

see pocket 1
for Attachment

DISTRIBUTION: *WM 3/F*
WMHT r/f WM-10 *901 2*
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PDR
LPDR, B
PPrestholt

PROJECT WM-10/RJW/83/08/29/0

SEP 13 1983

- 1 -

MEMORANDUM FOR: Branch Chief
BWIP Group Coordinators

FROM: Robert J. Wright
BWIP Project Manager
High-Level Waste Technical
Development Branch
Division of Waste Management

SUBJECT: BWIP YEAR-END REVIEW

The attached sheets are taken from the BWIP Year-End Review as presented to DOE-HQ on August 25, 1983. The annotations are mine. They reflect statements made by the speakers.

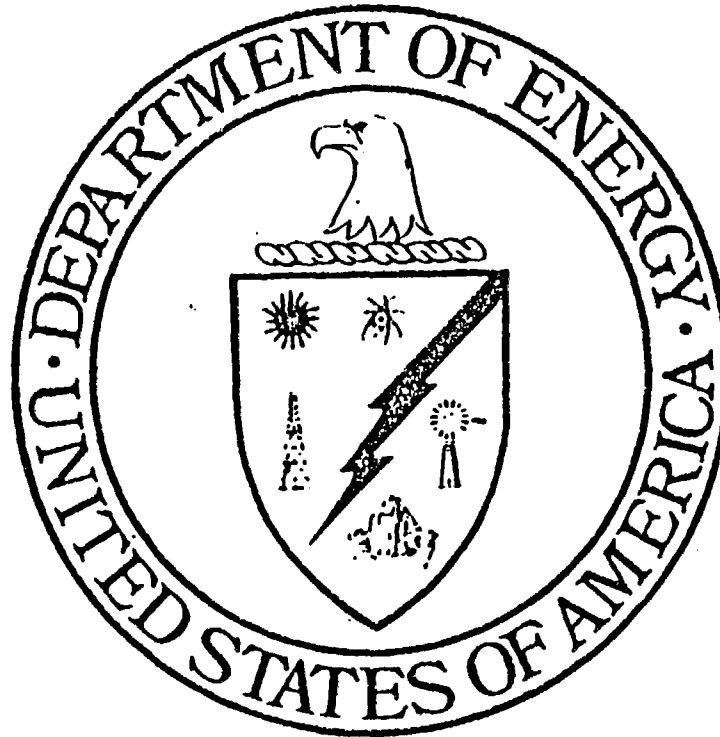
The "Project Defined Alternate Case" is the case espoused by DOE-RL. As of August 26, this looks like the case that will be accepted by DOE-HQ for FY84 budgeting. The material dealing with other cases is in the notebook in the hands of Paul Prestholt.

151

Robert J. Wright
BWIP Project Manager
High-Level Waste Technical
Development Branch
Division of Waste Management

Attachment:
Sheets from BWIP Year-End Review

OFC	: WMHT: <i>151</i>	: WMHT <i>9/16/83</i>	: WMHT <i>9/14/83</i>	:	:	:	:
NAME	: PPrestholt	: RJWright	: HJ Miller	:	:	:	:
DATE	: 83/09/02	: 9/16/83	: 9/14/83	:	:	:	:



BASALT WASTE ISOLATION PROJECT
DEPARTMENT OF ENERGY - HEADQUARTERS

FY 1983 YEAR END REVIEW

GERMANTOWN, MARYLAND
AUGUST 25, 1983

see 101
memo from Wright
to Branch Chief
9/15/83
83 09280451 830913

**BASALT WASTE ISOLATION PROJECT
FY 1983 YEAR END REVIEW**

INTRODUCTION

O. L. OLSON – DOE-RL

BASALT WASTE ISOLATION PROJECT

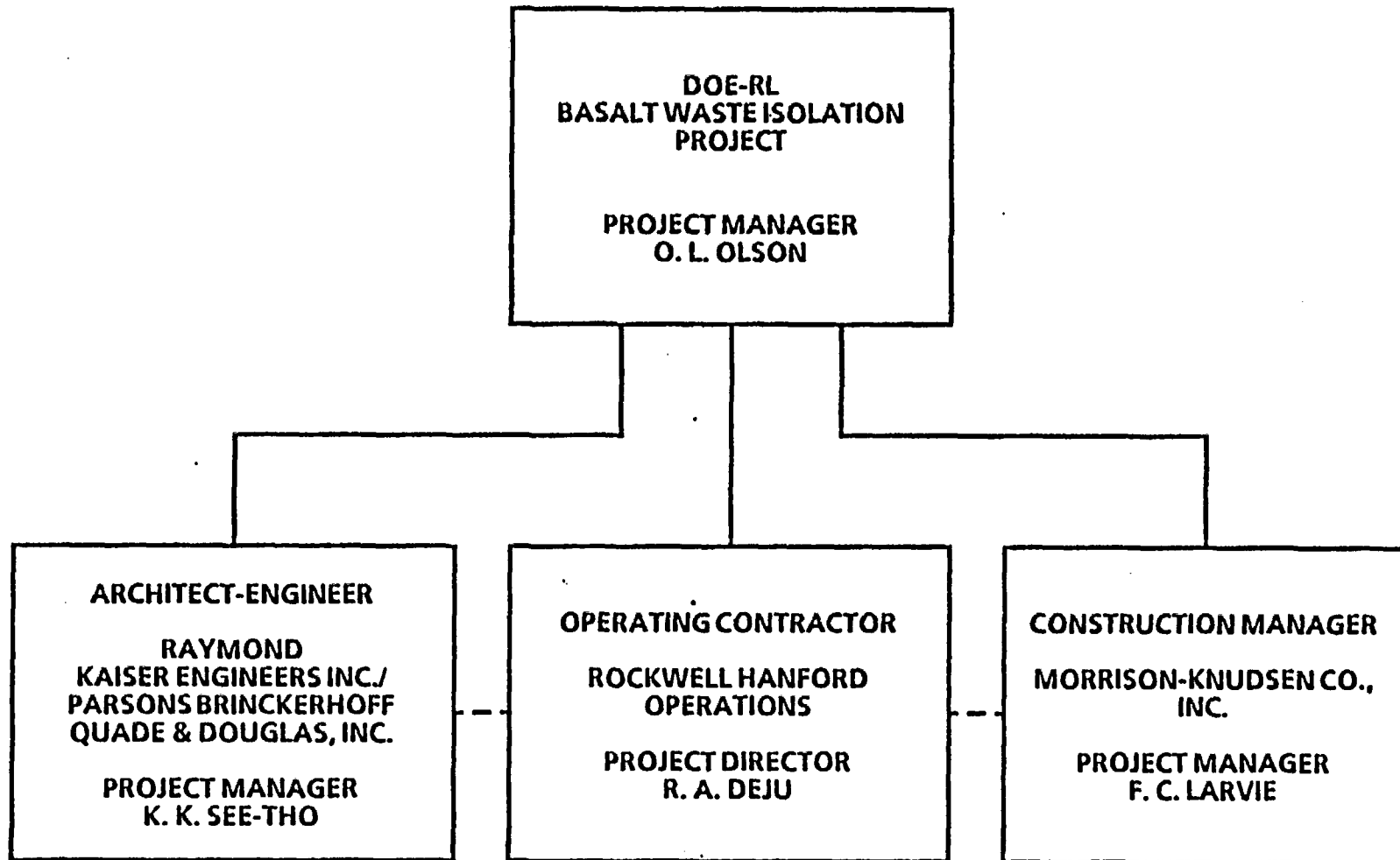
FY 1983 YEAR END REVIEW

AGENDA

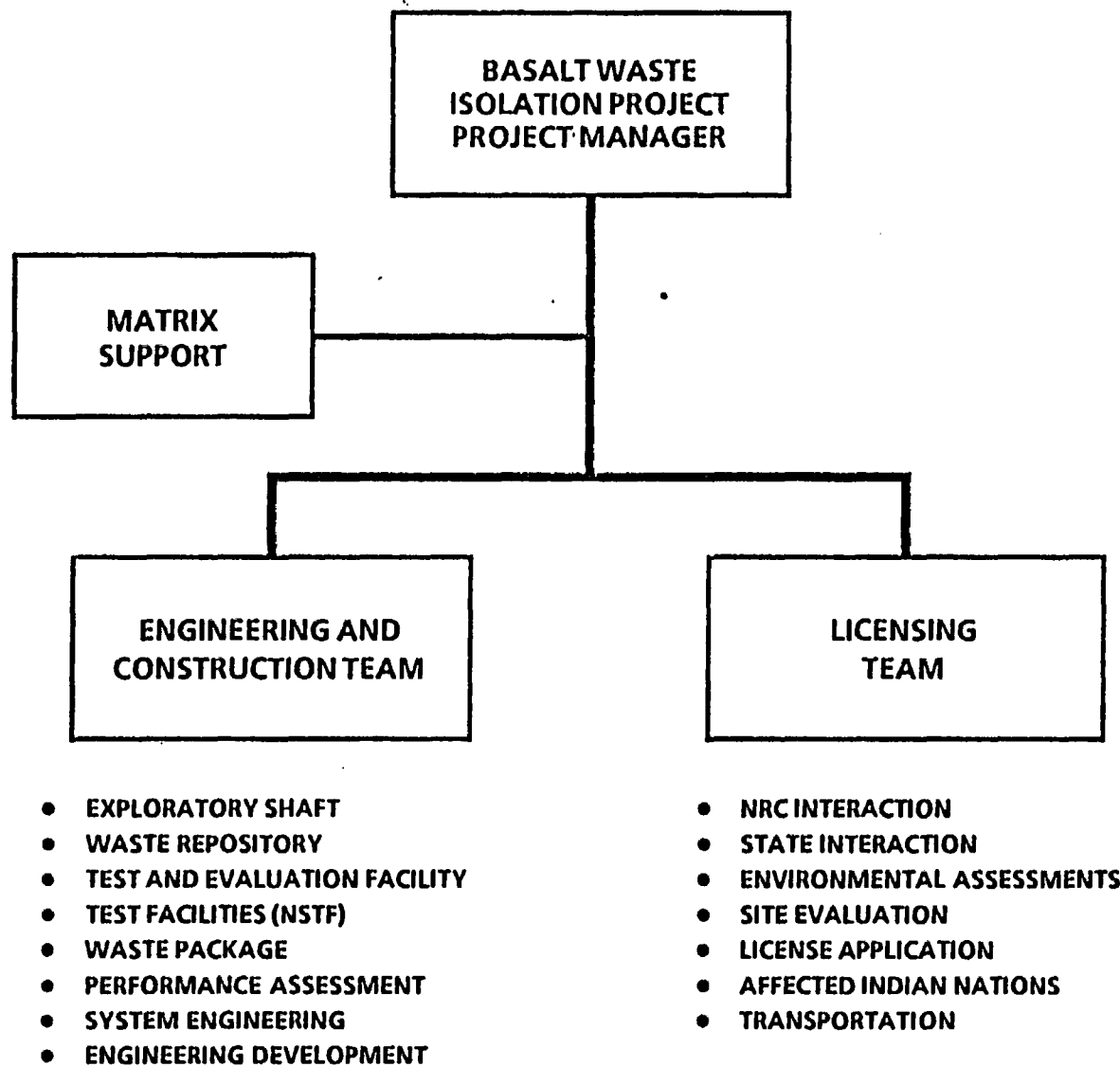
- **INTRODUCTION**
- **FY 1983 STATUS**
 - **CURRENT STATUS OF PROJECT MILESTONES**
 - **OVERVIEW BY WBS**
 - **PROJECT BUDGET STATUS AND FORECAST BY WBS**
- **FY 1984 PLANS AND REQUIREMENTS**
 - **BASE CASE**
 - **SPECIAL CASE**
 - **PROJECT DEFINED ALTERNATE CASE**
 - **PROJECT BUDGET REQUIREMENTS**
- **PROJECT RECOMMENDATION**
- **DISCUSSION**

