Department of Energy
National Nuclear Security Administration
Sandia Field Office
P.O. Box 5400
Albuquerque, NM 87185

National Nuclear Security Administration

JUN 18 2020

Mr. Cornelius Amindyas
FFCO Project Manager
Hazardous Waste Bureau
New Mexico Environment Department
121 Tijeras Ave. NE
Albuquerque, New Mexico 87102

Subject: Proposed Revision 16 to the Mixed Waste Site Treatment Plan (STP) Compliance Plan Volume (CPV) for Sandia National Laboratories/New Mexico (SNL/NM)

Dear Mr. Amindyas:

The Department of Energy, National Nuclear Security Administration (DOE/NNSA) and National Technology and Engineering Solutions of Sandia, LLC (NTESS) hereby submit the subject revision. A revision is necessary upon modification of a compliance date by more than 90 days (Section X.B.2 of the Federal Facility Compliance Order [FFCO]). The enclosed revision would establish new compliance dates for all treatment technologies and treatability groups (TGs). Viable mixed waste treatment and disposal options are available for most mixed wastes, and routine mixed wastes can usually be treated within one year. Establishing new compliance dates for all TGs would provide continuity of the STP CPV requirements and ensure that valid compliance dates are in place for future wastes that cannot be treated within one year.

The only wastes subject to the FFCO currently at SNL/NM are Mixed Transuranic (MTRU) wastes destined for disposal at the Waste Isolation Pilot Plan (WIPP). WIPP is accepting MTRU wastes on a limited basis and will not resume full operation for some time. Some of the SNL/NM MTRU wastes are expected to be shipped to WIPP during 2020; however, the remaining SNL/NM MTRU wastes will remain subject to the FFCO during a potentially lengthy storage period. Proposed Revision 16 also updates the volume of MTRU waste to include anticipated future wastes per FFCO Section X.B.4.

The requested changes to the STP compliance dates and waste volumes will not reduce the capacity of DOE/NNSA and NTESS to protect human health and the environment. Additionally, the requested changes will:

1. Have a negligible impact on the total quantity of mixed waste stored, treated, or disposed.
2. Allow DOE/NNSA and NTESS to realize significant positive impacts on both the overall cost and the operational effectiveness of mixed waste treatment and disposal.
3. Ensure continuity of the STP CPV requirements, including the process for reporting mixed waste volumes to NMED.

The proposed revision is detailed in three enclosures per FFCO Section X.C. The proposed changes are in a redline/strikeout format and a clean copy. In addition, an electronic copy of the proposed CPV text in redline/strikeout and clean formats will be transmitted at the same time this revision is submitted. The appropriate certification is also enclosed with this letter.

If you have questions, please contact David Rast at (505) 845-5349.

Sincerely,

David M. Rast
STP Project Manager
DOE/NNSA Sandia Field Office

Leroy G. Duran
STP Project Manager
National Technology and Engineering
Solutions of Sandia, LLC

3 Enclosures

cc w/enclosure:
David Cobrain
NMED/HWB
2905 Rodeo Park Dr. East, Bldg. 1, Santa Fe, NM 87505
Naomi Davidson
NMED/HWB
121 Tijeras Ave. NE, Albuquerque, NM 87102
Beau Masse
NMED/DOE OB
121 Tijeras Ave. NE, Albuquerque, NM 87102
Amy Blumberg, SNL/NM
Leroy Duran SNL/NM
Brad Elkin, SNL/NM
Anita Reiser, SNL/NM
Stephanie Salinas, SNL/NM
Paula Schuh, SNL/NM
Howard Seeley, SNL/NM
Michael Spoerner, SNL/NM
Cynthia Wimberly, SFO/Legal
William Wechsler, SFO/ENG
Susan Lacy, SFO/ENG
David Rast, SFO/ENG
NNSA-2020-002516

Proposed Revision 16 to
Sandia National Laboratories
Mixed Waste Site Treatment Plan
Compliance Plan Volume

Sandia National Laboratories / New Mexico
EPA ID No. NM5890110518

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my 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 my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Johnathon Huff, Director
National Technology & Engineering Solutions of Sandia, LLC
Albuquerque, New Mexico
Operator

06/15/20
Date Signed

Jeffrey P. Harrell, Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Field Office
Owner

6/17/2020
Date Signed

ENCLOSURE A

Proposed Revision 16 to Sandia National Laboratories Mixed Waste Site Treatment Plan, Compliance Plan Volume

Discussion

Sandia National Laboratories/New Mexico

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ENCLOSURE A

Proposed Revision 16 to the Sandia National Laboratories Mixed Waste Site Treatment Plan (STP) Compliance Plan Volume (CPV), Sandia National Laboratories/New Mexico (SNL/NM)

The Department of Energy/National Nuclear Security Administration (DOE/NNSA) and National Technology & Engineering Solutions of Sandia, LLC (NTESS) are requesting revision to the waste volume and compliance schedules for covered waste that may become subject to the STP CPV for SNL/NM. The proposed revision request has been prepared for the New Mexico Environment Department (NMED) in accordance with the requirements of Section X.C *Revisions* of the Federal Facilities Compliance Order (FFCO), as revised and amended.

Proposed Revision 16 is comprised of the following two requests:

- Addition of new covered waste to the Mixed Transuranic (MTRU) treatability group (TG) in excess of one cubic meter or greater than 10% of the current waste volume (Proposed Revision 16.a, Enclosure A-1)

- Modification of specific compliance dates associated with TGs currently in the STP CPV (Proposed Revision 16.b, Enclosure A-2)

Table 1 in Enclosure A-3 presents a summary of the TGs and the associated volumes in this proposed revision.

The DOE/NNSA and NTESS have also made numerous administrative revisions and updates to the CPV to improve clarity and reflect current permits and on-site treatment technologies at SNL/NM. These are summarized in Enclosure A-4.

The proposed revision text for the CPV is provided as Enclosure B (redline/strikeout) and Enclosure C (clean copy). An electronic copy of Enclosure B and Enclosure C is also provided.

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ENCLOSURE A-1

Proposed Revision 16.a
Addition of New Covered Waste

The DOE/NNSA and NTESS request addition of new and newly discovered covered waste to the MTRU TG in accordance with Section X.B.5 of the FFCO as revised and amended. The following portions of this enclosure follow the requirements of Section VIII *Addition of New Covered Waste* and Section X *Revisions*, of the FFCO, as revised and amended.

Detailed description of the proposed revision (FFCO Section X.C.2.a)
The DOE/NNSA and NTESS request a Revision to the CPV for the addition of covered waste, in accordance with Section VIII.A, Amendment 3, of the FFCO. The proposed Revision requests that an additional volume of 1.0 cubic meter (m^3) of newly discovered covered waste be added to the MTRU TG inventory. In accordance with Section VIII.B of the FFCO, information required for covered waste addition is provided in Table 1.

Rationale for the proposed revision (FFCO Section X.C.2.b)
The Proposed Site Treatment Plan (March 30, 1995) presented the volumes of mixed waste in storage as of September 30, 1994, regardless of its time of generation or state of compliance with the Resource Conservation and Recovery Act (RCRA) 3004[j]. The subsequent additions of covered waste to the inventory were reported in the annual SNL/NM STP Updates. In accordance with Section X.B.5 of the FFCO (Amendment 3), a revision to the CPV is required to include the addition of covered waste to the reported CPV waste inventory if the increase is in excess of 1 cubic meter or 10% of the treatability group volume (X.B.4), whichever is greater.

A waste volume of 1.177 m^3 is requested for addition to the MTRU inventory. Some waste may be generated from maintenance activities (including replacement of air filter(s)) in the Auxiliary Hot Cell Facility. Process knowledge indicates that such waste is likely to be mixed waste due to the potential presence of metals and transuranic radionuclides in the filter. The remaining waste would result from collection of unneeded radioactive MTRU sources.

Upon approval of this Revision, the waste volume will be incorporated into the STP and will be subject to the existing CPV activity milestones approved in this Revision 16. The DOE and NTESS will store this waste pending the acceptance of MTRU waste at the Waste Isolation Pilot Project (WIPP). Deletion requests for the MTRU waste will be submitted to the NMED in accordance with the requirements of the STP and FFCO.

Additions of waste in volumes that do not meet the definition of a revision to the FFCO, per Section X.B.5; will continue to be reflected in the annual STP Update, in accordance with Section VIII.A.

Anticipated length of delay resulting from the proposed revision including affected compliance dates (FFCO Section X.C.2.c)
No delays are anticipated.

If delay occurs, implementation of new schedule (FFCO Section X.C.2.d)
No delays are anticipated.

Description of applicable waste code, waste form, volumes, technology and capacity needs (FFCO Section VIII.B)
The table below presents the information required by Section VIII of the FFCO for the addition of new covered waste.

Schedule for treatment (FFCO Section VIII.B)
All covered waste declared in the proposed Revision request will continue to follow the current treatment schedules in accordance with the CPV.

Addition of New Covered Waste

Treatability Group (TG)	Increase in Volume (m^3)	TG Title and Waste Form	Anticipated Waste Code	Technology and Capacity Needs	Schedules for Treatment
MTRU	1.177	Mixed TRU (MTRU) Waste	D006, D007, D008, D011	Per CPV	Per CPV

ENCLOSURE A-2

Proposed Revision 16.b
Revise Compliance Dates for
All Treatability Groups

The DOE/NNSA and NTESS request a change of more than 90 days to specific compliance dates for all TGs in accordance with Section X.B.2 of the FFCO as revised and amended. The following portions of this enclosure follow the requirements of FFCO Section X *Revisions*.

Detailed description of the proposed revision (FFCO Section X.C.2.a)
The purpose of proposed Revision 16.b is to request the modification of remaining compliance activities and dates for all treatment technologies and associated treatability groups (TGs). The following compliance schedules are requested.

Deactivation: The treatment technology of deactivation applies to TG 1 (Inorganic Debris with Explosive), TG 2 (Inorganic Debris with Water Reactive), and TG 3 (Reactive Metals). Deactivation is discussed in Section 3.2.1 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Deactivation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility, and	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Macroencapsulation: This treatment technology applies to TG 4 (Elemental Lead), TG 9 (Inorganic Debris with TCLP Metals), and TG 12 (Organic Debris with TCLP Metals). Macroencapsulation is discussed in Section 3.2.2 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Macroencapsulation Schedule

Activity	Compliance Date
A. Submit permit application, amendment, or modification to NMED	Completed
B. Complete recycling/treatment of mixed waste to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility, and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Neutralization followed-by Stabilization: This treatment technology applies to TG 5 (Aqueous Liquids) and is discussed in Section 3.2.3 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Neutralization followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Amalgamation: This treatment technology applies to TG 6 (Elemental Mercury) and is discussed in Section 3.2.4 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Amalgamation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Incineration: This treatment technology applies to TG 7 (Organic Liquids I) and TG 18 (Particulates and Soils with Organic Contaminants). Incineration is discussed in Section 3.2.5 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Incineration Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility.	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site facility	Within 45 working days of receipt of waste at treatment/recycling facility

Thermal Desorption: This treatment technology applies to TG 8 (Organic Debris) and is discussed in Section 3.2.6 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Thermal Desorption Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Deactivation followed by Stabilization: This treatment technology applies to TG 13 (Oxidizers) and TG 20 (Propellant with TCLP Metals). Deactivation followed by stabilization is discussed in Section 3.2.7 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Deactivation followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment to applicable regulatory standards, or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Evaporative Oxidation: This treatment technology applies to TG 14 (Aqueous Liquids with Organic Contaminants) and is discussed in Section 3.2.8 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Evaporative Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Stabilization: This treatment technology applies to TG 15 (Soils <50% Debris & Particulates with TCLP Metals) and TG 19 (Liquids with Metals). Stabilization discussed in Section 3.2.9 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Stabilization Schedule

Activity	Compliance Date
A. Initiate set-up of laboratory operation	Obtain new permit or modify or amend existing NMED permit if required
B. Complete systems testing and commence operation and begin treating mixed waste.	Completed
C. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
D. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Oxidation: This treatment technology applies to TG 16 (Cyanide Waste) and is discussed in Section 3.2.10 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Incineration followed by Stabilization: This treatment technology applies to TG 17 (Liquid/Solid with Organic and/or Metal Contaminants) and is discussed in Section 3.2.11 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Incineration followed by Stabilization Schedule

Activity	Compliance Date
A. Complete treatment to applicable regulatory standards or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Off-Site Shipment / On-Site Macroencapsulation: This treatment technology applies to TG 21 (Sealed Sources with TCLP Metals), TG 24 (Spark Gap Tubes with TCLP Metals), and TG 26 (Debris with Reactive Compounds and TCLP Metals). Off-site shipment / on-site macroencapsulation is discussed in Section 3.2.12 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Off-Site Shipment / Macroencapsulation Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete on-site macroencapsulation of waste, or	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Size Reduction followed by Stabilization/Deactivation followed by Macroencapsulation: This treatment technology applies to TG 23 (Thermal Batteries) and is discussed in Section 3.2.13 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Stabilization Schedule

Activity	Compliance Date
A. Render existing thermal batteries non-reactive	Completed
B. Provide progress report of current status and availability of treatment and/or disposal options	Completed
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Hydrothermal Processing: This treatment technology applies to TG 11(Organic Liquids II) and is discussed in Section 3.3.1 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Off-Site Shipment Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Stabilization of High Mercury Materials: This treatment technology applies to TG 27 (High Mercury Solids and Liquids) and is discussed in Section 3.3.2 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

High Mercury Solids and Liquids Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete recycling/treatment of wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Sorting of Heterogeneous Debris: This treatment technology applies to TG 10 (Heterogeneous Debris) and TG 25 (Classified Items with TCLP Metals). Sorting of heterogeneous debris is discussed in Section 3.4.1 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates for TG 10 are reflected in the following proposed schedule.

Heterogeneous Debris Schedule

Activity	Compliance Date
A. Complete sorting of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

The requested dates for TG 25 are reflected in the following proposed schedule.

Classified Items with TCLP Metals Schedule

Activity	Compliance Date
A. Complete sorting or on-site treatment of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

Mixed TRU (MTRU) Waste: The treatment and/or shipment of MTRU waste is discussed in Section 3.5 of the CPV. Approximately 2.323 m^3 of MTRU is currently in inventory. The requested dates are reflected in the following proposed schedule.

MTRU Schedule

Activity	Compliance Date
A. Development of treatment technology	Completed
B. Submit permit application amendment, or modification to NMED for treatment of MTRU waste	Completed
C. Complete preparation of existing MTRU wastes for on-site certification or shipment to an off-site certifying facility	Within three (3) years after a) the applicable state's approval of the certifying facility's revised RCRA permit allowing them to receive SNL/NM waste b) the certifying facility is certified by WIPP for heterogeneous and/or homogeneous MTRU waste, as applicable, and c) the certifying facility's waste acceptance criteria are met.
D. Complete shipping of existing MTRU waste to an off-site facility for certification and disposal at the WIPP facility or direct shipment of certified MTRU waste to WIPP	December 31, 2024
E. Provide documentation to NMED that MTRU waste was received at an off-site certifying facility or at WIPP	Within 45 working days of receipt of waste at certifying facility

Rationale for the proposed revision (FFCO Section X.C.2.b)

The DOE/NNSA and NTESS have developed on-site treatment technologies or identified off-site treatment and/or disposal facilities to address routine mixed waste utilizing the treatment technologies identified for these TGs. While the DOE/NNSA and NTESS fully intend to treat and/or dispose of all newly generated mixed waste within one year (precluding such waste from

becoming a covered waste subject to the STP) the DOE/NNSA and NTESS also believe that a long-term compliance date should be established for each treatment technology for the following purposes:

1) *Characterization and shipment of MTRU waste* – the DOE/NNSA and NTESS are currently working with WIPP to characterize and ship all existing covered MTRU waste off-site, either to WIPP (for waste that has been certified) or to a certifying facility, e.g., LANL or INL. However, the WIPP facility is accepting MTRU wastes on a limited basis and will not resume full operation for some time. The DOE and NTESS expect to transport some of the MTRU wastes at SNL/NM to the WIPP facility during 2020 after completion of a lengthy time-intensive process for characterization and off-site shipment of MTRU waste. Therefore, the DOE/NNSA and NTESS believe that the current compliance dates should be extended for existing and future MTRU covered waste. This extension would allow for definitive planning and effective management of the MTRU waste.
2) *Address waste discovered during sorting operations that would be immediately subject to the FFCO* - Typically, mixed waste that is identified during sorting activities is over one year old and is immediately subject to and protected by the FFCO. If such waste is discovered during these sorting activities, and such waste would be included in one of these TGs, then an assigned compliance date is needed to provide a process for the DOE/NNSA and NTESS to comply with the FFCO. The compliance date defines the TG, ensures that the DOE/NNSA and NTESS treat and/or dispose of the waste within a specific timeframe, and continues the current process for timely notification to the NMED.
3) *Support the effective management of newly generated or identified mixed wastes* - The establishment of a specific compliance milestone for each TG allows for more definitive planning and more effective waste management for both newly generated and newly discovered covered mixed waste. An example would be grouping small quantities of waste for specific treatment and disposal options into one larger quantity, thereby making more effective and efficient use of personnel and resources to characterize, treat, and/or dispose of such wastes.
4) *Maintain and ensure compliance with the STP* - The assignment of a compliance date serves the interest of the STP and the NMED by ensuring that the DOE/NNSA and NTESS treat or dispose of covered waste in a timely and compliant manner. An assigned compliance date for these TGs also allows the current documentation process to continue in accordance with the CPV.

The DOE/NNSA and NTESS are requesting that December 31, 2024 be established as a long-term compliance activity date, as reflected in the treatment technology schedules defined in the above section. By assigning this compliance date to all TGs now, the DOE and NTESS seek to avoid the submission of multiple revision requests to establish such dates in the near future.

The Mercury Export Ban Act (Public Law 110-414) amended the TSCA and restricts the movement of elemental mercury stating that "…no Federal agency shall convey, sell, or distribute to any other federal agency, any State of local government agency, or any private

individual or entity any elemental mercury under the control or jurisdiction of the Federal agency". The intent is to ship all eligible elemental mercury to a designated DOE facility for long term storage. Until a designated facility is identified and operational, the DOE/NNSA and NTESS will store any elemental mercury pending shipment. The Mercury Export Ban Act applies to TGs 6 and 11 and is discussed in Sections 3.2.4 and 3.3.2 of the CPV.

Anticipated length of delay resulting from the proposed revision including affected compliance dates
(X.C.2.c)
No delays are anticipated other than potential delays associated with WIPP waste acceptance and long-term storage of elemental mercury.

If delay occurs, implementation of new schedule (X.C.2.d)
New schedules have been specified for most treatment technologies and will be implemented upon approval of Revision 16. Otherwise, no delays are anticipated.

ENCLOSURE A-3

Table 1. Summary of Revision 16 Treatability Groups and Associated Volumes

Treatability Group (TG) Name		Proposed Revision 16 Volume
TG 1	Inorganic Debris with Explosive Component	0 m^3
TG 2	Inorganic Debris with a Water Reactive Component	0 m^3
TG 3	Reactive Metals	0 m^3
TG 4	Elemental Lead	0 m^3
TG 5	Aqueous Liquids (Corrosive)	0 m^3
TG 6	Elemental Mercury	0 m^3
TG 7	Organic Liquids I	0 m^3
TG 8	Organic Debris with Organic Contaminants	0 m^3
TG 9	Inorganic Debris with TCLP Metals	0 m^3
TG 10	Heterogeneous Debris	0 m^3
TG 11	Organic Liquids II	0 m^3
TG 12	Organic Debris with TCLP Metals	0 m^3
TG 13	Oxidizers	0 m^3
TG 14	Aqueous Liquids with Organic Contaminants	0 m^3
TG 15	Soils <50% Debris & Particulates with TCLP Metals	0 m^3
TG 16	Cyanide Waste	0 m^3
TG 17	Liquid/Solid with Organic and/or Metal Contaminants	0 m^3
TG 18	Soils <50% Debris & Particulates with Organic Contaminants	0 m^3
TG 19	Liquids with Metals	0 m^3
TG 20	Propellant with TCLP Metals	0 m^3
TG 21	Sealed Sources with TCLP Metals	0 m^3
TG 22	Reserved	Not Applicable
TG 23	Thermal Batteries	0 m^3
TG 24	Spark Gap Tubes with TCLP Metals	0 m^3
TG 25	Classified Items with TCLP Metals	0 m^3
TG 26	Debris Items with Reactive Compounds and TCLP Metals	0 m^3
TG 27	High Mercury Solids and Liquids	0 m^3
MTRU	Mixed Transuranic Waste	3.5 m^3

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ENCLOSURE A-4

Summary of Proposed Administrative Revisions and Updates

The DOE/NNSA and NTESS propose administrative revisions and updates to the CPV to improve clarity and reflect current permits and on-site treatment technologies at SNL/NM. These revisions, which are in addition to the revisions described in Enclosures A-1 and A-2, are summarized in Table 2 below.

