

Project Baseline Summary Report

Data Source: **EM CDB**
Operations/Field Office: **Richland**
Site Summary Level: **Hanford Site**
Project **RL-TP09 / K Basin Deactivation**

Report Number: **GEN-01b**
Print Date: **3/9/2000**
HQ ID: **0409**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: Deactivation activities include: performing facility assessment and characterization activities; developing NEPA and other regulatory documentation, deactivation plans, long term surveillance and maintenance (LTS&M) plans, deactivation endpoints and a turnover package; performing project management and associated baseline control activities; flushing, isolating and blanking of process or subprocess systems; removing radioactive and hazardous materials and mixed wastes including disposition of the basin water and spent ion exchange columns; deactivating non-essential systems and utilities; removing excess materials and equipment where economical; reconfiguring systems to facilitate LTS&M and eventual decontamination and decommissioning (D&D); "mothballing" of systems necessary for LTS&M and D&D; performing surveillance and maintenance (S&M) of the facility and maintaining safety and security envelopes during deactivation; performing limited decontamination of basin walls and stabilizing of radioactive contamination; closing facility penetrations to prevent bird, animal and weather intrusion; and maintaining safety, security and regulatory compliance.

¹ Technical Approach: Monitoring and S&M of these facilities will be performed as necessary prior to and during deactivation to ensure they are kept in a safe and compliant status. Stakeholders and Regulators will be actively involved during selection of deactivation alternatives and performance of deactivation.

Initially, facility assessments and a Turnover Memorandum of Agreement with the Spent Nuclear Fuel Project will be developed. The EM-40 End Point Criteria, will be developed and the scope of deactivation actions will be identified. Alternatives to performing deactivation (and associated technologies) will be explored and preferred alternatives selected. Once deactivation alternatives are selected, a project schedule will be developed and resource loaded. A conceptual cost estimate will be developed along with a Deactivation Plan and Project Management Plan.

Establishment of the PMP will help ensure that needed funding is identified and the basis for it is understood. Lessons learned will be captured and shared with other organizations.

Project Status in FY 2006:

This project will not complete before the end of FY 2006. KW Basin will be completed in September 2006. However, turnover of KW Basin will occur in FY 07 along with KE Basin and the other 100K Area facilities that are part of the scope of this project.

Post-2006 Project Scope:

Completion of KE Basin stabilization and the other 100K Area facilities will occur the end of June 2007. The Basins will be dry, unoccupied, and will

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no longer have any active systems. The K Basins facilities will only require quarterly surveillance and maintenance and will remain in LTS&M until they are finally D&D.

Project End State

Execution of this project results in deactivation of the K Basin facilities, the first step in the facility decommissioning process. Deactivation and D&D must be completed to allow for efficient Operable Unit remediation. Although the end states for the Hanford Site have not yet been determined, it is expected that areas along the Columbia River be remediated for recreational use. Only the reactor core structure is expected to remain, with all other facilities demolished.

Cost Baseline Comments:

The size, complexity, hazard category, and contamination as a result of past operation are major factors contributing to the project cost. The current project cost estimate and schedule are based upon the following key assumptions:

Since the total scope to deactivate these facilities to a "caretaker" status has NOT yet been determined, beginning in FY 02, facility assessments and a Turnover Memorandum of Agreement with the Spent Nuclear Fuel Project will be developed. The EM-40 End Point Criteria, will be developed and the scope of deactivation actions will be identified. Alternatives to performing deactivation (and associated technologies) will be explored and preferred alternatives selected. Once deactivation alternatives are selected, a project schedule will be developed and resource loaded. A conceptual cost estimate will be developed along with a Deactivation Plan and Project Management Plan to capture the official project baselines.

Sufficient funding will be available in FY 2002 and FY 2003 to permit the development of project management plans and necessary environmental documentation so that physical work can begin immediately after 100K Area facilities turnover.

Both Basins and associated 100K Area facilities are assumed to be turned over to this project no later than September 1, 2003.

Nuclear Materials and Spent Nuclear Fuel inventories in all facilities are assumed to be removed prior to their transfer into this project.

A reduction in radiation levels through the use of either additional shielding or removal of radionuclides will be necessary to achieve acceptable background radiation levels at KE Basin. Both basins will require some form of radiological contaminant fixative application on the basin walls prior to removal of basin water.

Existing NEPA documentation is sufficient to allow deactivation of the CVDF, both basins and associated ancillary facilities.

No line item upgrade projects will be required to safely deactivate the basins.

Both KE and KW Basin water can be cleaned up by the existing water purification system at each basin to allow the water to be disposed of at the 200 East Area Effluent Treatment Facility (ETF). The ETF will be able to obtain a permit modification to allow it to accept the basin IXC treated basin water for disposition.