PRESENTED BY
O. L. OLSON – DOE-RL
R. A. DEJU – ROCKWELL
R. J. GIMERA – ROCKWELL
G. S. HUNT - ROCKWELL
J. R. KIRKENDALL – ROCKWELL

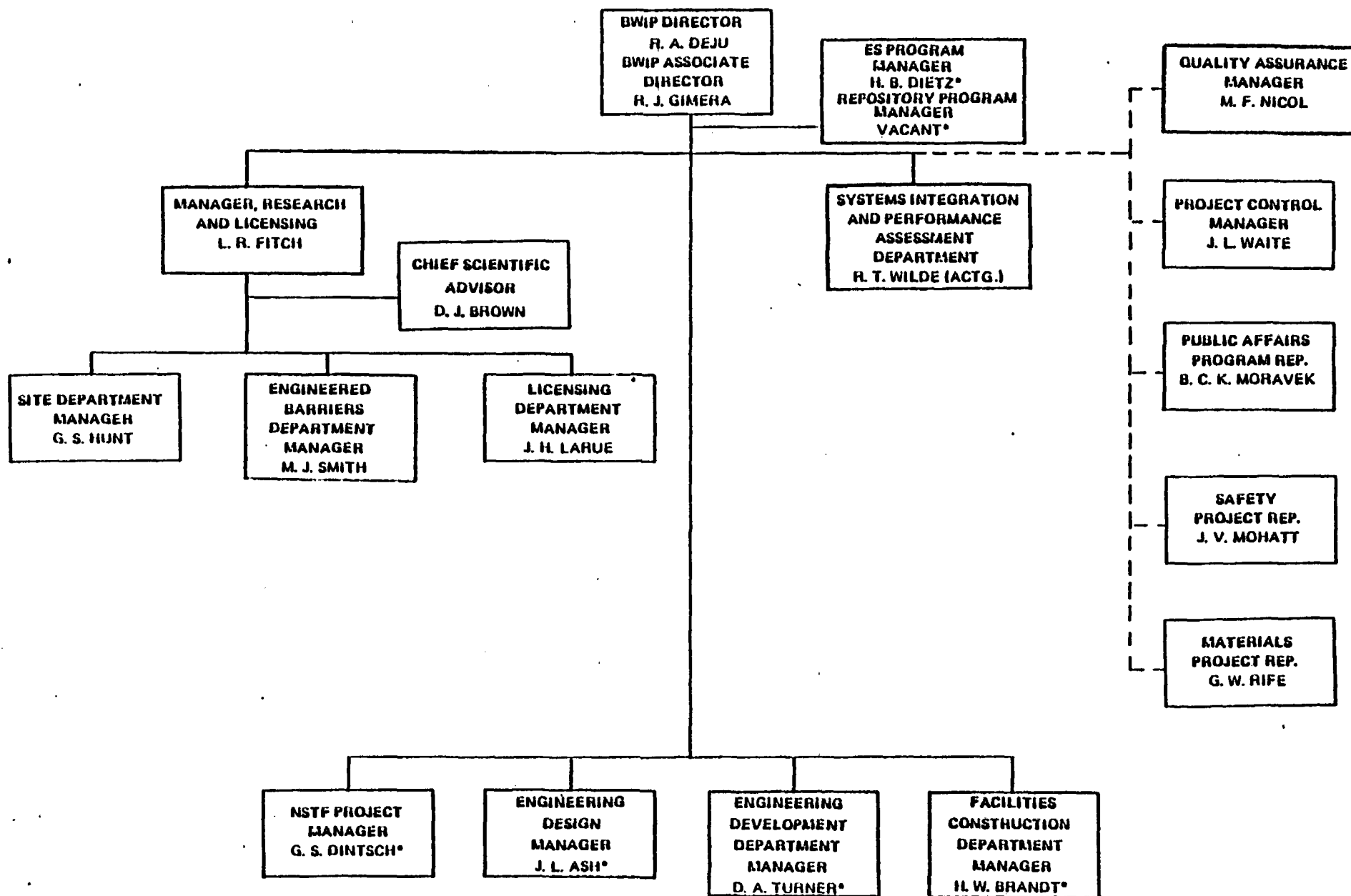
**BASALT WASTE ISOLATION PROJECT ORGANIZATION
PROJECT MANAGEMENT ORGANIZATION**



**BASALT WASTE ISOLATION PROJECT ORGANIZATION
DEPARTMENT OF ENERGY – RICHLAND OPERATIONS PROJECT OFFICE
ORGANIZATION**

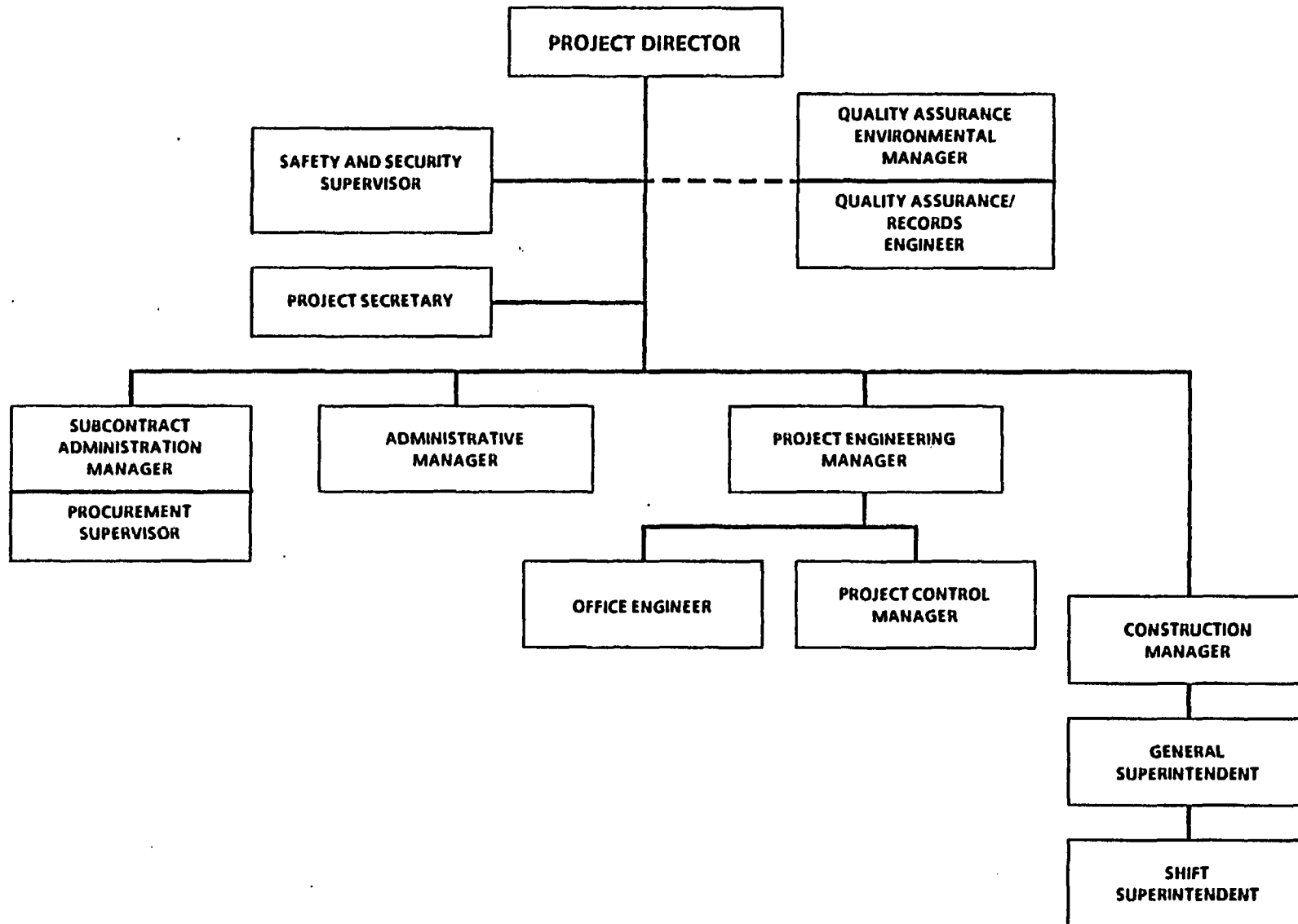


BASALT WASTE ISOLATION PROJECT ROCKWELL ORGANIZATION

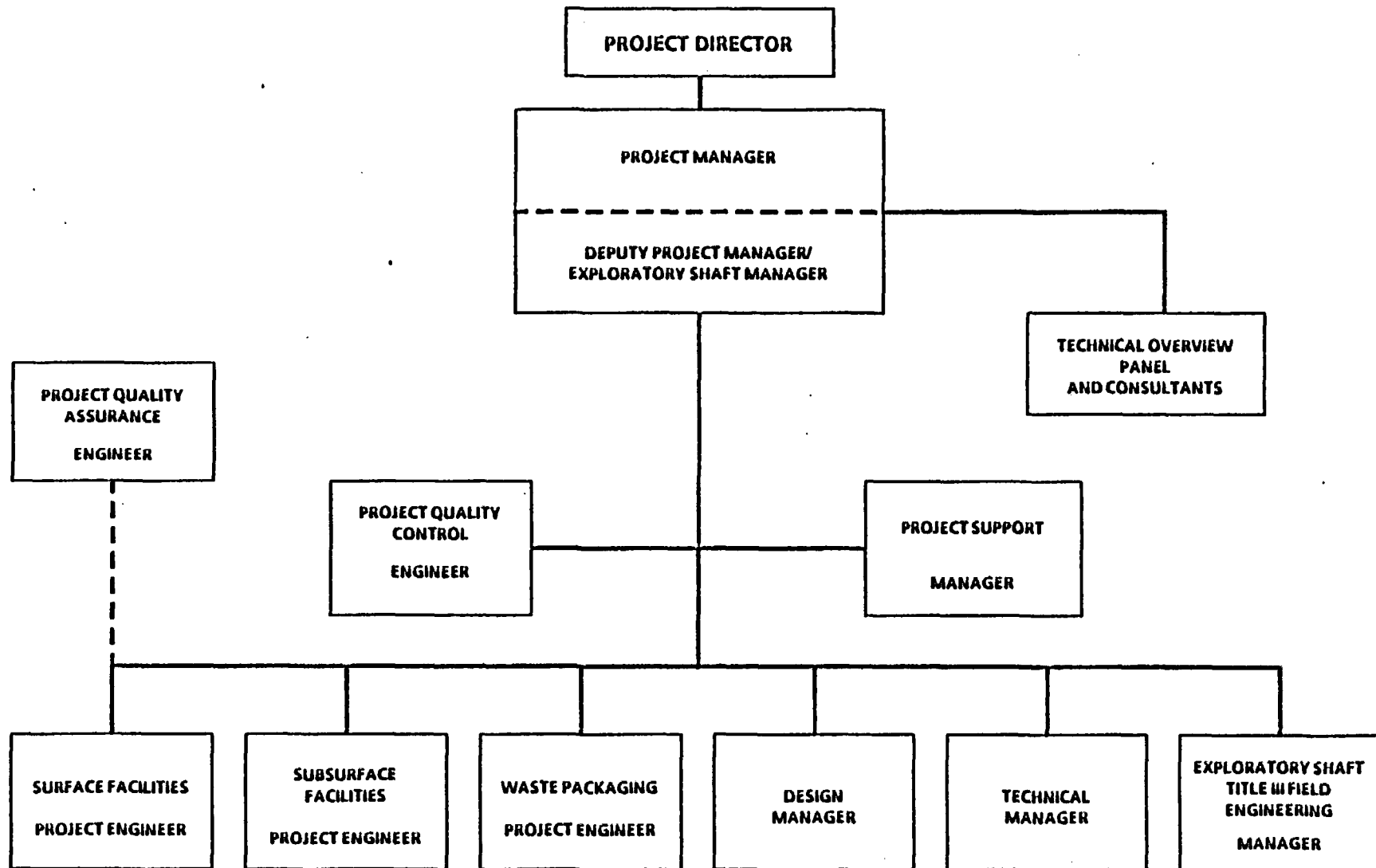


* REPORT TO THE BWIP ASSOCIATE DIRECTOR

MORRISON-KNUDSEN CO., INC.
BASALT WASTE ISOLATION PROJECT ORGANIZATION



**RAYMOND KAISER ENGINEERS INC./
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
BASALT WASTE ISOLATION PROJECT ORGANIZATION**



BASALT WASTE ISOLATION PROJECT INSTITUTIONAL INTERACTIONS

STATE OF WASHINGTON:

- GOVERNOR FORMED HIGH-LEVEL NUCLEAR WASTE MANAGEMENT TASK FORCE – 8/82.
- STATE LEGISLATURE TRANSFERRED RESPONSIBILITY TO DEPARTMENT OF ECOLOGY – 5/83.
- FINANCIAL ASSISTANCE GRANT IN PLACE – 10/82.
MODIFIED – 4/83.
- CONSULTATION AND COOPERATION NEGOTIATION IN PROCESS – INITIATED 7/27/83.
ANTICIPATED COMPLETION – 11/30/83.
- DOE ATTEND STATE OF WASHINGTON NUCLEAR WASTE POLICY AND REVIEW BOARD AND
ADVISORY COUNCIL MEETING IN OLYMPIA – CONTINUES.
- STATE ATTEND DOE/NRC WORKSHOPS.
- STATE ATTEND OTHER PROJECT MEETINGS.
- SPECIAL BRIEFING AND TOURS.

STATE OF OREGON:

- GOVERNOR APPOINTED COMMITTEE TO PARTICIPATE IN PROGRAM – 4/83.
- BRIEFING ON BASALT WASTE ISOLATION PROJECT – 6/83.
- SCHEDULE BRIEFING ON BASALT WASTE ISOLATION PROJECT STATUS – 9/12/83.

BASALT WASTE ISOLATION PROJECT INSTITUTIONAL INTERACTIONS (CONTINUED)

YAKIMA INDIAN NATION:

- FINANCIAL ASSISTANCE GRANT IN PLACE – 7/83.
- CONSULTATION & COOPERATION NEGOTIATION IN PROCESS – INITIATED 7/15/83.
ANTICIPATED COMPLETION – 1/7/84.
- ATTEND DOE/NRC WORKSHOPS.
- ATTEND OTHER PROJECT MEETINGS.

UMATILLA CONFEDERATED TRIBES:

- DECLARED AFFECTED INDIAN TRIBE – 7/13/83.
- DOE IN PROCESS OF NOTIFYING UMATILLA TRIBES.
- INITIATE CONSULTATION AND COOPERATION – 9/83.
- INVITATIONS TO ATTEND PROJECT MEETINGS.

BASALT WASTE ISOLATION PROJECT INSTITUTIONAL INTERACTIONS (CONTINUED)

U.S. NUCLEAR REGULATORY COMMISSION:

- **REPOSITORY DESIGN WORKSHOP – 10/82.**
