West Valley Demonstration Project

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WEST VALLEY DEMONSTRATION PROJECT
SITE TREATMENT PLAN FISCAL YEAR 2010 UPDATE

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PLAN VOLUME

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LIST OF ACRONYMS

ADA	ADA Technologies
A&PC	Analytical and Process Chemistry Laboratory
AEA	Atomic Energy Act
Am	Americium
AMWTF	Advanced Mixed Waste Treatment Facility
APTUS	APTUS, Inc.
ASDA	New York State Atomic & Space Development Authority
ATG	Allied Technology Group
Ba	Barium
BDAT	Best Demonstrated Available Technology
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFMT	Concentrator Feed Makeup Tank
CFR	Code of Federal Regulations
CH	Contact-Handled
CO_2	Carbon Dioxide
CPC	Chemical Process Cell
CPC-WSA	Chemical Process Cell Waste Storage Area
Cs	Cesium
CSPF	Container Sorting & Packaging Facility
CSRF	Contact Size-Reduction Facility
CSS	Cement Solidification System
CSTP	Conceptual Site Treatment Plan
CWA	Clean Water Act
CX	Categorical Exclusion
D&D	Decontamination and Decommissioning
DEIS	Draft Environmental Impact Statement
DOE	Department of Energy
DSSI	Diversified Scientific Services, Inc.
DSTP	Draft Site Treatment Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMAB	Environmental Management Advisory Board
EPA	Environmental Protection Agency
ER	Environmental Restoration
ETTP	Eastern Tennessee Technology Park
FFCAct	Federal Facility Compliance Act
FONSI	Finding of No Significant Impact
FR	Federal Register
FRS	Fuel Receiving and Storage
FSFCA	Federal & State Facility Compliance Agreement
FY	Fiscal Year
HEME	High-Efficiency Mist Eliminator
HIC	High-Integrity Container
HLW	High-Level Waste
HLWISF	High-Level Waste Interim Storage Facility
HQ	Headquarters
HSWA	Hazardous & Solid Waste Amendments
ID	Idaho
INEEL	Idaho National Engineering and Environmental Laboratory
IRTS	Integrated Radwaste Treatment System
IWSF	Interim Waste Storage Facility
IWTS	Integrated Waste Tracking System
LANL	Los Alamos National Laboratory

LIST OF ACRONYMS *(continued)*

LDR	Land Disposal Restrictions
LLW	Low-Level Waste
LWTS	Liquid Waste Treatment System
M&EC	East Tennessee Materials and Energy Corp.
M&O	Management & Operations
MFHT	Melter Feed Hold Tank
MLLW	Mixed Low-Level Waste
MSDS	Material Safety Data Sheet
MTRU	Mixed TRU Waste
MWIR	Mixed Waste Inventory Report
NEPA	National Environmental Policy Act
NFS	Nuclear Fuel Services Company, Inc.
NGA	National Governor's Association
NNSA	National Nuclear Safety Administration
NNSS	Nevada National Security Site
NRC	Nuclear Regulatory Commission
NSSI	NSSI Recovery Services, Inc.
NTS	Nevada Test Site
NY	New York
NYSERDA	New York State Energy Research & Development Authority
NYSDEC	New York State Department of Environmental Conservation
NYCRR	New York Compilation of Codes, Rules, and Regulations
OR	Oak Ridge
ORNL	Oak Ridge National Laboratories
ORR	Operations Readiness Review
PCB	Polychlorinated Biphenyls
PEIS	Programmatic Environmental Impact Statement
PMC	Process Mechanical Cell
PPC	Product Purification Cell
Pu	Plutonium
PPE	Personal Protective Equipment
PPOA	Pollution Prevention Opportunity Assessment
PSTP	Proposed Site Treatment Plan
PUREX	Plutonium/Uranium Extraction Process
RCRA	Resource Conservation & Recovery Act
RFI	RCRA Facility Investigation
RFP	Request for Proposal
RH	Remote-Handled
RHWF	Remote-Handled Waste Facility
RL	Richland
RMCP	Residuals Management Contingency Plan
RMW	Radioactive Mixed Waste
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SBS	Submerged Bed Scrubber System
SBWW	Sodium Bearing Wastewater (previously referred to as High Sodium Waste)
SEG	Scientific Ecology Group
SEIS	Supplemental Environmental Impact Statement
SFCM	Slurry-Fed Ceramic Melter
SOP	Standard Operating Procedure
SPDES	State Pollutant Discharge Elimination System
Sr	Strontium
SR	Savannah River
STP	Site Treatment Plan
STS	Supernatant Treatment System

LIST OF ACRONYMS *(continued)*

SWMU	Solid Waste Management Unit
T&VDS	Tank and Vault Drying System
Tc	Technetium
TCLP	Toxicity Characteristic Leaching Procedure
THOREX	Thorium Extraction Process
TN	Tennessee
TOC	Total Organic Carbon
TRU	Transuranic Waste
TSCA	Toxic Substances Control Act
TSCAI	Toxic Substances Control Act Incinerator
TSDF	Treatment Storage and Disposal Facility
TSS	Total Suspended Solids
UHC	Underlying Hazardous Constituents
U	Uranium
UTS	Universal Treatment Standards
VEC	Ventilation Exhaust Cell
VCD	Vitrification Cell Dismantlement
VF	Vitrification Facility
VOC	Volatile Organic Compound
WA	Washington
WAC	Waste Acceptance Criteria
WCS	Waste Control Specialists
WERF	Waste Experimental Reduction Facility
WIPP	Waste Isolation Pilot Plant
WIR	Waste Incidental to Reprocessing
WM	Waste Management
WMin/PP	Waste Minimization/Pollution Prevention Plan
WNYNSC	Western New York Nuclear Service Center
WPD	Waste Planning and Disposition (formerly Waste Shipping and Disposal)
WRPA	Waste Reduction and Packaging Area
WV	West Valley
WVDP	West Valley Demonstration Project
WVDP Act	West Valley Demonstration Project Act
WVES	West Valley Environmental Services, LLC.
WVNSCO	West Valley Nuclear Services Company

EXECUTIVE SUMMARY
SITE TREATMENT PLAN (STP)

REGULATORY BACKGROUND

On October 6, 1992, the Federal Facility Compliance Act (FFCAct) (Pub. L. No. 102-386, 106 Stat. 1505) was enacted as an amendment to the Resource Conservation and Recovery Act (RCRA 42 U.S.C. § 6901 et seq.). The FFCAct requires Department of Energy (DOE) facilities that are generating or storing mixed waste to develop plans for treating their mixed waste inventories. Treatment plans can include on-site treatment at the generating facility, off-site treatment at a commercial facility, or off-site treatment at another DOE facility. The purpose of the Plan is to describe the development of treatment capacities and technologies for treating mixed waste.

To meet the Site Treatment Plan (STP) requirement of the FFCAct, the DOE developed a three-step approach. First, the West Valley Demonstration Project (WVDP) prepared a Conceptual Site Treatment Plan (CSTP) that identified the technology needs, treatment capabilities, and existing plans and options for treating its mixed waste. The WVDP CSTP was submitted to the New York State Department of Environmental Conservation (NYSDEC) in October 1993 for review. Second, a Draft Site Treatment Plan (DSTP) was prepared which incorporated NYSDEC's comments on the CSTP, provided an analysis of the treatment options identified in the CSTP, and identified the preferred method of treatment for each waste stream. The DSTP was submitted to NYSDEC in August 1994. Third, following modification to address input on the DSTP by NYSDEC and other stakeholders, the Proposed Site Treatment Plan (PSTP) was submitted to NYSDEC in March 1995. The WVDP STP incorporated all comments received. The DOE is required to update the STP annually as per the FFCAct Order of Consent.

STP STRUCTURE

The STP is divided into two volumes: the Background Volume and the Plan Volume. The Background Volume provides a detailed discussion of the preferred option or options, identifies the waste stream(s), and addresses and gives explanatory information for the Plan Volume. The Plan Volume provides specific plans and schedules for treating waste streams.

Fiscal Year (FY) 2010 ANNUAL UPDATE SUMMARY

The FY2010 update to the STP brings waste stream and inventory and treatment information current to the end of Fiscal Year FY2010 (September 30, 2010). There were three proposed milestones for FY2010. A description of the proposed milestones is provided below.

STP Section 3.1.4

Develop or locate acceptable treatment and handling options for the Greater Than Class A waste with high radioactivity and high contamination by the fourth quarter of FY2010. If acceptable treatment and handling options are developed or located by the end of FY2010, then treat the waste or ship it for off-site treatment by the end of the third quarter of FY2011. If acceptable treatment or handling options are not available, then prepare an alternate schedule.

STP Section 3.1.6

Develop or locate acceptable treatment and handling options for the Greater Than Class A waste with high radioactivity and high contamination by the fourth quarter of FY2010. If acceptable treatment and handling options are developed or located by the end of FY2010, then treat the waste or ship it for off-site treatment by the end of the third quarter of FY2011. If acceptable treatment or handling options are not available, then prepare an alternate schedule.

STP Section 3.3.14

1. Develop conceptual design for liquid solidification system by the end of third quarter FY2010 or develop alternate schedule;

2. Initiate sampling for a treatability study by first quarter of FY2010 or develop alternate schedule;

3. Initiate construction of the Liquid Waste Treatment System by the end of the third quarter FY2010 or develop alternate schedule;

4. Initiate treatment of the 5D-15A1 liquids by the end of fourth quarter FY2010 or develop alternate schedule.

All of the proposed milestones were completed by September 30, 2010. Detailed descriptions of the actions performed and status of the milestone waste streams are included in the Section 3.0 of the Background Volume and in Appendix A of the Plan Volume.

The volume of mixed waste in inventory at the WVDP at the end of FY2010 was 362 cubic meters. This volume represents a decrease of 24 cubic meters. The processing of mixed low level waste (MLLW) and mixed transuranic (MTRU) waste off-set the generation of mixed waste from facility dismantlement operations.

In August 2008, the Nevada Attorney General sent notice to the Nevada Test Site (NTS) to stop approval of new mixed waste streams for disposal at the NTS site. NTS in turn notified all generators that no new mixed waste streams would be approved for disposal pending resolution of the issues with the State. The moratorium on approving new mixed waste streams has a definite effect on some of the WVDP mixed waste streams that require disposal at NTS after treatment to meet the Land Disposal Restriction (LDR) standards. Additional information will be discussed elsewhere in this update.

The following provides a synopsis of where the information required in Section II, Annual Updates, of the FFCAct Consent Order can be found within this document. The synopsis is divided by the requirements of the Background Volume and the Plan Volume, with the appropriate sections of the Consent Order and STP provided.

In FY2010, the DOE Disposal Site NTS in Mercury, Nevada changed its name to The Nevada National Security Site (NNSS). For the rest of this document NTS and NNSS are interchangeable and will be used for this FY2010 update and future updates.

Background Volume:

Requirement II.B(1) (a); Provides the estimated amount of covered waste in storage at the end of the FY and the estimated amount of waste anticipated to be placed into storage in the next five FYs: The volume of waste reported is obtained from the Integrated Waste Tracking System (IWTS). The volume reported may change from year to year due to the generation of additional mixed waste, treatment or off-site shipment of mixed waste, or from adjustments or corrections to mixed waste inventories previously reported. This information can be found in the summary tables in Sections 3.0 through 5.0 for each treatability group.

Requirement II.B(1) (b); Provides a description of progress made up to the end of the last FY on treatment or technology development of each treatment facility or activity scheduled in the Plan Volume of the STP. A discussion of the progress for the waste streams in each treatability group is provided in relevant "preferred options and other options" sections of the Background Volume

Requirement II.B (1) (c); Provides a description of DOE's funding for the STP. This can be found in Section 9.0 of the Background Volume.

Requirement II.B (1) (d); Provides the status of any planned requests for Amendments, treatability variance, or no migration petition:

Not applicable for FY2010

Requirement II.B (1) (e); Provides Information which has changed or has not been previously included regarding waste form, waste code, technology and capacity needs. A discussion of changed or new waste form or waste code information and technology or capacity needs is provided in relevant "description of technology and capacity needs" sections of the Background Volume.

Requirement II.B (1) (f); Provides for newly identified waste streams, a discussion of available treatment technologies and rationale to support selection of a preferred treatment option:

Not applicable for FY2010

Requirement II.B (1) (g); Provides for notification of deletion of waste streams:

Not applicable for FY2010

Plan Volume:

Requirement II.B (2) (a); Provides documentation to support completion of milestone for the previous year.

The documentation of completion of milestones is contained in Appendix A of the Plan Volume.

Requirement II.B (2) (b); Provides any approved Amendments:

Not applicable for FY2010

Requirement II.B (2) (c); Provides for any conditionally approved Amendments:

Not applicable for FY2010

Requirement II.B (2) (d); Provides discussion for any proposed Amendments:

Not applicable for FY2010

Requirement II.B (2) (d) (i); Proposed changes to milestones:

The following milestones are proposed in this update:

STP Section 3.1.4

Shipment of the first container of high activity/high contamination waste is scheduled for the 2nd Quarter of FY2011. Depending on the success achieved in treating this first container, additional containers may be shipped for treatment in the 3rd Quarter of FY2011. Success is defined as the safe, without incident, treatment and disposal of the waste to the procedure provided by the treatment facility.

STP Section 3.1.6

Shipment of the first container of high activity/high contamination waste is scheduled for the 2nd Quarter of FY2011. Depending on the success achieved in treating this first container, additional containers may be shipped for treatment in the 3rd Quarter of FY2011. Success is defined as the safe, without incident, treatment and disposal of the waste to the procedure provided by the treatment facility.

STP Section 3.1.7

If radiologically contaminated waste elemental mercury is generated at the WVDP, it will be accumulated until a sufficient volume (approximately ten pounds) is obtained to allow analysis, characterization, and shipment for off-site treatment. The characterization and evaluation for off-site treatment to a targeted TSDF will commence within six months of sufficient volume being accumulated. If the TSDF treatment system is operational and the waste is approved for treatment, the waste will be shipped within six months of approval.

STP Section 3.2.2

Evaluate TSDF acceptance and treatment options by the end of the first quarter FY2012. If a TSDF can accept the waste then ship the waste by end of the third quarter FY2012, otherwise develop an alternate schedule

STP Section 3.3.14

Initiate treatment of the 5D-15A1 liquids by the end of fourth quarter FY2011 or develop alternate schedule.

Requirement II.B (2) (d) (ii): Proposed preferred treatment alternative and proposed schedule for newly identified waste streams:

Not applicable for FY2010

Requirement II.B (2) (d) (iii): Proposed preferred treatment alternative and/or proposed schedule for waste streams for which characterization and technology assessment had not been completed or approved on the effective date of the Consent Order:

Not applicable for FY2010

Requirement II.B (2) (e); A proposed schedule reflecting the annual conversion of planning schedule activities to milestones:

Not applicable for FY2010

SUMMARY TABLES

The preferred treatment options that have been identified for the WVDP waste streams are presented in Tables ES-1, ES-2, ES-3, ES-4, and ES-5. For the purpose of providing a summary of the preferred treatment options, the tables have been categorized as “on-site treatment” (Table ES-1), “off-site commercial treatment” (Table ES-2), “off-site DOE treatment” (Table ES-3), “off-site commercial/DOE treatment” (Table ES-4), and “wastes that need further characterization / evaluation” (Table ES-5). For several treatability groups, the DOE Broad Spectrum Treatment Contracts that were executed during FY1998 and FY1999 (as discussed in Section 2.2 of Background Volume) have been added as potential treatment facility options. Information on the current volume of waste, treatment type, preferred treatment option, and alternative options are provided in the tables.

If further information is needed, you may contact:

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TABLE ES-1
PREFERRED TREATMENT OPTION - ON-SITE TREATMENT

TREATABILITY GROUP	VOLUME m^3 SEPTEMBER 30, 2010	TREATMENT TYPE	PREFERRED OPTIONS	STP BACKGROUND/PLAN VOLUME SECTION NUMBER
- Aqueous Liquids, Ignitable, Corrosive, or Reactive	0.00	Aqueous – Neutralization/ Deactivation	IWSF/CWA System	3.1.1
- Aqueous Liquids and Low-Concentration Organics	0.00	Stabilization/ Incineration/ Deactivation	IRTS/CWA System	3.2.1/3.1.13
- Inorganic Sludge and Particulates, Toxic Metals w/Mercury - Aqueous Liquids, Toxic Metals w/o Mercury	NA** NA**	Stabilization – HLW	Vit. Facility	5.1.2/5.1
- TRU Liquids	2.01	Deactivation and Stabilization	Treatment in Containers	4.2.2
- Spent Filter Media	0.00	Stabilization	Remote-Handled Waste Facility /mobile treatment unit	3.1.11

NA Not Applicable

- The WVDP can only accept waste resulting from WVDP actions for on-site treatment (see Background Volume, Section 1.2.)

** As of the end of the vitrification campaign in September 2002, 275 canisters were generated as a result of HLW Vitrification.

TABLE ES-2

PREFERRED OPTION – OFF-SITE COMMERCIAL

TREATABILITY GROUP	VOLUME m^3 SEPTEMBER 30, 2010	TREATMENT TYPE	PREFERRED OPTIONS	STP BACKGROUND/PLAN VOLUME SECTION NUMBER
- Aqueous Liquids, Ignitable, Corrosive, or Reactive*	0.00	Aqueous – Neutralization/Deactivation	Perma-Fix/DSSI/ M&EC	3.1.1
- Batteries (Lead-Acid Type), Toxic Metals	0.00	Drain acid and macroencapsulate	Energy Solutions	3.1.2
- Elemental Lead Toxic Metals - Uncategorized Metal Debris, Toxic Metals	17.4 0.00	Decontamination and/or Macroencapsulation of Lead	Energy Solutions M&EC	3.1.6
- Debris Waste Streams	0.00	Stabilization Macroencapsulation	Energy Solutions	3.1.9
- Glass Debris - Debris, Toxic Metals w/Mercury	0.00 85.5	Roast/Retort/RMERC/ Stabilization/ Macroencapsulation/ Thermal Treatment	Energy Solutions M&EC, DSSI	3.1.4
- Inorganic Particulates - Spill Residue	0.00 0.00	Deactivation and Stabilization	M&EC/Perma-Fix	3.2.2
- Elemental Mercury	29.7	Amalgamation	M&EC/Energy Solutions	3.1.7

* The preferred option is on-site treatment, however, treatment at an off-site facility is also being considered.

TABLE ES-3

PREFERRED OPTION – OFF-SITE DOE

TREATABILITY GROUP	VOLUME m^3 SEPTEMBER 30, 2010	TREATMENT TYPE	PREFERRED OPTION	STP BACKGROUND/PLAN VOLUME SECTION NUMBER

* DOE-WVDP does not currently have an NNSS approved Mixed Waste Program. MLLW is sent to a commercial treatment facility and then to a commercial or DOE Disposal Facility.

TABLE ES-4
PREFERRED OPTION – OFF-SITE COMMERCIAL/DOE

TREATABILITY GROUP	VOLUME m^3 SEPTEMBER 30, 2010	TREATMENT TYPE	PREFERRED OPTIONS	STP BACKGROUND/ PLAN VOLUME SECTION NUMBER
- Organic Liquids, Toxic Organics, Ignitable, Corrosive, or Reactive (W003)	0.00	Organic Destruction (Combustion/Incineration/ Thermal treatment)	DSSI/Perma-Fix	3.1.3
- Organic Liquids, Toxic Organics, and Metals (W019)	0.00			
- Organic Liquids, Toxic Organics, Toxic Metals w/Mercury				
- Organic Liquids, Ignitable, Corrosive, or Reactive (W021)	0.00			
Organic Liquids, Ignitable, Corrosive, or Reactive (W010)	0.00			
- Organic Liquids, Toxic Metals (W012)	0.00			
- Organic Liquids, Toxic Organics (W044)	0.00			
- Aqueous Liquids, Corrosive, Ignitable, or Reactive Only (W043)	0.00			
- Aqueous Liquids, Toxic Organics (W017)	0.00			
- Commercial Chemical Products (W032)	0.00			

NOTE: Zero volume for these waste streams reported only for future waste generation

TABLE ES- 4 (concluded)
PREFERRED OPTION – OFF-SITE COMMERCIAL/DOE

TREATABILITY GROUP	VOLUME m^3 SEPTEMBER 30, 2010	TREATMENT TYPE	PREFERRED OPTIONS	STP BACKGROUND/ PLAN VOLUME SECTION NUMBER
- Polychlorinated Biphenyl (PCB)-Contaminated Material	0.00	Organic Destruction/ Extraction/Direct Disposal (remediation debris)	East Tennessee Technology Park (ETTP) Incinerator/Energy Solutions/ M&EC	3.1.5
Predominantly Combustible Debris (W028)	0.00	Combustion/Stabilization	Perma-Fix/Energy Solutions/M&EC	3.1.10
Solid, Toxic Metals (W035)	0.00			
Solid Process Residues, Toxic Metals (W036)	0.00			
Toxic Metal Debris (W037)	0.00			
- Organic Sludge/Debris				
Aqueous liquid and low concentration organic liquid waste stream		Combustion/ Deactivation/Stabilization	DSSI/M&EC/Energy Solutions	3.1.13
Organic liquid, toxic (W007)	0.00			
Aqueous liquid, toxic (W034)	0.00			
Aqueous corrosive, liquid (W025)	0.00			
Aqueous liquids, toxic (W030)	1.55			
- MLLW CH, Aqueous Liquids, Corrosive or Reactive Only	0.0	Deactivation/ Combustion	Perma-Fix/M&EC	3.3.4
TRU Elemental Lead and Debris, Toxic Metals, and/or Organics	35.6	Decontamination and Macroencapsulate of Elemental Lead	Energy Solutions for macroencapsulate	4.2.1
- TRU Elemental Lead and Debris, Toxic Metals, or Organics in the CPC-WSA	51.7		INEEL AMWTF (Treat as TRU)	
TRU Debris in storage in the HLWISF*	48.4			

NOTE: Zero volume for these waste streams reported only for future waste generation
* High Level Waste Interim Storage Facility

TABLE ES-5
NEEDS FURTHER CHARACTERIZATION OR EVALUATION

WASTE STREAM DESCRIPTION	VOLUME m^3 SEPTEMBER 30, 2010	STP BACKGROUND VOLUME SECTION NUMBER	STP PLAN VOLUME SECTION NUMBER
Spent Resin	0.00	3.3.12	3.3.12
High Activity Residual Liquid Waste Stream	89.5	3.3.14	3.3.14
Shield waste in CPCWSA	0	6.2.0	6.2.0

NOTE: Zero volume for this waste stream is reported only for future waste generation

SITE TREATMENT PLAN
BACKGROUND VOLUME

**SITE TREATMENT PLAN FOR
THE WEST VALLEY DEMONSTRATION PROJECT**

BACKGROUND VOLUME

1.0 INTRODUCTION

1.1 Purpose

The United States 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 FFCAct), to prepare Site Treatment Plans (STPs or Plans) describing the development of treatment capacities and technologies for treating mixed waste and to update those Plans annually. STPs are required for facilities at which DOE generates or stores mixed waste, which is defined by the FFCAct as waste containing both a hazardous waste component subject to the Resource Conservation and Recovery Act and a radioactive source, special nuclear or by-product material waste component subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.). The West Valley Demonstration Project (WVDP) Site Treatment Plan (STP) has been approved by the New York State Department of Environmental Conservation (NYSDEC).

DOE faces increasingly tighter budgets throughout the DOE complex and anticipates that funding will continue to be constrained. The schedules in this and other Plans reflect those constraints. The schedule contained in this FY2010 update to the WVDP STP and the 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 STPs for some facilities, particularly the largest and most costly facilities, may seem protracted. Schedules for small sites that are relying on the treatment capacity at larger sites are also affected. The 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.

Emerging new technologies may continue to be identified in the future, which are not yet considered. These technologies may provide opportunities to manage waste more safely, effectively, and at lower cost than the current technologies identified in the WVDP STP. Working closely with regulators and other interested parties during the implementation of the WVDP STP, the 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 additional amendments of this treatment plan in accordance with provisions of the WVDP FFCAct Consent Order.

The WVDP STP reflects the results of discussion among New York State and other states, the Environmental Protection Agency (EPA), and others, based on the Draft STP (DSTP) and Proposed STP (PSTP) submitted to NYSDEC in August 1994 and April 1995, respectively. The WVDP Plans and subsequent updates present information on treatment needs, capabilities, and preliminary options for treating the mixed waste. All versions of the Plan are available at the Hulbert Library of the Town of Concord, 18 Chapel Street, Springville, NY 14141.

This "Background Volume" is one of two volumes that constitute the FY2010 annual update to the WVDP STP. It provides a detailed discussion of the preferred, most current treatment option or options (and in some instances evaluation of dual treatment and/or treatment facility pathways), identifies the waste streams that the option or options address, and gives explanatory information for the "Plan Volume." The annual FY2010 update to the Plan Volume identifies the facilities and technologies currently targeted to be used for treatment and the associated schedules.

1.2 Site History and Mission

The WVDP is located on the site of the only commercial nuclear fuel reprocessing plant to have operated in the United States. The WVDP facilities occupy approximately 0.8 km^2 of the Western New York Nuclear Service Center (WNYNSC) in West Valley, New York, a rural setting approximately 50 km south of Buffalo, New York. The site includes a commercial nuclear fuel reprocessing plant that was operated from 1966 to 1972 by Nuclear Fuels Services, Inc. (NFS) under a long-term lease from the New York State Energy Research and Development Authority (NYSERDA). The reprocessing operations generated approximately 2,500 cubic meters (m^3) of highly radioactive liquid waste (high-level mixed waste) which was stored in underground steel tanks. In 1976, the reprocessing plant operator notified NYSERDA of its intention to cease operations.

1.2.1 West Valley Demonstration Project Act

The WNYNSC, including the WVDP, is owned by New York State. The 1980 West Valley Demonstration Project Act, Public Law 96-368 (WVDP Act) authorizes DOE to carry out a project for demonstrating solidification techniques that can be used for preparing high-level radioactive waste for disposal. Under the WVDP Act, the DOE is required to carry out the following activities:

(1) Solidify, in a form suitable for transportation and disposal, the high-level radioactive waste;

(2) Develop containers suitable for permanent disposal of the high-level radioactive waste solidified at the WNYNSC;

(3) Transport the solidified waste to an appropriate federal repository for permanent disposal;

(4) Dispose of low-level radioactive waste and transuranic waste produced by the solidification of the high-level radioactive waste under the Project (i.e., WVDP);

(5) Decontaminate and decommission the tanks, facilities, materials, and hardware used in connection with the Project.

These activities are to be carried out in accordance with applicable rules and regulations, executed orders and agreements, and DOE directives. The scope of the DOE's authority under the WVDP Act of 1980 is limited. That scope authorizes the DOE to treat, store, and/or dispose of wastes produced by the reprocessing of spent nuclear fuels and from the demonstration of solidification techniques at the WVDP. Under the WVDP Act, the Nuclear Regulatory Commission (NRC) also has certain responsibilities at the WVDP. The NRC Provisional Operating License CSF-1 was issued to NFS and New York State Atomic and Space Development Authority (ASDA, now NYSERDA) in April 1966, to operate the irradiated nuclear fuel reprocessing plant. The license was issued to NFS as the operator and NYSERDA as the owner. NYSERDA is currently the Title 10 Code of Federal Regulations (CFR) Part 50 licensee; however, the technical specifications of the license for site operation are in abeyance.

1.2.2 RCRA Authority

NYSDEC was authorized to administer most of the Hazardous and Solid Waste Amendments (HSWA) Program (including Land Disposal Restriction [LDR] requirements) on May 21, 1992. By authority of the EPA "Immediate Final Rule," dated March 6, 1990, NYSDEC was authorized to regulate the hazardous constituents of radioactive mixed waste, effective May 7, 1990 (55 Federal Register [FR] 7896). The WVDP has been operating under RCRA interim status for treatment and storage of hazardous and radioactive mixed waste since June 1990. DOE, NYSERDA, and the Site Contractor, as parties, negotiated a Federal & State Facility Compliance Agreement (FSFCA) with EPA

Region II and NYSDEC that addressed various mixed waste management and compliance issues. This agreement was put into place in March 1993. A one-year extension, pertaining to Section 7.2 of the FSFCA (i.e., Waste Analysis), was granted to the WVDP, extending the agreement to March 22, 1999. Actions associated with Section 7.2 of the FSFCA were completed by March 22, 1999 thereby closing out the Agreement. Wastes restricted from land disposal (LDR wastes) which were identified as Radioactive Mixed Waste (RMW) pursuant to the FSFCA have been incorporated into the FFCAct process. In addition, in March 1992, DOE and NYSERDA executed a RCRA 3008(h) Administrative Order on Consent with EPA Region II and NYSDEC. The WVDP is currently implementing that Order.

1.3 Framework for Developing DOE's Site Treatment Plans

RCRA requires the treatment of hazardous waste (including the hazardous component of mixed waste) to certain standards before the waste can be land disposed, and prohibits 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.

The Federal Facility Compliance Act (FFCAct), signed on October 6, 1992, waives sovereign immunity for fines and penalties for RCRA violations related to LDR storage prohibition for mixed wastes at federal facilities. However, the FFCAct postpones the waiver for three years for violations of LDR storage prohibitions for DOE's mixed wastes. The FFCAct also required DOE to prepare plans for developing required treatment capacity for mixed waste at each site at which it stores or generates mixed waste. Each plan was approved by the state or EPA, after consultation with other affected states and consideration of public comment. An Order was subsequently issued by the regulatory agency requiring compliance with the Plan. The FFCAct 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 FFCAct requires the plans to contain schedules for developing capacity for mixed waste for which identified treatment technologies exist, and schedules for identifying and developing technologies for mixed waste without an identified existing treatment technology. The FFCAct also requires the plans to provide certain information where radionuclide separation is proposed. The FFCAct 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 on April 6, 1993 (58 FR 17875). In the Notice, the DOE committed to providing the Site Treatment Plans in three phases: a "Conceptual Plan" to be completed in October 1993, a "Draft Plan" to be completed no later than August 1994, and a "Final Proposed Plan" to be completed no later than February 1995. (This date was later changed to April 1995 by agreement between DOE and the states.) This process provided an opportunity for early involvement by the states and other stakeholders to discuss technical and equity issues associated with the plans.

The Conceptual Site Treatment Plan (CSTP), submitted in October 1993, focused on identifying treatment needs, capabilities, and options for treating the site's mixed waste. The Draft Site Treatment Plan (DSTP), submitted in August 1994, focused on identifying preferred options for treating the site's mixed wastes, wherever possible, as well as proposed schedules for constructing capacity. The "Final Proposed Site Treatment Plan" (PSTP), submitted in April 1995, addressed DOE complex-wide treatment issues. It provided preferred plans and schedules for treating the wastes with a mechanism for establishing milestones that are enforced through a Consent Order. Comments received on the CSTP, DSTP, and PSTP were incorporated into the Final STP.

1.4 Site Treatment Plan Organization

The WVDP's STP and each annual update to the STP follow the same format as the Site Treatment Plans of other DOE sites to facilitate cross-site comparisons. This annual update to the STP is organized in two separate, but integrated, volumes. The Background Volume provides the

detailed discussion of the options. It contains information on the waste streams and treatability groups that a particular treatment option or options would address and describes uncertainties associated with that option, and regulator and stakeholder input. The Plan Volume is a short, focused document containing the preferred options and schedules for implementing the options and is intended to contain all of the information required by the FFCAct. It references, but does not duplicate, details on the options in the Background Volume.

Sections 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 STP and the WVDP 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. Sections 1.0 and 2.0 of the Plan Volume summarize the mechanisms and procedures for implementing the STP.

Sections 3.0 through 5.0 of the Background and Plan Volumes discuss the most current preferred option or options for low-level mixed waste, mixed transuranic waste, and mixed high-level waste. Each volume discusses waste streams and options in parallel sections. The Background Volume discusses the waste streams, technology needs, uncertainties, and other details on the preferred options. In the Plan Volume, these sections contain a description of the activities and proposed schedules for treating the wastes. To maintain consistency of STP section numbers and to record waste stream category treatment completions (i.e., current inventory reduced to 0), the following formatting will be utilized in annual updates to the STP. When a waste stream category, as represented by STP section numbers, has been treated in total, notification of such treatment will be provided in the associated FY annual update. In subsequent FY updates, the associated categories and STP section numbers will continue to be included, with summary language provided to indicate that the wastes in inventory have been treated and that the waste stream category has been "removed from the active portion" of the STP. This will allow for STP section numbers to remain constant and in sequence. Likewise, as new waste stream categories are added to the STP or waste stream categories are moved from the "Waste Streams Requiring Further Characterization or for which Technology Assessment has not Been Done" sections of the STP (i.e., Sections 3.3 and 4.3) to the "Waste Streams for which Technology Exists" sections of the STP (i.e., Sections 3.1, 3.2, 4.1, 4.2), these waste stream categories will be assigned sequential section numbers.

The Background Volume includes three additional sections that are not included in the Plan Volume because they are not required by the FFCAct and are not compliance-related. Section 6.0 discusses mixed wastes expected to be generated in the future. This section is included to assist in anticipating treatment needs. The waste streams identified in Section 6.0 will be incorporated into the Plan Volume and the treatment approaches and schedules will be developed when the waste streams are generated. Section 7.0 discusses storage capacity needs and how compliant storage will be provided for the WVDP's 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 FFCAct 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 in order to support state discussions.

Section 9.0 contains funding information.

1.5 Related Documents

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.

1.5.1 Mixed Waste Inventory Report

The Mixed Waste Inventory Report (MWIR) required by the FFCAct 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. The DOE made updated waste stream and capacity data available to the states and EPA in May 1994. The May 1994 MWIR data represented the best record of the DOE's mixed waste inventory at the time the DOE began developing STPs. The final MWIR required by the Act was issued in June 1995. The June 1995 MWIR data reflected DOE's mixed waste inventory as of September 1, 1994. The WVDP STP has been updated to reflect the site's mixed waste inventory data as of September 30, 2010

The volume of mixed waste in inventory at the WVDP as of September 30, FY2010 was 362 cubic meters. This volume represents a decrease of 24 cubic meters during the fiscal year.

1.5.2 Waste Management Programmatic Environmental Impact Statement (WM PEIS)

In May 1997, the DOE issued the Final Waste Management (WM) Programmatic Environmental Impact Statement (PEIS) for public comment, which was used to formulate and implement a waste management program in a safe and environmentally sound manner and in compliance with all applicable laws, regulations, and standards. The PEIS presents 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 examines activities involving the following waste types: high-level, transuranic, mixed low-level, low-level, and hazardous waste. The analysis for the waste management PEIS evaluates decentralized, regional, and centralized approaches for storage of high-level waste (HLW), treatment and storage of transuranic waste, treatment and disposal of low-level waste (LLW) and mixed low-level waste (MLLW), and treatment of hazardous waste.

Based on the analyses in the WM PEIS, the DOE has issued a Record of Decision (ROD) for each of the five waste types and sites in a phased manner. During 1998, the following two (2) RODs were issued:

a) "Record of Decision for the Department of Energy's Waste Management Program: Treatment and Storage of Transuranic Waste," issued on January 23, 1998; and
b) "Record of Decision for the Department of Energy's Waste Management Program: Treatment of Non-Wastewater Hazardous Waste," issued on August 5, 1998.

On August 26, 1999, the ROD for the storage of immobilized HLW was issued ("Record of Decision for the Department of Energy's Waste Management Program: Storage of High-Level Radioactive Waste," 64 FR 46661).

The final ROD, which covers the treatment and disposal of mixed and LLW as analyzed in the WM PEIS, was issued on February 25, 2000 ("Record of Decision for the Department of Energy's Waste Management Program; Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste; Amendment of Record of Decision for Nevada Test Site," 65 FR 10061). For the purpose of this STP, the WM PEIS RODs for TRU waste and mixed wastes are applicable and are discussed below.

The 1998 TRU ROD states that each of the DOE sites that has or generates TRU waste in the future will prepare and store it on site prior to disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico. The DOE may, in the future, decide to ship TRU wastes from sites where it may be impractical to prepare them for disposal to sites where the DOE has or will have the necessary capability. However, any future decisions regarding such transfers would be subject to appropriate National Environmental Policy Act (NEPA) review, and agreements, such as those between the DOE and the states, relating to the treatment (including packaging) and storage of TRU waste. The DOE coordinated the WM PEIS ROD for treating and storing TRU waste with the ROD it issued for the, "Waste Isolation Pilot Plant Disposal Final Phase Supplemental Environmental Impact Statement (SEIS)," (WIPP SEIS-II, September 1997). The WIPP SEIS-II ROD identified the WIPP, a geologic

repository, as the disposal location of TRU waste. However, the ROD limits disposal to defense-generated waste. Currently the WVDP's TRU mixed waste is considered

non-defense and, as such, is precluded from immediate disposal at the WIPP.

The 2000 ROD for MLLW indicates that DOE sites will either treat their waste on-site or ship their MLLW to Hanford, Idaho National Environmental and Engineering Laboratory, Oak Ridge Reservation, or Savannah River for treatment. The Savannah River site's RCRA Part B permit needs to be revised to allow treatment of off-site waste while resumption of receipt of off-site waste at Oak Ridge was approved by the state of Tennessee. Additionally, the 2000 ROD identifies Hanford and the Nevada Test Site (NTS) as disposal options for DOE's MLLW treatment residues (Section 8.0). However, the ROD does not preclude DOE's use of commercial facilities for treatment and/or disposal of MLLW.

1.5.3 The Federal and State Facility Compliance Agreement (FSFCA)

The FSFCA entered into by the WVDP, NYSDEC, and the EPA, established requirements for the on-site storage of mixed waste until such time as treatment is available. Pursuant to this agreement, the WVDP was required to store wastes in a specified manner, perform regular inspections of storage areas, and better characterize the wastes in storage. The FSFCA specified terms and conditions under which the DOE, NYSERDA, and the Site Contractor shall identify, store, and minimize generation of radioactive mixed wastes prohibited from land disposal and come into compliance with requirements for RCRA interim status treatment and storage facilities. This agreement was executed on March 22, 1993. A one-year extension, pertaining to Section 7.2 of the FSFCA (i.e., Waste Analysis), was granted to the WVDP, extending the agreement to March 22, 1999. Actions associated with Section 7.2 of the FSFCA were completed by March 22, 1999 thereby closing out the Agreement. The FSFCA characterization process identified new mixed waste streams that were incorporated in the STP through the annual updating process.

1.5.4 National Environmental Policy Act (NEPA)

The NEPA of 1969, as amended (42 USC Section 4321), requires all federal agencies to assess and document the actions they propose to undertake in order to determine if those actions have the potential to significantly impact the environment. The DOE's regulations for implementing the NEPA are promulgated in 10 Code of Federal Regulations (CFR) 1021. The DOE prepared the following NEPA documents that pertain to the WVDP mixed waste.

A. Categorical Exclusion for Low Level and Mixed Waste Oil (1994 CX)

A categorical exclusion (CX) was issued on August 1, 1994 for a one-time removal action to treat approximately 1,500 gallons of low level and mixed waste oil at an approved, permitted commercial facility in Kingston, Tennessee (TN).

B. Environmental Assessment (EA) for the Treatment of Class A LLW and Mixed LLW Generated by the WVDP

An EA to transport the WVDP LLW and MLLW for off-site treatment was prepared and issued to the DOE for review during the fourth quarter of FY1995. The EA assesses the transportation of wastes to several approved and permitted commercial facilities (i.e., Energy Solutions, Scientific Ecology Group [SEG], GTS Duratek, NSSI Recovery Systems [NSSI]). On November 29, 1995, after responding to public comments on the proposed action, the DOE approved the EA and issued a Finding of No Significant Impact (FONSI) thereby completing all necessary NEPA requirements for this action.

C. Draft Environmental Impact Statement (DEIS) for Completion of WVDP and Closure or Long-Term Management of Facilities at the Western New York Nuclear Service Center

In January 1996, the DOE and NYSERDA issued a draft EIS which discussed alternatives for integrated site-wide actions to complete DOE decontamination and decommissioning activities and provide for NYSERDA's closure or long-term management of facilities at the WNYNSC. Since the issuance of the DEIS, the DOE determined that its decision-making process would be better facilitated by preparing two separate EIS's. Thus, in March 2001, the DOE issued its revised strategy for completing the 1996 DEIS and a Notice of Intent to prepare the Waste Management EIS (66 Federal Register [FR] 16447). As part of its strategy to address the full scope of the 1996 DEIS, the DOE also stated its intention to prepare a subsequent EIS to address the decommissioning and/or long-term stewardship of the WVDP and the WNYNSC. In December 2001 the DOE issued an advanced Notice of Intent (66 FR 56090) and a Notice of Intent on March 13, 2003 (68 FR 12044). During 2002, preparation of the WVDP WM EIS was in process and the formal Notice of Intent was drafted. Availability of the final WVDP WM EIS was published in the Federal Register on January 16, 2004 and the ROD was issued on June 16, 2005. The ROD provides NEPA coverage for the treatment and off-site shipment of LLW and MLLW at commercial and or DOE disposal facilities.

