



Department of Energy  
Washington, DC 20585

FEB 24 1993

Mr. Joseph J. Holonich, Director  
Repository Licensing & Quality Assurance  
Project Directorate  
Division of High-Level Waste Management  
Office of Nuclear Material Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Holonich:

This letter transmits the Yucca Mountain Site Characterization Project Office (YMPO) Monthly Study Plan Status Report for the month of January 1993. This report summarizes review and approval status of Site Characterization Plan study plans for the Yucca Mountain Site Characterization Project. This summary includes the major accomplishments in the process of developing study plans for the month of January 1993, and the current status of all study plans that are currently planned or in review at the YMPO, the Office of Civilian Radioactive Waste Management, and the U.S. Nuclear Regulatory Commission.

If you have any questions, please contact Mr. Chris Einberg of my office at 202-586-8869.

Sincerely,

Dwight E. Shelor  
Associate Director for  
Systems and Compliance  
Office of Civilian Radioactive  
Waste Management

Enclosure:  
Status Report for Study  
Plans, January 1993

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cc: w\enclosure  
C. Gertz, YMPO  
R. Loux, State of Nevada  
T. Hickey, Nevada Legislative Commission  
D. Bechtel, Las Vegas, NV  
Eureka County, NV  
Lander County, Battle Mountain, NV  
P. Niedzielski-Eichner, Nye County, NV  
W. Offutt, Nye County, NV  
C. Schank, Churchill County, NV  
F. Mariani, White Pine County, NV  
V. Poe, Mineral County, NV  
J. Pitts, Lincoln County, NV  
J. Hayes, Esmeralda County, NV  
B. Mettam, Inyo County, CA  
C. Abrams, NRC

## **MONTHLY STUDY PLAN STATUS FOR JANUARY 1993**

### **1.0 INTRODUCTION**

The following report summarizes the status of review and approval of Site Characterization Plan (SCP) study plans for the Yucca Mountain Project. Table 1 provides a summary status of all study plans that are currently planned or in review at the Yucca Mountain Site Characterization Project Office (Project Office), the Office of Civilian Radioactive Waste Management (OCRWM), and the U.S. Nuclear Regulatory Commission (NRC).

Section 2 of this report provides the major accomplishments in the process of developing study plans for the month of JANUARY 1993. Section 3 summarizes the status of all study plans in the review process at the Project Office. Section 4 summarizes the status of study plan reviews that have been completed by the NRC and the State of Nevada.

### **2.0 STUDY PLAN HIGHLIGHTS FOR THE MONTH OF JANUARY, 1993**

#### **2.1 NEW STUDY PLAN SUBMITTALS**

No new study plans were recieved by the Project Office in January.

#### **2.2 REVIEW COMMENTS COMPLETED**

Project Office reviews were completed for one Study Plan, 8.3.1.8.1.2 Physical Processes of Magmatism and Effects on the Potential Repository, in January.

#### **2.3 COMMENT RESOLUTION MEETINGS**

Comment resolution meetings were held for two Study Plans, 8.3.1.2.2.2 R1 Water Movement Test and 8.3.1.15.1.8 In-Situ Design Verification, in January.

#### **2.4 STUDY PLAN REVISIONS**

No revisions of study plans were completed in January.

#### **2.5 COMMENT VERIFICATION**

Two Study Plans, 8.3.1.2.2.4 R1 Characterization of the Yucca Mountain Unsaturated Zone-ESF Studies and 8.3.1.15.1.8 In-Situ Design Verification, completed verification of comment resolution in January.

## 2.6 STUDY PLANS APPROVALS

Three study plans, 8.3.1.2.2.4 R1 Characterization of the Yucca Mountain Unsaturated Zone-ESF Studies, 8.3.1.2.3.3 Saturated Zone Hydrologic System Synthesis and Modelling, and 8.3.1.17.4.3 Quaternary Faulting within 100 km of Yucca Mountain, including the Walker Lane, were approved by the Project Office in January.

## 2.7 COMPLETED NRC REVIEWS

Three study plan phase I reviews, 8.3.1.2.2.5 Diffusion Tests in the ESF, 8.3.1.2.3.2 Characterization of the Saturated Zone Hydrochemistry, and 8.3.1.3.7.1 Retardation Sensitivity Analysis, were completed during January.

## 3.0 CURRENT STATUS OF ALL STUDY PLANS

### 3.1 PLANS IN REVIEW

The following study plans have not yet completed the screening and technical reviews by the Project Office.

Identification/Organization	Date Draft Transmitted
8.3.1.2.2.7 R1: Hydrochemical Characterization of the Unsaturated Zone/USGS	12/1/92
8.3.1.2.2.8 R1: Fluid Flow in Unsaturated, Fractured Rock/USGS	12/1/92
8.3.1.3.4.1/8.3.1.3.4.3: Batch Sorption Studies/ Development of Sorption Models/LANL	10/28/92
8.3.1.8.5.2: Characterization of Igneous Intrusive Features/USGS	10/13/92
8.3.1.15.1.2 R1: Laboratory Thermal Expansion Testing/SNL	11/3/92
8.3.1.15.2.2: Characterization of Site Ambient Thermal Conditions/USGS	10/13/92

### 3.2 STUDY PLANS AWAITING COMMENT RESOLUTION MEETINGS

Comments have been transmitted to the authors, and the Project Office is awaiting notification that the author is ready for a comment resolution meeting or notification that

proposed resolutions have been agreed upon between the PI and reviewers without the need for a meeting.

