Los Alamos
Los Alamos National Laboratory
101 Convention Center Drive, Suite 820
Las Vegas, NV 89109

WBS 1.2.6.1.1, 1.2.3.9.7
"QA N/A"

memorandum

LA-EES-13-LV-05-94-011

May 9, 1994
702/794-7095
M/S 527

TO: S. B. Jones, DOE/YMSCO
W. B. Simecka, DOE/YMSCO

FROM: R. D. Oliver, LANL

SUBJECT: EXPLORATORY STUDIES FACILITY TESTING ACTIVITIES - APRIL 1994 - MONTHLY PROGRESS REPORT (SCPB: N/A)

I-3569

GENERAL EXPLORATORY STUDIES FACILITY ACTIVITIES

TEST PROGRAM: EXECUTIVE SUMMARY

Cleaning and logging activities continued in the long radial boreholes in Test Alcove #1. The completion of drilling operations for the Large Block Tests and the continuation of construction at the Exploratory Studies Facility (ESF) North Portal Pad was also conducted in April. Other Job Package (JP) activities involved Sandia National Laboratories' (SNL) Field Team with Construction Monitoring. The Test Planning Package (TPP), JP, and Work Package (WP) for the Radial Borehole Test are in review. Comments have been received from the U.S. Geological Survey (USGS) which represent new test support requirements (instrument-grade power and 0.01 micron filtration on compressed air for testing). Additional planning information will be required from the USGS in order to define implementation options and associated costs; this process may delay test implementation. Scheduled progress consistent with the ESF Design is illustrated in Attachment 1.

INITIATIVES

Preliminary results from the Core Packaging study are being analyzed to determine general trends. Some problem areas have already been identified and addressed. A visit to the Test Coordination Office (TCO) by Dr. Claude Degueldre was sponsored by Alan Mitchell. Dr. Degueldre presented a discussion regarding "Colloid Transport at Yucca Mountain."

FIELD ACTIVITIES

Field Activities are detailed in appendices attached to this report. Each of the appendices contains a description of the progress in milestones and deliverables, a summary of field activities, a brief description of the manner of data flow,

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and a schedule. When pertinent, additional graphic information is provided to illustrate progress or concerns.

INTEGRATED DATA SYSTEM (IDS)

Work continues on identifying and evaluating the various possible approaches to meet the principal investigators' data acquisition needs in a timely and cost effective manner. The evaluation of the ramifications of the recent decision to combine the present IDS functions with the Control System (CS) functions in a new system called the Integrated Data/Control System (ID/CS) began this month. The TCO continued to provide input and assistance to Civilian Radioactive Waste Management System & Operating (CRWMS M&O) Contractor IDS Design team in their preparation of ID/CS Design requirements document this month.

ENVIRONMENTAL, SAFETY, AND HEALTH (ES&H) ACTIVITIES

The ESF Safety Coordinator prepared the mid-year status and review of safety budget WBS 1.2.6 and 1.2.13, and it was submitted to the U.S. Department of Energy (DOE). The ESF Safety Coordinator conducted the April general safety meeting. A report on 'miles driven per accident' from Los Alamos National Laboratory (LANL) was submitted to DOE.

Tracer water used underground by Reynolds Electrical & Engineering Company, Inc. (REECo) for April totaled 10.7 kiloliters (2,835 gallons), showing a total usage of 1,752.6 kiloliters (462,985 gallons).

SITE CONSTRUCTION

JOB PACKAGE (JP) 92-20 ESF NORTH PORTAL PAD AND FACILITIES

Construction at the ESF continued this month with REECo preparing the ESF for construction of the concrete invert and launch chamber. The radon monitoring in Test Alcove #1 by Science Applications International Corporation (SAIC) was completed. REECo and CRWMS M&O completed pull-tests of various types of rockbolts and grouts in the starter tunnel. An inspection of the highwall and tunnel by representatives from the CRWMS M&O, LANL, SNL, and REECo found conditions consistent with previous inspections. SNL installed an additional set of convergence pins in the Starter Tunnel, located approximately 11.6 meters (38 ft) from the entrance, to monitor some small cracks in the fibercrete.

Appendix I - Geologic Mapping of the ESF (JP 92-20A)
Appendix II - Perched Water Testing in the ESF (JP 92-20B)
Appendix III - Consolidated Sampling in the ESF (JP 92-20C)
Appendix IV - Construction Monitoring in the ESF (JP 92-20D)
Appendix V - Engineered Barrier - Fran Ridge Large Block Experiment (JP 93-10)
Appendix VI - Hydrochemistry (JP 92-20E)

ADMINISTRATIVE SCHEDULE AND SUMMARY TABLE

Table I identifies the field activities in progress at the ESF. The Administrative Schedule (Attachment 1) is based on information provided by the ESF Design Team.

TABLE I
ESF Testing Field Activity
North Ramp Starter Tunnel

SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	WBS ELEMENT	TCO TEST EVENT NAME	TPP #	JP #
Rock Characteristic Program	Characterization of Structural Features in the Site Area	8.3.1.4.2.2	Underground Geologic Mapping	1.2.3.2.2.1.2	Geologic Mapping - ESF	TPP 92-10	JP 92-20A
Geohydrology Program	Characterization of Yucca Mountain Unsaturated-Zone in the ESF	8.3.1.2.2.4	Perched Water Testing in the ESF	1.2.3.3.1.2.4	Perched Water - (Contingency)	TPP 92-11	JP 92-20B
			Hydrochemistry Tests in the ESF	1.2.3.3.1.2.4	Hydrochemistry Testing	TPP 92-12	JP 92-20E
			Radial Borehole Tests in the ESF	1.2.3.3.1.2.4	Radial Borehole Testing	TPP 92-13	JP 92-20F
Thermal and Mechanical Rock Properties Program	In Situ Design Verification	8.3.1.15.1.8	Evaluation of Mining Methods	1.2.4.2.1.1.4	Construction Monitoring - ESF	TPP T-93-2	JP 92-20D
			Monitoring of Ground Support Systems	1.2.4.2.1.1.4			
Geochemistry Program	Water Movement Test	8.3.1.2.2.2	Chloride and Chlorine-36 Measurements of Percolation at Yucca Mountain	1.2.3.3.1.2.2	Consolidated Sampling - ESF	TPP 92-14	JP 92-20C
	Study Plan for History of Mineralogic Alteration of Yucca Mountain	8.3.1.3.2.2	History of Mineralogic and Geochemical Alteration of Yucca Mountain	1.2.3.2.1.1.2			
	Study Plan for Mineralogy, Petrology, and Chemistry of Transport Pathways	8.3.1.3.2.1	Mineral Distributions Between Host Rock and Accessible Environment	1.2.3.2.1.1.1			
	Study Plan for Mineralogy, Petrology, and Chemistry of Transport Pathways	8.3.1.3.2.1	Fracture Mineralogy	1.2.3.2.1.1.1			
Repository Horizon Rock-Water Interaction Large Block Experiment	Engineered Barrier System Field Tests	8.3.4.2.4.4	Repository Horizon Rock-Water Interaction	1.2.2.2.4	Engineered Barrier-Fran Ridge Large Block Experiment	NA	JP 93-10

ISSUES: None

Attachments "Limited Value Material"

RDO:MKL:dm14

Cy: W. J. Boyle, DOE/YMSCO, MS 523
R. A. Crawley, DOE/YMSCO, MS 523
J. R. Dyer, DOE/YMSCO, MS 523
V. F. Iorii, DOE/YMSCO, MS 523
E. H. Petrie, DOE/YMSCO, MS 523
K. J. Skipper, DOE/YMSCO, MS 523
M. W. Smith, DOE/YMSCO, MS 523
D. P. Stucker, DOE/YMSCO, MS 523
R. S. Waters, DOE/YMSCO, MS 523
R. J. White, DOE/YMSCO, MS 523
D. R. Williams, DOE/YMSCO, MS 523
W. A. Girdley, DOE/FOC, MS 717
W. A. Wilson, DOE/FOC, MS 717
W. C. Kopatich, RSN, MS 403
E. L. Wright, RSN, MS 403
B. R. Gardella, REECo, MS 408
R. C. McDonald, CRWMS M&O, MS 423
R. W. Craig, USGS/LV, MS 509
D. L. Edwards, USGS/LV, MS 509
L. R. Hayes, USGS, Denver, CO
M. D. Voegele, SAIC, MS 517
D. S. Kessel, SNL/LV, MS 509
L. E. Shephard, SNL, Dept. 6302, Albuquerque, NM
J. A. Blink, LLNL/LV, MS 465
W. L. Clarke, LLNL, Livermore, CA
J. A. Canepa, LANL, EES-13, MS J521
D. M. Boak, LANL, EES-13/LV, MS 527
N. Z. Elkins, LANL, EES-13/LV, MS 527
E. F. Homuth, LANL, EES-13/LV, MS 527
K. L. Kinter, LANL, EES-13/LV, MS 527
M. L. Lawson, LANL, EES-13/LV, MS 527
A. J. Mitchell, LANL, EES-13/LV, MS 527
D. J. Weaver, LANL, EES-13/LV, MS 527
J. H. Berry, LANL/FOC, MS 735
R. G. Kovach, LANL/FOC, MS 735
EES-13/LV, LANL, MS 527