A Revised Draft Environmental Impact Statement (DEIS) for Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project and Western New York Nuclear Service Center [DOE/EIS-0226-D (Revised)] was made publicly available on December 5, 2008. The U.S. Department of Energy and the New York State Energy Research and Development Agency were co-lead agencies for the DEIS, and the U.S. Environmental Protection and Nuclear Regulatory Agencies, and the New York State Departments of Environmental Conservation and Health are cooperating agencies. Following a nine-month public comment period, a Final EIS was prepared and issued on January 29, 2010. DOE announced a Record of Decision on April 14, 2010 for a phased decommissioning of the WVDP. Phase 1 will focus on removal of the Main Process Plant, the Vitrification Facility and the Waste Water Treatment lagoons. Further evaluations will be conducted on the approaches to decommission the remaining facilities before a final decision on these facilities is made.

D. Categorical Exclusion for Mixed Wastes (1998 CX)

A categorical exclusion for 250 m^3 of MLLW at the DOE and/or commercial facilities was issued in 1998. This CX provides one comprehensive "umbrella" coverage for the management of all MLLW waste streams in accordance with the WVDP STP. Management includes treatment, shipment, and/or disposal at commercial and/or the DOE facilities.

E. Categorical Exclusion for Construction and Operation of the Main Plant Process Building (MPPB) Liquid Solidification System (2009 CX)

The purpose of the MPPB Liquid Solidification System is to stabilize radiological and underlying RCRA Land Disposal Restrictions (LDRs) and Universal Treatment Standards (UTSs). Among other waste stream MPPB Liquid Solidification System feeds include the following:

- Liquid Waste Treatment System (LWTS) evaporator flush liquids (approximately 7,500 gallons of acid wash stored in Tank 5D-15A1)

The system will remain in place for future use including solidification of liquids generated during demolition of contaminated structures and buildings.

A NEPA Environmental Checklist WVDP-2009-09 was approved by the DOE NEPA Compliance Officer on October 15, 2009 concluding that this activity is categorically excluded per 10 CFR Part 1021, as Amended, Appendix B to Subpart D, CX B6.1.

1.5.5 RCRA Facility Investigation

The WVDP performed a RCRA Facility Investigation (RFI) pursuant to the requirements of a RCRA 3008(h) Consent Order issued to DOE-WVDP and NYSERDA by NYSDEC and the EPA. The RFI was performed to investigate possible releases of hazardous constituents from a number of solid waste management units. No immediate corrective measures were required based on RFI results. However, remedial activities could be required to address any releases that may be identified by ongoing monitoring activities. It is possible that the generation of additional mixed waste from remediation activities may occur in the future; however, information regarding the type and/or volume of waste generated from these activities is not yet available. The WVDP does not expect to generate significant quantities of remedial mixed waste prior to the issuance of the site's EIS ROD. RMW generated as a result of implementing this RCRA 3008(h) Consent Order will be subject to FFCAct requirements.

1.5.6 Stipulation of Compromise Settlement

The Stipulation of Compromise Settlement was entered into by the Coalition on West Valley Nuclear Wastes and Radioactive Waste Campaign and the DOE in 1987. The Stipulation, among other things, prohibits the on-site and off-site disposition of Class B & C wastes until an EIS ROD covering this issue is completed. As stated previously, the WVDP WM EIS ROD was issued on June 16, 2005 and provides coverage for the off-site shipment of LLW and MLLW including Class B&C waste.

2.0 METHODOLOGY

2.1 Assumptions

All the DOE sites used the following assumptions to provide for a degree of consistency in the preparation of the STPs. The assumptions were developed as part of the "Draft Site Treatment Plan Development Framework" and reflect review and comment from the states and the EPA:

HLW will continue to be managed according to current plans at each site (i.e., Hanford, West Valley, Savannah River, Idaho National Engineering and Environmental Lab [INEEL]). 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 STPs will not change management strategies for HLW.

The original STPs assumed, at that time, that the WIPP would open in 1998. The STPs identified characterization, processing, and treatment of TRU waste to meet the WIPP waste acceptance criteria. Treatment of defense-related mixed TRU (MTRU) waste to meet LDR standards was not included in the STPs at that time. However, the original STPs did recognize that DOE's policy regarding the WIPP was under review and could change in the future. This annual update of the STP reflects the 1998 WM PEIS ROD that TRU waste will continue to be treated and stored on site pending disposal at the WIPP. However, the DOE may, in the future, decide to transfer TRU wastes from sites where it may be impractical to prepare them on-site for disposal to those sites where the DOE has or will have the necessary capability. The WIPP SEIS-II ROD identified the WIPP as the disposal location of TRU waste. However, the SEIS-II ROD limits disposal to defense-generated waste. Currently the WVDP's TRU mixed waste is considered non-defense and, as such, is precluded from immediate disposal at the WIPP.

The 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, was considered.

Sites in the same state investigated the practicality of consolidated treatment facilities.

Mixed waste resulting from environmental restoration (ER) and decontamination and decommissioning (D&D) activities have been factored into planning activities and equity discussions, particularly where utilization of facilities identified in the STPs are being considered for managing ER and D&D waste.

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.

Each site will prepare the necessary specific NEPA documentation before proceeding with a given project or facility ordered by the state or the EPA as a result of the STP process. Such documentation will consider the DOE's Final Waste Management PEIS and subsequent waste-type-specific RODs. NEPA requirements for shipment and treatment to the DOE facilities have been satisfied by the February 2000 WM PEIS ROD for mixed waste. The CX approved by the DOE in August 1998 reflects the WVDP's site-specific comprehensive NEPA documentation.

In support of the 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.

The following assumptions are specific to the WVDP:

The STP annual update addresses all wastes in inventory as of September 30, ~~2009~~ **2010** with no path for disposal. Any subsequent additions to this inventory will be incorporated into the STP process through future annual STP updates.

The DOE sites can accept LLW from the WVDP for treatment.

The WVDP facility can only accept wastes for treatment, storage, or disposal that have resulted from WVDP actions (see discussion on WVDP Act in Section 1.2 above).

Based upon the PEIS ROD for TRU waste, the WVDP's TRU waste is not currently eligible to be disposed of at the WIPP. (ref.:U.S. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980, PL 96-164.) If, in the future, DOE determines that the WVDP waste is eligible for disposal at the WIPP, the treatment options presented for TRU waste in this plan will be reevaluated. In such event, treatment may not be required since the National Defense Authorization Act states that TRU mixed waste designated by the Secretary of DOE for disposal at the WIPP is exempt from the treatment standards and is not subject to the Land Disposal Restrictions.

A national repository will be available to receive shipments of WVDP vitrified HLW and the HLW will meet the Waste Acceptance Criteria (WAC) for that facility.

2.2 Preferred Option Selection Process

DOE prepared several guidance documents to assist the sites in working through treatment identification and selection of preferred options. The overall process is contained in the Draft Site Treatment Plan Development Framework (DSTP Framework). The DSTP Framework established common terminology, objectives and values, planning assumptions, and a recommended methodology for narrowing the alternatives presented in the STP. The Treatment Selection Guides provided information on selecting treatment options by comparing the options on fundamental criteria such as regulatory compliance, environmental health and safety, treatment effectiveness, implementability, stakeholder concerns, life-cycle costs, and technology development. The Draft Site Treatment Plan Cost Information Guidance provided a level of consistency in cost information by providing common cost assumptions. Drafts of these and other technical assistance documents were provided to the states and their comments were incorporated into the final revision. These documents are available in the public reading room at the Hulbert Library of the Town of Concord, 18 Chapel Street, Springville, NY 14141.

The coordination of the DOE efforts to treat mixed waste at its various facilities continues, in part, through the consolidated efforts of the DOE Mixed Waste Focus Group. Additionally, in June 1998, the DOE "Broad Spectrum Treatment Contracts" were awarded for the potential treatment of the following five (5) mixed waste categories (various solid non-liquid wastes) with East Tennessee Materials and Energy Corp (M&EC), and Waste Control Specialists, LLC (WCS).

Category A: Noncombustible, low-level, contact-handled soils, sludges, and other solids contaminated with RCRA metals, including mercury, and/or organic constituents

Category B: Noncombustible, low-level, contact-handled soils, sludges, and solids

Category C: Noncombustible, low-level, contact-handled soils, sludges and material meeting the EPA definition of debris

Category D: Low-level, contact-handled, combustible and noncombustible material, including soils and sludges (may contain some material meeting the EPA definition of debris)

Category E: Low-level, contact-handled, combustible and noncombustible material, including soils, sludges, electrical equipment and debris

In June 1999, an additional Broad Spectrum Treatment Contract was awarded to Allied Technology Group (ATG) for the potential treatment of various mixed waste liquids. However, in the first quarter of FY2002, ATG closed its Richland, WA facility.

As of September 30, 2010, the treatment operations at Perma-Fix Gainesville, M&EC, Energy Solutions, Perma-Fix Northwest and WCS are in various stages of operation. Generally, approved mixed wastes targeted for a treatment facility will not be shipped to that facility until the associated treatment operation has undergone favorable test/trial runs; approval has been received from applicable EPA, state, and local agencies; and full-scale operation has been successful. Due to the large volume of the DOE complex-wide mixed waste targeted for off-site mixed waste treatment, the treatment facility's operational and waste receipt schedules may also impact shipment time frames.

During FY2001, Perma-Fix of Gainesville, Florida acquired mixed waste treatment operations at M&EC and DSSI. The Perma-Fix Gainesville facility's Part B permit was also modified to include additional small-volume mixed waste treatment capacity.

During FY2000, DOE has indicated that incinerators at their SR, Oak Ridge and INEEL facilities would probably not be upgraded to meet new EPA air emission standards and would therefore be closed within the next five years. During the first quarter of FY2001, the Idaho Department of Environmental Quality formally denied the Hazardous Waste Management Act Permit Application for the INEEL WERF incinerator and directed the WERF to cease operation no later than November 2, 2001. Therefore, as of November 2001, the WERF is no longer a treatment option. Also, previous plans to construct a new mixed waste incinerator at INEEL as part of their planned Advanced Mixed Waste Treatment Facility (AMWTF) were withdrawn during FY2000. As of the end of FY2001, the planned AMWTF is still scheduled to provide certain mixed waste treatment capacity (e.g., microencapsulation) for the DOE sites. Following the planned construction of the AMWTF and the treatment of INEEL's own waste, availability of the AMWTF to off-site mixed wastes is currently scheduled for 2005. The only DOE-run incinerator currently accepting waste for treatment is the East Tennessee Technology Park (ETTP) Toxic Substance Control Act Incinerator (TSCAI) in Oak Ridge, Tennessee. During the second quarter of FY2002, the state of Tennessee approved the burn plan for the ETTP Toxic Substance Control Act Incinerator (ETTP-TSCAI) at Oak Ridge and began allowing out-of-state waste to be treated at the facility. The incinerator was originally scheduled to be closed at the end of FY2006; however, continued demand for incineration capacity within the DOE complex kept the unit operating through FY2009. The TSCA Incinerator was closed for waste shipments by the end of FY2009.

In addition to the availability of treatment facilities, treatment option selection may also be impacted by new regulations. For example, the August 1998 revisions to the polychlorinated biphenyl (PCB) management regulations ("PCB Mega-Rule") provide for the direct controlled land disposal of

certain solid PCB-contaminated waste. This type of waste is hazardous only due to the presence of PCBs. PCB-containing waste (>50 ppm) is regulated as hazardous waste in New York State.

In addition to meeting LDR requirements, treated mixed waste forms or residues (e.g., incinerator ash, stabilized waste) are required to meet the ultimate disposal facility's WAC for disposal. For certain performance-based treatment technologies such as, but not limited to, the macroencapsulation of elemental lead or debris, disposal verification of adequate treatment performance is specified in facility permits, etc. This verification is usually connected to the agency's "approval" of the actual treatment unit's operation. During FY1999, Energy Solutions indicated that they may not accept for disposal waste which has been macroencapsulated by a treatment facility other than their own (e.g., ATG, WCS, M&EC). Additionally, during the fourth quarter of FY1999, Hanford, which was identified in the WM PEIS February 2000 MLLW ROD as a potential disposal site for the DOE's treated mixed waste, also indicated that it may be impossible to verify, and thus accept, previously macroencapsulated waste. Hanford has also indicated that current state regulations prohibit them from land disposing of MLLW, even though it has been treated in accordance with federal LDRs, for which incineration may be an option (i.e., cannot dispose of macroencapsulated incinerable debris [e.g., personal protective equipment,(PPE), wipes, etc]). Other disposal issues include, but are not limited to, the ability of Energy Solutions to accept only certain low-level Class A waste. These disposal acceptance issues may impact treatment options, treatment facilities (such as those made available through the DOE Broad Spectrum Treatment Contracts), and schedules as discussed in this FY update. Changes to this FY update incorporate the above situations and efforts coordinated through the DOE Focus Group and the execution of the Broad Spectrum Treatment Contracts.

2.3 Coordination with Regulatory Agencies and Other Stakeholders

At the national level, the DOE has presented information on the development of the STPs to the Environmental Management Advisory Board (EMAB) and other national stakeholder groups.

The FFCAct offered an opportunity for the 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.

The FFCAct required the states and the EPA to provide for public involvement after the Final Proposed Plans were submitted. The DOE has provided opportunities for public input through existing public involvement mechanisms at the site. Copies of the WVDP CSTP, DSTP, and PSTP were mailed to a number of stakeholders and are on file at local libraries.

The WVDP received comments from the NYSDEC on the CSTP, DSTP, and PSTP. These comments were incorporated into the WVDP STP. FY updates to the STP are submitted annually to the NYSDEC for their review. If the annual update proposes amendments or revisions, approval of such must be obtained from NYSDEC.

2.4 Characterization of Mixed Waste

Characterization involves the identification of a waste's radionuclide content and hazardous constituents.

HLW is defined by DOE Order 435.1 (previously DOE Order 5820.2A) as "... the highly radioactive material that results from the reprocessing of spent nuclear fuels, including the liquid waste produced directly in the reprocessing, and any solid waste derived from the liquid that contains a combination of transuranic waste and fission products in concentrations as to require permanent isolation." In the same DOE Order, TRU waste is defined as all radioactive wastes that contain more than 100 nCi/gm of alpha-emitting isotopes with atomic numbers greater than 92 and half-lives of greater than 20 years. LLW are radioactive wastes that are not classified as HLW, TRU wastes, spent fuel, or by-product materials. (Note: the WVDP Act of 1980 defines TRU wastes as >10 nCi/gm.)

Solid wastes generated at the WVDP are characterized based on their radioactive and hazardous

constituent content. The method is documented in Standard Operating Procedures (SOP) 300-07, "Waste Generation, Packaging, and On-Site Transportation," and WM-210, "Waste Stream Characterization", which incorporates the regulatory requirements for the classification of solid wastes.

Identification of waste streams is based on process knowledge, sampling, and analysis as required by 40 CFR Part 261, and 6 New York Compilation of Codes, Rules, and Regulations (NYCRR) Part 371. Specific LDR requirements are set forth in 40 CFR Part 268 and 6 NYCRR Part 376.

If required, radioactive analysis is performed on site or at an off-site laboratory. Some chemical constituent testing is performed on site, while the remainder of the testing for hazardous constituent characterization is performed off-site at an approved mixed waste laboratory. During FY2003, the WVDP Analytical and Process Chemistry (A&PC) laboratory developed the ability to analyze liquids and some solids for toxicity characteristic leach procedure (TCLP) metals. During FY2006, the A&PC laboratory suspended the majority of waste analysis operations. The current need for analytical data will be provided by contracting with off-site laboratories. The adequacy of waste characterization for waste determination and treatment for each WVDP waste stream is summarized in the appropriate section of Chapters 3.0, 4.0, and 5.0.

2.5 Waste Minimization

The WVDP has a Waste Minimization/Pollution Prevention (WMin/PP) Program Awareness Plan, WVDP-087 that includes long-range planning for waste storage and processing facilities. The WMin/PP Plan establishes the strategic framework for integrating WMin/PP into all site activities beginning with the planning stage. This program includes setting goals for reducing the generation of wastes and pollutants, increasing recycling activities, and establishing an infrastructure to achieve and measure WMin/PP goals. The WVDP has goals to reduce all types of waste generated.

3.0 LOW-LEVEL MIXED WASTE STREAMS

3.1 Mixed Waste Streams for Which Technology Exists

The waste streams included in this section can be treated to LDR standards using proven available technologies or proven available technologies with minor modifications. Potential treatment options evaluated for these waste streams include: the use of existing on-site or off-site facilities; commercial facilities; facilities constructed and not currently operating, but are being brought into operational status; and new on-site or off-site facilities. Detailed analyses of treatment alternatives for most waste streams were provided in the CSTP and the DSTP. For waste streams for which technology assessments were performed during FY1998, treatment alternative analyses are referenced in applicable sections of the STP. A description of the preferred option(s) is presented in this section.

3.1.1 Corrosive-Only and Other Aqueous Liquid and Low-Concentration Organic Liquid Waste Streams

The following waste streams are addressed in this subsection:

- MLLW CH, Aqueous Liquids, Ignitable, Corrosive, or Reactive

  WV-W004 - Zinc Bromide
  WV-W023 - Aqueous Wastes

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and levels of confidence associated with RCRA characterization data and treatment characterization data for these waste streams are presented in Table 3.1.

A. Description of Technology and Capacity Needs

The LDR treatment standards for wastes in this treatability group are deactivation

for corrosive waste and concentration based for metal waste. Additional characterization may be required to evaluate Underlying Hazardous Constituents (UHC). If identified UHC concentrations are above LDR Universal Treatment Standards (UTS) levels, then a subsequent treatment, such as stabilization, to meet LDR requirements may be performed. The UHC requirement does not apply to waste treated in a Clean Water Act (CWA) facility.

As of the end of FY2002, all legacy waste had been treated. Wastes generated subsequent to September 30, 1996 are treated in accordance with applicable LDR requirements.

B. Preferred Options and Other Options

The WVDP plans to continue, where feasible, to deactivate or neutralize the waste streams on site. However, off-site treatment options and opportunities will also continue to be evaluated.

If the corrosive liquids contain UHC concentrations above the LDR UTS levels, it is anticipated that the waste streams in this treatability group would be stabilized in accordance with the procedures described in Section 3.2.1.

Summary of FY1996 Activities (including Plan milestone completions)

Elementary neutralization of these waste streams began in July 1996. Work orders detailing the necessary steps for neutralization were developed for individual waste streams or containers. The waste was then transferred to the on-site Analytical Process and Chemistry Laboratory where they were neutralized with sodium hydroxide. Approximately 0.0002 m^3 of this waste was neutralized in FY1996. Inventory increased by approximately 0.0001 m^3 due to new generation. Some wastes were moved to Section 3.2.1 due to the evaluation of UHC.

Summary of FY1997 Activities

Approximately 0.0029 m^3 of this waste was neutralized in FY1997. The existing volume of Acidic Organic Wastes (WV-W026) was neutralized and, therefore, this waste stream is being removed from the active portion of the STP.

Summary of FY1998 Activities

Waste stream WV-W025 was transferred from Section 3.3.4 to this treatability group based upon the outcome of characterization and technology assessment activities conducted in FY1998.

Summary of FY1999 Activities

Remaining legacy wastes (pre-September 30, 1996) in WV-023 were dispositioned to the on-site CWA system during FY1999. One of the three containers in WV-W025 was neutralized during FY1999. The other two containers in WV-W025 could not be successfully neutralized due to gelling of the waste. Other treatment options will be evaluated for the two remaining containers in WV-W025 and the wastes in WV-W004.

Summary of FY2000 Activities

The zinc bromide wastes in WV-W004 were sampled for chemical and radioisotopic waste acceptance parameters (per ATG and M&EC WACs) during FY2000.

Summary of FY2001 Activities

A waste profile for the zinc bromide (WV-W004) was prepared and submitted to ATG and M&EC. ATG approved the profile, resulting in the shipment of the zinc bromide to ATG for treatment on November 16, 2000.

The two containers of caustic wastes in WV-W025 that were not neutralized in FY1999 (see above summary for FY1999) were deactivated via the on-site vitrification system in July 2001.

Summary of FY2002 Activities

A small volume of aqueous standard solution was generated. The waste was evaluated for on-site treatment and will be managed in the on-site CWA system for deactivation.

Summary of FY2003 Activities

There were three containers of waste in this section at the start of the year. One container of aqueous waste, that was generated in FY2002, was dispositioned to the Clean Water Act (CWA) treatment system on February 16, 2003. The other two containers of tri-layered waste were transferred from this section because they did not meet the criteria of this section and were not acceptable for on-site treatment. The containers are covered under waste stream number WV-W025 and this waste stream was transferred to STP Section 3.1.13 for continued management.

Since July 2003 an additional nine containers of aqueous lab waste were generated. The increase in waste generation is due to a significant increase in the number of analysis being performed that produces this waste stream. The waste will be evaluated for on-site treatment and will be dispositioned to the on-site CWA system for deactivation.

Summary of FY2004 Activities

The nine containers that were generated in FY2003 were processed during FY2004. Five of the containers were determined to meet the waste acceptance criteria of the on-site Clean Water Act (CWA) treatment system and were dispositioned in March 2004. The remaining four containers did not meet the on-site WAC and were consolidated and transferred to Section 3.1.13 for further management under the STP.

An additional five containers (0.095 m^3) were generated in July 2004. The liquid will be evaluated to confirm that it meets the WAC for on-site treatment and dispositioned within one year.

Summary 2005 Activities

The five containers of aqueous waste that were generated in July 2004 were processed during FY2005. The waste was determined to meet the WAC of the on-site CWA treatment system and was dispositioned in June 2005.

Two additional containers of aqueous waste were generated in April 2005. The liquid will be evaluated to confirm compliance with the WAC for on-site treatment and dispositioned within one year of generation.

Summary 2006 Activities

The two containers of liquid waste that were in inventory at the beginning of the fiscal year were dispositioned to the on-site interceptor for treatment within one year of generation. The containers were generated in April of 2005 and dispositioned to the interceptor in January 2006.

A drum of technetium lead contaminated wastewater was generated in May 2006. This wastewater is scheduled to be dispositioned to the Interceptor in early FY2007.

Summary 2007 Activities

The drum of wastewater that was in inventory at the beginning of FY2006 was dispositioned to the interceptor on October 30, 2006. There was no new waste generated in FY2007. There is currently no waste in inventory for this STP section.

Summary 2008 Activities

There is currently no waste in inventory for this STP section.

Summary 2009 Activities

There is currently no waste in inventory for this STP section.

Summary FY2010 Activities

There is currently no waste in inventory for this STP section.

TABLE 3.1
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR DEACTIVATION OR NEUTRALIZATION

TREATABILITY GROUP(S) 3.1.1	WASTE STREAM(S)				QUANTITY OF WASTES	
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL OF WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010	
					m^3	kg
MLLW CH, Aqueous Liquids, Ignitable, Corrosive, or Reactive	WV-W004	D002	High	High	0.00	0.00
	WV-W023	D002	High	High	0.00	0.00

Note: There is no five-year projection because waste managed in this section will be treated within one year of generation.

3.1.2 Lead-Acid Batteries Waste Stream

The following waste stream is included in this section:

- MLLW CH, Batteries (Lead-Acid Type), Toxic Metals

  WV-W015 - Lead-Acid Batteries

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste stream are presented in Table 3.2.

A. Description of Technology and Capacity Needs

The selected "treatment" for the waste stream in this treatability group is decontamination and reclamation. If the batteries cannot be decontaminated and reclaimed, disassembly of the batteries and subsequent treatment of mixed waste components via immobilization or neutralization/deactivation can occur, the removed elemental lead can be recycled, or the batteries can possibly be macroencapsulated (per EPA's August 9, 2001 LDR treatment standard interpretation [see below]).

The inventory of the battery waste stream as of September 30, 2010 is 0.00 m^3, with an additional 0.24 m^3 anticipated to be generated over the next five-year generation period (2011-2015).

B. Preferred Options and Other Options

The WVDP attempted to decontaminate the legacy batteries on site in the Contact Size Reduction Facility (CSRF) in 1997 and was unsuccessful due to the presence of cracks and inaccessible surfaces on the batteries (see FY1997 STP update).

As reported in the FY1997 STP update, the new proposed treatment technology for lead-acid batteries is decontamination and reclamation/recycling at an off-site commercial facility such as GTS Duratek (formerly known as Scientific Ecology Group [SEG]). Batteries in inventory which met the GTS Duratek waste acceptance criteria (WAC) were shipped to GTS during July 1998 in accordance with applicable regulations. At that facility, the batteries were decontaminated and free released for recycling. Although performed previously at GTS Duratek as a test program on batteries which are significantly cracked or not intact (i.e., cannot be successfully decontaminated), GTS Duratek is no longer disassembling these low-integrity batteries, neutralizing the acid, and decontaminating or macroencapsulating the remaining components.

During FY2000, an in-depth assessment of potential treatment facilities resulted in the determination that Alaron would be able to accept batteries with the potential for internal radioactive contamination (e.g., cracked batteries, batteries with missing caps) for recycling. Lead-acid batteries with the potential for internal radioactive contamination were shipped to Alaron in June 2000 for recycling. However, during July 2000, in part in response to public concerns, the DOE Headquarters issued a moratorium on the recycling and commercial sale of recycled scrap metal. In a subsequent July 2000 the DOE "Fact Sheet" clarifying their position, indicated that for items such as batteries where the metal is protected by either glass, plastic, or other non-metallic material, recycling was still an option. However, for batteries where the protective material is not intact, (e.g., cracked, caps are missing) the moratorium would apply. To resolve the issues associated with the moratorium, on July 12, 2001, the DOE announced its intent to prepare a Programmatic Environmental Impact Statement (PEIS) to address metal recycling within the DOE complex (66 FR 36562). The Federal Register notice identified a targeted EIS issuance date of July 2002 with a subsequent execution of an associated ROD. To date, there has been no ROD and the moratorium remains in effect.

As an alternative to recycling, in May 2001, the DOE-Headquarters (HQ) requested from EPA an interpretation of LDR treatment standards applicable to drained, radioactively contaminated lead-acid batteries. In EPA's August 9, 2001 response, EPA agreed that the appropriate treatment standard for these batteries is macroencapsulation, as opposed to lead smelting. The EPA further indicated that the macroencapsulation standard applied not only to lead shielding, but to other elemental forms of lead, thus, there was latitude in the treatment standard to permit its application to radioactive lead-acid batteries. During 2001, the State of Utah and Energy Solutions reviewed EPA's interpretation to determine if macroencapsulation of lead-acid batteries would be performed at Energy Solutions. In FY2002, Energy Solutions and the State of Utah approved the treatment and disposal of properly drained lead-acid batteries.

NEPA requirements for shipment and treatment to the off-site commercial treatment facilities have been satisfied through the WVDP-WM EIS ROD (Section 1.5.4).

Summary of FY1996 Activities

Decontamination of the fusible links, which were originally in this category, was attempted in September 1996. After examination of the fusible links, it was determined that the physical shape and small size of the material would not allow for cost-effective decontamination and subsequent free release as non-radiological material. This activity is documented in the FY1996 STP update. Since this waste cannot be decontaminated, it has been moved to Section 3.1.6 for macroencapsulation of elemental lead. Therefore, the fusible links have been removed from Table 3.2.

There was no activity on the RMW lead-acid batteries.

Summary of FY1997 Activities (including Plan milestone completions)

Decontamination of lead-acid batteries in inventory was initiated on February 24, 1997. Detailed inspections of batteries were performed during and after decontamination efforts. These inspections were performed to determine if the condition of the batteries would allow radiological "free release." Based on the inspections it was determined that none of the batteries could be released from radiological controls. These decisions were based on the presence of cracks, crevices, missing battery caps, and inaccessible surfaces on batteries. A schedule to detail required follow up work for the lead-acid battery waste stream was developed during FY1997. The new proposed treatment technology schedule and associated milestones were identified in the FY1997 update to the Plan Volume and will be incorporated into subsequent annual updates. This decontamination and the schedule development milestone activities completed in FY1997 are documented in Appendix A of the FY1997 update to the Plan Volume.

Summary of FY1998 Activities (including Plan Volume milestone completions)

In accordance with the revised treatment schedule developed during FY1997, the batteries were characterized to determine if they meet the GTS Duratek WAC. Ten (10) batteries were found to meet the GTS Duratek WAC and were shipped to GTS Duratek on July 15, 1998 for decontamination and free release. Several batteries do not meet the GTS Duratek WAC due to unacceptable cracks.

Summary of FY1999 Activities (including Plan Volume milestone completions)

Off-site treatment capability for batteries which do not meet GTS Duratek's WAC was not available during FY1999.

A new proposed milestone has been added to the Plan Volume to reflect future completion of an alternative treatment assessment. Additional waste volume was generated during FY1999; the change in inventory numbers is due to standardization and correction of conversion calculations.

Summary of FY2000 Activities (including Plan Volume milestone completions)

Several lead-acid batteries were able to be reclassified as hazardous waste only. An assessment of potential treatment facilities for the remaining lead-acid batteries (i.e., cracked batteries or batteries with caps missing) resulted in the determination that Alaron would be able to accept the batteries for recycling. The batteries were shipped to Alaron in June 2000.

Summary of FY2001 Activities

Two additional batteries were generated in the third quarter of FY2001. The DOE's moratorium on recycling scrap metal, including lead-acid batteries, prohibited the utilization of Alaron to recycle the batteries. In July 2001, the DOE announced its intent to prepare a PEIS to address and resolve the moratorium. Additionally, in August 2001, EPA concurred that radioactive lead-acid batteries could be macroencapsulated, versus being treated via lead smelting. As of the end of FY2001, Utah and Energy Solutions are in the process of determining if lead-acid batteries can be macroencapsulated at the Energy Solutions facility.

Summary of FY2002 Activities

No additional batteries were generated in FY2002. Energy Solutions and the state of Utah have approved the treatment and disposal of lead-acid batteries, provided that the batteries are properly drained of all free acid. The batteries, upon specific approval, will be macroencapsulated prior to land disposal. Communication with Energy Solutions in late FY2002 revealed that the procedure used to drain the batteries must be thoroughly documented when requesting a profile revision to include lead-acid batteries. The batteries in inventory use immobilized dilute sulfuric acid. The current inventory of batteries is scheduled to be examined and drilled during the first quarter of FY2003. The actions and activities will be documented and submitted to Energy Solutions for their review.

Summary of FY2003 Activities (Including Plan Volume proposed milestone completion)

In December 2003, two lead acid batteries were drilled to remove any free acid that may have been present as required by the proposed milestone for this section. Each battery was drilled in at least six locations to facilitate removal of the acid. There was no free acid present. A discussion with the manufacturer confirmed that the batteries are designed to preclude any free acid. The electrolyte is absorbed onto a fiberglass media. This information was presented to Energy Solutions of Utah and a request for approval to macroencapsulate the batteries was submitted. Energy Solutions approved the request and the batteries will be consolidated with other radioactive lead solids for macroencapsulation. The milestone documentation is included in Appendix A of the FY2003 Plan Volume.

Summary of FY2004 Activities

A lead acid battery was discovered during a legacy inspection operation during FY2004. The battery will be drained of free liquid (if necessary) and transferred to Section 3.1.6 and consolidated with other lead for macroencapsulation.

Summary 2005 Activities

One additional lead acid battery was discovered during a waste sorting operation in April 2005. The battery will be evaluated for draining and processed with any remaining batteries prior to transfer to Section 3.1.6.

Summary 2006 Activities

There were three (3) lead acid batteries in inventory at the beginning of FY2006. The batteries were de-energized and confirmed to contain no free liquid. The batteries were then consolidated with other radioactive lead solids and sent to Energy Solutions for macroencapsulation treatment and disposal in their mixed low-level waste disposal cell. There are no lead acid batteries managed under this section of the STP as of September 30, 2006.

Summary 2007 Activities

There were no radioactive contaminated lead acid batteries generated in FY2007 and no activities performed for this STP section.

Summary 2008 Activities

There were no radioactive contaminated lead acid batteries generated in FY2008 and no activities performed for this STP section.

Summary 2009 Activities

There were no radioactive contaminated lead acid batteries generated in FY2009 and no activities performed for this STP section.

Summary FY2010 Activities

There were no radioactive contaminated lead acid batteries generated in FY2010 and no activities performed for this STP section.

TABLE 3.2
STP: SUMMARY OF DECONTAMINATION OR OFF-SITE ALTERNATIVE TREATMENT NEEDS AT THE WVDP FOR LEAD-ACID BATTERIES

TREATABILITY GROUP(S) 3.1.2	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL OF WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Batteries, (Lead-Acid Type) Toxic Metals	WV-W015	D002, D008, D004	High	High	0.00	0.00	0.24	716

3.1.3 Organic Liquid Waste Streams

The following waste streams are included in this subsection:

- MLLW CH, Organic Liquids, Toxic Organics, Ignitable, Corrosive, or Reactive

  WV-W003 - Organic Extraction Waste
  WV-W006 - Scintillation Waste
  WV-W014 - Sr Organic Waste
  WV-W016 - Toluene/Other Solvents

- MLLW CH, Organic Liquids, Toxic Organics, and Metals

  WV-W019 - Fuels, Oils, and Lubricating Fluids

- MLLW CH, Organic Liquids, Toxic Organics, and Metals w/Mercury

  WV-W008 - Instrument Oil w/Mercury

- MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive

  WV-W009 - Methanol
  WV-W010 - Paint
  WV-W018 - Du-Squeeze
  WV-W021 - Organic Liquids, Ignitable
  WV-W032 - Commercial Chemical Products, Ignitable
  WV-W054 - Corrosive/Flammable Liquids

- MLLW CH, Organic Liquids, Toxic Metals

  WV-W012 - Paint with Metals

- MLLW CH, Organic Liquids, Reactive

  WV-W031 - Reactive Chemicals

- MLLW CH, Organic Liquids, Toxic Organics

  WV-W005 - Decon Solution
  WV-W044 - Organic Liquids, Toxic/Ignitable

- MLLW CH, Aqueous Liquids, Corrosive, Ignitable, or Reactive Only

  WV-W043 - Aqueous Liquids, Ignitable

- MLLW CH, Aqueous Liquids, Toxic Organics

  WV-W017 - Tc Aqueous Waste Stream

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams are presented in Table 3.3.

A. <u>Description of Technology and Capacity Needs</u>

The LDR treatment standard for D001 low-total organic carbon (TOC) wastes in this treatability group is deactivation, recovery of organics, or combustion. For D001 high-TOC liquids, the LDR treatment standard is recovery of organics, combustion, or polymerization. The LDR treatment standards for "F" and "U" code wastes in this treatability group are concentration-based and it is assumed that they can be met by combustion (i.e., incineration) followed by ash stabilization. The concentration-based UTS LDRs will be applicable to UHCs present in the ash.

As of September 30, 2010, the volume of organic liquids is 0.0 m^3. It is anticipated that an additional 0.89 m^3 of organic liquids will be generated over the next five-year generation period (2011-2015). The organic liquids are stored in a variety of polyethylene and metal cans, including poly-lined 55-gallon drums.

B. Preferred Options and Other Options

Combustion (i.e., incineration) is a proven method for destroying high-concentration (>90%) organic liquids and debris. Some existing commercial incinerators incorporate fuel substitution and energy recovery, which is a recommended waste-reduction method, into their treatment processes.

Combustion (i.e., incineration) at an off-site commercial facility (such as Diversified Scientific Services, Inc. [DSSI]) is the preferred option for these waste streams. DSSI is located in Kingston, TN. It is a RCRA-permitted facility and currently incinerates mixed organic liquid wastes for fuel substitution and energy recovery. If stabilization of ash residues is required, it can also be done at DSSI.

Based on preliminary discussions with DSSI, some of the WVDP waste streams may meet DSSI's waste acceptance criteria (WAC) for incineration, and capacity currently exists at the facility to treat these wastes. However, DSSI cannot accept high-viscosity/high-particulate wastes or wastes which contain certain radionuclides (e.g., Am-243) which may be present in some of the WVDP waste streams. Some additional analysis will be required to demonstrate compliance with specific WAC requirements prior to shipment.

In addition to pursuing the DSSI combustion option, the WVDP was concurrently pursuing the possibility of incinerating these wastes at the INEEL Waste Experimental Reduction Facility (WERF). This alternative was being evaluated to optimize utilization of the WERF incinerator and as a potential cost-effective treatment method. The WERF incinerator was then processing combustible MLLW liquids, sludges, and solids. However, during FY2000, INEEL indicated that they planned to cease WERF operations by September 2001 rather than upgrade the incinerator to meet new emission standards. They also indicated that emphasis would be placed on incinerating INEEL's own waste. However, following Idaho's denial of the WERF's Part B permit, the DOE ceased operations at the WERF on November 2, 2000.

In addition to DSSI, ATG's planned Gasvit treatment unit was also being pursued as a potential treatment option. The Gasvit process is a thermal treatment process, permitted as a "miscellaneous unit," consisting of an initial gasification process followed by a vitrification process. Gasvit treatment is an alternative to treatment with an incinerator. As of the end of FY2000, following completion of Gasvit unit construction, success of test/trial runs and EPA approval, etc., full-scale Gasvit operations were expected to begin during FY2001. However, as of the end of FY2001, full-scale Gasvit operations had not been initiated. During the first quarter of FY2002, ATG closed its Richland, WA facility. Due to the delays in startup and subsequent closure of ATG, Perma-Fix's Gainesville, Florida, facility was identified as a potential treatment option. The facility received approval of their amended Part B permit to treat small volumes of mixed waste.

NEPA requirements for shipment and treatment at the off-site commercial facilities have been satisfied by the WVDP WM EIS ROD (Section 1.5.4). NEPA requirements for shipment and treatment to the DOE facilities have been satisfied by the February 2000 WM PEIS ROD for mixed waste.

Summary of FY1996 Activities

The Corrosive/Flammable Liquids waste stream was added. This waste came from removal of a solvent from an absorbent (i.e., an elute). Small amounts of other wastes were generated due to laboratory operations and routine maintenance. One waste stream (WV-W043, Aqueous Liquids, Corrosive, Ignitable, or Reactive Only) was moved from Section 3.2.1 to this section. A further review of the waste stream data indicated that the FY2003 waste code was better treated by incineration, as opposed to stabilization.

Summary of FY1997 Activities

Approximately 1,700 kg of wastes in waste stream WV-W019 were shipped to DSSI for incineration/energy recovery. This activity is documented in Appendix A of the FY1997 Plan Volume. Approximately 3 kg of acetone was transferred to maintenance for reuse. Other waste stream volumes were modified due to additions from routine plant operations and improvements in database accountability.

Summary of FY1998 Activities

An additional 216 kg of wastes in waste stream WV-W019 were shipped to DSSI for treatment in August 1998. Relative to the other WV categories in this waste group, a list of the wastes, quantities, and available data was submitted to INEEL in March 1998 for their review and comment relative to additional characterization data that would be required for INEEL to determine if the wastes would be acceptable for incineration at the INEEL WERF (as a lab pack or single waste stream). In April 1998, INEEL indicated that additional characterization data would be required for the various waste streams, even for those waste streams of limited quantity, whose entire volume may be consumed during characterization activities. Based on this information, a Sampling and Analysis Plan (SAP) was developed and submitted to INEEL in June 1998 for their review and approval. INEEL's approval of the SAP was received in August 1998 and sampling of the waste streams commenced. For those wastes sampled in FY1998, waste volumes have decreased due to sampling activities with some WVDP's existing volumes depleted in total (e.g., WV-W006, WV-W008, WV-W054, WV-W018, WV-W031, WV-W005). Additionally, to facilitate the WAC characterization and eventual treatment of certain compatible wastes, several wastes (e.g., paints/solvents/resins) were bulked together and then sampled (see Table 3.3). In October 1998, mechanical problems with the WERF resulted in the temporary cessation of treatment operations. The undetermined time associated with correction of these problems will impact the facility's treatment schedules, etc.; therefore, milestone dates have been revised accordingly in the Plan Volume. Waste stream volumes were also impacted by wastes additions from routine plant operations, FSFCA sorting operations, movement of waste streams from Section 3.3 to this section, and improvements in database accountability.

Summary of FY1999 Activities (including Plan Volume milestone completions)

WAC (DSSI/INEEL) characterization sampling was initiated during the fourth quarter of FY1998 and was completed during the first quarter of FY1999. Upon receipt of analytical results, waste stream profiles were prepared and submitted to DSSI (two profiles) and/or INEEL (five profiles) during the first quarter of FY1999. Based on DSSI's approval of the two profiles, 165 kg of wastes in waste streams WV-W019 and WV-W021 were shipped to DSSI for treatment in May 1999. Relative to the other WV categories in this waste group, final revised profiles were submitted to INEEL during the fourth quarter of FY1999. During the fourth quarter, INEEL indicated that the profiled waste appears to be acceptable and assigned a new tentative burn date of April/May 2000. Due to incinerator non-operation during late 1998 and three months of 1999, the earlier tentative burn dates established by INEEL were extended. Based on the April/May 2000 burn date, INEEL has

indicated that formal approval of the waste streams would occur in the second quarter of FY2000 and that shipment of the waste to INEEL is tentatively scheduled for February/March 2000 time frame. Plan Volume FY2000 milestone dates for waste acceptance and shipment have been revised to reflect INEEL's assignment of a new burn date. Although not expected, due to operational and/or regulatory agency constraints, the potential exists that the April/May 2000 burn date may also be extended. In addition to shipping 165 kg of waste off site, waste stream volumes were also impacted during FY1999 by waste additions from routine plant operations, sampling and bulking activities associated with WAC characterization, and improvements in database accountability.