Table 2. List of Proposed Administrative Revisions and Updates

CPV Section	Description of Revision	Rationale
Front Matter	Added front matter, including table of contents, list of tables, and list of acronyms and abbreviations.	Improve document clarity.
Section 1.1	Noted name change of Management and Operating contractor from Sandia Corporation to National Technology & Engineering Solutions of Sandia LLC (NTESS).	Update to reflect name change.
Section 1.1	Added a list of treatment technologies authorized under the Resource Conservation and Recovery Act Facility Operating Permit	Update to reflect current status.
Sections 1.1 and 1.2	Added references and explanatory text.	Clarify document.
Sections 1.3 and 1.4	Added new sections describing revisions to the CPV and the contents of proposed Revision 16.	Clarify purpose and contents of document.
Section 2.0	Renumbered subsections, made minor text revisions throughout.	Clarify document organization, update to reflect current status.
Section 3.0	Added an introduction, renumbered all subsections, reorganized and updated text in all subsections, and made minor text revisions throughout. These revisions do not include the proposed revision to MTRU waste volume (discussed in Enclosure A-1) or the proposed revisions to compliance dates (discussed in Enclosure A-2).	Clarify document organization, update to reflect current status.

Continued on next page

Table 2. List of Proposed Administrative Revisions and Updates (concluded)

CPV Section	Description of Revision	Rationale
Section 4.0	Incorporated an existing table into new Section 4.0, added an introduction.	Clarify document organization.
Section 5.0	Added new section listing documents referenced in the CPV revision.	Clarify document and update to reflect current status.

ENCLOSURE B

Proposed Revision 16 to Sandia National Laboratories
Mixed Waste Site Treatment Plan
Compliance Plan Volume

Revisions in Redline/Strikeout Format

Sandia National Laboratories/New Mexico

SITE TREATMENT PLAN FOR MIXED WASTE COMPLIANCE PLAN VOLUME REVISION 16~~15~~

SANDIA NATIONAL LABORATORIES, NEW MEXICO

MAY 2020~~2016~~

United States Department of Energy
National Nuclear Security Administration
Sandia Field Office

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ACRONYMS AND ABBREVIATIONS

BV	Background Volume
CFR	Code of Federal Regulations
CPV	Compliance Plan Volume
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFCA	Federal Facilities Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
LDR	land disposal restriction
m^3	cubic meters
MTRU	mixed transuranic
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NTESS	National Technology & Engineering Solutions of Sandia, LLC
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories, New Mexico
STP	Site Treatment Plan
TCLP	Toxicity Characteristic Leaching Procedure
TG	treatability group
TRU	transuranic
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	Unites States Code
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTIONPURPOSE AND SCOPE OF THE COMPLIANCE PLAN VOLUME

1.1 Background Introduction

On October 6, 1992, Congress passed the Federal Facilities Compliance Act (FFCA Act) (FFCA 1992) to address compliance by the United States Department of Energy (DOE) with the land disposal restrictions (LDR) for the storage of mixed waste set forth in Section 3004(j) of the Resource Conservation and Recovery Act (RCRA) (RCRA 1976). The FFCA Act required the DOE to submit a Site Treatment Plan (STP) each facility, for developing treatment capacities and technologies to treat all of the facility's mixed waste, regardless of the time generated, to the standards promulgated pursuant to Section 3004 (m) of RCRA. The FFCA Act provided that the appropriate regulatory authority, the New Mexico Environment Department (NMED), may approve, approve with modifications or disapprove the STP. Prior to making such a determination, NMED is required by the FFCA Act to provide public notice, consider public comments, and consult with the Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On March 31, 1995, DOE submitted its proposed STP to NMED for mixed waste at Sandia National Laboratories (SNL/NM). On April 17, 1995, the public was given notice of and an opportunity to comment to NMED on the draft STP submitted by DOE. After considering public comment and otherwise complying with the FFCA Act, the NMED determined to approve the draft STP with modifications as provided in this document. The STP was fully implemented by a Federal Facility Compliance Order (FFCO) issued by NMED on October 4, 1995 (NMED 1995). Wastes that are subject to the FFCO and STP are defined in Section V.A *Covered Waste* of the FFCO.

On January 27, 2015, the NMED issued the Resource Conservation and Recovery Act Facility Operating Permit (Permit) to DOE/NNSA and its Management and Operating contractor (NMED 2015). The Permit will remain in effect until February 26, 2025.

Several on-site hazardous and mixed waste management activities are authorized under the Permit. The following authorized technologies are applicable to covered wastes.

- Storage
- Treatment by chemical deactivation (e.g., neutralization, detonation)
- Treatment by thermal deactivation
- Treatment by stabilization and solidification
- Treatment of elemental mercury by amalgamation
- Treatment by macroencapsulation
- Physical treatment (e.g., separation, size reduction)

1.2 Purpose and Scope of the Site Treatment Plan ~~Contents~~

The STP is intended to fulfill the requirements of the FFCA ~~Act~~ and establishes an enforceable framework to allow the DOE/National Nuclear Security Administration (NNSA) and its Management and Operating contractor, Sandia Corporation (~~Sandia)~~now named National Technology & Engineering Solutions of Sandia, LLC [NTESS]) (Rast 2017), collectively termed Respondents, to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth herein are enforceable time periods in which Respondents will be required to develop treatment capacities and technologies; and treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA. ~~Wastes that are subject to the FFCO and STP are defined in Section V.A *Covered Waste* of the FFCO.~~

The STP includes an inventory of mixed wastes subject to the FFCO and STP at SNL/NM. The wastes are assigned to treatability groups (TGs) based on physical and chemical characteristics and applicable treatment technologies.

The STP contains two volumes. ~~and is intended to bring Respondents into compliance with LDR storage prohibitions under the HWA and RCRA.~~

- The Compliance Plan Volume (CPV) of the STP provides overall schedules originally developed in 1995, including ~~compliance~~ dates for achieving compliance with LDR storage and treatment requirements for covered mixed waste at SNL/NM. The CPV includes ~~a~~ schedules for the submittal of applications for permits, construction of treatment facilities, technology development, off-site transportation for treatment, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulation at 20 NMAC 4.1, which incorporates by reference 40 CFR Parts 260 through 270. Many of the activities in the CPV have been completed, as reflected in the updated schedules shown in this revision.

- The Background Volume of the STP contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CPV of the STP, in accordance with the schedules and requirements set forth in the STP and the FFCO. The progress reports are included in annual updates to the STP that are submitted to the NMED by March 31 each year.

1.3 Revisions to the Site Treatment Plan

A revision is an amendment to the CPV that is either required by NMED or proposed by the Respondents and approved by NMED. The specific criteria and process for revisions are detailed in Section X *Revisions* of the FFCO.

The CPV has been revised 15 times. Revision 15, approved by the NMED October 16, 2016 (Kieling 2016), established compliance dates, treatment technologies, and volumes for covered waste in all TGs.

1.4 Contents

Section 2.0 of this revision to the CPV describes the categories of activities needed to develop and implement treatment technologies for the mixed waste at SNL/NM that is subject to the FFCO and STP.

Section 3.0 of this revision to the CPV describes the individual treatment technologies and identifies the TGs for which the technologies are applicable. Compliance schedules and deadlines are listed for each treatment technology.

Section 4.0 provides a summary of the mixed waste inventory from the most recent progress report and projected changes to the inventory over the period of this revision.

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2.0 COMPLIANCE SCHEDULE

The STP CPV provides overall schedules for achieving compliance with LDR requirements for mixed waste at SNL/NM. The schedules include those activities required to bring existing waste treatment technologies into operation, process backlogged and currently generated waste, and overall time frames for achieving compliance with the LDR requirements under the HWA and 20 NMAC 4.1.

2.1 Categories of Activities for Compliance Dates

The categories of activities for which compliance dates arewill be provided for different types of treatment approaches in the STP are listed in the Tables 2-1 through 2-6 below. The categories of activities are based on Ssection 3021(b)(1)(B)(I), (ii) and (iii) of RCRA, to the extent appropriate.

2.2 2.1.1Plans Where Treatment Technology Exists

For most of the mixed waste at SNL/NM, treatment technologies have been identified and developed. For the waste that will be treated on-site, the categories of compliance dates identified in Table 2-1, "Schedule For Mixed Waste With Existing Treatment Technologies," shall apply. Compliance dates for the activities identified in Table 2-1 may be found in Section 3.21.

Table 2-1 Categories of Activities for Compliance Dates for Mixed Waste with Existing Treatment Technologies

A. Submit permit applications to NMED.
B. Initiate construction as specified in the NMED permit.
C. Complete systems testing and commence operation.
D. Begin treating mixed waste.
E. Complete treatment of existing wastes to applicable regulatory standards.

2.3 2.1.2Plans Where Treatment Technology Must Be Developed

For some mixed waste, no treatment technologies have been identified and developed, or treatment technology must be modified or adapted to be made applicable for mixed

waste. For this waste which will be treated on-site, the categories of compliance dates identified in Table 2-2, "Schedule for Mixed Waste Without Existing Treatment Technologies," shall apply. Compliance dates for the activities identified in Table 2-2 may be found in Section 3.32.

Table 2-2 Categories of Activities for Compliance Dates for Mixed Waste without Existing Treatment Technologies

A. Identify and develop technology.
B. Submit permit application to NMED; or
C. Submit a Notification of Intent to perform treatability study to the NMED a minimum of 45 days prior to commencement of the study.
D. Initiate construction as specified in the NMED permit.
E. Commence systems testing.
F. Begin treating mixed wastes.
G. Complete treatment of existing wastes to applicable regulatory standards.

2.4 2.1.3Requirements Pertaining to Radionuclide Separation

The FFCA Act sets additional requirements in cases where the DOE/NNSA intends to conduct radionuclide separation of mixed waste. Should the DOE/NNSA determine to conduct radionuclide separation of such mixed waste, the DOE/NNSA will scheduled specific compliance dates based on category activities identified in Table 2-3, Schedule for Radionuclide Separation of Mixed Waste. "Radionuclide separation" shall means the segregation of the radioactive portion of the mixed waste from the hazardous portion of the mixed waste. Compliance activities identified in Table 2-3 have been completed and therefore compliance dates are no longer applicable.

Table 2-3 Categories of Activities for Radionuclide Separation of Mixed Waste

A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.
D. Provide the assumptions underlying such waste volume and cost estimates.
E. Provide characterization methodologies for determining waste types.
F. Submit a plan for treatment or management of hazardous waste residues accompanied by NMED permit application.

2.5 2.1.4Plans for Mixed Waste to be Shipped Off-site for Treatment

In lieu of plans to treat mixed waste on-site, DOE/NNSA may send waste to an off-site facility for treatment at either a commercial or non-commercial mixed waste treatment facility. Any and all requirements imposed by the off-site facility and state regulatory, federal regulatory or other regulatory requirements applicable to Respondents at the treatment site shall be met by the Respondents.

2.5.1 2.1.4.1Requirements for Commercial Treatment Facilities

Should DOE/NNSA decide to send waste to a commercial off-site facility for treatment, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a commercial facility are identified in Table 2-4.

Table 2-4 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Commercial Facility

A. Meet all regulatory requirements for off-site shipment.
B. Provide documentation to NMED that each waste shipment has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.

2.5.2 2.1.4.2Requirements for Non-commercial Treatment Facilities

DOE/NNSA shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a non-commercial facility. Notification should be made if possible when DOE/NNSA is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. Documentation shall be provided to NMED of confirmation of shipment date within fourteen (14) working days prior to sending waste to an off-site facility for treatment, disposal or storage pending treatment or disposal. The NMED Project Manager shall approve in writing the off-site non-commercial treatment option proposed by DOE/NNSA for each TGtreatability group prior to any shipment by DOE/NNSA. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a non-commercial facility are identified in Table 2-5.

Prior to shipment, the non-commercial treatment facility and their appropriate regulatory agency shall be notified of any pending waste shipments should DOE/NNSA ship mixed waste. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes. Management of post-treatment waste residuals or newly generated waste streams considered hazardous will be in accordance with all applicable local, state, and federal requirements. The Permit RCRA permit for SNL/NM must provides for the return of wastes and/or residuals to SNL/NM for 90 daysprior to any such return of wastes and/or residuals to SNL/NM. If a permit modification is required to address other anticipated issues, such modification must be approved by NMED prior to shipment of covered wastes to the off-site facility. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible, and in any event within thirty (30) working days after receipt of shipment of treatment residuals or newly generated waste streams.

Table 2-5 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Non-commercial Facility

A. Request necessary approval from NMED for shipment of mixed waste by treatment group before shipping.
B. Meet all regulatory requirements for off-site shipment.
C. Provide documentation to NMED of confirmation of shipment date within 14 working days prior to sending mixed waste to an off-site facility for treatment, disposal or storage pending treatment or disposal.
D. Provide documentation to NMED that mixed waste has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.
E. Meet all regulatory requirements to include RCRA Permit modifications for receipt of residual or newly generated mixed waste streams after treatment that meet the definition of a hazardous waste.
F. Provide documentation to NMED within 30 working days after receipt of residual or newly generated waste streams upon return to SNL/NM.

2.6 2.1.5Plans for Recycling

Recycling is a parallel preferred option for each preferred treatment technology. Should the DOE/NNSA decide to recycle covered waste, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of the waste at the recycling facility or by the recycler. Activities for mixed waste recycling are identified in Table 2-6. Once a covered waste volume has

been recycled or re-used, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

Table 2-6 Activities for Mixed Waste Recycling

A. Meet all regulatory requirements for off-site shipment, if applicable.
B. Provide documentation to NMED that each waste shipment has been received for recycling within 45 working days of receipt of waste by the recycler.

Should the DOE/NNSA decide to re-use material included in the covered waste inventory, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

2.7 ~~2.1.6~~Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called out in the FFCA~~ Act~~ as requiring schedules are described in the STP. Some of these activities may be associated with schedules that may contain information related to treatment of the DOE/NNSA's mixed waste.~~, such as:~~

For mixed waste which is not sufficiently characterized to allow identification of appropriate treatment, notification of the characterization of such waste shall be in accordance with the annual update process as pursuant to the FFCO. If such characterization results in the addition or deletion of a TG~~treatability group~~ or an increase in volume in a TG~~treatability group~~ meeting the criteria in the FFCO, a revision would be required pursuant to Section X *Revisions* of the FFCO.

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3.0 MIXED WASTE TREATMENT PLAN AND SCHEDULES

Mixed wastes at SNL/NM are assigned to one of the 28 TGs that have been established in the STP. TGs 1 through 27 and TG-MTRU describe mixed wastes according to their physical and chemical characteristics and applicable treatment technologies. Many TGs include multiple treatment technologies. The technologies, applicable TGs, and compliance schedules are presented in this section.

3.1 3.2Compliance Dates for Treatability Groups

The activities that require schedules are shown in Tables 2-1 through 2.62-5. Below are listed each SNL/NM TGtreatability group and the schedule for these activities. Treatability Ggroups with the same treatment and schedule are presented together.

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-1 for "Categories of Activities for Compliance Dates for Mixed Waste With Existing Treatment Technology" are presented for TGs 1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-2 for "Categories of Activities for Compliance Dates for Mixed Waste Without Existing Treatment Technology" are presented for TG 11

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-3 for "Categories of Activities for Compliance Dates for Radionuclide Separation of Mixed Waste" are presented for neutron generators in TG 1

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-4 and 2-5 for "Activities for Mixed Waste To Be Shipped Off-site For Treatment" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-6 for "Activities for Mixed Waste Recycling" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, and 26

- Other activities are presented with planning schedules for informational purposes for management of TG 10 and Suspect TRU Mixed Waste

3.2 3.1Mixed Waste for Which Technology Exists

It is expected that the preferred treatment technologiesy identified in this section as on-site treatment options will be implemented at the SNL/NM Radioactive and Mixed Waste Management Unit or other appropriate on-site RCRA permitted units. All on-site treatment of covered wastes will be performed in accordance with applicable regulations and requirements of the Permit or any other RCRA permit for treatment of hazardous or mixed wastes at SNL/NM. On-site mixed waste treatment capabilities do not currently adequately address the preferred treatment technologies for some of SNL/NM's specific waste types; off-site treatment is the preferred option for such wastes.

3.2.1 3.1.1.1Deactivation (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is deactivation. Current waste quantities are shown for each TG.

- TG 1 – Inorganic Debris with Explosive (0 m^3). The neutron generator portion of TG 1 is disassembled to remove the explosive, which is managed as hazardous waste. The remaining portion is managed appropriately either as radioactive waste or as mixed waste. Planning schedules for activities related to the neutron generators are presented in Section 3.4.2.
- TG 2 – Inorganic Debris with Water Reactive (0 m^3)
- TG 3 – Reactive Metals (0 m^3)

~~The preferred treatment technology for these treatability groups is Deactivation. The neutron generator portion of Treatability Group 1 was disassembled to remove the explosive, which was managed as hazardous waste. The remaining portion was managed as radioactive waste or as mixed waste. Planning schedules for activities related to the neutron generators are presented in Section 3.3.~~ Shipment off-site for treatment is a parallel preferred option ~~for Deactivation~~. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 ~~Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, ~~the~~ DOE/NNSA shall act in accordance with Section 2.62.1.5 ~~Plans for Recycling~~.

Table 3-1 Deactivation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed

Activity	Compliance Date
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.2 3.1.1.2Macroencapsulation (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is macroencapsulation. Current waste quantities are shown for each TG.

- TG 4 – Elemental Lead (0 m^3)
- TG 9 – Inorganic Debris with TCLP Metals (0 m^3)
- TG 12 – Organic Debris with TCLP Metals (0 m^3)

~~The preferred treatment technology for each of these treatability groups is Macroencapsulation.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste at an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-2 Macroencapsulation Schedule

Activity	Compliance Date
A. Submit permit application, amendment, or modification to NMED	Completed
B. Complete recycling/treatment of mixed waste to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020

Activity	Compliance Date
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.3 3.1.1.3Neutralization followed-by Stabilization (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is neutralization followed by stabilization. The current waste quantity is shown.

- TG 5 – Aqueous Liquids (0 m^3)

~~The preferred treatment technology for this treatability group is Neutralization followed by Stabilization.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 ~~Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 ~~Plans for Recycling~~.

Table 3-3 Neutralization followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.4 ~~3.1.1.4~~Amalgamation (On-site ~~at~~by SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is amalgamation. The current waste quantity is shown.

- TG 6 – Elemental Mercury (0 m^3)

The Mercury Export Ban Act (Public Law 110-414) amended the Toxic Substances Control Act (TSCA) in 15 United States Code (USC) 2605(f) and prohibits Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and NTESS~~Sandia~~ will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted. ~~The preferred treatment technology for this treatability group is Amalgamation.~~

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~.

Table 3-4 Amalgamation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024~~2020~~
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024~~2020~~
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.5 ~~3.1.1.5~~Incineration (Off-site by Treatment Facility/Recycling)

The preferred treatment technology for these TGs is incineration at an off-site facility. Current waste quantities are shown for each TG.

- TG 7 – Organic Liquids I (0 m^3)
- TG 18 – Particulates and Soils with Organic Contaminants (0 m^3)

~~The preferred treatment technology for these treatability groups is Incineration at an off-site facility.~~ Should DOE/NNSA decide to send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-5 Incineration Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility.	December 31, 20242020
B. Provide documentation to NMED that waste was received at off-site facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.6 ~~3.1.1.6~~Thermal Desorption (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is thermal desorption. The current quantity is shown.

- TG 8 – Organic Debris (0 m^3)

~~The preferred treatment technology for this treatability group is Thermal Desorption.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-6 Thermal Desorption Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 20242020
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.7 ~~3.1.1.7~~Deactivation followed by Stabilization (On-site at~~by~~ SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for these TGs is deactivation followed by stabilization. Current waste quantities are shown for each TG.

- TG 13 – Oxidizers (0 m^3)
- TG 20 – Propellant with TCLP Metals (0 m^3)

~~The preferred treatment technology for this treatability group is Deactivation followed by Stabilization.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-7 Deactivation followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment to applicable regulatory standards, or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024~~2020~~
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.8 ~~3.1.1.8~~Evaporative Oxidation (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is evaporative oxidation. The current waste quantity is shown.

- TG 14 – Aqueous Liquids with Organic Contaminants (0 m^3)

~~The preferred treatment technology for this treatability group is Evaporative Oxidation.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide

to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-8 Evaporative Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.9 3.1.1.9Stabilization (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is stabilization. Current waste quantities are shown for each TG.

- TG 15 – Soils <50% Debris & Particulates with TCLP Metals (0 m^3)
- TG 19 – Liquids with Metals (0 m^3)

The preferred treatment technology for this treatability group is Stabilization. Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the shipments shall be managed in accordance with Section 2.52.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-9 Stabilization Schedule

Activity	Compliance Date
A. Initiate set-up of laboratory operation	Obtain new permit or modify or amend existing NMED permit if required

Activity	Compliance Date
B. Complete systems testing and commence operation and begin treating mixed waste.	Completed
C. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
D. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.10 ~~3.1.1.10~~Oxidation (On-site ~~at~~by SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is oxidation. The current waste quantity is shown.

- TG 16 – Cyanide Waste (0 m^3)

~~The preferred treatment technology for this treatability group is Oxidation.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-10 Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.11 ~~3.1.1.11~~Incineration followed by Stabilization (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is incineration followed by stabilization, as required, at an off-site treatment facility. The current waste quantity is shown.

- TG 17 – Liquid/Solid with Organic and/or Metal Contaminants (0 m^3)

~~The preferred treatment technology for this treatability group is Incineration followed by Stabilization, as required, at an off-site treatment facility.~~ Stabilization is required for the treatment of waste that contains metals contamination. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5~~2.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-11 Incineration/Stabilization Schedule

Activity	Compliance Date
A. Complete treatment to applicable regulatory standards or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024~~2020~~
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.12 ~~3.1.1.12~~Off-site Shipment / On-site Macroencapsulation at SNL/NM

The preferred treatment technology for these TGs is shipment to an off-site facility for treatment and disposal. Current waste quantities are shown for each TG.

