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**Department of Energy**  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

**JUN 24 2008**

08-AMCP-0209

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**EDMC**

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Department of Ecology  
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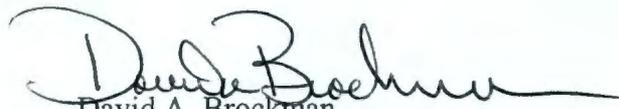
Dear Ms. Hedges:

**M-91 TRANSURANIC (TRU) MIXED/MIXED LOW-LEVEL WASTE PROJECT  
MANAGEMENT PLAN, HNF-19169, REVISION 4**

The purpose of this letter is to transmit the M-91 TRU Mixed/Mixed Low-Level Waste Project Management Plan, HNF-19169, Revision 4 to the State of Washington Department of Ecology for review and approval. This project management plan is submitted as a primary document under the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Action Plan, Section 9.0, Documents and Records. It was prepared in accordance with a specific set of assumptions agreed on during the M-91 Project Manager meeting. Transmittal of this document revision completes the Tri-Party Agreement Interim Milestone M-091-03 requirement for submittal by June 30, 2008.

Comments or approval is requested within 45 days of receipt of this letter. If you have any questions, please contact me, or your staff may contact Matt McCormick, Assistant Manager for the Central Plateau, on (509) 373-9971.

Sincerely,

  
David A. Brockman  
Manager

AMCP:GLS

Attachment

cc: See Page 2

Ms. J. A. Hedges  
08-AMCP-0209

-2-

JUN 24 2008

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Administrative Record (M-91)

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HNF-19169  
Revision 4

# M-91 TRU Mixed/Mixed Low-Level Waste Project Management Plan

**RECEIVED**  
JUL 01 2008  
**EDMC**

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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# M-91 TRU Mixed/Mixed Low-Level Waste Project Management Plan

Document Type: PMP

Program/Project: WM

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Fluor Hanford, Inc.

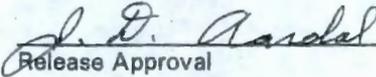
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Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the  
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## PREFACE

This revision of the Project Management Plan (PMP) for the M-91-series milestones of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement [TPA]) addresses Washington State Department of Ecology (Ecology) revision 3 comments; and documents Department of Energy (DOE) funding and prioritization assumptions, and strategies for TPA M-91 milestones. Processing assumptions used for FY 2008 include the following:

- Retrieval of 2,500 m<sup>3</sup> of retrievably stored waste (RSW) toward M-91-40 (9,200 m<sup>3</sup> cumulative)
- Shipment of 700 m<sup>3</sup> of mixed low-level waste (MLLW) for treatment toward M-91-42 (7,200 m<sup>3</sup> cumulative)
- Treatment of 110 m<sup>3</sup> of remote-handled (RH) and large container contact-handled (CH) MLLW toward M-91-43 (300 m<sup>3</sup> cumulative)
- Certification of 600 m<sup>3</sup> of transuranic waste toward M-91-42 (3,210 m<sup>3</sup> cumulative)
- Continued effort on Waste Isolation Pilot Plant (WIPP) waste stream approval for backlog M-91-42 transuranic waste streams

Two funding cases, a Base Case and an As-Soon-As-Feasible Compliance Case, are discussed for FY 2009 and beyond. The Base Case funding uses the President's FY 2009 budget and management priorities released in February 2008 that identified \$176M for Project Baseline Summary (PBS) RL-0013, *Solid Waste Stabilization and Disposition*. Funding for the M-91-series milestones is included in RL-0013. The Base Case funding assumes constant RL-0013 funding at the FY 2009 level through FY 2013, \$240M in FY 2014, an average of \$300M per year for FY 2015 through FY 2022, an average of \$200M per year after year 2022 until all backlog waste is processed, and ending with funding as required to process waste generated through FY 2050. A summary description of the As-Soon-As-Feasible Compliance Case funding for FY 2009 and beyond is presented to be consistent with As-Soon-As-Feasible Compliance with M-91-series milestone completion dates. Annual treatment/certification processing volume charts for both the Base Case and the As-Soon-As-Feasible Compliance Case are included in this PMP. Included for information only are draft TPA Change Packages M-91-08-01 (the May 23, 2008 version) and M-91-08-02 (the May 23, 2008 version) related to the FY 2008 appropriation shortfall; M-91-08-03 (the April 30, 2008 version) that eliminates the duplication of administrative documentation; and Change Packages for the Base Case and the As-Soon-As-Feasible Compliance Case.

Building blocks of added treatment/processing are provided for the possibility of additional FY 2009 funding. Subsequent annual PMP revisions will provide building blocks for the respective President's budget year and will incorporate the previous year's accomplishments. The building blocks will support the As-Soon-As-Feasible Compliance Case for achieving M-91-series milestone commitments, where feasible, with removal of funding constraints. Life-cycle funding profiles are provided for the Base Case and the As-Soon-As-Feasible Compliance Case.

## FOREWORD

This revision of the PMP for TPA M-91-series milestones was prepared by Fluor Hanford with guidance from the DOE. The M-91-series milestones include: 1) retrieval of post-1970 RSW, 2) acquisition of capabilities and/or facilities to process/treat MLLW and transuranic waste, and 3) treatment/certification of MLLW and transuranic waste.

Since completion of M-91 negotiations in 2003, DOE has met 46 of the 49 M-91 requirements on or ahead of schedule. Two of the remaining three requirements were completed behind schedule. Accomplishments include retrieval of more than 7,400 m<sup>3</sup> of RSW, treatment of more than 6,800 m<sup>3</sup> of MLLW, and certification of more than 3,000 m<sup>3</sup> of transuranic waste. Only the December 31, 2007 M-91-42J milestone to certify 4,200 m<sup>3</sup> of transuranic waste has not been completed.

The President's Fiscal Year (FY) 2009 budget and management priorities released in February 2008 identified \$176M for PBS RL-0013, *Solid Waste Stabilization and Disposition*. This is less than the \$385M requested. A Base Case funding profile was developed utilizing the FY 2009 President's budget. A second As-Soon-As-Feasible Compliance Case funding profile is also included. The Base Case funding assumes constant RL-0013 funding at the FY 2009 level through FY 2013, \$240M in FY 2014, an average of \$300M per year for FY 2015 through FY 2022, an average of \$200M per year after Year 2022 until all backlog waste is processed, and ending with funding as required to process waste generated through FY 2050. The following table summarizes selected impacts to M-91 TPA requirements:

M-91 Milestone	Requirement	Base Case Completion Date	As-Soon-As-Feasible Case Completion Date
M-91-40G-001	Retrieve all CH RSW within burial grounds 218-W-4C, 218-W-4B, 218-W-3A, and 218-E-12B by 12/31/2010	12/31/2013	12/31/2010
M-91-41B	Complete retrieval of caisson RH RSW in 218-W-4B by 12/31/2018	12/31/2023	12/31/2018
M-91-42E	Treat 8,150 m <sup>3</sup> of small container CH MLLW by 12/31/2008	6/30/2013	3/31/2010
M-91-42J	Certify 4,200 m <sup>3</sup> of small container CH mixed-transuranic (TRUM) waste by 12/31/2007	12/31/2016	6/30/2010
M-91-43D	Complete treatment of second 300 m <sup>3</sup> per year increment of RH MLLW and large container CH MLLW by 6/30/2010	6/30/2012	6/30/2010
M-91-44C	Complete certification of first 300 m <sup>3</sup> per year increment of RH TRUM waste and large container CH TRUM waste by 6/30/2013	6/30/2015	6/30/2013

DOE plans to complete M-91-42 MLLW, and near-term M-91-43 MLLW and M-91-44 transuranic waste requirements by using available commercial capabilities and capacities. M-91-43 MLLW and M-91-44

transuranic waste that cannot be commercially treated will be processed through the Solid Waste Processing Center (SWPC). The SWPC would be operational by December 31, 2023 for the Base Case, and by December 31, 2018 for the As-Soon-As-Feasible Compliance Case.

In the Base Case, milestone M-91-44 transuranic waste processing is completed in year 2044. In the As-Soon-As-Feasible Compliance Case, M-91-44 transuranic waste processing is completed in FY 2039. This PMP assumes that transuranic waste can be sent to an offsite facility for disposal through year 2050.

In the Base Case, T Plant is placed in a ready-to-serve mode through FY 2014. After 2014, T Plant M-91-42 CH transuranic waste processing will be resumed. In the As-Soon-As-Feasible Compliance Case, T Plant continues to process M-91-42 transuranic waste at FY 2008 rates. As-Soon-As-Feasible certification rates for M-91-42 transuranic waste would be increased to 1,000 m<sup>3</sup> per year starting in FY 2010. DOE plans to evaluate alternatives to establish offsite processing capability for selected M-91-42 CH transuranic waste.

This PMP also includes estimated potential volumes of waste containing transuranic constituents at levels above 100 nanocuries per gram (nCi/g) that could result from current or future Hanford Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste site remediation.

Building blocks of scope and funding are provided in Section 4.2 to assist possible adjustments needed if funding obtained for FY 2009 is different than the Base Case.

Draft Change Packages for the Base Case and the As-Soon-As-Feasible Compliance Case are included in the appendices for information.

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## 1.0 PROJECT GOALS AND OBJECTIVES

This Project Management Plan (PMP) was developed in accordance with the Tri-Party Agreement (TPA) 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 TPA Action Plan (Attachment 2 to the TPA). This PMP is updated to include TPA change package M-91-07-01 and supersedes and completely replaces previously prepared M-91 PMPs.

Waste management objectives include the following:

- Compliant storage of mixed low-level waste (MLLW) and transuranic waste
- Retrieval of post-1970 retrievably stored waste (RSW)
- Effective management of newly generated MLLW and transuranic waste
- Treatment/processing of MLLW and transuranic waste
- Disposal of MLLW
- Certification and shipment of transuranic waste for disposal at the Waste Isolation Pilot Plant (WIPP)
- Acquisition of capabilities and/or facilities to treat/process large container and remote-handled (RH) MLLW and transuranic waste.

This PMP includes a Base Case funding profile developed from the Fiscal Year (FY) 2009 President's budget. Also included is a second As-Soon-As-Feasible Compliance Case funding profile. The Base Case funding assumes constant Project Baseline Summary (PBS) RL-0013 funding at the FY 2009 level through FY 2013, \$240M in FY 2014, an average of \$300M per year for FY 2015 through FY 2022, an average of \$200M per year after Year 2022 until all backlog waste is processed, and ending

with funding as required to process waste generated through FY 2050.

## 2.0 BACKGROUND

### 2.1 Overview of Mixed Waste Management

Mixed waste is waste that contains both *Resource Conservation and Recovery Act of 1976* (RCRA) hazardous waste and source, special nuclear, or byproduct material subject to the *Atomic Energy Act* (AEA). Recognizing the potential for mixed waste to be subject to RCRA, radioactive waste disposal operations began segregating non-mixed low-level waste (LLW) from MLLW in July 1986.

Based on the *Radioactive Waste; Byproduct Material, Final Rule of 1987*, the radiological constituents of mixed waste are governed by the AEA, and the chemical and hazardous constituents are governed by RCRA. The Washington State Department of Ecology (Ecology) is authorized by the Environmental Protection Agency (EPA) to implement the State program in lieu of federal hazardous waste rules in Washington State. The State of Washington regulations are the *Dangerous Waste Regulations* (Washington Administrative Code [WAC] 173-303), which implement the *Washington State Hazardous Waste Management Act* (HWMA) as amended.

In order to obtain the authorization for mixed waste from EPA, the Washington State HWMA was amended in July 1987 to incorporate the definition of mixed waste.

In November 1987, Ecology was authorized by the EPA to regulate mixed waste in lieu of federal regulation. Subsequently, representatives from Department of Energy (DOE) Richland Operations Office (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 onsite (except for RH waste and ignitable waste) to be consolidated for temporary aboveground storage on retrievable storage pads. Mixed waste generated offsite 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 into service beginning in 1989 and are now part of the Central Waste Complex (CWC).

Finally, in September 1996, agreement was reached with the Attorney General of Washington that the effective date for mixed waste in Washington State is August 19, 1987. Land Disposal Restrictions (LDR) for mixed waste became applicable over time as the national capacity variance for a treatment standard expired. Today, in Washington State, all LDRs apply to mixed waste.

### ***Types of Waste***

LLW is radioactive waste that is not spent fuel, high-level waste, transuranic waste, byproduct material, or naturally occurring radioactive material. LLW includes both MLLW and non-MLLW. LLW can be CH or RH.

MLLW is LLW that is subject to RCRA or Chapter 70.105 of the *Revised Code of Washington* (RCW). Non-MLLW is LLW that is not subject to RCRA or *70.105 RCW*. MLLW can be CH or RH.

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

In this PMP, waste labeled transuranic includes both non-mixed transuranic and mixed transuranic waste. Waste labeled as TRUM is mixed transuranic waste. Waste labeled as TRU is non-mixed transuranic waste.

### ***Retrievably Stored Waste Containing Transuranic Nuclides***

The Atomic Energy Commission (AEC, a DOE predecessor agency) initially defined transuranic waste as "wastes with known or detectable contamination of transuranium nuclides." In March 1970, the AEC directed Field Sites to segregate transuranic waste and place it in retrievable storage that would allow the waste to be retrieved within 20 years. Before this date, this waste was disposed as LLW.

In 1973, the transuranic waste segregation limit was established at 10 nanocuries of transuranic isotopes per gram. In 1982, the limit was changed to 100 nanocuries per gram. This limit was enacted by Congress in 1992. Because of the changing definition of transuranic waste, waste generated and stored between 1970 and 1982 could contain less than the current threshold of 100 nanocuries per gram for defining transuranic waste. This waste has been termed "suspect" transuranic because some of this waste will be designated LLW following radiological characterization. In addition, waste has been categorized as transuranic by waste process knowledge rather than by assay. Also, all retrievably stored RH waste (drum and box) is considered suspect because the capability to reliably determine (by assay) the transuranic waste content of these containers did not exist on the Hanford Site or the DOE complex. When the M-91 milestones were revised in 2003, the term RSW was defined in M-91-00 to refer to what was previously termed "suspect transuranic waste." In this PMP, the term RSW is used to be consistent with the current M-91 definition which reads:

- RSW is waste that is or was believed to be contaminated with significant concentrations of transuranic isotopes when it was placed in the 218-W-4B, 218-W-4C, 218-W-3A, and 218-E-12B burial ground trenches after May 6, 1970. During the retrieval process, containers of RSW will be segregated into two categories: (1) CH RSW and (2) RH RSW. Subsequent analysis and categorization of the RSW pursuant to *RCW Chapter 70.105*, the AEA, and the WIPP Land Withdrawal Act will result in most or all of this waste being classified as one of the following types of waste: CH LLW, RH LLW, CH MLLW, RH MLLW, CH TRU, CH TRUM, RH TRU, or RH TRUM. RSW does not include waste in containers that have deteriorated to the point that they cannot be retrieved and stabilized (e.g., placed in overpacks) in a manner that would allow them to be transported and designated without posing significant risks to workers, the public, or the environment. With respect to any such containers, and with respect to any release of RSW, the decision as to how to move forward will be determined through the cleanup process set forth in RCRA, Chapter 70.105 of the RCW, and/or *CERCLA* as appropriate. Those processes may result in additional requirements for the remediation of such wastes.

### ***Waste Designation***

Designation as used in the M-91 milestones is the process for determining (1) which containers of LLW are MLLW, and (2) which containers of transuranic waste are transuranic mixed waste (CH TRUM or RH TRUM). Designation of waste will be performed pursuant to WAC 173-303-070 through 173-303-100. These regulations allow the use of "Acceptable Knowledge" (in accordance with WAC 173-303-040), 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 transuranic waste in support of its designation of related LLW streams. Where appropriate, DOE will use measures allowed under state and federal regulations to perform accurate and cost-effective designations of LLW.

### ***Land Disposal Restrictions***

Pursuant to the *Hazardous and Solid Waste Amendments of 1984*, LDRs were promulgated beginning in 1986. 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 calendar year 2007 *Hanford Site Mixed Waste Land Disposal Restrictions Summary Report*. The report provides total waste volume for both the currently stored inventory and the waste forecast to be generated during the next five years by "Treatability Group." This PMP addresses MLLW LDR Treatability Groups MLLW-02 through MLLW-10 as described in Section 2.2, Waste Requiring Processing and Disposition. Treatability Group MLLW-01, direct disposal of LDR compliant waste, requires no processing, and is not included in this PMP.

### ***Transportation of Waste***

Mixed waste is currently transported on the Hanford Site by forklift, truck, and rail. Onsite transportation of waste is managed by DOE in accordance with the *Hanford Site-wide Transportation Safety Document*. Transportation of waste offsite is regulated by the U.S. Department of Transportation (DOT). A 2003 memorandum of understanding (MOU) between the Western Governors' Association and DOE headquarters requires that DOE conduct transuranic waste shipments through the Western States, in accordance with the protocols contained in the *WIPP Transportation Safety Program Implementation Guide*, not including shipments within the same DOE site or other transuranic waste shipments as agreed to

between DOE and the states. Shipments of transuranic waste to commercial firms utilizing road closures are acceptable.

The type of packaging required to transport the waste depends, in part, on the total quantity of radioactivity, the form of the materials, and the concentration of radioactivity. DOE is responsible for determining the appropriate container for the material it is transporting. DOE ensures that each waste package being transported offsite meets DOT regulations for design, material, manufacturing methods, and testing.

### ***Waste Acceptance Criteria***

#### **Solid Waste Operations Complex**

The *Hanford Site Solid Waste Acceptance Criteria* (HSSWAC) HNF-EP-0063, defines the baseline criteria for acceptance of waste at the following Hanford Site Solid Waste Operations Complex (SWOC) treatment, storage, and disposal (TSD) units: the CWC, the Waste Receiving and Processing (WRAP) facility, T Plant, and the low-level burial grounds (LLBG) that include the Mixed Waste Disposal Trench (MWDT). The waste acceptance criteria (WAC) 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.

#### **Environmental Restoration Disposal Facility**

The *Environmental Restoration Disposal Facility (ERDF) Waste Acceptance Criteria* defines the baseline criteria for acceptance of waste at ERDF.

### ***Data Sources***

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

The SWITS database contains data (e.g., volumes; container information; and radiological, physical, and dangerous waste characteristics) about each container of stored waste managed by the Fluor Hanford (FH) Waste Stabilization and Disposition (WSD) Project. 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. Included in SWITS are waste containers that did not have a TSD acceptance date at the time the database was queried. The data contained in this PMP were obtained on January 3, 2008. Annual updates will use a point in time of approximately January 1 of each year.

The SWIFT database contains estimates of future waste volumes and characteristics forecasted by waste-generating units. 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 number of containers, the physical form of the waste, the Waste Specification Record (WSRd), the dangerous characteristics of the waste, and the radionuclide activity in the waste. The SWIFT database is updated semi-annually and published in the SWIFT report. The data contained in this PMP correspond to the *SWIFT Report 2008.0* published in January 2008. The annual January

SWIFT updates will be used for the annual PMP update.

The SWIFT data are obtained through formal meetings and contact with the individual generating units and are validated through a quality control process that includes approval by appropriate authorities.

### ***CERCLA Waste***

Wastes generated during CERCLA cleanup actions that will be treated through "M-91 capabilities" will be identified as part of the records of decision (ROD) process, and will be integrated with M-91 through the *M-16-93 Implementation Work Plan*. RH wastes from the 618-10/11 have been identified and are included in the waste feed for the M-91 Project. As new waste streams are identified that will be processed through the M-91 capabilities, they will be included in future updates to the PMP. As specified in the M-91-03-01 Change Package, the M-91 series was revised specifically to address capabilities for RCRA waste. Because the M-91 series was not established to address CERCLA waste, a separate change package (M-16-03-03) was processed at the same time to include language in M-16-93 that provides an implementation work plan to describe the strategy for obtaining capabilities to process CERCLA TRU and TRUM. The M-16-93 work plan addresses how M-91 capabilities will be considered in the evaluation of processing new CERCLA wastes. Estimates of the potential volume of material containing transuranic radionuclides greater than 100 nCi/g that could result from future CERCLA actions are provided in Appendix C.

## **2.2 Waste Requiring Processing and Disposal**

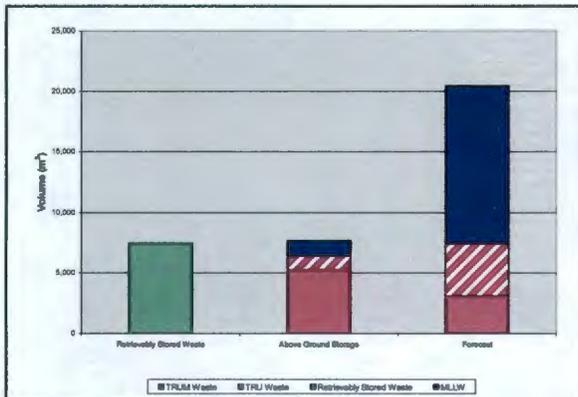
Waste that is RSW in the LLBG, in aboveground storage (primarily at CWC), and forecast to be generated during site cleanup

requires processing and disposal. Figure 1 provides the volume of each type of waste.

Enlargements of Figures 1, 5, 6, 7, and 8 are provided in Appendix B along with applicable data sources and notes. Retrieval and storage inventory volumes are as of January 3, 2008. The following waste is not included:

- Waste that has already been treated/processed or disposed
- Waste not forecast (i.e., potential waste from CERCLA or decontamination and decommissioning [D&D] cleanup actions not yet specified)
- Non-mixed LLW regulated by Toxic Substances Control Act (TSCA) requirements
- Waste known as "German Logs" (vitrified high-level waste). Includes packages CASTOR-GSF-001, -002, -003, -005, -006, -007, GNS-12-1, and GNS-12-2
- Waste from the "Liquid Radioactive Waste Storage Tanks"
- Waste suspected to be reactor-irradiated nuclear material (RINM)
- Increased waste volumes resulting from failed RSW containers (i.e., retrieval waste volumes are based on original container volumes)
- Approximately 40 newly generated transuranic waste standard waste boxes (SWB) that were forecast by Washington Closure Hanford Company after the January 2008 forecast.

The SWITS retrieval and storage volumes are the internal volume of the waste package (e.g., a 55-gallon drum has an internal volume of 0.208 m<sup>3</sup> and an external volume of 0.257 m<sup>3</sup>), reference *Hanford's Commonly Used Containers; Treatment, Storage, and Disposal Volumes*. Retrieved waste production volumes are external.



**Figure 1:** Hanford MLLW/Transuranic Waste Sources.

Initially it was assumed that 10 percent of the RSW drums (see Section 3.2, Planned Approach for MLLW and Transuranic Waste Management) would require overpacking due to waste container integrity issues (see Figures 2 and 3). Based on retrieval experience, this PMP assumes that 100 percent of the remaining RSW drums will require overpacks (see Figure 4). Larger-sized RSW containers are anticipated to require similar overpacking.



**Figure 2:** Waste Container Integrity Issues.



**Figure 3:** Waste Container Handling.

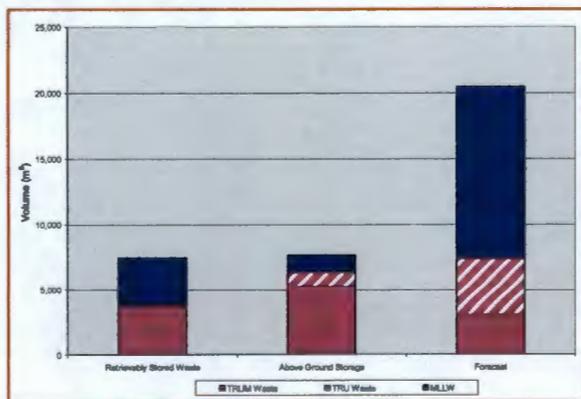


**Figure 4:** Waste Container Overpacking.

Based on process experience, the volume of debris within RSW debris waste containers is assumed to be 99.5 percent of the overall waste and 0.5 percent is non-conforming waste. Approximately 80 percent of the non-conforming waste can be treated during routine processing by liquid sorption, pH neutralization, and aerosol-can puncturing, etc.; the remaining 20 percent of the non-conforming

waste requires additional treatment (e.g., macro-encapsulation).

After retrieval and assay, a significant portion of the RSW will be designated as non-transuranic waste based on the change in definition of transuranic waste (currently defined as 100 nanocuries per gram versus the previous 10 nanocuries per gram). In addition, waste was often categorized transuranic waste as a conservative measure rather than by assay. Based on this change in definition, waste records, and field experience, it is assumed that 50 percent (by volume) of the remaining RSW will be managed as MLLW and 50 percent managed as transuranic waste (see Figure 5). As of April 30 2008, 60 percent of the 55-gallon drums retrieved have been transuranic waste and 65 percent of the non-drum containers have been transuranic waste. Most of the containers retrieved to-date have been from LLBG 218-W-4C, which contained the most recent RSW and is anticipated to have a higher percentage of transuranic waste.



**Figure 5:** Hanford MLLW/Transuranic Waste with Retrieval Split.

Based on retrieval experience and a review of the remaining SWITS RSW inventory, 75 percent of the large CH RSW is assumed to be transuranic waste. Fifty percent of the non-caisson RH RSW is assumed to be transuranic waste and 50 percent MLLW. All caisson waste is assumed to be RH transuranic waste. The remaining RSW inventory of small

CH RSW is assumed to be 75 percent MLLW and 25 percent transuranic waste. When a waste container is determined to potentially contain classified matter, the container will be segregated for storage and future disposition in a manner protective of human health and the environment and in accordance with DOE directives.

Forecast volumes are life-cycle from January 2008 through September 2035 (see Forecast Waste later in this section). Waste that is newly generated after Year 2035 has not been forecast. Forecast volumes do not include waste that goes directly to ERDF, MLLW processed and disposed of by the River Protection Project, or liquid waste. Forecast volumes are the maximum external dimensions of the waste package. CERCLA remediation decisions could result in additional waste requiring processing and disposal.

Currently two CERCLA actions have been identified with waste containing transuranic constituents. The proposed 618-10/11 burial grounds cleanup plan has identified approximately 250 m<sup>3</sup> of CH waste and 950 m<sup>3</sup> of RH waste that contains transuranic constituents requiring processing and disposal. A small quantity of waste containing transuranic constituents has also been identified in the U Plant canyon and will be quantified as part of 221-U (U Plant canyon) closure.

Volume estimates of waste containing transuranic constituents at levels above 100 nCi/g that could result from current or future Hanford CERCLA waste site remediation are included in Appendix C. Additional CERCLA waste sites and facilities with waste containing transuranic constituents include the following areas:

- Liquid-waste disposal sites – cribs, trenches, reverse wells, ditches, ponds, unplanned release sites, and settling tanks
- Burial grounds – non-RSW
- Canyons, facilities, and associated tunnels.

If new waste streams identified during a CERCLA remediation will be processed through M-91 capabilities, those newly identified waste streams will be added to future updates of the M-16-93 work plan and Appendix C of this PMP.

### ***MLLW Treatability Groups***

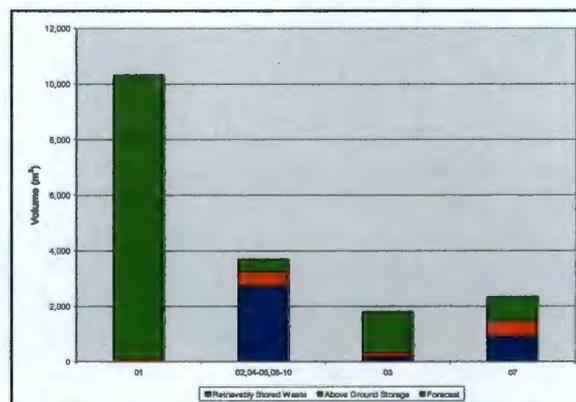
The MLLW is categorized by the necessary treatment path to ensure that the waste, once treated, will meet LDR requirements for disposal. The *Calendar Year 2007 Hanford Site Mixed Waste Land Disposal Restrictions Summary Report* includes the following treatability groups:

- MLLW-01 “LDR Compliant Waste,” Treatment Path: Direct disposal without additional LDR treatment
- MLLW-02 “Inorganic Non-Debris,” Treatment Path: Non-thermal (stabilization)
- MLLW-03 “Organic Non-Debris,” Treatment Path: Thermal
- MLLW-04 “Hazardous Debris,” Treatment Path: Non-thermal (macro-encapsulation<sup>1</sup>)
- MLLW-05 “Elemental Lead,” Treatment Path: Non-thermal (macro-encapsulation)
- MLLW-06 “Elemental Mercury,” Treatment Path: Mercury stabilization (i.e., amalgamation or grout stabilization)
- MLLW-07 “RH and Large Container,” Treatment Path: In-trench treatment, commercial, near-term onsite capability (generally less than 10 m<sup>3</sup>), or future Solid Waste Processing Center (SWPC)
- MLLW-08 “Unique Wastes,” Treatment Path: No path (lack of treatment capability)
- MLLW-09 “Lead Acid & Cadmium Batteries,” Treatment Path: Macro-encapsulation

<sup>1</sup> \*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.

- MLLW-10 “Reactive Metals,” Treatment Path: Deactivation of reactive component

The volume of the MLLW treatability group waste sources is summarized in Figure 6 based on processing plans discussed in Section 3.2, Planned Approach for MLLW and Transuranic Waste Management, and in Figure 6. The figure indicates significantly less RSW than one year ago. The large decrease in total MLLW-07 projected volume for processing is due to the update in the assumptions of RSW composition. The MLLW-01, LDR-compliant waste is not addressed in this PMP because it is stored and disposed in compliance with WAC-173-303 requirements and the LDR storage prohibition requirements as specified in 40 Code of Federal Regulations (CFR) Part 268.50(e). Volumes of MLLW treated by Hanford generators prior to storage/disposal are included in MLLW-01.



**Figure 6:** MLLW Treatability Group Sources.

A “Tree Chart” of MLLW and transuranic waste by treatability group requiring processing is included in Appendix D. The Tree Chart includes the following assumptions:

- Reassignment as RH of packages listed as CH in SWITS:
  - With a dose rate of >200 mR/hr
  - Containing shielding
  - Containing greater than 0.25 curies of cesium-137

- Suspect RINM marked as transuranic waste is not included.
- Waste marked as LLW TSCA is not included.
- RSW burial grounds consist of 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B.
- Fifty percent of the retrieved RSW is assumed to be MLLW.
- Retrieval and storage data is as of January 3, 2008. Forecast data is the baseline case from *SWIFT 2008.0* for the period January 2008 through September 2035.
- Retrieval and storage numbers include packages without a TSD accept date.
- Retrieval and storage volumes in SWITS are internal volumes; volumes for forecast are external (e.g., a 55-gallon drum is 0.208 m<sup>3</sup> internal and 0.257 m<sup>3</sup> external)
- Shipped or already disposed waste is not included. Over 3,000 m<sup>3</sup> of CH transuranic waste has been certified to date.

The Tree Chart includes the volumes of the various wastes, which is helpful for grouping waste treatment/processing approaches discussed in Section 3.0.

Small and large containers have different meanings depending on whether they are used in reference to MLLW/LLW or transuranic waste. When referring to MLLW/LLW, small containers are containers less than 10 m<sup>3</sup>, including 55-gallon drums. A large container is anything not defined as a small container.

Figure 7 provides the volumes of the MLLW-07 sources that are CH and RH.

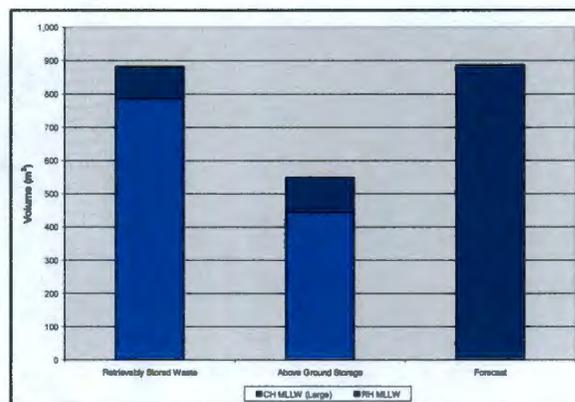


Figure 7: MLLW-07 Sources.

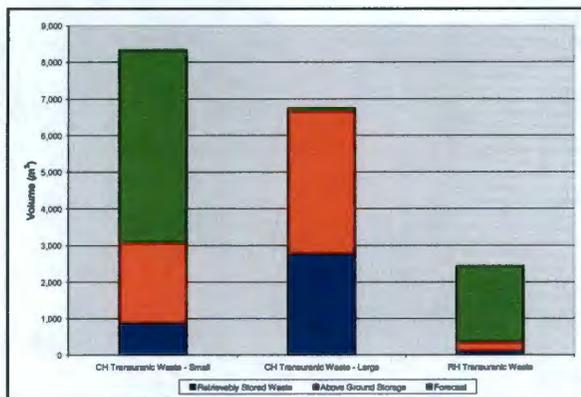
### Transuranic Waste Treatability Groups

Transuranic waste is categorized by the necessary treatment path to ensure that this waste, once processed, will meet WIPP WAC for disposal. The *Calendar Year 2007 Hanford Site Mixed Waste Land Disposal Restrictions Report* includes the following:

- TRUM CH Small Containers
- TRUM CH Large Containers
- TRUM RH.

When referring to transuranic waste, small containers are 55-gallon drums or smaller containers (even if overpacked in 85-gallon drums), and newly generated WIPP SWB. A large container is anything not defined as a small container.

Figure 8 provides the volume of transuranic waste in storage by treatability group.



**Figure 8:** Transuranic Waste Sources.

### ***Waste in Storage***

Approximately 3,100 containers (1,400 m<sup>3</sup>) of MLLW (76 m<sup>3</sup> is MLLW-01 LDR-compliant waste) and 10,700 containers (6,900 m<sup>3</sup>) of transuranic waste are in aboveground storage.

The stored waste volume and the number of waste containers, by waste generator, are provided in Appendix E for MLLW and Appendix F for transuranic waste.

### ***LLBG Post-1970 RSW***

Hanford has more than 18,600 containers (7,700 m<sup>3</sup>) of RSW temporarily stored in the 200 Area LLBG awaiting retrieval. Over 7,400 m<sup>3</sup> of RSW has been retrieved to date.

### ***Forecast Waste***

Approximately 13,000 m<sup>3</sup> (including MLLW-01) of CH and RH MLLW and 7,400 m<sup>3</sup> of CH and RH transuranic waste are forecast through FY 2035 (these are external container volumes). There is no offsite MLLW forecast.

The volume of waste and the time frames of waste generation have varied considerably in the annual forecasts. This is due to changes in waste generator plans/estimates and overall Site cleanup plans. The volume of newly generated transuranic waste has been less than the planning

basis established in FY 2003. The near-term forecast (2008 through 2012) for transuranic waste generation is also significantly lower than the FY 2003 planning basis, due to changing remediation methods.

Remediation of the 618-10 and 618-11 burial grounds, located near the Energy Northwest Generating Station, is required in accordance with the *Record of Decision for the 300-FF-2 Operable Unit, 2001*. These burial grounds contain RH and CH transuranic waste, along with larger quantities of LLW and MLLW. Actual volumes will depend on the approaches taken in the remediation; significant changes in forecasts have occurred based on changing remediation proposals. DOE and EPA have yet to approve the cleanup approach, and the time frame for this waste generation may change.

The forecasted waste volume and the number of waste containers, by generator unit, are provided in Appendix E for MLLW and Appendix F for transuranic waste.

### ***Number of Containers and Volumes***

Appendix G provides the number of containers and volumes for different types of waste containers.

## **2.3 Mixed Waste Commercial Disposition**

Commercial processing will be used on selected MLLW Treatability Groups, which are discussed in Section 3.2, Planned Approach for MLLW and Transuranic Waste Management.

## **2.4 Component and Treatability Groups Stability (Contamination Migration)**

Aboveground storage for mixed waste is in accordance with regulatory requirements. Currently, mixed waste is primarily stored in the

200 West Area CWC. The CWC buildings are designed to meet storage requirements for hazardous waste as required by WAC 173-303.

Disposal of MLLW in accordance with regulatory requirements has occurred in Trenches 31 and 34, burial ground 218-W-5 in the 200 West Area, and at ERDF. The facilities are built to RCRA standards and employ 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 WAC 173-303.

## 2.5 Earlier Evaluations

### *CH MLLW Processing Studies*

#### Non-Thermal Treatment

In 1991, the Strategy Assessment for Project W-100, 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 non-thermal treatment technologies. A Change Package 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 Change Package was later deleted due to commercialization of WRAP 2A waste treatment functions.

#### Thermal Treatment

A commercial thermal treatment contract was recommended to provide waste treatment of the hazardous constituents by thermal destruction and subsequent immobilization of the radionuclides in a final grouted or slag/glass

waste form. Commercial thermal treatment would process wastes regulated by TSCA and most listed and characteristic hazardous wastes restricted from land disposal under RCRA. In addition to TSCA-regulated polychlorinated biphenyls (PCB), a significant quantity of radioactive MLLW containing RCRA F-coded, ignitable, and reactive organic constituents is stored or will be generated at the Hanford Site. Thermal destruction is the best demonstrated available (treatment) technology for these RCRA LDR wastes with organic toxic constituents. 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 the following three treatment options:

- Installation and operation of an onsite 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 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 onsite thermal treatment was investigated in FY 1991 and 1992. An engineering study was performed to identify the preferred technologies for treating Hanford Site radioactive mixed waste. A rotary kiln incinerator was the thermal treatment technology recommended for further evaluation and development. An engineering study for a Site-specific thermal treatment facility was partially completed in FY 1992. The

Site-specific study included a facility design and equipment layout, as well as estimates of capital and operating costs.

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, now referred to as INL) Waste Experimental Reduction Facility (WERF), which was being refurbished and permitted for restart. The INL's WAC for offsite waste treatment was found to be too limited to be practical. Other sites, such as Savannah River and Oak Ridge National Laboratory, had thermal treatment facilities, but facility management at these sites indicated 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 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 were sufficient to issue a request for proposal (RFP) to treat the thermally treatable CH MLLW inventory (existing and projected), and a thermal treatment contract was awarded in November 1995. The company that was awarded the contract proposed a vitrification process to thermally treat the combustible portion of the waste and 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 macro-encapsulation.

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 DOE, and that a unit cost-based thermal treatment service would be significantly more cost-effective than the

construction of an onsite thermal treatment facility.

Studies concluded that the other two options (onsite facility and other DOE site facilities) would continue to be considered as possible alternatives until the uncertainty can be eliminated regarding privatizing thermal treatment. One concern was that a commercial offsite 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-transuranic, and radioactive mixed waste would be included in the design of its treatment facilities.

Commercial thermal treatment capabilities continue to be utilized to support M-91-42 commitments. There continues to be limited capabilities and capacities for commercial thermal treatment, especially for TSCA MLLW.

### ***RH and Large Container CH MLLW and Transuranic 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 casks, whether the waste is 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.

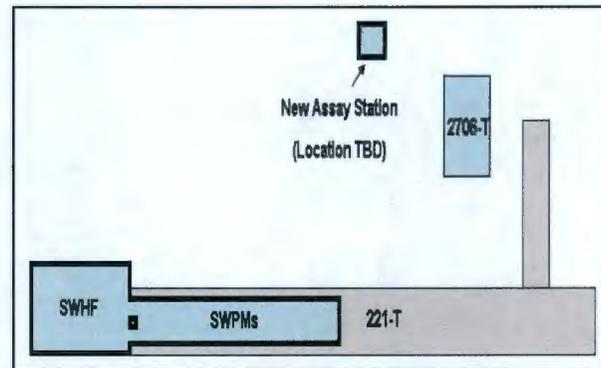
Size reduction would be performed if needed to make large items more manageable and able to fit into smaller containers. Waste would be sorted to group according to processing requirements. Items requiring thermal treatment would be segregated from those requiring non-thermal stabilization. Stabilization would consist of adding a reagent (e.g., grout mixture) 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 shipment and 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, cleanup 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 CH large container processing.

In September 2005, an *Initial Engineering Study and Functions for Processing Mixed Low-Level Waste and Transuranic Mixed Waste that is either Contact-Handled in Boxes/Large Containers or Remote-Handled Waste in Various Packages* was issued. The report evaluated modifying T Plant to process large containers of CH waste and RH waste that cannot be processed at commercial facilities. New T Plant capabilities would include modular cells referred to as solid waste processing modules (SWPM) in the T Plant canyon that process both MLLW and transuranic waste and a Solid Waste Handling Facility (SWHF) added to the south end of the T Plant canyon (see Figure 9). The strategy uses existing Hanford facilities (WRAP, CWC, 2706-T, the MWDTs, and ERDF) and commercial facilities to support waste staging, processing, and disposal.



**Figure 9:** Location of New T Plant Complex Capabilities.

The Initial Engineering Study and Functions report further stated that the ability to perform required basic functions (such as RH-72B cask payload container, RH transuranic waste loading and sealing, and handling and processing of large containers of CH waste/RH waste) will dictate the size and cost of the new T Plant SWPMs and SWHF. Processing capacity will be a function of the ability to routinely load-in and load-out containers with minimal contamination issues, maintain remote equipment in an operational condition, and staff for multi-shift operations.

The 10-160B cask is an alternative to using the RH-72B cask. The 10-160B holds ten 55-gallon drums of waste versus three 55-gallon drums in a payload container for the RH-72B. Drums shipped in the 10-160B cask must be unloaded and repackaged into a RH-72B payload container at WIPP. WIPP is capable of transferring one filled payload container per day into the tunnels. WIPP is investigating the feasibility an RH Shielded Overpack with shipping capabilities of three to a WIPP Half-Pack.

In April 2006, Pacific Northwest National Laboratory (PNNL) assessed (*Solid Waste Processing Center Primary Opening Cell Remote Equipment Report*) and provided general guidance on the following issues:

- Remote processing feasibility
- What remote equipment would be required, and to what extent that equipment is available commercially off-the-shelf
- The extent to which technology development is required
- The feasibility of siting the proposed facility within T Plant.

PNNL concluded that, based on its analysis of the preliminary information of the processing requirements, remote processing within T Plant appears to be technically feasible. In performing this assessment, information was gathered on other remote-handling facilities across the DOE complex, including the West Valley Remote-Handled Waste Facility, the Idaho Advanced Mixed Waste Treatment Project, and the Oak Ridge Spallation Neutron Source Target Facility. Experts in the fields of hot cell operation, transuranic waste assay, and criticality safety were interviewed, and detailed discussions were conducted with major equipment vendors. PNNL stated that remote systems equipment/tool testing was essential to the success of the project.

In September 2006, the *Processing Hanford Remote-Handled and Large Package Mixed Low-Level Waste and Transuranic Waste Engineering Study* was issued. The Engineering Study further defined the strategy and the capabilities required to process the MLLW for disposal onsite in the MWDTs, ERDF, and/or the Integrated Disposal Facility (IDF), and the capabilities required to process transuranic waste for disposal at WIPP.

The 2006 Engineering Study identified modifications to Hanford's T Plant Complex required to enable it to process CH MLLW in packages greater than 35 m<sup>3</sup>, large-size packages of CH transuranic waste, RH MLLW, and RH transuranic waste (RH waste containers are all sizes). The new processing capability would be called the T Plant SWPC. The T Plant SWPC would allow processing of packages measuring

up to 20 ft x 13 ft x 11 ft, weighing up to 83,000 lb, having dose rates (unshielded at the container surface) up to 20,000 rem/hr, and containing up to 2,100 gallons of plutonium. Plans would process 600 m<sup>3</sup> per year of transuranic waste and 300 m<sup>3</sup> per year of MLLW through the upgraded complex.

The 2006 Engineering Study estimated the T Plant SWPC to cost \$390M, including escalation and contingency. This cost estimate assumed a planned startup of the new SWPC as June 30, 2016.

The 2006 Engineering Study identified that commercial facilities are being used to process (e.g., macro-encapsulate, remove prohibited items, repackage) CH MLLW in packages up to 15 m<sup>3</sup>. The study recommended that commercial facilities be expanded to treat CH MLLW in larger packages up to 35 m<sup>3</sup> and to continue to pursue in-trench treatment as applicable, and commercial usage be expanded to treat all large MLLW as possible.

Also in September 2006, the *T Plant Solid Waste Processing Center Functional Design Criteria* was issued. The document provides the function and design requirements for a T Plant SWPC and supports acquisition of these new capabilities through the DOE capital project process.

DOE submitted documentation, in accordance with DOE Order 413.3A, for critical decision 0 (CD-0), "Approve Mission Need." Approval of CD-0 formally establishes a project and begins the process of conceptual planning and design used to develop alternative concepts and functional requirements. In addition, CD-0 approval allows the program to request project engineering and design funds for use in preliminary design, final design, and baseline development. CD-0 was approved in December 2007. The next steps are:

- CD-1 is the approval of alternative selection and of the cost range

- CD-2 is approval of the performance baseline
- CD-3 is the approval to start construction
- CD-4 is approval to start operations.

The amount of time between future CD-1 through CD-4 decisions will vary. Projects may quickly proceed through the early critical decisions due to lack of complexity, the presence of constraints that reduce available alternatives, or the absence of significant technology and development requirements. Due to the complexity of this project, an accelerated CD process is not expected.

In April 2008, a draft *M-91 Project Alternative Evaluation Study* was completed. This study identified and evaluated alternatives for acquisition of capabilities and/or facilities to process/treat Hanford MLLW and transuranic waste that is CH in large containers or RH. The study was performed to support the selection of a preferred alternative that was needed for the approval of alternative concepts in order to proceed with conceptual design of new facilities and/or modification of existing facilities. The study was performed by FH with guidance from the DOE.

The *2008 Evaluation Study* clarified the path-forward for acquiring these capabilities. The following are key elements of the path-forward:

- Using in-trench treatment of MLLW where possible
- Expanding use of commercial capabilities to process MLLW and transuranic waste
- Obtaining an SWPC to treat/certify the remaining MLLW and transuranic waste
- Establishing RH transuranic waste cask loading capability.

The Evaluation Study was based on the MLLW and transuranic waste data from SWITS and SWIFT databases. The data used was obtained as of January 3, 2007 consistent with Revision 3

of the PMP.

The Evaluation Study design and cost information was preconceptual, with cost estimates that included a 30 percent contingency. A wide variety of subject matter experts provided information to support this Study (FH organizations such as Engineering, Operations, Nuclear Safety, Radiological Protection, Waste Services, Plutonium Finishing Plant [PFP], Environmental, Quality Assurance, and Transportation; and from Fluor Federal Services, PNNL Remote Systems Integration, WIPP representatives, ex-Rocky Flats D&D, commercial vendors, Idaho Advanced Mixed Waste Treatment Plant, West Valley Remote Waste Treatment Facility, Savannah River Site, etc.).

An FH-sponsored independent assessment of option identification and the evaluation process was also performed in January 2008. In February 2008, the President's FY 2009 budget and management priorities were released. The alternative schedules and costs were not revised to reflect the new budget guidance. A brief discussion on potential impacts is included in the Evaluation Study.

In early March 2008, DOE placed the project on hold due to the reduction in funds in the President's 2009 budget, and directed that the Alternatives Evaluation Study be completed as a draft. In accordance with DOE guidance, the executive summary, summary, conclusions and recommendation, and preferred alternative sections of the Study were not completed.

In this PMP, the following assumptions from the *2008 Evaluation Study* are used:

- In-trench treatment will be used where possible
- Commercial facilities will process MLLW and transuranic waste that can be shipped as low-specific activity waste and that meets their license requirements
- A new SWPC will be designed and

constructed to treat/certify the remaining MLLW/transuranic waste. The new SWPC will include RH transuranic waste loading capabilities

- Approximately 50 m<sup>3</sup> of RH transuranic waste in packages containing over 1,000 curies of cesium-137 is too concentrated to be shipped to WIPP for disposal and a plan to disposition this material will need to be developed.

Recent seismic evaluations have shown that the required T Plant upgrades to convert it for use as the SWPC are significantly more complex than assumed in the FY 2006 Engineering Study. Unless a DOE waiver is granted, it may not be economically viable to upgrade T Plant to meet seismic and ventilation requirements.

This PMP also assumes that transuranic waste can be sent to an offsite facility for disposal through Year 2050.

#### ***Other Evaluations***

In 1990, *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 early Hanford Site operations.

In 1995, the *Solid Waste and Materials System Alternatives Study* presented alternatives to provide the necessary facilities to satisfy TPA 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, the *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 1995 *Alternatives Study* identified several options for TRU/TRUM waste streams that could not be processed with current 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 (WNP)-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 also had the lowest projected cost of the alternatives, with the exception of the WNP-1 alternative.

In 1996, the *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 transuranic waste from Trench 4 of the 218-W-4C LLBG and the planned removal of RH transuranic waste stored in dry caissons. Caisson waste is RSW in the 218-W-4B burial ground caissons alpha-1 through alpha-4.

#### **218-E-12B Treatability Study**

A treatability study was conducted to assess field conditions related to RSW at the

218-E-12B burial ground. The treatability study was conducted in two phases.

During Phase 1, areas of the undisturbed burial ground containing RSW underwent geophysical, chemical, and radiological assessment to identify the most appropriate locations for examination of field conditions associated with waste retrieval. Geophysical assessments included electromagnetic induction, magnetic field, and ground-penetrating radar methods to survey and map the selected trenches. Chemical assessment included passive soil gas surveys to identify any hot spots of volatile organic constituents, which could indicate breached containers of waste containing organic constituents. Radiological assessment included surveys of the undisturbed trenches to determine if radiation readings could be used to identify waste locations and/or types.

During Phase 2 activities, the overburden layer was removed and waste containers in Trench T-17 and Trench T-27 were exposed. Radiological and industrial hygiene monitoring techniques were used to characterize the potential personnel exposure to hazardous constituents related to the activity of uncovering the waste containers and contact with the containers and adjacent soil. Visual examination of the condition of the buried wastes/waste containers verified the adequacy of existing burial-ground records and confirmed that the waste is RSW.

During the treatability study, no contamination was encountered that would have resulted in suspension of waste retrieval operations using the procedures in place for RSW retrieval at LLBG 218-W-4C. Some of the drums encountered showed damage due to historic waste management practices that included driving trucks across the waste trench to compact the buried waste. While original paint is still visible on some of the drums encountered, corrosion of some drum surfaces was also found (see Figure 10). Because of these observations, planning for RSW retrieval at the 218-E-12B

burial ground must include contingencies for encountering drums in poor condition.



**Figure 10:** Treatability Study Excavation.

The treatability study successfully verified locations of waste containers in Trenches T-17 and T-27 within 218-E-12B burial ground using non-intrusive technologies; confirmed that the waste observed appeared to be RSW as defined in the TPA change package M-91-03-01; corroborated information provided by waste disposal records (e.g., that metallic containers are detectable in areas where records indicate drums were buried); and confirmed that, with adequate precautions, the waste retrieval process currently in use at the 218-W-4C burial ground should be applicable to the remaining RSW burial grounds.

## **2.6 Specific Regulatory Requirements**

### ***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 U.S.C. 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 Part 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 that mixed waste management activities are addressed.

### **Hazardous Materials Transportation Act of 1975 (49 U.S.C. 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 will be followed relating to mixed waste management activities and the shipment mode used (i.e., rail, aircraft, vessel, and public highway). Offsite shipments of hazardous materials must comply with the implementing regulations at 49 CFR administered by the U.S. Department of Transportation. Onsite waste movements must comply with DOE requirements, including the *Hanford Sitewide Transportation Safety Document*.

### **National Environmental Policy Act (42 U.S.C. 4321 et seq.)**

*The Hanford Site Solid (Radioactive and Hazardous) Waste Environmental Impact Statement* addresses the onsite and offsite treatment, storage, disposal, and transportation of MLLW. A draft of the new Tank Closure and Waste Management Environmental Impact

Statement is being prepared. No impacts to M-91 planning are anticipated from the new EIS.

### **Toxic Substance Control Act**

Chemical Waste Landfill authorization is required for specific categories of TSCA waste. Currently the MWDTs do not have this authorization, and it will be required. Current planning is to acquire Chemical Waste Landfill Authorization for the MWDTs while pursuing disposal at ERDF or offsite.

### **RCRA of 1976 as amended by the Hazardous and Solid Waste Amendments (42 U.S.C. 6901 et seq.) of 1984**

Federal regulations implementing RCRA and RCRA corrective action address the requirements for hazardous wastes, including the treatment, storage, disposal, and transportation (40 CFR Parts 260-282). EPA has authorized Washington State to administer the State's HWMA and associated regulations at WAC 173-303 in lieu of the Federal RCRA regulations.

### **CERCLA (42 U.S.C. 9601 et seq.)**

CERCLA addresses spill cleanups and hazardous substances left at inactive and abandoned waste sites. EPA is the lead regulatory agency for CERCLA cleanup actions at Hanford. DOE performs investigation and cleanup actions for operable units at Hanford through the CERCLA process. In September 2006, DOE submitted an M-16-93 implementation work plan to EPA for the acquisition of capabilities necessary to prepare TRU and TRUM waste generated by CERCLA cleanup actions at the Hanford Site for disposal at WIPP. This work plan reflected retrieval decisions, projected waste volumes, and schedules from all CERCLA cleanup actions authorized in RODs and action memoranda at the Hanford Site, and will provide for updates

and revisions as new information becomes available (i.e., after all 200 Area RODs are issued). As part of the approval process, the EPA will consult with Ecology to ensure that wastes from CERCLA operable units for which Ecology is the lead regulatory agency are properly planned.

In order to avoid duplicate requirements, the M-16-93 work plan is integrated with plans developed pursuant to the M-91 milestones to provide capabilities for RCRA mixed and suspect mixed transuranic waste where such capabilities also can be used for CERCLA TRU/TRUM waste. The work plan was submitted pursuant to Section 11.6 of the TPA.

#### **Washington State Hazardous Waste Management Act (RCW Chapter 70.105)**

The HWMA authorizes Ecology's 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 regulations in WAC 173-303. Mixed waste generation activities are subject to generator requirements. Mixed waste management activities that cannot utilize generator provisions must be conducted according to the RCRA and dangerous waste permits under WAC 173-303 in order to operate. Existing permits are expected to address processing activities, with the exception of modification of T Plant. A revision of the LLBG Part A Permit application was approved for treatment in-trench.

#### **Washington Clean Air Act (RCW Chapter 70.94)**

Ecology's Nuclear Waste Program regulates air toxic and criteria pollutant emissions from the Hanford Site. Ecology promulgates and enforces the regulations under the *Washington Clean Air Act* (RCW Chapter 70.94). Ecology's implementing requirements (e.g., WAC 173-400, WAC 173-460) specify reviewing new

source emissions, permitting, applicable controls, reporting, notifications, and complying 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 as authorized by the EPA and Washington State legislative authority. The Washington State Department of Health implements the federal/state requirements under state regulation WAC 246-247. Before 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 for review and approval to the Washington State Department of Health and the EPA. Typical requirements for radioactive air-emission sources include ensuring adequate emission controls, emissions monitoring/sampling, and/or annual reporting of air emissions.

At the local level, the Benton Clean Air Authority is authorized by the EPA to establish a local oversight and compliance program for asbestos renovation and/or demolitions, as regulated by the EPA under the *National Emission Standards for Hazardous Air Pollutants* (40 CFR Part 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. Activities addressed by this PMP will be reviewed against the permitting documentation, as necessary to ensure that activities for managing mixed waste are addressed.

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## **3.0 PROJECT SCOPE**

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This PMP addresses Hanford processing of CH and RH MLLW and transuranic waste. Planning and volumes for TRU waste are included for

DOE planning purposes. In this PMP, transuranic waste refers to both TRU and TRUM waste. Any data on TRU waste in this PMP is for information purposes only and is not subject to RCRA or HWMA. The hazardous and/or dangerous waste portion of mixed TRU waste is subject to the RCRA and HWMA. Statements and information related to radiological constituents in TRU and TRUM waste are not commitments enforceable under either RCRA or HWMA.

The M-91-series milestones do not include requirements to establish schedules for the management of radioactive waste disposed of prior to 1970. Before 1970, there was no transuranic waste to segregate because the definition was prospective in its application and/or implementation. Consequently, schedules for the management of radioactive waste disposed of prior to 1970 will be established pursuant to applicable provisions of the Hanford Federal Facility Agreement and Consent Order (HFFACO) TPA in other non-M-91-series milestones, following the issuance of operable unit ROD.

### 3.1 Description of Facilities

#### *LLBGs Containing RSW*

The RSW is stored in designated areas in the following four burial grounds:

- 218-E-12B
- 218-W-3A
- 218-W-4B
- 218-W-4C.

Burial ground 218-E-12B includes two trenches (T17 and T27) that contain CH RSW. Burial ground 218-W-3A includes 14 trenches (T1, T4, T5, T6, T6S, T8, T9S, T10, T15, T17, T23, T30, T32, and T34) that contain CH RSW. Burial ground 218-W-4B includes three trenches (T7, T7V, and T11) that contain CH RSW. Burial ground 218-W-4C included five trenches

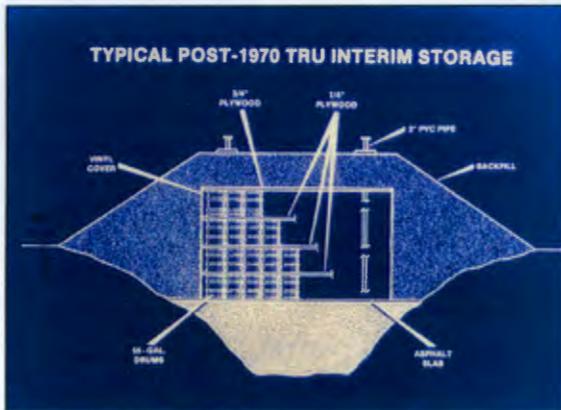
(T1, T4, T7, T20, and T29) that contain CH RSW (some of these trenches have been retrieved [i.e., T4 was completed in November 2006]). Burial ground 218-W-4B includes caissons containing RH RSW.

Approximately 37,000 RSW containers were placed in the retrievable storage trenches, starting in 1970 and ending in 1988. Some of the trenches were asphalt-paved. Most of the waste containers were covered with plywood, tarps, and soil.

The waste containers varied in size up to 20 ft x 13 ft x 11 ft, weights up to 83,000 lb, dose rates (unshielded at the container surface) up to 20,000 rem/hr, and plutonium content up to 2,100 grams. The waste packages are stored in various configurations in the LLBG (Figures 11 through 13).



**Figure 11:** RSW Drum Storage in the LLBG.



**Figure 12:** Typical Storage of RSW Drums in the LLBG.



**Figure 13:** Large Container Transuranic Waste Stored in the LLBG.

### ***Onsite 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 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); five large storage buildings (the 2403 series and 2404-WA); and Building 2420-W, covered storage pad used for cask storage. In addition,

there are 27 modules for storing low-flashpoint mixed waste and 12 modules for storing alkali metals. Also, waste storage pads (paved and gravel) are part of the CWC.

The CWC provides indoor and outdoor interim storage (see Figure 14) for mixed waste, transuranic waste, and a small amount of LLW waiting processing or treatment and final disposition. The CWC operating indoor capacity is approximately 12,800 m<sup>3</sup>. In Addition, some RH waste stored in burial ground 218-W-3AE is included in the aboveground inventory.



**Figure 14:** Container Storage 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, unless alternate packages are dictated by size, shape, or other form of waste. Each drum is handled individually using a hand truck, forklift, or crane. Drums are placed on pallets banded together; the pallets are stored (see Figure 15). 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 15:** Drum Storage in CWC.

The Hanford Site Solid Waste Acceptance Program requirements will dictate the volume of RSW waste containers and newly generated MLLW and transuranic waste containers that can be stored. Spacing of stored waste containers depends on the dose equivalent curies in the packages and criticality packaging types.

### **Mixed Waste Storage at the T Plant Complex/WRAP**

The T Plant Complex and the WRAP facility provide additional storage for mixed waste packages. Packages are stored at WRAP and T Plant waiting processing, shipment to CWC, or shipment directly to treatment or disposal.

### **WRAP**

WRAP processes 55-gallon drums of CH transuranic waste for shipment to WIPP. WRAP has limited capabilities to process 85-gallon overpacks containing internal packages that have integrity issues. WRAP processing includes shipping and receiving; waste container handling; waste staging and storage; nondestructive examination (NDE) and nondestructive assay (NDA); waste treatment; transuranic waste, MLLW and, LLW verification; packaging and repackaging; headspace gas sampling; drum venting; and TRUPACT II loading. WRAP does not have

capabilities to process or ship RH waste. WRAP NDE and NDA processes are automated (see Figure 16) to examine and characterize waste using x-ray (NDE), gamma, and neutron assay (NDA) equipment. Two large-container storage buildings (2404-WB and 2404-WC) are part of WRAP. The 2404-WC building has been modified to provide insulation and climate control to facilitate head-space gas sampling operations. Repackaging waste is performed as required to meet WIPP certification requirements (See Figure 17). Certification is completion of all activities required for approval in the WIPP Waste Information System for acceptance into WIPP for disposal. Some of the waste-handling operations are performed remotely to minimize exposure of personnel to radioactive materials.



