

IS-5102  
UC-630

**FEDERAL FACILITY COMPLIANCE ACT**  
**PROPOSED SITE TREATMENT PLAN**

**Ames Laboratory**  
**Iowa State University**  
**Ames, Iowa 50011-3020**



**Operated by Iowa State University for**  
**the U.S. Department of Energy under Contract**

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## Executive Summary

The Federal Facility Compliance Act (FFCA) requires the Department of Energy (DOE) to prepare Site Treatment Plans (STP or Plan) for how mixed waste, waste containing both hazardous and radioactive components, will be treated. More specifically, the FFCA requires each individual DOE site that stores or generated mixed waste to develop a STP. Each site's Plan must provide a list or inventory of mixed waste, treatment technology required and the approach or treatment facility that will be used to treat the waste. After it is completed, the sites plan is then submitted to the cognizant state agency or Regional EPA office for review and approval, approval with modification, or disapproval. For Ames Laboratory the Plan is being submitted to EPA Region VII for this review.

This Plan is the result of a three part planning process consisting of Conceptual, Draft and this Proposed Plan. The Conceptual Plan was completed in October 1993. In general, that document provides a mixed waste inventory, identified potential treatment technologies and a range of treatment options. The Draft Plan, completed in August 1994, represented the second stage of the process in which the treatment options identified in the Conceptual Plan were narrowed down to a few or only one preferred option for each waste stream. The Proposed Plan is the final stage of the planning process and provides the DOE proposed option and treatment schedule for each waste stream.

The schedules in this Proposed Plan have not yet been integrated with those of other DOE sites from a technical, complex-wide perspective. Moreover, DOE faces increasingly tight budgets throughout the DOE complex and anticipates that funding will continue to be constrained. The schedules in this and other Plans reflect those constraints. DOE has asked regulatory agencies to work with DOE and other interested parties at the site and National level to assist DOE in prioritizing its activities. Through this process, DOE expects that some schedules will be revised before the Site Treatment Plans are approved and orders issued.

The Proposed Plan, like the Draft Plan consist of two major sections or volumes: Background Volume and Plan Volume. The Background Volume provide a more extensive discussion while the Plan Volume is a much shorter and focused document.

The Background Volume consists of the following eight sections:

- Section 1. Introduction. This in turn discusses the Purpose and Scope, Site History and Mission, Framework for Developing the Site Treatment Plans, the Proposed Plan Organization and Related Activities.
- Section 2. Methodology. This includes discussion of Assumptions, Preferred Selection Process, Coordination with Regulatory Agencies and Other Stakeholders, Characterization of Mixed Waste and Waste Minimization.
- Section 3. Low Level Mixed Waste Streams. This provides for each mixed waste stream, a discussion of each mixed waste stream, treatment technology needed and the proposed treatment approach.
- Sections 4 and 5. TRU Mixed Waste and High Level Mixed Waste Streams. Provides information on future generation of TRU Mixed Waste. Ames Laboratory does not foresee the generation of any High Level Mixed Waste.
- Section 6. Future Generation of Mixed Waste. Identifies as far as possible, mixed waste not discussed in Section 3 that could result from future restoration or site remediation activities.
- Section 7. Storage Report. Discusses the adequacy of the sites mixed waste storage facilities.
- Section 8. Process for Evaluating Disposal Issues in Support of the STP. This section summarized the overall DOE activity in the area of disposal of mixed waste treatment residuals.

The Plan Volume is shorter and more focused document consisting of three major sections:

- Section 1. Purpose and Scope of the Compliance Plan
- Section 2. Implementation of the STP. Provides administrative language for the plan.
- Sections 3. Low Level Mixed Waste Schedules. For each mixed waste stream, a proposed treatment approach has been identified with milestone and target dates.

The above discussion provided an overview of the FFCAct planning, review and approval process, and format of the Proposed Plan. The important feature of the Plan is the discussion of the waste streams and the proposed treatment approaches. The following Table provides a summary matrix which identifies each waste stream, the proposed treatment approach and current inventory.

Ames Laboratory Waste/Treatment Matrix

Waste Name	Proposed Treatment Approach	Current Inventory, m <sup>3</sup>
Analytical Reference Standards	Stabilization Hanford WRAP IIA	0.01
Uranium Sulfate	Neutralization fb Stabilization Oak Ridge CNF	0.01
Acidic Aqueous Liquids	Neutralization fb Stabilization Oak Ridge CNF	0.04

As noted above, Chapter 3 of the Background Volume provides additional detail on each of the items in this matrix.

The Final Stage of the FFCAct is for the regulatory agency to review the Plan. DOE plans to work with the staff of the agency or agencies to openly discuss issues in order to facilitate approval of the plan.

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FEDERAL FACILITY COMPLIANCE ACT  
PROPOSED SITE TREATMENT PLAN  
BACKGROUND VOLUME

Prepared by:

Environment, Safety and Health Group

Ames Laboratory  
Iowa State University  
Ames, Iowa 50011-3020

March 24, 1995

Operated by Iowa State University for  
the U.S. Department of Energy under Contract

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## Table of Contents

BACKGROUND VOLUME	2
1.0 Introduction	2
1.1 Purpose and Scope	3
1.2 Site History and Mission	4
1.3 Framework for Developing the Site Treatment Plans	4
1.4 Proposed Site Treatment Plan Organization	5
1.5 Related Activities	5
2.0 Methodology	6
2.1 Assumptions	6
2.2 Treatment Options Selection Process	7
2.3 Coordination with Regulatory Agencies and Other Stakeholders	8
2.4 Characterization of mixed wastes	9
2.5 Waste Minimization	9
3.0 Low-Level Mixed Waste Streams	9
3.1 Mixed Waste Streams for which Technology Exists	10
3.1.1 Analytical Reference Standards	10
3.1.1.1 Description of Technology and Capacity Needs	10
3.1.1.2 Proposed Treatment Approach	10
3.1.2 Uranium Sulfate	11
3.1.2.1 Description of Technology and Capacity Needs	11
3.1.2.2 Proposed Treatment Approach	11
3.1.3 Acidic Aqueous Liquids	12
3.1.3.1 Description of Technology and Capacity Needs	12
3.1.3.2 Proposed Treatment Approach	12
3.2 Mixed Waste for which No Technology or for which Technology Needs Adaptation	13
3.3 Mixed Waste Streams Requiring Further Characterization or for which Technology Assessment has not been done	13
4.0 TRU Mixed Waste Streams	13
4.1 TRU Wastes Expected to go to WIPP	14
4.1.1 Transuranics/Uranium in Glove Box	14
4.1.1.1 Proposed Treatment Approach	14
4.2 TRU Wastes not destined for WIPP	14
5.0 High Level Mixed Waste Streams	14
6.0 Future Generation of Mixed Waste Streams	15
6.1 Soils/Debris	15
6.2 D & D Wastes	15
7.0 Storage Report	15
8.0 Process for Evaluating Disposal Issues in Support of the Site Treatment Plan (STP) Discussions	15
8.1 Background	15
8.2 Disposal Planning Process	16
Figure 8.1 Disposal Planning Process	17
8.2.1 Activities to Date	18
8.2.2 Next Steps in the Evaluation Process	20
8.3 Integration with the STP Process	21

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## BACKGROUND VOLUME

## 1.0 Introduction

## 1.1 Purpose and Scope

The Department of Energy (DOE) is required by section 3021(b) of the Resource Conservation and Recovery Act (RCRA), as amended by the Federal Facility Compliance Act (the Act), to prepare site treatment plans (STPs or plans) describing the development of treatment capacities and technologies for treating mixed waste. Plans are required for facilities at which DOE generates or stores mixed waste, defined by the FFCAct as waste containing both a hazardous waste subject to the Resource Conservation and Recovery Act, and a source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*). The Ames Laboratory Proposed Site Treatment Plan (Proposed STP or Proposed Plan) is being submitted to EPA Region VII for approval in accordance with the Act.

The Ames Laboratory Proposed Plan is the result of a "bottom up" process described in an April 6, 1993, Federal Register notice (58 FR 17875). DOE has followed an iterative process in developing the Plans, working closely with State Regulatory agencies and EPA at the site and national level throughout the process. The Proposed Plan follows two interim versions -- a Conceptual Site Treatment Plan submitted in October 1993 and a Draft Plan submitted in August 1994, which were provided to regulatory agencies and made publicly available. The Conceptual Plan identified a range of preliminary options for treating mixed waste at Ames Laboratory. The Draft Plans identified site-specific preferred treatment options which had not yet been evaluated for impacts to the other DOE sites or to the overall DOE program. DOE initially planned to submit the Proposed Plans at the end of February 1995. However, DOE revised its submittal date with the support of the States and EPA to allow for additional discussions. (See 60 FR 10840, February 28, 1995) The Ames Laboratory Conceptual Plan and Draft Plan and other related information are available at the Ames Public Library, 515 Douglas Avenue, Ames, Iowa 50011.

This Proposed Plan contains DOE's preferred options developed after evaluation and integration of the site-specific treatment options contained in the Draft Plans of the other sites with DOE mixed waste. The process DOE followed was coordinated with State and EPA regulators and is described in Section 2.2. DOE believes the treatment options contained in the Proposed Plans represent a sensible national configuration for mixed waste treatment systems that balances DOE's interests and concerns and the input DOE received on the Draft Plans from the regulatory agencies and others.

The schedules contained in this and the Proposed Plans for other sites are based on funds currently budgeted for and projected to be available for waste management activities. As a result, schedules in the Proposed Plans for some facilities, particularly the largest and the most costly facilities, may be protracted. Schedules for small sites that are relying on the treatment capacity at larger sites are also affected. DOE anticipates that, at some sites, funds will be shifted from other environmental management activities to support more sensible and integrated schedules for mixed waste treatment.

DOE discussed with States and EPA the difficulty DOE faces in providing timely schedules for some new treatment facilities given current budgetary constraints, and the need to consider whether funds from other activities should be shifted to support more timely schedules. The State and EPA recommended that the Proposed Plan be submitted with schedules consistent with current budget and priorities, even though they recognized schedules may be extended. As part of its efforts to develop its budget request for FY 1997, DOE has asked regulatory agencies to work with DOE and other interested parties at the site and National level to assist DOE in prioritizing its activities, including mixed waste treatment, and in assessing activities under way and that need to be accomplished at the site. Through this budget development process and through discussions on the

Proposed Plans, DOE and the regulatory agencies expect that some schedules will be revised before the Site Treatment Plans are approved and orders issued.

Even after the Plans are approved, DOE anticipates that modification and adjustment to the Plan will be necessary because of the technical and funding uncertainties that naturally exist with long-term activities like those covered by the Plans. For example, emerging or new technologies not yet considered may be identified in the future that provide opportunities to manage waste more safely, effectively, and at lower cost than the current technologies identified in the Proposed Plan. DOE will continue to evaluate and develop technologies that offer potential advantages in the areas of public acceptance, risk abatement, and performance and life cycle cost. Should more promising technologies be identified, DOE may request a modification of its treatment plan in accordance with provisions of the final Site Treatment Plan and/or the Order.

This "Background Volume" is one of two volumes that constitute the Proposed Site Treatment Plan. It provides a detailed discussion of the preferred option or options, identifies the mixed waste streams the option addresses, and gives explanatory information for the "Plan Volume." The Compliance Plan Volume identifies the capacity to be developed and associated schedules as required by the Act.

## 1.2 Site History and Mission

Ames Laboratory is a government-owned, contractor-operated, national research and development laboratory of the United States Department of Energy. Iowa State University (ISU) is the management and operating contractor.

The primary mission of Ames Laboratory is to conduct basic and intermediate research in chemical, engineering, materials, mathematical, and physical sciences. The intent of this research is to expand the knowledge of energy conversion, generation, transmission and storage techniques which are essential to national interests.

The government-owned buildings of Ames Laboratory are located on approximately ten acres of the ISU campus that has been leased to the federal government. Six buildings make up the majority of Ames Laboratory space; Ames Laboratory Warehouse, Waste Disposal Building, Metals Development Building, Spedding Hall, Wilhelm Hall and Technical and Administrative Support Facility.

