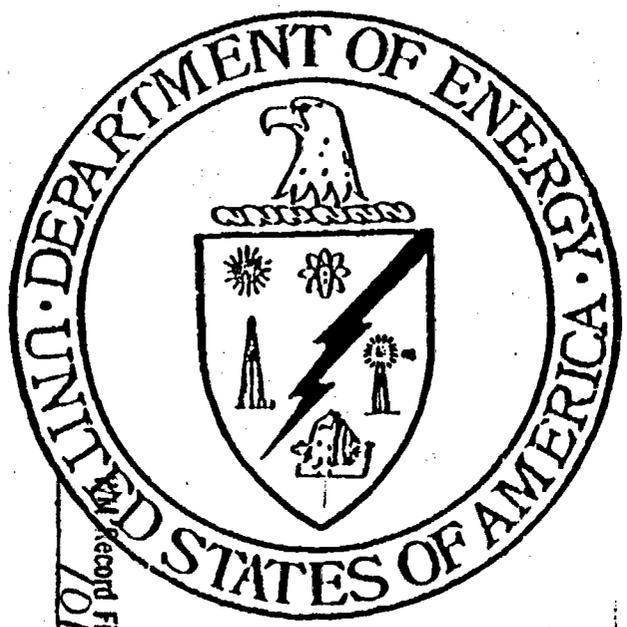


To: J. Lirchan / Hildenbrand
MS62355 WMRF

BASALT WASTE ISOLATION PROJECT SENIOR MANAGEMENT REVIEW JANUARY 29, 1987



8703310181 870129
PDR WASTE PDR
WM-10

Jim: Cook, NRC

2286

Distribution:
Lirchan
Hildenbrand
Hildenbrand
Sac

WM Project 12
Docket No. 101
PDR
LPDR

Record File 101

87 FEB -2 AM 1:03

See pocket 2 (1987) for encl.
WM-10 (2)
LPDR

101

PDR-71)

BASALT WASTE ISOLATION PROJECT

SENIOR MANAGEMENT REVIEW

JANUARY 29, 1987

BASALT WASTE ISOLATION PROJECT SENIOR MANAGEMENT REVIEW

JANUARY 29, 1987

AGENDA

Project Summary	8:00	R. A. Johnson
Baseline Planning	8:15	T. W. Woods
Geomechanical Design Methodology	8:30	W. J. Karwoski
Quality Assurance	8:45	R. T. Johnson
Repository	9:00	R. L. Schlosser
Kaiser Engineers Inc./Parsons Brinckerhoff Quade and Douglas	9:15	G. Kugler
Exploratory Shaft	9:30	T. M. Wintczak
Morrison-Knudsen Company, Inc.	9:45	E. E. Hershberger
Break	10:00	
Systems	10:10	K. R. Fecht
Waste Package	10:25	R. L. Gilchrist
Site	10:40	G. S. Hunt
Environmental/Socioeconomic Monitoring/Mitigation Plan	10:55	T. L. Page
Regulatory and Institutional	11:05	J. Graham
Test Facilities	11:20	G. S. Dintsch
Program Management	11:30	A. R. Hawkins
Program Director's Summary	11:45	D. C. Gibbs
Project Manager's Meeting	12:00	J. H. Anttonen

BASALT WASTE ISOLATION PROJECT

PROJECT SUMMARY

DICK JOHNSON

ACTION ITEMS FROM NOVEMBER 25, 1986 MEETING

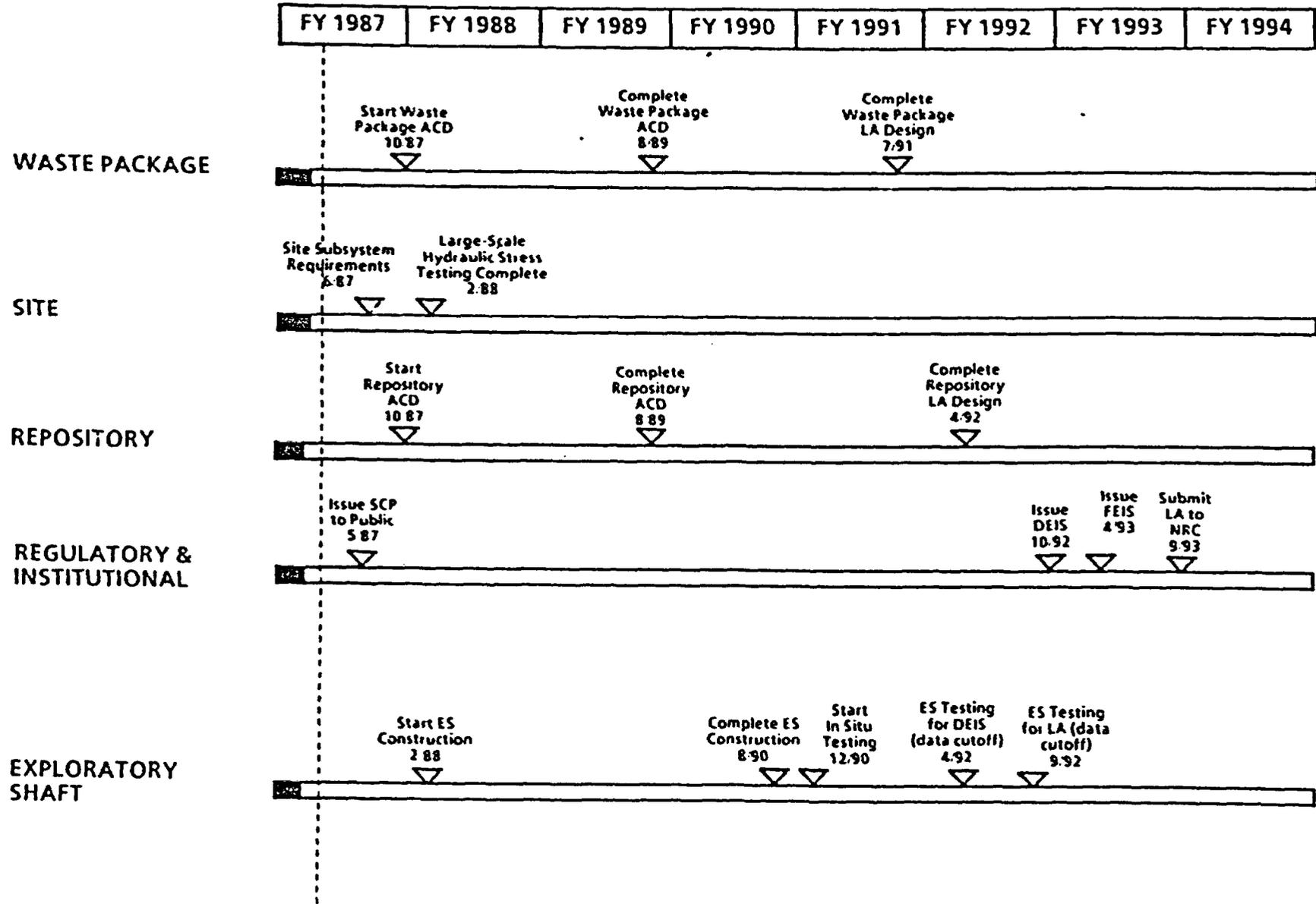
ACTION

- Add dates to Summary Planning Schedule
- Review MGDS Document milestones on FY 1987 and FY 1988 Summary Schedule
- Quality Assurance present issues completed with Critical Issues chart
- Quality Assurance to notify DOE when NCR's closed on improper surveys of borehole locations
- Provide "rack-up" of KE/PB costs of behind-schedule conditions
- DOE, Rockwell, and KE/PB meet on Study 11 Work Plan
- Waste Package follow-up on Defense Waste Budget issues
- Present Environmental and Socioeconomic Monitoring and Mitigation Plan information

RESPONSE

- Done
- Done
- Done for all areas. Number of times reported also added
- NCR closure awaiting release of PMPM 4-105 (DOE QAAP approval required)
- Done December 16, 1986
- Meeting held on December 22, 1986
- Guidance received and discussed at Business Management Review
- Item added to this Agenda

SUMMARY PLANNING SCHEDULE



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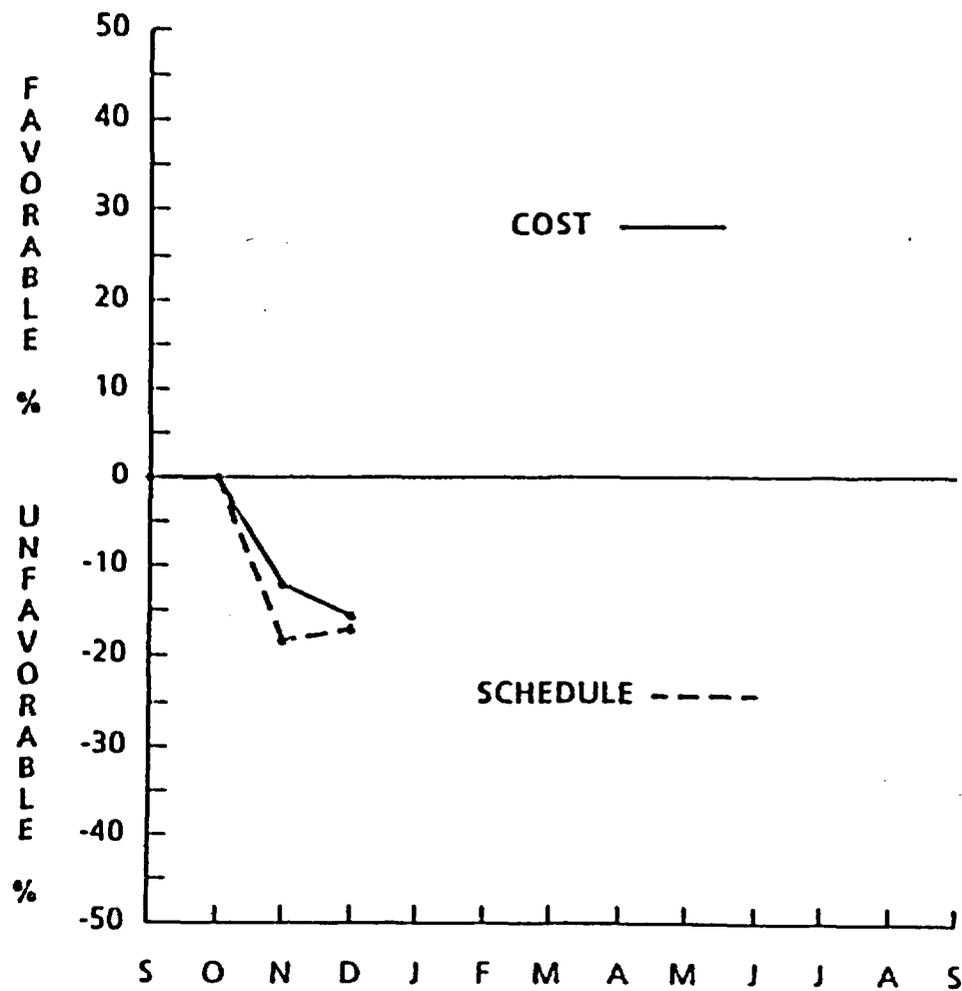
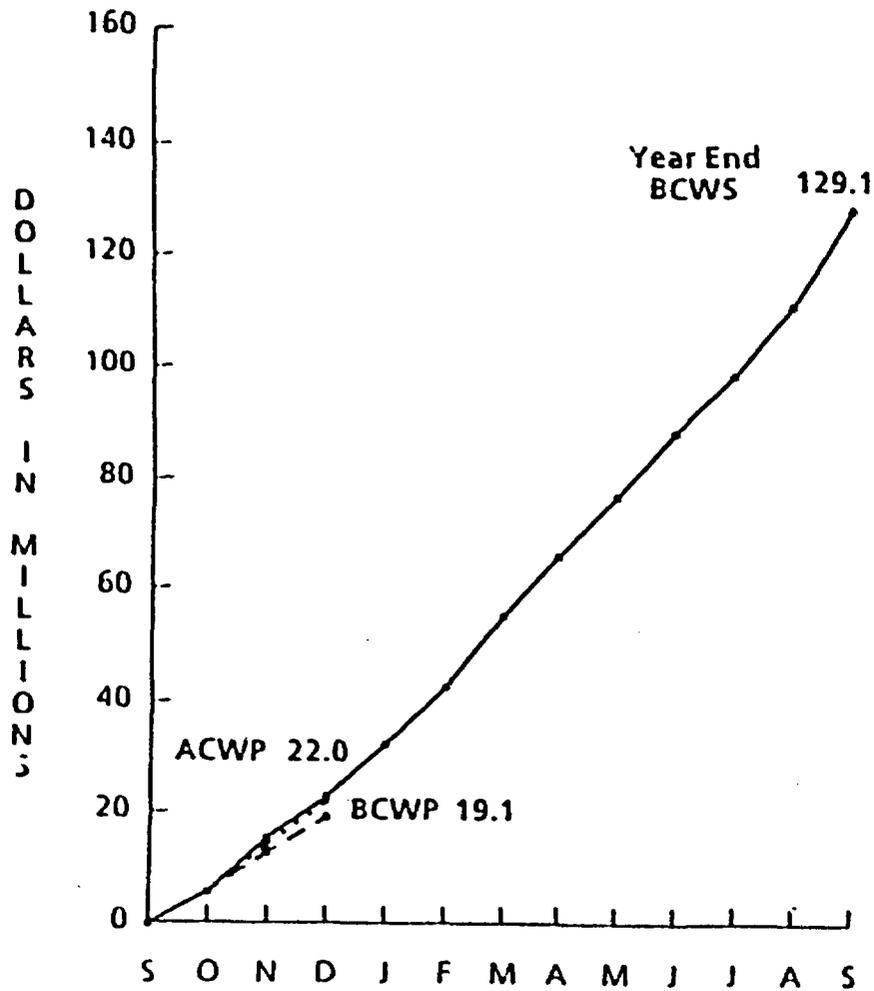
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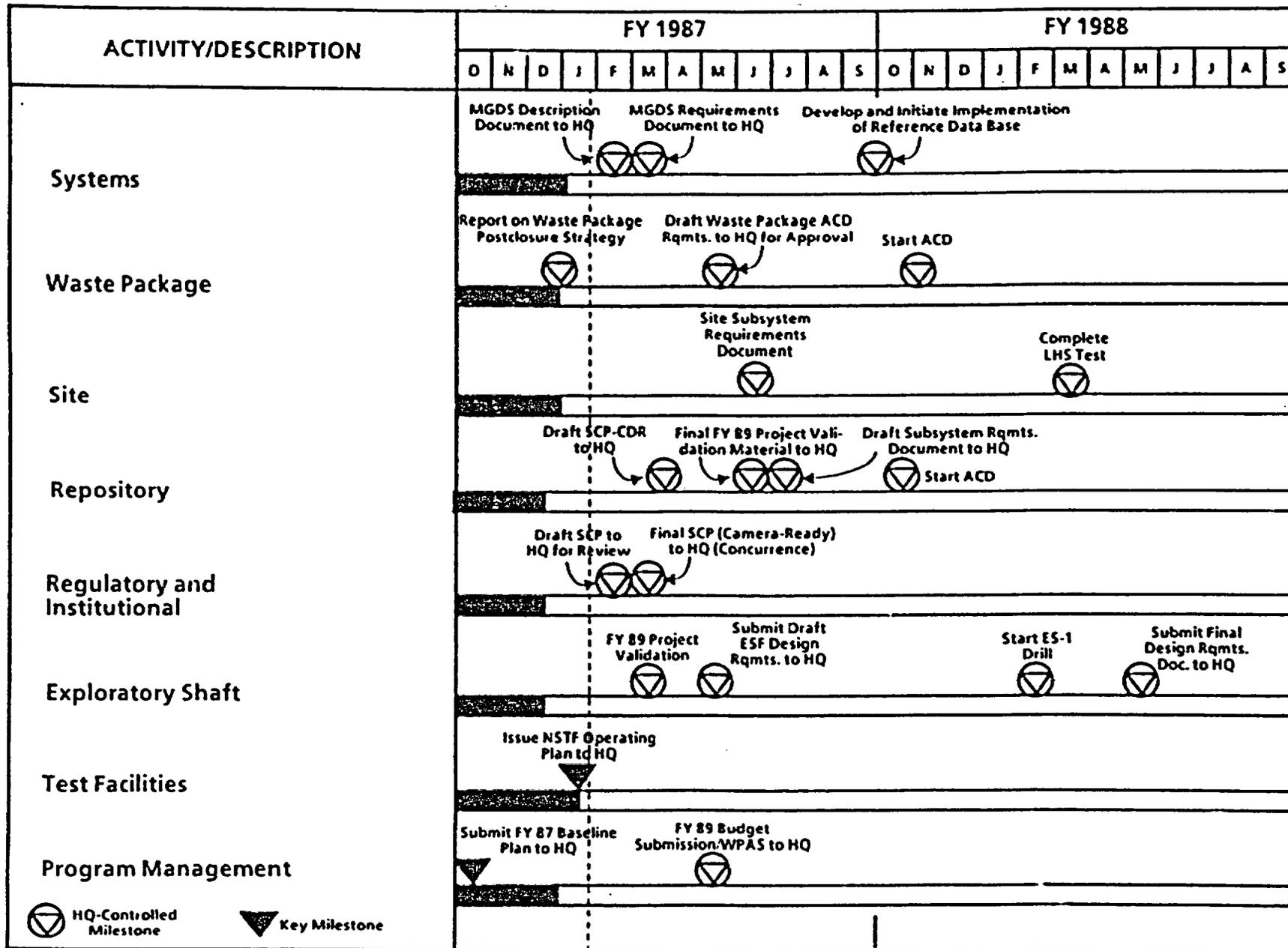
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TOTAL BWIP (FISCAL YEAR OPERATING ONLY)

FY 1987 PERFORMANCE



SUMMARY PLANNING SCHEDULE



BASALT WASTE ISOLATION PROJECT**ACCOMPLISHMENTS**

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Complete training for partial lift of the SWO	12/86	12/20/86*
Complete Management System appraisals for partial lift of the SWO	12/86	12/31/86
Submit request for partial lift of the SWO	12/86	1/4/87
Issue SCP Conceptual Design Report	12/86	(1/16/87)**

*Except mandatory reading which is at 82%.

**Holding for potential Design Issue impacts.

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

**PLANNED ACCOMPLISHMENTS
90-DAY WINDOW**

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Submit initial planning change request	12/86	2/13/87
Submit DC-24/-25 Expedited Special Case request	12/86	2/13/87
Submit Work Initiation Plan for March/April	1/30/87	1/30/87
Complete restart readiness	2/28/87	2/28/87
<u>March</u>		
Complete ES Design Basis Study	1/87	3/87
Submit FY 1989 WPAS to Headquarters	3/87	3/87
Release Hydrology Study Plan	3/87	3/87
<u>April</u>		
Submit Waste Package Strategy Document	12/86	4/87
Start DC-24 drilling	2/15/87	4/15/87
Submit draft SCP for Assembled Review	2/87	4/27/87
Complete Baseline Planning	4/87	4/87

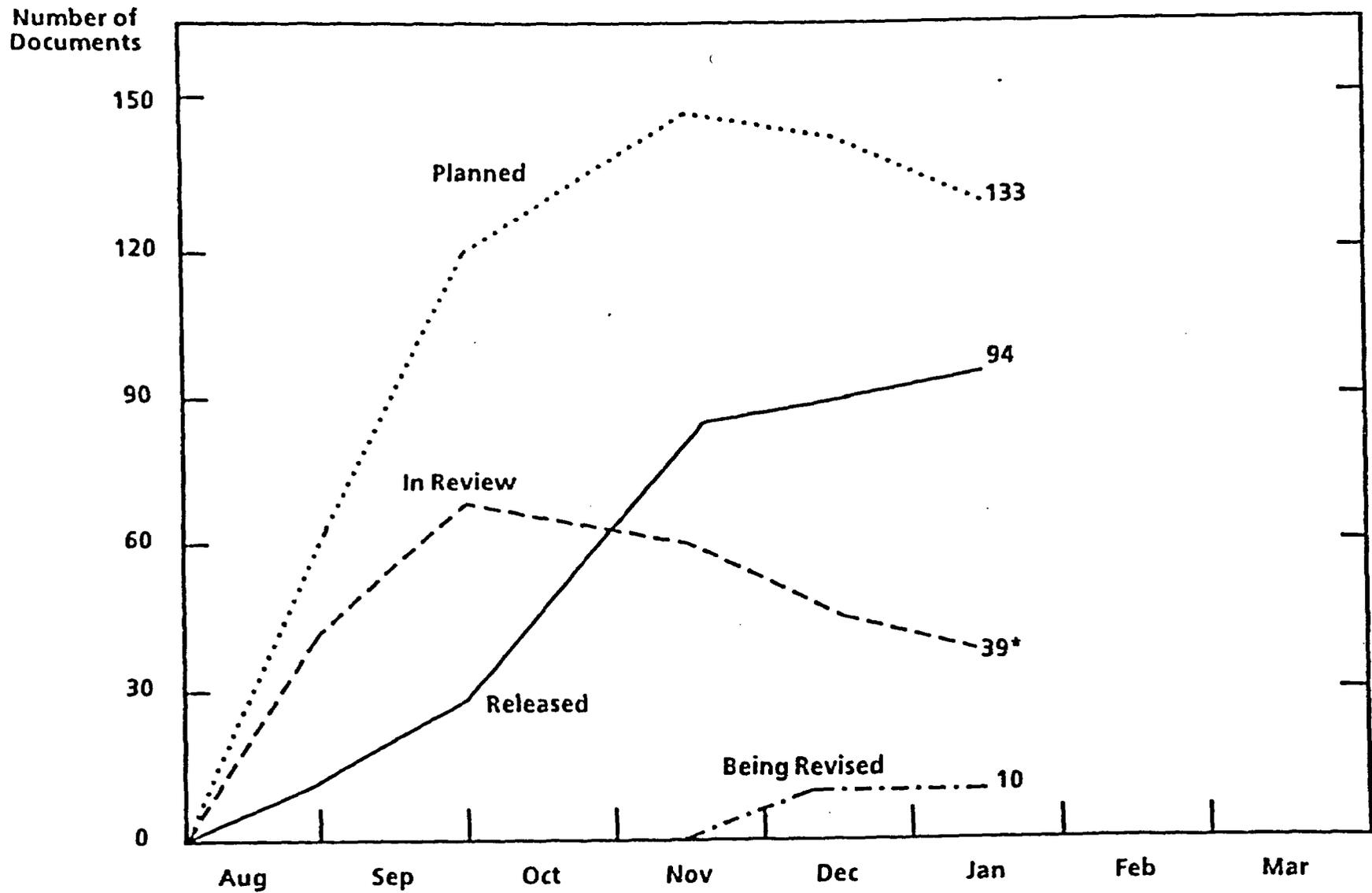
RESTART READINESS BY FEBRUARY 28, 1987

- Document readiness with DOE approvals in jeopardy
- Mandatory reading and training to document revisions marginal
- Discrepancy resolution on schedule

	<u>Discrepancies</u>	<u>Constraints to Restart</u>
Total	333	119
Open (1/23/87)	159	72

- Design and Procurement Control reappraisals initiated - to be complete February 13, 1987
- Work Initiation Plans on schedule

DOCUMENTS REQUIRED FOR RESTART



*28 at DOE.

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

**MILESTONE LOG
PROJECT SUMMARY**

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>	<u>ACTUAL</u>
<u>Sys'ems</u>			
Basalt Mined Geologic Disposal System (MGDS) Description Document to DOE-HQ for review and approval	02/87	02/87	
Basalt MGDS Requirements Document to DOE-HQ for review and approval	03/87	03/87	
Develop and initiate implementation of Referenced Data Base	09/87	09/87	
<u>Waste Package</u>			
Report on Waste Package Postclosure Compliance Strategy to Headquarters (HQ) for review and approval	12/86	04/87	
Draft Waste Package Subsystem Advanced Conceptual Design (ACD) Requirements received at HQ for review and approval	04/87	04/87	
Initiate Waste Package ACD	10/87	09/87	
Complete Waste Package ACD	08/89	08/89	
Complete Waste Package License Application (LA) Design	07/91	07/91	
<u>Site</u>			
Site Subsystem Requirements Document	04/87	04/87	
Complete Large-Scale Hydraulic Stress (LHS) Test	02/88	03/88	

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

MILESTONE LOG PROJECT SUMMARY

<u>TITLE</u>	<u>BASLINE</u>	<u>FORECAST</u>	<u>ACTUAL</u>
<u>Repository</u>			
Draft Site Characterization Plan (SCP - Conceptual Design Report (CDR) to HQ for review and approval	01/87	03/87	
Final FY 1989 Project Validation Material to HQ	03/87	03/87	
Draft Repository Subsystem ACD Requirements to HQ for review	04/87	04/87	
Initiate Repository ACD	10/87	09/87	
Complete Repository ACD	08/89	08/89	
Complete Repository LA Design	04/92	04/92	
<u>Regulatory and Institution</u>			
Complete and sign C&C Agreement with State and Tribes	11/86	TBD	
Submit draft of entire SCP for DOE (assembled review)	02/87	04/87	
Final SCP (came-a-ready) to HQ (concurrence)	03/87	06/87	
Issue SCP to Public	05/87	07/87	
Issue Draft Environmental Impact Statement (DEIS)	10/92	10/92	
Issue Final Environmental Impact Statement (FEIS)	04/93	04/93	
Submit LA to U.S. Nuclear Regulatory Commission (NRC)	09/93	09/93	

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

**MILESTONE LOG
PROJECT SUMMARY**

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>	<u>ACTUAL</u>
<u>Exploratory Shaft</u>			
Final FY 1989 Project Validation Material to HQ	03/87	03/87	
Submit Draft Exploratory Shaft Facility Design Requirements for final design to HQ for review and approval	05/87	07/87	
Start First Shaft (ES-1) Construction	02/88	02/88	
Submit Draft Final Design Report to HQ for review and acceptance	05/88	12/88	
<u>Program Management</u>			
Submit FY 1987 Baseline Plan to HQ	10/86	10/86	10/86
FY 1989 Budget Submission (WPAS) to HQ	03/87	03/87	

CRITICAL ISSUES

- Approval to Restart
- Hydrology Program Definition
- Completion of Baseline Planning
- Reduced Coordination in Issues Resolution and SCP Preparation
- Waste Package Strategy Definition

BASALT WASTE ISOLATION PROJECT

**DEVELOPMENT OF THE PROJECT
BASELINE**

TOM WOODS

DEVELOPMENT OF THE PROJECT BASELINE

- What is the Baseline?
- The Development Process
- Schedule
- Accomplishments

DEVELOPMENT OF THE PROJECT BASELINE

- **Baseline What?**
 - **Cost/Scope**
 - **Schedule**
- **For Site Characterization Phase**

