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**RETURN RECEIPT REQUESTED**

Ms. Siona Briley, STP Project Manager  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505-6313

**Subject: Response to NMED's Disapproval of Site Treatment Plan Fiscal Year 2017 Annual Update and Proposed Revision 28.0, Federal Facility Compliance Order HWB-LANL-18-031**

Dear Ms. Briley:

On April 9, 2019, the New Mexico Environment Department (NMED) issued a Disapproval for the Resubmittal of the Site Treatment Plan (STP) Fiscal Year (FY) 2017 Annual Update and Proposed Revision 28.0, Federal Facility Compliance Order. The disapproval letter requested additional revisions to FY17 STP Report to be submitted to NMED no later than May 9, 2019.

The U.S. Department of Energy and Triad National Security, collectively referred to as the Respondents, have made the included corrections by reviewing, verifying and validating data discrepancies from previously submitted STP Reports including FY16 and FY15. Enclosure 1 includes the response to the NMED disapproval.



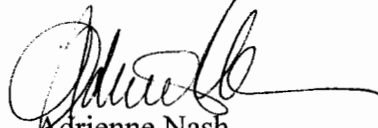
If you have any questions or would like to meet to discuss further, please contact Avril Millensted at (505) 665-3350, or by email at [millensted@lanl.gov](mailto:millensted@lanl.gov); or Adrienne L. Nash at (505) 665-5026, or by email at [adrienne.nash@nnsa.doe.gov](mailto:adrienne.nash@nnsa.doe.gov).

Sincerely,



Avril Millensted  
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Waste Management Programs  
Los Alamos National Laboratory  
Triad National Security, LLC

Sincerely,



Adrienne Nash  
STP Project Manager  
Los Alamos Field Office  
U.S. Department of Energy  
National Nuclear Security Administration

AM/AN:dt

Enclosure      1) Response Comments to NMED's Disapproval Letter, dated April 9, 2019  
                    2) Revised FY17 STP Report (redline track changes and clean copy)

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May 9, 2019

**Los Alamos National Laboratory  
Federal Facility Compliance Order  
Annual Site Treatment Plan Update  
for Fiscal Year 2017 Rev. 28.0**



Prepared by the Waste Management Program

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## **ACRONYMS**

40 CFR	Title 40 of the Code of Federal Regulations
AMWTP	Advanced Mixed Waste Treatment Plant
CCA	Compliance Certification Application
CMR	Chemistry and Metallurgy Research (Building)
CP	Compliance Plan
CVD	Confinement Vessel Disposition (project)
DOE	U.S. Department of Energy
DOE EM	U.S. Department of Energy Environmental Programs
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFCA	Federal Facility Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
HWA	Hazardous Waste Act
HWB	Hazardous Waste Bureau
HWN	hazardous waste number
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LDR	Land Disposal Restrictions (RCRA)
LLW	low-level waste
LWAA	Land Withdrawal Act Amendments
MLLW	mixed low-level waste
MTRU	mixed transuranic (Waste)
MWIR	Mixed Waste Inventory Report
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RNS	Remediated Nitrate Salt

STP	Site Treatment Plan
SWB	standard waste box
TA	Technical Area
TBD	to be determined
TBV	to be verified
TRU	transuranic
TWF	Transuranic Waste Facility
UC	University of California
WCRRF	Waste Characterization, Reduction, and Repacking Facility
WCS	Waste Control Specialists, LLC
WIPP	Waste Isolation Pilot Plant

## **INTRODUCTION**

On October 6, 1992, Congress passed the Federal Facility Compliance Act (FFCA) to address compliance by the U.S. 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). The FFCA requires DOE to submit a Site Treatment Plan (STP) 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 the RCRA. The FFCA provides 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, the FFCA requires NMED to provide public notice, consider public comments, and consult with the U.S. Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On October 4, 1995, NMED issued a Federal Facility Compliance Order (FFCO) to DOE and the management and operating contractor, the University of California (UC) Regents. On June 1, 2006, Los Alamos National Security, LLC (LANS) replaced UC as operating contractor of Los Alamos National Laboratory (LANL). LANS then assumed responsibility for FFCO compliance.

The FFCO required DOE/LANS to implement an STP for the treatment of mixed waste at LANL. The STP is intended to fulfill the FFCA requirements and establish an enforceable framework to allow DOE and LANS (Respondents) to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth in the STP are enforceable time periods in which Respondents are required to treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA.

On March 31, 1995, DOE submitted its proposed STP, which addressed treatment capacities and technologies to treat all of LANL's mixed waste, regardless of the time it was generated, to NMED. On April 17, 1995, the public was provided an opportunity to comment to NMED on DOE's draft STP. After considering public comment and otherwise complying with the FFCA, NMED approved the draft STP with modifications on October 4, 1995.

Section VII of the FFCO requires DOE/LANS to submit an Annual STP Update to NMED each year on or before March 31. The FFCO requires that the Annual Update bring the information in both the Background and the Compliance Plan (CP) current to the end of the previous federal fiscal year (FY). Part I of this Annual Update constitutes the update to the Background. Part II contains the changes that have occurred since the last Annual Update and also identifies proposed revisions and amendments to the CP. Part III incorporates the changes in Part II into the proposed CP revision (Revision 28.0).

## **PART I BACKGROUND UPDATE**

### **1.0 INTRODUCTION**

The Background (Part I) provides the following information.

- The estimated volume of covered waste in storage at the end of the previous FY and anticipated to be placed in storage for the next five FYs.
- A progress report from the end of the previous federal FY describing treatment progress and treatment technology development for each treatment facility and activity scheduled in the STP.
- A description, if applicable, of current or anticipated alternative treatment technology that is being evaluated for use instead of treatment technologies or capacities identified in the STP.
- A description of DOE's funding for STP-related activities and any funding issues that may affect the schedule.
- The status of the "No-Migration Variance Petition" or any treatability variances.
- A progress report on characterization and/or treatment capabilities or plans for mixed transuranic (MTRU) waste related to the waste treatment standards, if any, for the DOE Waste Isolation Pilot Plant (WIPP) facility near Carlsbad, New Mexico.

The STP-covered waste inventory is verified during quality control activities. Inconsistencies in treatability group or volume between the original inventory and the current inventory may exist. These inconsistencies are reconciled annually with the STP update. In an effort to correct these inconsistencies and streamline the STP reporting process DOE/LANS will work on the STP Report function within the waste characterization tracking system (WCATS).

### **2.0 AMOUNT OF EACH COVERED WASTE STORED AT LANL**

#### **2.1 Mixed Low-Level Waste Inventory (Table A-1)**

During FY17, STP-covered mixed low-level waste (MLLW) inventories increased from 59.927 m<sup>3</sup> to 175.033 m<sup>3</sup> (0.625 + 1.477 + 172.931). The increase was mainly due to the recharacterization process of transuranic (TRU)/MTRU waste that resumed in FY16 for waste to be accepted at offsite treatment and disposal facilities (105.078 m<sup>3</sup>). The TRU/MTRU recharacterization process will continue to produce 10-100 nCi/g waste (LA-W935). The TRU/MTRU recharacterization process was due to a backlog of waste as a result of previous shipping pauses, limited shipments to WIPP and past restrictions onsite at Area G. These restrictions delayed the final confirmation, characterization, certification, and shipment for offsite treatment and disposal of these containers. Table 2.1-1 summarizes changes to the estimated FY17 STP-covered MLLW inventory.

Appendix A provides the detailed changes to the FY17 covered MLLW inventory by treatability group, including the inventory at Technical Area (TA) 55 and the Chemistry and Metallurgy Research (CMR) Building. Appendix B (Table B-1) lists the FY16 MLLW shipments. Any administrative adjustments to the MLLW inventory are shown in Appendix C (Table C-1). Detailed information about the administrative adjustments in Table C-1 are shown in Table C-2. The MLLW inventory reported in the FY15 Annual Update is included as Appendix D.

Table 2.1-1 FY17 MLLW Inventory Summary from Table A-1

Contribution	Volume (m <sup>3</sup> ) <sup>1</sup>
Estimated MLLW Inventory Reported in the FY16 Annual Update	59.927
Proposed Revision 28.0	
New-Covered Waste LA-W935	36.780
Administrative Adjustments <sup>2</sup> -0.415 + 21.782 (Table C-1)	21.367
Offsite Treatment LA-W935	-48.119
Reconciled from WCATS inventory	105.078
Offsite Recycle	NA <sup>3</sup>
Onsite Decontamination	NA <sup>3</sup>
Treatability Study Use	NA <sup>3</sup>
<b>Estimated MLLW Inventory Reported in FY17 Annual Update (Table A-1)</b>	<b>175.033</b>

<sup>1</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322

<sup>2</sup> Includes transfers of MTRU and other wastes into MLLW categories

<sup>3</sup> NA = No Activity

## 2.2 Mixed Transuranic (MTRU) Inventory Summary

During FY17, STP-covered MTRU inventories increased from approximately 961.265 m<sup>3</sup> to 1441.738 m<sup>3</sup> (Table 2.2-1).

Table 2.2-1 summarizes changes to the estimated FY17 MTRU covered waste inventory. The total volume of MTRU waste in Table 2.2-1 includes the CMR and TA-55 MTRU volumes, which are maintained in a separate inventory from the MTRU inventory at TA-54. Appendix E contains additional detail for the MTRU inventory; Table E-1 covers the TA-54 inventory and Table E-2 covers the inventory at CMR and TA-55. The volume of STP-covered MTRU waste that is part of the “non-cemented above-ground Environmental Management (EM) Legacy TRU” (MTRU waste only) has been summarized in Appendix E-1 and Section 4.0 of the CP. Appendix F (Table F-1) provides a summary of FY17 MTRU shipments to WIPP. In Appendix G, Tables G-1 and G-2 describe the administrative adjustments that were made to resolve differences in the TA-54 and the CMR/TA-55 MTRU inventory data, respectively. STP-covered MTRU inventory increased because of the WIPP shutdown as of February 14, 2014. DOE/LANS have shipped 23 55-gallon containers, 19 Standard Waste Boxes (SWB) and 1 Ten Drum Overpack (TDOP) from WCS to WIPP during the fourth quarter of fiscal year (FY) 2017 from July 1, 2017, to September 30, 2017. In addition, one non-hazardous waste shipment was completed as of December 31, 2017 to WIPP

Administrative adjustments typically represent the following types of activities:

- DOE/LANS may correct database entries so that waste items not previously listed as STP waste are now identified as STP waste.
- DOE/LANS may correct waste data, such as volume or EPA codes, through quality control activities. Under DOE standards, waste that was formerly classified as MTRU because it had radioactivity greater than 10 nCi/g has been reclassified to MLLW (LA-W935) if its activity is less than 100 nCi/g.

- New analytical data may also require that waste streams previously managed as TRU waste should, as a prudent measure, be reclassified and managed as MTRU waste.
- During repacking or other quality control activities, TRU waste may be recharacterized as MTRU waste when previously unidentified hazardous contents, such as lead, are determined to be present.
- During repacking, treatability groups are frequently reassigned to be consistent with current management and shipping criteria.
- Containers of waste are occasionally determined not to belong to mixed waste streams and are reclassified as TRU waste; removal of WIPP-prohibited items, if they are the only hazardous constituent, will result in the remaining waste being classified as nonmixed.
- Addition or removal of 85-gallon overpacks changes the volume of waste in the inventory; rounding container volumes to three decimal places also changes the inventory volume.

Table 2.2-1 Covered MTRU Inventory Summary

Description		Volume (m <sup>3</sup> )
Covered MTRU Inventory Reported in FY16 [Table E-2] 69.447 m <sup>3</sup> at CMR/TA-55 and [Table E-1] 891.818 m <sup>3</sup> at TA-54		961.265
New-Covered MTRU Waste at TA-54 [Table E-1] 1.878 + 379.841		381.719
New-Covered MTRU Waste at CMR/TA-55 [Table E-2] 22.097 + 94.181 +17.015		133.293
Covered MTRU Waste Shipped to WIPP in FY17 below grade [Table F-1]		-26.128
Covered MTRU Waste Shipped to WIPP in FY14 remaining above grade (on hold per NMED) [Table F-4]	9.048*	Left blank
Covered MTRU Waste Shipped to Waste Control Specialists, LLC (WCS), Texas in FY14 (on hold per NMED) [Table F-2]	155.718*	Left blank
Covered MTRU Waste Shipped to the Advanced Mixed Waste Treatment Plant (AMWTP), Idaho in FY14 (on hold per NMED) [Table F-3]	22.892*	Left blank
Net Administrative Adjustments for TA-54 in FY17 [Table G-1]		0.000
Net Administrative Adjustments for CMR/TA-55 in FY17 [Table G-2]		-8.411
<b>Covered MTRU Inventory at End of FY17</b>		<b>1441.738</b>

\* Volume not to be subtracted from the STP inventory. Removal of this waste from STP inventory is on hold until NMED approval is received.

Appendix G includes changes to the MTRU waste inventory that resulted from repacking activities. MTRU waste volumes in the STP inventory reflect the volume of the container rather than the volume of the contents. When containers are repacked, the STP inventory volume of any given treatability group may either increase or decrease. When a container is repacked, the contents are sometimes split into two or more new containers to meet shipping and waste acceptance criteria or to meet characterization criteria (e.g., nondestructive analysis calibration limits). In addition, the new containers may be assigned to different treatability groups depending on the contents of each drum. Therefore, the volume of a single drum may ‘multiply’ into more volume than the original container. For example, repacking one container of *Cemented Sludge* (0.208 m<sup>3</sup>) may result in one drum of *Combined Combustible-Noncombustible Waste* (0.208 m<sup>3</sup>) and one drum of *Noncombustible Waste* (0.208 m<sup>3</sup>). In addition, changes in the waste volume in the STP inventory occur when an 85-gallon ‘overpack’ is removed from, or added to, a 55-gallon drum

during repackaging. Removal of overpacks decreases the volume of waste in the STP inventory. Adding an overpack to a 55-gallon drum increases the volume of waste shown in the STP inventory.

### **3.0 TREATMENT PROGRESS**

#### **3.1 Offsite Treatment**

During FY17, covered MLLW stream were shipped for treatment and/or disposal to the following offsite commercial treatment facilities: Perma-Fix Northwest, Waste Control Specialists and Energy Solutions.

##### Perma-Fix Northwest

Perma-Fix Northwest, located in Richland, Washington, is a permitted treatment facility for the treatment of low-level radioactive and low-level mixed waste. The site houses both a low-level radioactive waste treatment facility and a low-level mixed waste treatment facility, which are licensed under Nuclear Regulatory Commission regulations (State of Washington licenses WN-I00393-1 and WN-I00508-1) and permitted under RCRA regulations through the State of Washington. The facility can perform thermal treatment, compaction, macroencapsulation, neutralization, and stabilization.

##### Waste Control Solutions, LLC (WCS)

WCS, located in Andrews, Texas, is a permitted treatment facility for the treatment and disposal of LLW and MLLW. The site has regulatory authorization for industrial solid waste and hazardous waste storage, processing, and land disposal under RCRA permit # HW-50358 granted by the state of Texas. EPA has authorized the site for treatment, storage, and land disposal of Toxic Substances Control Act (TSCA) wastes (TXD988088464). The facility can process waste that requires compaction, microencapsulation, macroencapsulation, neutralization, deactivation, chemical oxidation, chemical reduction and stabilization.

##### Energy Solutions, LLC

Energy Solutions, located in Clive, Utah, is a permitted treatment facility for the treatment and disposal of LLW and MLLW. The site houses both a low-level radioactive waste treatment facility and a low-level mixed waste treatment facility, which are licensed under state of Utah Department of Environmental Quality, License Number UT2300249 and by the EPA hazardous waste permit number UT0982598898.

Appendix B summarizes LANL's offsite shipments for treatment and/or disposal of covered MLLW in FY17.

#### **3.2 Offsite Recycling**

DOE/LANS did not recycle any STP-covered waste offsite in FY17.

#### **3.3 Onsite Treatment and Recycling**

DOE/LANS did not treat or recycle any STP-covered waste onsite in FY17.

### **3.4 Onsite Lead Decontamination**

No LANL STP-covered waste was decontaminated onsite during FY17.

### **3.5 Treatability Studies**

DOE/LANS conducted no treatability studies in FY17.

### **3.6 Administrative Adjustments and Corrections**

Administrative adjustments and corrections are due to discrepancies found during quality control activities related to preparing waste for treatment, inventory, and disposal or when preparing the STP Annual Update. A data quality review is conducted annually to compare shipment notifications and shipping manifests with database updates.

#### **3.6.1 Adjustments to MLLW Inventory**

Appendix C (Table C-1) details the administrative adjustments to the MLLW inventory. The principal adjustment reflects the transfer of MTRU waste to MLLW (LA-W935, 10-100 nCi/g). A substantial volume of LANL's STP-covered MTRU waste has been determined to no longer meet the criteria for TRU waste and has been reclassified as MLLW. If previously unidentified hazardous waste constituents, such as lead, are revealed during repacking or other quality control activities, low-level waste may be recharacterized as MLLW. (Appendices C and G).

#### **3.6.2 Adjustments to MTRU Inventory**

During the preparation of the FY17 STP Annual Update, DOE/LANS identified a number of adjustments to the MTRU inventory volume (Appendix G, Tables G-1 and G-2), including additions of newly-identified STP-covered waste, recharacterization of waste, and reclassification of MTRU waste to MLLW. Other adjustments were needed to account for volume changes due to repacking of waste and transfers of waste from one treatability group to another or to correct database entries.

## **4.0 TREATMENT TECHNOLOGY DEVELOPMENT**

During FY17, the availability of commercial and federal facility offsite treatment and disposal capacity for MLLW remained stable. As a result of DOE's increasing reliance on commercial treatment/disposal for mixed wastes, nearly all funding for onsite technology development has been prioritized to support offsite treatment and disposal of mixed wastes. DOE treatment technology development initiatives are generally limited to specific technologies or technology adaptations in response to specific needs that cannot be addressed through commercial facilities.

### **4.1 Treatment Technologies Being Evaluated/Developed**

DOE/LANS continues to monitor the development of other potential treatment technologies that may become available in the future. Some of these technologies are being developed at LANL and at other DOE sites. DOE/LANS is currently developing treatment technologies to address the type of TRU waste associated with the February 14, 2014, release of radioactivity at WIPP. The treatment process is specifically intended to address remaining remediated nitrate salt, unremediated nitrate salt, and dewatered liquids from cemented nitrate salt wastes remaining at LANL, as required by January 22, 2016 Settlement Agreement and Stipulated Final Order, 14-20 (CO) between DOE/LANS and NMED's Hazardous Waste Bureau (HWB).



DOE/LANS re-evaluated all nitrate salt-bearing TRU waste and determined the three types of waste located at LANL that will require treatment prior to acceptance at WIPP. Methods were developed for treatment of these wastes through the use of surrogates for the waste and both onsite and offsite testing facilities. These methods were evaluated for treatment effectiveness. After confirmation of the treatment process for these wastes, permitted onsite treatment was requested from the NMED-HWB and was granted in July 2016. Commencement of treatment for remediated nitrate salt and unremediated nitrate salt wastes is scheduled in 2017.

#### **4.1.1 Offsite Commercial Treatment Facilities**

DOE/LANS continues to monitor the availability and capabilities of offsite commercial facilities for treatment technologies and permitting that are appropriate to LANL waste. These facilities are listed in Appendix H (Table H-1).

#### **4.1.2 Offsite DOE Treatment Facilities**

DOE/LANS continues to monitor the availability and capabilities of offsite DOE facilities for treatment technologies and permitting that are appropriate to LANL waste. In the past, DOE/LANS shipped nine corrugated metal boxes to the Idaho National Laboratory Advanced Mixed Waste Treatment Plant (AMWTP) for treatment. These nine boxes were successfully treated at the AMWTP and are stored at the Waste Control Specialists, LLC (WCS) Texas facility until WIPP is re-opened to ready to accept waste. WIPP has placed these nine containers below ground in FY17.

### **5.0 DOE FUNDING FOR STP-RELATED ACTIVITIES**

Funding to implement the LANL STP for mixed waste during FY17 was sufficient to meet all compliance dates as required by the CP of the STP. However, DOE/LANS shipments were on hold while DOE/LANS addressed safety basis concerns at WIPP and LANL. FY17 funding is available to support all compliance dates established in the STP. Should funding reductions occur that would affect STP compliance dates, DOE and LANS will notify NMED to address compliance schedules and activities.

### **6.0 TREATMENT VARIANCES**

RCRA allows certain case-by-case variances from LDR standards. Variances that may be sought under RCRA relate to requests for substitution of an alternative treatment technology in place of the LDR-required treatment technology. This section discusses any potential treatment variances related to LANL's covered waste, as described below.

#### **6.1 WIPP No-Migration Variance Petition/Land Withdrawal Act Amendments**

WIPP, located near Carlsbad, New Mexico, is a DOE repository for TRU waste generated by the nation's defense-related activities. Some of the TRU waste contains hazardous waste constituents regulated under the RCRA.

The WIPP repository is considered to be a deep geologic repository rather than a shallow landfill. It is wholly sited 2,100 ft below the land surface in a salt bed. Because salt has the advantageous characteristic of slow plastic deformation, it is predicted that the salt will entomb the waste and seal it from the human environment, making potential release of hazardous constituents a low-probability event.

The WIPP Land Withdrawal Act Amendments of 1996 (LWAA) (Public Law 104-201, Section 3188) exempted waste designated by the Secretary of Energy for disposal at WIPP from RCRA's LDRs.

Following passage of the LWAA, the EPA terminated its review of the No-Migration Variance Petition submitted by DOE to EPA in May 1995. EPA formalized its withdrawal by letter to George Dials, DOE/Carlsbad Area Office Manager, dated December 29, 1997.

On October 29, 1996, DOE submitted its Compliance Certification Application (CCA) to EPA. The CCA is intended to demonstrate to EPA that WIPP meets the requirements of Title 40 of the Code of Federal Regulations (40 CFR) Part 191 and 40 CFR Part 194. On October 23, 1997, EPA announced its proposed decision to issue a Certification of Compliance, subject to a number of specified conditions, and to a public comment period of 120 days. On May 18, 1998, EPA published in the Federal Register (63 FR 27354) its final rule certifying that WIPP will comply with the requirements of Subparts B and C of 40 CFR Part 191 and amending the WIPP compliance criteria in 40 CFR Part 194. The final rule became effective June 17, 1998. On March 25, 1999, WIPP received its first shipment of non-mixed (radioactive only) TRU waste from LANL. Other facilities have also shipped non-mixed TRU waste to WIPP. NMED issued a hazardous waste permit for WIPP on October 27, 1999, authorizing DOE to manage, store, and dispose of contact-handled MTRU waste at the facility.

## **6.2 Other Treatment Variance(s)**

No treatment variances were requested or granted in FY17.

## **7.0 WIPP FACILITY CAPABILITIES**

As discussed above, DOE is disposing of its defense TRU waste, both mixed and nonhazardous, in its deep geologic repository at the WIPP near Carlsbad, New Mexico. This facility is a receiving and disposal facility without the capability of routinely opening and repackaging waste. TRU waste will already be containerized when received at the WIPP. The WIPP is not a generator of TRU waste, and, therefore, will receive all of the waste in shipments from offsite. On February 2014, NMED received notice of a release at the WIPP nuclear waste repository. A LANL container sent to WIPP experienced an energetic chemical reaction that ultimately led to the release of radioactive material. In light of recent events, and the potential need to re-remediate all nitrate salt-bearing waste, NMED determined that the removal of MTRU from the STP will be deferred until more information becomes available and it is determined that waste currently stored at the WCS facility and WIPP remaining above grade will not be returned to LANL. All shipments of MTRU covered waste inventory to WIPP were suspended in May 2014 due to the WIPP shutdown. DOE/LANS is anticipated to be allowed one shipment per week starting September 2017.

### **7.1 Characterization Capabilities at WIPP**

Wastes proposed for shipment to WIPP are characterized and certified at LANL by the Central Characterization Project, a contractor to DOE's Carlsbad Field Office.

### **7.2 MTRU Treatment Capabilities and Plans**

WIPP is not required to treat MTRU waste to meet the LDR standards. As described above, the LWAA exempted wastes designated by the Secretary of Energy for disposal at the WIPP from this requirement.

## **PART II COMPLIANCE PLAN UPDATE**

### **1.0 INTRODUCTION**

This update to the CP contains:

- Changes to the CP occurring since the previous Annual Update, including:
  - correspondence, including notices of shipments; and
  - new-covered and deleted waste;
- Proposed revisions and amendments, including:
  - compliance date changes;
  - description of waste deleted in accordance with the requirements in FFCO Section IX, *Deletion of Waste*;
  - documentation of new-covered waste in accordance with the requirements in Section VIII, *Addition of New Covered Waste*; and
  - proposed changes to the overall schedule in the CP.

### **2.0 CHANGES AND REVISIONS TO THE CP OCCURRING SINCE THE PREVIOUS ANNUAL UPDATE**

This section describes revisions, amendments, or other changes to the LANL CP.

#### **2.1 Activities Completed During FY16**

During FY17, no CP Activity milestones were scheduled.

#### **2.2 Expedited Shipment Letters**

Expedited shipment letters are listed in Appendix I, Table I-1.

#### **2.3 Correspondence**

Between October 1, 2016 and September 30, 2017, DOE/LANS communicated with NMED on issues related to:

- FY17 waste shipment notifications;
- FY17 expedited waste shipment notifications;

This correspondence is listed in Appendix I (Table I-2). Previously listed correspondence can be found in the previous FY Annual Reports.

### **3.0 DESCRIPTION OF DELETED WASTE**

A proposal for deletion of STP waste items is included with this update as Proposed Revision 28.0 in accordance with FFCO Section IX, *Deletion of Waste*. These deletions are proposed because the wastes were shipped offsite for treatment, disposal, or recycling or were otherwise determined not to be mixed wastes. These covered wastes are included in Appendix B, Appendix F, and Appendix G.

## 4.0 DOCUMENTATION OF NEW-COVERED WASTE

A proposal for addition of STP waste items is included with this update in accordance with FFCO Section VIII, *Addition of Waste*. These additions consist of wastes placed in storage during FY16 and were proposed to become covered wastes in FY17. These covered wastes are included in Appendix E. Addition of new-covered and newly characterized as MTRU waste to be added to the STP is identified in Section 6.1.

## 5.0 PROPOSED CHANGES TO THE COMPLIANCE PLAN SCHEDULE

DOE/LANS is proposing to revise three milestones: **Activity 3.1.8-2(A)** “complete transfer of existing waste to an offsite treatment facility or complete parallel option” compliance date to September 30, 2021, **Activity 3.3.4-2(A)** “complete radiological characterization” compliance date to September 30, 2022, and **Activity 3.3.4-2(B)** “complete shipment of existing waste to offsite facility for treatment, or complete parallel options” compliance date to September 30, 2022. These milestones address the MLLW waste inventory at TA-54. The contract for operation of TA-54 was awarded to DOE EM/N3B and became effective April 30, 2018.

### I. Compliance Dates and Waste Description

**Activity 3.1.8-2(A):** The MLLW containers covered under the “Compresses Gases Requiring Scrubbing” were generated during the 2010 repacking of MTRU STP inventory of WIPP-prohibited items. Three containers remain in this category. These containers must go through remediation, which will be online within the next year. N3B must submit a permit modification request for modifying the Hazardous Waste Facility Permit (HWFP) to treat these wastes. Readiness activities will be conducted by the DOE before starting operations.

Current proposed compliance date: September 30, 2018.

Proposed Revision 28 compliance date: September 30, 2021.

**Activities 3.3.4-2(A) and 3.3.4-2(B):** The majority of the STP covered MLLW at TA-54 consists primarily of 10-100 nCi/g (LA-W935) generated through the recharacterization/reclassification process of the legacy MTRU waste, which has been determined to no longer meet the criteria for TRU waste. Containers will be re-classes from MTRU to MLLW. N3B must submit a permit modification request for modifying the HWFP to treat these wastes. Readiness activities will be conducted by the DOE before starting operations.

Treatment facilities at TA-54 have not operated in several years; starting up treatment operations includes purchasing and installing treatment equipment and repair work. The facilities were off line for several years, due to realigned priorities to address the manpower and funding required for addressing the Remediated Nitrate Salt (RNS) drums and the Unremediated Nitrate Salt (UNS) drums.

### **Activity 3.3.4-2(A)**

Current proposed compliance date: September 1, 2018.

Proposed Revision 28 compliance date: September 30, 2022.

### **Activity 3.3.4-2(B)**

Current proposed compliance date: September 30, 2018.

Proposed Revision 28 compliance date: September 30, 2022.

## **II. Disposal/Recovery/Treatment Process**

**Activities 3.1.8-2(A), 3.3.4-2(A) and 3.3.4-2(B):** DOE/LANS does not have treatment/disposal capabilities and continues to rely on commercial treatment/disposal pathways for the MLLW. DOE/LANS continues to monitor the availability and capacities of offsite commercial facilities for treatment technologies and permitting that are appropriate to DOE/LANS waste.

## **III. Availability of Noncommercial/Recovery/Commercial Facility**

**Activity 3.1.8-2(A), and Activities, 3.3.4-2(A) and 3.3.4-2(B):** There are commercial and federal facilities for available for offsite treatment and disposal of DOE/LANS MLLW. LANL/DOE treatment technology development initiatives are generally limited to specific technologies in response to specific needs that cannot be addressed through commercial facilities.

## **IV. Justification for Milestone**

**Activities 3.1.8-2(A), 3.3.4-2(A) and 3.3.4-2(B):** Due to the 2014 WIPP shutdown DOE/LANS placed their focus and resources on the development of a treatment process for the RNS and UNS waste. In addition, the TRU/MTRU recharacterization process was slowed and created a backlog of waste due to the shipping pause, limited shipments to WIPP and restrictions onsite Area G. These developments and restrictions delayed the final confirmation, characterization, certification, and shipment for offsite treatment and disposal of these containers. TA-54 G is now under the management of the DOE Environmental Programs (DOE EM) and will be able to provide additional information in the FY18 annual update to the STP. No other changes to the schedule in the CP of the STP are proposed.

## **6.0 DETAILED DESCRIPTION OF THE PROPOSED REVISION**

The purpose of this revision request is to reflect changes in the STP inventories in the LANL CP of the STP in accordance with FFCO Section X.C.2.a. The changes proposed by this revision to the CP will allow the added covered wastes to be treated or otherwise managed in accordance with the Activities and Compliance Dates pertaining to each treatability group, as adopted or revised herein. The CP text changes are indicated in the redlined version provided to NMED.

DOE/LANS is proposing to revise the CP text to reflect the following change in STP-covered inventories:

- Increases and decreases in covered mixed waste inventories due to the addition of new-covered waste and offsite shipments during FY16 and other changes in the STP inventory.

The CP changes are proposed in accordance with the applicable requirements in the FFCO, as amended: Section VIII, *Addition of New Covered Waste*; Section X.B.4, *Revisions*; and Section XI, *Deletion of Waste*.

## 6.1 Addition of New Covered<sup>1</sup> Waste

DOE/LANS is requesting that the following waste be added to the STP as covered waste.

### 6.1.1 MLLW Additions

The total volume of MLLW requested for addition as “New Covered” (36.780 m<sup>3</sup>) and “Reconciled from WCATS inventory” (105.078 m<sup>3</sup>) is 141.858 m<sup>3</sup> for 10-100 nCi/g (LA-W935). (Table 6.1.1-1).

Table 6.1.1-1 Proposed Addition of New Covered MLLW Waste (Table A-1)

CP Section	MWIR <sup>1</sup> Waste ID	Treatability Group	Volume (m <sup>3</sup> )
Part III 3.3.4	LA-W935	10-100 nCi/g	36.780
Part III 3.3.4	LA-W935	10-100 nCi/g	105.078 <sup>2</sup>
<b>Total</b>			<b>141.858</b>

<sup>1</sup>MWIR is Mixed Waste Inventory Report.

<sup>2</sup>Added as a result from reconciliation of discrepancies in WCATS inventory.

### 6.1.2 MTRU Waste Additions

The volume of new covered MTRU waste requested for addition is 515.012 m<sup>3</sup> (Table 6.1.2-1). Table 6.1.2-2 identifies waste that is proposed for addition following activities that identified waste in the TRU inventory as MTRU either through review of waste characteristics or as a result of identifying potentially hazardous constituents during repacking TRU waste.

Table 6.1.2-1 Proposed Addition of New-Covered<sup>1</sup> MTRU Waste at TA-54, CMR and TA-55

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	Combustible-Noncombustible Waste TA-54	1.878
4.0	Solidified Inorganic and Organic Waste TA-54	379.841 <sup>2</sup>
<b>(Appendix E-1) Total TA-54 New Covered Waste</b>		<b>381.719</b>
4.0	Combustible-Noncombustible Waste at CMR	22.097 <sup>2</sup>
4.0	Combustible-Noncombustible Waste at CMR	0
4.0	Combustible-Noncombustible Waste at TA-55	94.181 <sup>2</sup>
4.0	Combustible Waste at TA-55	0
	Metallic Waste CVD at TA-55 (When CVD leaves TA-55 it is removed from the STP)	0
4.0	Noncombustible Waste at TA-55	17.015 <sup>2</sup>

<sup>1</sup> Waste generated during the previous FY that was not shipped offsite within one year is termed new covered STP waste.

4.0	<i>Solid Inorganic and Organic Waste</i>	
<i>(Appendix E-2) Total CMR/TA-55 New Covered Waste</i>		133.293
<i>Total New Covered Waste for TA-54 and CMR/TA-55</i>		515.012

<sup>2</sup>New-covered waste in Table 6.1.2-1 refers to waste generated in the previous FY.

<sup>3</sup> Added as a result of reconciliation of discrepancies in inventory.

**Table 6.1.2-2 Proposed Addition of Waste Newly Characterized as MTRU**

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	<i>Combustible-Noncombustible Waste</i> (identification of potentially hazardous constituents based on investigation of characterization of TRU nitrate salt waste, debris containers with aerosol cans, and empty containers not meeting the RCRA empty criteria.)	0.00
4.0	<i>Solidified Inorganic and Organic Waste</i> (identification of potentially hazardous constituents based on investigation and characterization of TRU nitrate salt waste, cemented containers with free liquids, and empty containers not meeting the RCRA empty criteria.)	0.00
<i>Total Newly-Characterized MTRU</i>		0.00

## 6.2 Deletion of Covered Waste

MLLW and MTRU wastes were shipped offsite for treatment and disposal or recycling or are otherwise proposed as deleted waste.

### 6.2.1 Deletion of MLLW

DOE/LANS is requesting that the covered MLLW identified in Appendix B be deleted from the STP. These covered waste were shipped offsite for treatment and disposal or recycling. The total volume of covered MLLW that is requested for deletion under this revision to the CP is 48.119 m<sup>3</sup> (Appendix B, Table B-1).

### 6.2.2 Deletion of MTRU Waste

DOE/LANS is requesting that the covered MTRU waste identified in Appendix F be deleted from the STP. These covered wastes were shipped offsite to WCS and then to WIPP for treatment and disposal or recycling. The total volume covered MTRU that is requested for deletion under this revision to the CP is 62.444 m<sup>3</sup> (Appendix F, Table F-2). No MTRU waste stored at LANL was shipped offsite for disposal at WIPP.

## **6.4 Adjustments to MTRU Waste Inventory**

DOE/LANS is requesting adjustments (Appendix G, Tables G-1 and G-2) to the original (October 4, 1995) STP-covered MTRU waste inventory. Most administrative adjustments are due to reclassification of MTRU waste to MLLW treatability groups or to other MTRU treatability groups and to reclassification of TRU to MTRU as a result of quality control activities related to preparing waste for treatment and disposal. These adjustments may result in additions of newly-identified covered waste or transfers of waste to other treatability groups.

## **6.5 Establishment of New Milestone Activity Dates**

DOE/LANS is not requesting any new compliance milestones.

## **6.6 Additional Revisions**

No other revisions are requested.

## **7.0 RATIONALE FOR THE PROPOSED REVISION**

This information is provided in accordance with FFCO Section X.C.2.a.

### **7.1 Establishment of New Proposed Milestone**

No new milestones are proposed.

### **7.2 Addition of New-Covered Waste**

Waste that was newly generated in FY16, which was not treated within 12 months of generation, became new-covered waste during FY17 (see Appendix E). In addition, TRU wastes, re-evaluated during repacking and quality control activities as having previously unidentified RCRA constituents, were also added to the STP inventory (Appendix G). Approval of these proposed additions to the STP inventory will allow the added covered wastes to be treated or otherwise managed in accordance with the activities and compliance dates pertaining to each treatability group, as adopted or revised herein.

### **7.3 Deletion of Covered Waste**

Decreases in covered waste inventory reflect the treatment and disposal or recycling of covered waste at offsite commercial facilities during FY17. Deletion of this covered waste is proposed to more accurately reflect the LANL STP inventory as of the end of FY17.

### **7.4 Adjustments to the Original (October 4, 1995) STP-Covered Waste Inventory**

Administrative adjustments result from quality control activities related to preparing waste for treatment and disposal. These adjustments result in additions of newly-identified covered waste and transfers of waste to other treatability groups. The adjustments to the original (October 4, 1995) STP-covered waste inventory are proposed to more accurately reflect the LANL STP inventory as of the end of FY16.

## **8.0 ANTICIPATED LENGTH OF ANY DELAY IN PERFORMANCE**

In accordance with FFCO Section X.C.2.c, DOE/LANS cannot confidently predict the anticipated delay in performance for shipping covered STP MTRU waste for which the only currently allowed deletion pathway is disposal at WIPP. All shipments of MTRU covered waste inventory offsite were suspended in



May 2014 due to the WIPP shutdown. At this time, DOE/LANS cannot confidently predict when the TA-54 processing lines will come back online for further processing of MTRU and/or MLLW covered waste.

## **9.0 PLAN AND SCHEDULE FOR IMPLEMENTING ALL REASONABLE MEASURES**

All other measures proposed could be implemented within the framework of the existing plan and schedule for the STP (FFCO Section X.C.2.d).

## **PART III COMPLIANCE PLAN – PROPOSED REVISION 28.0**

### **1.0 PURPOSE AND SCOPE OF THE COMPLIANCE PLAN**

#### **1.1 Introduction**

Part III of this document identifies changes that require NMED approval as a revision under Section X, *Revisions*, or an amendment under Section XI, *Other Amendments to the STP*.

The CP includes a schedule for offsite transportation for treatment, or completion of parallel options as defined in each Treatability Group Section, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulations at 20 New Mexico Administrative Code (NMAC) 4.1, that incorporates by reference 40 CFR Parts 260 through 270. Part I, Background, contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CP, in accordance with the schedules and requirements set forth in the STP and the FFCO.

#### **1.2 STP Revisions and Amendments**

The STP CP has been modified several times since it was originally issued, in accordance with the provisions of Section X, *Revisions*, and Section XI, *Other Amendments to the STP*, of the October 4, 1995, FFCO, as amended and revised. The history of revisions is provided in Appendix J.

### **2.0 COMPLIANCE SCHEDULES**

The STP provides overall schedules for achieving compliance with LDR storage and treatment requirements for mixed waste at LANL. The schedules include those activities required to process backlogged and currently generated waste and include schedules required to establish an overall timeframe 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 will be provided for different types of treatment approaches in the STP are listed in the tables below. The categories of activities are based on Section 3021(b)(1)(B)(i), (ii), and (iii) of the RCRA, to the extent appropriate.