LA-EES-13-LV-05-94-011
Attachment 1
3 Pages

LOS ALAMOS NATIONAL LAB[illegible]ORY				
TEST COORDINATION OFFICE - YUCCA MOUN[illegible] PROJECT				
PROJECT: RAMP AND DRIFT CONFIGURATION - ALCOVE LOCATION ILLUSTRATION				
CAD FILE: ESFALCV.DWG	AUTOCAD R12	SIZE: A	SCALE: NOTED	REVISION: A1
DRN. BY: D.J. VEAVER	APPROVED BY: ON FILE N.Z. ELKINS/R.D. OLIVER		DATE DRN: 3/13/94	
NOTES: ADMINISTRATIVE/ILLUSTRATIVE USE ONLY			PLOT DATE: 3/14/94	

Enclosure 2

COMMENTS:

NORTH PORTAL BOX CUT FACE AT CS 0+00

ALCOVE #1 APPROXIMATELY LOCATED AT CS 1+40

TWO THOUSAND FEET GRID. ENGLISH COORDINATES ARE BASED ON THE NEVADA STATE COORDINATE SYSTEM, CENTRAL ZONE.

DIMENSIONS AND ELEVATIONS ARE SHOWN IN METERS ROUNDED TO THREE DECIMAL PLACES. WHERE DISCRPANCIES BETWEEN ELEVATIONS AND GRADIENTS OCCUR DUE TO ROUNDING, ELEVATIONS WILL GOVERN.

STARTER TUNNEL CONFIGURATION AND AZIMUTH FOR THE FIRST 60.960 m (200 FT.) IS BASED ON TITLE II PACKAGE 1A DESIGN DRAWINGS.

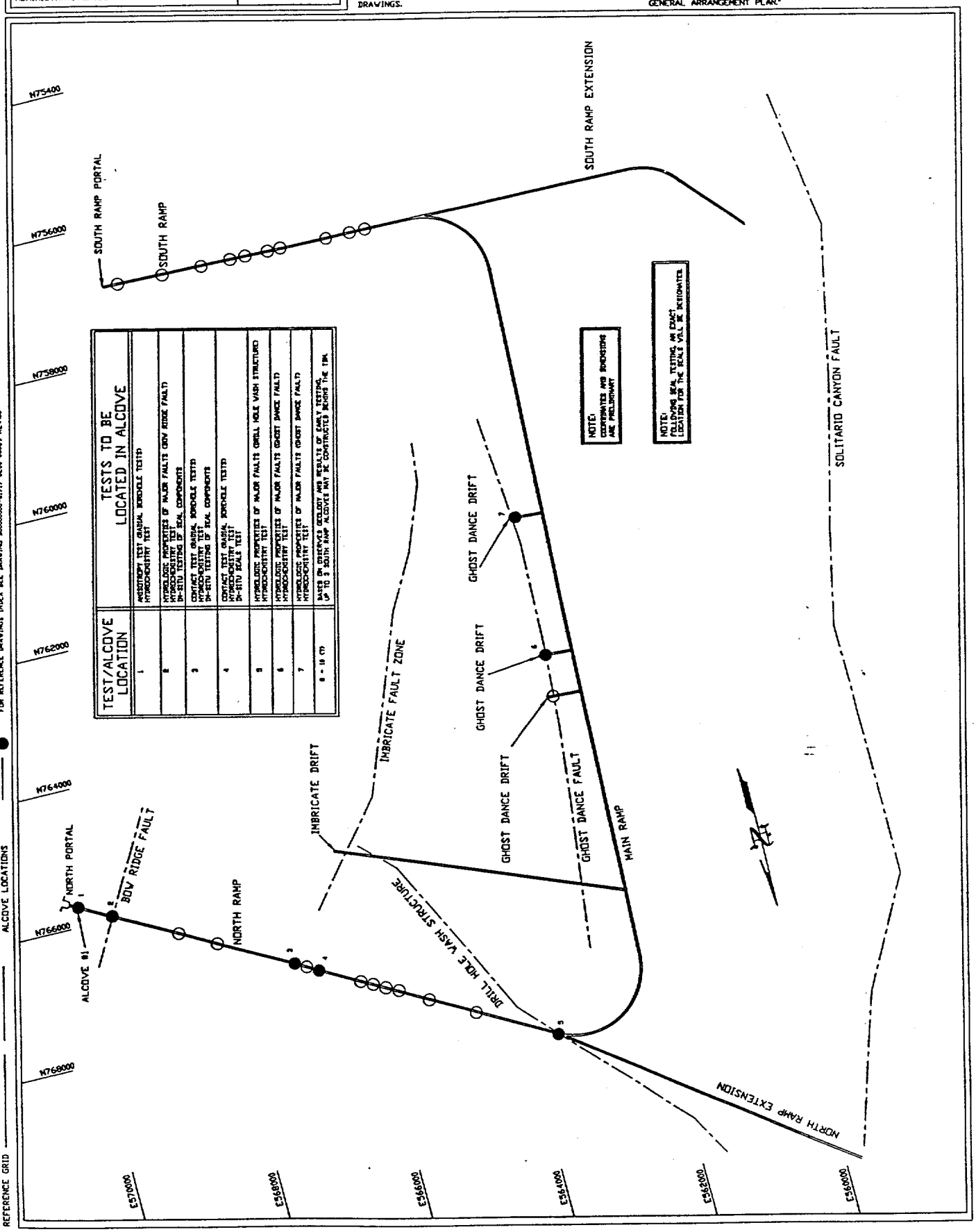
ACTUAL TEST ALCOVES WILL BE LOCATED IN THE FIELD AS GEOLOGY IS REVEALED BY EXCAVATION. ALCOVE LOCATIONS SHOWN ARE APPROXIMATIONS.

THE BASIS FOR THE TEST ALCOVE LOCATIONS IS THE ESF DR YMP/CC-0013, REV 5/31-91.

EXISTING DRILLHOLE LOCATIONS ARE BASED ON FIELD SURVEYS. PROPOSED DRILLHOLE LOCATIONS ARE BASED ON INFORMATION CONTAINED IN THE WORK PROGRAMS.

FAULT TRACE LOCATIONS, EXCEPT FOR THE BOW RIDGE FAULT, ARE APPROXIMATIONS BASED ON AT-DEPTH PROJECTIONS OF INFORMATION FROM USGS OPEN FILE REPORT 84-494, PRELIMINARY GEOLOGIC MAP AND SECTIONS, BY SCOTT AND BONK. THE BOW RIDGE FAULT TRACE IS AN AT-DEPTH PROJECTION BASED ON PRELIMINARY FIELD WORK FROM ON-GOING ROCK AND SOIL INVESTIGATIONS.

ILLUTRATION BASED ON M&O DRAWING #B00000000-01717-2100-40001-03 "EXPLORATORY STUDIES FACILITY PACKAGE 2A: OVERALL SUBSURFACE GENERAL ARRANGEMENT PLAN."



ESF Working Test Schedule
Field Activity Working Schedule
LANL ESF Test Coordination Office

