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**Los Alamos National Laboratory  
Federal Facility Compliance Order  
Annual Site Treatment Plan Update  
for Fiscal Year 2019, Revision 30.0**



Newport News Nuclear BWXT-Los Alamos, LLC (N3B), under the U.S. Department of Energy Office of Environmental Management Contract No. 89303318CEM000007 (the Los Alamos Legacy Cleanup Contract), has prepared this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

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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
DSA	documented safety analysis
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFCA	Federal Facility Compliance Act
FFCO	Federal Facility Compliance Order
FTWC	flanged tritium waste container
FY	fiscal year
HWA	Hazardous Waste Act
HWB	Hazardous Waste Bureau
HWN	hazardous waste number
IPA	industrial isopropyl alcohol
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
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
N3B	Newport News Nuclear BWXT-Los Alamos, LLC
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
STP	Site Treatment Plan
SWB	standard waste box
TA	Technical Area
TBD	to be determined
TBV	to be verified
Triad	Triad National Security, LLC
TRU	transuranic
TWF	Transuranic Waste Facility
UC	University of California
WCRRF	Waste Characterization, Reduction, and Repacking Facility
WCATS	Waste Compliance and Tracking System
WCS	Waste Control Specialists, LLC
WETF	Weapons Engineering Tritium Facility
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 submittal of 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. As of November 1, 2018, Triad National Security, LLC (Triad) became the new prime contractor for DOE National Nuclear Security Administration (NNSA), replacing LANS. On April 30, 2018, Newport News Nuclear BWXT-Los Alamos, LLC (N3B) became the prime contractor for the DOE Environmental Management Los Alamos Field Office (EM-LA), and is responsible for LANL site-wide cleanup as well as waste management and shipping of legacy STP and remediation wastes at Technical Area 54 (TA-54), Areas G and L. Per the LANS/N3B Service Agreement/Work Authorizations signed April 30, 2018, N3B became the lead contractor for FFCO compliance.

At present, N3B is responsible for all quarterly and annual FFCO STP reporting requirements, working closely with Triad to fulfill FFCO requirements for all LANL STP requirements. N3B and Triad, as well as EM-LA and NNSA, will collectively be referred to as "the Respondents."

The FFCO requires the Respondents 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 the 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 the Respondents 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 30.0).

## **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, the Respondents will work on incorporating the STP Report data function utilizing the Waste Compliance and Tracking System (WCATS).

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

#### **2.1 Mixed Low-Level Waste Inventory**

During FY19, the STP-covered mixed low-level waste (MLLW) inventory increased from 231.491 m<sup>3</sup> (FY18) to 248.409 m<sup>3</sup> (FY19). This increase was due to new covered waste additions of 23.948 m<sup>3</sup>. There were also administrative adjustments of -4.122 m<sup>3</sup> and off-site disposal of -2.908 m<sup>3</sup>.

The transuranic (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 on-site at TA-54, Area G. These restrictions delayed the final confirmation, characterization, certification, and shipment for off-site treatment and disposal of these containers. Table 2.1-1 summarizes changes to the estimated FY19 STP-covered MLLW inventory.

Appendix A provides the detailed changes to the FY19 covered MLLW inventory by treatability group, which includes the inventory at TA-54 in Appendix (Table A-1), and the inventories at TA-55, the Chemistry and Metallurgy Research (CMR) Building, and the Transuranic Waste Facility (TWF) combined in Appendix (Table A-2). Appendix B (Table B-1) lists the FY19 MLLW shipments. 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 FY18 Annual Update is included as Appendix D Table D-1 for TA-54 and Table D-2 for TA-55, CMR, and TWF.

Table 2.1-1 FY19 MLLW Inventory Summary

Contribution	Volume (m <sup>3</sup> )
MLLW Inventory Reported in FY18 at TA-54	204.951
MLLW Inventory Reported in FY18 at CMR/TA-55/TWF	26.540
Proposed Revision 30.0	
N3B New-Covered Waste	20.832
Triad New-Covered Waste (2.7+0.416)	3.116
N3B Administrative Adjustments	-4.122
Triad Administrative Adjustments	0
N3B Off-site Shipment	-0.208
Triad Off-site Shipment	-2.700
Off-site Treatment/Recycle	NA <sup>1</sup>
Onsite Decontamination	NA <sup>1</sup>
Treatability Study Use	NA <sup>1</sup>
<b>MLLW Inventory Reported in FY19 Annual Update</b>	<b>248.409</b>

<sup>1</sup>NA = No Activity

Note: Calculations have been rounded to three places after the decimal point.

## 2.2 Mixed Transuranic (MTRU) Inventory Summary

During FY19, STP-covered MTRU inventories decreased from approximately 1798.802 m<sup>3</sup> to 1751.711 m<sup>3</sup> (Table 2.2-1). This decrease was due to waste removed from the STP inventory of 130.596 m<sup>3</sup> and administrative adjustments of 21.316 m<sup>3</sup>. There were also contributions with the addition of new covered waste at TA-54 and TA-55, CMR, and TWF of 108.020 m<sup>3</sup>.

Table 2.2-1 summarizes changes to the estimated FY19 MTRU covered waste inventory. The total volume of MTRU waste in Table 2.2-1 includes the CMR, TA-55, and TWF 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, TA-55, and TWF. 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 FY19 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, and TWF MTRU inventory data, respectively.

Administrative adjustments typically represent the following types of activities:

- Respondents may correct database entries so that waste items not previously listed as STP waste are now identified and included as STP waste.
- Respondents 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 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 FY18 at TA-54	1437.701
Covered MTRU Inventory Reported in FY18 at TA-55/CMR/TWF	361.101
Proposed Revision 30.0	
New-Covered MTRU Waste at TA-54 (3.328+30.824+1.900+0.624)	36.676
New-Covered MTRU Waste at CMR/TA-55/TWF(43.056+1.248+5.2+21.84)	71.344
Covered MTRU Waste removed from inventory (Shipped to WIPP) in FY19 (E-1+E-2) (29.858+17.044+83.694)	-130.596
Covered MTRU Inventory Reported in FY18 at Waste Control Specialists, LLC (WCS) (FY14 on Hold) (F-2 or F-4)	47.122*
Covered MTRU Waste Shipped from WCS to WIPP in FY19 (FY14 on Hold) (F-2 and F-4)	-2.288 *
Covered MTRU Inventory Reported in FY19 at WCS (FY14 on Hold) (F-2 and F-4)	44.834*

*Table 2.2-1 (continued)*

Description	Volume (m <sup>3</sup> )
Net Administrative Adjustments for TA-54 in FY19	-21.316
This is the transfer of one Confinement Vessel Disposition (CVD) in FY19 from TA-55 to CMR where it is removed from the STP (each CVD is 3.199 m <sup>3</sup> )	-3.199
<b>Covered MTRU Inventory at End of FY19</b>	<b>1751.711</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.  
 Note: Calculations have been rounded to three places after the decimal point.

Appendix G includes administrative adjustment 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 increase 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 Off-site Treatment

During FY19, covered MLLW stream were shipped for treatment and/or disposal to the following off-site commercial treatment facilities: Perma-Fix Florida, Waste Control Specialists, and Energy Solutions. See Appendix H, Table H-1 for commercial facilities contacted for waste treatment capabilities. Appendix B summarizes LANL’s off-site shipments for treatment and/or disposal of covered MLLW in FY19.

#### 3.2 Off-site Recycling

Respondents did not recycle any STP-covered waste off-site in FY19.

#### 3.3 Onsite Treatment and Recycling

Respondents did not treat or recycle any STP-covered waste on-site in FY19.

#### 3.4 Onsite Lead Decontamination

No LANL STP-covered waste was decontaminated on-site during FY19.

#### 3.5 Treatability Studies

Respondents conducted no treatability studies in FY19.

### **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 (LLW) may be recharacterized as MLLW. (Appendices C and G).

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

During the preparation of the FY19 STP Annual Update, Respondents 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 FY19, the availability of commercial and federal facility off-site treatment and disposal capacity for MLLW remained stable. As a result of DOE's increasing reliance on commercial treatment and disposal for mixed wastes, nearly all funding for on-site technology development has been prioritized to support off-site 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**

Respondents continue to monitor the development of potential treatment technologies that may become available in the future. Some of these technologies are being developed at LANL and at other DOE sites. Respondents developed a treatment method to address the type of TRU waste associated with the February 14, 2014, release of radioactivity at WIPP. The treatment process was approved and was utilized to address remediated nitrate salt and above ground unremediated nitrate salt waste in 2017 and 2018, as required by the January 22, 2016, Settlement Agreement and Stipulated Final Order, 14-20 (CO) between DOE/LANS and NMED's Hazardous Waste Bureau (HWB).

##### **4.1.1 Off-site Commercial Treatment Facilities**

Respondents continue to monitor the availability and capabilities of off-site 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 Off-site DOE Treatment Facilities**

Respondents continue to monitor the availability and capabilities of off-site DOE facilities for treatment technologies and permitting that are appropriate to LANL waste.

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

Funding to implement the LANL STP for mixed waste during FY19 was sufficient to meet all compliance dates as required by the CP of the STP. FY19 funding is available to support all compliance dates established in the STP. Should funding reductions occur that would affect STP compliance dates, DOE 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 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 FY19.

## **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 waste in shipments from off-site DOE facilities. In 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 these events, and the potential need to re-remediate all nitrate salt-bearing waste, NMED determined that the removal of MTRU from the STP be deferred until more information became available; NMED also determined that the remaining abovegrade waste stored at the Waste Control Specialists, LLC (WCS) facility and WIPP would not be returned to LANL until approval to relocate below grade was obtained. All shipments of MTRU covered waste inventory to WIPP were suspended between May 2014 and July 2018, due to the WIPP shutdown. WIPP resumed operations in July 2018.

