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PROGRAM CHANGE CONTROL BOARD
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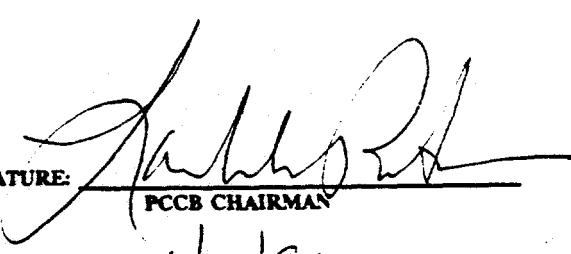
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MASTER

REVISION 3

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**OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
PROGRAM CHANGE CONTROL BOARD
REVISION/CHANGE RECORD**

(1) DOCUMENT NUMBER: DOE/RW-0253
 (2) DOCUMENT TITLE: Program Cost and Schedule Baseline

(3) REVISION DATE/ NUMBER	(4) DCP NUMBER	(5) REVISION/CHANGE DESCRIPTION	(6) PAGES AFFECTED
3/11/91 Rev. 1	32	This complete revision incorporates the initial cost baseline, updated schedule information, and DOE Notice 4700.4 guidance.	All
11/1/91 Rev. 2	50	This includes the addition of the YM Site Characterization Project (YMP) annualized, escalated, total project cost by third level WBS (Table A-1), a revision to the YMP Summary of Cost Baseline Estimates (Table 1 and page 5), the modification of one level 0 milestone title (KD-3 on pages 9, 11 and B-8), the deletion of one level 1 milestone (RR569 on page B-8), the revision of one level 1 milestone description (RM656 on page 11 and page B-9), the revision of the milestone completion criteria on two milestones (R6610 and RM656 on page B-9), and a revision to one WBS element name (ESF in Table 1, Table A-1, and page B-7).	

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to establish quantitative expressions of proposed costs and schedule to serve as a basis for measurement of Program performance. It identifies the components of the Program Cost and Schedule Baseline (PCSB) that will be subject to change control by the Executive Level (Level 0) and Program (Level 1) Change Control Boards (CCBs) and establishes their baseline values. This document also details PCSB reporting, monitoring, and corrective action requirements. The Program technical baseline contained in the Waste Management System Description (WMSD) and the Waste Management System Requirements (WMSR) documents provides the technical basis for the PCSB.

Changes to the PCSB will be approved by the Program Change Control Board (PCCB). In addition to the PCCB, the Energy System Acquisition Advisory Board Baseline CCB (ESAAB BCCB) will perform control functions relating to Total Project Cost (TPC) and major schedule milestones for projects defined as Major System Acquisitions (MSA) or Major Projects (MP) that have reached Key Decision 1 (KD-1). Additional information on how the PCSB is integrated into the OCRWM management system is contained in the Program Management System (PMS) Manual, Draft REV. 4.

1.2 SCOPE

The PCSB establishes baseline values for the Yucca Mountain Site Characterization Project* cost and schedule through submittal of the license application to the Nuclear Regulatory Commission (NRC). Cost and schedule baselines for Monitored Retrievable Storage (MRS) and the Transportation system are established through the start of MRS spent fuel handling building operations. Other components of TPC, such as Program management (Federal salaries, benefits, travel, etc.), are not baselined in the PCSB.

The PCSB also contains a long-term reference schedule from the end of the baseline period through completion of the Program's life cycle (i.e., the decommissioning of the Mined Geologic Disposal System (MGDS) and MRS). The primary purpose of the long-term reference schedule is to establish a schedule which is consistent with the scope and time frame of the Program's technical baseline. This long-term reference schedule will be used largely to analyze the schedule impacts

- The MSA term "Yucca Mountain Site Characterization Project (YMP)" is synonymous with the terms "MGDS" and "repository" which are used interchangeably throughout this document.

associated with change proposals to the technical baseline. By maintaining a Program long-term reference schedule, Program schedule changes resulting from changes in the technical baseline can be formally documented. The long-term reference schedule will not be subject to ESAAB BCCB review, but will be controlled only by the PCCB.

OCRWM regularly prepares cost estimates that extend beyond the end of the cost baseline. The source for all such cost estimates will be the most recent approved Total System Life Cycle Cost (TSLCC) analysis performed in conjunction with the annual fee adequacy assessment.

1.3 REFERENCES

- a. U.S. Department of Energy, Secretary of Energy Notice, "Strengthening the Department of Energy Project Management System," SEN-27-90, August 15, 1990.
- b. U.S. Department of Energy, DOE Order 4240.1I, "Designation of Major System Acquisitions and Major Projects," April 11, 1989.
- c. U.S. Department of Energy, DOE Order 4700.1, "Project Management System," March 6, 1987.
- d. U.S. Department of Energy, DOE Notice 4700.4, "Baseline Change Control Process at the Executive Level," August 6, 1990.
- e. U.S. Department of Energy, Office of Civilian Radioactive Waste Management, Program Management System Manual (DOE/RW-0043), Draft Rev. 4, October 1990.
- f. U.S. Department of Energy, Office of Civilian Radioactive Waste Management, Program Change Control Procedure (DOE/RW-0223REV3P), September 1990.

1.4 RELATIONSHIP TO OTHER OCRWM COST/SCHEDULE INFORMATION

The PCSB is OCRWM's primary mechanism for cost/schedule control and performance measurement. More detailed cost and schedule baselines, subject to change control, shall be maintained at the project level. These other cost and schedule baselines shall support and be subordinate to the PCSB. Other OCRWM management plans that contain costs or schedule milestones shall acknowledge the PCSB as the controlling document.

The PCSB is also the primary source of cost and schedule information released outside OCRWM. As shown in Figure 1, PCSB costs are related to budget formulation, TSLCC analysis, and the Fee Adequacy Report. The cost baseline may require updating as a result of the budget formulation process. Likewise, budget data, along with related schedule information contained in the PCSB, will be used as input into the TSLCC analysis. The TSLCC analysis is then used as the cost basis to calculate the adequacy of the ongoing fee paid by waste generators/owners into the Nuclear Waste Fund to fully recover the costs of the Program. This information is published in the annual Fee Adequacy Report.

The schedule baseline shall be the basis for externally-released schedule information in the Project Decision Schedule, the Scientific Investigation Plan Through Repository License Application (Intermediate-Term Decision Plan-ITDP), and the Near-Term Decision Plan (NTDP). The schedule baseline shall define the reference case schedule for project budget formulation. Critical path networks that show the major activities and activity relationships for the PCSB milestones shall be maintained and shall define the basis for the baseline milestone dates. The Program Summary Network is based on more detailed Yucca Mountain Site Characterization Project, MRS, and Transportation summary networks and contains major activities and logic for PCSB milestones.