- TG 21 – Sealed Sources with TCLP Metals (0 m^3)
- TG 24 – Spark Gap Tubes with TCLP Metals (0 m^3)
- TG 26 – Debris Items with Reactive Compounds and TCLP Metals (0 m^3)

~~The preferred treatment technology for this treatability group is shipment to an off-site facility for treatment and disposal.~~ Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5~~2.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

A parallel treatment option is on-site macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending development of further treatment and disposal options. On June 3, 2004, the NMED approved a site-specific treatment variance to allow for macroencapsulation of less than debris sized manufactured items exhibiting the toxicity characteristic for metal(s), containing radioactive material, and potentially externally contaminated with radioactive materials (Bearzi 2004). These items include radioactive sources (TG 21) and radioactive materials such as various gap tubes (TG 24).

Table 3-12 Off-site Shipment / Macroencapsulation Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete on-site macroencapsulation of waste, or	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.13 3.1.1.13Size Reduction followed by Stabilization/Deactivation followed by Macroencapsulation

The preferred treatment technology for this TG is stabilization at an off-site treatment facility. The current waste quantity is shown.

- TG 23 – Thermal Batteries (0 m^3)

The preferred treatment technology for this treatability group is stabilization at an off-site treatment facility. Deactivation followed by macroencapsulation is a parallel preferred option. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.52.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-13 Stabilization Schedule

Activity	Compliance Date
A. Render existing thermal batteries non-reactive	Completed
B. Provide progress report of current status and availability of treatment and/or disposal options	Completed

Activity	Compliance Date
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3 3.2Mixed Waste for Which Technology Must be Developed

The DOE/NNSA and NTESS haveSNL/NM has TGstreatability groups for which the preferred treatment option is a treatment technology that requires adaptation in order to treat hazardous waste that is radioactive and may contain PCBs or high levels of mercury.

3.3.1 3.2.1Hydrothermal Processing (On-site by SNL/NM/Off-site Treatment/Recycling)

Hydrothermal processing was identified in the STP as the preferred treatment technology for this TG. The current waste quantity is shown.

- TG 11 – Organic Liquids II (0 m^3)

Hydrothermal processing was identified in the STP as the preferred treatment technology for TG 11 Organic Liquids II. Development of this treatment technology is on indefinite hold. As required by the CPV, respondents submitted treatment schedules and options for the NMED's approval prior to the compliance date of November 30, 1998. The treatment schedule submitted reflected the approval by the NMED for off-site shipment (Revision 1) and the approval of February 28, 2001, as an initial compliance date for shipments (Revision 2).

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-14 Off-site Shipment Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3.2 3.2.2Stabilization of High Mercury Materials (On-site/Off-site Treatment)

The technology-based treatment standard for wastes in the following TG is incineration (IMERC) or retorting and recovery (RMERC). The current waste quantity is shown.

- TG 27 – High Mercury Solids and Liquids (0 m^3)

The technology-based treatment standard for high mercury solids and oils is incineration (IMERC) or retorting and recovery (RMERC). These technologies have not been available for mixed waste. The compliance activities and dates associated with this TG may be impacted by the Mercury Export Ban Act (Public Law 110-414) which amended the TSCA in 15 USC 2605(f) restricting Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and Sandia will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted.

The preferred treatment technology for this TG treatability group is shipment to an off-site treatment facility. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.52.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-15 High Mercury Solids and Liquids Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete recycling/treatment of wastes to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.4 3.3Other Types of Mixed Waste Activities

This section describes activities that will be performed to reduce the mixed waste in inventory at SNL/NM.

3.4.1 3.3.1Sorting of Heterogeneous Debris

These TGs contain heterogeneous assortments of debris. Current waste quantities are shown. Each TG is discussed separately.

- TG 10 – Heterogeneous Debris (0 m^3)
- TG 25 – Classified Items with TCLP Metals (0 m^3)

This treatability group contains a heterogeneous assortment of debris. Therefore, Tthe treatability group requires sorting the waste in TG-10 must be sorted into, for example, organic and inorganic debris TGstreatability groups (TG 8 and TG 9), or other TGstreatability groups as appropriate for which preferred treatment options have been selected. The sorting process began on June 30, 1995.

Shipment off-site for treatment is a preferred option for the wastes in TG 10. Treatment on-site according to the appropriate TGtreatability group is an alternate preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-16 Heterogeneous Debris Schedule

Activity	Compliance Date
A. Complete sorting of wastes or	December 31, 20242020
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 20242020

- TG 25 - Classified Items with TCLP Metals (0 m3)

This TG 25treatability group contains a heterogeneous assortment of classified items and debris. As such, the wastes in TG 25this treatability group must be sorted requires sorting the waste into other TGtreatability groups as appropriate for which preferred treatment options have been selected. The sorting process may include, but not be limited to, physical sorting, separation, disassembly, and/or de-classification.

Shipment off-site for treatment and/or disposal is the preferred option for TG-25. The parallel preferred treatment option is on-site treatment by macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending the development of further treatment and disposal options. Sorting and/or de-classification activities may be necessary to process the classified mixed waste into items suitable for further treatment on-site or shipment off-site to treatment and/or disposal facilities. Should DOE/NNSA send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-17 Classified Items with TCLP Metals Schedule

Activity	Compliance Date
A. Complete sorting or on-site treatment of wastes or	December 31, 20242020
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2022020
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 20242020

3.4.2 3.3.2Mixed Waste for Which Radionuclide Separation is Planned

Radionuclide separation is planned for certain wastes in this TG. The current waste quantity is shown.

- TG 1 – Inorganic Debris with Explosive Component (0 m^3)

Treatability Group 1, Inorganic Debris with Explosive Component Nneutron generators in this TG. These items will be disassembled to yield an explosive waste stream that is not mixed, and a radioactive portion that may be mixed. The radioactive portion of the assembled items will be physically separated from the explosive portion.

Table 3-18 Radionuclide Separation Schedule (On-site by SNL)

Activity	Compliance Date
A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.	Completed
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.	Completed
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.	Completed
D. Provide the assumptions underlying such waste volume and cost estimates.	Completed
E. Provide characterization methodologies for determining waste types	Completed
F. Submit a plan for treatment or management of hazardous waste residues as appropriate.	Completed

3.5 ~~4.0~~Mixed Transuranic Waste

Treatment technologies and disposal options for transuranic waste were not available when the STP was developed. The current waste quantity is shown.

~~**Treatment Group(s):**~~

- TG MTRU – Assorted Mixed Transuranic Waste (~~2.0~~2.323 m^3)

~~**Treatment Technology:**~~

Respondents are required to manage mixed transuranic (MTRU) waste at SNL/NM according to the schedule set forth below. The schedule was developed based on the assumption that WIPP would be a disposal option. DOE/NNSA received a variance from treatment standards for land disposal of MTRU waste to be disposed at WIPP (Waste Isolation Pilot Plant Land Withdrawal Act Amendments, Public Law 104-201, Sept. 1996); therefore MTRU wastes to be shipped to WIPP for disposal will be prepared in accordance with the WIPP waste acceptance criteria.

Table 3-19 Mixed Transuranic Waste Schedule

Activity	Compliance Date
A. Development of treatment technology	Completed
B. Submit permit application amendment, or modification to NMED for treatment of MTRU waste	Completed
C. Complete preparation of existing MTRU wastes for on-site certification or shipment to an off-site certifying facility	Within three (3) years after a) the applicable state's approval of the certifying facility's revised RCRA permit allowing them to receive SNL/NM waste b) the certifying facility is certified by WIPP for heterogeneous and/or homogeneous MTRU waste, as applicable, and c) the certifying facility's waste acceptance criteria are met.
D. Complete shipping of existing MTRU waste to an off-site facility for certification and disposal at the WIPP facility or direct shipment of certified MTRU waste to WIPP	December 31, 20242020
E. Provide documentation to NMED that MTRU waste was received at an off-site certifying facility or at WIPP	Within 45 working days of receipt of waste at certifying facility

~~The above schedule was developed based on the assumption that WIPP would be a disposal option. DOE/NNSA received a variance from treatment standards for land disposal of MTRU waste to be disposed at WIPP (Waste Isolation Pilot Plant Land Withdrawal Act Amendments, Public Law 104-201, Sept. 1996); therefore MTRU wastes to be shipped to WIPP for disposal will be prepared in accordance with the WIPP waste acceptance criteria.~~

~~All revisions to compliance dates shall be in accordance with the procedures set forth in the FFCO.~~

4.0 QUANTITIES OF COVERED MIXED WASTE

Table 4-1 shows the current quantity of waste in each TG and the estimated quantity on December 31, 2024. The current quantity is reported in the Annual Site Treatment Plan for Mixed Waste Update for Fiscal Year 2019 (DOE 2020).

Table 4-1 Proposed Revision 1615 Summary of Treatability Groups and Associated Volumes

TG and Description	FY1915 Annual STP Update Volume[a]	Proposed Revision 1615 Volume
TG 1 Inorganic Debris with Explosive Component	0 m^3	0 m^3
TG 2 Inorganic Debris with a Water Reactive Component	0 m^3	0 m^3
TG 3 Reactive Metals	0 m^3	0 m^3
TG 4 Elemental Lead	0 m^3	0 m^3
TG 5 Aqueous Liquids (Corrosive)	0 m^3	0 m^3
TG 6 Elemental Mercury	0 m^3	0 m^3
TG 7 Organic Liquids I	0 m^3	0 m^3
TG 8 Organic Debris with Organic Contaminants	0 m^3	0 m^3
TG 9 Inorganic Debris with TCLP Metals	0 m^3	0 m^3
TG 10 Heterogeneous Debris	0 m^3	0 m^3
TG 11 Organic Liquids II	0 m^3	0 m^3
TG 12 Organic Debris with TCLP Metals	0 m^3	0 m^3
TG 13 Oxidizers	0 m^3	0 m^3

[a] Volumes indicated are those in the most recent annual update.

Continued next page

Table 4-1 Proposed Revision 1615
Summary of Treatability Groups and Associated Volumes (concluded)

TG and Description	FY1915 Annual STP Update Volume[a]	Proposed Revision 1615 Volume
TG 14 Aqueous Liquids with Organic Contaminants	0 m^3	0 m^3
TG 15 Soils <50% Debris & Particulates with TCLP Metals	0 m^3	0 m^3
TG 16 Cyanide Waste	0 m^3	0 m^3
TG 17 Liquid/Solid with Organic and/or Metal Contaminants	0 m^3	0 m^3
TG 18 Soils <50% Debris & Particulates with Organic Contaminants	0 m^3	0 m^3
TG 19 Liquids with Metals	0 m^3	0 m^3
TG 20 Propellant with TCLP Metals	0 m^3	0 m^3
TG 21 Sealed Sources with TCLP Metals	0 m^3	0 m^3
TG 22 Reserved	Not Applicable	Not Applicable
TG 23 Thermal Batteries	0 m^3	0 m^3
TG 24 Spark Gap Tubes with TCLP Metals	0 m^3	0 m^3
TG 25 Classified Items with TCLP Metals	0 m^3	0 m^3
TG 26 Debris Items with Reactive Compounds and TCLP Metals	0 m^3	0 m^3
TG 27 High Mercury Solids and Liquids	0 m^3	0 m^3
MTRU Mixed Transuranic Waste	2.3231.0 m^3	3.52.0 m^3

[a] Volumes indicated are those in the most recent annual update.

5.0 REFERENCES

Resource Conservation and Recovery Act of 1976, as amended (42 United States Code §6901 et seq.)

New Mexico Hazardous Waste Act of 1978 (New Mexico Statutes, Section 74-4-1)

Federal Facility Compliance Act of 1992 (42 United States Code §6961)

Waste Isolation Pilot Plant Land Withdrawal Amendments Act of 1996 (Public Law 104-201)

New Mexico Environment Department, October 1995. "Federal Facility Compliance Order Pursuant to the New Mexico Hazardous Waste Act and the Resource Conservation and Recovery Act," prepared by the New Mexico Environment Department in the matter of Respondents U.S. Department of Energy and Sandia Corporation, Sandia National Laboratories, Bernalillo County, New Mexico. October 4, 1995, amended through December 22, 2010.

Bearzi, J. (New Mexico Environment Department), June 2004. Letter to P. Wagner (U.S. Department of Energy/National Nuclear Security Administration/Sandia Site Office) and L. Shephard (Sandia Corporation) "Approval: Site-Specific Variance from Treatment Standards for Certain Mixed Waste Generated at Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-04-006". June 3, 2004.

New Mexico Environment Department, January 2015. "Resource Conservation and Recovery Act Facility Operating Permit, EPA ID NM5890110518, to the U.S. Department of Energy/Sandia Corporation, for the Sandia National Laboratories Hazardous and Mixed Waste Treatment and Storage Units and Post-Closure Care of the Corrective Action Management Unit," January 27, 2015, as modified and updated.

New Mexico Environment Department, January 2016. Settlement Agreement and Stipulated Final Order," Resource Projection Division, Hazardous Waste Bureau v. United State Department of Energy, and Nuclear Waste Partnership, LLC, Respondents, RE: Waste Isolation Pilot Plan Eddy County, New Mexico, HW-14-21. January 22, 2016.

Kieling, J. (New Mexico Environment Department), October 2016. Letter to D. Rast (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and J. Jarry (Sandia Corporation) "Approval: Revision Number 15 to the Mixed Waste Site Treatment Plan, Compliance Plan Volume, for Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-16-011. October 19, 2016.

Rast, D (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and Jarry, J. (Sandia Corporation), April 2017. Letter to B. Salem (New Mexico Environment Department) “Federal Facility Compliance Order Notification of Management and Operating Contractor Name Change, Sandia National Laboratories/New Mexico.” April 26, 2017.

ENCLOSURE C

Proposed Revision 16 to Sandia National Laboratories
Mixed Waste Site Treatment Plan
Compliance Plan Volume

Revisions in Final Format

Sandia National Laboratories/New Mexico

SITE TREATMENT PLAN FOR MIXED WASTE COMPLIANCE PLAN VOLUME REVISION 16

SANDIA NATIONAL LABORATORIES, NEW MEXICO

MAY 2020

United States Department of Energy
National Nuclear Security Administration
Sandia Field Office

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

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ACRONYMS AND ABBREVIATIONS

BV	Background Volume
CFR	Code of Federal Regulations
CPV	Compliance Plan Volume
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFCA	Federal Facilities Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
LDR	land disposal restriction
m^3	cubic meters
MTRU	mixed transuranic
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NTESS	National Technology & Engineering Solutions of Sandia, LLC
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories, New Mexico
STP	Site Treatment Plan
TCLP	Toxicity Characteristic Leaching Procedure
TG	treatability group
TRU	transuranic
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	Unites States Code
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTION

1.1 Background

On October 6, 1992, Congress passed the Federal Facilities Compliance Act (FFCA) (FFCA 1992) to address compliance by the United States Department of Energy (DOE) with the land disposal restrictions (LDR) for the storage of mixed waste set forth in Section 3004(j) of the Resource Conservation and Recovery Act (RCRA) (RCRA 1976). The FFCA required the DOE to submit a Site Treatment Plan (STP) each facility, for developing treatment capacities and technologies to treat all of the facility's mixed waste, regardless of the time generated, to the standards promulgated pursuant to Section 3004 (m) of RCRA. The FFCA provided that the appropriate regulatory authority, the New Mexico Environment Department (NMED), may approve, approve with modifications or disapprove the STP. Prior to making such a determination, NMED is required by the FFCA to provide public notice, consider public comments, and consult with the Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On March 31, 1995, DOE submitted its proposed STP to NMED for mixed waste at Sandia National Laboratories (SNL/NM). On April 17, 1995, the public was given notice of and an opportunity to comment to NMED on the draft STP submitted by DOE. After considering public comment and otherwise complying with the FFCA, the NMED determined to approve the draft STP with modifications as provided in this document. The STP was fully implemented by a Federal Facility Compliance Order (FFCO) issued by NMED on October 4, 1995 (NMED 1995). Wastes that are subject to the FFCO and STP are defined in Section V.A *Covered Waste* of the FFCO.

On January 27, 2015, the NMED issued the Resource Conservation and Recovery Act Facility Operating Permit (Permit) to DOE/NNSA and its Management and Operating contractor (NMED 2015). The Permit will remain in effect until February 26, 2025.

Several on-site hazardous and mixed waste management activities are authorized under the Permit. The following authorized technologies are applicable to covered wastes.

- Storage
- Treatment by chemical deactivation (e.g., neutralization, detonation)
- Treatment by thermal deactivation
- Treatment by stabilization and solidification
- Treatment of elemental mercury by amalgamation
- Treatment by macroencapsulation
- Physical treatment (e.g., separation, size reduction)

1.2 Purpose and Scope of the Site Treatment Plan

The STP is intended to fulfill the requirements of the FFCA and establishes an enforceable framework to allow the DOE/National Nuclear Security Administration (NNSA) and its Management and Operating contractor, Sandia Corporation (now named National Technology & Engineering Solutions of Sandia, LLC [NTESS]) (Rast 2017), collectively termed Respondents, to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth herein are enforceable time periods in which Respondents will be required to develop treatment capacities and technologies; and treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA.

The STP includes an inventory of mixed wastes subject to the FFCO and STP at SNL/NM. The wastes are assigned to treatability groups (TGs) based on physical and chemical characteristics and applicable treatment technologies.

The STP contains two volumes.

- The Compliance Plan Volume (CPV) of the STP provides overall schedules originally developed in 1995, including dates for achieving compliance with LDR storage and treatment requirements for covered mixed waste at SNL/NM. The CPV includes schedules for the submittal of applications for permits, construction of treatment facilities, technology development, off-site transportation for treatment, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulation at 20 NMAC 4.1, which incorporates by reference 40 CFR Parts 260 through 270. Many of the activities in the CPV have been completed, as reflected in the updated schedules shown in this revision.

- The Background Volume of the STP contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CPV of the STP, in accordance with the schedules and requirements set forth in the STP and the FFCO. The progress reports are included in annual updates to the STP that are submitted to the NMED by March 31 each year.

1.3 Revisions to the Site Treatment Plan

A revision is an amendment to the CPV that is either required by NMED or proposed by the Respondents and approved by NMED. The specific criteria and process for revisions are detailed in Section X *Revisions* of the FFCO.

The CPV has been revised 15 times. Revision 15, approved by the NMED October 16, 2016 (Kieling 2016), established compliance dates, treatment technologies, and volumes for covered waste in all TGs.

1.4 Contents

Section 2.0 of this revision to the CPV describes the categories of activities needed to develop and implement treatment technologies for the mixed waste at SNL/NM that is subject to the FFCO and STP.

Section 3.0 of this revision to the CPV describes the individual treatment technologies and identifies the TGs for which the technologies are applicable. Compliance schedules and deadlines are listed for each treatment technology.

Section 4.0 provides a summary of the mixed waste inventory from the most recent progress report and projected changes to the inventory over the period of this revision.

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2.0 COMPLIANCE SCHEDULE

The STP CPV provides overall schedules for achieving compliance with LDR requirements for mixed waste at SNL/NM. The schedules include those activities required to bring existing waste treatment technologies into operation, process backlogged and currently generated waste, and overall time frames for achieving compliance with the LDR requirements under the HWA and 20 NMAC 4.1.

2.1 Categories of Activities for Compliance Dates

The categories of activities for which compliance dates are provided for different types of treatment approaches in the STP are listed in Tables 2-1 through 2-6 below. The categories of activities are based on Section 3021(b)(1)(B)(I), (ii) and (iii) of RCRA, to the extent appropriate.

2.2 Plans Where Treatment Technology Exists

For most of the mixed waste at SNL/NM, treatment technologies have been identified and developed. For the waste that will be treated on-site, the categories of compliance dates identified in Table 2-1 apply. Compliance dates for the activities identified in Table 2-1 may be found in Section 3.2.

Table 2-1 Categories of Activities for Compliance Dates for Mixed Waste with Existing Treatment Technologies

A. Submit permit applications to NMED.
B. Initiate construction as specified in the NMED permit.
C. Complete systems testing and commence operation.
D. Begin treating mixed waste.
E. Complete treatment of existing wastes to applicable regulatory standards.

2.3 Plans Where Treatment Technology Must Be Developed

For some mixed waste, no treatment technologies have been identified and developed, or treatment technology must be modified or adapted to be made applicable for mixed waste. For this waste which will be treated on-site, the categories of compliance dates

identified in Table 2-2 apply. Compliance dates for the activities identified in Table 2-2 may be found in Section 3.3.

Table 2-2 Categories of Activities for Compliance Dates for Mixed Waste without Existing Treatment Technologies

A. Identify and develop technology.
B. Submit permit application to NMED; or
C. Submit a Notification of Intent to perform treatability study to the NMED a minimum of 45 days prior to commencement of the study.
D. Initiate construction as specified in the NMED permit.
E. Commence systems testing.
F. Begin treating mixed wastes.
G. Complete treatment of existing wastes to applicable regulatory standards.

2.4 Requirements Pertaining to Radionuclide Separation

The FFCA sets additional requirements in cases where the DOE/NNSA intends to conduct radionuclide separation of mixed waste. Should the DOE/NNSA determine to conduct radionuclide separation of such mixed waste, the DOE/NNSA scheduled specific compliance dates based on category activities identified in Table 2-3. "Radionuclide separation" means the segregation of the radioactive portion of the mixed waste from the hazardous portion of the mixed waste. Compliance activities identified in Table 2-3 have been completed and therefore compliance dates are no longer applicable.