DEVELOPMENT OF THE PROJECT BASELINE

DEVELOP ACTIVITY NETWORKS
for each
STUDY PLAN, ENGINEERING PLAN
and
MANAGEMENT PLAN

INTERFACE ACTIVITY NETWORKS

RECONCILE
WITH WBS
THROUGH
COST/SCOPE
ESTIMATE
BASIS

CONDUCT
REVIEW
for
TECHNICAL
ADEQUACY

ESTIMATE
DURATIONS
and
RESOURCES

RECONCILE
WITH
TOP-DOWN
SCHEDULE

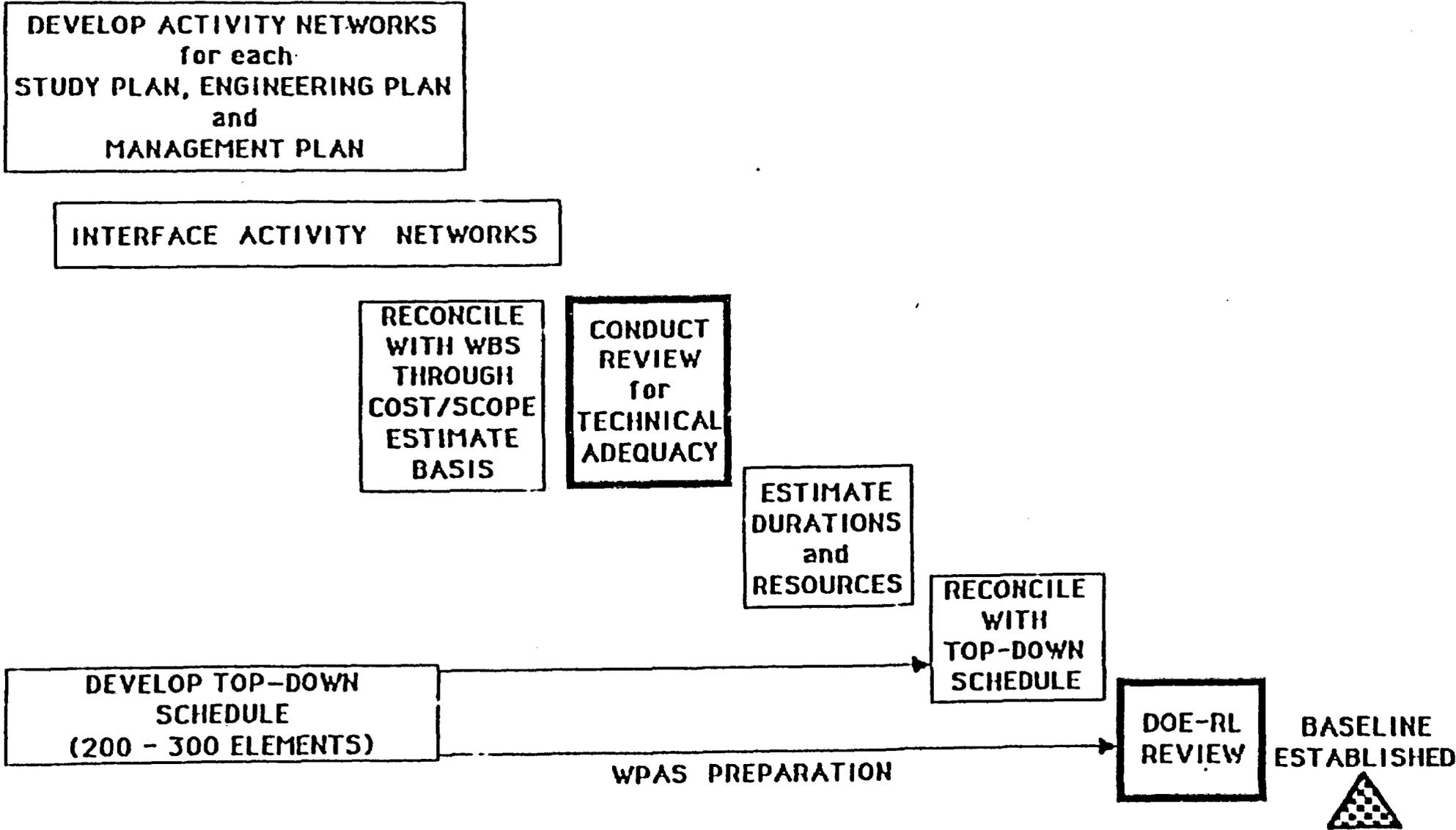
DEVELOP TOP-DOWN
SCHEDULE
(200 - 300 ELEMENTS)

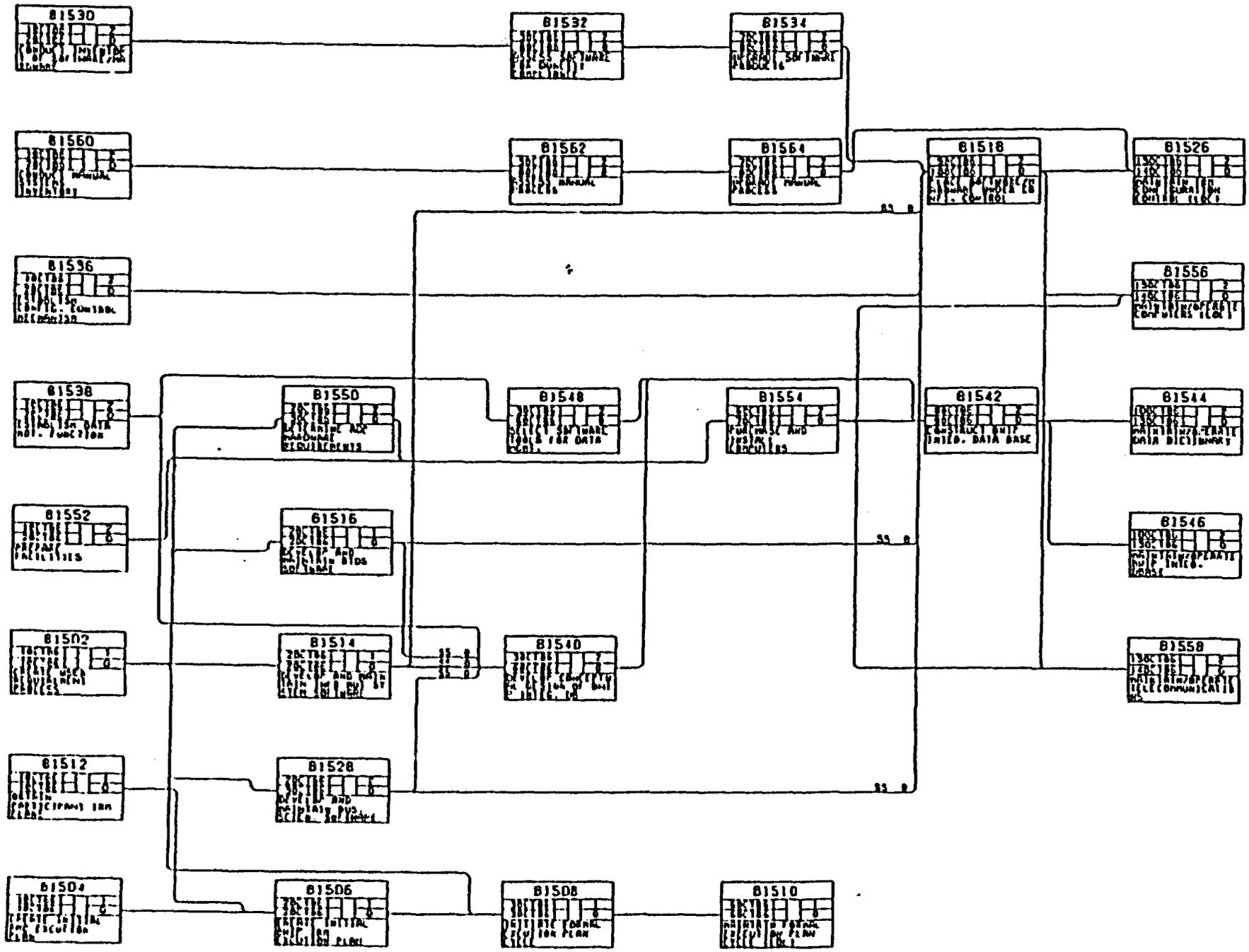
DOE-RL
REVIEW

BASELINE
ESTABLISHED



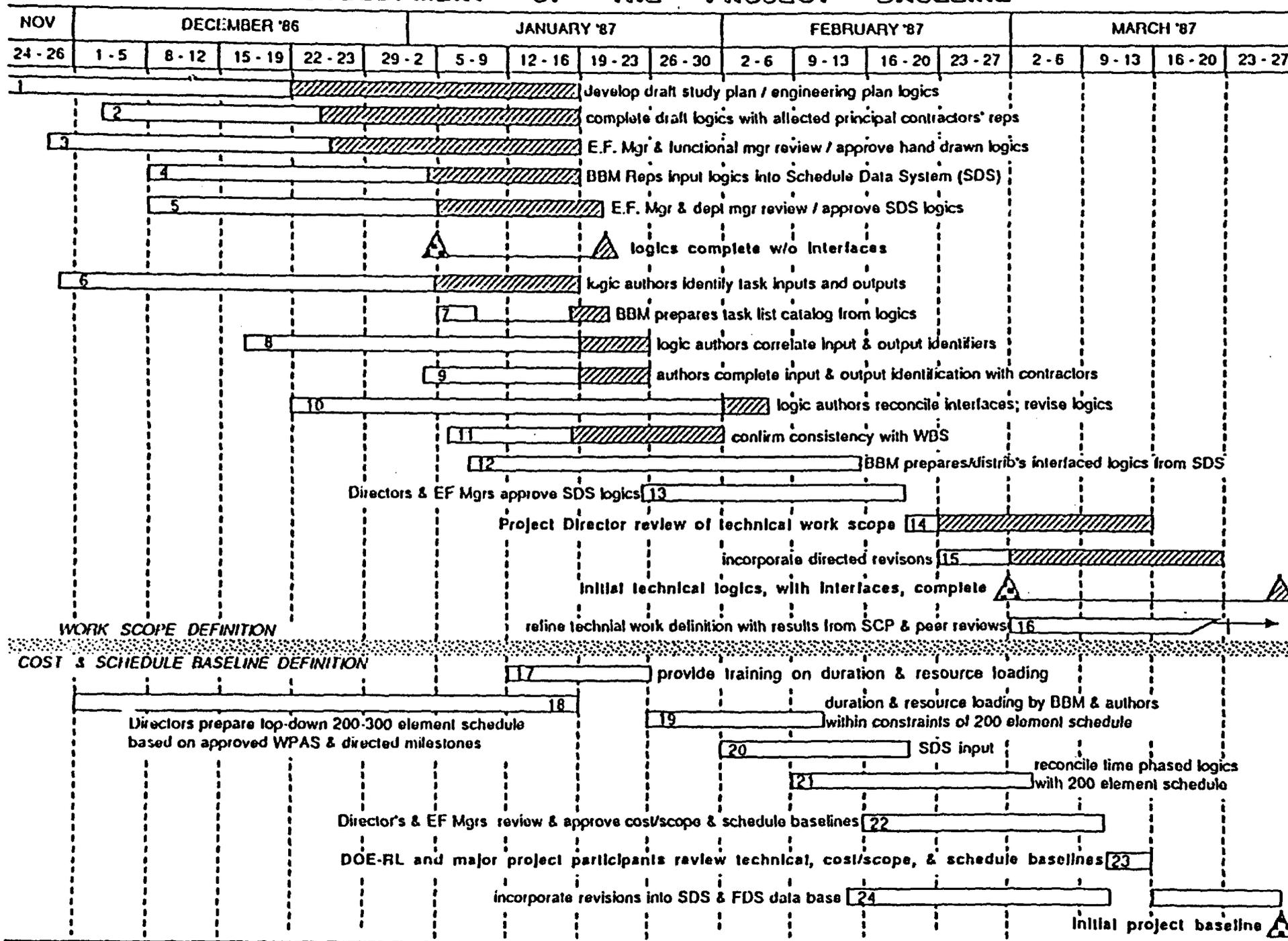
WPAS PREPARATION





DEVELOPMENT OF THE PROJECT BASELINE

REV 4, JAN 6, 1987



BASALT WASTE ISOLATION PROJECT

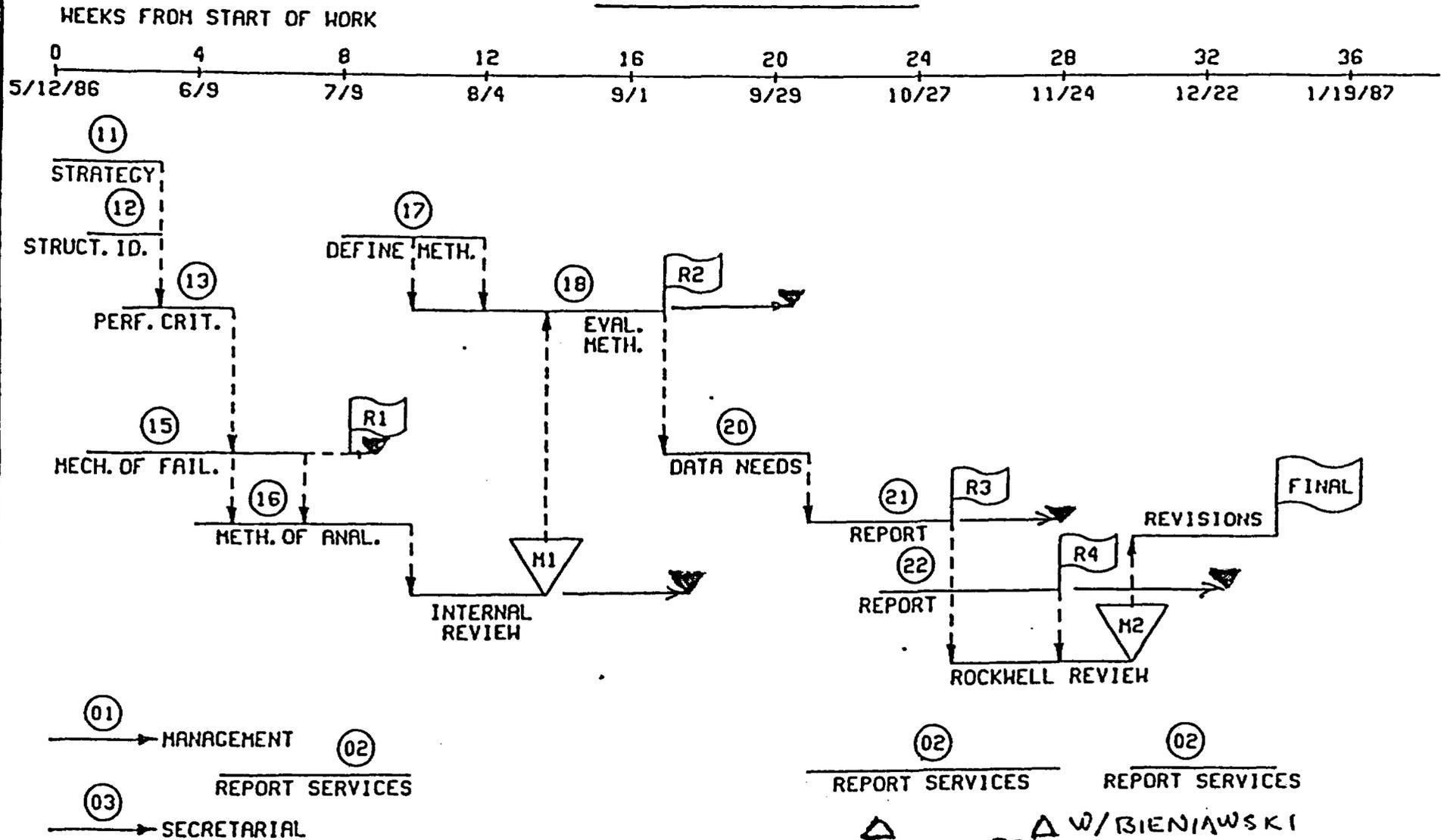
GEOMECHANICAL DESIGN METHODOLOGY

BILL KARWOSKI

OBJECTIVE

Assure that KE/PB has an adequate strategy for Geotechnical Analysis to support Advanced Conceptual Design

FIGURE 1. SCHEDULE



NOTES:

FOR SUBTASK, MEETING, AND REPORT DESCRIPTIONS SEE TABLE 1.
 ALLOW 1 WEEK MOBILIZATION AFTER NOTICE TO PROCEED.
 THE WORK IS PRECEDED BY A KICKOFF MEETING.
 SCHEDULE AFTER WEEK 12 SUBJECT TO REVISION.

ACTUAL
 UNCHEDULED
 LEGEND:

SUBTASK
 MEETING
 REPORT

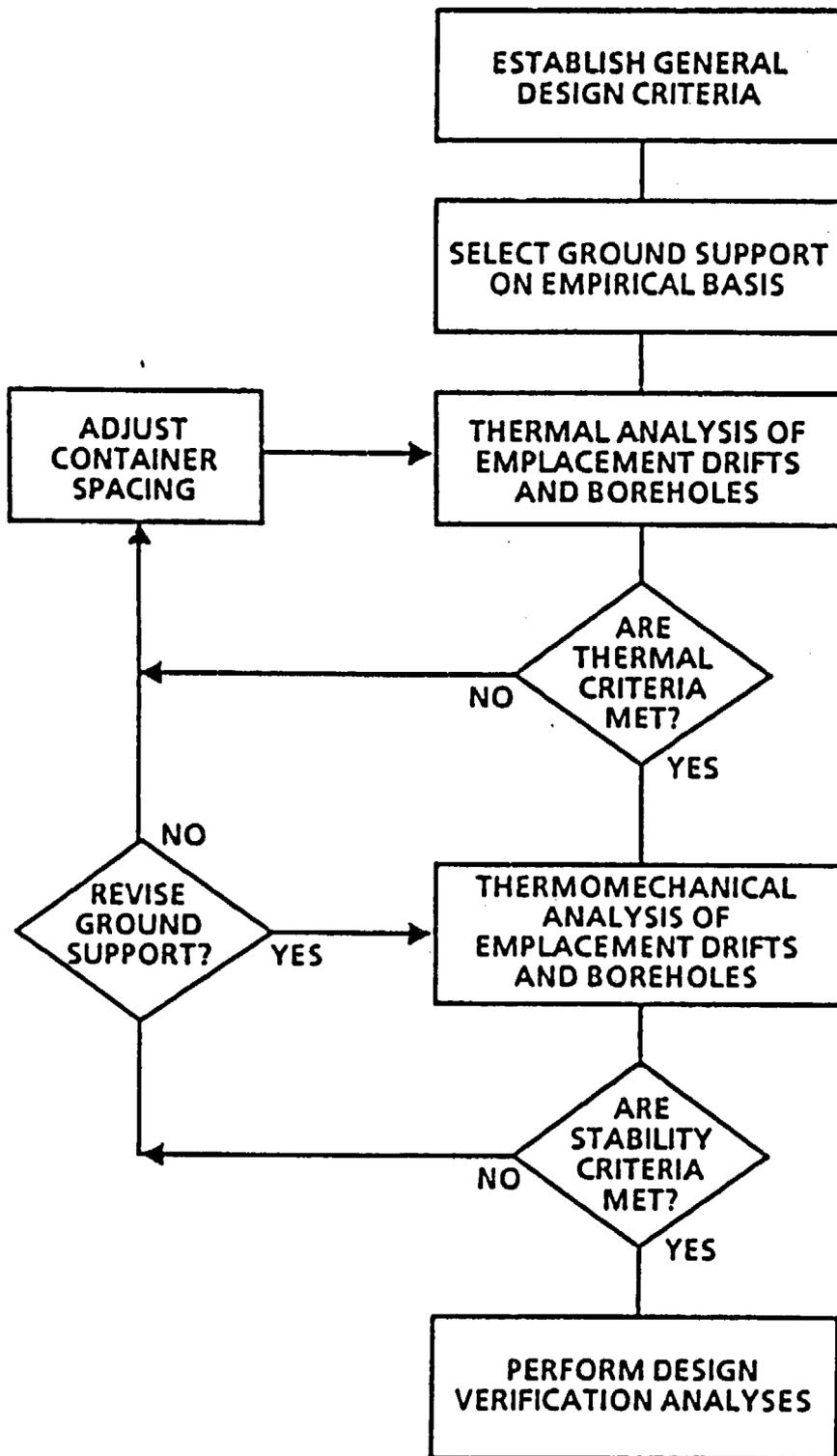
W/BIENIAWSKI
 REVIEW OF R2

TECHNICAL ACCOMPLISHMENTS

- Outline of Ground Control Strategy
- Statement of Analytical Plan
- Identification of Material Models
- Identification of Data Requirements
- Preliminary Plan to use Stability Criteria

GROUND CONTROL STRATEGY → PROGRAM

- **Factors affecting the Design for Stability**
 - Construction technique
 - Opening purpose
 - Occupancy
 - Size and shape
 - Rock character
 - Ground support/rock reinforcement
 - Maintenance program
 - Rehabilitation
- **Final Design Recommendations for Ground Support must be understood within the context of the Ground Control Program**



Q-SYSTEM
RMR

- ROCK CHARACTERISTICS

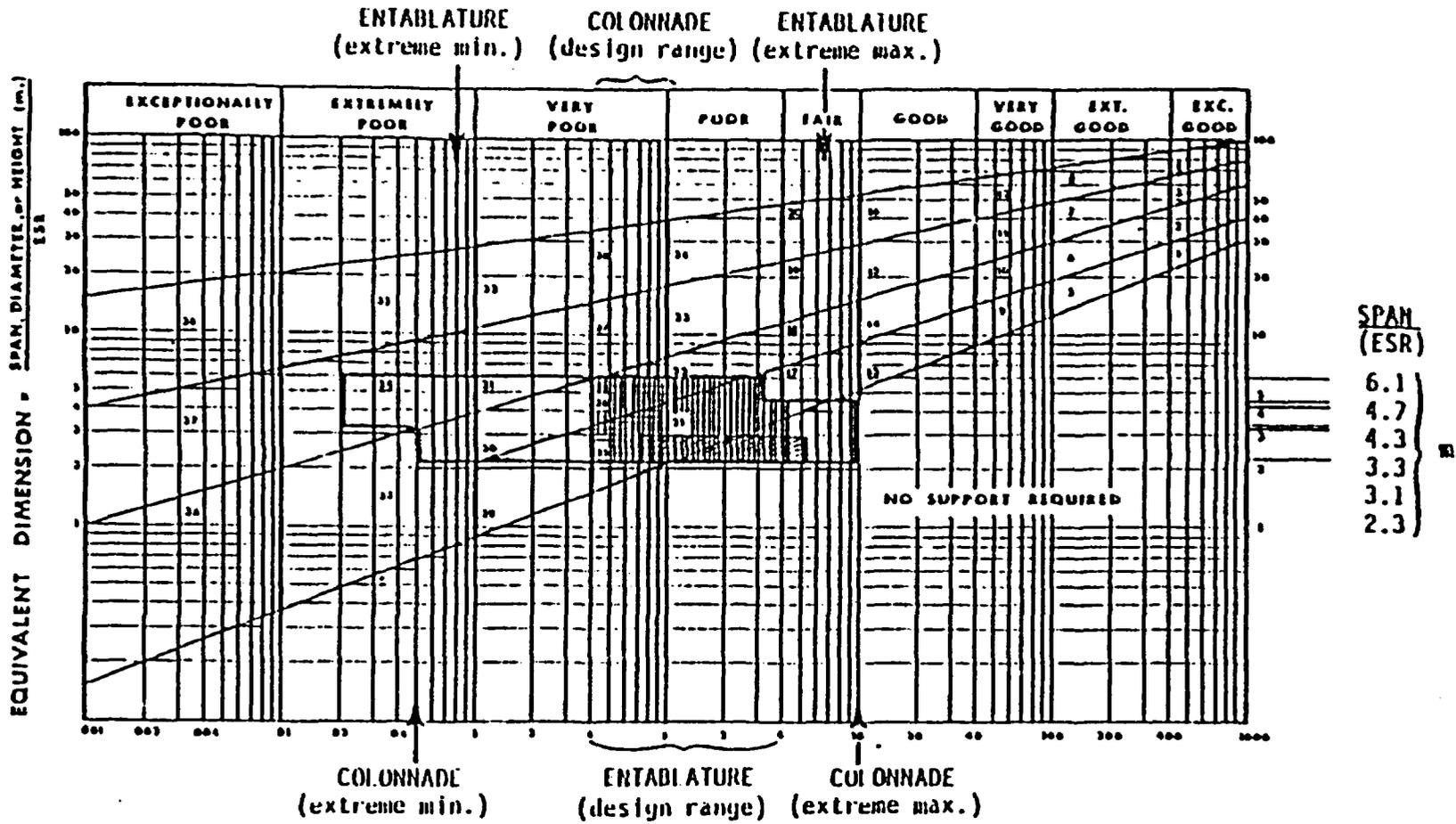
SUPER 7T

- THERMAL PROPERTIES
- WASTE PACKAGE CHARACTERISTICS

VISCOT
JAC
ABAQUS?
UDEC?

- ENTABLATURE
- COLONNADE

ANALYTICAL PLAN



ROCK MASS QUALITY $Q = \left[\frac{RQD}{J_n} \right] \times \left[\frac{J_r}{J_B} \right] \times \left[\frac{J_w}{SRF} \right]$

EMPIRICAL METHODS DATA REQUIREMENTS

- RQD, the rock-quality designation
- JN, the joint-set number
- JR, the joint-roughness number
- JA, the joint-alternation number
- JW, the joint-water reduction factor
- SRF, the stress-reduction factor
- Intact rock strength

Standard tables describe how each of these factors is quantified

JOINT CONDITIONS FROM FIELD

- Number of joint sets
- Strike and dip in each set
- Joint continuity
- Joint irregularity large/small scales
- Joint aperture
- Joint filling (thickness and character)
- Weathering

IDENTIFICATION OF MATERIAL MODELS

	Linear elastic	Plasticity model	Damage model	Single joint	Orthogonal joint	Isotropic model	Damage zone	Hoek/Brown strength model	Inelastic strain	Extension strain
VISCOT	X X	X				X	X	XPP XPP	X	
JAC	X X X			X	X	X		XPP XPP		XPP XPP
ABAQUS	X		X			X				

NOTE: pp = evaluated through postprocessing.

MECHANICAL ANALYSES

General

- Modulus (equivalent rock-mass modulus)
- Poisson's ratio
- Rock-mass strength (Mohr-Coulomb/Hoer and Brown)
- Extension strain
- Joint shear-strength - cohesion and friction angle
- In situ stress

Compliant Joint

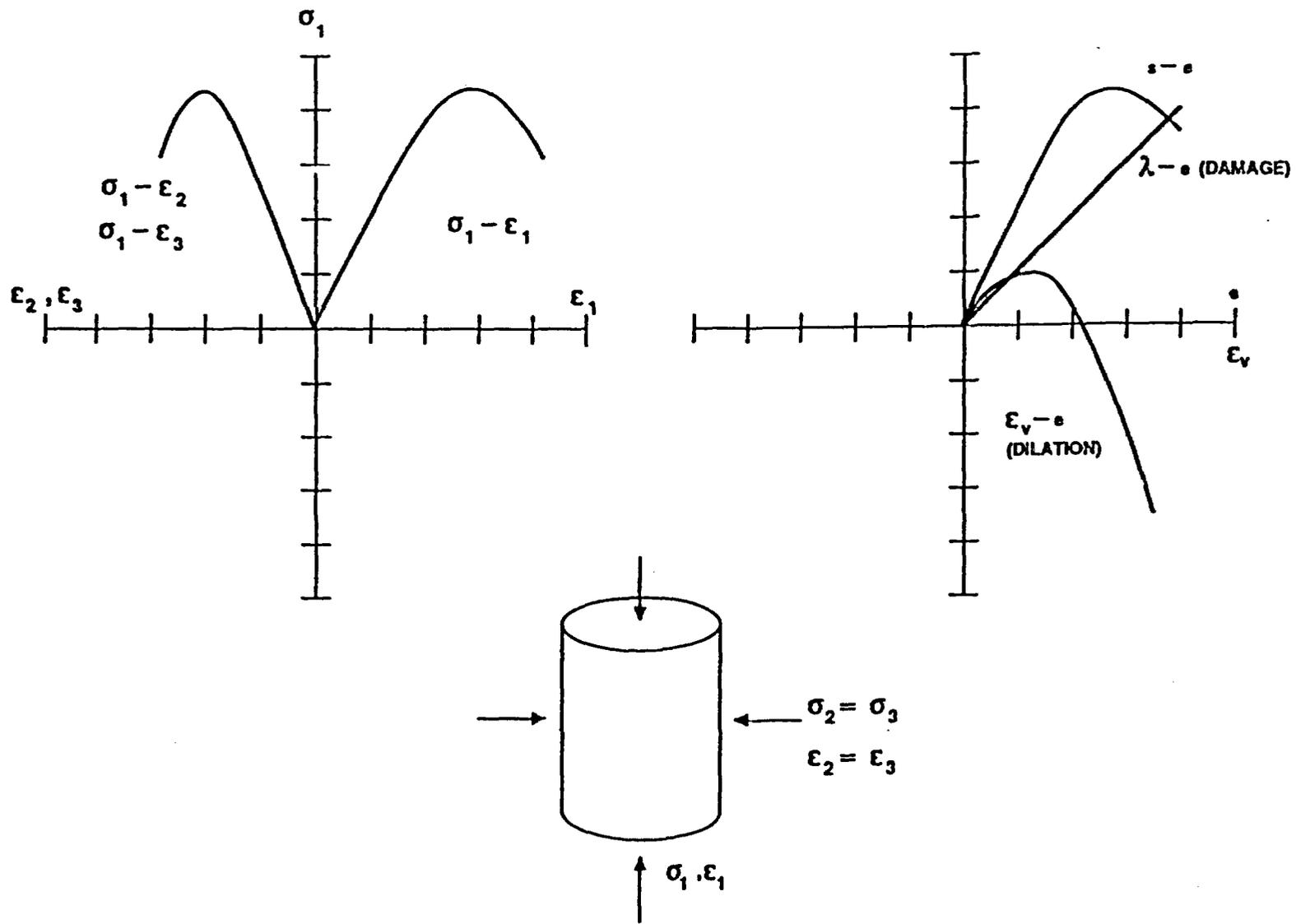
- Elastic parameters, as above
- Joint half closure stress (A)
- Unstressed aperture (Vmax)
- Initial joint-shear stiffness (Gs)
- Post-pear, joint-shear stiffness (G's)

$$\nabla N = Au/(V_{\max}-U)$$

MECHANICAL ANALYSIS (cont.)