ID	Name	Dur	Start
1	ESF Design & Construction - Level II Milestones	1793d	10/1/92
2	Complete Design of North Portal & Pad - T652	0d	10/1/92
3	Complete Design of North Ramp - T655	0d	9/13/94
4	Start North Ramp Excavation (TBM) - T580	0d	8/8/94
5	Complete North Ramp Excavation - T582	0d	8/1/95
6	Complete Design of South Ramp - T656	0d	9/29/95
7	Start South Portal & Pad Construction - T586 & T587	0d	10/2/95
8	Complete Design of MTL - T657	0d	4/30/96
9	Complete South Ramp Excavation, Daylight - T584	0d	9/26/96
10	Complete North Access Surface Facilities - T583	0d	10/2/96
11	Complete South Access Surface Facilities - T585	0d	10/7/96
12	Complete MTL Excavations - T650	0d	2/10/98
13	Start CHL South Ramp Excavation - T646	0d	7/1/98
14	Complete CHL South Ramp Excavation - T647	0d	10/30/98
15	Complete CHL North Ramp Excavation - T588 & T651	0d	1/1/99
16	Start CHL North Ramp Excavation - T648	0d	8/3/99
17	ESF Design & Construction - Level III Milestones	1967d	10/1/92
18	Start Title II Design of North Ramp (Pk 2)	0d	10/1/92
19	Start Excavation of North Starter Tunnel	0d	4/2/93
20	Start Design of TSL Main Drift (Pk 8A)	0d	4/4/94
21	Receive TBM #1	0d	4/4/94
22	Start Design of South Portal & Pad (Pk 3A)	0d	10/3/94
23	Start Design of South Ramp to TSL (Pk 4)	0d	10/3/94
24	Start Excavation of TSL Main Drift	0d	8/2/95
25	Start Design of South Portal Surface Facilities (Pk 3B)	0d	4/3/95
26	Receive 2nd TBM	0d	10/1/96
27	Calico Hill Drift Decision	0d	2/1/96
28	Start Design of Calico Hills Level (Pk 5,6 & 7)	0d	2/1/96
29	Start Excavation of Main Test Level	0d	5/1/96
30	Optional Shaft Decision Point	0d	6/3/96
31	Start Excavation of TSL Ghost Dance Fault Drifts	0d	7/1/96
32	Start Excavation of Imbricate Fault Drift	0d	1/2/96
33	Start Thermal Testing	0d	5/14/97
34	Start Construction Optional Shaft Facilities	0d	10/1/97
35	Start Construction of SR CHL Launch Chamber	0d	4/1/98
36	Start Excavation of CHL main Drift	0d	10/2/98
37	Start Optional Shaft Excavation	0d	2/26/99
38	Start Excavation of CHL Cross Drifts	0d	3/31/00
39			
40	ESF Design Activities	1866d	10/1/91
41	Site Preparation & Portal of North Ramp (Pk 1A)	311d	10/1/91
42	Surface Facilities at North Portal (Pk 1B)	300d	10/1/92
43	Surface Facilities at North Portal (Pk 1C)	353d	10/1/92
44	Surface Facilities at North Portal (Pk 1D)	500d	10/1/92
45	North Ramp Underground Facilities (Pk 2)	435d	10/1/92
46	South Ramp Portal & Pad (Pk 3A)	238d	10/3/94
47	South Ramp Portal & Pad (Pk 3B)	282d	4/3/95
48	South Ramp from TSL to Portal (Pk 4)	260d	10/3/94
49	North Ramp to CHL (Pk 5)	262d	2/1/96
50	CHL Main & Cross Drifts (Pk 6)	262d	2/1/96
51	South Ramp from CHL (Pk 7)	262d	2/1/96
52	TSL Main Drifts (Pk 8A)	280d	4/4/94
53	TSL Main Drifts (Pk 8B)	253d	10/3/94
54	TSL Main Drifts (Pk 8C)	260d	4/3/95
55	Main Test Area (Pk 9)	262d	4/3/95
56	Optional Shaft (Pk 10)	260d	10/1/96
57			
58	NORTH PORTAL - JP 1-30 - CONSTRUCTION	1862d	12/28/92
59	Drill & Blast North Portal Wall & Slot -- [621104]	60d	12/25/92
60	Drill & Blast 60 m Starter Tunnel -- [64101]	122d	4/2/93
61	Drill & Blast Testing Alcove #1	30d	8/27/93
62	Construct Warehouse	261d	10/3/95
63	Construct Shop	252d	10/3/94
64	Construct Change House	252d	10/3/94
65	Construct Operations Building	260d	9/4/96
66	Construct Shaft Collar and Surface Facilities	340d	9/30/97
67			
68	ESF EXCAVATION - JP 92-20 - CONSTRUCTION	1677d	3/21/94
69	Receive 1st TBM	1d	4/4/94
70	Assemble and Test 1st TBM	78d	3/21/94
71	Construct Launch facility	30d	3/24/94
72	Excavate 30 m of North Ramp - TBM	18d	8/8/94
73	Excavate North Ramp to TSL	237d	9/5/94
74	Excavate Main Drift TSL	152d	8/2/95
75	Excavate South Ramp to South Portal	86d	3/1/96
76	Construct South Portal Pad & Road	60d	10/2/95
77	Revive 2nd TBM	1d	8/18/96
78	Assemble & Test 2nd TBM	62d	8/18/96
79	Excavate North Ramp Extension	92d	10/2/96
80	Excavate South Ramp Extension	162d	5/9/97
81	Receive MTA Excavator	1d	7/18/96
82	Assemble & Test MTL Excavator	88d	7/18/96
83	Excavate MTL for Thermal Test	160d	10/22/96
84	Excavate Remaining MTL	304d	6/2/97
85	Excavate Ghost Dance Drifts	72d	7/1/96
86	Excavate Calico Hills North Ramp	118d	10/26/97
87	Excavate Calico Hills Main Drift	121d	4/10/98
88	Excavate Calico Hills South Ramp	64d	10/25/98
89	Excavate Calico Hills Cross Drifts	518d	2/25/98
90	Excavate Optional Shaft	401d	2/9/99
91			
92	ENGINEERED BARRIER - FIELD TESTS	707d	7/15/93
93	Large Block Test - Fran Ridge Tests	707d	7/15/93
94	Demonstration Saw Cuts	56d	7/15/93
95	Phase I - Site Preparation - JP 93-10	195d	8/30/93
96	Phase II - Test Construction - JP 93-10A	164d	3/1/94
97	Phase III - Test Operation - TPP T-93-3 / JP 93-10B	300d	10/17/94
98	Phase IV - Post Activity Excavation - JP 93-10C	80d	12/11/95
99			
100	ESF TESTING -- PHASE II - STARTER TUNNEL	341d	10/27/92
101	Start of ESF Testing -- Phase II	0d	10/27/92
102	ESF Test Planning -- Phase II	148d	10/27/92
103	Geologic Mapping - Starter Tunnel (TPP 92-10/JP 92-20A)	108d	10/27/92
104	Perched Water - Starter Tunnel (Contingency) -- (TPP 92-11/JP 92-20B)	108d	10/27/92
105	Consolidated Sampling - Starter Tunnel (TPP 92-14/JP 92-20C)	140d	10/27/92
106	Construction Monitoring - Starter Tunnel (TPP T-93-2/JP 92-20D)	61d	1/1/93
107	ESF Test Implementation -- Phase II	227d	4/5/93
108	Geologic Mapping - Starter Tunnel (TPP 92-10/JP 92-20A)	181d	4/5/93
109	Perched Water - Starter Tunnel (TPP 92-11/JP 92-20B)	197d	5/10/93
110	Consolidated Sampling - Starter Tunnel (TPP 92-14/JP 92-20C)	115d	5/24/93
111	Construction Monitoring - Starter Tunnel (TPP T-93-2/JP 92-20D)	111d	5/30/93
112	ESF Test Monitoring -- Phase II	188d	4/6/93
113	Construction Monitoring - Starter Tunnel (TPP T-93-2/JP 92-20D)	156d	4/5/93
114	ESF TESTING -- PHASE IIA - STARTER TUNNEL ALCOVE	377d	7/1/93
115	JP 93-10E Hydrochemistry - Drilling Support	60d	1/10/94
116	Air Coring Test Holes (3 each)	60d	1/10/94
117	ESF Test Planning -- Phase IIA	229d	7/1/93
118	Hydrochemistry Testing - Alcove #1 (TPP 92-12/JP 92-20E)	86d	7/1/93
119	Radial Borehole Testing - Alcove #1 (TPP 92-13/JP 92-20E)	120d	7/1/93
120	Hydro. Props. of Major Faults (TPP 94-12)	163d	10/1/93
121	ESF Test Implementation --Phase IIA	330d	8/26/93
122	Geologic Mapping - Alcove #1 (TPP 92-10/JP 92-20A)	31d	11/1/93
123	Perched Water - Alcove #1 (TPP 92-11/JP 92-20B)	84d	11/1/93
124	Consolidated Sampling - Alcove #1 (TPP 92-14/JP 92-20C)	84d	11/1/93
125	Construction Monitoring - Alcove #1 (TPP T-93-2/JP 92-20D)	30d	11/1/93
126	Hydrochemistry Testing - Alcove #1 - (TPP 92-12/JP 92-20E)	263d	8/20/93
127	Radial Borehole Testing - Alcove #1 (TPP 92-13/JP 92-20E)	165d	4/25/94
128	ESF Test Monitoring - Phase IIA	238d	11/8/93
129	Construction Monitoring - Alcove #1 (TPP T-93-2/JP 92-20D)	235d	11/8/93
130	Hydrochemistry Testing - Alcove #1 - (TPP 92-12)	176d	1/26/94
131	Radial Borehole Testing - Alcove #1 (TPP 92-13)	66d	7/1/94
132	ESF TESTING PHASE III - RAMPS & MAIN	1704d	3/15/94
133	ESF Test Planning -- Phase III	563d	3/15/94
134	Geologic Mapping Platform Operational	0d	7/26/94
135	Geologic Mapping (TPP 92-10)	95d	3/15/94
136	Perched Water (TPP 92-11)	95d	3/15/94
137	Consolidated Sampling (TPP 92-14)	95d	3/15/94
138	Construction Monitoring (TPP T-93-2)	95d	3/15/94
139	Hydrologic Props. of Major Faults - Thermal Hole (TPP 94-12)	20d	3/1/96
140	ESF Test Implementation --Phase III	1880d	8/8/94
141	Geologic Mapping (TPP 92-10)	1560d	8/8/94
142	Perched Water (TPP 92-11)	1560d	8/8/94
143	Consolidated Sampling (TPP 92-14)	1560d	8/8/94
144	Construction Monitoring (TPP T-93-2)	1560d	8/8/94
145	Hydrologic Props. of Major Faults - Thermal Hole (TPP 94-12)	5d	3/22/96
146	Hydrochemistry (TPP 92-12)	235d	8/8/94

Critical | Noncritical | Progress | Milestone | Summary | Rolled Up | Checked by: | Approved by:

ESFMASTR.MPP

ADMINISTRATIVE USE ONLY

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9406070472-01

GEOLOGIC MAPPING OF THE ESF

PROGRESS - MILESTONES AND DELIVERABLES

The geologic mapping data collection activity started with starter tunnel construction.