Identification/Organization	Date Comments Sent to PI
8.3.4.2.4.1: Characterization of Chemical and Mineral Changes in the Postemplacement Environment/LLNL	03/13/90
8.3.4.2.4.2: Hydrologic Properties of the Waste Package Environment/LLNL	03/23/90

### 3.3. STUDY PLANS IN REVISION

3.3.1 Comment Resolution Meetings have been held, and the following study plans are being revised by the authors in response to comments.

Title/Organization	Comment Resolution Meeting Date
8.3.1.3.3.2/8.3.1.3.3.3: Kinetics and Thermodynamics of Mineral Evolution/Conceptual Model of Mineral Evolution/LANL	03/14/90
8.3.1.3.6.1: Dynamic Transport Column Experiments/LANL	08/29/90

3.3.2 No Comment Resolution meeting is required, and the following study plans are being revised by the authors in response to comments.

Title/Organization	Comments Transmitted to PI
8.3.1.2.2.9: Site Unsaturated Zone Synthesis &	2/27/92
8.3.1.3.1.1: Groundwater Chemistry Model/LANL	5/6/92
8.3.1.5.1.6: Characterization of Future Regional and Environment	01/30/92

8.3.1.8.1.2: Physical Processes of Magmatism and Effects on the Potential Repository/LANL	1/14/93
8.3.1.15.1.1 R1: Laboratory Thermal Properties/SNL	12/10/92
8.3.1.15.1.4: Laboratory Determination of the Mechanicqal Properties of Fractures/SNL	5/12/92
8.3.1.17.3.3.2: Ground Motion from Regional Earthquakes and UNEs/SNL	02/27/92

### 3.4 STUDY PLANS IN VERIFICATION AUDIT

The following study plans are being audited by reviewers to verify that comments have been satisfactorily responded to.

Identification/Organization	Date Draft Transmitted
8.3.1.2.2.2 R1: Water Movement Test/LANL	12/10/92
8.3.1.3.5.1/2: Dissolved Species Concentration Limits and Colloid Behavior/LANL	10/21/92
8.3.1.3.6.2: Diffusion/LANL	12/4/92
8.3.1.12.2.1 R1: Meteorological Data Collection at the Yucca Mountain Site/SAIC	12/2/92
8.3.1.17.4.4: Quaternary Faulting Proximal to the Site within NE Trending Fault Zones/USGS	10/26/92
8.3.1.17.3.5: Ground Motion at the Site from Controlling Seismic Events/USGS	04/14/92

### 3.5 BEING PREPARED FOR PROJECT OFFICE APPROVAL

8.3.1.15.1.8: In Situ Design Verification	1/12/93
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### 3.6 APPROVED STUDY PLANS

8.3.1.17.4.3: Quaternary Faulting within 100 km of Yucca Mountain, including the Walker Lane/USGS	1/21/93
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#### 4.0 STUDY PLANS IN REVIEW AT NRC AND THE STATE OF NEVADA

##### 4.1 NRC ACCEPTANCE REVIEW

The following study plans are in Phase 1 review at the NRC.

Identification/Organization	Transmittal Date
8.3.1.2.2.1 R1: Characterization of Unsaturated Zone Infiltration/USGS	06/1/92
8.3.1.2.2.2: Water Movement Tracer Tests/LANL	02/09/89
8.3.1.2.2.4(.4, .5, .7, .8, .9): Characterization of the Yucca Mountain Unsaturated Zone Percolation-- Exploratory Shaft Facility Study/USGS	02/09/89
8.3.1.2.2.4 R1: Characterization of the Yucca Mountain Unsaturated Zone/USGS	1/21/93
8.3.1.2.2.8: Fluid Flow in Unsaturated, Fractured Rock	9/01/92
8.3.1.2.3.3: Site Saturated Zone Hydrologic Synthesis and Modeling/USGS	1/28/93
8.3.1.3.4.2: Biological Sorption and Transport/LANL	12/24/92
8.3.1.4.2.2(except .3 & .5): Characterization of Structural Features within the Site Area/USGS	02/09/89
8.3.1.4.2.2(3. & .5): Characterization of Structural Features within the Site Area/USGS	06/15/92
8.3.1.4.2.2 R2: Characterization of Structural Features within the Site Area/USGS	1/6/93
8.3.1.4.3.1: Systematic Acquisition of Site-Specific Subsurface Information/SNL	1/11/93
8.3.1.5.2.1.1 R2: Characterization of Quaternary Regional Hydrology/USGS	12/31/92
8.3.1.5.2.2: Characterization of Future Regional	12/24/92