Table 2-3 Categories of Activities for Radionuclide Separation of Mixed Waste

A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.
D. Provide the assumptions underlying such waste volume and cost estimates.
E. Provide characterization methodologies for determining waste types.
F. Submit a plan for treatment or management of hazardous waste residues accompanied by NMED permit application.

2.5 Plans for Mixed Waste to be Shipped Off-site for Treatment

In lieu of plans to treat mixed waste on-site, DOE/NNSA may send waste to an off-site facility for treatment at either a commercial or non-commercial mixed waste treatment facility. Any and all requirements imposed by the off-site facility and state regulatory, federal regulatory or other regulatory requirements applicable to Respondents at the treatment site shall be met by the Respondents.

2.5.1 Requirements for Commercial Treatment Facilities

Should DOE/NNSA decide to send waste to a commercial off-site facility for treatment, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a commercial facility are identified in Table 2-4.

Table 2-4 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Commercial Facility

A. Meet all regulatory requirements for off-site shipment.
B. Provide documentation to NMED that each waste shipment has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.

2.5.2 Requirements for Non-commercial Treatment Facilities

DOE/NNSA shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a non-commercial facility. Notification should be made if possible when DOE/NNSA is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. Documentation shall be provided to NMED of confirmation of shipment date within fourteen (14) working days prior to sending waste to an off-site facility for treatment, disposal or storage pending treatment or disposal. The NMED Project Manager shall approve in writing the off-site non-commercial treatment option proposed by DOE/NNSA for each TG prior to any shipment by DOE/NNSA. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a non-commercial facility are identified in Table 2-5.

Prior to shipment, the non-commercial treatment facility and their appropriate regulatory agency shall be notified of any pending waste shipments should DOE/NNSA ship mixed waste. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes. Management of post-treatment waste residuals or newly generated waste streams considered hazardous will be in accordance with all applicable local, state, and federal requirements. The Permit provides for the return of wastes and/or residuals to SNL/NM for 90 days. If a permit modification is required to address other anticipated issues, such modification must be approved by NMED prior to shipment of covered wastes to the off-site facility. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible, and in any event within thirty (30) working days after receipt of shipment of treatment residuals or newly generated waste streams.

Table 2-5 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Non-commercial Facility

A. Request necessary approval from NMED for shipment of mixed waste by treatment group before shipping.
B. Meet <u>all</u> regulatory requirements for off-site shipment.
C. Provide documentation to NMED of confirmation of shipment date within 14 working days prior to sending mixed waste to an off-site facility for treatment, disposal or storage pending treatment or disposal.
D. Provide documentation to NMED that mixed waste has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.
E. Meet all regulatory requirements to include RCRA Permit modifications for receipt of residual or newly generated mixed waste streams after treatment that meet the definition of a hazardous waste.
F. Provide documentation to NMED within 30 working days after receipt of residual or newly generated waste streams upon return to SNL/NM.

2.6 Plans for Recycling

Recycling is a parallel preferred option for each preferred treatment technology. Should the DOE/NNSA decide to recycle covered waste, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of the waste at the recycling facility or by the recycler. Activities for mixed waste recycling are identified in Table 2-6. Once a covered waste volume has been recycled or re-used, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

Table 2-6 Activities for Mixed Waste Recycling

A. Meet all regulatory requirements for off-site shipment, if applicable.
B. Provide documentation to NMED that each waste shipment has been received for recycling within 45 working days of receipt of waste by the recycler.

Should the DOE/NNSA decide to re-use material included in the covered waste inventory, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

2.7 Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called out in the FFCA as requiring schedules are described in the STP. Some of these activities may be associated with schedules that may contain information related to treatment of the DOE/NNSA's mixed waste.

For mixed waste which is not sufficiently characterized to allow identification of appropriate treatment, notification of the characterization of such waste shall be in accordance with the annual update process as pursuant to the FFCO. If such characterization results in the addition or deletion of a TG or an increase in volume in a TG meeting the criteria in the FFCO, a revision would be required pursuant to Section X *Revisions* of the FFCO.

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3.0 MIXED WASTE TREATMENT PLAN AND SCHEDULES

Mixed wastes at SNL/NM are assigned to one of the 28 TGs that have been established in the STP. TGs 1 through 27 and TG-MTRU describe mixed wastes according to their physical and chemical characteristics and applicable treatment technologies. Many TGs include multiple treatment technologies. The technologies, applicable TGs, and compliance schedules are presented in this section.

3.1 Compliance Dates for Treatability Groups

The activities that require schedules are shown in Tables 2-1 through 2.6. Below are listed each SNL/NM TG and the schedule for these activities. Groups with the same treatment and schedule are presented together.

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-1 for "Categories of Activities for Compliance Dates for Mixed Waste With Existing Treatment Technology" are presented for TGs 1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-2 for "Categories of Activities for Compliance Dates for Mixed Waste Without Existing Treatment Technology" are presented for TG 11

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-3 for "Categories of Activities for Compliance Dates for Radionuclide Separation of Mixed Waste" are presented for neutron generators in TG 1

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-4 and 2-5 for "Activities for Mixed Waste To Be Shipped Off-site For Treatment" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-6 for "Activities for Mixed Waste Recycling" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, and 26

- Other activities are presented with planning schedules for informational purposes for management of TG 10 and Suspect TRU Mixed Waste

3.2 Mixed Waste for Which Technology Exists

It is expected that the preferred treatment technologies identified in this section as on-site treatment options will be implemented at the SNL/NM Radioactive and Mixed Waste Management Unit or other appropriate on-site RCRA permitted units. All on-site treatment of covered wastes will be performed in accordance with applicable regulations and requirements of the Permit or any other RCRA permit for treatment of hazardous or mixed wastes at SNL/NM. On-site mixed waste treatment capabilities do not currently adequately address the preferred treatment technologies for some of SNL/NM's specific waste types; off-site treatment is the preferred option for such wastes.

3.2.1 Deactivation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is deactivation. Current waste quantities are shown for each TG.

- TG 1 – Inorganic Debris with Explosive (0 m^3). The neutron generator portion of TG 1 is disassembled to remove the explosive, which is managed as hazardous waste. The remaining portion is managed appropriately either as radioactive waste or as mixed waste. Planning schedules for activities related to the neutron generators are presented in Section 3.4.2.

- TG 2 – Inorganic Debris with Water Reactive (0 m^3)

- TG 3 – Reactive Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, DOE/NNSA shall act in accordance with Section 2.6.

Table 3-1 Deactivation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.2 Macroencapsulation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is macroencapsulation. Current waste quantities are shown for each TG.

- TG 4 – Elemental Lead (0 m^3)
- TG 9 – Inorganic Debris with TCLP Metals (0 m^3)
- TG 12 – Organic Debris with TCLP Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste at an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-2 Macroencapsulation Schedule

Activity	Compliance Date
A. Submit permit application, amendment, or modification to NMED	Completed
B. Complete recycling/treatment of mixed waste to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.3 Neutralization followed-by Stabilization (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is neutralization followed by stabilization. The current waste quantity is shown.

- TG 5 – Aqueous Liquids (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-3 Neutralization followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.4 Amalgamation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is amalgamation. The current waste quantity is shown.

- TG 6 – Elemental Mercury (0 m^3)

The Mercury Export Ban Act (Public Law 110-414) amended the Toxic Substances Control Act (TSCA) in 15 United States Code (USC) 2605(f) and prohibits Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and NTESS will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted.

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5.

Table 3-4 Amalgamation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.5 Incineration (Off-site by Treatment Facility/Recycling)

The preferred treatment technology for these TGs is incineration at an off-site facility. Current waste quantities are shown for each TG.

- TG 7 – Organic Liquids I (0 m^3)

- TG 18 – Particulates and Soils with Organic Contaminants (0 m^3)

Should DOE/NNSA decide to send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-5 Incineration Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility.	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.6 Thermal Desorption (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is thermal desorption. The current quantity is shown.

- TG 8 – Organic Debris (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-6 Thermal Desorption Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.7 Deactivation followed by Stabilization (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for these TGs is deactivation followed by stabilization. Current waste quantities are shown for each TG.

- TG 13 – Oxidizers (0 m^3)
- TG 20 – Propellant with TCLP Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-7 Deactivation followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment to applicable regulatory standards, or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.8 Evaporative Oxidation (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is evaporative oxidation. The current waste quantity is shown.

- TG 14 – Aqueous Liquids with Organic Contaminants (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-8 Evaporative Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.9 Stabilization (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is stabilization. Current waste quantities are shown for each TG.

- TG 15 – Soils <50% Debris & Particulates with TCLP Metals (0 m^3)
- TG 19 – Liquids with Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the shipments shall be managed in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-9 Stabilization Schedule

Activity	Compliance Date
A. Initiate set-up of laboratory operation	Obtain new permit or modify or amend existing NMED permit if required
B. Complete systems testing and commence operation and begin treating mixed waste.	Completed
C. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
D. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.10 Oxidation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is oxidation. The current waste quantity is shown.

- TG 16 – Cyanide Waste (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-10 Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.11 Incineration followed by Stabilization (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is incineration followed by stabilization, as required, at an off-site treatment facility. The current waste quantity is shown.

- TG 17 – Liquid/Solid with Organic and/or Metal Contaminants (0 m^3)

Stabilization is required for the treatment of waste that contains metals contamination. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-11 Incineration/Stabilization Schedule

Activity	Compliance Date
A. Complete treatment to applicable regulatory standards or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.12 Off-site Shipment / On-site Macroencapsulation at SNL/NM

The preferred treatment technology for these TGs is shipment to an off-site facility for treatment and disposal. Current waste quantities are shown for each TG.

- TG 21 – Sealed Sources with TCLP Metals (0 m^3)
- TG 24 – Spark Gap Tubes with TCLP Metals (0 m^3)
- TG 26 – Debris Items with Reactive Compounds and TCLP Metals (0 m^3)

Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

A parallel treatment option is on-site macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending development of further treatment and disposal options. On June 3, 2004, the NMED approved a site-specific treatment variance to allow for macroencapsulation of less than debris sized manufactured items exhibiting the toxicity characteristic for metal(s), containing radioactive material, and potentially externally contaminated with radioactive materials (Bearzi 2004). These

items include radioactive sources (TG 21) and radioactive materials such as various gap tubes (TG 24).

Table 3-12 Off-site Shipment / Macroencapsulation Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete on-site macroencapsulation of waste, or	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.13 Size Reduction followed by Stabilization/Deactivation followed by Macroencapsulation

The preferred treatment technology for this TG is stabilization at an off-site treatment facility. The current waste quantity is shown.

- TG 23 – Thermal Batteries (0 m^3)

Deactivation followed by macroencapsulation is a parallel preferred option. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-13 Stabilization Schedule

Activity	Compliance Date
A. Render existing thermal batteries non-reactive	Completed
B. Provide progress report of current status and availability of treatment and/or disposal options	Completed
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3 Mixed Waste for Which Technology Must be Developed

The DOE/NNSA and NTESS have TGs for which the preferred treatment option is a treatment technology that requires adaptation in order to treat hazardous waste that is radioactive and may contain PCBs or high levels of mercury.

3.3.1 Hydrothermal Processing (On-site by SNL/NM/Off-site Treatment/Recycling)

Hydrothermal processing was identified in the STP as the preferred treatment technology for this TG. The current waste quantity is shown.

- TG 11 – Organic Liquids II (0 m^3)

Development of this treatment technology is on indefinite hold. As required by the CPV, respondents submitted treatment schedules and options for the NMED's approval prior to the compliance date of November 30, 1998. The treatment schedule submitted reflected the approval by the NMED for off-site shipment (Revision 1) and the approval of February 28, 2001, as an initial compliance date for shipments (Revision 2).

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-14 Off-site Shipment Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3.2 Stabilization of High Mercury Materials (On-site/Off-site Treatment)

The technology-based treatment standard for wastes in the following TG is incineration (IMERC) or retorting and recovery (RMERC). The current waste quantity is shown.

- TG 27 – High Mercury Solids and Liquids (0 m^3)

These technologies have not been available for mixed waste. The compliance activities and dates associated with this TG may be impacted by the Mercury Export Ban Act (Public Law 110-414) which amended the TSCA in 15 USC 2605(f) restricting Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and Sandia will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted.

The preferred treatment technology for this TG is shipment to an off-site treatment facility. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-15 High Mercury Solids and Liquids Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete recycling/treatment of wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.4 Other Types of Mixed Waste Activities

This section describes activities that will be performed to reduce the mixed waste in inventory at SNL/NM.

3.4.1 Sorting of Heterogeneous Debris

These TGs contain heterogeneous assortments of debris. Current waste quantities are shown. Each TG is discussed separately.

- TG 10 – Heterogeneous Debris (0 m^3)
- TG 25 – Classified Items with TCLP Metals (0 m^3)

The waste in TG-10 must be sorted into, for example, organic and inorganic debris TGs (TG 8 and TG 9), or other TGs as appropriate for which preferred treatment options have been selected. The sorting process began on June 30, 1995.

Shipment off-site for treatment is a preferred option for the wastes in TG 10. Treatment on-site according to the appropriate TG is an alternate preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-16 Heterogeneous Debris Schedule

Activity	Compliance Date
A. Complete sorting of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

TG 25 contains a heterogeneous assortment of classified items and debris. As such, the wastes in TG 25 must be sorted into other TGs as appropriate for which preferred treatment options have been selected. The sorting process may include, but not be limited to, physical sorting, separation, disassembly, and/or de-classification.

Shipment off-site for treatment and/or disposal is the preferred option for TG-25. The parallel preferred treatment option is on-site treatment by macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending the development of further treatment and disposal options. Sorting and/or de-classification activities may be necessary to process the classified mixed waste into items suitable for further treatment on-site or shipment off-site to treatment and/or disposal facilities. Should DOE/NNSA send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-17 Classified Items with TCLP Metals Schedule

Activity	Compliance Date
A. Complete sorting or on-site treatment of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 202
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

3.4.2 Mixed Waste for Which Radionuclide Separation is Planned

Radionuclide separation is planned for certain wastes in this TG. The current waste quantity is shown.

- TG 1 – Inorganic Debris with Explosive Component (0 m^3)

Neutron generators in this TG will be disassembled to yield an explosive waste stream that is not mixed, and a radioactive portion that may be mixed. The radioactive portion of the assembled items will be physically separated from the explosive portion.

Table 3-18 Radionuclide Separation Schedule (On-site by SNL)

Activity	Compliance Date
A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.	Completed
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.	Completed
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.	Completed
D. Provide the assumptions underlying such waste volume and cost estimates.	Completed
E. Provide characterization methodologies for determining waste types	Completed
F. Submit a plan for treatment or management of hazardous waste residues as appropriate.	Completed

3.5 Mixed Transuranic Waste

Treatment technologies and disposal options for transuranic waste were not available when the STP was developed. The current waste quantity is shown.

- TG MTRU – Assorted Mixed Transuranic Waste (2.323 m^3)

Respondents are required to manage mixed transuranic (MTRU) waste at SNL/NM according to the schedule set forth below. The schedule was developed based on the assumption that WIPP would be a disposal option. DOE/NNSA received a variance from treatment standards for land disposal of MTRU waste to be disposed at WIPP

(Waste Isolation Pilot Plant Land Withdrawal Act Amendments, Public Law 104-201, Sept. 1996); therefore MTRU wastes to be shipped to WIPP for disposal will be prepared in accordance with the WIPP waste acceptance criteria.

Table 3-19 Mixed Transuranic Waste Schedule

Activity	Compliance Date
A. Development of treatment technology	Completed
B. Submit permit application amendment, or modification to NMED for treatment of MTRU waste	Completed
C. Complete preparation of existing MTRU wastes for on-site certification or shipment to an off-site certifying facility	Within three (3) years after a) the applicable state's approval of the certifying facility's revised RCRA permit allowing them to receive SNL/NM waste b) the certifying facility is certified by WIPP for heterogeneous and/or homogeneous MTRU waste, as applicable, and c) the certifying facility's waste acceptance criteria are met.
D. Complete shipping of existing MTRU waste to an off-site facility for certification and disposal at the WIPP facility or direct shipment of certified MTRU waste to WIPP	December 31, 2024
E. Provide documentation to NMED that MTRU waste was received at an off-site certifying facility or at WIPP	Within 45 working days of receipt of waste at certifying facility

4.0 QUANTITIES OF COVERED MIXED WASTE

Table 4-1 shows the current quantity of waste in each TG and the estimated quantity on December 31, 2024. The current quantity is reported in the Annual Site Treatment Plan for Mixed Waste Update for Fiscal Year 2019 (DOE 2020).

Table 4-1 Proposed Revision 16 Summary of Treatability Groups and Associated Volumes

TG and Description	FY19 Annual STP Update Volume[a]	Proposed Revision 16 Volume
TG 1 Inorganic Debris with Explosive Component	0 m^3	0 m^3
TG 2 Inorganic Debris with a Water Reactive Component	0 m^3	0 m^3
TG 3 Reactive Metals	0 m^3	0 m^3
TG 4 Elemental Lead	0 m^3	0 m^3
TG 5 Aqueous Liquids (Corrosive)	0 m^3	0 m^3
TG 6 Elemental Mercury	0 m^3	0 m^3
TG 7 Organic Liquids I	0 m^3	0 m^3
TG 8 Organic Debris with Organic Contaminants	0 m^3	0 m^3
TG 9 Inorganic Debris with TCLP Metals	0 m^3	0 m^3
TG 10 Heterogeneous Debris	0 m^3	0 m^3
TG 11 Organic Liquids II	0 m^3	0 m^3
TG 12 Organic Debris with TCLP Metals	0 m^3	0 m^3
TG 13 Oxidizers	0 m^3	0 m^3

[a] Volumes indicated are those in the most recent annual update.

Continued next page

Table 4-1 Proposed Revision 16
Summary of Treatability Groups and Associated Volumes (concluded)

TG and Description	FY19 Annual STP Update Volume[a]	Proposed Revision 16 Volume
TG 14 Aqueous Liquids with Organic Contaminants	0 m^3	0 m^3
TG 15 Soils <50% Debris & Particulates with TCLP Metals	0 m^3	0 m^3
TG 16 Cyanide Waste	0 m^3	0 m^3
TG 17 Liquid/Solid with Organic and/or Metal Contaminants	0 m^3	0 m^3
TG 18 Soils <50% Debris & Particulates with Organic Contaminants	0 m^3	0 m^3
TG 19 Liquids with Metals	0 m^3	0 m^3
TG 20 Propellant with TCLP Metals	0 m^3	0 m^3
TG 21 Sealed Sources with TCLP Metals	0 m^3	0 m^3
TG 22 Reserved	Not Applicable	Not Applicable
TG 23 Thermal Batteries	0 m^3	0 m^3
TG 24 Spark Gap Tubes with TCLP Metals	0 m^3	0 m^3
TG 25 Classified Items with TCLP Metals	0 m^3	0 m^3
TG 26 Debris Items with Reactive Compounds and TCLP Metals	0 m^3	0 m^3
TG 27 High Mercury Solids and Liquids	0 m^3	0 m^3
MTRU Mixed Transuranic Waste	2.323 m^3	3.5 m^3

[a] Volumes indicated are those in the most recent annual update.

5.0 REFERENCES

Resource Conservation and Recovery Act of 1976, as amended (42 United States Code §6901 et seq.)

New Mexico Hazardous Waste Act of 1978 (New Mexico Statutes, Section 74-4-1)

Federal Facility Compliance Act of 1992 (42 United States Code §6961)

Waste Isolation Pilot Plant Land Withdrawal Amendments Act of 1996 (Public Law 104-201)

New Mexico Environment Department, October 1995. "Federal Facility Compliance Order Pursuant to the New Mexico Hazardous Waste Act and the Resource Conservation and Recovery Act," prepared by the New Mexico Environment Department in the matter of Respondents U.S. Department of Energy and Sandia Corporation, Sandia National Laboratories, Bernalillo County, New Mexico. October 4, 1995, amended through December 22, 2010.

Bearzi, J. (New Mexico Environment Department), June 2004. Letter to P. Wagner (U.S. Department of Energy/National Nuclear Security Administration/Sandia Site Office) and L. Shephard (Sandia Corporation) "Approval: Site-Specific Variance from Treatment Standards for Certain Mixed Waste Generated at Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-04-006". June 3, 2004.

New Mexico Environment Department, January 2015. "Resource Conservation and Recovery Act Facility Operating Permit, EPA ID NM5890110518, to the U.S. Department of Energy/Sandia Corporation, for the Sandia National Laboratories Hazardous and Mixed Waste Treatment and Storage Units and Post-Closure Care of the Corrective Action Management Unit," January 27, 2015, as modified and updated.

New Mexico Environment Department, January 2016. Settlement Agreement and Stipulated Final Order," Resource Projection Division, Hazardous Waste Bureau v. United State Department of Energy, and Nuclear Waste Partnership, LLC, Respondents, RE: Waste Isolation Pilot Plan Eddy County, New Mexico, HW-14-21. January 22, 2016.

Kieling, J. (New Mexico Environment Department), October 2016. Letter to D. Rast (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and J. Jarry (Sandia Corporation) "Approval: Revision Number 15 to the Mixed Waste Site Treatment Plan, Compliance Plan Volume, for Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-16-011. October 19, 2016.

