

1 RECORD OF REVISIONS

The following are synopses of the revisions made to the 2016 Approved Site Treatment Plan.

Date	Volume, Section, Page(s) Affected by Revision 5	Revision
11/01/2019	Volume I	
	Record of Revisions, Page <i>REV-1/2</i>	Added pages to record revisions
	Section 2.5, Page 2-3	Revised to state update will be performed on an annual basis
	Section 3.1.3, Pages 3-2/3	Removed SR-W045, PUREX Organic Waste from Volume I because Waste Stream has been Treated and Eliminated.
11/01/2019	Volume II	
	Section 3.1.3, Pages 3-21/22	Removed SR-W045, PUREX Organic Waste; Waste Stream Treated and Eliminated
	Chapter 3, Appendix for LDR Compliant Waste, Pages 3-26/27	Removed SR-W024, Mercury/Tritium/Gold Traps; Waste Stream Treated and Eliminated
	Chapter 11 (all)	Updated Waste Stream Volumes, Preferred Options, and Mixed Waste Treatment Residue Summary

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Anti-Deficiency Act

No provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

2.5 Changes to STP

Annual Update

On July 7, 2011, DOE requested a revision to the annual frequency for updating the STP. DHEC agreed that DOE shall submit an Annual STP Update to DHEC for 2011 and thereafter follow a 5-year frequency of preparing future updates. ~~This~~ The 2016 STP Update ~~is~~ was the first update prepared on the 5-year update cycle.

On February 12, 2019, DOE requested to return to the annual update frequency. Additionally, DOE proposed reducing the scope of the Update to consist of a transmittal letter, a waste stream summary table, and a Waste Isolation Pilot Project (WIPP) Update. The text of the STP will be reviewed annually to determine if there are significant changes to a waste stream that require a revision of the affected Chapter/Section. DHEC agreed that the proposed changes were acceptable and implementation would occur with the 2019 STP Update to be submitted in November 2019.

A meeting with SRS and DHEC staff is held annually to discuss the status of the STP. This proposed schedule can be modified if subsequent commitments are identified and will be reviewed in the annual proposed STP meetings. Updates shall comply with Section 3021(b) of the FFCAct and shall include, but not be limited to, an updated inventory of all mixed waste, the status of all treatment residuals, and an updated implementation schedule. Projections of new mixed waste streams generated, or to be generated, onsite and proposed to be received from offsite shall be included in the Update. A list of all proposed changes to the approved STP, as well as a justification for requesting such changes, shall be provided with the Update. Unless otherwise notified by DHEC, DOE shall not propose, in the Update, modifications, or revisions to the approved STP that have been previously denied by DHEC.

~~The STP 2016 Update documents storage of 135,113.3 m³ of Mixed Waste as of July 1, 2016, versus 146,262.03 m³ stored in 2011. The volumes on hand are summarized in Volume II Chapter 11.~~

Modifications and Revisions

DOE shall submit for DHEC approval a request for a modification or revision to Volume I of the approved STP for any change unless the change requires notification only. (See Section 2.1 of this volume for definitions of modification and revision.) All requests for modifications or revisions must meet the requirements of Section 3021(b) of the FFCAct. DOE may begin implementation of any modification or revision only upon receipt of written approval by the DHEC after appropriate public notice, if required. DHEC shall ensure that the public notice requirements of the FFCAct are addressed. The application of cleanup credits to an activity listed in this volume of the STP is not defined as a modification or revision to the STP.

Additional RCRA Permit Identification

If DOE determines that treatment preparation steps such as characterization may require RCRA permits, DOE will submit a revision or modification, as appropriate, to identify proposed permit application submittal dates to be included in Volume I project activity schedules.

Alternate Treatment Strategy

If DOE determines that a proposed treatment strategy is inappropriate, DOE will submit a revision or modification and identify the new proposed strategy.