Summary of FY2000 Activities (including Plan Volume milestone completions)

Due to continuing delays at INEEL, four (4) of the five (5) waste streams originally profiled to INEEL were profiled to DSSI. During December 1999, DSSI approved for acceptance and combustion treatment these four (4) Section 3.1.3 waste streams (i.e., TC Aqueous [WV-W017], Organic Extraction [WV-W003], Aqueous Extraction [WV-W003], Sr 90 Organic [WV-W014]). These four (4) waste streams were shipped to DSSI in February 2000.

Due to a sludge layer existing in the fifth waste stream (paint/solvents/resins waste stream [WV-W012]), this waste would not meet DSSI's current waste acceptance criteria. Therefore, as an alternative to INEEL, the paint/solvents/resins were profiled to ATG for potential thermal treatment in their planned Gasvit facility. The profile was approved by ATG in May 2000. Before the Gasvit treatment facility becomes fully operational and the paint/solvents/resins waste are shipped to ATG, in part, trial/test runs must be successfully completed and authorization received from EPA to operate the facility up to 100% capacity. Full-scale operations were expected to begin during FY2001.

Also during FY2000, two (2) waste streams generated during the fourth quarter of FY1999 (i.e., tritium scintillation check solution and carbon-14 scintillation check solution [both WV-W021]) were profiled to DSSI, approved for acceptance, and shipped to DSSI in August 2000.

Summary of FY2001 Activities

Due to continuing full-operation startup delays of ATG's Gasvit facility, waste in this category was profiled to Perma-Fix's Gainesville, Florida facility. Upon receipt of Perma-Fix's approval for three profiled waste streams (paint/solvents/resins [WV-W012]; tritium and carbon-14 reference standards [WV-W021]; and Tc Aqueous Waste [WV-W017]), the waste was shipped to Perma-Fix on September 25, 2001.

Summary of FY2002 Activities

During FY2002, three (3) small quantities of Tc Aqueous waste were generated. The waste is being evaluated to determine compatibility with other waste in this section and will be sampled to determine WAC compliance at the Perma-Fix facility.

Summary of FY2003 Activities

During FY2003, two containers of Tc aqueous waste (WV-W017), and four containers of characteristically hazardous scintillation liquids (WV-W021) were generated. Most of the generation is a result of the increased activity at the A&PC for on-site analysis. The liquids will be consolidated and evaluated for acceptance at DSSI.

Summary of FY2004 Activities

Three of the waste streams covered under this section are generated from radiological analysis in the A&PC laboratory. One small container of organic extract waste (WV-W003), one container of Tc aqueous (WV-W017), and eleven containers of scintillation liquid (WV-W044) were generated this year from A&PC analysis. Two containers of gear oil were generated from the VCD project. The total volume of waste generated for this section this year was 0.37 m^3. Consolidation paperwork has been prepared to composite waste streams from this section by chemical compatibility and the specific treatment processing required.

Summary 2005 Activities

The eleven containers of organic liquids managed under waste stream WV-W021 along with one container of WV-W017 and WV-W044 were consolidated into one drum in December 2005. An additional seven containers of this waste stream were generated in FY2005. There were no changes to the other waste streams managed under this section.

Summary of 2006 Activities

There were twenty-nine (29) containers in six (6) different waste streams at the beginning of fiscal year 2006. All 29 containers of waste were composited based on chemical compatibility and the proposed treatment required for each waste stream. The composited wastes were sampled and the resulting analytical data were used to complete waste profiles for treatment approval at Perma-Fix or DSSI. All of the waste profiles were accepted and the waste streams were shipped to Perma-Fix or DSSI in September 2006.

Shipment of the waste to Perma-Fix/DSSI completed the proposed milestone to ship all of the waste that was in inventory as of 1/1/2006 and that meets the Perma-Fix/DSSI WAC by the end of the fourth quarter FY2006. Detailed documentation of the completion of the proposed milestone is presented in Appendix A of the FY2006 STP Plan Volume.

Fourteen (14) waste containers from WV-W019, WV-W021, WV-W032, and WV-W044 were generated or characterized as mixed waste in the second half of the fiscal year. The waste containers were generated after the paperwork to composite and sample the liquid waste streams was issued. Consequently the newly generated waste was not included in the compositing and sampling operation.

Summary of 2007 Activities

During FY2007 five containers of organic liquids were generated. The waste was primarily laboratory preparation solvents from cleanout of the A&PC lab facilities. Five aerosol cans of waste managed under waste stream WV-W032 were decontaminated for radioactivity and were recharacterized as hazardous waste in September 2007. However, the recharacterization was not completed until after September 30, 2007, and therefore they were counted in the inventory as of the end of FY2007.

Two drums of oil that were shipped to Perma-Fix in FY2006 were returned to the WVDP in April 2007. The oils contained selenium well above the normal waste treatment criteria of the commercial treatment facility. A waste profile was prepared and submitted to the TSCAI to determine if the waste would be acceptable to that facility and if so to request that the waste be included in the FY2007-2009 burn plan. The waste profile was reviewed and it was determined that the waste would be acceptable for incineration. The waste stream has been included on the FY2007-2009 burn plan. This activity was documented in correspondence with NYSDEC.

Summary of FY2008 Activities

During FY2008, a Sample and Analysis Plan (SAP) was prepared and approved by TSCAI for sampling and analysis of the two drums of oil with selenium. The waste is targeted for treatment at the TSCAI. The two drums were blended with a drum of window oil prior to sampling to ensure that this waste stream would meet the TSCAI WAC for radiological purposes. The sampling was completed in the spring of 2008 and the analytical report was received and validated in August of 2008. This data was used to complete the Application for Treatment at the TSCAI, which was submitted to DOE in the first quarter of FY2009.

A number of small parcels of aerosol cans were packaged into an S-70 box for safe storage during the year. Also generated during the year was a gallon of scintillation liquid.

Summary 2009 Activities

During FY2009, three containers from WV-W019 consisting of the oil with selenium noted above were sent to TSCAI for treatment; one container from WV-W010 was recharacterized and added to WV-W032; five containers from WV-W021 and one container each from WV-W003, WV-044, and WV-W017 were consolidated into one container in WV-W021 in preparation for shipment and were shipped in the 1st quarter of FY2010; one container of Tc Aqueous waste was generated in WV-W017; seven containers from WV-W032 were consolidated into five containers in preparation for shipment and were shipped in the 1st quarter of FY2010 and seven additional containers, primarily aerosol cans and fire extinguishers, were generated in WV-W032.

Summary FY2010 Activities

There is currently no waste in inventory for this STP section.

TABLE 3.3
STP: SUMMARY OF POTENTIAL MIXED WASTE TREATMENT NEEDS FOR INCINERATION/COMBUSTION/THERMAL TREATMENT OFF SITE

TREATABILITY GROUP(S) 3.1.3	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Organic Liquids, Toxic Organics, Ignitable, Corrosive, or Reactive	WV-W003	F003, F005, D001, D035	High	Med	0.00	0.00	0.0411	36.11
	WV-W006	F005	High	Med	0.00	0.00	0.00	0.00
	WV-W014	D001, F003	High	Med	0.00	0.00	0.00	0.00
	WV-W016	U220	High	Med	0.00	0.00	0.00	0.00
MLLW CH, Organic Liquids, Toxic Organics, and Metals	WV-W019	D001, F002, D004-D008, D010, D018, D019, D022-D030, D032-D043	Medium	Med	0.00	0.00	0.55	500.0
MLLW CH, Organic Liquids, Toxic Organics Metals w/Mercury	WV-W008	D009	Medium	Med	0.00	0.00	0.00	0.00
MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive	WV-W009	F003	High	Med	0.00	0.00	0.0015	1.00
	WV-W010	D001	High	Med	0	0	0.0038	4.61
	WV-W018	D001	Medium	Med	0.00	0.00	0.00	0.00
	WV-W021	D001	Medium	Med	0.00	0.00	0.21	97.65
	WV-W032	D001, D003, D018	High	Med	0.00	0.00	0.04	35.00
	WV-W054	D001, D002	High	High	0.00	0.00	0.0010	0.18

TREATABILITY GROUP(S) 3.1.3	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Organic Liquids, Toxic Metals	WV-W012	D001, D007, D008	High	Med	0.00	0.00	0.0038	5.60
MLLW CH, Organic Liquids, Reactive Only	WV-W031	D003	High	Med	0.00	0.00	0.00	0.00
MLLW CH, Organic Liquids, Toxic Organics	WV-W005	U080, F002	Medium	Med	0.00	0.00	0.00	0.00
	WV-W044	D018, D039,U226, D035,D001	High	Med	0.00	0.00	0.00	0.00
MLLW CH, Aqueous Liquids, Corrosive, Ignitable, or Reactive Only	WV-W043	D001, F003	High	High	0.00	0.00	0.0020	2.00
MLLW CH, Aqueous Liquids, Toxic Organics	WV-W017	D002, F005	High	Medium	0.00	0.00	0.0375	37.50

3.1.4 Debris Waste Streams With Mercury

The following waste streams are discussed in this section:

- MLLW CH, Debris, Toxic Metals w/Mercury

  WV-W020 - Mercury Wastes and Debris

- MLLW CH, Glass Debris, Toxic Metals w/Mercury

  WV-W038 - Glass Debris

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams are presented in Table 3.4. This section describes debris contaminated with toxic metals. The metals may or may not include mercury.

A. Description of Technology and Capacity Needs

The LDR treatment standard for wastes containing inorganic metals (assuming the mercury content is <260 ppm) is concentration-based. It is assumed the concentration-based standards can be met by stabilization. However, if the mercury content is >260 ppm, the roast/retort (technology-based standard) will be required to be part of the treatment. Additionally, if elemental mercury is found, amalgamation (technology-based standard) may have to be part of the treatment train.

As an alternative to the above concentration-based standard, the debris wastes in this category may be able to be classified as contaminated "debris" and the technology-based LDR "alternative treatment standards for hazardous debris" may be applicable. Potential identified treatment technologies for this debris include thermal destruction followed by ash stabilization (if required); immobilization (e.g. stabilization, microencapsulation/macroencapsulation); physical or chemical extraction; or metals recovery.

For the batteries contained in this group, the technology exists to radiologically decontaminate most batteries' external surfaces so that the batteries can be reclassified as hazardous waste (i.e., not mixed waste). For batteries that can not be decontaminated, EPA has issued a National Treatment Variance to allow macroencapsulation for the treatment of cadmium, mercury, and silver containing batteries.

As of September 30, 2010, the total volume of heterogeneous debris and glass debris requiring treatment is 85.5 m^3. It is estimated that an additional 30 m^3 will be generated over the next five-year generation period (2011-2015). The increase in the projected generation in the next five year period reflects the fact that preparation for demolition of the site facilities will likely generate an increased volume of mixed waste light bulbs, mercury switches, and similar type wastes. The debris is stored in drums of various sizes, S-70 boxes, and B-25 90-ft^3 metal boxes.

B. Preferred Options and Other Options

Based upon activities conducted during FY1998, it was determined that the majority of the batteries would be amenable to decontamination, with on-site decontamination preferable to off-site decontamination.

For the mercury-containing debris in this waste group, during FY1998, Allied Technology Group, Inc. (ATG) indicated that it appeared that they would be able to treat this waste stream via macroencapsulation. As an alternative to ATG, during FY1999, WCS approved the waste stream for treatment at their facility. Treatability studies may be required. Although the facilities have indicated that the waste

would be acceptable for treatment, additional characterization may be required prior to either facility accepting the wastes. During FY1999, Energy Solutions indicated that they could not accept macroencapsulated mixed waste debris for disposal from treatment facilities other than their own (see Section 2.2). Energy Solutions continued to maintain this position during FY2000, therefore other alternatives were assessed. During FY2000, it was determined that although the debris in this category did not meet Energy Solutions's WAC for macroencapsulation, due to the low density of the waste, Energy Solutions may be able to treat the debris by shredding and stabilizing it if the mercury concentration was below 260 ppm and other WAC requirements were met. Since 2000, Energy Solutions has modified their macroencapsulation process and the low density limitation has been removed. Consequently, the alternative treatment standard of macroencapsulation for debris is a potential option for much of the waste managed under this section.

On-site macroencapsulation of Class B&C waste that meets the LDR definition of debris would be a preferred treatment option for some of the waste managed in this section. As discussed previously, NTS will begin accepting treated waste from out of State generators in FY2006. Waste that meets the debris definition may qualify for macroencapsulation with high density polyethylene (HDPE) containers or special stainless steel containers prior to disposal at NTS. However during FY2008, NTS notified all waste generators that they have a moratorium on approving any new mixed waste streams. WVDP planned to have the waste that met the debris definition and was Class B or C, macroencapsulated either on site or at a commercial treatment facility prior to shipment to NTS for disposal. In FY2010, NNSS notified all waste generators that they have canceled the moratorium on approving any new mixed streams.

NEPA coverage for shipment and treatment to off-site commercial facilities is provided by the WVDP WM EIS ROD (Section 1.5.4).

During FY2002, the Mixed Waste Focus Area Waste Elimination Team (a group of DOE MLLW generators) petitioned the U.S. EPA for a variance to the Land Disposal Restrictions to allow macroencapsulation as a treatment option for radioactively contaminated cadmium-, mercury-, and silver-containing batteries. On October 7, 2002 the EPA established a national treatment variance for radioactively contaminated cadmium, mercury, and silver containing batteries. The new treatment technology for these batteries is macroencapsulation. Also of interest during this year, both M&EC and Energy Solutions announced that they are planning treatment technologies for elemental mercury and mercury-contaminated debris with greater than 260 mg/kg of mercury Both facilities are accepting high mercury on a case by case basis.

Summary of FY1996 Activities

There was no activity on this waste stream during FY1996. Additional wastes (i.e., mercury switches, mercury bulbs, and fluorescent bulbs) were generated during routine facility maintenance activities. The projected five-year generation was adjusted based on current generation rates.

Summary of FY1997 Activities

There was no activity on this waste stream during FY1997. Additional wastes (alkaline batteries) were generated during routine facility maintenance activities.

Summary of FY1998 Activities (including Plan Volume milestone completions)

The batteries in inventory were successfully radiologically decontaminated during FY1998 and are therefore removed from management under the STP (i.e., the batteries are being managed as hazardous waste only). Inventories of the mercury-containing debris were reviewed and it was determined that the waste meets the LDR definition of debris; therefore, the LDR alternative treatment standards would be applicable. ATG has indicated that the incineration/ stabilization of these wastes appear to be feasible; however, full-scale operations are not expected to be initiated until early FY2000. ATG's time frame for full-scale operation startup has impacted the Plan Volume milestone dates, which identified shipment to the off-site facility by the third quarter of FY1999. Additional wastes were generated during FSFCA sorting activities.

Summary of FY1999 Activities (including Plan Volume milestone completions)

As an alternative or backup to ATG, waste profiles for the mercury-containing debris were submitted to and approved by WCS in March 1999 (approval expires March 2000). During FY1999, Energy Solutions indicated that they may not accept macroencapsulated mixed waste debris for disposal from treatment facilities other than their own (see Section 2.2). If Energy Solutions maintains this position in the future, treatment/shipping schedules may be impacted. As such, modification of Plan Volume milestone language was proposed. For batteries which cannot be decontaminated, available options were not able to be identified during FY1999. The majority of wastes that were generated during FY1999 were due to LLW sorting activities.

Summary of FY2000 Activities (including Plan Volume milestone completions)

Since Energy Solutions continued to maintain that they would not accept waste macroencapsulated by other facilities (e.g., ATG, WCS) and that the waste did not meet their macroencapsulation process WAC, other treatment alternatives were assessed. It was determined that Energy Solutions may be able to treat the debris by shredding and stabilizing it if the mercury concentration was below 260 ppm and other WAC requirements were met. During FY2000: a) in-depth sampling and inspection activities were initiated; b) a waste profile was submitted to Energy Solutions; c) a treatability study was conducted by Energy Solutions; d) the waste was approved by Energy Solutions for stabilization; and e) waste shipments to Energy Solutions were initiated on August 30, 2000. The approved profile addresses both mercury-containing (<260 ppm) debris (Section 3.1.4) and lead-containing debris (Section 3.1.9). In that off-site shipment of waste was not feasible before the second quarter of FY2000, as identified as an option in the second-quarter FY2000 milestone, an alternative milestone was proposed in the FY2000 STP Update.

During FY2000, one (1) B-25 box of supercompacted potentially mercury-containing debris (1,253 kg) was moved from Section 3.3.10 to this category to better facilitate its management.

Summary of FY2001 Activities

Inspection, sorting, sampling, and consolidation of debris in this category continued during FY2001. Information ascertained during inspection and sampling activities resulted in the recharacterization of several boxes of debris in this category as LLW only.

Summary of FY2002 Activities

During FY2002 a total of 0.39 m^3 of waste was generated. This waste will be inspected and consolidated for shipment to Energy Solutions for treatment during the second quarter of FY2003. A total of 15.28 m^3 was shipped to Energy Solutions in FY2002 for chemical stabilization and disposal.

Summary of FY2003 Activities

During FY2003 a radioactive nickel cadmium battery and a small quantity of charcoal filter media was generated. The total waste generated this year was 0.024 m^3. However, during the year eight containers of mercury debris were consolidated into a 55 gallon drums and shipped to Energy Solutions for chemical stabilization and disposal.

Summary of FY2004 Activities

During FY2004 an additional 15.73 m^3 of debris with metals was generated from DDWO operations. Most of the waste was generated from the VCD project. All of this waste is Class C and therefore will not meet the Energy Solutions of Utah WAC. The Stipulation of Compromise also prevents waste of greater than Class A from being shipped at this time (Section 1.5.10).

Summary of FY2005 Activities

During FY2005, an additional 2.07 m^3 of waste was generated. The majority of the waste was generated from several sorting operations of LLW containers.

Summary of FY2006 Activities

There were a total of forty nine (49) containers with a volume of 35.05 cubic meters at the beginning of fiscal year 2006. An additional twenty five containers with a volume of 12.83 cubic meters were generated or characterized as mixed waste during the year. A total of forty eight containers were determined to meet the Energy Solutions WAC for macroencapsulation of contaminated debris. The containers were consolidated and shipped to Energy Solutions for treatment in August 2006.

Shipment of the waste completed the proposed milestone to ship all of the MLLW that was in inventory as of 1/1/2006 and that meets the Energy Solution WAC for macroencapsulation of debris by the end of FY2006. Detailed documentation of the proposed milestone is presented in Appendix A of the FY2006 Plan Volume.

Summary of FY2007 Activities

During FY2007 an additional six containers of mixed waste debris contaminated with heavy metals were generated. The waste was generated primarily through sorting and inspection operations of legacy LLW. All of the waste generated in 2007 along with additional legacy waste from this section will be consolidated, inspected, and packaged for shipment to Energy Solutions in the first quarter FY2008.

Summary of FY2008 Activities

This section had a proposed milestone for this year. The proposed milestone stated:

> Ship or treat all of the MLLW that is in inventory as of 1/1/2008 for which waste acceptance has been obtained and the treated waste will meet the NTS WAC by the end of the fourth quarter FY2008. If acceptable treatment or handling options are not available, prepare an alternate schedule.

The proposed milestone was completed by the consolidation and shipment of 11.6 cubic meters of mixed waste from this section. All of the class A waste was shipped to Energy Solutions on September 15, 2008. A small volume of low activity Class B&C waste was sent to Perma-Fix Northwest on September 24, 2008. The remaining waste that was in inventory as of 1/1/08 is greater than Class

A waste and has high radioactivity and high contamination. Acceptable treatment and handling options were not available in FY2008 and therefore an alternative schedule was prepared. The proposed alternative schedule is:

> Develop or locate acceptable treatment and handling options for the greater than class A waste with high radioactivity and high contamination by the fourth quarter of FY2009. If acceptable treatment and handling options are developed or located by the end of FY2009, then treat the waste or ship it for off-site treatment by the fourth quarter of FY2010. If acceptable treatment or handling options are not available, then prepare an alternate schedule.

Additional activities during the year included;

> Two TC boxes of metal contaminated debris were recharacterized from MTRU to MLLW and transferred from waste stream WV-W024 to this section. This waste is also Class C waste with high activity and high contamination and will be included in the alternative schedule.
>
> Four containers of metal contaminated debris were generated from D&D operations and will also be included in the alternative schedule.

Summary 2009 Activities

During FY2009, one container from waste stream WV-W020 was processed and recharacterized as LLW; two containers were recharacterized and moved to the WV-W036 waste stream, prepared for disposal and shipped in the 1st quarter of FY2010; and three containers were consolidated into other existing containers in this waste stream. Fifteen new containers were generated, including mercury contaminated vessels removed during D&D of XC3.

Summary of FY2010 Activities

During FY2010, six new containers were generated and characterized for waste stream WV-W020, including a mercury contaminated vessel removed during D&D of XC3. Seventeen containers were processed and re-characterized or consolidated. Six containers were prepared and shipped for treatment and disposal. As required by the FY2010 milestone, acceptable treatment and handling options for the Greater Than Class A waste with high activity/high contamination were developed. Contracts with Energy Solutions LLC and Perma-Fix Environmental were established on September 1, 2010. These contracts establish acceptable treatment and handling options and treatment pricing for various waste types, including the mixed wastes encompassed in this section. A FY2011 shipment schedule for the Greater Than Class A high activity/high contamination waste was developed.

TABLE 3.4
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS FOR OFF-SITE TREATMENT

TREATABILITY GROUP(S) 3.1.4	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Debris, Toxic Metals w/ Mercury	WV-W020	D006, D007, D008, D009	Medium	Low	85.5	23,672	30.0	8000
MLLW CH, Glass Debris, Toxic Metals w/Mercury	WV-W038	D005, D006, D008, D009	Medium	Low	0.00	0.00	15.0	3500

3.1.5 PCB-Contaminated Material Waste Streams

The following WVDP waste stream is included in this section:

- MLLW CH, PCB-Contaminated Materials
- WV-W040 - PCB-Contaminated Material (New York State hazardous waste)

The polychlorinated biphenyl (PCB)-contaminated material consists of containers of PCB liquids, PCB sampling wastes consisting of protective clothing and wipes, miscellaneous contaminated metal, capacitors, compacted waste, and clean-up material from a PCB transformer leak. A PCB-contaminated ram and yank (a.k.a. ramming yank) was decontaminated in FY1997 and has been recharacterized as LLW.

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste stream are presented in Table 3.5.

A. Description of Technology and Capacity Needs

The New York State technology-based LDR treatment standard for waste in this treatability group is incineration, EPA-approved alternative treatment methods, and/or, if applicable, alternative treatment standards for debris.

As of September 30, 2010, the total volume of waste requiring treatment or disposal is 0.00 m^3 for the PCB-contaminated material waste stream. It is anticipated that 8.75 m^3 will be generated over the next five-year generation period (2011-2015). The additional volume of waste projected for the next five years is based on the expectation that several PCB light ballasts and PCB small capacitors will likely be generated during preparation for main plant demolition and D&D activities. The PCB-contaminated material is stored in B-25 90-ft^3 metal boxes, 55-gallon drums, or other suitable containers. The volume of waste requiring incineration or alternative treatment will vary based on decontamination efforts.

B. Preferred Options and Other Options

Based upon activities conducted during FY1998 in which it was determined that the availability of treatment options/facilities varies with the matrix of the PCB-contaminated waste, the three (3) matrices have been separated as follows:

1. NON-INCINERABLE SOLIDS

The preferred treatment option for PCB-contaminated non-incinerable solids is decontamination (i.e., removal of the PCBs so that the resultant solid can be managed as LLW) and incineration of decontamination wastes. As an alternative, if the wastes can be PCB-decontaminated so that they are no longer hazardous waste under New York State regulations (i.e., <50 ppm PCBs) and are classified as debris under the LDRs, other treatment options (e.g., encapsulation) may be viable. A PCB-contaminated ram and yank was successfully decontaminated on site in FY1997 and has been recharacterized as LLW.

Currently there are no off-site facilities capable of treating non-incinerable radioactive PCB wastes in inventory. PCB-contaminated non-incinerable solid wastes are addressed in the DOE Broad Spectrum Treatment Contracts (Treatment Category B), with the WCS identified as the potential treatment facility. However, with Energy Solutions now accepting certain PCB-contaminated solid wastes for direct disposal (see below), PCB treatment may no longer continue to be pursued by WCS. During FY2000, it was identified that ATG's planned thermal treatment unit (i.e., Gasvit)

may be able to treat limited quantities and types of non-incinerable PCB-contaminated solids. However, as discussed previously, ATG has filed for bankruptcy and therefore the Gasvit process is no longer a consideration. Additionally, during FY2001, in connection with Perma-Fix's purchase of M&EC, M&EC indicated that Perma-Fix's mobile PCB-treatment unit (solvent extraction) would eventually be located at the M&EC facility.

As of FY1999, Energy Solutions and GTS Duratek are no longer evaluating the potential inclusion of PCB extraction processes as part of their mixed waste treatment operations. However, utilizing provisions of the 1998 "PCB Mega-Rule," Energy Solutions requested and received approval to directly land dispose certain PCB solids, which meet the Energy Solutions WAC, in their Mixed Waste Disposal Facility.

Alternatively, for sealed PCB sources (such as capacitors, etc.), the option exists to radiologically decontaminate these wastes so that the resultant waste form can be managed as nonradiological PCB or hazardous waste.

2. INCINERABLE SOLIDS

For PCB-contaminated incinerable solids, including decontamination materials, the preferred treatment option is incineration. As an alternative, if the wastes can be PCB-decontaminated so they are no longer hazardous waste in New York State and are classified as debris under the LDRs, other off-site treatment alternatives (e.g., extraction, decontamination, encapsulation) may be viable. DOE-Oak Ridge's (DOE-OR) Eastern Tennessee Technology Park (ETTP) Toxic Substances Control Act Incinerator (TSCAI) is expecting to accept certain PCB-contaminated incinerable solids for incineration following completion of liquid incineration. Subsequent to DOE-OR's approval of a waste acceptance pre-application and sampling and analysis plan and Tennessee's May 2001 approval of the FY2001 burn plan, sampling and analysis of this waste stream was performed in June 2001 to confirm that the waste stream meets the facility's WAC. In July 2001, a final formal application was submitted to DOE-OR. This waste stream was approved for treatment in the FY2003 Burn Plan.

Relative to other treatment options, DOE's Broad Spectrum Treatment Contracts identify incinerable PCB waste as potential waste treatment candidates. During FY2000, it was identified that ATG's planned thermal treatment unit (i.e., Gasvit) may be able to accept certain incinerable solids for treatment. Additionally, during FY2001, in connection with Perma-Fix's purchase of M&EC, M&EC indicated that Perma-Fix's mobile PCB-treatment unit (solvent extraction) would eventually be located at the M&EC facility.

As indicated during FY1999, Energy Solutions and GTS Duratek are no longer evaluating the potential inclusion of PCB-extraction processes into their mixed waste treatment operations. Also, ATG has closed its Richland, WA facility. However, Energy Solutions's revised mixed waste disposal facility permit allows the direct disposal of certain PCB-contaminated incinerable solids.

3. LIQUIDS

For PCB-contaminated liquids, the preferred treatment option is incineration at the DOE-OR ETTP TSCAI. Subsequent to DOE-OR's approval of a waste acceptance pre-application and sampling and analysis plan, sampling and analysis of this waste stream was initiated to confirm that the waste stream meets the facility's WAC. A final formal waste acceptance application was submitted to DOE-OR for final approval in December 1998. However, during FY1998, Tennessee placed a moratorium on the acceptance of out-of-state waste for incineration at the ETTP TSCAI and did not approve ETTP's FY1999 Burn Plan on which WVDP's liquids were identified. As of September 2000, Tennessee has been allowing limited off-site waste to be treated at the ETTP TSCAI. One of the two containers included in the application was approved in the FY2003 Burn Plan.

For liquid wastes targeted for incineration at the ETTP, a Residuals Management Contingency Plan (RMCP) was established during FY1998 detailing how, if required, associated WVDP prorated portions of the incinerator residues will be received back from ETTP. As required by Tennessee, concurrence with this Contingency Plan was received from the NYSDEC in July 1998.

NEPA coverage for shipment and treatment of PCB-contaminated wastes at off-site commercial facilities is provided by the CX executed in FY1998 (see Section 1.5.4). NEPA requirements for shipment and treatment to the DOE facilities has been satisfied by the February 2000 WM PEIS ROD for mixed waste and the WVDP WM EIS ROD

Summary of FY1996 Activities

There was no activity on this waste stream during FY1996. Waste was generated in this waste stream from the PCB decontamination of the Supercompactor. The projected five-year generation was adjusted based on current generation rates.

Summary of FY1997 Activities (including Plan milestone completions)

Manual decontamination of the ram and yank was completed in September 1997. This activity is documented in Appendix A of the FY1997 Plan Volume. During FY1997 two PCB capacitors were added to the inventory.

Summary of FY1998 Activities

DOE-West Valley (WV) submitted a waste acceptance pre-application to ETTP for incinerable solids in inventory in April 1998. Subsequently, a sampling and analysis plan for the solid incinerable waste was submitted by DOE-WV to DOE-OR in June 1998 for approval. Tentative approval of the pre-application (conditional approval) and SAP were received in September 1998 from DOE-OR with a tentative burn date of FY2000 identified by DOE-OR.

Regarding the liquids, in December 1997, DOE-WV submitted to DOE-OR a waste acceptance pre-application for the liquid PCB wastes in inventory. In January 1998, a SAP was also forwarded to DOE-OR for review and approval. The pre-application and SAP were conditionally approved by DOE-OR in April 1998. Sampling of the waste stream, in accordance with the SAP, was conducted in the third/fourth quarters of FY1998. An RMCP for the liquids was developed and submitted to NYSDEC for approval in May 1998. Concurrence with the RMCP was received from the NYSDEC in July 1998. The RMCP will be included in the final application to DOE-OR for ETTP's and Tennessee's approval.

Summary of FY1999 Activities (including Plan milestone completions)

Due to Tennessee's continuing moratorium on out-of-state waste being treated at the DOE-OR ETTP TSCAI, solid waste profiles for incinerable and non-incinerable solid wastes were submitted to WCS as part of the June 1998 DOE Broad Spectrum Treatment Contract. Approval of the profiles was received from WCS in May 1999. WCS's treatment facility is expected to be in operation during FY2000.

For the liquids, the waste acceptance application package was submitted to ETTP and verbally approved during the first quarter of FY1999. Although ETTP included West Valley's liquids in their FY1999 burn plan, Tennessee rejected ETTP's burn plan in January 1999. In September 1999, ETTP notified West Valley that they would include the liquids in their FY2000 burn plan. As of September 30, 1999, a decision from Tennessee on the acceptability of the FY2000 burn plan has not been received. A volume reduction of 0.1 m^3 resulted from the identification and correction of waste inventory quantity inaccuracies.

Summary of FY2000 Activities

Relative to the ETTP TSCAI, in late FY2000, Tennessee allowed limited off-site waste to be shipped to ETTP TSCAI for incineration, but future burn plans, with the WVDP waste included, have not yet been approved. WCS's previously planned PCB-extraction process, for treating solids, is no longer being actively pursued. However, ATG's planned Gasvit facility was identified as a potential treatment alternative for PCB-contaminated liquids, incinerable solids, and limited non-incinerable solids. Additionally, Energy Solutions's mixed waste disposal facility permit now allows the direct disposal of certain PCB-contaminated solids.

During FY2000, one B-25 box of PCB-contaminated supercompacted waste (2,954 kg) was moved from Section 3.3.10 to this category to better facilitate its management. Additionally, PCB-contaminated oil and PCB-contaminated debris were generated and added to the STP.

Summary of FY2001 Activities

Following the inspection, sorting (by matrix [e.g., incinerable, non-incinerable]), and sampling of the legacy waste in inventory in December 2000, a profile was submitted to Energy Solutions for several boxes of non-incinerable debris. Additionally, even though their associated PCB-treatment processes are not yet operational (as of September 30, 2001) profiles were also submitted to ATG and M&EC for all matrices for their consideration and approval.

Relative to the ETTP TSCAI, following Tennessee's initial rejection of the FY2001 burn plan, in May 2001 Tennessee reversed its decision and approved the FY2001 burn plan. Included in the FY2001 burn plan was the proposed shipment of one box of PCB-incinerable debris to TSCAI. Following submittal of the final formal application, including NYSDEC's approved RMCP, DOE-OR concurred in July 2001. As of the end of FY2001, approval of the application has been received by DOE-OR, but has not yet been received from the state of Tennessee.

Summary of FY2002 Activities

In the first quarter of FY2002, three containers of non-incinerable PCB-contaminated solids were shipped to Energy Solutions for land disposal. The total of 4.73 m^3 was shipped for disposal.

In the second quarter of FY2002, the ETTP TSCAI requested additional analytical data so that they could continue their review for treatment approval of two small liquid waste streams and a solid waste stream. The information was provided as requested and the waste approval resumed. One of the liquid waste streams, waste from the Supercompactor, was rejected because the plutonium activity did

not meet the facility WAC. The other small liquid waste stream and the PCB-contaminated solid waste stream were determined to meet the facility WAC and were accepted for treatment and disposal. The final approval letter was received in September 2002. The waste is scheduled for shipment to the incinerator in October 2002 (the first quarter of FY2003).

Summary of FY2003 Activities (including Plan Milestone completions)

There were two Plan milestones for this year. The first was to submit an application to ETTP, or an alternate facility, for treatment or disposal approval. This milestone was completed with the applications submitted to ETTP in 1998 and 2000 and the waste profile submitted to Energy Solutions of Utah for disposal of PCB bulk products. The second milestone required that the applications for treatment approval be approved. In late FY2002, the State of Tennessee approved the Burn Plan with both liquid and solid waste from the WVDP. Documentation of the milestones is included in Appendix A of the FY2003 STP Plan Volume1

On October 16, 2003, a container of PCB liquid and a S-70 box of PCB contaminated debris were shipped to ETTP for incineration.

During FY2003, several light fixtures containing ballasts were packaged into a B-25 box. The box was given a preliminary characterization of potential PCB waste as some of the fixtures have what appears to be oil stains. The fixtures will be sampled to determine if they are PCB contaminated.

Summary of FY2004 Activities (including Plan Milestone completion)

There was a Plan Milestone for the second quarter of this year. The milestone was to initiate shipment of waste to the ETTP TSCAI or alternate facility by the second quarter of FY2004, or to develop milestones for the identification of treatment options. The milestone was completed with the shipment of PCB liquid and solid wastes to the ETTP TSCAI in October 2003. Documentation of the milestone is included in Appendix A of the FY2004 STP Plan Volume. There was no additional waste generated this year.

Summary of FY2005 Activities

A PCB capacitor was generated from the ventilation supply room. The capacitor was packaged in a 55 gallon drum, placed into storage, and characterized as mixed waste in December 2004.

Summary of FY2006 Activities

There were two major activities for the waste managed under this section of the STP during FY2006. The first activity involved the liquid waste stream managed under this section. At the beginning of the year there were two drums of PCB contaminated liquid and two small containers of samples of PCB contaminated liquid. The ETTP TSCAI was identified as the primary treatment facility for the PCB liquid waste stream. A Sample Analysis Plan (SAP) was issued and submitted to the TSCAI for approval. The SAP specified that the PCB oil would be blended with radioactive window oil to meet the stringent radiological requirements in their WAC. The SAP was approved and the waste along with a proportionate volume of window oil was sampled. The small volumes of samples were consolidated into one of the PCB liquid drums prior to sampling. The data obtained from the analysis were used to prepare a waste profile and a formal Application for Accessing the Oak Ridge Toxic Substance Control Act Incinerator for Treatment of PCB Liquid Waste.

The application that was submitted to the TSCAI in September 2006 completed the FY2006 proposed milestone to "Submit an Application to the ETTP TSCAI, or alternate facility, for treatment approval of the liquid waste in inventory as of 1/1/2006 by the end of the fourth quarter FY2006". Detailed documentation of the proposed milestone is presented in Appendix A to the FY2006 STP Plan Volume.

The second major activity for waste managed under this section was the consolidation and shipment of PCB contaminated solids for direct land disposal at the Energy Solutions mixed waste landfill. A total of six containers of debris with PCB contamination and one empty container that previously held PCB contaminated waste were inspected and consolidated. The waste included small capacitors, non-leaking PCB light ballasts and PCB contaminated debris. A waste profile was submitted to Energy Solutions and the waste was approved for direct land disposal at the Energy Solutions mixed waste cell. The waste was shipped to Energy Solutions in August 2006.

The shipment of PCB solids to Energy Solutions completed the FY2006 proposed milestone to "Ship all of the PCB solids that are in inventory as of 1/1/2006 that meet the Energy Solutions WAC for land disposal by the end of the fourth quarter FY2006". Detailed documentation of the completion of the proposed milestone is presented in Appendix A of the Plan Volume in the FY2006 STP Update.

Summary of FY2007 Activities

One container with PCB light ballasts was generated in FY2007. The light ballasts along with a drum of PCB large capacitors will be profiled and submitted to Perma-Fix for approval. Phone conversations with Perma-Fix indicated that the waste could be accepted for radiological decontamination and sent to commercial incineration as TSCA waste.

Summary of FY2008 Activities

This section of the STP had two proposed milestones for FY2008.

PCB Liquids

> Ship the approved PCB liquids that are in inventory as of 1/1/2008 to the ETTP/TSCAI or an alternate facility by the end of the fourth quarter FY2008. If acceptable treatment is not available, prepare alternative schedule.
>
> This milestone was completed with the shipment of four drums of PCB contaminated oil. The waste was shipped to the TSCAI for incineration in September 23, 2008. There is currently no liquid PCB in inventory.

PCB Solids

> Ship any remaining PCB solids that are in inventory as of 1/1/2008 by the end of the fourth quarter FY2008. If acceptable treatment is not available, prepare an alternate schedule.
>
> At the beginning of FY2008 there were two containers with PCB capacitors and ballasts and one container on paint waste. The two containers of PCB capacitors and ballasts were shipped to Energy Solutions in Utah for land disposal in their TSCA permitted landfill. The container of paint was sampled and analyzed to confirm compliance with the TSCAI WAC. The analysis determined that the paint waste is not PCB waste and contains

less than 3 ppm PCB's. The waste is included on the TSCAI burn plan for March 2009 and was included in the Application for Treatment that was submitted to DOE in the first quarter 2009. Therefore the proposed alternative schedule for the paint waste is:

If approval is obtained from the TSCAI for the paint waste by the March 30, 2009, then ship waste to the TSCAI. If approval is not obtained, then obtain treatment approval at an alternate treatment facility by the fourth quarter FY 2009. If an alternate treatment facility can not be identified, prepare alternate treatment schedule by fourth quarter FY 2009.

In preparing the PCB liquids for shipment to the TSCAI, the drums of PCB oil and window oil were transferred to new DOT specification drums. The original drums were emptied but not triple rinsed. Therefore the empty drums were overpacked into an 87 series box and will be shipped to Energy Solutions for land disposal in FY2009.

Summary 2009 Activities

During FY2009, one container was shipped to TSCAI for disposal. Another container had additional PCB contaminated material added to it in preparation for offsite disposal and was shipped in the 1st quarter of FY2010.

Summary of FY2010 Activities

There is currently no waste in inventory for this STP section.

TABLE 3.5
STP: SUMMARY OF POTENTIAL MIXED WASTE TREATMENT NEEDS FOR INCINERATION OR PCB EXTRACTION OFF SITE

TREATABILITY GROUP(S) 3.1.5	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, PCB-Contaminated Material	WV-W040	B002, B003, B005, B007, D008, D018	High	Med	0.00	0.00	8.75	6136

3.1.6 Elemental Lead and Solid Metal Waste Streams

The following WVDP waste streams are included in this section:

- MLLW CH, Elemental Lead, Toxic Metals

  WV-W002 - LLW Lead

- MLLW CH, Uncategorized Metal Debris, Toxic Metals

  WV-W046 - Solid Metal Waste

The lead waste streams consist of various sizes of sheets, bricks, blankets, shot, etc. The fusible links are alloy fuses removed from fire protection equipment.

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams are presented in Table 3.6.

A. Description of Technology and Capacity Needs

Elemental lead waste streams that can be reclassified as non-radioactive or decontaminated and reused are no longer subject to LDR treatment requirements. The technology-based LDR treatment standard for those elemental lead waste streams that cannot be reused or reclassified (i.e., contain fixed radioactive contaminants) is macroencapsulation. The concentration-based LDR standard for cadmium debris should also be able to be met by macroencapsulation.

As of September 30, 2010 the volume of lead being stored at the WVDP is 17.4 m^3. It is expected that additional lead waste will be discovered in preparation for shipping legacy debris and that some of the lead that is currently being used as shielding will become waste as D&D operations draw closer to completion. Consequently, it is anticipated that an additional 8.0 m^3 will be generated over the next five-year generation period (2011-2015). Additionally, the volume of contaminated lead could increase if the lead currently in use as shielding for the high-dose waste boxes cannot be reused during processing and repackaging of the waste streams in the Remote-Handled Waste Facility (RHWF). The potential reuse of the lead is currently under review. The lead is stored in B-25 90-ft^3 boxes, metal 55-gallon drums, and other suitable containers.

B. Preferred Options and Other Options

The preferred treatment option for contaminated lead is radiological decontamination (on-site and/or off-site) so that the resultant lead can be reused. On-site decontamination activities were performed in FY1997, with approximately 7,000 kg of lead successfully decontaminated (see FY1997 STP update).