**Figure 16:** WRAP.

WRAP also performs NDE of transuranic waste in standard waste boxes. Boxes not exceeding 2.74 m long by 1.6 m wide by 1.7 m high can be received for NDE and boxes not exceeding 2.43 m long by 1.5 m wide by 1.5 m high can be received for NDA screening.



**Figure 17:** WRAP Transuranic Waste Processing Line.

WRAP processing capabilities include amalgamation of mercury (not currently in use), neutralization for pH adjustment, solidification of free liquids, limited macro-encapsulation, and loading CH transuranic waste (see Figure 18) into the Transuranic Package Transporter Model 2 (TRUPACT II) for shipment to WIPP (see Figure 19). Expanded waste certification may be needed to meet M-91-42 and M-91-44 needs.



**Figure 18:** Loading the TRUPACT II with Transuranic Waste Drums in WRAP.



**Figure 19:** TRUPACT II Arriving at WIPP.

### **T Plant**

The T Plant Complex consists of the 221-T Canyon (see Figure 20), the 2706-T Facility, and several support structures. The canyon has internal dimensions of 37 ft wide by nearly 800 ft long. There is 26 ft of clearance between the canyon deck and the crane rails. T Plant processing cells are 17 ft long, 13 ft wide, and 21 ft deep. The T Plant Canyon crane can lift 90,000 lb. Container size in the canyon is limited to less than 22 ft long, 13 ft high, and 18 ft wide. Current activities in the canyon facility include storage, verification, treatment (e.g., pH neutralization, liquid absorption, macro-encapsulation), venting, sampling, and repackaging CH waste. T Plant capabilities provide capacity using Perma-Cons for MLLW and transuranic waste sorting, processing, and volume reduction. Perma-Cons are modular containment systems that are attached to make a rigid enclosure. T Plant does not have the capabilities to process RH wastes.



**Figure 20:** Inside the T Plant Canyon.

Currently T Plant has the capability to repack 85-gallon CH transuranic waste. Approximately 10 percent of the 55-gallon drums overpacked into 85-gallon drums will not be able to be processed through the T Plant PermaCons due to processing limitations, including plutonium quantities, weight, sharp items, etc. Modification of WRAP/T Plant will be evaluated for processing these containers.

The 2706-T Facility was upgraded in 1999 to provide secondary containment and leak detection for wet decontamination operations. Container size in the 2706-T Facility is limited to less than 40 ft long, 14 ft high, and 12 ft wide. The facility is limited to handling CH waste. Current activities at the facility include storage, verification, treatment, venting, sampling, and repackaging CH waste. Upgrading the 2706-T HVAC system has been evaluated to support future processing activities.

### **Future SWPC**

The future SWPC will support RH as well as large-container CH MLLW and small-/large-container CH transuranic waste processing that cannot be provided by in-trench treatment, commercial facilities, WRAP and T Plant/2706-T, or other facilities. In the Base Case, the SWPC initiates operation by December 31, 2023.

### ***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]). Trench 94 is for de-fueled naval reactor compartments. Mixed waste could also be disposed of at an offsite commercial facility. Trench 94 data are not included in this report. Future waste disposal is planned at the IDF as well as the mixed waste trenches and ERDF.

### **Mixed Low-Level Waste Disposal Trenches**

The first MWDT (LLBG 218-W-5, Trench 34) was built in 1993, and the second MWDT (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 (ETF). Waste storage in Trench 31 began in 2003, and disposal was initiated in September 2004. The MWDTs are RCRA-compliant and meet Subtitle-C disposal requirements (see Figures 21 and 22). They have a double-liner system with leachate collection.



**Figure 21:** MWDT.

A substantial portion of the Hanford Site's RCRA MLLW will be disposed in the MWDTs.

Waste for disposal in these units must HNF-EP-0063. As of April 2008, 6,500 m<sup>3</sup> of the MWDTs' combined capacity of 22,300 m<sup>3</sup> has been used (or approximately 29 percent of the combined capacity).



**Figure 22:** Container Disposal in the MWDT.

### **Environmental Restoration Disposal Facility**

ERDF (see Figure 23) 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 (e.g. macro-encapsulation), and dispose of LLW or mixed waste generated through remediation of the Hanford Site. The landfill opened in 1996 and currently has six cells. The original two cells are filled. Cells 5 and 6 are now in use. Additional cells can be added as needed. Construction of cells 7 and 8 is anticipated to be completed in mid-2009.



**Figure 23:** ERDF.

In 2007, an amendment to the ERDF ROD was approved, authorizing treatment and/or disposal at ERDF of specific Hanford-only waste that is not covered in other existing Hanford agreements. Examples of Hanford-only waste include waste from surveillance and maintenance at Hanford facilities, environmental research and development activities, sample analyses, liquid effluent waste treatment, and environmental monitoring programs.

### **Integrated Disposal Facility**

IDF (see Figure 24) will consist of a single landfill with two separate, expandable cells. One cell will be permitted as a RCRA Subtitle-C-compliant landfill system; the other cell will not be 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. 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. IDF operations are required to begin prior to reaching the capacity of the current MWDTs. Projections show that the MWDTs will be filled in the Year 2020. This fill date assumes no new offsite waste and

includes change in volume for stabilization and treatment.



**Figure 24:** Conceptual Drawing of the Integrated Disposal Facility.

### 3.2 Planned Approach for MLLW and Transuranic Waste Management

#### *Retrieval of CH RSW*

Retrieval of CH RSW includes uncovering CH wastes within DOE's RSW trenches, removing it from the trenches, and transferring it to a permitted and compliant treatment, storage, or disposal facility; to ERDF; or, for waste designated in accordance with WAC 173-303-070 through -100 as non-mixed to a storage or disposal unit that DOE determines is appropriate.

CH RSW is being retrieved and designated. RSW does not include waste in containers that have deteriorated to the point that they cannot be retrieved and stabilized (e.g., placed in overpacks) in a manner that would allow them to be transported and designated without posing significant risks to workers, the public, or the environment. These containers and any released RSW will require a decision on how to move forward, which is determined through the cleanup process set forth in RCRA,

Chapter 70.105 RCW, and/or CERCLA as appropriate.

DOE plans to meet with Ecology to jointly develop a plan for addressing non-RSW before that situation arises.

In the Base Case, 1,100 m<sup>3</sup> of RSW is retrieved during FY 2009. All CH RSW in the four burial grounds will be retrieved by December 31, 2013. Appendix H includes a flow chart of the waste retrieval process, assumptions, and an overview of the CH RSW retrieval process. The process flow chart identifies major activities and decision points.

In April 2006, concurrent retrieval was approved for all trenches at the four LLBGs (Change Control Form M-91-06-02).



**Figure 25:** First RSW Drums Retrieved From Trench T4 in January 2004.

The retrieval process begins when soil is carefully removed using excavation equipment (see Figures 25 through 27). Monitoring is performed during excavation to identify potential radiological and chemical hazards. Once the waste containers are exposed, they are inspected, verified against waste storage records, and removed from the storage modules for further processing (see Figure 28). Weather enclosures are being utilized to improve retrieval efficiencies (see Figures 29 and 30). Nearly

100 percent of the remaining CH drums are anticipated to require overpacking.



**Figure 26:** Excavation of RSW Drums.



**Figure 27:** Excavation of RSW Containers.



**Figure 28:** RSW Removal and Inspection.



**Figure 29:** 218-E-12B Weather Enclosure.



**Figure 30:** RSW Shade Structure.

Once the containers are removed from the trench, measurements are performed to determine whether the waste is transuranic or LLW. Containers with low concentrations of transuranic radionuclides are non-destructively

assayed to establish the waste as either transuranic waste or LLW. If gram levels are greater than 175 nCi/g of transuranic constituents, the container is assumed to be transuranic waste and measurements are not performed at the process area. Waste containers with less than 10 nCi/g of transuranics constituents are assumed to be LLW. Any transuranic waste drum that is found not to be vented is vented, and a filter is installed to prevent pressurization of the transuranic waste drum. Both transuranic waste and MLLW containers are then moved to CWC for storage, or to processing at WRAP, T Plant, or an offsite facility.

Within 90 days from retrieval, both LLW and the transuranic waste generated are designated using the same process. In general, the designations of the retrievably stored debris waste are based on acceptable knowledge data packages that have been developed for use in certifying transuranic waste in accordance with the WIPP WAC. For non-debris waste including soils and containerized liquids, additional characterization may be performed in order to manage the waste in the most cost-effective and compliant manner. Lack of acceptable knowledge for waste designation delays less than 20 percent of containers removed from trenches for transfer to storage. Containers that cannot be moved may be left in place temporarily with the approval of Ecology. To date, no containers have been identified that could not be moved.

Fifty-five-gallon drums of transuranic waste being retrieved are in worse condition than previously assumed in FY 2003 and found in the field in 2004. Thus, fewer waste drums are "directly certifiable." These deteriorated drums require placement in 85-gallon overpacks for retrieval, transportation, and storage. However, WIPP does not accept 85-gallon drum overpacks because it would result in inefficient use of repository space.

The 85-gallon drums are being stored for reprocessing, which requires more resources than originally assumed in FY 2003 and found in 2004.

DOE has obtained concurrence from Ecology to use the 218-W-4C burial ground processing area to stage, sample, assay, designate, and handle the containers retrieved from the 218-W-3A, 218-E-12B, and 218-W-4B burial grounds. At a future date, the process area may be moved to a centralized location (e.g., 218-W-5). The 90-day designation clock for waste coming from these burial grounds to the processing area would not start until waste was transferred from the processing area to a permitted and compliant TSD. This will allow more efficient use of resources.

#### **Retrieval of RH RSW**

Retrieval of RH RSW is uncovering RH wastes within DOE's RSW trenches and caissons; removing such RH wastes from the trenches and caissons; and transferring it to permitted and compliant treatment, storage, or disposal units, ERDF, or, for waste designated in accordance with WAC 173-303-070 through -303-100 as non-mixed, to a storage or disposal unit that DOE determines is appropriate.

In the Base Case, retrieval of RH RSW will begin by December 1, 2014. Retrieval of non-caisson RH RSW will be completed by December 31, 2017. Retrieval of caisson (see Figures 31 and 32) RSW in 218-W-4B burial ground will be completed by December 31, 2023. Engineering studies used for obtaining capabilities to retrieve RSW RH caisson waste are planned for completion by December 31, 2010. The caisson engineering study will provide a schedule of activities to obtain capabilities. Experience obtained from 618-10/11 retrieval activities will be utilized as applicable.



**Figure 31:** Partially Buried Caisson Loading Chute During Construction.



**Figure 32:** RSW in a Caisson.

### ***MLLW Treatment***

For processing waste, Hanford will use a combination of capabilities for in-trench treatment, commercial capabilities, and the SWPC. A process flow diagram for MLLW and transuranic waste is provided in Appendix I (Appendix J provides a summary of the volume changes between PMP Revision 4 and Revision 3). The current strategy is to use in-trench treatment when possible to minimize significant worker risks and physical

infrastructure limitations associated with opening and processing some of the waste contained in Treatability Group MLLW-07. The majority of the mixed waste containers in LDR Treatability Groups MLLW-02 through -07, MLLW-09, and MLLW-10 will be treated using commercial capabilities. Waste that cannot be treated using any of the above capabilities will be processed through the future SWPC.

In January 2008 a report was issued identifying MLLW in storage at CWC, WRAP, and T Plant with no current treatment available (NCTA) as of December 31, 2007. The NCTA waste packages were identified from data queries of the SWITS and sorted by the LDR Treatability Groups and physical state. The waste included RH MLLW packages, RH MLLW packages that were shielded to CH levels, TSCA PCB liquids and solids, large MLLW packages, F027-listed waste (dioxin), Special Nuclear Material (SNM) waste in which Safeguards and Security cannot confirm termination, and waste requiring specialized treatments.

The NCTA waste was based on specific factors affecting waste treatment as of January 2008. The first factor was the lack of permitted treatment facilities to accept and process the majority of the stored TSCA PCB wastes. The second factor was the limited commercial capability/capacity to accept and treat RH MLLW and large MLLW packages, which would count toward milestone M-91-43. The third factor was MLLW that will require alternatives to the existing treatment standards that can only be authorized by State and/or Federal regulating agencies. The report lists the number of NCTA waste packages and associated volume by LDR Treatability Group. Volumes are as follows:

LDR Treatability Group	Waste Volume (m <sup>3</sup> )
MLLW-03 (TSCA)	86
MLLW-04 (TSCA)	119
MLLW-07 (non-TSCA)	516
MLLW-07 (TSCA)	13
MLLW-08 (non-TSCA)	2
Total	736

The NCTA waste disposition is dependent on external factors such as commercial treatment facility permitting and other regulatory agency actions. The number of NCTA waste packages will be dynamic in that disposition paths may be found for some of the waste packages currently on the list, and some of the waste packages with a current path forward will need to be added to the NCTA list due to discovery of additional waste attributes, such as radiation levels exceeding facilities or license limits.

DOE plans to complete milestone M-91-42 MLLW requirements by using available commercial capabilities and capacities. In the Base Case, DOE plans to complete treatment of M-91-42 MLLW (with an available treatment path) that was in storage as of December 31, 2002, and from retrieval and newly generated M-91-42 MLLW as of June 30, 2009, by December 31, 2015. After this date, M-91-42 MLLW will be treated within one year of generation. DOE is working to establish a disposition path for all currently stored MLLW.

**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 (UHC) 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 can also include mixing with polymer materials (see Figure 33). 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 33:** 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 the MLLW-02 Treatability Group. Inorganic non-debris waste that cannot be accepted at a commercial treatment unit due to excessively high radiological inventory (curie content and/or dose rate) are included in the MLLW-07 Treatability Group and will be treated at the future SWPC. The SWPC will separate non-conforming CH items from the RH waste and ship the items to commercial facilities for treatment. Onsite treatment of selected MLLW-02 wastes may also be performed.

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

The treatment path for organic non-debris MLLW is commercial thermal treatment (see Figure 34) and is represented in LDR Treatability Group MLLW-03. This mixed 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.



**Figure 34:** Thermal Treatment Facility in Richland, Washington.

Destruction of the organic constituents can be achieved by various treatment methods, including incineration, vitrification, steam reforming, thermal desorption, pyrolysis, chemical oxidation, and ultra-violet (UV) oxidation. Several pretreatment processes may be employed prior to thermal treatment, such as drying, shredding, screening, and chemical treatments.

Hanford began treating MLLW offsite by thermal treatment methods in 1998 with the treatment of Tri-Butyl Phosphate waste in Tennessee.

During 2000, O/C MLLW debris was incinerated at WERF at the INL site; however,

WERF has been closed and is not expected to operate again.

In 2001, Treatability Group MLLW-03 waste was treated at a commercial facility located in Richland, Washington. Treatment was performed by using a gasification-vitrification (GASVIT) unit. Due to operational problems of the GASVIT unit and financial problems within the commercial company, the unit was shut down in mid-year 2001. The GASVIT unit has not been restarted, and it is not known at this time if it will ever be restarted.

During 2003, commercial treatment of LDR Treatability Group MLLW-03 commenced at a commercial firm headquartered in Oak Ridge, Tennessee. Treatment was performed by using a combination of thermal desorption process and a combustion process. Waste has been treated each year since and is expected to continue.

Beginning in 2005, commercial treatment of LDR Treatability Group MLLW-03 commenced in Richland by means of treatability studies. Thermal desorption and plasma destruction technologies were used to treat the waste. Treatment of MLLW-03 waste continued through October 2006. Future thermal treatment relies on commercial success at obtaining operational permits for the thermal desorption and plasma systems.

The first 600 m<sup>3</sup> of production was counted against TPA milestones M-91-12 and M-91-12A, both complete. Waste volumes beyond 600 m<sup>3</sup> are tracked and counted against TPA milestone M-91-42.

The current barrier to treatment is the lack of a Treatment Storage Disposal Facility (TSDF) that is permitted for the receipt and treatment of TSCA PCB waste requiring thermal destruction. The following provides potential treatment paths:

- A commercial facility located in Tennessee is in the process of obtaining a TSCA PCB

destruction permit. The firm completed their trial burns during the summer of 2007, and submitted the resulting trial burn data report and accompanying permit application to the EPA in November 2007. The firm had anticipated receiving their TSCA PCB permit by the end of March 2008, followed by treatment commencement shortly afterwards. The firm now expects the permit sometime in the summer of 2008. FH currently has a treatment contract with this firm for treatment of MLLW-03 waste, including waste regulated with TSCA PCBs. The subject contract ends on September 30, 2008. This contract will need to be extended or a new contract will need to be procured.

- The TSCA Incinerator (TSCAI) located at DOE's Oak Ridge Site in Tennessee continues to be considered as a treatment option for some of Hanford's TSCA PCB regulated MLLW-03 waste. During FY 2008, the TSCAI is only allowed to accept limited amounts of waste from DOE sites outside the State of Tennessee. As of January 2008, it is uncertain if the TSCAI will be funded by DOE during FY 2009 to a level that will allow waste from outside the State of Tennessee.
- A commercial firm in Utah has the regulatory capability to accept and treat TSCA PCB regulated MLLW utilizing vacuum thermal desorber (VTD) technology. Waste acceptance is limited to Nuclear Regulatory Commission (NRC) Class-A waste, and the condensate that is generated from the VTD process has to be sent to either another treatment facility that can accept TSCA PCB MLLW liquids (e.g., TSCAI, the above Tennessee firm), or to a hazardous waste (i.e., non-radiologically controlled) incinerator permitted to destroy TSCA PCB liquids. The latter disposition path has considerable potential from a favorable schedule and cost perspective; however, it would require that the DOE concur with the management of VTD condensate originating from the treatment of

MLLW to be radiologically free-released and managed in a hazardous waste facility. Additionally, a *DOE Order 435.1* commercial treatment and disposal facility exemption would need to be authorized by the DOE to allow for disposal of the treated waste residues at the Utah facility.

#### **Commercial Macro-encapsulation – Treatment Path for LDR Treatability Groups MLLW-04, MLLW-05, and MLLW-09**

The primary treatment path for mixed waste debris and radioactive lead solids is commercial macro-encapsulation. These wastes are represented in LDR Treatability Groups MLLW-04 (Hazardous Debris), MLLW-05 (Elemental Lead) and MLLW-09 (Lead Acid and Cadmium Batteries). The waste consists of solids and may contain one or more organic and/or inorganic regulated characteristic and listed waste codes. UHC determination is not required since this waste is being treated by the macro-encapsulation specified treatment technology as defined in 40 CFR Part 268.42 (for MLLW-05) and 40 CFR Part 268.45 (for MLLW-04 and MLLW-09). Macro-encapsulation is sufficient for any contaminants of concern (COC) for debris because there are no contaminant restrictions. 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 O/C waste that is restricted from land disposal by the State-Only O/C LDR, unless the waste is incinerated. Since there is not sufficient incineration capability/capacity within 1,000 miles of Washington State's borders for this type of waste, 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).

Macro-encapsulation 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 macro-encapsulate this waste. Prior to macro-encapsulation, the waste is normally sent through one or more size-reduction steps (e.g., sorting, cutting/shearing, compaction, super-compaction).

Hanford began treating mixed waste debris onsite in 1996 (see Figure 35) and initiated offsite commercial treatment in 1999. Beginning in 2003, commercial macro-encapsulation of radioactive lead solids and drained radioactively contaminated lead acid batteries commenced. Hanford has macro-encapsulated 5,960 m<sup>3</sup> of mixed waste through March 2008.

There are several commercial treatment facilities in the United States that can accept the majority of Hanford's waste in these treatability groups. Debris and radioactive lead solids that cannot be accepted at a commercial treatment unit due to having too high a radiological inventory (curie content and/or dose rate) are included in the MLLW-07 LDR Treatability Group and are planned for treatment onsite.



**Figure 35:** Onsite Macro-encapsulation of Mixed Waste.

Other debris treatment technologies may be used to process some of the Hanford Site's mixed

waste debris (e.g., sealing, micro-encapsulation, extraction methods).

Some MLLW-04 consists of hazardous debris comprised mainly of building rubble, piping, tanks, pumps, paper, plastic, wood, rubber, etc., that is contaminated with TSCA PCBs at a concentration exceeding 50 ppm. The current barrier to treatment is the lack of a TSDF that is permitted to accept and treat TSCA PCB MLLW. The following are potential treatment paths:

- A commercial firm in Washington is in the process of obtaining a TSCA PCB treatment permit for hazardous MLLW debris contaminated with TSCA PCB remediation waste. The firm submitted a Class-1 permit modification to Ecology and EPA during the fall of 2007, which would allow them to receive and macro-encapsulate MLLW debris with TSCA PCBs exceeding 50 ppm. During January 2008, the firm indicated that they anticipate receiving preliminary authorization to begin treating TSCA PCB MLLW debris by April 2008. However, as of May 2008 they had not received their authorization from EPA to begin processing. Hanford currently has a treatment contract with this firm for treatment of MLLW-04A/B waste, including waste regulated with TSCA PCBs. This contract ends September 30, 2008 and will need to be extended or a new contract procured.
- A commercial firm in Utah has the regulatory capability to accept, treat, and dispose of MLLW debris with TSCA PCBs exceeding 50 ppm. Waste acceptance is limited to NRC Class-A waste, and the treated waste is required to be disposed at the Utah facility. Through the DOE-CH complex-wide treatment contract, FH has contractual access to this firm for treatment and disposal of MLLW-04, provided the waste is packaged in boxes. An expansion of the current DOE Order 435.1 commercial treatment and disposal facility exemption would need to be authorized by the DOE to

allow for receipt and treatment of NRC Class-A MLLW debris in drums.

**Mercury Stabilization and Amalgamation**  
**– Treatment Path for LDR Treatability**  
**Group MLLW-06**

Radioactively contaminated mercury waste requires either stabilization or amalgamation. 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. Offsite treatment will certify that the waste meets LDR.

There are a limited number of commercial treatment units in the United States capable of accepting and treating this waste. Most of Hanford high-concentration mercury wastes have been shipped for commercial treatment.

WRAP has processing capabilities not currently in use for amalgamation of mercury. Disposition of the remaining mercury-bearing waste that cannot be accepted at one of the commercial treatment units because it has too high a radiological inventory (curie content and/or dose rate) will be treated at the SWPC as Treatability Group MLLW-07 waste. The SWPC will separate nonconforming CH items from the RH waste and ship the items to commercial facilities for treatment.

**Treatment Path for LDR Treatability**  
**Group MLLW-07**

Commercial facilities will be used to treat most CH MLLW in large containers and some RH MLLW. The SWPC will be used to process the remaining large container CH and RH MLLW.

Nonconforming CH MLLW items found during SWPC unpackaging will be shipped to commercial facilities for treatment.

Due to significant worker risks and physical infrastructure limitations associated with opening and processing some of the waste contained in Treatability Group MLLW-07, treatment of a portion of MLLW-07 waste is best performed at the place it is to be disposed (e.g., LLBG 218-W-5 T31/T34, ERDF). Waste that falls into this category include very large packages that, when treated, pose a transportation concern, and/or waste packages that have a significant radiological inventory that pose a worker protection concern. The waste will be limited to hazardous debris; chemical stabilization and macro-encapsulation under 40 CFR Part 268.45 will be utilized to render the waste LDR compliant. 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 for containerized mixed waste only. A modified Part A permit was recently approved by Ecology to allow immobilization of this MLLW in the MWDTs. A Waste Analysis Plan (WAP) was completed in March 2008.

FH has implemented limited commercial capability firms in Washington and Utah to disposition some of this LDR treatability group.

- As of January 2008, 194 m<sup>3</sup> has been completed and applied toward TPA Milestone M-91-43. Another 110 m<sup>3</sup> is scheduled to be completed by the end of FY 2008, which would meet the first 300 m<sup>3</sup> increment in the M-91-43 milestone series.
- A few recently generated MLLW containers have adequate waste content records such that they may be candidates for in-trench treatment (e.g., MLLW debris containers). This PMP assumes in-trench treatment will be suitable for a portion (~ 100 m<sup>3</sup>) of the MLLW.
- The FH Transportation Safety Operations

organization is currently performing radioactive shipment calculations to identify the shipping requirements for all waste packages assigned to LDR MLLW-07 as of January 2008. This review will determine which waste packages would be eligible for shipment under DOT regulations to offsite TSDFs for treatment.

There are seven MLLW-07 packages that are regulated for TSCA PCBs. The waste packages are scheduled to be dispositioned at commercial firms or the SWPC. The two main issues affecting disposition of this waste at commercial TSDFs are: 1) the relatively high radiological inventories and associated dose rates with these waste packages limit processing at commercial treatment facilities due to lack of remote handling equipment, and 2) limited permitted commercial facilities (i.e., as of January 2008, the Utah firm is the only permitted facility to accept TSCA PCB MLLW, provided the waste meets NRC Class A requirements).

#### **Disposition Path for LDR Treatability Group MLLW-08**

LDR Treatability Group MLLW-08 (Unique Waste) is waste requiring treatment by unique specified treatment technologies (e.g., recovery of metals, recovery by thermal), waste that cannot clear SNM controls, or mixed waste with dioxins/furans-listed waste codes in which there is no known current treatment capability in the United States.

As of January 2008, there are nine waste packages listed in this treatability group. The following lists the proposed disposition path:

- There are six waste packages that cannot be terminated under the FH Safeguards and Security SNM termination process. A change to this process has been initiated with submittal of the new termination process to RL on January 31, 2008.
- One waste package is regulated for

F027-listed waste (dioxin). FH has not been able to identify a treatment facility capable of accepting and treating this waste. A treatment variance in accordance with 40 CFR 268.44 may need to be pursued by FH/RL or by a commercial waste treatment firm to allow acceptance and treatment of the waste. An information meeting with DOE and Ecology is planned for the summer of 2008.

- One waste package is regulated for P015-listed waste (beryllium dust). FH has not been able to identify a treatment facility capable of accepting and treating this waste. FH continues to investigate possible commercial disposition paths (e.g., a Utah firm); however, an alternative treatment method per 40 CFR 268.42 or treatment variance per 40 CFR 268.44 may need to be pursued by Hanford or by a commercial waste treatment firm to allow acceptance and treatment of the waste. An information meeting with DOE and Ecology is planned for the summer of 2008.
- One waste package contains significant quantities of tritium, which exceeds commercial treatment acceptance limits. FH is investigating possible onsite disposition options (e.g., stabilization of the waste at T Plant).

#### **Deactivation – Treatment Path for LDR Treatability Group MLLW-10**

Reactive metals containing radioactive contamination require deactivation as the specified treatment technology under RCRA. Excluding the sodium metal product currently residing at the Fast Flux Test Facility (FFTF) and 200 West Area, the Hanford Site inventory of reactive metal waste is relatively small (represented in LDR Treatability Group MLLW-10). The majority of the reactive metal waste is sodium that is packaged in drums and stored at the CWC. Some of this waste contains debris material (e.g., piping, pumps, valves) that are contaminated with reactive metals.

A limited number of commercial treatment units in the United States are capable of accepting and treating this waste. Hanford completed shipment of the backlog MLLW-10 waste in 2008.

### **MLLW Process Flow Diagrams**

Appendix K provides the estimated volumes generated from waste processing. Appendix L provides process flow diagrams for the MLLW treatability groups.

The waste processing flow diagrams contained in Appendix L depict the TSD paths of specific MLLW streams. Major TSD steps are identified and volume adjustments are indicated for processing steps when appropriate. The diagrams are intended to give a broad view of the TSD process while recognizing that individual containers within a waste stream may have unique characteristics or circumstances requiring a different TSD path. The flow diagrams were developed for waste streams with existing TSD paths, and for those still to be developed.

In developing the waste processing flow diagrams, wastes that had the same TSD paths were grouped into waste streams. The MLLW streams identified include the following:

- CH MLLW in small containers
- LDR Treatment Group MLLW-01, Direct Disposal
- CH MLLW in large containers (MLLW-07)
- RH MLLW (MLLW-07).

The first step common to all the waste streams is an internal volume conversion. The volumes used within this document are a combination of inventory waste data from SWITS, which are recorded using the internal container dimensions, and forecasted waste data, which use external container dimensions. The waste volumes are converted into internal volumes.

The conversion factor is an averaged value, as the actual factor is container-dependant (e.g., a 55-gallon drum has a 23.5 percent increase, while a large box may have a 10 percent increase).

Steps involving volume increases or decreases are identified with a multiplier in the process step (e.g., 1.25x means the waste volume is increased by 25 percent). Volume increases can result from activities such as repacking, resulting in a discarded container or packing inefficiencies when placing waste in smaller containers.

It is assumed that during processing, especially involving waste streams that are sorted or unpacked, some of the waste may be reclassified. Steps resulting in either change in handling or change to waste type are identified in the flow diagram. A summary is included in Appendix K showing the waste volumes by waste stream and the estimated ending volume by waste type.

### **Base Case MLLW Assumptions**

- Commercial treatment capability and capacity is available for LDR Treatability Groups MLLW-02, MLLW-03, MLLW-04, MLLW-05, MLLW-06, MLLW-09, and MLLW-10. A treatment path will be established for disposition for all currently stored TSCA PCBs MLLW.
- Treatment/disposition path forward for MLLW-08 will require regulatory approval (i.e., treatment variances, alternative treatment methods).
- Commercial facilities can treat the majority of M-91-43 MLLW.
- Any M-91-43 production prior to June 2008 can be counted toward the first 300 m3 requirement due June 30, 2009.
- Transportation of M-91-43 containers to commercial facilities is viable.
- The SWPC will be constructed to treat containers that cannot be treated in-trench or

commercially. Selected nonconforming CH MLLW items found during SWPC unpackaging will be shipped to commercial facilities for treatment.

- O/C LDR certification exemption will be maintained through the life-cycle of waste treatment.
- For RSW awaiting retrieval, the distribution will be within MLLW-03, MLLW-04, and MLLW-07 (see Tree Chart in Appendix D).
- Permits and WAPs for the SWPC will be required for RH and large-container processing capabilities. After CD-1 is approved on the SWPC Project, a RCRA permit modification date will be established as part of the SWPC Project schedule. Other permits, such as CWC and WRAP, will be modified as needed with status provided in the Project Manager meetings.

#### **As-Soon-As-Feasible Compliance Case MLLW Assumptions**

- All Base Case assumptions
- MLLW processing rate assumptions are provided in Section 3.4, Treatment and Storage Capability/Capacity and Processing Schedules.

#### ***Transuranic Waste Processing***

The primary facilities in which transuranic waste processing operations take place are CWC, WRAP, and T Plant. Appendix M provides a flowchart of the Hanford CH transuranic waste process and assumptions used for WIPP certification activities. CWC facilities include several warehouse buildings for the storage of waste containers. WRAP capabilities include drum and box NDE; drum and box NDA; gloveboxes for visual examination, repackaging and compaction of drums, TRUPACT II loading, and waste storage. The 2404-WC Building provides climate control to facilitate head-space gas-sampling operations. Head-space gas analysis is performed at the Waste Sampling and Characterization Facility

(WSCF). T Plant capabilities include repackaging drums in Perma-Con structures in the T Plant canyon.

The degraded condition of virtually all the waste containers retrieved and the high percentage of containers that are discovered containing prohibited items or multiple layers of confinement have resulted in a significant increase in waste that requires processing. This labor-intensive process increases the cost of processing per cubic meter. Also, due to WIPP's non-acceptance of 85-gallon drums for disposal, it is planned that all 85-gallon drums produced from retrieval will require repackaging in T Plant prior to being certified. In addition, WRAP/T Plant may be modified to support processing of these containers. DOE also plans to evaluate alternatives to establish offsite processing capability for selected M-91-42 CH transuranic waste.

Quicksan NDE is used to identify containers with prohibited items or other non-compliant conditions. It is assumed that 35 percent of the RSW stored drums (and 1 percent of newly generated waste) fall into this category; the percentage varies by waste stream. The rejected drums are repackaged at WRAP or T Plant. In FY 2008, 600 m<sup>3</sup> of certified transuranic waste are expected from WRAP repack, T Plant repack, and newly generated (not requiring repack).

In the Base Case, WRAP and T Plant are maintained in a ready-to-serve mode through FY 2014. After restoring the T Plant facility to an operational status and restaffing, the M-91-42 CH transuranic waste processing will be resumed.

In the As-Soon-As-Feasible certification rates for M-91-42 transuranic waste would be ramped up during 2009 to a rate of 1,000 m<sup>3</sup> per year in 2010. Assumptions for achieving these rates are included in Appendix R. DOE plans to evaluate alternatives to establish offsite processing capability for selected M-91-42 CH transuranic

waste. In the Base Case, after Year 2021, M-91-42 TRUM waste will be certified within one year of generation.

M-91-44 transuranic waste that cannot be commercially treated will be processed through SWPC. The SWPC would be operational by December 31, 2023 for the Base Case, and by December 31, 2018 for the As-Soon-As-Feasible Compliance Case.

In the Base Case, M-91-44 transuranic waste processing is completed in Year 2044. In the As-Soon-As-Feasible Compliance Case, M-91-44 transuranic waste processing is completed in FY 2039. This PMP assumes that transuranic waste can be sent to an offsite facility through Year 2050 for disposal.

### **WIPP Prohibited Items**

Items prohibited from WIPP disposal include the following:

- Liquid Waste: Waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping or aspirating, and internal containers shall contain less than one inch or 2.5 cm of liquid in the bottom of the container. Total residual liquid in any payload container (e.g., 55-gallon drum or SWB) shall not exceed 1 percent volume of that container. Residual liquids containing PCBs are prohibited at WIPP (Effort are underway to obtain a risk-based disposal approval from EPA to allow absorption of these liquids).
- Corrosives
- Reactives
- Ignitables
- Pyrophorics
- Explosives
- Compressed gases (pressurized containers)
- Sealed containers greater than four liters (nominal), except for Waste Materials Type II.2 packaged in metal containers

- PCBs not authorized under an EPA's PCB waste disposal authorization
- Non-transuranic hazardous waste
- Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes
- Sharp or heavy objects in the waste that are not blocked, braced, or suitably packaged as necessary to provide puncture protection for the payload container packaging those objects
- Waste that has never been managed as high-level waste and waste from tanks specified in *HNF-2599*, Table B-8, unless specifically approved through a Class 3 permit modification.

Any containers found during the characterization process to contain any of the above prohibited items will be segregated and the condition will be corrected. Because no prohibited articles are allowed for shipment to WIPP, any container with these items will be repackaged or the prohibited item will be treated or removed prior to certification. Only certified containers will be shipped to WIPP for disposal.

### **WIPP-Approved Waste Streams**

In order for transuranic waste to be disposed at WIPP, information is required on specific waste streams by WIPP. The extent of these efforts is significant, especially with the large number of small-volume waste streams. Approximately 60 percent of the M-91-42 CH TRU/TRUM waste currently in permitted storage is included in a WIPP-approved waste stream. In the As-Soon-As-Feasible Compliance Case plans are to obtain WIPP waste stream approval for an additional 33 percent of the currently stored waste by 2011. Approval of the remaining waste streams is required to support waste certification. Gaining waste stream approval for the remaining 40 percent of the stored waste will require a minimum of 12 solid sampling and analysis events, currently conducted at INL.

WIPP-approved waste streams include the following:

- CFFD (Kerr McGee Debris)
- HASH (Hanford Incinerator Ash)
- MPFPD (Mixed PFP Debris)
- MPUREXD (Mixed Plutonium Uranium Extraction [PUREX] Debris)
- NPFPD (Non-mixed PFP Debris)
- NPUREXD (Non-mixed PUREX Debris)
- RFASH (Rocky Flats Ash)
- RLCBWD (Consolidated Babcock and Wilcox Debris)
- RLM233SD (Mixed 233S Debris)
- RLM308D (Mixed 308 Debris)
- RLM325D (Mixed 325 Debris)
- RLMVIPAC (Vibratory Packed Fuel Debris)
- RLMWARD (Westinghouse Advanced Reactor Division [WARD] Debris)
- RLSWOD (Solid Waste Operations Complex Debris)
- SSC (Sand, Slag, and Crucible)
- RLM231ZD (Mixed 231-Z Debris)
- RLM300D (Mixed 300 Area Debris)
- RLM209ED (Mixed 209E Debris).

The waste streams slated for near-term approval include the following:

- RLMGEVALD (Mixed GE Vallecitos Debris)
- RLMFPD (Mixed PFP Debris with F00X HWNs)
- RLETECD (ETEC/ESG Debris)
- KEBASIN01 (NLOP Sludge from K Basin)
- RL216Z9 (Homogeneous Waste from 216Z-9 Crib)
- RLMUNIT (Absorbed Plutonium Nitrate Solutions from PFP)
- S3000CFDD (Kerr McGee Debris)
- S3000MPFP (Mixed PFP)
- S3000RLM300 (Mixed 300 Area)
- S3000RLM325 (Mixed 325)
- RLMHANFD01 (Unidentifiable drums)
- RLMPUREX-F00X (Mixed PUREX Debris with F00X HWNs)

- RLEXXOD (Mixed waste from EXXON-Framatone-AREVA operations).

### **Transuranic Waste Process Flow Diagrams**

Appendix K provides the estimated volumes generated after completion of waste processing. Appendix N provides process flow diagrams for the transuranic waste treatability groups.

The waste-processing flow diagrams contained in Appendix N depict the TSD paths of specific transuranic waste streams. Major TSD steps are identified and volume adjustments are indicated for processing steps when appropriate. The diagrams are intended to give a broad view of the TSD process while recognizing that individual containers within a waste stream may have unique characteristics or circumstances requiring a different TSD path. The flow diagrams were developed for waste streams with both existing TSD paths and for those still to be developed.

In developing the waste-processing flow diagrams, wastes that had the same TSD paths were grouped into waste streams. The transuranic waste streams identified include the following:

- CH transuranic waste in small containers
- CH transuranic waste in large containers
- RH transuranic waste.

The first step common to all the waste streams is an internal volume conversion. The volumes used within this document are a combination of inventory waste data from SWITS, which are recorded using the internal container dimensions, and forecast waste data, which use external container dimensions. The waste volumes are converted into internal volumes.

Steps involving volume increases or decreases are identified with a multiplier in the process step (i.e., 1.25x means the waste volume is

increased by 25 percent). Volume increases can result from activities such as repacking resulting in a discarded container and/or packing inefficiencies when placing waste in a smaller container.

It is assumed that during processing, especially involving waste streams that are sorted and/or unpacked, some of the waste may be reclassified. Steps resulting in either change in handling or change to waste type are identified in the flow diagram. A summary of the waste volumes by waste stream and the estimated ending volume by waste type is included in Appendix K.

#### **Base Case Transuranic Waste Assumptions**

- Solids sampling and analysis necessary to support the development of new waste stream profiles will continue to be provided by INL. There is no significant increase in the number of waste streams requiring approval.
- Offsite processing capability is established for selected M-91-44 CH transuranic waste that can be shipped as low-specific activity.
- Any RH/large container waste certification prior to June 2012 can be counted towards M-91-44 first 300 m3 increment.
- The SWPC is constructed and operation initiated by December 31, 2023 and operates through December 31, 2044.
- WIPP provides timely approval of waste streams, including waste stream consolidation, to support Hanford transuranic waste certification.
- Permits and WAPs for SWPC will require revision to incorporate the addition of RH and large-container processing capabilities. After CD-1 is approved on the SWPC Project, a RCRA permit modification date will be established as part of the SWPC Project schedule. Other permits, such as CWC and WRAP, will be modified as needed with status provided in the Project Manager meetings.

- More detailed assumptions are provided in Appendices M and N.

#### **As-Soon-As-Feasible Compliance Case Transuranic Waste Assumptions**

- All Base Case assumptions.
- Transuranic waste processing rate assumptions are provided in Section 3.4, Treatment and Storage Capability/Capacity and Processing Schedules.

### **3.3 Work Breakdown Structure**

The following Work Breakdown Structure (WBS) elements are applicable to the MLLW and transuranic waste discussed in this PMP. The elements are included in the *Waste Management Project WBS Hierarchy for Project Baseline Summaries (PBS)* in RL-0013 and RL-0080. 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 below supports the Base Case, but is subject to changes resulting from contract revisions. Appendix O provides a brief description of each current WBS element. Appendix P provides the funding profile required to perform the Base Case and As-Soon-As-Feasible Compliance Case work in this PMP by WBS element.

WBS	Title
4.2.2	CWC
4.2.3	WRAP
4.2.4	T Plant
4.2.8	LLBGs
4.2.9	MWDTs
4.2.10	MLLW Treatment
4.2.11	Transuranic Waste Retrieval
4.2.12	WIPP Certification/Non-SWPC Processing
4.2.13	WSD Project Management
4.2.15	Solid Waste Processing Complex
4.2.16	IDF

### 3.4 Treatment and Storage Capability/Capacity and Processing Schedules

The MLLW and transuranic waste discussed in this document have varying treatment requirements and processing options. In order to demonstrate the path-forward for the MLLW and transuranic waste, the wastes have been categorized into groups having similar treatment or processing options, and annual processing rates for each group have been estimated. The annual processing rates were developed based on TPA milestone commitments, budget considerations, and treatment availability. The charts in Appendices Q, R, and S provide processing rates and available waste volumes in inventory for each waste group. A brief description is provided of how the rates were developed.

#### ***Volume Determination***

The following descriptions clarify how volumes are determined in different cases:

- Volumes for the purposes of determining amounts retrieved shall be based on the volume of the original containers in retrievable storage. For example, the volume of a 55-gallon RSW drum that

would be counted toward "retrieval" would be 55 gallons (0.208 m<sup>3</sup>), even if in the process of retrieval, the drum needed to be overpacked into an 85-gallon drum.

- The volumes of "treated" MLLW are counted as the retrieval volume (for wastes generated from retrieval), or the MLLW pre-treatment container volume (for newly generated and stored waste).
- The volume of transuranic waste counted as "certified" is the volume of the certified container containing the waste unless the waste is compacted. In the event that the waste is compacted, the volume of the pre-compaction container is counted.
- The volume of waste in "storage" is listed as the container size the waste is stored within. For example, a 55-gallon drum overpacked in a 85-gallon drum is counted as 85 gallons in storage.

#### ***MLLW***

#### **LDR Treatability Groups MLLW-02 through MLLW-06, and MLLW-08 and MLLW-10**

Base Case and As-Soon-As-Feasible Compliance Case processing schedules are provided in Appendix Q for M-91-42 CH MLLW (LDR 02-06 and 08-10).

The waste in this processing group includes newly generated CH MLLW, retrieved CH MLLW (excluding large boxes), and CH MLLW in aboveground storage (excluding large containers and LDR Treatment Group MLLW-01). Approximately 5,500 m<sup>3</sup> of waste is estimated to be part of this group with an additional 1,000 m<sup>3</sup> of waste that may be reclassified or generated during the processing of other waste streams.

#### **LDR Treatability Group MLLW-07**

Base Case and As-Soon-As-Feasible Compliance Case processing schedules are

provided in Appendix Q for M-91-43 CH MLLW in large containers and RH MLLW. Commercial facilities will be used to process the majority of M-91-43 containers of CH MLLW. The SWPC will be used to process RH MLLW or large containers of CH MLLW that cannot be processed in-trench or offsite.

This processing group includes waste in LDR Treatment Group MLLW-07, which includes CH MLLW in large boxes (greater than 10 m<sup>3</sup>) and RH MLLW requiring treatment prior to disposal. Approximately 2,200 m<sup>3</sup> of waste is estimated to be part of this group with an additional 1,700 m<sup>3</sup> of waste that may be reclassified or generated during the processing of other waste streams. As of April 2008, 194 m<sup>3</sup> of this large CH MLLW has been processed. The Base Case uses commercial capabilities to treat M-91-43 MLLW from 2008 through 2032. Processing of the remaining waste at the SWPC will begin by Year 2023 and continue through 2044.

### ***Transuranic Waste***

#### **M-91-42 CH Transuranic Waste**

Appendix R includes Base Case and As-Soon-As-Feasible Compliance Case processing schedules for processing CH transuranic waste in drums and SWBs and CH TRUM waste in drums and SWBs.

This processing group includes CH transuranic waste in 55-gallon drums (including overpacked drums), containers smaller than a 55-gallon drum, and SWBs. Approximately 7,400 m<sup>3</sup> of waste is estimated to be part of this waste group.

Base Case annual certification rates for this group are 600 m<sup>3</sup> in 2008, no production from 2009 through 2014, and 525 m<sup>3</sup> per year for 2015 through 2028.

#### **M-91-44 Transuranic Waste**

Appendix R includes Base Case and As-Soon-As-Feasible Compliance Case processing schedules for processing CH TRUM waste in large containers and RH TRUM waste, and CH transuranic waste in large containers and RH transuranic waste.

This processing group includes CH transuranic waste in containers larger than 55-gallon drums (excluding SWB and overpacked 55-gallon drums in 85-gallon drums) and RH transuranic waste. Approximately 8,900 m<sup>3</sup> of waste is estimated to be in this group.

Base Case certification of waste in this group commences commercially in Year 2014 and continues through 2032. Waste that can not be processed commercially will be processed through the SWPC beginning in 2023 (Base Case). The SWPC will process an additional 300 m<sup>3</sup> per year and operate through 2044.

### ***Inventory of Non-Processed Waste***

An inventory of non-processed waste is provided in Appendix S. Most of this waste inventory is in storage at CWC.

Appendix S provides the annual inventory of MLLW and transuranic waste in aboveground storage that has not been processed or certified. Waste in retrievable storage is not included in the inventory until after it has been retrieved. In a given year, the inventory is a function of the waste volume in storage from the previous year, the waste added from forecasted waste and retrieved waste, minus the waste processed in that year. CWC has adequate storage capacity for waste requiring processing. Waste that has been processed, but not disposed (e.g., transuranic waste processed awaiting shipment to WIPP) is not included in the inventory.

## 4.0 PROJECT CONSTRAINTS

### 4.1 M-91-Series Milestones

The TPA contains milestones for treatment of mixed waste, retrieval of RSW, and acquisition of capabilities and/or facilities to treat RH and large-container CH MLLW and large CH transuranic waste. Appendix T includes M-91 milestones with approved Change Package M-91-07-01. Appendix U contains draft M-91 Change Packages M-91-08-01 and M-91-08-02 for the FY 2008 appropriation shortfall. Appendix V contains Change Package M-91-08-03 to eliminate the duplication of administrative documentation. Appendix W contains a draft Change Package for the Base Case Funding. Appendix X contains a draft Change Package for the As-Soon-As-Feasible Compliance Case.

The M-91-series milestones include 1) retrieval of post-1970 RSW, 2) acquisition of capabilities and/or facilities to process/treat MLLW and transuranic waste, and 3) treatment/processing of MLLW and transuranic waste.

Since complete of M-91 negotiations in 2003, DOE has met 46 of the 49 M-91 requirements on or ahead of schedule. Two requirements were completed behind schedule. Accomplishments include retrieval of over 7,400 m<sup>3</sup> of RSW, treatment of over 6,800 m<sup>3</sup> of MLLW, and certification of over 3,000 m<sup>3</sup> of transuranic waste. Only the December 31, 2007 M-91-42J milestone to certify 4,200 m<sup>3</sup> of transuranic waste has not been completed.

### 4.2 Building Blocks of Scope and Cost for FY 2009

Two funding cases, a Base Case and a As-Soon-As-Feasible Compliance Case, are discussed for FY 2009 and beyond. The Base Case funding uses the President's FY 2009 budget and management priorities released in February 2008 that identified \$176M for PBS RL-0013, Solid Waste Stabilization and Disposition. Funding for the M-91-series milestones are included in RL-0013. The Base Case funding assumes constant RL-0013 funding at the FY 2009 level through FY 2013, \$240M in FY 2014, an average of \$300M per year for FY 2015 through FY 2022, an average of \$200M per year after 2022 until all backlog waste is processed, and finally funding as required to process waste as generated through FY 2050.

Building blocks of scope and funding are estimated to assist possible adjustments needed if FY 2009 funding obtained is different than the identified funding profile. Life-cycle funding profiles are provided in Appendix P for the Base Case and the As-Soon-As-Feasible Compliance Case. Higher building blocks increase specific-activity Base Case funding toward the As-Soon-As-Feasible Compliance Case funding level. Lower building blocks reduce Base Case funding to lower levels. Building blocks for FY 2009, both higher and lower than the President's budget, are as follows:

#### Higher:

- M-91-40 – Retrieval of an additional 1,400 m<sup>3</sup> of RSW at \$27.5M, maintaining retrieval at a rate of 2,500 m<sup>3</sup> per year
- M-91-42 – Treatment of an additional 820 m<sup>3</sup> of MLLW at \$18.4M. This includes treatment of 70 m<sup>3</sup> of TSCA debris (\$1.2M), thermal treatment of 80 m<sup>3</sup> of non-debris TSCA waste (\$8.0M), and treatment of 670 m<sup>3</sup> of MLLW 02-06 and 09-10 currently stored (\$9.2M)

- M-91-43 – Treatment of an additional 160 m<sup>3</sup> of MLLW at \$4.6M
- M-91-42 – Certification of an additional 600 m<sup>3</sup> of transuranic waste. This includes 100 m<sup>3</sup> at WRAP, 400 m<sup>3</sup> at T Plant and 200 m<sup>3</sup> of compliant waste. Also included are facility upgrades at \$6.5M, and staffing for certification and processing at \$32.7M. T Plant staffing would be restored to FY 2008 levels to support two shifts for two Perma-Con line operations. Total: \$39.2M
- M-91-43/44 – Restart the SWPC Project at \$5.6M.

Lower:

- M-91-40 – Stop retrieval of RSW at \$27.6M
- M-91-42 – Stop treatment of MLLW at \$2.2M
- M-91-43 – Stop treatment of MLLW at \$0.7M.

### 4.3 External Schedule Requirements

#### *Waste Volumes and Treatment Capacities*

Total forecast volumes through Year 2035 and waste volumes currently in storage at the Hanford Site form the basis for the evaluation of transuranic waste and MLLW processing capabilities discussed in this PMP. This PMP assumes that transuranic waste can be sent to an offsite facility through Year 2050 for disposal. The evaluation determined that the current and planned capabilities for transuranic waste and MLLW processing are limited by the Base Case funding. There is inherent uncertainty associated with waste forecasts due to changes experienced in the waste generator's program baselines. The current forecast includes generator waste estimates through 2035. Future forecasts will be extended through 2050.

#### *Regulatory Requirements*

Regulatory requirements for permitting and NEPA documentation will be coordinated to minimize potential impacts to the TPA requirements. Environmental impacts from performing M-91-00 activities, such as construction or modification of a facility, have been analyzed in the *Hanford Site Solid Waste Program Environmental Impact Statement*, (HSW-EIS). A draft of the new Tank Closure and Waste Management Environmental Impact Statement is being prepared. No impacts to M-91 planning are anticipated from the new EIS. Revisions to air permits will be completed to support startup of operations.

#### *Funding Constraints*

Section 4.2 provides building blocks of scope and funding to identify possibilities for how the baseline might be changed, based on actual funding levels obtained in FY 2009. Actual funding levels will be incorporated into the life-cycle baseline when received.

The Base Case provides funding for M-91 and non-M-91 activities (Appendix P). Base Case M-91 work prioritization is based on the following:

1. Provides minimum safe operations support for CWC, WRAP, LLBGs, MWDTs, T Plant, and Project Management.
2. In FY 2009 CH RSW retrieval continues at a reduced rate of 1,100 m<sup>3</sup> per year to support completion in Year 2013.
3. Transuranic waste certification is maintained
4. No M-91-42 transuranic waste is certified during 2009 through 2014. Rates are increased in 2015 to 525 m<sup>3</sup> per year (including WRAP, T Plant and newly generated waste) until current.
5. The SWPC Project is restarted in Year 2014. The SWPC is operational by the end of 2023 and completes operations in 2044

6. Remaining funding supports M-91-42 and M-91-43 commercial MLLW treatment.
7. Activities to support acquisition of capabilities for RH RSW retrieval from the caissons starts in Year 2013. Retrieval of RH RSW starts in 2014 and is completed in 2023.

### ***Technology Development/Constraints***

#### **Characterization Constraints**

Characterization of some of the waste in storage, RSW, and waste from other cleanup operations is limited by available technology and facilities. Specifically, NDE (x-ray) and RH NDA capability for waste will need to be developed to support characterization efforts. The SWPC design will address this technology constraint.

#### **Treatment Technology/Capacity Constraints**

##### *MLLW*

Section 3.2 discusses treatment technology/capacity constraints for MLLW-03, Organic Non-Debris Wastes and MLLW-08, Unique Wastes.

##### *Transuranic Waste*

Critical to the successful design, construction, startup, and operation of the SWPC is the selection, adaptation, testing, and integration of systems, equipment, and tools for processing the waste. While many of the systems and equipment that will be used to process this waste are commercially available, they are almost all custom manufactured for the payload size, type, and motion required for the SWPC and have not all been used in an integrated fashion similar to the one being proposed. Selection of remote systems, equipment, and tools will require analysis of how a given system must interact with other systems and its mechanical, electrical/utility, vision, communications, and operator

interfaces. A cold mockup will be required for testing the integrated system, selecting and testing individual tools, operator training, and task/operational planning.

Technologies for retrieval and assay of RH RSW need to be developed.

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## **5.0 SCHEDULE AND CRITICAL PATH ANALYSIS**

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### **5.1 Logic-Tied Life-Cycle Schedule**

The M-91 PMP Schedule is presented in Appendix Y. The schedule includes logic ties from Waste Retrieval and Acquisition of New Capabilities into the Waste Processing section of the schedule. The schedule is grouped into the four sections discussed below.

Impacts to M-91 TPA requirements for the Base Case and As-Soon-As-Feasible Compliance Case are included in Appendix Z.

#### ***RSW Retrieval***

Retrieval activities for CH and RH wastes are presented and are covered by TPA Milestones M-91-40 and M-91-41. The Base Case funding delays existing TPA retrieval schedules and commitments. Retrieval operations will generate CH and RH wastes in a variety of packages, which feed into the Waste Processing section of the schedule.

#### ***Waste Processing***

Waste processing activities are presented in the second section of the M-91 PMP schedule. TPA milestones M-91-42, M-91-43, and M-91-44 are included. Wastes to be processed are generated

from retrieval operations, as well as waste already in storage and wastes to be generated. Production rates are included, as well as specific completion dates. The Base Case completion date for waste processing is 2044.

### ***Acquisition of New Processing Capabilities***

This section of the M-91 PMP schedule presents plans to acquire new processing capabilities. This includes commercial processing capabilities for treatment of MLLW and transuranic waste. Commercial capabilities for processing MLLW 02-06 and MLLW Treatability Groups 08-10 are also being expanded under the M-91-42 milestone. This section also includes in-trench treatment of M-91-43 MLLW, establishing offsite capability to process CH transuranic waste in containers that can be shipped as low-specific activity waste and establishing onsite capability to process the remaining CH and RH waste at the SWPC. The SWPC will include capability to load RH transuranic waste for shipment to WIPP.

### ***Reporting***

The fourth section of the M-91 PMP schedule provides a summary of significant reporting requirements for the M-91-series milestones.

## **5.2 Critical Path Analysis**

The M-91 PMP schedule identifies the acquisition of SWPC capabilities as the critical path. SWPC will begin operations by December 31, 2023. The scheduled date for completion of waste processing is 2044.

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## **6.0 KEY DELIVERABLES /PRODUCTS**

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Key deliverables/products that will be developed in support of M-91 work scope include the following:

- Annual reports describing completed and scheduled work relating to M-91 milestones, including status against the commitments in the schedule (M-91-45). Appendix V includes Change Package M-91-08-03, eliminates future M-91-45 requirements, and incorporates this reporting in the annual update of the PMP.
- Annual revisions of this PMP will be submitted on June 30 every year starting in 2008 and continuing until the M-91 milestones are completed. The President's budget, which is issued each February, will be incorporated in the June PMP revisions.

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## **7.0 PERFORMANCE MEASUREMENT**

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### **7.1 Milestones and Accomplishments**

Performance to complete M-91 milestones is measured using a combination of traditional project management metrics, such as cost and schedule performance. In addition, monthly metrics of MLLW and transuranic waste retrieval, treatment, certification, and storage are tracked against the milestones.

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## 8.0 PROJECT CONTROL

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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 DOE 413.3A and related project management activities.

### 8.1 Project Interface Control

Project interfaces will be controlled by an interface control document, a Memorandum of Agreement, or the 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 successful project execution. The following is a list of waste activities and projects that will require integration with:

- Waste-Generating Programs
- Office of River Protection
- WRAP Facility
- RSW Retrieval
- ERDF
- IDF.

The waste forecasting system and the WAC 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 is from the DOE Project Managers to their regulator counterparts or through the Interagency Management and Integration Team. Monthly M-91 Project Manager Meetings are held. The roles and responsibilities for the Project Manager and the Integration Team are contained in TPA Sections 4.1 and 4.2, respectively.

A reporting system has been implemented to provide the status relative to meeting all TPA milestones associated with M-91-03 TRUM Waste and MLLW. Currently, the report is called the Waste Activity Report, and is typically provided to the Ecology Project Manager on a monthly basis. The system will maintain a standardized structure to measure progress against established schedules.

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## 9.0 CHANGE MANAGEMENT

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### *TPA Change Management*

Changes to the M-91 PMP will be in accordance with the TPA Action Plan, Section 9, *Documentation and Records*, and 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 of the Action Plan, *Changes to the Agreement of the Action Plan*.

Annual revisions of this PMP will be submitted on June 30 every year and continuing until the M-91 milestones are completed. The President's budget, which is issued each February, will be

incorporated in the June revision to the PMP. The PMP revision shall include plans and schedules to address all the requirements set forth in the M-91 milestone series. Each revision of the M-91-03 PMP shall, after approval by Ecology, supersede previous M-91-03 PMPs.

PMP revisions will be submitted to Ecology for review and approval as primary documents pursuant to the Agreement Action Plan, Section 9.2.1 of the TPA. DOE shall implement the Plan as approved.

### ***Life-Cycle Baseline Change Management***

The Baseline Change Management process includes uniform mechanisms by which changes to the project are identified, quantified, approved, and implemented. The processes include the use of both Deviation Notices (DN) and Baseline Change Requests (BCR).

A DN is the formal documentation of a potential deviation from the FH expected cost, schedule, or scope but does not change FH's current baseline documents (technical baseline, cost baseline, schedule baseline, and related elements of the contract, i.e., the Project Hanford Management Contract [PHMC] plus approved changes). The DN is used as a communication tool and a decision-making tool. The deviation may be the result of changes in planned productivity or rates, or rework. The deviation may be an increase, a decrease, or a change in cost-time phasing. A DN may result in preparation of a BCR.

BCR is the formal documentation that identifies a change to the FH baseline (technical baseline, cost baseline, schedule baseline, and related elements of the PHMC). The BCR may be the result of DOE-initiated changes, changes to laws and other governing documents, the result of changed conditions (e.g., safety issues,

preexisting conditions), or in accordance with other changes as defined in the PHMC.

Logs are maintained to track changes documented in DNs and BCRs. The logs contain, at a minimum, the assigned numbers, description of the change, impacts, and document status dates. Other pertinent information is included as appropriate. A master log is maintained by the projects and/or functional organization code managers. Those BCRs that can be approved and implemented by FH without DOE approval are referred to as internal BCRs. Those BCRs that require DOE approval are referred to as external BCRs.

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## **10.0 REFERENCES**

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## **APPENDIX A**

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# **GLOSSARY AND DEFINITION OF ACRONYMS AND TERMS**

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Definitions as discussed in this plan are as follows:

- Small Containers and Large Containers

Small containers and large containers have different meanings depending on whether they are used in reference to MLLW/LLW or transuranic waste.

When referring to MLLW/LLW, small containers are containers less than 10 m<sup>3</sup>, including 55-gallon drums. A large container is anything not defined as a small container.

When referring to transuranic waste, small containers are 55-gallon drums or smaller containers even if over-packed in 85-gallon drums, and newly generated WIPP SWBs. A large container is anything not defined as a small container.

- Certification

Certification is completion of all activities required for approval in the WIPP Waste Information System for acceptance into WIPP for disposal.

- Designation

Designation is the process for determining: (1) which containers of LLW are MLLW; and, (2) which containers of transuranic waste are transuranic mixed waste (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 transuranic waste in support of its designation of related LLW streams. Where appropriate, DOE will use measures allowed

under state and federal regulations to perform accurate and cost effective designations of LLW.

- Low-Level Waste

Low-level waste (LLW) is radioactive waste that is not spent fuel, high-level waste, transuranic waste, byproduct material, or naturally occurring radioactive material. LLW includes both MLLW and non-MLLW. LLW can be CH or RH.

