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| <i>P. 2 of 2</i> | | | |

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Revision 1

M-91 TRU MIXED / MIXED LOW-LEVEL WASTE PROJECT MANAGEMENT PLAN

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management
Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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Richland, Washington

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March 2004

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Assistant Secretary for Environmental Management

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Assistant Secretary for Environmental Management
Project Hanford Management Operator for the
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Regulated and non-regulated waste streams information is provided on TRUM waste processing capabilities; however, applicability of milestone schedules for treatment or certification of TRUM waste will be determined by the court decision in *Washington v. Abraham*, No. CT-03-5018-AAM.

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Appendix H – M-91 Mixed Low-Level Waste Processing Schedule

Appendix I – M-91 Transuranic Mixed Waste Processing Schedule

1.0 PROJECT GOALS AND OBJECTIVES

The Transuranic Mixed Waste and Mixed Low-Level Waste Project Management Plan (PMP) has been developed to meet the M-91-03 milestone that requires submission of a plan that addresses Hanford processing of contact-handled (CH) and remote-handled (RH) Mixed Low-Level Waste (MLLW) and Transuranic Mixed Waste (TRUM). The PMP was developed to be in accordance with Agreement Section 11.5, *Waste/Material Stream Project Management Work Plans Prepared Under Agreement Milestone Series M-90-00, M-91-00 and M-92-00* of the Tri-Party Agreement¹ (TPA). Although the M-91-03 milestone requires revision to the Transuranic Mixed Waste and Mixed Low-Level Waste PMP in 2009 and 2013, the status of activities identified in the PMP related to scheduled and completed RH and large/over-size containers of mixed waste will provide information for preparing the annual report required by milestone M-91-45.

This PMP and subsequent revisions supercede and completely replace previously prepared M-91-03 and M-91-10 PMPs.

The mission of the Hanford Transuranic Mixed Waste and Mixed Low-Level Waste Project is to compliantly store, treat and dispose of legacy mixed waste as well as to effectively manage newly-generated mixed waste to preclude build up of a back-log of waste awaiting treatment. The M-91 milestones provide a regulatory framework to meet these goals, including:

- Complete thermal treatment of at least 600 m³ of MLLW by December 31, 2005
- Complete acquisition of facilities/capabilities and initiate treatment of RH and large/over-size containers of MLLW by June 30, 2008
- Complete treatment of all CH MLLW in

storage as of December 31, 2002 (5,066 m³ in Treatability Groups MLLW-02 through 06, and 08-10) and newly generated and retrieved CH MLLW (in the above Treatability Groups as of June 3, 2009) by December 31, 2009

- Treat all CH MLLW generated after June 30, 2009 in accordance with LDR requirements
- Initiate treatment of 300 m³ per year of RH and large/over-size container MLLW beginning by June 30, 2008

The TRU Project will be focused on retrieval of post-1970 retrievably stored suspect TRU waste as well as acquisition of capabilities and/or facilities to process remote-handled (RH) and large container contact-handled (CH) TRU waste. The following M-91 milestones have been established that target these focus areas:

- Complete the acquisition of capabilities and/or facilities to support retrieval, designation, storage and processing of post-1970 RH and large container CH TRU waste by June 30, 2012
- Complete retrieval of all CH retrievably stored waste in burial grounds 218-W-4C, 218-E-12B, 218-W-3A and 218-W-4B by December 30, 2010
- Complete retrieval of RH retrievably stored waste in the same burial grounds by December 31, 2014, with the exception of the 200 Area Caissons, which are required to be retrieved by December 31, 2018
- Designate and begin processing 300 m³/year of RH and large containers of CH TRU waste beginning no later than June 30, 2012

2.0 BACKGROUND

2.1 Overview of Transuranic Mixed Waste and Mixed Low-Level Waste Management

Mixed Waste is defined as radioactive waste that also contains dangerous and/or hazardous constituents (see Appendix A). Based on the May 1987 Byproducts Rule, the radiological constituents of Mixed Waste are governed by the Atomic Energy Act (AEA), and the chemical and hazardous constituents are governed by Resource Conservation and Recovery Act (RCRA) of 1976 (40 CFR 260). WAC 173-303 implements the Hazardous Waste Management Act as amended.

In November of 1986 RCRA regulations were applied such that low-level waste (LLW) that was not already disposed of became subject to RCRA if it contained hazardous waste constituents. Consequently, in July of 1986, the radioactive waste disposal operations undertook the practice of segregating LLW from Mixed Waste. Mixed Waste was placed in RCRA permitted facilities.

In November 1987, the State of Washington Department of Ecology (Ecology) was first authorized by the EPA to regulate Mixed Waste. Subsequently, representatives from DOE-RL and Westinghouse Hanford Company (WHC), EPA Region X and Ecology met to discuss the strategy needed to handle the Mixed Waste that was being generated at the Hanford Site. The resulting strategy, effective January 15, 1988, allowed all containerized Mixed Waste generated on-site (except for RH waste and ignitable waste) to be consolidated for temporary aboveground storage on retrievable storage pads. Mixed Waste generated off-site could not be accepted for storage, except on a case-by-case basis with concurrence from EPA and Ecology, until the radioactive Mixed Waste

storage buildings were in place. These new storage buildings were placed in service beginning in 1989.

Transuranic Mixed Waste

The Atomic Energy Commission (AEC, a DOE predecessor agency) initially defined TRU waste as "wastes with known or detectable contamination of transuranium nuclides". In March of 1970, AEC sites were directed to segregate TRU waste and place the waste in retrievable storage that would allow the waste to be retrieved within 20 years. Before this date, no effort was made to segregate TRU waste from low-level waste (LLW) or to make LLW retrievable.

Until 1982, the TRU waste segregation limit was set at 10 nanocuries per gram; in 1982, the limit was changed to 100 nanocuries per gram. This limit statutorily was codified by Congress in 1992. Because of the changing definition of TRU waste, waste generated and stored between 1970 and 1982 could contain less than the current threshold for defining TRU waste of 100 nanocuries per gram. This waste has been termed "suspect" TRU because of the probability that much of this waste will be designated LLW following verification. However, all containers placed in retrievable storage as TRU in the LLBG through 1988 are considered suspect until proven to be non-TRU waste. Drums were also categorized by waste generators as TRU as a conservative measure rather than by assay. In addition, all retrievably stored RH TRU waste (drum and box) is considered suspect because the capability to reliably determine (by assay) the TRU waste content of these containers has never existed on the Hanford Site.

Land Disposal Restrictions

As part of RCRA, Land Disposal Restrictions (LDR) were promulgated in the late 1980's. Beginning in 1990, TPA milestone M-26-01 required a plan with subsequent yearly reports

on the volume of mixed waste in storage at the Hanford Site. The latest year's report is the Hanford Site Mixed Waste Land Disposal Restrictions Report². The data sheets in the report provide total waste volume for both the currently stored inventory and the waste forecasted to be generated during the next five years. The data sheets describe how, where, and what volume of waste is stored and current information about the waste's disposition. There are two types of data sheets in the LDR Report, Treatability Group data sheets and location-specific data sheets. This PMP addresses LDR Treatability Groups MLLW-02 through MLLW-10 as described in Section 2.2.

Waste Acceptance Criteria

The Hanford Site Solid Waste Acceptance Criteria³ (HSSWAC) document, prepared by Fluor Hanford Incorporated (FH), sets forth the baseline criteria for acceptance of waste at the following Hanford Site treatment, storage, and/or disposal (TSD) units: the Central Waste Complex (CWC), WRAP, T Plant and LLBG. The waste acceptance criteria for each TSD unit have been established to ensure that waste can be managed within the operating requirements of the unit, including environmental regulations, DOE Orders, permits, nuclear safety requirements, waste analysis plans, performance assessments, and other applicable requirements.

2.2 Transuranic Mixed Waste and Mixed Low-Level Waste Information

Mixed Low-Level Waste Treatability Groups

MLLW is currently stored or is forecasted to be generated from activities related to Hanford cleanup. Figure 1 indicates the amount of MLLW currently in storage at CWC, the amount of MLLW expected from retrieval activities, and forecast from other sources. Of the total forecasted Hanford MLLW inventory,

approximately five percent (by volume) is RH and large container CH MLLW. These volumes are within the existing and planned MLLW processing capabilities. Additional sources of MLLW at Hanford could result from CERCLA cleanup activities, retrieval operations, and other cleanup activities; these remediation decisions will determine if additional MLLW processing capability/capacity is required.

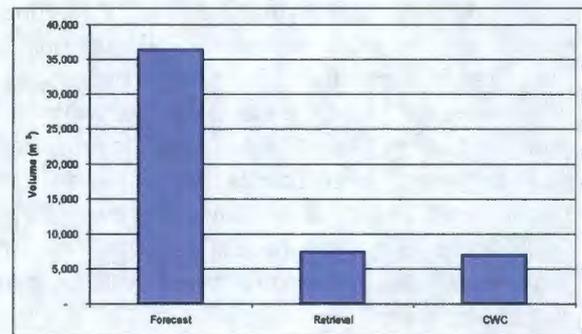


Figure 1. Hanford Mixed Low-Level Waste Sources.

The Mixed Waste is categorized by the necessary treatment path to ensure that this waste, once treated, will meet LDR requirements for disposal. The Calendar Year 2002 Hanford Site Mixed Waste Land Disposal Restrictions Report includes:

- MLLW-01 "LDR Compliant Waste," Treatment Path – Direct Disposal
- MLLW-02 "Inorganic Non-Debris," Treatment Path – Non-Thermal (Stabilization)
- MLLW-03 "Organic Non-Debris," Treatment Path – Thermal
- MLLW-04a "Organic/Carbonaceous Hazardous Debris," Treatment Path – Non-Thermal (Macro-encapsulation*)
- MLLW-04b "Non-Organic/Non-Carbonaceous Hazardous Debris," Treatment Path – Non-Thermal (Macro-encapsulation)
- MLLW-05 "Elemental Lead," Treatment Path – Non-Thermal (Macro-encapsulation)
- MLLW-06 "Elemental Mercury," Treatment Path – Mercury Amalgamation

- MLLW-07 “RH and Large Container,” Treatment Path – M-91
- MLLW-08 “Unique Wastes,” Treatment Path – No Path (lack of treatment capability)
- MLLW-09 “Lead Acid & Cadmium Batteries,” Treatment Path – Macro-encapsulation once Ecology adopts the new EPA LDR
- MLLW-10 “Reactive Metals,” Treatment Path – No Path (lack of treatment capability)

* Organic/Carbonaceous (O/C) LDR inapplicability certification has been in affect since 1999 allowing for the treatment of the O/C debris by methods other than incineration

Much of the Mixed Waste is categorized as requiring non-thermal treatment, such as macro-encapsulation or stabilization (MLLW-02, 04 and 04A). These non-thermal treatment technologies are available both on and off-site. Some of the waste (approximately 840 m³ - not including potential waste from retrieval operations) requires thermal treatment but very limited technologies are available to address this type of waste, particularly based on the radionuclide activity and dose rates of Hanford’s inventory. The remaining volume of MLLW has been identified as “no-path forward waste” or is targeted for M-91 disposition. This consists of large sized containers, RH waste, high mercury subcategory waste, and other technology specific treatments. No-path forward waste is discussed in Section 4.1. MLLW-01, LDR-compliant waste is not addressed in M-91 because it is stored in compliance with WAC-173-303 requirements. MLLW-01 is not within the scope of this PMP.

Transuranic Waste Streams

TRUM waste is currently stored in CWC, retrievably stored in the LLBG, or is forecasted to be generated from activities related to Hanford cleanup (Fig. 2). These volumes are within the existing and planned TRU/TRUM waste processing capabilities. Potential sources of TRU/TRUM waste at Hanford could result

from future Hanford waste site Records of Decision, etc; these actions will determine if additional TRU/TRUM waste processing capability/capacity is required.

“Of the approximately 15,000 m³ of suspect TRU/TRUM waste retrievably stored in the LLBG, it is estimated that only about 7,500 m³ will assay as TRU/TRUM waste. Of this 7,500 m³ about 200 m³ is now identified as TRU mixed waste.

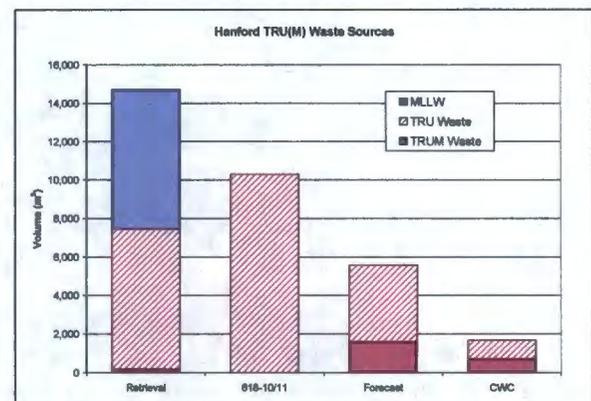


Figure 2. Hanford TRU/TRUM Waste Sources.

Mixed Waste in Storage

Approximately 21,000 containers representing 6,700 m³ of MLLW (Fig. 3 - includes 1,100 m³ of Mixed Waste-01 LDR Compliant Waste) and 2,512 containers representing about 910 m³ of TRUM are stored in the CWC. Waste volumes are as of December 31, 2002 and are from the Calendar Year 2002 Hanford Site Mixed Waste Land Disposal Restrictions Report².

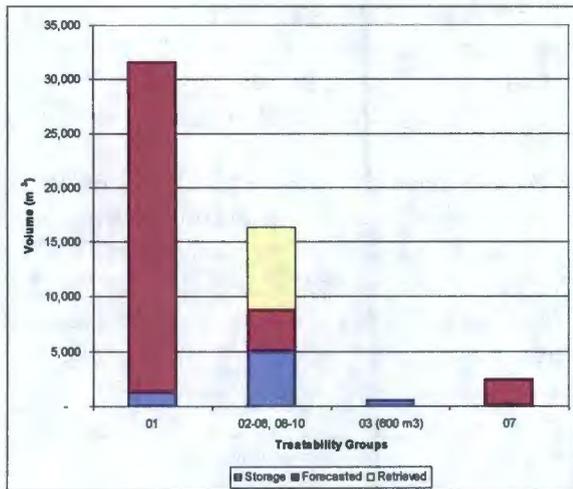


Figure 3. Summary of Hanford MLLW Treatability Groups Storage and Forecasted Volumes.

Mixed Waste from LLBG Post-1970 TRU/TRUM Retrieval

Hanford has in excess of 38,000 containers (15,000 m³) of legacy (previously generated) "suspect" transuranic waste temporarily stored in the 200 Area LLBG awaiting retrieval. The LLBG containers are retrievably stored and are both CH and RH waste (Figures 4 and 5).

In accordance with milestone M-91-40, retrieval of CH retrievably stored suspect transuranic waste in the 200 Area Low Level Burial Grounds was to begin in burial ground 218-W-4C by November 15, 2003 and be completed in all four burial grounds (i.e., 218-W-4C, 218-E-12B, 218-W-3A and 218-W-4B) by December 31, 2010. The current retrieval process begins with uncovering the waste containers followed by performance of nondestructive assay to separate TRU waste from non-TRU waste. Waste that is determined to be TRU will be vented, if necessary, and transported to the Central Waste Complex for additional characterization to support certification requirements for WIPP disposal. It is anticipated that a significant percentage of this retrievably stored suspect TRU waste will assay as low level waste based on the change in definition of TRU waste (currently defined as

100 nanocuries per gram versus the previous 10 nanocuries per gram). In addition, drums were categorized as TRU waste as a conservative measure rather than by assay. Based on this change in definition, it is assumed that about 50% of the retrieved waste will be determined to be non-TRU (approximately 7,500 m³). This non-TRU waste will be managed as suspect Mixed Waste, and transported to a permitted Hanford Treatment, Storage or Disposal unit or to the Environmental Restoration Disposal Facility (ERDF) to be designated, treated and disposed of in accordance with applicable regulatory requirements.

Both the low level and the TRU waste generated as a result of retrieval operations will be designated using the same process no later than 90 days after retrieval is completed. In general, the designation of the retrievably stored debris waste will be based on acceptable knowledge data packages that have developed for use in certifying TRU waste. For the non-debris waste, additional characterization may be performed in order to manage the waste in the most cost-effective, compliant manner.

Large containers (Fig. 6) that can not be designated based on a lack of available process knowledge will be identified and stored in a safe configuration until processing capabilities are available in 2008 and 2012 to designate this waste in compliance with Washington Administrative Code requirements.



Figure 4. Suspect Transuranic Waste Drum Storage in the Low-Level Burial Grounds.

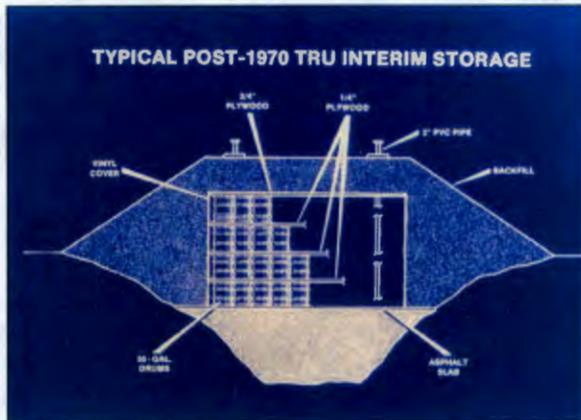


Figure 5. Suspect Transuranic Waste Drum Storage in the Low-Level Burial Grounds.



Figure 6. Large Container Transuranic Waste stored in the Low-Level Burial Grounds.

Forecasted Waste

Approximately 37,000 m³ of CH and RH MLLW and 1,300 m³ of CH and RH TRUM is forecasted^{2,4} through fiscal year (FY) 2035. The waste forecast does not include off-site Mixed Waste at this time; however, it is anticipated that there will be some off-site Mixed Waste included in future waste forecast updates after the Solid Waste EIS is finalized.

The portion of the Mixed Waste requiring M-91 processing (MLLW-07 and TRUM) consists of both CH and RH fractions. The CH volume consists of large waste items, and waste in boxes (non-drum containers). The RH portion includes all Mixed Waste matrices with dose rates equal

to or greater than 200 millirem per hour at contact.

Forecast TRUM waste includes activities related to: facility stabilization and cleanup (Fig. 7), maintenance of process equipment, laboratory operations, and Office of River Protection (ORP) tank farms cleanup operations (contents of the tanks and associated piping have not been forecast and therefore are not included). The portion of the TRUM waste requiring M-91 processing is the CH volume which consists of large waste items, and waste in boxes (non-drum containers). The RH portion includes all TRUM waste containers having dose rates exceeding 200 millirem per hour at contact.



Figure 7. Transuranic Contaminated Glovebox at the Plutonium Finishing Plant.

It should be noted that the a potentially large volume of TRU/TRUM waste could be generated as a result of CERCLA remediation decisions scheduled to be made in 2008. The only exception is the remediation of the 618-10 and 618-11 burial grounds, located near Energy Northwest Generating Station, as required per the Record of Decision for the 300-FF-2 Operable Unit (April 2001). This project has forecast large quantities of CH TRU waste to be generated. In order to address the remaining uncertainties, milestone M-16-93 has been established and requires that an implementation work plan be prepared that describes the acquisition of capabilities required to prepare

this waste for disposal at the WIPP. The plan is required to be updated on a schedule consistent with the required updates to the M-91-03 TRUM and MLLW PMP in order to ensure integration occurs between planning efforts and that adequate capabilities have been acquired to process future waste streams.

Data Sources

The amounts, characteristics, and locations of the Mixed Waste were obtained by completing data sorts on the Solid Waste Inventory Tracking System (SWITS) and Solid Waste Integrated Forecast Technical (SWIFT) databases. The SWITS database contains records for the majority of Mixed Waste containers currently stored at Hanford while the SWIFT database contains estimates for Mixed Waste expected to be generated in the future as a result of Hanford cleanup activities.

The SWITS database contains data (e.g., volumes, container information, and radiological, physical, and dangerous waste characteristics) on each container of stored waste. Generator data, waste transfer data or shipping records for the stored waste were used to extract waste information for input to the SWITS database. The SWITS database is a dynamic database and is updated frequently to reflect waste receipt, processing, and shipment volumes. The data contained in this plan were obtained on December 31, 2002.

The SWIFT database contains estimates of future waste volumes and characteristics forecasted by waste generating units such as Low-Level Burial Ground waste retrieval. The waste generating units provide basic information that is incorporated into the SWIFT database. The generator specifies the containers in which the waste will be shipped, the projected volume of waste, the physical form of the waste, the Waste Specification Record (WSRd), the dangerous characteristics of the waste, and the radionuclides in the waste. The SWIFT database is updated semi-annually and published

in the SWIFT report⁴. The data contained in this plan correspond to revision 12 of the SWIFT Report.

Generating unit input is obtained through formal meetings and informal contact, and is included in SWIFT database updates. The SWIFT data are validated through a quality control process that includes approval by appropriate authorities.

Life cycle forecast and stored volumes (12/31/2002 through 2035), as well as other relevant information, for CH and RH Mixed Waste are presented by generator in Tables B-1 through B-4 for MLLW and Tables C-1 through C-4 for TRUM.

Summaries of Mixed Waste volumes and containers forecasted and retrieved are shown in Tables B-3 and B-4 for MLLW and Tables C-3 and C-4 for TRUM. The tables also show the MLLW going to commercial processing and MLLW and TRUM to M-91 (T Plant).

To facilitate data analysis and summary, the stored and forecast containers were grouped. Any container with a dimension larger than 4 feet by 4 feet by 8 feet was considered a large container.

The waste generators for newly generated Mixed Waste are shown in Tables B-3 and B-4, and Tables C-3 and C-4. For details of this forecasted waste for each generator, see the SWIFT report⁴. Tables B-3 and B-4, and Tables C-3 and C-4 show all existing and forecasted Mixed Waste volumes by Mixed Waste type, storage facility/generating unit, and by container category. About three percent of the Mixed Waste destined for M-91 (T Plant) is currently in storage at CWC.

Mixed Waste volumes provided in Tables B-1 and B-4, and Tables C-1 and C-4 are grouped by storage facility, generating unit, and container category (for MLLW treatability groups).

2.3 Mixed Low-Level Waste Commercial Disposition

Commercial processing will be used on selected MLLW Treatability Groups which are discussed in Section 3.2 Planned Approach.

2.4 Component and Treatability Groups (Contamination Migration)

Storage for Mixed Waste is in accordance with regulatory requirements. Currently, Mixed Waste is primarily stored in the CWC in the 200 West Area. The CWC buildings are designed to meet storage requirements for hazardous waste as required by Washington State Dangerous Waste Regulations. Any contaminants that might be released from current containment will be collected and repackaged.

Disposal of MLLW in accordance with regulatory requirements has occurred in Trench 34, burial ground 218-W-5 in the 200 West Area. The permitted facility was built to RCRA standards and employs a double liner-leachate collection system as required for near-term containment. Leachate is treated for any contaminants that may be released from the waste. All disposed wastes have been treated to satisfy LDR requirements for hazardous constituents prior to disposal as defined in Washington State Dangerous Waste Regulations. Long-term release of radionuclide contaminants and resulting environmental impacts have been extensively evaluated in a performance assessment analysis⁵ as required by DOE Order 435.1. The conclusions of this analysis are that minimal environmental contamination is expected from radionuclide migration from the facility and that all performance objectives defined in DOE Order 435.1 will be satisfied. Waste acceptance criteria derived from the Performance Assessment analysis ensure continued compliance with DOE Order 435.1.

A second identically designed trench, Trench 31, has been constructed adjacent to Trench 34 and will receive MLLW for disposal. Performance of this trench will be the same as Trench 34.

2.5 Earlier Evaluations

Contact-Handled Mixed Low-Level Waste Processing Studies

Non-Thermal Treatment

In 1991, the Strategy Assessment for Project W-100, Waste Receiving and Processing (WRAP) Module 2, recommended that the WRAP 2 facility project be divided into smaller functional projects. Based on this study the WRAP 2 Project split into WRAP 2A and WRAP 2B. The primary functions of WRAP 2A were to include processing, packaging, and certification of retrieved and newly generated CH Mixed Waste using nonthermal treatment technologies. A change request to TPA milestone M-19-00 was submitted in October 1991 (M-19-91-1) to charter the separation of WRAP 2 into 2A and 2B. However, this request was later deleted due to commercialization of WRAP 2A waste treatment functions.

The Mixed Waste Stabilization Treatment Program was established to replace the deleted WRAP 2A facility. The program delineated how and where waste would be treated to meet TPA milestone M-19-00 obligations. A TPA milestone change was needed to clarify the new direction for treating waste, so a Change Request was submitted to the regulatory agencies to allow alternative treatment methods or direct disposal options instead of the WRAP 2 Facility.

The Mixed Waste Stabilization Treatment Program was divided into three treatment categories: direct disposal, on-site treatment, and commercial treatment.

The direct disposal category pursued regulatory

strategies for direct disposal of some Mixed Waste that was previously identified as requiring treatment.

The on-site treatment category pursued the capability to treat some MLLW at the Hanford Site using the established work force and facilities. The following criteria were used to select waste for on-site treatment:

- Waste that would require further characterization and/or sorting before treatment (e.g. lab packs). Since these wastes must be characterized before treatment, it was recommended to treat the waste at the same time
- Waste that can be treated using treatment methods or technologies that require only minimal capital improvements to initiate actual waste treatment
- Small volume waste Treatability Groups that require specialized treatment

The commercial treatment category provided sufficient feed material for the development of commercial MLLW stabilization treatment services. Commercial stabilization treatment contract provisions were designed to treat virtually all waste Treatability Groups originally planned for the WRAP 2A Facility. In early 1995, it was decided that there was sufficient interest to issue a request for proposal for commercial treatment of the non-thermal Mixed Waste inventory.

During the period of 1996 through 2000, the requirements of TPA milestone M-19-00 was satisfied with the treatment and/or disposal of greater than 1,644 m³ of MLLW. This was accomplished two years ahead of the required milestone due date.

Thermal Treatment

A commercial thermal treatment contract was recommended to provide waste treatment by thermal destruction of the hazardous constituents and subsequent immobilization of

the radionuclides in a grouted or slag/glass final waste form. Commercial thermal treatment would process wastes regulated by the TSCA and most listed and characteristic hazardous wastes restricted from land disposal under RCRA. In addition to TSCA regulated PCBs, a significant quantity of radioactive MLLW containing RCRA F-coded, ignitable, and reactive organic constituents was stored or would be generated at the Hanford Site. Thermal destruction is the Best Demonstrated Available (treatment) Technology (BDAT) for these RCRA LDR wastes with organic toxic constituents. The DOE indicated an interest in considering thermal treatment as a primary option for the treatment of radioactive MLLW because significant volume reduction can be realized using thermal treatment.

A strategy for this activity was initially established that involved consideration and assessment of three treatment options:

- Installation and operation of an on-site thermal treatment facility (Project W-242)
- Treatment at another DOE site
- Contracting for commercial thermal treatment

Each of the above options was investigated to a varying extent and resulted in the issuance of supporting documentation such as waste characterization studies, thermal treatment technology studies, site-specific preliminary engineering designs and cost estimates, and hazard classification analyses.

The option of on-site thermal treatment was investigated in fiscal years 1991 and 1992. An engineering study was performed to identify the preferred technologies for treating Hanford Site radioactive Mixed Waste. The thermal treatment technology recommended for further evaluation and development was a rotary kiln incinerator. A site-specific thermal treatment facility engineering study was partially completed in FY 1992. The site-specific study included a facility design and equipment layout,

as well as capital and operating cost estimates.

The option of sending the waste to other DOE sites for treatment was investigated in detail for the specific case of treatment at Idaho National Engineering and Environmental Laboratory's (INEEL) Waste Experimental Reduction Facility (WERF), which was being refurbished and permitted for restart (SAIC 1992, 1993). The INEEL's WAC for off-site waste treatment was found to be too limited to be of practical consideration. Other sites such as Savannah River Site and Oak Ridge National Laboratory, had thermal treatment facilities, but facility management at these sites indicated that their facilities' projected waste acceptance was at capacity.

The option of commercial thermal treatment provided the most desirable combination of technical feasibility and economic attractiveness. Commercial thermal treatment was initially investigated by surveying the thermal treatment industry's capability and interest in addressing the Hanford Site radioactive MLLW thermal treatment problem. In FY 1994, it was decided that industry interest and capability was sufficient to issue an RFP to treat the thermally treatable CH MLLW inventory (existing and projected), and a thermal treatment contract was awarded in November 1995. The company awarded the contract proposed a vitrification process to thermally treat the combustible portion of the waste and would produce a glass/slag final waste form for that portion of the waste. The noncombustible portion of the waste would be separated and treated with either microencapsulation (grouting) or macroencapsulation.

The initial results derived from this procurement activity strongly suggested that thermal treatment by a commercial contractor provided acceptable technical risk accompanied by minimum financial risk to the DOE, and that a unit cost-based thermal treatment service would be significantly more cost effective than the construction of an on-site thermal treatment

facility (using capital funds).

Studies concluded that the other two options (on-site facility and other DOE site facilities) would continue to be considered as possible alternatives until the uncertainty regarding privatizing thermal treatment can be eliminated. One concern was that a commercial off-site treatment facility might not be capable of thermally treating alpha-contaminated waste. The company that was awarded the thermal treatment contract indicated that the treatment of alpha-contaminated, non-TRU, radioactive Mixed Waste would be included in the design of their treatment facilities.

Remote-Handled and Large Container Contact-Handled Mixed Low-Level Waste Processing Studies

Studies assumed that transfer for treatment of all RH MLLW and large size CH MLLW would be by truck or rail in a cask whether it is waste directly from storage or a generator. The receiving function would have the capability to remove the waste container from the transport vehicle. Cask or overpack handling capability would be required.

Size reduction would be performed if needed to make large items more manageable and able to fit into smaller containers. Waste would be sorted to group the waste according to processing requirements. Items requiring thermal treatment would be segregated from those requiring nonthermal stabilization. Stabilization would consist of adding a reagent to the waste to immobilize any hazardous constituents present. The contaminants are not removed or destroyed but the mobility of the contaminants is decreased by adding a stabilizing agent.

The RH MLLW would be packaged into containers for disposal. Waste would meet the acceptance criteria of the disposal site. Waste would either be transferred to storage awaiting disposal or would be transferred directly to

disposal.

Initial efforts to identify capabilities for processing waste began in the mid-1980s. Continuing evaluation of waste Treatability Groups, waste acceptance criteria, clean-up schedules, and budget considerations, resulted in development of a new set of TPA milestones, the M-91 series. These evaluations resulted in establishing T Plant as the baseline for RH and large container processing.

Other Evaluations

In 1990, WHC-EP-0225, *Contact-Handled Transuranic Waste Characterization Based on Existing Records*, attempted to quantify the extent of the TRU/TRUM waste management workscope. This study concluded that there are uncertainties surrounding the projected waste volumes because of inadequate or incomplete records retained during the early Hanford Site operations.

In 1995, WHC-SD-WM-ES-341, *Solid Waste and Materials System Alternatives Study*, presented alternatives to provide the necessary facilities to satisfy Tri-Party Agreement Milestone M-33-00. M-33-00 established the requirement to submit a change package for acquisition of new facilities, modification of existing facilities, or modification of planned facilities for storage, processing, and/or disposal of solid waste and materials. Subsequent to this study, HNF-2063, *Trade Study for the Processing, Treatment, and Storage of Hanford Site Solid Waste Streams That Have No Current Path Forward*, evaluated alternative locations or facilities for the processing, treatment, and storage of the Hanford Site solid waste streams.

The Alternatives Study identified several options for TRU/TRUM waste streams that could not be processed with current or planned capabilities. This exhaustive study provided the bases for establishing the TPA M-91 Milestones.

Five alternatives were evaluated in detail:

- Single new facility integrating storage and processing needs;
- Multiple new modular facilities integrating storage and processing needs;
- Multiple existing facilities integrating storage and processing needs;
- Maximizing use of the Washington Nuclear Plant 1 Facility (now Energy Northwest) integrating storage and processing needs;
- Current planning baseline.

The alternative that utilized multiple existing facilities was identified as having the lowest programmatic or regulatory uncertainties and risk. It was also the lowest projected cost of the alternatives, with the exception of the WNP-1 alternative.

In 1996, WHC-SD-WM-RPT-060, *Solid Waste Program Technical Baseline Description*, described a program to receive, store, treat, decontaminate, and dispose of radioactive/nonradioactive waste and the required activities and technical challenges inherent in this process. This program addressed, in detail, the planned retrieval of TRU waste from trench 4 of the 218-W-4C LLBG and the planned removal of RH TRU waste stored in dry caissons in the 218-W-4B LLBG.

