

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Chicago**

Site Summary Level: **Princeton Plasma Physics Laboratory**

Project **CH-PPPLWO / PPPL Waste Operations**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0028**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The Waste Management program provides for the following scope: a Base Program (also called Continuity of Operations, or Program Management), Collection, Treatment, Storage, and Disposal of Federal and State regulated wastes. The following is a description of each element:

Base Program - This element provides for all of the managerial, technical, and oversight support required to carry out the mission, as well as the maintenance of all of the nuclear and radiological facilities occupied by the Waste Management Department that is not directly attributable to the waste processing.

Collection - This element provides for the collection of regulated wastes at the waste accumulation areas and subsequent movement to the waste treatment and/or storage area. This element also provides for the return of wastes which have been collected but found to not meet the PPPL Waste Acceptance Criteria.

Treatment - This element provides for the segregation, repackaging, volume-reduction and/or treatment of all regulated wastes. This element also provides the labor and supplies for inspection, routine maintenance, and periodic overhaul and upgrade of the waste treatment systems.

Storage - This element provides for the storage of all regulated wastes including space charges, periodic inspections, and maintenance charges related to the storage of these wastes. This element will also include the costs to provide for wastes in long-term storage.

Disposal - This element provides for the safe disposal of all regulated wastes. It includes the pre-transportation preparation and inspections, transportation and subsequent disposal fees for the regulated wastes. This element will include wastes shipped to DOE and commercial disposal facilities.

Technical Approach: Hazardous Waste Disposal: PPPL anticipates shipping and disposing hazardous waste generated from the magnetic fusion experimental programs (e.g., NSTX, FSX), safe shutdown and caretaking operations of TFTR on an annual basis throughout the project period. The overall quantity of waste will be reduced as a result of the Laboratory's waste minimization program.

Hazardous Waste Management: PPPL will maintain the compliance with Federal and state hazardous waste management regulations; provide all required training for hazardous waste workers; provide all necessary computer hardware/software for a hazardous waste tracking system; and provide a vehicle for transporting hazardous waste on-site. This activity will also provide the labor to collect the information and prepare the biennial hazardous waste report submitted to New Jersey.

Mixed Waste Management: This activity provides for the labor for the collection, storage, in-container treatment and packaging of mixed waste generated at PPPL.

Radioactive Waste Disposal: PPPL's low-level radioactive waste is disposed at the Hanford Burial Facility exclusively.

Fabrication of specialized containers: PPPL fabricates specialized tritium containers for the management of tritiated waste. It is assumed that Hanford will accept mixed waste treated to land disposal restriction regulation standards for disposal.

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Project Status in FY 2006:

This is a continuity of operations activity that supports the experimental program at PPPL. It is anticipated that this project will remain at approximately the same size throughout the funding period because of continuity in the experimental program.

Post-2006 Project Scope:

It appears that PPPL will remain an active participant in magnetic fusion research for the foreseeable future. Therefore, there will continue to be a need for waste management services during operations of the PPPL laboratories. This project funds the baseline waste operation's function required to support the PPPL experimental program and should continue while experiments continue.

Project End State

The Waste Management Program will be transferred to the Office of Science in FY 2001, which is assumed to be the end date of the project.

Cost Baseline Comments:

Baselines have been updated to reflect actual costs thru FY 1998, CYWPs for FY 1999 and Congressional Budget Request for FY 2000. FY 2001 reflects the increase to implement DOE order 435.1. The years after FY 2000 reflect increases to maintain compliance with the new Order. Escalation rates used were 2.7% for FY 2000 and 2.1% in years after FY 2000. EM FY 2001 funding is pending transfer to Office of Science.

Safety & Health Hazards:

This project involves the management and disposal of hazardous, low level radioactive, and mixed waste for the caretaking of Tokamak Fusion Test Reactor (TFTR), the operations of National Spherical Torus Experiment (NSTX), and other smaller experimental devices. The major hazard associated with storage of radioactive waste is field of up to 200 mrem per hour. The resources necessary to perform safety and health functions are funded by the Laboratory's institutional site (OPEX) tax. These resources are not funded directly by EM-30. Please see Site Summary Level Indirect Safety and Health narratives where hazards, controls and work performance measures are found.

Safety & Health Work Performance:

NA

PBS Comments:

Successful waste management is a critical component to the overall success of the magnetic fusion research effort. Waste management is a portion of the tritium fuel cycle which is the preferred fuel for fusion power reactors. Demonstration of safe and e

Baseline Validation Narrative:

The reasonableness of the scope and cost of Waste Operations activities for CH laboratories was validated in September 1996. This validation activity was performed by a team comprised of Chicago Operations Office staff, Headquarters Program Office (EM-34) staff and an independent consultant from Project Assistance Corporation who provides support to the Richland Operations Office. The team validated the use of historical data to forecast future waste quantity generation for ongoing research activities and validated the use of Activity Based Cost Estimates to determine the resources

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Project Description Narratives

required. This scope definition was determined to be the key element in determining costs.

