioactive waste management activity applies to that facility and therefore the relevant DOE O 435.1 requirements for that activity were evaluated.

N - The radioactive waste management activity does not apply to that facility and therefore the relevant DOE O 435.1 requirements for that activity do not apply to that facility.

S - Solid waste stream

L - Liquid waste stream

Notes:

a- Assumes waste will be determined as "waste incidental to reprocessing" (WIR) therefore Chapter 2 requirements will not apply.

b- 222-S currently does not handle TRU waste, however expect to receive TRU by about 2003. Because of this, decided to apply Chapter 3 requirements for gap analysis.

c- Treatment at the labs by elementary neutralization and solidification of laboratory wastes.

d- Liquid LLW generation and storage in these facilities is an internal process so a graded approach to the application of these requirements is appropriate.

e- The PUREX tunnels activities currently do not produce TRU, however, these provisions of the 435.1 were considered to allow for future waste handling activities.

f- HLW provisions apply to the Cs and Sr canisters, therefore application of WIR will not be successful.

g- 222-S will store solid LLW.

h- Waste received at LLBG is considered disposal and not stored even though certain wastes may not be emplaced for >1 year after receipt (i.e., waste intended for HIC). Waste at CWC is stored.

i- Retrievably-stored TRU waste is considered disposed even after retrieval, until the waste is relocated from LLBG. We did not consider relocation of retrievable-stored waste as a LLBG generator activity.

j- LLBG plans to store solid TRU waste (Hitman liners) in the future.

k- Facilities may perform simple neutralization, compaction, absorption, etc. treatments to waste generated at the facility.

l - The Cold Vacuum Drying facility may store low-level liquid waste to be sent to LWPF.

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FH, WASTE MANAGEMENT AND ANALYTICAL SERVICES PROJECTS
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
INTRO	INTRODUCTION			
Intro. Para. 1.	1. PURPOSE. This Manual further describes the requirements and establishes specific responsibilities for implementing DOE O 435.1, Radioactive Waste Management, for the management of DOE high-level waste, transuranic waste, low-level waste, and the radioactive component of mixed waste. The purpose of the Manual is to catalog those procedural requirements and existing practices that ensure that all DOE elements and contractors continue to manage DOE's radioactive waste in a manner that is protective of worker and public health and safety, and the environment.	NO ACTION REQUIRED		
Intro. Para. 2	2. APPLICABILITY. The requirements set forth in this Manual apply to DOE elements and contractors as set forth in DOE O 435.1, Radioactive Waste Management.	NO ACTION REQUIRED		
Intro. Para. 3	3. SUMMARY. This Manual is organized into four (4) chapters. Chapter I, General Requirements and Responsibilities, contains requirements and responsibilities which are applicable to all radioactive waste types and delineates responsibilities for radioactive waste management decision-making at the complex-wide and Field Element levels. Chapters II through IV contain those requirements that are applicable to high-level waste, transuranic waste, and low-level waste including the radioactive component of mixed low-level waste, respectively.	NO ACTION REQUIRED		

FH, WASTE MANAGEMENT AND ANALYTICAL SERVICES PROJECTS
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
Intro. Para. 4	4. IMPLEMENTATION. The requirements of this Manual apply to all new and existing DOE radioactive waste management facilities, operations, and activities. Implementation of the requirements shall begin at the earliest possible date, and all DOE entities shall be in compliance with this directive within one year of its issuance. Compliance with this directive includes implementing the requirements or an approved implementation or corrective action plan. If compliance with this Order cannot be achieved within one year of its issuance, the Field Element Manager must request approval to extend the compliance date to no later than October 1, 2001, from the cognizant Program Secretarial Officer (PSO). Failure to implement the requirements of this directive shall, through the appropriate lines of management, result in corrective actions including, if necessary, shutdown of radioactive waste management facilities, operations, or activities until the appropriate requirements are implemented. Any of the requirements in this Manual may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, the applicable or relevant and appropriate requirements identification process for actions taken pursuant to the Department's CERCLA authorities, or by an exemption processed in accordance with the requirements of DOE M 251.1-1A, Directives System Manual.	Implementation plan will address this requirement. See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
Intro. Para. 5	5. REVISIONS. Systematic planning, execution, and evaluation of radioactive waste management facilities, operations, and activities will provide the basis for evaluating the adequacy of and, if necessary, revising the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. The revision process will be based on DOE P 450.4, Safety Management System Policy, and will implement continuous improvement for management of radioactive waste. The process includes: identifying the functions necessary to execute radioactive waste management responsibilities; conducting an analysis of the hazards associated with performing those functions; developing and implementing the proper controls to mitigate any associated hazards; developing and implementing a periodic assessment of work performance; and providing feedback to revise the work processes and incorporate lessons learned, as appropriate. Administrative requirements of the Order and Manual will be revised as needed to support safe and efficient waste management.	NO ACTION REQUIRED		
Intro. Para. 6	6. DEFINITIONS. Definitions for DOE M 435.1-1, Radioactive Waste Management Manual, are provided in Attachment 2.	NO ACTION REQUIRED		
Intro. Para. 7	7. REFERENCE. DOE O 435.1, Radioactive Waste Management, dated 7-09-99.	NO ACTION REQUIRED		
Intro. Para. 8	8. CONTACT. Call the Office of Waste Management at (202) 586-0370.	NO ACTION REQUIRED		
CHAPTER I	GENERAL REQUIREMENTS AND RESPONSIBILITIES			

FH, WASTE MANAGEMENT AND ANALYTICAL SERVICES PROJECTS
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1	1. REQUIREMENTS			
CH.I.1.A.	A. Delegation of Authority. Managers charged with responsibilities within this Manual may delegate authority for these tasks to another manager. All delegations of authority shall be documented.	NO ACTION REQUIRED		
CH.I.1.B.	B. Use of Guidance. Additional information supporting the requirements in this Manual is contained in the Implementation Guide for use with DOE M 435.1-1, Radioactive Waste Management Manual. This Guide, DOE G 435.1-1, Implementation Guide for DOE M 435.1-1, shall be reviewed when implementing the requirements of this Manual. The Guide provides additional information and acceptable methods for meeting the requirements. Other methods may be used but must ensure an adequate level of safety commensurate with the hazards associated with the work and be consistent with the radioactive waste management basis.	NO ACTION REQUIRED		
CH.I.1.C.	C. Radioactive Waste Management. All radioactive waste subject to DOE O 435.1, Radioactive Waste Management, and the requirements of this Manual shall be managed as high-level waste, transuranic waste, low-level waste, or mixed low-level waste.	All facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.D.	D. Analysis of Environmental Impacts. Existing and proposed radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 1021, National Environmental Policy Act Implementing Procedures; and DOE O 451.1A, National Environmental Policy Act Compliance Program. All reasonable alternatives shall be considered, as appropriate. Nothing in this Order is meant to restrict consideration of alternatives to proposed actions.	All facilities: No Gap. DOE O 451.1A is not in contract but compliance provided by HNF-PRO-452.		
CH.I.1.E.	E. Requirements of Other Regulations and DOE Directives. The following requirements and DOE directives are required for all DOE radioactive waste management facilities, operations, and activities as applicable. Any of the requirements for the following Departmental directives may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, or by an exemption processed in accordance with the requirements of that directive or DOE M 251.1-1A, Directives System Manual.			
CH.I.1.E. (1)	(1) Analysis of Operations Information. Data that measure the environment, safety, and health performance of radioactive waste management facilities, operations, and activities shall be identified, collected, and analyzed as required by DOE O 210.1, Performance Indicators and Analysis of Operations Information.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (2)	(2) Classified Waste. Radioactive waste to which access has been limited for national security reasons and cannot be declassified shall be managed in accordance with the requirements of DOE 5632.1C, Protection and Control of Safeguards and Security Interests, and DOE 5633.3B, Control and Accountability of Nuclear Materials.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. LLBG: Gap – A gap may exist at LLBG, the only FH-WMP facility that handles Classified Waste. Although FH-WMP implements portions of DOE 5632.1C and DOE 5633.3B, further review of additional procedures listed in 435.1 is necessary to determine full compliance		
CH.I.1.E. (3)	(3) Conduct of Operations. Radioactive waste management facilities, operations, and activities shall be conducted in a manner based on consideration of the associated hazards. Waste management facilities, operations, and activities shall meet the requirements of DOE 5480.19, Conduct of Operations Requirements for DOE Facilities.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		

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Section	435.1 Minimum Requirements	Compliance Status	Plan to achieve compliance	Cost
CH.I.1.E. (4)	(4) Criticality Safety. Radioactive waste management facilities, operations, and activities shall be covered by a criticality safety program in accordance with DOE O 420.1, Facility Safety.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. Instead of DOE O 420.1, FH-WMP facilities follow these DOE orders for implementation of their Criticality Safety Program: 5480.22, 5480.7A, 6430.1A, and 5480.24.		
CH.I.1.E. (5)	(5) Emergency Management Program. Radioactive waste management facilities, operations, and activities shall maintain an emergency management program in accordance with DOE O 151.1, Comprehensive Emergency Management System.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		
CH.I.1.E. (6)	(6) Environmental and Occurrence Reporting. Radioactive waste management facilities, operations, and activities shall meet the reporting requirements of DOE O 231.1, Environment, Safety and Health Reporting, and DOE O 232.1A, Occurrence Reporting and Processing of Operations Information.	All facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (7)	(7) Environmental Monitoring. Radioactive waste management facilities, operations, and activities shall meet the environmental monitoring requirements of DOE 5400.1, General Environmental Protection Program, and DOE 5400.5, Radiation Protection of the Public and the Environment.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. Compliance per DOE/RL-91-50.		
CH.I.1.E. (8)	(8) Hazard Analysis Documentation and Authorization Basis. Radioactive waste management facilities, operations, and activities shall implement DOE Standards, DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE 5480.23, Nuclear Safety Analysis Reports, and/or DOE-EM-STD-5502-94, DOE Limited Standard: Hazard Baseline Documentation, and shall, as applicable, prepare and maintain hazard analysis documentation and an authorization basis as required by DOE O 425.1A, Startup and Restart of Nuclear Facilities, DOE O 5480.21, Unreviewed Safety Questions, DOE 5480.22, Technical Safety Requirements, and DOE 5480.23, Nuclear Safety Analysis Reports.	All Facilities: A gap exists: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. Evaluated gap as facilities following DOE-SD-1027-92, DOE-EM-STD-5502-94, DOE O 5480.21, DOE O 5480.22, and DOE 5480.23. 1. Some facilities have ISBs or BIOs, but SARs are yet to be completed (except for WRAP) as required by 5480.23. 2. A Hazard Analysis has been completed for all nuclear facilities except PUREX tunnels.		

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CH.I.1.E. (9)	(9) Life-Cycle Asset Management. Planning, acquisition, operation, maintenance, and disposition of radioactive waste management facilities shall be in accordance with DOE O 430.1A, Life-Cycle Asset Management, and DOE 4330.4B, Maintenance Management Program, including a configuration management process to ensure the integrity of physical assets and systems. Corporate physical asset databases shall be maintained as complete, current inventories of physical assets and systems to allow reliable analysis of existing and potential hazards to the public and workers.	All facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. Evaluated gap to Order that is in contract, 4330.4B.		
CH.I.1.E. (10)	(10) Mixed Waste. Radioactive waste that contains both source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component is also subject to the Resource Conservation and Recovery Act (RCRA), as amended.	All Facilities: No Gap – compliance per HNF-PRO-455		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (11)	(11) Packaging and Transportation. Radioactive waste shall be packaged and transported in accordance with DOE O 460.1A, Packaging and Transportation Safety, and DOE O 460.2, Departmental Materials Transportation and Packaging Management.	All facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. DOE Order 435.1 *Radioactive Waste Management,* has applicability to the Hanford Site transportation and packaging guidance documents and procedures (HNF-PROs). The Order should be referenced and it's requirements covered in the following transportation and packaging HNF-PROs. • HNF-PRO 154, *Responsibilities and Procedures for All Hazardous Material shipments.* • HNF-PRO-156, *Non-radioactive Hazardous Materials/Hazardous Waste (HM/HW) Shipments.* • HNF-PRO-157, *Radioactive Material/Waste Shipments.* • HNF-PRO-163, *Documentation and Record Keeping.*		
CH.I.1.E. (12)	(12) Quality Assurance Program. Radioactive waste management facilities, operations, and activities shall develop and maintain a quality assurance program that meets the requirements of 10 CFR 830.120, Quality Assurance Requirements, and DOE O 414.1, Quality Assurance, as applicable.	All facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (13)	(13) Radiation Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 835, Occupational Radiation Protection, and DOE 5400.5, Radiation Protection of the Public and the Environment.	All facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (14)	(14) Records Management. Radioactive waste management facilities, operations, and activities shall develop and maintain a record-keeping system, as required by DOE O 200.1, Information Management Program, and DOE O 414.1, Quality Assurance. Records shall be established and maintained for radioactive waste generated, treated, stored, transported, or disposed. To the extent possible, records prepared in response to other requirements may be used to satisfy the documentation requirements of this Manual. Additional records may be required to satisfy the regulations applicable to the hazardous waste components of mixed waste.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. WESF, PUREX Tunnel, & Evaporator: There is a gap in the implementation status of the record keeping system and required in the following sections of DOE M 435.1-1: Chapter I, Section 1.E(14) Records Management Chapter II, Section G. (1) and (2) Quality Assurance Program Chapter II, Section L. (1), (2), & (3) Waste Characterization Chapter II, Section M. (1), (2), & (3)Waste Certification Chapter II, Section N. (1), (2), & (3) Waste Transfer Chapter II, Section O. (1) Packaging and Transportation Note: This section imposes DOE/EM-0093 *Waste acceptance Product Specifications for Vitrified High-Level Waste Forms.*		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (15)	(15) Release of Waste Containing Residual Radioactive Material. Processes for determining and documenting that waste is suitable to be released and managed without regard to its radioactive content shall be in accordance with the criteria and requirements in DOE 5400.5, Radiation Protection of the Public and the Environment.	All facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract.		
CH.I.1.E. (16)	(16) Safeguards and Security. Appropriate features shall be incorporated into the design and operation of radioactive waste management facilities, operations, and activities to prevent unauthorized access and operations, and for purposes of nuclear materials control and accountability, where applicable; and shall be consistent with DOE O 470.1, Safeguards and Security Program.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. Compliance per HNF-PRO-427.		
CH.I.1.E. (17)	(17) Safety Management System. Radioactive waste management facilities, operations, and activities shall incorporate the principles of integrated safety management as described in DOE P 450.4, Safety Management System Policy, and DOE P 450.5, Line Environment, Safety and Health Oversight, and meet the requirements of the safety management systems sections of 48 CFR Chapter 9, Department of Energy Acquisition Regulations and DOE M 411.1-1, Manual of Safety Management Functions, Responsibilities, and Authorities.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. The gap analysis provided is based on Integrated Environment, Safety and Health Management System (ISMS) implementation within FH-WMP. The overall ISMS program is in the implementation phase at this time. A verified ISM system must be in place by September 2000.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (18)	(18) Site Evaluation and Facility Design. New radioactive waste management facilities, operations, and activities shall be sited and designed in accordance with DOE O 420.1, Facility Safety, and DOE O 430.1A, Life-Cycle Asset Management.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. Requirement applies to new facilities only. Instead of DOE O 430.1A, FH-WMP currently would be following one or more of the following orders: 1332.1A, 4010.1A, 4300.1C, 4320.1B, 4320.2A, 4330.4B, 4330.5, 4530.1, 4700.1, 4700.3, 4700.4, or 5700.2D. Instead of DOE O 420.1, FH-WMP follows these orders: 5480.228, 5480.7A, 6430.1A, and 5480.24.		
CH.I.1.E. (19)	(19) Training and Qualification. A training and qualification program shall be implemented for radioactive waste management program personnel, and shall meet the requirements of DOE O 360.1, Training, and DOE 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. DOE O 360.1 is not in contract. Gap evaluated for compliance with 5480.20A which is in contract. All facilities, except LLBG, are compliant with 5480.20A.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (20)	(20) Waste Minimization and Pollution Prevention. Waste minimization and pollution prevention shall be implemented for radioactive waste management facilities, operations, and activities to meet the requirements of Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, and Executive Order 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, and DOE 5400.1, General Environmental Protection Program.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. EO 13101 includes requirements for procurement of biobased products and for agency waste reduction goals that are not included in the current Project Hanford Management Contract (PHMC) (FR, 1998). Further study will be required to determine the impact of EO 13101 requirements that are included in amended contracts in the future. At this time, based on the current PHMC, we do not anticipate any additional resource burden associated with the implementation of these requirements that would require additional funding or other resource support.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (21)	(21) Worker Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor Employees.	All Facilities: See Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap as the reference is not included in the contract. DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, is not in the FH-WMP contract and the gap analysis provided here is based on the equivalent old Orders. Those old Orders, which are specified in the contract, are: 5480.4, *Environmental Protection, Safety, and Health Protection Standards* 5480.7A, *Fire Protection* 5480.8A, *Contractor Occupational Medical Program* 5480.9A, *Construction Project Safety and Health Management* 5480.10, *Contractor Industrial Hygiene Program* 5480.16A, *Firearms Safety* 5483.1A, *Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated (GOCO) Facilities* The above Orders have been in place and the numerous oversight and self-assessment activities that assure ongoing compliance with requirements of those Orders, no programmatic gaps have been identified. In some instances, Order requirements are not applicable to FH-WMP Projects/facilities. Examples include requirements of Order 5480.16Awhich fall under the Site security contractor and management of the occupational medical program that resides with the Site medical contractor.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.	2. RESPONSIBILITIES			
CH.I.2.A.	A. Program Secretarial Officers. Program Secretarial Officers with radioactive waste management facilities, operations, or activities are responsible within their respective programs for ensuring that the Field Element Managers meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	NO ACTION REQUIRED All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities.		
CH.I.2.B.	B. Assistant Secretary for Environmental Management. The Assistant Secretary for Environmental Management is responsible for: (1) Complex-Wide Radioactive Waste Management Programs. Establishing and maintaining integrated Complex-Wide Radioactive Waste Management Programs for high-level, transuranic, low-level, and mixed low-level waste. These programs shall use a systematic approach to planning, execution, and evaluation to ensure that waste generation, storage, treatment, and disposal needs are met and coordinated across the DOE complex. (2) Changes to Regulations and DOE Directives. Ensuring changes to regulations and DOE directives are reviewed and, when necessary, incorporated into revisions of this Manual to ensure the basis for safe radioactive waste management facilities, operations, and activities is maintained.	NO ACTION REQUIRED All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.C	C. Assistant Secretary for Environment, Safety, and Health. The Assistant Secretary for Environment, Safety and Health is responsible for providing an independent overview of DOE radioactive waste management and decommissioning programs to determine compliance with DOE environment, safety, and health requirements and applicable Environmental Protection Agency (EPA) and state regulations, including: (1) Advising the Secretary of the status of Departmental compliance with the requirements of DOE O 435.1, this Manual, and applicable provisions of other DOE Orders. (2) Conducting independent appraisals and audits of DOE waste management programs. (3) Reviewing site Waste Management Plans with regard to compliance with DOE environment, safety, and health requirements.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities.		

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Section	435.1 Manual Requirement	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.D	D. Deputy Assistant Secretary for Waste Management. The Deputy Assistant Secretary for Waste Management is responsible for: (1) Complex-Wide Radioactive Waste Management Program Plans. Developing, implementing, and maintaining integrated Complex-Wide Radioactive Waste Management Program Plans for high-level, transuranic, low-level, and mixed low-level waste. Each plan shall, at the DOE complex-wide level, describe the functional elements, organizations, responsibilities, and activities that comprise the system needed to store, treat and dispose of radioactive waste in a manner that is protective of the public, workers, and the environment. In addition, the plans shall: (a)sent a waste management strategy that integrates waste projections and life-cycle waste management planning into complex-wide facility configuration decisions; and (b) Describe the approach to research and technology development being pursued to improve safety and/or efficiency in managing radioactive waste. (2) Waste Management Data System. Establishing and maintaining a system to compile waste generation projection data and other information concerning radioactive waste management facilities, operations, and activities across the complex.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.E	E. Deputy Assistant Secretaries for Waste Management and Environmental Restoration. The Deputy Assistant Secretary for Waste Management and the Deputy Assistant Secretary for Environmental Restoration are responsible for: (1) Disposal. Reviewing and approving, along with EH-1, transuranic waste disposal facility performance assessments and other disposal documents as required in waste specific chapters for which DOE is responsible for making compliance determinations. Reviewing and approving performance assessments and composite analyses, or appropriate CERCLA documentation, for low-level waste disposal facilities, and issuing disposal authorization statements. (a) The Deputy Assistant Secretaries shall establish a review panel consisting of DOE personnel to review low-level waste disposal facility performance assessments and composite analyses, review appropriate CERCLA documentation, recommend low-level waste disposal facility compliance determinations to the Deputy Assistant Secretaries, and develop disposal authorization statements. (b) The Deputy Assistant Secretaries shall issue disposal authorization statements containing conditions that low-level waste disposal facilities must meet in order to operate with an approved radioactive waste management basis. (2) Site Closure Plans. Reviewing and approving closure plans and other closure documentation for deactivated high-level waste facilities/sites and issuing authorization for closure activities to proceed.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities.		
CH.I.2.F	F. Field Element Managers. Field Element Managers are responsible for:			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (1)	(1) Site-Wide Radioactive Waste Management Programs. Developing, documenting, implementing, and maintaining a Site-Wide Radioactive Waste Management Program. The Program shall use a systematic approach for planning, executing, and evaluating the site-wide management of radioactive waste in a manner that supports the Complex-Wide Radioactive Waste Management Programs and ensures that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	Gap. DOE-RL to develop program.		
CH.I.2.F. (2)	(2) Radioactive Waste Management Basis. Ensuring a radioactive waste management basis is developed and maintained for each DOE radioactive waste management facility, operation, and activity; and ensuring review and approval of the basis before operations begin. The Radioactive Waste Management Basis shall: (a) Reference or define the conditions under which the facility may operate based on the radioactive waste management documentation; (b) Include the applicable elements identified in the specific waste-type chapters of this Manual; and (c) (c) Be developed using the graded approach process.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (3)	(3) Waste Minimization and Pollution Prevention. Ensuring implementation of waste minimization and pollution prevention programs.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (4)	(4) Approval of Exemptions for Use of Non-DOE Facilities. DOE radioactive waste shall be treated, stored, and in the case of low-level waste, disposed of at the site where the waste is generated, if practical; or at another DOE facility. If DOE capabilities are not practical or cost effective, exemptions may be approved to allow use of non-DOE facilities for the storage, treatment, or disposal of DOE radioactive waste based on the following requirements: (a) Such non-DOE facilities shall: 1. Comply with applicable Federal, State, and local requirements; 2. Have the necessary permit(s), license(s), and approval(s) for the specific waste(s); and 3. Be determined by the Field Element Manager to be acceptable based on a review conducted annually by DOE. (b) Exemptions for the use of non-DOE facilities shall be documented to be cost effective and in the best interest of DOE, including consideration of alternatives for on-site disposal, an alternative DOE site, and available non-DOE facilities; consideration of life-cycle cost and potential liability; and protection of public health and the environment. (c) DOE waste shall be sufficiently characterized and certified to meet the facility's waste acceptance criteria. (d) Appropriate National Environmental Policy Act (NEPA) review must be completed. For actions taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), it is DOE's policy to incorporate NEPA values into the CERCLA documentation. (e) Headquarters shall be notified of any exemption allowing use of a non-DOE facility and the Office of the Assistant Secretary for Environment, Safety and Health (EH-1) shall be consulted prior to the exemption being executed. (f) Host States and State Compacts where non-DOE facilities are located shall be consulted prior to approval of an exemption to use such facilities and notified prior to shipments being made.	All facilities: Gap. Existing authorization to use non-DOE facilities must be reorganized as waiver.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (5)	(5) Environmental Restoration, Decommissioning, and Other Cleanup Waste. Ensuring the management and disposal of radioactive waste resulting from environmental restoration activities, including decommissioning, meet the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. Environmental restoration activities using the CERCLA process (in accordance with Executive Order 12580) may demonstrate compliance with the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual (including the Performance Assessment and performance objectives, as well as the Composite Analysis) through the CERCLA process. However, compliance with all substantive requirements of DOE O 435.1 not met through the CERCLA process must be demonstrated. Environmental restoration activities which will result in the off-site management and disposal of radioactive waste must meet the applicable requirements of DOE O 435.1, Radioactive Waste Management, and this Manual for the management and disposal of those off-site wastes. Field Elements performing environmental restoration activities involving development and management of radioactive waste disposal facilities under the CERCLA process shall: (a) Submit certification to the Deputy Assistant Secretary for Environmental Restoration that compliance with the substantive requirements of DOE O 435.1 have been met through application of the CERCLA process; and Submit the decision document, such as the Record of Decision, or any other document that serves as the authorization to dispose, to the Deputy Assistant Secretary for Environmental Restoration for approval.	Gap. K-Basins will require demonstration that CERCLA remediation will meet substantive requirements of 435.1.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (6)	(6) Radioactive Waste Acceptance Requirements. Ensuring development, review, approval, and implementation of the radioactive waste acceptance requirements for facilities that receive waste for storage, treatment, or disposal. Radioactive waste acceptance requirements shall establish the facility's requirements for the receipt, evaluation, and acceptance of waste.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (7)	(7) Radioactive Waste Generator Requirements. Ensuring development, review, approval, and implementation of a program for waste generation planning, characterization, certification, and transfer. This program shall address characterization of waste, preparation of waste for transfer, certification that waste meets the receiving facility's radioactive waste acceptance requirements, and transfer of waste.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (8)	(8) Closure Plans. Ensuring development, review, approval, and implementation of closure plans for radioactive waste management facilities in accordance with the applicable requirements in the waste-type chapters of this Manual.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (9)	(9) Defense-In-Depth. Ensuring defense-in-depth principles are incorporated where potential uncertainties or vulnerabilities warrant their use when reviewing and approving radioactive waste management activities and documents. These principles advocate the use of multiple levels of engineered and administrative controls to provide protection to the public, workers, and the environment.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (10)	(10) Oversight. Ensuring oversight of radioactive waste management facilities, operations, and activities is conducted. Oversight shall ensure radioactive waste management program activities are conducted in accordance with a radioactive waste management basis and meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (11)	(11) Training and Qualification. Ensuring a training and qualification program is implemented for designated radioactive waste management program personnel, and the training is commensurate with job duties and responsibilities. Only those personnel who have been trained and qualified shall design or operate safety (safety class and safety significant) structures, systems, and components.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (12)	(12) As Low As Reasonably Achievable (ALARA). Ensuring ALARA principles for radiation protection are incorporated when reviewing and approving radioactive waste management activities.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (13)	(13) Storage. Ensuring all radioactive waste is stored in a manner that protects the public, workers, and the environment in accordance with a radioactive waste management basis, and that the integrity of waste storage is maintained for the expected time of storage and does not compromise meeting the disposal performance objectives for protection of the public and environment when the waste is disposed.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (14)	(14) Treatment. Ensuring all radioactive waste requiring treatment is treated in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (15)	(15) Disposal. Ensuring radioactive waste is disposed in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis. Reviewing specific transuranic or low-level waste documentation including the performance assessment and composite analysis, or appropriate CERCLA documentation, prior to forwarding them to Headquarters for approval, and obtaining and ensuring the facility is operated in accordance with the disposal authorization statement. Conducting performance assessment and composite analysis maintenance.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (16)	(16) Monitoring. Ensuring monitoring is conducted for all radioactive waste management facilities as required. Ensuring that disposal facilities are monitored, as appropriate, for compliance with conditions of the disposal authorization statement.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (17)	(17) Material and Waste Declassification for Waste Management. Ensuring, to the extent practical, radioactive material and waste generated under a program that is classified for national security reasons is declassified or rendered suitable for unclassified radioactive waste management.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		

Citation	435.1 Chapter I Requirements	Compliance Status	Plan to achieve compliance	Cost
CH.I.2.F. (18)	(18) Waste Incidental to Reprocessing. Ensuring that waste incidental to reprocessing determinations are made by either the "citation" or "evaluation" process described in Chapter II of this Manual. Ensuring consultation and coordination with the Office of Environmental Management for waste determined to be incidental to reprocessing through the "evaluation" process.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (19)	(19) Waste With No Identified Path to Disposal. Ensuring a process is developed and implemented for identifying the generation of radioactive waste with no identified path to disposal, and reviewing and approving conditions under which radioactive waste with no identified path to disposal may be generated. Headquarters shall be notified of the decisions to generate a waste with no identified path to disposal.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		
CH.I.2.F. (20)	(20) Corrective Actions. Ensuring a process exists for proposing, reviewing, approving, and implementing corrective actions when necessary to ensure that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met, and to address conditions that are not protective of the public, workers, or the environment. The process shall allow workers, through the appropriate level of management, to stop or curtail work when they discover conditions that pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	DOE-RL functions, requirements, and authorities manual needs revision. Completion expected 04/30/00.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.G.	G. All Personnel. All personnel are responsible for: (1) Problem Identification. Identifying and reporting radioactive waste management facilities, operations, or activities that do not meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual, or that pose a threat to the safety of the public, workers, or the environment. (3) Shutdown or Curtailment of Activities. Stopping or curtailing work, through the appropriate level of management, to prohibit continuation of conditions or activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	No gap identified. Full compliance with requirements.		
CHAPTER II		HIGH-LEVEL WASTE REQUIREMENTS		
CH.II.A.	A. Definition of High-Level Waste. High-level waste is the highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation.	All Facilities: No Gap--definition only.		