- Mixed Low-Level Waste

Mixed Low-Level Waste (MLLW) is LLW that is subject to RCRA or Chapter 70.105 of the RCW. Non-MLLW is LLW that is not subject to RCRA or Chapter 70.105 of the RCW. MLLW can be CH or RH.

- Contact-Handled Waste

Contact-handled (CH) waste is a waste package with a surface dose rate of less than or equal to 200 millirem per hour.

- Remote-Handled Waste

Remote-handled (RH) waste is a waste package with a surface dose rate greater than 200 millirem per hour.

- Retrievably Stored Waste

Retrievably stored waste (RSW) is waste that is or was believed to be contaminated with significant concentrations of transuranic isotopes when it was placed in the 218-W-4B, 218-W-4C, 218-W-3A and 218-E-12B burial ground trenches after May 6, 1970. During the retrieval process, containers of RSW will be segregated into two categories: (1) CH RSW and (2) RH RSW. Subsequent analysis and categorization of the RSW pursuant to Chapter 70.105 of the RCW, the Atomic Energy Act, and the WIPP Land Withdrawal Act will result in

most or all of this waste being classified as one of the following types of waste: CH LLW, RH LLW, CH MLLW, RH MLLW, CH TRU, CH TRUM, RH TRU, or RH TRUM. RSW does not include waste in containers that have deteriorated to the point that they cannot be retrieved and stabilized (e.g., placed in over-packs) in a manner that would allow them to be transported and designated without posing significant risks to workers, the public or the environment. With respect to any such containers, and with respect to any release of RSW, the decision as to how to move forward will be determined through the cleanup process set forth in RCRA, Chapter 70.105 of the RCW, and/or CERCLA as appropriate. Those processes may result in additional requirements for the remediation of such wastes.

- Caisson Waste

Caisson waste is RSW in the 218-W-4B burial ground caissons alpha-1 through alpha-4.

- Transuranic Waste

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

- Retrieval of CH RSW

Retrieval of CH RSW is uncovering CH wastes within DOE's RSW trenches, removing such CH wastes from the trenches, and transferring the waste to a permitted and compliant treatment, storage or disposal unit, ERDF or for waste designated in accordance with WAC 173-303-070 through

-100 as non-mixed to a storage or disposal unit that DOE determines is appropriate.

- Retrieval of RH RSW

Retrieval of RH RSW is uncovering RH wastes within DOE's RSW trenches and caissons, removing such RH wastes from the trenches and caissons, transferring the waste to a permitted and compliant treatment, storage or disposal unit, ERDF or for waste designated in accordance with WAC 173-303-070 through -100 as non-mixed to a storage or disposal unit that DOE determines is appropriate.

- Volume Determination

The following descriptions are provided to clarify how volumes should be determined in different M-91 contexts, and to be consistent with the volumes of waste listed in the Hanford SWITS, the following descriptions are provided:

- Volumes for the purposes of determining amounts retrieved shall be based on the volume of the original containers in retrievable storage. For example, the volume of a 55-gallon RSW drum that would be counted towards "retrieval" would be 55-gallons (0.208 m<sup>3</sup>), even if in the process of retrieval the drum needed to be over-packed into an 85-gallon drum.
- The volumes of waste in "storage" will be listed as the container size that the waste is stored within. For example, a 55-gallon drum over-packed in an 85-gallon drum would be counted as 85-gallons in storage.
- The volume of MLLW "treated" will be counted as the retrieval volume (for RSW) or the MLLW pre-treatment container volume (for newly generated and stored waste).

- o The volume of transuranic waste counted as "certified" will be the volume of the certified container containing the waste unless the waste is compacted. In the event that the waste is compacted, the volume of the pre-compaction container will be counted.

### **Acronyms and Definitions**

AEA – Atomic Energy Act	DOE-RL – U.S. Department of Energy Richland Operations Office
AEC – Atomic Energy Commission	DOT – U.S. Department of Transportation
BCR – Baseline Change Request	DQO – Data Quality Objective
BDAT – Best Demonstrated Available (treatment) Technology	Ecology – Washington State Department of Ecology
CBFO – Carlsbad Field Office	EIS – Environmental Impact Statement
CD – Critical Decision	EPA – U.S. Environmental Protection Agency
CERCLA – Comprehensive Environmental Response, Compensation and Liability Act	ERDF – Environmental Restoration Disposal Facility
CFFD – Kerr McGee	ESG – Rockwell International Energy Systems
CFR – Code of Federal Regulations	ETF – Effluent Treatment Facility
CH – Contact-Handled	FFTF – Fast Flux Test Facility
CWC – Central Waste Complex	FH – Fluor Hanford, Incorporated
CY – Calendar Year	FOC – Functional Organization Code
D&D – Decontamination and Decommissioning	FY – Fiscal Year
DET – Determination of Equivalent Treatments	GASVIT – Gasification/Vitrification
DN – Deviation Notices	HASH – Hanford Incinerator Ash
DOE – U.S. Department of Energy	HFFACO – Hanford Federal Facility Agreement and Consent Order
DOE-HQ – U.S. Department of Energy Headquarters	HIC – High Integrity Container
	HSGS – Head-Space Gas Sampling
	HSSWAC – Hanford Site Solid Waste Acceptance Criteria
	HSW-EIS – Hanford Solid Waste Environmental Impact Statement
	HWMA – Hazardous Waste Management Act

IAMIT – Interagency Management and Integration Team	O/C – Organic/Carbonaceous
ICD – Interface Control Document	PAAA – Price-Anderson Amendment Act of 1988
IDF – Integrated Disposal Facility	PBS – Project Baseline Summaries
INL – Idaho National Laboratory	PCB – Polychlorinated Biphenyl
KEBASIN01 – NLOP Sludge from K Basin	PFP – Plutonium Finishing Plant
LDR – Land Disposal Restriction	PHMC – Project Management Hanford Contract
LLBG – Low-Level Burial Grounds	PMP – Project Management Plan
LLW – Low-Level Waste	PNNL – Pacific Northwest National Laboratory
MLLW – Mixed Low-Level Waste	PUREX – Plutonium Uranium Extraction
MOA – Memorandum of Agreement	RCRA – Resource Conservation and Recovery Act of 1976
MOU – Memorandum of Understanding	RCW – Revised Code of Washington
MPFPD – Mixed PFP Debris	RFASH – Rocky Flats Ash
MPFPD-F00X – Mixed PFP Debris with F00X HWNs	RFP – Request for Proposal
MPUREXD – Mixed PUREX Debris	RH – Remote-Handled
MWDT – Mixed Waste Disposal Trench	RINM – Reactor Irradiated Nuclear Material
NCTA – No Current Treatment Available	RL216Z9 – Homogeneous Waste from 216Z-9 Crib
NDA – Non-Destructive Assay	RLCBWD – Consolidated Babcock and Wilcox Debris
NDE – Non-Destructive Examination	RLETECD – ETEC/ESG Debris
NEPA – National Environmental Policy Act	RLM209ED – Mixed 209E Debris
NOC – Notice of Compliance	RLM231ZD – Mixed 231-Z Debris
NPFPD – Non-mixed PFP Debris	RLM233SD – Mixed 233S Debris
NPUREXD – Non-mixed PUREX Debris	RLM300D – Mixed 300 Area Debris
NRC – U.S. Nuclear Regulatory Commission	

RLM308D – Mixed 308 Debris	TRU – Non-mixed Transuranic Waste
RLM325D – Mixed 325 Debris	TRUM – Mixed Transuranic Waste
RLMGEVALD – Mixed GE Vallecitos Debris	TRUPACT – Transuranic Package Transporter
RLMPUNIT – Absorbed Pu Nitrate Solutions from PFP	TSCA – Toxic Substances Control Act
RLMVIPAC – Vibratory Packed Fuel Debris	TSCAI – Toxic Substances Control Act Incinerator
RLMWARD – WARD Debris	TSD – Treatment, storage, and/or disposal
RLSWOCD – Solid Waste Operations Complex Debris	TSDF – Treatment Storage Disposal Facility
ROD – Record of Decision	UHC – Underlying Hazardous Constituents
RSW – Retrievably Stored Waste	UTS – Universal Treatment Standards
SAP – Sampling and Analysis Plan	UV – Ultra-Violet
SNM – Special Nuclear Material	VTD – Vacuum Thermal Disorber
SSC – Sand, Slag and Crucible	WAC – Washington Administrative Code and Waste Acceptance Criteria
SWB – Standard Waste Box (1.80 m in length, 1.38 m wide, and 0.94 m high)	WAP – Waste Analysis Plan
SWHF – Solid Waste Handling Facility	WARD – Westinghouse Advanced Reactor Division
SWIFT – Solid Waste Information Forecasting Tool	WBS – Work Breakdown Structure
SWITS – Solid Waste Inventory Tracking System	WERF – Waste Experimental Reduction Facility
SWOC – Solid Waste Operations Complex	WHC – Westinghouse Hanford Company
SWPC – Solid Waste Processing Center	WIPP – Waste Isolation Pilot Plant
SWPM – Solid Waste Processing Module	WNP – Washington Nuclear Plant
TPA – Tri-Party Agreement	WRAP – Waste Receiving and Processing Facility
Transuranic or TRU(M) – TRU and TRUM Waste	WSCF – Waste Sampling and Characterization Facility
	WSD – Waste Stabilization and Disposition

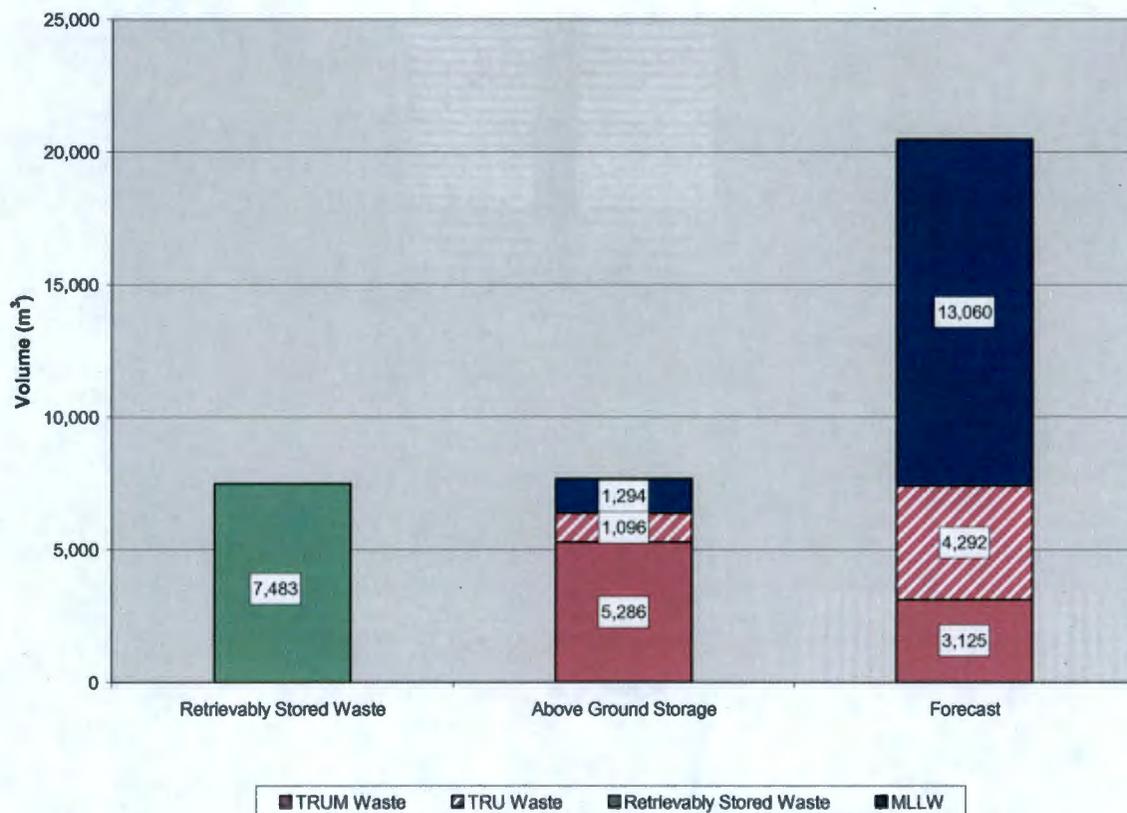
**WSRd – Waste Specification Record**

**APPENDIX B**

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**ENLARGEMENTS OF FIGURES 1, 5, 6, 7, AND 8**

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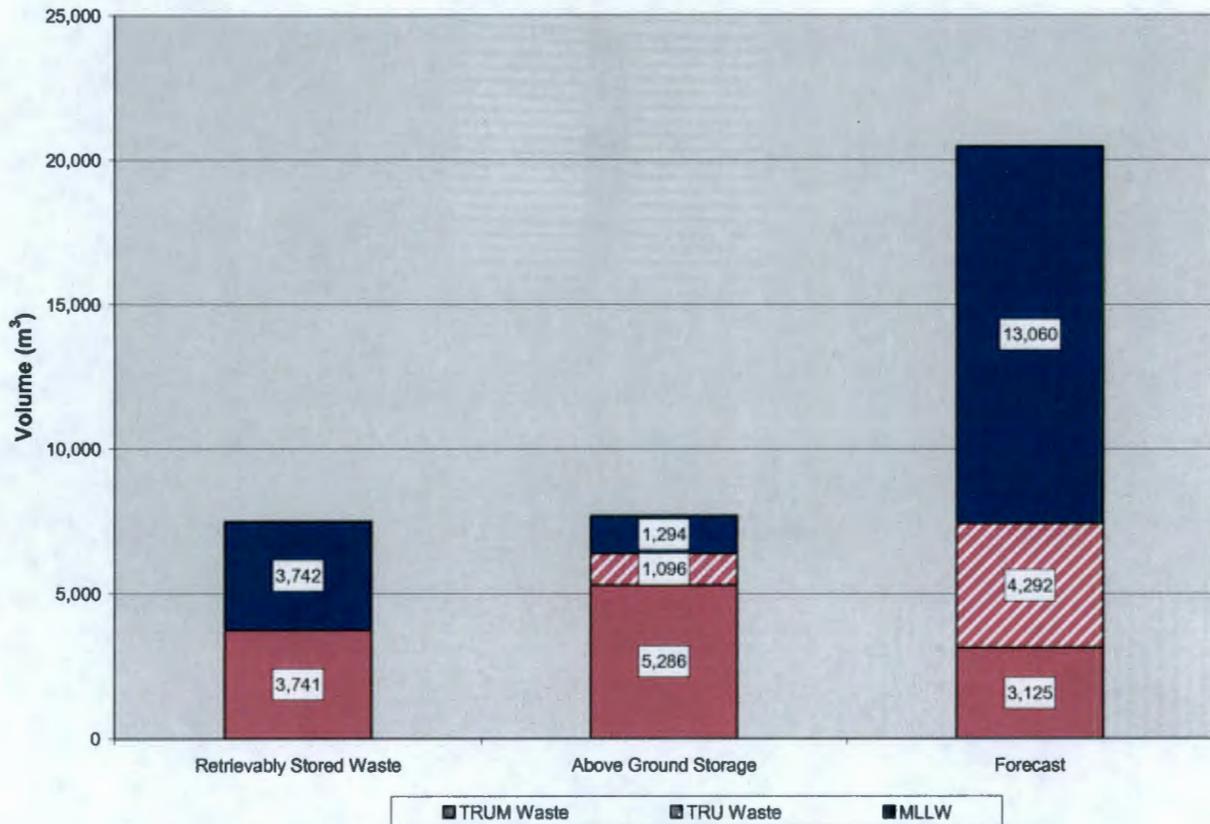
**Figure 1. Hanford MLLW/Transuranic Waste Sources.**

*Data Sources:*

- Retrievably Stored Waste and Above Ground Storage Data from SWITS as of January 3, 2008
- Waste marked as LLW TSCA is not included in the MLLW volumes
- Waste identified as “German Logs” is not included. Includes packages CASTOR-GSF-001, -002, -003, -005, -006, -007, GNS-12-1, and GNS-12-2
- Forecast data taken from SWIFT 2008.0, represents life-cycle forecast January 2008 through September 30, 2035 with the exception of RH transuranic tank waste
- Volumes for Retrieval and Storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)

*Retrievably Stored Waste:*

- Containers identified as RINM based on process knowledge and SWITS record information are excluded from RSW volume
- RSW consists of suspect transuranic waste in burial grounds 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B



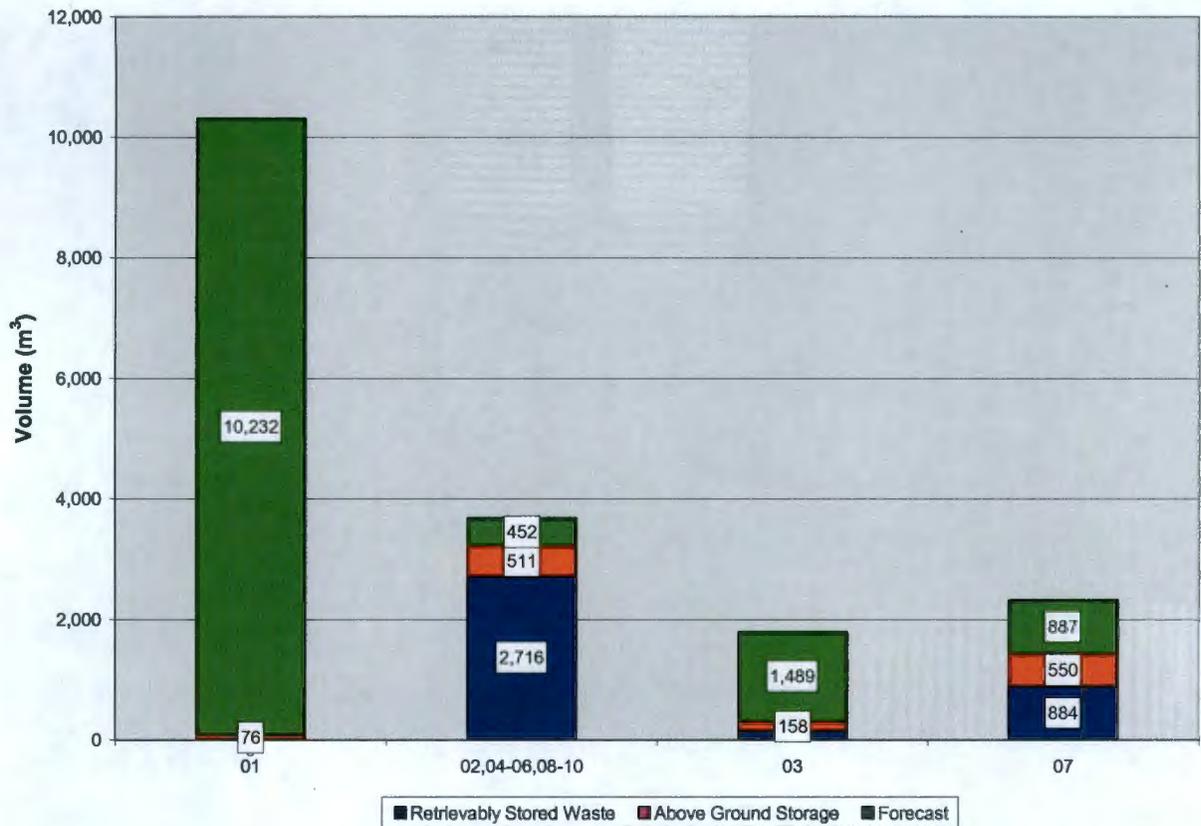
**Figure 5.** Hanford MLLW/Transuranic Waste with Retrieval Split.

*Data Sources:*

- Retrievably Stored Waste and Above Ground Storage Data from SWITS as of January 3, 2008
- Waste marked as LLW TSCA is not included in the MLLW volumes
- Waste identified as "German Logs" is not included. Includes packages CASTOR-GSF-001, -002, -003, -005, -006, -007, GNS-12-1, and GNS-12-2
- Forecast data taken from SWIFT 2008.0, represents life-cycle forecast January 2008 through September 30, 2035 with the exception of RH transuranic tank waste
- Volumes for Retrieval and Storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)

*Retrievably Stored Waste:*

- Containers identified as RINM based on process knowledge and SWITS record information are excluded from RSW volume
- Assumes 50/50 MLLW/transuranic waste split by volume for RSW
- RSW consists of suspect transuranic waste in burial grounds 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B



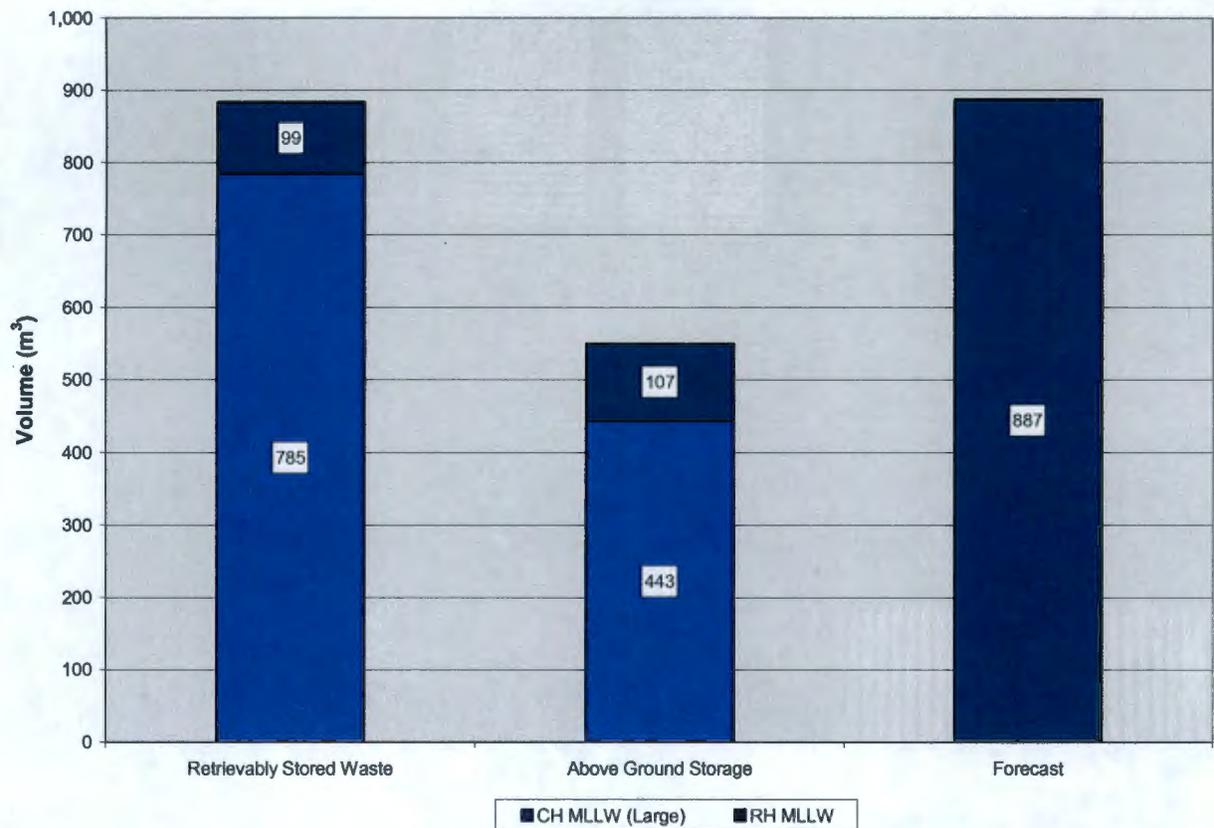
**Figure 6. MLLW Treatability Group Sources.**

*Data Sources:*

- Retrievably Stored Waste and Above Ground Storage Data from SWITS as of January 3, 2008
- Waste marked as LLW TSCA is not included in the MLLW volumes
- Forecast data taken from SWIFT 2008.0, represents life-cycle forecast January 2008 through September 30, 2035 with the exception of RH transuranic tank waste
- Volumes for Retrieval and Storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)
- Rules for re-assigning packages listed as CH in SWITS as RH are:
  1. Containers with a dose rate of >200 mR/hr
  2. Containers containing shielding
  3. Containers with greater than 0.25 curies of cesium-137
- Assumes all waste reclassified as RH is MLLW-07

*Retrievably Stored Waste:*

- Assumes 50/50 MLLW/transuranic waste split by volume for RSW
- Assumes 75 percent (by volume) of the RSW CH large containers are transuranic waste and 25 percent are MLLW
- Assumes that 25 percent (by volume) of the RSW small containers are transuranic waste and 75 percent are MLLW
- Assumes 95% of the CH MLLW small portion from transuranic waste retrieval is MLLW-04, 5% is MLLW-03
- RSW consists of suspect transuranic waste in burial grounds 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B



**Figure 7. MLLW-07 Sources.**

*Data Sources:*

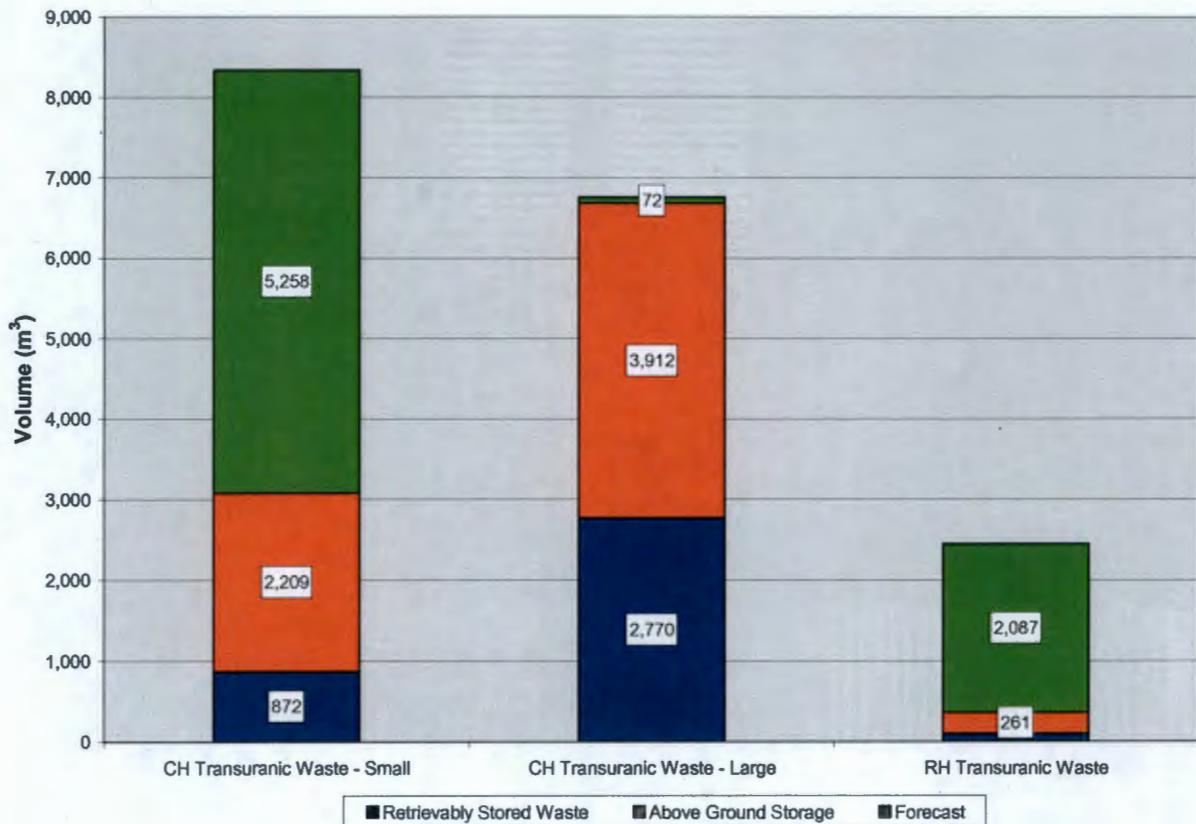
- Retrievably Stored Waste and Above Ground Storage Data from SWITS as of January 3, 2008
- Waste marked as LLW TSCA is not included in the MLLW volumes
- Forecast data taken from SWIFT 2008.0, represents life-cycle forecast January 2008 through September 30, 2035 with the exception of RH transuranic tank waste
- Volumes for Retrieval and Storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)
- Rules for re-assigning packages listed as CH in SWITS as RH are:
  1. Containers with a dose rate of >200 mR/hr
  2. Containers containing shielding
  3. Containers with greater than 0.25 curies of cesium-137

*Retrievably Stored Waste:*

- Assumes 50/50 MLLW/transuranic waste split by volume for RSW
- RSW consists of suspect transuranic waste in burial grounds 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B

*Container Definitions:*

- CH MLLW Large - Containers with a volume greater than 10 m<sup>3</sup>



**Figure 8. Transuranic Waste Sources.**

*Data Sources:*

- Retrievably Stored Waste and Above Ground Storage Data from SWITS as of January 3, 2008
- Waste marked as LLW TSCA is not included in the MLLW volumes
- Waste identified as "German Logs" is not included. Includes packages CASTOR-GSF-001, -002, -003, -005, -006, -007, GNS-12-1, and GNS-12-2
- Forecast data taken from SWIFT 2008.0, represents life-cycle forecast January 2008 through September 30, 2035 with the exception of RH transuranic tank waste
- Volumes for Retrieval and Storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)
- Rules for re-assigning packages listed as CH in SWITS as RH are:
  1. Containers with a dose rate of >200 mR/hr
  2. Containers containing shielding
  3. Containers with greater than 0.25 curies of cesium-137

*Retrievably Stored Waste:*

- Containers identified as Reactor Irradiated Nuclear Material based on process knowledge and SWITS record information
- Assumes 50/50 MLLW/transuranic waste split by volume for RSW
- Assumes 75 percent (by volume) of the RSW CH large containers are transuranic waste and 25 percent are MLLW

- Assumes that 25 percent (by volume) of the RSW small containers are transuranic waste and 75 percent are MLLW
- RSW consists of suspect transuranic waste in burial grounds 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B

*Container Definitions:*

- Transuranic Waste Small – 55-gallon drums, containers smaller than a 55-gallon drum, 85-gallon over-packs, and SWBs
- Transuranic Waste Large – Non-small containers

**APPENDIX C**

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**ESTIMATES OF HANFORD CERCLA WASTE  
SITES CONTAINING TRANSURANIC  
CONSTITUENTS GREATER THAN 100 nCi/g**

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## Estimates of Hanford CERCLA Waste Sites Containing Transuranic Constituents Greater than 100 nCi/g

CERCLA Sites	Area (acres) <sup>1</sup>	Estimated Volume (m <sup>3</sup> )
		Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g
Contaminated Soil Sites (from Liquid Disposal)	6.2	34,000
Landfills <sup>2,3</sup>	470	28,000
Canyon Facilities and Associated Tunnels	-	1,500
Tanks and Ancillary Equipment	-	33
Other 200 Area	-	91
300 Area	-	72
Total	-	64,000

<sup>1</sup> Includes area of entire contaminated soil site or landfill

<sup>2</sup> Estimated volumes are from historical Solid Waste Inventory Tracking System (SWITS) data and DOE/RL-2004-60 Draft B, *200-SW-1 Nonradioactive Landfills and Dumps Group Operable Unit and 200-SW-2 Radioactive Landfills and Dumps Group Operable Unit Remedial Investigation/Feasibility Study Work Plan*, September 2007.

<sup>3</sup> 618-10 and 618-11 landfills are not included. These sites are included in M-91 forecasts

Contaminated Soil Sites (from Liquid Disposal) <sup>4,5,6</sup>	Operable Unit	Area (acres)	Estimated Volume (m <sup>3</sup> ) <sup>7</sup>
			Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g
216-B-5	200-TW-2	0.00035	64
216-B-7A&B	200-TW-2	0.077	430
216-B-53A	200-BC-1	0.017	24
216-E-15	200-IS-1	0.13	260
216-S-1&2	200-PW-2	0.173	1,700
216-T-3	200-TW-2	0.00027	2.9
216-T-6	200-TW-2	0.069	290
216-T-18	200-TW-1	0.57	590
216-T-32	200-TW-2	0.079	460
216-U-10	200-CW-1	0.15	190

4 Used values are from Table 2-15 in RHO-RE-ST-30 P, *Hanford Defense Waste Disposal Alternatives: Engineering Support Data for the Hanford Defense Waste- Environmental Impact Statement*, December 1985, DOE/RL-2007-27 Draft A, *Feasibility Study for the Plutonium/Organic-Rich Process Condensate/Process Waste Group Operable Unit: Includes the 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units*, September 2007 and/or the *Waste Information Data System (WIDS)* unless otherwise noted. Another reference used was RHO-LD-114, *Existing Data on the 216-Z Liquid Waste Sites*, Owens K. W., 1981

5 Reserved

6 Note a considerable quantity of liquid disposal site material is rock/gravel

7 These values will increase (from mixed with adjacent soils/solid waste) if the waste is removed

216-Z-1A <sup>8</sup>	200-PW-1	0.73	13,000
216-Z-1 and 216-Z-2	200-PW-1	0.009	550
216-Z-3	200-PW-1	0.14	1,500
216-Z-5	200-PW-6	0.052	210
216-Z-7	200-LW-2	0.19	590
216-Z-8	200-PW-6	0.00049	5.8
216-Z-9 <sup>9</sup>	200-PW-1	0.13	3,700
216-Z-10	200-PW-6	0.000077	0.17
216-Z-12 <sup>10</sup>	200-PW-1	0.47	1,300
216-Z-18	200-PW-1	0.57	5,700
216-Z Ditches (-1, -11, -19 and -20) <sup>11</sup>	200-CW-5	2.89	2,960
241-B-361	200-TW-2	0.0018	180

8 Estimated from RHO-ST-17, *Distribution of Plutonium and Americium beneath the 216-Z-1A Crib: A Status Report*, Price S. M., Kasper R. B., Additon M. K., Smith R. M., Last G. V., February 1979

9 Information was used from the characterization and soil removal including: Recent characterization efforts around and under 216-Z-9; ARH-2915, *Nuclear Reactivity Evaluations of 216-Z-9 Enclosed Trench*, A. E. Smith, December 1973; RHO-ST-21, *Report on Plutonium Mining Activities at 216-Z-9 Enclosed Trench*, J. D. Ludowise, September 1978; RHO-HS-EV-1 Addendum Number 3, *Addendum to ARH-LD-124 Final Safety Analysis Report Contaminated Soil Removal Facility 216-Z-9 Enclosed Trench*, R. C. Stupka, December 1981; HNF-31792, *Characterization Information for the 216-Z-9 Crib at the Plutonium Finishing Plant*, Teal J. A., March 2007

10 Estimated from RHO-ST-44, *216-Z-12 Transuranic Crib Characterization: Operational History and Distribution of Plutonium and Americium*, Kasper R. B., November 1982

11 Information from characterization work by Hickey M. J.

241-T-361	200-TW-2	0.0018	180
241-Z-361 <sup>12</sup>	200-PW-1	0.0018	180
Subtotal		6.18	34,100

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12 Information was used from the characterization of the tank including HNF-1989 Rev. 0, *Tank 241-Z-361 Process and Characterization History*, Jones S. A., July 1998 and HNF-1692, *Tank 241-Z-361, Cores 263 and 264 Analytical Results and the Final Report*, Esch R. A., May 2000

Landfill <sup>13</sup>	Operable Unit	Area (acres)	Estimated Volume (m <sup>3</sup> )
			Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g
218-E-1	200-SW-2	3.24	0
218-E-2	200-SW-2	5.49	0
218-E-5	200-SW-2	2.44	142
218-E-5A	200-SW-2	1.10	0
218-E-10	200-SW-2	70.2	0
218-E-12A	200-SW-2	28.2	0
218-E-12B	200-SW-2	217	121
218-W-1	200-SW-2	6.34	6,560
218-W-1A	200-SW-2	15.0	0
218-W-2	200-SW-2	7.05	8,240
218-W-2A	200-SW-2	20.4	178
218-W-3	200-SW-2	8.08	5,930
218-W-3A	200-SW-2	56.9	49.9

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13 Reserved

218-W-4A	200-SW-2	21.0	5,140
218-W-4B	200-SW-2	9.34	1,110
<b>Subtotal</b>		<b>472</b>	<b>27,500</b>

Canyon Facilities and Associated Tunnels <sup>14</sup>	Operable Unit	Area (acres)	Estimated Volume (m <sup>3</sup> )
			Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g
PUREX <sup>15</sup>	N/A	-	760
REDOX	N/A	-	TBD
T Plant	N/A	-	58
U Plant	N/A	-	TBD
PUREX Tunnel #1 <sup>16</sup>	N/A	0.16	270
PUREX Tunnel #2 <sup>17</sup>	N/A	0.13	360
224-B	200-BP-6	-	TBD
209-E	N/A	-	TBD
291-B Sand-filter	200-BP-6	-	TBD
<b>Subtotal</b>			<b>1,450</b>

14 Reserved

15 Estimated waste volume (contaminated equipment) in PUREX canyon; WHC-IP-0977, *Estimation of PUREX Equipment and Materials that are Candidates for Waste Processing During PUREX Plant Closure*, January 1994.

16 Estimated waste volume on the railroad cars in the Tunnel #1; WHC-IP-0977, *Estimation of PUREX Equipment and Materials that are Candidates for Waste Processing During PUREX Plant Closure*, January 1994.

17 Estimated waste volume on the railroad cars in the Tunnel #2; WHC-IP-0977, *Estimation of PUREX Equipment and Materials that are Candidates for Waste Processing During PUREX Plant Closure*, January 1994.

Tanks and Ancillary Equipment	Operable Unit	Area (acres)	Estimated Volume (m <sup>3</sup> )
			Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g
200-E-111, Encased Pipeline From 241-ER-151 Diversion Box to 241-C Tank Farm and 244-AR Vault; 3-38 Encasement	200-IS-1	-	0.90
200-W-100, Encased Pipeline from 241-UX-154 to 241-SX-152 Diversion Box	200-IS-1	-	0.03
200-W-99, Encased Pipeline from 241-U-151 to 241-S-151 Diversion Boxes	200-IS-1	-	0.03
209-E-WS-3, Critical Mass Laboratory Valve Pit and Hold Up Tank (209-E-TK-111), IMUST, Inactive Miscellaneous Underground Storage Tank	200-MG-1	-	0.19
241-A-A, 241-A-A Diversion Box, 241-A-A Structural Valve Pit	200-PO-3	-	0.00
241-A-B, 241-A-B Diversion Box, 241-A-B Structural Valve Pit	200-PO-3	-	0.04
241-AN-A, 241-AN-A Diversion Box	200-PO-3	-	0.00
241-AN-B, 241-AN-B Diversion Box	200-PO-3	-	0.00
241-AP VP, 241-AP Valve Pit	200-PO-3	-	0.02
241-AR-151, 241-AR-151 Diversion Box	200-PO-3	-	0.00

241-AW-A, 241-AW-A Valve Pit, 241-AW-A Diversion Box	200-PO-3	-	0.03
241-AW-B, 241-AW-B Valve Pit, 241-AW-B Diversion Box	200-PO-3	-	0.03
241-AX-151, 241-AX-151 Diversion Box, 241-AX-151 Diverter Station, IMUST, Inactive Miscellaneous Underground Storage Tank	200-PO-3	-	0.03
241-AX-152DS, 241-AX-152 Diverter Station, 241-AX-152-DS Diverter Station	200-PO-3	-	0.19
241-AX-155, 241-AX-155 Diversion Box	200-PO-3	-	0.00
241-AX-501, 241-AX-501 Valve Pit, 241-AX-501 Condensate Valve Pit	200-PO-3	-	0.00
241-AX-A, 241-AX-A Diversion Box, 241-AX-A Structural Valve Pit, 241-AX-A Valve Pit	200-PO-3	-	0.01
241-AX-B, 241-AX-B Diversion Box, 241-AX-B Structural Valve Pit, 241-AX-B Valve Pit	200-PO-3	-	0.00
241-AY-151, 241-AY-151 Diversion Box, 241-AY-151 Pump Out Pit	200-PO-3	-	0.00
241-AY-152, 241-AY-152 Diverter Station, 241-AY-152 Sluice Transfer Box	200-PO-3	-	0.07
241-AZ-151DS, 241-AZ-151-DS Diverter Station, 241-AZ-151 Diverter Station	200-PO-3	-	0.20

241-AZ-152, 241-AZ-152 Diversion Box, 241-AZ-152 Sluice Transfer Box	200-PO-3	-	0.01
241-B-151, 241-B-151 Diversion Box	200-BP-7	-	0.01
241-B-152, 241-B-152 Diversion Box	200-BP-7	-	0.21
241-B-153, 241-B-153 Diversion Box	200-BP-7	-	0.29
241-B-154, 241-B-154 Diversion Box	200-IS-1	-	0.30
241-B-252, 241-B-252 Diversion Box	200-BP-7	-	0.01
241-B-301, 241-B-301-B Catch Tank, 241-B-301B, IMUST, Inactive Miscellaneous Underground Storage Tank	200-BP-7	-	0.01
241-B-302B, 241-B-302-B Catch Tank, 241-B-302, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	0.18
244-CR VAULT, 244-CR Vault	200-PO-3	-	0.42
244-S DCRT, 244-S Double-Contained Receiver Tank, 244-S RT, 244-S Receiver Tank, 244-S Catch Station, 244-S-TK/SMP	200-RO-4	-	0.05
244-TX DCRT, 244-TX Double-Contained Receiver Tank, 244-TX RT, 244-TX Receiver Tank, 244-TX Receiver Vessel, 244-TX-TK/SMP	200-TP-5	-	0.03

244-TXR VAULT, 244-TXR, 244-TXR Vault (Tanks TXR-001, -002, -003), IMUST, Inactive Miscellaneous Underground Storage Tank	200-TP-5	-	2.78
244-U DCRT, 244-U Double-Contained Receiver Tank, 244-URT, 244-U Receiver Tank, 244-U Receiving Vault, 244-U-TK/SMP	200-UP-3	-	0.08
244-UR VAULT, 244-UR Vault, (Tanks -001 through -004), IMUST, Inactive Miscellaneous Underground Storage Tank	200-UP-3	-	1.49
241-BR-152, 241-BR-152 Diversion Box	200-BP-7	-	0.05
241-BX-153, 241-BX-153 Diversion Box	200-BP-7	-	0.02
241-BX-155, 241-BX-155 Diversion Box	200-IS-1	-	0.07
241-BX-302A, 241-BX-302-A Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-BP-7	-	0.01
241-BX-302C, 241-BX-302-C Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	0.05
241-BXR-151, 241-BXR-151 Diversion Box	200-BP-7	-	0.07
241-BXR-152, 241-BXR-152 Diversion Box	200-BP-7	-	0.04
241-BXR-153, 241-BXR-153 Diversion Box	200-BP-7	-	0.04

241-BYR-152, 241-BYR-152 Diversion Box	200-BP-7	-	0.05
241-BYR-153, 241-BYR-153 Diversion Box	200-BP-7	-	0.05
241-BYR-154, 241-BYR-154 Diversion Box	200-BP-7	-	0.04
241-C-151, 241-C-151 Diversion Box	200-PO-3	-	0.01
241-C-152, 241-C-152 Diversion Box	200-PO-3	-	0.01
241-C-153, 241-C-153 Diversion Box	200-PO-3	-	0.01
241-C-154, 241-C-154 Diversion Box	200-IS-1	-	0.00
241-C-252, 241-C-252 Diversion Box	200-PO-3	-	0.01
241-C-301, 241-C-301-C Catch Tank, 241-C-301C, IMUST, Inactive Miscellaneous Underground Storage Tank	200-PO-3	-	0.22
241-CR-151, 241-CR-151 Diversion Box	200-PO-3	-	0.25
241-CR-152, 241-CR-152 Diversion Box	200-PO-3	-	0.01
241-CR-153, 241-CR-153 Diversion Box	200-PO-3	-	0.01
241-CX-70, 241-CX-TK-70 Tank, Strontium Hot Semi-works, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	0.47
241-CX-71, 241-CX-TK-71, 241- CX Neutralization Tank, Strontium Hot Semi-works, IMUST, Inactive	200-IS-1	-	0.00

Miscellaneous Underground Storage Tank			
241-ER-151, 241-ER-151 Diversion Box	200-IS-1	-	0.21
241-ER-152, 241-ER-152 Diversion Box	200-IS-1	-	0.06
241-ER-153, 241-ER-153 Diversion Box	200-PO-3	-	0.01
241-EW-151, 241-EW-151 Vent Station Catch Tank, 241-EW-151 Vent Station, Vent Station, 200 Area East-West Vent Station	200-IS-1	-	1.22
241-S-151, 241-S-151 Diversion Box	200-RO-4	-	0.68
241-S-152, 241-S-152 Diversion Box	200-RO-4	-	0.00
241-S-302A, 241-S-302-A Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-RO-4	-	0.02
241-S-302B, 241-S-302-B Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-RO-4	-	0.01
241-S-304, 241-S-304 Catch Tank	200-RO-4	-	0.00
241-S-A, 241-S-A Valve Pit, 241-S-A Diversion Box	200-RO-4	-	0.00
241-S-B, 241-S-B Valve Pit, 241-S-B Diversion Box	200-RO-4	-	0.00
241-S-C, 241-S-C Valve Pit, 241-S-C Diversion Box	200-RO-4	-	0.00

241-S-D, 241-S-D Valve Pit, 241-S-D Diversion Box	200-RO-4	-	0.00
241-SX-151, 241-SX-151 Diversion Box	200-RO-4	-	0.02
241-SX-152, 241-SX-152 Diversion Box, 241-SX-152 Transfer Box	200-RO-4	-	0.01
241-SX-302, 241-SX-302 Catch Tank, SX-304, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	0.32
241-SX-401, 241-SX-401 Condenser Shielding Building, 241-SX-401 Waste Disposal Condenser House	200-RO-4	-	0.02
241-SX-402, 241-SX-402 Condenser Shielding Building, 241-SX-402 Waste Disposal Condenser House	200-RO-4	-	0.02
241-SX-A, 241-SX-A Diversion Box	200-RO-4	-	0.00
241-SX-B, 241-SX-B Diversion Box	200-RO-4	-	0.00
241-SY-A, 241-SY-A Diversion Box, 241-SY-A Valve Pit	200-RO-4	-	0.00
241-SY-B, 241-SY-B Diversion Box, 241-SY-B Valve Pit	200-RO-4	-	0.00
241-TX-152, 241-TX-152 Diversion Box	200-IS-1	-	0.00
241-TX-153, 241-TX-153 Diversion Box	200-TP-5	-	0.07
241-TX-155, 241-TX-155 Diversion Box	200-IS-1	-	0.06

241-TX-302A, 241-TX-302-A Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-TP-5	-	0.01
241-TX-302B, 241-TX-302-B Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	0.08
241-TX-302BR, 241-TX-302BR Catch Tank, 241-TXR-302BR, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	0.06
241-TX-302XB, 241-TX-302B Catch Tank, 241-TX-302-X, 241- TX-302-X (B), IMUST, Inactive Miscellaneous Underground Storage Tank	200- TP-5	-	0.74
241-TXR-151, 241-TXR-151 Diversion Box	200-TP-5	-	0.06
241-TXR-152, 241-TXR-152 Diversion Box	200-TP-5	-	0.04
241-TXR-153, 241-TXR-153 Diversion Box	200-TP-5	-	0.05
241-TY-153, 241-TY-153 Diversion Box	200-TP-5	-	0.05
241-TY-302A, 241-TY-302-A Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-TP-5	-	0.03
241-TY-302B, 241-TY-302-B Catch Tank, IMUST, Inactive Miscellaneous Underground Storage Tank	200-TP-5	-	0.03

241-U-151, 241-U-151 Diversion Box	200-IS-1	-	0.01
241-U-152, 241-U-152 Diversion Box	200-IS-1	-	0.01
241-U-153, 241-U-153 Diversion Box	200-UP-3	-	0.01
241-U-252, 241-U-252 Diversion Box	200-UP-3	-	0.01
241-U-301, 241-U-301B	200-UP-3	-	0.01
241-U-A, 241-U-A Diversion Box, 241-U-A Valve Pit	200-UP-3	-	0.00
241-U-B, 241-U-B Diversion Box, 241-U-B Valve Pit	200-UP-3	-	0.00
241-U-C, 241-U-C Diversion Box, 241-U-C Valve Pit	200-UP-3	-	0.00
241-U-D, 241-U-D Diversion Box, 241-U-D Valve Pit	200-UP-3	-	0.00
241-UR-151, 241-UR-151 Diversion Box	200-UP-3	-	0.40
241-UR-152, 241-UR-152 Diversion Box	200-UP-3	-	0.04
241-UR-153, 241-UR-153 Diversion Box	200-UP-3	-	0.04
241-UR-154, 241-UR-154 Diversion Box	200-UP-3	-	0.04
241-WR VAULT, 241-WR Vault (Tanks -001 through -009), 241-WR-01 thru 09, 241-WR Diversion Station Vault, 244-WR Vault, 296-U-6 Stack, IMUST, Inactive Miscellaneous Underground Storage Tank	200-IS-1	-	10.77

242-B-151, 242-B Evaporator Building Diversion Box	200-BP-7	-	0.00
242-T, 242-T Evaporator Facility, 241-T Evaporator	200-TP-5	-	1.24
242-T-135, IMUST, Inactive Miscellaneous Underground Storage Tank	200-TP-5	-	0.00
242-T-151, 242-T-151 Diversion Box	200-TP-5	-	0.00
242-TA-R1, 242-TA, Receiver TK-Vault, 242-TA Receiver Tank Vault, Z Waste, Receiver Tank TK-R1, IMUST, Inactive Miscellaneous Underground Storage Tank	200-TP-5	-	0.58
244-A DCRT, 244-A Double-Contained Receiver Tank, 244-A RT, 244-A Receiver Tank, 244-A-TK/SMP	200-PO-3	-	0.02
244-A LS, 244-A Lift Station, 244-AR Lift Station, 244-AR LS	200-PO-3	-	0.00
244-AR VAULT, 244-AR Vault	200-PO-3	-	0.19
244-BX DCRT, 244-BX Double-Contained Receiver Tank, 244-BX RT, 244-BX Receiver Tank, 244-BX-TK/SMP, 244-BX Receiver Vault,	200-BP-7	-	0.17
244-BXR VAULT, 244-BXR Vault, 244-BXR Receiving Vault. (Subsites 244-BXR-001, 244-BXR-002, 244-BXR-003, 244-BXR-011), IMUST, Inactive Miscellaneous Underground Storage Tank	200-BP-7	-	6.16

Subtotal		-	33
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Other 200 Area	Operable Unit	Area (acres)	Estimated Volume (m <sup>3</sup> )
			Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g <sup>18</sup>
216-N-4, 216-N-2, 216-N-4 Swamp, 212-P Swamp	200-CW-3	-	4.53
216-N-6, 212-R Swamp, 216-N-6 Swamp	200-CW-3	-	2.09
216-B-10A, 222-B-1 Crib, 216-B-10 Crib, 292-B	200-LW-2	-	0.55
216-B-2-1, 216-B-1, B Swamp Ditch, 216-B-2, B Ditch	200-MG-1	-	59.48
200-W-92, Contaminated Mound of Soil and Debris, Soil Mound West of 241-TY Tank Farm	200-MG-1	-	0.89
200-W-94, Contaminated Soil at 241-TX/TY Tank Farm	200-TP-5	-	15.38
200-W-95, Contaminated Soil at 241-U Tank Farm	200-UP-3	-	5.96
216-A-22, 216-A-22 French Drain, 216-A-22 Crib	200-MG-2	-	0.61
216-C-7, 216-C-7 Crib	200-MG-1	-	0.93
216-U-4A, 216-U-4 Reverse Well/4a French Drain, 216-U-4 Dry Well	200-UW-1	-	0.00
216-U-4B, 216-U-4B Dry Well, 216-U-4B French Drain	200-UW-1	-	0.00

<sup>18</sup> Transuranic waste concentration is based on estimated plutonium concentration

216-U-5, 216-U-4, 221-U Cold U Trench #2	200-UW-1	-	0.02
216-U-7, 221-U Counting Box French Drain, 221-U Vessel Vent Blower Pit French Drain	200-MG-2	-	0.00
241-U-361, 241-U-361 Settling Tank, 361-U-TANK, IMUST, Inactive Miscellaneous Underground Storage Tank	200-UW-1	-	0.28
2704-C-WS-1, 2704-C French Drain, Gatehouse French Drain	200-MG-2	-	0.00
UPR-200-W-33, Ground Contamination at 224-U, UN-200-W-33	200-UW-1	-	0.00
<b>Subtotal</b>		-	<b>91</b>

300 Area	Operable Unit	Area (acres)	Estimated Volume (m <sup>3</sup> )
			Potential Amount of Material Greater than 100 nCi of Transuranic Constituents/g
Operable Unit 300-FF-2 <sup>19</sup>	TBD	TBD	TBD
Subtotal		TBD	72

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<sup>19</sup> 325 and 331 complexes are currently scheduled to remain operational through at least 2025. These facilities, included in EE/CA #3 for the 300 Area, have been removed from the associated Action Memorandum due to the long term operational status of these facilities

**APPENDIX D**

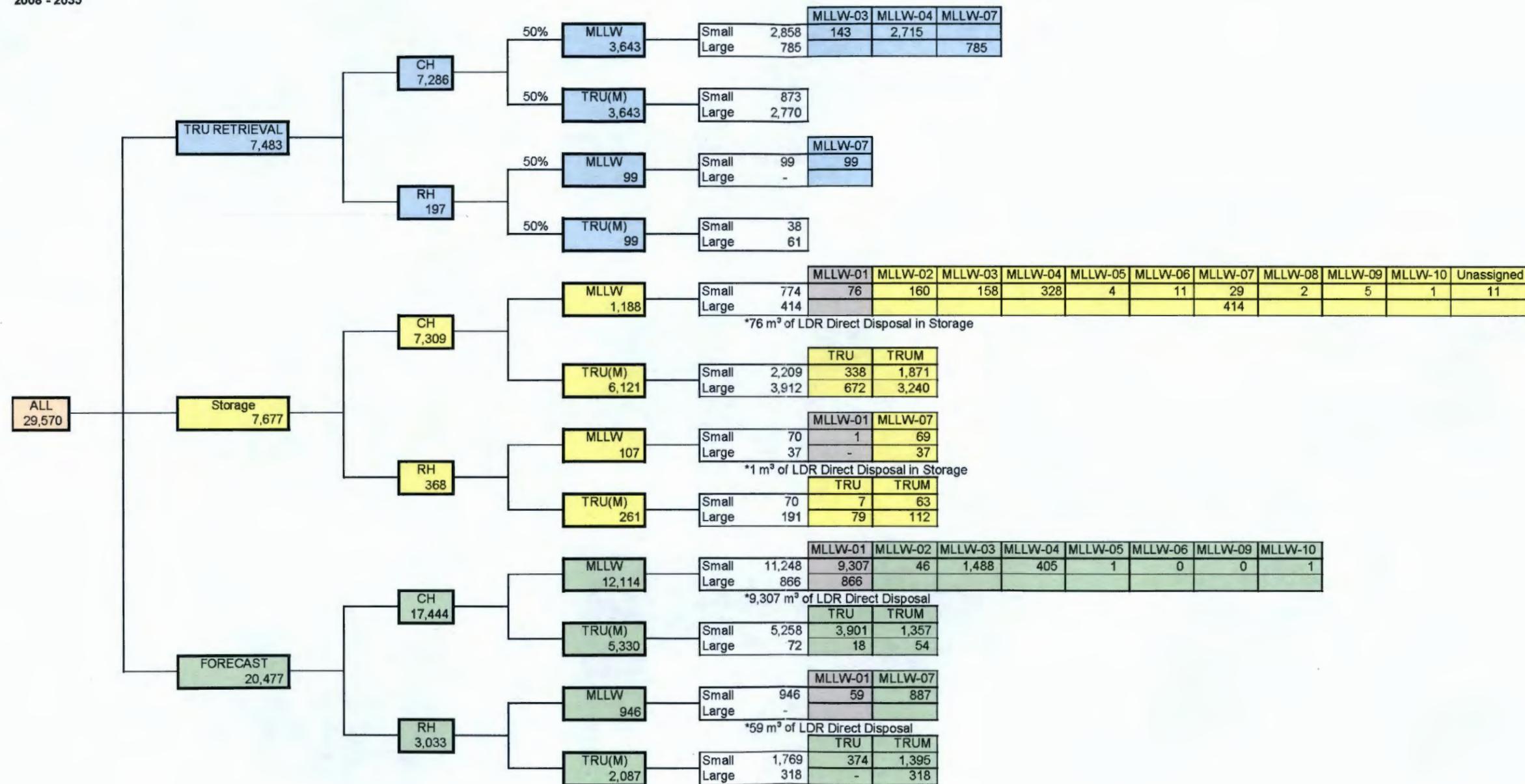
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**TREE CHART OF THE WASTE REQUIRING  
PROCESSING**

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TREE CHART (volumes in cubic meters)

2008 - 2035



TREE CHART ASSUMPTIONS:

- Waste forecast are through 2035. Future forecasts will be through 2050
- Transuranic Waste Retrieval/Storage Data taken from SWITS run dated January 3, 2008
- Forecast Data taken from SWIFT 2008.0
- 4,660 m<sup>3</sup> of RH Waste from Tank Closure contractor is not included
- Large/Small Definitions are dependent on waste type:
  1. TRU(M) Small is 55-gallon drums, containers smaller than a 55-gallon drum, 85-gallon over-packs, and SWBs
  2. TRU(M) Large is non-small containers
  3. MLLW Small is containers with a volume of less than 10 cubic meters
  4. MLLW Large is containers with a volume of more than 10 cubic meters
- Rules for re-assigning packages listed as CH in SWITS as RH are:
  1. Containers with a dose rate of >200 mR/hr
  2. Containers containing shielding
  3. Containers with greater than 0.25 curies of cesium-137
- Assumes all MLLW reclassified as RH is MLLW-07
- Waste marked as LLW TSCA is not included in the MLLW volumes
- 50% of RSW is assumed to be MLLW
- Assumes 75 percent (by volume) of the RSW CH large containers are TRU(M) waste and 25 percent are MLLW
- Assumes that 25 percent (by volume) of the RSW small containers are TRU(M) waste and 75 percent are MLLW
- Assumes 95% of the CH MLLW small portion from TRU(M) Retrieval is MLLW-04, 5% is MLLW-03
- Retrieval and storage data as of January 3, 2008. Forecast data from SWIFT 2008.0 (excludes 1st qtr FY 2008)
- Retrieval and storage numbers include packages without a TSD accept date
- Volumes for retrieval and storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)
- Does not include shipped or already disposed waste

## APPENDIX E

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# MLLW TREATABILITY GROUPS DATA TABLES

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Mixed Low-Level Waste Inventory  
(Volumes in cubic meters)

Location	MLLW-01	MLLW-02	MLLW-03	MLLW-04	MLLW-05	MLLW-06	MLLW-07	MLLW-08	MLLW-09	MLLW-10	Unassigned
214T	0.2	0.6	0.2	0.2							
218W4B											1.1
218W4C			1.0	16.7			20.8				
218W5	42.1			0.2							
221T	0.2	0.3	0.4	6.8	1.1		7.9				10.2
2336W	0.2		0.6	4.5							
2402WB	1.2	2.7	18.3	1.9			0.4				
2402WC	0.2	10.2	21.2	1.0			1.9			0.2	
2402WD		4.6	1.9			0.4	0.2	0.2			
2402WE		9.3	6.7	4.2		1.5		0.6	0.8		
2402WF		0.4									
2402WH	0.2	1.5	1.7	0.6			1.0		0.8		
2402WJ		12.7	4.4			0.2	0.4		3.0		
2403WA	7.3	6.8	5.3	1.7		0.8	0.4				
2403WB	7.0		8.5	48.3			71.5				
2403WC	3.1	51.7	23.4	10.6	0.6	4.1	53.6				
2403WD	2.7	52.2	31.1	213.2	0.6	3.4	101.5	0.4	0.2		
2404WA		3.5	24.8	3.3		0.2					
2404WB	0.2	0.4	0.2	6.9	1.0				0.2		
2404WC				6.5							
2706T	11.2	0.4	1.6	0.8	0.2		1.4				
AMW1											0.2
AMW2						0.2					0.6
CWC							287.8				
FS01			0.2	0.2			0.6				
FS02											0.4
FS04			0.4								
FS05		0.2									
FS06		0.2									
FS07		0.2	0.2					0.2			
FS08		0.2	0.8								
FS09		0.1									
FS11		0.2									
FS12				0.2							
FS14		0.2									
FS16			0.2								
FS18			0.4			0.0					
FS20			0.6								
FS21			0.2	0.2							
FS23		0.2	2.7				0.2	0.2			
FS24		1.2	0.7								
Total	75.9	160.2	157.8	328.1	3.6	10.8	549.6	1.7	5.1	1.5	11.3

Note: Unassigned waste volumes include waste in process at the time of the annual inventory.

