

### USING THE ANNOTATED OUTLINE FOR THE CONCEPTUAL SITE TREATMENT PLAN

Attached is the annotated outline for use in preparing your Conceptual Site Treatment Plan (CSTP). A common format and contents in the CSTPs will facilitate the use of the information by other sites and by States and make comparisons across sites and States easier. In addition, it will also enable DOE to provide roll-ups of the CSTPs to the States more quickly. Sites should share the proposed outline with their States and EPA and accommodate their preferences concerning the structure and content of the CSTP and development of options to the extent possible, as long as the overall CSTP format remains comparable with that of other sites.

The site's focus in preparing the CSTP should be on identifying and describing existing treatment capacity, including excess capacity (3.3); identifying treatment technology needs (4.3, 5.3, 9.0), and identifying treatment options (3.4, 4.4, 5.4, 9.0), including descriptions as detailed as possible of the status and technical and administrative parameters of capacity under development or consideration at the site.

Some general comments on the outline:

- o The annotated outline provides detail to give CSTP preparers a sense of what is intended for a particular section and the kinds of information that should be included. Given the variation among sites in their mixed wastes and how far along they are in identifying and meeting their treatment needs, there will, of course, be many differences in how a site completes the sections in its CSTP. The details in the outline are not intended to be rigidly applied, but should be adapted as appropriate to reflect the site circumstances.
- o Each site should complete the outline as fully as possible, but it is not expected that all sites will have sufficient information and data to accurately complete all of the sections for each of the waste streams. It is important that the CSTP clearly explain the basis and limitations of the information, including the identification of options.
- o If a chapter is not applicable to a particular site situation, the CSTP should still include the chapter, but note that it is not applicable. For example, many sites do not have existing capacity; in that case, section 3.0 would simply state that no capacity currently exists.
- o The CSTP does not need to include a full range of options (e.g., on-site, commercial, other DOE site) for each wastestream/treatability group. Rather, the site should describe treatment options that appear viable for the waste. In addition, it is not always necessary to identify multiple options, particularly when there is an established on-site treatment approach for the waste. For example, if a site has an existing facility already treating wastes, or if it has submitted a Part B RCRA permit application for a facility, it would not necessarily need to propose any additional options for the wastes slated to be treated in such a facility.
- o Information in the CSTP and the Interim Mixed Waste Inventory Report, such as waste stream information, treatment technology needs and availability of technologies, should be consistent, or any differences should be explained. If there are changes, the site must ensure that the information in the Final Mixed Waste Inventory Report is revised accordingly.



## Annotated Outline for Conceptual Site Treatment Plans (CSTP)

### 1.0 Introduction

#### 1.1 Purpose and Scope

A description of the purpose and scope of the CSTP as it relates to the specific site, and how the plan will be used in conjunction with CSTPs from other sites in identifying and comparing the pros and cons of treatment strategies and options on a complex-wide basis.

#### 1.2 Requirements

Identifies requirements which drive the development of the CSTP, draft STP, and final STP, based on the legislation and FR Notice. Reviews the elements to be included in each phase of the STP. Also identifies any previously negotiated compliance agreements with relevant commitments, and how those commitments relate to or will be addressed in the STP.

#### 1.3 CSTP Organization

Reviews the organization of the CSTP, including an overview of the contents for each section and how the CSTP will flow into the draft and final versions of the STP.

#### 1.4 Site History and Mission

Provides an overview of the site's key mission, programs, and facilities. Programs and organizations responsible for waste management and restoration activities are highlighted.

#### 1.5 Related Documents

References existing DOE or site documents and plans which are related, which cross-cut, or which need to be integrated with the STP. These include the PEIS, Site-Wide EIS, Roadmaps, Five Year Plan and Site-Specific Plans and relevant RCRA documents.

### 2.0 Methodology

Presents the approach and methodology for identifying waste categories and treatability groupings, prioritizing waste streams, performing technology options analyses, and identifying technology gaps, options, and solutions.

#### 2.1 Assumptions

Presents the top-level assumptions made as a basis for the development of the CSTP.

#### 2.2 Definitions

Presents the definitions for key terms used in the CSTP on a complex-wide basis. Individual sites may have additional definitions.

## 2.3 Treatability Groups

Provides an overview of the method and rationale for breaking out the wastes in categories and treatability groupings. Addresses differences if any from the approach used in the Inventory Report.

## 2.4 Characterization of Mixed Wastes

Provides an overview of the program at the site for characterizing its wastes from both the hazardous and radioactive perspective. Adequacy of the characterization data in general is discussed, including process knowledge vs. sampling and analysis, QA/QC programs and associated level of confidence, quality and uncertainties associated with radioassay data.

