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JAN 31 2018

Mr. John E. Kieling, Chief
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New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Subject: Permit Modification Request for the Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Number NM4890139088-TSDF

Dear Mr. Kieling:

Enclosed please find the following Class 2 Permit Modification Request:

- Clarification of TRU Mixed Waste Disposal Volume Reporting

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. George T. Basabilvazo at 575-234-7488.

Sincerely,

Signatures on file

Todd Shrader, Manager
Carlsbad Field Office

Bruce C. Covert, Project Manager
Nuclear Waste Partnership LLC

Enclosure

cc: w/enclosure
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Class 2 Permit Modification Request

Clarification of TRU Mixed Waste Disposal Volume Reporting

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP Permit Number - NM4890139088-TSDF

January 2018

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Acronyms/Abbreviations/Units

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
ft ³	cubic feet
HWDU	Hazardous Waste Disposal Unit
LWA	Land Withdrawal Act
m ³	cubic meters
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
Permit	WIPP Hazardous Waste Facility Permit
PMR	Permit Modification Request
RCRA	Resource Conservation and Recovery Act
ROD	WIPP Final Environmental Impact Statement Record of Decision
TRU	transuranic
VOR	volume of record
WDS	Waste Data System
WIPP	Waste Isolation Pilot Plant
WWIS	WIPP Waste Information System

Overview of the Permit Modification Request

This document contains a Class 2 Permit Modification Request (**PMR**) for the Waste Isolation Pilot Plant (**WIPP**) Hazardous Waste Facility Permit (**Permit**) Number NM4890139088-TSDF.

This PMR is being submitted by the U.S. Department of Energy (**DOE**) and Nuclear Waste Partnership LLC, collectively referred to as the Permittees, in accordance with the Permit, Part 1, Section 1.3.1. (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating Title 40 of the Code of Federal Regulations (**CFR**) §270.42(b)). The modification provides for the following changes:

- Clarify transuranic (**TRU**) mixed waste disposal volumes reported in Permit Part 4, Table 4.1.1, *Underground HWDUs*, in accordance with Permit Part 6, Section 6.10.1., *Panel Closure*

The Permittees are proposing changes to the following Permit Parts and Attachments:

- Part 1, Section 1.5., *Definitions*
- Part 3, Section 3.3.1.8., *Shielded Container*
- Part 4, Table 4.1.1, *Underground HWDUs*
- Part 6, Section 6.5.2., *Final Facility Closure*
- Part 6, Section 6.10.1., *Panel Closure*
- Attachment A1, Section A1-1c(1), *Waste Handling Building Container Storage Unit (WHB Unit)*
- Attachment A1, Section A1-1f(1), *Secondary Containment Requirements for the WHB Unit*
- Attachment A2, Section A2-2a(3), *Subsurface Structures*
- Attachment B, *Hazardous Waste Permit Application Part A*
- Attachment C, Section C-8, *Reporting*
- Attachment G, Section G-1, *Closure Plan*
- Attachment G, Section G-1c, *Maximum Waste Inventory*
- Attachment H, Section H-1a(2), *Monitoring*
- Attachment H1, *Introduction*
- Attachment J, Table J-3, *Underground Hazardous Waste Disposal Units*

These changes do not reduce the ability of the Permittees to provide continued protection to human health and the environment.

The requested modification to the Permit and related supporting documents are provided in this PMR. The proposed modification to the text of the Permit has been identified using red text and double underline and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the Permit, Part 1, Section 1.3.1. for submission of this Class 2 PMR.

1. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(i)) requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the Permit.

The Permittees are proposing this modification to the Permit to clarify how the Permittees calculate final TRU mixed waste volumes for the purposes of reporting and comparing these volumes to the maximum hazardous waste disposal unit (**HWDU**) capacities prescribed by Permit Part 4, Table 4.1.1, *Underground HWDUs*, so that capacities in the Permit, which are limited by the physical volume of each mined HWDU, are not exceeded. This modification also proposes to distinguish between the TRU mixed waste volume and the TRU waste volume of record (**VOR**) as follows. The TRU mixed waste volume is tracked and reported by the Permittees in Table 4.1.1 in accordance with Permit Part 6, Section 6.10.1., *Panel Closure*, pursuant to the Resource Conservation and Recovery Act (**RCRA**). The TRU waste VOR will be tracked and reported, separately from the Permit, by the DOE pursuant to the WIPP Land Withdrawal Act (**LWA**) so that the LWA total capacity limit for TRU waste is not exceeded. In this regard, this modification clarifies that the maximum capacity of the WIPP repository, as it pertains to this Permit under RCRA, is based on the TRU mixed waste capacities of the individual HWDUs listed in Table 4.1.1. and is not based on the LWA total capacity limit of 6.2 million cubic feet (**ft³**) (175,564 cubic meters (**m³**)) of TRU waste as authorized by Congress in the WIPP LWA of 1992 (Public Law 102-579 as amended by Public Law 104-201).

The reporting of disposed waste volumes is required by several regulatory drivers, such as RCRA, the LWA, 40 CFR 194, and DOE Orders. Each of these requires volume reporting for different purposes. For example, RCRA requires volume reporting to determine how much waste is put into the WIPP facility relative to the volumes in Table 4.1.1, which are limited by the physical volume of each mined HWDU, while the LWA requires the volume to be reported relative to the total capacity limit of 6.2 million ft³ (175,564 m³) of TRU waste; 40 CFR Part 194 requires the reporting of the volume of waste and also information regarding material parameter waste estimates and radionuclides for purposes of comparison to the input data used in the Compliance Certification Application; and DOE Orders require estimates relative to transportation and operational safety. The information required to track these volumes is contained in a single database maintained by the DOE. This database is the Waste Data System (**WDS**).

The TRU mixed waste volume is tracked and reported by the Permittees relative to the authorized disposal volumes in Permit Part 4, Table 4.1.1. Because the Permittees record the volume of the outermost disposal container, with the exception of shielded containers, in the WIPP Waste Information System (**WWIS**), a subsystem of the WDS, the TRU mixed waste volume is readily determined and is the basis for the volume currently recorded in the Permit Part 4, Table 4.1.1, *Underground HWDUs*, and Permit Attachment J, Table J-3, *Underground Hazardous Waste Disposal Units*. The outermost disposal container volume is the volume that the container occupies within the HWDU and, therefore, is directly related to meeting the disposal unit capacity limits, which assure safe management of the waste and the initiation of closure of the HWDUs. To this extent, there are no changes to the permitted capacities of the HWDUs needed to implement this proposed Permit modification.

The LWA TRU waste VOR will be tracked and reported by the DOE relative to the WIPP LWA TRU waste total capacity limit. The DOE will establish and implement a written policy to formalize the tracking and reporting of the TRU waste VOR. In this way, the tracking and reporting will be subject to the DOE Quality Assurance program which will assure consistent application of the policy. The DOE intends to make the status of the WIPP LWA TRU waste volume tracking results publicly available. The LWA TRU waste VOR is related to the quantity of waste that resides at the generator/storage sites prior to final packaging within the payload container and is directly related to the total capacity limit specified in the WIPP LWA.

Generator/storage sites package TRU mixed waste in a manner that meets transportation and radiological limits, and the resulting container volume after packaging is usually much larger than the LWA TRU waste VOR. This packaging information is recorded by the generator/storage sites in the WWIS. The WWIS is the Permittees' database in which generator/storage sites record the necessary information for reporting both the TRU mixed waste volume and the LWA TRU waste VOR.

The exact changes to be made to the Permit are described below. Note that the changes described below also include a brief explanation of why the changes are needed:

- Add the following definitions to Permit Part 1, Section 1.5., *Definitions*, to distinguish between the TRU mixed waste volume tracked and reported by the Permittees pursuant to the RCRA through the Permit and the LWA TRU waste VOR tracked and reported by the DOE pursuant to the WIPP LWA:

1.5.21. *TRU Mixed Waste Volume*

"TRU Mixed Waste Volume" means the volume of the outermost disposal container of TRU mixed waste pursuant to waste volumes in this Permit (for purposes of this Permit, all TRU waste is managed as though it were mixed). This volume is tracked and reported by the Permittees relative to the authorized maximum capacities in Permit Part 4, Table 4.1.1.

