

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Oak Ridge**

Site Summary Level: **Oak Ridge Reservation**

Project **OR-441 / ETPP Surveillance & Maintenance - Def.**

Report Number: **GEN-01b**

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

HQ ID: **0140**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose -

The purpose of the ETPP Surveillance & Maintenance (S&M) program is to ensure adequate containment and site control at shutdown facilities waiting decommissioning or reuse to ensure the health and safety of the public, site workers, and the environment. This is accomplished through a systematic program of inspections, surveillances, instrumentation calibration and building maintenance. These activities are designed to cost effectively manage the legacy materials remaining in the facilities; ensure sufficient containment is in place by process equipment and building structures; and that classified Technologies and residual material are adequately protected.

Background -

The ETPP, formerly known as the Oak Ridge K-25 Site was built as part of the Manhattan Project during World War II to supply enriched uranium for nuclear weapons production. Construction began in 1943 with the K-25 Building, the first diffusion facility for large-scale separation of U235. The K-25 building was fully operable by August 1945. Additional buildings involved in the enrichment process were operable by 1956. Through 1964, the site was used primarily for the production of highly enriched uranium for nuclear weapons. In response to the national postwar emphasis on nuclear power, plant operations were modified to include the production of uranium compatible with reactors used to generate electric power.

From 1959 to 1969, the focus shifted to the production of commercial-grade, low enrichment uranium. Because of the declining demand for enriched uranium, the enrichment process was placed on standby in 1985 and shutdown permanently in 1987. The site was also a host for centrifuge facilities constructed as part of a program to develop and demonstrate uranium enrichment technology. These facilities have also been shutdown.

Scope -

The ETPP S&M-Defense PBS consists of several subprojects. This subprojects and associated scope are as follows:

Centrifuge Facilities S&M - Routine surveillances are conducted on 21 facilities formerly used to support development of the gas centrifuge enrichment process. The purpose of these surveillances is to identify deficiencies, perform minor corrections, and initiate corrective actions. Surveillance operations include: asbestos surveys, inspecting low-level waste areas, hazardous materials control areas, fire extinguishers, radioactive material storage areas, exit lights, sump pumps and facility inspections.

Facilities are maintained in a condition that will contain radiological and hazardous contamination; prevent release of hazardous materials to the environment; protect the health and safety of workers; and maintain safeguards and security systems for classified technology. Roofs are routinely inspected and preventative, minor and emergency repairs are completed as required. Facility Status Reviews (FSR) are performed annually.

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Reindustrialization Support - The scope of this subproject is to provide support to the management and implementation of the DOE Reindustrialization program by supplying personnel to work with DOE and CROET in the areas of Lessee Support, Regulatory Affairs, Communications, Cost Analysis, Account Executive support, and Technology Transfer.

ETTP Infrastructure Services - The scope of this subproject includes services necessary to maintain the ETTP Infrastructure until such a time as facilities are either re-used by non-federal tenants or D&D. Major elements of these services include:

Fire Protection - This scope includes all services required to prevent and control fires at the 1,500-acre site.

Utilities - This scope includes the services provided through the CROET for utility management, operations, maintenance, monitoring and a major repairs and rehabilitation program for the site.

Security and Shift Operations - This scope includes the resources required to provide appropriate levels of protection for classified matter, information and government property including the monitoring of alarms and dispatch of protective forces.

Environment, Safety & Health Programs - This scope includes the resources required to maintain compliance with the milestones and deliverables described in the environmental regulations and permits issued for operations across ETTP. Including the Clean Water Act, NEPA, NHPA, TOA, EPCRA, HSWA and CERCLA. Other elements of scope include the NIOSH Worker Study, Facility Safety Program, Criticality Safety Program, Asbestos Management Program, Dose monitoring & reporting and Industrial Safety Program and the Industrial Hygiene Program.

Real Property Management Program - This scope includes the resources required to provide general maintenance and electrical power for approximately 316 structures at ETTP, many of which are deteriorating and contain hazardous wastes and contaminated material. Also included is the general maintenance of roads, land acreage along the roads, sidewalks and parking areas.

Custodial Services - This scope includes the resources required to provide custodial services for Bechtel Jacobs self-performed activities.

Infrastructure Capital Improvements & Repair Projects - The scope of this subproject includes the resources required to maintain the integrity of general use facilities and infrastructure at ETTP such as implementation of major construction activities, renovations and major systems upgrades.

Technical Approach -

The ETTP S&M program is required to maintain surplus facilities in compliance with federal and state regulations and DOE orders. The DOE has mandated that its facilities are managed in a safe and environmentally sound manner and its contractors abide by applicable laws and regulations. The DOE has promulgated orders in many cases that provide guidance to its contractors on how these regulations should be interpreted and implemented.