Complaint Joint

- JRC = Joint roughness coefficient
 - JCS = Joint wall compressive strength
 - ϕ_R = Residual friction angle
 - Joint geometry - as above
- $$\phi = JRC \log (JCS/\sigma_m) + \phi_R$$



IDEALIZED MONOTONIC TRIAXIAL COMPRESSION TEST WITH LINEAR EVOLUTION LAW FOR DAMAGE MODEL.

POST PROCESSING

Block Strength

$$\sigma_1 = \sigma_3 + (M_i \sigma'_c \sigma_3 + \sigma'_c)^{\frac{1}{2}}$$

$$\sigma'_c = 208 \text{ MPa} - \text{reduced strength}$$

$$\mu_i = 21.45 (s = 1)$$

Limiting Extension Strain - no tension cutoff

STABILITY CRITERIA

- **Graduated Quantification at Programmatic Stages**
 - **Pre-Exploratory Shaft Facility, at Advanced Conceptual Design: Based on extent of Inelastic Zone determined by analysis**
 - **Post-Exploratory Shaft Facility: based on convergence/ deformation measurements and acceptability criteria**

CONCLUSION

This Study produced a plan to model rock behavior for stability design with more accurate approximations as rock data becomes available.

BASALT WASTE ISOLATION PROJECT

QUALITY ASSURANCE

ROGER JOHNSON

TABLE OF CONTENTS

- I. ACCOMPLISHMENTS
- II. 90-DAY FORECAST
- III. APPRAISAL STATUS
- IV. STATUS ON:
 - A. SURVEILLANCES
 - B. AUDIT FINDINGS
 - C. NONCONFORMANCE REPORTS
 - D. CORRECTIVE ACTION REPORTS
- V. CRITICAL ISSUES INTEGRATING CONTRACTOR
- VI. CRITICAL ISSUES PARTICIPANTS

ACCOMPLISHMENTS

ACTIVITY	BASELINE	ACTUAL
Revise BQARD to include requirements of OGR QA Plans and Supplements Rev. 2	November 23, 1986	Submitted to DOE-RL November 25, 1986
Revise MA-3 to include requirements of OGR QA Plans and Supplements Rev. 2	December 12, 1986	Submitted to DOE-RL December 29, 1986
Draft Rev. 0 of Chapter 8.6 of SCP complete and distribute	December 15, 1986	December 19, 1986
Completed appraisals and issue final report	December 18, 1986	Submitted to DOE-RL January 4, 1987
Initiate re-appraisal of Procurement Control	January 28, 1987	Initiated January 12, 1987
Plan and initiate audit of M-K	January 26, 1987	Initiated January 26, 1987

ACCOMPLISHMENTS

90-DAY FORECAST

ACTIVITY	BASELINE	FORECAST
<u>February</u>		
Initiate re-assessment of BCSR Telecommunications Procedures	February 4, 1987	
Plan and perform audits of:		
KE/PB	February 13, 1987	
WHC	February 13 1987	
Initiate re-appraisal of Design Control	February 13, 1987	
Initiate transition plan for WHC/BCSR BWIP work to single set of management controls	February 20, 1987	
Issue revised BQARD, Rev. 2 to Participants	February 25, 1987	

ACCOMPLISHMENTS

90-DAY FORECAST

ACTIVITY	BASELINE	FORECAST
<u>March</u>		
Plan and initiate audits of:		
Rockwell Management Control System - QA Program Control Procurement Control, Document Control, and Records Control	March 9, 1987	
Rockwell Management Control System - Design Control, Verification Control, Test Control, and Deficiency Control	March 23, 1987	
<u>April</u>		
Plan and initiate audits of:		
BCSR	April 6, 1987	
Rockwell BWIP Training	April 6, 1987	
Rockwell Expedited Special Cases	April 20, 1987	

APPRAISAL SUMMARY STATUS

Number of Appraisals	25
Total Discrepancies	333
Total Open (as of 1/26/87)	159
Constraints to lift suspension	119
Constraints with C/A due post - 2/28/87	0
Constraints remaining open. Required to lift suspension.	72

CONSTRAINTS REMAINING OPEN. REQUIRED TO LIFT SUSPENSION

MANAGEMENT CONTROL SYSTEM	DISCREPANCIES		MANAGEMENT CONTROL SYSTEM	DISCREPANCIES	
	Constraints To Lift Stop Work Order			Constraint To Lift Stop Work Order	
	Total	Open		Total	Open
BCSR-RA-005 (QA)	42	6	Safety RHO-RA-014	1	1
Document/Records RHO-RA-006	10	8	Security RHO-RA-015	2	0
Quality Assurance RHO-RA-007	6	5	Contractor Interface RHO-RA-018	4	4
Design RHO-RA-008	21	21	Resource RHO-RA-019	1	1
Procurement RHO-RA-009	15	12	PMP/SEMP RHO-RA-020	4	4
Deficiency RHO-RA-011	6	6	TOTAL	119	72
Test RHO-RA-012	3	2			
Cost/Schedule RHO-RA-013	4	2			

APPRAISAL DISCREPANCY STATUS

Appraisal Number	Control Systems	Deficiencies		Concerns		Total	
		Open	Closed	Open	Closed	Open	Closed
PNL-RA-001 (QA)	ALL (8)	2	4	3	20	5	24
PNL-RA-001A (ADMINISTRATIVE)	ALL EXCEPT S&S (4)	0	0	0	0	0	0
WHC-RA-002 (QA)	ALL (8)	5	5	10	20	15	25
WHC-RA-002A (ADMINISTRATIVE)	ALL EXCEPT S&S (4)	0	0	3	0	3	0
MK-RA-003 (QA)	ALL (8)	0	0	0	9	0	9
MK-RA-003A (ADMINISTRATIVE)	ALL (8)	0	0	3	0	3	0
KE/PB-RA-004 (QA)	ALL (8)	1	10	1	11	2	21
KE/PB-RA-004A (ADMINISTRATIVE)	ALL (6)	0	1	0	0	0	1
BCSR-RA-005 (QA)	ALL (8)	2	11	5	29	7	40
BCSR-RA-005A (ADMINISTRATIVE)	ALL EXCEPT S&S (4)	0	0	0	0	0	0

APPRAISAL DISCREPANCY STATUS

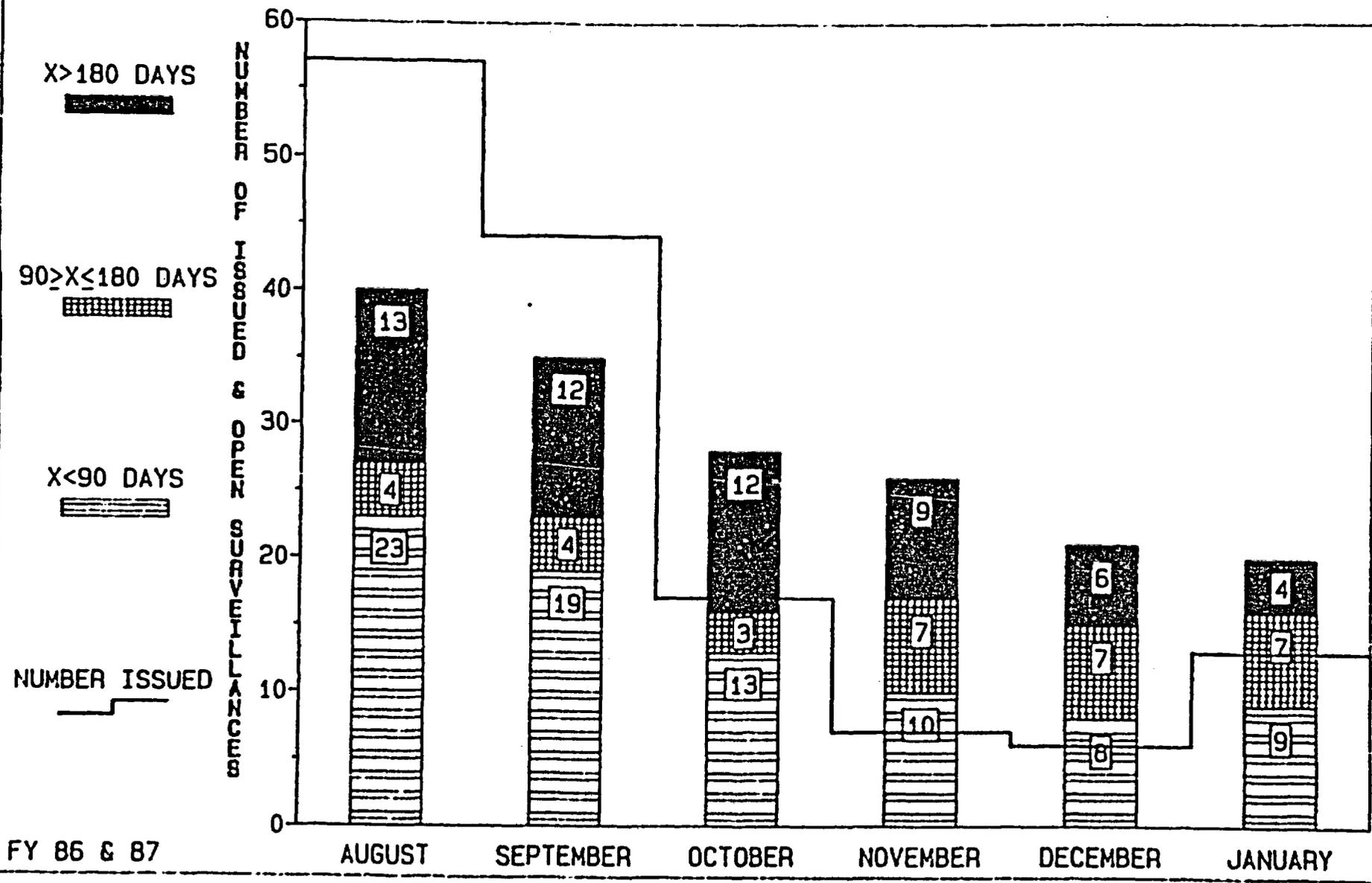
Appraisal Number	Control Systems	Deficiencies		Concerns		Total	
		Open	Closed	Open	Closed	Open	Closed
RHO-RA-006	DOCUMENT/ RECORD	9	5	6	7	15	12
RHO-RA-007	QA PROGRAM	4	2	6	4	10	6
RHO-RA-008	DESIGN	13	0	19	0	32	0
RHO-RA-009	PROCUREMENT	13	0	6	0	19	0
RHO-RA-010	VERIFICATION	0	1	6	1	6	2
RHO-RA-011	DEFICIENCY	6	5	1	5	7	10
RHO-RA-012	TEST	1	2	1	0	2	2
RHO-RA-013	COST/ SCHEDULE	1	0	4	6	5	6
RHO-RA-014	SAFETY	0	0	2	0	2	0
RHO-RA-015	SECURITY	1	0	4	0	5	0

APPRAISAL DISCREPANCY STATUS

Appraisal Number	Control Systems	Deficiencies		Concerns		Total	
		Open	Closed	Open	Closed	Open	Closed
RHO-RA-016	CORRESPD., DOCUMENTS, RECORDS	0	0	2	1	2	1
RHO-RA-017	ACTION	0	0	0	1	0	1
RHO-RA-018	CONTR. INTERFACE & PROCUREMENT	0	0	6	5	6	5
RHO-RA-019	RESOURCE	0	0	3	0	3	0
RHO-RA-020	PMP, SEMP	16	2	0	1	16	3
SUBTOTAL		16	2	11	8	27	10
SUBTOTAL PAGE 2		48	15	55	23	103	38
SUBTOTAL PAGE 1		10	31	25	89	35	120
GRAND TOTALS		74	48	91	120	165	168

BASALT WASTE ISOLATION PROJECT SURVEILLANCE REPORTS

SIX MONTH AGING HISTORY



FY 86 & 87

SURVEILLANCE

> 180 DAYS

Analysis Summary

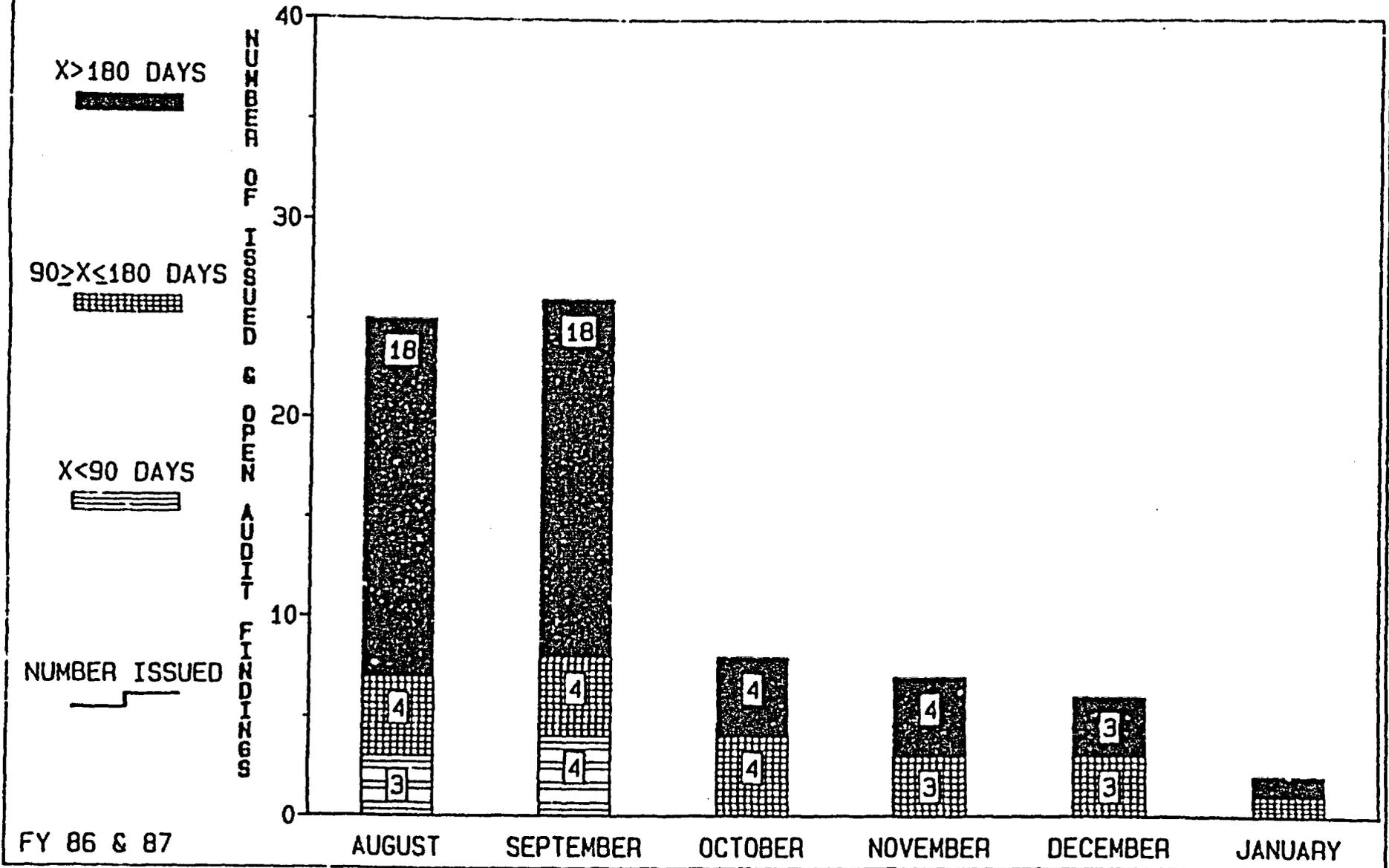
Status as of January 26, 1987:

<u>SURVEILLANCE No.</u>	<u>Actionee</u>	<u>Description of Corrective Action</u>	<u>Scheduled Completion Date</u>
BWIP-84-047	JA Thies	Issuance of Software Procedure	7/1/87
BSRP-85-172	MF Laiza	Revise 3 Procedures - 2 Complete	1/30/87
BSRP-85-262	RL Schlosser	PMPM 6-101 issued awaiting QE verification	2/1/87
BSRP-86-054	JM Hiller	Review/approval of controlled notebooks for submittal to BRMC. Scheduled for verification.	1/27/87

BASALT WASTE ISOLATION PROJECT

AUDIT FINDINGS

SIX MONTH AGING HISTORY



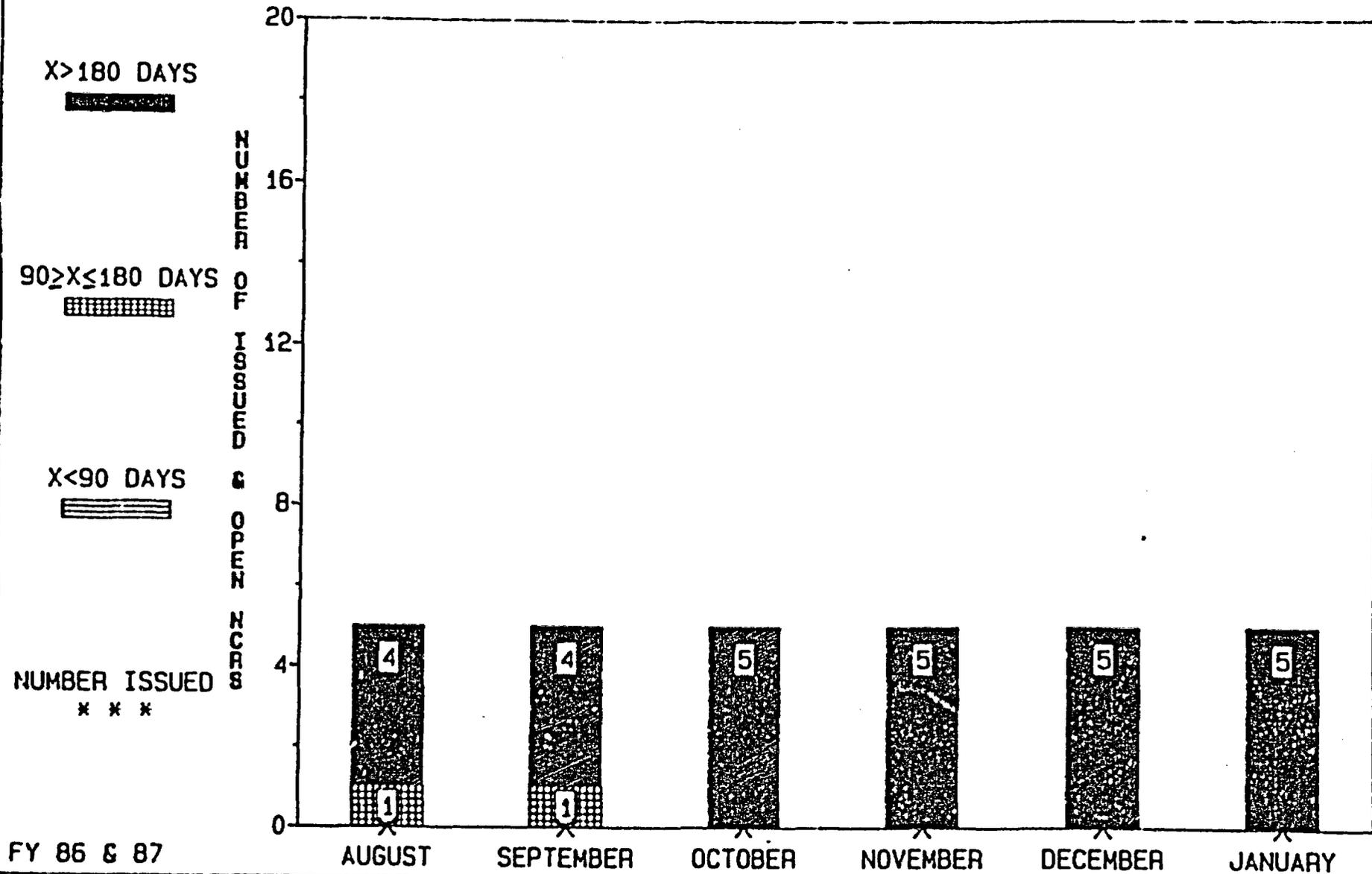
AUDIT FINDINGS

> 180 DAYS

Analysis Summary

- Status as of January 26, 1987:
 - Audit Finding BWI-85-I-003 - Procurement - closure pending reappraisal - scheduled for completion February 28, 1987.

BASALT WASTE ISOLATION PROJECT NONCONFORMANCE REPORTS SIX MONTH AGING HISTORY



NONCONFORMANCE REPORTS

> 180 DAYS

Analysis Summary

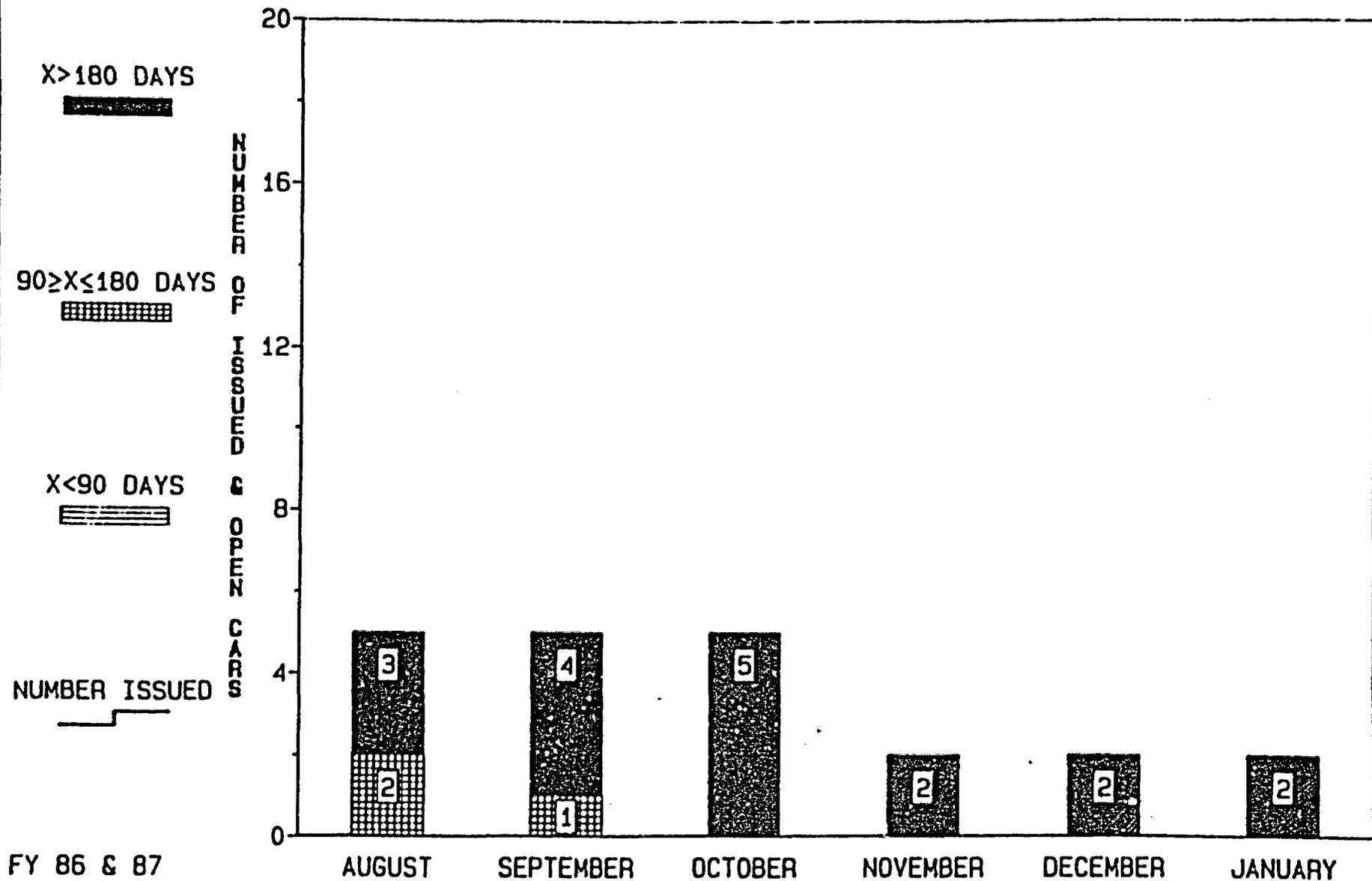
- Status as of January 26 1987:
 - Three (3) NCRs written on failure to follow procedures
 - Two (2) NCRs on improper surveys of borehole locations

NOTE:

First submittal of procedure governing the Nonconformance Disposition Board was rejected by DOE-RL, procedure has been revised and is in BWIP approval cycle. Scheduled for DOE-RL submittal by 1/30/87.

BASALT WASTE ISOLATION PROJECT CORRECTIVE ACTION REQUESTS

SIX MONTH HISTORY



CORRECTIVE ACTION REQUESTS

> 180 DAYS

Analysis Summary

Status as of January 26, 1987:

<u>Issue</u>	<u>Status</u>
<ul style="list-style-type: none">● Procedures/instructions not available for performance assessment studies	Existing response is being revised to address actions for procedures development with more underway. New response must be evaluated.
<ul style="list-style-type: none">● Copies of Work Orders were not transmitted to BRMC as required by procedures.	QA determining if corrective action is complete.

CRITICAL ISSUES
INTEGRATING CONTRACTOR

ISSUES	IMPACTS	CORRECTIVE ACTION
<ul style="list-style-type: none">● Graded Quality Program is difficult to understand and use. (2)	<ul style="list-style-type: none">● Project personnel having difficulty in determining what elements and to what degree they apply.● Project personnel will begin to think of program as unworkable.● Without clear, simple guidance it will be difficult to demonstrate that designated Quality Level is appropriate	<ul style="list-style-type: none">● Preparing draft position for internal review - scheduled for completion 2/4/87.● Review MA-3 to determine applicable QA requirements for Quality Levels II and III work activities.● May require revising DOE -HQ guidance.

