

**Site Treatment Plan for Mixed Wastes  
on the U.S. Department of Energy  
Oak Ridge Reservation**

**Date Issued: March 2008**

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## ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CH	contact-handled
CHOXD	chemical oxidation
CNF	Central Neutralization Facility
CPCF	Central Pollution Control Facility
CTF	Cyanide Treatment Facility
DARA	disposal area remedial action
DOE	U.S. Department of Energy
DOE-OR	U.S. Department of Energy Oak Ridge Facilities (ETTP, X-10, Y-12)
DOE-ORO	U.S. Department of Energy Oak Ridge Operations
ECRWP	East Chestnut Ridge Waste Pile
EPA	U.S. Environmental Protection Agency
ETTP	East Tennessee Technology Park (formerly K-25 Site)
FFA	Federal Facility Agreement
FFCA	Federal Facility Compliance Agreement
FFCAct	Federal Facility Compliance Act
INCIN	incineration
IWS	ionizing wet scrubber
LDR	Land Disposal Restrictions of 1984
LWSP	liquid waste solidification project
MLLW	mixed low-level waste
MTRU	mixed transuranic waste
MVLLWSF	Melton Valley Low-Level Waste Solidification Facility
MWIR	Mixed Waste Inventory Report
NEPA	National Environmental Policy Act
NEUTR	neutralization
NNSA	National Nuclear Security Administration
NLDBR	no land disposal based on recycling
NPDES	National Pollutant Discharge Elimination System
NRWTP	Nonradiological Wastewater Treatment Plant
OLFSCP	Oil Land Farm Soil Containment Pad
ORNL	Oak Ridge National Laboratory
PCBs	polychlorinated biphenyls
PRECP	precipitation
PSTP	proposed site treatment plan
RCRA	Resource Conservation and Recovery Act
RFP	request for proposal
RH	remotely handled
ROD	Record of Decision
STABL	stabilization
STP	site treatment plan
TC	toxicity characteristic
TDEC	Tennessee Department of Environment and Conservation
THERM	thermal desorption
TPF	TRU Processing Facility

TRU	transuranic
TSCA	Toxic Substances Control Act of 1976
WAC	waste acceptance criteria
WETF	West End Treatment Facility
WIPP	Waste Isolation Pilot Plant

## **1. PURPOSE AND SCOPE**

### **1.1 BACKGROUND**

The U.S. Department of Energy (DOE) was required to prepare a plan for developing treatment capacities and technologies for each facility at which DOE generates or stores mixed waste, pursuant to Section 3021(b) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6939C, as amended by Section 105(a) of the Federal Facility Compliance Act (FFCAct), P.L. 102-386. Section 3021(b)(2)(A) of RCRA required DOE to submit the plan for the Oak Ridge Reservation to Tennessee for review and either approval, modification or disapproval within six months after receipt of the plan. In reviewing and making a determination on the plan, the state has considered the need for regional treatment facilities, consulted with the Administrator of the U.S. Environmental Protection Agency (EPA) and any other state in which a DOE facility affected by the plan is located, sponsored a public workshop, participated in stakeholder meetings, and considered public comments. After modification, Tennessee approved a modified plan and issued an Order requiring compliance with the approved plan. In the Order, provisions were included to update the plan annually. This document describes the updated version to be in effect in FY 2008.

### **1.2 SCOPE**

In accordance with RCRA Section 3021, this Site Treatment Plan (STP) delineates how DOE will treat the site's mixed wastes or develop technologies when technologies do not exist or when existing technologies need to be modified. For some waste streams, a plan and schedules for characterizing wastes for treatment, for undertaking technology assessments, and for providing the required plans and schedules for developing capacities and technologies, as appropriate, are provided. This STP applies specifically to mixed wastes on the Oak Ridge Reservation. Other facilities under the management of DOE have site-specific site treatment plans (STPs) for their mixed wastes.

### **1.3 PURPOSE**

The purposes of this STP include the following:

1. Fulfilling the requirements of the FFCAct.
2. Establishing an enforceable framework, in conjunction with the Order, in which DOE will develop methods to treat [or otherwise meet RCRA Land Disposal Restrictions (LDR) for] all LDR mixed wastes currently in storage and to be generated or received on the Oak Ridge Reservation during the term of the STP.
3. Allowing for storage of current and projected LDR mixed wastes at the Oak Ridge Reservation, which in the absence of an STP would be in violation of RCRA Section 3004(j), pending the development of treatment technologies or capacity and ultimate treatment or other disposal of such wastes according to LDR requirements during the term of this STP.

4. Fulfilling a requirement of the June 1992 Federal Facility Compliance Agreement (FFCA) into which DOE entered with EPA Region IV. One of the key provisions of the FFCA was that DOE would prepare a treatment methods plan for all mixed wastes on the Oak Ridge Reservation for which treatment capability did not exist. In lieu of the treatment methods plan, this STP is being provided to EPA.

#### **1.4 ORGANIZATION OF THE SITE TREATMENT PLAN**

This STP provides overall schedules, along with milestones and target dates for achieving compliance with the LDR, and a general framework for the establishment and review of milestones and target dates, the conversion of target dates into milestones, and other provisions for implementing this STP that are enforceable under the Order.

#### **1.5 ORGANIZATION OF THE ANNUAL UPDATE**

Because the Annual Update retains the contents of the STP, information no longer pertinent is presented in ~~strike through~~ and new information is presented in ***bold italic*** font. Milestones completed in the previous fiscal year are presented under a separate heading within the section and milestones no longer appropriate are presented separately as well.

## **2. IMPLEMENTATION OF THE SITE TREATMENT PLAN**

This section establishes the mechanisms and procedures for administering and implementing the treatment plans and schedules in Chapters 3 through 5 of this STP.

### **2.1 COVERED MATTERS**

This STP addresses LDR requirements pertaining to storage and treatment of LDR mixed wastes, which in the absence of an STP would be in violation of RCRA Section 3004(j), whether such wastes were generated or accumulated in the past, are currently generated or accumulated, or will be generated or accumulated in the future. This STP also requires DOE to submit information concerning generation and storage of LDR mixed wastes which are not in violation of RCRA Section 3004(j).