Wilhelm Hall, completed in 1949, and Spedding Hall completed in 1952, provide light laboratory space for both experimental and theoretical groups.

The Metals Development Building was completed in 1960. It was constructed to accommodate space for materials processing and fabrication operations larger than laboratory scale.

The Waste Disposal Building was constructed in 1963, originally built for Ames Laboratory's Research Reactor, and now stages radioactive waste prior to disposal.

The Ames Laboratory Warehouse was constructed in 1964. It is used for shipping and receiving functions and short term storage of surplus equipment.

The Technical and Administrative Support Facility - Ames Laboratory, was completed in 1994. It was constructed to provide office space for administrative and support groups for the Laboratory.

Besides owned space, Ames Laboratory also rents space on and around campus for various uses.

Ames Laboratory used the ISU Chemical Disposal Site from 1958-1966 for disposal of hazardous

wastes from yttrium, thorium and uranium production. All of the burials were done with federal approval and met all applicable guidelines at that time. A source removal action was conducted during CY1994 and all excavated debris was removed during the first quarter of CY1995.

### 1.3 Framework for Developing the Site Treatment Plans

RCRA Land Disposal Restriction (LDR) requirements prescribe the treatment of hazardous waste (including the hazardous component of mixed waste) to certain standards before the waste can be land disposed, and prohibit storage of hazardous wastes that do not meet LDR standards, except for the purposes of accumulating sufficient quantities to facilitate proper recovery, treatment, or disposal of the waste. DOE is currently storing mixed waste inconsistent with the LDR provisions because the treatment capacity for such wastes, either at DOE sites or in the commercial sector, is not adequate or is unavailable at this time.

The Federal Facility Compliance Act, signed on October 6, 1992, waives sovereign immunity for fines and penalties for RCRA violations at Federal facilities. However, the Act postpones the waiver for three years for LDR storage prohibition violations for DOE's mixed wastes. It requires DOE to prepare plans for developing the required treatment capacity for its mixed waste at each site at which it stores or generates mixed waste. Each plan must be approved by the State or EPA, after consultation with other affected states and consideration of public comment, and an order issued by the regulatory agency requiring compliance with the plan. The Act further provides that DOE will not be subject to fines and penalties for LDR storage prohibition violations for mixed waste as long as it is in compliance with an approved plan and order.

The Act requires the plans to contain schedules for developing capacity for mixed waste for which identified treatment technologies exist, and, for mixed waste without an identified existing treatment technology, schedules for identifying and developing technologies. The Act also requires the plan to provide certain information where radionuclide separation is proposed. The Act states that the plans may provide for centralized, regional or on-site treatment of mixed waste, or any combination thereof, and requires the States to consider the need for regional treatment facilities in reviewing the plans.

The "Schedule for Submitting Plans for the Treatment of Mixed Waste Generated or Stored at Each Site" was published April 6, 1993, in the Federal Register (58 FR 17875). In the Notice, DOE committed to providing the site treatment plans in three phases: a "conceptual plan" completed in October 1993, a "draft plan" no later than August 1994, and a "final proposed plan" no later than February 1995. This process provides opportunity for early involvement by the States and other stakeholders to discuss technical and equity issues associated with the plans.

The *Conceptual Plan* submitted in October 1993, focused on identifying treatment needs, capabilities, and options for treating the site's mixed waste. This *Draft Plan* submitted last August, focused on identifying preferred options for treating the site's mixed wastes, wherever possible, as well as proposed schedules for constructing capacity. This *Final Proposed Plan* focuses on the most feasible preferred option for Ames Laboratory. Each regulatory agency has the opportunity for review and approval, approval with modification, or disapproval, as required by the Act. Each version of the Plan will reflect discussions among states, as well as site-specific input from the individual regulatory agency and other interested parties on the previous submittal. It is DOE's intent that this iterative process, with ample opportunity for input and discussion, will facilitate *approval of the Site Treatment Plan and issuance of the compliance order* required by the Act. DOE's goal is to have all plans and orders in place by October 1995.

### 1.4 Proposed Site Treatment Plan Organization

Ames Laboratory's Proposed Plan follows the same format as the Proposed Plans of other DOE

sites to facilitate cross-site comparisons. The Proposed Plan is organized in two separate, but integrated volumes. The *Background Volume* provides the detailed discussion of the options: it contains information on the mixed waste streams and treatability groups a particular treatment approach or approaches would address and describes uncertainties associated with that approach, as well as the budget status of the approach, and regulator and stakeholder input. The *Plan Volume* is a short, focused document containing the proposed treatment approach and schedules for implementing the options and is intended to contain all the information required by the Act. The *Plan Volume* also contains a mechanism to implement the Plan and establish milestones that will be enforced by the Order. It references, but does not duplicate, details on the options in the *Background Volume*.

*Section 1.0 and 2.0* in both Volumes contain introductory material relevant to the purpose of the Volume. The *Background Volume* contains general information on the Proposed Plan and the site in section 1.0 and provides top-level assumptions and a description of the process used to determine the preferred options in section 2.0. The *Plan Volume* contains certain administrative provisions appropriate for implementing the Plan when finalized. These provisions include the approach to setting milestones, updates to the Plan, additions or removals to waste streams covered by the Plan, and funding considerations.

*Sections 3.0 through 5.0* discuss the proposed treatment approach(s) for low-level mixed waste and mixed transuranic waste, and each volume discusses the same waste streams and approaches in parallel sections. The *Background Volume* discusses the waste streams, technology needs, and uncertainties and other details on the proposed treatment approaches. In the *Plan Volume*, the sections include proposed schedules, to the extent feasible, as required under the Act.

The *Background Volume* includes three additional sections that are not included in the *Plan Volume* because they are not required by the Act and are not compliance-related. *Section 6.0* discusses mixed wastes expected to be generated in the future to assist in anticipating treatment needs. These waste streams will be incorporated into the *Plan Volume*, and treatment approaches and schedules developed, when the wastes are generated. *Section 7.0* discusses storage capacity needs and how compliant storage will be provided for Ames Laboratory mixed wastes pending treatment.

*Section 8.0* describes a process being followed by DOE and the states for evaluating options for disposal of mixed waste treatment residues. Although the Act does not require disposal to be covered in the Plans, DOE is including disposal information to be responsive to the states' request that disposal be addressed and to support state discussions. *Section 8.0* identifies that Ames Laboratory is not being considered as a disposal site and explains why.

## 1.5 Related Activities

Other DOE efforts are closely linked to STP development. These include the Mixed Waste Inventory Report; activities conducted pursuant to the National Environmental Policy Act (NEPA); and compliance and cleanup agreements containing commitments relevant to mixed waste.

### *Mixed Waste Inventory Report*

The Mixed Waste Inventory Report, (MWIR) required by the Act, provides an inventory of mixed waste currently stored or generated, or expected to be generated over the next five years, at each DOE site, and an inventory of treatment capacities and technologies. The Interim Mixed Waste Inventory Report, published by DOE in April of 1993, provided information on a waste stream-by-waste stream basis for each DOE site that generates or stores mixed waste. DOE made updated waste stream and capacity data available to the States and EPA in May 1994. The May 1994 MWIR data represents the best record of DOE's mixed waste inventory at the beginning of 1994.

However, because data is constantly being refined, waste stream information in Ames Laboratory Proposed Plan may differ somewhat from the May 1994 MWIR data. Any changes in waste stream information are explained in the Background Volume.

DOE is in the process of a further update of the MWIR data. The MWIR update is being closely coordinated with preparation of the Proposed Plans to ensure maximum consistency in waste stream information between the Proposed Plans and the MWIR. The updated MWIR data will be available by June 1995.

#### *The Programmatic Environmental Impact Statement for Waste Management*

DOE is preparing a Programmatic Environmental Impact Statement (PEIS) which will be used to formulate and implement a waste management program in a safe and environmentally sound manner and in compliance with applicable laws, regulations and standards. The PEIS is intended to present to the public, states, EPA, and DOE an understanding of impacts to human health and the environment together with the costs associated with a wide range of alternative strategies for managing the DOE's environmental program. The PEIS is examining the following waste types and activities: high-level, transuranic, mixed low-level, low-level, and hazardous waste. The analysis for the waste management PEIS will evaluate decentralized, regional, and centralized approaches for storage of high-level waste; treatment and storage of transuranic waste; treatment and disposal of low-level and low level mixed waste; and treatment of hazardous waste.

Development of the Waste Management (WM) PEIS is being coordinated with the preparation of the Site Treatment Plans under the FFCA Act. Information being generated to support the WM PEIS (e.g., hypothetical configurations, preliminary risk analyses, and cost studies) is shared with states to support STP discussions. The Draft WM PEIS will not identify a preferred alternative (i.e., configuration) for mixed waste facilities since this will be evolving in consultation with the states and EPA through the STP process. However, the WM PEIS analyses of potential environmental risks and costs associated with a range of possible waste management configurations will provide valuable insight as the public, states, EPA, and DOE discuss using existing facilities and constructing new mixed waste facilities to treat mixed waste.

The Draft WM PEIS is scheduled to be published in May 1995. The Final PEIS will be issued after a public comment period, at or near the time of issuance of the FFCA Act Orders by the appropriate regulatory agency. To remain flexible and accommodate potential changes, the WM PEIS Record of Decision for mixed waste will be issued after the appropriate regulatory agency has fulfilled its legislative requirement of issuing the Consent Orders.

All Ames Laboratory activities qualify for Categorical Exclusions. Ames Laboratory does not currently have any compliance agreements in place.

## 2 Methodology

### 2.1 Assumptions

All sites used the following assumptions to provide for a degree of consistency in the preparation of the Proposed STPs. The assumptions were developed as a part of the "Draft Site Treatment Plan Development Framework" and reflect review and comment from the states and EPA. Few of the DOE assumptions are relevant to mixed waste at Ames Laboratory.

1. High-level waste will continue to be managed according to current plans at each site (i.e., Hanford, West Valley, Savannah River, INEL). Primarily due to potential safety concerns, HLW will not be transported off-site except as a treated, stable waste that is ready for disposal. The PSTPs will not change management strategies for HLW.

2. Regarding defense related TRU Waste, the PSTPs will reflect DOE's current strategy that the Waste Isolation Pilot Project (WIPP) will open and receive a No Migration Variance. The PSTPs should identify characterization, processing, and treatment of TRU waste to meet the WIPP Waste Acceptance Criteria. Consistent with this policy, treatment of mixed TRU waste to meet Land Disposal Restriction (LDR) standards will not be included in the PSTPs at this time.

However, the STPs will recognize that DOE's policy regarding WIPP is under review and may change in the future. As such, the STPs will provide for the flexibility to modify activities and milestones regarding TRU waste to reflect potential future changes in DOE policy.

Under current DOE policy, non-defense related TRU waste will not be disposed at WIPP. As such, the DSTPs should reflect LDR treatment of non-defense mixed TRU waste.

3. DOE recognizes some states' preference for treatment of all wastes on-site. Where appropriate, existing on-site capacity will be utilized before new facilities are constructed. When on-site treatment or use of commercial or mobile facilities is not practicable, the use of existing off-site capacity, as well as the construction of new facilities, will be considered.
4. Sites in the same state will investigate the practicality of consolidated treatment facilities.
5. Mixed waste resulting from Environmental Restoration (ER) and Decontamination and Decommissioning (D&D) activities will be factored into planning activities and equity discussions, particularly where utilization of facilities identified in the PSTPs are being considered for managing ER and D&D waste.
6. The PSTP will address all wastes in the updated Mixed Waste Inventory Report (MWIR). Any changes/corrections to the MWIR waste stream and treatment facility information will be explained in the PSTP.
7. On a volume basis, the large majority of DOE's mixed waste will be treated on-site. Because of transportation concerns and costs, this generally includes process waste water, and some explosives and remote-handled wastes. In addition, other large volume waste streams will generally be treated on-site. At a minimum, Richland (RL), Oak Ridge (OR), Idaho (ID) and Savannah River (SR) will have on-site facilities to treat the majority of their wastes.
8. The Environmental Management Programmatic Environmental Impact Statement (PEIS) is being prepared in parallel with the development of the STPs. The PSTP process will provide information to the PEIS. Each site will prepare any necessary specific NEPA documentation before proceeding with a given project or facility ordered by the State or EPA as a result of the STP process.
9. In support of DOE's cradle-to-grave waste management philosophy, disposal site location and criteria will be factored into state equity discussions, waste treatment facility designs, and the characteristics of the final waste forms.