General PBS Information

Project Validated? Yes **Date Validated:** 9/1/1996
Has Headquarters reviewed and approved project? No
Date Project was Added: 12/1/1997
Baseline Submission Date: 7/7/1999
FEDPLAN Project? Yes

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

Project Identification Information

DOE Project Manager: Jeff Makiel
DOE Project Manager Phone Number: 609-243-3721
DOE Project Manager Fax Number: 609-243-2032
DOE Project Manager e-mail address: jmakiel@pppl.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)	30,497	441,970	472,467	3,129	3,129	2,866	2,866	2,992	2,800	3,025	3,009	3,072	3,135	3,201	3,268
PBS Baseline (constant 1999 dollars)	28,646	179,957	208,603	3,129	3,129	2,866	2,866	2,992	2,726	2,885	2,811	2,810	2,809	2,809	2,809

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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 EM Baseline (current year dollars)	14,812	0	14,812	3,129	3,129	2,866	2,866	2,992	2,800	3,025	0	0	0	0	0	
PBS EM Baseline (constant 1999 dollars)	14,598	0	14,598	3,129	3,129	2,866	2,866	2,992	2,726	2,885	0	0	0	0	0	
	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)	3,337	3,407	3,479	3,552	18,909	20,979	23,277	25,826	28,654	31,791	35,273	39,135	43,421	48,175	53,451	59,304
PBS Baseline (constant 1999 dollars)	2,809	2,809	2,810	2,810	14,060	14,059	14,060	14,060	14,060	14,060	14,060	14,060	14,060	14,060	14,060	14,060
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category: Other													
Office of Science						100	100	100	100	100	100	100	100
	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
Non-EM Category: Other													
Office of Science	100	100	100	100	100	100	100	100	100	100	100	100	100

Baseline Escalation Rates

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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: 9/1/1999

Current Projected End Date of Project: 10/1/2000

Explanation of Project Completion Date Difference (if applicable):

The date for transfer to the Office of Science has been changed to 10/01/2000.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	9,016	Actual 1997 Cost:	3,129	Actual 1998 Cost:	2,866
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	3,021	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			82
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	3,103				

Project Cost Changes

Cost Adjustments Reconciliation Narratives

Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+):

5,499 FY 2000/1 were formerly non-EM funded; DOE O 435.1 implementation added.

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal: 8,602

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Project Reconciliation

Additional Amount to Reconcile (+): 1

Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): 8,603

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Transfer to Landlord (Office of Science)	CH-PPPL-WO-001		10/1/2000								
Project Start	CH-PPPL-WO-002		10/1/1996								

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
Transfer to Landlord (Office of Science)	CH-PPPL-WO-001					Y					
Project Start	CH-PPPL-WO-002			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
MLLW														
Treatment	M3	8.00	0.00	8.00	0.00		0.00	2.00	2.00	2.00	2.00			
MLLW														
Storage	M3							0.00	0.00	0.00	0.00			
MLLW														
Comm. Disp.	M3	0.00	0.00	0.00	0.00		0.00							
LLW														
Treatment	M3	770.00	0.00	770.00	0.00		0.00	50.00	320.00	320.00	80.00			

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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
LLW														
Storage	M3							0.00	0.00	0.00	0.00			
LLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
LLW														
Ship to DOE Disp.	M3	303.00	0.00	303.00	0.00		0.00	87.00	93.00	93.00	30.00			
LLW														
TBD Disp.	M3	0.15	0.00	0.15				0.00	0.15	0.00	0.00			
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	
MLLW														
Treatment	M3													
MLLW														
Storage	M3													
MLLW														
Comm. Disp.	M3													
LLW														
Treatment	M3													
LLW														
Storage	M3													
LLW														
On-Site Disp.	M3													

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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
LLW													
Ship to DOE Disp.	M3												
LLW													
TBD Disp.	M3												
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			
MLLW													
Treatment	M3									4.00			
MLLW													
Storage	M3												
MLLW													
Comm. Disp.	M3									0.00			
LLW													
Treatment	M3									571.70			
LLW													
Storage	M3												
LLW													
On-Site Disp.	M3									0.00			
LLW													
Ship to DOE Disp.	M3									241.70			
LLW													
TBD Disp.	M3									0.00			

Technology Needs

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Technology Needs

Site Need Code: CH-DD09-99

Site Need Name: Tritium Removal By Laser Heating.

Focus Area Work Package ID: DD-01

Focus Area: DDFA

Benefits (Cost, Risk Reduction, Both): Cost

Focus Area Work Package: D&D of Tritium Contaminated Facilities

Agree with Technology Link: N

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: Ch-MW07-99

Site Need Name: Stabilization of tritium Organic Waste

Focus Area Work Package ID: MW-08

Focus Area: MWFA

Benefits (Cost, Risk Reduction, Both): Cost

Focus Area Work Package: Facilitating Deployment for Unique Wastes

Agree with Technology Link: Y

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate