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New Mexico Environment Department
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Santa Fe, NM 87505-6303

Subject: Legacy TRU Waste Disposal Plan, Waste Isolation Pilot Plant Hazardous Waste Facility Permit Number: NM4890139088-TSDF

Dear Mr. Nance:

The purpose of this letter is to provide you with the Legacy Transuranic Waste Disposal Plan pursuant to Permit Part 4, Section 4.2.1.5.

We certify under penalty of law that this document and all attachments were prepared under our direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Mr. Michael Gerle at (575) 988-5372.

Sincerely,

Mark Bollinger
Manager
Carlsbad Field Office

Ken Harrawood
Program Manager
Salado Isolation Mining Contractors, LLC

Enclosure

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Legacy TRU Waste Disposal Plan

November 2024



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Acronyms and Abbreviations

ANL	Argonne National Laboratory
ATWIR	Annual Transuranic Waste Inventory Report
CH	contact-handled
D&D	decontamination and decommissioning
DOE	Department of Energy
ECA	Energy Communities Alliance
EM	Office of Environmental Management
Hanford	Hanford Site
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LWA	Land Withdrawal Act
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
ORNL	Oak Ridge National Laboratory
Permit	Waste Isolation Pilot Plant Hazardous Waste Facility Permit
Plan	Legacy TRU Waste Disposal Plan
RH	remote-handled
ROD	Record of Decision
SRS	Savannah River Site
STP	Site Treatment Plan
TRU	transuranic
TWPC	Transuranic Waste Processing Center
WIPP	Waste Isolation Pilot Plant

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1.0 Executive Summary

The purpose of this plan is to provide the New Mexico Environment Department (NMED) with the Legacy TRU Waste Disposal Plan (Plan) pursuant to Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (Permit) Part 4, Section 4.2.1.5, *Legacy TRU Waste Disposal Plan*. Permit Part 4, Section 4.2.1.5 states the following:

The Permittees shall define legacy TRU and TRU mixed waste and develop the Legacy TRU Waste Disposal Plan (Plan). The Plan will be developed in consultation with the generator/storage sites and stakeholders. Consultation with stakeholders shall begin within 90 days of the effective date of this Permit. The Plan shall be submitted to the Secretary within one year of the effective date of this Permit. The Permittees shall seek public input for 60 days following the submittal of the Plan and submit received comments to the Secretary. To the extent practicable as articulated in the final Plan, Panel 12 will be reserved for the disposal of legacy TRU mixed waste.

This Plan defines legacy transuranic (TRU) and TRU mixed waste and discusses considerations related to reserving Panel 12 for legacy TRU mixed waste, to the extent practicable. In this Plan, the term “TRU waste” includes TRU mixed waste.

2.0 Introduction/Background

The WIPP is an underground geological salt repository located 2,150 feet beneath the surface of the Chihuahuan Desert. The WIPP project was authorized as a defense activity to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States (Public Law 96-164). The WIPP mission is to provide safe characterization, transportation, and disposal of defense TRU waste in a manner that is protective of the workforce, public, and environment. The WIPP project is authorized under the WIPP Land Withdrawal Act [LWA; (Public Law 102-579)] to dispose of 6.2 million cubic feet (175,564 m³) of defense-related TRU waste generated from atomic energy defense activities. Atomic energy defense activities (defined in the Nuclear Waste Policy Act, or NWPA, 42 U.S.C. 10101 et seq.) encompass DOE activities performed, in whole or in part, to carry out defense functions, including naval reactors development; weapons activities; defense nuclear materials production, safeguards, by-products and waste management; and defense research and development (R&D).

Defense TRU waste includes waste generated from historical activities dating back to the Manhattan Project and ongoing defense missions. The 1998 Record of Decision for WIPP implemented DOE’s Preferred Alternative to operate WIPP for “disposal of defense TRU waste placed in retrievable storage after 1970 and waste generated by ongoing plutonium stabilization and management activities, environmental restoration (which could include remediation of sites where TRU waste was buried before 1970),

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decontamination and decommissioning, waste management, and defense testing and research are expected to generate additional TRU waste.” (FR Vol. 63, No. 15).

The statutory definitions and authorization for WIPP limit the total waste volume to be disposed; establish a cap on external radiation dose; delineate between contact-handled (**CH**) and remote-handled (**RH**) TRU waste; and limit the percentage of RH TRU allowed at WIPP. They distinguish between waste disposed before 1970 and TRU waste placed in retrievable storage after 1970.¹ They do not bound the time of waste generation, do not restrict WIPP’s mission to a given time period or subset of post-1970 defense TRU waste, and do not define legacy waste.

Legacy waste is generally understood to be waste associated with historical activities. However, there is no agreed-upon common definition of legacy waste or clear dividing line between historical and modern or ongoing activities. Depending on the context, legacy waste can and has been defined or used in practice to describe waste according to the process or facility that originally generated the waste components; the time when the material was first designated or disposed of as waste; when it was identified or discovered (if not well documented when originally disposed of); when it was retrieved and repackaged or treated; when it was fully characterized; and when it came under a regulatory agreement. Much of the waste associated with cleanup of legacy sites – such as those in the Department of Energy (**DOE**) Office of Environmental Management (**EM**) Program – could be expected to be considered legacy waste. However, no standard definition has been adopted across sites or for all programmatic purposes.