2.6 Specific Regulatory Requirements

Mixed Waste Hanford Federal Facility Agreement and Consent Order Milestones (also referred to as the Tri-Party Agreement - TPA)

The TPA contains milestones for treatment of Mixed Waste to ensure that legacy waste is treated to reduce the stored backlog and that newly generated waste is managed such that it does not contribute to the legacy backlog. The TPA also contains annual milestones for retrieval of post-1970 RSW, and the acquisition

of capabilities and/or facilities to process RH and large container TRU waste. The revised M-91 milestone series in the proposed change package, currently out for public comment, includes the following milestones:

M-91-01 – Complete the acquisition of capabilities and/or acquisition of new facilities, modification of existing facilities and/or modification of planned facilities necessary for retrieval, designation, storage and processing of post-1970 RH TRUM and large container CH TRUM.

M-91-03 – Revise the Hanford Site TRUM Waste and MLLW Project Management Plan to comply with TPA Section 11.5 requirements by December 31, 2003, March 31, 2009 and March 31, 2013.

M-91-05-T01 – Complete and submit RH and large container CH TRUM processing facility Engineering Study/Functional Design Criteria Study by December 31, 2007.

M-91-12 – Complete thermal treatment of an additional 360 m³ of CH Mixed Waste by December 31, 2005.

M-91-12A – Complete thermal treatment of at least 240 m³ of CH Mixed Waste by December 31, 2004.

M-91-15 – Complete acquisition of facilities and/or capabilities and initiate treatment of RH and CH Mixed Waste in large boxes and containers by June 30, 2008.

M-91-40 – Retrieve all CH-RSW within burial grounds 218-W-4C, 218-W-4B, 218-W-3A, and 218-E-12B by December 31, 2010.

M-91-41 – Initiate full scale retrieval of RH RSW by January 1, 2011. Retrieval of non-caisson RH RSW shall be completed by December 31, 2014. Retrieval of the 200 Area caisson RH RSW in the 218-W-4B burial

ground shall be completed by December 31, 2018.

M-91-42 – Treat specified newly generated CH Mixed Waste and CH Mixed Waste in storage in accordance with the required treatment schedule through December 31, 2009. After June 30, 2009, treat all newly generated Mixed Waste in accordance with the treatment requirements in compliance with WAC 173-303-140 and 40 CFR 268.

M-91-43 – Designate all RH LLW and boxes and large containers of CH Mixed Waste in above ground storage as of June 30, 2003 by December 31, 2008. Begin treatment of CH of RH Mixed Waste and boxes and large containers of CH Mixed Waste at a minimum rate of 300 m³/yr beginning not later than June 30, 2008.

M-91-44 – Designate and begin processing of RH and large container CH TRUM at a rate of 300 m³/yr beginning no later than June 30, 2012.

M-91-45 – Submit a report describing completed and scheduled work relating to RH Mixed Waste and CH Mixed Waste in large boxes and containers by September 30, 2004 and annually thereafter to Ecology.

In addition to the M-91 milestone series, there are a number of M-026-01 milestones that require submission of annual Hanford Land Disposal Restriction Reports in accordance with Agreement Requirements to cover the time period from January 1 of the previous year through December 31 of the reporting year.

Significant Applicable Statutes

Mixed Waste management activities will consider the following requirements as well as any other applicable regulations or DOE requirements.

Clean Air Act (42 USC 7401 et seq.)

The Hanford Site air operating permit has been issued in accordance with Title V the *Clean Air Act Amendments of 1990*, and is implemented through federal and state programs under 40 CFR 70 and WAC 173-401. The permit is intended to provide a compilation of applicable *Clean Air Act* requirements both for radioactive emissions and for non-radioactive emissions at the Hanford Site. Current air permitting documentation is expected to address Mixed Waste management activities. Activities addressed by the PMP will be reviewed against the permitting documentation, as necessary to ensure Mixed Waste management activities are addressed.

Hazardous Materials Transportation Act of 1975 (49 USC 5101 et seq.)

Hazardous material transportation requirements include the preparation of shipping papers to identify and track hazardous materials, packaging and container design, marking, labeling, performance standards, and employee training programs. Specific requirements relating to Mixed Waste management activities and the shipment mode used (i.e., rail, aircraft, vessel, and public highway) will be followed. Off-site shipments of hazardous materials must comply with the implementing regulations at 49 CFR administered by the U.S. Department of Transportation. Based on DOE Orders, on-site movements must also comply unless equivalent documentation is prepared and approved.

National Environmental Policy Act (42 USC 4321 et seq.)

The Hanford Site Solid (Radioactive and Hazardous) Waste Environmental Impact Statement (DOE/EIS-0286) has been issued and addresses the treatment, storage, disposal, and transportation of CH and RH Mixed Waste. The Records of Decision(s) [ROD(s)] are expected to be issued in Calendar Year 2004 and will become the documentation for Mixed Waste

management activities. Prior to issuance of the ROD(s), existing NEPA documentation will be utilized to cover Mixed Waste management activities. In order to cover all of the necessary activities, existing documentation will be revised or new NEPA documentation will be developed.

Resource Conservation and Recovery Act (RCRA) of 1976 as amended by the Hazardous and Solid Waste Amendments (42 USC 6901 et seq.) of 1984

RCRA addresses the requirements for hazardous wastes, including the treatment, storage, disposal, and transportation, (40 CFR 260-282). Ecology has been delegated authority from EPA to administer RCRA through the State's Hazardous Waste Management Act.

Washington State Hazardous Waste Management Act (RCW 70.105)

The Hazardous Waste Management Act grants Ecology authority to regulate the treatment, storage, disposal, and transportation, of dangerous waste in Washington State. Mixed Waste is a subset of dangerous waste. Ecology has promulgated requirements in WAC 173-303, *Dangerous Waste Regulations*. Mixed Waste waste generation activities are subject to generator requirements. Mixed Waste management activities which can not utilize generator provisions must be conducted according to permits under WAC 173-303 in order to operate. Existing permits are expected to address processing activities with the exception of treatment in the trenches at the LLBG. The LLBG Part A Permit application is anticipated to be resubmitted to include treatment in trench provisions following approval of revised NEPA documentation.

Washington Clean Air Act (RCW 70.94) and Associated Regulations

Ecology's Nuclear Waste Program regulates air toxic and criteria pollutant emissions from the

Hanford Site. The Department enforces state regulatory controls for air contaminants as allowed under the Washington *Clean Air Act* (RCW 70.94). The Washington State Department of Ecology's implementing requirements (e.g., WAC 173-400, WAC 173-460) specify a review of new source emissions, permitting, applicable controls, reporting, notifications, and provisions of compliance with the general standards for applicable sources of Hanford Site emissions.

The Washington State Department of Health's Division of Radiation Protection regulates radioactive air emissions statewide through delegated authority from EPA and Washington State legislative authority. The Washington State Department of Health implements the federal/state requirements under state regulation WAC 246-247. Prior to beginning any work that would result in creating a new or modified source of radioactive airborne emissions, a notice of construction application must be submitted to the Washington State Department of Health and EPA for review and approval. Ensuring adequate emission controls, emissions monitoring/sampling, and/or annual reporting of air emissions are typical requirements for radioactive air emission sources.

At the local level, the Benton Clean Air Authority was designated authority by EPA to establish a local oversight and compliance program for asbestos renovation and/or demolitions, as regulated by EPA under the National Emission Standards for Hazardous Air Pollutants (40 CFR 61, Subpart M). The Benton Clean Air Authority enforces/adopts the federal/state regulations, respectively by reference, as well as imposes additional requirements on sources within the local agency's jurisdiction. Current air permitting documentation is expected to address Mixed Waste management activities. Activities addressed by the PMP will be reviewed against the permitting documentation, as necessary to ensure Mixed Waste management activities are addressed.

3.0 PROJECT SCOPE

3.1 Description of Facilities

On-site Mixed Waste Storage

Central Waste Complex

The CWC, a series of buildings conforming to RCRA requirements, receives and stores radioactive waste in a safe and regulatory compliant manner. The CWC began accepting waste in August 1988.

The storage facilities, located in the Hanford 200-West Area, now include 12 small Mixed Waste storage buildings (the 2402 series); seven large storage buildings (the 2403 and 2404 series); and building 2420-W, used for cask storage. In addition, there are 27 modules for storing low-flash point Mixed Waste and 12 modules for storing alkali metals. Also a waste storage pad is part of the CWC.

The CWC provides interim storage for Mixed Waste, TRUM waste, and a small amount of LLW, waiting processing or treatment and final disposition. The design storage capacity is approximately 81,000 55-gallon drum equivalents; the operational capacity is about 64,000 drum equivalents.



Figure 8. Receipt of drums at CWC.

All newly generated waste must meet acceptance criteria set by the Hanford Site Solid Waste Acceptance Program. Waste is generally packaged in 55-gallon drums (Fig. 8), unless alternate packages are dictated by size, shape or other form of waste. Each drum is handled individually using a hand truck, fork lift or crane. Drums are placed on pallets with a maximum of four drums banded together; the pallets can then be stacked a maximum of three-high, or 12 drums per stack (Fig. 9). The storage buildings or pads have physical features that provide for segregated storage areas to maintain appropriate separation between groups of incompatible waste and to comply with fire code requirements.



Figure 9. Drum storage in CWC.

Mixed Waste Storage at the T Plant Complex/WRAP

The T Plant Complex and the WRAP facility provides additional storage for Mixed Waste waste packages. Packages are stored waiting processing or shipment to CWC, or ship directly to treatment facilities from WRAP and T Plant.

MLLW Facilities and Processing Capabilities

Two key facilities/capabilities are required for processing Hanford MLLW: commercial facilities and the "M-91 Capability". Processing volumes for commercial facilities and on-site capability are shown in Figure 10. Note that the total amount of MLLW to be disposed at Hanford, as shown in Figure 3, is approximately 50,000 m³. Of that total, over 30,000 m³ is forecasted to be received as "disposal ready," and will not require further treatment. Thus, as shown in Figure 12, the total processing requirement for MLLW is about 19,000 m³.

Hanford will use a combination of on-site and off-site capabilities to process MLLW. Plans are to treat the majority of the MLLW using available commercial services. On-site treatment capability will be utilized when required. Processing of small quantities of waste will be evaluated on a case-by-case basis. The on-site capability will include the "M-91 Capability" for RH Mixed Waste and large container CH Mixed Waste. Hanford will continue to work with the regulators to determine the most cost-effective path forward for treatment and disposal of Mixed Waste while remaining protective of the public, the environment, and workers.

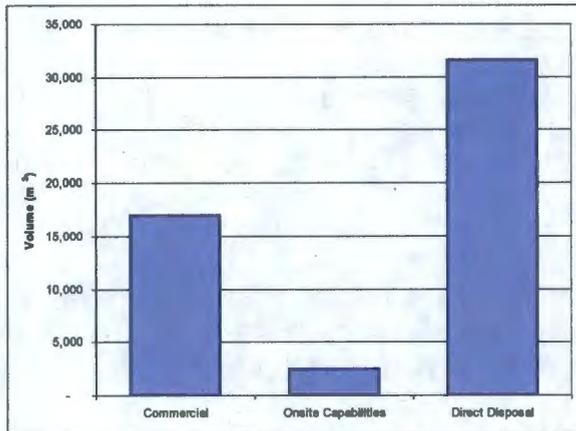


Figure 10. MLLW Processing.

Transuranic Waste Processing Capabilities

Three key facilities/capabilities are required for processing Hanford TRU/TRUM waste: the Waste Receiving and Processing Facility (WRAP), Acceleration Process Lines (APLs) and the "M-91 Capability". Processing/Certification volumes for WRAP/APL's and M-91 (T Plant) are provided in Figure 11.

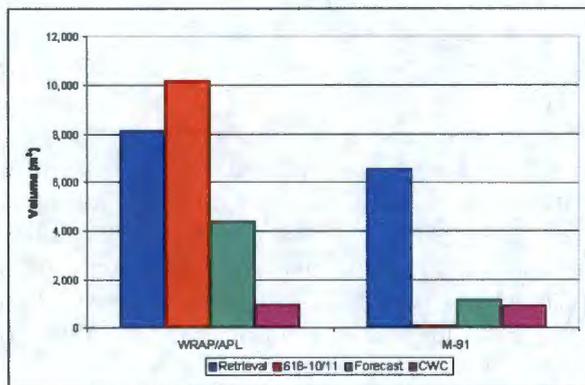


Figure 11. TRU/TRUM Processing/Certification.

WRAP

The WRAP processes drums of CH TRUM waste for shipment to the Waste Isolation Pilot Plant. WRAP (Fig. 12) has automated processes to examine and characterize waste using x-ray

(nondestructive examination), gamma, and neutron assay (nondestructive assay) equipment. Repackaging of waste is performed as required to meet WIPP certification requirements (Fig. 13). Most of the waste handling operations are performed remotely to minimize exposure of personnel to radioactive materials.



Figure 12. Waste Receiving and Processing Facility.

WRAP also performs nondestructive examination of TRUM waste in standard waste boxes. The facility provides the capability to handle 321-liter drums and 208-liter drums. Boxes not exceeding 2.74 meters long by 1.6 meters wide by 1.7 meters high can be received for NDE and boxes not exceeding 2.43 meters long by 1.5 meters wide by 1.5 meters high can be received for NDA screening.

The CH TRUM waste inventory will be used to balance WRAP throughput needs considering retrieval and new TRU waste generation rates.

WRAP processing capabilities include amalgamation of mercury, neutralization for pH adjustment, solidification of free liquids, and limited macroencapsulation.



Figure 13. Loading the TRUPACT II with Transuranic Waste Drums in WRAP.

Acceleration Process Lines

Acceleration Process Lines (APL's) for characterizing CH TRUM waste have been deployed (Fig. 14) at the 2404WC building located at the Central Waste Complex. The APL's consist of mobile units capable of providing non-destructive assay (NDA), headspace gas analysis, and non-destructive examination (NDE) of TRUM waste drums. Similar mobile capability for small boxes of TRUM waste is planned. WRAP will process CH TRUM waste through FY 2012. APL's will continue to process/certify CH TRU/TRUM waste through 2032.



Figure 14. Acceleration Process Lines deployed at the Central Waste Complex.

T Plant: the M-91 Capability

The M-91 Capability will support RH as well as large container CH TRU/TRUM waste processing to meet cleanup requirements that WRAP and APL mobile unit capability cannot provide. The M-91 Capability (221-T Canyon, 2706-T) includes use of the existing T Plant Complex and additional capabilities, if any, that will be defined in the engineering study and functional design criteria by the end of FY 2006.

MLLW Disposal

Mixed Waste is disposed of in the Mixed Waste Trenches (LLBG 218-W-5, Trenches 31 and 34, the ERDF, and Trench 94 (LLBG 218-E-12B) for defueled naval reactor compartments). Mixed Waste could also be disposed of at an off-site commercial facility. Trench 94 data are not included in this report. Future waste disposal is planned at the Integrated Disposal Facility (IDF).

Mixed Low-Level Waste Trenches

The first Mixed Low-Level Waste Trench (LLBG 218-W-5, Trench 34) was built in 1993, and the second MLLW Trench (LLBG 218-W-5, Trench 31) was built in 1994. Waste storage in Trench 34 began in 1997, and disposal operations began in 1999 after the leachate that is generated from the cell was accepted for treatment at the 200 Area Effluent Treatment Facility (200 ETF). Waste storage in Trench 31 began in 2003 and disposal will initiate when Trench 34 is nearing capacity or if needed for large waste packages. Both MLLW Trenches are RCRA compliant and meet Subtitle-C disposal requirements. They have a double-liner system with leachate collection.

A substantial portion of the Hanford Site's RCRA Mixed Low-Level Waste will be disposed in the MLLW Trenches (Fig. 15). Waste for disposal in these units must meet the Hanford Site Solid Waste Acceptance Criteria. Each disposal trench has a free air volume

capacity of approximately 24,000 m³. The actual disposed waste capacity will vary for each trench depending on the size of the disposed waste packages and the number of operational lifts ultimately used in each trench. Currently (December 2003), Trench 34 is approximately 25% full.



Figure 15. Container Disposal in the Mixed Low-Level Waste Trench.

Environmental Restoration Disposal Facility

The ERDF is a RCRA-compliant landfill that is authorized under CERCLA. The landfill is used for disposal of environmental restoration waste being generated from cleanup activities. ERDF is designed to receive, treat and dispose of LLW or Mixed Waste generated through remediation of the Hanford Site. The landfill opened in 1996. The original two cells are filled. Cells 3 and 4 were constructed and are now in use.

Integrated Disposal Facility

The Integrated Disposal Facility (IDF - Figure 16) is a planned facility that consists of a single landfill with two separate, expandable cells. One cell will be permitted as a RCRA Subtitle-C compliant landfill system with the other cell not permitted. Both landfill cells will include a double liner, a leachate collection and removal system, and a leak detection system. The landfill liner system will comply with RCRA requirements for hazardous waste landfills. The

IDF will be designed to allow for future expansion. Each future liner construction project will connect the previously constructed liner and the operations systems and then extend the disposal area. The disposal landfill cover will be designed and located to satisfy the dangerous waste disposal requirements once a decision is made to construct the final cover over the landfill. Current plans are to begin operations in February 2006, prior to reaching the capacity limitation of the current Mixed Waste disposal units.



Figure 16. Conceptual Drawing of the Integrated Disposal Facility.

3.2 Planned Approach for Transuranic Mixed Waste and Mixed Low-Level Waste Management

The planned approach will be designed to treat Mixed Waste in storage first to eliminate the legacy backlog, followed by treatment of Mixed Waste generated from retrieval and other operations to preclude build up of stored waste. This approach will require up-front planning with generators to ensure that waste generation is minimized, where possible, and is consistent with the current Hanford Waste Acceptance Criteria³ that requires off-site waste generators to treat their waste to Land Disposal Restriction standards prior to acceptance for disposal.

MLLW

Hanford will use a combination of on-site and off-site capabilities to process MLLW in accordance with the treatment milestones. The current strategy is to treat the majority of the Mixed Waste volume in LDR Treatability Groups MLLW-02 through 06 and MLLW-09 using commercial services. MLLW in LDR Treatability Groups MLLW-08, Unique Waste and MLLW-10, Reactive Waste, currently do not have treatment technologies identified. MLLW in LDR Treatability Group MLLW-03 will be thermally treated using available commercial capacity. A combination of on-site and off-site treatment capabilities will be utilized for the treatment of LDR Treatability Group MLLW-07. Current plans are to acquire size reduction, repackaging and stabilization capabilities to process CH MLLW currently stored or forecasted to be generated in large/over-size containers prior to 2008. These CH processing capabilities will be used to meet the first requirement under milestone M-91-43 to begin treatment by June 30, 2008 of a minimum of 300 m³ per year of RH and CH large/over-size containers of MLLW (LDR Treatability Group MLLW-07). The need for RH processing capability will be met through development of the "M-91 Capability" in 2012.

LDR Treatability Group MLLW-01 (LDR-Compliant Waste) is not within the scope of M-91 because this Treatability Group meets the required LDR storage prohibition requirements as specified in 40CFR 268.50(e).

Commercial Processing

Commercial Stabilization – Treatment Path for LDR Treatability Group MLLW-02

The treatment path for inorganic non-debris Mixed Waste is commercial stabilization and is represented in LDR Treatability Group MLLW-02. This waste consists of both solids and

aqueous liquids and would primarily be regulated for toxic metal characteristics, corrosivity and/or inorganic Underlying Hazardous Constituents (UHCs) above LDR treatment standards. The waste may also contain organic non-regulated constituents and/or organic regulated constituents below Universal Treatment Standard (UTS) levels.

The objective of stabilization is to immobilize the hazardous component through chemical and/or physical fixation into low-solubility materials, and by encapsulation to reduce the potential for future releases. Usually, stabilization is accomplished by mixing the waste with Portland cement or pozzolanic materials at a preselected ratio, but stabilization also can include mixing with polymer materials (Fig. 17). This treatment prepares the waste to meet the disposal requirements. Many pretreatment processes may be employed prior to stabilization such as: drying, shredding, screening, and chemical treatments.



Figure 17. Commercial Stabilization of Mixed Waste.

There are several commercial treatment facilities in the United States that can accept the majority of Hanford's waste in this Treatability Group; however, for wastes that cannot be accepted at a commercial treatment unit due to having too high of a radiological inventory (curie content and/or dose rate), these wastes will be managed under the MLLW-07 LDR Treatability Group and treated on-site. On-site treatment of selected

MLLW-02 wastes may also be performed.

**Commercial Macroencapsulation
Treatment Path for LDR Treatability
Groups MLLW-04A, MLLW-04B, and
MLLW-05**

The primary treatment path for Mixed Waste debris and radioactive lead solids is commercial macroencapsulation. These wastes are represented in LDR Treatability Groups MLLW-04 and MLLW-05. The waste consists of solids and may contain one or more organic and/or inorganic regulated characteristic and listed waste codes. Since this waste is being treated by one of the debris treatment methods specified in 40CFR268.45, UHC determination is not required and there are no contaminant restrictions for macroencapsulation. Much of the packaged debris waste contains items that are organic based (e.g., paper, plastic, wood, rubber) in excess of 10 percent by volume. Ecology views these waste packages as meeting the definition of Organic/Carbonaceous (O/C) waste and therefore is restricted from land disposal by the State-Only O/C LDR unless the waste is incinerated. Since there is no incineration capability/capacity within a 1000-mile of Washington State borders, Hanford qualifies for, and is currently covered by the 1,000-mile inapplicability certification for O/C LDR specified in WAC 173-303-140(4)(d)(iii).

Macroencapsulation consists of applying a surface coating of polymeric organics or using a jacket of inert inorganic materials (e.g., cement) to substantially reduce surface exposure to potential leaching media. Hanford has mainly employed the use of Portland cement-based grouts to macroencapsulate this waste. The waste is normally sent through one or more size reduction steps (e.g., sorting, cutting/shearing, compaction, and super-compaction) prior to macroencapsulation.

Hanford began treating Mixed Waste debris on-site in 1996 (Fig. 18) and initiated off-site commercial treatment in 1999. Beginning in

2003, commercial macroencapsulation of radioactive lead solids and "drained" radioactively contaminated lead acid batteries commenced. Hanford has macroencapsulated over 3,000 m³ of Mixed Waste through FY 2003.

There are several commercial treatment facilities in the United States that can accept the majority of Hanford's waste in these Treatability Groups; however, for wastes that cannot be accepted at a commercial treatment unit due to having too high of a radiological inventory (curie content and/or dose rate), these wastes will be managed under the MLLW-07 LDR Treatability Group and treated on-site.



Figure 18. On-site Macroencapsulation of Mixed Waste.

Other debris treatment technologies may be used to process some of the Hanford Site's Mixed Waste debris (e.g., sealing, microencapsulation, extraction methods).

**Thermal Treatment of Organics –
Treatment Path for LDR Treatability
Group MLLW-03**

The treatment path for organic non-debris MLLW is commercial thermal treatment (Fig. 19) and is represented in LDR Treatability Group MLLW-03. This waste consists of both solids and liquids, and would primarily be regulated for hazardous organic constituents

and/or TSCA PCBs. The waste may also contain inorganic regulated constituents that will require additional treatment after organic destruction.

Destruction of the organic constituents can be achieved by various treatment methods including (but not all inclusive) incineration, vitrification, steam reforming, thermal desorption, pyrolysis, chemical oxidation, and UV-oxidation. Many pretreatment processes may be employed prior to thermal treatment such as: drying, shredding, screening, and chemical treatments.

There are only a few thermal treatment facilities in the United States that can accept Mixed Waste with organic hazardous constituents and/or PCBs, and these facilities are very restrictive on the amount of radiological contamination in the waste that they can accept. Waste in this Treatability Group that cannot be accepted for treatment due to radiological concerns will be managed under the MLLW LDR Treatability Group MLLW-07 and treated on-site.



Figure 19. GASVIT Commercial Treatment.

Hanford began treating MLLW off-site by thermal treatment methods in Calendar Year (CY) 1998 with the treatment of Tri-Butyl Phosphate at the Diversified Scientific Services Inc. (DSSI) Unit located in Tennessee.

During CY 2000, O/C MLLW debris was incinerated at WERF at the INEEL site; however, WERF has now been closed and is not expected to operate again.

In CY 2001, Treatability Group MLLW-03 waste was treated at the Allied Technology Group (ATG) facility located in Richland Washington. Treatment was performed by using ATG's gasification-vitrification (GASVIT) unit; however, due to operational problems the GASVIT unit has not been restarted and it is not known at this time if it be restarted.

During CY 2003, LDR Treatability Group MLLW-03 waste was treated by Perma-Fix located in Tennessee. Treatment was performed by using a combination of their Thermal Desorption process and DSSI combustion process.

Hanford is working on procurement during FY2004 to obtain additional thermal treatment service capacity by early FY2005.

A Request for Proposal (RFP) will be issued in the spring of 2004 that will have contractual provisions to treat up to the required waste volume to satisfy M-91-12. This procurement activity only targets those commercial treaters with treatment units that have demonstrated treatment capability/capacity (i.e., fully permitted and licensed with proven throughput) for MLLW-03 type waste. Based on the responsive proposals received back, a determination will be made if sufficient treatment capacity is available to meet M-91-12.

This activity will be tracked and counted against TPA milestones M-91-12 and M-91-12A. Waste volumes beyond 600 m³ will be tracked and counted against TPA milestone M-91-42.

Commercial Amalgamation **MLLW-06**

Radioactively contaminated elemental mercury

waste requires amalgamation as the specified treatment technology under RCRA. The Hanford Site inventory of mercury-bearing waste is relatively small (represented in LDR Treatability Group MLLW-06), as is the case with the inventories at other sites across the DOE Complex. Some of the mercury has already been amalgamated; however, since the amalgamation was done in response to mercury spills from broken equipment (e.g., manometers, thermometers, mercuric switches), no LDR certification is on record to allow disposal at this time.

There are a limited number of commercial treatment units in the United States capable of accepting and treating this waste. None of Hanford's mercury waste has been treated to date; however, it is anticipated that the majority of Hanford's mercury waste can be treated by one or more of these treatment units. However, for those waste packages that cannot be accepted at one of these commercial treatment units due to having too high of a radiological inventory (curie content and/or dose rate), these wastes will be managed under the MLLW-07 LDR Treatability Group and treated on-site.

T Plant Complex for M-91 Capability – Treatment Path for LDR Treatability Group MLLW-07

The commercial stabilization and macroencapsulation treatment may be supplemented or replaced by capability that exists within the T Plant Complex. While the T Plant canyon is being planned for use in treating RH waste, it also has been used to open, inspect, segregate, and repackage Mixed Waste. The 2706-T Building within the T Plant Complex is a decontamination facility with the capability to open, sample, sort, treat, and repackage CH boxes and drums of Mixed Waste. Some of the waste planned to go to commercial treatment facilities will be inspected in the 2706-T Building before being shipped for treatment.

An engineering study is planned in FY 2005 to

determine if the processing capabilities currently in 2706-T can be expanded to include size reduction and repackaging capabilities to support the processing of large boxes and containers of CH Mixed Waste expected to be generated during retrieval operations.

Processing will be needed for the RH waste currently on the Hanford Site and for the RH waste expected to be generated in the future that cannot be treated through commercial capabilities. Examples of needed processing capabilities include sorting and repackaging, NDA/NDE, size reduction, decontamination, solidification/neutralization, and verification/certification/loadout. In the previous evaluation of alternatives, modifying the T Plant Complex is identified as the selected alternative. The modified portion of the T Plant Complex is known on the Hanford Site as the "M-91 Capability," named for the M-91 TPA milestone that requires it. The M-91 Capability also is anticipated to provide for processing of the RH TRU waste and the CH TRU waste that cannot be accepted into the WRAP Facility.

Treatment by Generator Treatment Path for LDR Treatability Group MLLW-07

Long-length contaminated equipment (LLCE) consists of equipment more than 12 feet long that is removed from underground waste tanks. Examples of such equipment are mixer pumps, transfer pumps, air lances, and monitoring equipment. The equipment may contain some residual waste and will require remote handling.

All of the LLCE meets the definition of debris and is being macroencapsulated and disposed into one of Hanford's MLLW Disposal Units (LLBG 218-W5 T31/T34). The macroencapsulation of LLCE began in CY 1996 and was performed at the T Plant facility. Since then, treatment has been done under the Treatment by Generator provisions and shipped directly to the disposal unit. However, it is

anticipated that some of the larger LLCE items to be removed from the tanks will be too large to treat directly at the generation site. In these cases, the macroencapsulation treatment is best performed with in the Mixed Waste Disposal Units (i.e., In-Trench Treatment).

In-Trench Treatment – Treatment Path for LDR Treatability Group MLLW-07

After obtaining the permit modification, treatment to meet the LDR requirements will be performed within the MLLW Disposal Units (LLBG 218-W-5 T31/T34) for waste packages containing debris and/or radioactive lead solids with no treatment path forward. The treatment capability consists of the use of immobilization technologies for Mixed Waste debris as listed under 40 Code of Federal Regulations (CFR) 268.45 Table 1, *Alternative Treatment Standards for Hazardous Debris* and MACRO in 40 CFR 268.42. In addition, the Mixed Waste containers will meet the 90 percent full container requirements following treatment. Treatment would be limited to those technologies that can be employed in/on containerized Mixed Waste.

Path Forward for LDR Treatability Group MLLW-08

Alternative treatments will need to be obtained to effectively treat LDR Treatability Group MLLW-08.

LDR Treatability Group MLLW-08 (Unique Waste) is comprised of waste that requires treatment by unique specified treatment technologies (e.g. recovery of metals, recovery by thermal) or for Mixed Waste with dioxins/furans listed waste codes in which there is no known current treatment capability in the United States.

The path forward for this Treatability Group is to obtain treatment variances or determination of equivalent treatments (DETs) which will allow treatment of this waste by existing commercial

methods and capabilities.

Path Forward for Treatability Group MLLW-09

Adoption by Ecology of the newly promulgated EPA treatment LDR standards for radioactively contaminated cadmium, mercury, and silver containing batteries will provide a path forward for this Treatability Group. Once the standards are adopted, this waste will be treated via macroencapsulation using commercial facilities.

Path Forward for LDR Treatability Group MLLW-10

The required treatment/processing of Mixed Waste in LDR Treatability Group MLLW-10 will be assessed to determine if the current plan (i.e., disposition of this waste along with sodium from the decommissioning of the Fast Flux Test Facility (FFTF)) is still viable and can meet the 2008 need date.

MLLW Treatability Groups Process Flow Diagrams

Appendix D depicts the disposition process for the MLLW Treatability Groups. The waste was grouped with two primary discriminators: where the waste came from and where the waste will be processed. The waste sources are simply defined as existing (inventory) and future (forecasted). The processing locations are defined to be consistent with the TPA milestone M-91.

Secondary discriminators are the various waste packages and the radiation intensity of the waste, either CH or RH. Commercial facilities can only process CH Mixed Waste in drums or small containers. On-site facilities will process Mixed Waste when required. T Plant will process all of the remaining Mixed Waste: RH and large containers of CH. In addition, T Plant will also process Mixed Waste that is "unusual" in that special management may be required.

MLLW "Treatability Groups" are included on the Flow Diagrams. These groups are those identified for Hanford in the LDR report. These groups describe how a particular waste will be processed for disposal.

The MLLW process planning will determine, based upon integration of the various constraints, when waste will be processed to assure that all requirements can be met. These planning elements, out of necessity, will be dynamic, in that they are frequently updated to reflect both the progress that has been accomplished as well as any changing requirements.

The Process Flow Diagrams provide the disposition for the Mixed Waste delineated in Figures D-1 through D-3.

MLLW Assumptions

- Sufficient commercial treatment capacity is available for LDR Treatability Groups MLLW-02, MLLW-04a, MLLW-04B, MLLW-05 and MLLW-06
- Treatment/disposition path forward for MLLW-08 and MLLW-10 will be developed no later than June 2008
- Ecology to adopt the newly promulgated treatment LDRs for radioactively contaminated batteries (MLLW-09) in a timely manner
- T Plant will be used to meet the "M-91 Facility" treatment requirement for LDR Treatability Group MLLW-07 (i.e., RH MLLW requiring treatment) while alternative treatment capabilities will be used to meet the requirement for treatment of the majority of CH MLLW in large/over-size containers
- Sufficient commercial thermal treatment capability/capacity will become available to treat LDR Treatability Group MLLW-03. The M-91-12/12A treatment schedule will

be re-evaluated based on the results of the thermal treatment RFP responses.

- O/C LDR certification exemption will be maintained through the life-cycle of waste treatment
- Approximately 7,500 m³ of waste generated from retrieval operations will be MLLW and 80 to 90 percent of this MLLW will be debris waste, and 10 to 20 percent will be non-debris waste that may require thermal treatment
- Regulatory approvals to begin In-Trench Treatment in Trench 31 and Trench 34 will be obtained no later than 2006
- Regulatory approvals to expand the 200 Area Effluent Treatment Facility (ETF) delisting to include all listed waste constituents managed at the Hanford Site will be obtained no later than the end of Fiscal Year 2004

TRUM Waste

In order to process TRUM waste, Hanford will use a combination of existing and planned capabilities and/or facilities to prepare this waste for shipment to WIPP. Processing of CH TRUM waste will occur primarily at the WRAP or by use of the APLs. Processing of RH and large container CH is currently planned to occur at the M-91 facility, which has been assumed to be T Plant.

