

Project Baseline Summary Report

Data Source: **EM CDB**
Operations/Field Office: **Nevada**
Site Summary Level: **Nevada Test Site**
Project **NV350 / TRU/Mixed TRU**

Report Number: **GEN-01b**
Print Date: **3/9/2000**
HQ ID: **0442**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

The purpose of the TRU/MTRU Project is to manage the storage and characterization of TRU and MTRU currently onsite at the NTS in preparation for shipment to the Waste Isolation Pilot Plant (WIPP). Also included are the studies and documentation required for TRU in trenches and for the Greater Confinement Disposal (GCD) Performance Assessment (PA).

Characterization activities involve approximately 1,650 55-gallon drums of MTRU in storage at the TRU Pad, 58 nonstandard size boxes of MTRU in storage at the TRU Pad, and 248 55-gallon drums in the Classified Storage Area. Classified TRU will continue to be stored in the Classified Area until it is sanitized and declassified. The classified TRU will be characterized in accordance with the WIPP Waste Acceptance Criteria (WAC).

In support of characterization activities, services have been procured to examine waste containers for internal hazards and/or characterization information; for radioassay system capability to characterize the nuclide content of each container; and for head-space gas sampling to assist the characterization process.

Once waste is certified as meeting the WIPP WAC, shipments will be made to WIPP. Shipments are currently scheduled to begin in FY2002 and be completed by FY2009. Upon completion of the waste certification activities, the Waste Examination Facility (WEF), the TRU Pad, and the Cover Building will be decontaminated, if necessary. Until the TRU/MTRU waste can be shipped to WIPP, it will continue to be stored on the TRU Pad in accordance with the Settlement Agreement (1992) between DOE/NV and the State of Nevada. Weekly inspections will be conducted in accordance with 40 CFR 265 until all of the waste is shipped offsite. Inspections will include radiological surveys; visual inspections of labels, markings, and container integrity; and maintenance of the inventory and storage capability.

A database that contains information about the waste containers in storage will be maintained. The waste information developed during the characterization process will augment the current database, and will serve as the record used to verify that the waste meets the WIPP WAC.

Prior to 1989, TRU wastes were disposed in several GCD boreholes and a trench in the Area 5 Radioactive Waste Management Site (RWMS). The technical approach associated with GCD disposal is to complete and obtain approval of the GCD PA. The PAs will be based on information from site characterization activities, climate change studies, and scenario analysis. Information from the models and data used for the PA and the GIS will be integrated. A peer review will be conducted for approval. The culmination of the activities technical approach will be a proposal for closure strategies. The GCD activity is expected to be completed by FY 2003.

Ongoing technology development to support the TRU projects is focused on an integrated system involving various analytical and materials processing technologies to efficiently and expeditiously prepare all existing NTS TRU/MTRU for disposal at WIPP. Performance requirements include the ability to perform radiography, visual inspection, analytical sampling, headspace gas sampling, and radio assay analyses; and characterize waste having irregular shapes or waste in oversize or nonstandard containers. Size reduction of oversize items having unknown radiological, chemical and/or physical hazards would be another component of the integrated system. This system could include digital waste inspection tomography and active

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passive neutron examination and assay for analysis of TRU waste containers.

Project Status in FY 2006:

Upon completion of the waste certification activities, the waste examination facility, the TRU Pad, and the Cover Building, will be decontaminated for potential future use.

Classified TRU activities will still be required including sanitization, declassification, and security. MTRU currently stored on the TRU Pad will have been shipped to WIPP.

Post-2006 Project Scope:

A sanitization facility will be constructed for classified TRU, and the waste will be sanitized and characterized for shipment to WIPP

Project End State

Facilities will be decontaminated for alternate use. Long term surveillance and monitoring as required will be conducted as part of the long-term monitoring program for the RWMS under LLW for TRU formerly disposed of in GCD holes in Area 5 RWMS. By FY2009, TRU/MTRU waste will have been shipped off-site for disposal.

Cost Baseline Comments:

Cost estimates are activity based. Because of budget constraints, there is minimal contingency. The DOE/NV Waste Management Division baseline is based on bottoms-up, activity-based estimates of discrete work elements. Cost data input is derived from historical facility and operations data, bottoms-up estimates, commercially available databases, engineering and professional judgement, and bids from external vendors.