SUMMARY OF FIELD ACTIVITIES

No geologic mapping took place this month.

DATA FLOW INFORMATION

Analysis of geologic mapping field data by investigating organizations is ongoing. The information from the Starter Tunnel and Test Alcove #1 is being processed, and has been shared with the constructor, facility design teams, and construction management.

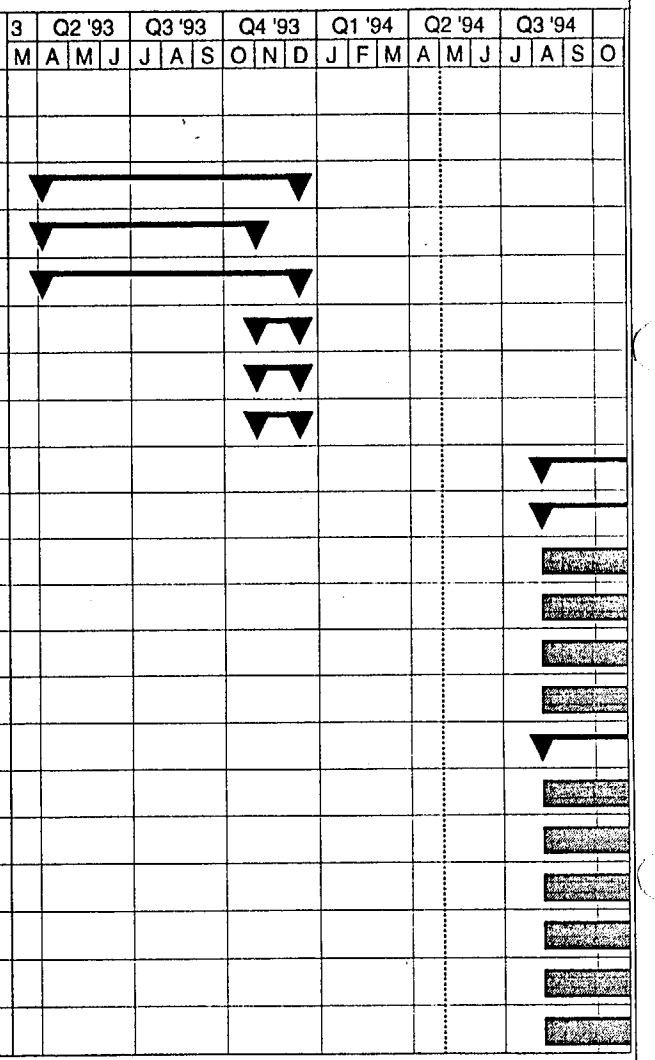
SCHEDULE SUMMARY

The costs and progress estimates on this activity are within the scope set by JP 92-20A.

SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	TPP #	JP #
Rock Characteristic Program	Characterization of Structural Features in the Site Area	8.3.1.4.2.2	Underground Geologic Mapping	TPP 92-10	JP 92-20A

Geologic Mapping (TPP 92-10/JP 92-20A)
Field Activity Working Schedule
LANL ESF Test Coordination Office

ID	Name	Dur	Start	Summary Acct.
1	GEOLOGIC MAPPING	1923d	4/5/93	
2				
3	**STARTER TUNNEL**	**181d**	**4/5/93**	
4	**Test Implementation - Discrete**	**151d**	**4/5/93**	
10	**Test Implementation - Matrix Support**	**181d**	**4/5/93**	
17	**STARTER TUNNEL ALCOVE**	**31d**	**11/1/93**	
18	**Test Implementation - Discrete**	**31d**	**11/1/93**	
23	**Test Implementation - Matrix Support**	**31d**	**11/1/93**	
30	**RAMPS & MAIN**	**1573d**	**8/8/94**	
31	**Test Implementation - Discrete**	**1573d**	**8/8/94**	
32	USGS/USBR Test Implementation (*1)	1573d	8/8/94	OG32212D93
33	RSN Field Survey & Processing	1573d	8/8/94	RS3522N4
34	REECo Test Construction & Procurement	1573d	8/8/94	OR32212L4
35	JC Photography & Process	1573d	8/8/94	OP355L94
36	**Test Implementation - Matrix Support**	**1573d**	**8/8/94**	
37	Los Alamos TCO Coordination & Planning (Field Test Coordination Support)	1573d	8/8/94	OA310BL4
38	Los Alamos TCO Test Management (Project Engineer Support)	1573d	8/8/94	OA616AL4
39	T&MSS Direct Support Services (Photo Support)	1573d	8/8/94	OT3522EL
40	REECo Construction & Operations Support	1573d	8/8/94	OR682L4
41	RSN Survey Support / Capital Procurement (Interim WBS)	1573d	8/8/94	RS614P94
42	CRWMS M&O Networking & Baseline Planning Support (Network & Progress Rpts.)	1573d	8/8/94	TR921CA1



Project: Geologic Mapping (TPP 92-10/JP 92-20A)
Date: 4/30/94
Revision #1

Critical — Noncritical — Progress — Milestone — Summary — Rolled Up

Checked by: ML

Approved by:

T9210TI.MPP

ADMINISTRATIVE USE ONLY

PERCHED WATER TESTING IN THE ESF

PROGRESS - MILESTONES AND DELIVERABLES

The ESF perched water data collection contingency activity began with starter tunnel construction.

SUMMARY OF FIELD ACTIVITIES

Moisture was observed on the drill string during cleaning of the lower right hole in Test Alcove #1. The USGS was contacted. After evaluating the situation, it was determined that the moisture was due to higher than normal humidity resulting in condensation on the drill string. Consequently, no water or samples were collected during the period. Equipment to collect samples, if identified, is on station.

DATA FLOW INFORMATION

Perched water sample data and observances will be recorded in a scientific notebook if encountered.

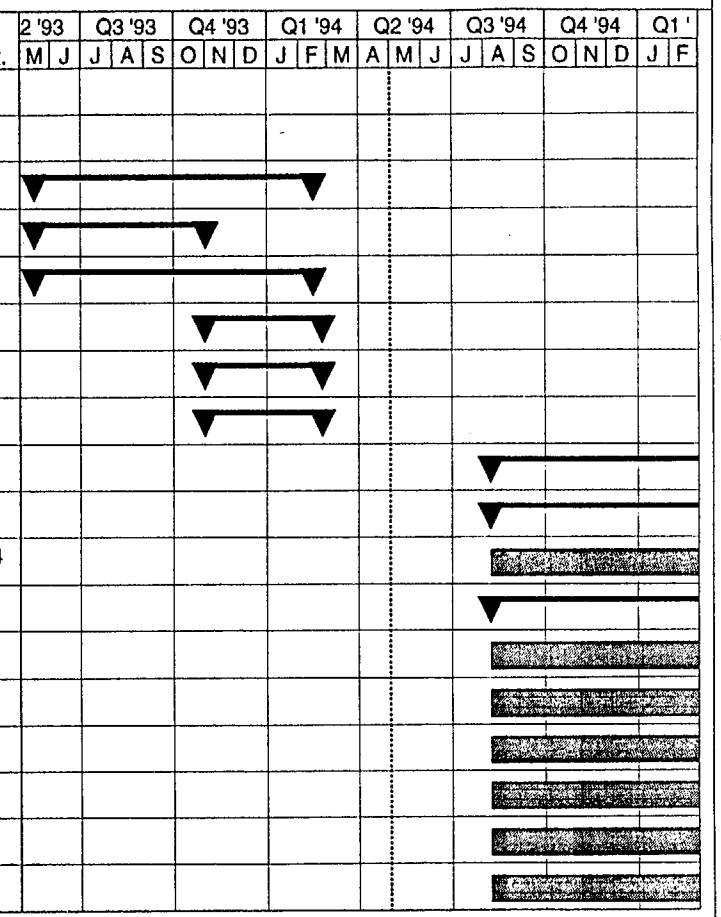
SCHEDULE SUMMARY

The costs and progress estimates on this activity are within the scope set by JP 92-20B.

SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	TPP #	JP #
Geohydrology Program	Characterization of Yucca Mountain Unsaturated-Zone in the ESF	8.3.1.2.2.4	Perched Water Testing in the ESF	TPP 92-11	JP 92-20B

Perched Water (TPP 92-11/JP 92-20B)
Field Activity Working Schedule
LANL ESF Test Coordination Office

ID	Name	Dur	Start	Summary Acct.
1	PERCHED WATER	1893d	5/16/93	
2				
3	**STARTER TUNNEL**	**197d**	**5/16/93**	
4	**Test Implementation - Discrete**	**121d**	**5/16/93**	
6	**Test Implementation - Matrix Support**	**197d**	**5/16/93**	
13	**STARTER TUNNEL ALCOVE**	**84d**	**11/1/93**	
14	**Test Implementation - Discrete**	**84d**	**11/1/93**	
16	**Test Implementation - Matrix Support**	**84d**	**11/1/93**	
23	**RAMPS & MAIN**	**1573d**	**8/8/94**	
24	**Test Implementation - Discrete**	**1573d**	**8/8/94**	
25	USGS Test Implementation	1573d	8/8/94	OG33124G94
26	**Test Implementation - Matrix Support**	**1573d**	**8/8/94**	
27	Los Alamos TCO Coordination & Planning (Field Test Coordination Support)	1573d	8/8/94	OA397BL4
28	Los Alamos TCO Test Management (Project Engineer Support)	1573d	8/8/94	OA616AL4
29	T&MSS Direct Support Services (Photo Support)	1573d	8/8/94	OT3522EL
30	REECo Construction & Operations Support (Contingency) - (*1)	1573d	8/8/94	OR682L4
31	RSN ESF Test Support	1573d	8/8/94	RS3522N4
32	CRWMS M&O Project Control Support	1573d	8/8/94	TR921CA1



Project: Perched Water (TPP 92-11/JP 92-20B)
Date: 4/30/94
Revision #1

Critical | Noncritical | Progress | Milestone | Summary | Rolled Up

Checked by: wl
Approved by:

T9211TI.MPP

ADMINISTRATIVE USE ONLY

CONSOLIDATED SAMPLING IN THE ESF

PROGRESS - MILESTONES AND DELIVERABLES

The consolidated sampling data collection and observation activity began when the starter tunnel construction exposed suitable rock. The TPP and JP for consolidated sampling were revised during October.

SUMMARY OF FIELD ACTIVITIES

No consolidated sampling took place this month. Work continues on assembling Field Document and Records Center files for activities conducted in the ESF. This effort includes the maintenance of an administrative data base that identifies sample locations and their corresponding photo identifiers.

DATA FLOW INFORMATION

Consolidated sampling data and sample collection activities are controlled by the JP Document and Records Center files, scientific notebooks, AP-6.26Q, sample collection report records and bar codes. Test-related photo and survey mission data is being submitted to the JP record file and the Principal Investigators (PIs).

SCHEDULE SUMMARY

The costs and progress estimates on this activity are within the scope set by JP 92-20C.

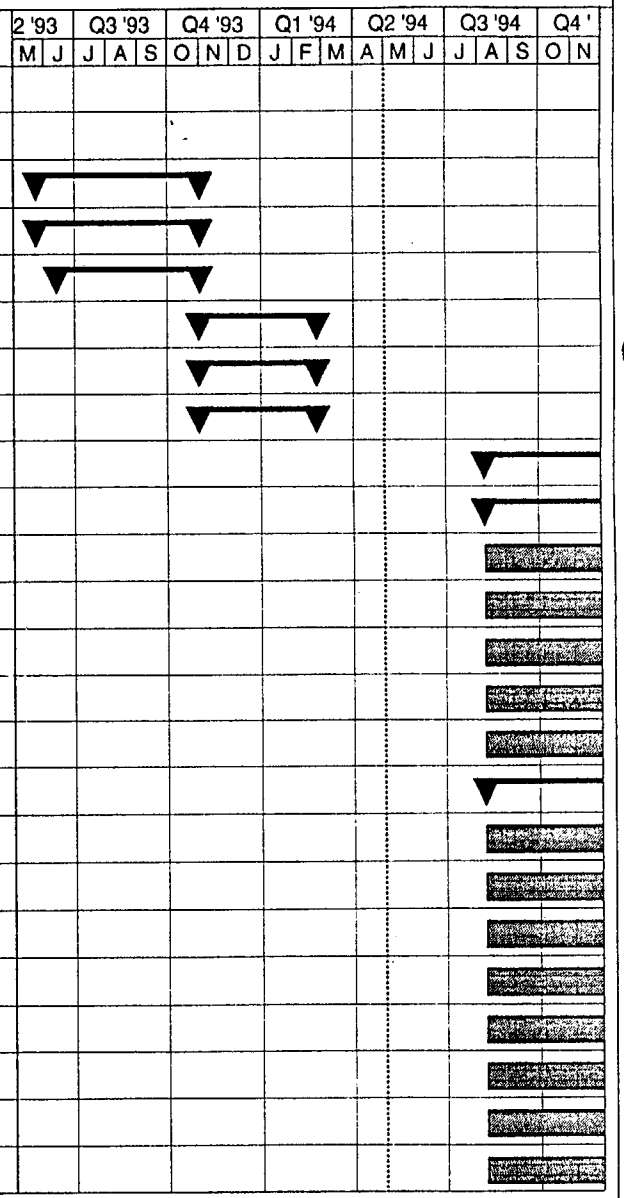
SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	TPP #	JP #
Geochemistry Program	Water Movement Tests	8.3.1.2.2.2	Consolidated Sampling in the ESF	TPP 92-14	JP 92-20C
	Characterization of the Yucca Mountain Unsaturated-Zone Percolation	8.3.1.2.2.3			
	Study Plan for History of Mineralogic Alteration of Yucca Mountain	8.3.1.3.2.2			

Consolidated Sampling (TPP 92-14/JP 92-20C)

Field Activity Working Schedule

LANL ESF Test Coordination Office

ID	Name	Dur	Start	Summary Acct.
1	CONSOLIDATED SAMPLING	1888d	5/24/93	
2				
3	**STARTER TUNNEL**	**116d**	**5/24/93**	
4	**Test Implementation - Discrete**	**116d**	**5/24/93**	
13	**Test Implementation - Matrix Support**	**101d**	**6/13/93**	
22	**STARTER TUNNEL ALCOVE**	**84d**	**11/1/93**	
23	**Test Implementation - Discrete**	**84d**	**11/1/93**	
28	**Test Implementation - Matrix Support**	**84d**	**11/1/93**	
37	**RAMPS & MAIN**	**1573d**	**8/8/94**	
38	**Test Implementation - Discrete**	**1573d**	**8/8/94**	
39	USGS/USBR Structural Features	1573d	8/8/94	OG32212D94
40	History of Mineralogic & Geochemical Alteration at YM	1573d	8/8/94	OA32112CB4
41	RSN Field Survey & Processing	1573d	8/8/94	RS3522N4
42	REECo Test Construction & Procurement	1573d	8/8/94	OR644L4
43	T&MSS Photography & Process	1573d	8/8/94	OT761EL
44	**Test Implementation - Matrix Support**	**1573d**	**8/8/94**	
45	Los Alamos TCO Coordination & Planning (Field Test Coordination Support)	1573d	8/8/94	OA397BL4
46	Los Alamos TCO Test Management (Project Engineer Support)	1573d	8/8/94	OA616AL4
47	T&MSS Direct Support Services EDD	1573d	8/8/94	OT3522EL
48	T&MSS Sample Management Facility	1573d	8/8/94	OT351EL
49	REECo Construction & Operations Support (Interim WBS)	1573d	8/8/94	OR662L3
50	Engineering Survey Support / Survey Processing (Interim WBS)	1573d	8/8/94	RS3522N4
51	CRWMS M&O Networking & Baseline Planning Support (Monthly Cost & Progress Rpt)	1573d	8/8/94	TR921CA1
52	JC Photography & Process (Interim WBS)	1573d	8/8/94	OP3522L94



Project: Consolidated Sampling (TPP 92-14/JP 92-20C)
Date: 4/30/94
Revision #1

Critical — Noncritical — Progress — Milestone — Summary — Rolled Up

Checked by: NL

Approved by:

T9214TI.MPP

ADMINISTRATIVE USE ONLY

CONSTRUCTION MONITORING IN THE ESF

PROGRESS - MILESTONES AND DELIVERABLES

The construction monitoring data collection and observation activity began with starter tunnel construction.