Waste Stream Process Flow Diagrams

Process flow diagrams E-1 to E-15, depict the disposition process for the TRUM waste streams. The waste was grouped with two primary discriminators: where the waste came from and where the waste will be processed. The waste sources are simply defined as existing (inventory) and future (forecasted). The processing locations are defined to be consistent with the TPA Milestones, M-91-02 and M-91-06-T01/M-91-08-T01, either WRAP, APL's or T Plant (M-91 Capability).

Secondary discriminators are the various waste packages and the radiation intensity of the waste CH or RH. WRAP/APL's can only process contact handled TRUM waste in drums or small containers. T Plant will process all of the remaining TRUM waste: remote handled and large containers of contact handled. In addition, T Plant will also process TRUM waste that is "unusual" in that special management may be required; e.g. PCB contaminated waste.

Several constraints or considerations determine the process flow for this waste. The WIPP certification program establishes requirements for the final waste form and package as well as for much of the actual process. The Waste Acceptance Criteria, Waste Analysis Plan, Project Management Plan, and TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) all provide requirements for TRU/TRUM waste processing and/or packaging.

The TRUM waste work-off planning will determine, based upon integration of the various constraints, what waste will be processed when, to assure that all requirements can be met. These planning elements, out of necessity, will be dynamic, in that they are frequently updated to reflect both the progress that has been accomplished as well as any changing requirements.

TRUM Waste Assumptions

- WIPP remains open through 2032
- Suspect TRU waste retrieved will be managed as TRUM waste
- Processing of large containers and RH TRUM waste will begin by 2012
- WIPP will be permitted to accept RH TRUM waste by 2007

3.3 WBS with Dictionary

Work Breakdown Structure (WBS) dictionary

sheets are provided for each of the level 4 WBS elements in the Waste Management Project WBS Hierarchy for Project Baseline Summaries (PBS) RL-0013. The WBS dictionary sheets identify scope of activities covered under the WBS, planning assumptions applicable for planning the work scope, functions and requirements that define the WBS work-scope, and source documents that drive the requirements. The WBS information is current as of March 2004, but is subject to changes resulting from contract revisions. Current WBS information is available on request.

The following WBS elements are applicable to the M-91-03 TRUM waste and MLLW PMP and are found in Appendix F and the M-91-03 TRUM and MLLW PMP funding profile provided in Appendix G.

| WBS | Title |
|------------|--|
| 4.2.2 | Central Waste Complex |
| 4.2.4.1 | Operate and Maintain the T Plant Facility |
| 4.2.4.3 | M-91 Facility Activities |
| 4.2.10 | MLLW Treatment |
| 4.2.11 | TRU Retrieval |
| 4.2.13 | Waste Management Operations Project Management |

3.4 Treatment, Storage and Disposal Capability/Capacity

Bases for Capabilities/Capacities

Annual and total forecast volumes and waste volumes currently in storage on the Hanford Site form the basis for the treatment alternatives and capacities. There is inherent uncertainty associated with any given waste forecast because the assumptions, goals, and mission driving a waste generating program baseline could change, thereby changing the assumptions

that drive the forecast volume estimates. Although uncertainties cannot be eliminated entirely, uncertainties are minimized to the extent practicable by validating the SWIFT data through a QA process that includes conducting peer reviews and interviews with waste generators.

A potential impact of the waste volume forecast uncertainties associated with total volumes and annual generation is that of required/needed through-put for treatment capabilities or facilities. Either under estimation or over estimation could occur.

Should the amount of waste to be treated be overestimated for a given period of time, the impacts on Mixed Waste treatment would be primarily financial. With contracted services, penalties might result from underutilization of the contract or, in severe cases, priority of treatment might be lowered significantly. In the case of staffed facilities, the under utilization could result in an increase in unit cost of treatment.

For the underestimated case of the amount of waste needing treatment in a given time, the impacts could be any of several. Contracted treatment services may or may not be available, may be available at a premium price, or may not be available on a schedule as needed. In the case of staffed facilities, one or more of the facilities might need to be operated up to 24 hours a day as needed to meet milestone requirements rather than the planned one shift operation. This mode of operation would most likely result in decreased unit cost of treatment. In extreme cases of under estimation, sufficient additional capacity might not be available to meet schedule requirements.

Based on current estimates, including waste generated from suspect TRU/TRUM waste retrieval operations, CWC can adequately support storage of MLLW and TRU/TRUM waste (Figure 20).

Based upon current projections of waste volumes, waste characteristics, and available treatment capabilities, the following throughput treatment rates would be needed to meet the milestone values shown in the Schedule, Appendix H.

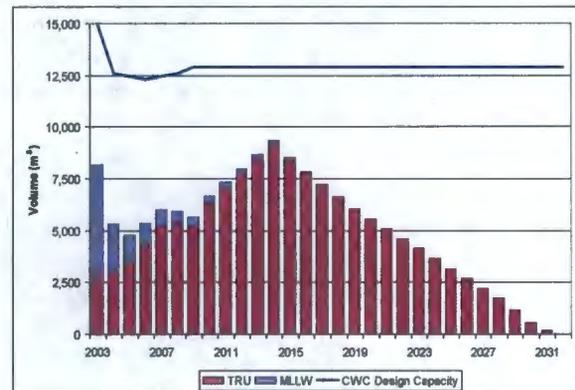


Figure 20. CWC Storage Volumes.

LDR Treatability Groups MLLW-02, MLLW-03, MLLW-04a, MLLW-04b, MLLW-05, MLLW-06, MLLW-08, MLLW-09, and MLLW-10

The current projected volume for these Waste Treatability Groups is 16,975 m³. The milestones identified on the Schedule, Appendix E, for this grouping of Treatability Groups shows that 1,630 m³ must be treated annually.

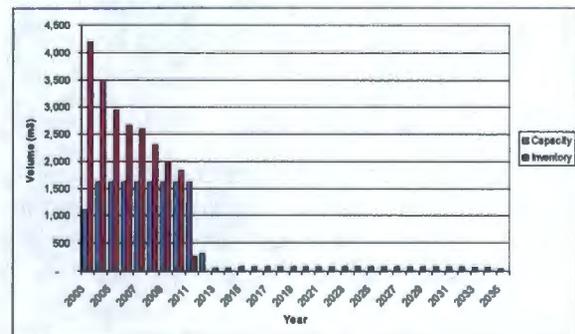


Figure 21. MLLW-02 through MLLW-06, and MLLW-08 through MLLW-10 Available Inventory Versus Process Capacity.

Figure 21 graphically represents the planned work-off for these Treatability Groups. This representation also identifies on an annual basis, the amount of waste from these Treatability Groups that would be available in inventory for treatment. The planned treatment capacities for FY 2004, FY 2005, and FY 2006 are based on the use of commercial MLLW treatment services. Note that this required capacity is less than 50 percent of that contracted through FY 2006.

Outyear planned treatment capacities include a 20 percent contingency above projected needs. The graphic representation shows adequate capacity exists including the capability of treating additional volumes of these waste Treatability Groups should the need arise.

LDR Treatability Group MLLW-03

The current projected volume for this waste Treatability Group is 3,165 m³. A total of 483 m³ from this Treatability Group and 117 m³ from Treatability Group 618-4 Depleted Uranium/Oil Drums will be counted to the M-91-12 and M-91-12A milestones for a total of 600 m³. The remaining waste volume MLLW-03 will be counted toward the M-91-42 milestone.

LDR Treatability Group MLLW-07

The current forecasted volume for this waste is 2,553 m³. The schedule (Appendix H) provides annual treatment plans of 300 m³ beginning in FY 2009.

Figure 22 graphically represents the planned work-off of this waste. This representation also identifies on an annual basis, the amount of waste that would be available in inventory for treatment. The treatment capacity shown actually consists of three treatment pathways:

- Commercial Capability
- In-Trench Treatment

• M-91 Capability

The total annual capacity is based upon completing the treatment of the currently identified waste by 2015 and remaining current, that is, not building up an inventory of this waste.

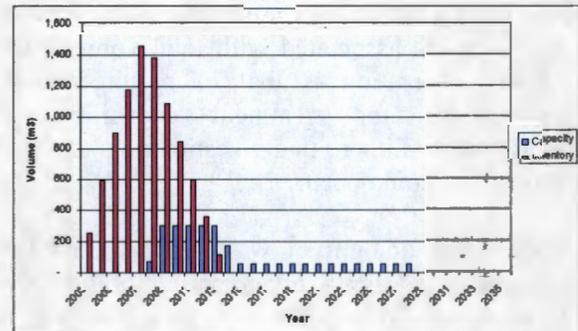


Figure 22. MLLW-07 Available Inventory Versus Process Capacity.

The commercial capability for treatment of this waste, with a commitment for implementation of September 30, 2004, represents an enhanced operation for the current commercial mixed waste treatment provider. It appears feasible that this commercial treatment provider might be able to modify the existing treatment capability to receive larger containers of waste than current capability allows. In addition, some waste with higher radiation dose rates than CH might be acceptable. This treatment capability is being actively pursued.

The In-Trench Treatment pathway has a commitment for operational capability by September 30, 2006. During the regulatory process to obtain approval for this treatment, analyses of the waste of this Treatability Group will be undertaken to identify candidate containers for this treatment. Capacity requirements for this treatment pathway will be established.

The M-91 Capability treatment pathway has two “pre-operational” commitments:

- Issue Engineering Study/Functional Design Criteria (FDC) for CH large/oversize Mixed Waste by September 30, 2006
- Issue Engineering Study/FDC for RH and large container CH TRU by December 31, 2007

The "Initiate Treatment" commitment for this waste is September 30, 2008. The M-91 capability/capacity will be determined during the engineering studies and FDC document preparations.

The annual capacity shown, 300 m³, that continues beyond FY 2015 is included to identify that capability exists for treating additional volumes of this waste, should the need arise.

The additional waste treatment capacities on the graphs beyond the identified milestones are shown to assume capability to meet the requirements of milestone M-91-42, "after June 30, 2009, treat all newly generated MLLW in accordance with the treatment requirements in compliance with WAC-173-303 and 40 CFR 268."

TRUM Waste

Sorting/Repackaging Large Containers.

Approximately 300 cubic meters of stored and forecast RH large boxed waste, and approximately 44 cubic meters of ion exchange column waste will need sorting and repackaging. Stored waste represents approximately 50 percent of the large container volume and consists of 65 containers, all weighing less than 18 metric tons and ranging in size from 0.4 cubic meter to 9.1 cubic meters. The sorting operation will include remote material handling equipment to enable opening boxes, to separate large items, and to support size reduction of waste items. The final operations performed in the sort/repack area will be loading of waste into containers and closing the containers.

Size Reduction. The capability will be needed

to perform size reduction, using remotely operated tools, of 185 cubic meters of large inorganic debris material that does not fit in drums or standard waste boxes. Dimensions and thicknesses of materials to be size reduced will be determined in the engineering study and FDC. Waste boxes constructed of wood, FRP, and fiberboard also could be size reduced. Waste boxes constructed of concrete and metal could be recycled as burial containers for LLW.

Sorting. A second sorting operation will be performed on approximately 425 cubic meters (21 cubic meters per year) of drum and small container waste as well as size reduced waste for the purpose of removing noncompliant waste items. The RH facility will include remote material handling equipment to move, open, empty, and close boxes. The ion exchange columns will be repacked in RH canisters using remote lifting devices.

Solidification/Neutralization/Deactivation. A process of solidification will be provided to convert in 1 year a total volume of 51.2 cubic meters of liquids and/or sludges into solids. All of this waste is forecast, with 49 cubic meters of sludge coming from K Basins in 612 cubic meters of storage containers. Handling equipment will be provided to remove the sludge from the packaging. The treatment system will be designed to handle liquids and sludges and will be operated in batch mode. The treated waste will be packaged in drums.

Verification/Certification. The RH facility will provide the capability to verify if waste packaged in drums meets the 100 nanocuries per gram segregation limit for TRU waste, and also to perform certification of TRU waste before shipment to WIPP.

Loadout. Loadout facilities will be provided to load RH waste into WIPP approved containers for placement into compliant transportation systems (i.e. the Nuclear Regulatory Commission RH72-B shipping canister -Fig. 23).



Figure 23. RH72-B Cask.

Appendix I, “M-91 TRUM Waste Processing Activities,” provides in schedule form activities necessary to accomplish the processing of TRUM waste. This “plan” represents the current program baseline. Activities on the timeline support the clean up effort needed to meet the WIPP closure date.

The TRUM waste work-off planning will determine, based upon integration of the various constraints, what waste will be processed when, to assure that all requirements can be met. These planning elements, out of necessity, will be dynamic, in that they are frequently updated to reflect both the progress that has been accomplished as well as any changing requirements.

Currently, WIPP Waste Acceptance Criteria for remote handled TRUM waste have not been finalized. The existing RCRA Part B Permit for the WIPP does not allow disposal of remote handled TRUM waste. A Modification to the WIPP Part B Permit to allow disposition of remote handled waste is anticipated in the near future.

4.0 PROJECT CONSTRAINTS

4.1 External Schedule Requirements

Waste Volumes and Treatment Capacities

Total forecast volumes through 2035 and waste volumes currently in storage at the Hanford site form the basis for the TRUM Waste and MLLW Processing Capabilities Evaluation discussed in this PMP. The evaluation determined that the current and planned capabilities for TRUM Waste and MLLW processing are “reasonable” based on the current and future waste generation volumes. However, there is inherent uncertainty associated with waste forecasts due to changes experienced in the waste generator’s program baselines.

Regulatory Requirements

Regulatory requirements for permitting and National Environmental Policy Act (NEPA) documentation will be coordinated to minimize potential impacts to the TPA schedule and achievement of milestones. Environmental impacts from performing M-91-00 activities such as construction or modification of an existing facility have been analyzed in the Hanford Site Solid Waste Program Environmental Impact Statement (HSW-EIS). Revisions to the Low-Level Burial Grounds RCRA Part A permit will be completed to support treatment of waste in the trench. Revisions to air permits will be completed to support start up of operations by 2012.

Funding Constraints

Funding, work scope, and project assumptions are limited to and consistent with DOE-RL

Budget Update Guidance for life cycle planning. This guidance is incorporated into the life cycle baseline when received.

Technology Constraints/Technology Demonstrations

Thermal Desorption

Thermal desorption is a thermal treatment separation process that uses elevated temperature (up to 625° F), reduced pressure, and a carrier gases (steam and inert gases) to remove the volatile or semi-volatile organics from the inorganic portion of the waste. The desorbed organics are collected and treated using either chemical oxidation or combustion to convert them to their final products (primarily CO₂ and H₂O). The solids (mostly inorganics) are treated separately if necessary (e.g., using conventional stabilization techniques to stabilize heavy metals). Major advantages of the process are the limited air emissions and the large variety of waste that it is capable of treating.

Hanford has utilized thermal desorption to treat 73 drums of LDR Treatability Group Mixed Waste-03 waste during FY 2003 at Perma-Fix. This treatment activity was done as a technology demonstration to test the effectiveness of the technology on treating Hanford's waste. The 73 waste packages chosen represented a good cross section of the Treatability Group and included; labpacks, particulates, absorbed liquids and sludges, all with multiple organic contaminants. The treatment was effective; however the treatment capacity is limited and the cost is approximately 10 times that of non-thermal treatment processes. Information gained from the technology demonstration will be used in planning further treatment campaigns.

Characterization Constraints

Characterization of some of the Mixed Waste in storage, as well as suspect Mixed Waste expected to be generated from retrieval and other clean up operations, currently is limited by

available technology and facilities. In specific, nondestructive examination (x-ray) and nondestructive assay capability for RH Mixed Waste and/or Mixed Waste in large/over-size containers is not readily available at the present time and will need to be developed to support on-going characterization efforts.

Treatability Groups for Which Treatment Technology Has Not Been Selected

MLLW

Some of the stored waste and potentially some of the waste forecasted to come from generators and/or retrievably stored waste have attributes for which no treatment is available or there is limited capacity in the United States. These waste Treatability Groups represent relatively small volumes. An assessment will need to be performed to determine the best disposition approach for these wastes. The following LDR Treatability Groups may have waste with this constraint:

- MLLW-08, Unique Wastes
- MLLW-09, Radioactive Contaminated Regulated Batteries
- MLLW-10, Reactive Metals

As discussed in Section 3.2, Planned Approach, Mixed Waste in LDR Treatability Group MLLW-08 will require regulatory approval by EPA and Ecology of alternative treatments to effectively treat these wastes. In addition, the path forward for treatment of LDR Treatability Group MLLW-09 will require adoption by Ecology of the newly promulgated EPA treatment LDR standards for radioactively contaminated cadmium, mercury and silver containing batteries and expand the treatability group to include the large scope of batteries. Treatment and disposition of these Treatability Groups will require close coordination with EPA and Ecology to ensure compliance schedules are met.

The required treatment/processing of MLLW in

LDR Treatability Group MLLW-10 will need to be assessed to determine if the current plan (i.e., disposition of this waste along with sodium from the decommissioning of the FFTF) is still viable.

TRUM Waste

Retrieval of buried wastes at the 618-10/11 waste disposal sites and other high-activity waste burial sites poses significant technical challenges and risks. Stakeholders and regulators (HAB 2000) have indicated that advances in the retrieval of RH waste are a high priority. In addition, the ability to characterize and process these wastes could substantially affect the safety and cost-effectiveness of these projects in achieving cleanup objectives. The technology-driven path forward has not been determined at this time for characterizing and retrieving wastes from these sites.

Remediation of the 618-10/11 burial grounds are scheduled to be accomplished during the same time period as retrieval of the RH TRU wastes from the 200 Area Caissons. Therefore, technologies, methods, and scientific understanding developed will be applicable to both. In a similar manner, retrieval of high-activity wastes from "culverts" at Oak Ridge most likely will be completed before Hanford undertakes RH TRU retrieval activities. Thus, applying lessons learned both from a technology deployment aspect as well as practical operating experience, will be of benefit to Hanford.

The RH TRU/TRUM wastes retrieved from the LLBG and removed in the future from contaminated facilities require processing for disposition, including characterization, segregation, size reduction, and packaging. Similar needs exist at other DOE sites within the Complex. The unique streams of large containers TRU waste and RH TRU present significant technical challenges but are also subject to a large degree of uncertainty on quantities, characteristics, timing, and physical configuration.

Development of innovative technologies to address these requirements at Hanford, either in the field at waste retrieval or facility deactivation sites or at the T Plant, are key opportunities.

An M-91 engineering study will be prepared, surveying available technology capable of providing handling, size reduction, TRU volume reduction (e.g., decontamination and compaction), and liquid/sludge treatment for identified waste to WIPP disposal requirements. The survey will include emerging or existing technologies in the private sector as well as in the DOE Complex. Viable technologies will be selected and any technology gaps will be identified.

5.0 SCHEDULE AND CRITICAL PATH ANALYSIS

MLLW

The MLLW Processing Schedule, Appendix H, is segmented in 3 Groups, with each Group containing specific MLLW Treatability Groups:

1. LDR Treatment Groups MLLW-02, MLLW-03 (not including 600 m³ from Group 2), MLLW-04a, MLLW-04b, MLLW-05, MLLW-06, MLLW-08, MLLW-09, and MLLW-10
2. LDR Treatment Group MLLW-03 (600 m³)
3. LDR Treatment Group MLLW-07

Each Group above has specific treatment requirements and associated activities necessary to accomplish the milestones established for that Group. The following discussion identifies the critical activities and schedule elements for each group.

Group 1

For treatment of the MLLW in Group 1 above, the milestone schedule is prescriptive. The annual cumulative volumes require a continual process operation to achieve the annual treatment quantities.

The treatment of these wastes (see Section 3.2, Planned Approach) falls into two categories - commercially available services and yet-to-be-determined technologies. For the first of these "sub-groups," commercially available services treatment capability requires two critical actions to accomplish the prescribed milestone volumes:

1. Contract(s) with a waste treatment provider with sufficient capacity
2. Adequate waste feed from existing inventory and new waste generation

For the first action, contracts with an existing treatment provider have already been established for waste Treatability Groups MLLW-04a, 4b and 05. The treatment quantities and schedule in the contracts with the treatment provider are sufficient to meet commitments through CY 2005. Establishment of new contracts for the remaining waste is a critical activity; however, the time to place the contracts are not critical path in its self. Instead, the availability of funding that is guaranteed on a multi-year basis is considered a critical path item. Guaranteed multi-year funding would allow for the placement of contracts with guaranteed multi-year minimums. This would assure that a treatment provided would set-aside sufficient treatment capacity earmarked for Hanford waste.

For the second action, assuring adequate waste feed to meet both quantity and schedule requirements is schedule controlling. The critical activity is characterization of existing waste. Of the total quantity of waste required to be treated, about 5,000 m³ is currently in inventory. A portion of this waste will require further characterization to better assure compliance with transportation and treatment

requirements. Cost, schedule and facility limitations for characterizing large quantities of the Mixed Waste would jeopardize meeting the M-91-42 waste volume commitments. To keep this from occurring, the existing waste characterization information will be used to the extent possible to meet transportation, treatment and disposal requirements. This approach will assure that there will be adequate waste feed to treatment facilities.

Within Group 1, the unique and reactive waste treatment technologies are not yet defined. When definition is identified, a critical path analysis will be undertaken and reported. Since no time frame has been established for the treatment technology definition, it is a critical item.

Group 2

For the wastes in Group 2, thermal treatment is the required process. The activities necessary to initiate thermal treatment of this waste group are series events, that is, one following another. For example:

- Identify commercial treatment capability to meet needs for all or part of this Treatability Group
- Analyze the Waste Acceptance Criteria of the treatment supplier for applicability to the Group 2 wastes
- Identify specific waste containers as candidates
- Submit waste profiles and schedule needs to commercial treatment supplier
- Obtain cost and schedule proposal from the supplier
- Issue contract for treatment services

Durations for these types of activities are not available at this time. As soon as schedule definition is available, a critical path analysis will be undertaken and reported. Establishing thermal treatment capability is a critical activity.

Group 3

Three treatment pathways for the waste in this group are identified in Section 3.2, Planned Approach:

1. Treatment by Generator
2. In-Trench Treatment
3. M-91 Capability

The schedule requirements for this waste group identify activities starting by September 30, 2004, with annual milestones through June 30, 2011.

For the September 30, 2004, action "Completion of Limited Commercial Treatment Capability," pathway 1 above, provides for treatment by commercial suppliers of larger waste containers than are included in existing contracts and containers of the higher activity, above contact handled dose rates.

Activities necessary to accomplish this capability include:

- Providing Hanford treatment needs, waste characteristics and schedule (through-put) requirements to commercial suppliers
- Supplier scoping of potential plant modifications
- Obtaining corporate commitment from supplier(s)
- Supplier designing the required modifications
- Supplier modifying regulatory permits, if necessary
- Supplier installing equipment, testing system
- Executing contract with supplier
- Obtain transportation capability
- Obtain permits and/or radiological material license changes to enhance off-site treatment

This treatment pathway is a critical activity.

The second pathway, treatment by generator, is included in the Baseline for the waste Generator of the long length contaminated equipment from underground storage tanks. As this waste will be treated as it is generated, activities for this pathway are not critical items.

The third pathway, In-Trench Treatment, applies previously developed macroencapsulation capability at the disposition location. To implement this treatment pathway, modification of the existing regulatory permit for the Mixed Waste Disposal Facility is required. The milestone for obtaining the regulatory approval is September 30, 2006. As this type of macroencapsulation is a proven operation at Hanford and would require only minimal "development," the critical activity for this treatment pathway is the Permit Modification.

The fourth pathway, M-91 Capability, has an initial milestone for issuing the engineering study/ functional design criteria by September 30, 2005. All other activities associated with this treatment pathway will follow this milestone. Thus, the engineering study/functional design criteria is the critical activity.

TRUM Waste

Success of the TRUM Waste Program is dependent upon three critical activities. The schedule shown in Attachment E identifies these activities as:

- Buried Drum Retrieval/Retrieval of CH and RH Drums, Small Containers, and Large Containers
- WRAP and Acceleration Process Line Processing/Certification
- M-91 Processing/Certification

The contact handled TRU waste in the LLBG must be retrieved on a schedule to provide waste stream feed to the processing facilities consistent with processing/certification rates to meet the overall TRU waste certification goals. The small quantity of CH TRU waste currently

stored in the Central Waste Complex and the annual CH TRU waste volumes forecasted in the next few years do not together provide sufficient quantities of waste to meet the certification goals.

A combination of WRAP and Acceleration Process Lines processing capacity is required to produce sufficient quantities of CH TRU waste to meet the certification goals. Neither processing system by itself is sufficient individually to meet these requirements, while still fulfilling the program objective of closing the WRAP facility in 2012. Use of Acceleration Process Lines for processing/certification of the contact handled TRU waste from the 618-10/11 burial grounds is also necessary to achieve the program goals and to achieve the completion of burial ground retrieval activities by 2018.

No capability currently exists for large contact handled or for remote handled TRU waste streams. Identification of requirements for certification of the remote handled TRU waste and processing/treatment needs in support of that certification will determine the capabilities needed to meet program goals for RH TRU waste. The M-91 facility will then incorporate these capabilities and establish capacity requirements to assure that these waste streams can be certified at rates to meet the program goal of facility shutdown in 2030.

Together, these three activities comprise the critical path for the TRU Waste Program.

5.1 Logic Tied Life Cycle Schedules

MLLW

The Appendix H provides a schedule of activities associated with the M-91 MLLW Processing Capability. The activities are subject to change based upon project progress and application of lessons learned, interface activities outside of the project, budget changes,

and contractual items.

Projections of budget and planned processing of MLLW Treatability Groups still show that the project will be completed by FY 2035.

TRUM Waste

The Appendix I provides a schedule of activities associated with the M-91 TRUM Processing Capability. The activities are subject to change based upon project progress and application of lessons learned, interface activities outside of the project (such as the WIPP remote handled Waste Acceptance Criteria), budget changes, and Contractual items.

The current projection of the timing for the 618 10/11 burial ground remediation is identified. As more definition of the waste streams is obtained and that project scope is established, the impacts to the M-91 Capability will have to be evaluated. It is not expected at this time that significant changes will be required.

Projections of budget and planned processing of TRUM waste streams still show that the project will be completed within the time that the WIPP operates. Sufficient capacity and capability exist at WIPP to accommodate both the schedule uncertainties and the waste volumes associated with the M-91 Capability.

6.0 KEY DELIVERABLES /PRODUCTS

Key products/deliverables that will be developed in support of implementation of the M-91 Change Package include:

- Reports describing completed and scheduled work relating to RH MLLW and CH MLLW in large boxes and containers, including the

commitments including status against the commitments in the schedule (Appendix H) annually

- Engineering Study/Functional Design Criteria study for CH MLLW in large boxes and containers (completed by September 30, 2005)
- Engineering Study/Functional Design Criteria study for RH TRU and CH large container waste (completed by December 31, 2007)
- Revised M-91-03 PMP by March 31, 2009 and March 31, 2013

7.0 PERFORMANCE MEASUREMENT

7.1 Milestones and Accomplishments

Performance to meet the milestones established in the M-91 Change Package (M-91-45) and this PMP will be measured using a combination of traditional project management metrics such as cost and schedule performance. In addition, actual volumes of Mixed Waste treated versus the annual milestone requirements will be monitored real-time to ensure that regulatory commitments are met.

8.0 PROJECT CONTROL

System and technical requirements will be made consistent and traceable throughout the WBS as these requirements are developed during the engineering and planning phases of the project. The control system activities will be compatible with related project management activities.

8.1 Project Interface Control

Project interfaces will be controlled by interface control document (ICD), Memorandum of Agreement (MOA) or the Memorandum of Understanding (MOU) process when applicable. The definition of roles, responsibilities and authorities will be negotiated based on the type of interface management documentation to be developed.

Interface among the M-91-03 TRUM Waste and MLLW activities and other projects, including waste generating programs for inventory tracking and capacity configuration purposes, is essential for a successful project execution. The following is a list of waste activities and projects which will require interface:

- Waste Generating Programs
- Office of River Protection
- WRAP Facility
- TRU Retrieval
- Environmental Impact Statement Project Team
- ERDF

The waste forecasting system and the waste acceptance criteria are operating as interface controls.

8.2 Reporting and Notification Requirements and Processes

Reporting requirements in the TPA are described in TPA Section 4.0, Agreement Management. The primary interface for reporting and notifications are through the DOE Project Managers and to their regulator counterparts or through the Interagency Management and Integration Team (IAMIT). The roles and responsibilities for the Project Manager and IAMIT are contained in TPA Sections 4.1 and 4.2, respectively.

A reporting system will be implemented to provide the status relative to meeting all TPA milestones associated with M-91-03 TRUM

Waste and MLLW. The system will maintain a standardized structure to measure progress against established schedules.

9.0 CHANGE MANAGEMENT

TPA Change Management

Changes to the M-91 PMP will be in accordance with the TPA Action Plan, Chapter 9, Documentation and Records, Section 9.3, Document Revision. Changes or revisions to the PMP may also result in the need to modify TPA milestones. Such changes are subject to the requirements of Section 12.0, Changes to the Agreement, of the Action Plan.

Lifecycle Baseline Change Management

Changes to the life cycle baseline implementing the TRUM Waste and MLLW PMP will be under change control in accordance with the change management process (HNF-PRO-187477). This guidance defines the requirements and work processes for changing the LifeCycle Baseline Cost, technical, or schedule that defines and control work scope to be performed in FY 2004-2035.

Modifications to the established life-cycle baseline scope, cost, and schedule will be managed through a baseline change request. Modifications to the established technical baseline contained within the Hanford Site Technical Database (HSTD) will be managed through a HSTD Change Request (HCR) in conjunction with a baseline change request, as necessary.

All baseline change requests for modifications to the Life-Cycle Baseline noted above are to be submitted to the FH Change Control Administrator for entry into the Life-Cycle

Baseline Change Log. Baseline change request approvals will be needed based on the following RL-level changes:

- Contract Statement of Work
- Performance Incentives objectives, definitions or completion criteria
- End state definitions
- Contract funding levels
- Annual gold chart metrics
- Impacts to other site contractors
- BCWS changes per PBS per execution year for 15% and \$5 million or
- BCWS changes per PBS to total life-cycle cost of more than 2%

If RL review and approval is required, the RL approved baseline change request will be utilized for updates to the Baseline. The HSTD change requests are to be submitted to the HSTD Change Control Administrator for entry into the HSTD Change Control Log.

Administrative changes are minor changes to baseline documents that do not materially alter content (e.g., typographical errors that do not affect units of measure) do not require approval of the Rebaselining Project Manager. These changes will be reflected in baseline displays only after direction by the Rebaselining Project Manager.

10.0 REFERENCES

¹ Hanford Federal Facility Agreement and Consent Order, also known as the Tri-Party Agreement (TPA)

² Calendar Year 2002 Hanford Site Mixed Waste Land Disposal Restrictions Report (DOE/RL-2003-20)

³ Hanford Solid Waste Acceptance Criteria, HNF-EP-0063 (latest revision)

⁴ Solid Waste Integrated Forecast Technical (SWIFT) Report, HNF-EP-0918 2003.1 (revision 12)

⁵ Wood M.I., R. Khaleel, P.D. Rittmann, A.H. Lu, S.H. Finfrock, R.J. Serve, K.J. Cantrell, and T.H. De Lorenzo, 1995, Performance Assessment for the Disposal of Low-Level Waste in the 200 West Area Burial Grounds, WHC-EP-0645, Westinghouse Hanford Company, Richland, Washington

APPENDIX A

GLOSSARY AND DEFINITION OF TERMS

Definitions from the M-91 change package as discussed in this plan are as follows:

- **Mixed Low-Level Waste (Mixed Waste)**

Mixed Waste, also referred to as Low-Level Mixed Waste (LLMW), is LLW that is subject to RCRA or 70.105 RCW. Mixed Waste contains both low-level radioactive materials and low-level hazardous chemicals.

- **Transuranic (TRU) Waste**

TRU waste is defined as waste that meets the definition in subsection (18) of Section 2 of the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act, Pub. L. 102-579. TRU waste includes both "mixed transuranic waste" (TRUM) and non-mixed transuranic waste (TRU), and comprises the following categories: CH-TRU, CH-TRUM, RH-TRU, and RH-TRUM.

- **Contact-Handled (CH) Waste**

Contact Handled (CH) waste is a waste package with a surface dose rate less than 200 mrem/hr.

- **Remote-Handled (RH) Waste**

Remote-handled (RH) waste is a waste package with a surface dose rate equal to or greater than 200 mrem/hr.

