

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Oakland**

Site Summary Level: **Lawrence Berkeley National Laboratory**

Project **OK-015 / LBNL Legacy Waste**

Report Number: **GEN-01b**

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

HQ ID: **0277**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The LBNL Legacy Waste Project encompasses the treatment, storage, transport, and disposal of legacy waste generated by previous LBNL operations. The LBNL WM Program also performs the compliance and QA functions necessary to comply with federal, state, and local regulations, and the provisions of DOE Orders. The Legacy Waste project is aimed at working off inventories of waste for which EM is responsible; that is, waste generated prior to transfer of WM operations to the waste generating program.

Technical Approach: Perform limited on-site treatment of low-level waste (decay in place, consolidation). Package and ship legacy waste in accordance with off-site TSDF requirements. LBNL is evaluating many LLW treatment and disposal options, in order to identify the most cost-effective treatment and disposal option, which minimized long-term liability, for each of several waste streams.

Inventories of legacy waste have accumulated and must be worked off in order to allow the HWHF to continue to receive newly-generated waste while operating within its prescribed safety envelope. FY99 was the first year where Disposition Maps had to separately identify Legacy Waste vs. Newly Generated Waste. In submitting data to the AVS system, Legacy Waste will show up in this project for FY98, however, funds were not reallocated to this project for that year. Prior to FY99, funds were allocated by Activity Data Sheets (ADS), which did not separately identify Legacy Waste vs. Newly Generated Waste. Consequently, in FY98, funds to support the Berkeley Lab Waste Management activities were funded by the single ADS, SF-3931. Beginning in FY99, fund and waste metrics will be identified by PBS for both the Legacy Waste project and the Newly Generated Waste Project.

Project Status in FY 2006:

Project should be complete by FY2003.

Post-2006 Project Scope:

None.

Project End State

Legacy LLW characterized and shipped for treatment, mainly thermal, and subsequent burial of treatment residuals. LLW may prove to be decayed and will be recycled/disposed according to its new, lower hazard classification. At LBNL, no inventory of legacy waste will remain, but the HWHF will continue to through-process newly-generated waste.

Cost Baseline Comments:

No contingency was used. Detailed WBS was constructed and each activity cost and schedule-estimated, then rolled up and sorted by waste type, driver, etc.

Safety & Health Hazards:

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Project Description Narratives

The HWHF is the primary collection and packaging facility for radioactive, hazardous, and mixed wastes at LBNL. Radioactive wastes consist primarily of compactible dry active waste, noncompactible (e.g. tools & equipment) rad waste, scintillation vials containing radioactive water-soluble fluids, animal carcasses, and waste tritium adsorbed on silica gel. Over 50 different isotopes can be present in LBNL rad waste, but usually at relatively low levels. Most of the rad waste which enters the HWHF is categorized as contact-handled, Category I low-level waste (LLW), but a portion (<10%) is Category III LLW or transuranic waste. Rad waste processing at the HWHF can include sampling, compaction, solidification, adsorbed tritium encapsulation, waste decontamination, radioactive decay, and packaging waste per DOT requirements for off-site treatment and disposal.

The HWHF also processes mixed (MW) and nonradioactive hazardous wastes (HW), including poisonous chemical solids, organic flammable chemicals, carcinogenic materials, liquid organic solvents, corrosive acids and bases, and waste oil. In broad terms, the range of isotopes and radioactivity in MW accepted at the HWHF is similar to that of LLW. Sampling and some waste treatment (neutralization, desensitization, consolidation) can be performed at the HWHF as needed. The majority of waste is packaged per DOT requirements for off-site treatment and disposal but some waste that has been fully neutralized and/or decayed can be discharged to the local POTW.

The majority of S&H accidents that could occur are those that are common in ordinary industries. The accidents that could have the greatest impact or highest consequence are a transportation accident, a facility fire, a spill, or an external fire or earthquake. These accident scenarios were studied during the Final Safety Analysis (reference: FSAD for the HWHF at LBNL, April 15, 1997). FSAD calculations confirm that the facility will operate as a low-hazard facility as defined by DOE-ETM-STD-5502-94 if proper controls are maintained. This means that all accidents studied would result in less than 20 rem committed effective dose equivalent (CEDE) to less than five maximally exposed onsite individuals, and less than 5 rem CEDE to the maximally exposed offsite individual. Offsite radiological consequences from the postulated accidents are more than 10 times below regulatory limits for radiation exposure.

It is important to note that LBNL can generate LLW and MW which cannot be processed at the HWHF because either the radioactivity levels are too high, or MW contains some constituents which the HWHF is not permitted to accept. The HWHF will operate within the safety envelope only if key controls are continuously maintained (see next section).