For lead which cannot be successfully decontaminated on site (such as lead shot, foam, pigs, and other lead forms), consideration for off-site decontamination at a commercial facility (such as GTS Duratek) was given. However, during July 2000, the DOE issued a moratorium on the recycling and commercial sale of recycled scrap metal (including elemental lead). To resolve the issues associated with the moratorium, on July 12, 2001, the DOE announced their intent to prepare a Programmatic Environmental Impact Statement (PEIS) to address metal recycling within the DOE complex (66 FR 36562). The Federal Register notice identified a targeted EIS issuance date of July 2002, with a subsequent execution of an associated ROD. Until the moratorium is lifted (e.g., the metal recycling ROD is issued), the recycling and commercial sale of elemental lead no longer appears to be an option. Lead forms that are not able to be decontaminated at a commercial facility may be candidates for macroencapsulation at a permitted facility

(e.g., Energy Solutions of Utah, NNSS). Additionally, the DOE Broad Spectrum Treatment Contracts may provide treatment options and capacity. Such lead will be evaluated to determine if it complies with all requirements of the commercial facility's WAC prior to shipment to the facility.

Macroencapsulation is an immobilization process that yields a solid "stabilized" waste form using polymer encapsulation or cementation. Macroencapsulation is used on solid materials (such as lead, ash, and debris) which are difficult to treat for removal of either the hazardous or radioactive component. Macroencapsulation is a proven, cost-effective method for stabilizing a variety of contaminated debris waste streams. The definition of macroencapsulation for radioactive lead solids in the LDR regulations specifically prohibits the use of containers or tanks as macroencapsulation. The DOE has petitioned the EPA to allow the use of HDPE containers for use as macroencapsulation for radioactive lead solids as they are allowed for debris. EPA is currently reviewing the petition and is considering two options. One option is to issue a national Determination of Equivalent Treatment (DET). The second option is to promulgate a Rule Making decision. A decision on which option EPA will pursue is expected in the second quarter of FY2006. A follow-up call with the EPA indicated that they are not pursuing their effort to allow the use of HDPE or equivalent containers for macroencapsulation of radioactive lead solids at this time. EPA indicated that there wasn't enough interest to continue seeking alternative treatment for this waste.

On-site macroencapsulation or off-site treatment at a NNSS certified commercial processing facility is the preferred treatment for radioactive lead solids that are greater than Class A. The treated waste would then be sent to NNSS for final disposal. However, during FY2008, the NTS (now NNSS) notified mixed waste generators that they were unable to approve any new mixed waste streams pending resolution of issues with the State of Nevada Attorney General. The moratorium on approving new waste mixed waste streams was still in effect at the time of the FY2009 update. In FY2010, NNSS notified all waste generators that they have canceled the moratorium on approving any new mixed streams.

The WVDP WM EIS ROD discussed in Section 1.5.4 will satisfy NEPA requirements for shipment and treatment to these off-site commercial facilities.

Summary of FY1996 Activities

Decontamination of the fusible links was attempted in September 1996. After examination of the fusible links, it was determined that the physical shape and small size of the material would not allow for cost-effective decontamination and subsequent free release as non-radiological material. The fusible links were moved to this section from Section 3.1.2 because decontamination was determined not to be practical.

Summary of FY1997 Activities (including Plan milestone completions)

Decontamination of elemental lead was performed during FY1997 using a combination of wipe-down techniques and carbon dioxide (CO_2) blasting. Waste packages that contained lead waste were sorted/segregated prior to decontamination operations to remove any non-lead items. The non-lead wastes were repackaged as LLW. Approximately 7,000 kg of elemental lead was successfully decontaminated through these efforts and removed from inventory. This activity is documented in Appendix A of the FY1997 Plan Volume.

Summary of FY1998 Activities (including Plan Volume milestone completions)

Detailed isotopic analytical data was collected through a sampling and analysis program implemented in FY1998 and was reviewed against the GTS Duratek and ATG WACs. The fusible links in inventory (0.11 kg) and several containers of the elemental lead (3,048.3 kg) were determined to meet the GTS Duratek WAC and

were shipped to GTS Duratek in August 1998 for decontamination. It was also determined that the lead shot, sponge, wool, and foam are not candidates for decontamination at either facility and that certain containers exceed Class A limits for off-site shipment. One container was found to contain lead bricks and has been slated for reuse on site. Additional waste generated during FY1998 was from normal operations and FSFCA waste inspection activities. Additionally, lead wastes that were originally classified as TRU but were reclassified in FY1998 as MLLW (see Section 4.2.1) have been moved to this category.

Summary of FY1999 Activities (including Plan Volume milestone completions)

Isotopic data generated during 1998 varies and does not support treatment as a single profiled waste stream at an off-site commercial treatment facility (i.e., Energy Solutions). An alternative schedule was prepared to address the treatment of waste remaining in this category and Plan Volume milestones were revised accordingly. Additional waste was generated during FY1999 from normal site operations.

Summary of FY2000 Activities

Forty fusible links were reclassified as non-radioactive and were removed from the STP and managed as hazardous waste. For the remaining wastes, sampling activities were initiated to determine if the waste meets Energy Solutions's WAC for macroencapsulation.

Additional waste volume was generated during FY2000 from normal site operations and the reduction of the site's reusable lead inventory.

Summary of FY2001 Activities (including Plan Volume milestone completions)

On November 16, 2000, approximately 2,800 kg of waste elemental lead was shipped to Energy Solutions for macroencapsulation.

The DOE moratorium on the recycling of scrap metal, including elemental lead, continued to prohibit recycling during FY2001. However, in July 2001, DOE announced their intent to prepare a PEIS to address and resolve the moratorium.

During FY2001, additional waste elemental lead was generated during normal facility operations and preliminary facility deactivation activities.

Summary of FY2002 Activities

During FY2002, 0.42 m^3 of radioactive contaminated elemental lead was generated. A total of 1.65 m^3 of waste was shipped to Energy Solutions for macroencapsulation. An additional B-12 box will be inspected and readied for shipment to Energy Solutions in the second quarter of FY2003.

Summary of FY2003 Activities

One drum of lead contaminated debris was generated in FY2003 from cleanup operations in the Process Mechanical Cell (PMC). A B-12 box of radioactive lead solids was shipped to Energy Solutions in September 2003 for macroencapsulation.

Summary of FY2004 Activities

Eight containers with a total volume of 9.38 m^3 were generated during FY2004. Most of the lead was generated from the VCD project and is greater than Class A waste. No additional activities were conducted this year.

Summary of FY2005 Activities

Four containers with a total volume of 2.35 m^3 were generated during FY2005. Two of the containers were generated from the segregation of waste in the RHWF and two were generated from waste sorting operations. No additional activities were conducted this year.

Summary of FY2006 Activities

There were a total of twenty-five (25) containers of waste under this section at the beginning of fiscal year 2006. An additional fourteen (14) containers were generated or characterized as mixed waste during the year. A total of twenty-one (21) containers were determined to meet the Energy Solutions WAC for macroencapsulation of radioactive lead solids and or debris. The containers were consolidated and shipped to Energy Solutions for treatment.

Shipment of the waste completed the proposed milestone to ship all of the MLLW that was in inventory as of 1/1/2006 and that meets the Energy Solutions (Envirocare) WAC for macroencapsulation of radioactive lead solids by the end of the fourth quarter FY2006. Detailed documentation of completion of the proposed milestone in presented in the FY2006 STP Update.

The containers remaining in inventory were determined to not meet the Energy Solutions WAC for macroencapsulation of radioactive lead solids or debris and will continue to be managed under this section of the STP until treatment and disposal of this waste is identified.

Summary of FY2007 Activities

Five containers of radioactive lead solids or lead contaminated debris were generated in FY2007. Most of the waste generated this year was lead shielding that was removed from waste containers that were processed through the RHWF. This waste is included with the waste from STP section 3.1.4 that will be inspected and packaged in the first quarter FY2007 for shipment to Energy Solutions for macroencapsulation.

Summary of FY2008 Activities

This section of the STP had a proposed milestone for FY2008.

> Ship or treat all of the MLLW that is in inventory as of 1/1/2008 for which acceptable treatment is available and the treated waste will meet the NTS WAC by the end of the fourth quarter FY2008. If acceptable treatment or handling options are not available, prepare an alternate schedule.

This proposed milestone was completed with the consolidation and shipping of approximately 12.9 cubic meters of waste to Energy Solutions and 2.1 cubic meters of waste to Perma-Fix North West. The shipments were made on September 15, 2008 and September 25, 2008 respectively. The remaining waste that was in inventory on 1/1/2008 is high radioactivity and high contamination waste for which acceptable treatment and handling options were not available. Therefore an alternative schedule is proposed for those waste streams, as follows:

> Develop or locate acceptable treatment and handing options for the greater than class A waste with high radioactivity and high contamination by the fourth quarter of FY2009. If acceptable treatment and handling options are developed or located by the end of FY2009, then treat the waste or ship it for off-site treatment by the fourth quarter of FY2010. If acceptable treatment or handling options are not available, then prepare an alternate schedule.

Summary 2009 Activities

During FY2009 one container in WV-W002 was consolidated into an existing container and six additional containers were generated. At the conclusion of FY2009, eight of these containers were being prepared for shipment and were shipped in the 1st quarter of FY2010. Also one container in WV-W046 was consolidated and recharacterized into the WV-W036 waste stream.

Summary of FY2010 Activities

During FY2010, one new container, containing an XC1 radiation probe w/lead shielding, was generated and characterized for waste stream WV-W002. Eight containers were processed and re-characterized or consolidated. As required by the FY2010 milestone, acceptable treatment and handling options for the Greater Than Class A waste with high activity/high contamination were developed. Contracts with Energy Solutions LLC and Perma-Fix Environmental were established on September 1, 2010. These contracts establish acceptable treatment and handling options and treatment pricing for various waste types, including the mixed wastes encompassed in this section. A FY2011 shipment schedule for the Greater Than Class A high activity/high contamination waste was developed.

TABLE 3.6
STP: SUMMARY OF POTENTIAL MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR DECONTAMINATION AND OFF SITE FOR MACROENCAPSULATION

TREATABILITY GROUP(S) 3.1.6	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Elemental Lead, Toxic Metals	WV-W002	D008	High	High	17.4	8,061	8.0	7280
MLLW CH, Uncategorized Metals	WV-W046	D006, D008	High	High	0.00	0.00	0.00	0.00

3.1.7 Elemental Mercury Waste Stream

The following waste streams are discussed in this section:

- MLLW CH, Elemental Mercury, Toxic Metals w/Mercury
- WV-W045 - Elemental Mercury

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams are presented in Table 3.7.

During FY1999, the existing waste in inventory in this category was determined to be incorrectly classified as mixed waste. A review of waste files indicated that sufficient process knowledge and/or analytical data existed to reclassify the majority of the waste in this category as hazardous waste only. For potential future wastes which are unable to be reclassified, the following treatment technology discussion is applicable.

A. Description of Technology and Capacity Needs

The technology-based LDR treatment standard for waste in this treatability group is amalgamation for both characteristic and listed radioactive mercury wastes.

The total volume of elemental mercury requiring treatment as of September 30, 2010 is 29.7 m^3. Additional waste that may be generated over the next five-year generation period (2011-2015) is projected to be 0.90 m^3. The increase in projected volume is the expectation that several mercury switches and similar mercury articles will be removed from the main plant during preparation for demolition during the next five years.

B. Preferred Options and Other Options

Amalgamation is the preferred treatment option for elemental mercury. Amalgamation is a treatment employed to stabilize the high-concentration mercury. The remaining stabilized waste form could be processed as LLW since no other hazardous constituents are present in this waste stream. This is a proven, cost-effective method for stabilizing high-concentration mercury to meet LDR treatment standards.

An off-site commercial facility (such as, ATG, M&EC, Nuclear Fuel Services [NFS] or ADA Technologies [ADA]) is the preferred treatment option for amalgamation of elemental mercury. As of end of FY2001, full-scale operations have not commenced at any of these facilities. During FY1998, it was determined that INEEL's Advanced Mixed Waste Treatment Facility (AMWTF) would not include amalgamation.

Some additional characterization may be required to demonstrate compliance with specific WAC requirements prior to shipment.

The WVDP WM EIS ROD discussed in Section 1.5.4, will satisfy NEPA requirements for shipment and treatment to these off-site commercial facilities.

Summary of FY1996 Activities

There was no activity on this waste stream during FY1996.

Summary of FY1997 Activities

There was no activity on this waste stream during FY1997.

Summary of FY1998 Activities (including Plan Volume milestone completions)

Descriptions of the elemental mercury wastes in storage at the WVDP were submitted to ATG. ATG has determined that this waste stream appears to be amenable to amalgamation at their facility, which is expected to start full-scale operations in early FY2000. ATG's time frame for full-scale operation startup has impacted the Plan Volume milestone dates, which currently identify shipment to the off-site facility by the third quarter of FY1999. During FY1998 it was also ascertained that INEEL would not be pursuing the inclusion of mercury amalgamation in their future mixed waste treatment facility.

Summary of FY1999 Activities (including Plan Volume milestone completions)

Waste containers in inventory were reclassified as non-radioactive, based on process knowledge, and are being managed as hazardous waste. Therefore, as of September 30, 1999, no waste volume remains in this category. However, since future generation of elemental mercury is possible, prior to the availability of operating treatment facilities, this waste stream is not being removed from the active portion of the STP. Plan Volume milestones have been revised to reflect potential future generation of mixed elemental mercury.

Summary of FY2000 Activities (including Plan Volume milestone completions)

Approximately 20 ml of elemental mercury were generated during FY2000. Since this minute volume of mercury is not sufficient to complete a full WAC characterization, alternative milestones were proposed that take into account the potential generation of additional elemental mercury during the next FY (see FY2000 Plan Volume).

Summary of FY2001 Activities (including Plan Volume milestone completions)

Samples of the waste elemental mercury in inventory were sent to an off-site laboratory for waste acceptance radiological analyses, as required by the targeted future treatment facility (e.g., ATG or M&EC). Sampling efforts expended the entire waste volume. Additionally, as of the end of FY2001, the projected targeted treatment facilities were not yet operational. Therefore, a proposed planning schedule activity has been developed for waste elemental mercury generated in the future (see FY2001 STP Plan Volume).

Summary of FY2002 Activities

There is currently no waste in inventory for this waste stream. During FY2002 both M&EC and Energy Solutions announced that they will develop treatment capabilities for elemental mercury. M&EC began accepting mercury waste in FY2002. However, the treatment process was not operational as of the second quarter of the year. Energy Solutions expects to be operation in FY2003.

Summary of FY2003 Activities

There is currently no waste in inventory for this waste stream. During FY2003, M&EC began operating their amalgamation treatment system. Energy Solutions of Utah also plans amalgamation treatment and expects to be operational by the end of FY2004. In July 2003, SITE CONTRACTOR initiated the dismantlement of the vitrification cell. It is possible that elemental mercury may be discovered in the submerged bed scrubber tank. It is estimated that as much as 20Kg of mercury may be present in the system. Therefore the volume of waste projected to be generated in the next five years has been increased accordingly.

Summary of FY2004 Activities

There is currently no waste in inventory and no activity for FY2004.

Summary of FY2005 Activities

There is currently no waste in inventory and no activity for FY2005.

Summary of FY2006 Activities

There is currently no waste in inventory and no activity for FY2006.

Summary of FY2007 Activities

There is currently no waste in inventory and no activity for FY2007.

Summary of FY2008 Activities

During FY2008 two small containers of elemental mercury were added to this section of the STP (~3 lbs total). One was a small container of spill cleanup waste. The other was a broken mercury bulb. The waste will continue to be managed under this section until sufficient volume of material is available for characterization and treatment. Significant additional volume is expected to be generated over the next year(s) (during the current MPPB Decontamination Phase).

Summary 2009 Activities

During FY2009, one container was consolidated into a container in waste stream WV-W036 and another was transferred to a new container within this waste stream. Additionally one new container was generated in WV-W045.

Summary of FY2010 Activities

During FY2010, three new containers were generated and characterized for waste stream WV-W045, including a large vessel containing small amounts of elemental mercury.

TABLE 3.7
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS FOR AMALGAMATION OFF SITE

TREATABILITY GROUP(S) 3.1.7	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Elemental Mercury, Toxic Metals w/Mercury	WV-W045	D009, U151	High	High	29.7	5,158	0.90	900

3.1.8 Miscellaneous Soils

As reported in the FY1997 and FY1998 STP updates, the existing volume of Miscellaneous Soils (WV-W055) was neutralized with sulfuric acid and water; therefore, this waste stream has been removed from the active portion of the STP.

3.1.9 Debris Waste Streams

The following waste streams are included in this subsection:

- MLLW CH/RH, Debris, Toxic Metals w/o Mercury

  WV-W057 - Metal Contaminated Materials/Debris
  WV-W058 - Acid Spill Cleanup Debris

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams is presented in Table 3.8.

A. Description of Technology and Capacity Needs

The LDR treatment standard for wastes containing inorganic metals is concentration-based. It is assumed that the concentration-based standards can be met by stabilization. As an alternative, the wastes in this category can be classified as contaminated "debris" and, as such, the technology-based LDR "alternative treatment standards for hazardous debris" may also be applicable. Potential identified treatment technologies for this debris include thermal destruction followed by ash stabilization; immobilization; physical or chemical extraction; or metals recovery.

As of September 30, 2010, the current volume of heterogeneous debris is 0.00 m^3. It is anticipated that an additional 0.4612 m^3 of heterogeneous debris will be generated over the next five-year generation period (2011-2015). The heterogeneous debris is stored in 70 ft^3 boxes and metal 55-gallon drums.

B. Preferred Options and Other Options

Initially, the preferred option was thermal destruction (i.e., incineration), followed by ash stabilization as a viable waste reduction method for treating metal contaminated combustible debris. The WERF incinerator was processing combustible MLLW liquids, sludges, and solids. However, during FY2000, it was determined that emphasis would be placed on incinerating INEEL's own waste. Additionally, during FY2000, INEEL indicated their plans to cease WERF operations by September 2001 rather than upgrade the incinerator to meet new emission standards. However, following Idaho's denial of the WERF's Part B permit, DOE ceased operations at the WERF on November 2, 2000.

As an alternative to incineration, during FY2000 it was determined that, although the debris in this category did not meet Energy Solutions's WAC for macroencapsulation (due to the low density of the waste), Energy Solutions may be able to treat the debris by shredding and stabilizing it. Since 2000, Energy Solutions has modified their macroencapsulation process and the low density limitation has been removed. Consequently, the alternative treatment standard of macroencapsulation for debris is a potential option for much of the waste managed under this section.

NEPA coverage for shipment and treatment to off-site commercial facilities is provided by the WVDP WM EIS ROD (Section 1.5.4).

Summary of FY1997 Activities

This was a new waste stream generated during FY1997.

Summary of FY1998 Activities

There was no treatment activity on this waste stream during FY1998. However, as noted in Section 3.1.3, in late 1998, mechanical problems with the WERF resulted in the temporary cessation of treatment operations. The undetermined time associated with correction of these problems will impact the facility's treatment schedules, etc., therefore, milestone dates have been revised accordingly in the Plan Volume.

Summary of FY1999 Activities

Using collected radiological and chemical data, draft profiles were prepared and submitted to INEEL for review and comment. The WVDP's review of the data indicates that the waste meets the general waste acceptance criteria outlined in the INEEL WERF WAC. Plan Volume milestones have been modified to reflect WERF scheduling constraints and were also discussed in Section 3.1.3 of the Background Volume.

Summary of FY2000 Activities (including Plan Volume milestone completions)

Since actual shipment to WERF continued to be uncertain, other treatment alternatives were evaluated. It was determined that Energy Solutions may be able to treat the debris by shredding and stabilizing it. Utilizing data generated during the INEEL profiling process and collected during FY2000, a waste profile was submitted to Energy Solutions. Subsequently, Energy Solutions conducted a treatability study and approved the waste for stabilization. Waste shipments to Energy Solutions were initiated on August 30, 2000. The approved profile addresses both mercury-containing (<260 mg/l) debris (Section 3.1.4) and lead-containing debris (Section 3.1.9).

During FY2000, two (2) B-25 boxes of supercompacted potentially lead-containing waste (4,826 kg) were moved from Section 3.3.10 to this category to better facilitate its management.

Summary of FY2001 Activities

Several legacy and newly generated waste containers were inspected, sampled, and consolidated into two boxes. Both boxes were found to meet Energy Solutions's WAC and the existing debris profile and are targeted to be shipped to Energy Solutions during FY2002.

Summary of FY2002 Activities

During FY2002, one container of lead debris (0.04 m^3) was generated. The waste was consolidated with compatible waste and is scheduled for shipment to Energy Solutions in the second quarter of FY2003. A total of 3.96 m^3 of lead-contaminated debris was shipped to Energy Solutions for chemical stabilization and disposal.

Summary of FY2003 Activities

There was no additional waste generated this year. A drum of lead contaminated debris was consolidated with mercury contaminated debris and shipped to Energy Solutions for chemical stabilization.

Summary of FY2004 Activities

There was no additional waste generated this year and no activity for this waste.

Summary of FY2005 Activities

There was no additional waste generated this year and no activity for the year.

Summary of FY2006 Activities

There were two containers of waste in this section at the beginning of the fiscal year and no additional waste was added to this section during the year. The two containers that were in inventory were determined to meet the Energy Solutions WAC for macroencapsulation and were shipped for treatment. As of September 30, 2006, there is no waste in inventory for this STP Section.

Shipment of the waste completed the proposed milestone to ship all of the MLLW that was in inventory as of 1/1/2006 and that meets the Energy Solutions WAC for macroencapsulation of debris by the end of the fourth quarter of FY2006. Detailed documentation of completion of the proposed milestone is presented in Appendix A of the FY2006 Plan Volume.

Summary of FY2007 Activities

Five containers of wipes and oily debris contaminated with lead and cadmium were generated in FY2007. The waste will be included with the waste from STP sections 3.1.4 and 3.1.6 and inspected and packaged for macroencapsulation at Energy Solutions in FY2008.

Summary of FY2008 Activities

The waste that was in inventory for this waste stream at the beginning of FY2008 was processed, consolidated, and shipped for off-site treatment of contaminated debris. The waste was shipped to Energy Solutions on September 15, 2008.

There was no waste in inventory for this waste stream as of September 30, 2008.

Summary 2009 Activities

There was no activity in this waste stream in FY2009.

Summary of FY2010 Activities

There is currently no waste in inventory for this STP section.

TABLE 3.8
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS FOR HETEROGENEOUS DEBRIS OFF SITE

TREATABILITY GROUP(S) 3.1.9	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH/RH, Debris, Toxic Metals w/o Mercury	WV-W057	D008	Med	Med	0.00	0.00	0.4612	40.31
	WV-W058	D004, D008	Med	Med	0.00	0.00	0.00	0.00

3.1.10 Debris/Solids Contaminated with Organics and/or Metals Waste Streams

The following waste streams are included in this subsection:

- MLLW CH, Predominantly Combustible Debris

  WV-W028 - Solids Contaminated with Organics

- MLLW CH, Solids, Toxic Metals

  WV-W035 - Sampling Waste Streams

- MLLW CH, Solid Process Residues, Toxic Metals

  WV-W036 - Solids, Residues, Toxic Metals

- MLLW CH, Toxic Metals Debris

  WV-W037 - Contaminated Debris

- MLLW CH, Organic Sludges/Debris

  WV-W042 - Organic Sludges/Debris

This category was formed in FY1998 when, based upon characterization and treatment technology assessment efforts conducted in FY1998, several waste streams originally listed under Section 3.3 were transferred to this section for further management under the STP.

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams is presented in Table 3.9.

A. Description of Technology and Capacity Needs

The debris wastes (a portion of this waste stream may also contain liquids) in this category may, based on treatment facility's' WACs, need to be segregated into their organic incinerable and inorganic non-incinerable components. As an alternative to waste-code-specific LDR treatment standards, since these wastes can be classified as contaminated "debris," the technology-based LDR "alternative treatment standards for hazardous debris" can also be used. Potential identified treatment technologies for this debris include thermal destruction followed by ash stabilization; immobilization; physical or chemical extraction; or metals recovery.

As of September 30, 2010, the volume of debris in this category is 0.0 m^3. It is anticipated that an additional 3.4 m^3 of debris will be generated over the next five-year generation period (2011-2015).

B. Preferred Options and Other Options

Based on the FY1998 treatment technology assessment it was identified that, for waste acceptance purposes, this waste stream may need to be segregated into its organic and inorganic components. The preferred option for the organic incinerable portion of this waste stream would be off-site thermal destruction (e.g., combustion, incineration, etc.) followed by ash stabilization. At that time, the INEEL WERF incinerator was incinerating MLLW solid debris which complies with its WAC. However, during FY2000, it was determined that emphasis would be placed on incinerating INEEL's own waste. Additionally, during FY2000, INEEL indicated that it was planning to cease WERF operations by September 2001

rather than upgrade the incinerator to meet new emission standards. However, following Idaho's denial of the WERF's Part B permit, the DOE ceased operations at the WERF on November 2, 2000. The previously identified preferred option for the inorganic non-incinerable portion of this segregated waste stream was stabilization or micro/ macroencapsulation at another off-site facility (e.g., Energy Solutions of Utah) if it's associated WAC requirements can be met.

As an alternative to INEEL, during FY1999, M&EC was determined to be the targeted treatment facility. M&EC does not require sorting of the waste stream into its organic and inorganic components. Following the submittal of draft waste profiles, M&EC established a tentative shipment date of FY2000. However, as of the end of FY2000, construction and subsequent successful test/trial runs had not yet been completed. At the end of FY2000, full-scale debris treatment operations were expected to begin during FY2001. However, as of the end of FY2001, full-operation startup had not yet begun (targeted for FY2002). During FY2001, Perma-Fix in Gainesville, Florida, was determined to be a potential alternative to M&EC for some of the waste in this category.

Macroencapsulation is the preferred treatment for waste that meets the LDR definition of debris. Class A debris waste can be treated and disposed at Energy Solutions. Debris that is greater than class A may be treated on-site or shipped for treatment at a NTS (now NNSS) certified commercial treatment facility prior to final disposal at the NNSS. However, in August 2008, NNSS notified all mixed waste generators that NNSS cannot approve any new mixed waste streams pending resolution of issues with the State of Nevada Attorney General. The issues were not resolved as of the time of the FY2008 update.

During FY1999, it was determined that some of the containers in this section may be of higher activity and may require differential handling and management.

During FY1999, liquid supernatant was found in one of the two suspect containers and was dispositioned to the vitrification system during FY2000.

NEPA coverage for off-site shipment and commercial treatment is provided by the WVDP WM EIS ROD (see Section 1.5.4).

Summary of FY1999 Activities (including Plan Volume milestone completions)

The assessment of various potential treatment facilities resulted in M&EC (as part of the DOE Broad Spectrum Treatment Contract) being identified as the targeted facility for these debris wastes. Subsequent to the submittal of draft waste profiles, in June 1999 M&EC submitted a draft delivery order for the treatment of the wastes, with FY2000 identified as the targeted waste shipment date. M&EC does not require waste sorting and segregation prior to shipment to their facility. From initial reviews of container files, it was also determined that some containers may contain higher activity waste which may require evaluation of different treatment strategies or options. Plan Volume milestones have been modified to address the potential existence of the higher activity waste. Also, during FY1999, upon container inspection, it was found that the suspected liquid in one of the containers in waste stream WV-W037 does not exist. Waste volumes in inventory were modified due to normal waste generation and improvements in database accountability. The overall five-year projected generation estimates for this waste stream was decreased primarily due to the decrease in expected volumes of lead-based paint chips/paint debris to be generated.

Summary of FY2000 Activities (including Plan Volume milestone completions)

Waste inspection and sampling activities were initiated in the first quarter of FY2000, with final profiles submitted to and approved by M&EC during the third quarter of FY2000. However, schedule delays, etc. at M&EC have pushed out the expected date of treatment unit construction completion and subsequent full-scale operation commencement from FY2000 to FY2001. Therefore, a new proposed milestone has been developed and incorporated into the FY2000 Plan Volume.

Due to the existence of low concentrations of organics and the low density of the waste, the debris does not meet Energy Solutions's current WACs for stabilization or macroencapsulation, respectively.

During container inspection and sampling activities, several containers were confirmed to have higher radioactivity and/or potential airborne concerns than the majority of the containers in this section. These containers may also exceed the limits identified in the approved M&EC profile. Therefore, proposed alternate milestones for the high-activity wastes have been developed and incorporated into the Plan Volume.

Information ascertained during inspection and sampling activities resulted in the recharacterization of some of the debris in this category as LLW only. Additionally, some of the containers were found to contain suspect TRU debris and were moved to Section 4.2.1.

Summary of FY2001 Activities (including Plan Volume milestone completions)

As an alternative to M&EC, which continued to experience full-operation startup delays, Perma-Fix of Gainesville, Florida was solicited as to their potential to accept the waste in this category. (Perma-Fix Gainesville received a modified Part B application to treat small volumes of mixed waste.) Following Perma-Fix Gainesville's approval of the majority of the waste in this category, the approved waste was shipped to Perma-Fix on September 25, 2001.

Additionally, two containers of higher activity debris, which had the potential to contain paint-contaminated materials, were opened and inspected during FY2001. No paint-contaminated debris was found and the containers were reclassified as LLW.

Summary of FY2002 Activities (including Plan Volume Milestone Completion)

The milestone for the first quarter stated that, if a mechanism is available to inspect and sample high-activity waste, inspection and sampling should be initiated and a treatment schedule would be prepared. This action was completed with the inspection of two containers in FY2001 that were reclassified as LLW. A second inspection and sampling operation was initiated in December 2001, with two additional containers of high-activity waste. The drums were sampled and determined to be below RCRA metal limits. The containers were also reclassified as LLW, therefore no treatment schedule is needed.

During FY2002, a waste profile was submitted to M&EC requesting treatment approval for debris with asbestos and contaminated with characteristic metals and listed organic waste. The profile was approved for treatment and disposal.

Summary of FY2003 Activities

There was no new waste generated this year and no new activities were conducted on this treatability group this year.

Summary of FY2004 Activities

There was one container of organic contaminated debris (WV-W028) generated this year from a legacy waste inspection operation. There were no additional activities conducted on this treatability group this year.

Summary of FY2005 Activities

Three containers of organic contaminated debris were discovered during a waste sorting and consolidation operation during FY2005. The total volume of additional waste added to this section was 0.34 m^3. There were no additional activities this year.

Summary of FY2006 Activities

There were sixteen (16) containers in inventory at the beginning of FY2006. Eight of the containers were determined to meet the Energy Solutions WAC for macroencapsulation of debris. The eight containers were consolidated and shipped to Energy Solutions for treatment in August 2006.

Shipment of the waste completed the proposed milestone to ship all of the MLLW that was in inventory as of 1/1/2006 and meets the Energy Solutions WAC for macroencapsulation of debris by the end of the fourth quarter of FY2006. Documentation of completion of the proposed milestone is presented in Appendix A of the FY2006 STP Plan Volume.

The remaining eight (8) containers were determined to not meet the Energy Solutions WAC due to high contamination or the waste is greater that NRC Class A. Consequently, this waste will continue to be managed under this section of the STP until appropriate treatment and disposal can be identified.

For the FY2006 Update, the waste stream descriptions for two waste streams managed under this section have been changed. The Low-Level Paint with Metals Waste Stream (WV-W036) has been changed to Solids, Residues, with Toxic Metals to better describe the type of waste that is included in this waste stream. The name for WV-W037, Debris Contaminated with Decontaminated Supernatant was also changed to Contaminated Debris. The EPA waste Identification Numbers for the two waste streams have been expanded to included all of the characteristic metals. The revised EPA waste codes are identified in Table 3.9 of this section.

Summary of FY2007 Activities

Six containers of waste were added to this section of the STP this year. One of the containers was the drum of cement solidified waste that was sampled and determined to exceed the treatment standard for chrome. The other five containers were laboratory preparation liquids that were cement solidified. The original liquids were acidic and contained high levels of chlorides and chrome from dissolving stainless steel vessel coupons.

Summary of FY2008 Activities

This section had a proposed milestone for FY2008.

> Ship or treat all of the MLLW that is in inventory as of 1/1/2008 for which acceptable treatment is available and the treated waste will meet the NTS WAC by the end of the fourth quarter FY2008. If acceptable treatment or handling options are not available, prepare an alternate schedule.

The proposed milestone was completed with the recharacterization or processing, consolidation, and shipment of all of the waste in inventory as 1/1/2008 for off-site treatment and disposal. Three containers of waste from this section were

recharacterized from MLLW to MTRU and transferred to WV-W024 for further STP management. The remaining waste was consolidated and shipped for off-site treatment and disposal.

During FY2008, three containers of waste that were previously treated were analyzed and determined to meet the LDR concentration based treatment standards but were above the TC limit for selenium. The three drums along with one drum that did not meet the treatment standards were sent to M&EC for chemical stabilization. An additional six drums that were in inventory as of 1/1/2008 were also shipped to M&EC for treatment on September 24, 2008. Two drums of debris were shipped to Perma-Fix Northwest on September 24, 2008 for macroencapsulation.

During FY2008 four containers of debris were sampled during sorting operations and determined to be mixed waste.

Summary 2009 Activities

During FY2009, two containers from waste stream WV-W036 were consolidated into an existing container in this waste stream along with newly generated waste. At the end of FY2009, two containers were being prepared for offsite disposal and were shipped in the 1st quarter of FY2010.

Summary of FY2010 Activities

There is currently no waste in inventory for this STP section.

TABLE 3.9
STP: SUMMARY OF WVDP MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR A) SEGREGATION AND INCINERATION AND STABILIZATION/IMMOBILIZATION; OR B) METAL- AND/OR ORGANIC-CONTAINING DEBRIS TREATMENT

TREATABILITY GROUP(S) 3.1.10	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL IN HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Predominantly Combustible Debris	WV-W028	D004, D008, D011, D018, D019, F005, U028, U080, F002	High	Medium	0.0	0.0	0.0704	103.59
MLLW CH, Solid Toxic Metals	WV-W035	F001, F002, F003, F005, D040	Medium	Medium	0.0	0.0	0.01	5.36
MLLW CH, Solid Process Residues, Toxic Metals	WV-W036	D004, D005, D006, D007, D008, D009, D010, D011	High	Medium	0.00	0.00	3.32	5,000.00

TREATABILITY GROUP(S) 3.1.10	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL IN HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Toxic Metals Debris	WV-W037	D004, D005, D006, D007, D008, D009, D010, D011	High	Medium	0.00	0.00	0.01	4.10
MLLW CH, Organic Sludges/Debris	WV-W042	D006, D007, D008	High	Medium	0.00	0.00	0.00	0.00

3.1.11 Spent Filter Media

- MLLW CH, Filter Media/Sludge, Toxic Metals

WV-W049 - Spent Filter Media/Sludge with Metals

This category was formed in FY1998 when, based upon characterization and treatment technology assessment efforts conducted in FY1998, this Spent Filter Media waste stream was transferred from Section 3.3.11 to this section for further management under the STP.

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams is presented in Table 3.10.

A. Description of Technology and Capacity Needs

The spent filter media waste stream consists of highly radioactive spent filter media (diatomaceous earth) generated from filtration of the Fuel Receiving and Storage (FRS) pool during a campaign to remove materials settled on the bottom of the pool resulting from cutting-up old storage racks prior to removal. The FRS pool is where spent fuel assemblies were stored. The spent filter media was put into a container within a High-Integrity Container (HIC) to provide radiation shielding.

The current volume of spent filter media being stored at the WVDP is 0.00 m^3. With the completion of the decontamination of the FRS pool, no additional waste in this treatment group is expected to be generated during the next 5 years.

B. Preferred Options and Other Options

A treatment technology assessment was conducted in FY1998 for this waste stream and stabilization was defined as the preferred treatment technology option. The elevated radiation levels associated with this waste may limit treatment of this waste to on-site options only (e.g., the Remote-Handled Waste Facility [RHWF] or a subcontracted mobile unit).

Summary of FY1999 Activities

There was no activity on this waste stream during FY1999.

Summary of FY2000 Activities

There was no activity on this waste stream during FY2000.

Summary of FY2001 Activities

During FY2001, the construction of the RHWF was initiated. Additionally, on March 6, 2001, DOE-WV submitted modifications to WVDP's Part A permit application to the NYSDEC. Modifications include the addition of the RHWF as a RCRA "containment building."

Summary of FY2002 Activities

Construction of the RHWF is continuing.

Summary of FY2003 Activities

During FY2003, there were several containers of vacuum filters generated from cleaning the sludge and bottom sediment from the spent fuel storage pool. A sample of the sediment was sent to A&PC lab for metals analysis. At that time, the

A&PC lab only had the capability to analyze for total mercury, barium and chromium. The analysis indicated the presence of chromium at more than 20 times the TCLP limit. Therefore, based on this information, the filters were conservatively characterized as hazardous for chromium. It was suspected that the sludge and sediment may contain stainless steel fines from the canister rack cutting operation. Chrome is a major component of stainless steel and would therefore be expected to produce a significant chromium result in a total metals analysis. It was believed that the total metals analysis of a sample with stainless steel would not be representative of the TCLP value. In July 2003, A&PC developed the procedures to analyze for all TCLP metals. Duplicates of the original samples were re-submitted to the A&PC lab for full TCLP metals. As expected the sample indicated that all regulated metals were below TCLP limits. The containers were then recharacterized as radioactive non-hazardous waste.

Summary of FY2004 Activities (Including Plan Milestone Activity)

There was a proposed milestone for this fiscal year to initiate waste characterization/treatability study activities by the second quarter of FY2004, or prepare an alternate schedule.

The spent filter media consists of spent resin generated from the wastewater treatment system in the fuel storage pool (FSP) and collection of pool floor sludge. The waste is contained in a polyethylene high integrity container (HIC) inside of a concrete SUREPAK (SP-077). The unshielded dose rate of this waste is estimated to be 15 R/hr or greater. Characterization of this waste will require analysis of a representative sample for TCLP metals as this container was conservatively characterized as RCRA hazardous for chromium. Sampling of the container will require remote handling or special shielding to minimize worker exposure. The specialized procedures and equipment required to sample and process this waste were not in place in FY2004. There are additional HICs of FSP resin with similar dose rates that may also require sampling and analysis. Therefore an alternate schedule was proposed.

Sample SP-077 and characterize the container within six (6) months of the initial processing of the resin HICs, SP-075, SP-076, SP-078, and SP-079

Documentation of the milestone and proposed alternate schedule is detailed in Appendix A to the FY2004 STP Update Plan Volume.

Summary of FY2005 Activities

There was no change in the volume of waste in this STP section and no actions were taken this year.

Summary of FY2006 Activities

A data quality objective was issued in January 2006, to sample the high integrity containers (HICs) of resin. One of the resin HICs is managed as mixed waste under this section. The resin has considerable dose and contamination and will therefore require special sampling consideration. There were no resources available in FY2006 for this action and therefore the sampling activity was not initiated.

Summary of FY2007 Activities

There was no change in inventory and no activity initiated in FY2007 for this waste stream.

Summary of FY2008 Activities

The proposed milestone for FY2008 was:

> Complete radiological and RCRA characterization of the waste by the end of the fourth quarter of FY2008

The proposed milestone was completed with the recharacterization from MLLW LLW. A recharacterization letter was documented in WV:2008:0090, dated September 29, 2008. There is currently no waste in inventory for this waste stream.

Summary of FY 2009 Activities

There was no activity in this waste stream in FY2009.

Summary of FY2010 Activities

There is currently no waste in inventory for this STP section.

TABLE 3.10
STP: SUMMARY OF WVDP MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR ON-SITE STABILIZATION (REMOTE-HANDLED WASTE FACILITY OR MOBILE UNIT)

TREATABILITY GROUP(S) 3.1.11	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL IN HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH (RH*), Filter Media/Sludge, Toxic Metals	WV-W049	D007	Medium	Medium	0.00	0.00	0.0	0.0

3.1.12 Lithium Batteries

- MLLW CH, Lithium Batteries

  WV-W059 - Lithium Batteries (D001, D003)

  This waste stream was added to the STP during FY1998. Notification was provided to NYSDEC in a correspondence dated March 20, 1998. Subsequent to notifying the NYSDEC, it was determined that the external surfaces of the battery could be radiologically decontaminated so that the battery could be reclassified and subsequently managed as hazardous waste (i.e., not mixed waste). Decontamination operations conducted during 1998 were similar to the radiological decontamination of the alkaline batteries managed under Section 3.1.4. Therefore, as reported in the FY1998 STP update, further management of this waste stream under the STP is not required at this time and the waste stream has been removed from the active portion of the STP.

3.1.13 Aqueous Liquids and Low-Concentration Organic Liquid Waste Streams

The following waste streams are included in this subsection:

- MLLW CH, Aqueous Liquids, Toxic Metals

  WV-W013 - Pu Aqueous Waste
  WV-W029 - Immersion Bucket Solution
  WV-W030 - Aqueous Metal Containing Waste
  WV-W034 - Corrosive Metal Aqueous Waste

- MLLW CH, Organic Liquids, Toxic Organics, and Metals

  WV-W007 - Organic Liquids (non-ignitable)

- MLLW CH, Inorganic Sludges, Toxic Metals

  WV-W047 - Inorganic Sludges

- MLLW CH, Aqueous Liquids, Corrosive or Reactive

  WV-W025 - Caustic Waste Stream

  The above waste streams were previously managed and addressed under Section 3.2.1. Since treatment technologies now exist to treat the waste streams in this category, the waste streams have been transferred from Section 3.2.1 to this section for further management under the STP. Historic information on these wastes is contained in Section 3.2.1.

  Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams are presented in Table 3.11.

A. Description of Technology and Capacity Needs

The LDR treatment standards for wastes in this treatability group are concentration-based and/or deactivation (D002). It is anticipated that, depending on the waste stream, they can be met through deactivation or stabilization or, as an alternative, by management through the on-site State Pollutant Discharge Elimination System (SPDES)-permitted Clean Water Act (CWA) system.

As of September 30, 2010, the volume of aqueous liquids and low-concentration organic liquids requiring treatment is 1.55 m^3. It is anticipated that an additional 1.0 m^3 will be generated over the next five-year generation period ~~(2010-2014)~~. The increase is expected due to draining and tell-tailing process and utility lines from the main plant to support D&D activities.

B. Preferred Options and Other Options

Stabilization, deactivation, or incineration, followed by ash stabilization is the potential treatment options for aqueous liquids and low-concentration organic liquids. As an alternative, certain wastes may have the potential to be managed via the site's on-site CWA system.

No additional NEPA review or documentation is required for on-site treatment activities. NEPA coverage for shipment and treatment to commercial facilities is provided by the WVDP WM EIS ROD (Section 1.5.7). NEPA requirements for shipment and treatment to DOE facilities have been satisfied by the February 2000 WM PEIS ROD for mixed waste.

Summary of FY2001 Activities (including Plan Volume milestone completions)

Dispositioning of eligible legacy waste (total of 51 containers) was completed on June 26, 2000.

Due to continuing delays in treatment operation start up at ATG, the pyridine/cyanide waste stream (WV-W007) was also profiled to Perma-Fix Gainesville during FY2001. Perma-Fix approved the waste for acceptance and it was shipped for treatment on September 25, 2001.

Since treatment technologies now exist to treat the waste streams in this category, the waste streams in Section 3.2.1 have been transferred to Section 3.1.13 for further management under the STP. Historic information on these waste streams is contained in Section 3.2.1 (Background and Plan Volumes).

Summary of FY2002 Activities

There was no waste generated in FY2002 and no inventory remains under this section.

Summary of FY2003 Activities

During FY2003 there was a small volume of scintillation/ analysis waste from A&PC. This waste will be evaluated for consolidation with other compatible liquids for characterization and off-site disposition. There was also a small quantity of liquid waste generated from telltale (a small investigative sample from a pipe prior to cutting or removing the article) operations in the Product Purification Cell (PPC). This waste requires further characterization to determine if it meets the off-site TSDF WAC.

Waste Stream WV-W025 was transferred from STP Section 3.1.1 to this section because the waste is not acceptable for on-site treatment and potential off-site treatment capability has not been identified.

Summary of FY2004 Activities

In June 2004, four containers (X-8715, X-8718, X-8733, and X-8736) of aqueous waste from the A&PC lab were composited into a drum for accumulation. Two additional containers (X-8641 and X-8751) were generated this year. Paperwork has been prepared to have the two containers, along with additional compatible liquids, composited into the accumulation drum, 12005-B.

Summary of FY2005 Activities

Two containers of the WV-W007 liquids were composited with liquid waste from STP Section 3.1.3. One container of WV-W030 and an additional container of WV-W034 were generated this year.

Summary of FY2006 Activities

There were eight (8) containers of waste managed under three (3) waste streams in inventory at the beginning of the fiscal year. An additional three (3) containers of waste were generated or characterized as mixed waste during the year. The eight containers that were in inventory at the beginning of the year were all composited based on chemical compatibility and the treatment required for each waste stream. The composited wastes were sampled and the resulting data were used to complete waste profiles at Perma-Fix and DSSI. The waste profiles were accepted and the waste was shipped to Perma-Fix/DSSI for thermal treatment in September 2006. The three newly generated containers are very small quantity and were generated too late to be included in the compositing and sampling operation. Consequently, this waste will continue to be managed under this section of the STP pending a future compositing and sampling operation

Shipment of the waste completed the proposed milestone to ship all of the liquid waste that is in inventory as of 1/1/2006 and that meets the Perma-Fix/DSSI WAC by the end of the fourth quarter FY2006. Documentation of completion of the proposed milestone is presented in Appendix A of the FY2006 STP Plan Volume.

Summary of FY2007 Activities

One container with one gallon of alkaline liquid was generated in FY2007. There were no other changes or activities for this STP section this year.

Summary of FY2008 Activities

During the year five additional containers of liquid waste were generated. Three of the five were from D&D operations. One small container of commercial chemical product was generated and one container of corrosive/ignitable liquid was generated from routine operations. A container with aerosol cans was consolidated into a S-70 box for storage. Additionally, during FY2008 six containers of tell tale liquids were recharacterized from LLW to MLLW.

Summary 2009 Activities

During FY2009 eight additional containers of WV-W030 waste were generated. In waste stream WV-W034 two containers were recharacterized as non-hazardous while additional waste was added to the other two existing containers. In waste stream WV-W025, waste was added to the two containers and these containers were being prepared for shipment and were shipped in the 1st quarter of FY2010.

Summary of FY2010 Activities

There were no aqueous liquids (waste stream WV-W030) generated in FY2010 and no activities performed for this STP section.

TABLE 3.11
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR STABILIZATION, DEACTIVATION, INCINERATION, OR CWA SYSTEM DISPOSAL

TREATABILITY GROUP(S) 3.1.13	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL OF WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	Kg
MLLW CH, Aqueous Liquids, Toxic Metals	WV-W013	D011	High	High	0.00	0.00	0.016	16.50
	WV-W029	D007	Med	Med	0.00	0.00	0.00	0.00
	WV-W030	D004-D006, D007, D008-D011	Med	Med	1.55	480	0.872	872
	WV-W034	D002, D011	High	High	0.00	0.00	0.0620	65.75
MLLW CH, Organic Liquids, Toxic Organics, and Metals	WV-W007	D002, D007, D011, D038	High	High	0.00	0.00	0.00	0.00
MLLW CH, Inorganic Sludges, Toxic Metals	WV-W047	D008	High	High	0.00	0.00	0.00	0.00
MLLW CH, Aqueous Liquids Corrosive or Reactive	WV-W025	D002 D007	High	High	0.00	0.00	0.05	28.00

3.2 Mixed Waste Streams for Which Technology Exists but Needs Adaptation or for Which No Technology Exists

The mixed waste streams in this section should be able to be treated to LDR standards by modifying existing on-site technologies or utilizing off-site technologies. Modification of the technology can involve recipe modifications (in the case of waste stabilization) and/or physical modifications of the technology to accommodate the waste form. Treatment options considered for these waste streams are existing on-site and existing or planned off-site facilities. A discussion of the preferred treatment option is presented in this section.

3.2.1 Aqueous Liquids and Low-Concentration Organic Liquid Waste Streams

The following waste streams were previously included in this subsection:

- MLLW CH, Aqueous Liquids, Toxic Metals w/o Mercury

  WV-W013 - Pu Aqueous Waste
  WV-W029 - Immersion Bucket Solution
  WV-W030 - Aqueous Metal Containing Waste
  WV-W034 - Corrosive Metal Aqueous Waste

- MLLW CH, Organic Liquids, Toxic Organics, and Metals w/o Mercury

  WV-W007 - Organic Liquids (non-ignitable)

- MLLW CH, Inorganic Sludges, Toxic Metals w/o Mercury

  WV-W047 - Inorganic Sludges

Since treatment technologies now exist to treat the waste streams in this category, the waste streams were transferred from this section to Section 3.1.13 for further management under the STP. Historic information on these wastes is contained in this section.

Stabilization, deactivation or incineration/stabilization are the potential treatment options for aqueous liquids and low-concentration organic liquids. As an alternative, certain wastes may have the potential to be managed via the site's on-site CWA system.

Stabilization is an immobilization process that yields a solid "stabilized" waste form. This is a proven, cost-effective method for treating most aqueous liquids and low-concentration organic liquid waste streams to meet concentration-based LDR treatment standards. Treatment (i.e., stabilization) in the on-site Integrated Radioactive Treatment System (IRTS) Facility or Vitrification Facility was originally identified as a potentially viable on-site treatment option for certain aqueous liquids and low-concentration organic liquid waste streams. However, during FY1998, it was determined that the IRTS would not likely be utilized since the system would require modification, potentially significant, to handle the small volume and types of wastes involved. The IRTS was originally designed for larger waste loadings and higher allowable leachable metal limits in the treated waste form. New recipes would be required to be developed and the waste forms qualified for 10 CFR stability, etc., and to ensure the new 1998 LDR UTS levels for metals would be achieved. Due to the small volumes of each waste stream in Section 3.2.1 for which unique recipes, etc., would be required to be developed and associated system modifications made, the cost effectiveness and timeliness of treating these wastes via the IRTS was determined not to be favorable at this time (i.e., as of September 1998).

As an alternative to IRTS, in FY1997 an evaluation of the remaining wastes in Section 3.2.1 for treatment using a combination of incineration and/or stabilization at the INEEL WERF was performed. However, during FY2000, it was determined that emphasis would be placed on incinerating INEEL's own waste. Additionally, during FY2000, INEEL identified plans to cease WERF operations by September 2001 rather than upgrade the incinerator to meet new emission standards. However, during the first quarter of FY2001 (October 3, 2000), the Idaho Department of Environmental Quality formally denied the

Hazardous Waste Management Act Permit Application for the INEEL WERF incinerator and directed the WERF to cease operation no later than November 2, 2000. Therefore, as of November 2000, the WERF is no longer a treatment option.

Relative to the potential use of the on-site Vitrification Facility (VF) for the stabilization of certain wastes, in 1997 an evaluation was performed as to the potential disposition of the Pu Aqueous Waste (WV-W013) to HLW Tank 8D-2. It was determined that disposition of this waste to Tank 8D-2 would not change the characterization of the tank and would not affect the vitrification process. Also, this treatment was permissible under New York State hazardous waste management regulations (6 NYCRR 370 et seq.). Stabilization of the waste was achieved during FY1999 by its treatment via the vitrification process formerly used to stabilize Tank 8D-2 wastes. (Vitrification operations at the WVDP were completed in September 2002.)

As an alternative to deactivation, stabilization, or incineration/stabilization, in 1998 an evaluation of the existing waste streams in this group was performed relative to the potential management of these wastes via the on-site SPDES-permitted CWA system. It was determined that the controlled disposition of these wastes (except for Pu Aqueous Wastes [WV-W013]) to the CWA system would be in compliance with the terms of the existing SPDES permit.

Summary of FY1996 Activities

There was no activity on this waste stream during FY1996. The aqueous liquids, ignitable (WV-W043) were moved to Section 3.1.3 due to the determination that the waste, since it carries the FY003 code, would be better treated by incineration. Also, three containers were moved to this section from Section 3.1.1 due to the presence of UHCs. Additional wastes were generated due to laboratory operations. The projected five-year generation was adjusted based on current generation rates.

Summary of FY1997 Activities

There was no activity on this waste stream during FY1997. Waste volumes increased due to generation of additional waste during routine plant operations.

Summary of FY1998 Activities (including Plan Volume milestone completions)

A review of existing waste characterization records was completed and it was determined that sufficient chemical and radiological data were available and that further sampling was not required to develop potential on-site stabilization recipes. Subsequent to the completion of this activity, an evaluation was conducted as to the potential management of certain wastes in this group in the site's CWA facility. The evaluation determined that the controlled management of certain wastes via the CWA system would be feasible but time-consuming. Concurrently, it was determined that the utilization of the IRTS to stabilize the waste would be unlikely due to significant system and recipe modifications that would be required for the relatively small volume of waste involved. As a result of these evaluations, Plan Volume milestone verbiage has been modified. Waste volumes increased due to generation of additional waste during plant operations, primarily on-site laboratory analyses.

Summary of FY1999 Activities (including Plan Volume milestone completions)

It was determined that the controlled management of certain eligible wastes in the on-site CWA system was a viable option. Treatment of eligible wastes is to be controlled so that constituent increases at SPDES outfall 001 would not exceed the SPDES discharge limit or reporting value. During FY1999, approximately 50 kg of eligible waste in this category were treated via the on-site CWA system. Other eligible wastes were tentatively scheduled for treatment. Also during FY1999, approximately 100 kg of waste (WV-W013) was treated via the on-site vitrification system. For wastes which are not eligible for on-site treatment, off-site options will need to be evaluated. Schedules for the on-site treatment of remaining

eligible legacy wastes and off-site treatment of non-eligible wastes were developed and Plan Volume milestones added. Waste volumes increased due to generation of additional waste during plant operations, primarily on-site laboratory analyses. Additionally, the projected five-year generation rate was reduced for WV-W013 wastes since future generation, as of FY1999, is expected to be minimal.

Summary of FY2000 Activities (including Plan Volume milestone completions)

During FY2000, approximately 43 kg of eligible waste in this category were treated via the on-site CWA system. As of the end of FY2000, the majority of the CWA system-eligible legacy and recently generated wastes have been treated.

As of September 30, 2000, the only waste within this category that requires off-site treatment and profiling is the pyridine/cyanide waste stream (WV-W007). This waste stream was sampled for ATG and M&EC WAC parameters with subsequently prepared profiles submitted to ATG and M&EC. Approval was received from ATG on September 11, 2000, with the waste targeted for treatment in their Gasvit facility (once full-scale operations have commenced). As discussed in Section 2.2, treatment units at ATG and M&EC are in various stages of construction, trial-run testing, and approval. Therefore, the FY2000 Plan Volume milestone was proposed to be modified to account for these scheduling uncertainties.

Summary of FY2001 Activities (including Plan Volume milestone completions)

Dispositioning of eligible legacy waste (total of 51 containers) was completed on June 26, 2000.

Due to continuing delays in treatment operation start up at ATG, the pyridine/cyanide waste stream (WV-W007) was also profiled to Perma-Fix Gainesville during FY2001. Perma-Fix approved the waste for acceptance and it was shipped for treatment on September 25, 2001.

Since treatment technologies now exist to treat the waste streams in this category, the waste streams in Section 3.2.1 have been transferred to Section 3.1.13 for further management under the STP.

Summary of FY2002 Activities

As previously stated, the waste streams previously managed under this section were transferred to Section 3.1.13. All update information for these waste streams will be discussed in Section 3.1.13. This section remains for retaining the historical data presented in the past for these waste streams.

Summary of FY2003 Activities

No activity involving this treatability group was conducted this year.

Summary of FY2004 Activities

No activity involving this treatability group was conducted this year.

Summary of FY2005 Activities

No activity involving this treatability group was conducted this year.

Summary of FY2006 Activities

No activity involving this treatability group was conducted this year

Summary of FY2007 Activities

The waste from this section were moved to section 3.1.13, therefore there was no activity for this treatability group this year.

Summary of FY2008 Activities

The waste from this section were moved to section 3.1.13, therefore there was no activity for this treatability group this year.

Summary 2009 Activities

There was no activity for this treatability group in FY2009.

Summary of FY2010 Activities

There was no activity for this treatability group in FY2010.

3.2.2 Inorganic Particulates Waste Streams

The following waste streams are included in this section:

- MLLW CH, Inorganic Particulates

  WV-W027 - Oxidizers
  WV-W033 - Ignitable Metal Waste
  WV-W053 - Metal Residues
  WV-W056 - Reactives

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data of the above waste streams are presented in Table 3.12.

During FY1999, the legacy waste (pre-March 1998) in this category was determined to have been incorrectly classified as mixed waste. A review of the waste files indicated that sufficient process knowledge and/or analytical data exists to reclassify the majority of the waste in this category as hazardous waste only. For wastes which are unable to be reclassified, the following treatment technology discussion is applicable.

A. Description of Technology and Capacity Needs

The LDR treatment standard for D001 (oxidizer) and D003 wastes in this treatability group is deactivation. If UHCs are present above UTS, stabilization may also be required. The treatment standards for metal-containing (e.g., D011) wastes are concentration-based and it is anticipated they can be met through stabilization. As an alternative, certain wastes may be able to be managed, after further evaluation, through the on-site SPDES-permitted CWA system. Additionally, the waste may be reassessed as to the accuracy of the radiological characterization and, if applicable, reclassified from mixed waste to hazardous waste.

The volume of solid process residues requiring treatment as of September 30, 2010 is 0.02 m^3. It is anticipated that an additional 0.0038 m^3 will be generated over the next five-year generation period (2011-2015).

B. Preferred Options and Other Options

If the waste cannot be reclassified from mixed to hazardous, the preferred on-site treatment technique for these waste streams involve dissolving the solid process residues in another aqueous liquid to deactivate the waste, followed by stabilization

as necessary. Some treatability studies may be required to meet specific requirements prior to stabilization. As discussed in Section 3.2.1, during 1998, it was determined that due, in part, to the modifications to the IRTS and cement recipes that would be required, the utilization of IRTS is unlikely. As an alternative to IRTS or on-site in-container stabilization, off-site treatment (e.g., incineration, deactivation or stabilization at an off-site facility such as ATG, M&EC, and Perma-Fix Gainesville) may also be feasible.

As an alternative to off-site treatment, the potential exists that some of the wastes may be amenable to management in the site's SPDES-permitted CWA system. Further evaluation relative to waste constituents and system loading is required.

No additional NEPA review or documentation is required for on-site treatment activities. NEPA coverage for shipment and treatment to an off-site commercial and DOE facilities is provided through the WVDP WM EIS ROD (see Section 1.5.7).

Summary of FY1996 Activities

There was no activity on this waste stream during FY1996. The reactive waste was newly generated in FY1996 from laboratory operations. Additional wastes were generated due to laboratory operations and vitrification testing. The projected five-year generation was adjusted based on current generation rates.

Summary of FY1997 Activities

There was no activity on this waste stream during FY1997. Additional waste volumes were generated due to normal plant operations.

Summary of FY1998 Activities (including Plan Volume milestone completions)

Sampling of the waste streams was completed during FY1998 to obtain data necessary to develop initial on-site stabilization recipes and identify UHCs. INEEL's review of the data files resulted in the identification of two (2) waste streams that are potential candidates for cement stabilization at INEEL. Treatability studies were identified by INEEL as being required. Subsequent to completion of the above activities, it was determined that the utilization of the IRTS to stabilize the waste would require physical modification to the system and recipe modifications would be required, thereby limiting the feasibility of using the IRTS to treat the wastes. Smaller scale deactivation and/or stabilization (treatment in containers) or treatment via the on-site CWA system may be feasible but further evaluation is required. Additional waste volumes were generated due to normal plant operations.

Summary of FY1999 Activities (including Plan Volume milestone completions)

The legacy waste (pre-March 1998) in this category was determined to be historically incorrectly classified as mixed waste. A review of waste files indicated that sufficient process knowledge and/or analytical data exists to reclassify the pre-March 1998 waste in this category as hazardous waste only.

Summary of FY2000 Activities (including Plan Volume milestone completions)

On-site treatment was determined to not be a viable option for the waste streams remaining in inventory as of December 31, 1999. Therefore an alternate schedule was proposed during the first quarter of FY2000 (see Plan Volume). During FY2000, several containers in inventory were reclassified as hazardous waste or LLW only. Profiles for the two (2) remaining mixed waste streams (i.e., silver oxide, thorium nitrate) were prepared, submitted, and approved by ATG and M&EC, with off-site shipment to ATG occurring in FY2000.

Summary of FY2001 Activities

During FY2001, approximately 0.81 kg of oxidizers were generated and subsequently shipped to Perma-Fix's Gainesville facility for treatment.

Summary of FY2002 Activities

A small volume of oxidizer waste has been reintroduced into the STP. As stated above, small volumes of oxidizer waste were shipped to ATG in FY2001 and Perma-Fix in FY2002. Before the waste was shipped, small samples were sent to the on-site laboratory for radiological analysis for waste characterization. During FY2002, the laboratory returned the sample residues for treatment and disposal. The samples were returned late in the fourth quarter of FY2002.

Summary of FY2003 Activities

There was no additional waste generated and no additional activities were conducted for this treatability group this year.

Summary of FY2004 Activities

There was no additional waste generated and no additional activities were conducted for this treatability group this year.

Summary of FY2005 Activities

During FY2005 two containers of spill cleanup residue from the spill of lab oxidizers were generated. There were no additional activities this year.

Summary of FY2006 Activity

There were a total of four containers of waste in this section at the beginning of the fiscal year. The four containers of waste were managed under two separate waste streams. The waste streams were profiled to Perma-Fix/DSSI for thermal treatment. The profiles were approved and the waste was shipped to DSSI in September 2006.

The shipment of waste completed the proposed milestone to ship all of the MLLW that is in inventory as of 1/1/2006 and that meet the Perma-Fix/M&EC WAC by the end of the fourth quarter FY2006. Documentation of completion of the proposed milestone is presented in Appendix A of the FY2006 STP Plan Volume.

As of September 30, 2006, there is no inventory in this STP Section.

Summary of FY2007 Activities

There was no waste generated in FY2007 and therefore no activities conducted this year.

Summary of FY2008 Activities

There was no waste in inventory this year and therefore no activity associated with this section.

Summary 2009 Activities

During FY2009 one container of lab waste with inorganic particulates was generated.

Summary of FY2010 Activities

During FY2010, two new containers were generated and characterized for waste stream WV-W056. Both containers contain 22-caliber cartridges for fastening devices.

TABLE 3.12
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR DEACTIVATION AND STABILIZATION

TREATABILITY GROUP(S) 3.2.2	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLW CH, Inorganic Particulates	WV-W027	D001	High	Medium	0.00	0.00	0.0023	5.00
	WV-W033	D001, D011	High	Medium	0.00	0.00	0.00	0.00
	WV-W053	D001, D003	High	Medium	0.00	0.00	0.0015	1.5
	WV-W056	D003	High	High	0.02	1.36	0.00	0.00

3.3 Mixed Waste Streams Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

This section includes waste that must be more fully characterized before appropriate treatment technologies can be identified. It also includes waste streams for which a technology assessment has not been done, therefore the technology and treatment needs cannot yet be identified. As the wastes are further characterized and technology assessment completed, plans and schedules for developing treatment capacity for these mixed waste streams will be developed and, where applicable, moved to Section 3.1 or 3.2.

Summary of FY1996 & FY1997 Activities

There was no activity on the waste streams in this category during FY1996 or FY1997. Additional wastes were generated due to laboratory operations and routine maintenance. The projected five-year generation was adjusted based on current generation rates.

Summary of FY1998 Activities

During FY1998, as required by Plan Volume milestones, the majority of the wastes in this category were either further characterized and/or treatment technologies identified. Therefore, as indicated in the following subsections, wastes that were evaluated during FY1998 are being assigned to specific treatment categories in Section 3.1 or 3.2 to facilitate their treatment or are being removed from management under the STP.

Summary of FY1999 Activities

Section 3.3.12 (Spent Resin) and Section 3.3.13 (High-Sodium Waste) have been added to Section 3.3 to facilitate the anticipated future generation and management of these mixed waste streams.

Summary of FY2000 Activities

An in-depth characterization of the conservatively characterized Waste Reduction and Packaging Area (WRPA) compacted and supercompacted waste (Section 3.3.10) was conducted with all but four (4) of the boxes recharacterized as LLW. Of the four (4) remaining boxes, two (2) boxes are still believed to potentially contain lead-contaminated debris and were therefore moved to Section 3.1.9 for further management under the STP; one (1) box is still believed to contain PCB-contaminated debris and was moved to Section 3.1.5; and one (1) box is still believed to contain mercury-containing debris and was moved to Section 3.1.4.

Summary of FY2001 Activities

The only active waste streams during FY2001 in Section 3.3 are Spent Resin (Section 3.3.12) and High-Sodium Waste (Section 3.3.13). Summaries of FY2001 activities for these two waste streams are provided in their respective sections.

Summary of FY2002 Activities

There was no activity for the two remaining waste streams managed under this section for FY2002. However, the vitrification operation was completed and the vitrification process was shut down at the end of this year. This will allow the high-sodium waste stream (3.3.13) to be isolated from the HLW and characterized for final treatment. Tank residues (heels) will be evaluated as part of the tank closure process.

Summary of FY2003 Activities

In February 2003, the SBW was isolated and sampled for characterization. Treatability studies were previously conducted by off-site vendors and a contract was initiated with Perma-Fix to provide on-site chemical stabilization and solidification.

Summary of FY2004 Activities

The only active waste streams during FY2004 in Section 3.3 are Spent Resin (Section 3.3.12) and High-Sodium Waste (Section 3.3.13). Summaries of FY2001 activities for these two waste streams are provided in their respective sections

Summary of FY2005 Activities

The only active waste streams during FY2005 in Section 3.3 are Spent Resin (Section 3.3.12) and High-Sodium Waste now referred to as Sodium Bearing Wastewater (SBWW) (Section 3.3.13). Summaries of FY2005 activities for these two waste streams are provided in their respective sections.

Summary of FY2006 Activities

There were no active waste streams in this section and no activities during FY2006.

Summary of FY2007 Activities

There were no active waste streams in this section and no activities during FY2007

Summary of FY2008 Activities

There were no active waste streams in this section and no activities during FY2008.

Summary 2009 Activities

There were no active waste streams in this section and no activities during FY2009.

Summary of FY2010 Activities

There were no active waste streams in this section and no activities during FY2010.

3.3.1 MLLW CH, Aqueous Liquids, Ignitable, Corrosive, or Reactive Only

WV-W004(A) - Zinc Bromide

This portion of the Zinc Bromide Waste Stream consisted of semi-solidified zinc bromide which was generated as a result of replacement of shield window solution. The original liquid waste was characterized as hazardous due to corrosivity based on process knowledge and sample results. A campaign was undertaken to solidify the liquid zinc bromide several years ago. The containers containing the solidified waste had since deteriorated showing evidence of corrosion which indicated the potential presence of corrosive (D002) zinc bromide in the free liquid form. An assessment and inspection of these containers was performed in FY1998. This assessment determined that no free liquid is present in the containers. Therefore, this waste stream has been recharacterized as RCRA non-hazardous and was removed from the active portion of the STP.

Summary of FY1998 Activities (including Plan Volume milestones completions)

This waste stream was recharacterized as RCRA non-hazardous based on FY1998 field observations that the drums of previously solidified zinc bromide do not contain corrosive free liquid. Since the waste stream has been recharacterized as RCRA non-hazardous, no further action is required for this waste stream under the STP.

3.3.2 MLLW CH, Aqueous Liquids, Toxic Organics

WV-W017 - Tc Aqueous Waste Stream

This Technetium (Tc) aqueous waste stream is a corrosive aqueous solution that contains trace quantities of methyl ethyl ketone. The waste was generated starting in 1993 as a result of a new laboratory procedure for performing radiochemical analysis. The waste was characterized as hazardous due to corrosivity and as an F-listed spent solvent based on analytical data and process knowledge of the analytical procedure.

Summary of FY1998 Activities (including Plan Volume milestone completions)

UHCs were identified and radiological data was obtained to allow completion of the treatment technology assessment. The technology assessment resulted in incineration/combustion at an off-site facility being identified as the preferred treatment technology. Therefore, this waste stream was moved to Section 3.1.3 for further management under the STP. (No further action is required for Section 3.3.2.)

3.3.3 MLLW CH, Organic Liquids, Toxic Organics

WV-W022 - Spent Degreaser Mixtures Waste Stream

The spent degreaser mixtures waste stream was a mixture of organic solvents in aqueous media. The wastes were formerly used as decontamination solutions for the removal of radioactive material. The waste was characterized as hazardous due to the presence of spent solvents based on process knowledge. The existing waste inventory was treated at DSSI during FY1998; therefore, this waste stream has been removed from the active portion of the STP.

Summary of FY1998 Activities (including Plan Volume milestone completions)

UHCs and Total Organic Carbon (TOC) content were determined to allow completion of LDR characterization and completion of the treatment technology assessment. The technology assessment resulted in identification of incineration/combustion at an off-site facility as the preferred treatment technology. A treatment schedule was developed and the entire existing waste volume (21.6 kg) was transported to DSSI in August 1998 for combustion/energy recovery. Therefore, no further action is required for this waste stream under the STP.

3.3.4 MLLW CH, Aqueous Liquids, Corrosive or Reactive Only

WV-W025 - Caustic Waste Stream

This treatability group consists of various caustic aqueous wastes which contain either metals or hazardous solvents. Specific waste streams currently included in this group are cement flush water and flush water with uranyl nitrate that was generated as a result of testing the Cement Solidification System (CSS). The wastes have been characterized as hazardous due to corrosivity based on historical test results and process knowledge. Two containers in this waste stream contained chrome above regulatory thresholds based on data in the characterization file; these wastes were treated on site in the IRTS in 1995. The LDR treatment standard for corrosivity is deactivation. However, due to the potential presence of other constituents in the waste, an evaluation was undertaken to determine if UHCs are present above LDR UTS.

Summary of FY1998 Activities (including Plan Volume milestone completions)

It was determined no UHCs were present in the waste stream, therefore it was confirmed that on-site elementary neutralization is the preferred treatment option for these wastes.

Furthermore, this waste stream was moved to Section 3.1.13 for further management under the STP.

Summary of FY1999 Activities

There was no activity for this treatability group during FY1999.

Summary of FY2000 Activities

There was no activity for this treatability group during FY2000.

Summary of FY2001 Activities

There was no activity for this treatability group during FY2001.

Summary of FY2002 Activities

A small volume of multilayered liquid was generated this year. The waste contains an organic layer, aqueous layer, and sediment. The organic layer precludes this waste from on-site processing through the interceptor. The waste was sampled and analyzed for waste characterization. The characterization revealed that the waste is Class C waste and does not meet the WAC at Diversified Scientific Services, Inc. (DSSI) in Kingston, TN. The waste will continue to be managed under this section until the issues associated with shipment of greater than Class A radioactive waste are resolved and the WVDP begins shipment of greater than Class A waste for off-site treatment or disposal.

Summary of FY2003 Activities

This waste stream was moved to Section 3.1.13.

3.3.5 MLLW CH, Predominantly Combustible Debris

WV-W028 - Solids Contaminated with Organics

The solids contaminated with organics waste stream consists of solids (filters, personal protective equipment [PPE], plastic, wipes, etc.) contaminated with oil or other organics. The waste was characterized as hazardous since the liquid oil or other liquid wastes were characterized as hazardous due to the presence of metals and/or solvents.

Summary of FY1998 Activities (including Plan Volume milestone completions)

UHC and LDR determinations were made to allow the completion of the treatment technology assessment. Incineration of the organic portion of this waste stream was identified as the preferred treatment technology. For the remaining inorganic portion, macro/microencapsulation was identified as the preferred treatment technology. However, based on treatment facility WACs, this waste stream may not need to be segregated into its organic and inorganic components. Since available technologies are now identified, this waste stream has been moved to Section 3.1.10. Additional wastes were generated due to normal facility operations and FSFCA sorting activities. (No further action is required for Section 3.3.5.)

3.3.6 MLLW CH, Unknown Solid, Toxic Metals w/o Mercury

WV-W035 - Sampling Waste Stream

The sampling waste stream consists of contaminated glassware and other solids (e.g., PPE) generated as a result of past sampling activities. The waste was characterized

as mixed due to sampling wastes which have been characterized as containing an F-listed solvent (note: no P- or U-listed wastes were present).

Summary of FY1998 Activities (including Plan Volume milestone completions)

It was determined that this waste stream does not contain free liquids and confirmed that UHCs are not applicable (F-listed wastes). Based on analytical data, two (2) of the containers do not require treatment, as their constituent concentrations are already below the LDR standards. For the remaining wastes, incineration of the organic portion of the waste stream at an off-site facility was identified as the preferred treatment technology. For the inorganic portion, macro/microencapsulation at an off-site facility has been identified as the preferred treatment option. However, based on treatment facility WACs, this waste stream may not need to be segregated into its organic and inorganic components. Since available technologies are now identified, this waste stream has been moved to Section 3.1.10. Additional waste volume was generated during FY1998 due to normal plant operations and FSFCA sorting operations. (No further action is required for Section 3.3.6.)

3.3.7 MLLW CH, Solid Process Residues, Toxic Metals w/o Mercury

WV-W036 - Low-Level Paint with Metals Waste Stream

The low-level paint with metals waste stream is a mixture of dried paint chips, PPE, plastic, etc. suspected of containing metals (lead and chromium). The waste was characterized as hazardous due to the presence of lead- and chromium-based paint chips based on process knowledge. Some of the wastes in this stream are dry floor sweepings and other materials collected during cleaning and dry paint removal operations. Other containers in this stream contain water and paint chips resulting from wet paint stripping operations. During FY1998, additional evaluation was undertaken to establish the proper treatment technology for the various waste forms in this waste stream.

Summary of FY1998 Activities (including Plan Volume milestone completions)

Waste matrices were determined and a UHC determination was made, thus allowing completion of the technology assessment. Additionally, based on FY1998 field segregation activities, 63 of the original containers were recharacterized as RCRA non-hazardous. For the remaining wastes, incineration of the organic portion of the waste stream at an off-site facility was identified as the preferred treatment technology. For the inorganic portion, encapsulation at an off-site facility has been identified as the preferred treatment option. However, based on treatment facility WACs, this waste stream may not need to be segregated into its organic and inorganic components. Since available technologies are now identified, this waste stream has been moved to Section 3.1.10. Additional waste volume was generated during FY1998 due to normal plant operations and FSFCA sorting operations. (No further action is required for Section 3.3.7.)

3.3.8 MLLW CH, Unknown, Toxic Metals w/Mercury

WV-W037 - Decontaminated Supernatant Waste Stream

The decontaminated supernatant waste stream consists of: 1) decontaminated liquid supernatant generated as a result of sampling activities conducted as part of the IRTS process, and 2) waste contaminated debris (e.g., PPE, wipes, etc.) generated during maintenance of IRTS system. The waste was characterized as hazardous due to the

suspected presence of toxic metals based on process knowledge.

Between 1996 and 2002, the WVDP was in the process of stabilizing HLWs stored in Tank 8D-2 in the Vitrification Facility. Since the decontaminated liquid supernatant originated in Tank 8D-2, the liquid portion of this waste stream was targeted for return to Tank 8D-2, to be included in the vitrification stabilization process.

Summary of FY1998 Activities (including Plan Volume milestone completions)

It was determined that, of the two (2) containers in this waste group, one (1) contains liquid decontaminated supernatant for which the preferred treatment option is on-site vitrification. For the other container containing organic debris, off-site incineration (or alternative debris standard treatment options) was identified as the preferred treatment technology. This waste stream has been moved to Section 3.1.10. (No further action is required for Section 3.3.8.)

3.3.9 MLLW CH, Organic Sludges, Toxic Metals w/o Mercury, Ignitable, Corrosive, or Reactive Only

WV-W042 - Organic Sludges

The organic sludges waste stream is a mixture of grease, oil, paint, dirt, and debris generated as a result of dismantling a radiological contaminated crane. Some testing was performed on the oil, which was drained separately. The data indicates the presence of toxic organics and metals. The wastes have been characterized as mixed based on the testing of the oil. In FY1998, incineration was identified as the preferred treatment technology for this waste stream to meet the LDR treatment standards for each waste code associated with this waste stream.

Summary of FY1998 Activities (including Plan Volume milestone completions)

UHC determinations were not required for RCRA metal wastes (D004-D011) prior to August 24, 1998 (i.e., after completion of the characterization milestone). The new LDR treatment standards for radioactive metals will be required for wastes treated after May 26, 2000. Incineration and/or stabilization at an off-site facility has been determined to be the preferred treatment option for this waste stream. However, the utilization of other alternative debris treatment technologies may also be feasible. Since an available technology exists, this waste stream has been moved to Section 3.1.10. (No further action is required for Section 3.3.9.)

3.3.10 MLLW CH, Uncategorized Heterogeneous Debris, Toxic Metals w/Mercury

WV-W048 - Compacted Waste

The compacted waste stream consisted of both supercompacted 55-gallon drums in B-25 boxes and B-25 boxes containing Waste Reduction and Packaging Area (WRPA) compacted compressible materials. The supercompacting process compacted the entire 55-gallon drum and its contents with a 1,000-ton force. The WRPA process compacts bags of compressible material into a B-25 box with a 50-ton box compactor. Some of the containers potentially contained dried lead- and chrome-based paint and/or fluorescent light bulbs (containing mercury and cadmium). One of the B-25 boxes containing supercompacted drums contained PCBs. The waste was initially characterized conservatively as hazardous because of the above potential noted materials contained in the supercompacted or compacted wastes. During FY2000, an in-depth RCRA characterization was performed, with all but four (4) of the boxes recharacterized as LLW. The remaining four (4) boxes were moved to appropriate sections of the STP. Therefore, this waste stream was removed from the active portion of the STP during FY2000. No further action is required for Section 3.3.10.

Summary of FY1998 Activities

There was no activity on the waste streams in this category during FY1998.

Summary of FY1999 Activities (including Plan Volume milestone completions)

For the WRPA compacted drums, it was determined that sorting can be conducted in accordance with SOP 09-31 (Operation of the Container Sorting and Packaging Facility). As of September 30, 1999, there is no feasible method for sorting supercompacted drums.

Summary of FY2000 Activities (including Plan Volume milestone completions)

During FY2000, an in-depth characterization of the conservatively characterized WRPA compacted and supercompacted waste was conducted, with all but four (4) of the boxes recharacterized as LLW. Of the four (4) remaining boxes, two (2) boxes are still believed to potentially contain lead- contaminated debris and were therefore moved to Section 3.1.9 for further management under the STP; one (1) box is still believed to contain PCB-contaminated debris and was moved to Section 3.1.5; and one (1) box is still believed to contain mercury-containing debris and was moved to Section 3.1.4.

Therefore, since no volume remains in this category and no additional volume is expected to be generated, this waste stream was removed from the active portion of the STP during FY2000. No further action is required for Section 3.3.10.

3.3.11 MLLW CH, Filter Media, Toxic Metals w/o Mercury

WV-W049 - Spent Filter Media with Metals

The spent filter media waste stream consists of spent filter media (diatomaceous earth) generated from filtration of the FRS pool during a campaign to remove materials settled on the bottom of the pool resulting from cutting-up old storage racks prior to removal. The spent filter media was put into a container within a HIC to provide radiation shielding. The waste was characterized as hazardous based on previous testing of the spent media for total metals and calculation over the volume of the HIC. A treatment technology assessment was conducted in FY1998 for this waste stream and stabilization was defined as the preferred treatment technology option. The elevated radiation levels associated with this waste may limit treatment to on-site options only (e.g., planned RHWF or subcontracted mobile unit).

Summary of FY1998 Activities (including Plan Volume milestone completions)

UHC determinations were not required for mixed RCRA metal wastes prior to August 24, 1998 (i.e., after completion of characterization milestone). The new LDR treatment standards for radioactive metals will be required for wastes treated after May 26, 2000. Based on other collected characterization information, stabilization of the waste in an on-site facility (e.g., planned RHWF or mobile on-site unit) is identified as the preferred treatment option for this waste stream. This waste stream has been moved to Section 3.1.11. Therefore there is no further action required for this section.

3.3.12 MLLW CH, Spent Resin

WV-W060 - Spent Resin

This waste stream was added to the STP during the FY1999 annual update process in anticipation of the future generation of spent ion-exchange resin.

During FY1999, planning activities were initiated to identify a waste water treatment system as part of the site's SPDES-permitted CWA system. The treatment system was designed primarily to remove mercury from influents entering the SPDES system. A system using ion-exchange media was approved by NYSDEC in FY2000 and pilot tests were initiated.

During FY2001, pilot testing was completed and the full-scale treatment system became fully operational. It is anticipated that spent media change-out requirements will be minimal, with no more than one change-out expected. The spent media from full-scale system operations is expected to contain mercury above RCRA TCLP limits. Approximately 1.5 m^3 of media would be generated during each change-out (for the two resin beds).

The current volume of spent resin being stored at the WVDP is 0.00 m^3. Approximately 1.5 m^3 is anticipated to be generated over the next five-year generation period (2011-2015).

Anticipated RCRA waste codes, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste stream are presented in Table 3.13.

A. Plan for Characterizing Waste and Undertaking Technology Assessment

The waste will be characterized upon its generation using information obtained during treatability studies (pilot testing) and actual operations. Depending on the concentration of mercury, the LDR treatment subcategory and treatment standard will then be determined. If applicable, UHCs may also be required to be identified and treated to meet UTS. A technology assessment will then be undertaken based on the defined LDR treatment standard.

No additional NEPA review is required for this activity.

Summary of FY2000 Activities

Since the proposed waste water treatment system did not operate and associated spent resin has not been generated, no STP associated activity was conducted during FY2000.

Summary of FY2001 Activities

The full-scale waste water treatment system became fully operational during FY2001. Filter resin change-outs are expected to be minimal, with no spent resin change-outs occurring in FY2001.

Summary of FY2002 Activities

There were no filter resin change-outs during FY2002 and no waste has been generated to date.

Summary of FY2003 Activities

There were no filter change-outs during FY2003 and no waste has been generated to date.

Summary of FY2004 Activities

There were no filter change-outs during FY2004 and no waste has been generated to date.

Summary of FY2005 Activities

There were no filter change-outs during FY2005 and no waste has been generated to date.

Summary of FY2006 Activities

There were no filter change-outs during FY2006 and no waste has been generated to date.

Summary of FY2007 Activities

There were no filter change-outs during FY2007 and no waste has been generated to date.

Summary of FY2008 Activities

There were no filter change-outs during FY2008 and no waste has been generated to date.

