Enclosure to 2/12/85 Memo to REB from FTP

Science Applications International Corporation

L85-SS-JHF-016

January 22, 1985

To: Distribution

Subject: January 1985 PM-TPO Meeting

Attached is an agenda for the January Project Manager-Technical Project Officers meeting which will be held on January 31-February 1 in the conference room at 2950 So. Highland Drive, not at 2759 So. Highland where the meetings were held for the last several months. You will be notified if any significant changes are made which would affect presentors' appearances.

Mini-agendas will be faxed to the TPOs prior to the meeting for some selected items as noted in the agenda.

SCIENCE APPLICATIONS
INTERNATIONAL CORPORATION

Joy Fiore

Joy H. Fiore
Deputy Manager,
Management Support Services

JHF:md

Enclosure: Filed in Jacket
As Stated

Distribution w/encl.:
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T. O. Hunter, SNL, 6310, Albuquerque, NM
W. W. Dudley, Jr., USGS, Denver, CO
L. D. Ramspott, LLNL, Livermore, CA
J. B. Wright, W, Mercury, NV
M. E. Spaeth, SAIC, Las Vegas, NV
M. P. Kunich, WMPO
M. B. Blanchard, WMPO
V. F. Witherill, WMPO
A. J. Roberts, RMBD
D. I. Irby, EEM
B. C. Donahoe, Interaction Associates
C. H. Johnson, NWPO
P. T. Prestholt, NRC, Las Vegas, NV
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Other SAIC Offices: Albuquerque, Ann Arbor, Atlanta, Chicago, Huntsville, La Jolla, Los Angeles, McLean, Palo Alto, Santa Barbara, Sunnyvale, and Tucson.

8502280126 850212
PDR WASTE
WM-11 PDR

AGENDA

LOCATION: 2950 South Highland
Las Vegas, NV

DATE: January 31-February 1,1985

NNWSI PROJECT MANAGER-TECHNICAL PROJECT OFFICER MEETING

TIME	WHAT	HOW	WHO	EXPECTED OUTCOME	REF MATERIAL & COMMENTS
Thursday, January 31					
8:00-8:10	Introductions/Roles/Outcomes	Introductions 'round the room describe roles; review outcomes.	Brenda/Don/ TPOs		
8:10-8:25	Agenda	Review agenda; change as required.	Brenda/Don/ TPOs	Agree on today's agenda.	Agenda faxed 1/23/85.
8:25-8:30	October/November Minutes	Correct and/or approve.	Don/TPOs	Agree on minutes issued.	Minutes sent 11/1 and 12/10
8:30-9:00	FYIs o EA Briefings o Systems/Repository (Tentative)	 Feedback Status/update	 Don Tom		
9:00-9:30	Common Lab for Testing	Discuss HQ proposal, review Project position. Develop plan for response to HQ.	Don/TPOs	Agree on plan of action to respond to HQ when official letter is received.	Draft letter Stein to Don; Don response dated 1/21 - TPOs rec'd. copy.
9:30-9:45	BREAK				
9:45-10:15	Common Waste Packages	Discuss HQ-proposed common waste package draft report - Task 1; determine position and plan of action..	Don/TPOs	Agree on Project position and plan of action.	Letter Don to Frei dated 1/22/85.

Jan w/ltr. dtd 1/22/85

AGENDA

LOCATION: 2950 South Highland
Las Vegas, NV

DATE: January 31-February 1

NNWSI PROJECT MANAGER-TECHNICAL PROJECT OFFICER MEETING

TIME	WHAT	HOW	WHO	EXPECTED OUTCOME	REF MATERIAL & COMMENTS
Thursday, January 31, Cont'd.					
10:15-10:45	Common A-E				
10:45-11:45	Exploratory Shaft	Discuss NRC letter and QAP letter; establish schedule for response to NRC. Establish date for ES Workshop. Review ES design and QA.	Don/Dennis TPOs	Agree to schedule for NRC response and date for ES workshop.	
11:45-12:00	Radioactive Materials for Testing Requirements	Ask labs to evaluate requirements; establish basis for letter/plan to HQ indicating Project's needs (if any).	Don/TPOs	Agree to plan and content of letter to HQ.	Don letter to TPOs dated 1/22 (item 1)
12:00-1:00	LUNCH				
1:00-1:15	Plans Status	Present status of plans schedule and progress. Set priorities to complete plans.	Dave D. Don/TPOs	Agree on priorities to complete plans.	Plans Schedule distributed at last PM-TPO meeting.
1:15-1:30	ISTP	Present status of detailed comments to ISTP; develop plan to complete comments.	Don/TPOs	Agree on plan to complete comments.	Don letter to Stein dated 1/22.
1:30-2:00	Budgets/Costs	Present FYI on approved funding plans. Discuss status of cost/budget inputs. Present initial guidance on FY 87 WPAS.	Lance	Update on AFPs; commitment from involved TPOs to respond to input. Understanding of what is needed for FY 87 WPAS and when input is needed.	

AGENDA

LOCATION: 2950 South Highland
Las Vegas, NV

DATE: January 31-February 1

NNWSI PROJECT MANAGER-TECHNICAL PROJECT OFFICER MEETING

TIME	WHAT	HOW	WHO	EXPECTED OUTCOME	REF MATERIAL & COMMENTS
Thursday, January 31, cont'd.					
2:00-5:15	LANL Geochemistry and Mineralogy/Petrology Technical Presentation	See mini-agenda	Don D./ Jerry D.	Update on geochemistry/ min.-pet. program.	
Friday, February 1					
8:00-8:10	Agenda/Outcomes	Review day's agenda, clarify anticipated outcomes.	Brenda		
8:10-10:15	CCB MEETING		Don/Chuck		Agenda sent 1/21 by CCB Secretary.
10:15-10:30	NRC Workshops/Data Reviews Milestone Status	Resolve level 1 or 2 milestone status; identify correct WBS element to charge.	Don/TPOs	Agree on milestone level; agree on WBS element.	
10:30-10:45	BREAK				
10:45-11:00	Performance Assessment Scientific Support (PASS)	Discuss letter; develop plan of action for providing data to PNL. ID contacts for interaction.	Don/TPOs	Agree on plan of action; agree on contacts for interaction.	Letter Don to TPOs dated 1/22
11:00-11:15	PANRG Results	Discuss PANRG report and presentation material. Develop plan for response; discuss Project position.	Don/TPOs	Agree on plan of action to develop formal comment response; agree on Project position.	PANRG draft report & presentations of Lieberman & Cooley.

AGENDA

LOCATION: 2950 South Highland
Las Vegas, NV

DATE: Janaury 31-February 1

NNWSI PROJECT MANAGER-TECHNICAL PROJECT OFFICER MEETING

TIME	WHAT	HOW	WHO	EXPECTED OUTCOME	REF MATERIAL & COMMENTS
Friday, February 1, Cont'd.					
11:15-11:45	EA Finalization Plans	Mini-agenda to come	Max		
11:45-12:45	LUNCH				
12:45-2:15	SCP Activities	Mini-agenda to come	Mike V.		
2:15-2:45	Issues Hierarchy	Mini-agenda to come	Jean/Scott		
2:45-3:15	OPEN ITEMS				
3:15-3:25	Action Items	Review action items generated in meeting.	Brenda/Don/ TPOs	Agree on dates, responsi-bilities.	
3:25-3:30	February Agenda	Review items suggested during meeting and add as required.	Brenda/Don TPOs	Agree on items suggested.	
3:30-3:40	Meeting Evaluation				

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JAN 21 1985

W. J. Purcell, Director, Office of Geologic Repositories, DOE/HQ (RW-20), FORSTL

NNWSI WEEKLY HIGHLIGHTS FOR WEEK ENDING JANUARY 17, 1985

I. Issues Requiring Involvement of HQ or Other Projects

A. New Issues:

None to report.

B. Previously Reported Issues:

None to report.

II. Major Internal Concerns

None to report.

III. Significant Accomplishments (SA)/Information Items (II)

SA

The NNWSI Project Administrative Procedures Manual was approved for implementation on January 15. The APM is a controlled document that will be distributed to Project participants.

II

On Friday, January 11, plans were discussed with seismic design engineers from URS/Blume, USGS personnel, WMPO staff members, SAIC technical staff members, and a representative from Weston. Strategy was developed for addressing seismic design criteria. A position paper will be prepared to establish the basis for interactions with NRC.

Don Vieth and Chris West (OPA) took a KTNV-TV reporter and cameraman on a tour of the T-Tunnel facility, E-MAD, and Yucca Mountain. The tour will be covered in a two-part series to be aired on Channel 13 evening news.

On January 15, Lt. Governor Bob Cashell was taken on a tour of CP-1, E-MAD, Climax, and the Exploratory Shaft site at Yucca Mountain. He was accompanied by the Nevada State Economic Development Commission. Don Vieth, Ray Duncan, and Chris West conducted the tour.

A Technical Issues Clinic involving media skills was conducted January 13-16 in San Diego sponsored by Communitions Council of America, Inc. Project participants included people from WMPO, LANL, SNL, and SAIC. Most of the attendees will be involved in the EA briefings and public hearings.

IV. Upcoming Events

1. Coordination Group Meetings

- o Tuesday, January 29: Performance Assessment Coordination Group Meeting, D.C.
- o Wednesday-Thursday, January 30-31: QA Coordination Group Meeting, Las Vegas.

2. HQ Meetings

- o Monday, January 28: Affected States Meeting, San Diego.

3. Internal Project and DOE/NV Meetings

- o Friday and Monday-Wednesday, January 18, 21-23: ESTP PI Meetings with D. L. Vieth, Las Vegas.
- o Monday, January 21: ESTP PI (LANL) Meeting, Las Vegas.
- o Friday, January 25: SAIC Monthly Status Review; SAIC Quarterly Licensing Briefing, Las Vegas.
- o Friday, January 25: Systems Description Document Workshop at SNL, ABQ.
- o Thursday-Friday, January 31-February 1: PM-TPO Meeting, La Jolla.
- o Friday, February 1: ESTP Committee Meeting, Las Vegas.
- o Tuesday, February 19: NV Program Review, Las Vegas.

4. State and Public Interaction

- o Friday, January 18: Don Vieth interview with KING-TV (Seattle) followed by tour to NTS guided by OPA.
- o Tuesday, January 22: EA Public Briefing, Las Vegas.
- o Wednesday, January 23: EA Public Briefing, Beatty.
- o Wednesday, January 23: Utility Nuclear Waste Management Group interview with Tom Clark, Don Vieth, and Mitch Kunich.

- Thursday, January 24: EA Public Briefing, Reno.
- Tuesday-Wednesday, January 29-30: Affected States Meeting, San Diego.
- Thursday, January 31: PANRG Meeting to discuss Panel results, D.C.
- Friday, February 1: Nye County Commissioners' tour of NTS.
- Monday, February 4: Dick Bieniawski (Executive Committee of U.S. National Council of Tunneling Technology) tour of NTS guided by Don Vieth.
- Monday-Friday, February 4-8: ASME Meeting on NQA-1 application to repositories, Tucson.
- Tuesday, February 26: Community Monitoring Meeting, Henderson (tentative).

5. NRC Interaction

- Tuesday, February 12: NRC Legal Presentation to LLNL.
- Wednesday, February 13: NRC Legal Presentation to SNL, LANL.
- Thursday, February 14: NRC Legal Presentation to USGS.

Donald L. Vieth

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Waste Management Project Office

WMPO:DLV-567

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FEB 11 1985

W. J. Purcell, Director, Office of Geologic Repositories, DOE/HQ (RW-20), FORSTL

NNWSI WEEKLY HIGHLIGHTS FOR WEEK ENDING JANUARY 24, 1985

I. Issues Requiring Involvement of HQ or Other Projects

A. New Issues:

None to report.

B. Previously Reported Issues:

None to report.

II. Major Internal Concerns

None to report.

III. Significant Accomplishments (SA)/Information Items (II)

SA

The EA Public Briefings were conducted in Las Vegas on January 22 and in Beatty on January 23. Approximately 200 people attended the Las Vegas Briefing. Local news coverage was well balanced. Approximately 70 non-DOE people attended the Beatty briefing. The Reno Public Briefing will be held today and a report will be provided in the Weekly Highlights next week.

Don Vieth's meetings with the ESTP Principal Investigators and their TPOs were completed on January 23. All tests have been approved for further development in the ESTP (Rev. 1) with direction to integrate and combine the suite of tests as discussed in the meetings.

II

On January 18, KING-TV (Seattle) interviewed Don Vieth and then went on a tour conducted by Wes Patrick (LLNL) of the Climax facility where he briefed the crew on the spent fuel test.

Jim Creighton of Edison Electrical Institute's Utility Waste Management Group was in Las Vegas on Janaury 23 to interview Tom Clark, Don Vieth, and Mitch Kunich. Mr. Creighton is interviewing DOE, State, and local governments, and intevenor groups and will prepare a report that will examine public participation in the Program.

IV. Upcoming Events

1. Coordination Group Meetings

- o Tuesday, January 29: Performance Assessment Coordination Group Meeting, D.C.
- o Wednesday-Thursday, January 30-31: QA Coordination Group Meeting, Las Vegas.
- o Monday-Thursday, February 4-7: Repository Combination Group Meeting.

2. HQ Meetings

- o Monday, January 28: Affected States Meeting, San Diego.

3. Internal Project and DOE/NV Meetings

- o Friday, January 25: SAIC Monthly Status Review; SAIC Quarterly Licensing Briefing, Las Vegas.
- o Friday, January 25: Systems Description Document Workshop at SNL, ABQ.
- o Thursday-Friday, January 31-February 1: PM-TPO Meeting, Las Vegas.
- o Friday, February 1: ESTP Committee Meeting, Las Vegas.
- o Tuesday, February 19: NV Program Review, Las Vegas.
- o Tuesday, February 19: NVO-196-17 WMPO Training.
- o Friday, February 22: NVO-196-18 WMPO Training.

4. State and Public Interaction

- o Tuesday-Wednesday, January 29-30: Affected States Meeting, San Diego.
- o Thursday, January 31: PANRG Meeting to discuss Panel results, D.C.
- o Friday, February 1: Nye County Commissioners' tour of NTS.
- o Monday, February 4: Dick Bieniawski (Executive Committee of U.S. National Council of Tunneling Technology) tour of NTS guided by Don Vieth.
- o Monday-Friday, February 4-8: ASME Meeting on NQA-1 application to repositories, Tucson.
- o Tuesday, February 12: League of Women Voters' Debate, Carson City, (Don Vieth).
- o Tuesday, February 26: Community Monitoring Meeting, Henderson (tentative).

5. NRC Interaction

- o Tuesday, February 12: NRC Legal Presentation to LLNL.
- o Wednesday, February 13: NRC Legal Presentation to SNL, LANL.
- o Thursday, February 14: NRC Legal Presentation to USGS.

Donald L. Vieth, Director
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WMPO:DLV-611

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FEB 11 1985

W. J. Purcell, Director, Office of Geologic Repositories, DOE/HQ (RW-20), FORSTL

NNWSI WEEKLY HIGHLIGHTS FOR WEEK ENDING JANUARY 31, 1985

I. Issues Requiring Involvement of HQ or Other Projects

A. New Issues:

None to report.

B. Previously Reported Issues:

None to report.

II. Major Internal Concerns

None to report.

III. Significant Accomplishments (SA)/Information Items (II)

SA

None to report.

II

A meeting was held on January 28-29 to follow up on the Tectonics Workshop report. Participants from Weston, SNL, URS Blume, WMPO, USGS, and SAIC/LV worked with the tectonics workshop panel members from the University of Utah, MIT, Stanford, and SAIC/La Jolla to develop a plan for finalizing the Tectonics Workshop Report. The panel members provided the group with brief discussions of recent developments in their respective fields.

The field office did not receive advance or subsequent notice that the Proposed NRC Amendment to Licensing Procedures would be published in the January 17 Federal Register to announce a sixty-day public comment period.

IV. Upcoming Events

1. Coordination Group Meetings

- o Thursday-Friday, January 31-February 1: Institutional/Socioeconomics Coordination Group Meeting, D.C.
- o Monday-Thursday, February 4-7: Repository Combination Group Meeting.

2. HQ Meetings

None to report.

3. Internal Project and DOE/NV Meetings

- o Thursday-Friday, January 31-February 1: PM-TPO Meeting, Las Vegas.
- o Friday, February 1: ESTP Committee Meeting, Las Vegas.
- o Tuesday, February 5: Materials Steering Committee Meeting, Richland.
- o Wednesday, February 13: ESF Status Meeting, NTS.
- o Tuesday, February 19: NV Program Review, Las Vegas.
- o Tuesday, February 19: NVO-196-17 WMPO Training.
- o Friday, February 22: NVO-196-18 WMPO Training.

4. State and Public Interaction

- o Thursday, January 31: PANRG Meeting to discuss Panel results, D.C.
- o Friday, February 1: Nye County Commissioners' tour of NTS.
- o Monday, February 4: Don Vieth to address Nevada State Legislature, Carson City.
- o Monday-Friday, February 4-8: ASME Meeting on NQA-1 application to repositories, Tucson.
- o Tuesday, February 12: League of Women Voters' Debate, Carson City, (Don Vieth).
- o Tuesday, February 26: Community Monitoring Meeting, Henderson (tentative).

5. NRC Interaction

- o Tuesday, February 5: NRC tour of G-Tunnel, NTS.
- o Tuesday, February 12: NRC Legal Presentation to USGS, DEN.
- o Wednesday, February 13: NRC Legal Presentation to LLNL and USGS, San Francisco.
- o Thursday, February 14: NRC Legal Presentation to SNL and LANL, ABQ.

Donald L. Vieth, Director
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WMPO:DLV-645

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FEB 12 1985

W. J. Purcell, Director, Office of Geologic Repositories, DOE/HQ (RW-20), FORSTL

NNWSI WEEKLY HIGHLIGHTS FOR WEEK ENDING FEBRUARY 7, 1985

I. Issues Requiring Involvement of HQ or Other Projects

A. New Issues:

None to report.

B. Previously Reported Issues:

None to report.

II. Major Internal Concerns

None to report.

III. Significant Accomplishments (SA)/Information Items (II)

SA

Don Vieth presented testimony on the Project to the Nevada State Legislature's Human Resource Facilities Committee on February 4 in Carson City. Press coverage in the Las Vegas Review Journal was fair and accurate.

II

The first meeting between WMPO and the EA Public Hearings Panel members was held at Mercury on February 6. Jack McBride will be panel chairman and Elaine Parker and Max Blanchard will be members of the panel. Elaine Parker is a business owner in Beatty. The purpose of the meeting was to familiarize McBride and Parker with Project issues and terminology.

Don Vieth was interviewed on February 6 by Dave Bloom, a reporter for the Amarillo Globe News. Following the interview, Chris West took Bloom on a tour of the NTS.

On Friday, February 1, Mitch Kunich conducted a tour of the NTS for the Nye County Commissioners, Nye County officials, Pahrump Planning Board, Pahrump Town Board, Amargosa Valley Town Board, Beatty Nuclear Waste Advisory Committee, Amargosa Valley Planning Board, and the Beatty Town Board. They toured Climax, E-MAD, CP-1, and the Yucca Mountain Exploratory Shaft site.

On February 5, three NRC geochemists were taken on a tour of the G-Tunnel facility to observe tests being conducted in preparation for the ES in-situ test program. They were accompanied by Paul Prestholt of the NRC, Uel Clanton of WMPO, and Mike Glora from SAIC.

The ESTP committee initiated revision 1 of the Draft ESTP on Friday, February 1. The committee agreed to try to meet a March 29, 1985 delivery date.

Project participants attended the PANRG review meeting that was held in Rockville on January 31. They presented detailed comments on the PANRG draft report and identified areas of disagreement. Although the group did not commit to incorporating Project comments in their final report, they assured Project representatives that NNWSI Project comments would be considered.

IV. Upcoming Events

1. Coordination Group Meetings

None to report.

2. HQ Meetings

- Tuesday and Thursday, February 12 and 14: SCP Meeting to prepare (Tuesday) for February 13 NRC meeting and wrapup session (Thursday).

3. Internal Project and DOE/NV Meetings

- Monday-Friday, February 11-15: Issues Hierarchy Meeting, Las Vegas.
- Wednesday, February 13: ESF Status Meeting, NTS.
- Tuesday, February 19: NV Program Review, Las Vegas.
- Tuesday, February 19: NVO-196-17 WMPO Training.
- Tuesday, February 19: Issues Hierarchy Working Group Meeting, Las Vegas.
- Friday, February 22: NVO-196-18 WMPO Training.
- Friday, March 1: SAIC Monthly Status Review Meeting, Las Vegas.
- Monday, March 4: WMPO NVO-196-17 Training.
- Friday, March 8: WMPO NVO-196-18 Training.

4. State and Public Interaction

- o Monday-Friday, February 4-8: ASME Meeting on NQA-1 application to repositories, Tucson.
- o Tuesday, February 12: League of Women Voters' Debate, Carson City, (Don Vieth).
- o Tuesday, February 26: Community Monitoring Meeting, Henderson (tentative).
- o Friday, March 15: Don Vieth to address Health Physics Society Meeting, San Diego.

5. NRC Interaction

- o Wednesday, February 13: SCP Meeting with NRC, FORSTL.

Donald L. Vieth

Donald L. Vieth, Director
Waste Management Project Office

WMPO:DLV-659

SCP SECTION 8.3 PREPARATION PROCESS

WORK PLANS	WBS BASED
↓	
EXPANDED WORK PLANS FOR THE SCP	WBS BASED
↓	
SCP SECTION 8.3 INFORMATION NEED PLANS	ISSUES BASED

EXPANDED (*) WORK PLAN FOR THE SCP

WBS NUMBER AND NAME

1. OBJECTIVES AND ISSUES ADDRESSED

2. PRINCIPAL INVESTIGATOR

3. STATEMENT OF WORK

   3.1 WORK ACTIVITIES

   3.2 TEST SERIES IDENTIFICATION (*)

4. DATA AND MATERIAL NEEDED

5. TECHNICAL PROCEDURES LIST (*)

6. NONSTANDARD METHODS AND TECHNIQUES

7. PARAMETERS AND VARIABLES (*)

8. LOCATION OF WORK PERFORMED

9. QUALITY ASSURANCE REQUIREMENTS

QA LEVEL ASSIGNMENT

QA PLANS LIST (*)

QA PROCEDURES LIST (*)

10. APPLICATION OF RESULTS

10.1 TO OTHER PROJECT ACTIVITIES

10.2 TO ISSUES RESOLUTION (*)

10.3 TO SYSTEMS PERFORMANCE ASSESSMENT (*)

11. SCHEDULE

12. PAST AND PLANNED ACHIEVEMENTS

12.1 PAST ACHIEVEMENTS

12.2 PLANNED ACHIEVEMENTS

13. MILESTONES AND DELIVERABLES

14. COST

SCP SECTION 8.3 INFORMATION NEED DESCRIPTION

ORANGE DRAFT	EXPANDED WORK PLAN
WHY THE NEED EXISTS (A)	OBJECTIVES AND ISSUES ADDRESSED(1) APPLICATION OF RESULTS (10)
TECHNICAL BASIS (B)	WORK ACTIVITIES (3.1) TECHNICAL PROCEDURES (5) PARAMETERS AND VARIABLES (7)
FIELD & LAB METHODS (C)	TECHNICAL PROCEDURES (5) NONSTANDARD METHODS (6)
WHERE INFORMATION IS USED (D)	APPLICATION OF RESULTS (10) DATA AND MATERIAL NEEDED (4)
ESTIMATED SCHEDULE (E)	TEST SERIES IDENTIFICATION (3.2) PLANNED ACHIEVEMENTS (12.2) MILESTONES & DELIVERABLES (13) SCHEDULE (11)
PI & CONTACT (F & G)	PRINCIPAL INVESTIGATOR (2) LOCATION OF WORK PERFORMED (8)
	QA REQUIREMENTS (9) PAST ACHIEVEMENTS (12.1) COST (14)

SCP SECTION 8.3
PLANNED TESTS, ANALYSIS AND STUDIES

- CRITICAL PATH FOR SCP COMPLETION

- OPTIONS

  1. START WITH ISSUES BASED STRUCTURE

     UPGRADE ORANGE DRAFT USING NEW INFORMATION NEEDS

  2. START WITH WBS BASED STRUCTURE

     EXPAND EXISTING PROJECT WORK PLANS

     CONVERT WORK PLANS TO INFORMATION NEED PLANS

- RECOMMENDATION

  USE WORK PLANS TO PROCEED TO SECTION 8.3

EXPANDED WORK PLAN (ANNOTATED)
FOR THE SCP

WBS (number)

(WBS Subtask Name)

1. Objectives and Issues Addressed

This work element will provide (data about site conditions and processes, design or performance assessment, as applicable).

The objectives of the subtask are:

A. (objective 1)

B. (objective 2, etc.)

The information Needs (based on the NNWSI Issues Hierarchy) addressed by this subtask are:

Information Need Number	Information Need Statement

2. Principal Investigator

(name and organization)

3. Statement of Work

3.1 Work Activities

A. (category A studies name)

These studies will result in (products of category A studies).

1. (name of specific study)
   (brief statement of work activity and data to be derived)

2. (name of specific study)
   (brief statement of work activity and data to be derived)

3. ....., etc.

B. (category B studies name)

These studies will result in (products of category B studies).

1. .....

2. .....

3. ....., etc.

C. ....., etc., as applicable

[NOTE: In general, it would be desirable to arrange the Work Activities descriptions (Section 3.1) in the order of performance. For example, data gathering, then analysis and then conceptual model development.]

3.2 Test Issues Identification

Test Series	Objectives	Begin Date	End Date	Technical Procedures
(list specific series with unique names)	(list)	(list)	(list)	(technical procedure(s) used in each test series. Number only - x-ref to Sections 5 and 6)

4. Data and Materials Needed from Other WBS Subtasks

Data and Material	WBS Number	WBS Subtask
(list specific name)	(list number)	(list name)

5. Technical Procedures

Procedure Number	Procedure Title	Status/Effective Date
(list procedure number and revision)	(procedure title)	(in review, to be provided, needed, or effective date)

6. Nonstandard Methods and Techniques

(Briefly describe any nonstandard methods and techniques used as a part of the subtask activities.)

7. Parameters and Variables

Parameter Name	Variable Name	Variable Range
(list parameters)	(list variables)	(list variable range)

[NOTE: If parameters can be conveniently categorized by subject or type of parameters, arrange the list accordingly.]

8. Location of Work Performed

(briefly describe the work location(s))

(list any contractors being used and their locations)

9. Quality Assurance Requirements

(identify the QA level assignments and list the QA plans and procedures)

A. QA Plans

(list number and revision) (list name)

B. QA Procedures

(list number and revision) (list name)

10. Application of Results

10.1 To Other Project Activities

(Briefly state the application of the results of this subtask in other WBS subtasks. Provide the other WBS numbers and names.)

10.2 To SCP Issues Resolution

(Briefly state the application of the results of this subtask in supporting specific Information Needs. List numbers and names of all Information Needs which are supported.)

10.3 To Systems Performance Assessment

(Briefly state the application of the results of this subtask in the subsystem definition, and in the performance assessment of the subsystem.)

11. Schedule

(list the subtask start date and anticipated ending date)

12. Planned and Past Achievements

12.1 Past Achievements

(Briefly describe the past achievements and arrange in chronological order.)

12.2 Planned Achievements

Fiscal Year	Achievement
(year)	(title of planned achievement)

[NOTE: list in chronological order]

13. Milestones and Deliverables

Level	Milestone	Deliverable	Date
(list level number)	(list milestone number)	(list deliverable title, indicate if deliverable is a map, report, etc.)	(list delivery date)

[NOTE: table should be arranged by level number - Level 1 first, Level 2 second, and Level 3 last]

14. Cost

Fiscal Year	WBS Subtask	Cost ($K)
(year)	(WBS number and name)	(dollars)

[NOTE: table should be arranged by fiscal year and include each FY indicated in the schedule section - Section 11]

PRELIMINARY KEY ISSUES AND ISSUES FOR NNWSI ISSUES HIERARCHY

KEY ISSUE 1.0 Will the geologic setting at the site isolate radioactive waste from the accessible environment after closure in accordance with the EPA requirements of 40 CFR Part 191, Subpart B, as implemented by the NRC provisions of 10 CFR Part 60?

CHARACTERIZATION ISSUES

Issue 1.1 What are the characteristics of the geohydrologic system at the Yucca Mountain site that are relevant to assessing potential compliance with EPA and NRC postclosure regulations?

Issue 1.2 What are the geochemical characteristics at the Yucca Mountain site that are relevant to assessing potential compliance with EPA and NRC post-closure regulations?

Issue 1.3 What are the rock characteristics at the Yucca Mountain site that are relevant to assessing potential compliance with EPA and NRC postclosure regulations?

Issue 1.4 What range of climatic conditions can be expected at the Yucca Mountain site and what effects might these conditions have on site characteristics?

Issue 1.5 What amount of erosion and deposition can be expected at the Yucca Mountain site and what effect might this have on site characteristics?

Issue 1.6 What amount of dissolution can be expected at the Yucca Mountain site?

Issue 1.7 What range of tectonic activity can be expected at the Yucca Mountain site and what effect might this have on site characteristics?

Issue 1.8 What resources occur in the vicinity of the Yucca Mountain site that are potentially exploitable?

DESIGN ISSUES

Issue 1.9 How shall the underground facility be designed, located, constructed, operated, and closed to contribute to the containment and isolation of radionuclides?

Issue 1.10 How shall seals for shafts and boreholes be designed and installed such that they do not become pathways that compromise the ability to meet the performance objectives for the period following permanent closure of the underground facility?

Issue 1.11 How shall the waste package be designed so that the in situ chemical, physical, and nuclear properties of the waste package and its interactions with the emplacement environment do not compromise the performance of the waste package, the underground facility, or the geologic setting?

Issue 1.12 How shall the geologic repository operations area be designed to permit implementation of a performance confirmation program that meets the requirements of 10 CFR 60 Subpart F?

PERFORMANCE ISSUES

Issue 1.13 What are the anticipated effects of repository development (i.e., siting, construction, operation, closure and heat generation during operation and after closure) on site characteristics at Yucca Mountain?

Issue 1.14 What is the anticipated time to loss of substantially complete containment at Yucca Mountain?

Issue 1.15 What is the anticipated rate of releases from the engineered barrier system?

Issue 1.16 What is the pre-waste emplacement ground-water travel time along the fastest likely path of radionuclide migration from the edge of the disturbed zone to the accessible environment?

Issue 1.17 What is the projected range of radionuclide releases to the accessible environment?

Issue 1.18 What are the quantitative or qualitative effects of favorable and potentially adverse conditions on repository performance?

Issue 1.19 Are the techniques used to assess repository performance sufficiently reliable to allow reasonable assurance in any conclusions based wholly or in part on the performance assessments?

KEY ISSUE 2.0 Will any projected radiological exposure of the general public and any projected releases of radioactive materials to restricted and unrestricted areas during repository operation and closure meet the applicable safety requirements set forth in 10 CFR Part 20, 10 CFR Part 60, and 40 CFR 191, Subpart A?

CHARACTERIZATION ISSUES

Issue 2.1 What is the population density and distribution related to radiological safety?

Issue 2.2 What is the status of Site Ownership and Control affecting radiological safety?

Issue 2.3 What are the expected meteorological conditions?

Issue 2.4 What are the offsite installations and operations affecting radiological safety?

Issue 2.5 What are the characteristics of the natural radiation environment at the Yucca Mountain site?

DESIGN ISSUES

Issue 2.6 How shall the surface facilities in the geologic repository operations area be designed to assure radiological safety during handling and storage of wastes, whether they are on the surface before emplacement or as a result of retrieval from the underground facility, and during all other operations involving radioactive materials?

Issue 2.7 How shall the underground facilities in the geologic repository operations area be designed to assure radiological safety and to assure that credible disruptive events will not spread through the facility?

Issue 2.8 How shall waste packages be designed to maintain waste containment during transportation, emplacement, and retrieval?

Issue 2.9 How shall the geologic repository operations area be designed to assure radiological protection as prescribed in 10 CFR 20 and to assure the continued functioning of the structures, systems, and components that are important to radiological safety under normal and accident conditions?

PERFORMANCE ISSUES

Issue 2.10 What are the expected radiation doses to members of the public and the expected average radiation doses to members of the public in any highly populated area, as a result of repository siting, construction, operation (including retrieval operations), closure, and decommissioning?

KEY ISSUE 3.0 During repository siting, construction, operation, closure, and decommissioning, will the public and the environment be adequately protected from the hazards posed by the disposal of radioactive waste?

CHARACTERIZATION ISSUES

Issue 3.1 What are the noise levels, air quality, water quality, land uses, cultural resources, and biological resources at the site and on areas to be used for support facilities?

Issue 3.2 What are the existing and projected socioeconomic conditions including population, economy, community services, fiscal conditions, housing, recreation, and social conditions in potentially affected communities and surrounding rural areas?

Issue 3.3 What is the present road and rail access to the site including proximity to local and regional transportation networks?

ASSESSMENT ISSUES

Issue 3.4 What are the potentially significant environmental impacts of repository siting, construction, operation, closure and decommissioning?

Issue 3.5 What are the potentially significant socioeconomic impacts resulting from repository siting, construction, operation, closure and decommissioning?

Issue 3.6 What are the potentially significant impacts related to transportation?

DESIGN ISSUES

Issue 3.7 How will repository designs and mitigation strategies avoid potentially significant adverse environmental impacts?

Issue 3.8 How will repository designs and mitigation strategies avoid potentially significant adverse socioeconomic impacts?

Issue 3.9 How will repository designs and mitigation strategies avoid potentially significant adverse impacts related to transportation?

KEY ISSUE 4.0 Can repository siting, construction, operation, closure, and decommissioning be demonstrated to be technically feasible on the basis of reasonably available technology, can the associated costs be demonstrated to be reasonable, and can the option of waste retrieval be preserved?

Issue 4.1 What are the surface conditions of the Yucca Mountain site that are relevant to repository siting, construction, operation, closure, and decommissioning?

Issue 4.2 What are the rock characteristics of the Yucca Mountain site that are relevant to repository siting, construction, operation, and closure and that are relevant to preserving waste retrievability?