- **Retrieval of CH-RSW**

This is defined as uncovering CH wastes within DOE's RSW trenches, and removing such CH wastes from the trenches to a permitted and compliant treatment, storage or disposal facility, the Environmental Restoration Disposal Facility (ERDF) or for waste designated in accordance with WAC 173-303-070 through 100 as non-mixed to a storage or disposal facility that DOE determines is appropriate. Storage of any CH HSW that has not been designated as non-mixed pursuant to WAC 173-303-070 through 100 shall include secondary containment pursuant to WAC 173-303-630(7).

- **Retrieval of RH-RSW**

This is defined as uncovering RH wastes within DOE's RSW trenches and caissons, and removing such RH wastes from the trenches to a permitted and compliant treatment, storage or disposal facility, the Environmental Restoration Disposal Facility (ERDF) or for waste designated in accordance with WAC 173-303-070 through 100 as non-mixed to a storage or disposal facility that DOE determines is appropriate. Storage of any CH HSW that has not been designated as non-mixed pursuant to WAC 173-303-070 through 100 shall include secondary containment pursuant to WAC 173-303-630(7).

- **Waste Designation**

Designation is defined as the process for determining: (1) which containers of LLW are Mixed Waste: and, (2) which containers of TRU waste are mixed TRU (CH-TRUM or RH-TRUM). Designation of waste will be performed pursuant to WAC 173-303-070 through 100. These regulations allow the use of "Acceptable Knowledge," surrogate sampling and other measures for designation to minimize workers' radiation exposure and to reduce costs. Where applicable, DOE

intends to use information gathered through the certification of TRU waste in support of its designation of related LLW Treatability Groups. Where appropriate, DOE will use measures allowed under state and federal regulations to perform accurate and cost effective designations of LLW.

Other acronyms and definitions include:

AEC – Atomic Energy Commission

APL – Acceleration Process Line

BDAT – Best Demonstrated Available (treatment) Technology

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act

CFR – Code of Federal Regulations

CWC – Central Waste Complex

DETs – Determination of Equivalent Treatments

DOE – U. S. Department of Energy

DOE-RL – U. S. Department of Energy Richland Operations Office

DSSI – Diversified Scientific Services, Inc.

EA – Environmental Assessment

Ecology – Washington State Department of Ecology

ETF – Effluent Treatment Facility

EIS – Environmental Impact Statement

EM – Environmental Management, DOE

EPA – Environmental Protection Agency

ERDF – Environmental Restoration Disposal Facility

FDC – Functional Design Criteria

FH – Fluor Hanford, Incorporated

FFTF – Fast Flux Test Facility

FY – Fiscal Year

GASVIT – Glassification-Vitrification unit

HAB – Hanford Advisory Board

HCR – HSTD Change Request

HDW-EIS – Hanford Defense Waste Environmental Impact Statement

HFFACO – Hanford Federal Facility Agreement Consent Order – or “The Agreement”

HSGS – Headspace Gas System

HSTD – Hanford Site Technical Database

HSW-EIS – Hanford Solid Waste Environmental Impact Statement

HSSWAC – Hanford Site Solid Waste Acceptance Criteria

ICD – Interface Control Document

IDF – Integrated Disposal Facility

IAMIT – Interagency Management and Integration Team

INEEL – Idaho National Engineering and Environmental Laboratory

ISMS – Integrated Environmental, Safety, and Health Management System

LDR – Land Disposal Restriction

| | |
|--|---|
| LLBG – Low-Level Burial Grounds | SW-PEIS – Hanford Site (Radioactive and Hazardous Program EIS) |
| LLCE – Long-length contaminated equipment | SWITS – Solid Waste Inventory Tracking System |
| MOA – Memorandum of Agreement | SW EIS ROD – Solid Waste Environmental Impact Statement Record of Decision |
| NOC – Notice of Compliance | SWIFT – Solid Waste Information Forecasting Tool |
| MOU – Memorandum of Understanding | TPA – Tri-Party Agreement |
| NEPA – National Environmental Policy Act | TRU/TRUM – Transuranic/Transuranic Mixed Waste |
| NPDES – National Pollutant Discharge Elimination System | TRUPACT – Transuranic Package Transporter |
| O/C – Organic/Carbonaceous | TRAMPAC – TRUPACT II Authorized Methods for Payload Control |
| ORP – Department of Energy Office of River Protection | TSCA – Toxic Substances Control Act |
| PBS – Project Baseline Summaries | TSD – Treatment, storage, and/or disposal |
| PEcoS – Pacific Eco-Solutions | UHC – Underlying Hazardous Constituents |
| PHMC – Project Management Hanford Contract | UTS – Universal Treatment Standards |
| PMP – Project Management Plan | WBS – Work Breakdown Structure |
| Pu – Plutonium | WERF – Waste Experimental Reduction Facility |
| PFP – Plutonium Finishing Plant | WHC – Westinghouse Hanford Company |
| QA – Quality Assurance | WIPP – Waste Isolation Pilot Plant |
| QC – Quality Control | WMP – Waste Management Project |
| RCRA – Resource Conservation and Recovery Act of 1976 | WM PEIS ROD – Waste Management Programmatic Environmental Impact Statement Record of Decision |
| ROD – Record of Decision | WRAP – Waste Receiving and Processing Facility |
| RPP – River Protection Project | WSRd – Waste Specification Record |
| RSW – Retrievably Stored Waste | |
| SWB – Standard Waste Box (1.80 meters in length, 1.38 meters wide, and 0.94 meters high) | |

Appendix B:

MLLW Treatability Groups Data Tables

(consisting of 4 pages)

**Table B-1: MLLW Treatability Groups
Volume in Cubic Meters - Inventory 12/31/02**

| LOCATION FAC | MLLW-01 | MLLW-02 | MLLW-03 | MLLW-04A | MLLW-04B | MLLW-05 | MLLW-06 | MLLW-07 | MLLW-08 | MLLW-09 | MLLW-10 |
|------------------|----------------|----------------|--------------|----------------|--------------|--------------|-------------|-------------|-------------|------------|-------------|
| 200 ETF | 6 | 0.2 | | 27.2 | | | | | | | |
| 202-S | | | | 10 | | | | | | | |
| 222-S Laboratory | 208 | 1.248 | 5.408 | 1.644 | | | | 0.624 | | | |
| 242-A Evaporator | | | | 0.26 | | | | | | | |
| CWC | 1,122 | 2,742 | 811 | 1,383 | 140 | 429 | 13 | 80 | 1 | 8 | 18 |
| T Plant Complex | 33 | 3.308 | 14.168 | 22.04 | 4.128 | 0.208 | | | 19.64 | 0.416 | 0.208 |
| WRAP | 0.2 | 0.04 | 8 | 1.8 | 0.679 | | | | | | |
| <i>Total</i> | <i>1,368.7</i> | <i>2,746.8</i> | <i>838.6</i> | <i>1,446.0</i> | <i>144.8</i> | <i>429.2</i> | <i>13.0</i> | <i>80.6</i> | <i>20.2</i> | <i>8.4</i> | <i>18.2</i> |

Note: Data source LDR Report DOE/RL- 2003-20

Table B-2: MLLW Treatability Groups Container Quantities - Inventory 12/31/02

| LOCATION FAC | MLLW-01 | MLLW-02 | MLLW-03 | MLLW-04A | MLLW-04B | MLLW-05 | MLLW-06 | MLLW-07 | MLLW-08 | MLLW-09 | MLLW-10 |
|--------------|---------|---------|---------|----------|----------|---------|---------|---------|---------|---------|---------|
| 2402WB | 3 | 1 | 420 | 313 | 7 | 11 | | | | | |
| 2402WC | | 62 | 15 | 27 | | | 1 | | | | 1 |
| 2402WD | | 35 | 317 | 35 | 1 | 4 | | | | | |
| 2402WE | | 41 | 51 | 36 | 4 | 56 | 4 | | | 2 | |
| 2402WF | 7 | 27 | 15 | 245 | 4 | 10 | | 4 | | | |
| 2402WG | 1 | 3 | 2 | 25 | 4 | 4 | | | | | |
| 2402WH | 11 | 90 | 45 | 77 | 3 | 22 | 2 | | | 10 | |
| 2402WI | | 1 | | | | | | | | | |
| 2402WJ | | 208 | 111 | 85 | 1 | 10 | 2 | 1 | | 15 | |
| 2402WL | | 2 | 1 | 8 | | | | | | | |
| 2403WA | 215 | 6,341 | 296 | 935 | 15 | 263 | 19 | 2 | | 2 | |
| 2403WB | 13 | 21 | 311 | 102 | 10 | 69 | 3 | 8 | | | |
| 2403WC | 211 | 1,994 | 689 | 884 | 39 | 447 | 19 | 5 | 1 | 6 | |
| 2403WD | 2,672 | 948 | 117 | 472 | 6 | 207 | 5 | 3 | | | |
| 2404WA | | 30 | 128 | 112 | 7 | 22 | 4 | 3 | | | |
| 2404WB | | 1 | 63 | 51 | 9 | 5 | 1 | | | | |
| 2404WC | | 9 | 23 | | | | | | | | |
| AMW2 | | | 5 | | | | | | | | 19 |
| AMW3 | | 1 | 2 | | | | | | | | 8 |
| AMW4 | | | | | | | | | | | 27 |
| FS01 | | 11 | 6 | | | | | | | | |
| FS02 | | 11 | 4 | 2 | | | | | | | |
| FS03 | | 24 | 11 | | | | 1 | | | | |
| FS04 | | | 8 | | | | | | | | |
| FS05 | | | 24 | | | | | | | | |
| FS06 | | | 8 | | | | | | 1 | | 1 |
| FS07 | | 5 | 15 | 2 | | | | | | | |
| FS08 | | | 11 | | | | | | | | |
| FS09 | | 2 | 14 | | | | | | | | |
| FS10 | | 10 | 11 | | | | | | | | |
| FS11 | | | 2 | | | | | | | | |
| FS12 | | 24 | | | | | | | | | |
| FS13 | | 4 | 10 | 2 | | | 2 | | | | |
| FS14 | | 12 | 16 | 4 | | 2 | | | | | |
| FS15 | | 9 | 8 | | | 3 | | | | | |
| FS16 | | 8 | 11 | 9 | | 1 | | | | | |
| FS17 | | 16 | 7 | 1 | | | | | | | |
| FS18 | | 20 | 9 | 3 | | | 1 | | | | |
| FS21 | | 4 | 17 | | | | | | | | |
| FS22 | | 5 | 14 | 1 | | | | | | | |
| FS23 | | | 11 | 1 | | | | | 1 | | |
| FS24 | | 1 | 15 | | | 1 | | | | | |
| FS25 | | | | 3 | 1 | 1 | | | | | |
| FS26 | | 13 | 35 | | | | | | | | |
| FS27 | | 8 | 12 | | | | | | | | |
| SA | | | | 45 | 2 | | | | | | |
| Grand Total | 3,133 | 10,002 | 2,890 | 3,480 | 113 | 1,138 | 64 | 26 | 3 | 35 | 56 |

* Inventory Container Count is for CWC MLLW only from SWITS 12/31/02.

**Table B-3: MLLW Treatability Groups
Volume in Cubic Meters - Forecast 12/31/02**

| WG NAME | MLLW-01 | MLLW-02 | MLLW-03 | MLLW-04A | MLLW-04B | MLLW-05 | MLLW-06 | MLLW-07 | MLLW-08 | MLLW-09 | MLLW-10 |
|--|---------------|------------|--------------|--------------|--------------|------------|----------|--------------|----------|----------|----------|
| 100 Area Reactors ⁽²⁾ | | | 3 | | | | | | | | |
| 222-S Analytical Laboratory | 17 | | 97 | 1,045 | | 33 | | 30 | | | 2 |
| 242-A Evaporator ⁽²⁾ | | | | 11 | | | | | | | |
| 2724WB ⁽²⁾ | | 1 | 0.1 | | 3 | | | | | | |
| 324 ⁽²⁾ | | 14 | 15 | 5 | | 64 | | | | 0.4 | |
| 325 HWTU ⁽²⁾ | | | | | | | | 41 | | 4 | |
| 327 ⁽²⁾ | | 8 | 6 | | | 3 | 0 | | | | |
| CWC ⁽²⁾ | | 31 | | | | | 5 | | | | |
| Fast Flux Test Facility | | | | | | | | | | | 0.3 |
| Hanford Site Operations (Infrastructure) ⁽¹⁾ | | 7 | | | | | | | | | |
| K-Basin Operations, 100-K ⁽¹⁾ | | | 8 | | | | | | | | |
| Liquid Effluent Facilities, 300 Area ⁽¹⁾ | | 7 | 6 | 27 | | | | | | | |
| Liquid Waste Processing Facilities, 200 Area | 1,806 | 7 | | 214 | | | | | | | |
| LLBG ⁽²⁾ | | | | 24 | | | | | | | |
| Pacific Northwest National Laboratory ⁽¹⁾ | 38 | | 7 | | | 3 | | 2 | | | |
| Plutonium Finishing Plant, 234-5 Z | 3 | 44 | 62 | 13 | 0.3 | 3 | 3 | | | 3 | |
| RH and Oversized MLLW/TRU(M) Facilities (M-91) ⁽¹⁾ | | 96 | 169 | 341 | | | | | | | |
| T Plant Operations, 221-T/2706-T | 1 | 1 | 8 | 105 | 76 | | | | | 0 | |
| Tank Closure ⁽¹⁾ | 6,464 | | 199 | | | | | | | | |
| Tank Farm Facilities ⁽²⁾ | | 3 | 89 | 371 | 367 | 11 | | 1,337 | | | |
| TRU(M) Retrieval ⁽³⁾ | | | 1,500 | 5,400 | 600 | | | | | | |
| Vadose Zone Well Drilling ⁽¹⁾ | 229 | | | | | | | | | | |
| W-211 DST Retrieval Systems (10 tanks) ⁽¹⁾ | 1,513 | | | | | | | | | | |
| W-521 Waste Feed Delivery System (8 tanks) ⁽¹⁾ | 2,347 | | | | | | | | | | |
| Waste Encapsulation & Storage Facility ⁽¹⁾ | | | | | | 9 | | 6 | | | |
| Waste Feed Operations ⁽¹⁾ | 10,588 | | | | | | | | | | |
| Waste Receiving and Processing Facility, 2336-W ⁽¹⁾ | | | 6 | | | | | | | | |
| Waste Sampling & Characterization Facility, 6266 | - | 1 | 152 | 1 | | | | | | | |
| Waste Treatment Plant - Operations ⁽¹⁾ | 7,283 | | | | | | | 1,057 | | | |
| Well Maintenance Debris ⁽²⁾ | | | | 25 | | | | | | | |
| Total | 30,287 | 219 | 2,327 | 7,582 | 1,046 | 125 | 8 | 2,472 | - | 7 | 2 |

Note: The forecast is compiled from the MLLW to be generated by TRU retrieval activities, the LDR Report forecast, and the SWIFT forecast. The LDR forecast is used for years 2003-2007 and the SWIFT forecast is used for 2008-2035.

(1) Data is from the SWIFT forecast only

(2) Data is from the LDR forecast only

(3) TRU(M) Retrieval is included for completeness even though it is not in the LDR forecast

**Table B-4: MLLW Treatability Groups
Container Count Forecast* - Inventory 12/31/02**

| WG_NAME | MLLW-01 | MLLW-02 | MLLW-03 | MLLW-04A | MLLW-04B | MLLW-05 | MLLW-06 | MLLW-07 | MLLW-09 | MLLW-10 |
|--|---------------|------------|--------------|--------------|------------|------------|----------|------------|----------|----------|
| 222-S Analytical Laboratory | 60 | | 323 | 2,128 | | 121 | | 112 | | |
| Fast Flux Test Facility | | | | | | | | | | 1 |
| Hanford Site Operations (Infrastructure) | | 28 | | | | | | | | |
| K-Basin Operations, 100-K | | | 32 | | | | | | | |
| Liquid Effluent Facilities, 300 Area | | 27 | 23 | 106 | | | | | | |
| Liquid Waste Processing Facilities, 200 Area | 6,793 | | | 591 | | | | | | |
| Pacific Northwest National Laboratory | 88 | | 26 | | | 11 | | 6 | | |
| Plutonium Finishing Plant, 234-5 Z | 1 | 17 | 24 | 4 | 1 | 1 | 1 | | 1 | |
| RH and Oversized MLLW/TRU(M) Facilities (M-91) | | 46 | 81 | 163 | | | | | | |
| T Plant Operations, 221-T/2706-T | | 5 | 26 | 346 | 295 | | | | | |
| Tank Closure | 4,046 | | 192 | | | | | | | |
| Vadose Zone Well Drilling | 396 | | | | | | | | | |
| W-211 DST Retrieval Systems (10 tanks) | 135 | | | | | | | | | |
| W-521 Waste Feed Delivery System (8 tanks) | 431 | | | | | | | | | |
| Waste Encapsulation & Storage Facility | | | | | | 34 | | 25 | | |
| Waste Feed Operations | 8,563 | | | | | | | | | |
| Waste Receiving and Processing Facility, 2336-W | | | 25 | | | | | | | |
| Waste Sampling & Characterization Facility, 6266 | | | 560 | | | | | | | |
| Waste Treatment Plant - Operations | 1,984 | | | | | | | 494 | | |
| Grand Total | 22,498 | 122 | 1,312 | 3,338 | 296 | 167 | 1 | 637 | 1 | 1 |

*Only includes SWIFT Report data for 2008 - 2035. Container count information for LDR forecast is not included in this table

Appendix C:

Transuranic Mixed Waste Data Tables

(consisting of 4 pages)

Table C-1: TRU Mixed Waste Streams Volumes in m³; Inventory 12-31-02

| Location | M-91-02 TRU(M) Waste Streams | | M-91-06-T01 M-91-08-T01 TRU(M) Waste | | |
|--------------------------|------------------------------|-----------------|--------------------------------------|-----------------|-----------------|
| | CH TRUM | | RH TRUM | | CH TRUM |
| | Drum | Small Container | Small Container | Large Container | Large Container |
| Central Waste Complex | | | | | |
| 2402W | 1 | | | | |
| 2402WB | 2 | | | | |
| 2402WD | 2 | | | | |
| 2402WE | 22 | | | | |
| 2402WH | 11 | | | | |
| 2402WI | 53 | | | | |
| 2402WJ | 6 | 9 | | | 4 |
| 2402WK | 70 | | | | |
| 2402WL | 0.2 | | | | |
| 2403WA | 0.6 | | | | |
| 2403WB | 54 | 30 | | | 84 |
| 2403WC | 6 | 11 | | | 52 |
| 2403WD | 96 | 17 | | | 49 |
| 2404WA | 99 | | | | |
| 2404WB | 51 | 2 | | | |
| 2404WC | 89 | | | | |
| FS01 | 0.2 | | | | |
| FS10 | 1 | | | | |
| FS11 | 2 | | | | |
| FS19 | 0.2 | | | | |
| FS20 | 2 | | | | |
| FS23 | 0.2 | | | | |
| FS25 | 0.4 | | | | |
| MWS | | | | 45 | 11 |
| Low Level Burial Grounds | | | | | |
| 218E12B | | | | | |
| 218W3A | 2 | 3 | 0.6 | | 11 |
| 218W4B | 4 | 2 | | | |
| 218W4C | 122 | 43 | 6 | | 14 |
| Total Inventory | 697 | 117 | 7 | 45 | 225 |

Note: Totals may differ due to rounding.

**Table C-2: TRU Mixed Waste Streams
Container Quantities; Inventory 12-31-02**

| Location | M-91-02 TRU(M) Waste Streams | | M-91-06-T01 M-91-08-T01 TRU(M) Waste | | |
|--------------------------|------------------------------|-----------------|--------------------------------------|-----------------|-----------------|
| | CH TRUM | | RH TRUM | | CH TRUM |
| | Drum | Small Container | Small Container | Large Container | Large Container |
| Central Waste Complex | | | | | |
| 2402W | 3 | | | | |
| 2402WB | 8 | | | | |
| 2402WD | 7 | | | | |
| 2402WE | 106 | | | | |
| 2402WH | 49 | | | | |
| 2402WI | 251 | | | | |
| 2402WJ | 28 | 3 | | | 1 |
| 2402WK | 335 | | | | |
| 2402WL | 1 | | | | |
| 2403WA | 3 | | | | |
| 2403WB | 256 | 12 | | | 13 |
| 2403WC | 24 | 5 | | | 7 |
| 2403WD | 472 | 8 | | | 7 |
| 2404WA | 467 | | | | |
| 2404WB | 242 | 1 | | | |
| 2404WC | 426 | | | | |
| FS01 | 1 | | | | |
| FS10 | 6 | | | | |
| FS11 | 10 | | | | |
| FS19 | 1 | | | | |
| FS20 | 6 | | | | |
| FS23 | 1 | | | | |
| FS25 | 2 | | | | |
| MWS | | | | 9 | 2 |
| Low Level Burial Grounds | | | | | |
| 218E12B | | | | | |
| 218W3A | 9 | 5 | 1 | | 1 |
| 218W4B | 17 | 1 | | | |
| 218W4C | 582 | 30 | 12 | | 1 |
| Total Inventory | 3,313 | 65 | 13 | 9 | 32 |

Table C-3: TRU Mixed Waste Streams
Volume in m³; Forecast July 03: SWIFT 2003.1

| Location | Streams Existing Capability | | M-91-06-T01 M-91-08-T01 TRU(M) Waste Planned Capability | | | |
|--|-----------------------------|-----------------|---|-----------------|------------------|------------------|
| | CH TRUM | | RH TRUM | | | CH TRUM |
| | Drums | Small Container | Drums | Small Container | Large Containers | Large Containers |
| 224-B | 0.3 | | | | | |
| 224-T | 0.3 | | | | | |
| 324 Building | | | | | 10 | |
| 327 Building | 1 | | | | | |
| Battelle Columbus Laboratories | | | 1 | | | |
| Ground Water Monitoring | 3 | | | | | |
| K-Basin Operations, 100-K | | | | | 65 | |
| Pacific Northwest National Laboratory | 14 | | 9 | 15 | | |
| Plutonium Finishing Plant, 234-5 Z | 426 | | | | | |
| RH and Oversized MLLW/TRU(M) Facilities (M-91) | | 21 | 39 | | | |
| T Plant Transition | 40 | | | | | |
| Tank Closure | | | | | | 593 |
| Waste Feed Delivery System (8 tanks) | 8 | | 2 | 28 | 287 | |
| Waste Treatment Plant - Operations | | | 49 | | | |
| Grand Total | 492 | 21 | 99 | 42 | 361 | 593 |

Note: Totals may differ due to rounding.

**Table C-4: TRU Mixed Waste Streams
Container Quantities; Forecast July 03: SWIFT 2003.1**

| Location | Streams Existing Capability | | M-91-06-T01 M-91-08-T01 TRU(M) Waste Planned Capability | | | |
|--|-----------------------------|-----------------|---|-----------------|------------------|------------------|
| | CH TRUM | | RH TRUM | | | CH TRUM |
| | Drums | Small Container | Drums | Small Container | Large Containers | Large Containers |
| 224-B | 1 | | | | | |
| 224-T | 1 | | | | | |
| 324 Building | | | | | 2 | |
| 327 Building | 3 | | | | | |
| Battelle Columbus Laboratories | | | 3 | | | |
| Ground Water Monitoring | 11 | | | | | |
| K-Basin Operations, 100-K | | | | | 12 | |
| Pacific Northwest National Laboratory | 56 | | 34 | 7 | | |
| Plutonium Finishing Plant, 234-5 Z | 1,688 | | | | | |
| RH and Oversized MLLW/TRU(M) Facilities (M-91) | | 10 | 160 | | | |
| T Plant Transition | 155 | | | | | |
| Tank Closure | | | | | | 29 |
| Waste Feed Delivery System (8 tanks) | 32 | | 6 | 7 | 16 | |
| Waste Treatment Plant - Operations | | | 190 | | | |
| Grand Total | 1,947 | 10 | 393 | 14 | 30 | 29 |

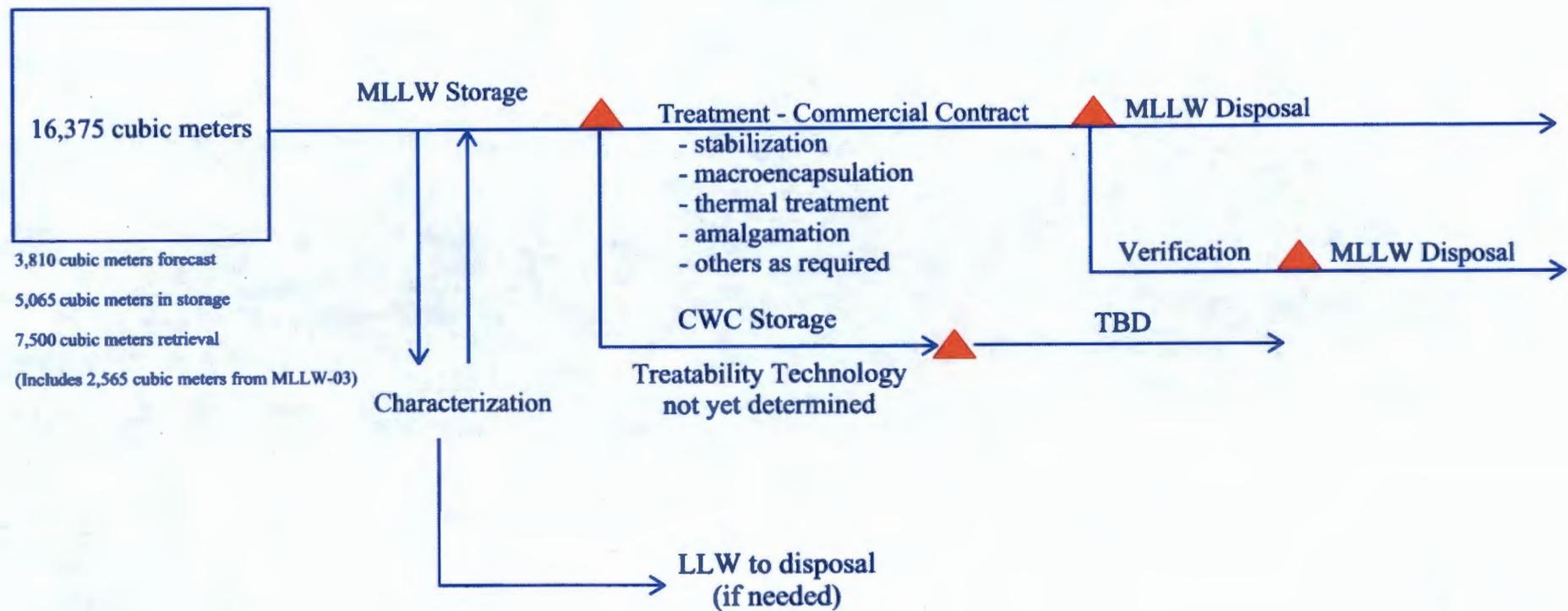
Appendix D:

MLLW Treatability Groups Process Flow Diagrams

(consisting of 3 pages)

Figure D-1: Treatability Groups Process Flow Diagrams

Group 1: MLLW-02, MLLW-03, MLLW-04, MLLW-05,
MLLW-06, MLLW-08, MLLW-09, MLLW-10



NOTE: Does not include 600 cubic meters of MLLW-03 treated under M-91-12 and M-91-12A milestones

Figure D-2: Treatability Groups Process Flow Diagrams

Group 2: MLLW-03
(600 cubic meters)

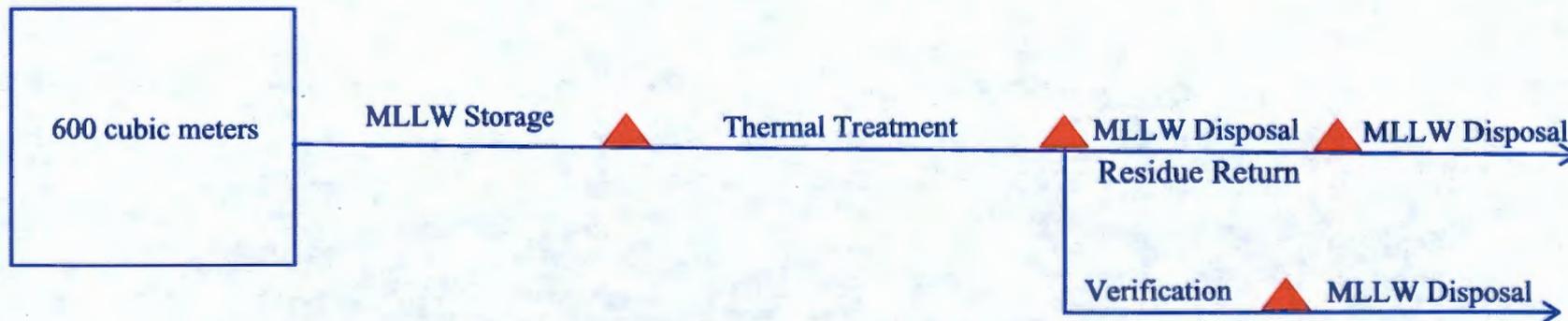
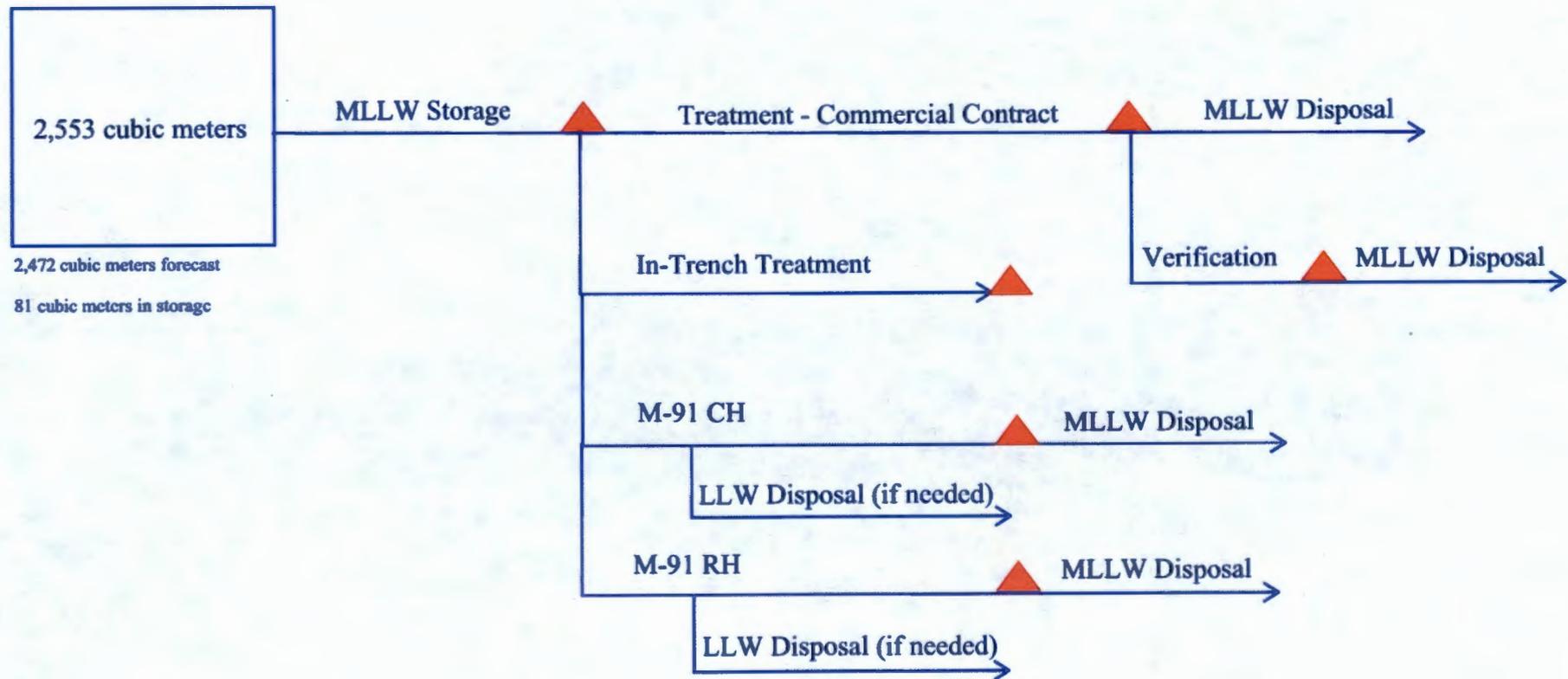