### **2.2 COMPLIANCE SCHEDULES**

#### **2.2.1 Purpose**

This STP provides overall schedules for achieving compliance with LDR requirements for mixed wastes on the Oak Ridge Reservation. The schedules include activities that are required to bring existing waste treatment facilities or technologies into operation, and those required for the development of new facilities and treatment capacities. This STP shows target dates and milestones for treatment technologies and facilities for wastes covered under the STP. The schedules differentiate between (1) milestones and (2) target dates that will be converted to milestones.

##### **2.2.1.1 Activities**

For the purposes of this STP, milestones and target dates will identify dates or time frames by which a certain activity (including an event such as submittal of a deliverable) is scheduled to occur, or any other dates or deliverables that are properly incorporated into this STP.

##### **2.2.1.2 Assumptions**

The assumptions upon which individual schedules are dependent are contained in Chapters 3 through 5. The schedules may be affected if the underlying assumptions are incorrect or if they change.

##### **2.2.1.3 Milestones**

Milestones are fixed, firm, and enforceable dates as set forth in this STP. Milestones correspond to the categories of milestones set forth in Section 2.2.3. Changes or revisions to milestones are subject to approval, approval with modifications, or disapproval by the Tennessee Department of Environment and Conservation (TDEC) according to the process and framework set forth in this STP. Milestones are set based on target dates, defined in Section 2.2.1.4, in accordance with the process described in Section 2.2.2.

#### **2.2.1.4 Targets**

Target dates mark the anticipated completion of tasks that have not been designated as milestones. Target dates correspond to the categories of milestones set forth in Section 2.2.3. Target dates are not requirements and are not enforceable. Target dates are converted into enforceable milestones in accordance with the process described in Section 2.2.2.

#### **2.2.2 Setting Future Milestones and Target Dates**

Through the Annual Update process, milestones will be established for a three year rolling period consisting of the fiscal year (FY) plus two additional fiscal years (FY+1 and FY+2) as follows:

1. On the effective date of the Order requiring the implementation of this STP, enforceable milestones in applicable planning schedules are established for a three fiscal year period. After the expiration of the current fiscal year, what was previously FY+1 will become the current fiscal year, FY+2 will become FY+1, and FY+3 will become FY+2. On October 1 of each year, the target dates falling within the former FY+3 time period shall be automatically converted to FY+2 milestones. It is anticipated that DOE will submit notification of proposed changes in the Annual Update. The Annual Update notification will include any proposed adjustments to milestones for the three-year period, as well as proposed adjustments to targets dates. Proposed changes to milestones based upon funding received shall be subject to Section 2.9, "Funding." Nothing in this section precludes DOE or TDEC from proposing or requesting changes to milestones at other times.
2. In adjusting milestones pursuant to this section, funding availability including the amount of funds provided to the DOE-OR in its Approved Funding Program for the current fiscal year (FY) for environmental management activities, and the internal Review Budget for FY+1, and associated out-year funding targets for the DOE-OR, site priorities, cost estimates, new or emerging technologies, and other new information shall be considered.
3. The schedules established for years past these three years are non-enforceable target dates. DOE will propose milestones in the Annual Updates for FY+2 based on target dates provided in Chaps. 3-5 as updated by previous Annual Updates. If there is no ensuing target date to convert to a milestone within a given FY for a particular facility or treatment approach, the Semi-Annual Progress Reports will describe progress on interim activities.

#### **2.2.2.1**

Approval of the proposed conversion of target dates to milestones shall be in accordance with Section 2.8, "Submittal, Review, and Approval of Deliverables," except if DOE proposes the same or earlier date, the next target date shall be converted to a milestone automatically and such conversion shall not require approval and shall not constitute a revision to the STP. The conversion shall be reflected in the next scheduled Annual Update to STP.

#### **2.2.3 Categories of Milestones and Target Dates**

The categories of activities for which milestones and target dates will be provided for different types of treatment approaches in this STP are listed in Tables 2.1 through 2.4 and in other provisions below. To the extent appropriate, the categories of activities are based on Section 3021(b)(1)(B)(i), (ii) and (iii) of RCRA. Depending upon the status of the facility or treatment option (e.g., operating under interim status or at differing stages of development), certain types of target dates or milestones may not be necessary, the activities may appear in a different order, or

an alternative activity that is more appropriate to the facility or treatment approach may be designated as a target date or milestone.

### **2.2.3.1 Plans for wastes with existing treatment technologies**

For some of the mixed wastes, treatment technologies have been identified and developed. For these wastes that will be treated on site, the categories of milestones and target dates identified in Table 2.1 will apply.

**Table 2.1 Schedule for mixed wastes with existing treatment technologies**

Categories of milestone and target activities

- Submit RCRA permit applications to TDEC
- Procure contracts
- Initiate construction
- Commence systems testing
- Commence operations
- Submit a schedule for processing backlogged and currently generated mixed wastes

### **2.2.3.2 Plans for waste for which treatment technology must be developed**

For some mixed wastes, no treatment technologies have been identified and developed, or treatment technology must be modified or adapted to be made applicable for mixed waste. For these wastes that will be treated on site, the categories of milestones and target dates identified in Table 2.2 will apply.

**Table 2.2 Schedule for mixed wastes without existing treatment technologies**

Categories of milestone and target activities

- Identify and develop technology
- Submit treatability study exemption application
- Submit research, design, and development permit applications
- Submit schedule in accordance with Table 2.1 or new schedule for development of alternative treatment technologies in accordance with this section

### **2.2.3.3 Requirements pertaining to radionuclide separation through surface decontamination**

The FFCA Act sets additional requirements for those instances when DOE intends to conduct radionuclide separation of mixed waste. Should DOE decide to conduct on-site radionuclide separation of mixed wastes through surface decontamination, DOE will establish milestone and target date categories as delineated in Table 2.3.