3.0 Engagement/Consultation

Pursuant to the Permit condition, the Permittees initiated consultation with stakeholders and generator/storage sites within the 90 days of the November 3, 2023, effective date of the Permit. This consisted of, but was not limited to, phone calls, meetings, presentations, information exchanges, e-mails, and various postings² dedicated to sharing information about the Plan. Permittees held or participated in eight stakeholder meetings in New Mexico between November 2023 and September 2024 to engage with non-governmental organizations, members of Tribal nations, state regulators, and other stakeholders. In accordance with the permit condition, Permittees also consulted with WIPP generator sites.

Details of the various consultations are included in Appendix A, Section A1. Succeeding portions of this Plan describe how feedback received was considered in developing the definitions and implementation for disposal of Legacy TRU waste in Panel 12.

¹ The requirement to segregate and retrievably store plutonium-contaminated waste was issued under U.S. Atomic Energy Commission, Immediate Action Directive, IAD No. 0511-21, March 20, 1970.

² <https://wipp.energy.gov/Legacy-TRU-Waste-Disposal-Plan.asp>

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4.0 Legacy Waste

4.1 Considerations

As previously discussed, no definition of legacy waste exists in the WIPP authorization legislation, statutory definition for defense TRU waste, or WIPP Record of Decision. The WIPP Waste Acceptance Criteria (**WAC**) also does not define legacy waste.

The Permit does not define legacy waste but defines retrievably stored and newly generated waste in Permit Attachment C. These definitions are relevant to the waste characterization requirements in Permit Attachment C, Section C-0, *Introduction and Attachment Highlights*:

***Retrievably stored** waste is defined as TRU mixed waste generated after 1970 and before the New Mexico Environment Department (**NMED**) notifies the Permittees, by approval of the final audit report, that the characterization requirements of the WAP at a generator/storage site have been implemented.*

***Newly generated** waste is defined as TRU mixed waste generated after NMED approves the final audit report for a generator/storage site.*

The term “legacy” has been used by DOE to describe TRU waste in various contexts. For example, the 2010 Roadmap for EM’s Journey to Excellence (Roadmap) established programmatic goals to support and advance environmental cleanup at legacy sites. The goals included reducing lifecycle costs, accelerating cleanup, reducing legacy site footprints, and accelerating waste disposition. At that time, EM established the goal to “complete disposition of 90 percent of legacy transuranic waste by the end of 2015.” The Roadmap drew a distinction between “legacy TRU waste for which EM is responsible and which is planned for disposal at WIPP”³ and the “newly generated volume [of waste]” that continues to be generated by EM and other DOE programs.” The Roadmap also implicitly included additional waste in the legacy TRU category, stating “[t]he disposition of low-level and mixed low-level waste from the sites’ legacy TRU waste inventories contributes to achievement of [this goal].” However, it did not define legacy waste.

Consultation with WIPP generator sites showed that a number of sites—but not all—have defined legacy TRU waste at various times (see Appendix A, Section A2). At a given site, legacy waste was typically defined for a specific and narrow purpose, such as to delineate waste subject to a regulatory agreement or to divide organizational or contractual responsibility for subsets of TRU waste within a site. The definition of legacy TRU waste is not consistent across sites. Even within a given site, waste with similar origins and characteristics could be either legacy or non-legacy waste according to a

³ See https://www.energy.gov/sites/prod/files/em/Anderson_NTSF_2011.pdf for this and other quotes in the paragraph.

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given time cutoff. Waste from cleanup activities may not be currently categorized as legacy waste by generator/storage sites. For example, if legacy waste covers only existing waste in storage, then buried waste from previous retrievable storage could be included but waste from future decommissioning of legacy facilities would not be. The application of site-specific definitions for legacy waste could have led to significant inconsistencies between sites, and lack of clarity overall, regarding what waste would be prioritized for disposal in Panel 12. However, it was deemed prudent that all waste defined as legacy waste at sites should be captured by the definition adopted in this Plan.

Several prominent themes emerged from stakeholder consultations: the need for DOE not to take a narrow view of its responsibilities to address the legacy of past activities; the value of emphasizing and prioritizing site cleanup activities; and the importance of prioritizing risk as a factor in defining Legacy TRU waste.

Waste-generating activities to address legacy DOE facilities and material, such as environmental cleanup and D&D, are ongoing and projected to continue for decades. Given uncertainties in cleanup progress, it is exceedingly difficult to specify a timeframe for generation of the waste. To do so could exclude TRU waste clearly linked to longstanding historical facilities and activities.

4.2 Definition of TRU Legacy Waste

Based on consultations with and data gathered from generator/storage sites, state regulators, Tribal nations and nongovernmental stakeholders, and pursuant to Permit Part 4, Section 4.2.1.5, Permittees define Legacy TRU and TRU mixed waste as follows:

Legacy TRU and Legacy TRU mixed waste

Legacy TRU and Legacy TRU mixed waste is defense-related TRU waste generated from past defense activities and placed in retrievable storage since 1970 or generated from the safe cleanup and risk reduction of the environmental legacy resulting from decades of nuclear weapons development and past defense-related testing and research.

This definition broadly encompasses waste generated from the full range of activities that have the objective of addressing and reducing risks from the longstanding legacy of previous defense nuclear activities. Such activities entail cleanup of historical defense-related waste, contamination, facilities and sites, as well as removal of defense nuclear materials from use or production for disposal, to achieve risk reduction and for non-proliferation purposes. Not included in this definition is waste from ongoing defense missions that do not have the objective of cleaning up, removing from use, or reducing long-standing risk from past materials and activities at sites. It does not include, for

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example, waste generated as a by-product of ongoing defense missions such as pit production or current R&D activities.

The definition is intended to be inclusive of all site-level definitions – that is, all waste described as “legacy” under an existing site definition would also fall under the WIPP Legacy TRU waste definition. However, the Legacy TRU waste definition in this Plan will also encompass some waste designated as “non-legacy” waste at some sites.