1.5.22. *Land Withdrawal Act TRU Waste Volume of Record*

"Land Withdrawal Act TRU Waste Volume of Record" means the volume of TRU waste inside a disposal container. This volume of record is tracked and reported, separately from the Permit, by the DOE pursuant to the WIPP Land Withdrawal Act total capacity limit of 6.2 million ft³ (175,564 m³) (Pub. L. 102-579, as amended).

- Revise Permit Part 3, Section 3.3.1.8., *Shielded Container*, to make the text consistent with the new definition of "TRU Mixed Waste Volume" in Permit Part 1, Section 1.5., *Definitions* and to specify reporting the volume of the outermost container pursuant to the Permit.
- Revise Permit Part 4, Table 4.1.1, *Underground HWDUs*, as follows:
 - Change the "Final Waste Volume" column heading to "Final TRU Mixed Waste Volume" to make it consistent with the new definition of "TRU Mixed Waste Volume" in Permit Part 1, Section 1.5., *Definitions*.

- Change the final RH TRU mixed waste volume reported for Panel 6 from 7,500 ft³ (214 m³) to 7,600 ft³ (215 m³). The final RH TRU mixed waste volume reported for Panel 6 in the current Permit includes the inner container volume of the nine shielded containers emplaced in Panel 6. The inner container volume of the shielded container is 30 gallons [(4.0 ft³) (0.11 m³)] and the outermost container volume is 55 gallons [(7.4 ft³) (0.21 m³)]. This change is needed to be consistent with the proposed definition, 1.5.21., *TRU Mixed Waste Volume*. Note that this change only applies to Panel 6 because shielded containers have only been emplaced in Panel 6. Note also that the volumes reported in Table 4.1.1 in ft³ are rounded to the nearest 100 ft³.
- Revise footnote 2 to clarify that the “Maximum Capacity” is the maximum TRU mixed waste volume that may be emplaced in each HWDU (panel) and is calculated based on the outermost disposal container volumes.
- Add footnote 3 to clarify that the Final TRU Mixed Waste Volume calculations are based on the outermost disposal container volumes, not the LWA TRU waste VOR disposed; the volume listed is reported pursuant to Permit Part 6, Section 6.10.1., *Panel Closure*; and the LWA TRU waste VOR is tracked and reported, separately from the Permit, by the DOE relative to the WIPP LWA total capacity limit of 6.2 million ft³ (175,564 m³) of TRU waste.
- Revise Permit Part 6, Section 6.5.2., *Final Facility Closure*, to make the text consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*.
- Revise Permit Part 6, Section 6.10.1., *Panel Closure*, to make the text consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*, and to clarify that the final TRU mixed waste volume required to be reported once a panel is full is calculated based on the outermost disposal container volumes.
- Revise Permit Attachment A1, Section A1-1c(1), *Waste Handling Building Container Storage Unit (WHB Unit)*, and Section A1-1f(1), *Secondary Containment Requirements*, to make the text consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*.
- Revise Permit Attachment A2, Section A2-2a(3), *Subsurface Structures*, to make the text consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*; to reference the maximum capacities listed in Permit Part 4, Table 4.1.1, *Underground HWDUs*; and to delete the listed TRU mixed waste volumes.
- Revise Permit Attachment B, *Hazardous Waste Permit Application Part A*, Form OMB#:2050-0024, Section 7, *Process Codes and Design Capacity*, and the continuation page for Section 7 to be consistent with the underground HWDU maximum capacities listed in Permit Part 4, Table 4.1.1, *Underground HWDUs*. The continuation page for Section 7 is also being revised to:
 - Change the volume of WIPP wastes categorized as debris waste to a percentage of the waste anticipated for disposal in the WIPP repository because the final TRU mixed waste volume is not known at this time;

- Relocate text that explains that, for the purposes of the Part A application, all TRU waste is managed as though it were mixed to the beginning of the respective paragraph;
 - Revise the listed volume to make it consistent with the design capacities in Section 7 B;
 - Revise text to make it consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*;
 - Clarify that the emplaced TRU mixed waste volume will not exceed the design capacity specified in Section 7 B;
 - Clarify that the volume specified in Section 7 B is calculated based on the sum of the volumes of the outermost containers and cannot be exceeded for Panels 1 – 8;
 - Clarify that the LWA TRU waste volume of record is tracked and reported, separately from the Permit, by the DOE for the purposes of compliance with the WIPP LWA;
 - Clarify that the process design capacities shown in Section 7 B are for the eight HWDUs in the geologic repository; and
 - Clarify that the capacity of the Parking Area Unit is based on TRU mixed waste volume.
- Revise Permit Attachment C, Section C-8, *Reporting*, to make the text consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*.
- Revise Permit Attachment G, Section G-1, *Closure Plan*, to clarify that waste disposal areas are the permitted HWDUs, remove the listed volume capacity, and reference the maximum capacities listed in Permit Part 4, Table 4.1.1, *Underground HWDUs*.
- Revise Permit Attachment G, Section G-1c, *Maximum Waste Inventory*, to reference Permit Part 4, Table 4.1.1, *Underground HWDUs*, for the maximum TRU mixed waste volume in a disposal panel; remove the listed maximum TRU mixed waste volumes; and to make the text consistent with the new definition of “TRU Mixed Waste Volume”, in Permit Part 1, Section 1.5., *Definitions*. Referring to Table 4.1.1 for the maximum TRU mixed waste volumes eliminates some redundancy.
- Revise Permit Attachment H, Section H-1a(2), *Monitoring*, to make the text consistent with the new definition of “TRU Mixed Waste Volume” in Permit Part 1, Section 1.5., *Definitions*.
- Revise Permit Attachment H1, *Introduction*, to delete the listed regulated capacity and to clarify that the waste emplacement and disposal phase will continue until initiation of final closure of the facility.
- Revise Attachment J, Table J-3, *Underground Hazardous Waste Disposal Units*, to delete the reference to the WIPP LWA total capacity limit of 6.2 million ft³.

Appendices A and B contain the proposed revised Permit text changes. The Table of Changes (Appendix A) describes each change that is being proposed, and the Proposed Revised Permit Text (Appendix B) shows the redline/strikeout to the existing Permit language.

2. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.

This PMR is a Class 2 modification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, Item A. *General Permit Provisions*, 4. *Changes in frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the permittee*, b. *other changes...2*). This classification applies because the Permittees are proposing to change the procedure for reporting the volume of TRU mixed waste emplaced in the WIPP facility relative to the total capacity limit for TRU waste in the LWA and to clarify what volumes are reported pursuant to the Permit. The Permittees currently track TRU mixed waste volume and associate this volume with the LWA total capacity limit for TRU waste. This association is reflected by several statements in the Permit that reference the 6.2 million ft³ total capacity limit of TRU waste imposed by the LWA. It is now apparent to the Permittees that it is inappropriate to associate the TRU mixed waste volume allowed by the Permit with the LWA TRU waste VOR because the volumes serve separate and distinct purposes as explained below. Furthermore, the association in the Permit constrains the permitting of future TRU mixed waste disposal capacity within the regulated unit. Therefore, a mechanism that is not associated with the Permit will be used by DOE to track and report the VOR pursuant to the LWA.

The TRU mixed waste volumes recorded in the Permit are not consistent. The Part A Permit Application in Permit Attachment B states that the design capacity of the disposal unit is 175,600 m³, which is different than the maximum permitted capacity specified in Table 4.1.1 and Table J-3. This discrepancy occurs because the design capacity was originally based on the LWA total capacity limit of TRU waste and not the sum of the capacities of the authorized HWDUs. The proposed changes reconcile these values by revising the footnotes in Permit Part 4, Table 4.1.1, to indicate that TRU mixed waste volume is calculated based on the outermost disposal container volume pursuant to the Permit and the LWA TRU waste VOR is tracked and reported, separately from the Permit, by the DOE. The footnote is also revised to clarify that the Final TRU Mixed Waste Volumes listed therein are reported pursuant to Permit Part 6, Section 6.10.1. In addition, the value in the Part A is revised to equal the total authorized capacity in Table 4.1.1. These changes clarify that the TRU mixed waste volume in the Permit is based on the outermost container volume and is pursuant to the RCRA through the Permit and not to the DOE process for reporting the VOR pursuant to the LWA. Although this Permit modification is a Class 2 modification, the information below is provided for completeness.

