

#30

8/17/97 DOCUMENT NO 47A  
9803090203 970731  
PDR WASTE  
WM-11  
PDR

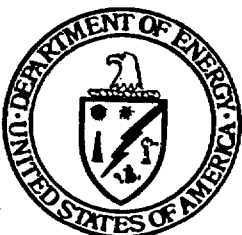
003041



# U.S. Department of Energy Office of Civilian Radioactive Waste Management

## DIRECTOR'S PROGRAM REVIEW

PRESENTED TO  
Lake Barrett, Acting Director  
OCRWM



*Sandi  
Handout  
from DRR  
meeting  
Bill Barrett*

July 31, 1997

102  
1000-11  
1/0  
DF03

**AGENDA**  
**Director's Program Review**  
**Thursday, July 31, 1997**  
**Videoconference Rooms: M&O Contractor (Dunn Loring),**  
**DOE/Forrestal, Room GF-277, and YMSCO Blue Room**

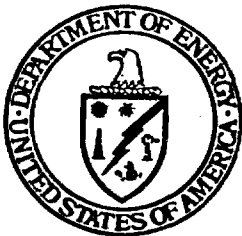
<u>Time (PST)</u>	<u>Subject</u>	<u>Presenter</u>
7:00 AM - 7:05 AM	Recognition of Visitors	Conner
7:05 AM - 7:10 AM	Opening Remarks	Barrett
7:10 AM - 7:20 AM	Program Status Overview Program Performance Status	Rouso
7:20 AM - 8:20 AM	YMSCO Overview Summary of Significant YMSCO Activities In Licensing, TSPA and Engineering Significant Activities & Accomplishments - Scientific Program YMP Performance Measurement	Barnes  Brocoum  Williams Spence
8:20 AM - 8:50 AM	WAST Project Overview WAST Performance Measurement	Shelor Bokhari
8:50 AM - 9:05 AM	Quality Assurance Overview QA Performance Measurement	Horton
9:05 AM - 9:25 AM	Program Management and Administration Overview PM&A Performance Measurement	Rouso Trebules
9:25 AM - 9:35 AM	Review of the Day's Action Items	Conner
9:35 AM - 9:45 AM	Questions from Visitors	All
9:45 AM - 10:00 AM	Lunch at Seats	
10:00 AM - TBD	Executive Session	

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**Director's Program Review**

**Program Overview**

**PRESENTED TO  
LAKE BARRETT, Acting Director  
OCRWM**



**PRESENTED BY  
SAM ROUSSO, Director  
Office of Program Management  
and Administration**

**July 31, 1997**

# **AGENDA**

- **Baseline Changes**
- **Accomplishments**
- **Program Plan Milestone Status**
- **Cost and Schedule Performance**
- **Six Month Look Ahead**

# **CHANGES SINCE LAST DPR**

- **Approved Level 1 Changes**
  - None
- **Pending Changes**
  - None

# **ACCOMPLISHMENTS**

**May-July**

- **Completed North Ghost Dance Fault Excavation, May 9, 1997**
- **Submitted Revised Topical Report on Actinide-Only Burnup Credit for PWR Spent Nuclear Fuel Packages, May 15, 1997**
- **Submitted the Draft Fiscal Year 1999 Corporate Review Budget Request**

# MILESTONE STATUS LEVEL 1

WBS	ID	Description	Baseline Date	Forecast/ Actual Date
	Number			
1.2.6	YMP01M1	Daylight the TBM at South Portal	03/27/97	04/25/97(A)
3.2.2.1	WI322M7007	Submit Phase I CISF TSAR Rev. 0 to the NRC	05/01/97	05/01/97(A)
3.2.4.1	WI324M7001	Submit Actinide-only BUC Topical Report Rev. 1 to NRC	05/15/97	05/15/97(A)
3.1.4	WT314M7001	Issue Section 180(c) Notice of Revised Proposed Policy and Procedures	07/16/97	07/11/97(A)
3.1.1.1	WT311M7004	Issue Final RFP for RSAs	TBD	Under Review
1.2.5	YMP03M1	Approve TSPA-VA Methodology and Assumptions Report	08/27/97	08/27/97
1.2.5	SLNOPR2M1	Publish 10 CFR 960 Final Rule	09/26/97	04/29/98
1.2.1	YMP02M1	Completion of Phase I Design for VA	09/30/97	09/30/97

U. S. Department of Energy

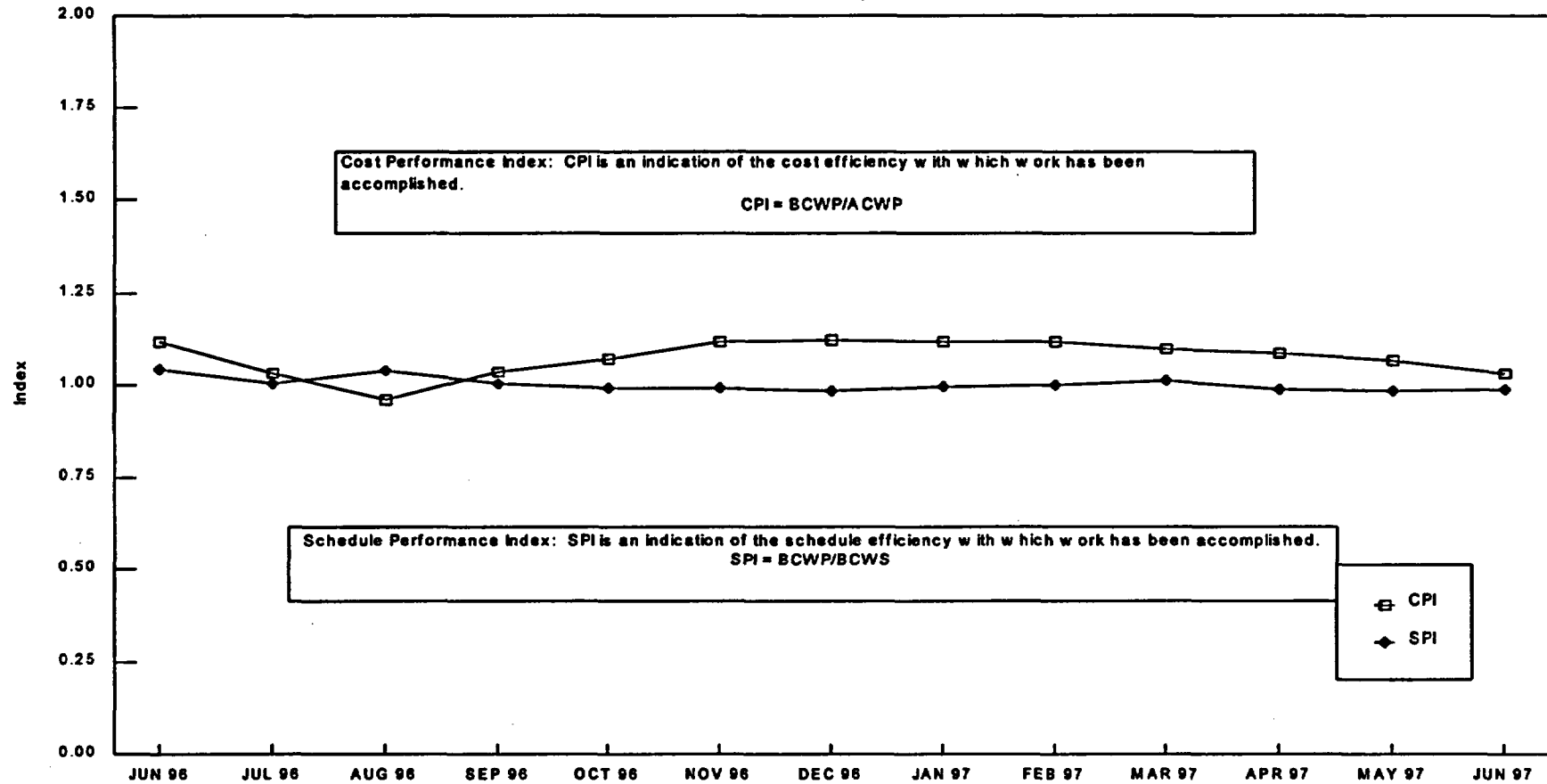
Cost Performance Reports - Work Breakdown Structure (Format 1)

1. Title Waste Management System				2. Reporting Period 01 Jun, 1997 to 30 Jun, 1997				3. Dollars Expressed in Thousands - Escalated				
4. Participant Name and Address OCRWM				5. Cost Plan Date 27 Jul, 1997				6. Report Date 28 Jul, 1997				
8. WBS Element				FY96 - 97 Cumulative To Date				FY96 - 97 At Completion of Work				
Summary Level: 1		FY96 Year End		Budgeted Cost		Actual Cost Work Perf		Variance		FY96 - 97 At Completion of Work Year End		
Detailed Level: 2		Budgeted Work	Variance	Work Sched	Work Perf	Work Perf	Sched	Cost	Budget	Latest Revised Est	Var	
			Sched									
WASTE MANAGEMENT SYSTEM												
1.0.		230915	-2940	832	421426	415211	406211	-6265	9000	503069	501602	1467
Mined Geological Disposal System												
3.0.		35177	-260	4095	40320	40320	37926	0	2358	42215	40662	1553
WAST Project												
9.0.		72963	-20	3301	66868	66849	62293	-19	4556	74160	70436	3724
Program Management & Admin.												
9. Contractor Budget Base		339055	-3221	8228	528614	522380	506430	-6284	15914	619444	612700	6744
10. FT&A		17257	0	0	49194	49194	37134	0	12060	49194	49194	0
11. FC&B		0	0	0	0	0	0	0	0	0	0	0
12. Undistributed Budget										21210	21210	0
13. Other										0	0	0
15. Baseline Adjustment										0	0	0
16. Perf. Measurement Baseline		356312	-3221	8228	577808	571574	543564	-6284	27974	689848	683104	6744
14. Fee										20903	20903	0
17. Management Reserve										12533	12533	0
18. Other										8597	11101	-2504
19. Program Budget Base		356312	-3221	8228	577808	571574	543564	-6284	27974	731881	727641	4240

Source document: DOE Good Practices Guide to Performance Analysis and Reporting, Figure 3.3-9



## FY1996/1997 PROGRAM CPI/SPI GRAPH



FY 1996	JUN 96	JUL 96	AUG 96	SEP 96	OCT 96	NOV 96	DEC 96	JAN 97	FEB 97	MAR 97	APR 97	MAY 97	JUN 97
CPI	1.118	1.030	0.962	1.037	1.073	1.117	1.123	1.119	1.117	1.099	1.088	1.069	1.032
SPI	1.045	1.005	1.040	1.004	0.991	0.992	0.985	0.995	1.001	1.010	0.989	0.986	0.987

# **SIX MONTH LOOK AHEAD**

- **YMP Milestones**

- **Approve TSPA-VA Methodology and Assumptions Report - 8/97**
- **Complete Phase I Design for VA - 9/97**

- **WAST Milestones**

- **Complete Feasibility Study for Additional Burnup Credit - 10/97**

- **Program Activities**

- **Complete FY98 Annual Plan - 9/97**

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**Director's Program Review**

**Yucca Mountain Project Overview**

**PRESENTED TO  
Lake Barrett, Acting Director  
OCRWM**



**PRESENTED BY  
Wesley Barnes  
Project Manager**

**July 31, 1997**

# ACCOMPLISHMENTS

May-July

## Exploratory Studies Facility

- Completed North Ghost Dance Fault Excavation, ES272M2, May 9, 1997
- Initiated North Ghost Dance Fault Alcove Testing, SP3500M3, May 15, 1997
- Completed Excavation of Niche One, SC9000M3, June 25, 1997

# **ACCOMPLISHMENTS, Cont.**

## **May-July**

### **Administration and Asset Management**

- Completed the Fiscal Year 1999 Corporate Budget Request
- Initiated procedural consolidation, cancellation, and streamlining review

# **ACCOMPLISHMENTS, Cont.**

## **May-July**

### **Environmental Impact Statement/Environmental, Safety and Health**

- Issued Comment Summary Document summarizing EIS public scoping comments and issues. Published Notice of Availability in Federal Register on July 9, 1997
- Delivered three regulatory compliance reports to the State of Nevada and other interested agencies
  - Ambient Air Quality Report, May 22, 1997 (SS3015)
  - Groundwater Monitoring Report, May 12, 1997 (SSH13DM3)
  - Socioeconomic Monitoring Employment Data Report, June 26, 1997 (SS6018)

# **ACCOMPLISHMENTS, Cont.**

## **May-July**

### License Application

- Closed the public comment period for the Notice of Proposed Rulemaking on 10CFR960, May 16, 1997; comment period was 151 days
- Received letters from NRC closing comments and sub-issues related to climate change and volcanic event probability<sup>1</sup>
- Accepted Waste Form Characteristics Report, Rev. 1, WP0035M2B, May 8, 1997
- Submitted Progress Report 16 for HQ concurrence, PR16M3, July 21, 1997

<sup>1</sup> To be discussed by Steve Brocoum

# **ACCOMPLISHMENTS, Cont.**

## **May-July**

### License Application, Cont.

- Accepted the Waste Isolation Requirements Study Document, SE440M3, May 15, 1997
- Accepted the Web Based Information Systems, Phase I, Part 2 Results and Recommendations Letter Report, SL301P4D, June 20, 1997



# **ACCOMPLISHMENTS, Cont.**

## **May-July**

### License Application, Cont.

Conducted the following:

- Appendix 7 Meetings on May 7-8, May 16-17, and June 12, 1997<sup>1</sup>
- Technical Exchanges on June 11 and July 21-22, 1997<sup>1</sup>
- NWTRB Meeting, June 25-26, 1997<sup>1</sup>

<sup>1</sup> To be discussed by Steve Brocoum

# ACCOMPLISHMENTS, Cont.

## May-July

### Viability Assessment

- Accepted the Retrievability Study Report, SERSTM2, June 9, 1997
- Accepted the Reference Design Description Document, Rev. 1, July 28, 1997, which is a descriptive document for the general public and interested parties<sup>1</sup>
- Accepted the Documentation of Near Field Environment Models Abstraction/Testing Workshop, SLX07MM, June 13, 1997

<sup>1</sup> To be discussed by Steve Brocoum

# **ACCOMPLISHMENTS, Cont.**

## **May-July**

### Viability Assessment, Cont.

- Core Science
  - Accepted Future Climate Modeling Scenarios, SP26BM2, May 23, 1997<sup>2</sup>
  - Accepted the UZ Flux Uncertainty Characterization Report, SL5X4B1M, May 30, 1997
- Design/Development
  - Accepted the Waste Handling Flow Diagrams, RP243AMB, May 30, 1997
  - Accepted the Secondary Waste Treatment Flow Diagrams, RP243AMC, June 30, 1997

<sup>2</sup> To be discussed by Dennis Williams

# ACCOMPLISHMENTS, Cont.

## May-July

### Viability Assessment, Cont.

- TSPA
  - Accepted the TSPA Orientation/Peer Review Interim Report, SR500M2, June 18, 1997<sup>1</sup>
  - Accepted the UZ Site Flow Model, SP24BM3, June 9, 1997<sup>2</sup>
  - Accepted the Site Saturated-Zone Flow Model, SP24CBM3, June 16, 1997<sup>2</sup>

<sup>1</sup> To be discussed by Steve Brocoum

<sup>2</sup> To be discussed by Dennis Williams

# **CHANGES SINCE LAST DPR**

## **May-June**

CR 97/021	Expanded Workscope for ESF and Repository Design Support
CR 97/022	Addition of Atomic Energy of Canada Limited Technologies Support
CR 97/023	Add Management & Technical Support Services Budget and Workscope
CR 97/024	Revise M&O Budget and Workscope to Implement Project Control Reorganization
CR 97/025	Transfer YMP CCB Controlled Documents to M&O CCB Control
CR 97/026	VA Risk Mitigation Revised Budget and Workscope
CR 97/027	DOE Office Trailer Setup
CR 97/030	Add Jason Technologies as the EIS Contractor