Rast, D (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and Jarry, J. (Sandia Corporation), April 2017. Letter to B. Salem (New Mexico Environment Department) “Federal Facility Compliance Order Notification of Management and Operating Contractor Name Change, Sandia National Laboratories/New Mexico.” April 26, 2017.

Proposed Revision 16 to
Sandia National Laboratories
Mixed Waste Site Treatment Plan
Compliance Plan Volume

Sandia National Laboratories / New Mexico
EPA ID No. NM5890110518

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my 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 my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Johnathon Huff, Director
National Technology & Engineering Solutions of Sandia, LLC
Albuquerque, New Mexico
Operator

06/15/20
Date Signed

Jeffrey P. Harrell, Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Field Office
Owner

6/17/2020
Date Signed

ENCLOSURE A

Proposed Revision 16 to Sandia National Laboratories Mixed Waste Site Treatment Plan, Compliance Plan Volume

Discussion

Sandia National Laboratories/New Mexico

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ENCLOSURE A

Proposed Revision 16 to the Sandia National Laboratories Mixed Waste Site Treatment Plan (STP) Compliance Plan Volume (CPV), Sandia National Laboratories/New Mexico (SNL/NM)

The Department of Energy/National Nuclear Security Administration (DOE/NNSA) and National Technology & Engineering Solutions of Sandia, LLC (NTESS) are requesting revision to the waste volume and compliance schedules for covered waste that may become subject to the STP CPV for SNL/NM. The proposed revision request has been prepared for the New Mexico Environment Department (NMED) in accordance with the requirements of Section X.C *Revisions* of the Federal Facilities Compliance Order (FFCO), as revised and amended.

Proposed Revision 16 is comprised of the following two requests:

- Addition of new covered waste to the Mixed Transuranic (MTRU) treatability group (TG) in excess of one cubic meter or greater than 10% of the current waste volume (Proposed Revision 16.a, Enclosure A-1)

- Modification of specific compliance dates associated with TGs currently in the STP CPV (Proposed Revision 16.b, Enclosure A-2)

Table 1 in Enclosure A-3 presents a summary of the TGs and the associated volumes in this proposed revision.

The DOE/NNSA and NTESS have also made numerous administrative revisions and updates to the CPV to improve clarity and reflect current permits and on-site treatment technologies at SNL/NM. These are summarized in Enclosure A-4.

The proposed revision text for the CPV is provided as Enclosure B (redline/strikeout) and Enclosure C (clean copy). An electronic copy of Enclosure B and Enclosure C is also provided.

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ENCLOSURE A-1

Proposed Revision 16.a
Addition of New Covered Waste

The DOE/NNSA and NTESS request addition of new and newly discovered covered waste to the MTRU TG in accordance with Section X.B.5 of the FFCO as revised and amended. The following portions of this enclosure follow the requirements of Section VIII *Addition of New Covered Waste* and Section X *Revisions*, of the FFCO, as revised and amended.

Detailed description of the proposed revision (FFCO Section X.C.2.a)
The DOE/NNSA and NTESS request a Revision to the CPV for the addition of covered waste, in accordance with Section VIII.A, Amendment 3, of the FFCO. The proposed Revision requests that an additional volume of 1.0 cubic meter (m^3) of newly discovered covered waste be added to the MTRU TG inventory. In accordance with Section VIII.B of the FFCO, information required for covered waste addition is provided in Table 1.

Rationale for the proposed revision (FFCO Section X.C.2.b)
The Proposed Site Treatment Plan (March 30, 1995) presented the volumes of mixed waste in storage as of September 30, 1994, regardless of its time of generation or state of compliance with the Resource Conservation and Recovery Act (RCRA) 3004[j]. The subsequent additions of covered waste to the inventory were reported in the annual SNL/NM STP Updates. In accordance with Section X.B.5 of the FFCO (Amendment 3), a revision to the CPV is required to include the addition of covered waste to the reported CPV waste inventory if the increase is in excess of 1 cubic meter or 10% of the treatability group volume (X.B.4), whichever is greater.

A waste volume of 1.177 m^3 is requested for addition to the MTRU inventory. Some waste may be generated from maintenance activities (including replacement of air filter(s)) in the Auxiliary Hot Cell Facility. Process knowledge indicates that such waste is likely to be mixed waste due to the potential presence of metals and transuranic radionuclides in the filter. The remaining waste would result from collection of unneeded radioactive MTRU sources.

Upon approval of this Revision, the waste volume will be incorporated into the STP and will be subject to the existing CPV activity milestones approved in this Revision 16. The DOE and NTESS will store this waste pending the acceptance of MTRU waste at the Waste Isolation Pilot Project (WIPP). Deletion requests for the MTRU waste will be submitted to the NMED in accordance with the requirements of the STP and FFCO.

Additions of waste in volumes that do not meet the definition of a revision to the FFCO, per Section X.B.5; will continue to be reflected in the annual STP Update, in accordance with Section VIII.A.

Anticipated length of delay resulting from the proposed revision including affected compliance dates (FFCO Section X.C.2.c)
No delays are anticipated.

If delay occurs, implementation of new schedule (FFCO Section X.C.2.d)
No delays are anticipated.

Description of applicable waste code, waste form, volumes, technology and capacity needs (FFCO Section VIII.B)
The table below presents the information required by Section VIII of the FFCO for the addition of new covered waste.

Schedule for treatment (FFCO Section VIII.B)
All covered waste declared in the proposed Revision request will continue to follow the current treatment schedules in accordance with the CPV.

Addition of New Covered Waste

Treatability Group (TG)	Increase in Volume (m^3)	TG Title and Waste Form	Anticipated Waste Code	Technology and Capacity Needs	Schedules for Treatment
MTRU	1.177	Mixed TRU (MTRU) Waste	D006, D007, D008, D011	Per CPV	Per CPV

ENCLOSURE A-2

Proposed Revision 16.b
Revise Compliance Dates for
All Treatability Groups

The DOE/NNSA and NTESS request a change of more than 90 days to specific compliance dates for all TGs in accordance with Section X.B.2 of the FFCO as revised and amended. The following portions of this enclosure follow the requirements of FFCO Section X *Revisions*.

Detailed description of the proposed revision (FFCO Section X.C.2.a)
The purpose of proposed Revision 16.b is to request the modification of remaining compliance activities and dates for all treatment technologies and associated treatability groups (TGs). The following compliance schedules are requested.

Deactivation: The treatment technology of deactivation applies to TG 1 (Inorganic Debris with Explosive), TG 2 (Inorganic Debris with Water Reactive), and TG 3 (Reactive Metals). Deactivation is discussed in Section 3.2.1 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Deactivation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility, and	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Macroencapsulation: This treatment technology applies to TG 4 (Elemental Lead), TG 9 (Inorganic Debris with TCLP Metals), and TG 12 (Organic Debris with TCLP Metals). Macroencapsulation is discussed in Section 3.2.2 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Macroencapsulation Schedule

Activity	Compliance Date
A. Submit permit application, amendment, or modification to NMED	Completed
B. Complete recycling/treatment of mixed waste to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility, and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Neutralization followed-by Stabilization: This treatment technology applies to TG 5 (Aqueous Liquids) and is discussed in Section 3.2.3 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Neutralization followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Amalgamation: This treatment technology applies to TG 6 (Elemental Mercury) and is discussed in Section 3.2.4 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Amalgamation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Incineration: This treatment technology applies to TG 7 (Organic Liquids I) and TG 18 (Particulates and Soils with Organic Contaminants). Incineration is discussed in Section 3.2.5 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Incineration Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility.	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site facility	Within 45 working days of receipt of waste at treatment/recycling facility

Thermal Desorption: This treatment technology applies to TG 8 (Organic Debris) and is discussed in Section 3.2.6 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Thermal Desorption Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Deactivation followed by Stabilization: This treatment technology applies to TG 13 (Oxidizers) and TG 20 (Propellant with TCLP Metals). Deactivation followed by stabilization is discussed in Section 3.2.7 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Deactivation followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment to applicable regulatory standards, or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Evaporative Oxidation: This treatment technology applies to TG 14 (Aqueous Liquids with Organic Contaminants) and is discussed in Section 3.2.8 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Evaporative Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Stabilization: This treatment technology applies to TG 15 (Soils <50% Debris & Particulates with TCLP Metals) and TG 19 (Liquids with Metals). Stabilization discussed in Section 3.2.9 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Stabilization Schedule

Activity	Compliance Date
A. Initiate set-up of laboratory operation	Obtain new permit or modify or amend existing NMED permit if required
B. Complete systems testing and commence operation and begin treating mixed waste.	Completed
C. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
D. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Oxidation: This treatment technology applies to TG 16 (Cyanide Waste) and is discussed in Section 3.2.10 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Incineration followed by Stabilization: This treatment technology applies to TG 17 (Liquid/Solid with Organic and/or Metal Contaminants) and is discussed in Section 3.2.11 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Incineration followed by Stabilization Schedule

Activity	Compliance Date
A. Complete treatment to applicable regulatory standards or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Off-Site Shipment / On-Site Macroencapsulation: This treatment technology applies to TG 21 (Sealed Sources with TCLP Metals), TG 24 (Spark Gap Tubes with TCLP Metals), and TG 26 (Debris with Reactive Compounds and TCLP Metals). Off-site shipment / on-site macroencapsulation is discussed in Section 3.2.12 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates are reflected in the following proposed schedule.

Off-Site Shipment / Macroencapsulation Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete on-site macroencapsulation of waste, or	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Size Reduction followed by Stabilization/Deactivation followed by Macroencapsulation: This treatment technology applies to TG 23 (Thermal Batteries) and is discussed in Section 3.2.13 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Stabilization Schedule

Activity	Compliance Date
A. Render existing thermal batteries non-reactive	Completed
B. Provide progress report of current status and availability of treatment and/or disposal options	Completed
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Hydrothermal Processing: This treatment technology applies to TG 11(Organic Liquids II) and is discussed in Section 3.3.1 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

Off-Site Shipment Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Stabilization of High Mercury Materials: This treatment technology applies to TG 27 (High Mercury Solids and Liquids) and is discussed in Section 3.3.2 of the CPV. No waste is currently in inventory. The requested dates are reflected in the following proposed schedule.

High Mercury Solids and Liquids Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete recycling/treatment of wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

Sorting of Heterogeneous Debris: This treatment technology applies to TG 10 (Heterogeneous Debris) and TG 25 (Classified Items with TCLP Metals). Sorting of heterogeneous debris is discussed in Section 3.4.1 of the CPV. There is no covered waste in the current inventory of these TGs. The requested dates for TG 10 are reflected in the following proposed schedule.

Heterogeneous Debris Schedule

Activity	Compliance Date
A. Complete sorting of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

The requested dates for TG 25 are reflected in the following proposed schedule.

Classified Items with TCLP Metals Schedule

Activity	Compliance Date
A. Complete sorting or on-site treatment of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

Mixed TRU (MTRU) Waste: The treatment and/or shipment of MTRU waste is discussed in Section 3.5 of the CPV. Approximately 2.323 m^3 of MTRU is currently in inventory. The requested dates are reflected in the following proposed schedule.

MTRU Schedule

Activity	Compliance Date
A. Development of treatment technology	Completed
B. Submit permit application amendment, or modification to NMED for treatment of MTRU waste	Completed
C. Complete preparation of existing MTRU wastes for on-site certification or shipment to an off-site certifying facility	Within three (3) years after a) the applicable state's approval of the certifying facility's revised RCRA permit allowing them to receive SNL/NM waste b) the certifying facility is certified by WIPP for heterogeneous and/or homogeneous MTRU waste, as applicable, and c) the certifying facility's waste acceptance criteria are met.
D. Complete shipping of existing MTRU waste to an off-site facility for certification and disposal at the WIPP facility or direct shipment of certified MTRU waste to WIPP	December 31, 2024
E. Provide documentation to NMED that MTRU waste was received at an off-site certifying facility or at WIPP	Within 45 working days of receipt of waste at certifying facility

Rationale for the proposed revision (FFCO Section X.C.2.b)

The DOE/NNSA and NTESS have developed on-site treatment technologies or identified off-site treatment and/or disposal facilities to address routine mixed waste utilizing the treatment technologies identified for these TGs. While the DOE/NNSA and NTESS fully intend to treat and/or dispose of all newly generated mixed waste within one year (precluding such waste from

becoming a covered waste subject to the STP) the DOE/NNSA and NTESS also believe that a long-term compliance date should be established for each treatment technology for the following purposes:

1) *Characterization and shipment of MTRU waste* – the DOE/NNSA and NTESS are currently working with WIPP to characterize and ship all existing covered MTRU waste off-site, either to WIPP (for waste that has been certified) or to a certifying facility, e.g., LANL or INL. However, the WIPP facility is accepting MTRU wastes on a limited basis and will not resume full operation for some time. The DOE and NTESS expect to transport some of the MTRU wastes at SNL/NM to the WIPP facility during 2020 after completion of a lengthy time-intensive process for characterization and off-site shipment of MTRU waste. Therefore, the DOE/NNSA and NTESS believe that the current compliance dates should be extended for existing and future MTRU covered waste. This extension would allow for definitive planning and effective management of the MTRU waste.
2) *Address waste discovered during sorting operations that would be immediately subject to the FFCO* - Typically, mixed waste that is identified during sorting activities is over one year old and is immediately subject to and protected by the FFCO. If such waste is discovered during these sorting activities, and such waste would be included in one of these TGs, then an assigned compliance date is needed to provide a process for the DOE/NNSA and NTESS to comply with the FFCO. The compliance date defines the TG, ensures that the DOE/NNSA and NTESS treat and/or dispose of the waste within a specific timeframe, and continues the current process for timely notification to the NMED.
3) *Support the effective management of newly generated or identified mixed wastes* - The establishment of a specific compliance milestone for each TG allows for more definitive planning and more effective waste management for both newly generated and newly discovered covered mixed waste. An example would be grouping small quantities of waste for specific treatment and disposal options into one larger quantity, thereby making more effective and efficient use of personnel and resources to characterize, treat, and/or dispose of such wastes.
4) *Maintain and ensure compliance with the STP* - The assignment of a compliance date serves the interest of the STP and the NMED by ensuring that the DOE/NNSA and NTESS treat or dispose of covered waste in a timely and compliant manner. An assigned compliance date for these TGs also allows the current documentation process to continue in accordance with the CPV.

The DOE/NNSA and NTESS are requesting that December 31, 2024 be established as a long-term compliance activity date, as reflected in the treatment technology schedules defined in the above section. By assigning this compliance date to all TGs now, the DOE and NTESS seek to avoid the submission of multiple revision requests to establish such dates in the near future.

The Mercury Export Ban Act (Public Law 110-414) amended the TSCA and restricts the movement of elemental mercury stating that "…no Federal agency shall convey, sell, or distribute to any other federal agency, any State of local government agency, or any private

individual or entity any elemental mercury under the control or jurisdiction of the Federal agency". The intent is to ship all eligible elemental mercury to a designated DOE facility for long term storage. Until a designated facility is identified and operational, the DOE/NNSA and NTESS will store any elemental mercury pending shipment. The Mercury Export Ban Act applies to TGs 6 and 11 and is discussed in Sections 3.2.4 and 3.3.2 of the CPV.

Anticipated length of delay resulting from the proposed revision including affected compliance dates
(X.C.2.c)
No delays are anticipated other than potential delays associated with WIPP waste acceptance and long-term storage of elemental mercury.

If delay occurs, implementation of new schedule (X.C.2.d)
New schedules have been specified for most treatment technologies and will be implemented upon approval of Revision 16. Otherwise, no delays are anticipated.

ENCLOSURE A-3

Table 1. Summary of Revision 16 Treatability Groups and Associated Volumes

Treatability Group (TG) Name		Proposed Revision 16 Volume
TG 1	Inorganic Debris with Explosive Component	0 m^3
TG 2	Inorganic Debris with a Water Reactive Component	0 m^3
TG 3	Reactive Metals	0 m^3
TG 4	Elemental Lead	0 m^3
TG 5	Aqueous Liquids (Corrosive)	0 m^3
TG 6	Elemental Mercury	0 m^3
TG 7	Organic Liquids I	0 m^3
TG 8	Organic Debris with Organic Contaminants	0 m^3
TG 9	Inorganic Debris with TCLP Metals	0 m^3
TG 10	Heterogeneous Debris	0 m^3
TG 11	Organic Liquids II	0 m^3
TG 12	Organic Debris with TCLP Metals	0 m^3
TG 13	Oxidizers	0 m^3
TG 14	Aqueous Liquids with Organic Contaminants	0 m^3
TG 15	Soils <50% Debris & Particulates with TCLP Metals	0 m^3
TG 16	Cyanide Waste	0 m^3
TG 17	Liquid/Solid with Organic and/or Metal Contaminants	0 m^3
TG 18	Soils <50% Debris & Particulates with Organic Contaminants	0 m^3
TG 19	Liquids with Metals	0 m^3
TG 20	Propellant with TCLP Metals	0 m^3
TG 21	Sealed Sources with TCLP Metals	0 m^3
TG 22	Reserved	Not Applicable
TG 23	Thermal Batteries	0 m^3
TG 24	Spark Gap Tubes with TCLP Metals	0 m^3
TG 25	Classified Items with TCLP Metals	0 m^3
TG 26	Debris Items with Reactive Compounds and TCLP Metals	0 m^3
TG 27	High Mercury Solids and Liquids	0 m^3
MTRU	Mixed Transuranic Waste	3.5 m^3

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ENCLOSURE A-4

Summary of Proposed Administrative Revisions and Updates

The DOE/NNSA and NTESS propose administrative revisions and updates to the CPV to improve clarity and reflect current permits and on-site treatment technologies at SNL/NM. These revisions, which are in addition to the revisions described in Enclosures A-1 and A-2, are summarized in Table 2 below.

Table 2. List of Proposed Administrative Revisions and Updates

CPV Section	Description of Revision	Rationale
Front Matter	Added front matter, including table of contents, list of tables, and list of acronyms and abbreviations.	Improve document clarity.
Section 1.1	Noted name change of Management and Operating contractor from Sandia Corporation to National Technology & Engineering Solutions of Sandia LLC (NTESS).	Update to reflect name change.
Section 1.1	Added a list of treatment technologies authorized under the Resource Conservation and Recovery Act Facility Operating Permit	Update to reflect current status.
Sections 1.1 and 1.2	Added references and explanatory text.	Clarify document.
Sections 1.3 and 1.4	Added new sections describing revisions to the CPV and the contents of proposed Revision 16.	Clarify purpose and contents of document.
Section 2.0	Renumbered subsections, made minor text revisions throughout.	Clarify document organization, update to reflect current status.
Section 3.0	Added an introduction, renumbered all subsections, reorganized and updated text in all subsections, and made minor text revisions throughout. These revisions do not include the proposed revision to MTRU waste volume (discussed in Enclosure A-1) or the proposed revisions to compliance dates (discussed in Enclosure A-2).	Clarify document organization, update to reflect current status.

Continued on next page

Table 2. List of Proposed Administrative Revisions and Updates (concluded)

CPV Section	Description of Revision	Rationale
Section 4.0	Incorporated an existing table into new Section 4.0, added an introduction.	Clarify document organization.
Section 5.0	Added new section listing documents referenced in the CPV revision.	Clarify document and update to reflect current status.

ENCLOSURE B

Proposed Revision 16 to Sandia National Laboratories
Mixed Waste Site Treatment Plan
Compliance Plan Volume

Revisions in Redline/Strikeout Format

Sandia National Laboratories/New Mexico

SITE TREATMENT PLAN FOR MIXED WASTE COMPLIANCE PLAN VOLUME REVISION 16~~15~~

SANDIA NATIONAL LABORATORIES, NEW MEXICO

MAY 2020~~2016~~

United States Department of Energy
National Nuclear Security Administration
Sandia Field Office

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

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TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

BV	Background Volume
CFR	Code of Federal Regulations
CPV	Compliance Plan Volume
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFCA	Federal Facilities Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
LDR	land disposal restriction
m^3	cubic meters
MTRU	mixed transuranic
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NTESS	National Technology & Engineering Solutions of Sandia, LLC
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories, New Mexico
STP	Site Treatment Plan
TCLP	Toxicity Characteristic Leaching Procedure
TG	treatability group
TRU	transuranic
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	Unites States Code
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTIONPURPOSE AND SCOPE OF THE COMPLIANCE PLAN VOLUME

1.1 Background Introduction

On October 6, 1992, Congress passed the Federal Facilities Compliance Act (FFCA Act) (FFCA 1992) to address compliance by the United States Department of Energy (DOE) with the land disposal restrictions (LDR) for the storage of mixed waste set forth in Section 3004(j) of the Resource Conservation and Recovery Act (RCRA) (RCRA 1976). The FFCA Act required the DOE to submit a Site Treatment Plan (STP) each facility, for developing treatment capacities and technologies to treat all of the facility's mixed waste, regardless of the time generated, to the standards promulgated pursuant to Section 3004 (m) of RCRA. The FFCA Act provided that the appropriate regulatory authority, the New Mexico Environment Department (NMED), may approve, approve with modifications or disapprove the STP. Prior to making such a determination, NMED is required by the FFCA Act to provide public notice, consider public comments, and consult with the Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On March 31, 1995, DOE submitted its proposed STP to NMED for mixed waste at Sandia National Laboratories (SNL/NM). On April 17, 1995, the public was given notice of and an opportunity to comment to NMED on the draft STP submitted by DOE. After considering public comment and otherwise complying with the FFCA Act, the NMED determined to approve the draft STP with modifications as provided in this document. The STP was fully implemented by a Federal Facility Compliance Order (FFCO) issued by NMED on October 4, 1995 (NMED 1995). Wastes that are subject to the FFCO and STP are defined in Section V.A *Covered Waste* of the FFCO.