Projected costs escalated. Contingency is identified in the cost estimates where appropriate, and is applied in a manner which is consistent with the Nevada Operations Office Cost Estimating Guide. Engineering studies, continuous process improvement efforts, value engineering studies, and alternative analysis are all used to identify areas where improvements and operational efficiencies can be implemented and where program funds can be saved. One goal of the integrated system approach to certification, identified previously as a technology need, is to reduce the time and cost required to certify TRU/mixed TRU packages. The actual benefit of this approach is not measurable at this time.

Safety & Health Hazards:

The initial analytical effort for all facilities is a hazard analysis that systematically identifies facility hazards and accident potentials through hazard identification and hazard evaluation. The focus of the hazard analysis is on thoroughness and requires evaluation of the complete spectrum of hazards and accidents. This largely qualitative effort forms the basis for the entire safety analysis effort, including specifically addressing defense in depth and protection of workers and the environment.

Workers may encounter the normal occupational safety hazards related to Treatment, Storage, and Low-Level Waste Disposal facilities. Workers who will be involved in performing the tasks are involved in the hazard assessment process. The hazard analysis criteria for WM programs at DOE/NV is documented in WBS 2.12, "Hazard assessment" in Volume 3 of the DOE/NV Necessary and Sufficient (N&S) process - final report dated September

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30, 1996.

The formally established safety and health controls that have been tailored to address hazards associated with performing site activities include Federal and state regulations, DOE orders and guidance documents, facility operations hazard assessments and standard operating procedures, and contractor company-specific policies and procedures. In addition, field instructions and health and safety plans are developed and implemented to address the hazards associated with remediation and waste handling/disposal activities. The applicable Federal regulations include 29 CFR 1910 and 1926 (OSHA), 40 CFR series [Environment (EPA)], 49 CFR [Transportation (DOT)], and 10 CFR [Energy (NRC and DOE)]. The overall policies, procedures, and plans are written to comply with DOE Policies including P 411.1, "Safety Management Functions, Responsibilities, and Authorities Policy," P 450.4, "Safety Management System Policy," and P 450.6 "Environment, Safety and Health;" DOE Orders including O 420.1, "Facility Safety,"

O 440.1, "Worker Protection Management for DOE Federal and Contractor Employees," O 5400.1, "General Environmental Protection Program," O 3790.1B, "Federal Employee Occupational Safety and Health Program," O 5480.4, "Environmental Protection, Safety, and Health Protection Standards," O 5480.23, "Nuclear Safety Analysis formally established safety and health controls that have been tailored to address hazards associated with performing site activities include Federal and state regulations, DOE orders and guidance documents, facility operations hazard assessments and standard opg DOE Hazardous Waste Activities. DOE/NV Waste Management guidance is provided by the Nevada Assistant Manager for Environmental Management Health and Safety Plan (HASP) and by project specific Health and Safety Plans that are developed for specific waste activities or facilities and associated activities and hazards. Additional radiological protection program guidance and requirements are outlined in the DOE/NV Nevada Test Site-Yucca Mountain Project Radiological Control Manual and the Nevada Test Site Radiation Protection Program.

Safety & Health Work Performance:

WM work was included in DOE/NV Necessary and Sufficient closure process and is covered by the existing M&O contractor Integrated Safety Management System (ISMS) for all work performed. (Graded approach with balanced priorities) Inherent in this activity is confirming readiness to perform the work. The contractor confirms by performing self-assessments, which assures that all necessary controls are in place and that ES&H training is to the appropriate level of competence, for workers to perform work.

PBS Comments:

TRU and MTRU waste in storage at the Area 5 RWMS currently lacks sufficient characterization information. Characterization information on the TRU and MTRU waste must be developed to meet the WIPP WAC. MTRU waste characterization and treatment milestones have been negotiated between DOE/NV and the state of Nevada (Settlement Agreement, FFCAct Consent Order, and STP). The waste is destined for disposal at the WIPP located near Carlsbad, NM. Implementation of the DOE/NV and State milestones will lead to shipment of the waste to WIPP. The NTS currently stores approximately 618 m³ (1650 55-gallon drums and 58 nonstandard waste boxes) of MTRU waste on the TRU Storage Pad. The waste is stored on a Resource Conservation Recovery Act (RCRA) approved pad in a large tent-like cover building. This waste is MTRU waste which requires a RCRA pad for storage and weekly inspections to ensure the waste containers are not leaking. TRU wastes were disposed in several boreholes and a trench at the Area 5 RWMS. An additional 54 m³ of classified TRU is stored in the classified area of the Area 5 RWMS. Until the waste can be declassified, no disposal option exists since WIPP cannot accept classified TRU waste. DOE will comply with the Settlement Agreement between DOE/NV and the state of Nevada, the FFCAct Consent Order, and RCRA. The TRU waste in Area 5 is stored in compliance with 40 CFR 265 on a RCRA approved storage pad and in accordance with the above noted agreement and order. DOE/NV will ensure that it's contractors adhere to and comply with nuclear safety requirements in accordance with DOE's enforcement rules and policies identified in 10 CFR 820. NEPA compliance and

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current NTS TRU activities are identified in the Record of Decision (F.R. Vol. 61, No. 241, Pg. 65551, dtd. 12-13-96) based on information and analysis contained in the Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada (DOE/EIS-0243, dtd. 8/96). A change in future actions may result from a Record of Decision based on information and analysis contained in the Final Waste Management Programmatic Environmental Impact Statement after it is issued.

Baseline Validation Narrative:

The Nevada Operations Office Waste Management Division baseline, which contains the individual Project Baseline Summary data sheet baseline information for the DOE/NV Waste Management program, was formally reviewed by the U.S. Army Corps of Engineers (USACE) in FY 1997. The team concluded that scopes of work, schedules, and cost estimates for the DOE/NV WM Program were well-defined and usually supported by reliable and traceable data containing a combination of activity-based and level-of effort costs.

In March 1998, the DOE Core Technical Group reviewed the baseline and recommended enhancements such as identifying and including estimates for programmatic risk, reconciling basis of estimates annually, ensuring planning methodology supports the mission and strategic vision, and utilizing a systems engineering approach. Recommendations have been addressed in the current baseline update. The baseline, including cost estimates supporting the overall program, is reviewed annually by Federal cost professionals. Other reviews, in the form of check estimates by an independent cost estimating support contractor, Independent Cost Estimates, and Value Engineering studies where applicable, are also performed on a routine basis.

General PBS Information

Project Validated? Yes **Date Validated:** 4/3/1998
Has Headquarters reviewed and approved project? No
Date Project was Added: 12/1/1997
Baseline Submission Date: 7/8/1999
FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	N	N	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Angela P. Colarusso
DOE Project Manager Phone Number: 702-295-1218
DOE Project Manager Fax Number: 702-295-1153

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General PBS Information

DOE Project Manager e-mail address: colarusso@nv.doe.gov
 Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	49,321	9,204	58,525	7,573	2,968	2,690	5,099	5,948	6,399	6,217	5,144	5,605	2,785	2,754	4,206
PBS Baseline (constant 1999 dollars)	46,831	7,640	54,471	7,573	2,968	2,690	5,099	5,948	6,231	5,929	4,805	5,128	2,495	2,417	3,615
PBS EM Baseline (current year dollars)	49,321	9,204	58,525	7,573	2,968	2,690	5,099	5,948	6,399	6,217	5,144	5,605	2,785	2,754	4,206
PBS EM Baseline (constant 1999 dollars)	46,831	7,640	54,471	7,573	2,968	2,690	5,099	5,948	6,231	5,929	4,805	5,128	2,495	2,417	3,615

	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	3,543	5,028	633	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	2,983	4,146	511	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	3,543	5,028	633	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	2,983	4,146	511	0	0	0	0	0	0	0	0	0	0	0	0	0

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Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/2003
 Current Projected End Date of Project: 9/30/2009
 Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	32,858	Actual 1997 Cost:	2,968	Actual 1998 Cost:	5,099
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	24,791	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			669
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	25,460				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	13,246	Additional Scope--deployment of laser cutting and sanitization technology--increases schedule.
Cost Growth Associated with Scope Previously Reported (+):	5,503	Increase in cost result of inclusion of additional work scope.
Cost Reductions Due to Science & Technology Efficiencies (-):		