Issue 4.3 What are the hydrologic characteristics of the Yucca Mountain site that are relevant to repository siting, construction, operation, and closure and that are relevant to preserving waste retrievability?

Issue 4.4 What are the expected tectonic phenomena and igneous activity of the Yucca Mountain site that are relevant to repository siting, construction, operation, closure, and decommissioning and that are relevant to preserving waste retrievability?

DESIGN ISSUES

Issue 4.5 Can the waste package designed for use at Yucca Mountain be produced with reasonably available technology?

Issue 4.6 Can the repository designed for use at Yucca Mountain be produced with reasonably available technology?

Issue 4.7 Will the waste package and repository designed for use at Yucca Mountain be cost-effective?

PERFORMANCE ISSUES

Issue 4.8 Does the design of the repository and the waste package, that is technically feasible and cost-effective, using reasonably available technology, for the disposal of radioactive waste at the Yucca Mountain site, preserve the option of waste retrieval throughout the period during which wastes are being emplaced and, thereafter, until the completion of the performance confirmation program and NRC review of the information obtained from that program?

1/4

Project Number

Battelle
Pacific Northwest Laboratories

Internal Distribution

Apted, M. J.
Craig, R. A.
Cole, C. R.
Doctor, P. G.
Kreiter, M. R.
Serne, R. J.
Sneider, S. C.
Stottlemyre, J. A.
Voss, C. F.
Wendell, L. L.
File/LB

PNL
NRC Surrogate

Date 5 December 1984

To PASS Task Leaders

From Mike Foley Mike

Subject Technical Working Groups--Site Contacts

Cancellation of the PACG meeting in October loused up our fast start on site interactions. Formal authorization and request from DOE-HQ to the field offices for interactions with PASS is in draft form (attached), but has not been sent to the field offices yet. Max Kreiter and I have been making the rounds of the sites to try the personal touch, with some successes and a notable failure.

ONWI

Max and I met with ONWI on 27 November (Max' memo attached). They apparently do not see us as much of a threat now. However, WE ARE NOT TO PURSUE INTERACTIONS WITH ONWI STAFF UNTIL THEY HAVE BEEN AUTHORIZED AND REQUESTED TO COOPERATE BY DOE.

BWIP

Max and I met with BWIP on 6 November, and I met with Bob Baca today. Bob is my main contact, and he is pleased to have us start interacting full blast immediately. Individual points of contact are:

Task 02--Ron Arnett (PAG), Steve Luttrell (SAG)
Task 03--Mark Wood (EDB), Acting
Task 04--John Baxter (RM), Acting
Task 05--Budhi Sagar (PAG), Ho Anandatmula (EBD)
Task 06--Peter Clifton (PAG), Budhi Sagar (PAG)
Task 07--Marty Bensky (PAG)
Task 08--Niall Kline (BCSR)

BWIP is preparing a Reference Data Source Book, an annually-updated document containing conceptual models for waste package, seals, and the site, and derived data traceable through reference data reports to original measurements, interpretations, and guesses. In-house peer review is to be completed this month, with outside review to proceed in January and February and publication in late February or March. We will be able to receive a copy in January as nominal outside reviewers.

94-1890-881 (3-71)

NNWSI

Jim Stottlemyre and I gave a presentation last June. I called Felton Bingham on 29 October and received permission to deal informally with Nancy Hayden (FTS 846-1815). Steve Sneider, Charley Cole, and Chuck Voss are already in action.

OCRD

We have not begun dealings with OCRD yet; if any of you are in a hurry please let me know and I will get with it. Otherwise, I will leave them until last because they have the least field data and interpretations to work with.

This is your hunting license for BWIP and NNWSI guys; I'll let you know when we can also start working with ONWI. I will try to get HQ to let us start dealing with NRC-NMSS also.

DATE:

REPLY TO
ATTN OF:

SUBJECT: Establishment of Joint OGR Project/Performance Assessment Scientific Support Program Technical Working Groups

Because of the nature of the PASS program, interactions between the Project performance assessment staff and the PNL PASS staff will be critical. Discussion of the involvement of project staff and identification of key project staff members for the various technical areas was to have been addressed at the PACG meeting originally scheduled for 10-11 October. Because that meeting was cancelled, no progress has been made on setting up the informal working groups for hydrology/transport, geochemistry, rock mechanics, waste package, geostatistics, scenarios and probabilistic risk assessment, and code benchmarking. Continued delay in establishing these working groups will begin to affect PASS milestones for the first quarter of FY 1985; it is not possible to wait until the PACG meeting now scheduled for late December. Therefore, the PASS staff will have to work directly with your performance assessment contractors to establish the working groups.

In the absence of the give-and-take of the PACG environment, some groundrules are necessary to maximize the utility of PASS activities to OCRWM-OGR while minimizing the impact on the OGR Projects and protecting them from dissemination or premature release of site data:

1. Dr. Donald Alexander of my staff and Dr. Michael Foley of PNL will make the initial contacts with Project performance assessment contractors (e.g., with Felton Bingham for NNWSI, Richard Wilde for BWIP, John Kircher for ONWI, and Albin Brandstetter for OCRD) to identify the key Project individuals for the working groups.

2. PNL technical staff (PASS Task Leaders) will then work individually with the identified Project staff to arrive at a common starting point on issues and processes to be addressed; to identify data that will be needed for PASS activities, plan their transfer, and begin the transfer; and to identify conceptual models that will be needed for PASS activities (PASS activities are detailed in their Technology Program Plan dated 20 September 1984).

3. For the PASS Program to do its job, it must have access to <u>all</u> existing site data including those not approved for dissemination. This means that an atmosphere of trust must be established between PASS and the Projects based on an understanding that:

   a. Project staff will make their PASS counterparts aware of the existence of all site data; the decision that the data are or

are not relevant to PASS activities should be made as part of the working group function.

b. PASS staff will take the burden of identifying data necessary for PASS activities, understanding their limitations and uncertainties, and arranging for their transfer with caveats intact to the PASS database, and protecting the database.

c. PASS staff will have the responsibility to control the site-specific data

If you have any comments on the TPP, please forward them to Dr. Donald Alexander who will be the Program Manager on this activity. He can be reached at FTS 233-5596.

JAN 28 1985

CC: LB

JAN 23 1985

Ralph Stein, Acting Director, Repository Coordination Division, Geologic Repository Deployment, DOE/HQ (RW-23), FORSTL

COMMON GEOTECHNICAL AND ENVIRONMENTAL LABORATORY FACILITIES OR SERVICES

I have reviewed your draft memo that is referenced above. While the detail of the information that is requested is reasonably outlined, the rationale behind the request is not. I am puzzled as to what will be done with the data once it is available. How will improved quality and comparability of results be judged? How will the improvement in the unit cost be judged? Will OGR dictate which laboratories will make specific measurements?

We will be prepared to send you the information requested. We will do our best to meet the date specified. However, we are not clear why there is such a short fuse. Remember, we are doing EA, Mission Plan, SCP, ESTP, PAP, etc., etc., etc. I hope everything is not turning into top priority; this subject is not on your list of priorities.

Original Signed By
Donald L. Vieth

Donald L. Vieth, Director
Waste Management Project Office

WMPO:DLV-578

cc:
M. P. Kunich, WMPO w/encls.
M. B. Blanchard, WMPO w/encls.
V. F. Witherill, WMPO w/encls.
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D. T. Oakley, LANL, Los Alamos, NM
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L OLSON - SWIP
S.A. MANN

bcc:
WMPO (R)
WMPO (RF)
M&R

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DOE F 1325.8
(4-84)

United States Government | Department of Energ

memorandum

DRAFT

JAN 29 1985

DATE: January 9, 1985

REPLY TO ATTN OF: RW-24

SUBJECT: Common Geotechnical and Environmental Laboratory Facilities or Services

TO: S. Mann
J. Neff
L. Olson
D. Vieth

In order to evaluate the feasibility of using common laboratory facilities or services, I request that each Project Office provide the following information on geotechnical and environmental laboratory facilities and services projected for the periods prior to and during site characterization. The Project Offices have provided similiar information on laboratory facilities and services for waste form and waste package testing at the September waste package coordinating group meeting.

It is anticipated that adoption of common laboratory facilities may offer several significant advantages, among them improved quality and comparability of results owing to sample preparation and testing using the same equipment with the same techniques, as appropriate, by the same personnel. In addition, the large number of samples should increase the utilization of the testing equipment, thereby reducing the unit costs of the tests. The large number of samples may also reduce the cost of highly specialized testing that may require more sophisticated testing techniques or equipment development.

Major concerns about the adoption of a common laboratory for geotechnical and environmental testing includes the large number of samples, which may exceed the capacity of available laboratories, and the uniqueness of the rock types, ground waters, and geochemical characteristics, which may result in highly varied testing techniques and equipment.

Accordingly, I request that each Project Office provide me with the following information by February 6, 1985. As stated above, the information should be provided separately for (1) testing prior to exploratory shaft sinking and (2) testing during site characterization. Geotechnical testing should include samples collected from both surface-based and underground testing, including samples collected during shaft sinking, if appropriate. Environmental testing should include samples, such as those used for surface-water quality which are collected to support the draft Environmental Impact Statement. Where information is not currently available, please describe the plans and schedule for providing such information.

DRAFT

The information requested includes:

a. WBS elements and costs, starting with FY85, for geotechnical and environmental laboratory testing.

b. Laboratory facilities currently being used or projected to be used for the specific testing.

c. Capacity of these laboratory facilities for the specific testing techiques to be used.

d. Estimated number and timing of samples to be tested for the specific testing techniques.

e. For each specific testing technique, indicate whether the testing techniques or equipment may be site-specific or common to all three sites recommended for characterization.

Ralph Stein
Acting Director
Geosciences and Technology Division

cc: W. J. Purcell
J. W. Bennett
A. Jelacic
E. Burton
G. Parker
J. Fiore

DOE F 1325.8 (8-89)

United States Government

ACTION Blanchard
CC: Vieth
CC:
CC:
CC:

Department of Energy

memorandum

D. Vieth, NNWSI

DATE: JAN 15 1985

FILE NO:

REPLY TO ATTN OF: RW-25

SUBJECT: Draft Management Plan for the Preparation of Final Environmental Assessments

TO: Distribution

Attached is a draft Management Plan for the Preparation of Final Environmental Assessments (the Plan). This memorandum:

- presents an overview of the Plan,
- requests that the Project Managers assign Project Office staff to groups established under the Plan,
- schedules Plan kick-off meetings for the first week in February, and
- solicits questions, comments, and suggestions on the Plan.

Overview of the Plan

The Plan establishes several groups (comprised of Headquarters, Project Office, and contractor staff) to perform the following discrete functions:

- Comment Response Tracking Task Group - receives, logs, distributes, and tracks (by computer) comments from letters and public hearing transcripts, and provides status reports on comment response/issue resolution activities;
- Issue Resolution Task Group - manages and coordinates Project Office and Headquarters issue resolution agreements leading to preparation of the Final EAs and accompanying Comment Response Appendices;
- Production Coordination Task Group - provides guidance manual and performs audits to ensure uniform consistently high-quality text editing, style, and format, and arranges for printing, distribution, and Federal Register notices;
- EA Coordination Group - manages and coordinates the cross-cutting activities of the three operational task groups; and
- EA Steering Group - identifies major siting issues, and serves as a conduit to DOE senior management for policy direction.

Although the Plan delineates major tasks/sub-tasks and includes a schedule of key milestones, these groups will be developing additional detailed workplans. The Plan's comprehensive schedule includes iterative preparation/review cycles culminating in an August 29, 1985, issuance of the Final EAs.

Project Office Group Assignments

By February 1, Project Managers should designate Project Office staff assigned to the groups established under the Plan. The Project Office staff assigned to the Comment Response Tracking Task Group will be physically located at Headquarters to facilitate the daily review, distribution, and tracking of comments. Other groups will meet as required to ensure adequate coordination.

Kick-Off Meetings

All Headquarters, Project Office, and contractor staff involved in implementing the Plan should attend a one-day meeting on Tuesday, February 5, beginning at 9:00 a.m., in Room GJ-015, Forrestal Building, Washington, D.C. On Wednesday and Thursday, February 6 and 7, beginning at 9:00 a.m. each day, the three task groups will meet in the following Forrestal Building Conference Rooms:

- Comment Response Tracking Task Group - Room 5A-110
- Issue Resolution Task Group - Room 5A-092
- Production Coordination Task Group - Room 5A-104

Please submit any questions, comments, or suggestions on the attached draft Management Plan for the Preparation of Final Environmental Assessments to Jerry Parker, Site Evaluation Team Leader, RW-25, Room 7F-075, Forrestal Building, or call (202) 252-5679.

William J. Purcell
Associate Director
for Geologic Repositories
Office of Civilian Radioactive
Waste Management

Attachment

Distribution:
B. Rusche, RW-1
J. McElvey, RW-3
R. Bauer, RW-10
R. Hilley, RW-30
R. Gale, RW-40
L. Olson, BWIP
J. Neff, SRPO
D. Vieth, NNWSI

cc:

W. Bennett, RW-22
J. Fiore, RW-22
R. Blaney, RW-22
R. Stein, RW-23
M. Frei, RW-23
C. Head, RW-23
V. Lowery, RW-23
C. Cooley, RW-24
A. Jelacic, RW-24
D. Alexander, RW-24
C. Klingsberg, RW-24
E. S. Burton, RW-25
B. Gale, RW-25
W. Probst, RW-25
G. Parker, RW-25
H. Joy, RW-25
S. Gomberg, RW-25
T. Longo, RW-25
K. Klein, RW-32
C. Conner, RW-33
R. Philpott, RW-33
E. Wilmot, RW-33
T. Isaacs, RW-42
R. Purple, RW-43
R. Mussler, GC-11
C. Currin, GC-11
C. Borgstrom, PE-252
S. Frank, PE-252
R. Pelletier, PE-252
C. Bradley, PE-252
M. Wisniewski, CP-60
C. Luber, MA-234.2
R. Wunderlich, SRPO
J. Sherwin, SRPO
T. Taylor, SRPO
R. Lahoti, SRPO
R. Sharma, SRPO
M. Blanchard, NNWSI
F. Bingham, NNWSI
M. L. Brown, SAIC-Nevada
J. Younker, SAIC-Nevada
C. Alexander, SAIC-Nevada
C. Scardino, SAIC-Nevada
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M. Tierney, SNL-Albuquerque
R. Brasier, SNL-Albuquerque
J. Mecca, BWIP
S. Whitfield, BWIP
P. McCarthy, Rockwell-BWIP
S. Baker, Rockwell-BWIP
B. Sublette, Rockwell-BWIP
B. Baca, Rockwell-BWIP
K. Henry, Rockwell-BWIP
L. Connell, Rockwell-BWIP
W. Hewitt, WESTON
D. Siefken, WESTON
R. Jackson, WESTON
R. Toft, WESTON
R. McDonald, WESTON
J. Dorsheimer, WESTON
D. Keough, WESTON
S. Smith, WESTON
C. Terrazas, WESTON
M. Pendleton, WESTON
G. Shaw, WESTON
L. Rickertsen, WESTON
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T. DiCarlo, WESTON
P. Bolton, WESTON
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DEPARTMENT OF ENERGY

MANAGEMENT PLAN FOR THE PREPARATION OF

FINAL ENVIRONMENTAL ASSESSMENTS

REQUIRED BY

THE NUCLEAR WASTE POLICY ACT

SECTION 112(b)(1)(E)

JANUARY 1985

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INTRODUCTION

The subject of this Department of Energy (DOE) Management Plan is the preparation of the final environmental assessments (EAs) required under Section 112(b)(1)(E) of the Nuclear Waste Policy Act of 1982 (the Act)(P.L. 97-425). This plan describes the overall approach, organization, work plans, and management support systems which will be used to review public comments and to finalize the draft EAs. The draft EAs were released for public comment on December 20, 1984. The close of the public comment period will be March 20, 1985, and publication of the final EAs is scheduled for August 29, 1985.

1.0 GOAL, OBJECTIVES AND APPROACH

1.1 Goal

The goal of this plan is to establish a coordinated process for responding to public comments on the draft EAs and for publishing final EAs on August 29, 1985.

1.2 Objectives

This plan has the following major objectives:

- Facilitate coordination and cooperation among DOE-Headquarters (HQ), the Project Offices (POs) and DOE support contractors in the review of public comments on the draft EAs.

- Provide a mechanism for the distillation of issues from these comments and to allow their resolution in finalizing the EAs.

- Assure effective utilization of resources and provide management control so as to accomplish the above objectives and at the same time allow for other important programmatic efforts to proceed as needed; e.g., the planning for an MRS facility and the development of site characterization plans.

1.3 Approach

The overall approach to preparing final EAs assigns the Project Offices the responsibility for comments on Chapters 2-6 of the EAs and HQ the responsibility for comments on the Foreword, Abstract, Executive Summaries, Chapter 1, Chapter 7, Appendices A and B, as well as program and policy issues. This division of responsibility extends to such EA activities as preparation of comment/response appendices and revision/finalization of five EAs to support site nomination and recommendation decisions.

Effective coordination of EA finalization activities will be ensured through the creation of three HQ/PO task groups: (1) the Comment Response Tracking Task Group, (2) the Issue Resolution Task Group, and (3) the Production Coordination Task Group. These groups will report organizationally to a HQ/PO EA Coordination Group. The EA Coordination Group will in turn report to the HQ/PO EA Steering Group. The composition of these groups and their respective responsibilities are discussed in detail in Section 2.2 of this plan.

As required by the Act, only five final EAs will be prepared to accompany site nominations. Because of the anticipated large volume of comments on the EAs, a comment response appendix will be prepared for each EA summarizing comments and responses at the issue, not comment, level.

2.0 MANAGEMENT PLAN

2.1 Organization

Figure 2.1 presents the overall organizational structure for finalizing the EAs and summarizes the major functional responsibilities of individual organizational groups. Lead personnel for each group are also identified.

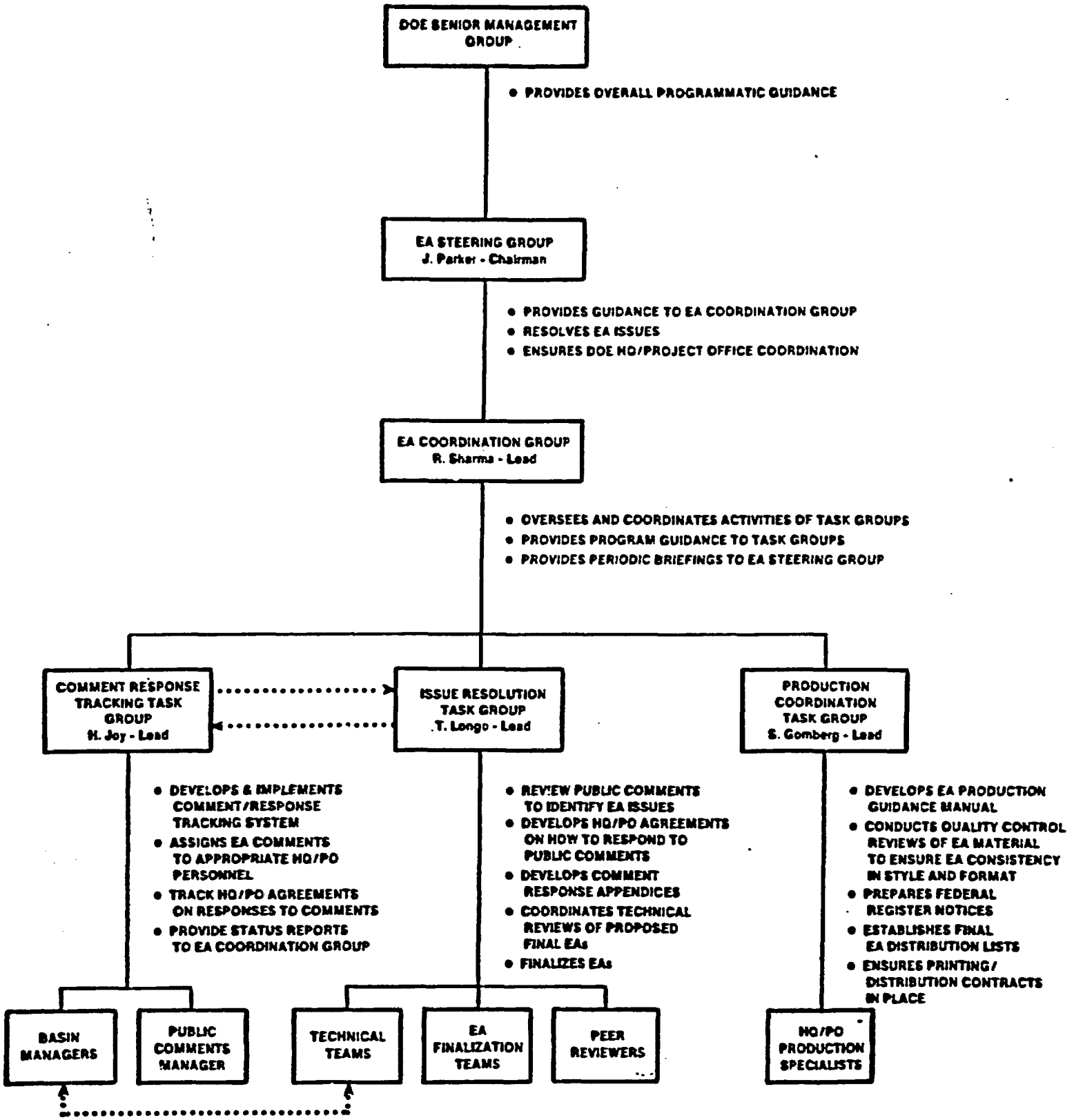
2.2 Responsibilities

The responsibilities of each of the functional groups identified in Figure 2.1 are described below:

2.2.1 DOE Senior Management Group. This group will provide overall programmatic guidance for the EA finalization effort and will meet as necessary to review progress and be briefed by the EA Steering Group chairman on key issues affecting site nomination and recommendation. This group consists of B. Rusche, W. Purcell, J. W. Bennett, E. S. Burton, J. Neff (SRPO), L. Olson (BWIP), and D. Vieth (NNWSI).

2.2.2 EA Steering Group. This group will be established to provide guidance to the EA coordination team. This group will consist of: M. Blanchard (NNWSI), C. Borgstrom (PE), W. Brennan (CP), R. Jackson (WESTON), T. Longo (RW), R. Mussler (GC), G. J. Parker (RW), R. Sharma (RW), R. Toft (WESTON), S. Whitfield (BWIP), R. Wunderlich (SRPO), with G. J. Parker as chairman. Each member of

FIGURE 2.1
ORGANIZATION FOR FINALIZING EAs



the Steering Group will coordinate efforts with his or her respective office and obtain all necessary support and concurrences. Members will also provide guidance to their respective staff on all matters concerning the resolution of policy and generic issues, the schedule of work for responding to comments, and logistics for PO/HQ interaction in finalizing the EAs. The EA Steering Group will preside over all workshops, providing management overview and issue resolution functions.

2.2.3 EA Coordination Group. This group will be established to provide overall coordination of the EA finalization activities. It will consist of S. Gomberg (RW), H. Joy (RW), T. Longo (RW), R. McDonald (WESTON), R. Sharma (RW), R. Toft (WESTON), and representatives from each of the POs. R. Sharma will chair this group. The EA Coordination Group will be responsible for the overall day-to-day management of the tasks defined in this plan. Responsibilities include (1) ensuring that the classification, assignment, and tracking of comments is proceeding smoothly, (2) reviewing the preparation of responses to issues and the revisions of the draft EAs to produce final EAs, and (3) ensuring consistency in style and format for the final EAs.

2.2.4 Comment Response Tracking Task Group. This task group will be responsible for developing and implementing the overall comment response tracking system. This task group will consist of HQ/WESTON Basin Managers, Project Office/support contractor Basin Managers, as well as the WESTON Public Comments Manager and staff.

H. Joy (RW) will have lead responsibility for the activities of this task group.

2.2.4.1 WESTON Public Comments Manager. The WESTON Public Comments Manager will manage the following day-to-day logistical activities of the Comment Response Tracking Task Group: (1) logging all letters and hearing transcripts on the EAs and making entries into the computerized comment response tracking system, (2) ensuring that the assigned comments are received by the appropriate HQ and PO personnel, and (3) producing status reports on the progress of comment response and issue resolution activities.

2.2.4.2 Basin Managers. These managers will also report organizationally to the Comment Response Tracking Task Group. They will be responsible for ensuring that all issues pertaining to their basin and sites within that basin are properly identified and addressed. During the comment-screening phase, the HQ Basin Managers will identify overall policy issues, generic issues, technical issues, and comments relating to HQ-prepared materials and assign the responsibility for responding to these comments to appropriate personnel in the Issue Resolution Task Group. The Project Office Basin Managers, on the other hand, will identify and classify site-specific technical comments pertaining to Chapters 2-6 of their EAs and assign responsibility for responding to these comments to appropriate PO representatives in the Issue Resolution Task Group. During the period in which the

comment response appendices are being developed, both HQ and PO Basin Managers will be responsible for tracking the status of agreed-to responses. Proposed Basin Managers are as follows:

DOE-Headquarters	WESTON	PROJECT OFFICES
BWIP - H. Joy	vacant	
NNWSI - S. Gomberg	Jill Dorsheimer	
Paradox - R. Sharma	Dottie Keough	[To be assigned]
Permian - R. Sharma	Steve Smith	
Gulf Interior - R. Sharma	Cindy Terrazas	

The Project Offices will assign responsibility for each basin, and the representatives will be listed above in the final management plan.

2.2.5 Issue Resolution Task Group. This task group will be responsible for (1) reviewing public comments to identify EA issues, (2) developing agreements on how to respond to these EA issues, (3) developing comment response appendices to the EAs, and (4) finalizing the EAs to reflect public comments. This task group will consist of HQ/WESTON technical teams, PO/support contractor teams, EA finalization teams, and an interdisciplinary team of persons who are experts in their respective fields to serve as peer reviewers.

2.2.5.1 Technical Teams. The teams that were established in September for completing the draft EAs will be retained and expanded as needed. Technical teams at DOE-HQ, WESTON, and the Project Offices and support staff are identified in Figure 2.2. These technical teams will be responsible for reviewing public comments

TECHNICAL LEADS AND SUPPORT STAFF*

AREA	ENVIRONMENTAL	GEOSCIENCES	SOCIOECONOMICS	PERFORMANCE ASSESSMENT	TRANSPORTATION	REPOSITORY DESIGN	SITING DECISIONS
HQ LEAD	J. PARKER/ C. BORGSTROM	C. KLINGSBERG	B. GALE	D. ALEXANDER	E. WILMOT	Y. LOWERY	E. BURTON/J. PARKER
WESTON LEAD	R. TOFT (ACTING)	M. PENDLETON	G. SHAW	L. RICKERTSEN	P. BOLTON	P. KUMAR	R. TOFT
HQ/WESTON SUPPORT STAFF	S. FRANK C. BRADLEY J. GIBSON	Y. MONTENYOHL S. PANNO J. KIMBALL	W. PROBST M. DOUGHTIE G. HALLORAN	E. G. SMITH J. PRICE		R. PELLETIER D. STUCKER JIM NELSON	T. LONGO M. FREI
PROJECT OFFICES							
BWIP	PEGGY MCCARTHY	STEVE BAKER/ BILL SUBLETTE	PEGGY MCCARTHY	BOB BACA	KEN HENRY	LARRY CONNELL	S. WHITFIELD
NNWSI	MARY LOU BROWN	JEAN YOUNKER	CINDY ALEXANDER	FELTON BINGHAM/ MARTIN TIERNEY	CHARLIE SCARDINO	LEO SKULLY/ BOB BRASIER	M. BLANCHARD
SRPO	TED TAYLOR	JO-ANN SHERWIN	TED TAYLOR	RAM LAHOTI	RAM LAHOTI	RAM LAHOTI	R. WUNDERLICH

* PERSONNEL ASSIGNED TO ISSUE WORKGROUPS AT SEPTEMBER 18-20, 1984, DRAFT EA MEETING

FIGURE 2.2

DRAFT

DRAFT

to identify EA issues and are also responsible for developing responses to issues in the comment response appendices. These responses to issues will then be reflected in the final EAs, as appropriate.

2.2.5.2 EA Finalization Teams. EA Finalization Teams will be established to make the actual revisions of the EAs necessitated by public comments. Proposed EA Finalization Team assignments are as follows:

HQ-Prepared Materials	Leaders	Support
Abstract, Foreword, Chapter 1	R. Sharma	S. Smith
Executive Summaries	S. Gomberg	HQ/WESTON Basin Mgrs.
Chapter 7	T. Longo	HQ/WESTON Technical Leads
Appendix A	E. Wilmot	P. Bolton/E. Bentz
Appendix B	T. Longo	HQ/WESTON Technical Leads

The Project Offices will also designate finalization teams for their respective EAs, and those individuals will be listed in a table similar to the one above in the final management plan.

2.2.5.3 EA Peer Reviewers. An interdisciplinary team of peer reviewers will be established to provide independent review of the comment response appendices and proposed final EAs. This peer review team is the same team as was used in the review of the draft EAs and will consist of the following members representing various fields of expertise:

Dr. Irwin Remson
Stanford University
Department of Geophysics
Mitchell Building
Applied Earth Sciences
Stanford, CA 94305

Dr. Robert Budnitz
Future Resources, Inc.
2000 Center Street
Suite 418
Berkeley, CA 94704

Dr. Frank Parker
Civil Engineering Department
Water Resources
Vanderbilt University
Engineering Building
24th Avenue
Nashville, TN 37235

Dr. Edward J. Bentz, Jr.
President
E. J. Bentz & Associates, Inc.
7915 Richfield Road
Springfield, VA 22153

Dr. Dennis Lachel
Lachel, Hansen & Associates, Inc.
P. O. Box 5266
Golden, CO 80401

Dr. Arthur Sutherland, Vice President
Rogers and Associates Engineering Corp.
515 E. 4500 South
Suite G-100
Box 330
Salt Lake City, UT 84110

Arrie Bachrach
Jacobs Engineering Group, Inc.
251 South Lake Ave.
Pasadena, CA 91101

Dr. Harry Smedes
Consulting Geologist
2301 Research Boulevard
Rockville, MD 20850

Dr. Paul Gnirk, President
RE/SPEC, Inc.
Rapid City, SD

2.2.6 Production Coordination Task Group. A production coordination task group will be established to (1) ensure consistency in the style and format of the final EAs by preparing a guidance manual and by conducting periodic quality reviews, (2) develop listings for the distribution of those EAs, (3) ensure that contracts are in place for printing and distributing the documents, and (4) prepare the Federal Register Notice of Availability of final EAs. This task group will consist of production specialists from DOE-HQ, the POs, and WESTON. Members of this group will include: J. DiCarlo (WESTON), T. DiCarlo (WESTON), S. Gomberg (RW), C. Luber (DOE-HQ Printing) and Project Office representatives, with S. Gomberg as group chairman.

The individual subtasks associated with the activities of the above described task groups are discussed in greater detail in Chapter 3 of this plan.

3.0 WORK PLANS

The broad scope of the task group work plans is presented below. Detailed work plans will be developed by the respective task groups in early February 1985.

3.1 Comment Response Tracking Task Group Work Plan

The work plan for the Comment Response Tracking Task Group is divided into the following four major subtasks:

3.1.1 Subtask 1 - Develop Comment Response Tracking System

A system will be developed to track (1) public comments on the draft EAs from the time they are received at DOE-HQ, (2) their assignment to DOE HQ/PO personnel, and (3) the status of their disposition as agreed to at DOE HQ/PO workshops.

3.1.2 Subtask 2 - Assign EA Comments to Appropriate HQ/PO Personnel

The WESTON Public Comments Manager and staff will receive EA comments once they have been logged in, dated, and xeroxed at DOE-HQ. Copies of all comments will be made and distributed to the HQ/PO Basin Managers. The Basin Managers will then assign the comment letters to the appropriate Technical Lead in the Issue Resolution Task Group. Technical Leads will then assign the specific comments by issue to appropriate technical personnel and provide information on these specific assignments to the

Comment Response Tracking Task Group to be input into the tracking system.

3.1.3 Subtask 3 - Track HQ/PO Agreements on Responses to Comments

A workshop will be held April 2-4, 1985, to identify and resolve issues raised by public comments and to agree on the substance and format of comment responses. These agreements will then be tracked by HQ Basin Managers. Frequent telephone contacts between HQ and PO Basin Managers will be used to monitor the preparation of comment response appendices under these agreements.

3.1.4 Subtask 4 - Provide Status Reports to EA Coordination Group

The Comment Response Tracking Task Group will provide periodic status reports on the progress of the comment response tracking system to the EA Coordination Group. The Comment Response Tracking Task Group will be responsible for (1) identifying actual or potential bottlenecks in implementing the tracking system that may affect scheduling commitments, (2) indicating where adjustments in the comment tracking system are needed, and (3) communicating problems encountered in the overall EA finalization process.

3.2 Issue Resolution Task Group Work Plan

The Issue Resolution Task Group work plan consists of several subtasks designed to meet the overall responsibilities of this task group. The central points for each subtask are described below.

3.2.1 Subtask 1 - Develop Issue Classification System

To facilitate comment handling, an issue classification system will be established at the outset of the public comment period. This system will be developed to define a preliminary scope of issues expected in the comments and to provide guidance to the Basin Managers in making appropriate assignments of comments to Technical Teams for developing comment responses. While a preliminary issue classification system is planned to be operational by the time the bulk of the comments are received at HQ, it is understood that modifications may be necessary as comments are received.

The Issue Resolution Task Group will use the draft EAs and EA-related materials to develop the issue classification system. Such materials will include issues raised at the EA scoping meetings, briefing materials for the December training session with the Project Offices, HQ concurrence comments on the draft EAs, and issue/agreements identified during the September 1984 EA Workshop. Information acquired through attendance of technical staff at the January briefings and the February and March public hearings will also contribute to defining the scope of expected issues. A preliminary issue classification system is to be provided to the HQ Basin Managers by March 7, 1985.

3.2.2 Subtask 2 - Establish Agreements on Responses to Comments

After the EA hearings are over and the public comment period is closed, the Issue Resolution Task Group will meet in a workshop

session to establish agreements on how to respond to the comments. By the workshop date, all EA comments will have been categorized in accordance with the issue classification system. Therefore, the workshop will focus on the comments at an issues level. The product of this session will be a set of individual response agreements for each issue. These agreements will be used by the Basin Managers as a basis for tracking the comment response process. The workshop session will also be used to develop a format for the EA comment response appendix and to reach agreement on the information it will contain. The workshop is scheduled for April 2-4, 1985, in Washington, D.C.

3.2.3 Subtask 3 - Develop Comment Response Appendices

The Issue Resolution Task Group will use the issue resolution agreements and the appendix format and content decided upon under Subtask 2 to prepare comment-response appendices for the EAs. The HQ component of the Issue Resolution Task Group will be responsible for preparing common sections addressing policy and programmatic issues, while the PO component will be responsible for preparing sections addressing basin/site-specific technical issues. A draft of the comment response appendices will be prepared and circulated for HQ and PO review by April 25, 1985. The EA Steering Group will conduct a second workshop from April 30 to May 2, 1985, in Washington, D.C., to reach agreement on the draft comment response appendices.

3.2.4 Subtask 4 - Finalize EAs

After the draft comment response appendices have been prepared, the EA finalization teams will begin to revise the EAs. Revisions will be made as appropriate based upon the issues raised through the public comments, as well as the information needs/corrections identified through internal document review. The Issue Resolution Task Group will coordinate with the Basin Managers to assure consistency among the document revisions.

The proposed final EAs with their comment response appendices will be prepared and circulated for HQ and PO review. The EA Steering Group will conduct a final workshop in Washington, D.C., from June 18-20, 1985, to identify and resolve any outstanding issues or problems on the proposed final EAs with their comment response appendices. Agreed-upon changes will be made and camera-ready copies of the final EAs will be circulated for DOE-HQ concurrence review on July 11, 1985. Camera-ready final EAs are scheduled for printing on August 8, 1985, and will be published on August 29, 1985.

3.3 Production Coordination Task Group Work Plan

The Production Coordination Task Group work plan consists of five subtasks. Each of these subtasks is described below.

3.3.1 Subtask 1 - Develop EA Production Guidance Manual

The Production Coordination Task Group will prepare an EA Production Guidance Manual to ensure consistency in the style and format of the final EAs. The Manual will facilitate comparability of final EAs in terms of size, paper quality, typeset, binding, etc.

3.3.2 Subtask 2 - Conduct Periodic Quality Control Monitoring of EA Materials

The Production Coordination Task Group will establish a schedule for reviewing the production of EA materials to ensure that they are being prepared in accordance with the specifications defined in the EA Production Guidance Manual. The periodic monitoring of the production of EA materials will ensure consistency in style and format of the documents and the quality of text editing and graphics.

3.3.3 Subtask 3 - Establish Final EA Distribution List

The draft EA distribution list will be refined and updated before the publication of the final EAs. The size and scope of the mailing list may be changed to reflect the publication of only five final EAs.

3.3.4 Subtask 4 - Ensure Final EA Printing/Distribution Contracts in Place

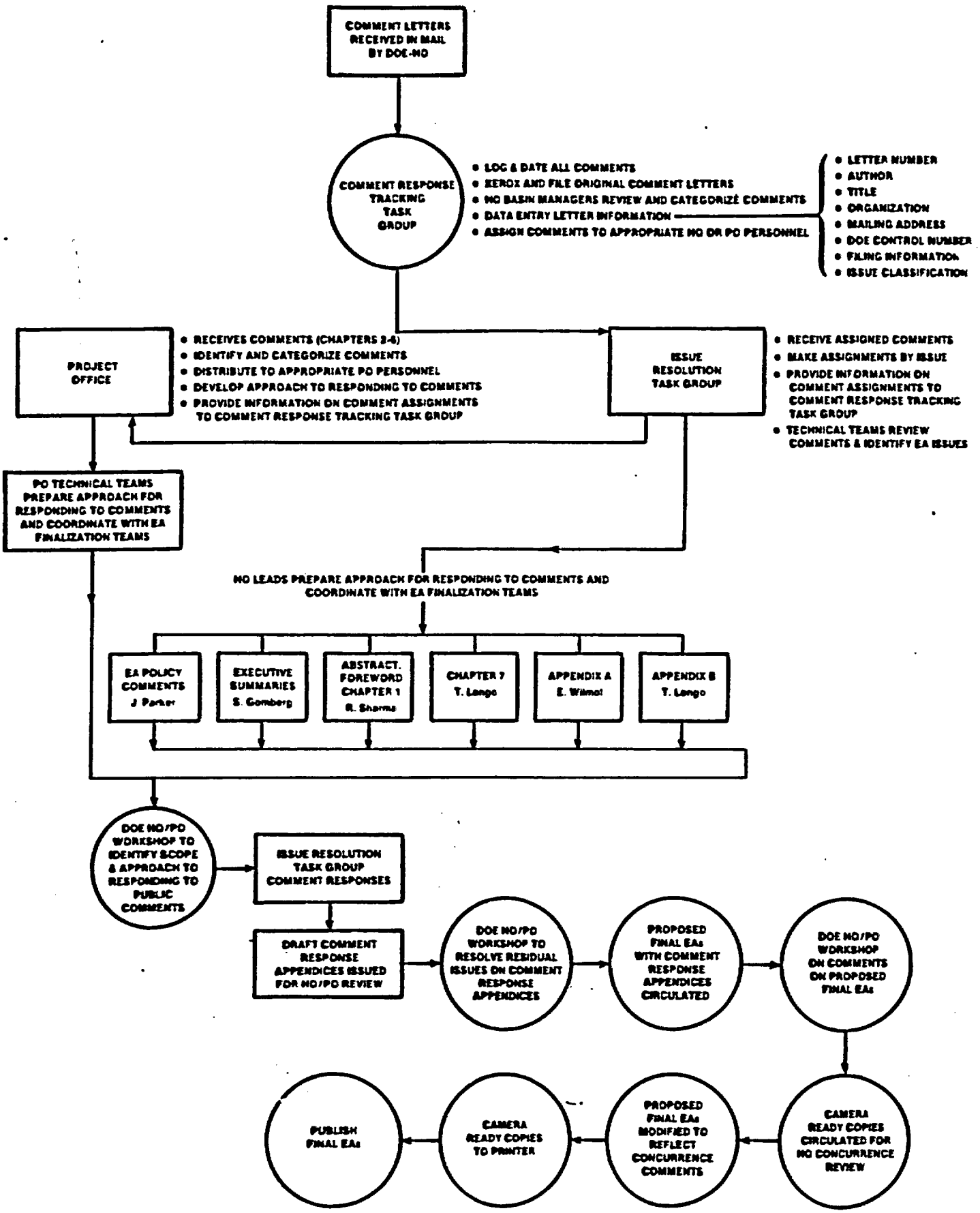
The Production Coordination Task Group will be responsible for coordinating logistical arrangements with production and distribution contractors hired to publish and distribute the final EAs. The Production Coordination Task Group will ensure that the final EAs are published in accordance with the specifications of the EA Production Guidance Manual.

3.3.5 Subtask 5 - Prepare Federal Register Notice of Availability of Final EAs

The Production Coordination Task Group will prepare the Federal Register Notice of Availability for the final EAs which will discuss dates and locations of final EA availability.

4.0 ACTIVITY FLOW DIAGRAM AND SCHEDULE FOR FINALIZING THE EAs

4.1 ACTIVITY FLOW DIAGRAM FOR FINALIZING THE EAs



4.2 Schedule of Major Milestones for Finalizing the EAs

Date	Activity/Milestone
February 5, 1985 (Tuesday, 9:00 a.m. Room GJ-015, Forrestal Bldg., Washington, D.C.)	Kick-off meeting of all HQ, PO and key contractor support staff
February 6-7, 1985 (Wednesday, Thursday, 9:00 a.m. each day, Room 5A-110 Forrestal Bldg., Washington, D.C.)	Initial Comment Response Tracking Task Group Meeting
February 6-7, 1985 (Wednesday, Thursday, 9:00 a.m. each day, Room 5A-092 Forrestal Bldg., Washington, D.C.)	Initial Issue Resolution Task Group Meeting
February 6-7, 1985 (Wednesday, Thursday, 9:00 a.m. each day, Room 5A-104 Forrestal Bldg., Washington, D.C.)	Initial Production Coordination Task Group Meeting
March 14, 1985 (Thursday)	Comment response tracking system description document completed
April 2-4, 1985 (Tuesday-Thursday)	HQ/PO workshop to review public comments and reach agreements on responses to issues
April 25, 1985 (Thursday)	Draft Comment Response Appendices received by the EA Coordination Group and circulated for HQ and PO review
April 30-May 2, 1985 (Tuesday-Thursday)	HQ/PO workshop to reach agreements on draft comment response appendices
June 4, 1985 (Tuesday)	Proposed final EAs (with comment response appendices) received by the EA Coordination Group and circulated for HQ and PO review

June 18-20, 1985 (Tuesday-Thursday)	HQ/PO workshop on review comments on proposed final EAs
July 11, 1985 (Thursday)	Copies of camera-ready final EAs received by the EA Coordination Group and circulated to PE, GC, and CP for HQ concurrence
July 25, 1985 (Thursday)	Concurrence review comments received by the EA Coordination Group from PE, GC, and CP for final EA changes
August 8, 1985 (Thursday)	Camera-ready copies of the final EAs incorporating HQ concurrence review changes received by the EA Coordination Group
August 15, 1985 (Thursday)	Completion of final RW quality review of EAs and transmittal to printers
August 29, 1985 (Thursday)	Publish final EAs

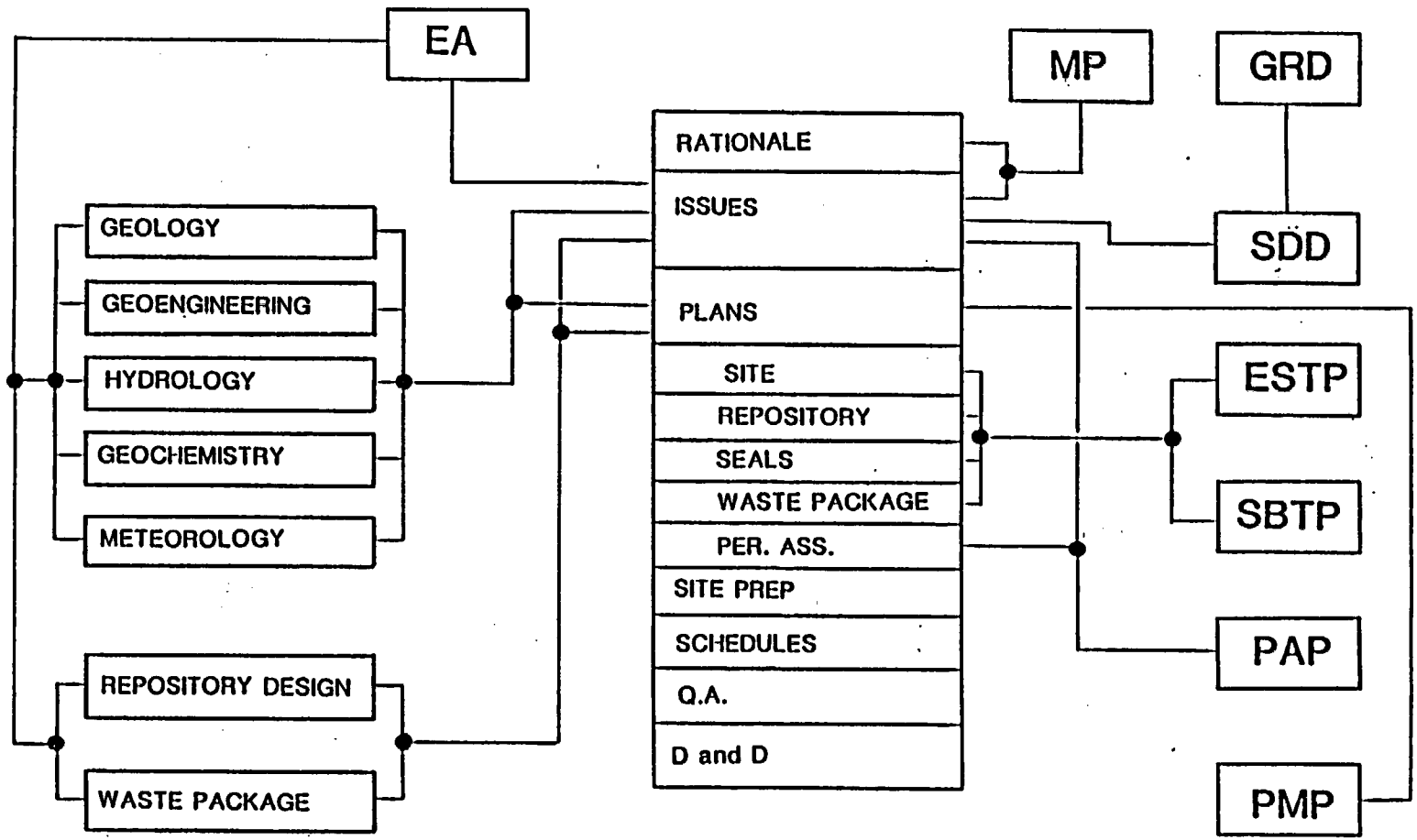
PREPARATION OF THE NNWSI SCP

MANAGEMENT PLAN

- AUTHORITY
- RESPONSIBILITY
- COMMITMENT
- PRODUCT DELIVERY

NNWSH PROJECT

SCP ANNOTATED OUTLINE : CONCEPTS



Part A

Part B

SCP Management Plan

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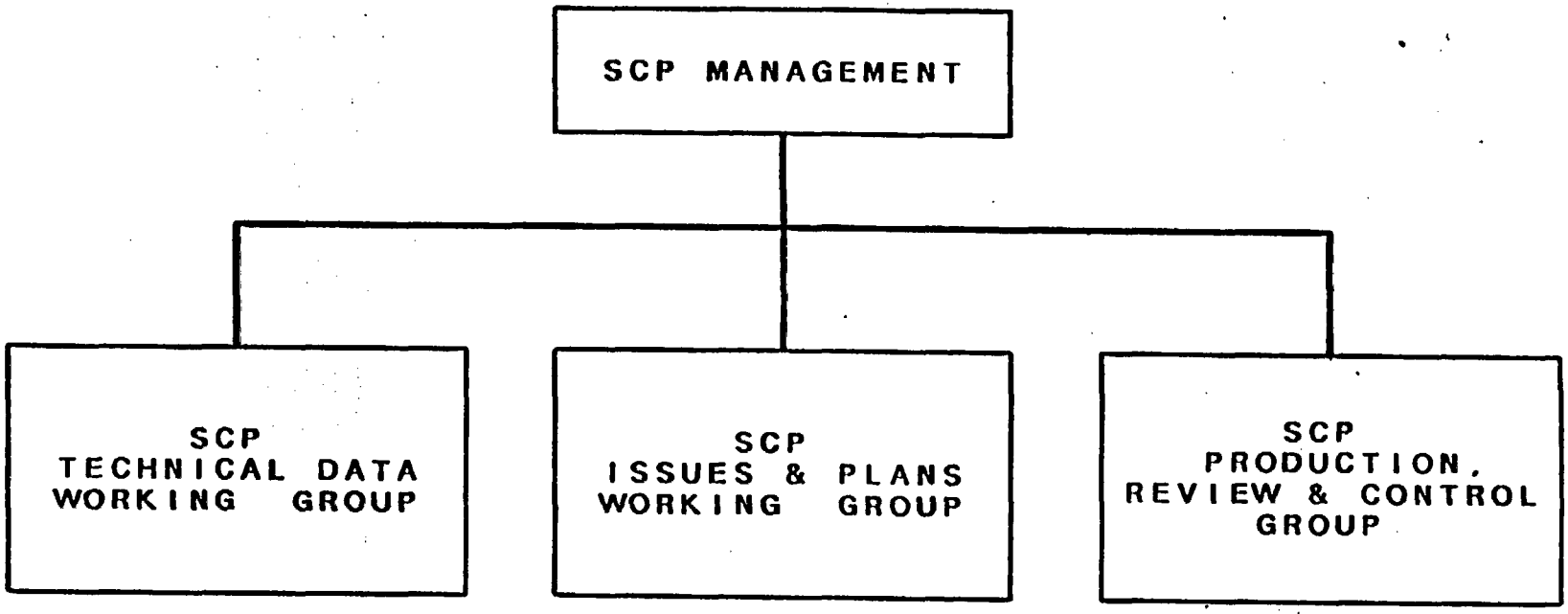
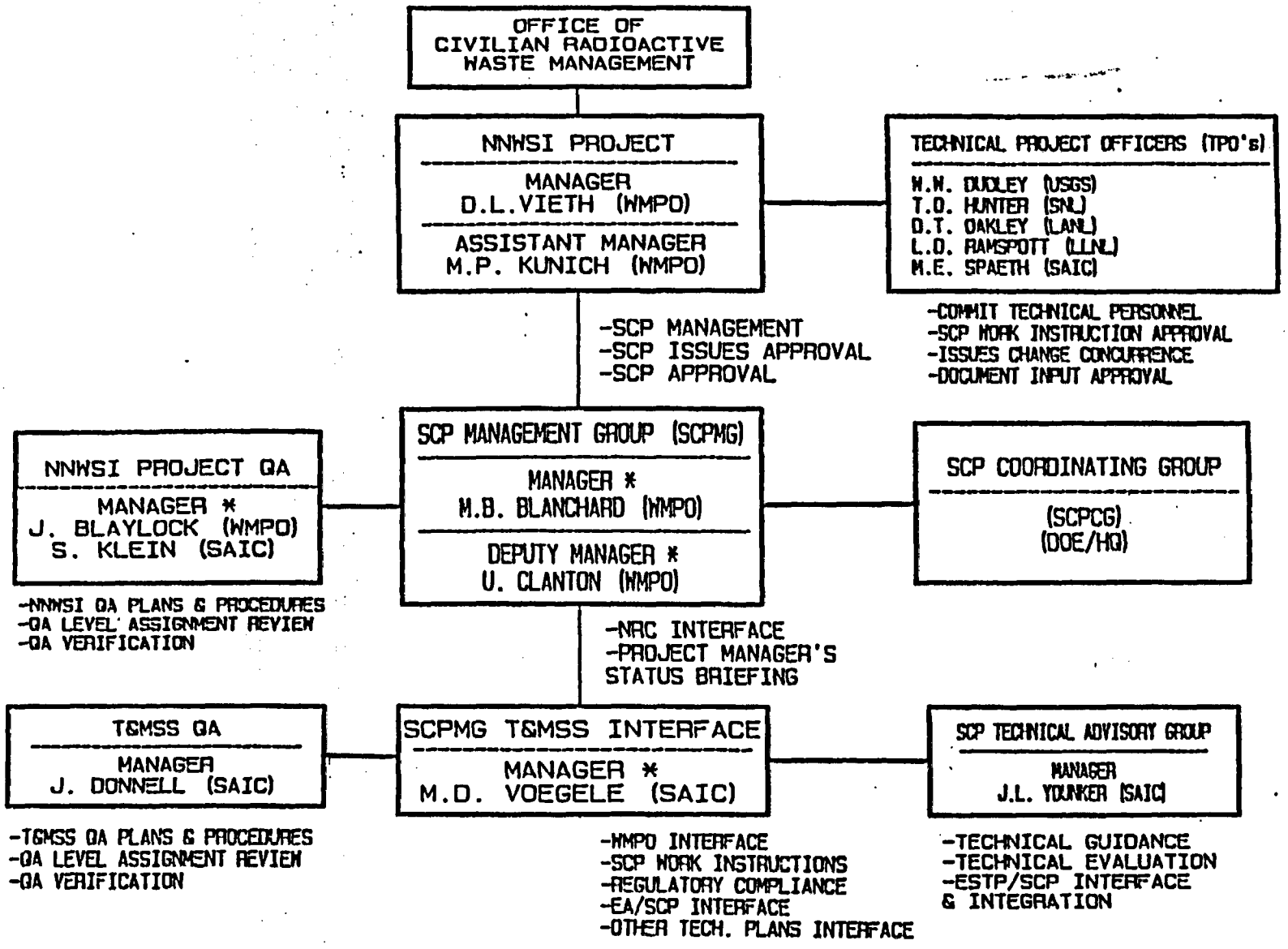
SCP GENERAL ORGANIZATION CHART




OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
NNWSI PROJECT
MANAGER
D.L.VIETH (WMPO)
ASSISTANT MANAGER
M.P. KUNICH (WMPO)
TECHNICAL PROJECT OFFICERS (TPO's)
M.W. DUDLEY (USGS)
T.O. HUNTER (SNL)
D.T. OAKLEY (LANL)
L.D. RAMSPOTT (LLNL)
M.E. SPAETH (SAIC)
-COMMIT TECHNICAL PERSONNEL
-SCP WORK INSTRUCTION APPROVAL
-ISSUES CHANGE CONCURRENCE
-DOCUMENT INPUT APPROVAL
-SCP MANAGEMENT
-SCP ISSUES APPROVAL
-SCP APPROVAL
NNWSI PROJECT QA
MANAGER *
J. BLAYLOCK (WMPO)
S. KLEIN (SAIC)
-NNWSI QA PLANS & PROCEDURES
-QA LEVEL ASSIGNMENT REVIEW
-QA VERIFICATION
SCP MANAGEMENT GROUP (SCPMG)
MANAGER *
M.B. BLANCHARD (WMPO)
DEPUTY MANAGER *
U. CLANTON (WMPO)
SCP COORDINATING GROUP
(SCPCG)
(DOE/HQ)
-NRC INTERFACE
-PROJECT MANAGER'S STATUS BRIEFING
T&MSS QA
MANAGER
J. DONNELL (SAIC)
-T&MSS QA PLANS & PROCEDURES
-QA LEVEL ASSIGNMENT REVIEW
-QA VERIFICATION
SCPMG T&MSS INTERFACE
MANAGER *
M.D. VOEGELE (SAIC)
-WMPO INTERFACE
-SCP WORK INSTRUCTIONS
-REGULATORY COMPLIANCE
-EA/SCP INTERFACE
-OTHER TECH. PLANS INTERFACE
SCP TECHNICAL ADVISORY GROUP
MANAGER
J.L. YOUNKER (SAIC)
-TECHNICAL GUIDANCE
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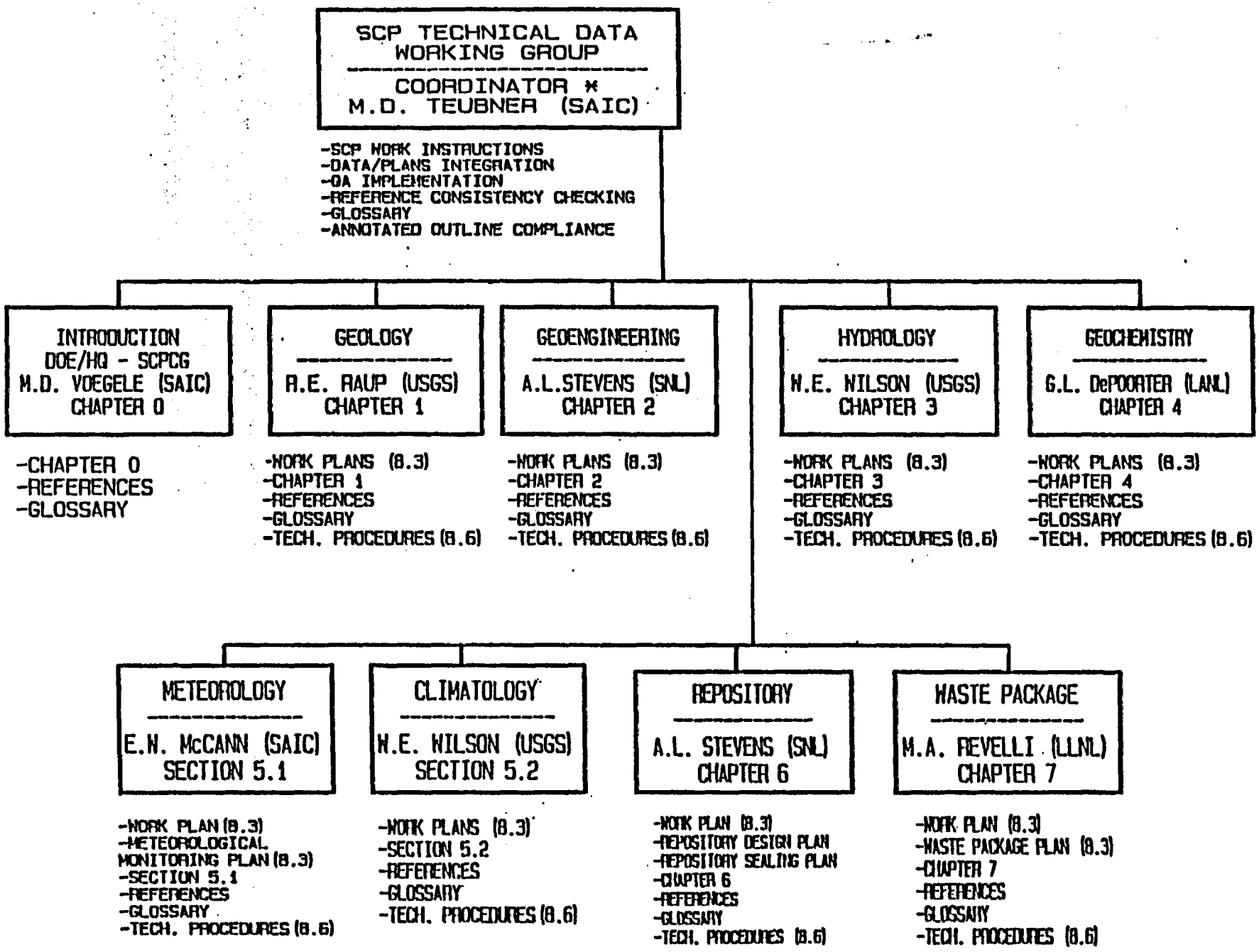
SCP TECHNICAL DATA WORKING GROUP
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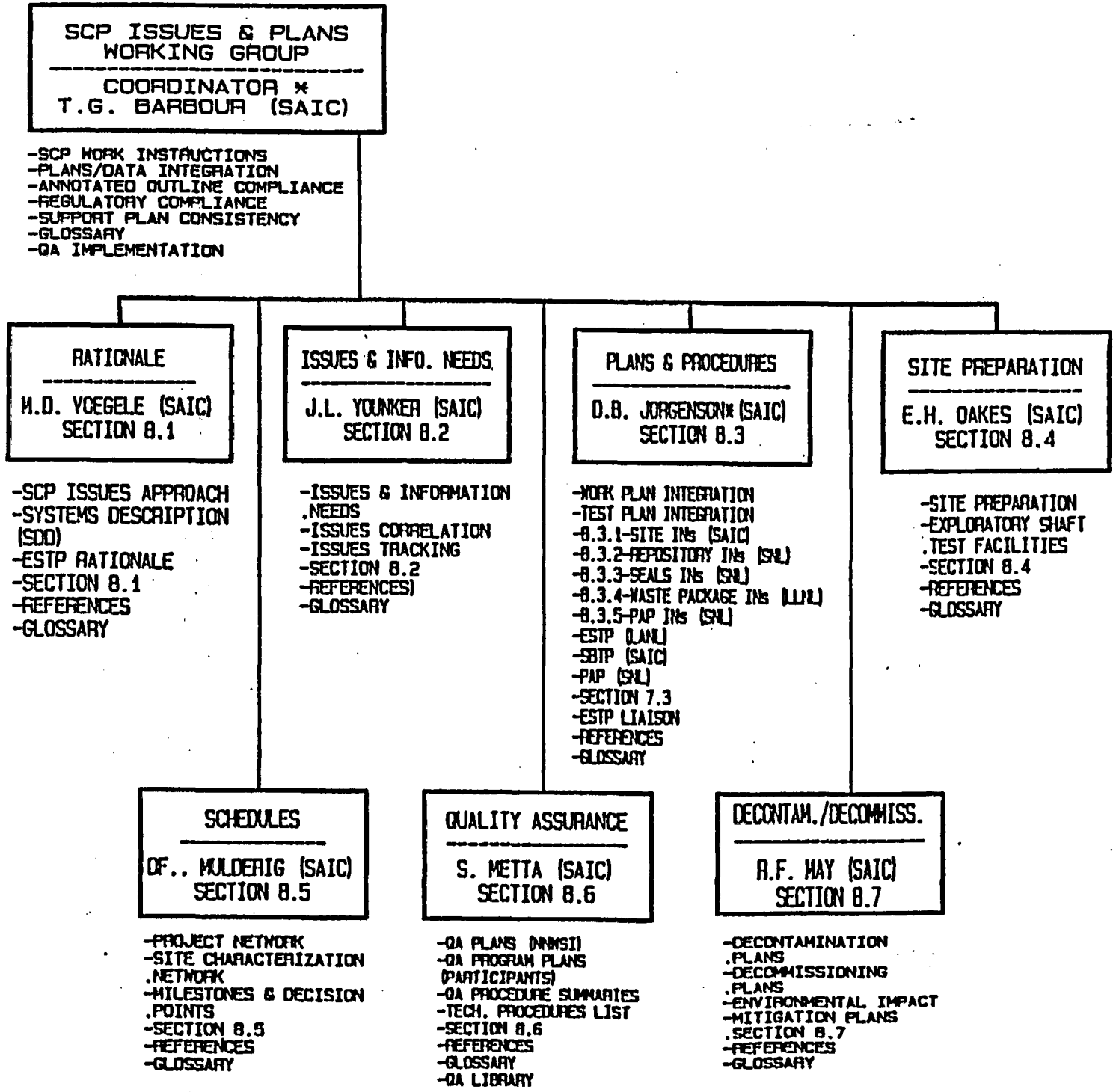
SCP ISSUES & PLANS WORKING GROUP
COORDINATOR *
T.G. BARBOUR (SAIC)
-SCP WORK INSTRUCTIONS
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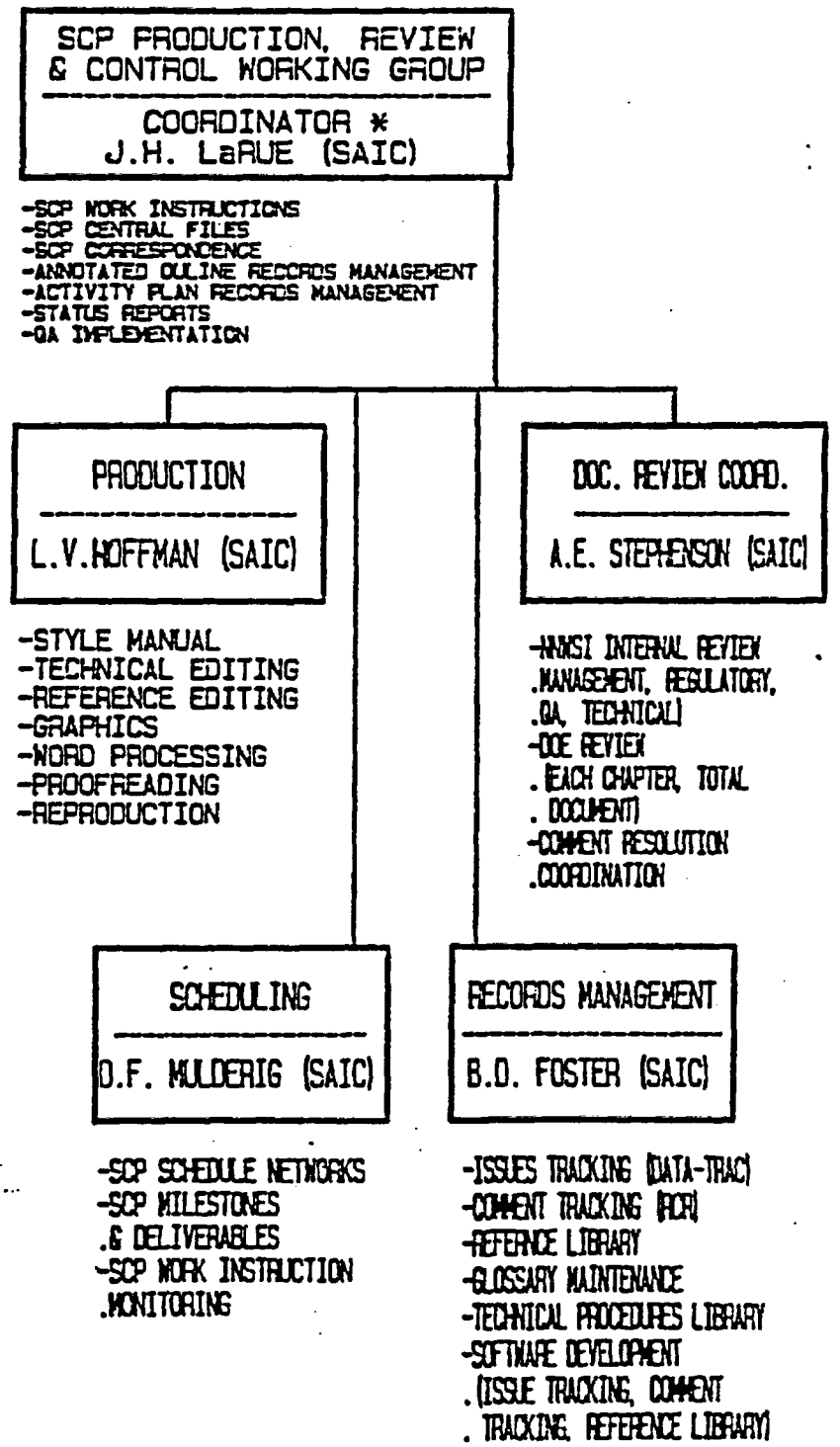
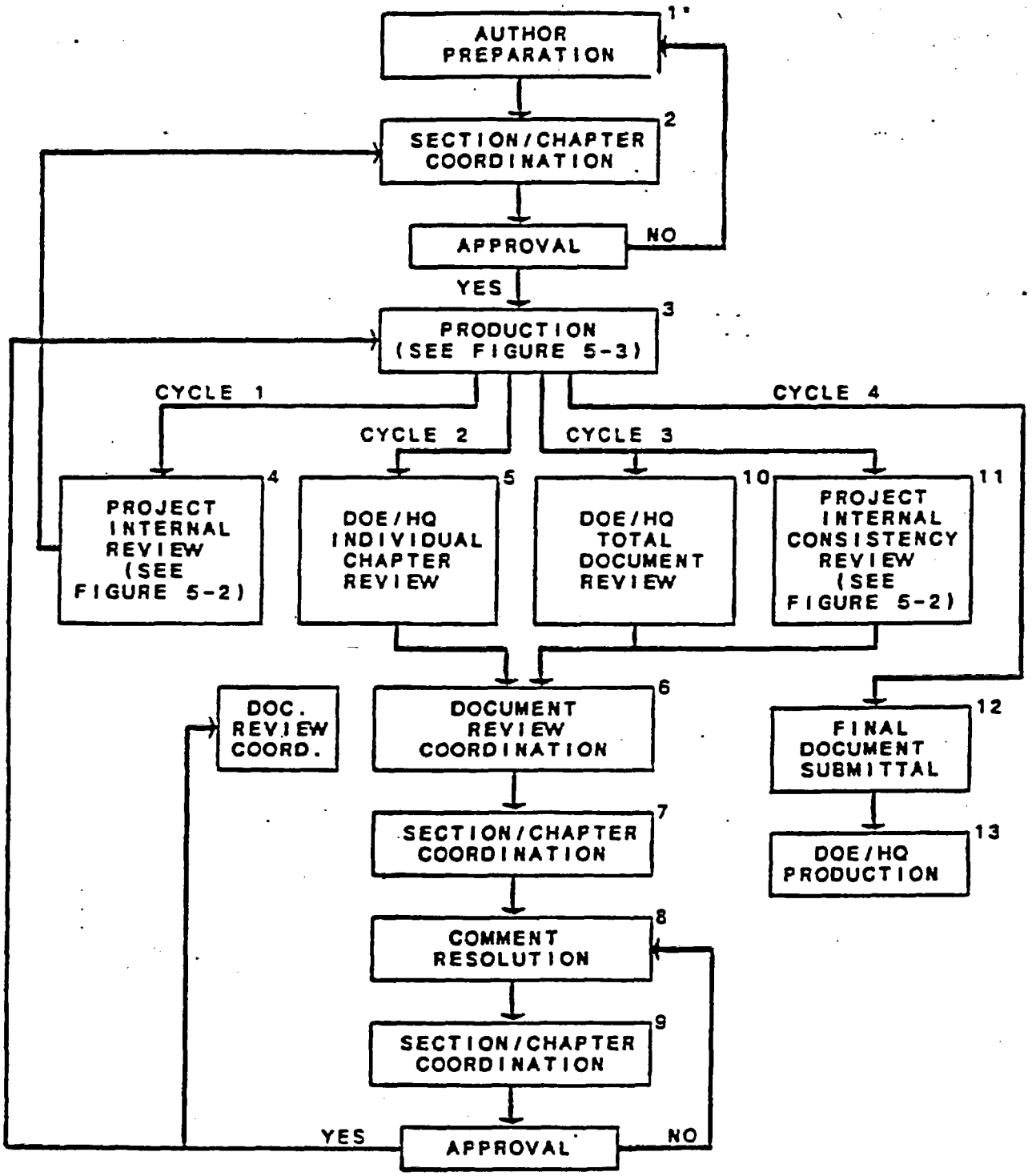

SCP PRODUCTION, REVIEW & CONTROL WORKING GROUP
COORDINATOR *
J.H. LaRUE (SAIC)
-SCP WORK INSTRUCTIONS
-SCP CENTRAL FILES
-SCP CORRESPONDENCE
-ANNOTATED OULINE RECORDS MANAGEMENT
-ACTIVITY PLAN RECORDS MANAGEMENT
-STATUS REPORTS
-QA IMPLEMENTATION
PRODUCTION
L.V.HOFFMAN (SAIC)
-STYLE MANUAL
-TECHNICAL EDITING
-REFERENCE EDITING
-GRAPHICS
-WORD PROCESSING
-PROOFREADING
-REPRODUCTION
DOC. REVIEW COORD.
A.E. STEPHENSON (SAIC)
-ANNSI INTERNAL REVIEW
.MANAGEMENT, REGULATORY,
.QA, TECHNICAL)
-DOE REVIEW
.(EACH CHAPTER, TOTAL
. DOCUMENT)
-COMMENT RESOLUTION
.COORDINATION
SCHEDULING
D.F. MULDERIG (SAIC)
-SCP SCHEDULE NETWORKS
-SCP MILESTONES
.& DELIVERABLES
-SCP WORK INSTRUCTION
.MONITORING
RECORDS MANAGEMENT
B.D. FOSTER (SAIC)
-ISSUES TRACKING (DATA-TRAC)
-COMMENT TRACKING (RCR)
-REFERNCE LIBRARY
-GLOSSARY MAINTENANCE
-TECHNICAL PROCEDURES LIBRARY
-SOFTWARE DEVELOPMENT
.(ISSUE TRACKING, COMMENT
. TRACKING, REFERENCE LIBRARY)

FIGURE 5-1

SCP PRODUCTION/REVIEW PROCESS



*Steps 1 to 13 are discussed in text.

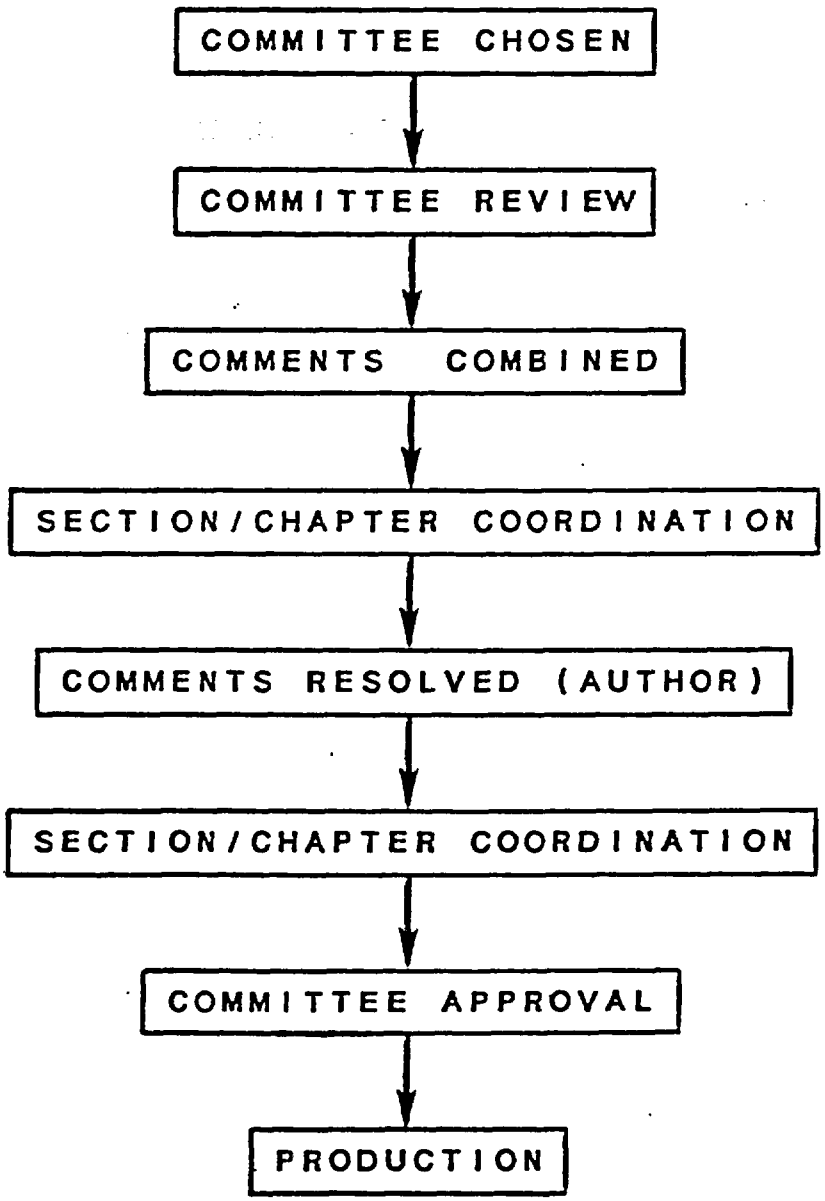
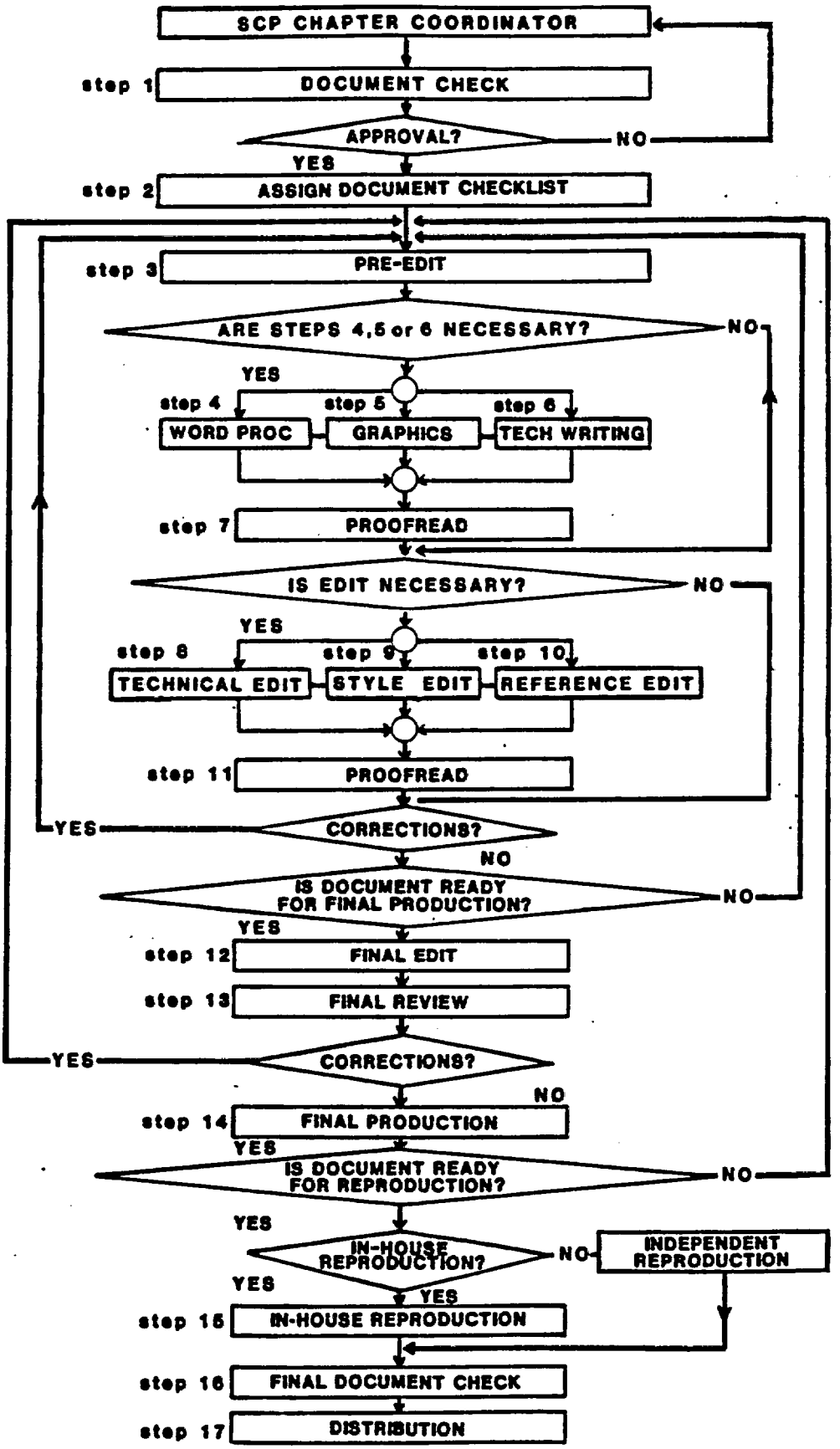


Figure 5.2 Project Internal Review Process



5-3 Detailed Production Process

TABLE 3-1
SCP WORK INSTRUCTION FORM

SITE CHARACTERIZATION PLAN
WORK INSTRUCTION (SCPWI)

TO (1. name and organization of investigator) TPO (2. name)

FROM (3. SCPMG member signature) DATE (4. request date)

SUBJECT (5. title of work instruction)

SCP AO SECTION (6. section number) SCPWI FILE NUMBER (7. file number)

(8. In memo fashion, briefly describe:

a) Concise description of work to be performed

b) Level of detail required

c) Requirements for consistency checking between sections, in particular between site/design data, issues and plans

d) People to be used and special equipment requirements

e) WBS number

f) Schedule, milestones (to Level 3) and deliverables)

cc: T&MSS QA Manager
PRCWG Coordinator

APPROVAL

SCPMG MANAGER (9. signature) DATE (9a. date)

TPO CONCURRENCE (10. signature) DATE (10a. date)

- SCHEDULE
  - PRODUCTION AND REVIEW PROCESS
  - HIGHLIGHT CONCERNS
  - PURCELL LETTER
  - RESOURCE - SCHEDULE EVALUATION

- QUALITY ASSURANCE
  - TECHNICAL PROCEDURES - LISTS AND DOCUMENTS
  - QA APPLIED TO DATA USED FOR SCREENING
  - QUALITY (SAFETY) LEVEL OF SCP

SUMMARY

- ROLE OF WORK PLANS
  - EXISTING
  - EXPANDED CONTENT
  - SECTION 8.3

- SCP AVAILABILITY DATE
  - SEPTEMBER 20, 1985
  - DECEMBER 20, 1985
  - MARCH 20, 1986

- NRC STILL COMMITTING TO FEBRUARY 12 MEETING FOR COMMENT TO AO

- NEED CONCURRENCE (EDICT) ON MANAGEMENT PLAN

- NEED TO STABILIZE ISSUES HIERARCHY

Department of Energy
Nevada Operations Office
P. O. Box 14100
Las Vegas, NV 89114-4100

JAN 21 1985

W. J. Purcell, Director, Office of Geologic Repositories, DOE/HQ (RW-20), FORSTL

NNWSI PROJECT MONTHLY REPORT FOR NOVEMBER 1984

Enclosed is the NNWSI Monthly Report for November 1984 covering the technical activities and status of the NNWSI Project.

Donald L. Vieth, Director
Waste Management Project Office

WMPO:DLV-553

Enclosure:
As stated

Science Applications International Corporation

L85-SS-SMJ-012

January 15, 1985

Dr. Donald L. Vieth, Director
Waste Management Project Office
U.S. Department of Energy
Nevada Operations Office
Post Office Box 14100
Las Vegas, NV 89114

Subject: NNWSI Project November 1984 Monthly Report

Dear Dr. Vieth:

Attached is the NNWSI Monthly Progress Report for November 1984 covering technical activities and status of the NNWSI Project. Also attached is a letter of transmittal for your signature.

Sincerely,

SCIENCE APPLICATIONS
INTERNATIONAL CORPORATION

Michael E. Spaeth
Project Manager

MES:SMJ:md

Enclosures:
As stated

cc w/encl.:
Project File 9.2.1.7.4.1.3
Record Center

2769 South Highland, Las Vegas, NV 89109, (702) 295-1204
Technical & Management Support Services Contractor Nevada Nuclear Waste Storage Investigations

Other SAIC Offices: Albuquerque, Ann Arbor, Arlington, Atlanta, Boston, Chicago, Huntsville, La Jolla, Los Angeles, McLean, Palo Alto, Santa Barbara, Sunnyvale, and Tucson.

NNWSI PROJECT

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS PROJECT

MONTHLY REPORT

NOVEMBER 1984

UNITED STATES DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE

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SUMMARY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS PROJECT

NOVEMBER 1984

KEY ACTIVITIES

WBS 2.1, SYSTEMS

An analysis is being conducted to assess the economics of fuel-rod consolidation at the proposed repository. Preliminary results based on new low-cost canister concepts indicate that the break-even point occurs at a total cost of between $150,000 and $500,000.

Two finite-element meshes were constructed for use in parametric modeling studies of unsaturated and saturated flow systems at Yucca Mountain. The mesh for the unsaturated zone was constructed to model the major hydrologic units and major fault zones. The saturated zone mesh was designed to model the major fault zones in the repository area, as well as the repository boundary.

WBS 2.2, WASTE PACKAGE

The three-dimensional numerical model for the stability of rock blocks adjacent to emplacement holes was successfully run for the first time. Calculated block displacements for marginally stable blocks are less than or equal to those necessary to mobilize peak shear strengths on the discontinuities. Calculated block displacements for stable blocks are of the same magnitude as the elastic response of the rock.

Two-dimensional axisymmetric structural analyses of copper canisters during handling and retrieval indicated that for similar canister configurations, the stresses and strains in an annealed copper canister will be substantially higher than for an annealed austenitic stainless steel canister.

WBS 2.3, SITE

The pumping test of UE-25c#3 was completed. Drawdown was monitored in three zones in UE-25c#1 and in two zones in UE-25c#2. After completion of the pumping test, water levels were monitored for two weeks to determine recovery rates.

Preliminary calculations based upon recently published data on the entropy of clinoptilolite support the hypothesis that silica activity, as well as temperature, controls clinoptilolite activity. Desorption experiments of strontium in H-3 ground water on three tuff samples were completed. Numerous TRACR3D models of the DP-Site at Los Alamos were completed. The calculations modeled one-dimensional, vertical liquid flow and tracer transport using data collected at LANL over a 33-year period.

WBS 2.4, REPOSITORY

Several significant conclusions were reached by participants in the repository-sealing design requirements and materials recommendation workshop: (1) based on preliminary laboratory analyses, the level of effort associated with the thermodynamic-property-estimation task may be reduced; (2) the engineering of seal materials with target mechanical and physical properties is possible; (3) the need for cementitious materials has not been established, especially with regard to high quality seals and their use in a high temperature environment; (4) it will be advantageous to avoid the use of cementitious materials; (5) priority should be given to studying the physical properties of cementitious materials in the 80°C - 250°C temperature range; and (6) two basic types of materials should be considered: relatively conventional concretes and grouts for use in low temperature conditions and specialized materials for use in high-temperature conditions.

Simple hydrological and structural analyses have been performed to develop preliminary design requirements for seal materials. Design requirements are being developed to minimize water flow towards the waste.

RE/SPEC has completed development of a new far-field thermomechanical model. As part of the model-development process, a simple, topographically flat, finite-element mesh was generated that can be used for sensitivity studies.

WBS 2.5, REGULATORY/INSTITUTIONAL

Eight data packages were transmitted to the NRC: Bulk Properties, Repository Sealing, Thermal Conductivity, Thermal Expansion (Unconfined), Thermal Expansion (Confined), Field Testing, Laboratory Rock Mechanics, and Rock Mass Classification.

WBS 2.6, EXPLORATORY SHAFT

Several preliminary scoping calculations for Waste Package Environment Test design purposes were completed. Calculations were done first with relatively simple models of heat flow and then with a more elaborate TRUMP model. The results indicate that a 12-month test will be needed to heat a reasonably large volume of rock and then allow it to cool.

WBS 2.7, TEST FACILITIES

The proposed ASTM standard guide for using the NX borehole jack calls for elimination of measurements that were made where irregularities in the borehole diameter prevented the jack platens from being in full contact with the borehole wall. The assumptions behind this proposed data screen were challenged. The statistical analyses performed on the modulus data obtained following the SFT-C have established that the data were operated on in a random fashion; therefore, the screen is ineffective.

Preliminary testing of the USBM overcore cell was completed. Despite several modifications in measurement procedures and equipment, a repeatable calibration could not be produced. Calibrations were finally obtained with a laser ruler.

An operational checkout was completed of the automatic digital temperature control system at E-MAD, which will replace the manual analog temperature control system. Steady-state operating and heatup parameters were established. The new system will be activated before the Fuel Temperature Test month-20 operation.

WBS 2.8, LAND ACQUISITION

No activities were reported for November.

WBS 2.9, PROGRAM MANAGEMENT

The NNWSI Project Master Schedule was revised to reflect numerous changes in level-one and level-two milestones that were made in response to budget revisions. All FY 85 milestones were prepared that must be baselined by the NNWSI Project Change Control Board.

Final EA changes and corrections were made and a camera-ready copy was transmitted to DOE/HQ. The "Draft EA Briefing Book - Nevada 1985" was sent to WMPO for review and 50 copies were sent to Washington, D.C. for use in the briefing team training session. Work continued on the preparation of an annotated table of contents for the Site Characterization Plan.

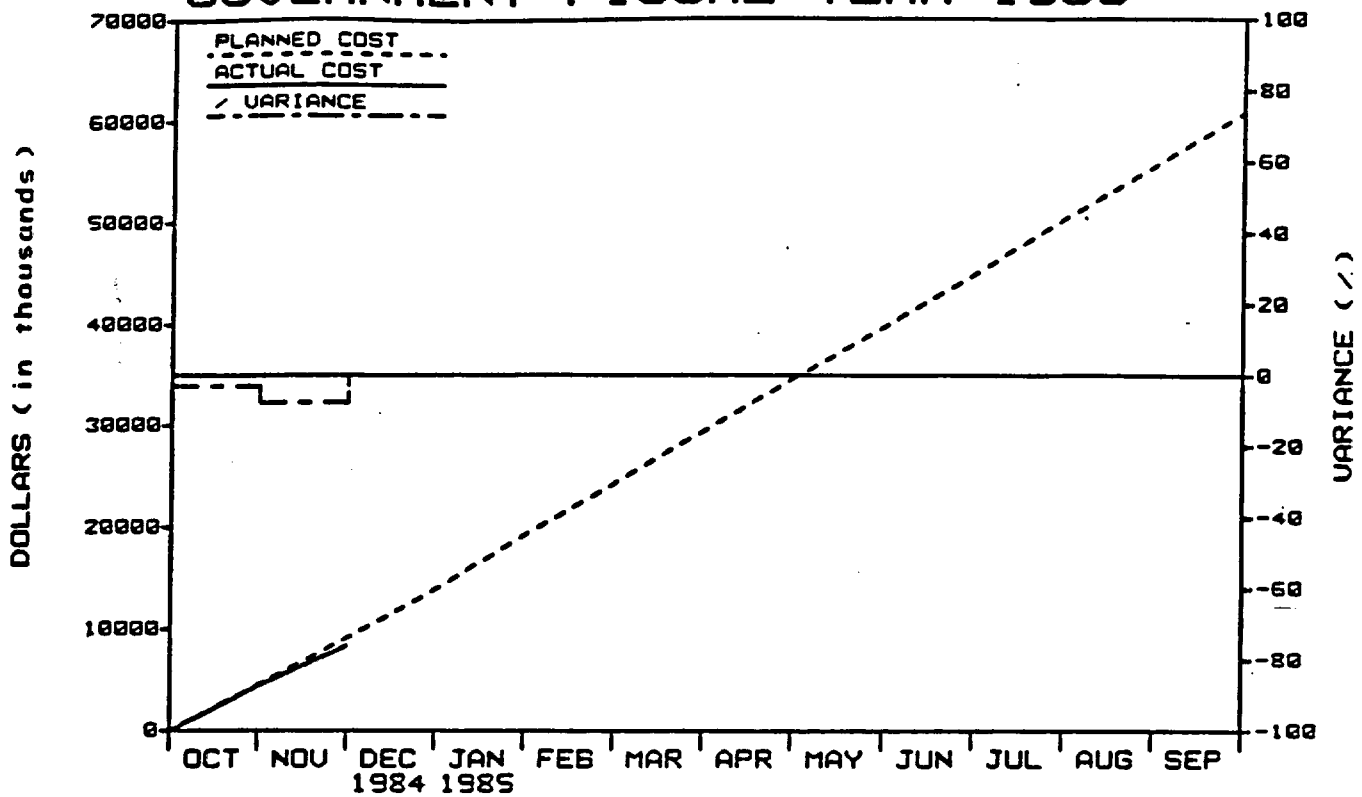
FUNDING OVERVIEW

The month-end programmatic estimated costs were $8,474,000 against a plan of $9,185,000 resulting in a cost underrun of $711,000 through the month of November. At this time, the FY 85 NNWSI Project budget has not been baselined; therefore, it is subject to change.

The following are the year-to-date plans, costs, and variances.

		Plan	Cost	Variance
2.1	Systems	$578,000	$482,000	$96,000
2.2	Waste Package	813,000	769,000	44,000
2.3	Site	2,762,000	2,861,000	<99,000>
2.4	Repository	1,757,000	1,392,000	365,000
2.5	Regulatory/Institutional	522,000	515,000	7,000
2.6	Exploratory Shaft	970,000	724,000	246,000
2.7	Test Facilities	381,000	420,000	<39,000>
2.9	Program Management	1,402,000	1,311,000	91,000
	Total	$9,185,000	$8,474,000	$711,000

WBS.2 NNWSI PROJECT
GOVERNMENT FISCAL YEAR 1985



PLAN (X1000)	4555	9185	13923	19208	24307	29464	34651	39817	44904	50300	55502	60778
COST (X1000)	4415	8474	0	0	0	0	0	0	0	0	0	0
VARIANCE (X1000)	140	711	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-3	-8	0	0	0	0	0	0	0	0	0	0

NNWSI PLANNING AND SCHEDULING
BUDGET DISTRIBUTION

NOVEMBER 1984

CONTRACTORS	($000) BEGINNING FUNDING	CHANGE	($000) ENDING FUNDING
SNL	$18,234	-	$18,234
LLNL	8,115	-	8,115
LANL	10,130	-	10,130
USGS	9,108	-	9,108
SAIC	6,575	-	6,575
REECo	4,286	-	4,286
H&N	753	-	753
F&S	1,212	-	1,212
WSI	220	-	220
PAN AM	50	-	50
MISCELLANEOUS	495	-	495
NTS ALLOCATION	403	-	403
RESERVE	2,169	-	2,169
SUBTOTAL	$61,750	-	$61,750
STATE GRANT	1,600	-	1,600
CAPITAL EQUIPMENT	2,485	-	2,485
TOTAL	$65,835	-	$65,835

NNWSI PROJECT

PROJECT STATUS

2.1 SYSTEMS

OBJECTIVE

The objective of this task is to apply the concept of systems to the development and design of the repository, both the surface and subsurface facilities, and to the evaluation of the effectiveness of the geologic and hydrologic environment in isolating radionuclides.

ACTIVITIES

The preliminary descriptions of the 61 systems and subsystems that make up the Yucca Mined Geologic Disposal System were revised in response to SNL internal review. Completed parts of the document were assembled and delivered to DOE/NV at the November 28, 1984, meeting of the NNWSI Project Manager and Technical Project Officers.

Submission of the draft System Description to DOE/NV on November 28, 1984, fulfilled requirements for Milestone 151, Preliminary System Description Document.

An analysis is being conducted to assess the economics of fuel-rod consolidation at the proposed repository. The analysis compares the lifetime cost of the hot cells required to consolidate 3000 MTU of spent fuel per year to the total cost (including fabrication, loading, Quality Assurance/Quality Control, drilling, and emplacement) of the additional canisters required when the fuel is not disassembled and consolidated.

Preliminary results based on new low-cost canister concepts indicate that the break-even point occurs at a total cost of between $150,000 and $500,000, depending on the canister design and whether or not DHLW is placed in the first repository. The lower cost is for a hybrid PWR/BWR canister that holds three intact PWR and three intact BWR assemblies in a repository containing 10,000 MTU of DHLW. In this case, the total amount of spent fuel emplaced is relatively small. The acceptability of the hybrid canister has not yet been investigated from either a technical or a policy point of view.

In response to receipt of new well information and the surface geologic map, the SNL computer graphics group is updating the thermal-mechanical surface definitions. Finite-element mesh definitions of the water table and finite-element mesh definitions of a cross section for the Flow and Radionuclide Transport Task are also being generated.

All reviews were completed for a draft of the report entitled "Preliminary Bounds on the Expected Postclosure Performance of the Yucca Mountain Repository Site" (SAND84-1492). This report was delivered to DOE/NV on November 6, 1984, thereby satisfying the milestone scheduled for September 1984. The report summarizes information on hydrology, geochemistry, and rock characteristics pertinent to a boundary performance assessment and presents the results of calculations by a simple computer code, SPARTAN. The calculations project expected performance in terms of releases from the Engineered Barrier System (EBS) to the accessible environment (the water table) at the end of a 200-year

saturated flow path and/or the end of a 2000-year saturated flow path. Releases are projected for a range of flux, solubilities of uranium, and percentage of total flux intercepting waste packages. Waste packages are assumed to fail completely at 300 years, or at 1000 years, or at an exponentially increasing rate beginning immediately after closure of the repository.

Peer-review comments were incorporated in a contractor report from Lawrence Berkeley Laboratory (LBL) entitled "Hydrologic Mechanisms Governing Fluid Flow in Partially Saturated, Fractured, Porous Tuff at Yucca Mountain" (SAND84-7202). This report presents a conceptual approach to modeling the effects of discrete fractures on waste movement through the unsaturated zone at Yucca Mountain. This report and associated milestones were scheduled for delivery to DOE/NV on September 30, 1984, but will not be delivered until the middle or end of December 1984.

First-line management review was completed on a report entitled "Reduction of Well Test Data for Test Well USW H-1 Adjacent to the Nevada Test Site, Nevada (NTS)" (SAND84-0637). This report provides an independent approach to estimating hydraulic conductivity and storativity values from drawdown and recovery tests of well USW H-1 to complement results obtained by the USGS. The report and associated milestone were scheduled for delivery to DOE/NV on September 30, 1984, but extensive peer-review comments have delayed delivery until the middle or end of December 1984.

Two finite-element meshes were constructed for use in parametric modeling studies of the unsaturated and saturated flow systems at Yucca Mountain. The mesh for the unsaturated zone was constructed along a cross section through the northern part of the potential emplacement area and was designed to model the major hydrologic units and major fault zones. The saturated-zone mesh encompasses an area extending from just north and west of the potential emplacement area to a distance of about 10 km in a down-gradient direction from the emplacement area. The saturated mesh was designed to model the major fault zones in the repository area as well as the repository boundary.

The initial draft of the paper entitled "Source Term Considerations for a Potential Nuclear-Waste Repository Located in Unsaturated Tuff" (SAND84-2547C) was completed. This paper was presented at and will be published in the proceedings of the Nuclear Energy Agency/DOE-sponsored workshop on the Source Term for Radionuclide Migration from High-Level Waste or Spent Nuclear Fuel. The workshop was held on November 13-15, 1984, in Albuquerque. The paper has been submitted for peer and editorial review. This paper will serve as an early reference for some of the features used in the TOSPAC and SPARTAN source terms.

Review comments from SNL staff were included in the LBL paper entitled "Modeling of Strongly Heat-Driven Flow in Partially Saturated Fractured Porous Media," and the paper was resubmitted for line review at SNL. This paper will be included in the Seventeenth International Congress of Hydrogeologists meeting to be held in January 1985.

Following internal peer review, the Waste Package and Engineered Barrier System sections (1.3 and 2.2) of the System Description document were revised and delivered to DOE/NV on November 28, 1984.

Hydrothermal modeling of the environment surrounding a waste package is being coordinated for waste package design analysis, engineered barrier design analysis, and code benchmarking. Input was gathered for a letter describing a problem to be solved by LLNL, LBL, and SNL using the WAFE, TOUGH, and NORIA codes. The letter describes the boundary conditions, initial conditions, and material properties to be used in the problem, as agreed during the October 18, 1984, meeting at LLNL. The letter was scheduled to be completed by November 30, 1984, and will be delivered to DOE/NV and modelers by January 15, 1985. The schedule for the modeling activities calls for preliminary results by January 31, 1985. Refinement of problem specifications and the final problem results are to be completed and summarized in a draft report to be reviewed by participants on May 31, 1985.

A paper entitled "A Consistent Procedure for Calculations of Water Transport Velocities through Partially Saturated Porous Media" by SNL personnel was presented at the winter American Geophysical Union meeting.

An outline has been prepared for use in writing the letter report entitled "Documentation of the Total Systems Performance Code (TOSPAC). Volume 1: Physical and Mathematical Basis." An intensive effort is under way to produce a first rough draft of the entire report by December 19, 1984.

The joint PNL/SNL document entitled "Fracture and Matrix Hydrologic Characteristics of Tuffaceous Materials from Yucca Mountain, Nye County, Nevada" (SAND84-1471) is in line review.

A sequence of hydrodynamic calculations representing the response of Yucca Mountain static hydrologic solutions to the instantaneous doubling of infiltration rates has been completed. Calculations modeling drainage to the steady-state configuration were begun.

A congruent-leach source term has been added to TOSPAC and will be used as the standard source-term module for debugging the transport module of TOSPAC. The retardation terms in the transport module of TOSPAC are now general functions of material properties, position, time, and moisture content. For test problems, the conventional constant retardation is being retained.

Expressions have been derived for the total capacitance term in the Richard's equation used in the TOSPAC hydrodynamic module. In addition to the derivative of saturation with respect to pressure head, the total-capacitance term includes expressions for the compressibility of water and the compressibility of the rock skeleton.

PLANNED WORK

During December 1984 the System Description will be used as the basis for writing Chapter 8.1 of the NNWSI Project Site Characterization Plan (SCP). During the next quarter the System Description will be reviewed by all NNWSI Project participants and modified in preparation for the NNWSI Project technical requirements baseline on June 30, 1985.

Although consolidation-cell cost estimates are still being generated, it is clear that the primary cost will be very high. Secondary costs associated with more frequent spills and cleanup operations, with greater radiological risk to operating personnel and to the public, and with more difficult decommissioning will also be high. In summary, economics may favor disposal of intact-fuel assemblies. This analysis should be completed and a defensible answer to the consolidation/no-consolidation question should be available by the end of March 1985.

The Computer Graphics Task group will use the updated thermal-mechanical surface definitions to generate cross sections, surface structure maps, isopach maps of the defined units, and vertical thickness profiles within uniform area grids. The profiles will be given to the Radionuclide Release Task group from the Total Systems Task group.

