

3434



NNWSI HOLE HISTORY

UE-25p #1

NOVEMBER, 1986

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**NNWSI
HOLE HISTORY**

UE-25p #1

**BY
FENIX & SCISSON, INC.**

**PREPARED FOR
U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE
UNDER CONTRACT DE-AC08-84NV10322**

NOVEMBER, 1986

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NNWSI
HOLE HISTORY

UE-25p #1

by

Reports and CEP Section

Abstract

This report is a compilation of data from one borehole drilled in Area 25 of the Nevada Test Site (NTS) under the guidance of the U. S. Geological Survey. The borehole was drilled to obtain geologic, geophysical and hydrologic information. Data presented in this publication include location, daily activities, review of hole conditions, geophysical log listing, video tape listing, and microfiche copies of all geophysical logs run by the F&S subcontractors.

FENIX & SCISSON, INC.
HOLE HISTORY DATA
NNWSI

Approved: *Jerry Nell Conington*
 Date: *Apr 25, 1986*

Hole No.: UE-25p #1		Type Hole: Paleozoic Test Hole	
User: USGS	Area: 25	Site Prep. W.O. #: None	
Location: NTS	County: Nye	W.O. #: 3404-151	
Surface Coordinates: N 756,171.20' E 571,484.52'			
Ground Elev.: N/A	Pad Elev.: N/A	Top Casing Elev.: 3654.63'	
Bottom Hole Coord: N 756,069.08' E 571,493.17' @ 5695' TVD Ref: Gyro, 05-01-83			
Rig On Location: 11-09-82		Spudded: 11-13-82 Completed: 05-24-83	
Circulating Media: Air foam - Water - Polymer - Air & Soap			
Main Rig & Contractor: BIR 800, Ideco 525 - REECO			
No. Of Compressors & Capacity: I/IR-1500, 3/Atlas - 1200			

Bore Hole Record			Casing Record					
From	To	Size	I.D.	Wt/Ft.	Wall	From	To	Ft ³ Cement
0'	42'	30"	23.25"	94.62#	.375"	0'	36'	465
42'	338'	22"	15.125"	75#		0'	325'	1325
338'	341'	17-1/2"						
341'	1598'	14-3/4"	10.050"	40.50#		0'	1564'	125
1598'	4279'	9-7/8"	6.969"	26.40#		1487'	4256'	1186 *
4279'	4322'	6-7/8"	**					
4322'	5900'	6-3/4"						
5900'	5923'	6-1/8"						

Total Depth: 5923' Plugs: Cu. Ft. CMT. Total in Plugs, etc.: ***

Junk: None

Logging Data: Caliper (15), Magnetometer (2), Density (6), Electric (5), Fluid density (13), Vibroseis (5), Epithermal neutron (3), 3-D velocity (4), ****

Rigs Used						
Rig No.	Name	Class	Days Operating	Sec. W/Crew	Sec. W/O Crew	Total Days On Location
85132	BIR 800	II	32.00	0.04	4.17	36.21
85124	Ideco 525	II	142.93	0.20	17.99	161.12

Remarks: * Drillable bridge plug set at 1500' inside 7-5/8" liner and 10-3/4" squeeze packer set at 1392', cemented w/75 ft³ 03-16-83.

** 1.9" O.D. tubing landed at 1371' open ended, 01-17-84.

1.9" O.D. tubing landed at 1355' with bottom plugged, 01-22-83

*** Hole plugged in 2 stages from 3947' to 3915' w/115 ft³, 01-22-83, then redrilled.

**** Gamma ray (2), Temperature (7), Acoustic, Frac (4), Neutron (3), Spectrum (3), NCTL (5), Collar locator (7), NAIL (2), Spinner

Prepared By: JEC:LLF:ps

Time Breakdown on Next Page

TIME BREAKDOWN

MAIN HOLE CONSTRUCTION

Hole No.: UE-25p #1

[illegible]

Main Hole COT: 8.11 Days	Main Hole OST: 79.92 Days	Main Hole ODT: 38.20 Days
---------------------------------	----------------------------------	----------------------------------

Total Main Hole Construction Time: 175.17 Days

Remarks:

TOTAL ELAPSED TIME	
--------------------	--

Total Site Prep. Time		Days	Remarks:
Total Main Hole Construction	<u>175.17</u>	Days	
Secured W/O Crew Site Prep.		Days	
Secured W/O Crew Main Hole Const.	<u>22.16</u>	Days	
Total Suspended Time (No Rig)	<u>-0-</u>	Days	
TOTAL ELAPSED TIME	<u>197.33</u>	Days	

UE-25p #1
HOLE HISTORY

11-09-82 Moved in BIR 800 rig #85132 and started rigging up.

11-10-82 Continued rigging up. Secured rig at 2400 hours.

11-12-82 Rig secured 11-10-82 to 1200 hours, 11-12-82. Continued rigging up.