CRITICAL ISSUES

PARTICIPANTS	ISSUES	IMPACTS	CORRECTIVE ACTION
<ul style="list-style-type: none">● BCSR	<ul style="list-style-type: none">● BCSR cannot complete their QA Program without Rockwell defining BCSR's total scope of work. (2)	<ul style="list-style-type: none">● A Readiness Appraisal was started, but then was stopped due to the lack of program definition.	<ul style="list-style-type: none">● BCSR is defining their expected scope of work, and is coordinating with Rockwell's Engineering and Information Management. (Complete)● BCSR will make a presentation of their Program to the Rockwell Appraisal Team November 24, 1986 (Complete)● BCSR QA Program Plan approved January 12, 1987. (Complete)

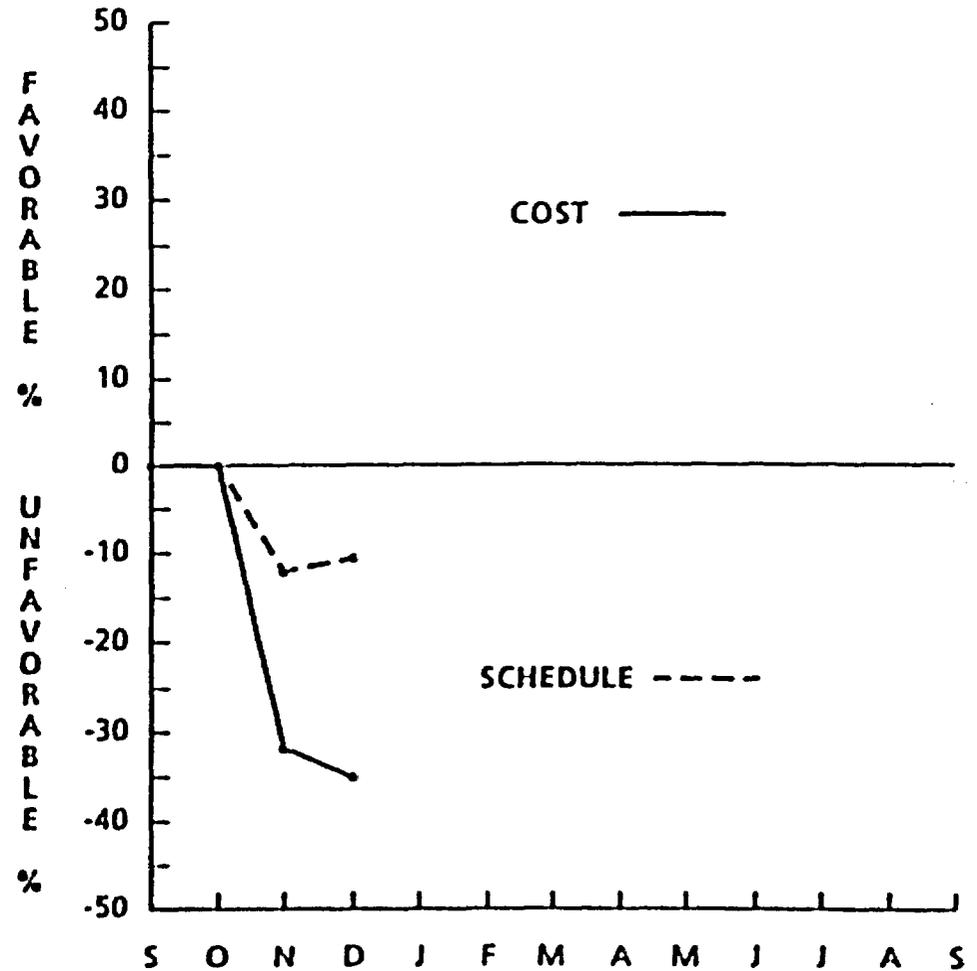
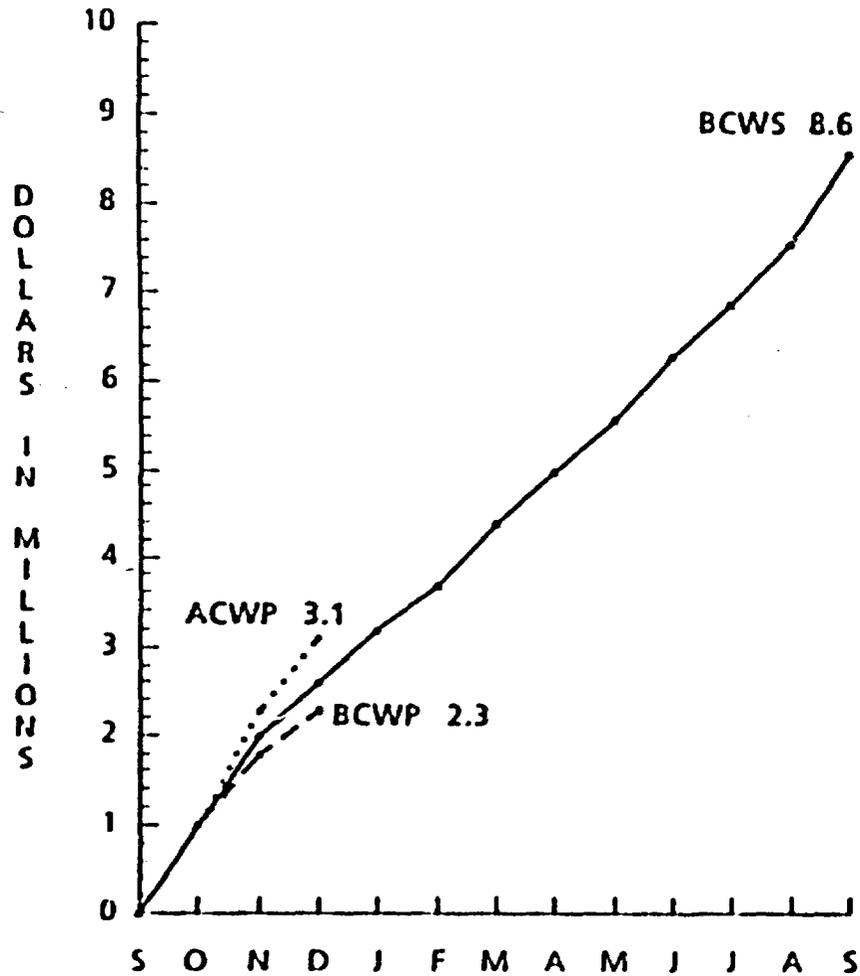
BASALT WASTE ISOLATION PROJECT

1.4 REPOSITORY

RICH SCHLOSSER

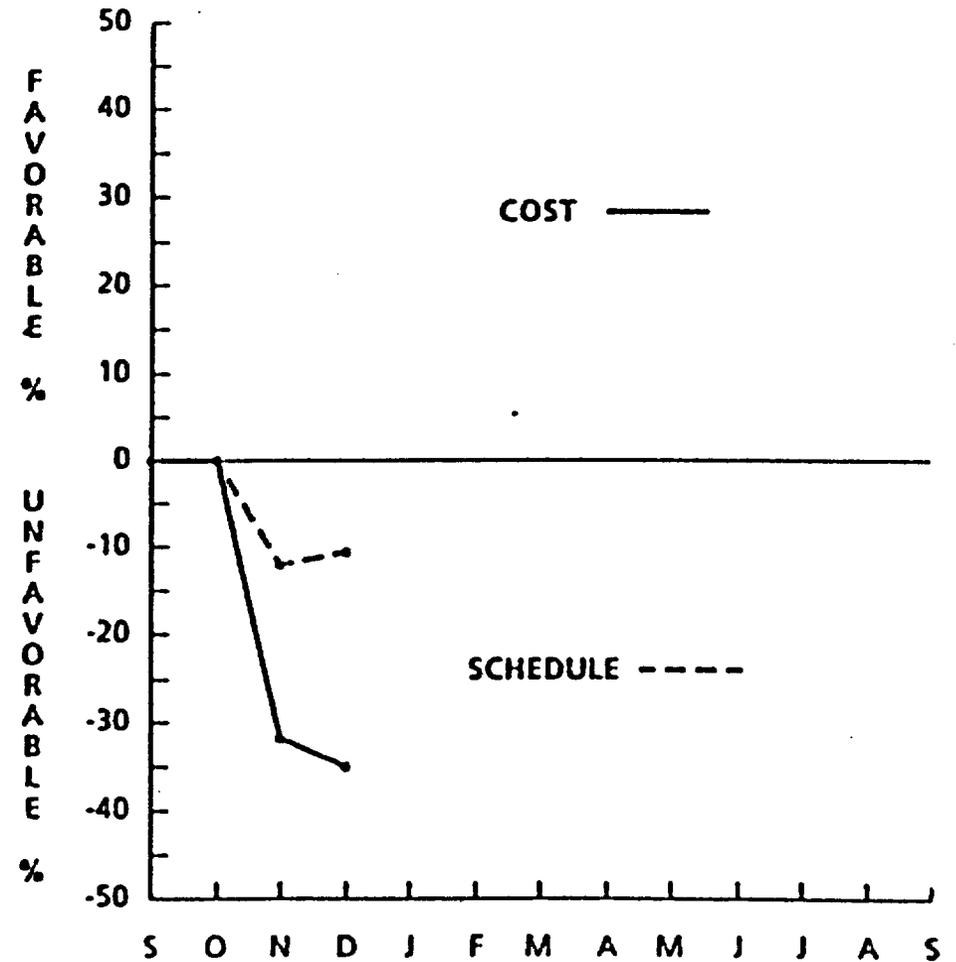
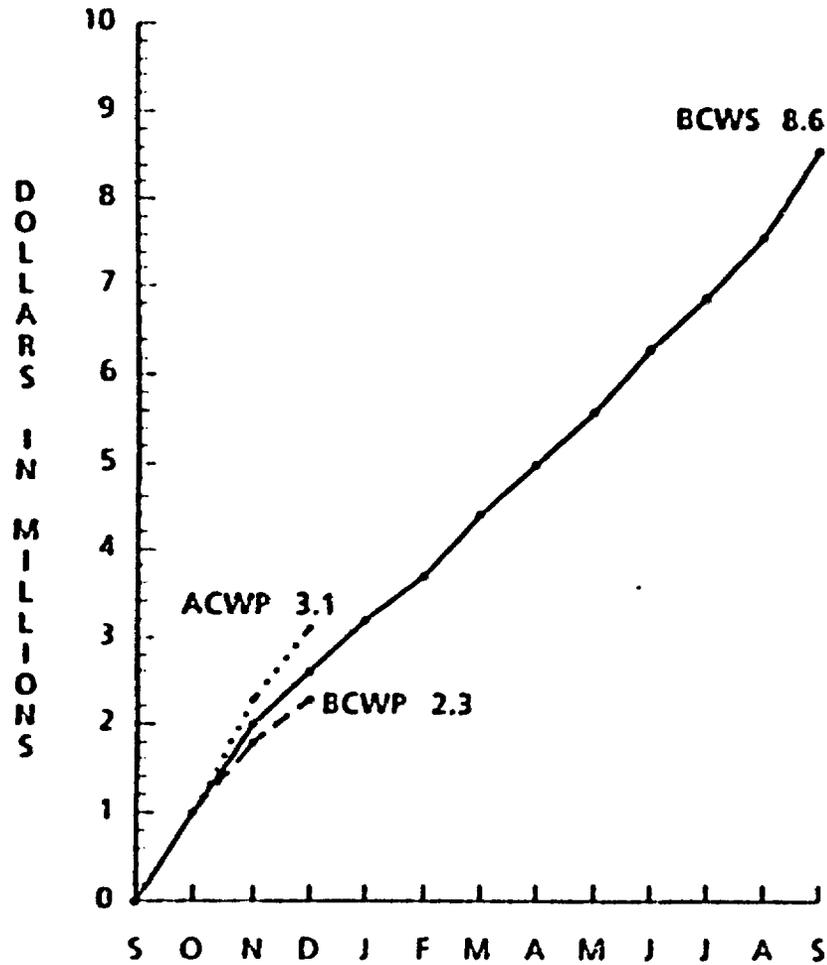
1.4 REPOSITORY (OPERATING ONLY)

FY 1987 PERFORMANCE

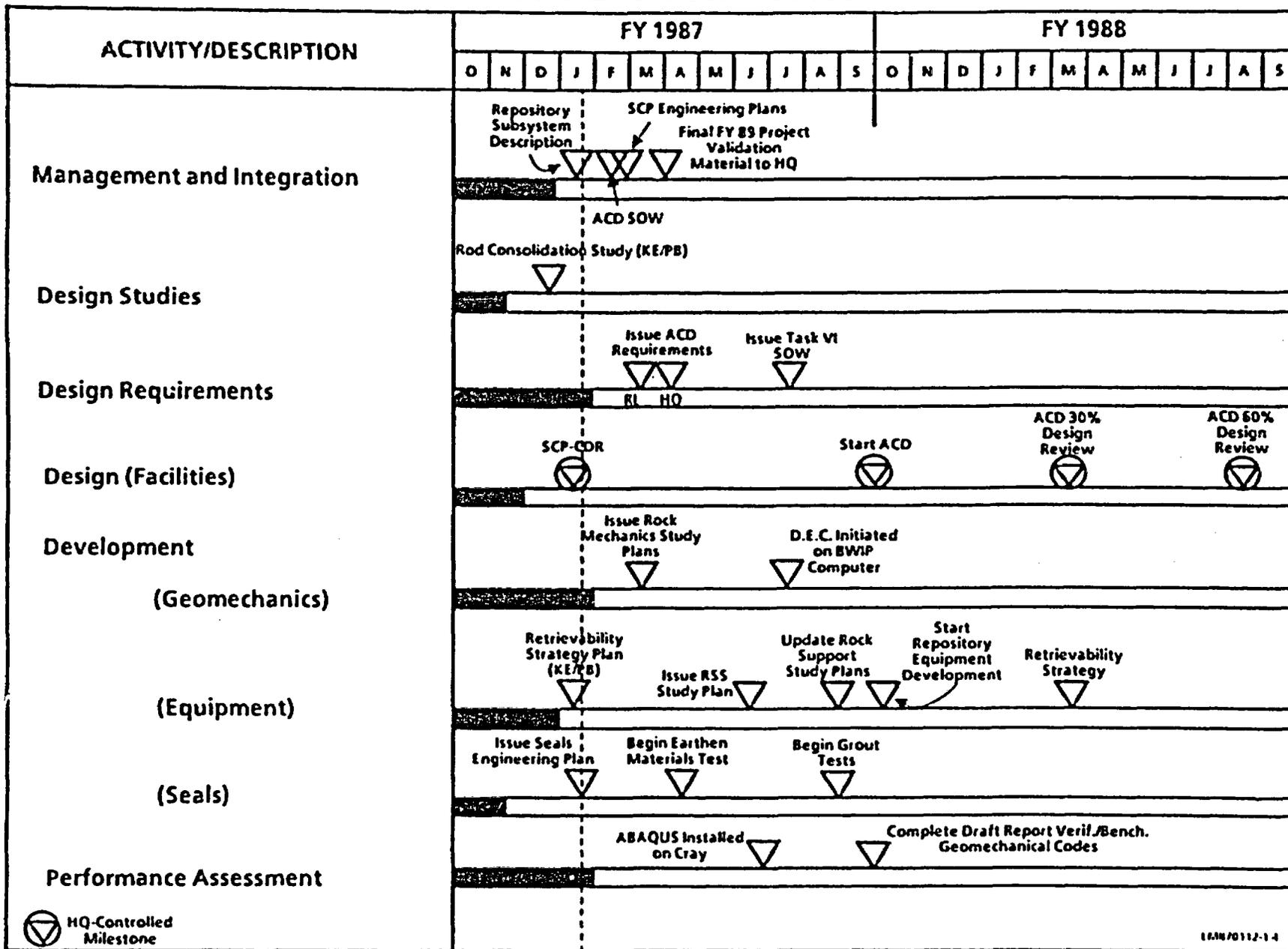


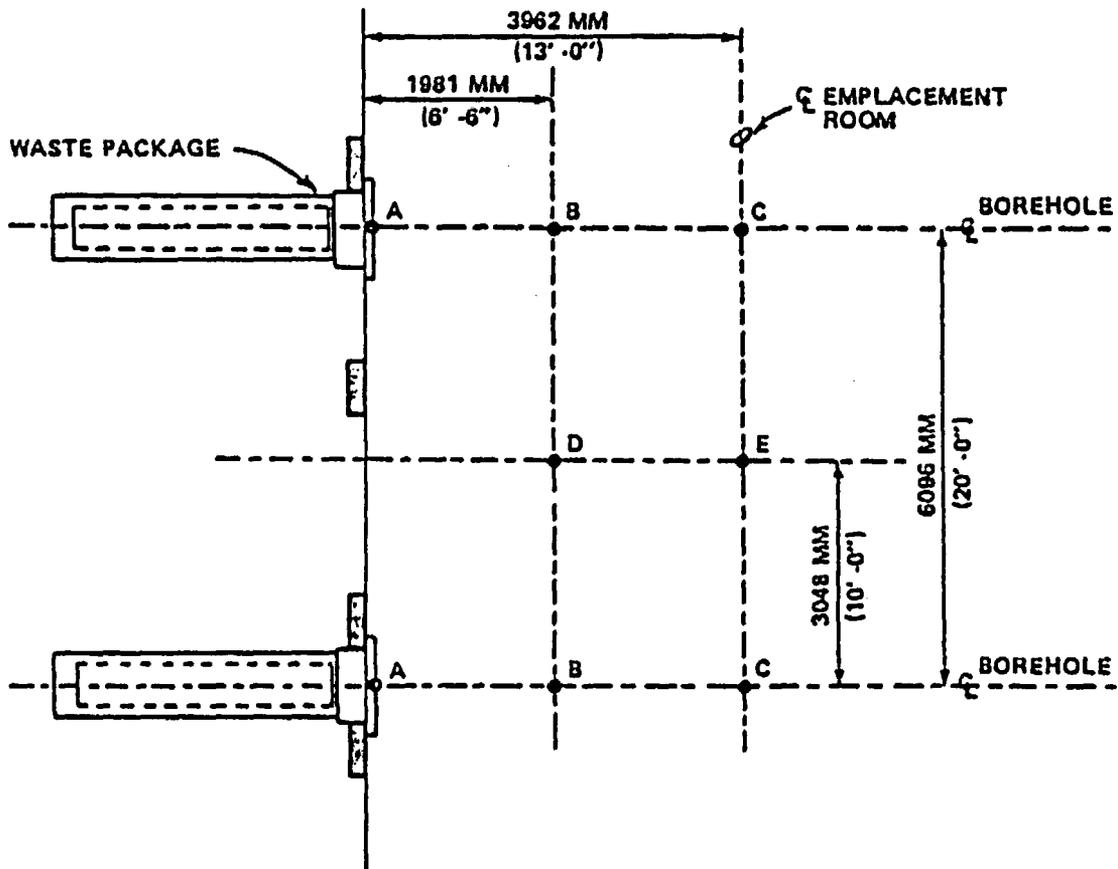
1.4 REPOSITORY (OPERATING ONLY)

FY 1986 PERFORMANCE



1.4 REPOSITORY END FUNCTION SCHEDULE





CONDITION	DOSE RATE \bar{x} (mREM/HR) • PT				
	A	B	C	D	E
WASTE PACKAGE W/O CLOSURE PLATE	24.0	5.0	2.4	1.0	0.7
WASTE PACKAGE W/ 76 MM CLOSURE PLATE	1.0	0.2	0.1	0.04	0.03

\bar{x} BASED ON SYMMETRICAL IMPLACEMENT OF CONTAINER IN THE OPPOSITE WALL

PERSONNEL POSITION	EXPOSURE (MILLIREM)		
	PER PERSONNEL POSITION	PER INDIVIDUAL PER YEAR	
		PARTIAL	FULL
	PER RETRIEVAL	RETRIEVAL	RETRIEVAL
A. WASTE SHAFT AREA:			
1. CRANE AND HOIST OPERATOR	1.3	42	417
2. ROLLING STAND MOVER (RSM) OPERATOR	0.4	13	128
3. HEALTH PHYSICS TECHNICIAN	0.1	3	28
4. INSPECTOR QA	1.3	42	417
5. UNDERGROUND TRANSPORTER OPERATOR	2.4	40	537
B. EMPLACEMENT ROOM:			
1. FOREMAN	9.2	154	440
2. INSPECTOR QA	11.0	183	524
3. HEALTH PHYSICS TECHNICIAN	10.0	167	478
4. HEAVY EQUIPMENT OPERATOR	9.8	163	468
TOTAL DOSE	45.5	NA	NA

1. ALL PERSONNEL WORK SOLELY ON RETRIEVAL OPERATIONS
2. 50 WEEKS/YEAR, 3 SHIFTS/DAY
3. 17.82 HOURS/RETRIEVAL IN A ROOM

1.4

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
ACD Geotechnical Design Analysis/Methodology to Rockwell	--	12/31/86
Repository Subsystem Description Document Technical Review Meeting	--	1/7/87
Vendor quotes for Waste Package costs to KE/PB for Rod Consolidation Study	--	1/21/87
Rod Consolidation Methodology/Decision Recommendation Meeting	--	1/21/87
Rockwell comments of Retrievability Strategy Report to KE/PB	--	1/26/87

1.4

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
* Issue Rod Consolidation Study	12/86	02/87
Issue Repository Subsystem Description to DOE-RL	01/87	02/87
Issue Borehole Analysis Supporting Document	01/87	02/87
* Issue Retrieval Strategy Plan	01/87	02/87
Issue ACD Statement of Work to DOE-RL	02/87	02/87
<u>March</u>		
Seals Material Testing Study Plans	12/86	03/87
** Issue SCP Conceptual Design Report	01/87	03/87
Seals Engineering Plan	01/87	03/87
Geotechnical Models for Advanced Conceptual Design (ACD)	01/87	03/87
Issue SCP Engineering Plans	02/87	03/87
Issue Rock Mechanics Study Plans	03/87	03/87
Issue ACD Requirements to DOE-RL	03/87	03/87
IL Report 2-D Sensitivity Study	03/87	03/87
<u>April</u>		
Start Seals Component Materials Tests	04/87	04/87
Begin Basalt Sample Selection for Rock Mechanics Testing	04/87	04/87
Complete Baseline for Rock Support Systems	04/87	04/87
Issue ACD Requirements to DOE-HQ	04/87	04/87

* RL-Controlled Milestone.

** HQ-Controlled Milestone.

CRITICAL ISSUES

1.4 REPOSITORY

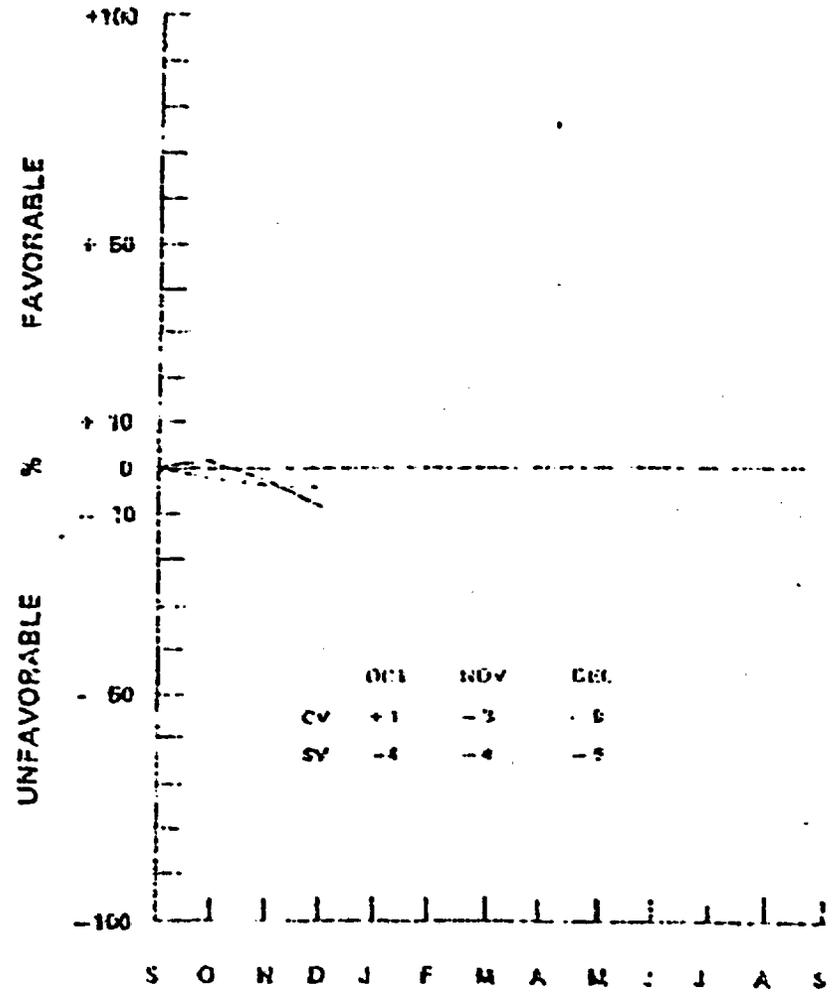
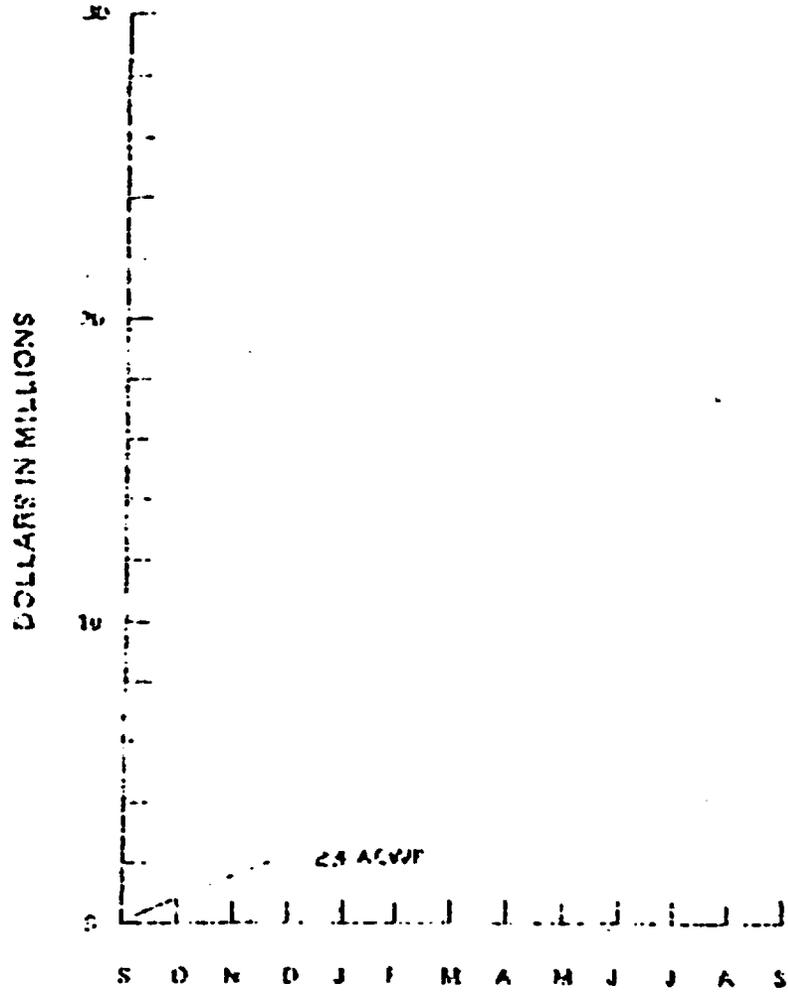
Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Release of KE/PB to perform Task VI Studies (2) ● Design Issues incorporation in IRS (1) ● Decision Methodology for Rod Consolidation Study has not been determined (1) ● Receipt of waste container cost estimates from Gilbert Commonwealth (1) 	<ul style="list-style-type: none"> ● Loss of KE/PB technical staff could adversely impact schedule to complete ACD based on delayed staffing and loss of technical continuity ● Lack of resolution prevents issuance of Engineering Plans, Study Plans, and Design Methodology ● Lack of Decision Methodology will impact the release of the study ● Further delay will impact preparation of Rod Consolidation Study 	<ul style="list-style-type: none"> ● Negotiations being conducted with DOE-RL to determine studies which could be released at DOE-RL direction. Specific new tasks in the amount of \$68,000 have been released ● Steps are being taken by a dedicated Task Force to resolve problems with guidance from DOE-HQ ● A decision-making workshop was held January 21, 1987 with A/E, DOE-RL, WHC, and Rockwell representatives to resolve issues ● Receipt at cost estimate is being expedited

**KAISER ENGINEERS, INC./PARSONS
BRINKERHOFF QUADE AND DOUGLAS, INC.**

GUS KUGLER

KAISER ENGINEERS/PARSONS BRINCKERHOFF (OPERATING ONLY)

PERFORMANCE ON ACTIVE TASKS



KE/PB

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Rock Stress Overall Strategy Report (IFA)	11/21/86	12/31/86
Design Methodology Report (IFA)	10/24/86	12/19/86
Study 10 (Final)	10/15/86	1/20/87
SCP/CDR cost estimate	12/22/86	1/26/87

KE/PB

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

**PLANNED ACCOMPLISHMENTS
90-DAY WINDOW**

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>Planned Future (Next 90 Days)</u>		
Fuel Rod Consolidation Report (Final)	10/31/86	2/20/87*
Rock Stress Final Combined Report	1/2/87	2/20/87*
Design Methodology Report (Final)	12/17/86	2/20/87*
Retrievability Mini-Report (Final)	12/19/86	2/27/87
Start Exploratory Shaft Design	Unknown	Unknown
Start Advanced Conceptual Design (Waste Package Repository)	Unknown	Unknown

*Delay due to late receipt of inputs and RCRs.