Work during January and February will focus on restructuring the approach to modeling the movement of fluids and transport of wastes through the Yucca Mountain site. The practicality needs to be resolved of using two- and three-dimensional codes for simulating the behavior of the site in light of the paucity of the geographically distributed data generally needed to support the multi-dimensional computer code.

For initial runs of the ground-water flow codes, the two finite-element meshes constructed during November 1984 will be assigned material properties and boundary conditions for the saturated and unsaturated zones. This will be completed by February 1985.

The report entitled "Effect of Water Flux on Spent-Fuel Dissolution in a Potential Nuclear Waste Repository in Tuff" (SAND85-1007) is being revised following line review. The emphasis of the report is being changed; uranium dioxide dissolution will be considered. Thus the report will be compatible with current LLNL knowledge of spent-fuel behavior. Submission of this report is scheduled for December 31, 1984.

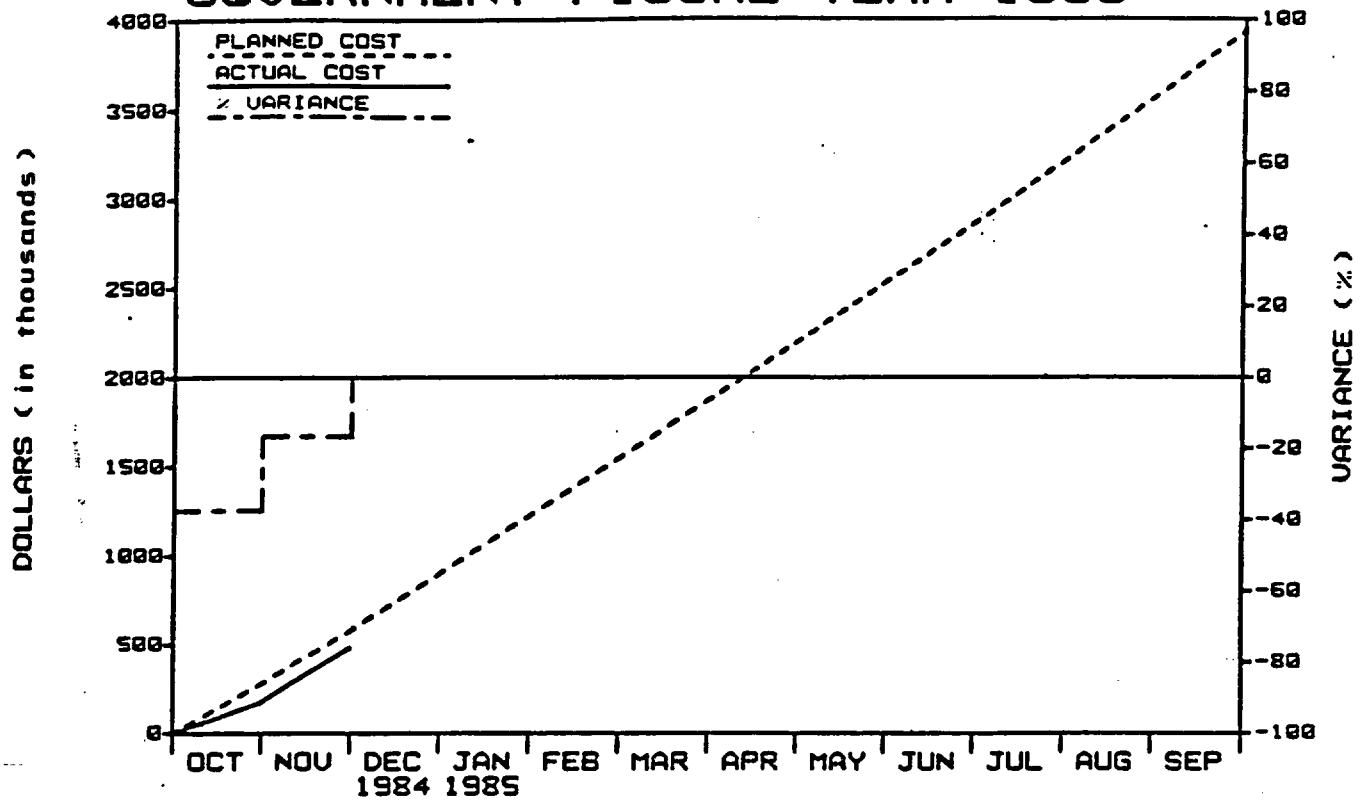
PROBLEM AREAS

Appendix B of the Generic Requirements document specified that during Stage II operation of the first repository (beginning, presumably, in 2003), spent fuel will be consolidated. If the present analysis leads to a recommendation against consolidation, a formal request for a change in Appendix B will have to be made.

A request was submitted to change the due date of the COVE benchmarking report to allow time to incorporate new information provided by the reviewers of the draft document. Some of the cases used in the report were rerun after modelers at LBL and LANL discovered that they had inadvertently used different boundary conditions than those which had been specified. The new requested due date is January 31, 1985.

A request to change the due data of Milestone M115 to December 21, 1984 was submitted. This milestone describes the current approach to modeling transport in the unsaturated fractured matrix system at Yucca Mountain for performance assessment analyses.

WBS,2.1 SYSTEMS
GOVERNMENT FISCAL YEAR 1985



PLAN (x1000)	278	578	898	1222	1544	1873	2203	2533	2863	3207	3560	3934
COST (x1000)	174	482	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	104	96	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-37	-17	0	0	0	0	0	0	0	0	0	0

Variance Explanation: Numerous subcontractor costs were not received in time for November costing. New plans are being prepared.

RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
SNL	2.1	PRELIMINARY SYSTEM DESCRIPTION		△										
SNL	2.1	NNWSI PROJECT SYSTEM REQUIREMENTS DRAFT										△		
SNL	2.1	SYSTEM ENGINEERING MANAGEMENT PLAN											△	

△ PLANNED MILESTONE COMPLETION DATE
▲ COMPLETED AS SCHEDULED
◇ REVISED MILESTONE COMPLETION DATE
◆ COMPLETED AS REVISED

2.2 WASTE PACKAGE

OBJECTIVE

The primary objective of this task is to develop a technical basis and engineering capability to design, test, and fabricate a waste package that is compatible with the hydrological conditions and geochemical environment in the unsaturated zone beneath Yucca Mountain.

ACTIVITIES

Two 64-day experiments to test the interaction between Yucca Mountain tuff and ground water were completed this month:

- DB16 consisting of a USW G-1 polished wafer in distilled water at 150°C was terminated normally at day 64
- DB17 consisting of a USW G-1 polished wafer in distilled water at 90°C was terminated normally at day 64.

The seventeen single mineral dissolution kinetics experiments, using both quartz and feldspar, run in the flow-through system at 70°C and at various buffer-controlled pHs were completed at the end of this month. The crystals from each experiment were thoroughly rinsed in deionized water to remove all traces of the buffer solutions used to control pH, air-dried, and stored for SEM observation.

The three-dimensional numerical model for the stability of rock blocks adjacent to emplacement holes was successfully run for the first time in November. The model includes a solution for an arbitrary initial stress field around a cylindrical emplacement hole. In the case of a marginally stable block, calculated block displacements are expected to be greater than those predicted by continuum elastic analyses, and less than or equal to those necessary to mobilize peak shear strengths on the discontinuities. Calculated displacements for blocks that are stable may be the same magnitude as the elastic response of the rock to excavation.

Neutron activation analyses for I-129 on 63-day solution samples from the H. B. Robinson spent-fuel tests have been completed. The I-129 results, along with U and Cs-137 results from the same unfiltered solution samples, are given below as a fraction of inventory in solution compared to 1 part in 100,000.

Test	U	Cs-137	I-129
Bare Fuel	.89	700	6.2
Slit Cladding	.0002	600	3.3
Punctured Cladding	.00002	400	0.02
Undefected	.00005	0.16	0.06

A draft report entitled "Results from NNWSI Series 1 Spent Fuel Leach Tests" was completed and transmitted from HEDL for review and concurrence. This report completes the Series 1 tests initiated in FY 84 which used Turkey Point spent fuel in deionized water.

Low-angle polished sections have been produced from several samples of a zircaloy cladding bundle from the two-month electrochemical corrosion scoping test. Preliminary optical evaluation of these polished sections is still underway; as yet no corrosion effect has been identified in either the oxide film or the zircaloy substrate.

A letter report entitled "Preliminary Evaluation of TGA and Electro-Optical Examination for Studying Low Temperature Spent Fuel Oxidation" was received from HEDL. Revision of the report entitled "Evaluation of the Potential for Spent Fuel Oxidation Under Tuff Repository Conditions" was completed and received from HEDL for review.

Two papers describing parametric test results were given by LLNL scientists at the Materials Research Society Meeting in Boston. They were "Parametric Testing of a DWPF Borosilicate Glass" and "The Behavior of Actinide Containing Glasses during Gamma Irradiation in a Saturated Tuff Environment." A paper describing the testing of DWPF simulated and fully active glasses in tuff reaction vessels entitled "Leaching Savannah River Plant Nuclear Waste Glass in a Saturated Tuff Environment" and a paper entitled "NNWSI Waste Form Performance Test Development" describing results from the first 13 weeks of testing were also delivered.

Triplicate coupons of several different grades of carbon, alloy, and stainless steel have been exposed to 150°C dry steam at atmospheric pressure with controlled humidity. Measurements made after 3800 hours show that the oxidation rates of all these materials is quite low, ranging from 0.0076 to 0.549 μm/yr.

No fractures were found (1) after 12,000 hours in the corrosion rate experiment on cast iron, 1020, and 9 Cr-1 Mo in J-13 water at 90°C or (2) after 5500 hours in the survey of 304, 304L, 316, and 321 in J-13 water at 100°C. Both studies are being conducted under four-point load bent-beam stress conditions. No fractures were found after 3500 hours in the corrosion rate experiment on 304, 304L, 316L, and 321 suspended as sensitized four-point bend alloys in a humidity chamber of deionized water at 150°C.

A report entitled "Peak Container Wall Temperature Analyses for a NNWSI Conceptual PWR Waste Package Design" has been written, QA reviewed, and is now in final preparation at LLNL. These analyses, which were performed with a two-dimensional model to determine the peak allowable canister wall temperature, will be used for designing the ventilation system for a short term surface storage facility.

A draft of the report entitled "Three-Dimensional Thermal Analyses of a Conceptual Waste Package Design for the Disposal of Pressurized Water Reactor Spent Fuel" has been written and submitted for QA review at LLNL. The analyses described were performed for a canister containing six PWR assemblies in consolidated form. A full three-dimensional model was used in order to model heat transfer out of the canister ends as well as to model the spent-fuel power

peaking and variations in radial and axial conductivity. Comparisons were made with two-dimensional analyses as well as with parameter studies involving spent-fuel thermal conductivity and power peaking.

The computer code NIKE2D was used for two-dimensional, axisymmetric structural analyses of copper canisters during handling and retrieval. The results indicate that for similar canister configurations (57 cm OD, 1 cm wall) the stresses and strains in an annealed copper canister will be substantially higher than for an annealed austenitic stainless steel canister.

The "Report on Structural Analysis of Conceptual Waste Package Designs," a Level III milestone, was submitted to WMPO for review and release.

A solicited proposal to develop a conceptual model of falling-fluid flow within the waste package subsystem was received from INTERA. The goal of this study is to characterize fluid flow along the surface of waste package components and through defects which develop as a result of the various corrosion mechanisms. A review of this proposal is in progress.

Verification and development of a one-dimensional waste package system model continued. Work is also in progress to identify the requirements for a system driver routine (SMODEL) to control the logic of process model coupling, data base access, and information transfer within the system model.

PLANNED WORK

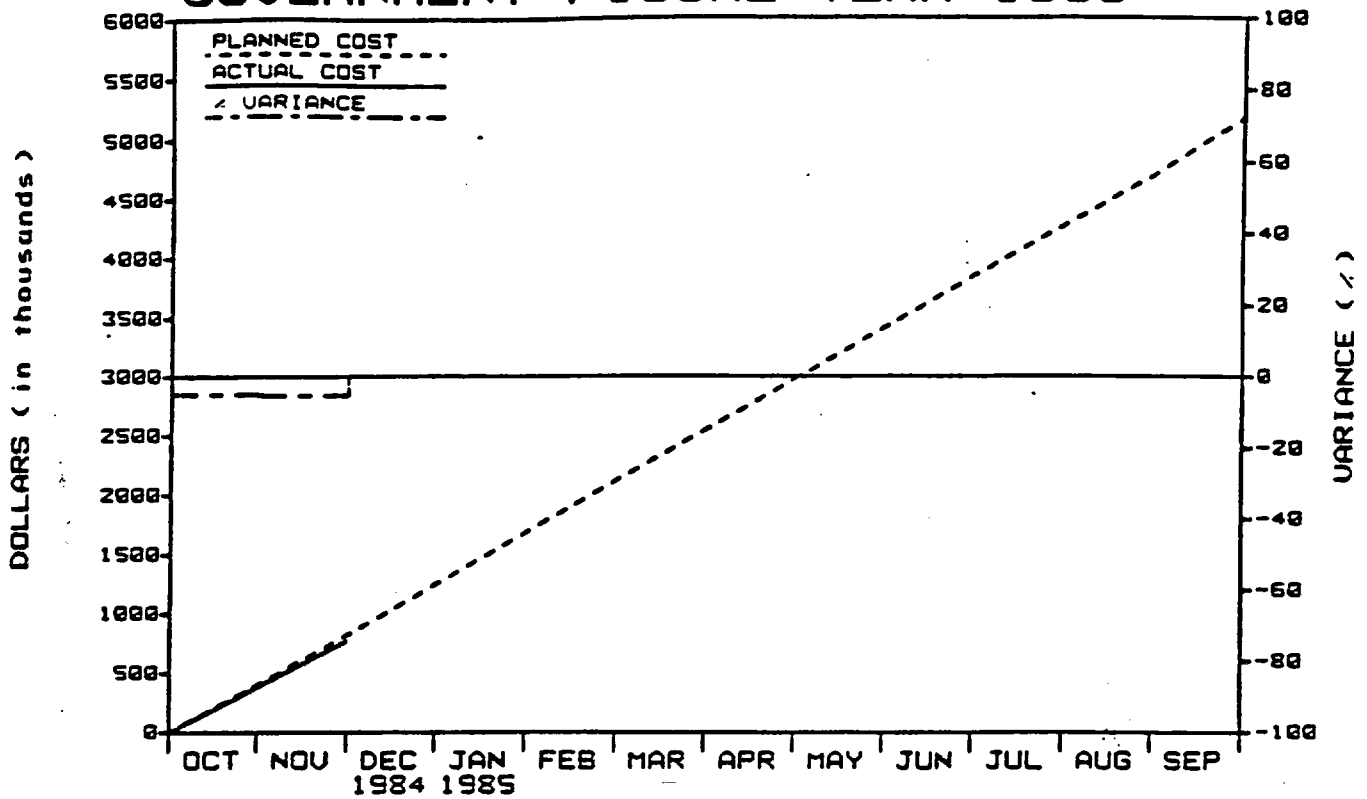
An attempt will be made to secure core samples from Topopah Spring tuff blocks that were collected from an outcrop at Fran Ridge, NTS. If good specimens cannot be obtained from these blocks, alternate ways of obtaining rock samples will be considered, e.g., collecting a larger block from an outcrop or coring directly from the outcrop.

The steel coupons being used in the oxidation experiment will be examined again after 10,000 hours of exposure. Copper and copper-based alloys will be added to the experimental matrix.

PROBLEM AREAS

A spent-fuel oxidation run on a single fragment at 225°C in -70°C dew point air was terminated unsuccessfully when the furnace had a 10°C excursion. The problem was traced to a controller which was not matched to the new lower temperature furnace. The problem has been corrected. A new sample has been loaded and testing will resume shortly.

WBS.2.2 WASTE PACKAGE
GOVERNMENT FISCAL YEAR 1985



PLAN (x1000)	401	813	1245	1677	2118	2551	2982	3413	3845	4266	4688	5165
COST (x1000)	381	769	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	20	44	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-5	-5	0	0	0	0	0	0	0	0	0	0

RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
LLNL	2.2	ESTABLISH INTERIM PRODUCT SPECIFICATIONS			◇									
LLNL	2.2	INPUT TO DOE/HQ REPORT TO CONGRESS ON COPPER FOR WASTE PACKAGE											△	
LLNL	2.2	PRE-CLOSURE ANALYSIS OF SELECTED CONCEPTUAL DESIGNS			◇									

△ PLANNED MILESTONE COMPLETION DATE
▲ COMPLETED AS SCHEDULED
◇ REVISED MILESTONE COMPLETION DATE
◆ COMPLETED AS REVISED

2.3 SITE

OBJECTIVE

The objective of this task is to determine whether or not Yucca Mountain is a suitable location for a high-level waste repository. The effort is divided into two areas of study. The first is understanding the characteristics of the rock mass that lies below the surface of Yucca Mountain. This encompasses the geology (structure and stratigraphy), hydrology (both saturated and unsaturated zone), geochemistry (chemical reactions that can be expected when waste is emplaced), and mineralogy and petrology (the study of the materials that will control the isolation and engineering characteristics of the rock). The second is understanding the processes and events that could occur in the area surrounding Yucca Mountain that could serve as potential disruptive forces. These efforts include the study of tectonics, seismicity, and volcanism, and the regional hydrologic, paleohydrologic, and paleoclimatologic systems.

ACTIVITIES

Two EA-referenced geologic reports were approved by DOE and the Director USGS; ten copies of each were submitted to DOE for checking against the EA. The documents are the report on the volcanic rocks in borehole USW G-4 (USGS OF84-789) and the summary report on geologic studies at Yucca Mountain (USGS OF84-792).

Ten copies of the USGS report entitled "Preliminary Report on Late Cenozoic Faulting and Stratigraphy in the Vicinity of Yucca Mountain, Nye County, Nevada" (USGS OF84-788) also were sent to DOE/NV for checking against the EA.

During November a topographic map covering the area from Nevada state plan coordinates 172,000 m E. to 175,000 m E. and 230,000 m N. to 233,000 m N. was compiled at a scale of 1:5000 with a contour interval of 1m.

A draft of the LANL Level I milestone final volcanism report entitled "Status of Volcanic Hazard Studies for the Nevada Nuclear Waste Storage Investigations, Volume II," was submitted to WMPO/NV and to the TPOs.

Work completed by USGS personnel included running shallow seismic lines over the Rock Valley Fault using the Bison Signal Enhancer, mapping the bedrock of the Bare Mountain Quadrangle, field-checking the geologic quadrangle maps at points where map evidence suggests mid-Tertiary detachment faulting, identifying outcrops which indicate the presence of a deformed detachment fault at the base of the Tertiary section in the Calico Hills, and measuring hydraulic permeability of samples from boreholes USW G-3, USW GU-3, and USW G-4.

USGS personnel presented papers on uranium-series dating in the NTS region and on transport properties of saturated tuffs at Yucca Mountain at the Nevada Test Site Symposium, a session of the Geological Society of America annual meeting in Reno on November 5-8, 1984.

The pumping test of UE-25c#3 ended November 15, 1984. The well was pumped at approximately 240 gal/min. Drawdown was monitored in three zones in UE-25c#1 and in two zones in UE-25c#2. Water levels were also monitored in USW H-4 and UE-25p#1, but no changes due to pumping were observed. Water samples were collected for determination of hydrogen and oxygen isotopes for comparison with DRI determinations. In addition to taking splits for isotopic analysis, DRI collected samples for major ion chemistry. LANL collected samples for NNWSI. After the pump was turned off, water levels were monitored for approximately two weeks to determine recovery from the pumping test and changes due to barometric and earth-tide stresses.

Reports on the two-dimensional flow model of Yucca Mountain and vicinity and on the simulated effects of increased recharge on the ground-water system near Yucca Mountain were submitted for USGS and DOE approval.

The report entitled "Geohydrologic and Drill-Hole Data for Test Well USW H-4, Yucca Mountain, Nye County, Nevada" (USGS OF84-449) has been printed and is being distributed.

The EA referenced report entitled "Hydrology of Yucca Mountain and Vicinity, Nevada-California -- Investigative Results through Mid-1983," is being printed. To expedite release to the public, photocopies of the report have been mailed to various libraries, public information offices, the open-file services section, and to the NNWSI Project office.

Neutron holes drilled to date in the Solitario Canyon area are USW UZ-N77 (40'), USW UZ-N83 (40') and USW UZ-N81 (70'). USW UZ-N81 was drilled to a depth greater than planned because complex fracturing was encountered. Five shallow (30 ft to 50 ft) neutron holes were completed in the vicinity of the USW UZ-6 unsaturated zone test hole: those completed most recently are USW UZ-N76 (40'), USW UZ-N65 (50'), and USW UZ-N66 (50'). Excessively muddy conditions prevented the drilling of three additional holes: UZ-N74, N75, and N89. The priority neutron holes on the east side of Yucca crest were completed.

Drilling at UE-25 UZ-5 unsaturated zone test hole was completed November 15. The hole was cored to the hard vitrophyre at the top of the Topopah Spring Member at a depth of 360.5 feet and was reamed to a depth of 290 feet.

The EA-referenced hydrologic report entitled "Conceptual Hydrologic Model of Flow in the Unsaturated Zone, Yucca Mountain, Nevada" was forwarded to the USGS Director for approval. The unsaturated zone hydrology report concerning the two-dimensional finite difference model used in trying to validate the conceptual model is approximately 20 percent complete.

The report entitled "Comparison of Survey and Photogrammetric Methods to Position Gravity Data, Yucca Mountain, Nevada," a U.S. Geological Survey Open-File report, received Branch Chief approval on November 15.

The Work Plans for the Solubility Determination task have been revised. A program of solubility measurements for important radionuclides has been proposed. This program should provide the information needed to develop a radionuclide source term based on the solubility of individual waste elements.

Preliminary calculations based upon recently published data on the entropy of clinoptilolite support the hypothesis that silica activity, as well as temperature, controls clinoptilolite stability.

Desorption experiments of strontium in H-3 ground water on three tuff samples were completed and data are being processed. These studies are part of the investigation of the effects of changes in water composition on the sorptive properties of tuff.

Numerous TRACR3D models of the DP-Site in Los Alamos were completed this month. The results were presented at the annual meeting of the Materials Research Society in Boston on November 26-28, 1984. The calculations modeled one-dimensional, vertical liquid flow and tracer transport with data which was collected during the 33-yr period from 1945 to 1978.

Work is continuing to develop a more sensitive and a more convenient method to determine bromine tracer concentrations than the currently used ion chromatography technique. A new neutron activation technique has been used to measure a concentration of 0.05g Br/ml in Well J-13 water.

The development version of the EQ3NR code has been reviewed in preparation for the next EQ3/6 release which is planned for January 1985. The random-access software for managing the main EQ3/6 data base (DATA0) was completed. Comments on the draft NNWSI software QA document were provided for inclusion in the LLNL response. New thermodynamic data for iron and data for vanadium have been added to the data base.

Fluid inclusion temperatures of homogenization of 145°C were obtained for samples of early-formed drusy quartz in faulted, altered tuff from Trench 14. The data indicate either a high-temperature hydrothermal or early postemplacement crystallization episode. X-ray diffraction studies of insoluble residue materials from later fault-filling samples identified sepiolite, which indicates low-temperature alteration and probable pedogenic origin.

A review of current mineral stability data was incorporated into a letter report summarizing the possible impact of mineral stability in defining the disturbed zone. Time/temperature/distance curves supplied by LLNL were used. A temperature of 100°C was used as a preliminary disturbed-zone bound, which places the disturbed zone above the major unsaturated zeolitized zones beneath the exploration block at Yucca Mountain.

PLANNED WORK

Filtration experiments have started at the mobile laboratory situated at Well J-13. Approximately 2 gal/min of water is being passed through a large Nuclepore filter to collect particles in the water that are larger than 0.45 μm. After a month's time, the filters will be changed to 0.05 μm to collect a smaller-sized fraction. Any particles that are collected in sufficient quantity will be identified and used for sorption experiments.

Batch sorption measurements have been made using Pu(V) in a bicarbonate-buffered solution and Am(III) in a similar solution. After the measurements were made it was discovered that the stock-buffered solutions did not remain

stable for the measurement period. New measurements of sorption ratios using stable, buffered actinide solutions will be made over shorter periods. The possibility of making sorption measurements with less material will be investigated.

The retention of bromide anions relative to tritiated water will be measured on a column of crushed and sieved Calico Hills tuff for comparison with the results of a similar measurement on crushed and sieved Topopah Spring Member tuff.

A preliminary run on 10^{-6} M plutonium(IV) polymer yielded a particle size distribution with a maximum at about 120 nm. The size distribution of plutonium celloid will be determined in future experiments as a function of method of preparation, and all these results along with others will eventually enable the estimation of potential radionuclide release by particulate transport at Yucca Mountain.

The LANL colloid transport model for the DP-Site calculations will be refined to give better agreement with observations. Technical details of these calculations will appear in the October - December 1984 quarterly.

The draft report describing the MCRT code which now incorporates the random access format is in progress. Examples of the data base files which are built by MCRT (DATAO) are being prepared to illustrate how the code uses thermodynamic data to calculate stability constants.

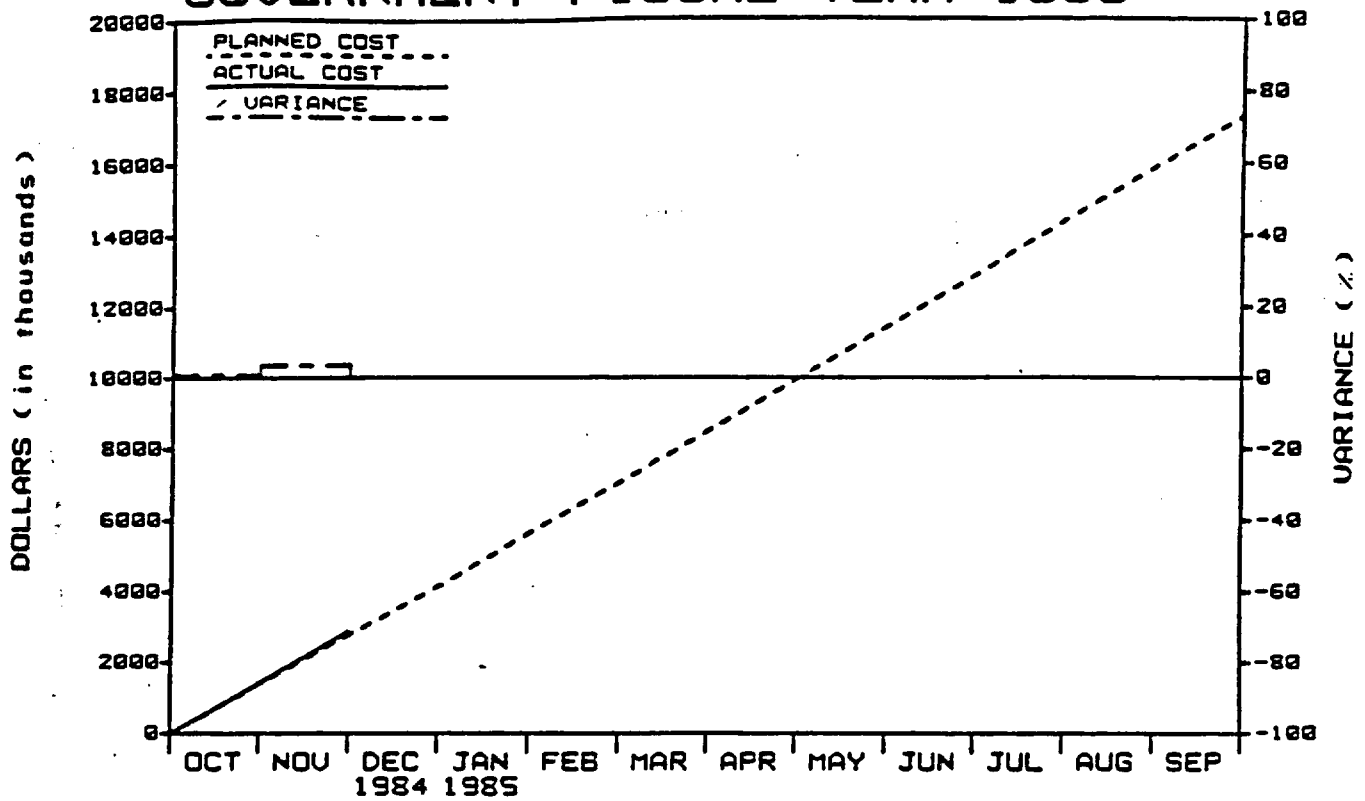
In December further fluid inclusion studies will be conducted on fault-related samples from Yucca Mountain. Preliminary x-ray fluorescence analysis of Yucca Mountain zeolitized tuffs will be conducted and tested against other analytical methods. Petrographic correlation of Fran Ridge samples with Topopah Spring Member internal stratigraphy will be completed for LLNL. Samples of glassy tuff will be selected for hydrothermal experiments at LLNL.

PROBLEM AREAS

LANL's coupled testing report will be late; it should be completed by the end of December.

Progress on the MCRT User's manual has been delayed several months due to efforts to complete the precipitation kinetics report and to tighten controls on all MCRT data files.

WBS, 2.3 SITE INVESTIGATIONS
GOVERNMENT FISCAL YEAR 1985



PLAN (x1000)	1385	2762	4114	5609	7033	8480	9950	11422	12860	14375	15856	17300
COST (x1000)	1397	2861	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	-12	-99	0	0	0	0	0	0	0	0	0	0
% VARIANCE	1	4	0	0	0	0	0	0	0	0	0	0

RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
LANL	2.3	LETTER RPT. ON GROUNDWATER CHEMISTRY ALONG FLOW PATH	◇											
SNL	2.3	WEAPONS TEST SEISMIC REPORT				△								
USGS	2.3	COMPLETE PALEOBOTANY STUDY OF YUCCA MOUNTAIN	△											
LANL	2.3	COMPLETE REPORT ON VOLCANIC HAZARDS ANALYSIS		◇										
LANL	2.3	PROGRESS RPT. ON 3-D MINERALOGIC MODEL OF YM	◆											
SAIC	2.3	IMPLEMENTATION OF METEOROLOGICAL MONITORING PLAN									△			

△ PLANNED MILESTONE COMPLETION DATE
▲ COMPLETED AS SCHEDULED
◇ REVISED MILESTONE COMPLETION DATE
◆ COMPLETED AS REVISED

2.4 REPOSITORY

OBJECTIVE

The objective of this task is to develop the engineering capability to design, construct, operate, and decommission a repository in tuff. Four specific technical areas are involved that include (1) determination of the physical and mechanical properties of the rock matrix and rock mass that are important to the design and construction of an underground structure; (2) engineering analysis and evaluation of technical details that are important to the design and operation of a repository; (3) development of the techniques of sealing a repository as part of decommissioning; and (4) preparation of a site-specific design that will be accommodated within the development of the equipment to construct the repository, handle the waste and waste package, and transfer the waste and waste package within the repository system.

ACTIVITIES

A review by SNL of the surface and subsurface, electrical, instrumentation, communication, and computer systems was conducted at the Bechtel National, Inc. and the Parsons Brinkerhoff Quade and Douglas, Inc. offices in San Francisco on November 27-28, 1984. Reports resulting from the review will provide a vehicle for recommendations on critical issues for this fiscal year and allow an orderly resumption of work as required in the future.

A detailed outline of the report entitled "Implications About In Situ Stress at Yucca Mountain" was developed. The draft report, which recommends in situ stress values to be used in the thermomechanical calculations, tentatively is scheduled for completion during January 1985.

REECo mined approximtely 17 m of the U12g.12 drift in the G-Tunnel facility during the month. SAIC ran a limited study of a drift convergence measurement procedure in which readings were taken between grouted rebar anchors with a tape extensometer. A few hours after mining, the roof to floor convergence was approximately 4 mm. The average convergence rate for 20 days after mining was 0.04 mm/day.

A paper entitled "Geoengineering Characterization of Welded Tuffs from Laboratory and Field Measurements" (SAND84-1147C) was prepared for the proceedings of the Eighth International Symposium on the Scientific Basis for Nuclear Waste Management and was presented at the meeting in a poster session.

A core sample containing a discrete fracture was taken from the Topopah Spring Member (USW G-4, 1278 ft) and was tested for permeability as a function of effective stress. The sample showed an 86 percent decrease in permeability as the effective stress was increased from 8 to 90 bars. There was only a 5 percent decrease in permeability due to the effects of hysteresis at an effective confining stress of 90 bars. The sample was then tested to determine the permeability as a function of temperature at different levels of effective confining stress.

Preliminary designs for a PWR and BWR radioactive waste canister were completed. Drawings will be sent to LLNL for review and analysis by December 7, 1984. Work will continue to integrate the new canister designs into the waste handling facility of the repository.

The final draft of the report entitled "NNWSI Repository Worker Radiation Exposure for Vertical Emplacement and Retrieval of Spent Fuel" (SAND84-2275) is being prepared. This document should be ready for peer review by December 15, 1984. The report entitled "Disposal of Canistered Radioactive Waste in Vertical Boreholes...A Description of the System, Equipment and Procedures for Emplacement and Retrieval" (SAND84-1010) is in management review. The report entitled "Small Diameter Horizontal Hole Drilling...State of Technology" (SAND84-7103) has been submitted for printing.

The report entitled "Repository Sealing Concepts for the Nevada Nuclear Waste Storage Investigations Project" (SAND83-1778) has been published. The report entitled "Repository Sealing Plan for the Nevada Nuclear Waste Storage Investigations -- Fiscal Years 1984 to 1990" (SAND84-0910) has been approved by DOE/NV and is currently in SNL line review. The report entitled "Hydrologic Calculations Contributing to the Development of Concepts for Sealing a Potential Waste Repository at Yucca Mountain, Nevada" (SAND83-2465) has been modified in response to SNL line review.

All contractors currently working on the repository-sealing activity attended a design requirement and materials recommendations workshop held in Albuquerque on November 13-15, 1984. Each group reviewed the project status and preliminary design requirements for the materials were identified. There were general discussions about materials degradation and dissolution, interface hydraulic conductivity, and the effects of scale and curing conditions on mass properties. Several significant conclusions were reached during the workshop.