11-13-82 Rigged up. Drilled mouse and rat holes using Dyna-Drill. Drilled 30" hole from 0' to 30' with hammer bit using air foam.

11-14-82 Drilled 30" hole from 30' to 42'. Laid down hammer bit. Ran and set 42.90' joint of 24" O.D., .375" wall, 94.62# casing at 36'. Cemented the annulus using Halliburton as follows:

<u>Stage No.</u>	<u>Interval</u>	<u>Cement Used Ft³</u>	<u>Calc. Ft³</u>	<u>CIP</u>
1	38' - 33'	25 Gyp-Seal	15	0330 Hrs.
2	33' - 10'	240 neat cement + 2% CaCl ₂	41	0500 Hrs.
3	10' - 0'	200 neat cement + 2% CaCl ₂	18	1100 Hrs.
		—	—	
TOTALS		465 Ft ³	74 Ft ³	

Made up well head connections.

11-15-82 Rigged up. Cleaned out cement and hole from 22' to 42' using 17-1/2" bit. Made trip to add 20" reamer, reamer 12' above bit. Reamed hole and drilled 17-1/2" hole from 42' to 52' with conventional circulation using air foam. Laid down 20" reamer. Drilled 17-1/2" hole from 52' to 81', could not get to bottom after connection. Laid down 8" drill collar. Cleaned out 11' fill and drilled 17-1/2" hole from 81' to 136'. Cleaned out 10' fill on connection at 108'.

11-16-82 Drilled 17-1/2" hole from 136' to 341'. Blew out fluid and made trip out. Ran Birdwell caliper log to 317' T.D. Ran LLNL magnetometer log on Birdwell equipment. Ran borehole compensated density log to 316' T.D.

11-17-82 Ran induction-electric log to 316' T.D. Ran fluid density log to 317' T.D., no fluid indicated. Ran vibroseis survey to 317' T.D., logged from 300' to 100'. Made up 22" x 17-1/2" hole opener on 4-1/2" drill pipe. Opened 17-1/2" hole to 22" from 42' to 338' using air foam. Cleaned out 8' to 16' of fill opening hole.

11-18-82 Conditioned hole, tagged fill at 333' and made trip out. Ran Birdwell caliper log to fill at 328'. Ran 16" O.D., 75# casing with 1.9" grout line welded on the outside. Tagged fill at 326' and set casing at 325' with bottom of grout line at 305'. Cemented

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Hole History
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11-18-82 stage #1 inside the casing. Cemented the annulus using Halliburton
(Cont.) and NAIL monitor as follows:

	<u>Stage No.</u>	<u>Interval</u>	<u>Cement Used Ft³</u>	<u>Calc. Ft³</u>	<u>CIP</u>
	1	326' - 318'	40 Neat cement + 2% CaCl ₂	24	2220 Hrs.
11-19-82	2	318' - 120'	200 "	276	0507 Hrs.
	3	120' - 118'	200 "	4	1115 Hrs.
	4	118' - 111'	200 "	14	1700 Hrs.
	5	111' - 91'	50 "	36	2100 Hrs.
11-20-82	6	91' - 145'	50 "	50	0100 Hrs.
	7	145' - 115'	50 neat cement + 2% CaCl ₂ & 11 sacks LCM	55	0910 Hrs.
	8	115' - 99'	75 neat cement + 2% CaCl ₂ & 6 sacks LCM	30	1320 Hrs.
	9	99' - 71'	100 neat cement + 2% CaCl ₂ & 1 sack LCM	87	1830 Hrs.
11-21-82	10	71' - 0'	<u>360</u> neat cement	<u>191</u>	0100 Hrs.
	TOTALS		1325 Ft ³	767 Ft ³	

Cement dropped after stage #6.

Installed well head equipment and made trip in. Cleaned out cement from 323' to 324'. Worked on rotary equipment from 1600 hours.

11-22-82 Cleaned out cement and hole from 324' to 341'. Drilled 14-3/4" hole from 341' to 600' using air foam.

11-23-82 Drilled 14-3/4" hole from 600' to 760'. Pulled tools up to 294'. Modified position of mud tanks from 0700 hours.

11-24-82 Continued modifying steel mud tanks and lines. Made trip to check tools. Landed tools in 16" casing and secured rig at 2400 hours.

11-26-82 Rig secured from 11-24-82 to 0800 hours, 11-26-82. Made trip in to fill at 735' and cleaned out fill to 760'. Drilled 14-3/4" hole from 760' to 885'.