Summary of FY2009 Activities

There were no filter change-outs during FY2009 and no waste has been generated to date.

Summary of FY2010 Activities

There were no filter change-outs during FY2010 and no waste has been generated to date.

3.3.13 MLLW CH, Sodium Bearing Wastewater

WV-W061 - Sodium Bearing Wastewater

This waste stream was added to the STP during the FY1999 annual update process in anticipation of the potential future generation and isolation of the SBWW from the on-site tank farm system. During FY1999, planning activities were initiated to identify alternate treatment methods for high-sodium-content waste.

Approximately 11,500 gallons of SBWW was isolated from the HLW system in February 2003. The waste stream is classified as MLLW and is therefore subject to the concentration based treatment standards. The waste has been determined to be MLLW due to the presence, or potential presence, of arsenic, cadmium, chromium, mercury, selenium, and silver, above regulatory limits.

Treatability studies have been conducted and the waste has been determined to be amenable to chemical stabilization and solidification to meet the LDR treatment standards. The treatment will be conducted on-site.

The SBWW was treated and decharacterized in the first quarter of FY2005. There is currently no volume of SBWW in inventory. A detailed accounting of the treatment is presented in the Summary of FY2005 Activities.

Anticipated RCRA waste codes, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste stream are presented in Table 3.13.

A. Plan for Characterizing Waste and Undertaking Technology Assessment

The waste was characterized upon isolation through on-site chemical analysis and process knowledge of the waste stream.

No additional NEPA review is required for characterization and technology assessment activities. Actual treatment may require a new NEPA evaluation.

Summary of FY2000 Activities

There was no STP activity on this future potential waste stream during FY2000.

Summary of FY2001 Activities

During FY2001, it was determined that if the waste cannot be vitrified while it is contained within the existing on-site tank farm system, on-site and/or off-site concentration followed by solidification treatment alternatives would be required to be implemented.

Summary of FY2002 Activities

The high-sodium waste stream was not isolated during FY2002. However, samples of the stream were sent to off-site facilities for treatability studies (Perma-Fix and GTS Duratek). The results of the studies are under evaluation.

Summary of 2003 Activities (including Plan Volume proposed Milestone completion)

In February 2003, approximately 11,200 gallons of SBWW was isolated from the HLW processing system. The waste was sampled and analyzed at the WVDP A&PC laboratory. The samples were analyzed for radioisotopes, physical properties and chemical constituents. The chemical analysis indicated that the waste was hazardous for arsenic, chromium and mercury. The analysis also indicated the potential for cadmium, silver, and selenium to be above TCLP limits, and for the potential presence of antimony, barium, and lead above UHC limits. The A&PC laboratory does not have the capability to analyze for organic constituents. Therefore the samples were not analyzed for organic constituents.

A contract for the on-site treatment of the high-sodium waste was awarded to Perma-Fix. Perma-Fix will be required to confirm the original treatability study and optimize the treatment prior to initiating full scale treatment. Treatment is expected to be completed by the end of FY2004. Treatment will consist of chemical stabilization of the metals and total solidification of the liquid. The treated solids will meet the concentration based treatment standards prior to off-site land disposal.

There were two planning schedule activities that were changed to proposed milestones in the FY2002 update. The first proposed milestone required initiation of characterization of the SBWW within six months of generation, or by the fourth quarter FY2004 if a mechanism is in place to support UHC analysis. As discussed above, the characterization was initiated in February with the A&PC analysis. The second proposed milestone required that a treatment technology be determined and a treatability study be performed by the fourth quarter of FY2004. This proposed milestone was also completed with the treatability studies that were conducted on samples of SBWW in 2001. Perma-Fix is also required to confirm and optimize the treatment before initiating full-scale treatment. This study is scheduled to be completed by the second quarter of FY2004. Documentation of proposed milestone completions is included in Appendix A of the Plan Volume.

Summary of FY2004 Activities

The SBW was characterized in FY2003 with the analytical data provided by the A&PC analysis for RCRA metals. However the analysis did not include any organic constituents. A previous evaluation of the SBWW indicated through process knowledge, the potential for five specific organic constituents. The organic compounds were used by A&PC for radiological analysis and may have been discharged into the HLW tank system. Since the SBWW was isolated from the HLW system it was possible that these constituents were present at or above UHC limits. In February 2004, a representative sample was taken from both SBW holding tanks (5D-15A1 and 5D-15A2). The samples were sent for off-site analysis and all five constituents were below the minimum detection limits. Consequently, the SBWW was determined to have no organic underlying hazardous constituents.

During FY2004, Perma-Fix began preparations for the on-site treatment of the SBWW. A full scale surrogate treatability was successfully performed to demonstrate that the chemical stabilization and cement solidification would treat the SBWW to below the Universal Treatment Standards (UTS), thus rendering the waste RCRA non-hazardous. Perma-Fix then mobilized their treatment system to the WVDP during the fourth quarter of FY2004. The treatment was completed in the first quarter of FY2005. A detailed discussion of the actual treatment will be presented in the FY2005 STP Update.

Summary of FY2005 Activities

As discussed in the Summary of 2004 Activities, chemical stabilization and cement solidification was determined to be an effective treatment train to decharacterize the waste to LLW and to meet the WAC of the NTS for final disposal. Processing of the SBWW continued from October 11, 2004 through November 14, 2004. Approximately 11,500 gallons of SBWW were treated and solidified into seventeen

(17) DOT shipping containers. A one time LDR notification and certification was submitted to the NYSDEC in accordance with 6 NYCRR 376.1(h)(4) (DW:2005:0125, January 18,2005).

All of the available volume of SBWW was treated and decharacterized. It is not expected that additional SBWW will be generated. Therefore, there is no further activity anticipated under this section. If residual volumes of SBWW are discovered in the future they will be managed under Section 3.1.13.

3.3.14 High Activity Residual Liquid Waste Stream

High Activity Residual liquid mixed waste is managed in process and storage tanks resulting from laboratory operations, residual flushing, equipment decontamination, and process building sump collection. This waste stream was added to the STP in FY2005 Update in anticipation of the potential for future generation and isolation of liquid and residual solids in the tank system. Additional characterization for radiological and chemical classification is necessary to support long-term management and treatment determinations. A final Waste Incidental to Reprocessing determination may be made as part of the final characterization efforts.

Mixed waste streams in this category include the liquids in the following tanks:

5D-15A1
5D-15A2
5D-15B
8D-3
8D-4

A waste stream identification number has not yet been assigned to this waste stream. The potential exists that more than one waste stream could result from this waste based on physical, chemical, or radiological characterization.

The waste stream is presented in Table 3.13.

Summary of 2009 Activities

During FY2009, activities were initiated on these wastes:

5D-15A1 – Solidification

Summary of FY2010 Activities

To prepare for stabilization and solidification of the liquid contained in the MPPB Uranium Process Cell tanks, the sample taken from Tank 5D-15A1 in FY2009 was shipped to an off-site lab that is NYS ELAP certified. The sample was analyzed for radioactive, RCRA characteristic metals and general chemical constituents. These results were provided to the WVDP subcontractor that had been retained to develop candidate stabilization/solidification recipes on a laboratory scale. Following successful laboratory testing with a non-radioactive surrogate, an actual sample of the Tank 5D-15A1 liquid was provided to the off-site lab and confirmatory testing was conducted with the most promising recipes. Candidate recipes were successfully developed to achieve the desired waste form that meets LDR criteria. The preliminary design of the full scale WVDP stabilization/solidification system was completed and a design review conducted. The solid ingredient bulk bag delivery system was specified, ordered and received. This system accommodates three 1-ton bags of solid ingredients (such as Portland cement, silica fume and fly ash) on weigh scales with an enclosed conveyor system to deliver the solid ingredients to the mixing vessel. The system also incorporates a bag-break/addition station to accommodate small quantities of dry ingredients. The container fill/mixing station design was partially completed with a preliminary design for the waste container support stands and the control system. A purchase requisition was issued for the IP-2 mixing containers and quotes were received. NYSDEC approval for RCRA Interim Status Operation is pending.

During FY2010, to further enhance corrosion protection of isolated Tanks 8D-1, 8D-2, 8D-3 and 8D-4 and their vaults, the installation of a Tank and Vault Drying System (T&VDS) was initiated. The T&VDS is a ventilation system whereby dehumidified air is introduced into the tanks and vaults enhancing liquid evaporation in the vaults and in the tanks. The dry air injected into the tanks and vaults picks up moisture from the wetted surfaces in the tanks and vaults so that the exhaust air has significantly higher moisture. After the first few days of T&VDS operation, the relative humidity in the tanks and vaults will be reduced. Wetted surfaces and standing liquid in the tanks and vaults will be evaporated over longer periods of time depending on the volume of the residual liquid, dry air flow rate and the area of the wet surfaces. The moist air exiting the vaults passes through a rotary desiccant dryer to remove moisture before the dried air is recirculated back to the vaults. Moist exhaust air from the tanks is routed through the underground ventilation lines to the PVS inlet plenum where the moist air is filtered before passing up the discharge stack. Moisture collected on the rotary desiccant dryer is removed by a heated reactivation air flow supplied from the outside environment. The moist air from desiccant reactivation is ducted to the PVS inlet plenum where it is exhausted through the Permanent Ventilation System. The enhanced air circulation system is expected to achieve an evaporation rate up to approximately 4,000 gallons per year from 8D-1 and 8D-2 and up to approximately 400 gallons per year each from 8D-3 and 8D-4 (previously, prior to installation of T&VDS, rates of 1,000 and less than 50 gallons per year, respectively, were realized). The maximum volume of liquid waste that is expected to be processed by the T&VDS is approximately 60 gallons per day from the tanks.

The T&VDS unit was conditionally approved as a RCRA Interim Status Hazardous Waste Management unit on 10/16/2009 by NYSDEC.

TABLE 3.13
STP: SUMMARY OF WVDP MIXED WASTE STREAMS REQUIRING FURTHER CHARACTERIZATION OR TECHNOLOGY ASSESSMENT

TREATABILITY GROUP(S) 3.3.12 and 3.3.13	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL IN HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MLLWCH, Spent Resin	WV-W060	D009	Low	Low	0.00	0.00	1.50	1,000.00
MLLWCH, Sodium Bearing Wastewater	WV-W061	D007	Low	Low	0.00	0.00	0.00	0.00
High Activity Residual Liquid Waste Stream	NA	D004-D009	Low	Low	89.5	91,110	0.00	0.00

4.0 TRU MIXED WASTE STREAMS

4.1 TRU Wastes - WIPP Status

WVDP TRU waste is currently not eligible for disposal at the WIPP as prescribed by the PEIS ROD discussed in Section 1.5. If, in the future, it is determined that non-defense waste can be disposed at the WIPP, the WVDP may pursue the following strategy, consistent with the national strategy for managing mixed TRU waste and the WM PEIS RODs.

The current DOE strategy for management of MTRU waste is to segregate MTRU wastes from MLLW; to maintain the MTRU wastes in safe interim storage; to characterize, certify, process (if necessary), and package the wastes to meet the WAC of the WIPP; and to permanently dispose of applicable MTRU waste in the WIPP. Under this strategy, no treatment other than what is necessary to meet the WIPP WAC is anticipated. The National Defense Authorization Act for FY1997 included a subsection that prescribed significant changes to the way that RCRA applies to the WIPP. The Act states that TRU mixed waste designated by the Secretary of the DOE for disposal at the WIPP is exempt from the treatment standards and is not subject to the Land Disposal Restrictions. The WIPP Land Withdrawal Amendments Act, as amended in 1996, limits the capacity of the WIPP to 6.2 million ft^3 and also specifies that only defense TRU waste may be disposed at the WIPP.

As identified in Section 1.5, relative to the WM PEIS ROD issued on January 20, 1998, and coordinated with the WIPP SEIS-II ROD, each site having or generating TRU waste will prepare and store its TRU waste on site (except for Sandia National Laboratory, which will transfer its TRU waste to Los Alamos National Laboratory).

4.2 TRU Waste Not Destined for the WIPP

The WVDP has the following TRU waste streams that are not destined for, or not expected to go to, the WIPP:

4.2.1 MTRU CH/RH, Elemental Lead, Debris, Solids, and Residues, Toxic Metals and/or Organics

WV-W024 - TRU Lead and Debris

Mixed waste inventory numbers, RCRA waste codes treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste stream is presented in Table 4.1.

A. Description of Technology and Capacity Needs

Elemental lead waste streams that can be decontaminated and reused are not subject to LDR treatment requirements. For those TRU elemental lead waste streams that cannot be decontaminated and reused (i.e., contain fixed radioactive contaminants) and for TRU lead, and lead/mercury- or other metal/organic-containing debris, the technology-based LDR treatment standard is macroencapsulation (for elemental lead) or the alternative treatment standards for hazardous debris (for debris). Residues and solids that are not debris require treatment of the toxicity characteristics and UHCs to the concentration based universal treatment standards.

As of September 30, 2010, the volume of TRU lead and debris being stored at the WVDP is 136 m^3. This volume represents the total capacity of the waste containers. However, the actual volume of mixed waste after processing of the containers is expected to be less. It is anticipated that an additional 7.01 m^3 will be generated over the next five-year generation period (2011-2015). The TRU lead and debris is stored on site in 70-ft^3 boxes, metal 55-gallon drums, and other suitable containers.

B. Preferred Options and Other Options

The preferred treatment option for contaminated TRU lead is radiological decontamination (on-site and/or off-site) so that the resultant lead can be reused or reclassified and managed as MLLW. On-site decontamination activities were initiated in FY1997.

For TRU lead which cannot be successfully decontaminated on site, consideration for off-site decontamination at a commercial facility which can accept TRU lead for recycling will be given. However, during July 2000, in part in response to public concerns, the DOE Headquarters issued a moratorium on the recycling and commercial sale of recycled scrap metal (including lead). To resolve the issues associated with the moratorium, on July 12, 2001, the DOE announced its intent to prepare a Programmatic Environmental Impact Statement (PEIS) to address metal recycling within the DOE complex (66 FR 36562). The Federal Register notice identified a targeted EIS issuance date of July 2002, with the subsequent execution of an associated ROD. A ROD is expected to be issued by third quarter of FY2004. As of September 30, 2007, the ROD was not issued. Lead forms that are not able to be decontaminated at a commercial facility will be candidates for macroencapsulation at a permitted facility which can accept TRU lead. Potential treatment options may also be available through the DOE Broad Spectrum Treatment Contracts. Such lead will be evaluated to determine if it complies with all requirements of the commercial facility's WAC prior to shipment to the facility.

Macroencapsulation is the preferred treatment option for fixed contaminated lead wastes that cannot be decontaminated. If the waste is not elemental lead or elemental mercury (e.g., lead debris waste that is contaminated with mercury), the alternative treatment standards for hazardous debris would be applicable. Residues and solids that are not debris require treatment of the toxicity characteristics and UHCs to the concentration based universal treatment standards.

Macroencapsulation is an immobilization process that yields a solid "stabilized" waste form using polymer encapsulation or cementation. Macroencapsulation is used on solid materials (such as lead, ash, and debris) that are difficult to treat for removal of either the hazardous or radioactive component. Macroencapsulation is a proven, cost-effective method for stabilizing a variety of solid waste streams.

The EA, 1998 CX, and the WVDP WM EIS ROD discussed in Section 1.5.7, do not provide NEPA coverage for treatment and disposal of MTRU. As noted in Section 1.4, disposal of WVDP MTRU at the WIPP is currently ineligible by the WIPP SEIS-II ROD.

Summary of FY1996 Activities

There was no activity on this waste stream during FY1996. The volume of this waste was adjusted due to the reclassification of one of the containers (i.e., the lead in the container is being held for reuse and is therefore not waste).

Summary of FY1997 Activities (including Plan milestone completions)

Decontamination of TRU elemental lead was performed during FY1997 using hand wipe-down techniques. Waste packages that contained lead waste were sorted/segregated prior to decontamination operations to identify lead from any non-lead wastes. The non-lead wastes were repackaged as TRU waste. This activity is documented in Appendix A of the FY1997 Plan Volume.

Summary of FY1998 Activities (including Plan Volume milestone completions)

Detailed isotopic analytical data collected through a sampling and analysis program of the elemental lead demonstrated that several of the waste containers in this category should be classified as Class A and not TRU as originally suspected. As a result, these reclassified elemental lead wastes have been transferred to Section 3.1.6 and will be dispositioned accordingly. Additional suspect TRU lead- and mercury-containing debris was identified during FY1998 and has been added to this group.

Summary of FY1999 Activities (including Plan Volume milestone completions)

Based on available information, TRU wastes in this category are either Class A or Class C and contain approximately 11,210 nCi/g transuranics. Regardless of Class, it was determined that TRU wastes in this category do not meet INEEL's WAC for incineration since the wastes contains greater than the WAC-specified 0.1 nCi/g. Additionally, Class C TRU wastes, according to the Stipulation of Compromise, cannot be shipped off-site until an EIS ROD or other agreement is approved. Plan Volume milestones have been revised to reflect these conditions.

Summary of FY2000 Activities (including Plan Volume milestone completions)

As of September 30, 2000, there is no commercial or DOE facility capable of accepting and treating TRU mixed waste. INEEL's planned (for FY2003) Advanced Mixed Waste Treatment Facility (AMWTF) may have the capacity to treat certain TRU mixed waste. However, the facility is planned to be initially used to treat INEEL waste with actual receipt of off-site waste not expected for several years after that. ATG is also planning to accept certain TRU wastes for treatment.

Additionally, as of September 30, 2000, the requirements of the Stipulation of Compromise have not been completed relative to the disposition of Class B and C waste. Also, NEPA documentation is in place for the treatment and disposal of Class A, B, and C waste covered under the STP but is not in place for waste classified as mixed TRU waste.

During FY2000, approximately 3,353 kg of additional suspect TRU, potential mercury-containing, debris were generated during normal facility operations (i.e., filter change-out). Additionally, several containers of metal-containing debris that were originally listed under Section 3.1.10, but were found to be suspect TRU were moved to this section to better facilitate their management.

Summary of FY2001 Activities (including Plan Volume milestone completions)

As identified above, since the waste in this category could not be shipped off site by the fourth quarter of FY2000, an alternative schedule and associated milestone were developed in the first quarter of FY2001 and have been incorporated into the FY2001 Plan Volume.

During FY2001, approximately 1,740 kg of additional suspect TRU elemental lead and debris were generated during normal facility operations and preliminary facility decontamination activities. Since annual generation rates are higher than those predicted in earlier years, the projected five-year generation rate has been increased (see Table 4.1).

Summary of FY2002 Activities

During FY2002, an additional 0.21 m^3 of this waste was generated. Also, high-activity waste volumes for containers of waste stored in the CPC-WSA were added to the inventory (169.75 m^3).

Summary of FY2003 Activities

During FY2003, fourteen containers of TRU vacuum filters from cleaning the bottom of the fuel storage pool floor were generated. The containers were originally characterized as mixed waste based upon a total metals analysis of pool bottom sludge and sediment. At the time of that analysis the A&PC lab did not have the capability to test for all RCRA metals, nor did it have TCLP capability. The samples were analyzed for total barium, chrome, and mercury. The analysis indicated that the sample contained chromium at more than 20 times the TCLP limits. Consequently, the filters were conservatively characterized as hazardous for chromium. It was suspected that the pool bottom sludge and sediment contained stainless steel fines and particles from the canister rack cutting operation. Chrome is a significant constituent of stainless steel and would be expected to be detected in a total metals analysis. However, the chrome component of stainless steel would not be expected to be leached and consequently detected above regulatory limits in a TCLP analysis.

In July 2003, A&PC developed the procedures for TCLP of all RCRA metals. A duplicate sample of the pool bottom sludge and sediment was submitted to the lab for TCLP analysis. The samples results passed for all RCRA metals. Consequently, the containers were recharacterized as radioactive non-hazardous waste and removed from the STP.

Summary of FY2004 Activities

Two D&D projects, the VCD and General Process Cell (GPC) generated a significant quantity of MTRU waste in 2004. The VCD generated four large pieces of equipment and three liners of debris that are suspected of containing mercury. The GPC D&D operation generated 20 drums of floor debris that were sampled and determined to contain lead. Both waste streams are being stored in the HLWISF. The same two projects also generated most of the additional waste that was sent to LAG storage.

The VCD equipment is currently being managed as mixed waste containers because they are suspected of containing residues and solids contaminated with mercury. The extremely high dose rates and inaccessibility of the equipment make it difficult to determine the exact quantity and form of the mixed waste. Consequently, the entire volume of the units was conservatively characterized as mixed waste. At the point that the waste is removed from the HLWISF for processing or preparation for off-site shipment, a detailed evaluation will be conducted.

Summary of FY2005 Activities

The VCD project generated additional MTRU waste to be managed under this section. An additional 2.29 cubic meters of waste for storage in the LAG system were generated along with 1.79 cubic meters for storage in HLWISA.

Summary of FY2006 Activities

During FY2006, four (4) large containers of waste that had been stored in CPCWSA were taken into the RHWF for processing. The containers were generated during the Chemical Process Cell decontamination project and were characterized as mixed waste for the potential of TC mercury from light bulbs and TC lead. Container J-12 consisted primarily of debris from the CPC D&D project and all of the waste was inspected and sorted for LLW disposal. Containers J4, J6, and J7 were inspected and any hazardous waste constituents were segregated and packaged for storage. A total of four (4) shield drums of mixed waste were

generated from the processing of these four containers. Each of the original four containers were 12.23 cubic meters, thereby resulting is a net reduction of 48.90 cubic meters.

During the year three drums of waste were recharacterized as MLLW and transferred to the appropriate sections of the STP. An additional 25 drums of MTRU waste were generated or characterized during the year and placed into storage in the HLWISA.

Summary of FY2007 Activities

Three drums of cement solidified acidic lab solutions with high levels of chlorides, chromium and nickel were generated. The liquids were generated from dissolving stainless steel vessel and pipe coupons in concentrated acid. The liquids were solidified to better store the high alpha activity waste. There were no other changes or activities for this STP section in FY2007.

Summary of FY2008 Activities

During FY2008 TC-193 was transferred from storage in the CPCWSA to LAG for further STP management. Two TC boxes were recharacterized from MTRU to MLLW and transferred to WV-W020 for further STP management. Three TD drums were recharacterized as MLLW and shipped to Perma-Fix Northwest for treatment. Fourteen TD drums were generated or recharacterized from MLLW to MTRU during the year. J1 was processed through the RHWF during the year with the vast majority of waste processed and repackaged as non-mixed waste and any lead removed from the container being repackaged as MLLW and managed in the corresponding STP sections. J5 was also processed during the year but it was not completely recharacterized as of September 30, 2008 and was therefore still listed in the inventory for this section as of September 30, 2008

Summary of FY2009 Activities

During FY2009 ten containers were recharacterized from MTRU to MLLW: three were transferred to WV-W002, four were transferred to WV-W020, two were transferred to WV-W028, and one was transferred to WV-W035 for further STP management.

During FY2009 five containers previously conservatively characterized as mixed waste were processed, found to contain no mixed waste, and were consequently recharacterized as non-mixed LLW.

During FY2009 two containers of MTRU fluorescent light bulbs were generated.

Summary of FY2010 Activities

During FY2010, fifteen new containers were generated and characterized for waste stream WV-W024, including two LWTS evaporator sections (reboiler and separator). Twenty-two containers were processed and re-characterized which resulted in a significant reduction of the volume of mixed TRU waste, while at the same time, increasing the volume of some mixed low-level waste streams.

TABLE 4.1
STP: SUMMARY OF POTENTIAL MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR ROAST/RETORT/INCINERATION/MACROENCAPSULATION

TREATABILITY GROUP(S) 4.2.1	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MTRU, CH/RH, Elemental Lead and Debris, Toxic Metals and/or Organics	WV-W024	D006, D008, D009	Medium	Medium	136	38,220	7.01	5,000.00

4.2.2 MTRU CH/RH, TRU Liquids

WV-W050 - TRU Liquid Wastes
WV-W051 - TRU Corrosive Wastes

This waste category was moved from Section 4.3.2 to Section 4.2.2 during FY1998. The legacy TRU acidic metal aqueous waste stream (WV-W050, WV-W051) consisted of alpha- contaminated laboratory liquids, associated with high-level waste analyses, that were identified during previous laboratory decontamination activities. The laboratory liquids were transferred to the on-site Vitrification Facility for treatment during FY1999, with no additional waste anticipated to be generated in the near future. Therefore, this waste stream was removed from the active portion of the STP during FY2000. During FY2001, D&D activities resulted in the generation of additional TRU aqueous waste. The decontamination of Main Process Plant cells (Product Purification Cell and Extraction Cells) is expected to result in the generation of TRU corrosive wastes.

Mixed waste inventory numbers, RCRA waste codes, treatability groups, volume, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste stream are presented in Table 4.2.

A. Description of Technology and Capacity Needs

The LDR treatment standard for this corrosive metal-containing waste stream is deactivation/stabilization.

Legacy waste inventory was treated during FY1999. During FY2001, additional TRU aqueous waste was generated. As of September 30, 2010, the volume being stored at the WVDP is 2.01 m^3. Approximately 0.25 m^3 of additional waste is anticipated to be generated over the next five-year generation period (2011-2015).

B. Preferred Options and Other Options

The preferred treatment option for this TRU waste stream is on-site deactivation/stabilization. However, until an ultimate disposal facility/pathway are determined (see discussion in Section 4.1 and 4.2.1), associated disposal facility waste acceptance/treatment criteria cannot be determined.

Summary of FY1997 Activities

There was no activity on the waste streams in this category during FY1997.

Summary of FY1998 Activities (including Plan Volume milestone completions)

During FY1998, based upon information ascertained during characterization milestone activities, it was determined that on-site vitrification is the preferred treatment option for this waste stream; therefore this waste stream was moved from Section 4.3.2 to 4.2.2 and Plan Volume milestones were developed.

Summary of FY1999 Activities (including Plan Volume milestone completions)

Existing waste inventories were dispositioned to the on-site vitrification system during the first quarter of FY1999.

Summary of FY2000 Activities

Since no waste was generated during FY2000, nor was additional waste expected to be generated, this waste stream was removed from the active portion of the STP.

Summary of FY2001 Activities

During FY2001, one container (48.6 kg) of TRU aqueous waste was unexpectedly generated during D&D activities (i.e., draining of high-level waste reprocessing pipe lines) and has been placed in storage.

Summary of FY2002 Activities

There was no activity on the waste streams in this category during FY2002.

Summary of FY2003 Activities

There was no activity on the treatability group during FY2003.

Summary of FY2004 Activities

Five containers of TRU liquid were added to this section in FY2004. The mixed waste was generated from the Product Purification Cell (PPC) D&D operation late in FY2003and was characterized as mixed waste in FY2004. The waste is classified as MTRU for corrosivity. No additional activities were conducted this year.

The VCD project generated 1.19 m^3 of waste that was added to this section of the STP. The submerged bed scrubber (SBS) consists of two vessels that are suspected of containing liquid contaminated with mercury. The extremely high dose rate and inaccessibility of the equipment make it difficult to determine the exact quantity and form of the mixed waste. At the point that the waste is removed from the HLWISF for processing or preparation for off-site shipment, a detailed evaluation will be conducted. Once emptied, if the SBS is determined to be hazardous, it will be managed under Section 4.2.1. If the liquid is determined to contain elemental mercury LLW the waste will be managed under Section 3.1.7

Summary of FY2005 Activities

There was no waste generated under this section and no activities were performed.

Summary of FY2006 Activities

There was no additional waste added to this section during the year. However, three partial drums of XC-2 and PPC tell tale wastes that were managed in the A&PC laboratory under satellite accumulation are being evaluated for solidification.

Summary of FY2007 Activities

There was no additional waste added to this STP section this year. However, there is an adjustment to the volume of waste in inventory. A volume of 1.55 m^3 was reported last year but the actual volume is 1.59 m^3.

Summary of FY2008 Activities

There were two containers of waste added to this section during the year. The first was a container of tell-tale liquid that was recharacterized from TRU to MTRU and assigned to this section. The liquid was hazardous for TC metals. The second container was generated this year from draining and tell-tale of a pump niche in the Upper Warm Aisle.

Summary of FY2009 Activities

During FY2009 one container of pump niche liquid was added to this waste stream.

Summary of FY2010 Activities

During FY2010, one new container, containing liquid samples from tank 5D-15A1, was generated and characterized for waste stream WV-W050.

TABLE 4.2
STP: SUMMARY OF MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR VITRIFICATION/DEACTIVATION AND STABILIZATION

TREATABILITY GROUP(S) 4.2.2	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL IN HAZARDOUS WASTE DETERMINATION	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
MTRU CH/RH, TRU Liquids	WV-W050	D002, D005, D006, D007, D008, D009, D010	Med	Med	2.01	1,579	0.25	86

4.3 TRU Waste Streams Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

This section includes TRU waste that must be fully characterized before appropriate treatment technologies can be identified. It also includes waste streams for which a technology assessment has not been done, so that the technology and treatment needs cannot yet be identified. As the wastes are further characterized and technology assessment completed, plans and schedules for developing treatment capacity for these mixed waste streams will be developed.

Summary of FY1996 and FY1997 Activities

There was no activity on these waste streams during FY1996 and FY1997. Additional wastes were generated due to maintenance activities. Volumes were also adjusted to reflect the entire container contents since segregation may not be possible, especially in the case of the roughing filters. Additional waste codes were added to WV-W050 and WV-051 based on review of characterization data and information.

4.3.1 MTRU CH, Solid Process Residues

WV-W041 - TRU Dried Paint Chips with Metals Waste Stream

The TRU paint with metals waste stream was a mixture of dried paint chips and other materials, such as anti-contamination clothing, paint cans, and floor sweepings. The waste was initially characterized as hazardous due to the suspected presence of lead- and chromium-based paint chips based on process knowledge. During FY1998 milestone characterization activities, it was determined that the waste stream was non-hazardous; therefore, this waste stream has been removed from the active portion of the STP.

Summary of FY1998 Activities (including Plan Volume milestone completions)

During FY1998 milestone activities, this waste stream was recharacterized as non-hazardous waste. The recharacterization was based on additional process knowledge information indicating that the paints that were used in the waste generation areas associated with ten waste containers did not contain RCRA hazardous metals. For the other two (2) containers in this group, examination of the containers showed that for one (1) of the containers, no paint waste was present and for the other container, ten spray paint cans were found. The spray paint cans were then used for their intended purpose, that is, for fixing radiological contamination. Therefore, no further action is required for this waste stream under the STP.

4.3.2 MTRU CH, TRU Liquids

WV-W050 - TRU Metal Aqueous Waste
WV-W051 - TRU Corrosive Wastes

The TRU metal aqueous waste stream (WV-W050, WV-W051) consists of alpha-contaminated laboratory liquids, associated with high-level waste analyses, that were identified during previous laboratory decontamination activities.

Summary of FY1998 Activities (including Plan Volume milestone completions)

During FY1998, based upon information ascertained during characterization milestone activities, it was determined that on-site vitrification is the preferred treatment option for this waste stream; therefore, this waste stream was moved to Section 4.2.2.

4.3.3 MTRU CH, Aqueous Liquids, Toxic Metals, Corrosive

WV-W051 - TRU Corrosive Laboratory Liquids

This waste stream was moved to WV-W050 (Section 4.3.2 during FY1997).

4.3.4 MTRU RH, RH TRU Debris/Solids

WV-W052 - RH TRU Debris/Solids

The TRU Roughing Filter Waste Stream in this category consisted of 24-inch x 24-inch x 12-inch prefilters which were removed from the Ventilation Exhaust Cell (VEC) plant ventilation system. The waste was initially characterized as hazardous due to worst-case process knowledge estimates (i.e., worst-case air emission data) of the amounts of toxic metals exhausted to the filters from lab operations during their service life. During FY1998 milestone characterization activities, it was determined that, based on additional process knowled0ge information, much lower hazardous metal concentrations (i.e., below regulatory levels) would be present. Therefore, this waste stream was recharacterized as non-hazardous and was removed from the active portion of the STP during FY1998.

Summary of FY1998 Activities (including Plan Volume milestone completions)

The waste stream was recharacterized as non-hazardous TRU waste during FY1998 milestone activities. The recharacterization was based on additional process knowledge information indicating much lower hazardous metal concentration (i.e., below regulatory levels) than previously assumed. Therefore, no further action is required for this waste stream under the STP.

5.0 HIGH-LEVEL MIXED WASTE STREAMS

5.1 High-Level PUREX and THOREX Waste Streams

The following treatability groups and WVDP waste streams are included in this section:

HLW RH, Inorganic Sludges/Particulates, Toxic Metals w/Mercury

WV-W001 - High-Level Waste Sludge (PUREX)

HLW RH, Aqueous Liquids, Toxic Metals w/o Mercury

WV-W011 - THOREX Waste

Mixed waste inventory numbers, RCRA waste codes treatability groups, volumes, and level of confidence associated with RCRA characterization data and treatment characterization data for the above waste streams are presented in Table 5.1.

5.1.1 Description of Technology and Capacity Needs

The technology-based LDR treatment standard for HLW, generated during the reprocessing of spent fuel, is vitrification. PUREX and THOREX wastes were stored in Tank 8D-2, with 8D-1 as a backup tank. Each tank is contained in a separate concrete vault. The vaults are equipped with a liquid level indicator, recorder, and alarm system. Operation of the Vitrification Facility tank system is conducted in accordance with a secondary containment report previously submitted to NYSDEC and EPA. In order to produce an optimized, high-performance vitrified waste form, both the PUREX and THOREX wastes were pre-conditioned. Sulfates resulting from the original process acids were removed from the PUREX HLW sludge to produce a high-quality durable glass. This was accomplished by "washing" the sludge and "filtering" the liquids using ion-exchange media, creating separate high and low-level fractions. The low-level fraction was treated in the Integrated Radwaste Treatment System (IRTS) where it was stabilized into cement drums which meet concentration-based LDRs. The volume of the low-level fraction fluctuated with the addition of caustic water to "wash" the PUREX and THOREX. Through September 2002, the HLW and spent zeolite filtering media were being processed through the Vitrification Facility where it was made into borosilicate glass, which was then cast into stainless-steel canisters. At the completion of the first phase of vitrification (i.e., prior to potential tank washing or enhanced heel removal activities), approximately three percent of

the total HLW volume remained in the HLW tanks as a heel, along with contaminated processing equipment. The heel consisted of washed PUREX/THOREX sludge and spent zeolite-filtering media and was considered a HLW mixed waste. After completion of the first phase of vitrification, the WVDP initiated plans to wash the tanks and started vitrification of the tank heels. As is discussed in Section 1.5.7, an evaluation of final closure/treatment options for the tanks is being performed as part of the WVDP and WNYNSC decommissioning and/or long-term stewardship EIS.

Because of the nature of vitrification operations, it was not possible to accurately calculate the volumes for these treatability groups on a given date. As of September 30, 2002, 275 canisters of HLW were vitrified. No additional HLW from the reprocessing of nuclear fuel will be generated over the next five-year generation period (FY2008-2012 The waste remaining in Tanks 8D-1 and 8D-2 consist of tank heels.

During the vitrification campaign, waste generation was minimized by recirculating process effluents/solutions back into the vitrification process. These activities included:

The Waste Header System received liquid wastes from the Concentrator Feed Makeup Tank (CFMT), Melter Feed Hold Tank (MFHT), Submerged Bed Scrubber System (SBS), Vitrification Cell sumps, Sample Station, and rinse water from the Canister Decontamination Station. Liquids collected by the Waste Header System flowed to Tank 8D-4 and was recirculated into the vitrification process.

The HLW, mixed in the CFMT, was partially nitrated with recycled nitric acid from the SBS.

Off-gas from the Slurry-Fed Ceramic Melter (SFCM) was routed to and processed in the SBS.

SBS scrubber-solution-containing particulates was recirculated to the CFMT. The Vessel Vent Header collected gases from all in-cell process vessels, except the SFCM.

The Vessel Vent Header Condenser condensed steam and entrained moisture from vitrification processes. The condensate then flowed to Tank 8D-3 and, based on analysis, was sent back to the vitrification process or treated by the Liquid Waste Treatment System (LWTS).

The gaseous effluents from the SBS and the Vessel Ventilation system contained particulates that were filtered by one of two parallel and redundant High-Efficiency Mist Eliminator (HEME) units. Wash water from operation of the HEME units was recirculated to the SBS and thus periodically transferred to the CFMT.

Decontamination solution from operation of the Canister Decontamination Station was recycled back to the SBS and thus periodically transferred to the CFMT.

Certain liquid wastes resulting from analytical activities were, based on analysis, recirculated into the vitrification process.

As of September 2002 the vitrification campaign was completed.

5.1.2 Preferred Options and Other Options

On-site vitrification of the high-level fraction and stabilization of the low-level fraction are the only options considered for these waste streams.

The Vitrification Facility was used to process the high-level waste sludge (from THOREX/PUREX waste) and spent zeolite from the Supernatant Treatment System (STS) into borosilicate glass from 1996 to 2002. The vitrification process began with the preparation of the waste through mixing and blending with glass formers (principally oxides

of silicon, boron, and sodium) for introduction into the SFCM. The feed slurry and borosilicate glass product were sampled and analyzed to ensure that the glass met the waste acceptance specifications for HLW.

The borosilicate glass, containing HLW, was cast into 0.6-m x 3-m stainless-steel canisters. Each canister contains about two tons of borosilicate glass and 100,000 Ci of radioactivity. A total of 275 canisters were produced during facility operations. After being filled, cooled, and decontaminated, the canisters were placed into storage in the shielded Chemical Process Cell (CPC) on site pending shipment to a federal repository.

Waste analysis activities were performed during radioactive vitrification operations for process control purposes to assure the quality of the glass. These process control analyses are sufficient to meet the Waste Analysis Plan requirements. The final product was sampled on an interval basis (e.g., every ten canisters).

The VF has interim status under New York State's Hazardous Waste Management Program. A hazardous waste stable-state closure plan was submitted to NYSDEC and EPA in July 2002. The NYSDEC responded that their preference was for clean closure of the VF. The WVDP is currently in the process of dismantlement of the facility. Discussions pertaining to the closure of the VF are ongoing.

The WVDP initiated a Vitrification Cell Dismantlement (VCD) Project. The project encompassed the removal of the Vitrification System components. The components were radiologically classified and characterized appropriately under RCRA. The VCD project was completed in FY2005.

No additional NEPA review or documentation is required for this activity.

Summary of FY1996 Activities

On July 5, 1996, the first radioactive canister of HLW was poured, thereby completing the last milestone for HLW. Documentation of the completion of vitrification milestones (due FY1997) can be found in Appendix A of the FY1996 Plan Volume. Because of the nature of the vitrification operations, it was not possible to accurately calculate the volumes for these treatability groups on a given date.

Summary of FY1997 Activities

Of the 142 canisters filled as of September 30, 1997, 116 canisters were filled in FY1997. FY1997 STP milestones were met in FY1996 (see Appendix A of the FY1997 update).

Summary of FY1998 Activities

Of the 223 canisters filled as of September 30, 1998, 81 canisters were filled in FY1998. The first phase of vitrification was completed in June 1998.

Summary of FY1999 Activities

Of the 241 canisters filled as of September 30, 1999, 18 canisters were filled in FY1999.

Summary of FY2000 Activities

Of the 250 canisters filled as of September 30, 2000, nine (9) canisters were filled in FY2000.

Summary of FY2001 Activities

Of the 261 canisters filled as of September 30, 2001, 11 canisters were filled in FY2001.

Summary of FY2002 Activities

Waste vitrification operations were completed in September 2002. The final count of canisters containing vitrified high-level waste is 275. No additional waste is expected to be generated for this waste stream.

Summary of FY2003 Activities

Vitrification dismantlement was initiated.

Summary of FY2004 Activities

The majority of mixed waste generated from the VCD project was generated in FY2004. A total of 188 containers were generated. Of that total, 21 were characterized as MTRU or MLLW and are being managed in their respective sections of the WVDP STP.

Summary of FY2005 Activities

The VCD project was completed during FY2005. The vast majority of waste generated from the project was accounted for in the FY2004 summary above. An additional 2.29 m^3 of MTRU was placed into LAG storage, along with an additional 1.79 m^3 in the HLWISA during FY2005.

Summary of FY2006 Activities

There was no activity for this section during the year

Summary of FY2007 Activities

There was no activity for this section during the year

Summary of FY2008 Activities

There was no activity for this section during the year

Summary of FY2009 Activities

There was no activity for this section during the year

Summary of FY2010 Activities

There was no activity for this section during the year.

TABLE 5.1
STP: SUMMARY OF POTENTIAL MIXED WASTE TREATMENT NEEDS AT THE WVDP FOR HLW VITRIFICATION

TREATABILITY GROUP(S) 5.1.1	WASTE STREAM(S)				QUANTITY OF WASTES			
	ID# MWIR	WASTE CODES	CONFIDENCE LEVEL IN WASTE CHARACTERIZATION FOR TREATMENT	CONFIDENCE LEVEL FOR HAZARDOUS WASTE DETERMINATION	INVENTORY AS OF SEPTEMBER 30, 2010		PROJECTED 5-YR GENERATION (2011-2015)	
					m^3	kg	m^3	kg
HLW RH, Inorganic Sludges/Particulates, Toxic Metals w/Mercury	WV-W001	D005, D006, D007, D009, D010	High	High	NA*	NA*	0.00	0.00
HLW RH, Aqueous Liquids, Toxic Metals w/o Mercury	WV-W011	D002, D005, D006, D007, D010, D011	High	High	NA*	NA*	0.00	0.00

* As of January 17, 2003, tank residuals (heels) are being managed under the tank closure process.