## 2.2 Treatment Options Selection Process

Because the Draft Site Treatment Plans (DSTPs) were prepared by the sites using a "bottom-up" approach, the resulting treatment configuration, when viewed from a national level, contained many redundancies and inefficiencies. In developing the PSTPs, an assessment was performed to determine what accommodations are necessary to blend the "bottom-up" DSTPs into a more sensible national configuration of treatment systems. To facilitate this assessment, DOE established

the Options Analysis Team (OAT) comprised of site representatives and members of the Headquarters' FFCAct Task Force. The OAT coordinated their efforts with the States, through the National Governors' Association, to ensure the national mixed waste configuration reflects both the States' and DOE's concerns. As part of this evaluation, the impacts of implementing the emerging DSTP configuration, as well as alternative configurations, were evaluated.

The focus of the OAT's efforts has been on mixed low-level waste (MLLW). While High Level Waste (HLW) and Mixed Transuranic Waste (MTRU) are also covered by the FFCAct, the strategies for managing these wastes have already been established. However, DOE recognizes that modifications of these strategies may be needed as the programs evolve and new information becomes available.

In combination, the DSTPs form a mixed waste treatment configuration which was the baseline for the OAT analyses. Changes to the DSTP configuration proposed by the OAT are based on the following analyses:

1. Review of the DSTP baseline configuration to identify redundant and technically inefficient proposed treatment options.
2. Identification of alternative treatment configurations that emphasize key State and DOE concerns.
3. Evaluation of the DSTP baseline and alternate configurations against key evaluation areas to determine what combination of treatment options results in a configuration that best meets DOE's, the States', EPA's and other stakeholders' concerns.

The results of the initial OAT analysis were shared with each of the sites and the State regulators, as well as DOE management. The OAT worked for several more months responding to State requests for additional analysis, incorporating ongoing site analysis, and responding to comments. The resulting configuration, as presented in the PSTPs, is DOE's best attempt to balance competing DOE and stakeholder interests.

### 2.3 Coordination with Regulatory Agencies and Other Stakeholders

The Act offers an opportunity for DOE and the state and EPA regulators who will be approving the Plans to work cooperatively toward defining mixed waste treatment plans. As requested by the states, DOE signed a cooperative agreement in August 1993 with the National Governor's Association (NGA) to facilitate the DOE-to-State interactions. To date, the NGA has sponsored several national meetings between DOE, the states, EPA, and the Indian Nations to discuss the development of the STPs. Two working groups have been formed to discuss technical issues related to treatment and disposal of mixed waste. NGA and the states have also reviewed and provided comment on the guidance documents discussed in Section 2.2.

The Act requires the states and EPA to provide for public involvement after the Final Proposed Plans are submitted in February, 1995. DOE has provided additional opportunities for public input into the development of Proposed STP through existing public involvement mechanisms at the site.

Ames Laboratory has provided the public with a copy of the Conceptual Site Treatment Plan (CSTP) and the Draft Site Treatment Plan in the information repository which is located at the Ames Public Library. In addition, a representative of the Laboratory was present at the first public information meeting to address questions or concerns about the FFCAct. The meeting was held on April 5, 1994. At the present time, EPA Region VII has had no comment on the CSTP or DSTP.

As with the CSTP and DSTP, the PSTP will be available to the public at Ames Public Library.

Future public participation activities for Ames Laboratory include direct mailing fact sheets and other information to identified stakeholders. If there is stakeholder interest in a workshop (or other public forum), one will be conducted after the release of the Proposed Site Treatment Plan. To date, there has been little interest in FFCAct activities at Ames Laboratory by EPA regulators. It is the intent of the Laboratory and CH FFCAct personnel to meet with regulators approximately 30 days after the release of the PSTP.

At the National level, DOE has presented information on the development of the STPs to the Environmental Management Advisory Board (EMAB) and will continue to provide information to the EMAB and other national stakeholder groups as the STPs are developed. Other national level stakeholder involvement may be conducted after submission of the Draft STPs.

#### 2.4 Characterization of mixed wastes

At Ames Laboratory mixed wastes are characterized through the use of generator process knowledge. This requires generators to complete a manifest, providing any information of radiological, chemical, and physical properties the mixed waste contains before it is picked up by Environment, Safety & Health Group (ES&H).

Any waste which is removed from a Radiological Material Management Area is initially considered to be mixed waste until the generator or testing verifies otherwise. Verification of radioactive components of mixed waste is provided by the Health Physics staff of the ES&HG.

#### 2.5 Waste Minimization

Minimization of wastes, including nonhazardous, radioactive, and mixed waste is a high priority at Ames Laboratory. Laboratory management is firmly committed to an effective waste minimization program, as evidenced by increases in minimization staffing, training, and successes. Ames Laboratory Waste Minimization Policy Statement is a commitment onto the development and implementation of a cost-effective waste and pollution prevention program. The policy adopts the hierarchial approach to waste minimization and emphasizes that it is the responsibility of each employee to implement waste minimization practices.

The waste minimization strategy at Ames Laboratory is to create an organization comprised of line and staff representatives to evaluate waste generating activities, identify cost-effective waste minimization techniques, ensure implementation of those techniques, and track the performance of the program.

Two of the existing waste streams are legacy mixed waste streams that were generated 10-30 years ago. The two waste streams that are currently being generated are the acidic aqueous waste and contaminated lead waste streams. The contaminated lead will continue to be generated as the laboratory spaces are renovated. The acidic aqueous liquid waste stream is generated in conjunction with a technology development project. The goal of the research is to develop analytical techniques which generate little or no waste. To prove the new technology, current methods must be used for comparison.

### 3 Low-Level Mixed Waste Streams

Ames Laboratory currently stores four types of mixed wastes, all of which can be treated using existing technology. Two of the wastes are legacy wastes which resulted from processes no longer being performed. The other two are waste streams from on-going research activities.

The Contaminated Lead waste stream previously identified in the Draft Plan has been removed from this Proposed Plan. Contaminated lead generated at Ames Laboratory is not covered under the plan

because storage is for the sole purpose of accumulating such quantities as are necessary to facilitate proper treatment in accordance with Compliance Plan Volume § 2.1, Covered Matters, § 2.7.1(d), Deletion of Wastes, and § 2.7.2.

### 3.1 Mixed Waste Streams for which Technology Exists

#### 3.1.1 Analytical Reference Standards

This legacy mixed waste is the result of a research project occurring 25-30 years ago. It consists of coded 20 grain samples of transition metals (including the RCRA metals arsenic, barium, cadmium, chromium, lead, mercury and silver) spiked with up to 5% uranium or thorium.

Waste Matrix: MLLW, CH Lab Packs with Metals  
Mixed Waste Inventory Report Number: AL-W001  
RCRA Waste Code: D004A, D005A, D006A, D007A, D008A, D009A and D011A  
Radionuclide Content: Beta/Gamma emitter, U, Th  
Treatability Group: Solid Lab Packs  
MWIR Inventory: 0.01 m<sup>3</sup>, 4 kg  
Inventory (as of 6/94): 0.01 m<sup>3</sup>, 4 kg  
Projected 5 yr Gen.: 0.0 kg

Characterization Level of Confidence: Detailed research records for these samples have been obtained. Confidence level for sample content is very high.

##### 3.1.1.1 Description of Technology and Capacity Needs

LDR Treatment Standard: Stabilization  
Technology Needed: Stabilization  
Capacity Required: < 0.01 m<sup>3</sup>

##### 3.1.1.2 Proposed Treatment Approach

Based on the recommendation of the Options Analysis Team, the Waste Receiving and Processing Facility II is identified at the proposed treatment option.

Facility Name: Waste Receiving & Processing Facility II A&B  
Location: Richland, WA  
Technology: Stabilization  
Other Features: N/A

Regulatory Status: Part B application submitted  
Actions Needed to Bring the Off-Site Facility On Line: Planned, approved facility.  
Complete Construction.

##### Action Needed to Characterize, Package and Ship Waste Off-Site:

The Hanford Site is proposing to seek treatment services from the private sector for waste streams, including wastes from other DOE sites, that were to be treated in a new facility, WRAP IIA. Accordingly, DOE-RL has requested that the Milestone M-19-00, "Complete WRAP II Module Construction and Initiate Operations," in the Hanford TPA be amended. The proposed amendment would not change the milestone date for initiating operation on September 30, 1999. If the amendment is approved, the specific nature and location of the facility will be determined through the contracting process. The status of the privatization effort, progress in securing treatment service by DOE-Hanford and any change to the facility title will be reported in subsequent Annual Update Reports to the

Plan.

Status and Results of Discussions with Facility: Preliminary. No SDAR's have been developed. Chicago Operations Office has requested through the Richland Operations Office that due to the extremely small volume associated with this waste stream that the treatment residuals not be returned to Ames Laboratory.

Budget Impact: Costs associated with this option are within the requested funding for Ames Laboratory.

Stakeholder Comment: No comments have been received from stakeholders at this time.

Uncertainties: Schedule delays in construction will limit acceptance of off-site waste.

### 3.1.2 Uranium Sulfate

This legacy mixed waste is the result of a research project occurring 10-15 years ago. It consists aqueous uranium sulfate. Concentrations of uranium sulfate range from dilute to slurried uranium sulfate in water.

Mixed Waste Inventory Report Number: AL-W003

RCRA Waste Code: D002B

Radionuclide Content: Beta/Gamma emitter, U

Treatability Group: Aqueous Slurries

MWIR Inventory: 0.01 m<sup>3</sup>, 7.5 kg

Inventory (as of 6/94): 0.01 m<sup>3</sup>, 7.5 kg

Projected 5 yr Gen.: 0.0 kg

Characterization Level of Confidence: This stream has been characterized through process knowledge. The confidence level is moderately high.

#### 3.1.2.1 Description of Technology and Capacity Needs

LDR Treatment Standard: Neutralization/Stabilization

Technology Needed: Stabilization

Capacity Required: 0.01 m<sup>3</sup>, 7.5 kg

Neutralization of this waste stream will remove the RCRA characteristic. However, the remaining LLW will require additional stabilization as liquids are not accepted for long term disposal.

#### 3.1.2.2 Proposed Treatment Approach

Facility Name: Oak Ridge Central Neutralization Facility

Location: Oak Ridge, TN

Technology: Neutralization

Other Features: System is currently in use to treat mixed waste

Regulatory Status: Permitted

Actions Needed to Bring the Off-Site Facility Into Operation: Currently Operating

Action Needed to Characterize, Package and Ship Waste Off-Site: Final preparation of analytical profile consistent with ORNL Waste Acceptance Criteria. All material would be packaged and transported as required by ORNL.

Status and Results of Discussions with Facility: Preliminary discussions with ORNL indicate that there may be an opportunity to accept off-site waste streams for this facility. ORNL currently can accept waste from off-site locations. Ames is currently not on this list. Chicago Operations Office has requested through the Oak Ridge Operations Office that due to the extremely small volume associated

with this waste stream that the treatment residuals not be returned to Ames Laboratory.

Budget Impact: Costs associated with this option are within the Ames Laboratory target budget.

Stakeholder Comment: No comments have been received from stakeholders at this time.

Uncertainties: ORNL RCRA Part B would need to be modified for Ames Laboratory to become an approved off-site waste generator.

### 3.1.3 Acidic Aqueous Liquids

This waste stream is generated in an on-going research project. The goal of the project is to develop analytical techniques which produce little or no mixed waste.

Mixed Waste Inventory Report Number: AL-W007  
RCRA Waste Code: D002B, D007A, D008A, D005A  
Radionuclide Content: Beta/Gamma emitter, U, Th  
Treatability Group<sup>1</sup>: Acidic Aqueous Liquids  
MWIR Inventory: 0.04 m<sup>3</sup>, 39 kg  
Inventory (as of 6/94): 0.04 m<sup>3</sup>, 39 kg  
Projected 5 yr Gen.: 0.1 m<sup>3</sup>, 76 kg

Characterization Level of Confidence: This stream has been characterized through process knowledge and analytical data as the result of research operations. The confidence level is high.