**Table 2.3 Schedule for radionuclide separation of mixed wastes**

Categories of milestone and target activities

- Complete an estimate of the volume of waste generated by each case of radionuclide separation
- Complete an estimate of the volume of waste that would exist or be generated without radionuclide separation
- Complete an estimate of the costs of waste treatment and disposal if radionuclide separation is used compared to the estimated costs if it is not used
- Provide the assumptions underlying such waste volume and cost estimates
- Provide a schedule for surface decontamination
- Submit a plan for treatment or management of residues, as appropriate, in accordance with this section

#### **2.2.3.4 Plans for other types of activities**

This STP may contain additional milestones and target dates for other types of situations related to treatment or storage of Oak Ridge Reservation (ORR) mixed wastes, including the following:

1. In the STP, the final target date or milestone to ship for treatment or disposal will be completed once the material is manifested and shipped to a commercial facility or another non-ORR DOE facility. Information supporting the development or use of commercial or non-ORR DOE site treatment capacity or technology for treatment of such wastes shall be provided in the Semi-Annual Progress Reports. If changes in the commercial or non-ORR DOE site treatment facility's schedule affect the schedule in this STP, DOE will notify TDEC, and DOE and TDEC will attempt to negotiate necessary changes in accordance with Section 2.5, "Revisions," or 2.6, "Duty to Perform; Delay in Performance," as appropriate and subject to Section 2.10, "Disputes." Additional milestones or target dates for completion of on-site activities may be established. Table 2.4 contains some categories of milestones and target dates that may be provided for mixed wastes to be shipped to commercial or non-ORR DOE site for treatment and/or disposal.

**Table 2.4 Schedule for mixed wastes to be shipped to commercial or non-ORR DOE site treatment and/or disposal facilities**

Categories of milestone and target activities

- Initiate preparation of waste(s) for transport
  - Transportation of waste(s)
  - Complete shipment of waste(s) off site
2. The DOE will also ensure that the regulatory agency of the receiving facility has approved the proposed shipment of DOE-OR waste before notifying TDEC of the acceptance (if approval by the regulatory agency is legally required). If DOE wishes to treat waste at a commercial or non-ORR DOE facility that was previously slated to be treated on site, DOE will propose necessary changes in accordance with Section 2.5, "Revisions" and subject to Section 2.10, "Disputes." When the waste is to be shipped to another DOE facility, DOE (or

TDEC, if so agreed) will ensure that the regulatory agency of the state in which the receiving facility is located is notified of the proposed shipment.

3. For mixed wastes that are not sufficiently characterized to allow identification of appropriate treatment, this STP will contain schedules for characterizing such wastes. The milestones or target dates for such a schedule may include, but not be restricted to, (a) DOE's identification of the facility to receive the waste and any resulting schedule changes or (b) DOE's submittal of a proposed treatment schedule as described in this section.

## **2.3 ANNUAL SITE TREATMENT PLAN UPDATES AND SEMI-ANNUAL PROGRESS REPORTS**

### **2.3.1 Purpose**

This section provides mechanisms for (1) communicating and exchanging information about schedules, technology development, funding, and other concerns that affect the implementation of this STP; (2) providing Annual Updates and Semi-Annual Progress Reports; (3) proposing and establishing subsequent milestones; and (4) updating and proposing revisions to this STP.

### **2.3.2 Timing of Updates**

By October 31 of each year after this STP is issued and the accompanying Order executed, DOE will provide to TDEC an Annual Update to the STP for review and comment. When revisions to the STP are proposed, the Annual Update will allow input from the public, affected states, and EPA. Each Annual Update will bring the STP current to the beginning of the current year (October 1). The Annual Update will minimize the paperwork necessary to document changes and will be handled by page changes to the extent practicable, and the changes will be marked to facilitate comparison to the previous STP. DOE shall provide Semi-Annual Progress Reports to TDEC by April 30 and October 31 of each year, beginning on April 30, 1996.

### **2.3.3 Update of STP**

Both the Annual Updates and the Semi-Annual Progress Reports will update this STP.

#### **2.3.3.1 Semiannual Progress Reports**

The Semiannual Progress Reports will provide the following:

1. The amount of each LDR mixed waste stored on the Oak Ridge Reservation as follows:
  - A. the estimated amount in storage at the end of the previous six month period and
  - B. the estimated amount anticipated to be placed in storage in the next five fiscal years.
2. A description of the progress made up to the end of the previous six month period on treatment or technology development of each treatment facility or activity scheduled in the STP. If applicable, DOE will also describe current or anticipated alternative treatment technology that is being evaluated for use in lieu of treatment technologies or capacities identified in the STP. This description will include potential alternate commercial treatment and off-site DOE treatment capacity or technology development.
3. A description of DOE's funding for STP-related activities and any funding issues that may affect the schedule.

4. The status of any pending or planned extension, treatability variance, or no-migration petition.
5. In accordance with Section 2.4.2, information that has changed or that has not been included previously regarding waste form, waste code, and technology and capacity needs, including new waste streams.
6. Notification of the deletion of waste streams in accordance with Section 2.7.1.
7. Status of any new wastes for which notification has been provided during the six month reporting period.
8. Progress on DOE/NRC/EPA efforts to establish standards for control and release of residual radioactive material.

### **2.3.3.2 Annual Updates**

1. The Annual Updates of this STP may contain requests for approval of changes. These requests for approval may, as appropriate, include: (1) proposed revisions or conditionally approved revisions; (2) proposed new milestones, in accordance with Section 2.2; and (3) other changes to the overall schedules.
2. The Annual Updates shall clearly identify proposed changes requiring approval under Section 2.8, "Procedures for Review and Approval," and Section 2.5, "Revisions."
3. DOE will make the Annual Updates publicly available. When an Annual Update includes proposed revisions to this STP, the provisions of Section 2.5, "Revisions," also apply to such proposed revisions.

### **2.3.4. Additional Information**

TDEC may request, at any time, additional information on the status of specific activities undertaken pursuant to this STP and any funding issues relevant to it.