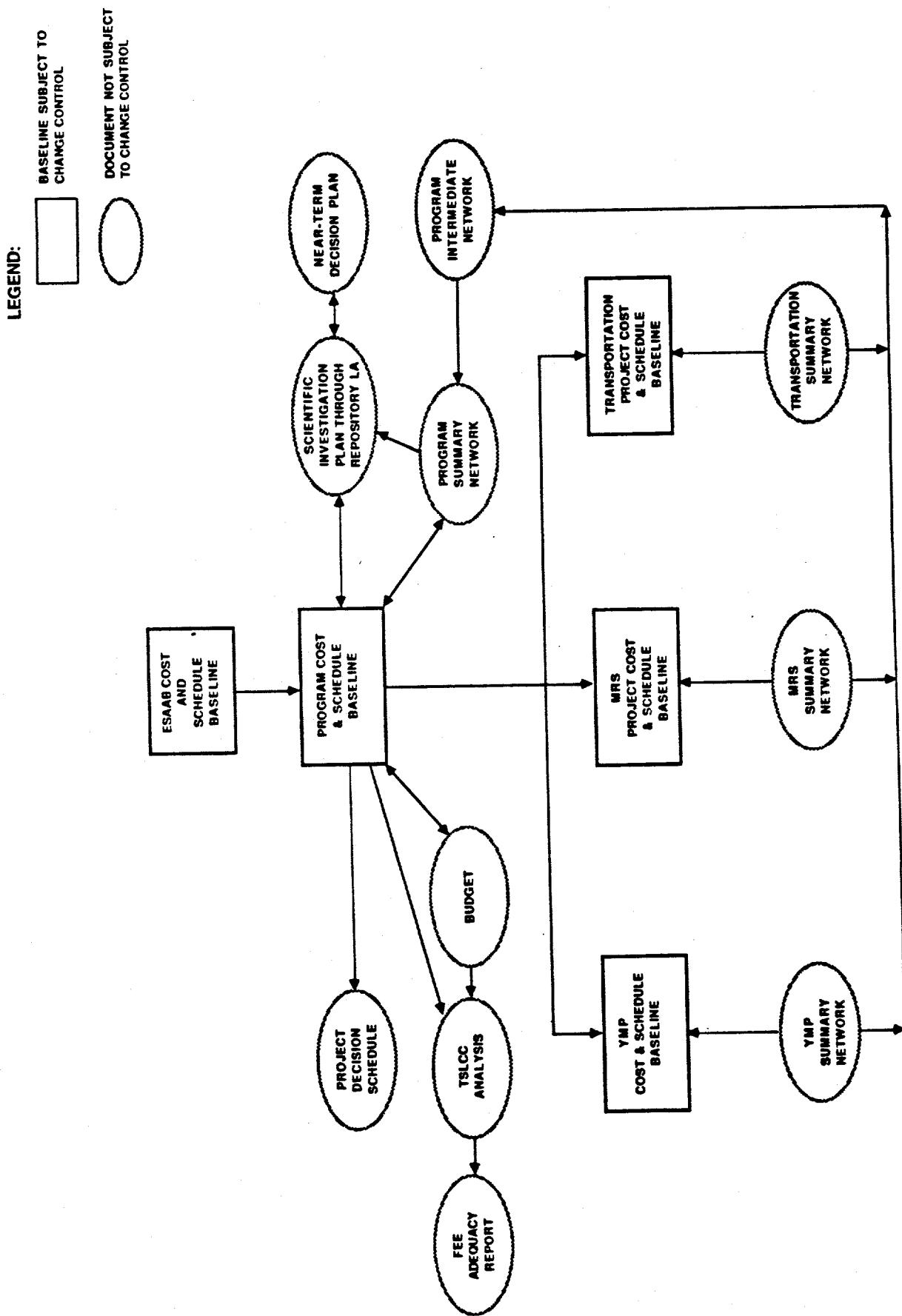


FIGURE 1. HIERARCHY OF COST AND SCHEDULE PLANS

2.0 COST AND SCHEDULE BASELINE DATA

2.1 COST BASELINE

The Program cost baseline contained herein is an initial cost baseline. It is subject to independent review and will be changed as necessary to reflect improved cost data, changing assumptions, future budget appropriations, etc. The cost baseline is a controlled list of estimated costs expressed on a TPC basis. Annualized cost estimates will be added in the future to provide greater detail. The cost baseline is defined to Level 3 of the Program Work Breakdown Structure (WBS) for the Yucca Mountain Site Characterization Project, MRS, and Transportation program elements. The current WBS (to Level 3) for these program elements is presented in Figure 2. The Program WBS Dictionary (under development) will contain the detailed breakdown of work scope and products defined for the Program elements.

The annualized cost baseline (to Level 3 of the WBS) for the Yucca Mountain Site Characterization Project, MRS facility, and Transportation system, along with assumed annual deflation factors, will be added later to Appendix A. All costs in the PCSB are expressed in year-of-expenditure dollars. The TPC, as defined in DOE Order 4700.1, includes all development and evaluation costs, operating costs associated with test and evaluation, and plant and capital equipment costs specifically associated with a project through the start of operations. It is the sum of Total Estimated Cost (TEC) plus all other costs identifiable with the project. TEC is defined in DOE Order 4700.1 as the cost of the project, including the cost of land and land rights, engineering design and inspection costs, direct and indirect construction costs, and initial equipment costs necessary to place the plant or installation in operation, whether funded out of operating or plant and capital equipment appropriations.

The responsible organization for the Yucca Mountain Site Characterization Project cost baseline data is the Office of Geologic Disposal. The responsible organization for the MRS and Transportation cost baseline data is the Office of Storage and Transportation. Responsible organizations shall maintain backup information that defines the basis for the cost baseline.

2.1.1 ESAAB Cost Baseline

The TPC for the Yucca Mountain Site Characterization Project that shall be controlled by the ESAAB BCCB is \$6.319 billion (see Table 1).

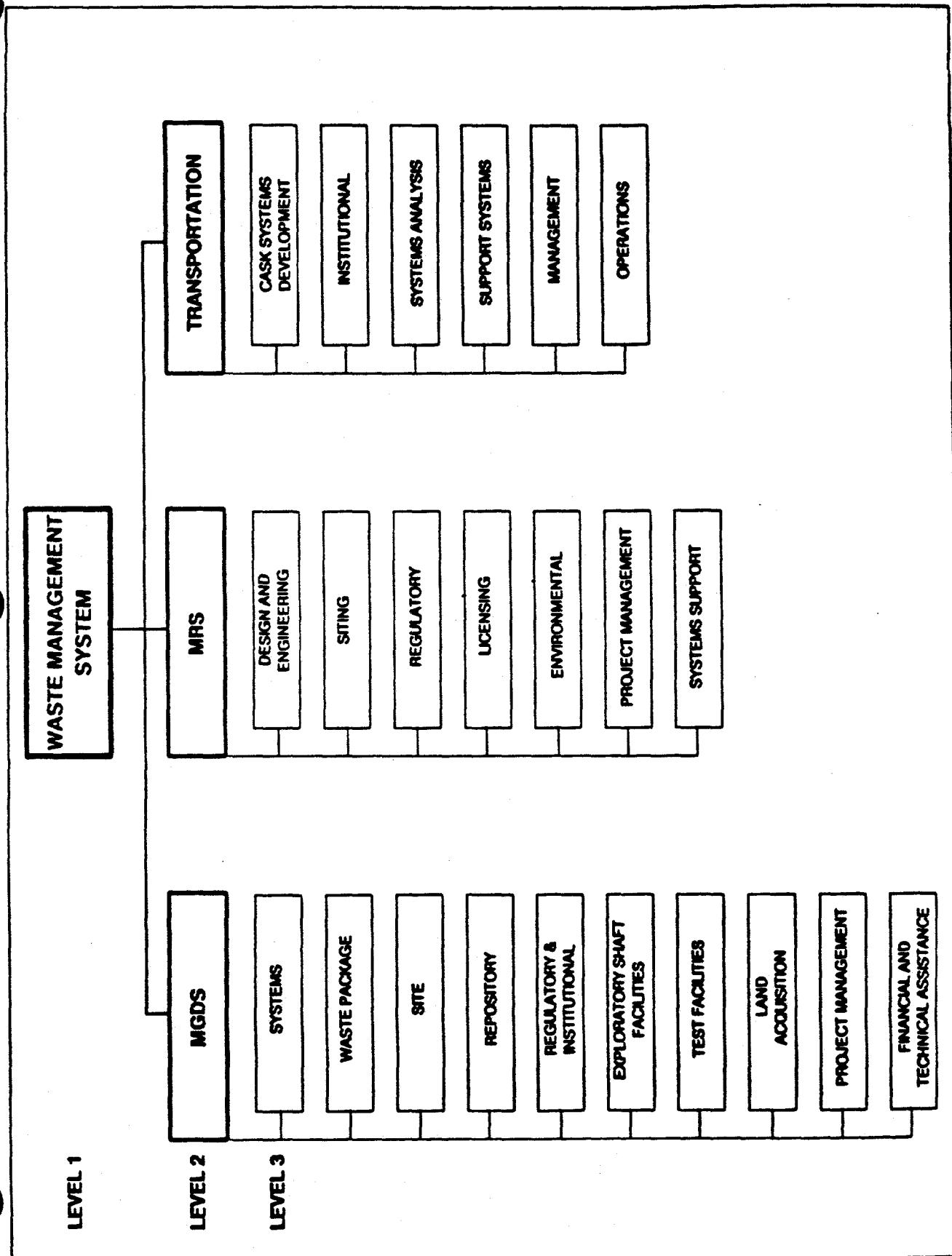


FIGURE 2. PROGRAM SUMMARY WORK BREAKDOWN STRUCTURE FOR MGDS, MRS AND TRANSPORTATION

TABLE 1.
SUMMARY OF COST BASELINE ESTIMATES*
(millions of year-of-expenditure dollars)