CRITICAL ISSUES

KAISER ENGINEERS/PARSON BRINCKERHOFF

Issue	Impacts	Corrective Action
● Start Exploratory Shaft Design	● Design is critical path	● Release Architect/Engineer to produce design plan now

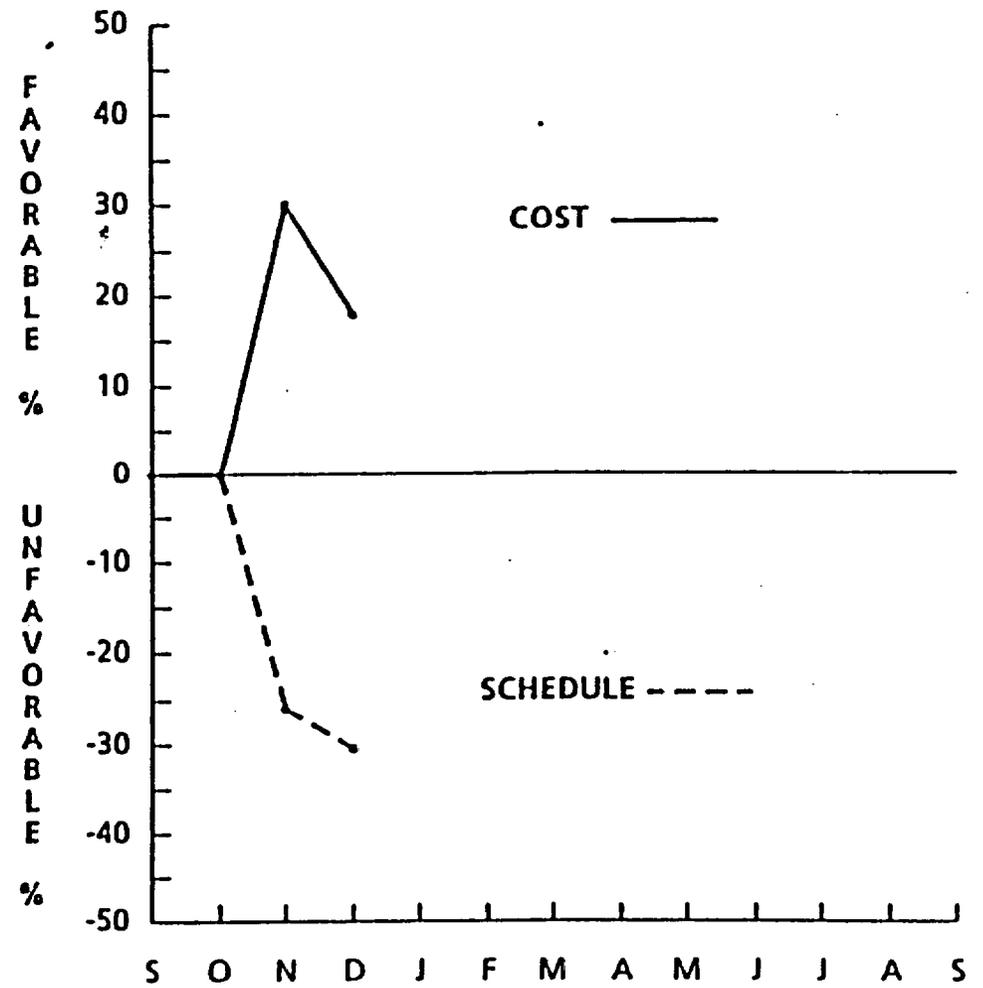
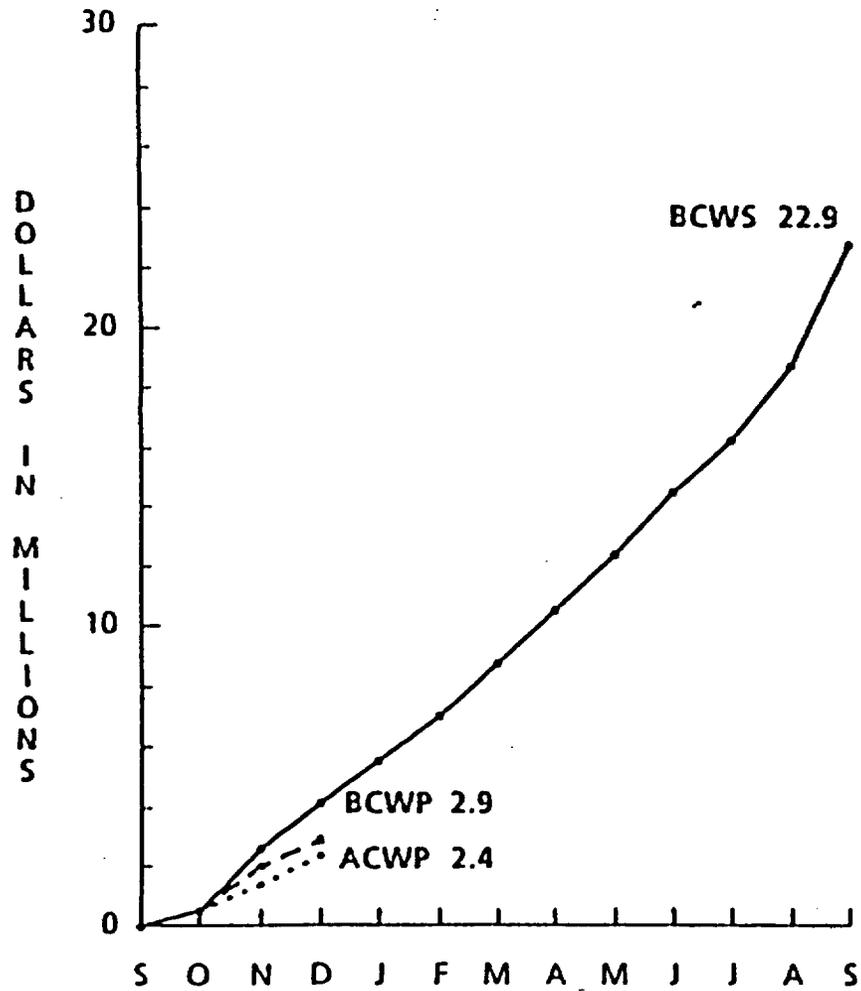
BASALT WASTE ISOLATION PROJECT

1.6 EXPLORATORY SHAFT

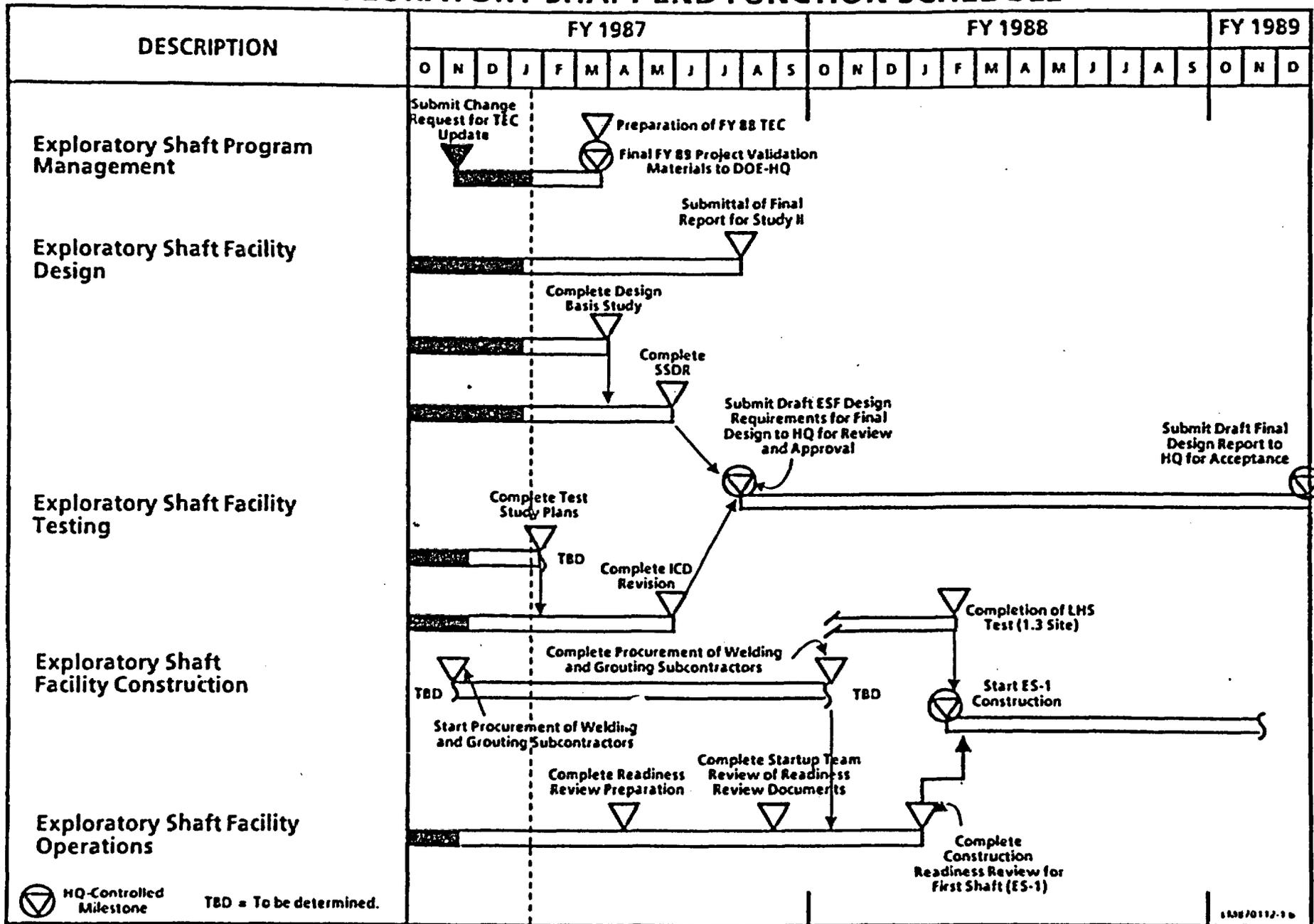
TOM WINTCZAK

1.6 EXPLORATORY SHAFT (OPERATING ONLY)

FY 1987 PERFORMANCE



1.6 EXPLORATORY SHAFT END FUNCTION SCHEDULE



1.6

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Conditional approval for restart of Design Basis Study	N/A	12/24/86
Complete re-estimate of ES-II Conceptual Design	11/17/86	12/1/86
Completion of overall work plan for Study II	12/15/86	12/15/86

1.6

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

PLANNED ACCOMPLISHMENTS
90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>January</u>		
Complete Design Drawings for lower 560 feet of casing	11/21/86	1/5/87
Rev. 0 of the TEC Update to DOE	1/13/87	1/13/87
Restart Design Basis Study	1/19/87	1/19/87
<u>February</u>		
Complete Rev. 1 of FY 1987 TEC	2/13/87	2/13/87
<u>March</u>		
Complete physical measurements of ES-1 casing as part of Study 11	12/1/86	3/1/87
Complete FY 1987 TEC revision	3/13/87	3/13/87
Complete first draft of Design Basis Study Report	3/19/87	3/19/87
Initiate cost estimate for non-TEC portion of ES Program	3/30/87	3/30/87

1.6

BASALT WASTE ISOLATION PROJECT

DECEMBER 1986

EXPLORATORY SHAFT PROGRAM

2.1 ESF Reconciliation Summary (Level 1)

	TEC REV. 4B 1986	TEC REV. 0 1987	DELTA INCREASE/ (DECREASE)
Sunk Cost	30.5	33.7	3.2
Forward Costs	<u>92.7</u>	<u>109.8</u>	<u>17.1</u>
Subtotal	123.2	143.5	20.3
Escalation	7.3	12.2	4.9
Contingency	21.0	103.4	82.4
Base	21.0	25.6	4.6
Special	—	77.8	77.8
TOTAL:	<u>\$151.5 MM</u>	<u>\$259.1</u>	<u>\$107.6</u>

1.6

BASALT WASTE ISOLATION PROJECT

DECEMBER 1986

EXPLORATORY SHAFT PROGRAM

2.7.1 ESF SUNK COST RECONCILIATION (LEVEL 2)

	TEC REV. 4B 1986	TEC REV. 0 1987	DELTA INCREASE/ (DECREASE)
• L6A: Management & Integration	6.7	8.7	2.0
• L6C: Site Preparation	1.2	1.4	.2
• L6D: Surface Facilities	1.3	1.3	—
• L6E: First Shaft	20.9	21.7	.8
• L6F: Second Shaft	.1	.3	.2
• L6G: Subsurface Excavations	.1	.1	—
• L6H: Underground Service Systems	.2	.2	—
• L6J: Operations	—	—	—
	—	—	—
TOTAL SUNK COST:	30.5	33.7	3.2

1.6

BASALT WASTE ISOLATION PROJECT

DECEMBER 1986

EXPLORATORY SHAFT PROGRAM

2.2.2 ESF FORWARD COST RECONCILIATION (LEVEL 2)

	TEC REV. 4B 1986	TEC REV. 0 1987	DELTA INCREASE/ (DECREASE)
• L6A: Management & Integration	21.9	27.8	5.9
• L6C: Site Preparation	5.4	8.0	2.6
• L6D: Surface Facilities	4.2	5.8	1.6
• L6E: First Shaft	27.4	28.6	1.2
• L6F: Second Shaft	22.7	28.6	5.9
• L6G: Subsurface Excavations	6.6	7.2	.6
• L6H: Underground Service Systems	3.1	2.4	(.7)
• L6J: Operations	1.4	1.4	—
	_____	_____	_____
TOTAL ESF FORWARD COST:	92.7	109.8	17.1

1.6

BASALT WASTE ISOLATION PROJECT

DECEMBER 1986

EXPLORATORY SHAFT PROGRAM

2.2.3.1 Base Cost Contingency

	TEC REV. 4B 1986	TEC REV. 0 1987	DELTA INCREASE/ (DECREASE)
• L6A: Management & Integration	2.5	3.7	1.2
• L6C: Site Preparation	.3	1.2	.9
• L6D: Surface Facilities	1.6	1.2	(.4)
• L6E: First Shaft	5.8	7.9	2.1
• L6F: Second Shaft	7.4	8.5	1.1
• L6G: Subsurface Excavations	2.1	2.3	.2
• L6H: Underground Service Systems	1.2	.5	(.7)
• L6J: Operations	.1	.3	.2
	<hr/>	<hr/>	<hr/>
TOTAL ESF BASE COST CONTINGENCY:	21.0	25.6	4.6

1.6

BASALT WASTE ISOLATION PROJECT

DECEMBER 1986

EXPLORATORY SHAFT PROGRAM

2.2.3.2 Special Contingency Reconciliation

	TEC REV. 4B 1986	TEC REV. 0 1987	DELTA INCREASE/ (DECREASE)
• L6A: Management & Integration	—	—	—
• L6C: Site Preparation	—	—	—
• L6D: Surface Facilities	—	—	—
• L6E: First Shaft	—	4.1	4.1
• L6F: Second Shaft	—	54.3	54.3
• L6G: Subsurface Excavations	—	9.7	9.7
• L6H: Underground Service Systems	—	9.7	9.7
• L6J: Operations	—	—	—
	—	—	—
TOTAL ESF SPECIAL CONTINGENCY:	—	77.8	77.8

CRITICAL ISSUES

1.6 EXPLORATORY SHAFT

Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Liner Design Methodology Study II (5) ● Start date for ES-I Drilling to be used in planned (1) 	<ul style="list-style-type: none"> ● Delay in ES-1 Start-of-Drilling ● Cost increase (TEC) \$1.5 to 3.0M depending on required casing fix ● Cannot prepare WPAS or TEC 	<ul style="list-style-type: none"> ● The Architect/Engineer prepared in conjunction with Rockwell the plan and schedule with decision points and decision criteria for casing fix determination and casing fix ● Request guidance from DOE on date to be used

CRITICAL ISSUES

1.6 EXPLORATORY SHAFT

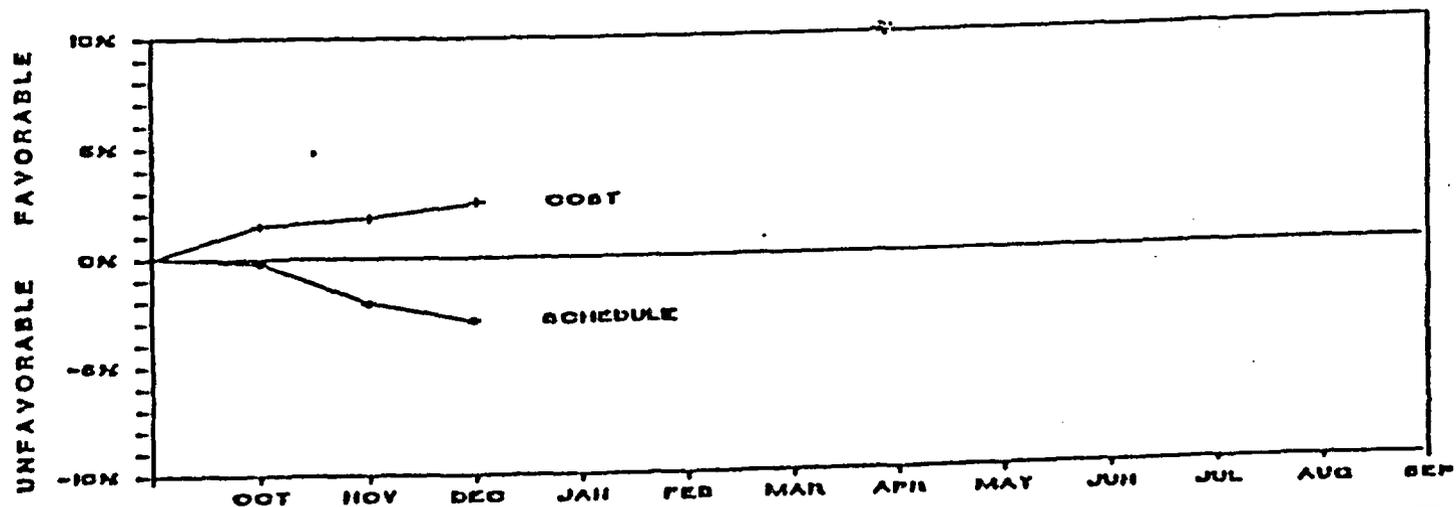
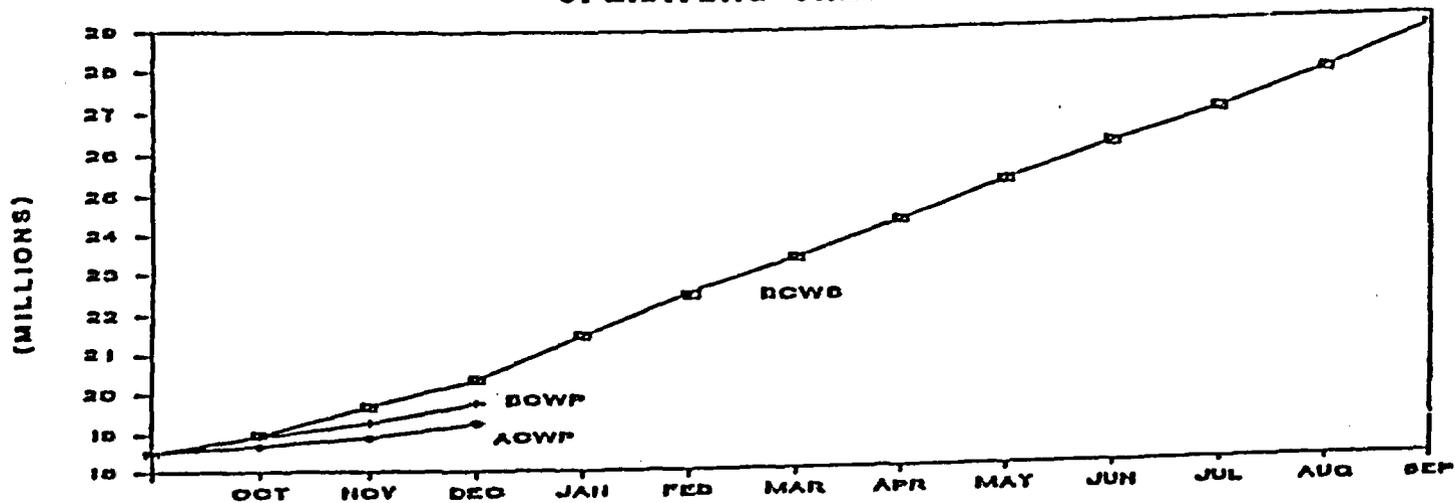
Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Liner Design Methodology Study II (5) ● Start date for ES-I Drilling to be used in planning (1) 	<ul style="list-style-type: none"> ● Delay in ES-1 Start-of-Drilling ● Cost increase (TEC) \$1.5 to 3.0M depending on required casing fix ● Cannot prepare WPAS or TEC 	<ul style="list-style-type: none"> ● The Architect/Engineer prepared in conjunction with Rockwell the plan and schedule with decision points and decision criteria for casing fix determination and casing fix ● Request guidance from DOE on date to be used

MORRISON-KNUDSEN COMPANY, INC.

ED HERSHBERGER

SENIOR MANAGEMENT REVIEW
BASALT WASTE ISOLATION PROJECT
MORRISON-KNUDSEN CO., INC.
JANUARY 29, 1987

COST BASELINE SUMMARY - PERFORMANCE ANALYSIS,
OPERATING ONLY



SENIOR MANAGEMENT REVIEW
BASALT WASTE ISOLATION PROJECT
MORRISON-KNUDSEN CO., INC.
JANUARY 29, 1987

VARIANCES

COST AND SCHEDULE VARIANCES

VARIANCES ARE DUE TO THE DEFERRAL OF WORK INCLUDED IN THE PROPOSED BASELINE.