This Permit modification also includes changes to Permit Attachment G, *Closure Plan*. Therefore, the change is a Class 1 modification requiring prior agency approval (Class 1*), pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, Item D. *Closure*, 1. *Changes to the closure plan*, a. *Changes in estimate of maximum extent of operations or maximum inventory of waste on-site at any time during the active life of the facility, with prior approval of the Secretary...11*). The changes that are proposed to Permit Attachment G, Section G-1c, *Maximum Waste Inventory*, are associated with the maximum inventory of waste on-site at any time during the active life of the facility. The change to Attachment G, Section G-1c, *Maximum Waste Inventory*, modifies the total maximum capacity for the permitted HWDUs by deleting the reference to the 6.2 million ft³ LWA total capacity limit for TRU waste and, instead, referring to Permit Part 4, Table 4.1.1, *Underground HWDUs*.

3. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.

This PMR is needed to distinguish between TRU mixed waste volume relevant to the Permit and the LWA TRU waste VOR. “TRU Mixed Waste Volume” means the volume of the outermost disposal container of TRU mixed waste. The disposal container volumes are listed in Permit Part 3, Section 3.3.1., *Acceptable Storage Containers*. “Land Withdrawal Act TRU Waste Volume of Record” means the volume of TRU waste inside a disposal container. The need for providing the distinction between these two terms is discussed below.

The changes proposed in this PMR are also needed to clarify how the Permittees calculate and track final TRU mixed waste disposal volumes for the purposes of reporting and comparing these volumes to the maximum capacities listed in Permit Part 4, Table 4.1.1, *Underground HWUDUs*, so that capacities in the Permit are not exceeded. This change is accomplished primarily by revising the footnotes in Permit Part 4, Table 4.1.1, to indicate that TRU mixed waste volume is calculated based on the outermost disposal container volume pursuant to the RCRA through the Permit and the LWA TRU waste volume of record is tracked and reported by the DOE and by revising the process design capacity for the miscellaneous unit in Section 7 of the Part A which is in Permit Attachment B.

Additionally, the proposed changes assure consistency between the total maximum capacity prescribed by the Permit in Table 4.1.1 and the references to this maximum capacity limit found elsewhere in the Permit. These changes also eliminate redundancy.

The WIPP LWA limit was formulated by Congress as a limit on the amount of TRU waste the DOE can dispose in the WIPP facility and not as a RCRA disposal unit volume limit. At the time the Permittees prepared the Part B Permit Application, the WIPP LWA limit and the HWDU limit were considered to be the same. The following is a brief chronology of the LWA limit:

- October 1980, DOE issued the *Final Environmental Impact Statement, Waste Isolation Pilot Plant*, DOE/EIS-0026¹. Page 1-5 states: “Over its 25-year operating life, the WIPP could receive about 6.2 million cubic feet of contact-handled [CH] TRU waste and as much as 250,000 cubic feet of remotely handled [RH] TRU waste. This would account for all of the TRU waste currently held in interim storage in Idaho, two-thirds of that expected to be generated at all DOE facilities between now and 1990, and all of that expected to be produced from 1990 through 2003.”
- January 1981, DOE publishes the *Waste Isolation Pilot Plant, Record of Decision*, 46 Federal Register 9162². The Record of Decision (**ROD**) documents the DOE decision to proceed with the “...development of the authorized WIPP facility...designed to retrievably emplace approximately 6.2 million cubic feet of contact-handled TRU waste and as much as 250,000 cubic feet of remotely handled TRU waste ...”

¹ *Final Environmental Impact Statement, Waste Isolation Pilot Plant*, DOE/EIS-0026, U.S. Department of Energy, October 1980.

² *Waste Isolation Pilot Plant (WIPP), Record of Decision*, 46 Federal Register – 9162, January 23, 1981.

- November 1984, the first modification to the Consultation and Cooperation Agreement (C&C Agreement)³ was signed by DOE and the state of New Mexico incorporating the ROD TRU waste volumes for CH TRU and RH TRU waste into the agreement.
- October 1992, the President signed the *Waste Isolation Pilot Plant Land Withdrawal Act of 1992*, Public Law 102-579⁴, and in September 1996 the President signed the *Waste Isolation Pilot Plant Land Withdrawal Act Amendments*, Public Law 104-201⁵. The LWA (Sec. 7. Disposal Operations, (a)(3), Capacity of WIPP) total capacity by volume is 6.2 million ft³ of TRU waste.
- September 1997, the DOE published the *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement*, DOE/EIS-0026-S-2⁶. In this document, the DOE included the following clarification with regard to the TRU waste volume: *While the LWA and C&C Agreement include limits on the volume of TRU waste that can be emplaced, there is considerable uncertainty concerning how much of a container's volume is made up of TRU waste and how much is void space. Many of the containers would include a great deal of void space, particularly for RH-TRU waste; the actual volume of waste in a drum or cask, therefore, may be much less than the volume of the drum or cask. For the purposes of analyses in SEIS-II, the volume of the drum or cask is used, as if the drum or cask were full without void space.*

When preparing the RCRA Part B Permit Application the Permittees made three fundamental assumptions regarding volume of waste:

- As stated in the FEIS, ROD, C&C Agreement and LWA, the total amount of TRU waste to be disposed is 6.2 million ft³
- As stated in the SEIS-II, containers would be totally full
- The New Mexico Environment Department (**NMED**) would issue a Permit for the entire facility (i.e., all existing and future disposal units, all 10 panels described in the Part B Permit Application)

These assumptions resulted in a design capacity of the facility of 6.2 million ft³ disposed in up to 10 panels (HWDUs), each with a capacity of 636,000 ft³ (18,000 m³). This assumption is reflected by the total design capacity entered into Section 7 of the Part A Permit Application. These assumptions are no longer valid for the following reasons:

- The assumption that the Permit volume and the ROD/C&C/LWA volume are linked is not valid for the reasons stated in the following bullet, and language to this effect in the

³ Modification of the Consultation and Cooperation Agreement, November 30, 1984.

⁴ Waste Isolation Pilot Plant Land Withdrawal Act of 1992, Public Law 102-579, October 30, 1992.

⁵ National Defense Authorization Act for Fiscal Year 1997, Public Law 104-201, September 23, 1996.

⁶ Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement, Eddy County, near Carlsbad, New Mexico, pages 3-8, DOE/EIS-0026-S-2, 1997, page 3-8.

Permit constrains the DOE from achieving the goal of removing the inventory of TRU mixed waste from the generator/storage sites.

- Experience with packaging waste at the generator/storage site has resulted in waste containers that are not full as assumed in the ROD. Generator/storage sites limit the amount of waste in a disposal container based on radiological and physical (e.g., weight) parameters. In some cases, smaller containers are placed into larger containers (referred to as overpacking) in order to deal with container integrity issues or to achieve more efficient shipping configurations. As more and more waste is packaged and shipped, the difference between the waste volume used to determine the ROD/C&C/LWA limits and the volume of the waste container increased such that it has reached the point where comparing disposed TRU mixed waste volume pursuant to the Permit limits no longer accurately reflects the authorized volume pursuant to the ROD/C&C/LWA. For example, the volume of contact-handled TRU mixed waste disposed as of December 6, 2017, based on the outermost container volumes is 3,238,673 ft³ (91,709 m³) while the volume based on the innermost container volumes, which would more accurately reflect the LWA TRU waste volume of record, is 2,307,708 ft³ (65,347 m³). Note that this volume information was obtained from the WWIS. The WWIS is described in Permit Attachment C, Section C-5a(1), *WWIS Description*. The WWIS database is the single database used by the Permittees to record the types and quantities of TRU mixed waste characterized, managed, stored and disposed at the WIPP facility. There is sufficient container data information in the WDS to query and report waste volumes as needed pursuant to the proposed definitions. Examples of some commonly used overpacks are provided in Appendix C of this PMR. The volumes of the outermost overpack containers versus the volumes of the innermost containers being overpacked are included in these examples to illustrate the significant differences in the outermost container volumes versus the innermost container volumes.
- When the Permit was issued by the NMED, the Permit did not authorize the proposed design capacity of the repository (i.e., all 10 panels). Instead, the NMED chose to authorize the facility on a unit-by-unit basis, as reflected by the capacities listed in Table 4.1.1. However, the reference to the LWA limits, either explicit or implicit, were not changed. Therefore, Section 7 of the Part A Permit Application should reflect the total maximum capacity of the permitted HWDUs shown in Table 4.1.1 since that is the current authorized capacity.