Section	435.1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.B.	B. Waste Incidental to Reprocessing. Waste resulting from reprocessing spent nuclear fuel that is determined to be incidental to reprocessing is not high-level waste, and shall be managed under DOE's regulatory authority in accordance with the requirements for transuranic waste or low-level waste, as appropriate. When determining whether spent nuclear fuel reprocessing plant wastes shall be managed as another waste type or as high-level waste, either the citation or evaluation process described below shall be used: (1) Citation. Waste incidental to reprocessing by citation includes spent nuclear fuel reprocessing plant wastes that meet the description included in the Notice of Proposed Rulemaking (34 FR 8712) for proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7. These radioactive wastes are the result of reprocessing plant operations, such as, but not limited to: contaminated job wastes including laboratory items such as clothing, tools, and equipment. Evaluation. Determinations that any waste is incidental to reprocessing by the evaluation process shall be developed under good record-keeping practices, with an adequate quality assurance process, and shall be documented to support the determinations. Such wastes may include, but are not limited to, spent nuclear fuel reprocessing plant wastes that: (a) Will be managed as low-level waste and meet the following criteria: Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and Will be managed to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61, Subpart C, Performance Objectives; and 3. Are to be managed, pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, and in accordance with the provisions of Chapter IV of this Manual, provided the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61.55, Waste Classification; or will meet alternative requirements for waste classification and characterization as DOE may authorize. (b) Will be managed as transuranic waste and meet the following criteria: Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and Will be incorporated in a solid physical form and meet alternative requirements for waste classification and characteristics, as DOE may authorize; and Are managed pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, in accordance with the provisions of Chapter III of this Manual, as appropriate.	All facilities: A gap exists, because Hanford Site waste acceptance and management operations programs do not evaluate incidental to reprocessing in a fashion that is compliant with requirements. The current waste acceptance and generation process does not consider waste incidental to reprocessing issues for waste generated at facilities with HLW sources. The potentially affected waste has not been cited or evaluated in the past, but will need to be in the future.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.C.	C. Management of Specific Wastes. The following provide for management of specific wastes as high-level waste in accordance with the requirements in this Chapter: (1) Mixed High-Level Waste. Unless demonstrated otherwise, all high-level waste shall be considered mixed waste and is subject to the requirements of both the Atomic Energy Act of 1954, as amended, the Resource Conservation and Recovery Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (2) TSCA-Regulated Waste. High-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual.	PUREX Tunnel: Gap – need to complete HLW determination and if HLW determine if waste is mixed and place in records. All other facilities: NO GAP		
CH.II.D.	D. Complex-Wide High-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	All Facilities: Potential gap depending upon results of complex-wide plan which is HQ activity		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.E.	E. Site-Wide Radioactive Waste Management Program. In addition to the items in Chapter I of this Manual, documentation of the Site-Wide Radioactive Waste Management Program shall include a description of the High-Level Waste Systems Engineering Management Program to support decision-making related to nuclear safety, including high-level waste requirements analysis, functional analysis and allocation, identification of alternatives, and alternative selection and system control.	Evaporator, PUREX Tunnel, & WESF: Gap – Need to evaluate application of these system's engineering requirements. All other Facilities: No Gap		
CH.II.F.	F. Radioactive Waste Management Basis. High-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: (1) Generators. The waste certification program. (3) Pretreatment and Treatment Facilities. The waste acceptance requirements and waste certification program. (4) (3) Storage Facilities. The waste acceptance requirements and the waste certification program.	PUREX Tunnel will need to develop its waste management basis documentation. Evaporator and WESF have approved authorization basis. All other facilities: No Gap.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.G.	G. Quality Assurance Program. The following requirements are in addition to those in Chapter I of this Manual. (1) Product Quality. The requirements of RW-0333P, Quality Assurance Requirements and Description, shall apply to those high-level waste items and activities important to waste acceptance/product quality. (2) Audits and Assessments. The evaluation and assessment requirements of RW 0333P, Quality Assurance Requirements Document and Description, and associated implementing procedures shall be met for high-level waste acceptance and product quality activities, in addition to the assessment requirements of other DOE directives and requirements identified in Chapter I of this Manual.	PUREX Tunnel, Evaporator, and WESF: Gap - Gap exists for the O 435.1 Chapter II, Section G. (1) *Product Quality* and Section G. (2) *Audits and Assessments*. However, they are not currently accepting, HLW, so gap would occur only if HLW is to be accepted. All other facilities - no gap.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.H.	H. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Contingency Storage. For off-normal or emergency situations involving high-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of waste contained in any one storage vessel, pretreatment facility, or treatment facility. Tanks or other facilities that are designated for high-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet all the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. (2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of 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, Radioactive Waste Management, and this Manual.	Gap: WESF & PUREX Tunnel – Need to evaluate storage of HLW for application of this requirement. All other facilities: No Gap		
CH.II.I.	I. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual. (1)Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	All Facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.J.	J. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual. (1). Technical and Administrative. Waste acceptance requirements for all high-level waste storage, pretreatment, or treatment facilities, operations, and activities shall specify, at a minimum, the following: (a) Allowable activities and/or concentrations of specific radionuclides; (b) Acceptable waste form that ensures the chemical and physical stability of the waste under conditions that might be encountered during transfer, storage, pretreatment, or treatment; (c) 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; and (d) Pretreatment, treatment, storage, packaging, and other operations shall be designed and implemented in a manner that will ultimately comply with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste. (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.	PUREX Tunnel, WESF: J (1-2) - Gap – There are currently no formal HLW waste acceptance procedures for these facilities. However, these facilities are not currently accepting new HLW. All other facilities: No Gap		
CH.II.K.	K. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.K. (1)	(1). Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all high-level waste streams.	WESF, PUREX Tunnel, Evaporator: Gap – Need to develop a life cycle waste planning process to be performed prior to waste generation. Not currently accepting new HLW. All other facilities: No Gap		
CH.II.K. (2)	(2). Waste With No Identified Path to Disposal. High-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste (compliance with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms).	WESF, PUREX Tunnels, Evaporator: Gap – It does not appear that there is a documented and reliable process in place to ensure that no path forward is evaluated prior to generated. Not currently accepting new HLW. All other facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.L.	L. Waste Characterization. High-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. (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. (2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any solidification media; (c) Radionuclides or source information sufficient to describe the approximate radionuclide content of the waste; and (d) Any other information which may be needed to demonstrate compliance with the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste. (3) Hazardous Characteristics. Waste characterization processes shall yield sufficient chemical and physical data to clearly identify any hazardous characteristics that may degrade the ability of structures, systems, and components to perform their radioactive waste management function.	WESF, Evaporator, PUREX Tunnels may require evaluation. All other facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.M.	M. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving high-level waste for storage, pretreatment, treatment, and disposal are met. (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. (2) Certification Before Transfer. High-level waste shall be certified as meeting the waste acceptance requirements before it is transferred to the facility receiving the waste. (3) Maintaining Certification. High-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, pretreatment, treatment, or disposal facility shall be managed in a manner that maintains its certification status.	PUREX Tunnel, WESF: M (all) - Gap – for future waste shipment activities M (all) - No Gap – not applicable to current operating practices Evaporator: M (all) – Gap- for HLW coming from tank farms No Gap for HLW going to tank farms. Existing procedures meet waste certification Requirements. All other facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.N.	N. Waste Transfer. The following requirements are in addition to those in Chapter I of this Manual. (1) Authorization. High-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. (2) Data. Waste characterization data and generation, storage, pretreatment, treatment, and transportation information for high-level waste shall be transferred with or be traceable to the waste. (3) Records and Transfer Reporting. The records and transfer requirements for canistered high-level waste forms shall comply with DOE/EM-0093, Waste Acceptance Product Specification for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PUREX Tunnel, WESF: No Gap – for current operating practices GAP – for future waste transfer activities. All other facilities: No Gap		
CH.II.O.	O. Packaging and Transportation. The following requirement is in addition to those in Chapter I of this Manual. (1) Canistered Waste Form. Immobilized high-level waste shall meet the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	All facilities: No Gap		
CH.II.P.	P. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (1)	(1). Site Evaluation. Proposed locations for high-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses. (a) Each site proposed for a new high-level waste facility or expansion of an existing high-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities. (b) Proposed sites with environmental characteristics, geotechnical characteristics, or human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	No Gap. part of NEPA process.		
CH.II.P. (2)	(2) Facility Design. The following facility design requirements, at a minimum, apply:			
CH.II.P. (2)(a)	(a) Safety (Safety Class and Safety-Significant) Structures, Systems, and Components. Safety structures, systems, and components for high-level waste storage, pretreatment, and treatment facilities shall be designated and designed consistent with the provisions of DOE O 420.1, Facility Safety; DOE 5480.22, Technical Safety Requirements; and DOE 5480.23, Nuclear Safety Analysis Reports.	All other facilities: No Gap Evaporator, WESF, & PUREX Tunnel: Gap – DOE Order 420.1 is not in contract, evaluate gap to comply with Orders in contract 5480.22, 5480.7A, 6430.1A, and 5480.24. PUREX Tunnel and WESF designs do not comply with 5480.22 and 5480.23. Evaporator needs to perform a detailed comparison with requirements.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(b)	(b) Confinement. High-level waste systems and components shall be designed to maintain waste confinement. The following requirements apply to new or modifications to existing high-level waste systems, ancillary systems, and components: 1. Secondary confinement systems shall be designed to prevent any migration of wastes or accumulated liquid out of the waste system; shall be capable of detecting, collecting, and retrieving releases into the secondary confinement; and shall be constructed of, or lined with, materials that are compatible with the waste(s) to be placed in the waste system Tank and piping systems used for high-level waste collection, pretreatment, treatment, and storage shall be welded construction, except where remote configurations or periodic rerouting of high-level waste streams require non-welded construction	All other facilities: NO GAP WESF, PUREX Tunnel, & Evaporator: Gap – design procedures need to include 435.1 requirement.		
CH.II.P. (2)(c)	(c) Lifting Devices. The design of hoisting and rigging devices shall comply with the following specific requirements. 1. Lifting devices that are designated as safety class or safety significant shall be designed to prevent free fall of loads. 2. Loading and unloading systems for lifting devices that are designated as safety class or safety significant shall be designed with a reliable system of interlocks that will fail safely upon malfunction.	All facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(d)	(d) Ventilation. 1. Design of high-level waste pretreatment, treatment, and storage facilities shall include ventilation through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the applicable requirements. 2. When conditions exist for generating gases in flammable and 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.	PUREX Tunnel: Gap – no filtration system All other facilities: No Gap.		
CH.II.P. (2)(e)	(e) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing high-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.	All other facilities: No Gap WESF, PUREX Tunnel, & Evaporator: Gap – design procedures need to include 435.1 requirement.		
CH.II.P. (2)(f)	(f) Maintenance Exposure Reduction. Remote maintenance features and other appropriate techniques to maintain as low as reasonably achievable (ALARA) personnel exposures shall be incorporated into each high-level waste facility.	All facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(g)	(g) Facilities for Receipt and Retrieval of High-Level Waste. 1. Designs for storage facilities shall incorporate features to facilitate retrieval capability. 2. High-level waste receipt and retrieval systems shall be designed to complement the existing storage facilities for safe storage and transfer of high-level waste.	All facilities: No Gap		
CH.II.P. (2)(h)	(h) Structural Integrity. Designs for new tanks shall contribute to the confinement requirement at Section II.P. (2)(b) of this Manual by: 1. Incorporating features to avoid critical degradation modes at the proposed site where practicable, or minimize degradation rates for the critical modes; and 2. Incorporating features to facilitate execution of the Structural Integrity Program required by Section II.Q. (2) of this Manual.	All facilities: No Gap for new facilities only.		
CH.II.P. (2)(i)	(i) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of high-level waste treatment storage, pretreatment, and treatment facilities to provide volume inventory data and to prevent spills, leaks and overflows from tanks or confinement systems.	All facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(j)	(j) Volume Monitoring Systems. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of high-level waste storage, pretreatment, and treatment facilities to provide rapid detection of failed confinement and/or other abnormal conditions.	All facilities: No Gap		
CH.II.Q.	Q. Storage. The following requirements are in addition to those in Chapter I of this Manual and also apply to facilities intended for management of high-level waste awaiting pretreatment, treatment or disposal, unless stated otherwise.			
CH.II.Q. (1)	(1) Operation of Confinement Systems. (a) Confinement systems shall be operated and maintained so as to preserve the design basis. (b) Secondary confinement systems, where provided, shall be operated to prevent any migration of wastes or accumulated liquid out of the waste confinement systems.	(a) All Facilities: No Gap (b) WESF: Gap – need to evaluate pools as secondary confinement All other facilities: No Gap	(c)	(d)

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (2)	(2) Structural Integrity Program. (a) Leak-Tight Tanks In-Service. A structural integrity program shall be developed for each high-level waste storage tank site to verify the structural integrity and service life of each tank to meet operational requirements for storage capacity. The program shall be capable of: Verifying the current leak-tightness and structural strength of each tank in service; Identifying corrosion, fatigue, and other critical degradation modes; Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; Providing credible projections as to when structural integrity of each tank can no longer be assured; and Identifying the additional controls necessary to maintain an acceptable operating envelope. (b) In-Service Tanks that Have Leaked or Are Suspect. For each high-level waste storage tank in-service that is known to have leaked, or is suspect, a modified structural integrity program shall be developed and implemented to identify the safe operational envelope. The modified program shall be capable of: Verifying the structural strength of each tank in-service which has leaked or is suspect; Identifying corrosion, fatigue and other critical degradation modes; Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; Determining which of the tanks that have leaked or are suspect may remain in service by identifying an acceptable safe operating envelope; Providing credible projections as to when the acceptable safe operational envelope can no longer be assured; and Identifying the additional controls necessary to maintain the acceptable safe operational envelope. When physical activities, as part of a structural integrity program, pose additional vulnerabilities, alternative measures shall be implemented to provide an acceptable storage operational envelope. (c) Other Storage Components. The structural integrity of other storage components shall be verified to assure leak tightness and structural strength.	All facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (3)	(3) Canistered Waste Form Storage. Canisters of immobilized high-level waste awaiting shipment to a repository shall be: (a) Stored in a suitable facility; (b) Segregated and clearly identified to avoid commingling with low-level, mixed low-level, or transuranic wastes; and (c) Monitored to ensure that storage conditions are consistent with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351, Waste Acceptance System Requirements Document, for non-vitrified immobilized high-level waste. Facilities and operating procedures for storage of vitrified high-level waste shall maintain the integrity of the canistered waste form.	All facilities: No Gap, this only applies to canister storage		
CH.II.R.	R. Treatment. Treatment shall be designed and implemented in a manner that will ultimately comply with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	All Facilities: No Gap		
CH.II.S.	S. Disposal. Disposal of high-level waste must be in accordance with the provisions of the Atomic Energy Act of 1954, as amended, the Nuclear Waste Policy Act of 1982, as amended, or any other applicable statutes.	All Facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.T.	T. Monitoring. High-level waste pretreatment, treatment, storage, and transportation facilities shall be monitored for chemical, physical, radiological, structural, and other changes that could indicate failure of system confinement, integrity, or safety, and which could lead to abnormal events or accidents. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, flammable or explosive mixtures of gases, level and/or waste volume, and significant waste chemistry parameters for non-immobilized high-level waste. Facility monitoring programs shall also include physical inspections to verify that control systems have not failed.	PUREX Tunnel, WESF, & Evaporator: GAP – do not monitor per minimum requirements. Parameters monitored in these facilities are identified in safety documents and data collection procedures. Need further evaluation to apply requirement to facility. All other facilities: No Gap		

Citation	435.1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.U.	U. Closure. The following requirements for closure of deactivated high-level waste facilities and sites are in addition to those in Chapter I of this Manual. (1) Decommissioning. Deactivated high-level waste facilities/sites shall meet the decommissioning requirements of DOE O 430.1A, Life-Cycle Asset Management and the requirements of DOE 5400.5, Radiation Protection of the Public and the Environment, for release; or (2) CERCLA Process. Deactivated high-level waste facilities/sites shall be closed in accordance with the CERCLA process as described in Section I.2.F. (5); or (3) Closure. Deactivated high-level waste facilities/sites shall be closed in accordance with an approved closure plan as specified below. Residual radioactive waste present in facilities to be closed shall satisfy the waste incidental to reprocessing requirements of this Chapter. (a) Facility/Site Closure Plans. A closure plan shall be developed for each deactivated high-level waste facility/site being closed that defines the approach and plans by which closure of each facility within the site is to be accomplished. This plan shall be completed and approved prior to the initiation of physical closure activities, and updated periodically to reflect current analysis and status of individual facility closure actions. The plan shall include, at a minimum, the following elements: 1. Identification of the closure standards/performance objectives to be applied from Chapter III or IV, as appropriate; 2. A strategy for allocating waste disposal facility performance objectives from the closure standards identified in the closure plan among the facilities/units to be closed at the site; 3. An assessment of the projected performance of each unit to be closed relative to the performance objectives allocated to each unit under the closure plan; 4. An assessment of the projected composite performance of all units to be closed at the site relative to the performance objectives and closure standards identified in the closure plan; and Any other relevant closure controls including a monitoring plan, institutional controls, and land use limitations to be maintained in the closure activity.	All Facilities: No Gap, no deactivated HLW facilities, therefore this requirement does not apply		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.V.	V. Specific Operations. Specific requirements are provided for the operation of lifting devices and facilities for receipt and retrieval of high-level waste.			
CH.II.V. (1)	(1) Operation of Lifting Devices. Hoisting and rigging activities shall be conducted in accordance with the guidance provided in the DOE Standard "Hoisting and Rigging" (DOE-STD-1090-96).	1) All Facilities: No Gap		
CH.II.V. (2)	(2) Operation of Facilities for Receipt and Retrieval of High-Level Waste. High-level waste receipt and retrieval systems shall be operated and maintained consistent with high-level waste system features incorporated in the facilities. Strategies for retrieval of waste shall be analyzed to ensure that structural and radiological impacts are consistent with the facility design basis.	2) All other Facilities: No Gap PUREX Tunnel: No Gap for current operations PUREX Tunnel: Gap for future waste transfer activities		
CHAPTER III	TRANSURANIC WASTE REQUIREMENTS			
CH.III.A.	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:	All Facilities: No Gap. Note: "All Facilities" applies to TRU facilities only.		
CH.III.A. (1)	(1) High-level radioactive waste; (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 (3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	All Facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter: (1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, and a radioactive component subject to the Atomic Energy Act of 1954, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual. (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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (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, Radioactive Waste Management, and this Manual.	All Facilities: No gap		
CH.III.C.	C. Complex-Wide Transuranic Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	All facilities: Potential gap depending upon results of complex-wide plan which is HQ activity.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.D.	D. Radioactive Waste Management Basis. Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis: (1) Generators. The waste certification program. (2) Treatment Facilities. The waste acceptance requirements and the waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program. (4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.	All Facilities: Gap. Each facility will need to develop its waste management basis documentation. SNF generates and may store TRU.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (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, Radioactive Waste Management, 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, Radioactive Waste Management, and this Manual.	PUREX Tunnel, LLBG, WESF, WSCF, LWPF, & Evaporator: NO GAP – do not store liquid TRU. All other facilities: Gap – need to implement for tanks and bulk container storage (not bottles or lab packs)		
CH.III.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	All Facilities: No Gap		
CH.III.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.G. (1)	(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: (a) Allowable activities and/or concentrations of specific 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; (c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance; (d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and (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	CWC, T-Plant, LLBG, & WRAP: Gap – HNF-EP-0063 Rev 5 does not capture the requirement for generators to identify defense vs. non-defense TRU 222-S: Gap – 222-S needs to formalize acceptance requirements or demonstrate that existing documents meet this section. For waste that is internally generated or stored, a graded approach will be employed to apply the appropriate requirements. PUREX Tunnels: Gap – there are currently no formal TRU waste acceptance procedures for PUREX Tunnels, however, this facility is not currently accepting waste. For SNF, evaluate 1C columns in vaults to determine storage status and requirements. All other facilities: No Gap		
CH.III.G. (2)	(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.	All Facilities: No gap		
CH.III.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.H. (1)	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.	All Facilities: Gap Need to develop a lifecycle waste planning process to be performed prior to waste generation		
CH.III.H. (2)	(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: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the	All Facilities: Gap – It does not appear there is a documented and reliable process in place to ensure that no path forward waste is evaluated prior to generation. Legacy no-path-forward waste exists in some facilities.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.I	I. Waste Characterization. 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. (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. (2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; (g) Packaging date; and (h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	LLBG--No Gap. All other facilities: 1. Waste generators do not consistently use the Data Quality Objectives process or an equivalent process to plan characterization activities. 2. This section requires more detailed documentation of characterization data than are commonly practiced, particularly for "indirect methods". 3. There are minor gaps in "minimum waste characterization" requirements.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met. (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.. (2) Certification Before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste (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.	No gap for waste managed through the Hanford Site TRU WIPP Certification Program. All other facilities: Gap. Facilities have waste certification programs, but they generally do not incorporate all of the 435.1 certification program requirements, particularly as described in the Guidance. The following gaps exist at some or all generating organizations: • Identification of a specific certification official for each facility to which waste will be shipped. • Certification plans should address elements identified in the Guidance. In the case where waste is generated and stored internal to the generator a graded approach to waste certification will be applied.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.K.	K. Waste Transfer. 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. (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. (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.	All Facilities: No Gap		
CH.III.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.L. (1)	(1) Packaging. (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. (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. (c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible. (d) Containers of transuranic waste shall be marked such that their contents can be identified.	a) PUREX Tunnel--Gap. All other facilities – No Gap b) No gap c) HNF-EP-0063 Rev 5 does not capture the requirement for generators to package TRU defense waste separately from non-defense TRU waste; PUREX Tunnel - no gap d) Gap - PUREX Tunnel not labeled per requirement; all other facilities – No Gap		
CH.III.L. (2)	(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.	All facilities: Gap – no program in place to minimize number of shipments.		
CH.III.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.M. (1)	(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. (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. (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.	All Facilities: Gap - Need to address in siting and facility change control processes.		
CH.III.M. (2)	2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:			
CH.III.M. (2)(a)	(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.	All Facilities: (a) No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.M. (2)(b)	(b) Ventilation. 1. Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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.	All Facilities: No Gap (b)(1) No Gap (b)(2) No Gap, flammables are managed on a container basis per safety document		
CH.III.M. (2)(c)	(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.	(c) GAP – design procedures for new and modified facilities need to include 435.1 requirements		
CH.III.M. (2)(d)	(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.	All Facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.M. (2)(e)	(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.	All Facilities: No Gap		
CH.III.N.	N. Storage. The following requirements are in addition to those in Chapter I of this Manual.			
CH.III.N. (1)	(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.	All Facilities: No gap.		
CH.III.N. (2)	(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.	All Facilities: No gap.		
CH.III.N. (3)	(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.	PUREX Tunnel and IC storage: Gap exists – Inspection cannot be performed. All other facilities: No Gap. Facilities have procedure governing container inspection		
CH.III.N. (4)	(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.	No Gap.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.O.	O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.	All Facilities: No gap		
CH.III.P.	P. Disposal. 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.	All facilities: No Gap – no gap exists for this manual requirement at the Hanford Site.		
CH.III.Q.	Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.			
CH.III.Q. (1)	(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.	CWC, WRAP, T-Plant, PUREX Tunnel, 222S Laboratories: Gap – do not monitor per minimum requirements. Parameters monitored in these facilities are identified in safety documents and data collection procedures. Compliance or waiver required. LLBG: GAP – need to establish monitoring to support future TRU storage. Effluent monitoring not a gap per DOE/RL-91-50. All other facilities: No Gap – no other facilities store TRU waste, therefore requirement does not apply.		
CH.III.Q. (2)	(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.	All facilities: No Gap.		
CH.III.Q. (3)	(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	All facilities: No Gap		
CHAPTER IV	LOW-LEVEL WASTE REQUIREMENTS			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.A.	A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e. (2) of the Atomic Energy Act of 1954, as amended), or naturally occurring radioactive material.	All Facilities: No gap		
CH.IV.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
	(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual. (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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, Radioactive Waste Management, and this Manual, and all applicable Federal or State requirements. (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.	All Facilities: No gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.C.	Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	All facilities: Potential gap depending upon results of complex-wide plan which is HQ activity		
CH.IV.D.	D. Radioactive Waste Management Basis. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:			
	(1) Generators. The waste certification program. (2) Treatment Facilities. The waste acceptance requirements and the waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program. (4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.	All Facilities: Gap. Each facility will need to develop its waste management basis documentation. Need to determine application of treatment definition on a sitewide basis.		
CH.IV.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual.			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
	(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. (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, Radioactive Waste Management, and this Manual.	PUREX Tunnel: No Gap All other facilities: GAP – need to determine for each situation if liquid is "high activity or high hazard" and if this requirement applies		
CH.IV.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.F. (1)	(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	All facilities: No Gap		
CH.IV.F. (2)	(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.	All facilities: No Gap		
CH.IV.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual:			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.G. (1)	(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: (a) Allowable activities and/or concentrations of specific 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. (c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance. (e) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements: 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. 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. 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. 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. 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. (d) 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.	LLBG, CWC, T-Plant, WRAP, LWPF (liquids): No gap. PUREX Tunnels: Gap – There are currently no formal LLW waste acceptance procedures for PUREX Tunnels, however, this facility is not currently accepting waste. WESF, Evaporator, 222-S, WSCF (solids): Gap. These facilities need to formalize acceptance requirements or demonstrate that existing documents meet this section. (For waste that is internally generated or stored, a graded approach will be employed to apply the appropriate requirements.)		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.G. (2)	(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.	All Facilities: No gap.		
CH.IV.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.H. (1)	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.	All Facilities: Gap Need to develop a lifecycle waste planning process to be performed prior to waste generation		
CH.IV.H. (2)	(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: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste.	All Facilities: Gap – It does not appear there is a documented and reliable process in place to ensure that no path forward waste is evaluated prior to generation.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.I.	I. Waste Characterization. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the 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. Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; and (g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	All Facilities: Gaps exist, as follows: This section requires more detailed documentation of characterization data than are commonly practiced, particularly for "indirect methods". Waste generators do not consistently use the Data Quality Objectives process or an equivalent process to plan characterization activities. There are minor gaps in "minimum waste characterization" requirements.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met. (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. (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. (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.	All Facilities: Gap. Facilities waste certification programs generally do not incorporate all of the 435.1 certification program requirements. The following gaps exist at some or all Hanford waste generating organizations: • Identification of a specific certification official for each facility to which waste will be shipped. • Certification plans do not address all of the elements identified in the Guidance. Waste generated and stored internal to the generator situation shall employ a graded approach to waste certification.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.K.	K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual. (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. (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.	All Facilities: No gap		
CH.IV.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.L. (1)	(1) Packaging. If containers are used: (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. (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. (c) Containers of low-level waste shall be marked such that their contents can be identified.	PUREX Tunnel: (a) Does not apply (b) No Gap (c) Gap - Waste not labeled per requirement. All other facilities: No gap.		
CH.IV.L. (2)	(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.	All facilities: Gap – no program in place to minimize number of shipments.		
CH.IV.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (1)	(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. (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: 1. Located to accommodate the projected volume of waste to be received; 2. Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and 3. Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled (b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility. (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.	All Facilities: Gap – Need to address siting and facility change control processes.		
CH.IV.M. (2)	(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:			
CH.IV.M. (2)(a)	Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	All Facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (2)(b)	(b) Ventilation. 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. 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.	All Facilities: (1) No Gap (2) No Gap, flammables are managed on a container basis per safety document.		
CH.IV.M. (2)(c)	(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.	Gap – design procedures need to include 435.1 requirements		
CH.IV.M. (2)(d)	(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.	All Facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (2)(e)	(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.	All Facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (3)	(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply: (a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement. (b) Ventilation. 1. Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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. (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. (e) 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.	All facilities: No Gap		
CH.IV.N.	N. Storage and Staging. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.N. (1)	(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.	All facilities: No gap		
CH.IV.N. (2)	(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.	LWPF, T-Plant, CWC, WRAP, PUREX Tunnel, 222-S, WSCF: Gap – Storage of low level waste for more than 1 year must be justified. Implement limit in procedure. All other facilities: Need to revise procedures to include 1 year time limit. LLBG: No Gap		
CH.IV.N. (3)	(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.	All facilities: No gap		
CH.IV.N. (4)	(4) Waste Characterization for Storage.			
CH.IV.N. (4)(a)	(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.	All facilities: Gap - currently, waste without an identified path forward might not have undergone the DQO process to assess characterization requirements.		
CH.IV.N. (4)(b)	(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.	PUREX Tunnel: Gap – records not stored compliant with requirements . All other facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.N. (5)	(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.	PUREX Tunnel: Gap exists – inspection cannot be performed. All other facilities: No Gap – facilities have procedures governing container inspection		
CH.IV.N. (6)	(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	LWPF, 222-S, T-Plant, WESF: Gap – commingling of mixed and low level waste in waste tanks may occur. All other facilities: Gap – low level and mixed are not segregated from the same immediate area storage as per guide.		
CH.IV.N. (7)	(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.	T-Plant, CWC, WRAP, LWPF: NO GAP All other facilities: Gap – 90 day staging conditions are not contained in current facility procedures.		
CH.IV.O.	O. Treatment. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.	All facilities: No Gap		
CH.IV.P.	P. Disposal. Low-level waste disposal facilities shall meet the following requirements.			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (1)	(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: (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. (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. (c) Release of radon shall be less than an average flux of 20 pCi/m2/s (0.74 Bq/m2/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/1 (0.0185 Bq/l) of air may be applied at the boundary of the facility.	All facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (2)	(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. (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. (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. (c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials. (d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults. (e) The performance assessment shall include a sensitivity/uncertainty analysis. (f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA). (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. (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.	All facilities: No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (3)	(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.	All facilities: No Gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (4)	(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. (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. (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. (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.	All facilities: No Gap.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (5)	(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.	No Gap. DAS issued for LLBG. DAS contains additional requirements that are not included here, since they are to be met aside from 435.1 implementation.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (6)	(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: (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. (b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced. (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. (d) Operations are to be conducted so that active waste 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.	All facilities: No Gap – This requirement only applies to LLBG (a) LLBG: Gap – procedures are in place for safe operations but closure requirements are not captured. LLBG: No Gap exceptfor closure plans needed per IV.Q.(1).		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (7)	(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.	All facilities: No Gap		
CH.IV.Q.	Q. Closure. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.Q. (1)	(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: (a) Be updated as required during the operational life of the facility. (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, Radiation Protection of the Public and the Environment. (c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	LLBG: Gap – closure plan does not comply with requirements. DAS requires closure plan by 10-25-00.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.Q. (2)	(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. (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. (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. (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, Radiation Protection of the Public and the Environment. (d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	LLBG: Gap. DAS requires closure plan by 10-25-00.		
CH.IV.R.	R. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.R. (1)	(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.	All Facilities: Gap – Waste not monitored per minimum requirements, parameters monitored are identified per safety documents and data collection procedure exist, need to revise or request waiver. Effluent monitoring is no gap per DOE/RL-91-50.		
CH.IV.R. (2)	(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.	PUREX Tunnel: No Gap All other facilities: Gap – Waste not monitored per minimum requirements, parameters monitored are identified per safety documents and data collection procedure exist, need to revise or request waiver. Effluent monitoring is no gap per DOE/RL-91-50.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.R. (3)	(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. (a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored. (b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance. (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.	All facilities: No Gap – LLBG monitoring per DOE/RL-91-50		

ATTACHMENT 2

FLUOR HANFORD, SPENT NUCLEAR FUEL PROJECT (K BASINS)

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THE 435.1 SNF PROJECT SIGNIFICANT IMPACTS LIST

1. 'Authorization' of all waste management activities by DOE via the Radioactive Waste Management Basis Statement.

2. Institution of a 90-day clock for low-level waste staging.

3. Application of treatment and storage requirements to generating facilities. Some facilities may also store waste they generate. The definition of treatment is so broad that almost all facilities engage in treatment of wastes that are generated.

4. The institution of a 1-year storage limit for low-level waste. A waiver needs to be provided to store waste longer than one year at K Basins.

5. A demonstration of compliance with the substantive requirements of 435.1 for the CERCLA remedial action taking place at the K Basins must be provided for HQ approval.

6. A waste generation planning process needs to be completed prior to commencing the activity generating the waste.

7. Waste generation and characterization processes need to be upgraded to implement the DQO process or equivalent to waste characterization activities, waste transfer authorization, waste certification, etc.

8. The application of DOE Orders called out in the DOE Order 435.1 but not in the FH contract must be resolved. Resolution may result in addition of a dozen new Orders to contract.

9. The application of contingency storage, design and monitoring requirements at TSDs must be clarified. Strict application of these requirements could result in significant facility and operational changes.

10. The prohibition on commingling of mixed and low-level waste must be implemented at all facilities. Implementation includes separation of containers of each waste type which is currently not in operating procedures.

11. Implement a process to minimize the number of waste shipments.

ASSUMPTIONS

The gap analysis provided herein are based on the following:

1. The radioactive waste management activities performed pursuant to this Order are listed per Table 2-I.
2. Waste generated then treated or stored at the facility of generation will employ a graded approach in applying treatment and storage requirements found in the Order. In general, waste acceptance, certification, and waste transfer requirements will be tailored to the facility.
3. Based on the guidance, the requirements of Chapters III and IV sections E and M(2) (d) and (e) applies to liquids in tanks or in bulk containers of 55 gallons or larger. The requirement does not apply to liquids in lab pack form.
4. Radioactive material and radioactively contaminated material and equipment that is out of service or not being used is not considered waste until it is being collected in preparation for treatment, storage or disposal.
5. Confinement specified per Chapter II P(2)(b) and ventilation per Chapters III and IV M(2)(b)(1) means control or retention within the designated boundary not secondary containment.
6. Waste preexisting to the Order implementation will not be required to comply with requirements of the Order; for example characterization, DQO for no path forward waste in storage, and planning.
7. The actions taken on the part of the DOE to comply with Chapter I sections 2 A through F will not impact the contractor.
8. The 90 clock for staging of low-level waste will be implemented as per the paper entitled "Proposed Implementation for 90-day Staging Limit" on page 1-3.
9. As per the guidance a no path forward waste is one without a route to and/or not possessing a final disposal facility including either existing facilities or new facility construction that is a line item on the Congressional budget. Those waste types determined to be without a path forward are: non-defense related TRU, TSCA regulated TRU, classified TRU, TRU items that can not be packaged per TRUPACT II requirements, greater than class 3 low-level waste that can not be demonstrated as compliant, and mixed waste that does not have a treatment path. It is assumed that D001 through D003 TRU waste can be processed by INEL and RH TRU waste can be processed by Oak Ridge.
10. The requirements of Chapters III section Q(3) and IV section R(2), as per the guidance, applies to tank storage of liquids not containers.