## 2.5 The Technology Options Analysis and Selection Process

Provides a description of a strategic, top-level technology decision framework or process for identifying and evaluating technology options for predetermined treatability groupings. Site-specific detailed processes will be tailored to demonstrate consistency with the fundamental steps presented within this top-level process.

## 3.0 Low-Level Mixed Waste Streams

### 3.1 Waste Streams with Existing Treatment Capacity

Includes mixed wastes that can be treated to LDR standards using existing on-site capacity or that are currently being shipped for treatment to an off-site facility. Includes facilities constructed and not currently operating, but being brought on-line.

#### 3.1.1 Description of waste streams and treatability groupings

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, etc.; identifies how the waste has been characterized and the level of confidence associated with data, including adequacy of characterization for treatment purposes.

Groups wastes into treatability groups and describes level of confidence in classification.

#### 3.1.2 Description of Existing Capacity

Includes type of technology and wastes that can be treated, waste acceptance criteria (WAC), characterization requirements for treatment, design and permitted capacity, pretreatment processes required, final waste form, current treatment schedule. Identifies any technical or administrative limitation in the design, permits, NEPA documentation, age of facility, etc. Identifies excess capacity, if any, and potential to expand facility beyond current use, e.g., to other treatability groups, modification of WAC or permit. Description provides information to assist other sites in determining whether their waste might be suitable for the facility. If facility is not currently operating, describes reasons and schedule for bringing facility on-line.

### 3.1.3 Treatment Options by Wastestreams/Treatability Group

Identifies other treatment options as appropriate, particularly if current facility is near obsolescence, has inadequate capacity for site wastes, or has other significant downsides. It is not necessary to create options when the approach to treating a given waste stream is reasonably clear and established.

For each option, describes technical and other uncertainties associated with option, gives a range of associated cost and schedule impacts, and identifies pros and cons.

Options may include: development of on-site capacity, including the development of other technologies or capacity other than the existing capacity; potentially suitable capacity at other DOE sites, including existing capacity or capacity under development or consideration that might be able to treat wastes, or development of a facility with another site(s) with similar waste streams; potentially suitable commercial capacity; and options such as no migration or treatability variances or further characterization to establish that waste is not hazardous or meets LDR.

## 3.2 Waste Streams for which Technology Exists but Without Capacity On-Site

Includes mixed wastes that can be treated to LDR standards using proven technologies for which there is no existing on-site capacity or that are not currently being shipped for treatment to an off-site facility. Only minor modifications of the technology, if any, are needed to treat the wastes.

Any "planned" facility for treating the waste stream would be discussed in 3.2.3 as a "development of on-site capacity" option and a detailed description provided of the status of the facility and the waste it is expected to treat.

### 3.2.1 Description of waste streams and treatability groupings

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, etc.; identifies how the waste has been characterized and the level of confidence associated with data, including adequacy of characterization for treatment purposes.

Groups wastes into treatability groups and describes level of confidence in classification.

### 3.2.2 Description of Needed Technology and Capacity

Identifies possible technologies that could treat waste. Screens technologies to identify potentially viable candidates. Describes criteria applied and basis for selection. To the extent possible, discusses technical feasibility, implications for characterization requirements for treatment, required capacity, pretreatment processes, final waste form. Discusses uncertainties.

### 3.2.3 Treatment Options by wastestream/treatability group

For each option, describes technical uncertainties associated with option, gives a range of associated cost and schedule impacts, and identifies pros and cons.

Options may include: development of on-site capacity, including the development of other technologies or capacity other than the existing capacity; potentially suitable capacity at other DOE sites, including existing capacity or capacity under development or consideration that might be able to treat wastes, or development of a facility with another site(s) with similar waste streams; potentially suitable commercial capacity; and options such as no migration or treatability variances, or further characterization to establish that waste is not hazardous or meets LDR.

If a facility is being considered or developed at the site, provides as much detail as possible on the status of the facility (e.g., has a permit, proposed but unfunded), the anticipated technical parameters (incinerator permitted for X waste types and X capacity; solidification facility with X types of technologies being considered). Description provides information to assist other sites in determining whether their waste might be suitable for the facility.

### 3.3 Waste Streams for which Technology Exists But Needs Adaptation or for which No Technology Exists

Includes mixed wastes that can be treated to LDR standards using existing technologies, but the technologies are expected to require significant adaptation and technology development before they could treat the waste, generally because of the radioactive component.

Also includes waste streams for which no technology exists and will require R&D to treat to LDR standards.

#### 3.3.1 Description of waste streams and treatability groupings

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, etc.; identifies how the waste has been characterized and the level of confidence associated with data, including adequacy of characterization for treatment purposes.

Groups wastes into treatability groups and describes level of confidence in classification.

#### 3.3.2 Description of Needed Technology and Capacity

Describes what types of adaptations are needed to treat waste or why R&D is needed.