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Hole History
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- 11-27-82 Drilled 14-3/4" hole from 885' to 1007'. Made trip for bit change at 948' and cleaned out 6' fill. Installed water mist system on discharge line to act as a defoamer, 5-1/2 hours.
- 11-28-82 Drilled 14-3/4" hole from 1007' to 1295'. Ran USGS water inflow test at 1287'.
- 11-29-82 Drilled 14-3/4" hole from 1295' to 1592'. Ran USGS water inflow test at 1349'. Made trip to run USGS fluid probe at 1442', checked fluid level at 1290'.
- 11-30-82 Drilled 14-3/4" hole from 1592' to 1598'. Checked fill for 1 hour, 1' fill. Made trip out. Ran Birdwell fluid density log to 1584' T.D., checked fluid level at 1263'. Ran caliper log to 1584' T.D. Ran Westech TV camera, unable to get picture below fluid at 1262'. Ran LLNL magnetometer to 1584' T.D. using Birdwell equipment. Ran borehole compensated density log to 1584'.
- 12-01-82 Ran fluid density log to 1580' T.D., checked fluid level at 1262'. Ran epithermal neutron, induction-electric, and 3-D velocity, on 3' and 6' spacing, logs to 1580' T.D. Ran gamma ray and temperature logs to 1582' T.D., maximum temperature was 98°F. Ran vibroseis survey to 1582' T.D., logged from 1570' to 278' on 25' spacings.
- 12-02-82 Replaced drilling line. Made trip in with Hunt sidewall tool on 6-5/8" drill pipe. Started taking sidewall samples from 1470'.
- 12-03-82 Completed taking sidewall samples and made trip for 14-3/4" bit. Cleaned out 20' fill, conditioned hole and made trip out. Ran Birdwell caliper log to fill at 1579'. Started running Lynes packer and float collar on 10-3/4", 40.50# casing in the hole. Secured rig at 2400 hours.
- 12-05-82 Rig secured from 12-03-82 to 0800 hours, 12-05-82. Lowered Lynes packer on 10-3/4" O.D., 40.50# casing to fill at 1577'. Washed casing to 1581' using Halliburton. Pumped down wiper plug with 158 barrels of water. Set center of casing packer at 1574'. Started welding 10-3/4" casing to 16" casing.
- 12-06-82 Made up well head installations. Laid down 6-5/8" drill pipe. Rigged up flow line equipment. Made trip in with 9-7/8" bit on 4-1/2" drill pipe and started blowing out fluid at 740' with 400 psi.
- 12-07-82 Worked on fluid discharge system to 1400 hours. Stage circulated down hole to wiper plug at 1580'. Drilled plug and casing shoe. Made trip out, plugged bit.

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12-08-82 Made up new 9-7/8" bottom hole assembly, made trip in and cleaned fill from 1581' to 1598'. Drilled 9-7/8" hole from 1598' to 1819' using air foam. Made trip for bit change at 1601'. Had air returns around 10-3/4" casing annulus at 1773' and rewelded cover to 16" casing.

12-09-82 Drilled 9-7/8" hole from 1819' to 1970'. Stage circulated on connection at 1870' and cleaned out 10' fill on connection at 1960'.

12-10-82 Drilled 9-7/8" hole from 1970' to 2194'.

12-11-82 Drilled 9-7/8" hole from 2194' to 2491'.

12-12-82 Drilled 9-7/8" hole from 2491' to 2747'.

12-13-82 Drilled 9-7/8" hole from 2747' to 2993'. Worked on soap pump 5 hours at 2927'.

12-14-82 Made trip out, rigged down and moved out rig. Hole suspended.

12-15-82 Hole suspended from 12-14-82. Moved out BIR 800 rig equipment. Moved in Ideco 525, rig #85124 and started rigging up.

12-16-82 Continued rigging up.

12-17-82 Drilled rat and mouse holes. Continued rigging up. Made trip in with 9-7/8" bit on 4-1/2" drill pipe and secured rig at 1600 hours.

01-03-83 Rig secured from 12-17-82 to 0800 hours, 01-03-83. Rigged up and made trip out with 9-7/8" bit on 4-1/2" drill pipe. Ran USGS fluid locator, fluid level indicated at 1268'. Made trip in with 9-7/8" bit on 4-1/2" drill pipe. Stage circulated from 1576' to 2702' using air foam.

01-04-83 Stage circulated in to fill at 2933'. Cleaned out fill from 2933' to 2993'. Drilled 9-7/8" hole from 2993' to 3215' using air foam.

01-05-83 Drilled 9-7/8" hole from 3215' to 3445'. Made trip measuring out for 6-1/8" core bit and barrel. Circulated and cleaned hole to bottom. Cut 6-1/8" core #1 from 3445' to 3448'.

01-06-83 Completed 6-1/8" core #1 from 3448' to 3462'. Made trip for 9-7/8" bit and stage circulated in from 2000' to 3445'. Opened 6-1/8" hole to 9-7/8" from 3445' to 3462' and drilled 9-7/8" hole to 3588' with 8' to 10' fill at each connection.