**SENIOR MANAGEMENT REVIEW
 BASALT WASTE ISOLATION PROJECT
 MORRISON-KNUDSEN CO., INC.
 JANUARY 29, 1987**

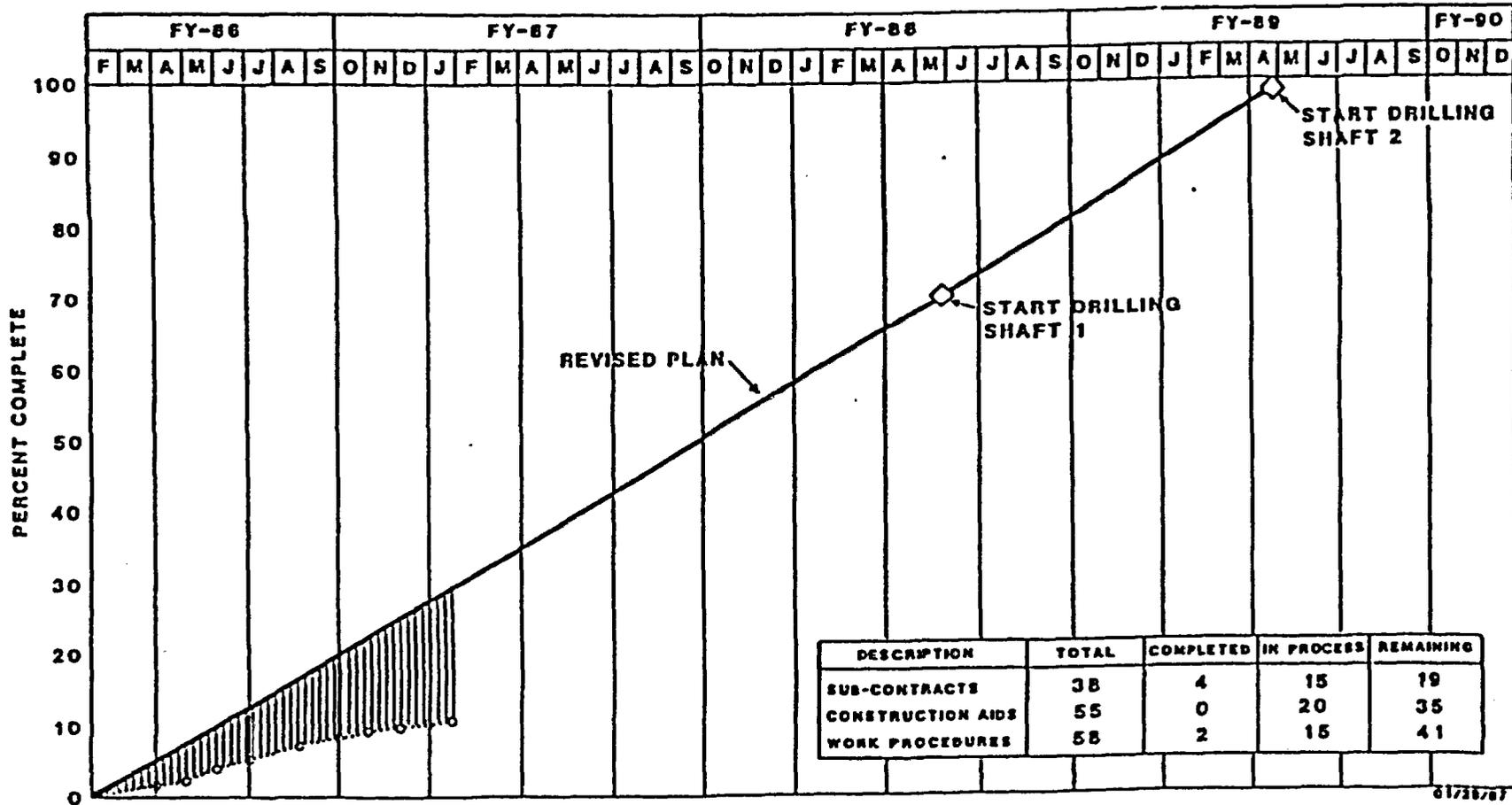
ACCOMPLISHMENTS / PLANNED ACTIVITIES

	<u>BASE LINE</u>	<u>FORECAST</u>	<u>ACTUAL</u>
<u>CONSTRUCTION PLANNING</u>			
PREPARE / REVISE THE FOLLOWING WORK PROCEDURES:			
- GROUTING 112" AND 72" CASING (#5 AND 19).	10/24/86	02/01/87	
- DRILLING (#2, #3, #4, #14 AND #16)	11/28/86	02/16/87	
- BITS AND CUTTERS (#15).	01/06/87	03/04/87	
- CASING (#21).	01/06/87	03/11/87	
COMPLETE CONSTRUCTION AID TECHNICAL PACKAGES:			
- STRONGBACK BEAM MODIFICATION.	01/29/87	01/29/87	
- SAFETY WORK DECK UNDER DRILL RIG.	02/16/87	02/16/87	
- ROTARY TABLE CHAIN GUARD FOR DRILL RIG.	02/27/87	02/27/87	
- MOBILE WORK DECK FOR RUNNING CASING.	03/16/87	03/16/87	
AWARD THE ELECTRICAL MAINTENANCE SUBCONTRACT.	01/16/87	02/18/87	
<u>FIELD CONSTRUCTION</u>			
72-INCH CASING RESIDUAL STRESS TEST PROGRAM.			
- COMPLETE NDE DEMONSTRATION TEST.	11/19/86		12/03/86
- DEVELOP M-K WORK PLAN.	12/22/86		01/15/87
- START FIELD TESTING.	01/26/87	01/26/87	
- COMPLETE FIELD TESTING.	03/03/87	03/03/87	
- SUBMIT DATA SHEETS.	03/05/87	03/05/87	

**SENIOR MANAGEMENT REVIEW
 BASALT WASTE ISOLATION PROJECT
 MORRISON-KNUDSEN CO., INC.
 JANUARY 29, 1987**

CONSTRUCTION PLANNING - ES FACILITIES

(SUB-CONTRACTS, CONSTRUCTION AIDS, WORK PROCEDURES)



SENIOR MANAGEMENT REVIEW
BASALT WASTE ISOLATION PROJECT
MORRISON-KNUDSEN CO., INC.
JANUARY 29, 1987

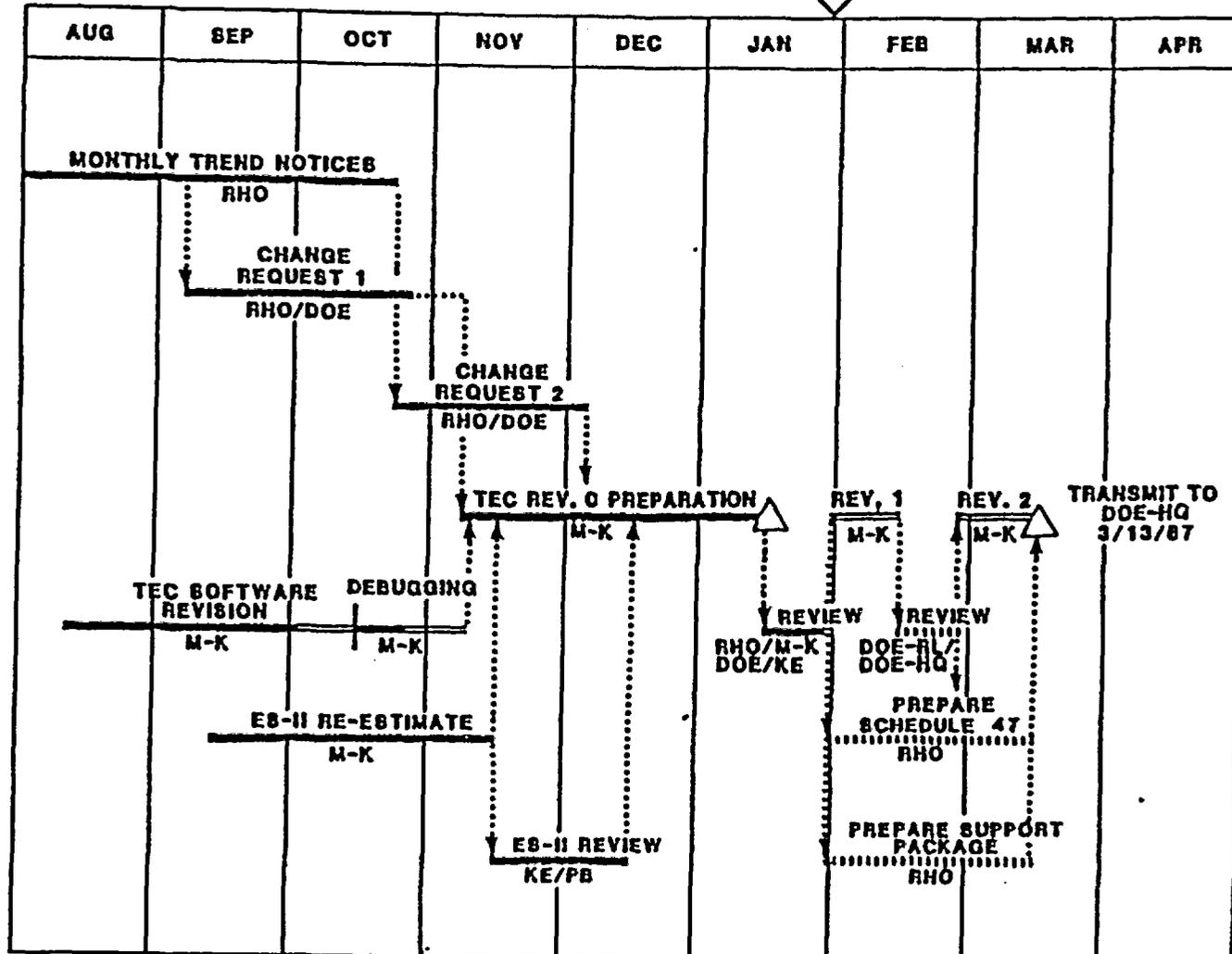
ACCOMPLISHMENTS / PLANNED ACTIVITIES

	<u>BASE LINE</u>	<u>FORECAST</u>	<u>ACTUAL</u>
<u>PROJECT CONTROL</u>			
1987 TEC DEVELOPMENT:			
- COMPLETE ES-II RE-ESTIMATE.	11/18/86		12/16/86
- TEC ESTIMATE PREPARATION, REV. 0 TO DOE/RL.	01/15/87		01/13/87
- TEC ESTIMATE PREPARATION, REV 1 TO DOE/RL.	02/15/87	02/13/87	
- COMPLETE SOFTWARE REVISION.	11/14/86	04/15/87	
<u>QUALITY ASSURANCE</u>			
RESPOND TO AND CLOSEOUT CAR M-K BWIP-004.	01/29/87	01/29/87	
CLOSEOUT THE FOLLOWING QA AUDITS.			
- INTERNAL AUDIT QA-86-03 ON DOCUMENT CONTROL.	01/30/87	01/30/87	
- INTERNAL AUDIT QA-86-05 ON PROCUREMENT DEPARTMENT.	02/27/87	02/27/87	
- EXTERNAL AUDIT BWP-86-001 ON QA/QC DEPARTMENT.	02/27/87	02/27/87	
REVISE THE M-K QA PROGRAM TO INCORPORATE REQUIREMENTS OF DOE-RL QA PLAN AND REVISION 2 OF BOARD AND SUBMIT TO ROCKWELL/DOE FOR APPROVAL.			
- TRAIN PERSONNEL TO THE REVISED QA PROGRAM.	01/30/87	01/30/87	
	03/02/87	03/02/87	
COMPLETE THE 72" CASING FIX SUPPORT ACTIVITIES.	03/31/87	03/31/87	

**SENIOR MANAGEMENT REVIEW
 BASALT WASTE ISOLATION PROJECT
 MORRISON-KNUDSEN CO., INC.
 JANUARY 29, 1987**

1987 TEC SCHEDULE

STATUS DATE



1/28/87

**SENIOR MANAGEMENT REVIEW
BASALT WASTE ISOLATION PROJECT
MORRISON-KNUDSEN CO., INC.
JANUARY 29, 1987**

CRITICAL ISSUES

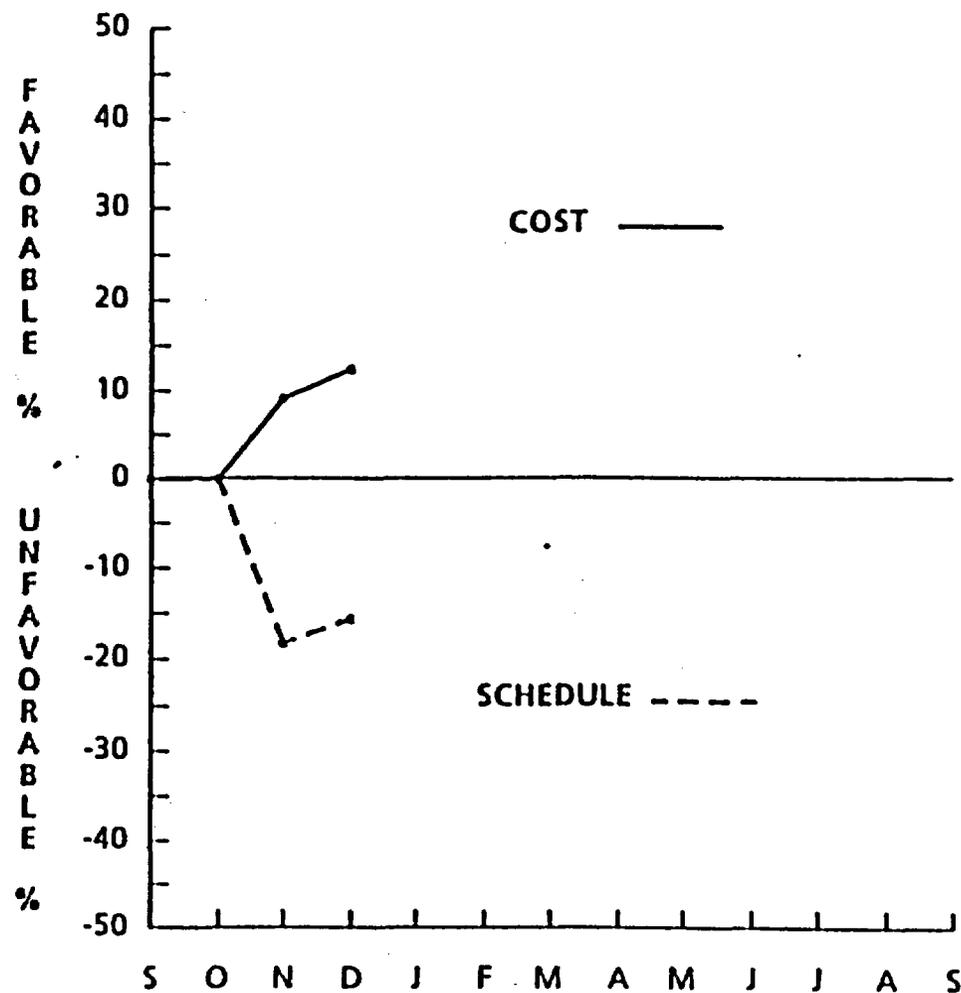
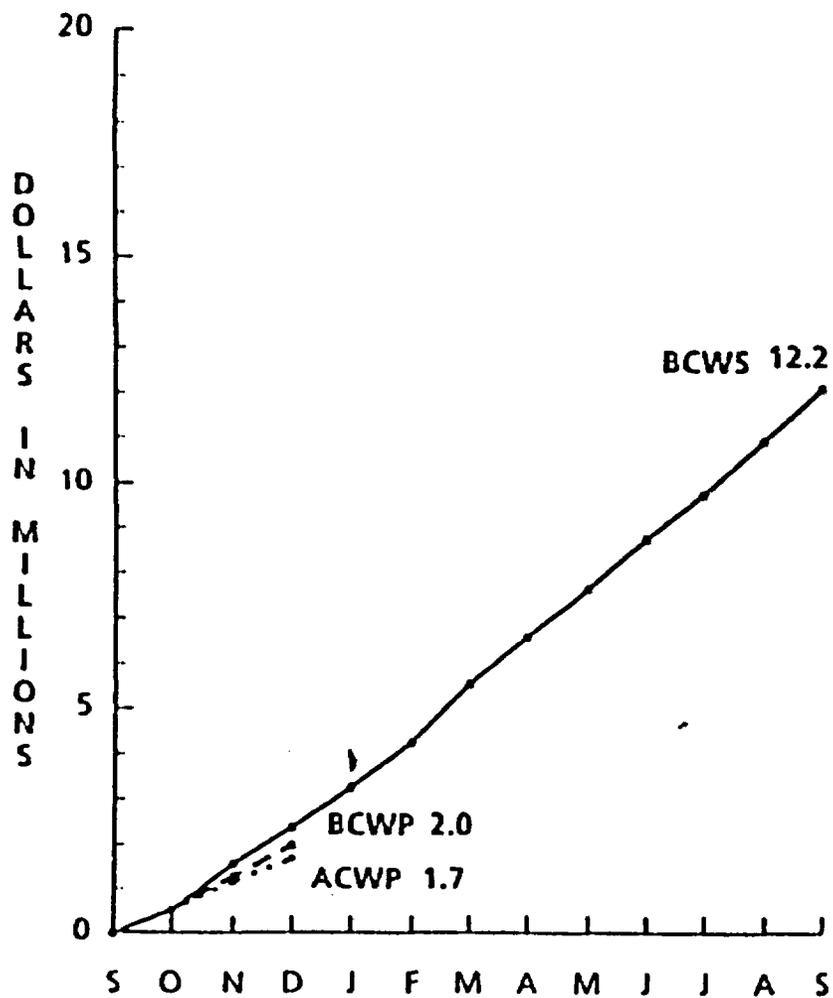
ISSUE	IMPACTS	CORRECTIVE ACTION
<p>LACK OF QUALITY ASSURANCE LEVEL DESIGNATION FOR ES CONSTRUCTION (BASED UPON CURRENT CRITERIA.) (8/28/86)</p> <p>LACK OF TECHNICAL PLANS AND SPECIFICATIONS. (10/2/86)</p>	<p>CM/CC PLANNING EFFORTS ARE BEING IMPACTED. "WORK AROUND" PLANNING IS LESS EFFICIENT AND MORE COSTLY.</p> <p>IMPAIRED CM/CC PLANNING EFFORT.</p>	<p>ROCKWELL/DOE TO EXPEDITE DESIGNATION OF LEVELS. (M-K HAS PRIORITIZED ITEMS REQUIRING LEVEL DESIGNATION.)</p> <p>RELEASE A/E TO ACCOMPLISH THE CRITICAL OR NEAR CRITICAL DESIGN (I.E., SHAFT LINING AND GENERAL PLANT).</p>

BASALT WASTE ISOLATION PROJECT

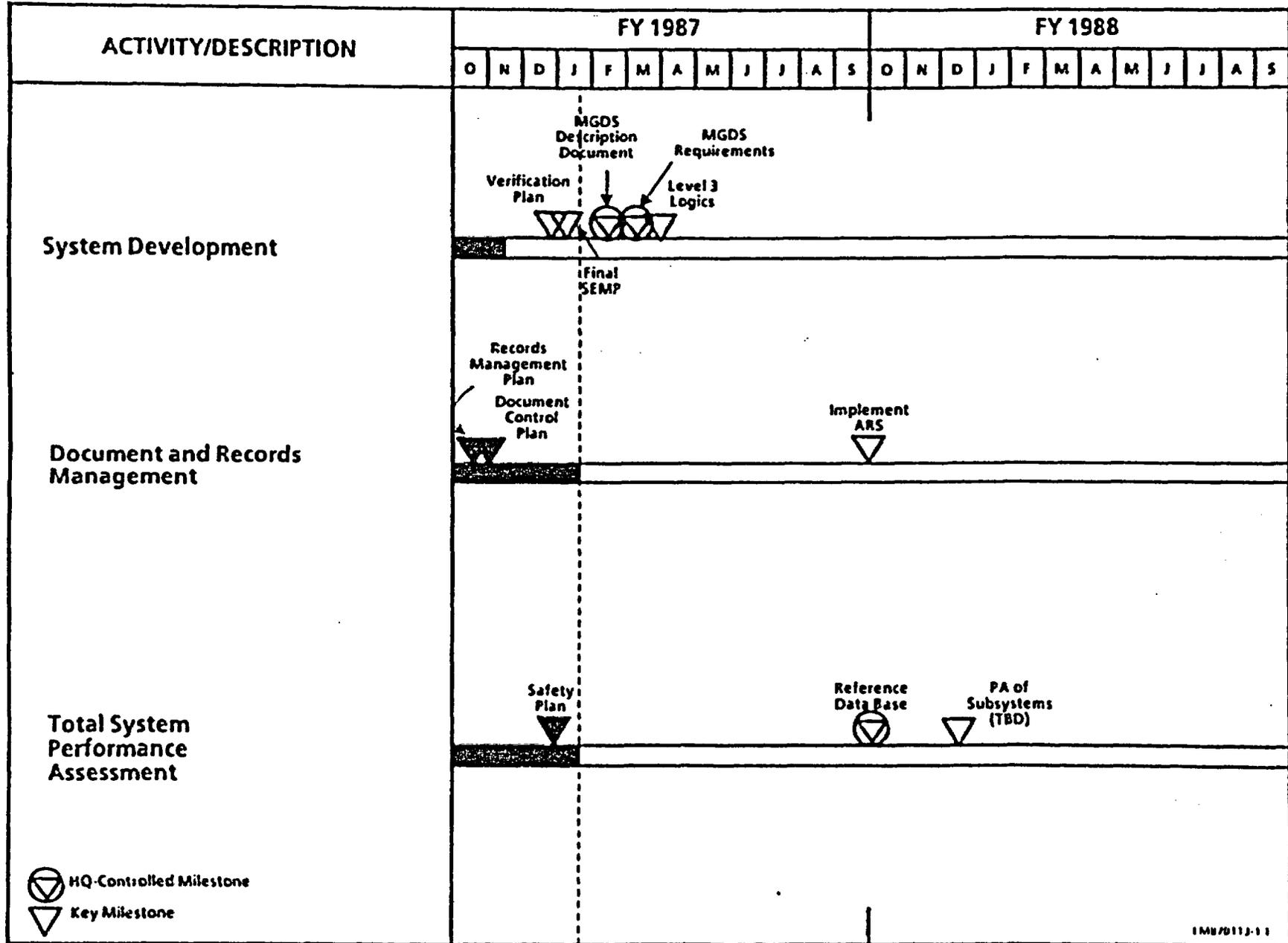
1.1 SYSTEMS

KARL FECHT

1.1 SYSTEMS (OPERATING ONLY) FY 1987 PERFORMANCE



1.1 SYSTEMS END FUNCTION SCHEDULE



1.1

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
* Safety Plan submitted to DOE-RL	12/86	12/86
Correlation of Systems Functional Analysis to Requirements Document	12/86	12/86
Records Management Plan submitted to DOE-RL	(10/86)	12/86
Document Control Plan submitted to DOE-RL	(10/86)	12/86
Documentation Plan submitted to DOE-RL	--	12/86

*RL-Controlled Milestone.

1.1

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

**PLANNED ACCOMPLISHMENTS
90-DAY WINDOW**

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>January</u>		
Final SEMP submittal to DOE-HQ	01/87	01/87
<u>February</u>		
Systems Functional Analysis submittal to DOE-RL	12/86	02/87
BWIP Verification Plan submittal to DOE-RL	12/86	02/87
Basalt MGDS Description Document submittal to DOE-RL	02/87	02/87
<u>March</u>		
Basalt MGDS Requirements Document to DOE-HQ	03/87	03/87
Initial Project Logics complete	03/87	03/87

CRITICAL ISSUES

1.1 SYSTEMS

Issue	Impact	Corrective Action
<ul style="list-style-type: none"> ● High-Level Technical Documents not complete (3) ● Total System Performance Assessment requires additional integration (3) 	<ul style="list-style-type: none"> ● Uncertainty in planning technical work ● Budgeting and planning uncertainty ● Unnecessary effort 	<ul style="list-style-type: none"> ● Accelerate completion of high-level documents (e.g., SEMP, SFA, and MGDS documents) ● Develop Hydrology Plan ● Preparation of Safety Plan ● Integrate in SCP preparation ● Preparation of PA Plans ● Development of Master Schedule/Project Logics

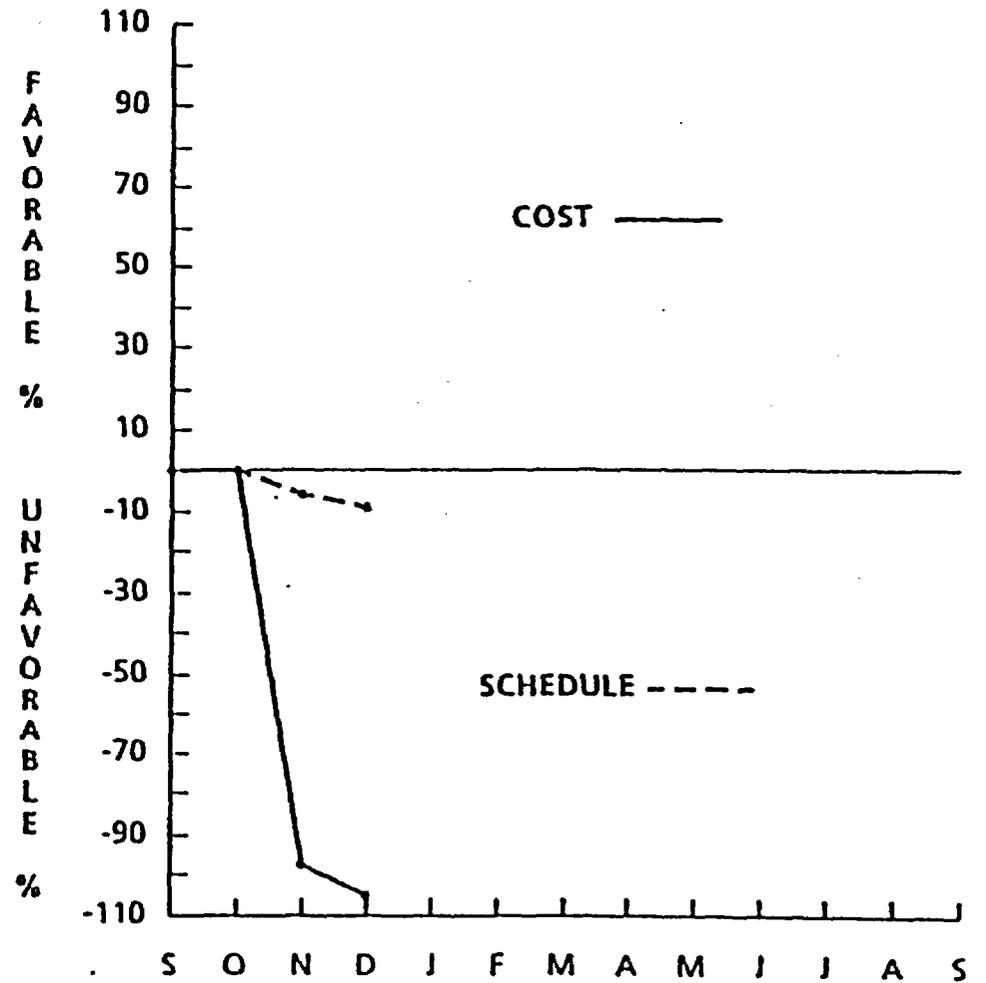
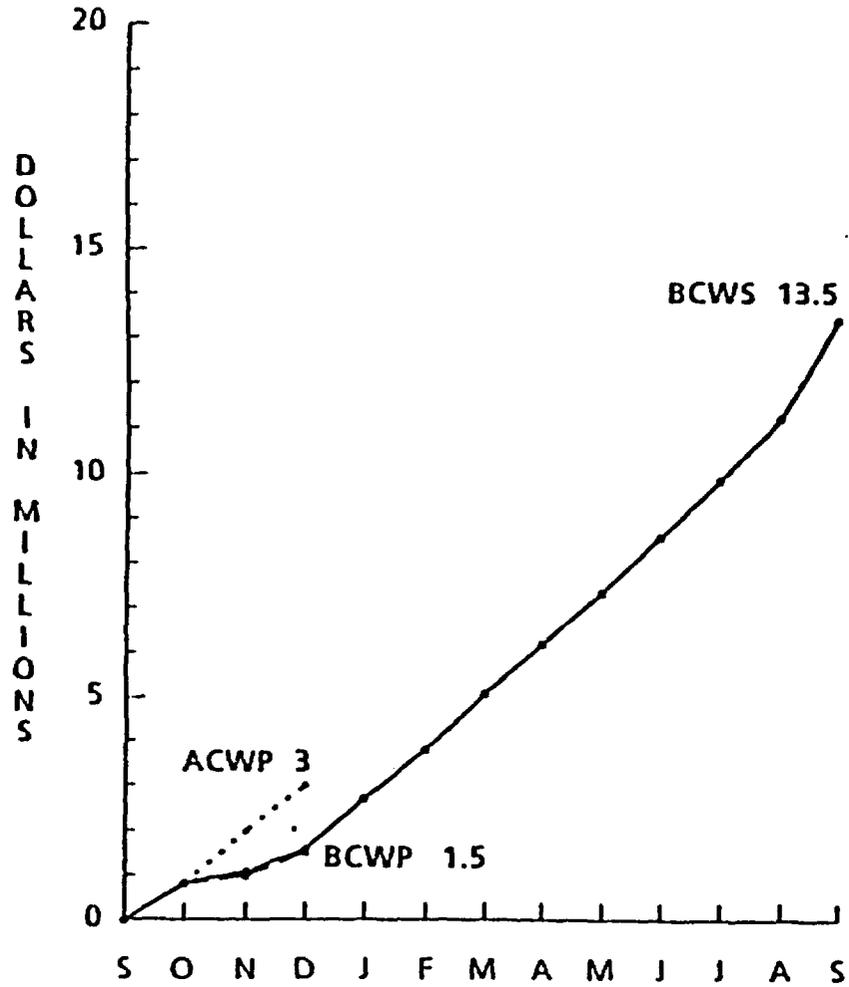
BASALT WASTE ISOLATION PROJECT

1.2 WASTE PACKAGE

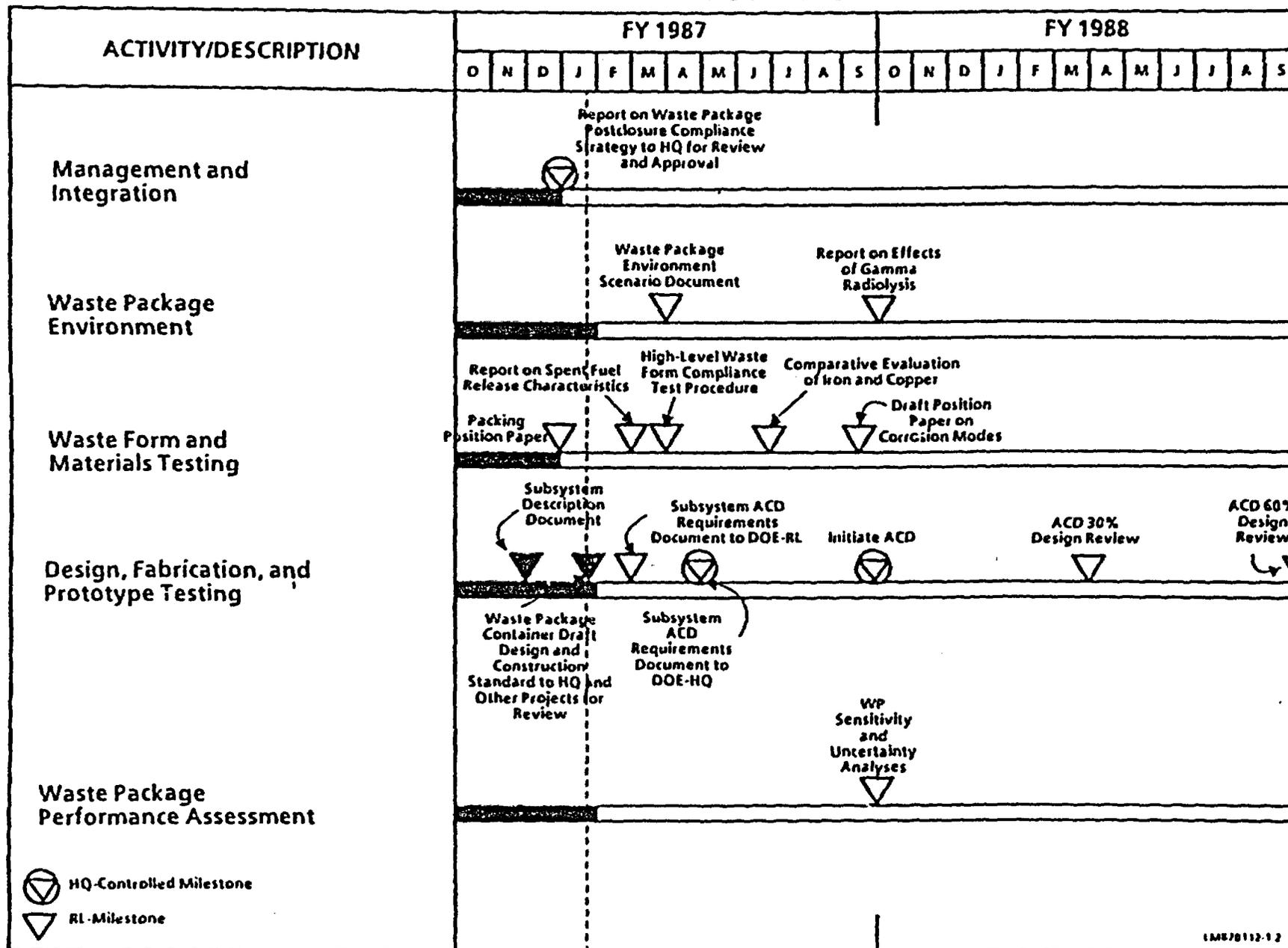
ROGER GILCHRIST

1.2 WASTE PACKAGE (OPERATING ONLY)

FY 1987 PERFORMANCE



1.2 WASTE PACKAGE END FUNCTION SCHEDULE



1.2

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Submitted improved version of the Waste Package Postclosure Strategy Document annotated outline to DOE-HQ. Supports DOE-HQ milestone	N/A	12/86
Completed first draft of the Waste Package Subsystem Design Requirements Document. Technical Document Review is scheduled for 2/27/87. Supports DOE-RL milestone	N/A	01/87
* Draft Waste Package Container Design and Construction Standard completed and distributed to DOE-RL and other Projects	01/87	01/87
Completed draft of the Packing Materials Position Paper (on hold pending release of BWIP peer review procedure.) Supports DOE-RL milestone	N/A	12/86
Received Portland State University draft report entitled "Mineralogy, Textures, and Composition of Grande Ronde Basalt near Troy, Oregon" in support of finding possible natural analogs	N/A	12/86

- * RL-Controlled Milestone.
- ** HQ-Controlled Milestone.