This proposed modification is needed to remove language from the Permit that is used to track the final waste volumes reported pursuant to the Permit against the WIPP LWA total capacity limit for TRU waste. This change will allow the DOE to establish a formal tracking and reporting mechanism, independent of the Permit, for comparing the disposed TRU waste VOR to the 6.2 million ft³ (175,564 m³) capacity limit of the WIPP LWA. Because several regulatory requirements are implemented at the WIPP facility, it is important to distinguish between these requirements since they are subject to different regulatory authority. For example, the authority for overseeing RCRA at the WIPP facility has been granted to the NMED by the Environmental Protection Agency, and the authority for management, tracking, and reporting the LWA TRU waste volume has been granted to the DOE by Congress.

The mission of the WIPP facility is to isolate and dispose of [DOE's inventory of] defense TRU waste in a manner that protects public health and the environment. This mission is derived from the 1979 WIPP Authorization Act which created the WIPP Project: "...for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive

wastes resulting from the defense activities and programs of the United States exempted from regulation by the Nuclear Regulatory Commission.”⁷

The changes proposed in this PMR are appropriate because it is DOE’s responsibility to manage the waste in a manner that assures that the mission of the WIPP facility is fulfilled. Congress has authorized the DOE to regulate TRU waste under its control. Section 203(a)(8) of the Department of Energy Organization Act (Pub. L. 95-91), in particular Sections 203(a)(8)(B) and (G), give the DOE control over its waste and the authority to establish rules and regulations to implement the mandate. This mandate, which is stated below, would include the development of a method by which the DOE tracks the TRU waste volume that has been disposed against the WIPP LWA total capacity limit:

- (8) *Nuclear waste management responsibilities, including—*
 - (A) *the establishment of control over existing Government facilities for the treatment and storage of nuclear wastes, including all containers, casks, buildings, vehicles, equipment, and all other materials associated with such facilities;*
 - (B) *the establishment of control over all existing nuclear waste in the possession or control of the Government and all commercial nuclear waste presently stored on other than the site of a licensed nuclear power electric generating facility, except that nothing in this paragraph shall alter or effect title to such waste;*
 - (C) *the establishment of temporary and permanent facilities for storage, management, and ultimate disposal of nuclear wastes;*
 - (D) *the establishment of facilities for the treatment of nuclear wastes;*
 - (E) *the establishment of programs for the treatment, management, storage, and disposal of nuclear wastes;*
 - (F) *the establishment of fees or user charges for nuclear waste treatment or storage facilities, including fees to be charged Government agencies; and*
 - (G) *the promulgation of such rules and regulations to implement the authority described in this paragraph, except that nothing in this section shall be construed as granting to the Department regulatory functions presently within the Nuclear Regulatory Commission, or any additional functions than those already conferred by law.*

Under the RCRA, it is necessary to specify hazardous waste management unit capacities for permitting purposes. The capacity of an underground HWDU is measured in volume since the units represent physical volumes excavated within the salt formation. When developing the design of the permitted units, the amount of waste that could be accommodated within the HWDUs was determined by the size and number of containers that would physically fit within the mined volume⁸. As the types of containers expanded to include larger packages, such as

⁷ U.S. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980, Public Law 96-164, U.S. Congress, 1979, December 29, 1979

⁸ RCRA Part B Permit Application, WIPP, Carlsbad, New Mexico, Revision 6.5, 1997.

ten-drum overpacks, the capacity of the unit also expanded. This change was made in the RH-311 Class 3 Permit Modification approved by the NMED in October 2006⁹.

The Permit states in several places that the capacity of the WIPP facility is 6.2 million ft³ (175,564 m³) of TRU waste based on the WIPP LWA limitation. However, since the permitted HWDUs are the panels, and currently Panels 1 through 8 are permitted for the disposal of TRU mixed waste, the permitted capacity of the WIPP repository is more appropriately defined as the sum of the individual maximum capacities of the eight permitted panels, as listed in Permit Part 4, Table 4.1.1, *Underground HWDUs*, which equates to 151,135 m³. This proposed modification is necessary to clarify the basis for the permitted maximum capacity of the WIPP repository and to modify the *Hazardous Waste Permit Part A* and the *Closure Plan* accordingly for consistency. For example, when the Permittees seek a Permit modification to allow for the disposal of TRU mixed waste in Panel 10, a revision to the maximum permitted capacity of the WIPP repository would be included at that time.

- 4. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR 270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the Permit that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised March 9, 2009, incorporating 40 CFR Parts 264 and 270. 40 CFR §§270.16 through 270.21, 270.62, and §270.63 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table.

- 5. 20.4.1.900 NMAC (incorporating 40 CFR 270.11(d)(1) and 40 CFR 270.30(k)), requires that any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Permit Part 1, Section 1.9.

⁹ State of New Mexico before the Secretary of the Environment Department, In the Matter of the Application for a Class 3 Modification to the Hazardous Waste Facility Permit for the Waste Isolation Pilot Plant, EPA ID. No. NM 4890139088 No. HWB 06-01 (M), Secretary's Final Order Approving Permit, October 16, 2006.

Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit	Yes	No
§270.13		Contents of Part A permit application	Attachment B, Part A	✓	
§270.14(b)(1)		General facility description	Attachment A	✓	
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment C	✓	
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment C	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment C	✓	
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Part 2.6	✓	
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment E	✓	
	§264.174	Container inspections	Attachment E	✓	
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment E	✓	
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		✓
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment D	✓	
	§264.51	Contingency plan design and implementation	Attachment D	✓	
	§264.52 (a) & (c-f)	Contingency plan content	Attachment D	✓	
	§264.53	Contingency plan copies	Attachment D	✓	
	§264.54	Contingency plan amendment	Attachment D	✓	
	§264.55	Emergency coordinator	Attachment D	✓	
	§264.56	Emergency procedures	Attachment D	✓	
§270.14(b)(8)		Description of procedures, structures or equipment for:	Part 2.10		✓
§270.14(b)(8) (i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Part 2.10		✓
§270.14(b)(8) (ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Part 2.10		✓
§270.14(b)(8) (iii)		Prevention of contamination of water supplies	Part 2.10		✓
§270.14(b)(8) (iv)		Mitigation of effects of equipment failure and power outages	Part 2.10		✓
§270.14(b)(8) (v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Part 2.10		✓
§270.14(b)(8) (vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Part Part 4 Attachment A2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Part 2.10		✓
	§264.31	Design and operation of facility	Part 2.10		✓
	§264.32	Required equipment	Part 2.10 Attachment D		✓
	§264.33	Testing and maintenance of equipment	Attachment E		✓
	§264.34	Access to communication/alarm system	Part 2.10		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit	Yes	No
	§264.35	Required aisle space	Part 2.10		✓
	§264.37	Arrangements with local authorities	Attachment D		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Part 2.10		✓
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment A4		✓
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b)(11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Part 2 Attachment F		✓
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment G & H	✓	
§270.14(b)(13)	§264.111	Closure performance standard	Attachment G		✓
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment G	✓	
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment G	✓	
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment G	✓	
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment G		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment G	✓	
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment G		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment G		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment G		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment H		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment H		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment G		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment G		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment G		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment H		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit	Yes	No
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment B Part A		✓
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment B Part A		✓
§270.14(b)(19)(iii)		Surface waters	Attachment B Part A		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment B Part A		✓
§270.14(b)(19)(v)		Wind rose	Attachment B Part A		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment B Part A		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment B Part A		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Attachment B Part A		✓
§270.14(b)(19)(xii)		Location of operational units	Attachment B Part A		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Attachment B Part A		✓
§270.15	§264 Subpart I	Containers	Attachment A1	✓	
	§264.171	Condition of containers	Attachment A1	✓	
	§264.172	Compatibility of waste with containers	Attachment A1		✓
	§264.173	Management of containers	Attachment A1		✓
	§264.174	Inspections	Attachment E Attachment A1		✓
§270.15(a)	§264.175	Containment systems	Attachment A1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Part 2		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Part 2		✓
	§264.178	Closure	Attachment G		✓
§270.15(e)	§264.179	Air emission standards	Part 4 Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment A2	✓	

