



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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TO: John J. Linehan, Director, HLPD
Division of High-Level Waste Management, M/S 4-H-3

FROM: Paul T. Prestholt, Sr. On-Site Licensing Representative

DATE: October 4, 1989

SUBJECT: WEEKLY ACTIVITY REPORT, PROTOTYPE TESTING

Please find enclosed the above-referenced report received in this office, i.e., week ending September 3, 1989.

PTP:nan
Enclosure

cc: Carl Johnson
Agency for Nuclear Projects
Nuclear Waste Project Office
Capitol Complex
Carson City, Nevada 89710

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WEEKLY ACTIVITY REPORT
PROTOTYPE TESTING
Week Ending - September 03, 1989

Participants:

- Los Alamos - manage and Integrate Prototype Testing and conduct tests.
- Sandia National Laboratories - manage the operations at G-Tunnel and perform tests.
- U. S. Geological Survey (U. S. Bureau of Reclamation, and Lawrence Berkeley Laboratory) - perform tests.
- Lawrence Livermore National Laboratory - perform tests.
- Holmes and Narver - provides surveying and other support.
- Fenix and Scisson of Nevada - provides plans, test networks, and cost estimates.
- REECO - provides mining equipment, performs drilling and mining, and provides support labor.
- Pan Am - provides photographic support.

Key Prototype Activities for the Reporting Period:

LLNL

Engineered Barrier - Overcore:

REECO personnel completed up rigging the LY38 drill and drilling commenced on hole P1. Total depth for this hole during this reporting period is 13.1 feet. A new 12 inch overcore bit was used for this hole. Again, the driller removed the bit and cut every other cutter from the bit to increase air circulation, and cuttings removal. The bit also needs to be sharpened approximately every 4 feet. The heater assembly is centered in the 12 inch core, and water is being used as a drilling medium. Core recovery is 100%.

USGS

Intact Fracture:

AF #8 Principal Investigator (PI) recovered 100% of core. Total depth of AF #8 is 7.1 feet. Recovered three 2.0 foot pieces, and one 1.1 foot

piece. Drillers are using a 10 inch over core barrel and drilling dry.

AF #9 - total depth is 3.2 feet. 100% core recovery, but the first 1.2 feet of core was not saved due to fracture of the rock. The PI saved the last 2.0 feet of core. Drillers are using a 10 inch overcore barrel and drilling dry. All pieces of core 2.0 feet and over were wrapped, waxed, and boxed for shipment to USGS, Denver. REECo personnel are moving the LY34 drill rig from the RS-14 drift to the Laser Drift for installation. Drilling should continue on Tuesday, September 5, 1989.

Optimal Rubble (CBI):

The drill round from the previous week was blasted Monday, August 28, 1989. An 8 foot round was drilled, and it pulled 4.5 feet. This round used a spiral cut. 16 lbs of carvite (Ireco) powder were used in 18 perimeter holes, as a trimmer for controlled (smooth wall) blasting. Each perimeter hole was initiated by installing one stick of Iredyne (Ireco) powder with a delay. 240 lbs of Iredyne (Ireco) powder was used in the remaining 44 blast holes. Non-EI millisecond primers were used as delays. Loading density for the 18 perimeter holes is .11 lbs/ft, 12 cushion holes is .4 lbs/ft, and the 32 production holes is .70 lbs/ft. Each blast hole was stemmed with 16 inches of sand. The PI had REECo miners drill out the burn and blast it. 12 burn holes were drilled 1 1/8 inch diameter by 8 feet long, loaded with Iredyne powder, and blasted August 30, 1989. The burn froze and did not pull. REECo miners cleaned the bootleg holes redrilled and reblasted. The burn pulled 7 feet. Personnel began drilling the remainder of the round (50 holes, 8 feet long by 1 7/8 inch diameter). Drilling was 90% complete at the end of this reporting period, using the drill jumbo where applicable, and the jack leg drill. Total footage for the Optimal Rubble - CBI drift is 23 feet from the centerline of the Demo Drift.