Table 2-I. Radioactive Waste Management Activity Versus Facility Applicability Matrix.
Spent Nuclear Fuels Projects

Facility	High-Level Waste - Chapter II								Transuranic Waste - Chapter III								Low-Level Waste - Chapter IV							
	Generator		Treatment		Storage		Disposal		Generator		Treatment		Storage		Disposal		Generator		Treatment		Storage		Disposal	
	S	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*	*S*	*L*[c]	*S*	*L*
SNF	N	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y	Y[a]	N	Y[c]	N	Y[a]	N	N

Legend:
Y - The radioactive waste management activity applies to that facility and therefore the relevant DOE O 435.1 requirements for that activity were evaluated.
N - The radioactive waste management activity does not apply to that facility and therefore the relevant DOE O 435.1 requirements for that activity do not apply to that facility.
S - Solid waste stream
L - Liquid waste stream

Notes:
a- Liquid LLW generation and storage in these facilities is an internal process so a graded approach to the application of these requirements is appropriate.
b- Facilities may perform simple neutralization, compaction, absorption, etc. treatments to waste generated at the facility.
c - The Cold Vacuum Drying facility may store low-level liquid waste to be sent to LWPF.

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
INTRO	INTRODUCTION			
Intro. Para. 1.	1. PURPOSE. This Manual further describes the requirements and establishes specific responsibilities for implementing DOE O 435.1, Radioactive Waste Management, for the management of DOE high-level waste, transuranic waste, low-level waste, and the radioactive component of mixed waste. The purpose of the Manual is to catalog those procedural requirements and existing practices that ensure that all DOE elements and contractors continue to manage DOE's radioactive waste in a manner that is protective of worker and public health and safety, and the environment.	NO ACTION REQUIRED – Statement of Purpose only		
Intro. Para. 2	2. APPLICABILITY. The requirements set forth in this Manual apply to DOE elements and contractors as set forth in DOE O 435.1, Radioactive Waste Management.	NO ACTION REQUIRED		
Intro. Para. 3	3. SUMMARY. This Manual is organized into four (4) chapters. Chapter I, General Requirements and Responsibilities, contains requirements and responsibilities which are applicable to all radioactive waste types and delineates responsibilities for radioactive waste management decision-making at the complex-wide and Field Element levels. Chapters II through IV contain those requirements that are applicable to high-level waste, transuranic waste, and low-level waste including the radioactive component of mixed low-level waste, respectively.	NO ACTION REQUIRED		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
Intro. Para. 4	4. IMPLEMENTATION. The requirements of this Manual apply to all new and existing DOE radioactive waste management facilities, operations, and activities. Implementation of the requirements shall begin at the earliest possible date, and all DOE entities shall be in compliance with this directive within one year of its issuance. Compliance with this directive includes implementing the requirements or an approved implementation or corrective action plan. If compliance with this Order cannot be achieved within one year of its issuance, the Field Element Manager must request approval to extend the compliance date to no later than October 1, 2001, from the cognizant Program Secretarial Officer (PSO). Failure to implement the requirements of this directive shall, through the appropriate lines of management, result in corrective actions including, if necessary, shutdown of radioactive waste management facilities, operations, or activities until the appropriate requirements are implemented. Any of the requirements in this Manual may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, the applicable or relevant and appropriate requirements identification process for actions taken pursuant to the Department's CERCLA authorities, or by an exemption processed in accordance with the requirements of DOE M 251.1-1A, Directives System Manual.	Implementation plan will address this requirement. Refer to Table 1. Facilities whose SRID includes the referenced Order or document, that is a "Y" is indicated, there is no gap. Those facilities where the SRID does not include the referenced Order or document, that is a "N" is indicated, there is a gap or the reference is not included in the contract.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
Intro. Para. 5	5. REVISIONS. Systematic planning, execution, and evaluation of radioactive waste management facilities, operations, and activities will provide the basis for evaluating the adequacy of and, if necessary, revising the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. The revision process will be based on DOE P 450.4, Safety Management System Policy, and will implement continuous improvement for management of radioactive waste. The process includes: identifying the functions necessary to execute radioactive waste management responsibilities; conducting an analysis of the hazards associated with performing those functions; developing and implementing the proper controls to mitigate any associated hazards; developing and implementing a periodic assessment of work performance; and providing feedback to revise the work processes and incorporate lessons learned, as appropriate. Administrative requirements of the Order and Manual will be revised as needed to support safe and efficient waste management.	NO ACTION REQUIRED.		
Intro. Para. 6	6. DEFINITIONS. Definitions for DOE M 435.1-1, Radioactive Waste Management Manual, are provided in Attachment 2.	NO ACTION REQUIRED		
Intro. Para. 7	7. REFERENCE. DOE O 435.1, Radioactive Waste Management, dated 7-09-99.	NO ACTION REQUIRED		
Intro. Para. 8	8. CONTACT. Call the Office of Waste Management at (202) 586-0370.	NO ACTION REQUIRED		
CHAPTER I	GENERAL REQUIREMENTS AND RESPONSIBILITIES			
CH.I.1	1. REQUIREMENTS			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.A.	A. Delegation of Authority. Managers charged with responsibilities within this Manual may delegate authority for these tasks to another manager. All delegations of authority shall be documented.	NO ACTION REQUIRED		
CH.I.1.B.	B. Use of Guidance. Additional information supporting the requirements in this Manual is contained in the Implementation Guide for use with DOE M 435.1-1, Radioactive Waste Management Manual. This Guide, DOE G 435.1-1, Implementation Guide for DOE M 435.1-1, shall be reviewed when implementing the requirements of this Manual. The Guide provides additional information and acceptable methods for meeting the requirements. Other methods may be used but must ensure an adequate level of safety commensurate with the hazards associated with the work and be consistent with the radioactive waste management basis.	NO ACTION REQUIRED		
CH.I.1.C.	C. Radioactive Waste Management. All radioactive waste subject to DOE O 435.1, Radioactive Waste Management, and the requirements of this Manual shall be managed as high-level waste, transuranic waste, low-level waste, or mixed low-level waste.	No Gap		
CH.I.1.D.	D. Analysis of Environmental Impacts. Existing and proposed radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 1021, National Environmental Policy Act Implementing Procedures; and DOE O 451.1A, National Environmental Policy Act Compliance Program. All reasonable alternatives shall be considered, as appropriate. Nothing in this Order is meant to restrict consideration of alternatives to proposed actions.	No Gap – compliance per HNF-PRO-452. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E.	E. Requirements of Other Regulations and DOE Directives. The following requirements and DOE directives are required for all DOE radioactive waste management facilities, operations, and activities as applicable. Any of the requirements for the following Departmental directives may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, or by an exemption processed in accordance with the requirements of that directive or DOE M 251.1-1A, Directives System Manual.			
CH.I.1.E. (1)	(1) Analysis of Operations Information. Data that measure the environment, safety, and health performance of radioactive waste management facilities, operations, and activities shall be identified, collected, and analyzed as required by DOE O 210.1, Performance Indicators and Analysis of Operations Information.	No Gap. See Table 1.		
CH.I.1.E. (2)	(2) Classified Waste. Radioactive waste to which access has been limited for national security reasons and cannot be declassified shall be managed in accordance with the requirements of DOE 5632.1C, Protection and Control of Safeguards and Security Interests, and DOE 5633.3B, Control and Accountability of Nuclear Materials.	No Gap. See Table 1.		
CH.I.1.E. (3)	(3) Conduct of Operations. Radioactive waste management facilities, operations, and activities shall be conducted in a manner based on consideration of the associated hazards. Waste management facilities, operations, and activities shall meet the requirements of DOE 5480.19, Conduct of Operations Requirements for DOE Facilities.	No gap identified. See Table 1.		
CH.I.1.E. (4)	(4) Criticality Safety. Radioactive waste management facilities, operations, and activities shall be covered by a criticality safety program in accordance with DOE O 420.1, Facility Safety.	All Facilities: A gap exists since the new requirement stems from DOE O 420.1, not a contract requirement for FDH. Instead of DOE O 420.1, K basins facilities follow these DOE orders for implementation of their Criticality Safety Program: 5480.228, 5480.7A, 6430.1A, and 5480.24. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (5)	(5) Emergency Management Program. Radioactive waste management facilities, operations, and activities shall maintain an emergency management program in accordance with DOE O 151.1, Comprehensive Emergency Management System.	No Gap. See Table 1.		
CH.I.1.E. (6)	(6) Environmental and Occurrence Reporting. Radioactive waste management facilities, operations, and activities shall meet the reporting requirements of DOE O 231.1, Environment, Safety and Health Reporting, and DOE O 232.1A, Occurrence Reporting and Processing of Operations Information.	Gap – Order 231.1 is not in contract. Compliant with order 5484.1 in contract and 232.1A. See Table 1.		
CH.I.1.E. (7)	(7) Environmental Monitoring. Radioactive waste management facilities, operations, and activities shall meet the environmental monitoring requirements of DOE 5400.1, General Environmental Protection Program, and DOE 5400.5, Radiation Protection of the Public and the Environment.	No Gap – compliance per DOE/RL-91-50, Rev. 2. See Table 1.		
CH.I.1.E. (8)	(8) Hazard Analysis Documentation and Authorization Basis. Radioactive waste management facilities, operations, and activities shall implement DOE Standards, DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE 5480.23, Nuclear Safety Analysis Reports, and/or DOE-EM-STD-5502-94, DOE Limited Standard: Hazard Baseline Documentation, and shall, as applicable, prepare and maintain hazard analysis documentation and an authorization basis as required by DOE O 425.1A, Startup and Restart of Nuclear Facilities, DOE O 5480.21, Unreviewed Safety Questions, DOE 5480.22, Technical Safety Requirements, and DOE 5480.23, Nuclear Safety Analysis Reports.	No Gap. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (9)	(9) Life-Cycle Asset Management. Planning, acquisition, operation, maintenance, and disposition of radioactive waste management facilities shall be in accordance with DOE O 430.1A, Life-Cycle Asset Management, and DOE 4330.4B, Maintenance Management Program, including a configuration management process to ensure the integrity of physical assets and systems. Corporate physical asset databases shall be maintained as complete, current inventories of physical assets and systems to allow reliable analysis of existing and potential hazards to the public and workers.	GAP – Order 430.1 Referenced here is not in contract. Evaluated gap to Order that is in contract, 4330.4B and Order 430.1A. See Table 1.		
CH.I.1.E. (10)	(10) Mixed Waste. Radioactive waste that contains both source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component is also subject to the Resource Conservation and Recovery Act (RCRA), as amended.	No Gap – compliance per HNF-PRO-455. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (11)	(11) Packaging and Transportation. Radioactive waste shall be packaged and transported in accordance with DOE O 460.1A, Packaging and Transportation Safety, and DOE O 460.2, Departmental Materials Transportation and Packaging Management.	All facilities: GAP . See Table 1. DOE Order 435.1 *Radioactive Waste Management,* has applicability to the Hanford Site transportation and packaging guidance documents and procedures (HNF-PROs). The Order should be referenced and it's requirements covered in the following transportation and packaging HNF-PROs. HNF-PRO 154, *Responsibilities and Procedures for All Hazardous Material shipments.* HNF-PRO-156, *Non-radioactive Hazardous Materials/Hazardous Waste (HM/HW) Shipments.* HNF-PRO-157, *Radioactive Material/Waste Shipments.* HNF-PRO-163, *Documentation and Record Keeping.*		
CH.I.1.E. (12)	(12) Quality Assurance Program. Radioactive waste management facilities, operations, and activities shall develop and maintain a quality assurance program that meets the requirements of 10 CFR 830.120, Quality Assurance Requirements, and DOE O 414.1, Quality Assurance, as applicable.	No Gap. See Table 1.		
CH.I.1.E. (13)	(13) Radiation Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 835, Occupational Radiation Protection, and DOE 5400.5, Radiation Protection of the Public and the Environment.	No Gaps, in full compliance. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (14)	(14) Records Management. Radioactive waste management facilities, operations, and activities shall develop and maintain a record-keeping system, as required by DOE O 200.1, Information Management Program, and DOE O 414.1, Quality Assurance. Records shall be established and maintained for radioactive waste generated, treated, stored, transported, or disposed. To the extent possible, records prepared in response to other requirements may be used to satisfy the documentation requirements of this Manual. Additional records may be required to satisfy the regulations applicable to the hazardous waste components of mixed waste.	No Gap. See Table 1.		
CH.I.1.E. (15)	(15) Release of Waste Containing Residual Radioactive Material. Processes for determining and documenting that waste is suitable to be released and managed without regard to its radioactive content shall be in accordance with the criteria and requirements in DOE 5400.5, Radiation Protection of the Public and the Environment.	No Gap. See Table 1.		
CH.I.1.E. (16)	(16) Safeguards and Security. Appropriate features shall be incorporated into the design and operation of radioactive waste management facilities, operations, and activities to prevent unauthorized access and operations, and for purposes of nuclear materials control and accountability, where applicable; and shall be consistent with DOE O 470.1, Safeguards and Security Program.	No Gap – compliance per HNF-PRO-394. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (17)	(17) Safety Management System. Radioactive waste management facilities, operations, and activities shall incorporate the principles of integrated safety management as described in DOE P 450.4, Safety Management System Policy, and DOE P 450.5, Line Environment, Safety and Health Oversight, and meet the requirements of the safety management systems sections of 48 CFR Chapter 9, Department of Energy Acquisition Regulations and DOE M 411.1-1, Manual of Safety Management Functions, Responsibilities, and Authorities.	No Gap. See Table 1.		
CH.I.1.E. (18)	(18) Site Evaluation and Facility Design. New radioactive waste management facilities, operations, and activities shall be sited and designed in accordance with DOE O 420.1, Facility Safety, and DOE O 430.1A, Life-Cycle Asset Management.	Gap: DOE O 420.1 is not in contract SNF follows these orders: 5480.22, 5480.21, and 5480.23. Follows requirement per I.1.E(8). See Table 1.		
CH.I.1.E. (19)	(19) Training and Qualification. A training and qualification program shall be implemented for radioactive waste management program personnel, and shall meet the requirements of DOE O 360.1, Training, and DOE 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.	Gap – DOE O 360.1 is not in contract. Gap evaluated for compliance with 5480.20A which is in contract. All facilities are compliant with 5480.20A. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (20)	(20) Waste Minimization and Pollution Prevention. Waste minimization and pollution prevention shall be implemented for radioactive waste management facilities, operations, and activities to meet the requirements of Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, and Executive Order 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, and DOE 5400.1, General Environmental Protection Program.	No Gap. The Order 5400.1 and EO 12856 are in our contract, no gap exists for these two requirements. EO 13101 includes requirements for procurement of biobased products and for agency waste reduction goals that are not included in the current Project Hanford Management Contract (PHMC) (FR, 1998). Further study will be required to determine the impact of EO 13101 requirements that are included in amended contracts in the future. At this time, based on the current PHMC, we do not anticipate any additional resource burden associated with the implementation of these requirements that would require additional funding or other resource support. See Table 1.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (21)	(21) Worker Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor Employees.	Gap. DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, is not in the contract and the gap analysis provided here is based on the equivalent old Orders. Those old Orders, which are specified in the contract, are: 5480.4, *Environmental Protection, Safety, and Health Protection Standards* 5480.7A, *Fire Protection* 5480.8A, *Contractor Occupational Medical Program* 5480.9A, *Construction Project Safety and Health Management* 5480.10, *Contractor Industrial Hygiene Program* 5480.16A, *Firearms Safety* 5483.1A, *Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated (GOCO) Facilities* The above Orders have been in place and the numerous oversight and self-assessment activities that assure ongoing compliance with requirements of those Orders, no programmatic gaps have been identified. In some instances, Order requirements are not applicable to Projects/facilities. Examples include requirements of Order 5480.16Awhich fall under the Site security contractor and management of the occupational medical program that resides with the Site medical contractor. See Table 1.		
CH.I.2.	2. RESPONSIBILITIES			

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Section	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.A.	A. Program Secretarial Officers. Program Secretarial Officers with radioactive waste management facilities, operations, or activities are responsible within their respective programs for ensuring that the Field Element Managers meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.	-	
CH.I.2.B.	B. Assistant Secretary for Environmental Management. The Assistant Secretary for Environmental Management is responsible for:	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.B. (1)	Complex-Wide Radioactive Waste Management Programs. Establishing and maintaining integrated Complex-Wide Radioactive Waste Management Programs for high-level, transuranic, low-level, and mixed low-level waste. These programs shall use a systematic approach to planning, execution, and evaluation to ensure that waste generation, storage, treatment, and disposal needs are met and coordinated across the DOE complex.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.B. (2)	(2) Changes to Regulations and DOE Directives. Ensuring changes to regulations and DOE directives are reviewed and, when necessary, incorporated into revisions of this Manual to ensure the basis for safe radioactive waste management facilities, operations, and activities is maintained.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.C	C. Assistant Secretary for Environment, Safety, and Health. The Assistant Secretary for Environment, Safety and Health is responsible for providing an independent overview of DOE radioactive waste management and decommissioning programs to determine compliance with DOE environment, safety, and health requirements and applicable Environmental Protection Agency (EPA) and state regulations, including:	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.C (1)	Advising the Secretary of the status of Departmental compliance with the requirements of DOE O 435.1, this Manual, and applicable provisions of other DOE Orders.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.C (2)	(2) Conducting independent appraisals and audits of DOE waste management programs.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.C (3)	(3) Reviewing site Waste Management Plans with regard to compliance with DOE environment, safety, and health requirements.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.D	D. Deputy Assistant Secretary for Waste Management. The Deputy Assistant Secretary for Waste Management is responsible for:	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.D (1)	(1) Complex-Wide Radioactive Waste Management Program Plans. Developing, implementing, and maintaining integrated Complex-Wide Radioactive Waste Management Program Plans for high-level, transuranic, low-level, and mixed low-level waste. Each plan shall, at the DOE complex-wide level, describe the functional elements, organizations, responsibilities, and activities that comprise the system needed to store, treat and dispose of radioactive waste in a manner that is protective of the public, workers, and the environment. In addition, the plans shall: (a)sent a waste management strategy that integrates waste projections and life-cycle waste management planning into complex-wide facility configuration decisions; and (b) Describe the approach to research and technology development being pursued to improve safety and/or efficiency in managing radioactive waste.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.D (2)	(2) Waste Management Data System. Establishing and maintaining a system to compile waste generation projection data and other information concerning radioactive waste management facilities, operations, and activities across the complex.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.E	E. Deputy Assistant Secretaries for Waste Management and Environmental Restoration. The Deputy Assistant Secretary for Waste Management and the Deputy Assistant Secretary for Environmental Restoration are responsible for:	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.E (1)	(1) Disposal. Reviewing and approving, along with EH-1, transuranic waste disposal facility performance assessments and other disposal documents as required in waste specific chapters for which DOE is responsible for making compliance determinations. Reviewing and approving performance assessments and composite analyses, or appropriate CERCLA documentation, for low-level waste disposal facilities, and issuing disposal authorization statements. (a) The Deputy Assistant Secretaries shall establish a review panel consisting of DOE personnel to review low-level waste disposal facility performance assessments and composite analyses, review appropriate CERCLA documentation, recommend low-level waste disposal facility compliance determinations to the Deputy Assistant Secretaries, and develop disposal authorization statements. (b) The Deputy Assistant Secretaries shall issue disposal authorization statements containing conditions that low-level waste disposal facilities must meet in order to operate with an approved radioactive waste management basis.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.E (2)	(2) Site Closure Plans. Reviewing and approving closure plans and other closure documentation for deactivated high-level waste facilities/sites and issuing authorization for closure activities to proceed.	All facilities: Potential gap – Depending on the outcome of implementation of complex- and site-wide requirements, facilities may need to modify radioactive waste management procedures and activities. See Table 1.		
CH.I.2.F	F. Field Element Managers. Field Element Managers are responsible for:			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (1)	(1) Site-Wide Radioactive Waste Management Programs. Developing, documenting, implementing, and maintaining a Site-Wide Radioactive Waste Management Program. The Program shall use a systematic approach for planning, executing, and evaluating the site-wide management of radioactive waste in a manner that supports the Complex-Wide Radioactive Waste Management Programs and ensures that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	Potential Gap - pending implementation of this requirement by the Field Element Manager. See Table 1.		
CH.I.2.F. (2)	(2) Radioactive Waste Management Basis. Ensuring a radioactive waste management basis is developed and maintained for each DOE radioactive waste management facility, operation, and activity; and ensuring review and approval of the basis before operations begin. The Radioactive Waste Management Basis shall: 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 this Manual; and Be developed using the graded approach process.	No Gap - Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: III(D) IV(D) See Table 1.		
CH.I.2.F. (3)	(3) Waste Minimization and Pollution Prevention. Ensuring implementation of waste minimization and pollution prevention programs.	No Gap – Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following section of the order: I.1.E. (20) See Table 1.		

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CH.I.2.F. (4)	(4) Approval of Exemptions for Use of Non-DOE Facilities. DOE radioactive waste shall be treated, stored, and in the case of low-level waste, disposed of at the site where the waste is generated, if practical; or at another DOE facility. If DOE capabilities are not practical or cost effective, exemptions may be approved to allow use of non-DOE facilities for the storage, treatment, or disposal of DOE radioactive waste based on the following requirements: Such non-DOE facilities shall: Comply with applicable Federal, State, and local requirements; Have the necessary permit(s), license(s), and approval(s) for the specific waste(s); and Be determined by the Field Element Manager to be acceptable based on a review conducted annually by DOE. (b) Exemptions for the use of non-DOE facilities shall be documented to be cost effective and in the best interest of DOE, including consideration of alternatives for on-site disposal, an alternative DOE site, and available non-DOE facilities; consideration of life-cycle cost and potential liability; and protection of public health and the environment. (c) DOE waste shall be sufficiently characterized and certified to meet the facility's waste acceptance criteria. (d) Appropriate National Environmental Policy Act (NEPA) review must be completed. For actions taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), it is DOE's policy to incorporate NEPA values into the CERCLA documentation. (e) Headquarters shall be notified of any exemption allowing use of a non-DOE facility and the Office of the Assistant Secretary for Environment, Safety and Health (EH-1) shall be consulted prior to the exemption being executed. (f) Host States and State Compacts where non-DOE facilities are located shall be consulted prior to approval of an exemption to use such facilities and notified prior to shipments being made.	The site does not have a formal process for obtaining exemptions for use of non-DOE treatment facilities to treat Hanford site waste. Exemption is necessary for existing contracts with service providers. See Table 1-I.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (5)	(5) Environmental Restoration, Decommissioning, and Other Cleanup Waste. Ensuring the management and disposal of radioactive waste resulting from environmental restoration activities, including decommissioning, meet the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. Environmental restoration activities using the CERCLA process (in accordance with Executive Order 12580) may demonstrate compliance with the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual (including the Performance Assessment and performance objectives, as well as the Composite Analysis) through the CERCLA process. However, compliance with all substantive requirements of DOE O 435.1 not met through the CERCLA process must be demonstrated. Environmental restoration activities which will result in the off-site management and disposal of radioactive waste must meet the applicable requirements of DOE O 435.1, Radioactive Waste Management, and this Manual for the management and disposal of those off-site wastes. Field Elements performing environmental restoration activities involving development and management of radioactive waste disposal facilities under the CERCLA process shall: (a) Submit certification to the Deputy Assistant Secretary for Environmental Restoration that compliance with the substantive requirements of DOE O 435.1 have been met through application of the CERCLA process; and (b) Submit the decision document, such as the Record of Decision, or any other document that serves as the authorization to dispose, to the Deputy Assistant Secretary for Environmental Restoration for approval.	Gap. A demonstration of compliance with substantive requirements of 435.1 that are not met through CERCLA must be developed for interim remedial action of K Basins.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (6)	(6) Radioactive Waste Acceptance Requirements. Ensuring development, review, approval, and implementation of the radioactive waste acceptance requirements for facilities that receive waste for storage, treatment, or disposal. Radioactive waste acceptance requirements shall establish the facility's requirements for the receipt, evaluation, and acceptance of waste.	Not applicable.		
CH.I.2.F. (7)	(7) Radioactive Waste Generator Requirements. Ensuring development, review, approval, and implementation of a program for waste generation planning, characterization, certification, and transfer. This program shall address characterization of waste, preparation of waste for transfer, certification that waste meets the receiving facility's radioactive waste acceptance requirements, and transfer of waste.	Not applicable.		
CH.I.2.F. (8)	(8) Closure Plans. Ensuring development, review, approval, and implementation of closure plans for radioactive waste management facilities in accordance with the applicable requirements in the waste-type chapters of this Manual.	Not applicable.		
CH.I.2.F. (9)	(9) Defense-In-Depth. Ensuring defense-in-depth principles are incorporated where potential uncertainties or vulnerabilities warrant their use when reviewing and approving radioactive waste management activities and documents. These principles advocate the use of multiple levels of engineered and administrative controls to provide protection to the public, workers, and the environment.	Not applicable.		

Citation	435.1 O 1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (10)	(10) Oversight. Ensuring oversight of radioactive waste management facilities, operations, and activities is conducted. Oversight shall ensure radioactive waste management program activities are conducted in accordance with a radioactive waste management basis and meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	Not applicable.		
CH.I.2.F. (11)	(11) Training and Qualification. Ensuring a training and qualification program is implemented for designated radioactive waste management program personnel, and the training is commensurate with job duties and responsibilities. Only those personnel who have been trained and qualified shall design or operate safety (safety class and safety significant) structures, systems, and components.	Not applicable.		
CH.I.2.F. (12)	(12) As Low As Reasonably Achievable (ALARA). Ensuring ALARA principles for radiation protection are incorporated when reviewing and approving radioactive waste management activities.	Not applicable.		
CH.I.2.F. (13)	(13) Storage. Ensuring all radioactive waste is stored in a manner that protects the public, workers, and the environment in accordance with a radioactive waste management basis, and that the integrity of waste storage is maintained for the expected time of storage and does not compromise meeting the disposal performance objectives for protection of the public and environment when the waste is disposed.	Not applicable.		
CH.I.2.F. (14)	(14) Treatment. Ensuring all radioactive waste requiring treatment is treated in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis.	Not applicable.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (15)	(15) Disposal. Ensuring radioactive waste is disposed in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis. Reviewing specific transuranic or low-level waste documentation including the performance assessment and composite analysis, or appropriate CERCLA documentation, prior to forwarding them to Headquarters for approval, and obtaining and ensuring the facility is operated in accordance with the disposal authorization statement. Conducting performance assessment and composite analysis maintenance.	Not applicable.		
CH.I.2.F. (16)	(16) Monitoring. Ensuring monitoring is conducted for all radioactive waste management facilities as required. Ensuring that disposal facilities are monitored, as appropriate, for compliance with conditions of the disposal authorization statement.	Not applicable.		
CH.I.2.F. (17)	(17) Material and Waste Declassification for Waste Management. Ensuring, to the extent practical, radioactive material and waste generated under a program that is classified for national security reasons is declassified or rendered suitable for unclassified radioactive waste management.	Not applicable.		
CH.I.2.F. (18)	(18) Waste Incidental to Reprocessing. Ensuring that waste incidental to reprocessing determinations are made by either the "citation" or "evaluation" process described in Chapter II of this Manual. Ensuring consultation and coordination with the Office of Environmental Management for waste determined to be incidental to reprocessing through the "evaluation" process.	Not applicable.		

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CH.I.2.F. (19)	(19) Waste With No Identified Path to Disposal. Ensuring a process is developed and implemented for identifying the generation of radioactive waste with no identified path to disposal, and reviewing and approving conditions under which radioactive waste with no identified path to disposal may be generated. Headquarters shall be notified of the decisions to generate a waste with no identified path to disposal.	Not applicable.		
CH.I.2.F. (20)	(20) Corrective Actions. Ensuring a process exists for proposing, reviewing, approving, and implementing corrective actions when necessary to ensure that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met, and to address conditions that are not protective of the public, workers, or the environment. The process shall allow workers, through the appropriate level of management, to stop or curtail work when they discover conditions that pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	Not applicable.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.G.	G. All Personnel. All personnel are responsible for: (1) Problem Identification. Identifying and reporting radioactive waste management facilities, operations, or activities that do not meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual, or that pose a threat to the safety of the public, workers, or the environment. (2) Shutdown or Curtailment of Activities. Stopping or curtailing work, through the appropriate level of management, to prohibit continuation of conditions or activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	No gap identified. Full compliance with requirements		
CHAPTER II		HIGH-LEVEL WASTE REQUIREMENTS		
CH.II.A.	A. Definition of High-Level Waste. High-level waste is the highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation.	N/A		

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CH.II.B.	B. Waste Incidental to Reprocessing. Waste resulting from reprocessing spent nuclear fuel that is determined to be incidental to reprocessing is not high-level waste, and shall be managed under DOE's regulatory authority in accordance with the requirements for transuranic waste or low-level waste, as appropriate. When determining whether spent nuclear fuel reprocessing plant wastes shall be managed as another waste type or as high-level waste, either the citation or evaluation process described below shall be used:	N/A		
CH.II.B. (1)	(1) Citation. Waste incidental to reprocessing by citation includes spent nuclear fuel reprocessing plant wastes that meet the description included in the Notice of Proposed Rulemaking (34 FR 8712) for proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7. These radioactive wastes are the result of reprocessing plant operations, such as, but not limited to: contaminated job wastes including laboratory items such as clothing, tools, and equipment.	N/A		
CH.II.B. (2)	Evaluation. Determinations that any waste is incidental to reprocessing by the evaluation process shall be developed under good record-keeping practices, with an adequate quality assurance process, and shall be documented to support the determinations. Such wastes may include, but are not limited to, spent nuclear fuel reprocessing plant wastes that:	N/A		

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CH.II.B. (2)(a)	(a) Will be managed as low-level waste and meet the following criteria: Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and Will be managed to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61, Subpart C, Performance Objectives; and 3. Are to be managed, pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, and in accordance with the provisions of Chapter IV of this Manual, provided the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61.55, Waste Classification; or will meet alternative requirements for waste classification and characterization as DOE may authorize.	N/A		
CH.II.B. (2)(b)	(b) Will be managed as transuranic waste and meet the following criteria: Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and Will be incorporated in a solid physical form and meet alternative requirements for waste classification and characteristics, as DOE may authorize; and Are managed pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, in accordance with the provisions of Chapter III of this Manual, as appropriate.	N/A		

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CH.II.C.	C. Management of Specific Wastes. The following provide for management of specific wastes as high-level waste in accordance with the requirements in this Chapter: (1) Mixed High-Level Waste. Unless demonstrated otherwise, all high-level waste shall be considered mixed waste and is subject to the requirements of both the Atomic Energy Act of 1954, as amended, the Resource Conservation and Recovery Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (2) TSCA-Regulated Waste. High-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual.	N/A		
CH.II.D.	D. Complex-Wide High-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	N/A		
CH.II.E.	E. Site-Wide Radioactive Waste Management Program. In addition to the items in Chapter I of this Manual, documentation of the Site-Wide Radioactive Waste Management Program shall include a description of the High-Level Waste Systems Engineering Management Program to support decision-making related to nuclear safety, including high-level waste requirements analysis, functional analysis and allocation, identification of alternatives, and alternative selection and system control.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.F.	F. Radioactive Waste Management Basis. High-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: (1) Generators. The waste certification program. Pretreatment and Treatment Facilities. The waste acceptance requirements and waste certification program. Storage Facilities. The waste acceptance requirements and the waste certification program.	N/A		
CH.II.G.	G. Quality Assurance Program. The following requirements are in addition to those in Chapter I of this Manual. (1) Product Quality. The requirements of RW-0333P, Quality Assurance Requirements and Description, shall apply to those high-level waste items and activities important to waste acceptance/product quality. (2) Audits and Assessments. The evaluation and assessment requirements of RW 0333P, Quality Assurance Requirements Document and Description, and associated implementing procedures shall be met for high-level waste acceptance and product quality activities, in addition to the assessment requirements of other DOE directives and requirements identified in Chapter I of this Manual.	N/A		

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CH.II.H.	H. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Contingency Storage. For off-normal or emergency situations involving high-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of waste contained in any one storage vessel, pretreatment facility, or treatment facility. Tanks or other facilities that are designated for high-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet all the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. (2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of 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, Radioactive Waste Management, and this Manual.	N/A		
CH.II.I.	I. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.	N/A		
CH.II.I. (1)	(1)Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	N/A		
CH.II.I. (2)	(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.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.J.	J. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual. (1). Technical and Administrative. Waste acceptance requirements for all high-level waste storage, pretreatment, or treatment facilities, operations, and activities shall specify, at a minimum, the following: (a) Allowable activities and/or concentrations of specific radionuclides; (b) Acceptable waste form that ensures the chemical and physical stability of the waste under conditions that might be encountered during transfer, storage, pretreatment, or treatment; (c) 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; and (d) Pretreatment, treatment, storage, packaging, and other operations shall be designed and implemented in a manner that will ultimately comply with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste. (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.	N/A		
CH.II.K.	K. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.K. (1)	(1). Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all high-level waste streams.	N/A		
CH.II.K. (2)	(2). Waste With No Identified Path to Disposal. High-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste (compliance with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms).	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.L.	L. Waste Characterization. High-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. (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. (2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any solidification media; (c) Radionuclides or source information sufficient to describe the approximate radionuclide content of the waste; and (d) Any other information which may be needed to demonstrate compliance with the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste. (3) Hazardous Characteristics. Waste characterization processes shall yield sufficient chemical and physical data to clearly identify any hazardous characteristics that may degrade the ability of structures, systems, and components to perform their radioactive waste management function.	N/A	-	