### **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 in Section 6.1, 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 FY19**

During FY19, 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, 2018, and September 30, 2019, Respondents communicated with NMED on issues related to the following:

- FY19 waste shipment notifications
- FY19 expedited waste shipment notifications

This correspondence is listed in Appendix I (Tables I-2 and I-3). 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 30.0 in accordance with FFCO Section IX, *Deletion of Waste*. These deletions are proposed because the wastes were shipped off-site 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 FY18 and were proposed to become covered wastes in FY19. These covered wastes are included in Appendixes A and 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

Funding to implement the LANL STP for mixed waste during FY19 was sufficient to meet all compliance dates as required by the CP of the STP. FY19 funding is available to support all compliance dates established in the STP. Should funding reductions occur that would affect STP compliance dates, Respondents will notify NMED to address compliance schedules and activities.

DOE/Triad is proposing to revise the following two milestones: (1) **Activity Table 3.2-3(A)** to “complete shipping of wastes to an off-site treatment facility, or submit documentation assigning waste items to applicable treatability groups or complete parallel option” refers to the treatment and disposal of the four flanged tritium waste containers (FTWCs) and (2) **Activity Table 4.0-2(B)** to “complete transfer of Metallic Waste (CVD) to CMR for material retrieval.”

DOE/Triad expects to be able to complete the treatment and disposal of the FTWCs by September 29, 2021, and the transfer of the last Confinement Vessel Disposition (CVD) to CMR for material retrieval by October 31, 2021.

##### I. Compliance Dates and Waste Description

**Activity Table 3.2-3(A):** The four FTWCs are waste composed of molecular sieves and squib assemblies containing lead with very high tritium. The Permittees intended to complete the project within 180 days after the approval of the “Temporary Authorization Waste Treatment, Storage, and Repackaging of Flanged Tritium Waste Containers” (Temporary Authorization; LA-UR-19-24513, submitted to NMED on June 18, 2019) by NMED. The fifth container of mercury and tritium contaminated cryotrap, originating from experimental activities at the Ion Beam Facility, is presently situated in the same location as the four FTWCs containers. Because of the presence of elemental mercury in the fifth container, sorting and segregation as described in the Temporary Authorization is not appropriate for this waste. This waste is also under the same compliance date of September 29, 2020, as the FTWCs, but this container will require further discussion and planning toward options for a path forward that has not been acted on to date. Therefore, the fifth container (cryotrap waste) will also be included in the FTWCs extension request.

Current compliance date: September 29, 2020.

Proposed Revision 30.0 compliance date: September 29, 2021.

**Activity Table 4.0-2(B):** The CVD project involves the recovery of materials and waste from confinement vessels stored at TA-55. The vessels contain important programmatic materials that can be recovered and used in current DOE National Security programs. The tenth CVD was not of the same design as the previous nine CVDs and therefore the CMR’s current documented safety analysis (DSA) would need to be updated to accommodate the design change for the tenth CVD.

Current compliance date: October 31, 2020.

Proposed Revision 30.0 compliance date: October 31, 2021.

## II. Disposal/Recovery/Treatment Process

**Activity Table 3.2-3(A):** The four FTWCs need to be vented at TA-54 and processed at the Weapons Engineering Tritium Facility (WETF) under the Temporary Authorization. The FTWCs require treatment by venting, storage, sorting, segregation and repackaging. The Temporary Authorization allowed these activities to be performed in appropriate locations to ensure the FTWCs can be safely processed and shipped to an off-site treatment, storage, and disposal facility.

**Activity Table 4.0-2(B):** Presently, LANL's inventory of CVD waste consists of one remaining container with a volume of 3.199 m<sup>3</sup> located at TA-55. The description of the treatment process for this waste was described in the "Execution of the Bolas Grande Project at Los Alamos National Laboratory" which was attached to the letter sent to NMED on September 8, 2009 (ENV-RRO-09-061). NMED's approval letter was dated December 4, 2009, LANL-09-050. The approved method includes brushing and vacuuming used to remove radiologically contaminated materials and wastes from the interior surfaces of the confinement vessels. The project involved performing the following steps on each vessel: (1) emptying the vessel of its contents, (2) sorting and segregating the programmatically valuable material from the other material in the vessel, (3) decontaminating the vessel to LLW levels if technically possible, and (4) dispositioning the removed waste and the emptied vessel in accordance with current radioactive and hazardous waste regulatory requirements. The project is being executed in the CMR Building at LANL. The most efficient and reliable method for disposal of the cleaned-out vessels is size reduction and disposal as TRU waste. Once the DSA has been approved, CMR will have to reevaluate their operations according to the design of the tenth CVD in order to process this item through the material recovery reprocessing project. Once the tenth CVD is transported from TA-55 to the CMR, it will be removed from the STP because it will no longer be considered waste and will be considered as material for the recovery project.

## III. Justification for Milestone Extension

**Activity Table 3.2-3(A):** As the four FTWCs need to be vented at TA-54 and processed at the WETF under the Temporary Authorization within 180 days, this activity was placed on hold as of March 24, 2020. Triad has reduced its number of staff to a minimum safe and secure working status due to the COVID-19 stay-at-home order promulgated by the Governor of New Mexico.

**Activity Table 4.0-2(B):** The tenth CVD is designed differently compared with the previous nine CVDs. The previous nine CVDs have been sent to the CMR and processed through the material recovery reprocessing project. Specifically, the tenth CVD ports are significantly different from the other nine, which will drive LANL to reevaluate the processing operations at the CMR.

Because of the different design port features of the tenth CVD, a new safety basis evaluation needed to be done. The design features of the tenth CVD required

- new scope and sequence of planned operations,
- assumptions about the characteristics of the tenth sphere (its similarities with previous CVD evolutions),
- preliminary hazard analysis strategies,
- potential technical safety requirement changes, and
- potential strategies for how to prepare and format the safety basis changes for submittal to the NNSA.

The transport of the tenth CVD to the CMR is on hold until further notice due to the New Mexico State COVID stay-at-home restriction order enacted on March 24, 2020. Triad has implemented this order and changed facility operations from normal to "limited operations" resulting in only approved essential staff on-site performing critical mission work. In addition to the prerequisite processes mentioned in the bullets above, a change to the CMR's safety basis DSA must be completed prior to CMR receiving the tenth CVD.

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.

Respondents are 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 off-site shipments during FY19 and other changes in the STP inventory.
- On July 10, 2019, a letter (EPC-DO:19-226, LA-UR-19-25967) was sent to NMED requesting an extension of compliance dates for Activity Table 3.2-3 (A) from September 29, 2019, to September 29, 2020. The notification for this request is noted in the FY18 STP Annual Report, although the extension request occurred in FY19. The requested milestone extension is based on the proposed activities for the four FTWCs that are described in the Temporary Authorization.

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

Respondents are 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" is 23.948 m<sup>3</sup> (Table 6.1.1-1).

Table 6.1.1-1 Proposed Addition of New-Covered MLLW Waste

CP Section	MWIR <sup>1</sup> Waste ID	Treatability Group	Volume (m <sup>3</sup> )
3.1.5	LA-W921	Activated or Inseparable Lead (Triad)	2.700
3.3.4	LA-W935	10–100 nCi/g Waste (Triad)	0.416
3.3.4	LA-W935	10–100 nCi/g Waste (N3B)	20.832
<b>Total</b>			23.948

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

### 6.1.2 MTRU Waste Additions

The volume of new covered MTRU waste requested for addition is 108.020 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, TA-55, CMR, and TWF

CP Section	Treatability Group	Volume (m <sup>3</sup> )
4.0	TA-54 Cemented Sludge Waste	3.328
4.0	TA-54 Combustible – Noncombustible Waste	30.824
4.0	TA-54 Noncombustible Waste	1.900
4.0	TA-54 Solidified Inorganic Noncombustible Waste	0.624
<b>Total TA-54 New Covered Waste</b>		<b>36.676</b>
4.0	TA-55 Combustible-Noncombustible Waste S5400	43.056
4.0	TA-55 Combustible Waste S5300	1.248
4.0	TA-55 Noncombustible Waste S3100	5.200
4.0	TWF Combustible-Noncombustible Waste S5400	21.840
<b>Total CMR/TA-55/TWF New Covered Waste</b>		<b>71.344</b>
<b>Total New Covered Waste</b>		<b>108.020</b>

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

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
	<b>Total Newly Characterized MTRU</b>	<b>0.00</b>

## 6.2 Deletion of Covered Waste

MLLW is shipped off-site for treatment and/or disposal, recycling, or are otherwise proposed as deleted waste. MTRU is shipped to WIPP for disposal.

### 6.2.1 Deletion of MLLW

Respondents are requesting that the covered MLLW identified in Appendix B be deleted from the STP. These covered waste were shipped off-site for treatment and disposal or recycling. The total volume of covered MLLW that is requested for deletion under this revision to the CP is 2.908 m<sup>3</sup> (Appendix B, Table B-1).

### 6.2.2 Deletion of MTRU Waste

Respondents are requesting that the covered MTRU waste identified in Appendix F be deleted from the STP. These covered wastes from N3B and Triad were shipped off-site from WCS to WIPP for disposal. The total volume covered MTRU that is requested for deletion from inventory under this revision to the CP is 130.596 m<sup>3</sup> (Appendix F, Table F-1).

### 6.2.3 Other Deletions of FY19 Waste

No waste is proposed for deletion due to recycling or on-site treatment in FY19. No waste was shipped off-site for treatability studies.