Figure D-3: Treatability Groups Process Flow Diagrams

Group 3: MLLW-07

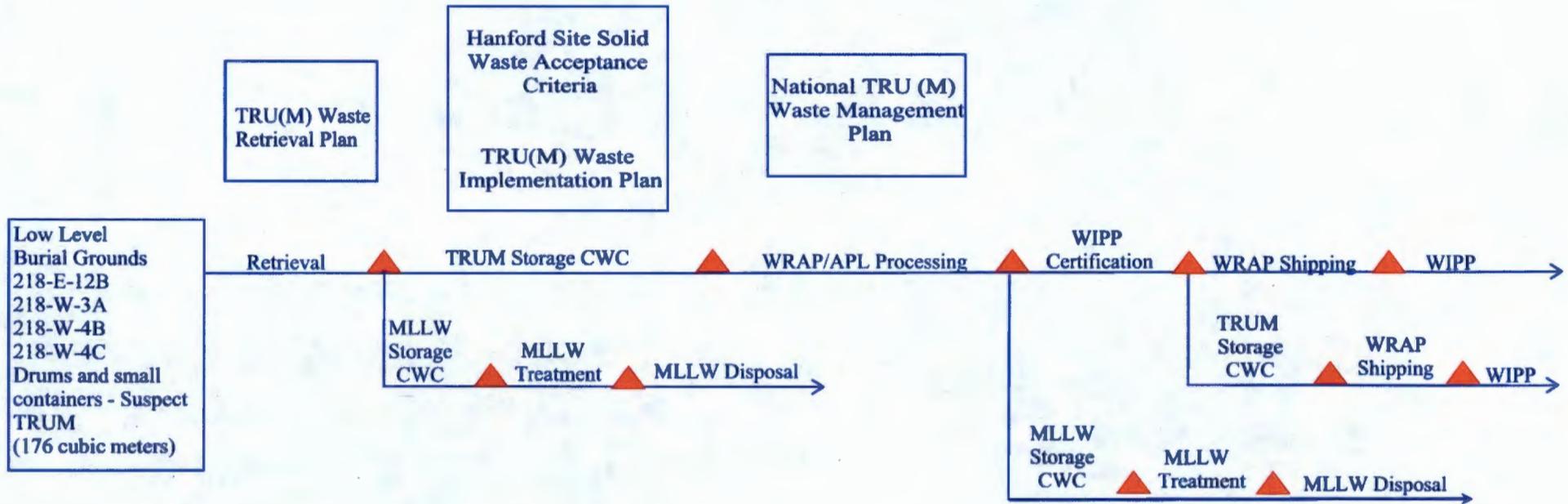


Appendix E:

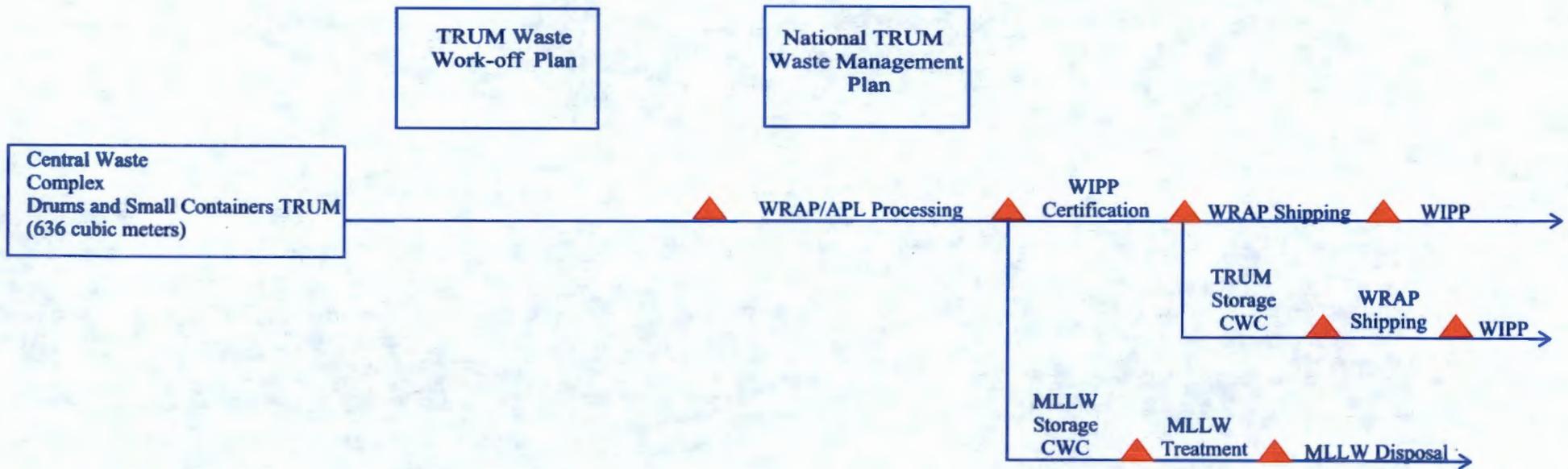
Transuranic Mixed Waste Process Flow Diagrams

(consisting of 10 pages)

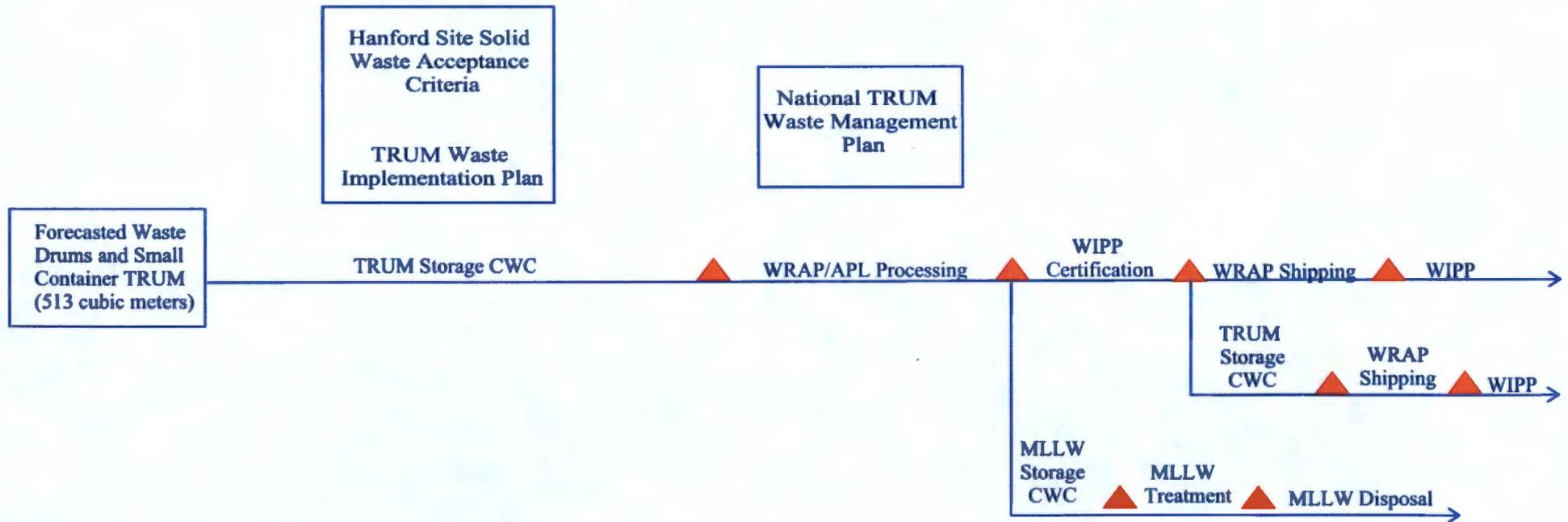
Process Flow TRUM Waste Streams Existing Capability - Contact Handled



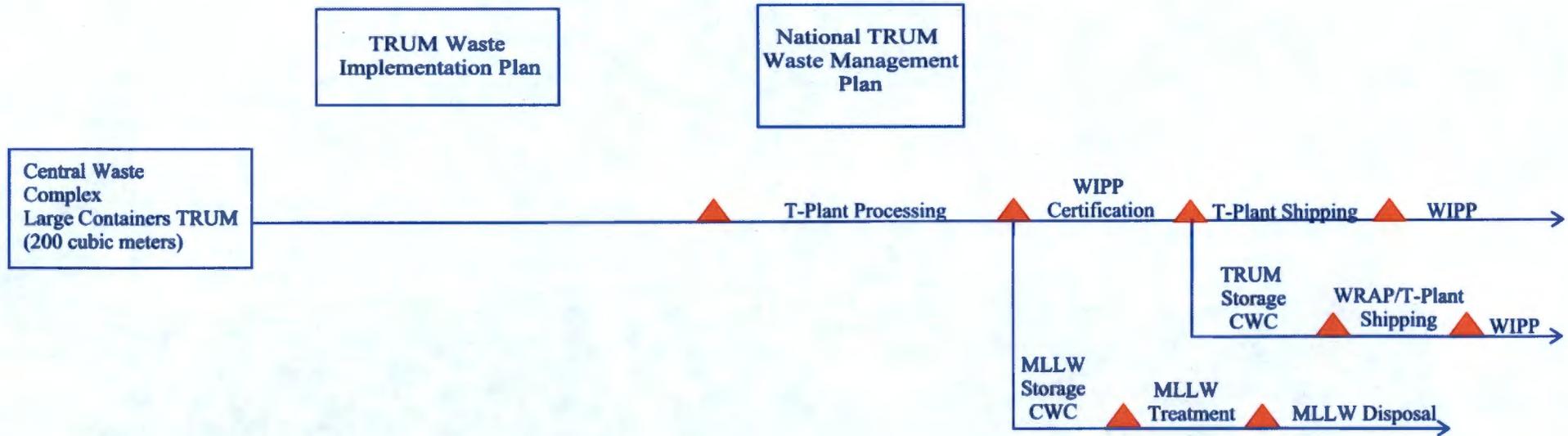
Process Flow TRUM Waste Streams Existing Capability - Contact Handled



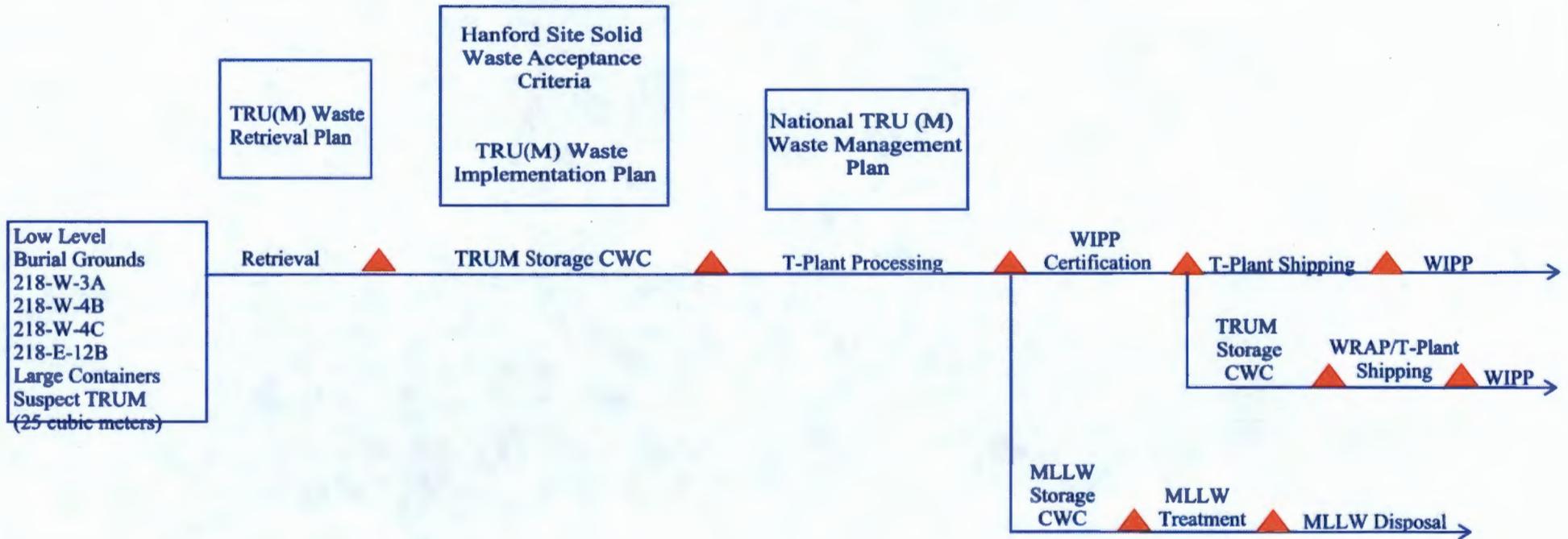
Process Flow TRUM Waste Streams Existing Capability - Contact Handled



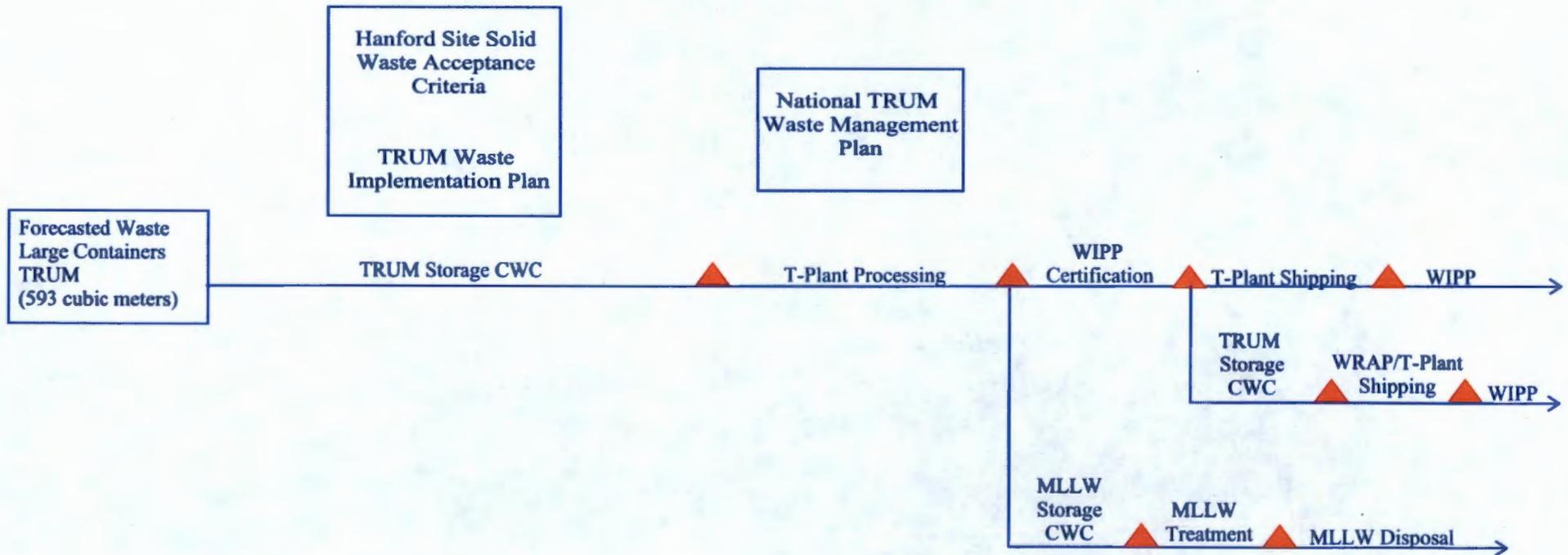
Process Flow TRUM Waste Streams Planned Capability - Contact Handled



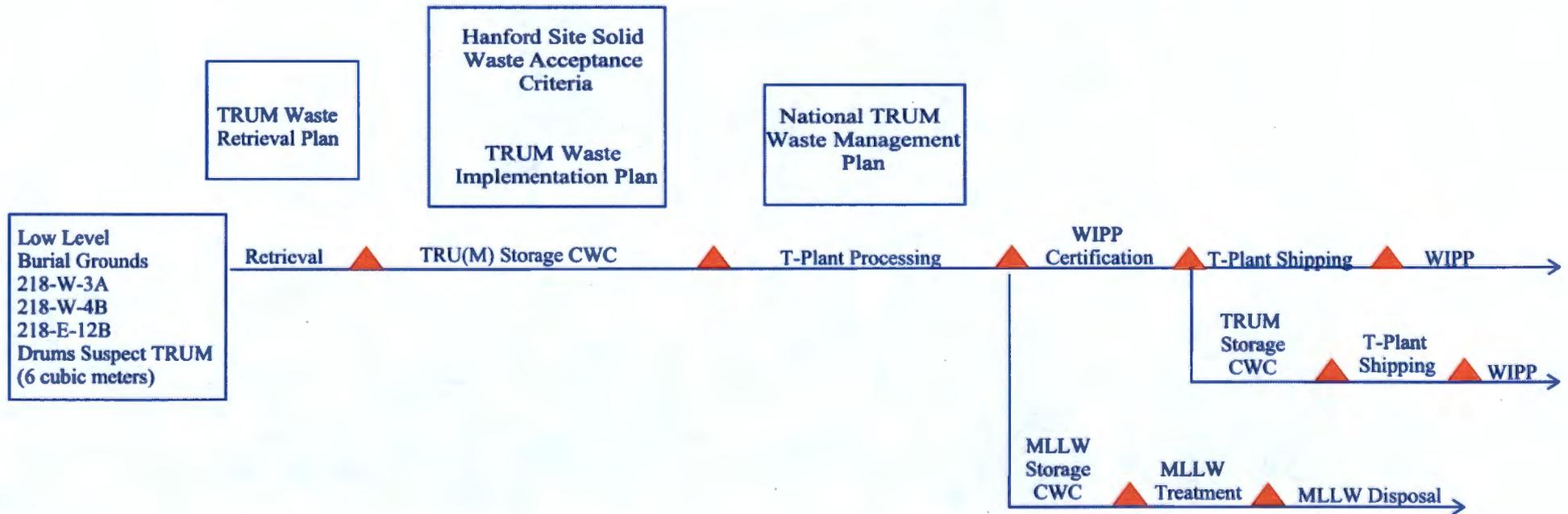
Process Flow TRUM Waste Streams Planned Capability - Contact Handled



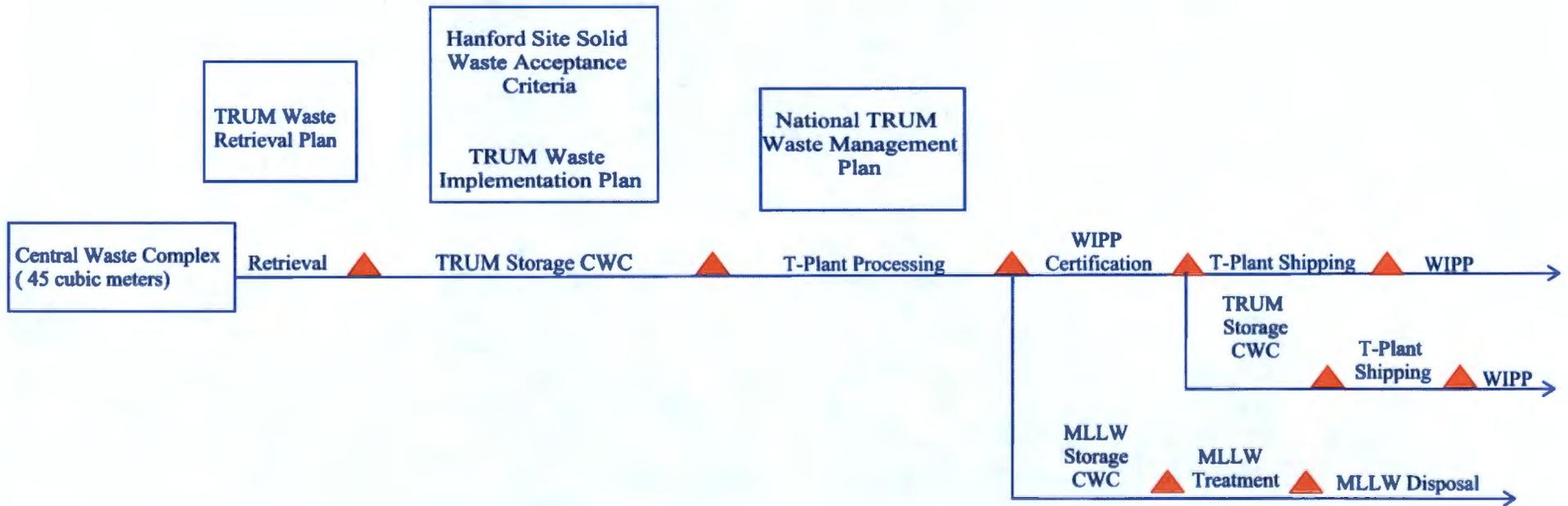
Process Flow TRUM Waste Streams Planned Capability - Contact Handled



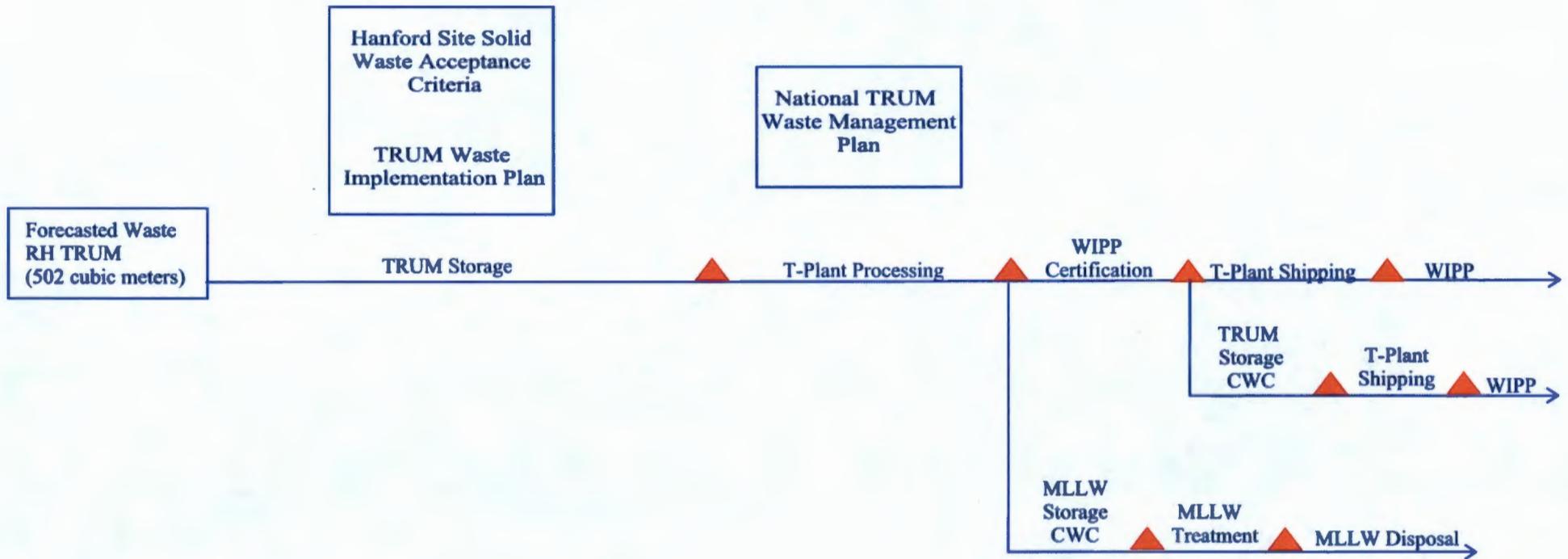
Process Flow TRUM Waste Streams Planned Capability - Remote Handled



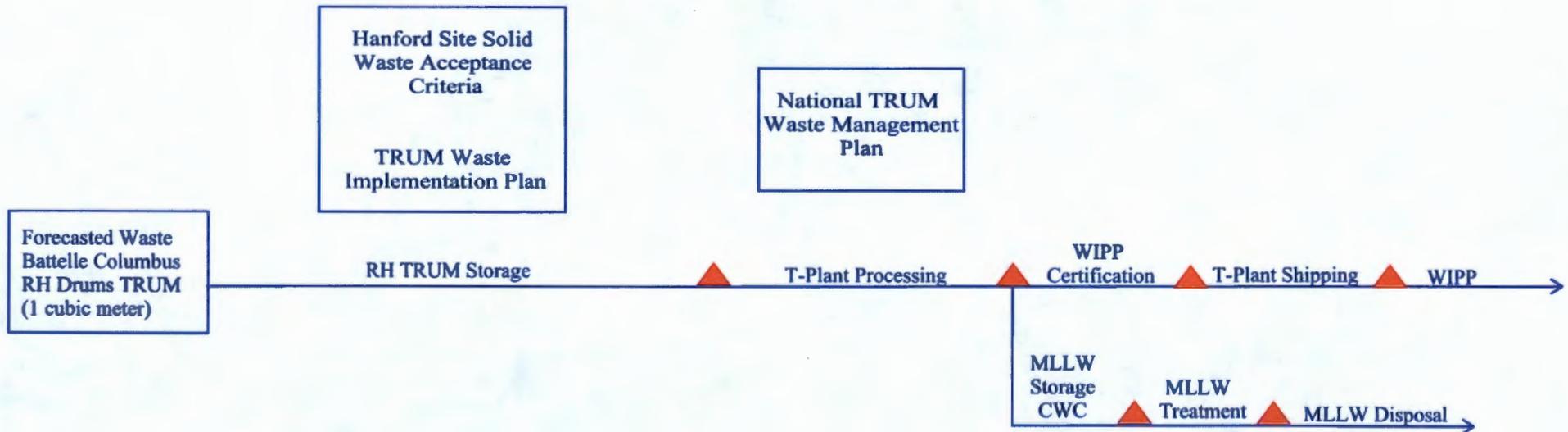
Process Flow TRUM Waste Streams Planned Capability - Remote Handled



Process Flow TRUM Waste Streams Planned Capability - Remote Handled



Process Flow TRUM Waste Streams Planned Capability - Remote Handled



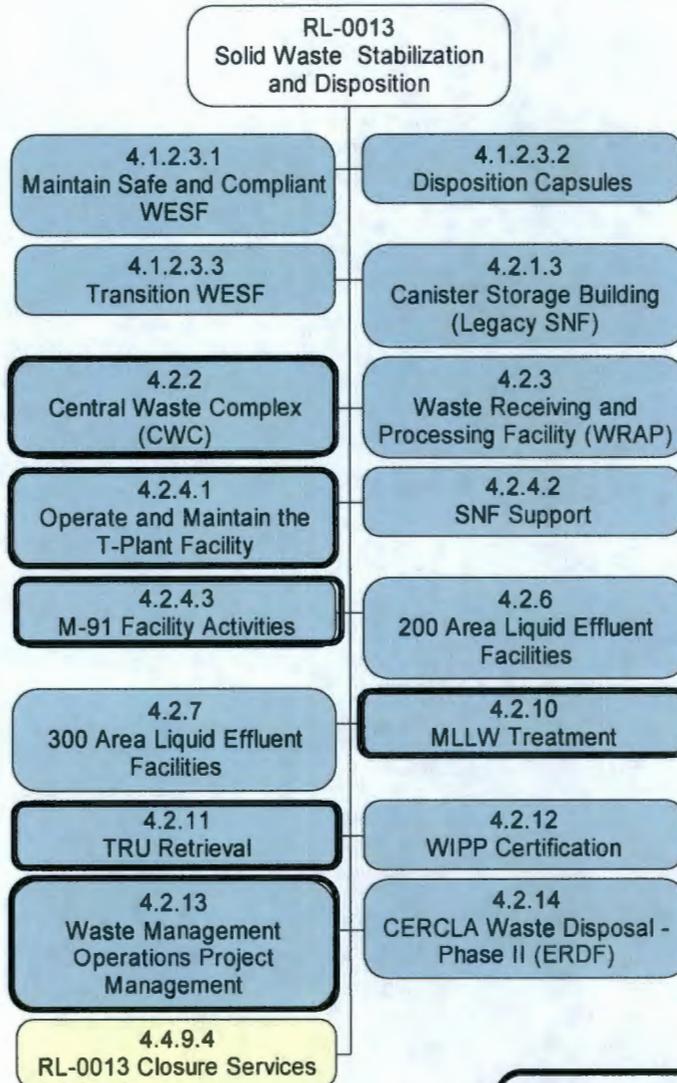
Appendix F:

WBS Elements Applicable to the Project Management Plan

(March 2004)

(consisting of 47 pages)

RL-0013 WBS Hierarchy



Applicable to the M-91-03
TRUM Waste and MLLW
PMP

Waste Disposal/Groundwater
Remediation Project
Project Systems & Support

Central Waste Complex (CWC) (4.02.02)

| | | | |
|--|-----------------------------|--|--------------------|
| 1. Dictionary Title Central Waste Complex (CWC) | 2. Date 19 February 2004 | 3. FH Project Waste Management - Wilde, R. T. | |
| 4. Contract WBS No. 4.02.02 | 5. Dict Rev | 6. B & R No. | 7. Baseline CR No. |
| 8. RL PBS Name RL-0013 - Solid Waste Stabilization and Disposition - 200 Area | | | |

Scope of Work

Central Waste Complex:

Specific activities planned provide for the minimum safe operations and maintenance of the CWC facilities to maintain compliant facility conditions, monitoring and surveillance of existing waste inventories; and for preparation to receive LLW, MLLW and TRU wastes for safe interim storage. The CWC currently manages approximately 43,000 drum equivalents of LLW, MLLW, and TRU(M) waste in interim storage until disposition occurs. Activities include operations, engineering, radiation control, and maintenance of the facility buildings. Permitting, training, procedure development, and environmental compliance activities are included in support of Solid Waste Storage and Disposal Facilities. It also provides replacement of capital equipment not related to construction (CENRTC) in support of the CWC, LLBG (Low-Level Burial Grounds), and MWT (Mixed Waste Trenches) for forklifts, vehicles, and other equipment that exceed their useful life.

Interim Storage and Disposal:

Specific activities planned provide radioactive and hazardous waste services to the waste generators from Solid Waste Services in support of Hanford cleanup activities and DOE complex wide Projects. Activities to dispose of low-level and mixed low-level waste, designate and ship hazardous waste, manage off site Treatment, Storage, and Disposal Facilities (TSDF) contracts, and to store mixed and transuranic wastes are included. Components of Interim Storage and Waste Disposal include placement of waste into storage or disposal, waste approval, waste designation, waste acceptance, waste verification, generator assistance, generator assessments, Solid Waste Inventory Tracking System (SWITS) maintenance, generator training for SWITS, waste billings, waste forecasting and maintenance of the Solid Waste Integrated Forecasting Tool (SWIFT), and rate development. This service only covers normal waste receipt activities and standard waste containers. The cost of special activities will continue to be borne at actual cost by the waste generator. Generator costs include the cost of stabilization for Category III and special Category I low level wastes. The cost of Solid Waste Services provided to waste generators will be recovered through unit rates for each waste type for actual volumes shipped plus the actual cost of special activities. Active commercial contracts for the treatment and disposal of all Hanford Site generated Hazardous wastes

shall be maintained.

The table below contains specific scope, requirements, deliverables, and the government furnished services or items that are necessary to accomplish the work in this WBS.

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|--|---|--|--|
| <p>Maintain Safe & Compliant Central Waste Complex Facility Operations Operate and maintain the Central Waste Complex structures, operating systems and equipment, and monitoring systems within the authorization envelope. Prepare and package waste streams for disposition as required and dispose as appropriate. Maintain radiological control and access control to ensure personnel safety.</p> | <p>The Central Waste Complex shall remain a contamination free facility.</p> <p>The Central Waste Complex (CWC) shall be operated and maintained in a safe and compliant manner in compliance with 02-ABD-0120, Approval of the Central Waste Complex (CWC) and Low Level Burial Ground (LLBG) Authorization Agreement Annual Updates.</p> | <p>Authorization Agreement for CWC and LLBG (review and update yearly)</p> | <p>None Identified</p> |
| <p>Receive and Store Radioactive Solid Wastes Store existing quantities of low-level waste, mixed low-level waste, and TRU waste, including retrieved suspect TRU waste. Receive and store newly generated waste from Hanford Site generators and from off site generators approved by RL.</p> | <p>Low-level and mixed low-level waste that does not meet the Hanford Site Solid Waste Acceptance Criteria, HNF-EP-0063, for disposal shall be stored at the CWC.</p> <p>Newly generated waste shall be confirmed to be in compliance with the Hanford Site Solid Waste Acceptance Criteria, HNF-EP-0063.</p> <p>Mixed waste shall be treated each year to meet LDR criteria.</p> <p>The Contractor shall store newly generated transuranic waste after WIPP closes until a determination is made on disposition of transuranic waste after WIPP closure.</p> | <p>None Identified</p> | <p>None Identified</p> |
| <p>Dispose of Low-Level Solid Waste Receive and place low-level waste in the low-level waste burial grounds.</p> | <p>The Contractor shall dispose of baseline volumes of LLW and RMW (MLLW), as defined in the SWIFT 2002.1 Report, from DOE and DOD generators as approved by RL.</p> | <p>None Identified</p> | <p>None Identified</p> |
| <p>Dispose of Mixed Low-Level Solid Waste Receive and place mixed low-level waste packages in the mixed waste disposal trenches.</p> | <p>The Contractor shall dispose of baseline volumes of LLW and RMW (MLLW), as defined in the SWIFT 2002.1 Report, from DOE and DOD generators as approved by RL.</p> | <p>None Identified</p> | <p>Authorize disposal of some of the MLLW off the Hanford Site (e.g., Envirocare). Commitment Date: 31 December 2002 Completed: 16 December 2002</p> <p>Approve disposal of the 183-H Basin waste in ERDF. Commitment Date: 31 March 2003 Completed: 7 July 2003</p> |
| <p>Manage Dangerous Waste Contracts Manage contracts with commercial vendors for treatment and/or disposal of hazardous waste generated on site.</p> | <p>The Contractor shall designate and ship hazardous waste. Hazardous waste leaving the Hanford Site for disposal must follow RL approved radiological moratorium limits.</p> | <p>None Identified</p> | <p>None Identified</p> |

Additional requirements applicable to this WBS include:

- Each of the DOE's sites that has, or will generate, TRU waste shall, as needed, prepare and store its TRU waste on site.