- **SCR TO NRC – 11/82.**
- **TECTONICS WORKSHOP – 4/83.**
- **DRAFT SITE CHARACTERIZATION ANALYSIS RECEIVED – 4/83.**
- **MEETING TO DISPOSITION DSCA COMMENTS – 6/83.**
- **HYDROLOGY WORKSHOP – 7/83.**
- **MANAGEMENT MEETINGS – 5/83 AND 8/83.**
- **NRC SITE REPRESENTATIVE AT RICHLAND – 8/83.**
- **PERFORMANCE ASSESSMENT WORKSHOP (SCHEDULED) – 9/83.**
- **UNDERGROUND TESTING WORKSHOP (SCHEDULED) – 10/83.**
- **WASTE PACKAGE, GEOLOGY/TECTONICS, REPOSITORY, AND QA WORKSHOPS (SCHEDULED) – 10/83 – 1/84.**

BASALT WASTE ISOLATION PROJECT INSTITUTIONAL INTERACTIONS (CONTINUED)

U.S. GEOLOGICAL SURVEY:

- **SCR REVIEW AND COMMENTS REQUESTED – 12/82.**
- **ES-I AND -II TEST PLAN WORKSHOP – 4/83.**
- **SCR COMMENTS RECEIVED – 5/83.**
- **HYDROLOGIC, GEOLOGIC, AND GEOCHEMISTRY MEETING – 6/83 -- DRAFT REPORT – 8/83.**
- **DRAFT DISPOSITION OF SCR COMMENTS TRANSMITTED TO THE USGS – 7/83.**
- **SCR COMMENT RESOLUTION MEETING IN DENVER – 9/83.**
- **USGS REPRESENTATIVE PARTICIPATION ON BWIP HYDROLOGIC MODELING TASK FORCE SINCE 2/82.**

BASALT WASTE ISOLATION PROJECT INSTITUTIONAL INTERACTIONS (CONTINUED)

PUBLIC:

- **HEARINGS**
 - **SEATTLE - 3/21/83.**
 - **RICHLAND - 3/29/83.**
- **RECEIPT OF PUBLIC COMMENTS ON THE SCR.**
- **DISPOSITION OF PUBLIC COMMENTS.**

BASALT WASTE ISOLATION PROJECT FY 1983 PLANNED ACTIVITIES

	<u>PLANNED</u>	<u>ACTUAL</u>
● NEPA EA AND FONSI FOR ES ISSUED	9/82	9/82
● TRANSMIT SCR TO DOE-HQ FOR SUBMITTAL TO NRC	11/82	11/82
● SELECT CM AND AWARD CONTRACT	11/82	11/82
● ES STARTER HOLE DRILLED	11/82	11/82
● ISSUE NWRB CONCEPTUAL DESIGN REPORT	1/83	6/83
● COMPLETE PRINCIPAL BOREHOLE TESTING	1/83	1/83
● ES PAD AND COLLAR CONSTRUCTION COMPLETE	1/83	1/83
● START ES-I DEEP DRILLING	2/83	-
● REPOSITORY CANDIDATE HORIZON IDENTIFICATION REPORT AND DECISION MEMORANDUM	5/83	9/83 (PREL.)
● COMPLETE DRILLING EXPLORATORY SHAFT	10/83	-

**BASALT WASTE ISOLATION PROJECT
HISTORICAL PERSPECTIVE
FEBRUARY 1983 - AUGUST 1984**

<u>INITIATE ES-I DEEP DRILLING</u>	<u>PLANNING DATE</u>
FY 1983 PLANNING (AUGUST 1982)	FEBRUARY 1983
NWPA PLANNING (JANUARY 1983)	FEBRUARY 1983
NWPA PLANNING (FEBRUARY 1983)	APRIL 1983
NWPA PLANNING (APRIL 1983)	FALL 1983
NWPA PLANNING (MAY 1983)	MARCH 1984
NWPA PLANNING (AUGUST 1983)	AUGUST 1984
 ACTUAL DATE	 ?