- Based on the preliminary laboratory analyses, it appears that stable minerals such as xonotlite, gyrolite, truscottite, and tobermorite are developed at high temperatures. The level of effort associated with the thermodynamic-property-estimation task may be reduced. The need for this thermodynamic estimation will be better defined following the development of the dissolution and degradation models.

- It appears that the engineering of seal materials with target mechanical and physical properties is possible.

- The need for cementitious materials has not been established, especially with regard to high quality, i.e., very low permeability, seals and their use in a high temperature environment. As analyses proceed to determine the requirements for sealing, appropriate modification of the requirements for cementitious materials should be considered.

- There are good reasons for proposing the use of cementitious materials in high quality seals, if these are required. Nonetheless, use of these materials will introduce a number of issues, e.g., effects of high temperatures, interface behavior, effects of scale, and reproducibility of laboratory results in the field. These issues are

relatively complex, and it will be advantageous to avoid them in the design if possible.

- If cementitious materials are selected for use in seal zones that are subject to high temperatures, then priority should be given to evaluating changes in physical properties, e.g., matrix permeability, interface permeability, and strength, in the temperature range 80°C to 250°C.

- Two basic types of materials should be considered. The first should be relatively conventional concretes and grouts for use in surface structures, exploration boreholes, and shaft linings. The second should be a more specialized group of materials for use in higher-temperature conditions. The need for these materials has not yet been established.

A literature search to obtain temperature values for seal designs has been completed. Two difficulties in using the available temperature analyses for sealing-design activities have been identified: differences exist in the thermal properties used in the analyses and results were not reported for specific locations that are useful for design of sealing components, thereby necessitating the extrapolation of results. A table indicating preliminary values of peak temperatures at various locations in the repository has been compiled. These values were obtained using crude extrapolations for time, position, loading, and material parameters. These estimated peak temperatures will be used in the initial seal design. If necessary, additional temperature profiles will be generated.

A kinetic dissolution model was developed and areas of insufficient data input were identified. A survey of the literature dealing with the equilibrium solubility products for the important low-temperature cementitious phases, gyrolite, tobermorite, turscottite, and xonotlite, was conducted. The available information appears to be incompatible with data for other mineralogical phases. Thus, it appears important to generate critical thermodynamic parameters for such phases.

A second draft of the report entitled "Development of Tuff Concrete for the NNWSI Program" (SAND84-0513) is being prepared. Results of the laboratory testing over the last and current fiscal years will be added to the report. The report entitled "Compatibility Between Select Cementitious Material and the Topopah Spring Member Tuff," written at Pennsylvania State University, has been reviewed and additional input has been incorporated into the report.

Two papers entitled "Tuff-Cement or Concrete Interactions in the Repository Environment" and "Geochemical Performance Evaluation and Characterization of a Potential Cementitious Repository Sealing Material for Application in the Topopah Spring Tuff NNWSI" were prepared for presentation to the Materials Research Society Proceedings of the International Symposium on Nuclear Waste Management. These papers describe the reactivity and compatibility of cementitious sealing materials with welded devitrified Topopah Spring and other NTS tuff.

Simple hydrological and structural analyses have been performed to develop preliminary design requirements for seal materials. These design requirements include:

- maximum permeability of a shaft plug or shaft backfill, such that flow through the plug or backfill will be less than the drainage flow out of the sump
- maximum permeability of a station plug such that leakage through the plug, in the event that the shaft fills with water, will be less than 1 percent of the drainage from the sump
- required length and shear strength of shaft and station plugs to resist earth pressure and hydrostatic pressure
- maximum permeability of a ramp plug such that leakage through a plug, in the event that the ramp fills with water, will be less than 1 percent of drainage through the ramp floor
- maximum permeability of external fault seals and emplacement hole plugs such that flow through seals under hydrostatic head will be less than 1 percent of flow through the floor.

At present, design requirements are being developed to minimize water flow towards the waste. An effort will be made to determine whether some periodic water flow is allowable and to revise the design requirements as appropriate.

Work continued on three types of airborne transport of nuclides:

- convective transport for open or backfilled shafts resulting from a temperature difference between two shafts
- convective transport involving cool air drawn down the shafts to replace hot air rising through the rock
- transport under a pressure gradient resulting from rising temperature in a sealed repository.

These analyses, however, presently consider only rates of air movement. Additional information regarding waste package performance is required to interpret air transport in terms of nuclide transport. For the first analysis, work is continuing to determine the proportions of the air movement that occurs through the disposal rooms and through the accessways.

A review of NNWSI literature has been conducted to determine temperature histories at key seal locations, such as the bases of shafts. This information is required for the airborne-transport calculations and may be required for thermomechanical analysis of seal components. The literature is adequate to determine approximate peak temperatures for various locations, but it is very difficult to extrapolate complete temperature histories.

Three BNI reports have been issued for review or approval: "Physical Protection and Safeguards Design Basis," "Preliminary Seismic Analysis of Steel Water Tanks," and "Domestic and Firewater Storage and Distribution for Central Surface Facilities."

The Office of Geologic Repositories is in the process of bringing the three repository projects into sharper focus and common direction. Until the redefinition of the national program and project activities is completed, it seems prudent to de-emphasize and stop work on portions of the conceptual design effort. As a result, a stop work order has been prepared for the surface (BNI) and underground (PBQD) conceptual design contracts. The stop work order will be in place for approximately one year. Once the program guidance is firmed up, a new conceptual design scope will be established and carried out, at which time the stop work will be released. Simultaneously with the issuance of the stop work order to the two architect-engineering firms, a letter of intent is being issued to each firm to provide engineering support services (level of effort) to SNL during FY 85. A purchase requisition, in support of the letter of intent, has been initiated and a contract is expected to be awarded by January 1, 1985.

A memo proposing a philosophy for selecting codes to be used routinely for thermomechanical calculations was issued by SNL. The memo was an action item that resulted from a meeting at which SNL Division 1521 announced that it would no longer support ADINA. Instead, SNL Divison 1521 would like to work with ABAQUS on their big, multi-purpose code. Department 1520 will continue to support a number of special purpose codes, e.g., JAC, COYOTE.

RE/SPEC has completed development of and briefed SNL on a new far-field thermomechanical model. As part of the model-development process, a simple, topographically flat, finite-element mesh was generated that can be used economically for sensitivity studies.

PLANNED WORK

Drift convergence will be monitored in the U12g.12 drift during December in the absence of further mining. The crews have been moved to another activity. Mining should resume after January 1, 1985.

By the end of January 1985, the test series to determine the thermal conductivity and expansion properties of samples of the lithophysal Topopah Spring Member will be completed. Analysis of the thermal-expansion data from the Yucca Mountain tuffs will continue. Approximately 68 percent of the test results have been reduced as of November 30, 1984. A draft of the report entitled "Triaxial Compression Test Series on Topopah Spring Tuff from G-4, Yucca Mountain, Southern Nevada" (SAND84-1101) should be completed during January 1985.

Core samples, each containing a discrete fracture, were selected from various stratigraphic units above the water table at Yucca Mountain, and will be tested to determine hydrologic characteristics of the fracture. Tests will be run at both ambient and increased temperatures and pressures.

The hydrologic, structural, and thermal analyses supporting the design requirement will be completed in February 1985. The repository-sealing program plan will be modified as appropriate during this period.

The dissolution model will be refined, a position paper on the potential for degradation of cementitious-based materials will be prepared, and the preliminary geochemical design requirements to support the repository design effort will be developed. Limited laboratory testing will be undertaken to support the position on degradation of cementitious-based seal materials.

Additional numerical analyses, using the computer code TRUST, will be performed as part of sealing-concepts development. These analyses will consider the latest hydrologic properties for welded tuff and the latest thought on flux through Yucca Mountain. These analyses are only confirmatory analyses and are the last associated with the sealing concepts.

As a result of the persistent difficulties RE/SPEC has had in attempting to run the CAVS material model in the STEALTH finite difference code, use of STEALTH will be discontinued. However, because of the merit of the CAVS material model, it was decided to attempt to put CAVS into SANCHO.

In light of the decision to discontinue use of STEALTH, SNL decided to continue support, development, and evaluation for two compliant-joint material models. The two models are CAVS and the Thomas model in JAC. RE/SPEC has been asked to do two things: summarize, in a report, all of the calculations done to address verification, validation, and feasibility of the SPECTROM compliant-joint model; and modify, modularize, and install the CAVS model in the SANCHO code. Verification and validation calculations will then proceed with CAVS. RE/SPEC has estimated it will take one to two months to install CAVS.

The application of 10CFR100, used for the seismic and tectonic siting criteria for nuclear power plants, is clearly inappropriate for repository siting because safety considerations are much more stringent for power plants. 10CFR60 specifies that it must be demonstrated with reasonable assurance that the tectonic and seismic environments will be consistent with the EPA release limits and will not lead to decreased performance of the repository, either during the operating period or during the long-term containment and isolation period. This demonstration will be based on safety analyses that employ conservative assumptions with respect to the natural environment and with respect to the event scenarios which could lead to accidents. This approach is consistent with the DOE Siting Guidelines (10CFR960); mitigation will be achieved through favorable site selection and by appropriate design conservatism. In this regard, a site cannot be qualified if a loss of waste isolation would occur as a result of seismicity or tectonics, and also if exceptional engineering measures would be required for exploratory shaft construction or for repository construction, operation, or closure. Specific values are not designated with respect to faults or seismicity. Site-specific parameters are therefore required for use in satisfying overall system performance objectives. The approach outlined above will be incorporated into the NNWSI position paper regarding seismicity and tectonics and their relation to repository operation at Yucca Mountain.

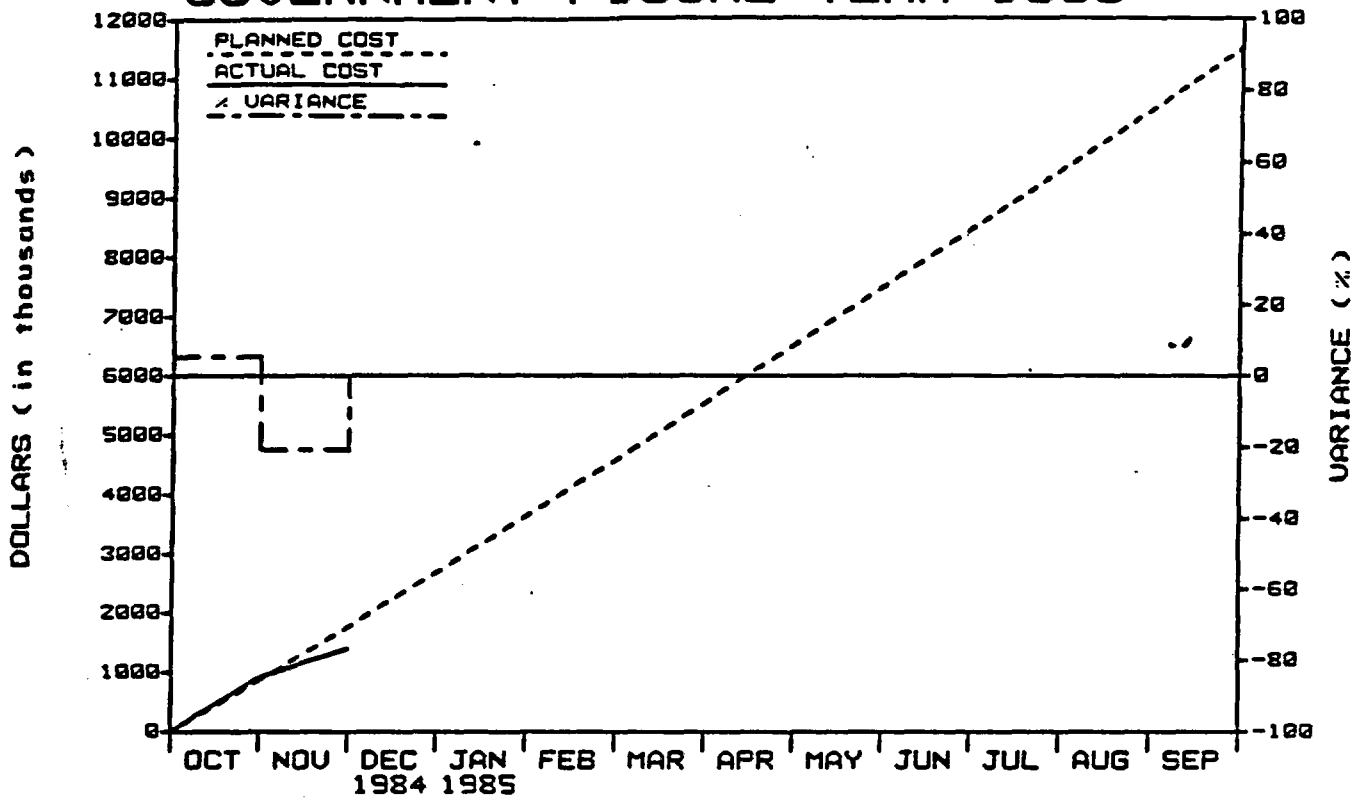
PROBLEM AREAS

DOE/HQ is leading an effort to establish a standard outline and content description for Chapter 7, Conceptual Design, of the SCP. The DOE/HQ outline is substantially different from those previously adopted by the NNWSI program. If this DOE guidance is adopted, the budget and schedule associated with this milestone will have to be revised.

The task associated with the development of design requirements is behind schedule. Because this task will require more effort than initially planned and because an additional milestone was introduced into the sealing design activity, the budget may be exceeded by 10 to 12 percent.

The peer review of the report entitled "Parametric Study of the Suitability of Underground Excavations for a Nuclear Waste Repository in Tuff" (SAND83-7451), written by the Agbabian Associates, is being delayed because of commitments to other milestones.

WBS, 2.4 REPOSITORY INVESTIGATIONS
GOVERNMENT FISCAL YEAR 1985



PLAN (X1000)	862	1757	2695	3642	4585	5547	6520	7497	8471	9458	10467	11510
COST (X1000)	909	1392	0	0	0	0	0	0	0	0	0	0
VARIANCE (X1000)	-47	365	0	0	0	0	0	0	0	0	0	0
% VARIANCE	5	-21	0	0	0	0	0	0	0	0	0	0

Variance Explanation: Numerous subcontractor costs were not received in time for November costing. New plans are being prepared.

RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
SNL	2.4	HORIZONTAL WASTE EMPLACEMENT EQUIPMENT DEVELOPMENT PLAN									△			
SNL	2.4	SEAL DEVELOPMENT PLAN FOR REPOSITORY		◇										

△ PLANNED MILESTONE COMPLETION DATE
▲ COMPLETED AS SCHEDULED
◇ REVISED MILESTONE COMPLETION DATE
◆ COMPLETED AS REVISED

2.5 REGULATORY/INSTITUTIONAL

OBJECTIVE

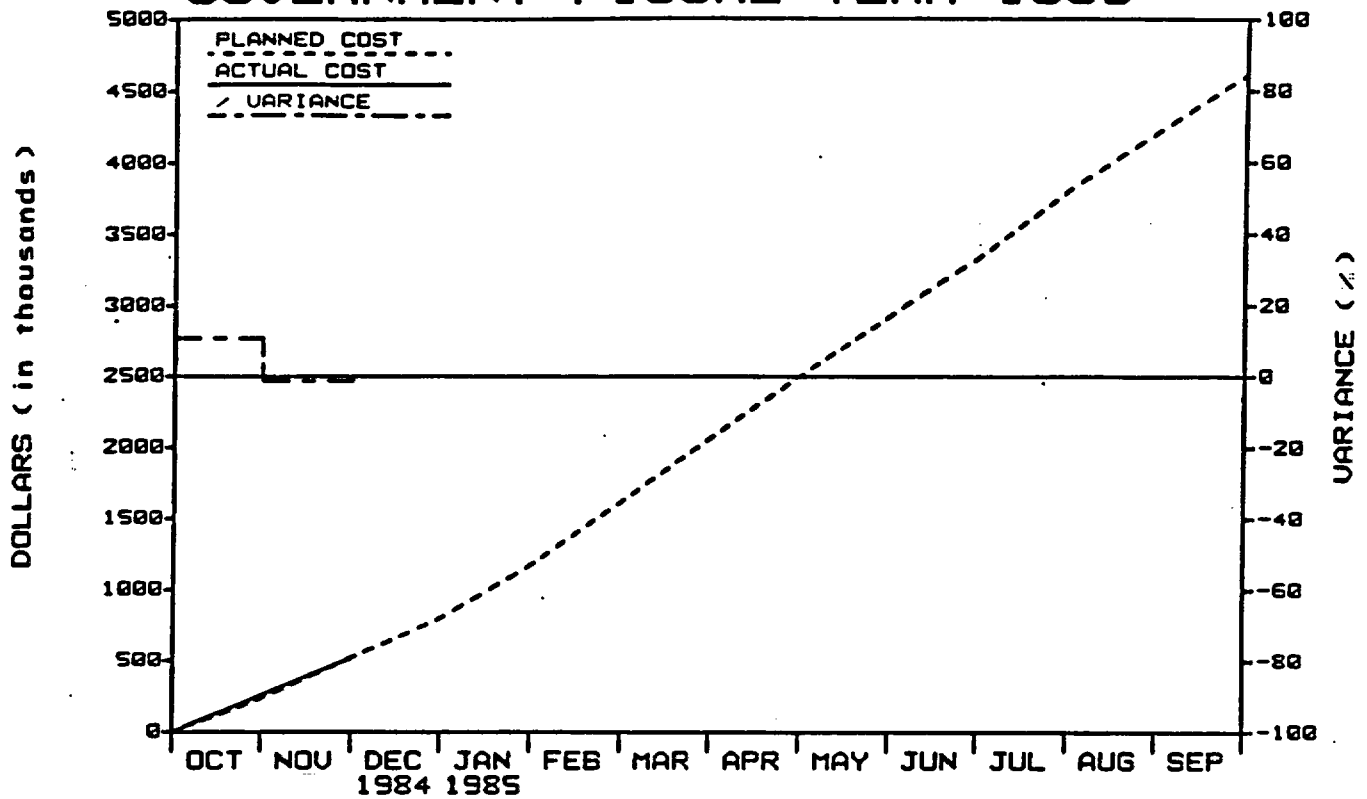
The objective of the Regulatory/Institutional task is to provide the capability for interfacing with all the institutions and to meet the requirements identified in various laws and regulations pertaining to the siting, design, and construction of a nuclear waste repository and a test and evaluation facility. The principal laws and regulations which govern the licensing of these include the Atomic Energy Act of 1954, the National Environmental Protection Act (NEPA) of 1969, and the Nuclear Waste Policy Act (NWPA) of 1982, 10 CFR Part 60 and 40 CFR Part 191. To facilitate understanding, regulatory and institutional activities may be further subdivided into five categories: (1) Site Recommendation Report, (2) Repository Licensing, (3) Site Characterization Plan (SCP), (4) Environmental Assessment, and (5) State Interactions.

ACTIVITIES

The following data packages were transmitted from SNL to the NRC: Bulk Properties, Repository Sealing, Thermal Conductivity, Thermal Expansion (Unconfined), Thermal Expansion (Confined), Field Testing, Laboratory Rock Mechanics, and Rock Mass Classification.

LLNL staff completed a review of the October 1984 draft of the NNWSI Site Characterization Plan--Annotated Table of Contents (SCP-ATOC). A number of modifications were required to restructure Chapter 7 (Waste Package) from the original ATOC (based on the "Orange SCP" draft) to more accurately reflect the current status and direction of the Waste Package Task at LLNL.

WBS, 2.5 REGULATORY & INSTITUTIONAL GOVERNMENT FISCAL YEAR 1985



PLAN (X1000)	232	522	796	1169	1616	2063	2504	2924	3331	3800	4207	4609
COST (X1000)	257	515	0	0	0	0	0	0	0	0	0	0
VARIANCE (X1000)	-25	7	0	0	0	0	0	0	0	0	0	0
% VARIANCE	11	-1	0	0	0	0	0	0	0	0	0	0

RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
SAIC	2.5	DRAFT SITE CHARACTERIZATION PLAN												
SAIC	2.5	FINAL SITE CHARACTERIZATION PLAN											△	
SAIC	2.5	NNWSI REFERENCES FOR EA COMPLETE		◇										
SAIC	2.5	DRAFT ENVIRONMENTAL ASSESSMENT		▲										
SAIC	2.5	FINAL ENVIRONMENTAL ASSESSMENT								△				
SAIC	2.5	EA COMMENT/RESPONSE DOCUMENT								△				

△ PLANNED MILESTONE COMPLETION DATE
▲ COMPLETED AS SCHEDULED
◇ REVISED MILESTONE COMPLETION DATE
◆ COMPLETED AS REVISED

2.6 EXPLORATORY SHAFT

OBJECTIVE

The objective of this task is to identify and plan the tests that need to be conducted at the repository horizon as a part of detailed site characterization and to design and construct the Exploratory Shaft (ES) and the underground test area in Yucca Mountain. The primary focus of this effort will be to establish the basis for evaluating the unsaturated zone in a welded tuff formation. In addition, an effort will be made to define the nature of the unsaturated zone with regard to water content and water movement, and the nature of the natural barriers between the repository horizon and the static water level.

ACTIVITIES

The first sixteen of D. Vieth's Exploratory Shaft Test Plan (ESTP) review comments were sent to the ESTP Committee. Six of the remaining nine reviews were completed by Vieth, and the last three should be completed early in December.

A schedule for the Vieth/Principal Investigators (PIs) mini-reviews was sent out; but because of delays in completing the comments, meetings have been rescheduled for mid-January.

A team of technical and support people has been formed at LANL to prepare Part I of the ESTP, Rev. 1 and to coordinate completion of the entire Rev. 1 document.

The ESTP schedule and cost estimates were updated to reflect the March and June 1986 startup dates for ES construction.

Data from laboratory measurements on Yucca Mountain cores were discussed in a paper entitled "Geoengineering Characterization of Welded Tuffs from Laboratory and Field Measurements" (SAND84-1147C). The paper is to be included in the Proceedings for the Eighth International Symposium on the Scientific Basis for Nuclear Waste Management, Materials Research Society, November 1984.

Internal technical review of a draft report describing the use of high frequency electromagnetic (HFEM) geotomography techniques in fractured, welded tuff is nearing completion. The report entitled "Study of Water Flow in Welded Tuff using Geophysical Tomography" describes the HFEM measurements made in G-Tunnel at NTS and their analysis and interpretation.

Several preliminary scoping calculations for Waste Package Environment Test design purposes were done in November; this work is related to the numerical modeling planned in the Waste Package Performance Analysis subtask. The calculations were done initially with relatively simple models of heat flow and subsequently with a more elaborate TRUMP model to estimate necessary test durations and power histories. The results of the preliminary scoping calculations indicate that a twelve-month test will be needed in order to heat a reasonably large volume of rock and then allow it to cool. This assumes the

100°C isotherm is driven out to a radius of about one meter around the hole in which the heat source is emplaced. Revisions to the logic network for the tests have been prepared based on this information and on test construction considerations and have been sent to SAIC and LANL.

The candidate members of the Integrated Data System (IDS) Design Review Board have been approved in accordance with procedure TWS-E-DP-01. This action clears the way for the January IDS Design Review. Work is continuing on the IDS software structural design and the detailed hardware design.

PLANNED WORK

As soon as NNWSI-SOP-02-02 is completed and approved, the assignment of QA levels (with rationale) to the detailed ESF items will be finalized and submitted to WMPO for approval.

Three hydrology tests still need updated logic networks and budget estimates; completion is planned for December.

The major effort during the next few months will be to prepare the ESTP, Rev. 1 document. LANL will rewrite Part I, and the PIs will work on their individual test proposals for Part II. LANL will collate and prepare the Rev. 1 document.

A detailed proposal for prototype air-coring tests will be prepared by interested investigators from LANL, LLNL, SNL, and the USGS for delivery to WMPO and the TPOs by late January.

Additional drilling and sampling is being planned for the G-Tunnel HFEM site because previous drilling (using a significantly smaller drill rig) was unable to provide samples of adequate quality for verification of experimental results. Other instrumentation, measurement, and sampling techniques that may be used in the Waste Package Environment Tests will be identified and reviewed. These fall into the general areas of subsurface hydrology and geomechanics, in keeping with the broad scope of the tests.

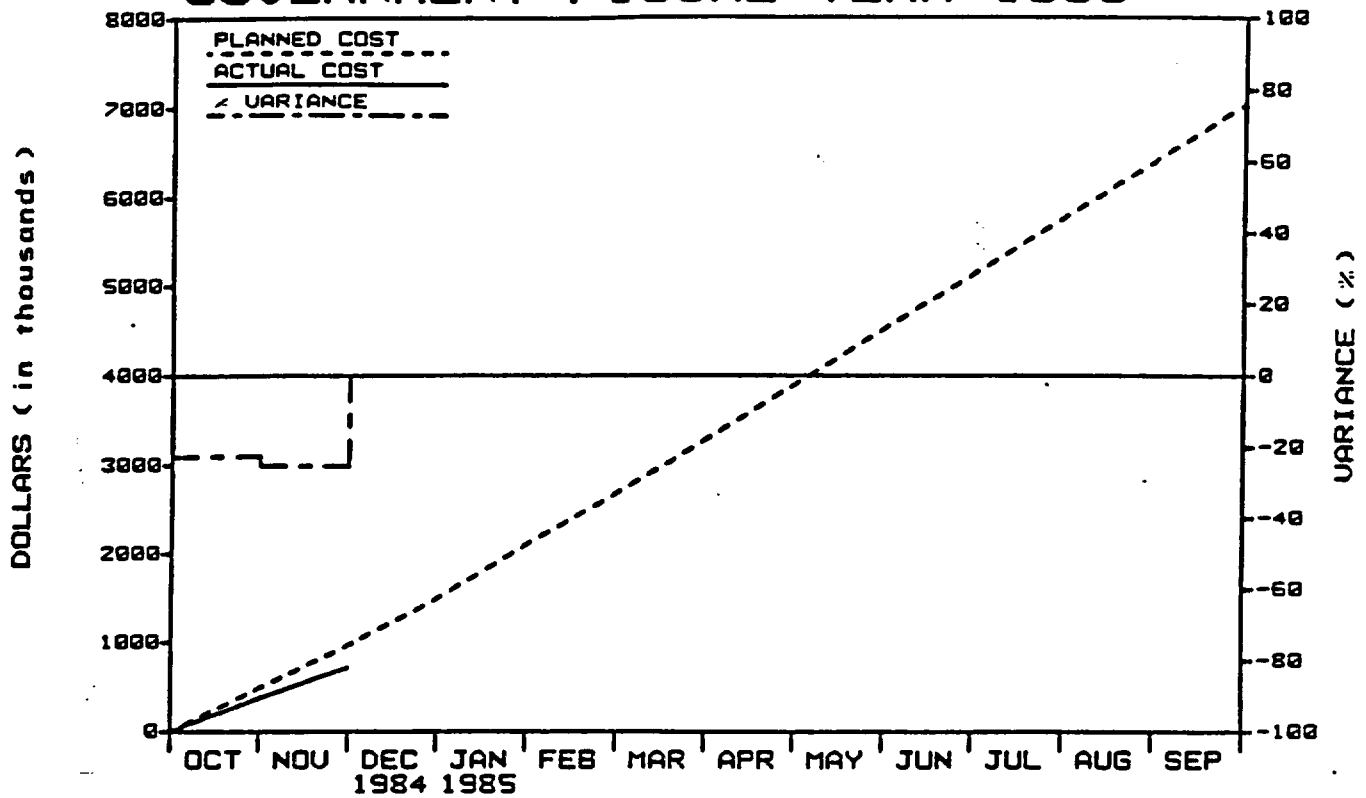
Revision and development of the Test Plan will proceed as soon as the remainder of the review comments from the March ESTP retreat are received. The schedule of the Waste Package Environment Tests will also be refined as the related project schedule changes become better defined.

PROBLEM AREAS

No revisions have yet been made in the version of the Waste Package Environment Test conceptual test plan that is included in the ESTP. This work has been delayed by incomplete review comments from the La Jolla WMPO/TPO/ESTP committee meeting.

We have been informed that Hewlett Packard has discontinued development of the Asafe redundant hardware configuration. Although this will require development of additional software, there should be no significant impact on cost or on ability to meet project schedules.

WBS, 2.6 EXPLORATORY SHAFT
GOVERNMENT FISCAL YEAR 1985



PLAN (x1000)	489	970	1488	2093	2677	3283	3901	4528	5140	5768	6394	7037
COST (x1000)	378	724	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	111	246	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-23	-25	0	0	0	0	0	0	0	0	0	0

Variance Explanation: The current plan does not include the delays in the Exploratory Shaft schedule. A new plan is being prepared which will incorporate the revised schedule.

RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
LANL	2.6	COMPLETE ESTP & SUBMIT TO DOE/HQ FOR FINAL REVIEW & APPROVAL						◇						
LANL	2.6	ISSUE ESTP												△

△ PLANNED MILESTONE COMPLETION DATE
▲ COMPLETED AS SCHEDULED
◇ REVISED MILESTONE COMPLETION DATE
◆ COMPLETED AS REVISED

2.7 TEST FACILITIES

OBJECTIVE

The major objective of this task is the design, construction, and operation of the test facilities that support technology development for other waste management programs and other geologic repositories projects. The two major facilities operated under this WBS element are the Climax Spent Fuel Test Facility and the E-MAD Facility.

ACTIVITIES

Spent Fuel Test-Climax

Peer review of the report entitled "Measurement of In Situ Deformability with NX Borehole Jack, SFT-C, NTS" resulted in a more detailed statistical analysis of the modulus data obtained following the SFT-C. Both parametric and nonparametric analyses were performed to establish statistical confidence in the conclusions of the report. The report was revised and is being reviewed by the authors prior to submittal for peer review.

The results of the additional statistical analyses have important implications for future users of the NX jack. The proposed ASTM standard guide for using the NX jack calls for elimination of measurements if they were made where irregularities in the borehole diameter prevented the jack platens from being in full contact with the borehole wall. The assumptions behind this proposed data screen were challenged, and the statistical analyses have established that the data were operated on in a random fashion. Therefore, the screen is ineffective. These results will be incorporated in a new report.

An existing computer program was extensively modified to provide a means of generating report-quality core logs. The code is currently being tested. It will be used to generate text and pictorial displays of logs of post-test cores obtained at the SFT-C. These are the basis of a report on post-test core logging which is in preparation.

Petrographic and mineralographic studies of sidewall cores obtained adjacent to spent-fuel and electrical-simulator boreholes are in progress. These studies are aimed at identifying and quantifying possible changes in the mineralogy and petrology of the Climax quartz monzonite and its natural alteration products. The test design facilitates examination of the effects of heat alone and heat in combination with ionizing radiation. It is expected that no significant alterations have occurred.

Calibration results have been compiled and analyzed for all but two classes of instruments deployed at the SFT-C. Those completed include radiation monitors, rock radiation dosimeters, four types of temperature sensors, ventilation system airflow and dewpoint sensors, stressmeters, convergence wire extensometers, fracture monitors, and borehole closure monitors. Error analyses and reliability statistics were developed for each of these classes of instruments. Borehole rod extensometers and Watt transducers remain to be treated. The rod

extensometers were calibrated differently post-test than they were pre-test. The code used to analyze these data was modified to accommodate this change and has been used to prepare the required data summaries. Supporting documentation for the post-test calibrations was received from EG&G-Las Vegas and SNL.

The engineering sketches used in fabricating the rod extensometer microadjuster calibration device were developed into ANSI-Y14.5 format drawings. This design package, when completed, can be used in other in situ testing programs when borehole rod extensometers are employed. Researchers at the Canadian Underground Research Laboratory have contacted LLNL with a request for either the plans or the prototype calibration device.

Preliminary testing of the USBM overcore cell was completed. Despite several modifications in measurement procedures and equipment, a repeatable calibration could not be produced. Late this month, the USBM cell and its associated calibration fixture were sent to the LLNL precision-machining shop where calibrations were obtained with a laser ruler. A high precision (10^{-7} in) repeatable data set was obtained. A strong hysteresis effect remains in evidence, though it is smaller in magnitude than previously observed and reported. The calibration fixture is being modified to facilitate direct investigation of the response of the cell's strain-gauged cantilever beams. This study should be completed early next month.

As previously reported, the fittings which are used to couple borehole extensometer connecting rods to associated transducers were found to slip during post-test in situ instrument evaluations. Preliminary dead-weight load tests of the couplings were completed this month. The geometry of the couplings was found to introduce errors in the measurement of slip. Additional specimens have been prepared for further tests which are designed to mitigate the effects of the coupling geometry.

Revised mechanical and thermomechanical response calculations were initiated following a two-month hiatus. Calculations of the effects of explosively driven shocks on the Climax mine-by are being undertaken first. A suite of stress, stress ratio, Poisson's ratio, and deformation modulus values was established for use in these calculations. The values of the input parameters are based on post-test stress and deformation modulus measurements.

Post-test thermal calculations will address discrepancies between calculated and measured temperatures in the rock mass and in thermal energy removal in the ventilation airstream. A calculation which recognizes the finite length of the SFT-C is being planned. The need for modifying the TRUMP mesh generator to accomplish this task is being assessed.

Two reports were submitted to WMPO for programmatic review: "Physical and Chemical Changes to Rock Near Electrically Heated Boreholes at SFT-C" and "Overcoring and Calibration of IRAD Gage Stressmeter at Spent Fuel Test in Climax Granite."

E-MAD

Draft plans for shipping 17 fuel assemblies from the E-MAD facility to the Idaho National Engineering Laboratory and for closing the facility were completed and delivered to DOE/NV at the request of DOE/HQ.

An estimate for performing potential container development work for West Valley Nuclear Services was drafted and reviewed; comments are being resolved. A draft document for repository package drop and impact testing was received and is being evaluated.

A tentative Cost Plan for FY 85 was prepared using only those tasks which must be continued. Draft input for the NNWSI FY 85 Work Plan was prepared using the tasks which have been proposed but not yet authorized.

The FY 84 Annual Report was drafted and submitted for DOE review. Approval for publication of the quarterly report has been received and copies have been distributed.

A prototype lifting ball adapter for the E-MAD fuel-rod handling tool was designed and fabricated. This adapter will permit attachment of a load cell on the tool for monitoring forces during rod pulling and reinsertion.