Permittees do not expect or require that sites will modify their existing definitions (see Section 4.4). Nevertheless, it is important that the definition in this Plan be consistently applied across sites in order to track and demonstrate the prioritization of Legacy TRU waste in compliance with the Permit. As discussed further in later sections of this Plan, WIPP will, in coordination with generator sites, identify waste streams that meets the Legacy TRU definition in this Plan. The Permittees will track the status of such waste and will encourage sites—whether or not they have an existing definition of legacy TRU waste—to prioritize identified Legacy TRU waste shipments related to historical activities over waste shipments from recent or ongoing activities to the extent practicable.

4.3 Description of Legacy TRU Waste

Legacy TRU and Legacy TRU mixed waste, as defined above, consist of TRU waste generated by atomic energy defense activities placed in retrievable storage since 1970 and defense TRU waste that would continue to be generated as a result of plutonium stabilization and management activities, environmental restoration, decontamination and decommissioning (**D&D**), and waste management (FR Vol. 63, No. 15).

This includes, but is not limited to defense-related:

- TRU waste generated from now-defunct defense sites and activities, placed in retrievable storage since 1970 at generator/storage sites, including waste buried with the intent of retrievability,
- TRU waste generated from future D&D of excess/disused facilities and equipment,
- TRU waste resulting from stabilization and management of plutonium declared excess to national security and purposefully made unavailable and unsuitable for the purpose of re-use in nuclear weapons,
- tank waste that is determined to be defense-related TRU waste, is approved through a Class 3 permit modification and meets the WIPP Waste Acceptance Criteria requirements,
- waste and contaminated environmental media (including pre-1970 TRU waste) that may be excavated/removed from DOE cleanup sites under

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Comprehensive Environmental Response, Compensation, and Liability Act actions/agreements and requires disposition, and

- waste generated by future Records of Decision (**RODs**) and Resource Conservation and Recovery Act Corrective Actions from DOE sites.

This does not include:

- ongoing operations and defense-related research programs that do not have a clear objective to reduce risk at TRU generator sites from historical activities or materials. An example of this waste is job control waste from pit production.

4.4 Limitations on Legacy TRU Waste Definition

This definition applies solely to this Plan and is not intended to be utilized for any purpose other than providing information relevant to future planning activities associated with Legacy TRU waste disposal activities in WIPP Panel 12. This definition applies after the effective date of this Plan (November 4, 2024). The Plan does not address waste disposed of or certified prior to the effective date of this Plan. For the purposes of this Plan, the Legacy TRU waste definition applies only to waste disposed in Panel 12 pursuant to Permit Part 4, Section 4.2.1.5.

The definition and use of the terms legacy waste, Legacy TRU waste and Legacy TRU mixed waste in this Plan do not change or affect existing definitions or use of “legacy waste” and similar terms at or in DOE sites, contracts, regulatory agreements, plans and other commitments or legal instruments and obligations. The Plan does not restrict, define or affect the use of the term in any future use or agreement outside this Plan, unless specifically stated at the time of its use. The designation of Legacy TRU waste under this Plan does not require the disposal of the waste, nor guarantee the waste’s eligibility, at WIPP.

5.0 To the Extent Practicable

The Permit condition requires that Panel 12 at WIPP be reserved for disposal of legacy waste “to the extent practicable.” The phrase “to the extent practicable” recognizes that some non-legacy waste may need to be disposed in Panel 12 for various reasons.

5.1 Considerations

WIPP’s role is to support generator/storage sites’ disposition of defense-related TRU and TRU mixed waste. Permittees are committed to prioritizing disposal of Legacy TRU waste in Panel 12. However, some factors are outside Permittees’ control regarding the availability of Legacy TRU waste from generator sites for the duration of disposal in Panel 12. In addition, regulatory and operational constraints or requirements—either at WIPP or at TRU generator sites—may dictate receipt of non-Legacy TRU waste.

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Therefore, the Plan must account for the possibility of, and justifications for, accommodating non-legacy waste in Panel 12.

During consultation, most stakeholders supported the prioritization of Legacy TRU waste. At the same time, both stakeholders and generator sites strongly expressed the view that the prioritization of Legacy TRU waste disposal must consider impacts at generator sites and should not undermine the ability of generator sites to meet regulatory agreements and requirements, make progress on cleanup, or continue with ongoing defense missions. Stakeholders and generator sites identified several factors to be considered, including:

- Availability of certified legacy waste
- Permittees' certification of sufficient space for New Mexico waste
- Support of ongoing generator/storage site national defense missions
- Generator/storage sites' regulatory commitments, including consent orders and settlement agreements
- Risks from continued storage of waste
- Operational or space constraints, such as generator/storage site storage limitations, including space, volume, and radiological hazards or limits

The availability of Legacy TRU waste during active Panel 12 emplacement is a potentially significant factor. Generator/storage sites schedule and plan waste shipments to minimize risk to human health and the environment at their respective facilities. The prioritization and sequencing of cleanup—i.e., when legacy-waste-generating activities occur—is decided by the TRU generator sites and is affected by many factors, including budget, risk prioritization, waste storage constraints, and regulatory restrictions or commitments. The availability of waste from planned remediation activities can be complicated by uncertainties regarding, for example, the container integrity in recovering buried waste or the effectiveness of a remediation approach.