Yucca Mountain Site Characterization Project	Total Project Cost	6,319.3
	Systems	493.7
	Waste Package	296.2
	Site	1,214.7
	Repository	519.4
	Regulatory and Institutional	438.2
	Exploratory Studies Facilities	899.4
	Test Facilities	357.1
	Land Acquisition	3.9
	Project Management	1,131.5
	Financial and Technical Assistance	965.2
MRS	Total Project Cost	807.5
	Design and Engineering	210.1
	Siting	11.5
	Regulatory	17.8
	Licensing	21.8
	Environmental	23.6
	Project Management	51.5
	Systems Support	76.4
	Construction	394.8
Transportation	Total Project Cost	524.8
	Cask Systems Development	229.1
	Institutional	56.2
	Systems Analysis	29.2
	Support Systems	130.8
	Management	16.2
	Operations	63.3

* Only the Yucca Mountain Site Characterization Project has reached KD-1

2.1.2 Program Cost Baseline

The costs that shall be controlled by the PCCB are presented in Table 1. All costs are expressed in year-of-expenditure dollars to WBS Level 3.

2.2 SCHEDULE BASELINE

The schedule baseline is a controlled list of Program milestones that satisfy the criteria described in Table 2. Appendices B, C, and D contain the schedule milestones for the Yucca Mountain Site Characterization Project, MRS, and Transportation, respectively. The following information is included for each milestone in the schedule baseline:

Milestone Description - A concise description of an event. The milestone description shall be appropriate for release outside DOE. The first word of the milestone description shall be a verb.

Milestone Identification - A unique identification number. The first character of the identification shall be R, M, or T for Repository (Yucca Mountain Site Characterization Project), MRS, or Transportation, respectively.

Milestone Responsibility - The cognizant Associate Director responsible for performing the activity associated with the milestone.

Highest-Level Change Control Board - The highest-level change control board shall be specified. All milestones controlled by the ESAAB BCCB will also be controlled by the PCCB.

Milestone WBS - The work breakdown structure assignment (see Figure 2) for the activity associated with the milestone. Milestones shall be assigned to Level 3 of the Program WBS. The WBS coding structure shall be consistent with the Program WBS dictionary.

Milestone Completion Criteria - A description of the milestone scope of work and required actions which signal the completion of the milestone by the responsible organization. Where applicable, the completion criteria shall identify major prerequisites for the milestone.

Baseline Date - The approved date that shall be used for internal planning and external reporting.

Critical path networks that show the major activities and activity relationships for PCSB milestones shall be maintained by cognizant Associate Directors.

Table 2.
Criteria for Assignment of Milestones to the PCCB

1. The milestone is mandated by the NWPA, as amended; or
2. The milestone is included in the Scientific Investigation Plan Through Repository License Application (Intermediate-Term Decision Plan-ITDP) and subject to OCRWM control; or
3. The milestone is related to a MSA decision that is approved by the DOE Acquisition Executive (AE) per DOE Order 4700.1; or
4. The milestone is a major engineering or regulatory interface with other Waste Management System elements; or
5. The milestone is related to issuance or revision of a Program-level planning document such as the WMSR document; or
6. The milestone is on the Program critical path to operation of the Waste Management System.

2.2.1 ESAAB Schedule Baseline

Milestones controlled by the ESAAB BCCB are a subset of the Program schedule milestones for the Yucca Mountain Site Characterization Project contained in Appendix B. The schedule milestones for the Yucca Mountain Site Characterization Project MSA that shall be controlled by the ESAAB BCCB are:

Start New Surface-Based Testing (KD-X)	1/92*
Start Final ESF Title II Design (KD-2)	10/91
Start ESF Portal Construction (KD-3)	11/92
Start ESF In-Situ Test Phase (KD-4)	9/95
Start Repository License Application Design (KD-1A)	6/96
Issue Draft Environmental Impact Statement	10/99
Notify State of Proposed Site Selection	10/99
Issue Site Recommendation Report to the President	4/01
Submit License Application to the NRC	10/01

ESAAB BCCB-controlled milestones and a cost baseline for the MRS will be established following completion of the MRS conceptual design.

- ESAAB BCCB approval will be requested in conjunction with KD-2.

2.2.2 Program Schedule Baseline

Figure 3 shows all the PCSB milestones that shall be subject to change control. The complete set of baseline schedule milestones for the Yucca Mountain Site Characterization Project, MRS, and Transportation systems are contained in Appendices B, C, and D, respectively. Appendix E contains the long-term reference schedule.