## Hydrology due to Climate Change

8.3.1.8.2.1: Analysis of Waste Package Rupture due to Tectonic Processes and Events/SAIC	12/23/92
8.3.1.9.2.1: Natural Resource Assessment of Yucca Mountain, Nye County/USGS	12/17/92
8.3.1.15.1.1: Laboratory Thermal Properties	01/25/91
8.3.1.15.1.2: Laboratory Thermal Expansion Testing/SNL	10/04/90
8.3.1.15.1.3: Laboratory Determination of the Mechanical Properties of Intact rock	06/21/91
8.3.1.15.1.5: Excavation Investigations/SNL	02/09/89
8.3.1.15.2.1.2: Characterization of Site Ambient Stress Conditions/USGS	02/09/89
8.3.1.17.4.5: Detachment Faults at or Proximal to Yucca Mountain/USGS	08/12/92
8.3.4.2.4.3: Mechanical Properties of the Waste Package Environment/LLNL	12/31/92

## 4.2 STUDY PLANS ACCEPTED BY THE NRC

The following study plans have been accepted by the NRC.

Identification/Organization	Acceptance Date
8.3.1.2.1.1: Characterization of the Meteorology for Regional Hydrology and Meteorological Monitoring/USGS	10/21/91
8.3.1.2.1.2: Characterization of Run-off and Streamflow/USGS	08/14/92
8.3.1.2.1.3: Characterization of the Regional Ground-Water Flow System/USGS	10/4/91
8.3.1.2.1.4: Regional Hydrologic Synthesis and Modeling	5/6/92



8.3.1.2.2.1: Characterization of Unsaturated Zone Infiltration/USGS	5/31/91
8.3.1.2.2.3: Characterization of Percolation in the Unsaturated Zone--Surface Based Study/USGS	3/26/92
8.3.1.2.2.5: Diffusion Tests in the ESF/LANL	1/19/93
8.3.1.2.2.6: Characterization of Gaseous-Phase Movement in the Unsaturated Zone	10/07/91
8.3.1.2.2.7: Hydrochemical Characterization of the Unsaturated Zone/USGS	05/01/92
8.3.1.2.3.1.1-6: Characterization of the Site Saturated Ground-Water Flow System	12/06/91
8.3.1.2.3.1.7: Testing of the C-Hole Site with Reactive Tracers	12/06/91
8.3.1.2.3.2: Characterization of the Saturated Zone Hydrochemistry	1/4/93
8.3.1.3.2.1: Mineralogy, Petrology, and Chemistry of Transport Pathways/LANL	03/13/91
8.3.1.3.2.2: History of Mineralogic and Geochemical Alteration of Yucca Mountain	04/27/92
8.3.1.3.7.1: Retardation Sensitivity Analysis/LANL	1/19/93
8.3.1.4.2.1: Characterization of Vertical and Lateral Distribution of Stratigraphic Units in the Site Area/USGS	12/14/92
8.3.1.5.1.2: Paleoclimate Study: Lake, Playa, and Marsh Deposits	04/27/92
8.3.1.5.1.3: Climatic Implications of Terrestrial Paleocology/USGS	09/03/92
8.3.1.5.1.4: Analysis of the Paleoenvironmental History of the Yucca Mountain Site	12/06/91

8.3.1.5.2.1: Characterization of the Quaternary Regional Hydrology/USGS	06/08/90
8.3.1.8.1.1: Probability of Magmatic Disruption of the Repository/LANL	10/5/91
8.3.1.8.5.1: Characterization of Volcanic Features/LANL	08/20/90
8.3.1.9.2.2: Water Resource Assessment for Yucca Mountain/SAIC	5/4/92
8.3.1.12.2.1: Meteorological Data Collection at the Yucca Mountain Site	11/12/91
8.3.1.14.2: Studies to Provide Soil and Rock Properties of Potential Locations of Surface and Subsurface Facilities	01/24/92
8.3.1.16.1.1: Characterization of Flood Potential of the Yucca Mountain Site/USGS	05/08/91
8.3.1.17.3.1: Relevant Earthquake Sources	5/18/92
8.3.1.17.3.4: Effects of Local Site Geology on Surface and Subsurface Ground Motions/USGS	6/8/92
8.3.1.17.4.1: Historical and Current Seismicity/USGS	05/14/91
8.3.1.17.4.2: Evaluating the Location and Recency of Faulting Near Prospective Surface Facilities/SNL	03/16/90
8.3.1.17.4.6: Quaternary Faulting Within the Site Area/USGS	10/3/91
8.3.1.17.4.10: Geodetic Leveling/USGS	10/4/91

#### 4.3 COMMENTS ON APPROVED STUDY PLANS

The following approved study plans have been the subject of written comments by the NRC and the State of Nevada. The status of the responses to these comments is given below.