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No additional safety documentation is necessary to deactivate the basins. Only a revision to the existing safety basis will be necessary to allow deactivation to take place under a reduced hazard classification.

Hanford Site assigned radiological dose allocations will not result in impacts to basin deactivation schedules.

No funding is included to safely store, treat or disposition SNF.

No funding is included for spent fuel, bulk sludge or debris removal. Once all the fuel, high activity sludge and debris have been removed from each basin the surveillance and maintenance costs can be reduced by at least 50% due to the reduction in hazard classification.

No basin operating funds are included until after 9/1/03.

The Cold Vacuum Drying Facility will not be grossly contaminated when it is turned over for deactivation (i.e. contamination will only reside within process piping, tanks and ductwork).

The cost profile includes S&M during deactivation, and deactivation. Turnover of the 100K Area facilities to EM 40 is assumed to occur the end of June 2007, so no long term surveillance and maintenance costs beyond this date are included.

Currently proposed TPA milestones (negotiations are nearly complete) will NOT be achievable and renegotiation will be necessary due to the slip in turnover of the 100K Area facilities to FSP for deactivation.

A 2.7% escalation rate was used.

Safety & Health Hazards:

The 100K Area facilities have exceeded their design life, and even though various system upgrades have taken place, many building systems and other infrastructure are well beyond their design life and continue to deteriorate. Basin water contains radionuclides and other contaminants and must be removed. KE Basin walls and floor contain residual radioactive and hazardous contaminants, the level of which will either need to be reduced or covered with additional shielding. Basin equipment and other miscellaneous items will need to be removed to accomplish a reduction in wall and floor contamination. Residual wall and floor contaminants will need to be fixed in place since the basins do not have HEPA filtration systems. The water purification system, water makeup system, monitoring and instrumentation systems, electrical system, fire protection system, and ventilation systems will need to be deactivated and utilities disconnected or isolated. Facility penetrations will need to be sealed.

Safety & Health Work Performance:

ES&H activities include providing industrial hygiene, industrial safety, radiation protection, emergency preparedness and associated ES&H management and oversight during performance of surveillance and maintenance and deactivation activities.

Industrial Hygiene activities include anticipation, recognition, evaluation and control of health and safety hazards through prejob safety analysis and

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personnel protective clothing and equipment recommendations.

Industrial Safety activities include administration of electrical safety; machinery and machine guarding; personnel protection; accident investigation and reporting; high stored energy system safety; hoisting , rigging and material handling; lock-out/tag-out; confined space controls; platform, manlift and scaffolding usage; and welding and cutting safety.

Radiation Protection activities include ALARA programs; utilization of equipment, instruments and procedures to minimize or mitigate radiological exposure; and controlling radiation sources.

PBS Comments:

Since the K Basin facilities are located near the Columbia River and the public has river access, it is vitally important that this project be funded to remove the basin water and residual basin contaminants to a level that will not result in overexposure to remaining on-site workers or the public. Currently, water in the KE Basin acts as a shield for highly contaminated basin concrete walls and floor and a containment barrier to prevent the release of contamination to the atmosphere. If the water level is lowered, contamination on the basin walls and floor is expected to cause the annual allowable offsite radiological dose limit to a member of the public and on-site worker radiological dose limit to be exceeded. Therefore decontamination of the KE Basin surfaces will be necessary to allow water removal.

Baseline Validation Narrative:

Professional judgement

General PBS Information

Project Validated? **Date Validated:**

Has Headquarters reviewed and approved project? Yes

Date Project was Added: 12/1/1997

Baseline Submission Date:

FEDPLAN Project? Yes

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

Project Identification Information

DOE Project Manager: James E. Mecca

DOE Project Manager Phone Number: 509-376-7174

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General PBS Information

DOE Project Manager Fax Number: 509-376-0695
DOE Project Manager e-mail address: james_e_mecca@rl.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	
	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
PBS Baseline (constant 1999 dollars)	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
PBS EM Baseline (constant 1999 dollars)	0	0	0						0	0	0	0	0	0	0	0
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

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	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 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
			2.10%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
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
2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%			

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 10/2/2007

Current Projected End Date of Project:

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	109,728	Actual 1997 Cost:	Actual 1998 Cost:
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	109,728	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	2,963
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	112,691		

Project Cost Changes

Cost Adjustments Reconciliation Narratives

Cost Change Due to Scope Deletions (-):

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Project Reconciliation

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:	112,691
Additional Amount to Reconcile (+):	-112,691
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Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	0