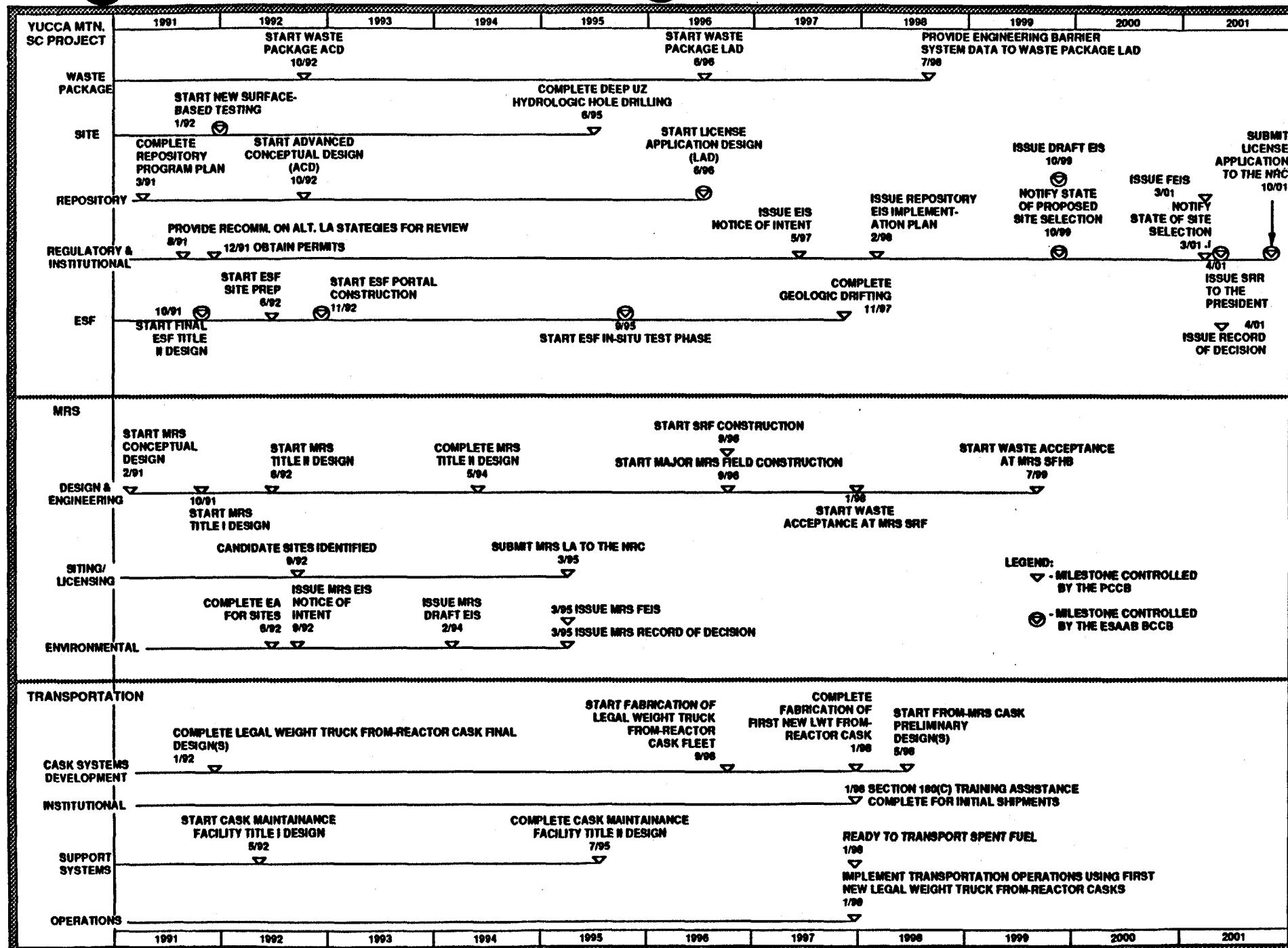


FIGURE 3. PROGRAM COST AND SCHEDULE BASELINE - REVISION 2
MILESTONES SUBJECT TO CHANGE CONTROL

3.0 REPORTING

3.1 MAJOR SYSTEM ACQUISITION REPORTING

Program element/project organizations responsible for MSAs are required to submit quarterly progress reports to the Director, OCRWM, with a copy to the Director, Program Control and Administration Division (PCAD), Office of Program and Resources Management (OPRM). The Director, PCAD, will provide a copy of the quarterly progress reports to the Office of Program/Project Management (PR-23). These quarterly progress reports shall contain cost and schedule performance data in compliance with DOE Order 4700.1, Chapter IV, Part B, and requirements in the OCRWM PMS Manual, Draft REV. 4.

3.2 NEAR-TERM DECISION PLAN REPORTING

The monthly Near-Term Decision Plan (NTDP) milestone status reports shall be the primary mechanism for reporting actual and forecast dates for PCSB milestones. All PCSB milestones within the horizon of the NTDP shall be included in the NTDP. Appendix F contains a chart describing NTDP schedule control requirements.

4.0 MONITORING AND CONTROL

4.1 OPRM MONITORING REQUIREMENTS

The Program element/project organizations are responsible for compliance with PCSB reporting, corrective action, and change control requirements. On a monthly basis, the Director, PCAD, shall analyze the contents of the monthly NTDP milestone report to ensure that responsible organizations have complied with PCSB reporting requirements. The data reported by these organizations shall then be evaluated against the reported status of baseline milestones and the Program summary schedule critical path networks maintained by OPRM. Particular emphasis shall be placed on assessing the impact of milestones within the reporting horizon on milestones outside the current reporting period. The analysis will determine whether the forecast values exceed the established schedule thresholds presented in Sections 4.2 and 4.3.

On a quarterly basis, the Director, PCAD, shall analyze the contents of the quarterly MSA reports from the Program element/project organizations. The reported data shall then be evaluated against the reported status of baselined cost and schedule contained in the PCSB. The analysis will determine whether the forecast values exceed the established thresholds presented in Sections 4.2 and 4.3.

Based on the analyses of the NTDP milestone report and the MSA report, the Director, PCAD, shall ensure that the responsible Program element/project organizations have complied with PCSB corrective action and change control requirements. The Director, PCAD, may request that responsible organizations develop a Corrective Action Plan (CAP) or prepare a change proposal as described in Section 5.0. The Director, PCAD, shall publish the results of the NTDP and MSA report analysis in a quarterly report.

4.2 ESAAB BCCB THRESHOLDS

Thresholds for the ESAAB BCCB are contained in DOE Notice 4700.4. The cost threshold for ESAAB BCCB involvement is a change of $\geq \$50,000,000$ in TPC. The baseline TPC value for the Yucca Mountain Site Characterization Project is shown in Table 1.

The ESAAB BCCB schedule threshold is a schedule milestone change of ≥ 6 months. The ESAAB schedule baseline against which the ESAAB BCCB threshold will be measured for the Yucca Mountain Site Characterization Project is contained in Section 2.2.1. A Baseline Change Proposal (BCP) shall be submitted to the ESAAB BCCB when changes exceeding the above thresholds cannot be mitigated by a CAP.

4.3 PCCB THRESHOLDS

The PCCB thresholds are designed to control cost and schedule performance through WBS level 2.

The cost thresholds for PCCB involvement are:

WBS level 2: $\geq \$25,000,000$

Cost performance shall be measured at WBS level 2, against the cost baseline contained in Table 1.

The schedule threshold for PCCB involvement is a schedule milestone change of ≥ 3 months. The Program schedule baselines against which schedule performance shall be measured are in Appendices B, C, and D. A Document Change Proposal (DCP) to the PCCB shall be submitted if the above cost or schedule thresholds are exceeded and cannot be mitigated by a CAP.

5.0 CORRECTIVE ACTION

The monitoring and control procedures described in Section 4.0 are designed to identify problems related to cost and schedule performance that require senior management attention. Forecast deviations from the PCSB that exceed threshold values shall trigger a formal corrective action process.

5.1 CORRECTIVE ACTION PLANS

CAPs shall be prepared to eliminate or minimize forecast variances that exceed PCSB thresholds. The organization responsible for the cost or schedule milestone shall prepare the CAP. A CAP may require a change to other items in the cost, schedule, or technical baseline; or it may require some other change in the planning basis, but not result in a baseline change. The CAP shall describe the baseline variance; the specific workaround actions; the effect of the workaround on the variance; and the cost, schedule, and technical impact. CAPs for variances exceeding established ESAAB BCCB or PCCB thresholds shall be approved by the Director, OCRWM.

CAPs that result in changes to other items in the cost, schedule, or technical baseline shall be processed in accordance with the appropriate change control procedure.

5.2 CHANGE CONTROL

The PCCB controls the issuance and revision of the PCSB. If at any time the responsible organization forecasts a change to the cost or schedule baseline that exceeds a PCSB threshold and cannot be mitigated by a CAP, the responsible organization shall submit a DCP to the PCCB. In addition, proposed changes to the ESAAB cost baseline (TPC) and the ESAAB schedule baseline that exceed specified ESAAB thresholds shall also be evaluated by the ESAAB BCCB, with the exception of directed changes which require only information copies of the change to be provided to the ESAAB BCCB. The PMS Manual (DOE/RW-0043), Draft REV. 4 and the Program Change Control Procedure (DOE/RW-0223REV3P) contain additional guidance on change control. A flowchart of the cost and schedule baseline monitoring and control process is shown in Figure 4.