When waste has been generated (or retrieved or packaged), it may not be immediately available for shipment and disposal at WIPP. All waste must meet stringent WIPP WAC and transportation requirements before being designated for shipment. To comply with the WIPP WAC requires understanding of the processes that generated the waste and characterization to ensure the waste components are identified and are compatible. For waste generated as a by-product of ongoing processes, this is relatively simpler because the process can be well documented, and the output can be controlled. Waste certification is more complex for legacy waste, because past practices and

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documentation are not comparable to current standards; measures such as additional characterization and repackaging may be needed.

For both WIPP and TRU generator sites, maintaining a relatively steady pace of shipments is needed from an operational perspective. This supports efficient use of resources; maintains operational capability for waste characterization and loading at sites; maintains operational capacity for waste receipt and emplacement at WIPP; supports worker safety in the underground; and meets WIPP's overall mission. For all these reasons, being able to ship non-Legacy TRU waste when needed during Panel 12 emplacement may be important.

5.2 Interpretation of “To the Extent Practicable”

Panel 12 will be reserved for Legacy TRU waste to the extent practicable through the following measures to be taken by Permittees:

- Develop a WIPP mechanism for tracking designated waste streams and disposal of Legacy TRU vs. non-Legacy TRU waste.
- Compare the generator/storage site inventory to the available space in Panel 12 to evaluate capacity available for Legacy TRU waste. This comparison will be prepared no later than a year before emplacement is expected to begin in Panel 12.
- Certify annually that there is sufficient capacity for NM-generated waste, including buried waste at Los Alamos, pursuant to Permit Part 4, Section 4.2.1.4.
- Support the capability of TRU generator sites to certify and ship Legacy TRU waste. Collaborate with sites to execute and improve the efficient characterization and certification of Legacy TRU waste.
- Prioritize shipments of certified and available Legacy TRU waste, with the goal of minimizing any backlog and stored inventory of certified Legacy TRU waste at sites.
- Accept non-Legacy TRU shipments, if necessary, when Legacy TRU waste is not available for shipping—due to lack of certified inventory of Legacy TRU waste or short-term factors such as weather—or due to factors described in Section 5.2, up to the operational capacity of WIPP during Panel 12 disposal.

5.3 Limitations Regarding “To the Extent Practicable”

WIPP's role is to support generator/storage sites' disposition of defense-related TRU and TRU mixed waste. The Permittees will work with sites to ensure their awareness of this condition, support certification of Legacy TRU waste and encourage their

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prioritization of Legacy TRU availability. WIPP will prioritize shipment of available certified Legacy TRU waste for Panel 12 emplacement.

However, the availability of Legacy TRU waste for disposal during Panel 12 is affected by numerous factors not within the control of the Permittees. The generation and availability of Legacy TRU waste during the Panel 12 waste emplacement period is dictated by generator site-specific cleanup budgets, plans, activities and regulatory commitments. The timeframes and final volumes of Legacy TRU waste streams have uncertainties and are subject to change based on actual cleanup progress and challenges, final waste characterization and classification (for example, TRU vs. low-level waste), and availability of certified waste confirmed to meet WIPP WAC and shipping requirements. The Roadmap mentioned earlier exemplifies these uncertainties; at that time, EM anticipated that all Legacy TRU waste would be disposed by 2020 from all sites except for Hanford.⁴ However, that goal was premised on assumptions regarding funding, cleanup progress, and shipping rates (30 CH and 5 RH shipments per week) that were not realized, as well as regulatory milestones that have since changed. In this Plan, the description of waste streams potentially available for emplacement (see Section 6.0, Anticipated Implementation) in Panel 12 is subject to similar assumptions and uncertainties.

6.0 Anticipated Implementation

Defense-related TRU and TRU mixed wastes are characterized, shipped, managed, stored and disposed of at the WIPP in the same manner regardless of whether they are categorized by generator/storage sites as legacy or non-legacy waste. Defining legacy waste is expected to have no adverse impact on the safe management and disposal of TRU and TRU mixed waste at WIPP.

Table 1 provides the volume of defense TRU waste emplaced at WIPP and estimated volume of WIPP-bound waste (expected to be disposed at WIPP) for the future. The volumes are based on 2023 Annual TRU Waste Inventory Report⁵ (**ATWIR 2023**) data, updated to reflect the CH and RH volume emplaced since the ATWIR 2023 data cut-off date of December 31, 2022 (see lower portion of table). The table also includes the updated WIPP-bound waste volume, taking account of the up-to-date emplaced inventory. This update is provided because a significant volume of waste from INL has been shipped and emplaced since December 31, 2022. The ATWIR estimates are subject to change as waste is characterized and shipped, and new information becomes available. The source of the updated emplacement information is the September 21, 2024, WIPP Status Report. The Permittees post relevant shipment and emplacement

⁴ See https://www.energy.gov/sites/prod/files/em/Anderson_NTSF_2011.pdf.

⁵ https://wipp.energy.gov/Library/TRUwaste/ATWIR-2023_CBFO_Final.pdf

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data regularly pursuant to the Permit on the WIPP home page at the following link:
<https://www.wipp.energy.gov/general/GenerateWippStatusReport.pdf>

Table 1 - ATWIR Information

Inventory Information	LWA TRU Waste Volume (m ³)
Total CH and RH Emplaced at WIPP*	77,652*
WIPP-Bound CH and RH at Generator Storage Sites	37,604**
WIPP-Bound CH and RH Projected Beyond 2033	37,300
WIPP TRU LWA Capacity Volume Limit	175,564
Total WIPP-Bound at Generator Storage Sites	
ATWIR 2023 Total CH and RH WIPP-Bound at Generator Storage Sites	42,735
Total CH and RH emplaced since ATWIR 2023	5,131*
WIPP-Bound Remaining at Generator Storage Sites	37,604**