6.0 FUTURE GENERATION OF MIXED WASTE STREAMS

The FSFCA specified terms and conditions under which the DOE, NYSERDA, and the Site Contractor were to identify, store, treat, and minimize the generation of radioactive mixed wastes prohibited from land disposal and come into compliance with the requirements for RCRA interim status treatment and storage facilities. As mixed waste streams were better characterized and/or identified in accordance with the conditions of the FSFCA, they were incorporated into annual updates of the STP. These waste streams will continue to undergo an assessment to identify technology needs, treatment capabilities, existing and planned treatment systems, and treatment options.

Pursuant to the FSFCA, a Historical Waste Inventory Report was prepared that identified a need to better characterize LLW in storage. Additional mixed waste has been identified as a result of these activities.

Waste minimization activities have already been initiated in an attempt to minimize the amount of future mixed waste generated. These activities include the use of new laboratory procedures that greatly reduce the amount of organics generated and/or the use of non-hazardous reagents, elimination of waste streams by attrition, reuse (contaminated lead), and good operating practices.

6.1 Environmental Restoration and D&D Waste

Environmental restoration activities are dependent, in part, upon the site EISs for waste management and decommissioning and/or long-term stewardship (see Section 1.5). In addition, the WVDP has performed a RCRA Facility Investigation (RFI) pursuant to the requirements of a RCRA 3008(h) Order. The RFI required the investigation of possible releases of hazardous constituents from a number of solid waste management units. No remedial activities have been required as a result of the RFI.

It is expected that mixed waste will continue to be generated from routine D&D activities. Mixed wastes generated are likely to be similar to those already identified in the Plan (e.g., oils from cranes and equipment, lead used as shielding, heels in HLW tanks). Minimal new mixed waste streams are expected to be generated prior to the EIS RODs. In the event new waste streams are generated, treatment technology needs and options will be identified in a format similar to Section 3.0.

6.1.1 Description of Technology and Capacity Needs

Not applicable at this time.

6.1.2 Anticipated Schedule for Incorporating New Waste Streams into the Plan

Additional waste streams identified as a result of these ongoing activities will be incorporated into the annual STP updates.

6.2 Radiologically Contaminated Mixed Waste Used for Shielding Purposes

Historical activities of the 1980s generated high-activity wastes that were generated during the clean-out process of the Chemical Process Cells in preparation of the vitrification activities. These high-activity wastes were placed in the CPC-WSA. Due to the high-dose rates from these waste containers, SUREPAK containers (containing wastes) were utilized for shielding purposes and placed in a configuration that surrounds and inner area of high-dose waste containers. Characterization of the containers within the SUREPAKs was performed under the FSFCA. The FSFCA characterization identified 35 drums of mixed wastes located in ten of the SUREPAKs used for shielding in the CPC-WSA. Three drums were removed from the SUREPAKs and recharacterized as LLW. There were 26 drums in this category as of 9/30/2009. Mixed waste containers stored in the CPC-WSA were being utilized for shielding purposes. This waste stream was added to Table ES-5 in FY 2007 to provide quantification of the waste in this section.

During FY2008, five drums were removed from SUREPAKs and processed in LAG. Two drums were recharacterized as LLW. Two of the remaining drums were assigned to WV-W020 and one was assigned to WV-W002.

During FY2009, one drum was removed and processed. It was overpacked and recharacterized as LLW.

During FY2010, the remainder of the mixed waste drums located inside the ten SUREPAKs were removed and managed according to their designated waste streams in the STP or were designated as LLW based on on-site inspection and sorting activities.

7.0 STORAGE REPORT

The DOE is currently storing mixed waste in compliance with RCRA interim storage requirements, pending the development of treatment capacity and implementation of the STP.

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 and 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.

Treatment residues may need to be returned to the WVDP for storage pending a decision regarding disposal. Return of process residues will be arranged on a case-by-case basis between the treatment facility and the WVDP. All process residues returned will be stored in compliance with New York State's Hazardous Waste Management Program requirements in the permitted storage facilities at the WVDP. In some cases, a Residuals Management Contingency Plan may be required by the states in which the treatment facility resides.

8.0 PROCESS FOR EVALUATING DISPOSAL ISSUES IN SUPPORT OF THE SITE TREATMENT PLAN (STP) DISCUSSIONS

The FFCAct requires the DOE to develop a plan for the treatment of mixed wastes. The FFCAct does not impose any similar requirement for the disposal of mixed wastes after they have been treated. However, the DOE recognizes the need to address this final phase of mixed waste management.

As discussed in Section 2.2 and other applicable sections of this STP, treatment options and off-site shipping schedules are impacted by the ability to dispose of the treated residues.

The 2000 ROD for MLLW (65 FR 10061) identifies Hanford and the NTS for the disposal of residuals from the treatment of MLLW (Section 1.5). The potential disposal of off-site MLLW residues at the NTS and Hanford cannot be implemented until Nevada issues a Part B permit for the NTS's MLLW disposal facility and Hanford's Solid Waste EIS ROD is issued. The ROD for Hanford was issued in FY2004 but precludes acceptance of MLLW from out-of-State generators. NTS began accepting MLLW treatment residues from out-of-State generators in December 2005.

9.0 FUNDING REPORT

Based upon information obtained to date, the DOE/WVDP anticipates receiving a final FY2011 appropriation consistent with the budgeted appropriation. This level of funding will fully support regulatory compliance. DOE-WVDP will provide NYSDEC with available information regarding current and anticipated out-year funding profiles by March 31, 2011.

SITE TREATMENT PLAN
PLAN VOLUME

PLAN VOLUME

1.0 PURPOSE OF PLAN VOLUME

This updated volume of the STP contains the schedules for treating RMW at the WVDP to meet LDR requirements.

2.0 IMPLEMENTATION OF THE SCHEDULES IN THE PLAN VOLUME

This annual FY2010 update to the Plan Volume provides overall schedules for achieving compliance with LDR requirements for mixed wastes at the WVDP that are covered by the FFCAct Consent Order. It provides planning schedule activities and milestones for developing and implementing treatment technologies for covered wastes, as defined in the Consent Order. Treatment plans and schedules are presented in Sections 3.0 through 5.0 of this Plan Volume.

This Plan update contains a description of the activities and proposed schedules for treatment of wastes identified in the update of the Background Volume. A qualitative analysis was used in developing schedules for the evaluation and treatment of wastes identified in the updated Background Volume. The specific schedule rationale for each waste stream is presented in the appropriate section of this updated Plan Volume. The following factors were considered in this analysis:

2007 – 2011 Priorities

- The priorities for the current Decontamination Phase contract that runs from July 2007 through June 2011 are to ship MLLW and LLW, process TRU waste, and decontaminate/deactivate the MPPB and decommission/dismantle Balance of Site facilities to achieve the interim end state criteria.

Vitrification

- Vitrification of the HLW at the WVDP was completed at the end of FY2002.

Existing Agreements

- In March 1993, the West Valley Area Office (OH/WVDP), NYSERDA, SITE CONTRACTOR, NYSDEC, and EPA entered into the FSFCA, which established requirements for the identification and storage of mixed wastes prohibited from land disposal. WVDP requirements were completed by March 22, 1999, thereby closing out this Agreement.

- A RCRA 3008(h) Administrative Order on Consent was issued to the WVDP by EPA Region II and became effective on March 15, 1992. The 3008(h) Consent Order requires the investigation of possible releases of hazardous constituents from a number of solid waste management units. The WVDP has determined, and NYSDEC has agreed, that funding and resource commitments established by the 3008(h) Consent Order should be given a scheduling priority over those that will be created under the STP.

Available Technology and Facilities - waste for which facilities are currently available to treat the waste have been given a higher scheduling priority than those for which facilities are not currently available.

WVDP site specific NEPA coverage for the shipment, treatment, and disposal of MLLW to both commercial and DOE facilities is provided by the WVDP WM EIS ROD that was issued on June 16, 2005. Programmatic NEPA requirements for shipment and treatment to DOE facilities have been satisfied by the February 2000 WM PEIS ROD for mixed waste. In coordination with the WM PEIS ROD for TRU waste and the WIPP SEIS-II ROD for TRU disposal, non-defense TRU waste is currently barred from the WIPP. NEPA coverage for off-site treatment and disposal of TRU at commercial facilities will continue to be assessed and documented.

3.0 LOW-LEVEL MIXED WASTE TREATMENT PLAN AND SCHEDULES

3.1 Mixed Waste Stream for Which Technology Exists

3.1.1 Corrosive-Only and Other Aqueous Liquid and Low-Concentration Organic Liquid Waste Streams

The preferred option for treating aqueous liquids is on-site deactivation via the site's CWA facility or deactivation/ neutralization of these liquids in containers. However, off-site opportunities continue to be evaluated.

All milestones for this treatability group have been completed. Documentation can be found in the Appendices of the FY1996 STP update Plan Volume. As of the end of FY2001, all legacy waste (wastes generated before September 30, 1996) have been treated. Wastes generated subsequent to September 30, 1996 are treated in accordance with applicable LDR requirements.

As identified in previous STP updates, the following is a list of activities that were required to deactivate or neutralize the waste streams in this treatability group:

1. Waste Characterization - Additional characterization of this treatability group was required prior to treatment to verify that deactivation/neutralization would satisfy LDR requirements. Characterization activities involved sampling for underlying hazardous constituents.

2. Treatment - Liquids were deactivated/neutralized on site in their existing containers, via the CWA facility, or shipped off site for treatment.

   A. Milestones

      Complete characterization of the aqueous and low-concentration organic liquid waste streams for UHCs to determine if elementary neutralization will satisfy LDR requirements by the first quarter of FY1996. **Complete - Previously reported in the FY1996 STP update.**

      If neutralization alone will not meet LDR requirements, a schedule identifying milestones and planning schedule activities for treatment of these wastes in the IRTS will be prepared by the fourth quarter of FY1996. **Complete - Previously reported in the FY1996 STP update.**

      Assuming characterization shows that elementary neutralization will satisfy LDR requirements, initiate neutralization of wastes by the fourth quarter of FY1996. **Complete - Previously reported in the FY1996 STP update.**

   B. Planning Schedule Activities

      None.

3.1.2 Lead-Acid Batteries Waste Streams

The preferred option for treating lead-acid batteries and fusible links was to decontaminate the exterior surfaces on site in the CSRF and then send the decontaminated lead-acid batteries and fusible links off site to a recycler. The WVDP attempted to decontaminate the waste on site during FY1997, but was unsuccessful. Therefore, an alternative treatment technology for lead-acid batteries was proposed: reclamation/ recycling at an off-site commercial facility (such as GTS Duratek, formerly known as SEG). Batteries in inventory which met the GTS Duratek WAC were shipped to GTS Duratek in July 1998 for decontamination and recycling. Off-site treatment capability for batteries which did not meet GTS Duratek's WAC (e.g., cracked batteries) was not available during FY1999.

During FY2000, an in-depth assessment of potential treatment facilities resulted in the determination that Alaron would be able to accept cracked lead-acid batteries and batteries with their caps missing for recycling. Such batteries were shipped to Alaron in June 2000. However, during July 2000, in part in response to public concerns, the DOE Headquarters issued a moratorium on the recycling and commercial sale of recycled scrap metal (including lead from lead-acid batteries where the potential for internal radioactive contamination exists). To resolve the issues associated with the moratorium, on July 12, 2001, the DOE announced its intent to prepare a Programmatic Environmental Impact Statement (PEIS) to address metal recycling within the DOE complex (66 FR 36562). The Federal Register notice identified a targeted EIS issuance date of July 2002 with the subsequent execution of an associated ROD. As of September 30, 2007 a ROD has not been issued.

As an alternative to recycling, in May 2001, DOE-HQ requested from EPA an interpretation of LDR treatment standards applicable to drained, radioactively contaminated lead-acid batteries. In EPA's August 9, 2001 response, EPA agreed that the appropriate treatment standard for these batteries was macroencapsulation (as opposed to lead smelting). EPA further indicated that the macroencapsulation standard applied not only to lead shielding, but to other elemental forms of lead; thus, there is latitude in the treatment standard to permit its application to radioactive lead-acid batteries. The State of Utah and Energy Solutions have determined that lead-acid batteries that are drained of all acid can be accepted for macroencapsulation on a case-by-case basis.

The decontamination of the fusible links has been attempted, but determined not to be feasible. Documentation for this activity was previously reported in the FY1996 STP update. The fusible links have been moved under the elemental lead treatability group (Section 3.1.6 of this volume) and will be treated in accordance with the schedule set forth in that section.

As of the fourth quarter of FY2000, all milestones for this treatability group have been completed. Legacy wastes and any newly generated wastes are being processed in accordance with the following:

1. Decontamination - This activity involves decontamination of the outer casing of the batteries on site. Decontamination was performed on site in the CSRF. The decontamination effort was unsuccessful.

2. Treatment - .Lead acid batteries will be drained of any free liquid (if present) and consolidated with radioactive lead solids for off-site macroencapsulation.

3. Characterization - Additional analyses may be required to demonstrate compliance with specific WAC requirements prior to shipment.

4. Contracts and Shipping - This activity involves establishing a contract with a commercial facility. Formal approval of waste profile sheets, packaging the waste for shipment, and off-site transport for treatment would also be required.

   A. Milestones

      Initiate decontamination of the outer casing of the lead-acid batteries by the second quarter of FY1997. **Complete - Previously reported in the FY1997 STP update.**

      Initiate decontamination of the external surfaces of the fusible links by the second quarter of FY1997. **Complete - Previously reported in the FY1997 STP update.**

Assuming the internal components are not contaminated, and the exterior surface does not have fixed contamination, ship the decontaminated lead-acid batteries off site to a battery reclaimer by the first quarter of FY1998. If the lead-acid batteries cannot be decontaminated, an alternative treatment schedule identifying milestones and planning schedule activities will be prepared by this date. **Complete - Previously reported in the FY1997 STP update.**

Initiate characterization of batteries by the fourth quarter of FY1998 to determine if off-site facility WAC can be met. **Complete - Previously reported in the FY1998 STP update.**

If the off-site facility WAC can be met, and assuming NEPA requirements can be met, ship lead-acid batteries to the off-site facility by the second quarter of FY1999. If the off-site facility WAC cannot be met and/or if treatment capacity does not exist, prepare an alternate schedule identifying milestones and planning schedule activities by the third quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

Assuming the external surfaces have been decontaminated, and do not contain fixed contamination, ship the decontaminated fusible links off site for reclamation by the first quarter of FY1998. If the fusible links cannot be decontaminated, an alternative treatment schedule identifying milestones and planning schedule activities will be prepared by this date. **Complete (Moved to Section 3.1.6 as reported in the FY1997 STP update).**

Complete evaluation of potential treatment facilities for batteries which do not meet GTS Duratek's WAC by the third quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.** Based on this evaluation, prepare an alternative treatment schedule by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

Drain on-site inventory of batteries to meet off-site facility WAC by the second quarter of FY2003 or prepare an alternative schedule. **Complete - Previously reported in FY2003 STP update**

Submit amended profile for approval by off-site facility by the third quarter of FY2003. If the amended profile is not approved by the off-site facility, prepare an alternative treatment schedule by the fourth quarter of FY2003. **Complete - Previously reported in FY2003 STP update**

B. Planning Schedule Activities

None.

3.1.3 Organic Liquid Waste Streams

The preferred option for treating organic liquids (i.e., high-TOC liquids) is to incinerate/combust/thermally treat them at an approved, off-site permitted facility.

Combustion/incineration/thermal treatment of these wastes at the DSSI, ATG, or Perma-Fix Gainesville is dependent upon the individual waste's characteristics and if these characteristics conform to the facility's WAC.

Actual treatment is also dependent on scheduling constraints of the selected facility. As stated previously, ATG ceased operations at its Richland, WA treatment facility during FY2002. The elimination of ATG limits the treatment options for high-TOC liquids to DSSI and, to a lesser extent, Perma-Fix and M&EC.

As of the fourth quarter of FY2006, all of the milestones and proposed milestones have been completed. Legacy wastes and newly generated wastes are being managed in accordance with the following list of activities required to combust/ incinerate/thermally treat the organic liquid waste streams in this treatability group:

1. Prepare NEPA Documentation - In accordance with NEPA, the WVDP is required to assess and document the action prior to off-site shipment to an incineration facility. NEPA requirements for shipment of off-site commercial treatment have been satisfied by the WVDP WM EIS ROD (Section 1.5).

2. Waste Characterization - The waste streams need to be further evaluated to determine whether they comply with all the requirements of the commercial facility's WAC. Additional sampling and analysis was performed as required to meet the WAC(s) characterization requirements. If the waste streams do not meet the WAC, a different treatment method will be evaluated or an alternate facility identified.

3. Contracts and Shipment - This activity involved establishing a contract with the off-site commercial facility to incinerate the organic liquids, formal approval of the waste profile sheets, packaging the waste for shipment, and off-site shipment for combustion/ incineration/thermal treatment.

   A. Milestones

   Complete characterization of the organic liquid waste stream to determine if a commercial or DOE facility's WAC can be met by the first quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

   Assuming that NEPA requirements have been satisfied by this date (by the second quarter of FY1999) **(Complete - NEPA documentation was put into place during FY1998 [Section 1.5])**, and characterization activities show that a WAC can be met, issue a request for proposal (RFP) for incineration at a commercial facility or prepare necessary paperwork to obtain treatment at INEEL by the fourth quarter of FY1999. If NEPA requirements have not been completed by this date, this activity will commence six months after NEPA requirements are completed (Not applicable - NEPA documentation was put into place during FY1998). **Complete - Previously reported in the FY1999 STP update.**

   If the commercial or DOE facility's WAC cannot be met, or if no commercial or DOE facility responds to the RFP, an alternative plan identifying milestones and planning schedule activities for treating this waste will be prepared by the first quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

   Receive waste acceptance approval from treatment facility and award contract for off-site shipment to a commercial or the DOE treatment facility by the third quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

   Initiate shipment of waste to the commercial or DOE facility for treatment by the fourth quarter of FY2000. If off-site facility constraints do not allow for shipment by the fourth quarter of FY2000, prepare an alternate treatment schedule. **Complete - Previously reported in the FY2000 STP update.**

   Proposed: Ship all of the liquid waste that is in inventory as of 1/1/2006 and that meets the Perma-Fix/DSSI WAC by the end of the fourth quarter FY2006. If Perma-Fix/DSSI cannot accept the waste, prepare an alternate schedule. **Completed- Previously reported in the FY2006 STP Update.**

   B. Planning Schedule Activities

   None.

3.1.4 Debris Waste Streams w/Mercury

Depending upon the mercury concentration and/or matrix of the wastes (e.g., meets definition of debris), stabilization, roast/retort, or an alternative debris treatment technology may be the preferred treatment option, or the initial treatment in a treatment chain, for heterogeneous debris and glass debris. Further characterization may be required before the appropriate waste acceptance approvals can be issued by the treatment facility. For the batteries in this waste group, on-site radiological decontamination is the preferred treatment option. Once decontaminated, the batteries can be managed as hazardous waste and be removed from the STP.

For waste streams with no underlying hazardous constituents and total mercury concentration below 260 mg/kg, size reduction and stabilization is the preferred treatment. For mercury waste with total mercury above 260 mg/kg, roast/retort is the current treatment standard. EPA is reviewing a petition from the DOE to allow high-mercury waste streams to be macroencapsulated in place of roast/retort processing. In a Federal Register Notice (68 FR 4481) EPA determined that no alternative to the technology based treatment standard, RETORT, was necessary and the petition was denied. For waste that meets the LDR definition of debris, the hazardous debris alternative treatment standards are available.

As of the fourth quarter of FY2000, all milestones for this treatability group have been achieved. However two additional milestones were proposed in the FY2005 STP Update for completion by the fourth quarter FY2006 and FY2008. The completion of the FY2008 proposed milestone resulted in preparing alternate schedules that resulted in additional milestones for FY2009 and FY2010. Legacy wastes and newly generated wastes are being managed in accordance with the following list of activities required to treat the waste streams in this treatability group:

1. Prepare NEPA Documentation - In accordance with NEPA, the WVDP is required to assess and document the action prior to off-site shipment to a commercial or the DOE facility. The WVDP WM EIS ROD will satisfy NEPA requirements for off-site shipment and commercial treatment of wastes in this group.

2. Waste Characterization - During FY2000, Energy Solutions indicated that debris with less than 260 ppm mercury may be amenable to stabilization at their facility. Additional sampling and analysis is being performed, as required, to determine if these waste streams meet the WAC. If these waste streams do not meet the WAC, a different treatment option will be developed.

3. Contracts and Shipping - This activity involved establishing a contract/memorandum of agreement, or other contract mechanism, with the facility selected to treat the heterogeneous and glass debris waste streams, formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport for treatment. Shipping dates are also contingent on the schedules of the receiving facilities.

   A. Milestones

      Complete characterization of the heterogeneous and glass debris waste streams by the third quarter of FY1998. If no facility is available to treat these wastes, an alternative schedule identifying milestones and planning schedule activities for treating these wastes will be prepared by the fourth quarter of FY1998. **Complete - Previously reported in the FY1998 STP update.**

      Assuming that NEPA requirements have been satisfied by this date (by the first quarter of FY1999) **(Complete - NEPA documentation was put into**

place during FY1998 [Section 1.5]), issue an RFP for treatment at a commercial facility or prepare necessary paperwork to obtain treatment at a the DOE facility by the first quarter of FY1999. If NEPA requirements have not been completed by this date, this activity will commence six months after NEPA requirements are completed (Note applicable - NEPA documentation was put into place during FY1998). **Complete - Previously reported in the FY1999 STP update.**

Award contract or obtain waste stream/treatment approval for off-site shipment by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

If waste is accepted for treatment and treatment facilities are operational, initiate shipment of waste for treatment by the second quarter of FY2000. If not, prepare an alternative schedule by the second quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

If Energy Solutions does not require a treatability study and the analysis demonstrates compliance with the Energy Solutions WAC, obtain treatment approval by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

Proposed: Ship all of the MLLW that was in inventory as of 1/1/2006, and that meets the Energy Solutions WAC for macroencapsulation of debris by the end of the fourth quarter FY2006. If Energy Solutions cannot accept the waste, prepare an alternate schedule. **Completed - Previously reported in the FY2006 STP Update.**

Proposed: Ship or treat all of the MLLW that is in inventory as of 1/1/2008, for which waste acceptance has been obtained and the treated waste will meet the NTS WAC by the end of the fourth quarter FY2008. If acceptable treatment or handling options are not available, prepare an alternate schedule. **Completed – Previously reported in the FY2008 STP update.**

Proposed: Develop or locate acceptable treatment and handling options for the greater than class A waste with high radioactivity and high contamination by the fourth quarter of FY2009. If acceptable treatment and handling options are developed or located by the end of FY2009, then treat the waste or ship it for off-site treatment by the fourth quarter of FY2010. If acceptable treatment or handling options are not available, then prepare an alternate schedule. **Completed – Previously reported in the FY2009 STP update.**

Proposed: Develop or locate acceptable treatment and handling options for the greater than Class A waste with high radioactivity and high contamination by the fourth quarter of FY2010. If acceptable treatment and handling options are developed or located by the end of FY2010, then treat the waste or ship it for off-site treatment by the end of the third quarter of FY2011. If acceptable treatment or handling options are not available, then prepare an alternate schedule. **Completed – See Appendix A.**

Proposed: Shipment of the first container of high activity/high contamination waste is scheduled for the second quarter of FY2011. Depending on the success achieved in treating this first container, additional containers may be shipped for treatment in the third quarter of FY2011. Success is defined as the safe, without incident, treatment and disposal of the waste to the procedure provided by the treatment facility.

B. Planning Schedule Activities

None

3.1.5 PCB-Contaminated Material Waste Streams

Decontamination of PCB-contaminated non-incinerable solids and incineration of decontamination materials is the preferred treatment option for the PCB-contaminated solid material waste streams. Decontamination of solid materials (primarily non-incinerable materials) involves removal of the PCB oils and some radiological contamination with wipes, or other extraction process, followed by sampling of the materials to ensure that all PCB contamination has been removed. Incinerable wastes generated during on-site PCB decontamination are currently targeted for incineration at DOE-OR ETTP TSCA Incinerator in Oak Ridge, TN or M&EC's planned solvent extraction facility. As an alternative, if the wastes can be PCB-decontaminated so they are no longer hazardous waste in New York State (i.e., <50 ppm) and can be classified as debris under the LDRs, alternative treatment standards for debris may be appropriate. For sealed PCB sources, the option exists to radiologically decontaminate the outside of the waste form (e.g., capacitors) and then manage the resultant waste as non-radioactive PCB wastes.

For incinerable solids, incineration at ETTP is the preferred option. Incineration at the ETTP TSCA Incinerator is also the preferred option for PCB-contaminated liquids. The FY1998 STP update identified a tentative burn date of FY1999. However, the FY1999 and FY2000 burn dates were not approved by Tennessee due to the out-of-state waste moratorium. During FY2002, the state of Tennessee began approving waste from out-of-state DOE generators for incineration treatment. Therefore the ETTP is once again a potential treatment option for WVDP TSCA and MLLW. DOE has initiated closure of several operations at the ETTP. The TSCAI is one of the operations scheduled to be closed by the end of FY2006. However, the closure is expected to be delayed until the end of FY2009 due to the continued need for incineration capacity in the DOE complex. The TSCAI has issued the burn plan for FY2007-FY2009. State of Tennessee review for approval of out-of-state waste is currently underway. An Application for PCB liquids was submitted to the ETTP TSCAI in September 2006. The Application covers the waste that was originally included in the FY2005-FY2006 burn plan. As of September 30, 2007 formal acceptance of the waste had not been received. The waste stream is now planned for the FY2007-2009 burn plan.

During FY2000, ATG's planned Gasvit facility was identified as a potential alternative. However, ATG is no longer a viable option, as the Richland, WA facility ceased operation during FY2002. Additionally, during FY2001, in connection with Perma-Fix's purchase of M&EC, M&EC indicated that Perma-Fix's mobile PCB-treatment unit (solvent extraction) would eventually be located at the M&EC facility.

As an alternative to treatment of certain PCB-contaminated solids, due to the provisions of EPA's 1998 "PCB Mega-Rule, Energy Solutions has received approval to directly dispose of certain PCB-contaminated solids at their permitted mixed waste disposal facility.

The following is a list of activities required to treat the waste streams:

1. Decontamination - This activity involved on-site decontamination of the PCB-contaminated ram and yank (a.k.a. ramming yank) and may also be used for other non-incinerable solids. The on-site decontamination effort took approximately two months.

2. Waste Characterization - The incinerable materials generated during decontamination (i.e., wipes) and other incinerable and liquid wastes were evaluated to determine whether they comply with all the requirements of the ETTP TSCAI WAC and/or other future alternative facility WACs. Sampling and analysis of the incinerable wastes (solids and liquids) was performed, as required, to meet the WACs. If these waste streams do not meet the ETTP TSCAI waste acceptance requirements, a different treatment option will be developed. Additionally, non-incinerable wastes that are not decontaminated on site require characterization to meet alternative facility WACs.

3. Prepare NEPA Documentation - In accordance with NEPA, the WVDP is required to assess and document the action prior to off-site shipment to ETTP TSCAI or commercial facilities. The WVDP WM EIS ROD discussed in Section 1.5 satisfies NEPA requirements for off-site shipment and commercial treatment of wastes in this group.

4. Contracts and Shipping - This activity involves submittal and approval of an application to incinerate, thermally treat, or directly land dispose the PCB-contaminated material, formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport for incineration. An RMCP will also be necessary for wastes shipped to ETTP TSCAI. This RMCP will establish contingent measures associated with the return of incinerator ash to the WVDP. Concurrence with the RMCP will be required from the designated receiving facility's state agency. The application process, including waste characterization, is expected to take approximately nine months. The shipping date is contingent on the schedule of the ETTP TSCAI incinerator, receipt of the state of Tennessee's approval, receipt of DOE-OR's formal final waste acceptance, and Tennessee's approval of the RMCP.

   A. Milestones

      Assuming radiological activity levels permit, perform manual decontamination of the ram and yank by the fourth quarter of FY1997. **Complete - Previously reported in the FY1997 STP update.**

      If radiological activity levels do not permit decontamination of the ram and yank, prepare an alternate treatment schedule identifying milestones and planning schedule activities for this waste stream by the first quarter of FY1998. **Not required since ram and yank was successfully decontaminated in FY1997.**

      Complete characterization of the PCB-contaminated incinerable wastes to determine whether they can meet the basic ETTP TSCAI WAC by the first quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      If the ETTP TSCAI WAC cannot be met for all or some of the waste types and/or matrices, an alternate treatment schedule identifying milestones and planning schedule activities for treating this waste will be prepared by the third quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      Submit application for approval to ETTP TSCAI or alternate facility by the third quarter of FY2003. If NEPA requirements have not been completed by this date, this activity will commence six months after NEPA requirements have been met. **Complete - Previously reported in FY2003 STP update.**

Receive approval for application for shipment to ETTP TSCAI or alternate facility by the fourth quarter of FY2003. **Complete - Previously reported in FY2003 STP update.**

Initiate shipment of waste to ETTP TSCAI or alternate facility for treatment by the second quarter of FY2004. If the wastes are not accepted for treatment at ETTP TSCAI or an alternate facility, develop milestones for the identification of treatment options and waste disposition schedules by the fourth quarter of FY2004. **Complete – Previously reported in the FTY2004 update.**

Proposed: Submit an application to ETTP/TSCAI or alternative facility for waste treatment approval of the PCB liquid waste in inventory as of 1/1/2006 by the end of the fourth quarter FY2006. **Completed – Previously reported in the FY2006 STP Update**

Proposed: Ship all of the PCB solids that are in inventory as of 1/1/2006, that meet the Energy Solutions WAC for land disposal by the end of the fourth quarter of FY2006. If Energy Solutions cannot accept the waste, prepare an alternate schedule. **Completed – Previously reported in the FY2006 STP Update .**

Proposed: Ship the approved PCB liquids that are in inventory as of 1/1/2008 to the ETTP/TSCAI, or an alternate facility by the end of the fourth quarter FY2008. **Completed – Previously reported in the FY2008 STP update.**

Proposed: Ship any remaining PCB solids that are in inventory as of 1/1/2008 by the end of fourth quarter FY2008. If acceptable treatment capability is not available, prepare an alternate schedule. **Completed – Previously reported in the FY2008 STP update.**

Proposed: If approval is obtained from the TSCAI for the paint waste by the March 30, 2009, then ship waste to the TSCAI. If approval is not obtained, then obtain treatment approval at an alternate treatment facility by the fourth quarter FY 2009. If an alternate treatment facility can not be identified, prepare alternate treatment schedule by fourth quarter FY 2009. **Completed – Previously reported in the FY2009 STP update.**

B. Planning Schedule Activities

None.

3.1.6 Elemental Lead and Solid Metal Waste Streams

Elemental lead waste streams that can be reclassified as non-radioactive or decontaminated and reused are no longer subject to LDR treatment requirements. Approximately 7,000 kg of elemental lead was successfully decontaminated on site in FY1997. Lead forms that are not amenable to on-site decontamination may be candidates for decontamination at a commercial facility (such as GTS Duratek), however, the DOE's July 2000 moratorium on scrap metal recycling has limited this potential. As of September 30, 2007 the ROD has not been issued. In July 2001, the DOE announced its intent to prepare a PEIS to address and resolve the scrap metal moratorium. Lead forms that are not able to be decontaminated at a commercial facility will be candidates for macroencapsulation at an off-site commercial facility (e.g., Energy Solutions). Actual treatment is dependent on scheduling constraints of the selected facility.

As of the first quarter of FY2001, all milestones for this treatability group have been completed. However, there were two additional milestones proposed in the FY2005 STP Update for completion by the fourth quarter of FY2006 and FY2008. The completion of the

FY2008 proposed milestone resulted in preparing alternate schedules that resulted in additional milestones for FY2009 and FY2010. Legacy waste inventories and newly generated wastes are being managed in accordance with the following list of activities required to treat the lead:

1. Decontamination - This activity involved the on-site decontamination of the lead. Lead which cannot be decontaminated will be either decontaminated off site (note impact of the DOE's July 2000 scrap metal recycling moratorium) or macroencapsulated.

2. Prepare NEPA Documentation - In accordance with NEPA, the WVDP is required to assess and document the action prior to off-site shipment of fixed contaminated lead to a commercial facility. The WVDP WM EIS ROD satisfies NEPA requirements for off-site shipments and commercial treatment. Recycling of decontaminated lead is pending the ROD for the PEIS for scrap metal recycling.

3. Waste Characterization - Contaminated lead was evaluated to determine whether it is amenable to off-site decontamination and complies with all the requirements of the commercial facility WAC. Additional sampling and analysis was performed, as required. If these waste streams do not meet the waste acceptance requirements, other treatment options will be developed with further requirements potentially identified.

4. Contracts and Shipping - This activity involves establishing a contract with a commercial facility to macroencapsulate the fixed contaminated lead waste stream, formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport for macroencapsulation.

   A. Milestones

      Decontaminate the lead by the fourth quarter of FY1997. **Complete - Previously reported in the FY1997 STP update.**

      Complete characterization of the lead which cannot be decontaminated on site to meet the commercial facility WAC by the third quarter of FY1998. **Complete - Previously reported in the FY1998 STP update.** If the commercial facility's WAC cannot be met or if no commercial facility responds to the RFP, an alternate schedule identifying milestones and planning schedule activities for treating this waste will be prepared by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      Assuming that NEPA requirements have been satisfied by this date (by the third quarter of FY1999) **(Complete - NEPA requirements were completed during FY1998 [Section 1.5])**, issue an RFP for off-site decontamination or macroencapsulation by the third quarter of FY1999. If NEPA requirements have not been completed by this date, this activity will commence six months after NEPA requirements have been met (Not applicable - NEPA documentation was put into place during FY1998). **Complete - Previously reported in the FY1999 STP update.**

      Receive waste acceptance approval from treatment facility and award contract for shipment off site to a commercial facility by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      If treatment capacity is available, the waste meets the facility(s) WAC (i.e., waste is approved for treatment), and treatment facility waste acceptance and operational schedules permit, initiate shipment of waste for treatment by the first quarter of FY2001. If not, prepare an alternate treatment schedule by the first quarter of FY2001. **Complete - Previously reported**

in the FY2001 STP update.

Proposed: Ship all of the MLLW that was in inventory as of 1/1/2006, and that meets the Energy Solutions WAC for macroencapsulation of radioactive lead by the end of the fourth quarter FY2006. If Energy Solutions cannot accept the waste, prepare an alternate schedule. **Completed –Previously reported in the FY2006 STP Update**

Proposed: Ship or treat all of the MLLW that is in inventory as of 1/1/2008, for which acceptable treatment is available and the treated waste will meet the NTS WAC by the end of the fourth quarter FY2008. If acceptable treatment or handling options are not available, prepare an alternate schedule. **Completed – Previously reported in the FY2009 STP update.**

Proposed: Develop or locate acceptable treatment and handling options for the greater than class A waste with high radioactivity and high contamination by the fourth quarter of FY2009. If acceptable treatment and handling options are developed or located by the end of FY2009, then treat the waste or ship it for off-site treatment by the fourth quarter of FY2010. If acceptable treatment or handling options are not available, then prepare an alternate schedule. **Completed – Previously reported in the FY2009 STP update.**

Proposed: Develop or locate acceptable treatment and handling options for the greater than Class A waste with high radioactivity and high contamination by the fourth quarter of FY2010. If acceptable treatment and handling options are developed or located by the end of FY2010, then treat the waste or ship it for off-site treatment by the end of the third quarter of FY2011. If acceptable treatment or handling options are not available, then prepare an alternate schedule. **Completed – See Appendix A.**

Proposed: Shipment of the first container of high activity/high contamination waste is scheduled for the second quarter of FY2011. Depending on the success achieved in treating this first container, additional containers may be shipped for treatment in the third quarter of FY2011. Success is defined as the safe, without incident, treatment and disposal of the waste to the procedure provided by the treatment facility.

B. Planning Schedule Activities

None

3.1.7 Elemental Mercury Waste Streams

For elemental mercury mixed wastes that cannot be reclassified as hazardous waste, the preferred treatment option is to amalgamate these waste streams at an approved, permitted commercial facility (e.g., M&EC, NFS, or ADA, or via DOE's Broad Spectrum Treatment Contracts).

The following is a list of activities required to treat the mixed waste streams in this treatability group:

1. NEPA Documentation - NEPA coverage for off-site commercial treatment and disposal is provided by the WVDP WM EIS ROD (see Section 1.5).

2. Waste Characterization - The waste streams need to be evaluated to determine whether they comply with all the requirements of the commercial facility. Additional sampling and analysis will be performed, as required, to determine if these waste streams meet the WAC. Historically, and as expected to continue, radiologically contaminated waste elemental mercury has been generated at the WVDP in very

small quantities. Since required sampling will deplete such small quantities, in FY2001 a Planning Schedule Activity was added to the Plan Volume which addresses the accumulation of waste elemental mercury until a sufficient volume is collected to allow the sampling of the waste and have volume left over to ship off site for treatment. It is expected that characterization activities will take three months to complete. If these waste streams do not meet the WAC, a different treatment option will be developed.

3. Contracts and Shipping - This activity involves establishing a contract or a Memorandum of Agreement with the selected facility to amalgamate the elemental mercury, formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport for treatment. Contract negotiations are expected to take approximately five months.

A. Milestones

Complete characterization of elemental mercury waste stream to determine if these waste streams meet the commercial facility or the DOE WAC by the third quarter of FY1998. **Complete - Previously reported in the FY1998 STP update.** If the facility WAC cannot be met, or if the facility is determined not to meet the DOE treatment facility acceptance criteria, a schedule identifying milestones and schedule planning activities for treating this waste at INEEL's new mixed waste treatment facility will be prepared by the fourth quarter of FY1998. **Complete - Previously reported in the FY1998 STP update.** If neither facility's WAC can be met, an alternate schedule identifying milestones and planning schedule activities will be prepared by the second quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

Assuming that NEPA requirements have been satisfied by this date (the first quarter of FY1999) (NEPA requirements were completed during FY1998), issue an RFP for amalgamation at a commercial facility by the first quarter of FY1999. If NEPA requirements have not been completed by this date, this activity will commence six months after NEPA requirements are met (Not applicable - NEPA documentation was put into place during FY1998). **Complete - Previously reported in the FY1999 STP update.**

Receive waste acceptance approval from treatment facility and award contract for off-site shipment by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

If waste volume is generated during FY2000 and if it cannot be shipped for treatment by the second quarter of FY2000, prepare a treatment schedule and proposed milestones by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

If there is sufficient volume to perform WAC characterization, the waste is approved for acceptance at an off-site facility, and a) treatment unit construction is complete; b) start-up test/trial runs are successful; c) full-scale operations are successful; and d) treatment facility waste acceptance and operational schedules permit, initiate shipment of waste by the fourth quarter of FY2001. If not, prepare an alternate schedule. **Complete - Previously reported in the FY2001 STP update.**

Proposed: If radiologically contaminated waste elemental mercury is generated at the WVDP, it will be accumulated until a sufficient volume (approximately ten pounds) is obtained to allow analysis, characterization, and shipment for off-site treatment. The characterization and evaluation for off-site treatment to a targeted TSDF will commence within six months of sufficient volume being accumulated. If the TSDF treatment system is

operational and the waste is approved for treatment, the waste will be shipped within six months of approval.

B. Planning Schedule Activities

None.

3.1.8 Miscellaneous Soils

The preferred option for treating the corrosive liquids in soils is on-site neutralization of these liquids using an acidic material. Neutralization was completed during FY1997; therefore, this waste stream has been removed from the active portion of the STP.

3.1.9 Debris Waste Streams

The preferred treatment option for debris waste contaminated with heavy metals is size reduction and chemical stabilization or macroencapsulation. Thermal treatment followed by chemical stabilization is the preferred treatment option for debris contaminated with heavy metals and organic constituents and UHCs.

As of the fourth quarter of FY2000, all milestones for this treatability group have been completed. However, an additional milestone was proposed in the FY2005 STP Update for completion by the fourth quarter of FY2006. Legacy waste inventories and newly generated wastes will be managed in accordance with the following list of activities required to treat the waste streams in this treatability group:

1. NEPA Documentation - In accordance with NEPA, the WVDP is required to assess and document the action prior to off-site shipment. NEPA coverage for off-site shipment and commercial treatment is provided by the WVDP WM EIS ROD (Section 1.5). NEPA requirements for shipment and treatment to DOE facilities have been satisfied by the February 2000 WM PEIS ROD for mixed waste.

2. Waste Characterization - Additional analysis was required to demonstrate compliance with specific WAC requirements prior to shipment.

3. Contracts and Shipping - This activity involved establishing a contract with a commercial facility or acceptance of wastes for treatment at INEEL. Formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport for treatment was also required.