5.2.1 ESAAB BCCB

The ESAAB BCCB was established by DOE Notice 4700.4 in order to strengthen the DOE program/project management process at the executive level. The ESAAB BCCB exercises executive level control over certain changes to the cost and schedule baselines for MSAs and MPs. DOE Notice 4700.4 defines ESAAB BCCB

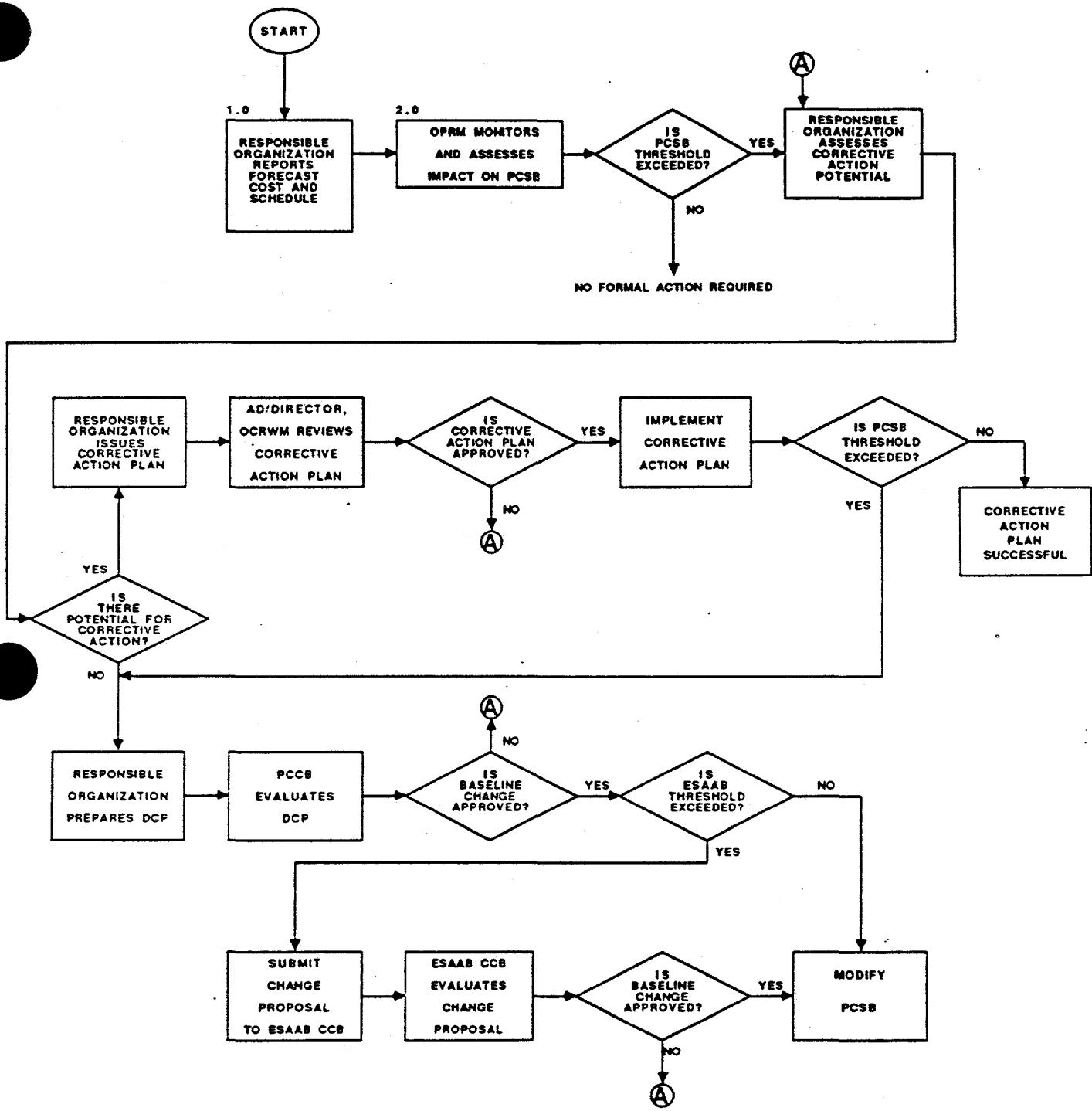


FIGURE 4. PCSB MANAGEMENT PROCESS

control and the thresholds that require ESAAB BCCB involvement. ESAAB BCCB cost and schedule thresholds are discussed in Section 5.0.

An MSA or MP, as designated in DOE Order 4240.1I, which has reached KD-1 is subject to ESAAB BCCB control. Baselines shall be approved by the AE at KD-1. The initial scope, cost, and schedule baselines shall be derived from the Conceptual Design Report (CDR) and related project documentation. Additional information concerning MSAs, MPs, and KDs can be found in DOE Order 4700.1 and DOE Notice 4700.4.

The Yucca Mountain Site Characterization Project and the MRS are designated MSAs. Designation of the Yucca Mountain Site Characterization Project and the MRS as MSAs can be found in DOE Order 4240.1I.

The radioactive waste transportation system being developed by OCRWM is not designated as an MSA or MP by DOE Order 4240.1I. For purposes of ESAAB BCCB control, costs and schedules related to the transportation system will be viewed as a major procurement within both the Yucca Mountain Site Characterization Project and the MRS MSAs.

5.2.2 PCCB

Responsibilities and authorities of the PCCB are established in the OCRWM Program Change Control Procedure (DOE/RW-0223REV3P). All proposed changes to the PCSB require the approval of the PCCB. The PCCB also has responsibility for referring changes to Level 0 cost and schedule baselines exceeding ESAAB BCCB thresholds to the ESAAB BCCB.

5.2.3 Project CCBs

Cost and schedule data controlled by the PCCB may also be controlled by lower-level CCBs. Implementation of changes that exceed PCCB thresholds shall be subject to PCCB approval.

ACRONYMS

AD	-	Associate Director
AE	-	Acquisition Executive
BCCB	-	Baseline Change Control Board
BCP	-	Baseline Change Proposal
CAP	-	Corrective Action Plan
CCB	-	Change Control Board
CDR	-	Conceptual Design Report
DCP	-	Document Change Proposal
DOE	-	Department of Energy
ESAAB	-	Energy System Acquisition Advisory Board
ITDP	-	Intermediate-Term Decision Plan (Through Repository License Application)
KD	-	Key Decision
LA	-	License Application
MGDS	-	Mined Geologic Disposal System
MP	-	Major Project
MRS	-	Monitored Retrievable Storage (Facility)
MSA	-	Major System Acquisition
NRC	-	Nuclear Regulatory Commission
NTDP	-	Near-Term Decision Plan
OCRWM	-	Office of Civilian Radioactive Waste Management
OPRM	-	Office of Program and Resources Management
PCAD	-	Program Control and Administration Division (OPRM)
PCCB	-	Program Change Control Board
PCSB	-	Program Cost and Schedule Baseline
PMS	-	Program Management System
RW	-	Radioactive Waste
SEN	-	Secretary of Energy Notice
TEC	-	Total Estimated Cost
TPC	-	Total Project Cost
TSLCC	-	Total System Life Cycle Cost Analysis
WBS	-	Work Breakdown Structure
YMP	-	Yucca Mountain Site Characterization Project
YMPO	-	Yucca Mountain Site Characterization Project Office

Appendix A
COST BASELINE

Revision 2

Table A-1.