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01-07-83 Drilled 9-7/8" hole from 3588' to 3665'. Hole sloughed in at 3622' and cleaned out 15' fill. Pulled tools up to 2765', repaired boosters and replaced IR-1500 compressor with 2 Atlas 1200 compressors. Staged circulated tools in and cleaned out 40' fill to 3665' and drilled 9-7/8" hole to 3678'.

01-08-83 Drilled 9-7/8" hole from 3678' to 3887'. Stage circulated and cleaned out 16' fill at 3821'. Worked stuck pipe free and conditioned hole.

01-09-83 Drilled 9-7/8" hole from 3887' to 3913', hole tight. Conditioned hole, made trip for 6-1/8" core bit and barrel and cleaned out 14' fill. Cut 6-1/8" core #2 from 3913' to 3929'. Made trip out for 9-7/8" bit. Started in the hole, added jet sub with two 1/4" jets in 4-1/2" drill pipe 555.09' above bit and stage circulated from 2108' to 3882'.

01-10-83 Circulated hole 36 minutes for returns at 3882'. Opened 6-1/8" hole to 9-7/8" from 3913' to 3929' and drilled 9-7/8" hole to 4185'. Conditioned hole and made trip out.

01-11-83 Made trip in with 6-1/8" core bit and barrel and cleaned out 14' fill. Cut 6-1/8" core #3 from 4185' to 4215'. Made trip for 9-7/8" bit and stage circulated from 2300' to fill at 4151'. Made trip to unplug bit.

01-12-83 Made trip in, stage circulated from 2086', cleaned out bridge at 3947' and cleaned out hole from 4114' to 4129'. Made trip to change float sub and remove jet sub. Stage circulated from 2390' to 3730'.

01-13-83 Stage circulated hole from 3821', cleaned out bridge at 3964' and blew hole at 4062'. Cleaned out fill and conditioned hole from 4062' to 4185'. Opened 6-1/8" hole to 9-7/8" from 4185' to 4215' and drilled 9-7/8" hole to 4223'.

01-14-83 Drilled 9-7/8" hole from 4223' to 4279'. Conditioned hole and made trip for 6-1/8" core bit and barrel. Stage circulated from 2577' to fill at 4179'. Cleaned out fill to 4189' and stage circulated to 4251', tight hole. Started out to unplug bit.

01-15-83 Unplugged coring assembly and made trip in with one 1/4" jet in jet sub 406.93' above bit. Unable to unload hole at 2300', made trip to remove jet sub. Stage circulated at 1600', no returns below 2108'. Cleaned out bridge at 3964' with no returns and bridge at 4032' with returns. Lowered tools to 4125', no returns.

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- 01-16-83 Lowered tools to fill at 4157', no returns. Made trip out. Ran log to 3938' T.D. Made trip in to 2390' with two 1/4" jets in jet sub 580' above bit and circulated hole. Lowered tools to 3000', no returns. Made trip out. Ran Birdwell vibroseis survey on 25' stations to 3938' T.D.
- 01-17-83 Completed running vibroseis survey to 1575'. Ran fluid density log to 3930' T.D., checked fluid level at 1254'. Ran gamma ray, epithermal neutron and temperature logs to 3930' T.D., maximum temperature was 139°F. Ran magnetometer log to 2860'.
- 01-18-83 Ran Dresser Atlas borehole compensated acoustic, frac, dual induction-gamma ray, compensated density-neutron-gamma ray and spectra logs to 3931' T.D.
- 01-19-83 Made trip in with 9-7/8" bit on 4-1/2" drill pipe. 1 jet sub with 3/16" jet was 300.34' above bit, 1 jet sub with 1/8" jet 612.72', and 1 jet sub with 1/16" jet 922.08'. Stage circulated in from 2643' to fill at 3931'. Cleaned out to bottom of fill at 3979' and lost returns. Worked tools for returns using 15 gallons of Turco. Cleaned out bridges and hole to 4198' with no returns.
- 01-20-83 Attempted to circulate hole at 4198', 3900' and 3530', no returns. Made trip out, tight hole. Replaced soap pump and booster with K700 pump. Filled tanks with LiCl water. Worked on circulating equipment.
- 01-21-83 Made trip in with washover shoe on 4-1/2" drill pipe and jars 374.85' above shoe. Repaired K700 pump. Cleaned out fill and tight hole from 3930' to 4279'. Conditioned hole, pulled up for fill check and cleaned out 3' fill.
- 01-22-83 Worked tools up tight hole to 3930' with up to 200,000# wt. pull. Ran Birdwell caliper log down 4-1/2" drill pipe to 3974' T.D. Ran repeat log to fill at 3966'. Pulled drill pipe up to 3741'. Ran caliper log to 3963' T.D. Lowered tools to fill at 4061' and pulled up to 3981'. Cemented the hole using Halliburton with 65 ft³ of neat cement + 2% CaCl₂. Attempted to displace cement in drill pipe with water at 2700 psi. Made trip out to unplug bottom joint of drill pipe. Made trip measuring in to fill at 3932'. Washed hole to solid fill at 3947'. Cemented the hole with 50 ft³ of neat cement + 2% CaCl₂. CIP at 2235 hours. Displaced cement in drill pipe with 7 barrels of water. Pulled up and flushed drill pipe with 20 barrels of water.
- 01-23-83 Made trip with 4-1/2" drill pipe and tagged cement at 3915'. Rigged up to pull 10-3/4" casing. Perforated casing packer at 1576', 85,000# tension on casing dropped to 75,000#. Worked stuck casing up 3'3" with 150,000# pull. Pumped water down the casing at 290 gpm with 100 psi, no movement.