##### **2.1.1 Plans Where Treatment Technology Exists**

For most of the mixed waste, treatment technologies were identified and developed. For the waste that will be treated onsite, the categories of activities for compliance dates identified in Table 2.1.1-1 shall apply.

*Table 2.1.1-1 Categories of Activities for Compliance for Mixed Waste with Existing Treatment Technologies*

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

### **2.1.2 Plans Where Technology Must Be Developed**

For some mixed waste, no treatment technologies were identified and developed, or the treatment technology must be modified or adapted to apply to such waste. For the waste that will be treated onsite, the categories of activities for compliance dates are identified in Table 2.1.2-1 and shall apply.

*Table 2.1.2-1 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 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 waste.
G.	Complete treatment of existing wastes to applicable regulatory standards.

## **2.2 Primary Preferred Treatment**

Offsite treatment at a commercial or noncommercial mixed waste treatment facility is the primary preferred treatment option applicable to all mixed waste streams in the STP inventory unless otherwise indicated in the descriptions of individual waste treatability groups. DOE may also pursue parallel treatment options, such as recycling/re-use or radiological decontamination. Requirements for waste shipped offsite for recycling are discussed under Part III, Section 2.6. All activities and compliance dates related to the construction, permitting, and operation of onsite treatment skids were removed from this document. This change was due to the increased availability of offsite treatment and disposal capacity for mixed waste. Respondents will continue evaluating new commercial and DOE offsite treatment facilities as potential options for managing mixed waste, as they become available.

## **2.3 Plans for Mixed Waste to be Shipped Offsite for Treatment**

Should DOE decide to treat or recycle waste at a commercial offsite facility (Table 2.3-1), DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the treatment/recycling facility.

*Table 2.3-1 Activities for Offsite Shipment for Treatment or Recycling at a Commercial Facility*

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

DOE shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a noncommercial facility. Notification should be made if possible when DOE is first considering such an option to allow NMED and the state to address any state issues or concerns with

other states. The NMED Project Manager shall approve in writing the proposed offsite noncommercial treatment option proposed by DOE prior to any shipment by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the treatment/recycling facility. Activities for mixed waste to be shipped offsite for treatment/recycling at a noncommercial facility are identified in Table 2.3-2.

*Table 2.3-2 Activities for Shipment Offsite for Treatment or Recycling at a Noncommercial Facility*

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

### ***2.3.1 Specific Site Requirements for Noncommercial Treatment Facilities***

#### ***Shipment to Idaho National Laboratory***

Prior to shipment, Idaho National Laboratory (INL) and Idaho Division of Environmental Quality shall be notified of any pending shipments of waste should DOE ship MLLW to INL. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes to INL. Management of post-treatment waste residuals or newly-generated waste streams will be in accordance with the requirements of DOE, the State of Idaho, and that state where they will be disposed. A modification to LANL's RCRA permit providing for the return of such wastes and/or residues to LANL must be approved by NMED prior to any such return of wastes and/or residuals to LANL. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 30 working days after receipt of shipment of treatment residuals or newly-generated waste streams from INL.

Shipments of MLLW to planned facilities (not yet existing) will occur only after treatment and schedules are approved by the DOE Idaho Field Office and the State of Idaho. Upon approval of the planned treatment facilities, the applicable protocol from the paragraph above will be implemented for mixed wastes to be treated at planned facilities.

#### ***Shipment to Oak Ridge Reservation***

If Oak Ridge Reservation cannot dispose of mixed-waste residues or new waste streams generated from offsite treatment, and they cannot be sent to another facility for disposal, then the residues may return to LANL. Should residual or newly-generated waste streams be returned to LANL, the proper permits for the State of New Mexico must exist. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 30 working days after receipt of shipment of treatment residuals or newly-generated waste streams from the Oak Ridge Reservation.

## 2.4 Requirements Pertaining to Radionuclide Separation

The FFCA sets additional requirements in cases where DOE intends to conduct radionuclide separation of mixed waste. Should DOE determine to do radionuclide separation of such mixed waste, DOE will schedule specific compliance dates based on category activities identified in Table 2.4-1. “Radionuclide separation” shall mean segregating the radioactive portion of the mixed waste from the hazardous portion of the mixed waste.

*Table 2.4-1 Activities for Radionuclide Separation*

- |    |   |
|----|---|
| 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 with the estimated costs if it is not used. |
| D. | Provide the assumptions underlying such estimates of waste volumes and cost estimates.  |
| E. | Provide characterization methodologies for determining waste type.  |
| F. | Submit a plan for treating or managing hazardous waste residues, accompanied by an NMED permit application.   |

## 2.5 Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called for in the FFCA as requiring schedules are described in this STP. Some of these activities may be associated with schedules that may contain compliance dates related to treatment of DOE’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 described in the FFCO. If such characterization results in the addition or deletion of a treatability group or an increase in volume in a treatability group, a revision would be required pursuant to Section X of the FFCO.

DOE will notify NMED when offsite treatability studies are conducted on STP waste. Treatability studies are used to explore alternative treatment options that may be practical for any or all of the STP mixed waste streams. When preparing waste for shipment for an offsite treatability study, DOE will evaluate the potential for incidental waste treatment or secondary waste generation, which are often associated with treatability studies.

## 2.6 Recycling/Re-Use

Respondent will pursue onsite or offsite recycling/re-use as a parallel preferred option.

Should DOE elect to use recycling facilities in lieu of (or in combination with) treatment, it will follow requirements as if the waste were shipped offsite for treatment. Any and all requirements by the recycling facility and all state, federal, or other regulatory requirements applicable at the recycling site shall be met by Respondents.

DOE shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to an offsite noncommercial recycling facility. Notification should be made if possible when DOE

is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. The NMED Project Manager shall approve in writing the proposed offsite noncommercial recycling option prior to any shipment by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the recycling facility. Activities for mixed waste to be recycled are identified in Table 2.6-1.

*Table 2.6-1 Requirements for Recycling*

- |   |
|---|
| <ul style="list-style-type: none"><li>A. Meet all regulatory requirements for recycling/re-use.</li><li>B. Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility.</li></ul> |
|---|

Should DOE elect to use recycling/re-use facilities in lieu of (or in combination with) treatment, it will follow the requirements as if the waste were shipped offsite for treatment. DOE will submit a notification letter to NMED within 45 days, in place of documentation, that waste was received at a recycling facility.

## **2.7 Onsite Radiological Decontamination**

DOE will pursue onsite radiological surface or external decontamination as a preferred option. No volumetric or internal decontamination processes will be considered or performed. Surface radiological decontamination includes activities such as sand blasting, hand-scrubbing, or electrolytic decontamination. These decontamination activities could result in reducing or removing the radiological contaminant from the waste such that the waste could be recycled in accordance with CP Section 2.6 *Recycling/Re-Use* or be proposed for deletion in accordance with Section IX *Deletion of Waste* of the FFCO.

Activities for mixed waste to be radiologically decontaminated are identified in Table 2.7-1.

*Table 2.7-1 Activities for Radiological Decontamination*

- |  |
|--|
| <ul style="list-style-type: none"><li>A. Meet all DOE requirements for radiological decontamination.</li><li>B. Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility; or</li><li>C. Propose waste for deletion in accordance with Section IX of the FFCO.</li></ul> |
|--|

## **3.0 MIXED LOW-LEVEL WASTE STREAMS**

This section presents the preferred options to treat MLLW at LANL. All preferred options not described below must be approved by NMED in accordance with the revision process pursuant to the FFCO.

The original October 4, 1995, STP inventory in each MLLW treatability group was modified through the revision process in the FFCO. The tables in the STP Background (Part I) Appendices A–M of the FY09 STP Annual Update provide a comprehensive summary of changes to the CP covered waste inventories (additions, deletions, and shifts of waste between treatability groups) occurring as of the date of that revision. In Part III, the original STP inventory in each MLLW treatability group is denoted as subgroup 0 of that treatability group (e.g., the original volume of STP treatability group LA-W906 became LA-W906-0). Each revision that has since added volumes to individual treatability groups has resulted in

creation of an additional subgroup, having the same number as the revision (e.g., LA-W906-4 was created in Revision 4.0, and LA-W906-5 was created in Revision 5.0).

In most subsections of this section, the subgroups of the treatability groups are not shown. In those cases, the Activities and Compliance Dates are applicable to the entire net volume of that treatability group. However, when subgroups of a treatability group were assigned Activities and Compliance Dates unique to that subgroup, those subgroups are detailed in the text. Activities and Compliance Dates that were met in previous years are not shown in this document.

### 3.1 Mixed Waste Streams

The following subsections summarize MLLW treatability groups.

#### 3.1.1 Industrial Isopropyl Alcohol (IPA) Wastes and Scintillation Fluids

Table 3.1.1-1 Treatability Groups for IPA Wastes and Scintillation Fluids

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
IPA Wastes	LA-W901	D001, D009, F002, F003, F005	0.00
Scintillation Fluids	LA-W902	D001, F003, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** The waste will be treated at an offsite facility that combusts organic liquid waste.

#### 3.1.2 Lead Blankets, Soil with Heavy Metals, Environmental Restoration (ER) Soils

Table 3.1.2-1 Treatability Groups for Lead Blankets, Soil with Heavy Metals, ER Soils

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Blankets	LA-W903	D007, D008	0.00
Soil With Heavy Metals	LA-W904	D004, D005, D006, D007, D008, D009, D010, D011	0.00
ER Soils	LA-W905	D028, D029, F001, F005 D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** The waste will be treated at an offsite facility that stabilizes or macroencapsulates wastes.

#### 3.1.3 Aqueous Organic Liquids

Table 3.1.3-1 Treatability Groups for Aqueous Organic Liquids

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Aqueous Organic Liquids	LA-W906-0 LA-W906-4 LA-W906-5	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D027, D028, D030, D032, D033, D034, D036, D037, D038, D039, D041, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

*Table 3.1.3-2 Additional Treatability Groups for Aqueous Organic Liquids*

<b>Treatability Group</b>	<b>MWIR* Waste ID</b>	<b>RCRA Codes</b>	<b>Net Volume (m<sup>3</sup>)</b>
<i>Aqueous Organic Liquids</i>	LA-W906-6 LA-W906-9 LA-W906-10 LA-W906-15	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D027, D028, D030, D032, D033, D034, D036, D037, D038, D039, D041, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### **3.1.4 Organic-Contaminated Combustible Solids**

*Table 3.1.4-1 Treatability Groups for Organic-Contaminated Combustible Solids*

<b>Treatability Group</b>	<b>MWIR* Waste ID</b>	<b>RCRA codes</b>	<b>Net Volume (m<sup>3</sup>)</b>
<i>Organic-Contaminated Combustible Solids</i>	LA-W911	D001, D004, D008, D009, F001, F002, F003, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

*Table 3.1.4-2 Treatability Groups for Organic-Contaminated Noncombustible Solids*

<b>Treatability Group</b>	<b>MWIR* Waste ID</b>	<b>RCRA Codes</b>	<b>Net Volume (m<sup>3</sup>)</b>
<i>Organic-Contaminated Noncombustible Solids</i>	LA-W919	D001, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D015, D018, D019, D020, D022, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report



### 3.1.5 Combustible Debris, Activated or Inseparable Lead, Noncombustible Debris

Table 3.1.5-1 Treatability Groups for Combustible Lead, Activated or Inseparable Lead, and Noncombustible Debris

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Combustible Debris	LA-W912	D001, D002, D003, D005, D006, D007, D008, D009, D011, D035, F001, F002, F003, F005	0.00
Activated Or Inseparable Lead	LA-W921	D008	0.00
Noncombustible Debris	LA-W922 LA-W922-17 LA-W922-22 LA-W922-23 LA-W922-24 LA-W922-25	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.6 Aqueous Wastes with Heavy Metals, Corrosive Solutions, Aqueous Cyanides, Nitrates, Chromates, and Arsenates

Table 3.1.6-1 Treatability Groups for Aqueous Wastes with Heavy Metals, Corrosive Solutions, Aqueous Cyanides, Nitrates, Chromates, and Arsenates

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Aqueous Wastes With Heavy Metals	LA-W913	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011	0.00
Corrosive Solutions	LA-W914	D001, D002	0.00
Aqueous Cyanides, Nitrates, Chromates, and Arsenates	LA-W915	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, F007, P029, P098	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.7 Water-Reactive Metal

Table 3.1.7-1 Treatability Groups for Water-Reactive Metal

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Water-Reactive Metal	LA-W916	D001, D003, D004, D005, D007, D008, D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.8 Compressed Gases Requiring Scrubbing

Table 3.1.8-1 Treatability Groups for Compressed Gases Requiring Scrubbing

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
Compressed Gases Requiring Scrubbing	LA-W917 LA-W917-21 LA-W917-24 LA-W917-25 LA-W917-26 LA-W917-27 LA-W917-28	D001, D002, D003, D008, D009, P056	0.625
<b>Totals</b>			<b>0.625</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.1.8-2 Activities and Compliance Dates for Compressed Gases Requiring Scrubbing

Activity	Compliance Dates
A. Complete shipping of existing wastes to an offsite treatment facility or complete parallel option. These containers must go through remediation; this process will be operational within the next year. To treat these containers, a permit modification to the HWFP is necessary. DOE Readiness activities will be conducted before operations begin.	September 30, 2021*
B. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at treatment facility or within 45 days after completion of parallel option.

\*New proposed compliance date. Description/justification included in Part II, Section 5.0.

### 3.1.9 Compressed Gases Requiring Oxidation

Table 3.1.9-1 Treatability Groups for Compressed Gases Requiring Oxidation

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Compressed Gases Requiring Oxidation	LA-W918	D001, U226	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.10 Elemental Mercury

Table 3.1.10-1 Treatability Groups for Elemental Mercury

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Elemental Mercury	LA-W920 LA-W920-16	D006, D009, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.11 Halogenated Organic Liquids, Nonhalogenated Organic Liquids, Bulk Oils, Polychlorinated Biphenyl (PCB) Wastes with RCRA Components, Liquid and Solid Oxidizers

Table 3.1.11-1 Treatability Groups for Halogenated Organic Liquids, Nonhalogenated Organic Liquids, Bulk Oils, PCB Wastes with RCRA Components

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Halogenated Organic Liquids	LA-W907	D001, D002, D003, D007, D009, D010, D011, D018, D019, D022, D028, D029, D035, D043, F001, F002, F003, F004, F005, U077, U080, U226, U227, U228, U236	0.00
Nonhalogenated Organic Liquids	LA-W908 LA-W908-18	D001, D002, D003, D004, D007, D008, D009, D011, D018, D038, D040, F002, F003, F004, F005, U002, U019, U154, U169, U188, U220, U246	0.00
Bulk Oils	LA-W909 LA-W909-15 LA-W909-16 LA-W909-17	D002, D004, D005, D006, D007, D008, D009, D010, D011, D021, D027, D039, F001, F002, F003, F005	0.00
PCB Wastes With RCRA Components	LA-W910 LA-W910-16	D004, D005, D006, D007, D008, D009, D010, D011, D012, D015, D019, D027, D028, D030, D031, D032, D033, D034, D036, D039, D042, D043, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.1.11-2 Additional Treatability Groups

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Liquid And Solid Oxidizers	LA-W923	D001, D003, D005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.2 Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

Table 3.2-1 Treatability Groups for Waste Requiring Characterization or Assessment

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Wastes – to be determined (TBD)	LA-W924	D003, D008	0.00
Mercury Wastes - TBD	LA-W925-0	D007, D008, D009, F001	0.00
Compressed Gases - TBD	LA-W926	D001, D007, D009, D022, P056, U080, U226	0.00
Biochemical Laboratory Wastes	LA-W927	D001, D003	0.00
Dewatered Treatment Sludge	LA-W928		0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.2-2 Additional Wastes Requiring Characterization or Assessment

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
Lead Wastes - TBD	LA-W924-15 LA-W924-16 LA-W924-17	D003, D008	0.00 0.00 0.00
Mercury Wastes – TBD	LA-W925-4 LA-W925-5 LA-W925-6 LA-W925-15 LA-W925-16 LA-W925-17 LA-W925-18	D003, D007, D008, D009 F001, F002, F005	0.00
Explosives	LA-W932	D003	0.00
Labpacks	LA-W933 LA-W933-17	D001, D002, D003, D004, D005, D006, D007, D008, D010, F003, F005, D011, P012, P029, P098, P106, P113, P120, U131, U144, U145, U188, U190, U204, U216, U219	0.00
High Activity Waste	LA-W934 LA-W934-16 LA-W934-19 LA-W934-20 LA-W934-24 LA-W934-27	D001, D003, D008, D009	1.477
<b>Totals</b>			<b>1.477</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.2-3 Activities and Compliance Dates for Wastes Requiring Characterization or Assessment

Activity	Compliance Dates
A. Complete shipping of wastes to an offsite treatment facility, or submit documentation assigning waste items to applicable treatability groups or complete parallel option.	September 29, 2019
B. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at offsite facility or within 45 days after completion of parallel option.

LANL's inventory of *High Activity Waste* consists of five containers with a combined volume of 1.477 m<sup>3</sup>. Assuming that shipping issues can be resolved, LANL expects to meet the September 29, 2019, milestone for the remaining *High Activity Waste*.

DOE/LANS continues to diligently pursue all possible options to ship the waste offsite prior to the milestone for the remaining five containers (tritium traps with mercury contamination and the molecular sieves and squib assemblies containing lead with very high tritium). The containers were originally planned for transport offsite to a commercial treatment facility using a 10-160B shipping cask, but this option has been determined not to be viable. Options for shipment and disposal of these waste items are being reassessed by a multidisciplinary team, with the first priority being to ensure continued stable, safe storage onsite in the meantime.

### 3.3 Plans for Other Types of Activities

The following subsection summarizes plans for other types of activities.

#### 3.3.1 Lead Decontamination

Table 3.3.1-1 Treatability Groups for Lead Decontamination

Treatability Group	MWIR* Waste ID	First Category	Second Category	Totals
		Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )
Lead For Surface Decontamination	LA-W930-0 LA-W930-5	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Any lead not acceptable for onsite or offsite lead decontamination, and any lead unsuccessfully decontaminated, will be designated in the following two categories: 1) for treatment and disposal at an offsite facility or 2) for recycle through an offsite capability, such as metal melting to create shielding blocks or a DOE lead bank. Non-conforming items will be reassigned to appropriate treatability groups in accordance with the FFCO.

Table 3.3.1-2 Additional Wastes for Lead Decontamination

Treatability Group	MWIR* Waste ID	First Category	Second Category	Totals
		Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )
Lead For Surface Decontamination	LA-W930-6	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

#### 3.3.2 Sorting, Surveying, and Decontamination

Table 3.3.2-1 Treatability Groups for Sorting, Surveying, and Decontamination

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Nonradioactive or Suspect Waste Items To Be Surveyed	LA-W929-0(1)	0.00
Nonradioactive or Suspect Waste Items To Receive RCRA and Radiological Characterization	LA-W929-0(2)	0.00
Nonradioactive or Suspect Waste Items That Cannot or Should Not Be Sampled	LA-W929-0(3)	0.00
<b>Totals</b>		<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.3.2-2 Additional Wastes for Sorting, Surveying, and Decontamination

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Nonradioactive or Suspect Waste Items	LA-W929-5	0.00
<b>Totals</b>		<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.3.3 Lead Requiring Sorting

Table 3.3.3-1 Treatability Groups for Lead Requiring Sorting

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m3)
Lead Requiring Sorting	LA-W931	D008	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Wastes in this treatability group will require different treatment processes. Drums will be opened, the contents removed, and the waste repackaged based on appropriate treatment requirements. Wastes in this treatability group are primarily lead pieces, lead shot, and lead-contaminated soils that were packaged in the same drum.

The wastes will be reclassified as the applicable treatability group after physical separation and repackaging. The wastes will be treated by appropriate technology.

### 3.3.4 10–100 nCi/g Waste

Table 3.3.4-1 Treatability Groups for 10–100 nCi/g Waste

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
10–100 nCi/g	LA-W935 LA-W935-19 LA-W935-20 LA-W935-21 LA-W935-22 LA-W935-23 LA-W935-24 LA-W935-25 LA-W935-26 LA-W935-27 LA-W935-28	D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026, D027, D028, D029, D030, D035, D036, D037, D038, D039, D040, D043, F001, F002, F004, F005, F006, F007, F009	<b>172.931</b>
<b>Totals</b>			<b>172.931</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Wastes in this treatability group consist of a population of legacy drums packaged and managed as MTRU (>100 nCi/g) but, after assay, were determined to be MLLW (<100 nCi/g). Once confirmed, these drums are segregated from other TRU waste and stored in a designated MLLW storage area. Waste Profiles are prepared to allow acceptance into the low-level waste population, and drums are relabeled appropriately. The drum is reclassified from TRU to MLLW in the database.

When a parent waste container is remediated, the waste contents are removed, WIPP-prohibited items are addressed, and the remaining waste is placed into one or more new containers. After this process is complete, the original parent waste container remains radiologically contaminated and usually can be managed as LLW. Empty containers are being managed as “RCRA empty” containers if they meet the “RCRA empty” criteria in 40 CFR 261.7. Empty containers that have lead liners must carry an EPA hazardous waste number (HWN) for lead (D008), and be managed as MLLW. If after real-time radiography assay, empty containers are found to still contain residual amounts of waste material that do not meet the “RCRA empty” criteria, the containers are to be labeled with the EPA HWN assigned to the original parent container, as indicated by the parent’s waste stream profile (in addition to D008, if the

D008 HWN is added to the empty parent only because of the presence of a lead liner). Movements of LA-W935 waste onsite at Area G have been restricted beginning early in calendar year 2015, and continuing beyond FY15, while issues with the Area G Safety Basis are analyzed and corrected. This restriction will delay the final confirmation, characterization, certification, and offsite shipment of these containers until the Safety Basis issues are resolved and the restrictions on moving and managing this waste are lifted. Although the restrictions on shipping the MLLW containers were lifted in FY15, general movement of containers not related to safety or compliance remained restricted in FY17, therefore no treatment or processing was performed.

The MLLW drums are prepared for treatment and disposal to an offsite facility using LANL generator acceptable knowledge documentation and real-time radiography and non-destructive assay data.

*Table 3.3.4-2 Activities and Compliance Dates for 10–100 nCi/g Waste*

Activity	Compliance Dates
A. Complete radiological characterization. N3B is actively standing up the process to characterize and disposition these containers. As the containers are characterized and assayed, N3B will obtain a re-class from MTRU to MLLW. N3B will be submitting a permit modification request to the HWFP for the treatment process. DOE Readiness activities will be performed before starting operations.	September 30, 2022*
B. Complete shipment of existing waste to offsite facility for treatment, or complete parallel options.	September 30, 2022*
C. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at treatment facility or within 45 days after completion of parallel option.

\*New proposed compliance date. Description/justification included in Part II, Section 5.0.

The estimated waste volumes will be subtracted from the MTRU STP inventory and added to the MLLW STP inventory as the waste is reclassified as MLLW. However, because of the repacking process, the apparent volume of waste will reflect the number of additional containers needed to repack the waste into compliant configurations for transportation and disposal. Empty TRU containers, which includes a population of empty TRU parent containers that previously contained nitrate salts will also undergo recharacterization and may be reclassified as LLW or if determined to not meet the definition of RCRA-empty, reclassified as MLLW. The recharacterization process resumed in FY16 for waste to be accepted at offsite treatment and disposal facilities, and will continue to produce 10-100 nCi/g Waste (LA-W935). In 2018, N3B has taken over the responsibility of TA-54 and these facilities have not been operational for several years. The start-up of operations includes purchasing and installing treatment equipment and repairing existing deficiencies. The facilities stand down for several years was due to priority effort for manpower and funding to address the Remediated Nitrate Salt (RNS) drums and the Unremediated Nitrate Salt (UNS) drums.

### 3.4 Management of “Missing” Items

Table 3.4-1 Waste Category for “Missing Waste”

Category	MWIR* Waste ID	Container ID	Net Volume (m <sup>3</sup> )
Missing/Nonexistent/To be verified (TBV)			0.000
<b>Totals</b>			<b>0.000</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** During visual inspections and sampling activities in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the expected containers, according to the LANL data files for the waste item. In some instances, such items cannot be verified as having been received in storage at LANL, and follow-up investigations of the record files reveal that although the items were included in the original STP inventory, the waste items were never generated.

Some waste items were determined not to exist after visual inspection and document review. When DOE/LANS determines that an STP-covered waste item does not exist, transfer of the item to the category called “Missing/nonexistent/TBV (to be verified)” is requested through this revision Annual Update.

If, at any time, any of these items is discovered in the inventory, NMED would be notified and approval would be requested for assignment of the rediscovered items to the appropriate treatability group. If necessary, discovered items would be assigned new Activities and Compliance Dates in accordance with the terms of the FFCO.

## 4.0 MIXED TRANSURANIC WASTE

**Treatment Group(s):** Assorted MTRU Waste

**Offsite Disposal:** MTRU waste at LANL will be shipped for disposal at WIPP, located in Carlsbad, New Mexico.

**Disposal:** Waste volumes listed in Table 4.0-1 constitute the remaining original population of the Framework Agreement of “non-cemented above-ground EM Legacy TRU” and “above-ground cemented EM Legacy TRU” that is MTRU waste only. Volume adjustments noted below are due to corrections of database entries, treatability group, EPA codes, overpacks removed/added, containers repacked and shipped/hold for waste items identified as the non-cemented and cemented above-ground EM Legacy TRU for MTRU STP waste.



**Table 4.0-1** *Treatability Groups for The Framework Agreement - 3706 Non-cemented Above Ground EM Legacy Mixed TRU (MTRU) Waste (remaining original containers on site at TA-54) (Table E-1)*

Treatability Group	CP Section	FY14 Shipped (on hold) <sup>1</sup>	FY15 Total Volume (m <sup>3</sup> )	FY16 Total, Volume (m <sup>3</sup> )	FY17 Administrative Adjustments	FY17 Total Volume (m <sup>3</sup> )
Cemented Sludge	4.0	0.000	0.000	0	0	0.000
Combustible – Noncombustible Waste	4.0	30.736	32.938	68.362	-66.906	1.456
Combustible Waste	4.0	0.000	0.208	0.208	-0.208	0
Metallic Waste	4.0	0.208	0.000	0.208	-0.208	0
Noncombustible Waste	4.0	1.040	0.208	1.248	-1.246	0.002
Solidified Inorganic and Organic Waste	4.0	9.588	10.312	24.702	219.311	244.013
<b>Total</b>			<b>94.728</b>			<b>245.471</b>

<sup>1</sup>This waste was shipped offsite to WIPP or a WCS facility but has not yet been disposed. Therefore, the volume is not to be subtracted from the STP inventory. Removal of waste from the STP inventory is on hold until NMED approval is received. This waste is a subset of the STP MTRU inventory.

**Table 4.0-2** *Activities and Compliance Dates for MTRU Inventory at TA-55 and CMR from Table E-2*

Activity	Compliance Dates
A. Complete transfer of existing waste (excluding Metallic Waste) to TWF, WCRRF, or WIPP	November 30, 2022
B. Complete transfer of Metallic Waste (CVD) to CMR for material retrieval	October 31, 2020

**Transfer of Covered MTRU Inventory (Table E-2):** The FY17 reported waste volume for STP-covered MTRU inventory at TA-55 and CMR is 194.329 m<sup>3</sup>. At the close of FY16, approximately 15.995 m<sup>3</sup> of the STP waste associated with the CVD Project (formerly referred to as the Bolas Grande Project), that started in the summer of FY14, was at TA-55. A milestone extension to October 31, 2020, for removal of the remaining five CVDs was approved as shown in Table 4.0-2, B.

In FY17, the remaining 162.634 m<sup>3</sup> (127.378 + 12.796 + 22.460) of the covered MTRU waste inventory at TA-55 consists of heterogeneous combustible and noncombustible mixed waste. The de-inventory of TA-55's MTRU waste will take multiple years. A milestone extension request to November 30, 2022, is proposed as shown in Table 4.0-2, A. A subset of the covered MTRU waste inventory will require management at the WCRRF as the waste acceptance criteria for WIPP has changed since the waste was generated. WCRRF will not receive waste until it has implemented corrective actions as directed by the DOE's Accident Investigation Board, including updating its Safety Basis documents. DOE EM manages TA-54. DOE EM stated that TA-54 will not receive any programmatic newly-generated waste. The LANL Hazardous Waste Permit specifies that MTRU waste generated prior to April 21, 2011, cannot be

stored at the TWF. In addition, WIPP is expected to receive limited number of waste shipments per week. DOE/LANS is anticipated to be allowed one shipment per week starting September 2017.

#### 4.1 Management of “Missing” Items

Table 4.1-2 Waste Category for “Missing Waste”

Category	Treatability Groups	Net Volume (m <sup>3</sup> )
Missing/Nonexistent/TBV	Cemented Sludge	0.00
	Combustible-Noncombustible Waste	0.000
	Combustible Waste	0.000
<b>Totals</b>		<b>0.000</b>

**Treatment:** During visual inspections in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the expected containers, according to the LANL data files for the waste item. In some instances, such items cannot be verified as having been received in storage at LANL, and follow-up investigations of the record files reveal that although the items were included in the original STP inventory, the waste items were never generated.

Some items were determined not to exist after visual inspection and document review. When LANS determines that an STP-covered waste item does not exist, transfer of the item to the category called “Missing/nonexistent/TBV” is requested through this revision Annual Update.

If, at any time, any of these items is discovered in the inventory, NMED would be notified and approval requested for assignment of the rediscovered items to the appropriate treatability group.

# **APPENDICES**

## APPENDIX A CURRENT YEAR MLLW INVENTORY DETAIL

Table A-1 FY17 MLLW Inventory Detailed Update by Treatability Group

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.1.1	LA-W901 <i>IPA Wastes</i>	0	0		0	0
3.1.1	LA-W902 <i>Scintillation Fluids</i>	0	0		0	0
3.1.2	LA-W903 <i>Lead Blankets</i>	0	0		0	0
3.1.2	LA-W904 <i>Soil with Heavy Metals</i>	0	0		0	0
3.1.2	LA-W905 <i>ER Soils</i>	0	0		0	0
3.1.3	LA-W906 <i>Aqueous Organic Liquids</i>	0	0		0	0
3.1.4	LA-W911 <i>Organic-Contaminated Combustible Solids</i>	0	0		0	0
3.1.4	LA-W919 <i>Organic-Contaminated Noncombustible Solids</i>	0	0		0	0
3.1.5	LA-W912 <i>Combustible Debris</i>	0	0		0	0
3.1.5	LA-W921 <i>Activated or Inseparable Lead</i>	0	0		0	0
3.1.5	LA-W922 <i>Noncombustible Debris</i>	0	0	Administrative Adjustment	0	0
			0	Shipped offsite for treatment/disposal		
			0	New covered		
3.1.6	LA-W913 <i>Aqueous Wastes with Heavy Metals</i>	0	0		0	0
3.1.6	LA-W914 <i>Corrosive Solutions</i>	0	0		0	0
3.1.6	LA-W915 <i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	0	0		0	0
3.1.7	LA-W916 <i>Water-Reactive Wastes</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.1.8	LA-W917 <sup>4</sup> <i>Compressed Gases Requiring Scrubbing</i>	1.040	-0.415	Administrative Adjustment	0.625	0
			0	Shipped offsite for treatment/disposal		
3.1.9	LA-W918 <i>Compressed Gases Requiring Oxidation</i>	0	0		0	0
3.1.10	LA-W920 <i>Elemental Mercury</i>	0	0		0	0
3.1.11	LA-W907 <i>Halogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W908 <i>Nonhalogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W909 <i>Bulk Oils</i>	0	0		0	0
3.1.11	LA-W910 <i>PCB Wastes with RCRA Components</i>	0	0		0	0
3.1.11	LA-W923 <i>Liquid and Solid Oxidizers</i>	0	0		0	0
3.2	LA-W924 <i>Lead Wastes – TBD</i>	0	0		0	0
3.2	LA-W925 <i>Mercury Wastes – TBD</i>	0	0		0	0
3.2	LA-W926 <i>Compressed Gases – TBD</i>	0	0		0	0
3.2	LA-W927 <i>Biochemical Laboratory Wastes</i>	0	0		0	0
3.2	LA-W928 <i>Dewatered Treatment Sludge</i>	0	0		0	0
3.2	LA-W932 <i>Explosives</i>	0	0		0	0
3.2	LA-W933 <i>Labpacks</i>	0	0		0	0
3.2	LA-W934 <i>High Activity Waste</i>	1.477	0	Shipped offsite for treatment/disposal	1.477	0
			0	Administrative Adjustment		
3.3.1	LA-W930 <i>Lead for Surface Decontamination</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.3.2	LA-W929 <i>Nonradioactive or Suspect Waste Items to be Surveyed</i>	0	0		0	0
3.3.3	LA-W931 <i>Lead Requiring Sorting</i>	0	0		0	0
3.3.4	LA-W935 <i>10–100 nCi/g Waste</i>	57.410	21.782	Administrative Adjustment (Table C-1)	172.931	50
			36.780	New covered		
			105.078	Reconciled from WCATS inventory “New Covered”		
			-48.119	Shipped offsite for treatment/disposal		
TOTALS		59.927			175.033	50

<sup>1</sup> CP is Compliance Plan; MWIR is Mixed Waste Inventory Report.

<sup>2</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>3</sup> Shipment details are in Appendix B; Administrative adjustments are in Appendix C.

<sup>4</sup> Items prohibited from shipment to WIPP are removed from MTRU STP containers and consolidated; some are MLLW and are included in Table A-1 as LA-W917 waste; others are MTRU waste and are considered *Combustible-Noncombustible Waste* in Table E-1.

## APPENDIX B CURRENT YEAR MLLW SHIPMENT DETAIL

Table B-1 MLLW Shipped Offsite for Treatment and Disposal in FY17

CP Section	MWIR <sup>1</sup> No.	Treatability Group	Manifest Number	Destination	Date Shipped	Date NMED Notified	Volume (m <sup>3</sup> )
3.3.4	LA-W935	10-100 nCi/g Waste	006647301FLE	PermaFix NW	03/7/2017	04/21/2018 (EPC-DO-017-156)	11.334
3.3.4	LA-W935	10-100 nCi/g Waste	006641098FLE	Waste Control Solutions	5/23/2017	1/7/2019 (EPC-DO-18-438)	0.208
3.3.4	LA-W935	10-100 nCi/g Waste	006649771FLE	Energy Solutions	9/13/2017	1/7/2019 (EPC-DO-18-438)	0.3215
3.3.4	LA-W935	10-100 nCi/g Waste	006649706FLE	Energy Solutions	8/17/2017	1/7/2019 (EPC-DO-18-438)	36.250
<b>LA-W935 Total</b>							<b>48.119</b>
<b>Grand Total</b>							<b>48.119</b>

<sup>1</sup> MWIR is Mixed Waste Inventory Report.

## APPENDIX C CURRENT YEAR MLLW ADMINISTRATIVE ADJUSTMENTS

Table C-1 Administrative Adjustments

CP Section	MWIR* Number	Administrative Adjustment	Volume (m³)
3.3.4	LA-W935	Transferred into LA-W935 from reclassification of Empty containers (see section 3.4 for details) (from Table C-2) 67 x 0.322 = 21.574	21.574
		Transferred into LA-W935 from reclassification of TRU and MTRU STP covered waste	0.208
Total Net Adjustments for LA-W935			21.782
3.1.8	LA-W917	Reconciled from FY16 inventory. Transferred into LA-W935 from reclassification of Compressed Gases.	-0.415
Total Net Adjustments for LA-W917			-0.415
Total Net Adjustments			21.367

\*MWIR is Mixed Waste Inventory Report



*Table C-2 Administrative Adjustment – Detail*

CP Section	MWIR*	Treatability Group	Type of Adjustment	Cumulative Volume Adjustment (m³)	Item or Container Number	MLLW Container Volume (m³)	Reason for Administrative Adjustment
3.1.8	LA-W917	Total Compressed Gas	Reconciled from WCATS inventory	-0.415			Removed as a result of reconciling data.
3.3.4	LA-W935	10–100 nCi/g	Reclassified/Repack aged MTRU STP and TRU inventory to MLLW STP inventory	21.574			Removed as a result of reconciliation WCATS inventory
					W797736	0.322	
					W798796	0.322	
					W730974	0.322	
					W799407	0.322	
					W799536	0.322	
					W799424	0.322	
					W799727	0.322	
					W799724	0.322	
					W799772	0.322	
					W799735	0.322	
					W799775	0.322	
					W799924	0.322	
					W799028	0.322	
					W800053	0.322	
					W800386	0.322	
					W800389	0.322	
					W801043	0.322	
					W789230	0.322	
					W788964	0.322	
					W789282	0.322	
					W788786	0.322	
					W789845	0.322	
					W788896	0.322	
					W789998	0.322	
					W789894	0.322	
					W791568	0.322	
					W791483	0.322	
					W791487	0.322	
					W790098	0.322	
					W789528	0.322	
					W790231	0.322	
			W790101	0.322			
					W790103	0.322	
					W790105	0.322	
					W790107	0.322	

CP Section	MWIR*	Treatability Group	Type of Adjustment	Cumulative Volume Adjustment (m <sup>3</sup> )	Item or Container Number	MLLW Container Volume (m <sup>3</sup> )	Reason for Administrative Adjustment
					W790109	0.322	
					W790151	0.322	
					W790134	0.322	
					W788762	0.322	
					W788764	0.322	
					W788766	0.322	
					W788768	0.322	
					W791583	0.322	
					W791585	0.322	
					W791587	0.322	
					W790059	0.322	
					W790061	0.322	
					W790063	0.322	
					W790065	0.322	
					W790148	0.322	
					W790150	0.322	
					W790232	0.322	
					W791317	0.322	
					W791382	0.322	
					W788174	0.322	
					W788176	0.322	
					W788178	0.322	
					W788180	0.322	
					W788182	0.322	
					W791634	0.322	
					W791636	0.322	
					W791710	0.322	
					W791712	0.322	
					W788643	0.322	
					W788647	0.322	
					W789360	0.322	
					W791755	0.322	
Subtotal 10-100 Volume						21.574	
Subtotal Total compressed gas Volume						-0.415	

\*MWIR is Mixed Waste Inventory Report

## APPENDIX D PREVIOUS YEAR MLLW INVENTORY DETAIL

Table D-1 FY16 MLLW Inventory Detailed Update by Treatability Group

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision 27.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.1.1	LA-W901 <i>IPA Wastes</i>	0	0		0	0
3.1.1	LA-W902 <i>Scintillation Fluids</i>	0	0		0	0
3.1.2	LA-W903 <i>Lead Blankets</i>	0	0		0	0
3.1.2	LA-W904 <i>Soil with Heavy Metals</i>	0	0		0	0
3.1.2	LA-W905 <i>ER Soils</i>	0	0		0	0
3.1.3	LA-W906 <i>Aqueous Organic Liquids</i>	0	0		0	0
3.1.4	LA-W911 <i>Organic-Contaminated Combustible Solids</i>	0	0		0	0
3.1.4	LA-W919 <i>Organic-Contaminated Noncombustible Solids</i>	0	0		0	0
3.1.5	LA-W912 <i>Combustible Debris</i>	0	0		0	0
3.1.5	LA-W921 <i>Activated or Inseparable Lead</i>	0	0		0	0
3.1.5	LA-W922 <i>Noncombustible Debris</i>	0	-2.625	Administrative Adjustment	0	0
			2.625	Shipped offsite for treatment/disposal		
3.1.6	LA-W913 <i>Aqueous Wastes with Heavy Metals</i>	0	0		0	0
3.1.6	LA-W914 <i>Corrosive Solutions</i>	0	0		0	0
3.1.6	LA-W915 <i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	0	0		0	0
3.1.7	LA-W916 <i>Water-Reactive Wastes</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision 27.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17– FY20 (m <sup>3</sup> )
3.1.8	LA-W917 <sup>5</sup> <i>Compressed Gases Requiring Scrubbing</i>	1.248	-0.208	Administrative Adjustment	1.040	0
			0	Shipped offsite for treatment/disposal		
3.1.9	LA-W918 <i>Compressed Gases Requiring Oxidation</i>	0	0		0	0
3.1.10	LA-W920 <i>Elemental Mercury</i>	0	0		0	0
3.1.11	LA-W907 <i>Halogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W908 <i>Nonhalogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W909 <i>Bulk Oils</i>	0	0		0	0
3.1.11	LA-W910 <i>PCB Wastes with RCRA Components</i>	0	0		0	0
3.1.11	LA-W923 <i>Liquid and Solid Oxidizers</i>	0	0		0	0
3.2	LA-W924 <i>Lead Wastes – TBD</i>	0	0		0	0
3.2	LA-W925 <i>Mercury Wastes – TBD</i>	0	0		0	0
3.2	LA-W926 <i>Compressed Gases – TBD</i>	0	0		0	0
3.2	LA-W927 <i>Biochemical Laboratory Wastes</i>	0	0		0	0
3.2	LA-W928 <i>Dewatered Treatment Sludge</i>	0	0		0	0
3.2	LA-W932 <i>Explosives</i>	0	0		0	0
3.2	LA-W933 <i>Labpacks</i>	0	0		0	0
3.2	LA-W934 <i>High Activity Waste</i>	1.301	0	Shipped offsite for treatment/disposal	1.477	0
			0.176	Administrative Adjustment		
3.3.1	LA-W930 <i>Lead for Surface Decontamination</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision 27.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.3.2	LA-W929 <i>Nonradioactive or Suspect Waste Items to be Surveyed</i>	0	0		0	0
3.3.3	LA-W931 <i>Lead Requiring Sorting</i>	0	0		0	0
3.3.4	LA-W935 <i>10–100 nCi/g Waste</i>	33.140	43.506	Administrative Adjustment	57.410	50
			0	New covered		
			-19.236	Shipped offsite for treatment/disposal		
3.4	<i>Missing/ nonexistent/ TBV category</i>	0	0		0	N/A
<b>TOTALS</b>		<b>35.689</b>			<b>59.927</b>	50

<sup>1</sup> CP is Compliance Plan.