Study Plan	Source & No. of Comments		Status
8.3.1.2.1.1: Characterization of the Meteorology for Regional Hydrology and Meteorological Monitoring	NV	10	Response sent 7/13/92
8.3.1.2.1.2: Regional Surface Water Run-Off and Streamflow	NV NRC	7 2	Response sent 8/20/91 Response sent 11/05/92
8.3.1.2.1.4: Regional Hydrologic Synthesis and Modeling	NRC	1	Response sent 7/23/92
8.3.1.2.2.6: Characterization of Gas Phase Movement in the Unsaturated Zone	NRC NV	1 16	Response sent 7/23/92 Response sent 7/27/92
8.3.1.2.2.7: Hydrochemical Characterization of the Unsaturated Zone	NV	27	In Preparation
8.3.1.2.3.1.1-6: Characterization of the Site Saturated Zone Ground Water Flow System	NRC	2	In preparation
8.3.1.2.3.1.7: Testing of the C-Hole Site with Reactive Tracers	NRC	2	Response sent 9/14/92
8.3.1.3.2.1: Mineralogy, Petrology and Chemistry Along Transport Pathways	NRC NV	6 12	Response sent 10/29/91 In Preparation
8.3.1.4.2.1: Characterization of Vertical and Lateral Distribution of Stratigraphic Units within the Site Area	NRC	3	In Preparation
8.3.1.5.1.4: Analysis of the Paleoenvironmental History of the Yucca Mountain Site	NRC	1	Response sent 9/16/92

Study Plan	Source & No. of Comments	Status
8.3.1.5.2.1: Quaternary Regional Hydrology	NRC 9 NV 10	Response sent 12/19/90 Response sent 9/19/91
8.3.1.8.1.1: Probability of Volcanic Eruption Penetrating the Repository	NV 9 NRC 13	Response sent 7/19/92 In preparation
8.3.1.8.5.1: Characterization of Volcanic Features	NV 5 NRC 3	Response sent 8/23/91 Response sent 7/24/91
8.3.1.9.2.2: Water Resource Assessment of Yucca Mountain	NRC 1 NV 24	Response sent 6/29/92 In Preparation
8.3.1.12.2.1: Meteorological Data Collection at the Yucca Mountain Site	NV 5	Response sent 2/13/92
8.3.1.14.2: Studies to Provide Soil and Rock Properties for Potential Locations of Surface Facilities	NRC 1 NV 10	Response sent 8/31/92 Response sent 8/21/92
8.3.1.16.1.1: Characterization of Flood Potential	NV 9 NRC 1	Response sent 6/6/91 Telecon resolution 6/17/91
8.3.1.17.3.1: Relevant Earthquake Sources	NRC 1 NV 32	Response sent 8/15/92 In preparation
8.3.1.17.3.4: Effect of Local Site Geology on Surface and Subsurface Motion	NRC 1 NV 25	Response sent 9/4/92 In preparation
8.3.1.17.4.1: Historic and Current Seismicity	NRC 3	Telecon resolution 8/15/91
8.3.1.17.4.2: Location and Recency of Faulting Near Prospective Surface Facilities	NRC 16 NV 3	Response sent 12/19/90 Response sent 10/15/90

Study Plan	Source & No. of Comments	Status
8.3.1.17.4.6: Quaternary Faulting	NRC 1 NV 14	Response sent 12/16/91 In preparation
8.3.1.17.4.10: Geodetic Leveling	NV 16	In preparation

## LEGEND FOR TABLE 1

Submit to YMP	Gives the actual date of the submission of the draft study plan.
Screening Review Complete	Date that screening review was recieved by the Project Office. Screening reviews were not done for some study plans submitted early in the process. These are indicated by the word "None". Revs. 2 & 3 of AP-1.10Q did not require a screening review. Plans reviewed under Rev. 2 & 3 are indicated by "NA".
Comments to PI	Date that review comments were transmitted to the Principal Investigator for review.
Comment Resol. Meeting	Date that comment resolution meeting to agree on proposed comment resolutions was completed. An "N/A" indicated that a comment resolution meeting was not required.
PI Revision Complete	Date that revised study plan that responds to Project Office and Headquarters comments is submitted to the Project Office.
Verify Comm. Res.	Date that the verification of actual dispositions of comments is completed by reviewers.
PO Approve	Date that Project Office approves the plan.
Submit To NRC	The date that the study plan is submitted to the NRC for review.
NRC Phase 1 Review	Date that NRC Acceptance and Start-Work Reviews are completed.
NRC Phase 2 Review	Date that NRC Detailed Technical Reviews are completed or note that none will be completed or the review will be deferred.