# FY 1997 BASELINE LEVEL 1 MILESTONES

WBS	ID Number	Description	Baseline Date	Forecast/ Actual(A) Date
1.2.1	YMP02M1	Completion of Phase I Design for VA	09-30-97	On Schedule
1.2.5	YMP03M1	Approve TSPA-VA Methodology and Assumptions Report	08-27-97	On Schedule
1.2.5	SLNOPR2M1	Publish 10 CFR 960 Final Rule	09-26-97	04-29-98
1.2.5	SLNOPR1M1	Publish Notice of Proposed 10 CFR 960 Rulemaking	10-01-96	12-16-96 (A)
1.2.6	YMP01M1	Daylight the TBM at South Portal	03-27-97	04-25-97 (A)

# FY 1997 BASELINE LEVEL 2 MILESTONES

WBS	ID Number	Description	Baseline Date	Forecast/ Actual (A) Date
1.2.1	SEGHIM2	Compl Waste Qty, Mix, & Throughput Study	04-01-97	03-31-97 (A)
1.2.1	SERSTM2	Compl Retrievability Study - VA	04-30-97	06-09-97 (A)
1.2.2	WP0035M2B	Complete WFCR Rev 1	05-15-97	05-08-97 (A)
1.2.2	WP015M2B	Complete EMCR Rev 1	05-01-97	04-30-97 (A)
1.2.3	ST23BM2	3D Geologic Model Acceptance	03-28-97	03-24-97 (A)
1.2.3	ST24BM2	UZ Site Flow Model Acceptance	07-15-97	Accepted
1.2.3	ST24BM2A	SZ Site Flow Model Acceptance	07-15-97	Accepted
1.2.3	ST24M2A	Initiate NGDF Alcove Testing	05-23-97	05-23-97 (A)
1.2.3	ST24M2B	Initiate SGDF Access Drift Testing	04-25-97	04-25-97 (A)
1.2.3	ST25BM2	UZ Site Transport Model Acceptance	09-30-97	On Schedule
1.2.3	ST25BM2A	SZ Site Transport Model Acceptance	09-30-97	On Schedule
1.2.3	ST26BM2	Future Climate Scenarios Acceptance	07-01-97	Accepted
1.2.4	MG120M2	Complete MGDS Design - Phase 1	09-30-97	On Schedule
1.2.5	IS182M2	Receipt of LSS Acquisition Guidance (DOE)	01/31/97	07-01-97
1.2.5	LA300M2	YMSCO Issues Waste Cont. & Isol. Strat.	09/15/97	On Schedule
1.2.5	PR15M2	YMSCO Issues PR 15	04-30-97	04-23-97 (A)
1.2.5	SL230BM2	Doc. TSPA-VA Method. & Assump.	08-27-97	On Schedule
1.2.5	SLNOPRM2	YMSCO Submits 10 CFR Part 960 Final Rule to OCRWM	08-01-97	03-05-98
1.2.5	SR300M2	Complete License App. Plan	09-30-97	On Schedule
1.2.5	SR500M2	TSPA Orientation/PR Interim Rpt	06-20-97	06-18-97 (A)

# FY 1997 BASELINE LEVEL 2 MILESTONES (Continued)

WBS	ID Number	Description	Baseline Date	Forecast/ Actual (A) Date
1.2.6	ES093M2	Compl TBM Operations to Daylight	03-27-97	04-25-97 (A)
1.2.6	ES101M2	Compl Excav of Thermal Test Alcove	03-26-97	02-07-97 (A)
1.2.6	ES272M2	Compl NGDF Excavation	04-30-97	05-09-97 (A)
1.2.8	NE1038M2	EIS Comment Summary Doc	05-06-97	07-07-97 (A)
1.2.8	NE1240M2	EIS Contract Awarded	10-01-96	09-11-96 (A)
1.2.9	PP100AM2	YMP Long Range Plan Annual Update	05-30-97	11-17-97



# DPR ACTION ITEMS

Action Item #:

1

Action Item:

Provide RW-1 information on high-burnup commercial SNF rod segments identified for procurement and performance testing

OPR:

Barnes

Status:

Completed

## DPR ACTION ITEMS

Action Item #: 2

Action Item: Provide RW-1 information on YMSCO planning schedules to ensure that Long Range Plans, Annual Work Plans, and Budget Plans are all coordinated

OPR: Spence

Status: To be briefed during Mr. Barrett's visit to the YMP in August

# DPR ACTION ITEMS

Action Item #: 3

Action Item: Develop a system/plan for YMSCO to report YMP scientific findings to RW-1 on an appropriate schedule (at least quarterly).

OPR: Barnes

Status: Update to be briefed at every DPR

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**Summary of Significant YMSCO Activities in  
Licensing, TSPA and Engineering**

**PRESENTED TO  
Lake Barrett, Acting Director  
OCRWM**

**PRESENTED BY  
Dr. Stephan J. Brocoum  
Assistant Manager, Licensing**



**July 31, 1997**

# Topics

- Interactions
- TSPA Peer Review Status
- Reference Design Description Document
- Reference Design Features and Options

# Interactions with NRC, NWTRB, and EM

- Appendix 7 Meetings:
  - Meeting on Disposal Criticality, May 7-8, 1997, which focused on defense-in-depth as applied to the postclosure criticality issue, and the DOE's planned approach to validating its postclosure criticality analysis methodology
  - Meeting on June 12, 1997, which addressed the close-out of open items on quality assurance and design control for ESF construction. Majority of NRC's open items were resolved and defined path forward to resolution for remaining items
  - Meeting on 3-D Integrated Site Model, May 16-17, 1997, which presented the 3-D model to the NRC. The NRC responded favorably to the models

# Interactions with NRC, NWTRB, and EM, Cont.

- Technical Exchanges
  - Quarterly meeting on June 11, 1997, which addressed ESF construction, scientific studies, and plans for the Enhanced Characterization of the Repository Block
  - TSPA-VA meeting on July 21-22, 1997, DOE presented results of abstraction testing workshops, NRC presented their PA methodology and preliminary results

# Interactions with NRC, NWTRB, and EM, Cont.

- Other NRC Interactions

- June 24, 1997, NRC responded positively to DOE's position that the volcanism subissue, volcanic event probability, can be closed
- June 30, 1997, received Issue Resolution Status Report on methods to evaluate climate change and associated effects. Report indicates the staff has identified no open items related to DOE investigations related to future climate
- July 24, 1997, DOE letter to NRC indicating compliance with NRC's proposed path forward to close comments and open items on implementation of NUREG 1563, use of expert elicitation



# Interactions with NRC, NWTRB, and EM, Cont.

- NWTRB
  - Conducted a field trip for the NWTRB staff, May 14-15, 1997, which addressed paleoclimate and paleodischarge issues
  - Participated in full board meeting on June 25, 26, 1997, to address VA schedule and products and status of the UZ elicitation activity for TSPA-VA

# Interactions with NRC, NWTRB, and EM, Cont.

- EM
  - Held workshop on July 15-17, 1997, to address potential use of depleted uranium (DU) to enhance defense-in-depth through:
    - ♦ isotopic dilution
    - ♦ chemical buffering
    - ♦ shielding
  - Recommended further study for using DU for WP shielding and as an invert construction material
  - Final report under development by EM with input from OCRWM; scope and responsibilities for additional analyses to be determined

# **TSPA Peer Review Status**

- Panel established to provide interactive review through the TSPA process
- Panel's findings will be fully considered in developing TSPA-LA
- Received Panel's First Interim Report (1 of 3 interim reports) on June 20, 1997, followed by open meeting on July 9, 1997
- First Interim Report was not unduly critical of current TSPA work. Panel is focusing on what they believe is reasonable and possible for TSPA to accomplish for VA and LA
- Panel's findings can be grouped into two major categories:
  - lack of overall descriptions or conceptual models
  - lack of supporting data and analyses

# TSPA Peer Review Status, Cont.

- Panel maintains a concern over:
  - Ability to fully analyze the repository system, given all the unknowns and uncertainties
  - Continuing need for supporting data and analyses, especially for the waste package and near-field environment
- Panel suggests that data and modeling are more viable for representing the near-field processes than for the far-field, focus on the near-field
- Panel recommends that TSPA-VA contain a comprehensive site/system conceptual model in introductory section
  - List future possible events
  - Define time periods and sequence in which events may occur
  - Explain how events will affect one another

# TSPA Peer Review Status, Cont.

- Specific areas of concern are:
  - Hydrologic issues
  - Coupled thermo-hydro-chemical-mechanical behavior in response to thermal load
  - Engineered barrier system and waste package
  - Thermal loading design concept
  - Colloidal transport; especially plutonium

# **Reference Design Description for a Geologic Repository (RDD)**

- RDD Revision 01A received July 28, 1997, for DOE/HQ review
- Serves as communication tool for current design and key options for the DOE, M&O and external agencies
- Document is presented in landscape format with color illustrations
- Will be revised frequently to ensure design presented is current

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**Significant Activities and Accomplishments  
Scientific Program**

**PRESENTED TO  
Lake Barrett, Acting Director  
OCRWM**



**PRESENTED BY  
Dennis Williams  
Deputy Assistant Manager for Licensing**

**July 31, 1997**

# **Significant Activities and Accomplishments Scientific Program**

- **Process Model deliverables completed**
  - 3D Geologic Framework Model, February 21, 1997
  - Future Climate Modeling Scenarios, May 23, 1997
  - Infiltration Model, April 10, 1997
  - Unsaturated Zone (UZ) Site Flow Model, June 16, 1997
  - Regional Saturated Zone Flow Model, March 1997
  - Site SZ Flow Model, June 16, 1997



# Significant Activities and Accomplishments

- **Field Tests Progress**

- Ambient phase measurements of the Large Block Test were completed as scheduled (February 28, 1997)
- Ambient and thermal tests of the single heater test were completed and the heater was turned off as scheduled (May 28, 1997). Cool-down phase tests continue
- The construction phase of the drift scale tests on schedule
- The construction and instrumentation were completed for the first phases of the two unsaturated zone hydrology testing niches in the Exploratory Studies Facility (ESF)

# **Significant Activities and Accomplishments (Cont)**

- **Field Tests Progress, Cont.**

- Activities associated with drilling of the Large Hydraulic Gradient hole WT-24 have been started as planned

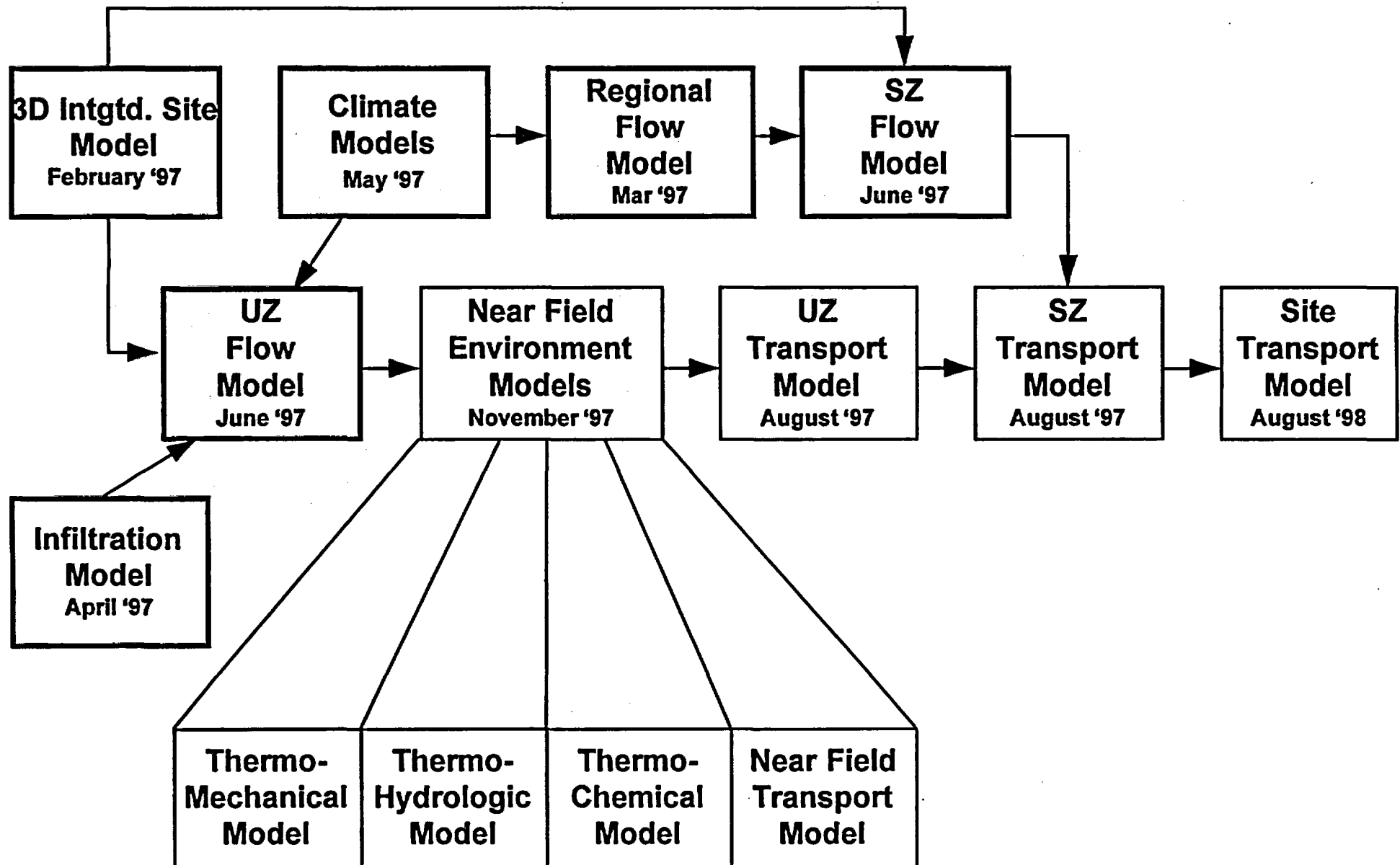
- **Status of TSPA-VA**

- Abstraction workshops completed
- Expert elicitation process

- **Independent Reviews**

- Initiated CI-36 Peer Review (July 21, 1997)
- Planned percolation flux peer review late FY98-FY99