<sup>2</sup> MWIR is Mixed Waste Inventory Report.

<sup>3</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>4</sup> Shipment details are in Appendix B; Administrative adjustments are in Appendix C.

<sup>5</sup> Items prohibited from shipment to WIPP are removed from MTRU STP containers and consolidated; some are MLLW and are included in Table A-1 as LA-W917 waste; others are MTRU waste and are considered *Combustible-Noncombustible Waste* in Table E-1.

## APPENDIX E CURRENT MTRU INVENTORY DETAIL

Table E-1 TA-54 MTRU Covered Inventory (by Treatability Group)

Treatability Group	FY16 Annual Update (m <sup>3</sup> )	Proposed Revision 28.0 (m <sup>3</sup> ) <sup>1,2</sup>	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY18-FY21 (m <sup>3</sup> )
<b>Cemented Sludge</b>	<b>82.250</b>				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(0)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-82.250	Administrative Adjustments		
		<b>FY17 Subtotal Cemented Sludge</b>		<b>0</b>	<b>0</b>
<b>Combustible – Noncombustible Waste</b>	<b>349.792</b>				
		(68.362) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		1.878	New Covered		
		(-153.204)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-186.503	Administrative Adjustments		
		<b>FY17 Subtotal Combustible-Noncombustible Waste</b>		<b>165.167</b>	<b>100</b>
<b>Combustible Waste</b>	<b>1.155</b>				
		(0.208) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(0)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-1.155	Administrative Adjustments		
		<b>FY17 Subtotal Combustible Waste</b>		<b>0</b>	<b>0</b>
<b>Glass Waste</b>	<b>0</b>				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		0	Shipped Offsite		
		0	Administrative Adjustments		
		<b>FY17 Subtotal Glass Waste</b>		<b>0</b>	<b>0</b>

Treatability Group	FY16 Annual Update (m³)	Proposed Revision 28.0 (m³) <sup>1,2</sup>	Comments <sup>3</sup>	FY17 Annual Update (m³)	Projection FY18–FY21 (m³)
<i>Leaded Glovebox Waste</i>	0				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		0	Shipped Offsite		
		0	Administrative Adjustments		
		FY17 Subtotal <i>Leaded Glovebox Waste</i>		0	0
<i>Metallic Waste (Non- CVD)</i>	2.309				
		(0.208) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(-0.208)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		-2.101	Administrative Adjustments		
		FY17 Subtotal <i>Metallic Waste</i>		0.208	0
<i>Noncombustible Waste</i>	22.108				
		(1.248) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(-14.050)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-22.108	Administrative Adjustments		
		FY17 Subtotal <i>Noncombustible Waste</i>		0	100
<i>Solidified Inorganic and Organic Waste</i>	434.204	379.841	Reconciled from WCATS inventory and included as New Covered		
		(24.702) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		(-20.196)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		294.117	Administrative Adjustments		
		FY17 Subtotal <i>Solidified Inorganic and Organic Waste</i>		1108.162	10
TOTAL FY16:	891.818	Total FY17 Inventory: 1273.537			210

<sup>1</sup> MTRU waste volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>2</sup> Volumes are represented to three decimal places.

<sup>3</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G.

<sup>4</sup> Amount already included in the MTRU STP covered inventory.

<sup>5</sup> NMED has determined that the removal of MTRU from the STP will be deferred until more information becomes available and is the final disposition of the waste currently stored at the offsite facility is determined. Amount already included in the MTRU STP covered inventory.

Table E-2 MTRU Inventory at TA-55 and CMR

Location	FY16 MTRU Inventory (m³) <sup>1</sup>	Treatability Group	Proposed Revision 28.0 (m³)	Comments <sup>1</sup>	FY17 MTRU Inventory (m³)
CMR	9.598	Combustible-Noncombustible Waste	22.097	Reconciled from WCATS inventory (i.e, New Covered)	
		Metallic Waste (metallic waste CVDs are removed from the STP when they are transported from TA-55 (3.199 m3) to the CMR Material Recovery Project. There is no addition of STP volume to CMR.	0	Material transfer from TA-55	0
Total FY17 CMR Inventory					31.695
TA-55	33.197	Combustible-Noncombustible Waste	94.181	Reconciled from WCATS inventory (i.e., New Covered)	
			0	Administrative Adjustment	
FY17 TA-55 Combustible-Noncombustible Waste Inventory					127.378
TA-55	5.212	Combustible Waste	00	New Covered	
			-5.212	Administrative Adjustment (Reconciled from WCATS inventory)	
FY17 TA-55 Combustible Waste Inventory					0
TA-55	15.995	Metallic Waste (CVD )	0	Reconciled from WCATS inventory (i.e., New Covered)	
			-3.199	Transfer to CMR to the Material Recovery Project, therefore, volume is removed from the TA-55 STP.	
FY17 TA-55 Metallic Waste Inventory					12.796
TA-55	5.445	Noncombustible Waste	17.015	Reconciled from WCATS inventory (i.e., New Covered)	
			0	Administrative Adjustment	
FY17 TA-55 Noncombustible Waste Inventory					22.460
TA-55	0	Solid Inorganic and Organic Waste	0	Administrative Adjustment	
FY17 TA-55 Solidified Inorganic and Organic Waste Inventory					0.000
Total FY17 TA-55 Inventory					162.634
Total FY17 CMR/TA-55 Inventory					194.329



<sup>1</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G.

## APPENDIX F FY17 MTRU WASTE SHIPMENTS TO WIPP

Table F-1 FY17 MTRU Shipments to WIPP

FY15 Quarter	Treatability Group	Existing FY15 Inventory Volume (m <sup>3</sup> )	New-Covered Volume (m <sup>3</sup> )	Total Removed from Inventory (placed below grade) (m <sup>3</sup> )	Total FY14 Inventory (above grade) on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>1</sup>
Q1	Q1Total	0	0	0	0	0
Q2	Q2Total	0	0	0	0	0
Q3	Q3 Total	0	0	0	0	19.00
Q4	Q4 Total	0	0	0	0	7.128
Grand Total		0	0	0	0	26.128

<sup>1</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-2 FY14 MTRU Shipments to WCS<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>2</sup>	Total Disposed in FY17 (m <sup>3</sup> )
Q3	Combustible-Noncombustible Waste Total	120.848	0.416	121.264	121.264	-42.268
	Metallic Waste Total	0.208	0	0.208	0.208	-0.208
	Noncombustible Waste Total	14.050	0	14.050	13.936	
	Solidified Inorganic and Organic Waste Total	20.196	0	20.196	19.968	-19.968
Grand Total		155.302	0.416	155.718	155.376	-62.444

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-3 FY14 MTRU Shipments to AMWTP (INL)<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold <sup>2</sup> (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>3</sup>	Total Disposed in FY17 (m <sup>3</sup> )
Q1	Combustible-Noncombustible Waste Total	5.049	0	5.049	5.049	-5.049
Q2	Combustible-Noncombustible Waste Total	15.294	0	15.294	15.294	-15.294
Q3	Combustible-Noncombustible Waste Total	2.549	0	2.549	2.549	-2.549
Grand Total		22.892	0	22.892	22.892	-22.892

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> LANL waste treated at INL and stored at a WCS facility as of November 2014. Original containers and volume continue to be tracked since treated containers were not created at LANL.

<sup>3</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-4 FY14 MTRU Shipments to WIPP<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (above grade) (m <sup>3</sup> )	Total Volume Shipped (above grade) (m <sup>3</sup> ) <sup>2</sup>
Q2	Combustible-Noncombustible Waste Total	9.048	0	9.048	8.820
<b>Grand Total</b>		<b>9.048</b>	<b>0</b>	<b>9.048</b>	<b>8.820</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

## APPENDIX G CURRENT YEAR MTRU INVENTORY – ADMINISTRATIVE ADJUSTMENTS

Table G-1 FY17 MTRU Administrative Adjustments to TA-54 Inventory (from Table E-1)

Treatability Group	Administrative Adjustment	Volume (m <sup>3</sup> )
<i>Cemented Sludge</i>	STP containers from Cemented Sludge were reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-82.250
<b><i>Cemented Sludge Net Adjustment</i></b>		<b>-82.250</b>
<i>Combustible-Noncombustible Waste</i>	Reclassified as MLLW (LA-W935)	0
	Reconciliation of WCATS inventory – New Covered	0
	STP containers from Combustible-Noncombustible Waste treatability group reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes included direct loaded SWBs.	-186.503
<b><i>Combustible-Noncombustible Net Adjustment</i></b>		<b>-186.503</b>
<i>Combustible Waste</i>	STP containers from Combustible Waste treatability groups were reassigned to Solidified Inorganic and Organic Waste treatability groups consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-1.155
<b><i>Combustible Waste Net Adjustment</i></b>		<b>-1.155</b>
<i>Metallic Waste</i>	STP containers from Metallic Waste treatability group reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-2.101
<b><i>Metallic Waste Net Adjustment</i></b>		<b>-2.101</b>
<i>Noncombustible Waste</i>	STP containers from Noncombustible Waste treatability group were reassigned to Solidified Inorganic and Organic treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are included.	-22.108
<b><i>Noncombustible Waste Net Adjustment</i></b>		<b>-22.108</b>
<i>Solidified Inorganic and Organic Waste</i>	STP containers reassigned from Cemented Sludge, Combustible-Noncombustible Waste, Combustible Waste, Metallic Waste and Noncombustible Waste to Solidified Inorganic and Organic Waste	294.117
<b><i>Solidified Inorganic and Organic Waste Net Adjustment</i></b>		<b>294.117</b>
<b><i>Net TA-54 MTRU Administrative Adjustment</i></b>		<b>0</b>

**Table G-2**      *FY17 MTRU Administrative Adjustments for CMR and TA-55 Inventory*  
(from Table E-2)

<b>Location</b>	<b>Treatability Group</b>	<b>Administrative Adjustment</b>	<b>Volume (m<sup>3</sup>)</b>
CMR	<i>Combustible-Noncombustible Waste</i>	CVD volume is removed from the STP when it arrives at the CMR from TA-55 for storage for the Material Recovery Project. It is then reclassified as Combustible-Noncombustible Waste. Therefore the SPT volume at CMR will be 0 for this transfer.	0
<b><i>Net Adjustment CMR Inventory</i></b>			<b>0</b>
TA-55	<i>Combustible-Noncombustible Waste</i>		0
<b><i>Net Adjustment TA-55 Combustible-Noncombustible Waste</i></b>			<b>0</b>
TA-55	<i>Combustible Waste</i>	Administrative Adjustment – reconciled with WCATS	-5.212
<b><i>Net Adjustment TA-55 Combustible Waste</i></b>			<b>-5.212</b>
TA-55	<i>Metallic Waste - CVD</i>	CVD transferred to CMR for Material Recovery Project. This volume will be removed from the STP waste at TA-55.	-3.199
<b><i>Net Adjustment TA-55 Metallic Waste (CVD)</i></b>			<b>-3.199</b>
TA-55	<i>Noncombustible Waste</i>		0
<b><i>Net Adjustment TA-55 Noncombustible Waste</i></b>			<b>0</b>
TA-55	<i>Solidified Inorganic and Organic Waste</i>		0
<b><i>Net Adjustment TA-55 Solidified Inorganic and Organic Waste</i></b>			<b>0</b>
<b><i>Net Adjustment TA-55 Inventory</i></b>			<b>-8.411</b>
<b><i>Total Net TA-55/CMR Adjustment</i></b>			<b>-8.411</b>

## APPENDIX H      MLLW TREATMENT FACILITIES

*Table H-1      Commercial Facilities Contacted for Waste Treatment Capabilities*

Commercial Facility	Location
Perma-Fix (including Material & Energy Corporation in Tennessee; Diversified Scientific Services, Inc. in Tennessee; and Perma-Fix North West in Washington)	Florida
Waste Control Specialists	Texas
EnergySolutions of Utah (including Bear Creek Operations in Tennessee)	Utah
Nuclear Fuel Services	Tennessee
Integrated Environmental Services	Tennessee
NSSI	Texas

## APPENDIX I CORRESPONDENCE

*Table I-1 Expedited Shipment Letters*

Letter Date	Description	Letter Number	Revision Reference
04/21/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C	EPC-DO-17-156	28
01/07/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C	EPC-DO-18-438	28

*Table I-2 Correspondence*

Letter Date	Description	Letter Number	Revision Reference
08/11/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q3	EPC-DO-17-285	28
11/14/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q4	EPC-DO-17-456	28
05/10/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q2	WM-DO-17-001	28
06/15/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0.	WM-DO-17-228	28
08/08/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-295	28
08/21/2017	Notice of completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-311	28
10/27/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-422	28
12/4/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C.	EPC-DO-17-497	28
01/05/2018	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-556	28
02/14/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-001	28
02/13/2017	Federal Facility Compliance Order – Notice of Change of Project Manager	ADESH-17-020	28
09/15/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-334	28

## APPENDIX J HISTORY OF CHANGES TO THE CP AND FFCO

As discussed in Part III (CP), Section 1.2, the STP CP has been modified several times since it was originally issued, in accordance with the provisions of Section X, *Revisions*, and Section XI, *Other Amendments to the STP*, of the October 4, 1995, FFCO, as amended and revised. This appendix provides a summary of these CP changes and of modifications to the FFCO since its issuance.

To date, there have been 27 revisions and three amendments to the CP. In addition, the FFCO was amended once on May 20, 1997. Table J-1 provides a summary of these changes. More detailed descriptions can be found in the CP Update portion of each year's STP *Annual Update* and the original correspondence requesting each change.

Table J-1 Summary of Changes to the CP and the FFCO

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev. 1.0	STP/CP	6/12/96	Added offsite treatment as a parallel preferred option for most MLLW treatability groups.
Rev. 2.0	STP/CP	12/9/96	Reduced volume of LA-W928 by approving reclassification of sludge as LLW.
Amendment 1.0	STP/CP	10/30/96	Divided original volume of LA-W929 into three subgroups, and added new Activities and Compliance Dates.
Rev. 3.0	STP/CP	1/27/97	Divided original volume of LA-W929 into three subgroups, and added new Activities and Compliance Dates.
Amendment 1.0	FFCO	5/20/97	Modified FFCO Sections IV, V, IX, and X to streamline waste transfers and deletions.
Amendment 2.0	STP/CP	9/4/97	Extended CP Activity 3.1.2B Compliance Date to 12/29/97.
Rev. 4.0	STP/CP	12/29/97	Transferred original volume of LA-W929 from three subgroups to other treatability groups, added treatability groups, and deleted treated items.
Rev. 5.0	STP/CP	12/29/97	Added volumes reported in FY95 and FY96 <i>Annual Updates</i> (and certain other items) to several treatability groups, added Activities and Compliance Dates, added CP Appendices, and deleted treated items.
Rev. 6.0	STP/CP	7/31/98	Added volumes reported in FY97 <i>Annual Update</i> to several treatability groups, added certain Activities and Compliance Dates, adjusted several original inventory volumes, transferred one LA-W929 item to a new treatability group, and deleted treated items.
Rev. 7.0	STP/CP	11/30/98	Removed onsite treatment skids, added STP inventory items, added onsite recycling/re-use and radiological decontamination, added notification for offsite treatability studies.
Rev. 8.0	STP/CP	12/3/98	Extended compliance dates for treatment of MTRU waste.
Rev. 9.0	STP/CP	6/7/00	Added and deleted volumes reported in FY98 <i>Annual Update</i> to certain treatability groups.
Amendment 3.0	STP/CP	8/30/99	Transferred three items to MTRU, transferred one item to subgroup within same treatability group.
Rev. 10.0	STP/CP	12/18/00	Added and deleted volumes reported in FY99 <i>Annual Update</i> to certain treatability groups.
Rev. 11.0	STP/CP	4/18/01	Added and deleted volumes reported in FY00 <i>Annual Update</i> .



Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev. 12.0	STP/CP	3/13/02	Added and deleted volumes reported in FY01 <i>Annual Update</i> . Extended CP Activity 3.1.5A Compliance Date to 8/25/03. Extended CP Activity 3.1.11A to 2/01/04. Removed the requirement to develop treatment technologies and the associated compliance schedule in CP Activity 4.0 and added language specifying that MTRU waste would be shipped offsite to WIPP for disposal.
Rev 13.0	STP/CP	7/14/03	Added and deleted volumes reported in FY02 <i>Annual Update</i> .
Rev 14.0	STP/CP	1/5/05	Added and deleted volumes reported in FY03 <i>Annual Update</i> .
Rev 15.0	STP/CP	8/16/05	Added and deleted volumes reported in FY04 <i>Annual Update</i> .
Rev 16.0	STP/CP	12/12/06	Added and deleted volumes reported in FY05 <i>Annual Update</i> . Extended CP Activity 3.1.8(A) Compliance Date to 8/09/07. Extended CP Activity 3.1.9(A) Compliance Date to 8/09/07. Extended CP Activity 3.1.10(A) Compliance Date to 8/31/07. Extended CP Activity 3.1.11(A) Compliance Date to 12/31/07. Extended CP Activity 3.2(J) Compliance Date to 12/31/07. Reclassified 0.2082 m <sup>3</sup> of LA-W934 High Activity MLLW waste to MTRU waste.
Rev 17.0	STP/CP	6/26/08	Added and deleted volumes reported in FY06 <i>Annual Update</i> . Extended CP Activity 3.1.5(A) Compliance Date to 12/31/08. Extended CPV Activity 3.1.8(A) Compliance Date to 8/28/08. Extended CP Activity 3.1.9(A) Compliance Date to 8/28/08. Extended CP Activity 3.2(J) Compliance Date to 12/31/08.
Rev 18.0	STP/CP	1/9/09	Added and deleted volumes reported in FY07 <i>Annual Update</i> . Extended CP Activity 3.1.8(A) Compliance Date to 8/28/09. Extended CP Activity 3.1.9(A) Compliance Date to 8/28/09. Proposed a new Section 3.3.4 for Treatability Group, LA-W935 10–100 nCi/g Waste with new CP Activity 3.3.4 (A) Compliance Date 12/01/13 and CP Activity 3.3.4 (B) Compliance Date 12/31/13. Extended CP Activity 3.2(J) Compliance Date to 12/31/10.
Rev 19.0	STP/CP	2/5/10	Added and deleted volumes reported in FY08 <i>Annual Update</i> . Extended compliance date for CP Activities 3.1.8(A) and 3.1.9(A) to 8/28/12. Proposed a new milestone of 12/31/2010 for 3.1.4(A) and a new milestone 3.3.4(C) for 10–100 nCi/g Waste.
Rev 20.0	STP/CP	11/8/10	Added and deleted volumes reported in FY09 <i>Annual Update</i> . Proposed an extended compliance date for CP Activity 3.2(J).
Rev 21.0	STP/CP	3/21/12	Added and deleted volumes reported in FY10 <i>Annual Update</i> . Proposed new compliance date for CP Activity 3.1.8(A).
Rev 22.0	STP/CP	12/10/12	Added and deleted volumes reported in FY11 <i>Annual Update</i> .
Rev 23.0	STP/CP	08-26-2015	Added and deleted volumes reported in FY12 <i>Annual Update</i> . Added Table 4.0-1 Treatability Groups for the Framework Agreement MTRU Waste
Rev 24.0	STP/CP	08-26-2015	Added and deleted volumes reported in FY13 <i>Annual Update</i> . Proposed compliance date for CP Activity 3.1.5(A). Proposed compliance date for CP Activity 3.1.8(A). Extended CP Activity 3.2(J) Compliance Date to 6/30/2018. Proposed compliance date for CP Activity 3.3.4 (A and B)

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev 25.0	STP/CP	TBD	Added and deleted volumes reported in FY14 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activity 3.1.8(A) Proposed compliance date for CP Activity 3.3.4 (A and B)
Rev 26.0	STP/CP	01-30-2017	Added and deleted volumes reported in FY15 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activity 4.0-2 (C)
Rev 27.0	STP/CP	03/21/2017	Added and deleted volumes reported in FY16 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activities 4.0-2(a), and 4.0-2(c).
Rev 28.0	STP/CP	TBD	Added and deleted volumes reported in FY17 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activities 3.1.8-2(A), and 3.3.4-2 (A and B).

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~~May 9~~March 7, 2019

**Los Alamos National Laboratory  
Federal Facility Compliance Order  
Annual Site Treatment Plan Update  
for Fiscal Year 2017 Rev. 28.0**



Prepared by the Waste Management Program

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## ACRONYMS

40 CFR	Title 40 of the Code of Federal Regulations
AMWTP	Advanced Mixed Waste Treatment Plant
CCA	Compliance Certification Application
CMR	Chemistry and Metallurgy Research (Building)
CP	Compliance Plan
CVD	Confinement Vessel Disposition (project)
DOE	U.S. Department of Energy
DOE EM	U.S. Department of Energy Environmental Programs
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFCA	Federal Facility Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
HWA	Hazardous Waste Act
HWB	Hazardous Waste Bureau
HWN	hazardous waste number
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
<del>LANS</del>	<del>Los Alamos National Security, LLC</del>
LDR	Land Disposal Restrictions (RCRA)
LLW	low-level waste
LWAA	Land Withdrawal Act Amendments
MLLW	mixed low-level waste
MTRU	mixed transuranic (Waste)
MWIR	Mixed Waste Inventory Report
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act

RNS	Remediated Nitrate Salt
STP	Site Treatment Plan
SWB	standard waste box
TA	Technical Area
TBD	to be determined
TBV	to be verified
TRU	transuranic
TWF	Transuranic Waste Facility
UC	University of California
WCRRF	Waste Characterization, Reduction, and Repacking Facility
WCS	Waste Control Specialists, LLC
WIPP	Waste Isolation Pilot Plant

## INTRODUCTION

On October 6, 1992, Congress passed the Federal Facility Compliance Act (FFCA) to address compliance by the U.S. 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). The FFCA requires DOE to submit a Site Treatment Plan (STP) 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 the RCRA. The FFCA provides 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, the FFCA requires NMED to provide public notice, consider public comments, and consult with the U.S. Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On October 4, 1995, NMED issued a Federal Facility Compliance Order (FFCO) to DOE and the management and operating contractor, the University of California (UC) Regents. On June 1, 2006, Los Alamos National Security, LLC (LANS) replaced UC as operating contractor of Los Alamos National Laboratory (LANL). LANS then assumed responsibility for FFCO compliance.

The FFCO required DOE/LANS to implement an STP for the treatment of mixed waste at LANL. The STP is intended to fulfill the FFCA requirements and establish an enforceable framework to allow DOE and LANS (Respondents) to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth in the STP are enforceable time periods in which Respondents are required to treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA.

On March 31, 1995, DOE submitted its proposed STP, which addressed treatment capacities and technologies to treat all of LANL's mixed waste, regardless of the time it was generated, to NMED. On April 17, 1995, the public was provided an opportunity to comment to NMED on DOE's draft STP. After considering public comment and otherwise complying with the FFCA, NMED approved the draft STP with modifications on October 4, 1995.

Section VII of the FFCO requires DOE/LANS to submit an Annual STP Update to NMED each year on or before March 31. The FFCO requires that the Annual Update bring the information in both the Background and the Compliance Plan (CP) current to the end of the previous federal fiscal year (FY). Part I of this Annual Update constitutes the update to the Background. Part II contains the changes that have occurred since the last Annual Update and also identifies proposed revisions and amendments to the CP. Part III incorporates the changes in Part II into the proposed CP revision (Revision 28.0).

## PART I BACKGROUND UPDATE

### 1.0 INTRODUCTION

The Background (Part I) provides the following information.

- The estimated volume of covered waste in storage at the end of the previous FY and anticipated to be placed in storage for the next five FYs.
- A progress report from the end of the previous federal FY describing treatment progress and treatment technology development for each treatment facility and activity scheduled in the STP.
- A description, if applicable, of current or anticipated alternative treatment technology that is being evaluated for use instead of treatment technologies or capacities identified in the STP.
- A description of DOE's funding for STP-related activities and any funding issues that may affect the schedule.
- The status of the "No-Migration Variance Petition" or any treatability variances.
- A progress report on characterization and/or treatment capabilities or plans for mixed transuranic (MTRU) waste related to the waste treatment standards, if any, for the DOE Waste Isolation Pilot Plant (WIPP) facility near Carlsbad, New Mexico.

The STP-covered waste inventory is verified during quality control activities. Inconsistencies in treatability group or volume between the original inventory and the current inventory may exist. These inconsistencies are reconciled annually with the STP update. In an effort to correct these inconsistencies and streamline the STP reporting process DOE/LANS will work on the STP Report function within the waste characterization tracking system (WCATS).

### 2.0 AMOUNT OF EACH COVERED WASTE STORED AT LANL

#### 2.1 Mixed Low-Level ~~Waste Inventory~~ Waste Inventory (Table A-1)

During FY17, STP-covered mixed low-level waste (MLLW) inventories increased from ~~approximately 60 59.927~~ m<sup>3</sup> to ~~472.527~~ 175.033 m<sup>3</sup> (0.625 + 1.477 + 172.931). The increase was mainly due to the recharacterization process of transuranic (TRU)/MTRU waste that resumed in FY16 for waste to be accepted at offsite treatment and disposal facilities (105.078 m<sup>3</sup>). The TRU/MTRU recharacterization process will continue to produce 10-100 nCi/g waste (LA-W935). The TRU/MTRU recharacterization process was due to a backlog of waste as a result of previous shipping pauses, limited shipments to WIPP and past restrictions onsite at Area G. ~~These~~ is restrictions delayed the final confirmation, characterization, certification, and shipment for offsite treatment and disposal of these containers. Table 2.1-1 summarizes changes to the estimated FY17 STP-covered MLLW inventory.

Appendix A provides the detailed changes to the FY17 covered MLLW inventory by treatability group, including the inventory at Technical Area (TA) 55 and the Chemistry and Metallurgy Research (CMR) Building. Appendix B (Table B-1) lists the FY16 MLLW shipments. Any administrative adjustments to the MLLW inventory are shown in Appendix C (Table C-1). Detailed information about the administrative adjustments in Table C-1 are shown in Table C-2. The MLLW inventory reported in the FY15 Annual Update is included as Appendix D.

Table 2.1-1 FY17 MLLW Inventory Summary from Table A-1

Contribution	Volume (m <sup>3</sup> ) <sup>1</sup>
Estimated MLLW Inventory Reported in the FY16 Annual Update	<b>59.927</b>
Proposed Revision 28.0	
New-Covered Waste <u>LA-W935</u>	<del>36.779</del> <u>36.780</u>
Administrative Adjustments <sup>2</sup> <u>-0.415 + 21.782 (Table C-1)</u>	<del>19.277</del> <u>21.367</u>
Offsite Treatment <u>LA-W935</u>	-48.119
Reconciled from WCATS inventory	<del>404.662</del> <u>105.078</u>
Offsite Recycle	NA <sup>3</sup>
Onsite Decontamination	NA <sup>3</sup>
Treatability Study Use	NA <sup>3</sup>
<b>Estimated MLLW Inventory Reported in FY17 Annual Update (Table A-1)</b>	<del>172.527</del> <u>175.033</u>

<sup>1</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322

<sup>2</sup> Includes transfers of MTRU and other wastes into MLLW categories

<sup>3</sup> NA = No Activity

## 2.2 Mixed Transuranic (MTRU) Inventory Summary

During FY17, STP-covered MTRU inventories increased from approximately 961.265 m<sup>3</sup> to 1,828.1841441.738 m<sup>3</sup> (Table 2.2-1).

Table 2.2-1 summarizes changes to the estimated FY17 MTRU covered waste inventory. The total volume of MTRU waste in Table 2.2-1 includes the CMR and TA-55 MTRU volumes, which are maintained in a separate inventory from the MTRU inventory at TA-54. Appendix E contains additional detail for the MTRU inventory; Table E-1 covers the TA-54 inventory and Table E-2 covers the inventory at CMR and TA-55. The volume of STP-covered MTRU waste that is part of the “non-cemented above-ground Environmental Management (EM) Legacy TRU” (MTRU waste only) has been summarized in Appendix E-1 and Section 4.0 of the CP. Appendix F (Table F-1) provides a summary of FY17 MTRU shipments to WIPP. In Appendix G, Tables G-1 and G-2 describe the administrative adjustments that were made to resolve differences in the TA-54 and the CMR/TA-55 MTRU inventory data, respectively. STP-covered MTRU inventory increased because of the WIPP shutdown as of February 14, 2014. DOE/LANS have shipped 23 55-gallon containers, 19 Standard Waste Boxes (SWB) and 1 Ten Drum Overpack (TDOP) from WCS to WIPP during the fourth quarter of fiscal year (FY) 2017 from July 1, 2017, to September 30, 2017. In addition, one non-hazardous waste shipment was completed as of December 31, 2017 to WIPP

Administrative adjustments typically represent the following types of activities:

- DOE/LANS may correct database entries so that waste items not previously listed as STP waste are now identified as STP waste.
- DOE/LANS may correct waste data, such as volume or EPA codes, through quality control activities. Under DOE standards, waste that was formerly classified as MTRU because it had radioactivity greater than 10 nCi/g has been reclassified to MLLW (LA-W935) if its activity is less than 100 nCi/g.

- New analytical data may also require that waste streams previously managed as TRU waste should, as a prudent measure, be reclassified and managed as MTRU waste.
- During repacking or other quality control activities, TRU waste may be recharacterized as MTRU waste when previously unidentified hazardous contents, such as lead, are determined to be present.
- During repacking, treatability groups are frequently reassigned to be consistent with current management and shipping criteria.
- Containers of waste are occasionally determined not to belong to mixed waste streams and are reclassified as TRU waste; removal of WIPP-prohibited items, if they are the only hazardous constituent, will result in the remaining waste being classified as nonmixed.
- Addition or removal of 85-gallon overpacks changes the volume of waste in the inventory; rounding container volumes to three decimal places also changes the inventory volume.

Table 2.2-1 Covered MTRU Inventory Summary

Description		Volume (m <sup>3</sup> )
Covered MTRU Inventory Reported in FY16 <del>(Table E-2]</del> 69.447 m <sup>3</sup> at CMR/TA-55_ and <del>[Table E-1]</del> 817 891.818 m <sup>3</sup> at TA-54)		<del>961.264</del> <del>961.265</del>
New-Covered MTRU Waste at TA-54 <del>[Table E-1]</del> 1.878 + 379.841		381.719
New-Covered MTRU Waste at CMR/TA-55 <del>[Table E-2]</del> 22.097 + 94.181 +17.015		<del>133.292</del> <del>133.293</del>
Covered MTRU Waste Shipped to WIPP in FY17 below grade <del>[Table F-1]</del>		-26.128
Covered MTRU Waste Shipped to WIPP in FY14 remaining above grade (on hold per NMED) <del>[Table F-4]</del>	9.048*	<del>Left blank</del>
Covered MTRU Waste Shipped to Waste Control Specialists, LLC (WCS), Texas in FY14 (on hold per NMED) <del>[Table F-2]</del>	155.718*	<del>Left blank-</del> <del>92.006</del>
Covered MTRU Waste Shipped to the Advanced Mixed Waste Treatment Plant (AMWTP), Idaho in FY14 (on hold per NMED) <del>[Table F-3]</del>	22.892*	<del>Left blank-</del> <del>22.892</del>
Net Administrative Adjustments for TA-54 in FY17 <del>[Table G-1]</del>		<del>378.037</del> 0.000
Net Administrative Adjustments for CMR/TA-55 in FY17 <del>[Table G-2]</del>		<del>0.000</del> -8.411
Covered MTRU Inventory at End of FY17		<del>1,828.184</del> 1441. <del>738</del>

\* Volume not to be subtracted from the STP inventory. Removal of this waste from STP inventory is on hold until NMED approval is received.

Appendix G includes changes to the MTRU waste inventory that resulted from repacking activities. MTRU waste volumes in the STP inventory reflect the volume of the container rather than the volume of the contents. When containers are repacked, the STP inventory volume of any given treatability group may either increase or decrease. When a container is repacked, the contents are sometimes split into two or more new containers to meet shipping and waste acceptance criteria or to meet characterization criteria (e.g., nondestructive analysis calibration limits). In addition, the new containers may be assigned to different treatability groups depending on the contents of each drum. Therefore, the volume of a single drum may ‘multiply’ into more volume than the original container. For example, repacking one container of *Cemented Sludge* (0.208 m<sup>3</sup>) may result in one drum of *Combined Combustible-Noncombustible Waste*

(0.208 m<sup>3</sup>) and one drum of *Noncombustible Waste* (0.208 m<sup>3</sup>). In addition, changes in the waste volume in the STP inventory occur when an 85-gallon ‘overpack’ is removed from, or added to, a 55-gallon drum during repackaging. Removal of overpacks decreases the volume of waste in the STP inventory. Adding an overpack to a 55-gallon drum increases the volume of waste shown in the STP inventory.

### 3.0 TREATMENT PROGRESS

#### 3.1 Offsite Treatment

During FY17, covered MLLW stream were shipped for treatment and/or disposal to the following offsite commercial treatment facilities: Perma-Fix Northwest, Waste Control Specialists and Energy Solutions.

##### Perma-Fix Northwest

Perma-Fix Northwest, located in Richland, Washington, is a permitted treatment facility for the treatment of low-level radioactive and low-level mixed waste. The site houses both a low-level radioactive waste treatment facility and a low-level mixed waste treatment facility, which are licensed under Nuclear Regulatory Commission regulations (State of Washington licenses WN-I00393-1 and WN-I00508-1) and permitted under RCRA regulations through the State of Washington. The facility can perform thermal treatment, compaction, macroencapsulation, neutralization, and stabilization.

##### Waste Control Solutions, LLC (WSC)

WCS, located in Andrews, Texas, is a permitted treatment facility for the treatment and disposal of LLW and MLLW. The site has regulatory authorization for industrial solid waste and hazardous waste storage, processing, and land disposal under RCRA permit # HW-50358 granted by the state of Texas. EPA has authorized the site for treatment, storage, and land disposal of Toxic Substances Control ~~Act~~Act (TSCA) wastes (TXD988088464). The facility can process waste that requires compaction, microencapsulation, macroencapsulation, neutralization, deactivation, chemical oxidation, chemical reduction and stabilization.

##### Energy Solutions, LLC

Energy Solutions, located in Clive, Utah, is a permitted treatment facility for the treatment and disposal of LLW and MLLW. The site houses both a low-level radioactive waste treatment facility and a low-level mixed waste treatment facility, which are licensed under state of ~~Utah~~ Utah Department of Environmental Quality, ~~License~~, License Number UT2300249 and by the EPA hazardous waste permit number UT0982598898.

Appendix B summarizes LANL’s offsite shipments for treatment and/or disposal of covered MLLW in FY17.

#### 3.2 Offsite Recycling

DOE/LANS did not recycle any STP-covered waste offsite in FY17.



### **3.3 Onsite Treatment and Recycling**

DOE/LANS did not treat or recycle any STP-covered waste onsite in FY17.

### **3.4 Onsite Lead Decontamination**

No LANL STP-covered waste was decontaminated onsite during FY17.

### **3.5 Treatability Studies**

DOE/LANS conducted no treatability studies in FY17.

### **3.6 Administrative Adjustments and Corrections**

Administrative adjustments and corrections are due to discrepancies found during quality control activities related to preparing waste for treatment, inventory, and disposal or when preparing the STP Annual Update. A data quality review is conducted annually to compare shipment notifications and shipping manifests with database updates.

#### **3.6.1 Adjustments to MLLW Inventory**

Appendix C (Table C-1) details the administrative adjustments to the MLLW inventory. The principal adjustment reflects the transfer of MTRU waste to MLLW (LA-W935, 10-100 nCi/g). A substantial volume of LANL's STP-covered MTRU waste has been determined to no longer meet the criteria for TRU waste and has been reclassified as MLLW. If previously unidentified hazardous waste constituents, such as lead, are revealed during repacking or other quality control activities, low-level waste may be recharacterized as MLLW. (Appendices C and G).

#### **3.6.2 Adjustments to MTRU Inventory**

During the preparation of the FY17 STP Annual Update, DOE/LANS identified a number of adjustments to the MTRU inventory volume (Appendix G, Tables G-1 and G-2), including additions of newly-identified STP-covered waste, recharacterization of waste, and reclassification of MTRU waste to MLLW. Other adjustments were needed to account for volume changes due to repacking of waste and transfers of waste from one treatability group to another or to correct database entries.

## **4.0 TREATMENT TECHNOLOGY DEVELOPMENT**

During FY17, the availability of commercial and federal facility offsite treatment and disposal capacity for MLLW remained stable. As a result of DOE's increasing reliance on commercial treatment/disposal for mixed wastes, nearly all funding for onsite technology development has been prioritized to support offsite treatment and disposal of mixed wastes. DOE treatment technology development initiatives are generally limited to specific technologies or technology adaptations in response to specific needs that cannot be addressed through commercial facilities.

### **4.1 Treatment Technologies Being Evaluated/Developed**

DOE/LANS continues to monitor the development of other potential treatment technologies that may become available in the future. Some of these technologies are being developed at LANL and at other DOE sites. DOE/LANS is currently developing treatment technologies to address the type of TRU waste associated with the February 14, 2014, release of radioactivity at WIPP. The treatment process is specifically intended to address remaining remediated nitrate salt, unremediated nitrate salt, and

dewatered liquids from cemented nitrate salt wastes remaining at LANL, as required ~~by January~~ by January 22, 2016 Settlement Agreement and Stipulated Final Order, 14-20 (CO) between DOE/LANS and NMED's Hazardous Waste Bureau (HWB).

DOE/LANS re-evaluated all nitrate salt-bearing TRU waste and determined the three types of waste located at LANL that will require treatment prior to acceptance at WIPP. Methods were developed for treatment of these wastes through the use of surrogates for the waste and both onsite and offsite testing facilities. These methods were evaluated for treatment effectiveness. After confirmation of the treatment process for these wastes, permitted onsite treatment was requested from the NMED-HWB and was granted in July 2016. Commencement of treatment for remediated nitrate salt and unremediated nitrate salt wastes is scheduled in 2017.

#### **4.1.1 Offsite Commercial Treatment Facilities**

DOE/LANS continues to monitor the availability and capabilities of offsite commercial facilities for treatment technologies and permitting that are appropriate to LANL waste. These facilities are listed in Appendix H (Table H-1).

#### **4.1.2 Offsite DOE Treatment Facilities**

DOE/LANS continues to monitor the availability and capabilities of offsite DOE facilities for treatment technologies and permitting that are appropriate to LANL waste. In the past, DOE/LANS shipped nine corrugated metal boxes to the Idaho National Laboratory Advanced Mixed Waste Treatment Plant (AMWTP) for treatment. These nine boxes were successfully treated at the AMWTP and are stored at the Waste Control Specialists, LLC (WCS) Texas facility until WIPP is re-opened to ready to accept waste. WIPP has placed these nine containers below ground in FY17.

### **5.0 DOE FUNDING FOR STP-RELATED ACTIVITIES**

Funding to implement the LANL STP for mixed waste during FY17 was sufficient to meet all compliance dates as required by the CP of the STP. However, DOE/LANS shipments were on hold while DOE/LANS addressed safety basis concerns at WIPP and LANL. FY17 funding is available to support all compliance dates established in the STP. Should funding reductions occur that would affect STP compliance dates, DOE and LANS will notify NMED to address compliance schedules and activities.

### **6.0 TREATMENT VARIANCES**

RCRA allows certain case-by-case variances from LDR standards. Variances that may be sought under RCRA relate to requests for substitution of an alternative treatment technology in place of the LDR-required treatment technology. This section discusses any potential treatment variances related to LANL's covered waste, as described below.

#### **6.1 WIPP No-Migration Variance Petition/Land Withdrawal Act Amendments**

WIPP, located near Carlsbad, New Mexico, is a DOE repository for TRU waste generated by the nation's defense-related activities. Some of the TRU waste contains hazardous waste constituents regulated under the RCRA.

The WIPP repository is considered to be a deep geologic repository rather than a shallow landfill. It is wholly sited 2,100 ft below the land surface in a salt bed. Because salt has the advantageous characteristic

of slow plastic deformation, it is predicted that the salt will entomb the waste and seal it from the human environment, making potential release of hazardous constituents a low-probability event.

The WIPP Land Withdrawal Act Amendments of 1996 (LWAA) (Public Law 104-201, Section 3188) exempted waste designated by the Secretary of Energy for disposal at WIPP from RCRA's LDRs. Following passage of the LWAA, the EPA terminated its review of the No-Migration Variance Petition submitted by DOE to EPA in May 1995. EPA formalized its withdrawal by letter to George Dials, DOE/Carlsbad Area Office Manager, dated December 29, 1997.

On October 29, 1996, DOE submitted its Compliance Certification Application (CCA) to EPA. The CCA is intended to demonstrate to EPA that WIPP meets the requirements of Title 40 of the Code of Federal Regulations (40 CFR) Part 191 and 40 CFR Part 194. On October 23, 1997, EPA announced its proposed decision to issue a Certification of Compliance, subject to a number of specified conditions, and to a public comment period of 120 days. On May 18, 1998, EPA published in the Federal Register (63 FR 27354) its final rule certifying that WIPP will comply with the requirements of Subparts B and C of 40 CFR Part 191 and amending the WIPP compliance criteria in 40 CFR Part 194. The final rule became effective June 17, 1998. On March 25, 1999, WIPP received its first shipment of non-mixed (radioactive only) TRU waste from LANL. Other facilities have also shipped non-mixed TRU waste to WIPP. NMED issued a hazardous waste permit for WIPP on October 27, 1999, authorizing DOE to manage, store, and dispose of contact-handled MTRU waste at the facility.

## **6.2 Other Treatment Variance(s)**

No treatment variances were requested or granted in FY17.

## **7.0 WIPP FACILITY CAPABILITIES**

As discussed above, DOE is disposing of its defense TRU waste, both mixed and nonhazardous, in its deep geologic repository at the WIPP near Carlsbad, New Mexico. This facility is a receiving and disposal facility without the capability of routinely opening and repackaging waste. TRU waste will already be containerized when received at the WIPP. The WIPP is not a generator of TRU waste, and, therefore, will receive all of the waste in shipments from offsite. On February 2014, NMED received notice of a release at the WIPP nuclear waste repository. A LANL container sent to WIPP experienced an energetic chemical reaction that ultimately led to the release of radioactive material. In light of recent events, and the potential need to re-remediate all nitrate salt-bearing waste, NMED determined that the removal of MTRU from the STP will be deferred until more information becomes available and it is determined that waste currently stored at the WCS facility and WIPP remaining above grade will not be returned to LANL. All shipments of MTRU covered waste inventory to WIPP were suspended in May 2014 due to the WIPP shutdown. DOE/LANS is anticipated to be allowed one shipment per week starting September 2017.

### **7.1 Characterization Capabilities at WIPP**

Wastes proposed for shipment to WIPP are characterized and certified at LANL by the Central Characterization Project, a contractor to DOE's Carlsbad Field Office.

### **7.2 MTRU Treatment Capabilities and Plans**

WIPP is not required to treat MTRU waste to meet the LDR standards. As described above, the LWAA exempted wastes designated by the Secretary of Energy for disposal at the WIPP from this requirement.



## **PART II COMPLIANCE PLAN UPDATE**

### **1.0 INTRODUCTION**

This update to the CP contains:

- Changes to the CP occurring since the previous Annual Update, including:
  - correspondence, including notices of shipments; and
  - new-covered and deleted waste;
- Proposed revisions and amendments, including:
  - compliance date changes;
  - description of waste deleted in accordance with the requirements in FFCO Section IX, *Deletion of Waste*;
  - documentation of new-covered waste in accordance with the requirements in Section VIII, *Addition of New Covered Waste*; and
  - proposed changes to the overall schedule in the CP.

### **2.0 CHANGES AND REVISIONS TO THE CP OCCURRING SINCE THE PREVIOUS ANNUAL UPDATE**

This section describes revisions, amendments, or other changes to the LANL CP.

#### **2.1 Activities Completed During FY16**

During FY17, no CP Activity milestones were scheduled.

#### **2.2 Expedited Shipment Letters**

Expedited shipment letters are listed in Appendix I, Table I-1.

#### **2.3 Correspondence**

Between October 1, 2016 and September 30, 2017, DOE/LANS communicated with NMED on issues related to:

- FY17 waste shipment notifications;
- FY17 expedited waste shipment notifications;

This correspondence is listed in Appendix I (Table I-2). Previously listed correspondence can be found in the previous FY Annual Reports.

### **3.0 DESCRIPTION OF DELETED WASTE**

A proposal for deletion of STP waste items is included with this update as Proposed Revision 28.0 in accordance with FFCO Section IX, *Deletion of Waste*. These deletions are proposed because the wastes were shipped offsite for treatment, disposal, or recycling or were otherwise determined not to be mixed wastes. These covered wastes are included in Appendix B, Appendix F, and Appendix G.

## 4.0 DOCUMENTATION OF NEW-COVERED WASTE

A proposal for addition of STP waste items is included with this update in accordance with FFCO Section VIII, *Addition of Waste*. These additions consist of wastes placed in storage during FY16 and were proposed to become covered wastes in FY17. These covered wastes are included in Appendix E. Addition of new-covered and newly characterized as MTRU waste to be added to the STP is identified in Section 6.1.

## 5.0 PROPOSED CHANGES TO THE COMPLIANCE PLAN SCHEDULE

DOE/LANS is proposing to revise three milestones: **Activity 3.1.8-2(A)** “complete transfer of existing waste to an offsite treatment facility or complete parallel option” compliance date to September 30, 2021, **Activity 3.3.4-2(A)** “complete radiological characterization” compliance date to September 30, 2022, and **Activity 3.3.4-2(B)** “complete shipment of existing waste to offsite facility for treatment, or complete parallel options” compliance date to September 30, 2022. These milestones address the MLLW waste inventory at TA-54. The contract for operation of TA-54 was awarded to DOE EM/N3B and became effective April 30, 2018.

### I. Compliance Dates and Waste Description

**Activity 3.1.8-2(A):** The MLLW containers covered under the “Compresses Gases Requiring Scrubbing” were generated during the 2010 repacking of MTRU STP inventory of WIPP-prohibited items. Three containers remain in this category. These containers must go through remediation, which will be online within the next year. N3B must submit a permit modification request for modifying the Hazardous Waste Facility Permit (HWFP) to treat these wastes. Readiness activities will be conducted by the DOE before starting operations.

Current proposed compliance date: September 30, 2018.

Proposed Revision 28 compliance date: September 30, 2021.

**Activities 3.3.4-2(A) and 3.3.4-2(B):** The majority of the STP covered MLLW at TA-54 consists primarily of 10-100 nCi/g (LA-W935) generated through the recharacterization/reclassification process of the legacy MTRU waste, which has been determined to no longer meet the criteria for TRU waste. Containers will be re-classes from MTRU to MLLW. N3B must submit a permit modification request for modifying the HWFP to treat these wastes. Readiness activities will be conducted by the DOE before starting operations.

Treatment facilities at TA-54 have not operated in several years; starting up treatment operations includes purchasing and installing treatment equipment and repair work. The facilities were off line for several years, due to realigned priorities to address the manpower and funding required for addressing the Remediated Nitrate Salt (RNS) drums and the Unremediated Nitrate Salt (UNS) drums.

### Activity 3.3.4-2(A)

Current proposed compliance date: September 1, 2018.

Proposed Revision 28 compliance date: September 30, 2022.

### Activity 3.3.4-2(B)

Current proposed compliance date: September 30, 2018.

Proposed Revision 28 compliance date: September 30, 2022.

## II. Disposal/Recovery/Treatment Process

**Activities 3.1.8-2(A), 3.3.4-2(A) and 3.3.4-2(B):**— DOE/LANS does not have treatment/disposal capabilities and continues to rely on commercial treatment/disposal pathways for the MLLW. DOE/LANS continues to monitor the availability and capacities of offsite commercial ~~facilities~~ facilities for treatment technologies and permitting that are appropriate to DOE/LANS waste.

## III. Availability of Noncommercial/Recovery/Commercial Facility

**Activity 3.1.8-2(A), and Activities, 3.3.4-2(A) and 3.3.4-2(B):**— There are commercial and federal facilities for available for offsite treatment and disposal of DOE/LANS MLLW. LANL/DOE treatment technology development initiatives are generally limited to specific technologies in response to specific needs that ~~cannot~~ cannot be addressed through commercial facilities.

## IV. Justification for Milestone

**Activities 3.1.8-2(A), 3.3.4-2(A) and 3.3.4-2(B):**— Due to the 2014 WIPP shutdown DOE/LANS placed their focus ~~and resources~~ and resources on the development of a treatment process for the RNS and UNS waste. In addition, the TRU/MTRU recharacterization process was slowed and created a backlog of waste due to the shipping pause, limited shipments to WIPP and restrictions onsite Area G. These developments and restrictions delayed the final ~~confirmation~~ confirmation, characterization, certification, and shipment for offsite treatment and disposal of these containers. TA-54 G is now under the management of the DOE Environmental Programs (DOE EM) and will be able to provide additional information in the FY18 annual update to the STP. —No other changes to the schedule in the CP of the STP are proposed.

## 6.0 DETAILED DESCRIPTION OF THE PROPOSED REVISION

The purpose of this revision request is to reflect changes in the STP inventories in the LANL CP of the STP in accordance with FFCO Section X.C.2.a. The changes proposed by this revision to the CP will allow the added covered wastes to be treated or otherwise managed in accordance with the Activities and Compliance Dates pertaining to each treatability group, as adopted or revised herein. The CP text changes are indicated in the redlined version provided to NMED.

DOE/LANS is proposing to revise the CP text to reflect the following change in STP-covered inventories:

- Increases and decreases in covered mixed waste inventories due to the addition of new-covered waste and offsite shipments during FY16 and other changes in the STP inventory.

The CP changes are proposed in accordance with the applicable requirements in the FFCO, as amended: Section VIII, *Addition of New Covered Waste*; Section X.B.4, *Revisions*; and Section XI, *Deletion of Waste*.

## 6.1 Addition of New Covered<sup>1</sup> Waste

DOE/LANS is requesting that the following waste be added to the STP as covered waste.

### 6.1.1 MLLW Additions

The total volume of MLLW requested for addition as “New Covered” (36.780 m<sup>3</sup>) and “Reconciled from WCATS inventory” (105.078 m<sup>3</sup>) is 141.858 442 m<sup>3</sup> for of new-covered 10-100 nCi/g (LA-W935). (Table 6.1.1-1).

Table 6.1.1-1 Proposed Addition of New Covered MLLW Waste (Table A-1)

CP Section	MWIR <sup>1</sup> Waste ID	Treatability Group	Volume (m <sup>3</sup> )
Part III 3.3.4	LA-W935	10-100 nCi/g	<del>36.779</del> 36.780
Part III 3.3.4 3.3.4	<del>LA-W922</del> LA-W935	<del>10-100 nCi/g</del> 10-100 nCi/g	105.078 <sup>2</sup> <del>104.663</del> <sup>2</sup>
<b>Total</b>			<u>141.858</u> <del>141.442</del>

<sup>1</sup>MWIR is Mixed Waste Inventory Report.

<sup>2</sup>Added as a result from reconciliation of discrepancies on sampling data from WCATS inventory.

### 6.1.2 MTRU Waste Additions

The volume of new covered MTRU waste requested for addition is 515.0124 m<sup>3</sup> (Table 6.1.2-1). Table 6.1.2-2 identifies waste that is proposed for addition following activities that identified waste in the TRU inventory as MTRU either through review of waste characteristics or as a result of identifying potentially hazardous constituents during repacking TRU waste.

Table 6.1.2-1 Proposed Addition of New-Covered<sup>1</sup> MTRU Waste at TA-54, CMR and TA-55

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	Combustible-Noncombustible Waste TA-54	1.878 <sup>2</sup>
4.0	Solidified Inorganic and Organic Waste TA-54	379.841 <sup>2</sup>
<b>(Appendix E-1) Total TA-54 New</b>		<b>381.719</b>
4.0	Combustible-Noncombustible Waste at	<del>4.164</del> 22.097 <sup>2</sup>
4.0	Combustible-Noncombustible Waste at CMR	<del>8.335</del> 0

<sup>1</sup> Waste generated during the previous FY that was not shipped offsite within one year is termed new covered STP waste.



4.0	Combustible-Noncombustible Waste at TA-55	94.181 <sup>2</sup>
<u>4.0</u>	<u>Combustible Waste at TA-55</u>	<u>0</u>
	<u>Metallic Waste CVD at TA-55 (When CVD leaves TA-55 it is removed from the STP)</u>	<u>0</u>
<u>4.0</u>	<u>Combustible Waste at TA-55</u>	<u>9.596<sup>2</sup></u>
4.0	Noncombustible Waste at TA-55	17.015 <sup>2</sup>
<u>4.0</u>	<u>Solid Inorganic and Organic Waste</u>	
<u>(Appendix E-2) Total CMR/TA-55</u>		<u><del>133.292</del> 133.293</u>
<u>Total New Covered Waste for TA-54 and CMR/TA-55</u>		<u><del>515.014</del> 515.012</u>

<sup>1+2</sup>New-covered waste in Table 6.1.2-1 refers to waste generated in the previous FY.

<sup>2+3</sup>Added as a result of ~~reconciliation~~reconciliation of discrepancies in inventory.

Table 6.1.2-2 Proposed Addition of Waste Newly Characterized as MTRU

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	Combustible-Noncombustible Waste (identification of potentially hazardous constituents based on investigation of characterization of TRU nitrate salt waste, debris containers with aerosol cans, and empty containers not meeting the RCRA empty criteria.)	0.00
4.0	Solidified Inorganic and Organic Waste (identification of potentially hazardous constituents based on investigation and characterization of TRU nitrate salt waste, cemented containers with free liquids, and empty containers not meeting the RCRA empty criteria.)	0.00
<b>Total Newly-Characterized MTRU</b>		<b>0.00</b>

## 6.2 Deletion of Covered Waste

MLLW and MTRU wastes were shipped offsite for treatment and disposal or recycling or are otherwise proposed as deleted waste.

### 6.2.1 Deletion of MLLW

DOE/LANS is requesting that the covered MLLW identified in Appendix B be deleted from the STP. These covered waste were shipped offsite for treatment and disposal or recycling. The total volume of covered MLLW that is requested for deletion under this revision to the CP is 48.119 m<sup>3</sup> (Appendix B, Table B-1).

### 6.2.2 Deletion of MTRU Waste

DOE/LANS is requesting that the covered MTRU waste identified in Appendix F be deleted from the STP. These covered wastes were shipped offsite to WCS and then to WIPP for treatment and disposal or recycling. The total volume covered MTRU that is requested for deletion under this revision to the CP is 62.444 m<sup>3</sup> (Appendix F, Table F-2). No MTRU waste stored at LANL was shipped offsite for disposal at WIPP.

### **6.2.3 Other Deletions of FY16 Waste**

No waste is proposed for deletion due to recycling or onsite treatment in FY17. No waste was shipped offsite for treatability studies.

### **6.3 Adjustments to the Original (October 4, 1995) STP-Covered MLLW Inventory**

DOE/LANS is requesting adjustments to the original (October 4, 1995) STP-covered MLLW inventory as listed in Appendix C (Table C-1). Most administrative adjustments are due to reclassification of MTRU waste to MLLW treatability groups and to quality control activities related to preparing waste for treatment and disposal. These adjustments may result in additions of newly-identified covered waste or transfers of waste to other treatability groups.

### **6.4 Adjustments to MTRU Waste Inventory**

DOE/LANS is requesting adjustments (Appendix G, Tables G-1 and G-2) to the original (October 4, 1995) STP-covered MTRU waste inventory. Most administrative adjustments are due to reclassification of MTRU waste to MLLW treatability groups or to other MTRU treatability groups and to reclassification of TRU to MTRU as a result of quality control activities related to preparing waste for treatment and disposal. These adjustments may result in additions of newly-identified covered waste or transfers of waste to other treatability groups.

### **6.5 Establishment of New Milestone Activity Dates**

DOE/LANS is not requesting any new compliance milestones.

### **6.6 Additional Revisions**

No other revisions are requested.

## **7.0 RATIONALE FOR THE PROPOSED REVISION**

This information is provided in accordance with FFCO Section X.C.2.a.

### **7.1 Establishment of New Proposed Milestone**

No new milestones are proposed.

### **7.2 Addition of New-Covered Waste**

Waste that was newly generated in FY16, which was not treated within 12 months of generation, became new-covered waste during FY17 (see Appendix E). In addition, TRU wastes, re-evaluated during repacking and quality control activities as having previously unidentified RCRA constituents, were also added to the STP inventory (Appendix G). Approval of these proposed additions to the STP inventory will allow the added covered wastes to be treated or otherwise managed in accordance with the activities and compliance dates pertaining to each treatability group, as adopted or revised herein.

### **7.3 Deletion of Covered Waste**

Decreases in covered waste inventory reflect the treatment and disposal or recycling of covered waste at offsite commercial facilities during FY17. Deletion of this covered waste is proposed to more accurately reflect the LANL STP inventory as of the end of FY17.

#### **7.4 Adjustments to the Original (October 4, 1995) STP-Covered Waste Inventory**

Administrative adjustments result from quality control activities related to preparing waste for treatment and disposal. These adjustments result in additions of newly-identified covered waste and transfers of waste to other treatability groups. The adjustments to the original (October 4, 1995) STP-covered waste inventory are proposed to more accurately reflect the LANL STP inventory as of the end of FY16.

#### **8.0 ANTICIPATED LENGTH OF ANY DELAY IN PERFORMANCE**

In accordance with FFCO Section X.C.2.c, DOE/LANS cannot confidently predict the anticipated delay in performance for shipping covered STP MTRU waste for which the only currently allowed deletion pathway is disposal at WIPP. All shipments of MTRU covered waste inventory offsite were suspended in May 2014 due to the WIPP shutdown. At this time, DOE/LANS cannot confidently predict when the TA-54 processing lines will come back online for further processing of MTRU and/or MLLW covered waste.

#### **9.0 PLAN AND SCHEDULE FOR IMPLEMENTING ALL REASONABLE MEASURES**

All other measures proposed could be implemented within the framework of the existing plan and schedule for the STP (FFCO Section X.C.2.d).

## **PART III COMPLIANCE PLAN – PROPOSED REVISION 28.0**

### **1.0 PURPOSE AND SCOPE OF THE COMPLIANCE PLAN**

#### **1.1 Introduction**

Part III of this document identifies changes that require NMED approval as a revision under Section X, *Revisions*, or an amendment under Section XI, *Other Amendments to the STP*.

The CP includes a schedule for offsite transportation for treatment, or completion of parallel options as defined in each Treatability Group Section, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulations at 20 New Mexico Administrative Code (NMAC) 4.1, that incorporates by reference 40 CFR Parts 260 through 270. Part I, Background, contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CP, in accordance with the schedules and requirements set forth in the STP and the FFCO.

#### **1.2 STP Revisions and Amendments**

The STP CP has been modified several times since it was originally issued, in accordance with the provisions of Section X, *Revisions*, and Section XI, *Other Amendments to the STP*, of the October 4, 1995, FFCO, as amended and revised. The history of revisions is provided in Appendix J.

### **2.0 COMPLIANCE SCHEDULES**

The STP provides overall schedules for achieving compliance with LDR storage and treatment requirements for mixed waste at LANL. The schedules include those activities required to process backlogged and currently generated waste and include schedules required to establish an overall timeframe 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 will be provided for different types of treatment approaches in the STP are listed in the tables below. The categories of activities are based on Section 3021(b)(1)(B)(i), (ii), and (iii) of the RCRA, to the extent appropriate.

##### **2.1.1 Plans Where Treatment Technology Exists**

For most of the mixed waste, treatment technologies were identified and developed. For the waste that will be treated onsite, the categories of activities for compliance dates identified in Table 2.1.1-1 shall apply.

*Table 2.1.1-1 Categories of Activities for Compliance for Mixed Waste with Existing Treatment Technologies*

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

### **2.1.2 Plans Where Technology Must Be Developed**

For some mixed waste, no treatment technologies were identified and developed, or the treatment technology must be modified or adapted to apply to such waste. For the waste that will be treated onsite, the categories of activities for compliance dates are identified in Table 2.1.2-1 and shall apply.

*Table 2.1.2-1 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 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 waste.
G.	Complete treatment of existing wastes to applicable regulatory standards.

## **2.2 Primary Preferred Treatment**

Offsite treatment at a commercial or noncommercial mixed waste treatment facility is the primary preferred treatment option applicable to all mixed waste streams in the STP inventory unless otherwise indicated in the descriptions of individual waste treatability groups. DOE may also pursue parallel treatment options, such as recycling/re-use or radiological decontamination. Requirements for waste shipped offsite for recycling are discussed under Part III, Section 2.6. All activities and compliance dates related to the construction, permitting, and operation of onsite treatment skids were removed from this document. This change was due to the increased availability of offsite treatment and disposal capacity for mixed waste. Respondents will continue evaluating new commercial and DOE offsite treatment facilities as potential options for managing mixed waste, as they become available.

## **2.3 Plans for Mixed Waste to be Shipped Offsite for Treatment**

Should DOE decide to treat or recycle waste at a commercial offsite facility (Table 2.3-1), DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the treatment/recycling facility.

*Table 2.3-1 Activities for Offsite Shipment for Treatment or Recycling at a Commercial Facility*

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

DOE shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a noncommercial facility. Notification should be made if possible when DOE is first considering such an option to allow NMED and the state to address any state issues or concerns with

other states. The NMED Project Manager shall approve in writing the proposed offsite noncommercial treatment option proposed by DOE prior to any shipment by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the treatment/recycling facility. Activities for mixed waste to be shipped offsite for treatment/recycling at a noncommercial facility are identified in Table 2.3-2.

*Table 2.3-2 Activities for Shipment Offsite for Treatment or Recycling at a Noncommercial Facility*

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

### ***2.3.1 Specific Site Requirements for Noncommercial Treatment Facilities***

#### ***Shipment to Idaho National Laboratory***

Prior to shipment, Idaho National Laboratory (INL) and Idaho Division of Environmental Quality shall be notified of any pending shipments of waste should DOE ship MLLW to INL. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes to INL. Management of post-treatment waste residuals or newly-generated waste streams will be in accordance with the requirements of DOE, the State of Idaho, and that state where they will be disposed. A modification to LANL's RCRA permit providing for the return of such wastes and/or residues to LANL must be approved by NMED prior to any such return of wastes and/or residuals to LANL. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 30 working days after receipt of shipment of treatment residuals or newly-generated waste streams from INL.

Shipments of MLLW to planned facilities (not yet existing) will occur only after treatment and schedules are approved by the DOE Idaho Field Office and the State of Idaho. Upon approval of the planned treatment facilities, the applicable protocol from the paragraph above will be implemented for mixed wastes to be treated at planned facilities.

#### ***Shipment to Oak Ridge Reservation***

If Oak Ridge Reservation cannot dispose of mixed-waste residues or new waste streams generated from offsite treatment, and they cannot be sent to another facility for disposal, then the residues may return to LANL. Should residual or newly-generated waste streams be returned to LANL, the proper permits for the State of New Mexico must exist. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 30 working days after receipt of shipment of treatment residuals or newly-generated waste streams from the Oak Ridge Reservation.

## 2.4 Requirements Pertaining to Radionuclide Separation

The FFCA sets additional requirements in cases where DOE intends to conduct radionuclide separation of mixed waste. Should DOE determine to do radionuclide separation of such mixed waste, DOE will schedule specific compliance dates based on category activities identified in Table 2.4-1. “Radionuclide separation” shall mean segregating the radioactive portion of the mixed waste from the hazardous portion of the mixed waste.

Table 2.4-1 Activities for Radionuclide Separation

- |    |   |
|----|---|
| 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 with the estimated costs if it is not used. |
| D. | Provide the assumptions underlying such estimates of waste volumes and cost estimates.  |
| E. | Provide characterization methodologies for determining waste type.  |
| F. | Submit a plan for treating or managing hazardous waste residues, accompanied by an NMED permit application.   |

## 2.5 Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called for in the FFCA as requiring schedules are described in this STP. Some of these activities may be associated with schedules that may contain compliance dates related to treatment of DOE’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 described in the FFCA. If such characterization results in the addition or deletion of a treatability group or an increase in volume in a treatability group, a revision would be required pursuant to Section X of the FFCA.

DOE will notify NMED when offsite treatability studies are conducted on STP waste. Treatability studies are used to explore alternative treatment options that may be practical for any or all of the STP mixed waste streams. When preparing waste for shipment for an offsite treatability study, DOE will evaluate the potential for incidental waste treatment or secondary waste generation, which are often associated with treatability studies.

## 2.6 Recycling/Re-Use

Respondent will pursue onsite or offsite recycling/re-use as a parallel preferred option.

Should DOE elect to use recycling facilities in lieu of (or in combination with) treatment, it will follow requirements as if the waste were shipped offsite for treatment. Any and all requirements by the recycling facility and all state, federal, or other regulatory requirements applicable at the recycling site shall be met by Respondents.

DOE shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to an offsite noncommercial recycling facility. Notification should be made if possible when DOE



is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. The NMED Project Manager shall approve in writing the proposed offsite noncommercial recycling option prior to any shipment by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the recycling facility. Activities for mixed waste to be recycled are identified in Table 2.6-1.

*Table 2.6-1 Requirements for Recycling*

- |   |
|---|
| <ul style="list-style-type: none"><li>A. Meet all regulatory requirements for recycling/re-use.</li><li>B. Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility.</li></ul> |
|---|

Should DOE elect to use recycling/re-use facilities in lieu of (or in combination with) treatment, it will follow the requirements as if the waste were shipped offsite for treatment. DOE will submit a notification letter to NMED within 45 days, in place of documentation, that waste was received at a recycling facility.

## **2.7 Onsite Radiological Decontamination**

DOE will pursue onsite radiological surface or external decontamination as a preferred option. No volumetric or internal decontamination processes will be considered or performed. Surface radiological decontamination includes activities such as sand blasting, hand-scrubbing, or electrolytic decontamination. These decontamination activities could result in reducing or removing the radiological contaminant from the waste such that the waste could be recycled in accordance with CP Section 2.6 *Recycling/Re-Use* or be proposed for deletion in accordance with Section IX *Deletion of Waste* of the FFCO.

Activities for mixed waste to be radiologically decontaminated are identified in Table 2.7-1.

*Table 2.7-1 Activities for Radiological Decontamination*

- |  |
|--|
| <ul style="list-style-type: none"><li>A. Meet all DOE requirements for radiological decontamination.</li><li>B. Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility; or</li><li>C. Propose waste for deletion in accordance with Section IX of the FFCO.</li></ul> |
|--|

## **3.0 MIXED LOW-LEVEL WASTE STREAMS**

This section presents the preferred options to treat MLLW at LANL. All preferred options not described below must be approved by NMED in accordance with the revision process pursuant to the FFCO.

The original October 4, 1995, STP inventory in each MLLW treatability group was modified through the revision process in the FFCO. The tables in the STP Background (Part I) Appendices A–M of the FY09 STP Annual Update provide a comprehensive summary of changes to the CP covered waste inventories (additions, deletions, and shifts of waste between treatability groups) occurring as of the date of that revision. In Part III, the original STP inventory in each MLLW treatability group is denoted as subgroup 0 of that treatability group (e.g., the original volume of STP treatability group LA-W906 became LA-W906-0). Each revision that has since added volumes to individual treatability groups has resulted in



creation of an additional subgroup, having the same number as the revision (e.g., LA-W906-4 was created in Revision 4.0, and LA-W906-5 was created in Revision 5.0).

In most subsections of this section, the subgroups of the treatability groups are not shown. In those cases, the Activities and Compliance Dates are applicable to the entire net volume of that treatability group. However, when subgroups of a treatability group were assigned Activities and Compliance Dates unique to that subgroup, those subgroups are detailed in the text. Activities and Compliance Dates that were met in previous years are not shown in this document.

### 3.1 Mixed Waste Streams

The following subsections summarize MLLW treatability groups.

#### 3.1.1 Industrial Isopropyl Alcohol (IPA) Wastes and Scintillation Fluids

Table 3.1.1-1 Treatability Groups for IPA Wastes and Scintillation Fluids

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
IPA Wastes	LA-W901	D001, D009, F002, F003, F005	0.00
Scintillation Fluids	LA-W902	D001, F003, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** The waste will be treated at an offsite facility that combusts organic liquid waste.

#### 3.1.2 Lead Blankets, Soil with Heavy Metals, Environmental Restoration (ER) Soils

Table 3.1.2-1 Treatability Groups for Lead Blankets, Soil with Heavy Metals, ER Soils

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Blankets	LA-W903	D007, D008	0.00
Soil With Heavy Metals	LA-W904	D004, D005, D006, D007, D008, D009, D010, D011	0.00
ER Soils	LA-W905	D028, D029, F001, F005 D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** The waste will be treated at an offsite facility that stabilizes or macroencapsulates wastes.

#### 3.1.3 Aqueous Organic Liquids

Table 3.1.3-1 Treatability Groups for Aqueous Organic Liquids

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Aqueous Organic Liquids	LA-W906-0 LA-W906-4 LA-W906-5	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D027, D028, D030, D032, D033, D034, D036, D037, D038, D039, D041, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

*Table 3.1.3-2 Additional Treatability Groups for Aqueous Organic Liquids*

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
<i>Aqueous Organic Liquids</i>	LA-W906-6 LA-W906-9 LA-W906-10 LA-W906-15	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D027, D028, D030, D032, D033, D034, D036, D037, D038, D039, D041, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.4 Organic-Contaminated Combustible Solids

*Table 3.1.4-1 Treatability Groups for Organic-Contaminated Combustible Solids*

Treatability Group	MWIR* Waste ID	RCRA codes	Net Volume (m <sup>3</sup> )
<i>Organic-Contaminated Combustible Solids</i>	LA-W911	D001, D004, D008, D009, F001, F002, F003, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

*Table 3.1.4-2 Treatability Groups for Organic-Contaminated Noncombustible Solids*

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
<i>Organic-Contaminated Noncombustible Solids</i>	LA-W919	D001, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D015, D018, D019, D020, D022, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.5 Combustible Debris, Activated or Inseparable Lead, Noncombustible Debris

Table 3.1.5-1 Treatability Groups for Combustible Lead, Activated or Inseparable Lead, and Noncombustible Debris

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Combustible Debris	LA-W912	D001, D002, D003, D005, D006, D007, D008, D009, D011, D035, F001, F002, F003, F005	0.00
Activated Or Inseparable Lead	LA-W921	D008	0.00
Noncombustible Debris	LA-W922 LA-W922-17 LA-W922-22 LA-W922-23 LA-W922-24 LA-W922-25	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.6 Aqueous Wastes with Heavy Metals, Corrosive Solutions, Aqueous Cyanides, Nitrates, Chromates, and Arsenates

Table 3.1.6-1 Treatability Groups for Aqueous Wastes with Heavy Metals, Corrosive Solutions, Aqueous Cyanides, Nitrates, Chromates, and Arsenates

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Aqueous Wastes With Heavy Metals	LA-W913	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011	0.00
Corrosive Solutions	LA-W914	D001, D002	0.00
Aqueous Cyanides, Nitrates, Chromates, and Arsenates	LA-W915	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, F007, P029, P098	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.7 Water-Reactive Metal

Table 3.1.7-1 Treatability Groups for Water-Reactive Metal

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Water-Reactive Metal	LA-W916	D001, D003, D004, D005, D007, D008, D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.8 Compressed Gases Requiring Scrubbing

Table 3.1.8-1 Treatability Groups for Compressed Gases Requiring Scrubbing

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
Compressed Gases Requiring Scrubbing	LA-W917 LA-W917-21 LA-W917-24 LA-W917-25 LA-W917-26 LA-W917-27 <u>LA-W917-28</u>	D001, D002, D003, D008, D009, P056	0.625
<b>Totals</b>			<b>0.625</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.1.8-2 Activities and Compliance Dates for Compressed Gases Requiring Scrubbing

Activity	Compliance Dates
A. <del>A</del> Complete shipping of existing wastes to an offsite treatment facility or complete parallel option. These containers must go through remediation; this process will be operational within the next year. To treat these containers, <del>a permit</del> a permit modification to the HWFP is necessary. DOE Readiness activities will be conducted before operations begin.	September 30, 2021*
B. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at treatment facility or within 45 days after completion of parallel option.

\*New proposed compliance date. Description/justification included in Part II, Section 5.0.

### 3.1.9 Compressed Gases Requiring Oxidation

Table 3.1.9-1 Treatability Groups for Compressed Gases Requiring Oxidation

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Compressed Gases Requiring Oxidation	LA-W918	D001, U226	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.10 Elemental Mercury

Table 3.1.10-1 Treatability Groups for Elemental Mercury

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Elemental Mercury	LA-W920 LA-W920-16	D006, D009, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.11 Halogenated Organic Liquids, Nonhalogenated Organic Liquids, Bulk Oils, Polychlorinated Biphenyl (PCB) Wastes with RCRA Components, Liquid and Solid Oxidizers

Table 3.1.11-1 Treatability Groups for Halogenated Organic Liquids, Nonhalogenated Organic Liquids, Bulk Oils, PCB Wastes with RCRA Components

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Halogenated Organic Liquids	LA-W907	D001, D002, D003, D007, D009, D010, D011, D018, D019, D022, D028, D029, D035, D043, F001, F002, F003, F004, F005, U077, U080, U226, U227, U228, U236	0.00
Nonhalogenated Organic Liquids	LA-W908 LA-W908-18	D001, D002, D003, D004, D007, D008, D009, D011, D018, D038, D040, F002, F003, F004, F005, U002, U019, U154, U169, U188, U220, U246	0.00
Bulk Oils	LA-W909 LA-W909-15 LA-W909-16 LA-W909-17	D002, D004, D005, D006, D007, D008, D009, D010, D011, D021, D027, D039, F001, F002, F003, F005	0.00
PCB Wastes With RCRA Components	LA-W910 LA-W910-16	D004, D005, D006, D007, D008, D009, D010, D011, D012, D015, D019, D027, D028, D030, D031, D032, D033, D034, D036, D039, D042, D043, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.1.11-2 Additional Treatability Groups

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Liquid And Solid Oxidizers	LA-W923	D001, D003, D005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.2 Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

Table 3.2-1 Treatability Groups for Waste Requiring Characterization or Assessment

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Wastes – to be determined (TBD)	LA-W924	D003, D008	0.00
Mercury Wastes - TBD	LA-W925-0	D007, D008, D009, F001	0.00
Compressed Gases - TBD	LA-W926	D001, D007, D009, D022, P056, U080, U226	0.00
Biochemical Laboratory Wastes	LA-W927	D001, D003	0.00
Dewatered Treatment Sludge	LA-W928		0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.2-2 Additional Wastes Requiring Characterization or Assessment

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) <u>(from Table A-1)</u>
Lead Wastes - TBD	LA-W924-15 LA-W924-16 LA-W924-17	D003, D008	0.00 0.00 0.00
Mercury Wastes – TBD	LA-W925-4 LA-W925-5 LA-W925-6 LA-W925-15 LA-W925-16 LA-W925-17 LA-W925-18	D003, D007, D008, D009 F001, F002, F005	0.00
Explosives	LA-W932	D003	0.00
Labpacks	LA-W933 LA-W933-17	D001, D002, D003, D004, D005, D006, D007, D008, D010, F003, F005, D011, P012, P029, P098, P106, P113, P120, U131, U144, U145, U188, U190, U204, U216, U219	0.00
High Activity Waste	LA-W934 LA-W934-16 LA-W934-19 LA-W934-20 LA-W934-24 LA-W934-27	D001, D003, D008, D009	1.477
<b>Totals</b>			<b>1.477</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.2-3 Activities and Compliance Dates for Wastes Requiring Characterization or Assessment

Activity	Compliance Dates
A. Complete shipping of wastes to an offsite treatment facility, or submit documentation assigning waste items to applicable treatability groups or complete parallel option.	September 29, 2019
B. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at offsite facility or within 45 days after completion of parallel option.

LANL's inventory of *High Activity Waste* consists of five containers with a combined volume of 1.477 m<sup>3</sup>. Assuming that shipping issues can be resolved, LANL expects to meet the September 29, 2019, milestone for the remaining *High Activity Waste*.

DOE/LANS continues to diligently pursue all possible options to ship the waste offsite prior to the milestone for the remaining five containers (tritium traps with mercury contamination and the molecular sieves and squib assemblies containing lead with very high tritium). The containers were originally planned for transport offsite to a commercial treatment facility using a 10-160B shipping cask, but this option has been determined not to be viable. Options for shipment and disposal of these waste items are being reassessed by a multidisciplinary team, with the first priority being to ensure continued stable, safe storage onsite in the meantime.

### 3.3 Plans for Other Types of Activities

The following subsection summarizes plans for other types of activities.

#### 3.3.1 Lead Decontamination

Table 3.3.1-1 Treatability Groups for Lead Decontamination

Treatability Group	MWIR* Waste ID	First Category	Second Category	Totals
		Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )
Lead For Surface Decontamination	LA-W930-0 LA-W930-5	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Any lead not acceptable for onsite or offsite lead decontamination, and any lead unsuccessfully decontaminated, will be designated in the following two categories: 1) for treatment and disposal at an offsite facility or 2) for recycle through an offsite capability, such as metal melting to create shielding blocks or a DOE lead bank. Non-conforming items will be reassigned to appropriate treatability groups in accordance with the FFCO.

Table 3.3.1-2 Additional Wastes for Lead Decontamination

Treatability Group	MWIR* Waste ID	First Category	Second Category	Totals
		Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )
Lead For Surface Decontamination	LA-W930-6	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

#### 3.3.2 Sorting, Surveying, and Decontamination

Table 3.3.2-1 Treatability Groups for Sorting, Surveying, and Decontamination

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Nonradioactive or Suspect Waste Items To Be Surveyed	LA-W929-0(1)	0.00
Nonradioactive or Suspect Waste Items To Receive RCRA and Radiological Characterization	LA-W929-0(2)	0.00
Nonradioactive or Suspect Waste Items That Cannot or Should Not Be Sampled	LA-W929-0(3)	0.00

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Totals		0.00

\*MWIR is Mixed Waste Inventory Report

Table 3.3.2-2 Additional Wastes for Sorting, Surveying, and Decontamination

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Nonradioactive or Suspect Waste Items	LA-W929-5	0.00
Totals		0.00

\*MWIR is Mixed Waste Inventory Report

### 3.3.3 Lead Requiring Sorting

Table 3.3.3-1 Treatability Groups for Lead Requiring Sorting

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Requiring Sorting	LA-W931	D008	0.00
Totals			0.00

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Wastes in this treatability group will require different treatment processes. Drums will be opened, the contents removed, and the waste repackaged based on appropriate treatment requirements. Wastes in this treatability group are primarily lead pieces, lead shot, and lead-contaminated soils that were packaged in the same drum.

The wastes will be reclassified as the applicable treatability group after physical separation and repackaging. The wastes will be treated by appropriate technology.

### 3.3.4 10–100 nCi/g Waste

Table 3.3.4-1 Treatability Groups for 10–100 nCi/g Waste

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
10–100 nCi/g	LA-W935 LA-W935-19 LA-W935-20 LA-W935-21 LA-W935-22 LA-W935-23 LA-W935-24 LA-W935-25 LA-W935-26 LA-W935-27 <u>LA-W935-28</u>	D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026, D027, D028, D029, D030, D035, D036, D037, D038, D039, D040, D043, F001, F002, F004, F005, F006, F007, F009	<del>172.527</del> <u>172.931</u>
Totals			<del>172.931</del> <u>172.527</u> 7

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Wastes in this treatability group consist of a population of legacy drums packaged and managed as MTRU (>100 nCi/g) but, after assay, were determined to be MLLW (<100 nCi/g). Once confirmed, these drums are segregated from other TRU waste and stored in a designated MLLW storage



area. Waste Profiles are prepared to allow acceptance into the low-level waste population, and drums are relabeled appropriately. The drum is reclassified from TRU to MLLW in the database.

When a parent waste container is remediated, the waste contents are removed, WIPP-prohibited items are addressed, and the remaining waste is placed into one or more new containers. After this process is complete, the original parent waste container remains radiologically contaminated and usually can be managed as LLW. Empty containers are being managed as “RCRA empty” containers if they meet the “RCRA empty” criteria in 40 CFR 261.7. Empty containers that have lead liners must carry an EPA hazardous waste number (HWN) for lead (D008), and be managed as MLLW. If after real-time radiography assay, empty containers are found to still contain residual amounts of waste material that do not meet the “RCRA empty” criteria, the containers are to be labeled with the EPA HWN assigned to the original parent container, as indicated by the parent’s waste stream profile (in addition to D008, if the D008 HWN is added to the empty parent only because of the presence of a lead liner). Movements of LA-W935 waste onsite at Area G have been restricted beginning early in calendar year 2015, and continuing beyond FY15, while issues with the Area G Safety Basis are analyzed and corrected. This restriction will delay the final confirmation, characterization, certification, and offsite shipment of these containers until the Safety Basis issues are resolved and the restrictions on moving and managing this waste are lifted. Although the restrictions on shipping the MLLW containers were lifted in FY15, general movement of containers not related to safety or compliance remained restricted in FY17, therefore no treatment or processing was performed.

The MLLW drums are prepared for treatment and disposal to an offsite facility using LANL generator acceptable knowledge documentation and real-time radiography and non-destructive assay data.

*Table 3.3.4-2 Activities and Compliance Dates for 10–100 nCi/g Waste*

Activity	Compliance Dates
A. Complete radiological characterization. N3B is actively standing up the process to characterize and disposition these containers. As the containers are characterized and assayed, N3B will obtain a re-class from MTRU to MLLW. N3B will be submitting a permit modification request to the HWFP for the treatment process. DOE Readiness activities will be performed before starting operations.	September 30, 2022*
B. Complete shipment of existing waste to offsite facility for treatment, or complete parallel options.	September 30, 2022*
C. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at treatment facility or within 45 days after completion of parallel option.

\*New proposed compliance date. Description/justification included in Part II, Section 5.0.

The estimated waste volumes will be subtracted from the MTRU STP inventory and added to the MLLW STP inventory as the waste is reclassified as MLLW. However, because of the repacking process, the apparent volume of waste will reflect the number of additional containers needed to repackage the waste into compliant configurations for transportation and disposal. Empty TRU containers, which includes a population of empty TRU parent containers that previously contained nitrate salts will also undergo recharacterization and may be reclassified as LLW or if determined to not meet the definition of RCRA-

empty, reclassified as MLLW. The recharacterization process resumed in FY16 for waste to be accepted at offsite treatment and disposal facilities, and will continue to produce 10-100 nCi/g Waste (LA-W935). In 2018, N3B has taken over the responsibility of TA-54 and these facilities have not been operational for several years. The start-up of operations includes purchasing and installing treatment equipment and repairing existing deficiencies. The facilities stand down for several years was due to priority effort for manpower and funding to address the Remediated Nitrate Salt (RNS) drums and the Unremediated Nitrate Salt (UNS) drums.-

### 3.4 Management of “Missing” Items

Table 3.4-1 Waste Category for “Missing Waste”

Category	MWIR* Waste ID	Container ID	Net Volume (m <sup>3</sup> )
Missing/Nonexistent/To be verified (TBV)			0.000
<b>Totals</b>			<b>0.000</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** During visual inspections and sampling activities in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the expected containers, according to the LANL data files for the waste item. In some instances, such items cannot be verified as having been received in storage at LANL, and follow-up investigations of the record files reveal that although the items were included in the original STP inventory, the waste items were never generated.

Some waste items were determined not to exist after visual inspection and document review. When DOE/LANS determines that an STP-covered waste item does not exist, transfer of the item to the category called “Missing/nonexistent/TBV (to be verified)” is requested through this revision Annual Update.

If, at any time, any of these items is discovered in the inventory, NMED would be notified and approval would be requested for assignment of the rediscovered items to the appropriate treatability group. If necessary, discovered items would be assigned new Activities and Compliance Dates in accordance with the terms of the FFCO.

## 4.0 MIXED TRANSURANIC WASTE

**Treatment Group(s):** Assorted MTRU Waste

**Offsite Disposal:** MTRU waste at LANL will be shipped for disposal at WIPP, located in Carlsbad, New Mexico.

**Disposal:** Waste volumes listed in Table 4.0-1 constitute the remaining original population of the Framework Agreement of “non-cemented above-ground EM Legacy TRU” and “above-ground cemented EM Legacy TRU” that is MTRU waste only. Volume adjustments noted below are due to corrections of database entries, treatability group, EPA codes, overpacks removed/added, containers repacked and shipped/hold for waste items identified as the non-cemented and cemented above-ground EM Legacy TRU for MTRU STP waste.

Table 4.0-1 *Treatability Groups for The Framework Agreement - ~~3706 Non-cemented Above Ground EM Legacy Mixed TRU (MTRU) Waste~~ MTRU Waste (remaining original containers on site at TA-54) (Table E-1)*

Treatability Group	CP Section	FY14 Shipped (on hold) <sup>1</sup>	FY15 Total Volume (m <sup>3</sup> )	FY16 Total, Volume (m <sup>3</sup> )	FY17 Administrative Adjustments	FY17 Total Volume (m <sup>3</sup> )
Cemented Sludge	4.0	0.000	0.000	<del>0.000</del> 0	<del>0</del> 0.000	0.000
Combustible – Noncombustible Waste	4.0	30.736	32.938	<del>68.362</del> 68.362	<del>-66.906</del> -66.906	<del>1.456</del> 1.456
Combustible Waste	4.0	0.000	0.208	<del>0.208</del> 0.208	<del>-0.208</del> -0.208	<del>0.000</del> 0
Metallic Waste	4.0	0.208	0.000	<del>0.208</del> 0.208	<del>-0.208</del> -0.208	<del>0.000</del> 0
Noncombustible Waste	4.0	1.040	0.208	<del>1.248</del> 1.248	<del>-1.246</del> -1.246	<del>0.000</del> 0.002
Solidified Inorganic and Organic Waste	4.0	9.588	10.312	<del>24.702</del> 24.702	<del>219.311</del> 219.311	<del>244.013</del> 244.013
<b>Total</b>				<b><del>94.728</del></b>		<b><del>245.469</del> 245.471</b>

<sup>1</sup>This waste was shipped offsite to WIPP or a WCS facility but has not yet been disposed. Therefore, the volume is not to be subtracted from the STP inventory. Removal of waste from the STP inventory is on hold until NMED approval is received. This waste is a subset of the STP MTRU inventory.

<sup>2</sup>~~MTRU volumes adjusted as a result of direct loaded standard waste boxes (SWBs). Volumes difference and treatability group changes are reflected in the Administrative Adjustments Table G-1. This waste is a subset of the STP MTRU inventory.~~

Table 4.0-2 *Activities and Compliance Dates for MTRU Inventory at TA-55 and CMR from Table E-2*

Activity	Compliance Dates
A. Complete transfer of existing waste (excluding Metallic Waste) to TWF, WCRRF, or WIPP	November 30, 2022
<u>B.</u> Complete transfer of Metallic Waste (CVD) to CMR for material retrieval	October 31, 2020

**Transfer of Covered MTRU Inventory (Table E-2):** The FY17 reported waste volume for STP-covered MTRU inventory at TA-55 and CMR is ~~63.14~~ 194.329 m<sup>3</sup>. ~~In At the close of~~ FY16, approximately ~~9.57~~ 15.995 m<sup>3</sup> of the ~~63.14 m<sup>3</sup> of~~ STP waste ~~at TA-55 is~~ associated with the CVD Project (formerly referred to as the Bolas Grande Project), that started in the summer of FY14, ~~was at TA-55~~. A milestone extension request to October 31, 2020, for ~~removal of the remaining five-five CVDs is proposed~~ was approved as ~~discussed in the CP Update Part II, Section 5.0~~ shown in Table 4.0-2, B.

In FY17, tThe remainder-remaining ~~53.57~~ 162.634 m<sup>3</sup> (~~127.378~~ + 12.796 + 22.460) of the covered MTRU waste inventory at TA-55 consists of heterogeneous combustible and noncombustible mixed waste. The de-inventory of TA-55's MTRU waste will take multiple years. A milestone extension request to November 30, 2022, is proposed ~~as discussed in the CP Update Part II, Section 5.0~~ as shown in Table 4.0-2, A. A subset of the covered MTRU waste inventory will require management at the WCRRF as the waste acceptance criteria for WIPP has changed since the waste was generated. WCRRF will not receive

waste until it has implemented corrective actions as directed by the DOE's Accident Investigation Board, including updating its Safety Basis documents. DOE EM manages TA-54. DOE EM stated that TA-54 will not receive any programmatic newly-generated waste. The LANL Hazardous Waste Permit specifies that MTRU waste generated prior to April 21, 2011, cannot be stored at the TWF. In addition, WIPP is expected to receive limited number of waste shipments per week. DOE/LANS is anticipated to be allowed one shipment per week starting September 2017.

#### 4.1 Management of "Missing" Items

Table 4.1-2 Waste Category for "Missing Waste"

Category	Treatability Groups	Net Volume (m <sup>3</sup> )
Missing/Nonexistent/TBV	Cemented Sludge	0.00
	Combustible-Noncombustible Waste	0.000
	Combustible Waste	0.000
Totals		0.000

**Treatment:** During visual inspections in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the expected containers, according to the LANL data files for the waste item. In some instances, such items cannot be verified as having been received in storage at LANL, and follow-up investigations of the record files reveal that although the items were included in the original STP inventory, the waste items were never generated.

Some items were determined not to exist after visual inspection and document review. When LANS determines that an STP-covered waste item does not exist, transfer of the item to the category called "Missing/nonexistent/TBV" is requested through this revision Annual Update.

If, at any time, any of these items is discovered in the inventory, NMED would be notified and approval requested for assignment of the rediscovered items to the appropriate treatability group.

# APPENDICES

## APPENDIX A CURRENT YEAR MLLW INVENTORY DETAIL

Table A-1 FY17 MLLW Inventory Detailed Update by Treatability Group

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.1.1	LA-W901 <i>IPA Wastes</i>	0	0		0	0
3.1.1	LA-W902 <i>Scintillation Fluids</i>	0	0		0	0
3.1.2	LA-W903 <i>Lead Blankets</i>	0	0		0	0
3.1.2	LA-W904 <i>Soil with Heavy Metals</i>	0	0		0	0
3.1.2	LA-W905 <i>ER Soils</i>	0	0		0	0
3.1.3	LA-W906 <i>Aqueous Organic Liquids</i>	0	0		0	0
3.1.4	LA-W911 <i>Organic-Contaminated Combustible Solids</i>	0	0		0	0
3.1.4	LA-W919 <i>Organic-Contaminated Noncombustible Solids</i>	0	0		0	0
3.1.5	LA-W912 <i>Combustible Debris</i>	0	0		0	0
3.1.5	LA-W921 <i>Activated or Inseparable Lead</i>	0	0		0	0
3.1.5	LA-W922 <i>Noncombustible Debris</i>	0	0	Administrative Adjustment	0	0
			0	Shipped offsite for treatment/disposal		
			0	New covered		
3.1.6	LA-W913 <i>Aqueous Wastes with Heavy Metals</i>	0	0		0	0
3.1.6	LA-W914 <i>Corrosive Solutions</i>	0	0		0	0
3.1.6	LA-W915 <i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	0	0		0	0
3.1.7	LA-W916 <i>Water-Reactive Wastes</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.1.8	LA-W917 <sup>4</sup> <i>Compressed Gases Requiring Scrubbing</i>	1.040	-0.415	Administrative Adjustment	0.625	0
			0	Shipped offsite for treatment/disposal		
3.1.9	LA-W918 <i>Compressed Gases Requiring Oxidation</i>	0	0		0	0
3.1.10	LA-W920 <i>Elemental Mercury</i>	0	0		0	0
3.1.11	LA-W907 <i>Halogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W908 <i>Nonhalogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W909 <i>Bulk Oils</i>	0	0		0	0
3.1.11	LA-W910 <i>PCB Wastes with RCRA Components</i>	0	0		0	0
3.1.11	LA-W923 <i>Liquid and Solid Oxidizers</i>	0	0		0	0
3.2	LA-W924 <i>Lead Wastes – TBD</i>	0	0		0	0
3.2	LA-W925 <i>Mercury Wastes – TBD</i>	0	0		0	0
3.2	LA-W926 <i>Compressed Gases – TBD</i>	0	0		0	0
3.2	LA-W927 <i>Biochemical Laboratory Wastes</i>	0	0		0	0
3.2	LA-W928 <i>Dewatered Treatment Sludge</i>	0	0		0	0
3.2	LA-W932 <i>Explosives</i>	0	0		0	0
3.2	LA-W933 <i>Labpacks</i>	0	0		0	0
3.2	LA-W934 <i>High Activity Waste</i>	1.477	0	Shipped offsite for treatment/disposal	1.477	0
			0	Administrative Adjustment		
3.3.1	LA-W930 <i>Lead for Surface Decontamination</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.3.2	LA-W929 <i>Nonradioactive or Suspect Waste Items to be Surveyed</i>	0	0		0	0
3.3.3	LA-W931 <i>Lead Requiring Sorting</i>	0	0		0	0
3.3.4	LA-W935 <i>10–100 nCi/g Waste</i>	<del>59.927</del> <u>57.410</u>	<del>19.277</del> <u>21.782</u>	Administrative Adjustment ( <a href="#">Table C-1</a> )	<del>170.426</del> <u>172.931</u>	50
			36.7 <del>80</del> 795	New covered		
			105.078 <del>1</del>	Reconciled from WCATS inventory <a href="#">“New Covered”</a>		
			-48.119	Shipped offsite for treatment/disposal		
TOTALS		59.927			<del>172.527</del> <u>175.033</u>	50

<sup>1</sup> CP is Compliance Plan; MWIR is Mixed Waste Inventory Report.

<sup>2</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>3</sup> Shipment details are in Appendix B; Administrative adjustments are in Appendix C.

<sup>4</sup> Items prohibited from shipment to WIPP are removed from MTRU STP containers and consolidated; some are MLLW and are included in Table A-1 as LA-W917 waste; others are MTRU waste and are considered *Combustible-Noncombustible Waste* in Table E-1.



## APPENDIX B CURRENT YEAR MLLW SHIPMENT DETAIL

Table B-1 MLLW Shipped Offsite for Treatment and Disposal in FY17

CP Section	MWIR <sup>1</sup> No.	Treatability Group	Manifest Number	Destination	Date Shipped	Date NMED Notified	Volume (m <sup>3</sup> )
3.3.4	LA-W935	10-100 nCi/g Waste	006647301FLE	PermaFix NW	03/7/2017	04/21/2018 (EPC-DO-017-156)	11.334
3.3.4	LA-W935	10-100 nCi/g Waste	006641098FLE	Waste Control Solutions	5/23/2017	1/7/2019 (EPC-DO-18-438)	0.208
3.3.4	LA-W935	10-100 nCi/g Waste	006649771FLE	Energy Solutions	9/13/2017	1/7/2019 (EPC-DO-18-438)	0.3215
3.3.4	LA-W935	10-100 nCi/g Waste	006649706FLE	Energy Solutions	8/17/2017	1/7/2019 (EPC-DO-18-438)	36.250
LA-W935 Total							48.119
Grand Total							48.119

<sup>1</sup> MWIR is Mixed Waste Inventory Report.

## APPENDIX C CURRENT YEAR MLLW ADMINISTRATIVE ADJUSTMENTS

Table C-1 Administrative Adjustments

CP Section	MWIR* Number	Administrative Adjustment	Volume (m³)
3.3.4	LA-W935	Transferred into LA-W935 from reclassification of Empty containers (see section 3.4 for details) <u>(from Table C-2) 67 x 0.322 = 21.574</u>	<del>21.541</del> <u>21.574</u>
		Transferred into LA-W935 from reclassification of TRU and MTRU STP covered waste	0.208
		<del>Transferred into LA-W935 from reclassification of MTRU STP covered waste. Due to an administrative recordkeeping error, this MLLW container was inadvertently disposed in Pit 38 at Area G. Notification was sent to the NMED (ADESH 16-21) on February 25, 2016. Future discussions with the NMED are pending.</del>	<del>-2.056</del>
Total Net Adjustments for LA-W935			<del>19.693</del> <u>21.782</u>
3.1.8	LA-W917	Reconciled from FY16 inventory. Transferred into LA-W935 from reclassification of Compressed Gases.	-0.415
Total Net Adjustments for LA-W917			-0.415
Total Net Adjustments			<del>19.278</del> <u>21.367</u>

\*MWIR is Mixed Waste Inventory Report

CP Section	MWIR*	Treatability Group	Type of Adjustment	Cumulative Volume Adjustment (m³)	Item or Container Number	MLLW Container Volume (m³)	Reason for Administrative Adjustment
3.1.8	LA-W917	Total Compressed Gas	Reconciled from WCATS inventory	-0.415			Removed as a result of reconciling data.
3.3.4	LA-W935	10–100 nCi/g	Reclassified/Repack aged MTRU STP and TRU inventory to MLLW STP inventory	21. <del>574</del> <del>545</del>			Removed as a result of reconciliation WCATS inventory
					W797736	0.322	
					W798796	0.322	
					W730974	0.322	
					W799407	0.322	
					W799536	0.322	
					W799424	0.322	
					W799727	0.322	
					W799724	0.322	
					W799772	0.322	
					W799735	0.322	
					W799775	0.322	
					W799924	0.322	
					W799028	0.322	
					W800053	0.322	
					W800386	0.322	
					W800389	0.322	
					W801043	0.322	
					W789230	0.322	
					W788964	0.322	
					W789282	0.322	
					W788786	0.322	
					W789845	0.322	
					W788896	0.322	
					W789998	0.322	
					W789894	0.322	
					W791568	0.322	
					W791483	0.322	
					W791487	0.322	
					W790098	0.322	
					W789528	0.322	
					W790231	0.322	
					W790101	0.322	
					W790103	0.322	
					W790105	0.322	
					W790107	0.322	

CP Section	MWIR*	Treatability Group	Type of Adjustment	Cumulative Volume Adjustment (m³)	Item or Container Number	MLLW Container Volume (m³)	Reason for Administrative Adjustment
					W790109	0.322	
					W790151	0.322	
					W790134	0.322	
					W788762	0.322	
					W788764	0.322	
					W788766	0.322	
					W788768	0.322	
					W791583	0.322	
					W791585	0.322	
					W791587	0.322	
					W790059	0.322	
					W790061	0.322	
					W790063	0.322	
					W790065	0.322	
					W790148	0.322	
					W790150	0.322	
					W790232	0.322	
					W791317	0.322	
					W791382	0.322	
					W788174	0.322	
					W788176	0.322	
					W788178	0.322	
					W788180	0.322	
					W788182	0.322	
					W791634	0.322	
					W791636	0.322	
					W791710	0.322	
					W791712	0.322	
					W788643	0.322	
					W788647	0.322	
					W789360	0.322	
					W791755	0.322	
Subtotal 10-100 Volume						<del>21.545</del> 21.574	
Subtotal Total compressed gas Volume						-0.415	

\*MWIR is Mixed Waste Inventory Report

## APPENDIX D PREVIOUS YEAR MLLW INVENTORY DETAIL

Table D-1 FY16 MLLW Inventory Detailed Update by Treatability Group

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision <del>27</del> 6.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.1.1	LA-W901 <i>IPA Wastes</i>	0	0		0	0
3.1.1	LA-W902 <i>Scintillation Fluids</i>	0	0		0	0
3.1.2	LA-W903 <i>Lead Blankets</i>	0	0		0	0
3.1.2	LA-W904 <i>Soil with Heavy Metals</i>	0	0		0	0
3.1.2	LA-W905 <i>ER Soils</i>	0	0		0	0
3.1.3	LA-W906 <i>Aqueous Organic Liquids</i>	0	0		0	0
3.1.4	LA-W911 <i>Organic-Contaminated Combustible Solids</i>	0	0		0	0
3.1.4	LA-W919 <i>Organic-Contaminated Noncombustible Solids</i>	0	0		0	0
3.1.5	LA-W912 <i>Combustible Debris</i>	0	0		0	0
3.1.5	LA-W921 <i>Activated or Inseparable Lead</i>	0	0		0	0
3.1.5	LA-W922 <i>Noncombustible Debris</i>	0	-2.625	Administrative Adjustment	0	0
			2.625	Shipped offsite for treatment/disposal		
3.1.6	LA-W913 <i>Aqueous Wastes with Heavy Metals</i>	0	0		0	0
3.1.6	LA-W914 <i>Corrosive Solutions</i>	0	0		0	0
3.1.6	LA-W915 <i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	0	0		0	0
3.1.7	LA-W916 <i>Water-Reactive Wastes</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision 276.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.1.8	LA-W917 <sup>5</sup> <i>Compressed Gases Requiring Scrubbing</i>	1.248	-0.208	Administrative Adjustment	1.040	0
			0	Shipped offsite for treatment/disposal		
3.1.9	LA-W918 <i>Compressed Gases Requiring Oxidation</i>	0	0		0	0
3.1.10	LA-W920 <i>Elemental Mercury</i>	0	0		0	0
3.1.11	LA-W907 <i>Halogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W908 <i>Nonhalogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W909 <i>Bulk Oils</i>	0	0		0	0
3.1.11	LA-W910 <i>PCB Wastes with RCRA Components</i>	0	0		0	0
3.1.11	LA-W923 <i>Liquid and Solid Oxidizers</i>	0	0		0	0
3.2	LA-W924 <i>Lead Wastes – TBD</i>	0	0		0	0
3.2	LA-W925 <i>Mercury Wastes – TBD</i>	0	0		0	0
3.2	LA-W926 <i>Compressed Gases – TBD</i>	0	0		0	0
3.2	LA-W927 <i>Biochemical Laboratory Wastes</i>	0	0		0	0
3.2	LA-W928 <i>Dewatered Treatment Sludge</i>	0	0		0	0
3.2	LA-W932 <i>Explosives</i>	0	0		0	0
3.2	LA-W933 <i>Labpacks</i>	0	0		0	0
3.2	LA-W934 <i>High Activity Waste</i>	1.301 1.477	0	Shipped offsite for treatment/disposal	1.477	0
			0.176	Administrative Adjustment		
3.3.1	LA-W930 <i>Lead for Surface Decontamination</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision <del>276.0</del> (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.3.2	LA-W929 <i>Nonradioactive or Suspect Waste Items to be Surveyed</i>	0	0		0	0
3.3.3	LA-W931 <i>Lead Requiring Sorting</i>	0	0		0	0
3.3.4	LA-W935 <i>10–100 nCi/g Waste</i>	33.140	43.506	Administrative Adjustment	57.410	50
			0	New covered		
			-19.236	Shipped offsite for treatment/disposal		
3.4	<i>Missing/ nonexistent/ TBV category</i>	0	0		0	N/A
<b>TOTALS</b>		<b>35.689</b>			<b>59.927</b>	50

<sup>1</sup> CP is Compliance Plan.

<sup>2</sup> MWIR is Mixed Waste Inventory Report.

<sup>3</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>4</sup> Shipment details are in Appendix B; Administrative adjustments are in Appendix C.

<sup>5</sup> Items prohibited from shipment to WIPP are removed from MTRU STP containers and consolidated; some are MLLW and are included in Table A-1 as LA-W917 waste; others are MTRU waste and are considered *Combustible-Noncombustible Waste* in Table E-1.

## APPENDIX E CURRENT MTRU INVENTORY DETAIL

Table E-1 TA-54 MTRU Covered Inventory (by Treatability Group)

Treatability Group	FY16 Annual Update (m <sup>3</sup> )	Proposed Revision 28.0 (m <sup>3</sup> ) <sup>1,2</sup>	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY18–FY21 (m <sup>3</sup> )
<b>Cemented Sludge</b>	<b>82.250</b>				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(0)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-82.250	Administrative Adjustments		
		<b>FY17 Subtotal Cemented Sludge</b>		<b>0</b>	<b>0</b>
<b>Combustible – Noncombustible Waste</b>	<b>349.792</b>				
		(68.362) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		1.878	New Covered		
		(-153.204)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-186.503	Administrative Adjustments		
		<b>FY17 Subtotal Combustible-Noncombustible Waste</b>		<b>165.167</b>	<b>100</b>
<b>Combustible Waste</b>	<b>1.454155</b>				
		(0.208) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(0)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-1.1554	Administrative Adjustments		
		<b>FY17 Subtotal Combustible Waste</b>		<b>0</b>	<b>0</b>
<b>Glass Waste</b>	<b>0</b>				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		0	Shipped Offsite		
		0	Administrative Adjustments		
		<b>FY17 Subtotal Glass Waste</b>		<b>0</b>	<b>0</b>



Treatability Group	FY16 Annual Update (m³)	Proposed Revision 28.0 (m³) <sup>1,2</sup>	Comments <sup>3</sup>	FY17 Annual Update (m³)	Projection FY18–FY21 (m³)
<i>Leaded Glovebox Waste</i>	0				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		0	Shipped Offsite		
		0	Administrative Adjustments		
		FY17 Subtotal <i>Leaded Glovebox Waste</i>		0	0
<i>Metallic Waste</i> <u>(Non- CVD)</u>	2.309				
		(0.208) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(-0.208)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		-2.101	Administrative Adjustments		
		FY17 Subtotal <i>Metallic Waste</i>		0.208	0
<i>Noncombustible Waste</i>	22.108				
		(1.248) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(-14.050)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-22.108	Administrative Adjustments		
		FY17 Subtotal <i>Noncombustible Waste</i>		0	100
<i>Solidified Inorganic and Organic Waste</i>	434.204	379.841 <del>1</del> <sup>4</sup>	Reconciled from WCATS inventory and included as <del>Newly</del> Covered		
		(24.702) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		(-20.196)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		<del>292.727</del> 294.11 <del>7</del>	Administrative Adjustments		
		FY17 Subtotal <i>Solidified Inorganic and Organic Waste</i>		<del>1406.769</del> 1108.162	10
TOTAL FY16:	891.81 <del>7</del> 818	Total FY17 Inventory:		<del>1272.144</del> 1273.537	210

<sup>1</sup> MTRU waste volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>2</sup> Volumes are represented to three decimal places.

<sup>3</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G.

<sup>4</sup> Amount already included in the MTRU STP covered inventory.

<sup>5</sup> NMED has determined that the removal of MTRU from the STP will be deferred until more information becomes available and is the final disposition of the waste currently stored at the offsite facility is determined. Amount already included in the MTRU STP covered inventory.

Table E-2 MTRU Inventory at TA-55 and CMR

Location	FY16 MTRU Inventory (m³) <sup>1</sup>	Treatability Group	Proposed Revision 28.0 (m³)	Comments <sup>1</sup>	FY17 MTRU Inventory (m³)
CMR	9.598	Combustible-Noncombustible Waste	22.097	Reconciled from WCATS inventory (i.e, New Covered)	
		Metallic Waste <u>(metallic waste CVDs are removed from the STP when they are transported from TA-55 (3.199 m3) to the CMR Material Recovery Project. There is no addition of STP volume to CMR.</u>	<del>3.199</del> 0	<u>Material t</u> Transfer from TA-55	<u>0</u>
Total FY17 CMR Inventory					<del>34.894</del> <u>31.695</u>
TA-55	33.197	Combustible-Noncombustible Waste	94.181	Reconciled from WCATS inventory (i.e., New Covered)	
			0	Administrative Adjustment	
FY17 TA-55 Combustible-Noncombustible Waste Inventory					127.378
TA-55	5.212	Combustible Waste	00	New Covered	
			-5.212	Administrative Adjustment (Reconciled from WCATS inventory)	
FY17 TA-55 Combustible Waste Inventory					0
TA-55	15.995	Metallic Waste <u>-(CVD)</u>	<del>9.596</del> 0	Reconciled from WCATS inventory (i.e., <del>Newly Covered</del> )	
			-3.199	Transfer to CMR <u>to the Material Recovery Project, therefore, volume is removed from the TA-55 STP.</u>	<del>22.392</del>
FY17 TA-55 Metallic Waste Inventory					<del>15.995</del> <u>12.796</u>
TA-55	5.445	Noncombustible Waste	17.015	Reconciled from WCATS inventory (i.e., New Covered)	
			0	Administrative Adjustment	
FY17 TA-55 Noncombustible Waste Inventory					22.460
TA-55	0	Solid Inorganic and Organic Waste	0	Administrative Adjustment	
FY17 TA-55 Solidified Inorganic and Organic Waste Inventory					0.000
Total FY17 TA-55 Inventory					<del>172.234</del> <u>162.634</u>
					<del>45.844</del> <u>207.125</u> <u>194.329</u>

Location	FY16 MTRU Inventory (m <sup>3</sup> ) <sup>1</sup>	Treatability Group	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>1</sup>	FY17 MTRU Inventory (m <sup>3</sup> )
<i>Total FY17 CMR/TA-55 Inventory</i>					

<sup>1</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G. ~~Since all waste is shipped from TA-54, there are no shipping data for CMR/TA-55, only transfers to TA-54, which are included in the Appendix G.~~

## APPENDIX F FY16 MTRU WASTE SHIPMENTS TO WIPP

Table F-1 FY17 MTRU Shipments to WIPP

FY15 Quarter	Treatability Group	Existing FY15 Inventory Volume (m <sup>3</sup> )	New-Covered Volume (m <sup>3</sup> )	Total Removed from Inventory (placed below grade) (m <sup>3</sup> )	Total FY14 Inventory (above grade) on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>1</sup>
Q1	Q1Total	0	0	0	0	0
Q2	Q2Total	0	0	0	0	0
Q3	Q3 Total	0	0	0	0	19.00
Q4	Q4 Total	0	0	0	0	7.128
<b>Grand Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>26.128</b>

<sup>1</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-2 FY14 MTRU Shipments to WCS<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>2</sup>	Total Disposed in FY17 (m <sup>3</sup> )
Q3	Combustible-Noncombustible Waste Total	120.848	0.416	121.264	121.264	-42.268
	Metallic Waste Total	0.208	0	0.208	0.208	-0.208
	Noncombustible Waste Total	14.050	0	14.050	13.936	
	Solidified Inorganic and Organic Waste Total	20.196	0	20.196	19.968	-19.968
<b>Grand Total</b>		<b>155.302</b>	<b>0.416</b>	<b>155.718</b>	<b>155.376</b>	<b>-62.444</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-3 FY14 MTRU Shipments to AMWTP (INL)<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold <sup>2</sup> (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>3</sup>	Total Disposed in FY17 (m <sup>3</sup> )
Q1	Combustible-Noncombustible Waste Total	5.049	0	5.049	5.049	-5.049
Q2	Combustible-Noncombustible Waste Total	15.294	0	15.294	15.294	-15.294
Q3	Combustible-Noncombustible Waste Total	2.549	0	2.549	2.549	-2.549
<b>Grand Total</b>		<b>22.892</b>	<b>0</b>	<b>22.892</b>	<b>22.892</b>	<b>-22.892</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> LANL waste treated at INL and stored at a WCS facility as of November 2014. Original containers and volume continue to be tracked since treated containers were not created at LANL.

<sup>3</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-4 FY14 MTRU Shipments to WIPP<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (above grade) (m <sup>3</sup> )	Total Volume Shipped (above grade) (m <sup>3</sup> ) <sup>2</sup>
Q2	Combustible-Noncombustible Waste Total	9.048	0	9.048	8.820
<b>Grand Total</b>		<b>9.048</b>	<b>0</b>	<b>9.048</b>	<b>8.820</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

## APPENDIX G CURRENT YEAR MTRU INVENTORY – ADMINISTRATIVE ADJUSTMENTS

Table G-1 FY17 MTRU Administrative Adjustments to TA-54 Inventory (from Table E-1)

Treatability Group	Administrative Adjustment	Volume (m <sup>3</sup> )
Cemented Sludge	STP containers from Cemented Sludge were reassigned to Solidified Inorganic and Organic Waste treatability group <del>consistent</del> consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-82.238250
	<del>Rounding</del>	-0.012
<b>Cemented Sludge Net Adjustment</b>		<b>-82.250</b>
Combustible-Noncombustible Waste	Reclassified as MLLW (LA-W935)	-0.2080
	Reconciliation of WCATS inventory – <del>New Covered</del>	0 1.878
	STP containers from <del>Combustible</del> Combustible-Noncombustible Waste treatability group reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes included <del>in</del> direct loaded SWBs.	-188.173-186.503
<b>Combustible-Noncombustible Net Adjustment</b>		<b>-186.503</b>
Combustible Waste	STP containers from Combustible Waste treatability groups were <del>reassigned</del> to Solidified Inorganic and Organic Waste treatability groups consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-1.1545155
	<del>Rounding adjustments</del>	-0.0005
<b>Combustible Waste Net Adjustment</b>		<b>-1.154155</b>
Metallic Waste	STP containers from Metallic Waste treatability group reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-0.208-2.101
	<del>Reconciliation for WCATS inventory, including rounding adjustments.</del>	-2.309 -2.101
<b>Metallic Waste Net Adjustment</b>		<b>-2.517-2.101309</b>
Noncombustible Waste	STP containers from NoncCombustible Waste treatability group were reassigned to Solidified Inorganic and Organic treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are included.	-22.108
<b>Noncombustible Waste Net Adjustment</b>		<b>-22.108</b>
<u>Solidified Inorganic and Organic Waste</u>	<u>STP containers reassigned from Cemented Sludge, Combustible-Noncombustible Waste, Combustible Waste, Metallic Waste and Noncombustible Waste to Solidified Inorganic and Organic Waste</u>	<u>294.117</u>
<b><u>Solidified Inorganic and Organic Waste Net Adjustment</u></b>		<b><u>294.117</u></b>
<b><u>Net TA-54 MTRU Administrative Adjustment</u></b>		<b><u>0</u></b>

Table G-2 FY17 MTRU Administrative Adjustments for CMR and TA-55 Inventory  
(from Table E-2)

Location	Treatability Group	Administrative Adjustment	Volume (m³)
CMR	Combustible-Noncombustible Waste	<u>CVD volume is removed from the STP when it arrives at the CMR from TA-55. Transferred for storage for the Material Recovery Project. retrieval from TA-55 to CMR to for storage. It is then reclassified as Combustible-Noncombustible Waste. Therefore the SPT volume at CMR will be 0 for this transfer.</u>	<del>3.199</del> <u>0</u>
Net Adjustment CMR Inventory			<del>3.199</del> <u>0</u>
TA-55	Combustible-Noncombustible Waste		0
Net Adjustment TA-55 Combustible-Noncombustible Waste			<del>0</del> <u>0</u>
TA-55	Combustible Waste	<u>Administrative Adjustment – reconciled with WCATS</u>	<del>0.5.212</del>
Net Adjustment TA-55 Combustible Waste			<del>0.5.212</del>
TA-55	Metallic Waste - <u>CVD</u>	<u>CVD transferred to CMR for storage and the Material Recovery Project retrieval for storage. e and this volume will be removed from the STP waste volume at TA-55.</u>	-3.199
Net Adjustment TA-55 Metallic Waste ( <u>CVD</u> )			<del>-3.199</del>
TA-55	Noncombustible Waste		0
Net Adjustment TA-55 Noncombustible Waste			<del>0</del>
TA-55	Solidified Inorganic and Organic Waste		0
Net Adjustment TA-55 Solidified Inorganic and Organic Waste			<del>0</del>
Net Adjustment TA-55 Inventory			<del>-3.199</del> <u>-8.411</u>
Total Net TA-55/CMR Adjustment			<del>0</del> <u>-8.411</u>

## APPENDIX H      MLLW TREATMENT FACILITIES

*Table H-1      Commercial Facilities Contacted for Waste Treatment Capabilities*

<b>Commercial Facility</b>	<b>Location</b>
Perma-Fix (including Material & Energy Corporation in Tennessee; Diversified Scientific Services, Inc. in Tennessee; and Perma-Fix North West in Washington)	Florida
Waste Control Specialists	Texas
EnergySolutions of Utah (including Bear Creek Operations in Tennessee)	Utah
Nuclear Fuel Services	Tennessee
Integrated Environmental Services	Tennessee
NSSI	Texas



## APPENDIX I CORRESPONDENCE

Table I-1 Expedited Shipment Letters

Letter Date	Description	Letter Number	Revision Reference
04/21/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C	EPC-DO-17-156	28
01/07/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C	EPC-DO-18-438	28

Table I-2 Correspondence

Letter Date	Description	Letter Number	Revision Reference
08/11/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q3	EPC-DO-17-285	28
11/14/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q4	EPC-DO-17-456	28
05/10/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q2	WM-DO-17-001	28
06/15/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0.	WM-DO-17-228	28
08/08/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-295	28
08/21/2017	Notice of completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-311	28
10/27/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-422	28
12/4/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C.	EPC-DO-17-497	28
01/05/2018	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-556	28
02/14/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-001	28
02/13/2017	Federal <del>Facility</del> <u>Facility</u> Compliance Order – Notice of Change of Project Manager	ADESH-17-020	28
09/15/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-334	28

## APPENDIX J HISTORY OF CHANGES TO THE CP AND FFCO

As discussed in Part III (CP), Section 1.2, the STP CP has been modified several times since it was originally issued, in accordance with the provisions of Section X, *Revisions*, and Section XI, *Other Amendments to the STP*, of the October 4, 1995, FFCO, as amended and revised. This appendix provides a summary of these CP changes and of modifications to the FFCO since its issuance.