#### 3.1.3.1 Description of Technology and Capacity Needs

LDR Treatment Standard: Neutralization/Stabilization  
Technology Needed: Neutralization/Stabilization  
Capacity Required: <0.1 m<sup>3</sup>

#### 3.1.3.2 Proposed Treatment Approach

Facility Name: Oak Ridge Central Neutralization Facility  
Location: Oak Ridge, TN  
Technology: Neutralization  
Other Features: System is currently in use to treat mixed waste  
Regulatory Status: Permitted  
Actions Needed to Bring the Off-Site Facility In Operation: Currently Operating  
Action Needed to Characterize, Package and Ship Waste Off-Site: Final preparation of analytical profile consistent with ORNL Waste Acceptance Criteria. All material would be packaged and transported as required by ORNL.  
Status and Results of Discussions with Facility: Preliminary discussions with ORNL indicate that there may be an opportunity to accept off-site waste streams for this facility. ORNL currently can accept waste from off-site locations. Ames is currently not on this list. Chicago Operations Office has requested through the Oak Ridge Operations Office that due to the extremely small volume associated with this waste stream that the treatment residuals not be returned to Ames Laboratory.

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<sup>1</sup> The treatability group in the MWIR is Acidic Wastewaters. Ames Laboratory believes that the mixed waste stream is more accurately represented in the Acidic Aqueous Liquids treatability group.

**Budget Impact:** Costs associated with this option are within the Ames Laboratory target budget.

**Stakeholder Comment:** No comments have been received from stakeholders at this time.

**Uncertainties:** ORNL RCRA Part B would need to be modified for Ames Laboratory to become an approved off-site waste generator.

### 3.2 Mixed Waste for which No Technology or for which Technology Needs Adaptation

Ames Laboratory does not have any mixed waste streams requiring adapted or new treatment technology.

### 3.3 Mixed Waste Streams Requiring Further Characterization or for which Technology Assessment has not been done

Ames Laboratory does not have any mixed waste streams which require further characterization or a technology assessment.

## 4 TRU Mixed Waste Streams

### *National Strategy For Managing Mixed Transuranic Waste*

The current DOE strategy for management of mixed transuranic (MTRU) waste is to segregate MTRU wastes from mixed low-level wastes; to maintain the MTRU wastes in safe interim storage; to characterize, certify, process if necessary, and package the wastes to meet the Waste Acceptance Criteria (WAC) of the Waste Isolation Pilot Plant (WIPP); and to permanently dispose of applicable MTRU waste in WIPP. Compliance with the requirements of the Federal Facility Compliance Act (FFCAct) for MTRU waste will be achieved using the RCRA no-migration variance petition approach provided in the Code of Federal Regulations (CFR) Title 40 Section 268.6. Under this strategy, no treatment other than that necessary to meet WIPP WAC is anticipated; however, the performance assessment, and the EPA no-migration variance determination will ascertain what treatments, if any, will be required to ensure disposal compliance.

DOE is actively gathering inventory and characterization data for input into the performance assessment and preparing several regulatory submittals to EPA to demonstrate compliance with no-migration variance petition requirements. The current plan is to submit a draft compliance certification package to EPA in March 1995; a no-migration variance petition to EPA by May 1995; a revised RCRA Part B permit application to the New Mexico Environment Department by June 1995; a final compliance certification package (including final performance assessment results) to EPA by December 1996; and to finalize the disposal WIPP WAC by June 1997. DOE plans to declare operational readiness for WIPP by December 1997. Disposal of contact-handled (CH) TRU waste will begin in June 1998, followed by remote-handled (RH) TRU waste in June 1999. These dates are contingent upon permit approval, certification of disposal compliance, and determination of no-migration from the appropriate regulators and are subject to the availability of funds.

In the interim, site-specific information is included in the section, "Site MTRU Waste Management Approach," to outline activities being performed at Ames Laboratory to maintain safe, compliant storage, waste characterization activities, and other activities planned to support the ultimate goal of shipment to and disposal at WIPP under a no-migration variance petition.

### Site MTRU Waste Management Approach

All MTRU wastes at Ames Laboratory will meet the criteria set by the WIPP WAC when published. Current projections are that no MTRU waste will be generated until 2004.

#### 4.1 TRU Wastes Expected to go to WIPP

##### 4.1.1 Transuranics/Uranium in Glove Box

Waste Matrix: MTRU, CH Heterogenous debris, composite filters  
Mixed Waste Inventory Report Number: AL-W005  
RCRA Waste Code: D002B, D004A, D005A, D006A, D007A, D008A,  
D010A, D011A  
Radionuclide Content: alpha, beta/gamma emitter  
Pu-239, Pu-240, Pu-242, U-235, U-236, U-238, Np-237, Pa-233  
Treatability Group<sup>2</sup>: Heterogenous debris, composite filters  
MWIR Inventory: 0.0 m<sup>3</sup>, 0 kg  
Inventory (as of 6/94): 0.0 m<sup>3</sup>, 0 kg  
Projected 5 yr Gen.: 0.0 m<sup>3</sup>, 0.0 kg

Characterization Level of Confidence: Waste stream information is based on process knowledge. This mixed waste stream will not be generated until 2004. At that time the waste stream will be glove box HEPA filters contaminated with transuranic material.

##### 4.1.1.1 Proposed Treatment Approach

This material will be generated from a Safeguards and Security project.

Facility Name: Waste Introduction Pilot Project

Location: Carlsbad, NM

Technology: Neutralization/Stabilization/Disposal

Other Features: System is under construction

Regulatory Status: Permits applied for and under review

Actions Needed to Bring the Off-Site Facility In Operation: Complete permit approval process. Complete construction.

Action Needed to Characterize, Package and Ship Waste Off-Site: Waste would require characterization and packaging, to meet WIPP Waste Acceptance Criteria.

Status and Results of Discussions with Facility: Preliminary.

Budget Impact: Costs associated with this option are within the Ames Laboratory target budget.

Stakeholder Comment: No comments have been received from stakeholders at this time.

Uncertainties: WIPP will open for TRU waste disposal.

#### 4.2 TRU Wastes not destined for WIPP

Ames Laboratory TRU waste is generated in association with defense related programs. All Ames Laboratory TRU and MTRU waste is destined for WIPP.

#### 5 High Level Mixed Waste Streams

Ames Laboratory does not foresee any production of High-Level Mixed Waste.

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<sup>2</sup> Waste that will be generated during this project will be collected in the HEPA filter. Therefore the Treatability group has been changed from not identified to heterogenous debris/composite filters.

## 6 Future Generation of Mixed Waste Streams

The following sections provide waste stream information for future mixed wastes where it is available and to the extent possible.

### 6.1 Soils/Debris

Ames Laboratory does not foresee any production of Soil/Debris Mixed Waste.

### 6.2 D & D Wastes

Ames Laboratory does not foresee any production of D & D Mixed Waste.

## 7 Storage Report

DOE is committed to storing mixed waste in compliance with RCRA storage requirements in 40 CFR 264 or 40 CFR 265 pending the development of treatment capacity and implementation of the Site Treatment Plans.

For mixed waste to be shipped off-site for treatment, storage of the mixed waste before and after treatment will be arranged on a case-by-case basis between the shipping and receiving sites, in consultation with the affected states. Factors such as inadequate compliant storage capacity at the shipping site and the need to facilitate closure of the shipping site will be considered in proposing shipping schedules.

Only two waste streams will continue to be generated. Ames Laboratory will store these waste streams, Contaminated Lead and Acidic Aqueous Liquids, in accordance with all of the requirements of a waste accumulation area as outlined in 40 CFR 265. Contaminated Lead will be stored to accumulate sufficient volume to facilitate the recovery of clean lead for reuse. The Laboratory does not anticipate this accumulation period to be greater than two years.

It is proposed that due to the extremely small volume of waste that is to be treated, that the post-treatment residuals not be returned to the Laboratory.

## 8 Process for Evaluating Disposal Issues in Support of the Site Treatment Plan (STP) Discussions

This section discusses the overall Department Of Energy (DOE) process for evaluating issues related to the disposal of residuals from the treatment of mixed low-level waste (MLLW) subject to the Federal Facilities Compliance Act (FFCA). Ames Laboratory is not among the sites being analyzed further for potential development as a disposal site for residuals from the treatment of MLLW subject to the FFCA. This section outlines the disposal planning process developed by DOE, in consultation with the states, for evaluating potential options for the disposal of residuals from the treatment of MLLW. Importantly, because DOE is not currently developing MLLW disposal sites (with the exception of the Hanford Site) preferred alternatives or final destinations for disposal of treatment residuals are not known at this time. The results of this process are intended to be considered during subsequent planning activities and discussions between DOE and regulatory agencies.

### 8.1 Background

The FFCA requires DOE to develop a plan for the treatment of mixed wastes. The Act does not impose any similar requirement for the disposal of mixed wastes after they have been treated; however, DOE recognizes the need to address this final phase of mixed waste management. The following process reflects DOE's current strategy for evaluating the options for disposal; the evaluation will increase understanding of the strengths and weaknesses of a site's potential for

disposal but is not a site selection process. Ultimately the identification of sites that may receive mixed waste for disposal will follow state and federal regulations for siting and permitting, and will include appropriate public involvement.

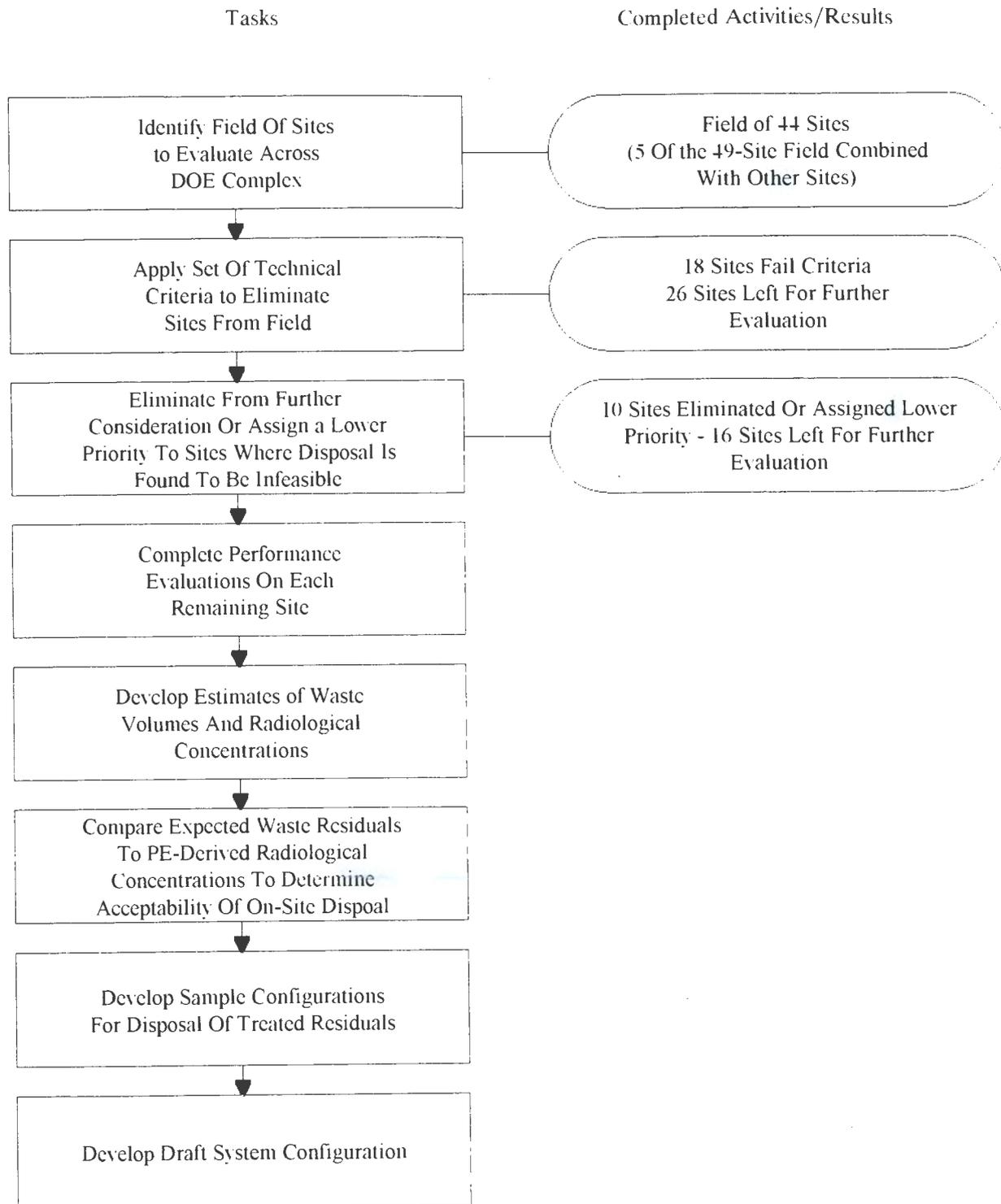
High-level and mixed transuranic wastes are among the mixed waste subject to the FFCAct. Options for disposal of these mixed wastes are not identified by this process because there are established processes for studying, designing, constructing, and operating disposal facilities for these wastes.