Instrumentation was installed on the canister containing fuel assembly B41, which is being stored in the E-MAD Hot Bay lag storage pit, and temperature monitoring was initiated. Analysis of gas samples taken from this canister has confirmed that at least one of the B41 fuel rods is defective.

With the exception of fuel assembly B02, which is being used in the fuel temperature test, all E-MAD fuel assemblies are now stored in the Hot Bay lag storage pit. All canisterized fuel assemblies located in the lag storage pit are in a safe configuration. The maximum recorded canister temperatures are well below the canister design limits. All monitored fuel assemblies reflect a normal profile over the past month.

The month 19 operation of the Fuel Temperature Test continued. The temperature profile criteria were met, with a maximum fuel temperature of 229°C. The change to month 20 operation is scheduled for early December.

An operational checkout was completed of the automatic digital temperature control system which will replace the manual analog temperature control system that has been used since the current Fuel Temperature Test began. The checkout was performed under actual conditions; steady-state operating and heatup parameters were established. A Consolidated Procedure for the changeover has been drafted and is in review. Current plans are to activate the new system prior to the Fuel Temperature Test month 20 operation.

The first semi-annual FY 85 gas sampling operations were completed on all eight fuel assemblies being stored in sealed canisters, excluding B41. The samples, collected during remote fuel handling operations performed in the E-MAD Hot Bay, were sent to two laboratories for analysis to verify the integrity of the fuel assemblies.

At the request of Pacific Northwest Laboratory, additional gas sampling of the canister containing fuel assembly B41 was initiated. Leaks have been suspected in this fuel assembly since it was received at E-MAD in 1979. Since then, significant levels of krypton-85 have been detected in the cover gas of the canister in which it is stored. The current plan is to obtain gas samples for three consecutive months.

On November 19, gas samples were taken from the B41 storage canister atmosphere before and after the atmosphere was exchanged with fresh helium to monitor the incremental release of krypton from the fuel assembly. Following these operations, the canisterized fuel assembly was returned to the lag storage pit and instrumented for canister exterior temperature monitoring.

PLANNED WORK

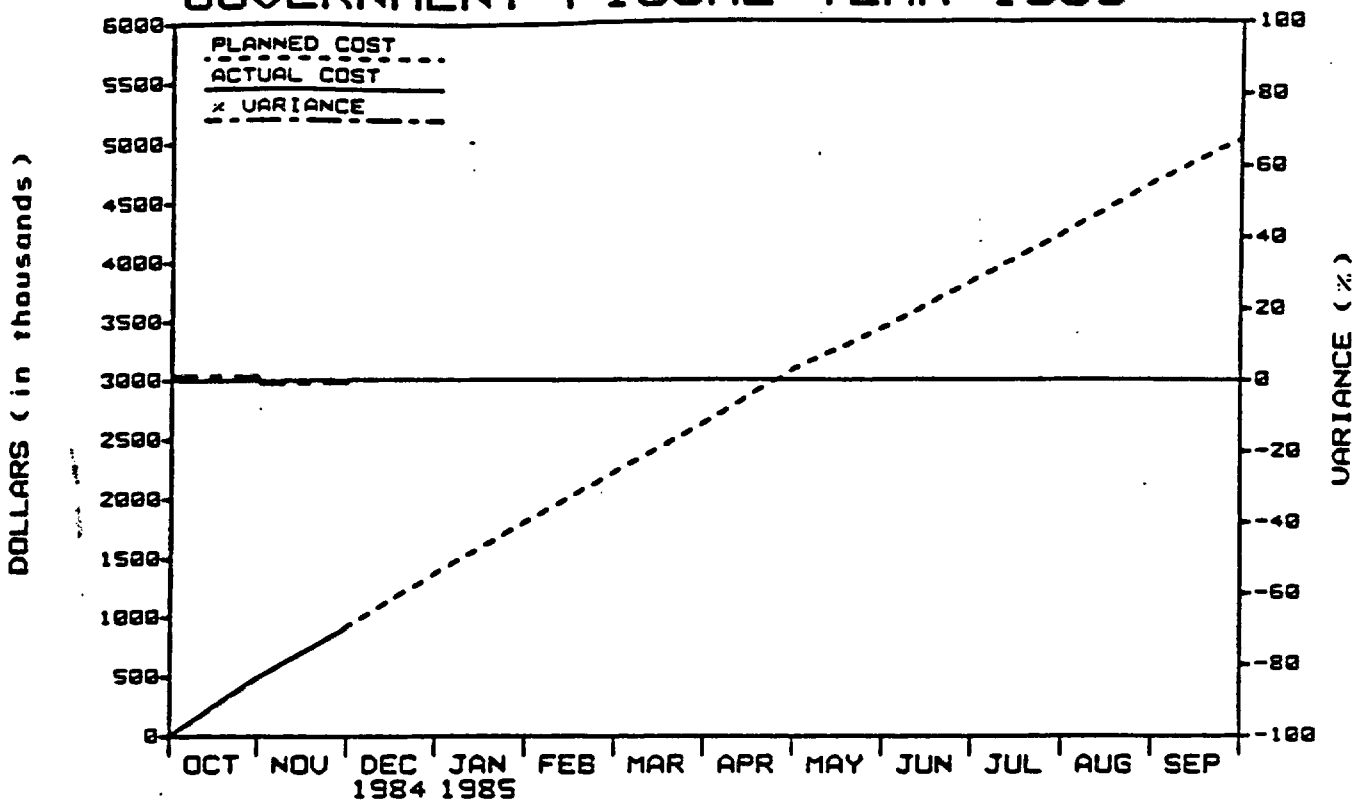
Laboratory testing of the NX borehole jack is planned for FY '85. Response of the jack in undersize and oversize boreholes will be investigated to determine a valid relationship between the extent of jack platen seating and the apparent deformation modulus measured in a material.

Preparations are under way for obtaining contamination swipe samples from the fuel assemblies being stored in unsealed canisters at E-MAD. These remote operations are currently scheduled for the weeks of December 10 and 17.

PROBLEM AREAS

The mineralogy and petrology studies continue to meet with delays because the subcontractor has not delivered thin sections on time. No quality problems have been encountered despite the exceedingly slow delivery. Delays are therefore expected in the post-test report.

WBS,2.7 TEST FACILITIES
GOVERNMENT FISCAL YEAR 1985



PLAN (x1000)	487	922	1371	1803	2227	2641	3092	3442	3840	4229	4653	5026
COST (x1000)	493	914	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	-6	8	0	0	0	0	0	0	0	0	0	0
% VARIANCE	1	-1	0	0	0	0	0	0	0	0	0	0

2.8 LAND ACQUISITION

OBJECTIVE

The objective of this task is to maintain access to land adjacent to the Nevada Test Site that is controlled by the U.S. Air Force and the Bureau of Land Management and to protect land that could be used for a high-level waste repository and the surrounding buffer zones.

ACTIVITIES

None.

PLANNED WORK

To be included in future NNWSI Project Monthly Reports.

PROBLEM AREAS

None.

2.9 PROGRAM MANAGEMENT

OBJECTIVE

The objective of this task is to manage all activities of the NNWSI Project by all contractors. The five major areas identified are Project Management, Project Control, Interface Activities, Quality Assurance, and Generic Requirements Document (GRD) Support.

ACTIVITIES

The NNWSI Project Master Schedule was revised to reflect the new dates developed at the OCRWM annual budget review in November. The detailed schedules that are maintained for each WBS element were then reviewed and revised as necessary to conform to the November guidance.

The master schdule was revised to reflect the numerous changes in level-one and level-two milestones that were made by the TPOs and the Director, WMPO, in response to budget revisions from DOE/HQ. The milestones and budgets for out-years were prepared using new computer programs for presentation of data to the third level of the WBS showing the deliverables associated with the budget allocated to each WBS element.

Replanning for the preparation and construction of the first and second shafts at the Yucca Mountain Exploratory Shaft facility began in November. The interrelationships between the first and second shaft are being examined in detail because many of the assumptions made in the original planning for the main shaft are no longer valid. The new plan will be presented on a progressive basis to the ES Construction Committee for review.

A WBS for the NNWSI Project, which follows the DOE/HQ Guidance of August 24, 1984, was baselined on October 30, 1984, and was distributed to project participants. Several changes and additions have been requested to the structure and these will be presented to the Change Control Board for action during the next PM-TPO meeting.

All FY 85 milestones were prepared that must be baselined by the NNWSI Project Change Control Board. The status of the various WBS elements, as provided by the participating organizations, was incorporated into the networks and the summary of the work done to each of the WBS elements was indicated.

The first quarter FY 84 Quarterly Technical Report has been drafted by SAIC. It is being reviewed internally and is scheduled to be completed by December 31. The NNWSI Project Monthly Progress Report (MPR) for August 1984 was transmitted to DOE/HQ on November 14, 1984. Progress is being made on the MPR for September 1984; it is about 90 percent complete. Weekly Informal Reports were issued for the weeks ending October 17, October 24, and October 31, 1984.

Responses to NNWSI Project Audit 84-9 of T&MSS activities were prepared and will be submitted to WMPO in December. The responses to the audit finding

involve T&MSS commitments to revise some Quality Procedures and Administrative Procedures by January 20, 1985.

Verification to determine whether or not the remedial action necessary to satisfy the T&MSS 84-2 Audit findings was not completed during this reporting period. It will be rescheduled for completion before December 14, 1984.

The NNWSI Quality Assurance Plan, Revision 3, was issued on October 30, 1984. The effective date for implementation was November 1, 1984. The status of the project-wide implementing procedures, SOPs, are as follows.

- o A draft of NNWSI-SOP-17-01, QA Records Management, should be completed by February 1985.
- o Participants' comments on NNWSI-SOP-03-02, Computer Code Assessment, imply that they do not want a uniform detailed procedure. The comments are being evaluated; after they are complete, the procedure will be redrafted.
- o NNWSI-SOP-02-01, QAPP Requirements, has been approved by WMPO and will be issued after QAD approval.
- o NNWSI-SOP-15-01, Nonconformance Control System, Revision 0, was issued September 12, 1984; the effective date was September 28, 1984.
- o A checklist to evaluate data will be incorporated into NNWSI-SOP-03-03, Verification of Data Generated Pre-NNWSI Project QA Plan. A new draft is expected to be completed by the end of January 1985.
- o NNWSI-SOP-03-02, Assigning Quality Levels, will be redrafted to incorporate pertinent comments from the TPOs.

The WMPO QAPP, Revision 2, and twelve QMPs were issued on November 30, 1984. The effective date for implementation is December 10, 1984. The QA Records Procedure will be issued at a later date, pending completion of the ESI. A controlled copy was transmitted to OGR for review and approval.

REECo responded to nonconformances for Surveillance Report No. NV-SR-85-001. The disposition actions are being reviewed for adequacy. WMPO approved and issued Surveillance Report No. NV-SR-85-003 on November 14, 1984. There were no nonconformances reported from this surveillance of SNL's calibration and dismantling of meteorological towers YR and YA. Surveillance Report No. NV-SR-85-004 was performed on November 28, 1984 at LLNL. No nonconformances were prepared as a result of the surveillance of the records management system review. The FY 85 surveillance schedule was approved by WMPO on November 20, 1984.

The year-end status of NNWSI Project audits for FY 84 are shown in the following table.

Status of NNWSI Project Audits for FY 84

Audit No.	Participant Audited	Status
84-1	USGS	Closed May 5, 1984.
84-2	LLNL	Closed May 3, 1984.
84-3	SNL	Closed June 6, 1984.
84-4A	F&S	Closed October 10, 1984.
84-4B	H&N	Closed November 14, 1984.
84-5	USGS	Responses from USGS on ten audit findings were received and found to be satisfactory. This audit will remain open until the procedures are reviewed by WMPO.
84-6	LANL	Comments have been sent to LANL for further clarification. Audit still open.
84-7	W/WTSD	Closed October 12, 1984.
84-8	REECo	Comments have been sent to REECo requesting further clarification. Audit still open.
84-9	SAIC/T&MSS	Waiting for responses from audit findings. Audit still open.

On November 19, a presentation was made to DOE/NV and SAIC personnel on the proposed plans for EA Interaction Activities including State Notification Public Briefings and Public Hearings. Materials presented at this meeting included the draft "NNWSI Plan for Implementation of Environmental Assessment (EA) Interaction Activities"; a chronological list of milestone activities; a definition of objective, time-frame, and membership for each activity team; a monthly calendar of milestone activities and responsible personnel; and a PERT chart of the full process.

On November 26, the final draft of the "NNWSI Plan for Implementation of Environmental Assessment Interaction Activities" was transmitted to DOE/NV.

The "Draft EA Briefing Book - Nevada 1985," as developed by the Institutional Socioeconomic Coordinating Group working group, was transmitted to WMPO and SAIC on November 19 for review. Fifty copies of the book were completed on November 30 and transmitted to Washington, D.C. for use in the briefing team training session. The final version of the Briefing Book was also transmitted to the Siting Division of the Office of Geologic Repositories for final review.

Work continued this month on obtaining copies of the references cited in the EA and on editing the reference lists used in the EA. Work is in progress to make available 15 hard copies and 50 microfiche copies of each of the approximately 500 references. In addition, an effort is being made to locate references cited in the DOE Transportation Appendix to the EA that was generated by DOE/HQ.

Work continued on the preparation of an annotated table of contents (ATOC) for the Site Characterization Plan (SCP). During the week of November 12, support was provided to the DOE/HQ SCP Coordinating Group to prepare a program-wide position on the format and content of an SCP. This position was adopted by the Program Managers on November 14, 1984.

On November 27-28, a meeting was held with representatives from BWIP and a common approach to the SCP "Issues and Plans" chapter was reached. An SCP workshop with all projects, including DOE/HQ and Weston, was scheduled for December 3-7; a common SCP ATOC will be the main objective.

Copies of a draft generic NRC technical position on in situ testing and an issue-oriented site technical position listing points that NRC considers to be issues for the tuff site in the areas of hydrology, waste package, geochemistry, design, and geology were received and distributed to Project participants for review and comment. Comments are being consolidated for WMPO transmittal to OCRWM.

On November 8, representatives of NRC (Office of the Legal Director, NMSS, and Inspection and Enforcement) briefed 63 NNWSI Project staff members on the legal and quality assurance aspects of the licensing process. Plans to conduct the same briefing at other Project locations (LLNL/Menlo Park, SNL, LANL, and USGS/Denver) are being discussed with NRC.

Final EA changes and corrections were made in November. A camera-ready copy was transmitted to DOE/HQ on November 29. The EA is scheduled for public release on December 20, 1984.

Corrections to the NNWSI Project borehole environmental checklists were made this month and transmitted to WMPO on November 16, 1984 (L84-EWM-645).

The draft Meteorological Monitoring Plan (MMP) was approved by WMPO and distributed to various permitting agencies for approval. On November 10, the Nevada Department of Environmental Protection approved the MMP.

Community service profiles have been developed for Nye and Clark counties. The draft report that incorporates existing data for these areas was reviewed with community representatives from Clark and Nye counties, Beatty, Amargosa Valley, and Pahrump. The Socioeconomic Issue Status Report was updated and transmitted to WMPO as an interim report.

A draft report on ways of assessing local attitudes and perceptions is being prepared following the interim progress report on issues relating to public polls regarding a high-level radioactive waste repository at Yucca Mountain. The draft report on the status of this activity was presented in a meeting with WMPO on November 19, 1984.

The tourism study which assessed potential impacts to Southern Nevada tourism if a repository were to be constructed at Yucca Mountain was revised and transmitted to WMPO.

A project manual was developed by SAIC/Golden as the basis for the USGS Work Plan, the USGS Participation Management Plan, and the USGS Project Plan. The manual contains the following information down to the task level: WBS, objectives, PI, description of work, milestones, summary schedule, and budget.

Planning meetings were held for the final two hydrology tasks. These meetings were used to generate new schedules for Ground-water Flow Analysis and for Saturated Zone Hydrology. Complete sets of schedules were prepared by SAIC/Golden. Individual schedules were also submitted to the majority of the PI's. Status was updated on three of the seven schedules: Geophysical Investigations, Ground-water Flow Analysis, and Saturated Zone Hydrology. In order to increase the effectiveness of the schedule updating, SAIC recommended that status be updated manually. This would result in a two-day turnaround time.

SAIC/Golden has prepared drafts of Technical Detailed Procedures GPP-12, GPP-14, GPP-15, GPP-16, and GPP-17. Additional procedures are in various stages of preparation. Procedure GPP-06 was approved with an November 1, 1984 effective date. GPP-10 is in the final stages of approval.

LLNL began the Records Inventory on November 12 with the review of records currently being held. Computer entry of the record file information will begin on December 16, 1984 and should be completed by February 27, 1985. INMAGIC has been received and the system set-up has begun. Meetings were held at LLNL during the week of November 26 with representatives of Effective Solutions, Inc. and SAIC to review the relevant record types needed for the records data base. Current record categories and record types being generated by the project were identified.

PLANNED WORK

A set of planning guidance statements will be developed from the guidance that has already been set forth by DOE/HQ or WMPO for the NNWSI Project's Site and Regulatory/Institutional WBS elements. This will be done in December and the CCB probably will be asked to baseline this guidance during January or February 1985.

Detailed work plans for LLNL were reviewed at the November PM-TPO meeting. The other participants agreed to submit their work plans to SAIC by December 15. The work plans will be incorporated into the Project Management Plan (PMP) which was scheduled to be completed January 15. Final internal review will be completed in December. Incorporation of WMPO and SAIC comments is in progress.

Approval of the T&MSS First Quarter FY 85 Task Plans was issued by WMPO on November 30. Modifications will be issued to the SAIC Task Assignments in January for the remainder of FY 85. Modifications to the T&MSS Task Plans will be requested at that time by WMPO and those changes will be included that were identified by WMPO in the enclosure which accompanied the approval letter on November 30.

The Environmental Compliance Plan and the Environmental Data Base Management Plan are being internally reviewed. An interim progress report will be prepared for presentation to WMPO in December.

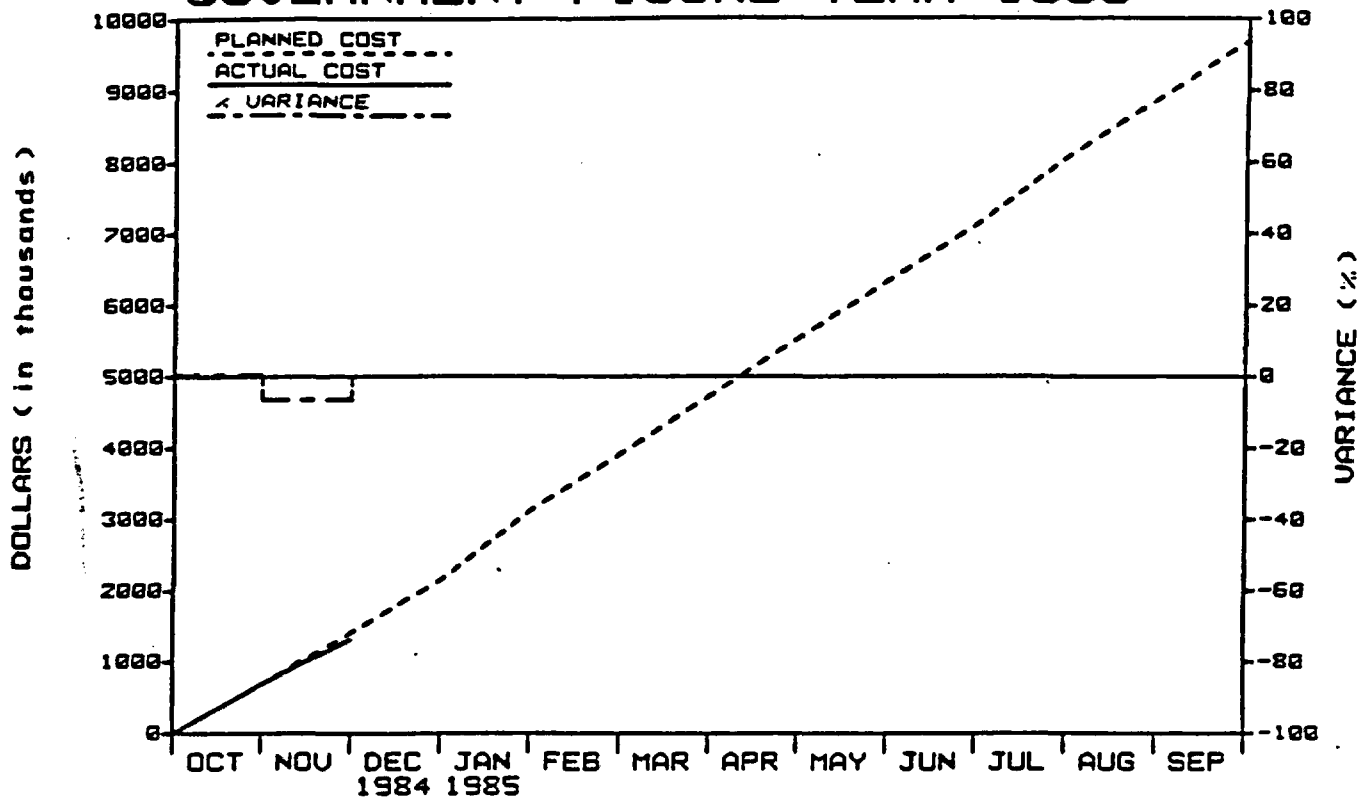
PROBLEM AREAS

The milestone for submitting revised QPs to meet the requirements of NVO-196-17 (Rev. 3) of December 1, 1984, will not be met because of the manpower shortage caused by unexpected sick leave and a heavy workload in other QA activities which prevented backup help for this activity. A new date of January 21, 1985 has been established for the completion of this activity. This delay should not impact the performance of present T&MSS task activities.

There has been no response to nonconformance reports for Surveillance Reports No. NV-SR-84-001, 002, and 003. USGS and SNL were reminded to process the NCRs in accordance with NNWSI-SOP-15-01.

The schedule for FY 85 audits was approved by WMPO on October 19, 1984. The schedule will need to be revised due to the impact of the status of the NNWSI Project participants QAPPs. It is estimated that the first audit will start in March 1985.

WBS, 2.9 PROJECT MANAGEMENT
GOVERNMENT FISCAL YEAR 1985



PLAN (X1000)	680	1402	2150	3115	3917	4726	5534	6339	7127	8064	8871	9688
COST (X1000)	684	1311	0	0	0	0	0	0	0	0	0	0
VARIANCE (X1000)	-4	91	0	0	0	0	0	0	0	0	0	0
% VARIANCE	1	-6	0	0	0	0	0	0	0	0	0	0

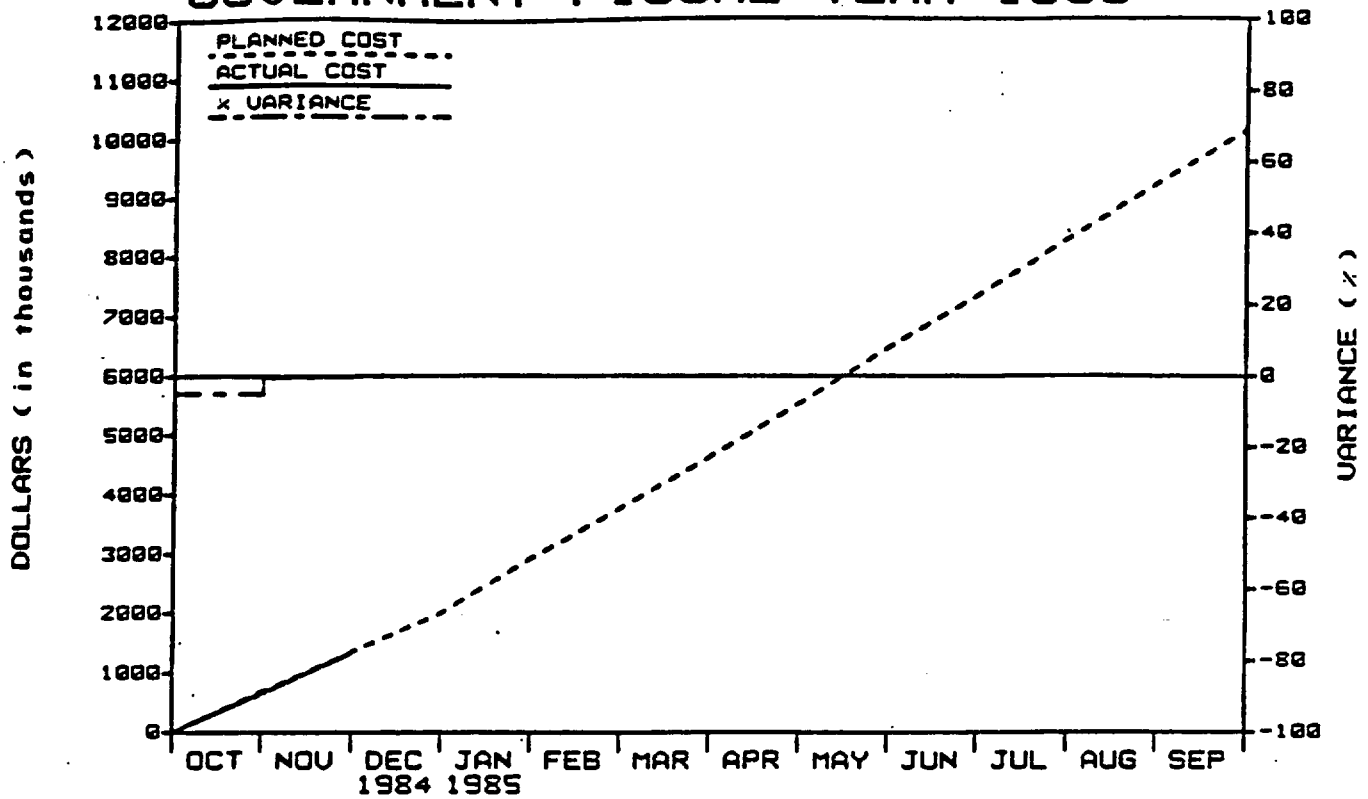
RESP. AGENCY	WBS	MILESTONE DESCRIPTION	O	N	D	J	F	M	A	M	J	J	A	S
SAIC	2.9	SUBMIT FY 1985 NNWSI PROJECT PLAN TO DOE/HQ		△										
SAIC	2.9	SUBMIT NVO-196-18 (REV. 2) TO DOE/HQ		▲										

NNWSI PROJECT

PARTICIPANT

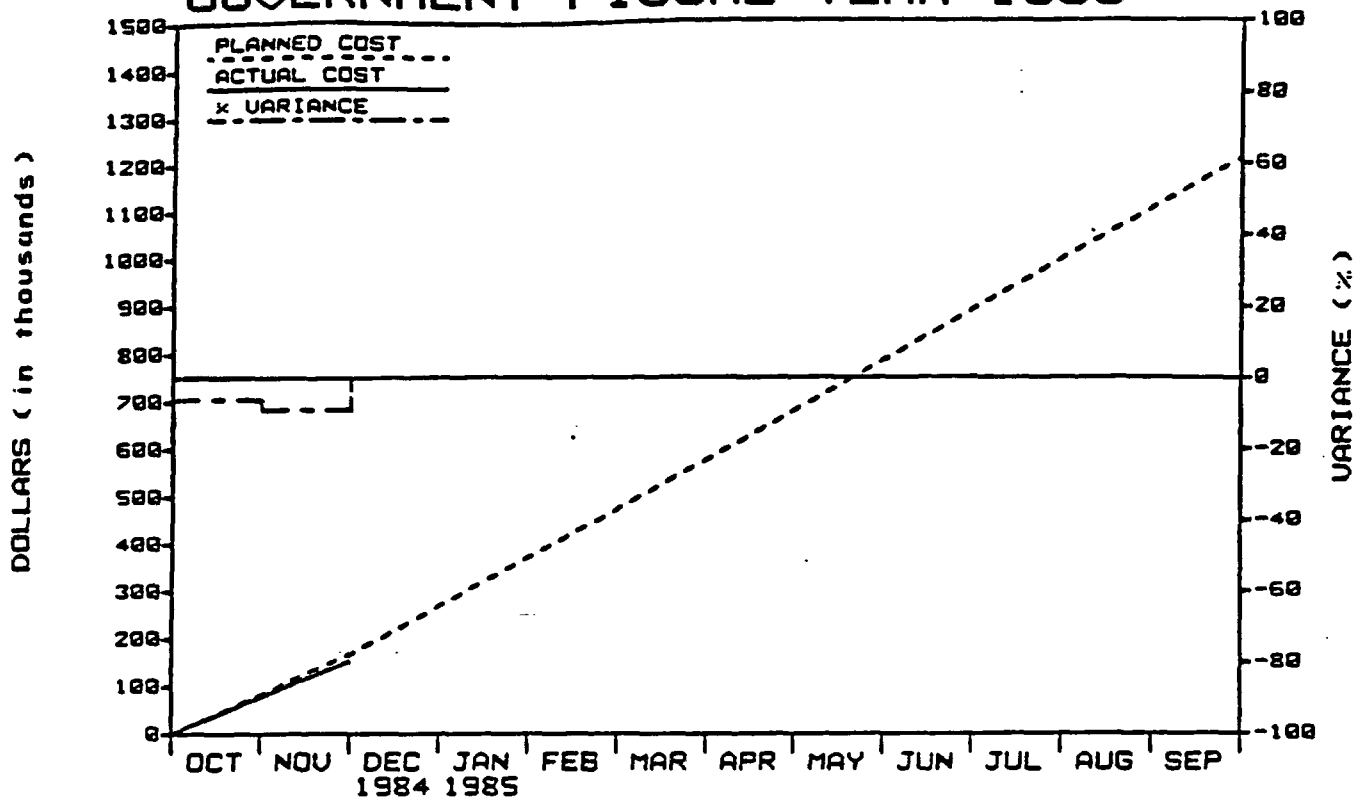
BUDGET vs COST

LOS ALAMOS NATIONAL LABORATORY
GOVERNMENT FISCAL YEAR 1985



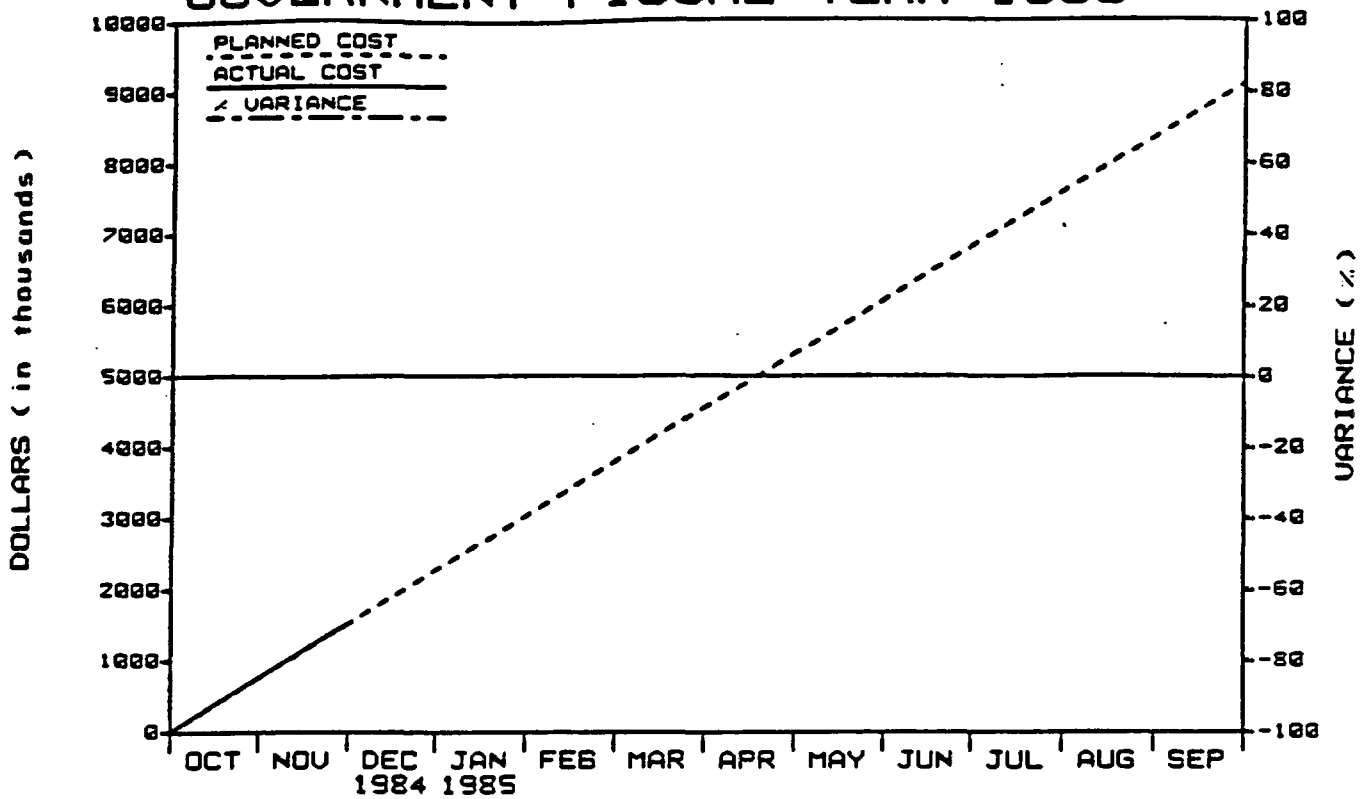
PLAN (x1000)	690	1356	2006	2924	3758	4631	5546	6485	7352	8292	9217	10130
COST (x1000)	656	1354	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	34	2	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-5	0	0	0	0	0	0	0	0	0	0	0