* Based on September 21, 2024, WIPP Status Report

** Remaining after subtracting volume emplaced at WIPP since ATWIR 2023.

Legacy TRU waste will require disposal before, during, and after the availability of Panel 12. Based on current waste prioritization and generator site commitments, it is expected that a significant amount of Legacy TRU waste (as defined in this Plan) will be shipped to WIPP from a number of generator sites before Panel 12 is available for waste emplacement—in some cases, significantly depleting the known inventory of Legacy TRU waste at a site. The projected disposal capacity through Panel 12 (approximately 13,480 m³) does not accommodate the projected waste volumes estimated to be available beyond 2033, so it is anticipated that additional panels will be needed for WIPP to accept its authorized LWA volume limit. Such panels (if and when approved) will also support Legacy TRU waste disposal, given that the timeframes to complete cleanup, waste excavation and D&D at DOE sites stretch for decades, beyond the time when Panel 12 is expected to be open for disposal.

The ATWIR indicates that most of the remaining waste inventory is at the following large quantity generator/storage sites: Hanford site (**Hanford**), Los Alamos National

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Laboratory (**LANL**) and Savannah River Site (**SRS**). It will take years after Panel 12 is filled to deplete the inventory of Hanford legacy waste. This is because of the large inventory of legacy waste; the time needed to retrieve, treat, characterize and ship the remaining inventory of legacy waste to WIPP; and future D&D activities.

Waste emplacement is currently being done in Panel 8 at WIPP; Panel 11 is expected to be the next location for emplacement, followed by Panel 12. Historically, it typically has taken approximately three years to fill a waste panel. However, the greater complexity of current cleanup activities and waste characterization and certification—especially for legacy waste streams with limited documentation or validated information—is expected to reduce shipping rates in coming years and, thus, extend the timeframe for filling a waste panel. Furthermore, waste emplacement will not occur during outages for work planned to connect and begin operation of the Safety Significant Confinement Ventilation System in 2025 and to complete facility upgrades in 2027. Taking account of these factors, waste emplacement is projected to begin in Panel 12 in 2033. This date is a preliminary forecast date only, with significant uncertainty. It is presented here, for the purpose of this Plan only, as an assumption used to project and describe what Legacy TRU waste could be available and emplaced in Panel 12.

With respect to Panel 12, the Permittees anticipate the following sites will have limited or no remaining inventory of Legacy TRU waste:

- **SRS-EM** – Most shipments of its existing EM containerized Legacy TRU waste will be completed by 2033.
- **INL-EM** – Most shipment of its existing containerized Legacy TRU waste inventory will be completed prior to 2033. This is to support the Idaho Settlement Agreement.
- **LANL** – Most shipments of its existing containerized (covered and uncovered) Legacy TRU waste will be completed prior to 2033. As Permittees certify each year, there will be sufficient permitted disposal capacity at WIPP to dispose of WIPP-bound stored (including buried) TRU mixed waste from activities at New Mexico TRU generator sites, including clean-up activities at LANL.

Permittees anticipate receiving shipments and emplacing legacy and non-legacy waste in Panel 12 from Hanford, SRS, LANL, ANL, ORNL and other small quantity sites, as described below.

Permittees anticipate receiving shipments from **Hanford**. All of Hanford's waste is considered legacy waste except for a small volume of operations-related waste from Pacific Northwest National Laboratory. Based on the 2023 ATWIR, Hanford has the most remaining inventory of TRU and TRU mixed waste. Hanford's Tri-Party Agreement

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include key milestones such as initiating shipments to WIPP in CY 2026 and completing shipments in CY 2050.

Permittees anticipate receiving shipments from **SRS** of legacy and non-legacy waste. The South Carolina Settlement Agreement requires removal of 9.5 metric tons of surplus plutonium from the state of South Carolina by December 31, 2036. Shipments from SRS of the down blended plutonium from the Dilute and Dispose process will continue beyond 2036. The down blended plutonium waste resulting from the Dilute and Dispose process and associated job control waste is legacy waste per the Permittees' LTWDP definition. It is expected that non-legacy operations waste, such as pit production job control waste, will continue being shipped to WIPP for disposal.

Permittees anticipate receiving shipments of **LANL** operations waste from ongoing research, ongoing Pu-238 recycle and purification programs, and ongoing pit production.

Permittees anticipate receiving shipments from **ANL**. The retrievably store waste generated from past laboratory activities meets the definition of Legacy TRU waste in this plan. Generation and shipments of operations related waste will be ongoing with small quantities to be campaigned periodically.

Permittees anticipate receiving shipments from **ORNL** of some legacy and non-legacy operations related waste from ongoing missions. Generation and shipments of operations related waste will be ongoing.

Permittees anticipate receiving shipments from other **small quantity sites**, as needed. Sandia National Laboratory's TRU waste inventory is minimal.

WIPP-bound TRU and TRU mixed waste projected to be generated after 2033, with respective waste stream information, is listed in ATWIR Table 4-4, Projected CH/RH-TRU Waste Volume Beyond CY 2033.

Most legacy TRU and TRU mixed waste to be emplaced in Panel 12 is anticipated to be from Hanford remediation activities and down blended plutonium waste resulting from the SRS Dilute and Dispose process. It is anticipated that most INL-EM, LANL-EM, ORNL-EM and SRS-EM containerized legacy TRU and TRU mixed waste inventories will be shipped prior to the anticipated Panel 12 operations start date. Non-legacy TRU and TRU mixed waste anticipated to be available during Panel 12 emplacement is expected to be primarily from LANL and SRS operations, such as ongoing research and pit production.