Mixed Low-Level Waste Inventory  
(Container Count)

Location	MLLW-01	MLLW-02	MLLW-03	MLLW-04	MLLW-05	MLLW-06	MLLW-07	MLLW-08	MLLW-09	MLLW-10	Unassigned
214T	1	3	1	1							
218W4B											1
218W4C			3	11			5				
218W5	148			1							
221T	1	1	2	3	4		2				4
2336W	1		3	22							
2402WB	6	6	87	8			2				
2402WC	1	47	102	5			1			1	
2402WD		23	10			2	1	1			
2402WE		44	32	19		7		3	4		
2402WF		2									
2402WH	1	7	9	3			5		4		
2402WJ		64	23			1	2		14		
2403WA	35	38	26	8		4	2				
2403WB	4		5	12			13				
2403WC	15	243	24	19	2	21	14				
2403WD	13	252	144	784	3	17	17	2	1		
2404WA		17	119	16		1					
2404WB	1	2	1	32	5				1		
2404WC				31							
2706T	42	2	8	4	1		6				
AMW1											1
AMW2						1					3
CWC							23				
FS01			1	1			3				
FS02											2
FS04			2								
FS05		1									
FS06		1						1			
FS07		1	1								
FS08		1	4								
FS09		1									
FS11		1									
FS12				1							
FS14		1									
FS16			1								
FS18			2			1					
FS20			3								
FS21			1	1							
FS23		1	13				1	1			
FS24		6	3								
Total	269	765	630	982	15	55	97	8	24	7	5

Mixed Low-Level Waste Forecast  
(Volumes in cubic meters)

Generator	MLLW-01	MLLW-02	MLLW-03	MLLW-04A	MLLW-05	MLLW-07	MLLW-10
Central Waste Complex		2.3					
Fast Flux Test Facility							0.3
Ground Water Monitoring				32.9			
Hanford Site Operations (Infrastructure)	0.3	0.8	0.5		0.3		
K Basins Closure				0.1			
Lawrence Berkeley Laboratory	0.0						
Liquid Waste Processing Facilities, 200 Area			36.3				
Pacific Northwest National Laboratory	190.8						
REDOX			0.5				
RH and Oversized MLLW/TRU(M) Facilities (M-91)			54.7	368.0			
T Plant Operations, 221-T/2706-T		34.4	9.0				
Tank Closure	3418.7					180.0	
U Plant			0.7	0.3			
Waste Encapsulation & Storage Facility		8.5				6.4	
Waste Receiving and Processing Facility, 2336-W			6.4				
Waste Sampling & Characterization Facility, 6266			312.8				
Waste Treatment Plant - Operations	6622.2		1067.7	4.4		700.7	
<b>Total</b>	<b>10232.0</b>	<b>46.0</b>	<b>1488.6</b>	<b>405.7</b>	<b>0.3</b>	<b>887.1</b>	<b>0.3</b>

Mixed Low-Level Waste Forecast  
(Container Count)

Generator	MLLW-01	MLLW-02	MLLW-03	MLLW-04A	MLLW-05	MLLW-07	MLLW-10
Central Waste Complex		9					
Fast Flux Test Facility							1
Ground Water Monitoring				128			
Hanford Site Operations (Infrastructure)	1	3	2		1		
K Basins Closure				2			
Lawrence Berkeley Laboratory	0						
Liquid Waste Processing Facilities, 200 Area			12				
Pacific Northwest National Laboratory	525						
REDOX			2				
RH and Oversized MLLW/TRU(M) Facilities (M-91)			14	93			
T Plant Operations, 221-T/2706-T		134	35				
Tank Closure	718					25	
U Plant			3	1			
Waste Encapsulation & Storage Facility		33				25	
Waste Receiving and Processing Facility, 2336-W			25				
Waste Sampling & Characterization Facility, 6266			1217				
Waste Treatment Plant - Operations	17541		4154	2		990	
<b>Total</b>	<b>18785</b>	<b>179</b>	<b>5464</b>	<b>226</b>	<b>1</b>	<b>1040</b>	<b>1</b>

**APPENDIX F**

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**TRANSURANIC WASTE TREATABILITY  
GROUPS  
DATA TABLES**

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Transuranic Waste Inventory  
(Volumes in cubic meters)

Location	CH TRU		CH TRUM		RH TRU		RH TRUM	
	Large	Small	Large	Small	Large	Small	Large	Small
214T								1.8
218W3AE					50.1	4.2		
221T	17.2	52.4			15.7		8.7	0.6
2336W		15.2			41.1			0.2
2402W					60.5			
2402WC		0.2			0.2			
2402WD		1.4			0.5			0.4
2402WE		0.8			13.2			
2402WG					0.2			
2402WH					0.6			0.2
2402WI		3.0			1.7			
2402WJ			8.8		0.8			
2402WK					3.5			
2402WL		67.5				0.2	0.4	
2403WA		8.6	50.3	652.2				9.6
2403WB	157.6	16.8	1062.6	10.2	12.7		10.6	21.6
2403WC	74.8	11.5	34.1	196.3		1.2	19.8	4.6
2403WD	153.7	57.7	55.6	74.2	7.4	0.2		4.1
2404WA		21.2	17.0	205.5		0.4	62.0	18.6
2404WB		87.1	0.4	424.2		0.4		3.3
2404WC		41.5		107.2				0.2
2706T		4.5	35.4	56.0				0.2
CWC	217.5		1976.2				10.1	
FS05								0.6
FS06								0.2
FS11								0.5
FS14								0.2
FS20		0.2						1.4
FS21								1.1
FS23								0.3
FS25								0.4
Grand Total	620.9	389.5	3240.5	1870.4	79.2	6.7	111.5	63.8

Transuranic Waste Inventory  
(Container Count)

Location	CH TRU		CH TRUM		RH TRU		RH TRUM	
	Large	Small	Large	Small	Large	Small	Large	Small
214T				1				
218W3AE					35	20		
221T	2	141		75	1		1	3
2336W		73		197				1
2402W				288				
2402WC		1		1				
2402WD		6		2				2
2402WE		4		63				
2402WG				1				
2402WH				3				1
2402WI		7		8				
2402WJ			3	4				
2402WK				9				
2402WL		324				1	1	
2403WA		40	10	3102				46
2403WB	20	13	181	41	2		2	12
2403WC	9	52	7	880		6	5	22
2403WD	34	175	11	285	1	3		12
2404WA		102	6	976		2	12	89
2404WB		418	1	2030		2		16
2404WC		100		321				1
2706T		21	1	267				1
CWC	6		73				1	
FS05				3				
FS06				1				
FS11				2				
FS14				1				
FS20		1		5				
FS21				5				
FS23				1				
FS25				2				
Grand Total	71	1478	293	8574	39	34	22	206

Transuranic Waste Forecast  
(Volumes in cubic meters)

WG NAME	CH TRU		CH TRUM		RH TRU	RH TRUM	
	Small	Large	Small	Large	Small	Small	Large
231-Z Materials Engineering Laboratory		2.1					
618-10/11 Burial Grounds			249.4	54.6			
Balance of Sludge					346.9		953.0
Ground Water Monitoring			26.7				
K Basins Closure		17.5					4.2
Pacific Northwest National Laboratory	40.7		10.8		27.0		10.8
Plutonium Finishing Plant, 234-5 Z	3768.6		942.9				
RH and Oversized MLLW/TRU(M) Facilities (M-91)			12.5				27.1
River Corridor Closure Contract	0.3						
T Plant Operations, 221-T/2706-T			114.6				
Tank Closure							319.0
Waste Receiving and Processing Facility, 2336-W	89.2						
Waste Treatment Plant - Operations						399.1	
Grand Total	3900.8	17.5	1357.1	54.6	373.9	1394.2	319.0

Transuranic Waste Forecast  
(Container Count)

WG NAME	CH TRU		CH TRUM		RH TRU	RH TRUM	
	Small	Large	Small	Large	Small	Small	Large
231-Z Materials Engineering Laboratory		1					
618-10/11 Burial Grounds			885	2			3708
Balance of Sludge					1350		
Ground Water Monitoring			104				
K Basins Closure		2					2
Pacific Northwest National Laboratory	130		42		105		42
Plutonium Finishing Plant, 234-5 Z	7346		1836				
RH and Oversized MLLW/TRU(M) Facilities (M-91)			6				112
River Corridor Closure Contract	1						
T Plant Operations, 221-T/2706-T			446				
Tank Closure							72
Waste Receiving and Processing Facility, 2336-W	347						
Waste Treatment Plant - Operations						1553	
Grand Total	7825	2	3319	2	1455	5417	72

## APPENDIX G

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# NUMBER OF CONTAINERS AND VOLUMES

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Volume (in cubic meters) by Container Type

TC_LVL1	Modified Handling	CON_RAD_CD	Size Group	5320 CASK	BURLAP, CLOTH, PAPER OR PLASTIC BAGS, WRAP	CONCRETE BOXES	CONCRETE CYLINDERS, CASKS	EBR II CASKS	FIBERBOARD/PLASTIC BOXES, CARTONS, CASES	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	GLOVE BOXES	HEPA FILTERS	ION EXCHANGE COLUMNS	METAL CYLINDER, CASKS	METAL DRUMS, BARRELS, KEGS	METAL, CONTAINERS	MISC_ SMALL METAL CONTAINERS	MISCELLANEOUS SCRAP	OAK RIDGE CONCRETE VAULT	SEA-LAND CONTAINER	SELF CONTAINED, EQUIPMENT	SPECIAL CONFIGURATION CONTAINER	TANKS, PORTABLE	TRUCKS, FLATBEDS, COMPACTOR, LOADLUGGER	WOODEN BOXES, CARTONS, CASES
STORAGE	CH	TRU	>10 m3							1567.3						888.3			14.9	52.6					
STORAGE	CH	TRU	55 Gal < x < SWB			1.5		24.5							1053.4	6.1									
STORAGE	CH	TRU	55 Gallon												1025.8										
STORAGE	CH	TRU	SWB													122.4									
STORAGE	CH	TRU	SWB < x < 10 m3			104.2	27.1			76.9				6.7		1303.1						21.9	17.0		
STORAGE	RH	TRU	<55 Gallon	0.1																					
STORAGE	RH	TRU	>10 m3			10.1																			
STORAGE	RH	TRU	55 Gal < x < SWB					2.6						56.3	12.5	1.5									
STORAGE	RH	TRU	55 Gallon												68.9										
STORAGE	RH	TRU	SWB													7.2									
STORAGE	RH	TRU	SWB < x < 10 m3			5.3								9.0	89.3									8.7	
RETRIEVAL	CH	TRU	<55 Gallon						2.9						12.5		0.8				0.0		1.1		
RETRIEVAL	CH	TRU	>10 m3			94.2	13.1			2691.3	25.5					276.1					23.9		15.6		
RETRIEVAL	CH	TRU	55 Gal < x < SWB		0.3	8.5					4.0	12.5			44.3	31.3		2.0			6.3		1.0		
RETRIEVAL	CH	TRU	55 Gallon												3546.1										
RETRIEVAL	CH	TRU	SWB < x < 10 m3			17.9				206.7	31.3		2.2			163.4					8.2		8.5		35.3
RETRIEVAL	RH	TRU	<55 Gallon						0.4						1.9		21.6	0.2			0.1				
RETRIEVAL	RH	TRU	55 Gal < x < SWB			9.9			1.0					4.8										0.7	
RETRIEVAL	RH	TRU	55 Gallon												25.8										
RETRIEVAL	RH	TRU	SWB < x < 10 m3			5.4				19.0		7.1		68.0		6.0									24.9
<b>TRU Total</b>				<b>0.1</b>	<b>0.3</b>	<b>257.2</b>	<b>40.1</b>	<b>27.1</b>	<b>4.3</b>	<b>4561.2</b>	<b>60.8</b>	<b>19.6</b>	<b>2.2</b>	<b>144.9</b>	<b>5791.3</b>	<b>2894.5</b>	<b>21.6</b>	<b>3.0</b>	<b>14.9</b>	<b>52.6</b>	<b>38.5</b>	<b>21.9</b>	<b>43.2</b>	<b>0.7</b>	<b>68.9</b>
STORAGE	CH	LLW	<55 Gallon												3.9										
STORAGE	CH	LLW	>10 m3							187.6						255.4									
STORAGE	CH	LLW	55 Gal < x < SWB									1.0			289.0	16.1						6.8	3.8		0.7
STORAGE	CH	LLW	55 Gallon												488.5										
STORAGE	CH	LLW	SWB < x < 10 m3													211.0									
STORAGE	RH	LLW	>10 m3													36.5									
STORAGE	RH	LLW	55 Gal < x < SWB		1.1									0.3	2.3	6.6									
STORAGE	RH	LLW	55 Gallon												9.2										
STORAGE	RH	LLW	SWB < x < 10 m3			9.5										53.5									
<b>TRU Total</b>				<b>0.0</b>	<b>1.1</b>	<b>9.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>187.6</b>	<b>0.0</b>	<b>1.0</b>	<b>0.0</b>	<b>0.3</b>	<b>792.9</b>	<b>579.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>6.8</b>	<b>3.8</b>	<b>0.0</b>	<b>0.7</b>
<b>Total</b>				<b>0.1</b>	<b>1.4</b>	<b>266.6</b>	<b>40.1</b>	<b>27.1</b>	<b>4.3</b>	<b>4748.9</b>	<b>60.8</b>	<b>20.6</b>	<b>2.2</b>	<b>145.2</b>	<b>6584.2</b>	<b>3473.6</b>	<b>21.6</b>	<b>3.0</b>	<b>14.9</b>	<b>52.6</b>	<b>38.5</b>	<b>28.8</b>	<b>47.0</b>	<b>0.7</b>	<b>69.6</b>

Number of Containers by Type

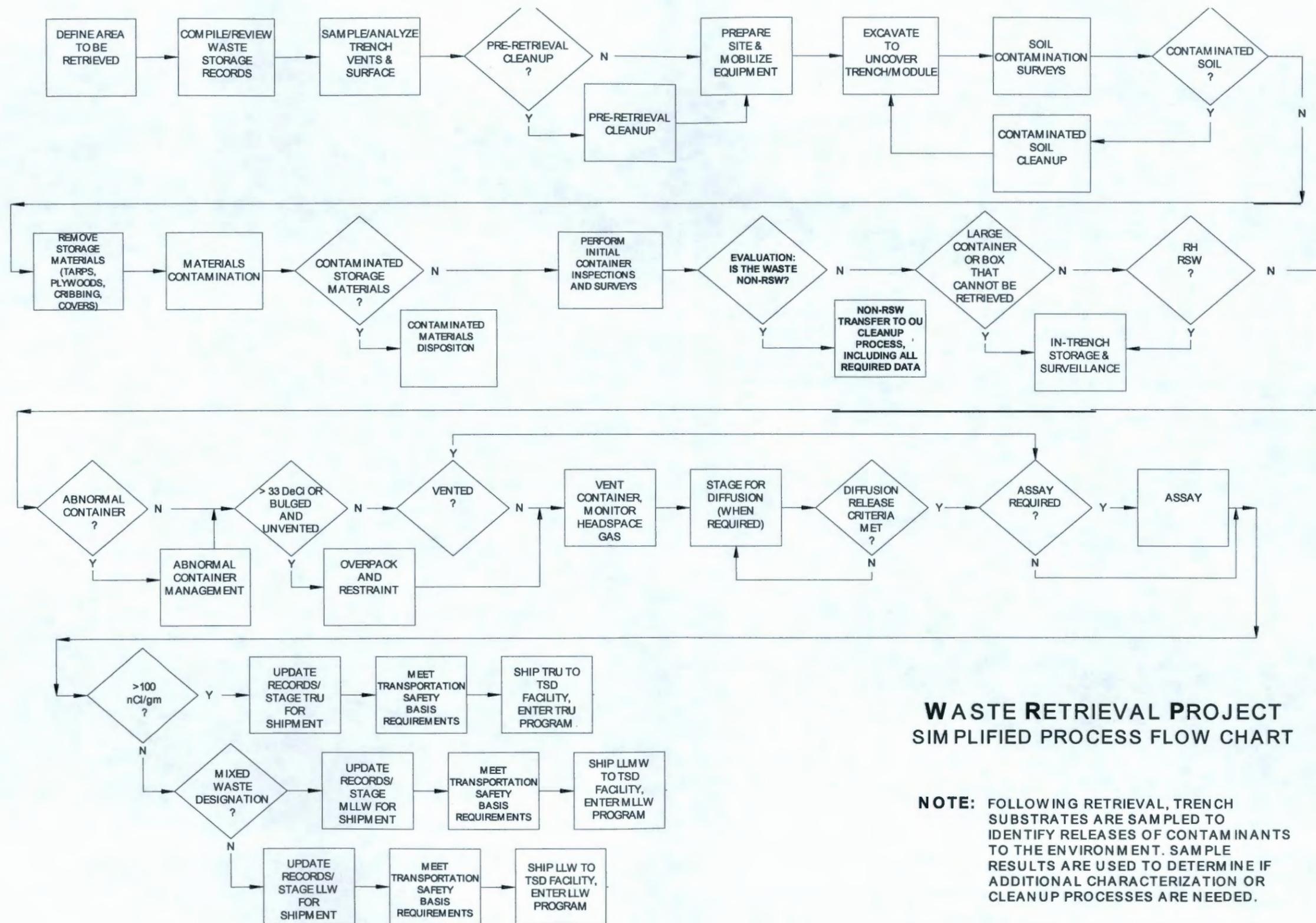
TC_LVL1	Modified Handling	CON_RAD_CD	Size Group	5320 CASK	BURLAP, CLOTH, PAPER OR PLASTIC BAGS, WRAP	CONCRETE BOXES	CONCRETE CYLINDERS, CASKS	EBR II CASKS	FIBERBOARD/PLASTIC BOXES, CARTONS, CASES	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	GLOVE BOXES	HEPA FILTERS	ION EXCHANGE COLUMNS	METAL CYLINDER, CASKS	METAL DRUMS, BARRELS, KEGS	METAL, CONTAINERS	MISC_ SMALL METAL CONTAINERS	MISCELLANEOUS SCRAP	OAK RIDGE CONCRETE VAULT	SEA-LAND CONTAINER	SELF CONTAINED, EQUIPMENT	SPECIAL CONFIGURATION CONTAINER	TANKS, PORTABLE	TRUCKS, FLATBEDS, COMPACTOR, LOADLUGGER	WOODEN BOXES, CARTONS, CASES
STORAGE	CH	TRU	>10 m3							44						47			1	3					
STORAGE	CH	TRU	55 Gal < x < SWB			2		36							4870	7									
STORAGE	CH	TRU	55 Gallon												4905										
STORAGE	CH	TRU	SWB													68									
STORAGE	CH	TRU	SWB < x < 10 m3			21	13			10				2		218						13	6		
STORAGE	RH	TRU	<55 Gallon	1																					
STORAGE	RH	TRU	>10 m3			1																			
STORAGE	RH	TRU	55 Gal < x < SWB					11						44	55	1									
STORAGE	RH	TRU	55 Gallon												396										
STORAGE	RH	TRU	SWB													4									
STORAGE	RH	TRU	SWB < x < 10 m3			1								1		18									1
RETRIEVAL	CH	TRU	<55 Gallon						23						110		13				1		6		
RETRIEVAL	CH	TRU	>10 m3			2	1			70	1					16					1		1		
RETRIEVAL	CH	TRU	55 Gal < x < SWB		1	14					7	18			170	51		2			6		1		
RETRIEVAL	CH	TRU	55 Gallon												16886										
RETRIEVAL	CH	TRU	SWB < x < 10 m3			3				41	8		1			34					2		1		8
RETRIEVAL	RH	TRU	<55 Gallon						3						60		735	13			4				
RETRIEVAL	RH	TRU	55 Gal < x < SWB				13		1					11										1	
RETRIEVAL	RH	TRU	55 Gallon												123										
RETRIEVAL	RH	TRU	SWB < x < 10 m3			3				6		1		11		3									13
<b>TRU Total</b>				<b>1</b>	<b>1</b>	<b>60</b>	<b>14</b>	<b>47</b>	<b>27</b>	<b>171</b>	<b>16</b>	<b>19</b>	<b>1</b>	<b>69</b>	<b>27575</b>	<b>467</b>	<b>735</b>	<b>28</b>	<b>1</b>	<b>3</b>	<b>14</b>	<b>13</b>	<b>15</b>	<b>1</b>	<b>22</b>
STORAGE	CH	LLW	<55 Gallon												53										
STORAGE	CH	LLW	>10 m3							16						15									
STORAGE	CH	LLW	55 Gal < x < SWB									1			967	12						6	3		2
STORAGE	CH	LLW	55 Gallon												2348										
STORAGE	CH	LLW	SWB < x < 10 m3													38									
STORAGE	RH	LLW	>10 m3													3									
STORAGE	RH	LLW	55 Gal < x < SWB			1								1	7	6									
STORAGE	RH	LLW	55 Gallon												44										
STORAGE	RH	LLW	SWB < x < 10 m3				3									8									
<b>TRU Total</b>				<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>3419</b>	<b>82</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>2</b>
<b>Total</b>				<b>1</b>	<b>2</b>	<b>63</b>	<b>14</b>	<b>47</b>	<b>27</b>	<b>187</b>	<b>16</b>	<b>20</b>	<b>1</b>	<b>70</b>	<b>30994</b>	<b>549</b>	<b>735</b>	<b>28</b>	<b>1</b>	<b>3</b>	<b>14</b>	<b>19</b>	<b>18</b>	<b>1</b>	<b>24</b>

## APPENDIX H

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# WASTE RETRIEVAL PROCESS FLOW CHART AND PROCESS OVERVIEW

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**WASTE RETRIEVAL PROJECT  
SIMPLIFIED PROCESS FLOW CHART**

**NOTE:** FOLLOWING RETRIEVAL, TRENCH SUBSTRATES ARE SAMPLED TO IDENTIFY RELEASES OF CONTAMINANTS TO THE ENVIRONMENT. SAMPLE RESULTS ARE USED TO DETERMINE IF ADDITIONAL CHARACTERIZATION OR CLEANUP PROCESSES ARE NEEDED.

## WASTE RETRIEVAL PROCESS OVERVIEW

Retrieval end-points are identified and estimates of the waste volumes to be generated by the project are summarized. Some process steps may be performed in a different order or in combination with other steps as determined by site-specific conditions. For example, retrieved drums may be non-destructively assayed prior to venting in some instances to balance and expedite the overall processing schedule. Also, some steps such as trench excavation may be performed iteratively to provide improved access and safety of container recovery operations. Nonetheless, the flow chart depicts the general process used to retrieve CH RSW from each of the suspect transuranic waste storage trenches. A description of each activity and decision point follows:

**Define Area to be Retrieved** – The project team maintains a production plan including the locations and rates of future retrieval operations based on achieving the M-91-40 enforceable milestones. Production plans are frequently updated to respond to changing site conditions and other performance risks, and to respond to the needs of downstream waste disposition programs such as the TRU Program or Mixed Waste Treatment Program. Authorizations, including nuclear facility safety basis requirements, facility startup requirements, air permits, etc. must be in place before work may be performed in each location. Support facility needs are determined. Work planning is initiated.

**Compile/Review Waste Storage Records** – Archived waste storage records are reviewed for each container or waste stream to be retrieved. The records are researched to identify special safety or handling requirements and to begin the waste designation process. The processes of the waste generating facility are reviewed or personnel familiar with the targeted waste stream are interviewed to gather additional information. Data packages are developed for use by retrieval personnel and by waste disposition programs.

**Sample/Analysis Trench Vents & Surface** – As retrieval proceeds, the M-91-40 requires that burial ground vents and substrate be sampled and analyzed after retrieval to determine whether or not releases of contaminants to the environment have occurred. A Sample and Analysis Plan must be submitted and approved, and results documented and transmitted to the regulators. In addition, chemical and radiation surveys are conducted of the trench surface to identify worker industrial hygiene or radiological concerns that must be addressed prior to initiation of retrieval.

**Pre-Retrieval Cleanup Decision** – The results of burial ground vent/substrate sample analysis and trench surface field surveys are reviewed to determine if additional cleanup work is required. The objective of additional cleanup is to remove hazards prior to safely performing retrieval operations, or to address a newly discovered contamination release that poses a threat to human health and the environment. Information about a newly discovered contamination release is communicated to regulatory agencies and other affected cleanup programs.

**Pre-Retrieval Cleanup** – Common pre-retrieval cleanup issues include radiological or volatile organic compound releases from historic burial ground operations. Minor surface contamination cleanup is typically resolved by removal of contaminated soils, packaging, and disposition as secondary waste utilizing facility operation authorities and procedures. Cleanup objectives are established to protect worker safety and health during retrieval operations. Response actions for a newly discovered contamination release that poses a threat to human health and the environment are coordinated with

effected programs that have remediation responsibilities, e.g., Groundwater Protection, CERCLA cleanup. The authority, objectives, and approach to perform cleanup of releases to the environment are negotiated with regulatory agencies. Secondary waste generated by pre-retrieval cleanup is documented, designated, staged, and transferred to a TSD facility for final disposition.

**Prepare Site and Mobilize Equipment** – Retrieval equipment, support facilities, and personnel are mobilized to the retrieval site(s). Support utilities and services are provided, and access control is established. Readiness activities are completed and operation startup is performed. Site clearing is completed to access retrieval trenches.

**Excavate to Uncover Trench/Module** – Overburden soil is removed to access trenches. Conventional construction equipment including excavators, front-end loaders, and dump trucks are typically utilized and operated using procedures that minimize the potential of damaging waste containers or spreading contamination. Excavation continues to access the specific storage module where containers will be retrieved. Incidental excavation may occur to support placement of support structures, construct storage pads, or other operational needs. Excess soils are hauled to spoil piles or used as backfill materials. Excavation activities may include trench sidewall stability features, (e.g., shoring), etc.

**Soil Contamination Surveys** – Chemical and radiological monitoring is performed during the excavation of trench/module overburden materials. Survey plans are developed, based on historical information about contamination levels and any information derived from pre-retrieval sample/analysis of trench vents/substrate and surface surveys.

**Contaminated Soil Decision** – Soil contamination survey data is evaluated to determine whether or not any overburden material is contaminated and must be segregated and managed as secondary waste.

**Contaminated Soil Cleanup** – Small volumes of contaminated soil that are identified during trench/module excavation are segregated, packaged, a waste designation is completed (note: this may require sampling/analysis), and the secondary waste is transferred to an appropriate TSD facility for treatment/disposal. In the event that a large release to the environment is identified, a response action is followed similar to that described under Pre-Retrieval Cleanup for a contamination release that poses a threat to human health and the environment.

**Remove Storage Materials** – Various storage configurations were used during the period in which RSW was placed in the LLBG. Some configurations utilized storage materials including tarps, plywood, cribbing, metal cover, etc. to facilitate the safe placement of RSW and/or to improve the effectiveness of long-term storage. The removal of common storage materials such as plywood between container storage levels or tarp covers is integrated into retrieval operations procedures. The removal of storage materials that could impact the structural integrity of containers or the safety of workers such as pilings, cribbing, metal covers, etc. requires the development of engineered demolition and/or hoisting and rigging plans. Excavation is often necessary during the removal process to facilitate access.

**Materials Contamination Surveys** – Chemical and radiological monitoring is performed during the removal of storage materials. Survey plans are developed based on known or anticipated contamination levels within the trench/module.

**Contaminated Storage Materials Decision** – Storage materials contamination survey data are evaluated to determine whether or not any of the materials are contaminated and must be segregated and managed

as secondary waste.

**Contaminated Storage Materials Disposition** – Contaminated storage materials are segregated, packaged, a waste determination is completed (note: this may require sampling/analysis), and the secondary waste is transferred to an appropriate TSD facility for treatment/disposal.

**Perform Initial Container Inspection & Surveys** – An initial inspection of the uncovered RSW containers is performed. Radcon/IH surveys are completed to identify contamination and radiological dose rate information. Container integrity is evaluated to determine if structural repairs or special handling is needed to facilitate retrieval. Container identification markings (when available) are compared with historical record data packages to identify the container.

**Non-Retrievably Stored Waste Decision** – Waste with no container or containers that have deteriorated to the point that they cannot be retrieved without posing significant risks to workers, the public or the environment are not considered RSW, (i.e., non-RSW). The extent of non-RSW containers is determined and may include RSW containers below or adjacent to the non-RSW containers that cannot be retrieved without disturbing the non-RSW.

**Non-Retrievably Stored Waste Transfer to Cleanup Process** – Disposition of non-RSW will be determined through the cleanup process set forth in RCRA, Chapter 70.105 RCW, and/or CERCLA as appropriate.

**Large Container or Box That Cannot be Retrieved Decision** – Large containers or boxes that are determined to be unsafe for retrieval and/or storage until future processing facilities are available will be left in the trenches, with concurrence from Ecology as specified in M-91-40. These containers must be uncovered, inspected and found to be intact and not posing a threat to human health and the environment (or re-packaged to prevent release to the environment), and existing documentation must not indicate the presence of free liquids. The extent of non-retrievable large containers and boxes is determined and may include RSW containers below or adjacent to them that cannot be retrieved without disturbing the large containers and boxes.

**In-Trench Storage & Surveillance** – Large containers or boxes determined to be non-retrievable will be left in the trenches. Regulatory agencies will be notified and a plan will be developed for the safe storage of the containers in the LLBG including surveillance plans, repairs, over-packing, and/or covers necessary to prevent releases to the environment pending ultimate disposition of the waste.

**Remote-Handled Retrievably Stored Waste Decision** – RH RSW is not currently being retrieved and may remain in the trenches until future handling capabilities are available. In some circumstances shielding may be used or over-packing to allow handling of RH RSW containers as CH RSW (Note: These containers will be processed as RH).

**RH RSW In-Trench Storage & Surveillance** – RH RSW that will not be retrieved during the CH retrieval process will be left in the trenches. A plan will be developed for the safe storage of the containers in the LLBG including surveillance plans, repairs, over-packing, and/or covers necessary to prevent releases to the environment.

**Abnormal Container Decision** – Each waste container is inspected in accordance with safety criteria to determine whether or not it has abnormal conditions (e.g., bulged, breached, heavily corroded). Containers with abnormal conditions are entered into the Abnormal Container Management Program

(ACMP).

**Abnormal Container Management** – Containers placed in the ACMP are evaluated and mitigation actions selected and applied to address the safety hazards of the container (e.g., install bracing fixtures, bagging, over-packing). ACMP containers are tracked until the abnormal condition is remedied. The container is returned to processing after the safety hazards are addressed.

**Greater than 33 DE-Ci or Bulged, and Unvented Decision** – Waste containers are reviewed to identify containers having high radionuclide inventories (>33 DeCi) or that are bulged AND are unvented. These containers are considered a special safety concern due to the increased potential consequences of a drum deflagration event during venting operations.

**Over-pack and Restraint Installed** – Waste containers that pose special safety concerns due to high radionuclide inventory or bulging are over-packed and an engineered restraint device is installed. These additional safety features remain on the container until it is vented, and flammable gas diffusion criteria are met.

**Vented Decision** – Each waste container is inspected to determine whether or not it is vented in accordance with safety criteria. Containers with functioning vent clips or vent filter devices, or that are visibly breached are considered vented.

**Vent Container, Monitor Head-Space Gas** – Containers that require venting are staged for venting unit operations. Venting is achieved by inserting a nuclear filter device utilizing equipment designed to minimize the potential of igniting any flammable head-space gasses. Techniques include cold drilling, sparkless dart gun, sparkless hole saw drilling, etc. A head-space gas sample is collected at the time of venting to determine initial flammable gas concentrations.

**Stage for Diffusion (when required)** – Newly vented containers that exceed flammable head-space gas safety criteria are placed in a gas diffusion zone where container movement is minimized. A diffusion period is selected and tracked based on the measured initial gas concentration of the container and factors that control the rate of diffusion, e.g., container type, filter, etc. Containers that do not exceed safety criteria at time of venting are immediately released for further processing.

**Diffusion Release Criteria Met Decision** – Containers staged for diffusion are reviewed to determine if flammable head-space gas diffusion criteria have been met and the containers can be released for further processing. The determination may be made through re-sampling of the container or through calculated diffusion curves.

**Assay Required Decision** – Acceptable knowledge data packages from RSW generation/storage records are reviewed to determine if sufficient information exists to designate the waste as transuranic. Containers that cannot conclusively be designated as transuranic waste are assayed to complete the transuranic waste or LLW designation.

**Assay** – NDA is performed using gamma and/or neutron detection equipment. The data is analyzed and reviewed through the project quality assurance process. Assay data records are generated for use by the waste disposition programs (e.g., TRU Program, LLW Program).

**Greater than 100 nCi/g Decision** – NDA data, or acceptable knowledge data packages from waste

generation/storage records are reviewed to determine if the waste meets the criteria for transuranic waste or LLW designation (i.e.,  $>100$  nCi/g = Transuranic waste).

**Mixed Waste Designation Decision** – Waste generation and storage records for LLW are reviewed to determine if any Washington State dangerous waste codes apply. Waste designations are updated and MLLW is segregated from LLW for further disposition. A receiving TSD facility is determined.

**Update Records/Stage TRU Waste or LLW for Shipment** – Waste containers are sorted based on transuranic waste vs. LLW designation. Waste container labeling and SWITS database records are updated.

**Meet Transportation Safety Basis Requirements** – Each waste container is reviewed against transportation requirement documents to determine preparation needs and method of transport from the LLBG. Preparations may include over-packing, placing in shipping containers (e.g., IP-2, install cribbing/blocking materials). Selection of transport method may include road closure plans, selection of conveyance, and scheduling of transportation resources.

**Ship TRU Waste to TSD Facility, Enter TRU Program** – Retrieved transuranic waste containers are transported to an appropriate TSD facility and enter the TRU Program for further processing and certification for shipment to the WIPP facility for permanent disposal. Transfer to the TRU Program is the WRP end point for CH transuranic waste.

**Ship LLW to TSD Facility, Enter LLW Program** – Retrieved LLW containers are transported to an appropriate TSD facility and enter the LLW Program for further processing and disposition at an on-site disposal facility selected by the DOE. Transfer to the LLW Program is the WRP end-point for CH LLW.

**Ship MLLW to TSD Facility, Enter MLLW Program** – Retrieved MLLW containers are transported to an appropriate TSD facility and enter the MLLW Program for further processing and disposition. Transfer to the MLLW Program is the WRP end-point for CH MLLW.

**Post-Retrieval Trench Substrate Sampling and Analysis** – Following retrieval, trench substrates are sampled to determine whether or not releases of contaminants to the environment have occurred, and if so, the nature and extent of contamination. A sample and analysis plan is developed and submitted to the state for approval prior to sampling. Sampling and analysis results are reported to the state. If contamination is identified a determination is made whether or not follow-on characterization or cleanup response actions are needed.

**Assumptions:**

1. Retrieval is defined as uncovering CH waste within the trenches and removing the CH waste from the trenches to a permitted and compliant TSD unit, or, for non-mixed waste, to a storage or disposal facility that DOE determines is appropriate.
2. Waste is designated no later than 90 days following transfer from the LLBG.
3. Environmental documents (NEPA, CERCLA, NTCRA, Notice of Compliance [NOC], TAPs, and FHA SB) required to retrieve waste are completed and approved.
4. The requirements of DOE-EIS-0113-SA04, *Supplement Analysis, Waste Retrieval from the 218-W-4C, 218-E-12B, 218-W-3A and 218-W-4B Low-Level Burial Grounds, 200 Area Hanford Site, Richland, Washington*, remain valid for drums and boxes.
5. Where waste designation cannot be made based on Acceptable Knowledge (AK) data, additional activities are performed:
  - Processing at T Plant, WRAP, or future SWPC
  - Transfer between WRAP and T Plant/future SWPC
  - NDE/Linear Detector Array (LDA) analysis at WRAP
  - Sample analysis at 222-S/WSCF
  - Characterization & processing will be performed at T Plant, WRAP, or future SWPC
6. Fiberglass Reinforced Plywood (FRP) boxes and plywood boxes will be evaluated and reinforced as required to be structurally stable to ensure safe lifting, transporting, and long-term storage while exposed to the environment.
7. Plans will be developed to address non-RSW before it is encountered in Waste Retrieval operations.
8. Sampling of non-RSW for use in the 200-SW-2 data collection will be in accordance with the 200-SW-2 Data Quality Objective (DQO) Sampling and Analysis Plan (SAP) or other applicable agreements. Opportunistic sampling may be conducted as appropriate based on the plans and objectives specified in those documents.
9. Drums with greater than 1 g fissile gram equivalent (FGE) transuranic content, based on SWITS records, and drums containing only uranium are handled as transuranic waste and do not have to be assayed.
10. Container movements within a burial ground will be treated as intra-facility transfers and are not subject to DOT criteria.
11. Container management, retrieval, movement and shipment can be accomplished using commercial practices (e.g., wood pallets, standard fuel powered equipment, standard transfer/trailer systems) and associated generally accepted risks.
12. Wastes will normally be designated via process knowledge and burial record information. When process knowledge is not adequate, sampling will be conducted as required.

13. For remaining RSW, 100 percent of the drums will require over-pack. Most RSW boxes will require repair/stabilization or over-packing prior to retrieval.

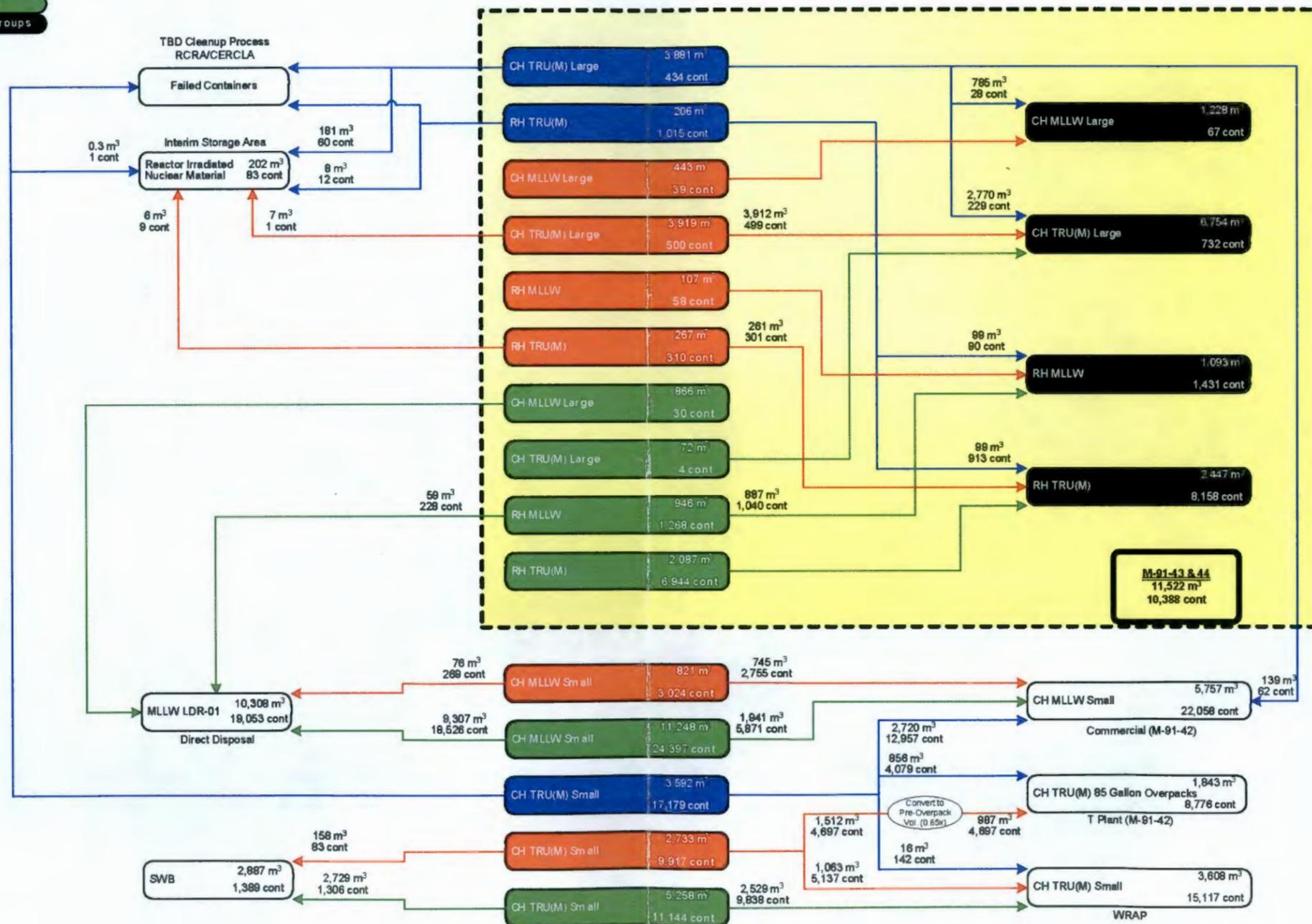
## APPENDIX I

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# PROCESSING FLOW DIAGRAM

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2008 - 2035, Data as of 1/03/08



## YELLOW CHART ASSUMPTIONS

### *Data Sources:*

- Transuranic Waste Retrieval and Storage Data from SWITS as of January 3, 2008
- Rules for re-assigning packages listed as CH in SWITS as RH are:
  1. Containers with a dose rate of >200 mR/hr
  2. Containers containing shielding
  3. Containers with greater than 0.25 curies of cesium-137
- Waste marked as LLW TSCA is not included in the MLLW volumes
- Waste identified as "German Logs" is not included. Includes packages CASTOR-GSF-001, -002, -003, -005, -006, -007, GNS-12-1, and GNS-12-2
- Forecast data taken from SWIFT 2008.0, represents life-cycle forecast January 2008 through September 30, 2035 with the exception of RH transuranic tank waste
- Volumes for Retrieval and Storage are internal, volumes for forecast are external (e.g., 55-gallon drum is 0.208 m<sup>3</sup> internal waste, 0.257 m<sup>3</sup> external)

### *Transuranic Waste Retrieval:*

- Containers identified as Reactor Irradiated Nuclear Material based on process knowledge and SWITS record information. Capabilities and processing of this material is a non-M-91 activity.
- Assumed 50/50 MLLW/transuranic waste split by volume and container count for retrieved RSW
- Assumes 75 percent (by volume) of the RSW CH large containers are transuranic waste and 25 percent are MLLW
- Assumes that 25 percent (by volume) of the RSW small containers are transuranic waste and 75 percent are MLLW
- Assumes that all caisson waste is RH transuranic
- Assumes that RH RSW is 50 percent transuranic waste and 50 percent MLLW
- Although there are assumed to be failed containers from the transuranic waste retrieval burial grounds, no assumptions regarding volume or count of containers have been made
- Transuranic waste retrieval burial grounds consist of 218-W-3A, 218-W-4B, 218-W-4C, and 218-E-12B

### *Other:*

- Container definitions are as follows:
  1. MLLW Small is containers with a volume less than 10 m<sup>3</sup>
  2. MLLW Large is containers with a volume greater or equal to 10 m<sup>3</sup>
  3. TRU(M) Small is 55-gallon drums, containers smaller than a 55-gallon drum, 85-gallon over-packs, and SWBs
  4. TRU(M) Large is non-small containers

**APPENDIX J**

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**VOLUME CHANGES BETWEEN PMP REVISION 4  
AND REVISION 3**

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Location	Waste Streams	2007 Volume (m <sup>3</sup> )	Waste Retrieved	MLLW Disposal/TRU(M) Certification	Reclassified/Newly Generated	2008 Volume (m <sup>3</sup> )
STORAGE	CH MLLW Small	1,847	N/A	1,494	617	821
STORAGE	CH MLLW Large	294	N/A			443
STORAGE	RH MLLW	97	N/A	0	10	107
STORAGE	CH TRU(M) Small	2,605	N/A	700	828	2,733
STORAGE	CH TRU(M) Large	2,239	N/A	0	1,680	3,919
STORAGE	RH TRU(M)	285	N/A	0	18	267
RSW RETRIEVAL	CH RSW Small	4,186	489	N/A		3,592
RSW RETRIEVAL	CH RSW Large (<10m <sup>3</sup> )	5,657	148	N/A	(125)	3,881
RSW RETRIEVAL	CH RSW Large (>10m <sup>3</sup> )		1,607	N/A		
RSW RETRIEVAL	RH RSW	212	7	N/A		206
FORECAST	CH MLLW Small	11,680				11,248
FORECAST	CH MLLW Large	898				866
FORECAST	RH MLLW	1,302				946
FORECAST	CH TRU(M) Small	6,325				5,258
FORECAST	CH TRU(M) Large	92				72
FORECAST	RH TRU(M)	2,346				2,087

### Assumptions/Notes

1. The data sources for the 2007 and 2008 volumes are:
  - a. Inventory - SWITS with data queries performed on 1/3/07 and 1/03/08
  - b. Forecast - SWIFT 2007.0 and SWIFT 2008.0 datasets
  - c. Waste retrieval, disposal, and certification numbers are as reported by the contractor.
2. Waste in the "Reclassified/Newly Generated" includes:
  - a. Waste assayed and/or recalculated resulting in change in waste type designation (e.g. TRU(M) assayed as to MLLW or LLW)
  - b. Waste surveyed and/or recalculated resulting in change in change in waste handling designation
  - c. Waste moved to another location (e.g. waste retrieved and placed in storage)
  - d. Newly generated waste received for storage

## APPENDIX K

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# ESTIMATED VOLUMES GENERATED FROM WASTE PROCESSING

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## Estimated Volumes (in Cubic Meters)

Category	Feed Volumes	Ending Volumes (Internal)					Totals
		MLLW LDR-01	CH MLLW	RH MLLW	CH TRU(M)	RH TRU(M)	
MLLW LDR-01	9,219	9,258					9,258
CH MLLW Small	5,516		3,838				3,838
CH MLLW Large	1,228		1,228				1,228
RH MLLW	1,007		90	893			983
CH TRU(M) Small	7,476		506		7,469		7,975
CH TRU(M) Large	6,751		1,710		7,891	22	9,623
RH TRU(M)	2,151		463	461	692	1,002	2,618
	33,348	9,258	7,835	1,354	16,052	1,024	35,523

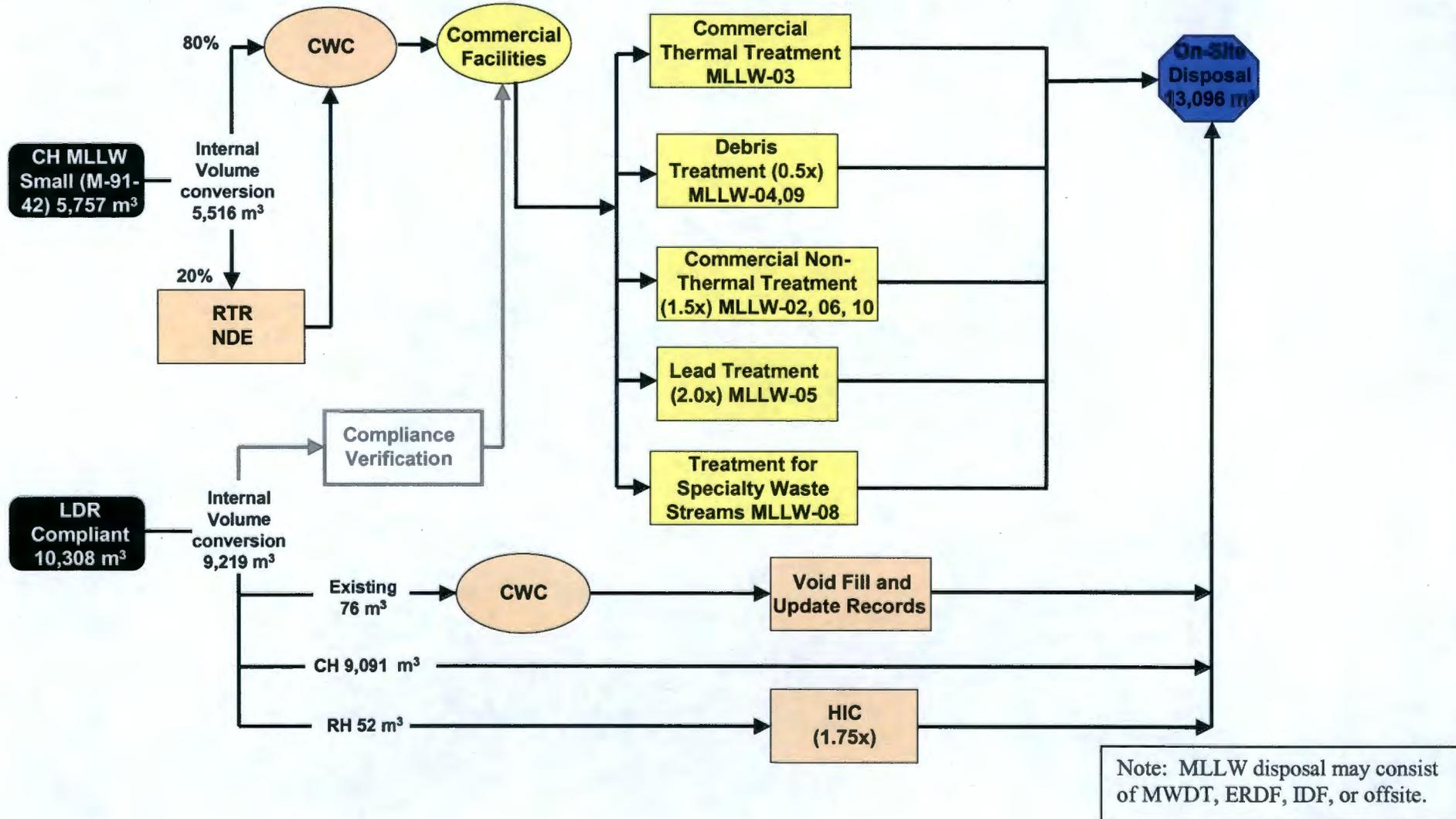
## APPENDIX L

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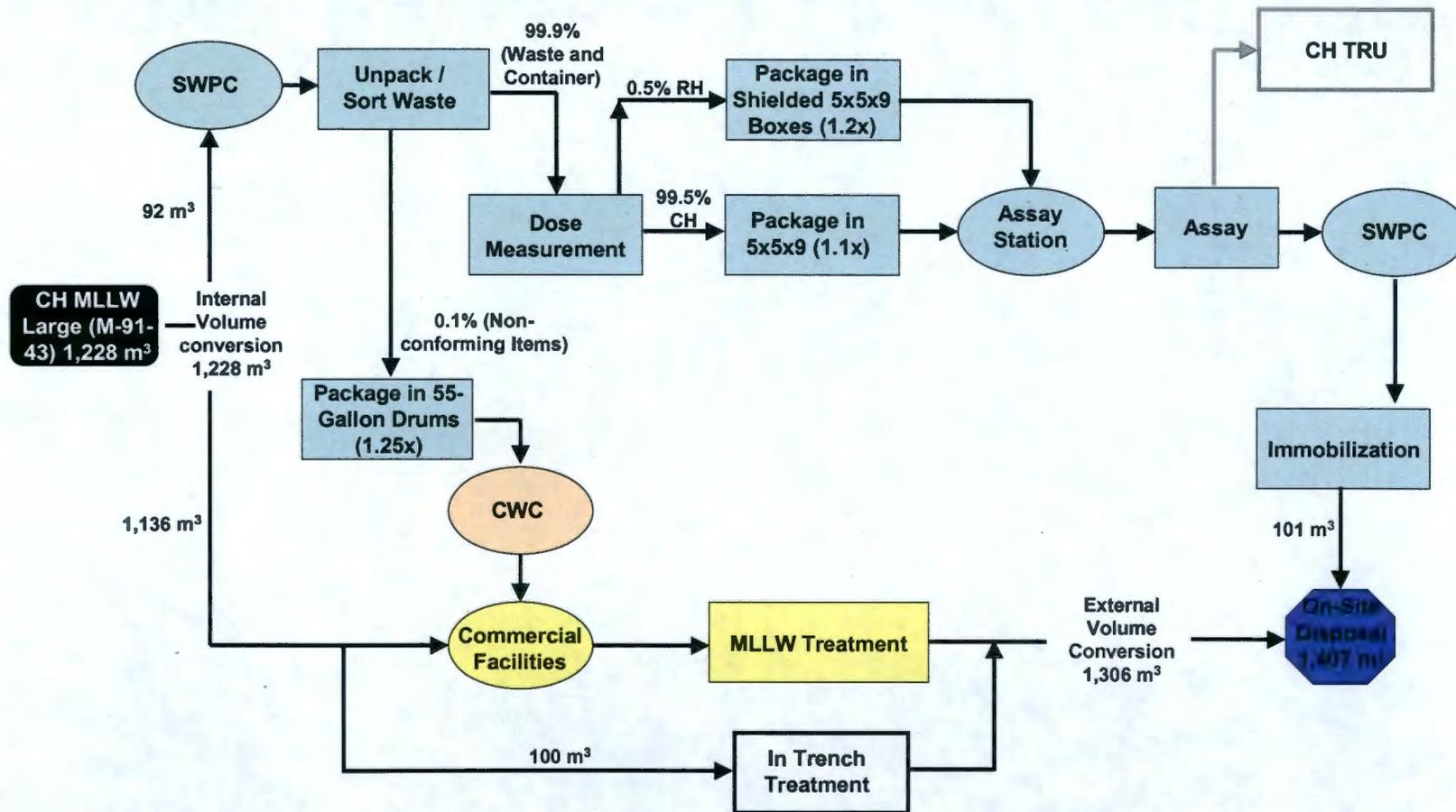
# MLLW TREATABILITY GROUPS PROCESS FLOW DIAGRAMS

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## M-91-42 MLLW Process Flow Diagram

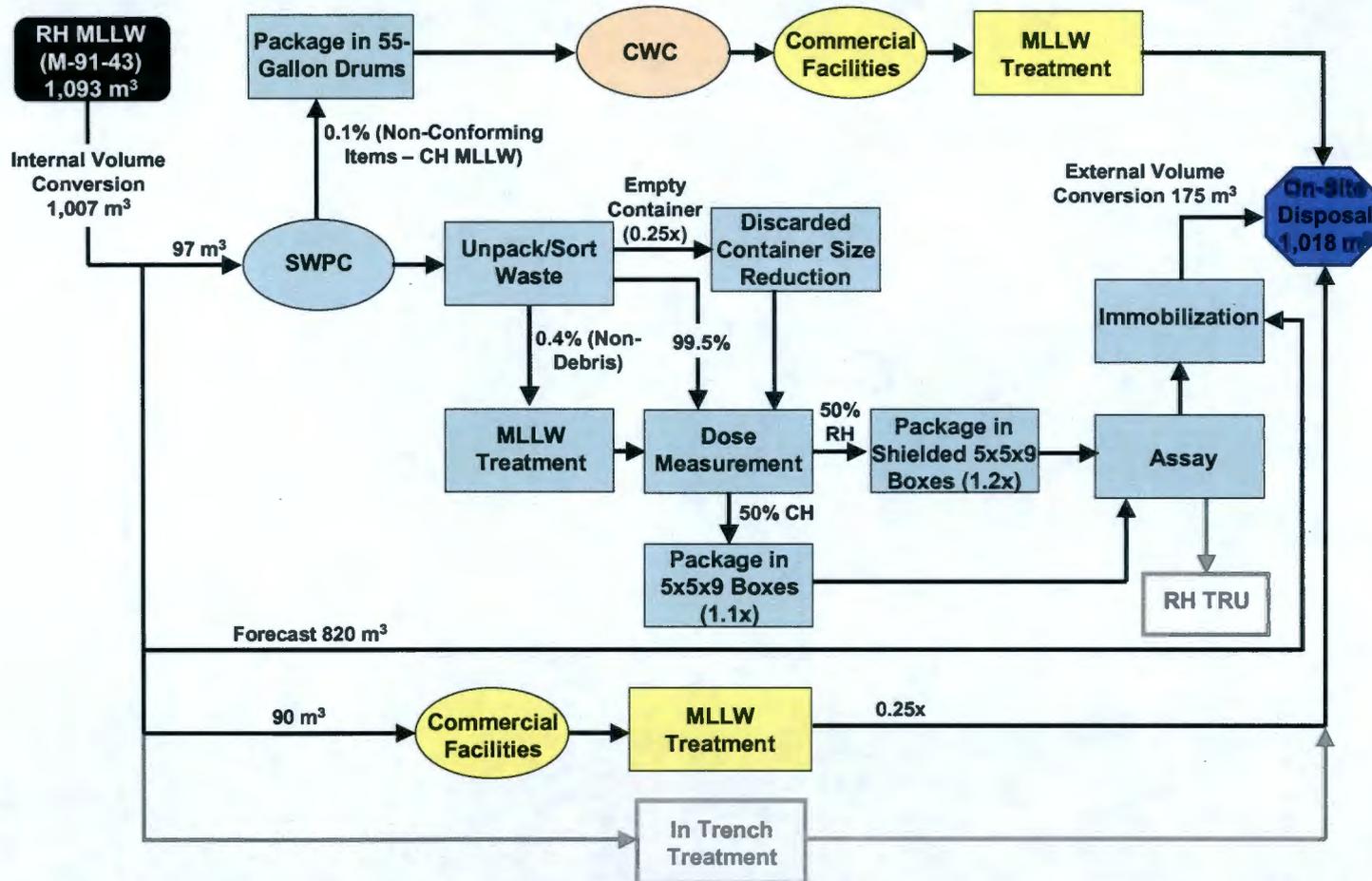


## M-91-43 CH MLLW Process Flow Diagram



Note: MLLW disposal may consist of MWDT, ERDF, IDF, or offsite.

## M-91-43 RH MLLW Process Flow Diagram



Note: MLLW disposal may consist of MWDT, ERDF, IDF, or offsite.