BASALT WASTE ISOLATION PROJECT MAJOR ISSUES FACING PROJECT

INSTITUTIONAL/PROGRAMMATIC ISSUES

- SITING GUIDELINES
- EA
- SCP SCOPE

TECHNICAL ISSUES

- HYDROLOGY
- IN SITU TESTING

BASALT WASTE ISOLATION PROJECT CASES

- **BASE CASE**
- **SPECIAL CASE**
- **PROJECT DEFINED ALTERNATE CASE**

BASALT WASTE ISOLATION PROJECT BASE CASE SUMMARY

ASSUMPTIONS:

- **START ES-I DEEP DRILLING IN 3/84.**
- **ALL END FUNCTIONS, EXCEPT ES TESTING FULLY SUPPORT THE NUCLEAR WASTE POLICY ACT SCHEDULE.**
- **ISSUE SCP AND HOLD PUBLIC HEARINGS BY 3/84.**

RESULTS/IMPACTS:

- **NUCLEAR WASTE POLICY ACT DATES NOT SUPPORTED BY ES TESTING.**
- **HYDROLOGIC BASELINE NOT ESTABLISHED PRIOR TO ES-I DEEP DRILLING START.**

PROJECT ACTIONS REQUIRED:

- **EA AND SCP MUST BE ISSUED BY 3/84.**

BASALT WASTE ISOLATION PROJECT SPECIAL CASE SUMMARY

ASSUMPTIONS:

- **START ES-I DRILLING IN 8/84.**
- **ALL END FUNCTIONS, EXCEPT ES TESTING SUPPORT NUCLEAR WASTE POLICY ACT SCHEDULE.**
- **ISSUE SCP AND EA BY 7/84.**

RESULTS/IMPACTS:

- **NUCLEAR WASTE POLICY ACT DATES NOT SUPPORTED BY ES TESTING--LICENSE APPLICATION DELAYED 3 YEARS.**
- **FIVE MONTHS HYDROLOGIC BASELINE MONITORING DATA AVAILABLE PRIOR TO ES DRILLING.**

PROJECT ACTIONS REQUIRED:

- **EA AND SCP MUST BE ISSUED BY 7/84.**

BASALT WASTE ISOLATION PROJECT

PROJECT DEFINED ALTERNATE CASE SUMMARY

ASSUMPTIONS:

- **START ES DEEP DRILLING BY 7/85 AFTER PRESIDENTIAL APPROVAL OF SITES FOR CHARACTERIZATION.**
- **SECOND SHAFT DRILLED FOR ES AND LARGE SHAFT DEMONSTRATION TEST AFTER ES DRILLING.**
- **ISSUE SCP AND HOLD PUBLIC HEARINGS BY 7/85.**

RESULTS/IMPACTS:

- **ES PROJECT DURATION REDUCED BY ONE YEAR WITH SECOND SHAFT.**
- **OBTAIN APPROXIMATELY 18 MONTHS OF HYDROLOGIC BASELINE MONITORING BEFORE ES-I DEEP DRILLING.**
- **PROJECT WILL SUPPORT SRR AND LA IN 1990.**

PROJECT ACTIONS REQUIRED:

- **DOE AGREEMENT ON REVISED PROJECT PLANNING LOGIC.**
- **DRILL RIG DISPOSITION.**
- **CONSTRUCTION MANAGER AND A-E WORK SCOPE DEFINITION.**
- **DOE AGREEMENT TO DRILL SECOND ES SHAFT.**
- **DOE AGREEMENT ON LARGE SHAFT DEMONSTRATION TEST.**

BWIP
FY 1983 YEAR END REVIEW

FY 1983 REVIEW

R. A. DEJU - ROCKWELL

BWIP FY 1983 PROJECT MILESTONE STATUS

<u>END FUNCTION</u>	<u>DESCRIPTION</u>	<u>SCHEDULED DATE</u>	<u>STATUS</u>
SYSTEMS	ADVISE DOE-HQ OF PERFORMANCE ASSESSMENTS COMPUTER MODEL CODES AND DEFINE BENCHMARKING, VALIDATION, AND VERIFICATION PROCEDURE	11/82	COMPLETED 11/82
SYSTEMS	SUBMIT UPDATED BWIP PLAN TO DOE-RL	2/83	COMPLETED 2/83
SYSTEMS	SUBMIT PRELIMINARY UNCERTAINTY AND SENSITIVITY TECHNIQUES TO DOE-RL	8/83	ON SCHEDULE FOR 8/83
SYSTEMS	SUBMIT PRELIMINARY DISRUPTIVE SCENARIOS ANALYSIS TO DOE-RL	8/83	ON SCHEDULE FOR 8/83
WASTE PACKAGE	PROVIDE PRELIMINARY WASTE ACCEPTANCE CRITERIA FOR CHLW, DHLW, AND SPENT FUEL TO DOE-RL	6/83	COMPLETED 6/83
WASTE PACKAGE	SUBMIT REPORT DOCUMENTING RESULTS OF COMPONENT TESTS WITH SIMULATED WASTE FORMS	8/83	ON SCHEDULE FOR 8/83
WASTE PACKAGE	SUBMIT CONCEPTUAL DESIGN UPGRADED CRITERIA TO DOE AND PROVIDE BRIEFING TO DOE-HQ	9/83	ON SCHEDULE FOR 9/83
REPOSITORY	ISSUE FINAL NWRB CONCEPTUAL DESIGN REPORT	1/83	COMPLETED 6/83

BWIP FY 1983 PROJECT MILESTONE STATUS (CONTINUED)

<u>END FUNCTION</u>	<u>DESCRIPTION</u>	<u>SCHEDULED DATE</u>	<u>STATUS</u>
REPOSITORY	PROVIDE DOE-RL WITH THE ENGINEERING DEVELOPMENT REQUIREMENTS	4/83	COMPLETED 2/83
REPOSITORY	SUBMIT SITE SPECIFIC SEAL PERFORMANCE REQUIREMENTS TO DOE-HQ	6/83	COMPLETED 6/83
REPOSITORY	RELEASE SELECTED NUMERICAL MODEL CODES AND ISSUE USER MANUAL	8/83	ON SCHEDULE FOR 8/83
REPOSITORY	RELEASE A REPOSITORY SHAFT SINKING AND LINING METHOD REPORT TO DOE-RL	9/83	ON SCHEDULE FOR 9/83
REPOSITORY	ISSUE REPOSITORY SEAL DESIGN CRITERIA TO DOE-RL	9/83	COMPLETED 6/83
SITE	COMPLETE DRILL AND TEST PLAN FOR ADDITIONAL BOREHOLE WORK	10/82	COMPLETED 10/82
SITE	SUBMIT CANDIDATE REPOSITORY HORIZON IDENTIFICATION REPORT AND DECISION MEMORANDUM TO DOE-HQ	5/83	FORECAST FOR 9/83
REGULATORY AND INSTITUTIONAL	SUBMIT SCOPE AND ACTION PLAN FOR DEVELOPMENT OF BWIP EXTERNAL AFFAIRS PLAN TO DOE-RL FOR APPROVAL	11/82	COMPLETED 11/82

BWIP FY 1983 PROJECT MILESTONE STATUS (CONTINUED)

<u>END FUNCTION</u>	<u>DESCRIPTION</u>	<u>SCHEDULED DATE</u>	<u>STATUS</u>
REGULATORY AND INSTITUTIONAL	TRANSMIT SCR TO DOE-HQ FOR SUBMITTAL TO NRC	11/82	COMPLETED 11/82
REGULATORY AND INSTITUTIONAL	SUBMIT COMPLETED EXTERNAL AFFAIRS PLAN TO DOE-RL FOR APPROVAL	3/83	COMPLETED 3/83
EXPLORATORY SHAFT PHASE I	WATERLINE OPERATIONAL TO ES-I SITE	10/82	COMPLETED 9/82
EXPLORATORY SHAFT PHASE I	A/E SUBMIT ES-I TITLE II DESIGN REPORT	12/82	COMPLETED 3/83
EXPLORATORY SHAFT PHASE I	AWARD 72-INCH LINER FABRICATION CONTRACT FOR ES-I	12/82	COMPLETED 6/83
EXPLORATORY SHAFT PHASE I	COMPLETE ES-I PRINCIPAL BOREHOLE TESTING AND ISSUE REPORT	1/83	COMPLETED 1/83
EXPLORATORY SHAFT PHASE I	START ES-I DRILLING	2/83	TBD
EXPLORATORY SHAFT PHASE I	ES-I TITLE II DESIGN REPORT APPROVED AND RELEASED	3/83	FORECAST FOR 10/83
EXPLORATORY SHAFT PHASE I	COMPLETE DELIVERY OF ES-I DRILL STEM AND DOWNHOLE TOOLS	4/83	COMPLETED 8/83

BWIP FY 1983 PROJECT MILESTONE STATUS (CONTINUED)

<u>END FUNCTION</u>	<u>DESCRIPTION</u>	<u>SCHEDULED DATE</u>	<u>STATUS</u>
EXPLORATORY SHAFT PHASE I	RECEIVE 72-INCH LINER FOR ES-I SHAFT	7/83	FORECAST FOR 12/83
EXPLORATORY SHAFT PHASE II	ISSUE ES-II FDC	6/83	FORECAST FOR 9/83
PROGRAM MANAGE- MENT	SUBMIT UPDATED FY 1983 WPAS TO DOE-HQ	10/82	COMPLETED 10/82

SYSTEMS

SIGNIFICANT FY 1983 ACCOMPLISHMENTS

- **COMPLETED PRELIMINARY ASSESSMENT OF WASTE ISOLATION CAPABILITY**
- **BASELINED BWIP PLAN ON MAY 18, 1983**
- **RELEASED BWIP PERFORMANCE ASSESSMENT PLAN AS A SUPPORTING DOCUMENT ON APRIL 7, 1983**
- **PREPARED PRELIMINARY UNCERTAINTY AND SENSITIVITY TECHNIQUES REPORT TO BE SUBMITTED TO DOE-RL ON AUGUST 30, 1983**
- **PREPARED PRELIMINARY DISRUPTIVE SCENARIO ANALYSIS TO BE SUBMITTED TO DOE-RL ON AUGUST 30, 1983**