To date, there have been 27 revisions and three amendments to the CP. In addition, the FFCO was amended once on May 20, 1997. Table J-1 provides a summary of these changes. More detailed descriptions can be found in the CP Update portion of each year's STP *Annual Update* and the original correspondence requesting each change.

Table J-1 Summary of Changes to the CP and the FFCO

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev. 1.0	STP/CP	6/12/96	Added offsite treatment as a parallel preferred option for most MLLW treatability groups.
Rev. 2.0	STP/CP	12/9/96	Reduced volume of LA-W928 by approving reclassification of <del>sludgessludge</del> as LLW.
Amendment 1.0	STP/CP	10/30/96	Divided original volume of LA-W929 into three subgroups, and added new Activities and Compliance Dates.
Rev. 3.0	STP/CP	1/27/97	Divided original volume of LA-W929 into three subgroups, and added new Activities and Compliance Dates.
Amendment 1.0	FFCO	5/20/97	Modified FFCO Sections IV, V, IX, and X to streamline waste transfers and deletions.
Amendment 2.0	STP/CP	9/4/97	Extended CP Activity 3.1.2B Compliance Date to 12/29/97.
Rev. 4.0	STP/CP	12/29/97	Transferred original volume of LA-W929 from three subgroups to other treatability groups, added treatability groups, and deleted treated items.
Rev. 5.0	STP/CP	12/29/97	Added volumes reported in FY95 and FY96 <i>Annual Updates</i> (and certain other items) to several treatability groups, added Activities and Compliance Dates, added CP Appendices, and deleted treated items.
Rev. 6.0	STP/CP	7/31/98	Added volumes reported in FY97 <i>Annual Update</i> to several treatability groups, added certain Activities and Compliance Dates, adjusted several original inventory volumes, transferred one LA-W929 item to a new treatability group, and deleted treated items.
Rev. 7.0	STP/CP	11/30/98	Removed onsite treatment skids, added STP inventory items, added onsite recycling/re-use and radiological decontamination, added notification for offsite treatability studies.
Rev. 8.0	STP/CP	12/3/98	Extended compliance dates for treatment of MTRU waste.
Rev. 9.0	STP/CP	6/7/00	Added and deleted volumes reported in FY98 <i>Annual Update</i> to certain treatability groups.
Amendment 3.0	STP/CP	8/30/99	Transferred three items to MTRU, transferred one item to subgroup within same treatability group.
Rev. 10.0	STP/CP	12/18/00	Added and deleted volumes reported in FY99 <i>Annual Update</i> to certain treatability groups.
Rev. 11.0	STP/CP	4/18/01	Added and deleted volumes reported in FY00 <i>Annual Update</i> .

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev. 12.0	STP/CP	3/13/02	Added and deleted volumes reported in FY01 <i>Annual Update</i> . Extended CP Activity 3.1.5A Compliance Date to 8/25/03. Extended CP Activity 3.1.11A to 2/01/04. Removed the requirement to develop treatment technologies and the associated compliance schedule in CP Activity 4.0 and added language specifying that MTRU waste would be shipped offsite to WIPP for disposal.
Rev 13.0	STP/CP	7/14/03	Added and deleted volumes reported in FY02 <i>Annual Update</i> .
Rev 14.0	STP/CP	1/5/05	Added and deleted volumes reported in FY03 <i>Annual Update</i> .
Rev 15.0	STP/CP	8/16/05	Added and deleted volumes reported in FY04 <i>Annual Update</i> .
Rev 16.0	STP/CP	12/12/06	Added and deleted volumes reported in FY05 <i>Annual Update</i> . Extended CP Activity 3.1.8(A) Compliance Date to 8/09/07. Extended CP Activity 3.1.9(A) Compliance Date to 8/09/07. Extended CP Activity 3.1.10(A) Compliance Date to 8/31/07. Extended CP Activity 3.1.11(A) Compliance Date to 12/31/07. Extended CP Activity 3.2(J) Compliance Date to 12/31/07. Reclassified 0.2082 m <sup>3</sup> of LA-W934 High Activity MLLW waste to MTRU waste.
Rev 17.0	STP/CP	6/26/08	Added and deleted volumes reported in FY06 <i>Annual Update</i> . Extended CP Activity 3.1.5(A) Compliance Date to 12/31/08. Extended CPV Activity 3.1.8(A) Compliance Date to 8/28/08. Extended CP Activity 3.1.9(A) Compliance Date to 8/28/08. Extended CP Activity 3.2(J) Compliance Date to 12/31/08.
Rev 18.0	STP/CP	1/9/09	Added and deleted volumes reported in FY07 <i>Annual Update</i> . Extended CP Activity 3.1.8(A) Compliance Date to 8/28/09. Extended CP Activity 3.1.9(A) Compliance Date to 8/28/09. Proposed a new Section 3.3.4 for Treatability Group, LA-W935 10–100 nCi/g Waste with new CP Activity 3.3.4 (A) Compliance Date 12/01/13 and CP Activity 3.3.4 (B) Compliance Date 12/31/13. Extended CP Activity 3.2(J) Compliance Date to 12/31/10.
Rev 19.0	STP/CP	2/5/10	Added and deleted volumes reported in FY08 <i>Annual Update</i> . Extended compliance date for CP Activities 3.1.8(A) and 3.1.9(A) to 8/28/12. Proposed a new milestone of 12/31/2010 for 3.1.4(A) and a new milestone 3.3.4(C) for 10–100 nCi/g Waste.
Rev 20.0	STP/CP	11/8/10	Added and deleted volumes reported in FY09 <i>Annual Update</i> . Proposed an extended compliance date for CP Activity 3.2(J).
Rev 21.0	STP/CP	3/21/12	Added and deleted volumes reported in FY10 <i>Annual Update</i> . Proposed new compliance date for CP Activity 3.1.8(A).
Rev 22.0	STP/CP	12/10/12	Added and deleted volumes reported in FY11 <i>Annual Update</i> .
Rev 23.0	STP/CP	08-26-2015	Added and deleted volumes reported in FY12 <i>Annual Update</i> . Added Table 4.0-1 Treatability Groups for the Framework Agreement MTRU Waste
Rev 24.0	STP/CP	08-26-2015	Added and deleted volumes reported in FY13 <i>Annual Update</i> . Proposed compliance date for CP Activity 3.1.5(A). Proposed compliance date for CP Activity 3.1.8(A). Extended CP Activity 3.2(J) Compliance Date to 6/30/2018. Proposed compliance date for CP Activity 3.3.4 (A and B)

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev 25.0	STP/CP	TBD	Added and deleted volumes reported in FY14 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activity 3.1.8(A) Proposed compliance date for CP Activity 3.3.4 (A and B)
Rev 26.0	STP/CP	01-30-2017	Added and deleted volumes reported in FY15 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activity 4.0-2 (C)
Rev 27.0	STP/CP	03/21/2017	Added and deleted volumes reported in FY16 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activities 4.0-2(a), and 4.0-2(c).
Rev 28.0	STP/CP	TBD	Added and deleted volumes reported in FY17 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activities 3.1.8-2(A), and 3.3.4-2 (A and B).

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3. 40 CFR Part 194, Criteria for the Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision; Proposed Rule (Federal Register V.62, No. 210, Oct. 30, 1997, pp. 58792–58838).

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~~May 9~~March 7, 2019

**Los Alamos National Laboratory  
Federal Facility Compliance Order  
Annual Site Treatment Plan Update  
for Fiscal Year 2017 Rev. 28.0**



Prepared by the Waste Management Program

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## ACRONYMS

40 CFR	Title 40 of the Code of Federal Regulations
AMWTP	Advanced Mixed Waste Treatment Plant
CCA	Compliance Certification Application
CMR	Chemistry and Metallurgy Research (Building)
CP	Compliance Plan
CVD	Confinement Vessel Disposition (project)
DOE	U.S. Department of Energy
DOE EM	U.S. Department of Energy Environmental Programs
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFCA	Federal Facility Compliance Act
FFCO	Federal Facility Compliance Order
FY	fiscal year
HWA	Hazardous Waste Act
HWB	Hazardous Waste Bureau
HWN	hazardous waste number
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
<del>LANS</del>	<del>Los Alamos National Security, LLC</del>
LDR	Land Disposal Restrictions (RCRA)
LLW	low-level waste
LWAA	Land Withdrawal Act Amendments
MLLW	mixed low-level waste
MTRU	mixed transuranic (Waste)
MWIR	Mixed Waste Inventory Report
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act

RNS	Remediated Nitrate Salt
STP	Site Treatment Plan
SWB	standard waste box
TA	Technical Area
TBD	to be determined
TBV	to be verified
TRU	transuranic
TWF	Transuranic Waste Facility
UC	University of California
WCRRF	Waste Characterization, Reduction, and Repacking Facility
WCS	Waste Control Specialists, LLC
WIPP	Waste Isolation Pilot Plant

## INTRODUCTION

On October 6, 1992, Congress passed the Federal Facility Compliance Act (FFCA) to address compliance by the U.S. 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). The FFCA requires DOE to submit a Site Treatment Plan (STP) 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 the RCRA. The FFCA provides 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, the FFCA requires NMED to provide public notice, consider public comments, and consult with the U.S. Environmental Protection Agency (EPA) and any other state in which a facility affected by the STP is located.

On October 4, 1995, NMED issued a Federal Facility Compliance Order (FFCO) to DOE and the management and operating contractor, the University of California (UC) Regents. On June 1, 2006, Los Alamos National Security, LLC (LANS) replaced UC as operating contractor of Los Alamos National Laboratory (LANL). LANS then assumed responsibility for FFCO compliance.

The FFCO required DOE/LANS to implement an STP for the treatment of mixed waste at LANL. The STP is intended to fulfill the FFCA requirements and establish an enforceable framework to allow DOE and LANS (Respondents) to achieve full compliance with LDR requirements under the New Mexico Hazardous Waste Act (HWA) and RCRA. The compliance dates set forth in the STP are enforceable time periods in which Respondents are required to treat or otherwise meet the requirements set forth for LDR under the HWA and RCRA.

On March 31, 1995, DOE submitted its proposed STP, which addressed treatment capacities and technologies to treat all of LANL's mixed waste, regardless of the time it was generated, to NMED. On April 17, 1995, the public was provided an opportunity to comment to NMED on DOE's draft STP. After considering public comment and otherwise complying with the FFCA, NMED approved the draft STP with modifications on October 4, 1995.

Section VII of the FFCO requires DOE/LANS to submit an Annual STP Update to NMED each year on or before March 31. The FFCO requires that the Annual Update bring the information in both the Background and the Compliance Plan (CP) current to the end of the previous federal fiscal year (FY). Part I of this Annual Update constitutes the update to the Background. Part II contains the changes that have occurred since the last Annual Update and also identifies proposed revisions and amendments to the CP. Part III incorporates the changes in Part II into the proposed CP revision (Revision 28.0).

## PART I BACKGROUND UPDATE

### 1.0 INTRODUCTION

The Background (Part I) provides the following information.

- The estimated volume of covered waste in storage at the end of the previous FY and anticipated to be placed in storage for the next five FYs.
- A progress report from the end of the previous federal FY describing treatment progress and treatment technology development for each treatment facility and activity scheduled in the STP.
- A description, if applicable, of current or anticipated alternative treatment technology that is being evaluated for use instead of treatment technologies or capacities identified in the STP.
- A description of DOE's funding for STP-related activities and any funding issues that may affect the schedule.
- The status of the "No-Migration Variance Petition" or any treatability variances.
- A progress report on characterization and/or treatment capabilities or plans for mixed transuranic (MTRU) waste related to the waste treatment standards, if any, for the DOE Waste Isolation Pilot Plant (WIPP) facility near Carlsbad, New Mexico.

The STP-covered waste inventory is verified during quality control activities. Inconsistencies in treatability group or volume between the original inventory and the current inventory may exist. These inconsistencies are reconciled annually with the STP update. In an effort to correct these inconsistencies and streamline the STP reporting process DOE/LANS will work on the STP Report function within the waste characterization tracking system (WCATS).

### 2.0 AMOUNT OF EACH COVERED WASTE STORED AT LANL

#### 2.1 Mixed Low-Level ~~Waste Inventory~~ Waste Inventory (Table A-1)

During FY17, STP-covered mixed low-level waste (MLLW) inventories increased from ~~approximately 60 59.927~~ m<sup>3</sup> to ~~472.527~~ 175.033 m<sup>3</sup> (0.625 + 1.477 + 172.931). The increase was mainly due to the recharacterization process of transuranic (TRU)/MTRU waste that resumed in FY16 for waste to be accepted at offsite treatment and disposal facilities (105.078 m<sup>3</sup>). The TRU/MTRU recharacterization process will continue to produce 10-100 nCi/g waste (LA-W935). The TRU/MTRU recharacterization process was due to a backlog of waste as a result of previous shipping pauses, limited shipments to WIPP and past restrictions onsite at Area G. ~~These~~ is restrictions delayed the final confirmation, characterization, certification, and shipment for offsite treatment and disposal of these containers. Table 2.1-1 summarizes changes to the estimated FY17 STP-covered MLLW inventory.

Appendix A provides the detailed changes to the FY17 covered MLLW inventory by treatability group, including the inventory at Technical Area (TA) 55 and the Chemistry and Metallurgy Research (CMR) Building. Appendix B (Table B-1) lists the FY16 MLLW shipments. Any administrative adjustments to the MLLW inventory are shown in Appendix C (Table C-1). Detailed information about the administrative adjustments in Table C-1 are shown in Table C-2. The MLLW inventory reported in the FY15 Annual Update is included as Appendix D.

Table 2.1-1 FY17 MLLW Inventory Summary from Table A-1

Contribution	Volume (m <sup>3</sup> ) <sup>1</sup>
Estimated MLLW Inventory Reported in the FY16 Annual Update	<b>59.927</b>
Proposed Revision 28.0	
New-Covered Waste <u>LA-W935</u>	<del>36.779</del> <u>36.780</u>
Administrative Adjustments <sup>2</sup> <u>-0.415 + 21.782 (Table C-1)</u>	<del>19.277</del> <u>21.367</u>
Offsite Treatment <u>LA-W935</u>	-48.119
Reconciled from WCATS inventory	<del>404.662</del> <u>105.078</u>
Offsite Recycle	NA <sup>3</sup>
Onsite Decontamination	NA <sup>3</sup>
Treatability Study Use	NA <sup>3</sup>
<b>Estimated MLLW Inventory Reported in FY17 Annual Update (Table A-1)</b>	<b><del>172.527</del> <u>175.033</u></b>

<sup>1</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322

<sup>2</sup> Includes transfers of MTRU and other wastes into MLLW categories

<sup>3</sup> NA = No Activity

## 2.2 Mixed Transuranic (MTRU) Inventory Summary

During FY17, STP-covered MTRU inventories increased from approximately 961 .265 m<sup>3</sup> to 1,828.184 1441.738 m<sup>3</sup> (Table 2.2-1).

Table 2.2-1 summarizes changes to the estimated FY17 MTRU covered waste inventory. The total volume of MTRU waste in Table 2.2-1 includes the CMR and TA-55 MTRU volumes, which are maintained in a separate inventory from the MTRU inventory at TA-54. Appendix E contains additional detail for the MTRU inventory; Table E-1 covers the TA-54 inventory and Table E-2 covers the inventory at CMR and TA-55. The volume of STP-covered MTRU waste that is part of the “non-cemented above-ground Environmental Management (EM) Legacy TRU” (MTRU waste only) has been summarized in Appendix E-1 and Section 4.0 of the CP. Appendix F (Table F-1) provides a summary of FY17 MTRU shipments to WIPP. In Appendix G, Tables G-1 and G-2 describe the administrative adjustments that were made to resolve differences in the TA-54 and the CMR/TA-55 MTRU inventory data, respectively. STP-covered MTRU inventory increased because of the WIPP shutdown as of February 14, 2014. DOE/LANS have shipped 23 55-gallon containers, 19 Standard Waste Boxes (SWB) and 1 Ten Drum Overpack (TDOP) from WCS to WIPP during the fourth quarter of fiscal year (FY) 2017 from July 1, 2017, to September 30, 2017. In addition, one non-hazardous waste shipment was completed as of December 31, 2017 to WIPP

Administrative adjustments typically represent the following types of activities:

- DOE/LANS may correct database entries so that waste items not previously listed as STP waste are now identified as STP waste.
- DOE/LANS may correct waste data, such as volume or EPA codes, through quality control activities. Under DOE standards, waste that was formerly classified as MTRU because it had radioactivity greater than 10 nCi/g has been reclassified to MLLW (LA-W935) if its activity is less than 100 nCi/g.



- New analytical data may also require that waste streams previously managed as TRU waste should, as a prudent measure, be reclassified and managed as MTRU waste.
- During repacking or other quality control activities, TRU waste may be recharacterized as MTRU waste when previously unidentified hazardous contents, such as lead, are determined to be present.
- During repacking, treatability groups are frequently reassigned to be consistent with current management and shipping criteria.
- Containers of waste are occasionally determined not to belong to mixed waste streams and are reclassified as TRU waste; removal of WIPP-prohibited items, if they are the only hazardous constituent, will result in the remaining waste being classified as nonmixed.
- Addition or removal of 85-gallon overpacks changes the volume of waste in the inventory; rounding container volumes to three decimal places also changes the inventory volume.

Table 2.2-1 Covered MTRU Inventory Summary

Description		Volume (m <sup>3</sup> )
Covered MTRU Inventory Reported in FY16 <del>(Table E-2]</del> 69.447 m <sup>3</sup> at CMR/TA-55_ and <del>[Table E-1]</del> 817 891.818 m <sup>3</sup> at TA-54)		<del>961.264</del> <del>961.265</del>
New-Covered MTRU Waste at TA-54 <del>[Table E-1]</del> 1.878 + 379.841		381.719
New-Covered MTRU Waste at CMR/TA-55 <del>[Table E-2]</del> 22.097 + 94.181 +17.015		<del>133.292</del> <del>133.293</del>
Covered MTRU Waste Shipped to WIPP in FY17 below grade <del>[Table F-1]</del>		-26.128
Covered MTRU Waste Shipped to WIPP in FY14 remaining above grade (on hold per NMED) <del>[Table F-4]</del>	9.048*	<del>Left blank</del>
Covered MTRU Waste Shipped to Waste Control Specialists, LLC (WCS), Texas in FY14 (on hold per NMED) <del>[Table F-2]</del>	155.718*	<del>Left blank-</del> <del>92.006</del>
Covered MTRU Waste Shipped to the Advanced Mixed Waste Treatment Plant (AMWTP), Idaho in FY14 (on hold per NMED) <del>[Table F-3]</del>	22.892*	<del>Left blank-</del> <del>22.892</del>
Net Administrative Adjustments for TA-54 in FY17 <del>[Table G-1]</del>		<del>378.037</del> 0.000
Net Administrative Adjustments for CMR/TA-55 in FY17 <del>[Table G-2]</del>		<del>0.000</del> -8.411
Covered MTRU Inventory at End of FY17		<del>1,828.184</del> 1441. <del>738</del>

\* Volume not to be subtracted from the STP inventory. Removal of this waste from STP inventory is on hold until NMED approval is received.

Appendix G includes changes to the MTRU waste inventory that resulted from repacking activities. MTRU waste volumes in the STP inventory reflect the volume of the container rather than the volume of the contents. When containers are repacked, the STP inventory volume of any given treatability group may either increase or decrease. When a container is repacked, the contents are sometimes split into two or more new containers to meet shipping and waste acceptance criteria or to meet characterization criteria (e.g., nondestructive analysis calibration limits). In addition, the new containers may be assigned to different treatability groups depending on the contents of each drum. Therefore, the volume of a single drum may ‘multiply’ into more volume than the original container. For example, repacking one container of *Cemented Sludge* (0.208 m<sup>3</sup>) may result in one drum of *Combined Combustible-Noncombustible Waste*

(0.208 m<sup>3</sup>) and one drum of *Noncombustible Waste* (0.208 m<sup>3</sup>). In addition, changes in the waste volume in the STP inventory occur when an 85-gallon ‘overpack’ is removed from, or added to, a 55-gallon drum during repackaging. Removal of overpacks decreases the volume of waste in the STP inventory. Adding an overpack to a 55-gallon drum increases the volume of waste shown in the STP inventory.

### 3.0 TREATMENT PROGRESS

#### 3.1 Offsite Treatment

During FY17, covered MLLW stream were shipped for treatment and/or disposal to the following offsite commercial treatment facilities: Perma-Fix Northwest, Waste Control Specialists and Energy Solutions.

##### Perma-Fix Northwest

Perma-Fix Northwest, located in Richland, Washington, is a permitted treatment facility for the treatment of low-level radioactive and low-level mixed waste. The site houses both a low-level radioactive waste treatment facility and a low-level mixed waste treatment facility, which are licensed under Nuclear Regulatory Commission regulations (State of Washington licenses WN-I00393-1 and WN-I00508-1) and permitted under RCRA regulations through the State of Washington. The facility can perform thermal treatment, compaction, macroencapsulation, neutralization, and stabilization.

##### Waste Control Solutions, LLC (WSC)

WCS, located in Andrews, Texas, is a permitted treatment facility for the treatment and disposal of LLW and MLLW. The site has regulatory authorization for industrial solid waste and hazardous waste storage, processing, and land disposal under RCRA permit # HW-50358 granted by the state of Texas. EPA has authorized the site for treatment, storage, and land disposal of Toxic Substances Control ~~Act~~Act (TSCA) wastes (TXD988088464). The facility can process waste that requires compaction, microencapsulation, macroencapsulation, neutralization, deactivation, chemical oxidation, chemical reduction and stabilization.

##### Energy Solutions, LLC

Energy Solutions, located in Clive, Utah, is a permitted treatment facility for the treatment and disposal of LLW and MLLW. The site houses both a low-level radioactive waste treatment facility and a low-level mixed waste treatment facility, which are licensed under state of ~~Utah~~ Utah Department of Environmental Quality, ~~License~~, License Number UT2300249 and by the EPA hazardous waste permit number UT0982598898.

Appendix B summarizes LANL’s offsite shipments for treatment and/or disposal of covered MLLW in FY17.

#### 3.2 Offsite Recycling

DOE/LANS did not recycle any STP-covered waste offsite in FY17.

### **3.3 Onsite Treatment and Recycling**

DOE/LANS did not treat or recycle any STP-covered waste onsite in FY17.

### **3.4 Onsite Lead Decontamination**

No LANL STP-covered waste was decontaminated onsite during FY17.

### **3.5 Treatability Studies**

DOE/LANS conducted no treatability studies in FY17.

### **3.6 Administrative Adjustments and Corrections**

Administrative adjustments and corrections are due to discrepancies found during quality control activities related to preparing waste for treatment, inventory, and disposal or when preparing the STP Annual Update. A data quality review is conducted annually to compare shipment notifications and shipping manifests with database updates.

#### **3.6.1 Adjustments to MLLW Inventory**

Appendix C (Table C-1) details the administrative adjustments to the MLLW inventory. The principal adjustment reflects the transfer of MTRU waste to MLLW (LA-W935, 10-100 nCi/g). A substantial volume of LANL's STP-covered MTRU waste has been determined to no longer meet the criteria for TRU waste and has been reclassified as MLLW. If previously unidentified hazardous waste constituents, such as lead, are revealed during repacking or other quality control activities, low-level waste may be recharacterized as MLLW. (Appendices C and G).

#### **3.6.2 Adjustments to MTRU Inventory**

During the preparation of the FY17 STP Annual Update, DOE/LANS identified a number of adjustments to the MTRU inventory volume (Appendix G, Tables G-1 and G-2), including additions of newly-identified STP-covered waste, recharacterization of waste, and reclassification of MTRU waste to MLLW. Other adjustments were needed to account for volume changes due to repacking of waste and transfers of waste from one treatability group to another or to correct database entries.

## **4.0 TREATMENT TECHNOLOGY DEVELOPMENT**

During FY17, the availability of commercial and federal facility offsite treatment and disposal capacity for MLLW remained stable. As a result of DOE's increasing reliance on commercial treatment/disposal for mixed wastes, nearly all funding for onsite technology development has been prioritized to support offsite treatment and disposal of mixed wastes. DOE treatment technology development initiatives are generally limited to specific technologies or technology adaptations in response to specific needs that cannot be addressed through commercial facilities.

### **4.1 Treatment Technologies Being Evaluated/Developed**

DOE/LANS continues to monitor the development of other potential treatment technologies that may become available in the future. Some of these technologies are being developed at LANL and at other DOE sites. DOE/LANS is currently developing treatment technologies to address the type of TRU waste associated with the February 14, 2014, release of radioactivity at WIPP. The treatment process is specifically intended to address remaining remediated nitrate salt, unremediated nitrate salt, and

dewatered liquids from cemented nitrate salt wastes remaining at LANL, as required ~~by January~~ by January 22, 2016 Settlement Agreement and Stipulated Final Order, 14-20 (CO) between DOE/LANS and NMED's Hazardous Waste Bureau (HWB).

DOE/LANS re-evaluated all nitrate salt-bearing TRU waste and determined the three types of waste located at LANL that will require treatment prior to acceptance at WIPP. Methods were developed for treatment of these wastes through the use of surrogates for the waste and both onsite and offsite testing facilities. These methods were evaluated for treatment effectiveness. After confirmation of the treatment process for these wastes, permitted onsite treatment was requested from the NMED-HWB and was granted in July 2016. Commencement of treatment for remediated nitrate salt and unremediated nitrate salt wastes is scheduled in 2017.

#### **4.1.1 Offsite Commercial Treatment Facilities**

DOE/LANS continues to monitor the availability and capabilities of offsite commercial facilities for treatment technologies and permitting that are appropriate to LANL waste. These facilities are listed in Appendix H (Table H-1).

#### **4.1.2 Offsite DOE Treatment Facilities**

DOE/LANS continues to monitor the availability and capabilities of offsite DOE facilities for treatment technologies and permitting that are appropriate to LANL waste. In the past, DOE/LANS shipped nine corrugated metal boxes to the Idaho National Laboratory Advanced Mixed Waste Treatment Plant (AMWTP) for treatment. These nine boxes were successfully treated at the AMWTP and are stored at the Waste Control Specialists, LLC (WCS) Texas facility until WIPP is re-opened to ready to accept waste. WIPP has placed these nine containers below ground in FY17.

### **5.0 DOE FUNDING FOR STP-RELATED ACTIVITIES**

Funding to implement the LANL STP for mixed waste during FY17 was sufficient to meet all compliance dates as required by the CP of the STP. However, DOE/LANS shipments were on hold while DOE/LANS addressed safety basis concerns at WIPP and LANL. FY17 funding is available to support all compliance dates established in the STP. Should funding reductions occur that would affect STP compliance dates, DOE and LANS will notify NMED to address compliance schedules and activities.

### **6.0 TREATMENT VARIANCES**

RCRA allows certain case-by-case variances from LDR standards. Variances that may be sought under RCRA relate to requests for substitution of an alternative treatment technology in place of the LDR-required treatment technology. This section discusses any potential treatment variances related to LANL's covered waste, as described below.

#### **6.1 WIPP No-Migration Variance Petition/Land Withdrawal Act Amendments**

WIPP, located near Carlsbad, New Mexico, is a DOE repository for TRU waste generated by the nation's defense-related activities. Some of the TRU waste contains hazardous waste constituents regulated under the RCRA.

The WIPP repository is considered to be a deep geologic repository rather than a shallow landfill. It is wholly sited 2,100 ft below the land surface in a salt bed. Because salt has the advantageous characteristic

of slow plastic deformation, it is predicted that the salt will entomb the waste and seal it from the human environment, making potential release of hazardous constituents a low-probability event.

The WIPP Land Withdrawal Act Amendments of 1996 (LWAA) (Public Law 104-201, Section 3188) exempted waste designated by the Secretary of Energy for disposal at WIPP from RCRA's LDRs. Following passage of the LWAA, the EPA terminated its review of the No-Migration Variance Petition submitted by DOE to EPA in May 1995. EPA formalized its withdrawal by letter to George Dials, DOE/Carlsbad Area Office Manager, dated December 29, 1997.

On October 29, 1996, DOE submitted its Compliance Certification Application (CCA) to EPA. The CCA is intended to demonstrate to EPA that WIPP meets the requirements of Title 40 of the Code of Federal Regulations (40 CFR) Part 191 and 40 CFR Part 194. On October 23, 1997, EPA announced its proposed decision to issue a Certification of Compliance, subject to a number of specified conditions, and to a public comment period of 120 days. On May 18, 1998, EPA published in the Federal Register (63 FR 27354) its final rule certifying that WIPP will comply with the requirements of Subparts B and C of 40 CFR Part 191 and amending the WIPP compliance criteria in 40 CFR Part 194. The final rule became effective June 17, 1998. On March 25, 1999, WIPP received its first shipment of non-mixed (radioactive only) TRU waste from LANL. Other facilities have also shipped non-mixed TRU waste to WIPP. NMED issued a hazardous waste permit for WIPP on October 27, 1999, authorizing DOE to manage, store, and dispose of contact-handled MTRU waste at the facility.

## **6.2 Other Treatment Variance(s)**

No treatment variances were requested or granted in FY17.

## **7.0 WIPP FACILITY CAPABILITIES**

As discussed above, DOE is disposing of its defense TRU waste, both mixed and nonhazardous, in its deep geologic repository at the WIPP near Carlsbad, New Mexico. This facility is a receiving and disposal facility without the capability of routinely opening and repackaging waste. TRU waste will already be containerized when received at the WIPP. The WIPP is not a generator of TRU waste, and, therefore, will receive all of the waste in shipments from offsite. On February 2014, NMED received notice of a release at the WIPP nuclear waste repository. A LANL container sent to WIPP experienced an energetic chemical reaction that ultimately led to the release of radioactive material. In light of recent events, and the potential need to re-remediate all nitrate salt-bearing waste, NMED determined that the removal of MTRU from the STP will be deferred until more information becomes available and it is determined that waste currently stored at the WCS facility and WIPP remaining above grade will not be returned to LANL. All shipments of MTRU covered waste inventory to WIPP were suspended in May 2014 due to the WIPP shutdown. DOE/LANS is anticipated to be allowed one shipment per week starting September 2017.

### **7.1 Characterization Capabilities at WIPP**

Wastes proposed for shipment to WIPP are characterized and certified at LANL by the Central Characterization Project, a contractor to DOE's Carlsbad Field Office.

### **7.2 MTRU Treatment Capabilities and Plans**

WIPP is not required to treat MTRU waste to meet the LDR standards. As described above, the LWAA exempted wastes designated by the Secretary of Energy for disposal at the WIPP from this requirement.



## **PART II COMPLIANCE PLAN UPDATE**

### **1.0 INTRODUCTION**

This update to the CP contains:

- Changes to the CP occurring since the previous Annual Update, including:
  - correspondence, including notices of shipments; and
  - new-covered and deleted waste;
- Proposed revisions and amendments, including:
  - compliance date changes;
  - description of waste deleted in accordance with the requirements in FFCO Section IX, *Deletion of Waste*;
  - documentation of new-covered waste in accordance with the requirements in Section VIII, *Addition of New Covered Waste*; and
  - proposed changes to the overall schedule in the CP.

### **2.0 CHANGES AND REVISIONS TO THE CP OCCURRING SINCE THE PREVIOUS ANNUAL UPDATE**

This section describes revisions, amendments, or other changes to the LANL CP.

#### **2.1 Activities Completed During FY16**

During FY17, no CP Activity milestones were scheduled.

#### **2.2 Expedited Shipment Letters**

Expedited shipment letters are listed in Appendix I, Table I-1.

#### **2.3 Correspondence**

Between October 1, 2016 and September 30, 2017, DOE/LANS communicated with NMED on issues related to:

- FY17 waste shipment notifications;
- FY17 expedited waste shipment notifications;

This correspondence is listed in Appendix I (Table I-2). Previously listed correspondence can be found in the previous FY Annual Reports.

### **3.0 DESCRIPTION OF DELETED WASTE**

A proposal for deletion of STP waste items is included with this update as Proposed Revision 28.0 in accordance with FFCO Section IX, *Deletion of Waste*. These deletions are proposed because the wastes were shipped offsite for treatment, disposal, or recycling or were otherwise determined not to be mixed wastes. These covered wastes are included in Appendix B, Appendix F, and Appendix G.



## 4.0 DOCUMENTATION OF NEW-COVERED WASTE

A proposal for addition of STP waste items is included with this update in accordance with FFCO Section VIII, *Addition of Waste*. These additions consist of wastes placed in storage during FY16 and were proposed to become covered wastes in FY17. These covered wastes are included in Appendix E. Addition of new-covered and newly characterized as MTRU waste to be added to the STP is identified in Section 6.1.

## 5.0 PROPOSED CHANGES TO THE COMPLIANCE PLAN SCHEDULE

DOE/LANS is proposing to revise three milestones: **Activity 3.1.8-2(A)** “complete transfer of existing waste to an offsite treatment facility or complete parallel option” compliance date to September 30, 2021, **Activity 3.3.4-2(A)** “complete radiological characterization” compliance date to September 30, 2022, and **Activity 3.3.4-2(B)** “complete shipment of existing waste to offsite facility for treatment, or complete parallel options” compliance date to September 30, 2022. These milestones address the MLLW waste inventory at TA-54. The contract for operation of TA-54 was awarded to DOE EM/N3B and became effective April 30, 2018.

### I. Compliance Dates and Waste Description

**Activity 3.1.8-2(A):** The MLLW containers covered under the “Compresses Gases Requiring Scrubbing” were generated during the 2010 repacking of MTRU STP inventory of WIPP-prohibited items. Three containers remain in this category. These containers must go through remediation, which will be online within the next year. N3B must submit a permit modification request for modifying the Hazardous Waste Facility Permit (HWFP) to treat these wastes. Readiness activities will be conducted by the DOE before starting operations.

Current proposed compliance date: September 30, 2018.

Proposed Revision 28 compliance date: September 30, 2021.

**Activities 3.3.4-2(A) and 3.3.4-2(B):** The majority of the STP covered MLLW at TA-54 consists primarily of 10-100 nCi/g (LA-W935) generated through the recharacterization/reclassification process of the legacy MTRU waste, which has been determined to no longer meet the criteria for TRU waste. Containers will be re-classified from MTRU to MLLW. N3B must submit a permit modification request for modifying the HWFP to treat these wastes. Readiness activities will be conducted by the DOE before starting operations.

Treatment facilities at TA-54 have not operated in several years; starting up treatment operations includes purchasing and installing treatment equipment and repair work. The facilities were off line for several years, due to realigned priorities to address the manpower and funding required for addressing the Remediated Nitrate Salt (RNS) drums and the Unremediated Nitrate Salt (UNS) drums.



### Activity 3.3.4-2(A)

Current proposed compliance date: September 1, 2018.

Proposed Revision 28 compliance date: September 30, 2022.

### Activity 3.3.4-2(B)

Current proposed compliance date: September 30, 2018.

Proposed Revision 28 compliance date: September 30, 2022.

## II. Disposal/Recovery/Treatment Process

**Activities 3.1.8-2(A), 3.3.4-2(A) and 3.3.4-2(B):**— DOE/LANS does not have treatment/disposal capabilities and continues to rely on commercial treatment/disposal pathways for the MLLW. DOE/LANS continues to monitor the availability and capacities of offsite commercial ~~facilities~~ facilities for treatment technologies and permitting that are appropriate to DOE/LANS waste.

## III. Availability of Noncommercial/Recovery/Commercial Facility

**Activity 3.1.8-2(A), and Activities, 3.3.4-2(A) and 3.3.4-2(B):**— There are commercial and federal facilities for available for offsite treatment and disposal of DOE/LANS MLLW. LANL/DOE treatment technology development initiatives are generally limited to specific technologies in response to specific needs that ~~cannot~~ cannot be addressed through commercial facilities.

## IV. Justification for Milestone

**Activities 3.1.8-2(A), 3.3.4-2(A) and 3.3.4-2(B):**— Due to the 2014 WIPP shutdown DOE/LANS placed their focus ~~and resources~~ and resources on the development of a treatment process for the RNS and UNS waste. In addition, the TRU/MTRU recharacterization process was slowed and created a backlog of waste due to the shipping pause, limited shipments to WIPP and restrictions onsite Area G. These developments and restrictions delayed the final ~~confirmation~~ confirmation, characterization, certification, and shipment for offsite treatment and disposal of these containers. TA-54 G is now under the management of the DOE Environmental Programs (DOE EM) and will be able to provide additional information in the FY18 annual update to the STP. —No other changes to the schedule in the CP of the STP are proposed.

## 6.0 DETAILED DESCRIPTION OF THE PROPOSED REVISION

The purpose of this revision request is to reflect changes in the STP inventories in the LANL CP of the STP in accordance with FFCO Section X.C.2.a. The changes proposed by this revision to the CP will allow the added covered wastes to be treated or otherwise managed in accordance with the Activities and Compliance Dates pertaining to each treatability group, as adopted or revised herein. The CP text changes are indicated in the redlined version provided to NMED.