# Process Models



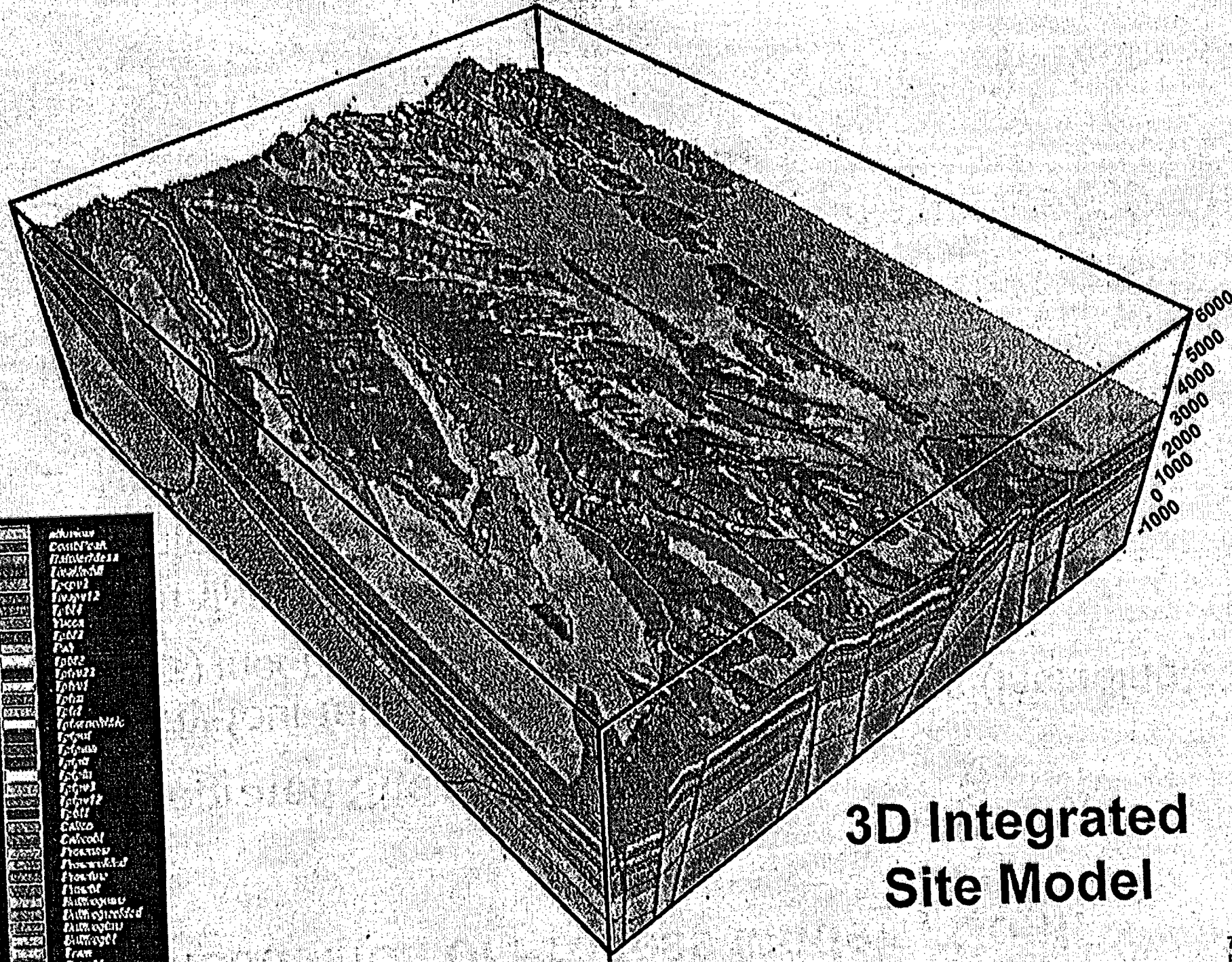
# Discussion of Process Models

- **3D Integrated Site Model**

- Constitutes the geologic basis for all process models and the geologic description of the site
- Model covers site area (approx. 166 sq. km) from topographic surface down to top of Paleozoic, and includes 34 lithostratigraphic horizons
- Geologic framework model is comprehensive and includes latest results of geologic mapping, borehole and outcrop sampling data, surface geophysics, borehole geophysics, and ESF studies

36	CLAY	CLAY
35	CLAY	CLAY
34	CLAY	CLAY
33	CLAY	CLAY
32	CLAY	CLAY
31	CLAY	CLAY
30	CLAY	CLAY
29	CLAY	CLAY
28	CLAY	CLAY
27	CLAY	CLAY
26	CLAY	CLAY
25	CLAY	CLAY
24	CLAY	CLAY
23	CLAY	CLAY
22	CLAY	CLAY
21	CLAY	CLAY
20	CLAY	CLAY
19	CLAY	CLAY
18	CLAY	CLAY
17	CLAY	CLAY
16	CLAY	CLAY
15	CLAY	CLAY
14	CLAY	CLAY
13	CLAY	CLAY
12	CLAY	CLAY
11	CLAY	CLAY
10	CLAY	CLAY
9	CLAY	CLAY
8	CLAY	CLAY
7	CLAY	CLAY
6	CLAY	CLAY
5	CLAY	CLAY
4	CLAY	CLAY
3	CLAY	CLAY
2	CLAY	CLAY
1	CLAY	CLAY

36 CLAY  
 35 CLAY  
 34 CLAY  
 33 CLAY  
 32 CLAY  
 31 CLAY  
 30 CLAY  
 29 CLAY  
 28 CLAY  
 27 CLAY  
 26 CLAY  
 25 CLAY  
 24 CLAY  
 23 CLAY  
 22 CLAY  
 21 CLAY  
 20 CLAY  
 19 CLAY  
 18 CLAY  
 17 CLAY  
 16 CLAY  
 15 CLAY  
 14 CLAY  
 13 CLAY  
 12 CLAY  
 11 CLAY  
 10 CLAY  
 9 CLAY  
 8 CLAY  
 7 CLAY  
 6 CLAY  
 5 CLAY  
 4 CLAY  
 3 CLAY  
 2 CLAY  
 1 CLAY



## 3D Integrated Site Model

# Discussion of Process Models, Cont.

- **3D Integrated Site Model, Cont.**
  - Forty-four faults in model; fault geometries (including dips) incorporated
  - 3D mineralogical and rock properties models contained in Integrated Site Area Model
  - NRC has adopted the model's EarthVision software for comparative purposes

# Discussion of Process Models, Cont.

- **Future Climate Model**

- The future climate model constitutes the basis for predicting possible future infiltration which will impact future percolation flux
- The future climate modeling task completed simulations characterizing two global warming scenarios:
  - ♦ CO<sub>2</sub> Content - 2x expected
  - ♦ CO<sub>2</sub> Content - 6x expected
- Results indicate a 2-3 degree Centigrade annual increase in temperature at YM for 2x CO<sub>2</sub> content case
- Results indicate an 8 degree Centigrade annual increase in temperature at YM for 6x CO<sub>2</sub> content case

# Discussion of Process Models, Cont.

- **Future Climate Model, Cont.**

- Model predicts increased precipitation in winter and decreased precipitation in summer but similar total annual values
- Future climate predictions are within the range of paleoclimate reconstructions
- Results provided to infiltration, UZ, and regional SZ models, and will be merged with paleoclimate reconstruction to refine future climate scenarios
- Results provide one portion of future time-based scenarios for PA and biosphere models, i.e. the two anthropogenic scenarios will provide near term predictions and paleoclimate will provide long term predictions
- NRC has agreed to the future climate methodology used by the Project



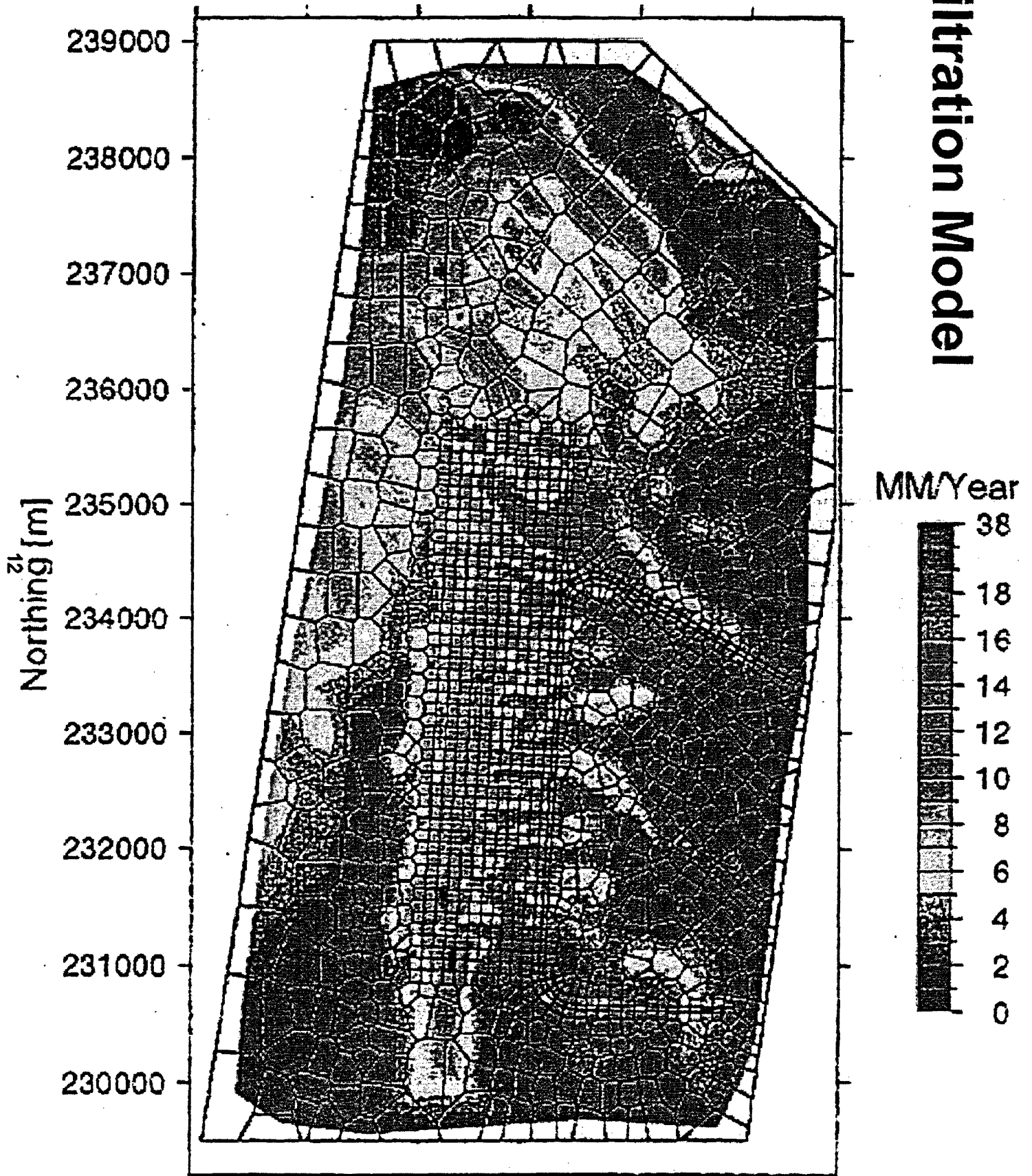
# Discussion of Process Models, Cont.

- **Infiltration Model**

- Incorporates processes of precipitation, runoff, evapotranspiration (ET), initiation of fracture flow (soil-bedrock surface), and redistribution of water in shallow UZ
- Provides improved estimates of spatial and temporal distribution of net infiltration for current climate and possible future climate
- Properties and processes most important in determining net infiltration:
  - ♦ Timing of precipitation
  - ♦ Soil storage capacity
  - ♦ Seasonality and amount of ET
  - ♦ Hydrologic properties of underlying bedrock

# Present Day Infiltration (Flint et al., 1996)

## Infiltration Model



# Discussion of Process Models, Cont.

- **Infiltration Model, Cont.**

- Infiltration is temporally and spatially variable
  - ♦ average 4.5 mm/yr over study area
  - ♦ average 6.5 mm/yr over repository (model values for current climate)
- Temporally, infiltration can vary from 0 mm/yr for several years to 10-20 mm/yr for one year
- Spatially, infiltration can vary from 0 mm/yr over much of the study area to over 80 mm/yr for certain areas
- Doubling precipitation increases net infiltration by a factor of four
- Simulation results have been incorporated into UZ Site-Scale Model percolation flux, perched water, and drift seepage analyses

# Discussion of Process Models, Cont.

- **Unsaturated Zone Flow Model**
  - Numerical model TOUGH2 integrates all available data (hydrologic, geochemical, thermal, and pneumatic) from UZ into a single model
  - Uses hydrological, geochemical, and geothermal evidence to help bound percolation flux
  - Develops a set of fracture parameters based on “Q” ESF fracture mapping, borehole fracture data, and air permeability data

# Discussion of Process Models, Cont.

- **Unsaturated Zone Flow Model, Cont.**

- Results indicate:

- ◆ Current percolation flux is estimated to range 1-10 mm/yr in repository area
    - ◆ Places upper-bound of 20 mm/yr on current average percolation flux
    - ◆ Predicts over 80% of flow in TSw occurs in fractures and little, if any, water will seep into drifts
    - ◆ Approximately 25% of the total flow will pass through sorptive zeolitic rock

# Discussion of Process Models, Cont.

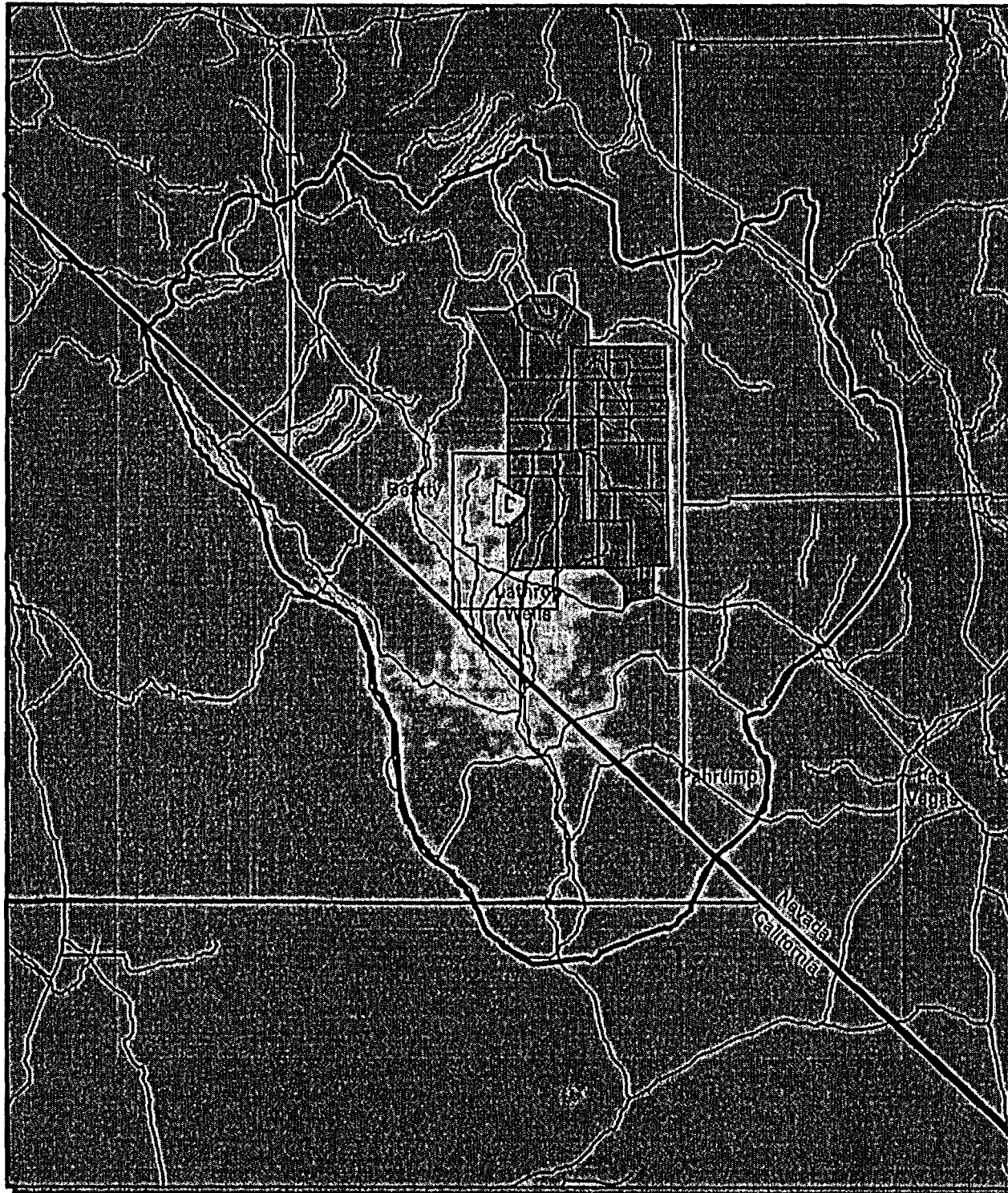
- **Unsaturated Zone Flow Model, Cont.**
  - ◆ Approximately 40-70% of the total flux at the water table occurs in fractures
  - ◆ Future climate change will increase precipitation, elevating perched water levels by less than 10 meters
  - ◆ Model provides crucial flux values as input to PA simulations and engineering/design criteria