1.2

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

PLANNED ACCOMPLISHMENTS
90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
* Draft Waste Package Subsystem Requirements Document to DOE-RL	02/87	03/87
<u>March</u>		
* Waste Package Environment Scenario Document	03/87	05/87
Complete Procedure/Initiate Preparation of Altered Packing Materials for Testing	03/87	04/87
* Report Spent Fuel Radionuclide Release Characteristics	03/87	03/87
* Preliminary High-Level Waste Form Compliance Test Procedure	03/87	05/87
Provide second draft of SCP Chapters 7, 8.3.4, and 8.3.5	03/87	03/87
<u>April</u>		
Initiate Parr Autoclave Long-Term Spent Fuel Waste Release Testing	01/87	04/87
* Packing Materials Position Paper	12/86	05/87
** Report on Waste Package Postclosure Compliance Strategy to HQ for review and approval	12/86	04/87
** Draft Waste Package Subsystem ACD Requirements received at DOE-HQ for review and approval	04/87	04/87
* RL-Controlled Milestone.		
** HQ-Controlled Milestone.		

CRITICAL ISSUES

1.2 WASTE PACKAGE

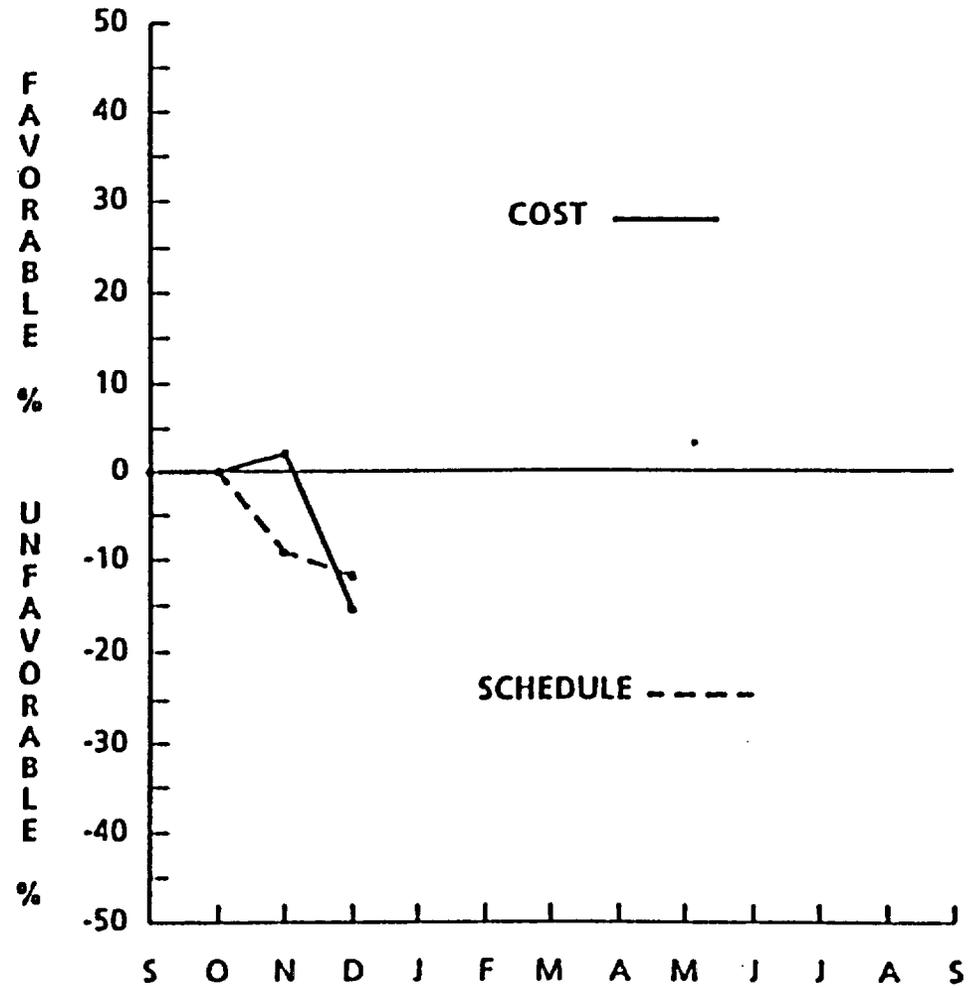
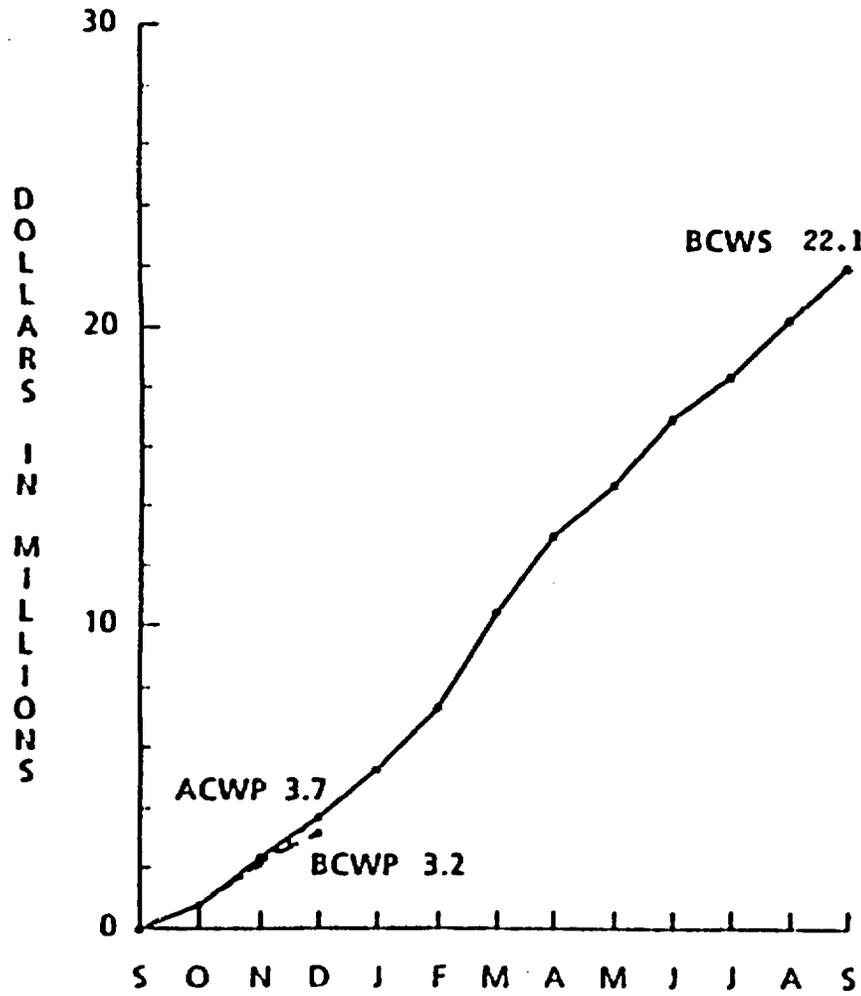
Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Release of Waste Package SCP Conceptual Design Report (4) ● Release of Preliminary Reliability Analysis Report (3) ● ACD Annotated Outline not released (4) ● Need baselined spent fuel receipt rate and material characteristics (1) ● Acceptance of Issues 1.4 and 1.5 (1) ● Procurement of long-lead capital equipment (flow through autoclaves) for hot cell testing (1) 	<ul style="list-style-type: none"> ● Release of SCP and start of ACD ● Release of SCP ● Current and planned work scope and start of ACD ● Start of ACD ● Release of SCP ● Completion of test facility and delay in testing program 	<ul style="list-style-type: none"> ● DOE-HQ acceptance and DOE-RL release of SCP-CDR ● DOE-RL release document ● DOE-HQ release ACD Annotated Outline ● DOE-HQ provide baselined spent fuel information ● DOE-HQ approval ● Exemption from DOE-RL to allow procurement

BASALT WASTE ISOLATION PROJECT

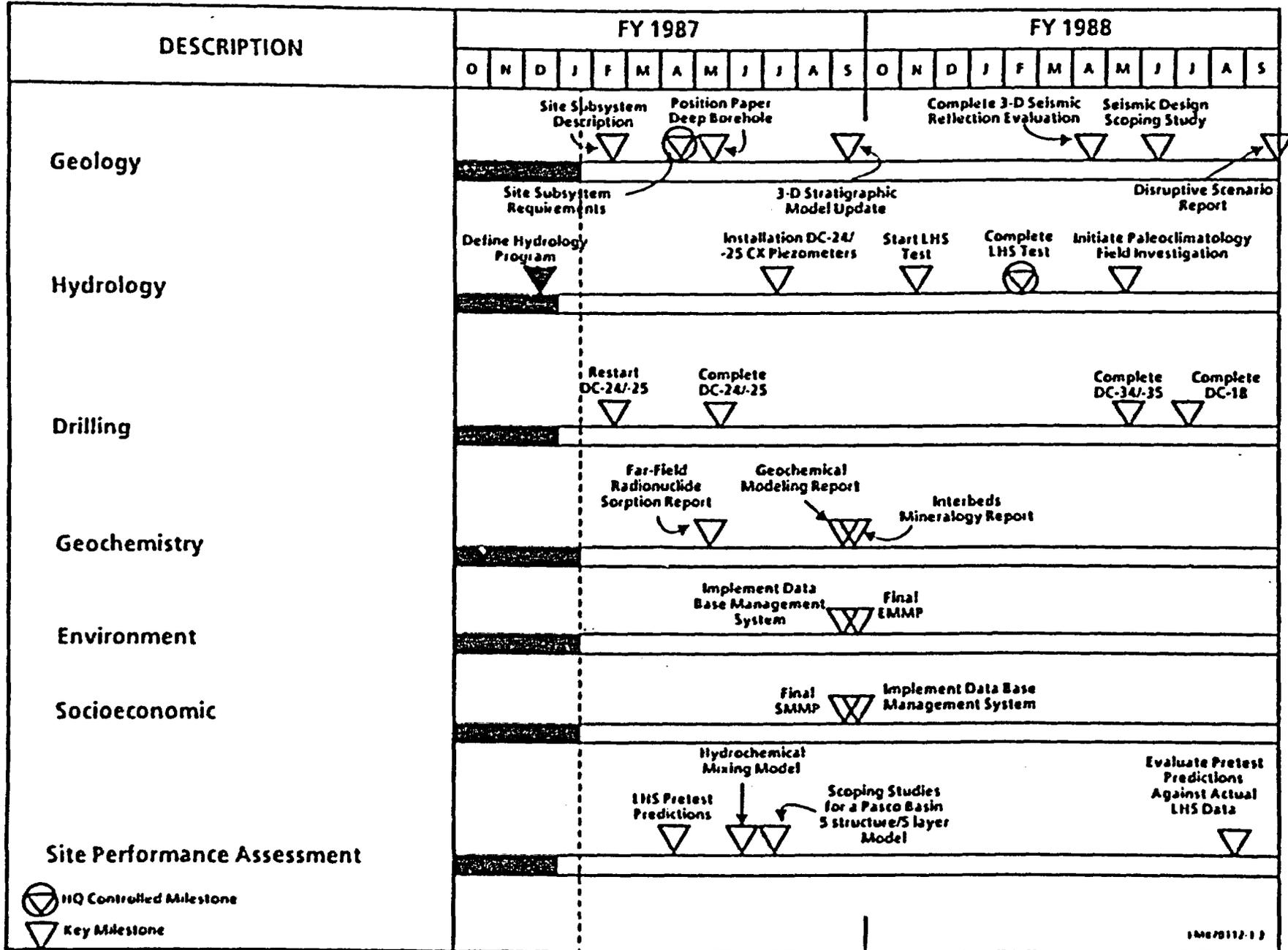
1.3 SITE

GAIL HUNT

1.3 SITE (OPERATING ONLY) FY 1987 PERFORMANCE



1.3 SITE END FUNCTION SCHEDULE



1.3

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Revision of ESC Restart Package	12/86	01/87
Provided support December DOE-HQ review	12/86	12/86
Provided support December NRC data review	12/86	12/86
Dispositioned DOE comments and submitted SCP Chapter 4 Draft C copy for input to Technical Publications	12/86	12/86
Field Calibration of BWIP Seismic Network was completed	12/86	12/86

1.3

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

**PLANNED ACCOMPLISHMENTS
90-DAY WINDOW**

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Complete Procedure Training for Restart activities	02/87	02/87
Site Subsystem Description	02/87	02/87
<u>March</u>		
Restart drilling Borehole DC-24	02/87	03/87
<u>April</u>		
Geology data review with NRC	04/87	04/87
Complete Hydrochemistry Study Plans	04/87	04/87
Restart drilling Borehole DC-25	02/87	04/87
LHS Pretest predictions	04/87	06/87
Site Subsystem Requirements Document	04/87	04/87

CRITICAL ISSUES

1.3 SITE

Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> • Approval of BWIP Hydrology Program Plan (3) • Approval of ESC for DC-24/ -25 by DOE (3) • CENRTC procurement for exempt and stopped work capital items needs to proceed (1) • Laboratory personnel are inadequately funded (1) 	<ul style="list-style-type: none"> • Potential delay of Exploratory Shaft • Potential delay of the LHS test and/or ES. Currently, the earliest DC-24/-25 start date is in March 1987. The start of drilling will be ~45 days after the ESC restart is approved • Stop work required for high-priority geophysical equipment procedure development and training cannot be accomplished • Potential reduction in work force if additional funds are not made available 	<ul style="list-style-type: none"> • Initiate Pump Test Analysis to evaluate potential benefits of pumping four horizons • Submittal of the ESC package to DOE-RL in January • Continue training required for restart • Obtain DOE approval for procurement to proceed on CENRTC items related to both exempt and stopped work • Transfer funds to assure adequate support. Assure that productive work is available

BASALT WASTE ISOLATION PROJECT

**ENVIRONMENTAL/SOCIOECONOMIC MONITORING/
MITIGATION PLAN**

TOM PAGE

BASALT WASTE ISOLATION PROJECT

1.3 G

JANUARY 29, 1987

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Completed vegetative and vertebrate animal surveys	11/87	11/87
Initiated bald eagle surveys	12/86	12/86
Provided support for environmental review of Tribal and State grant proposals	12/86	12/86
Supported Key Issue 3 Working Group	01/87	01/87

BASALT WASTE ISOLATION PROJECT

1.3 H

JANUARY 29, 1987

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Completed working draft papers (Work Force Survey, Affected Parties, Community Interviews, Data Base Management)	10/86	12/86
Completed economic/demographic working draft and select model	10/86	02/87
Prepared first draft of Socioeconomic Monitoring and Mitigation Plan (SMMP)	12/86	12/86
Provided support for socioeconomic review of Tribal and State Grant proposals	12/86	12/86
Provided support for SMMP review meeting with Tribes and State	01/87	01/87

BASALT WASTE ISOLATION PROJECT

1.5 D

JANUARY 29, 1987

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Submitted revised QA Plan ED-29 Rev 1	10/86	10/86
Provided support for draft Cultural Resource Research Design	12/86	12/86
Prepared first draft of Environmental Monitoring and Mitigation Plan (EMMP)	12/86	12/86
Provided support for EMMP review meeting with Tribes and State	01/87	01/87
Provided internal review draft of Environmental Regulatory Compliance Plan	12/86	12/86

BASALT WASTE ISOLATION PROJECT

1.3 G

JANUARY 29, 1987

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Complete procedure training for field CY-87 field surveys	02/87	02/87
Support Environmental Program Plan Working Group meeting	02/87	02/87
Support Key Issue 3 Planning	02/87	02/87
Initiate field studies for large mammals	02/87	02/87
<u>March</u>		
Initiate field studies for vegetation, birds, and small mammals	03/87	03/87

BASALT WASTE ISOLATION PROJECT

1.3 H

JANUARY 29, 1987

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Initiate social and economic profiling activities	02/87	02/87
Complete economic/demographic working paper and select model	02/87	02/87
<u>March</u>		
Initiate field testing of economic/demographic model	03/87	03/87
Initiate review of tribal ethnographic materials	03/87	03/87
<u>April</u>		
Initiate response to comments on SMMP from Tribes and States	04/87	04/87

BASALT WASTE ISOLATION PROJECT

1.5D

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

JANUARY 29, 1987

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Complete activity location survey procedure	02/87	02/87
Finalize first draft of Environmental Regulatory Compliance Plan	02/87	02/87
<u>March</u>		
Initiate archeological surveys of future activity locations	03/87	03/87
<u>April</u>		
Initiate response to comments on EMMP from Tribes and State	04/87	04/87
Initiate field surveys of future activity locations	04/87	04/87

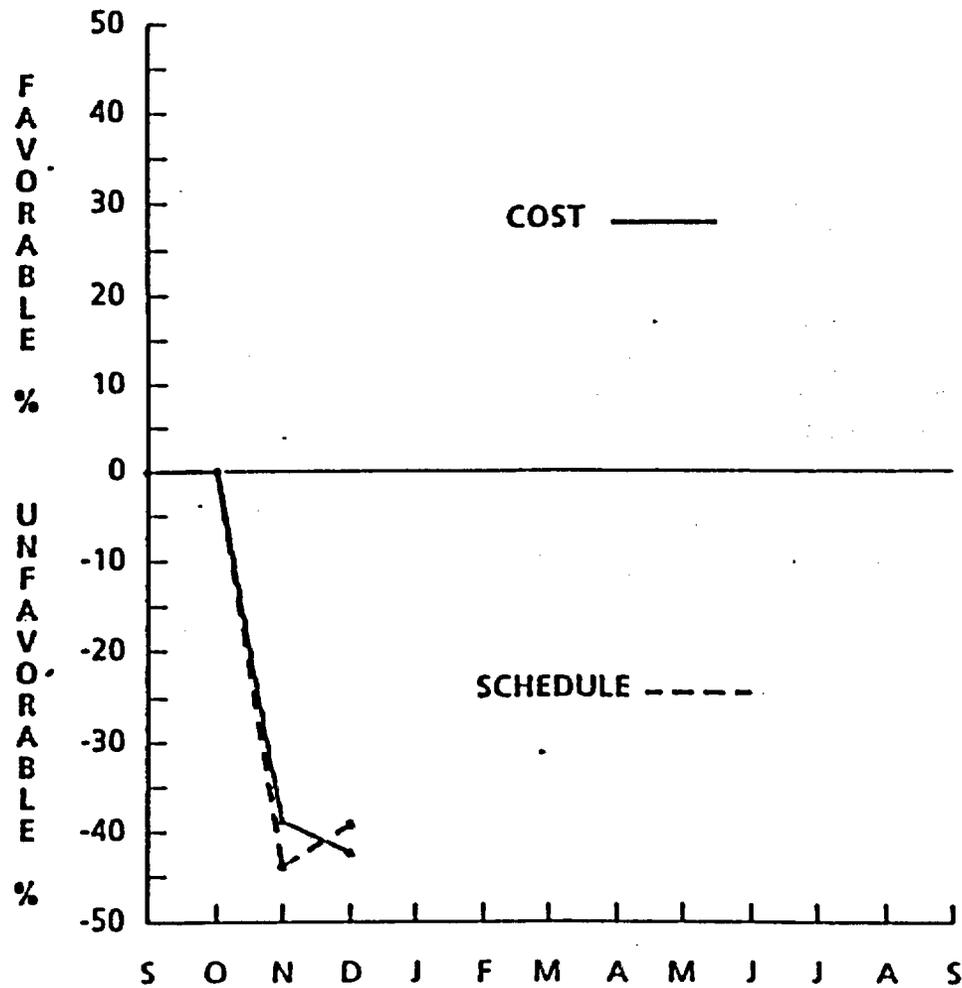
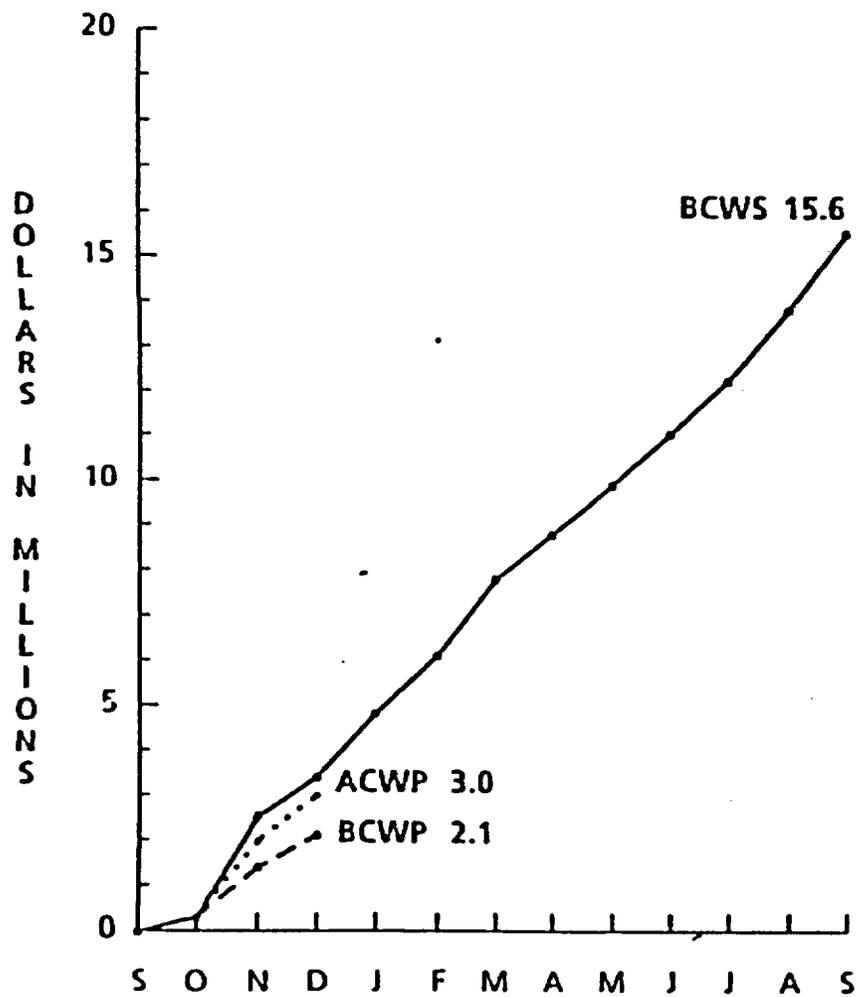
BASALT WASTE ISOLATION PROJECT