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.M.	.M. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving high-level waste for storage, pretreatment, treatment, and disposal are met. (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. (2) Certification Before Transfer. High-level waste shall be certified as meeting the waste acceptance requirements before it is transferred to the facility receiving the waste. (3) Maintaining Certification. High-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, pretreatment, treatment, or disposal facility shall be managed in a manner that maintains its certification status.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.N.	N. Waste Transfer. The following requirements are in addition to those in Chapter I of this Manual. (1) Authorization. High-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. (2) Data. Waste characterization data and generation, storage, pretreatment, treatment, and transportation information for high-level waste shall be transferred with or be traceable to the waste. (3) Records and Transfer Reporting. The records and transfer requirements for canistered high-level waste forms shall comply with DOE/EM-0093, Waste Acceptance Product Specification for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	N/A		
CH.II.O.	O. Packaging and Transportation. The following requirement is in addition to those in Chapter I of this Manual. (1) Canistered Waste Form. Immobilized high-level waste shall meet the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	N/A		
CH.II.P.	P. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.			
CH.II.P. (1)	(1). Site Evaluation. Proposed locations for high-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	N/A		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (1)(a)	(a) Each site proposed for a new high-level waste facility or expansion of an existing high-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.	N/A		
CH.II.P. (1)(b)	(b) Proposed sites with environmental characteristics, geotechnical characteristics, or human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	N/A		
CH.II.P. (2)	(2) Facility Design. The following facility design requirements, at a minimum, apply:	N/A		
CH.II.P. (2)(a)	(a) Safety (Safety Class and Safety-Significant) Structures, Systems, and Components. Safety structures, systems, and components for high-level waste storage, pretreatment, and treatment facilities shall be designated and designed consistent with the provisions of DOE O 420.1, Facility Safety; DOE 5480.22, Technical Safety Requirements; and DOE 5480.23, Nuclear Safety Analysis Reports.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(b)	(b) Confinement. High-level waste systems and components shall be designed to maintain waste confinement. The following requirements apply to new or modifications to existing high-level waste systems, ancillary systems, and components: Secondary confinement systems shall be designed to prevent any migration of wastes or accumulated liquid out of the waste. system; shall be capable of detecting, collecting, and retrieving releases into the secondary confinement; and shall be constructed of, or lined with, materials that are compatible with the waste(s) to be placed in the waste system Tank and piping systems used for high-level waste collection, pretreatment, treatment, and storage shall be welded construction, except where remote configurations or periodic rerouting of high-level waste streams require non-welded construction	N/A		
CH.II.P. (2)(c)	(c) Lifting Devices. The design of hoisting and rigging devices shall comply with the following specific requirements. Lifting devices that are designated as safety class or safety significant shall be designed to prevent free fall of loads. Loading and unloading systems for lifting devices that are designated as safety class or safety significant shall be designed with a reliable system of interlocks that will fail safely upon malfunction.	N/A		

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CH.II.P. (2)(d)	(d) Ventilation. Design of high-level waste pretreatment, treatment, and storage facilities shall include ventilation through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the applicable requirements. When conditions exist for generating gases in flammable and 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.	N/A		
CH.II.P. (2)(e)	(e) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing high-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.	N/A		
CH.II.P. (2)(f)	(f) Maintenance Exposure Reduction. Remote maintenance features and other appropriate techniques to maintain as low as reasonably achievable (ALARA) personnel exposures shall be incorporated into each high-level waste facility.	N/A		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(g)	(g) Facilities for Receipt and Retrieval of High-Level Waste. Designs for storage facilities shall incorporate features to facilitate retrieval capability. High-level waste receipt and retrieval systems shall be designed to complement the existing storage facilities for safe storage and transfer of high-level waste.	N/A		
CH.II.P. (2)(h)	(h) Structural Integrity. Designs for new tanks shall contribute to the confinement requirement at Section II.P. (2)(b) of this Manual by: Incorporating features to avoid critical degradation modes at the proposed site where practicable, or minimize degradation rates for the critical modes; and Incorporating features to facilitate execution of the Structural Integrity Program required by Section II.Q. (2) of this Manual.	N/A		
CH.II.P. (2)(i)	(i) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of high-level waste treatment storage, pretreatment, and treatment facilities to provide volume inventory data and to prevent spills, leaks and overflows from tanks or confinement systems.	N/A		
CH.II.P. (2)(j)	(j) Volume Monitoring Systems. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of high-level waste storage, pretreatment, and treatment facilities to provide rapid detection of failed confinement and/or other abnormal conditions.	N/A		
CH.II.Q.	Q. Storage. The following requirements are in addition to those in Chapter I of this Manual and also apply to facilities intended for management of high-level waste awaiting pretreatment, treatment or disposal, unless stated otherwise.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (1)	(1) Operation of Confinement Systems. (a) Confinement systems shall be operated and maintained so as to preserve the design basis. (b) Secondary confinement systems, where provided, shall be operated to prevent any migration of wastes or accumulated liquid out of the waste confinement systems.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (2)	(2) Structural Integrity Program. (a) Leak-Tight Tanks In-Service. A structural integrity program shall be developed for each high-level waste storage tank site to verify the structural integrity and service life of each tank to meet operational requirements for storage capacity. The program shall be capable of: Verifying the current leak-tightness and structural strength of each tank in service; Identifying corrosion, fatigue, and other critical degradation modes; Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; Providing credible projections as to when structural integrity of each tank can no longer be assured; and Identifying the additional controls necessary to maintain an acceptable operating envelope. (b) In-Service Tanks that Have Leaked or Are Suspect. For each high-level waste storage tank in-service that is known to have leaked, or is suspect, a modified structural integrity program shall be developed and implemented to identify the safe operational envelope. The modified program shall be capable of: Verifying the structural strength of each tank in-service which has leaked or is suspect; Identifying corrosion, fatigue and other critical degradation modes; Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; Determining which of the tanks that have leaked or are suspect may remain in service by identifying an acceptable safe operating envelope; Providing credible projections as to when the acceptable safe operational envelope can no longer be assured; and Identifying the additional controls necessary to maintain the acceptable safe operational envelope. When physical activities, as part of a structural integrity program, pose additional vulnerabilities, alternative measures shall be implemented to provide an acceptable storage operational envelope. (c) Other Storage Components. The structural integrity of other storage components shall be verified to assure leak tightness and structural strength.	N/A		

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Chapter	435.1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (3)	(3) Canistered Waste Form Storage. Canisters of immobilized high-level waste awaiting shipment to a repository shall be: (a) Stored in a suitable facility; (b) Segregated and clearly identified to avoid commingling with low-level, mixed low-level, or transuranic wastes; and (c) Monitored to ensure that storage conditions are consistent with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351, Waste Acceptance System Requirements Document, for non-vitrified immobilized high-level waste. Facilities and operating procedures for storage of vitrified high-level waste shall maintain the integrity of the canistered waste form.	N/A		
CH.II.R.	R. Treatment. Treatment shall be designed and implemented in a manner that will ultimately comply with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	N/A		
CH.II.S.	S. Disposal. Disposal of high-level waste must be in accordance with the provisions of the Atomic Energy Act of 1954, as amended, the Nuclear Waste Policy Act of 1982, as amended, or any other applicable statutes.	N/A		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.T.	T. Monitoring. High-level waste pretreatment, treatment, storage, and transportation facilities shall be monitored for chemical, physical, radiological, structural, and other changes that could indicate failure of system confinement, integrity, or safety, and which could lead to abnormal events or accidents. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, flammable or explosive mixtures of gases, level and/or waste volume, and significant waste chemistry parameters for non-immobilized high-level waste. Facility monitoring programs shall also include physical inspections to verify that control systems have not failed.	N/A		
CH.II.U.	U. Closure. The following requirements for closure of deactivated high-level waste facilities and sites are in addition to those in Chapter I of this Manual.	N/A		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.U. (1)	(1) Decommissioning. Deactivated high-level waste facilities/sites shall meet the decommissioning requirements of DOE O 430.1A, Life-Cycle Asset Management and the requirements of DOE 5400.5, Radiation Protection of the Public and the Environment, for release; or (2) CERCLA Process. Deactivated high-level waste facilities/sites shall be closed in accordance with the CERCLA process as described in Section I.2.F. (5); or (3) Closure. Deactivated high-level waste facilities/sites shall be closed in accordance with an approved closure plan as specified below. Residual radioactive waste present in facilities to be closed shall satisfy the waste incidental to reprocessing requirements of this Chapter. (a) Facility/Site Closure Plans. A closure plan shall be developed for each deactivated high-level waste facility/site being closed that defines the approach and plans by which closure of each facility within the site is to be accomplished. This plan shall be completed and approved prior to the initiation of physical closure activities, and updated periodically to reflect current analysis and status of individual facility closure actions. The plan shall include, at a minimum, the following elements: Identification of the closure standards/performance objectives to be applied from Chapter III or IV, as appropriate; A strategy for allocating waste disposal facility performance objectives from the closure standards identified in the closure plan among the facilities/units to be closed at the site; An assessment of the projected performance of each unit to be closed relative to the performance objectives allocated to each unit under the closure plan; An assessment of the projected composite performance of all units to be closed at the site relative to the performance objectives and closure standards identified in the closure plan; and Any other relevant closure controls including a monitoring plan, institutional controls, and land use limitations to be maintained in the closure activity.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.V.	'V. Specific Operations. Specific requirements are provided for the operation of lifting devices and facilities for receipt and retrieval of high-level waste.			
CH.II.V. (1)	(1) Operation of Lifting Devices. Hoisting and rigging activities shall be conducted in accordance with the guidance provided in the DOE Standard "Hoisting and Rigging" (DOE-STD-1090-96).	N/A		
CH.II.V. (2)	(2) Operation of Facilities for Receipt and Retrieval of High-Level Waste. High-level waste receipt and retrieval systems shall be operated and maintained consistent with high-level waste system features incorporated in the facilities. Strategies for retrieval of waste shall be analyzed to ensure that structural and radiological impacts are consistent with the facility design basis._ (This page intentionally left blank.)_ CHAPTER III	N/A		
CHAPTER III		TRANSURANIC WASTE REQUIREMENTS		
CH.III.A.	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: (1) High-level radioactive waste; (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 (3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	No Gap. Compliance required for newly-generated TRU waste. However, K Basins are under a CERCLA ROD and may not have to meet 435.1 until waste is retrieved and packaged for WIPP.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter: (1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, and a radioactive component subject to the Atomic Energy Act of 1954, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual. (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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (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, Radioactive Waste Management, and this Manual.	No Gap		
CH.III.C.	C. Complex-Wide Transuranic Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	Potential gap depending on results of complex-wide plan which is a HQ activity.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.D.	D. Radioactive Waste Management Basis. Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis: (1) Generators. The waste certification program. (2) Treatment Facilities. The waste acceptance requirements and the waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program. (4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.	Gap. Each facility will need to develop its waste management basis documentation. SNF generates and may store TRU.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (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, Radioactive Waste Management, 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, Radioactive Waste Management, and this Manual.	No Gap		
CH.III.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	No Gap		
CH.III.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.G. (1)	(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: (a) Allowable activities and/or concentrations of specific 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; (c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance; (d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and (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.	Evaluate IC columns in vault to determine its storage status and applicable requirements.		
CH.III.G. (2)	(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.	No gap, not receiving more IC columns waste for storage.		
CH.III.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.			
CH.III.H. (1)	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.	Gap - need to develop a life cycle waste planning process to be performed prior to waste generation		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.H. (2)	(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: (a) Programmatic need to generate the waste; Characteristics and issues preventing the disposal of the waste; Safe storage of the waste until disposal can be achieved; and Activities and plans for achieving final disposal of the	Gap – It does not appear there is a documented and reliable process in place to ensure that no path forward waste is evaluated prior to generation. SNF has legacy no path forward waste, TRU IXMS and IX columns.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.I	I. Waste Characterization. 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. (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. (2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; (g) Packaging date; and (h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	Gaps exist, as follows: Waste generators do not consistently use the Data Quality Objectives process or an equivalent process to plan characterization activities. This section requires more detailed documentation of characterization data than are commonly practiced, particularly for "indirect methods". There are minor gaps in "minimum waste characterization" requirements.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met. (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.. (2) Certification Before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste (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.	Gap. Facilities have waste certification programs, but they generally do not incorporate all of the 435.1 certification program requirements, particularly as described in the Guidance. The following gaps exist at some or all WMP generating organizations: Identification of a specific certification official for each facility to which waste will be shipped. Certification plans do not address all of the elements identified in the Guidance. In the case where waste is generated and stored internal to the generator a graded approach to waste certification will be applied		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.K.	K. Waste Transfer. 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. (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. (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.	No gap		
CH.III.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.			
CH.III.L. (1)	(1) Packaging. (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. (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. (c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible. (d) Containers of transuranic waste shall be marked such that their contents can be identified.	(a) No gap (b) No gap (c) HNF-EP-0063 Rev 5 does not capture the requirement for generators to package TRU defense waste separately from non-defense TRU waste. need evaluation of whether K Basins contain any non-defense TRU. (d) No gap		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.L. (2)	(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.	No gap		
CH.III.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.			
CH.III.M. (1)	(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. (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. (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.	Gap - Need to address in siting and facility change control processes		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.M. (2)	(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply: (a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement. (b) Ventilation. 1. Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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. (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. (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. (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.	(a),(b)(1), No Gap (b)(2) No Gap, flammables are managed on a container basis per safety document (d) & (e) No Gap (c) Gap – design procedures need to include 435.1 requirements.		
CH.III.N.	N. Storage. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.N. (1)	(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.	No gap		
CH.III.N. (2)	(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.	No gap		
CH.III.N. (3)	(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.	IC Storage: Gap exists – Inspection cannot be performed.		
CH.III.N. (4)	(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.	No gap		
CH.III.O.	O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.	No gap		
CH.III.P.	P. Disposal. 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.	No gap exists for this manual requirement at the Hanford Site .		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.Q.	Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.			
	(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. (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. (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	(1) Gap – do not monitor per minimum requirements. Parameters monitored in these facilities are identified in safety documents and data collection procedures. Need to justify why not monitoring for minimum parameters in III.Q. (2) & (3) No Gap		
CHAPTER IV		LOW-LEVEL WASTE REQUIREMENTS		
CH.IV.A.	A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e. (2) of the Atomic Energy Act of 1954, as amended), or naturally occurring radioactive material.	No gap		
CH.IV.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
	(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual. (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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, Radioactive Waste Management, and this Manual, and all applicable Federal or State requirements. (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.	No gap		
CH.IV.C.	C. Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	Potential gap depending on results of complex-wide plan which is a HQ activity.		

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CH.IV.D.	D. Radioactive Waste Management Basis. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:			
	(1) Generators. The waste certification program. (2) Treatment Facilities. The waste acceptance requirements and the waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program. (4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.	Gap - each facility will need to develop its waste management basis documentation. Need to determine application of treatment definition on a site-wide basis.		
CH.IV.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual.			
	(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. (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, Radioactive Waste Management, and this Manual.	SNF: Gap – need to determine if liquid is "high hazard or high activity" and if this requirement applies.		
CH.IV.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
	(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	No gap		
CH.IV.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual:			

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.G. (1)	(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: (a) Allowable activities and/or concentrations of specific 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. (c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance. (d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements: 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. 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. 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. 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. Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20°C. (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.	No Gap, pending treatment definition resolution.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.G. (2)	(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.	No Gap pending treatment definition resolution.		
CH.IV.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.H. (1)	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.	Gap - need to develop a life cycle waste planning process to be performed prior to waste generation		
CH.IV.H. (2)	(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: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste.	Gap – It does not appear there is a documented and reliable process in place to ensure that no path forward waste is evaluated prior to generation. SNF has legacy no path forward waste, TRU IXMS and IX columns.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.I.	I. Waste Characterization. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the 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. (2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; and (g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	All SNF Facilities: Gaps exist, as follows: Waste generators do not consistently use the Data Quality Objectives process or an equivalent process to plan characterization activities. This section requires more detailed documentation of characterization data than are commonly practiced, particularly for "indirect methods". 3. There are minor gaps in "minimum waste characterization" requirements.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met. (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. (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. (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.	Gap. Facilities waste certification programs generally do not incorporate all of the 435.1 certification program requirements, particularly as described in the Guidance. The following gaps exist at some or all Hanford waste generating organizations: Identification of a specific certification official for each facility to which waste will be shipped. Certification plans do not address all of the elements identified in the Guidance. Waste generated and stored internal to the generator situation shall employ a graded approach to waste certification.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.K.	K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual. (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. (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.	All SNF Facilities: No gap.		
CH.IV.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.L. (1)	(1) Packaging. If containers are used: (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. (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. (c) Containers of low-level waste shall be marked such that their contents can be identified.	No Gap		
CH.IV.L. (2)	(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.	Gap – no program in place to minimize number of shipments		
CH.IV.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (1)	(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. (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: 1. Located to accommodate the projected volume of waste to be received; 2. Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and 3. Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled. (b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility. (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.	Gap – Need to address siting and facility change control processes.		
CH.IV.M. (2)	(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:			
CH.IV.M. (2)(a)	(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	(a) - No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (2)(b)	(b) Ventilation. 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. 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.	(b)(1) – No Gap (b)(2) – No Gap, flammables are managed on a container basis per safety document		
CH.IV.M. (2)(c)	(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.	(c) Gap – design procedures need to include 435.1 requirements		
CH.IV.M. (2)(d)	(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.	No Gap		
CH.IV.M. (2)(e)	(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.	No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (3)	(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply: (a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement. (b) Ventilation. 1. Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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. (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. (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.	No Gap		
CH.IV.N.	N. Storage and Staging. The following requirements are in addition to those in Chapter I of this Manual.			

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.N. (1)	(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.	No Gap		
CH.IV.N. (2)	(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.	No Gap		
CH.IV.N. (3)	(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.	No Gap		
CH.IV.N. (4)	(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. (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.	No Gap		
CH.IV.N. (5)	(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.	No Gap.		
CH.IV.N. (6)	(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.N. (7)	(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.	Gap – 90 day staging conditions are not contained in current facility procedures. Waiver needed for LLW to be transported or treated.		
CH.IV.O.	O. Treatment. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.	No Gap		
CH.IV.P.	P. Disposal. Low-level waste disposal facilities shall meet the following requirements.			
	(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: (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. (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. (c) Release of radon shall be less than an average flux of 20 pCi/m2/s (0.74 Bq/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.	Not applicable.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (2)	(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. (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. (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. (c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials. (d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults. (e) The performance assessment shall include a sensitivity/uncertainty analysis. (f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA). (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. (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	Not applicable.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (3)	(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.	Not applicable.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (4)	(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. (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. (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. (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.	No Gap.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (5)	(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.	No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (6)	(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: (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. (b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced. (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. (d) Operations are to be conducted so that active waste 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.	No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (7)	(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.	No Gap		
CH.IV.Q.	Q. Closure. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.Q. (1)	(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: (a) Be updated as required during the operational life of the facility. (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, Radiation Protection of the Public and the Environment. (c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	No Gap		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.Q. (2)	(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. (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. (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. (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, Radiation Protection of the Public and the Environment. (d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	No Gap		
CH.IV.R.	R. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.			
CH.IV.R. (1)	(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.	Gap – Tank and containers of waste not monitored per minimum requirements, parameters monitored are identified per safety documents and data collection procedure exist, need to justify. Effluent monitoring is no gap per DOE/RL-91-50.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.R. (2)	(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.	Gap – Tank and containers of waste not monitored per minimum requirements, parameters monitored are identified per safety documents and data collection procedure exist, need to justify. Effluent monitoring is no gap per DOE/RL-91-50.		
CH.IV.R. (3)	(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. (a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored. (b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance. (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.	No Gap		