SUMMARY OF FIELD ACTIVITIES

The SNL Field Team monitored the Multipoint Borehole Extensometer gauges and convergence pins located in Test Alcove #1 and the main ESF. Readings for rockbolt load cells located in the ESF were also recorded.

DATA FLOW INFORMATION

Construction monitoring data was recorded in a scientific notebook. Test-related photo and survey mission data is being submitted to the JP record file and the PIs.

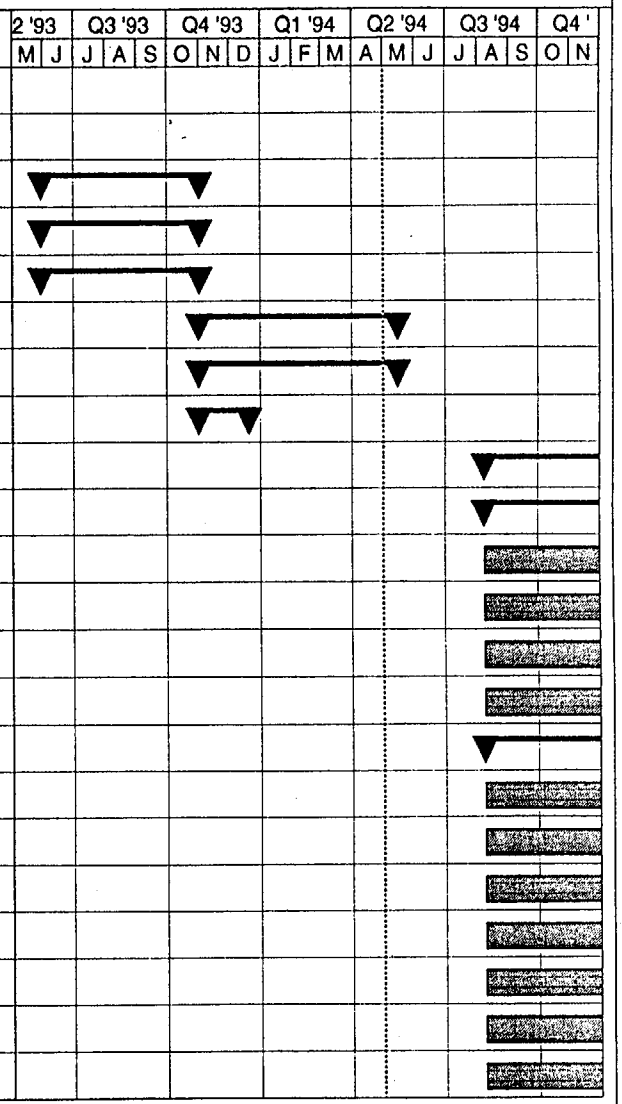
SCHEDULE SUMMARY

The costs and progress estimates on this activity are within the scope set by JP 92-20D. Illustrations are provided to show progress and test status.

SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	TPP #	JP #
Thermal and Mechanical Rock Properties Program	In Situ Design Verification	8.3.1.1.5.1.8	Construction Monitoring in the ESF	TPP T-93-2	JP 92-20D

Construction Monitoring (TPP 93-2/JP 92-20D)
Field Activity Working Schedule
LANL ESF Test Coordination Office

ID	Name	Dur	Start	Summary Acct.
1	CONSTRUCTION MONITORING	1883d	5/31/93	
2				
3	**STARTER TUNNEL**	**111d**	**5/30/93**	
4	**Test Implementation - Discrete**	**111d**	**5/30/93**	
8	**Test Implementation - Matrix Support**	**111d**	**5/30/93**	
16	**STARTER TUNNEL ALCOVE**	**140d**	**11/1/93**	
17	**Test Implementation - Discrete**	**140d**	**11/1/93**	
22	**Test Implementation - Matrix Support**	**36d**	**11/1/93**	
30	**RAMPS & MAIN**	**1573d**	**8/8/94**	
31	**Test Implementation - Discrete**	**1573d**	**8/8/94**	
32	SNL Test Implementation	1573d	8/8/94	OS42114L93
33	RSN Field Survey & Processing	1573d	8/8/94	RS3522N4
34	REECo Test Construction & Procurement	1573d	8/8/94	OR42114L3
35	Monitoring & Data Collection	1573d	8/8/94	OS42114L93
36	**Test Implementation - Matrix Support**	**1573d**	**8/8/94**	
37	Los Alamos TCO Coordination & Planning (Field Test Coordination Support)	1573d	8/8/94	OA310BL3
38	Los Alamos TCO Test Management (Project Engineer Support)	1573d	8/8/94	OA616AL3
39	T&MSS Direct Support Services (Photo Support)	1573d	8/8/94	OT3522DL
40	REECo Construction & Operations Support (Contingency) - (*1)	1573d	8/8/94	OR682L3
41	RSN Survey Support / Survey Procurement (Contingency)	1573d	8/8/94	RS614P92
42	Engineering Verification	1573d	8/8/94	RS614P92
43	CRWMS M&O Networking & Baseline Planning Support (Monthly Cost & Progress Rpt)	1573d	8/8/94	TR922BA



Project: Construction Monitoring (TPP 93-2/JP 92-20D)
Date: 4/30/94
Revision #1

Critical — Noncritical — Progress — Milestone — Summary — Rolled Up

Checked by: NL

Approved by:

T932TI.MPP

ADMINISTRATIVE USE ONLY

ENGINEERED BARRIER-FRAN RIDGE LARGE BLOCK EXPERIMENT

PROGRESS - MILESTONES AND DELIVERABLES

The Engineered Barrier - Large Block Experiment Site Preparation activity began with site cleaning and selection activities. The Level III milestone MOL67 "Complete Saw Cuts" (Isolation Saw Cuts) was completed on February 25, 1994.

SUMMARY OF FIELD ACTIVITIES

REECo completed drilling 30 holes, 2 meters (6 ft) deep for the rockbolt pull-tests; ten of the holes were grouted with HLN(cc) grout, ten holes with Wil-X grout and the final ten holes were grouted with Sika grout. Pull-testing of the rockbolts commenced and the early results showed that the HLN(cc) grout had a strength well below the other two. The pull-testing of the HLN(cc) rockbolts was discontinued; the pull-testing of the other bolts will be completed early next month. REECo also grouted selected holes in the large block to fill fractures discovered during the logging of the holes. The grouting and redrilling of the holes has been completed.

REECo lengthened four holes on the perimeter of the block by 1.5 meters (5 ft) to allow the installation of anchors to put the block in compression subsequent to commencing excavation. REECo completed drilling the presplit (horseshoe) holes around the large block, approximately 120 holes were drilled. These holes will help facilitate future sample collection.

Raytheon Services Nevada (RSN) surveyed all the instrument holes on the large block, as well as the four holes drilled at the dye test area.

REECo completed installing wood forms around the top of the large block and 3000 pounds per square inch (PSI) concrete was poured on top of the block. The concrete was to level the block in preparation for putting the block under compression prior to excavating the rock around the block. The installation of the grouted rockbolts and the construction of the frame has been completed.

A 65 kilowatt generator was placed next to the existing REECo generator and the Lawrence Livermore National Laboratory (LLNL) trailer was modified to accept the 208 volts output of the new generator.

DATA FLOW INFORMATION

Permeability measurements in the vertical boreholes was completed and the results entered into the scientific notebook.

SCHEDULE SUMMARY

See attached illustrations for detailed schedule information.

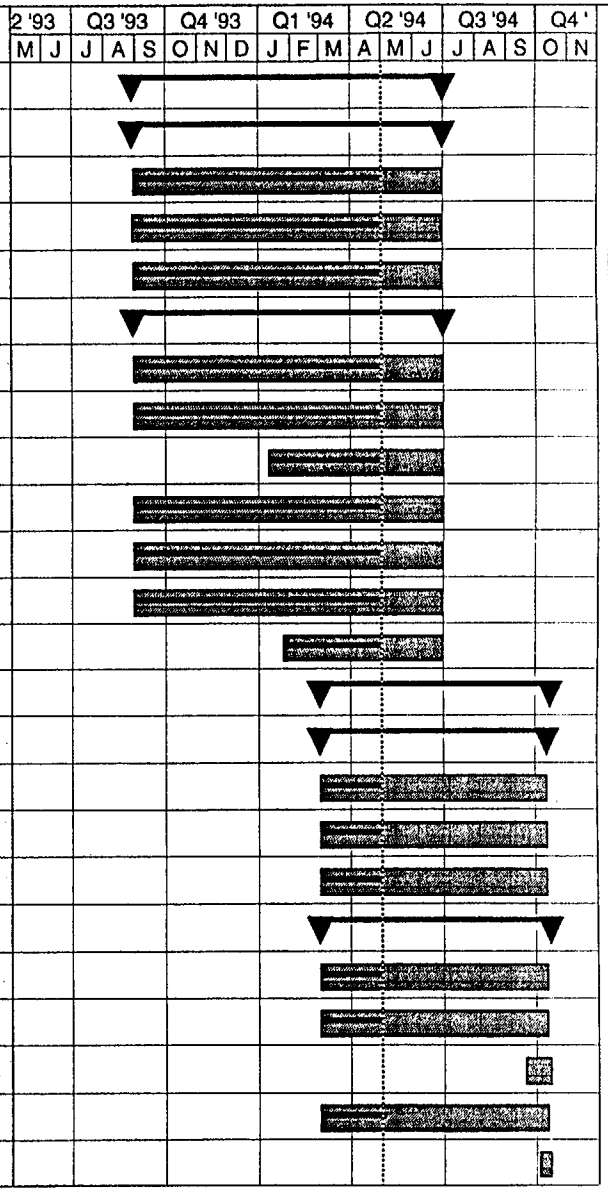
SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	TPP #	JP #
Repository Horizon Rock-Water Interaction Large Block Experiment	Large Block Experiment	8.3.4.2.4.4	Engineered Barrier-Fran Ridge Large Block Experiment	NA	JP 93-10