COST BASELINE - YUCCA MOUNTAIN PROJECT
(thousands of year-of-expenditure dollars)

WBS Element	PRE FY1990	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	POST FY2001	TOTAL
Systems	56,891	24,043	41,427	44,471	46,414	47,186	46,396	45,403	43,415	39,298	32,719	24,765	1,280	493,708
Waste Package	73,538	11,119	22,021	30,218	31,444	30,897	31,845	26,281	16,749	10,317	5,175	3,334	3,286	296,224
Site	247,202	39,949	114,367	144,645	143,235	121,127	109,042	88,406	67,089	55,607	41,956	40,231	1,877	1,214,733
Repository	87,517	5,048	26,425	29,473	30,159	34,254	36,606	55,003	55,736	56,910	51,302	47,212	3,739	519,384
Reg. and Institutional	64,283	19,415	24,700	25,636	29,814	29,873	33,218	35,912	38,457	41,762	43,972	50,410	728	438,180
Exploratory Studies Facilities	91,052	14,987	19,823	126,061	94,563	143,133	151,838	86,358	86,776	47,274	34,821	2,718	0	899,404
Test Facilities	16,908	6,825	6,000	38,414	59,360	45,082	45,301	36,873	35,272	34,063	30,485	2,514	0	357,097
Land Acquisition	1,025	260	196	202	209	216	224	232	326	337	348	359	0	3,934
Project Management	192,667	50,375	70,249	80,152	96,214	83,508	96,864	98,964	91,167	93,289	85,970	86,892	5,184	1,131,495
Financial and Technical Assistance	42,867	22,153	14,860	105,244	106,572	107,017	108,673	101,167	97,455	91,979	86,906	80,152	133	965,178
TPC	873,950	194,174	340,068	624,516	637,984	642,293	660,007	574,599	532,442	470,836	413,654	338,587	16,227	6,319,337

Note:

- a. Includes Exploratory Studies Facility (ESF) Ramp Configuration.
- b. Includes Power Upgrade for Exploratory Studies Facility in 1.2.7.
- c. Duration is January 1983 through submittal of license application.
- d. Includes operating and capital, in thousands of year-of-expenditure dollars.
- e. TPC is Total Project Cost.
- f. For the fiscal years 1993-2001, Financial and Technical Assistance costs were determined by taking other costs (5% for grants, 3% for University Funding and 2% for Impact Assistance), adding \$50 million for a Benefits Agreement and adding projected PETT costs.
For FY's 1992 and prior, grant estimates are those in the PCSB Rev.1.

Table A-2.

COST BASELINE - MRS
(millions of year-of-expenditure dollars)¹

WBS Element	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 ²	TOTAL
Design and Engineering											
Siting											
Regulatory											
Licensing											
Environmental											
Project Management											
Systems Support											
Construction											
Total											

Annualized costs are under development and will be included in the next revision of the PCSB.

¹ Expressed as budget authority.

² FY 1999 costs are estimates expressed through end of fiscal year.

Table A-3.

COST BASELINE - TRANSPORTATION
(millions of year-of-expenditure dollars)¹

WBS Element	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 ²	TOTAL
Cask System Development											
Institutional											
System Analysis											
Support Systems ³											
Management											
Operations ⁴											
Total ⁵											

Annualized costs are under development and will be included in the next revision of the PCSB.

¹ Expressed as budget authority.

² FY 1999 costs are estimates expressed through end of fiscal year.

³ Includes Support Systems capital and construction costs.

⁴ Includes Operations capital costs.

⁵ Estimates may not add to totals because of independent rounding.

Appendix B

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT SCHEDULE BASELINE*

- WBS element numbers in the PCSB for YMP are based on those in Draft Revision 4 of the OCRWM PMS Manual. Differences in the WBS used by YMPO will be resolved when the Program WBS is revised.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

WBS: Waste Package

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RM233	01Oct92	1.02	20	PCCB

MILESTONE DESCRIPTION

Start Waste Package Advanced Conceptual Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes the Project Manager, YMP, to start design work. Prerequisites include DOE approval of the waste package advanced conceptual design requirements document (WPDR) (YMP milestone M231), and a readiness review. Waste package conceptual design activities will involve development of conceptual designs which will be used for fabrication of the waste package prototype.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RT074	30Jun96	1.02	20	PCCB

MILESTONE DESCRIPTION

Start Waste Package License Application Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes the Project Manager, YMP, to start design work. Prerequisites include DOE approval of the license application design requirements document (YMP milestone M627), and a readiness review. Waste package license application design activities will involve choosing from the conceptual designs developed during ACD and finalizing the details for the purpose of preparing the license application design.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R2201	30Jul98	1.02	20	PCCB

MILESTONE DESCRIPTION

Provide Engineering Barrier System Data to Waste Package License Application Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, submits a report to the Director, OCRWM, documenting that the results of 18 months of engineering barrier system test data have been provided for the waste package license application design.

WBS: SITE

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RYI08	21Jan92	1.03	20	ESAAB

MILESTONE DESCRIPTION

Start New Surface-Based Testing

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, notifies the Secretary of Energy that new surface-based testing has started. Prerequisites include the completion of OCRWM QA qualification audits, obtain permits (milestone R5102), and ESAAB approval of the start of new surface-based testing.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RP509	30Jun95	1.03	20	PCCB

MILESTONE DESCRIPTION

Complete Deep Unsaturated Zone Hydrologic Hole Drilling

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, submits a report to the Director, OCRWM, documenting that the geophysical logs have been completed for the last deep unsaturated zone borehole.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

WBS: Repository

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RYM05	01Mar91	1.04	20	PCCB

MILESTONE DESCRIPTION

Complete Repository Program Plan

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Yucca Mountain Site Characterization Project issues the Repository Program Plan as an approved document. The document will describe all essential elements and establish the technical approach of the repository up to submission of the license application.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RN430	01Oct92	1.04	20	PCCB

MILESTONE DESCRIPTION

Start Repository Advanced Conceptual Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes the Project Manager, YMPO, to start design work. Prerequisites include a readiness review.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RM458	30Jun96	1.04	20	ESAAB

MILESTONE DESCRIPTION

Start Repository License Application Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes the Project Manager, YMPO to start design work. Prerequisites include a readiness review and ESAAB approval of the start of repository LAD.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RYL06	30Aug91	1.05	30	PCCB

MILESTONE DESCRIPTION

Provide Recommendation to the Director, OCRWM, on Alternative IA Strategies for Review

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Associate Director for Systems and Compliance completes review of the Alternative IA Strategies (ATLAS) report and provides recommendations to the Director, OCRWM.

WBS: Reg. & Institutional

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5102	30Dec91	1.05	20	PCCB

MILESTONE DESCRIPTION

Obtain Permits

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, submits a report to the Director, OCRWM, documenting that all site access prerequisites for initiation of new surface-based testing have been met; including permits, land access, endangered species compliance, etc.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5108	31May97	1.05	20	PCCB

MILESTONE DESCRIPTION

Issue Repository EIS Notice of Intent

MILESTONE COMPLETION CRITERIA

This milestone will be complete when notice of document availability is published in the Federal Register.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5142	28Feb98	1.05	20	PCCB

MILESTONE DESCRIPTION

Issue Repository EIS Implementation Plan

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, issues the Repository EIS Implementation Plan as an approved document.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5210	30Oct99	1.05	20	ESAAB

MILESTONE DESCRIPTION

Notify State of Proposed Site Selection

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Secretary of Energy makes notification of proposed site selection required by Section 114(a)(1) of the NWPA, as amended.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5151	30Oct99	1.05	20	ESAAB

MILESTONE DESCRIPTION

Issue Draft Environmental Impact Statement

MILESTONE COMPLETION CRITERIA

This milestone will be complete when notice of document availability is published in the Federal Register.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5161	31Mar01	1.05	20	PCCB

MILESTONE DESCRIPTION

Issue Final Environmental Impact Statement

MILESTONE COMPLETION CRITERIA

This milestone will be complete when notice of document availability is published in the Federal Register.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5220	31Mar01	1.05	20	PCCB

MILESTONE DESCRIPTION

Notify State of Site Selection

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Secretary of Energy makes notification of proposed site selection required by Section 114(a)(1) of the NWPA, as amended.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5200	30Apr01	1.05	20	ESAAB

MILESTONE DESCRIPTION

Issue Site Recommendation Report to the President

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Secretary of Energy submits the site recommendation report to the President. The report will provide a comprehensive statement of the basis for site recommendation, including the FEIS and the other information identified in section 114(a)(1)(a-g) of the NWPA.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5190	30Apr01	1.05	20	PCCB

MILESTONE DESCRIPTION

Issue Record of Decision

MILESTONE COMPLETION CRITERIA

This milestone will be complete when "a concise public record of decision" identifying all alternatives as found in 40 CFR 1505.2 is published in the Federal Register.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5181	30Oct01	1.05	20	ESAAB

MILESTONE DESCRIPTION

Submit License Application to the NRC

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the LA is approved by the Secretary of Energy and submitted to the NRC in accordance with 10 CFR 60.22, requesting permission to start repository construction.