09-Feb-93

## Study Plan Tracking Sheet

1

#	SP NAMES/CODE	SP NUMBER	SUBMIT TO YMP	SCREENING REVIEW COMPLETE	COMMENTS TO PI	COMMENT RESOL MEETING	PI REVISION COMPLETE	VERIFY COMMENT RESOL	PO APPROVE	SUBMIT TO NRC	NRC PHASE I REVIEW	NRC PHASE II REVIEW
1	CHAR OF MET FOR REG HYDRO AND MET MONITOR/USGS	8.3.1.2.1.1	6/26/90	6/27/90	10/1/90	11/9/90	11/9/90	2/25/91	3/13/91	6/21/91	10/21/91	NONE
2	CHAR RUNOFF AND STREAMFLOW/USGS	8.3.1.2.1.2	3/27/89	NA	10/17/89	2/28/90	3/22/90	7/17/90	8/21/90	10/4/90	5/14/91	8/14/92
3	CHAR OF REG GRD W FLOW SYSTEM/USGS	8.3.1.2.1.3	3/1/90	3/14/90	7/3/90	8/23/90	9/17/90	10/19/90	1/18/91	2/15/91	10/4/91	NONE
4	REG HYDRO SYS SYN AND MODELING/USGS	8.3.1.2.1.4	6/6/90	6/29/90	3/14/91	NA	5/8/91	10/2/91	12/18/91	1/15/92	5/6/92	
5	CHAR UNSAT ZONE INFILTRATION/USGS	8.3.1.2.2.1	3/9/90	3/14/90	7/3/90	9/12/90	9/17/90	10/15/90	1/18/91	3/1/91	5/31/91	NONE
6	WATER MOVEMENT TEST/LANL, REV O	8.3.1.2.2.2	9/23/87	N/A	COMPLETE	10/23/87	10/30/87	1/9/89	11/9/89	2/9/89	DEFERRED	
6 R1	WATER MOVEMENT TEST/LANL, REV I	8.3.1.2.2.2	10/17/91	NA	5/12/92		12/10/92	2/4/93				
7	CHAR PERCOL IN UZ-SURFACE BASED STUDY/USGS	8.3.1.2.2.3	8/12/88	NA	1/23/89	1/30-31/89	2/20/90	1/9/91	04/08/91	5/10/91	3/26/92	
8	CHAR YUC MTN PERCO UNSAT ZONE-ESF/USGS (4,5,7,8,9)	8.3.1.2.2.4	9/9/87	NA	12/7/88	10/19/87	1/4/89	1/9/89	1/09/89	2/9/89	DEFERRED	
8 R1	CHAR YUC MTN UNSAT ZONE-ESF/USGS (4,5,7,8)	8.3.1.2.2.4	12/4/92	12/9/92	12/11/92	12/18/92	12/19/92	1/5/93	1/14/93	1/21/93		
8 R2	CHAR YUC MTN UNSAT ZONE-ESF INVEST/USGS (1,2,3,6,10)	8.3.1.2.2.4										
9	DIFFUSION TESTS IN ESF/LANL	8.3.1.2.2.5	11/1/88	11/18/88	2/28/90	8/28/90	6/11/91	1/24/92	4/22/92	6/8/92	1/19/93	DEFERRED
10	CHAR GAS-PHASE MOVEMENT IN UZ/USGS	8.3.1.2.2.6	6/12/89	7/14/89	3/9/90	5/24/90	5/24/90	04/03/91	6/11/91	6/24/91	10/07/91	NONE
11	HYDROCHEM CHAR OF UZ/USGS	8.3.1.2.2.7	10/24/88	11/4/88	3/8/89	3/29-31/89	6/27/89	4/10/90	9/18/90	5/8/91	5/1/92	DEFERRED
11 R1	HYDROCHEM CHAR OF UZ/USGS	8.3.1.2.2.7	12/1/92	12/2/92	2/8/93							
12	FLUID FLOW IN UNSAT, FRAC ROCK/USGS	8.3.1.2.2.8	9/7/90	10/3/90	5/01/91	NA	11/26/91	5/28/92	8/12/92	9/1/92		
12 R1	FLUID FLOW IN UNSAT, FRAC ROCK/USGS	8.3.1.2.2.8	12/1/92	12/2/92	2/8/93							