## **2.4 INCLUSION OF NEW WASTE STREAMS**

### **2.4.1 Purpose**

This section establishes a method for including new mixed waste streams on the Oak Ridge Reservation in the STP, including mixed wastes that are newly discovered, identified, generated during a CERCLA clean-up, or received from off site in accordance with applicable permits, Orders and agreements, and mixed wastes that are generated through decontamination and decommissioning activities to the extent that such wastes cannot be included in an existing waste stream in Appendix A of this STP.

### **2.4.2 Notification**

DOE shall, within forty-five days of its discovery, notify TDEC of newly found existing LDR mixed waste streams being generated or stored. DOE shall also notify TDEC of any new LDR mixed waste streams that are anticipated to be generated or stored on the Oak Ridge Reservation within forty-five (45) days of the decision to generate or store such waste. DOE will

provide a description of the waste code, waste form, volumes, technology and capacity needs, and similar pertinent information in the notification. Additional details about the waste stream and the proposed plan and schedules, consistent with Section 2.2, "Compliance Schedules," will be provided within 45 days of notification for waste which, in the absence of an STP, would be in violation of RCRA Section 3004(j). The information provided pursuant to this subsection is subject to TDEC's approval as provided for in Section 2.4.4.

### **2.4.3 Deliverables**

If DOE cannot provide the information or schedules required by Section 2.4.2 because of inadequate characterization or because it is otherwise impracticable, DOE will include appropriate justification, supporting information, and proposed plans for approval as a deliverable under Section 2.8, "Procedures for Review and Approval," for developing such information and schedules consistent with Section 2.2, "Compliance Schedules."

### **2.4.4 Changes**

DOE may propose changes to this STP to accommodate new waste streams. If such changes are required, DOE will submit the changes for approval as a deliverable under Section 2.8, "Procedures for Review and Approval." Also, DOE may propose revisions to this STP as necessary to accommodate new waste streams subject to Section 2.5, "Revisions."

## **2.5 REVISIONS**

### **2.5.1 Definitions**

A revision to this STP is (a) the addition of a treatment facility on the Oak Ridge Reservation or off-site, but within Tennessee, or technology development not previously included in this STP or (b) an extension to a milestone (including an extension by mutual agreement under Section 2.6 or a proposed milestone converting a target date under Section 2.2) for a period greater than one year. Changes in waste volume, the addition or deletion of waste streams or waste types, extensions, changes to milestones for a period less than a year, or changes to target dates will not by themselves constitute revisions.

### **2.5.2 Revision Methodology**

Revisions to the STP may be made as follows:

#### **2.5.2.1 Identification of revisions**

DOE will indicate to TDEC the need to revise this STP and provide information supporting the basis for the revision as a deliverable pursuant to Section 2.8, "Procedures for Review and Approval." Under these procedures, within thirty (30) working days of receipt, TDEC may conditionally approve the revision, return it to DOE with comments so that changes can be made for resubmittal, or disapprove it. Conditional approval of a revision is a determination by TDEC that the revision is acceptable, subject to the results of public comment and consultation with affected states and EPA.

#### **2.5.2.2 Review and approval of revisions**

Within thirty (30) working days of granting conditional approval, TDEC will publish a notice of availability and make the revision to the STP available to the public for review and

comment and to affected states and EPA for consideration and consultation. Revisions will be approved, approved with modification, or disapproved by TDEC within 6 months after TDEC's receipt of the proposed revision. TDEC will notify DOE of its decision. If DOE does not agree with TDEC's decision it may invoke the procedures of Section 2.10, "Disputes."

### **2.5.3 Notifications**

To the extent practicable, comments from the public, affected states, and EPA on conditionally approved revisions will be obtained in conjunction with the Annual Update to the STP, as governed by Section 2.3, "Annual Site Treatment Plan Updates and Semi-Annual Progress Reports." However, if a conditionally approved revision is proposed to become effective before it could be addressed in the regularly scheduled Annual Update, TDEC will publish a notice of availability and consult with the affected states and EPA, as appropriate, within thirty (30) working days of such conditional approval.

## **2.6 DUTY TO PERFORM; DELAY IN PERFORMANCE**

### **2.6.1 Implementation**

DOE will implement this STP in accordance with the milestones set forth in this STP and with milestones subsequently developed pursuant to this STP. DOE shall adopt all reasonable measures to avoid or minimize delays in the implementation of this STP.

### **2.6.2 Milestones**

A milestone will be extended upon receipt of a timely request for extension when good cause exists for the requested extension. Any request for an extension will be made to TDEC prior to the milestone date, either in writing or orally with a written follow-up request within ten (10) working days of the request. Any oral or written request will be provided to the project manager responsible for implementation of this STP. The written request will specify (1) the milestone that is sought to be extended, (2) the length of the extension sought, (3) the good cause(s) for the extension, and (4) any related milestone or target date that would be affected should the extension be granted.

### **2.6.3 Good Cause**

Good cause for an extension includes (1) an event of Force Majeure, as defined below in Section 2.6.4, provided written notice of the event is given to TDEC in accordance with Section 2.6.9; (2) a delay caused by TDEC's failure to meet any requirement of this STP; (3) a delay caused by the good faith invocation of dispute resolution or the initiation of administrative or judicial action; (4) a delay caused, or likely to be caused, by the grant of an extension in regard to another milestone; (5) a delay caused by additional work agreed to by DOE and TDEC; and (6) any event or series of events mutually agreed to by DOE and TDEC as constituting good cause.

### **2.6.4 Force Majeure**

An event of Force Majeure means any event arising from causes beyond the control of DOE that causes a delay in or prevents the performance of any obligation under this STP. Examples of events that may constitute a Force Majeure include, but are not limited to, acts of God; fire; war; insurrection; civil disturbance; explosion; unanticipated breakage or accident to machinery, equipment, or lines of pipe, despite reasonably diligent maintenance; adverse weather conditions that could not reasonably be anticipated; unusual delay in transportation; restraint by court order

or order of public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or authority other than the DOE; lack of a sufficient appropriation to DOE for its nationwide environmental management activities despite good faith compliance by DOE with the procedures set forth in Section 2.9, "Funding;" and, delays caused by compliance with applicable statutes or regulations such as those governing contracting, procurement, or acquisition procedures, despite the exercise of reasonable diligence. The listing of examples of events that may constitute a Force Majeure does not create a presumption that such events will in every instance be a Force Majeure.