- Non-regulated LLW, stored in the CWC, that does not meet the Hanford Site Solid Waste Acceptance Criteria for disposal, shall be treated as capability becomes available.
- If onsite Low-level solid wastes must be stored pending disposal, it shall be stored in compliance with the Central Waste Complex Authorization Agreement.
- DESIGNATE ALL RH LOW-LEVEL WASTE AND BOXES AND LARGE CONTAINERS OF CH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND PERMITTED STORAGE (AS OF JUNE 30, 2003) ACCORDING TO THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100. Due Date: 12/31/2008
- DESIGNATE ALL RH TRANSURANIC WASTE AND BOXES AND LARGE CONTAINERS OF CH TRANSURANIC WASTE CURRENTLY IN ABOVE-GROUND STORAGE (AS OF JUNE 30, 2003) ACCORDING TO THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100. Due Date: 12/31/2012
- Waste management cross-cutting support services shall be provided.
- Waste generator services shall be provided.
- Waste transportation and packaging services (including shipment to the Waste Isolation Pilot Project) shall be provided.
- Active commercial contracts for the treatment and disposal of all Hanford Site generated Hazardous waste shall be maintained.
- The Solid Waste Acceptance Criteria (EP-0063) shall be updated yearly to incorporate changes to the Performance Assessments; Composite Analysis; Permits; and State, Local, and Federal laws and regulations.
- Changes to EP-0063 (Solid Waste Acceptance Criteria) shall be approved by the RL COR prior to usage.
- All waivers or exceptions to EP-0063 (Solid Waste Acceptance Criteria) shall be approved by the RL Program Office.
- The Hanford Waste Management Project shall comply with Disposal Authorization Statement requirements, as amended.

Key Assumptions

The CWC will maintain a ready-to-serve status for the receipt for interim storage and/or disposal of LLW, MLLW and TRU(M) wastes from on site and off site waste generators.

Waste treatment/storage/disposal requests from all generators approved by DOE-RL shall be supported.

Storage of LLW that does not meet the Hanford Site Solid Waste Acceptance, HNF-EP-0063, for disposal shall be managed within the existing capacity of the Central Waste Complex and shall be treated as capability becomes available.

Drivers

Key documents used for allocating Site requirements to this WBS include:

| | |
|-------------|---|
| 02-ABD-0120 | Approval of the Central Waste Complex (CWC) and Low Level Burial Ground |
|-------------|---|

| | |
|--|--|
| | (LLBG) Authorization Agreement Annual Updates |
| 63 FR 3629, January 23, 1998, Doc. 98-1654 | Record of Decision for the Waste Management Program: Treatment and Storage of Transuranic Waste |
| 63 FR 41810, August 5, 1998, Doc. 98-20895 | Record of Decision for the Waste Management Program: Treatment of Non-wastewater Hazardous Was |
| 65 FR 10061, February 25, 2000, Doc. 00-4439 | Record of Decision for the Waste Management Program: Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste; Amendment of the Record of Decision for the Nevada Test Site |
| 03-AMCP-0018 | CONTRACT NO. DE-AC06-96RL13200 - IMPLEMENTATION OF THE DRAFT TRI-PARTY AGREEMENT M-91 CHANGE PACKAGE |
| DE-AC06-96RL13200 | Project Hanford Management Contract |
| HNF-EP-0063 | Hanford Solid Waste Acceptance Criteria |

WBS Interfaces

Interfaces consisting of waste or material transfers are also performed through processes defined within process documents (HNF-PRO), requirements documents (HNF-RD), guidance documents (HNF-GD), and management directives (HNF-MD) contained within the Project Hanford Management System (PHMS). These PHMS and acceptance criteria documents for waste or material streams are:

- HNF-EP-0063, Hanford Solid Waste Acceptance Criteria
- HNF-PRO-156, Onsite Hazardous Materials Shipments
- HNF-PRO-157, Offsite Hazardous Material Shipments
- HNF-PRO-455, Solid Waste Management
- HNF-PRO-5121, Waste Designation and Land Disposal Restrictions
 - HNF-PRO-5123, Mixed Waste
 - HNF-PRO-5125, Radioactive Waste
 - HNF-PRO-5127, Treatment, Storage, and/or Disposal Units
 - HNF-RD-7900, Transportation and Packaging Program Requirements

Interface management documents specific to a waste/material stream are identified for each stream, as appropriate, in the table below.

| Interface (Input) | Documentation | Generating WBS |
|--|--|---|
| Depleted Uranium/FFTF/Shipped to Central Waste Complex | | 4.1.4.1.4 Decommission FFTF Complex |
| | Includes: Depleted Uranium/FFTF/Shipped to Central Waste Complex | |
| LLW/Off-Site Generators/Shipped to Central Waste Complex (CWC) | • ICD/MOU for Offsite Waste Shipments | Off-Site Generators - LLW/MLLW/TRU(M) Transfers |
| | Includes: LLW/Off-Site Generators/Shipped to Central Waste Complex (CWC) | |
| Near-Surface Disposal Waste/D&D | | ORP: Decommission |

| Interface (Input) | Documentation | Generating WBS |
|--|---|--|
| Tank Farm System/DST closure waste transferred to Central Waste Complex | | and Disposition Tank Farm Facilities |
| Includes: | | |
| Near-Surface Disposal Waste/Tank Farm System/DST Closure sent to Low-Level Waste Burial Grounds | | |
| Near-Surface Disposal Waste/Tank Farm System/SST Closure sent to Low-Level Waste Burial Grounds | | |
| Near-Surface Disposal | | ORP: Operate WTP |
| Waste/Operate WTP/transferred to Central Waste Complex (CWC) | | |
| Includes: | | |
| Near-Surface Disposal Waste/WTP Facility Operations/transferred to Receive and Store Radioactive Solid Waste | | |
| Near-Surface Disposal Waste/Tank Farm Operations/Shipped to Low-Level Waste Burial Grounds | <ul style="list-style-type: none"> • CHG-FMOA-2001, Memorandum of Agreement between Ch2MHill Hanford Group, Inc. and Fluor Hanford, Inc. for Performance and Payment of Services • HNF-4482, Rev. 1, Interface Control Document for the Tank Farm System and Fluor Hanford Treatment Storage Disposal Facilities • MOU-TBD | ORP: Tank Farm Operations |
| Includes: | | |
| Near-Surface Disposal Waste/Tank Farm Operations/transferred to Low-Level Waste Burial Grounds | | |
| Radiological Solid Waste/200 Area Liquid Effluent Facilities/Shipped to Central Waste Complex (CWC) | | 4.2.6 200 Area Liquid Effluent Facilities |
| Includes: | | |
| LLW/200 Area Treated Effluent Facility/Shipped to Central Waste Complex | | |
| MLLW/200 Area Effluent Treatment Facility/Shipped to Central Waste Complex | | |
| Radiological Solid Waste/200 Area Waste Site Cleanup/Shipped to Central Waste Complex | • DOE/WIPP-069 - WIPP Waste Acceptance Criteria | 4.1.2.5 200 Area Waste Site Cleanup |
| Includes: | | |
| TRU(M)/CP Soil Site Operable Units/Shipped to Central Waste Complex | | |
| Radiological Solid Waste/300 ACP Facilities Pending Transfer to RCC/Shipped to Central Waste Complex | | 4.1.3.4 300 ACP Facilities Pending Transfer to RCC |
| Includes: | | |
| LLW/300 ACP Facilities/Shipped to Central Waste Complex | | |
| MLLW/300 ACP Facilities/Shipped to Central Waste Complex | | |
| TRU(M)/300 ACP Facilities/Shipped to Central Waste Complex | | |
| Radiological Solid Waste/300 Area Treated Effluent Disposal Facility/Shipped to Central Waste Complex | | 4.2.7 300 Area Liquid Effluent Facilities |
| Includes: | | |
| LLW/300 Area Treated Effluent Disposal Facility/Shipped to | | |

| Interface (Input) | Documentation | Generating WBS |
|---|---|--|
| | Central Waste Complex MLLW/300 Area Treated Effluent Disposal Facility/Shipped to Central Waste Complex | |
| Radiological Solid Waste/300 Area Waste Site Cleanup/material from 618-10&11 Shipped to Central Waste Complex | • DOE/WIPP-069 - WIPP Waste Acceptance Criteria Includes: TRU(M)/618-10&11 Burial Grounds/Shipped to Solid Waste Storage | 4.1.3.2 300 Area Waste Site Cleanup |
| Radiological Solid Waste/B-Plant/Shipped to Central Waste Complex | Includes: LLW/B-Plant/Shipped to Central Waste Complex | 4.1.2.1.3 Balance of Canyon and Other Facilities |
| Radiological Solid Waste/Balance of 100 K Area Facilities/LLW shipped to Central Waste Complex (CWC) | Includes: LLW/100 K Area Facilities/LLW shipped to Central Waste Disposal MLLW/100 K Area Facilities/MLLW shipped to Central Waste Complex (CWC) TRU/100 K Area Facilities/LLW shipped to Central Waste Disposal | 4.1.1.1.6 Balance of 100 K Area Facilities |
| Radiological Solid Waste/Balance of Canyon and other Facilities/sent to Central Waste Complex | Includes: LLW/200 Area Facilities/FH 200 ADP LLW sent to Central Waste Complex MLLW/200 Area Facilities/FH 200 ADP waste sent to Central Waste Complex TRU(M)/200 Area Facilities/FH 200 ADP TRU(M) sent to Central Waste Complex | 4.1.2.1.3 Balance of Canyon and Other Facilities |
| Radiological Solid Waste/FFTF/Shipped to Central Waste Complex | Includes: LLW/FFTF/Shipped to Central Waste Complex MLLW/FFTF/Shipped to Solid Waste Storage | 4.1.4.1.1 Maintain Safe & Compliant FFTF Complex |
| Radiological Solid Waste/LLBG/shipped to Central Waste Complex | Includes: LLW/LLBG/sent to Central Waste Complex MLLW/Solid Waste Disposal/LLBG material shipped to Solid Waste Storage | 4.2.8 Low-Level Waste Burial Grounds |
| Radiological Solid Waste/M-91 Facility Activities/Shipped to Central | • DOE/WIPP-069 - WIPP Waste Acceptance Criteria | 4.2.4.3 M-91 Facility Activities |

| Interface (Input) | Documentation | Generating WBS |
|--|--|--|
| Waste Complex | Includes: LLW/M-91 Facility/Shipped to Central Waste Complex MLLW/M-91 Facility/Shipped to Central Waste Complex TRU(M)/M-91 Facility/Shipped to Central Waste Complex | |
| Radiological Solid Waste/Maintain Safe and Compliant WESF/Shipped to Central Waste Complex (CWC) | Includes: LLW/WESF/Shipped to Central Waste Complex MLLW/WESF/Shipped to Central Waste Complex | 4.1.2.3.1 Maintain Safe and Compliant WESF |
| Radiological Solid Waste/Off-Site Generators/Shipped to Central Waste Complex (CWC) | Includes: MLLW/Off-Site Generators/Shipped to Central Waste Complex | • ICD/MOU for Offsite Waste Shipments Off-Site Generators - LLW/MLLW/TRU(M) Transfers |
| Radiological Solid Waste/Off-Site Treatment/sent to Central Waste Complex | Includes: MLLW/Off-Site Treatment/MLLW containing lead or mercury to Central Waste Complex for Disposal MLLW/Thermal Treatment Contract/Stabilized MLLW to Solid Waste Disposal | 4.2.10 MLLW Treatment |
| Radiological Solid Waste/PFP/sent to Central Waste Complex | Includes: LLW/PFP/sent to Central Waste Complex MLLW/PFP/sent to Central Waste Complex TRU(M)/PFP/sent to Central Waste Complex | 4.1.2.2.4 Disposition SNM |
| Radiological Solid Waste/PUREX/Shipped to Central Waste Complex | Includes: LLW/PUREX/Shipped to Central Waste Complex MLLW/PUREX/Shipped to Central Waste Complex | 4.1.2.1.3 Balance of Canyon and Other Facilities |
| Radiological Solid Waste/Rail System/Shipped to Central Waste Complex | Includes: LLW/Rail System/Shipped to Central Waste Complex MLLW/Rail System/Shipped to Central Waste Complex | 4.1.2.4 Balance of 200 Area Facilities Cleanup |
| Radiological Solid Waste/River Corridor Closure Contractor/Shipped to Central Waste Complex | Includes: LLW/RoR Soil Site Operable Units/Shipped to Central Waste Complex MLLW/RoR Soil Site Operable Units/Shipped to Central Waste | River Corridor Closure Contractor |

| Interface (Input) | Documentation | Generating WBS |
|---|--|--|
| | Complex | |
| Radiological Solid Waste/River Corridor Closure Contractor/transferred to Central Waste Complex (CWC) | | River Corridor Closure Contractor |
| | Includes: | |
| | TRU(M)/River Corridor Closure Contractor/sent to Central Waste Complex | |
| Radiological Solid Waste/T-Plant Canyon Facility/Shipped to Central Waste Complex | | 4.2.4.1 Operate and Maintain the T-Plant Facility |
| | Includes: | |
| | LLW/T-Plant Canyon Facility/shipped to Central Waste Complex | |
| | MLLW/T-Plant Canyon Facility/Shipped to Central Waste Complex | |
| Radiological Solid Waste/Tank Farm Operations/transferred to Central Waste Complex | | ORP: Tank Farm Operations |
| | Includes: | |
| | Radiological Solid Waste/Tank Farm Operations/transferred to Central Waste Complex | |
| Radiological Solid Waste/TRU Retrieval/Central Waste Complex | | 4.2.11 TRU Retrieval |
| | Includes: | |
| | LLW/TRU Retrieval/Suspect TRU Waste Determined to be LLW sent to disposal | |
| | TRU(M)/LLBG/Retrieved CH TRU Waste | |
| Radiological Solid Waste/WRAP/Shipped to Central Waste Complex | | 4.2.3 Waste Receiving and Processing Facility (WRAP) |
| | Includes: | |
| | LLW/WRAP/Shipped to Central Waste Complex | |
| | MLLW/WRAP/Shipped to Central Waste Complex | |
| | TRU(M)/WRAP/Shipped to Central Waste Complex | |
| Radiological Solid Waste/WSCF/Shipped to Central Waste Complex (CWC) | | 4.3.2.2 WSCF |
| | Includes: | |
| | LLW/WSCF/Shipped to Central Waste Complex | |
| | MLLW/WSCF/Shipped to Central Waste Complex | |
| Radiological Solid Waste/WTP/transferred to CWC | | ORP: Operate WTP |
| | Includes: | |
| | Radiological Solid Waste/WTP Operations/transferred to Central Waste Complex | |
| Radiological Solid Waste/X PNNL/shipped to Central Waste Complex | • MOU-TBD | Pacific Northwest National Laboratory |
| | Includes: | |
| | LLW/Pacific Northwest National Laboratory/shipped to Central Waste Complex | |
| | MLLW/Pacific Northwest National Laboratory/shipped to Central Waste Complex | |

| Interface (Input) | Documentation | Generating WBS |
|-------------------|---|----------------|
| | TRU(M)/Pacific Northwest National Laboratory/Shipped to Central Waste Complex | |

| Interface (Output) | Documentation | Receiving WBS |
|---|--|---|
| CWC Facilities and Waste Sites/Central Waste Complex (CWC)/transferred to 200 Area Surveillance and Maintenance | | 4.1.2.6 200 Area Surveillance and Maintenance |
| | Includes: | |
| | See Building and Waste Site List section below. | |
| Radiological Solid Waste/Central Waste Complex/MLLW to Treatment | | 4.2.10 MLLW Treatment |
| | Includes: | |
| | MLLW to Treatment | |
| Radiological Solid Waste/Central Waste Complex/PCB contaminated TRU sent to WIPP Certification | | 4.2.12 WIPP Certification |
| | Includes: | |
| | TRU(M)/Central Waste Complex/PCB Contaminated TRU Waste dispositioned through WIPP Certification | |
| Radiological Solid Waste/Central Waste Complex/Shipped to M-91 Facility Activities | | 4.2.4.3 M-91 Facility Activities |
| | Includes: | |
| | LLW/Central Waste Complex/Shipped to M-91 Facility | |
| | TRU(M)/Central Waste Complex/Shipped to M-91 Facility (T-Plant) | |
| Hanford LLW Disposed | | 4.2.8 Low-Level Waste Burial Grounds |
| | Includes: | |
| | non-PHMC LLW Disposed | |
| | PHMC LLW Disposed | |
| Hanford MLLW Disposed | | 4.2.9 Mixed Waste Disposal Trenches (MWDT) |
| | Includes: | |
| | non-PHMC MLLW Disposed | |
| | PHMC MLLW Disposed | |
| Radiological Solid Waste/Central Waste Complex/TRU post WIPP to TBD | | TBD |
| | Includes: | |
| | TRU(M)/Central Waste Complex/Post 2032 TRU Waste with no disposition path | |

| Interface (Output) | Documentation | Receiving WBS |
|---|---|---------------------------|
| Radiological Solid Waste/Central Waste Complex/TRU Waste to WIPP Certification Processing | | 4.2.12 WIPP Certification |
| | Includes: CWC Waste Transported to WIPP Certification Processing | |

Building and Waste Site List

The following table identifies buildings and waste sites that are worked on as part of this WBS task. The middle column identifies the condition expected at the start of this task, the planned completion date, and the transferring WBS or contractor. The right column identifies the expected condition to be achieved at the completion of this task, the planned date, and the receiving WBS or contractor.

| Identifier | • Transferring WBS/Contractor • Condition Received • Date | • Receiving WBS/Contractor • Achieved End Point • Date |
|---|---|--|
| Buildings: | | |
| 2120WA CWC Equipment Storage Building (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | • 4.1.2.6 200 Area Surveillance and Maintenance • 2120WA Excessed • Planned: 9/30/2033 |
| 2120WB CWC Equipment Storage Building (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | • 4.1.2.6 200 Area Surveillance and Maintenance • 2120WB Excessed • Planned: 9/30/2033 |
| 2401W Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | • 4.1.2.6 200 Area Surveillance and Maintenance • 2401W Excessed • Planned: 9/30/2033 |
| 2402W Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | • 4.1.2.6 200 Area Surveillance and Maintenance • 2402W Excessed • Planned: 9/30/2033 |
| 2402WB Mixed Waste Storage Facility at | Already Assigned to this WBS | • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WB Excessed |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|--|
| CWC (Includes the following waste sites: RMWSF) | | <ul style="list-style-type: none"> • Planned: 9/30/2033 |
| 2402WC Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WC Exceeded • Planned: 9/30/2033 |
| 2402WD Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WD Exceeded • Planned: 9/30/2033 |
| 2402WE Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WE Exceeded • Planned: 9/30/2033 |
| 2402WF Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WF Exceeded • Planned: 9/30/2033 |
| 2402WG Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WG Exceeded • Planned: 9/30/2033 |
| 2402WH Mixed Waste Storage Facility at CWC | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WH Exceeded • Planned: 9/30/2033 |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|--|
| (Includes the following waste sites: RMWSF) | | |
| 2402WI Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WI Exceeded • Planned: 9/30/2033 |
| 2402WJ Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WJ Exceeded • Planned: 9/30/2033 |
| 2402WK Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WK Exceeded • Planned: 9/30/2033 |
| 2402WL Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2402WL Exceeded • Planned: 9/30/2033 |
| 2403WA Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2403WA Exceeded • Planned: 9/30/2033 |
| 2403WB Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2403WB Exceeded • Planned: 9/30/2033 |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|--|
| sites: RMWSF) | | |
| 2403WC Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2403WC Exceeded • Planned: 9/30/2033 |
| 2403WD Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2403WD Exceeded • Planned: 9/30/2033 |
| 2404WA Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2404WA Exceeded • Planned: 9/30/2033 |
| 2404WB CWC Storage Building (used to support TRU Program) (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2404WB Exceeded • Planned: 9/30/2033 |
| 2404WC Mixed Waste Storage Facility at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2404WC Exceeded • Planned: 9/30/2033 |
| 2420W German Logs Storage Pad at CWC (Includes the following waste sites: RMWSF) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2420W Exceeded • Planned: 9/30/2033 |
| 2727W | Already Assigned to this WBS | • 4.1.2.6 200 Area Surveillance and |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|---|---|--|
| Sodium Storage Building (Includes the following waste sites: RMWSF) | | <ul style="list-style-type: none"> • Maintenance • 2727W Excessed • Planned: 9/30/2033 |
| 285W Backflow Prevention Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 285W Excessed • Planned: 9/30/2033 |
| 286W RMW Backflow Preventer Bldg | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 286W Excessed • Planned: 9/30/2033 |
| Alkali Metal Waste Storage Modules Alkali Metal Waste Storage Modules at CWC | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • Alkalide Metal Waste Storage Modules Excessed • Planned: 9/30/2033 |
| MO110 Mobile Office at Sub Burial Pit | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO110 Excessed • Planned: 9/30/2033 |
| MO223 Change Trailer North of 272WA Along Fence | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO223 Excessed • Planned: 9/30/2033 |
| MO269 Change Trailer East of Sub Burial Ground | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO269 Excessed • Planned: 9/30/2033 |
| MO278 Mobile Office West of 275W | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO278 Excessed • Planned: 9/30/2032 |
| MO279 Mobile Office West of 275W | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO279 Excessed • Planned: 9/30/2032 |
| MO288 Mobile Change Facility at Central Waste Complex | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO288 Excessed • Planned: 9/30/2033 |
| MO437 Mobile Office at 272WA | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO437 Excessed • Planned: 9/30/2033 |
| MO438 Mobile Office at | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|---|---|---|
| 272WA | | <ul style="list-style-type: none"> • MO438 Exceeded • Planned: 9/30/2033 |
| MO720 Mobile Office at 272WA at 19th & Dayton | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO720 Exceeded • Planned: 9/30/2033 |
| MO721 Mobile Change Facility at 272WA at 19th & Dayton | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO721 Exceeded • Planned: 9/30/2033 |
| MO738 Tank Farm Mobile Field Office West of PFP | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO738 Exceeded • Planned: 3/1/2033 |
| MO743 Mobile Office | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO743 Exceeded • Planned: 9/30/2033 |
| MO941 Mobile Field Office West of 234-5Z | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO941 Exceeded • Planned: 9/30/2012 |

Operate and Maintain the T-Plant Facility (4.02.04.01)

| | | | |
|--|----------------------------|--|--------------------|
| 1. Dictionary Title Operate and Maintain the T-Plant Facility | 2. Date 8 February 2004 | 3. FH Project Waste Management - Wilde, R. T. | |
| 4. Contract WBS No. 4.02.04.01 | 5. Dict Rev | 6. B & R No. | 7. Baseline CR No. |
| 8. RL PBS Name RL-0013 - Solid Waste Stabilization and Disposition - 200 Area | | | |

Scope of Work

Provide for minimum safe operations at the T Plant Facility. These activities support compliance and safety requirements. Provide surveillance and maintenance of structures, systems, components, and processes to ensure operation within the approved safety and compliance requirements envelope, including preventive maintenance and calibrations, repair of failed and malfunctioning equipment, walkdown of safety systems, equipment and facility grounds (operational surveillance), and routine radiological surveys. Scope includes a range of management assessment activities, ESH&Q support, employee training and certification of operators, emergency planning, and procedure maintenance as required to maintain a safe and compliant facility or process. This activity also provides for high-dose and dual survey (beta-gamma and alpha) treatment services at the T Plant Canyon Facility.

Provide for minimum safe operations at the 2706-T facility. Activities are designed to keep the facility in a safe and compliant status. Maintenance activities will include preventative, corrective, and designated calibration and/or testing services. Training will maintain established qualifications for plant personnel to work in a treatment, storage, and disposal facility. Provide decontamination and waste verification activities, including low-dose alpha and beta-gamma decontamination, and waste verification in the 2706-T facility. Training and certification that is directly related to decontamination/verification will be provided.

The table below contains specific scope, requirements, deliverables, and the government furnished services or items that are necessary to accomplish the work in this WBS.

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|--|---|---|------------------------|
| <p>Operate and Maintain the T-Plant Facility</p> <p>Operate and maintain the T Plant structures, operating systems and equipment, and monitoring systems within the authorization envelope.</p> <p>Maintain T Plant Complex capabilities to support Hanford decontamination needs, waste storage, repackaging and verification, TRU characterization (headspace gas sampling), and waste treatment activities.</p> | <p>Oversized packages requiring special processing shall be processed.</p> <p>TRU waste processed at T Plant shall be shipped to WIPP.</p> <p>Preparations to provide M-91 treatment capabilities at T Plant shall be initiated, including clearing stored equipment from the canyon deck.</p> <p>The Contractor shall operate and maintain the T-Plant Facility in compliance with:</p> <ul style="list-style-type: none"> • DOE/WIPP-02-3122, Rev. 0.1, "Contact-Handled Transuranic Waste | <p>Authorization Agreement for T Plant (review and update yearly)</p> | <p>None Identified</p> |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|-------|--|--------------|---------|
| | Acceptance Criteria for the Waste Isolation Pilot Plant"; • 02-ABD-0139, " Approval of the T Plant Authorization Agreement (AA) Annual Update". | | |

Key Assumptions

T-Plant canyon (221-T), and 2706-T minimum safe activities continue at the same level.

2706-T activities continue at the same level. It is expected that a majority of the funding will be from generators as opposed to direct funding.

Drivers

Key documents used for allocating Site requirements to this WBS include:

| | |
|---------------------------|---|
| 02-ABD-0139 | Approval of the T Plant Authorization Agreement (AA) Annual Update |
| DE-AC06-96RL13200 | Project Hanford Management Contract |
| DOE/WIPP-02-3122 Rev. 0.1 | Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant |

WBS Interfaces

Interfaces consisting of waste or material transfers are also performed through processes defined within process documents (HNF-PRO), requirements documents (HNF-RD), guidance documents (HNF-GD), and management directives (HNF-MD) contained within the Project Hanford Management System (PHMS). These PHMS and acceptance criteria documents for waste or material streams are:

- HNF-3172, Hanford Site Liquid Waste Acceptance Criteria
- HNF-EP-0063, Hanford Solid Waste Acceptance Criteria
- HNF-PRO-156, Onsite Hazardous Materials Shipments
- HNF-PRO-157, Offsite Hazardous Material Shipments
- HNF-PRO-455, Solid Waste Management
- HNF-PRO-5121, Waste Designation and Land Disposal Restrictions
- HNF-PRO-5122, Dangerous Waste Generator Activities
- HNF-PRO-5125, Radioactive Waste
- HNF-PRO-5127, Treatment, Storage, and/or Disposal Units
- HNF-RD-7900, Transportation and Packaging Program Requirements
- HNF-RD-8922, Water Quality Program

Interface management documents specific to a waste/material stream are identified for each stream, as appropriate, in the table below.

| Interface (Output) | Documentation | Receiving WBS |
|---|---------------|---------------|
| Radiological Solid Waste/T-Plant Canyon | | 4.2.2 Central |

| Interface (Output) | Documentation | Receiving WBS |
|--|--|---|
| Facility/Shipped to Central Waste Complex | | Waste Complex (CWC) |
| | Includes: | |
| | LLW/T-Plant Canyon Facility/shipped to Central Waste Complex | |
| | MLLW/T-Plant Canyon Facility/Shipped to Central Waste Complex | |
| T-Plant Operations Complete/Operate and Maintain the T-Plant Facility/transferred to 200 Area Surveillance and Maintenance | | 4.1.2.6 200 Area Surveillance and Maintenance |
| | Includes: | |
| | See Building and Waste Site List section below. | |
| Waste Water/Operate and Maintain the T-Plant Facility/Sent to 200 Area Effluent Treatment Facilities | <ul style="list-style-type: none"> • HNF-SD-W049H-ICD, 200 Area Treated Effluent Disposal Facility Interface Control Document • WMH-331-3.11 200 Area Waste Processing Facilities, New Waste Stream Acceptance at LERF/ETF | 4.2.6 -200 Area Liquid Effluent Facilities |
| | Includes: | |
| | Waste Water/T-Plant Canyon Facility/Sent to 200 Area TEFD (200 LEF) for disposal | |

Building and Waste Site List

The following table identifies buildings and waste sites that are worked on as part of this WBS task. The middle column identifies the condition expected at the start of this task, the planned completion date, and the transferring WBS or contractor. The right column identifies the expected condition to be achieved at the completion of this task, the planned date, and the receiving WBS or contractor.

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|---|---|--|
| Buildings: | | |
| 211T Cold Chemical Makeup Tank Farm (Includes the following waste sites: 200-W-36) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 211T Excessed • Planned: 9/30/2030 |
| 211T52 Instrumentation Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 211T52 Excessed • Planned: 9/30/2030 |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|--|
| 214T Metal Chemical Storage Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 214T Exceeded • Planned: 9/30/2030 |
| 221T T-Plant Canyon (Includes the following waste sites: 200-W-20, 200-W-36, 221-T-11-R, 221-T-15-1, 221-T-5-6, 221-T-5-7, 221-T-5-9, 221-T-6-1) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 221T Exceeded • Planned: 9/30/2030 |
| 221TA Fan House | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 221TA Exceeded • Planned: 9/30/2030 |
| 221TB Laundry Storage Skid Shack | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 221TB Exceeded • Planned: 9/30/2030 |
| 225WA Treated Effluent Monitoring Bldg at T Plant | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 225WA Exceeded • Planned: 9/30/2030 |
| 2706T Equipment Decontamination Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2706T Exceeded • Planned: 9/30/2030 |
| 2706TA Equipment Decontamination Annex | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2706TA Exceeded • Planned: 9/30/2030 |
| 2706TB Holding Tanks Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2706TB Exceeded • Planned: 9/30/2030 |
| 2715T Paint Storage/Materials Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2715T Exceeded • Planned: 9/30/2030 |
| 2716T RM Checkout Station Near Tunnel | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2716T Exceeded • Planned: 9/30/2030 |
| 271T Office/Main | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|---|
| Building | | <ul style="list-style-type: none"> • 271T Exceeded • Planned: 9/30/2030 |
| 277T Blow Down Building | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 277T Exceeded • Planned: 9/30/2030 |
| 291T Exhaust Fan, Sand Filter and Stack (Includes the following waste sites: 200-W-45) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 291T Exceeded • Planned: 9/30/2030 |
| 292T Building Laboratory (Includes the following waste sites: 200-W-40) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 292T Exceeded • Planned: 9/30/2030 |
| MO289 Mobile Change Facility at 224T | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO289 Exceeded • Planned: 9/30/2033 |
| MO433 Mobile/Change Office at 271T (T- Plant) | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO433 Exceeded • Planned: 9/30/2033 |
| MO459 Women's Change Trailer at 271T | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO459 Exceeded • Planned: 9/30/2033 |
| MO739 SWP Change Trailer at 271T North West Side | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO739 Exceeded • Planned: 9/30/2033 |
| MO892 Mobile Office West of 271T | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • MO892 Exceeded • Planned: 9/30/2033 |
| Waste Sites: | | |
| 200-W-16 200-W-16, 292-T Underground Tanks, IMUST, Inactive Miscellaneous Underground Storage Tank, 292- TK-1, 292-TK-2 | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 200-W-16 Exceeded |
| 200-W-79 | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|--|
| 200-W-79; 216-T-36 Crib pipeline | | <ul style="list-style-type: none"> Maintenance • 200-W-79 Exceeded |
| 200-W-80 200-W-80; Mound of Contaminated Soil Southwest of T Plant | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 200-W-80 Exceeded |
| 200-W-9 200-W-9, Project W291 Excavation VCP Contamination | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 200-W-9 Exceeded |
| 216-T-29 216-T-29, 291-T Sand Filter Sewer, 216-T-29 French Drain | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 216-T-29 Exceeded |
| 216-T-4B 216-T-4B, 216-T-4 New Pond, 216-T-4-2 (P), 216-T-4-2 Pond | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 216-T-4B Exceeded |
| 2607-W3 2607-W3 | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2607-W3 Exceeded |
| 2607-W4 2607-W4, T Plant Septic Tank and Drain Field | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • 2607-W4 Exceeded |
| UPR-200-W-2 UPR-200-W-2, UN-200-W-2, Underground Waste Line Leak | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • UPR-200-W-2 Exceeded |
| UPR-200-W-65 UPR-200-W-65, Contamination in the T-Plant Railroad Cut, UN-200-W-65 | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • UPR-200-W-65 Exceeded |
| UPR-200-W-73 UPR-200-W-73, Contaminated Railroad Track at 221-T, UN-200-W-73 | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • UPR-200-W-73 Exceeded |
| UPR-200-W-85 UPR-200-W-85, Radioactive Spill from Multipurpose Transfer Box, UN- | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • UPR-200-W-85 Exceeded |

| Identifier | <ul style="list-style-type: none"> • Transferring WBS/Contractor • Condition Received • Date | <ul style="list-style-type: none"> • Receiving WBS/Contractor • Achieved End Point • Date |
|--|---|--|
| 216-W-85, UN-200-W-85 | | |
| UPR-200-W-98 UPR-200-W-98, UN-216-W-6, 221-T Waste Line Break at R-19, UN-200-W-98 | Already Assigned to this WBS | <ul style="list-style-type: none"> • 4.1.2.6 200 Area Surveillance and Maintenance • UPR-200-W-98 Exceeded |

M-91 Facility Activities (4.02.04.03)

| | | | |
|--|-----------------------------|--|--------------------|
| 1. Dictionary Title M-91 Facility Activities | 2. Date 10 February 2004 | 3. FH Project Waste Management - Wilde, R. T. | |
| 4. Contract WBS No. 4.02.04.03 | 5. Dict Rev | 6. B & R No. | 7. Baseline CR No. |
| 8. RL PBS Name RL-0013 - Solid Waste Stabilization and Disposition - 200 Area | | | |

Scope of Work

Provide for future activities to support projects to modify the T-Plant Canyon Facility to improve the facility's operation, extend its useful life, ensure regulatory compliance, or correct deficiencies.

Provide for RCRA required treatment of RH MLLW and oversized CH MLLW that will be generated in the future, as well as those currently stored on the Hanford site.

Provide for treatment activities/processes to prepare RH TRU and TRU containers that can not be processed through WRAP for disposal at WIPP.

Large containers of contact handled, and all remote handled, TRU waste will be processed and/or packaged, and stored until it is shipped off site for final disposition at WIPP and supports Tri-Party Agreement Milestone M-91.

The table below contains specific scope, requirements, deliverables, and the government furnished services or items that are necessary to accomplish the work in this WBS.

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|---|-----------------|-----------------|
| Maintain Safe & Compliant M-91 Facility Operations During the operational phase, the M-91 Facility, structures, operating systems and equipment, and monitoring systems are maintained within the approved safety and compliance requirements envelope until the facilities are transferred to transition activities. During this operational phase, secondary waste streams are prepared and packaged for disposition as required and disposed of as appropriate. Radiological control and access control is performed to ensure personnel safety. | The M-91 Facilities shall be operated and maintained in a safe and compliant manner in compliance with Waste Management Project Authorization Agreements; and the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, WA7890008967. | None Identified | None Identified |
| Provide M-91 MLLW Processing Provide treatment for RH and oversized MLLW packages requiring special treatment for handling considerations. | Oversized packages requiring special processing shall be processed. Safe, compliant, and cost-effective treatment of solid remote handled mixed low-level waste shall be provided. Remote handled mixed low level waste shall be treated to a condition such that | None Identified | None Identified |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|---|------------------------|------------------------|
| | <p>the waste is compliant for disposal and meets the RCRA Land Disposal Restrictions or shall exit regulatory requirements (e.g., status of RCRA characteristic waste after treatment).</p> <p>BEGIN TREATING RH MLLW AND BOXES AND LARGE CONTAINERS OF CH MLLW TO MEET LDR TREATMENT REQUIREMENTS AT A MINIMUM RATE OF 300 CUBIC METERS PER YEAR BEGINNING NO LATER THAN JUNE 30, OF 2008. Due Date: 6/30/2008</p> | | |
| <p>Perform M-91 TRU Processing Process RH TRU/TRUM waste and CH TRU waste in boxes to prepare and package waste for disposal at WIPP.</p> | <p>TRU processing at M-91 Facilities shall be performed in compliance with DOE/WIPP-02-3122, Rev. 0.1, Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant.</p> <p>Remote Handled TRU and Contact Handled TRU not in drums shall be certified (and processed as needed) by the M-91 Facility to WIPP requirements including, but not limited to:</p> <ol style="list-style-type: none"> 1. WIPP Waste Acceptance Criteria 2. WIPP Hazardous Waste Permit 3. TRAMPAC 4. TRUPACT-II SARP 5. CAO Quality Assurance Program Document <p>TRU waste processed by M-91 Facility shall be characterized for disposal at WIPP.</p> <p>Safe, compliant, and cost-effective treatment of Remote Handled Transuranic Mixed waste and Contact Handled TRU not in drums shall be provided at the M-91 Facility.</p> <p>BEGIN TREATING RH TRUM AND BOXES AND LARGE CONTAINERS OF CH TRUM TO MEET LDR TREATMENT REQUIREMENTS AT A MINIMUM RATE OF 300 CUBIC METERS PER YEAR BEGINNING NO LATER THAN JUNE 30, 2012. NOTE: THE REQUIREMENTS DO NOT APPLY PRIOR TO A FINAL APPEALABLE JUDGMENT ON THE MERITS OF THE LDR STORAGE AND TREATMENT CLAIM IN WASHINGTON V. ABRAHAM, NO. CT-03-5018-AAM, AND AFTER SUCH A JUDGMENT, ONLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT. Due Date: 6/30/2012</p> <p>AS TO NEWLY GENERATED RH TRUM GENERATED AFTER 12/31/18 THAT IS DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH -100 AS MIXED AND AS CONTAINING LDR RESTRICTED CONSTITUENTS, DOE SHALL TREAT TO MEET LDR REQUIREMENTS WITHIN ONE YEAR OF GENERATION.</p> | <p>None Identified</p> | <p>None Identified</p> |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|--|-----------------|-----------------|
| | <p>DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF SUCH WASTES FOR DISPOSAL AT WIPP IN LIEU OF LDR TREATMENT, PROVIDED THAT ECOLOGY IS NOTIFIED IN WRITING OF SUCH COMPLETION OF CERTIFICATION AND ONLY IF, AS OF THE TIME OF CERTIFICATION OR BY VIRTUE OF CERTIFICATION, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS.</p> <p>NOTE: THE REQUIREMENTS DO NOT APPLY PRIOR TO A FINAL APPEALABLE JUDGMENT ON THE MERITS OF THE LDR STORAGE AND TREATMENT CLAIM IN WASHINGTON V. ABRAHAM, NO. CT-03-5018-AAM, AND AFTER SUCH A JUDGMENT, ONLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT.</p> | | |
| <p>Disposition Transuranic Waste from M-91 Processing to WIPP Certifying TRU packages from M-91 processing meets the WIPP WAC and transportation requirements for off site transportation. Transport the TRU waste packages to WIPP for disposal.</p> | <p>Remote handled transuranic waste disposal shall comply with requirements from DOE Order 435.1, "Radioactive Waste Management," DOE/WIPP-069, "Waste Acceptance Criteria for the Waste Isolation Pilot Plant, and HNF-EP-0063, Hanford Site Solid Waste Acceptance Criteria.</p> <p>TRU waste processed through M-91 treatment shall be shipped to WIPP.</p> <p>Certification of TRU waste processed through M-91 treatment shall be in accordance with DOE/WIPP-069, Waste Acceptance Criteria for Waste Isolation Pilot Plant.</p> | None Identified | None Identified |
| <p>Treat Low-Level Waste Not Meeting HSSWAC Treat low-level waste in storage not meeting HSSWAC to stabilize the waste for disposal.</p> | <p>For low-level waste requiring treatment, minimum treatment shall be performed to allow onsite disposal.</p> <p>Safe, compliant, and cost-effective solid low-level waste treatment shall be provided for the Hanford Site and DOE complex.</p> | None Identified | None Identified |

Additional requirements applicable to this WBS include:

- COMPLETE THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES, AND MODIFICATION OF PLANNED FACILITIES NECESSARY FOR RETRIEVAL, STORAGE, AND TREATMENT/PROCESSING OF ALL HANFORD SITE RCRA MIXED AND SUSPECT MIXED LOW-LEVEL WASTE AND RCRA MIXED AND SUSPECT MIXED TRANSURANIC WASTE. Due Date: TBD
- COMPLETE THE ACQUISITION OF CAPABILITIES AND/OR ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES, AND/OR MODIFICATION OF PLANNED FACILITIES NECESSARY FOR RETRIEVAL, DESIGNATION, STORAGE AND TREATMENT/PROCESSING PRIOR TO DISPOSAL OF ALL HANFORD

SITE POST 1970 RH TRUM AND SUSPECT RH TRUM, TRUM IN BOXES AND LARGE CONTAINERS, AND SUSPECT TRUM IN BOXES AND LARGE CONTAINERS. Due Date: 6/30/12

- COMPLETE AND SUBMIT RH TRUM, SUSPECT RH TRUM, TRUM IN BOXES AND LARGE CONTAINERS, AND SUSPECT TRUM IN BOXES AND LARGE CONTAINERS RETRIEVAL AND PROCESSING FACILITY(IES) ENGINEERING STUDY/FUNCTIONAL DESIGN CRITERIA STUDY TO ECOLOGY FOR FACILITIES REQUIRED BY M-91-01. Due Date: 12/31/07
- COMPLETE ACQUISITION OF FACILITIES AND/OR CAPABILITIES AND INITIATE TREATMENT OF RH MLLW AND CH MLLW IN BOXES AND LARGE CONTAINERS. Due Date: 6/30/2008

Key Assumptions

WIPP RH WAC will be issued in FY 2005 to support development of RH TRU facility.

WIPP operates through 2032 for disposal of TRU waste.

Assumes compliance to Tri-Party Agreement Change Number M-91-03-01 which supercedes the former M-91 milestone series.

Assumes WIPP certification is performed in lieu of LDR treatment of TRUM waste as provided in the TRI-Party Agreement Change Number M-91-03-01.

Treatment of sludge from K-Basins is not included in waste volumes processed through M-91.

Waste treatment/storage/disposal requests from all generators approved by DOE-RL shall be supported.

Drivers

Key documents used for allocating Site requirements to this WBS include:

| | |
|--|--|
| 63 FR 3623, January 23, 1998, Doc. 98-1653 | Record of Decision for the Waste Isolation Pilot Plant Disposal Phase |
| 63 FR 3629, January 23, 1998, Doc. 98-1654 | Record of Decision for the Waste Management Program: Treatment and Storage of Transuranic Waste |
| 65 FR 10061, February 25, 2000, Doc. 00-4439 | Record of Decision for the Waste Management Program: Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste; Amendment of the Record of Decision for the Nevada Test Site |
| 03-AMCP-0018 | CONTRACT NO. DE-AC06-96RL13200 - IMPLEMENTATION OF THE DRAFT TRI-PARTY AGREEMENT M-91 CHANGE PACKAGE |
| DE-AC06-96RL13200 | Project Hanford Management Contract |
| DOE/RL-89-10 | Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Revision 5 |
| DOE/WIPP-02-3122 Rev. 0.1 | Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant |

WBS Interfaces

Interfaces consisting of waste or material transfers are also performed through processes defined within process documents (HNF-PRO), requirements documents (HNF-RD), guidance documents (HNF-GD), and management directives (HNF-MD) contained within the Project Hanford Management System (PHMS). These PHMS and acceptance criteria documents for waste or material streams are:

- HNF-EP-0063, Hanford Solid Waste Acceptance Criteria
- HNF-PRO-157, Offsite Hazardous Material Shipments
- HNF-PRO-455, Solid Waste Management
- HNF-PRO-5125, Radioactive Waste
- HNF-PRO-5127, Treatment, Storage, and/or Disposal Units
- HNF-RD-7900, Transportation and Packaging Program Requirements

Interface management documents specific to a waste/material stream are identified for each stream, as appropriate, in the table below.

| Interface (Input) | Documentation | Generating WBS |
|--|---|-----------------------------------|
| Radiological Solid Waste/Central Waste Complex/Shipped to M-91 Facility Activities | | 4.2.2 Central Waste Complex (CWC) |
| | Includes: | |
| | LLW/Central Waste Complex/Shipped to M-91 Facility | |
| | TRU(M)/Central Waste Complex/Shipped to M-91 Facility (T-Plant) | |

| Interface (Output) | Documentation | Receiving WBS |
|---|---|-----------------------------------|
| Radiological Solid Waste/M-91 Facility Activities/Shipped to Central Waste Complex | • DOE/WIPP-069 - WIPP Waste Acceptance Criteria | 4.2.2 Central Waste Complex (CWC) |
| | Includes: | |
| | LLW/M-91 Facility/Shipped to Central Waste Complex | |
| | MLLW/M-91 Facility/Shipped to Central Waste Complex | |
| Radiological Solid Waste/M-91 Facility Activities/Shipped to Waste Isolation Pilot Plant (WIPP) | • DOE/WIPP-069 - WIPP Waste Acceptance Criteria | Waste Isolation Pilot Project |
| | Includes: | |
| | TRU(M)/M-91 Facility/Sent to WIPP | |

Building and Waste Site List

Not applicable. This WBS task does not have the primary responsibility for work scope associated with maintenance, operations, deactivation, or disposition of facilities or waste sites.

MLLW Treatment (4.02.10)

| | | | |
|--|-----------------------------|--|--------------------|
| 1. Dictionary Title MLLW Treatment | 2. Date 24 February 2004 | 3. FH Project Waste Management - Wilde, R. T. | |
| 4. Contract WBS No. 4.02.10 | 5. Dict Rev | 6. B & R No. | 7. Baseline CR No. |
| 8. RL PBS Name RL-0013 - Solid Waste Stabilization and Disposition - 200 Area | | | |

Scope of Work

Provide for RCRA required treatment and disposal of several categories of newly generated mixed low-level waste (MLLW), as well as those currently stored on the Hanford site. Provide for minimum treatment requirements of contact handled MLLW to meet RCRA land disposal restrictions. Establish and maintain MLLW treatment and/or disposal contracts. Where possible, direct disposal methods for those wastes currently meeting treatment criteria will be pursued at the Low-Level Burial Grounds (LLBG). Prepare 183-H MLLW packages for shipment to ERDF for disposal and manage the interface with ERDF.

The table below contains specific scope, requirements, deliverables, and the government furnished services or items that are necessary to accomplish the work in this WBS.

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|--|--|---|
| <p>Treat MLLW Prepare MLLW packages in storage for shipment to treatment, as required. MLLW treatment may include thermal treatment, stabilization, macroencapsulation, or other technologies as necessary for treatment of organic, inorganic, lead, mercury, and other hazardous constituents in the waste. Establish and maintain off site MLLW treatment and/or disposal contracts Ship MLLW packages that have been determined to be LDR compliant to the on site Mixed Waste Disposal Trenches for disposal.</p> | <p>Mixed waste shall be treated each year to meet LDR criteria.</p> <p>At least 200 cubic meters (pre-treatment volume) of mixed low level waste shall be thermally treated by September 30, 2006 to a condition such that the waste is compliant for disposal and meets the RCRA Land Disposal Restrictions or shall exit regulatory requirements.</p> <p>REGARDING: (1) NEWLY GENERATED CH WASTE; AND (2) CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE (NOT INCLUDING CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE IN BOXES AND LARGE CONTAINERS).</p> <p>DOE SHALL DESIGNATE ALL NEWLY GENERATED CH WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.</p> <p>THERE ARE 5,066 CUBIC METERS OF CH-MLLW IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02 (AS IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR</p> | <p>CH-MLLW in LDR Report treatability groups MLLW-02 through MLLW-10 (excluding MLLW-07 and 200 cubic meters of thermal treatment waste) currently in storage or generated prior to 9/30/06 shall be treated to meet LDR requirements on a schedule starting 12/31/02 meeting, at a minimum, the following: A. 1630 cubic meters (cumulative) treated by 12/31/04. B. 3260 cubic meters (cumulative) treated by 12/31/05. C. 4500 cubic meters (cumulative) treated by 9/30/06.</p> <p>Submit annual RH/CH and Large Container progress report Due: 8/30/04 to DOE for 9/30 submittal to Ecology, and annually thereafter.</p> | <p>Authorize disposal of some of the MLLW off the Hanford Site (e.g., Envirocare). Commitment Date: 31 December 2002 Completed: 16 December 2002</p> <p>Approve disposal of the 183-H Basin waste in ERDF. Commitment Date: 31 March 2003 Completed: 7 July 2003</p> <p>Authorize MLLW shipment off the Hanford Site utilizing the existing waste characterization/process knowledge for RCRA and DOT requirements. Commitment Date: 31 July 2003 Completed: 25 April 2003</p> <p>Approve Hanford Solid Waste EIS (Issue Record of Decision) Commitment Date: 31 July 2003</p> <p>Approve the Master</p> |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|-------|---|--------------|--|
| | <p>REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07) THAT HAS NOT BEEN TREATED TO MEET LDR REQUIREMENTS. DOE'S 2002 LDR REPORT ESTIMATES THAT IT WILL GENERATE AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 330 CUBIC METERS OF CH-MLLW (AS WASTE TYPES IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07). DOE WILL RETRIEVE APPROXIMATELY 800 CUBIC METERS OF CH-MLLW BY 2010. DOE SHALL TREAT THE WASTE DESCRIBED ABOVE TO MEET LDR REQUIREMENTS COMPLETING TREATMENT OF ALL CH-MLLW (5066 CUBIC METERS IN STORAGE AS OF 12/31/02 AS DESCRIBED ABOVE, AND RETRIEVED CH-MLLW AND NEWLY GENERATED CH-MLLW IN THE TREATABILITY GROUPS DESCRIBED IN M-91-42, AS OF 6/30/09) BY 12/31/09</p> <p>AFTER JUNE 30, 2009, DOE SHALL TREAT TO MEET LDR TREATMENT REQUIREMENTS ALL NEWLY GENERATED CH-MLLW CONTAINING LDR CONSTITUENTS IN COMPLIANCE WITH WAC 173-303-140 AND BY REFERENCE 40 CFR 268. Due Date: 12/31/2009</p> <p>TREAT 1630 CUBIC METERS (CUMULATIVE) OF STORED AND NEWLY GENERATED CH-MLLW IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07. Due Date: 12/31/2004</p> <p>TREAT 3260 CUBIC METERS BY (CUMULATIVE) OF STORED AND NEWLY GENERATED CH-MLLW IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07. Due Date: 12/31/2005</p> <p>TREAT 4890 CUBIC METERS (CUMULATIVE) OF STORED AND NEWLY GENERATED CH-MLLW IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07. Due Date: 12/31/2006</p> <p>TREAT 6520 CUBIC METERS (CUMULATIVE) OF STORED AND</p> | | <p>Documented Safety Analysis (MDSA/Safety Analysis) within 60 days of submittal. Commitment Date: 9 June 2003 Completed: 11 July 2003</p> <p>Enforce non-contractor generators to deliver LDR compliant waste. Completed: 9 June 2003</p> <p>Obtain NEPA ROD to support MLLW off site shipments Planned Date: 30 June 2004</p> <p>Complete time critical removal action authorizing shipping non-TRU to ERDF. Planned Date: 15 April 2004</p> |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|-------|--|--------------|---------|
| | <p>NEWLY GENERATED CH-MLLW IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07. Due Date: 12/31/2007</p> <p>TREAT 8150 CUBIC METERS (CUMULATIVE) OF STORED AND NEWLY GENERATED CH-MLLW IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07. Due Date: 12/31/2008</p> | | |

Additional requirements applicable to this WBS include:

- The MLLW will be treated to meet the Hanford Site Solid Waste Acceptance Criteria (HNF-EP-0063) for disposal of MLLW.

Key Assumptions

There will be sufficient commercial treatment capacity available for the standard LDR Report waste streams (i.e., MLLW02, MLLW03, MLLW-04a/b, and MLLW-05).

Assumes compliance to Tri-Party Agreement Change Number M-91-03-01 (with the exception of M-91-12 and M-91-12A which will be modified based on MLLW PMP) which supercedes the former M-91 milestone series.

T-Plant will be available for treatment of mixed waste.

Requirements for mixed waste treatment are supported at a level to ensure that storage capacity is not exceeded.

The stored MLLW inventory is the MLLW volume currently residing in the CWC (~5000 m3).

The volume fraction of is suspect TRU waste retrieved from retrievable storage assumed to be designated as non-TRU is assumed to be 50% of the total retrievably stored suspect TRU inventory. Of this fraction, 90% is assumed to meet the definition of MLLW debris (LDR Treatability Group MLLW-04) and the remaining 10% is assumed to be organic solids (LDR Treatability Group MLLW-03).

Exclude: other stored MLLW inventories at the Hanford Site, and ~700 m3 of MLLW which currently does not have a treatment path and/or is targeted for M-91 disposition (e.g., large sized containers, RH-MLLW, high mercury subcategory waste, and other technology specific treatments).

It is assumed that the newly generated MLLW is defined by the SWIFT Report 2004.0. It

does not include the following:

- MLLW from off site generators
- Non-PHMC MLLW that is received not meeting LDR disposal requirements

It is assumed that all MLLW being received from Non-PHMC generators will be delivered LDR compliant and directly disposed.

Drivers

Key documents used for allocating Site requirements to this WBS include:

| | |
|-------------------|--|
| 03-AMCP-0018 | CONTRACT NO. DE-AC06-96RL13200 - IMPLEMENTATION OF THE DRAFT TRI-PARTY AGREEMENT M-91 CHANGE PACKAGE |
| DE-AC06-96RL13200 | Project Hanford Management Contract |
| DOE/RL-89-10 | Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Revision 5 |
| HNF-EP-0063 | Hanford Solid Waste Acceptance Criteria |

WBS Interfaces

Interfaces consisting of waste or material transfers are also performed through processes defined within process documents (HNF-PRO), requirements documents (HNF-RD), guidance documents (HNF-GD), and management directives (HNF-MD) contained within the Project Hanford Management System (PHMS). These PHMS and acceptance criteria documents for waste or material streams are:

- HNF-EP-0063, Hanford Solid Waste Acceptance Criteria
- HNF-PRO-157, Offsite Hazardous Material Shipments
- HNF-PRO-455, Solid Waste Management
- HNF-PRO-5123, Mixed Waste
- HNF-PRO-5125, Radioactive Waste
- HNF-PRO-5127, Treatment, Storage, and/or Disposal Units
- HNF-RD-7900, Transportation and Packaging Program Requirements

Interface management documents specific to a waste/material stream are identified for each stream, as appropriate, in the table below.

| Interface (Input) | Documentation | Generating WBS |
|--|-------------------|-----------------------------------|
| Radiological Solid Waste/Central Waste Complex/MLLW to Treatment | | 4.2.2 Central Waste Complex (CWC) |
| | Includes: | |
| | MLLW to Treatment | |

| Interface (Output) | Documentation | Receiving WBS |
|---|---|-----------------------------------|
| Radiological Solid Waste/Mixed Waste Stabilization Contract/Stabilized Waste-Shipped to off-site for disposal | • ICD - TBD | DOE Complex Wide Programs |
| | Includes: MLLW/Mixed Waste Stabilization Contract/STP Treated-Shipped to Solid Waste Storage | |
| Radiological Solid Waste/Off-Site Treatment/sent to Central Waste Complex | | 4.2.2 Central Waste Complex (CWC) |
| | Includes: MLLW/Off-Site Treatment/MLLW containing lead or mercury to Central Waste Complex for Disposal | |
| | MLLW/Thermal Treatment Contract/Stabilized MLLW to Solid Waste Disposal | |

Building and Waste Site List

Not applicable. This WBS task does not have the primary responsibility for work scope associated with maintenance, operations, deactivation, or disposition of facilities or waste sites.

TRU Retrieval (4.02.11)

| | | | |
|--|----------------------------|--|--------------------|
| 1. Dictionary Title TRU Retrieval | 2. Date 9 February 2004 | 3. FH Project Waste Management - Wilde, R. T. | |
| 4. Contract WBS No. 4.02.11 | 5. Dict Rev | 6. B & R No. | 7. Baseline CR No. |
| 8. RL PBS Name RL-0013 - Solid Waste Stabilization and Disposition - 200 Area | | | |

Scope of Work

Provide for retrieval of suspect Transuranic (TRU) waste in a retrieval sequencing determined by perceived chemical risk to the environment. Retrieval sequence is Burial Grounds 218-W-4C, 218-E-12B, 218-W-3A, and 218-W-4B. Retrieval is defined as removing soil over contact handled (CH) wastes within the trenches, and removing the CH waste from the trenches to a permitted and compliant treatment, storage or disposal facility, ERDF, or for non-mixed waste to a storage or disposal facility that DOE determines is appropriate.

The Waste Retrieval Project is an operations project with limited design/construction. The current strategy is to have on-site personnel retrieve waste from burial ground 218-W-4C and 4B and a subcontractor retrieve the waste from 218-E-12B and 218-W-3A. This method of performance was selected because subcontractors have more experience in doing remediation activities. Burial Grounds 218-E-12B and 218-W-3A are expected to be remediation efforts.

Containers determined to be TRU through review of the database will go directly to venting and/or staging for shipment. Non-destructive assay (NDA) is performed as needed to sort the TRU waste from non-TRU waste. Non-TRU waste will be handled as suspect mixed waste until a waste designation is made. Those containers determined to be LLW are evaluated and characterized for disposal. Unvented TRU drums are vented. A small percentage of TRU containers are expected to require special handling prior to processing and transfer to a TSD.

Perform retrieval of remote-handled (RH) Transuranic (TRU) waste from the Alpha Caissons (W-156). A total of 5,500 waste containers are stored in four underground caissons (this does not include TRU from 618-10 or 618-11 burial grounds).

The table below contains specific scope, requirements, deliverables, and the government furnished services or items that are necessary to accomplish the work in this WBS.

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|--|---|--|---|
| Retrieve Suspect TRU from LLBG Retrieve suspect post 1970 TRU containers from retrievable storage in the | The Contractor shall retrieve buried suspect TRU starting no later than November 15, 2003 in burial ground 218- | Buried suspect TRU retrieval shall be at or in excess of the following | Approve Solid Waste Security Plan for any security interest exhumed |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|--------------|--|---|--|
| <p>LLBG.</p> | <p>W-4C. "Retrieve" means removal from the LLBG or, for waste designated in accordance with WAC 173-303-070 through 100 as non-mixed, placed in an appropriate storage or disposal facility (which could include not removing it, but disposing of it in the LLBG).</p> <p>The Contractor shall designate all contact handled retrievably stored waste pursuant to WAC 173-303-070 through 100 within 90 days of retrieval.</p> <p>Start retrieval of burial ground 218-W-4C Trench 4 by 1/15/2004 and complete Trench 4 retrieval by 12/31/06.</p> <p>The Contractor shall prepare a Buried TRU Waste Disposition Plan following the "Hanford Federal Facility Agreement and Consent Order" (TPA) provisions for RCRA/CERCLA integration and coordination.</p> <p>Retrieved TRU drums or boxes shall be removed from the stack, and designated as TRU, LLW, or MLLW. Drums and boxes shall be permanently disposed or stored, as process capabilities allow.</p> <p>REGARDING THE RETRIEVAL AND DESIGNATIONZ OF CONTACT-HANDLED (CH) RETRIEVABLY STORED WASTE (RSW) AND TREATMENT OF SUCH WASTES DESIGNATED AS MIXED TO MEET APPLICABLE FEDERAL AND STATE LAND DISPOSAL RESTRICTION (LDR) STANDARDS (ALL CH RSW WASTE REGARDLESS OF PACKAGE SIZE):</p> <p>DOE SHALL RETRIEVE ALL CH-RSW WITHIN BURIAL GROUNDS 218-W-4C, 218-W-4B, 218-W-3A, AND 218-E-12B.</p> <p>DOE SHALL CONTINUE RETRIEVAL ACTIONS IN 218-W-4C UNTIL ALL CH RSW IS RETRIEVED. SUBSEQUENT RETRIEVAL ACTIONS, SHALL BE UNDERTAKEN SEQUENTIALLY AT BURIAL GROUNDS 218-E-12B, 218-W-3A, AND 218-W-4B. RETRIEVAL OF WASTE OUT OF THE ORDERED SEQUENCE SHALL NOT BE COUNTED TOWARD THE MILESTONE REQUIREMENT UNLESS JOINTLY AGREED TO BY ECOLOGY AND DOE. DOE MAY REQUEST SUCH APPROVAL WITH RESPECT TO WASTE IN BOXES AND LARGE CONTAINERS. IN REVIEWING SUCH REQUEST, ECOLOGY WILL CONSIDER AMONG OTHER FACTORS; WHETHER THE WASTE CONTAINER HAS BEEN UNCOVERED, INSPECTED AND FOUND TO BE INTACT AND NOT POSING A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT</p> | <p>rates:</p> <p>A. 1200 cubic meters (cumulative) by 12/31/04. B. 2700 cubic meters (cumulative) by 12/31/05. C. 4200 cubic meters (cumulative) by 9/30/06. Due: 30 September 2006</p> <p>Buried TRU Waste Disposition Plan Commitment Date: 1 December 2003 Completed: 1 December 2003</p> | <p>from low-level burial grounds within 30 days of submittal. Commitment Date: 31 January 2003 Completed: 31 January 2003</p> <p>Approve TRU retrieval safety analysis within 60 days of submittal. Commitment Date: 12 May 2003 Completed: 24 June 2003</p> <p>Approve key decision documents. Commitment Date: 15 March 2003 Completed: 30 December 2002</p> |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|-------|--|--------------|---------|
| | <p>(OR RE-PACKAGED TO PREVENT RELEASE TO THE ENVIRONMENT) AND EXISTING DOCUMENTATION DOES NOT INDICATE THE PRESENCE OF FREE LIQUIDS. ECOLOGY MAY CONDITION ITS AGREEMENT ON A DOE COMMITMENT TO PERFORM ADDITIONAL SPECIFIED REQUIREMENTS (E.G. CONTAINER INSPECTIONS, COVERING CONTAINERS, ETC.) TO PREVENT RELEASES TO THE ENVIRONMENT.</p> <p>THE RETRIEVAL SEQUENCE IS PRIORITIZED BASED ON ENVIRONMENTAL RISK AND INTENDED TO ENSURE THAT DOE FIRST RETRIEVE WASTE FROM THE 218-W-4C BURIAL GROUND, WHICH HAS POTENTIAL CARBON TETRACHLORIDE CONTAMINATION ISSUES, AND TO SUBSEQUENTLY RETRIEVE WASTES FROM BURIAL GROUND 218-E-12B AND 218-W-3A WHERE CONTAINERS WERE PLACED IN CONFIGURATIONS THAT ALLOWED DIRECT CONTACT WITH THE SOIL. DOE SHALL CONCLUDE RETRIEVAL ACTIONS WITH BURIAL GROUND 218-W-4B.</p> <p>WITHIN 90 DAYS OF RETRIEVAL, DOE SHALL DESIGNATE ALL CH RSW RETRIEVED FROM THE RSW TRENCHES PURSUANT TO WAC 173-303-070 THROUGH 100, AND SHALL SPECIFICALLY IDENTIFY INDIVIDUAL BOXES AND LARGE CONTAINERS THAT CANNOT BE DESIGNATED BASED ON AVAILABLE PROCESS KNOWLEDGE.</p> <p>FOR ALL RETRIEVED CH-RSW DETERMINED TO BE LOW LEVEL WASTE AND DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH 100, AS MIXED AND AS CONTAINING LDR RESTRICTED CONSTITUENTS, DOE SHALL TREAT SUCH WASTES TO MEET LDR REQUIREMENTS IN ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-42(2) AND M-91-43(3).</p> <p>FOR ALL RETRIEVED CH-RSW DETERMINED TO BE TRANSURANIC WASTE AND DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH 100, AS MIXED AND AS CONTAINING LDR RESTRICTED CONSTITUENTS, DOE SHALL TREAT SUCH WASTES TO MEET LDR REQUIREMENTS IN COMPLIANCE WITH THE SCHEDULE IN M-91-42(4) AND M-91-44(3).</p> | | |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|-------|---|--------------|---------|
| | <p>NOTE: THE REQUIREMENTS DESCRIBED IN THE PREVIOUS PARAGRAPH OF THIS MILESTONE DO NOT APPLY PRIOR TO A FINAL APPEALABLE JUDGMENT ON THE MERITS OF THE LDR STORAGE AND TREATMENT CLAIM IN WASHINGTON V. ABRAHAM, NO. CT-03-5018-AAM, AND AFTER SUCH A JUDGMENT, ONLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT. Due Date: 12/31/2010</p> <p>INITIATE RETRIEVAL AT BURIAL GROUND 218-W-4C Due Date: 11/15/2003</p> <p>RETRIEVE 1,200 CUBIC METERS (CUMMULATIVE). Due Date: 12/31/2004</p> <p>RETRIEVE 2,700 CUBIC METERS (CUMMULATIVE). Due Date: 12/31/2005</p> <p>RETRIEVE 4,700 CUBIC METERS (CUMMULATIVE). Due Date: 12/31/2006</p> <p>RETRIEVE 7,200 CUBIC METERS (CUMMULATIVE). Due Date: 12/31/2007</p> <p>RETRIEVE 9,700 CUBIC METERS (CUMMULATIVE). Due Date: 12/31/2008</p> <p>RETRIEVE 12,200 CUBIC METERS (CUMMULATIVE). Due Date: 12/31/2009</p> <p>FOR THE BOXES AND LARGE CONTAINERS DETERMINED TO BE LOW-LEVEL WASTE THAT CANNOT BE DESIGNATED BASED ON THE AVAILABLE PROCESS KNOWLEDGE, DOE SHALL DESIGNATE SAID WASTE ACCORDING TO THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100 (SIX MONTHS AFTER THE RH AND LARGE CONTAINER MLLW FACILITIES AND/OR CAPABILITIES ARE REQUIRED TO BE OPERATIONAL). Due Date: 12/31/2008</p> <p>FOR BOXES AND LARGE CONTAINERS DETERMINED TO BE TRANSURANIC WASTE THAT CANNOT BE DESIGNATED BASED ON THE AVAILABLE PROCESS KNOWLEDGE, DOE SHALL DESIGNATE SAID WASTE ACCORDING TO THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100 (SIX MONTHS AFTER THE RH AND LARGE CONTAINER TRANSURANIC FACILITIES AND/OR CAPABILITIES</p> | | |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|--|---|-----------------|-----------------|
| | <p>ARE REQUIRED TO BE OPERATIONAL). Due Date: 12/31/2012</p> <p>IN REGARD TO THE CARBON TETRACHLORIDE VAPOR PLUME IN THE VADOSE ZONE IN THE VICINITY OF TRENCH 4 IN BURIAL GROUND 218-W-4C, DOE SHALL:</p> <p>START RETRIEVAL IN TRENCH 4 BY JANUARY 15, 2004</p> <p>RETRIEVAL WILL CONTINUE IN TRENCH 4 UNTIL IT IS COMPLETE. VAPOR EXTRACTION AND RETRIEVAL OPERATIONS IN TRENCH 4 WILL BE INTEGRATED BY DOE TO MINIMIZE POTENTIAL WORKER EXPOSURE TO CARBON TETRACHLORIDE VAPORS, AND TO MITIGATE ANY POSSIBLE RELEASES OF CARBON TETRACHLORIDE FROM TRENCH 4 CONTAINERS. Due Date: 1/15/2004</p> <p>IN REGARD TO THE CARBON TETRACHLORIDE VAPOR PLUME IN THE VADOSE ZONE IN THE VICINITY OF TRENCH 4 IN BURIAL GROUND 218-W-4C, DOE SHALL:</p> <p>COMPLETE RETRIEVAL OF CH RSW FROM TRENCH 4 BY DECEMBER 31, 2006. (WITH THE EXCEPTION OF THOSE BOXES AND LARGE CONTAINERS THAT THE PARTIES HAVE AGREED, IN WRITING, MAY BE RETRIEVED OUT OF SEQUENCE.)</p> <p>RETRIEVAL WILL CONTINUE IN TRENCH 4 UNTIL IT IS COMPLETE. VAPOR EXTRACTION AND RETRIEVAL OPERATIONS IN TRENCH 4 WILL BE INTEGRATED BY DOE TO MINIMIZE POTENTIAL WORKER EXPOSURE TO CARBON TETRACHLORIDE VAPORS, AND TO MITIGATE ANY POSSIBLE RELEASES OF CARBON TETRACHLORIDE FROM TRENCH 4 CONTAINERS. Due Date: 12/31/2006</p> <p>INITIATE FULL SCALE RETRIEVAL OF RH RSW Due Date: 1/1/2011</p> <p>COMPLETE RETRIEVAL OF NON-CAISSON RH RSW. DESIGNATE ALL RETRIEVED RH RSW PURSUANT TO WAC 173-303-070 THROUGH 100, WITHIN 90 DAYS OF RETRIEVAL. Due Date: 12/31/2014</p> <p>COMPLETE RETRIEVAL THE 200 AREA CAISSON RH RSW IN THE 218-W-4B BURIAL GROUND. DESIGNATE ALL RETRIEVED RH RSW PURSUANT TO WAC 173-303-070 THROUGH 100, WITHIN 90 DAYS OF RETRIEVAL. Due Date: 12/31/2018</p> | | |
| Remove RINMI from LLBG Procure, install, and operate systems and | Drums of suspect RINMI shall be retrieved from the LLBG. | None Identified | None Identified |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|----------------|--------------|---------|
| equipment to retrieve RNM from the LLBG to prepare for transfer to the 200 Area Interim Storage Area. | | | |

Key Assumptions

Assumes compliance to Tri-Party Agreement Change Number M-91-03-01 which supercedes the former M-91 milestone series.