G-Tunnel Drifting:

Total advanced during this reporting period is 6 feet. Total advance is 60 feet from the centerline of the EV-6 drift. REECo mining personnel utilized the Alpine Miner to cut to a height of 9 feet in the heading. The miners then used a jack leg drill to blast out the back to a height of 13 feet. Thirty holes, 10 feet long, and 1 1/8 inches in diameter were drilled and blasted. Approximately 150 lbs of Iredyne (Ireco) powder were used. Two 1 inch diameter by 16 feet, seven 7/8 inch diameter by 10 feet, and eight 7/8 inch diameter by 8 feet resin bolts were installed with wire mesh for personnel safety.

Scheduled Activities:

1. Blast Effects - start October 9, 1989.
2. Excavation Effects - start October 23, 1989.
3. In-Situ Stress - Phase II - start December 4, 1989.
4. Thermal Stress - start December 11, 1989.

EXPENDITURES:

.Prototype Testing:	Work Days Remain	<u>19</u>	Expended	<u>92</u> %
.REECO: Current Week-Prototype Testing	\$	54,784	Year to Date \$	895,749
Current Week-G-Tunnel Operation	\$	26,548	Year to Date \$	1,024,077
.H&N: Current Week-Prototype Testing	\$	30,339	Year to Date \$	301,385
.F&S: Current Week-Prototype Testing	\$	5,996	Year to Date \$	163,743

ACTIVITY DESCRIPTION	PCT	EARLY START	EARLY FINISH	Year													
				1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995		
THERMAL STRESS (SAL) -ESF THERMAL STRESS																	
THERMAL STRESS DATA ASSIGNED DATE	100	17SEP84	17SEP84														
THERMAL STRESS TEST PLAN APPROVAL	100	13MAY78	13MAY78														
THERMAL STRESS READINESS REVIEW	100	12FEB84	14FEB84														
THERMAL STRESS PROTOTYPE TEST	0	30CT89	20FEB90														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	0	19MAY89	19MAY89														
PLANNED PROTOTYPE TEST COMPLETE	0	28FEB90	28MAY90														
PLANNED ESF TEST START (EOC)	0	3JUL85	24MAY85														
ENGINEER BARRIER TEST (LJM) -ESF ENGINEER BARRIER																	
ENGINEER BARRIER TEST DATA ASSIGNED	100	30OCT84	30OCT84														
PROTOTYPE TEST PLAN APPROVAL	100	12MAY78	12MAY78														
1ST PHASE OF DRILLING & TESTING ENG. BARRIER	100	14MAY78	29OCT78														
2ND PHASE OF DRILLING & TESTING ENG. BARRIER	00	25MAY84	29OCT89														
PLANNED PROTOTYPE TEST COMPLETE	0	28MAY89	28MAY89														
START ESF TEST	0	3JUN84	28FEB85														
INTACT FRACTURE (ISS) -ESF INTACT FRACTURE																	
INTACT FRACTURE DATA ASSIGNED	100	14MAY78	14MAY78														
TEST PLAN APPROVED	100	21MAY84	21MAY84														
INTACT FRACTURE READINESS REVIEW	100	30OCT84	30OCT84														
INTACT FRACTURE PROTOTYPE TEST	100	2FEB84	25MAY84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	0	28SEP89	28SEP89														
PLANNED PROTOTYPE TEST COMPLETE	0	30CT89	4OCT89														
PLANNED ESF TEST START (EOC)	0	3JUL81	3JUL81														
DRILL HOLE INST. (ISS) -ESF RADIAL BOREHOLE TEST																	
DRILL HOLE INSTRUMENTATION DATA ASSIGNED	100	21MAY78	21MAY78														
TEST PLAN APPROVED	100	10FEB84	10FEB84														
PROTOTYPE TEST	100	29JUL84	20OCT84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	30OCT84	30OCT84														
PLANNED PROTOTYPE TEST COMPLETE	100	3MAY84	3MAY84														
PLANNED ESF START (EOC)	0	8FEB81	4FEB81														
WET AND DRY DRILLING (ISS) -ESF RADIAL B/H TEST																	
WET & DRY DRILLING (ISS) DATA ASSIGNED	100	21MAY78	21MAY78														
TEST PLAN APPROVED	100	8MAY84	8MAY84														
PROTOTYPE TEST	100	7JUL84	20OCT84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	30OCT84	30OCT84														
PLANNED PROTOTYPE TEST COMPLETE	100	3MAY84	3MAY84														
PLANNED ESF START (EOC)	0	8FEB81	31MAY81														
OPTIMUM RIBBLE SIZE (ISS) -ESF HYDROCHEMISTRY																	
OPTIMUM RIBBLE SIZE DATA ASSIGNED	100	24MAY78	24MAY78														
TEST PLAN APPROVED	100	3FEB84	3FEB84														
PROTOTYPE TEST	03	3MAY84	21SEP89														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	0	28SEP89	28SEP89														
PLANNED PROTOTYPE TEST COMPLETE	0	27SEP89	28SEP89														
PLANNED ESF TEST START (EOC)	0	3MAY81	3MAY81														
RIBBLE CORING (ISS) -ESF HYDROCHEMISTRY TESTING																	
RIBBLE CORING DATA ASSIGNED	100	24MAY78	24MAY78														
TEST PLAN APPROVED	100	3FEB84	3FEB84														
RIBBLE CORING READINESS REVIEW	100	18OCT84	20OCT84														
RIBBLE CORING PROTOTYPE TEST	100	3FEB84	3JUL84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	3JUL84	3JUL84														
PLANNED PROTOTYPE TEST COMPLETE	0	23SEP89	14SEP89														
PLANNED ESF START (EOC)	0	3MAY81	3MAY81														
PORCHED WATER (ISS) -ESF HYDROCHEMISTRY TESTING																	
PORCHED WATER DATA ASSIGNED	100	24MAY78	24MAY78														
TEST PLAN APPROVED	100	30OCT84	30OCT84														
PORCHED WATER READINESS REVIEW	100	13FEB84	13FEB84														
PORCHED WATER PROTOTYPE TEST	100	3MAY84	3JUL84														