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01-24-83 Rigged up and worked stuck 10-3/4" casing free with 225,000# pull. Pulled casing up to 1265.58'. Made trip with 9-7/8" bit and 10-3/4" casing scraper, rotated tools to 1259'. Ran Birdwell caliper log to 1593' T.D. Made trip, cleaned out bridge from 1593' to 1596' and ran tools to 3920'.

01-25-83 Ran Birdwell caliper log to 3921' T.D. Made up 71' 8-5/8" casing shroud on Centrilift pump, top of pump 15' above shroud. Made trip in with Centrilift pump on 5-1/2", 8rd. casing along with 2- 3/8" Hydril monitor line and electric cable banded on 5-1/2" casing. Landed pump at 1455', intake at 1392' and monitor line at 1339'.

01-26-83 Ran USGS water locator, checked fluid level at 1243.5'. Started running USGS pump down test.

01-27-83 Continued running USGS pump down tests. Ran Birdwell fluid density log and monitored fluid levels at 1800 hours and 2400 hours.

01-28-83 Continued running USGS pump down tests.

01-29-83 Continued running USGS pump down tests.

01-30-83 Continued running USGS pump down tests.

01-31-83 Continued running USGS pump down tests.

02-01-83 Continued running USGS pump down tests.

02-02-83 Continued running USGS pump down tests to remove soap from bore hole.

02-03-83 Continued running USGS pump down tests to remove soap from borehole.

02-04-83 Continued running USGS pump down tests to remove soap from borehole.

02-05-83 Continued running USGS pump down tests to remove soap from borehole.

02-06-83 Continued running USGS pump down tests.

02-07-83 Continued running USGS pump down tests.

02-08-83 Ran USGS pump down tests to 0945 hours. Ran Gearhart temperature, collar and tracejector logs as directed. Started running pump down tests at 2230 hours.

02-09-83 Continued running USGS pump down tests.

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- 02-10-83 Ran USGS pump down tests to 0900 hours. Rigged up and pulled 5-1/2" casing, Centrillift pump and 2-3/8" Hydril monitor line measuring out. Ran Westech TV camera to bridge at 1686', fluid level indicated at 1250'.
- 02-11-83 Made trip in with 9-7/8" bit, cleaned out bridge at 1686' and hole to 3935'. Made trip out. Ran USGS caliper log to 3900', tight hole at 2078'. Made trip with 9-7/8" bit and cleaned out bridge at 2078' and hole to 3935'. Ran USGS caliper log to 3900'. Ran Westech TV camera to 3931'. Took water samples at 3850' using Birdwell equipment.
- 02-12-83 Ran USGS televiewer log to 3900'. Ran fluid probe, static water level indicated at 1249'. Made up 9" TAM packer on 2-7/8", 8rd. tubing with Sperry-Sun recorders above and below packer. Ran and set packer at 1650' with top at 1640'.
- 02-13-83 Ran hydrologic test. Released, pulled and laid down packer. Made up 2 TAM packers on 2-7/8" tubing 230' apart. Ran and set bottom of top packer at 3195' and top of bottom packer at 3425'. Ran hydrologic test. Released and reset packers at 3425' and 3655'. Ran hydrologic tests.
- 02-14-83 Released and reset packers at 3640' and 3870'. Ran hydrologic tests. Released and reset packers at 2965' and 3195'. Ran hydrologic test. Released and reset packers at 2735' and 2965'.
- 02-15-83 Ran hydrologic test. Released and reset packers at 2505' and 2735'. Ran hydrologic test. Released packers and made trip out. Made up packers on 2-7/8" tubing 165' apart and made trip in. Set bottom of top packer at 1640' and top of bottom packer at 1805'. Ran hydrologic test. Released and reset packers at 1805' and 1970'.
- 02-16-83 Ran hydrologic test. Released and reset packers at 1970' to 2135'. Ran hydrologic test. Released and reset packers at 2100' to 2265'. Ran hydrologic test. Released and reset packers at 2265' and 2430'. Ran hydrologic test, static water level at 1256'. Released and reset packers at 2425' and 2590'. Ran hydrologic test.
- 02-17-83 Released packers, laid down tubing and packer equipment. Ran Gearhart temperature log from 1200' to 3915', checked fluid level at 1252'. Started running tracejector survey.
- 02-18-83 Completed running tracejector survey. Rigged up to lower 10-3/4" casing. Lowered casing to tight spot at 1560', unable to circulate casing free. Ran Birdwell collar log to 1590' T.D., logged bottom of casing at 1562'. Ran fluid density log to 1700', checked