13	SITE UZ MODELING & SYNTHESIS/USGS	8.3.1.2.2.9	1/25/91	NA	2/27/92							
14	CHAR SITE SAT ZONE GRD W FLOW SYS/LANL (7)	8.3.1.2.3.1	2/8/88	NA	7/15/89	9/1-2/89	11/16/89	11--90	2/22/90	4/6/90	12/6/91	DEFERRED
15	CHAR SITE SAT ZONE GRD W FLOW SYS/USGS (1-6)	8.3.1.2.3.1	5/31/89	6/15/89	11/1/89	4/4-17/90	5/18/90	10/15/90	2/13/91	3/7/91	12/6/91	DEFERRED
14 R1	CHAR SITE SAT ZONE GRD W FLOW SYS/LANL (8)											
16	CHAR SAT ZONE HYDROCHEM/USGS	8.3.1.2.3.2	3/28/90	5/9/90	11/27/90	5/21-22/91	11/27/91	3/11/92	4/22/92	6/5/92	1/4/93	NONE
17	SAT ZONE HYDRO SYSTEM SYNTH AND MODELING/USGS	8.3.1.2.3.3	9/4/90	10/12/90	8/30/91	N/A	3/31/92	10/19/92	1/14/93	1/28/93		
18	GROUND-WATER CHEMISTRY MODEL/LLNL	8.3.1.3.1.1	3/15/91	NA	5/6/92							
19	MIN, PET, CHEM OF TRANSPORT PATHWAYS/LANL	8.3.1.3.2.1	1/22/88	5/24/88	7/13/88	8/4-5/88	12/23/88	9/12/89	6/13/89	11/30/89	8/20/90	3/13/91
20	HIST OF MIN AND GEOCHEM ALT OF YUCCA MTN/LANL	8.3.1.3.2.2	3/28/88	NA	5/25/89	6/1/89	6/13/91	9/23/91	12/18/91	1/31/92	4/27/92	DEFERRED
21	NAT ANLOG HYDROTHERM SYS IN TUFF/LANL	8.3.1.3.3.1										
23	KINETICS AND THERMODYN OF MIN EVOL/LANL	8.3.1.3.3.2	2/23/89	3/1/89	11/1/89	3/14/90						
22	CONCEPTUAL MODEL OF MINERAL EVOL/LANL	8.3.1.3.3.3	2/23/89	3/1/89	11/1/89	3/14/90						
24	BATCH SORPT STUDIES AND DEVEL SORPT MODELS/LANL	8.3.1.3.4.1/3	10/28/92	11/4/92								
25	BIOLOGICAL SORPTION & TRANSPORT/LANL	8.3.1.3.4.2	12/12/88	1/5/89	3/12/90	6/21/90	8/28/91	12/7/91	11/25/92	12/24/92		
26	DISSOLVED SPECIES CONC LIMITS AND COLLOID BEH/LANL	8.3.1.3.5.1/2	9/7/90	NA	11/8/91	NA	10/21/92					
27	DYNAMIC TRANSPORT COLUMN EXPERIMENTS/LANL	8.3.1.3.6.1	7/24/89	8/9/89	5/24/90	8/29/90						
28	DIFFUSION/LANL	8.3.1.3.6.2	7/24/89	8/9/89	5/10/90	8/30/90	12/4/92					
29	RETARDATION SENSITIVITY ANALYSIS/LANL	8.3.1.3.7.1	12/14/88	2/8/89	3/12/90	7/31/90	6/18/91	7/28/92	8/11/92	9/1/92	1/19/93	NONE
30	DEMON APPLI LAB DATA TO REPOS TRANS CALC/LANL	8.3.1.3.7.2										
31	GASEOUS RAD TRANS CALCS AND MEASURE/LANL	8.3.1.3.8.1										
32	CHAR VERT/LAT DIST STRAT UNITS SITE AREA/USGS (1,2,4)	8.3.1.4.2.1	4/12/90	5/10/90	2/8/91	12/20/91	2/3/92	4/30/92	6/9/92	6/22/92	12/14/92	DEFERRED