1.5 REGULATORY AND INSTITUTIONAL

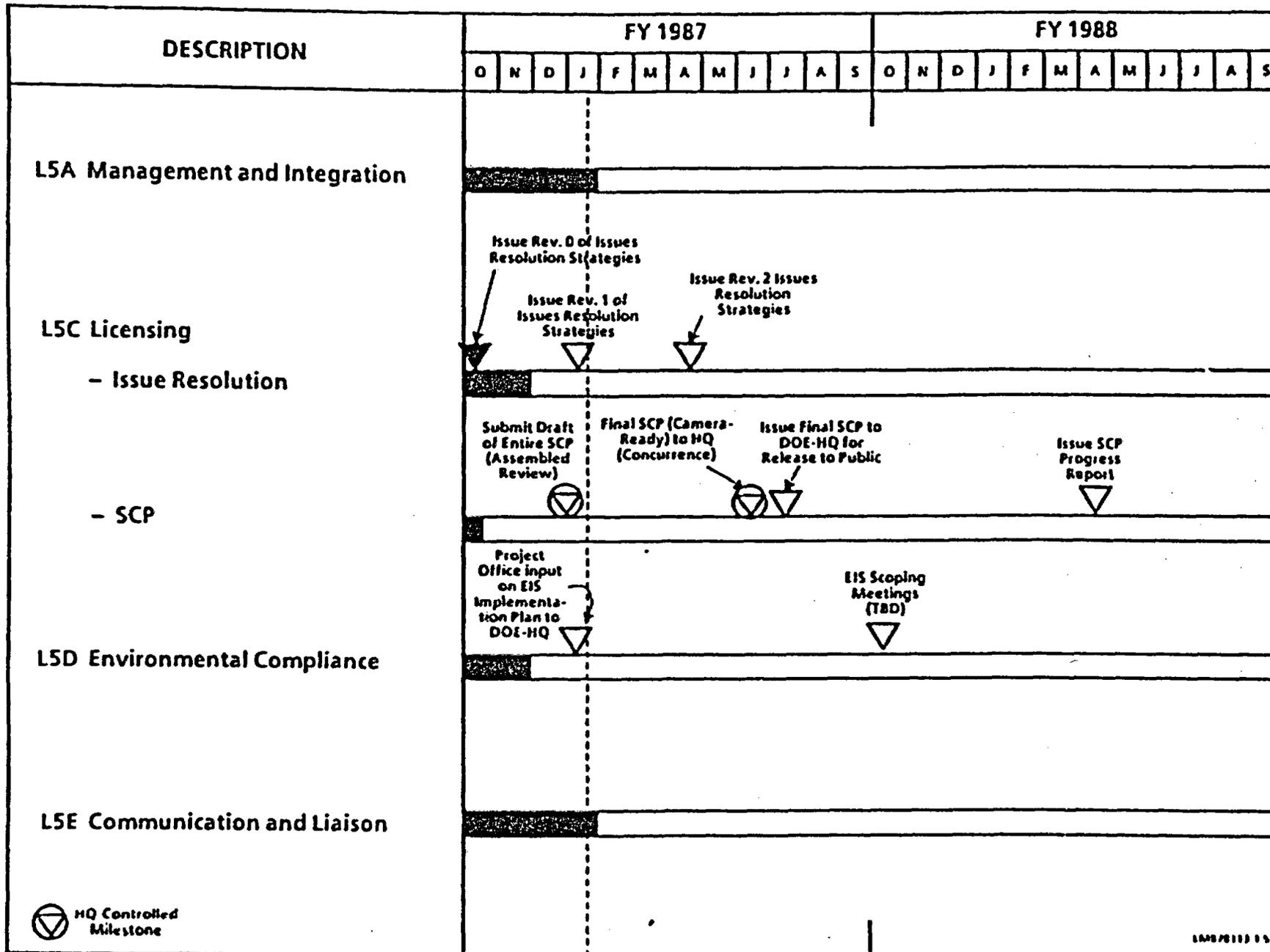
JOHN GRAHAM

1.5 REGULATORY AND INSTITUTIONAL (OPERATING ONLY)

FY 1987 PERFORMANCE



1.5 REGULATORY AND INSTITUTIONAL END FUNCTION SCHEDULE



 HQ Controlled Milestone

1.5

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Revision to Licensing Plan/Compliance Plan	--	12/86
NRC Hydrology Data Review	--	12/86
BWIP Safety Program Plan	--	12/86
Nuclear Waste Board/Advisory Council Meeting	--	12/86
Developed a revised SCP completion schedule for presentation to DOE	--	12/86
Completed and distributed Chapter 4 (Geochemistry), Section 8.6 (Quality Assurance), and Section 8.7 (Decontamination and Decommissioning) for Assembled Review	12/22/86	12/22/86
Quarterly State/Indian Meeting	--	01/87
Regulatory Compliance Tracking System Status Report	--	01/87
Nuclear Waste Board/Advisory Council Meeting	--	01/87
Completed the Chapter Review of SCP Chapter 3 (Hydrology) at DOE-HQ	01/07/87	01/29/87
Completed and distributed Chapter 1 (Geology), Chapter 2 (Geoengineering), and Chapter 5 (Climatology) for Assembled Review	01/30/87	01/30/87

1.5

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Complete Rev. 1 of Issues Resolution Strategies for Performance Issues	01/87	02/87
Initiate joint DOE/Rockwell review of Section 8.3 (SCP Planning Sections)	02/09/87	02/09/87
Initiate joint DOE/Rockwell chapter review of remaining data chapters Chapters 6 and 7)	02/09/87	02/09/87
Nuclear Waste Board/Advisory Council Meeting	02/20/87	02/20/87
Plan for Issues Identification, Tracking, and Closure Program	02/27/87	02/27/87
<u>March</u>		
Continue joint DOE/Rockwell review of Section 8.3 (SCP Planning Sections)	--	--
Nuclear Waste Board/Advisory Council Meeting	03/20/87	03/20/87
Plan for cataloging, tracking, and filing NRC positions and regulations	03/27/87	03/27/87
<u>April</u>		
Quarterly State/Indian Meeting	04/87	04/87
Nuclear Waste Board/Advisory Council Meeting	04/17/87	04/17/87
Initiate Assembled Review with transmittal of all SCP chapters/sections to DOE	04/27/87	04/27/87
Geology Data Review	04/1-3/87	04/1-3/87

CRITICAL ISSUES

1.5 REGULATORY AND INSTITUTIONAL

Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Pre-SCP activities report to State/Affected Indian Tribes (2) ● Guidance received on 11/10/86, relative to completion of the Performance Allocation process for Performance Issues (2) ● DOE-HQ is preparing a separate strategy to address Waste Package Issues (2) ● SCP schedule now requiring large DOE and Rockwell effort (2) ● Completion of Issues Resolution Strategies is critical path for SCP completion (1) ● The Issues Resolution Strategies have not been completed to DOE-HQ satisfaction (1) ● Accounts lack proper PNL input on Environmental Programs (1) 	<ul style="list-style-type: none"> ● Potential litigation ● Guidance must also be applied to Design Issues ● Further work on Chapter 7 and Section 8.3.4 has been suspended ● Potentials for delay ● Day-for-day delay in SCP schedule if Issues Resolution Strategies are delayed ● Delay of Section 8.3 of the SCP ● L5 accounts are not fully reported 	<ul style="list-style-type: none"> ● Sent to DOE-RL 11/1186. (Complete) ● Delay further work on sections in 8.3 where necessary. (Complete) ● Revise SCP schedule charts. (Complete) ● Use of consultants and all expertise. (Ongoing) ● Limit Issues Resolution Strategies completion to level of detail necessary to support SCP ● Teleconference calls on each Issue Resolution Strategy initiated on 1/6/87; completed on 1/15/87. Special workshops convened at DOE-HQ to finalize strategies starting 1/12/87. Workshops will continue to ~1/23/87. Rev. 1 of Performance Issues expected to be completed by end of January 1987 or start of February 1987. Design Issues scheduled for completion on 2/15/87 ● DOE-RL (Activity Manager) has been requested to provide regular monthly Cost Performance Report

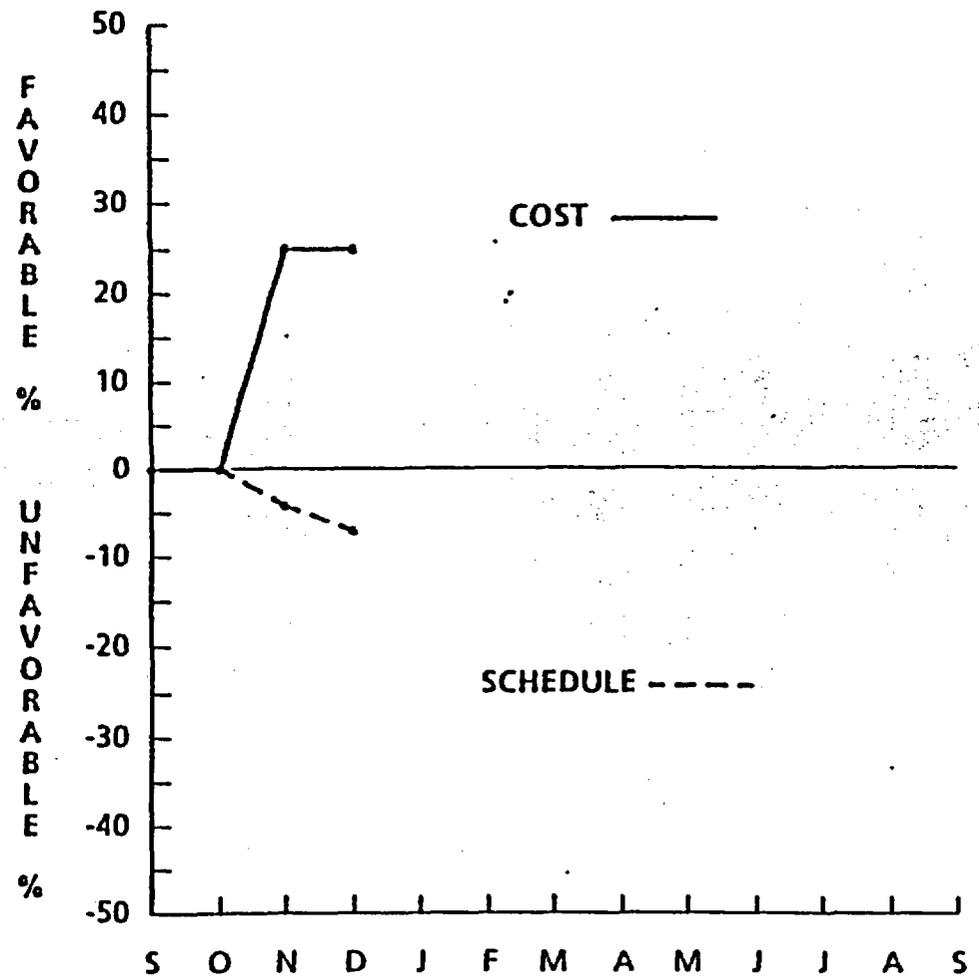
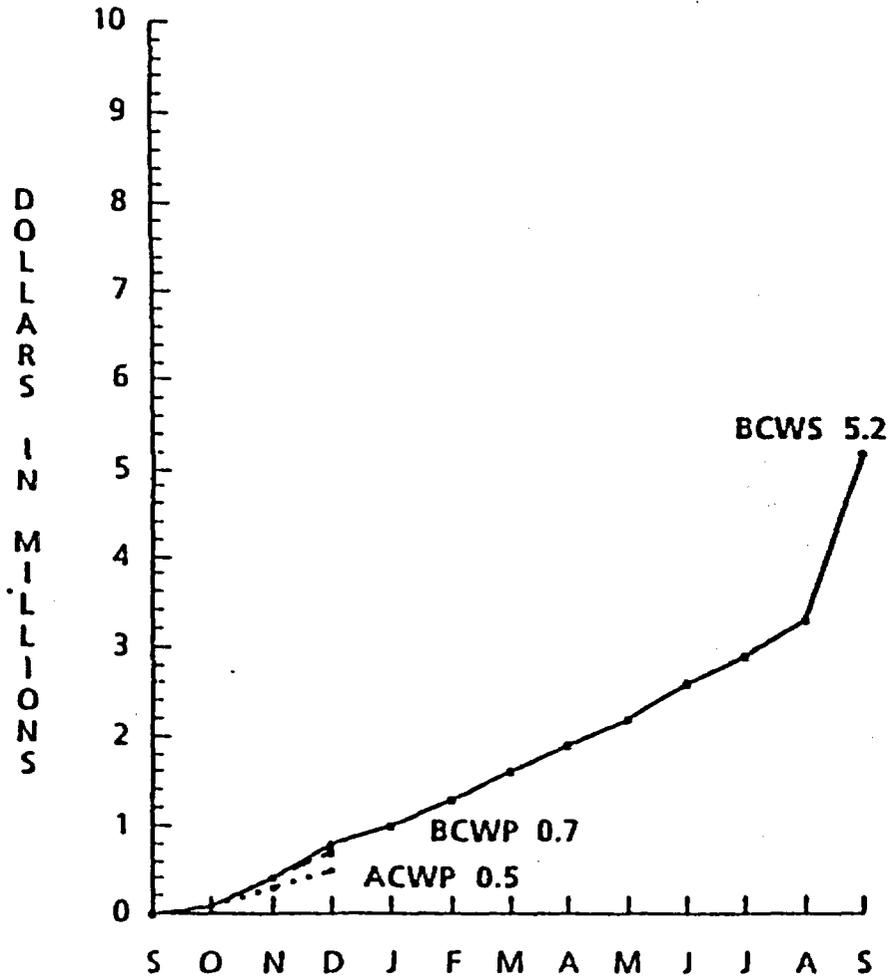
BASALT WASTE ISOLATION PROJECT

1.7 TEST FACILITIES

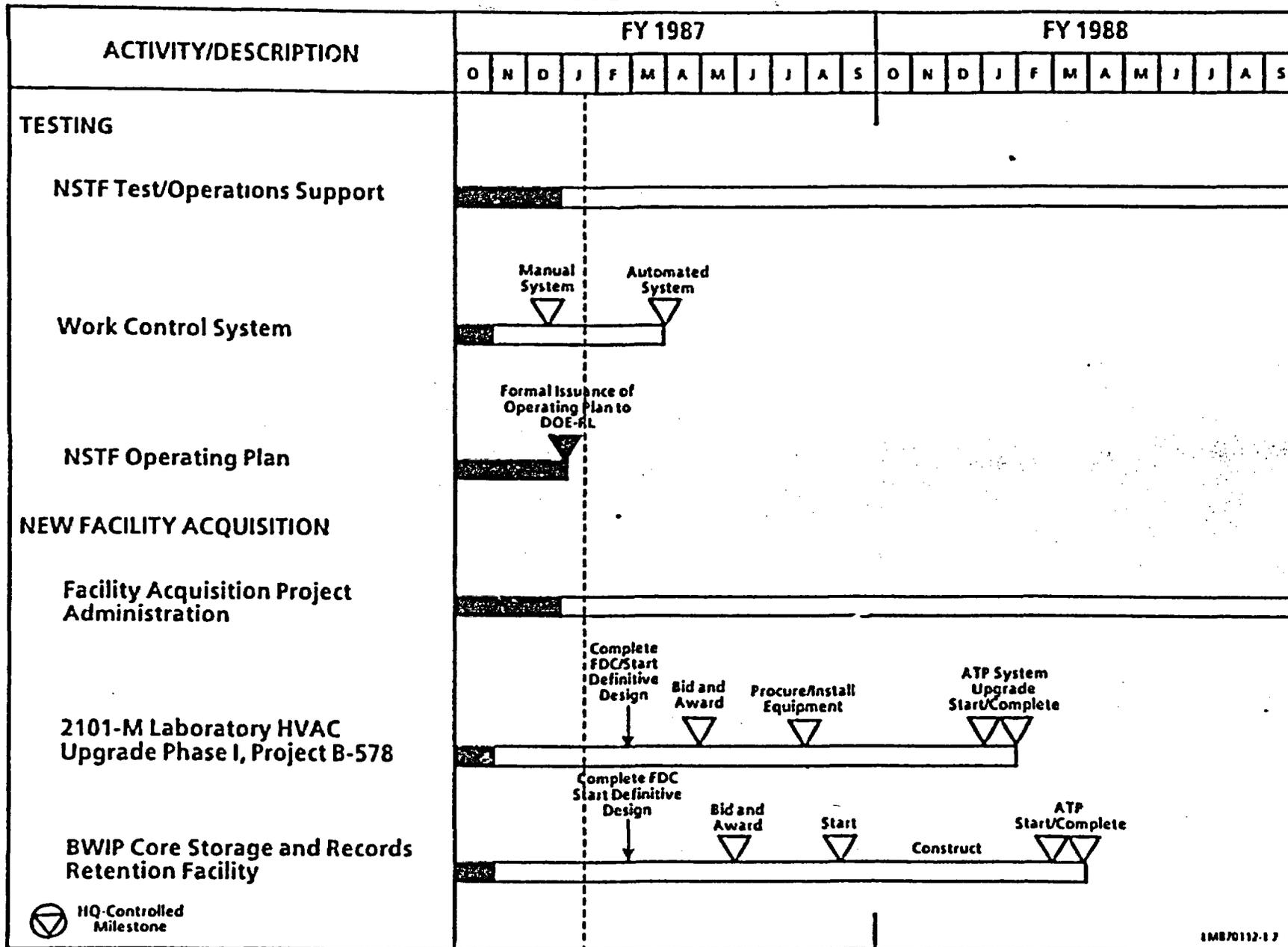
GARY DINTSCH

1.7 TEST FACILITIES (OPERATING ONLY)

FY 1987 PERFORMANCE



1.7 TEST FACILITIES



1.7

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
<u>Exemption of Construction Projects B-577 and B-578 from Stop Work</u> A request was submitted and approved by DOE-RL 12/30/86 to proceed with the Definitive Design and Construction phases for the BWIP Core Storage and Records Retention Facility and 2101-M HVAC Upgrade respectively. This releases approximately \$2M of FY 1987 budget to support these projects	--	12/30/86
<u>Near-Surface Test Facility Water System Upgrade</u> Direction was received from DOE-RL via Transmittal No. 86-ECB-130 on 12/30/86. A detailed Engineering Study was initiated and efforts to identify available budget (\$550K) are in progress	--	12/30/86
<u>Mandatory and Recommended NSTF Reading Requirements</u> All mandatory and recommended reading requirements for NSTF personnel were completed on schedule despite numerous other ongoing activities to ensure facility readiness for restart of testing - 10/1/87	12/16/86	12/16/86

1.7

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1986

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>January</u>		
Develop WPAS planning base - L7 Test Facilities	1/31/87	1/31/87
Establish MSHA requirements and associated costs to meet compliance	1/31/87	1/31/87
<u>February</u>		
Complete manual implementation of Work Control System	12/30/86	2/28/87
Finalize NSTF Test/Operating Documents/Procedures	4/30/87	2/28/87
Completion of currently identified employee training requirements - NSTF	4/30/87	2/28/87
Complete forward planning and submit WPAS input	--	2/28/87
Submit for DOE-RL approval Functional and Conceptual Design Reports for Projects B-577 and B-578 and begin Definitive Design	2/28/87	2/28/87
<u>March</u>		
Complete implementation of Automated Work Control System	3/31/87	3/31/87
<u>April</u>		
Bid and Award Phase - 2101-M HVAC Upgrade	3/31/87	4/30/87

CRITICAL ISSUES

1.7 TEST FACILITIES

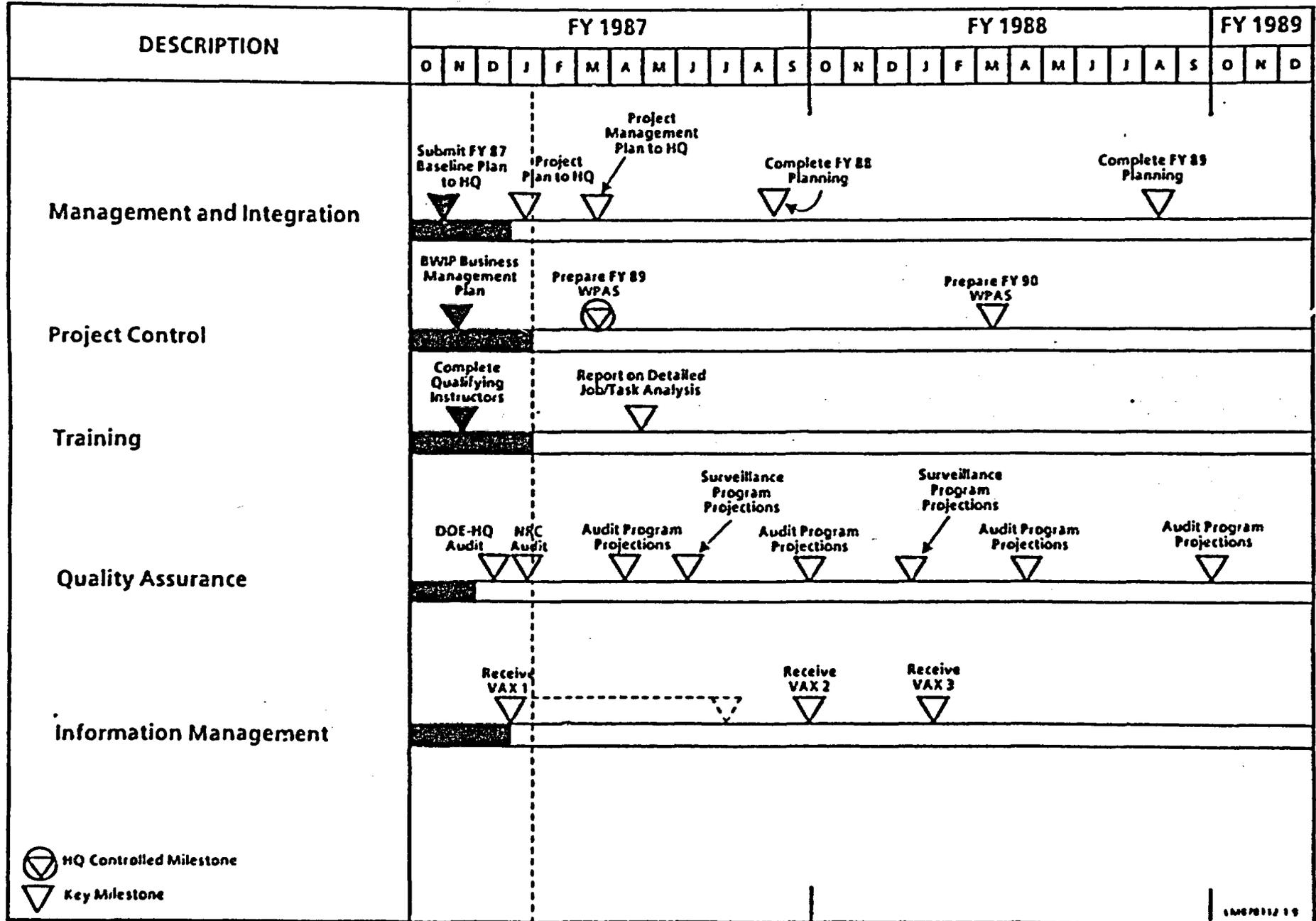
Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Readiness condition of the NSTF to accept QA Level I and II testing (1) ● Effect of Graded QA analysis of the NSTF to determine if the facility is QA Level III (as assumed) (1) 	<ul style="list-style-type: none"> ● The lack of facility readiness may cause delays in scheduled tests start/finish commitments ● Increased costs (additional manpower) to accommodate new facility requirements ● Increased safety hazard potential due to noncompliance with MSHA codes/regulations ● Potential change of management and testing practices ● Modifications to documents and procedures ● Modifications to facilities/systems/drawings ● Increased resources to ensure compliance 	<ul style="list-style-type: none"> ● Letter issued to QA Function requesting a facility readiness condition definition ● Analysis of resource needs to support additional known (Q/NRC/MSHA) requirements performed ● MSHA codes/regulations audit performed - 21 deficiencies cited ● Request submitted to QA to perform QA evaluation ● Some requirements identified need greater QA involvement to complete requirements identification ● Project determination on facility QA level to support planned testing

BASALT WASTE ISOLATION PROJECT

1.9 PROGRAM MANAGEMENT

AL HAWKINS

1.9 PROGRAM MANAGEMENT



1.9

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

ACCOMPLISHMENTS

<u>TITLE</u>	<u>BASELINE</u>	<u>ACTUAL</u>
Submit request for partial lift of Stop Work Order (Restart Readiness Report)	12/86	01/87
Submit Information Resource Management Execution Plan	12/86	12/86
Submit Advanced Acquisition or Assistance Plan	12/86	12/86
Submit Business Management System Plan	12/86	12/86
Submit BWIP Quality Assurance Requirements Manual (Rev. 3)	12/86	12/86
Submit Computer System Implementation Plan (for VAX procurement)	12/86	11/86
Issue Baseline Notebook	12/86	01/87

1.9

BASALT WASTE ISOLATION PROJECT

JANUARY 29, 1987

PLANNED ACCOMPLISHMENTS 90-DAY WINDOW

<u>TITLE</u>	<u>BASELINE</u>	<u>FORECAST</u>
<u>February</u>		
Submit initial Planning Change Package	12/86	02/87
Final BWIP Project Plan to Headquarters for approval	01/87	--
Complete all outstanding items necessary for partial lift of the Stop Work Order	02/87	02/87
<u>March</u>		
Final BWIP Project Management Plan to Headquarters for concurrence	03/87	03/87
FY 1989 Budget Submission (WPAS) to Headquarters	03/87	03/87
<u>April</u>		
Submit Audit Program Projections	04/87	04/87
Quarterly update of IRM Execution Plan	04/87	04/87

CRITICAL ISSUES

1.9 PROGRAM MANAGEMENT

Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● FY 1986 to 1987 transition (2) ● Expedited VAX Procurement (2) ● Complex Project reporting (End Function Monthly, Senior Management Review, Business Management Review, etc.) (1) ● Adequate FY 1989 WPAS and detailed Budget Submittal (1) ● Initiating CENRTC procurements (1) 	<ul style="list-style-type: none"> ● Adequate implementation of FY 1987 Interim Baseline ● Rapid implementation of OGR IMS ● Several call letters required ● Multiple input of similar data in varying formats ● Significant affect on Management's time ● Satisfactory Program Budget delivered to DOE-HQ ● Ability to restart work in timely fashion 	<ul style="list-style-type: none"> ● Change Package complete ● Seeking FIRMR exclusion ● Updated Implementation Plan submitted- requires DOE-HQ approval ● Workaround using LANL possible ● Formats standardized to maximum extent practicable ● Single call letter issued ● Matrix showing interrelationship of inputs developed. Management Coordinator assigned; BBM responsibility established ● Process put in place for January reporting ● Program Team assembled ● Preparation Schedule prepared ● Process reviewed with DOE-RL and comments incorporated ● Propose to initiate CENRTC procurement now if: <ol style="list-style-type: none"> 1. Tied to task exempt from SWO (e.g., copy machines, office system); or 2. Procurement related to exemption category (e.g., equipment needed for training or procedure preparation); or 3. Lead time is >3 months and receipt would occur post-partial lift of the SWO

SCHEDULE

	JANUARY				FEBRUARY				MARCH				APRIL			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Update WPAS Schedules (EFMs)	9-----16															
Input to SDS/Plot (BBM)	10-----23															
Commence Technical Work Scope Reviews (DOE-RL and RHO)	▼ 14															
EFMs/Directors Review/Approval					26-----29											
BBM Repro/Distribute 88 WPAS	5-9															
Reconcile/finalize milestone dates (RHO/DOE-RL) for Budget Cases	14--20															
Prepare Key Assumptions for Budget Cases	14-----				-6											
EFMs/CAMs prepare CAF short-forms					26-----				-12							
Team mark-up 88 WPAS (EFMs)					26-----				-12							
Reconcile with Master Project Schedule					26-----				-29							
Document Resource Assumptions					4--13											
Compile and word process 89 WPAS	16-----				-----				-18							
Preliminary assumptions/milestones for WPAS to DOE-RL					▼ 10											
Update Project Data Sheets*	16-----				-6											
Review preliminary data with RL					▼ 12											
Cutoff date for DOE Guidance					▼ 13											
RHO Final Internal Reviews					6-----				-13							
Integration review with DOE-RL/Program Issues/ Assumptions									13--18							

* Additional detailed schedule to be provided.

SCHEDULE

- Rockwell General Manager Review
- DOE-RL Final Reviews with Senior Staff
- Revise 89 WPAS
- Review and approval of final WPAS by DOE-RL
- Ship WPAS to DOE-HQ
- Prepare Budget Presentation/reproduce/revise
- Dry-run Headquarters Review
- Budget Review at DOE-HQ

JANUARY				FEBRUARY				MARCH				APRIL			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
							▼ 23								
										▼ 3,4					
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BASALT WASTE ISOLATION PROJECT

PROGRAM DIRECTOR'S SUMMARY

CLARK GIBBS

PROGRAM CRITICAL ISSUES

Issue	Impacts	Corrective Action
<ul style="list-style-type: none"> ● Completion of Baseline Planning ● Reduced coordination in Issues Resolution and SCP preparation ● Waste Package Strategy Definition 	<ul style="list-style-type: none"> ● No basis for programmatic discussions and agreements ● Limited program control ● Loss of schedule control ● Inability to complete SCP 	<ul style="list-style-type: none"> ● Agree on program technical content (e.g., Hydrology, Exploratory Shaft Design) ● Finalize Issues, SCP, and initial Study Plans ● Complete logic networks and schedules ● Increase visibility on work at Headquarters ● Return drafts to BWIP to allow coordinated completion ● Validate schedule ● Accelerate decision bases for reference case ● Support Headquarters in development of strategy