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit	Yes	No
§270.23(a)	§264.601	Detailed unit description	Attachment A2	✓	
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Part 5 Attachment L		✓
§270.23(c)	§264.601	Potential exposure pathways	Part 4 Attachment A2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	NA		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Part 2 Part 4 Part 5 Attachment A2 Attachment N	✓	
	§264.603	Post-closure care	Attachment H Attachment H1	✓	
	264 Subpart E	Manifest system, record keeping, and reporting	Part 2 Attachment C		✓

Appendix A
Table of Changes

Table of Changes

Affected Permit Section	Explanation of Change
Part 1, Section 1.5., <i>Definitions</i>	Added two new definitions for “TRU Mixed Waste Volume” and “Land Withdrawal Act TRU Waste Volume of Record.”
Part 3, Section 3.3.1.8., <i>Shielded Container</i>	Added “and an outermost container volume of 7.4 ft ³ (0.21 m ³)” after “Each shielded container contains a 30-gallon inner container with a gross internal volume of 4.0 ft ³ (0.11m ³).” Added “RH TRU mixed waste” before “volume limits.” Deleted “associated with RH TRU mixed waste.”
Part 4, Table 4.1.1, <i>Underground HWDUs</i>	Added “TRU Mixed” after “Final” in the last column heading. Added a superscript “3” in the last column. Replaced “7,500” ft ³ with “7,600” ft ³ and “214” m ³ with “215” m ³ in the RH TRU Waste Type for Panel 6 Deleted “volume of” in footnote 2. Added “volume” after “TRU mixed waste” in footnote 2. Replaced “The maximum repository capacity of ‘6.2 million cubic feet of transuranic waste’ is specified in the WIPP Land Withdrawal Act (Pub. L. 102-579, as amended)” with “This volume is calculated based on the outermost disposal container volumes.” Added new footnote 3 “Final TRU Mixed Waste Volume calculations are based on the outermost disposal container volumes, not the Land Withdrawal Act TRU Waste Volume of Record disposed. The volume listed here is reported pursuant to Permit Part 6, Section 6.10.1. The Land Withdrawal Act TRU Waste Volume of Record is tracked and reported, separately from the Permit, by the DOE relative to the WIPP Land Withdrawal Act total capacity limit of 6.2 million ft ³ (175,564 m ³) of TRU waste (Pub. L. 102-579, as amended).”
Part 6, Section 6.5.2., <i>Final Facility Closure</i>	Replaced “receiving the final volume of TRU mixed waste” with “the HWDUs have been filled.”
Part 6, Section 6.10.1., <i>Panel Closure</i>	Deleted “volume of.” Added “volume, calculated based on the outermost disposal container volumes,” after “TRU mixed waste.” Replaced “panel” with “Underground HWDU TRU mixed waste.”
Attachment A1, Section A1-1c(1), <i>Waste Handling Building Container Storage Unit (WHB Unit)</i>	Added “TRU mixed waste” between “maximum” and “volume.” Deleted “of waste” between “volume” and “in.” Deleted “volume of.” Added “volume” after “TRU mixed waste.”
Attachment A1, Section A1-1f(1), <i>Secondary Containment Requirements for the WHB Unit</i>	Deleted “volume of” in four places. Added “volume” after “TRU mixed waste” in four places.
Attachment A2, Section A2-2a(3), <i>Subsurface Structures</i>	Deleted “volume of CH.” Added “volume” after “TRU mixed waste.” Replaced “5,244,900 ft ³ (148,500 m ³) and the volume of RH TRU mixed waste shall not exceed 93,050 ft ³ (2,635 m ³)” with “the maximum capacities listed in Permit Part 4, Table 4.1.1 for each HWDU.” Added “TRU mixed” before “waste volumes.”
Attachment B, <i>Hazardous Waste Permit Application Part A</i>	Deleted “X04 175600.00 C 010” and replaced with “X04 18000.00 C 002”, “X04 18750.00 C 001”, “X04 19106.00 C 001”, “X04 19195.00 C

Affected Permit Section	Explanation of Change
	<p>001", "X04 19284.00 C 001", and "X04 19400.00 C 002" in Section 7 B.</p> <p>Replaced "120,000 cubic meters (m^3) of the 175,600 m^3" with "70 percent" in the first paragraph of continuation page.</p> <p>Deleted "WIPP" in the first paragraph of continuation page.</p> <p>Replaced "wastes" with "waste" in the first paragraph of continuation page.</p> <p>Added "anticipated for disposal in the WIPP repository" after "waste" in the first paragraph of continuation page.</p> <p>Moved "For purposes of this application, all TRU waste is managed as though it were mixed." to the beginning of the second paragraph of the continuation page.</p> <p>Replaced "total amount of waste received from off-site generators and any derived" with "emplaced TRU mixed" in the second paragraph of the continuation page.</p> <p>Added "volume" after "waste" in the second paragraph of the continuation page.</p> <p>Replaced "be limited to 175,600 m^3 of TRU waste of which up to 7,080 m^3 may be remote-handled (RH) TRU mixed waste" with "not exceed the design capacity specified in Section 7 B" in the second paragraph of the continuation page.</p> <p>Added "This volume is calculated based on the volumes of the outermost disposal containers and cannot exceed 151,135 m^3 for Panels 1 through 8. The Land Withdrawal Act (LWA) TRU waste volume of record is tracked and reported, separately from the Permit, by the DOE for the purposes of compliance with the WIPP LWA total capacity limit for TRU waste of 6.2 million ft³ (175,564 m^3). to the second paragraph of the continuation page.</p> <p>Replaced "capacity" with "capacities" in the third paragraph of the continuation page.</p> <p>Added "each of" after "for" in the third paragraph of the continuation page.</p> <p>Replaced "miscellaneous unit (composed of ten underground HWMUs in the geologic repository" with "eight underground HWMUs in the geologic repository (i.e., miscellaneous unit) are" in the third paragraph of the continuation page.</p> <p>Deleted ", is for the maximum amount of waste that may be received from off-site generators plus the maximum expected amount of derived wastes that may be generated at the WIPP facility" in the third paragraph of the continuation page.</p> <p>Added "TRU mixed waste" after "combined" in the third paragraph of the continuation page.</p> <p>Replaced the space with a hyphen between "ten" and "year" to read "ten-year" in the third paragraph of the continuation page.</p> <p>Added "a CH TRU mixed waste volume of" before and deleted "of CH TRU mixed waste" after "up to 148,500 m^3" in the third paragraph of the continuation page.</p> <p>Added "an RH TRU mixed waste volume" before and deleted "of RH TRU mixed waste" after "up to 2,635 m^3" in the third paragraph of the continuation page.</p> <p>Added "for a total of 151,135 m^3, as shown in Section 7 B" after "Panels 4 to 8" in the third paragraph of the continuation page.</p>
Attachment C, Section C-8, Reporting	Replaced "actual" with "TRU mixed waste."
Attachment G, Section G-1, Closure Plan	Replaced "waste disposal areas" with "permitted HWDUs."