# Discussion of Process Models, Cont.

- **Regional SZ Flow Model**

- Model to define the boundaries of the regional, subregional and local flow systems was developed using Modflowp
- The northern boundary of the model extends from Paiute Mesa to the Sand Spring Valley, the western boundary passes through Death Valley, the eastern boundary extends from the Pahrnagut Valley to the Spring Mountains, and the southern boundary extends into California to the Saddle Peak Hills
- Examined changes in the flow system for current, pluvial, and 2x CO<sub>2</sub> conditions

# Regional Saturated Zone Model



-  Regional saturated zone model domain
-  Site saturated zone model domain
-  Nevada Test Site
-  Conceptual controlled area
-  ESF main tunnel
-  Ephemeral streams/rivers



# Discussion of Process Models, Cont.

- **Regional SZ Flow Model, Cont.**

- Defined the discharge areas and identified geographic locations (Death Valley, Ash Meadows and Oasis valley) where additional data are needed to improve the model
- A preliminary comparison of selected flow paths with independent hydrochemical data indicated a need for additional resolution of the upper model layer
- Defines the boundary conditions for the site scale model
- This model is being compared to the regional groundwater model from the Nevada Test Site (NTS) as a starting point for the development of a single DOE regional groundwater model






# Discussion of Process Models, Cont.

- **Site-Scale SZ Flow Model**

- Site scale flow model was developed using FEHM code. This model contains more detailed geology than the regional model, and is being used to analyze flow and transport for TSPA
- The northern boundary extends between Pinnacle Ridge and Shoshone Mountain, the western boundary extends into Crater Flat, but does not include Bare Mountain, the eastern boundary passes through Jackass Flats and Little Skull Mountain, and the southern boundary is Amargosa Valley just south of Skeleton Hill

# Site Saturated Zone Model



-  Site saturated zone model domain
-  Nevada Test Site
-  Conceptual controlled area
-  ESF main tunnel
-  Ephemeral streams/rivers

# Discussion of Process Models, Cont.

- **Site-Scale SZ Flow Model, Cont.**
  - Preliminary calibration of the model has been completed and the flow field defined by the model is being used for radionuclide transport calculations in the saturated zone for TSPA
  - This model will be integrated into the regional SZ flow model in developing the DOE regional groundwater model (including NTS)

# Status of TSPA-VA

- **TSPA-VA Abstraction Workshops**
  - Nine workshops on abstraction of TSPA-VA parameters were completed as planned
    - ◆ Unsaturated Zone Flow
    - ◆ Unsaturated Zone Radionuclide Transport
    - ◆ Saturated Zone Flow and Transport
    - ◆ Thermohydrology
    - ◆ Near-field Geochemical Environment
    - ◆ Waste Package Degradation
    - ◆ Waste Form Degradation
    - ◆ Criticality
    - ◆ Biosphere

# **Status of TSPA-VA. Cont.**

- **Expert Elicitation for TSPA-VA**

- Approach is to characterize, quantify, and document the uncertainty in key process models to provide technically defensible products for their abstraction into the TSPA-VA
- Small-scale focused elicitations, approximately 6-month duration
- Panels have 5 to 6 experts, including Project and external experts
- Follows the 9-step process outlined in the NRC's Branch Technical Position on the use of expert elicitation for the Yucca Mountain Project (NUREG 1563)

# **Status of TSPA-VA. Cont.**

- **Expert Elicitation for TSPA-VA, Cont.**
  - Process Models for Elicitations
    - ◆ Unsaturated Zone Process Model - completed July 3, 1997
    - ◆ Waste Package Degradation - in progress
    - ◆ Saturated Zone Hydrology - in progress
    - ◆ Waste Form Dissolution - planned for FY98
    - ◆ Drift-Scale Thermohydrology - planned for FY98

# Independent Reviews

- **Chlorine-36 Peer Review**

- Cl-36 was instrumental for the current thinking on higher percolation flux. The planned peer review will provide an independent look at the issue, particularly with respect to:
  - ♦ Sampling, analytical and interpretational approach used for Cl-36 and other environmental isotopes
  - ♦ Adequacy of data-integration with relevant site characteristics data to predict groundwater flux at the potential repository level
  - ♦ Review Procedure: Peer Review-- QAP 2.5
  - ♦ Tentative Schedule
    - ❖ First meeting of the panel: October 27, 1997
    - ❖ Review completed by May, 1998



# Independent Reviews, Cont.

- **Percolation Flux Peer Review**

- To review field, laboratory, and modeling activities that are being used to help address net infiltration, lateral diversion, percolation flux at the repository horizon, seepage into drifts, and spatial/temporal distribution of flux
- Tentatively scheduled to start in June 1998 and complete in March 1999

# **U.S. Department of Energy Office of Civilian Radioactive Waste Management**

## **Director's Program Review Performance Measurement**

**PRESENTED TO**

**Lake Barrett, Acting Director  
OCRWM**

**PRESENTED BY**

**Richard E. Spence, Director  
Office of Project Control**



**July 31, 1997**

# COMPARISON OF ORIGINAL CONTRACTOR BUDGET BASELINE (CBB) TO CURRENT CBB (\$000)

<u>September 30, 1996 (FY 1996 CBB)</u>	\$ 230,915
---	------------

<u>October 1, 1996 (FY 1997 CBB)</u>	224,532
--------------------------------------	---------

<u>Changes At the Last DPR:</u>	34,863
---------------------------------	--------

## Changes Since Last DPR:

CR 97/021 In Situ Design Verification	\$ 965	
---------------------------------------	--------	--

CR 97/023 Management & Technical Contractor	5,783	
---	-------	--

CR 97/024 M&O Project Control Reorganization	2,196	
--	-------	--

CR 97/027 DOE Office Trailer Setup	89	
------------------------------------	----	--

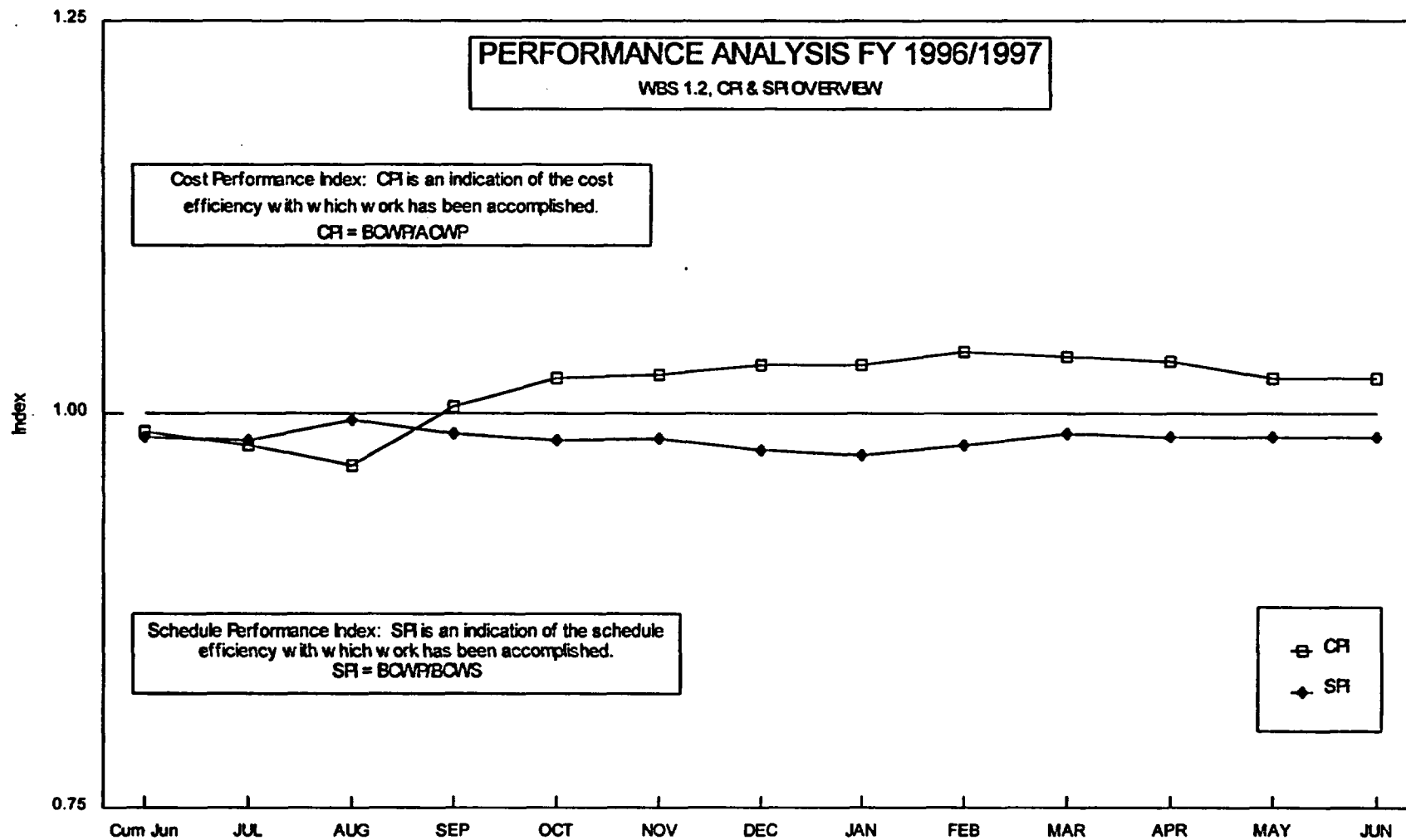
CR 97/030 EIS Contractor (Jason)	3,726	
----------------------------------	-------	--

Total:	\$12,759	12,759
--------	----------	--------

<u>FY 1996-97 Contractors Budget Baseline - June 30, 1997</u>	<u>\$503,069</u>
---	------------------

# FY96/97 PROJECT BUDGET PERFORMANCE

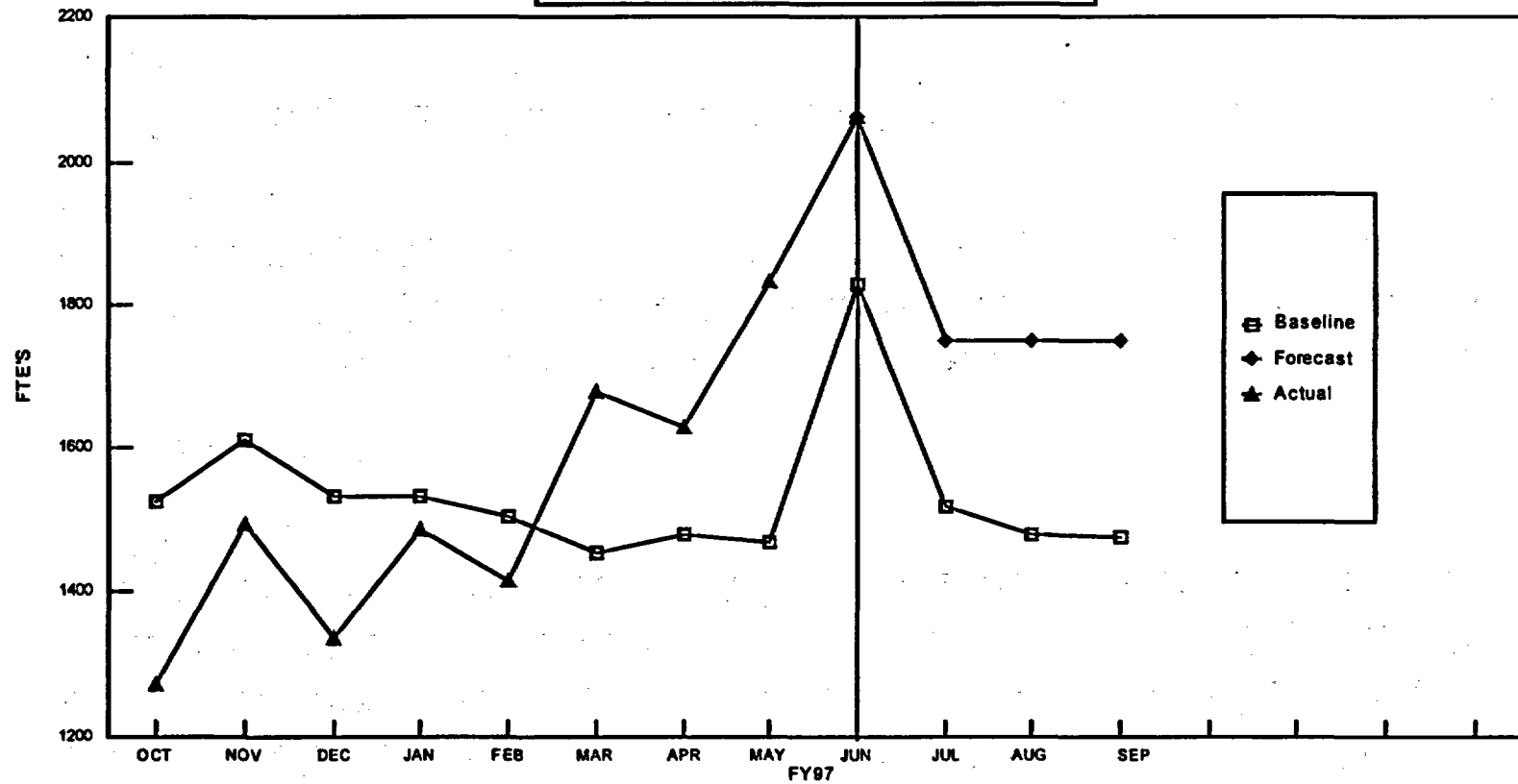
	(a)	(b)	(c)	(d)=(b-a)	(e)=(b-c)	(f)	(g)	(h)=(f-g)
	FY 96/97 (ITD)					(FY96/97 At Completion)		
WBS	Budgeted Cost		Actual Cost Work Performed ACWP	Variances		Budget at Complete BAC	Latest Revised Estimate LRE	Variance at Complete VAC
	Work Scheduled BCWS	Work Performed BCWP		Schedule SV	Cost CV			
1.2.1	14,556	13,611	13,009	(945)	602	17,363	17,058	305
1.2.2	22,179	19,485	19,018	(2,694)	467	26,126	24,024	2,102
1.2.3	94,863	94,296	91,622	(567)	2,674	109,463	111,072	(1,609)
1.2.4	18,652	18,079	17,809	(573)	270	22,016	21,529	487
1.2.5	28,854	28,100	25,674	(754)	2,426	34,885	33,136	1,749
1.2.6	116,686	115,954	122,085	(732)	(6,131)	124,873	132,718	(7,845)
1.2.7	22,089	22,088	19,450	(1)	2,638	25,100	23,473	1,627
1.2.8	30,899	30,899	29,707	0	1,192	37,068	37,021	47
1.2.9	26,530	26,531	25,185	1	1,346	32,367	31,310	1,057
1.2.12	21,066	21,066	20,182	0	884	24,338	23,662	676
1.2.14	5,819	5,819	5,495	0	324	6,676	6,607	69
1.2.15	19,283	19,283	16,975	0	2,308	22,050	20,355	1,695
1.2.X						20,744	19,637	1,107
	421,476	415,211	406,211	(6,265)	9,000	503,069	501,602	1,467



FY 1996	Cum Jun	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CPI	0.988	0.979	0.967	1.004	1.022	1.023	1.030	1.030	1.039	1.035	1.032	1.022	1.022
SPI	0.985	0.983	0.996	0.987	0.983	0.983	0.977	0.974	0.979	0.986	0.985	0.985	0.985

# YMP FULL TIME EQUIVALENTS

By Fiscal Month



Fiscal Mo.	FY96	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Baseline	16369	1526	1611	1533	1532	1503	1454	1480	1468	1829	1519	1478	1477
Forecast										2064	1751	1750	1750
Actual	17101	1271	1495	1337	1485	1413	1678	1629	1831	2064	0	0	0

# Variance Analysis Report

## WBS 1.2.2 Waste Package

### Multi-Year Cumulative Cost/Schedule, and at Complete

<u>BCWS</u>	<u>BCWP</u>	<u>ACWP</u>	<u>SV</u>	<u>CV</u>	<u>BAC</u>	<u>LRE</u>	<u>VAC</u>
135,070	132,376	131,909	-2,694	467	204,018	202,755	1,263

#### Cause:

**SV**      Slow start in staffing-up and delay in fabricating tanks and ancillary equipment for corrosion tanks. The big driver for the SV is in the planning of ODC's that have not occurred as planned (1.9M). Also Earned Value was not taken for New Summary Accounts for VA Mitigation.