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- 02-18-83
(Cont.) bridges and fluid level at 1270'. Worked casing free and lowered casing to solid bridge at 1567'. Attempted to run 1.6" tubing down the annulus, unable to get below 500'. Pulled 10-3/4" casing up to 1560'.
- 02-19-83 Landed casing at 1564' with 1" plate welded on 10-3/4" casing and 16" surface pipe. Ran Birdwell collar log to 1590' T.D. and logged casing bottom at 1564'. Dumped 3 sacks of 20-40 sand at 1590' using Birdwell 6-5/8" O.D. x 17.11' dump bailer. Made 2 attempts to dump Cal-Seal plug, bailer did not work properly. Tagged sand at 1587'. Made trip in with 2-3/8" Hydril tubing, tagged sand at 1588' and pulled tubing up to 1580'. Pumped in using Halliburton 5 barrels of water ahead of 125 ft³ of neat cement + 2% CaCl₂. CIP at 2000 hours. Pulled tubing up to 1030' and flushed with 1/2 barrel of water. Calculated annular volume to 1517' was 114 ft³.
- 02-20-83 Lowered tubing and tagged cement inside the casing at 1535'. Laid down 2-3/8" Hydril tubing. Made trip in with 9-7/8" bit on 4-1/2" drill pipe. Cleaned out soft cement from 1535' to 1542' and firm cement to 1590'. Lowered tools, stage circulating and tagged bottom at 3935'. Added 5 gallons of alcohol down hole, made trip out and secured rig at 2400 hours.
- 02-22-83 Rig secured from 02-20-83 to 0800 hours 02-22-83. Rigged up. Ran Birdwell caliper log to 3921' T.D. Ran nuclear cement top log from 1702' to 1352', top of annular cement indicated at 1517'. Started running USGS televiewer log as directed.
- 02-23-83 Completed running televiewer log. Made up 7-3/8" Lynes straddle packer on 2-7/8" tubing with a spacing of 29' between packers. Ran and set center of straddle packer at 3700'. Ran USGS tests as directed.
- 02-24-83 Ran USGS test to 0100 hours. Released packers and made trip out, left bottom packer in the hole. Made trip in with 8-5/8" overshot and 3-3/4" grapple to fish at 3695'. Rotated and released packer. Made trip out, full recovery. Made up and ran straddle packer in the hole on 2 stands of 2-7/8" tubing. Set packers in 10-3/4" casing and tested equipment. Released and pulled straddle packer up 1 stand. Reset packers and tested equipment.
- 02-25-83 Laid down straddle packer. Made up 7-3/8" Lynes packers on 2-7/8" tubing with 8' spacing between packers. Ran and set center of straddle packer at 3285'. Attempted to run hydro frac test, no test. Made trip out, left aluminum bull plug and shear pin in the hole. Repaired packers and made trip in. Set center of straddle packer at 2398'.

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- 02-26-83 Ran USGS hydrologic test to 0830 hours. Made trip out, left bottom packer in the hole. Ran USGS televiewer, tagged fish at 3929'. Made trip in with 5-1/2" O.D. overshot, 4" grapple and 8-5/8" O.D. skirt. Fished for packer from 3929' to 3930' and made trip out, no recovery, left 0.87' of skirt in the hole. Made trip in with 7-7/8" O.D. overshot and 4-7/8" grapple. Made trip out, no recovery.
- 02-27-83 Made trip in with same fishing tools. Worked tools from 3936' to 3956' and made trip out, no recovery. Ran USGS televiewer to 3937' T.D., unable to get pictures. Made trip in with overshot, 4-7/8" grapple and fabricated 9-5/8" skirt. Worked tools over fish from 3952' to 3954'. Made trip out, no recovery. Made trip in with overshot, 4-5/8" grapple and 9-5/8" skirt. Worked tools over fish from 3948' to 3954'. Released packer and made trip out, recovered 8-5/8" skirt section and packer.
- 02-28-83 Ran USGS televiewer. Cleaned and magnafluxed straddle packer parts. Made up 7-3/8" Lynes packers on 2-7/8", 8rd. tubing spaced 8' apart. Started in the hole.
- 03-01-83 Ran and set center of straddle packer at 2398'. Ran USGS hydrologic test. Released packer and made trip out, left bottom packer in the hole. Ran USGS televiewer to top of fish at 2392.50'. Made trip in with overshot, 3-7/8" grapple and 8-5/8" fabricated skirt on 4-1/2" drill pipe. Latched onto fish at 2392'. Ran Birdwell collar log to 2400' T.D. Released packer using Birdwell 3500 grain string shot and 1/4# C-4 shot. Made trip out, recovered fish.
- 03-02-83 Laid down packer and tubing. Ran USGS televiewer log. Made trip in with 9-7/8" bit on 4-1/2" drill pipe with 3/16" jet sub #1 304' above bit, 1/8" jet sub #2 589', 1/8" jet sub #3 869' and 1/16" jet sub #4 1151'. Stage circulated in from 1700' to 3923' using air foam.
- 03-03-83 Stage circulated to 3984', booster safety valve released. Pulled up to 1521' and repaired booster. Made trip out and changed jets in jet subs. Made trip in stage circulating from 1756' to 4044', cleaned out bridge from 3954' to 3982'.
- 03-04-83 Cleaned out fill and hole to 4279'. Conditioned hole and made trip out.
- 03-05-83 Ran Dresser Atlas borehole compensated acoustic log to bridge at 3941' and caliper log to bridge at 3934'. Lost two 1/8" thick x 3" wide x 18" long caliper arms in the hole. Started in the hole with 5-1/2", 15.50# casing.