On January 27, 2015, the NMED issued the Resource Conservation and Recovery Act Facility Operating Permit (Permit) to DOE/NNSA and its Management and Operating contractor (NMED 2015). The Permit will remain in effect until February 26, 2025.

Several on-site hazardous and mixed waste management activities are authorized under the Permit. The following authorized technologies are applicable to covered wastes.

- Storage
- Treatment by chemical deactivation (e.g., neutralization, detonation)
- Treatment by thermal deactivation
- Treatment by stabilization and solidification
- Treatment of elemental mercury by amalgamation
- Treatment by macroencapsulation
- Physical treatment (e.g., separation, size reduction)

1.2 Purpose and Scope of the Site Treatment Plan ~~Contents~~

The STP is intended to fulfill the requirements of the FFCA ~~Act~~ and establishes an enforceable framework to allow the DOE/National Nuclear Security Administration (NNSA) and its Management and Operating contractor, Sandia Corporation (~~Sandia)~~now named National Technology & Engineering Solutions of Sandia, LLC [NTESS]) (Rast 2017), collectively termed Respondents, to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth herein are enforceable time periods in which Respondents will be required to develop treatment capacities and technologies; and treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA. ~~Wastes that are subject to the FFCO and STP are defined in Section V.A *Covered Waste* of the FFCO.~~

The STP includes an inventory of mixed wastes subject to the FFCO and STP at SNL/NM. The wastes are assigned to treatability groups (TGs) based on physical and chemical characteristics and applicable treatment technologies.

The STP contains two volumes. ~~and is intended to bring Respondents into compliance with LDR storage prohibitions under the HWA and RCRA.~~

- The Compliance Plan Volume (CPV) of the STP provides overall schedules originally developed in 1995, including ~~compliance~~ dates for achieving compliance with LDR storage and treatment requirements for covered mixed waste at SNL/NM. The CPV includes ~~a~~ schedules for the submittal of applications for permits, construction of treatment facilities, technology development, off-site transportation for treatment, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulation at 20 NMAC 4.1, which incorporates by reference 40 CFR Parts 260 through 270. Many of the activities in the CPV have been completed, as reflected in the updated schedules shown in this revision.

- The Background Volume of the STP contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CPV of the STP, in accordance with the schedules and requirements set forth in the STP and the FFCO. The progress reports are included in annual updates to the STP that are submitted to the NMED by March 31 each year.

1.3 Revisions to the Site Treatment Plan

A revision is an amendment to the CPV that is either required by NMED or proposed by the Respondents and approved by NMED. The specific criteria and process for revisions are detailed in Section X *Revisions* of the FFCO.

The CPV has been revised 15 times. Revision 15, approved by the NMED October 16, 2016 (Kieling 2016), established compliance dates, treatment technologies, and volumes for covered waste in all TGs.

1.4 Contents

Section 2.0 of this revision to the CPV describes the categories of activities needed to develop and implement treatment technologies for the mixed waste at SNL/NM that is subject to the FFCO and STP.

Section 3.0 of this revision to the CPV describes the individual treatment technologies and identifies the TGs for which the technologies are applicable. Compliance schedules and deadlines are listed for each treatment technology.

Section 4.0 provides a summary of the mixed waste inventory from the most recent progress report and projected changes to the inventory over the period of this revision.

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2.0 COMPLIANCE SCHEDULE

The STP CPV provides overall schedules for achieving compliance with LDR requirements for mixed waste at SNL/NM. The schedules include those activities required to bring existing waste treatment technologies into operation, process backlogged and currently generated waste, and overall time frames for achieving compliance with the LDR requirements under the HWA and 20 NMAC 4.1.

2.1 Categories of Activities for Compliance Dates

The categories of activities for which compliance dates arewill be provided for different types of treatment approaches in the STP are listed in the Tables 2-1 through 2-6 below. The categories of activities are based on Ssection 3021(b)(1)(B)(I), (ii) and (iii) of RCRA, to the extent appropriate.

2.2 2.1.1Plans Where Treatment Technology Exists

For most of the mixed waste at SNL/NM, treatment technologies have been identified and developed. For the waste that will be treated on-site, the categories of compliance dates identified in Table 2-1, "Schedule For Mixed Waste With Existing Treatment Technologies," shall apply. Compliance dates for the activities identified in Table 2-1 may be found in Section 3.21.

Table 2-1 Categories of Activities for Compliance Dates for Mixed Waste with Existing Treatment Technologies

A. Submit permit applications to NMED.
B. Initiate construction as specified in the NMED permit.
C. Complete systems testing and commence operation.
D. Begin treating mixed waste.
E. Complete treatment of existing wastes to applicable regulatory standards.

2.3 2.1.2Plans Where Treatment Technology Must Be Developed

For some mixed waste, no treatment technologies have been identified and developed, or treatment technology must be modified or adapted to be made applicable for mixed

waste. For this waste which will be treated on-site, the categories of compliance dates identified in Table 2-2, "Schedule for Mixed Waste Without Existing Treatment Technologies," shall apply. Compliance dates for the activities identified in Table 2-2 may be found in Section 3.32.

Table 2-2 Categories of Activities for Compliance Dates for Mixed Waste without Existing Treatment Technologies

A. Identify and develop technology.
B. Submit permit application to NMED; or
C. Submit a Notification of Intent to perform treatability study to the NMED a minimum of 45 days prior to commencement of the study.
D. Initiate construction as specified in the NMED permit.
E. Commence systems testing.
F. Begin treating mixed wastes.
G. Complete treatment of existing wastes to applicable regulatory standards.

2.4 2.1.3Requirements Pertaining to Radionuclide Separation

The FFCA Act sets additional requirements in cases where the DOE/NNSA intends to conduct radionuclide separation of mixed waste. Should the DOE/NNSA determine to conduct radionuclide separation of such mixed waste, the DOE/NNSA will scheduled specific compliance dates based on category activities identified in Table 2-3, Schedule for Radionuclide Separation of Mixed Waste. "Radionuclide separation" shall means the segregation of the radioactive portion of the mixed waste from the hazardous portion of the mixed waste. Compliance activities identified in Table 2-3 have been completed and therefore compliance dates are no longer applicable.

Table 2-3 Categories of Activities for Radionuclide Separation of Mixed Waste

A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.
D. Provide the assumptions underlying such waste volume and cost estimates.
E. Provide characterization methodologies for determining waste types.
F. Submit a plan for treatment or management of hazardous waste residues accompanied by NMED permit application.

2.5 2.1.4Plans for Mixed Waste to be Shipped Off-site for Treatment

In lieu of plans to treat mixed waste on-site, DOE/NNSA may send waste to an off-site facility for treatment at either a commercial or non-commercial mixed waste treatment facility. Any and all requirements imposed by the off-site facility and state regulatory, federal regulatory or other regulatory requirements applicable to Respondents at the treatment site shall be met by the Respondents.

2.5.1 2.1.4.1Requirements for Commercial Treatment Facilities

Should DOE/NNSA decide to send waste to a commercial off-site facility for treatment, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a commercial facility are identified in Table 2-4.

Table 2-4 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Commercial Facility

A. Meet all regulatory requirements for off-site shipment.
B. Provide documentation to NMED that each waste shipment has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.

2.5.2 2.1.4.2Requirements for Non-commercial Treatment Facilities

DOE/NNSA shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a non-commercial facility. Notification should be made if possible when DOE/NNSA is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. Documentation shall be provided to NMED of confirmation of shipment date within fourteen (14) working days prior to sending waste to an off-site facility for treatment, disposal or storage pending treatment or disposal. The NMED Project Manager shall approve in writing the off-site non-commercial treatment option proposed by DOE/NNSA for each TGtreatability group prior to any shipment by DOE/NNSA. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a non-commercial facility are identified in Table 2-5.

Prior to shipment, the non-commercial treatment facility and their appropriate regulatory agency shall be notified of any pending waste shipments should DOE/NNSA ship mixed waste. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes. Management of post-treatment waste residuals or newly generated waste streams considered hazardous will be in accordance with all applicable local, state, and federal requirements. The Permit RCRA permit for SNL/NM must provides for the return of wastes and/or residuals to SNL/NM for 90 daysprior to any such return of wastes and/or residuals to SNL/NM. If a permit modification is required to address other anticipated issues, such modification must be approved by NMED prior to shipment of covered wastes to the off-site facility. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible, and in any event within thirty (30) working days after receipt of shipment of treatment residuals or newly generated waste streams.

Table 2-5 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Non-commercial Facility

A. Request necessary approval from NMED for shipment of mixed waste by treatment group before shipping.
B. Meet all regulatory requirements for off-site shipment.
C. Provide documentation to NMED of confirmation of shipment date within 14 working days prior to sending mixed waste to an off-site facility for treatment, disposal or storage pending treatment or disposal.
D. Provide documentation to NMED that mixed waste has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.
E. Meet all regulatory requirements to include RCRA Permit modifications for receipt of residual or newly generated mixed waste streams after treatment that meet the definition of a hazardous waste.
F. Provide documentation to NMED within 30 working days after receipt of residual or newly generated waste streams upon return to SNL/NM.

2.6 2.1.5Plans for Recycling

Recycling is a parallel preferred option for each preferred treatment technology. Should the DOE/NNSA decide to recycle covered waste, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of the waste at the recycling facility or by the recycler. Activities for mixed waste recycling are identified in Table 2-6. Once a covered waste volume has

been recycled or re-used, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

Table 2-6 Activities for Mixed Waste Recycling

A. Meet all regulatory requirements for off-site shipment, if applicable.
B. Provide documentation to NMED that each waste shipment has been received for recycling within 45 working days of receipt of waste by the recycler.

Should the DOE/NNSA decide to re-use material included in the covered waste inventory, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

2.7 ~~2.1.6~~Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called out in the FFCA~~ Act~~ as requiring schedules are described in the STP. Some of these activities may be associated with schedules that may contain information related to treatment of the DOE/NNSA's mixed waste.~~, such as:~~

For mixed waste which is not sufficiently characterized to allow identification of appropriate treatment, notification of the characterization of such waste shall be in accordance with the annual update process as pursuant to the FFCO. If such characterization results in the addition or deletion of a TG~~treatability group~~ or an increase in volume in a TG~~treatability group~~ meeting the criteria in the FFCO, a revision would be required pursuant to Section X *Revisions* of the FFCO.

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3.0 MIXED WASTE TREATMENT PLAN AND SCHEDULES

Mixed wastes at SNL/NM are assigned to one of the 28 TGs that have been established in the STP. TGs 1 through 27 and TG-MTRU describe mixed wastes according to their physical and chemical characteristics and applicable treatment technologies. Many TGs include multiple treatment technologies. The technologies, applicable TGs, and compliance schedules are presented in this section.

3.1 3.2Compliance Dates for Treatability Groups

The activities that require schedules are shown in Tables 2-1 through 2.62-5. Below are listed each SNL/NM TGtreatability group and the schedule for these activities. Treatability Ggroups with the same treatment and schedule are presented together.

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-1 for "Categories of Activities for Compliance Dates for Mixed Waste With Existing Treatment Technology" are presented for TGs 1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-2 for "Categories of Activities for Compliance Dates for Mixed Waste Without Existing Treatment Technology" are presented for TG 11

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-3 for "Categories of Activities for Compliance Dates for Radionuclide Separation of Mixed Waste" are presented for neutron generators in TG 1

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-4 and 2-5 for "Activities for Mixed Waste To Be Shipped Off-site For Treatment" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-6 for "Activities for Mixed Waste Recycling" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, and 26

- Other activities are presented with planning schedules for informational purposes for management of TG 10 and Suspect TRU Mixed Waste

3.2 3.1Mixed Waste for Which Technology Exists

It is expected that the preferred treatment technologiesy identified in this section as on-site treatment options will be implemented at the SNL/NM Radioactive and Mixed Waste Management Unit or other appropriate on-site RCRA permitted units. All on-site treatment of covered wastes will be performed in accordance with applicable regulations and requirements of the Permit or any other RCRA permit for treatment of hazardous or mixed wastes at SNL/NM. On-site mixed waste treatment capabilities do not currently adequately address the preferred treatment technologies for some of SNL/NM's specific waste types; off-site treatment is the preferred option for such wastes.

3.2.1 3.1.1.1Deactivation (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is deactivation. Current waste quantities are shown for each TG.

- TG 1 – Inorganic Debris with Explosive (0 m^3). The neutron generator portion of TG 1 is disassembled to remove the explosive, which is managed as hazardous waste. The remaining portion is managed appropriately either as radioactive waste or as mixed waste. Planning schedules for activities related to the neutron generators are presented in Section 3.4.2.
- TG 2 – Inorganic Debris with Water Reactive (0 m^3)
- TG 3 – Reactive Metals (0 m^3)

~~The preferred treatment technology for these treatability groups is Deactivation. The neutron generator portion of Treatability Group 1 was disassembled to remove the explosive, which was managed as hazardous waste. The remaining portion was managed as radioactive waste or as mixed waste. Planning schedules for activities related to the neutron generators are presented in Section 3.3.~~ Shipment off-site for treatment is a parallel preferred option ~~for Deactivation~~. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 ~~Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, ~~the~~ DOE/NNSA shall act in accordance with Section 2.62.1.5 ~~Plans for Recycling~~.

Table 3-1 Deactivation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed

Activity	Compliance Date
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.2 3.1.1.2Macroencapsulation (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is macroencapsulation. Current waste quantities are shown for each TG.

- TG 4 – Elemental Lead (0 m^3)
- TG 9 – Inorganic Debris with TCLP Metals (0 m^3)
- TG 12 – Organic Debris with TCLP Metals (0 m^3)

~~The preferred treatment technology for each of these treatability groups is Macroencapsulation.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste at an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-2 Macroencapsulation Schedule

Activity	Compliance Date
A. Submit permit application, amendment, or modification to NMED	Completed
B. Complete recycling/treatment of mixed waste to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020

Activity	Compliance Date
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.3 3.1.1.3Neutralization followed-by Stabilization (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is neutralization followed by stabilization. The current waste quantity is shown.

- TG 5 – Aqueous Liquids (0 m^3)

~~The preferred treatment technology for this treatability group is Neutralization followed by Stabilization.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 ~~Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 ~~Plans for Recycling~~.

Table 3-3 Neutralization followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.4 ~~3.1.1.4~~Amalgamation (On-site ~~at~~by SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is amalgamation. The current waste quantity is shown.

- TG 6 – Elemental Mercury (0 m^3)

The Mercury Export Ban Act (Public Law 110-414) amended the Toxic Substances Control Act (TSCA) in 15 United States Code (USC) 2605(f) and prohibits Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and NTESS~~Sandia~~ will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted. ~~The preferred treatment technology for this treatability group is Amalgamation.~~

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~.

Table 3-4 Amalgamation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024~~2020~~
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024~~2020~~
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.5 ~~3.1.1.5~~Incineration (Off-site by Treatment Facility/Recycling)

The preferred treatment technology for these TGs is incineration at an off-site facility. Current waste quantities are shown for each TG.

- TG 7 – Organic Liquids I (0 m^3)
- TG 18 – Particulates and Soils with Organic Contaminants (0 m^3)

~~The preferred treatment technology for these treatability groups is Incineration at an off-site facility.~~ Should DOE/NNSA decide to send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-5 Incineration Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility.	December 31, 20242020
B. Provide documentation to NMED that waste was received at off-site facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.6 ~~3.1.1.6~~Thermal Desorption (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is thermal desorption. The current quantity is shown.

- TG 8 – Organic Debris (0 m^3)

~~The preferred treatment technology for this treatability group is Thermal Desorption.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-6 Thermal Desorption Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 20242020
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.7 ~~3.1.1.7~~Deactivation followed by Stabilization (On-site at~~by~~ SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for these TGs is deactivation followed by stabilization. Current waste quantities are shown for each TG.

- TG 13 – Oxidizers (0 m^3)
- TG 20 – Propellant with TCLP Metals (0 m^3)

~~The preferred treatment technology for this treatability group is Deactivation followed by Stabilization.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-7 Deactivation followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment to applicable regulatory standards, or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024~~2020~~
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.8 ~~3.1.1.8~~Evaporative Oxidation (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is evaporative oxidation. The current waste quantity is shown.

- TG 14 – Aqueous Liquids with Organic Contaminants (0 m^3)

~~The preferred treatment technology for this treatability group is Evaporative Oxidation.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide

to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-8 Evaporative Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.9 3.1.1.9Stabilization (On-site atby SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is stabilization. Current waste quantities are shown for each TG.

- TG 15 – Soils <50% Debris & Particulates with TCLP Metals (0 m^3)
- TG 19 – Liquids with Metals (0 m^3)

The preferred treatment technology for this treatability group is Stabilization. Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the shipments shall be managed in accordance with Section 2.52.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-9 Stabilization Schedule

Activity	Compliance Date
A. Initiate set-up of laboratory operation	Obtain new permit or modify or amend existing NMED permit if required

Activity	Compliance Date
B. Complete systems testing and commence operation and begin treating mixed waste.	Completed
C. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
D. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.10 ~~3.1.1.10~~Oxidation (On-site ~~at~~by SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is oxidation. The current waste quantity is shown.

- TG 16 – Cyanide Waste (0 m^3)

~~The preferred treatment technology for this treatability group is Oxidation.~~ Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5~~2.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-10 Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.11 ~~3.1.1.11~~Incineration followed by Stabilization (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is incineration followed by stabilization, as required, at an off-site treatment facility. The current waste quantity is shown.

- TG 17 – Liquid/Solid with Organic and/or Metal Contaminants (0 m^3)

~~The preferred treatment technology for this treatability group is Incineration followed by Stabilization, as required, at an off-site treatment facility.~~ Stabilization is required for the treatment of waste that contains metals contamination. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5~~2.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

Table 3-11 Incineration/Stabilization Schedule

Activity	Compliance Date
A. Complete treatment to applicable regulatory standards or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024~~2020~~
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.12 ~~3.1.1.12~~Off-site Shipment / On-site Macroencapsulation at SNL/NM

The preferred treatment technology for these TGs is shipment to an off-site facility for treatment and disposal. Current waste quantities are shown for each TG.

- TG 21 – Sealed Sources with TCLP Metals (0 m^3)
- TG 24 – Spark Gap Tubes with TCLP Metals (0 m^3)
- TG 26 – Debris Items with Reactive Compounds and TCLP Metals (0 m^3)

~~The preferred treatment technology for this treatability group is shipment to an off-site facility for treatment and disposal.~~ Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5~~2.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment~~. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6~~2.1.5 Plans for Recycling~~.

A parallel treatment option is on-site macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending development of further treatment and disposal options. On June 3, 2004, the NMED approved a site-specific treatment variance to allow for macroencapsulation of less than debris sized manufactured items exhibiting the toxicity characteristic for metal(s), containing radioactive material, and potentially externally contaminated with radioactive materials (Bearzi 2004). These items include radioactive sources (TG 21) and radioactive materials such as various gap tubes (TG 24).

Table 3-12 Off-site Shipment / Macroencapsulation Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete on-site macroencapsulation of waste, or	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.13 3.1.1.13Size Reduction followed by Stabilization/Deactivation followed by Macroencapsulation

The preferred treatment technology for this TG is stabilization at an off-site treatment facility. The current waste quantity is shown.

- TG 23 – Thermal Batteries (0 m^3)

The preferred treatment technology for this treatability group is stabilization at an off-site treatment facility. Deactivation followed by macroencapsulation is a parallel preferred option. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.52.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-13 Stabilization Schedule

Activity	Compliance Date
A. Render existing thermal batteries non-reactive	Completed
B. Provide progress report of current status and availability of treatment and/or disposal options	Completed

Activity	Compliance Date
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3 3.2Mixed Waste for Which Technology Must be Developed

The DOE/NNSA and NTESS haveSNL/NM has TGstreatability groups for which the preferred treatment option is a treatment technology that requires adaptation in order to treat hazardous waste that is radioactive and may contain PCBs or high levels of mercury.

3.3.1 3.2.1Hydrothermal Processing (On-site by SNL/NM/Off-site Treatment/Recycling)

Hydrothermal processing was identified in the STP as the preferred treatment technology for this TG. The current waste quantity is shown.

- TG 11 – Organic Liquids II (0 m^3)

Hydrothermal processing was identified in the STP as the preferred treatment technology for TG 11 Organic Liquids II. Development of this treatment technology is on indefinite hold. As required by the CPV, respondents submitted treatment schedules and options for the NMED's approval prior to the compliance date of November 30, 1998. The treatment schedule submitted reflected the approval by the NMED for off-site shipment (Revision 1) and the approval of February 28, 2001, as an initial compliance date for shipments (Revision 2).

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-14 Off-site Shipment Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3.2 3.2.2Stabilization of High Mercury Materials (On-site/Off-site Treatment)

The technology-based treatment standard for wastes in the following TG is incineration (IMERC) or retorting and recovery (RMERC). The current waste quantity is shown.