**CV**      Within tolerance.

**VAC**      The VA Mitigation X Accounts ETC's were not adjusted to reflect the SA planning impacts as a result of implementing the CR. The ETC is overstated by \$1,084K. When corrected will place the VAC in tolerance.

**Impact:**    SV- Have slipped milestones completion dates, on the Start-up Tanks and ATM's

# **Variance Analysis Report**

## **WBS 1.2.2 Waste Package, Cont.**

### **Multi-Year Cumulative Cost/Schedule, and at Complete**

#### **Corrective Action:**

- SV**      **Additional resources are being applied to help mitigate the schedule variance.**
- CV**      **Additional resources are being applied to help mitigate the schedule variance will decrease the cost variance.**
- VAC**     **The x Accounts will be corrected in the July reporting.**



# Variance Analysis Report

## WBS 1.2.3 Site Investigations

### Multi-Year Cumulative Cost/Schedule, and at Complete

<u>BCWS</u>	<u>BCWP</u>	<u>ACWP</u>	<u>SV</u>	<u>CV</u>	<u>BAC</u>	<u>LRE</u>	<u>VAC</u>
638,376	637,809	635,135	-567	2,674	827,433	825,416	2,017

**SV: -567K**

- Cause:**
- 1) Waste Package Environmental Testing & Modeling is ~\$220K behind schedule due to LLNL's inability to provide sufficient staff to meet the planned schedule.**
  - 2) Preparation of the PISA Geology, Hydrology and the Environmental Description reports are ~\$200K behind schedule. These reports are requiring more effort than planned.**

**Impact:** Site Investigations is approximately 2 days behind schedule.

**Corrective Action:**

**Interactive group reviews will be conducted as necessary to recover the schedule slip.**

# **Variance Analysis Report**

## **WBS 1.2.3 Site Investigations, Cont.**

### **Multi-Year Cumulative Cost/Schedule, and at Complete**

**CV: 2,674K**

- Cause:**
- 1) Completed FY-96 accounts have underrun by ~\$1,100K.**
  - 2) Deferred borehole workovers (~\$210K) and delays in filling staff positions for LOE accounts in 1.2.3.1, 1.2.3.5.3 and 1.2.3.9.11 have resulted in an additional ~\$1,000K cumulative cost variance.**
  - 3) Actual costs for procurement of instrumentation for the First ESF Thermal Test have not been accrued as planned resulting in a 370K cumulative cost variance.**

**Impact:** Site Investigations will continue to carry an underrun from FY96. The variance will be reduced as equipment invoices are booked and deferred work is initiated.

**Corrective Action:**

**Accrue actual costs as equipment invoices are received. All planned LOE staff positions have been filled and deferred work is scheduled to start in August.**

# **Variance Analysis Report**

## **WBS 1.2.3 Site Investigations, Cont.**

### **Multi-Year Cumulative Cost/Schedule, and at Complete**

**VAC: 2,017K**

- Cause:**
- 1) The VAC is understated by ~\$3,000K due to an ETC error by Project Controls during implementation of the VA Risk Mitigation CR.**
  - 2) The First ESF Thermal Test is forecast to overrun at completion by ~\$1,500K due to additional test design, procurement and installation costs for instrumentation.**
  - 3) Probabilistic Seismic Hazards Analysis is forecast to overrun by \$671K because of unplanned effort required to respond to requests from the panels of experts participating in the PSHA.**
  - 4) The Large Block Test is forecast to overrun at completion by \$597K due to additional procurement and installation costs for instrumentation and labor which is required to support testing.**
  - 5) The overruns described above are partially offset by forecast underruns in other areas within Site Investigations.**

# **Variance Analysis Report**

## **WBS 1.2.3 Site Investigations, Cont.**

### **Multi-Year Cumulative Cost/Schedule, and at Complete**

**Impact:** Site Investigations is forecast to overrun at completion by ~\$1,000K.

**Corrective Action:**

The understated LRE will be corrected in the July reporting period. All accounts within Site Investigations are being closely monitored to identify potential underruns that could offset projected overruns.

# Variance Analysis Report

## WBS 1.2.6 Exploratory Studies Facility

### Multi-Year Cumulative Cost/Schedule, and at Complete

<u>BCWS</u>	<u>BCWP</u>	<u>ACWP</u>	<u>SV</u>	<u>CV</u>	<u>BAC</u>	<u>LRE</u>	<u>VAC</u>
433,772	433,040	439,171	-732	-6,131	560,383	568,822	-8,439

**Cause:**

- SV**
- 1) Late completion of South Ramp excavation(4/25/97) that delayed TBM demobilization (-\$223K)
  - 2) An Earned Value error in "Install IDCS Cabling" (-\$126K) and "Management and Administration" (-\$109K).
- CV**
- 1) FY96 constructor subcontractor management costs exceeding budget
  - 2) FY95 carryover costs exceeding FY96 BAC for WBS1.2.6 carryover accounts
  - 3) Unplanned FTEs in the CMO
  - 4) Unplanned constructor's insurance/bond and SIIIS costs
  - 5) Constructor's staff levels higher than planned in the second half of FY97.

# **Variance Analysis Report**

## **WBS 1.2.6 Exploratory Studies Facility, Cont. Multi-Year Cumulative Cost/Schedule, and at Complete**

- VAC**
- 1) The CV elements noted above**
  - 2) Unplanned equipment rentals for June through September**
  - 3) Unplanned costs expected to be charged to "Heater Test Installation"**
  - 4) Higher constructor's staff levels to support**
  - 5) Additional tunnel support costs (i.e. correction of code violations and ECRB tasks)**

# **Variance Analysis Report**

## **WBS 1.2.6 Test Facilities, Cont.**

### **Multi-Year Cumulative Cost/Schedule, and at Complete**

**Impact:** No impacts to any current or future milestones are expected because of these variances. Continued high constructor staff levels and the SIIS issue will probably eliminate any previously projected budget surplus .

**Corrective Action:** Earned Value errors should be corrected prior to the next report. Constructor's staff level is being monitored to keep it consistent with the current tasks.

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management  
DIRECTOR'S PROGRAM REVIEW**

**WAST Project Overview**

**PRESENTED TO  
LAKE BARRETT, Acting Director  
OCRWM**

**PRESENTED BY  
Dwight Shelor, Acting Director  
Office of Waste Acceptance,  
Storage and Transportation**



**July 31, 1997**



# **PRIORITY ACTIVITIES**

- **Waste Acceptance and Transportation**
  - RFP for Waste Acceptance and Transportation Services
  - Standard Contract Management
  - Section 180(c) Implementation
  - Transportation Workshops
- **Interim Storage Related Activities**
  - Phase I Centralized Interim Storage Facility (CISF) TSAR - support of NRC Review
  - Dry Transfer System (DTS) TSAR - support of NRC review
  - Actinide-only Burnup Credit (BUC) Topical Report Rev.1 - support of NRC Review
  - Scoping/Feasibility on resource requirements to study additional burnup credit (Principal Isotopes)

## **CHANGES SINCE LAST DPR**

- **BCP-03-97-0009 - Revision to the WAST Project Performance Measurement Baseline in PACS (\$30K)**
- **BCP-03-97-0010 - Transfer of Budget from WAST Management Reserve to WBS 3.2.4, Technology Development - scoping study for burnup credit (\$118K)**
- **BCP-03-97-0011 - Revision to WBS 3.1.1.1 for Support to Acquisition of Waste Acceptance and Transportation Services (\$160K)**
- **BCP-03-97-0012 - Complete Phase I CISF TSAR, Rev. 0 (WBS 3.2.1.2) (\$324K)**

## **CHANGES SINCE LAST DPR (Cont.)**

- **BCP-03-97-0013 - Revision to Work Scope of FY 1997 M&O Task to Provide Transportation Institutional Planning & Analysis Support under WBS Element 3.1.1.3 (\$73K)**
- **BCP-03-97-0014 - Phase 2B MPC System Subcontract Support - Review of Proposal (\$45K)**
  - **approved but not yet included in Contractor Budget Baseline (CBB)**

# **ACCOMPLISHMENTS**

**May-July**

- **Submitted Phase I CISF TSAR Rev. 0 to the NRC on May 1, 1997 - NRC docketed TSAR on June 10, 1997 (Docket No. 72-21)**
  - **Submitted Phase I CISF design packages to the NRC on June 18, 1997 in response to NRC's June 10 request (follow-up submittal in preparation)**
- **Submitted Revised Topical Report on Actinide-Only Burnup Credit for PWR Spent Nuclear Fuel Packages, May 1997 (DOE/RW-0472 Rev.1) to NRC on May 15, 1997**
- **Published Section 180(c) Notice of Revised Proposed Policy and Procedures in the Federal Register on July 17, 1997**

# **ACCOMPLISHMENTS (Cont.)**

**May-July**

- **Provided support for the Utility Industry meeting held in Washington, DC on July 15**
- **Co-chaired TEC/WG Meeting held in Albuquerque July 15-17, 1997 - Section 180(c) Notice provided at meeting**
- **Federal Register Notice announcing Transportation Public Workshops published July 14**
  - **Dallas, TX on August 7-8**
  - **Reston, VA on August 12-13**
- **Issued cooperative agreement awards to:**
  - **Western Interstate Energy Board**
  - **Commercial Vehicle Safety Alliance**

# **ACCOMPLISHMENTS (Cont.)**

**May-July**

- **Provided presentations/briefings to:**
  - **Council of State Governments/Eastern Regional Conference**
  - **National Conference of State Legislatures**
  - **Nevada Commission on Nuclear Projects**

# LEVEL 1 MILESTONE STATUS

<b>WBS Level</b>	<b>Milestone (ID Number)</b>	<b>BCCB Level</b>	<b>Baseline Date</b>	<b>Actual (A)/ Forecast</b>
3.2.2.1	Submit Phase I CISF TSAR Rev. 0 to the NRC (WI322M7007)	1	05/01/97	05/01/97 (A)
3.2.4.1	Submit Actinide-only BUC Topical Report Rev. 1 to the NRC (WI324M7001)	1	05/15/97	05/15/97 (A)
3.1.4	Issue Section 180(c) Notice of Revised Proposed Policy and Procedures (WT314M7001)	1	07/16/97	07/11/97 (A)
3.1.1.1	Issue Final RFP for RSAs (WT311M7004)	1	TBD	Under Review

# LEVEL 2 MILESTONE STATUS

<b>WBS Level</b>	<b>Milestone (ID Number)</b>	<b>BCCB Level</b>	<b>Baseline Date</b>	<b>Actual (A)/ Forecast</b>
3.2.4.1	Complete Actinide-Only BUC Topical Report Rev. 1c (WI324M7003)	2	05/01/97	05/01/97 (A)
3.2.1.2	Complete Cost Estimate for Non-Site-Specific Phase I CISF (WI321M7002)	2	05/01/97	04/16/97 (A)
3.1.4	Complete Section 180(c) Notice of Revised Proposed Policy & Procedures (WT314M7002)	2	05/16/97	05/14/97 (A)
3.1.1.1	Complete Concurrence Draft Final RFP for RSAs	2	TBD	Under Review
3.3.1.3	Complete WAST input to FY99 OMB Submittal (WP331M7002)	2	08/29/97	On Schedule
3.3.1.2	Complete WAST FY98 AWP (WP331M7006)	2	09/30/97	On Schedule
3.2.4.1	Complete feasibility study for additional Burnup Credit	2	09/30/97	On Schedule



# **DPR ACTION ITEMS**

- **Arrange a meeting with RW-1 to discuss the next steps related to the RSA procurement for “what if” scenarios, such as the disposition of Congressional legislation affecting the Program**
  - **Closed - RW-1 was briefed**

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**DIRECTOR'S PROGRAM REVIEW  
WAST PROJECT**

**Performance Measurement**

**PRESENTED TO  
LAKE BARRETT, Acting Director OCRWM**



**PRESENTED BY  
SYED BOKHARI,  
Senior Project Management Integrator  
Office of Waste Acceptance,  
Storage and Transportation**

**July 31, 1997**

# **COMPARISON OF ORIGINAL CONTRACTORS' BUDGET BASELINE (CBB) TO CURRENT CBB (\$K)**

<b>CBB For FY96 as of 10/95</b>	<b>\$38,291</b>
---------------------------------	-----------------

<b>Changes Prior to 5/97 DPR</b>	<b>3,219</b>
----------------------------------	--------------