The Site will experience "normal" weather as documented in Weather Related Delays Impacting Waste Retrieval Activities, Jasen, Jan. 2004. Operations estimates have included downtime factors for "normal" weather.

Wastes will be designated via process knowledge and burial record information without intrusive sampling.

Safety Basis 1B will be implemented through a readiness checklist prior to 1Q FY 2005.

No more than 5% of containers from 218-4C will require entry into the ACMP and require special handling.

Z-9 waste stream drums do not require special handling, storage, or repackaging.

Greater than 2g FGE drums do not have to be assayed (rely on records) and drums containing only uranium do not have to be assayed.

Engineering will perform an integrity evaluation of visibly deformed containers. Those failing the evaluation and breached containers are over-packed as part of retrieval operation.

Retrieved suspect waste determined to be non-TRU will be managed as MLLW unless formal designation process of WAC 173-303 determines waste is non-mixed. Designation of the suspect MLLW will be based on a modified version of the Waste Services designation procedure that incorporates characterization information gained during the TRU certification activities.

Drum movements within SWOC will be treated as intra-facility and not subject to DOT level criteria.

Drum management, retrieval, movement and shipment can be accomplished using commercial practices and risk acceptances (e.g. wood pallets, standard fuel powered equipment, standard transfer / trailer systems).

Retrieval is defined as uncovering CH waste within the trenches and removing the CH waste from the trenches to a permitted and compliant treatment, storage or disposal facility, ERDF, or for non-mixed, to a storage or disposal facility that DOE determines is appropriate.

Current regulatory strategy for retrieval is consistent with the M-91 Change Order Package.

Existing facilities will remain limited control facilities for criticality purposes and criticality will remain an incredible event.

Remediation volumes from breeched containers count as retrieved waste and will not exceed a factor of 60% in excess of the volume of the waste from the breeched container.

Contractor readiness assessment is the required project startup readiness review.

No new storage or staging facilities are required.

No new revisions to NEPA, TSD, RCRS and Air Permits will be required.

Lack of AK delays transfer of less than 5% of the drums to the TSD to meet requirement to designate waste within 90 days.

No reduction in fleet vehicles assigned to SWSD occurs.

No reduction in support facilities and utilities used by SWSD occurs.

Pre 1970 waste will not be retrieved.

Drivers

Key documents used for allocating Site requirements to this WBS include:

| | |
|--|--|
| 63 FR 3629, January 23, 1998, Doc. 98-1654 | Record of Decision for the Waste Management Program: Treatment and Storage of Transuranic Waste |
| 03-AMCP-0018 | CONTRACT NO. DE-AC06-96RL13200 - IMPLEMENTATION OF THE DRAFT TRI-PARTY AGREEMENT M-91 CHANGE PACKAGE |
| DE-AC06-96RL13200 | Project Hanford Management Contract |
| DOE/RL-89-10 | Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Revision 5 |
| DOE/WIPP-069 | WIPP Waste Acceptance Criteria |

WBS Interfaces

Interfaces consisting of waste or material transfers are also performed through processes defined within process documents (HNF-PRO), requirements documents (HNF-RD), guidance documents (HNF-GD), and management directives (HNF-MD) contained within the Project Hanford Management System (PHMS). These PHMS and acceptance criteria documents for waste or material streams are:

- HNF-PRO-156, Onsite Hazardous Materials Shipments
- HNF-PRO-157, Offsite Hazardous Material Shipments
- HNF-PRO-611, Nuclear Material Transfers
- HNF-RD-7900, Transportation and Packaging Program Requirements

Interface management documents specific to a waste/material stream are identified for each stream, as appropriate, in the table below.

| Interface (Output) | Documentation | Receiving WBS |
|---|---|--|
| Radiological Solid Waste/TRU Retrieval/Central Waste Complex | | 4.2.2 Central Waste Complex (CWC) |
| | Includes: | |
| | LLW/TRU Retrieval/Suspect TRU Waste Determined to be LLW sent to disposal | |
| SNF(TRIGA)/Low-Level Waste Burial Grounds/Consolidate Site Wide SNF (Post 2005) | TRU(M)/LLBG/Retrieved CH TRU Waste | |
| | <ul style="list-style-type: none"> • HNF-MP-5477, Material Control and Accountability Plan • WHC-SD-WM-PICD-009 | 4.2.1.5. Consolidate Site Wide SNF (Post 2005) |
| | Includes: | |
| SNF(TRIGA)/Low-Level Waste Burial Grounds/200 Interim Storage Area (ISA) | | |

Building and Waste Site List

Not applicable. This WBS task does not have the primary responsibility for work scope associated with maintenance, operations, deactivation, or disposition of facilities or waste sites.

Waste Management Operations Project Management (4.02.13)

| | | | |
|--|-----------------------------|--|--------------------|
| 1. Dictionary Title Waste Management Operations Project Management | 2. Date 10 February 2004 | 3. FH Project Waste Management - Wilde, R. T. | |
| 4. Contract WBS No. 4.02.13 | 5. Dict Rev | 6. B & R No. | 7. Baseline CR No. |
| 8. RL PBS Name RL-0013 - Solid Waste Stabilization and Disposition - 200 Area | | | |

Scope of Work

Provide for the overall project coordination, direction and customer interface to insure the proper conduct of operation in the 200 Area Materials and Waste Management Project. This consists of baseline management activities, strategic planning, procurement services, construction project administration, and EM integration activities. This activity provides support to facility operations that provide services essential to Hanford and EM-30 cleanup missions.

For FY 2007 and beyond, activities also include the DOE Order 435.1 Implementation Plan.

The table below contains specific scope, requirements, deliverables, and the government furnished services or items that are necessary to accomplish the work in this WBS.

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|---|---|---|
| <p>Provide Waste Management Services Provide Waste Management Project services to support planning and integration of: disposal of low-level waste; designation and shipment of hazardous waste; off site treatment, storage and disposal facility contracts; identification of classified solid waste and proper segregation; product determinations; orphan wastes; storage of mixed and transuranic wastes.</p> | <p>The Contractor shall support waste treatment/storage/disposal requests from generators approved by RL.</p> <p>The Contractor shall manage orphan wastes, and store mixed and transuranic wastes.</p> <p>The Contractor shall maintain the Solid Waste and Liquid Waste Acceptance Criteria. Modifications of the Solid Waste Acceptance Criteria shall be concurred upon by RL.</p> <p>The Contractor shall maintain the Solid Waste Forecast. The Solid Waste Forecast shall be maintained in an internet accessible basis.</p> | <p>Waste Management Hanford Project Update to Final Safety Analysis Report (SAR) (Including Hazard Analysis Data)</p> <p>M-26-01M: Annual Hanford land disposal restrictions report to cover the period from 1-1 of the previous year through 12-31 of the reporting year. Commitment Date: 30 April 2003 Completed: 10 April 2003</p> <p>M-26-01N: Annual Hanford land disposal restrictions report to cover the period from 1-1 of the previous year through 12-31 of the reporting year. Commitment Date: 30 April 2004 Planned Date: 9 April 2004</p> <p>M-26-01O: Annual Hanford land disposal</p> | <p>Approve Hanford Solid Waste EIS (Issue Record of Decision) Commitment Date: 31 July 2003</p> <p>Approve the Master Documented Safety Analysis (MDSA/Safety Analysis) within 60 days of submittal. Commitment Date: 9 June 2003 Completed: 11 July 2003</p> |

| SCOPE | REQUIREMENT(S) | DELIVERABLES | GFS/GFI |
|---|---|--|-----------------|
| | | <p>restrictions report to cover the period from 1-1 of the previous year through 12-31 of the reporting year. Commitment Date: 30 April 2005 Planned Date: 30 April 2005</p> <p>M-26-01P: Annual Hanford land disposal restrictions report to cover the period from 1-1 of the previous year through 12-31 of the reporting year. Commitment Date: 30 April 2006 Planned Date: 30 April 2006</p> | |
| <p>Traffic Manager - Serve as the Site Traffic Manager by coordinating on site and off site shipments, including hazardous materials. - Serve as the agent for the Government as designated shipper for the site. - Manage overnight small package delivery. - Manage export/ import/ services with U.S. Customs and freight rate negotiations with carriers. - Relocate household goods for site personnel related to the work performed by the Contractor and subcontractors under this contract. - Manage inbound and outbound freight including, but not limited to, LTL, TL, and Air.</p> | <p>The Contractor shall:</p> <ul style="list-style-type: none"> - Serve as the Site Traffic Manager by coordinating on site and off site shipments, including hazardous materials. - Serve as the agent for the Government as designated shipper for the site. - Manage overnight small package delivery. - Manage export/ import/ services with U.S. Customs and freight rate negotiations with carriers. - Relocate household goods for site personnel related to the work performed by the Contractor and subcontractors under this contract. - Manage inbound and outbound freight including, but not limited to, LTL, TL, and Air. | None Identified | None Identified |
| <p>Transportation and Packaging Provide technical support for the Hanford Site for on site and off site transportation and packaging of hazardous materials and hazardous wastes, including those that are classified as radioactive.</p> | <p>The Contractor shall maintain DOE/RL-2001-0036, Hanford Sitewide Transportation Safety Document.</p> <p>Transportation and Packaging work scope shall be done in compliance with DOE/RL-2001-0036, REV. 0, Hanford Sitewide Transportation Safety Document.</p> | None Identified | None Identified |

Additional requirements applicable to this WBS include:

- SUBMIT REVISION OF THE HANFORD SITE TRUM AND MIXED LOW LEVEL WASTE PROJECT MANAGEMENT PLAN (PMP) TO ECOLOGY PURSUANT TO AND IN COMPLIANCE WITH THE REQUIREMENTS OF AGREEMENT SECTION 11.5. Due Date: 12/31/2003
- SUBMIT REVISION OF THE HANFORD SITE TRUM AND MIXED LOW LEVEL WASTE PROJECT MANAGEMENT PLAN (PMP) TO ECOLOGY PURSUANT TO AND IN COMPLIANCE WITH THE REQUIREMENTS OF AGREEMENT SECTION 11.5.

REVISIONS OF THE PMP SHALL ADDRESS RCRA MIXED AND SUSPECT MIXED TRANSURANIC AND LOW LEVEL WASTE AND WILL CONSIDER AND EXPRESSLY EVALUATE THE IMPACT ON M-91

RETRIEVAL, TREATMENT AND PROCESSING CAPABILITIES; THAT MAY RESULT FROM RETRIEVAL, TREATMENT AND/OR PROCESSING OF ANY OTHER TRANSURANIC OR SUSPECT TRANSURANIC WASTE INCLUDING BUT NOT LIMITED TO OFF-SITE TRANSURANIC WASTE AND HANFORD SITE TRANSURANIC WASTE GENERATED AFTER 1/1/03.

NOTE: THE REQUIREMENTS OF THIS MILESTONE CONCERNING PMP REVISIONS TO ADDRESS TRUM SHALL NOT APPLY PRIOR TO A FINAL APPEALABLE JUDGMENT ON THE MERITS OF THE LDR STORAGE AND TREATMENT CLAIM IN WASHINGTON V. ABRAHAM, NO. CT-03-5018, AND AFTER SUCH A JUDGMENT, ONLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT.

PMP REVISIONS WILL BE SUBMITTED TO ECOLOGY FOR REVIEW AND APPROVAL AS PRIMARY DOCUMENTS PURSUANT TO AGREEMENT ACTION PLAN SECTION 9.2.1. DOE SHALL IMPLEMENT THE PLAN AS APPROVED. Due Date: 3/31/2009

- SUBMIT REVISION OF THE HANFORD SITE TRUM AND MIXED LOW LEVEL WASTE PROJECT MANAGEMENT PLAN (PMP) TO ECOLOGY PURSUANT TO AND IN COMPLIANCE WITH THE REQUIREMENTS OF AGREEMENT SECTION 11.5.

REVISIONS OF THE PMP SHALL ADDRESS RCRA MIXED AND SUSPECT MIXED TRANSURANIC AND LOW LEVEL WASTE AND WILL CONSIDER AND EXPRESSLY EVALUATE THE IMPACT ON M-91 RETRIEVAL, TREATMENT AND PROCESSING CAPABILITIES, THAT MAY RESULT FROM RETRIEVAL, TREATMENT AND/OR PROCESSING OF ANY OTHER TRANSURANIC OR SUSPECT TRANSURANIC WASTE INCLUDING BUT NOT LIMITED TO OFF-SITE TRANSURANIC WASTE AND HANFORD SITE TRANSURANIC WASTE GENERATED AFTER 1/1/03.

NOTE: THE REQUIREMENTS OF THIS MILESTONE CONCERNING PMP REVISIONS TO ADDRESS TRUM SHALL NOT APPLY PRIOR TO A FINAL APPEALABLE JUDGMENT ON THE MERITS OF THE LDR STORAGE AND TREATMENT CLAIM IN WASHINGTON V. ABRAHAM, NO. CT-03-5018, AND AFTER SUCH A JUDGMENT, ONLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT.

PMP REVISIONS WILL BE SUBMITTED TO ECOLOGY FOR REVIEW AND APPROVAL AS PRIMARY DOCUMENTS PURSUANT TO AGREEMENT ACTION PLAN SECTION 9.2.1. DOE SHALL IMPLEMENT THE PLAN AS APPROVED. Due Date: 3/31/2013

- SUBMIT TO ECOLOGY A REPORT DESCRIBING COMPLETED AND SCHEDULED WORK RELATING TO RH WASTE AND BOXES AND LARGE CONTAINERS OF RH AND CH WASTE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS MILESTONE SERIES. DOE'S REPORTS WILL DOCUMENT WORK COMPLETED DURING THE PREVIOUS FEDERAL FISCAL YEAR AND WORK SCHEDULED FOR THE COMING FISCAL YEAR. DOE'S REPORTS SHALL IDENTIFY BY CITATION ALL PUBLICLY AVAILABLE REPORTS DESCRIBING PERTINENT PROJECT ISSUES AND ACCOMPLISHMENTS, AND SHALL IDENTIFY ANTICIPATED PROJECTS FOR THE COMING YEAR.
- Waste Management Program Environmental Impact Statement (WMPEIS) decisions shall be implemented and supported.
- The development and approval of the Solid Waste Environmental Impact Statement shall be supported.
- DOE O 435.1 Implementation Plan shall be implemented.
- The development and update of the Land Disposal Restriction management plan shall be supported.
- The Land Disposal Restriction management plan shall be implemented.

Key Assumptions

The Waste Management Program Environmental Impact Statement (WMPEIS) decisions shall be implemented and supported.

Technology development/special contractual needs shall be initiated to ensure that waste can be treated to the timetable identified under the PHMC Contract.

The SWIFT report shall be updated yearly and adjusted every 6 months (at a minimum).

The DOE-RL COR shall approve changes to EP-0063 (Solid Waste Acceptance Criteria) prior to usage.

The DOE-RL Program Office shall approve all waivers or exceptions to EP-0063 (Solid Waste Acceptance Criteria).

Drivers

Key documents used for allocating Site requirements to this WBS include:

| | |
|--------------------------|--|
| 03-AMCP-0018 | CONTRACT NO. DE-AC06-96RL13200 - IMPLEMENTATION OF THE DRAFT TRI-PARTY AGREEMENT M-91 CHANGE PACKAGE |
| DE-AC06-96RL13200 | Project Hanford Management Contract |
| DOE,RL-2001-0036, REV. 0 | Hanford Sitewide Transportation Safety Document |

WBS Interfaces

Not applicable. This WBS task does not have responsibility for movement or transfers of material/waste streams or facilities.

Building and Waste Site List

Not applicable. This WBS task does not have the primary responsibility for work scope associated with maintenance, operations, deactivation, or disposition of facilities or waste sites.

Appendix G:

M-91-03 TRUM Waste and MLLW Project Management Plan Funding Profile

(consisting of 1 page)

Table G-1: TRUM Waste and MLLW Project Management Plan Funding Profile

| PBS # | SCOPE | RL-WBS | FY04 | FY05 | FY06 | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 |
|---------|---|---------|----------|----------|----------|----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|
| RL-0013 | Central Waste Complex | 4.2.2 | 6,791.8 | 7,344.2 | 7,830.4 | 7,491.9 | 7,671.7 | 7,865.1 | 8,044.4 | 8,460.5 | 8,435.1 | 8,247.5 | 8,515.3 | 8,591.5 | 8,749.8 |
| RL-0013 | Operate and Maintain the T-Plant Facility | 4.2.4.1 | 12,837.9 | 13,953.6 | 13,109.7 | 23,055.4 | 13,909.2 | 18,098.4 | 14,584.8 | 14,934.9 | 15,293.3 | 14,777.3 | 15,131.9 | 15,495.1 | 15,867.0 |
| RL-0013 | M-91 Facility Activities | 4.2.4.3 | 0.0 | 820.5 | 1,236.3 | 2,685.0 | 13,050.0 | 25,652.0 | 25,855.0 | 23,862.4 | 10,298.8 | 7,231.8 | 7,405.8 | 7,583.1 | 7,765.2 |
| RL-0013 | Mixed Low Level Waste Treatment | 4.2.10 | 6,808.9 | 15,645.0 | 9,274.5 | 43,444.4 | 43,493.7 | 38,536.6 | 8,954.4 | 8,905.9 | 8,936.2 | 9,636.5 | 9,723.8 | 10,565.0 | 10,938.8 |
| RL-0013 | TRU Retrieval | 4.2.11 | 17,674.2 | 27,652.2 | 27,903.2 | 86,319.6 | 263,328.5 | 218,492.4 | 1,974.4 | 11,600.4 | 25,774.6 | 27,396.6 | 6,494.4 | 6,663.9 | 6,837.0 |
| RL-0013 | Waste Management Project Operations | 4.2.13 | 17,267.7 | 17,170.0 | 18,181.8 | 18,595.0 | 19,017.4 | 19,473.5 | 19,963.4 | 20,436.4 | 20,943.8 | 20,369.0 | 20,732.2 | 21,245.9 | 21,734.4 |

| RL-WBS | FY17 | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 | FY30 | FY31 | FY32 | FY33 | FY34 | FY35 |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 4.2.2 | 8,995.4 | 9,174.9 | 9,395.1 | 9,620.5 | 10,118.3 | 10,087.9 | 10,455.0 | 11,002.3 | 11,199.4 | 11,405.8 | 11,879.5 | 11,959.8 | 12,034.0 | 12,322.8 | 12,960.4 | 12,682.8 | 12,987.2 | 0.0 | 0.0 |
| 4.2.4.1 | 16,247.8 | 16,637.7 | 17,037.0 | 17,445.9 | 17,864.6 | 18,293.4 | 18,732.4 | 19,182.0 | 20,196.0 | 13,541.6 | 13,866.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4.2.4.3 | 7,951.5 | 8,142.4 | 8,337.8 | 8,537.9 | 8,742.8 | 8,952.6 | 9,167.5 | 9,387.5 | 9,884.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4.2.10 | 11,617.1 | 11,008.0 | 8,719.2 | 8,515.8 | 8,962.3 | 8,470.5 | 9,517.5 | 5,649.2 | 6,510.8 | 7,911.6 | 7,548.4 | 7,717.1 | 3,825.3 | 3,758.8 | 3,854.8 | 3,919.9 | 0.0 | 0.0 | 0.0 |
| 4.2.11 | 7,015.0 | 7,183.3 | 1,839.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4.2.13 | 15,648.6 | 16,026.1 | 16,439.6 | 16,830.1 | 17,249.9 | 17,671.3 | 18,109.4 | 18,542.4 | 19,500.7 | 19,973.2 | 20,461.6 | 20,944.3 | 21,034.7 | 21,538.0 | 21,955.3 | 22,514.8 | 11,191.5 | 11,414.2 | 11,685.1 |

This funding profile represents the best estimate as of March 2004, for the cost of performing the work.
 This profile is subject to changes resulting from performance incentive negotiations or other scope changes

Appendix H:

M-91 Mixed Low-Level Waste Processing Activities

(consisting of 1 page)

Appendix I:

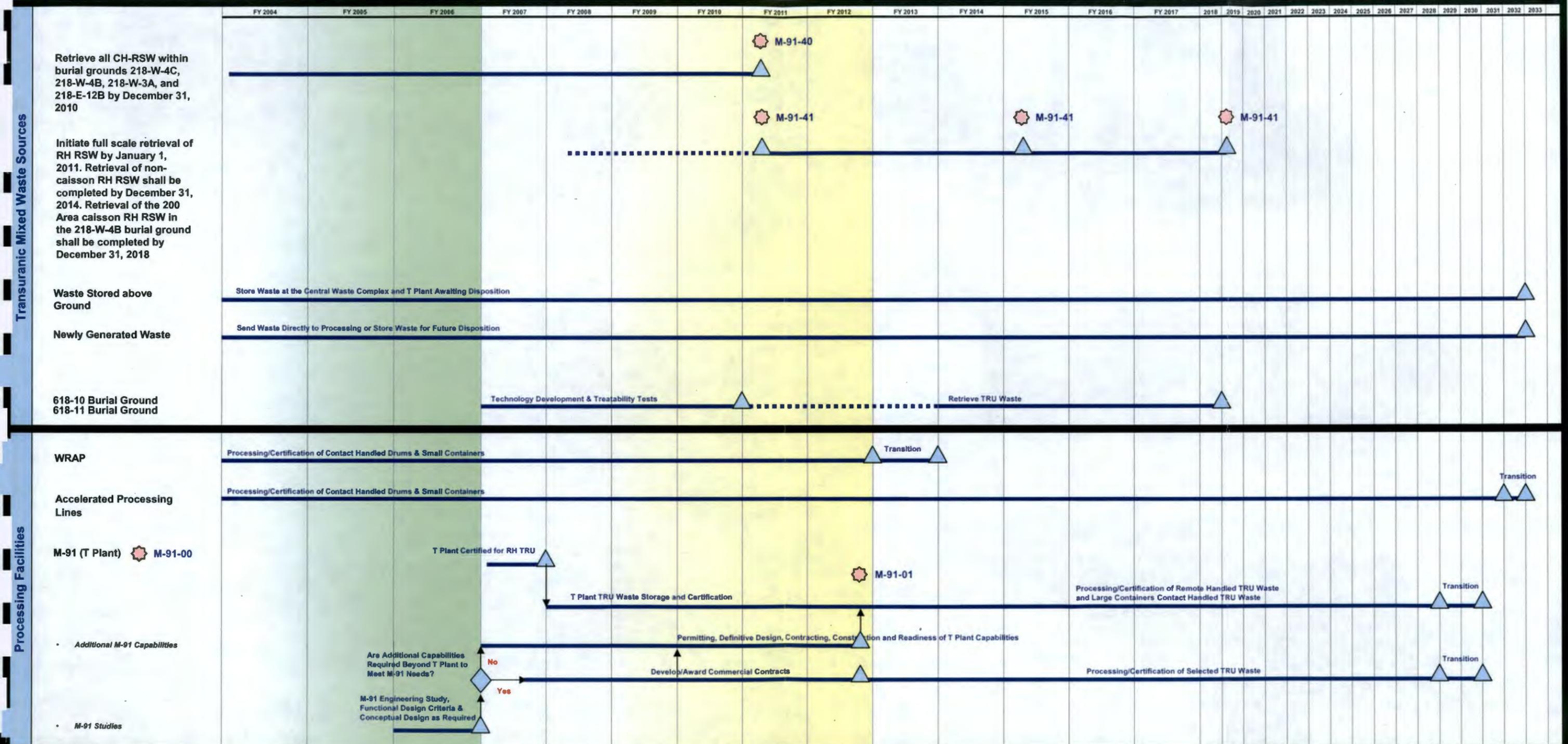
M-91 Transuranic Mixed Waste Processing Activities

(consisting of 1 page)

Appendix H: M-91 Mixed Low-Level Waste Processing Schedule

| Calendar Year | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | |
|----------------------|--|--|--|--|---|---|---|---|---------|---------|---------|--|--|--|--|
| Treatment Milestones | <p>LDR Treatability Groups MLLW-02, MLLW-03, MLLW-04a, MLLW-04b, MLLW-05, MLLW-06, MLLW-08, MLLW-09, and MLLW-10. NOTE: Does not include 600 m³ of MLLW-03 treated under M-91-12 and M-91-12A milestones</p> <p><i>M-91-42 – Treat newly generated CH MLLW and CH MLLW in storage in accordance with the required treatment schedule through 12/31/09. After 6/30/09, treat all newly generated MLLW in accordance with the treatment requirements in compliance with WAC 173-303-140 and 40 CFR 268</i></p> | Cumulative waste volume treated by 12/31/04 1,630 m³ | Cumulative waste volume treated by 12/31/05 3,260 m³ | Cumulative waste volume treated by 12/31/06 4,890 m³ | Cumulative waste volume treated by 12/31/07 6,520 m³ | Cumulative waste volume treated by 12/31/08 8,150 m³ | Treat all waste generated after 6/30/09 in accordance with LDR requirements | <p>Regulatory Needs</p> <ul style="list-style-type: none"> 4/30/04 - EPA: Approval of Data Quality Objectives/Sampling Analysis Plan with associated EECA for treatment and disposal of non-TRU waste from retrieval 9/30/04 – EPA: Authorization for chemical waste landfill 9/30/04 – EPA: 200 Area Liquid Effluent Facility Delisting Petition approval, to allow P and U Code MLLW disposal 9/30/04 - WDOE: Approval of PEcoS Thermal Treatment Permit, to allow in-State treatment of MLLW 9/30/05 - WDOE: Approve LLBG Part B Permit Modification to allow in-trench treatment of MLLW 9/30/05 - WDOH: Approval of Air Permit modification to allow in-trench treatment of MLLW 12/31/07 - WDOE: Adopt newly promulgated LDR's for Treatability Group MLLW-09 | | | | Group 1 | | | |
| | <p>LDR Treatability Group MLLW-03</p> <p><i>M-91-12 – Complete thermal treatment of an additional 360 m³ of CH MLLW by 12/31/2005</i></p> <p><i>M-91-12A – Complete thermal treatment of at least 240 m³ of CH MLLW by 12/31/2004</i></p> <p>Issue RFP for thermal treatment of LDR MLLW-03 by 3/31/04 → </p> | Cumulative waste volume treated by 12/31/04 240 m³ | Cumulative waste volume treated by 12/31/05 600 m³ | | | | | | | | | | | | |
| | <p>LDR Treatability Group MLLW-07</p> <p><i>M-91-43 – Designate and begin treatment of 300 m³ per year of RH MLLW and large boxes and containers of CH MLLW no later than 6/30/08 and continue to treat 300 m³ of this waste stream annually</i></p> | Obtain limited commercial capability for treatment of CH large containers and RH MLLW by 9/30/04 | Issue Engineering Study/Functional Design Criteria for CH large/over-size MLLW containers by 9/30/05 | Obtain regulatory approvals for initiating in-trench treatment capability by 9/30/06 | Issue Engineering Study/Functional Design Criteria for RH MLLW containers by 12/31/07 | Initiate treatment of LDR MLLW-07 by 6/30/08 | Cumulative waste volume treated by 6/30/09 300 m³ | | | | | Cumulative waste volume treated by 6/30/10 600 m³ | Cumulative waste volume treated by 6/30/11 900 m³ | | |
| Reporting Milestones | <p><i>M-91-03 – Revise the Hanford Site TRUM and Mixed Low Level Waste Project Plan to comply with Agreement Section 11.5 requirements by 12/31/03, 3/31/09 and 3/31/13</i></p> <p><i>M-91-45 – Submit a report describing completed and schedule work relating to RH MLLW and CH MLLW in large boxes and containers by 9/30/04 and annually thereafter to Ecology</i></p> | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-45 | M-91-03 PMP Revision | | | |
| Calendar Year | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | |

Appendix I: M-91 TRUM Waste Processing Activities



Acronyms

- CH - Contact Handled
- CWC - Central Waste Complex
- EIS - Environmental Impact Statement
- ROD - Record of Decision
- SW - Solid Waste
- RH - Remote Handled
- WIPP - Waste Isolation Pilot Plant
- M-91 - RH TRU Waste Processing Capability
- RSW - Radioactive Solid Waste

Key Assumptions

| | |
|---|---|
| 1 | WIPP remains open through 2032 |
| 2 | Suspect TRU waste retrieved will be managed as TRUM waste |
| 3 | Processing of large containers and RH TRUM waste will begin by 2012 |
| 4 | WIPP will be permitted to accept RH TRU waste by 2007 |

Legend

- Start / Completion
- Decision
- TPA Milestone