Safety & Health Work Performance:

Before new activities begin or a work process changes significantly in the HWHF, the WM Group consults with IH, OS, RP, and FP specialists as appropriate. There is no direct S&H resource as the WM Group writes or updates procedures as appropriate, and updates the HASP and safety analyses documentation, and procurement of PPE. LBNL WM does not forecast S&H FTE needs for a typical year, as these are overhead-funded resources that are called upon as needed. The LBNL WM Operations Team (currently funded by EM) is managed by a Team Leader and field work is supervised by a Lead Technologist. These two positions direct the day-to-day work of the WM Technicians who handle the waste. At least one of these people has a RP background and at least one has a chemical safety background.

PBS Comments:

LBNL is located mainly in the City of Berkeley and adjacent to the University of California, Berkeley campus. The property is owned by the University and leased to DOE. Local interest in LBNL operations, specifically the environmental and human health impacts thereof, is very high. Inspectors from the City of Berkeley are on site regularly and LBNL management frequently addresses the local city council and holds periodic public meetings. Continued support of a sound WM Program for LBNL operations is key to maintaining local public support of the multidisciplinary research conducted at LBNL.

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Project Description Narratives

Baseline Validation Narrative:

The LBNL Waste Management activity was validated by DOE/OAK Environmental Programs Division, Cost Estimating Group in February 1996. A detailed review of the activities and associated costs were examined against the technical scope, budget, and schedule baselines provided by the laboratory. The cost validation identified areas for streamlining which were recommended for a phased-in approach. The Waste Management activities were revalidated by the U.S. Army Corp of Engineers in early December 1996 for the initial Ten Year Plan submittal.

General PBS Information

Project Validated? Yes **Date Validated:** 2/13/1996
Has Headquarters reviewed and approved project? No
Date Project was Added: 12/1/1997
Baseline Submission Date: 7/13/1999
FEDPLAN Project? Yes

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

Project Identification Information

DOE Project Manager: Robert Kong
DOE Project Manager Phone Number: 510-637-1522
DOE Project Manager Fax Number: 510-637-1646
DOE Project Manager e-mail address: robert.kong@oak.doe.gov
Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

1997-2006	2007-2070	1997-2070	1997	Actual	1998	Actual	1999	2000	2001	2002	2003	2004	2005	2006
Total	Total	Total		1997		1998								

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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 Baseline (current year dollars)	7,119	0	7,119	643	685			1,228	1,498	1,500	1,500	750	0	0	0	
PBS Baseline (constant 1999 dollars)	6,848	0	6,848	643	685			1,228	1,459	1,431	1,401	686	0	0	0	
PBS EM Baseline (current year dollars)	7,119	0	7,119	643	685			1,228	1,498	1,500	1,500	750	0	0	0	
PBS EM Baseline (constant 1999 dollars)	6,848	0	6,848	643	685			1,228	1,459	1,431	1,401	686	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%		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: 9/30/2003

Current Projected End Date of Project: 9/30/2003

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	8,241	Actual 1997 Cost:	685	Actual 1998 Cost:	
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	7,556	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			204
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	7,760				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):	1,554	With upcoming transfer to SC, Legacy Waste inventory was clarified and revised.
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:	6,206	
Additional Amount to Reconcile (+):	-1	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	6,205	

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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
Complete Legacy Waste Workoff	OK015-24		9/30/2003								Y
Project Start Date			10/1/1989								

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 Legacy Waste Workoff	OK015-24				Y	Y	1	1	1		
Project Start Date				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														
Storage	M3													
MLLW														
Comm. Disp.	M3	0.00	0.00	0.00	0.00		0.00							
LLW														
Treatment	M3	0.40	0.00	0.40	0.00		0.00	0.00	0.00	0.00	0.00	0.40		
LLW														
Storage	M3							67.40	64.40	60.00	22.80	0.00		
LLW														
Comm. Disp.	M3	28.20	0.00	28.20	0.00		0.00	0.00	1.00	4.40	10.60	12.20		
LLW														
Ship to DOE Disp.	M3	36.80	0.00	36.80	0.00		0.00	0.00	0.00	0.00	26.60	10.20		

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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
MLLW													
Storage	M3												
MLLW													
Comm. Disp.	M3												
LLW													
Treatment	M3												
LLW													
Storage	M3												
LLW													
Comm. Disp.	M3												
LLW													
Ship to DOE 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													
Storage	M3												
MLLW													
Comm. Disp.	M3									0.00			
LLW													
Treatment	M3									27.40			
LLW													
Storage	M3												
LLW													
Comm. Disp.	M3									54.20			

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
LLW										
Ship to DOE Disp.	M3									36.80