DOE/LANS is proposing to revise the CP text to reflect the following change in STP-covered inventories:

- Increases and decreases in covered mixed waste inventories due to the addition of new-covered waste and offsite shipments during FY16 and other changes in the STP inventory.

The CP changes are proposed in accordance with the applicable requirements in the FFCO, as amended: Section VIII, *Addition of New Covered Waste*; Section X.B.4, *Revisions*; and Section XI, *Deletion of Waste*.

## 6.1 Addition of New Covered<sup>1</sup> Waste

DOE/LANS is requesting that the following waste be added to the STP as covered waste.

### 6.1.1 MLLW Additions

The total volume of MLLW requested for addition as “New Covered” (36.780 m<sup>3</sup>) and “Reconciled from WCATS inventory” (105.078 m<sup>3</sup>) is 141.858 442 m<sup>3</sup> for of new-covered 10-100 nCi/g (LA-W935). (Table 6.1.1-1).

Table 6.1.1-1 Proposed Addition of New Covered MLLW Waste (Table A-1)

CP Section	MWIR <sup>1</sup> Waste ID	Treatability Group	Volume (m <sup>3</sup> )
Part III 3.3.4	LA-W935	10-100 nCi/g	<del>36.779</del> 36.780
Part III 3.3.4 3.3.4	<del>LA-W922</del> LA-W935	<del>10-100 nCi/g</del> 10-100 nCi/g	105.078 <sup>2</sup> <del>104.663</del> <sup>2</sup>
<b>Total</b>			<del>141.858</del> <b>141.442</b>

<sup>1</sup>MWIR is Mixed Waste Inventory Report.

<sup>2</sup>Added as a result from reconciliation of discrepancies on sampling data from WCATS inventory.

### 6.1.2 MTRU Waste Additions

The volume of new covered MTRU waste requested for addition is 515.0124 m<sup>3</sup> (Table 6.1.2-1). Table 6.1.2-2 identifies waste that is proposed for addition following activities that identified waste in the TRU inventory as MTRU either through review of waste characteristics or as a result of identifying potentially hazardous constituents during repacking TRU waste.

Table 6.1.2-1 Proposed Addition of New-Covered<sup>1</sup> MTRU Waste at TA-54, CMR and TA-55

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	Combustible-Noncombustible Waste TA-54	1.878 <sup>2</sup>
4.0	Solidified Inorganic and Organic Waste TA-54	379.841 <sup>2</sup>
<b>(Appendix E-1) Total TA-54 New</b>		<b>381.719</b>
4.0	Combustible-Noncombustible Waste at	<del>4.164</del> 22.097 <sup>2</sup>
4.0	Combustible-Noncombustible Waste at CMR	<del>8.335</del> 0

<sup>1</sup> Waste generated during the previous FY that was not shipped offsite within one year is termed new covered STP waste.

4.0	Combustible-Noncombustible Waste at TA-55	94.181 <sup>2</sup>
<u>4.0</u>	<u>Combustible Waste at TA-55</u>	<u>0</u>
	<u>Metallic Waste CVD at TA-55 (When CVD leaves TA-55 it is removed from the STP)</u>	<u>0</u>
<u>4.0</u>	<u>Combustible Waste at TA-55</u>	<u>9.596<sup>2</sup></u>
4.0	Noncombustible Waste at TA-55	17.015 <sup>2</sup>
<u>4.0</u>	<u>Solid Inorganic and Organic Waste</u>	
<u>(Appendix E-2) Total CMR/TA-55</u>		<u><del>133.292</del> 133.293</u>
<u>Total New Covered Waste for TA-54 and CMR/TA-55</u>		<u><del>515.014</del> 515.012</u>

<sup>1+2</sup>New-covered waste in Table 6.1.2-1 refers to waste generated in the previous FY.

<sup>2+3</sup>Added as a result of ~~reconciliation~~ reconciliation of discrepancies in inventory.

Table 6.1.2-2 Proposed Addition of Waste Newly Characterized as MTRU

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	Combustible-Noncombustible Waste (identification of potentially hazardous constituents based on investigation of characterization of TRU nitrate salt waste, debris containers with aerosol cans, and empty containers not meeting the RCRA empty criteria.)	0.00
4.0	Solidified Inorganic and Organic Waste (identification of potentially hazardous constituents based on investigation and characterization of TRU nitrate salt waste, cemented containers with free liquids, and empty containers not meeting the RCRA empty criteria.)	0.00
<b>Total Newly-Characterized MTRU</b>		<b>0.00</b>

## 6.2 Deletion of Covered Waste

MLLW and MTRU wastes were shipped offsite for treatment and disposal or recycling or are otherwise proposed as deleted waste.

### 6.2.1 Deletion of MLLW

DOE/LANS is requesting that the covered MLLW identified in Appendix B be deleted from the STP. These covered waste were shipped offsite for treatment and disposal or recycling. The total volume of covered MLLW that is requested for deletion under this revision to the CP is 48.119 m<sup>3</sup> (Appendix B, Table B-1).

### 6.2.2 Deletion of MTRU Waste

DOE/LANS is requesting that the covered MTRU waste identified in Appendix F be deleted from the STP. These covered wastes were shipped offsite to WCS and then to WIPP for treatment and disposal or recycling. The total volume covered MTRU that is requested for deletion under this revision to the CP is 62.444 m<sup>3</sup> (Appendix F, Table F-2). No MTRU waste stored at LANL was shipped offsite for disposal at WIPP.

### **6.2.3 Other Deletions of FY16 Waste**

No waste is proposed for deletion due to recycling or onsite treatment in FY17. No waste was shipped offsite for treatability studies.

### **6.3 Adjustments to the Original (October 4, 1995) STP-Covered MLLW Inventory**

DOE/LANS is requesting adjustments to the original (October 4, 1995) STP-covered MLLW inventory as listed in Appendix C (Table C-1). Most administrative adjustments are due to reclassification of MTRU waste to MLLW treatability groups and to quality control activities related to preparing waste for treatment and disposal. These adjustments may result in additions of newly-identified covered waste or transfers of waste to other treatability groups.

### **6.4 Adjustments to MTRU Waste Inventory**

DOE/LANS is requesting adjustments (Appendix G, Tables G-1 and G-2) to the original (October 4, 1995) STP-covered MTRU waste inventory. Most administrative adjustments are due to reclassification of MTRU waste to MLLW treatability groups or to other MTRU treatability groups and to reclassification of TRU to MTRU as a result of quality control activities related to preparing waste for treatment and disposal. These adjustments may result in additions of newly-identified covered waste or transfers of waste to other treatability groups.

### **6.5 Establishment of New Milestone Activity Dates**

DOE/LANS is not requesting any new compliance milestones.

### **6.6 Additional Revisions**

No other revisions are requested.

## **7.0 RATIONALE FOR THE PROPOSED REVISION**

This information is provided in accordance with FFCO Section X.C.2.a.

### **7.1 Establishment of New Proposed Milestone**

No new milestones are proposed.

### **7.2 Addition of New-Covered Waste**

Waste that was newly generated in FY16, which was not treated within 12 months of generation, became new-covered waste during FY17 (see Appendix E). In addition, TRU wastes, re-evaluated during repacking and quality control activities as having previously unidentified RCRA constituents, were also added to the STP inventory (Appendix G). Approval of these proposed additions to the STP inventory will allow the added covered wastes to be treated or otherwise managed in accordance with the activities and compliance dates pertaining to each treatability group, as adopted or revised herein.

### **7.3 Deletion of Covered Waste**

Decreases in covered waste inventory reflect the treatment and disposal or recycling of covered waste at offsite commercial facilities during FY17. Deletion of this covered waste is proposed to more accurately reflect the LANL STP inventory as of the end of FY17.

#### **7.4 Adjustments to the Original (October 4, 1995) STP-Covered Waste Inventory**

Administrative adjustments result from quality control activities related to preparing waste for treatment and disposal. These adjustments result in additions of newly-identified covered waste and transfers of waste to other treatability groups. The adjustments to the original (October 4, 1995) STP-covered waste inventory are proposed to more accurately reflect the LANL STP inventory as of the end of FY16.

#### **8.0 ANTICIPATED LENGTH OF ANY DELAY IN PERFORMANCE**

In accordance with FFCO Section X.C.2.c, DOE/LANS cannot confidently predict the anticipated delay in performance for shipping covered STP MTRU waste for which the only currently allowed deletion pathway is disposal at WIPP. All shipments of MTRU covered waste inventory offsite were suspended in May 2014 due to the WIPP shutdown. At this time, DOE/LANS cannot confidently predict when the TA-54 processing lines will come back online for further processing of MTRU and/or MLLW covered waste.

#### **9.0 PLAN AND SCHEDULE FOR IMPLEMENTING ALL REASONABLE MEASURES**

All other measures proposed could be implemented within the framework of the existing plan and schedule for the STP (FFCO Section X.C.2.d).

## **PART III COMPLIANCE PLAN – PROPOSED REVISION 28.0**

### **1.0 PURPOSE AND SCOPE OF THE COMPLIANCE PLAN**

#### **1.1 Introduction**

Part III of this document identifies changes that require NMED approval as a revision under Section X, *Revisions*, or an amendment under Section XI, *Other Amendments to the STP*.

The CP includes a schedule for offsite transportation for treatment, or completion of parallel options as defined in each Treatability Group Section, and the treatment of mixed wastes in full compliance with the HWA and the implementing regulations at 20 New Mexico Administrative Code (NMAC) 4.1, that incorporates by reference 40 CFR Parts 260 through 270. Part I, Background, contains progress reports as required in the FFCO. Respondents shall carry out the activities described in the STP, including the CP, in accordance with the schedules and requirements set forth in the STP and the FFCO.

#### **1.2 STP Revisions and Amendments**

The STP CP has been modified several times since it was originally issued, in accordance with the provisions of Section X, *Revisions*, and Section XI, *Other Amendments to the STP*, of the October 4, 1995, FFCO, as amended and revised. The history of revisions is provided in Appendix J.

### **2.0 COMPLIANCE SCHEDULES**

The STP provides overall schedules for achieving compliance with LDR storage and treatment requirements for mixed waste at LANL. The schedules include those activities required to process backlogged and currently generated waste and include schedules required to establish an overall timeframe 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 will be provided for different types of treatment approaches in the STP are listed in the tables below. The categories of activities are based on Section 3021(b)(1)(B)(i), (ii), and (iii) of the RCRA, to the extent appropriate.

##### **2.1.1 Plans Where Treatment Technology Exists**

For most of the mixed waste, treatment technologies were identified and developed. For the waste that will be treated onsite, the categories of activities for compliance dates identified in Table 2.1.1-1 shall apply.

*Table 2.1.1-1 Categories of Activities for Compliance for Mixed Waste with Existing Treatment Technologies*

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

### **2.1.2 Plans Where Technology Must Be Developed**

For some mixed waste, no treatment technologies were identified and developed, or the treatment technology must be modified or adapted to apply to such waste. For the waste that will be treated onsite, the categories of activities for compliance dates are identified in Table 2.1.2-1 and shall apply.

*Table 2.1.2-1 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 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 waste.
G.	Complete treatment of existing wastes to applicable regulatory standards.

## **2.2 Primary Preferred Treatment**

Offsite treatment at a commercial or noncommercial mixed waste treatment facility is the primary preferred treatment option applicable to all mixed waste streams in the STP inventory unless otherwise indicated in the descriptions of individual waste treatability groups. DOE may also pursue parallel treatment options, such as recycling/re-use or radiological decontamination. Requirements for waste shipped offsite for recycling are discussed under Part III, Section 2.6. All activities and compliance dates related to the construction, permitting, and operation of onsite treatment skids were removed from this document. This change was due to the increased availability of offsite treatment and disposal capacity for mixed waste. Respondents will continue evaluating new commercial and DOE offsite treatment facilities as potential options for managing mixed waste, as they become available.

## **2.3 Plans for Mixed Waste to be Shipped Offsite for Treatment**

Should DOE decide to treat or recycle waste at a commercial offsite facility (Table 2.3-1), DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the treatment/recycling facility.

*Table 2.3-1 Activities for Offsite Shipment for Treatment or Recycling at a Commercial Facility*

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

DOE shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to a noncommercial facility. Notification should be made if possible when DOE is first considering such an option to allow NMED and the state to address any state issues or concerns with



other states. The NMED Project Manager shall approve in writing the proposed offsite noncommercial treatment option proposed by DOE prior to any shipment by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the treatment/recycling facility. Activities for mixed waste to be shipped offsite for treatment/recycling at a noncommercial facility are identified in Table 2.3-2.

*Table 2.3-2 Activities for Shipment Offsite for Treatment or Recycling at a Noncommercial Facility*

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

### ***2.3.1 Specific Site Requirements for Noncommercial Treatment Facilities***

#### ***Shipment to Idaho National Laboratory***

Prior to shipment, Idaho National Laboratory (INL) and Idaho Division of Environmental Quality shall be notified of any pending shipments of waste should DOE ship MLLW to INL. Proper procedures including additional approvals (if necessary) and documentation shall be completed prior to the shipment of wastes to INL. Management of post-treatment waste residuals or newly-generated waste streams will be in accordance with the requirements of DOE, the State of Idaho, and that state where they will be disposed. A modification to LANL's RCRA permit providing for the return of such wastes and/or residues to LANL must be approved by NMED prior to any such return of wastes and/or residuals to LANL. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 30 working days after receipt of shipment of treatment residuals or newly-generated waste streams from INL.

Shipments of MLLW to planned facilities (not yet existing) will occur only after treatment and schedules are approved by the DOE Idaho Field Office and the State of Idaho. Upon approval of the planned treatment facilities, the applicable protocol from the paragraph above will be implemented for mixed wastes to be treated at planned facilities.

#### ***Shipment to Oak Ridge Reservation***

If Oak Ridge Reservation cannot dispose of mixed-waste residues or new waste streams generated from offsite treatment, and they cannot be sent to another facility for disposal, then the residues may return to LANL. Should residual or newly-generated waste streams be returned to LANL, the proper permits for the State of New Mexico must exist. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 30 working days after receipt of shipment of treatment residuals or newly-generated waste streams from the Oak Ridge Reservation.



## 2.4 Requirements Pertaining to Radionuclide Separation

The FFCA sets additional requirements in cases where DOE intends to conduct radionuclide separation of mixed waste. Should DOE determine to do radionuclide separation of such mixed waste, DOE will schedule specific compliance dates based on category activities identified in Table 2.4-1. “Radionuclide separation” shall mean segregating the radioactive portion of the mixed waste from the hazardous portion of the mixed waste.

Table 2.4-1 Activities for Radionuclide Separation

- |    |   |
|----|---|
| 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 with the estimated costs if it is not used. |
| D. | Provide the assumptions underlying such estimates of waste volumes and cost estimates.  |
| E. | Provide characterization methodologies for determining waste type.  |
| F. | Submit a plan for treating or managing hazardous waste residues, accompanied by an NMED permit application.   |

## 2.5 Plans Related to Other Mixed Waste Activities

Activities other than the types of activities specifically called for in the FFCA as requiring schedules are described in this STP. Some of these activities may be associated with schedules that may contain compliance dates related to treatment of DOE’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 described in the FFCO. If such characterization results in the addition or deletion of a treatability group or an increase in volume in a treatability group, a revision would be required pursuant to Section X of the FFCO.

DOE will notify NMED when offsite treatability studies are conducted on STP waste. Treatability studies are used to explore alternative treatment options that may be practical for any or all of the STP mixed waste streams. When preparing waste for shipment for an offsite treatability study, DOE will evaluate the potential for incidental waste treatment or secondary waste generation, which are often associated with treatability studies.

## 2.6 Recycling/Re-Use

Respondent will pursue onsite or offsite recycling/re-use as a parallel preferred option.

Should DOE elect to use recycling facilities in lieu of (or in combination with) treatment, it will follow requirements as if the waste were shipped offsite for treatment. Any and all requirements by the recycling facility and all state, federal, or other regulatory requirements applicable at the recycling site shall be met by Respondents.

DOE shall notify the NMED Project Manager in writing as soon as possible if mixed waste is planned to be sent to an offsite noncommercial recycling facility. Notification should be made if possible when DOE

is first considering such an option to allow NMED and the state to address any state issues or concerns with other states. The NMED Project Manager shall approve in writing the proposed offsite noncommercial recycling option prior to any shipment by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within 45 working days of receipt of waste at the recycling facility. Activities for mixed waste to be recycled are identified in Table 2.6-1.

*Table 2.6-1 Requirements for Recycling*

- |   |
|---|
| <ul style="list-style-type: none"><li>A. Meet all regulatory requirements for recycling/re-use.</li><li>B. Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility.</li></ul> |
|---|

Should DOE elect to use recycling/re-use facilities in lieu of (or in combination with) treatment, it will follow the requirements as if the waste were shipped offsite for treatment. DOE will submit a notification letter to NMED within 45 days, in place of documentation, that waste was received at a recycling facility.

## **2.7 Onsite Radiological Decontamination**

DOE will pursue onsite radiological surface or external decontamination as a preferred option. No volumetric or internal decontamination processes will be considered or performed. Surface radiological decontamination includes activities such as sand blasting, hand-scrubbing, or electrolytic decontamination. These decontamination activities could result in reducing or removing the radiological contaminant from the waste such that the waste could be recycled in accordance with CP Section 2.6 *Recycling/Re-Use* or be proposed for deletion in accordance with Section IX *Deletion of Waste* of the FFCO.

Activities for mixed waste to be radiologically decontaminated are identified in Table 2.7-1.

*Table 2.7-1 Activities for Radiological Decontamination*

- |  |
|--|
| <ul style="list-style-type: none"><li>A. Meet all DOE requirements for radiological decontamination.</li><li>B. Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility; or</li><li>C. Propose waste for deletion in accordance with Section IX of the FFCO.</li></ul> |
|--|

## **3.0 MIXED LOW-LEVEL WASTE STREAMS**

This section presents the preferred options to treat MLLW at LANL. All preferred options not described below must be approved by NMED in accordance with the revision process pursuant to the FFCO.

The original October 4, 1995, STP inventory in each MLLW treatability group was modified through the revision process in the FFCO. The tables in the STP Background (Part I) Appendices A–M of the FY09 STP Annual Update provide a comprehensive summary of changes to the CP covered waste inventories (additions, deletions, and shifts of waste between treatability groups) occurring as of the date of that revision. In Part III, the original STP inventory in each MLLW treatability group is denoted as subgroup 0 of that treatability group (e.g., the original volume of STP treatability group LA-W906 became LA-W906-0). Each revision that has since added volumes to individual treatability groups has resulted in

creation of an additional subgroup, having the same number as the revision (e.g., LA-W906-4 was created in Revision 4.0, and LA-W906-5 was created in Revision 5.0).

In most subsections of this section, the subgroups of the treatability groups are not shown. In those cases, the Activities and Compliance Dates are applicable to the entire net volume of that treatability group. However, when subgroups of a treatability group were assigned Activities and Compliance Dates unique to that subgroup, those subgroups are detailed in the text. Activities and Compliance Dates that were met in previous years are not shown in this document.

### 3.1 Mixed Waste Streams

The following subsections summarize MLLW treatability groups.

#### 3.1.1 Industrial Isopropyl Alcohol (IPA) Wastes and Scintillation Fluids

Table 3.1.1-1 Treatability Groups for IPA Wastes and Scintillation Fluids

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
IPA Wastes	LA-W901	D001, D009, F002, F003, F005	0.00
Scintillation Fluids	LA-W902	D001, F003, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** The waste will be treated at an offsite facility that combusts organic liquid waste.

#### 3.1.2 Lead Blankets, Soil with Heavy Metals, Environmental Restoration (ER) Soils

Table 3.1.2-1 Treatability Groups for Lead Blankets, Soil with Heavy Metals, ER Soils

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Blankets	LA-W903	D007, D008	0.00
Soil With Heavy Metals	LA-W904	D004, D005, D006, D007, D008, D009, D010, D011	0.00
ER Soils	LA-W905	D028, D029, F001, F005 D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** The waste will be treated at an offsite facility that stabilizes or macroencapsulates wastes.

#### 3.1.3 Aqueous Organic Liquids

Table 3.1.3-1 Treatability Groups for Aqueous Organic Liquids

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Aqueous Organic Liquids	LA-W906-0 LA-W906-4 LA-W906-5	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D027, D028, D030, D032, D033, D034, D036, D037, D038, D039, D041, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

*Table 3.1.3-2 Additional Treatability Groups for Aqueous Organic Liquids*

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
<i>Aqueous Organic Liquids</i>	LA-W906-6 LA-W906-9 LA-W906-10 LA-W906-15	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D027, D028, D030, D032, D033, D034, D036, D037, D038, D039, D041, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.4 Organic-Contaminated Combustible Solids

*Table 3.1.4-1 Treatability Groups for Organic-Contaminated Combustible Solids*

Treatability Group	MWIR* Waste ID	RCRA codes	Net Volume (m <sup>3</sup> )
<i>Organic-Contaminated Combustible Solids</i>	LA-W911	D001, D004, D008, D009, F001, F002, F003, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

*Table 3.1.4-2 Treatability Groups for Organic-Contaminated Noncombustible Solids*

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
<i>Organic-Contaminated Noncombustible Solids</i>	LA-W919	D001, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D015, D018, D019, D020, D022, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D042, D043, F001, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.5 Combustible Debris, Activated or Inseparable Lead, Noncombustible Debris

Table 3.1.5-1 Treatability Groups for Combustible Lead, Activated or Inseparable Lead, and Noncombustible Debris

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Combustible Debris	LA-W912	D001, D002, D003, D005, D006, D007, D008, D009, D011, D035, F001, F002, F003, F005	0.00
Activated Or Inseparable Lead	LA-W921	D008	0.00
Noncombustible Debris	LA-W922 LA-W922-17 LA-W922-22 LA-W922-23 LA-W922-24 LA-W922-25	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.6 Aqueous Wastes with Heavy Metals, Corrosive Solutions, Aqueous Cyanides, Nitrates, Chromates, and Arsenates

Table 3.1.6-1 Treatability Groups for Aqueous Wastes with Heavy Metals, Corrosive Solutions, Aqueous Cyanides, Nitrates, Chromates, and Arsenates

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Aqueous Wastes With Heavy Metals	LA-W913	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011	0.00
Corrosive Solutions	LA-W914	D001, D002	0.00
Aqueous Cyanides, Nitrates, Chromates, and Arsenates	LA-W915	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, F007, P029, P098	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.7 Water-Reactive Metal

Table 3.1.7-1 Treatability Groups for Water-Reactive Metal

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Water-Reactive Metal	LA-W916	D001, D003, D004, D005, D007, D008, D010, D011	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.8 Compressed Gases Requiring Scrubbing

Table 3.1.8-1 Treatability Groups for Compressed Gases Requiring Scrubbing

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
Compressed Gases Requiring Scrubbing	LA-W917 LA-W917-21 LA-W917-24 LA-W917-25 LA-W917-26 LA-W917-27 <u>LA-W917-28</u>	D001, D002, D003, D008, D009, P056	0.625
<b>Totals</b>			<b>0.625</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.1.8-2 Activities and Compliance Dates for Compressed Gases Requiring Scrubbing

Activity	Compliance Dates
A. <del>A</del> Complete shipping of existing wastes to an offsite treatment facility or complete parallel option. These containers must go through remediation; this process will be operational within the next year. To treat these containers, <del>a permit</del> a permit modification to the HWFP is necessary. DOE Readiness activities will be conducted before operations begin.	September 30, 2021*
B. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at treatment facility or within 45 days after completion of parallel option.

\*New proposed compliance date. Description/justification included in Part II, Section 5.0.

### 3.1.9 Compressed Gases Requiring Oxidation

Table 3.1.9-1 Treatability Groups for Compressed Gases Requiring Oxidation

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Compressed Gases Requiring Oxidation	LA-W918	D001, U226	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.10 Elemental Mercury

Table 3.1.10-1 Treatability Groups for Elemental Mercury

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Elemental Mercury	LA-W920 LA-W920-16	D006, D009, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.1.11 Halogenated Organic Liquids, Nonhalogenated Organic Liquids, Bulk Oils, Polychlorinated Biphenyl (PCB) Wastes with RCRA Components, Liquid and Solid Oxidizers

Table 3.1.11-1 Treatability Groups for Halogenated Organic Liquids, Nonhalogenated Organic Liquids, Bulk Oils, PCB Wastes with RCRA Components

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Halogenated Organic Liquids	LA-W907	D001, D002, D003, D007, D009, D010, D011, D018, D019, D022, D028, D029, D035, D043, F001, F002, F003, F004, F005, U077, U080, U226, U227, U228, U236	0.00
Nonhalogenated Organic Liquids	LA-W908 LA-W908-18	D001, D002, D003, D004, D007, D008, D009, D011, D018, D038, D040, F002, F003, F004, F005, U002, U019, U154, U169, U188, U220, U246	0.00
Bulk Oils	LA-W909 LA-W909-15 LA-W909-16 LA-W909-17	D002, D004, D005, D006, D007, D008, D009, D010, D011, D021, D027, D039, F001, F002, F003, F005	0.00
PCB Wastes With RCRA Components	LA-W910 LA-W910-16	D004, D005, D006, D007, D008, D009, D010, D011, D012, D015, D019, D027, D028, D030, D031, D032, D033, D034, D036, D039, D042, D043, F002, F003, F004, F005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.1.11-2 Additional Treatability Groups

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Liquid And Solid Oxidizers	LA-W923	D001, D003, D005	0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

### 3.2 Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

Table 3.2-1 Treatability Groups for Waste Requiring Characterization or Assessment

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Wastes – to be determined (TBD)	LA-W924	D003, D008	0.00
Mercury Wastes - TBD	LA-W925-0	D007, D008, D009, F001	0.00
Compressed Gases - TBD	LA-W926	D001, D007, D009, D022, P056, U080, U226	0.00
Biochemical Laboratory Wastes	LA-W927	D001, D003	0.00
Dewatered Treatment Sludge	LA-W928		0.00
<b>Totals</b>			<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.2-2 Additional Wastes Requiring Characterization or Assessment

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) <u>(from Table A-1)</u>
Lead Wastes - TBD	LA-W924-15 LA-W924-16 LA-W924-17	D003, D008	0.00 0.00 0.00
Mercury Wastes – TBD	LA-W925-4 LA-W925-5 LA-W925-6 LA-W925-15 LA-W925-16 LA-W925-17 LA-W925-18	D003, D007, D008, D009 F001, F002, F005	0.00
Explosives	LA-W932	D003	0.00
Labpacks	LA-W933 LA-W933-17	D001, D002, D003, D004, D005, D006, D007, D008, D010, F003, F005, D011, P012, P029, P098, P106, P113, P120, U131, U144, U145, U188, U190, U204, U216, U219	0.00
High Activity Waste	LA-W934 LA-W934-16 LA-W934-19 LA-W934-20 LA-W934-24 LA-W934-27	D001, D003, D008, D009	1.477
<b>Totals</b>			<b>1.477</b>

\*MWIR is Mixed Waste Inventory Report

Table 3.2-3 Activities and Compliance Dates for Wastes Requiring Characterization or Assessment

Activity	Compliance Dates
A. Complete shipping of wastes to an offsite treatment facility, or submit documentation assigning waste items to applicable treatability groups or complete parallel option.	September 29, 2019
B. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at offsite facility or within 45 days after completion of parallel option.

LANL's inventory of *High Activity Waste* consists of five containers with a combined volume of 1.477 m<sup>3</sup>. Assuming that shipping issues can be resolved, LANL expects to meet the September 29, 2019, milestone for the remaining *High Activity Waste*.

DOE/LANS continues to diligently pursue all possible options to ship the waste offsite prior to the milestone for the remaining five containers (tritium traps with mercury contamination and the molecular sieves and squib assemblies containing lead with very high tritium). The containers were originally planned for transport offsite to a commercial treatment facility using a 10-160B shipping cask, but this option has been determined not to be viable. Options for shipment and disposal of these waste items are being reassessed by a multidisciplinary team, with the first priority being to ensure continued stable, safe storage onsite in the meantime.



### 3.3 Plans for Other Types of Activities

The following subsection summarizes plans for other types of activities.

#### 3.3.1 Lead Decontamination

Table 3.3.1-1 Treatability Groups for Lead Decontamination

Treatability Group	MWIR* Waste ID	First Category	Second Category	Totals
		Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )
Lead For Surface Decontamination	LA-W930-0 LA-W930-5	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Any lead not acceptable for onsite or offsite lead decontamination, and any lead unsuccessfully decontaminated, will be designated in the following two categories: 1) for treatment and disposal at an offsite facility or 2) for recycle through an offsite capability, such as metal melting to create shielding blocks or a DOE lead bank. Non-conforming items will be reassigned to appropriate treatability groups in accordance with the FFCO.

Table 3.3.1-2 Additional Wastes for Lead Decontamination

Treatability Group	MWIR* Waste ID	First Category	Second Category	Totals
		Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )	Net Volume (m <sup>3</sup> )
Lead For Surface Decontamination	LA-W930-6	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

\*MWIR is Mixed Waste Inventory Report

#### 3.3.2 Sorting, Surveying, and Decontamination

Table 3.3.2-1 Treatability Groups for Sorting, Surveying, and Decontamination

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Nonradioactive or Suspect Waste Items To Be Surveyed	LA-W929-0(1)	0.00
Nonradioactive or Suspect Waste Items To Receive RCRA and Radiological Characterization	LA-W929-0(2)	0.00
Nonradioactive or Suspect Waste Items That Cannot or Should Not Be Sampled	LA-W929-0(3)	0.00

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Totals		0.00

\*MWIR is Mixed Waste Inventory Report

Table 3.3.2-2 Additional Wastes for Sorting, Surveying, and Decontamination

Treatability Group	MWIR* Waste ID	Net Volume (m <sup>3</sup> )
Nonradioactive or Suspect Waste Items	LA-W929-5	0.00
Totals		0.00

\*MWIR is Mixed Waste Inventory Report

### 3.3.3 Lead Requiring Sorting

Table 3.3.3-1 Treatability Groups for Lead Requiring Sorting

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> )
Lead Requiring Sorting	LA-W931	D008	0.00
Totals			0.00

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Wastes in this treatability group will require different treatment processes. Drums will be opened, the contents removed, and the waste repackaged based on appropriate treatment requirements. Wastes in this treatability group are primarily lead pieces, lead shot, and lead-contaminated soils that were packaged in the same drum.

The wastes will be reclassified as the applicable treatability group after physical separation and repackaging. The wastes will be treated by appropriate technology.

### 3.3.4 10–100 nCi/g Waste

Table 3.3.4-1 Treatability Groups for 10–100 nCi/g Waste

Treatability Group	MWIR* Waste ID	RCRA Codes	Net Volume (m <sup>3</sup> ) (from Table A-1)
10–100 nCi/g	LA-W935 LA-W935-19 LA-W935-20 LA-W935-21 LA-W935-22 LA-W935-23 LA-W935-24 LA-W935-25 LA-W935-26 LA-W935-27 <u>LA-W935-28</u>	D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026, D027, D028, D029, D030, D035, D036, D037, D038, D039, D040, D043, F001, F002, F004, F005, F006, F007, F009	<del>172.527</del> <u>172.931</u>
Totals			<del>172.931</del> <u>172.527</u> 7

\*MWIR is Mixed Waste Inventory Report

**Treatment:** Wastes in this treatability group consist of a population of legacy drums packaged and managed as MTRU (>100 nCi/g) but, after assay, were determined to be MLLW (<100 nCi/g). Once confirmed, these drums are segregated from other TRU waste and stored in a designated MLLW storage

area. Waste Profiles are prepared to allow acceptance into the low-level waste population, and drums are relabeled appropriately. The drum is reclassified from TRU to MLLW in the database.

When a parent waste container is remediated, the waste contents are removed, WIPP-prohibited items are addressed, and the remaining waste is placed into one or more new containers. After this process is complete, the original parent waste container remains radiologically contaminated and usually can be managed as LLW. Empty containers are being managed as “RCRA empty” containers if they meet the “RCRA empty” criteria in 40 CFR 261.7. Empty containers that have lead liners must carry an EPA hazardous waste number (HWN) for lead (D008), and be managed as MLLW. If after real-time radiography assay, empty containers are found to still contain residual amounts of waste material that do not meet the “RCRA empty” criteria, the containers are to be labeled with the EPA HWN assigned to the original parent container, as indicated by the parent’s waste stream profile (in addition to D008, if the D008 HWN is added to the empty parent only because of the presence of a lead liner). Movements of LA-W935 waste onsite at Area G have been restricted beginning early in calendar year 2015, and continuing beyond FY15, while issues with the Area G Safety Basis are analyzed and corrected. This restriction will delay the final confirmation, characterization, certification, and offsite shipment of these containers until the Safety Basis issues are resolved and the restrictions on moving and managing this waste are lifted. Although the restrictions on shipping the MLLW containers were lifted in FY15, general movement of containers not related to safety or compliance remained restricted in FY17, therefore no treatment or processing was performed.

The MLLW drums are prepared for treatment and disposal to an offsite facility using LANL generator acceptable knowledge documentation and real-time radiography and non-destructive assay data.

*Table 3.3.4-2 Activities and Compliance Dates for 10–100 nCi/g Waste*

Activity	Compliance Dates
A. Complete radiological characterization. N3B is actively standing up the process to characterize and disposition these containers. As the containers are characterized and assayed, N3B will obtain a re-class from MTRU to MLLW. N3B will be submitting a permit modification request to the HWFP for the treatment process. DOE Readiness activities will be performed before starting operations.	September 30, 2022*
B. Complete shipment of existing waste to offsite facility for treatment, or complete parallel options.	September 30, 2022*
C. Provide documentation to NMED that waste was received at offsite facility or provide notification of parallel option.	Within 45 days of receipt of waste at treatment facility or within 45 days after completion of parallel option.

\*New proposed compliance date. Description/justification included in Part II, Section 5.0.

The estimated waste volumes will be subtracted from the MTRU STP inventory and added to the MLLW STP inventory as the waste is reclassified as MLLW. However, because of the repacking process, the apparent volume of waste will reflect the number of additional containers needed to repackage the waste into compliant configurations for transportation and disposal. Empty TRU containers, which includes a population of empty TRU parent containers that previously contained nitrate salts will also undergo recharacterization and may be reclassified as LLW or if determined to not meet the definition of RCRA-

empty, reclassified as MLLW. The recharacterization process resumed in FY16 for waste to be accepted at offsite treatment and disposal facilities, and will continue to produce 10-100 nCi/g Waste (LA-W935). In 2018, N3B has taken over the responsibility of TA-54 and these facilities have not been operational for several years. The start-up of operations includes purchasing and installing treatment equipment and repairing existing deficiencies. The facilities stand down for several years was due to priority effort for manpower and funding to address the Remediated Nitrate Salt (RNS) drums and the Unremediated Nitrate Salt (UNS) drums.-

### 3.4 Management of “Missing” Items

Table 3.4-1 Waste Category for “Missing Waste”

Category	MWIR* Waste ID	Container ID	Net Volume (m <sup>3</sup> )
Missing/Nonexistent/To be verified (TBV)			0.000
<b>Totals</b>			<b>0.000</b>

\*MWIR is Mixed Waste Inventory Report

**Treatment:** During visual inspections and sampling activities in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the expected containers, according to the LANL data files for the waste item. In some instances, such items cannot be verified as having been received in storage at LANL, and follow-up investigations of the record files reveal that although the items were included in the original STP inventory, the waste items were never generated.

Some waste items were determined not to exist after visual inspection and document review. When DOE/LANS determines that an STP-covered waste item does not exist, transfer of the item to the category called “Missing/nonexistent/TBV (to be verified)” is requested through this revision Annual Update.

If, at any time, any of these items is discovered in the inventory, NMED would be notified and approval would be requested for assignment of the rediscovered items to the appropriate treatability group. If necessary, discovered items would be assigned new Activities and Compliance Dates in accordance with the terms of the FFCO.

## 4.0 MIXED TRANSURANIC WASTE

**Treatment Group(s):** Assorted MTRU Waste

**Offsite Disposal:** MTRU waste at LANL will be shipped for disposal at WIPP, located in Carlsbad, New Mexico.

**Disposal:** Waste volumes listed in Table 4.0-1 constitute the remaining original population of the Framework Agreement of “non-cemented above-ground EM Legacy TRU” and “above-ground cemented EM Legacy TRU” that is MTRU waste only. Volume adjustments noted below are due to corrections of database entries, treatability group, EPA codes, overpacks removed/added, containers repacked and shipped/hold for waste items identified as the non-cemented and cemented above-ground EM Legacy TRU for MTRU STP waste.

Table 4.0-1 *Treatability Groups for The Framework Agreement - ~~3706 Non-cemented Above Ground EM Legacy Mixed TRU (MTRU) Waste~~ MTRU Waste (remaining original containers on site at TA-54) (Table E-1)*

Treatability Group	CP Section	FY14 Shipped (on hold) <sup>1</sup>	FY15 Total Volume (m <sup>3</sup> )	FY16 Total, Volume (m <sup>3</sup> )	FY17 Administrative Adjustments	FY17 Total Volume (m <sup>3</sup> )
Cemented Sludge	4.0	0.000	0.000	<del>0.000</del> 0	<del>0</del> 0.000	0.000
Combustible – Noncombustible Waste	4.0	30.736	32.938	<del>68.362</del> 68.362	<del>-66.906</del> -66.906	<del>1.456</del> 1.456
Combustible Waste	4.0	0.000	0.208	<del>0.208</del> 0.208	<del>-0.208</del> -0.208	<del>0.000</del> 0
Metallic Waste	4.0	0.208	0.000	<del>0.208</del> 0.208	<del>-0.208</del> -0.208	<del>0.000</del> 0
Noncombustible Waste	4.0	1.040	0.208	<del>1.248</del> 1.248	<del>-1.246</del> -1.246	<del>0.000</del> 0.002
Solidified Inorganic and Organic Waste	4.0	9.588	10.312	<del>24.702</del> 24.702	<del>219.311</del> 219.311	<del>244.013</del> 244.013
<b>Total</b>				<b><del>94.728</del></b>		<b><del>245.469</del> 245.471</b>

<sup>1</sup>This waste was shipped offsite to WIPP or a WCS facility but has not yet been disposed. Therefore, the volume is not to be subtracted from the STP inventory. Removal of waste from the STP inventory is on hold until NMED approval is received. This waste is a subset of the STP MTRU inventory.