WASTE PACKAGE

SIGNIFICANT FY 1983 ACCOMPLISHMENTS

- **COMPLETED WASTE PACKAGE CONCEPTUAL DESIGNS FOR A NUCLEAR WASTE REPOSITORY MINED IN BASALT FOR SPENT FUEL, COMMERCIAL HIGH-LEVEL WASTE, AND DEFENSE HIGH-LEVEL WASTE**
- **COMPLETED PROJECT MANAGEMENT PLAN FOR FULLY RADIOACTIVE WASTE/BARRIER/ROCK HYDROTHERMAL INTERACTIONS TESTING**
- **RELEASED STUDY TO DETERMINE BACKFILL THERMAL STABILITY IN PREPARATION FOR PACKAGE DESIGN UPGRADE CRITERION**
- **PREPARED FOR WASTE/BARRIER/ROCK INTERACTIONS TESTING WITH FULLY RADIOACTIVE WASTE ON SCHEDULE FOR OCTOBER 1, 1983 STARTUP**
- **INITIATED HYDROTHERMAL EXPERIMENTS REACTING SIMULATED SPENT FUEL AND BOROSILICATE GLASS WITH SYNTHETIC GRANDE RONDE GROUNDWATER**
- **COMPLETED PRELIMINARY ESTIMATES OF BACKFILL BARRIER PERFORMANCE**
- **COMPLETED WASTE FORM ACCEPTANCE REQUIREMENTS FOR A NUCLEAR WASTE REPOSITORY IN BASALT**

SITE

SIGNIFICANT FY 1983 ACCOMPLISHMENTS

- **IMPLEMENTED BWIP DRILLING AND TESTING PLAN**
- **COMPLETED PRELIMINARY INTERPRETATION OF THE TECTONIC STABILITY OF THE REFERENCE REPOSITORY LOCATION, COLD CREEK SYNCLINE, HANFORD SITE**
- **COMPLETED SEISMIC SURVEILLANCE TEST PLAN**
- **ESTABLISHED SEISMIC DESIGN TASK FORCE**
- **COMPLETED DRILLING OF BOREHOLE DC-16A**
- **INITIATED PIEZOMETER DRILLING PROGRAM**
- **CANDIDATE HORIZON SELECTION REPORT BEING REVIEWED TO BE COMPLETED IN SEPTEMBER 1983**

REPOSITORY

SIGNIFICANT FY 1983 ACCOMPLISHMENTS

REPOSITORY DATA BASE DEVELOPMENT (ROCK MECHANICS)

- **COMPLETED FULL-SCALE HEATER TESTS 1 AND 2 AT THE NEAR-SURFACE TEST FACILITY**
- **COMPLETED AMBIENT TEMPERATURE PHASE OF JOINTED BLOCK TEST AND BLOCK TEST 1, STEP 2, AT THE NEAR-SURFACE TEST FACILITY**
- **COMPLETED ROCK MECHANICS LABORATORY TESTING ON CORE FROM THE REFERENCE REPOSITORY LOCATION**
- **COMPLETED CORE DRILLING OF FULL-SCALE HEATER TESTS 1 AND 2. CORE HAS BEEN LOGGED AND IS BEING SELECTED FOR LAB TESTING**

REPOSITORY CONCEPTUAL DESIGN

- **RECEIVED AND INCORPORATED NUCLEAR WASTE REPOSITORY IN BASALT CONCEPTUAL SYSTEM DESIGN DESCRIPTION PEER REVIEW COMMENTS AND ISSUED CONCEPTUAL SYSTEM DESIGN DESCRIPTION AS A ROCKWELL SUPPORTING DOCUMENT**
- **ISSUED DEFENSE HIGH-LEVEL WASTE ENGINEERING STUDY**

REPOSITORY SEAL DEVELOPMENT

- **COMPLETED DEVELOPMENT OF REPOSITORY SEAL PERFORMANCE REQUIREMENTS**
- **COMPLETED PRELIMINARY STUDY OF IMPACT OF DISTURBED ROCK ZONE ON REPOSITORY SEAL PERFORMANCE**

REGULATORY AND INSTITUTIONAL SIGNIFICANT FY 1983 ACCOMPLISHMENTS

- ISSUED SITE CHARACTERIZATION REPORT TO NRC
- CONDUCTED ARCHAEOLOGICAL SURVEY OF EXPLORATORY SHAFT SITE
- CONDUCTED PUBLIC HEARING
- PROVIDED SUPPORT TO THE SITING GUIDELINES AND ENVIRONMENTAL ASSESSMENTS PREPARATION

EXPLORATORY SHAFT SIGNIFICANT FY 1983 ACCOMPLISHMENTS

- RECEIVED ALL TITLE II DESIGN PACKAGES AND COMPLETED DESIGN REVIEWS
- COMPLETED SITE PREPARATION FOR BIG-HOLE DRILLING
- RECEIVED DRILL TOOLS AND 112-INCH LINER. AWARDED 72-INCH CASING FABRICATION
- IMPLEMENTED COST AND SCHEDULE CONTROL SYSTEM. ACTIVITIES CONTINUING TOWARD A VALIDATED SYSTEM
- MAINTAINED DRILLING OPERATIONS IN STAND-BY SECURED MODE
- INITIATED EXPLORATORY SHAFT TEST PLAN PREPARATION
- CONDUCTED PORTHOLE DRILLING DEMONSTRATION AT NSTF

TEST FACILITIES

SIGNIFICANT FY 1983 ACCOMPLISHMENTS

NEAR-SURFACE TEST FACILITY

- **CONDUCTED POST-TEST CHARACTERIZATION OF FULL-SCALE HEATER TEST 1 AND 2**
- **RECEIVED BID AND AWARDED CONTRACT FOR BLOCK TEST 1 REPAIR**
- **COMPLETED BLOCK TEST REPAIRS AND MODIFICATIONS**
- **SUBMITTED NEAR-SURFACE TEST FACILITY UTILIZATION PLAN FOR OUT YEARS TO DOE-RL**
- **COMPLETED ALL PREPARATIONS FOR THE STARTUP OF THE BLOCK TEST 1, STEP 2, ELEVATED TEMPERATURE PRESSURE CYCLES**

PROGRAM MANAGEMENT

SIGNIFICANT FY 1983 ACCOMPLISHMENTS

- **THE FY 1985 WORK PACKAGE AUTHORIZATION SUMMARY (WPAS) BUDGET SUBMITTAL COMPLETED AND TRANSMITTED TO DOE**
- **COMPLETED THE BWIP QUALITY ASSURANCE PROGRAM PLAN**
- **CSCS COMPUTERIZED DATA BASE OPERATIONAL**
- **FY 1985 BUDGET VALIDATION INFORMATION PRESENTED TO DOE-HQ**
- **PREPARED AND ISSUED A REVISED SCHEDULE 47 FOR EXPLORATORY SHAFT-PHASE I**
- **CSCS TRAINING OF COST ACCOUNT MANAGERS CONTINUING**

BWIP OPERATING EXPENSE (B/O) STATUS & FORECAST

(DOLLARS IN THOUSANDS)

<u>TASK</u>	<u>FUNDING</u>	<u>FORECAST</u>	<u>VARIANCE</u>	<u>EXPLANATION</u>
SYSTEMS	\$ 3,145	\$ 3,075	\$ 70	STAFF VACANCIES NOT FILLED AS PLANNED
WASTE PACKAGE	6,045	6,054	(9)	INSIGNIFICANT
SITE	15,001	13,618	1,383	DELAY IN STARTING TRIANGULAR GROUNDWATER MONITORING NETWORK (PIEZOMETER) PROGRAM
REPOSITORY	7,434	6,870	564	LATE PLACEMENT OF ROCK MECHANICS CONTRACTS AND ENGINEERING STUDIES
REGULATORY AND INSTITUTIONAL	1,200	1,132	68	LESS REPORT COORDINATION EXPENDITURES DO TO EXTENDED SUBMITTAL DATE FOR SCP
EXPLORATORY SHAFT	20,310	15,800	4,510	DELAY IN ES DRILLING AND ES-II CONCEPTUAL DESIGN
TEST FACILITIES	2,485*	2,202	283	DELAY IN BLOCK TEST RESTART AND REDUCED FACILITY MAINTENANCE
PROGRAM MANAGEMENT	3,780	3,569	211	MANPOWER UNDERREALIZATION
STATE/FEDERAL ASSISTANCE	350	350	--	AS PLANNED
TOTAL OPERATING EXPENSE	\$59,750*	\$52,670	\$7,080	PROJECTED UNDERRUN

*TEF NOT INCLUDED - \$500

BWIP OPERATING EXPENSE
UNCOSTED OBLIGATION AT END OF FY 1983
(DOLLARS IN THOUSANDS)

● UNCONSTED OBLIGATION 9/30/82		\$ 6,764
● FY 1983 OBLIGATION (B/A)	\$57,650	
● FY 1983 FORECAST (B/O)	52,670	
	<hr/>	
● UNCONSTED OBLIGATION 9/30/83		4,980
		<hr/>
● UNCONSTED OBLIGATION AT BEGINNING OF FY 84		\$11,744

