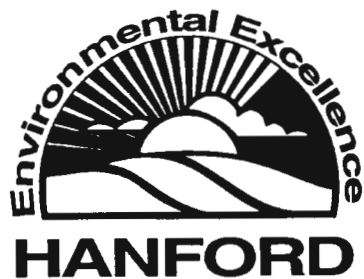


Project Management Plan for the 200-BP-1 Modified RCRA Barrier (Project W-403)

Author
M. A. Buckmaster

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Bechtel Hanford, Inc.
Richland, Washington

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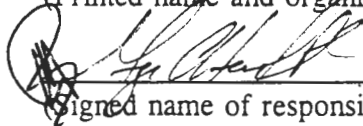
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Authors: M. A. Buckmaster

Approval: G. C. Henckel BHI/PRJ
(Printed name and organization of responsible manager)


(Signed name of responsible manager)


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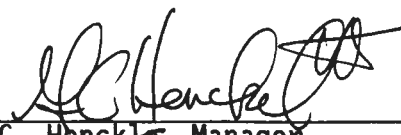
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APPROVALS



M. A. Buckmaster, Cognizant Engineer
200 Source Investigation Remediation
Projects

5/12/94
Date




G. C. Henckle, Manager
200 Source Investigation Remediation
Projects

5/12/94
Date



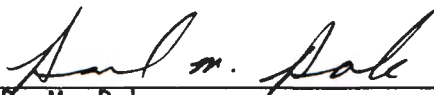
H. D. Downey, Activity Manager
Environmental Restoration Program Office

5/12/94
Date



Environmental Quality Assurance

5/17/94
Date



P. M. Pak
DOE/RL Environmental Restoration

5/25/94
Date

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ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
CDR	conceptual design report
CM	construction management
CQA	construction quality assurance
DOE	U. S. Department of Energy
DOE-RL	DOE, Richland Field Office
Ecology	Washington State Department of Ecology
EPA	U. S. Environmental Protection Agency
ER	environmental restoration
FY	fiscal year
IP	implementing procedure
ICF-KH	ICF-Kaiser Engineers Hanford
MSA	major systems acquisition
NEPA	National Environmental Policy Act
PMP	project management plan
QA	quality assurance
QAPjP	quality assurance project plan
RAO	remedial action objectives
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
TPA	Hanford Facility Agreement and Consent Order (Tri-Party Agreement)
WBS	work breakdown structure
WHC	Westinghouse Hanford Company

1.0 INTRODUCTION

This Project Management Plan (PMP) is intended to address the design and construction of the Modified Resource Conservation and Recovery Act (RCRA) Isolation Barrier over the 216-B-43 through 216-B-50 Cribs, located within the 200-BP-1 Operable Unit. The 200-BP-1 Operable Unit is located within the 200 East Area of the Hanford Site. It is a source operable unit with contaminated soils associated primarily with 10 inactive cribs. Cribs 216-B-43 through 216-B-49 were used for disposal of low-level radioactive liquid waste from the uranium recovery operations in 1955-1956. Crib 216-B-50 was operational from 1965-1975, receiving waste tank condensate from the adjacent 241-BY Tank Farm. A detailed description of the operable unit waste units is provided in Section 2.0 of the 200-BP-1 Work Plan (DOE/RL 1990).

The RCRA Modified Barrier is a multi-layered surface barrier designed to limit human exposure to radionuclides, deter biotic intrusion, and reduce the risk of increased groundwater contamination by future precipitation. It is similar in design to the Hanford Prototype Barrier, with a 50% reduction in the silt layers and elimination of the basalt layer.

The development of permanent isolation barriers in general is a joint effort being conducted by Westinghouse Hanford Company (WHC) and ICF-Kaiser Engineers Hanford (ICF-KH). The definitive design is scheduled to be completed in fiscal year (FY) 1994. Barrier construction will begin in FY 1995. Funding for the isolation barrier is being provided by the U. S. Department of Energy (DOE) Environmental Restoration (ER) Program. This PMP describes the Project Management system to be implemented for the various ER-funded activities associated with the design and construction of the Modified RCRA barrier.

DOE Order 4700.1, "Project Management System," as interpreted by the WHC ER Program Office, shall be imposed only at the ER Major Systems Acquisition (MSA) level. The Barrier Project, a lower tier sub-project to the ER MSA, shall only generate Project Management documentation as required to provide project-specific management guidance. Key documents that will be prepared in parallel to the definitive design as directed by DOE-Richland Operations Office (DOE-RL) include: Project Management Plan, Quality Assurance Project Plan, Safety Analysis, and National Environmental Policy Act (NEPA) documentation. Guidance is provided from DOE-RL in accordance with DOE Order 6430.1A (ltr. 9402939).