Identifies possible technologies that could treat waste. Screens technologies to identify potentially viable candidates. Describes criteria applied and basis for selection. To the extent possible, discusses technical feasibility, implications for

characterization requirements for treatment, required capacity, pretreatment processes, final waste form. Discusses uncertainties.

### 3.3.3 Technical Approach and Options

Describes a technical approach, studies and analysis that are needed. Identifies any work underway on-site or at another DOE facility, and other DOE facilities that have similar treatability groups and may share the need for the technology.

Particularly for existing technologies needing adaptations, identifies options, describes technical uncertainties associated with option, gives a range of associated cost and schedule impacts, and identifies pros and cons.

Options may include: development of on-site capacity, including the development of other technologies or capacity other than the existing capacity; potentially suitable capacity at other DOE sites, including existing capacity or capacity under development or consideration that might be able to treat wastes, or development of a facility with another site(s) with similar waste streams; potentially suitable commercial capacity; and options such as no migration or treatability variances or further characterization to establish that waste is not hazardous or meets LDR.

If a facility is being considered or developed at the site, as much detail as possible should be provided on the status of the facility and the anticipated technical parameters.

### 3.4 Wastes Streams Requiring Further Characterization or For Which Technology Assessment Has Not Been Done

Includes wastes that are inadequately characterized to allow identification of appropriate treatment technologies. Also includes wastes for which a technology assessment has not been done, so that the technology and treatment needs cannot yet be identified. As wastes are further characterized and technology assessment completed, the wastes are assigned to sections 3.1 - 3.3.

#### 3.4.1 Description of waste streams

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, etc. to the extent possible. Identifies inadequacies in the data.

#### 3.4.2 Plan for characterizing wastes and undertaking technology assessment

## 4.0 TRU Mixed Waste Streams

### 4.1 Description of waste streams

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, volume meeting Waste Isolation Pilot Plant (WIPP) waste acceptance criteria etc.;

identifies how the waste has been characterized and the level of confidence associated with the data, including adequacy of characterization for treatment purposes.

#### 4.2 Strategy for Managing Transuranic Waste

Identifies the DOE strategy that defense-related transuranic waste will be sent to WIPP. A no migration variance petition is being pursued for WIPP which, if successful, will not require treatment other than that necessary to meet the WIPP waste acceptance criteria. Alternative treatment and disposal options are currently being developed for non defense-related TRU waste.

Describes the plans and facilities for meeting the WIPP waste acceptance criteria, transportation requirements, and associated technical uncertainties.

For wastes known to be unable to meet the WIPP waste acceptance criteria and for non-defense TRU mixed waste, identifies the treatment technology needs for meeting LDR and treatment options in a format similar to that in Section 3.0.

### 5.0 High-Level Mixed Waste Streams

#### 5.1 Description of waste streams

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, etc.; identifies how the waste has been characterized and the level of confidence associated with data, including adequacy of characterization for treatment purposes.

#### 5.2 Strategy for Managing High-Level Mixed Waste

Describes DOE plan and facilities for treating and managing high-level waste.

### 6.0 Future Generation of Mixed Wastes Streams

Describes wastes that are expected to be generated in the future, including environmental restoration wastes, wastes resulting from D&D activities. Wastes in this section will be moved to other sections as decisions about remedial actions are made and wastes are generated. (Wastes could be included in other sections if enough is known about them to categorize them accordingly.)

(Include the following sub-sections as appropriate)

#### 6.1 Environmental Restoration Waste

Describes sources, quantities and types of wastes expected to be generated, anticipated schedule for generation, and associated uncertainties. Describes regulatory drivers and agreements (e.g., CERCLA IAG) and milestones relevant to decisions about remedial action and waste generation. If possible given the status of investigation and alternatives analysis, identify range of options for wastes in a format consistent with 3.0.

## 6.2 D&D Wastes

Describes sources, quantities and types of wastes expected to be generated, anticipated schedule for generation, and associated uncertainties, as well as regulatory drivers, if any. If possible, identifies strategy for addressing waste and options for treatment in a format consistent with 3.0.

## 6.3 Other Wastes

Describes quantities and types of wastes expected to be generated, anticipated schedule for generation, and associated uncertainties, as well as regulatory drivers, if any. If possible, identifies strategy for addressing waste and options for treatment in a format consistent with 3.0.

## 7.0 Mixed Wastes Streams for which Radionuclide Separation May Be Appropriate

Includes wastes for which radionuclide separation is being considered or may be a viable option to facilitate treatment or otherwise manage the waste, or to recover materials.

### 7.1 Description of waste streams

Describes wastes by RCRA waste code, radionuclide content, waste form, volumes, etc. that may be candidates for radionuclide separation.

### 7.2 Analysis and Implications

Estimates the volumes of mixed waste generated and the costs of treatment and disposal with and without separation, and the assumptions underlying the estimates. Discusses technical issues and uncertainties.