ATTACHMENT 3

FLUOR HANFORD, NUCLAR MATERIALS STABILIZATION PLUTONIUM FINISHING PLANT

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Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
Intro. Para. 1.	1. PURPOSE. This Manual further describes the requirements and establishes specific responsibilities for implementing DOE O 435.1, Radioactive Waste Management, for the management of DOE high-level waste, transuranic waste, low-level waste, and the radioactive component of mixed waste. The purpose of the Manual is to catalog those procedural requirements and existing practices that ensure that all DOE elements and contractors continue to manage DOE's radioactive waste in a manner that is protective of worker and public health and safety, and the environment.	NO ACTION REQUIRED	N/A		
Intro. Para. 2	2. APPLICABILITY. The requirements set forth in this Manual apply to DOE elements and contractors as set forth in DOE O 435.1, Radioactive Waste Management.	NO ACTION REQUIRED	N/A		
Intro. Para. 3	3. SUMMARY. This Manual is organized into four (4) chapters. Chapter I, General Requirements and Responsibilities, contains requirements and responsibilities which are applicable to all radioactive waste types and delineates responsibilities for radioactive waste management decision-making at the complex-wide and Field Element levels. Chapters II through IV contain those requirements that are applicable to high-level waste, transuranic waste, and low-level waste including the radioactive component of mixed low-level waste, respectively.	NO ACTION REQUIRED	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
Intro. Para. 4	4. IMPLEMENTATION. The requirements of this Manual apply to all new and existing DOE radioactive waste management facilities, operations, and activities. Implementation of the requirements shall begin at the earliest possible date, and all DOE entities shall be in compliance with this directive within one year of its issuance. Compliance with this directive includes implementing the requirements or an approved implementation or corrective action plan. If compliance with this Order cannot be achieved within one year of its issuance, the Field Element Manager must request approval to extend the compliance date to no later than October 1, 2001, from the cognizant Program Secretarial Officer (PSO). Failure to implement the requirements of this directive shall, through the appropriate lines of management, result in corrective actions including, if necessary, shutdown of radioactive waste management facilities, operations, or activities until the appropriate requirements are implemented. Any of the requirements in this Manual may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, the applicable or relevant and appropriate requirements identification process for actions taken pursuant to the Department's CERCLA authorities, or by an exemption processed in accordance with the requirements of DOE M 251.1-1A, Directives System Manual.	The implementation plan will address this requirement.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
Intro. Para. 5	5. REVISIONS. Systematic planning, execution, and evaluation of radioactive waste management facilities, operations, and activities will provide the basis for evaluating the adequacy of and, if necessary, revising the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. The revision process will be based on DOE P 450.4, Safety Management System Policy, and will implement continuous improvement for management of radioactive waste. The process includes: identifying the functions necessary to execute radioactive waste management responsibilities; conducting an analysis of the hazards associated with performing those functions; developing and implementing the proper controls to mitigate any associated hazards; developing and implementing a periodic assessment of work performance; and providing feedback to revise the work processes and incorporate lessons learned, as appropriate. Administrative requirements of the Order and Manual will be revised as needed to support safe and efficient waste management.	NO ACTION REQUIRED	N/A		
Intro. Para. 6	6. DEFINITIONS. Definitions for DOE M 435.1-1, Radioactive Waste Management Manual, are provided in Attachment 2.	NO ACTION REQUIRED	N/A		
Intro. Para. 7	7. REFERENCE. DOE O 435.1, Radioactive Waste Management, dated 7-09-99.	NO ACTION REQUIRED	N/A		
Intro. Para. 8	8. CONTACT. Call the Office of Waste Management at (202) 586-0370.	NO ACTION REQUIRED	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
	GENERAL REQUIREMENTS AND RESPONSIBILITIES	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH. I.1	1. REQUIREMENTS	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.I.1.A.	A. Delegation of Authority. Managers charged with responsibilities within this Manual may delegate authority for these tasks to another manager. All delegations of authority shall be documented.	DOE-RL ACTION	N/A		
CH.I.1.B.	B. Use of Guidance. Additional information supporting the requirements in this Manual is contained in the Implementation Guide for use with DOE M 435.1-1, Radioactive Waste Management Manual. This Guide, DOE G 435.1-1, Implementation Guide for DOE M 435.1-1, shall be reviewed when implementing the requirements of this Manual. The Guide provides additional information and acceptable methods for meeting the requirements. Other methods may be used but must ensure an adequate level of safety commensurate with the hazards associated with the work and be consistent with the radioactive waste management basis.	NO ACTION REQUIRED (definition)	N/A		
CH.I.1.C.	C. Radioactive Waste Management. All radioactive waste subject to DOE O 435.1, Radioactive Waste Management, and the requirements of this Manual shall be managed as high-level waste, transuranic waste, low-level waste, or mixed low-level waste.	NO ACTION REQUIRED (definition)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.D.	D. Analysis of Environmental Impacts. Existing and proposed radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 1021, National Environmental Policy Act Implementing Procedures; and DOE O 451.1A, National Environmental Policy Act Compliance Program. All reasonable alternatives shall be considered, as appropriate. Nothing in this Order is meant to restrict consideration of alternatives to proposed actions.	DOE O 451.1A is not in contract. PFP maintains compliance with this requirement through compliance with HNF-PRO-452.	YES		
CH.I.1.E.	E. Requirements of Other Regulations and DOE Directives. The following requirements and DOE directives are required for all DOE radioactive waste management facilities, operations, and activities as applicable. Any of the requirements for the following Departmental directives may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, or by an exemption processed in accordance with the requirements of that directive or DOE M 251.1-1A, Directives System Manual.	NO ACTION REQUIRED (but see below for individual requirements) A waiver process is currently in place per HNF-MP-001, Rev. 1 (5/14/99).	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (1)	(1) Analysis of Operations Information. Data that measure the environment, safety, and health performance of radioactive waste management facilities, operations, and activities shall be identified, collected, and analyzed as required by DOE O 210.1, Performance Indicators and Analysis of Operations Information.	DOE O 210.1 Not in current FDH Contract Requires development by DOE-HQ and RL of complex-wide and site-wide performance indicators. PFP has a performance indicator system, but indicators specific to rad waste management activities will need to be developed once the complex-wide and site-wide performance indicators are issued.	YES		
CH.I.1.E. (2)	(2) Classified Waste. Radioactive waste to which access has been limited for national security reasons and cannot be declassified shall be managed in accordance with the requirements of DOE 5632.1C, Protection and Control of Safeguards and Security Interests, and DOE 5633.3B, Control and Accountability of Nuclear Materials.	PFP does not manage classified waste as defined by 435.1. However, some information concerning waste (e.g., Pu content and location) is classified and is managed accordingly. Waste is safeguarded until it is rendered "unattractive" and safeguards are removed.	NO		
CH.I.1.E. (3)	(3) Conduct of Operations. Radioactive waste management facilities, operations, and activities shall be conducted in a manner based on consideration of the associated hazards. Waste management facilities, operations, and activities shall meet the requirements of DOE 5480.19, Conduct of Operations Requirements for DOE Facilities.	PFP operates within DOE Order 5480.19 through implementation of PFP procedures and facility specific Con-Ops applicability matrices. Compliance is verified by scheduled ConOps assessments performed within the PFP (see FSP-PFP-0821, PFP Conduct of Operations).	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (4)	(4) Criticality Safety. Radioactive waste management facilities, operations, and activities shall be covered by a criticality safety program in accordance with DOE O 420.1, Facility Safety.	DOE O 420.1 is not in the current FDH Contract. Instead of DOE O 420.1, PFP follows these DOE orders for implementation of its Criticality Safety Program: 5480.228, 5480.7A, 6430.1A, and 5480.24. PFP's criticality safety program is defined in FSP-PFP-5-8, PFP Administration, Section 3.3, Criticality Safety, and in various Criticality Prevention Specifications.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (5)	(5) Emergency Management Program. Radioactive waste management facilities, operations, and activities shall maintain an emergency management program in accordance with DOE O 151.1, Comprehensive Emergency Management System.	PFP maintains an emergency management program in accordance with DOE O 151.1. The emergency preparedness program is implemented through a hierarchy of documentation that directs personnel in the response to offsite and near-site facility emergencies that have the potential for detrimentally affecting the health of personnel and safety of operations at the Hanford Site. The documentation below provides the basis for DOE O 151.1 compliance. • DOE/RL-94-02, Hanford Emergency Management Plan • DOE-0223, Emergency Plan Implementing Procedures • FSP-PFP-0263, Building Emergency Plan for PFP Complex • FSP-PFP-1054, PFP Facility Emergency Response Guides • FSP-PFP-5-8, PFP Administration, Section 5.3, Drill Program • HNF-PRO-424, Emergency Preparedness Program • HNF-PRO-060, Reporting Occurrences and Processing Operations Information	NO		
CH.I.1.E. (6)	(6) Environmental and Occurrence Reporting. Radioactive waste management facilities, operations, and activities shall meet the reporting requirements of DOE O 231.1, Environment, Safety and Health Reporting, and DOE O 232.1A, Occurrence Reporting and Processing of Operations Information.	DOE O 231.1 is not in the current FDH Contract. PFP complies with order DOE O 5484.1 and DOE O 232.1A through HNF-PRO-060, Reporting Occurrences and Processing Operations Information and FSP-PFP-5-8, PFP Administreation Sections 1.4, Occurrence Reporting).	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (7)	(7) Environmental Monitoring. Radioactive waste management facilities, operations, and activities shall meet the environmental monitoring requirements of DOE 5400.1, General Environmental Protection Program, and DOE 5400.5, Radiation Protection of the Public and the Environment.	Site-Wide Environmental Monitoring Plan covers this requirement as well as Ground Water Well Monitoring Program (PNNL) HSER-PNNL and the PFP Facility Effluent Monitoring Plan.	NO		
CH.I.1.E. (8)	(8) Hazard Analysis Documentation and Authorization Basis. Radioactive waste management facilities, operations, and activities shall implement DOE Standards, DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE 5480.23, Nuclear Safety Analysis Reports, and/or DOE-EM-STD-5502-94, DOE Limited Standard: Hazard Baseline Documentation, and shall, as applicable, prepare and maintain hazard analysis documentation and an authorization basis as required by DOE O 425.1A, Startup and Restart of Nuclear Facilities, DOE O 5480.21, Unreviewed Safety Questions, DOE 5480.22, Technical Safety Requirements, and DOE 5480.23, Nuclear Safety Analysis Reports.	The referenced Orders 425.1A, Startup and Restart of Nuclear Facilities, DOE 5480.22, Technical Safety Requirements, and DOE 5480.23, Nuclear Safety Analysis Reports are not in the contract. PFP has numerous authorization basis, such as an SAR (HNF-SD-CP-SAR-021), Operational Safety Requirements (WHC-SD-CP-OSR-10), Safety Evaluation Report (DOE/DP-0130), Justification for Continued Operation for Tank 241-Z-361 (HNF-2024), hazards analysis (HNF-SD-PFP-HA-002), etc.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (9)	(9) Life-Cycle Asset Management. Planning, acquisition, operation, maintenance, and disposition of radioactive waste management facilities shall be in accordance with DOE O 430.1A, Life-Cycle Asset Management, and DOE 4330.4B, Maintenance Management Program, including a configuration management process to ensure the integrity of physical assets and systems. Corporate physical asset databases shall be maintained as complete, current inventories of physical assets and systems to allow reliable analysis of existing and potential hazards to the public and workers.	Order 430.1A is not in contract.	YES		
CH.I.1.E. (10)	(10) Mixed Waste. Radioactive waste that contains both source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component is also subject to the Resource Conservation and Recovery Act (RCRA), as amended.	This requirement is recognized by HNF-PRO-455. Mixed waste is managed in SAAs, < 90 day accumulation areas, and permitted storage units. PFP has RCRA permits in place or in development for regulated TSD activities. TPA negotiations/discussions are in progress to further define RCRA jurisdiction.	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (11)	(11) Packaging and Transportation. Radioactive waste shall be packaged and transported in accordance with DOE O 460.1A, Packaging and Transportation Safety, and DOE O 460.2, Departmental Materials Transportation and Packaging Management.	DOE Order 435.1 *Radioactive Waste Management,* has applicability to the Hanford Site transportation and packaging guidance documents and procedures (HNF-PROs). The Order should be referenced and its requirements covered in the following transportation and packaging HNF-PROs. • HNF-PRO 154, *Responsibilities and Procedures for All Hazardous Material shipments.* • HNF-PRO-156, *Non-radioactive Hazardous Materials/Hazardous Waste (HM/HW) Shipments.* • HNF-PRO-157, *Radioactive Material/Waste Shipments.* • HNF-PRO-163, *Documentation and Record Keeping.* DOE Order 435.1 *Radioactive Waste Management* requires compliance with Federal Regulations (49 CFR 100-178), applicable RCRA requirements, and applicable DOE Orders (DOE Order 460.1A, *Packaging and Transportation Safety,* and DOE Order 460.2, *Departmental Materials Transportation and Packaging Management*). For transportation and packaging, the order establishes specific transportation requirements for low-level radioactive waste, immobilized high-level waste, and transuranic waste. DOE Order 460.1A and 460.2 are incorporated into the Project Hanford Management Contract (PHMC). DOE RL has deemed the Hanford Site Transportation and Packaging program to be in compliance with Federal Regulations, applicable RCRA requirements, and applicable DOE Orders. Reference to DOE Order 435.1 and applicable coverage of the order requirements within the transportation and packaging HNF-PROs will ensure that requirements of the Order will be addressed	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (12)	(12) Quality Assurance Program. Radioactive waste management facilities, operations, and activities shall develop and maintain a quality assurance program that meets the requirements of 10 CFR 830.120, Quality Assurance Requirements, and DOE O 414.1, Quality Assurance, as applicable.	The Fluor Daniel Hanford Quality Assurance Program is documented as HNF-MP-599 Rev. 3. *Project Hanford Quality Assurance Program Description* (QAPD). This is an ASME NQA-1 based program that has been approved by the Department of Energy (DOE) for use in satisfying the PHMC contract including 10 CFR 830.120 *Quality Assurance requirements and Responsibilities,* and DOE Order 5700.6C *Quality Assurance.* DOE O 414.1 *Quality Assurance* has replaced DOE Order 5700.6C and is specified in DOE O 414.1. However, DOE O 414.1 is simply a conversion of DOE Order 5700.6C to the new DOE directives format, and only minor changes were made. HNF-MP-599 is expected to reference the new DOE O 414.1 in the next revision. Under this quality assurance program the Major Subcontractors (MSCs) have issued Quality Assurance Program Plans (QAPPs) to document the interface of their internal procedures with this QAPD. The QAPPs must satisfy the requirements of the Tri-Party Agreement (TPA), Washington Administrative Codes, and Federal Environmental Regulations, Office of Civilian Radioactive Waste Management (OCRWM) requirements, the Hanford Analytical Services Requirement Document, and the Waste Isolation Pilot Plant (WIPP) QA Program.	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (13)	(13) Radiation Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 835, Occupational Radiation Protection, and DOE 5400.5, Radiation Protection of the Public and the Environment.	PFP is in compliance with 10 CFR 835 by implementation of HNF-SP-1145, Fluor Daniel Hanford Radiation Protection Program, implementation of Title 10 Code of Federal Regulation, Part 835. Completion of the triennial assessment of 10 CFR 835 compliance (completed December 1998) provides the basis for statement.	NO		
CH.I.1.E. (14)	(14) Records Management. Radioactive waste management facilities, operations, and activities shall develop and maintain a record-keeping system, as required by DOE O 200.1, Information Management Program, and DOE O 414.1, Quality Assurance. Records shall be established and maintained for radioactive waste generated, treated, stored, transported, or disposed. To the extent possible, records prepared in response to other requirements may be used to satisfy the documentation requirements of this Manual. Additional records may be required to satisfy the regulations applicable to the hazardous waste components of mixed waste.	DOE Order 200.1 is not in the contract. The records system being implemented on the Waste Isolation Pilot Plant (WIPP) project is undergoing an audit and may indicate weaknesses at PFP.	YES		
CH.I.1.E. (15)	(15) Release of Waste Containing Residual Radioactive Material. Processes for determining and documenting that waste is suitable to be released and managed without regard to its radioactive content shall be in accordance with the criteria and requirements in DOE 5400.5, Radiation Protection of the Public and the Environment.	The following procedures are used to meet DOE 5400.5 requirements for releasing material and equipment: HNF-IP-0718 WHC-SD-GN-TA-3004 ZRC-100-014	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (16)	(16) Safeguards and Security. Appropriate features shall be incorporated into the design and operation of radioactive waste management facilities, operations, and activities to prevent unauthorized access and operations, and for purposes of nuclear materials control and accountability, where applicable; and shall be consistent with DOE O 470.1, Safeguards and Security Program.	The PFP safeguards program (see FSP-PFP-5-8, PFP Administration, Section 4.0, Security and Safeguards) implements DOE O 471.1A.	NO		
CH.I.1.E. (17)	(17) Safety Management System. Radioactive waste management facilities, operations, and activities shall incorporate the principles of integrated safety management as described in DOE P 450.4, Safety Management System Policy, and DOE P 450.5, Line Environment, Safety and Health Oversight, and meet the requirements of the safety management systems sections of 48 CFR Chapter 9, Department of Energy Acquisition Regulations and DOE M 411.1-1, Manual of Safety Management Functions, Responsibilities, and Authorities.	DOE P 450.4, *Safety Management System Policy*; DOE P 450.5, *Line Environment, Safety and Health Oversight*; and DOE M 411.1-1, *Manual of Safety Management Functions, Responsibilities, and Authorities* are not in the contract. PFP is implementing the Integrated Environment, Safety and Health Management System (ISMS) in accordance with previous direction (see FSP-PFP-5-8, PFP Administration, Section 3.24, PFP ISMS Program Description).	YES		
CH.I.1.E. (18)	(18) Site Evaluation and Facility Design. New radioactive waste management facilities, operations, and activities shall be sited and designed in accordance with DOE O 420.1, Facility Safety, and DOE O 430.1A, Life-Cycle Asset Management.	NO ACTION REQUIRED – New facilities only DOE O 420.1 and 430.1A are not in the contract.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (19)	(19) Training and Qualification. A training and qualification program shall be implemented for radioactive waste management program personnel, and shall meet the requirements of DOE O 360.1, Training, and DOE 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.	DOE O 360.1 is not in contract. Gap evaluated for compliance with 5480.20A which is in contract. PFP is compliant with 5480.20A.????? PFP's *Training Plan* and *Training Implementation Matrix* provides the procedure requirements for all PFP personnel in relation to compliance to 5480.20A (see FSP-PFP-1121, PFP Training Administration). Imposition of DOE O 5480.20A requirements on rad waste personnel, designers, and operators could be a significant impact.	YES		
CH.I.1.E. (20)	(20) Waste Minimization and Pollution Prevention. Waste minimization and pollution prevention shall be implemented for radioactive waste management facilities, operations, and activities to meet the requirements of Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, and Executive Order 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, and DOE 5400.1, General Environmental Protection Program.	HNF-PRO-462, "Pollution Prevention," implements this requirement.	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.1.E. (21)	(21) Worker Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor Employees.	DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, is not in the contract. A gap analysis based on the equivalent old Orders, which are specified in the contract, are: • 5480.4, *Environmental Protection, Safety, and Health Protection Standards* • 5480.7A, *Fire Protection* • 5480.8A, *Contractor Occupational Medical Program* • 5480.9A, *Construction Project Safety and Health Management* • 5480.10, *Contractor Industrial Hygiene Program* • 5480.16A, *Firearms Safety* • 5483.1A, *Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated (GOCO) Facilities* The above Orders have been in place and the numerous oversight and self-assessment activities that assure ongoing compliance with requirements of those Orders. No programmatic gaps have been identified. In some instances, Order requirements are not applicable to PFP. Examples include requirements of Order 5480.16A which fall under the Site security contractor and management of the occupational medical program that resides with the Site medical contractor.	YES		
CH.I.2.	2. RESPONSIBILITIES	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.A.	A. Program Secretarial Officers. Program Secretarial Officers with radioactive waste management facilities, operations, or activities are responsible within their respective programs for ensuring that the Field Element Managers meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	DOE-HQ ACTION REQUIRED	N/A		
CH.I.2.B.	B. Assistant Secretary for Environmental Management. The Assistant Secretary for Environmental Management is responsible for: (1) Complex-Wide Radioactive Waste Management Programs. Establishing and maintaining integrated Complex-Wide Radioactive Waste Management Programs for high-level, transuranic, low-level, and mixed low-level waste. These programs shall use a systematic approach to planning, execution, and evaluation to ensure that waste generation, storage, treatment, and disposal needs are met and coordinated across the DOE complex. (2) (2) Changes to Regulations and DOE Directives. Ensuring changes to regulations and DOE directives are reviewed and, when necessary, incorporated into revisions of this Manual to ensure the basis for safe radioactive waste management facilities, operations, and activities is maintained.	DOE-HQ ACTION	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.C	C. Assistant Secretary for Environment, Safety, and Health. The Assistant Secretary for Environment, Safety and Health is responsible for providing an independent overview of DOE radioactive waste management and decommissioning programs to determine compliance with DOE environment, safety, and health requirements and applicable Environmental Protection Agency (EPA) and state regulations, including: (1) Advising the Secretary of the status of Departmental compliance with the requirements of DOE O 435.1, this Manual, and applicable provisions of other DOE Orders. (2) (2) Conducting independent appraisals and audits of DOE waste management programs. (3) (3) Reviewing site Waste Management Plans with regard to compliance with DOE environment, safety, and health requirements.	DOE-HQ ACTION	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.D	D. Deputy Assistant Secretary for Waste Management. The Deputy Assistant Secretary for Waste Management is responsible for: (1) Complex-Wide Radioactive Waste Management Program Plans. Developing, implementing, and maintaining integrated Complex-Wide Radioactive Waste Management Program Plans for high-level, transuranic, low-level, and mixed low-level waste. Each plan shall, at the DOE complex-wide level, describe the functional elements, organizations, responsibilities, and activities that comprise the system needed to store, treat and dispose of radioactive waste in a manner that is protective of the public, workers, and the environment. In addition, the plans shall: (a)sent a waste management strategy that integrates waste projections and life-cycle waste management planning into complex-wide facility configuration decisions; and (b) Describe the approach to research and technology development being pursued to improve safety and/or efficiency in managing radioactive waste. (2) Waste Management Data System. Establishing and maintaining a system to compile waste generation projection data and other information concerning radioactive waste management facilities, operations, and activities across the complex.	DOE-HQ ACTION	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.E	E. Deputy Assistant Secretaries for Waste Management and Environmental Restoration. The Deputy Assistant Secretary for Waste Management and the Deputy Assistant Secretary for Environmental Restoration are responsible for: (1) Disposal. Reviewing and approving, along with EH-1, transuranic waste disposal facility performance assessments and other disposal documents as required in waste specific chapters for which DOE is responsible for making compliance determinations. Reviewing and approving performance assessments and composite analyses, or appropriate CERCLA documentation, for low-level waste disposal facilities, and issuing disposal authorization statements. (a) The Deputy Assistant Secretaries shall establish a review panel consisting of DOE personnel to review low-level waste disposal facility performance assessments and composite analyses, review appropriate CERCLA documentation, recommend low-level waste disposal facility compliance determinations to the Deputy Assistant Secretaries, and develop disposal authorization statements. (b) The Deputy Assistant Secretaries shall issue disposal authorization statements containing conditions that low-level waste disposal facilities must meet in order to operate with an approved radioactive waste management basis. (2) (2) Site Closure Plans. Reviewing and approving closure plans and other closure documentation for deactivated high-level waste facilities/sites and issuing authorization for closure activities to proceed.	DOE-HQ ACTION	N/A		
CH.I.2.F	F. Field Element Managers. Field Element Managers are responsible for:	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (1)	(1) Site-Wide Radioactive Waste Management Programs. Developing, documenting, implementing, and maintaining a Site-Wide Radioactive Waste Management Program. The Program shall use a systematic approach for planning, executing, and evaluating the site-wide management of radioactive waste in a manner that supports the Complex-Wide Radioactive Waste Management Programs and ensures that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager.	N/A		
CH.I.2.F. (2)	(2) Radioactive Waste Management Basis. Ensuring a radioactive waste management basis is developed and maintained for each DOE radioactive waste management facility, operation, and activity; and ensuring review and approval of the basis before operations begin. The Radioactive Waste Management Basis shall: (a) Reference or define the conditions under which the facility may operate based on the radioactive waste management documentation; (b) Include the applicable elements identified in the specific waste-type chapters of this Manual; and (c) Be developed using the graded approach process.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: II(F) III(D) IV(D)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (3)	(3) Waste Minimization and Pollution Prevention. Ensuring implementation of waste minimization and pollution prevention programs.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following section of the order: I.1.E.(20)	N/A		
CH.I.2.F. (4)	(4) Approval of Exemptions for Use of Non-DOE Facilities. DOE radioactive waste shall be treated, stored, and in the case of low-level waste, disposed of at the site where the waste is generated, if practical; or at another DOE facility. If DOE capabilities are not practical or cost effective, exemptions may be approved to allow use of non-DOE facilities for the storage, treatment, or disposal of DOE radioactive waste based on the following requirements:	DOE-RL ACTION, BUT PFP does not have a formal process for documenting and obtaining exemptions for use of non-DOE treatment facilities to treat Hanford site waste. Exemption is necessary for existing contracts with service providers. The site occasionally uses non-DOE facilities for treatment of waste (e.g., ATG mixed waste treatment). Storage and disposal of Hanford waste at non-DOE facilities is unlikely. This process will need to be developed.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (4).(a).	(a) Such non-DOE facilities shall: 1. Comply with applicable Federal, State, and local requirements; 2. Have the necessary permit(s), license(s), and approval(s) for the specific waste(s); and 3. Be determined by the Field Element Manager to be acceptable based on a review conducted annually by DOE.	DOE-RL ACTION	N/A		
CH.I.2.F. (4).(b).	(b) Exemptions for the use of non-DOE facilities shall be documented to be cost effective and in the best interest of DOE, including consideration of alternatives for on-site disposal, an alternative DOE site, and available non-DOE facilities; consideration of life-cycle cost and potential liability; and protection of public health and the environment.	DOE-RL ACTION	N/A		
CH.I.2.F. (4).(c).	(c) DOE waste shall be sufficiently characterized and certified to meet the facility's waste acceptance criteria.	DOE-RL ACTION	N/A		
CH.I.2.F. (4).(d).	(d) Appropriate National Environmental Policy Act (NEPA) review must be completed. For actions taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), it is DOE's policy to incorporate NEPA values into the CERCLA documentation.	DOE-RL ACTION	N/A		
CH.I.2.F. (4).(e).	(e) Headquarters shall be notified of any exemption allowing use of a non-DOE facility and the Office of the Assistant Secretary for Environment, Safety and Health (EH-1) shall be consulted prior to the exemption being executed.	DOE-RL ACTION	N/A		
CH.I.2.F. (4).(f).	(f) Host States and State Compacts where non-DOE facilities are located shall be consulted prior to approval of an exemption to use such facilities and notified prior to shipments being made.	DOE-RL ACTION	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (5)	(5) Environmental Restoration, Decommissioning, and Other Cleanup Waste. Ensuring the management and disposal of radioactive waste resulting from environmental restoration activities, including decommissioning, meet the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. Environmental restoration activities using the CERCLA process (in accordance with Executive Order 12580) may demonstrate compliance with the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual (including the Performance Assessment and performance objectives, as well as the Composite Analysis) through the CERCLA process. However, compliance with all substantive requirements of DOE O 435.1 not met through the CERCLA process must be demonstrated. Environmental restoration activities which will result in the off-site management and disposal of radioactive waste must meet the applicable requirements of DOE O 435.1, Radioactive Waste Management, and this Manual for the management and disposal of those off-site wastes. Field Elements performing environmental restoration activities involving development and management of radioactive waste disposal facilities under the CERCLA process shall: (a) Submit certification to the Deputy Assistant Secretary for Environmental Restoration that compliance with the substantive requirements of DOE O 435.1 have been met through application of the CERCLA process; and (b) Submit the decision document, such as the Record of Decision, or any other document that serves as the authorization to dispose, to the Deputy Assistant Secretary for Environmental Restoration for approval.	DOE-RL ACTION, BUT A demonstration of compliance with the substantive requirements of 435.1 may have to be developed for the CERCLA remedial action of 361-Z.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (6)	(6) Radioactive Waste Acceptance Requirements. Ensuring development, review, approval, and implementation of the radioactive waste acceptance requirements for facilities that receive waste for storage, treatment, or disposal. Radioactive waste acceptance requirements shall establish the facility's requirements for the receipt, evaluation, and acceptance of waste.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: II(J) III(G) IV(G)	N/A		
CH.I.2.F. (7)	(7) Radioactive Waste Generator Requirements. Ensuring development, review, approval, and implementation of a program for waste generation planning, characterization, certification, and transfer. This program shall address characterization of waste, preparation of waste for transfer, certification that waste meets the receiving facility's radioactive waste acceptance requirements, and transfer of waste.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: II(K)(L)(M)(N) III(H)(I)(J)(K) IV(H)(I)(J)(K)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (8)	(8) Closure Plans. Ensuring development, review, approval, and implementation of closure plans for radioactive waste management facilities in accordance with the applicable requirements in the waste-type chapters of this Manual.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: II(U) IV(Q) Note: Per the guidance document, this requirement applies only to LLW Disposal Facilities and deactivated HLW facilities/site. Thus, it does not apply to PFP as a generator, treater, and storer of LLW and TRU waste.	N/A		
CH.I.2.F. (9)	(9) Defense-In-Depth. Ensuring defense-in-depth principles are incorporated where potential uncertainties or vulnerabilities warrant their use when reviewing and approving radioactive waste management activities and documents. These principles advocate the use of multiple levels of engineered and administrative controls to provide protection to the public, workers, and the environment.	DOE-RL ACTION Implementation of the requirement is the responsibility of the Field Element Manager. BUT PFP will have to demonstrate "by documentation in the radioactive waste management basis that describes and provides a rationale for the layers of controls (defense-in-depth) in place to provide protection for the public, workers, and the environment."	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (10)	(10) Oversight. Ensuring oversight of radioactive waste management facilities, operations, and activities is conducted. Oversight shall ensure radioactive waste management program activities are conducted in accordance with a radioactive waste management basis and meet the requirements of DOE O 435.I, Radioactive Waste Management, and this Manual.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: I.I.E.(17)	N/A		
CH.I.2.F. (11)	(11) Training and Qualification. Ensuring a training and qualification program is implemented for designated radioactive waste management program personnel, and the training is commensurate with job duties and responsibilities. Only those personnel who have been trained and qualified shall design or operate safety (safety class and safety significant) structures, systems, and components.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: I.1.E.(19)	N/A		
CH.I.2.F. (12)	(12) As Low As Reasonably Achievable (ALARA). Ensuring ALARA principles for radiation protection are incorporated when reviewing and approving radioactive waste management activities.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following section of the order: I.1.E.(13)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (13)	(13) Storage. Ensuring all radioactive waste is stored in a manner that protects the public, workers, and the environment in accordance with a radioactive waste management basis, and that the integrity of waste storage is maintained for the expected time of storage and does not compromise meeting the disposal performance objectives for protection of the public and environment when the waste is disposed.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addresses in the following sections of the order: II(T) III(Q) IV(R)	N/A		
CH.I.2.F. (14)	(14) Treatment. Ensuring all radioactive waste requiring treatment is treated in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order. II(R) III(O) IV(O)	N/A		
CH.I.2.F. (15)	(15) Disposal. Ensuring radioactive waste is disposed in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis. Reviewing specific transuranic or low-level waste documentation including the performance assessment and composite analysis, or appropriate CERCLA documentation, prior to forwarding them to Headquarters for approval, and obtaining and ensuring the facility is operated in accordance with the disposal authorization statement. Conducting performance assessment and composite analysis maintenance.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addresses in the following sections of the order: II(S) III(P) IV(P)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (16)	(16) Monitoring. Ensuring monitoring is conducted for all radioactive waste management facilities as required. Ensuring that disposal facilities are monitored, as appropriate, for compliance with conditions of the disposal authorization statement.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: II(T) III(Q) IV(R)	N/A		
CH.I.2.F. (17)	(17) Material and Waste Declassification for Waste Management. Ensuring, to the extent practical, radioactive material and waste generated under a program that is classified for national security reasons is declassified or rendered suitable for unclassified radioactive waste management.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: I.1.E(2)	N/A		
CH.I.2.F. (18)	(18) Waste Incidental to Reprocessing. Ensuring that waste incidental to reprocessing determinations are made by either the "citation" or "evaluation" process described in Chapter II of this Manual. Ensuring consultation and coordination with the Office of Environmental Management for waste determined to be incidental to reprocessing through the "evaluation" process.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following section of the order: II(B)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.F. (19)	(19) Waste With No Identified Path to Disposal. Ensuring a process is developed and implemented for identifying the generation of radioactive waste with no identified path to disposal, and reviewing and approving conditions under which radioactive waste with no identified path to disposal may be generated. Headquarters shall be notified of the decisions to generate a waste with no identified path to disposal.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar contractor requirements are addressed in the following sections of the order: II(K) III(H) IV(H)	N/A		
CH.I.2.F. (20)	(20) Corrective Actions. Ensuring a process exists for proposing, reviewing, approving, and implementing corrective actions when necessary to ensure that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met, and to address conditions that are not protective of the public, workers, or the environment. The process shall allow workers, through the appropriate level of management, to stop or curtail work when they discover conditions that pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	DOE-RL ACTION Implementation of this requirement is the responsibility of the Field Element Manager. A gap analysis for similar facility-specific requirements are addressed in the following sections of the order: I(2)(G)(1)(2) II(I) III(F) IV(F)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.I.2.G.	G. All Personnel. All personnel are responsible for: (1) Problem Identification. Identifying and reporting radioactive waste management facilities, operations, or activities that do not meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual, or that pose a threat to the safety of the public, workers, or the environment. (2) Shutdown or Curtailment of Activities. Stopping or curtailing work, through the appropriate level of management, to prohibit continuation of conditions or activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	Implementing documents exist though they are not specific to only radioactive waste management facilities, operations, or activities. Instead, they are inclusive of all workplace activities. Implementing documents include: • HNF-PRO-075, "Safety Communications." Requires the posting of specific notices that impart both the right and responsibility for identifying and resolving issues. • HNF-PRO-074, "Safety Responsibilities." Communicates responsibility for workers to identify safety-related problems and take appropriate action. HNF-PRO-3468, "Stop Work Responsibility," and HNF-PRO-074, "Safety Responsibilities," Appendix B, "Workers' Bill of Rights." These procedures and documents communicate the responsibility of personnel to shut down or curtail work activities if a safety issue or problem is identified. Includes the responsibility for communicating the safety problem and assisting with the resolution process.	NO		
CH.II.	HIGH-LEVEL WASTE REQUIREMENTS	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.II.A.	A. Definition of High-Level Waste. High-level waste is the highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation.	NO ACTION REQUIRED (definition) PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.B.	B. Waste Incidental to Reprocessing. Waste resulting from reprocessing spent nuclear fuel that is determined to be incidental to reprocessing is not high-level waste, and shall be managed under DOE's regulatory authority in accordance with the requirements for transuranic waste or low-level waste, as appropriate. When determining whether spent nuclear fuel reprocessing plant wastes shall be managed as another waste type or as high-level waste, either the citation or evaluation process described below shall be used:	NO ACTION REQUIRED (definition) PFP does not manage HLW or waste incidental to reprocessing.	N/A		
CH.II.B. (1).	(1) Citation. Waste incidental to reprocessing by citation includes spent nuclear fuel reprocessing plant wastes that meet the description included in the Notice of Proposed Rulemaking (34 FR 8712) for proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7. These radioactive wastes are the result of reprocessing plant operations, such as, but not limited to: contaminated job wastes including laboratory items such as clothing, tools, and equipment.	NO ACTION REQUIRED (definition) PFP does not manage HLW or waste incidental to reprocessing.	N/A		
CH.II.B. (2).	(3) Evaluation. Determinations that any waste is incidental to reprocessing by the evaluation process shall be developed under good record-keeping practices, with an adequate quality assurance process, and shall be documented to support the determinations. Such wastes may include, but are not limited to, spent nuclear fuel reprocessing plant wastes that:	NO ACTION REQUIRED (definition) PFP does not manage HLW or waste incidental to reprocessing.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.B. (2).(a).	(a) Will be managed as low-level waste and meet the following criteria: 1. Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and 2. Will be managed to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61, Subpart C, Performance Objectives; and 3. 3. Are to be managed, pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, and in accordance with the provisions of Chapter IV of this Manual, provided the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61.55, Waste Classification; or will meet alternative requirements for waste classification and characterization as DOE may authorize.	NO ACTION REQUIRED (definition) PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.B. (2).(b).	(b) Will be managed as transuranic waste and meet the following criteria: 1. Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and 2. Will be incorporated in a solid physical form and meet alternative requirements for waste classification and characteristics, as DOE may authorize; and 3. Are managed pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, in accordance with the provisions of Chapter III of this Manual, as appropriate.	NO ACTION REQUIRED (definition) PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.C.	C. Management of Specific Wastes. The following provide for management of specific wastes as high-level waste in accordance with the requirements in this Chapter: (1) Mixed High-Level Waste. Unless demonstrated otherwise, all high-level waste shall be considered mixed waste and is subject to the requirements of both the Atomic Energy Act of 1954, as amended, the Resource Conservation and Recovery Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (2) TSCA-Regulated Waste. High-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the Toxic Substances Control Act, as amended, DOE O 435.I, Radioactive Waste Management, and this Manual.	NO ACTION REQUIRED (definition) PFP does not manage HLW	N/A		
CH.II.D.	D. Complex-Wide High-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	DOE-HQ ACTION	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.E.	E. Site-Wide Radioactive Waste Management Program. In addition to the items in Chapter I of this Manual, documentation of the Site-Wide Radioactive Waste Management Program shall include a description of the High-Level Waste Systems Engineering Management Program to support decision-making related to nuclear safety, including high-level waste requirements analysis, functional analysis and allocation, identification of alternatives, and alternative selection and system control.	FDH ACTION	N/A		
CH.II.F.	F. Radioactive Waste Management Basis. High-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: (1) Generators. The waste certification program. (2) Pretreatment and Treatment Facilities. The waste acceptance requirements and waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.G.	G. Quality Assurance Program. The following requirements are in addition to those in Chapter I of this Manual. (1) Product Quality. The requirements of RW-0333P, Quality Assurance Requirements and Description, shall apply to those high-level waste items and activities important to waste acceptance/product quality. (2) Audits and Assessments. The evaluation and assessment requirements of RW 0333P, Quality Assurance Requirements Document and Description, and associated implementing procedures shall be met for high-level waste acceptance and product quality activities, in addition to the assessment requirements of other DOE directives and requirements identified in Chapter I of this Manual.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.H.	H. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Contingency Storage. For off-normal or emergency situations involving high-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of waste contained in any one storage vessel, pretreatment facility, or treatment facility. Tanks or other facilities that are designated for high-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet all the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. (2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of 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, Radioactive Waste Management, and this Manual.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.I.	I. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	PFP does not manage HLW	N/A		
CH.II.J.	J. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.J. (1)	(1). Technical and Administrative. Waste acceptance requirements for all high-level waste storage, pretreatment, or treatment facilities, operations, and activities shall specify, at a minimum, the following: (a) Allowable activities and/or concentrations of specific radionuclides; (b) Acceptable waste form that ensures the chemical and physical stability of the waste under conditions that might be encountered during transfer, storage, pretreatment, or treatment; (c) 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; and (d) Pretreatment, treatment, storage, packaging, and other operations shall be designed and implemented in a manner that will ultimately comply with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PFP does not manage HLW	N/A		
CH.II.J. (2)	(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.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.K.	K. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.II.K. (1)	(1). Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all high-level waste streams.	PFP does not manage HLW	N/A		
CH.II.K. (2)	(2). Waste With No Identified Path to Disposal. High-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste (compliance with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms).	PFP does not manage HLW	N/A		
CH.II.L.	L. Waste Characterization. High-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.	PFP does not manage HLW	N/A		
CH.II.L. (1)	(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.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.L. (2)	(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any solidification media; (c) Radionuclides or source information sufficient to describe the approximate radionuclide content of the waste; and (d) Any other information which may be needed to demonstrate compliance with the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PFP does not manage HLW	N/A		
CH.II.L. (3)	(3) Hazardous Characteristics. Waste characterization processes shall yield sufficient chemical and physical data to clearly identify any hazardous characteristics that may degrade the ability of structures, systems, and components to perform their radioactive waste management function.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.M.	M. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving high-level waste for storage, pretreatment, treatment, and disposal are met. (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. (2) Certification Before Transfer. High-level waste shall be certified as meeting the waste acceptance requirements before it is transferred to the facility receiving the waste. (3) Maintaining Certification. High-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, pretreatment, treatment, or disposal facility shall be managed in a manner that maintains its certification status.	PFP does not manage HLW	N/A		
CH.II.N.	N. Waste Transfer. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.N. (1).	(1) Authorization. High-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.	PFP does not manage HLW	N/A		
CH.II.N. (2).	(2) Data. Waste characterization data and generation, storage, pretreatment, treatment, and transportation information for high-level waste shall be transferred with or be traceable to the waste.	PFP does not manage HLW	N/A		
CH.II.N. (3).	(3) Records and Transfer Reporting. The records and transfer requirements for canistered high-level waste forms shall comply with DOE/EM-0093, Waste Acceptance Product Specification for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PFP does not manage HLW	N/A		
CH.II.O.	O. Packaging and Transportation. The following requirement is in addition to those in Chapter I of this Manual. (1) Canistered Waste Form. Immobilized high-level waste shall meet the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PFP does not manage HLW	N/A		
CH.II.P.	P. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.P. (1).	(1). Site Evaluation. Proposed locations for high-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses. (a) Each site proposed for a new high-level waste facility or expansion of an existing high-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities. (b) Proposed sites with environmental characteristics, geotechnical characteristics, or human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	NO ACTION REQUIRED – Applies to New Facilities Only	N/A		
CH.II.P. (2).	(2) Facility Design. The following facility design requirements, at a minimum, apply:	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.II.P. (2).(a).	(a) Safety (Safety Class and Safety-Significant) Structures, Systems, and Components. Safety structures, systems, and components for high-level waste storage, pretreatment, and treatment facilities shall be designated and designed consistent with the provisions of DOE O 420.1, Facility Safety; DOE 5480.22, Technical Safety Requirements; and DOE 5480.23, Nuclear Safety Analysis Reports.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.P. (2).(b).	(b) Confinement. High-level waste systems and components shall be designed to maintain waste confinement. The following requirements apply to new or modifications to existing high-level waste systems, ancillary systems, and components: 1. Secondary confinement systems shall be designed to prevent any migration of wastes or accumulated liquid out of the waste system; shall be capable of detecting, collecting, and retrieving releases into the secondary confinement; and shall be constructed of, or lined with, materials that are compatible with the waste(s) to be placed in the waste system 2. Tank and piping systems used for high-level waste collection, pretreatment, treatment, and storage shall be welded construction, except where remote configurations or periodic rerouting of high-level waste streams require non-welded construction	PFP does not manage HLW	N/A		
CH.II.P. (2).(c)	(c) Lifting Devices. The design of hoisting and rigging devices shall comply with the following specific requirements. 1. Lifting devices that are designated as safety class or safety significant shall be designed to prevent free fall of loads. 2. Loading and unloading systems for lifting devices that are designated as safety class or safety significant shall be designed with a reliable system of interlocks that will fail safely upon malfunction.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.P. (2).(d)	(d) Ventilation. 1. Design of high-level waste pretreatment, treatment, and storage facilities shall include ventilation through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the applicable requirements. 2. When conditions exist for generating gases in flammable and 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.	PFP does not manage HLW	N/A		
CH.II.P. (2).(e)	(e) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing high-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.	PFP does not manage HLW	N/A		
CH.II.P. (2).(f)	(f) Maintenance Exposure Reduction. Remote maintenance features and other appropriate techniques to maintain as low as reasonably achievable (ALARA) personnel exposures shall be incorporated into each high-level waste facility.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.P. (2).(g)	(g) Facilities for Receipt and Retrieval of High-Level Waste. 1. Designs for storage facilities shall incorporate features to facilitate retrieval capability. 2. High-level waste receipt and retrieval systems shall be designed to complement the existing storage facilities for safe storage and transfer of high-level waste.	PFP does not manage HLW	N/A		
CH.II.P. (2).(h)	(h) Structural Integrity. Designs for new tanks shall contribute to the confinement requirement at Section II.P.(2)(b) of this Manual by: 1. Incorporating features to avoid critical degradation modes at the proposed site where practicable, or minimize degradation rates for the critical modes; and 2. Incorporating features to facilitate execution of the Structural Integrity Program required by Section II.Q.(2) of this Manual.	PFP does not manage HLW	N/A		
CH.II.P. (2).(i)	(i) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of high-level waste treatment storage, pretreatment, and treatment facilities to provide volume inventory data and to prevent spills, leaks and overflows from tanks or confinement systems.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.P. (2).(j)	(j) Volume Monitoring Systems. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of high-level waste storage, pretreatment, and treatment facilities to provide rapid detection of failed confinement and/or other abnormal conditions.	PFP does not manage HLW	N/A		
CH.II.Q.	Q. Storage. The following requirements are in addition to those in Chapter I of this Manual and also apply to facilities intended for management of high-level waste awaiting pretreatment, treatment or disposal, unless stated otherwise.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.II.Q. (1).	(1) Operation of Confinement Systems. (a) Confinement systems shall be operated and maintained so as to preserve the design basis. (b) Secondary confinement systems, where provided, shall be operated to prevent any migration of wastes or accumulated liquid out of the waste confinement systems.	PFP does not manage HLW	N/A		
CH.II.Q. (2).	(2) Structural Integrity Program.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.Q. (2).(a).	(a) Leak-Tight Tanks In-Service. A structural integrity program shall be developed for each high-level waste storage tank site to verify the structural integrity and service life of each tank to meet operational requirements for storage capacity. The program shall be capable of: 1. Verifying the current leak-tightness and structural strength of each tank in service; 2. Identifying corrosion, fatigue, and other critical degradation modes; 3. Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; 4. Providing credible projections as to when structural integrity of each tank can no longer be assured; and 5. Identifying the additional controls necessary to maintain an acceptable operating envelope.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.Q. (2).(b).	(b) In-Service Tanks that Have Leaked or Are Suspect. For each high-level waste storage tank in-service that is known to have leaked, or is suspect, a modified structural integrity program shall be developed and implemented to identify the safe operational envelope. The modified program shall be capable of: 1. Verifying the structural strength of each tank in-service which has leaked or is suspect; 2. Identifying corrosion, fatigue and other critical degradation modes; 3. Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; 4. Determining which of the tanks that have leaked or are suspect may remain in service by identifying an acceptable safe operating envelope; 5. Providing credible projections as to when the acceptable safe operational envelope can no longer be assured; and 6. Identifying the additional controls necessary to maintain the acceptable safe operational envelope. When physical activities, as part of a structural integrity program, pose additional vulnerabilities, alternative measures shall be implemented to provide an acceptable storage operational envelope.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.Q. (2).(c).	(c) Other Storage Components. The structural integrity of other storage components shall be verified to assure leak tightness and structural strength.	PFP does not manage HLW	N/A		
CH.II.Q. (3)	(3) Canistered Waste Form Storage. Canisters of immobilized high-level waste awaiting shipment to a repository shall be: (a) Stored in a suitable facility; (b) Segregated and clearly identified to avoid commingling with low-level, mixed low-level, or transuranic wastes; and (c) Monitored to ensure that storage conditions are consistent with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351, Waste Acceptance System Requirements Document, for non-vitrified immobilized high-level waste. Facilities and operating procedures for storage of vitrified high-level waste shall maintain the integrity of the canistered waste form.	PFP does not manage HLW	N/A		
CH.II.R.	R. Treatment. Treatment shall be designed and implemented in a manner that will ultimately comply with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.S.	S. Disposal. Disposal of high-level waste must be in accordance with the provisions of the Atomic Energy Act of 1954, as amended, the Nuclear Waste Policy Act of 1982, as amended, or any other applicable statutes.	PFP does not manage HLW	N/A		
CH.II.T.	T. Monitoring. High-level waste pretreatment, treatment, storage, and transportation facilities shall be monitored for chemical, physical, radiological, structural, and other changes that could indicate failure of system confinement, integrity, or safety, and which could lead to abnormal events or accidents. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, flammable or explosive mixtures of gases, level and/or waste volume, and significant waste chemistry parameters for non-immobilized high-level waste. Facility monitoring programs shall also include physical inspections to verify that control systems have not failed.	PFP does not manage HLW	N/A		
CH.II.U.	U. Closure. The following requirements for closure of deactivated high-level waste facilities and sites are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.II.U.(1).	(1) Decommissioning. Deactivated high-level waste facilities/sites shall meet the decommissioning requirements of DOE O 430.1A, Life-Cycle Asset Management and the requirements of DOE 5400.5, Radiation Protection of the Public and the Environment, for release; or	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.U. (2).	(2) CERCLA Process. Deactivated high-level waste facilities/sites shall be closed in accordance with the CERCLA process as described in Section I.2.F.(5); or	PFP does not manage HLW	N/A		
CH.II.U. (3).	(3) Closure. Deactivated high-level waste facilities/sites shall be closed in accordance with an approved closure plan as specified below. Residual radioactive waste present in facilities to be closed shall satisfy the waste incidental to reprocessing requirements of this Chapter.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.U. (3).(a).	(a) Facility/Site Closure Plans. A closure plan shall be developed for each deactivated high-level waste facility/site being closed that defines the approach and plans by which closure of each facility within the site is to be accomplished. This plan shall be completed and approved prior to the initiation of physical closure activities, and updated periodically to reflect current analysis and status of individual facility closure actions. The plan shall include, at a minimum, the following elements: 1. Identification of the closure standards/performance objectives to be applied from Chapter III or IV, as appropriate; 2. A strategy for allocating waste disposal facility performance objectives from the closure standards identified in the closure plan among the facilities/units to be closed at the site; 3. An assessment of the projected performance of each unit to be closed relative to the performance objectives allocated to each unit under the closure plan; 4. An assessment of the projected composite performance of all units to be closed at the site relative to the performance objectives and closure standards identified in the closure plan; and 5. Any other relevant closure controls including a monitoring plan, institutional controls, and land use limitations to be maintained in the closure activity.	PFP does not manage HLW	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.II.V.	V. Specific Operations. Specific requirements are provided for the operation of lifting devices and facilities for receipt and retrieval of high-level waste. (1) Operation of Lifting Devices. Hoisting and rigging activities shall be conducted in accordance with the guidance provided in the DOE Standard "Hoisting and Rigging" (DOE-STD-1090-96). (2) Operation of Facilities for Receipt and Retrieval of High-Level Waste. High-level waste receipt and retrieval systems shall be operated and maintained consistent with high-level waste system features incorporated in the facilities. Strategies for retrieval of waste shall be analyzed to ensure that structural and radiological impacts are consistent with the facility design basis._ (This page intentionally left blank.)_CHAPTER III	PFP does not manage HLW	N/A		
CH.III.	TRANSURANIC WASTE REQUIREMENTS	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.A.	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: (1) High-level radioactive waste; (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 (3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	NO ACTION REQUIRED(definition) HNF-EP-0063 Rev 5 incorporates the 435 definition of TRU. Any facility that generates or stores TRU would have to meet the HNF-EP-0063 requirements, as they define the requirements for certification of TRU waste.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter: (1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, and a radioactive component subject to the Atomic Energy Act of 1954, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual. (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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (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, Radioactive Waste Management, and this Manual.	NO ACTION REQUIRED (but see below for individual requirements) The 435.1 language regarding co-regulation of radioactive waste under other statutes and regulations is not substantially different from that currently in effect under 5820.2A.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.C.	C. Complex-Wide Transuranic Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	DOE-HQ ACTION	N/A		
CH.III.D.	D. Radioactive Waste Management Basis. Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis: (1) Generators. The waste certification program. (2) Treatment Facilities. The waste acceptance requirements and the waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program. (4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.	PFP will need to develop its waste management basis documentation. The Waste Management Basis is a new requirement; there is no corollary in 5820.2A. As the 435.1 Guidance explains, most of the basis documents already exist, derived from existing 5820.2A requirements and other DOE orders. It will take a significant effort to package these documents, close any gaps identified, and issue the Waste Management Basis. The Waste Certification Program is not a new requirement. However, while PFP has the procedures and processes in place to certify its waste, it does not have a comprehensive "Waste Certification Plan." As a subset of the Waste Management Basis, PFP will need to document how the various pieces of their certification program fit together. In some cases, gaps in the certification program may be identified.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (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, Radioactive Waste Management, 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, Radioactive Waste Management, and this Manual.	This section invokes numerous new requirements (leak testing, inspections, functional tests, operations, procedures, training, records, etc.). The design and operation of the 241-Z tank and piping system will have to be reviewed and evaluated against these requirements.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	(1) PFP utilizes the Deficiency Tracking System (DTS) (HNF-PRO-653, Rev.1) and the Corrective Action Management System (HNF-PRO-052, Rev.2). These systems document non-compliant or hazardous conditions, identify the organizations or individuals responsible for developing and implementing corrective action plans, provide corrective action status, and track progress through final implementation of the actions. (2) Existing operation curtailment processes or programs should meet the requirements of 435.1. An evaluation of Hanford Site "Conduct of Operations" policies and procedures would be necessary to identify those programs which would be most suitable. PFP may need to modify or create OSRS or TSRs to identify non-compliances with the approved radioactive waste management basis as a cause to stop work. This section also requires development of a "documented system of routine assessments" against the approved radioactive waste management basis.	(1) – NO (2) - YES	(3)	(4)
CH.III.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.G. (1).	(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: (a) Allowable activities and/or concentrations of specific 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; (c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance; (d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and (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.	(d) HNF-EP-0063 Rev 5 does not capture the requirement for generators to identify defense vs non-defense TRU waste. Need evaluation to determine whether PFP has any non-defense TRU. PFP may have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements. PFP does not accept TRU waste from other facilities and, thus, does not need to develop acceptance requirements.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.G. (2).	(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.	PFP does not receive TRU waste from other facilities, so the requirement is not applicable. PFP will have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements, including the conduct of sampling, testing, and analysis of additional samples, and audits, reviews, surveillances, and observations of PFP's certification program.	YES		
CH.III.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.III.H. (1).	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.	Need to develop a process to obtain acceptance of a waste before generation.	YES		
CH.III.H. (2).	(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: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) (d) Activities and plans for achieving final disposal of the	It does not appear there is a documented and reliable process in place to ensure that no path forward waste is evaluated prior to generation. (TRU/PCB waste falls into this category and may need an exemption.)	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.I	I. Waste Characterization. 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.	See below individual requirements.	N/A		
CH.III.I.(1)	(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.	Waste generators do not consistently use the Data Quality Objectives process or an equivalent process to plan characterization activities. The DQO process is not currently a requirement of 5820.2A and, as a result is not uniformly used by persons planning characterization. DQOs are often performed for large and complex characterization problems. It is much less common for DQOs (or anything remotely equivalent) to be performed on routine waste streams.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.I. (2)	(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; (g) Packaging date; and (h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	This section requires more detailed documentation of characterization data than are commonly practiced, particularly for "indirect methods." There are minor gaps in "minimum waste characterization" requirements. The Guidance provides detailed requirements regarding documentation of process knowledge and correlation of indirect data with more direct methods. The current site standard for records and correlations is probably well below those described in the Guidance. The SWITS database retains all of the minimum characterization data with the exception of characterization date. If PFP uses other data collection mechanisms, they would need to upgrade the required data to manage the waste.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met.	No gap for waste managed through the Hanford Site TRU WIPP Certification Program. Facilities' waste certification programs generally do not incorporate all of the 435.1 certification program requirements, particularly as described in the Guidance. The following gaps may exist at PFP: • Identification of a specific certification official for each facility from which waste will be shipped. • Certification plans do not address all of the elements identified in the Guidance. In the case where waste is generated and stored internal to the generator a graded approach to waste certification will be applied. DOE Order 5820.2A established general waste certification requirements. DOE O 435.1 uses the same general concept, but has more detailed requirements that have not necessarily been incorporated by Hanford site generators (i.e., PFP). In particular, it is uncommon for certification plans to formally identify certification officials, certification statements, records management requirements, and various other elements identified by the Order and associated Guidance.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.J. (1)	(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period..	See III.J. above.	YES		
CH.III.J. (2)	(2) Certification Before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste	See III.J. above.	YES		
CH.III.J. (3)	(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.	See III.J. above.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.K.	K. Waste Transfer. 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. (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. (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.	Transfers of solid TRU waste from PFP to CWC, T-Plant or WRAP: Acceptance process webpage on Hanford Site Solid Waste Acceptance Program website outlines the acceptance process. TRU shipments to WMH TSD facilities are authorized by WMH-370, 1.7 procedure in which TSD rep notifies generator with approved receipt report which authorizes the transfer. Data is collected through required input into SWITS database per WMH-370, Section 5.1. Required data is also collected in profile sheet and waste portfolio submittal. PFP PIN files also maintain some information beyond scope of what WMH TSD facility requires to acceptance determination. (i.e. rad survey report of container, container purchase specifications, etc). TRU waste is not transferred to PFP from other facilities. Movement of waste within PFP is not subject to this section of 435.1. Transfers of liquid TRU wastes from 241-Z to Double Shell Tanks needs to be addressed also to ensure the Tank Farms waste acceptance criteria is adequate.	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual. (1) Packaging. (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. (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. (c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible. (d) Containers of transuranic waste shall be marked such that their contents can be identified. (2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.	All TRU solid waste is packaged in accordance with HNF-EP-0063. HNF-EP-0063 captures these requirements, except for the requirement to segregate defense from non-defense TRU waste. 1.a) HNF-EP-0063 Appendix D 1.b) HNF-EP-0063 Appendix G 1.c) Not captured by HNF-EP-0063 Rev 5 1.d) HNF-EP-0063 Appendix C requires containers to be bar coded with CIN #. All data for the container is tracked in SWITS per the CIN #. Waste profile and waste portfolio information can be traced based on the information in SWITS. 2. HNF-EP-0063, Section 1.4.3 and the Hanford Site Waste Minimization and Pollution Prevention Awareness Program Plan (DOE/RL-91-31). Liquid TRU waste is currently shipped via pipeline to Double Shell Tanks. Should it be shipped via tanker trucks, it will meet requirements detailed in a SARP.	1a – NO 1b – NO 1c – YES 1d – NO 2 - NO		
CH.III.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.M .(1).	(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. (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. (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.	Applicable to New or Modified Facilities Only PFP action would be required if TRU treatment or storage is expanded. PFP needs to modify its design change procedures and processes to ensure the siting and facility requirements are addressed.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.M .(2).	(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply: (a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement. (b) Ventilation. 1. Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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. (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. (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.	Applicable to existing, modified, and new facilities. PFP needs to conduct a design review of its TRU treatment and storage. PFP needs to modify its design change procedures and processes to ensure the facility design requirements are addressed.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.N.	N. Storage. The following requirements are in addition to those in Chapter I of this Manual. (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. (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. (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. (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.	(1) PFP needs to review and revise its procedures to ensure all waste that could be reactive per this section would meet the storage prohibitions of this section or preclude storage of prohibited waste. (SS&C waste is reactive, is being stored so as not to come in contact with water, and will be cemented to remove reactive property.) (2) PFP needs to review and revise its procedures to ensure all wastes are stored per for expected duration of storage. (Currently, fissile materials are stored inside and TRU wastes under cover to protect them from the elements.) (3) PFP needs to review and revise its procedures to ensure inspections address those container integrity items specified in the guidance document for all waste containers. (4) PFP may needs to ensure the CERCLA process develops plans and procedures for TRU waste retrieval from Tank 361-Z.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.O.	O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.	TRU waste shipped to Hanford TSD's for storage must meet HNF-EP-0063 waste acceptance criteria. TRU waste will be certified to meet the WIPP WAC before it gets shipped to WIPP.	NO		
CH.III.P.	P. Disposal. 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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility. However, if wastes are left in place at Tank 361-Z, it would have to be evaluated against these requirements. DOE policy is to dispose of TRU waste at the WIPP Site. Therefore disposal requirements identified in this manual requirement apply to WIPP, not Hanford.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.III.Q.	Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual. (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. (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. (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	PFP does not monitor per minimum requirements. Parameters monitored in these facilities are identified in safety documents and data collection procedures. Need to justify why not monitoring for minimum parameters in III.Q or upgrade systems.	YES		
CHAPTER IV	LOW-LEVEL WASTE REQUIREMENTS	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.IV.A.	A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the Atomic Energy Act of 1954, as amended), or naturally occurring radioactive material.	NO ACTION REQUIRED (definition) The definition of low-level waste has not changed significantly from that currently provided by 5820.2A. The 435.1 definition does not significantly change the scope of wastes that are managed as low-level.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter: (1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual. (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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual. (3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, Radioactive Waste Management, and this Manual, and all applicable Federal or State requirements. (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.	NO ACTION REQUIRED (definition) The 435.1 language regarding co-regulation of radioactive waste under other statutes and regulations is not substantially different from that currently in effect under 5820.2A.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.C.	C. Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	DOE-HQ ACTION	N/A		
CH.IV.D.	D. Radioactive Waste Management Basis. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis: (1) Generators. The waste certification program. (2) Treatment Facilities. The waste acceptance requirements and the waste certification program. (3) Storage Facilities. The waste acceptance requirements and the waste certification program. (4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.	PFP will need to develop its waste management basis documentation. The Waste Management Basis is a new requirement; there is no corollary in 5820.2A. As the 435.1 Guidance explains, most of the basis documents already exist, derived from existing 5820.2A requirements and other DOE orders. It will take a significant effort to package these documents, close any gaps identified, and issue the Waste Management Basis. The Waste Certification Program is not a new requirement. However, while PFP has the procedures and processes in place to certify its waste, it does not have a comprehensive "Waste Certification Plan." As a subset of the Waste Management Basis, PFP will need to document how the various pieces of their certification program fit together. In some cases, gaps in the certification program may be identified.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual. (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. (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, Radioactive Waste Management, and this Manual.	This section invokes numerous new requirements (leak testing, inspections, functional tests, operations, procedures, training, records, etc.). The design and operation of the LLWTF tank and piping systems will have to be reviewed and evaluated against these requirements.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual. (1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met. (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.	(1) PFP utilizes the Deficiency Tracking System (DTS) (HNF-PRO-653, Rev.1) and the Corrective Action Management System (HNF-PRO-052, Rev.2). These systems document non-compliant or hazardous conditions, identify the organizations or individuals responsible for developing and implementing corrective action plans, provide corrective action status, and track progress through final implementation of the actions. (2) Existing operations curtailment processes or programs should meet the requirements of 435.1. An evaluation of Hanford Site "Conduct of Operations" policies and procedures would be necessary to identify those programs which would be most suitable. PFP may need to modify or create OSRS or TSRs to identify non-compliances with the approved radioactive waste management basis as a cause to stop work. This section also requires development of a "documented system of routine assessments" against the approved radioactive waste management basis.	(1) – NO (2) - YES	(3)	(4)
CH.IV.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual:	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.IV.G. (1).	(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:	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.G. (1).(a)	(a) Allowable activities and/or concentrations of specific radionuclides.	Applicable to LLW TSD Facilities. PFP does not accept LLW from other facilities. PFP may have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements.	N/A		
CH.IV.G. (1).(b)	(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.	Applicable to LLW TSD Facilities. PFP does not accept LLW from other facilities. PFP may have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements.	N/A		
CH.IV.G. (1).(c)	(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	Applicable to LLW TSD Facilities. PFP does not accept LLW from other facilities. PFP may have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.G.(1).(d)	(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements: 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. 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. 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. 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. 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.	Applicable to LLW Disposal Facilities. PFP does not accept LLW from other facilities. PFP is not a LLW Disposal Facility PFP may have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements.	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.G. (1).(e)	(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.	Applicable to LLW TSD Facilities. PFP does not accept LLW from other facilities. PFP may have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements.	N/A		
CH.IV.G. (2).	(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.	Applicable to LLW TSD Facilities. PFP does not accept LLW from other facilities. PFP will have to adjust its internal procedures if external storage and disposal facilities modify their waste acceptance criteria to accommodate these requirements, including the conduct of sampling, testing, and analysis of additional samples, and audits, reviews, surveillances, and observations of PFP's certification program.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual. (1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. (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: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste.	(1) PFP needs to develop a process to obtain acceptance of a waste before generation. (2) It does not appear there is a documented and reliable process in place to ensure that no path forward waste is evaluated prior to generation. (LLW/PCB waste falls into this category and may need an exemption.)	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.I.	I. Waste Characterization. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the 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. (2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; and (g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	1. Waste generators do not consistently use the Data Quality Objectives process or an equivalent process to plan characterization activities. The DQO process is not currently a requirement of 5820.2A and, as a result is not uniformly used by persons planning characterization. DQOs are often performed for large and complex characterization problems. It is much less common for DQOs (or anything remotely equivalent) to be performed on routine waste streams. 2. This section requires more detailed documentation of characterization data than are commonly practiced, particularly for "indirect methods". The Guidance provides detailed requirements regarding documentation of process knowledge and correlation of indirect data with more direct methods. The current site standard for records and correlations is probably well below those described in the Guidance. 3. There are minor gaps in "minimum waste characterization" requirements. The SWITS database retains all of the minimum characterization data with the exception of characterization date. Facilities that use other data collection mechanisms might need to upgrade the required data to manage the waste.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met. (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. (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. (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.	Facilities' waste certification programs generally do not incorporate all of the 435.1 certification program requirements, particularly as described in the Guidance. The following gaps exist at some or all Hanford waste generating organizations: • Identification of a specific certification official for each facility from which waste will be shipped. • Certification plans do not address all of the elements identified in the Guidance. In the case where waste is generated and stored internal to the generator (PFP), a graded approach to waste certification will be applied. DOE Order 5820.2A established general waste certification requirements. DOE O 435.1 uses the same general concept, but has more detailed requirements that have not necessarily been incorporated by Hanford site generators. In particular, it is uncommon for certification plans to formally identify certification officials, certification statements, records management requirements, and various other elements identified by the Order and associated Guidance.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.K.	K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual. (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. (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.	Transfers from PFP to LLBG CWC, T-Plant or WRAP: Acceptance process webpage on Hanford Site Solid Waste Acceptance Program website outlines the acceptance process. LLW shipments to PFP are not authorized. Data is collected through required input into SWITS database per WMH-370, Section 5.1. Required data is also collected in profile sheet and waste portfolio submittal. PFP files also maintain some information beyond scope of what WMH TSD facility requires to acceptance determination. (i.e. rad survey report of container, container purchase specifications, etc). Movement of waste within PFP is not subject to this section of 435.1.	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual. (1) Packaging. If containers are used: (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. (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. (c) Containers of low-level waste shall be marked such that their contents can be identified. (2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.	For waste to be shipped to LLBG, CWC, WRAP or T-Plant, HNF-EP-0063 requirements specify the packaging required, including venting and labeling requirements to address L(1). The waste minimization requirements of L(2) are addressed in HNF-EP-0063, Section 1.4.3 and the Hanford Site Waste Minimization and Pollution Prevention Awareness Program Plan (DOE/RL-91-31).	NO		
CH.IV.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.M .(1).	(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. (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: 1. Located to accommodate the projected volume of waste to be received; 2. Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and 3. Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled. (b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility. (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.	Applicable to New or Modified Facilities Only PFP action would be required if LLW treatment or storage is expanded. PFP needs to modify its design change procedures and processes to ensure the siting and facility requirements are addressed.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.M .(2).	(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply: (a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement. (b) Ventilation. 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. 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. (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. (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. (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.	Applicable to existing, modified, and new facilities. PFP needs to conduct a design review of its LLW treatment and storage. PFP needs to modify its design change procedures and processes to ensure the facility design requirements are addressed.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.M .(3).	(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply: (a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement. (b) Ventilation. 1. Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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. (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. (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.	NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.N.	N. Storage and Staging. The following requirements are in addition to those in Chapter I of this Manual.	NO ACTION REQUIRED (but see below for individual requirements)	N/A		
CH.IV.N. (1).	(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.	PFP needs to review and revise its procedures to ensure all waste that could be reactive per this section would meet the storage prohibitions of this section or preclude storage of prohibited waste.	YES		
CH.IV.N. (2).	(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.	Need to revise procedures to include 1 year time limit.	YES		
CH.IV.N. (3).	(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.	PFP needs to review and revise its procedures to ensure all wastes are stored per for expected duration of storage.	YES		
CH.IV.N. (4).	(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. (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.	(a) Currently, waste without an identified path forward might not have undergone the DQO process to assess characterization requirements. PFP needs to review and revise its procedures to ensure waste is characterized using DQO as required by this provision. (b) PFP needs to review and revise its procedures to ensure the records are retained and controlled as required by this provision.	YES		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.N. (5).	(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.	PFP needs to review and revise its procedures to ensure inspections address those container integrity items specified in the guidance document for all waste containers.	YES		
CH.IV.N. (6).	(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	Commingling of mixed and low level waste in waste tanks may occur. Low level and mixed are not segregated from the same immediate area storage as per guide. Waste categories (types) may be segregated with a three foot separation; however current procedures do not require physical separation as it is not a compatibility issue. The segregation may or may not include any rope, tape and /or labels identifying the low-level waste. Procedures and controls need to be put in place.	YES		
CH.IV.N. (7).	(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.	90 day staging conditions are not contained in current facility procedures. Existing inventories that exceed the 90 day staging restriction need to be transferred to storage facilities or a waiver obtained.	YES		
CH.IV.O.	O. Treatment. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.	Current Waste Acceptance Criteria of HNF-EP-0063, as well as the Performance Assessment, establish acceptable waste treatment standards for disposal facilities. The LLWTF discharges to TEDF which has waste acceptance criteria for its state permitted land disposal unit. Changes in waste acceptance requirements by disposal facilities may cause PFP to change its procedures and operations.	NO		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P.	P. Disposal. Low-level waste disposal facilities shall meet the following requirements.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (1).	(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: (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. (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. (c) Release of radon shall be less than an average flux of 20 pCi/m2/s (0.74 Bq/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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (2).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility			
CH.IV.P. (2).(a).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (2).(b).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (2).(c).	(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (2).(d).	(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (2).(e).	(e) The performance assessment shall include a sensitivity/uncertainty analysis.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (2).(f).	(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (2).(g).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		
CH.IV.P. (2).(h).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (3).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (4).	(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. (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. (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. (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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (5).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (6).	(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: (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. (b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced. (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. (d) Operations are to be conducted so that active waste 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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.P. (7).	(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.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.Q.	Q. Closure. The following requirements are in addition to those in Chapter I of this Manual. (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: (a) Be updated as required during the operational life of the facility. (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, Radiation Protection of the Public and the Environment. (c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility. (2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed. (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. (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. (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, Radiation Protection of the Public and the Environment. (d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	Applicable to disposal facilities only NO PFP ACTION REQUIRED – PFP is not a disposal facility	N/A		