### **2.6.5 Dispute Resolution**

Lacking agreement of DOE and TDEC with respect to the existence of good cause, the parties may seek and obtain a determination through the dispute resolution process, Section 2.10.

### **2.6.6 Extension Requests**

For extension requests by DOE, the following procedures will apply.

1. Within fifteen (15) working days of receipt of a written request for an extension of a milestone, TDEC will advise DOE in writing of its position on the request. If TDEC does not concur with the requested extension, it will include in its statement of nonconurrence an explanation of the basis for its position.
2. If TDEC determines that the requested extension is warranted, then the affected milestone will be extended accordingly. If TDEC determines that all or part of the requested extension is not warranted, the milestone will not be extended except in accordance with a determination resulting from the dispute resolution process.
3. Within fifteen (15) working days of receipt of a statement of nonconurrence with the requested extension, DOE may invoke dispute resolution. If DOE does not invoke dispute resolution within fifteen (15) working days of receipt of a statement of nonconurrence, then DOE is deemed to accept TDEC's nonconurrence and the existing schedule.

### **2.6.7 Extension Requests by the Tennessee Department of Environment and Conservation**

For extension requests by TDEC, if DOE does not invoke dispute resolution within fifteen (15) working days after receiving written notice of the requested extension, the extension will become effective.

### **2.6.8 Extension Request Toll Actions**

A timely and good faith request for extension will toll the initiation of any action to enforce the affected milestone until a final decision is reached on whether the requested extension will be approved, or until the party requesting the extension fails to cooperate in good faith to resolve any dispute over the request.

### **2.6.9 Notification**

DOE will notify TDEC in writing within fifteen (15) working days after it becomes aware of events that DOE knows or should know constitute a Force Majeure event that may delay or prevent the performance of an obligation under this STP. Such notice will describe the cause and anticipated length of delay and mitigation measures being taken. After such a notification, any

request for an extension based on a Force Majeure event will be made pursuant to Section 2.6.2, and the procedures of Section 2.6.6 will apply.

## **2.7 DELETION OF WASTES AND TERMINATION OF THE SITE TREATMENT PLAN**

### **2.7.1 Deletion of Wastes**

The requirements of this STP will terminate with regard to any mixed waste upon (1) completion of activities required pursuant to a milestone under this STP for treatment of such waste; (2) shipment of wastes off site for treatment and receipt of the certification of treatment to LDR standards, disposal or storage pending treatment, or disposal; (3) changes to statute or regulation or determinations of the regulatory authority that cause a waste or waste categories to be no longer subject to the requirements of RCRA or the LDR requirements of RCRA; (4) treatment in accordance with the conditions of an approved LDR treatability variance; or (5) mutual agreement between DOE and TDEC.

### **2.7.2 Termination of Plan**

Inasmuch as the intent of the FFCAct requirement to develop an STP is to address noncompliance with RCRA Section 3004(j), this STP will terminate when there is no longer any LDR mixed waste, regardless of when generated, being stored on the Oak Ridge Reservation which, in the absence of an STP, would be in violation of RCRA Section 3004(j).

### **2.7.3 Notification**

DOE will notify TDEC of such termination independently or in the Annual Updates to the STP. TDEC will provide DOE with a written response to the notification within 30 working days. TDEC's response to this notice will be subject to the provisions of Section 2.10, "Disputes."

## **2.8 PROCEDURES FOR REVIEW AND APPROVAL**

### **2.8.1 Submission of Deliverables**

Deliverables developed by DOE pursuant to this STP will be submitted by DOE to TDEC for review and comment as provided in this section. Deliverables include documents or notices signifying completion of milestones, identifying new wastes, and supporting proposed revisions as required or permitted under this STP. When TDEC approval of a deliverable is expressly required in this STP, the approval provisions in this section apply. Permit applications and National Environmental Policy Act (NEPA) documents will not be subject to the procedures of this section. Permit applications will be submitted and reviewed under applicable regulations, and NEPA documents will be submitted and reviewed under the DOE regulations implementing NEPA. Each submittal of a deliverable will specify the milestone or other provision of this STP that requires the submittal of that deliverable.

### **2.8.2 Transmittal of Deliverables**

Unless otherwise noted, each deliverable will be transmitted directly to the TDEC project manager responsible for implementation of this STP.

Unless otherwise specified, any report or submittal provided pursuant to a schedule or deadline identified in or developed in this STP shall be sent by certified mail, return receipt requested, or similar method (including electronic transmission) which provides a written record of the sending and receiving dates, or hand delivered, to the following persons:

Tennessee Department of  
Environment and Conservation  
Division of Solid Waste Management  
STP Coordinator  
2700 Middlebrook Pike, Suite 220  
Knoxville, Tennessee 37921

Tennessee Department of  
Environment and Conservation  
DOE Oversight STP Manager  
761 Emory Valley Road  
Oak Ridge Tennessee 37830

### **2.8.3 Review of Deliverables**

TDEC will promptly review each deliverable submitted by DOE that is required to be approved pursuant to this STP. In the course of its review, TDEC may consult with DOE regarding the adequacy of each deliverable. Oral comments made during these discussions will not require a written response.

### **2.8.4 Deliverables Not Requiring Approval**

Deliverables that do not require TDEC approval will be provided to TDEC for review and comment. If DOE disagrees with TDEC's comments, DOE will respond to TDEC's comments in writing, explaining DOE's position. If DOE has not received comments from TDEC within thirty (30) working days of submittal of the deliverable, it will be deemed that TDEC has no comments.