It is expected that the source and types of waste (that is, Legacy vs. Non-legacy TRU waste) will evolve over time—not only leading up to, but also during, the timeframe of waste emplacement in Panel 12. The ATWIR provides best current estimates of anticipated waste streams from TRU generator sites. The discussion of a waste

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generator site or waste stream in this Plan does not ensure its availability or eligibility for disposal in Panel 12. Waste availability will be known, and prioritization of emplacement in Panel 12 can only be implemented much closer to the time of disposal.

7.0 Public Comment Period

Permit Part 4, Section 4.2.1.5, requires the Permittees to seek public input. Permit Part 4, Section 4.2.1.5, states:

The Permittees shall seek public input for 60 days following the submittal of the Plan and submit received comments to the Secretary.

Comments can be submitted to LTWDP@wipp.doe.gov within the 60-day comment period. Comments may also be mailed to WIPP Information Center, 4021 National Parks Highway, Carlsbad, NM 88220. Comments received during the 60-day comment period will be reviewed by Permittees and submitted to the Secretary.

Comments received will be consolidated and posted on the WIPP LTWDP website at the following address: <https://wipp.energy.gov/Legacy-TRU-Waste-Disposal-Plan.asp> on a weekly basis during the 60-day comment period. Personally identifiable information will be redacted to the extent possible without affecting the substance of the comment. All comments received will be posted on the website after the close of the comment period.

8.0 Conclusion

The WIPP facility will continue to provide safe characterization, transportation, and disposal of defense TRU waste in a manner that is protective of the workforce, public, and environment. The definition of Legacy TRU waste discussed in this Plan will assist with planning future activities.

9.0 References

"Federal Register Vol. 63, No. 15." *Record of Decision for the Department of Energy's Waste Isolation Pilot Plant Disposal Phase*. Vol. 63, No. 15., pp. 3624-3629, 23 January 1998.

"Public Law 102-579." *The Waste Isolation Pilot Plant Land Withdrawal Act*. 30 October 1992.

"Public Law 96-164." *Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980*. 29 December 1979.

Roadmap: EM Journey to Excellence, Department of Energy, Office of Environmental Management, Rev. 0, December 16, 2010.

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Appendix A

Public Engagement, Consultations, and Considerations



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A1. Engagement/Consultation

1.1 Public/Stakeholder

Permittees facilitated or participated in the following engagement opportunities, which included presentations and opportunities for questions and answers, with members of the public, non-governmental organizations, members of Tribal nations, state regulators, and other stakeholders:

- November 15, 2023 – Stakeholder Consultation in Santa Fe, NM
- December 13, 2023 – WIPP Information Exchange in Carlsbad, NM (hybrid)
- March 2024 – Waste Management Symposium in Phoenix, AZ
- May 8, 2024 – State and Tribal Government Working Group meeting in Santa Fe, NM
- June 6, 2024 – National Transportation Stakeholder Forum in Denver, CO
- July 17, 2024 – Energy Communities Alliance in Washington D.C.
- August 7, 2024 – Stakeholder Consultation in Santa Fe, NM
- August 22, 2024 – Mayor’s Nuclear Waste Task Force Executive Committee in Carlsbad, NM
- September 18, 2024 – Northern New Mexico Citizen Advisory Board meeting in Taos, NM
- September 23, 2024 – WIPP Information Exchange in Carlsbad, NM (hybrid)
- September 25, 2024 – Stakeholder Consultation in Santa Fe, NM

The Permittees created an email address and shared this with the public to facilitate engagement with the Plan. In addition, the Permittees created a fact sheet and distributed it to parties that noted interest in the Plan. The Permittees posted this fact sheet and periodic status reports on the website. The Permittees maintained an email address list of parties that noted interest in the Plan and shared information regarding meetings and postings.

The Permittees posted background information on the website for the public’s review and input on August 1, 2024, requesting feedback by August 15, 2024. In addition, the Permittees posted a draft definition with a description on the website on September 18, 2024, prior to the September 2024 WIPP Information Exchange, to facilitate input and discussion at that meeting.

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1.2 Generator/storage site

The Permittees consulted with each generator/storage site to gather information and explain the new Permit condition. The Permittees conducted in-person and virtual interviews and discussions with Federal and contractor site personnel to gain an understanding of site-specific views of legacy waste, asking questions such as the following:

- How does each site define legacy waste? Why and where is it documented?
- What is the inventory of legacy waste, as defined by the site?
- What are the complexities associated with cleanup activities?
- How is disposition of TRU waste prioritized? What are the engineering, risk and budget considerations? What are the regulatory requirements and agreements driving TRU waste removal?

The Permittees participated in virtual and in-person consultations with generator/storage sites on the following dates:

- December 12-13, 2023 – Los Alamos National Laboratory
- January 23, 2024 – Oak Ridge National Laboratory
- January 24, 2024 – Savannah River Site
- February 29, 2024 – Lawrence Livermore National Laboratory
- March 5, 2024 – Argonne National Laboratory
- March 21, 2024 – Hanford Site
- April 23, 2024 – Idaho National Laboratory
- June 25-27, 2024 – National TRU Users Group Meeting

A2. Feedback and Results

2.1 Public/Stakeholder

Throughout the consultation process, some stakeholders made recommendations to increase public participation in this process. For example, some stakeholders requested additional meetings and also requested Permittees to make more information available to stakeholders prior to the meetings. Whenever possible, the Permittees fulfilled these requests by holding additional meetings with stakeholders and providing information to stakeholders in advance of such meetings. Permittees considered the feedback received from stakeholders throughout the development of this Plan. A substantial majority of feedback provided by stakeholders was through verbal comments at meetings.