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#	SP NAMES/CODE	SP NUMBER	SUBMIT TO YMP	SCREENING REVIEW COMPLETE	COMMENTS TO PI	COMMENT RESOL MEETING	PI REVISION COMPLETE	VERIFY COMMENT RESOL	PO APPROVE	SUBMIT TO NRC	NRC PHASE I REVIEW	NRC PHASE II REVIEW
32 R1	CHAR VERT/LAT DIST STRAT UNITS SITE AREA/USGS (3,5)	8.3.1.4.2.1										
33	CHAR STRUCTURAL FEATURES W/IN SITE AREA/USGS	8.3.1.4.2.2	9/4/87	NA	Done	10/22/87	4/13/88	2/3/89	2/03/89	2/9/89	DEFERRED	
33 R1	2 MORE ACTIVITIES (3,5)/USGS	8.3.1.4.2.2	2/27/90	3/22/90	8/21/90	6/13/91	7/29/91	2/10/92	4/22/92	6/15/92		
33 R2	CHAR STRUCTURAL FEATURES W/IN SITE AREA/USGS	8.3.1.4.2.2	11/18/92	11/19/92	12/1/92	12/4/92	12/14/92	12/18/92	12/22/92	1/6/93		
34	THREE-DIMENSIONAL GEOLOGIC MODEL/USGS	8.3.1.4.2.3										
35	SYST ACQ SITE-SPEC SUBSURF INFO/SNL	8.3.1.4.3.1	3/27/90	4/13/90	10/2/90	7/1/92	7/28/92	9/4/92	12/8/92	1/11/93		
36	THREE-DIMENSIONAL ROCK CHAR MODELS/SNL	8.3.1.4.3.2										
37	CHAR MODERN REGIONAL CLIMATE/USGS	8.3.1.5.1.1										
38	PALEOCLIM STUDY: LAKE, PLAYA, MARSH DEPS/USGS	8.3.1.5.1.2	10/25/90	NA	3/27/91	NA	5/9/91	10/25/91	10/31/91	12/6/91	4/27/92	DEFERRED
39	CLIMATIC IMPLICATION TERREST PALEOECOLOGY/USGS	8.3.1.5.1.3	2/11/91	NA	6/25/91	NA	DONE	12/11/91	1/17/92	6/5/92	8/27/92	
40	ANALYSIS PALEOENVI HIST YUCCA MTN REGION/USGS	8.3.1.5.1.4	3/30/90	4/13/90	8/13/90	10/9-11/90	10/24/90	1/9/91	5/29/91	6/24/91	12/06/91	DEFERRED
41	PALEOCLIM PALEOENVIRO SYNTHESIS/USGS	8.3.1.5.1.5										
42	CHAR FUTURE REG CLIMATES AND ENVIRONS/SNL	8.3.1.5.1.6	6/7/91	7/10/91	1/30/92	N/A						
43	CHAR OF THE QUATERNARY REG HYDRO/USGS (3,4,5)	8.3.1.5.2.1	1/26/88	NA	12/9/88	12/20/88	5/15/89	6/8/89	6/08/89	7/10/89	11/24/89	6/08/90
43 R2	CHAR OF THE QUATERNARY REG HYDRO/USGS (1)	8.3.1.5.2.1	9/25/90	NA	8/8/91	NA	3/31/92	8/10/92	11/10/92	12/31/92		
44	CHAR FUTURE REG HYDRO DUE TO CLI CHANGES/USGS	8.3.1.5.2.2	1/16/91	NA	8/7/91	NA	5/1/92	7/14/92	11/10/92	12/24/92		
45	DISTRIB AND CHAR PRESENT AND PAST EROSION/USGS	8.3.1.6.1.1										
46	INFLU FUT CLI COND ON LOC & RATES OF ERO/USGS	8.3.1.6.2.1										
47	EVAL EFFECT OF FUT TECT ON ERO AT YUC MTN/USGS	8.3.1.6.3.1										
48	DEV TOPICAL RPT EFFECTS OF ERO ON THE HYDRO, GEOCHEM, AND ROCK CHAR AT YUCCA MTN/USGS	8.3.1.6.4.1										
49	PROB MAGMATIC ERUPT PENETRATE THE REPOS/LANL	8.3.1.8.1.1	3/29/89	4/5/89	9/12/89	9/28/89	6/19/90	9/10/90	9/19/90	3/5/91	10/5/91	7/10/92
50	PHYSICAL PROCESSES OF MAGMATISM AND EFFECTS/LANL	8.3.1.8.1.2	10/21/92	10/26/92	1/14/93							
51	ANAL WST PKO RUP DUE TO TECT PROC & EVENT/SAIC	8.3.1.8.2.1	12/15/89	1/31/90	10/30/90	11/20/91	12/10/91	8/11/92	11/16/92	12/23/92		
52	ANAL EFFECTS OF TECT PROC & EVENT ON AVE PERC FLUX RATES OVER REPOS/USGS	8.3.1.8.3.1										
53	ANAL EFF OF TECT PROC&EVENT CHGS WTR TBLE ELV/USGS	8.3.1.8.3.2										
54	ANAL EFF OF TECT PROC & EVENT ON LOCAL FRAC PERM AND EFFECTIVE POROSITY/USGS	8.3.1.8.3.3										
55	ANAL EFF TECT PROC&EVENT ON RK GEOCHEM PROP/USGS	8.3.1.8.4.1										
56	CHAR OF VOLCANIC FEATURES/LANL	8.3.1.8.5.1	12/14/88	1/17/89	6/20/89	7/12/89	1/2/90	3/15/90	4/18/90	5/15/90	8/20/90	3/18/91
57	CHAR IGNEOUS INTRUSIVE FEATURES/USGS	8.3.1.8.5.2	10/13/92	10/16/92								
58	INVEST FOLDS IN MIOCENE AND YNG RKS OF REG/USGS	8.3.1.8.5.3										
59	EVAL NAT PROC THAT COULD AFFECT LG TERM SURVIVABIL SURFACE MARKER SYS AT YUCCA MTN/MAO	8.3.1.9.1.1										
60	NAT RES ASSESS YUCCA MTN, NYE COUNTY/USGS	8.3.1.9.2.1	7/13/90	8/16/90	1/7/91	NA	1/13/92	9/28/92	11/6/92	12/17/92		
61	WATER RES ASSESS YUCCA MTN, NV/SAIC	8.3.1.9.2.2	10/6/89	1/30/90	8/15/90	5/9/91	12/26/90	6/13/91	8/26/91	9/20/91	5/4/92	
62	EVAL DATA NEEDED TO SUPP ASSESS LIKLIHOOD FUT	8.3.1.9.3.1										



