

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Chicago**

Site Summary Level: **Fermi National Accelerator Laboratory**

Project **CH-FNALWO / FNAL Waste Operations**

Report Number: **GEN-01b**

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

HQ ID: **0035**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: Fermilab generates radioactive, hazardous, and mixed wastes as a consequence of particle accelerator operation and related support activities. In most cases, these wastes are components or process materials which are disposed of because they no longer serve a useful purpose, present an unacceptable environmental risk, or in order to maintain regulatory compliance. Most radioactive wastes consist of volume-activated nonhazardous solids containing Na-22, Mn-54, and Co-60. Ten to several hundred GBq (several Ci) are generated in a typical year. The annual volume of LLW shipped offsite for disposal over the 1976-1995 period has a geometric mean of 67 x/ divided by 3.4 cubic meters. However, the average has been around 20 cubic meters, since 1989, once consideration is given for "special disposal activities" which took place in 1993 and 1994. Small volumes of water and vacuum pump oil with low specific activity H-3 and Be-7 are also generated. These are solidified prior to disposal.

Over the 1984-1995 period, hazardous wastes collected at Fermilab consisted of 13% RCRA, 14% TSCA PCB and 73% "other" by volume. The annual geometric mean total of hazardous waste collected over this period is 240 x/ divided by 2.1 cubic meters. Materials included among these wastes are corrosives, cleaners, solvents, asbestos, PCBs, lubricating oils, coolants, adhesives, spill cleanup debris, and miscellaneous chemical products.

Technical Approach: Fermilab has no plans for additional hazardous waste treatment or disposal facilities on-site. Waste operations will continue as long as the laboratory generates waste. All waste is sent off-site for appropriate treatment, as required. Fermilab generates hazardous wastes, as defined by RCRA regulations (40 CFR Part 261) incident to accelerator operation and maintenance. Fermilab has a RCRA permit to operate a hazardous waste storage facility. The permit was issued by the Illinois Environmental Protection Agency (IEPA) and the United States Environmental Protection Agency (EPA). Fermilab collects, handles and stores all RCRA hazardous wastes in accordance with permit provisions. Hazardous wastes typically consist of 15% RCRA, 30% TSCA and 55% Illinois Special (nonhazardous) by volume. This includes corrosives, cleaners, solvents, asbestos, PCBs, lubricating oils, coolants, adhesives, spill cleanup debris and miscellaneous chemical products. The typical total volume of hazardous waste disposed of is less than 50,000 gal. per year. Fermilab utilizes brokers and commercial facilities for the final disposition of hazardous waste.

Laboratory operations also generate "special wastes" as defined by the Illinois solid waste regulations, radioactive mixed wastes, and low-level radioactive waste (LLW) in small amounts. The Laboratory regularly packages and ships regulated wastes to authorized treatment/disposal facilities and has no backlog of "legacy" wastes.

The Laboratory is engaged in a long-term project to clean up soils contaminated with polychlorinated biphenyl compounds (PCBs). The soils are near electrical transformers located along the main accelerator ring. The cleanup can occur only during accelerator shutdown periods. This activity is expected to be completed in 2004, pending Main Ring operation schedules.

Fermilab is conducting a RCRA Facility Investigation (RFI) as a condition of the RCRA permit for a hazardous waste storage facility at Site 55. The purpose is to investigate and remediate, where necessary, confirmed hazardous constituent releases to the environment. IEPA originally identified 17 Solid Waste Management Units (SWMUs) in the RCRA permit that required investigation. Fermilab subsequently notified the IEPA of four new SWMUs and a change in status of one of the original SWMUs.

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Fermilab completed an RFI Phase I investigation (presence or absence of hazardous constituents) of the original 17 SWMU's in July 1994. Based on the Phase I sampling results, the IEPA determined that no further action was needed at 10 SWMU's, two SWMU's would need a Phase II investigation to define rate and extent of contamination, one SWMU needed to be resampled based on newly-defined concerns, more information was required for one SWMU and the IEPA would provide closure for the remaining SWMU.