Assumptions for MLLW Treatability Groups Process Flow Diagrams

CH MLLW Small (M-91-42)

- Twenty percent of newly generated or stored waste requires NDE before processing
- Volume multipliers are dependant on LDR waste code. Multipliers based on prior experience with current treatment techniques if applicable

LDR Compliant

- Waste is assumed to be disposed directly to the MWDT (or ERDF) with the exception of RH waste, which requires placement in a high integrity container (HIC)
- Multiplier on HIC accounts for increased volume required in the MWDT

CH MLLW Large (M-91-43)

- Most CH MLLW containers are assumed to be able to be treated commercially. Experience with similar containers indicates no net increase or decrease in disposal volume
- In-trench treatment is suitable for a portion of this waste stream

RH MLLW (M-91-43)

- All RH MLLW is unpacked and sorted with the discarded container
- Waste unpacked from containers are assumed to be approximately 50 percent RH and 50 percent CH
- The waste will then be treated using immobilization techniques

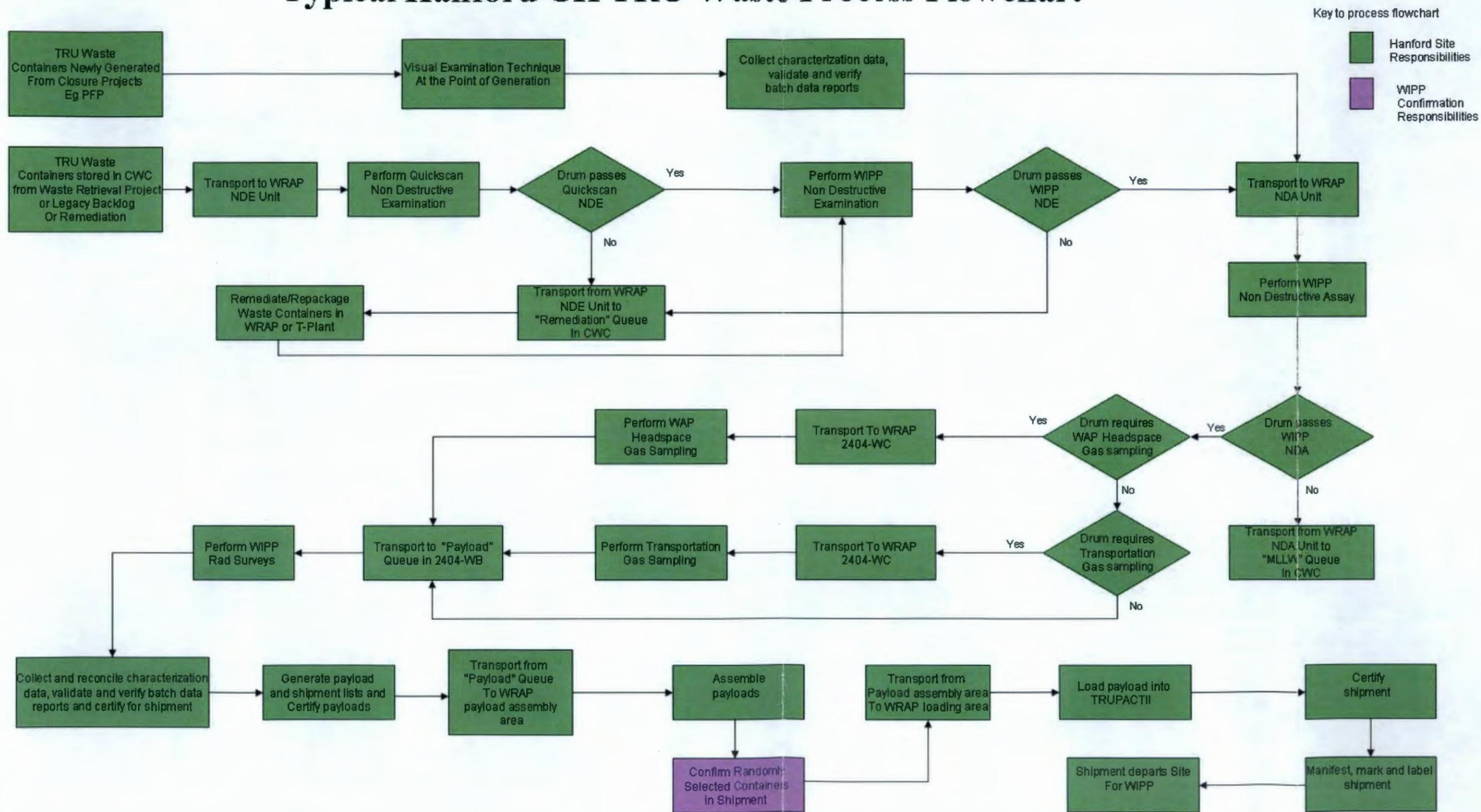
## APPENDIX M

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# WIPP CERTIFICATION CH TRANSURANIC WASTE PROCESS FLOWCHART AND ASSUMPTIONS

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## Typical Hanford CH TRU Waste Process Flowchart



**Base Case Assumptions for FY 2009:**

1. WIPP Certification is maintained
2. Resources are maintained for WRAP NDE, NDA, HSG, and associated drum movement
3. Sufficient resources are available to prepare the waste streams slated for near-term approval
4. Solids sampling and analysis performed at INL
5. WIPP provides TRUPACT trailers and shipping containers at a rate sufficient to meet shipping requirements (i.e., shipments to WIPP and shipments to other sites such as INL for coring and analysis)
6. Newly generated waste will be repackaged in 55-gallon drums and SWBs
7. CH transuranic waste is acceptable for WIPP and does not include:
  - a. Shielded containers to CH levels
  - b. RH waste
  - c. LabPacks
8. There are no significant revisions to the regulatory and requirements documents that are relevant to WIPP processing and shipping

## APPENDIX N

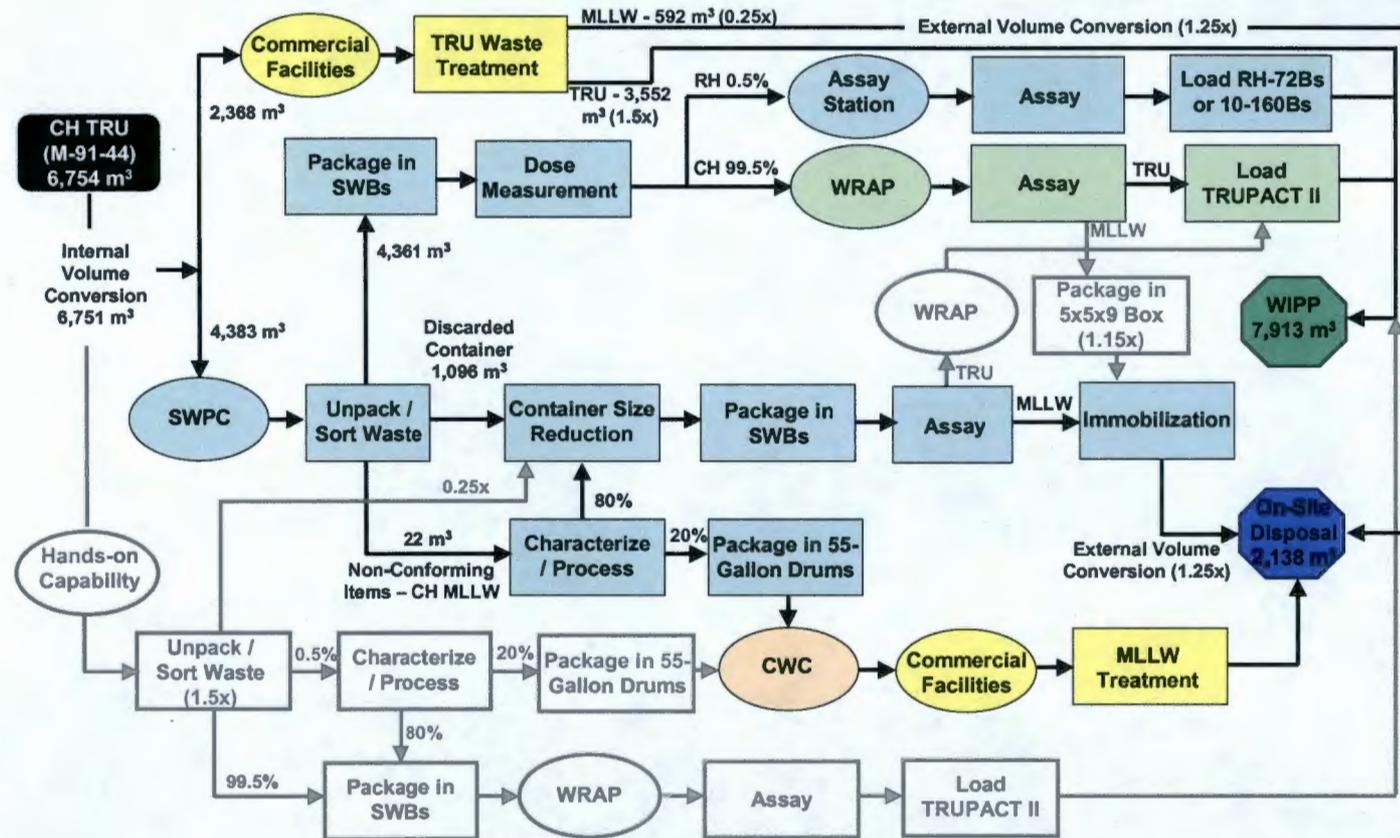
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# TRANSURANIC WASTE TREATABILITY GROUPS PROCESS FLOW DIAGRAMS

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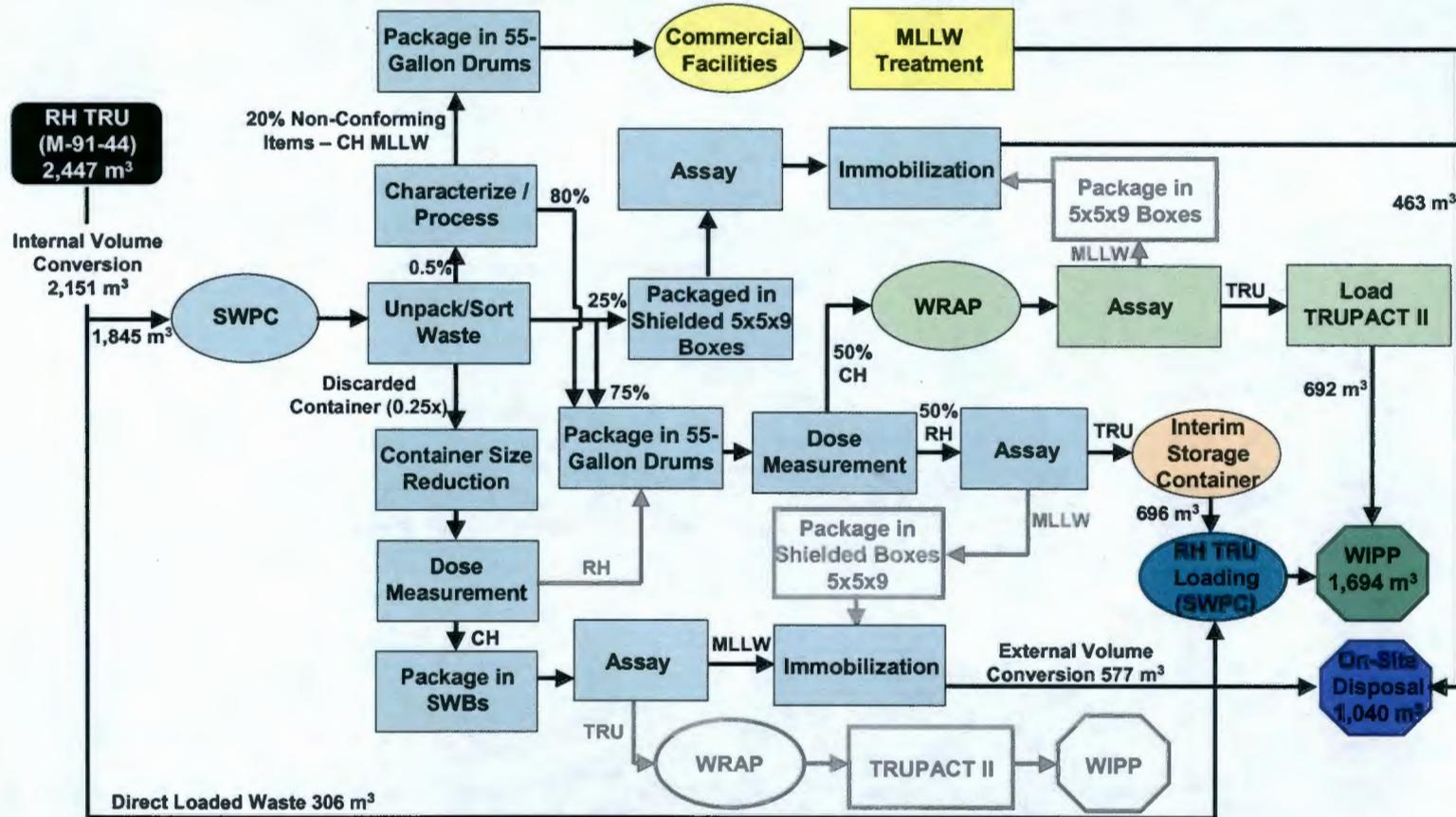


## M-91-44 CH Transuranic Waste Process Flow Diagram



Note: MLLW disposal may consist of MWDT, ERDF, IDF, or offsite.

# M-91-44 RH Transuranic Waste Process Flow Diagram



Note: MLLW disposal may consist of MWDT, ERDF, IDF, or offsite.

Assumptions for Transuranic Waste Treatability Groups Process Flow Diagrams

CH Transuranic Waste 85-Gallon Overpacks (M-91-42)

- Overpacks are separated from the 55-gallon drum, size reduced, and disposed as non-transuranic waste
- The remainder of the processing steps for the 55-gallon drum removed from the overpack are identical for drums in storage/retrieval

CH Transuranic Waste 55-Gallon Drums (M-91-42)

- Forty percent of the drums from storage/retrieval and one percent of newly generated drums are assumed to require sorting/repackaging following a NDE quick scan

CH Transuranic Waste SWB (M-91-42)

- All newly generated SWBs are assumed to be packaged using Visual Examination and do not require NDE or rework. SWBs not packaged using Visual Examination require an NDE

CH Transuranic Waste Large (M-91-44)

- Waste to be treated either commercially or through the future SWPC
- Volume increases from commercial processing are due to waste generated from the discarded container, failed process equipment, and processing consumables (protective clothing, plastic, etc.)
- Waste processed through the future SWPC is unpacked and sorted, with the discarded container size reduced and treated as MLLW. The remainder of the waste is packaged in SWBs
- 0.5 percent of the repackaged waste is assumed to be RH
- A possibility exists that a portion of the waste could be identified as transuranic following assay and that repackaged waste could assay as MLLW. It is assumed the likelihood of this occurring is small

RH Transuranic Waste (M-91-44)

- A portion of the forecasted RH waste will be certified and can be loaded into 10-160Bs or RH-72Bs for disposal without rework
- Most RH transuranic waste is assumed to be processed at the SWPC
- Discarded containers and non-conforming items are assumed to be CH MLLW
- Shielding from existing containers is assumed to be MLLW
- Waste requiring repackaging into 55-gallon drums, with 50 percent is assumed to be CH transuranic and 50 percent RH transuranic
- A possibility exists that a portion of the waste could be identified as transuranic following assay and that repackaged waste could assay as MLLW. It is assumed the likelihood of this occurring is small

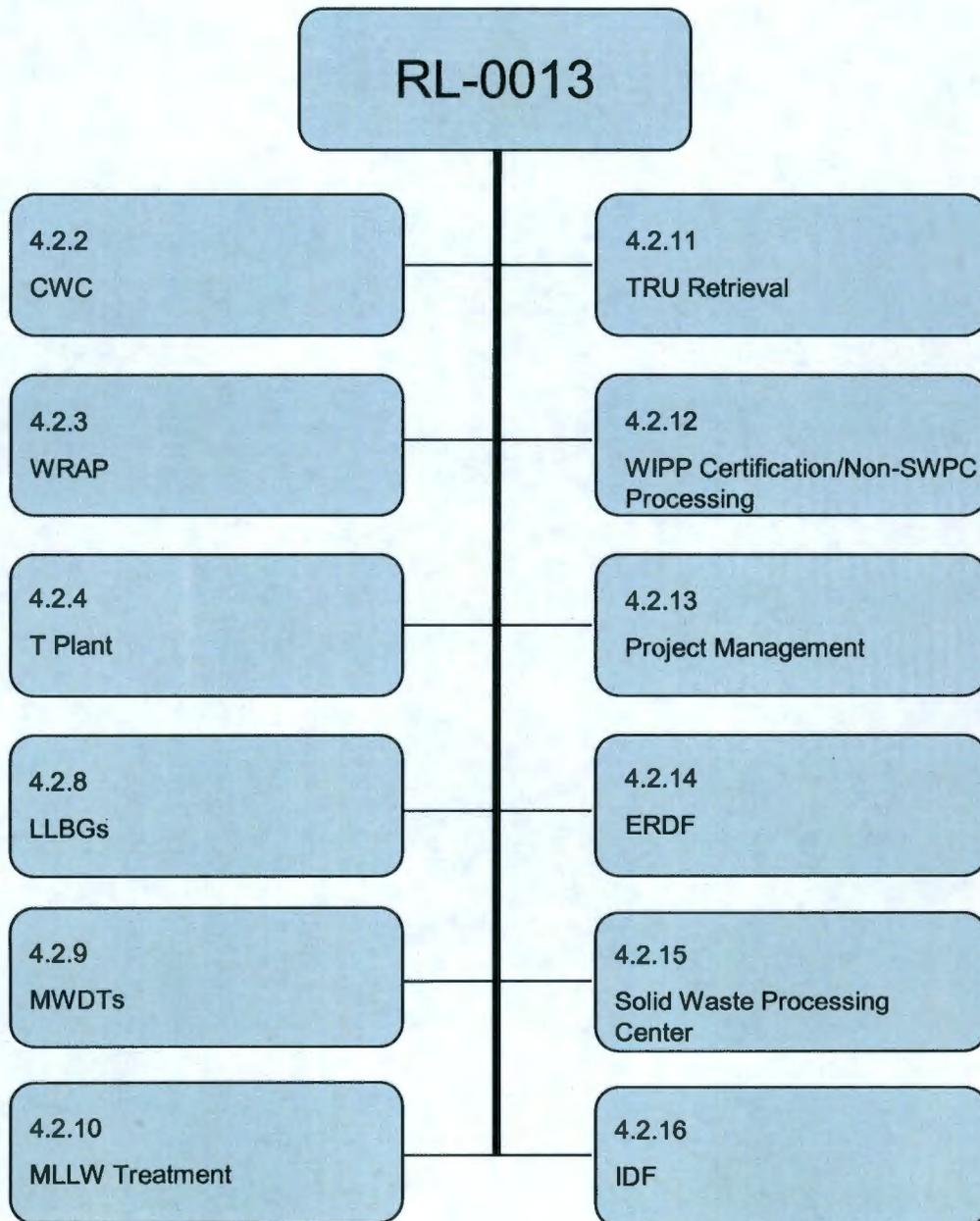
## **APPENDIX O**

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# **WBS ELEMENTS APPLICABLE TO THE PROJECT MANAGEMENT PLAN**

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## WBS Hierarchy



## Description of Work Scope

PBS WBS RL-0080 provides FY 2008 funding for LLBGs and MWDTs. These activities are funded in FY 2009 by PBS WBS RL-0013.

This PMP assumes that WSD work scope continues through FY 2050.

**WBS 4.2.2 CWC** – This activity provides for the minimum safe operations for compliant interim storage of CH LLW, MLLW, transuranic waste, and waste from onsite and offsite generators at the CWC (see Figure O-1). The CWC will operate through FY 2049 and then be RCRA clean-closed in FY 2050 for transfer to D&D.

**WBS 4.2.3 WRAP** – This activity provides for the safe and compliant receipt, verification, storage, repackaging or treatment (if necessary), certification, and shipment of LLW, MLLW and transuranic waste. WRAP (see Figure O-2) receives containers of CH waste from generators, staging areas, CWC, Waste Retrieval Operations, LLBG, and T Plant. Radioactive waste is processed in three operational areas (the Shipping and Receiving Area, the NDE and NDA Area, and the Process Area), and staged in an outside storage area.

WRAP activities include:

- Shipping and receiving
- Waste container handling
- Waste staging and storage NDE and NDA (see Figure O-3)
- Waste treatment (e.g., noncompliant item removal)
- Verification, packaging and repackaging, head-space gas sampling (HSGS), and drum venting
- TRUPACT II loading

After completion of CH retrieval waste repackaging activities, WRAP will continue to support WIPP transuranic waste processing/certification and waste loading activities. WRAP will be operated through FY 2046 and then be transitioned to D&D.

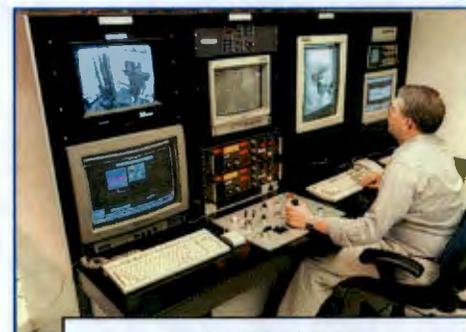
**WBS 4.2.4 T Plant** – This activity provides for minimum standby support until FY 2014. In FY 2014, T Plant resumes processing M-91-42 transuranic waste until complete and a decision is made on the SWPC.



**Figure O-1.** Central Waste Complex



**Figure O-2.** WRAP



**Figure O-3.** WRAP Non-Destructive Measurements

**WBS 4.2.8 LLBGs** – This activity provides for the minimum safe and compliant operation of the LLBG (Figure O-4). The LLBG contains LLW, RSW, and Reactor Irradiated Nuclear Materials.

The LLBG contains two lined mixed waste trenches (#31 and #34) which are included in WBS 4.2.9. The formerly active unlined trenches, within seven burial grounds, are no longer used. The unlined trenches are monitored and maintained. Maintenance includes subsidence, contamination control, caisson filter maintenance, access control, and fire control. LLBG operations will continue through FY 2032 and then transfer to D&D and be closed.

**WBS 4.2.9 MWDTs** – This activity provides for the minimum safe and compliant operation of the MWDT (see Figure O-5) for receipt and/or disposal of LLW and MLLW from generators approved by DOE-RL, management of leachate generated at the MWDT, and maintenance of the leachate transport tanker. There are currently two operational trenches, Trench 34 and Trench 31, located within the 218-W-5 Burial Ground, 200 West Area. MLLW disposal in the MWDT requires maintaining the capacity to transport leachate to the 200 ETF for treatment and disposal. Waste treatment/ storage/disposal requests from generators are approved by DOE-RL. Operation of the MWDT will continue through FY 2032, and then be closed.

**WBS 4.2.10 MLLW Treatment** – This activity provides for M-91-42 MLLW and M-91-43 MLLW treatment (SWPC M-91-43 MLLW processing is included in WBS 4.2.15). Processing includes thermal and non-thermal treatment. Activities consist of establishing off-site MLLW treatment/disposal contracts, shipping MLLW packages that have been determined to be LDR compliant to the MWDTs or ERDF for disposal, and in-treatment treatment of selected waste containers. Figure O-6 shows MLLW treatment. MLLW treatment is on-going and will be completed in FY 2050.

**WBS 4.2.11 TRU Retrieval** – This activity provides for retrieval of suspect transuranic waste from the LLBG (218-W-4C, 218-W-4B, 218-E-12B, and 218-W-3A). Retrieval (see Figure O-7) consists of:

- Removing soil over CH waste containers within the trenches
- Removing the CH waste containers from the trenches
- Assaying/venting the containers as required



Figure O-4. Low-Level Burial Grounds.

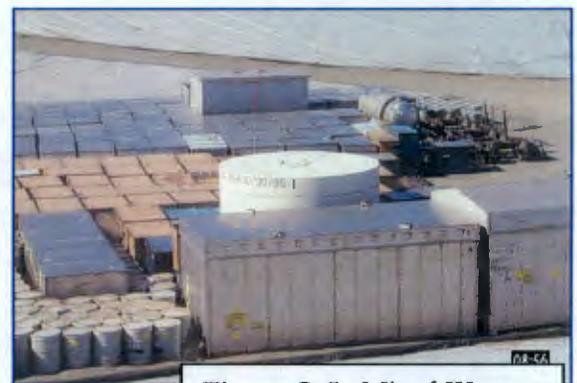


Figure O-5. Mixed Waste Disposal Trenches.

- Waste designation and sampling
- Shipping the containers to the appropriate TSD facility.

Removal of the CH Waste will continue through the end of FY 2013. Remaining retrieval activities for RH waste are scheduled to be completed by 2022.

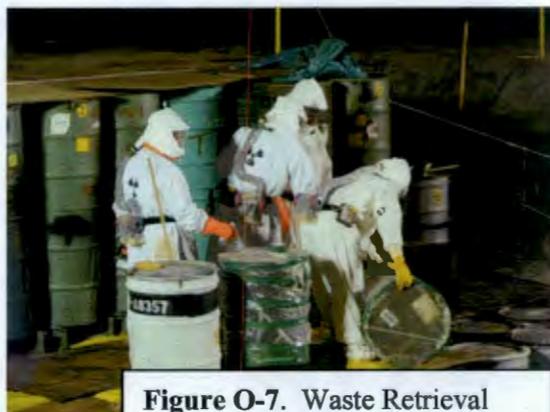
**WBS 4.2.12 WIPP Certification/Non-SWPC Processing –**

This activity provides minimum support for maintaining WIPP Certification, compliant with Carlsbad Field Office (CBFO) requirements, to allow shipments of transuranic waste (see Figure O-8) to New Mexico. This activity also includes WRAP and T Plant (not funded), and off-site processing of M-91-42 and M-91-44 transuranic waste. SWPC M-91-44 transuranic waste processing is included in WBS 4.2.15.



**Figure O-6. MLLW Treatment.**

Activities support shipment of transuranic waste to WIPP in Carlsbad, New Mexico. The transuranic waste has to meet rigorous WIPP WAC, which requires that each container be processed through visual examination (VE) technique or NDE, NDA, and HSGS, verified, validated and certified before shipment to WIPP. A data package for each container is also prepared. WIPP performs an audit annually to determine if the program at Hanford to certify wastes to meet WIPP WAC is compliant.



**Figure O-7. Waste Retrieval**

Shipment of RH transuranic waste will begin after capabilities are added for shipment (Not included in WBS 4.2.12). The primary facilities for these operations are CWC, WRAP, off-site capabilities and SWPC. This activity continues through FY 2050.

**WBS 4.2.13 Project Management –** This activity provides for “cross cutting” project management and technical support activities for the WSD Sub-Project and includes both labor and non-labor resources.

The centralized “cross-cutting” management staff includes senior-level WSD management. Also included are “cross cutting” support management and staff to the overall Project, such as strategic planning, human resources, Buyer/Procurement staff, Project Controls (e.g., schedulers/cost analysts), WSD Work Management managers and administrative, secretarial and clerical support, waste services, safety and regulatory leadership, and ensuring required interfaces with other contractors or subprojects are appropriately identified and managed. In addition to “cross cutting” staff, there are a variety of “cross cutting” assessments, such as radiation dosimetry, HLAN support services, telephones, medical and laundry



**Figure O-8. Waste Shipments to WIPP**

support. Waste Services provides waste management and transportation services to expedite waste handling from generation to disposal. These services are provided to Hanford Site waste generators, solid waste facilities, and waste generators at other DOE sites that send waste to the Hanford Site for disposal, as directed by DOE-RL.

The technical support provides for managing WSD engineering functions, including nuclear and criticality safety engineering, and provides direction and oversight management to all engineering activities, including occurrence reporting support, Price-Anderson Amendment Act of 1988 (PAAA) compliance oversight, and management of self-assessments and corrective action management support. This activity includes development and maintenance of all WSD procedures, including transportation and packaging, records management, issues management reporting and tracking, sub-project management oversight and program support and preparation of the annual LDR Report and maintenance of a LDR database. Furthermore, this activity develops and issues the annual Quality Improvement Plan and manages the overall Quality Assurance Program being implemented and maintained to detect and prevent quality assurance problems at WSD Facilities.

The WSD Sub-Project Management activities continue through FY 2050.

**WBS 4.2.14 ERDF** – This activity includes minimum safe operations of the ERDF starting in FY 2014. Generators will provide funding for disposal.

**WBS 4.2.15 SWPC** – This activity includes the SWPC that will provide capability to treat and process M-91-43/M-91-44 RH MLLW, RH transuranic waste, MLLW in large containers, and transuranic waste in large containers. This waste is either: 1) forecast to be generated during Hanford Site cleanup, 2) currently in above-ground storage, or 3) planned to be retrieved from storage in the Low Level Burial Grounds. Approximately 9,000 m<sup>3</sup> of this MLLW and transuranic waste will require treatment and processing through the SWPC prior to disposal. The SWPC will process containers ranging in size from one gallon cans to 20.5 ft. L by 18.8 ft. H by 13 ft. W boxes. Waste containers can be as heavy as 83,000 pounds. External radiation levels on individual packages identified as M-91 feed could be as high as 20,000 R/hr. The treated MLLW will be disposed at Hanford in the existing Hanford MWDTs, ERDF, or the future IDF. The processed and certified transuranic waste will be disposed in WIPP.

The SWPC will either be a new facility or a modified T Plant. FY 2014 activities will include staff-up of a project team, update of the April 2008 evaluation study, and selection a preferred SWPC alternative. The SWPC is planned to be operational in FY 2024 and be transitioned to D&D in 2044.

**WBS 4.2.16 IDF** – This activity includes minimum safe support of the IDF starting in FY 2009. In the future generators will provide funding for disposal.

## **APPENDIX P**

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# **M-91 PMP FUNDING PROFILES**

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### M-91 PMP Base Case Funding Profile (Thousands of Constant FY 2009 Dollars)

	WBS	SCOPE	LIFECYCLE COST	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	FY 2022
M-91	4.2.2	CWC	354,341	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,420	8,420	8,420
	4.2.3	WRAP	504,486	13,049	12,631	12,631	12,631	12,631	15,790	12,631	13,553	12,631	12,631	12,631	17,631	12,631	12,631
	4.2.4	T Plant	189,316	13,614	13,614	13,614	13,614	13,614	25,656	19,893	21,849	14,393	13,613	8,614	8,614	8,614	0
	4.2.8	LLBGs	36,777	1,669	1,872	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511
	4.2.9	MWDTs	22,544	429	429	429	429	429	1,025	429	1,025	4,889	429	4,889	250	250	250
	4.2.10	MLLW Treatment	183,645	4,223	9,508	12,161	11,538	8,944	18,190	20,671	13,453	3,110	3,481	3,481	3,481	3,481	3,481
	4.2.11	TRU Retrieval	231,353	25,000	25,000	25,000	25,000	25,000	16,000	16,000	16,000	16,000	16,000	5,820	5,832	5,843	5,843
	4.2.12	WIPP Certification/Non-SWPC Processing	440,585	5,000	3,000	3,000	3,000	3,000	12,900	20,400	20,600	20,600	20,600	25,117	25,117	25,117	25,117
	4.2.13	WSD Project Management	719,893	16,208	16,208	16,208	16,208	16,208	16,208	20,871	20,871	20,871	20,871	20,871	23,326	23,326	20,871
	4.2.14	ERDF	165,774	0	0	0	0	0	3,265	6,414	5,286	4,149	3,579	3,579	4,500	4,500	4,500
	4.2.15	SWPC	1,399,500	0	0	0	0	0	5,000	28,000	35,000	42,000	38,000	121,000	99,000	51,000	38,000
	4.2.16	IDF	151,718	381	381	381	381	381	381	381	941	1,828	2,282	4,500	4,500	4,500	4,500
<b>M-91 Subtotal</b>			<b>4,399,932</b>	<b>88,055</b>	<b>91,126</b>	<b>93,418</b>	<b>92,795</b>	<b>90,201</b>	<b>129,072</b>	<b>155,684</b>	<b>158,570</b>	<b>150,464</b>	<b>135,817</b>	<b>222,962</b>	<b>202,193</b>	<b>146,738</b>	<b>125,124</b>
Non - M-91			1,507,130	37,292	34,222	31,930	32,554	35,147	41,857	58,676	53,281	40,710	52,779	55,612	72,877	80,294	64,487
Other			2,387,044	50,653	50,653	50,653	50,653	69,072	86,623	85,609	77,254	76,212	112,572	111,156	91,744	76,622	
<b>TOTAL</b>			<b>8,294,107</b>	<b>176,001</b>	<b>176,002</b>	<b>176,001</b>	<b>176,002</b>	<b>176,001</b>	<b>240,001</b>	<b>300,983</b>	<b>297,460</b>	<b>268,428</b>	<b>264,808</b>	<b>391,146</b>	<b>386,225</b>	<b>318,776</b>	<b>266,232</b>

	WBS	SCOPE	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY2035	FY 2036
M-91	4.2.2	CWC	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420
	4.2.3	WRAP	12,631	12,631	17,631	12,631	12,631	12,631	12,631	17,631	12,631	12,631	12,631	12,631	17,631	12,631
	4.2.4	T Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.8	LLBGs	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511
	4.2.9	MWDTs	250	250	250	250	250	250	250	250	250	4,709	0	0	0	0
	4.2.10	MLLW Treatment	3,110	3,084	3,084	3,084	3,084	3,083	2,479	2,479	2,479	2,479	2,000	2,000	2,000	2,000
	4.2.11	TRU Retrieval	13,173	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.12	WIPP Certification/Non-SWPC Processing	20,600	20,600	20,600	20,600	20,600	18,100	10,100	10,100	10,100	10,100	10,100	5,000	5,000	5,000
	4.2.13	WSD Project Management	18,826	18,826	18,826	18,826	18,826	16,203	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208
	4.2.14	ERDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
	4.2.15	SWPC	38,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000
	4.2.16	IDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
<b>M-91 Subtotal</b>			<b>125,521</b>	<b>116,322</b>	<b>121,322</b>	<b>116,322</b>	<b>116,322</b>	<b>111,203</b>	<b>102,599</b>	<b>107,599</b>	<b>102,599</b>	<b>107,059</b>	<b>95,259</b>	<b>95,259</b>	<b>100,259</b>	<b>95,259</b>
Non - M-91			54,898	45,989	43,625	35,900	33,524	37,857	25,582	28,479	26,577	28,714	32,822	26,372	29,122	26,372
Other			72,907	65,590	66,655	61,513	60,553	60,235	51,798	54,989	52,200	54,866	51,758	49,151	52,283	49,151
<b>TOTAL</b>			<b>253,326</b>	<b>227,900</b>	<b>231,601</b>	<b>213,735</b>	<b>210,398</b>	<b>209,296</b>	<b>179,978</b>	<b>191,068</b>	<b>181,376</b>	<b>190,639</b>	<b>179,839</b>	<b>170,783</b>	<b>181,665</b>	<b>170,783</b>

	WBS	SCOPE	FY 2037	FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047	FY 2048	FY2049	FY 2050
M-91	4.2.2	CWC	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420
	4.2.3	WRAP	12,631	12,631	12,631	12,631	12,631	12,631	12,631	12,631	12,631	12,631	0	0	0	0
	4.2.4	T Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.8	LLBGs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.9	MWDTs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.10	MLLW Treatment	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	4.2.11	TRU Retrieval	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.12	WIPP Certification/Non-SWPC Processing	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
	4.2.13	WSD Project Management	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208	12,742	12,742	12,742	12,742	12,742
	4.2.14	ERDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
	4.2.15	SWPC	42,000	42,000	42,000	44,500	44,500	44,500	44,500	44,500	44,500	10,000	0	0	0	0
	4.2.16	IDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
<b>M-91 Subtotal</b>			<b>93,259</b>	<b>93,259</b>	<b>93,259</b>	<b>95,759</b>	<b>95,759</b>	<b>95,759</b>	<b>95,759</b>	<b>95,759</b>	<b>57,793</b>	<b>47,793</b>	<b>35,162</b>	<b>35,162</b>	<b>35,162</b>	<b>35,162</b>
Non - M-91			26,372	32,372	26,372	29,122	21,697	21,697	27,697	21,697	21,697	21,697	26,697	21,697	20,522	20,244
Other			48,343	50,768	48,343	50,465	47,464	47,464	49,889	47,464	32,122	28,081	24,997	22,977	22,502	22,390
<b>TOTAL</b>			<b>167,975</b>	<b>176,399</b>	<b>167,975</b>	<b>175,346</b>	<b>164,920</b>	<b>164,920</b>	<b>173,345</b>	<b>164,920</b>	<b>111,612</b>	<b>97,571</b>	<b>86,856</b>	<b>79,835</b>	<b>78,187</b>	<b>77,796</b>

**M-91 PMP As-Soon-As-Feasible Compliance Case Funding Profile** (Thousands of Constant FY 2009 Dollars)

	WBS	SCOPE	LIFECYCLE COST	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	FY 2022	
M-91	4.2.2	CWC	354,341	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,483	8,420	8,420	8,420	
	4.2.3	WRAP	428,698	13,049	12,631	12,631	12,631	12,631	15,790	12,631	13,553	12,631	12,631	12,631	17,631	12,631	12,631	
	4.2.4	T Plant	101,633	19,656	19,893	21,849	14,393	8,614	8,614	8,614	0	0	0	0	0	0	0	0
	4.2.8	LLBGs	36,777	1,669	1,872	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511
	4.2.9	MWDTs	22,544	1,025	429	1,025	4,889	429	4,889	429	429	429	429	429	429	250	250	250
	4.2.10	MLLW Treatment	183,565	24,948	25,083	25,226	12,982	4,276	3,419	3,419	3,419	3,083	3,083	2,964	2,890	2,890	2,890	2,890
	4.2.11	TRU Retrieval	212,428	50,574	59,381	35,289	23,855	5,954	5,966	5,977	5,977	5,977	13,476	0	0	0	0	0
	4.2.12	WIPP Certification/Non-SWPC Processing	558,519	40,727	44,188	48,860	48,213	48,213	48,213	39,213	28,213	10,696	10,696	9,096	8,091	8,091	8,091	8,091
	4.2.13	WSD Project Management	720,544	23,374	23,374	23,374	23,374	17,742	23,374	23,374	20,919	20,919	20,919	20,919	20,919	18,874	18,874	18,874
	4.2.14	ERDF	165,774	0	0	0	0	0	3,265	6,414	5,286	4,149	3,579	3,579	4,500	4,500	4,500	4,500
	4.2.15	SWPC	1,399,500	5,000	28,000	35,000	42,000	38,000	121,000	99,000	51,000	38,000	38,000	42,000	42,000	42,000	42,000	42,000
	4.2.16	IDF	151,718	381	381	381	381	381	381	381	941	1,828	2,282	4,500	4,500	4,500	4,500	4,500
	M-91 Subtotal			4,336,041	188,885	223,715	213,628	192,712	146,234	244,905	209,447	139,731	107,707	115,089	106,113	110,712	103,667	103,667
Non - M-91			1,484,791	41,762	56,669	56,207	42,142	38,251	39,444	47,623	47,064	58,126	66,928	63,376	71,787	60,486	45,425	
Other			2,357,994	93,204	113,303	109,041	94,904	74,550	114,905	103,882	75,484	67,013	73,553	68,490	73,748	66,334	60,248	
<b>TOTAL</b>			<b>8,178,826</b>	<b>323,851</b>	<b>393,688</b>	<b>378,876</b>	<b>329,758</b>	<b>259,035</b>	<b>399,255</b>	<b>360,951</b>	<b>262,279</b>	<b>232,846</b>	<b>255,571</b>	<b>237,979</b>	<b>256,247</b>	<b>230,487</b>	<b>209,340</b>	

	WBS	SCOPE	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY2035	FY 2036
M-91	4.2.2	CWC	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420
	4.2.3	WRAP	12,631	12,631	17,631	12,631	12,631	12,631	12,631	17,631	12,631	12,631	12,631	12,631	17,631	12,631
	4.2.4	T Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.8	LLBGs	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	1,511	0	0	0	0
	4.2.9	MWDTs	250	250	250	250	250	250	250	250	250	4,709	0	0	0	0
	4.2.10	MLLW Treatment	2,890	2,890	2,890	2,890	2,890	2,286	2,286	2,286	2,286	2,286	2,186	2,186	2,186	2,186
	4.2.11	TRU Retrieval	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.12	WIPP Certification/Non-SWPC Processing	8,091	8,091	8,091	8,091	8,091	8,091	8,091	8,091	8,091	8,091	7,500	7,500	7,500	7,500
	4.2.13	WSD Project Management	18,874	18,874	18,874	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208	16,208
	4.2.14	ERDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
	4.2.15	SWPC	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	44,500	44,500	44,500	44,500
	4.2.16	IDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
	M-91 Subtotal			103,667	103,667	108,667	101,001	101,001	100,397	100,397	105,397	100,397	104,857	97,945	100,445	105,445
Non - M-91			42,713	37,740	34,367	26,642	28,142	32,821	25,827	28,275	26,372	27,129	32,372	26,372	29,122	26,372
Other			59,152	57,142	57,800	51,581	52,187	53,833	51,007	54,017	51,228	53,335	52,661	51,247	54,379	51,247
<b>TOTAL</b>			<b>205,532</b>	<b>198,549</b>	<b>200,834</b>	<b>179,224</b>	<b>181,330</b>	<b>187,052</b>	<b>177,232</b>	<b>187,689</b>	<b>177,997</b>	<b>185,321</b>	<b>182,979</b>	<b>178,065</b>	<b>188,946</b>	<b>178,065</b>

	WBS	SCOPE	FY 2037	FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047	FY 2048	FY2049	FY 2050
M-91	4.2.2	CWC	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420	8,420
	4.2.3	WRAP	12,631	12,631	12,631	12,631	0	0	0	0	0	0	0	0	0	0
	4.2.4	T Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.8	LLBGs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.9	MWDTs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.10	MLLW Treatment	2,186	2,186	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	4.2.11	TRU Retrieval	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4.2.12	WIPP Certification/Non-SWPC Processing	5,500	5,500	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
	4.2.13	WSD Project Management	16,208	16,208	12,742	12,742	12,742	12,742	12,742	12,742	12,742	12,742	12,742	12,742	12,742	12,742
	4.2.14	ERDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
	4.2.15	SWPC	44,500	44,500	42,000	10,000	0	0	0	0	0	0	0	0	0	0
	4.2.16	IDF	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
	M-91 Subtotal			98,445	98,445	89,793	57,793	35,162	35,162	35,162	35,162	35,162	35,162	35,162	35,162	35,162
Non - M-91			26,372	32,372	26,372	29,122	21,697	21,697	27,697	21,697	21,697	21,697	26,697	21,697	20,522	
Other			50,439	52,863	46,942	35,123	22,977	22,977	25,401	22,977	22,977	22,977	24,997	22,977	22,502	
<b>TOTAL</b>			<b>175,256</b>	<b>183,681</b>	<b>163,108</b>	<b>122,038</b>	<b>79,835</b>	<b>79,835</b>	<b>88,260</b>	<b>79,835</b>	<b>79,835</b>	<b>79,835</b>	<b>86,856</b>	<b>79,835</b>	<b>78,187</b>	

**M-91 PMP BASE CASE FUNDING PROFILE ASSUMPTIONS**

1. FY 2009 dollars
2. President's budget for FY 2009
3. Constant funding at FY 2009 levels through FY 2014
4. \$240M for FY 2014
5. An average of \$300M for FY 2015 through 2022
6. An average of \$200M per year after 2022 until all backlog waste is processed and funding as required to process waste as generated through FY 2050
7. Non-91 activities include: Maintain Safe and Compliant WESF, Disposition of Capsules, Canister Storage Building, 200 Area Liquid Effluent Facilities, 300 Area Liquid Effluent Facilities, Disposition of Spent Nuclear Fuel, Spent Nuclear Fuel Support
8. Other activities include: RL Reserve, Project Management Reserve, Closure Services, Fee
9. Waste Stabilization and Disposition Project Management supports M-91 and non-91 activities
10. ERDF is transferred to PBS RL-0013 in FY 2014
11. IDF is transferred to PBS RL-0013 in FY 2009
12. FY 2009 funding provides minimum safe operations of CWC, WRAP, MWDTs, and WIPP Certification
13. ERDF and IDF funding only includes minimum safe operations. Generators provide funding for disposal
14. SWPC is funded in FY 2014
15. T Plant is maintained in ready-to-serve until FY 2014. T Plant resumes processing M-91-42 transuranic waste until complete and a decision is made on the SWPC
16. FY 2009 funding provides retrieval of 1,100 m<sup>3</sup> of CH RSW, treatment of 30 m<sup>3</sup> of M-91-43 MLLW, treatment of 150 m<sup>3</sup> of M-91-42 MLLW, and shipment of the backlog of M-91-42 transuranic waste to WIPP
17. Basis for SWPC funding profile is derived from the April 2008 Draft WMP-36746 Revision 0, *M-91 Project Alternatives Evaluation Study*.

**M-91 PMP AS-SOON-AS FEASIBLE COMPLIANCE CASE FUNDING PROFILE ASSUMPTIONS**

There are no funding constraints as detailed above.

## APPENDIX Q

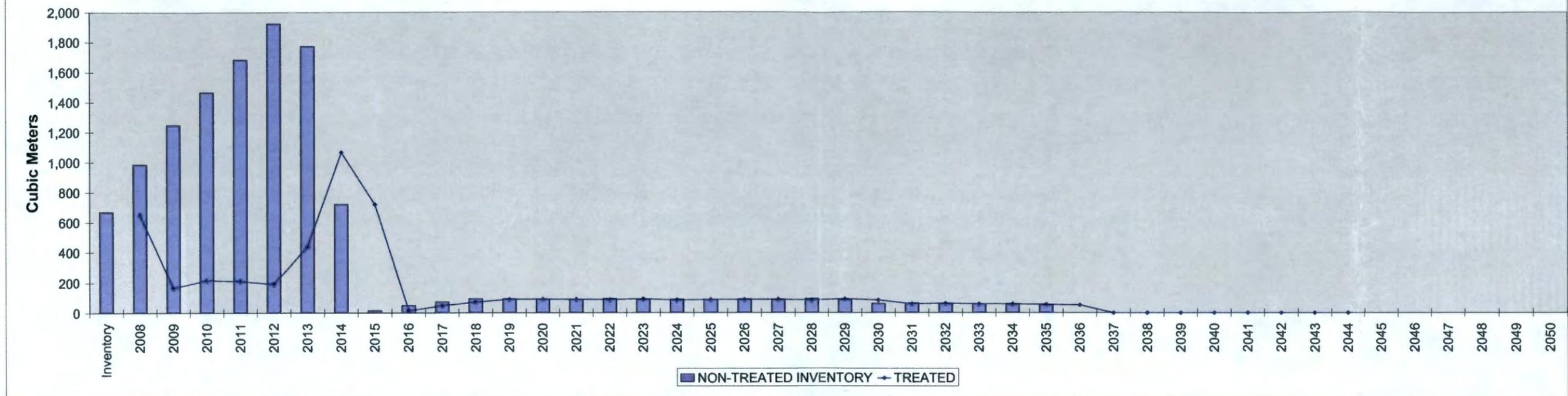
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# M-91 MLLW PROCESSING SCHEDULES

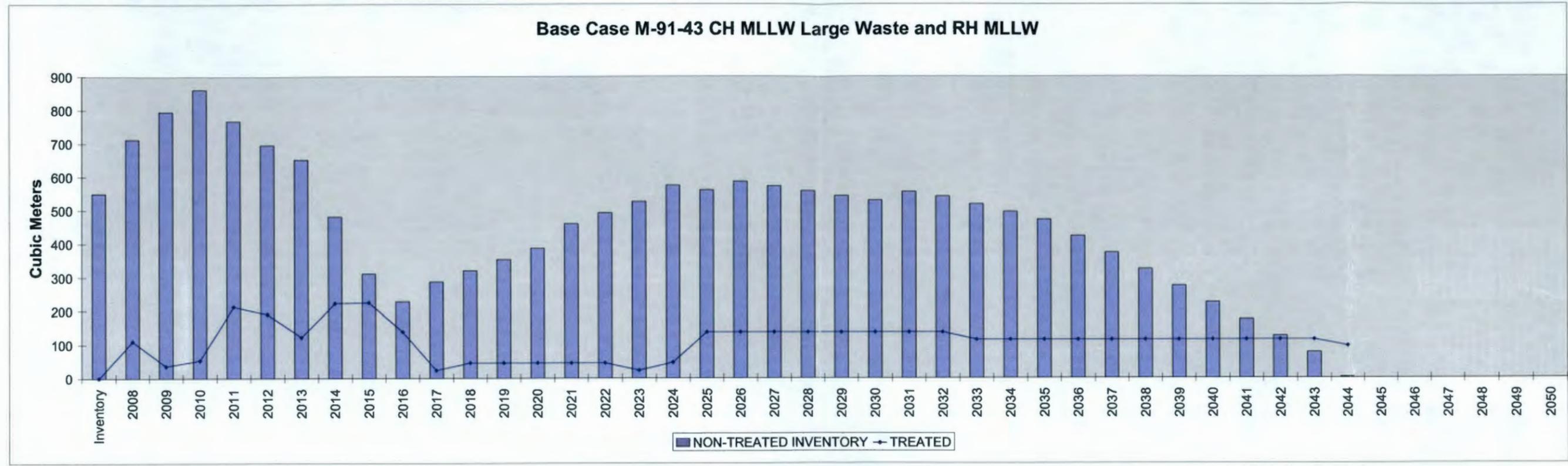
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FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050				
Retrieval		950	410	411	410	411	267																																									
Storage	668																																															
Forecast		16	19	24	20	20	19	15	15	49	72	92	93	91	89	94	86	89	89	91	85	94	85	61	63	60	60	57	53																			
From Processing M-91-434 Waste					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
TREATED																																																
Commercial		650	167	217	212	192	439	1,087	720	16	50	73	93	94	92	90	95	87	90	90	92	86	95	86	61	65	61	61	58	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Annual		650	167	217	212	192	439	1,087	720	16	50	73	93	94	92	90	95	87	90	90	92	86	95	86	61	65	61	61	58	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NON-TREATED INVENTORY	668	665	1,247	1,465	1,684	1,924	1,771	720	16	50	73	93	94	92	90	95	87	90	90	92	86	95	86	61	65	61	61	58	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Base Case M-91-42 CH MLLW (LDR 02-06, 08-10)

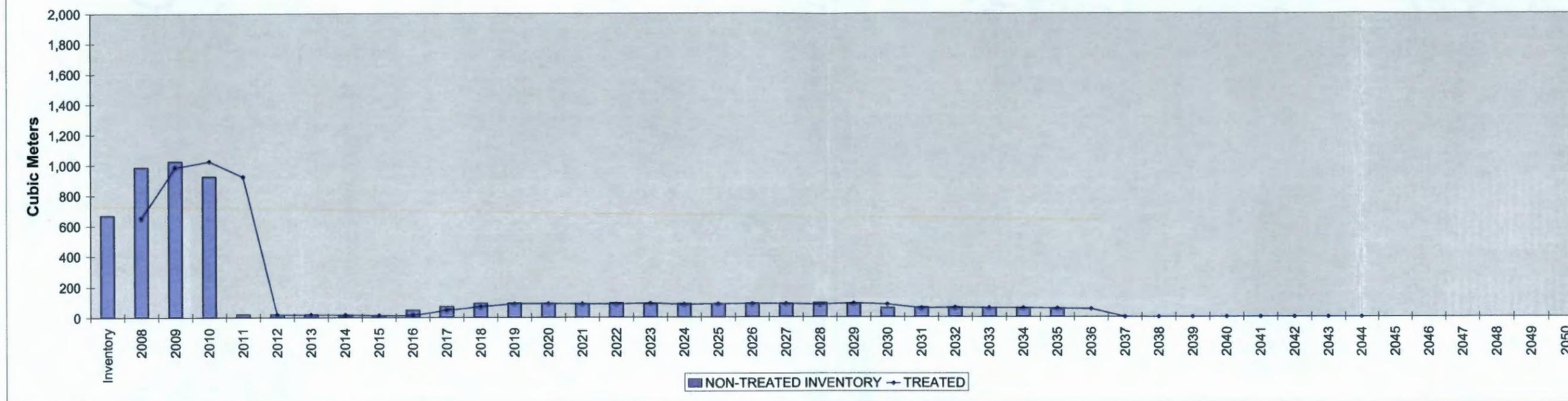


FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050						
Retrieval		265	112	112	112	112	72	25	25	25	24																																							
Storage	550																																																	
Forecast		7	7	7	7	7	7	7	7	7	34	34	34	34	73	34	34	34	34	73	34	34	34	34	73	34	26	26	26																					
EMPTY CONTAINERS		0	0	0	0	0	0	21	23	24	24	46	46	46	46	46	24	62	90	90	90	90	90	90	90	90	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	23				
TREATED																																																		
Commercial		110	36	53	213	191	123	224	228	139	24	46	46	46	46	46	24	22	22	22	22	22	22	22	22	22	22	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	96			
BWPC																																																		
Annual	0	110	36	53	213	191	123	224	228	139	24	46	46	46	46	46	24	47	137	137	137	137	137	137	137	137	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	96				
NON-TREATED INVENTORY	550	712	795	861	787	695	652	481	311	228	288	320	353	386	459	492	528	575	560	586	572	558	544	529	555	541	518	495	472	422	373	323	274	224	175	125	76	3												



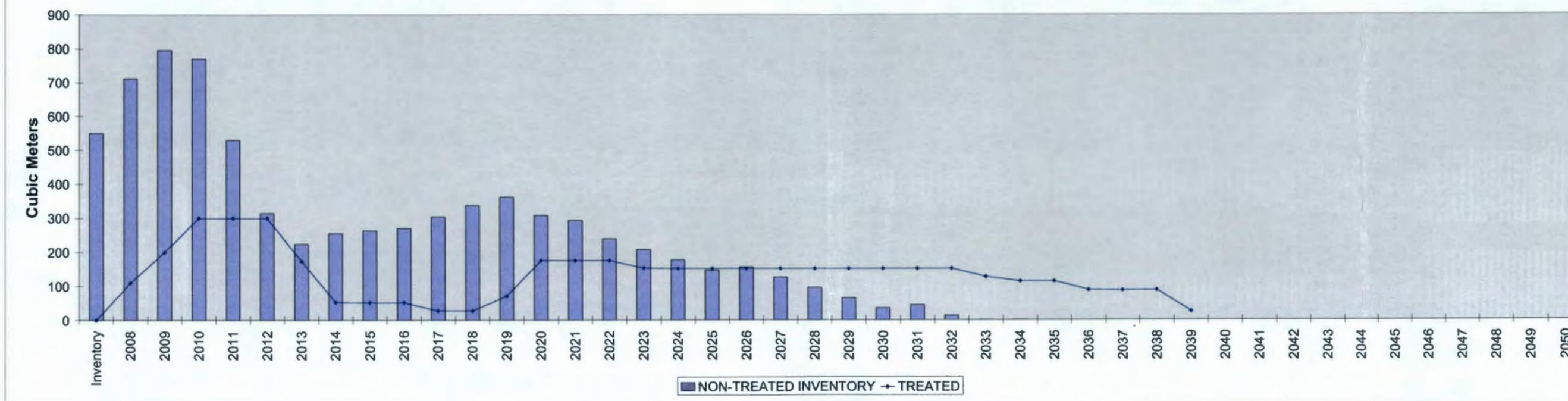
FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
Retrieval		650	1,007	902																																											
Storage	669																																														
Forecast		16	18	24	20	20	19	15	15	49	72	92	93	91	89	94	88	89	89	91	85	94	85	81	83	80	80	57	53																		
From Processing M-91-43/4 Waste					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
TREATED																																															
Commercial		650	985	1,026	926	21	20	20	18	18	50	73	93	94	92	90	95	87	90	90	92	86	95	86	81	85	81	81	58	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Annual		650	985	1,026	926	21	20	20	18	18	50	73	93	94	92	90	95	87	90	90	92	86	95	86	81	85	81	81	58	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
NON-TREATED INVENTORY	669	985	1,026	926	21	21	20	18	18	50	73	93	94	92	90	95	87	90	90	92	86	95	86	81	85	81	81	58	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

As-Soon-As Feasible Compliance Case M-91-42 CH MLLW (LDR 02-06, 08-10)



	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
<b>FEED</b>																																															
Retrieval		265	277	243	25	25	25	24																																							
Storage	550																																														
Forecast		7	7	7	7	7	7	7	7	7	34	34	34	34	73	34	34	34	34	73	34	34	34	34	73	34	26	26	26																		
<b>EMPTY CONTAINERS</b>	0	0	0	24	27	52	52	52	52	52	28	28	62	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	27	
<b>TREATED</b>																																															
Commercial		110	200	300	300	300	174	53	52	52	28	28	46	46	46	46	24	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
BWPC																																															
Annual	0	110	200	300	300	300	174	53	52	52	28	28	71	176	176	176	154	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	
<b>NON-TREATED INVENTORY</b>	550	712	796	770	529	314	224	255	262	289	303	337	362	308	293	240	208	177	147	156	128	95	65	35	44	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

As-Soon-As Feasible Compliance Case M-91-43 CH MLLW Large Waste and RH MLLW



Assumptions for the Base Case M-91 MLLW Treatment Schedules (CY)

M-91-42 MLLW and M-91-43

- Base Case funding supports treatment using prioritization rationale in Section 4.3 section on Funding Constraints

Assumptions for the As-Soon-As Feasible Compliance Case M-91 MLLW Processing Schedules

M-91-42 MLLW and M-91-43

- As-Soon-As Feasible Compliance Case funding supports most treatment TPA requirements
- The M-91-43 300 m<sup>3</sup> per year rate is maintained from 2009 through 2012. In 2013, with the exception of a few very large boxes and most RH MLLW containers, the backlog of the M-91-43 MLLW has been processed. In 2020, when SWPC is operating the very large boxes and RH MLLW can be processed. The majority of M-91-43 MLLW that will be processed after 2020 is from empty containers generated during processing of transuranic waste in the SWPC.