Affected Permit Section	Explanation of Change
	Replaced “when the WIPP achieves its capacity of 6.2 million cubic feet (ft ³) (175,564 cubic meters (m ³)) of TRU waste” with “have achieved their maximum capacities as outlined in Permit Part 4, Table 4.1.1.”
<i>Attachment G, Section G-1c, Maximum Waste Inventory</i>	<p>Added “The maximum waste inventory (total maximum capacity) for the permitted HWDUs is established in Permit Part 4, Table 4.1.1.”</p> <p>Deleted “The WIPP will receive no more than 6.2 million ft³ (175,564 m³) of TRU mixed waste, which may include up to 250,000 ft³ (7,079 m³) of remote-handled (RH) TRU mixed waste.”</p> <p>Replaced “Waste” with “Transuranic mixed waste.”</p> <p>Deleted “The maximum volume of TRU mixed waste in a disposal panel is established in Permit Part 4, Table 4.1.1. For closure planning purposes, a maximum achievable volume of 685,100 ft³ (19,400 m³) of TRU mixed waste per panel is used. This equates to 662,150 ft³ (18,750 m³) of contact-handled (CH) TRU mixed waste and 22,950 ft³ (650 m³) of RH TRU mixed waste per panel.”</p>
<i>Attachment H, Section H-1a(2), Monitoring</i>	Added “TRU mixed waste” before and deleted “of waste” after “volume.”
<i>Attachment H1, Introduction</i>	Replaced “regulated capacity of the repository of 6,200,000 cubic feet (175,588 cubic meters) of TRU and TRU mixed waste has been reached, and as long as the Permittees comply with the requirements of the Permit” with “initiation of the final closure of the facility.”
<i>Attachment J, Table J-3, Underground Hazardous Waste Disposal Units</i>	Deleted “The maximum repository capacity of “6.2 million cubic feet of transuranic waste” is specified in the WIPP Land Withdrawal Act (Pub. L. 102-579, as amended)” in footnote 2.

**Appendix B
Proposed Revised Permit Text**

Proposed Revised Permit Text:

PART 1 - GENERAL PERMIT CONDITIONS

1.5. DEFINITIONS

Unless otherwise expressly provided herein, the terms used in this Permit shall have the meaning set forth in RCRA, HWA, and/or their implementing regulations.

1.5.21. TRU Mixed Waste Volume

“TRU Mixed Waste Volume” means the volume of the outermost disposal container of TRU mixed waste pursuant to waste volumes in this Permit (for purposes of this Permit, all TRU waste is managed as though it were mixed). This volume is tracked and reported by the Permittees relative to the authorized maximum capacities in Permit Part 4, Table 4.1.1.

1.5.22. Land Withdrawal Act TRU Waste Volume of Record

“Land Withdrawal Act TRU Waste Volume of Record” means the volume of TRU waste inside a disposal container. This volume of record is tracked and reported, separately from the Permit, by the DOE relative to the WIPP Land Withdrawal Act total capacity limit of 6.2 million ft³ (175,564 m³) (Pub. L. 102-579, as amended).

PART 3 - CONTAINER STORAGE

3.3. CONDITION OF CONTAINERS

3.3.1. Acceptable Storage Containers

3.3.1.8. Shielded Container*

Each shielded container contains a 30-gallon inner container with a gross internal volume of 4.0 ft³ (0.11m³) and an outermost container volume of 7.4 ft³ (0.21 m³). Shielded containers contain RH TRU mixed waste, but shielding will allow it to be managed and stored as CH TRU mixed waste. For the purpose of this Permit, shielded containers will be managed, stored, and disposed as CH TRU mixed waste, but will be counted towards the RH TRU mixed waste volume limits ~~associated with RH TRU mixed waste~~. Shielded containers may be overpacked into standard waste box or ten drum overpack.

* “Shielded Container” refers to the container depicted in Figure A1-37.

PART 4 - GEOLOGIC REPOSITORY DISPOSAL

Table 4.1.1 - Underground HWDUs

Description¹	Waste Type	Maximum Capacity²		Final <u>TRU</u> <u>Mixed</u> Waste Volume³
Panel 1	CH TRU	636,000 ft ³ (18,000 m ³)		370,800 ft ³ (10,500 m ³)
Panel 2	CH TRU	636,000 ft ³ (18,000 m ³)		635,600 ft ³ (17,998 m ³)
Panel 3	CH TRU	662,150 ft ³ (18,750 m ³)		603,600 ft ³ (17,092 m ³)
Panel 4	CH TRU	662,150 ft ³ (18,750 m ³)		503,500 ft ³ (14,258 m ³)
	RH TRU	12,570 ft ³ (356 m ³)		6,200 ft ³ (176 m ³)
Panel 5	CH TRU	662,150 ft ³ (18,750 m ³)		562,500 ft ³ (15,927 m ³)
	RH TRU	15,720 ft ³ (445 m ³)		8,300 ft ³ (235 m ³)
Panel 6	CH TRU	662,150 ft ³ (18,750 m ³)		510,900 ft ³ (14,468 m ³)
	RH TRU	18,860 ft ³ (534 m ³)		<u>7,600</u> 7,500 ft ³ <u>(215</u> 214 m ³)
Panel 7	CH TRU	662,150 ft ³ (18,750 m ³)		
	RH TRU	22,950 ft ³ (650 m ³)		
Panel 8	CH TRU	662,150 ft ³ (18,750 m ³)		
	RH TRU	22,950 ft ³ (650 m ³)		
Total	CH TRU	5,244,900 ft³ (148,500 m³)		
	RH TRU	93,050 ft³ (2,635 m³)		

¹ The area of each panel is approximately 124,150 ft² (11,533 m²).

² "Maximum Capacity" is the maximum volume of TRU mixed waste volume that may be emplaced in each panel. This volume is calculated based on the outermost disposal container volumes. The maximum repository capacity of "6.2 million cubic feet of transuranic waste" is specified in the WIPP Land Withdrawal Act (Pub. L. 102-579, as amended).

³ Final TRU Mixed Waste Volume calculations are based on the outermost disposal container volumes, not the Land Withdrawal Act TRU Waste Volume of Record disposed. The volume listed here is reported pursuant to Permit Part 6, Section 6.10.1. The Land Withdrawal Act TRU Waste Volume of Record is tracked and reported, separately from the Permit, by the DOE relative to the WIPP Land Withdrawal Act total capacity limit of 6.2 million ft³ (175,564 m³) of TRU waste (Pub. L. 102-579, as amended).

PART 6 – CLOSURE REQUIREMENTS

6.5. TIME ALLOWED FOR CLOSURE

6.5.2. Final Facility Closure

After ~~the HWDUs have been filled~~ receiving the final volume of TRU mixed waste, the Permittees shall remove from the facility all non-mixed hazardous waste, dispose in the Underground HWDUs all TRU-mixed hazardous waste and derived waste, and complete closure activities as specified in Permit Attachment G and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.113).

6.10. CLOSURE OF PERMITTED DISPOSAL UNITS

6.10.1. Panel Closure

Upon completion of disposal in an Underground HWDU, the Permittees shall provide written notification to the Secretary stating the final ~~volume of TRU mixed waste~~ ~~volume, calculated based on the outermost disposal container volumes,~~ emplaced in the Underground HWDU. The Permittees shall also close the Underground HWDU as specified in Permit Attachment G and Permit Attachment G1 (Detailed Design Report for an Operation Phase Panel Closure System). The Permittees shall post a link to the final ~~panel~~Underground HWDU TRU mixed waste volume notice transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

ATTACHMENT A1

CONTAINER STORAGE

A1-1 Container Storage

A1-1c Description of the Container Storage Units

A1-1c(1) Waste Handling Building Container Storage Unit (WHB Unit)

CH TRU Mixed Waste

- TRUPACT-II and HalfPACT Management

In addition, four Contact-Handled Packages, containing up to eight 7-packs, 3-packs, 4-packs, SWBs, or four TDOPs, may occupy positions at the TRUDOCKs. If waste containers are left in this area, they will be in the Contact-Handled Package with or without the shipping container lids removed. The maximum TRU mixed waste volume of waste-in containers in four Contact-Handled Packages is 640 ft³ (18.1 m³).

The Derived Waste Storage Area of the WHB Unit is on the north wall of the CH Bay. This area will contain containers up to the volume of a SWB for collecting derived waste from all TRU mixed waste handling processes in the WHB Unit. The Derived Waste Storage Area is being permitted to allow containers in size up to a SWB to be used to accumulate derived waste. The volume of TRU mixed waste stored in this area will be up to 66.3 ft³ (1.88 m³). The derived waste containers in the Derived Waste Storage Area will be stored on standard drum pallets, which are polyethylene trays with a grated deck, which will elevate the derived waste containers approximately 6 in. (15 cm) from the floor surface, and provide approximately 50 gal (190 L) of secondary containment capacity.