Fermi submitted a draft workplan for the Phase II Investigation at two SWMU's to IEPA for review on September 8, 1995, and will submit a plan for Phase I sampling at the four newly-identified SWMU's to IEPA in November 1995.

Fermilab generates low level radioactive and very small quantities of low level mixed wastes as a consequence of particle accelerator operation and related support activities. Low level radioactive waste is shipped to DOE's Hanford, Washington facility for disposal. Operations involve the routine handling of low-level radioactive wastes and the routine processing of radioactivity contaminated NaCl. Although NaCl is not a RCRA hazardous waste, it is a State of Washington "dangerous waste". Therefore, radioactivity contaminated NaCl is considered a mixed waste at Hanford. This waste results from the regeneration of ion exchange resin at the Central Utilities Building. Processing involves examination of solids which have been initially identified as "radioactive" waste to determine whether or not they are, in fact, radioactive. Items are removed from containers, physically isolated, and checked for radioactivity. For about 20% of the waste, no activity is found and the items are sent to a municipal landfill or to a commercial reclaimer. About 50% is repackaged for off-site shipment to Hanford. The remaining 30% is "potted" into cement shield blocks. Potting involves partially loading steel forms with low-level radioactive material than filling the open space with concrete. Oil is solidified by a subcontractor using a special cement to assure adequate mixing. Solidification takes place in the new low level radioactive waste handling building.

In addition, Fermilab maintains a base water minimization program to support waste minimization awareness, tracking and reporting functions.

Project Status in FY 2006:

Responsibility for managing waste activities at Fermilab has been transferred from EM to SC beginning in FY98. Funding for waste management activities has been transferred from EM to SC. Waste Operations is an ongoing laboratory function, however, it will no longer exist as an EM Project.

Post-2006 Project Scope:

Responsibility for managing waste activities at Fermilab has been transferred from EM to SC beginning in FY98. Funding for waste management activities has been transferred from EM to SC. Waste Operations is an ongoing laboratory function, however, it will no longer exist as an EM Project.

Project End State

Waste Management ended as an EM Project at the end of FY97. As long as Fermi Laboratory is in operation, waste management will be a necessary program function.

Cost Baseline Comments:

Costs reflect only actual costs for FY 1997, the last year of EM's responsibility for the project. Responsibility for managing waste activities at Fermilab has been transferred from EM to SC beginning in FY98. Funding for waste management activities has been transferred from EM to SC.

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Project Description Narratives

Waste Operations is an ongoing laboratory function, however, it will no longer exist as an EM Project.

Safety & Health Hazards:

NA

Safety & Health Work Performance:

NA

PBS Comments:

NA

Baseline Validation Narrative:

Actuals for completed project.

General PBS Information

Project Validated? Yes Date Validated: 3/15/1999

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	Y

Project Identification Information

DOE Project Manager: Antanas Bindokas

DOE Project Manager Phone Number: 630-252-2692

DOE Project Manager Fax Number: 630-252-2654

DOE Project Manager e-mail address: antanas.bindokas@ch.doe.gov

Is this a High Visibility Project (Y/N):

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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)	1,917	0	1,917	1,917	1,917				0	0	0	0	0	0	0	
PBS Baseline (constant 1999 dollars)	1,917	0	1,917	1,917	1,917				0	0	0	0	0	0	0	
PBS EM Baseline (current year dollars)	1,917	0	1,917	1,917	1,917				0	0	0	0	0	0	0	
PBS EM Baseline (constant 1999 dollars)	1,917	0	1,917	1,917	1,917				0	0	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)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%			2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

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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: 10/1/1997

Current Projected End Date of Project: 10/1/1997

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	2,157	Actual 1997 Cost:	1,917	Actual 1998 Cost:	
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	240	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			6
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	246				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):	246	Actual quantities were less than anticipated.
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	0	
Additional Amount to Reconcile (+):	0	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	0	

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Project Complete			10/1/1997								
Project Start			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
Project Complete					Y						
Project Start				Y							