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

Respondents are 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

Respondents are 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**

Respondents are 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**

DOE/Triad is proposing to revise two milestones: (1) **Activity Table 3.2-3(A)** to “complete shipping of wastes to an off-site treatment facility, or submit documentation assigning waste items to applicable treatability groups or complete parallel option” refers to the treatment and disposal of the four FTWCs and (2) **Activity Table 4.0-2(B)** to “complete transfer of Metallic Waste (CVD) to CMR for material retrieval.” Refer to Part II, Section 5.0.

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

Waste that was newly generated in FY18, which was not treated within 12 months of generation, became new-covered waste during FY19. 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 off-site commercial facilities during FY19. Deletion of this covered waste is proposed to more accurately reflect the LANL STP inventory as of the end of FY19

### **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 FY19.

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

In accordance with FFCO Section X.C.2.c, Respondents 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.

## **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 30.0**

### **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 off-site 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 on-site, 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 on-site, 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

Off-site 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 off-site for recycling are discussed under Part III, Section 2.6. All activities and compliance dates related to the construction, permitting, and operation of on-site treatment skids were removed from this document. This change was due to the increased availability of off-site treatment and disposal capacity for mixed waste. Respondents will continue evaluating new commercial and DOE off-site treatment facilities as potential options for managing mixed waste, as they become available.

## 2.3 Plans for Mixed Waste to be Shipped Off-site for Treatment

Should Respondents decide to treat or recycle waste at a commercial off-site facility (Table 2.3-1), Respondents will notify the NMED STP 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 Off-site 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 off-site facility for treatment or recycling within 45 working days of receipt of waste at the treatment facility.

DOE shall notify the NMED STP 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 STP Manager shall approve in writing the proposed off-site noncommercial treatment option proposed by DOE prior to any shipment by DOE. DOE will notify the NMED STP 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 off-site for treatment/recycling at a noncommercial facility are identified in Table 2.3-2.

Table 2.3-2 *Activities for Shipment Off-site 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 off-site shipment.
C.	Provide documentation to NMED of confirmation of shipment date within 14 working days prior to sending waste to an off-site facility for treatment, or recycling, or storage pending treatment, or recycling.
D.	Provide documentation to NMED that waste has been received at an off-site facility for treatment within 45 working days of receipt of waste at the off-site 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 off-site 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 FFCRA 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.

Respondents will notify NMED when off-site 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 off-site treatability study, Respondents will evaluate the potential for incidental waste treatment or secondary waste generation, which are often associated with treatability studies.

## **2.6 Recycling/Re-Use**

Respondents will pursue on-site or off-site 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 off-site 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.

Respondents shall notify the NMED STP Manager in writing as soon as possible if mixed waste is planned to be sent to an off-site 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 STP Manager shall approve in writing the proposed off-site noncommercial recycling option prior to any shipment by Respondents. Respondents will notify the NMED STP 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*

A.	Meet all regulatory requirements for recycling/re-use.
B.	Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility.

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 off-site for treatment. Respondents 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

Respondents will pursue on-site 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*

A.	Meet all DOE requirements for radiological decontamination.
B.	Provide documentation to NMED that waste has been received within 45 working days of receipt of waste at the recycling facility; or
C.	Propose waste for deletion in accordance with Section IX of the FFCO.

## 3.0 MIXED LOW-LEVEL WASTE STREAMS

This section presents the preferred options to treat MLLW at LANL. 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 off-site 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 off-site 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> )
Aqueous Organic Liquids	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> )
Organic-Contaminated Combustible Solids	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> )
Organic-Contaminated Noncombustible Solids	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> )
<i>Aqueous Wastes With Heavy Metals</i>	LA-W913	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011	0.00
<i>Corrosive Solutions</i>	LA-W914	D001, D002	0.00
<i>Aqueous Cyanides, Nitrates, Chromates, and Arsenates</i>	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> )
<i>Water-Reactive Metal</i>	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)
<i>Compressed Gases Requiring Scrubbing</i>	LA-W917 LA-W917-21 LA-W917-24 LA-W917-25 LA-W917-26 LA-W917-27 LA-W917-28 LA-W917-29	D001, D002, D003, D008, D009, P056	0.624
<b>Totals</b>			<b>0.624</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 off-site treatment facility or complete parallel option.	September 30, 2021
B. Provide documentation to NMED that waste was received at off-site 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.

### 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> )
Lead Wastes - TBD	LA-W924-15	D003, D008	0.00
	LA-W924-16		0.00
	LA-W924-17		0.00
Mercury Wastes – TBD	LA-W925-4	D003, D007, D008, D009 F001, F002, F005	0.00
	LA-W925-5		
	LA-W925-6		
	LA-W925-15		
	LA-W925-16		
	LA-W925-17		
	LA-W925-18		
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	D001, D003, D008, D009	1.477
	LA-W934-16		
	LA-W934-19		
	LA-W934-20		
	LA-W934-24		
	LA-W934-27		
<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 off-site treatment facility, or submit documentation assigning waste items to applicable treatability groups or complete parallel option.	September 29, 2020
B. Provide documentation to NMED that waste was received at off-site facility or provide notification of parallel option.	Within 45 days of receipt of waste at off-site 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>.

On July 10, 2019, a letter (EPC-DO:19-226, LA-UR-19-25967) was sent to NMED requesting an extension of compliance dates for Activity 3.2 (A) from September 29, 2019, to September 29, 2020. The notification for this request is noted in the FY18 STP Annual Report, although the extension request occurred in FY19. The requested milestone extension is based on the proposed activities for the four FTWCs that are described in the “Temporary Authorization Request Waste Treatment, Storage, and Repackaging of Flanged Tritium Waste Containers,” LA-UR-19-24513, submitted to NMED on June 18, 2019. The justification for the extension of Activity 3.2 – specifically LA-W934 High Activity Waste, is that the four FTWCs require treatment by venting, storage, sorting, segregation, and repackaging and these activities are currently in the final planning and scheduling phases. The fifth container of mercury and tritium contaminated cryotrap, originating from experimental activities at the Ion Beam Facility, is presently situated at TA-54, Area G. Due to the presence of elemental mercury, sorting and segregation as described in the technical area is not appropriate for this waste. As this waste is also under the same compliance date of September 29, 2019, this container will require further discussion and planning toward options for a path forward, which has not been acted on to-date. Therefore, LANL will not meet the September 29, 2019, milestone for the remaining *High Activity Waste*.

As of August 14, 2019, NMED has reviewed the Extension Request dated July 8, 2019, and received July 10, 2019 (EPC-DO:19-226, LA-UR-19-25967), and has granted DOE and Triad the extension of a compliance plan milestone in the STP for *High Activity Waste* (LA-W934) from September 29, 2019, to September 29, 2020. This extension is DOE and Triad’s second extension request for compliance dates for Activity 3.2(A) listed in the STP, FY17. The first was received by NMED June 28, 2018. If Triad is unable to meet the deadline, Triad must provide NMED with a status report on the path forward for the mercury and tritium contaminated cryotrap container.

A note from NMED within the above approval letter stated (HWB-LANL-19-040):

*“Requests for extensions are typically included in the annual updates of STP and not as separate extension requests. In future, in accordance with Section X.B.2 of the Federal Facility Compliance Order (FFCO), the Respondents should request extensions during annual updates of the Site Treatment Plan, Fiscal Year Annual Update and Proposed Revisions.”*

DOE/ Triad continues to diligently pursue all possible options to ship the waste off-site 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 off-site 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 on-site in the meantime.

A milestone extension request for September 29, 2021, for LA-W934, Treatability Group – High Activity Waste is proposed as discussed in the Compliance Plan Update Part II, Section 5.0, specifically Activity Table 3.2-3(A).

### 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	0.00	0.00	0.00
	LA-W930-5			
<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 on-site or off-site lead decontamination, and any lead unsuccessfully decontaminated, will be designated in the following two categories: (1) for treatment and disposal at an off-site facility or (2) for recycle through an off-site 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 (m <sup>3</sup> )
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> )
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 LA-W935-29 LA-W935-30	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>246.308</b>
<b>Totals</b>			<b>246.308</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 LLW population, and drums are relabeled appropriately and reclassified from TRU to MLLW in the database.

When a parent waste container is remediated, the waste contents are removed, WIPP waste acceptance criteria 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).

The MLLW drums are prepared for treatment and disposal to an off-site facility using LANL generator acceptable knowledge documentation and real-time radiography and non-destructive assay data. Restrictions imposed in 2015 for movements of LA-W935 waste at TA-54, Area G, were lifted in FY18. Past issues with the Area G Safety Basis were analyzed and corrected.

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

Activity	Compliance Dates
A. Complete radiological characterization.	September 30, 2022
B. Complete shipment of existing waste to off-site facility for treatment, or complete parallel options.	September 30, 2022
C. Provide documentation to NMED that waste was received at off-site 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.

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 off-site treatment and disposal facilities, and will continue to produce 10-100 nCi/g Waste (LA-W935). In 2018, N3B took over the operational responsibility of TA-54. Operational start-up included purchasing and installing treatment equipment and repairing existing deficiencies.

### 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 Respondents determine 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

**Off-site 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 MTRU Waste Campaign (remaining containers at TA-54 and WCS on hold)

MTRU Treatability Group	FY14 Shipped (On Hold) <sup>1</sup> (m <sup>3</sup> )	FY14 in Inventory (Onsite LANL) (m <sup>3</sup> )	FY19 New Covered Volume (m <sup>3</sup> )	FY15–FY18 Removed from Inventory (Reclassified) (m <sup>3</sup> )	FY15–FY18 Shipped (m <sup>3</sup> )	FY19 Shipped (m <sup>3</sup> )	FY19 Remaining in Inventory (Onsite LANL) (m <sup>3</sup> )
Cemented Sludge Waste	18.928	45.740	0.228	-0.644	-8.736	-1.872	<b>53.644</b>
Combustible-Noncombustible Waste	98.914	275.279	5.314	-5.474	-92.050	-6.712	<b>275.271</b>
Noncombustible Waste	0.832	0.738	0	0.000	-0.624	0.000	<b>0.946</b>
Solidified Inorganic Noncombustible Waste	9.380	10.958	0	0.000	-5.106	0.000	<b>15.232</b>
Solidified Inorganic Particulate Waste	23.296	93.296	0	-33.166	0.000	0.000	<b>83.426</b>
<b>TOTALS</b>	<b>151.350</b>	<b>426.011</b>	<b>5.542</b>	<b>-39.284</b>	<b>-106.516</b>	<b>-8.584</b>	<b>428.519</b>

<sup>1</sup>This waste was shipped off-site 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 this waste from the STP inventory is on hold until NMED approval has been 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

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:** The FY19 reported waste volume for STP-covered MTRU inventory is 1751.711 m<sup>3</sup> (Table 2.2-1). At the close of FY19, nine CVDs have been shipped to the CMR with a total volume of 28.791m<sup>3</sup>. This waste is the CVD Project, which was formerly referred to as the Bolas Grande Project. There is one CVD left with a volume of 3.199 m<sup>3</sup> that is located at TA-55. A milestone extension to October 31, 2020 was approved for the removal of the remaining CVDs as shown in Table 4.0-2 (B), which was requested in the FY16 STP Annual Update.

A milestone extension request for October 31, 2021, for the CVD material recovery reprocessing project is proposed as discussed in the Compliance Plan Update Part II, Section 5.0, specifically Activity Table 4.0-2(B).

In FY19, the remaining 345.552 m<sup>3</sup> (Appendix E-2) of the covered MTRU waste inventory at TA-55, CMR, and TWF consists of combustible and noncombustible waste (S5400), combustible-noncombustible organic debris waste (S5300), metallic waste (Non CVD) (S5100), and noncombustible waste (S3100), combustible – noncombustible waste (S5900). This MTRU inventory of waste will not be transferred to TA-54. It will be transported only to the Radioassay and Nondestructive Testing facility for shipment to WIPP.

The de-inventory of TA-54’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 Waste Characterization, Reduction, and Repacking Facility (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 a limited number of waste shipments per week. Respondents resumed shipment of MTRU waste in October 2018.

#### 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 Respondents determine 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 FY19 MLLW Inventory at TA-54, Detailed Update by Treatability Group

CP <sup>1</sup> Section Part III	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY18 Annual Update (m <sup>3</sup> )	Proposed Revision 30.0 (m <sup>3</sup> )	Comments	FY19 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY20 - FY25 (m <sup>3</sup> )
3.1.1	LA-W901	IPA Wastes	0	0		0	0
3.1.1	LA-W902	Scintillation Fluids	0	0		0	0
3.1.2	LA-W903	Lead Blankets	0	0		0	0
3.1.2	LA-W904	Soil with Heavy Metals	0	0		0	0
3.1.2	LA-W905	ER Soils	0	0		0	0
3.1.3	LA-W906	Aqueous Organic Liquids	0	0		0	0
3.1.4	LA-W911	Organic-Contaminated Combustible Solids	0	0		0	0
3.1.4	LA-W919	Organic-Contaminated Noncombustible Solids	0	0		0	0
3.1.5	LA-W912	Combustible Debris	0	0		0	0
3.1.5	LA-W921	Activated or Inseparable Lead	0	0		0	0
3.1.5	LA-W922	Noncombustible Debris	0	0		0	0
3.1.6	LA-W913	Aqueous Wastes with Heavy Metals	0	0		0	0
3.1.6	LA-W914	Corrosive Solutions	0	0		0	0
3.1.6	LA-W915	Aqueous Cyanides, Nitrates, Chromates, and Arsenates	0	0		0	0
3.1.7	LA-W916	Water-Reactive Wastes	0	0		0	0
3.1.8	LA-W917	Compressed Gases Requiring Scrubbing	0.624	0	Administrative adjustment	0.624	0
				0	Shipped off-site for treatment/disposal		
3.1.9	LA-W918	Compressed Gases Requiring Oxidation	0	0		0	0
3.1.10	LA-W920	Elemental Mercury	0	0		0	0
3.1.11	LA-W907	Halogenated Organic Liquids	0	0		0	0
3.1.11	LA-W908	Nonhalogenated Organic Liquids	0	0		0	0
3.1.11	LA-W909	Bulk Oils	0	0		0	0
3.1.11	LA-W910	PCB Wastes with RCRA Components	0	0		0	0
3.1.11	LA-W923	Liquid and Solid Oxidizers	0	0		0	0
3.2	LA-W924	Lead Wastes – TBD	0	0		0	0
3.2	LA-W925	Mercury Wastes – TBD	0	0		0	0

Table A-1 (continued)

CP <sup>1</sup> Section	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY18 Annual Update (m <sup>3</sup> )	Proposed Revision 30.0 (m <sup>3</sup> )	Comments	FY19 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY20 - FY25 (m <sup>3</sup> )
3.2	LA-W926	Compressed Gases – TBD	0	0		0	0
3.2	LA-W927	Biochemical Laboratory Wastes	0	0		0	0
3.2	LA-W928	Dewatered Treatment Sludge	0	0		0	0
3.2	LA-W932	Explosives	0	0		0	0
3.2	LA-W933	Labpacks	0	0		0	0
3.2	LA-W934	High Activity Waste <i>Note: The High Activity Waste composing of the FTWCs and cryotrap are located at TA-54, Area G but are managed by Triad.</i>	1.477	0	Administrative adjustment	1.477	0
				0	Shipped off-site for treatment/disposal		
3.3.1	LA-W930	Lead for Surface Decontamination	0	0		0	0
3.3.2	LA-W929	Nonradioactive or Suspect Waste Items to be Surveyed	0	0		0	0
3.3.3	LA-W931	Lead Requiring Sorting	0	0		0	0
3.3.4	LA-W935	10–100 nCi/g Waste	202.850	20.832	New covered	219.352	50
				-4.122	Administrative adjustment		
				-0.208	Shipped off-site for treatment/disposal		
<b>Totals</b>			<b>204.951</b>	<b>16.502</b>		<b>221.453</b>	<b>50</b>

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

<sup>2</sup> Values were rounded to 3 significant figures after the decimal point.

Table A-2 FY19 MLLW Inventory at CMR, TA-55, and TWF, Detailed Update by Treatability Group

CP <sup>1</sup> Section Part III	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 30.0 (m <sup>3</sup> )	Comments	FY19 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY20 - FY25 (m <sup>3</sup> )
3.1.1	LA-W901	IPA Wastes	0	0		0	0
3.1.1	LA-W902	Scintillation Fluids	0	0		0	0
3.1.2	LA-W903	Lead Blankets	0	0		0	0
3.1.2	LA-W904	Soil with Heavy Metals	0	0	New covered	0	0
				0	Shipped off-site for treatment/disposal		
3.1.2	LA-W905	ER Soils	0	0		0	0

Table A-2 (continued)

CP <sup>1</sup> Section Part III	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 30.0 (m <sup>3</sup> )	Comments	FY19 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY20 - FY25 (m <sup>3</sup> )
3.1.3	LA-W906	Aqueous Organic Liquids	0	0		0	0
3.1.4	LA-W911	Organic-Contaminated Combustible Solids	0	0		0	0
3.1.4	LA-W919	Organic-Contaminated Noncombustible Solids	0	0		0	0
3.1.5	LA-W912	Combustible Debris	0	0		0	0
3.1.5	LA-W921	Activated or Inseparable Lead	0	2.700	New covered	0	0
				-2.700	Shipped off-site for treatment/disposal		
3.1.5	LA-W922	Noncombustible Debris	0	0		0	0
3.1.6	LA-W913	Aqueous Wastes with Heavy Metals	0	0		0	0
3.1.6	LA-W914	Corrosive Solutions	0	0		0	0
3.1.6	LA-W915	Aqueous Cyanides, Nitrates, Chromates, and Arsenates	0	0		0	0
3.1.7	LA-W916	Water-Reactive Wastes	0	0		0	0
3.1.8	LA-W917	Compressed Gases Requiring Scrubbing	0	0		0	0
3.1.9	LA-W918	Compressed Gases Requiring Oxidation	0	0		0	0
3.1.10	LA-W920	Elemental Mercury	0	0		0	0
3.1.11	LA-W907	Halogenated Organic Liquids	0	0	New covered	0	0
				0	Shipped off-site for treatment/disposal		
3.1.11	LA-W908	Nonhalogenated Organic Liquids	0	0		0	0
3.1.11	LA-W909	Bulk Oils	0	0		0	0
3.1.11	LA-W910	PCB Wastes with RCRA Components	0	0		0	0
3.1.11	LA-W923	Liquid and Solid Oxidizers	0	0		0	0
3.2	LA-W924	Lead Wastes – TBD	0	0		0	0
3.2	LA-W925	Mercury Wastes – TBD	0	0		0	0
3.2	LA-W926	Compressed Gases – TBD	0	0		0	0
3.2	LA-W927	Biochemical Laboratory Wastes	0	0		0	0
3.2	LA-W928	Dewatered Treatment Sludge	0	0		0	0
3.2	LA-W932	Explosives	0	0		0	0

Table A-2 (continued)

CP <sup>1</sup> Section Part III	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 30.0 (m <sup>3</sup> )	Comments	FY19 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY20 - FY25 (m <sup>3</sup> )
3.2	LA-W933	Labpacks	0	0		0	0
3.2	LA-W934	High Activity Waste	0	0		0	0
3.3.1	LA-W930	Lead for Surface Decontamination	0	0		0	0
3.3.2	LA-W929	Nonradioactive or Suspect Waste Items to be Surveyed	0	0		0	0
3.3.3	LA-W931	Lead Requiring Sorting	0	0		0	0
3.3.4	LA-W935	10–100 nCi/g Waste	26.540	0.416	New covered	26.956	50
				0	Administrative adjustment		
				0	Shipped off-site for treatment/disposal		
<b>Totals</b>			<b>26.540</b>	<b>0.416</b>		<b>26.956</b>	<b>50</b>

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

<sup>2</sup> Values were rounded to 3 significant figures after the decimal point.

**APPENDIX B CURRENT YEAR MLLW SHIPMENT DETAIL**

Table B-1 LANL MLLW Shipped Off-site for Treatment and Disposal in FY19

CP Section Part III	MWIR* No.	Treatability Group	Manifest Number	Destination	Date Shipped	Total Volume (m <sup>3</sup> )
3.1.5	LA-W921	<i>Activated or Inseparable Lead</i>	006650214FLE (Triad)	Energy Solutions	8/14/2019	1.454
3.1.5	LA-W921	<i>Activated or Inseparable Lead</i>	006650215FLE (Triad)	Energy Solutions	8/19/2019	1.246
3.3.4	LA-W935	<i>10 - 100nCi/g Waste</i>	108220/010505600 FLE (N3B)	Energy Solutions	9/12/2019	0.208
<b>TOTAL</b>						<b>2.908</b>

\* MWIR is Mixed Waste Inventory Report.

Note: Values were rounded to 3 significant figures after the decimal point.

**APPENDIX C CURRENT YEAR MLLW ADMINISTRATIVE ADJUSTMENTS**

*Table C-1 Administrative Adjustments*

CP Section Part III	MWIR* Number	Administrative Adjustment	Volume (m3)
3.3.4	LA-W935	N3B Administrative adjustment	-4.122
3.3.4	LA-W935	Triad Administrative adjustment	0
<b>Total Net Adjustments</b>			<b>-4.122</b>

\*MWIR is Mixed Waste Inventory Report  
 Note: Values were rounded to 3 significant figures after the decimal point.

*Table C-2 Administrative Adjustment – Detail*

CP Section Part III	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
3.3.4	LA-W935	10–100 nCi/g Waste	Triad Reconciled with WCATS inventory	0			
3.3.4	LA-W935	10–100 nCi/g Waste	N3B Reconciled with WCATS inventory	-4.122			
					SB798835	-1.900	Container no longer in inventory. This container originally held MTRU waste and was de-nested in 2013. This container was later rendered as empty and available for possible reuse. Ultimately the container was not reused and was decommissioned on 9/11/2019. This information has been entered into WCATS.

Table C-2 (continued)

CP Section Part III	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
					W800990	-0.322	Container no longer in inventory. The container label/ID # was generated in the database in preparation for MTRU repackaging operations as an empty daughter, but it was never assigned to a physical drum. The container label/ID # was decommissioned in April 2018 and deactivated in the WCATS database.
					W823692	-1.900	This drum was created for potential MTRU waste. After a review of its radiological assay it turned out to be MLLW and not MTRU. Further recharacterization of its contents, bolts, and foam rubber gaskets, it was determined to be LLW and on 7/30/2019 shipped to Energy Solutions for disposal and decommissioned in the WCATS database.
<b>N3B LA-W935 10–100 nCi/g Waste Net Adjustment</b>						<b>-4.122</b>	
<b>Triad LA-W935 10–100 nCi/g Waste Net Adjustment</b>						<b>0</b>	
<b>Total MLLW Adjustment</b>						<b>-4.122</b>	

\*MWIR is Mixed Waste Inventory Report

Note: Values were rounded to 3 significant figures after the decimal point.



**APPENDIX D PREVIOUS YEAR MLLW INVENTORY DETAIL**

Table D-1 FY18 MLLW Inventory at TA-54, Detailed Update by Treatability Group

CP <sup>1</sup> Section	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY17 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 29.0 (m <sup>3</sup> ) <sup>2</sup>	Comments	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY19 - FY21 (m <sup>3</sup> ) <sup>2</sup>
3.1.1	LA-W901	IPA Wastes	0	0		0	0
3.1.1	LA-W902	Scintillation Fluids	0	0		0	0
3.1.2	LA-W903	Lead Blankets	0	0		0	0
3.1.2	LA-W904	Soil with Heavy Metals	0	0		0	0
3.1.2	LA-W905	ER Soils	0	0		0	0
3.1.3	LA-W906	Aqueous Organic Liquids	0	0		0	0
3.1.4	LA-W911	Organic-Contaminated Combustible Solids	0	0		0	0
3.1.4	LA-W919	Organic-Contaminated Noncombustible Solids	0	0		0	0
3.1.5	LA-W912	Combustible Debris	0	0		0	0
3.1.5	LA-W921	Activated or Inseparable Lead	0	0		0	0
3.1.5	LA-W922	Noncombustible Debris	0	0		0	0
3.1.6	LA-W913	Aqueous Wastes with Heavy Metals	0	0		0	0
3.1.6	LA-W914	Corrosive Solutions	0	0		0	0
3.1.6	LA-W915	Aqueous Cyanides, Nitrates, Chromates, and Arsenates	0	0		0	0
3.1.7	LA-W916	Water-Reactive Wastes	0	0		0	0
3.1.8	LA-W917	Compressed Gases Requiring Scrubbing	0.625	-0.001	Administrative adjustment	0.624	0
				0	Shipped off-site for treatment/disposal		
3.1.9	LA-W918	Compressed Gases Requiring Oxidation	0	0		0	0
3.1.10	LA-W920	Elemental Mercury	0	0		0	0
3.1.11	LA-W907	Halogenated Organic Liquids	0	0		0	0
3.1.11	LA-W908	Nonhalogenated Organic Liquids	0	0		0	0
3.1.11	LA-W909	Bulk Oils	0	0		0	0
3.1.11	LA-W910	PCB Wastes with RCRA Components	0	0		0	0
3.1.11	LA-W923	Liquid and Solid Oxidizers	0	0		0	0
3.2	LA-W924	Lead Wastes – TBD	0	0		0	0
3.2	LA-W925	Mercury Wastes – TBD	0	0		0	0

Table D-1 (continued)

CP <sup>1</sup> Section	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY17 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 29.0 (m <sup>3</sup> ) <sup>2</sup>	Comments	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY19 - FY21 (m <sup>3</sup> ) <sup>2</sup>
3.2	LA-W926	Compressed Gases – TBD	0	0		0	0
3.2	LA-W927	Biochemical Laboratory Wastes	0	0		0	0
3.2	LA-W928	Dewatered Treatment Sludge	0	0		0	0
3.2	LA-W932	Explosives	0	0		0	0
3.2	LA-W933	Labpacks	0	0		0	0
3.2	LA-W934	High Activity Waste <i>Note: The High Activity Waste composing of the FTWCs and cryotrap are located at TA-54, Area G but are managed by Triad.</i>	1.477	0	Administrative adjustment	1.477	0
				0	Shipped off-site for treatment/disposal		
3.3.1	LA-W930	Lead for Surface Decontamination	0	0		0	0
3.3.2	LA-W929	Nonradioactive or Suspect Waste Items to be Surveyed	0	0		0	0
3.3.3	LA-W931	Lead Requiring Sorting	0	0		0	0
3.3.4	LA-W935	10–100 nCi/g Waste	172.931	9.027	New covered	202.850	50
				20.892	Administrative adjustment		
				0	Shipped off-site for treatment/disposal		
<b>Totals</b>			<b>175.033</b>	<b>29.918</b>		<b>204.951</b>	<b>50</b>

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

<sup>2</sup> Values were rounded to 3 significant figures after the decimal point.

Table D-2 FY18 MLLW Inventory at CMR, TA-55, and TWF, Detailed Update by Treatability Group

CP <sup>1</sup> Section	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY17 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 29.0 (m <sup>3</sup> ) <sup>2</sup>	Comments	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY19 - FY21 (m <sup>3</sup> ) <sup>2</sup>
3.1.1	LA-W901	IPA Wastes	0	0		0	0
3.1.1	LA-W902	Scintillation Fluids	0	0		0	0
3.1.2	LA-W903	Lead Blankets	0	0		0	0
3.1.2	LA-W904	Soil with Heavy Metals	0	0.076	New covered	0	0
				-0.076	Shipped off-site for treatment/disposal		
3.1.2	LA-W905	ER Soils	0	0		0	0

Table D-2 (continued)