### **2.8.5 Actions by the Tennessee Department of Environment and Conservation**

For any deliverable that requires TDEC approval under the provisions of this STP, the following procedures will apply:

#### **2.8.5.1 Tennessee Department of Environment and Conservation actions**

Within thirty (30) working days of receipt of a deliverable, TDEC will (1) approve, conditionally approve (if the deliverable is a revision), or disapprove the deliverable as submitted or (2) return the deliverable to DOE with comments so that changes can be made for resubmittal. Conditionally approved revisions will be approved or approved with modification after public review and comment and consultation with affected states and EPA pursuant to Section 2.5, "Revisions." TDEC may extend this review period for an additional thirty (30) working days by notifying DOE. This period may be further extended as agreed to by TDEC and DOE. Comments on the deliverable will be specific enough to allow DOE to make appropriate changes to the document. To the extent applicable, comments should refer to specific paragraphs of any sources of authority or references on which the comments are based, and, upon the request of DOE, TDEC will provide a copy of the cited authority or reference.

#### **2.8.5.2 Conditional approval**

If TDEC extends the review period for a deliverable, any milestones or target dates dependent upon the results of deliverable review will automatically be extended for an equivalent period. DOE will notify TDEC in writing of any enforceable milestones that need to be extended or revised.

#### **2.8.5.3 Incorporation of comments**

If TDEC returns the deliverable to DOE with comments within thirty (30) working days of receipt, DOE will incorporate the comments and retransmit the deliverable to TDEC. DOE may extend this period an additional thirty (30) working days by notifying TDEC. This period may be further extended as agreed to by TDEC and DOE. If DOE disagrees with TDEC's comments, and the parties are unable to resolve their disagreement, DOE may invoke the dispute resolution provisions of Section 2.10, "Disputes."

## **2.9 FUNDING**

DOE shall, in good faith, take all necessary steps to obtain sufficient funding to comply with the provisions of this Plan. This shall be accomplished, as set forth in this section, through consultation with the TDEC and submission of timely budget requests.

1. DOE shall consult with the TDEC in formulating its annual DOE-OR Environmental Management budget requests as set forth in this section. By February 15 of each year, DOE shall provide TDEC with information or a briefing on the proposed DOE-OR Environmental Management budget request, including appropriate supporting documents. In the process of formulating its annual budget request, DOE may be subject to target funding guidance directed by the Office of Management and Budget (OMB). The information or briefing will address the impacts of such OMB target funding guidance. Budget information which is designated by DOE as proprietary information, pursuant to T.C.A. §68-212-109, will not be released to any other person or entity prior to submission by the President of his budget request to Congress unless authorized by DOE or unless the TDEC is required to do so by court order. DOE may seek to intervene in any proceeding brought to compel or enjoin release of this information. If allowed to intervene, DOE shall assert its interest in, and the legal basis for, maintaining the confidentiality of this information.
2. The parties shall attempt to reach agreement regarding work scope, priorities, schedules/milestones, and funding levels required to accomplish the purpose of the Plan. These discussions shall be conducted before DOE-ORO submits its annual budget request to DOE-HQ. TDEC shall, to the extent practicable, identify in its comments to DOE whether additional or accelerated activities recommended by the TDEC are believed by the TDEC to be outside of target funding levels.
3. DOE shall revise its budget request and supporting documents to resolve the comments of the TDEC to the extent agreed by the Parties. DOE-OR will submit to DOE-HQ its budget request and shall forward with it the target budget level funding and any unresolved issues regarding funding for additional or accelerated activities submitted by the TDEC, and any other unresolved issues raised by the TDEC. If these issues are not subsequently resolved prior to DOE's submission of its budget request to OMB, DOE-HQ shall forward with its budget request any such unresolved issues and related funding information to OMB. If the TDEC and DOE are unable to agree on milestones by the time of DOE-HQ's receipt of the initial OMB passback, or submittal of the President's budget request to Congress, whichever occurs first, the issues shall be elevated to Dispute Resolution. DOE has the right to indicate which milestones in any decision of the TDEC that DOE believes cannot be accomplished within OMB target funding levels. Failure to agree on adjustments to FY+1 or FY+2 milestones, or FY+3 targets in one year shall not prejudice DOE's right to request adjustments to these milestones in subsequent fiscal years or to dispute any decision of the TDEC regarding such future requests.

4. Upon receipt of funding for the fiscal year, DOE shall determine whether it can meet the schedule for that fiscal year based on funding received. If funds appropriated to DOE are not sufficient for its nationwide environmental management activities, then within fifteen (15) days of receipt of field allocation, DOE shall provide information on the allocation process and results to TDEC and may propose changes or revisions to the milestones or plan. If, within forty-five (45) days of receipt of field allocation, the Parties cannot agree to the adjustments of the milestones or plan based on funding received, the issue will be elevated to Dispute Resolution.

## **2.10 DISPUTES**

### **2.10.1 Scope**

Except as specifically set forth elsewhere in this STP, any action that leads to or generates a dispute regarding compliance with the STP is subject to resolution under this section.

### **2.10.2 Informal Resolution**

DOE and TDEC will make reasonable efforts to resolve disputes informally as expeditiously as possible at the project manager level. If resolution cannot be achieved informally, the disputing party may elevate the dispute for resolution pursuant to this section.

### **2.10.3 Formal Resolution**

To initiate formal dispute resolution, the disputing party will submit to the other party a written notice of dispute that specifies (1) the nature of the dispute, (2) the work affected by the dispute, (3) the disputing party's position with respect to the dispute, and (4) the information the disputing party is relying upon to support its position.

### **2.10.4 Dispute Resolution**

Upon receipt of the notice of dispute, the appropriate DOE assistant manager and TDEC administrator for land and waste programs (or their respective delegates or successors) will engage in dispute resolution meetings or conference calls. If a resolution is not mutually agreed upon within 30 days, the dispute will be escalated to the Deputy Commissioner of TDEC. Within 30 days of escalation, the Deputy Commissioner will consult with the DOE manager and issue a final determination of TDEC. This 30-day period may be extended by mutual written agreement of the parties.