A1-1f Containment

A1-1f(1) Secondary Containment Requirements for the WHB Unit

The maximum volume of TRU mixed waste stored on facility pallets that will be stored in the CH Bay Storage and Surge Storage Areas of the WHB is 18 facility pallets @ 2 TDOPs per pallet = 36 TDOPs of waste. 36 TDOPs @ 1,200 gal (4,540 L) per TDOP = 43,200 gal (163,440L) waste container capacity. 43,200 gal (163,440 L) x ten percent of the total volume = 4,320 gal (16,344 L) of waste. Since 4,320 gal (16,344 L) is greater than 1,200 gal (4,540 L), the configuration of possible TDOPs in the storage area is used for the calculation of secondary containment requirements. 4,320 gal (16,344 L) of liquid x one percent liquids = 43.2 gal (163.4 L) of liquid for which secondary containment is needed.

| The maximum ~~volume~~ of TRU mixed waste volume that will be stored in the Derived Waste Storage Area of the WHB Unit is one SWB. 1 SWBs @ 496 gal (1,878 L) per SWB = 496 gal (1,878 L) waste container capacity. Since the maximum storage volume of 496 gal (1,878 L) is equal to the volume of the largest single container, the volume of the a single SWB is used for the calculation of secondary containment requirements. 496 gal (1,878 L) of liquid x one percent liquids = 4.96 gal (18.8 L) of liquid for which secondary containment is needed.

| The maximum ~~volume~~ of TRU mixed waste volume that will be stored in the Hot Cell is 13 RH TRU drums @ 55 gal (210 L) per drum = 715 (2,730 L) of waste in drums. 715 gal (2,730 L) of waste x ten percent of total volume = 71.5 gal (273 L) of waste. Secondary containment for liquids will need to have a capacity of 71.5 gal (273 L). Since 71.5 gal (273 L) is less than the volume of the single container of 235 gal (890 L) therefore, the larger volume is used for determining the secondary containment requirements. 235 gal (890 L) of waste x one percent liquids = 2.35 gal (8.9 L) of liquid needed for secondary containment.

| The maximum ~~volume~~ of TRU mixed waste volume that will be stored in the Transfer Cell is one RH-TRU 72-B Canister or one Facility Canister @ 235 gal (890 L) per canister x ten percent of total volume = 23.5 gal (8.90 L) of waste. Since 23.5 gal (8.90 L) is less than the volume of the single container of 235 gal (890 L) therefore, the larger volume is used for determining the secondary containment requirements. 235 gal (890 L) of waste x one percent liquids = 2.35 gal (8.9 L) of liquid needed for secondary containment.

ATTACHMENT A2

GEOLOGIC REPOSITORY

A2-2 Geologic Repository Design and Process Description

A2-2a Geologic Repository Design and Construction

A2-2a(3) Subsurface Structures

Underground Hazardous Waste Disposal Units (HWDUs)

During the terms of this and the preceding Permit, the volume of CH-TRU mixed waste volume emplaced in the repository will not exceed 5,244,900 ft³ (148,500 m³) and the volume of RH TRU mixed waste shall not exceed 93,050 ft³ (2,635 m³)the maximum capacities listed in Permit Part 4, Table 4.1.1 for each HWDU. CH TRU mixed waste will be disposed of in Underground HWDUs identified as Panels 1 through 8. RH TRU mixed waste may be disposed of in Panels 4 through 8.

As currently planned, future Permits may allow disposal of TRU mixed waste containers in two additional panels, identified as Panels 9 and 10. Disposal of TRU mixed waste in Panels 9 and 10 is prohibited under this Permit. If TRU mixed waste volumes disposed of in the eight panels fail to reach the stated design capacity, the Permittees may request a Permit to allow disposal of TRU mixed waste in the four main entries and crosscuts adjacent to the waste panels (referred to as the disposal area access drifts). These areas are labeled Panels 9 and 10 in Figure A2-1. A permit modification or future permit would be submitted describing the condition of those drifts and the controls exercised for personnel safety and environmental protection while disposing of waste in these areas. These areas have the following nominal dimensions:

ATTACHMENT B

HAZARDOUS WASTE PERMIT APPLICATION PART A

EPA ID Number: N M 4 8 9 0 1 3 9 0 8 8

OMB#: 2050-0024; Expires 01/31/2017

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number	A. Process Code (From list above)		B. PROCESS DESIGN CAPACITY		C. Process Total Number of Units	For Official Use Only
			(1) Amount (Specify)	(2) Unit of Measure		
X 1	S 0	2	533.788	G	001	
1	X 0	4	175600.00	C	010	
2	S 0	1	194.1	C	001	
3	S 0	1	242.0	C	001	
4						
5						
6						
7						
8						
9						
1 0						
1 1						
1 2						
1 3						

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the line sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04, and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04, and X99 process codes)

EPA ID Number N M 4 8 9 0 1 3 9 0 8 8

OMB#: 2050-0024; Expires 01/31/2017

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below). A facility has a storage tank, which can hold 533.788 gallons.						
Line Number	A. Process Code (From list above)		B. PROCESS DESIGN CAPACITY		C. Process Total Number of Units	For Official Use Only
			(1) Amount (Specify)	(2) Unit of Measure		
X 1	S 0	2	533.788	G	001	
1	X 0	4	18000.00	C	002	
2	X 0	4	18750.00	C	001	
3	X 0	4	19106.00	C	001	
4	X 0	4	19195.00	C	001	
5	X 0	4	19284.00	C	001	
6	X 0	4	19400.00	C	002	
7	S 0	1	194.1	C	001	
8	S 0	1	242.0	C	001	
9						
1 0						
1 1						
1 2						
1 3						

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the line sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04, and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04, and X99 process codes)

Page 3 of 6

7. PROCESS—CODES AND DESIGN CAPACITIES (continued)

The Waste Isolation Pilot Plant (WIPP) geologic repository is defined as a “miscellaneous unit” under 40 CFR §260.10. “Miscellaneous unit” means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, waste pile, land treatment unit, landfill, incinerator, containment building, boiler, industrial furnace, or underground injection well with appropriate technical standards under 40 CFR Part 146, corrective action management unit, or unit eligible for research, development, and demonstration permit under 40 CFR §270.65. The WIPP is a geologic repository designed for the disposal of defense-generated transuranic (TRU) waste. Some of the TRU wastes disposed of at the WIPP contain hazardous wastes as co-contaminants. More than half the waste to be disposed of at the WIPP also meets the definition of debris waste. The debris categories include manufactured goods, biological materials, and naturally occurring geological materials. Approximately 120,000 cubic meters (m^3) of the 175,600 m^3 70 percent of WIPP wastes anticipated for disposal in the WIPP repository is categorized as debris waste. The geologic repository has been divided into ten discrete hazardous waste management units (HWMU) which are being permitted under 40 CFR Part 264, Subpart X.

For purposes of this application, all TRU waste is managed as though it were mixed. During the Disposal Phase of the facility, which is expected to last 25 years, the total amount of waste received from off-site generators and any derived emplaced TRU mixed waste volume will be limited to 175,600 m^3 of TRU waste of which up to 7,080 m^3 may be remote-handled (RH) TRU mixed waste not exceed the design capacity specified in Section 7 B. For purposes of this application, all TRU waste is managed as though it were mixed. This volume is calculated based on the volumes of the outermost disposal containers and cannot exceed 151,135 m^3 for Panels 1 through 8. The Land Withdrawal Act (LWA) TRU waste volume of record is tracked and reported, separately from the Permit, by the DOE for the purposes of compliance with the WIPP LWA total capacity limit for TRU waste of 6.2 million ft³ (175,564 m^3).