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CHAPTER 3. MIXED LOW-LEVEL WASTE TREATMENT

The sections of this chapter discuss project activity schedules proposed for the treatment of mixed waste in accordance with Section 2.2 of this volume. Refer to Table 1.1 in Chapter 1 of this volume for the user's guide to the waste streams in the STP. The user's guide identifies each waste stream, the PO, and the location where the waste stream is discussed in Volumes I and II. The sections of this chapter are divided into treatment categories as follows:

- 3.1 Mixed LLW Streams with Treatment Capacity
- 3.2 Mixed LLW Streams Requiring Technology Development
- 3.3 Mixed LLW Streams for Which Further Characterization is Required
- 3.4 Mixed LLW Streams Requiring Radionuclide Decay Prior to LDR Treatment
- 3.5 Mixed LLW Stream – Other Commitments

3.1 Mixed Low-Level Waste Streams with Treatment Capacity

This section discusses the schedules and plans associated with treatment of SRS mixed waste with currently available treatment capacity. This section of the chapter is divided into treatment categories as follows:

- 3.1.1 Onsite Treatment
- 3.1.2 Offsite Treatment
- 3.1.3 Preferred Treatment To Be Determined

3.1.1 Onsite Treatment

SRS has several onsite treatment facilities for treating mixed LLW. These facilities include the F-Area and H-Area Effluent Treatment Project (F/H ETP) and the Saltstone Facility. This category also includes treatability variance petition submittals, recycling, and miscellaneous onsite treatments not otherwise mentioned.

3.1.1.1 F-Area and H-Area Effluent Treatment Project

As waste characterizations are reviewed, treatment at F/H ETP may be the PO for aqueous characteristic waste streams.

All waste streams with this PO are in compliance.

3.1.1.2 Onsite Treatment Via Macroencapsulation

Macroencapsulation for debris waste was performed within the RCRA-permitted E-Area facility.

All waste streams with this PO are in compliance.

3.1.1.3 Onsite Treatment Via Treatability Variance Submittals

Submittal of a treatability variance for macroencapsulation is the PO for certain mixed waste streams.

Currently, there are no waste streams with this PO.

3.1.2 Offsite Treatment

For those waste streams that cannot be accommodated by SRS treatment facilities, various treatment technologies available at offsite facilities have been determined to be the PO. This section discusses the waste streams that are available for offsite treatment. Offsite treatment includes offsite commercial vendor treatment and offsite treatment at other DOE facilities.

3.1.2.1 DOE Thermal Treatment

Combustion at a Toxic Substance Control Act (TSCA) Incinerator or vendor alternate debris technology treatment is the PO for the certain waste streams.

All waste streams with this PO are in compliance.

3.1.2.2 Commercial Vendor Debris Treatment

Alternate debris technology treatment, or macroencapsulation, or shredding followed by stabilization, at an offsite commercial vendor's facility is the PO for certain mixed waste streams.

All waste streams with this PO are in compliance.

3.1.2.3 Commercial Vendor Lead Treatment

Lead macroencapsulation at a commercial vendor's facility is the PO for certain mixed waste streams. In the future, a portion of this waste stream may include items that are encapsulated onsite using LDR-compliant macroencapsulation bags. Prior to commencement of onsite encapsulation, SRS will satisfy all RCRA permitting requirements and obtain all approvals in accordance with Consent Order 95-22-HW.

All waste streams with this PO are in compliance.

3.1.2.4 Commercial Vendor Mercury Treatment

The PO is direct amalgamation (AMLGM) or stabilization by a commercial vendor, dependent upon vendor states' approval of direct AMLGM for the waste.

In the future, a portion of waste stream SR-W014, Elemental (Liquid) Mercury - Sitewide may be amalgamated onsite at the Defense Waste Processing Facility (DWPF) in accordance with an approved Industrial Wastewater Permit Modification. All approvals in accordance with Consent Order 95-22-HW will be obtained prior to commencement of treatment activities.

All waste streams with this PO are in compliance.