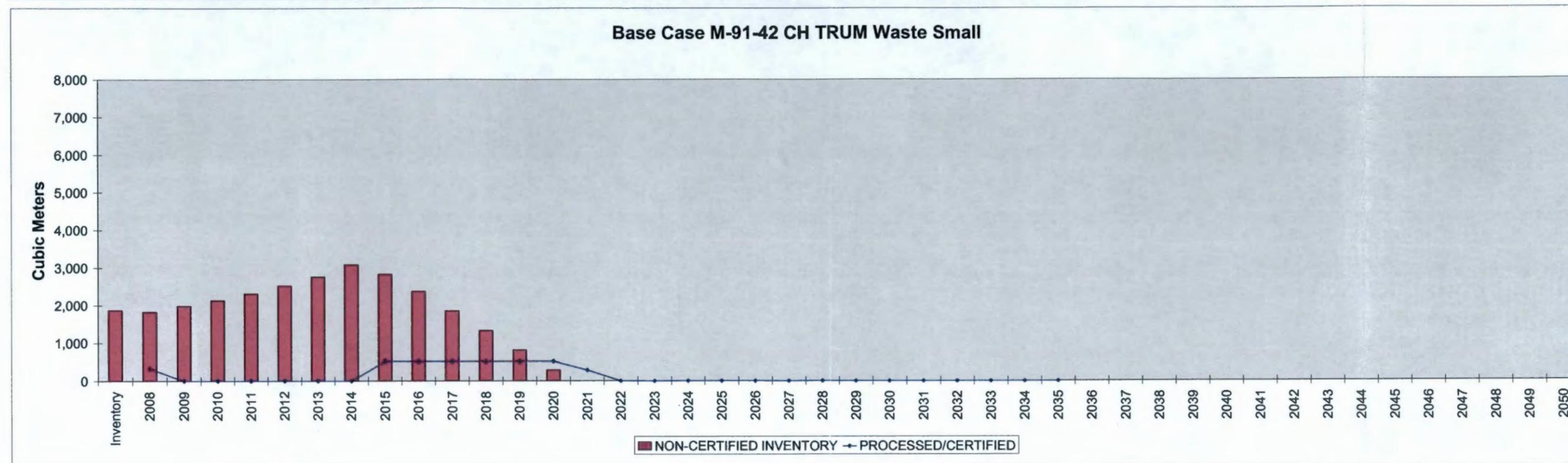
## APPENDIX R

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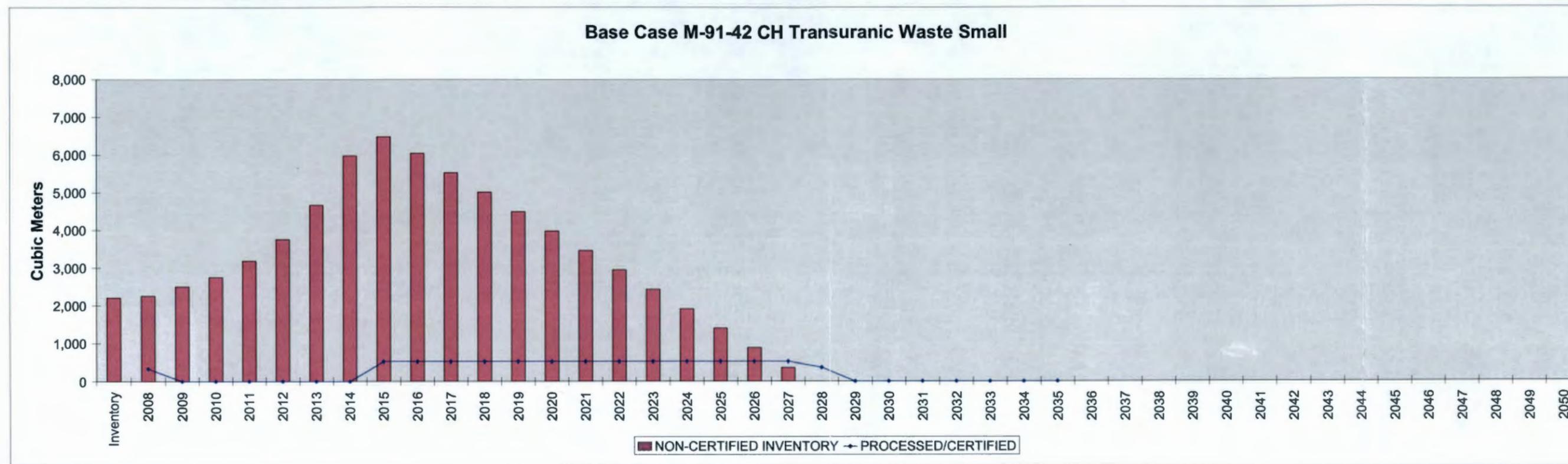
# M-91 TRANSURANIC WASTE PROCESSING SCHEDULES

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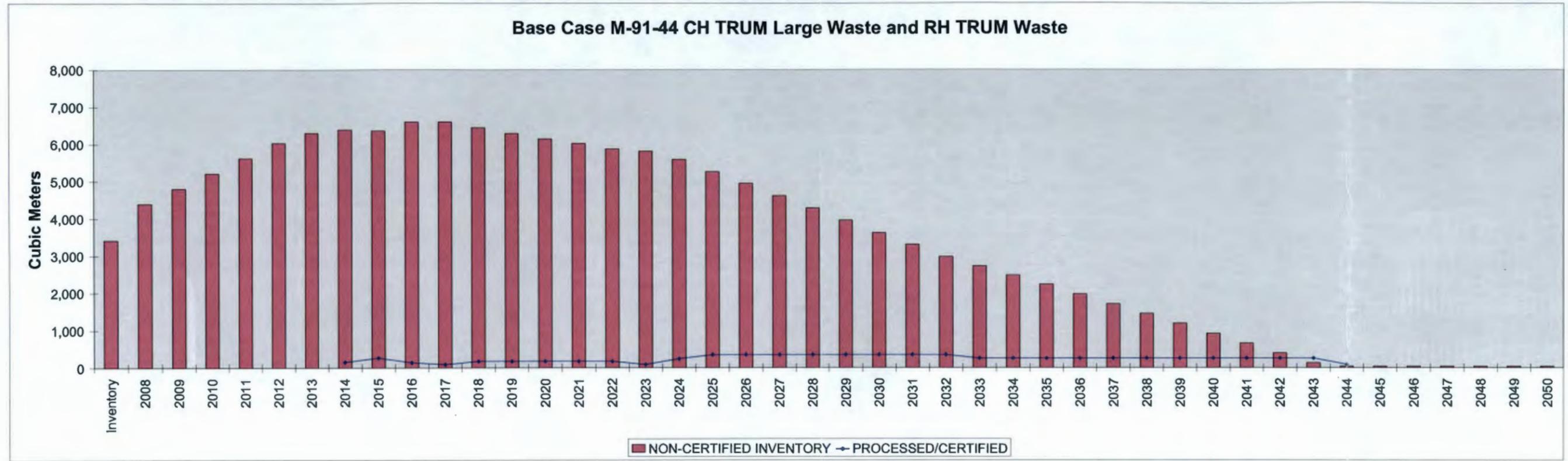
FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Retrieval		281	110	111	110	111	71																																					
Storage	1,870																																											
Forecast		33	42	40	66	95	170	325	265	78	4	5	4	5	3	5	3	5	3	5	3	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
PROCESSED/CERTIFIED		336	0	0	0	0	0	0	525	525	525	525	525	525	292	0	3	5	4	5	3	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NON-CERTIFIED INVENTORY	1,870	1,828	1,980	2,130	2,307	2,512	2,753	3,078	2,818	2,371	1,850	1,330	808	289	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	



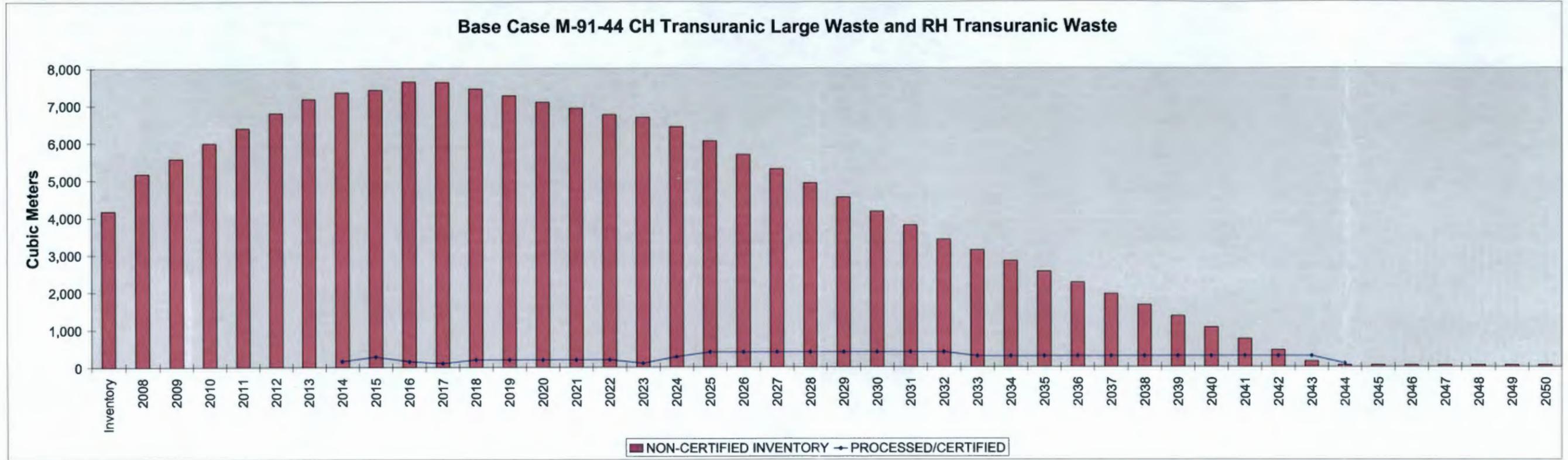
FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050		
Retrieval		261	110	111	110	111	71																																							
Storage	2,208																																													
Forecast		117	140	136	321	462	836	1,319	1,025	86	8	10	8	10	8	10	8	10	8	10	8	10	6	6	6	6	3	3	3																	
PROCESSED/CERTIFIED		336	0	0	0	0	0	0	525	525	525	525	525	525	525	525	525	525	525	525	525	372	6	6	6	6	3	3	3																	
NON-CERTIFIED INVENTORY	2,208	2,250	2,500	2,747	3,178	3,751	4,657	5,977	6,477	6,040	5,523	5,008	4,481	3,976	3,458	2,944	2,427	1,911	1,394	879	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



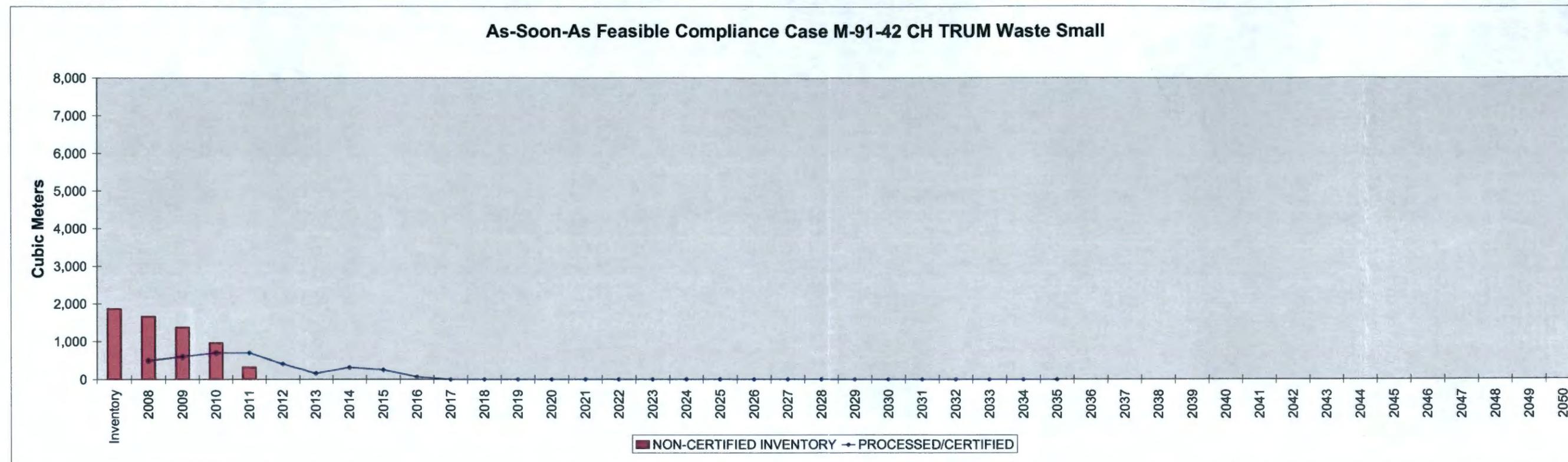
FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Retrieval		923	397	397	397	397	284	18	18	19	18			6	7	7	6																												
Storage	3,418																																												
Forecast		55	11	11	11	11	11	228	228	366	85	28	28	28	48	28	28	28	48	28	28	27	27	48	26	16	15	16																	
Commercial								84	93	97	97	183	183	183	183	183	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
SWPC								0	0	0	0	0	0	0	0	0	0	0	151	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
RH-TRUM Waste								74	181	51																																			
PROCESSED/CERTIFIED								157	274	148	97	183	183	183	183	183	97	248	359	359	359	359	359	359	359	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
NON-CERTIFIED INVENTORY	3,418	4,393	4,801	5,209	5,617	6,025	6,300	6,387	6,358	6,594	6,600	6,446	6,291	6,142	6,014	5,866	5,604	5,583	5,253	4,941	4,610	4,279	3,947	3,615	3,302	2,989	2,722	2,475	2,229	1,967	1,705	1,442	1,180	918	658	394	131	40	40	40	40	40	40		



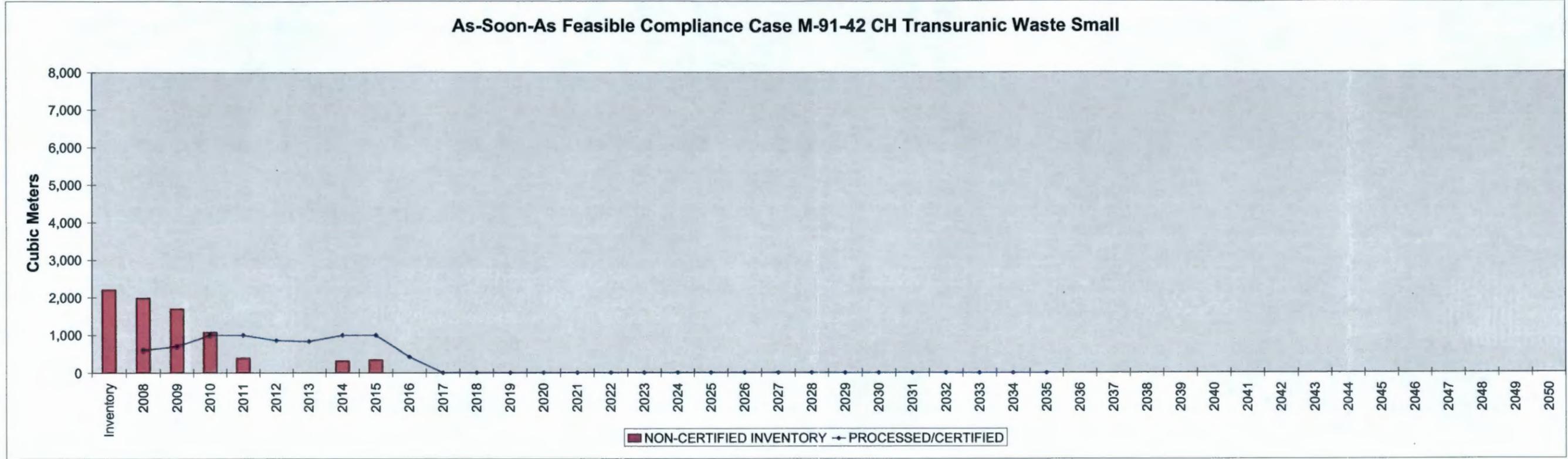
FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050				
Retrieval		923	397	397	397	397	284	18	18	19	18			6	7	7	6																															
Storage	4,174																																															
Forecast		72	11	11	11	11	113	328	329	366	85	29	28	29	48	28	29	28	29	48	26	29	27	27	46	26	15	16																				
Commercial								96	107	111	111	208	209	209	209	209	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	
GWPC								74	181	51								173	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	
Waste Storage																																																
PROCESSED/CERTIFIED								170	288	162	111	209	209	209	209	209	111	284	411	411	411	411	411	411	411	411	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
NON-CERTIFIED INVENTORY	4,174	5,189	5,577	5,965	6,393	6,801	7,178	7,355	7,414	7,636	7,629	7,448	7,287	7,062	6,938	6,763	6,687	6,431	6,048	5,885	5,302	4,920	4,536	4,152	3,787	3,402	3,118	2,833	2,548	2,249	1,949	1,649	1,349	1,049	748	449	149	50	50	50	50	50	50	50	50			



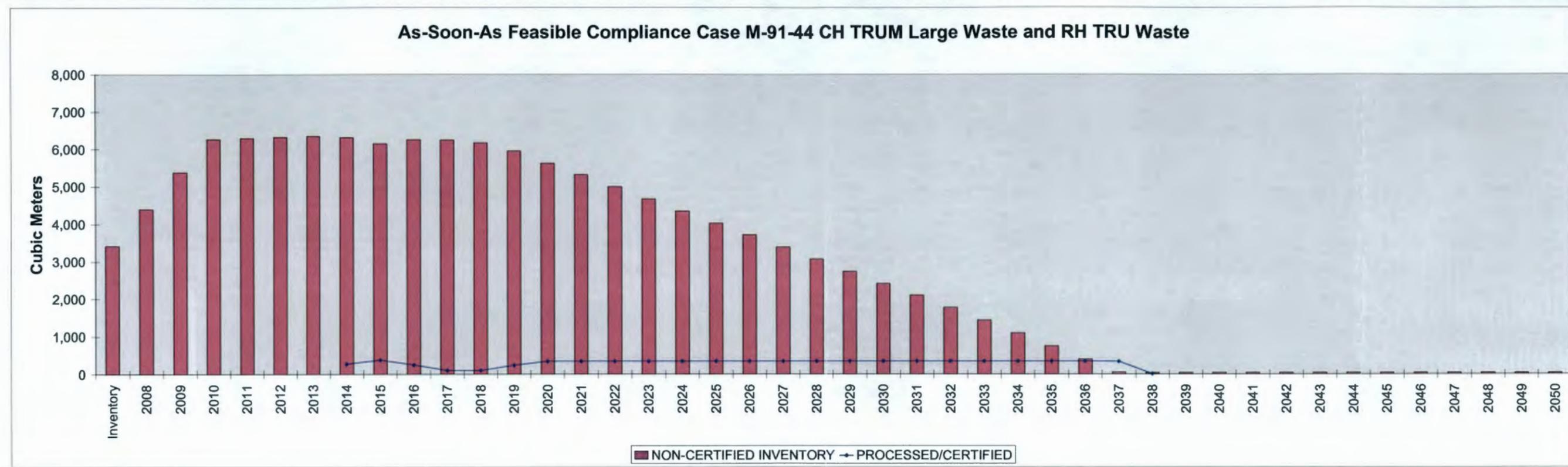
FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Retrieval		251	273	240																																									
Storage	1,870																																												
Forecast		33	42	40	66	95	170	325	265	78	4	5	4	5	3	5	3	5	3	5	3	5	3	3	3	3	3	3	3																
PROCESSED/CERTIFIED		500	600	700	700	419	170	325	265	78	4	5	4	5	3	5	3	5	3	5	3	5	3	3	3	3	3	3																	
NON-CERTIFIED INVENTORY	1,870	1,664	1,379	958	325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																



FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Retrieval		281	273	240																																									
Storage	2,208																																												
Forecast		117	140	136	321	482	836	1,319	1,025	88	8	10	8	10	8	10	8	10	8	10	8	10	6	6	6	6	3	3	3																
PROCESSED/CERTIFIED		600	700	1,000	1,000	858	835	1,000	1,000	433	8	10	8	10	8	10	8	10	8	10	8	10	6	6	6	6	3	3	3																
NON-CERTIFIED INVENTORY	2,208	1,668	1,699	1,075	398	0	0	320	345	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	0	0	

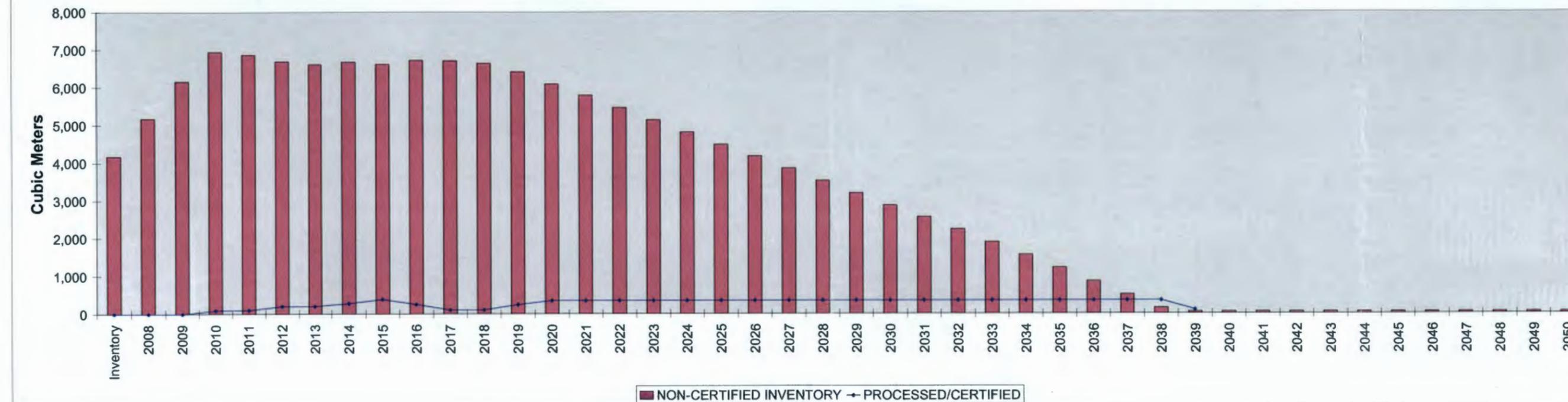


FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
Retrieval		923	978	873	18	18	19	18			13	13																																			
Storage	3,418																																														
Forecast		55	111	111	111	111	111	226	226	366	85	28	28	28	48	28	28	28	28	48	28	28	27	27	46	28	16	15	18																		
Commercial				96	107	209	209	209	209	209	111	111																																			
SWPC													76	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
Waste Surplus													173	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
PROCESSED/CERTIFIED								283	390	280	111	111	249	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354
NON-CERTIFIED INVENTORY	3,418	4,393	5,382	6,286	6,286	6,324	6,354	6,316	6,152	6,258	6,245	6,175	5,954	5,828	5,322	4,996	4,670	4,344	4,018	3,712	3,385	3,060	2,733	2,408	2,088	1,770	1,432	1,093	755	401	54	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	



FEED	Inventory	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Retrieval		623	978	873	18	18	19	18				13	13																																
Storage	4,174																																												
Forecast		72	11	11	11	11	113	329	329	366	85	29	28	29	48	28	29	28	29	48	28	29	27	27	46	26	16	15	16																
Commercial				96	107	209	209	209	209	209	111	111	78	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
SWPC														74	181	51																													
Process/Storage																																													
PROCESSED/CERTIFIED	0	0	0	96	107	209	209	283	390	290	111	111	249	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	106	
NON-CERTIFIED INVENTORY	4,174	5,169	6,158	6,946	6,868	6,666	6,611	6,675	6,614	6,720	6,707	6,637	6,418	6,091	5,784	5,458	5,133	4,806	4,481	4,175	3,848	3,523	3,196	2,869	2,561	2,233	1,895	1,556	1,218	864	510	156	50	50	50	50	50	50	50	50	50	50	50	50	

As-Soon-As Feasible Compliance Case M-91-44 CH Transuranic Large Waste and RH Transuranic Waste



Assumptions for the Base Case M-91 Transuranic Waste Certification/Processing Schedules (CY)

## M-91-42 and M-91-44 Transuranic Waste

- Base Case funding supports certification using prioritization rationale in Section 4.3 section on Funding Constraints

Assumptions for the As-Soon-As Feasible Compliance Case M-91 Transuranic Waste Certification/Processing Schedules

## M-91-42 and M-91-44 Transuranic Waste

- As-Soon-As Feasible Compliance Case funding supports most certification TPA requirements
- M-91-42 processing assumes 600 m<sup>3</sup> of TRUM per year and 400 m<sup>3</sup> of TRU waste per year starting in 2010
- The M-1-42 1,000 m<sup>3</sup> per year rate consists of 600 m<sup>3</sup> per year at T Plant (Two PermaCons at three shifts each), 100 m<sup>3</sup> per year at WRAP, and 300 m<sup>3</sup> per year of compliant waste

## APPENDIX S

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# M-91 INVENTORY OF NON-TREATED MLLW AND NON-CERTIFIED TRANSURANIC WASTE

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## APPENDIX T

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# APPROVED M-91 CHANGE PACKAGE M-91-07-01

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**Department of Energy**  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

JAN 9 2008

08-AMCP-0057

Mr. Jay Manning, Director  
State of Washington  
Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504

Ms. Elin D. Miller, Regional Administrator  
U.S. Environmental Protection Agency  
Region 10  
1200 Sixth Avenue  
Seattle, Washington 98101

**Addressses:**

**HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT) CHANGE PACKAGE M-91-07-01 FOR REGULATOR APPROVAL**

The purpose of this letter is to transmit the Tri-Party Agreement Change Package M-91-07-01 for your approval. The Tri-Parties have completed an extensive evaluation of the Tri-Party Agreement Milestone M-91 series that were established in April 2004, and based on the experience gained are authorizing minor modifications to clarify milestone text. The modifications proposed in the change package will allow for enhanced consistency in the planning and tracking of Hanford Site waste management activities.

The change package updates definitions to provide clarity on container size and requires an annual update to the Tri-Party Agreement Interim Milestone M-91-03, Transuranic Mixed/Mixed Low Level Waste Project Management Plan, that will allow for continued oversight and coordination on waste management project execution and planning. The Tri-Parties have agreed that the definition clarifications to the major milestone and other proposed changes do not meet the Tri-Party Agreement public involvement Community Relations Plan significance criteria.

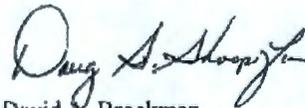
Addressees  
08-AMCP-0057

-2-

JAN 9 2008

If you have any questions, please contact me, or your staff may contact Matt McCormick,  
Assistant Manager for the Central Plateau, on (509) 373-9971.

Sincerely,



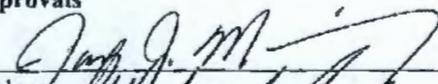
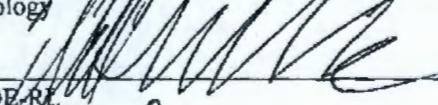
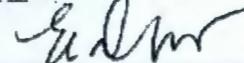
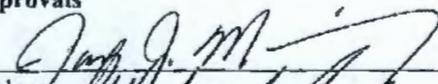
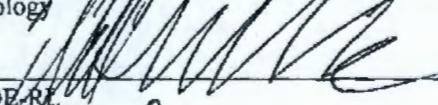
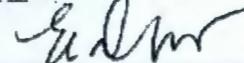
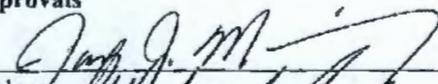
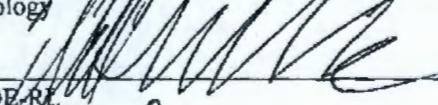
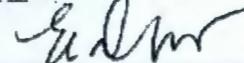
David A. Brockman  
Manager

AMCP:GLS

Attachment

cc w/attach:  
G. Bohnee, NPT  
L. Buck, Wanapum  
N. Coto, EPA  
R. H. Engelmann, EFSH  
S. Harris, CTUIR  
J. A. Hedges, Ecology  
R. Jim, YN  
S. L. Leckband, HAB  
M. L. Mandis, Ecology  
D. E. McKenney, EFSH  
K. Niles, ODOE  
R. E. Piippo, FHI  
K. M. Quigley, EFSH  
D. Singleton, Ecology  
R. Skinnarland, Ecology  
J. G. Vance, FFS  
Administrative Record  
Environmental Portal

M-91-07-01 HHFACO Change Package

<b>Change Number</b> M-91-07-01	<b>Federal Facility Agreement and Consent Order</b>  <b>Change Control Form</b> Do not use blue ink. Type or print using black ink.	<b>Date</b> 7/7/2007																								
<b>Originator</b> Mark French		<b>Phone</b> (509) 373-9863																								
<b>Class of Change</b> <input checked="" type="checkbox"/> I – Signatories <input type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager																										
<b>Change Title</b> Modification of Hanford Federal Facility Agreement and Consent Order (Agreement) M-91 Series																										
<b>Description/Justification of Change</b>  Approval of this change package authorizes the modification of one major and eight interim milestones. The agencies have evaluated the M-91 milestone series based on experience gained since the M-91 series were agreed to in April 2004 and are authorizing the following changes:  M-091-00: Definitions are being updated to provide clarity on container sizes and a certification definition is being added. How volumes should be determined in different M-91 milestone contexts and the relation of those volumes with the volumes of waste listed in the Hanford Site Solid Waste inventory tracking system (SWITS) is also clarified.  (Continued on page 2)																										
<b>Impact of Change</b> The changes made by approval of this change request improve the health and safety of the workforce and allows for greater consistency in the planning and tracking of Hanford Site waste management activities.																										
<b>Affected Documents</b> The Hanford Federal Facility Agreement and Consent Order, as amended and Hanford Site internal planning management, and budget documents (e.g., USDOE contractor Baseline Change Control documents; M-91-03 Hanford Site TRU mixed/mixed low level waste Project Management Plan, and I.D.R Report).																										
<b>Approvals</b> <table border="0" style="width: 100%;"> <tr> <td style="width: 40%;"></td> <td style="width: 20%;">1/13/08</td> <td style="width: 20%;"><input checked="" type="checkbox"/> Approved</td> <td style="width: 20%;"><input type="checkbox"/> Disapproved</td> </tr> <tr> <td>Ecology</td> <td>Date</td> <td></td> <td></td> </tr> <tr> <td></td> <td>1/15/07</td> <td><input checked="" type="checkbox"/> Approved</td> <td><input type="checkbox"/> Disapproved</td> </tr> <tr> <td>DOE-RL</td> <td>Date</td> <td></td> <td></td> </tr> <tr> <td></td> <td>1/16/08</td> <td><input checked="" type="checkbox"/> Approved</td> <td><input type="checkbox"/> Disapproved</td> </tr> <tr> <td>EPA</td> <td>Date</td> <td></td> <td></td> </tr> </table>				1/13/08	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Ecology	Date				1/15/07	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	DOE-RL	Date				1/16/08	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	EPA	Date		
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EPA	Date																									

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**Description/Justification of Change (cont)**

M-091-03: Updated the Project Management Plan revision schedule to specify annual updates.

M-091-15: Clarified that the acquisition of facilities and/or capabilities and the initiation of the treatment of large container contact handled mixed low level waste (MLLW) and remote handled MLLW will be per the rates established in interim milestone M-091-43.

M-091-40: Added description of annual notification of certification in lieu of treatment for transuranic mixed waste.

M-091-42: Clarified types of waste covered, updated volumes per recent data.

M-091-43: Clarified types of waste covered, updated waste volumes per recent data and clarified treatment rates. Treatment rates were not modified at this time, but may be re-evaluated in the future.

M-091-44: Clarified types of waste covered and described certification in lieu of treatment and annual notification requirements.

Throughout the change package the contingent milestone notes removed by the February 2006 Change Number M-91-05-01 have been added back into the respective milestones, with editing. This was done to maintain a reference to the October 2003 Settlement Agreement defining how the contingent milestones apply. This note will remain in the contingent milestones so long as litigation concerning the issue on which the contingency hinges is maintained. All of the contingent milestones are currently enforceable based on a summary judgment order issued in *Washington v. Bodman* (formerly *Washington v. Abraham*), United States District Court for the Eastern District of Washington, No. CV-03-5018-AAM, which became a final appealable judgment on January 10, 2006.

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Modifications to existing Tri-Party Agreement milestones are denoted with ~~strikeout~~; new milestone/text are denoted with **shading**.

<p>M-91-00</p>	<p>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.</p> <p><b>DEFINITIONS</b></p> <p>THE FOLLOWING DEFINITIONS APPLY TO THIS SERIES OF MILESTONES</p> <p><del>"BOXES AND LARGE CONTAINERS" AS USED HEREIN IS DEFINED AS WASTE CONTAINERS THAT ARE NOT 55-GALLON DRUMS AND THAT CANNOT BE PLACED IN SUCH DRUMS.</del></p> <p><b>"SMALL CONTAINERS" AND "LARGE CONTAINERS" AS USED HEREIN HAVE DIFFERENT MEANINGS DEPENDING ON WHETHER THEY ARE USED IN REFERENCE TO MLLW/LLW OR TRANSURANIC WASTE.</b></p> <p><b>WHEN REFERRING TO MLLW/LLW, SMALL CONTAINERS ARE CONTAINERS LESS THAN 10 CUBIC METERS, INCLUDING 55 GALLON DRUMS. A LARGE CONTAINER IS ANYTHING NOT DEFINED AS A SMALL CONTAINER.</b></p> <p><b>WHEN REFERRING TO TRANSURANIC WASTE, SMALL CONTAINERS ARE 55 GALLON DRUMS OR SMALLER CONTAINERS EVEN IF OVER-PACKED IN 85 GALLON DRUMS, AND NEWLY GENERATED WIPP STANDARD WASTE BOXES (SWB). A WIPP SWB IS A 1.8 CUBIC METER STEEL CONTAINER THAT IS APPROXIMATELY 0.94 METERS IN HEIGHT, 1.8 METERS IN LENGTH, AND 1.4 METERS IN WIDTH AND WAS QUALIFIED BY THE U.S. DEPARTMENT OF ENERGY (USDOE) IN 1988 AS MEETING THE U.S. DEPARTMENT OF TRANSPORTATION REQUIREMENTS FOR SPECIFICATION 7A TYPE A PACKAGINGS. A LARGE CONTAINER IS ANYTHING NOT DEFINED AS A SMALL CONTAINER.</b></p>	<p>TO BE DETERMINED*</p>
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"CERTIFICATION" AS USED HEREIN IS DEFINED AS COMPLETION OF ALL ACTIVITIES REQUIRED FOR APPROVAL IN THE WIPP WASTE INFORMATION SYSTEM FOR ACCEPTANCE INTO WIPP FOR DISPOSAL.

"DESIGNATION" AS USED HEREIN IS DEFINED AS THE PROCESS FOR DETERMINING: (1) WHICH CONTAINERS OF LOW-LEVEL WASTE ARE MLLW; AND, (2) WHICH CONTAINERS OF TRANSURANIC WASTE ARE MIXED TRANSURANIC WASTE (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 TRANSURANIC WASTE IN SUPPORT OF ITS DESIGNATION OF RELATED LOW-LEVEL WASTE STREAMS. WHERE APPROPRIATE, DOE WILL USE MEASURES ALLOWED UNDER STATE AND FEDERAL REGULATIONS TO PERFORM ACCURATE AND COST EFFECTIVE DESIGNATIONS OF LOW-LEVEL WASTE.

"LOW-LEVEL WASTE" AS USED HEREIN IS DEFINED AS RADIOACTIVE WASTE THAT IS NOT SPENT FUEL, HIGH-LEVEL WASTE, TRANSURANIC WASTE, BYPRODUCT MATERIAL, OR NATURALLY OCCURRING RADIOACTIVE MATERIAL. LOW-LEVEL WASTE INCLUDES BOTH "MIXED LOW-LEVEL WASTE" AND "NON-MIXED LOW-LEVEL WASTE." "MIXED LOW-LEVEL WASTE" (MLLW) IS LOW-LEVEL WASTE THAT IS SUBJECT TO RCRA OR 70.105 RCW. "NON-MIXED LOW-LEVEL WASTE" (LLW) IS LOW-LEVEL WASTE THAT IS NOT SUBJECT TO RCRA OR 70.105 RCW. LLW AND MLLW CAN BE CONTACT-HANDLED (CH), I.E., CH-LLW OR CH-MLLW, OR REMOTE-HANDLED (RH), I.E., RH-LLW OR RH-MLLW.

"CONTACT HANDLED" (CH) WASTE IS A WASTE PACKAGE WITH A SURFACE DOSE RATE LESS THAN ~~OR EQUAL TO~~ 200 MILLIREM PER HOUR.

"REMOTE HANDLED" (RH) WASTE IS A WASTE PACKAGE WITH A SURFACE DOSE RATE ~~EQUAL TO OR~~ GREATER THAN 200 MILLIREM PER HOUR.

"RETRIEVABLY STORED WASTE" (RSW) AS USED HEREIN IS DEFINED AS WASTE THAT IS OR WAS BELIEVED TO BE CONTAMINATED WITH SIGNIFICANT CONCENTRATIONS OF TRANSURANIC ISOTOPES WHEN IT WAS PLACED IN THE 218-W-4B, 218-W-4C, 218-W-3A AND 218-E-12B BURIAL GROUND TRENCHES AFTER MAY 6, 1970. DURING THE RETRIEVAL PROCESS, CONTAINERS OF RSW WILL BE SEGREGATED INTO TWO CATEGORIES: (1) CH RSW AND (2) RH RSW. SUBSEQUENT ANALYSIS AND CATEGORIZATION OF RSW PURSUANT TO RCRA CH. 70.105 RCW, THE ATOMIC ENERGY ACT, AND THE WIPP LAND WITHDRAWAL ACT WILL RESULT IN MOST OR ALL OF THIS WASTE BEING CLASSIFIED AS ONE OF THE FOLLOWING TYPES OF WASTE: CH-LLW, RH-LLW, CH-MLLW, RH-MLLW, CH-TRU, CH-TRUM, RH-TRU OR RH-TRUM. RSW DOES NOT INCLUDE WASTE IN CONTAINERS THAT HAVE DETERIORATED TO THE POINT THAT THEY CANNOT BE RETRIEVED AND STABILIZED (E.G. PLACED IN OVERPACKS) IN A MANNER THAT WOULD ALLOW THEM TO BE TRANSPORTED AND DESIGNATED WITHOUT POSING SIGNIFICANT RISKS TO WORKERS, THE PUBLIC OR THE ENVIRONMENT. WITH RESPECT TO ANY SUCH CONTAINERS, AND WITH RESPECT TO ANY RELEASE OF RSW, THE DECISION AS TO HOW TO MOVE FORWARD WILL BE DETERMINED THROUGH THE CLEANUP PROCESS SET FORTH IN RCRA, CH. 70.105 RCW, AND/OR CERCLA AS APPROPRIATE. THOSE PROCESSES MAY RESULT IN ADDITIONAL REQUIREMENTS FOR THE REMEDIATION OF SUCH WASTES.

"CAISSON WASTE" AS USED HEREIN IS DEFINED AS RSW IN THE 218-W-4B BURIAL GROUND CAISSONS ALPHA-1 THROUGH ALPHA-4.

"TRANSURANIC WASTE" AS USED HEREIN IS DEFINED AS WASTE THAT MEETS THE DEFINITION IN SUBSECTION (18) OF SECTION 2 OF THE WASTE ISOLATION PILOT PLANT LAND WITHDRAWAL ACT, PUB. L. 102-579. TRANSURANIC WASTE INCLUDES BOTH MIXED TRANSURANIC (TRUM) WASTE AND NON MIXED TRANSURANIC (TRU) WASTE ~~"MIXED TRANSURANIC WASTE" (TRUM) WASTE~~ AND ~~"NON MIXED TRANSURANIC WASTE" (TRU)~~, AND COMPRISES THE FOLLOWING CATEGORIES: CH-TRU, CH-TRUM, RH-TRU, AND RH-TRUM.

"RETRIEVAL OF CH RSW" IS DEFINED AS UNCOVERING CH

WASTES WITHIN DOE'S RSW TRENCHES, AND REMOVING SUCH CH WASTES FROM THE TRENCHES, AND TRANSFERRING THE WASTE TO A PERMITTED AND COMPLIANT TREATMENT, STORAGE OR DISPOSAL FACILITY UNIT, THE ENVIRONMENTAL RESTORATION AND 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 UNIT THAT DOE DETERMINES IS APPROPRIATE. STORAGE OF ANY RETRIEVED CH RSW 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" IS DEFINED AS UNCOVERING RH WASTES WITHIN DOE'S RSW TRENCHES AND CAISSONS, AND REMOVING SUCH RH WASTES FROM THE TRENCHES AND CAISSONS, TRANSFERRING THE WASTE TO A PERMITTED AND COMPLIANT TREATMENT, STORAGE OR DISPOSAL FACILITY UNIT, THE ENVIRONMENTAL RESTORATION AND 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 UNIT THAT DOE DETERMINES IS APPROPRIATE. STORAGE OF ANY RETRIEVED RH RSW 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).

TO PROVIDE FURTHER CLARIFICATION OF HOW VOLUMES SHOULD BE DETERMINED IN DIFFERENT M-91 CONTEXTS, AND TO BE CONSISTENT WITH THE VOLUMES OF WASTE LISTED IN THE HANFORD SITE SOLID WASTE INVENTORY TRACKING SYSTEM (SWITS), THE FOLLOWING DESCRIPTIONS ARE PROVIDED:

- VOLUMES FOR THE PURPOSES OF DETERMINING AMOUNTS RETRIEVED SHALL BE BASED ON THE VOLUME OF THE ORIGINAL CONTAINERS IN RETRIEVABLE STORAGE. FOR EXAMPLE, THE VOLUME OF A 55 GALLON RSW DRUM THAT WOULD BE COUNTED TOWARD "RETRIEVAL" WOULD BE 55 GALLONS (.208 CUBIC METERS), EVEN IF IN THE PROCESS OF RETRIEVAL THE DRUM NEEDED TO BE OVER-PACKED INTO AN 85 GALLON DRUM.

	<ul style="list-style-type: none"> <li>• THE VOLUME OF MLLW "TREATED" WILL BE COUNTED AS THE RETRIEVAL VOLUME (FOR RSW) OR THE MLLW PRE-TREATMENT CONTAINER VOLUME (FOR NEWLY GENERATED AND STORED WASTE).</li> <li>• THE VOLUME OF TRANSURANIC WASTE COUNTED AS "CERTIFIED" WILL BE THE VOLUME OF THE CERTIFIED CONTAINER CONTAINING THE WASTE UNLESS THE WASTE IS COMPACTED. IN THE EVENT THAT THE WASTE IS COMPACTED, THE VOLUME OF THE PRE-COMPACTION CONTAINER WILL BE COUNTED.</li> </ul> <p>NOTE: THE REQUIREMENTS OF THIS MILESTONE WITH REGARD TO THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES, AND MODIFICATION OF PLANNED FACILITIES NECESSARY FOR TREATMENT/PROCESSING OF RCRA MIXED AND SUSPECT MIXED TRANSURANIC WASTE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>* NOTE: THE M-91 SERIES MILESTONES (INCLUDING THIS NOTE) DO NOT INCLUDE ANY REQUIREMENTS TO ESTABLISH SCHEDULES FOR THE MANAGEMENT OF PRE-1971 TRU/TRUM. SCHEDULES FOR THE MANAGEMENT OF PRE-1971 TRU/TRUM WILL BE ESTABLISHED, PURSUANT TO APPLICABLE PROVISIONS OF THE HHFACO OTHER THAN THE M-91 SERIES MILESTONES, FOLLOWING THE ISSUANCE OF OPERABLE UNIT RECORDS OF DECISION (RODS).</p>	
M-91-01	<p>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.</p> <p>NOTE: THE REQUIREMENTS OF THIS MILESTONE WITH REGARD TO COMPLETING THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES</p>	6/30/2012

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	<p><b>AND/OR MODIFICATION OF PLANNED FACILITIES</b> NECESSARY FOR TREATMENT/PROCESSING OF HANFORD SITE POST 1970 RH TRUM AND SUSPECT RH TRUM, TRUM IN LARGE CONTAINERS, AND SUSPECT TRUM IN LARGE CONTAINERS APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p>	
<p>M-91-03</p>	<p>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. <del>REVISIONS OF THE PMP SHALL BE SUBMITTED ON 12/31/2003, 3/31/2009 AND 3/31/2013.</del></p> <p>ANNUAL REVISIONS OF THE PMP WILL BE SUBMITTED ON JUNE 30 EVERY YEAR STARTING IN 2008 AND CONTINUING UNTIL THE M-91 MILESTONES ARE COMPLETED. THE PMP REVISIONS SHALL INCLUDE PLANS AND SCHEDULES TO MEET ALL THE REQUIREMENTS SET FORTH IN THE M-91 MILESTONE SERIES. EACH REVISION OF THE M-91-03 PMP SHALL, UPON APPROVAL BY ECOLOGY, SUPERSEDE PREVIOUS M-91-03 PMPs. EACH REVISION IS A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THIS AGREEMENT.</p> <p>WITH RESPECT TO RH MIXED WASTE AND MIXED WASTE IN <del>BOXES AND</del> LARGE CONTAINERS, THE PMP SUBMITTED ON <del>12/31/2003</del> YEARLY WILL SPECIFICALLY IDENTIFY <del>MEASURABLE</del> INCLUDE AT LEAST ONE MEASURABLE ACTION(S) TO BE TAKEN BY DOE TO ACQUIRE CAPABILITIES TO MANAGE SUCH WASTES. <del>THE PMP SHALL IDENTIFY SUCH MEASURABLE ACTIONS AT LEAST YEARLY.</del></p> <p>THE PMP SUBMITTED ON 12/31/2003 WILL NOT BE REQUIRED TO CONTAIN PLANS AND SCHEDULES FOR THE LDR</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

	<p>TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED FOR IN M-91-42 AND M-91-44) OF TRUM WASTE. DOE SHALL REVISE THE PMP TO INCLUDE PLANS AND SCHEDULES FOR LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED IN M-91-42 AND M-91-44) OF TRUM WASTE BY 12/28/06.</p> <p>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.</p> <p><del>ONCE APPROVED, THE PMP SUBMITTED ON 12/31/2003, IN ACCORDANCE WITH THIS MILESTONE SHALL SUPERSEDE THOSE PORTIONS OF PREVIOUSLY SUBMITTED DOE PMPs THAT CONCERNED RCRA MIXED WASTE, SUSPECT MIXED TRANSURANIC AND SUSPECT MIXED LOW LEVEL WASTE.</del></p> <p>NOTE: WITH RESPECT TO PMP REVISIONS, THE REQUIREMENTS OF THIS MILESTONE CONCERNING PMP REVISIONS TO ADDRESS TRUM SHALL APPLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p>	
M-91-05-T01	<p>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.</p> <p>THE TRUM ENGINEERING/FUNCTIONAL DESIGN CRITERIA STUDY WILL COVER ACTIVITIES/FACILITIES NOT CONSIDERED COMMERCIALY VIABLE AS DOCUMENTED IN THE APPROVED TRUM PMP AND ASSOCIATED AGREEMENT CHANGE REQUESTS.</p>	12/31/2007 [Completed]
M-91-12	<p>COMPLETE THERMAL TREATMENT OF AN ADDITIONAL 360 CUBIC METERS OF CONTACT HANDLED MLLW. THIS BRINGS THE CUMULATIVE TOTAL TO AT LEAST 600 CUBIC METERS OF CONTACT HANDLED MLLW THERMALLY TREATED.</p>	11/16/2007 [Completed]
M-91-12A	<p>COMPLETE THERMAL TREATMENT OF AT LEAST 240 CUBIC METERS OF CONTACT HANDLED MLLW.</p>	9/30/2005 [Completed]
M-91-15	<p>COMPLETE ACQUISITION OF FACILITIES AND/OR CAPABILITIES AND INITIATE TREATMENT OF RH MLLW</p>	6/30/2008

	AND CH MLLW IN <del>BOXES AND</del> LARGE CONTAINERS <del>PER</del> <del>THE RATES STIPULATED IN M-91-43.</del>	
M-91-20	T PLANT IS READY TO RECEIVE THE FIRST CANISTER OF K BASINS FLOOR AND PIT SLUDGE.  THIS INTERIM MILESTONE WILL BE COMPLETE WHEN ALL T PLANT READINESS ACTIVITIES HAVE BEEN COMPLETED TO ACCEPT PIT AND FLOOR SLUDGE. READINESS IS DEFINED AS THE ISSUANCE OF THE READINESS TO PROCEED LETTER BY THE APPROVAL AUTHORITY.	12/31/2002 [Completed]
M-91-40	REGARDING THE RETRIEVAL AND DESIGNATION 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):  1. DOE SHALL RETRIEVE ALL CH-RSW WITHIN BURIAL GROUNDS 218-W-4C, 218-W-4B, 218-W-3A, AND 218-E-12B BY DECEMBER 31, 2010. IN ACHIEVING THIS RETRIEVAL REQUIREMENT, DOE SHALL FIRST INITIATE RETRIEVAL AT ITS BURIAL GROUND 218-W-4C NO LATER THAN NOVEMBER 15, 2003, AND SHALL RETRIEVE RSW AT THE FOLLOWING RATES :  <ul style="list-style-type: none"> <li>• 1,200 CUBIC METERS (CUMMULATIVE) BY 12/31/04,</li> <li>• 2,700 CUBIC METERS (CUMMULATIVE) BY 12/31/05,</li> <li>• 4,700 CUBIC METERS (CUMMULATIVE) BY 12/31/06,</li> <li>• 7,200 CUBIC METERS (CUMMULATIVE) BY 12/31/07,</li> <li>• 9,700 CUBIC METERS (CUMMULATIVE) BY 12/31/08,</li> <li>• 12,200 CUBIC METERS (CUMMULATIVE) BY 12/31/09,</li> <li>• COMPLETE RETRIEVAL OF CH-RSW BY 12/31/2010.</li> </ul> CONCURRENT RETRIEVAL ACTIONS CAN BE CONDUCTED IN MULTIPLE BURIAL GROUNDS. IF SPECIFIC <del>BOXES AND</del> LARGE CONTAINERS CANNOT BE REMOVED FROM A TRENCH WITHIN 60 DAYS OF BEING EXPOSED DOE SHALL NOTIFY ECOLOGY WITHIN THE 60-DAY PERIOD. ECOLOGY WILL INSPECT THE CONTAINER AND IMPOSE SPECIFIC CONDITIONS FOR THAT WASTE CONTAINER TO PREVENT RELEASES TO THE ENVIRONMENT. IN DETERMINING SUCH CONDITIONS ECOLOGY WILL CONSIDER AMONG OTHER FACTORS; WHETHER THE WASTE CONTAINER HAS	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE

BEEN INSPECTED AND FOUND TO BE INTACT AND NOT POSING A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT (OR RE-PACKAGED TO PREVENT RELEASE TO THE ENVIRONMENT) AND EXISTING DOCUMENTATION CONCERNING THE PRESENCE OF FREE LIQUIDS.

2. AS RSW RETRIEVAL PROCEEDS, DOE SHALL SAMPLE AND ANALYZE TRENCH SUBSTRATES WITH THE PURPOSES OF DETERMINING WHETHER OR NOT RELEASES OF CONTAMINANTS TO THE ENVIRONMENT HAVE OCCURRED, AND, IF SO, THE NATURE AND EXTENT OF CONTAMINATION.

SUCH SAMPLING AND ANALYSIS SHALL BE IN ACCORDANCE WITH ECOLOGY APPROVED SAMPLING AND ANALYSIS PLANS (SAP). THE SAP WILL BE DEVELOPED USING A DQO PROCESS TO ESTABLISH SAMPLING REQUIREMENTS FOR SAMPLING OF BURIAL GROUND VENT RISERS AND SUBSTRATE SOILS. ~~DOE PROVIDED ECOLOGY WITH A DRAFT 218-W-4C SAP ON 8/12/03. ECOLOGY'S INTENTION IS TO ISSUE A FINAL SAP WITHIN 30 DAYS. ECOLOGY APPROVED THE 218-W-4C SAP SEPTEMBER 12, 2003, THE 218-E-12B SAP JANUARY 20, 2005, THE 218-W-3A SAP JUNE 15, 2006, AND THE 218-W-4B SAP JULY 25, 2006. WITH RESPECT TO THE REMAINING BURIAL GROUNDS, DOE WILL PROVIDE ECOLOGY WITH UPDATED SAPS, IF NEEDED, FOR REVIEW AND APPROVAL AT LEAST 45 DAYS PRIOR TO STARTING RETRIEVAL IN EACH BURIAL GROUND. DOE WILL IMPLEMENT APPROVED SAPS, AS A REQUIREMENT OF THIS MILESTONE, DURING RETRIEVAL OF ALL RSW.~~

THE RESULTS OF BURIAL GROUND VENT AND SUBSTRATE SAMPLING AND ANALYSIS PURSUANT TO APPROVED SAPS SHALL BE SUBMITTED TO ECOLOGY BY LETTER REPORTS QUARTERLY. SUCH REPORTS SHALL DOCUMENT RESULTS AND METHODOLOGIES, SHALL ASSESS RESULTS AGAINST REGULATORY REQUIREMENTS, SHALL INCLUDE A DESCRIPTION (OR DESCRIPTIONS) OF DOCUMENTED CONTAMINANT RELEASES TO THE ENVIRONMENT, AND SHALL DESCRIBE PLANNED AND/OR SCHEDULED ADDITIONAL WORK.

3. WITHIN 90 DAYS OF RETRIEVAL, DOE SHALL DESIGNATE

	<p>ALL CH RSW RETRIEVED FROM THE RSW TRENCHES PURSUANT TO WAC 173-303-070 THROUGH 100, <del>OR AND</del> SHALL SPECIFICALLY IDENTIFY INDIVIDUAL <del>BOXES AND</del> LARGE CONTAINERS THAT CANNOT BE DESIGNATED BASED ON AVAILABLE PROCESS KNOWLEDGE. FOR THE <del>BOXES AND</del> 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, BY DECEMBER 31, 2008 <del>(SIX MONTHS AFTER THE RH AND LARGE CONTAINER MLLW FACILITIES AND/OR CAPABILITIES ARE REQUIRED TO BE OPERATIONAL).</del> FOR <del>BOXES AND</del> 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, BY DECEMBER 31, 2012. <del>(SIX MONTHS AFTER THE RH AND LARGE CONTAINER TRANSURANIC FACILITIES AND/OR CAPABILITIES ARE REQUIRED TO BE OPERATIONAL).</del></p> <p>4. 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>5. 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> <ul style="list-style-type: none"><li>• START VAPOR EXTRACTION BY NOVEMBER 15, 2003, TO REDUCE CARBON TETRACHLORIDE VAPORS.</li><li>• START RETRIEVAL IN TRENCH 4 BY JANUARY 15, 2004</li><li>• COMPLETE RETRIEVAL OF TRENCH 4 BY DECEMBER 31, 2006 (WITH THE EXCEPTION OF THOSE <del>BOXES AND</del> LARGE CONTAINERS THAT THE PARTIES HAVE AGREED, IN WRITING, MAY BE RETRIEVED OUT OF SEQUENCE.)</li></ul>	
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	<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.</p> <p>6. 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> <p>DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM. NOTIFICATION OF CERTIFICATION IN LIEU OF TREATMENT WILL BE PROVIDED ANNUALLY AS PART OF THE CERTIFICATION VOLUME COMPLETION LETTER.</p> <p>NOTE: THE REQUIREMENTS OF ITEM 6 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>7. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
M-91-41	REGARDING THE RETRIEVAL AND DESIGNATION OF REMOTE HANDLED (RH) RSW (ALL RSW RH WASTE REGARDLESS OF PACKAGE SIZE, INCLUDING THE 200 AREA CAISSONS), AND LDR TREATMENT OF SUCH WASTES	DUE DATES AS INDICATED IN THE DESCRIPTIVE

DETERMINED TO BE MIXED.	TEXT OF THIS MILESTONE
<ol style="list-style-type: none"><li>1. DOE SHALL 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.</li><li>2. DOE SHALL DESIGNATE ALL RETRIEVED RH RSW PURSUANT TO WAC 173-303-070 THROUGH 100, WITHIN 90 DAYS OF RETRIEVAL.</li><li>3. FOR ALL RETRIEVED RH-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 WASTE TO MEET LDR REQUIREMENTS IN ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-43(3).</li><li>4. FOR ALL RETRIEVED RH-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 ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-44(3). 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.</li></ol>	
<p>NOTE: THE REQUIREMENTS OF ITEM 4 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p>	
<ol style="list-style-type: none"><li>5. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</li></ol>	

M-91-42	<p>REGARDING <del>SMALL CONTAINERS OF</del>: (1) NEWLY GENERATED CH WASTE; (2) CH RSW; AND <del>(3) (2) CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE (NOT INCLUDING CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE IN BOXES AND LARGE CONTAINERS).</del></p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. THERE <del>WERE</del> 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 HHFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07) THAT <del>HAD</del> HAS NOT BEEN TREATED TO MEET LDR REQUIREMENTS. (THIS VOLUME DOES NOT INCLUDE 600 CUBIC METERS OF WASTE REQUIRING THERMAL TREATMENT, AS THAT WASTE HAS SEPARATE TREATMENT REQUIREMENTS PER M-91-12 AND M-91-12A). APPROXIMATELY 4422 CUBIC METERS OF MLLW SUBJECT TO M-91-42 WAS TREATED BETWEEN 12/31/02 AND 12/31/05. <del>IS REQUIRED TO BE TREATED BY 2006 UNDER HHFACO MILESTONES M-91-12 AND M-91-12A).</del> DOE'S 2002 LDR REPORT ESTIMATES <del>THAT IT WILL GENERATE</del>ION OF AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 330 CUBIC METERS OF CH-MLLW (AS WASTE TYPES IDENTIFIED IN DOE HHFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07). <del>IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD</del> <del>DOE WILL</del> RETRIEVE APPROXIMATELY 800 CUBIC METERS OF CH-MLLW BY 2010. BASED ON THE CY2005 LDR SUMMARY REPORT AS OF 12/31/05 FOR MLLW SUBJECT TO M-91-42, THERE WERE APPROXIMATELY 2100 CUBIC METERS IN PERMITTED STORAGE, AND 280 CUBIC METERS FORECAST TO BE GENERATED BY THE END OF CY2009. <p><del>ACCORDING TO THE M-91 PMP (HNF-19169 REV 2) APPROXIMATELY 2550 CUBIC METERS OF M-91-42 MLLW WAS EXPECTED TO BE RETRIEVED BETWEEN 12/31/05 AND 12/31/09. IN ADDITION TO MEETING THE</del></p> </li></ol>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>
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	<p>REQUIREMENTS OF M-91-12 AND M-91-12A, DOE SHALL TREAT THE WASTE DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON A SCHEDULE MEETING, AT MINIMUM, THE FOLLOWING CUMULATIVE TOTALS BASED ON A START DATE OF 12/31/02:</p> <ul style="list-style-type: none"><li>A. 1630 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/04,</li><li>B. 3260 CUBIC METERS BY (CUMULATIVE) SHALL BE TREATED BY 12/31/05,</li><li>C. 4890 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/06,</li><li>D. 6520 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/07,</li><li>E. 8150 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/08, AND</li><li>F. COMPLETE 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 ABOVE, AS OF 6/30/09, BY 12/31/09.)</li></ul> <p>IF CH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02. TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. RSW DETERMINED TO BE MLLW IN THE TREATABILITY GROUPS COVERED BY THIS MILESTONE WILL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE WHEN TREATED.</p> <p>IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-</p>	
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	<p>MLLW COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.</p> <p>3. AFTER JUNE 30, 2009, DOE SHALL TREAT TO MEET LDR TREATMENT REQUIREMENTS ALL SMALL CONTAINERS OF NEWLY GENERATED CH-MLLW CONTAINING LDR CONSTITUENTS IN COMPLIANCE WITH WAC 173-303-140 AND BY REFERENCE 40 CFR 268.</p> <p>4. THERE ARE APPROXIMATELY 440 CUBIC METERS OF CH-TRUM IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02. DOE'S CY 2002 LDR REPORT ESTIMATES THAT IT WILL GENERATE AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 220 CUBIC METERS OF CH-TRUM AND DOE ESTIMATES THEY WILL RETRIEVE APPROXIMATELY 1600 CUBIC METERS OF CH-TRUM BY 2010. CONSIDERING THESE ESTIMATES AND THE CONSIDERABLE UNCERTAINTY ASSOCIATED WITH THEM DOE SHALL TREAT THE WASTE CATEGORIES DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON THE FOLLOWING CUMULATIVE SCHEDULE:</p> <ul style="list-style-type: none"><li>• 700 CUBIC METERS BY 12/31/04;</li><li>• 1,800 CUBIC METERS (CUMULATIVE) BY 12/31/05;</li><li>• 3,000 CUBIC METERS (CUMULATIVE) BY 12/31/06;</li><li>• 4,200 CUBIC METERS (CUMULATIVE) BY 12/31/07;</li><li>• 5,400 CUBIC METERS (CUMULATIVE) BY 12/31/08;</li><li>• 6,600 CUBIC METERS (CUMULATIVE) BY 12/31/09;</li><li>• 7,600 CUBIC METERS (CUMULATIVE) BY 12/31/10;</li><li>• 8,600 CUBIC METERS (CUMULATIVE) BY 12/31/11.</li></ul> <p>IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.</p> <p>5. FOR CH TRANSURANIC WASTE NEWLY GENERATED ON</p>	
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OR AFTER 7/1/11 THAT IS 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 PURSUANT TO WAC 173-303-140 WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM, PROVIDED THAT 1) ALL CH TRUM IN PERMITTED STORAGE AS OF 12/31/02 IS TREATED TO MEET LDR REQUIREMENTS OR CERTIFIED BY 12/31/2006 AND 2) ALL CH TRUM IN PERMITTED STORAGE AS OF 7/1/11 IS TREATED TO MEET LDR REQUIREMENTS OR IS CERTIFIED BY 12/31/2011.

NOTE: THE REQUIREMENTS OF ITEMS 4 AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

NOTE: IN THE EVENT THAT ITEMS 4 OR 5 BECOME APPLICABLE, AMOUNTS OF CH TRUM CERTIFIED BETWEEN 12/31/02 AND THE DATE ON WHICH ITEMS 4 OR 5 BECOME APPLICABLE SHALL COUNT TOWARDS SATISFACTION OF THE OBLIGATIONS IN ITEMS 4 AND 5.

6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.