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#	SP NAMES/CODE	SP NUMBER	SUBMIT TO YMP	SCREENING REVIEW COMPLETE	COMMENTS TO PI	COMMENT RESOL MEETING	PI REVISION COMPLETE	VERIFY COMMENT RESOL	PO APPROVE	SUBMIT TO NRC	NRC PHASE I REVIEW	NRC PHASE II REVIEW
	INADVER HUMAN INTRU YUC MTN EXPLO/EXT NAT RES/M&O											
63	EVAL POTENTIAL EFFECT OF EXPLOIT NAT RES ON HYDRO CHAR AT YUCCA MTN/M&O	8.3.1.9.3.2										
64	METEOROLOGICAL DATA COLLECT YUCCA MTN SITE/SAIC	8.3.1.12.2.1	9/28/90	NA	2/4/91	2/25/91	2/21/91	2/26/91	3/20/91	5/16/91	11/12/91	NONE
64 RI	METEOROLOGICAL DATA COLLECT YUCCA MTN SITE/SAIC, REV 1	8.3.1.12.2.1	3/31/92	4/21/92	6/17/92	NA	12/2/92					
65	STUDIES TO PROVIDE SOIL/ROCK PROP OF POTENTIAL LOCATIONS OF SURFACE/SUBSURFACE FACILITIES/USGS	8.3.1.14.2	7/15/91	7/23/91	8/11/91	NA	8/21/91	9/22/91	10/01/91	10/16/91	1/24/92	
66	LAB THERMAL PROPERTIES/SNL	8.3.1.15.1.1	3/17/88	NA	11/1/89	12/5/89	3/16/90	5/23/90	10/21/90	1/25/91	DEFERRED	
66 RI	LAB THERMAL PROPERTIES/SNL	8.3.1.15.1.1	11/3/92	11/9/92	12/10/92							
67	LAB THERMAL EXPANSION TESTING/SNL	8.3.1.15.1.2	12/1/88	12/20/88	Done	8/1/89	11/20/89	5/23/90	8/21/90	10/4/90	DEFERRED	
67 RI	LAB THERMAL EXPANSION TESTING/SNL	8.3.1.15.1.2	11/3/92	11/9/92	2/3/93							
68	LAB DETERMIN MECH PROP INTACT ROCK/SNL	8.3.1.15.1.3	2/8/88	NA	7/6/88	7/7/88	11/29/88		5/21/91	6/21/91	DEFERRED	
69	LAB DETERMIN MECH PROP FRACTURES/SNL	8.3.1.15.1.4	10/23/91	2/5/92	5/12/92							
70	EXCAVATION INVESTIGATIONS/SNL	8.3.1.15.1.5	3/26/87	NA	Done	6/9/87	9/1/87	5/27/88	1/09/89	2/9/89	DEFERRED	
71	IN SITU THERMOMECH PROP/SNL	8.3.1.15.1.6										
72	IN SITU MECHANICAL PROP/SNL	8.3.1.15.1.7										
73	IN SITU DESIGN VERIFICATION/SNL	8.3.1.15.1.8	3/20/90	4/12/90	10/10/91	NA	11/23/92	1/12/93	2/3/93			
74	CHAR SITE AMBIENT STRESS CONDITIONS/USGS (2)	8.3.1.15.2.1	9/22/87	NA	Done	12/4/87	2/23/88	2/9/89	1/11/89	2/9/89	DEFERRED	
74 RI	CHAR SITE AMBIENT STRESS CONDITIONS/SNL (1)	8.3.1.15.2.1										
75	CHAR SITE AMBIENT THERMAL COND/USGS	8.3.1.15.2.2	10/13/92	10/16/92								
76	CHAR OF FLOOD POTENTIAL YUCCA MTN SITE/USGS	8.3.1.16.1.1	3/30/89	5/2/89	10/13/89	4/18/90	4/27/90	8/6/90	9/17/90	10/11/90	5/8/91	NONE
77	LOC OF ADEQ WATER SUPPLY CONST OPER, CLOS, DECOMM OF A MGDS AT YUCCA MTN/SAIC	8.3.1.16.2.1										
78	DETERMINE PRECLOS HYDRO COND UZ YUCCA MTN/USGS	8.3.1.16.3.1										
79	POTENTIAL FOR ASH FALL AT SITE/LANL	8.3.1.17.1.1										
80	FAULTING POTENTIAL AT REPOSITORY/SNL	8.3.1.17.2.1										
81	RELEVANT EARTHQUAKE SOURCES/USGS	8.3.1.17.3.1	8/1/90	8/22/90	12/28/90	NA	5/1/91	11/15/91	12/18/91	1/16/92	5/18/92	
82	UNDERGROUND NUCLEAR EXPLOSION SOURCES/SNL	8.3.1.17.3.2										
83 RI	ORD MOTION FROM REG EARTHQUAKE AND UNEA/USGS	8.3.1.17.3.3.1										
83	ORD MOTION FROM REG EARTHQUAKE AND UNEA/SNL	8.3.1.17.3.3.2	8/1/90	8/10/90	2/27/92	NA						
84	EFFECT LOCAL SITE GEOL ON SRFA/SUBSRF MOTION/USGS	8.3.1.17.3.4	7/6/90	7/23/90	1/23/91	NA	4/16/91	8/26/91	11/14/91	12/4/91	6/8/92	NONE
85	ORD MOTION AT SITE FROM CONTROL SEIS EVENT/USGS	8.3.1.17.3.5	10/4/90	NA	2/27/92	NA	4/14/92					
86	PROBABILISTIC SEISMIC HAZARD ANALYSES/SNL	8.3.1.17.3.6										
87	HISTORICAL AND CURRENT SEISMICITY/USGS	8.3.1.17.4.1	10/17/89	10/25/89	4/30/90	6/20/90	7/6/90	9/4/90	9/17/90	10/22/90	5/14/91	NONE
88	LOC & REGENCY OF FAULT NEAR PROSPEC SUR FACIL/USGS	8.3.1.17.4.2	12/6/88	12/14/88	Done	1/19/89	2/16/89	6/21/89	5/22/89	7/10/89	11/24/89	3/16/90
89	QT FLT 100KM YUCCA MTN, INCL WALKER LANE/USGS	8.3.1.17.4.3	3/25/92	4/6/92	6/17/92	N/A	9/22/92	12/28/92	1/21/93			
90	QUAT FAULT PROXIMAL TO SITE W/IN NE-TREND FAULT ZONES/USGS	8.3.1.17.4.4	8/3/92	8/5/92	9/25/92	NA	10/26/92					

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