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The Energy Communities Alliance (ECA) conducted a survey regarding WIPP's prioritization of legacy waste. Participation in the survey was open to all parties and stakeholders, including members of the public. Respondents were associated with all current and projected future WIPP waste generators, plus additional DOE sites and communities. ECA posted the results of this survey on its website. Permittees considered the results of the ECA survey in the development of this Plan. A link to the survey results can be found [here](#) (also linked at <https://wipp.energy.gov/Legacy-TRU-Waste-Disposal-Plan.asp>). A summary of the conclusions from the survey are shown below in Figure 1.

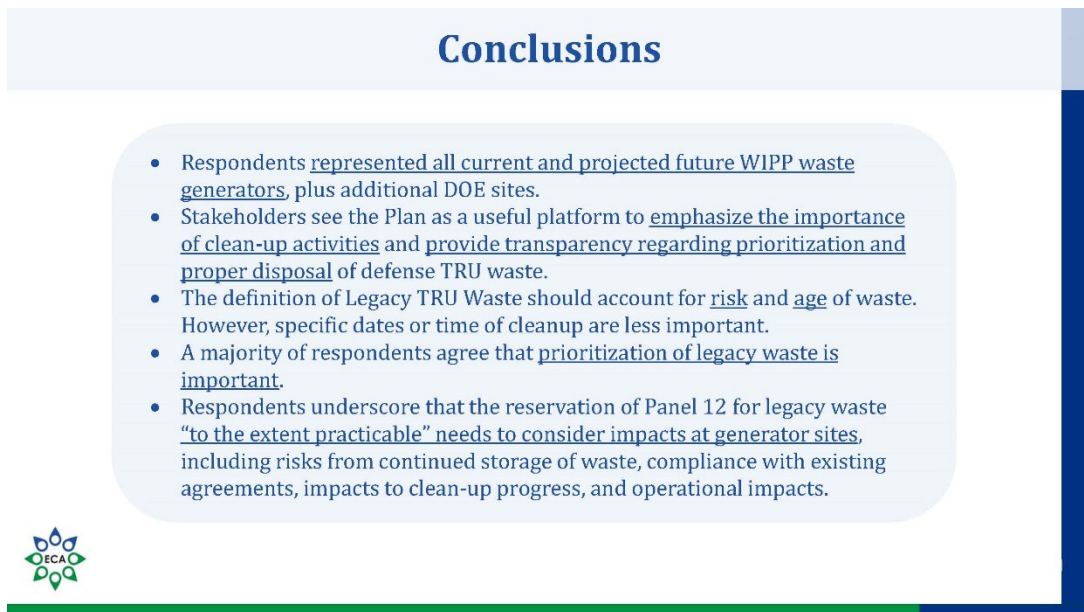


Figure 1 -- ECA Survey Conclusions

2.2 Generator/storage sites

Permittees considered information received from consultation with generator/storage sites in the development of this Plan. Generator/storage sites shared site-specific definitions of legacy waste, where they existed, and their purposes. Sites also identified several challenges in retrieving, certifying and preparing TRU waste for shipment to the WIPP facility that impact planning and scheduling. The most important daily challenge in characterization and shipping is ensuring compliance with the numerous WIPP transportation and complex Waste Acceptance Criteria requirements. Some generator/storage sites have state agreements and milestones that must be considered, as discussed below. In addition to retrievably stored legacy waste, generator/storage sites must address operations/related waste that is continuously generated pursuant to cleanup projects, remediation actions, and ongoing facility missions.

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The descriptions below summarize the definitions that already exist and are currently in use at generator sites, and the waste streams and operational or other considerations that could be relevant to the prioritization and disposal of Legacy TRU waste in Panel 12. The Considerations sections describe how site-specific factors informed the definition of Legacy TRU waste and the interpretation of “to the extent practicable” in the Plan.

As noted, the definition of Legacy TRU waste in the Plan is intended to encompass all site-specific definitions; in doing so, it is more inclusive than some site definitions. Permittees do not expect or require that sites will modify their existing definitions (see Sections 4.2 and 4.4). WIPP will implement and track the inventories of waste that meet the Legacy TRU waste definition in the Plan and will encourage sites—whether or not they have an existing definition of legacy TRU waste—to prioritize identified Legacy TRU waste shipments related to historical activities over waste shipments from recent or ongoing activities to the extent practicable.

2.2.1 Argonne National Laboratory

Argonne National Laboratory does not specifically define legacy waste. The ANL processes the TRU waste at the facility using the characterization approach typically applied to newly generated waste. However, all CH and RH TRU waste being characterized and certified at ANL is retrievably stored waste generated from past laboratory activities. A challenge for ANL is funding. TRU waste disposition funding comes from overhead and not from a separate DOE-EM funded project, which can impact consistent generation and characterization levels year-over-year.

2.2.2 Hanford Site

Hanford defines legacy waste as all waste (retrieved, buried and/or generated) prior to June 2000. The June 2000 date is derived from the June 23, 2000, NMED approval of the final audit report. (NMED facility record 000644). Hanford ceased production activities in the early 1990s, and all of the TRU waste generated from cleanup activities is added to the legacy waste inventory. Based on Hanford’s definition of legacy waste, this would include waste produced from the D&D of Manhattan Project and Cold War facilities and waste recovered from underground waste sites. With the exception of some of the waste generated in the RL325 waste streams at Pacific Northwest National Laboratory, all Hanford waste is considered legacy. Hanford also has numerous waste burial sites that do not yet have a ROD (pre-1970 waste sites other than 618-11) but which will also be included in the inventory of legacy waste once a ROD is issued.