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ACTIVITY DESCRIPTION	PCT	EARLY START	EARLY FINISH	Year													
				1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995		
PERCHED WATER (BWS) -ESF HYDROCHEMISTRY TESTING																	
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	3/1/84	3/1/84														
PLANNED PROTOTYPE TEST COMPLETE	0	2/28/89	1/28/90														
PLANNED ESF START (BOC)	0	3/1/81	3/1/81														
IN SITU STRESS (ISS) -ESF OVERCURE STRESS TEST																	
IN SITU STRESS (ISS)	100	2/27/78	2/27/78														
TEST PLAN APPROVED	100	3/1/78	3/1/78														
IN-SITU TEST READINESS REVIEW	100	6/28/78	7/28/78														
IN-SITU PROTOTYPE TEST	100	2/1/79	2/1/80														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	3/1/84	3/1/84														
PLANNED PROTOTYPE TEST COMPLETE	0	2/28/89	1/28/90														
PLANNED ESF START (BOC)	0	2/27/82	2/27/82														
EXCAVATION EFFECTS (EES) -ESF EXCAVATION EFFECTS																	
EXCAVATION EFFECTS (EES) ASSIGNED	100	2/27/78	2/27/78														
TEST PLAN APPROVED	100	2/28/78	2/28/78														
EXCAVATION EFFECTS READINESS REVIEW	100	2/1/79	2/1/79														
EXCAVATION EFFECTS PROTOTYPE TEST	0	2/28/89	1/28/90														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	0	2/28/89	2/28/89														
PLANNED PROTOTYPE TEST COMPLETE	0	2/28/89	2/28/89														
PLANNED ESF START (BOC)	0	2/27/82	2/27/82														
BLAST EFFECTS TEST (BET) -ESF RADIAL BOREHOLE TEST																	
BLAST EFFECTS TEST (BET) ASSIGNED	100	2/27/78	2/27/78														
TEST PLAN APPROVED	100	2/28/78	2/28/78														
BLAST EFFECTS READINESS REVIEW	100	2/1/79	2/1/79														
BLAST EFFECTS PROTOTYPE TEST	0	2/28/89	2/28/89														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	0	2/28/89	2/28/89														
PLANNED PROTOTYPE TEST COMPLETE	0	2/28/89	2/28/89														
PLANNED ESF START (BOC)	0	4/28/81	2/28/81														
AIR CORING/DUST HAZ. -ESF RADIAL BOREHOLE TEST																	
AIR CORING/DUST HAZ. (ACD) ASSIGNED	100	4/1/84	4/1/84														
TEST PLAN APPROVED	100	2/1/84	2/1/84														
PROTOTYPE TEST	100	2/28/84	2/28/84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	3/1/84	3/1/84														
PLANNED PROTOTYPE TEST COMPLETE	100	3/1/84	3/1/84														
AIR CORING PHASE II CRITERIA LETTER	100	8/28/84	8/28/84														
PROTOTYPE TEST	0	2/28/89	2/28/89														
PLANNED PROTOTYPE TEST COMPLETE	0	7/28/89	8/28/89														
PLANNED ESF START (BOC)	0	8/28/81	4/28/81														
DRIFT WALL MAPPING (DWM) -ESF GEOLOGIC MAPPING																	
DRIFT WALL MAPPING (DWM) ASSIGNED	100	2/1/84	2/1/84														
TEST PLAN APPROVED	100	2/1/84	2/1/84														
PROTOTYPE TEST	100	2/28/84	2/28/84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	2/28/84	2/28/84														
PLANNED PROTOTYPE TEST COMPLETE	100	2/28/84	2/28/84														
PLANNED ESF START (BOC)	0	2/1/84	2/1/84														
FRAN RIDGE MAPPING (FRM) -ESF GEOLOGIC MAPPING																	
FRAN RIDGE MAPPING (FRM) ASSIGNED	100	2/1/84	2/1/84														
TEST PLAN APPROVED	100	2/1/84	2/1/84														
PLANNED ESF TEST START (BOC)	0	2/1/84	2/1/84														
DIFFUSION (DLJ) -ESF DIFFUSION																	
DIFFUSION TEST (DLJ) ASSIGNED DATE	100	2/28/84	2/28/84														
TEST PLAN APPROVED	100	2/28/84	2/28/84														
PROTOTYPE TEST	72	3/1/84	3/1/84														
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	0	2/28/84	2/28/84														
PLANNED PROTOTYPE TEST COMPLETE	0	2/28/84	2/28/84														
PLANNED ESF TEST START (BOC)	0	2/1/84	2/1/84														