The DOE has historically planned to develop MLLW disposal facilities at the six DOE sites currently disposing of low-level waste. These sites are Hanford, Savannah River, Oak Ridge Reservation, Idaho National Engineering Laboratory, Nevada Test Site, and Los Alamos National Laboratory. Currently, the Hanford Site has the only active permitted facility operated by DOE for the disposal of residuals from the treatment of MLLW. This plan has been re-directed in conjunction with the planning efforts of the FFCAct to include the results of the disposal planning process (Figure 8.1), and the Environmental Management Programmatic Environmental Impact Statement (EM PEIS). The sites subject to evaluation under this process are the 49 sites reported to Congress by DOE in the Mixed Waste Inventory Report (MWIR), April 1993, that are currently storing or expected to generate mixed waste.

## 8.2 Disposal Planning Process

Although the FFCAct does not specifically address disposal of treated mixed wastes, both DOE and the States have recognized that disposal issues are an integral part of treatment discussions. A process was established to evaluate and discuss the issues related to the potential disposal of the residuals from the treatment of DOE MLLW at the sites subject to the FFCAct, shown in Figure 8.1. The focus of this process has been to identify, from among the 49 sites that currently store or are expected to generate mixed waste, sites that are suitable for further evaluation of their potential as disposal sites. Sites determined to have marginal or no potential for disposal will be removed or deferred from further evaluation under this process. The remaining sites will be evaluated more extensively. Ultimately, a number of sites are expected to be identified that are technically acceptable for disposal of treated residuals.

Figure 8.1 Disposal Planning Process



## 8.2.1 Activities to Date

### *Site Grouping*

The initial step in this process was to examine each of the 49 sites to determine which sites, while individually listed in the MWIR, were in such geographic proximity that further analysis could address them as a single site. This grouping reduced the number of sites to 44, as follows:

- Idaho National Engineering Laboratory and Argonne National Laboratory (West) are located on a single federally-owned reservation near Idaho Falls, Idaho;
- The Sandia National Laboratories, California, and Lawrence Livermore National Laboratory are located on adjoining, federally-owned properties near Livermore, California;
- The Inhalation Toxicology Research Institute and Sandia National Laboratories, New Mexico, are located on the same federally-owned reservation, and;
- The Oak Ridge National Laboratory, Oak Ridge K-25 Site, and Oak Ridge Y-12 are all located within the federally-owned Oak Ridge Reservation, near Oak Ridge, Tennessee.

### *Initial Site Screening*

At a joint meeting on March 3-4, 1994, DOE and the states agreed on three exclusionary criteria for further screening the 44 remaining sites. These criteria were developed by reviewing federal and state requirements regarding the siting of waste treatment, storage, and disposal facilities. In order to be evaluated further, a site:

- must not be located within a 100-year floodplain;
- must not be located within 61 meters (200 feet) of an active fault, and;
- must have sufficient area to accommodate a 100-meter buffer zone.

The first criterion (100-year flood plain) is derived from both National Regulatory Commission (NRC) and Resource Conservation and Recovery Act (RCRA) requirements. The second criterion (active fault) was selected from requirements found in RCRA which restrict the location of waste treatment, storage, and disposal facilities. The third criterion (sufficient area for 100-meter buffer) is derived from guidance from the Environmental Protection Agency (EPA), NRC, and DOE for the proper operation of waste facilities.

Evaluation of the 44 sites resulted in identification of 26 sites meeting the above criteria. At a joint meeting on March 30-31, 1994, DOE and the states agreed to remove from further evaluation those sites not meeting the screening criteria. Also at that meeting, DOE agreed to collect additional, more detailed information on the remaining 26 sites to identify additional strengths and weaknesses of the sites. It was agreed that DOE or any affected state may propose further elimination of sites from consideration following the site-specific evaluation.

### *Evaluation of the Remaining 26 Sites*

DOE and the states met on July 26-27, 1994, to discuss the site-specific data on the remaining 26 sites, and to consider proposals for eliminating additional sites from further evaluation. The focus of these discussions was to identify sites suitable for further evaluation

under this process.

The criteria that DOE and the states used to eliminate sites from further evaluation at this stage were derived from three main groupings of considerations: Technical Considerations, Potential Receptor Considerations, and Practical Considerations. Each of the remaining 26 sites were evaluated against criteria in these groupings that included; soil stability and topography, precipitation and evapotranspiration, population, proximity to sensitive environment, land acquisition, government presence at the site, and regulatory constraints.

Sites with marginal or no potential for disposal, based on these criteria, were recommended for removal or postponement from further evaluation. As a result of the meeting, DOE and the states agreed to eliminate five sites from further evaluation due to their limited potential for disposal. These are:

<u>Site</u>	<u>State</u>
Energy Technology Engineering Center	California
General Atomics	California
General Electric Vallecitos Nuclear Center	California
Pinellas Plant	Florida
Site A/Plot M	Illinois

Additionally, DOE and the states agreed to merge the evaluation of Knolls Atomic Power Laboratory at Niskayuna, New York, and Knolls Atomic Power Laboratory at Kesselring, New York, due to their close, geographic proximity.

While not eliminated from further evaluation, it was agreed to lower the evaluation priority of an additional four sites. Issues such as the technical capabilities of the site, the volume of mixed waste that may be generated by the sites, and the acceptability of off-site waste contributed to a conclusion that further evaluation of some sites should not be a high priority. DOE and the states agreed to evaluate these sites in terms of their capability to dispose of their own mixed waste if no other off-site disposal options could be identified. These sites will not be considered for disposal of wastes from other sites, and may be eliminated from further analysis if sufficient evidence suggests the potential for disposal is too limited. The sites in this category are:

<u>Site</u>	<u>State</u>
Weldon Spring Remedial Action Project	Missouri
Brookhaven National Laboratory	New York
Mound Plant	Ohio
Bettis Atomic Power Laboratory	Pennsylvania

#### *Performance Evaluation*

The performance evaluation being conducted for the 16 sites identified for further evaluation entails the collection of more detailed site-specific data related to the site characteristics. The performance evaluation methodology is based on the principles of radiological performance assessments and was developed by DOE performance assessment experts. Additionally, the evaluation will be based on RCRA-compliant engineered facilities. This information will be used to evaluate the sites and estimate the radionuclide concentration limits of waste that may be disposed at a given site. The performance evaluations were initiated in August 1994. The 16 sites for which performance evaluations are being prepared are:

<u>Site</u>	<u>State</u>
Lawrence Livermore National Laboratory, Site 300	California
Rocky Flats Environmental Technology Site	Colorado
Idaho National Engineering Laboratory	Idaho
Argonne National Laboratory	Illinois
Paducah Gaseous Diffusion Plant	Kentucky
Nevada Test Site	Nevada
Los Alamos National Laboratory	New Mexico
Sandia National Laboratories	New Mexico
Knolls Atomic Power Laboratory-Kesselring	New York
West Valley Demonstration Project <sup>3</sup>	New York
Fernald Environmental Management Project	Ohio
Portsmouth Gaseous Diffusion Plant	Ohio
Savannah River Site	South Carolina
Oak Ridge Reservation	Tennessee
Pantex Plant	Texas
Hanford Site	Washington

### 8.2.2 Next Steps in the Evaluation Process

As illustrated in Figure 8.1, progress has been made in the planning of the disposal process. The following steps outline future activities that are either ongoing or are to be completed to facilitate an informed decision about the disposal of DOE MLLW. Coordination with the states will continue to ensure stakeholder input and to resolve concerns at the earliest possible stage.

#### *Complete Remaining Performance Evaluations*

To date, 10 performance evaluations have been completed for the following sites: Savannah River, Oak Ridge Reservation, Idaho National Laboratory, Hanford, Sandia National Laboratories, Rocky Flats Environmental Technology Site, Los Alamos National Laboratory, Pantex Plant, Nevada Test Site, and Lawrence Livermore Laboratory. Performance evaluations for the remaining 6 sites are scheduled to be completed by June 1995. A progress report for the performance evaluation activities has been issued at approximately the same time frame as the final Proposed Site Treatment Plans (PSTPs) in order to keep the states and other interested parties informed of the progress.

#### *Develop Estimates of Waste Volumes and Radionuclide Concentrations in Treated Residuals*

Once treatment methods for the MLLW waste streams are finalized through the FFCAct process, estimates of the volumes and radionuclide concentrations of the treated residuals will be developed for all waste streams; this analysis will take place after the PSTPs have been approved by the appropriate regulatory agencies. These estimates are needed to compare to the performance evaluation-derived radionuclide concentration guides.

#### *Compare Estimates of Radionuclide Concentration in Treated Residuals to Performance Evaluation-Derived Radionuclide Concentration Guides*

Radionuclide concentrations for each treated residual will be compared to those disposal values derived in the performance evaluation in this step. Comparing radionuclide

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<sup>3</sup>Because the West Valley Demonstration Project Act does not authorize the site to accept off-site wastes, the site will only be evaluated for disposal of on-site wastes.

concentrations in treated residuals with performance evaluation concentration guides will compare MLLW stream characteristics to potential disposal sites' capabilities. This evaluation will also include off-site DOE and commercial disposal site candidates for those treated waste streams which do not have on-site capabilities. Confirmation of the candidates streams and sites will be attained through detailed performance assessment efforts.

*Develop Sample Configurations for Disposal of Treated Residuals*

An Options Analysis Team (OAT) approach will be employed to develop sample complex-wide configurations for the disposal of treated MLLW residuals. These configurations will take into account such technical issues as compatibility of radionuclides (both handled at the site and those considered acceptable by the performance evaluations), capacity to handle projected residual volumes, etc. Under the OAT approach, other types of issues will be weighed during the configuration discussions such as transportation costs and distances.

*Develop a Draft Disposal System Configuration*

Using the sample configurations as a starting point, DOE will develop with state and stakeholder input, a draft disposal system configuration. This configuration will be the basis for determining future funding and schedules for proposed disposal facilities. The Final EM PEIS will provide bounding analysis of potential environmental impacts for the range of sample configurations considered. It will identify preferred sites for further development as disposal facilities. Following the issuance of the Record of Decision (ROD) for the EM PEIS, DOE may initiate site-specific National Environmental Policy Act (NEPA) evaluations for the proposed disposal facilities; initiate performance assessment analyses for compliance with DOE Order 5820.2A; and initiate processes for permitting disposal facilities.

### 8.3 Integration with the STP Process

The FFCAct does not require disposal to be included in the STPs; however, given the complex issues involved, DOE recognizes the importance of state input to facilitate resolution of issues related to disposal. Chapter 8.0 information is provided in the PSTP to continue to involve the states and inform them of DOE's continued work on the disposal issue. For more detailed information on the ongoing performance evaluation process, refer to the "Progress Report on Performance Evaluation of DOE Sites' Capabilities for Mixed Low-Level Waste Disposal." As the disposal planning process moves forward, further information will be provided and coordination with the states will continue.