BWIP
FY 1983 YEAR END REVIEW

FY 1984 PLANS & REQUIREMENTS

R. J. GIMERA – ROCKWELL
G. S. HUNT – ROCKWELL
J. R. KIRKENDALL – ROCKWELL

BWIP FY 1984 BASE CASE

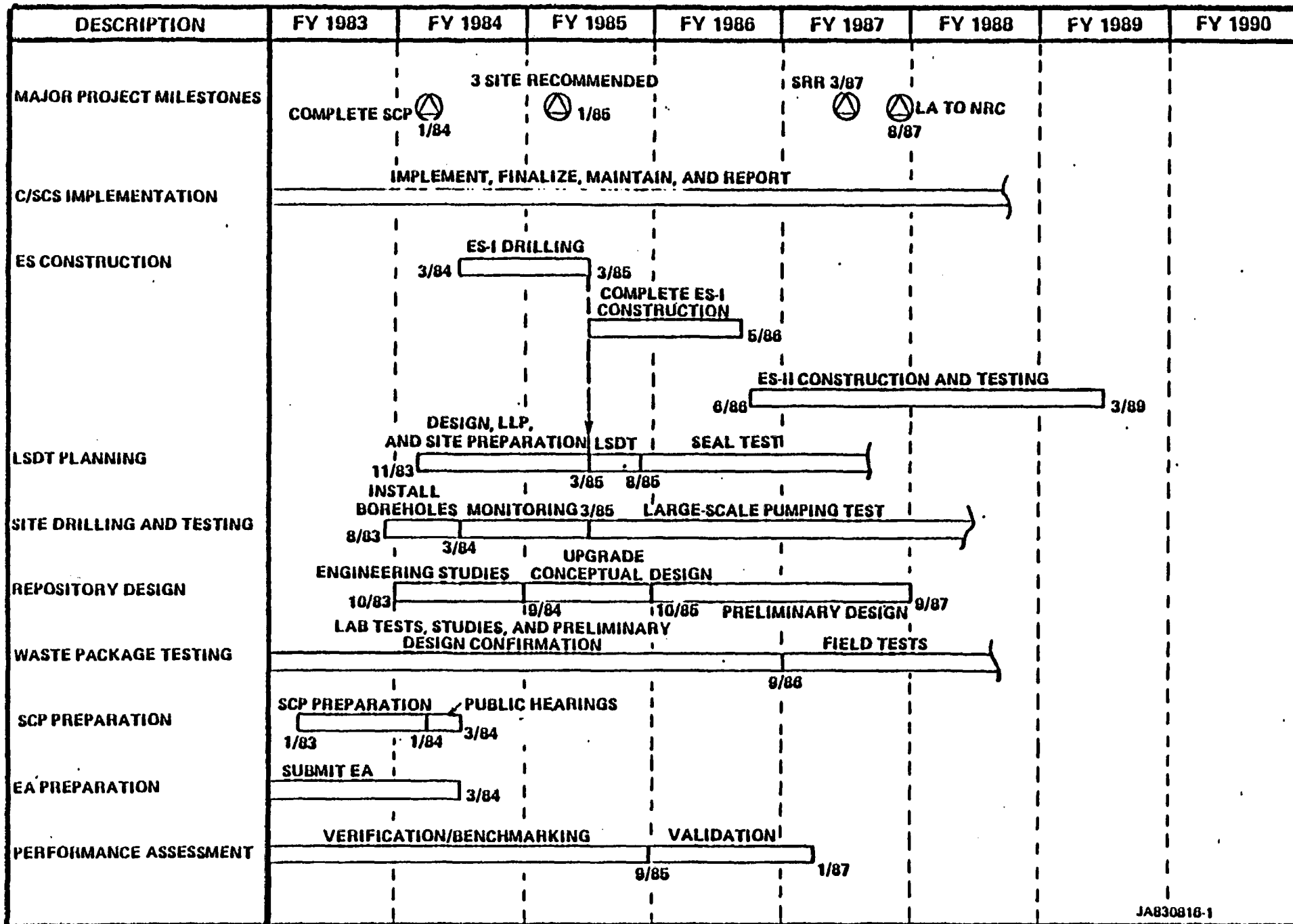
ASSUMPTIONS:

- **START EXPLORATORY SHAFT-PHASE I DRILLING IN MARCH 1984.**
- **ALL END FUNCTIONS, EXCEPT EXPLORATORY SHAFT-PHASE I AND II, FULLY SUPPORT THE NUCLEAR WASTE POLICY ACT.**
- **BEGIN LSDT SITE PREPARATION, ENGINEERING, AND LONG LEAD PROCUREMENT PRIOR TO START OF EXPLORATORY SHAFT-PHASE I DRILLING (MARCH 1984). APPROVAL OF LSDT BY DOE IS ASSUMED TO OCCUR IN NOVEMBER 1983.**
- **PERFORM LSDT AFTER EXPLORATORY SHAFT-PHASE I DRILLING IS COMPLETE, CONCURRENT WITH EXPLORATORY SHAFT-PHASE I TESTING.**
- **COMPLETE SCP BY JANUARY 1984 AND COMPLETE PUBLIC HEARINGS BY MARCH 1984.**
- **REISSUE EA BY MARCH 1984.**
- **CUTOFF DATE FOR END FUNCTION DATA INPUTS TO RESEARCH AND LICENSING FOR INCORPORATION INTO THE SITE RECOMMENDATION REPORT IS JUNE 1986.**
- **CUTOFF DATE FOR END FUNCTION DATA INPUTS TO RESEARCH AND LICENSING FOR INCORPORATION INTO THE LICENSE APPLICATION IS OCTOBER 1986.**

BASALT WASTE ISOLATION PROJECT

FY 1983 YEAR END REVIEW

BASE CASE



BWIP FY 1984 BASE CASE

RESULTS/IMPACTS:

- **NO EXPLORATORY SHAFT-PHASE II TEST DATA AVAILABLE FOR INPUT TO SITE RECOMMENDATION REPORT AND LICENSE APPLICATION. ONLY MINIMAL CONSTRUCTION DATA FROM EXPLORATORY SHAFT-PHASE II AVAILABLE.**
- **MINIMAL EXPLORATORY SHAFT-PHASE II DATA AVAILABLE FOR INPUT INTO PRELIMINARY DESIGN OF THE NUCLEAR WASTE REPOSITORY IN BASALT. DATA AVAILABLE PRIMARILY FOR DESIGN CONFIRMATION.**
- **NO HYDROLOGIC CLUSTER BOREHOLE STABILIZATION AND MONITORING DATA AVAILABLE PRIOR TO START OF ES DRILLING.**
- **CM AND DRILL RIG RETAINED ON SITE WITH INCURRED DAILY LEASE COSTS.**

BWIP FY 1984 BASE CASE

PROJECT ACTIONS REQUIRED:

- **NEGOTIATE WITH USGS, NRC, STATE, AND INDIAN NATIONS RELATIVE TO ES DRILLING EFFECT ON OTHER HYDROLOGIC DATA. PROJECT MUST PREPARE TECHNICAL JUSTIFICATION.**
- **NEGOTIATE AND REACH AGREEMENT WITH NRC AS TO ES-II DATA APPLICATION IN DESIGN CONFIRMATION AND FOR POST-LA. PROJECT MUST PREPARE TECHNICAL JUSTIFICATION.**
- **NEGOTIATE AND REACH AGREEMENT WITH NRC ON CONTENTS OF SCP AS TO NEED FOR ALL PROJECT TEST PLANS AND DESIGN DETAILS TO BE INCLUDED IN SCP.**
- **ISSUE SCP BY JANUARY 1984 TO SUPPORT THIS SCHEDULE.**
- **ISSUE EA BY MARCH 1984.**

FY 1984 REPOSITORY BASE CASE

(DOLLARS IN THOUSANDS)

<u>TASK</u>	<u>IMPACT</u>	<u>FUNDING</u>
• PROGRAM MANAGEMENT, SUPPORT, AND TECHNICAL DIRECTION FOR THE A/E	PROGRAM CANNOT OPERATE AT A LOWER LEVEL	\$ 2,700
• ENGINEERING STUDIES TO SUPPORT UPGRADED CONCEPTUAL DESIGN (RKE/PB)	ENGINEERING STUDIES WILL NOT SUPPORT THE SRR AND LA. UPGRADED CONCEPTUAL DESIGN MAY NOT SUPPORT THE SRR	\$ 1,700
• UPGRADE FUNCTIONAL DESIGN CRITERIA	UPGRADED CONCEPTUAL DESIGN WILL NOT SUPPORT SRR AND LA	\$ 85
• TEST PLAN PREPARATION, AND KEY DEVELOPMENT STUDIES, ANALYSES, AND FIELD TESTS TO SUPPORT NWRB DESIGN	END FUNCTION CANNOT EFFECTIVELY PERFORM WORK REQUIRED TO SUPPORT THE PROJECT AT A LOWER FUNDING LEVEL	\$ 1,600
• A/E DESIGN MODEL SUPPORT (RKE/PB)	MODELING, ANALYSIS AND DOCUMENTATION OF KEY GEOTECHNICAL ISSUES WILL NOT BE COMPLETED ON A SCHEDULE THAT SUPPORTS THE NWRB UPGRADED CONCEPTUAL DESIGN	\$ 400
• GEOMECHANICS MODELING AND ANALYSES SUPPORTING NWRB DESIGN	MODELING, ANALYSIS AND DOCUMENTATION OF KEY GEOTECHNICAL ISSUES WILL NOT BE COMPLETED ON A SCHEDULE THAT SUPPORTS THE NWRB UPGRADED CONCEPTUAL DESIGN	\$ 1,100
• DEVELOP CONCEPTUAL REPOSITORY SEAL SYSTEM DESIGN CONCEPTS AND REQUIREMENTS	CONCEPTUAL REPOSITORY SEAL DESIGN REQUIREMENTS UNAVAILABLE TO SUPPORT SEAL CONCEPTUAL DESIGN, THE UPGRADED REPOSITORY CONCEPTUAL DESIGN, AND THE SCP TO THE LEVEL OF DETAIL SUGGESTED BY THE NRC.	\$ 600