CP <sup>1</sup> Section	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY17 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 29.0 (m <sup>3</sup> ) <sup>2</sup>	Comments	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY19 - FY21 (m <sup>3</sup> ) <sup>2</sup>
3.1.3	LA-W906	Aqueous Organic Liquids	0	0		0	0
3.1.4	LA-W911	Organic-Contaminated Combustible Solids	0	0		0	0
3.1.4	LA-W919	Organic-Contaminated Noncombustible Solids	0	0		0	0
3.1.5	LA-W912	Combustible Debris	0	0		0	0
3.1.5	LA-W921	Activated or Inseparable Lead	0	51.216	New covered	0	0
				-51.216	Shipped off-site for treatment/disposal		
3.1.5	LA-W922	Noncombustible Debris	0	0		0	0
3.1.6	LA-W913	Aqueous Wastes with Heavy Metals	0	0		0	0
3.1.6	LA-W914	Corrosive Solutions	0	0		0	0
3.1.6	LA-W915	Aqueous Cyanides, Nitrates, Chromates, and Arsenates	0	0		0	0
3.1.7	LA-W916	Water-Reactive Wastes	0	0		0	0
3.1.8	LA-W917	Compressed Gases Requiring Scrubbing	0	0		0	0
3.1.9	LA-W918	Compressed Gases Requiring Oxidation	0	0		0	0
3.1.10	LA-W920	Elemental Mercury	0	0		0	0
3.1.11	LA-W907	Halogenated Organic Liquids	0	0.208	New covered	0	0
				-0.208	Shipped off-site for treatment/disposal		
3.1.11	LA-W908	Nonhalogenated Organic Liquids	0	0		0	0
3.1.11	LA-W909	Bulk Oils	0	0		0	0
3.1.11	LA-W910	PCB Wastes with RCRA Components	0	0		0	0
3.1.11	LA-W923	Liquid and Solid Oxidizers	0	0		0	0
3.2	LA-W924	Lead Wastes – TBD	0	0		0	0
3.2	LA-W925	Mercury Wastes – TBD	0	0		0	0
3.2	LA-W926	Compressed Gases – TBD	0	0		0	0
3.2	LA-W927	Biochemical Laboratory Wastes	0	0		0	0
3.2	LA-W928	Dewatered Treatment Sludge	0	0		0	0
3.2	LA-W932	Explosives	0	0		0	0
3.2	LA-W933	Labpacks	0	0		0	0
3.2	LA-W934	High Activity Waste	0	0		0	0

Table D-2 (continued)

CP <sup>1</sup> Section	MWIR <sup>1</sup> Waste ID	Treatability Group/Category	FY17 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Proposed Revision 29.0 (m <sup>3</sup> ) <sup>2</sup>	Comments	FY18 Annual Update (m <sup>3</sup> ) <sup>2</sup>	Projection FY19 - FY21 (m <sup>3</sup> ) <sup>2</sup>
3.3.1	LA-W930	Lead for Surface Decontamination	0	0		0	0
3.3.2	LA-W929	Nonradioactive or Suspect Waste Items to be Surveyed	0	0		0	0
3.3.3	LA-W931	Lead Requiring Sorting	0	0		0	0
3.3.4	LA-W935	10–100 nCi/g Waste	0.000	7.253	New covered	26.540	50
				26.540	Administrative adjustment		
				-7.253	Shipped off-site for treatment/disposal		
<b>Totals</b>			<b>0</b>	<b>26.540</b>		<b>26.540</b>	<b>50</b>

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

<sup>2</sup> Values were rounded to 3 significant figures after the decimal point.

**APPENDIX E CURRENT MTRU INVENTORY DETAIL**

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

Treatability Group	FY18 Annual Update (m <sup>3</sup> ) <sup>1</sup>	Proposed Revision 30.0 (m <sup>3</sup> ) <sup>1</sup>	Comments <sup>2</sup>	FY19 Annual Update (m <sup>3</sup> ) <sup>1</sup>	Projection FY20 – FY25 (m <sup>3</sup> ) <sup>1</sup>
Cemented Sludge Waste	500.420	-1.872	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	462.284	0
		-1.040	FY14 Shipped Off-site on Hold <sup>4</sup>		
		3.328	New Covered		
		-29.858	Shipped to WIPP		
		-11.606	Administrative Adjustments		
Combustible Waste	0	0	New Covered	0	0
		0	Shipped to WIPP		
		0	Administrative Adjustments		
Combustible – Noncombustible Waste	748.735	-6.712	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	759.387	100
		-1.248	FY14 Shipped Off-site on Hold <sup>4</sup>		
		30.824	New Covered		
		-17.044	Shipped to WIPP		
		-3.128	Administrative Adjustments		
Glass Waste	0	0	New Covered	0	0
		0	Shipped to WIPP		
		0	Administrative Adjustments		
Leaded Glovebox Waste	0	0	New Covered	0	0
		0	Shipped to WIPP		
		0	Administrative Adjustments		
Metallic Waste	0	0	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	0	0
		0	FY14 Shipped Off-site on Hold <sup>4</sup>		
		0	New Covered		
		0	Shipped to WIPP		
		0	Administrative Adjustments		
Noncombustible Waste	2.818	0	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	4.718	100
		0	FY14 Shipped Off-site on Hold <sup>4</sup>		
		1.900	New Covered		
		0	Shipped to WIPP		
		0	Administrative Adjustments		

Table E-1 (continued)

Treatability Group	FY18 Annual Update (m <sup>3</sup> ) <sup>1</sup>	Proposed Revision 30.0 (m <sup>3</sup> ) <sup>1</sup>	Comments <sup>2</sup>	FY19 Annual Update (m <sup>3</sup> ) <sup>1</sup>	Projection FY20 – FY21 (m <sup>3</sup> ) <sup>1</sup>
Solidified Inorganic and Organic Waste	0	0	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	0	0
		0	FY14 Shipped Off-site on Hold <sup>4</sup>		
		0	New Covered		
		0	Shipped to WIPP		
		0	Administrative Adjustments		
Solidified Inorganic Noncombustible Waste	86.212	0	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	86.836	0
		0	FY14 Shipped Off-site on Hold <sup>4</sup>		
		0.624	New Covered		
		0	Shipped to WIPP		
		0	Administrative Adjustments		
Solidified Inorganic Particulate Waste	99.516	0	3706 Above-ground EM Legacy TRU (MTRU waste only) <sup>3</sup>	92.934	0
		0	FY14 Shipped Off-site on Hold <sup>4</sup>		
		0	New Covered		
		0	Shipped to WIPP		
		-6.582	Administrative Adjustments		
<b>Total FY18 Inventory</b>	<b>1437.701</b>	<b>Total FY19 Inventory</b>		<b>1406.159</b>	<b>200</b>

Note 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> and SWB=1.9m<sup>3</sup>.

<sup>1</sup> Volumes are represented to three decimal places.

<sup>2</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G.

<sup>3</sup> Amount already included in the MTRU STP covered inventory.

<sup>4</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 off-site facility is determined. Amount already included in the MTRU STP covered inventory.

Table E-2 Triad MTRU Inventory at TA-55, CMR, and TWF

Location	FY18 MTRU Inventory (m <sup>3</sup> ) <sup>1</sup>	Treatability Group	Proposed Revision 30.0 (m <sup>3</sup> ) <sup>1</sup>	Comments <sup>2</sup>	FY19 MTRU Inventory (m <sup>3</sup> ) <sup>1</sup>
CMR	37.955	S5400 Combustible-Noncombustible Waste	0	New Covered	
<b>Total FY19 CMR S5400 -Combustible-Noncombustible Waste Inventory</b>					<b>37.955</b>
CMR	0.208	S5300 Combustible – Noncombustible Organic Debris Waste	0	New Covered	
<b>Total FY19 CMR S5300 Combustible - Noncombustible Organic Debris Waste Inventory</b>					<b>0.208</b>
<b>Total FY19 CMR Inventory</b>					<b>38.163</b>
TA-55	231.042	S5400 Combustible-Noncombustible Waste	43.056	New Covered	
		Quarter 3 (21.860) and Quarter 4 (61.834)	-83.694	Shipped to WIPP	
<b>FY19 TA-55 S5400 Combustible-Noncombustible Waste Inventory</b>					<b>190.404</b>
TA-55	19.982	S5300 Combustible Waste	1.248	New Covered	
<b>FY19 TA-55 S5300 Combustible Waste Inventory</b>					<b>21.230</b>
TA-55	6.398	Metallic Waste (CVD )	-3.199	Shipped to CMR Nine CVDs were shipped from FY14 through 2019 – 28.791 m <sup>3</sup> . There is one CVD left in FY19 STP inventory (3.199 m <sup>3</sup> ). Total m <sup>3</sup> for all ten CVDs is 31.99 m <sup>3</sup> . Nine CVDs already removed from the STP 28.791 m <sup>3</sup> ; therefore, one CVD remaining is 3.199 m <sup>3</sup> .	
<b>FY19 TA-55 Metallic (CVD) Waste Inventory</b>					<b>3.199</b>
TA-55	0.416	S5100 Metallic Waste	0	New Covered	
<b>FY19 TA-55 S5100 Metallic Waste Inventory</b>					<b>0.416</b>
TA-55	34.108	S3100 Noncombustible Waste	5.200	New Covered	
<b>FY19 TA-55 S3100 Noncombustible Waste Inventory</b>					<b>39.308</b>
TA-55	0.208	S5900 Combustible-Noncombustible Waste	0	New Covered	
<b>FY19 TA-55 S5900 Combustible-Noncombustible Waste Inventory</b>					<b>0.208</b>
<b>Total FY19 TA-55 Inventory</b>					<b>254.765</b>

Table E-2 (continued)

Location	FY18 MTRU Inventory (m <sup>3</sup> ) <sup>1</sup>	Treatability Group	Proposed Revision 30.0 (m <sup>3</sup> ) <sup>1</sup>	Comments <sup>2</sup>	FY19 MTRU Inventory (m <sup>3</sup> ) <sup>1</sup>
TWF	25.168	S5400 Combustible-Noncombustible Waste	21.84	New Covered	
<b><i>FY19 TWF S5400 Combustible-Noncombustible Waste Inventory</i></b>					<b>47.008</b>
TWF	5.616	S5300 Combustible-Noncombustible Organic Debris Waste	0	New Covered	
<b><i>FY19 TWF S5300 Combustible-Noncombustible Organic Debris Waste Inventory</i></b>					<b>5.616</b>
<b>Total FY19 TWF Inventory</b>					<b>52.624</b>
<b><i>Total FY18 TA-55 and CMR Inventory 361.101</i></b>					
<b><i>Total FY19 TA-55, CMR, and TWF Inventory</i></b>					<b>345.552</b>

Note 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>; and SWB = 1.9 m<sup>3</sup>.