M-91-43	<p>REGARDING <del>MLLW TREATABILITY GROUP MLLW-07 WASTE</del> AS DEFINED IN THE LDR REPORT WHICH INCLUDES THE MLLW PORTION OF: (1) NEWLY GENERATED RH LOW-LEVEL WASTE; (2) NEWLY GENERATED <del>BOXES AND</del> LARGE CONTAINERS OF CH LOW-LEVEL WASTE; (3) RH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND STORAGE; AND (4) <del>BOXES AND</del> LARGE CONTAINERS OF CH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND STORAGE; AND (5) RH OR LARGE CONTAINER CH LOW-LEVEL WASTE FROM RETRIEVAL.</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>
	<p>THERE <del>WERE</del> ARE 81 CUBIC METERS OF RH-MLLW IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE STORAGE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02 (AS IDENTIFIED IN DOE HHFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-07) THAT HAS NOT BEEN TREATED TO MEET LDR REQUIREMENTS. DOE'S 2002 LDR REPORT CURRENTLY ESTIMATE<del>S</del> THAT DOE <del>WOULD</del> WILL GENERATE AN ADDITIONAL YEARLY VOLUME OF 280 CUBIC METERS OF WASTE IN THIS TREATABILITY GROUP. <del>IN ADDITION, DOE WILL</del> IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS BY 2010. <del>THIS INCLUDES VOLUMES OF RETRIEVED RSW</del> PER THE 2005 LDR REPORT, AS OF 12/31/05 THERE WERE APPROXIMATELY 305 CUBIC METERS OF RH AND LARGE CONTAINER MLLW (LDR TREATABILITY GROUP MLLW-07) IN PERMITTED STORAGE. APPROXIMATELY 66 CUBIC METERS OF THE RH AND LARGE CONTAINER MLLW WAS FORECAST TO BE GENERATED BETWEEN 12/31/05 AND 12/31/11. IN ADDITION, APPROXIMATELY 2728 CUBIC METERS OF MLLW-07 WAS EXPECTED TO BE OBTAINED FROM RETRIEVAL BETWEEN 12/31/05 AND 12/31/11.</p>	
	<ol style="list-style-type: none"> <li>1. DOE SHALL DESIGNATE ALL RH LOW-LEVEL WASTE <del>AND BOXES AND</del> 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, BY DECEMBER 31, 2008.</li> <li>2. DOE SHALL DESIGNATE ALL NEWLY GENERATED RH LOW-LEVEL WASTE AND <del>TRANSURANIC WASTE AND</del> NEWLY GENERATED <del>BOXES AND</del> LARGE CONTAINERS OF CH-LOW-LEVEL WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY</li> </ol>	

	<p>WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.</p> <p>3. DOE SHALL BEGIN TREATING RH MLLW <del>AND BOXES</del> 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. <u>HOWEVER, TREATMENT MAY BE STARTED EARLY SUCH THAT ANY TREATABILITY GROUP MLLW-07 WASTE TREATED BETWEEN 12/31/02 AND 6/30/09 SHALL COUNT TOWARD ACHIEVING THE FIRST 300 CUBIC METERS OF TREATMENT TO BE COMPLETED BY 6/30/09.</u> IF THERE ARE NOT 300 CUBIC METERS OF RH MLLW <del>AND BOXES</del> AND LARGE CONTAINERS OF CH MLLW IN STORAGE IN ANY GIVEN YEAR, THIS MILESTONE REQUIRES THAT DOE TREAT ONLY THAT AMOUNT THAT IS IN STORAGE. IF RH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE <u>AS OF 12/31/02.</u> TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. IF ACTUAL VOLUMES OF NEWLY GENERATED OR RETRIEVED RH <del>AND BOXES</del> AND LARGE CONTAINER MLLW ARE SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES, THIS MILESTONE WILL BE REVISED TO REFLECT ACTUAL VOLUMES.</p> <p>4. EACH ELEMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
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<p>M-91-44</p>	<p>REGARDING: (1) NEWLY GENERATED RH TRANSURANIC WASTE; (2) NEWLY GENERATED <del>BOXES AND</del> LARGE CONTAINERS OF CH-TRANSURANIC WASTE; (3) RH TRANSURANIC WASTE CURRENTLY IN ABOVE GROUND STORAGE; <del>AND (4) BOXES AND</del> LARGE CONTAINERS OF CH TRANSURANIC WASTE CURRENTLY IN ABOVE-GROUND STORAGE; <del>AND (5) LARGE CONTAINER OR RH TRANSURANIC WASTE FROM RETRIEVAL;</del></p> <ol style="list-style-type: none"><li>1. DOE SHALL DESIGNATE ALL RH TRANSURANIC WASTE AND <del>BOXES AND</del> 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, BY DECEMBER 31, 2012.</li><li>2. DOE SHALL DESIGNATE ALL NEWLY GENERATED RH TRANSURANIC WASTE <del>AND BOXES AND</del> LARGE CONTAINERS OF TRANSURANIC WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.</li><li>3. DOE SHALL BEGIN TREATING RH TRUM AND <del>BOXES AND</del> 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. IF THERE ARE NOT 300 CUBIC METERS OF RH TRUM AND <del>BOXES AND</del> LARGE CONTAINERS OF CH TRUM IN STORAGE IN ANY GIVEN YEAR, THIS MILESTONE REQUIRES THAT DOE TREAT ONLY THAT AMOUNT THAT IS IN STORAGE. IF ACTUAL VOLUMES OF NEWLY GENERATED OR RETRIEVED RH TRUM AND <del>BOXES AND</del> LARGE CONTAINER TRUM ARE SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES, THIS MILESTONE WILL BE REVISED TO REFLECT ACTUAL VOLUMES.</li><li>4. 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 <del>OR CERTIFY IN LIEU OF TREATMENT</del> TO MEET LDR REQUIREMENTS WITHIN ONE YEAR OF GENERATION.</li></ol>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>
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	<p>DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF <del>CH TRANSURANIC</del> 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.</p> <p>5. DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF RH AND LARGE CONTAINER TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.</p> <p>NOTE: THE REQUIREMENTS OF ITEMS 3, 4, AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p> <p>7. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, (PER REQUIREMENTS IN M-91-44 (4)), IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN M-91-44 FOR ANY GIVEN YEAR BY CERTIFYING RH OR LARGE CONTAINER TRU OR RH OR LARGE CONTAINER TRUM. NOTIFICATION OF CERTIFICATION IN LIEU OF TREATMENT WILL BE PROVIDED ANNUALLY AS PART OF THE CERTIFICATION VOLUME COMPLETION LETTER.</p>	
M-91-45	<p>BY SEPTEMBER 30 OF EACH YEAR, DOE SHALL 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</p>	<p>9/30/2004 AND ANNUALLY THEREAFTER</p>

M-91-07-01 HHFACO Change Package

23

	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.	
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## APPENDIX U

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### M-91 CHANGE PACKAGES M-91-08-01 AND M-91-08-02

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**Department of Energy**  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

08-AMCP-0111

**MAR 10 2008**

Ms. J. A. Hedges, Program Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
3100 Port of Benton  
Richland, Washington 99354

Dear Ms. Hedges:

**HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT) CHANGE PACKAGES M-91-08-01 AND M-91-08-02**

The purpose of this letter is to transmit Tri-Party Agreement Draft Change Packages M-91-08-01 and M-91-08-02 for the State of Washington Department of Ecology (Ecology) review and follow-on joint agency discussion. The U.S. Department of Energy, Richland Operations Office (RL) has evaluated the Fiscal Year 2008 budget appropriation for Solid Waste Stabilization and Disposition. The Fiscal Year 2008 appropriation does not provide funding sufficient to meet the Tri-Party Agreement milestone requirements for treatment of contact handled mixed low level waste or certification of transuranic waste. The potential funding impact on Tri-Party Agreement Milestone M-91 scope was initially presented at the Public Briefing and Workshop on May 9, 2007. The lack of funding provides good cause for the Parties to modify the Tri-Party Agreement Interim Milestone M-91-42 requirements to align with the Fiscal Year 2008 funding appropriation, in accordance with Tri-Party Agreement Articles XL(120) and XLVII(145.G).

RL recently discussed the Fiscal Year 2008 and 2009 budgets with the regulators and is looking forward to meeting with Ecology to discuss these draft change packages.

If you have any questions, please contact me, or your staff may contact Matt McCormick, Assistant Manager for the Central Plateau, on (509) 373-9971.

Sincerely,

  
David A. Brockman  
Manager

AMCP:GLS

Attachments

cc: See Page 2

Ms. J. A. Hedges  
08-AMCP-0111

-2-

cc w/attachs:  
G. Bohnee, NPT  
L. Buck, Wanapum  
C. E. Cameron, EPA  
N. Ceto, EPA  
R. H. Engelmann, EFSH  
S. Harris, CTUIR  
R. Jim, YN  
S. M. Joyce, FHI  
S. L. Leckband, HAB  
M. L. Mandis, Ecology  
D. E. McKenney, EFSH  
K. Niles, ODOE  
R. E. Piippo, FHI  
D. G. Singleton, Ecology  
R. Skinnarland, Ecology  
J. G. Vance, FFS  
Administrative Record (M-91)  
Environmental Portal

<b>DRAFT Change Number</b> M-91-08-01	<b>Federal Facility Agreement and Consent Order Change Control Form</b> Do not use blue ink. Type or print using black ink.	<b>Date</b> May 23, 2008
<b>Originator</b> Mark French		<b>Phone</b> (509) 373-9863
<b>Class of Change</b> <input type="checkbox"/> I – Signatories <input checked="" type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager		
<b>Change Title</b> Modification of <u>Hanford Federal Facility Agreement and Consent Order (Agreement) M-91-42</u> interim milestone		
<b>Description/Justification of Change</b> This change package modifies the M-91-42 requirement to treat 8,150 cubic meters of contact handled mixed low level waste (CH MLLW) by December 31, 2008, to 7,220 cubic meters. In order to meet the 7,220 cubic meter milestone at least 7,280 cubic meters of applicable waste will have been shipped for treatment by that date. This change is necessary due to insufficient Fiscal Year (FY) 2008 funding and the fact that not enough waste is currently in storage or will be retrieved, shipped, and treated in time to meet the cumulative 8,150 cubic meters by December 31, 2008. The volume to be treated is being adjusted due to good cause per the Agreement Article XL's Good Cause for Extensions provisions paragraph 119, "Either a timetable and deadline or a schedule shall be modified upon receipt of a timely request for extension and when good cause exists for the requested extension" and paragraph 120, subparagraph A, An event of force majeure as defined in Article XLVII (Force Majeure). <div style="text-align: right;">(Continued on page 2)</div>		
<b>Impact of Change</b> The change recognizes that the original milestone can not be met due to insufficient FY 2008 appropriations and modifies the milestone to reflect the amount of waste that will be treated with the available appropriated funds.		
<b>Affected Documents</b> The <u>Hanford Federal Facility Agreement and Consent Order</u> , as amended and Hanford Site internal planning, management and budget documents (e.g., baseline control documents, related work authorization and directives). M-91 Transuranic (TRU) Mixed/Mixed Low Level Waste Project Management Plan.		
<b>Approvals</b>		
_____ Ecology	_____ Date	_____ Approved    _____ Disapproved
_____ DOE-RL	_____ Date	_____ Approved    _____ Disapproved
_____ N/A EPA	_____ Date	_____ Approved    _____ Disapproved

**Description/Justification continued:**

The Force Majeure event that was beyond the control of both U.S. Department of Energy (DOE), Richland Operations Office (RL) and Ecology that is preventing the performance of the M-91-42 obligation is “insufficient availability of appropriated funds, if DOE shall have made timely request for such funds as part of the budgetary process as set forth in Article XLVIII (Cost, Schedule, Scope, Integration, Planning and Reporting)” as specified in Article XLVII, paragraph 145, subparagraph G.

RL made a timely request for such funding as part of the budgetary process set forth in Article XLVIII (Cost, Schedule, Scope, Integration, Planning and Reporting) of the agreement.

The Parties agree that the good cause event that is reducing the volume of treatment in FY 2008 is insufficient availability of appropriated funding and that if appropriated funds are not available to fulfill RL's obligations under the Agreement, the Parties shall attempt to agree upon appropriate adjustments to the milestones which require obligation of such funds.

RL has taken the necessary steps to obtain timely funding in order to fully meet its obligation to treat 8,150 cubic meters of CH MLLW by December 31, 2008. In April 2006, RL requested adequate funding to treat 8,150 cubic meters of CH MLLW. The FY 2008 annual budget request for Solid Waste Stabilization/Disposition (RL-0013C) included \$42 million which covered the 8,150 cubic meter cumulative treatment volume. The actual FY 2008 appropriation for Solid Waste Stabilization/Disposition (RL-0013C) amounted to \$242 million which is \$88 million below what was requested in April 2006.

The field office identified the lack of funding between the April 2006 Solid Waste Stabilization/Disposition (RL-0013C) funding request for the FY 2008 budget and the president's Fiscal Year 2008 budget for RL-0013C. RL presented the lack of funding issue to the regulators and public on May 9, 2007, at the FY 2009 Budget Briefing Public Workshop Project Baseline Summary Information presentation. Slide 12, Solid Waste Stabilization/Disposition (RL-0013C), stated “The following Tri-Party Agreement Milestones are anticipated to be missed in early FY 2009 unless additional funding is received: Treatment of 8,150 cubic meters of MLLW due December 31, 2008, (M-91-42E).”

Since the congressional budget appropriation for RL-0013C is insufficient to treat 8,150 cubic meters by December 31, 2008, RL and Ecology have taken this action under the Agreement to adjust the milestones requirement to treat 7,220 cumulative of CH MLLW by December 31, 2008. The Parties approval of this change package shall finalize an agreement on adjustments to the milestones volume requirement consistent with the FY 2008 congressional appropriation and will minimize impacts on the requirements of the Agreement.

Modifications to existing Tri-Part Agreement milestones are denoted with ~~strikeout~~; new milestone/text is denoted with shading.

M-91-42	<p>REGARDING SMALL CONTAINERS OF: (1) NEWLY GENERATED CH WASTE; (2) CH RSW; AND (3) CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE</p> <ol style="list-style-type: none"><li>1. 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.</li><li>2. THERE WERE 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 REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07) THAT HAD NOT BEEN TREATED TO MEET LDR REQUIREMENTS. (THIS VOLUME DOES NOT INCLUDE 600 CUBIC METERS OF WASTE REQUIRING THERMAL TREATMENT, AS THAT WASTE HAS SEPARATE TREATMENT REQUIREMENTS PER M-91-12 AND M-91-12A). APPROXIMATELY 4422 CUBIC METERS OF MLLW SUBJECT TO M-91-42 WAS TREATED BETWEEN 12/31/02 AND 12/31/05. DOE'S 2002 LDR REPORT ESTIMATED GENERATION OF 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). IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS OF CH-MLLW BY 2010. BASED ON THE CY2005 LDR SUMMARY REPORT AS OF 12/31/05 FOR MLLW SUBJECT TO M-91-42, THERE WERE APPROXIMATELY 2100 CUBIC METERS IN PERMITTED STORAGE, AND 280 CUBIC METERS FORECAST TO BE GENERATED BY THE END OF CY2009.</li></ol> <p>ACCORDING TO THE M-91 PMP (HNF-19169 REV 2) APPROXIMATELY 2550 CUBIC METERS OF M-91-42 MLLW WAS EXPECTED TO BE RETRIEVED BETWEEN 12/31/05 AND 12/31/09. IN ADDITION TO MEETING THE</p>	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE
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REQUIREMENTS OF M-91-12 AND M-91-12A, DOE SHALL TREAT THE WASTE DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON A SCHEDULE MEETING, AT MINIMUM, THE FOLLOWING CUMULATIVE TOTALS BASED ON A START DATE OF 12/31/02:

- A. 1630 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/04,
- B. 3260 CUBIC METERS BY (CUMULATIVE) SHALL BE TREATED BY 12/31/05,
- C. 4890 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/06,
- D. 6520 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/07,
- E. ~~7,220~~ 8150 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/08, AND
- F. COMPLETE 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 ABOVE, AS OF 6/30/09, BY 12/31/09.)

IF CH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02, TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. RSW DETERMINED TO BE MLLW IN THE TREATABILITY GROUPS COVERED BY THIS MILESTONE WILL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE WHEN TREATED.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE

IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

3. AFTER JUNE 30, 2009, DOE SHALL TREAT TO MEET LDR TREATMENT REQUIREMENTS ALL SMALL CONTAINERS OF NEWLY GENERATED CH-MLLW CONTAINING LDR CONSTITUENTS IN COMPLIANCE WITH WAC 173-303-140.
4. THERE ARE APPROXIMATELY 440 CUBIC METERS OF CH-TRUM IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02. DOE'S CY 2002 LDR REPORT ESTIMATES THAT IT WILL GENERATE AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 220 CUBIC METERS OF CH-TRUM AND DOE ESTIMATES THEY WILL RETRIEVE APPROXIMATELY 1600 CUBIC METERS OF CH-TRUM BY 2010. CONSIDERING THESE ESTIMATES AND THE CONSIDERABLE UNCERTAINTY ASSOCIATED WITH THEM DOE SHALL TREAT THE WASTE CATEGORIES DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON THE FOLLOWING CUMULATIVE SCHEDULE:
  - 700 CUBIC METERS BY 12/31/04;
  - 1,800 CUBIC METERS (CUMULATIVE) BY 12/31/05;
  - 3,000 CUBIC METERS (CUMULATIVE) BY 12/31/06;
  - 4,200 CUBIC METERS (CUMULATIVE) BY 12/31/07;
  - 5,400 CUBIC METERS (CUMULATIVE) BY 12/31/08;
  - 6,600 CUBIC METERS (CUMULATIVE) BY 12/31/09;
  - 7,600 CUBIC METERS (CUMULATIVE) BY 12/31/10;
  - 8,600 CUBIC METERS (CUMULATIVE) BY 12/31/11.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED,

RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

5. FOR CH TRANSURANIC WASTE NEWLY GENERATED ON OR AFTER 7/1/11 THAT IS 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 PURSUANT TO WAC 173-303-140 WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM, PROVIDED THAT 1) ALL CH TRUM IN PERMITTED STORAGE AS OF 12/31/02 IS TREATED TO MEET LDR REQUIREMENTS OR CERTIFIED BY 12/31/2006 AND 2) ALL CH TRUM IN PERMITTED STORAGE AS OF 7/1/11 IS TREATED TO MEET LDR REQUIREMENTS OR IS CERTIFIED BY 12/31/2011.

NOTE: THE REQUIREMENTS OF ITEMS 4 AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

NOTE: IN THE EVENT THAT ITEMS 4 OR 5 BECOME APPLICABLE, AMOUNTS OF CH TRUM CERTIFIED BETWEEN 12/31/02 AND THE DATE ON WHICH ITEMS 4 OR 5 BECOME APPLICABLE SHALL COUNT TOWARDS SATISFACTION OF THE OBLIGATIONS IN ITEMS 4 AND 5.

6. EACH REQUIREMENT OF THIS MILESTONE IS

	CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.	
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<b>DRAFT Change Number</b> M-91-08-02	<b>Federal Facility Agreement and Consent Order Change Control Form</b> Do not use blue ink. Type or print using black ink.	<b>Date</b> May 23, 2008
<b>Originator</b> Mark French		<b>Phone</b> (509) 373-9863
<b>Class of Change</b> <input type="checkbox"/> I – Signatories <input checked="" type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager		
<b>Change Title</b> Modification of <u>Hanford Federal Facility Agreement and Consent Order</u> (Agreement) M-91-42 TRUM certification interim milestone		
<b>Description/Justification of Change</b> This change package modifies the M-91-42 requirement 4, to treat/certify 5,400 cubic meters cumulative of Contact Handled (CH) transuranic waste by December 31, 2008, to a requirement to treat/certify 600 cubic meters of transuranic waste between October 1, 2007, and September 30, 2008. This change is necessary due to insufficient Fiscal Year 2008 funding. The volume to be certified and the due date are being adjusted due to good cause per the Agreement Article XL's Good Cause for Extensions provisions paragraph 119, "Either a timetable and deadline or a schedule shall be modified upon receipt of a timely request for extension and when good cause exists for the requested extension" and paragraph 120, subparagraph A, An event of force majeure as defined in Article XLVII (Force Majeure).  <div style="text-align: center;">(Continued on page 2)</div>		
<b>Impact of Change</b> The change recognizes that the original milestone cannot be met due to insufficient Fiscal Year 2008 appropriations and modifies the milestone to reflect the amount of waste that will be certified with the available appropriated funds.		
<b>Affected Documents</b> The <u>Hanford Federal Facility Agreement and Consent Order</u> , as amended and Hanford Site internal planning, management and budget documents (e.g., baseline control documents, related work authorization and directives). M-91 TRU Mixed/Mixed Low Level Waste Project Management Plan.		
<b>Approvals</b>		
_____ Ecology	_____ Date	_____ Approved _____ Disapproved
_____ DOE-RL	_____ Date	_____ Approved _____ Disapproved
_____ N/A	_____ Date	_____ Approved _____ Disapproved
_____ EPA	_____ Date	_____ Approved _____ Disapproved

**Description/Justification continued:**

The Force Majeure event that was beyond the control of both U.S. Department of Energy (DOE), Richland Operations Office (RL) and Ecology that is preventing the performance of the M-91-42 transuranic waste certification obligation is “insufficient availability of appropriated funds, if DOE shall have made timely request for such funds as part of the budgetary process as set forth in Article XLVIII (Cost, Schedule, Scope, Integration, Planning and Reporting)” as specified in Article XLVII, paragraph 145, subparagraph G.

RL made a timely request for such funding as part of the budgetary process set forth in Article XLVIII (Cost, Schedule, Scope, Integration, Planning and Reporting) of the agreement.

The Parties agree that the good cause event that is reducing the amount of waste certified in Fiscal Year (FY) 2008 is insufficient availability of appropriated funding and that if appropriated funds are not available to fulfill RL's obligations under the Agreement, the Parties shall attempt to agree upon appropriate adjustments to the milestones which require obligation of such funds.

RL has taken the necessary steps to obtain timely funding in order to fully meet its obligation to certify the available volume of CH transuranic mixed (TRUM) waste by December 31, 2008. In April 2006, RL requested funding believed to be adequate to meet the December 31, 2008, milestone. The FY 2008 annual budget request for Solid Waste Stabilization/Disposition (RL-0013C) included \$35 million which was believed to be adequate to meet the milestone requirement. The actual FY 2008 appropriation for Solid Waste Stabilization/Disposition (RL-0013C) amounted to \$242 million which is \$88 million below what was requested in April 2006.

The field office identified the lack of funding between the April 2006 Solid Waste Stabilization/Disposition (RL-0013C) funding request for the FY 2008 budget and the president's FY 2008 budget for RL-0013C. RL presented the lack of funding issue to the regulators and public on May 9, 2007, at the FY 2009 Budget Briefing Public Workshop Project Baseline Summary Information presentation. Slide 12, Solid Waste Stabilization/Disposition (RL-0013C), stated, “The following Tri-Party Agreement Milestones are anticipated to be missed in early FY 2009 unless additional funding is received: Certification of Transuranic waste to WIPP, 5,400 cubic meters cumulative due December 31, 2008, (M-91-42J).”

Since the congressional budget appropriation for RL-0013C is insufficient to certify the available volume by December 31, 2008, RL and Ecology have taken this action under the Agreement to adjust the milestones requirement to certify 600 cubic meters of CH transuranic waste and adjust the time frame to align with the fiscal calendar between October 1, 2007, and September 30, 2008. The 600 cubic meter volume amount is consistent with the volume specified in the 2007 M-91 TRU Mixed/Mixed Low Level Waste Project Management Plan. The Parties approval of this change package shall finalize an agreement on adjustments to the milestone volume

requirement consistent with the FY 2008 congressional appropriation and will minimize impacts on the requirements of the Agreement.

Modifications to existing Tri-Part Agreement milestones are denoted with ~~strikeout~~; new milestone/text is denoted with shading.

M-91-42		DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE
	<p>REGARDING SMALL CONTAINERS OF: (1) NEWLY GENERATED CH WASTE; (2) CH RSW; AND (3) CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE</p> <p>5. 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>6. THERE WERE 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 REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07) THAT HAD NOT BEEN TREATED TO MEET LDR REQUIREMENTS. (THIS VOLUME DOES NOT INCLUDE 600 CUBIC METERS OF WASTE REQUIRING THERMAL TREATMENT, AS THAT WASTE HAS SEPARATE TREATMENT REQUIREMENTS PER M-91-12 AND M-91-12A). APPROXIMATELY 4422 CUBIC METERS OF MLLW SUBJECT TO M-91-42 WAS TREATED BETWEEN 12/31/02 AND 12/31/05. DOE'S 2002 LDR REPORT ESTIMATED GENERATION OF 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). IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS OF CH-MLLW BY 2010. BASED ON THE CY2005 LDR SUMMARY REPORT AS OF 12/31/05 FOR MLLW SUBJECT TO M-91-42, THERE WERE APPROXIMATELY 2100 CUBIC METERS IN PERMITTED STORAGE, AND 280 CUBIC METERS FORECAST TO BE GENERATED BY THE END OF CY2009.</p>	

ACCORDING TO THE M-91 PMP (HNF-19169 REV 2) APPROXIMATELY 2550 CUBIC METERS OF M-91-42 MLLW WAS EXPECTED TO BE RETRIEVED BETWEEN 12/31/05 AND 12/31/09. IN ADDITION TO MEETING THE REQUIREMENTS OF M-91-12 AND M-91-12A, DOE SHALL TREAT THE WASTE DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON A SCHEDULE MEETING, AT MINIMUM, THE FOLLOWING CUMULATIVE TOTALS BASED ON A START DATE OF 12/31/02:

- G. 1630 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/04,
- H. 3260 CUBIC METERS BY (CUMULATIVE) SHALL BE TREATED BY 12/31/05,
- I. 4890 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/06,
- J. 6520 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/07,
- K. 8150 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/08, AND
- L. COMPLETE 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 ABOVE, AS OF 6/30/09, BY 12/31/09.)

IF CH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02, TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. RSW DETERMINED TO BE MLLW IN THE TREATABILITY GROUPS COVERED BY THIS MILESTONE WILL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE WHEN

TREATED.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

7. AFTER JUNE 30, 2009, DOE SHALL TREAT TO MEET LDR TREATMENT REQUIREMENTS ALL SMALL CONTAINERS OF NEWLY GENERATED CH-MLLW CONTAINING LDR CONSTITUENTS IN COMPLIANCE WITH WAC 173-303-140.
8. THERE ARE APPROXIMATELY 440 CUBIC METERS OF CH-TRUM IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02. DOE'S CY 2002 LDR REPORT ESTIMATES THAT IT WILL GENERATE AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 220 CUBIC METERS OF CH-TRUM AND DOE ESTIMATES THEY WILL RETRIEVE APPROXIMATELY 1600 CUBIC METERS OF CH-TRUM BY 2010. CONSIDERING THESE ESTIMATES AND THE CONSIDERABLE UNCERTAINTY ASSOCIATED WITH THEM DOE SHALL TREAT THE WASTE CATEGORIES DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON THE FOLLOWING CUMULATIVE SCHEDULE:
  - 700 CUBIC METERS BY 12/31/04;
  - 1,800 CUBIC METERS (CUMULATIVE) BY 12/31/05;
  - 3,000 CUBIC METERS (CUMULATIVE) BY 12/31/06;
  - 4,200 CUBIC METERS (CUMULATIVE) BY 12/31/07;
  - 600 5,400 CUBIC METERS (CUMULATIVE) BY 12/31/08 BETWEEN 10/1/2007 AND 9/30/2008;
  - 6,600 CUBIC METERS (CUMULATIVE) BY 12/31/09;
  - 7,600 CUBIC METERS (CUMULATIVE) BY 12/31/10;
  - 8,600 CUBIC METERS (CUMULATIVE) BY 12/31/11.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

6. FOR CH TRANSURANIC WASTE NEWLY GENERATED ON OR AFTER 7/1/11 THAT IS 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 PURSUANT TO WAC 173-303-140 WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM, PROVIDED THAT 1) ALL CH TRUM IN PERMITTED STORAGE AS OF 12/31/02 IS TREATED TO MEET LDR REQUIREMENTS OR CERTIFIED BY 12/31/2006 AND 2) ALL CH TRUM IN PERMITTED STORAGE AS OF 7/1/11 IS TREATED TO MEET LDR REQUIREMENTS OR IS CERTIFIED BY 12/31/2011.

NOTE: THE REQUIREMENTS OF ITEMS 4 AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

NOTE: IN THE EVENT THAT ITEMS 4 OR 5 BECOME APPLICABLE, AMOUNTS OF CH TRUM CERTIFIED BETWEEN

	<p>12/31/02 AND THE DATE ON WHICH ITEMS 4 OR 5 BECOME APPLICABLE SHALL COUNT TOWARDS SATISFACTION OF THE OBLIGATIONS IN ITEMS 4 AND 5.</p>	
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	<p>6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
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## APPENDIX V

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### M-91 CHANGE PACKAGE M-91-08-03

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<b>Change Number</b> M-91-08-03	<b>Federal Facility Agreement and Consent Order Change Control Form</b> Do not use blue ink. Type or print using black ink.	<b>Date</b> 4/30/2008
<b>Originator</b> Mark French		<b>Phone</b> (509) 373-9863
<b>Class of Change</b> <input type="checkbox"/> I – Signatories <input checked="" type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager		
<b>Change Title</b> Modification of interim milestones M-091-45 and M-091-03		
<b>Description/Justification of Change</b>  This change package authorizes an update to the Hanford Federal Facility Agreement and Consent Order for the modification of two interim milestones. The complete scope of the M-091-45 interim milestone for an annual report for work relating to remote handled waste and large containers of remote handled and contact handled waste will be moved into the annual submittal of the M-91-03 project management plan. The integration of the M-091-45 scope into a single annual submittal eliminates a duplication of administrative effort in preparing and submitting two individual documents. The complete scope from M-091-45 will be moved to M-091-03.		
<b>Impact of Change</b> No impact to the environment or health and safety of the workforce. The change eliminates the duplication of administrative documentation. The information previously provided in September of each year through a separate M-91-45 report will now be consolidated into a single report, the M-91-03 project management plan, which addresses all M-91 activities and is submitted annually in June.		
<b>Affected Documents</b> The <u>Hanford Federal Facility Agreement and Consent Order</u> , as amended and Hanford Site internal planning management, and budget documents (e.g., USDOE contractor Baseline Change Control documents; M-91-03 Hanford Site TRU mixed/mixed low level waste Project Management Plan, and LDR Report) as required.		
<b>Approvals</b>		
_____	_____	_____ Approved _____ Disapproved
Ecology	Date	
_____	_____	_____ Approved _____ Disapproved
DOE-RL	Date	
_____	_____	_____ Approved _____ Disapproved
N/A	Date	
EPA	Date	

Modifications to existing Tri-Party Agreement milestones are denoted with ~~strikeout~~; new milestone/text is denoted with shading.

<p>M-91-03</p>	<p>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.</p> <p>ANNUAL REVISIONS OF THE PMP WILL BE SUBMITTED ON JUNE 30 EVERY YEAR STARTING IN 2008 AND CONTINUING UNTIL THE M-91 MILESTONES ARE COMPLETED. THE PMP REVISIONS SHALL INCLUDE PLANS AND SCHEDULES TO MEET ALL THE REQUIREMENTS SET FORTH IN THE M-91 MILESTONE SERIES. EACH REVISION OF THE M-91-03 PMP SHALL, UPON APPROVAL BY ECOLOGY, SUPERSEDE PREVIOUS M-91-03 PMPs. EACH REVISION IS A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THIS AGREEMENT.</p> <p>THE PMP WILL INCLUDE A DESCRIPTION OF COMPLETED AND SCHEDULED WORK RELATING TO RH WASTE AND LARGE CONTAINERS OF RH AND CH WASTE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE M -91 MILESTONE SERIES. THE PMP WILL DOCUMENT WORK COMPLETED DURING THE PREVIOUS FEDERAL FISCAL YEAR AND WORK SCHEDULED FOR THE COMING FISCAL YEAR. THE PMP SHALL IDENTIFY BY CITATION ALL PUBLICLY AVAILABLE REPORTS DESCRIBING PERTINENT PROJECT ISSUES AND ACCOMPLISHMENTS, AND SHALL IDENTIFY ANTICIPATED PROJECTS FOR THE COMING YEAR.</p> <p>WITH RESPECT TO RH MIXED WASTE AND MIXED WASTE IN LARGE CONTAINERS, THE PMP SUBMITTED YEARLY WILL</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>
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	<p>SPECIFICALLY INCLUDE AT LEAST ONE MEASURABLE ACTION(S) TO BE TAKEN BY DOE TO ACQUIRE CAPABILITIES TO MANAGE SUCH WASTES. THE PMP SHALL IDENTIFY SUCH MEASURABLE ACTIONS AT LEAST YEARLY.</p> <p>THE PMP SUBMITTED ON 12/31/2003 WILL NOT BE REQUIRED TO CONTAIN PLANS AND SCHEDULES FOR THE LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED FOR IN M-91-42 AND M-91-44) OF TRUM WASTE. DOE SHALL REVISE THE PMP TO INCLUDE PLANS AND SCHEDULES FOR LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED IN M-91-42 AND M-91-44) OF TRUM WASTE BY 12/28/06.</p> <p>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.</p> <p>NOTE: WITH RESPECT TO PMP REVISIONS, THE REQUIREMENTS OF THIS MILESTONE CONCERNING PMP REVISIONS TO ADDRESS TRUM SHALL APPLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p>	
M-91-45	<p><del>BY SEPTEMBER 30 OF EACH YEAR, DOE SHALL SUBMIT TO ECOLOGY A REPORT DESCRIBING COMPLETED AND SCHEDULED WORK RELATING TO RH WASTE 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.</del></p>	<p>9/30/2004 AND ANNUALLY THEREAFTER</p>

## APPENDIX W

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# M-91 CHANGE PACKAGE FOR THE BASE CASE

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<b>Change Number</b> M-91-08-XX Base Case (Draft)	<b>Federal Facility Agreement and Consent Order Change Control Form</b> Do not use blue ink. Type or print using black ink.	<b>Date</b> 2008																																				
<b>Originator</b>		<b>Phone</b>																																				
<b>Class of Change</b> <input type="checkbox"/> I – Signatories <input type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager																																						
<b>Change Title</b> Modification of <u>Hanford Federal Facility Agreement and Consent Order</u> (Agreement) M-91 Series milestones to align with the FY 2008 appropriations as presented in the M-91-03 PMP																																						
<b>Description/Justification of Change</b>																																						
<b>Impact of Change</b>																																						
<b>Affected Documents</b> The <u>Hanford Federal Facility Agreement and Consent Order</u> , as amended and Hanford Site internal planning management, and budget documents (e.g., USDOE contractor Baseline Change Control documents; M-91-03 Hanford Site TRU mixed/mixed low level waste Project Management Plan, and LDR Report).																																						
<b>Approvals</b> <table style="width:100%; border:none;"> <tr> <td style="border:none;">_____</td> <td style="border:none;">_____</td> <td style="border:none;">_____</td> <td style="border:none;">Approved</td> <td style="border:none;">_____</td> <td style="border:none;">Disapproved</td> </tr> <tr> <td style="border:none;">Ecology</td> <td style="border:none;">Date</td> <td colspan="4"></td> </tr> <tr> <td style="border:none;">_____</td> <td style="border:none;">_____</td> <td style="border:none;">_____</td> <td style="border:none;">Approved</td> <td style="border:none;">_____</td> <td style="border:none;">Disapproved</td> </tr> <tr> <td style="border:none;">DOE-RL</td> <td style="border:none;">Date</td> <td colspan="4"></td> </tr> <tr> <td style="border:none;">_____</td> <td style="border:none;">_____</td> <td style="border:none;">_____</td> <td style="border:none;">Approved</td> <td style="border:none;">_____</td> <td style="border:none;">Disapproved</td> </tr> <tr> <td style="border:none;">EPA</td> <td style="border:none;">Date</td> <td colspan="4"></td> </tr> </table>			_____	_____	_____	Approved	_____	Disapproved	Ecology	Date					_____	_____	_____	Approved	_____	Disapproved	DOE-RL	Date					_____	_____	_____	Approved	_____	Disapproved	EPA	Date				
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**Description/Justification of Change (cont)**

Modifications to existing Tri-Party Agreement milestones are denoted with ~~strikeout~~; new milestone/text is denoted with shading.

M-91-00	<p>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.</p> <p><b>DEFINITIONS</b></p> <p>THE FOLLOWING DEFINITIONS APPLY TO THIS SERIES OF MILESTONES</p> <p>“SMALL CONTAINERS” AND “LARGE CONTAINERS” AS USED HEREIN HAVE DIFFERENT MEANINGS DEPENDING ON WHETHER THEY ARE USED IN REFERENCE TO MLLW/LLW OR TRANSURANIC WASTE.</p> <p>WHEN REFERRING TO MLLW/LLW, SMALL CONTAINERS ARE CONTAINERS LESS THAN 10 CUBIC METERS, INCLUDING 55 GALLON DRUMS. A LARGE CONTAINER IS ANYTHING NOT DEFINED AS A SMALL CONTAINER.</p> <p>WHEN REFERRING TO TRANSURANIC WASTE, SMALL CONTAINERS ARE 55 GALLON DRUMS OR SMALLER CONTAINERS EVEN IF OVER-PACKED IN 85 GALLON DRUMS, AND NEWLY GENERATED WIPP STANDARD WASTE BOXES (SWB). A WIPP SWB IS A 1.8 CUBIC METER STEEL CONTAINER THAT IS APPROXIMATELY 0.94 METERS IN HEIGHT, 1.8 METERS IN LENGTH, AND 1.4 METERS IN WIDTH AND WAS QUALIFIED BY THE U.S. DEPARTMENT OF ENERGY (USDOE) IN 1988 AS MEETING THE U.S. DEPARTMENT OF TRANSPORTATION REQUIREMENTS FOR SPECIFICATION 7A TYPE A PACKAGINGS. A LARGE CONTAINER IS ANYTHING NOT DEFINED AS A SMALL CONTAINER.</p> <p>“CERTIFICATION” AS USED HEREIN IS DEFINED AS COMPLETION OF ALL ACTIVITIES REQUIRED FOR APPROVAL IN THE WIPP WASTE INFORMATION SYSTEM</p>	TO BE DETERMINED*
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FOR ACCEPTANCE INTO WIPP FOR DISPOSAL.

“DESIGNATION” AS USED HEREIN IS DEFINED AS THE PROCESS FOR DETERMINING: (1) WHICH CONTAINERS OF LOW-LEVEL WASTE ARE MLLW; AND, (2) WHICH CONTAINERS OF TRANSURANIC WASTE ARE MIXED TRANSURANIC WASTE (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 TRANSURANIC WASTE IN SUPPORT OF ITS DESIGNATION OF RELATED LOW-LEVEL WASTE STREAMS. WHERE APPROPRIATE, DOE WILL USE MEASURES ALLOWED UNDER STATE AND FEDERAL REGULATIONS TO PERFORM ACCURATE AND COST EFFECTIVE DESIGNATIONS OF LOW-LEVEL WASTE.

“LOW-LEVEL WASTE” AS USED HEREIN IS DEFINED AS RADIOACTIVE WASTE THAT IS NOT SPENT FUEL, HIGH-LEVEL WASTE, TRANSURANIC WASTE, BYPRODUCT MATERIAL, OR NATURALLY OCCURRING RADIOACTIVE MATERIAL. LOW-LEVEL WASTE INCLUDES BOTH “MIXED LOW-LEVEL WASTE” AND “NON-MIXED LOW-LEVEL WASTE.” “MIXED LOW-LEVEL WASTE” (MLLW) IS LOW-LEVEL WASTE THAT IS SUBJECT TO RCRA OR 70.105 RCW. “NON-MIXED LOW-LEVEL WASTE” (LLW) IS LOW-LEVEL WASTE THAT IS NOT SUBJECT TO RCRA OR 70.105 RCW. LLW AND MLLW CAN BE CONTACT-HANDLED (CH), I.E., CH-LLW OR CH-MLLW, OR REMOTE-HANDLED (RH), I.E., RH-LLW OR RH-MLLW.

“CONTACT HANDLED” (CH) WASTE IS A WASTE PACKAGE WITH A SURFACE DOSE RATE LESS THAN OR EQUAL TO 200 MILLIREM PER HOUR.

“REMOTE HANDLED” (RH) WASTE IS A WASTE PACKAGE WITH A SURFACE DOSE RATE GREATER THAN 200 MILLIREM PER HOUR.

“RETRIEVABLY STORED WASTE” (RSW) AS USED HEREIN IS

DEFINED AS WASTE THAT IS OR WAS BELIEVED TO BE CONTAMINATED WITH SIGNIFICANT CONCENTRATIONS OF TRANSURANIC ISOTOPES WHEN IT WAS PLACED IN THE 218-W-4B, 218-W-4C, 218-W-3A AND 218-E-12B BURIAL GROUND TRENCHES AFTER MAY 6, 1970. DURING THE RETRIEVAL PROCESS, CONTAINERS OF RSW WILL BE SEGREGATED INTO TWO CATEGORIES: (1) CH RSW AND (2) RH RSW. SUBSEQUENT ANALYSIS AND CATEGORIZATION OF RSW PURSUANT TO CH. 70.105 RCW, THE ATOMIC ENERGY ACT, AND THE WIPP LAND WITHDRAWAL ACT WILL RESULT IN MOST OR ALL OF THIS WASTE BEING CLASSIFIED AS ONE OF THE FOLLOWING TYPES OF WASTE: CH-LLW, RH-LLW, CH-MLLW, RH-MLLW, CH-TRU, CH-TRUM, RH-TRU OR RH-TRUM. RSW DOES NOT INCLUDE WASTE IN CONTAINERS THAT HAVE DETERIORATED TO THE POINT THAT THEY CANNOT BE RETRIEVED AND STABILIZED (E.G. PLACED IN OVERPACKS) IN A MANNER THAT WOULD ALLOW THEM TO BE TRANSPORTED AND DESIGNATED WITHOUT POSING SIGNIFICANT RISKS TO WORKERS, THE PUBLIC OR THE ENVIRONMENT. WITH RESPECT TO ANY SUCH CONTAINERS, AND WITH RESPECT TO ANY RELEASE OF RSW, THE DECISION AS TO HOW TO MOVE FORWARD WILL BE DETERMINED THROUGH THE CLEANUP PROCESS SET FORTH IN RCRA, CH. 70.105 RCW, AND/OR CERCLA AS APPROPRIATE. THOSE PROCESSES MAY RESULT IN ADDITIONAL REQUIREMENTS FOR THE REMEDIATION OF SUCH WASTES.

“CAISSON WASTE” AS USED HEREIN IS DEFINED AS RSW IN THE 218-W-4B BURIAL GROUND CAISSONS ALPHA-1 THROUGH ALPHA-4.

“TRANSURANIC WASTE” AS USED HEREIN IS DEFINED AS WASTE THAT MEETS THE DEFINITION IN SUBSECTION (18) OF SECTION 2 OF THE WASTE ISOLATION PILOT PLANT LAND WITHDRAWAL ACT, PUB. L. 102-579. TRANSURANIC WASTE INCLUDES BOTH MIXED TRANSURANIC (TRUM) WASTE AND NON MIXED TRANSURANIC (TRU) WASTE, AND COMPRISES THE FOLLOWING CATEGORIES: CH-TRU, CH-TRUM, RH-TRU, AND RH-TRUM.

“RETRIEVAL OF CH RSW” IS DEFINED AS UNCOVERING CH WASTES WITHIN DOE’S RSW TRENCHES, REMOVING SUCH

CH WASTES FROM THE TRENCHES, AND TRANSFERRING THE WASTE TO A PERMITTED AND COMPLIANT TREATMENT, STORAGE OR DISPOSAL UNIT, THE ENVIRONMENTAL RESTORATION AND DISPOSAL FACILITY (ERDF) OR FOR WASTE DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH 100 AS NON-MIXED TO A STORAGE OR DISPOSAL UNIT THAT DOE DETERMINES IS APPROPRIATE.

“RETRIEVAL OF RH RSW” IS DEFINED AS UNCOVERING RH WASTES WITHIN DOE’S RSW TRENCHES AND CAISSONS, REMOVING SUCH RH WASTES FROM THE TRENCHES AND CAISSONS, TRANSFERRING THE WASTE TO A PERMITTED AND COMPLIANT TREATMENT, STORAGE OR DISPOSAL UNIT, THE ENVIRONMENTAL RESTORATION AND DISPOSAL FACILITY (ERDF) OR FOR WASTE DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH 100 AS NON-MIXED TO A STORAGE OR DISPOSAL UNIT THAT DOE DETERMINES IS APPROPRIATE.

TO PROVIDE FURTHER CLARIFICATION OF HOW VOLUMES SHOULD BE DETERMINED IN DIFFERENT M-91 CONTEXTS, AND TO BE CONSISTENT WITH THE VOLUMES OF WASTE LISTED IN THE HANFORD SITE SOLID WASTE INVENTORY TRACKING SYSTEM (SWITS), THE FOLLOWING DESCRIPTIONS ARE PROVIDED:

- VOLUMES FOR THE PURPOSES OF DETERMINING AMOUNTS RETRIEVED SHALL BE BASED ON THE VOLUME OF THE ORIGINAL CONTAINERS IN RETRIEVABLE STORAGE. FOR EXAMPLE, THE VOLUME OF A 55 GALLON RSW DRUM THAT WOULD BE COUNTED TOWARD “RETRIEVAL” WOULD BE 55 GALLONS (.208 CUBIC METERS), EVEN IF IN THE PROCESS OF RETRIEVAL THE DRUM NEEDED TO BE OVER-PACKED INTO AN 85 GALLON DRUM.
- THE VOLUME OF MLLW “TREATED” WILL BE COUNTED AS THE RETRIEVAL VOLUME (FOR RSW) OR THE MLLW PRE-TREATMENT CONTAINER VOLUME (FOR NEWLY GENERATED AND STORED WASTE).
- THE VOLUME OF TRANSURANIC WASTE COUNTED AS

	<p>“CERTIFIED” WILL BE THE VOLUME OF THE CERTIFIED CONTAINER CONTAINING THE WASTE UNLESS THE WASTE IS COMPACTED. IN THE EVENT THAT THE WASTE IS COMPACTED, THE VOLUME OF THE PRE-COMPACTED CONTAINER WILL BE COUNTED.</p> <p>NOTE: THE REQUIREMENTS OF THIS MILESTONE WITH REGARD TO THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES, AND MODIFICATION OF PLANNED FACILITIES NECESSARY FOR TREATMENT/PROCESSING OF RCRA MIXED AND SUSPECT MIXED TRANSURANIC WASTE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>* NOTE: THE M-91 SERIES MILESTONES (INCLUDING THIS NOTE) DO NOT INCLUDE ANY REQUIREMENTS TO ESTABLISH SCHEDULES FOR THE MANAGEMENT OF PRE-1971 TRU/TRUM. SCHEDULES FOR THE MANAGEMENT OF PRE-1971 TRU/TRUM WILL BE ESTABLISHED, PURSUANT TO APPLICABLE PROVISIONS OF THE HFFACO OTHER THAN THE M-91 SERIES MILESTONES, FOLLOWING THE ISSUANCE OF OPERABLE UNIT RECORDS OF DECISION (RODS).</p>	
M-91-01	<p>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 LARGE CONTAINERS, AND SUSPECT TRUM IN LARGE CONTAINERS.</p> <p>NOTE: THE REQUIREMENTS OF THIS MILESTONE WITH REGARD TO COMPLETING THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES AND/OR MODIFICATION OF PLANNED FACILITIES NECESSARY FOR TREATMENT/PROCESSING OF HANFORD SITE POST 1970 RH TRUM AND SUSPECT RH TRUM, TRUM IN LARGE CONTAINERS, AND SUSPECT TRUM IN LARGE CONTAINERS APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY,</p>	<p>6/30/2012 12/31/2023</p>

	<p>DATED OCTOBER 23, 2003.</p>	
<p>M-91-03</p>	<p>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.</p> <p>ANNUAL REVISIONS OF THE PMP WILL BE SUBMITTED ON JUNE 30 EVERY YEAR STARTING IN 2008 AND CONTINUING UNTIL THE M-91 MILESTONES ARE COMPLETED. THE PMP REVISIONS SHALL INCLUDE PLANS AND SCHEDULES TO MEET ALL THE REQUIREMENTS SET FORTH IN THE M-91 MILESTONE SERIES. EACH REVISION OF THE M-91-03 PMP SHALL, UPON APPROVAL BY ECOLOGY, SUPERSEDE PREVIOUS M-91-03 PMPs. EACH REVISION IS A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THIS AGREEMENT.</p> <p>WITH RESPECT TO RH MIXED WASTE AND MIXED WASTE IN LARGE CONTAINERS, THE PMP SUBMITTED YEARLY WILL SPECIFICALLY INCLUDE AT LEAST ONE MEASURABLE ACTION(S) TO BE TAKEN BY DOE TO ACQUIRE CAPABILITIES TO MANAGE SUCH WASTES.</p> <p>THE PMP SUBMITTED ON 12/31/2003 WILL NOT BE REQUIRED TO CONTAIN PLANS AND SCHEDULES FOR THE LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED FOR IN M-91-42 AND M-91-44) OF TRUM WASTE. DOE SHALL REVISE THE PMP TO INCLUDE PLANS AND SCHEDULES FOR LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED IN M-91-42 AND M-91-44) OF TRUM WASTE BY</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

	<p>12/28/06.</p> <p>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.</p> <p>NOTE: WITH RESPECT TO PMP REVISIONS, THE REQUIREMENTS OF THIS MILESTONE CONCERNING PMP REVISIONS TO ADDRESS TRUM SHALL APPLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p>	
M-91-15	<p>COMPLETE ACQUISITION OF FACILITIES AND/OR CAPABILITIES AND INITIATE TREATMENT OF RH MLLW AND CH MLLW IN LARGE CONTAINERS PER THE RATES STIPULATED IN M-91-43.</p>	6/30/2008
M-91-40	<p>REGARDING THE RETRIEVAL AND DESIGNATION 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>1. DOE SHALL RETRIEVE ALL CH-RSW WITHIN BURIAL GROUNDS 218-W-4C, 218-W-4B, 218-W-3A, AND 218-E-12B BY DECEMBER 31, 2010. IN ACHIEVING THIS RETRIEVAL REQUIREMENT, DOE SHALL FIRST INITIATE RETRIEVAL AT ITS BURIAL GROUND 218-W-4C NO LATER THAN NOVEMBER 15, 2003, AND SHALL RETRIEVE RSW AT THE FOLLOWING RATES :</p> <ul style="list-style-type: none"> <li>• 1,200 CUBIC METERS (CUMMULATIVE) BY 12/31/04,</li> <li>• 2,700 CUBIC METERS (CUMMULATIVE) BY 12/31/05,</li> <li>• 4,700 CUBIC METERS (CUMMULATIVE) BY 12/31/06,</li> <li>• 7,200 CUBIC METERS (CUMMULATIVE) BY 12/31/07,</li> <li>• 9,700 CUBIC METERS (CUMMULATIVE) BY <del>12/31/08</del> 3/31/09,</li> <li>• 12,200 CUBIC METERS (CUMMULATIVE) BY <del>12/31/09</del> 6/30/11,</li> </ul>	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE

- COMPLETE RETRIEVAL OF CH-RSW BY ~~12/31/2010~~  
12/31/2013.

CONCURRENT RETRIEVAL ACTIONS CAN BE CONDUCTED IN MULTIPLE BURIAL GROUNDS. IF SPECIFIC LARGE CONTAINERS CANNOT BE REMOVED FROM A TRENCH WITHIN 60 DAYS OF BEING EXPOSED DOE SHALL NOTIFY ECOLOGY WITHIN THE 60-DAY PERIOD. ECOLOGY WILL INSPECT THE CONTAINER AND IMPOSE SPECIFIC CONDITIONS FOR THAT WASTE CONTAINER TO PREVENT RELEASES TO THE ENVIRONMENT. IN DETERMINING SUCH CONDITIONS ECOLOGY WILL CONSIDER AMONG OTHER FACTORS; WHETHER THE WASTE CONTAINER HAS BEEN INSPECTED AND FOUND TO BE INTACT AND NOT POSING A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT (OR RE-PACKAGED TO PREVENT RELEASE TO THE ENVIRONMENT) AND EXISTING DOCUMENTATION CONCERNING THE PRESENCE OF FREE LIQUIDS.

2. AS RSW RETRIEVAL PROCEEDS, DOE SHALL SAMPLE AND ANALYZE TRENCH SUBSTRATES WITH THE PURPOSES OF DETERMINING WHETHER OR NOT RELEASES OF CONTAMINANTS TO THE ENVIRONMENT HAVE OCCURRED, AND, IF SO, THE NATURE AND EXTENT OF CONTAMINATION.

SUCH SAMPLING AND ANALYSIS SHALL BE IN ACCORDANCE WITH ECOLOGY APPROVED SAMPLING AND ANALYSIS PLANS (SAP). THE SAP WILL BE DEVELOPED USING A DQO PROCESS TO ESTABLISH SAMPLING REQUIREMENTS FOR SAMPLING OF BURIAL GROUND VENT RISERS AND SUBSTRATE SOILS. ECOLOGY APPROVED THE 218-W-4C SAP SEPTEMBER 12, 2003, THE 218-E-12B SAP JANUARY 20, 2005, THE 218-W-3A SAP JUNE 15, 2006, AND THE 218-W-4B SAP JULY 25, 2006. DOE WILL IMPLEMENT APPROVED SAPS, AS A REQUIREMENT OF THIS MILESTONE, DURING RETRIEVAL OF ALL RSW.

THE RESULTS OF BURIAL GROUND VENT AND SUBSTRATE SAMPLING AND ANALYSIS PURSUANT TO APPROVED SAPS SHALL BE SUBMITTED TO ECOLOGY

BY LETTER REPORTS QUARTERLY. SUCH REPORTS SHALL DOCUMENT RESULTS AND METHODOLOGIES, SHALL ASSESS RESULTS AGAINST REGULATORY REQUIREMENTS, SHALL INCLUDE A DESCRIPTION (OR DESCRIPTIONS) OF DOCUMENTED CONTAMINANT RELEASES TO THE ENVIRONMENT, AND SHALL DESCRIBE PLANNED AND/OR SCHEDULED ADDITIONAL WORK.

3. WITHIN 90 DAYS OF RETRIEVAL, DOE SHALL DESIGNATE ALL CH RSW RETRIEVED FROM THE RSW TRENCHES PURSUANT TO WAC 173-303-070 THROUGH 100, OR SHALL SPECIFICALLY IDENTIFY INDIVIDUAL LARGE CONTAINERS THAT CANNOT BE DESIGNATED BASED ON AVAILABLE PROCESS KNOWLEDGE. FOR THE 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, BY DECEMBER 31, 2008. FOR 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, BY DECEMBER 31, 2012.
4. 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).
5. 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:
  - START VAPOR EXTRACTION BY NOVEMBER 15, 2003, TO REDUCE CARBON TETRACHLORIDE VAPORS.
  - START RETRIEVAL IN TRENCH 4 BY JANUARY 15, 2004
  - COMPLETE RETRIEVAL OF TRENCH 4 BY DECEMBER

31, 2006 (WITH THE EXCEPTION OF THOSE LARGE CONTAINERS THAT THE PARTIES HAVE AGREED, IN WRITING, MAY BE RETRIEVED OUT OF SEQUENCE.)

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.

6. 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).

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM. NOTIFICATION OF CERTIFICATION IN LIEU OF TREATMENT WILL BE PROVIDED ANNUALLY AS PART OF THE CERTIFICATION VOLUME COMPLETION LETTER.

NOTE: THE REQUIREMENTS OF ITEM 6 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

7. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT

	PROVISIONS OF THE AGREEMENT.	
M-91-41	<p>REGARDING THE RETRIEVAL AND DESIGNATION OF REMOTE HANDLED (RH) RSW (ALL RSW RH WASTE REGARDLESS OF PACKAGE SIZE, INCLUDING THE 200 AREA CAISSONS), AND LDR TREATMENT OF SUCH WASTES DETERMINED TO BE MIXED.</p> <ol style="list-style-type: none"> <li>1. DOE SHALL INITIATE FULL SCALE RETRIEVAL OF RH RSW BY <del>JANUARY 1, 2011</del> <b>DECEMBER 31, 2014</b>. RETRIEVAL OF NON-CAISSON RH RSW SHALL BE COMPLETED BY <del>DECEMBER 31, 2014</del> <b>DECEMBER 31, 2017</b>. RETRIEVAL OF THE 200 AREA CAISSONS RH RSW IN THE 218-W-4B BURIAL GROUND SHALL BE COMPLETED BY <del>DECEMBER 31, 2018</del> <b>DECEMBER 31, 2023</b>.</li> <li>2. DOE SHALL DESIGNATE ALL RETRIEVED RH RSW PURSUANT TO WAC 173-303-070 THROUGH 100, WITHIN 90 DAYS OF RETRIEVAL.</li> <li>3. FOR ALL RETRIEVED RH-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 WASTE TO MEET LDR REQUIREMENTS IN ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-43(3).</li> <li>4. FOR ALL RETRIEVED RH-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 ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-44(3). 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.</li> </ol> <p>NOTE: THE REQUIREMENTS OF ITEM 4 OF THIS MILESTONE</p>	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE

	<p>APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>5. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
M-91-42	<p>REGARDING SMALL CONTAINERS OF: (1) NEWLY GENERATED CH WASTE; (2) CH RSW; AND (3) CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE</p> <p>1. 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>2. THERE WERE 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 REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07) THAT HAD NOT BEEN TREATED TO MEET LDR REQUIREMENTS. (THIS VOLUME DOES NOT INCLUDE 600 CUBIC METERS OF WASTE REQUIRING THERMAL TREATMENT, AS THAT WASTE HAS SEPARATE TREATMENT REQUIREMENTS PER M-91-12 AND M-91-12A). APPROXIMATELY 4422 CUBIC METERS OF MLLW SUBJECT TO M-91-42 WAS TREATED BETWEEN 12/31/02 AND 12/31/05. DOE'S 2002 LDR REPORT ESTIMATED GENERATION OF 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). IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS OF CH-MLLW BY 2010. BASED ON THE CY2005 LDR SUMMARY REPORT AS OF 12/31/05 FOR MLLW SUBJECT TO M-91-42, THERE WERE APPROXIMATELY 2100 CUBIC METERS IN PERMITTED STORAGE, AND 280 CUBIC METERS</p>	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE

FORECAST TO BE GENERATED BY THE END OF CY2009.

ACCORDING TO THE M-91 PMP (HNF-19169 REV 2) APPROXIMATELY 2550 CUBIC METERS OF M-91-42 MLLW WAS EXPECTED TO BE RETRIEVED BETWEEN 12/31/05 AND 12/31/09. IN ADDITION TO MEETING THE REQUIREMENTS OF M-91-12 AND M-91-12A, DOE SHALL TREAT THE WASTE DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON A SCHEDULE MEETING, AT MINIMUM, THE FOLLOWING CUMULATIVE TOTALS BASED ON A START DATE OF 12/31/02:

- M. 1630 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/04,
- N. 3260 CUBIC METERS BY (CUMULATIVE) SHALL BE TREATED BY 12/31/05,
- O. 4890 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/06,
- P. 6520 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/07,
- Q. 8150 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY ~~12/31/08~~ 6/30/13, AND
- R. COMPLETE 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 ABOVE, AS OF 6/30/09, BY ~~12/31/09~~ 12/31/15.)

IF CH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02, TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. RSW DETERMINED TO BE MLLW IN THE TREATABILITY GROUPS COVERED BY THIS MILESTONE WILL BE COUNTED TOWARD MEETING THE VOLUME

REQUIREMENTS OF THIS MILESTONE WHEN TREATED.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

3. AFTER JUNE 30, 2009, DOE SHALL TREAT TO MEET LDR TREATMENT REQUIREMENTS ALL SMALL CONTAINERS OF NEWLY GENERATED CH-MLLW CONTAINING LDR CONSTITUENTS IN COMPLIANCE WITH WAC 173-303-140.
4. THERE ARE APPROXIMATELY 440 CUBIC METERS OF CH-TRUM IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02. DOE'S CY 2002 LDR REPORT ESTIMATES THAT IT WILL GENERATE AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 220 CUBIC METERS OF CH-TRUM AND DOE ESTIMATES THEY WILL RETRIEVE APPROXIMATELY 1600 CUBIC METERS OF CH-TRUM BY 2010. CONSIDERING THESE ESTIMATES AND THE CONSIDERABLE UNCERTAINTY ASSOCIATED WITH THEM DOE SHALL TREAT THE WASTE CATEGORIES DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON THE FOLLOWING CUMULATIVE SCHEDULE:
  - 700 CUBIC METERS BY 12/31/04;
  - 1,800 CUBIC METERS (CUMULATIVE) BY 12/31/05;
  - 3,000 CUBIC METERS (CUMULATIVE) BY 12/31/06;
  - 4,200 CUBIC METERS (CUMULATIVE) BY ~~12/31/07~~ 12/31/16;
  - 5,400 CUBIC METERS (CUMULATIVE) BY ~~12/31/08~~ 6/30/19;
  - 6,600 CUBIC METERS (CUMULATIVE) BY ~~12/31/09~~ 9/30/21;
  - 7,600 CUBIC METERS (CUMULATIVE) BY ~~12/31/10~~ 6/30/23;

- 8,600 CUBIC METERS (CUMULATIVE) BY ~~12/31/11~~  
9/30/25.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

5. FOR CH TRANSURANIC WASTE NEWLY GENERATED ON OR AFTER 7/1/11 THAT IS 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 PURSUANT TO WAC 173-303-140 WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM, PROVIDED THAT 1) ALL CH TRUM IN PERMITTED STORAGE AS OF 12/31/02 IS TREATED TO MEET LDR REQUIREMENTS OR CERTIFIED BY 12/31/2006 AND 2) ALL CH TRUM IN PERMITTED STORAGE AS OF 7/1/11 IS TREATED TO MEET LDR REQUIREMENTS OR IS CERTIFIED BY ~~12/31/2011~~  
12/31/2023.

NOTE: THE REQUIREMENTS OF ITEMS 4 AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY,

	<p>DATED OCTOBER 23, 2003.</p> <p>NOTE: IN THE EVENT THAT ITEMS 4 OR 5 BECOME APPLICABLE, AMOUNTS OF CH TRUM CERTIFIED BETWEEN 12/31/02 AND THE DATE ON WHICH ITEMS 4 OR 5 BECOME APPLICABLE SHALL COUNT TOWARDS SATISFACTION OF THE OBLIGATIONS IN ITEMS 4 AND 5.</p> <p>6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
<p>M-91-43</p>	<p>REGARDING MLLW TREATABILITY GROUP MLLW-07 WASTE AS DEFINED IN THE LDR REPORT WHICH INCLUDES THE MLLW PORTION OF: (1) NEWLY GENERATED RH LOW-LEVEL WASTE; (2) NEWLY GENERATED LARGE CONTAINERS OF CH LOW-LEVEL WASTE; (3) RH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND STORAGE; (4) LARGE CONTAINERS OF CH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND STORAGE; AND (5) RH OR LARGE CONTAINER CH LOW-LEVEL WASTE FROM RETRIEVAL.</p> <p>THERE WERE 81 CUBIC METERS OF RH-MLLW IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE STORAGE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02 (AS IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-07) THAT HAS NOT BEEN TREATED TO MEET LDR REQUIREMENTS. DOE'S 2002 LDR REPORT ESTIMATED THAT DOE WOULD GENERATE AN ADDITIONAL YEARLY VOLUME OF 280 CUBIC METERS OF WASTE IN THIS TREATABILITY GROUP. IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS BY 2010.</p> <p>PER THE 2005 LDR REPORT, AS OF 12/31/05 THERE WERE APPROXIMATELY 305 CUBIC METERS OF RH AND LARGE CONTAINER MLLW (LDR TREATABILITY GROUP MLLW-07) IN PERMITTED STORAGE. APPROXIMATELY 66 CUBIC METERS OF THE RH AND LARGE CONTAINER MLLW WAS FORECAST TO BE GENERATED BETWEEN 12/31/05 AND 12/31/11. IN ADDITION, APPROXIMATELY 2728 CUBIC METERS OF MLLW-07 WAS EXPECTED TO BE OBTAINED</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

FROM RETRIEVAL BETWEEN 12/31/05 AND 12/31/11.