**Changes Since 5/97**

<b>Double Containment Rulemaking (BCP 97-9)</b>	<b>30</b>
---	-----------

<b>Burn-up Credit Study (BCP 97-10)</b>	<b>118</b>
---	------------

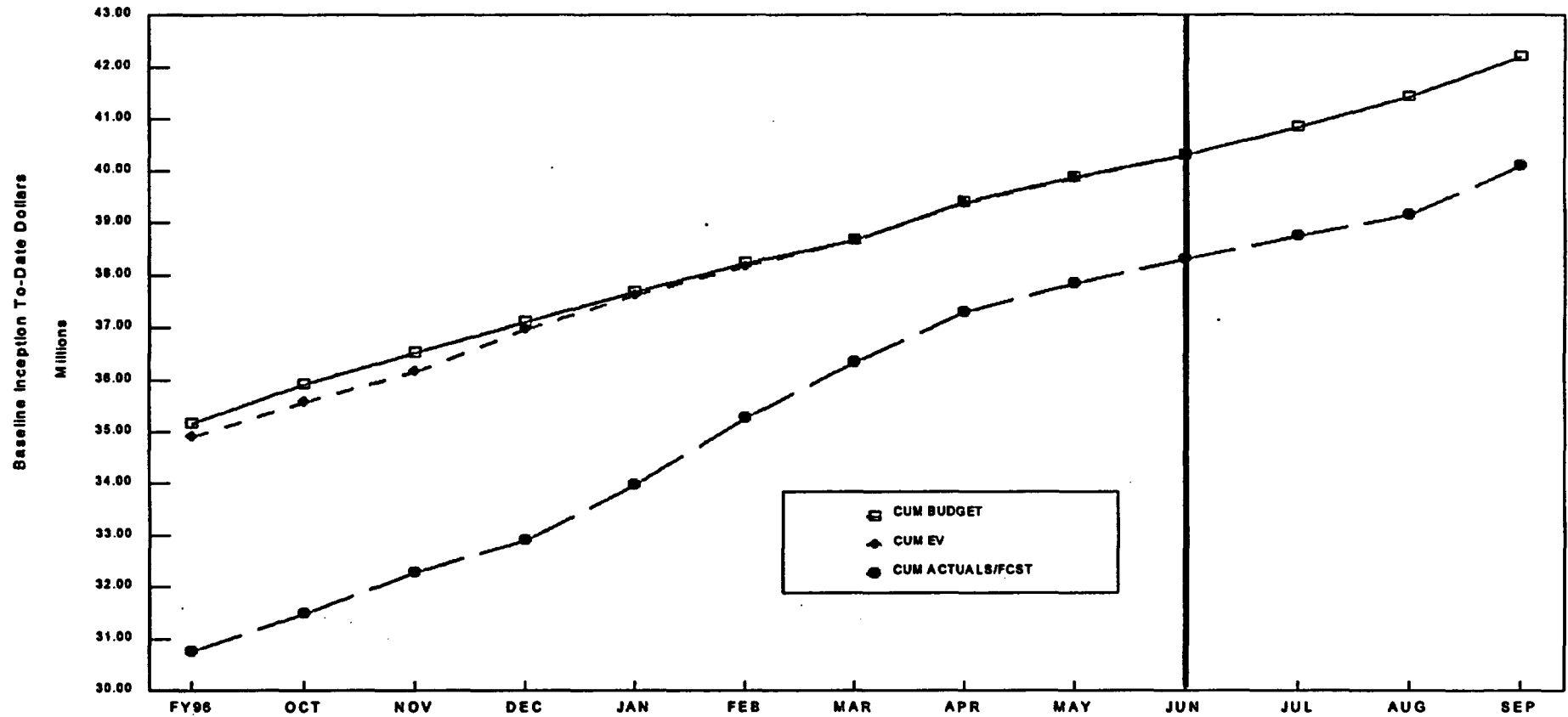
<b>Risk Mgmt. Suppt. for RSA RFP (BCP 97-11)</b>	<b>160</b>
--	------------

<b>TSAR NRC Suppt. (BCP 97-12)</b>	<b>324</b>
------------------------------------	------------

<b>Institutional Suppt. for Trans. Mtgs (BCP 97-13)</b>	<b>73</b>
---	-----------

<b>CBB For FY96 and FY97 as of 6/97</b>	<b>\$42,215</b>
---	-----------------

### 3.0 WAST Earned Value Graph



	FY96	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MONTHLY BUD	35177	750	613	587	560	547	440	728	485	433	543	587	765
MONTHLY EV	34916	679	566	813	648	544	509	719	476	450			
MONTHLY ACT	30782	724	779	636	1060	1310	1061	623	510	477			
MONTHLY FCST											912	850	938
SCHED VAR	-261	-71	-47	226	88	-3	69	-9	-9	17			
COST VAR	4134	-45	-213	177	-412	-766	-552	96	-34	-27			
CUM BUDGET	35177	35927	36540	37127	37687	38234	38674	39402	39887	40320	40863	41450	42215
CUM EV	34916	35595	36161	36974	37622	38166	38675	39394	39870	40320			
CUM ACTUAL	30782	31506	32285	32921	33981	35291	36352	36975	37485	37962			
CUM FCST											38874	39724	40662
ITD SV	-261	-332	-379	-153	-65	-68	1	-8	-17	0			
ITD CV	4134	4089	3876	4053	3641	2875	2323	2419	2385	2358			

# FY 96/97 PROJECT BUDGET PERFORMANCE

## June

	(a)	(b)	(c)	(d)=(b-a)	(e)=(b-c)	(f)	(g)	(h)=(f-g)
	FY 96/97(ITD)					(FY96/97 At Completion of Work)		
WBS	Budgeted Cost		Actual Cost	Variances		Budget at Complete BAC	Latest Revised Estimate LRE	Variance at Complete VAC
	Work Scheduled BCWS	Work Performed BCWP	Work Performed ACWP	Sched SV	Cost CV			
3.1	13683	13683	11862	0	1821	14756	13600	1156
(Trans.)								
3.2	7586	7586	7417	0	169	8134	7977	157
(Storage)								
3.3	3468	3468	3326	0	142	3742	3610	132
(Proj. Mgmt.)								
3.4	15583	15583	15357	0	226	15583	15475	108
(Cask/Canister)								
CBB	40320	40320	37962	0	2358	42215	40662	1553
Fee						607	530	77
MR						146	104	42
U/B						12500	12500	0
*CIC						2567	1950	617
Total 3.0						58035	55746	2289

\*Contracts in Closeout

# WBS 3.0 VARIANCE ANALYSIS

(\$000)

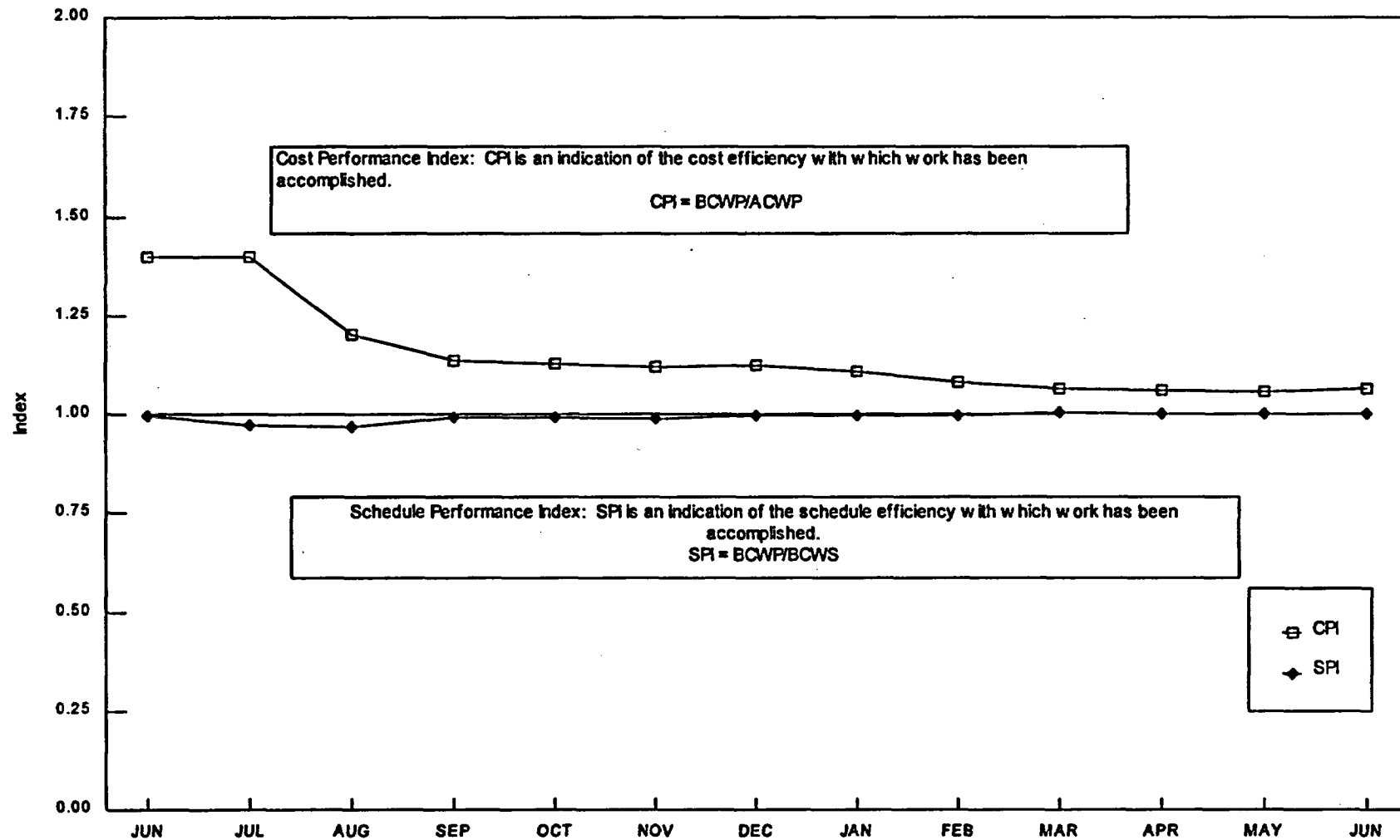
WBS	TITLE	BCWS	BCWP	ACWP	SV	CV
3.0	WAST	40320	40320	37962	0	2358

**Cause:** The cost variance reflects FY96 work completed below budget. FY97 costs for minor participants are lagging budget plan.

**Impact:** None

**Corrective Actions:** None

# FY 1997 3.0 WAST CPI/SPI GRAPH



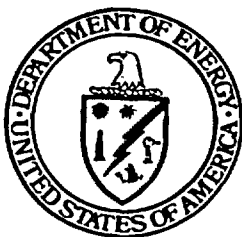
FY 1996	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CPI	1.401	1.398	1.201	1.133	1.128	1.120	1.123	1.107	1.082	1.062	1.059	1.056	1.062
SPI	0.996	0.972	0.970	0.993	0.991	0.990	0.996	0.998	0.998	1.003	1.000	1.000	1.000

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**OFFICE OF QUALITY ASSURANCE**

**PRESENTED TO  
LAKE BARRETT, Acting Director**

**PRESENTED BY  
DONALD G. HORTON  
Director, Office of Quality Assurance**



**July 31, 1997**



# **PRIORITY ACTIVITIES**

- **PROVIDE THE NECESSARY QA SUPPORT TO ALL AFFECTED ORGANIZATIONS TO FACILITATE TIMELY AND ACCEPTABLE DELIVERABLES.**
- **CONTINUE THE TRANSITION OF ALL QA FUNCTIONS TO OQA BY OCTOBER 1, 1997 (PHASE C).**
- **CONTINUE TO MONITOR FY-97 PROGRAM DELIVERABLES AND PLAN FOR FY-98 ACTIVITIES.**
- **PROVIDE CONTINUED SUPPORT TO THE NATIONAL SPENT NUCLEAR FUEL PROGRAM AND INITIATE DIALOGUE WITH THE NAVY NUCLEAR FUEL PROGRAM IN IMPLEMENTATION OF QARD REQUIREMENTS.**

# **ACCOMPLISHMENTS**

## **MAY - JULY**

- **COMPLETED THE TRANSITION OF QA FUNCTIONS FROM THE CRWMS M&O TO OQA (PHASE B).**
- **COMPLETED QA MANAGEMENT ASSESSMENTS FOR: LANL, SNL, EM-32, EM-67, RW-HQ, M&O - VIENNA AND LAS VEGAS**
- **COMPLETED COMPLIANCE AUDITS OF ENVIRONMENTAL MANAGEMENT'S (EM'S) OFFICE OF EASTERN OPERATIONS FOR THE OFFICE OF WASTE MANAGEMENT (EM-32) AND THE OFFICE OF TECHNICAL SERVICES (EM-37).**

# **ACCOMPLISHMENTS**

## **MAY - JULY**

(Cont'd)

- **PREPARED REVISION 8 TO QARD**
  - **CONDUCT OF EXPERT ELICITATION**
  - **GRADED APPROACH FOR PERSONNEL QUALIFICATION REQUIREMENTS**
  - **DATA QUALIFICATION REQUIREMENTS**
  - **SOFTWARE REQUIREMENT CLARIFICATIONS**

# QA ORGANIZATION DATA FOR APRIL - JUNE 1997

ORGANIZATION	SURVEILLANCES	DEFICIENCIES IDENTIFIED	DEFICIENCIES CLOSED	QA DOCUMENTS DEVELOPED	QA DOCUMENTS REVIEWED
OQA <sup>(1)</sup>	41	47	23	7 <sup>(3)</sup>	145 <sup>(4)</sup>
M&O <sup>(2)</sup>	7	10	37	61 <sup>(3)</sup>	265 <sup>(4)</sup>
USGS	2	11	5	12	40
TOTAL	50	68	65	80	450

- (1) OQA PERFORMED A TOTAL OF 20 AUDITS, 13 OF THESE WERE SUPPLIER AUDITS.
- (2) M&O DATA INCLUDES INPUT FROM THE LABS AND KIEWIT/PB.
- (3) INCLUDES DOCUMENT REVISIONS.
- (4) INCLUDES DESIGN DOCS., DATA PKGS., POs, TEST PLANS, JOB PKGS., SCIENTIFIC NOTEBOOKS, ETC.

# CHANGES SINCE LAST DPR MAY - JUNE

<b>BCP - 03</b>	<b>WBS</b>	<b>9.1.3.1</b>	<b>M&amp;O</b>	<b>HQ</b>	<b>DECREASE</b>	<b>( 65)</b>
	"	9.1.3.2	"	YM	"	<b>(1,770)</b>
	"	9.1.3.3	USGS		"	<b>( 181)</b>
	"	9.1.2	QATSS	YM	<b>INCREASE</b>	<b><u>1,000</u></b>
 <b>NET CHANGE TO OQA AS OF JUNE 30</b>						 <b>(1,016)</b>
 <b>AFFECTED AFTER 6/30 PACS DATA</b>	 <b>WBS</b>	 <b>9.1.3.2</b>	 <b>M&amp;O</b>	 <b>YM</b>	 <b>DECREASE</b>	 <b>( 366)</b>
	<b>(Transferred to 1.2.12 for EA)</b>					 <b><u>          </u></b>
						 <b><u>(1,382)</u></b>

# MAJOR FY-97 DELIVERABLES

DELIVERABLE	LEVEL	BASELINE DATE	FORECAST
QA MANAGEMENT ASSESSMENT	1	09/30/97	09/30/97(F)
FY-96 QA PROGRAM ANNUAL SUMMARY REPORT	2	03/01/97	12/12/96(A)
PERFORM REGULATORY REQUIRED INTERNAL QA PROGRAM COMPLIANCE BASED AUDITS	2	09/30/97	09/30/97(F)
PERFORM REGULATORY REQUIRED SUPPLIER AUDITS	2	09/30/97	09/30/97(F)

# DPR ACTION ITEMS

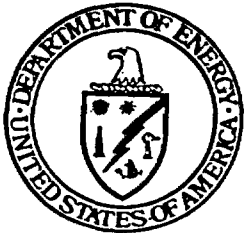
- NONE

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**OFFICE OF QUALITY ASSURANCE  
Performance Measurement**

**PRESENTED TO  
LAKE BARRETT, Acting Director**

**PRESENTED BY  
DONALD G. HORTON  
Director, Office of Quality Assurance**



**July 31, 1997**



# COMPARISON OF ORIGINAL CONTRACTOR BUDGET BASELINE (CBB) TO CURRENT CBB (\$K)

<b>CBB (1996)</b>	<b>\$19,410</b>
<b>“ (1997)</b>	<b>\$15,988</b>
<b>CHANGES:</b>	<b>\$ (1,382)</b>
<b>WBS 9.1.3.1 M&amp;O HQ DECREASE</b>	<b>( 65)</b>
<b>“ 9.1.3.2 “ YM “</b>	<b>(1,770)</b>
<b>“ 9.1.3.3 USGS “</b>	<b>( 181)</b>
<b>“ 9.1.2 QATSS YM INCREASE</b>	<b>1,000</b>
<b>“ 9.1.3.2 M&amp;O YM DECREASE AFTER 6/30</b>	<b>( 366)</b>
<b>CBB (Current CBB)</b>	<b><u>\$34,016</u></b>

# FY 96/97 PROJECT BUDGET PERFORMANCE

(a) (b) (c) (d)=(b-a) (e)=(b-c) (f) (g) (h)=(f-g)

FY 96/97(ITD)

(FY96/97 At Completion)