FENIX & SCISSON, INC
GOVERNMENT FISCAL YEAR 1985



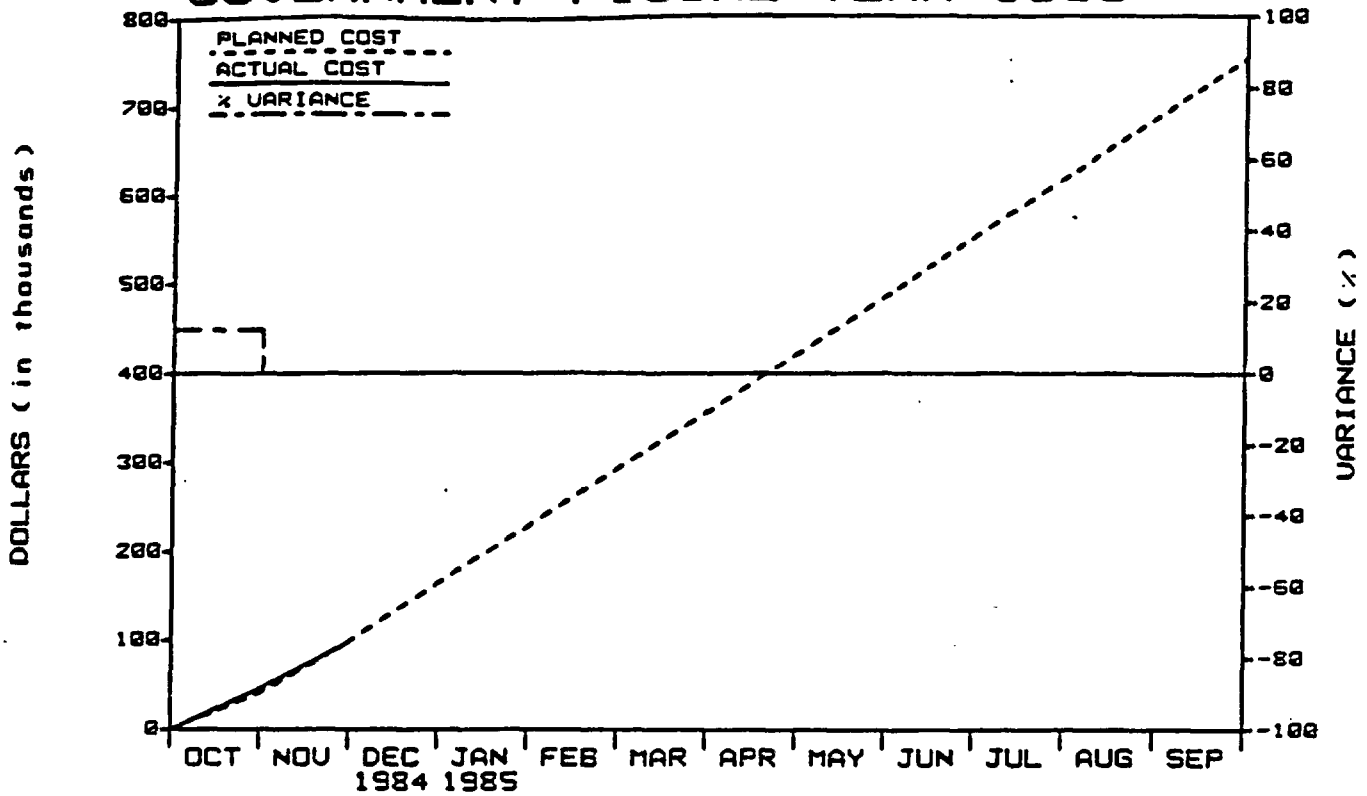
PLAN (x1000)	82	168	268	370	473	576	681	787	893	1000	1107	1212
COST (x1000)	77	153	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	5	15	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-6	-9	0	0	0	0	0	0	0	0	0	0

U. S. GEOLOGICAL SURVEY
GOVERNMENT FISCAL YEAR 1985



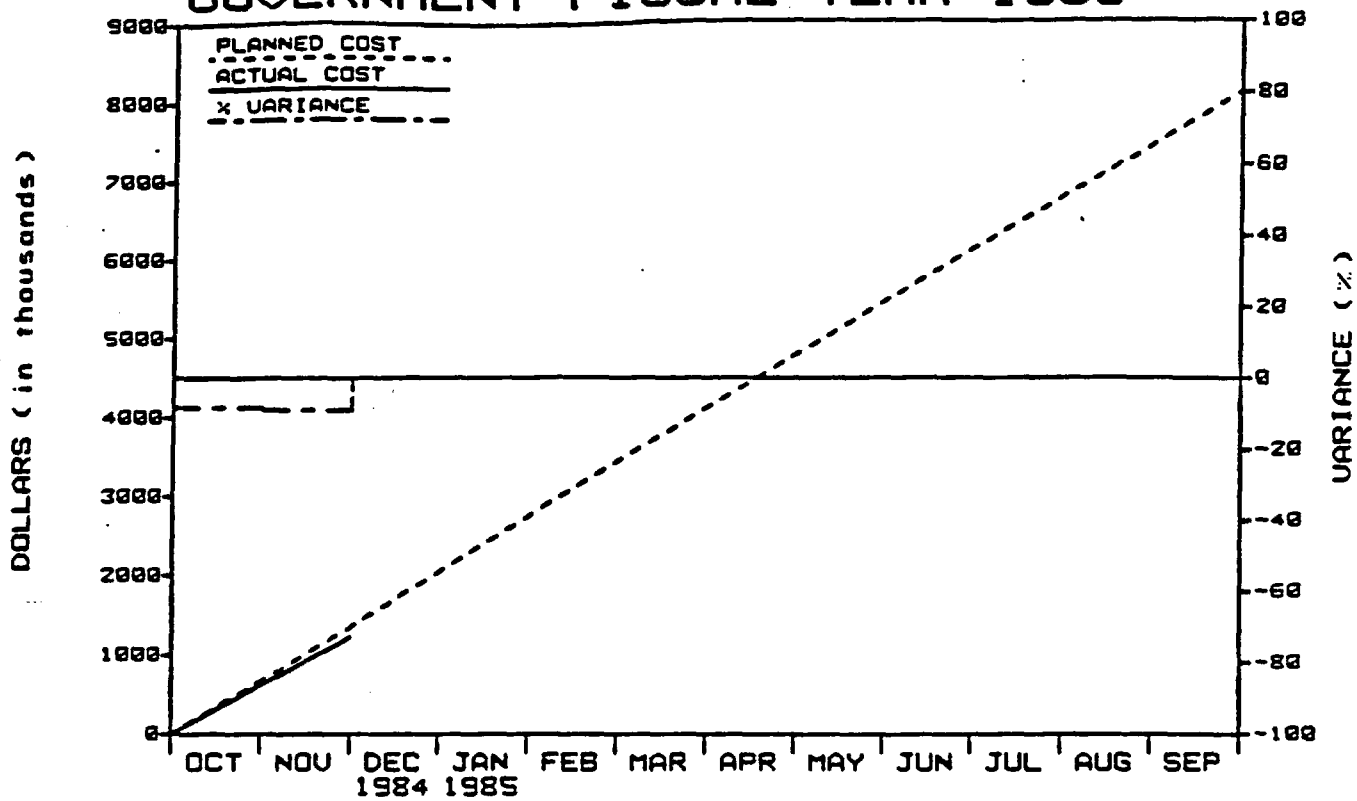
PLAN (x1000)	760	1520	2277	3035	3805	4559	5319	6074	6836	7594	8353	9108
COST (x1000)	760	1520	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	0	0	0	0	0	0	0	0	0	0	0	0
% VARIANCE	0	0	0	0	0	0	0	0	0	0	0	0

HOLMES & NARVER
GOVERNMENT FISCAL YEAR 1985

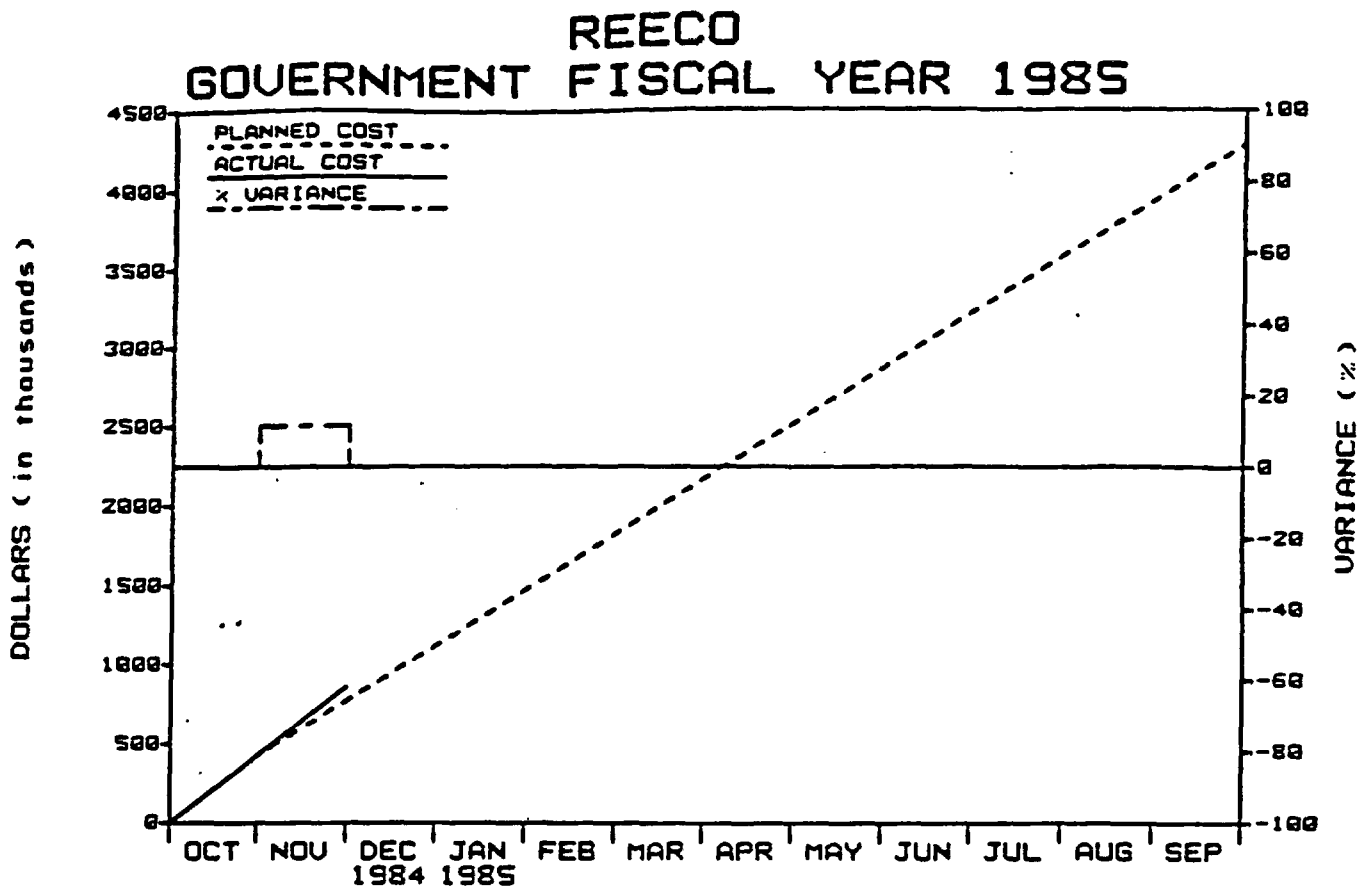


PLAN (x1000)	41	99	164	228	293	357	422	487	553	618	686	753
COST (x1000)	46	99	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	-5	0	0	0	0	0	0	0	0	0	0	0
% VARIANCE	12	0	0	0	0	0	0	0	0	0	0	0

LAWRENCE LIVERMORE NATIONAL LABORATORY
GOVERNMENT FISCAL YEAR 1985

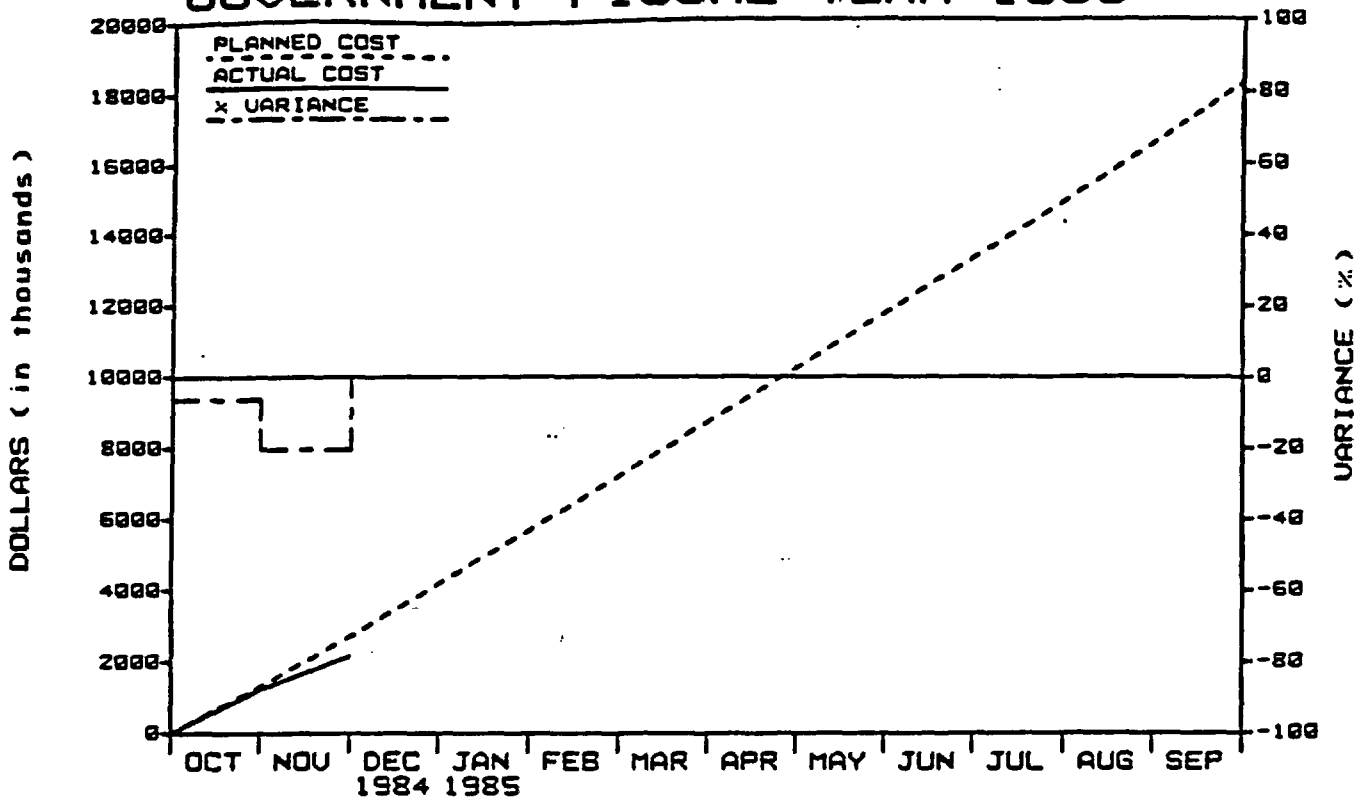


PLAN (x1000)	669	1349	2054	2751	3447	4125	4803	5471	6139	6784	7432	8115
COST (x1000)	613	1226	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	56	123	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-8	-9	0	0	0	0	0	0	0	0	0	0



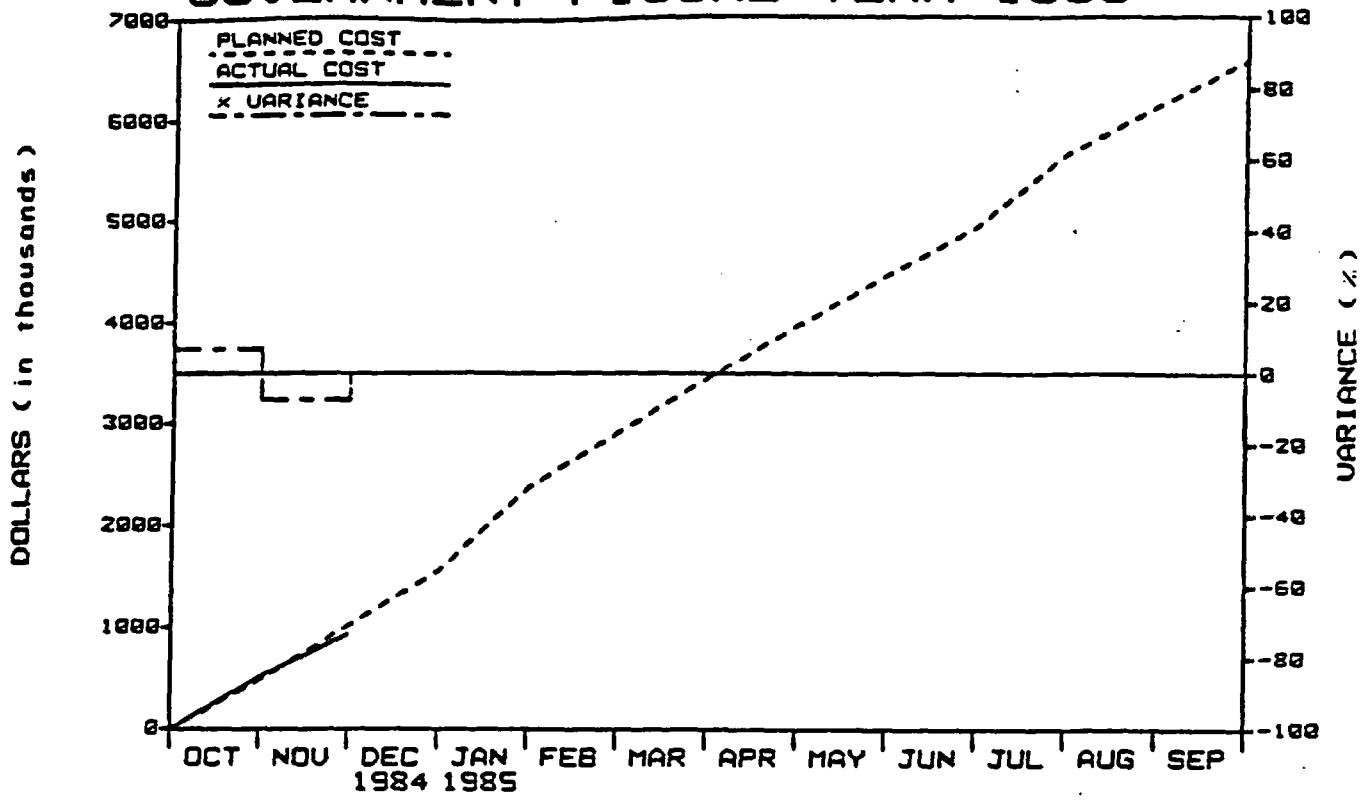
PLAN (x1000)	426	772	1122	1475	1826	2179	2529	2880	3230	3582	3933	4286
COST (x1000)	426	861	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	0	-89	0	0	0	0	0	0	0	0	0	0
% VARIANCE	0	12	0	0	0	0	0	0	0	0	0	0

SANDIA NATIONAL LABORATORIES
GOVERNMENT FISCAL YEAR 1985



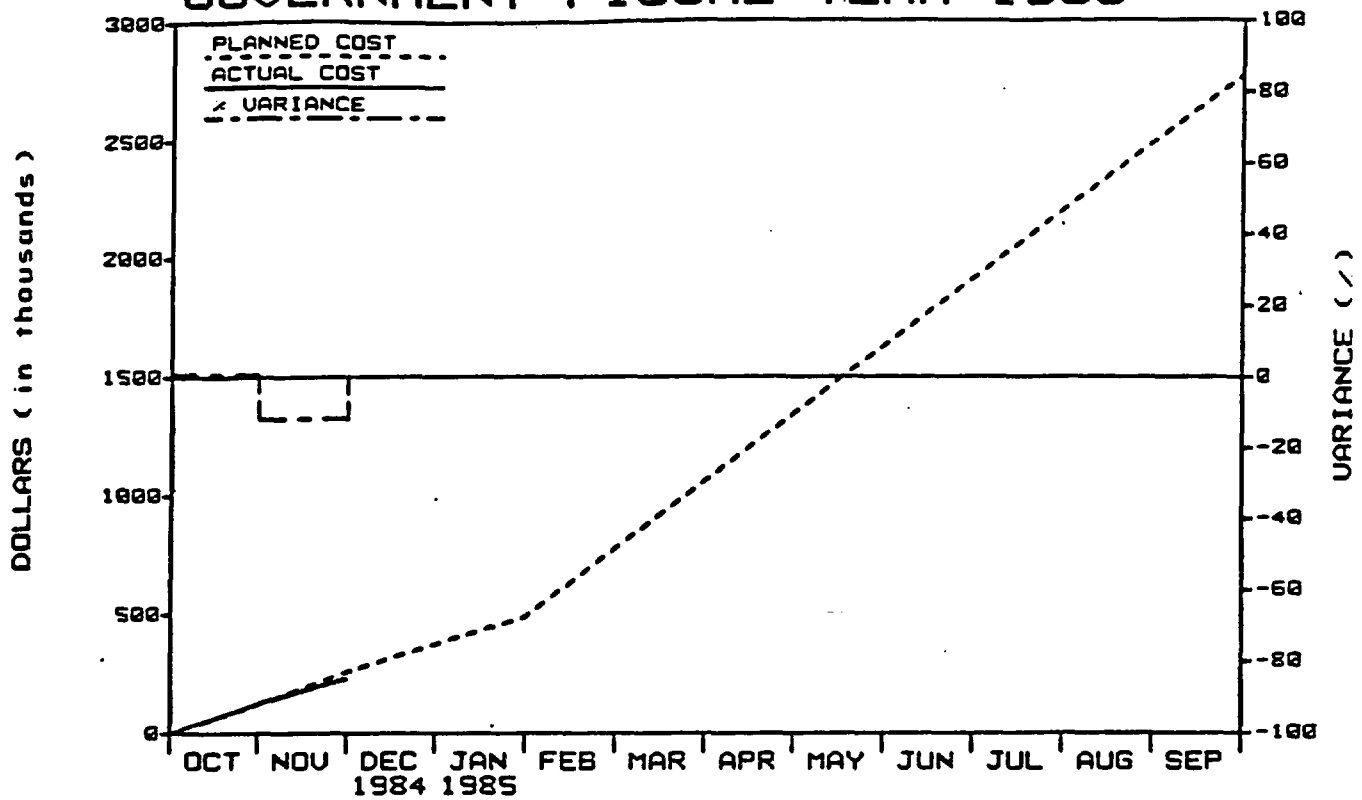
PLAN (x1000)	1313	2712	4203	5701	7195	8727	10264	11804	13342	14917	16535	18234
COST (x1000)	1230	2160	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	83	552	0	0	0	0	0	0	0	0	0	0
% VARIANCE	-6	-20	0	0	0	0	0	0	0	0	0	0

SCIENCE APPLICATIONS INT'L CORP.
GOVERNMENT FISCAL YEAR 1985

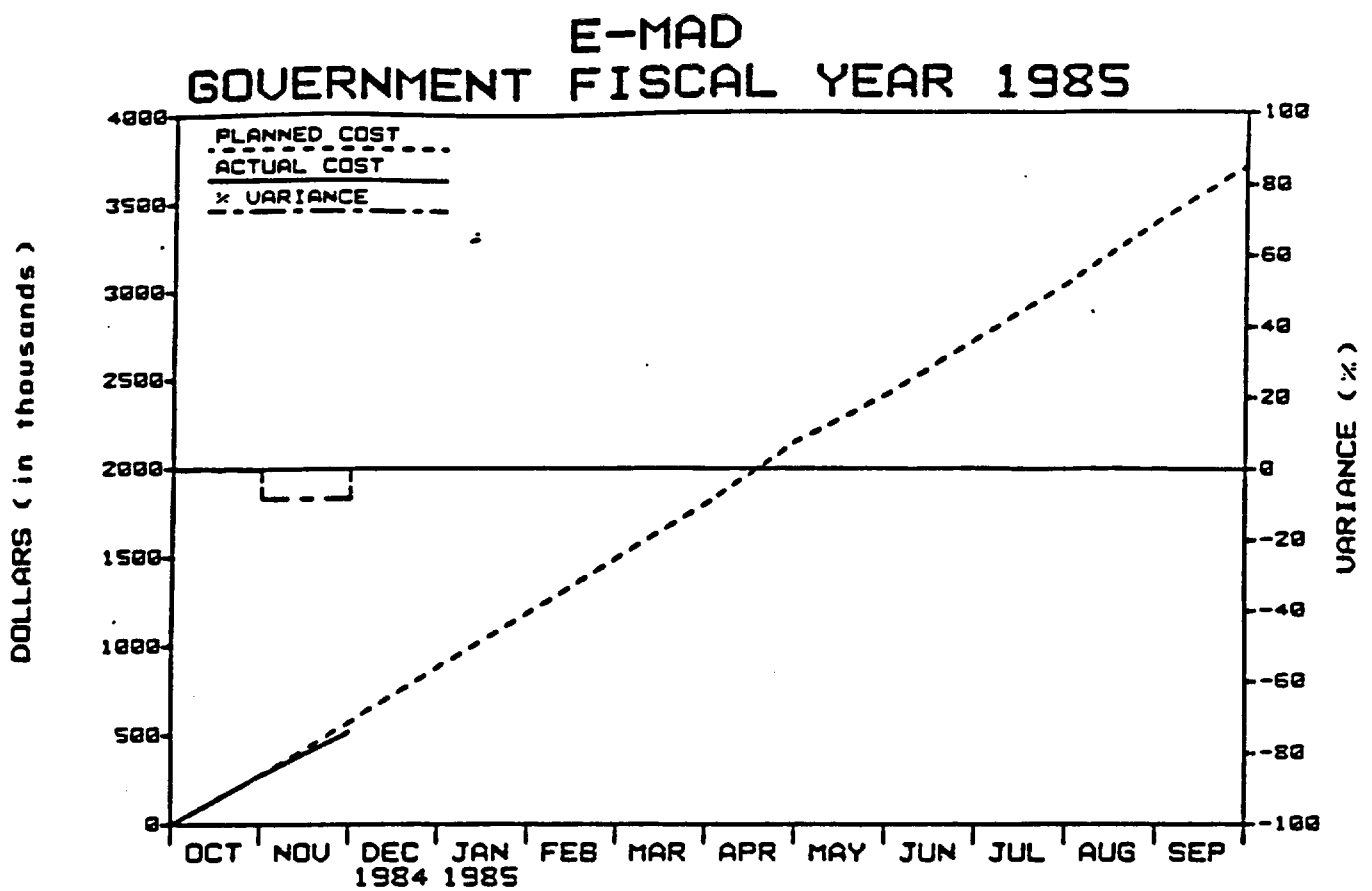


PLAN (x1000)	486	1019	1558	2370	2905	3453	3978	4468	4947	5648	6123	6575
COST (x1000)	519	942	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	-33	77	0	0	0	0	0	0	0	0	0	0
% VARIANCE	7	-8	0	0	0	0	0	0	0	0	0	0

MISCELLANEOUS CONTRACTORS
GOVERNMENT FISCAL YEAR 1985



PLAN (X1000)	122	258	373	490	775	1061	1347	1632	1916	2202	2486	2768
COST (X1000)	123	228	0	0	0	0	0	0	0	0	0	0
VARIANCE (X1000)	-1	30	0	0	0	0	0	0	0	0	0	0
% VARIANCE	1	-12	0	0	0	0	0	0	0	0	0	0

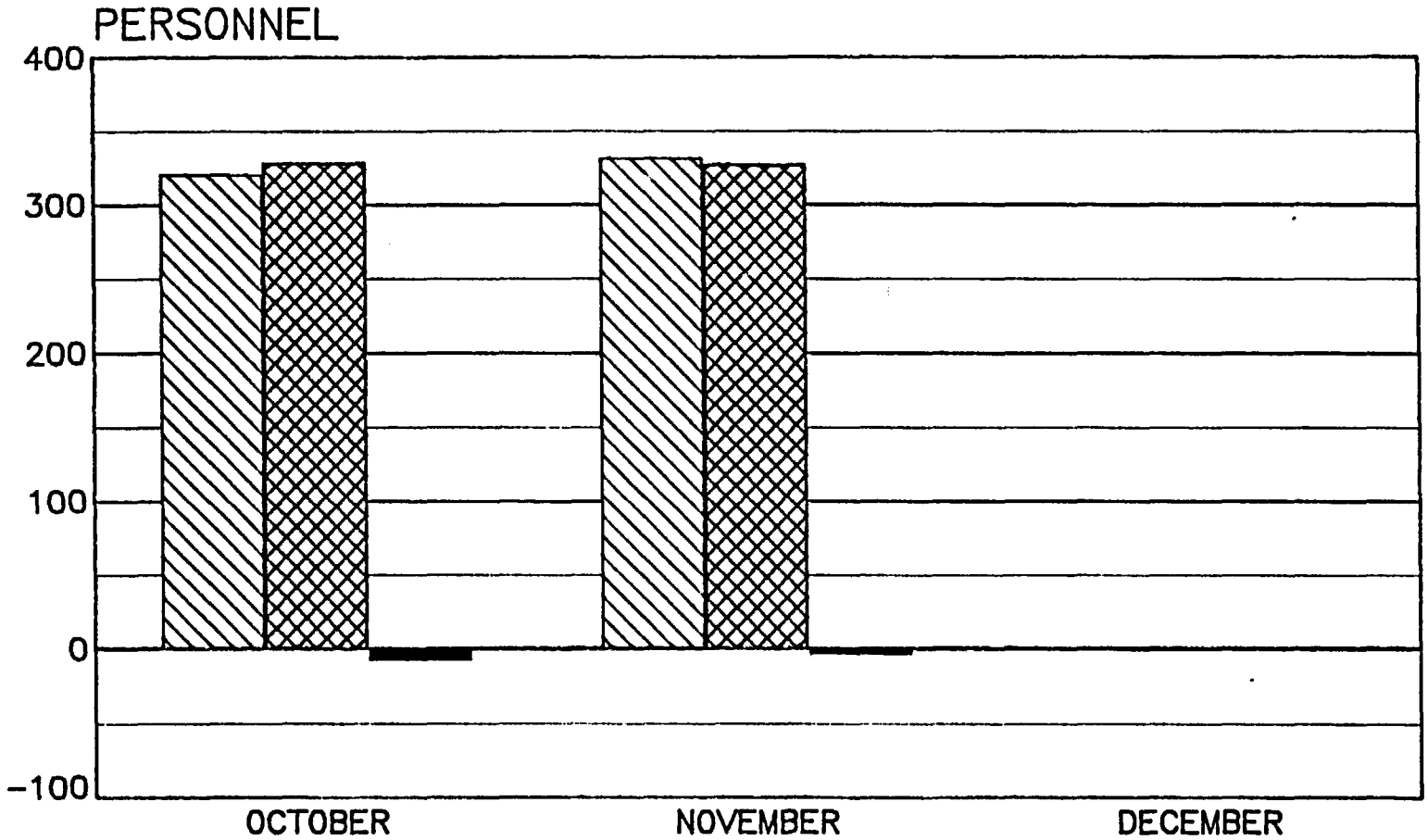


PLAN (x1000)	274	573	884	1189	1494	1802	2154	2417	2727	3038	3385	3700
COST (x1000)	273	524	0	0	0	0	0	0	0	0	0	0
VARIANCE (x1000)	1	49	0	0	0	0	0	0	0	0	0	0
% VARIANCE	0	-9	0	0	0	0	0	0	0	0	0	0

NNWSI LEVEL I MILESTONES
FY 1985

NNWSI NUMBER	WBS	RESP. AGENCY	MILESTONE DESCRIPTION	PLANNED COMPLETION DATE	ACTUAL COMPLETION DATE	REMARKS	ANTICIPATED COMPLETION DATE
M151	2121S	SNL	Preliminary System Description	11/21/84			
M120	2121S	SNL	NNWSI Project System Requirements Draft for Project Baselining	07/30/85			
M108	2121S	SNL	System Engineering Management Plan	08/30/85			
M250	2221L	LLNL	Establish Interim Product Specifications	08/30/84		CCB Action Pending	12/31/84
M222	2232L	LLNL	Input to DOE/HQ Report to Congress on Copper for Waste Package	08/30/85			
M251	224L	LLNL	Pre-closure Analysis of Selected Conceptual Design	09/28/84		Behind Schedule	12/20/84
M354	23411A	LANL	Letter Report on Groundwater Chemistry Along Flow Path	08/30/84		Behind Schedule	
M357	23224S	SNL	Weapons Test Seismic Report	01/15/85			
M358	23351G	USGS	Complete Paleobotany Study of Yucca Mountain	10/15/84			
M356	23231A	LANL	Complete Report on Volcanic Hazards Analysis	09/28/84		Behind Schedule	11/30/84
M355	2342A	LANL	Progress Report on 3-D Mineralogic Model of Yucca Mountain	08/31/84	10/10/84		
M364	236T	SAIC	Implementation of Meteorological Monitoring Plan	06/01/85			
N406	24221S	SNL	Horizontal Waste Emplacement Equipment Development Plan	06/01/85			
M447	24231S	SNL	Seal Development Plan for Repository to OCRWM for Review	11/12/84			
M521	2522T	SAIC	Draft Site Characterization Plan Submitted to DOE/HQ	07/30/85			
M522	2522T	SAIC	Final Site Characterization Plan	08/20/85			
M523	2531T	SAIC	NNWSI References for EA Complete	08/01/84		Behind Schedule	12/01/84
M502	2531T	SAIC	Draft Environmental Assessment	11/30/84	11/29/84		
M504	2531T	SAIC	Final Environmental Assessment	05/05/85			
M503	2531T	SAIC	EA Comment/Response Document	05/30/85			
M660	2691A	LANL	Complete Exploratory Shaft Test Plan and Submit to DOE/HQ for Final Review and Approval	08/31/84		Behind Schedule	03/29/85
M666	2691A	LANL	Issue Exploratory Shaft Test Plan (ESTP)	09/20/85			
M701	2721L	LLNL	Termination of Routine Access and LLNL to Spent Fuel Test-Climax Facility	09/28/84	09/28/84		
M901	2911T	SAIC	Submit FY 1985 NNWSI Project Plan to DOE/HQ for Approval	11/30/84			
M915	293T	SAIC	Submit NVO-196-18 (Rev. 2) NNWSI Project Quality Assurance Program Plan and Implementing Procedures to DOE/HQ for Approval	11/30/84	11/30/84		

- NNWSI PROJECT STAFFING -
FISCAL YEAR 1985



	OCTOBER	NOVEMBER	DECEMBER
BUDGET	321	332	
ACTUAL	329	328	
VARIANCE	-8	-4	