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ACTIVITY DESCRIPTION	PCT	EARLY START	EARLY FINISH	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
				CROSS HOLE TEST (USRS)-ESF RADIAL BOREHOLE TEST											
CROSS HOLE GSA ASSIGNED DATE	100	4OCT87A	4OCT87A												
CROSS HOLE TEST PLAN APPROVAL	100	02FEB88A	02FEB88A												
PROTOTYPE TEST	100	04FEB88A	15OCT88A												
PLANNED PROTOTYPE CONSTRUCTION COMPLETE	100	15OCT88A	15OCT88A												
PLANNED PROTOTYPE TEST COMPLETE	0	15SEP89	14SEP89												
PLANNED ESF TEST START (S03)	0	15FEB91	14FEB91												

ASSUMPTIONS:

PLAN PROTOTYPE COMPLETION DATES
 DATES PENDING P.I. & TPO CONCURRENCE
 ESF TEST START DATE IS BASED ON SAIC
 SUMMARY SCHEDULE REVISION 6/30/89

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 Activity Bar/Early Dates
 Critical Activity
 Progress Bar
 Primavera Systems, Inc. 1984-1989

LOS ALAMOS NATIONAL LABORATORY
 PROTOTYPE ESF NTS TESTING SUMMARY
 G-TUNNEL PROTOTYPE TESTING SCHEDULE

Sheet 3 of 3

Date	Revision	Checked	Approved
	REVISION 6		

8910160151-03