<sup>1</sup> Volumes are represented to three decimal places.

<sup>2</sup> Shipping details are found in Appendix F and Administrative Adjustments are found in Appendix G.



**APPENDIX F FY19 MTRU WASTE SHIPMENTS TO WIPP**

Table F-1 FY19 MTRU Shipments to WIPP

<b>FY19 Quarter</b>	<b>Treatability Group</b>	<b>Existing FY18 Inventory Volume (m<sup>3</sup>)</b>	<b>New-Covered (m<sup>3</sup>)</b>	<b>Total Removed from Inventory (m<sup>3</sup>)</b>	<b>FY19 Total Volume Shipped (m<sup>3</sup>)<sup>1</sup></b>
Q1	Cemented Sludge Waste	6.656	0	6.656	6.656
	Combustible- Noncombustible Waste	0	0	0	0
	Noncombustible Waste	0	0	0	0
	Solidified Inorganic Noncombustible Waste	0	0	0	0
Q2	Cemented Sludge Waste	0	0	0	0
	Combustible- Noncombustible Waste	0	0	0	0
	Noncombustible Waste	0	0	0	0
	Solidified Inorganic Noncombustible Waste	0	0	0	0
Q3	Cemented Sludge Waste	19.874	0	19.874	19.760
	Combustible- Noncombustible Waste	29.460	0	29.460	29.460
	Noncombustible Waste	0	0	0	0
	Solidified Inorganic Noncombustible Waste	0	0	0	0
Q4	Cemented Sludge Waste	3.328	0	3.328	3.328
	Combustible- Noncombustible Waste	71.278	0	71.278	71.278
	Noncombustible Waste	0	0	0	0
	Solidified Inorganic Noncombustible Waste	0	0	0	0
<b>Grand Total</b>		<b>130.596</b>	<b>0</b>	<b>130.596</b>	<b>130.482</b>

Note: This table includes shipments from WCS, N3B, and Triad.

<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

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> ) <sup>1</sup>	New Covered Volume (m <sup>3</sup> )	Inventory on Hold in FY18 (m <sup>3</sup> )	Total Volume Removed from Inventory FY19 (m <sup>3</sup> )	Inventory on Hold in FY19 (m <sup>3</sup> )
Q3 <sup>2</sup>	Cemented Sludge Waste	22.256	0	11.856	-1.040	10.816
	Combustible-Noncombustible Waste	99.954	0	7.488	-1.248	6.240
	Noncombustible Waste	0.832	0	0.208	0	0.208
	Solidified Inorganic Noncombustible Waste	9.380	0	4.274	0	4.274
	Solidified Inorganic Particulate Waste	23.296	0	23.296	0	23.296
<b>Grand Total</b>		<b>155.718</b>	<b>0</b>	<b>47.122</b>	<b>-2.288</b>	<b>44.834</b>

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

<sup>2</sup> All shipment dates of TRU containers to WCS were in FY14 Q3.

Table F-3 FY14 MTRU Shipments to AMWTP (INL)

FY14 Quarter	Treatability Group	Existing FY14 Inventory Volume (m <sup>3</sup> ) <sup>1</sup>	New Covered Volume (m <sup>3</sup> )	Total Inventory on Hold (m <sup>3</sup> )	Total Volume Shipped (m <sup>3</sup> )	Total Disposed in FY19 (m <sup>3</sup> )
Q1	Combustible-Noncombustible Waste Total	0	0	0	0	0
Q2	Combustible-Noncombustible Waste Total	0	0	0	0	0
Q3	Combustible-Noncombustible Waste Total	0	0	0	0	0
Q4	Combustible-Noncombustible Waste Total	0	0	0	0	0
<b>(See Note) Grand Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

Table F-4 FY14 On Hold MTRU Shipments to WCS and then to WIPP<sup>1</sup>

Treatability Group	FY14 on Hold Shipped to WCS in FY14 Q3 (m <sup>3</sup> )	FY14 on Hold New Covered at WCS from FY15 - FY19 (m <sup>3</sup> )	FY14 on Hold Remaining at WCS in FY18 (m <sup>3</sup> )	FY14 on Hold Removed from Inventory (Shipped from WCS to WIPP in FY19 by Quarter) (m <sup>3</sup> )		FY14 on Hold Remaining at WCS in FY19 (m <sup>3</sup> )
				Q1	Q2	
Cemented Sludge Waste	22.256	0	11.856	Q1	0	10.816
				Q2	0	
				Q3	0	
				Q4	-1.040	
Combustible-Noncombustible Waste	99.954	0	7.488	Q1	0	6.240
				Q2	0	
				Q3	0	
				Q4	-1.248	
Noncombustible Waste	0.832	0	0.208	Q1	0	0.208
				Q2	0	
				Q3	0	
				Q4	0	
Solidified Inorganic Noncombustible Waste	9.380	0	4.274	Q1	0	4.274
				Q2	0	
				Q3	0	
				Q4	0	
Solidified Inorganic Particulate Waste	23.296	0	23.296	Q1	0	23.296
				Q2	0	
				Q3	0	
				Q4	0	
<b>Grand Total</b>	<b>155.718</b>	<b>0</b>	<b>47.122</b>		<b>-2.288</b>	<b>44.834</b>

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

**APPENDIX G CURRENT YEAR MTRU INVENTORY – ADMINISTRATIVE ADJUSTMENTS**

Table G-1 FY19 MTRU Administrative Adjustments to TA-54 Inventory

Treatability Group	Administrative Adjustment	Volume (m3)
Cemented Sludge Waste	3706 Above-ground EM Legacy TRU (MTRU waste only)	0
	- Shipped off-site from WCS to WIPP	-1.040
	Repackaged	-11.606
<b>Cemented Sludge Waste Net Adjustment</b>		<b>-11.606</b>
Combustible-Noncombustible Waste	3706 Above-ground EM Legacy TRU (MTRU waste only)	0
	- Shipped off-site from WCS to WIPP	-1.248
	Repackaged	-3.128
<b>Combustible-Noncombustible Waste Net Adjustment</b>		<b>-3.128</b>
Metallic Waste	Repackaged	0
<b>Metallic Waste Net Adjustment</b>		<b>0</b>
Noncombustible Waste	3706 Above-ground EM Legacy TRU (MTRU waste only)	0
	FY14 Shipped Off-site on Hold	0
	Repackaged	0
<b>Noncombustible Waste Net Adjustment</b>		<b>0</b>
Solidified Inorganic and Organic Waste	3706 Above-ground EM Legacy TRU (MTRU waste only)	0
	FY14 Shipped Off-site on Hold.	0
	Repackaged	0
<b>Solidified Inorganic and Organic Waste Net Adjustment</b>		<b>0</b>
Solidified Inorganic Noncombustible Waste	3706 Above-ground EM Legacy TRU (MTRU waste only)	0
	FY14 Shipped Off-site on Hold	0
	Repackaged	0
<b>Solidified Inorganic Noncombustible Waste Net Adjustment</b>		<b>0</b>
Solidified Inorganic Particulate Waste	3706 Above-ground EM Legacy TRU (MTRU waste only)	0
	FY14 Shipped Off-site on Hold	0
	Repackaged	-6.582
<b>Solidified Inorganic Particulate Waste Net Adjustment</b>		<b>-6.582</b>
<b>Total Net TA-54 Adjustment</b>		<b>-21.316</b>

Table G-2 FY19 MTRU Administrative Adjustments for TA-55, CMR, and TA-55 Inventory

Location	Treatability Group	Administrative Adjustment	Volume (m <sup>3</sup> )
CMR	S5400 - Combustible-Noncombustible Waste		0
<i>Net Adjustment CMR S5400 Combustible-Noncombustible Waste Inventory</i>			<b>0</b>
CMR	S5300 - Combustible-Noncombustible Organic Debris Waste		0
<i>Net Adjustment CMR S5300 Combustible-Noncombustible Organic Debris Waste Inventory</i>			<b>0</b>
TA-55	S5400 - Combustible-Noncombustible Waste		0
<i>Net Adjustment TA-55 S5400 Combustible-Noncombustible Waste</i>			<b>0</b>
TA-55	S5300 - Combustible - Noncombustible Waste		0
<i>Net Adjustment TA-55 S5300 Combustible - Noncombustible Waste</i>			<b>0</b>
TA-55	Metallic Waste - CVD		0
<i>Net Adjustment TA-55 Metallic Waste (CVD)</i>			<b>0</b>
TA-55	S5100 Metallic Waste		0
<i>Net Adjustment TA-55 S5100 Metallic Waste</i>			<b>0</b>
TA-55	S5900 - Combustible - Noncombustible Waste		0
<i>Net Adjustment TA-55 S5900 Combustible - Noncombustible Waste</i>			<b>0</b>
TA-55	S3100 Noncombustible Waste		0
<i>Net Adjustment TA-55 S3100 Noncombustible Waste</i>			<b>0</b>
TWF	S5400 Combustible-Noncombustible Waste		0
<i>Net Adjustment TWF S5400 Combustible-Noncombustible Waste</i>			<b>0</b>
TWF	S5300 Combustible-Noncombustible Organic Debris Waste		0
<i>Net Adjustment TWF S5300 Combustible-Noncombustible Organic Debris Waste</i>			<b>0</b>
<i>Total Net TA-55, CMR and TWF Adjustments</i>			<b>0</b>