IS-5102  
UC-630

FEDERAL FACILITY COMPLIANCE ACT  
PROPOSED SITE TREATMENT PLAN  
COMPLIANCE PLAN VOLUME

Prepared by:

Environment, Safety and Health Group

Ames Laboratory  
Iowa State University  
Ames, Iowa 50011-3020

March 24, 1995

Operated by Iowa State University for  
the U.S. Department of Energy under Contract

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## Table of Contents

1.0 Purpose and Scope	2
2.0 Implementation of the Site Treatment Plan	2
2.1 Covered Matters	3
2.2 Compliance Schedules	3
2.3 Annual Site Treatment Plan Updates	4
2.4 Inclusion of New Wastestreams	6
2.5 Revisions	6
2.6 Extensions and Modifications	7
2.7 Deletion of Wastes and Termination of the STP	9
2.8 Submittal, Review and Approval of Deliverables	9
2.9 Funding	11
2.10 Disputes	11
2.11 Covenants and Reservations	12
3.0 Low Level Mixed Waste Treatment Plan and Schedules	12
3.1 Mixed Waste Streams for which Technology Exists	13
3.1.1 Analytical Reference Standards	13
3.1.2 Uranium Sulfate	13
3.1.3 Acidic Aqueous Liquids	13
3.2 Mixed Waste Streams for which no Technology or for which Technology Needs Adaptation	14
3.3 Mixed waste streams requiring further characterization or for which Technology Assessment has not been done	14
4.0 TRU Mixed Waste Streams	14
5.0 High Level Mixed Waste Streams	14
Addendum: Milestone Approach and Environmental Management Budget Formulation Process	15

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## PLAN VOLUME

### 1.0 Purpose and Scope

- 1.1 The U.S. Department of Energy (DOE) is 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. 6939(c), as amended by Section 105(a) of the Federal Facility Compliance Act [(P.L. 102-386) (FFCA)]. Upon submission of the plan to the appropriate regulatory agency, the FFCA requires the recipient agency to solicit and consider public comments, and approve, approve with modification, or disapprove the plan within six months. The agency is to consult with the U.S. Environmental Protection Agency (EPA) and any State in which a facility affected by the plan is located. Upon approval of a plan, the regulatory agency must issue an Order requiring compliance with the approved plan.
- 1.2 The DOE Chicago Operations Office (hereinafter referred to as DOE-CH) has prepared this Site Treatment Plan (STP) for mixed waste at Ames Laboratory. The Proposed Plan identifies how DOE-CH proposes to obtain treatment of the site's mixed waste or develop technologies where technologies do not exist or need modification. For some wastestreams, a plan and schedules for characterizing wastes, undertaking technology assessments, and for providing the required plans and schedules for developing capacities and technologies, as appropriate, are provided.
- 1.3 The purposes of this STP include:
  - 1.3.1 Fulfilling the requirements of the FFCA;
  - 1.3.2 Establishing an enforceable framework in conjunction with the Order in which DOE-CH will develop and treat or otherwise meet RCRA land disposal restrictions (LDR) for all covered LDR mixed wastes currently in storage and to be generated or received in the future; and
  - 1.3.3 Allowing for storage of current and projected covered LDR mixed wastes at Ames Laboratory during implementation of this STP and the Order.
- 1.4 The Compliance Plan Volume, in conjunction with the Background Volume, comprises the STP. The Compliance Plan Volume provides overall schedules with milestones and target dates for achieving compliance with LDR, 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 the approved STP that would be enforced under the Order. Additional discussion contained in the Background Volume is provided for informational purposes only.
- 1.5 This STP, once approved and an Order issued, fulfills the requirements contained in the Federal Facility Compliance Act of 1992, RCRA Section 3021; therefore, pursuant to §105(a) of the FFCA (RCRA §3021(b)(5)), this STP and Order shall stand in lieu of any other interpretations of DOE-CH's requirement to develop and submit a plan for the development of treatment capacities and technologies pursuant to RCRA Section 3021.

### 2.0 Implementation of the Site Treatment Plan

This section establishes the mechanisms and procedures for administering and implementing the treatment plans and schedules in sections 3.0 through 5.0 of the Compliance Plan Volume of the STP.

## 2.1 Covered Matters

The Compliance Plan Volume of the STP addresses LDR requirements pertaining to storage and treatment of covered wastes, whether such wastes were generated or accumulated in the past, present or future. Covered wastes are all mixed waste at Ames Laboratory identified in the STP or added to the STP in accordance with section 2.4, except those mixed waste which: (1) meet LDR requirements, regardless of the time of generation; or which, (2) are being stored, or will be stored when generated, solely for the purposes of accumulating sufficient quantities of mixed waste as are necessary to facilitate proper recovery, treatment, or disposal.

## 2.2 Compliance Schedules

2.2.1 The Compliance Plan Volume of the STP provides overall schedules for achieving compliance with LDR requirements for mixed wastes at Ames Laboratory. The schedules include those activities required to bring existing waste treatment facilities or technologies into operation, and those required to develop new facilities and capacity for treatment. The Compliance Plan Volume shows target dates and milestones for treatment technologies and facilities for wastes covered under the STP. The schedules symbolically depict and differentiate among milestones and target dates which will be converted to milestones. Other schedule information may be depicted in the Background Volume of the STP, but such information is provided solely for informational purposes.

2.2.1.1 For the purposes of this STP, milestones and target dates shall identify dates or timeframes by which a certain activity (including an event such as submittal of a deliverable) is scheduled to occur, as set forth in the Compliance Plan Volume, or any other dates or deliverables which are properly incorporated into the approved STP.

2.2.1.2 The assumptions upon which individual schedules are dependent are contained in sections 3.0 through 5.0 of the Compliance Plan Volume. The schedules may be affected if the underlying assumptions are incorrect or change.

2.2.1.3 *Milestones* are fixed, firm and enforceable dates as set forth in the Compliance Plan Volume. 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 EPA Region VII 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 below, in accordance with the process in section 2.2.2.

2.2.1.4 *Target dates* mark the anticipated completion of tasks which 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 in section 2.2.2.

2.2.2 *Approach to milestones and target dates.* DOE proposes using the rolling milestone approach outlined in the addendum to this STP, "Milestone Approach and Budget Formulation Process."

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 the Compliance Plan Volume are based on RCRA section 3021(b)(1)(B)(i) for mixed wastes where technology exists, (ii) for mixed wastes where technology does not exist, and (iii) for requirements pertaining to radionuclide separation to the extent appropriate. Milestones

and target dates for other types of situations, such as mixed wastes where technology does not exist, or requirements pertaining to radionuclide separation, are not addressed because such situations are not anticipated at Ames Laboratory.

2.2.3.1 Plans for Other Types of Activities. The Compliance Plan Volume may contain additional milestones and target dates for other types of situations related to treatment of DOE-CH's mixed wastes, including:

- (a) For mixed waste that shall be shipped off-site for treatment, the final target date/milestone for the treatment of such waste in the Compliance Plan Volume shall be completion of shipment of the mixed waste to the off-site treatment facility. Information supporting development or use of off-site treatment capacity or technology for treatment of such wastes is provided in the Background Volume of the STP. In the event that changes in the schedule of the off-site treatment facility impact the schedule in DOE-CH's Compliance Plan Volume, DOE-CH shall notify EPA Region VII, and DOE-CH and EPA Region VII shall negotiate necessary changes in accordance with sections 2.5, Revisions, or 2.6, Extensions and Modifications, as appropriate, and subject to section 2.10, Disputes. Additional milestones or target dates for completion of on-site activities may be established. Listed below are some examples of Milestones/Target Dates that may be provided for mixed wastes shipped off-site for treatment.

Examples of Milestones/Target Dates:

- 1) Request necessary approval of waste(s) for transport
  - 2) Initiate preparation of waste(s) for transport
  - 3) Complete Shipment of waste(s) off-site
- (b) Notwithstanding any other provision of this Compliance Plan Volume, the provisions of section 4.0 shall apply regarding schedules for MTRU wastes destined for WIPP in lieu of other schedule requirements of this section 2.0 of the Compliance Plan Volume.
  - (c) Storage of mixed wastes for purposes of allowing for radioactive decay of the radioactive portion of the mixed waste shall be considered to be storage for the purpose of accumulation of such quantities of waste as are necessary to facilitate proper recovery, treatment, or disposal in compliance with RCRA Section 3004(j). Such storage may be included in the schedules of the Compliance Plan Volume as appropriate, including treatment schedules or schedules related to radionuclide separation.

## 2.3 Annual Site Treatment Plan Updates

- 2.3.1 This section provides a mechanism to: (1) communicate and exchange information about schedule, technology development, funding and other concerns that affect the implementation of the STP, (2) update the Background Volume to the STP in a timely fashion, including information on new wastestreams, (3) propose and establish the next ensuing milestones, and (4) update and propose Revisions to the Compliance Plan Volume.
- 2.3.2 Each fiscal year after the fiscal year in which this STP is approved and accompanying Order executed, DOE-CH shall provide an Annual Update to the STP to EPA Region VII for review and comment. The Annual Update shall provide EPA Region VII with information to track progress on milestones and target dates. The Annual Update shall allow input

from the public, affected states and EPA to be obtained when Revisions to the STP are proposed. Each Annual Update to the STP will bring the STP current to the end of the previous fiscal year (September 30). The Annual Update will minimize the paperwork necessary to document changes and will be handled by page changes to the extent practicable. These changes will be marked for comparison to the previous STP. If there are no changes to the information, milestones, or target dates in the STP, a letter to that effect would be sent to EPA Region VII in lieu of an Annual Update.

A date for submittal of the Annual Update will be added that allows all sites to submit Updates in a consistent timeframe to facilitate coordination of necessary site-to-site and State-to-State interactions. The date will be consistent with the framework outlined in the addendum to this STP, "Milestone Approach and Budget Formulation Process."

2.3.3 The Annual Update of the STP shall update the Background Volume and the Compliance Plan Volume.

2.3.3.1 The update to the Background Volume will provide the following information:

- (a) The amount of each covered waste stored at Ames Laboratory as follows: (1) the estimated amount in storage at the end of the previous fiscal year; and (2) the estimated amount anticipated to be placed in storage in the next five fiscal years.
- (b) A description of progress made up to the end of the last fiscal year 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 which 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.
- (c) A description of DOE's funding for STP-related activities and any funding issues which may impact the schedule.
- (d) The status of any pending or planned extension, treatability variance or no migration petition.
- (e) Information which has changed or has not been previously included regarding waste form, waste code, technology and capacity needs, including new wastestreams in accordance with section 2.4.2.
- (f) Notification of the deletion of waste streams in accordance with section 2.7.1.

2.3.3.2 The Annual Update would update the Compliance Plan Volume and may also contain notification of changes or requests for approval of changes to the Compliance Plan Volume. These notifications or requests for approval may include, as appropriate:

- (a) Any changes to the Compliance Plan Volume incorporated since the previous Annual Update.
- (b) Any proposed revisions or conditionally approved revisions.
- (c) Any proposed new milestones in accordance with section 2.2.

- (d) Any other changes to the overall schedules.

The Annual Update would clearly identify proposed changes requiring approval under sections 2.8, Procedures for Review and Approval and 2.5, Revisions.

- 2.3.4 DOE shall make the Annual Update publicly available. When the update includes proposed Revisions to the Compliance Plan Volume, the provisions of section 2.5, Revisions, also apply to such proposed Revisions.