2.0 PROJECT OBJECTIVES

2.1 PURPOSE OF FACILITY

The construction of a modified RCRA barrier on the 216-B-43 through 216-B-50 Cribs will provide insight and experience with issues regarding barrier design, construction, and performance. Remedial action objectives (RAOs) were developed in the feasibility study (DOE/RL 1994a), providing the foundation and screening of alternative remediation technologies. The baseline risk assessment for the contaminants of concern, exposure pathways, and allowable exposure limits provided the foundation for the remediation decision.

2.2 TECHNICAL OBJECTIVES

Final remediation and the Record of Decision (ROD) for the 200-BP-1 Operable Unit is based on results of the Feasibility Study Phase I, II, and III Reports (DOE/RL 1994a). Data obtained from the construction of the Hanford Prototype Barrier will be utilized in the development of the design and construction phases of the Modified RCRA Barrier.

The preliminary performance objectives for long term surface barriers are listed below:

1. Limit human receptor exposure to near-surface and subsurface infiltration gravels/soils to maintain receptor risk in the range of 10^{-4} to 10^{-6}
2. Limit biotic exposure to near-surface and subsurface infiltration gravels/soils and contamination migration caused by biological intrusion
3. Limit future impacts to the groundwater by taking measures to minimize infiltration and downward migration of contaminated vadose zone pore water, such that the Applicable or Relevant and Appropriate Requirements (ARARs) do not exceed the risk-based concentrations.
4. Take into account the impacts of the site proximity to the 241-BY Tank Farm on the remedial objectives.
5. Be maintenance free.

2.3 SCHEDULE OBJECTIVES

The design of the Modified RCRA Barrier is scheduled to be completed in FY 1994. Barrier construction will begin in FY 1995.

2.4 COST OBJECTIVES

The design cost is estimated to be \$190,000. Construction cost for the barrier is estimated to be \$2,500,000.

3.0 DESCRIPTION OF PROJECT

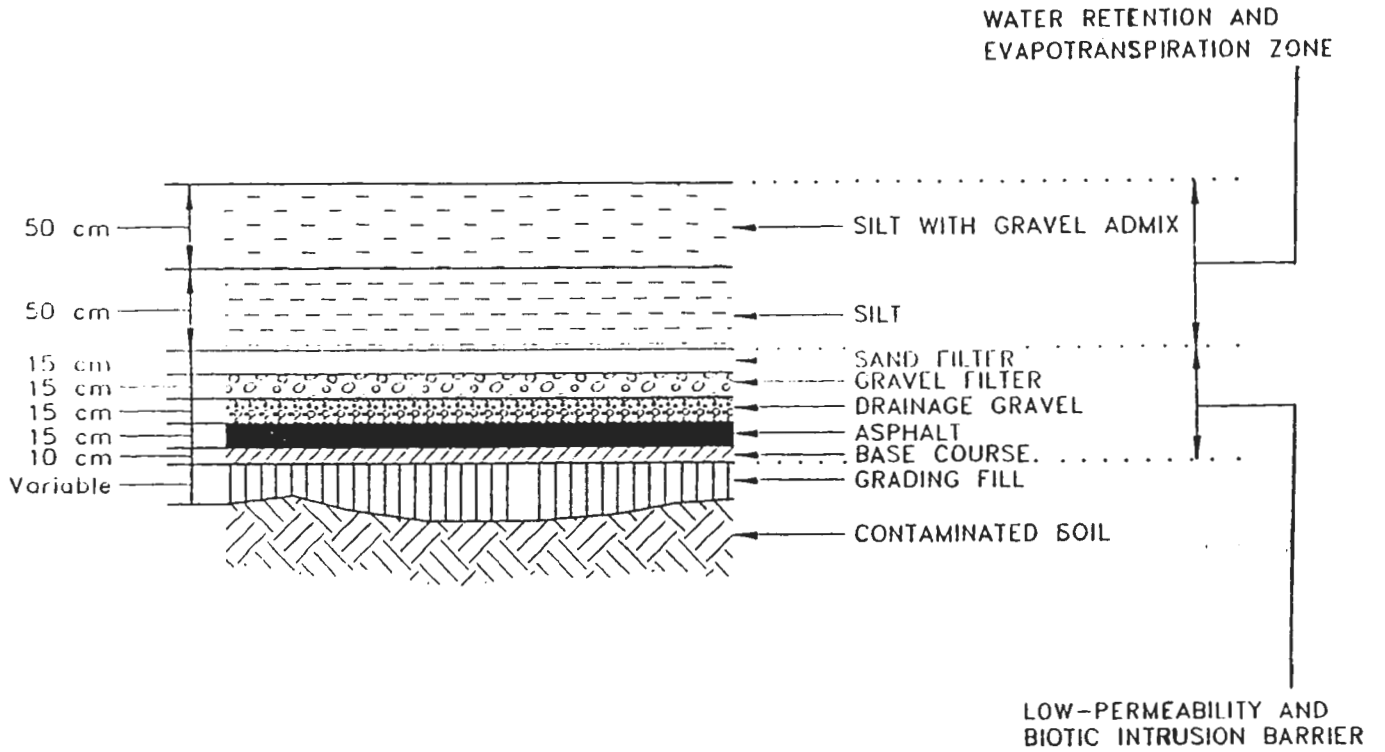
A Modified RCRA barrier will be designed and constructed at the 216-B-43-50 Crib site. Data collected from the construction of the Hanford Prototype Barrier will be incorporated into the development of definitive design media (drawings and specifications) for the modified barrier.