**APPENDIX H MLLW TREATMENT FACILITIES**

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

Commercial Facility	Location
<p>Perma-Fix                      (including Material &amp; Energy Corporation in Tennessee; Diversified Scientific Services, Inc. in Tennessee; and Perma-Fix North West in Washington; and Perma-Fix Florida in Gainesville, Florida)</p> <p>Perma-Fix has permitted treatment facilities for the treatment of low-level radioactive and low-level mixed waste. The facilities can perform to include thermal treatment, compaction, macroencapsulation, neutralization, and stabilization. All are licenced within their respective State of location under the Nuclear Regulatory Commission regulations and permitted under the RCRA regulations</p>	<p>Florida,                      Washington                      and                      Tennessee</p>
<p>Waste Control Specialists (WCS)</p> <p>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.</p>	<p>Texas</p>
<p>Energy Solutions of Utah                      (including Bear Creek Operations in Tennessee)</p> <p>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.</p>	<p>Utah</p>
<p>Nuclear Fuel Services</p>	<p>Tennessee</p>
<p>Integrated Environmental Services</p>	<p>Tennessee</p>
<p>NSSI</p>	<p>Texas</p>

**APPENDIX I CORRESPONDENCE**

*Table I-1 FY19 Triad Expedited Shipment Letters*

<b>Letter Date</b>	<b>Description</b>	<b>Letter Number</b>	<b>Revision Reference</b>
1/7/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 18-438	30
3/7/2019	Resubmittal of the Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 19-063	30
5/21/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 19-154	30
6/5/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 19-171	30
8/27/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 19-273	30
8/27/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 19-277	30
9/19/2019	Notice of Completion of Expedited Off-Site Waste Shipment Activity 3.3.4 (B and C), Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory	EPC-DO: 19-317	30

*Table I-2 FY19 Correspondence from DOE/NNSA/Triad*

<b>Letter Date</b>	<b>Description</b>	<b>Letter Number</b>	<b>Revision Reference</b>
10/30/2018 & 1/10/2019	Resubmittal of Site Treatment Plan, Fiscal Year 2017 Annual Update and Proposed Revision 28.0, Federal Facility Compliance Order, October 4, 1995, Los Alamos National Laboratory AND Response to the December 6, 2018, Disapproval of the Site Treatment Plan, Fiscal Year 2017 Annual Update and Proposed Revision 28.0, Federal Facility Compliance Order, October 4, 1995, Los Alamos National Laboratory (For these two dates – we used the same “Letter Number” for both correspondence)	EPC-DO: 18-396	30
12/4/2018	Notification of Modification To The Los Alamos National Laboratory Site Treatment Plan, Federal Facility Compliance Order.	EPC-DO: 18-370	30
1/7/2019	15-Day Notification, Proposed Deletion of Waste From The Los Alamos National Laboratory Site Treatment Plan, Federal Facility Compliance Order (FFCO)	EPC-DO: 18-457	30

Table I-2 (continued)

Letter Date	Description	Letter Number	Revision Reference
1/7/2019	Request for Extension of Time to Respond to NMED Disapproval of Site Treatment Plan Fiscal Year 2017 Annual Update and Proposed Revision 28.0, Federal Facility Compliance Order.	EPC-DO: 19-001	30
1/9/2019	Notification of Change of Project Manager - Site Treatment Plan (STP), Federal Facility Compliance Order (FFCO), Los Alamos National Laboratory (LANL)	EPC-DO: 19-004	30
3/7/2019	Resubmittal of Site Treatment Plan (STP), Fiscal Year 2017 Update and Proposed Revision 28.0, Federal Facility Compliance Order, October 4, 1995, Los Alamos National Laboratory	EPC-DO: 19-068	30
5/9/2019	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	EPC-DO: 19-144	30
7/8/2019	Proposed Extension of Compliance Dates for Activity 3.2 (A) In The Los Alamos National Laboratory Site Treatment Plan (STP) Fiscal Year 2017 (FY17) Revision 28.0	EPC-DO: 19-226	30

Table I-3 FY19 Correspondence from DOE EM-LA/N3B

Letter Date	Description	Letter Number	Revision Reference
11/7/2018	Notice of Completion of Off-Site Waste Shipments for the Fourth Quarter of Fiscal Year 2018 for Los Alamos National Laboratory as Required by the Federal Facility Compliance Order Site Treatment Plan, Compliance Plan, Activity 4.0	EMID-700122 N3B-18-0305	30
1/14/2019	Notice of Completion of Off-Site Waste Shipment Activity in the Compliance Plan, Site Treatment Plan, Activity 4.0	EMID-700187 N3B-19-0006	30
1/30/2019	Notice of Completion of Off-Site Waste Shipment Activity for December 20, 2018, as Required by the Federal Facility Compliance Order, Site Treatment Plan, Compliance Plan, Section 4.0	EMID-700213 N3B-19-0030	30
2/13/2019	Notice of Completion of Off-Site Waste Shipments for the First Quarter of Fiscal Year 2019 for Los Alamos National Laboratory as Required by the Federal Facility Compliance Order Site Treatment Plan, Compliance Plan, Activity 4.0	EMID-700228 N3B-19-0031	30
3/1/2019	Request for Extension for Submittal of Site Treatment Plan, Fiscal Year 2018, Update and Proposed Revision 29.0, Federal Facility Compliance Order	EMID-700311 N3B-19-0058	30
5/9/2019	Second Request for Extension for Submittal of Site Treatment Plan, Fiscal Year 2018, Update and Proposed Revision 29.0, Federal Facility Compliance Order	EMID-700432 N3B-19-0141	30
5/9/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [April 4, 2019, shipment]	EMID-700433 N3B-19-0124	30
5/14/2019	Notice of Completion of Off-Site Waste Shipments for the Second Quarter of Fiscal Year 2019 for Los Alamos National Laboratory as Required by the Federal Facility Compliance Order Site Treatment Plan, Compliance Plan, Activity 4.0	EMID-700436 N3B-19-0123	30



Table I-3 (continued)

Letter Date	Description	Letter Number	Revision Reference
5/28/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [April 25, 2019, shipment]	EMID-700452 N3B-19-0143	30
5/28/2019	Revised Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [April 4, 2019, shipment]	EMID-700453 N3B-19-0164	30
6/7/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [May 2, 2019, shipment]	EMID-700465 N3B-19-0166	30
6/25/2019	Notification of the Newport News Nuclear BWXT-Los Alamos, LLC, Project Manager Name Change for the 1995 Federal Facility Compliance Order	EMID-700490 N3B-19-0185	30
6/25/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [May 21 and 23, 2019, shipments]	EMID-700491 N3B-19-0179	30
6/26/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [May 30, 2019, shipment]	EMID-700496 N3B-19-0180	30
7/10/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [June 6 and 13, 2019, shipments]	EMID-700503 N3B-19-0190	30
7/25/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [June 20 and 27, 2019, shipments]	EMID-700518 N3B-19-0196	30
8/8/2019	Notice of Completion of Off-Site Waste Shipments for the Third Quarter of Fiscal Year 2019 for Los Alamos National Laboratory as Required by the Federal Facility Compliance Order, Site Treatment Plan, Compliance Plan, Section 4.0	EMID-700533 N3B-19-0228	30
8/19/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [two shipments from WCS July 11, 2019]	EMID-700542 N3B-19-0230	30
9/4/2019	Revised Notice of Completion of Off-Site Waste Shipments for the Third Quarter of Fiscal Year 2019 for Los Alamos National Laboratory as Required by the Federal Facility Compliance Order Site Treatment Plan, Compliance Plan, Activity 4.0	EMID-700565 N3B-19-0259	30
9/18/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [August 15, 2019, shipment]	EMID-700578 N3B-19-0264	30
9/26/2019	Notice of Completion of Off-Site Waste Shipment for Final Disposal, Activity 4.0, Compliance Plan, Site Treatment Plan, Federal Facility Compliance Order, Los Alamos National Laboratory [August 29, 2019, shipment]	EMID-700592 N3B-19-00277	30

## 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 28 revisions, revision 29 is pending NMED approval, 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 off-site 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 on-site treatment skids, added STP inventory items, added on-site recycling/re-use and radiological decontamination, added notification for off-site 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> .

Table J-1 (continued)

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 off-site 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)
Rev 25.0	STP/CP	TBD	Added and deleted volumes reported in FY14 <i>Annual Update</i> On Hold volumes reported shipped in FY14 <i>Annual Update</i> Proposed compliance date for CP Activity 3.1.8(A) Proposed compliance date for CP Activity 3.3.4 (A and B)

Table J-1 (continued)

Action	Document Modified	Effective Date	Effect on FFCO/STP
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	5/9/2019	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).
Rev 29.0	STP/CP	4/9/2020	Added and deleted volumes reported in FY18 Annual Update using volume information spreadsheets supplied from TA-55, CMR and TWF and other databases for volume information at TA-54. Updated Tables and Appendices throughout document. Updated Part III, Section 3.2, FTWCs compliance date extension request and NMED approval. Updated Part III, Section 4.0, "Transfer of Covered MTRU Inventory" for CVDs. Appendix A was split into two tables: A-1 for N3B and A-2 for LANS. Appendix E was split into two tables: E-1 for N3B and E-2 for LANS. Appendix G was split into two tables: G-1 for N3B and G-2 for LANS.
Rev 30.0	STP/CP	TBD	Updated volumes reported in FY19 Annual Update using data from WCATS. Updated Tables and Appendices throughout document. Table 2.2-1: Lines involved with information for "FY14 on Hold" was made to reflect current up-to-date information and clarity. Table 4.0-1: Updated the title of each column for clarity. Updated information throughout the report, either to remove redundancies and /or add information to keep the report up-to-date and consistent. All tables in Appendix F were reconstructed for clarity and purpose. Table F-1: Removed column "Total FY14 Inventory (abovegrade on Hold [m <sup>3</sup> ])" as this information in captured in F-2 and F-4 tables. Table F-4: Reworded the title for clarity. Appendix D was split into two tables: D-1 for N3B and D-2 for Triad.

## 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).