One of the challenges associated with Hanford is that the site is currently not shipping waste to WIPP. Hanford is, however, planning to initiate certification activities in late CY26 in accordance with the Tri-Party Agreement. Waste shipments from Hanford will be ongoing well beyond Panel 12 closure due to the volume of TRU waste and challenges described herein. The Tri-Party Agreement requires completion of offsite

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shipments of all TRU-mixed waste (in above ground storage as of June 30, 2009, and in retrievable storage) by late 2050. Another challenge associated with Hanford relates to the presence of some underground tanks, cribs, and trenches from which waste may be retrieved—activities that will likely be complex due to the expected radioactivity and contamination levels. Hanford is evaluating options for retrieval of buried waste.

An important consideration is Hanford's Tri-Party Agreement Milestones⁶ (Hanford Federal Facility Agreement and Consent Order, US EPA, DOE, and WA State Department of Ecology).

2.2.3 Idaho National Laboratory

Idaho National Laboratory defines legacy waste as stored waste generated on or prior to October 1995. Waste falling within INL's definition of legacy waste, as well as waste generated during the processing of legacy waste, is subjected to the Idaho Settlement Agreement. There is also a special category of legacy waste in the Subsurface Disposal Area. According to INL's definition, repackaged waste containers with predominant contents or specific objects (such as polychlorinated biphenyl capacitors) that have a tie directly to a 1995 container are considered to be legacy containers. In addition, containers with new items (such as filters, vacuums, and personal protective equipment) contaminated during processing of such legacy waste are considered to be legacy waste as well.

Consideration was given to day-to-day processing challenges at INL, such as meeting WIPP's compliance requirements and addressing container integrity issues. Other challenges that were considered include processing of difficult waste and containers requiring treatment.

INL has the following requirements that were considered:

- the 1995 Settlement Agreement
- the Agreement to implement the U.S. district court order dated May 25, 2006
- the Supplemental agreement concerning conditional waiver of sections D.2.e and K.1 of 1995 Settlement Agreement⁷
- the Idaho National Laboratory and Idaho Cleanup Project Site Treatment Plan⁸

⁶ <https://www.hanford.gov/files.cfm/HFFACO.pdf>

⁷ <https://www.deq.idaho.gov/idaho-national-laboratory-oversight/1995-settlement-agreement/>

⁸ https://idahoenvironmental.com/Documents/Community/INL-STP_R49.pdf

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2.2.4 Lawrence Livermore National Laboratory

Lawrence Livermore National Laboratory does not define legacy waste. The site does not make any distinctions or define sub-categories regarding the handling and disposition of TRU waste at the site.

2.2.5 Los Alamos National Laboratory

Los Alamos National Laboratory defines legacy waste as any radioactive waste stored or buried as TRU waste at LANL with a generation date prior to October 1, 1999, to designate and divide organizational (and contractor) responsibilities for managing waste across the site. TRU waste generated as byproducts from ongoing defense missions on or after October 1, 1999, is the responsibility of the National Nuclear Security Administration (**NNSA**) Los Alamos Field Office. Per the LANL definition, TRU waste produced prior to that date falls under the responsibility of DOE-EM and is considered legacy waste. This would include waste recovered from underground waste sites. Pursuant to the Plan's definition, TRU waste produced from the future D&D of Cold War facilities and waste generated from cleanup of legacy facilities or disposal locations is also legacy TRU waste. This waste is described in the LANL Site Treatment Plan. WIPP currently prioritizes shipments of legacy waste from LANL, with the goal of ensuring no backlog of such waste staying at LANL once certified and available for shipment and disposal.

LANL also has some storage limitations for operations related waste.

LANL's Settlement Agreements, Compliance Orders and Site Treatment Plan⁹ were considered in development of this Plan.

2.2.6 Oak Ridge National Laboratory

Oak Ridge National Laboratory defines legacy waste as waste included in the Transuranic Waste Processing Center (**TWPC**) Site Treatment Plan (**STP**) and waste generated prior to the EM transition. Responsibility for managing enduring mission TRU waste from ongoing ORNL operations transitioned to Office of Science/ORNL starting in 2018, as defined in the STP for Mixed Waste on the U.S. DOE Oak Ridge Reservation.

Some of the challenges at ORNL include: the TWPC has some legacy waste containers that require unique processing capabilities to be developed and some legacy waste containers that failed enhanced Acceptable Knowledge reviews and require reprocessing.

An important consideration is the ORNL STP.

⁹ https://www.env.nm.gov/hazardous-waste/wp-content/uploads/sites/10/2023/08/HWB-LANL-STP_Annual-Update_2023_Rev33_August-2023.pdf

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2.2.7 Savannah River Site

The SRS defines legacy waste as waste containers characterized by the Central Characterization Program prior to the 2014 WIPP events for the purpose of defining roles of the respective contractors on site. This is described in an internal DOE-SR direction memo dated April 12, 2019.

SRS has storage limitations for criticality control overpacks used for some waste streams. Ensuring waste meets WIPP compliance requirements can be challenging. The disposition of RH waste and the availability of shielded containers and resumption of borehole emplacement at the WIPP also affect the ability of SRS to ship TRU waste to WIPP.

Important considerations for SRS include the STP and the State of South Carolina Settlement Agreement dated August 31, 2020¹⁰.

¹⁰ <https://www.scag.gov/wp-content/uploads/2020/08/South-Carolina-Settlement-Agreement-Final-signed-8-28-20.pdf>