Fundamentally, the protective barrier consists of a fine-soil layer overlying other layers of coarser materials such as sands and gravels (Figure 1). Each of these layers serves a distinct purpose. The fine-soil layer acts as a medium in which moisture is stored until the process of evaporation and transpiration recycle any excess water back to the atmosphere. The fine-soil layer also provides the medium for establishing plants necessary for transpiration to take place.

Sands and gravels are placed directly below the fine-soil layer, creating a capillary break that inhibits the downward percolation of water through the barrier. This layer also functions as a filter to prevent fine soils from penetrating into the void spaces of the coarser materials below. Layers of low-permeability materials, such as asphalt and clay, will be placed below the capillary break. The low-permeability layer(s) will serve as an umbrella-like component to shed any percolating water away from the waste zone, and will also aid in controlling the exhalation of noxious gases that might emanate from certain types of waste.

Long-term performance monitoring will be developed in a Remedial Design Action Plan. The scheduled completion date for the plan is October 1, 1994.

Figure 1. Typical Barrier Cross-Section.



4.0 PROJECT PARTICIPANT RESPONSIBILITIES

Project organization for implementing the design and construction of the prototype barrier is shown in Figure 2. The following sections describe the responsibilities of individual contributors.

4.1 PROJECT MANAGERS

The U.S. Environmental Protection Agency (EPA), DOE, and the Washington State Department of Ecology (Ecology) have each designated one individual as project manager for remedial activities at Hanford. These managers will serve as the primary point of contact for all activities to be carried out under the Hanford Facility Agreement and Consent Order (Tri-Party Agreement [TPA]). The responsibilities of the project managers are given in Section 4.1 of the TPA.

4.2 UNIT MANAGERS

As shown in Figure 2, EPA, DOE, and Ecology will each designate an individual as a unit manager for the 200-BP-1 Operable Unit.

The unit manager from EPA will serve as the lead regulatory unit manager with support from Ecology. The EPA unit manager will be responsible for regulator oversight of all activities required for the 200-BP-1 operable unit.