- 03-06-83 Ran 5-1/2" casing to tight spot at 3952'. Ran Birdwell caliper tool to 3941' T.D., no log. Washed casing to 4164'. Attempted to run Dresser Atlas dual induction-lateral logs, could not get deep enough, no logs.
- 03-07-83 Washed 5-1/2" casing to 4227' and pulled casing up to 3950'. Ran Birdwell caliper log to 4058' T.D. Washed casing to 4214'. Ran Dresser Atlas gamma ray-neutron log to 4214' T.D.
- 03-08-83 Completed gamma ray-neutron log. Ran gamma ray-spectrum log to 4213' T.D. Ran Birdwell borehole compensated density log to 4208' T.D. Rotated 5-1/2" casing cleaning out fill and washing hole to 4269' using LiCl water, no returns below 4250'. Pumped in 480 barrels of 100 viscosity bentonite mud. Pulled casing up to 3991', no returns.
- 03-09-83 Ran Birdwell caliper log to 4254' T.D. Ran Dresser Atlas induction lateral log to 4251' T.D., compensated acoustic-gamma ray log to 4262' T.D., and compensated neutron log to 4262' T.D. Ran Birdwell compensated density log to 4254' T.D., temperature log to 4254' T.D., magnetometer log to 4260' T.D. and vibroseis survey on 25' stations from 4252' to 3990'. Pulled and laid down 5-1/2" casing.
- 03-10-83 Laid down drilling assembly and rigged up to run 7-5/8", 26.40# liner with float shoe on bottom and Bakerline running tool on top. Lowered 7-5/8" liner on 4-1/2" drill pipe, liner stopped at 3942'. Started washing liner down hole using Halliburton.
- 03-11-83 Washed 66 joints of 7-5/8", 26.40# liner to bottom at 4262'. Pulled up and landed liner at 4256' with top at 1487.49'. Float collar at 4210.46', #1 stage collar at 3874.65' with 2 metal petal baskets below and #2 stage collar at 2140'. Cemented stage #1 using Halliburton with 500 barrels of LiCl water ahead of 51 ft³ of neat cement + 2% CaCl₂ at 4256' and pumped down plug with 153 barrels of water. CIP at 0500 hours. Cemented stage #2 with 130 barrels of LiCl water ahead of 755 ft³ of class A + 20% DIACEL D + 2% CaCl₂ at 3874' and pumped down plug with 170 barrels of water. CIP at 1130 hours. Cemented stage #3 with 60 barrels of LiCl water ahead of 380 ft³ of the same slurry at 2116' and pumped down plug with 22 barrels of water. CIP at 1315 hours. Released liner running tool and made trip out. Ran Birdwell nuclear cement top-collar log, tagged cement at 1866'. Made up 6-3/4" bit on three 5-1/2" drill collars. Thread pulled loose and tools dropped downhole.
- 03-12-83 Made trip in to top of fish at 1797' and attempted to screw into fish. Made trip out, no recovery. Made trip in with spear. Latched onto fish and made trip out; recovered fish but left sheared off bit cone in the hole. Made trip in with 6-1/2" O.D. Globe basket on 4-1/2" drill pipe. Cleaned liner from 1866' to cement at 1945' and rotated to 1960' with no circulation. Made