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Project Reconciliation

Subtotal:	44,209
Additional Amount to Reconcile (+):	-1
<hr/>	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	44,208

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Complete SALMON CAP	OS-002		5/26/1999		5/26/1999						
Submit Compliance Assessment Document to DOE/NV	SNL-001		8/31/1999		8/31/1999						
TRU/MTRU- Storage 671 m3			9/30/1999						Y		
Legacy TRU Drums ready to ship to WIPP			9/30/2005								Y
Submit Draft Compliance Assessment Document to State			9/30/1999	9/30/1999				Y			
Complete update of 3-volume GCD CAD			7/1/2002								
Publish Final 3-volume GCD PA			9/30/2002								
Complete TRU in Trench Report			9/30/2004								Y
Complete update of TRU in Trench Report			6/1/2006								
Publish TRU in Trench Report			9/30/2006								Y
Classified TRU ready for shipment to WIPP			9/30/2009								Y
Project Start			6/30/1997								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Complete SALMON CAP	OS-002								1	Y	Complete corrective action plan.
Submit Compliance Assessment Document to DOE/NV	SNL-001			Y						Y	

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
TRU/MTRU- Storage 671 m3											
Legacy TRU Drums ready to ship to WIPP											
Submit Draft Compliance Assessment Document to State											
Complete update of 3-volume GCD CAD											
Publish Final 3-volume GCD PA		Y									
Complete TRU in Trench Report		Y									
Complete update of TRU in Trench Report											
Publish TRU in Trench Report		Y									
Classified TRU ready for shipment to WIPP					Y	Y					
Project Start				Y							

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
TRU														
Treatment	M3	0.00	0.00	0.00	0.00		0.00							
TRU														
Storage	M3							671.00	671.00	671.00	671.00	461.00	461.00	461.00
TRU														
Ship. to WIPP	M3	616.00	54.00	670.00				0.00	0.00	0.00	0.00	215.00	0.00	0.00

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
Tech.														
Deployed	Ntd	1.00	0.00	1.00					1.00					
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	Planned 2036 - 2040
TRU														
Treatment	M3													
Storage	M3	461.00	60.00	60.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ship. to WIPP	M3	0.00	401.00			0.00	54.00							
Tech.														
Deployed	Ntd													
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2065	Planned 2066 - 2070	Exceptions	Lifecycle Total				
TRU														
Treatment	M3									156.00				
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
Ship. to WIPP	M3									670.00				
Tech.														
Deployed	Ntd								1.00	1.00				

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Technology Needs

Site Need Code: NV07-9902-05
Site Need Name: Oversize TRU Waste Size Reduction

Focus Area Work Package ID: DD-12

Focus Area: DDFA

Benefits (Cost, Risk Reduction, Both): Both

Focus Area Work Package: D&D of Weapons Components Fabrication Facilities

Agree with Technology Link: Y

Technologies

Oversize TRU Waste Laser Cutting System
 Oversize TRU Waste Laser Cutting System
 Oversize TRU Waste Laser Cutting System

Cost Savings (in thousands of dollars)

2,600
 2,600
 2,600

Range of Estimate

High
 High
 High

Related CCP Milestones

Related Waste Streams

01054: TRU-1 - Newly Generated (WEF)

Agree?

Y

Change?

N

Site Need Code: NV19-9902-08

Site Need Name: Classified TRU Shapes Sanitization

Focus Area Work Package ID: MW-08

Focus Area: MWFA

Benefits (Cost, Risk Reduction, Both): Both

Focus Area Work Package: Facilitating Deployment for Unique Wastes

Agree with Technology Link: Y

Technologies

Graphite Electrode DC Arc Furnace
 Graphite Electrode DC Arc Furnace
 Graphite Electrode DC Arc Furnace

Cost Savings (in thousands of dollars)

10,000
 10,000
 10,000

Range of Estimate

Medium
 Medium
 Medium

Related CCP Milestones

Related Waste Streams

01060: -

Agree?

Y

Change?

N

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Technology Deployments

<u>Deployment Status</u>	<u>Deployment Year</u>		
	<u>Planned</u>	<u>Forecast</u>	<u>Actual Date</u>
Technology Name: Oversize TRU Waste Laser Cutting System			
Deployment Commitment	1999		