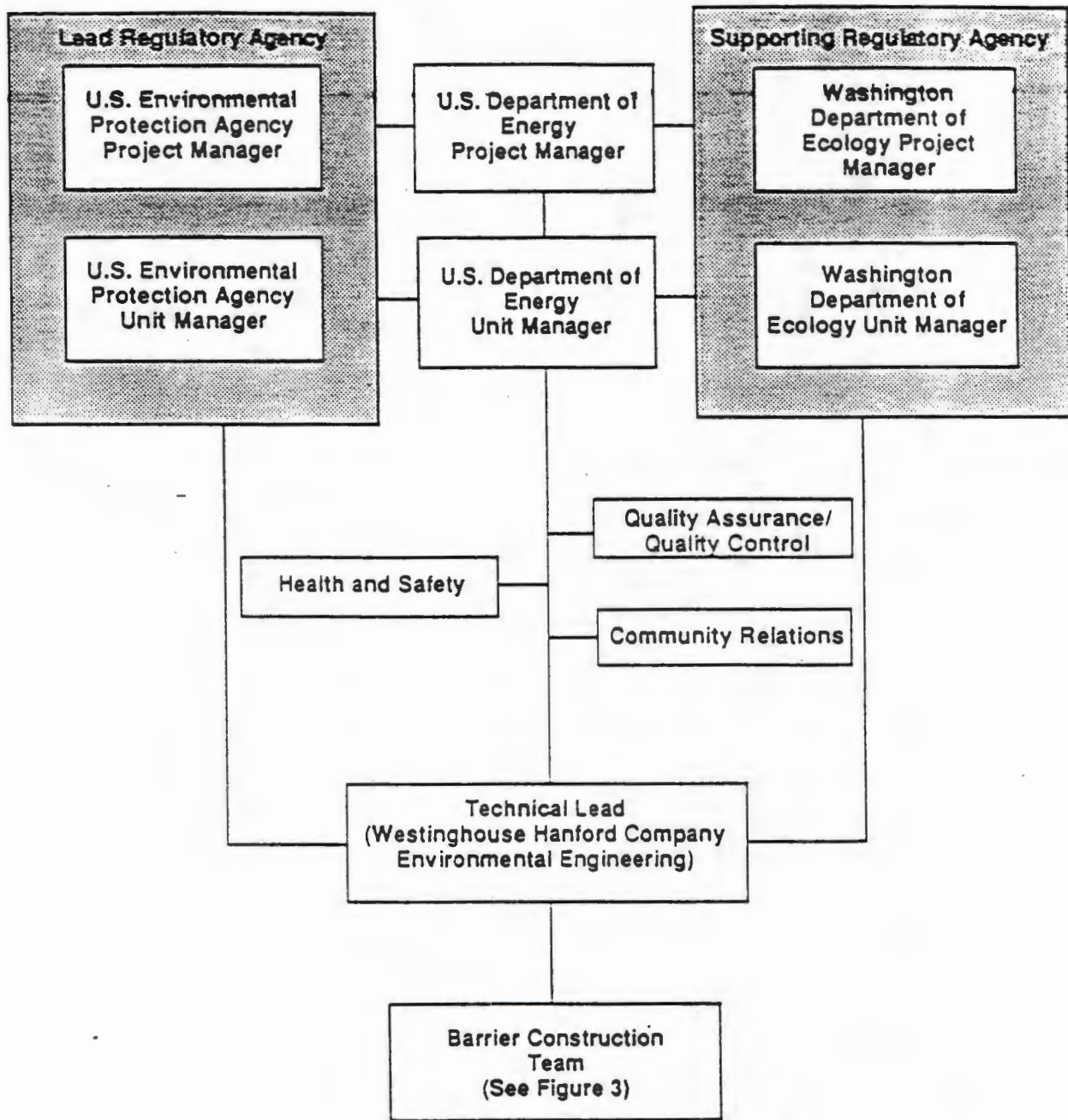
The unit manager from DOE will be responsible for maintaining and controlling the schedule budget and keeping EPA and Ecology unit managers informed as to the status of activities for the 200-BP-1 Operable Unit.

4.3 WESTINGHOUSE HANFORD COMPANY

The overall WHC cognizant responsibility is assigned to Environmental Restoration Engineering, 200 Area Source Investigation Remediation Projects, which organizationally reports up through the WHC Environmental Division to Restoration and Remediation. Cognizant responsibilities include programmatic direction to other participants, compliance to applicable regulatory requirements, and assurance that program objectives are met.

Other WHC organizations, including the departments of Safety, Quality, and Projects, shall provide project support, as required, to the cognizant function during the design and construction of the Prototype Barrier Project. A Field Team Leader will be assigned to

Figure 2. Project Organization Chart.



provide day to day oversight of the construction progress. Health Physics Technicians will be assigned when radiological contamination is suspected. Figure 3 illustrates the organization for the construction of the barrier at the 216-B-43-50 cribs.

4.4 ICF - KAISER HANFORD

Under the direction of the WHC cognizant organization, ICF-KH is assigned the function of Architect/Engineer, Construction Management (CM), and Title III Engineering Services. ICF-KH is assigned the responsibility to prepare definitive design media, provide construction management services for fixed-price construction contractors, and perform Title III Engineering Services, including acceptance inspection and field engineering during construction.

Definitive design, construction management and Title III engineering services shall be provided in accordance with the WHC site-specific Quality Assurance Project Plan (QAPjP) (Buckmaster 1994) and Conceptual Design Report (CDR) (WHC 1994). A separate Construction Quality Assurance (CQA) Plan will be prepared by ICF-KH. Minimum requirements are listed in the QAPjP. The ICF-KH CQA Plan shall be submitted and approved by WHC prior to the start of construction.

5.0 WORK BREAKDOWN STRUCTURE

The modified RCRA Barrier has been identified as the preferred remediation alternative for the 216-43-50 Cribs in the 200-BP-1 Operable Unit. The WHC ER Program Work Breakdown Structure (WBS) locates the Modified RCRA Barrier activity as follows:

Installation Level	Hanford ER Programs
Summary Subproject Level	Remedial Actions
Subproject Level	200-BP
End Function Level	200-BP-1 Operable Unit Remediation Projects

Due to the nature of the ER Programs expense-funded activities, definition of a project-specific WBS at the design and construction level is determined to be not required.

6.0 SCHEDULE

The following milestones have been identified for the Modified RCRA Surface Barrier Project, as described in TPA change requirement M-15-93-01.

<u>Date</u>	<u>Description</u>
2 months after ROD is issued but not before 8/1/94	Submit definitive design
4 months after ROD is issued but not before 10/1/94	Submit Remedial Action Plan
8 months after ROD is issued but not before 2-15-94	Complete bid/Award construction contract
15 months after ROD is issued but not before 10-1-95	Complete remediation activities for 200-BP-1 Operable Unit

7.0 PROJECT EXECUTION

7.1 PROJECT MANAGEMENT ORGANIZATION

In accordance with the DOE "Initial Baseline Guidance for the Office of Environmental Restoration," special provisions are made for ER Projects which qualify under certain requirements as specified in the DOE Orders. Excerpts from the DOE guidance are provided, as follows:

"All Environmental Restoration activities will be managed by defining and controlling scopes, schedules and costs, using a project management structure that is based upon DOE Order 4700.1 requirements."

"Recognizing the uncertainty surrounding many ER-planned activities, EM-40 baselines will have two components, a performance baseline and a forecast baseline. The performance baseline represents the set of criteria (scope, schedule, and cost) that will be the basis for measuring progress or performance through the life of the (project)."

"The forecast baseline represents that portion of the (project) baseline that is defined mostly by assumptions, but must be represented to provide a basis for... planning. The forecast baseline will be based on a set of assumptions that will be updated and improved as the (project) progresses. Eventually, the forecast baseline will become defined in such detail that warrants transition to the performance baseline. Revisions proposed for the forecast baselines are not subject to formal change control, but will be tracked and subjected to prudent project management practices."

"... remediation subprojects are generally comprised of two phases: assessment and cleanup. If the assessment phase is a precursor to establishing the technical requirements for the cleanup phase, these two phases may be baselined in a sequential, time-phased fashion."

7.2 PROJECT MANAGEMENT DOCUMENTATION

The DOE baseline guidance states that ER activities will be controlled using a management structure based upon DOE Order 4700.1, and consequently the RL Implementing Procedure (IP) 4700.1A, "Project Management System." As determined by the WHC ER Program Office, DOE Order 4700.1 and the RLIP 4700.1A are directly applicable to the ER Program only at the MSA level. Project Management System documentation shall only be required at the top project level, and individual sub-projects shall not be required to generate specific sub-project documentation. DOE-RL has given WHC direction to proceed with this strategy as previously stated in the introduction (Letter # 9402939).

In lieu of the specified Project Management System documents (as defined by RLIP 4700.1A), the RCRA Barrier Project shall provide other project-specific documents to provide project guidance. The following provides a cross-reference reflecting where specified document topics are addressed for the Prototype Barrier Project:

<u>RLIP 4700.1A SPECIFIED DOCUMENTS</u>	<u>REFERENCE DOCUMENT</u>
a. Functional Design Criteria	DOE/RL 93-35 <u>Feasibility Study Report for the 200-BP-1 Operable Unit</u>
b. Conceptual Design Report	WHC-SD-EN-CDR-002 <u>Conceptual Design Requirements for the 200-BP-1 Modified RCRA Subtitle C Barrier</u>
c. Project Management Plan	(this document)
d. Site Evaluation Report	ltr - 8C200-94-036
e. Quality Assurance Plan	PMP Section 7.3
f. Permits	PMP Section 7.3

7.3 OTHER PROJECT DOCUMENTS

1. A Remedial Action Plan will be developed to assess barrier performance. The plan will describe the long term monitoring requirements for the 200-BP-1 Operable Unit.
2. A Construction Quality Assurance Plan will be generated in parallel with definitive design activities and will be available prior to start of construction. Specific QA requirements for construction activities shall be imposed on the construction contractor as defined in the ICF-KH CM Plan and the approved construction specifications.
3. Site-specific construction permits required for the prototype barrier (including excavation, drill/blast, tie-in...) will be processed and approved by WHC and provided to the CM.