### **2.10.5 Schedule**

DOE will incorporate the resolution and final determination into the appropriate plan, schedule, or procedure and proceed with implementation in accordance with the amended plan, schedule, or procedure within 45 days after resolution of a dispute, pursuant to the procedures specified in this STP, in order for Section 2.11, "Covenants and Reservations," to remain effective for the affected waste stream.

### **2.10.6 Consultation with Other Parties**

EPA or states affected by a dispute may be consulted by the parties, as appropriate, as part of the dispute resolution process.

## **2.11 COVENANTS AND RESERVATIONS**

### **2.11.1 Covenants**

This STP and implementing Order will stand in lieu of any administrative, legal, and equitable actions that could otherwise be brought by TDEC against DOE, its contractors and subcontractors for violations of LDR by storage of mixed waste in excess of the time allowed, so long as DOE is in compliance with the STP and implementing Order as determined by TDEC or a court of competent jurisdiction.

#### 4. TRANSURANIC MIXED WASTE STREAMS <sup>1</sup>

##### Background:

The transuranic mixed wastes (MTRU) on the Oak Ridge Reservation are all located at the Oak Ridge National Laboratory. These wastes are divided into two primary waste streams, RH-TRU sludges and CH- and RH-TRU debris and solids. The strategy for compliance for the sludges is to stabilize the sludges and ship the final waste form to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico or the Nevada Test Site (NTS), depending on the final characterization of the processed waste. DOE announced May 29, 1998, the selection of Foster Wheeler Environmental Corporation (Foster Wheeler) to retrieve, treat, package, and certify TRU waste stored at ORNL for disposal off-site. Under the contract, Foster Wheeler constructed an on-site processing facility to treat and package the waste. CH- and RH-TRU debris and solid waste will be processed for disposal at WIPP. Any MLLW discovered to be present in the TRU inventory will be processed to meet LDR treatment standards prior to disposal at NTS or other disposal facility.

On September 21, 2000, DOE signed an agreement with the State of Tennessee to settle a dispute regarding the disposal of transuranic wastes in trenches within Melton Valley's Solid Waste Storage Area 5 North. A copy of the Dispute Resolution Agreement is shown in Appendix B. By the letter of September 7, 2006, TDEC agreed to modify the Dispute Resolution Agreement by extending the termination date for Trench 13 from September 30, 2006, to September 30, 2009, and to incorporate that letter in the annual revision of the STP.

In October 2001, DOE notified TDEC of termination of requirements in the STP, including milestones, regarding transuranic mixed waste streams. In October 2001 TDEC rejected the proposed deletion indicating that mixed TRU wastes were still subject to Tennessee laws and regulations. In December 2001, DOE invoked informal dispute resolution at the project manager level. In December 2002, due to lack of progress towards resolution, TDEC recommended elevation of the disagreement to a formal dispute. In December 2003, TDEC escalated the dispute to the level of Deputy Commissioner and the DOE Oak Ridge Operations Office Manager.

In a letter dated April 12, 2007, TDEC resolved the formal dispute by unilaterally imposing the STP milestones and target dates for TRU waste (listed in Appendix C). However, TDEC also agreed to negotiate milestones for mixed TRU waste based on good cause that includes capacity of the on-site processing facility.

DOE responded to the TDEC letter on May 1, 2007. In the letter, DOE proposed a set of principles which would form the basis for milestone negotiation.

DOE worked with TDEC to develop the following definitions which would be used in measuring milestones:

Processing: For purposes of measuring the completion of milestones associated with processing a specific volume of waste from the stored legacy inventory from storage, processing is defined as the physical steps required to prepare waste for final disposition as TRU waste to WIPP or

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<sup>1</sup> The milestones established in the Commissioner's Final Determination have been negotiated and revised accordingly and are hereby incorporated into the Site Treatment Plan (STP). Inclusion of these milestones does not affect the right of DOE to make any and all legal arguments it may have in any enforcement action brought by TDEC to enforce these milestones.

LLW/MLLW to NTS or other disposal facility. The completion of processing for MLLW is the final treatment of MLLW required to meet Land Disposal Restrictions under RCRA. For TRU waste, completion of processing is accomplished when all waste verification, remediation as required, repackaging as required and final NDA measurements are completed to allow for final certification of the waste by CCP for disposal. Volumetric milestones will be met when these physical processing steps have been completed. Volumes of waste in stored inventory refer to the legacy plus projected newly-generated original volume of approximately 1500 m3 of CH waste inventory, approximately 600 m3 of RH waste, and approximately 2000 m3 of RH sludge.

Regulatory requirements for MLLW: Waste that is determined to be MLLW during characterization and processing of the TRU inventory will be subject to full compliance with RCRA and will be treated to meet Land Disposal Restrictions within one year of discovery, unless treatment capacity is not available.

Removal of waste inventory from STP: Waste will be removed from regulatory coverage under the STP when any of the following conditions are met:

1. Waste inventory determined to be Mixed Low-Level Waste will be removed from the STP when the waste has been treated to meet Land Disposal Restrictions under RCRA.
2. Waste inventory determined to be TRU waste will be removed from the STP when the waste is shipped to WIPP.
3. Waste inventory determined to be Low-Level Waste will be removed from the STP.

Waste Streams: Streams include CH waste, RH waste, and RH sludge. The volume of TRU waste identified in the STP includes wastes confirmed during final characterization activities to be MLLW or LLW.

FY 2008, 2009, and 2010 Milestones - DOE shall accomplish the following:

1. Within 30 days of the end of each quarter starting October 2007, and for the duration of the TRU waste processing campaign, submit a quarterly report to TDEC detailing the progress on the processing of the TRU waste inventory, including the status of WIPP certification for the processed waste and treatment of any MLLW discovered during processing.
2. By September 30, 2008, initiate shipments of CH and RH TRU waste to WIPP.
3. By September 30, 2008, complete processing of an additional 187 cubic meters of CH waste inventory, for the project's total of 307 cubic meters.
4. By September 30, 2008, complete processing of 35 cubic meters of RH waste inventory.
5. By September 30, 2009, complete processing of an additional 280 cubic meters of CH waste, for the project's total of 587 cubic meters.
6. By September 30, 2009, complete processing of 96 cubic meters of RH waste, for the project's total of 131 cubic meters.
7. By September 30, 2010, complete processing of an additional 375 cubic meters of CH waste, for the project's total of 962 cubic meters.