- TG 27 – High Mercury Solids and Liquids (0 m^3)

The technology-based treatment standard for high mercury solids and oils is incineration (IMERC) or retorting and recovery (RMERC). These technologies have not been available for mixed waste. The compliance activities and dates associated with this TG may be impacted by the Mercury Export Ban Act (Public Law 110-414) which amended the TSCA in 15 USC 2605(f) restricting Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and Sandia will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted.

The preferred treatment technology for this TG treatability group is shipment to an off-site treatment facility. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.52.1.4, Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-15 High Mercury Solids and Liquids Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete recycling/treatment of wastes to applicable regulatory standards or,	December 31, 20242020
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.4 3.3Other Types of Mixed Waste Activities

This section describes activities that will be performed to reduce the mixed waste in inventory at SNL/NM.

3.4.1 3.3.1Sorting of Heterogeneous Debris

These TGs contain heterogeneous assortments of debris. Current waste quantities are shown. Each TG is discussed separately.

- TG 10 – Heterogeneous Debris (0 m^3)
- TG 25 – Classified Items with TCLP Metals (0 m^3)

This treatability group contains a heterogeneous assortment of debris. Therefore, Tthe treatability group requires sorting the waste in TG-10 must be sorted into, for example, organic and inorganic debris TGstreatability groups (TG 8 and TG 9), or other TGstreatability groups as appropriate for which preferred treatment options have been selected. The sorting process began on June 30, 1995.

Shipment off-site for treatment is a preferred option for the wastes in TG 10. Treatment on-site according to the appropriate TGtreatability group is an alternate preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-16 Heterogeneous Debris Schedule

Activity	Compliance Date
A. Complete sorting of wastes or	December 31, 20242020
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 20242020
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 20242020

- TG 25 - Classified Items with TCLP Metals (0 m3)

This TG 25treatability group contains a heterogeneous assortment of classified items and debris. As such, the wastes in TG 25this treatability group must be sorted requires sorting the waste into other TGtreatability groups as appropriate for which preferred treatment options have been selected. The sorting process may include, but not be limited to, physical sorting, separation, disassembly, and/or de-classification.

Shipment off-site for treatment and/or disposal is the preferred option for TG-25. The parallel preferred treatment option is on-site treatment by macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending the development of further treatment and disposal options. Sorting and/or de-classification activities may be necessary to process the classified mixed waste into items suitable for further treatment on-site or shipment off-site to treatment and/or disposal facilities. Should DOE/NNSA send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.52.1.4 Plans for Mixed Waste to be Shipped Off-site for Treatment. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.62.1.5 Plans for Recycling.

Table 3-17 Classified Items with TCLP Metals Schedule

Activity	Compliance Date
A. Complete sorting or on-site treatment of wastes or	December 31, 20242020
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2022020
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 20242020

3.4.2 3.3.2Mixed Waste for Which Radionuclide Separation is Planned

Radionuclide separation is planned for certain wastes in this TG. The current waste quantity is shown.

- TG 1 – Inorganic Debris with Explosive Component (0 m^3)

Treatability Group 1, Inorganic Debris with Explosive Component Nneutron generators in this TG. These items will be disassembled to yield an explosive waste stream that is not mixed, and a radioactive portion that may be mixed. The radioactive portion of the assembled items will be physically separated from the explosive portion.

Table 3-18 Radionuclide Separation Schedule (On-site by SNL)

Activity	Compliance Date
A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.	Completed
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.	Completed
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.	Completed
D. Provide the assumptions underlying such waste volume and cost estimates.	Completed
E. Provide characterization methodologies for determining waste types	Completed
F. Submit a plan for treatment or management of hazardous waste residues as appropriate.	Completed

3.5 ~~4.0~~Mixed Transuranic Waste

Treatment technologies and disposal options for transuranic waste were not available when the STP was developed. The current waste quantity is shown.

~~**Treatment Group(s):**~~

- TG MTRU – Assorted Mixed Transuranic Waste (~~2.0~~2.323 m^3)

~~**Treatment Technology:**~~

Respondents are required to manage mixed transuranic (MTRU) waste at SNL/NM according to the schedule set forth below. The schedule was developed based on the assumption that WIPP would be a disposal option. DOE/NNSA received a variance from treatment standards for land disposal of MTRU waste to be disposed at WIPP (Waste Isolation Pilot Plant Land Withdrawal Act Amendments, Public Law 104-201, Sept. 1996); therefore MTRU wastes to be shipped to WIPP for disposal will be prepared in accordance with the WIPP waste acceptance criteria.

Table 3-19 Mixed Transuranic Waste Schedule

Activity	Compliance Date
A. Development of treatment technology	Completed
B. Submit permit application amendment, or modification to NMED for treatment of MTRU waste	Completed
C. Complete preparation of existing MTRU wastes for on-site certification or shipment to an off-site certifying facility	Within three (3) years after a) the applicable state's approval of the certifying facility's revised RCRA permit allowing them to receive SNL/NM waste b) the certifying facility is certified by WIPP for heterogeneous and/or homogeneous MTRU waste, as applicable, and c) the certifying facility's waste acceptance criteria are met.
D. Complete shipping of existing MTRU waste to an off-site facility for certification and disposal at the WIPP facility or direct shipment of certified MTRU waste to WIPP	December 31, 20242020
E. Provide documentation to NMED that MTRU waste was received at an off-site certifying facility or at WIPP	Within 45 working days of receipt of waste at certifying facility

~~The above schedule was developed based on the assumption that WIPP would be a disposal option. DOE/NNSA received a variance from treatment standards for land disposal of MTRU waste to be disposed at WIPP (Waste Isolation Pilot Plant Land Withdrawal Act Amendments, Public Law 104-201, Sept. 1996); therefore MTRU wastes to be shipped to WIPP for disposal will be prepared in accordance with the WIPP waste acceptance criteria.~~

~~All revisions to compliance dates shall be in accordance with the procedures set forth in the FFCO.~~

4.0 QUANTITIES OF COVERED MIXED WASTE

Table 4-1 shows the current quantity of waste in each TG and the estimated quantity on December 31, 2024. The current quantity is reported in the Annual Site Treatment Plan for Mixed Waste Update for Fiscal Year 2019 (DOE 2020).

Table 4-1 Proposed Revision 1615 Summary of Treatability Groups and Associated Volumes

TG and Description	FY1915 Annual STP Update Volume[a]	Proposed Revision 1615 Volume
TG 1 Inorganic Debris with Explosive Component	0 m^3	0 m^3
TG 2 Inorganic Debris with a Water Reactive Component	0 m^3	0 m^3
TG 3 Reactive Metals	0 m^3	0 m^3
TG 4 Elemental Lead	0 m^3	0 m^3
TG 5 Aqueous Liquids (Corrosive)	0 m^3	0 m^3
TG 6 Elemental Mercury	0 m^3	0 m^3
TG 7 Organic Liquids I	0 m^3	0 m^3
TG 8 Organic Debris with Organic Contaminants	0 m^3	0 m^3
TG 9 Inorganic Debris with TCLP Metals	0 m^3	0 m^3
TG 10 Heterogeneous Debris	0 m^3	0 m^3
TG 11 Organic Liquids II	0 m^3	0 m^3
TG 12 Organic Debris with TCLP Metals	0 m^3	0 m^3
TG 13 Oxidizers	0 m^3	0 m^3

[a] Volumes indicated are those in the most recent annual update.

Continued next page

Table 4-1 Proposed Revision 1615
Summary of Treatability Groups and Associated Volumes (concluded)

TG and Description	FY1915 Annual STP Update Volume[a]	Proposed Revision 1615 Volume
TG 14 Aqueous Liquids with Organic Contaminants	0 m^3	0 m^3
TG 15 Soils <50% Debris & Particulates with TCLP Metals	0 m^3	0 m^3
TG 16 Cyanide Waste	0 m^3	0 m^3
TG 17 Liquid/Solid with Organic and/or Metal Contaminants	0 m^3	0 m^3
TG 18 Soils <50% Debris & Particulates with Organic Contaminants	0 m^3	0 m^3
TG 19 Liquids with Metals	0 m^3	0 m^3
TG 20 Propellant with TCLP Metals	0 m^3	0 m^3
TG 21 Sealed Sources with TCLP Metals	0 m^3	0 m^3
TG 22 Reserved	Not Applicable	Not Applicable
TG 23 Thermal Batteries	0 m^3	0 m^3
TG 24 Spark Gap Tubes with TCLP Metals	0 m^3	0 m^3
TG 25 Classified Items with TCLP Metals	0 m^3	0 m^3
TG 26 Debris Items with Reactive Compounds and TCLP Metals	0 m^3	0 m^3
TG 27 High Mercury Solids and Liquids	0 m^3	0 m^3
MTRU Mixed Transuranic Waste	2.3231.0 m^3	3.52.0 m^3

[a] Volumes indicated are those in the most recent annual update.

5.0 REFERENCES

Resource Conservation and Recovery Act of 1976, as amended (42 United States Code §6901 et seq.)

New Mexico Hazardous Waste Act of 1978 (New Mexico Statutes, Section 74-4-1)

Federal Facility Compliance Act of 1992 (42 United States Code §6961)

Waste Isolation Pilot Plant Land Withdrawal Amendments Act of 1996 (Public Law 104-201)

New Mexico Environment Department, October 1995. "Federal Facility Compliance Order Pursuant to the New Mexico Hazardous Waste Act and the Resource Conservation and Recovery Act," prepared by the New Mexico Environment Department in the matter of Respondents U.S. Department of Energy and Sandia Corporation, Sandia National Laboratories, Bernalillo County, New Mexico. October 4, 1995, amended through December 22, 2010.

Bearzi, J. (New Mexico Environment Department), June 2004. Letter to P. Wagner (U.S. Department of Energy/National Nuclear Security Administration/Sandia Site Office) and L. Shephard (Sandia Corporation) "Approval: Site-Specific Variance from Treatment Standards for Certain Mixed Waste Generated at Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-04-006". June 3, 2004.

New Mexico Environment Department, January 2015. "Resource Conservation and Recovery Act Facility Operating Permit, EPA ID NM5890110518, to the U.S. Department of Energy/Sandia Corporation, for the Sandia National Laboratories Hazardous and Mixed Waste Treatment and Storage Units and Post-Closure Care of the Corrective Action Management Unit," January 27, 2015, as modified and updated.

New Mexico Environment Department, January 2016. Settlement Agreement and Stipulated Final Order," Resource Projection Division, Hazardous Waste Bureau v. United State Department of Energy, and Nuclear Waste Partnership, LLC, Respondents, RE: Waste Isolation Pilot Plan Eddy County, New Mexico, HW-14-21. January 22, 2016.

Kieling, J. (New Mexico Environment Department), October 2016. Letter to D. Rast (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and J. Jarry (Sandia Corporation) "Approval: Revision Number 15 to the Mixed Waste Site Treatment Plan, Compliance Plan Volume, for Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-16-011. October 19, 2016.

Rast, D (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and Jarry, J. (Sandia Corporation), April 2017. Letter to B. Salem (New Mexico Environment Department) “Federal Facility Compliance Order Notification of Management and Operating Contractor Name Change, Sandia National Laboratories/New Mexico.” April 26, 2017.

ENCLOSURE C

Proposed Revision 16 to Sandia National Laboratories
Mixed Waste Site Treatment Plan
Compliance Plan Volume

Revisions in Final Format

Sandia National Laboratories/New Mexico

SITE TREATMENT PLAN FOR MIXED WASTE COMPLIANCE PLAN VOLUME REVISION 16

SANDIA NATIONAL LABORATORIES, NEW MEXICO

MAY 2020

United States Department of Energy
National Nuclear Security Administration
Sandia Field Office

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

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ACRONYMS AND ABBREVIATIONS

BV	Background Volume
CFR	Code of Federal Regulations
CPV	Compliance Plan Volume
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFCA	Federal Facilities Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
LDR	land disposal restriction
m^3	cubic meters
MTRU	mixed transuranic
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NTESS	National Technology & Engineering Solutions of Sandia, LLC
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories, New Mexico
STP	Site Treatment Plan
TCLP	Toxicity Characteristic Leaching Procedure
TG	treatability group
TRU	transuranic
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	Unites States Code
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTION

1.1 Background

On October 6, 1992, Congress passed the Federal Facilities Compliance Act (FFCA) (FFCA 1992) to address compliance by the United States Department of Energy (DOE) with the land disposal restrictions (LDR) for the storage of mixed waste set forth in Section 3004(j) of the Resource Conservation and Recovery Act (RCRA) (RCRA 1976). The FFCA required the DOE to submit a Site Treatment Plan (STP) each facility, for developing treatment capacities and technologies to treat all of the facility's mixed waste, regardless of the time generated, to the standards promulgated pursuant to Section 3004 (m) of RCRA. The FFCA provided that the appropriate regulatory authority, the New Mexico Environment Department (NMED), may approve, approve with modifications or disapprove the STP. Prior to making such a determination, NMED is required by the FFCA to provide public notice, consider public comments, and consult with the Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On March 31, 1995, DOE submitted its proposed STP to NMED for mixed waste at Sandia National Laboratories (SNL/NM). On April 17, 1995, the public was given notice of and an opportunity to comment to NMED on the draft STP submitted by DOE. After considering public comment and otherwise complying with the FFCA, the NMED determined to approve the draft STP with modifications as provided in this document. The STP was fully implemented by a Federal Facility Compliance Order (FFCO) issued by NMED on October 4, 1995 (NMED 1995). Wastes that are subject to the FFCO and STP are defined in Section V.A *Covered Waste* of the FFCO.

On January 27, 2015, the NMED issued the Resource Conservation and Recovery Act Facility Operating Permit (Permit) to DOE/NNSA and its Management and Operating contractor (NMED 2015). The Permit will remain in effect until February 26, 2025.

Several on-site hazardous and mixed waste management activities are authorized under the Permit. The following authorized technologies are applicable to covered wastes.

- Storage
- Treatment by chemical deactivation (e.g., neutralization, detonation)
- Treatment by thermal deactivation
- Treatment by stabilization and solidification
- Treatment of elemental mercury by amalgamation
- Treatment by macroencapsulation
- Physical treatment (e.g., separation, size reduction)

1.2 Purpose and Scope of the Site Treatment Plan

The STP is intended to fulfill the requirements of the FFCA and establishes an enforceable framework to allow the DOE/National Nuclear Security Administration (NNSA) and its Management and Operating contractor, Sandia Corporation (now named National Technology & Engineering Solutions of Sandia, LLC [NTESS]) (Rast 2017), collectively termed Respondents, to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth herein are enforceable time periods in which Respondents will be required to develop treatment capacities and technologies; and treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA.

The STP includes an inventory of mixed wastes subject to the FFCO and STP at SNL/NM. The wastes are assigned to treatability groups (TGs) based on physical and chemical characteristics and applicable treatment technologies.

The STP contains two volumes.

- The Compliance Plan Volume (CPV) of the STP provides overall schedules originally developed in 1995, including dates for achieving compliance with LDR storage and treatment requirements for covered mixed waste at SNL/NM. The CPV includes schedules for the submittal of applications for permits, construction of treatment facilities, technology development, off-site transportation for treatment, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulation at 20 NMAC 4.1, which incorporates by reference 40 CFR Parts 260 through 270. Many of the activities in the CPV have been completed, as reflected in the updated schedules shown in this revision.

- The Background Volume of the STP contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CPV of the STP, in accordance with the schedules and requirements set forth in the STP and the FFCO. The progress reports are included in annual updates to the STP that are submitted to the NMED by March 31 each year.

1.3 Revisions to the Site Treatment Plan

A revision is an amendment to the CPV that is either required by NMED or proposed by the Respondents and approved by NMED. The specific criteria and process for revisions are detailed in Section X *Revisions* of the FFCO.

The CPV has been revised 15 times. Revision 15, approved by the NMED October 16, 2016 (Kieling 2016), established compliance dates, treatment technologies, and volumes for covered waste in all TGs.

1.4 Contents

Section 2.0 of this revision to the CPV describes the categories of activities needed to develop and implement treatment technologies for the mixed waste at SNL/NM that is subject to the FFCO and STP.

Section 3.0 of this revision to the CPV describes the individual treatment technologies and identifies the TGs for which the technologies are applicable. Compliance schedules and deadlines are listed for each treatment technology.

Section 4.0 provides a summary of the mixed waste inventory from the most recent progress report and projected changes to the inventory over the period of this revision.

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2.0 COMPLIANCE SCHEDULE

The STP CPV provides overall schedules for achieving compliance with LDR requirements for mixed waste at SNL/NM. The schedules include those activities required to bring existing waste treatment technologies into operation, process backlogged and currently generated waste, and overall time frames for achieving compliance with the LDR requirements under the HWA and 20 NMAC 4.1.

2.1 Categories of Activities for Compliance Dates

The categories of activities for which compliance dates are provided for different types of treatment approaches in the STP are listed in Tables 2-1 through 2-6 below. The categories of activities are based on Section 3021(b)(1)(B)(I), (ii) and (iii) of RCRA, to the extent appropriate.

2.2 Plans Where Treatment Technology Exists

For most of the mixed waste at SNL/NM, treatment technologies have been identified and developed. For the waste that will be treated on-site, the categories of compliance dates identified in Table 2-1 apply. Compliance dates for the activities identified in Table 2-1 may be found in Section 3.2.

Table 2-1 Categories of Activities for Compliance Dates for Mixed Waste with Existing Treatment Technologies

A. Submit permit applications to NMED.
B. Initiate construction as specified in the NMED permit.
C. Complete systems testing and commence operation.
D. Begin treating mixed waste.
E. Complete treatment of existing wastes to applicable regulatory standards.

2.3 Plans Where Treatment Technology Must Be Developed

For some mixed waste, no treatment technologies have been identified and developed, or treatment technology must be modified or adapted to be made applicable for mixed waste. For this waste which will be treated on-site, the categories of compliance dates

identified in Table 2-2 apply. Compliance dates for the activities identified in Table 2-2 may be found in Section 3.3.

Table 2-2 Categories of Activities for Compliance Dates for Mixed Waste without Existing Treatment Technologies

A. Identify and develop technology.
B. Submit permit application to NMED; or
C. Submit a Notification of Intent to perform treatability study to the NMED a minimum of 45 days prior to commencement of the study.
D. Initiate construction as specified in the NMED permit.
E. Commence systems testing.
F. Begin treating mixed wastes.
G. Complete treatment of existing wastes to applicable regulatory standards.

2.4 Requirements Pertaining to Radionuclide Separation

The FFCA sets additional requirements in cases where the DOE/NNSA intends to conduct radionuclide separation of mixed waste. Should the DOE/NNSA determine to conduct radionuclide separation of such mixed waste, the DOE/NNSA scheduled specific compliance dates based on category activities identified in Table 2-3. "Radionuclide separation" means the segregation of the radioactive portion of the mixed waste from the hazardous portion of the mixed waste. Compliance activities identified in Table 2-3 have been completed and therefore compliance dates are no longer applicable.

Table 2-3 Categories of Activities for Radionuclide Separation of Mixed Waste

A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.
D. Provide the assumptions underlying such waste volume and cost estimates.
E. Provide characterization methodologies for determining waste types.
F. Submit a plan for treatment or management of hazardous waste residues accompanied by NMED permit application.

2.5 Plans for Mixed Waste to be Shipped Off-site for Treatment

In lieu of plans to treat mixed waste on-site, DOE/NNSA may send waste to an off-site facility for treatment at either a commercial or non-commercial mixed waste treatment facility. Any and all requirements imposed by the off-site facility and state regulatory, federal regulatory or other regulatory requirements applicable to Respondents at the treatment site shall be met by the Respondents.

2.5.1 Requirements for Commercial Treatment Facilities

Should DOE/NNSA decide to send waste to a commercial off-site facility for treatment, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a commercial facility are identified in Table 2-4.

Table 2-4 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Commercial Facility

A. Meet all regulatory requirements for off-site shipment.
B. Provide documentation to NMED that each waste shipment has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.

2.5.2 Requirements for Non-commercial Treatment Facilities

DOE/NNSA shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a non-commercial facility. Notification should be made if possible when DOE/NNSA is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. Documentation shall be provided to NMED of confirmation of shipment date within fourteen (14) working days prior to sending waste to an off-site facility for treatment, disposal or storage pending treatment or disposal. The NMED Project Manager shall approve in writing the off-site non-commercial treatment option proposed by DOE/NNSA for each TG prior to any shipment by DOE/NNSA. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Activities for mixed waste to be shipped off-site for treatment at a non-commercial facility are identified in Table 2-5.

Prior to shipment, the non-commercial treatment facility and their appropriate regulatory agency shall be notified of any pending waste shipments should DOE/NNSA ship mixed waste. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes. Management of post-treatment waste residuals or newly generated waste streams considered hazardous will be in accordance with all applicable local, state, and federal requirements. The Permit provides for the return of wastes and/or residuals to SNL/NM for 90 days. If a permit modification is required to address other anticipated issues, such modification must be approved by NMED prior to shipment of covered wastes to the off-site facility. DOE/NNSA will notify the NMED Project Manager in writing as soon as possible, and in any event within thirty (30) working days after receipt of shipment of treatment residuals or newly generated waste streams.