Citation	435.1-1 Manual Requirements	Compliance Status	GAP?	Plan to Achieve Compliance	Cost
CH.IV.R.	R. Monitoring. The following requirements are in addition to those in Chapter I of this Manual. (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. (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. 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. (a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored. (b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance. (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.	(1) and (2): Tanks and containers of waste are not monitored per the specified minimum requirements. Parameters monitored are identified per safety documents and data collection procedures exist, but these will need to be justified or upgraded. (3) PFP is not a disposal facility.	(1) YES (2) YES (3) NO	(4)	(5)

ATTACHMENT 4

FLUOR HANFORD, FAST FLUX TEST FACILITY

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DOE ORDER 435.1 GAP ANALYSIS REVIEW FORM

Reviewer: NR Dahl	**Review Date:** 01/04/00
Chapter: IV	**Section:** D

Gap:

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.

Basis:

Need to document a waste management basis.

Additional Comments:

DOE ORDER 435.1 GAP ANALYSIS REVIEW FORM

Reviewer: NR Dahl	**Review Date:** 01/04/00
Chapter: IV	**Section:** H. (1)

Gap:

Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.

Basis:

Need to ensure that engineering incorporates life cycle planning into any new projects or missions.

Additional Comments:

DOE ORDER 435.1 GAP ANALYSIS REVIEW FORM

Reviewer: NR Dahl	**Review Date:** 01/04/00
Chapter: IV	**Section:** N. (7)

Gap:

Staging of low-level waste shall be for the purpose of 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.

Basis:

Facility procedures need to be changed to ensure that waste is not staged for shipment for longer than 90 days.

Additional Comments:

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ATTACHMENT 5

PACIFIC NORTHWEST NATIONAL LABORATORY

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Pacific Northwest National Laboratory
DOE O 435.1 Gap Analysis Summary

New Items

Prepare radioactive waste management basis documents for all PNNL radioactive waste facilities.

- generator facilities
- treatment facilities, 325, HWTU and low-level waste compactor
- storage facilities, 325, HWTU and non HWTU areas; 306W; 305B

Prepare a plan for creating less than 90-day staging areas for low-level mixed waste.