WBS	Budgeted Cost		Actual Cost Work Performed ACWP	Variances		Budget at Complete BAC	Latest Revised Estimate LRE	Variance at Complete VAC
	Work Scheduled BCWS	Work Performed BCWP		Sched SV	Cost CV			
9.1.1	2044	2044	1928	0	116	2247	2131	116
9.1.2	10167	10167	10248	0	-81	12402	12483	-81
9.1.3.1	1149	1149	1222	0	-73	1149	1273	-124
9.1.3.2	15905	15905	14635	0	1270	16391	15121	1270
9.1.3.3	1145	1145	840	0	305	1145	840	305
9.1.4	558	558	443	0	115	681	566	115
CBB	30968	30968	29316	0	1652	34015	32414	1601
Contingency						50	50	0
Fee						365	365	0
Total 9.1.X						34430	32829	1601

# WBS 9.X VARIANCE ANALYSIS

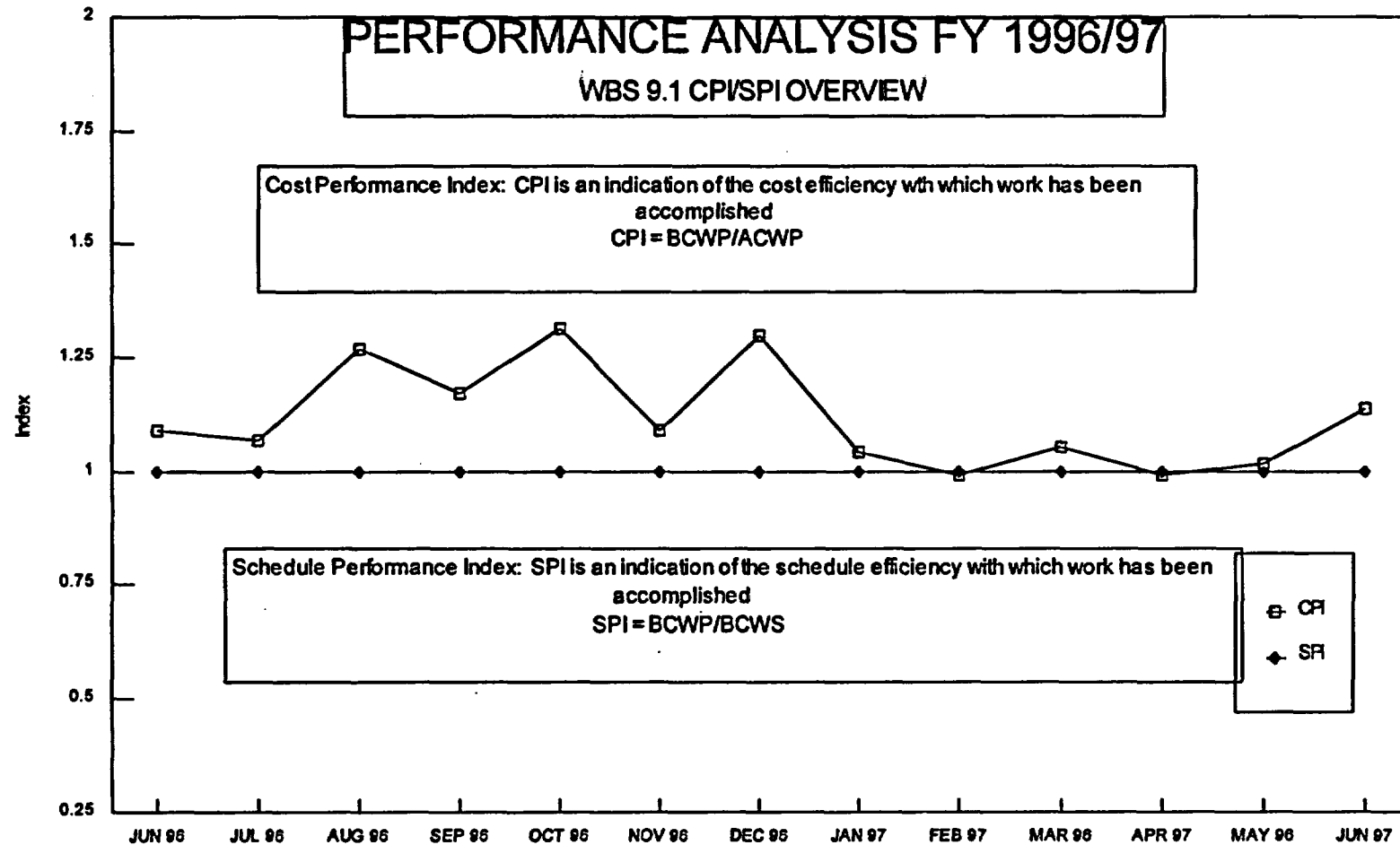
WBS	TITLE	BCWP	BCWS	ACWP	SV	CV
9.1X	OQA	30,968	30,968	29,316	0	1,652

**COST VARIANCE: 1,652**

**IMPACT: NONE**

## **CORRECTIVE ACTION:**

**THE MARCH DPR APPROVED OQA'S RETENTION OF THE VARIANCE UNTIL OQA TRANSITION IS COMPLETE AND ASSOCIATED WORK SCOPES ARE REDEFINED. BCWP HAS BEEN DECREASED BY THE 366K AFFECTED AFTER 6/30/97 PACS DATA.**



FY 1996/7	JUN 96	JUL 96	AUG 96	SEP 96	OCT 96	NOV 96	DEC 96	JAN 97	FEB 97	MAR 96	APR 97	MAY 96	JUN 97
CPI	1.092	1.069	1.267	1.173	1.313	1.093	1.297	1.042	0.992	1.055	0.992	1.018	1.139
SPI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**Director's Program Review**

**Program Management and Administration**

**PRESENTED TO**

**Lake Barrett, Acting Director  
OCRWM**



**PRESENTED BY**

**Sam Rousso, Director  
Office of Program Management  
and Administration**

**July 31, 1997**

# **PRIORITY ACTIVITIES**

- **Approve the comprehensive EM/RW MOA on acceptance and transportation of DOE spent nuclear fuel and high level waste**
- **Approve the NR/RW MOA on acceptance and transportation of DOE spent nuclear fuel**
- **Complete the Contingency Study on Early Receipt of Waste at the Repository**

# **PRIORITY ACTIVITIES**

- **Approve Revision 4 of the CRWMS Requirements Document**
- **Complete the FY 1998 Annual Work Plan and FY 1999 Budget Request**
- **Support YMSCO in drafting an overall DOE/NRC prelicensing agreement**

# **PRIORITY ACTIVITIES**

- **Support YMSCO on 10 CFR Part 960 (Siting Guidelines) issues and preparation of responses to public comments on policy related matters**
- **Update OCRWM Strategic and Program Plan and continue to support revision of DOE Strategic Plan**
- **Install new computers, LAN upgrades and Windows 95**



# **ACCOMPLISHMENTS**

**May - July**

- **Systems Engineering**
  - **Issued RW-1 approved CRWMS Total System Description**
  - **Completed the “Impacts of Early Reactor Shutdown” Report**
  - **Completed the “Transportation Cask Maintenance Operations Study”**
  - **Coordinated Depleted Uranium Workshop**
  - **Conducted a technical exchange with the NRC on DOE spent fuel characteristics for disposal**

# **ACCOMPLISHMENTS**

**May - July**

- **Regulatory**

- **Completed preparation of the Director's statement for the record for the May 15 Director's briefing to the NRC and the June 25 presentation to the NWTRB**
- **Obtained departmental approval for release of the "Summary of Public Scoping Comments Related to the Environmental Impact Summary for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Wastes at Yucca Mountain, Nye County, Nevada"**

# **ACCOMPLISHMENTS**

**May - July**

- **Program Management**
  - Submitted the draft fiscal year 1999 Corporate Review Budget request
  - Submitted the fiscal year 1999 Project Validation report for the CRWM Strategic System
- **Planning and Administration**
  - Issued the May 1997 OCRWM Enterprise

# **ACCOMPLISHMENTS**

**May - July**

- Secured S-1 approval and distributed the FY 1996 Annual Report to Congress**
- Executed MOU with Treasury to allow purchase of zero-coupon Treasury securities**
- Secured S-1 approval and submitted response to GAO Report on Impediments to completion of Yucca Mountain Project**
- Finalized Annual Performance Plan and 5-Year Planning Summary for the FY 1999 Budget (Government Performance Results Act Requirement)**

# **ACCOMPLISHMENTS**

**May - July**

- Completed the integrated Information Management Annual Planning Guidance**
- Provided upgraded graphics capabilities, new PCs and printers to Front Office and Rapid Response Team**
- Completed Windows 95 pilot**
- Human Resources**
  - Developed and submitted the Workforce Management Plan to HR**

# **ACCOMPLISHMENTS**

**May - July**

- Submitted the Staffing Plan to RW-1**
- Developed training for AP-17.1Q “Record Source Responsibilities for Inclusionary Records”**
- Contract Management**
  - Completed 1997 Business Management Oversight Program**

# **CHANGES SINCE LAST DPR**

## **PM&A Level 2 CCB**

### **May - June**

- **BCP-07-97-0009: Adds \$15,000 to WBS 9.3.1 providing a total budget of \$25,000 for the OCRWM credit card used to purchase supplies**

# FY 1997 Major Deliverables

<b>Description</b>	<b>Baseline Date</b>	<b>Forecast/ Actual Date</b>
<b>OCRWM Issues Approved Integrated Management Plan</b>	<b>01/02/97</b>	<b>09/30/97</b>
<b>Submit FY 1998 AWP Guidance Memo to RW-1</b>	<b>02/21/97</b>	<b>03/14/97 A</b>
<b>Submit OCRWM Annual Report to Congress</b>	<b>04/15/97</b>	<b>06/18/97 A</b>
<b>Submit FY 1999 CRB Request to CFO</b>	<b>06/02/97</b>	<b>06/26/97 A</b>
<b>Submit OCRWM FY 1998 Annual Work Plan to RW-1</b>	<b>08/18/97</b>	<b>09/25/97</b>



## **DPR ACTION ITEMS**

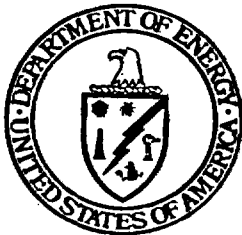
- **Review the multi-year cost performance charts with YMSCO and WAST to determine if the appropriate information is being provided to management**
  - **Closed; performance measurement briefings revised**
- **Solicit ideas and suggestions and provide recommendations on how to improve the DPRs**
  - **Suggestions received and under review**

**U.S. Department of Energy  
Office of Civilian Radioactive Waste  
Management**

**DIRECTOR'S PROGRAM REVIEW**

**Program Management & Administration  
Performance Measurement**

**PRESENTED TO  
LAKE BARRETT, Acting Director  
OCRWM**



**PRESENTED BY  
Vic Trebules, Director  
PM&A Program Management Division**

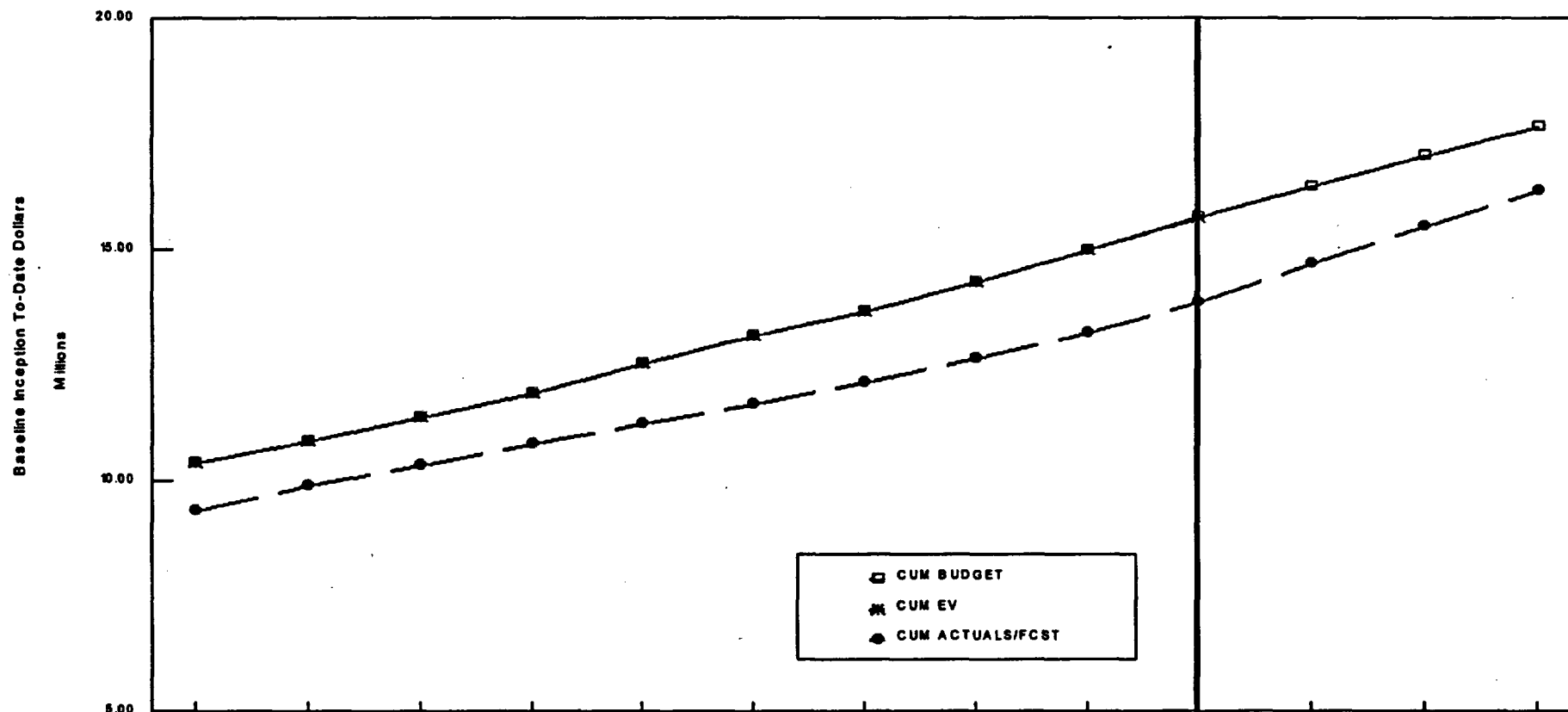
**July 31, 1997**

# COMPARISON OF PRIOR BUDGET BASELINE TO CURRENT BUDGET BASELINE (\$K)

	WBS 9.2 <u>PM&amp;I</u>	+	WBS 9.3 <u>HR&amp;A</u>	=	<u>PM&amp;A</u>
Baseline Last DPR	16,879		22,454		39,333
Changes since Last DPR	+ <u>797</u>		+ <u>15</u>		+ <u>812</u>
JUNE (FY97)	17,676		22,469		40,145