S&M involves walk-through inspections to ensure compliance with federal and state regulations and applicable DOE Orders. The S&M program performs periodic building inspections, assessments, prioritization activities, requests funding for corrective actions, identifies deficiencies that would otherwise insult the environment, jeopardize the public or ETTP personnel's health and safety, or adversely affect national security. Program

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responsibilities include identification and initiation of the appropriate corrective actions for roof leaks, steam leaks, air leaks safety concerns, and asbestos deterioration throughout various facilities. Additionally shutdown equipment, hazardous and radiological wastes must be properly controlled and maintained in a safe condition. There is an ongoing effort to remove these hazardous materials and hazardous wastes through corrective actions and thereby reduce risks within the facilities. In addition to the interior building inspections, the building exteriors are inspected for structural integrity, radiological protection, needed maintenance, postings, housekeeping and security concerns. The S&M program will place or maintain surplus facilities in a safe shutdown condition using a risk-based approach while operating within the constraints of available funding. The intent of the program is to maintain the facilities in an acceptable condition that assures protection of workers, the public and the environment until such time that CERCLA response actions are completed and/or facilities are transitioned to private tenants for reuse.

The technical approach for the Reindustrialization Support activities is to provide all necessary services to meet the end objective of placing private sector business in previously used facilities at ETPP and to improve the methods of achieving these results. The strategy is to work with all the various entities to provide as smooth a transition as possible from Government use to private use of reuse facilities.

The ETPP Infrastructure Capital Improvements and Repair Projects accomplishes its goals to manage and control capital construction and infrastructure support projects through four stages of work. The first stage is identifying and validating the projects to be funded. Projects identified will be to maintain critical buildings and systems required to support the completion of the EM missions or support projects for facilities and/or systems which have been identified for long-term use. Additionally, identified projects can be upgrades or replacements with a short-term economic payback (3-4 years); or actions necessary to mitigate environmental, safety and health concerns.

The second stage is the satisfying and administering budgeting requirements necessary to fund projects that have been identified for a specific year. The third stage is to manage, track and report upon projects that have been funded and are in progress. The fourth and final stage is to proper close out of the project.

Project Status in FY 2006:

This PBS (ETTP S&M - Defense) consists of four subprojects, but only one, ETPP Centrifuge S&M, will be completed prior to the end of FY 2006. It will be completed in FY 2004.

Post-2006 Project Scope:

The following three subprojects will be completed after the end of FY 2006:

- Reindustrialization Support
- ETTP Site Infrastructure Services
- ETTP Infrastructure Capital Improvement and Repair

All three of these projects are split funded with PBS OR-443 (ETTP S&M - D&D Fund).

Project End State

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The East Tennessee Technology Park has a mission as a non-Federal industrial park, and D&D of certain buildings is on the critical path to achieve this mission.

Cleanup will be appropriate for Unrestricted/Uncontrolled industrial use for all areas of land.

No restricted areas will remain.

Cost Baseline Comments:

The DOE EM Life Cycle Baseline recently issued in draft form from Bechtel Jacobs Company LLC to DOE-ORO is the cost basis for this PBS. The ETTP LCB combined the existing scopes of work, schedules, and cost estimates from the Fiscal Year Baseline (FYB) three-year planning window with newly-prepared scopes of work, schedules, and cost estimates for the work outside the three-year window to create Watershed LCB from FY 2000 to the completion of the work.

Following development of scope statements, cost estimating models and feasibility study estimates were used for creating the cost estimates in the Life Cycle Baseline.

1. Cost Estimating Models - Cost estimating models were developed for the majority of new Remedial Action, Decontamination and Decommissioning, and Surveillance and Maintenance projects. These innovative models were developed in concert with DOE, utilizing published cost databases such as RACER, ECHOS, and R. S. Means. Actual costs of cleanup work already completed, and previously detailed cost estimates were also utilized. These models were utilized when no other estimates existed, or when the project team needed to increase the quality of an existing estimate. Additionally, these models were developed to include the appropriate level of estimate detail and quality for a Life Cycle Baseline estimate.

2. Feasibility Study Estimates - Feasibility study estimates were used where appropriate, adjusted as needed (e. g., the LCB assumes classified waste will go to the EMWMF, whereas the feasibility study assumed it would not). For some projects, the feasibility study timing did not allow the use of estimates.

No matter which estimating method was used, each estimate was reviewed for errors, omissions, and consistency in approach across the DOE-ORO EM Program.

Safety & Health Hazards:

Systems and processes are developed under the Integrated Safety Management System (ISMS) implementation to ensure that Bechtel Jacobs Company and its subcontractors perform an analysis of hazards before the start of work. This is accomplished as hazards are identified that are associated with the performance of tasks. We examine available site data, interview people involved in the work processes, and perform site walkdowns. If existing information does not provide adequate data to identify hazards, sampling and characterization is performed, as necessary.

After hazards are identified they are analyzed initially by team walkdowns, which includes only those individuals familiar with the task activities and associated hazards. Information gathered during preparation of the preliminary hazard assessment is used to develop specific subcontract language and a tailored compliance matrix for subcontract packages. This language specifically requires the submittal of an ES&H plan and identification of

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applicable contractual ES&H requirements based on the complexity and risk associated with the work.