New Procedures

- complete subject area on PCB's
- certify waste coming into PNNL waste management facilities, and leaving PNNL
- transferring responsibility for waste when it leaves PNNL
- inspecting radioactive waste containers
- contingency plan for storing the liquid radioactive waste in the new RLWS tank

Changes to Existing Subject Areas and Procedures

- reword definitions in subject areas to match those in DOE O 435.1
- waste acceptance criteria for PNNL treatment and storage facilities
- generator planning for radioactive waste prior to generating the waste
- waste characterization
- management oversight of waste management facilities in accordance with DOE O 435.1
- change procedures to document evaluation of waste prior to acceptance at PNNL treatment and storage facilities
- granting exceptions to waste acceptance criteria for PNNL treatment and storage facilities
- handling non-conforming waste at PNNL treatment and storage facilities
- 1 year limit on stored waste for low-level waste. (Does not apply to waste that existed prior to issuing DOE O 435.1, e.g. legacy waste in 325 Hot cells)
- segregate low-level waste from mixed low-level waste

Referenced DOE Orders not in the PNNL Contract

DOE 5633.3B	Control and Accountability of Nuclear Material (This order has been archived and replaced by DOE O 474.1 which is in the contract.)
DOE M 251.1-A	Directives Manual (SBMS)
DOE M 411.1-1	Safety Management Functions, Responsibilities, and Authorities Policies
DOE O 200.1	Information Management Program
DOE O 210.1	Performance Indicator and Analysis of Operations Information
DOE O 360.1	Federal Employee Training
DOE O 420.1	Facility Safety
DOE O 425.1A	Startup and Restart of Nuclear Facilities
DOE O 430.1A	Life Cycle Asset Management
DOE O 440.1A	Worker Protection Management for DOE Federal and Contractor Employees

DOE P 450.3	Authorizing Use of the Necessary and Sufficient Sets of Standards
DOE P 450.4	Safety Management System Policy
DOE P 450.5	Line Environmental Safety and Health Oversight
DOE O 451.1A	National Environmental Policy Act Compliance Program

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
INTRO	INTRODUCTION			
Intro. Para. 1.	1. PURPOSE. This Manual further describes the requirements and establishes specific responsibilities for implementing DOE O 435.1, Radioactive Waste Management, for the management of DOE high-level waste, transuranic waste, low-level waste, and the radioactive component of mixed waste. The purpose of the Manual is to catalog those procedural requirements and existing practices that ensure that all DOE elements and contractors continue to manage DOE's radioactive waste in a manner that is protective of worker and public health and safety, and the environment.	NO ACTION REQUIRED – Statement of Purpose only		
Intro. Para. 2	2. APPLICABILITY. The requirements set forth in this Manual apply to DOE elements and contractors as set forth in DOE O 435.1, Radioactive Waste Management.	NO ACTION REQUIRED		
Intro. Para. 3	3. SUMMARY. This Manual is organized into four (4) chapters. Chapter I, General Requirements and Responsibilities, contains requirements and responsibilities which are applicable to all radioactive waste types and delineates responsibilities for radioactive waste management decision-making at the complex-wide and Field Element levels. Chapters II through IV contain those requirements that are applicable to high-level waste, transuranic waste, and low-level waste including the radioactive component of mixed low-level waste, respectively.	NO ACTION REQUIRED		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
Intro. Para. 4	4. IMPLEMENTATION. The requirements of this Manual apply to all new and existing DOE radioactive waste management facilities, operations, and activities. Implementation of the requirements shall begin at the earliest possible date, and all DOE entities shall be in compliance with this directive within one year of its issuance. Compliance with this directive includes implementing the requirements or an approved implementation or corrective action plan. If compliance with this Order cannot be achieved within one year of its issuance, the Field Element Manager must request approval to extend the compliance date to no later than October 1, 2001, from the cognizant Program Secretarial Officer (PSO). Failure to implement the requirements of this directive shall, through the appropriate lines of management, result in corrective actions including, if necessary, shutdown of radioactive waste management facilities, operations, or activities until the appropriate requirements are implemented. Any of the requirements in this Manual may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, the applicable or relevant and appropriate requirements identification process for actions taken pursuant to the Department's CERCLA authorities, or by an exemption processed in accordance with the requirements of DOE M 251.1-1A, Directives System Manual.	**PNNL will implement the requirements of this order in conjunction with the Hanford Site implementation plan.**		

Intro. Para. 5	5. REVISIONS. Systematic planning, execution, and evaluation of radioactive waste management facilities, operations, and activities will provide the basis for evaluating the adequacy of and, if necessary, revising the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. The revision process will be based on DOE P 450.4, Safety Management System Policy, and will implement continuous improvement for management of radioactive waste. The process includes: identifying the functions necessary to execute radioactive waste management responsibilities; conducting an analysis of the hazards associated with performing those functions; developing and implementing the proper controls to mitigate any associated hazards; developing and implementing a periodic assessment of work performance; and providing feedback to revise the work processes and incorporate lessons learned, as appropriate. Administrative requirements of the Order and Manual will be revised as needed to support safe and efficient waste management.	PNNL will participate in this activity as appropriate.		
Intro. Para. 6	6. DEFINITIONS. Definitions for DOE M 435.1-1, Radioactive Waste Management Manual, are provided in Attachment 2.	NO ACTION REQUIRED		
Intro. Para. 7	7. REFERENCE. DOE O 435.1, Radioactive Waste Management, dated 7-09-99.	NO ACTION REQUIRED		
Intro. Para. 8	8. CONTACT. Call the Office of Waste Management at (202) 586-0370.	NO ACTION REQUIRED		
CHAPTER I		GENERAL REQUIREMENTS AND RESPONSIBILITIES		
CH.I.1	1. REQUIREMENTS			

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.A.	A. Delegation of Authority. Managers charged with responsibilities within this Manual may delegate authority for these tasks to another manager. All delegations of authority shall be documented.	NO ACTION REQUIRED		
CH.I.1.B.	B. Use of Guidance. Additional information supporting the requirements in this Manual is contained in the Implementation Guide for use with DOE M 435.1-1, Radioactive Waste Management Manual. This Guide, DOE G 435.1-1, Implementation Guide for DOE M 435.1-1, shall be reviewed when implementing the requirements of this Manual. The Guide provides additional information and acceptable methods for meeting the requirements. Other methods may be used but must ensure an adequate level of safety commensurate with the hazards associated with the work and be consistent with the radioactive waste management basis.	NO ACTION REQUIRED		
CH.I.1.C.	C. Radioactive Waste Management. All radioactive waste subject to DOE O 435.1, Radioactive Waste Management, and the requirements of this Manual shall be managed as high-level waste, transuranic waste, low-level waste, or mixed low-level waste.	PNNL currently manages radioactive waste in this manner as documented in the subject areas for "Highly Radioactive Waste", "Transuranic Waste", "Low-Level Radioactive Waste", and "Radioactive Mixed Waste".		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.D.	D. Analysis of Environmental Impacts. Existing and proposed radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 1021, National Environmental Policy Act Implementing Procedures; and DOE O 451.1A, National Environmental Policy Act Compliance Program. All reasonable alternatives shall be considered, as appropriate. Nothing in this Order is meant to restrict consideration of alternatives to proposed actions.	**DOE O 451.1A is not in the PNNL contract.**		
CH.I.1.E.	E. Requirements of Other Regulations and DOE Directives. The following requirements and DOE directives are required for all DOE radioactive waste management facilities, operations, and activities as applicable. Any of the requirements for the following Departmental directives may be waived or modified through application of a DOE-approved requirements tailoring process, such as the "Necessary and Sufficient Closure Process" in DOE P 450.3 and DOE M 450.3-1 and DOE P 450.4, Safety Management System Policy, or by an exemption processed in accordance with the requirements of that directive or DOE M 251.1-1A, Directives System Manual.	PNNL will follow the Necessary and Sufficient process. **DOE P 450.3, DOE P 450.4, and DOE M 251.1A are not in the PNNL contract.**		
CH.I.1.E. (1)	(1) Analysis of Operations Information. Data that measure the environment, safety, and health performance of radioactive waste management facilities, operations, and activities shall be identified, collected, and analyzed as required by DOE O 210.1, Performance Indicators and Analysis of Operations Information.	**DOE O 210.1 is not in the PNNL contract.**		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (2)	(2) Classified Waste. Radioactive waste to which access has been limited for national security reasons and cannot be declassified shall be managed in accordance with the requirements of DOE 5632.1C, Protection and Control of Safeguards and Security Interests, and DOE 5633.3B, Control and Accountability of Nuclear Materials.	**DOE 5633.3B is not in the PNNL contract.** This order was superceded by DOE 474.1 which is in the PNNL contract. PNNL meets the requirements of DOE 5632.1C.		
CH.I.1.E. (3)	(3) Conduct of Operations. Radioactive waste management facilities, operations, and activities shall be conducted in a manner based on consideration of the associated hazards. Waste management facilities, operations, and activities shall meet the requirements of DOE 5480.19, Conduct of Operations Requirements for DOE Facilities.	PNNL meets the requirements DOE 5480.19.		
CH.I.1.E. (4)	(4) Criticality Safety. Radioactive waste management facilities, operations, and activities shall be covered by a criticality safety program in accordance with DOE O 420.1, Facility Safety.	**DOE O 420.1 is not in the PNNL contract.**		
CH.I.1.E. (5)	(5) Emergency Management Program. Radioactive waste management facilities, operations, and activities shall maintain an emergency management program in accordance with DOE O 151.1, Comprehensive Emergency Management System.	PNNL meets the requirements of DOE O151.1		
CH.I.1.E. (6)	(6) Environmental and Occurrence Reporting. Radioactive waste management facilities, operations, and activities shall meet the reporting requirements of DOE O 231.1, Environment, Safety and Health Reporting, and DOE O 232.1A, Occurrence Reporting and Processing of Operations Information.	PNNL meets the requirements of DOE O 231.1 and DOE O 232.1A.		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (7)	(7) Environmental Monitoring. Radioactive waste management facilities, operations, and activities shall meet the environmental monitoring requirements of DOE 5400.1, General Environmental Protection Program, and DOE 5400.5, Radiation Protection of the Public and the Environment.	PNNL meets the requirements of DOE 5400.1 and 5400.5.		
CH.I.1.E. (8)	(8) Hazard Analysis Documentation and Authorization Basis. Radioactive waste management facilities, operations, and activities shall implement DOE Standards, DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE 5480.23, Nuclear Safety Analysis Reports, and/or DOE-EM-STD-5502-94, DOE Limited Standard: Hazard Baseline Documentation, and shall, as applicable, prepare and maintain hazard analysis documentation and an authorization basis as required by DOE O 425.1A, Startup and Restart of Nuclear Facilities, DOE O 5480.21, Unreviewed Safety Questions, DOE 5480.22, Technical Safety Requirements, and DOE 5480.23, Nuclear Safety Analysis Reports.	**DOE O 425.1A is not in the PNNL contract.** PNNL meets the requirements of DOE 5480.21, DOE 5480.22, and DOE 5480.23.		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (9)	(9) Life-Cycle Asset Management. Planning, acquisition, operation, maintenance, and disposition of radioactive waste management facilities shall be in accordance with DOE O 430.1A, Life-Cycle Asset Management, and DOE 4330.4B, Maintenance Management Program, including a configuration management process to ensure the integrity of physical assets and systems. Corporate physical asset databases shall be maintained as complete, current inventories of physical assets and systems to allow reliable analysis of existing and potential hazards to the public and workers.	**DOE O 430.1A is not in the PNNL contract.** PNNL meets the requirements of DOE 433.4B.		
CH.I.1.E. (10)	(10) Mixed Waste. Radioactive waste that contains both source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component is also subject to the Resource Conservation and Recovery Act (RCRA), as amended.	Current practice at PNNL as documented in the subject area "Radioactive Mixed Waste."		
CH.I.1.E. (11)	(11) Packaging and Transportation. Radioactive waste shall be packaged and transported in accordance with DOE O 460.1A, Packaging and Transportation Safety, and DOE O 460.2, Departmental Materials Transportation and Packaging Management.	PNNL meets the requirements of DOE O 460.1A and DOE O 460.2.		
CH.I.1.E. (12)	(12) Quality Assurance Program. Radioactive waste management facilities, operations, and activities shall develop and maintain a quality assurance program that meets the requirements of 10 CFR 830.120, Quality Assurance Requirements, and DOE O 414.1, Quality Assurance, as applicable.	PNNL meets the requirements of 10 CFR 830.120 and DOE O 414.1.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (13)	(13) Radiation Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of 10 CFR Part 835, Occupational Radiation Protection, and DOE 5400.5, Radiation Protection of the Public and the Environment.	PNNL meets the requirements of 10 CFR 835 and DOE 5400.5.		
CH.I.1.E. (14)	(14) Records Management. Radioactive waste management facilities, operations, and activities shall develop and maintain a record-keeping system, as required by DOE O 200.1, Information Management Program, and DOE O 414.1, Quality Assurance. Records shall be established and maintained for radioactive waste generated, treated, stored, transported, or disposed. To the extent possible, records prepared in response to other requirements may be used to satisfy the documentation requirements of this Manual. Additional records may be required to satisfy the regulations applicable to the hazardous waste components of mixed waste.	**DOE O 200.1 is not in the PNNL contract.** PNNL meets the requirements of DOE O 414.1.		
CH.I.1.E. (15)	(15) Release of Waste Containing Residual Radioactive Material. Processes for determining and documenting that waste is suitable to be released and managed without regard to its radioactive content shall be in accordance with the criteria and requirements in DOE 5400.5, Radiation Protection of the Public and the Environment.	PNNL meets the requirements of DOE 5400.5.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (16)	(16) Safeguards and Security. Appropriate features shall be incorporated into the design and operation of radioactive waste management facilities, operations, and activities to prevent unauthorized access and operations, and for purposes of nuclear materials control and accountability, where applicable; and shall be consistent with DOE O 470.1, Safeguards and Security Program.	PNNL meets the requirements of DOE O 470.1.		
CH.I.1.E. (17)	(17) Safety Management System. Radioactive waste management facilities, operations, and activities shall incorporate the principles of integrated safety management as described in DOE P 450.4, Safety Management System Policy, and DOE P 450.5, Line Environment, Safety and Health Oversight, and meet the requirements of the safety management systems sections of 48 CFR Chapter 9, Department of Energy Acquisition Regulations and DOE M 411.1-1, Manual of Safety Management Functions, Responsibilities, and Authorities.	**DOE O 450.4, DOE O 450.5 and DOE M 411.1-1 are not in the PNNL contract.** PNNL meets the requirements of 48 CFR Chapter 9.		
CH.I.1.E. (18)	(18) Site Evaluation and Facility Design. New radioactive waste management facilities, operations, and activities shall be sited and designed in accordance with DOE O 420.1, Facility Safety, and DOE O 430.1A, Life-Cycle Asset Management.	**DOE O 420.1 and DOE O 430.1A are not in the PNNL contract.**		
CH.I.1.E. (19)	(19) Training and Qualification. A training and qualification program shall be implemented for radioactive waste management program personnel, and shall meet the requirements of DOE O 360.1, Training, and DOE 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.	**DOE O 360.1 is not in the PNNL contract.** PNNL meets the requirements of DOE 5480.20A.		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.1.E. (20)	(20) Waste Minimization and Pollution Prevention. Waste minimization and pollution prevention shall be implemented for radioactive waste management facilities, operations, and activities to meet the requirements of Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, and Executive Order 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, and DOE 5400.1, General Environmental Protection Program.	PNNL has a waste minimization and pollution prevention plan described in subject area "Waste Minimization and Pollution Prevention."		
CH.I.1.E. (21)	(21) Worker Protection. Radioactive waste management facilities, operations, and activities shall meet the requirements of DOE O 440.1A, Worker Protection Management for DOE Federal and Contractor Employees.	**DOE O 440.1A is not in the PNNL contract.**		
CH.I.2.	2. RESPONSIBILITIES			
CH.I.2.A.	A. Program Secretarial Officers. Program Secretarial Officers with radioactive waste management facilities, operations, or activities are responsible within their respective programs for ensuring that the Field Element Managers meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	NO ACTION REQUIRED		
CH.I.2.B.	B. Assistant Secretary for Environmental Management. The Assistant Secretary for Environmental Management is responsible for:	NO ACTION REQUIRED		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.B. (1)	(1) Complex-Wide Radioactive Waste Management Programs. Establishing and maintaining integrated Complex-Wide Radioactive Waste Management Programs for high-level, transuranic, low-level, and mixed low-level waste. These programs shall use a systematic approach to planning, execution, and evaluation to ensure that waste generation, storage, treatment, and disposal needs are met and coordinated across the DOE complex.	NO ACTION REQUIRED		
CH.I.2.B. (2)	(2) Changes to Regulations and DOE Directives. Ensuring changes to regulations and DOE directives are reviewed and, when necessary, incorporated into revisions of this Manual to ensure the basis for safe radioactive waste management facilities, operations, and activities is maintained.	NO ACTION REQUIRED		
CH.I.2.C	C. Assistant Secretary for Environment, Safety, and Health. The Assistant Secretary for Environment, Safety and Health is responsible for providing an independent overview of DOE radioactive waste management and decommissioning programs to determine compliance with DOE environment, safety, and health requirements and applicable Environmental Protection Agency (EPA) and state regulations, including:	This requirement does not apply to PNNL.		
CH.I.2.C (1)	(1) Advising the Secretary of the status of Departmental compliance with the requirements of DOE O 435.1, this Manual, and applicable provisions of other DOE Orders.	This requirement does not apply to PNNL.		
CH.I.2.C (2)	(2) Conducting independent appraisals and audits of DOE waste management programs.	This requirement does not apply to PNNL.		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.C (3)	(3) Reviewing site Waste Management Plans with regard to compliance with DOE environment, safety, and health requirements.	This requirement does not apply to PNNL.		
CH.I.2.D	D. Deputy Assistant Secretary for Waste Management. The Deputy Assistant Secretary for Waste Management is responsible for:	This requirement does not apply to PNNL.		
CH.I.2.D (1)	(1) Complex-Wide Radioactive Waste Management Program Plans. Developing, implementing, and maintaining integrated Complex-Wide Radioactive Waste Management Program Plans for high-level, transuranic, low-level, and mixed low-level waste. Each plan shall, at the DOE complex-wide level, describe the functional elements, organizations, responsibilities, and activities that comprise the system needed to store, treat and dispose of radioactive waste in a manner that is protective of the public, workers, and the environment. In addition, the plans shall: (a)sent a waste management strategy that integrates waste projections and life-cycle waste management planning into complex-wide facility configuration decisions; and (b) Describe the approach to research and technology development being pursued to improve safety and/or efficiency in managing radioactive waste.	This requirement does not apply to PNNL.		
CH.I.2.D (2)	(2) Waste Management Data System. Establishing and maintaining a system to compile waste generation projection data and other information concerning radioactive waste management facilities, operations, and activities across the complex.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.E	E. Deputy Assistant Secretaries for Waste Management and Environmental Restoration. The Deputy Assistant Secretary for Waste Management and the Deputy Assistant Secretary for Environmental Restoration are responsible for:	This requirement does not apply to PNNL.		
CH.I.2.E (1)	(1) Disposal. Reviewing and approving, along with EH-1, transuranic waste disposal facility performance assessments and other disposal documents as required in waste specific chapters for which DOE is responsible for making compliance determinations. Reviewing and approving performance assessments and composite analyses, or appropriate CERCLA documentation, for low-level waste disposal facilities, and issuing disposal authorization statements. (a) The Deputy Assistant Secretaries shall establish a review panel consisting of DOE personnel to review low-level waste disposal facility performance assessments and composite analyses, review appropriate CERCLA documentation, recommend low-level waste disposal facility compliance determinations to the Deputy Assistant Secretaries, and develop disposal authorization statements. (b) The Deputy Assistant Secretaries shall issue disposal authorization statements containing conditions that low-level waste disposal facilities must meet in order to operate with an approved radioactive waste management basis.	This requirement does not apply to PNNL.		

PACIFIC NORTHWEST NATIONAL LABORATORY
435.1 GAP ANALYSIS REVIEW MATRIX

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.E (2)	(2) Site Closure Plans. Reviewing and approving closure plans and other closure documentation for deactivated high-level waste facilities/sites and issuing authorization for closure activities to proceed.	This requirement does not apply to PNNL.		
CH.I.2.F	F. Field Element Managers. Field Element Managers are responsible for:	Heading only, no action required.		
CH.I.2.F. (1)	(1) Site-Wide Radioactive Waste Management Programs. Developing, documenting, implementing, and maintaining a Site-Wide Radioactive Waste Management Program. The Program shall use a systematic approach for planning, executing, and evaluating the site-wide management of radioactive waste in a manner that supports the Complex-Wide Radioactive Waste Management Programs and ensures that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	**PNNL will assist in the development of this plan.**		
CH.I.2.F. (2)	(2) Radioactive Waste Management Basis. Ensuring a radioactive waste management basis is developed and maintained for each DOE radioactive waste management facility, operation, and activity; and ensuring review and approval of the basis before operations begin. The Radioactive Waste Management Basis shall:	**PNNL does not have a radioactive waste management basis for its generator, treatment, or storage facilities.**		
CH.I.2.F. (2)(a)	(a) Reference or define the conditions under which the facility may operate based on the radioactive waste management documentation;	**This requirement will be included when the PNNL prepares radioactive waste management basis documents for its facilities.**		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (2)(b)	(b) Include the applicable elements identified in the specific waste-type chapters of this Manual; and	**This requirement will be included when the PNNL prepares radioactive waste management basis documents for its facilities.**		
CH.I.2.F. (2)(c)	(c) Be developed using the graded approach process.	**This requirement will be included when the PNNL prepares radioactive waste management basis documents for its facilities.**		
CH.I.2.F. (3)	(3) Waste Minimization and Pollution Prevention. Ensuring implementation of waste minimization and pollution prevention programs.	**PNNL has a waste minimization and pollution prevention plan described in subject area "Waste Minimization and Pollution Prevention."**		
CH.I.2.F. (4)	(4) Approval of Exemptions for Use of Non-DOE Facilities. DOE radioactive waste shall be treated, stored, and in the case of low-level waste, disposed of at the site where the waste is generated, if practical; or at another DOE facility. If DOE capabilities are not practical or cost effective, exemptions may be approved to allow use of non-DOE facilities for the storage, treatment, or disposal of DOE radioactive waste based on the following requirements:	PNNL will submit requests as needed.		
CH.I.2.F. (4)(a)	(a) Such non-DOE facilities shall: 1. Comply with applicable Federal, State, and local requirements; 2. Have the necessary permit(s), license(s), and approval(s) for the specific waste(s); and 3. Be determined by the Field Element Manager to be acceptable based on a review conducted annually by DOE.	This requirement will be included in any request for use of non-doe facilities for waste disposal.		

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CH.I.2.F. (4)(b)	(b) Exemptions for the use of non-DOE facilities shall be documented to be cost effective and in the best interest of DOE, including consideration of alternatives for on-site disposal, an alternative DOE site, and available non-DOE facilities; consideration of life-cycle cost and potential liability; and protection of public health and the environment.	This requirement will be included in any request for use of non-doe facilities for waste disposal.		
CH.I.2.F. (4)(c)	(c) DOE waste shall be sufficiently characterized and certified to meet the facility's waste acceptance criteria.	This requirement will be included in any request for use of non-doe facilities for waste disposal.		
CH.I.2.F. (4)(d)	(d) Appropriate National Environmental Policy Act (NEPA) review must be completed. For actions taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), it is DOE's policy to incorporate NEPA values into the CERCLA documentation.	This requirement will be included in any request for use of non-doe facilities for waste disposal.		
CH.I.2.F. (4)(e)	(e) Headquarters shall be notified of any exemption allowing use of a non-DOE facility and the Office of the Assistant Secretary for Environment, Safety and Health (EH-1) shall be consulted prior to the exemption being executed.	This requirement will be included in any request for use of non-DOE facilities for waste disposal.		
CH.I.2.F. (4)(f)	(f) Host States and State Compacts where non-DOE facilities are located shall be consulted prior to approval of an exemption to use such facilities and notified prior to shipments being made.	This requirement will be included in any request for use of non-DOE facilities for waste disposal.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (5)	(5) Environmental Restoration, Decommissioning, and Other Cleanup Waste. Ensuring the management and disposal of radioactive waste resulting from environmental restoration activities, including decommissioning, meet the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual. Environmental restoration activities using the CERCLA process (in accordance with Executive Order 12580) may demonstrate compliance with the substantive requirements of DOE O 435.1, Radioactive Waste Management, and this Manual (including the Performance Assessment and performance objectives, as well as the Composite Analysis) through the CERCLA process. However, compliance with all substantive requirements of DOE O 435.1 not met through the CERCLA process must be demonstrated. Environmental restoration activities which will result in the off-site management and disposal of radioactive waste must meet the applicable requirements of DOE O 435.1, Radioactive Waste Management, and this Manual for the management and disposal of those off-site wastes. Field Elements performing environmental restoration activities involving development and management of radioactive waste disposal facilities under the CERCLA process shall:	PNNL does not perform any remediation under CERCLA.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (5)(a)	(a) Submit certification to the Deputy Assistant Secretary for Environmental Restoration that compliance with the substantive requirements of DOE O 435.1 have been met through application of the CERCLA process; and	PNNL does not perform any remediation under CERCLA.		
CH.I.2.F. (5)(b)	(b) Submit the decision document, such as the Record of Decision, or any other document that serves as the authorization to dispose, to the Deputy Assistant Secretary for Environmental Restoration for approval.	PNNL does not perform any remediation under CERCLA.		
CH.I.2.F. (6)	(6) Radioactive Waste Acceptance Requirements. Ensuring development, review, approval, and implementation of the radioactive waste acceptance requirements for facilities that receive waste for storage, treatment, or disposal. Radioactive waste acceptance requirements shall establish the facility's requirements for the receipt, evaluation, and acceptance of waste.	**PNNL will need to make some minor changes to its documentation of waste acceptance criteria for its treatment and storage facilities.**		
CH.I.2.F. (7)	(7) Radioactive Waste Generator Requirements. Ensuring development, review, approval, and implementation of a program for waste generation planning, characterization, certification, and transfer. This program shall address characterization of waste, preparation of waste for transfer, certification that waste meets the receiving facility's radioactive waste acceptance requirements, and transfer of waste.	**PNNL will need to make changes to its waste management program for waste generation planning.** **PNNL will need to make some minor changes to procedures for waste characterization, certification and transfer.**		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (8)	(8) Closure Plans. Ensuring development, review, approval, and implementation of closure plans for radioactive waste management facilities in accordance with the applicable requirements in the waste-type chapters of this Manual.	PNNL does not operate facilities that require closure plans.		
CH.I.2.F. (9)	(9) Defense-In-Depth. Ensuring defense-in-depth principles are incorporated where potential uncertainties or vulnerabilities warrant their use when reviewing and approving radioactive waste management activities and documents. These principles advocate the use of multiple levels of engineered and administrative controls to provide protection to the public, workers, and the environment.	Defense-in depth is currently accomplished through the PNNL integrated safety management system.		
CH.I.2.F. (10)	(10) Oversight. Ensuring oversight of radioactive waste management facilities, operations, and activities is conducted. Oversight shall ensure radioactive waste management program activities are conducted in accordance with a radioactive waste management basis and meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	**PNNL needs to make some minor changes to procedures to document existing oversight activities.**		
CH.I.2.F. (11)	(11) Training and Qualification. Ensuring a training and qualification program is implemented for designated radioactive waste management program personnel, and the training is commensurate with job duties and responsibilities. Only those personnel who have been trained and qualified shall design or operate safety (safety class and safety significant) structures, systems, and components.	PNNL currently has a training plan that meets this requirement.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (12)	(12) As Low As Reasonably Achievable (ALARA). Ensuring ALARA principles for radiation protection are incorporated when reviewing and approving radioactive waste management activities.	PNNL currently has an ALARA program that meets this requirement.		
CH.I.2.F. (13)	(13) Storage. Ensuring all radioactive waste is stored in a manner that protects the public, workers, and the environment in accordance with a radioactive waste management basis, and that the integrity of waste storage is maintained for the expected time of storage and does not compromise meeting the disposal performance objectives for protection of the public and environment when the waste is disposed.	PNNL currently has a waste management program that meets this storage requirement. **Information on current storage facilities will be documented in the future radioactive waste management basis documents.**		
CH.I.2.F. (14)	(14) Treatment. Ensuring all radioactive waste requiring treatment is treated in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis.	PNNL currently has a waste management program that meets this treatment requirement. **Information on current treatment facilities will be documented in the future radioactive waste management basis documents.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (15)	(15) Disposal. Ensuring radioactive waste is disposed in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis. Reviewing specific transuranic or low-level waste documentation including the performance assessment and composite analysis, or appropriate CERCLA documentation, prior to forwarding them to Headquarters for approval, and obtaining and ensuring the facility is operated in accordance with the disposal authorization statement. Conducting performance assessment and composite analysis maintenance.	PNNL diposes of its radioactive waste in the Hanford waste disposal facility operated by the PHMC.		
CH.I.2.F. (16)	(16) Monitoring. Ensuring monitoring is conducted for all radioactive waste management facilities as required. Ensuring that disposal facilities are monitored, as appropriate, for compliance with conditions of the disposal authorization statement.	**PNNL needs to make some minor changes to procedures to document existing monitoring activities.**		
CH.I.2.F. (17)	(17) Material and Waste Declassification for Waste Management. Ensuring, to the extent practical, radioactive material and waste generated under a program that is classified for national security reasons is declassified or rendered suitable for unclassified radioactive waste management.	PNNL has a Safeguards and Security program that meets this requirement.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.F. (18)	(18) Waste Incidental to Reprocessing. Ensuring that waste incidental to reprocessing determinations are made by either the "citation" or "evaluation" process described in Chapter II of this Manual. Ensuring consultation and coordination with the Office of Environmental Management for waste determined to be incidental to reprocessing through the "evaluation" process.	PNNL does not have any high level waste that would require a waste incidental to reprocessing determination.		
CH.I.2.F. (19)	(19) Waste With No Identified Path to Disposal. Ensuring a process is developed and implemented for identifying the generation of radioactive waste with no identified path to disposal, and reviewing and approving conditions under which radioactive waste with no identified path to disposal may be generated. Headquarters shall be notified of the decisions to generate a waste with no identified path to disposal.	**PNNL needs to make some changes in its current waste management program to address waste generation planning.**		
CH.I.2.F. (20)	(20) Corrective Actions. Ensuring a process exists for proposing, reviewing, approving, and implementing corrective actions when necessary to ensure that the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met, and to address conditions that are not protective of the public, workers, or the environment. The process shall allow workers, through the appropriate level of management, to stop or curtail work when they discover conditions that pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	PNNL currently has a program to address corrective actions that meets these requirements. PNNL has an existing stop work policy, which allows all staff to stop work, that meets this requirement.		
CH.I.2.G.	G. All Personnel. All personnel are responsible for:	Header only, no action required.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.I.2.G. (1)	(1) Problem Identification. Identifying and reporting radioactive waste management facilities, operations, or activities that do not meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual, or that pose a threat to the safety of the public, workers, or the environment.	PNNL has an existing program that meets this requirement for staff to identify activities that do not conform to written requirements.		
CH.I.2.G. (2)	(2) Shutdown or Curtailment of Activities. Stopping or curtailing work, through the appropriate level of management, to prohibit continuation of conditions or activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	PNNL has an existing stop work policy, which allows all staff to stop work, that meets this requirement.		
CHAPTER II		HIGH-LEVEL WASTE REQUIREMENTS		
CH.II.A.	A. Definition of High-Level Waste. High-level waste is the highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation.	**PNNL needs to modify the definition of high-level waste in its internal documents to be consistent with this one.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.B.	B. Waste Incidental to Reprocessing. Waste resulting from reprocessing spent nuclear fuel that is determined to be incidental to reprocessing is not high-level waste, and shall be managed under DOE's regulatory authority in accordance with the requirements for transuranic waste or low-level waste, as appropriate. When determining whether spent nuclear fuel reprocessing plant wastes shall be managed as another waste type or as high-level waste, either the citation or evaluation process described below shall be used:	PNNL has a waste management program that meets this requirement for identifying waste incidental to reprocessing and managing such waste as transuranic or low-level waste as appropriate.		
CH.II.B. (1)	(1) Citation. Waste incidental to reprocessing by citation includes spent nuclear fuel reprocessing plant wastes that meet the description included in the Notice of Proposed Rulemaking (34 FR 8712) for proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7. These radioactive wastes are the result of reprocessing plant operations, such as, but not limited to: contaminated job wastes including laboratory items such as clothing, tools, and equipment.	PNNL will follow this process when appropriate.		
CH.II.B. (2)	Evaluation. Determinations that any waste is incidental to reprocessing by the evaluation process shall be developed under good record-keeping practices, with an adequate quality assurance process, and shall be documented to support the determinations. Such wastes may include, but are not limited to, spent nuclear fuel reprocessing plant wastes that:	PNNL will follow this process when appropriate.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.B. (2)(a)	(a) Will be managed as low-level waste and meet the following criteria: 1. Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and 2. Will be managed to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61, Subpart C, Performance Objectives; and 3. 3. Are to be managed, pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, and in accordance with the provisions of Chapter IV of this Manual, provided the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61.55, Waste Classification; or will meet alternative requirements for waste classification and characterization as DOE may authorize.	PNNL has an existing waste management program that meets this requirement for managing such waste as low-level waste.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.B. (2)(b)	(b) Will be managed as transuranic waste and meet the following criteria: 1. Have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and 2. Will be incorporated in a solid physical form and meet alternative requirements for waste classification and characteristics, as DOE may authorize; and 3. Are managed pursuant to DOE's authority under the Atomic Energy Act of 1954, as amended, in accordance with the provisions of Chapter III of this Manual, as appropriate.	PNNL has an existing waste management program that meets this requirement for managing such waste as transuranic waste.		
CH.II.C.	C. Management of Specific Wastes. The following provide for management of specific wastes as high-level waste in accordance with the requirements in this Chapter:	Heading only, no action required.		
CH.II.C. (1)	(1) Mixed High-Level Waste. Unless demonstrated otherwise, all high-level waste shall be considered mixed waste and is subject to the requirements of both the Atomic Energy Act of 1954, as amended, the Resource Conservation and Recovery Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual.	PNNL has an existing waste management program that addresses this requirement to manage all high-level waste as mixed waste.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.C. (2)	(2) TSCA-Regulated Waste. High-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual.	PNNL does not have any TSCA regulated high-level waste.		
CH.II.D.	D. Complex-Wide High-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	This requirement does not apply to PNNL.		
CH.II.E.	E. Site-Wide Radioactive Waste Management Program. In addition to the items in Chapter I of this Manual, documentation of the Site-Wide Radioactive Waste Management Program shall include a description of the High-Level Waste Systems Engineering Management Program to support decision-making related to nuclear safety, including high-level waste requirements analysis, functional analysis and allocation, identification of alternatives, and alternative selection and system control.	This requirement does not apply to PNNL.		
CH.II.F.	F. Radioactive Waste Management Basis. High-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:	PNNL does not have any high-level waste facilities.		
CH.II.F. (1)	(1) Generators. The waste certification program.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.F. (2)	(2) Pretreatment and Treatment Facilities. The waste acceptance requirements and waste certification program.	This requirement does not apply to PNNL.		
CH.II.F. (3)	(3) Storage Facilities. The waste acceptance requirements and the waste certification program.	This requirement does not apply to PNNL.		
CH.II.G.	G. Quality Assurance Program. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not manage high-level waste.		
CH.II.G. (1)	(1) Product Quality. The requirements of RW-0333P, Quality Assurance Requirements and Description, shall apply to those high-level waste items and activities important to waste acceptance/product quality.	This requirement does not apply to PNNL.		
CH.II.G. (2)	(2) Audits and Assessments. The evaluation and assessment requirements of RW 0333P, Quality Assurance Requirements Document and Description, and associated implementing procedures shall be met for high-level waste acceptance and product quality activities, in addition to the assessment requirements of other DOE directives and requirements identified in Chapter I of this Manual.	This requirement does not apply to PNNL.		
CH.II.H.	H. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not manage high-level waste.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.H. (1)	(1) Contingency Storage. For off-normal or emergency situations involving high-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of waste contained in any one storage vessel, pretreatment facility, or treatment facility. Tanks or other facilities that are designated for high-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet all the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.	This requirement does not apply to PNNL.		
CH.II.H. (2)	(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of 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, Radioactive Waste Management, and this Manual.	This requirement does not apply to PNNL.		
CH.II.I.	I. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not manage high-level waste.		
CH.II.I. (1)	(1)Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	This requirement does not apply to PNNL.		
CH.II.I. (2)	(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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.J.	J. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not accept high-level waste for waste management purposes.		
CH.II.J. (1)	(1). Technical and Administrative. Waste acceptance requirements for all high-level waste storage, pretreatment, or treatment facilities, operations, and activities shall specify, at a minimum, the following:	This requirement does not apply to PNNL.		
CH.II.J. (1)(a)	(a) Allowable activities and/or concentrations of specific radionuclides;	This requirement does not apply to PNNL.		
CH.II.J. (1)(b)	(b) Acceptable waste form that ensures the chemical and physical stability of the waste under conditions that might be encountered during transfer, storage, pretreatment, or treatment;	This requirement does not apply to PNNL.		
CH.II.J. (1)(c)	(c) 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; and	This requirement does not apply to PNNL.		
CH.II.J. (1)(d)	(d) Pretreatment, treatment, storage, packaging, and other operations shall be designed and implemented in a manner that will ultimately comply with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.J. (2)	(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.	This requirement does not apply to PNNL.		
CH.II.K.	K. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not generate high-level waste.		
CH.II.K. (1)	(1). Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all high-level waste streams.	This requirement does not apply to PNNL.		
CH.II.K. (2)	(2). Waste With No Identified Path to Disposal. High-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste (compliance with DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms).	This requirement does not apply to PNNL.		
CH.II.L.	L. Waste Characterization. High-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.	PNNL does not generate high-level waste to be characterized.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.L. (1)	(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.	This requirement does not apply to PNNL.		
CH.II.L. (2)	(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:	This requirement does not apply to PNNL.		
CH.II.L. (2)(a)	(a) Physical and chemical characteristics;	This requirement does not apply to PNNL.		
CH.II.L. (2)(b)	(b) Volume, including the waste and any solidification media;	This requirement does not apply to PNNL.		
CH.II.L. (2)(c)	(c) Radionuclides or source information sufficient to describe the approximate radionuclide content of the waste; and	This requirement does not apply to PNNL.		
CH.II.L. (2)(d)	(d) Any other information which may be needed to demonstrate compliance with the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	This requirement does not apply to PNNL.		
CH.II.L. (3)	(3) Hazardous Characteristics. Waste characterization processes shall yield sufficient chemical and physical data to clearly identify any hazardous characteristics that may degrade the ability of structures, systems, and components to perform their radioactive waste management function.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.M.	M. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving high-level waste for storage, pretreatment, treatment, and disposal are met.	PNNL does not have any high-level waste to be certified.		
CH.II.M. (1)	(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.	This requirement does not apply to PNNL.		
CH.II.M. (2)	(2) Certification Before Transfer. High-level waste shall be certified as meeting the waste acceptance requirements before it is transferred to the facility receiving the waste.	This requirement does not apply to PNNL.		
CH.II.M. (3)	(3) Maintaining Certification. High-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, pretreatment, treatment, or disposal facility shall be managed in a manner that maintains its certification status.	This requirement does not apply to PNNL.		
CH.II.N.	N. Waste Transfer. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not have any high-level waste to be transferred.		
CH.II.N. (1)	(1) Authorization. High-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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.N. (2)	(2) Data. Waste characterization data and generation, storage, pretreatment, treatment, and transportation information for high-level waste shall be transferred with or be traceable to the waste.	This requirement does not apply to PNNL.		
CH.II.N. (3)	(3) Records and Transfer Reporting. The records and transfer requirements for canistered high-level waste forms shall comply with DOE/EM-0093, Waste Acceptance Product Specification for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	This requirement does not apply to PNNL.		
CH.II.O.	O. Packaging and Transportation. The following requirement is in addition to those in Chapter I of this Manual.	PNNL does not have any high-level waste to be packaged or transported.		
CH.II.O. (1)	(1) Canistered Waste Form. Immobilized high-level waste shall meet the requirements of the DOE/EM-0093, Waste Acceptance Product Specifications for Vitrified High-Level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	This requirement does not apply to PNNL.		
CH.II.P.	P. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not have any high-level waste management facilities.		
CH.II.P. (1)	(1). Site Evaluation. Proposed locations for high-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (1)(a)	(a) Each site proposed for a new high-level waste facility or expansion of an existing high-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.	This requirement does not apply to PNNL.		
CH.II.P. (1)(b)	(b) Proposed sites with environmental characteristics, geotechnical characteristics, or human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	This requirement does not apply to PNNL.		
CH.II.P. (2)	(2) Facility Design. The following facility design requirements, at a minimum, apply:	This requirement does not apply to PNNL.		
CH.II.P. (2)(a)	(a) Safety (Safety Class and Safety-Significant) Structures, Systems, and Components. Safety structures, systems, and components for high-level waste storage, pretreatment, and treatment facilities shall be designated and designed consistent with the provisions of DOE O 420.1, Facility Safety; DOE 5480.22, Technical Safety Requirements; and DOE 5480.23, Nuclear Safety Analysis Reports.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(b)	(b) Confinement. High-level waste systems and components shall be designed to maintain waste confinement. The following requirements apply to new or modifications to existing high-level waste systems, ancillary systems, and components: 1. Secondary confinement systems shall be designed to prevent any migration of wastes or accumulated liquid out of the waste system; shall be capable of detecting, collecting, and retrieving releases into the secondary confinement; and shall be constructed of, or lined with, materials that are compatible with the waste(s) to be placed in the waste system 2. Tank and piping systems used for high-level waste collection, pretreatment, treatment, and storage shall be welded construction, except where remote configurations or periodic rerouting of high-level waste streams require non-welded construction	This requirement does not apply to PNNL.		
CH.II.P. (2)(c)	(c) Lifting Devices. The design of hoisting and rigging devices shall comply with the following specific requirements. 1. Lifting devices that are designated as safety class or safety significant shall be designed to prevent free fall of loads. 2. Loading and unloading systems for lifting devices that are designated as safety class or safety significant shall be designed with a reliable system of interlocks that will fail safely upon malfunction.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(d)	(d) Ventilation. Design of high-level waste pretreatment, treatment, and storage facilities shall include ventilation through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the applicable requirements. When conditions exist for generating gases in flammable and 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.	This requirement does not apply to PNNL.		
CH.II.P. (2)(e)	(e) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing high-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.	This requirement does not apply to PNNL.		
CH.II.P. (2)(f)	(f) Maintenance Exposure Reduction. Remote maintenance features and other appropriate techniques to maintain as low as reasonably achievable (ALARA) personnel exposures shall be incorporated into each high-level waste facility.	This requirement does not apply to PNNL.		