WBS: Exploratory Studies Facility

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R6101	01Oct91	1.06	20	ESAAB

MILESTONE DESCRIPTION

Start Final ESF Title II Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, notifies the Director, OCRWM, of the start of ESF Title II design. Prerequisites include ESAAB approval.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RM645	30Jun92	1.06	20	PCCB

MILESTONE DESCRIPTION

Start ESF Site Preparation

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes the Project Manager, YMPO, to start ESF site preparation at Yucca Mountain. Prerequisites include a readiness review.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RM652	30Nov92	1.06	20	ESAAB

MILESTONE DESCRIPTION

Start ESF Portal Construction

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes the Project Manager, YMPO, to start ESF collar/portal construction. Prerequisites include readiness review, ESAAB approval of ESF collar/portal construction, and acceptance of required design packages.

PROGRAM SCHEDULE BASELINE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R6610	30Sep95	1.06	20	ESAAB

MILESTONE DESCRIPTION

Start ESF In-Situ Test Phase

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, submits a report to the Director, OCRWM, documenting that the in-situ test phase has begun in the Exploratory Studies Facility Main Test Level. Prerequisites include ESAAB approval of the start of the ESF in-situ test phase.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
RM656	30Nov97	1.06	20	PCCB

MILESTONE DESCRIPTION

Complete ESF Development Drifting

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Project Manager, YMPO, submits a report to the Director, OCRWM, documenting that ESF development drifting is complete. Includes drifting to Drill Hole Wash, Ghost Dance Fault, and Imbricate Fault.

Appendix C
MRS SCHEDULE BASELINE

Revision 2

PROGRAM SCHEDULE BASELINE - MRS MILESTONES

WBS: MRS - Design and Engineering

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
MC12	14Feb91	3.01	40	PCCB

MILESTONE DESCRIPTION

Start MRS Conceptual Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete upon successful completion of a readiness review.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1002	31Oct91	3.01	40	PCCB

MILESTONE DESCRIPTION

Start MRS Title I Design

MILESTONE COMPLETION CRITERIA

This milestone is complete when Title I design work begins. Prerequisites include a readiness review and Acquisition Executive approval.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1003	30Jun92	3.01	40	PCCB

MILESTONE DESCRIPTION

Start MRS Title II Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when Title II design begins. Prerequisites include approval of Title I design and Acquisition Executive approval.

PROGRAM SCHEDULE BASELINE - MRS MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1004	31May94	3.01	40	PCCB

MILESTONE DESCRIPTION

Complete MRS Title II Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the final design report is accepted by the Associate Director, Storage & Transportation.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1005	30Sep96	3.01	40	PCCB

MILESTONE DESCRIPTION

Start Simple Receipt Facility Construction

MILESTONE COMPLETION CRITERIA

This milestone is complete when construction activities begin. Prerequisites include a readiness review Acquisition Executive approval, and receipt of a materials license from the NRC.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1006	30Sep96	3.01	40	PCCB

MILESTONE DESCRIPTION

Start Major MRS Field Construction

MILESTONE COMPLETION CRITERIA

This milestone will be complete when actual facility construction activities begin (does not include the start of initial site preparation). Prerequisites include a readiness review, Acquisition Executive approval, and receipt of a materials license from the NRC.

PROGRAM SCHEDULE BASELINE - MRS MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1007	31Jan98	3.01	40	PCCB

MILESTONE DESCRIPTION

Start Waste Acceptance at MRS Simple Receipt Facility

MILESTONE COMPLETION CRITERIA

This milestone is complete when operations to receive and possess waste begin. Prerequisites include a readiness review and Acquisition Executive approval.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M1008	30Jul99	3.01	40	PCCB

MILESTONE DESCRIPTION

Start Waste Acceptance at MRS Spent Fuel Handling Building

MILESTONE COMPLETION CRITERIA

This milestone is complete when spent fuel handling building operations begin. Prerequisites include a readiness review and Acquisition Executive approval.

PROGRAM SCHEDULE BASELINE - MRS MILESTONES

WBS: MRS - Siting

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M5002	30Sep92	3.02	40	PCCB

MILESTONE DESCRIPTION

Candidate Sites Identified

MILESTONE COMPLETION CRITERIA

This milestone will be complete when Congress enacts legislation that identifies the proposed site. Prerequisites include submission to Congress of a written agreement between the potential host and the Nuclear Waste Negotiator with an EA.

WBS: MRS - Licensing

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M3004	31Mar95	3.04	40	PCCB

MILESTONE DESCRIPTION

Submit MRS License Application to the NRC

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the document is approved and submitted to NRC by the Secretary of Energy.

PROGRAM SCHEDULE BASELINE - MRS MILESTONES

WBS: MRS - Environmental

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M5001	30Jun92	3.05	40	PCCB

MILESTONE DESCRIPTION

Complete Environmental Assessments for Sites

MILESTONE COMPLETION CRITERIA

This milestone is completed when the Secretary of Energy submits a final report with the proposed agreement to Congress. The final EA will include a comment response document to the draft EA.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M3001	30Sep92	3.05	40	PCCB

MILESTONE DESCRIPTION

Issue MRS EIS Notice of Intent

MILESTONE COMPLETION CRITERIA

This milestone will be complete when a Notice of Intent is published in the Federal Register.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M3002	28Feb94	3.05	40	PCCB

MILESTONE DESCRIPTION

Issue MRS DEIS

MILESTONE COMPLETION CRITERIA

This milestone will be complete when a Notice of Document Availability is published in the Federal Register.

PROGRAM SCHEDULE BASELINE - MRS MILESTONES

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M3003	01Mar95	3.05	40	PCCB

MILESTONE DESCRIPTION

Issue MRS FEIS

MILESTONE COMPLETION CRITERIA

This milestone will be complete when a Notice of Document Availability is published in the Federal Register.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
M3005	31Mar95	3.05	40	PCCB

MILESTONE DESCRIPTION

Issue MRS Record of Decision

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the document is published in the Federal Register.

Appendix D
TRANSPORTATION SCHEDULE BASELINE

PROGRAM SCHEDULE BASELINE - TRANSPORTATION MILESTONES

WBS: Cask System Development - Legal Weight Truck From-Reactor Casks

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1298	30Jan92	4.01	40	PCCB

MILESTONE DESCRIPTION

Complete Legal Weight Truck From-Reactor Cask Final Design(s) and Submit NRC Applications

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the final design report(s) for legal weight truck from-reactor cask is accepted by the DOE Idaho Operations Office (ID), and submitted by the cask contractor to the NRC for review.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1297	30Sep96	4.01	40	PCCB

MILESTONE DESCRIPTION

Start Fabrication of Legal Weight Truck From-Reactor Cask Fleet

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the cask fleet contract has been awarded and DOE-ID authorizes fabrication to begin.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1296	31Jan98	4.01	40	PCCB

MILESTONE DESCRIPTION

Complete Fabrication of First New Legal Weight Truck From-Reactor Cask

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the first new legal weight truck from-reactor cask has been completed and is accepted by DOE-ID.

PROGRAM SCHEDULE BASELINE - TRANSPORTATION MILESTONES

WBS: Cask System Development - From-MRS Casks

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1399	30May98	4.01	40	PCCB

MILESTONE DESCRIPTION

Start From-MRS Cask Preliminary Design(s)

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes from-MRS cask preliminary design work to begin. Prerequisites for the start of from-MRS cask preliminary design(s) are: the decision on the need and scope of from-MRS cask design development, preprocurement planning, and issuance of an RFP(s), and contract awarding.