## 2.4 Inclusion of New Wastestreams

- 2.4.1 This section establishes a method for including new mixed waste streams at Ames Laboratory in the STP, including mixed wastes which are newly discovered, identified, or generated, and mixed wastes which are generated through environmental restoration and decontamination and decommissioning activities to the extent such wastes are intended to become a covered waste.
- 2.4.2 DOE-CH shall notify EPA Region VII of additional or new mixed wastes or waste streams which have been generated or stored, and may notify EPA Region VII of mixed wastes anticipated to be generated or stored at the Ames Laboratory, which are expected to be covered wastes. Unless otherwise specified in the notification, the mixed waste will be a covered waste and subject to the requirements of this Compliance Plan Volume: (1) upon receipt of such notification; or (2) when generated or stored at Ames Laboratory, whichever is later. To the extent practicable, DOE-CH shall provide a description of the waste code, waste form, volumes, technology and capacity needs, and similar pertinent information in the notification. In general, additional detail on the waste and the proposed plan and schedules consistent with section 2.2, Compliance Schedules, will be provided in next regularly scheduled Annual Update, or a date for submittal of such a proposed plan and schedules will be provided if additional time is required for its preparation. The information provided pursuant to this subsection is subject to EPA Region VII approval to the extent provided for in subsection 2.4.4.
- 2.4.3 If DOE-CH cannot provide such information or schedules as required by subsection 2.4.2 because of inadequate characterization or it is otherwise impracticable, DOE-CH shall 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 DOE-CH may propose changes to the Compliance Plan Volume of the STP to accommodate new waste streams. If any such changes are required, DOE-CH shall submit the changes for approval as a deliverable under section 2.8, Procedures for Review and Approval. Also, DOE-CH may propose Revisions to the Compliance Plan Volume of the STP as necessary to accommodate new waste streams subject to section 2.5, Revisions.

## 2.5 Revisions

- 2.5.1 A Revision is a change to the Compliance Plan Volume of the STP which requires, for those affected portions of the STP, publication of a notice of availability to the public and consultation with affected states and EPA pursuant to this STP and Section 3021 (b)(2) and (3) of RCRA. A Revision is: (a) the addition of a treatment facility at Ames Laboratory or technology development not previously included in the Compliance Plan Volume to the 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 wastes or

waste types, extensions, changes to milestones for a period less than a year, or changes to target dates, shall not, by themselves, constitute a Revision.

2.5.2 Revisions to the STP shall be made as follows:

2.5.2.1 DOE-CH shall identify to EPA Region VII the need to revise the Compliance Plan Volume of the STP and provide supporting information on the basis for the Revision as a deliverable pursuant to section 2.8, Procedures for Review and Approval. Under these procedures, within 30 days of receipt EPA Region VII may conditionally approve the Revision, return it to DOE-CH with comments so that changes can be made for resubmittal, or disapprove it. In reviewing the Revision, EPA Region VII shall consider the need for regional treatment facilities. Conditional approval of a Revision is a determination by EPA Region VII that the Revision is acceptable subject to the results of public comment and consultation with affected states and EPA.

2.5.2.2 Within 30 days subsequent to conditional approval, EPA Region VII shall 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 shall be approved, or approved with modification, by EPA Region VII within six months after EPA Region VII's receipt of the proposed Revision. EPA Region VII shall either: (1) notify DOE-CH that the Revision has final approval; or (2) notify DOE-CH that EPA Region VII received comments from the public, affected states or EPA indicating that such Revision should be modified before approval. Any proposed modifications to the Revision shall include supporting explanation and information. DOE-CH shall have 30 days to discuss the proposed modifications with EPA Region VII. If agreement is not reached on the proposed modifications in this 30-day period, the procedures of section 2.10, Disputes, will apply.

2.5.3 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; governed by section 2.3, Annual Site Treatment Plan Updates. However, in the event a conditionally approved Revision is proposed to become effective before it could be addressed in the regularly scheduled Annual Update, EPA Region VII shall publish a Notice of Availability and consult with affected states and EPA, as appropriate, within 30 days of such conditional approval.

2.6 Extensions and Modifications

2.6.1 The Implementing Order may only be amended or modified by mutual agreement of EPA Region VII and DOE-CH. Any amendment or modification of the Implementing Order shall be written, shall have as the effective date the date of signature by the Administrator of EPA Region VII, and shall be incorporated into the Implementing Order and be enforceable in the same manner as any other requirement of the Implementing Order. If a modification constitutes a Revision, it shall be subject to the provisions of the Revisions section (Section 2.5), and as such the mutual agreement of EPA Region VII and DOE-CH shall be subject to the procedures applicable to a conditionally approved Revision as set forth in Section 2.5.2.

2.6.2 If any event occurs that causes, or may cause, delay in the achievement of any milestone or other requirement of the Implementing Order or any plan approved pursuant to the Implementing Order, DOE-CH shall notify EPA Region VII in writing within 10 days of the date DOE-CH knew, or reasonably should have known, of the event. Any notice under

this paragraph should describe in detail the anticipated length of the delay, measures to avoid or minimize any such delay, and a timetable by which those measures will be implemented. DOE-CH shall utilize all reasonable measures to avoid or minimize any such delay. If EPA Region VII determines that the delay, or anticipated delay, in achieving any of the requirements of the Implementing Order have been, or will be, caused by circumstances beyond the reasonable control of DOE-CH, EPA Region VII shall grant an extension for a period equal to the length of the delay caused by such circumstances. EPA Region VII shall notify DOE-CH of their determination within twenty (20) days of the date of receipt of DOE-CH's notification. The burden of proving that any delay is caused by circumstances beyond the reasonable control of DOE-CH shall rest wholly with DOE-CH.

2.6.3 For the purposes of this section, delays cause, despite the due diligence of DOE-CH, by "circumstances beyond the reasonable control of DOE-CH" shall include, without limitation:

- (a) Circumstances unforeseen at the time the Implementing Order or any modifications to the Implementing Order were entered into that significantly affects the work required under the Implementing Order;
- (b) Restraint by court order or order of public availability;
- (c) Inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorization, approvals, permits or licenses due to action or inaction of any authority or governmental agency, including EPA Region VII, other than DOE-CH;
- (d) Compliance with applicable statutes or regulations governing work to be performed under the Implementing Order including, but not limited to, contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence;
- (e) Impossibility of performance despite the exercise of due diligence caused by matters outside the control of the DOE-CH;
- (f) Any supervising prohibition or prevention by law;
- (g) Conflicts with the requirements of another Implementing Order or existing compliance agreement to which DOE-CH is a party; and,
- (h) Any other event or series of events determined by EPA Region VII as constituting circumstances beyond the reasonable control of DOE-CH.

If the parties cannot agree on whether particular circumstances are beyond the reasonable control of DOE-CH within 30 days of the EPA Region VII response to DOE-CH's request for an extension, the provisions of the Disputes section shall apply (Section 2.10).

2.6.4 DOE-CH may request an extension of the milestones or other requirements established pursuant to the Implementing Order. Any request for extension of a milestone or other requirements of the Implementing Order shall specify:

- (a) The extension to the milestone or requirement and any related target dates or milestones that would be affected by the extension of Revision;
- (b) The length of the extension sought; and
- (c) The reason for the extension.

- 2.6.5 Extensions shall be considered Revisions if the milestone date is extended beyond one year.
- 2.6.6 For extensions necessitated by delays of EPA Region VII in meeting a due date for which it is responsible in the Compliance Plan Volume, all due dates subsequent to that of EPA Region VII due date shall be extended by a period of time equal to the number of days between the EPA Region VII due date specified in the Compliance Plan Volume and the date that EPA Region VII actually completes the action.

## 2.7 Deletion of Wastes and Termination of the STP

- 2.7.1 Deletion of Wastes - The requirements of this Compliance Plan Volume shall terminate with regard to any covered waste upon DOE-CH's notice to EPA Region VII of the following:
- (a) Completion of activities required pursuant to a milestone under the Compliance Plan Volume for treatment of such waste;
  - (b) Shipment of wastes off-site for treatment, disposal or storage pending treatment or disposal;
  - (c) Changes to statute or regulation or determinations of the regulatory authority which cause a waste or waste categories to be no longer subject to the requirements of RCRA or the LDR requirements of RCRA;
  - (d) Storage for the sole purpose of accumulating such quantities of covered wastes as are necessary to facilitate proper recovery, treatment or disposal;
  - (e) Information demonstrating the waste meets the treatment standards of RCRA, Section 3004 (m);
  - (f) Treatment in accordance with the conditions of an approved LDR treatability variance; or
  - (g) Mutual agreement between DOE-CH and EPA Region VII.
- 2.7.2 Inasmuch as the intent of the FFCAct requirement to develop an STP is to address compliance with RCRA section 3004(j), this STP shall terminate either at such time as: (1) there is no longer any mixed waste, regardless of when generated, being stored or generated at Ames Laboratory which does not meet LDR requirements; or (2) the mixed waste being stored or generated at Ames Laboratory is being stored, or will be stored when generated, solely for the purpose of accumulating sufficient quantities of mixed wastes as are necessary to facilitate proper recovery, treatment, or disposal.
- 2.7.3 DOE-CH will notify EPA Region VII of such termination independently and/or in the Annual Updates to the STP. EPA Region VII will provide DOE-CH with a written response to the notification within 30 days. EPA Region VII's response to this notice shall be subject to the provisions of section 2.10, Disputes.

## 2.8 Submittal, Review and Approval of Deliverables

- 2.8.1 Deliverables developed by DOE-CH pursuant to this Compliance Plan Volume shall be submitted by DOE-CH to EPA Region VII 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 Compliance Plan Volume. Where EPA Region VII approval of a deliverable is expressly required in this Compliance Plan Volume, the approval provisions in this section apply. Permit applications and National Environmental Policy Act (NEPA) documents shall not be subject to the procedures of this section. Permit applications shall be submitted and reviewed under applicable regulations and NEPA documents shall be submitted and reviewed under the DOE regulations implementing NEPA. Each submittal of a deliverable shall specify the milestone or other provision of this Compliance Plan Volume requiring submittal of that deliverable.

- 2.8.2 Unless otherwise noted, each deliverable shall be transmitted directly to the project manager of EPA Region VII responsible for implementation of this STP.
- 2.8.3 EPA Region VII will promptly review each deliverable submitted by DOE-CH, required to be approved pursuant to this Compliance Plan Volume, within the time frames established in this section unless other timeframes are agreed to in writing. In the course of their review, EPA Region VII will consult with DOE-CH regarding the adequacy of each deliverable. Oral comments made during these discussions shall not require a written response.
- 2.8.4 Deliverables which do not require EPA Region VII approval shall be provided to EPA Region VII for review and comment. In the event that DOE-CH disagrees with EPA Region VII's comments, DOE-CH shall respond to EPA Region VII's comments in writing explaining the DOE-CH's position. If DOE-CH has not received comments from EPA Region VII within 30 days of submittal of the deliverable, it will be deemed that EPA Region VII has no comments.
- 2.8.5 For any deliverable that requires EPA Region VII approval under the provisions of this Compliance Plan Volume, the following procedures shall apply:
  - 2.8.5.1 EPA Region VII shall, within 30 days of receipt, take action as follows: (1) approve, conditionally approve (if the deliverable is a Revision), or disapprove the deliverable as submitted, or (2) return the deliverable to DOE-CH 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. EPA Region VII may extend this review period by an additional 30 days by notifying DOE-CH. This period may be further extended for an additional period of time, as may be agreed to by EPA Region VII and DOE-CH. Comments on the deliverable shall be provided with adequate specificity so that DOE-CH can make the 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 request of DOE-CH, EPA Region VII shall provide a copy of the cited authority or reference.
  - 2.8.5.2 If EPA Region VII fails to take one of the actions specified above within the time frames required by this STP, the deliverable shall be considered approved, or conditionally approved, as submitted. If EPA Region VII extends the review period for a deliverable, any milestones or target dates dependent upon the results of deliverable review will automatically be extended an equivalent amount of time as the time taken beyond the specified time frame for review. DOE-CH will notify EPA Region VII in writing of any enforceable milestones that will need to be extended or revised.
  - 2.8.5.3 In the event that EPA Region VII returns the deliverable to DOE-CH with

comments within thirty (30) days of receipt, DOE-CH shall incorporate the comments and shall re-transmit the deliverable. DOE-CH may extend this period by an additional 30 days by notifying EPA Region VII. This period may be further extended for an additional period of time, as may be agreed to by EPA Region VII and DOE-CH. In the event DOE-CH disagrees with EPA Region VII's comments and the parties are unable to resolve their disagreement, DOE-CH may invoke the dispute resolution provisions of section 2.10, Disputes.