Engineered Barrier - Large Block Experiment (JP 93-10)

Field Activity Working Schedule

Los Alamos National Lab

ID	Name	Dur	Start	Summary Acct.
1	**PHASE I - SITE PREPARATION - EB LRG. BLOCK TEST (JP 93-10)**	**219d**	**8/29/93**	
2	**Site Preparation - Discrete**	**219d**	**8/29/93**	
3	LLNL Site Preparation Monitoring	219d	8/30/93	OL224HZA
4	RSN Field Survey & Processing	219d	8/29/93	RS224A94
5	REECo Test Construction & Procurement	219d	8/30/93	OR224(TBD)
6	**Construction Implementation - Matrix Support Elements**	**219d**	**8/30/93**	
7	Los Alamos TCO Coord. & Planning (Field Test Coord)	219d	8/30/93	OA397CL4
8	Los Alamos TCO Test Mgt. (Project Engineer Support)	219d	8/30/93	OA616AL4
9	T&MSS Sample Management Facility	124d	1/10/94	OT351EL
10	REECo Construction & Operations Support - Interim WBS	219d	8/30/93	OR682LH
11	Engineering &Survey Support/Survey Processing - Interim WBS	219d	8/30/93	TR614CAF1
12	CRWMS M&O Network & Baseline Plan Support (Mo Cost/ Progress Rpt)	219d	8/30/93	TR921BA1
13	JC Photo & Processing	114d	1/24/94	OP3522L94
14	**PHASE II - TEST CONSTRUCTION - EB LRG. BLOCK TEST (JP 93-10A)**	**164d**	**3/1/94**	
15	**Test Construction - Discrete**	**162d**	**3/1/94**	
16	LLNL Test Construction	162d	3/1/94	OL224HZA
17	RSN Field Engineering & Survey	162d	3/1/94	RS224A94
18	REECo Test Construction & Procurement	162d	3/1/94	OR224(TBD)
19	**Test Construction - Matrix Support Elements**	**164d**	**3/1/94**	
20	Los Alamos TCO Coord. & Planning (Field Test Coord)	162d	3/1/94	OA397CL4
21	Los Alamos TCO Test Mgt. (Project Engineer Support)	162d	3/1/94	OA616AL4
22	T&MSS Sample Management Facility	20d	9/19/94	OT351EL
23	CRWMS M&O Network & Baseline Plan Support (Mo Cost/ Progress Rpt)	162d	3/1/94	TR921BA1
24	JC Photo & Processing	10d	10/3/94	OP3522L94



Project: JP 93-10
Date: 4/30/94
Revision #1

Critical — Noncritical — Progress — Milestone — Summary — Rolled Up

Checked by: MC

Approved by:

T93LBT94.MPP

ADMINISTRATIVE USE ONLY

HYDROCHEMISTRY TESTS IN THE ESF

PROGRESS - MILESTONES AND DELIVERABLES

The Hydrochemistry Tests in Alcove #1 began in September and will run though October of 1994. The TCO will submit weekly activity reports to the Field Test Coordinator (FTC) and monthly data collection status reports.

SUMMARY OF FIELD ACTIVITIES

The USGS completed a log of the upper and lower holes using a television camera/video recorder. The first run to clean out the lower right hole was accomplished. As the drill string was being removed from the hole, it was noted that the pipe was "wet" in various locations from approximately 6 meters (20 ft) to 20 meters (65 ft). The following day, the USGS completed running a television camera to approximately 29 meters (90 ft) in the lower right hole where some rubble was encountered, but no indication of moisture. The camera was pulled out of the hole and the hole was cleaned. The cuttings removed from the cleaning did not indicate any moisture, and the drill string did not show any moisture. It was then determined the drill string was cold, the air humidity was high, and the hole was warm from being closed in, resulting in condensation on the drill string.

DATA FLOW INFORMATION

All field issues affecting data collection shall be brought to the attention of the LANL Field Test Representative (LANL FTR).
The Sample Management Facility (SMF) will submit all records called for in AP-6.26Q or associated procedures, such as sample collection forms and records documenting visual core recording techniques (video, etc.) to the LANL FTR. The TCO will submit a close out report under this JP.

COST AND SCHEDULE SUMMARY

The costs and progress estimates on this activity are within the scope set by JP 92-20E. Illustrations are provided to show progress and test status.

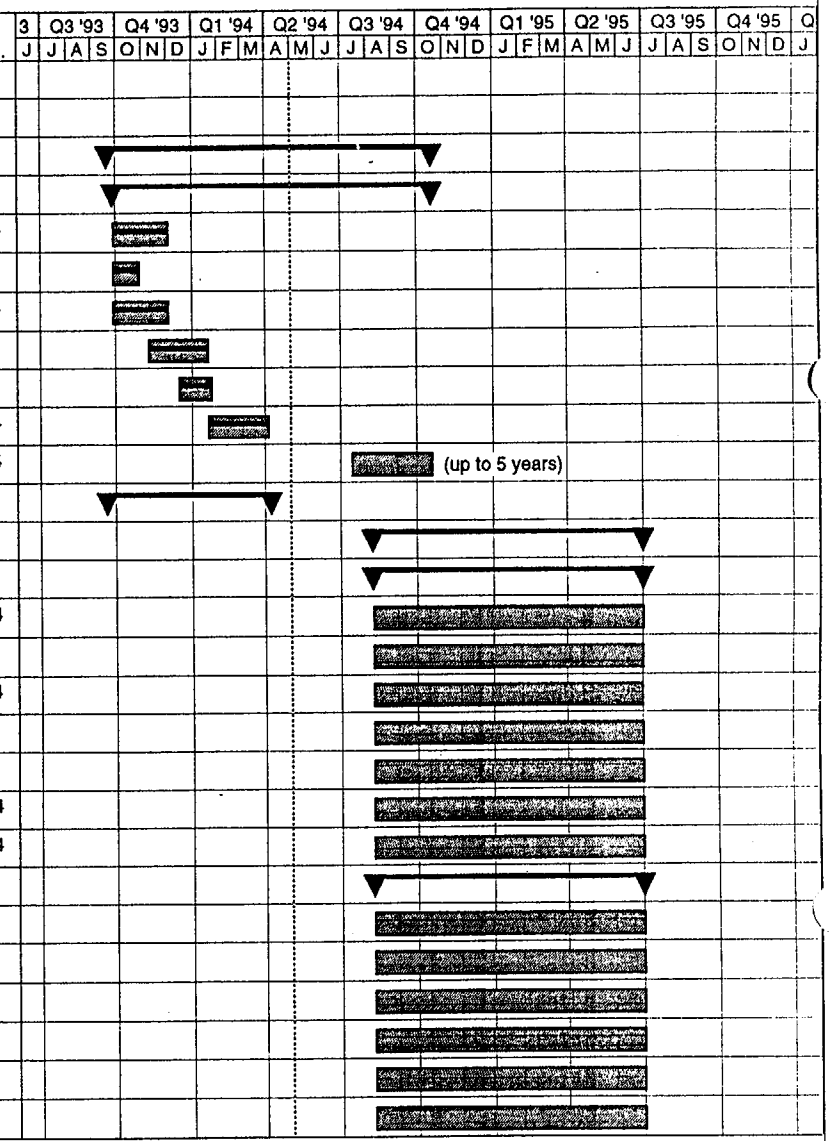
SCP PROGRAM NAME	SCP STUDY NAME	SCP STUDY PLAN NUMBER	TEST NAME (SCP ACTIVITY)	TPP #	JP #
Geohydrology Program	Characterization of the Yucca Mountain Unsaturated-Zone in the ESF	8.3.1.2.2.4	Hydro-chemistry Tests in the ESF	TPP 92-12	JP 92-20E

Hydrochemistry (TPP 92-12/JP 92-20E)