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CH.II.P. (2)(g)	(g) Facilities for Receipt and Retrieval of High-Level Waste. 1. Designs for storage facilities shall incorporate features to facilitate retrieval capability. 2. High-level waste receipt and retrieval systems shall be designed to complement the existing storage facilities for safe storage and transfer of high-level waste.	This requirement does not apply to PNNL.		
CH.II.P. (2)(h)	(h) Structural Integrity. Designs for new tanks shall contribute to the confinement requirement at Section II.P. (2)(b) of this Manual by: 1. Incorporating features to avoid critical degradation modes at the proposed site where practicable, or minimize degradation rates for the critical modes; and 2. Incorporating features to facilitate execution of the Structural Integrity Program required by Section II.Q. (2) of this Manual.	This requirement does not apply to PNNL.		
CH.II.P. (2)(i)	(i) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of high-level waste treatment storage, pretreatment, and treatment facilities to provide volume inventory data and to prevent spills, leaks and overflows from tanks or confinement systems.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.P. (2)(j)	(j) Volume Monitoring Systems. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of high-level waste storage, pretreatment, and treatment facilities to provide rapid detection of failed confinement and/or other abnormal conditions.	This requirement does not apply to PNNL.		
CH.II.Q.	Q. Storage. The following requirements are in addition to those in Chapter I of this Manual and also apply to facilities intended for management of high-level waste awaiting pretreatment, treatment or disposal, unless stated otherwise.	PNNL does not store any high-level waste.		
CH.II.Q. (1)	(1) Operation of Confinement Systems.	This requirement does not apply to PNNL.		
CH.II.Q. (1)(a)	(a) Confinement systems shall be operated and maintained so as to preserve the design basis.	This requirement does not apply to PNNL.		
CH.II.Q. (1)(b)	(b) Secondary confinement systems, where provided, shall be operated to prevent any migration of wastes or accumulated liquid out of the waste confinement systems.	This requirement does not apply to PNNL.		
CH.II.Q. (2)	(2) Structural Integrity Program.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (2)(a)	(a) Leak-Tight Tanks In-Service. A structural integrity program shall be developed for each high-level waste storage tank site to verify the structural integrity and service life of each tank to meet operational requirements for storage capacity. The program shall be capable of: 1. Verifying the current leak-tightness and structural strength of each tank in service; 2. Identifying corrosion, fatigue, and other critical degradation modes; 3. Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; 4. Providing credible projections as to when structural integrity of each tank can no longer be assured; and 5. Identifying the additional controls necessary to maintain an acceptable operating envelope.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (2)(b)	(b) In-Service Tanks that Have Leaked or Are Suspect. For each high-level waste storage tank in-service that is known to have leaked, or is suspect, a modified structural integrity program shall be developed and implemented to identify the safe operational envelope. The modified program shall be capable of: Verifying the structural strength of each tank in-service which has leaked or is suspect; Identifying corrosion, fatigue and other critical degradation modes; Adjusting the chemistry of tank waste, calibrating cathodic protection systems, wherever employed, and implementing other necessary corrosion protection measures; Determining which of the tanks that have leaked or are suspect may remain in service by identifying an acceptable safe operating envelope; Providing credible projections as to when the acceptable safe operational envelope can no longer be assured; and Identifying the additional controls necessary to maintain the acceptable safe operational envelope. When physical activities, as part of a structural integrity program, pose additional vulnerabilities, alternative measures shall be implemented to provide an acceptable storage operational envelope.	This requirement does not apply to PNNL.		
CH.II.Q. (2)(c)	(c) Other Storage Components. The structural integrity of other storage components shall be verified to assure leak tightness and structural strength.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.Q. (3)	(3) Canistered Waste Form Storage. Canisters of immobilized high-level waste awaiting shipment to a repository shall be:	This requirement does not apply to PNNL.		
CH.II.Q. (3)(a)	(a) Stored in a suitable facility;	This requirement does not apply to PNNL.		
CH.II.Q. (3)(b)	(b) Segregated and clearly identified to avoid commingling with low-level, mixed low-level, or transuranic wastes; and	This requirement does not apply to PNNL.		
CH.II.Q. (3)(c)	(c) Monitored to ensure that storage conditions are consistent with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351, Waste Acceptance System Requirements Document, for non-vitrified immobilized high-level waste. Facilities and operating procedures for storage of vitrified high-level waste shall maintain the integrity of the canistered waste form.	This requirement does not apply to PNNL.		
CH.II.R.	R. Treatment. Treatment shall be designed and implemented in a manner that will ultimately comply with DOE/EM 0093, Waste Acceptance Product Specifications for Vitrified High-level Waste Forms, or DOE/RW-0351P, Waste Acceptance System Requirements Document, for non-vitrified, immobilized high-level waste.	PNNL does not treat high-level waste.		
CH.II.S.	S. Disposal. Disposal of high-level waste must be in accordance with the provisions of the Atomic Energy Act of 1954, as amended, the Nuclear Waste Policy Act of 1982, as amended, or any other applicable statutes.	PNNL does not dispose of high-level waste.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.T.	T. Monitoring. High-level waste pretreatment, treatment, storage, and transportation facilities shall be monitored for chemical, physical, radiological, structural, and other changes that could indicate failure of system confinement, integrity, or safety, and which could lead to abnormal events or accidents. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, flammable or explosive mixtures of gases, level and/or waste volume, and significant waste chemistry parameters for non-immobilized high-level waste. Facility monitoring programs shall also include physical inspections to verify that control systems have not failed.	PNNL does not operate any high-level waste management facilities.		
CH.II.U.	U. Closure. The following requirements for closure of deactivated high-level waste facilities and sites are in addition to those in Chapter I of this Manual.	PNNL does not operate any high-level waste management facilities.		
CH.II.U. (1)	(1) Decommissioning. Deactivated high-level waste facilities/sites shall meet the decommissioning requirements of DOE O 430.1A, Life-Cycle Asset Management and the requirements of DOE 5400.5, Radiation Protection of the Public and the Environment, for release; or	This requirement does not apply to PNNL.		
CH.II.U. (2)	(2) CERCLA Process. Deactivated high-level waste facilities/sites shall be closed in accordance with the CERCLA process as described in Section I.2.F. (5); or	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.U. (3)	(3) Closure. Deactivated high-level waste facilities/sites shall be closed in accordance with an approved closure plan as specified below. Residual radioactive waste present in facilities to be closed shall satisfy the waste incidental to reprocessing requirements of this Chapter.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.U. (3)(a)	(a) Facility/Site Closure Plans. A closure plan shall be developed for each deactivated high-level waste facility/site being closed that defines the approach and plans by which closure of each facility within the site is to be accomplished. This plan shall be completed and approved prior to the initiation of physical closure activities, and updated periodically to reflect current analysis and status of individual facility closure actions. The plan shall include, at a minimum, the following elements: Identification of the closure standards/performance objectives to be applied from Chapter III or IV, as appropriate; A strategy for allocating waste disposal facility performance objectives from the closure standards identified in the closure plan among the facilities/units to be closed at the site; An assessment of the projected performance of each unit to be closed relative to the performance objectives allocated to each unit under the closure plan; An assessment of the projected composite performance of all units to be closed at the site relative to the performance objectives and closure standards identified in the closure plan; and Any other relevant closure controls including a monitoring plan, institutional controls, and land use limitations to be maintained in the closure activity.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.II.V.	V. Specific Operations. Specific requirements are provided for the operation of lifting devices and facilities for receipt and retrieval of high-level waste.	PNNL does not store high-level waste.		
CH.II.V. (1)	(1) Operation of Lifting Devices. Hoisting and rigging activities shall be conducted in accordance with the guidance provided in the DOE Standard "Hoisting and Rigging" (DOE-STD-1090-96).	This requirement does not apply to PNNL.		
CH.II.V. (2)	(2) Operation of Facilities for Receipt and Retrieval of High-Level Waste. High-level waste receipt and retrieval systems shall be operated and maintained consistent with high-level waste system features incorporated in the facilities. Strategies for retrieval of waste shall be analyzed to ensure that structural and radiological impacts are consistent with the facility design basis._ (This page intentionally left blank.)_CHAPTER III	This requirement does not apply to PNNL.		
CHAPTER III		TRANSURANIC WASTE REQUIREMENTS		
CH.III.A.	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:	DEFINITION – NO ACTION REQUIRED		
CH.III.A. (1)	(1) High-level radioactive waste;			

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CH.III.A. (2)	(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	DEFINITION – NO ACTION REQUIRED		
CH.III.A. (3)	(3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.			
CH.III.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter:	PNNL has an existing waste management program that meets these requirements for transuranic waste management.		
CH.III.B. (1)	(1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, and a radioactive component subject to the Atomic Energy Act of 1954, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual.	PNNL has an existing waste management program for mixed transuranic waste. The details are in subject area "Transuranic Waste."		
CH.III.B. (2)	(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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual.	**PNNL needs to make some minor changes to procedures to document existing management practices for TSCA regulated radioactive waste.**		

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CH.III.B. (3)	(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, Radioactive Waste Management, and this Manual.	There is no pre-1970 transuranic waste at PNNL.		
CH.III.C.	C. Complex-Wide Transuranic Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	Header only, no action required.		
CH.III.D.	D. Radioactive Waste Management Basis. Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	**PNNL needs to prepare radioactive waste management basis documents for its transuranic waste management facilities.**		
CH.III.D. (1)	(1) Generators. The waste certification program.	**This requirement will be included in the radioactive waste management basis documents prepared for PNNL transuranic waste management facilities.**		
CH.III.D. (2)	(2) Treatment Facilities. The waste acceptance requirements and the waste certification program.	**This requirement will be included in the radioactive waste management basis documents prepared for PNNL transuranic waste management facilities.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.D. (3)	(3) Storage Facilities. The waste acceptance requirements and the waste certification program.	**This requirement will be included in the radioactive waste management basis documents prepared for PNNL transuranic waste management facilities.**		
CH.III.D. (4)	(4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.	PNNL does not operate a disposal facility.		
CH.III.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.III.E. (1)	(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, Radioactive Waste Management, and this Manual.	PNNL has an existing waste management program that meets this requirement for contingency storage of liquid transuranic waste.		
CH.III.E. (2)	(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, Radioactive Waste Management, and this Manual.	PNNL has an existing waste management program that meets this requirement for contingency storage of liquid transuranic waste.		
CH.III.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.F. (1)	(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	PNNL has an existing waste management program that meets this requirement for corrective action implementation.		
CH.III.F. (2)	(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.	**PNNL needs to prepare radioactive waste management basis documents for its transuranic waste management facilities.**		
CH.III.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual.	**PNNL needs to make some minor changes to procedures to document existing waste acceptance criteria for treatment and storage facilities.**		
CH.III.G. (1)	(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:	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.III.G. (1)(a)	(a) Allowable activities and/or concentrations of specific radionuclides;	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.III.G. (1)(b)	(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;	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.III.G. (1)(c)	(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance;	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.III.G. (1)(d)	(d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		

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CH.III.G. (1)(e)	(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.	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.III.G. (2)	(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.	**PNNL needs to make some minor changes to procedures to document existing waste acceptance storage facilities.**		
CH.III.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.	**PNNL needs to make some changes in its current waste management program to address waste generation planning.**		
CH.III.H. (1)	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		
CH.III.H. (2)	(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:	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		
CH.III.H. (2)(a)	(a) Programmatic need to generate the waste;	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		
CH.III.H. (2)(b)	(b) Characteristics and issues preventing the disposal of the waste;	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		

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CH.III.H. (2)(c)	(c) Safe storage of the waste until disposal can be achieved; and	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		
CH.III.H. (2)(d)	(d) Activities and plans for achieving final disposal of the waste.	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		
CH.III.I	I. Waste Characterization. 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.	PNNL has an existing waste management program for characterizing transuranic waste that meets these requirements.		
CH.III.I. (1)	(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.	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirements		
CH.III.I. (2)	(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(a)	(a) Physical and chemical characteristics;	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(b)	(b) Volume, including the waste and any stabilization or absorbent media;	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(c)	(c) Weight of the container and contents;	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(d)	(d) Identities, activities, and concentrations of major radionuclides;	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		

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CH.III.I. (2)(e)	(e) Characterization date;	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(f)	(f) Generating source;	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(g)	(g) Packaging date; and	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.I. (2)(h)	(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	PNNL has an existing waste management program for characterizing transuranic waste that meets this requirement.		
CH.III.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met.	**PNNL needs to make minor changes to procedures to document waste certification activities.**		
CH.III.J. (1)	(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..	**This requirement will be included in procedure changes for certification.**		
CH.III.J. (2)	(2) Certification Before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste	PNNL has a waste management program that meets this requirement for certification before transfer.		

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CH.III.J. (3)	(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.	PNNL has a waste management program that meets this requirement for maintaining certification.		
CH.III.K.	K. Waste Transfer. 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.	**PNNL needs to make minor changes to procedures to document waste transfers.**		
CH.III.K. (1)	(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.	PNNL has a waste management program that meets this requirement for not transferring waste to storage without authorization.		
CH.III.K. (2)	(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.	PNNL has a waste management program that meets this requirement for transferring characterization information with waste.		
CH.III.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		

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CH.III.L. (1)	(1) Packaging. (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. (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. (c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible. (d) Containers of transuranic waste shall be marked such that their contents can be identified.	PNNL has a hazardous materials transportation safety program that addresses these requirements for packaging.		
CH.III.L. (2)	(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.	PNNL has a waste management program that meets this transportation requirement.		
CH.III.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		

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CH.III.M. (1)	(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. (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. (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.	PNNL prepares a siting evaluation for proposed new facility locations that addresses the issues in this requirement.		
CH.III.M. (2)	(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	PNNL has an existing program to address these facility design requirements. **These requirements will be documented in the waste management basis for PNNL waste management facilities.**		
CH.III.M. (2)(a)	(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.M. (2)(b)	(b) Ventilation. 1. Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		
CH.III.M. (2)(c)	(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.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		
CH.III.M. (2)(d)	(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.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.M. (2)(e)	(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.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		
CH.III.N.	N. Storage. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.III.N. (1)	(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.	PNNL has a waste management program that meets this requirement for storage prohibitions.		
CH.III.N. (2)	(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.	PNNL has a waste management program that meets this requirement for storage integrity.		
CH.III.N. (3)	(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.	**PNNL will have to make minor changes to procedures to document container inspection requirements for transuranic waste.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.N. (4)	(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.	PNNL does not have any retrievable earthen-covered storage facilities.		
CH.III.O.	O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.	PNNL has a waste management program that meets this requirement for transuranic waste treatment.		
CH.III.P.	P. Disposal. 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.	PNNL has a waste management program that meets this requirement for transuranic waste disposal.		
CH.III.Q.	Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.III.Q. (1)	(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.	**Monitoring requirements for specific transuranic waste management facilities will be addressed in the radioactive waste management basis document for the facility.**		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.III.Q. (2)	(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.	PNNL has a waste management program that meets this requirement for monitoring transuranic waste storage.		
CH.III.Q. (3)	(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	PNNL has a waste management program that meets this requirement for monitoring liquid transuranic waste storage.		
CHAPTER IV		LOW-LEVEL WASTE REQUIREMENTS		
CH.IV.A.	A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e. (2) of the Atomic Energy Act of 1954, as amended), or naturally occurring radioactive material.	**PNNL needs to modify the definition of low-level waste in its internal documents to be consistent with this one.**		
CH.IV.B.	B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:	PNNL has an existing waste management program that meets these requirements for low-level waste management.		
CH.IV.B. (1)	(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954, as amended, and a hazardous component subject to the Resource Conservation and Recovery Act (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, Radioactive Waste Management, and this Manual.	PNNL has an existing waste management program for mixed low-level waste. The details are in subject area "Radioactive Mixed Waste."		

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CH.IV.B. (2)	(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 Toxic Substances Control Act, as amended, DOE O 435.1, Radioactive Waste Management, and this Manual.	**PNNL needs to make some minor changes to procedures to document existing management practices for TSCA regulated radioactive waste.**		
CH.IV.B. (3)	(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, Radioactive Waste Management, and this Manual, and all applicable Federal or State requirements.	PNNL has an existing waste management program that meets these requirements for accelerator- produced waste management.		
CH.IV.B. (4)	(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.	PNNL has an existing waste management program that meets this requirement for naturally occurring radioactive material.		
CH.IV.C.	C. Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under Responsibilities, 2.B and 2.D, in Chapter I of this Manual.	This requirement does not apply to PNNL.		

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CH.IV.D.	D. Radioactive Waste Management Basis. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	**PNNL needs to prepare radioactive waste management basis documents for its low-level waste management facilities.**		
CH.IV.D. (1)	(1) Generators. The waste certification program.	**This requirement will be included in the radioactive waste management basis documents prepared for PNNL low-level waste management facilities.**		
CH.IV.D. (2)	(2) Treatment Facilities. The waste acceptance requirements and the waste certification program.	**This requirement will be included in the radioactive waste management basis documents prepared for PNNL low-level waste management facilities.**		
CH.IV.D. (3)	(3) Storage Facilities. The waste acceptance requirements and the waste certification program.	**This requirement will be included in the radioactive waste management basis documents prepared for PNNL low-level waste management facilities.**		
CH.IV.D. (4)	(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.	PNNL does not operate a disposal facility.		
CH.IV.E.	E. Contingency Actions. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.E. (1)	(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.	**PNNL needs to develop a plan for contingency storage of liquid low-level waste stored in tanks.**		
CH.IV.E. (2)	(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, Radioactive Waste Management, and this Manual.	**This requirement will be addressed in the contingency plan for liquid low-level waste stored in tanks.**		
CH.IV.F.	F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.IV.F. (1)	(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual are met.	PNNL has an existing waste management program that meets this requirement for corrective action implementation.		
CH.IV.F. (2)	(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.	**PNNL needs to prepare radioactive waste management basis documents for its low-level waste management facilities.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.G.	G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual:	**PNNL needs to make some minor changes to procedures to document existing waste acceptance criteria for treatment and storage facilities.**		
CH.IV.G. (1)	(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:	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.IV.G. (1)(a)	(a) Allowable activities and/or concentrations of specific radionuclides.	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.IV.G. (1)(b)	(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.	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.IV.G. (1)(c)	(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.G. (1)(d)	(e) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements: 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. 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. 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. 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. 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.	PNNL does not operate a disposal facility.		

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CH.IV.G. (1)(e)	(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.	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.IV.G. (2)	(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.	**This requirement will be addressed in the procedure changes documenting existing waste acceptance criteria.**		
CH.IV.H.	H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual.	**PNNL needs to make some changes in its current waste management program to address waste generation planning.**		
CH.IV.H. (1)	(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		
CH.IV.H. (2)	(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: (a) Programmatic need to generate the waste; (b) Characteristics and issues preventing the disposal of the waste; (c) Safe storage of the waste until disposal can be achieved; and (d) Activities and plans for achieving final disposal of the waste.	**This requirement will be addressed in changes to the existing waste management program for waste generation planning.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.I.	I. Waste Characterization. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.	PNNL has an existing waste management program for characterizing low-level waste that meets these requirements.		
CH.IV.I. (1)	(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.	PNNL has an existing waste management program for characterizing low-level waste that meets these requirements.		
CH.IV.I. (2)	(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: (a) Physical and chemical characteristics; (b) Volume, including the waste and any stabilization or absorbent media; (c) Weight of the container and contents; (d) Identities, activities, and concentrations of major radionuclides; (e) Characterization date; (f) Generating source; and (g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	PNNL has an existing waste management program for characterizing low-level waste that meets these requirements.		
CH.IV.J.	J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.	**PNNL needs to make minor changes to procedures to document waste certification activities.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.J. (1)	(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.	**This requirement will be included in procedure changes for certification.**		
CH.IV.J. (2)	(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.	PNNL has a waste management program that meets this requirement for certification before transfer.		
CH.IV.J. (3)	(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.	PNNL has a waste management program that meets this requirement for maintaining certification.		
CH.IV.K.	K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.	**PNNL needs to make minor changes to procedures to document waste transfers.**		
CH.IV.K. (1)	(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.	PNNL has a waste management program that meets this requirement for not transferring waste to storage without authorization.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.K. (2)	(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.	PNNL has a waste management program that meets this requirement for transferring characterization information with waste.		
CH.IV.L.	L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.IV.L. (1)	(1) Packaging. If containers are used: (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. (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. (c) Containers of low-level waste shall be marked such that their contents can be identified.	PNNL has a hazardous materials transportation safety program that addresses these requirements for packaging.		
CH.IV.L. (2)	(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.	PNNL has a waste management program that meets this transportation requirement.		
CH.IV.M.	M. Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.IV.M. (1)	(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.	PNNL prepares a siting evaluation for proposed new facility locations that addresses the issues in this requirement.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (1)(a)	(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: 1. Located to accommodate the projected volume of waste to be received; 2. Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and 3. Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	PNNL has an existing program to address this facility design requirement.		
CH.IV.M. (1)(b)	(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.	PNNL has an existing program to address these requirements.		
CH.IV.M. (1)(c)	(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.	PNNL does not operate a disposal facility.		
CH.IV.M. (2)	(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	PNNL has an existing program to address these facility design requirements. **These requirements will be documented in the waste management basis for PNNL waste management facilities.**		
CH.IV.M. (2)(a)	(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (2)(b)	(b) Ventilation. 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. 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.	**These requirements will be documented in the waste management basis for PNNL waste management facilities.**		
CH.IV.M. (2)(c)	(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.	**This requirement will be documented in the waste management basis for PNNL waste management facilities.**		
CH.IV.M. (2)(d)	(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.	**This requirement will be documented in the waste management basis for PNNL waste management facilities.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (2)(e)	(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.	**This requirement will be documented in the waste management basis for PNNL waste management facilities.**		
CH.IV.M. (3)	(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	PNNL does not operate a disposal facility.		
CH.IV.M. (3)(a)	(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	This requirement does not apply to PNNL.		
CH.IV.M. (3)(b)	(b) Ventilation. 1. Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements. 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.	This requirement does not apply to PNNL.		
CH.IV.M. (3)(c)	(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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.M. (3)(d)	(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.	This requirement does not apply to PNNL.		
CH.IV.N.	N. Storage and Staging. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		
CH.IV.N. (1)	(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.	PNNL has a waste management program that meets this requirement for storage prohibitions.		
CH.IV.N. (2)	(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.	**PNNL needs to make changes to procedures to incorporate this requirement.**		
CH.IV.N. (3)	(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.	PNNL has a waste management program that meets this requirement for the storage of low-level waste.		
CH.IV.N. (4)	(4) Waste Characterization for Storage.	Header only, no action required.		
CH.IV.N. (4)(a)	(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.	PNNL has a waste management program that meets this requirement for low-level waste characterization.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.N. (4)(b)	(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.	PNNL has a waste management program that meets this requirement for maintaining records of low-level waste.		
CH.IV.N. (5)	(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.	**PNNL will have to make minor changes to procedures to document container inspection requirements for low-level waste.**		
CH.IV.N. (6)	(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	**PNNL will have to make minor changes to procedures to document this requirement for segregating low-level from mixed low-level waste.**		
CH.IV.N. (7)	(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.	**PNNL will have to develop a program for establishing staging areas for low-level waste.**		
CH.IV.O.	O. Treatment. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.	PNNL has a waste management program that meets this requirement for low-level waste treatment.		
CH.IV.P.	P. Disposal. Low-level waste disposal facilities shall meet the following requirements.	PNNL does not operate a disposal facility.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (1)	(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:	This requirement does not apply to PNNL.		
CH.IV.P. (1)(a)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (1)(b)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (1)(c)	(c) Release of radon shall be less than an average flux of 20 pCi/m2/s (0.74 Bq/m2/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/1 (0.0185 Bq/l) of air may be applied at the boundary of the facility.	This requirement does not apply to PNNL.		
CH.IV.P. (2)	(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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (2)(a)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (2)(b)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (2)(c)	(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	This requirement does not apply to PNNL.		
CH.IV.P. (2)(d)	(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	This requirement does not apply to PNNL.		
CH.IV.P. (2)(e)	(e) The performance assessment shall include a sensitivity/uncertainty analysis.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (2)(f)	(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	This requirement does not apply to PNNL.		
CH.IV.P. (2)(g)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (2)(h)	(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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (3)	(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.	This requirement does not apply to PNNL.		

Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (4)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (4)(a)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (4)(b)	(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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (4)(c)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (5)	(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.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (6)	(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:	This requirement does not apply to PNNL.		
CH.IV.P. (6)(a)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (6)(b)	(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	This requirement does not apply to PNNL.		
CH.IV.P. (6)(c)	(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.	This requirement does not apply to PNNL.		
CH.IV.P. (6)(d)	(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.P. (6)(e)	(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	This requirement does not apply to PNNL.		
CH.IV.P. (7)	(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.	This requirement does not apply to PNNL.		
CH.IV.Q.	Q. Closure. The following requirements are in addition to those in Chapter I of this Manual.	PNNL does not operate facilities that are covered by these requirements.		
CH.IV.Q. (1)	(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: (a) Be updated as required during the operational life of the facility. (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, Radiation Protection of the Public and the Environment. (c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	This requirement does not apply to PNNL.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.Q. (2)	(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. (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. (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. (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, Radiation Protection of the Public and the Environment. (d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	This requirement does not apply to PNNL.		
CH.IV.R.	R. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.	Header only, no action required.		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.R. (1)	(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.	**Monitoring requirements for specific low-level waste management facilities will be addressed in the radioactive waste management basis document for the facility.**		
CH.IV.R. (2)	(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.	**Monitoring requirements for specific low-level waste management facilities will be addressed in the radioactive waste management basis document for the facility.**		

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Citation	435.1-1 Manual Requirements	Compliance Status	Plan to Achieve Compliance	Cost
CH.IV.R. (3)	(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. (a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored. (b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance. (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.	PNNL does not operate a disposal facility.		