<sup>2</sup>~~MTRU volumes adjusted as a result of direct loaded standard waste boxes (SWBs). Volumes difference and treatability group changes are reflected in the Administrative Adjustments Table G-1. This waste is a subset of the STP MTRU inventory.~~

Table 4.0-2 *Activities and Compliance Dates for MTRU Inventory at TA-55 and CMR from Table E-2*

Activity	Compliance Dates
A. Complete transfer of existing waste (excluding Metallic Waste) to TWF, WCRRF, or WIPP	November 30, 2022
<u>B.</u> Complete transfer of Metallic Waste (CVD) to CMR for material retrieval	October 31, 2020

**Transfer of Covered MTRU Inventory (Table E-2):** The FY17 reported waste volume for STP-covered MTRU inventory at TA-55 and CMR is ~~63.14~~ 194.329 m<sup>3</sup>. ~~In At the close of FY16, approximately 9.57~~ 15.995 m<sup>3</sup> of the ~~63.14 m<sup>3</sup> of~~ STP waste ~~at TA-55 is~~ associated with the CVD Project (formerly referred to as the Bolas Grande Project), that started in the summer of FY14, ~~was at TA-55~~. A milestone extension request to October 31, 2020, for ~~removal of the remaining five-five CVDs is proposed~~ was approved as ~~discussed in the CP Update Part II, Section 5.0 shown in Table 4.0-2, B.~~

In FY17, tThe remainder-remaining ~~53.57~~ 162.634 m<sup>3</sup> (127.378 + 12.796 + 22.460) of the covered MTRU waste inventory at TA-55 consists of heterogeneous combustible and noncombustible mixed waste. The de-inventory of TA-55's MTRU waste will take multiple years. A milestone extension request to November 30, 2022, is proposed ~~as discussed in the CP Update Part II, Section 5.0 as shown in Table 4.0-2, A.~~ A subset of the covered MTRU waste inventory will require management at the WCRRF as the waste acceptance criteria for WIPP has changed since the waste was generated. WCRRF will not receive

waste until it has implemented corrective actions as directed by the DOE's Accident Investigation Board, including updating its Safety Basis documents. DOE EM manages TA-54. DOE EM stated that TA-54 will not receive any programmatic newly-generated waste. The LANL Hazardous Waste Permit specifies that MTRU waste generated prior to April 21, 2011, cannot be stored at the TWF. In addition, WIPP is expected to receive limited number of waste shipments per week. DOE/LANS is anticipated to be allowed one shipment per week starting September 2017.

#### 4.1 Management of "Missing" Items

Table 4.1-2 Waste Category for "Missing Waste"

Category	Treatability Groups	Net Volume (m <sup>3</sup> )
Missing/Nonexistent/TBV	Cemented Sludge	0.00
	Combustible-Noncombustible Waste	0.000
	Combustible Waste	0.000
<b>Totals</b>		<b>0.000</b>

**Treatment:** During visual inspections in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the expected containers, according to the LANL data files for the waste item. In some instances, such items cannot be verified as having been received in storage at LANL, and follow-up investigations of the record files reveal that although the items were included in the original STP inventory, the waste items were never generated.

Some items were determined not to exist after visual inspection and document review. When LANS determines that an STP-covered waste item does not exist, transfer of the item to the category called "Missing/nonexistent/TBV" is requested through this revision Annual Update.

If, at any time, any of these items is discovered in the inventory, NMED would be notified and approval requested for assignment of the rediscovered items to the appropriate treatability group.

# APPENDICES

## APPENDIX A CURRENT YEAR MLLW INVENTORY DETAIL

Table A-1 FY17 MLLW Inventory Detailed Update by Treatability Group

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.1.1	LA-W901 <i>IPA Wastes</i>	0	0		0	0
3.1.1	LA-W902 <i>Scintillation Fluids</i>	0	0		0	0
3.1.2	LA-W903 <i>Lead Blankets</i>	0	0		0	0
3.1.2	LA-W904 <i>Soil with Heavy Metals</i>	0	0		0	0
3.1.2	LA-W905 <i>ER Soils</i>	0	0		0	0
3.1.3	LA-W906 <i>Aqueous Organic Liquids</i>	0	0		0	0
3.1.4	LA-W911 <i>Organic-Contaminated Combustible Solids</i>	0	0		0	0
3.1.4	LA-W919 <i>Organic-Contaminated Noncombustible Solids</i>	0	0		0	0
3.1.5	LA-W912 <i>Combustible Debris</i>	0	0		0	0
3.1.5	LA-W921 <i>Activated or Inseparable Lead</i>	0	0		0	0
3.1.5	LA-W922 <i>Noncombustible Debris</i>	0	0	Administrative Adjustment	0	0
			0	Shipped offsite for treatment/disposal		
			0	New covered		
3.1.6	LA-W913 <i>Aqueous Wastes with Heavy Metals</i>	0	0		0	0
3.1.6	LA-W914 <i>Corrosive Solutions</i>	0	0		0	0
3.1.6	LA-W915 <i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	0	0		0	0
3.1.7	LA-W916 <i>Water-Reactive Wastes</i>	0	0		0	0



CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.1.8	LA-W917 <sup>4</sup> <i>Compressed Gases Requiring Scrubbing</i>	1.040	-0.415	Administrative Adjustment	0.625	0
			0	Shipped offsite for treatment/disposal		
3.1.9	LA-W918 <i>Compressed Gases Requiring Oxidation</i>	0	0		0	0
3.1.10	LA-W920 <i>Elemental Mercury</i>	0	0		0	0
3.1.11	LA-W907 <i>Halogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W908 <i>Nonhalogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W909 <i>Bulk Oils</i>	0	0		0	0
3.1.11	LA-W910 <i>PCB Wastes with RCRA Components</i>	0	0		0	0
3.1.11	LA-W923 <i>Liquid and Solid Oxidizers</i>	0	0		0	0
3.2	LA-W924 <i>Lead Wastes – TBD</i>	0	0		0	0
3.2	LA-W925 <i>Mercury Wastes – TBD</i>	0	0		0	0
3.2	LA-W926 <i>Compressed Gases – TBD</i>	0	0		0	0
3.2	LA-W927 <i>Biochemical Laboratory Wastes</i>	0	0		0	0
3.2	LA-W928 <i>Dewatered Treatment Sludge</i>	0	0		0	0
3.2	LA-W932 <i>Explosives</i>	0	0		0	0
3.2	LA-W933 <i>Labpacks</i>	0	0		0	0
3.2	LA-W934 <i>High Activity Waste</i>	1.477	0	Shipped offsite for treatment/disposal	1.477	0
			0	Administrative Adjustment		
3.3.1	LA-W930 <i>Lead for Surface Decontamination</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>1</sup> Waste ID and Treatability Group/Category	FY16 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY17 – FY21 (m <sup>3</sup> )
3.3.2	LA-W929 <i>Nonradioactive or Suspect Waste Items to be Surveyed</i>	0	0		0	0
3.3.3	LA-W931 <i>Lead Requiring Sorting</i>	0	0		0	0
3.3.4	LA-W935 <i>10–100 nCi/g Waste</i>	<del>59.927</del> <u>57.410</u>	<del>19.277</del> <u>21.782</u>	Administrative Adjustment (Table C-1)	<del>170.426</del> <u>172.931</u>	50
			36.7 <del>80</del> 795	New covered		
			105.078 <del>1</del>	Reconciled from WCATS inventory “New Covered”		
			-48.119	Shipped offsite for treatment/disposal		
TOTALS		59.927			<del>172.527</del> <u>175.033</u>	50

<sup>1</sup> CP is Compliance Plan; MWIR is Mixed Waste Inventory Report.

<sup>2</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>3</sup> Shipment details are in Appendix B; Administrative adjustments are in Appendix C.

<sup>4</sup> Items prohibited from shipment to WIPP are removed from MTRU STP containers and consolidated; some are MLLW and are included in Table A-1 as LA-W917 waste; others are MTRU waste and are considered *Combustible-Noncombustible Waste* in Table E-1.

## APPENDIX B CURRENT YEAR MLLW SHIPMENT DETAIL

Table B-1 MLLW Shipped Offsite for Treatment and Disposal in FY17

CP Section	MWIR <sup>1</sup> No.	Treatability Group	Manifest Number	Destination	Date Shipped	Date NMED Notified	Volume (m <sup>3</sup> )
3.3.4	LA-W935	10-100 nCi/g Waste	006647301FLE	PermaFix NW	03/7/2017	04/21/2018 (EPC-DO-017-156)	11.334
3.3.4	LA-W935	10-100 nCi/g Waste	006641098FLE	Waste Control Solutions	5/23/2017	1/7/2019 (EPC-DO-18-438)	0.208
3.3.4	LA-W935	10-100 nCi/g Waste	006649771FLE	Energy Solutions	9/13/2017	1/7/2019 (EPC-DO-18-438)	0.3215
3.3.4	LA-W935	10-100 nCi/g Waste	006649706FLE	Energy Solutions	8/17/2017	1/7/2019 (EPC-DO-18-438)	36.250
LA-W935 Total							48.119
Grand Total							48.119

<sup>1</sup> MWIR is Mixed Waste Inventory Report.

## APPENDIX C CURRENT YEAR MLLW ADMINISTRATIVE ADJUSTMENTS

Table C-1 Administrative Adjustments

CP Section	MWIR* Number	Administrative Adjustment	Volume (m³)
3.3.4	LA-W935	Transferred into LA-W935 from reclassification of Empty containers (see section 3.4 for details) <u>(from Table C-2) 67 x 0.322 = 21.574</u>	<del>21.541</del> <u>21.574</u>
		Transferred into LA-W935 from reclassification of TRU and MTRU STP covered waste	0.208
		<del>Transferred into LA-W935 from reclassification of MTRU STP covered waste. Due to an administrative recordkeeping error, this MLLW container was inadvertently disposed in Pit 38 at Area G. Notification was sent to the NMED (ADESH 16-21) on February 25, 2016. Future discussions with the NMED are pending.</del>	<del>-2.056</del>
Total Net Adjustments for LA-W935			<del>19.693</del> <u>21.782</u>
3.1.8	LA-W917	Reconciled from FY16 inventory. Transferred into LA-W935 from reclassification of Compressed Gases.	-0.415
Total Net Adjustments for LA-W917			-0.415
Total Net Adjustments			<del>19.278</del> <u>21.367</u>

\*MWIR is Mixed Waste Inventory Report

CP Section	MWIR*	Treatability Group	Type of Adjustment	Cumulative Volume Adjustment (m³)	Item or Container Number	MLLW Container Volume (m³)	Reason for Administrative Adjustment
3.1.8	LA-W917	Total Compressed Gas	Reconciled from WCATS inventory	-0.415			Removed as a result of reconciling data.
3.3.4	LA-W935	10–100 nCi/g	Reclassified/Repack aged MTRU STP and TRU inventory to MLLW STP inventory	21. <del>574</del> <del>545</del>			Removed as a result of reconciliation WCATS inventory
					W797736	0.322	
					W798796	0.322	
					W730974	0.322	
					W799407	0.322	
					W799536	0.322	
					W799424	0.322	
					W799727	0.322	
					W799724	0.322	
					W799772	0.322	
					W799735	0.322	
					W799775	0.322	
					W799924	0.322	
					W799028	0.322	
					W800053	0.322	
					W800386	0.322	
					W800389	0.322	
					W801043	0.322	
					W789230	0.322	
					W788964	0.322	
					W789282	0.322	
					W788786	0.322	
					W789845	0.322	
					W788896	0.322	
					W789998	0.322	
					W789894	0.322	
					W791568	0.322	
					W791483	0.322	
					W791487	0.322	
					W790098	0.322	
					W789528	0.322	
					W790231	0.322	
					W790101	0.322	
					W790103	0.322	
					W790105	0.322	
					W790107	0.322	

CP Section	MWIR*	Treatability Group	Type of Adjustment	Cumulative Volume Adjustment (m³)	Item or Container Number	MLLW Container Volume (m³)	Reason for Administrative Adjustment
					W790109	0.322	
					W790151	0.322	
					W790134	0.322	
					W788762	0.322	
					W788764	0.322	
					W788766	0.322	
					W788768	0.322	
					W791583	0.322	
					W791585	0.322	
					W791587	0.322	
					W790059	0.322	
					W790061	0.322	
					W790063	0.322	
					W790065	0.322	
					W790148	0.322	
					W790150	0.322	
					W790232	0.322	
					W791317	0.322	
					W791382	0.322	
					W788174	0.322	
					W788176	0.322	
					W788178	0.322	
					W788180	0.322	
					W788182	0.322	
					W791634	0.322	
					W791636	0.322	
					W791710	0.322	
					W791712	0.322	
					W788643	0.322	
					W788647	0.322	
					W789360	0.322	
					W791755	0.322	
Subtotal 10-100 Volume						<del>21.545</del> 21.574	
Subtotal Total compressed gas Volume						-0.415	

\*MWIR is Mixed Waste Inventory Report

## APPENDIX D PREVIOUS YEAR MLLW INVENTORY DETAIL

Table D-1 FY16 MLLW Inventory Detailed Update by Treatability Group

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision <del>27</del> 6.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.1.1	LA-W901 <i>IPA Wastes</i>	0	0		0	0
3.1.1	LA-W902 <i>Scintillation Fluids</i>	0	0		0	0
3.1.2	LA-W903 <i>Lead Blankets</i>	0	0		0	0
3.1.2	LA-W904 <i>Soil with Heavy Metals</i>	0	0		0	0
3.1.2	LA-W905 <i>ER Soils</i>	0	0		0	0
3.1.3	LA-W906 <i>Aqueous Organic Liquids</i>	0	0		0	0
3.1.4	LA-W911 <i>Organic-Contaminated Combustible Solids</i>	0	0		0	0
3.1.4	LA-W919 <i>Organic-Contaminated Noncombustible Solids</i>	0	0		0	0
3.1.5	LA-W912 <i>Combustible Debris</i>	0	0		0	0
3.1.5	LA-W921 <i>Activated or Inseparable Lead</i>	0	0		0	0
3.1.5	LA-W922 <i>Noncombustible Debris</i>	0	-2.625	Administrative Adjustment	0	0
			2.625	Shipped offsite for treatment/disposal		
3.1.6	LA-W913 <i>Aqueous Wastes with Heavy Metals</i>	0	0		0	0
3.1.6	LA-W914 <i>Corrosive Solutions</i>	0	0		0	0
3.1.6	LA-W915 <i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	0	0		0	0
3.1.7	LA-W916 <i>Water-Reactive Wastes</i>	0	0		0	0

CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision 276.0 (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.1.8	LA-W917 <sup>5</sup> <i>Compressed Gases Requiring Scrubbing</i>	1.248	-0.208	Administrative Adjustment	1.040	0
			0	Shipped offsite for treatment/disposal		
3.1.9	LA-W918 <i>Compressed Gases Requiring Oxidation</i>	0	0		0	0
3.1.10	LA-W920 <i>Elemental Mercury</i>	0	0		0	0
3.1.11	LA-W907 <i>Halogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W908 <i>Nonhalogenated Organic Liquids</i>	0	0		0	0
3.1.11	LA-W909 <i>Bulk Oils</i>	0	0		0	0
3.1.11	LA-W910 <i>PCB Wastes with RCRA Components</i>	0	0		0	0
3.1.11	LA-W923 <i>Liquid and Solid Oxidizers</i>	0	0		0	0
3.2	LA-W924 <i>Lead Wastes – TBD</i>	0	0		0	0
3.2	LA-W925 <i>Mercury Wastes – TBD</i>	0	0		0	0
3.2	LA-W926 <i>Compressed Gases – TBD</i>	0	0		0	0
3.2	LA-W927 <i>Biochemical Laboratory Wastes</i>	0	0		0	0
3.2	LA-W928 <i>Dewatered Treatment Sludge</i>	0	0		0	0
3.2	LA-W932 <i>Explosives</i>	0	0		0	0
3.2	LA-W933 <i>Labpacks</i>	0	0		0	0
3.2	LA-W934 <i>High Activity Waste</i>	1.301 1.477	0	Shipped offsite for treatment/disposal	1.477	0
			0.176	Administrative Adjustment		
3.3.1	LA-W930 <i>Lead for Surface Decontamination</i>	0	0		0	0



CP <sup>1</sup> Sec.	MWIR <sup>2</sup> Waste ID and Treatability Group/Category	FY15 Annual Update (m <sup>3</sup> ) <sup>3</sup>	Proposed Revision <del>276.0</del> (m <sup>3</sup> )	Comments <sup>4</sup>	FY16 Annual Update (m <sup>3</sup> )	Projection FY17 – FY20 (m <sup>3</sup> )
3.3.2	LA-W929 <i>Nonradioactive or Suspect Waste Items to be Surveyed</i>	0	0		0	0
3.3.3	LA-W931 <i>Lead Requiring Sorting</i>	0	0		0	0
3.3.4	LA-W935 <i>10–100 nCi/g Waste</i>	33.140	43.506	Administrative Adjustment	57.410	50
			0	New covered		
			-19.236	Shipped offsite for treatment/disposal		
3.4	<i>Missing/ nonexistent/ TBV category</i>	0	0		0	N/A
<b>TOTALS</b>		<b>35.689</b>			<b>59.927</b>	50

<sup>1</sup> CP is Compliance Plan.

<sup>2</sup> MWIR is Mixed Waste Inventory Report.

<sup>3</sup> MLLW volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>4</sup> Shipment details are in Appendix B; Administrative adjustments are in Appendix C.

<sup>5</sup> Items prohibited from shipment to WIPP are removed from MTRU STP containers and consolidated; some are MLLW and are included in Table A-1 as LA-W917 waste; others are MTRU waste and are considered *Combustible-Noncombustible Waste* in Table E-1.

## APPENDIX E CURRENT MTRU INVENTORY DETAIL

Table E-1 TA-54 MTRU Covered Inventory (by Treatability Group)

Treatability Group	FY16 Annual Update (m <sup>3</sup> )	Proposed Revision 28.0 (m <sup>3</sup> ) <sup>1,2</sup>	Comments <sup>3</sup>	FY17 Annual Update (m <sup>3</sup> )	Projection FY18–FY21 (m <sup>3</sup> )
<b>Cemented Sludge</b>	<b>82.250</b>				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(0)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-82.250	Administrative Adjustments		
		<b>FY17 Subtotal Cemented Sludge</b>		<b>0</b>	<b>0</b>
<b>Combustible – Noncombustible Waste</b>	<b>349.792</b>				
		(68.362) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		1.878	New Covered		
		(-153.204)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-186.503	Administrative Adjustments		
		<b>FY17 Subtotal Combustible-Noncombustible Waste</b>		<b>165.167</b>	<b>100</b>
<b>Combustible Waste</b>	<b>1.454155</b>				
		(0.208) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(0)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-1.1554	Administrative Adjustments		
		<b>FY17 Subtotal Combustible Waste</b>		<b>0</b>	<b>0</b>
<b>Glass Waste</b>	<b>0</b>				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		0	Shipped Offsite		
		0	Administrative Adjustments		
		<b>FY17 Subtotal Glass Waste</b>		<b>0</b>	<b>0</b>

Treatability Group	FY16 Annual Update (m³)	Proposed Revision 28.0 (m³) <sup>1,2</sup>	Comments <sup>3</sup>	FY17 Annual Update (m³)	Projection FY18–FY21 (m³)
<i>Leaded Glovebox Waste</i>	0				
		(0) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		0	Shipped Offsite		
		0	Administrative Adjustments		
		FY17 Subtotal <i>Leaded Glovebox Waste</i>		0	0
<i>Metallic Waste</i> <u>(Non- CVD)</u>	2.309				
		(0.208) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(-0.208)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		-2.101	Administrative Adjustments		
		FY17 Subtotal <i>Metallic Waste</i>		0.208	0
<i>Noncombustible Waste</i>	22.108				
		(1.248) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		0	New Covered		
		(-14.050)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		-22.108	Administrative Adjustments		
		FY17 Subtotal <i>Noncombustible Waste</i>		0	100
<i>Solidified Inorganic and Organic Waste</i>	434.204	<del>379.841</del> <sup>4</sup>	Reconciled from WCATS inventory and included as <del>Newly Covered</del>		
		(24.702) <sup>4</sup>	3706 Non-cemented Above-ground EM Legacy TRU (MTRU waste only)		
		(-20.196)	FY14 Shipped Offsite on Hold <sup>5</sup>		
		0	Shipped to WIPP (placed below grade)		
		<del>292.727</del> <sup>4</sup>	Administrative Adjustments		
		<del>294.117</del>			
		FY17 Subtotal <i>Solidified Inorganic and Organic Waste</i>		<del>1106.769</del> <sup>4</sup> <u>1108.162</u>	10
TOTAL FY16:	891. <del>817</del> <u>818</u>	Total FY17 Inventory: <del>1272.144</del> <sup>4</sup> <u>1273.537</u>			210

<sup>1</sup> MTRU waste volumes are calculated using the conversion: 55-gallon container = 0.208 m<sup>3</sup>; 85-gallon container = 0.322 m<sup>3</sup>.

<sup>2</sup> Volumes are represented to three decimal places.

<sup>3</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G.

<sup>4</sup> Amount already included in the MTRU STP covered inventory.

<sup>5</sup> NMED has determined that the removal of MTRU from the STP will be deferred until more information becomes available and is the final disposition of the waste currently stored at the offsite facility is determined. Amount already included in the MTRU STP covered inventory.

Table E-2 MTRU Inventory at TA-55 and CMR

Location	FY16 MTRU Inventory (m³) <sup>1</sup>	Treatability Group	Proposed Revision 28.0 (m³)	Comments <sup>1</sup>	FY17 MTRU Inventory (m³)
CMR	9.598	Combustible-Noncombustible Waste	22.097	Reconciled from WCATS inventory (i.e, New Covered)	
		Metallic Waste <u>(metallic waste CVDs are removed from the STP when they are transported from TA-55 (3.199 m3) to the CMR Material Recovery Project. There is no addition of STP volume to CMR.</u>	<del>3.199</del> 0	<u>Material t</u> Transfer from TA-55	<u>0</u>
Total FY17 CMR Inventory					<del>34.894</del> <u>31.695</u>
TA-55	33.197	Combustible-Noncombustible Waste	94.181	Reconciled from WCATS inventory (i.e., New Covered)	
			0	Administrative Adjustment	
FY17 TA-55 Combustible-Noncombustible Waste Inventory					127.378
TA-55	5.212	Combustible Waste	00	New Covered	
			-5.212	Administrative Adjustment (Reconciled from WCATS inventory)	
FY17 TA-55 Combustible Waste Inventory					0
TA-55	15.995	Metallic Waste <u>-(CVD)</u>	<del>9.596</del> 0	Reconciled from WCATS inventory (i.e., <del>Newly Covered</del> )	
			-3.199	Transfer to CMR <u>to the Material Recovery Project, therefore, volume is removed from the TA-55 STP.</u>	<del>22.392</del>
FY17 TA-55 Metallic Waste Inventory					<del>15.995</del> <u>12.796</u>
TA-55	5.445	Noncombustible Waste	17.015	Reconciled from WCATS inventory (i.e., New Covered)	
			0	Administrative Adjustment	
FY17 TA-55 Noncombustible Waste Inventory					22.460
TA-55	0	Solid Inorganic and Organic Waste	0	Administrative Adjustment	
FY17 TA-55 Solidified Inorganic and Organic Waste Inventory					0.000
Total FY17 TA-55 Inventory					<del>172.234</del> <u>162.634</u>
					<del>45.844</del> <u>207.125</u> <u>194.329</u>

Location	FY16 MTRU Inventory (m <sup>3</sup> ) <sup>1</sup>	Treatability Group	Proposed Revision 28.0 (m <sup>3</sup> )	Comments <sup>1</sup>	FY17 MTRU Inventory (m <sup>3</sup> )
<i>Total FY17 CMR/TA-55 Inventory</i>					

<sup>1</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G. ~~Since all waste is shipped from TA-54, there are no shipping data for CMR/TA-55, only transfers to TA-54, which are included in the Appendix G.~~

## APPENDIX F FY16 MTRU WASTE SHIPMENTS TO WIPP

Table F-1 FY17 MTRU Shipments to WIPP

FY15 Quarter	Treatability Group	Existing FY15 Inventory Volume (m <sup>3</sup> )	New-Covered Volume (m <sup>3</sup> )	Total Removed from Inventory (placed below grade) (m <sup>3</sup> )	Total FY14 Inventory (above grade) on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>1</sup>
Q1	Q1Total	0	0	0	0	0
Q2	Q2Total	0	0	0	0	0
Q3	Q3 Total	0	0	0	0	19.00
Q4	Q4 Total	0	0	0	0	7.128
<b>Grand Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>26.128</b>

<sup>1</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-2 FY14 MTRU Shipments to WCS<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>2</sup>	Total Disposed in FY17 (m <sup>3</sup> )
Q3	Combustible-Noncombustible Waste Total	120.848	0.416	121.264	121.264	-42.268
	Metallic Waste Total	0.208	0	0.208	0.208	-0.208
	Noncombustible Waste Total	14.050	0	14.050	13.936	
	Solidified Inorganic and Organic Waste Total	20.196	0	20.196	19.968	-19.968
<b>Grand Total</b>		<b>155.302</b>	<b>0.416</b>	<b>155.718</b>	<b>155.376</b>	<b>-62.444</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-3 FY14 MTRU Shipments to AMWTP (INL)<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold <sup>2</sup> (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> ) <sup>3</sup>	Total Disposed in FY17 (m <sup>3</sup> )
Q1	Combustible-Noncombustible Waste Total	5.049	0	5.049	5.049	-5.049
Q2	Combustible-Noncombustible Waste Total	15.294	0	15.294	15.294	-15.294
Q3	Combustible-Noncombustible Waste Total	2.549	0	2.549	2.549	-2.549
<b>Grand Total</b>		<b>22.892</b>	<b>0</b>	<b>22.892</b>	<b>22.892</b>	<b>-22.892</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> LANL waste treated at INL and stored at a WCS facility as of November 2014. Original containers and volume continue to be tracked since treated containers were not created at LANL.

<sup>3</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

Table F-4 FY14 MTRU Shipments to WIPP<sup>1</sup>

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> )	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (above grade) (m <sup>3</sup> )	Total Volume Shipped (above grade) (m <sup>3</sup> ) <sup>2</sup>
Q2	Combustible-Noncombustible Waste Total	9.048	0	9.048	8.820
<b>Grand Total</b>		<b>9.048</b>	<b>0</b>	<b>9.048</b>	<b>8.820</b>

<sup>1</sup> Volumes shipped in FY14 but not removed from the STP inventory.

<sup>2</sup> Volumes shipped may be lower than volumes removed from the STP inventory due to the removal of overpacks before shipping.

## APPENDIX G CURRENT YEAR MTRU INVENTORY – ADMINISTRATIVE ADJUSTMENTS

Table G-1 FY17 MTRU Administrative Adjustments to TA-54 Inventory (from Table E-1)

Treatability Group	Administrative Adjustment	Volume (m <sup>3</sup> )
Cemented Sludge	STP containers from Cemented Sludge were reassigned to Solidified Inorganic and Organic Waste treatability group <del>consistent</del> consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-82.238250
	<del>Rounding</del>	-0.012
<b>Cemented Sludge Net Adjustment</b>		<b>-82.250</b>
Combustible-Noncombustible Waste	Reclassified as MLLW (LA-W935)	-0.2080
	Reconciliation of WCATS inventory – <del>New Covered</del>	0 1.878
	STP containers from <del>Combustible</del> Combustible-Noncombustible Waste treatability group reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes included <del>in</del> direct loaded SWBs.	-188.173-186.503
<b>Combustible-Noncombustible Net Adjustment</b>		<b>-186.503</b>
Combustible Waste	STP containers from Combustible Waste treatability groups were <del>reassigned</del> to Solidified Inorganic and Organic Waste treatability groups consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-1.1545155
	<del>Rounding adjustments</del>	-0.0005
<b>Combustible Waste Net Adjustment</b>		<b>-1.154155</b>
Metallic Waste	STP containers from Metallic Waste treatability group reassigned to Solidified Inorganic and Organic Waste treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are also included.	-0.208-2.101
	<del>Reconciliation for WCATS inventory, including rounding adjustments.</del>	-2.309 -2.101
<b>Metallic Waste Net Adjustment</b>		<b>-2.517-2.101309</b>
Noncombustible Waste	STP containers from NoncCombustible Waste treatability group were reassigned to Solidified Inorganic and Organic treatability group consistent with current categorization of waste types for shipment to WIPP. Volume changes are included.	-22.108
<b>Noncombustible Waste Net Adjustment</b>		<b>-22.108</b>
<u>Solidified Inorganic and Organic Waste</u>	<u>STP containers reassigned from Cemented Sludge, Combustible-Noncombustible Waste, Combustible Waste, Metallic Waste and Noncombustible Waste to Solidified Inorganic and Organic Waste</u>	<u>294.117</u>
<b><u>Solidified Inorganic and Organic Waste Net Adjustment</u></b>		<b><u>294.117</u></b>
<b><u>Net TA-54 MTRU Administrative Adjustment</u></b>		<b><u>0</u></b>



Table G-2 FY17 MTRU Administrative Adjustments for CMR and TA-55 Inventory  
(from Table E-2)

Location	Treatability Group	Administrative Adjustment	Volume (m³)
CMR	Combustible-Noncombustible Waste	<u>CVD volume is removed from the STP when it arrives at the CMR from TA-55. Transferred for storage for the Material Recovery Project. retrieval from TA-55 to CMR to for storage. It is then reclassified as Combustible-Noncombustible Waste. Therefore the SPT volume at CMR will be 0 for this transfer.</u>	<del>3.199</del> 0
Net Adjustment CMR Inventory			<del>3.199</del> 0
TA-55	Combustible-Noncombustible Waste		0
Net Adjustment TA-55 Combustible-Noncombustible Waste			0
TA-55	Combustible Waste	<u>Administrative Adjustment – reconciled with WCATS</u>	<del>0.5.212</del>
Net Adjustment TA-55 Combustible Waste			<del>0.5.212</del>
TA-55	Metallic Waste - <u>CVD</u>	<u>CVD transferred to CMR for storage and the Material Recovery Project retrieval for storage. e and this volume will be removed from the STP waste volume at TA-55.</u>	-3.199
Net Adjustment TA-55 Metallic Waste ( <u>CVD</u> )			-3.199
TA-55	Noncombustible Waste		0
Net Adjustment TA-55 Noncombustible Waste			0
TA-55	Solidified Inorganic and Organic Waste		0
Net Adjustment TA-55 Solidified Inorganic and Organic Waste			0
Net Adjustment TA-55 Inventory			<del>-3.199</del> <u>-8.411</u>
Total Net TA-55/CMR Adjustment			<del>0</del> <u>-8.411</u>

## APPENDIX H      MLLW TREATMENT FACILITIES

*Table H-1      Commercial Facilities Contacted for Waste Treatment Capabilities*

Commercial Facility	Location
Perma-Fix (including Material & Energy Corporation in Tennessee; Diversified Scientific Services, Inc. in Tennessee; and Perma-Fix North West in Washington)	Florida
Waste Control Specialists	Texas
EnergySolutions of Utah (including Bear Creek Operations in Tennessee)	Utah
Nuclear Fuel Services	Tennessee
Integrated Environmental Services	Tennessee
NSSI	Texas

## APPENDIX I CORRESPONDENCE

Table I-1 Expedited Shipment Letters

Letter Date	Description	Letter Number	Revision Reference
04/21/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C	EPC-DO-17-156	28
01/07/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C	EPC-DO-18-438	28

Table I-2 Correspondence

Letter Date	Description	Letter Number	Revision Reference
08/11/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q3	EPC-DO-17-285	28
11/14/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q4	EPC-DO-17-456	28
05/10/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0, FY17, Q2	WM-DO-17-001	28
06/15/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0.	WM-DO-17-228	28
08/08/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-295	28
08/21/2017	Notice of completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-311	28
10/27/2017	Notice of Completion of Off-Site Waste Shipment Activity 4.0	WM-DO-17-422	28
12/4/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 B and C.	EPC-DO-17-497	28
01/05/2018	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-556	28
02/14/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-001	28
02/13/2017	Federal <del>Facility</del> <u>Facility</u> Compliance Order – Notice of Change of Project Manager	ADESH-17-020	28
09/15/2017	Notice of Completion of Expedited Off-Site Waste Shipment Activity 4.0	WM-DO-17-334	28

## APPENDIX J HISTORY OF CHANGES TO THE CP AND FFCO

As discussed in Part III (CP), Section 1.2, the STP CP has been modified several times since it was originally issued, in accordance with the provisions of Section X, *Revisions*, and Section XI, *Other Amendments to the STP*, of the October 4, 1995, FFCO, as amended and revised. This appendix provides a summary of these CP changes and of modifications to the FFCO since its issuance.

To date, there have been 27 revisions and three amendments to the CP. In addition, the FFCO was amended once on May 20, 1997. Table J-1 provides a summary of these changes. More detailed descriptions can be found in the CP Update portion of each year's STP *Annual Update* and the original correspondence requesting each change.

Table J-1 Summary of Changes to the CP and the FFCO

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev. 1.0	STP/CP	6/12/96	Added offsite treatment as a parallel preferred option for most MLLW treatability groups.
Rev. 2.0	STP/CP	12/9/96	Reduced volume of LA-W928 by approving reclassification of <del>sludgessludge</del> as LLW.
Amendment 1.0	STP/CP	10/30/96	Divided original volume of LA-W929 into three subgroups, and added new Activities and Compliance Dates.
Rev. 3.0	STP/CP	1/27/97	Divided original volume of LA-W929 into three subgroups, and added new Activities and Compliance Dates.
Amendment 1.0	FFCO	5/20/97	Modified FFCO Sections IV, V, IX, and X to streamline waste transfers and deletions.
Amendment 2.0	STP/CP	9/4/97	Extended CP Activity 3.1.2B Compliance Date to 12/29/97.
Rev. 4.0	STP/CP	12/29/97	Transferred original volume of LA-W929 from three subgroups to other treatability groups, added treatability groups, and deleted treated items.
Rev. 5.0	STP/CP	12/29/97	Added volumes reported in FY95 and FY96 <i>Annual Updates</i> (and certain other items) to several treatability groups, added Activities and Compliance Dates, added CP Appendices, and deleted treated items.
Rev. 6.0	STP/CP	7/31/98	Added volumes reported in FY97 <i>Annual Update</i> to several treatability groups, added certain Activities and Compliance Dates, adjusted several original inventory volumes, transferred one LA-W929 item to a new treatability group, and deleted treated items.
Rev. 7.0	STP/CP	11/30/98	Removed onsite treatment skids, added STP inventory items, added onsite recycling/re-use and radiological decontamination, added notification for offsite treatability studies.
Rev. 8.0	STP/CP	12/3/98	Extended compliance dates for treatment of MTRU waste.
Rev. 9.0	STP/CP	6/7/00	Added and deleted volumes reported in FY98 <i>Annual Update</i> to certain treatability groups.
Amendment 3.0	STP/CP	8/30/99	Transferred three items to MTRU, transferred one item to subgroup within same treatability group.
Rev. 10.0	STP/CP	12/18/00	Added and deleted volumes reported in FY99 <i>Annual Update</i> to certain treatability groups.
Rev. 11.0	STP/CP	4/18/01	Added and deleted volumes reported in FY00 <i>Annual Update</i> .

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev. 12.0	STP/CP	3/13/02	Added and deleted volumes reported in FY01 <i>Annual Update</i> . Extended CP Activity 3.1.5A Compliance Date to 8/25/03. Extended CP Activity 3.1.11A to 2/01/04. Removed the requirement to develop treatment technologies and the associated compliance schedule in CP Activity 4.0 and added language specifying that MTRU waste would be shipped offsite to WIPP for disposal.
Rev 13.0	STP/CP	7/14/03	Added and deleted volumes reported in FY02 <i>Annual Update</i> .
Rev 14.0	STP/CP	1/5/05	Added and deleted volumes reported in FY03 <i>Annual Update</i> .
Rev 15.0	STP/CP	8/16/05	Added and deleted volumes reported in FY04 <i>Annual Update</i> .
Rev 16.0	STP/CP	12/12/06	Added and deleted volumes reported in FY05 <i>Annual Update</i> . Extended CP Activity 3.1.8(A) Compliance Date to 8/09/07. Extended CP Activity 3.1.9(A) Compliance Date to 8/09/07. Extended CP Activity 3.1.10(A) Compliance Date to 8/31/07. Extended CP Activity 3.1.11(A) Compliance Date to 12/31/07. Extended CP Activity 3.2(J) Compliance Date to 12/31/07. Reclassified 0.2082 m <sup>3</sup> of LA-W934 High Activity MLLW waste to MTRU waste.
Rev 17.0	STP/CP	6/26/08	Added and deleted volumes reported in FY06 <i>Annual Update</i> . Extended CP Activity 3.1.5(A) Compliance Date to 12/31/08. Extended CPV Activity 3.1.8(A) Compliance Date to 8/28/08. Extended CP Activity 3.1.9(A) Compliance Date to 8/28/08. Extended CP Activity 3.2(J) Compliance Date to 12/31/08.
Rev 18.0	STP/CP	1/9/09	Added and deleted volumes reported in FY07 <i>Annual Update</i> . Extended CP Activity 3.1.8(A) Compliance Date to 8/28/09. Extended CP Activity 3.1.9(A) Compliance Date to 8/28/09. Proposed a new Section 3.3.4 for Treatability Group, LA-W935 10–100 nCi/g Waste with new CP Activity 3.3.4 (A) Compliance Date 12/01/13 and CP Activity 3.3.4 (B) Compliance Date 12/31/13. Extended CP Activity 3.2(J) Compliance Date to 12/31/10.
Rev 19.0	STP/CP	2/5/10	Added and deleted volumes reported in FY08 <i>Annual Update</i> . Extended compliance date for CP Activities 3.1.8(A) and 3.1.9(A) to 8/28/12. Proposed a new milestone of 12/31/2010 for 3.1.4(A) and a new milestone 3.3.4(C) for 10–100 nCi/g Waste.
Rev 20.0	STP/CP	11/8/10	Added and deleted volumes reported in FY09 <i>Annual Update</i> . Proposed an extended compliance date for CP Activity 3.2(J).
Rev 21.0	STP/CP	3/21/12	Added and deleted volumes reported in FY10 <i>Annual Update</i> . Proposed new compliance date for CP Activity 3.1.8(A).
Rev 22.0	STP/CP	12/10/12	Added and deleted volumes reported in FY11 <i>Annual Update</i> .
Rev 23.0	STP/CP	08-26-2015	Added and deleted volumes reported in FY12 <i>Annual Update</i> . Added Table 4.0-1 Treatability Groups for the Framework Agreement MTRU Waste
Rev 24.0	STP/CP	08-26-2015	Added and deleted volumes reported in FY13 <i>Annual Update</i> . Proposed compliance date for CP Activity 3.1.5(A). Proposed compliance date for CP Activity 3.1.8(A). Extended CP Activity 3.2(J) Compliance Date to 6/30/2018. Proposed compliance date for CP Activity 3.3.4 (A and B)

Action	Document Modified	Effective Date	Effect on FFCO/STP
Rev 25.0	STP/CP	TBD	Added and deleted volumes reported in FY14 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activity 3.1.8(A) Proposed compliance date for CP Activity 3.3.4 (A and B)
Rev 26.0	STP/CP	01-30-2017	Added and deleted volumes reported in FY15 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activity 4.0-2 (C)
Rev 27.0	STP/CP	03/21/2017	Added and deleted volumes reported in FY16 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activities 4.0-2(a), and 4.0-2(c).
Rev 28.0	STP/CP	TBD	Added and deleted volumes reported in FY17 Annual Update On Hold volumes reported shipped in FY14 Annual Update Proposed compliance date for CP Activities 3.1.8-2(A), and 3.3.4-2 (A and B).

## REFERENCES

1. *Federal Facility Compliance Order (Los Alamos National Laboratory)*, New Mexico Environment Department (October 4, 1995).
2. Congress, 1996. Text of Public Law 104-201, Congressional Record dated September 23, 1996, Amendment to Public Law 102-579, 1992 *Waste Isolation Pilot Plant Land Withdrawal Act* (106 Stat. 4777).
3. 40 CFR Part 194, Criteria for the Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision; Proposed Rule (Federal Register V.62, No. 210, Oct. 30, 1997, pp. 58792–58838).