BASALT WASTE ISOLATION PROJECT

FY 1983 YEAR END REVIEW

SPECIAL CASE

BWIP FY 1984 SPECIAL CASE

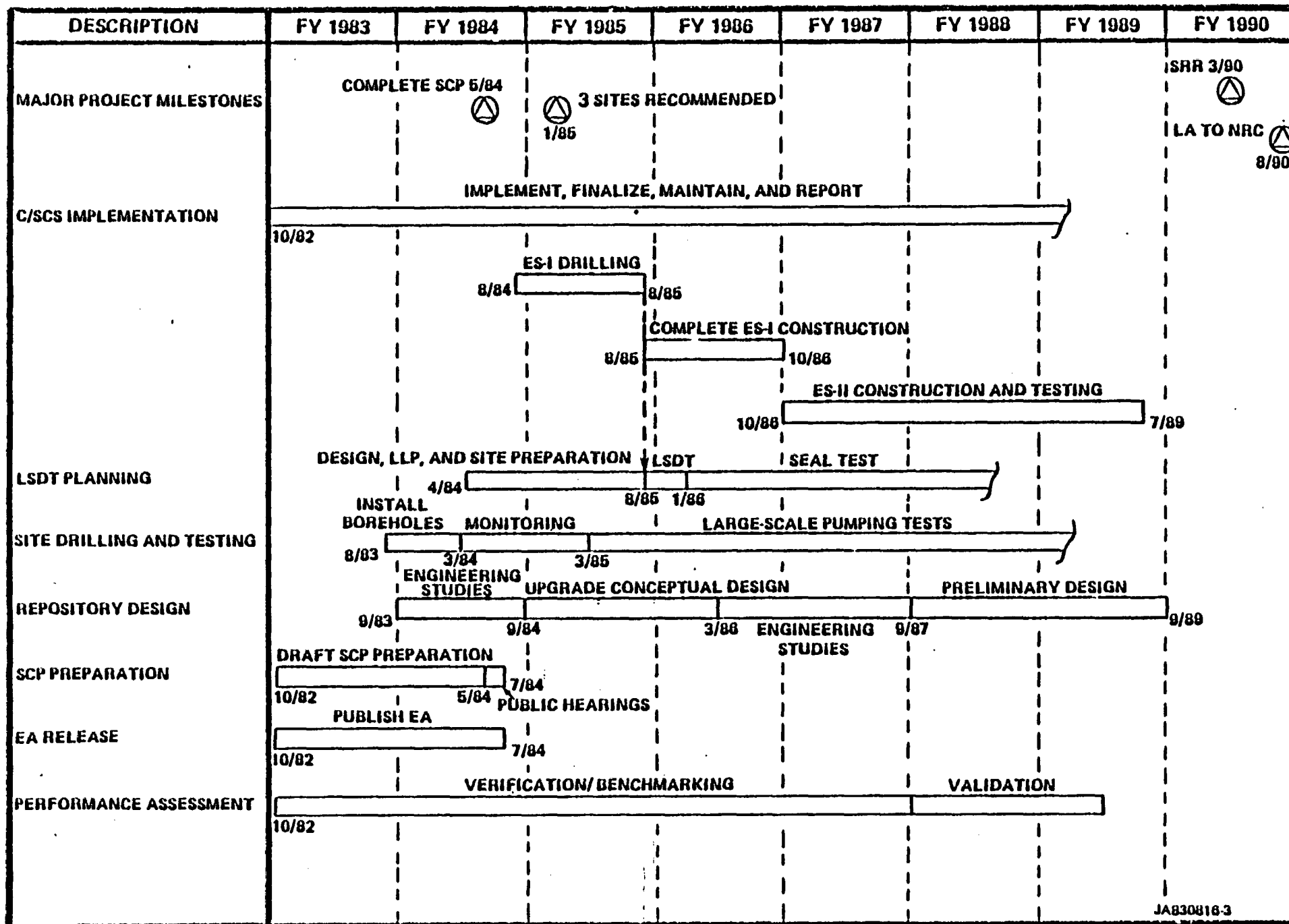
ASSUMPTIONS:

- **START EXPLORATORY SHAFT-PHASE I DRILLING IN AUGUST 1984.**
- **REPOSITORY SRR AND LA SUBMISSION DATES CONSTRAINED BY COMPLETION OF ES TESTING.**
- **COMPLETE LSDT SITE PREPARATION, ENGINEERING, AND LONG LEAD PROCUREMENT BY AUGUST 1985.**
- **BEGIN LSDT DRILLING IN AUGUST 1985 AND COMPLETE LARGE-SCALE DEMONSTRATION TEST DRILLING BY JANUARY 1986.**
- **COMPLETE SCP AND HOLD HEARINGS BY JULY 1984.**
- **ISSUE EA BY JULY 1984.**
- **CUTOFF DATE FOR END FUNCTION DATA INPUTS TO RESEARCH AND LICENSING FOR INCORPORATION INTO THE SITE RECOMMENDATION REPORT IS JUNE 1989.**
- **CUTOFF DATE FOR END FUNCTION DATA INPUTS TO RESEARCH AND LICENSING FOR INCORPORATION INTO THE LICENSE APPLICATION IS OCTOBER 1989.**

BASALT WASTE ISOLATION PROJECT

FY 1983 YEAR-END REVIEW

SPECIAL CASE



BWIP FY 1984 SPECIAL CASE

RESULTS/IMPACTS:

- **SUBMISSION DATES FOR SRR AND LA DELAYED BY 3 YEARS.**
- **ONLY FIVE MONTHS OF HYDROLOGIC BASELINE MONITORING DATA AVAILABLE PRIOR TO START OF ES DRILLING.**
- **CM AND DRILL RIG RETAINED ON SITE WITH INCURRED DAILY LEASE COSTS.**
- **SCP AND EA RELEASE DATE OF JULY 1984 SUPPORTS START OF ES-I DRILLING.**

PROJECT ACTIONS REQUIRED:

- **NEGOTIATE WITH USGS, NRC, STATE, AND INDIAN NATIONS RELATIVE TO ES DRILLING EFFECT ON OTHER HYDROLOGIC DATA. PROJECT MUST PREPARE TECHNICAL JUSTIFICATION.**
- **NEGOTIATE AND REACH AGREEMENT WITH NRC ON CONTENTS OF AS TO NEED FOR PROJECT TEST PLANS AND DESIGN DETAILS TO BE INCLUDED IN SCP.**
- **ISSUE EA BY JULY 1984.**
- **ISSUE SCP BY JULY 1984.**

**BASALT WASTE ISOLATION PROJECT
FY 1983 YEAR END REVIEW
PROJECT DEFINED ALTERNATE CASE**

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

ASSUMPTIONS:

HYDROLOGY

- **DRILL AND EQUIP DC-19, 20, 22, AND RRL-2B IN ACCORDANCE WITH CURRENT SCHEDULE (TO BE COMPLETED BY MARCH 1984).**
- **PERFORM STABILIZATION AND MONITORING PERIOD OF ONE YEAR (NO LARGE SCALE HYDROLOGIC TESTING TO BE CONDUCTED DURING THIS PERIOD).**
- **IDENTIFY NEEDS FOR DRILLING FAR-FIELD MONITORING AND TESTING BOREHOLES PRIOR TO COMPLETION OF DC-19, 20, 22, AND RRL-2B.**

GEOLOGY

- **REQUIRES SEISMOLOGICAL TESTING, MODELING, AND ANALYSIS; TECTONIC MODELING AND ANALYSIS INTEGRATED WITH HYDROFRACTURE TESTING AND SURFACE GEOPHYSICS TESTING; ANALYSIS OF OUTCROPS, MODELING, AND STATISTICAL PREDICTION OF HOMOGENEITY AND LATERAL CONTINUITY OF FLOWS OF INTEREST; FUTURE CLIMATOLOGICAL PREDICTION; SURFACE DEFORMATION TESTING, MODELING, ANALYSIS, AND PREDICTION; MODELING AND ANALYSIS OF PASCO BASIN WITHIN BROAD NORTHWEST GEOLOGIC PLATE; AND OTHER SUPPORTING TESTING, ANALYSIS, AND PREDICTION. HORIZON SELECTION REPORT PUBLISHED SEPTEMBER 1983.**

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

ASSUMPTIONS (CONTINUED):

ENGINEERED BARRIERS

- **CONDUCT CURRENTLY PLANNED TEST PROGRAM. DEVELOP PLANS FOR UTILIZATION OF LSDT AS TEST BED FOR SHAFT SEAL IN SITU TESTS.**

STATUTORY DOCUMENTS

- **SCP TO BE BASED ON DATA CUTOFF OF SEPTEMBER 1984.**
- **SCP TO BE ISSUED FOR PUBLIC COMMENT APRIL 1985, BASED ON PRESIDENTIAL APPROVAL OF THREE SITES BY MARCH 1985 AND NOMINATION OF THREE SITES BY JANUARY 1985.**
- **SCP TO BE BASED ON CURRENT NWRB CSDD TOGETHER WITH RESULTS OF ENGINEERING STUDIES AND TEST PLANS.**
- **SCP TO BE ENHANCED BY PERFORMANCE ALLOCATION, COMPONENT AND PARAMETER RELIABILITY ANALYSIS, AND DATA PARAMETER VARIABILITY/CONFIDENCE IN APPROPRIATE CHAPTERS OF THE SCP.**
- **SCP WILL INCLUDE, AND/OR REFERENCE, ALL AVAILABLE TEST PLANS BUT NOT BE CONSTRAINED TO INCLUDE ALL TEST PLANS. THIS WILL REQUIRE PRIOR NEGOTIATIONS WITH NRC.**
- **ISSUE EA BY JULY 1984.**

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

ASSUMPTIONS (CONTINUED):

IN SITU TESTING

- **START EXPLORATORY SHAFT - PHASE I DRILLING IN JULY 1985.**
- **MAINTAIN M-K CORE STAFF FOR CONSTRUCTABILITY INPUT TO REPOSITORY DESIGN.**
- **COMPLETE ES LONG LINER FABRICATION ON SCHEDULE; INSTALL PORTHOLES ONSITE; REDUCE LINER LENGTH AFTER FABRICATION BY ELIMINATING ANY BOTTOM PORTIONS NOT NEEDED.**
- **INSTALL DUPLICATE ES SHAFT (DRILLED 110") AS SECOND SHAFT TO REDUCE ES TESTING TIME BY ONE YEAR (REQUIRES PRIOR SCHEDULE ANALYSIS TO SUPPORT). REQUIRES PRIOR JUSTIFICATION OF, AND APPROVAL FOR, SECOND SHAFT TO DOE.**
- **SUBMIT ES TEST PLAN FOR REVIEW ON CURRENT SCHEDULE (SEPTEMBER 1983).**
- **DEFER ACTIVITY TO EXPEDITE HOIST HOUSE INSTALLATION.**
- **REVISE ES-II FDC, CONCEPTUAL, AND FINAL DESIGN BASED ON AVAILABILITY OF SECOND LARGE ES SHAFT.**

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

ASSUMPTIONS (CONTINUED):

ENGINEERING DESIGN AND DEVELOPMENT

- **COMPLETE COMPONENT RELIABILITY ANALYSIS AND DATA PARAMETER VARIABILITY/CONFIDENCE ANALYSIS TO SUPPORT UPGRADED CONCEPTUAL DESIGN AND SCP SUBMISSION.**
- **PERFORM INSTRUMENTATION DEVELOPMENT AND TEST METHOD DEVELOPMENT TESTING AT NSTF TO SUPPORT ES IN SITU TEST SCHEDULE.**
- **PERFORM REPOSITORY INSTRUMENTATION DEVELOPMENT TESTING AT NSTF IN SUPPORT OF REPOSITORY PRELIMINARY DESIGN.**
- **PERFORM ROOF SUPPORT TESTS AT NSTF TO SUPPORT REPOSITORY PRELIMINARY DESIGN.**
- **DEVELOP NONLINEAR OPENING STABILITY MODEL TO BE VERIFIED, VALIDATED, AND BENCHMARKED PRIOR TO NWRB PRELIMINARY DESIGN.**
- **PERFORM STUDIES AND TESTING TO SELECT WASTE EMPLACEMENT CONFIGURATION TO SUPPORT THE UPGRADED NWRB CONCEPTUAL DESIGN (IN CONJUNCTION WITH ENGINEERED BARRIERS).**