1. DOE SHALL DESIGNATE ALL RH LOW-LEVEL WASTE 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, BY DECEMBER 31, 2008.
2. DOE SHALL DESIGNATE ALL NEWLY GENERATED RH LOW-LEVEL WASTE AND NEWLY GENERATED LARGE CONTAINERS OF CH-LOW-LEVEL WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.
3. DOE SHALL BEGIN TREATING RH MLLW 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 IF ADEQUATE FUNDING HAS BEEN APPROPRIATED. IN THE EVENT THAT ADEQUATE FUNDING HAS NOT BEEN APPROPRIATED, DOE SHALL TREAT THE VOLUME SPECIFIED IN THE M-91-03 ANNUAL SUBMITTAL OF THE PROJECT MANGEMENT PLAN. HOWEVER, TREATMENT MAY BE STARTED EARLY SUCH THAT ANY TREATABILITY GROUP MLLW-07 WASTE TREATED BETWEEN 12/31/02 AND 6/30/09 SHALL COUNT TOWARD ACHIEVING THE FIRST 300 CUBIC METERS OF TREATMENT TO BE COMPLETED BY 6/30/09. IF THERE ARE NOT 300 CUBIC METERS OF RH MLLW-AND LARGE CONTAINERS OF CH MLLW IN STORAGE IN ANY GIVEN YEAR, THIS MILESTONE REQUIRES THAT DOE TREAT ONLY THAT AMOUNT THAT IS IN STORAGE. IF RH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02, TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME

	<p>REQUIREMENTS OF THIS MILESTONE. IF ACTUAL VOLUMES OF NEWLY GENERATED OR RETRIEVED RH AND LARGE CONTAINER MLLW ARE SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES, THIS MILESTONE WILL BE REVISED TO REFLECT ACTUAL VOLUMES.</p> <p>4. EACH ELEMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
<p>M-91-44</p>	<p>REGARDING: (1) NEWLY GENERATED RH TRANSURANIC WASTE; (2) NEWLY GENERATED LARGE CONTAINERS OF CH-TRANSURANIC WASTE; (3) RH TRANSURANIC WASTE CURRENTLY IN ABOVE GROUND STORAGE; (4) LARGE CONTAINERS OF CH TRANSURANIC WASTE CURRENTLY IN ABOVE-GROUND STORAGE; AND (5) LARGE CONTAINER OR RH TRANSURANIC WASTE FROM RETRIEVAL;</p> <ol style="list-style-type: none"> <li>1. DOE SHALL DESIGNATE ALL RH TRANSURANIC WASTE 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, BY DECEMBER 31, 2012.</li> <li>2. DOE SHALL DESIGNATE ALL NEWLY GENERATED RH TRANSURANIC WASTE AND LARGE CONTAINERS OF TRANSURANIC WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.</li> <li>3. DOE SHALL BEGIN TREATING RH TRUM 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 <del>JUNE 30, 2012</del> SEPTEMBER 30, 2014 IF ADEQUATE FUNDING HAS BEEN APPROPRIATED. IN THE EVENT THAT ADEQUATE FUNDING HAS NOT BEEN APPROPRIATED, DOE SHALL TREAT THE VOLUME SPECIFIED IN THE M-91-03 ANNUAL SUBMITTAL OF THE PROJECT MANGEMENT PLAN. IF THERE ARE NOT 300 CUBIC METERS OF RH TRUM AND LARGE CONTAINERS OF CH TRUM IN STORAGE IN ANY GIVEN YEAR, THIS</li> </ol>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

MILESTONE REQUIRES THAT DOE TREAT ONLY THAT AMOUNT THAT IS IN STORAGE. IF ACTUAL VOLUMES OF NEWLY GENERATED OR RETRIEVED RH TRUM AND LARGE CONTAINER TRUM ARE SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES, THIS MILESTONE WILL BE REVISED TO REFLECT ACTUAL VOLUMES.

4. 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 OR CERTIFY IN LIEU OF TREATMENT TO MEET LDR REQUIREMENTS WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.

5. DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF RH AND LARGE CONTAINER TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.

NOTE: THE REQUIREMENTS OF ITEMS 3, 4, AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.
7. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT,

	(PER REQUIREMENTS IN M-91-44 (4)), IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN M-91-44 FOR ANY GIVEN YEAR BY CERTIFYING RH OR LARGE CONTAINER TRU OR RH OR LARGE CONTAINER TRUM. NOTIFICATION OF CERTIFICATION IN LIEU OF TREATMENT WILL BE PROVIDED ANNUALLY AS PART OF THE CERTIFICATION VOLUME COMPLETION LETTER.	
M-91-45	BY SEPTEMBER 30 OF EACH YEAR, DOE SHALL SUBMIT TO ECOLOGY A REPORT DESCRIBING COMPLETED AND SCHEDULED WORK RELATING TO RH WASTE 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.	9/30/2004 AND ANNUALLY THEREAFTER

## APPENDIX X

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# M-91 CHANGE PACKAGE FOR THE AS-SOON- AS-FEASIBLE COMPLIANCE CASE

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Modifications to existing Tri-Party Agreement milestones are denoted with ~~strikeout~~; new milestone/text is denoted with shading.

<p>M-91-00</p>	<p>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.</p> <p>DEFINITIONS</p> <p>THE FOLLOWING DEFINITIONS APPLY TO THIS SERIES OF MILESTONES</p> <p>“SMALL CONTAINERS” AND “LARGE CONTAINERS” AS USED HEREIN HAVE DIFFERENT MEANINGS DEPENDING ON WHETHER THEY ARE USED IN REFERENCE TO MLLW/LLW OR TRANSURANIC WASTE.</p> <p>WHEN REFERRING TO MLLW/LLW, SMALL CONTAINERS ARE CONTAINERS LESS THAN 10 CUBIC METERS, INCLUDING 55 GALLON DRUMS. A LARGE CONTAINER IS ANYTHING NOT DEFINED AS A SMALL CONTAINER.</p> <p>WHEN REFERRING TO TRANSURANIC WASTE, SMALL CONTAINERS ARE 55 GALLON DRUMS OR SMALLER CONTAINERS EVEN IF OVER-PACKED IN 85 GALLON DRUMS, AND NEWLY GENERATED WIPP STANDARD WASTE BOXES (SWB). A WIPP SWB IS A 1.8 CUBIC METER STEEL CONTAINER THAT IS APPROXIMATELY 0.94 METERS IN HEIGHT, 1.8 METERS IN LENGTH, AND 1.4 METERS IN WIDTH AND WAS QUALIFIED BY THE U.S. DEPARTMENT OF ENERGY (USDOE) IN 1988 AS MEETING THE U.S. DEPARTMENT OF TRANSPORTATION REQUIREMENTS FOR SPECIFICATION 7A TYPE A PACKAGINGS. A LARGE CONTAINER IS ANYTHING NOT DEFINED AS A SMALL CONTAINER.</p> <p>“CERTIFICATION” AS USED HEREIN IS DEFINED AS COMPLETION OF ALL ACTIVITIES REQUIRED FOR APPROVAL IN THE WIPP WASTE INFORMATION SYSTEM</p>	<p>TO BE DETERMINED*</p>
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FOR ACCEPTANCE INTO WIPP FOR DISPOSAL.

“DESIGNATION” AS USED HEREIN IS DEFINED AS THE PROCESS FOR DETERMINING: (1) WHICH CONTAINERS OF LOW-LEVEL WASTE ARE MLLW; AND, (2) WHICH CONTAINERS OF TRANSURANIC WASTE ARE MIXED TRANSURANIC WASTE (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 TRANSURANIC WASTE IN SUPPORT OF ITS DESIGNATION OF RELATED LOW-LEVEL WASTE STREAMS. WHERE APPROPRIATE, DOE WILL USE MEASURES ALLOWED UNDER STATE AND FEDERAL REGULATIONS TO PERFORM ACCURATE AND COST EFFECTIVE DESIGNATIONS OF LOW-LEVEL WASTE.

“LOW-LEVEL WASTE” AS USED HEREIN IS DEFINED AS RADIOACTIVE WASTE THAT IS NOT SPENT FUEL, HIGH-LEVEL WASTE, TRANSURANIC WASTE, BYPRODUCT MATERIAL, OR NATURALLY OCCURRING RADIOACTIVE MATERIAL. LOW-LEVEL WASTE INCLUDES BOTH “MIXED LOW-LEVEL WASTE” AND “NON-MIXED LOW-LEVEL WASTE.” “MIXED LOW-LEVEL WASTE” (MLLW) IS LOW-LEVEL WASTE THAT IS SUBJECT TO RCRA OR 70.105 RCW. “NON-MIXED LOW-LEVEL WASTE” (LLW) IS LOW-LEVEL WASTE THAT IS NOT SUBJECT TO RCRA OR 70.105 RCW. LLW AND MLLW CAN BE CONTACT-HANDLED (CH), I.E., CH-LLW OR CH-MLLW, OR REMOTE-HANDLED (RH), I.E., RH-LLW OR RH-MLLW.

“CONTACT HANDLED” (CH) WASTE IS A WASTE PACKAGE WITH A SURFACE DOSE RATE LESS THAN OR EQUAL TO 200 MILLIREM PER HOUR.

“REMOTE HANDLED” (RH) WASTE IS A WASTE PACKAGE WITH A SURFACE DOSE RATE GREATER THAN 200 MILLIREM PER HOUR.

“RETRIEVABLY STORED WASTE” (RSW) AS USED HEREIN IS

DEFINED AS WASTE THAT IS OR WAS BELIEVED TO BE CONTAMINATED WITH SIGNIFICANT CONCENTRATIONS OF TRANSURANIC ISOTOPES WHEN IT WAS PLACED IN THE 218-W-4B, 218-W-4C, 218-W-3A AND 218-E-12B BURIAL GROUND TRENCHES AFTER MAY 6, 1970. DURING THE RETRIEVAL PROCESS, CONTAINERS OF RSW WILL BE SEGREGATED INTO TWO CATEGORIES: (1) CH RSW AND (2) RH RSW. SUBSEQUENT ANALYSIS AND CATEGORIZATION OF RSW PURSUANT TO CH. 70.105 RCW, THE ATOMIC ENERGY ACT, AND THE WIPP LAND WITHDRAWAL ACT WILL RESULT IN MOST OR ALL OF THIS WASTE BEING CLASSIFIED AS ONE OF THE FOLLOWING TYPES OF WASTE: CH-LLW, RH-LLW, CH-MLLW, RH-MLLW, CH-TRU, CH-TRUM, RH-TRU OR RH-TRUM. RSW DOES NOT INCLUDE WASTE IN CONTAINERS THAT HAVE DETERIORATED TO THE POINT THAT THEY CANNOT BE RETRIEVED AND STABILIZED (E.G. PLACED IN OVERPACKS) IN A MANNER THAT WOULD ALLOW THEM TO BE TRANSPORTED AND DESIGNATED WITHOUT POSING SIGNIFICANT RISKS TO WORKERS, THE PUBLIC OR THE ENVIRONMENT. WITH RESPECT TO ANY SUCH CONTAINERS, AND WITH RESPECT TO ANY RELEASE OF RSW, THE DECISION AS TO HOW TO MOVE FORWARD WILL BE DETERMINED THROUGH THE CLEANUP PROCESS SET FORTH IN RCRA, CH. 70.105 RCW, AND/OR CERCLA AS APPROPRIATE. THOSE PROCESSES MAY RESULT IN ADDITIONAL REQUIREMENTS FOR THE REMEDIATION OF SUCH WASTES.

“CAISSON WASTE” AS USED HEREIN IS DEFINED AS RSW IN THE 218-W-4B BURIAL GROUND CAISSONS ALPHA-1 THROUGH ALPHA-4.

“TRANSURANIC WASTE” AS USED HEREIN IS DEFINED AS WASTE THAT MEETS THE DEFINITION IN SUBSECTION (18) OF SECTION 2 OF THE WASTE ISOLATION PILOT PLANT LAND WITHDRAWAL ACT, PUB. L. 102-579. TRANSURANIC WASTE INCLUDES BOTH MIXED TRANSURANIC (TRUM) WASTE AND NON MIXED TRANSURANIC (TRU) WASTE, AND COMPRISES THE FOLLOWING CATEGORIES: CH-TRU, CH-TRUM, RH-TRU, AND RH-TRUM.

“RETRIEVAL OF CH RSW” IS DEFINED AS UNCOVERING CH WASTES WITHIN DOE’S RSW TRENCHES, REMOVING SUCH

CH WASTES FROM THE TRENCHES, AND TRANSFERRING THE WASTE TO A PERMITTED AND COMPLIANT TREATMENT, STORAGE OR DISPOSAL UNIT, THE ENVIRONMENTAL RESTORATION AND DISPOSAL FACILITY (ERDF) OR FOR WASTE DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH 100 AS NON-MIXED TO A STORAGE OR DISPOSAL UNIT THAT DOE DETERMINES IS APPROPRIATE.

“RETRIEVAL OF RH RSW” IS DEFINED AS UNCOVERING RH WASTES WITHIN DOE’S RSW TRENCHES AND CAISSONS, REMOVING SUCH RH WASTES FROM THE TRENCHES AND CAISSONS, TRANSFERRING THE WASTE TO A PERMITTED AND COMPLIANT TREATMENT, STORAGE OR DISPOSAL UNIT, THE ENVIRONMENTAL RESTORATION AND DISPOSAL FACILITY (ERDF) OR FOR WASTE DESIGNATED IN ACCORDANCE WITH WAC 173-303-070 THROUGH 100 AS NON-MIXED TO A STORAGE OR DISPOSAL UNIT THAT DOE DETERMINES IS APPROPRIATE.

TO PROVIDE FURTHER CLARIFICATION OF HOW VOLUMES SHOULD BE DETERMINED IN DIFFERENT M-91 CONTEXTS, AND TO BE CONSISTENT WITH THE VOLUMES OF WASTE LISTED IN THE HANFORD SITE SOLID WASTE INVENTORY TRACKING SYSTEM (SWITS), THE FOLLOWING DESCRIPTIONS ARE PROVIDED:

- VOLUMES FOR THE PURPOSES OF DETERMINING AMOUNTS RETRIEVED SHALL BE BASED ON THE VOLUME OF THE ORIGINAL CONTAINERS IN RETRIEVABLE STORAGE. FOR EXAMPLE, THE VOLUME OF A 55 GALLON RSW DRUM THAT WOULD BE COUNTED TOWARD “RETRIEVAL” WOULD BE 55 GALLONS (.208 CUBIC METERS), EVEN IF IN THE PROCESS OF RETRIEVAL THE DRUM NEEDED TO BE OVER-PACKED INTO AN 85 GALLON DRUM.
- THE VOLUME OF MLLW “TREATED” WILL BE COUNTED AS THE RETRIEVAL VOLUME (FOR RSW) OR THE MLLW PRE-TREATMENT CONTAINER VOLUME (FOR NEWLY GENERATED AND STORED WASTE).
- THE VOLUME OF TRANSURANIC WASTE COUNTED AS

	<p>“CERTIFIED” WILL BE THE VOLUME OF THE CERTIFIED CONTAINER CONTAINING THE WASTE UNLESS THE WASTE IS COMPACTED. IN THE EVENT THAT THE WASTE IS COMPACTED, THE VOLUME OF THE PRE-COMPACTED CONTAINER WILL BE COUNTED.</p> <p>NOTE: THE REQUIREMENTS OF THIS MILESTONE WITH REGARD TO THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES, AND MODIFICATION OF PLANNED FACILITIES NECESSARY FOR TREATMENT/PROCESSING OF RCRA MIXED AND SUSPECT MIXED TRANSURANIC WASTE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>* NOTE: THE M-91 SERIES MILESTONES (INCLUDING THIS NOTE) DO NOT INCLUDE ANY REQUIREMENTS TO ESTABLISH SCHEDULES FOR THE MANAGEMENT OF PRE-1971 TRU/TRUM. SCHEDULES FOR THE MANAGEMENT OF PRE-1971 TRU/TRUM WILL BE ESTABLISHED, PURSUANT TO APPLICABLE PROVISIONS OF THE HFFACO OTHER THAN THE M-91 SERIES MILESTONES, FOLLOWING THE ISSUANCE OF OPERABLE UNIT RECORDS OF DECISION (RODS).</p>	
M-91-01	<p>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 LARGE CONTAINERS, AND SUSPECT TRUM IN LARGE CONTAINERS.</p> <p>NOTE: THE REQUIREMENTS OF THIS MILESTONE WITH REGARD TO COMPLETING THE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES AND/OR MODIFICATION OF PLANNED FACILITIES NECESSARY FOR TREATMENT/PROCESSING OF HANFORD SITE POST 1970 RH TRUM AND SUSPECT RH TRUM, TRUM IN LARGE CONTAINERS, AND SUSPECT TRUM IN LARGE CONTAINERS APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY,</p>	<p>6/30/2012 12/31/2018</p>

	<p>DATED OCTOBER 23, 2003.</p>	
<p>M-91-03</p>	<p>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.</p> <p>ANNUAL REVISIONS OF THE PMP WILL BE SUBMITTED ON JUNE 30 EVERY YEAR STARTING IN 2008 AND CONTINUING UNTIL THE M-91 MILESTONES ARE COMPLETED. THE PMP REVISIONS SHALL INCLUDE PLANS AND SCHEDULES TO MEET ALL THE REQUIREMENTS SET FORTH IN THE M-91 MILESTONE SERIES. EACH REVISION OF THE M-91-03 PMP SHALL, UPON APPROVAL BY ECOLOGY, SUPERSEDE PREVIOUS M-91-03 PMPs. EACH REVISION IS A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THIS AGREEMENT.</p> <p>WITH RESPECT TO RH MIXED WASTE AND MIXED WASTE IN LARGE CONTAINERS, THE PMP SUBMITTED YEARLY WILL SPECIFICALLY INCLUDE AT LEAST ONE MEASURABLE ACTION(S) TO BE TAKEN BY DOE TO ACQUIRE CAPABILITIES TO MANAGE SUCH WASTES.</p> <p>THE PMP SUBMITTED ON 12/31/2003 WILL NOT BE REQUIRED TO CONTAIN PLANS AND SCHEDULES FOR THE LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED FOR IN M-91-42 AND M-91-44) OF TRUM WASTE. DOE SHALL REVISE THE PMP TO INCLUDE PLANS AND SCHEDULES FOR LDR TREATMENT (OR CERTIFICATION IN LIEU OF SUCH TREATMENT AS PROVIDED IN M-91-42 AND M-91-44) OF TRUM WASTE BY</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

	<p>12/28/06.</p> <p>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.</p> <p>NOTE: WITH RESPECT TO PMP REVISIONS, THE REQUIREMENTS OF THIS MILESTONE CONCERNING PMP REVISIONS TO ADDRESS TRUM SHALL APPLY AS SET FORTH IN THE ACCOMPANYING SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p>	
M-91-15	<p>COMPLETE ACQUISITION OF FACILITIES AND/OR CAPABILITIES AND INITIATE TREATMENT OF RH MLLW AND CH MLLW IN LARGE CONTAINERS PER THE RATES STIPULATED IN M-91-43.</p>	6/30/2008
M-91-40	<p>REGARDING THE RETRIEVAL AND DESIGNATION 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>1. DOE SHALL RETRIEVE ALL CH-RSW WITHIN BURIAL GROUNDS 218-W-4C, 218-W-4B, 218-W-3A, AND 218-E-12B BY DECEMBER 31, 2010. IN ACHIEVING THIS RETRIEVAL REQUIREMENT, DOE SHALL FIRST INITIATE RETRIEVAL AT ITS BURIAL GROUND 218-W-4C NO LATER THAN NOVEMBER 15, 2003, AND SHALL RETRIEVE RSW AT THE FOLLOWING RATES :</p> <ul style="list-style-type: none"> <li>• 1,200 CUBIC METERS (CUMMULATIVE) BY 12/31/04,</li> <li>• 2,700 CUBIC METERS (CUMMULATIVE) BY 12/31/05,</li> <li>• 4,700 CUBIC METERS (CUMMULATIVE) BY 12/31/06,</li> <li>• 7,200 CUBIC METERS (CUMMULATIVE) BY 12/31/07,</li> <li>• 9,700 CUBIC METERS (CUMMULATIVE) BY 12/31/08</li> <li>• 12,200 CUBIC METERS (CUMMULATIVE) BY 12/31/09</li> <li>• 12,200 CUBIC METERS (CUMMULATIVE) BY 6/30/11,</li> </ul>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

- COMPLETE RETRIEVAL OF CH-RSW BY ~~12/31/2010~~  
12/31/2013.

CONCURRENT RETRIEVAL ACTIONS CAN BE CONDUCTED IN MULTIPLE BURIAL GROUNDS. IF SPECIFIC LARGE CONTAINERS CANNOT BE REMOVED FROM A TRENCH WITHIN 60 DAYS OF BEING EXPOSED DOE SHALL NOTIFY ECOLOGY WITHIN THE 60-DAY PERIOD. ECOLOGY WILL INSPECT THE CONTAINER AND IMPOSE SPECIFIC CONDITIONS FOR THAT WASTE CONTAINER TO PREVENT RELEASES TO THE ENVIRONMENT. IN DETERMINING SUCH CONDITIONS ECOLOGY WILL CONSIDER AMONG OTHER FACTORS; WHETHER THE WASTE CONTAINER HAS BEEN INSPECTED AND FOUND TO BE INTACT AND NOT POSING A THREAT TO HUMAN HEALTH AND THE ENVIRONMENT (OR RE-PACKAGED TO PREVENT RELEASE TO THE ENVIRONMENT) AND EXISTING DOCUMENTATION CONCERNING THE PRESENCE OF FREE LIQUIDS.

2. AS RSW RETRIEVAL PROCEEDS, DOE SHALL SAMPLE AND ANALYZE TRENCH SUBSTRATES WITH THE PURPOSES OF DETERMINING WHETHER OR NOT RELEASES OF CONTAMINANTS TO THE ENVIRONMENT HAVE OCCURRED, AND, IF SO, THE NATURE AND EXTENT OF CONTAMINATION.

SUCH SAMPLING AND ANALYSIS SHALL BE IN ACCORDANCE WITH ECOLOGY APPROVED SAMPLING AND ANALYSIS PLANS (SAP). THE SAP WILL BE DEVELOPED USING A DQO PROCESS TO ESTABLISH SAMPLING REQUIREMENTS FOR SAMPLING OF BURIAL GROUND VENT RISERS AND SUBSTRATE SOILS. ECOLOGY APPROVED THE 218-W-4C SAP SEPTEMBER 12, 2003, THE 218-E-12B SAP JANUARY 20, 2005, THE 218-W-3A SAP JUNE 15, 2006, AND THE 218-W-4B SAP JULY 25, 2006. DOE WILL IMPLEMENT APPROVED SAPS, AS A REQUIREMENT OF THIS MILESTONE, DURING RETRIEVAL OF ALL RSW.

THE RESULTS OF BURIAL GROUND VENT AND SUBSTRATE SAMPLING AND ANALYSIS PURSUANT TO APPROVED SAPS SHALL BE SUBMITTED TO ECOLOGY

	<p>BY LETTER REPORTS QUARTERLY. SUCH REPORTS SHALL DOCUMENT RESULTS AND METHODOLOGIES, SHALL ASSESS RESULTS AGAINST REGULATORY REQUIREMENTS, SHALL INCLUDE A DESCRIPTION (OR DESCRIPTIONS) OF DOCUMENTED CONTAMINANT RELEASES TO THE ENVIRONMENT, AND SHALL DESCRIBE PLANNED AND/OR SCHEDULED ADDITIONAL WORK.</p> <p>3. WITHIN 90 DAYS OF RETRIEVAL, DOE SHALL DESIGNATE ALL CH RSW RETRIEVED FROM THE RSW TRENCHES PURSUANT TO WAC 173-303-070 THROUGH 100, OR SHALL SPECIFICALLY IDENTIFY INDIVIDUAL LARGE CONTAINERS THAT CANNOT BE DESIGNATED BASED ON AVAILABLE PROCESS KNOWLEDGE. FOR THE 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, BY DECEMBER 31, 2008. FOR 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, BY DECEMBER 31, 2012.</p> <p>4. 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>5. 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> <ul style="list-style-type: none"><li>• START VAPOR EXTRACTION BY NOVEMBER 15, 2003, TO REDUCE CARBON TETRACHLORIDE VAPORS.</li><li>• START RETRIEVAL IN TRENCH 4 BY JANUARY 15, 2004</li><li>• COMPLETE RETRIEVAL OF TRENCH 4 BY DECEMBER</li></ul>	
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31, 2006 (WITH THE EXCEPTION OF THOSE LARGE CONTAINERS THAT THE PARTIES HAVE AGREED, IN WRITING, MAY BE RETRIEVED OUT OF SEQUENCE.)

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.

6. 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).

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM. NOTIFICATION OF CERTIFICATION IN LIEU OF TREATMENT WILL BE PROVIDED ANNUALLY AS PART OF THE CERTIFICATION VOLUME COMPLETION LETTER.

NOTE: THE REQUIREMENTS OF ITEM 6 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

7. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT

	PROVISIONS OF THE AGREEMENT.	
M-91-41	<p>REGARDING THE RETRIEVAL AND DESIGNATION OF REMOTE HANDLED (RH) RSW (ALL RSW RH WASTE REGARDLESS OF PACKAGE SIZE, INCLUDING THE 200 AREA CAISSONS), AND LDR TREATMENT OF SUCH WASTES DETERMINED TO BE MIXED.</p> <ol style="list-style-type: none"> <li>1. DOE SHALL INITIATE FULL SCALE RETRIEVAL OF RH RSW BY <del>JANUARY 1, 2011</del> DECEMBER 31, 2014. RETRIEVAL OF NON-CAISSON RH RSW SHALL BE COMPLETED BY <del>DECEMBER 31, 2014</del> DECEMBER 31, 2017. RETRIEVAL OF THE 200 AREA CAISSONS RH RSW IN THE 218-W-4B BURIAL GROUND SHALL BE COMPLETED BY <del>DECEMBER 31, 2018</del> DECEMBER 31, 2023.</li> <li>2. DOE SHALL DESIGNATE ALL RETRIEVED RH RSW PURSUANT TO WAC 173-303-070 THROUGH 100, WITHIN 90 DAYS OF RETRIEVAL.</li> <li>3. FOR ALL RETRIEVED RH-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 WASTE TO MEET LDR REQUIREMENTS IN ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-43(3).</li> <li>4. FOR ALL RETRIEVED RH-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 ACCORDANCE WITH THE SCHEDULE PROVIDED IN MILESTONE M-91-44(3). 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.</li> </ol> <p>NOTE: THE REQUIREMENTS OF ITEM 4 OF THIS MILESTONE</p>	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE

	<p>APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.</p> <p>5. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
M-91-42	<p>REGARDING SMALL CONTAINERS OF: (1) NEWLY GENERATED CH WASTE; (2) CH RSW; AND (3) CH WASTE CURRENTLY IN ABOVE-GROUND STORAGE</p> <p>1. 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>2. THERE WERE 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 REPORT MLLW TREATABILITY GROUPS MLLW-02 THROUGH MLLW-10, EXCLUDING MLLW-07) THAT HAD NOT BEEN TREATED TO MEET LDR REQUIREMENTS. (THIS VOLUME DOES NOT INCLUDE 600 CUBIC METERS OF WASTE REQUIRING THERMAL TREATMENT, AS THAT WASTE HAS SEPARATE TREATMENT REQUIREMENTS PER M-91-12 AND M-91-12A). APPROXIMATELY 4422 CUBIC METERS OF MLLW SUBJECT TO M-91-42 WAS TREATED BETWEEN 12/31/02 AND 12/31/05. DOE'S 2002 LDR REPORT ESTIMATED GENERATION OF 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). IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS OF CH-MLLW BY 2010. BASED ON THE CY2005 LDR SUMMARY REPORT AS OF 12/31/05 FOR MLLW SUBJECT TO M-91-42, THERE WERE APPROXIMATELY 2100 CUBIC METERS IN PERMITTED STORAGE, AND 280 CUBIC METERS</p>	DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE

FORECAST TO BE GENERATED BY THE END OF CY2009.

ACCORDING TO THE M-91 PMP (HNF-19169 REV 2) APPROXIMATELY 2550 CUBIC METERS OF M-91-42 MLLW WAS EXPECTED TO BE RETRIEVED BETWEEN 12/31/05 AND 12/31/09. IN ADDITION TO MEETING THE REQUIREMENTS OF M-91-12 AND M-91-12A, DOE SHALL TREAT THE WASTE DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON A SCHEDULE MEETING, AT MINIMUM, THE FOLLOWING CUMULATIVE TOTALS BASED ON A START DATE OF 12/31/02:

- S. 1630 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/04,
- T. 3260 CUBIC METERS BY (CUMULATIVE) SHALL BE TREATED BY 12/31/05,
- U. 4890 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/06,
- V. 6520 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY 12/31/07,
- W. 8150 CUBIC METERS (CUMULATIVE) SHALL BE TREATED BY ~~12/31/08~~ 3/31/10, AND
- X. COMPLETE 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 ABOVE, AS OF 6/30/09, BY ~~12/31/09~~ 12/31/11.)

IF CH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02, TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. RSW DETERMINED TO BE MLLW IN THE TREATABILITY GROUPS COVERED BY THIS MILESTONE WILL BE COUNTED TOWARD MEETING THE VOLUME

REQUIREMENTS OF THIS MILESTONE WHEN TREATED.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-MLLW COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

3. AFTER JUNE 30, 2009, DOE SHALL TREAT TO MEET LDR TREATMENT REQUIREMENTS ALL SMALL CONTAINERS OF NEWLY GENERATED CH-MLLW CONTAINING LDR CONSTITUENTS IN COMPLIANCE WITH WAC 173-303-140.
4. THERE ARE APPROXIMATELY 440 CUBIC METERS OF CH-TRUM IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02. DOE'S CY 2002 LDR REPORT ESTIMATES THAT IT WILL GENERATE AN ADDITIONAL ANNUAL VOLUME OF APPROXIMATELY 220 CUBIC METERS OF CH-TRUM AND DOE ESTIMATES THEY WILL RETRIEVE APPROXIMATELY 1600 CUBIC METERS OF CH-TRUM BY 2010. CONSIDERING THESE ESTIMATES AND THE CONSIDERABLE UNCERTAINTY ASSOCIATED WITH THEM DOE SHALL TREAT THE WASTE CATEGORIES DESCRIBED ABOVE TO MEET LDR REQUIREMENTS ON THE FOLLOWING CUMULATIVE SCHEDULE:
  - 700 CUBIC METERS BY 12/31/04;
  - 1,800 CUBIC METERS (CUMULATIVE) BY 12/31/05;
  - 3,000 CUBIC METERS (CUMULATIVE) BY 12/31/06;
  - 4,200 CUBIC METERS (CUMULATIVE) BY ~~12/31/07~~ 6/30/10;
  - 5,400 CUBIC METERS (CUMULATIVE) BY ~~12/31/08~~ 9/31/11;
  - 6,600 CUBIC METERS (CUMULATIVE) BY ~~12/31/09~~ 12/31/12;
  - 7,600 CUBIC METERS (CUMULATIVE) BY ~~12/31/10~~ 3/31/14;

- 8,600 CUBIC METERS (CUMULATIVE) BY ~~12/31/11~~  
3/31/15.

IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS LOWER THAN THE ESTIMATED VOLUMES ANTICIPATED BY THESE MILESTONES DOE WILL ONLY BE REQUIRED TO TREAT THE VOLUME OF WASTE GENERATED, RETRIEVED AND/OR IN STORAGE. IF THE ACTUAL VOLUME OF NEWLY GENERATED OR RETRIEVED CH-TRUM COVERED BY THIS MILESTONE IS SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES THE PARTIES' MAY AGREE TO REVISE THESE REQUIREMENTS.

5. FOR CH TRANSURANIC WASTE NEWLY GENERATED ON OR AFTER 7/1/11 THAT IS 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 PURSUANT TO WAC 173-303-140 WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN THIS MILESTONE FOR ANY GIVEN YEAR BY CERTIFYING CH TRU OR CH TRUM, PROVIDED THAT 1) ALL CH TRUM IN PERMITTED STORAGE AS OF 12/31/02 IS TREATED TO MEET LDR REQUIREMENTS OR CERTIFIED BY 12/31/2006 AND 2) ALL CH TRUM IN PERMITTED STORAGE AS OF 7/1/11 IS TREATED TO MEET LDR REQUIREMENTS OR IS CERTIFIED BY ~~12/31/2011~~  
12/31/2017.

NOTE: THE REQUIREMENTS OF ITEMS 4 AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY,

	<p>DATED OCTOBER 23, 2003.</p> <p>NOTE: IN THE EVENT THAT ITEMS 4 OR 5 BECOME APPLICABLE, AMOUNTS OF CH TRUM CERTIFIED BETWEEN 12/31/02 AND THE DATE ON WHICH ITEMS 4 OR 5 BECOME APPLICABLE SHALL COUNT TOWARDS SATISFACTION OF THE OBLIGATIONS IN ITEMS 4 AND 5.</p> <p>6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
<p>M-91-43</p>	<p>REGARDING MLLW TREATABILITY GROUP MLLW-07 WASTE AS DEFINED IN THE LDR REPORT WHICH INCLUDES THE MLLW PORTION OF: (1) NEWLY GENERATED RH LOW-LEVEL WASTE; (2) NEWLY GENERATED LARGE CONTAINERS OF CH LOW-LEVEL WASTE; (3) RH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND STORAGE; (4) LARGE CONTAINERS OF CH LOW-LEVEL WASTE CURRENTLY IN ABOVE-GROUND STORAGE; AND (5) RH OR LARGE CONTAINER CH LOW-LEVEL WASTE FROM RETRIEVAL.</p> <p>THERE WERE 81 CUBIC METERS OF RH-MLLW IN PERMITTED STORAGE AT DOE'S CENTRAL WASTE STORAGE COMPLEX (CWC) AND ELSEWHERE AT HANFORD AS OF 12/31/02 (AS IDENTIFIED IN DOE HFFACO MILESTONE M-26-01 LDR REPORT MLLW TREATABILITY GROUPS MLLW-07) THAT HAS NOT BEEN TREATED TO MEET LDR REQUIREMENTS. DOE'S 2002 LDR REPORT ESTIMATED THAT DOE WOULD GENERATE AN ADDITIONAL YEARLY VOLUME OF 280 CUBIC METERS OF WASTE IN THIS TREATABILITY GROUP. IT WAS ALSO ESTIMATED IN 2002 THAT DOE WOULD RETRIEVE APPROXIMATELY 800 CUBIC METERS BY 2010.</p> <p>PER THE 2005 LDR REPORT, AS OF 12/31/05 THERE WERE APPROXIMATELY 305 CUBIC METERS OF RH AND LARGE CONTAINER MLLW (LDR TREATABILITY GROUP MLLW-07) IN PERMITTED STORAGE. APPROXIMATELY 66 CUBIC METERS OF THE RH AND LARGE CONTAINER MLLW WAS FORECAST TO BE GENERATED BETWEEN 12/31/05 AND 12/31/11. IN ADDITION, APPROXIMATELY 2728 CUBIC METERS OF MLLW-07 WAS EXPECTED TO BE OBTAINED</p>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

FROM RETRIEVAL BETWEEN 12/31/05 AND 12/31/11.

1. DOE SHALL DESIGNATE ALL RH LOW-LEVEL WASTE 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, BY DECEMBER 31, 2008.
2. DOE SHALL DESIGNATE ALL NEWLY GENERATED RH LOW-LEVEL WASTE AND NEWLY GENERATED LARGE CONTAINERS OF CH-LOW-LEVEL WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.
3. DOE SHALL BEGIN TREATING RH MLLW 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 IF ADEQUATE FUNDING HAS BEEN APPROPRIATED. IN THE EVENT THAT ADEQUATE FUNDING HAS NOT BEEN APPROPRIATED, DOE SHALL TREAT THE VOLUME SPECIFIED IN THE M-91-03 ANNUAL SUBMITTAL OF THE PROJECT MANGEMENT PLAN. HOWEVER, TREATMENT MAY BE STARTED EARLY SUCH THAT ANY TREATABILITY GROUP MLLW-07 WASTE TREATED BETWEEN 12/31/02 AND 6/30/09 SHALL COUNT TOWARD ACHIEVING THE FIRST 300 CUBIC METERS OF TREATMENT TO BE COMPLETED BY 6/30/09. IF THERE ARE NOT 300 CUBIC METERS OF RH MLLW-AND LARGE CONTAINERS OF CH MLLW IN STORAGE IN ANY GIVEN YEAR, THIS MILESTONE REQUIRES THAT DOE TREAT ONLY THAT AMOUNT THAT IS IN STORAGE. IF RH-MLLW IN THE TREATABILITY GROUPS SUBJECT TO THIS MILESTONE GENERATED DURING THE PERIOD FROM 12/31/02 THROUGH 6/30/09 IS TREATED TO LDR STANDARDS PRIOR TO DELIVERY TO STORAGE OR DISPOSAL, THE ORIGINAL PRE-TREATMENT VOLUME OF THAT WASTE SHALL BE COUNTED TOWARD MEETING THE VOLUME REQUIREMENTS OF THIS MILESTONE. EXCEPT FOR WASTE ALREADY IN PERMITTED STORAGE AS OF 12/31/02, TREATMENT OF CERCLA WASTE WILL NOT BE COUNTED TOWARD MEETING THE VOLUME

	<p>REQUIREMENTS OF THIS MILESTONE. IF ACTUAL VOLUMES OF NEWLY GENERATED OR RETRIEVED RH AND LARGE CONTAINER MLLW ARE SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES, THIS MILESTONE WILL BE REVISED TO REFLECT ACTUAL VOLUMES.</p> <p>4. EACH ELEMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT PROVISIONS OF THE AGREEMENT.</p>	
<p>M-91-44</p>	<p>REGARDING: (1) NEWLY GENERATED RH TRANSURANIC WASTE; (2) NEWLY GENERATED LARGE CONTAINERS OF CH-TRANSURANIC WASTE; (3) RH TRANSURANIC WASTE CURRENTLY IN ABOVE GROUND STORAGE; (4) LARGE CONTAINERS OF CH TRANSURANIC WASTE CURRENTLY IN ABOVE-GROUND STORAGE; AND (5) LARGE CONTAINER OR RH TRANSURANIC WASTE FROM RETRIEVAL;</p> <ol style="list-style-type: none"> <li>1. DOE SHALL DESIGNATE ALL RH TRANSURANIC WASTE 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, BY DECEMBER 31, 2012.</li> <li>2. DOE SHALL DESIGNATE ALL NEWLY GENERATED RH TRANSURANIC WASTE AND LARGE CONTAINERS OF TRANSURANIC WASTE AT THE POINT OF GENERATION. SUCH DESIGNATION SHALL COMPLY WITH THE REQUIREMENTS OF WAC 173-303-070 THROUGH 100.</li> <li>3. DOE SHALL BEGIN TREATING RH TRUM 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. DOE WILL TREAT RH TRUM AND LARGE CONTAINERS OF CH TRUM AT A RATE BASED ON APPROPRIATED FUNDING. IN THE EVENT THAT ADEQUATE FUNDING HAS NOT BEEN APPROPRIATED TO TREAT 300 CUBIC METERS PER YEAR, DOE SHALL TREAT THE VOLUME SPECIFIED IN THE AFFECTED FISCAL YEAR M-91-03 ANNUAL SUBMITTAL OF THE PROJECT MANGEMENT PLAN. IF THERE ARE NOT 300 CUBIC</li> </ol>	<p>DUE DATES AS INDICATED IN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

METERS OF RH TRUM AND LARGE CONTAINERS OF CH TRUM IN STORAGE IN ANY GIVEN YEAR, THIS MILESTONE REQUIRES THAT DOE TREAT ONLY THAT AMOUNT THAT IS IN STORAGE. IF ACTUAL VOLUMES OF NEWLY GENERATED OR RETRIEVED RH TRUM AND LARGE CONTAINER TRUM ARE SIGNIFICANTLY MORE THAN THE ESTIMATED VOLUMES, THIS MILESTONE WILL BE REVISED TO REFLECT ACTUAL VOLUMES.

4. 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 OR CERTIFY IN LIEU OF TREATMENT TO MEET LDR REQUIREMENTS WITHIN ONE YEAR OF GENERATION.

DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF CH TRANSURANIC 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.

5. DOE MAY CHOOSE TO COMPLETE CERTIFICATION OF RH AND LARGE CONTAINER TRANSURANIC WASTE 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, SUCH WASTE IS EXEMPT FROM LDR TREATMENT REQUIREMENTS WHEN DISPOSED AT WIPP.

NOTE: THE REQUIREMENTS OF ITEMS 3, 4, AND 5 OF THIS MILESTONE APPLY AS SET FORTH IN THE SETTLEMENT BETWEEN THE UNITED STATES AND THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, DATED OCTOBER 23, 2003.

6. EACH REQUIREMENT OF THIS MILESTONE IS CONSIDERED A DISTINCT WORK REQUIREMENT INDEPENDENTLY SUBJECT TO THE ENFORCEMENT

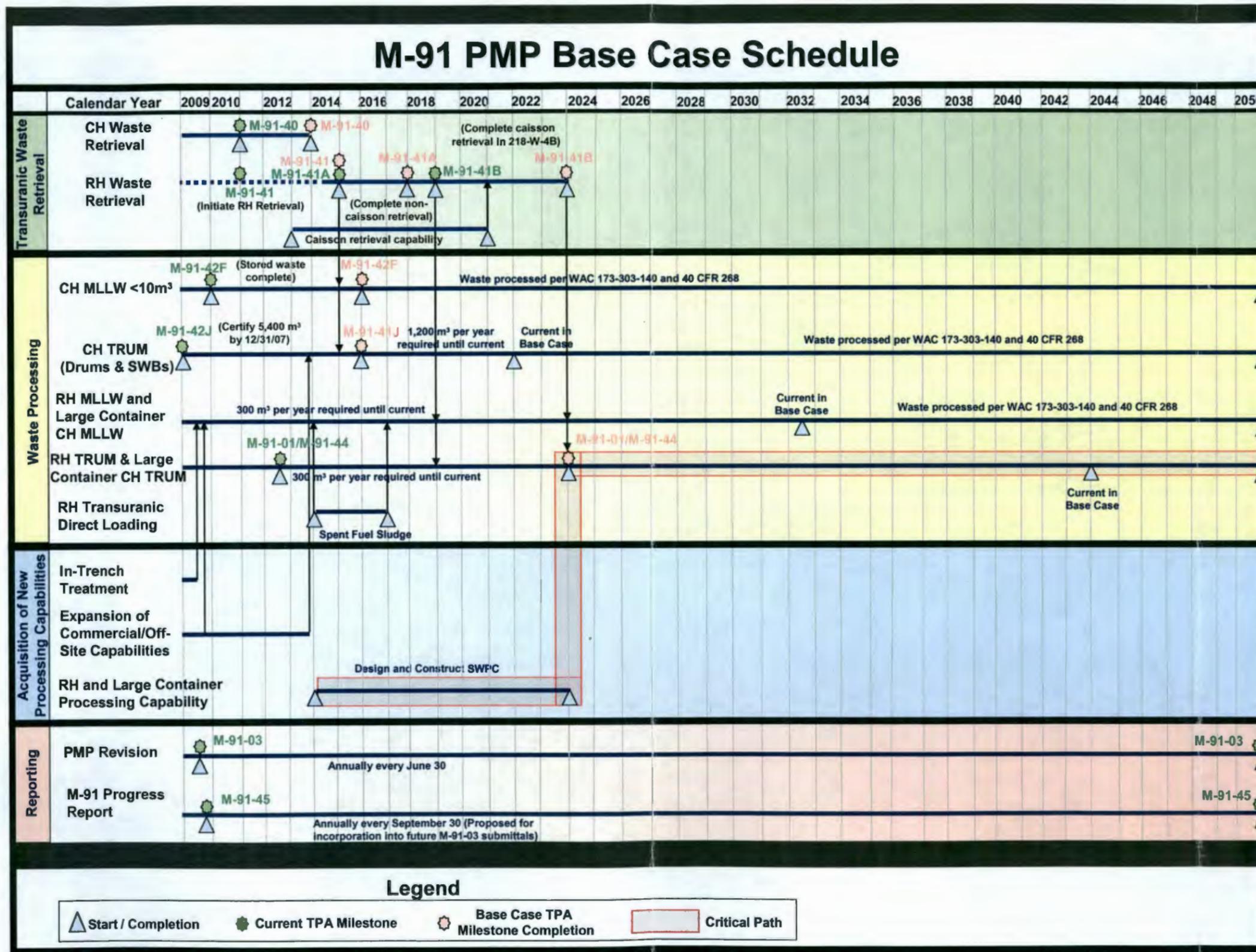
	<p>PROVISIONS OF THE AGREEMENT.</p> <p>7. IF DOE CHOOSES TO CERTIFY IN LIEU OF TREATMENT, (PER REQUIREMENTS IN M-91-44 (4)), IT MAY MEET THE VOLUME REQUIREMENTS SPECIFIED IN M-91-44 FOR ANY GIVEN YEAR BY CERTIFYING RH OR LARGE CONTAINER TRU OR RH OR LARGE CONTAINER TRUM. NOTIFICATION OF CERTIFICATION IN LIEU OF TREATMENT WILL BE PROVIDED ANNUALLY AS PART OF THE CERTIFICATION VOLUME COMPLETION LETTER.</p>	
M-91-45	<p>BY SEPTEMBER 30 OF EACH YEAR, DOE SHALL SUBMIT TO ECOLOGY A REPORT DESCRIBING COMPLETED AND SCHEDULED WORK RELATING TO RH WASTE 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.</p>	<p>9/30/2004 AND ANNUALLY THEREAFTER</p>

## APPENDIX Y

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### M-91 PMP SCHEDULE

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## APPENDIX Z

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# M-91 MILESTONE COMPLETION DATES

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<b>Milestone</b>	<b>Due Date</b>	<b>Base Case Date</b>	<b>As-Soon-As Feasible Compliance Case Date</b>	<b>Milestone Title</b>
M-091-00	-	-	-	Complete all Facilities for Handling TRU/TRUM and MLLW
M-091-01	06/30/12	12/31/23	12/31/18	Complete Facilities Prior to Disposal of Post-1970 TRU/TRUM
M-091-03B	06/30/08	06/30/08	06/30/08	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03C	06/30/09	06/30/09	06/30/09	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03D-01	06/30/10	06/30/10	06/30/10	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03E	06/30/11	06/30/11	06/30/11	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03F	06/30/12	06/30/12	06/30/12	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03G	06/30/13	06/30/13	06/30/13	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03H	06/30/14	06/30/14	06/30/14	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03I	06/30/15	06/30/15	06/30/15	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03J	06/30/16	06/30/16	06/30/16	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03K	06/30/17	06/30/17	06/30/17	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03L	06/30/18	06/30/18	06/30/18	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03M	06/30/19	06/30/19	06/30/19	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03N	06/30/20	06/30/20	06/30/20	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03O	06/30/21	06/30/21	06/30/21	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-03P	06/30/22	06/30/22	06/30/22	Submit Annual Revision of TRUM Waste and MLLW PMP To Ecology
M-091-15	06/30/08	06/30/08	06/30/08	Complete Facilities/Initiate Treatment of RH/CH MLLW
M-091-40	-	-	-	Complete Retrieval of CH RSW and Substrate Sampling
M-091-40F	12/31/08	3/31/09	12/31/08	Retrieve CH RSW 9,700 m <sup>3</sup> (Cumulative)
M-091-40G	12/31/09	6/30/11	12/31/09	Retrieve CH RSW 12,200 m <sup>3</sup> (Cumulative)
M-091-40G-001	12/31/10	12/31/13	12/31/10	DOE shall Retrieve all CH RSW within Burial Grounds
M-091-40L-017	03/15/08	03/15/08	03/15/08	Submit Oct-Dec 1st Quarter FY 2008 Burial Ground Sample Results
M-091-40L-018	06/15/08	06/15/08	06/15/08	Submit Jan-Mar 2nd Quarter FY 2008 Burial

<b>Milestone</b>	<b>Due Date</b>	<b>Base Case Date</b>	<b>As-Soon-As Feasible Compliance Case Date</b>	<b>Milestone Title</b>
				Ground Sample Results
M-091-40L-019	09/15/08	09/15/08	09/15/08	Submit Apr-Jun 3rd Quarter FY 2008 Burial Ground Sample Results
M-091-40L-020	12/15/08	12/15/08	12/15/08	Submit Jul-Sep 4th Quarter FY 2008 Burial Ground Sample Results
M-091-40L-021	03/15/09	03/15/09	03/15/09	Submit Oct-Dec 1st Quarter FY 2009 Burial Ground Sample Results
M-091-40L-022	06/15/09	06/15/09	06/15/09	Submit Jan-Mar 2nd Quarter FY 2009 Burial Ground Sample Results
M-091-40L-023	09/15/09	09/15/09	09/15/09	Submit Apr-Jun 3rd Quarter FY 2009 Burial Ground Sample Results
M-091-40L-024	12/15/09	12/15/09	12/15/09	Submit Jul-Sep 4th Quarter FY 2009 Burial Ground Sample Results
M-091-40L-025	03/15/10	03/15/10	03/15/10	Submit Oct-Dec 1st Quarter FY 2010 Burial Ground Sample Results
M-091-40L-026	06/15/10	06/15/10	06/15/10	Submit Jan-Mar 2nd Quarter FY 2010 Burial Ground Sample Results
M-091-40L-027	09/15/10	09/15/10	09/15/10	Submit Apr-Jun 3rd Quarter FY 2010 Burial Ground Sample Results
M-091-40L-028	12/15/10	12/15/10	12/15/10	Submit Jul-Sep 4th Quarter FY 2010 Burial Ground Sample Results
M-091-40L-029	03/15/11	03/15/11	03/15/11	Submit Oct-Dec 1st Quarter FY 2011 Burial Ground Sample Results
M-091-40L-030	06/15/11	06/15/11	06/15/11	Submit Jan-Mar 2nd Quarter FY 2011 Burial Ground Sample Results
M-091-40L-031	09/15/11	09/15/11	09/15/11	Submit Apr-Jun 3rd Quarter FY 2011 Burial Ground Sample Results
M-091-40L-032	12/15/11	12/15/11	12/15/11	Submit Jul-Sep 4th Quarter FY 2011 Burial Ground Sample Results
M-091-40L-033	03/15/12	03/15/12	03/15/12	Submit Oct-Dec 1st Quarter FY 2012 Burial Ground Sample Results
M-091-40L-034	06/15/12	06/15/12	06/15/12	Submit Jan-Mar 2nd Quarter FY 2012 Burial Ground Sample Results
M-091-40L-035	09/15/12	09/15/12	09/15/12	Submit Apr-Jun 3rd Quarter FY 2012 Burial Ground Sample Results
M-091-40L-036	12/15/12	12/15/12	12/15/12	Submit Jul-Sep 4th Quarter FY 2012 Burial Ground Sample Results
M-091-40L-037	03/15/13	03/15/13	03/15/13	Submit Oct-Dec 1st Quarter FY 2013 Burial Ground Sample Results
M-091-40L-038	06/15/13	06/15/13	06/15/13	Submit Jan-Mar 2nd Quarter FY 2013 Burial Ground Sample Results
M-091-40L-039	09/15/13	09/15/13	09/15/13	Submit Apr-Jun 3rd Quarter FY 2013 Burial Ground Sample Results
M-091-40L-040	12/15/13	12/15/13	12/15/13	Submit Jul-Sep 4th Quarter FY 2013 Burial Ground Sample Results
M-091-40L-041	03/15/14	03/15/14	03/15/14	Submit Oct-Dec 1st Quarter FY 2014 Burial Ground Sample Results

<b>Milestone</b>	<b>Due Date</b>	<b>Base Case Date</b>	<b>As-Soon-As Feasible Compliance Case Date</b>	<b>Milestone Title</b>
M-091-40L-042	06/15/14	06/15/14	06/15/14	Submit Jan-Mar 2nd Quarter FY 2014 Burial Ground Sample Results
M-091-40L-043	09/15/14	09/15/14	09/15/14	Submit Apr-Jun 3rd Quarter FY 2014 Burial Ground Sample Results
M-091-40L-044	12/15/14	12/15/14	12/15/14	Submit Jul-Sep 4th Quarter FY 2014 Burial Ground Sample Results
M-091-40L-045	03/15/15	03/15/15	03/15/15	Submit Oct-Dec 1st Quarter FY 2015 Burial Ground Sample Results
M-091-40L-046	06/15/15	06/15/15	06/15/15	Submit Jan-Mar 2nd Quarter FY 2015 Burial Ground Sample Results
M-091-40L-047	09/15/15	09/15/15	09/15/15	Submit Apr-Jun 3rd Quarter FY 2015 Burial Ground Sample Results
M-091-40L-048	12/15/15	12/15/15	12/15/15	Submit Jul-Sep 4th Quarter FY 2015 Burial Ground Sample Results
M-091-40L-049	03/15/16	03/15/16	03/15/16	Submit Oct-Dec 1st Quarter FY 2016 Burial Ground Sample Results
M-091-40L-050	06/15/16	06/15/16	06/15/16	Submit Jan-Mar 2nd Quarter FY 2016 Burial Ground Sample Results
M-091-40L-051	09/15/16	09/15/16	09/15/16	Submit Apr-Jun 3rd Quarter FY 2016 Burial Ground Sample Results
M-091-40L-052	12/15/16	12/15/16	12/15/16	Submit Jul-Sep 4th Quarter FY 2016 Burial Ground Sample Results
M-091-40L-053	03/15/17	03/15/17	03/15/17	Submit Oct-Dec 1st Quarter FY 2017 Burial Ground Sample Results
M-091-40L-054	06/15/17	06/15/17	06/15/17	Submit Jan-Mar 2nd Quarter FY 2017 Burial Ground Sample Results
M-091-40L-055	09/15/17	09/15/17	09/15/17	Submit Apr-Jun 3rd Quarter FY 2017 Burial Ground Sample Results
M-091-40L-056	12/15/17	12/15/17	12/15/17	Submit Jul-Sep 4th Quarter FY 2017 Burial Ground Sample Results
M-091-40L-057	03/15/18	03/15/18	03/15/18	Submit Oct-Dec 1st Quarter FY 2018 Burial Ground Sample Results
M-091-40L-058	09/15/18	09/15/18	09/15/18	Submit Apr-Jun 3rd Quarter FY 2018 Burial Ground Sample Results
M-091-40L-059	09/15/18	09/15/18	09/15/18	Submit Apr-Jun 3rd Quarter FY 2018 Burial Ground Sample Results
M-091-40L-060	03/15/18	03/15/18	03/15/18	Submit Jul-Sep 4th Quarter FY 2018 Burial Ground Sample Results
M-091-40M	-	-	-	Designate All CH RSW Retrieved from the RSW Trenches
M-091-40N	12/31/08	12/31/08	12/31/08	Designate Large Containers Determined to be LLW
M-091-40O	12/31/12	12/31/12	12/31/12	Designate Large Containers Determined to be TRU Waste
M-091-41	01/01/11	12/31/14	01/01/11	Initiate Full Scale Retrieval Of RH RSW
M-091-41A	12/31/14	12/31/17	12/31/14	Complete Retrieval of Non-Caisson RH RSW
M-091-41 B	12/31/18	12/31/23	12/31/18	Complete Retrieval of Caisson RH RSW in

Milestone	Due Date	Base Case Date	As-Soon-As Feasible Compliance Case Date	Milestone Title
				218-W-4B
M-091-42	12/31/11	12/31/23	12/31/17	Complete the Treatment or Certification of CH TRUM Waste
M-091-42D	12/31/07	12/20/07	12/20/07	Treat 6,520 m <sup>3</sup> CH-MLLW (Cumulative)
M-091-42E	12/31/08	6/30/13	3/31/10	Treat 8,150 m <sup>3</sup> CH-MLLW (Cumulative)
M-091-42F	12/31/09	12/31/15	12/31/11	Complete Treatment of All CH-MLLW by 12/31/09
M-091-42I	12/31/06	4/01/08	4/01/08	Treat 3,000 m <sup>3</sup> CH TRUM Waste (Cumulative)
M-091-42J	12/31/07	12/31/16	6/30/10	Treat 4,200 m <sup>3</sup> CH TRUM Waste (Cumulative)
M-091-42K	12/31/08	6/30/19	9/31/11	Treat 5,400 m <sup>3</sup> CH TRUM Waste (Cumulative)
M-091-42L	12/31/09	9/30/21	12/31/12	Treat 6,600 m <sup>3</sup> CH TRUM Waste (Cumulative)
M-091-42M	12/31/10	6/30/23	3/31/14	Treat 7,600 m <sup>3</sup> CH TRUM Waste (Cumulative)
M-091-42N	12/31/11	9/30/25	3/31/15	Treat 8,600 m <sup>3</sup> CH TRUM Waste (Cumulative)
M-091-43A	12/31/08	12/31/08	12/31/08	Designate all Above Ground RH LLW
M-091-43B	06/30/08	6/30/08	6/30/08	Begin Treating RH MLLW and Large Containers Of CH MLLW
M-091-43C	06/30/09	9/30/08	9/30/08	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43D	06/30/10	6/30/12	6/30/10	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43E	06/30/11	12/30/14	6/30/11	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43F	06/30/12	12/31/15	6/30/12	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43G	06/30/13	12/31/20	6/30/13	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43H	06/30/14	9/30/25	6/30/20	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43I	06/30/15	12/31/27	6/30/25	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43J	06/03/16	12/31/29	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43K	06/30/17	6/30/32	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43L	06/30/18	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43M	06/30/19	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43N	06/30/20	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43O	06/30/21	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43P	06/30/22	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43Q	06/30/23	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW

<b>Milestone</b>	<b>Due Date</b>	<b>Base Case Date</b>	<b>As-Soon-As Feasible Compliance Case Date</b>	<b>Milestone Title</b>
M-091-43R	06/30/24	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-43S	06/30/25	N/A	N/A	Treat 300 m <sup>3</sup> per Year RH MLLW and Large Containers CH MLLW
M-091-44	12/31/12	12/31/12	12/31/12	Designate all RH TRU Waste and Large Containers of CH TRU Waste Above Ground
M-091-44A	06/30/12	9/30/14	06/30/12	Begin Treating RH TRUM Waste and Large Containers of CH TRUM Waste
M-091-44B	-	12/31/25	12/31/19	Treat Newly Generated RH TRUM Waste Generated After 12/31/18
M-091-44C	06/30/13	09/30/15	06/30/13	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44D	06/30/14	03/31/17	06/30/14	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44E	06/30/15	03/31/19	06/30/15	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44F	06/30/16	9/30/20	06/30/16	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44G	06/30/17	03/31/22	06/30/17	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44H	06/30/18	03/31/24	06/30/18	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44I	06/30/19	03/31/25	06/30/19	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44J	06/30/20	12/31/25	06/30/20	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44K	06/30/21	9/30/26	06/30/21	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44L	06/30/22	6/30/27	06/30/22	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44M	06/30/23	6/30/28	06/30/23	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44N	06/30/24	3/31/29	06/30/24	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44O	06/30/25	3/31/30	06/30/25	Treat RH TRUM Waste and CH TRUM Waste at Minimum Rate of 300 m <sup>3</sup> Per Year
M-091-44X	-	12/31/43	12/31/37	Treat Newly Generated RH TRUM Waste Within One Year of Generation
M-091-45E	09/30/08	09/30/08	09/30/08	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45F	09/30/09	09/30/09	09/30/09	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45G	09/30/10	09/30/10	09/30/10	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45H	09/30/11	09/30/11	09/30/11	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45I	09/30/12	09/30/12	09/30/12	Submit Report for RH Waste and Large

<b>Milestone</b>	<b>Due Date</b>	<b>Base Case Date</b>	<b>As-Soon-As Feasible Compliance Case Date</b>	<b>Milestone Title</b>
				Containers of RH/CH Waste
M-091-45J	09/30/13	09/30/13	09/30/13	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45K	09/30/14	09/30/14	09/30/14	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45L	09/30/15	09/30/15	09/30/15	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45M	09/30/16	09/30/16	09/30/16	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45N	09/30/17	09/30/17	09/30/17	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45O	09/30/18	09/30/18	09/30/18	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45P	09/30/19	09/30/19	09/30/19	Submit Report for RH Waste and Large Containers of RH/CH Waste
M-091-45Q	09/30/20	09/30/20	09/30/20	Submit Report for RH Waste and Large Containers of RH/CH Waste