WBS: Institutional -

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T2499	31Jan98	4.02	40	PCCB

MILESTONE DESCRIPTION

Section 180(C) Training Assistance Complete for Initial Shipments

MILESTONE COMPLETION CRITERIA

To be determined.

PROGRAM SCHEDULE BASELINE - TRANSPORTATION MILESTONES

WBS: Support Systems - Cask Maintenance Facility

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T4399	30May92	4.04	40	PCCB

MILESTONE DESCRIPTION

Start Cask Maintenance Facility Title I Design.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes Cask Maintenance Facility (CMF) Title I design work to begin, or if the CMF is integrated with the MRS Facility, when MRS Title I design begins.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T4398	30Jul95	4.04	40	PCCB

MILESTONE DESCRIPTION

Complete Cask Maintenance Facility Title II Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the final design report is accepted by the Director, OCRWM, or if the CMF is integrated with the MRS Facility, when MRS Title II design is complete. Title II design work will include revisions to the Title I design, the preparation of final drawings, specs, cost estimates, and bidding documents.

PROGRAM SCHEDULE BASELINE - TRANSPORTATION MILESTONES

WBS: Operations -

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T6399	31Jan98	4.06	40	PCCB

MILESTONE DESCRIPTION

Implement Transportation Operations Using First New LWT From-Reactor Casks

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes transportation operations to begin. Commencement may occur after readiness review has confirmed the transportation system legal weight truck from-reactor casks are available.

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T6398	31Jan98	4.06	40	PCCB

MILESTONE DESCRIPTION

Ready to Transport Spent Fuel.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes transportation operations to begin. Commencement may occur after readiness review has confirmed that the transportation system is operational, using existing casks, if necessary.

Appendix E
LONG-TERM REFERENCE SCHEDULE

PROGRAM REFERENCE SCHEDULE - YUCCA MOUNTAIN PROJECT MILESTONES

1 WBS: Repository

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R4185	30Oct01	1.04	20	PCCB

MILESTONE DESCRIPTION

Start Repository Final Procurement and Construction Design

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes design work to begin. Prerequisites include a design review and ESaab approval.

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R4390	30Oct04	1.04	20	PCCB

MILESTONE DESCRIPTION

Start Repository Construction

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes construction activities to begin. Prerequisites include a readiness review, NRC construction authorization, ESaab approval, and acceptance by the Associate Director for Geologic Disposal, of required design packages.

PROGRAM REFERENCE SCHEDULE - YUCCA MOUNTAIN PROJECT MILESTONES

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R4490	30Jan10	1.04	20	PCCB

MILESTONE DESCRIPTION

Start Repository Waste Emplacement

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Secretary of Energy authorizes waste emplacement operations to begin. Prerequisites include a design review and ESAAB approval.

WBS: Reg. & Institutional

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
R5291	30Apr08	1.05	20	PCCB

MILESTONE DESCRIPTION

Submit Updated Repository LA to Receive and Possess Waste

MILESTONE COMPLETION CRITERIA

This milestone will be satisfied by the substantial completion of the construction of the surface and underground facilities needed for operations and the submittal of the updated license application to the NRC, in accordance with 10 CFR 60.24.

PROGRAM REFERENCE SCHEDULE - TRANSPORTATION MILESTONES

WBS: Cask System Development - Legal Weight Truck From-Reactor Casks

MILESTONE NUMBER	BASELINE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1295	30Sep00	4.01	40	PCCB

MILESTONE DESCRIPTION

Establish Capability to Ship 1200 MTU/YR with New Legal Weight Truck From-Reactor Casks.

MILESTONE COMPLETION CRITERIA

This milestone will be completed when enough legal weight truck from-reactor casks have been fabricated and accepted by the DOE to begin shipping 1200 MTU/YR from reactors.

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1398	30Apr01	4.01	40	PCCB

MILESTONE DESCRIPTION

Complete From-MRS Cask Preliminary Design(s) and Start Final Design.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the from-MRS cask preliminary design report is accepted by the Director, OCRWM, and the Director, OCRWM, has notified the contractor to proceed with the final design development.

WBS: Cask System Development - From-MRS Casks

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE RW ORGANIZATION	HIGHEST CCB
T1397	30Apr03	4.01	40	PCCB

MILESTONE DESCRIPTION

Complete From-MRS Cask Final Design(s).

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the from-MRS cask final design report is accepted and submitted by the cask contractors to the NRC for review.

PROGRAM REFERENCE SCHEDULE - TRANSPORTATION MILESTONES

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE ORGANIZATION	HIGHEST CCB
T1396	31Oct05	4.01	40	PCCB

MILESTONE DESCRIPTION

Start Fabrication of From-MRS Cask(s) Prototypes.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes prototype fabrication.

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE ORGANIZATION	HIGHEST CCB
T1395	30Dec08	4.01	40	PCCB

MILESTONE DESCRIPTION

Start Fabrication of From-MRS Cask Fleet.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the Director, OCRWM, authorizes fabrication of the from-MRS cask fleet. This will occur after the NRC has issued a certificate of compliance and the cask fleet contract has been awarded.

MILESTONE NUMBER	REFERENCE DATE	WBS	RESPONSIBLE ORGANIZATION	HIGHEST CCB
T1394	30Jan10	4.01	40	PCCB

MILESTONE DESCRIPTION

Establish Capability to Ship 400 MTU/YR Using From-MRS Casks.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the fabrication contractor notifies DOE that fabrication and delivery of enough from-MRS casks to begin shipping 400 MTU/YR has been complete and is ready for DOE acceptance.

MILESTONE

RESPONSIBLE RW HIGHEST

PROGRAM REFERENCE SCHEDULE - TRANSPORTATION MILESTONES

NUMBER	REFERENCE DATE	WBS	ORGANIZATION	CCB
T1393	30Jan15	4.01	40	PCCB

MILESTONE DESCRIPTION

Complete Fabrication of From-MRS Cask Fleet.

MILESTONE COMPLETION CRITERIA

This milestone will be complete when the fabrication contractor notifies DOE that the fleet of from-MRS casks has been completed and are ready for DOE acceptance.

Appendix F

DECISION PLAN SCHEDULE CONTROL REQUIREMENTS

DECISION PLAN SCHEDULE CONTROL REQUIREMENTS

ISSUES	REQUIREMENTS	
	NTDP	ITDP
Weekly Status and Variance Analysis	ADs and ODs prepare (by exception only) and include in Weekly Highlights Report.	None.
Weekly Status Horizon	3 months.	Not Applicable.
Monthly Status and Variance Analysis Report	RW-10 issues monthly call letter & prepares comprehensive summary for PM Meeting.	None.
Monthly Status Horizon	12 months maximum.	Not Applicable.
Variance Threshold	One week schedule slip.	Not Applicable.
Changes to Approved Milestones	RW-10 issues monthly call letter and prepares summary for PM Meeting. RW-1/RW-2 approves. ADs and ODs submit DCP for PCSB milestones. PCCB or ESaab approves.	ADs and ODs submit DCP for PCSB milestones. PCCB or ESaab approves.
Extension to Planning Horizon	Extended when appropriate. RW-10 issues call letter. (Planning horizon not less than 6-months from status date.)	Fixed at LA submittal.
Issuance to Public	Quarterly (Issuance to Public terminated at start of new SBT).	Only when revised.
Sub-Tier Scheduling Network Responsibility	ADs and ODs develop and maintain. For Repository, MRS and Transportation Projects, NTDP and ITDP milestones (that impact each project) should be incorporated in project critical path networks. NTDP Program Management milestones should be included in individual networks or Gantt charts as appropriate.	
Sub-Tier Scheduling Network Format	At discretion of ADs and ODSs.	