# FY1996 & 1997 Earned Value

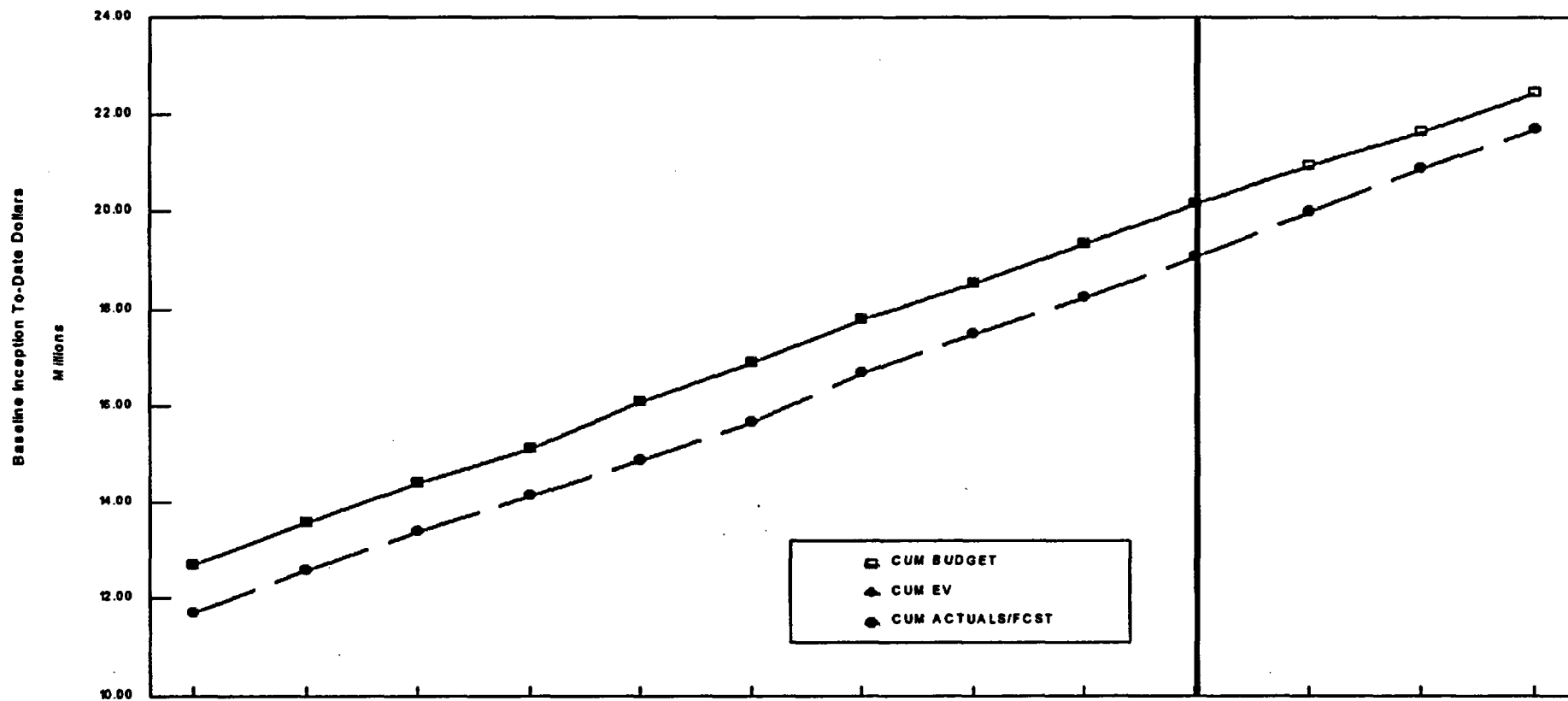
## WBS 9.2 PM&I



	FY96	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MONTHLY BUD	10417	463	508	522	643	599	520	647	691	709	660	659	638
MONTHLY EV	10417	463	508	522	643	599	520	647	689	692			
MONTHLY ACT	9381	529	457	438	433	444	452	519	551	671			
MONTHLY FCST											826	812	792
SCHED VAR	0	0	0	0	0	0	0	0	-2	-17			
COST VAR	1036	-66	51	84	210	155	68	128	138	21			
CUM BUDGET	10417	10880	11388	11910	12553	13152	13672	14319	15010	15719	16379	17038	17676
CUM EV	10417	10880	11388	11910	12553	13152	13672	14319	15008	15700			
CUM ACTUAL	9381	9910	10367	10805	11238	11682	12134	12653	13204	13875			
CUM FCST											14701	15513	16305
ITD SV	0	0	0	0	0	0	0	0	-2	-19			
ITD CV	1036	970	1021	1105	1315	1470	1538	1666	1804	1825			

# FY1996 & 1997 Earned Value

## WBS 9.3 HR&A



	FY96	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MONTHLY BUD	12708	877	841	706	974	810	887	763	804	811	759	724	805
MONTHLY EV	12708	877	841	706	974	810	887	763	804	811			
MONTHLY ACT	11717	859	812	775	703	800	1024	793	767	842			
MONTHLY FCST											903	903	809
SCHED VAR	0	0	0	0	0	0	0	0	0	0			
COST VAR	991	8	29	-69	271	10	-137	-30	37	-31			
CUM BUDGET	12708	13585	14426	15132	16106	16916	17803	18566	19370	20181	20940	21664	22469
CUM EV	12708	13585	14426	15132	16106	16916	17803	18566	19370	20181			
CUM ACTUAL	11717	12586	13398	14173	14876	15676	16700	17493	18260	19102			
CUM FCST											20005	20908	21717
ITD SV	0	0	0	0	0	0	0	0	0	0			
ITD CV	991	999	1028	959	1230	1240	1103	1073	1110	1079			

# FY 96/97 PROJECT BUDGET PERFORMANCE

## PM&I - June

(a)                      (b)                      (c)                      (d)=(b-a)    (e)=(b-c)                      (f)                      (g)                      (h)=(f-g)

FY 96/97(ITD)

(FY96/97 At Completion of Work)

WBS	Budgeted Cost		Actual Cost	Variances		Budget at Complete BAC	Latest Revised Estimate LRE	Variance at Complete VAC
	Work Scheduled BCWS	Work Performed BCWP	Work Performed ACWP	Sched SV	Cost CV			
9.2.1	5769	5750	4996	-19	754	6678	6300	378
9.2.2	2226	2226	2398	0	-172	2449	2607	-158
9.2.3	3795	3795	3374	0	421	4281	3842	439
9.2.4	1220	1220	1018	0	202	1310	1212	98
9.2.5	2709	2709	2089	0	620	2958	2344	614
CBB	15719	15700	13875	-19	1825	17676	16305	1371
Federal Costs						49400	49400	0
Contingency						3679	3679	0
Fee						543	386	157
CIC						1096	1119	-23
Total 9.2						72394	70889	1505

# FY 96/97 PROJECT BUDGET PERFORMANCE

## HR&A - June

	(a)	(b)	(c)	(d)=(b-a)	(e)=(b-c)	(f)	(g)	(h)=(f-g)
	FY 96/97(ITD)					(FY 96/97 At Completion of Work)		
WBS	Budgeted Cost		Actual Cost	Variances		Budget at Complete	Latest Revised Estimate	Variance at Complete
	Work Scheduled BCWS	Work Performed BCWP	Work Performed ACWP	Sched SV	Cost CV	BAC	LRE	VAC
9.3.1	506	506	521	0	-15	567	580	-13
9.3.2	1032	1032	1038	0	-6	1086	1087	-1
9.3.3	1612	1612	1415	0	197	1834	1585	249
9.3.4	8252	8252	7951	0	301	9283	9006	277
9.3.5	5747	5747	5360	0	387	6405	6380	25
9.3.6	3032	3032	2817	0	215	3294	3079	215
CBB	20181	20181	19102	0	1079	22469	21717	752
Fee						2605	2546	59
CIC						442	440	2
Total 9.3						25516	24703	813

**FY 1997**  
**PM&A VARIANCE ANALYSIS**  
**(\$000)**

<b>WBS</b>	<b>TITLE</b>	<b>BCWS</b>	<b>BCWP</b>	<b>ACWP</b>	<b>SV</b>	<b>CV</b>
9.2 & 9.3	PM&A	35,900	35881	32977	-19	2904

**Cause:**

- FY96 work completed below budget. FY97 actual costs to date less than budget plan due to loss of personnel.

**Impact:**

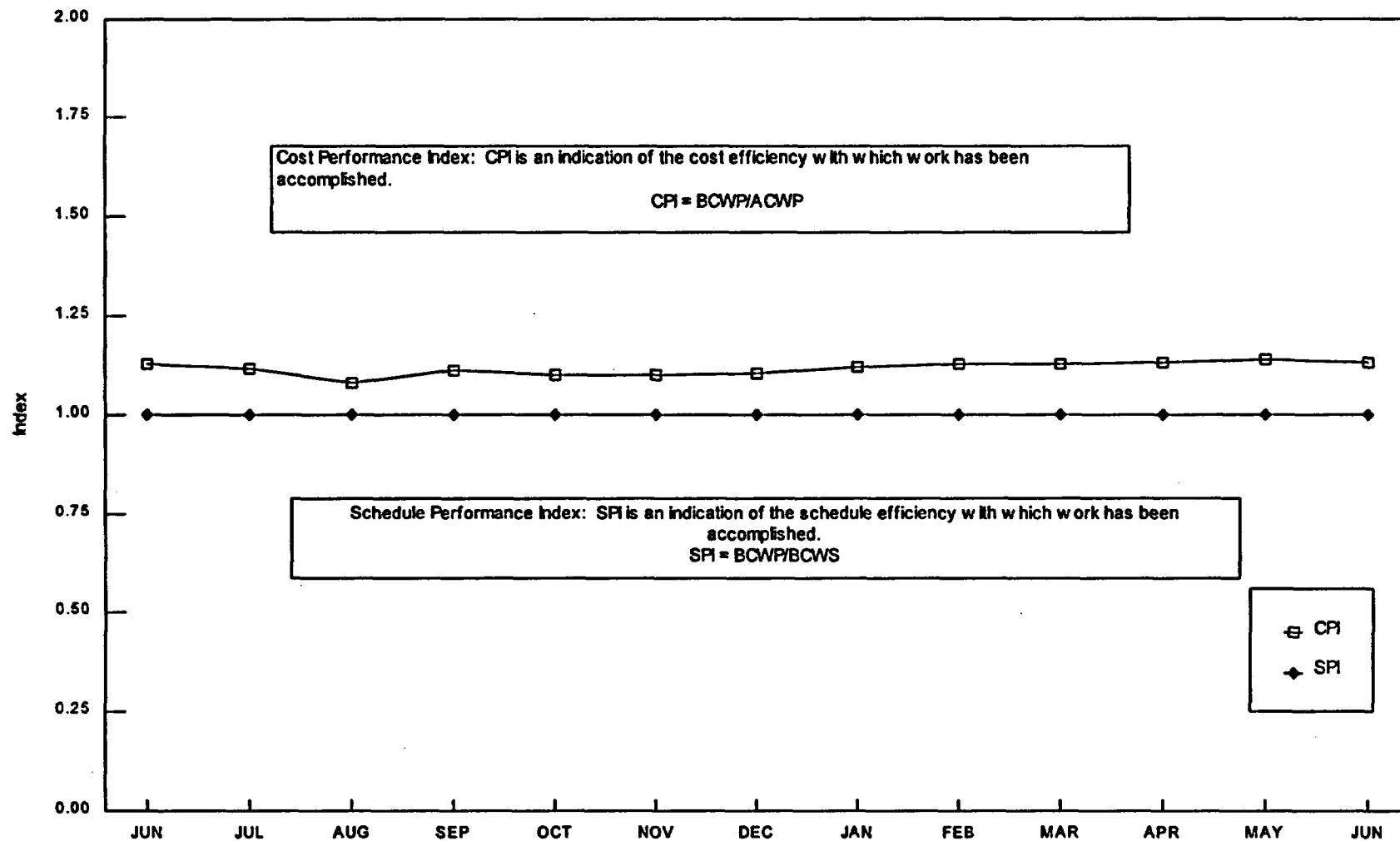
- None. FY97 deliverables are on schedule.

**Corrective Action:**

- Hire personnel, as appropriate

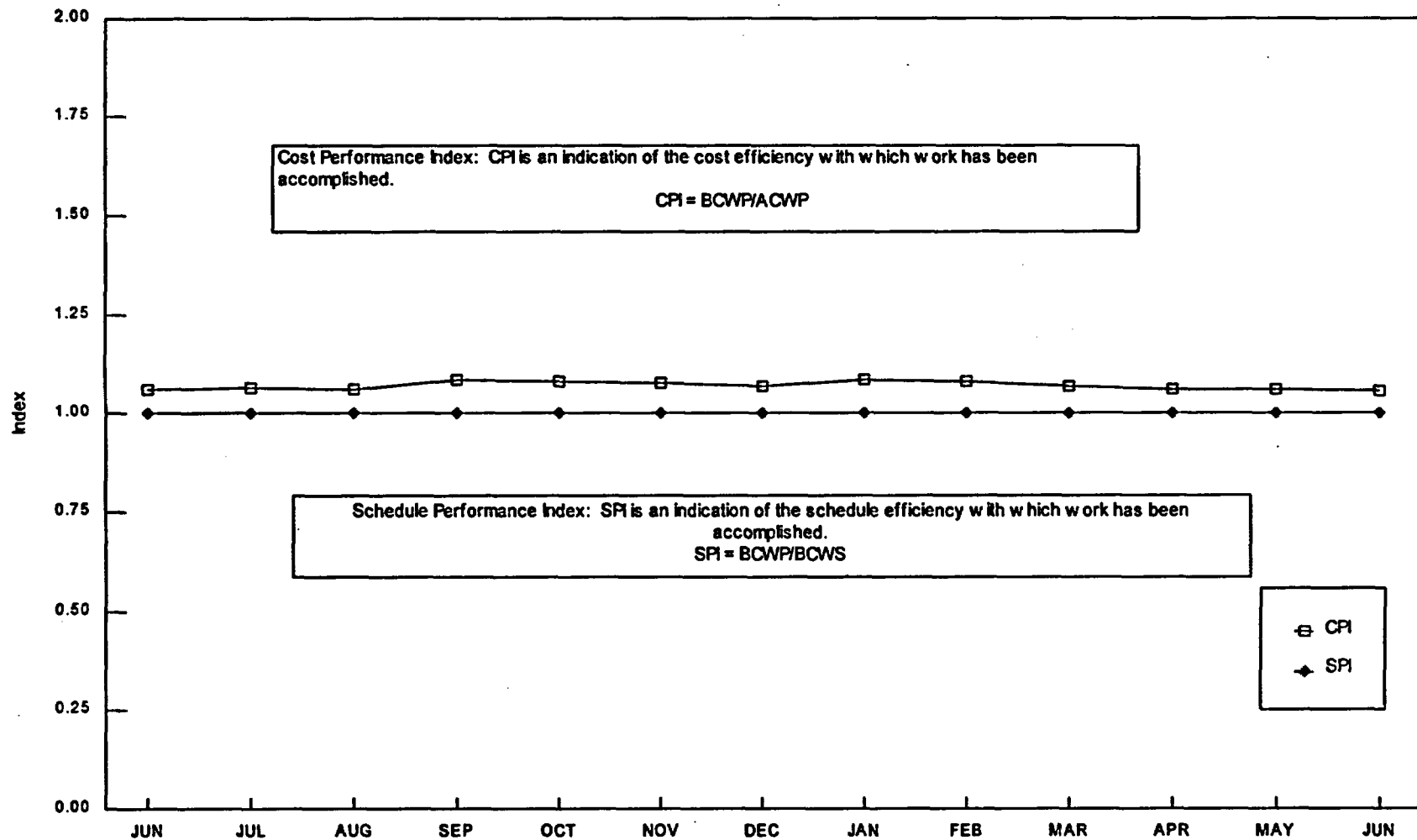


# FY 1996/1997 WBS 9.2 CPI/SPI GRAPH



FY 96/97	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CPI	1.129	1.114	1.079	1.110	1.098	1.098	1.102	1.117	1.126	1.127	1.132	1.137	1.132
SPI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999

# FY 1996/1997 WBS 9.3 CPI/SPI GRAPH



FY 96/97	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CPI	1.059	1.065	1.060	1.085	1.079	1.077	1.068	1.083	1.079	1.066	1.061	1.061	1.056
SPI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000