## 2.9 Funding

- 2.9.1 DOE proposes EPA Region VII an opportunity to input into formulating the Ames Laboratory budget and setting the Ames Laboratory budget priorities as outlined in the addendum to this STP, "Milestone Approach and Budget Formulation Process." Nothing in the STP affects DOE's authority over its budget and funding level submissions. Furthermore, it is DOE's position that any requirement for the payment or obligation of funds by DOE established by the terms of the STP and Order requiring compliance with the STP would be subject to the availability of appropriated funds, and that no provision of the STP or Order should be interpreted to require the obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341, as amended. In cases where the payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds should be appropriately adjusted.

## 2.10 Disputes

- 2.10.1 Except as specifically set forth elsewhere in this plan, any action which leads to or generates a dispute regarding compliance with this plan is subject to resolution under this section.
- 2.10.2 DOE-CH and the U.S. EPA shall make reasonable efforts to informally resolve disputes 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 action.
- 2.10.3 To initiate formal dispute resolution, the disputing party shall submit to the other party a written Notice of Dispute specifying:
- (a) The nature of the dispute;
  - (b) The work affected by the dispute;
  - (c) The disputing party's position with respect to the dispute; and
  - (d) The information the disputing party is relying upon to support its position.
- 2.10.4 Upon receipt of the Notice of Dispute, the appropriate DOE-CH Assistant Manager and the Waste Management Division Direct of U.S. EPA Region VII (or their respective delegates or successors) shall engage in dispute resolution meetings or conference calls. If mutually agreed upon resolution is not reached within 30 days, the dispute shall be escalated to the Regional Administrator of U.S. EPA Region VII. Within 30 days of escalation, the Regional Administrator shall consult with the manager, DOE-CH, and issue a written determination of U.S. EPA Region VII. This 30-day period may be extended by mutual written agreement of the parties.
- 2.10.5 If unanimous resolution of the dispute is not reached with twenty-one (21) days, U.S. EPA's Regional Administrator shall issue a written position on the dispute. The DOE may, within

twenty-one (21) days of the Regional Administrator's issuance of U.S. EPA's position, issue a written notice elevating the dispute to the Administrator of U.S. EPA for resolution in accordance with all applicable laws and procedures. In the event that the DOE elects not to elevate the dispute to the Administrator within the designated twenty-one (21) day escalation period, the DOE shall be deemed to have agreed with Regional Administrator's written position with respect to the dispute.

- 2.10.6 Upon escalation of a dispute to the Administrator of U.S. EPA pursuant to Subpart P the Administrator will review and resolve the dispute within twenty-one days. Upon request, and prior to resolving the dispute, the U.S. EPA Administrator shall meet and confer with the Secretary of the DOE to discuss the issue(s) under dispute. Upon resolution, the Administrator shall provide the DOE with a written final decision setting forth resolution of the dispute.
- 2.10.7 Unless timely appeal is taken, DOE-CH shall 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 section for Section 2.11 to remain in effect for the affected waste stream.
- 2.10.8 Resolution of a dispute pursuant to this Section 2.10 constitutes a final resolution of any dispute arising under this Site Treatment Plan. The DOE shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to the Section 2.10.

## 2.11 Covenants and Reservations

- 2.11.1 This STP and Implementing Order shall stand in lieu of any administrative, legal and equitable remedies which are available to the EPA Region VII against DOE, its contractors and subcontractors at any tier and all persons bound by this STP and Implementing Order with respect to the matters covered by this STP and implementing Order, so long as DOE and all parties bound by this STP and Implementing Order are in compliance with the STP and Implementing Order as determined by EPA Region VII or a court of competent jurisdiction.
- 2.11.2 Except as specifically set forth herein, DOE reserves and does not waive any rights, authority, claims or defenses, including sovereign immunity, that it may have or wish to pursue in any administrative, judicial or other proceeding with respect to any person; nor does DOE waive any claim of jurisdiction over matters which may be reserved to DOE by law, including the Atomic Energy Act. Nothing in this STP and implementing Order shall constitute an admission on the part of DOE, in whole or in part, in any proceeding except in a proceeding to enforce the order implementing this STP. DOE specifically reserves all rights it may have by law to seek and obtain administrative or judicial review or appeal according to law of any determination made by EPA Region VII during DOE-CH's performance of its obligations under this STP and implementing Order. DOE also specifically reserves all rights it may have by law to seek and obtain administrative or judicial review or appeal of permit requirements.

## 3.0 Low Level Mixed Waste Treatment Plan and Schedules

The four waste streams identified in this section are currently in inventory. Two of the waste streams continue to be generated; contaminated lead and acidic aqueous liquids. The remaining two waste streams were generated between 10-30 years ago and are no longer being generated.

### 3.1 Mixed Waste Streams for which Technology Exists

#### 3.1.1 Analytical Reference Standards

Waste Matrix: MLLW, CH Lab Packs with Metals  
MWIR Number: AL-W001

Proposed Treatment Approach: Based upon recommendation of Option Analysis Team - Hanford Site Mixed Waste Treatment Facility

Schedule for Activities to Ship Waste Off-site:

<u>Identify Activities:</u>	<u>Type</u>	<u>Schedule Dates:</u>
Complete waste approval process for shipment to MSWT	Milestone Date	One month after MSWT is available
Complete shipment of waste AL-W001		Six months after approval

Basis for schedule: Based on guidance from DOE Richland Operation Office memo dated Feb.16, 1995, which stated that the MSWT is currently not expected to be operating until September 1999. Shipment to this facility may not be allowed until the facility is completed.

#### 3.1.2 Uranium Sulfate

Waste Matrix: MLLW CH, Aqueous Slurries  
Mixed Waste Inventory Report Number: AL-W003

Proposed Treatment Approach: Oak Ridge Central Neutralization Facility

Schedule for Activities to Ship Waste Off-site:

<u>Identify Activities:</u>	<u>Type</u>	<u>Schedule Dates:</u>
Request approval to ship waste	Milestone Date	3/96
Complete shipment of AL-W003 to ORNL	Target Date	Three months after approval

Basis for schedule: Based on time required for approval process. It assumes that any permit issues relating to treating this waste are resolved.

#### 3.1.3 Acidic Aqueous Liquids

Waste Matrix: MLLW, CH Acidic Aqueous Liquids  
Mixed Waste Inventory Report Number: AL-W007

Proposed Treatment Approach: Oak Ridge Central Neutralization Facility

Schedule for Activities to Ship Waste Off-site:

<u>Identify Activities:</u>	<u>Type</u>	<u>Schedule Dates:</u>
Request approval to ship waste	Milestone Date	3/96
Complete shipment of AL-W007 to ORNL	Target Date	Three months after approval

Basis for schedule: Based on time required for approval process. It assumes that any permit issues relating to treating this waste are resolved.

3.2 Mixed Waste Streams for which no Technology or for which Technology Needs Adaptation

Ames Laboratory does not have any waste streams requiring adapted or new treatment technology.

3.3 Mixed waste streams requiring further characterization or for which Technology Assessment has not been done

Ames Laboratory does not have any waste streams requiring further characterization or for which technology assessment has not been done.

4.0 TRU Mixed Waste Streams

As discussed in greater detail in Section 4 of the Background Volume of this STP, DOE plans to achieve compliance with the requirements of the FFCAct for MTRU destined for WIPP by using the no-migration variance petition approach described in 40 CFR Section 268.6. Under this strategy, DOE intends to continue interim storage of such MTRU, continue preparation of such wastes for shipment to WIPP, and then ship and dispose of such wastes in WIPP. Within twelve months of the Secretary's decision to operate WIPP as a disposal facility, Ames Laboratory will submit a supplemental plan outlining schedules and additional activities required to prepare the MTRU waste for shipment to WIPP if not already included in this plan; or in the event that significant changes transpired as a result of the final permit or the final no-migration determination. In addition, at that time Ames Laboratory will provide a timetable for submitting a shipment schedule to WIPP for its MTRU waste. Ames Laboratory will coordinated with the Carlsbad Area Office in developing the shipment schedule to ensure proper throughput and receipt of waste at WIPP.

Ames Laboratory will begin discussions with EPA Region VII regarding alternative treatment options for MTRU waste in January 1998 if the Secretary of Energy does not decide to operate WIPP as a disposal facility by that time, or at such earlier time as DOE determines that: (1) there will be a delay in the opening of WIPP substantially beyond 1998; or (2) the no-migration variance petition is not granted by the EPA. DOE shall propose modifications to the STP for approval by EPA Region VII within a timeframe agreed upon between the DOE and EPA Region VII. These modifications will describe planned activities and schedules for the new MTRU strategy.

DoE shall include information regarding progress of MTRU waste management in the update to the STP required by Section 2.3. This will include, as applicable and appropriate, the status of the no-migration variance petition and information related to characterization, packaging, and/or treatment capabilities or plans for MTRU waste related to WIPP Waste Acceptance Criteria and disposal.

Ames Laboratory does not currently have any generated TRU mixed waste. Any future generation of mixed transuranic waste will be incorporated in the annual updates of the Plan. All MTRU waste will be characterized, packaged and disposed of according to the WIPP WAC.

5.0 High Level Mixed Waste Streams

Ames Laboratory does not foresee any production of High-Level Waste.

Addendum: Milestone Approach and Environmental Management Budget Formulation Process

In view of recent budget cuts and future budget uncertainties, the Department of Energy (DOE) faces a significant challenge in maintaining an environmental program that complies with environmental laws, including the Federal Facility Compliance Act (FFCA), in a manner that maximizes use of DOE's resources and addresses the most serious risks first. DOE must work closely with regulatory agencies and stakeholders to develop less costly and efficient approaches to achieving compliance while recognizing fiscal constraints. DOE is moving forward on several fronts to meet this challenge, including initiatives to improve internal efficiency and productivity, to involve regulatory agencies and stakeholders in a "bottom-up" process for setting environmental management budgets and priorities, and to seek increased flexibility in the appropriation process for DOE's environmental management program. A key element in meeting this challenge is the development of a process for setting milestones that provides accountability, focuses resources on high priority activities, and recognizes fiscal and technical uncertainties.

To meet these objectives, DOE proposes using a one year rolling milestone approach to implement the schedules provided on the Compliance Plan Volume of the Site Treatment Plan. Under this approach, schedule dates are designated as either "milestones" or "target dates". Milestones and target dates would be established in accordance with available environmental management funding for the site. Milestones are enforceable deadlines for near-term activities (i.e., the current fiscal year). Milestones are established for near-term activities because there is greater fiscal and technical certainty about these activities. Target dates are nonenforceable deadlines for longer-term activities and would be converted to milestones on an annual basis. After receipt of the Approved Funding Program that reflects the final congressional appropriations for the current fiscal year, milestones for the current fiscal year would be established, adjusting the affected target dates as necessary. To the extent practical, this process would coincide with the process for the Annual Site Treatment Plan Updates and would be conducted in a consistent timeframe across the DOE sites (for example, no later than March 31 of each year).

During the annual review and establishment of milestones and target dates, DOE and the regulatory agencies would consider a variety of factors, including funding availability, latest information on cost estimates, site priorities identified through consultations among DOE, regulatory agencies, and stakeholders, new or emerging technologies, and other relevant factors.

Because the process for modifying and extending milestones is resource-intensive for both DOE and regulatory agencies, only major project activities required by the FFCA and other statutes should be designated as enforceable milestones. Other mechanisms, such as submission of the Annual Site Treatment Plan Updates, would provide regulatory agencies with information on progress on enforceable milestones and interim activities.

Target dates would be established using realistic assumptions. DOE and the regulatory agencies must recognize the uncertainties associated with long-term target dates which set forth DOE's strategic vision of how it plans to accomplish the project.

DOE will work with the regulatory agencies to resolve disputes concerning the establishment of milestones. DOE proposes that the parties agree to exhaust all available dispute resolution mechanisms prior to resorting to formal enforcement actions for disputes involving insufficient funding.

As noted above, DOE will provide the regulatory agencies and other stakeholders an opportunity to participate in developing the environmental management budget and priorities. Open discussions between DOE, regulatory agencies, and other stakeholders will facilitate the development of a sensible environmental management program and budget proposal that uses DOE's resources wisely in light of budget constraints confronting DOE.