Field Activity Working Schedule

LANL ESF Test Coordination Office

ID	Name	Dur	Start	Summary Acct.
1	HYDROCHEMISTRY	1803d	9/20/93	
2				
3	**STARTER TUNNEL ALCOVE**	**283d**	**9/20/93**	
4	**Test Implementation - Discrete**	**278d**	**9/27/93**	
5	USGS Short Borehole Test	50d	9/27/93	OG33124H94
6	RSN Field Survey	25d	9/27/93	RS614P94
7	REECo Test Construction & Procurement	50d	9/27/93	OR33124H94
8	REECo Drilling	54d	11/9/93	OR33124A
9	T&MSS/SMF Core Handling	30d	12/15/93	OT351EL
10	Long Boreholes - Test & Monitoring	54d	1/20/94	OG33124H94
11	Radial Borehole Test - Test & Monitoring	70d	7/14/94	OG33124D94
12	**Test Implementation - Matrix Support**	**145d**	**9/20/93**	
19	**NORTH RAMP ALCOVES**	**235d**	**8/8/94**	
20	**Test Implementation - Discrete**	**235d**	**8/8/94**	
*21	USGS Test Implementation	235d	8/8/94	OG33124H94
22	RSN Field Survey	235d	8/8/94	RS614P94
23	REECo Test Construction & Procurement	235d	8/8/94	OR33124H94
24	REECo Drilling	235d	8/8/94	OR33124A
25	T&MSS/SMF Core Handling	235d	8/8/94	OT351EL
26	Long Boreholes - Test & Monitoring	235d	8/8/94	OG33124H94
27	Radial Borehole Test - Test & Monitoring	235d	8/8/94	OG33124D94
28	**Test Implementation - Matrix Support**	**235d**	**8/8/94**	
29	Los Alamos TCO Coordination & Planning (Field Test Support)	235d	8/8/94	OA310CL3
30	Los Alamos TCO Test Management (Project Engineer Support)	235d	8/8/94	OA616AL3
31	REECo Construction & Operations Support	235d	8/8/94	OR682L3
32	RSN Survey Support / Capital Procurement	235d	8/8/94	RS3552N4
33	CRWMS M&O Networking & Baseline Planning Support (Network & Progress Rprts)	235d	8/8/94	TR313CB
34	JC Photo & Processing (General)	235d	8/8/94	OP3522L94



Project: Hydrochemistry (TPP 92-12/JP 92-20E)
Date: 4/30/94
Revision #1

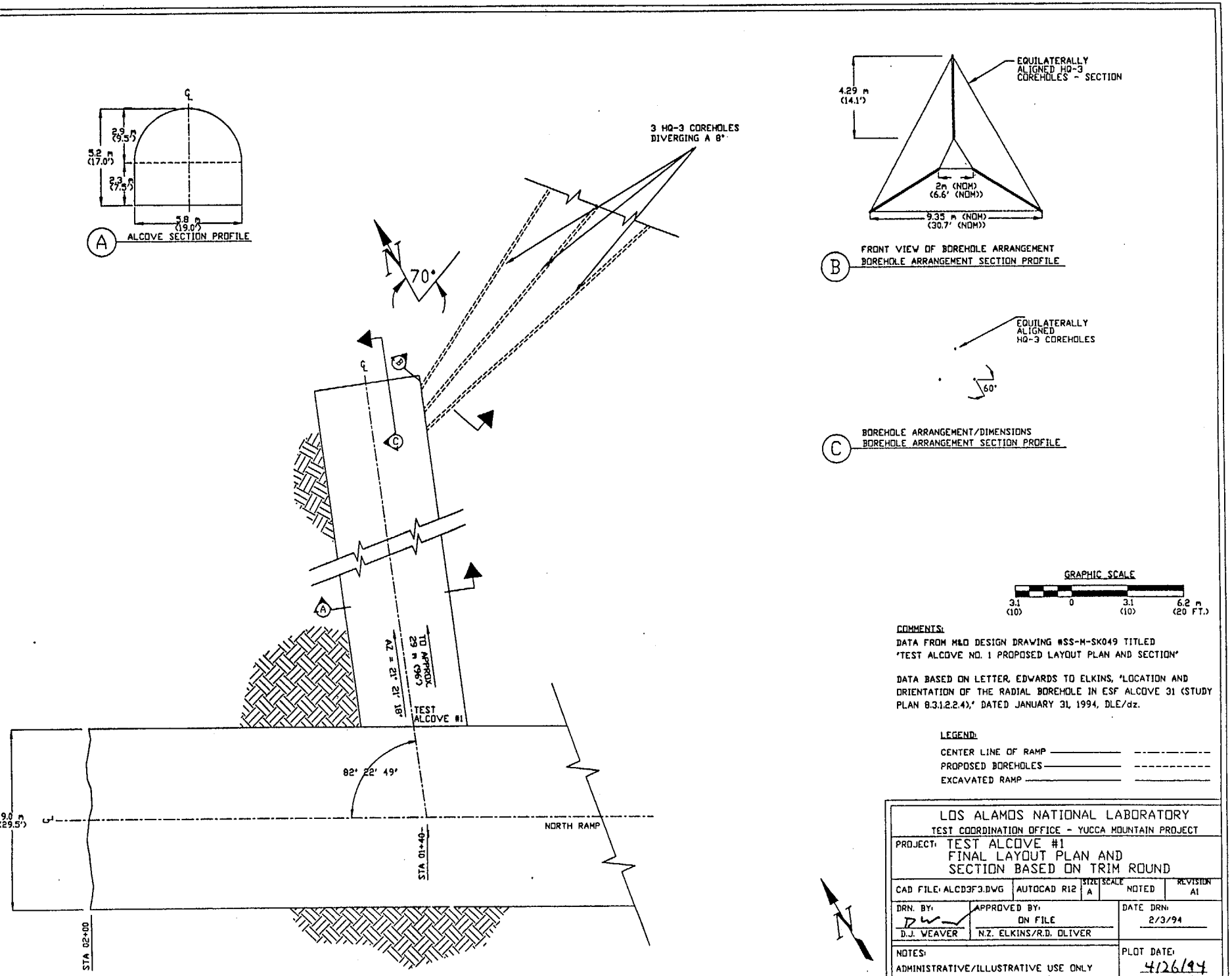
Critical — Noncritical — Progress — Milestone — Summary — Rolled Up

Checked by: _____

Approved by: _____

T9212TI.MPP

ADMINISTRATIVE USE ONLY


2.9 m (9.5')
5.2 m (17.0')
2.3 m (7.5')
5.8 m (19.0')
A ALCOVE SECTION PROFILE
3 HQ-3 COREHOLES DIVERGING A 8°
70°
N
TO APPROX 25 m (96')
AZ = 12° 12' 18"
TEST ALCOVE #1
82° 22' 49"
9.0 m (29.5')
NORTH RAMP
STA 01+40
STA 02+00
4.29 m (14.1')
EQUILATERALLY ALIGNED HQ-3 COREHOLES - SECTION
2m (NOM) (6.6' (NOM))
9.35 m (NOM) (30.7' (NOM))
B FRONT VIEW OF BOREHOLE ARRANGEMENT
BOREHOLE ARRANGEMENT SECTION PROFILE
EQUILATERALLY ALIGNED HQ-3 COREHOLES
60°
C BOREHOLE ARRANGEMENT/DIMENSIONS
BOREHOLE ARRANGEMENT SECTION PROFILE
GRAPHIC SCALE
3.1 (10) 0 3.1 (10) 6.2 m (20 FT.)
COMMENTS:
DATA FROM M&O DESIGN DRAWING #SS-M-SK049 TITLED 'TEST ALCOVE NO. 1 PROPOSED LAYOUT PLAN AND SECTION'
DATA BASED ON LETTER, EDWARDS TO ELKINS, 'LOCATION AND ORIENTATION OF THE RADIAL BOREHOLE IN ESF ALCOVE 31 (STUDY PLAN 8.3.1.2.2.4),' DATED JANUARY 31, 1994, DLE/dz.
LEGEND:
CENTER LINE OF RAMP
PROPOSED BOREHOLES
EXCAVATED RAMP
LOS ALAMOS NATIONAL LABORATORY
TEST COORDINATION OFFICE - YUCCA MOUNTAIN PROJECT
PROJECT: TEST ALCOVE #1
FINAL LAYOUT PLAN AND
SECTION BASED ON TRIM ROUND
CAD FILE: ALCD3F3.DWG
AUTOCAD R12
SIZE A
SCALE NOTED
REVISION A1
DRN. BY: D.J. WEAVER
APPROVED BY: ON FILE N.Z. ELKINS/R.D. OLIVER
DATE DRN: 2/3/94
NOTES: ADMINISTRATIVE/ILLUSTRATIVE USE ONLY
PLOT DATE: 4/26/94

Enclosure 1