7.4 PROJECT REPORTS AND MEETINGS

Throughout the construction phase of the Modified RCRA Barrier, construction progress reports will be generated monthly in accordance with the ICF-KH CM Plan and shall address (as a minimum) cost/schedule performance, significant accomplishments, planned activities, construction problems, and potential changes.

The cognizant WHC function shall compile the construction progress report and other programmatic issues into a monthly project progress report which shall be issued to responsible project/program management organizations. The regularity and content of the project reports shall be established to accommodate project needs. Periodic meetings may be scheduled as necessary to provide appropriate management overview.

8.0 PROJECT CONTROL

8.1 BASELINE MANAGEMENT

A change control process will be implemented to record revisions to project baselines, although less formally than may be implemented for a "performance baseline" project. Existing WHC change control procedures shall be utilized to the greatest extent possible; however, certain aspects, including responsibilities, classification of changes, and approval authorities, will be modified to accommodate the Modified RCRA Barrier Project (See Section 8.5, "Change Approval").

8.2 COST AND SCHEDULE CHANGE CONTROL

Cost and Schedule objectives for the construction of the Modified RCRA Barrier Project, (as defined in Section 2.4 and 2.3) shall be reviewed upon completion of Definitive Design, and necessary revision shall be made to the project cost estimate and schedule. Upon approval from the ER Program Office, the project cost estimate and schedule shall constitute the administrative baseline for construction.

Close coordination shall be maintained with the respective program offices to assure compliance to common goals. In the event that additional budgeted resources are required beyond the annual approved budget, a project change request shall be processed in accordance with Section 8.4, "Funds Management" and Section 8.5 "Change Approval."

8.3 TECHNICAL CHANGE CONTROL

Approved definitive design media (drawings, specifications, vendor data, etc.) shall serve as the project technical baseline. A design media change control system shall be implemented as described in the ICF-KH CM Plan. As a minimum, ICF-KH shall maintain traceability for all changes to the approved design media, maintain a set of master drawings reflecting authorized changes, and issue project as-built design media upon completion of construction. Changes shall be authorized in accordance with Section 8.5 "Change Approval."

8.4 FUNDS MANAGEMENT

Project authorization funding for the prototype barrier is currently expense-funded annually to WHC through the DOE ER Program. Annual budget shall be provided for performance of work as defined in the current Five-year Plan, Fiscal Year Program Plans, Financial Plans, Activity Data Sheets, and Technical Task Plans. Necessary modification to the approved administrative baselines (annual budgets, cost estimates, schedules, etc.) shall be handled on a case-by-case basis with the ER Program Office.

8.5 CHANGE APPROVAL

Approval authority for changes to the project baselines shall be in accordance with the "Change Authority Matrix" (Figure 4). Definition of various change classifications is as follows:

Class 1	Changes to any project baseline documentation requiring additional Program Office budget to implement
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Figure 4. Change Authority Matrix.

<u>PROJECT PARTICIPANT</u>	<u>CLASS</u>			
	1	2	3	4
ICF-Kaiser Hanford				
Project Manager	X	X		
Construction Manager		X	X	
Contract Administrator			X	
Field Engineer				X
Westinghouse Hanford Company				
ER Program Office, Activity Manager	X ¹			
Cognizant Engineer, Manager	X	X		
Cognizant Engineer			X	
Field Representative				X

¹ Program Office approval required only for respective Programs. Class I change requests will be approved by RL.

- Class 2 Changes to project baseline design guidance documentation, or project administrative baselines, not requiring additional Program Office budget to implement
- Class 3 Changes to project technical baselines requiring additional budget to implement, utilizing pre-authorized construction contingency budget
- Class 4 Changes to technical baseline documentation not requiring additional budget to implement

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EPA, *Technical Guidance Document: Construction Quality Assurance for Hazardous Waste Land Disposal Facilities*, EPA/530-SW-86-031, U.S. Environmental Protection Agency.

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