The process design capacities for each of the miscellaneous unit (composed of ten underground HWMUs in the geologic repository) eight underground HWMUs in the geologic repository (i.e., miscellaneous unit) are shown in Section 7 B, is for the maximum amount of waste that may be received from off-site generators plus the maximum expected amount of derived wastes that may be generated at the WIPP facility. In addition, two HWMUs have been designated as container storage units (S01) in Section 7 B. One is inside the Waste Handling Building (WHB) and consists of the contact-handled (CH) bay, waste shaft conveyance loading room, waste shaft conveyance entry room, RH bay, cask unloading room, hot cell, transfer cell, and facility cask loading room. This HWMU will be used for waste receipt, handling, and storage (including storage of derived waste) prior to emplacement in the underground geologic repository. No treatment or disposal will occur in this S01 HWMU. The capacity of this S01 unit for storage is 194.1 m^3 , based on 36 ten-drum overpacks on 18 facility pallets, four CH Packages at the TRUOCKs, one standard waste box of derived waste, two loaded casks and one 55-gallon drum of derived waste in the RH Bay, one loaded cask in the Cask Unloading Room, 13 55-gallon drums in the Hot Cell, one canister in the Transfer Cell and one canister in the Facility Cask Unloading Room. The second S01 HWMU is the parking area outside the WHB where the Contact- and Remote-Handled Package trailers and the road cask trailers will be parked awaiting waste handling operations. The capacity of this unit is 50 Contact-Handled Packages and twelve Remote-Handled Packages with a combined TRU mixed waste volume of 242 m^3 . The HWMUs are shown in Figures B3-2, B3-3, and B3-4.

During the ten-year period of the permit, a CH TRU mixed waste volume of up to 148,500 m³ of CH TRU mixed waste could be emplaced in Panels 1 to 8 and an RH TRU mixed waste volume up to 2,635 m³ of RH TRU mixed waste could be emplaced in Panels 4 to 8 for a total of 151,135 m³, as shown in Section 7 B. Panels 9 and 10 will be constructed under the initial term of this permit. These latter areas will not receive waste for disposal under this permit.

ATTACHMENT C

WASTE ANALYSIS PLAN

C-8 Reporting

The Permittees will provide a biennial report in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.75) to NMED that includes information on actual TRU mixed waste volume and waste descriptions received for disposal during the time period covered by the report.

ATTACHMENT G

CLOSURE PLAN

G-1 Closure Plan

For the purposes of this Closure Plan, final facility closure is defined as closure that will occur when all waste disposal areas permitted HWDUs are filled or when the WIPP achieves its capacity of 6.2 million cubic feet (ft^3) (175,564 cubic meters (m^3)) of TRU waste have achieved their maximum capacities as outlined in Permit Part 4, Table 4.1.1. At final facility closure, the surface container storage areas will be closed, and equipment that can be decontaminated and used at other facilities will be cleaned and sent off site. Equipment that cannot be decontaminated plus any derived waste resulting from decontamination will be placed in the last open underground HWDU. Stockpiled salt may be placed in the underground; it may be used as the core material for the berm component of the permanent marker system; or it must be otherwise disposed of in accordance with Sections 2 and 3 of the Minerals Act of 1947 (30 U.S.C. §§602 and 603). In addition, shafts and boreholes which lie within the WIPP Site Boundary and penetrate the Salado will be plugged and sealed, and surface and subsurface facilities and equipment will be decontaminated and removed. Final facility closure will be completed to demonstrate compliance with the Closure Performance Standards contained in 20.4.1.500 NMAC (incorporating 40 CFR §264.111, 178, and 601).

G-1c Maximum Waste Inventory

The maximum waste inventory (total maximum capacity) for the permitted HWDUs is established in Permit Part 4, Table 4.1.1. The WIPP will receive no more than 6.2 million ft^3 (175,564 m^3) of TRU mixed waste, which may include up to 250,000 ft^3 (7,079 m^3) of remote-handled (RH) TRU mixed waste. Excavations are mined as permitted when needed during operations to maintain a reserve of disposal areas. The amount of waste placed in each room is limited by structural and physical considerations of equipment and design. Transuranic mixed waste Waste volumes include waste received from off-site generator locations as well as derived waste from disposal and decontamination operations. The maximum volume of TRU mixed waste in a disposal panel is established in Permit Part 4, Table 4.1.1. For closure planning purposes, a maximum achievable volume of 685,100 ft^3 (19,400 m^3) of TRU mixed waste per panel is used. This equates to 662,150 ft^3 (18,750 m^3) of contact-handled (CH) TRU mixed waste and 22,950 ft^3 (650 m^3) of RH TRU mixed waste per panel.

ATTACHMENT H

POST-CLOSURE PLAN

H-1a Post-Closure Plan after Final Facility Closure

H-1a(2) Monitoring

Post-closure groundwater monitoring will involve a continuation of the monitoring plan in Permit Attachment L as described in Permit Part 5. The sampling frequency may be changed to a frequency of every two years after final facility closure is complete by modification of the Permit as approved by the Secretary of the NMED in accordance with 20.4.1.901.B NMAC (incorporating 40 CFR §270.42). In addition, the final target analyte list specified in Permit Attachment L may be changed by permit modification based on final TRU mixed waste volume of waste.

ATTACHMENT H1

ACTIVE INSTITUTIONAL CONTROLS DURING POST-CLOSURE

Introduction

Upon receipt of the necessary certifications and permits from the EPA and the New Mexico Environment Department, the Permittees will begin disposal of contact-handled (**CH**) and remote-handled (**RH**) TRU and TRU mixed waste in the WIPP. This waste emplacement and disposal phase will continue until the initiation of final closure of the facility regulated capacity of the repository of 6,200,000 cubic feet (175,588 cubic meters) of TRU and TRU mixed waste has been reached, and as long as the Permittees comply with the requirements of the Permit. For the purposes of this Permit Attachment, this time period is assumed to be 25 years. The waste will be shipped from DOE facilities across the country in specially designed transportation containers certified by the Nuclear Regulatory Commission. The transportation routes from these facilities to the WIPP have been predetermined. The CH TRU mixed waste will be packaged in 55-gallon (208-liter), 85-gallon (322-liter), 100-gallon (379-liter) steel drums, standard waste boxes (**SWBs**), ten drum overpacks (**TDOPs**), and/or standard large box 2s (**SLB2s**). An SWB is a steel container having a free volume of 66.3 cubic feet (1.88 cubic meters). Figure H1-2 shows the general arrangement of a seven-pack of drums and an SWB as received in a Contact-Handled Package. RH TRU mixed waste inside a Remote-Handled Package is contained in one or more of the allowable containers described in Permit Attachment A1. Some RH TRU mixed waste may arrive in shielded containers as described in Permit Attachment A1.

ATTACHMENT J

HAZARDOUS WASTE MANAGEMENT UNIT TABLES

Table J-3
Underground Hazardous Waste Disposal Units

Description ¹	Waste Type	Maximum Capacity ²	Container Equivalent
Panel 1	CH TRU	636,000 ft ³ (18,000 m ³)	86,500 55-Gallon Drums
Panel 2	CH TRU	636,000 ft ³ (18,000 m ³)	86,500 55-Gallon Drums
Panel 3	CH TRU	662,150 ft ³ (18,750 m ³)	90,150 55-Gallon Drums
Panel 4	CH TRU	662,150 ft ³ (18,750 m ³)	90,150 55-Gallon Drums
	RH TRU	12,570 ft ³ (356 m ³)	400 RH TRU Canisters
Panel 5	CH TRU	662,150 ft ³ (18,750 m ³)	90,150 55-Gallon Drums
	RH TRU	15,720 ft ³ (445 m ³)	500 RH TRU Canisters
Panel 6	CH TRU	662,150 ft ³ (18,750 m ³)	90,150 55-Gallon Drums
	RH TRU	18,860 ft ³ (534 m ³)	600 RH TRU Canisters
Panel 7	CH TRU	662,150 ft ³ (18,750 m ³)	90,150 55-Gallon Drums
	RH TRU	22,950 ft ³ (650 m ³)	730 RH TRU Canisters
Panel 8	CH TRU	662,150 ft ³ (18,750 m ³)	90,150 55-Gallon Drums
	RH TRU	22,950 ft ³ (650 m ³)	730 RH TRU Canisters
Total	CH TRU	5,244,900 ft³ (148,500 m³)	713,900 55-Gallon Drums
	RH TRU	93,050 ft³ (2,635 m³)	2960 RH TRU Canisters

¹ The area of each panel is approximately 124,150 ft² (11,533 m²).

² "Maximum Capacity" is the maximum volume of TRU mixed waste that may be emplaced in each panel. The maximum repository capacity of "6.2 million cubic feet of transuranic waste" is specified in the WIPP Land Withdrawal Act (Pub. L. 102-579, as amended).

**Appendix C
Supplemental Information**