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

ASSUMPTIONS (CONTINUED):

PERFORMANCE ASSESSMENT

- **PERFORM MODELING AND ANALYSIS TO PROVIDE PRELIMINARY PERFORMANCE ALLOCATION GUIDELINES TO ENGINEERED BARRIERS, HYDROLOGY, AND ENGINEERING DESIGN.**
- **SUPPORT HYDROLOGY TESTING, MODELING AND ANALYSIS, THE NWRB UPGRADED CONCEPTUAL DESIGN, THE ENGINEERED BARRIERS TESTING PROGRAM, SEAL DEVELOPMENT AND IN SITU TESTING. PERFORMANCE ALLOCATION WITH TECHNICAL JUSTIFICATION TO BE INCLUDED IN SCP.**
- **PROVIDE RADIONUCLIDE MIGRATION MODELING AND ANALYSIS TO SUPPORT SUBMISSION OF SRR.**
- **PROVIDE PRE-CLOSURE SAFETY ASSESSMENT TO SUPPORT SRR.**

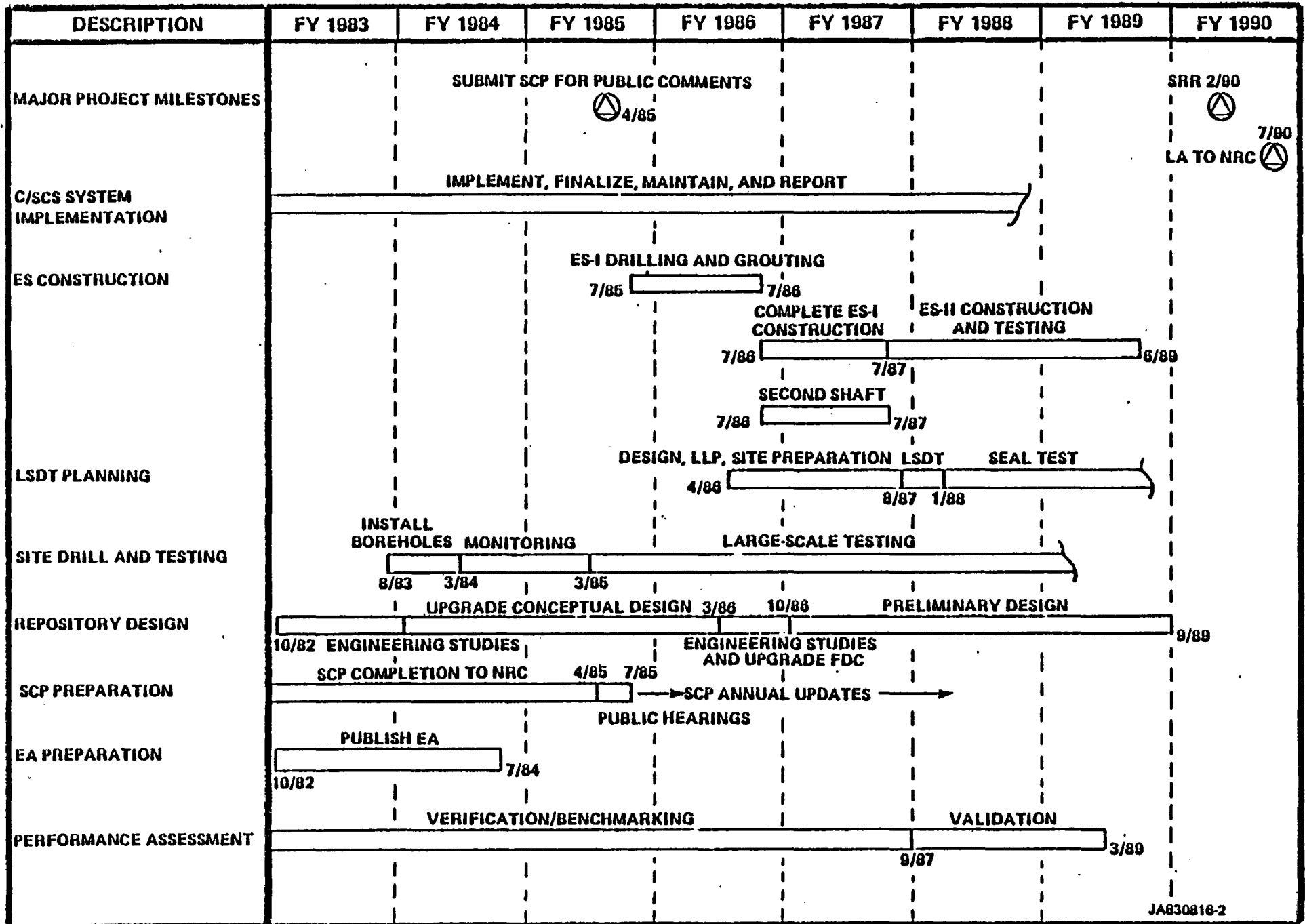
PROGRAM MANAGEMENT

- **PROVIDE LEVEL IV SCHEDULES BY JANUARY 1984.**
- **DELAY CSCS REPORTING TO MARCH 1984.**

BASALT WASTE ISOLATION PROJECT

FY 1983 YEAR END REVIEW

PROJECT DEFINED ALTERNATE CASE



END FUNCTION	DESCRIPTION	1984	1985	1986	1987	1988	1989	1990	1991	
L3 MTE	HYDROLOGY	HYDROLOGIC DATA LOGS								
		ONE YEAR HYDROLOGIC BASELINE								
		HYDROLOGIC MONITORING								
		HYDROLOGIC DATA COLLECTION								
GEOLOGY	GEOLOGY	GEOL. DATA COLLECTION								
		LARGE SCALE HYDROLOGIC TESTING								
		HYDROLOGIC AND GEOL. DATA MONITORING AND ANALYSIS								
		CHEMICAL AND PHYSICAL ROCK PROPERTIES STUDIES								
WASTE PACKAGE	ENGINEERED BARRIERS	RELIABILITY ANALYSIS								
		WASTE PACKAGE INTEGRITY AND ANALYSIS								
		WASTE PACKAGE INTEGRITY AND IN SITU TESTING								
		HYDROLOGIC AND WASTE PACKAGE INTEGRITY TESTING								
R & D	STATISTICAL DOCUMENTS	STATISTICAL DOCUMENTS								
		PREF. DESIGN AND COMMENT INFORMATION								
		DRAFT EA								
		RECOMMEND 3 SITES TO PRESIDENT								
ES1	IN SITU TESTING	PREF. DESIGN AND COMMENT INFORMATION								
		DRAFT EA								
		RECOMMEND 3 SITES TO PRESIDENT								
		ANNUATED LITELINE								
ES2	IN SITU TESTING	PREF. DESIGN AND COMMENT INFORMATION								
		DRAFT EA								
		RECOMMEND 3 SITES TO PRESIDENT								
		ANNUATED LITELINE								
ES3	IN SITU TESTING	PREF. DESIGN AND COMMENT INFORMATION								
		DRAFT EA								
		RECOMMEND 3 SITES TO PRESIDENT								
		ANNUATED LITELINE								
REPOSITORY	ENGINEERING DESIGN AND DEVELOPMENT	RELIABILITY ANALYSIS								
		ENGINEERING STUDIES								
		UPGRADE CONCEPTUAL DESIGN								
		ENGINEERING STUDIES AND UPGRADE PRC								
SYSTEMS	PERFORMANCE ASSESSMENT	RELIABILITY ANALYSIS								
		ENGINEERING STUDIES								
		UPGRADE CONCEPTUAL DESIGN								
		ENGINEERING STUDIES AND UPGRADE PRC								
PROGRAM MANAGEMENT	HND COSTS/CONTROL & CONTROL SYSTEM IMPLEMENTATION	RELIABILITY ANALYSIS								
		ENGINEERING STUDIES								
		UPGRADE CONCEPTUAL DESIGN								
		ENGINEERING STUDIES AND UPGRADE PRC								

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

RESULTS/IMPACTS:

- **ES PROJECT DURATION REDUCED FROM 5 YEARS TO 4 YEARS.**
- **DEFENDABLE HYDROLOGIC BASELINE IN PLACE PRIOR TO ES DRILLING.**
- **COMPLETE, HIGH QUALITY SCP PREPARED IN REQUIRED FORMAT.**
- **ALL STATUTORY REQUIREMENTS COMPLETE PRIOR TO ES DRILLING.**

BWIP FY 1984 PROJECT DEFINED ALTERNATE CASE

PROJECT ACTIONS REQUIRED:

- **NEGOTIATE WITH USGS, NRC, AS TO ADEQUACY OF ONE YEAR HYDROLOGIC BASELINE MONITORING. REQUIRES PRIOR PROJECT JUSTIFICATION.**
- **NEGOTIATE WITH USGS, NRC, ON NEED FOR AND LOCATION OF FAR FIELD HYDROLOGIC TEST HOLES. PRIOR PROJECT DEFINITION REQUIRED.**
- **CONCURRENCE BY DOE AND NRC ON CONTENT OF SCP, AND DATE OF SUBMISSION OF SCP IN APRIL 1985 FOR PUBLIC COMMENT.**
- **CONCURRENCE BY DOE TO DELAY START OF ES DRILLING TO JULY 1985.**
- **CONCURRENCE BY DOE TO CONSTRUCT SECOND VENTILATION AND EMERGENCY EGRESS SHAFT, TO SHORTEN ES SCHEDULE BY ONE YEAR. PRIOR PROJECT SCHEDULE IMPROVEMENT JUSTIFICATION REQUIRED.**
- **CONCURRENCE BY NRC ON IN SITU TESTING REQUIREMENTS; NRC WORKSHOP REQUIRED.**
- **DISPOSITION OF DRILL RIG.**
- **REEVALUATE MK SCOPE OF WORK.**
- **REBASELINE PROJECT ACTIVITIES.**