Table 2-5 Activities for Mixed Waste to be Shipped Off-site for Treatment at a Non-commercial Facility

A. Request necessary approval from NMED for shipment of mixed waste by treatment group before shipping.
B. Meet <u>all</u> regulatory requirements for off-site shipment.
C. Provide documentation to NMED of confirmation of shipment date within 14 working days prior to sending mixed waste to an off-site facility for treatment, disposal or storage pending treatment or disposal.
D. Provide documentation to NMED that mixed waste has been received at an off-site facility for treatment within 45 working days of receipt of waste at the treatment facility.
E. Meet all regulatory requirements to include RCRA Permit modifications for receipt of residual or newly generated mixed waste streams after treatment that meet the definition of a hazardous waste.
F. Provide documentation to NMED within 30 working days after receipt of residual or newly generated waste streams upon return to SNL/NM.

2.6 Plans for Recycling

Recycling is a parallel preferred option for each preferred treatment technology. Should the DOE/NNSA decide to recycle covered waste, DOE/NNSA will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of the waste at the recycling facility or by the recycler. Activities for mixed waste recycling are identified in Table 2-6. Once a covered waste volume has been recycled or re-used, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

Table 2-6 Activities for Mixed Waste Recycling

A. Meet all regulatory requirements for off-site shipment, if applicable.
B. Provide documentation to NMED that each waste shipment has been received for recycling within 45 working days of receipt of waste by the recycler.

Should the DOE/NNSA decide to re-use material included in the covered waste inventory, the DOE/NNSA and Sandia will request a deletion for the covered waste volume.

2.7 Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called out in the FFCA as requiring schedules are described in the STP. Some of these activities may be associated with schedules that may contain information related to treatment of the DOE/NNSA's mixed waste.

For mixed waste which is not sufficiently characterized to allow identification of appropriate treatment, notification of the characterization of such waste shall be in accordance with the annual update process as pursuant to the FFCO. If such characterization results in the addition or deletion of a TG or an increase in volume in a TG meeting the criteria in the FFCO, a revision would be required pursuant to Section X *Revisions* of the FFCO.

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3.0 MIXED WASTE TREATMENT PLAN AND SCHEDULES

Mixed wastes at SNL/NM are assigned to one of the 28 TGs that have been established in the STP. TGs 1 through 27 and TG-MTRU describe mixed wastes according to their physical and chemical characteristics and applicable treatment technologies. Many TGs include multiple treatment technologies. The technologies, applicable TGs, and compliance schedules are presented in this section.

3.1 Compliance Dates for Treatability Groups

The activities that require schedules are shown in Tables 2-1 through 2.6. Below are listed each SNL/NM TG and the schedule for these activities. Groups with the same treatment and schedule are presented together.

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-1 for "Categories of Activities for Compliance Dates for Mixed Waste With Existing Treatment Technology" are presented for TGs 1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-2 for "Categories of Activities for Compliance Dates for Mixed Waste Without Existing Treatment Technology" are presented for TG 11

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-3 for "Categories of Activities for Compliance Dates for Radionuclide Separation of Mixed Waste" are presented for neutron generators in TG 1

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-4 and 2-5 for "Activities for Mixed Waste To Be Shipped Off-site For Treatment" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, and 27

- The schedules for the activities appropriate to SNL/NM from those listed in Table 2-6 for "Activities for Mixed Waste Recycling" are presented for TGs 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, and 26

- Other activities are presented with planning schedules for informational purposes for management of TG 10 and Suspect TRU Mixed Waste

3.2 Mixed Waste for Which Technology Exists

It is expected that the preferred treatment technologies identified in this section as on-site treatment options will be implemented at the SNL/NM Radioactive and Mixed Waste Management Unit or other appropriate on-site RCRA permitted units. All on-site treatment of covered wastes will be performed in accordance with applicable regulations and requirements of the Permit or any other RCRA permit for treatment of hazardous or mixed wastes at SNL/NM. On-site mixed waste treatment capabilities do not currently adequately address the preferred treatment technologies for some of SNL/NM's specific waste types; off-site treatment is the preferred option for such wastes.

3.2.1 Deactivation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is deactivation. Current waste quantities are shown for each TG.

- TG 1 – Inorganic Debris with Explosive (0 m^3). The neutron generator portion of TG 1 is disassembled to remove the explosive, which is managed as hazardous waste. The remaining portion is managed appropriately either as radioactive waste or as mixed waste. Planning schedules for activities related to the neutron generators are presented in Section 3.4.2.

- TG 2 – Inorganic Debris with Water Reactive (0 m^3)

- TG 3 – Reactive Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, DOE/NNSA shall act in accordance with Section 2.6.

Table 3-1 Deactivation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.2 Macroencapsulation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for the following TGs is macroencapsulation. Current waste quantities are shown for each TG.

- TG 4 – Elemental Lead (0 m^3)
- TG 9 – Inorganic Debris with TCLP Metals (0 m^3)
- TG 12 – Organic Debris with TCLP Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste at an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-2 Macroencapsulation Schedule

Activity	Compliance Date
A. Submit permit application, amendment, or modification to NMED	Completed
B. Complete recycling/treatment of mixed waste to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.3 Neutralization followed-by Stabilization (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is neutralization followed by stabilization. The current waste quantity is shown.

- TG 5 – Aqueous Liquids (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-3 Neutralization followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
E. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
F. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.4 Amalgamation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is amalgamation. The current waste quantity is shown.

- TG 6 – Elemental Mercury (0 m^3)

The Mercury Export Ban Act (Public Law 110-414) amended the Toxic Substances Control Act (TSCA) in 15 United States Code (USC) 2605(f) and prohibits Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and NTESS will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted.

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5.

Table 3-4 Amalgamation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.5 Incineration (Off-site by Treatment Facility/Recycling)

The preferred treatment technology for these TGs is incineration at an off-site facility. Current waste quantities are shown for each TG.

- TG 7 – Organic Liquids I (0 m^3)

- TG 18 – Particulates and Soils with Organic Contaminants (0 m^3)

Should DOE/NNSA decide to send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-5 Incineration Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility.	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.6 Thermal Desorption (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is thermal desorption. The current quantity is shown.

- TG 8 – Organic Debris (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-6 Thermal Desorption Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.7 Deactivation followed by Stabilization (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for these TGs is deactivation followed by stabilization. Current waste quantities are shown for each TG.

- TG 13 – Oxidizers (0 m^3)
- TG 20 – Propellant with TCLP Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-7 Deactivation followed by Stabilization Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Initiate set-up of laboratory operation.	Completed
C. Complete system testing and commence operation and begin treating mixed waste.	Completed
D. Complete recycling/treatment to applicable regulatory standards, or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.8 Evaporative Oxidation (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is evaporative oxidation. The current waste quantity is shown.

- TG 14 – Aqueous Liquids with Organic Contaminants (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-8 Evaporative Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.9 Stabilization (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is stabilization. Current waste quantities are shown for each TG.

- TG 15 – Soils <50% Debris & Particulates with TCLP Metals (0 m^3)
- TG 19 – Liquids with Metals (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the shipments shall be managed in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-9 Stabilization Schedule

Activity	Compliance Date
A. Initiate set-up of laboratory operation	Obtain new permit or modify or amend existing NMED permit if required
B. Complete systems testing and commence operation and begin treating mixed waste.	Completed
C. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
D. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
E. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.10 Oxidation (On-site at SNL/NM/Off-site Treatment/Recycling)

The preferred treatment technology for this TG is oxidation. The current waste quantity is shown.

- TG 16 – Cyanide Waste (0 m^3)

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-10 Oxidation Schedule

Activity	Compliance Date
A. Submit permit application, amendment or modification to NMED	Completed
B. Complete recycling/treatment of mixed wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.11 Incineration followed by Stabilization (Off-site Treatment/Recycling)

The preferred treatment technology for this TG is incineration followed by stabilization, as required, at an off-site treatment facility. The current waste quantity is shown.

- TG 17 – Liquid/Solid with Organic and/or Metal Contaminants (0 m^3)

Stabilization is required for the treatment of waste that contains metals contamination. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-11 Incineration/Stabilization Schedule

Activity	Compliance Date
A. Complete treatment to applicable regulatory standards or shipping of wastes to an off-site treatment/recycling facility	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.12 Off-site Shipment / On-site Macroencapsulation at SNL/NM

The preferred treatment technology for these TGs is shipment to an off-site facility for treatment and disposal. Current waste quantities are shown for each TG.

- TG 21 – Sealed Sources with TCLP Metals (0 m^3)
- TG 24 – Spark Gap Tubes with TCLP Metals (0 m^3)
- TG 26 – Debris Items with Reactive Compounds and TCLP Metals (0 m^3)

Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

A parallel treatment option is on-site macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending development of further treatment and disposal options. On June 3, 2004, the NMED approved a site-specific treatment variance to allow for macroencapsulation of less than debris sized manufactured items exhibiting the toxicity characteristic for metal(s), containing radioactive material, and potentially externally contaminated with radioactive materials (Bearzi 2004). These

items include radioactive sources (TG 21) and radioactive materials such as various gap tubes (TG 24).

Table 3-12 Off-site Shipment / Macroencapsulation Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete on-site macroencapsulation of waste, or	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.2.13 Size Reduction followed by Stabilization/Deactivation followed by Macroencapsulation

The preferred treatment technology for this TG is stabilization at an off-site treatment facility. The current waste quantity is shown.

- TG 23 – Thermal Batteries (0 m^3)

Deactivation followed by macroencapsulation is a parallel preferred option. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-13 Stabilization Schedule

Activity	Compliance Date
A. Render existing thermal batteries non-reactive	Completed
B. Provide progress report of current status and availability of treatment and/or disposal options	Completed
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3 Mixed Waste for Which Technology Must be Developed

The DOE/NNSA and NTESS have TGs for which the preferred treatment option is a treatment technology that requires adaptation in order to treat hazardous waste that is radioactive and may contain PCBs or high levels of mercury.

3.3.1 Hydrothermal Processing (On-site by SNL/NM/Off-site Treatment/Recycling)

Hydrothermal processing was identified in the STP as the preferred treatment technology for this TG. The current waste quantity is shown.

- TG 11 – Organic Liquids II (0 m^3)

Development of this treatment technology is on indefinite hold. As required by the CPV, respondents submitted treatment schedules and options for the NMED's approval prior to the compliance date of November 30, 1998. The treatment schedule submitted reflected the approval by the NMED for off-site shipment (Revision 1) and the approval of February 28, 2001, as an initial compliance date for shipments (Revision 2).

Shipment off-site for treatment is a parallel preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-14 Off-site Shipment Schedule

Activity	Compliance Date
A. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
B. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.3.2 Stabilization of High Mercury Materials (On-site/Off-site Treatment)

The technology-based treatment standard for wastes in the following TG is incineration (IMERC) or retorting and recovery (RMERC). The current waste quantity is shown.

- TG 27 – High Mercury Solids and Liquids (0 m^3)

These technologies have not been available for mixed waste. The compliance activities and dates associated with this TG may be impacted by the Mercury Export Ban Act (Public Law 110-414) which amended the TSCA in 15 USC 2605(f) restricting Federal agencies from transferring elemental mercury. As long as this prohibition exists, the DOE/NNSA and Sandia will store this waste on-site. However, compliance dates for treatment or shipment activities are included should the prohibition be clarified, modified, or lifted.

The preferred treatment technology for this TG is shipment to an off-site treatment facility. Prior to sending waste to an off-site facility for treatment, the DOE/NNSA shall act in compliance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-15 High Mercury Solids and Liquids Schedule

Activity	Compliance Date
A. Provide progress report of current status and availability of treatment and/or disposal options	Completed
B. Complete recycling/treatment of wastes to applicable regulatory standards or,	December 31, 2024
C. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
D. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	Within 45 working days of receipt of waste at treatment/recycling facility

3.4 Other Types of Mixed Waste Activities

This section describes activities that will be performed to reduce the mixed waste in inventory at SNL/NM.

3.4.1 Sorting of Heterogeneous Debris

These TGs contain heterogeneous assortments of debris. Current waste quantities are shown. Each TG is discussed separately.

- TG 10 – Heterogeneous Debris (0 m^3)
- TG 25 – Classified Items with TCLP Metals (0 m^3)

The waste in TG-10 must be sorted into, for example, organic and inorganic debris TGs (TG 8 and TG 9), or other TGs as appropriate for which preferred treatment options have been selected. The sorting process began on June 30, 1995.

Shipment off-site for treatment is a preferred option for the wastes in TG 10. Treatment on-site according to the appropriate TG is an alternate preferred option. Should DOE/NNSA decide to send waste to an off-site facility for treatment in lieu of plans to treat such waste on-site, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-16 Heterogeneous Debris Schedule

Activity	Compliance Date
A. Complete sorting of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 2024
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

TG 25 contains a heterogeneous assortment of classified items and debris. As such, the wastes in TG 25 must be sorted into other TGs as appropriate for which preferred treatment options have been selected. The sorting process may include, but not be limited to, physical sorting, separation, disassembly, and/or de-classification.

Shipment off-site for treatment and/or disposal is the preferred option for TG-25. The parallel preferred treatment option is on-site treatment by macroencapsulation followed either by shipment to an off-site facility for disposal, or by storage pending the development of further treatment and disposal options. Sorting and/or de-classification activities may be necessary to process the classified mixed waste into items suitable for further treatment on-site or shipment off-site to treatment and/or disposal facilities. Should DOE/NNSA send waste to an off-site facility for treatment, the DOE/NNSA shall act in accordance with Section 2.5. Should DOE/NNSA decide to recycle waste, the DOE/NNSA shall act in accordance with Section 2.6.

Table 3-17 Classified Items with TCLP Metals Schedule

Activity	Compliance Date
A. Complete sorting or on-site treatment of wastes or	December 31, 2024
B. Complete shipping of wastes to an off-site treatment/recycling facility and	December 31, 202
C. Provide documentation to NMED that waste was received at off-site treatment/recycling facility	December 31, 2024

3.4.2 Mixed Waste for Which Radionuclide Separation is Planned

Radionuclide separation is planned for certain wastes in this TG. The current waste quantity is shown.

- TG 1 – Inorganic Debris with Explosive Component (0 m^3)

Neutron generators in this TG will be disassembled to yield an explosive waste stream that is not mixed, and a radioactive portion that may be mixed. The radioactive portion of the assembled items will be physically separated from the explosive portion.

Table 3-18 Radionuclide Separation Schedule (On-site by SNL)

Activity	Compliance Date
A. Complete an estimate of the volume of waste generated by each case of radionuclide separation.	Completed
B. Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation.	Completed
C. Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used.	Completed
D. Provide the assumptions underlying such waste volume and cost estimates.	Completed
E. Provide characterization methodologies for determining waste types	Completed
F. Submit a plan for treatment or management of hazardous waste residues as appropriate.	Completed

3.5 Mixed Transuranic Waste

Treatment technologies and disposal options for transuranic waste were not available when the STP was developed. The current waste quantity is shown.

- TG MTRU – Assorted Mixed Transuranic Waste (2.323 m^3)

Respondents are required to manage mixed transuranic (MTRU) waste at SNL/NM according to the schedule set forth below. The schedule was developed based on the assumption that WIPP would be a disposal option. DOE/NNSA received a variance from treatment standards for land disposal of MTRU waste to be disposed at WIPP

(Waste Isolation Pilot Plant Land Withdrawal Act Amendments, Public Law 104-201, Sept. 1996); therefore MTRU wastes to be shipped to WIPP for disposal will be prepared in accordance with the WIPP waste acceptance criteria.

Table 3-19 Mixed Transuranic Waste Schedule

Activity	Compliance Date
A. Development of treatment technology	Completed
B. Submit permit application amendment, or modification to NMED for treatment of MTRU waste	Completed
C. Complete preparation of existing MTRU wastes for on-site certification or shipment to an off-site certifying facility	Within three (3) years after a) the applicable state's approval of the certifying facility's revised RCRA permit allowing them to receive SNL/NM waste b) the certifying facility is certified by WIPP for heterogeneous and/or homogeneous MTRU waste, as applicable, and c) the certifying facility's waste acceptance criteria are met.
D. Complete shipping of existing MTRU waste to an off-site facility for certification and disposal at the WIPP facility or direct shipment of certified MTRU waste to WIPP	December 31, 2024
E. Provide documentation to NMED that MTRU waste was received at an off-site certifying facility or at WIPP	Within 45 working days of receipt of waste at certifying facility

4.0 QUANTITIES OF COVERED MIXED WASTE

Table 4-1 shows the current quantity of waste in each TG and the estimated quantity on December 31, 2024. The current quantity is reported in the Annual Site Treatment Plan for Mixed Waste Update for Fiscal Year 2019 (DOE 2020).

Table 4-1 Proposed Revision 16 Summary of Treatability Groups and Associated Volumes

TG and Description	FY19 Annual STP Update Volume[a]	Proposed Revision 16 Volume
TG 1 Inorganic Debris with Explosive Component	0 m^3	0 m^3
TG 2 Inorganic Debris with a Water Reactive Component	0 m^3	0 m^3
TG 3 Reactive Metals	0 m^3	0 m^3
TG 4 Elemental Lead	0 m^3	0 m^3
TG 5 Aqueous Liquids (Corrosive)	0 m^3	0 m^3
TG 6 Elemental Mercury	0 m^3	0 m^3
TG 7 Organic Liquids I	0 m^3	0 m^3
TG 8 Organic Debris with Organic Contaminants	0 m^3	0 m^3
TG 9 Inorganic Debris with TCLP Metals	0 m^3	0 m^3
TG 10 Heterogeneous Debris	0 m^3	0 m^3
TG 11 Organic Liquids II	0 m^3	0 m^3
TG 12 Organic Debris with TCLP Metals	0 m^3	0 m^3
TG 13 Oxidizers	0 m^3	0 m^3

[a] Volumes indicated are those in the most recent annual update.

Continued next page

Table 4-1 Proposed Revision 16
Summary of Treatability Groups and Associated Volumes (concluded)

TG and Description	FY19 Annual STP Update Volume[a]	Proposed Revision 16 Volume
TG 14 Aqueous Liquids with Organic Contaminants	0 m^3	0 m^3
TG 15 Soils <50% Debris & Particulates with TCLP Metals	0 m^3	0 m^3
TG 16 Cyanide Waste	0 m^3	0 m^3
TG 17 Liquid/Solid with Organic and/or Metal Contaminants	0 m^3	0 m^3
TG 18 Soils <50% Debris & Particulates with Organic Contaminants	0 m^3	0 m^3
TG 19 Liquids with Metals	0 m^3	0 m^3
TG 20 Propellant with TCLP Metals	0 m^3	0 m^3
TG 21 Sealed Sources with TCLP Metals	0 m^3	0 m^3
TG 22 Reserved	Not Applicable	Not Applicable
TG 23 Thermal Batteries	0 m^3	0 m^3
TG 24 Spark Gap Tubes with TCLP Metals	0 m^3	0 m^3
TG 25 Classified Items with TCLP Metals	0 m^3	0 m^3
TG 26 Debris Items with Reactive Compounds and TCLP Metals	0 m^3	0 m^3
TG 27 High Mercury Solids and Liquids	0 m^3	0 m^3
MTRU Mixed Transuranic Waste	2.323 m^3	3.5 m^3

[a] Volumes indicated are those in the most recent annual update.

5.0 REFERENCES

Resource Conservation and Recovery Act of 1976, as amended (42 United States Code §6901 et seq.)

New Mexico Hazardous Waste Act of 1978 (New Mexico Statutes, Section 74-4-1)

Federal Facility Compliance Act of 1992 (42 United States Code §6961)

Waste Isolation Pilot Plant Land Withdrawal Amendments Act of 1996 (Public Law 104-201)

New Mexico Environment Department, October 1995. "Federal Facility Compliance Order Pursuant to the New Mexico Hazardous Waste Act and the Resource Conservation and Recovery Act," prepared by the New Mexico Environment Department in the matter of Respondents U.S. Department of Energy and Sandia Corporation, Sandia National Laboratories, Bernalillo County, New Mexico. October 4, 1995, amended through December 22, 2010.

Bearzi, J. (New Mexico Environment Department), June 2004. Letter to P. Wagner (U.S. Department of Energy/National Nuclear Security Administration/Sandia Site Office) and L. Shephard (Sandia Corporation) "Approval: Site-Specific Variance from Treatment Standards for Certain Mixed Waste Generated at Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-04-006". June 3, 2004.

New Mexico Environment Department, January 2015. "Resource Conservation and Recovery Act Facility Operating Permit, EPA ID NM5890110518, to the U.S. Department of Energy/Sandia Corporation, for the Sandia National Laboratories Hazardous and Mixed Waste Treatment and Storage Units and Post-Closure Care of the Corrective Action Management Unit," January 27, 2015, as modified and updated.

New Mexico Environment Department, January 2016. Settlement Agreement and Stipulated Final Order," Resource Projection Division, Hazardous Waste Bureau v. United State Department of Energy, and Nuclear Waste Partnership, LLC, Respondents, RE: Waste Isolation Pilot Plan Eddy County, New Mexico, HW-14-21. January 22, 2016.

Kieling, J. (New Mexico Environment Department), October 2016. Letter to D. Rast (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and J. Jarry (Sandia Corporation) "Approval: Revision Number 15 to the Mixed Waste Site Treatment Plan, Compliance Plan Volume, for Sandia National Laboratories/New Mexico, EPA ID NM5890110518, HWB-SNL-16-011. October 19, 2016.

Rast, D (U.S. Department of Energy/National Nuclear Security Administration/Sandia Field Office) and Jarry, J. (Sandia Corporation), April 2017. Letter to B. Salem (New Mexico Environment Department) “Federal Facility Compliance Order Notification of Management and Operating Contractor Name Change, Sandia National Laboratories/New Mexico.” April 26, 2017.