3.1.2.5 Commercial Vendor Solids Treatment

The PO can include several treatment steps. Wastes that contain organic material in excess of the LDR Treatment Standard are initially treated to separate the organic portion of the contaminants using solvent extraction or thermal separation. The desorbed chemical constituents are then treated via direct chemical oxidation or combustion. The waste material remaining after organics are removed or the non-organic waste material is then directly stabilized, shredded and stabilized, macroencapsulated or subjected to alternative debris treatment technologies. No stabilization of organics is performed, and no impermissible dilution occurs. Wastes that do not contain significant organics are directly stabilized, shredded and stabilized, macroencapsulated, or subjected to alternative debris treatment technologies as appropriate under RCRA regulations.

All waste streams with this PO are in compliance.

3.1.2.6 Commercial Vendor "Non-PUREX" Treatment

The PO can include several treatment steps. Wastes that contain organic material in excess of the LDR Treatment Standard are initially treated to separate the organic portion of the contaminants using solvent extraction or thermal separation if necessary. The desorbed chemical constituents are then treated via direct chemical oxidation or combustion. The waste material remaining after organics are removed is then directly stabilized, shredded and stabilized, macroencapsulated or subjected to alternative debris treatment technologies. No stabilization of organics is performed, and no impermissible dilution occurs.

All waste streams with this PO are in compliance.

3.1.2.7 Commercial Vendor Deactivation Treatment

Currently, there are no waste streams with this PO.

3.1.3 Preferred Treatment To Be Determined

~~One waste stream is currently waiting for the preferred treatment to be determined:~~

~~SR-W045, PUREX Organic Waste~~

~~PUREX waste was stored in the RCRA permitted Solvent Storage Tanks (SST) S33-S36 Facility. A small heel remains in the SSTs. During the closure process for the SST Facility, options for disposal of the remaining PUREX will be evaluated.~~

~~This waste stream is in compliance. Currently, there are no waste streams with this PO.~~

3.2 Mixed Low-Level Waste Streams Requiring Technology Development

Due to the complexity of some waste streams, no technologies have been developed to adequately treat the waste. Therefore, treatment strategies for some waste streams have not been selected. This section addresses those mixed LLW streams that require technology development for the treatment of the waste stream.

3.2.1 Development of Mobile Unit Technology

Currently, there are no waste streams in this category.

3.2.2 Development of Characterization Technology

Currently, there are no waste streams in this category.

3.2.3 Development of Treatment Technology

Currently, there are no waste streams in this category.

3.3 Mixed Low-Level Waste Streams for Which Further Characterization is Required

This section discusses the schedules for those specific waste streams that require further chemical or radiological characterization prior to the selection of a PO. The categories in this section are divided into waste streams to be further characterized and hazardous wastes awaiting radiological screening.

3.3.1 Waste Streams to be Further Characterized

Currently, there are no waste streams in this category.

3.3.2 Hazardous Waste Awaiting Radiological Screening

Currently, there are no waste streams in this category.

3.4 Mixed Low-Level Waste Streams Requiring Radionuclide Decay Prior to LDR Treatment

The PO for the following waste stream is treatment by aging in a regulated storage facility followed by combustion and/or appropriate mercury treatment:

SR-W036, Tritiated Oil with Mercury

Estimated Schedule for Treatment of this Waste Stream

The tritiated oil will be stored in a RCRA interim status, permitted, or accumulation area in compliance with SCHWMR R.61-79.262.34. Based on a tritium half-life of 12 years and the present tritium contamination of up to 185 Ci/L, the projected worst-case radioactive decay time appropriate to eliminate release of excessive tritium during combustion would be approximately 2060. A location for combustion and/or mercury treatment will be selected at a later date. See Volume II, Section 3.4, for additional details about this waste stream and its proposed treatment.

3.5 *Mixed Low-Level Waste Streams – Other Commitments*

There are currently no other commitments for mixed LLW streams at SRS.