8. By September 30, 2010, complete processing of an additional 192 cubic meters of RH waste, for the project's total of 323 cubic meters.
9. [Reserved]
10. [Reserved]
11. [Reserved]

Target Dates:

1. By September 30, 2011, complete processing of an additional 375 cubic meters of CH waste, for the project's total of 1337 cubic meters.
2. By September 30, 2012, complete processing of the remaining 163 cubic meters of CH waste, for the project's total of 1500 cubic meters.
3. By September 30, 2011, complete processing of an additional 192 cubic meters of RH waste, for the project's total of 515 cubic meters.
4. By September 30, 2012, complete processing of the remaining 85 cubic meters of RH waste, for the project's total of 600 cubic meters.
5. By September 30, 2013, complete processing of 145 cubic meters of RH sludge.
6. By September 30, 2014, complete processing of an additional 436 cubic meters of RH sludge, for a total of 581 cubic meters.
7. By September 30, 2015, complete processing of an additional 436 cubic meters of RH sludge, for a total of 1017 cubic meters.
8. By September 30, 2016, complete processing of an additional 436 cubic meters of RH sludge, for a total of 1453 cubic meters.
9. By September 30, 2017, complete processing of an additional 436 cubic meters of RH sludge, for a total of 1889 cubic meters.
10. By September 30, 2018, complete processing of the remaining 111 cubic meters of RH sludge, for a total of 2000 cubic meters.

FY 2007 Milestones Completed:

1. By June 30, 2007, complete a schedule for processing of 1,375 cubic meters of CH-TRU wastes, and an optional volume of 125 cubic meters, complete with disposition schedule of all resultant non-TRU components.

On June 28, 2007, DOE requested an extension of this milestone to July 31, 2007. On July 19, 2007, TDEC provided written concurrence to DOE on the requested milestone extension. The extended milestone is reported as completed.

FY 2007 Milestones Extended:

1. By the 30<sup>th</sup> day of each month following the end of FY 2006, and for the duration of the CH-TRU project, submit a monthly report to TDEC detailing the progress on the processing of CH-TRU wastes, including the status of WIPP-ready\* certification for the processed waste.
2. By September 30, 2007, complete a schedule for processing of approximately 700 cubic meters of RH-TRU wastes, complete with disposition schedule of all resultant non-TRU components.

On September 28, 2007, DOE requested an extension to these milestones. On October 16, 2007, TDEC concurred with the requested milestone extensions with the submittal of the first formal report extended to October 30, 2007, and the strategy for processing of the RH-TRU waste extended to October 31, 2007. Further, TDEC concurred that the CH-TRU reports may be submitted on a quarterly basis from this point forward, on a schedule such that the report is due by the end of the month following the completion of the quarter.

FY 2007 Milestone Not Completed:

1. By September 30, 2007, complete processing of 400 cubic meters of CH-TRU waste.

On September 28, 2007, DOE requested an extension to the milestone. On October 16, 2007, TDEC denied the requested milestone extension. On November 6, 2007 DOE invoked an informal dispute resolution process. Discussions between DOE and TDEC are continuing pursuant to STP Section 2.10 "Disputes".

Previous FY Milestones Completed:

1. By March 31, 2004, process 550 m<sup>3</sup> of supernate and initiate characterization and certification per disposal facility WAC. (March 30, 2004).
2. By September 30, 2004, completed processing or 1,200 m<sup>3</sup> of supernate and initiate shipments to disposal. (August 7, 2004).
3. By September 30, 2004, inventory the remaining supernate, and forward a written plan for the treatment of the remaining supernate including final disposal options to TDEC. (September 30, 2004)
4. By January 31, 2005, complete shipments to disposal of 1,500 m<sup>3</sup> processed supernate. (September 30, 2004)
5. By September 30, 2001, provide TDEC with the project management plan complete with treatment and shipment schedules. (September 26, 2001)
6. By November 1, 1995, obtain Key Decision 0 approval from DOE-HQ for the government sector line item TPF. (October 26, 1995)
7. By April 30, 1997, notify TDEC of the identification of existing facilities and facility ownership to support the treatment and storage of RH-TRU sludges and CH-and RH-TRU solids. (April 30, 1997)

8. By June 30, 1997, issue a request for proposal in the private sector for treatment of RH-TRU sludges. (June 30, 1997)
9. By August 30, 1998, award a contract for the first production increment of RH-TRU sludge. (August 28, 1998)

Note: Selection of Foster Wheeler Environmental Corporation to retrieve, treat, package, and certify TRU waste stored at ORNL was announced May 29, 1998. Contract award is contingent upon a 90-day Congressional review. Milestone completion was submitted June 29, 1998. However, based on communication with TDEC, an extension to the milestone was submitted July 15, 1998, and formally granted by TDEC on July 23, 1998.

10. Provide a status report on the project by March 31, 1999 and update on September 30, 1999. (March 31, 1999 and September 30, 1999)
11. By March 31, 2000, provide a summary report of NEPA analysis. (February 22, 2000)

Milestones No Longer Appropriate:

1. By December 31, 1996, complete a private sector feasibility study for the RH-TRU sludges.
2. By December 31, 1996, complete a conceptual design report for RH-TRU sludge retrieval and treatment at the TPF.

Target Dates No Longer Appropriate:

1. By January 29, 2003, initiate shipment of stabilized RH-TRU sludges to WIPP.
2. By January 30, 2004, initiate processing of CH- and RH-TRU solids.
3. By April 30, 2004, initiate shipment of processed CH- and RH-TRU solids to WIPP
4. By September 30, 2004, complete shipment of stabilized RH-TRU sludges.
5. By September 30, 2005, complete shipment of CH-TRU solids to WIPP.
6. By September 30, 2008, complete shipment of RH-TRU solids to WIPP.