   A. Milestones

   Complete characterization of these wastes to meet the INEEL WERF WAC by the first quarter of FY1999. If the INEEL WAC cannot be met, an alternate schedule identifying milestones and planning schedule activities for treating this waste will be prepared by the second quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

   Assuming that NEPA requirements have been met (were completed during FY1998) and the INEEL WAC has been satisfied by this date, prepare necessary paperwork to obtain treatment at INEEL WERF by the first quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

   Award contract or obtain treatment approval for shipment off site to WERF by the second quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

   If waste is approved for acceptance at an off-site facility and the facility's operational schedules permit, initiate shipment of waste for treatment by the fourth quarter of FY2000. If not, prepare an alternate schedule by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

Proposed: Ship all of the MLLW that was in inventory as of 1/1/2006 and that meets the Energy Solutions WAC for macroencapsulation of debris by the end of the fourth quarter FY2006. If Energy Solutions cannot accept the waste, prepare an alternate schedule. **Completed –Previously reported in the FY2006 STP Update.**

Planning Schedule Activities

None.

3.1.10 Debris/Solids Contaminated with Organics and/or Metals Waste Streams

Depending on treatment facility WACs, the debris wastes in this category may need to be segregated into their organic incinerable and inorganic non-incinerable portions. The preferred option for the organic incinerable portion of this waste stream is off-site thermal destruction (e.g., combustion [incineration, etc.]) followed by ash stabilization. The preferred treatment option for the inorganic, non-incinerable portion of this waste stream is stabilization or micro/macroencapsulation at another off-site facility (e.g., Energy Solutions of Utah) if its associated WAC requirements can be met.

If it is determined that the waste stream does not need to be or cannot be segregated, the LDR alternative treatment standards for debris may be applicable. During FY1999/2001, based on the targeted treatment of the wastes at M&EC/Perma-Fix, waste segregation will not be required per M&EC's/Perma-Fix's current acceptance criteria.

The preferred option for supernatant liquid that may be present in WV-W037 is chemical stabilization.

NEPA coverage for off-site commercial treatment and disposal is provided by the WVDP WM EIS ROD (see Section 1.5).

The following is a list of activities required to treat the waste streams in this treatability group:

1. WAC Review - This activity involved discussions with potential treatment facilities as to their potential acceptance of this waste stream and the determination if waste segregation, into organic and inorganic components, would be required.

2. Waste Segregation - If required for waste acceptance purposes, the debris wastes in this category would be, if possible, segregated into their organic incinerable and inorganic non-incinerable components. During FY1999/2001, it was determined that, based on the targeted treatment of the waste at M&EC/Perma-Fix, segregation of the waste stream would not be required.

3. Waste Characterization - Additional characterization was required to demonstrate compliance with specific off-site WAC requirements.

4. Contracts and Shipping - This activity involved establishing a contract with a commercial facility and acceptance of wastes for treatment. Formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport for treatment was also completed.

A. Milestones

Determine if waste segregation is required for waste acceptance purposes by the third quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

For waste which requires segregation, initiate segregation of wastes into organic and inorganic waste forms by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

Initiate WAC waste characterization activities by the second quarter of FY2000. **Complete - Previously reported in the FY2000 STP update**.

Obtain waste stream acceptance and treatment approval for shipment off site or identify alternative treatment options and schedule by the third quarter of FY2000. If higher activity waste is found to exist which requires differential management, prepare an alternate treatment schedule by the third quarter of FY2000. **Complete - Previously reported in the FY2000 STP update**.

If waste is approved for acceptance at an off-site facility and the facility's operational schedules permit, initiate shipment of waste for treatment by the fourth quarter of FY2000. If not, prepare an alternate schedule by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update**.

If waste is approved for acceptance at an off-site facility and a) treatment unit construction is completed; b) start-up test/trial runs are successful; c) full-scale operations are successful; and d) treatment facility waste acceptance and operational schedules permit, initiate shipment of waste by the fourth quarter of FY2001. If not, prepare an alternate schedule. **Complete - Previously reported in the FY2001 STP update.**

If a mechanism is available to inspect and sample high-activity waste, initiate inspection/sampling activities and prepare a treatment schedule. If mechanism is not available, prepare an alternative schedule by the first quarter of FY2002. **Complete - Previously reported in the FY2002 STP Update.**

Proposed: Ship all of the MLLW from this section that was in inventory as of 1/1/2006 and that meets the Energy Solutions WAC for macroencapsulation of debris by the end of the fourth quarter FY2006. If Energy Solutions cannot accept the waste, prepare an alternate schedule. **Completed – Previously reported in the FY2006 STP Update.**

Proposed: Ship or treat all of the MLLW that is inventory as of 1/1/2008, for which acceptable treatment is available and the treated waste will meet the NTS WAC by the end of the fourth quarter FY2008. If acceptable treatment or handling options are not available, prepare an alternate schedule. **Completed – Previously reported in the FY2008 STP update.**

B. Planning Schedule Activities

None.

3.1.11 Spent Filter Media

Stabilization has been defined as the preferred treatment technology option. The elevated radiation levels associated with this waste may limit treatment of this waste to on-site options only (e.g., planned RHWF or subcontracted mobile unit).

The following is a list of activities required to treat the waste stream in this treatability group:

1. Construct RHWF - This activity involves the construction of the RHWF at the WVDP. As an alternative, a vendor may provide treatment services at the WVDP with a mobile unit. The construction of the RHWF is complete.

2. RCRA Part A Permit Application Modification - This activity involved modification of the WVDP RCRA Permit Application (Part A) and submittal to NYSDEC for approval. A revised Part A permit application was submitted to NYSDEC in June 2001, which included the RHWF as a hazardous waste treatment and storage containment building.

3. Waste Characterization/Treatability Studies - Additional characterization and/or treatability studies may be required to determine waste processing parameters.

   A. Milestones

      Initiate waste characterization/treatability study activities by the second quarter of FY2004, or prepare an alternative schedule. **Complete – Previously reported in the FY2004 STP Update.**

      Proposed: Complete radiological and RCRA Characterization of the waste by the end of the fourth quarter of FY2008. **Complete – Previously reported in the FY2008 STP update.**

   B. Planning Schedule Activities

      None.

3.1.12 Lithium Batteries

As stated in Section 3.1.12 of the Background Volume, this waste stream has been removed from the active portion of the STP.

3.1.13 Aqueous Liquids and Low-Concentration Organic Liquid Waste Streams

During FY2001, The waste streams in Section 3.2.1 were transferred to this section for further management under the STP. The historic information and milestone information will remain in Section 3.2.1.

A. Milestones

   Proposed: Ship all the liquid waste that is in inventory as of 1/1/2006, and that meets the Perma-Fix/DSSI WAC by the end of the fourth quarter FY2006. If Perma-Fix/DSSI cannot accept the waste, prepare an alternate schedule. **Completed –Previously reported in the FY2006 STP Update.**

B. Planning Schedule Activities

   None.

3.2 Mixed Waste Streams for Which Technology Exists but Needs Adaptation or for Which No Technology Exists

3.2.1 Aqueous Liquids and Low-Concentration Organic Liquid Waste Stream

The preferred option for treating aqueous liquids and low-concentration organic liquids is on-site deactivation or stabilization or management of the wastes via the on-site CWA system. Off-site incineration and/or stabilization at off-site facilities were evaluated as an alternative if on-site treatment is not viable. The scheduling priority for this treatability group

was based on the availability of on-site and off-site facilities.

The following is a list of activities required to treat the waste streams in this treatability group:

1. NEPA Documentation - No NEPA is required for on-site treatment alternatives (Integrated Radwaste Treatment Facility [IRTS], vitrification, and utilization of CWA system). In accordance with NEPA, the WVDP is also required to assess and document the action prior to off-site shipment. NEPA requirements for potential shipment and treatment to an off-site commercial facility is satisfied by the WVDP

   WM EIS ROD (Section 1.5). NEPA requirements for shipment and treatment to the DOE facilities have been satisfied by the February 2000 WM PEIS ROD for mixed waste.

2. Waste Characterization - These waste streams were evaluated to determine whether they comply with all waste acceptance requirements of the IRTS, on-site CWA system, or Vitrification Facility, and to determine if this treatment will meet applicable LDR requirements.

   If on-site treatment was not viable, additional analysis was required to demonstrate compliance with specific off-site facility WAC requirements prior to shipment of all wastes. (In 1997, an evaluation was performed as to the potential disposition the Pu Aqueous Waste [WV-W013] to HLW Tank 8D-2 for subsequent vitrification. Disposition of this waste to Tank 8D-2 will not change the characterization of the tank and will not affect the vitrification process. During FY1999, stabilization of the waste was achieved by the vitrification process formerly being used to stabilize Tank 8D-2 wastes.) The on-site treatment using the vitrification process was shut down in September 2002.

3. Treatability Studies - On-site stabilization via IRTS was originally thought to be a preferred treatment option. The utilization of IRTS would have required the performance of treatability studies. However, based on 1998 evaluations, it is unlikely that IRTS will be utilized. Although the potential existed, treatability studies were not required prior to off-site treatment.

4. RCRA Part A Permit Application Modification - This activity involves modification of the WVDP RCRA Part A Permit Application and submittal to NYSDEC (for on-site treatment of wastes via IRTS). However, based on 1998 evaluations, as of September 1998, the utilization of IRTS is not likely for this treatability group.5.

5. Treatment - Wastes in this treatability group generated in the future are anticipated to be treated on site, managed via the on-site CWA system, and/or treated at an off-site facility.

   A. Milestones

      Complete characterization of the waste stream to obtain analytical data necessary to develop recipe requirements for on-site stabilization by the first quarter of FY1998. **Complete - Previously reported in the FY1998 STP update.**

      If on-site stabilization is determined to be a viable option, initiate treatability studies (develop a waste qualification recipe) for stabilization (by IRTS or vitrification unit) of the waste by the first quarter of FY1999. If management in the on-site CWA system is determined to be a potential option, evaluate waste constituents and system loading to determine if disposition will impact SPDES permit limitations by the first quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      Assuming IRTS treatability studies do not consume the entire waste stream and IRTS is determined to be able to meet LDR requirements,

submit Part A modification to NYSDEC by the third quarter of FY1999 (if required). **Complete - Previously reported in the FY1999 STP update.**

If on-site stabilization or management of wastes via CWA system is determined not to be a viable option, submit schedule for INEEL or other available off-site facility by the third quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

If treatability studies show that the waste cannot meet LDR requirements by treatment on site or do not meet the INEEL or other available off-site facility WAC, an alternative treatment schedule identifying milestones and planning schedule activities will be prepared by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

Submit waste profiles to targeted treatment facility by the third quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

Complete on-site treatment of eligible legacy (pre-September 1999) waste by the first quarter of FY2001. **Complete - Previously reported in the FY2001 STP update.**

If waste is approved for acceptance at an off-site facility and a) treatment unit construction is completed; b) start-up test/trial runs are successful; c) full-scale operations are successful; and d) treatment facility waste acceptance operational schedules permit, initiate shipment of waste by the fourth quarter of FY2001. If not, prepare an alternate schedule. **Complete - Previously reported in the FY2001 STP update.**

B. Planning Schedule Activities

None.

3.2.2 Inorganic Particulate Waste Streams

If the waste cannot be reclassified from mixed to hazardous, the preferred option for treating solid process residue waste streams is deactivation and then, if required, stabilization or, if feasible, management in the on-site CWA system. However, parallel evaluation of the potential off-site deactivation or stabilization of these wastes will also be performed. If on-site treatment is determined to be feasible and will meet LDR requirements, then the scheduling priority for this treatability group is based on the availability of the treatment system. If on-site treatment is determined not to be feasible, scheduling will depend on the availability of any off-site facility.

As of the fourth quarter of FY2000, all milestones for this treatability group have been achieved. However an additional milestone was proposed in the FY2005 STP Update for completion by fourth quarter FY2006. Legacy waste inventories and newly generated wastes are being managed in accordance with the following list of activities required to treat the mixed waste streams in this treatability group:

1. NEPA Documentation - NEPA requirements for potential shipment and treatment to an off-site commercial facility has been satisfied by the WVDP WM EIS ROD 8 (Section 1.5).

2. Waste Characterization - These waste streams were further evaluated to determine the presence of UHC above LDR UTS levels and to determine whether they comply with all waste acceptance requirements of the IRTS Facility or off-site facility (e.g., INEEL). If these waste streams do not meet the IRTS or INEEL or other off-site facility WAC or waste acceptance requirements, another treatment option will be developed.

3. Treatability Studies and Deactivation - If required, this activity would involve performing a treatability study to determine the recipe requirements for those wasted requiring further treatment through deactivation and/or stabilization on site or, if required, stabilization at INEEL or other off-site facility. For some small-

volume wastes, the treatability study may consume the entire existing waste stream.

4. RCRA Part A Permit Application Modification - This activity would involve modification of the Part A and submittal to NYSDEC for deactivation/stabilization (treatment in containers) (if treated on site). A modification to the WVDP Part A permit application that included treatment in containers was submitted to NYSDEC in June 2001.

5. Treatment - Treatment of the solid process residues requiring deactivation and/or stabilization on site or treatment at an off-site facility is expected to take approximately six months.

   A. Milestones

      Complete UHC evaluation for the waste streams and obtain analytical data necessary to develop recipe requirements for stabilization by the first quarter of FY1998. **Complete - Previously reported in the FY1998 STP update**.

      Initiate bench scale treatability studies (develop a waste qualification recipe) for wastes requiring stabilization and initiate deactivation of wastes not requiring stabilization by the fourth quarter of FY1999. If management in the on-site CWA system is determined to be a potential option, evaluate waste constituents and system loading to determine if disposition will impact SPDES permit limitations by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      Submit RCRA Part A Permit Application modification to NYSDEC by the fourth quarter of FY1999 (if required). **Complete - Previously reported in the FY1999 STP update.**

      If on-site deactivation and/or stabilization or management of the wastes via the CWA system is determined not to be a viable option, submit schedule for INEEL or other off-site facility by the first quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

      If treatability studies show that the waste cannot meet WAC requirements, an alternative treatment schedule identifying milestones and planning schedule activities will need to be prepared by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

      Submit waste profile to targeted TSDF by the third quarter of FY2000. Complete - **Previously reported in the FY2000 STP update**.

      For waste approved for acceptance by treatment facility, initiate shipment of waste by the fourth quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

      Proposed: Ship all of the MLLW that is in inventory as of 1/1/2006 that meets the Perma-Fix/M&EC WAC by the end of the fourth quarter FY2006. If Perma-Fix/M&EC cannot accept the waste, prepare alternate schedule. **Completed - Previously reported in the FY2006 STP Update.**

      Proposed: Evaluate TSDF acceptance and treatment options by the end of the first quarter FY2012. If a TSDF can accept the waste then ship the waste by end of the third quarter FY2012, otherwise develop an alternate schedule

   B. Planning Activities

      None

3.3 Mixed Waste Streams Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

3.3.1 Aqueous Liquids, Ignitable, Corrosive, or Reactive Only

As stated in Section 3.3.1 of the Background Volume, this waste stream was recharacterized and no further action is required under the STP.

3.3.2 Aqueous Liquids, Toxic Organics

As stated in Section 3.3.2 of the Background Volume, a technology assessment was completed and this waste stream was moved to Section 3.1.3 for further management under the STP.

3.3.3 Organic Liquids, Toxic Organics

As stated in Section 3.3.3 of the Background Volume, the entire existing waste inventory was shipped to an off-site treatment facility in 1998 and no further action is required under the STP at this time.

3.3.4 Aqueous Liquids, Corrosive or Reactive Only

As stated in Section 3.3.4 of the Background Volume, a small volume of multilayered liquid was generated in 2002. The waste was characterized and it was determined that this Class B waste does not meet the WAC for the off-site treatment facility. This waste will continue to be managed under the STP until issues associated with shipment of greater than Class A radioactive waste are and the WVDP begins shipment of greater than Class A radioactive waste for off-site treatment and disposal.

This waste stream has been moved to 3.1.13. No further action is required for this treatability group.

3.3.5 Predominantly Combustible Debris

As stated in Section 3.3.5 of the Background Volume, since available technologies have been identified, this waste stream has been moved to Section 3.1.10 for further management under the STP.

3.3.6 Unknown Solid, Toxic Metals w/o Mercury

As stated in Section 3.3.6 of the Background Volume, since available technologies have been identified, this waste stream has been moved to Section 3.1.10 for further management under the STP.

3.3.7 Solid Process Residues, Toxic Metals w/o Mercury

As stated in Section 3.3.7 of the Background Volume, since available technologies have been identified, this waste stream has been moved to Section 3.1.10 for further management under the STP.

3.3.8 Unknown, Toxic Metals w/Mercury

As stated in Section 3.3.8 of the Background Volume, this waste stream has been moved to Section 3.1.10 for further management under the STP. No further action is required for this treatability group.

3.3.9 Organic Sludges, Toxic Metals w/o Mercury, Ignitable, Corrosive, or Reactive Only

As stated in Section 3.3.9 of the Background Volume, since available technologies have been identified, this waste stream has been moved to Section 3.1.10 for further management under the STP. No further action is required for this treatability group.

3.3.10 Uncharacterized Heterogeneous Debris, Toxic Metals w/Mercury

The following is a list of activities required to characterize the waste streams in this section:

1. Sorting and Sampling Methodology - This activity involved development of a sorting methodology to segregate the mixed and non-hazardous low-level WRPA compacted boxes. As of September 30, 1999, there was no feasible method for sorting of the supercompactor drums.

2. Characterization - This activity involved reviewing existing waste characterization records for each waste stream to determine what further sampling and analysis was required and performing all required analysis. For waste stream WV-W048, this activity involved reviewing existing waste characterization records for that

   portion of this waste stream that was determined to be RCRA hazardous to determine what further sampling and analysis is required and performing all required analysis.

3. Treatment Technology - This activity involved a review of the characterization data in order to determine the appropriate treatment option for these waste streams. For waste stream WV-W048, this activity would have involved a review of the characterization data to determine the appropriate treatment option for this waste stream.

   A. Milestones

      Complete UHC evaluations, organic content analysis, and other evaluations necessary for the treatment technology assessment for these waste streams by the first quarter of FY1998. **Complete for Section 3.3.1 through 3.3.10 of Background Volume - Previously reported in the FY1998 STP update.**

      Determine treatment technology and develop treatment schedules identifying milestones and planning schedule activities for these waste streams by the third quarter of FY1998. **Complete for Section 3.3.1 through 3.3.10 of Background Volume - Previously reported in the FY1998 STP update.**

      Develop a sorting methodology for waste stream WV-W048 (WRPA drums and if possible, supercompacted drums) by the first quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

      Complete characterization of waste stream WV-W048 by the first quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

      Determine treatment technology and develop treatment schedule identifying milestones and planning schedule activities for waste stream WV-W048 by the second quarter of FY2000. **Complete - Previously reported in the FY2000 STP update.**

   B. Planning Schedule Activities

      None.

3.3.11 Filter Media, Toxic Metals w/o Mercury

As stated in Section 3.3.11 of the Background Volume, based on further characterization and identification of preferred treatment options, this waste stream has been moved to Section 3.1.11 for further management under the STP.

3.3.12 Spent Resin

During FY1999, planning activities were initiated to identify a waste water treatment system that would remove potential mercury from the site's SPDES system influent. A system using ion-exchange media was approved by NYSDEC in FY2000 and pilot testing was initiated. During FY2001, pilot testing was completed and the full-scale treatment system became fully operational. The spent ion-exchange media from full-scale system operations is expected to contain mercury above RCRA TCLP limits. Approximately 1.5 m^3 of media would be generated during each change-out, with no more than one change out anticipated.

The following is a list of activities required to characterize and determine the applicable treatment technology(s) for the spent resin waste stream, should it be generated. planning schedule activities are also identified and scheduled, should the waste be generated.

1. Characterization - This activity involves characterizing the spent resin to determine if the waste is mixed and, if so, its toxicity characteristics, and applicable LDR treatment subcategory and treatment standard. Radiological information will also be obtained. Sampling and analysis may be required to complete characterization activities. If radionuclide levels are elevated, special sample shipping and lab requirements may be necessitated. Once the waste is generated, sampling and characterization activities, if required, are expected to take approximately six months to complete.

2. Treatment Technology - This activity involves a review of the characterization data in order to determine the appropriate treatment option for this waste stream. This will take approximately six months to complete.

   A. Milestones

      Currently none (will be developed upon generation of waste).

   B. Planning Schedule Activities

      Complete characterization of waste stream WV-W060 within six months of its generation.

      Determine treatment technology and develop treatment schedule identifying milestones and planning schedule activities within six months of its characterization.

3.3.13 Sodium Bearing Wastewater

During FY1999, planning activities were initiated to identify alternate treatment methods for SBWW. If the waste cannot be vitrified while it is contained within the existing on-site vitrification system, on-site and off-site solidification treatment alternatives would be required for the isolated waste stream. This waste stream was isolated in February 2003 and determined to be MLLW. Consequently chemical stabilization and solidification to meet the concentration based treatment standards for the relevant toxic metals will be used to meet the LDR standards.

The following is a list of activities required to characterize and confirm the applicable treatment technology(s) for the high-sodium waste stream. Milestone activities are also identified, scheduled and completed.

1. Characterization - This activity involved characterizing the SBWW to determine if the waste is mixed (including the performance of a, "Waste Incidental to Reprocessing," characterization determination) and, if so, its toxicity characteristics and applicable LDR treatment standard. Radiological information will also be obtained. Sampling and analysis may be required to complete characterization activities. If radionuclide levels are elevated, special sample shipping and lab

requirements may be necessitated. Once the waste is isolated, sampling and characterization activities, if required, are expected to take approximately six months to complete. The chemical and radiological characterization was initiated in February, 2003.

2. Treatment Technology - This activity involves a review of the characterization data in order to determine the appropriate treatment technology for this waste stream has been chosen. Treatability studies may also be required. This will take approximately six months to complete. Treatability studies were conducted in 2001 and 2002 to demonstrate that chemical stabilization and solidification was an effective treatment process to meet the LDR standards.

   A. Milestones

      Initiate characterization of waste stream WV-W060 within six months of its isolation or by the second quarter of FY2004 if a mechanism is in place to support UHC analysis, or prepare an alternative schedule. **Complete - Previously reported in the FY2003 STP update**

      If required, determine treatment technologies and perform treatability studies on the concentrated high-sodium waste stream by the fourth quarter of FY2004 or six months after characterization is completed. **Complete - Previously reported in the FY2003 STP update**

      If required, confirm treatment technology and develop treatment schedule identifying milestones and planning schedule activities by the first quarter of FY2005. **Completed – Previously reported in the FY2005 STP Update.**

   B. Planning Schedule Activities

      None.

3.3.14 High Activity Residual Liquid Waste Stream

This waste stream was added to the FY2005 STP Update in anticipation of the isolation of waste liquids and residual solids in the process and storage tank system.

The following is a list of activities required to characterize and confirm the applicable treatment technologies required to meet the Universal Treatment Standards.

1. Characterization – This activity involves characterizing the waste to determine the applicable toxicity characteristics which are associated with the waste. A WIR determination may also be required to determine that it can be managed as LLW or TRU waste. Radiological characterization will determine the proper classification of the waste.

2. Treatment Technology – This activity involves a review of the characterization data in order to determine the appropriate treatment technology for this waste stream. Treatability studies may be required to determine or confirm the appropriate technology.

   A. Milestones

      Submit RCRA Part A Permit Application Modification to NYSDEC for Approval. **Complete**

      Receive Approval from NYSDEC – **Pending**

Develop conceptual design for liquid solidification system by the end of 3rd Quarter FY2010 or develop alternate schedule. **Completed February 2010.**

Initiate sampling for Treatability Study by 1st Quarter FY2010 or develop alternate schedule. **Completed - the Evaporator Flush Liquid Treatability Study and Recipe June 2010.**

Initiate construction of the Liquid Waste Treatment System by the end of the 3rd Quarter FY2010 or develop alternate schedule. **Completed - Dry Handling Solids Systems was delivered and control panel was set in place May 2010.**

Initiate treatment of the 5D-15A1 Liquids by the end 4th Quarter FY2010 or develop alternate schedule. **Completed – Alternate schedule provided in proposed milestone.**

Initiate and maintain operations of T&VDS **– Completed December 2010**

Proposed: – Intitate treatment of the 5D-15A1 liquids by the end of 4th Quarter FY2011 or develop alternative schedule.

B. Planning Schedule Activities

Initiate the characterization of the High Activity Residual Liquid Waste Stream within six months of the waste being isolated.

Determine the appropriate treatment technology and initiate a treatability study, if necessary, within six months of the waste characterization.

4.0 TRU WASTE STREAMS

4.1 TRU Waste Streams Expected to Go to the WIPP

The WVDP currently has no waste streams in this category. However, if in the future the DOE determines WVDP TRU waste can be sent to the WIPP, currently identified treatment options for TRU waste streams may need to be modified

4.2 TRU Waste Streams Not Destined for the WIPP

The WVDP has determined that TRU elemental lead waste streams that can be decontaminated and reused are not subject to LDR treatment requirements. For those elemental lead waste streams which cannot be successfully decontaminated on site or off site and will require LDR treatment, the preferred treatment option is macroencapsulation at an off-site commercial facility. For debris, the alternative treatment standards for hazardous debris may be applicable treatment options (e.g., incineration or immobilization). Actual treatment is dependent on the waste acceptance and scheduling constraints of the selected facility and the issuance of a ROD or other agreement to satisfy requirements of the Stipulation of Compromise. The Stipulation of Compromise prohibits the off-site shipment of Class B/C TRU waste until appropriate NEPA documentation is completed.

If the WVDP can obtain access to the WIPP facility, treatment for LDR compliance may not be necessary. The WIPP is exempt from the LDR requirements under the National Defense Authorization Act of 1997. However, it is expected that the characterization requirements to certify that the WVDP waste meets the WIPP WAC will be significant. If approval to ship the WVDP waste to the WIPP is received, this waste stream will be moved to Section 4.1.

The following is a list of activities required to treat the wastes identified in this treatability group:

4.2.1 TRU Lead and Debris Waste Stream

1. Decontamination - This activity involved the on-site decontamination of the lead. The decontamination effort was completed in FY1997. Lead generated by future decontamination activities which cannot be decontaminated on site will be decontaminated or macroencapsulated at an off-site facility.

2. Prepare NEPA Documentation - The WVDP WM EIS ROD discussed in Section 1.5 does not provide NEPA coverage for TRU or TRU Mixed Wastes for off-site shipment to commercial facilities.

3. Waste Characterization - Fixed contaminated TRU elemental lead which cannot be successfully decontaminated on site and lead/mercury- or other metal/organic-containing debris will need to be further evaluated to determine whether it complies with all the requirements of the commercial facility WAC. Analytical data will also be reviewed to evaluate whether the waste can be reclassified as LLW. Additional sampling and analysis will need to be performed, as required. If these waste streams do not meet the waste acceptance requirements, other treatment options will be evaluated and developed.

4. Contracts and Shipping - This activity involves establishing a contract with facilities to decontaminate and/or macroencapsulate the fixed contaminated TRU lead wastes and incinerate and/or immobilize the debris wastes. Formal approval of the waste profile sheets, packaging the waste for shipment, and off-site transport will also be required.

   A. Milestones

   Decontaminate the lead by the fourth quarter of FY1997. **Complete - Previously reported in the FY1997 STP update.**

   Complete characterization of the TRU elemental lead which contains fixed contamination to meet the commercial facility's WAC by the third quarter of FY1998. **Complete - Previously reported in the FY1998 STP update.**

   Complete characterization of the lead debris wastes to meet the off-site facility's WAC by the first quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

   Assuming that NEPA requirements have been satisfied by this date (by the third quarter of FY1999), issue an RFP for decontamination/ immobilization (macroencapsulation) or prepare necessary paperwork to obtain treatment at INEEL by the third quarter of FY1999. If NEPA requirements have not been completed by this date, this activity will commence six months after NEPA approval is received. **Complete - Previously reported in the FY1999 STP update.**

   If the facility's WAC cannot to be met, or if no facility responds to the RFP, an alternate schedule identifying milestones and planning schedule activities for treating this waste will need to be prepared by the fourth quarter of FY1999. **Complete - Previously reported in the FY1999 STP update.**

   Award contract or obtain waste stream acceptance/treatment approval for shipment off site by the fourth quarter of FY1999. **Complete - Previously reported in the 1999 STP update.**

   If the Stipulation of Compromise is settled via completion of an EIS ROD, NEPA documentation is in place, off-site treatment capacity exists, and the waste meets the off-site facility(s) WAC, initiate shipment of waste for treatment by the fourth quarter of FY2000. **Complete - Previously**

reported in the FY2000 STP update. If waste cannot be shipped, prepare an alternate treatment schedule by the first quarter of FY2001. **Complete - Previously reported in the FY2001 STP update.**

B. Planning Schedule Activities

If NEPA documentation is in place and there are no other legal or regulatory obstacles preventing WVDP from shipping mixed waste greater than Class A, on-site TRU waste handling/packaging mechanisms are in place (e.g., RHWF), and a TSD facility that can accept WVDP mixed TRU waste for disposal has been identified, initiate shipment for treatment (if necessary) and disposal within one (1) year of WVDP receiving a waste approval commitment for receipt and disposal of mixed TRU waste.

4.2.2 TRU Liquids

D&D activities are expected to generate TRU liquids. The preferred treatment option for this waste stream was vitrification in the on-site Vitrification Facility. However, with completion of the vitrification campaign, new treatment options will need to be developed.

The following activity was required to treat waste streams in this treatability group:

1. Treatment - This activity involved the identification of the preferred physical pathway to transfer the wastes from their current containers to the vitrification system. With the completion of the vitrification campaign at the WVDP in September 2002, a new preferred treatment option must be developed for this waste stream.

A. Milestones

Initiate treatment of waste stream by the fourth quarter of FY1999. **Complete - Previously reported in the FY2000 STP update.**

B. Planning Schedule Activities

Evaluate and develop treatment options for TRU liquids.

4.3 TRU Waste Streams Requiring Further Characterization or for Which Technology Assessment Has Not Been Done

4.3.1 Plan for Activities and Estimated Schedules

The following is a list of activities that were required to characterize the TRU waste streams in this section (Background Volume treatability groups 4.3.1, 4.3.2, 4.3.3, and 4.3.4):

1. Characterization - This activity involved reviewing existing waste characterization records for each waste stream (to determine what further sampling and analysis is required) and performing all required analysis. Characterization activities for all waste streams were expected to take approximately twelve months to complete.

2. Treatment Technology - This activity involved a review of the characterization data in order to determine the appropriate treatment option for these waste streams. This took approximately four months to complete.

A. Milestones

Complete UHC evaluations, radiological analyses, and other evaluations necessary for the treatment technology assessment for these waste streams by the first quarter of FY1998. **Complete for Sections 4.3.1, 4.3.2/4.3.3, and 4.3.4 of Background Volume - Previously reported in the FY1998 STP update.**

Determine treatment technology and treatment schedules identifying milestones and planning schedule activities for these waste streams by the third quarter of FY1998. **Complete for Sections 4.3.1, 4.3.2/4.3.3, and**

4.3.4 of Background Volume - Previously reported in the FY1998 STP update.

B. Planning Schedule Activities

None.

5.0 HIGH-LEVEL MIXED WASTE STREAMS

5.1 Vitrification of High-Level Waste

5.1.1 High-Level PUREX and THOREX Waste Streams

The preferred option for vitrification of high-level waste (HLW) is to perform this activity on site in the Vitrification Facility. All milestones for this treatability group have been completed. Documentation supporting this can to be found in the FY1997 STP update.

The vitrification campaign at the WVDP was completed in September 2002.

The following is a list of activities that were required to treat the HLW and the internal scheduling goals:

1. Facility Checkout and Performance Testing - This activity included conversion of the Component Test Stand Facility to a fully shielded, remote facility. It included checkout and testing through integrated non-radioactive operations and was initiated by the first quarter of FY1996.

2. Facility Radioactive Operations Startup Approval - This involved DOE Operational Readiness Review of radioactive operations of the Vitrification Facility. This activity was initiated by the first quarter of FY1996.

3. Treatment - This activity involved vitrifying the HLW and stabilizing LLW as described in Section 5.1 of the Background Volume. This activity was initiated by the third quarter of FY1996.

   A. Milestones

   Initiate non-radioactive checkout and testing by the first quarter of FY1997. **Complete - Previously reported in the FY1997 STP update.**

   Initiate facility radioactive operations start up by the first quarter of FY1997. **Complete - Previously reported in the FY1997 STP update**.

   Initiate treatment of HLW by the third quarter of FY1997. **Complete - Previously reported in the FY1997 STP update**.

   B. Planning Schedule Activities

   None.

APPENDIX A

FY2010 MILESTONE STATUS

FY2010 PROPOSED MILESTONE

Section 3.1.4

WASTE STREAM:	WV-W020 and WV-W038
MILESTONE:	Develop or locate acceptable treatment and handling options for the greater than Class A waste with high radioactivity and high contamination by the fourth quarter of FY2010. If acceptable treatment and handling options are developed or located by the end of FY2010, then treat the waste or ship it off-site treatment by the end of the third quarter of FY2011. If acceptable treatment or handling options are not available, then prepare an alternate schedule.
CONTAINERS REMOVED FROM STP:	N/A
WASTE VOLUME REMOVED FROM STP:	N/A
LETTER TO COMPLETE/CLOSE TASK:	Site Treatment Plan FY2009 Milestones
MILESTONE SUMMARY:	For the remaining inventory of greater than Class A waste with high radioactivity and high contamination, treatment is being pursued through new procurement. A schedule for the procurement and shipment of this waste has been developed. The alternate schedule is captured as proposed milestones for FY2011. The proposed milestones are identified in section 3.1.4 of the Plan Volume.

DOCUMENTATION IS ON FILE AT THE WVDP

FY2010 PROPOSED MILESTONE

Section 3.1.6

WASTE STREAM:	WV-W002 and W046
MILESTONE:	Develop or locate acceptable treatment and handling options for the greater than Class A waste with high radioactivity and high contamination by the fourth quarter of FY2010. If acceptable treatment and handling options are developed or located by the end of FY2010, then treat the waste or ship it off-site treatment by the end of the third quarter of FY2011. If acceptable treatment or handling options are not available, then prepare an alternate schedule.
CONTAINERS REMOVED FROM STP:	N/A
WASTE VOLUME REMOVED FROM STP:	N/A
LETTER TO COMPLETE/CLOSE TASK:	Site Treatment Plan FY2009 Milestones
MILESTONE SUMMARY:	For the remaining inventory of greater than Class A waste with high radioactivity and high contamination, treatment is being pursued through new procurement. A schedule for the procurement and shipment of this waste has been developed. The alternate schedule is captured as proposed milestones for FY2011. The proposed milestones are identified in section 3.1.6 of the Plan Volume.

DOCUMENTATION IS ON FILE AT THE WVDP

FY2010 PROPOSED MILESTONE

Section 3.3.14

WASTE STREAM:	High Activity Residual Liquid Waste Stream
MILESTONE:	1. Develop conceptual design for liquid solidification system by the end of third quarter FY2010 or develop alternate schedule; 1. Initiate sampling for a treatability study by first quarter of FY2010 or develop alternate schedule; 2. Initiate construction of the Liquid Waste Treatment System by the end of the third quarter FY2010 or develop alternate schedule; 3. Initiate treatment of the 5D-15A1 liquids by the end of fourth quarter FY2010 or develop alternate schedule.
CONTAINERS REMOVED FROM STP:	N/A
WASTE VOLUME REMOVED FROM STP:	N/A
LETTER TO COMPLETE/CLOSE TASK:	Reschedule of Interim Milestone for Treatment of the Tank 5D-15A1 Liquid
MILESTONE SUMMARY:	To prepare for stabilization and solidification of the liquid contained in the MPPB Uranium Process Cell tanks, the sample taken from Tank 5D-15A1 in FY2009 was shipped to an off-site lab that is NYS ELAP certified. The sample was analyzed for radioactive, RCRA characteristic metals and general chemical constituents. These results were provided to the WVDP subcontractor that had been retained to develop candidate stabilization/solidification recipes on a laboratory scale. Following successful laboratory testing with a non-radioactive surrogate, an actual sample of the Tank 5D-15A1 liquid was provided to the off-site lab and confirmatory testing was conducted with the most promising recipes. Candidate recipes were successfully developed to achieve the desired waste form that meets LDR criteria. The preliminary design of the full scale WVDP stabilization/solidification system was completed and a design review conducted. The solid ingredient bulk bag delivery system was specified, ordered and received. This system accommodates three 1-ton bags of solid ingredients (such as Portland cement, silica fume and fly ash) on weigh scales with an enclosed conveyor system to deliver the solid ingredients to the mixing vessel. The system also incorporates a bag-break/addition station to accommodate small quantities of dry ingredients. The container fill/mixing station design was partially completed with a preliminary design for the waste container support stands and the control system. A purchase requisition was issued for the IP-2 mixing containers and quotes were received. NYSDEC approval for RCRA Interim Status Operation is pending. During FY2010, to further enhance corrosion protection of isolated Tanks 8D-1, 8D-2, 8D-3 and 8D-4 and their vaults, the installation of a Tank and Vault Drying System (T&VDS) was initiated. The T&VDS is a ventilation system whereby dehumidified air is introduced into the tanks and vaults enhancing liquid evaporation in the vaults and in the tanks. The dry air injected into the tanks and

vaults picks up moisture from the wetted surfaces in the tanks and vaults so that the exhaust air has significantly higher moisture. After the first few days of T&VDS operation, the relative humidity in the tanks and vaults will be reduced. Wetted surfaces and standing liquid in the tanks and vaults will be evaporated over longer periods of time depending on the volume of the residual liquid, dry air flow rate and the area of the wet surfaces. The moist air exiting the vaults passes through a rotary desiccant dryer to remove moisture before the dried air is recirculated back to the vaults. Moist exhaust air from the tanks is routed through the underground ventilation lines to the PVS inlet plenum where the moist air is filtered before passing up the discharge stack. Moisture collected on the rotary desiccant dryer is removed by a heated reactivation air flow supplied from the outside environment. The moist air from desiccant reactivation is ducted to the PVS inlet plenum where it is exhausted through the Permanent Ventilation System. The enhanced air circulation system is expected to achieve an evaporation rate up to approximately 4,000 gallons per year from 8D-1 and 8D-2 and up to approximately 400 gallons per year each from 8D-3 and 8D-4 (previously, prior to installation of T&VDS, rates of 1,000 and less than 50 gallons per year, respectively, were realized). The maximum volume of liquid waste that is expected to be processed by the T&VDS is approximately 60 gallons per day from the tanks.

The T&VDS unit was conditionally approved as a RCRA Interim Status Hazardous Waste Management unit on 10/16/2009 by NYSDEC.

DOCUMENTATION IS ON FILE AT THE WVDP

WVDP RECORD OF REVISION

Rev. No.	Description of Changes	Revision On Page(s)	Dated
0	Original Issue	All	02/11/98
1	General Revision - 1998 annual update	All	02/04/99
2	General Revision - 1999 annual update	All	02/01/00
3	General Revision - 2000 annual update Changes made throughout document to identify work activities conducted during FY2000.	All	10/25/00
4	General Revision - 2001 annual update Changes made throughout document to identify work activities conducted during FY2001.	All	02/06/02
5	General Revision - 2002 annual update Changes made throughout document to identify work activities conducted during FY2002. Waste Management and Environmental Affairs are affected by these changes	All	02/13/03
6	General Revision - 2003 annual update Changes made throughout document to identify work activities conducted during FY2003. Waste Management and Environmental Affairs are affected by these changes	All	02/05/04
7	General Revision – 2004 annual update. Changes made throughout document to identify Work activities conducted during FY2004. Waste Shipping & Disposal and Environmental Affairs are affected by these changes	All	02/10/05
8	General Revision – 2005 annual update. Changes made throughout the document to identify work activities conducted and changes to the waste volumes during FY2005. Waste Shipping and Disposal and Environmental Affairs are affected by these changes	All	02/07/06
9	Revision to incorporate DOE comments. Waste Shipping and Disposal and Environmental Affairs are affected by these changes.	All	02/13/06
10	Revised to incorporate proposed FY06 and FY07 milestones for WVDP MLLW. Waste Shipping and Disposal and Environmental Affairs are affected by these changes.	All	03/08/06
	Reissue for minor wording clarification.	All	03/10/06
11	Reissue to incorporate DOE comments. WSD and EA are affected by these changes.	All	04/04/06

WVDP RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
12	General Revision - 2006 Update. Changes made throughout the document to identify work activities conducted and changes to the waste volumes during FY2006. Waste Shipping and Disposal and Environmental Affairs are affected by these changes	All	02/01/07
13	General Revision: 2007 annual update. Changes made throughout the document to identify work activities conducted and changes to the waste volumes during FY2007. Waste Planning, and Disposition and Environmental Affairs are affected by these changes.	All	02/05/08
14	Revision to correct the quantity of waste in Table 4.1 Waste Planning and Shipping is affected by this change	110	2/11/08
15	General Revision: FY2008 annual update. Changes are made throughout the document to identify work activities conducted and changes to the waste volumes during FY2008. Waste Planning, and Disposition and Environmental Affairs are affected by these changes.	All	02/04/09
16	General Revision: FY2009 annual update. Changes are made throughout the document to identify work activities conducted and changes to the waste volumes during FY2009. Waste Planning, and Disposition and Environmental Affairs are affected by these changes.	All	02/04/10
17	General revisions and editorial comment incorporation Waste Planning, Disposition and Environmental Affairs are affected by these changes	All	02/11/10
18	General Revision: FY2010 annual update. Changes are made throughout the document to identify work activities conducted and changes to the waste volumes during FY2010. Waste Planning and Disposition and Environmental Affairs are affected by these changes.	All	02/07/11