Safety & Health Work Performance:

Bechtel Jacobs Company incorporates safety into work performance by:

- Protecting the safety and health of workers, subcontractors, and the public by identifying and mitigating hazards and implementing safe work practices.
- Conserving and protecting environmental resources by integrating environmental protection into the daily conduct of business; fostering a spirit of cooperation with Federal, State, and local regulatory agencies, and using appropriate waste management, treatment, storage, and disposal methods.
- Striving to meet environmental performance goals to allow zero unpermitted discharges to the environment; to comply with all conditions of environmental permits; and, to the extent practicable, reduce waste generation and maximize recycle and reuse potential.
- Utilizing facility safety programs for high hazard activities.
- Fostering a commitment to zero accident performance, which is reflected in company policies, programs, procedures, and plans. All employees are empowered to make "safety first" a reality at their work sites during planning and execution of work.

Bechtel Jacobs Company's Integrated Safety Management System (ISMS) systematically incorporates ES&H controls into management and work practices. It implements the following five safety management functions:

- (1) Define the scope of work,
- (2) Analyze hazards,
- (3) Develop and implement hazard controls,
- (4) Perform work within controls, and
- (5) Provide feedback and continuous improvement.

To verify that the appropriate pre-job activities have been completed effectively, Bechtel Jacobs Company uses a readiness review process for tasks, activities, and facilities. The rigor of this review increases for more hazardous activities.

The reviews provide evidence that the following elements are in place:

- Workers have been involved in the process.
- Hazards have been adequately identified and characterized in the activity hazard assessment.
- Appropriate controls, for the protection of workers, have been identified and will be implemented during the execution of the work.
- Adequate ES&H procedures, emergency response procedures, and applicable environmental permits and plans have been developed and will be implemented during work execution.

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- Adequate levels of ES&H staff, training, and technical support are in place before the start of work.
- Safety systems are operable and maintained according to design specifications.

The project teams to demonstrate that they and the subcontractors are ready to perform work will conduct readiness reviews (excluding operational readiness assessments). All work, including work that does not require DOE approval under the M&I contract, must be approved by Bechtel Jacobs Company.

PBS Comments:

Baseline Validation Narrative:

The Oak Ridge Operations Office Environmental Management Life Cycle Baseline (LCB) was submitted by the Managing and Integrating Contractor, Bechtel Jacobs Company LLC, to DOE-ORO on April 1, 1999. The final draft LCB will be submitted to DOE-ORO on June 1, 1999 after formal receipt and incorporation of comments. A validation of the baseline is in process using an independent contractor to DOE-ORO. The validation will be ongoing until complete and the final validation report is scheduled to be issued on June 25, 1999.

General PBS Information

Project Validated?

Date Validated:

Has Headquarters reviewed and approved project?

No

Date Project was Added: 3/10/1999

Baseline Submission Date: 7/1/1999

FEDPLAN Project? Yes

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

Project Identification Information

DOE Project Manager: W. M. Seay

DOE Project Manager Phone Number: 423-576-1830

DOE Project Manager Fax Number: 423-574-4724

DOE Project Manager e-mail address: seaywm@oro.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)	220,411	31,551	251,962		8,332		7,138	27,998	29,703	30,477	32,498	30,699	27,315	22,723	18,998	
PBS Baseline (constant 1999 dollars)	206,214	26,166	232,380		8,332		7,138	27,998	29,092	29,236	30,534	28,250	24,619	20,059	16,426	
PBS EM Baseline (current year dollars)	220,411	31,551	251,962		8,332		7,138	27,998	29,703	30,477	32,498	30,699	27,315	22,723	18,998	
PBS EM Baseline (constant 1999 dollars)	206,214	26,166	232,380		8,332		7,138	27,998	29,092	29,236	30,534	28,250	24,619	20,059	16,426	
	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)	14,636	6,781	5,085	5,049	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	12,394	5,624	4,131	4,017	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	14,636	6,781	5,085	5,049	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	12,394	5,624	4,131	4,017	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%	2.10%	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:

Current Projected End Date of Project: 9/30/2070

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):		Actual 1997 Cost:	8,332	Actual 1998 Cost:	7,138
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	-15,470	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			-418
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	-15,888				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
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:	-15,888	
Additional Amount to Reconcile (+):	248,268	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	232,380	

Milestones

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Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
ETTP S&M - Def -Project Start	OR441-001		10/1/1996								
ETTP S&M - Def - Project End	OR441-002		9/30/2070								
ETTP S&M - Def. Mission Completion	OR441-003		9/30/2070								

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
ETTP S&M - Def -Project Start	OR441-001			Y							
ETTP S&M - Def - Project End	OR441-002				Y						
ETTP S&M - Def. Mission Completion	OR441-003					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
Rem. Waste														
Disposed	M3	397.00	0.00	397.00					200.00	197.00	0.00	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	Planned 2036 - 2040
Rem. Waste														
Disposed	M3													
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				
Rem. Waste														
Disposed	M3									197.00				

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