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- 03-12-83 trip out, recovered bit cone. Made trip in with 6-3/4" bit on 4-1/2" drill pipe and cleaned out liner from 1522.49' to 1557'. Washed hole to cement at 1957' using air foam. Started drilling out cement from 1957'.
- 03-13-83 Drilled out cement to 2110'. Circulated hole and made trip out. Ran Birdwell nuclear cement top log to 2114' T.D. Made trip in and cleaned out cement fill and cement from 2088' to 2114'. Drilled out plug and stage collar from 2114' to 2117'. Lowered tools to 3537'. Drilled out cement from 3537' to 3812'. No cement between 3538' and 3555'.
- 03-14-83 Drilled out plug and stage collar from 3871' to 3875'. Lowered tools and drilled out cement and float collar from 4201' to 4206'. Lowered tools and tagged cement at 4251'. Circulated hole clean using water and made trip out. Ran Birdwell nuclear cement top log to 4249' T.D. Ran fluid density log, checked fluid level at approximately 1900'. Pumped in 180 barrels of LiCl water, approximate fluid level at 1200'. Ran 3-D velocity log to 4248' T.D. Logged to 3620', conductor cable parted at tool cable head. Fabricated 5-1/2" skirt for 3-3/8" grapple.
- 03-15-83 Made trip in with overshot and latched onto tool at 4240'. Made trip out, left 3-5/8" x 7' plastic case with 1" thick aluminum plug on bottom in the hole. Plastic case contained part of logging instrumentation. Ran nuclear cement top log to 4249' T.D. Ran 3-D velocity log to 4249' T.D., fluid level indicated at 1264'. Ran fluid density log to 4269', checked fluid level at 1260'. Made trip in with 6-3/4" bit and 7-5/8" casing scraper and tagged bottom at 4249', no restrictions at liner hanger or stage collars. Pumped hole full of water, unable to get returns. Filled hole again with water, fluid dropping. Made trip out.
- 03-16-83 Ran Birdwell 5-1/2" O.D. spinner survey to 4250', leak indicated at 1487'. Waited on cement and drillable bridge plug, 13-1/2 hours. Ran and set Halliburton 7-5/8" bridge plug top at 1500'. Made trip in and set bottom of Halliburton 10-3/4" squeeze packer at 1392'. Pumped in 30 barrels of water ahead of 75 ft³ of neat cement + 2% CaCl₂. Displaced cement in pipe with 20 barrels of water. CIP at 2230 hours. Made trip out and laid down packer.
- 03-17-83 Made trip in with 9-7/8" and 10-3/4" casing scraper, tagged cement at 1468'. Drilled out soft cement from 1468' to 1487'. Made trip for 6-3/4" bit and 7-5/8" casing scraper to top of liner at 1487'. Filled casing with water and drilled out cement from 1487' to 1500'. Monitored fluid level in hole, no fluid loss. Drilled on iron bridge plug using air and soap, no success. Made trip to replace button bit and scraper with 6-3/4" mill tooth bit. Drilled out plug and stage circulated tools to junk fill at 4246'. Started drilling on junk fill.

03-18-83 Drilled junk fill, cement, float shoe and 2' of new 6-3/4" hole from 4246' to 4281'. Conditioned hole and made trip out. Rigged up to run 5-1/2" casing. Ran 4275.85' of 5-1/2", 15.50# casing with 6" O.D. clusterite shoe on bottom, tagged bottom at 4271'. Rotated casing to 4273'. Welded 5-1/2" casing to 10-3/4" casing.

03-19-83 Rigged up to core hole.

03-20-83 Made trip in with 4.25" core bit and barrel on HCQ rods, tagged bottom at 4269', filled hole with water and cleaned out 2' of fill. Made trip out and unplugged core barrel. Made trip in. Started 4.25" core #4 from 4273' to 4283', no returns after 15 minutes of coring.

03-21-83 Completed 4.25" core #4 from 4283' to 4289'. Started cutting core #5 from 4289' to 4291', tools torqued up and stuck. Worked tools free and attempted to retrieve inner barrel. Made trip out, rods parted at threads. Top of fish at 2748' with bit at 4291'. Rigged up to fish for tools.

03-22-83 Made trip in with 3-1/2" spear, jars and bumper sub on 2-7/8", 8rd. tubing. Latched onto fish at 2748', circulated and jarred fish free. Made trip out. Recovered rods and core barrel, left 4.25" reaming shell and core bit in the hole. Made trip in with tap, jars and bumper sub on 2-7/8" tubing. Worked tools on fish at 4290'. Made trip out, no recovery.

03-23-83 Made trip with tap to 4290', no recovery. Made trip in with tapered tap and tagged fish at 4291'. Rotated and washed tap into fish from 4291' to 4293' for core #6. Made trip out, full recovery. Made trip in with 4.25" core bit and barrel on HCQ rods, unable to get returns. Cut 4.25" core #7 from 4293' to 4303'. Started to cut core #8 at 4303'.

03-24-83 Rods parted at 1759', unable to screw pin into box. Made trip for spear and jars on 2-7/8" tubing to 1759'. Jarred fish free and made trip out, full recovery. Made trip in with core barrel and 4.25" bit on HCQ rods to cut oriented core #8. Attempted to cut core at 4303', bit not drilling. Made trip out, left bit crown and inner barrel in the hole. Fabricated a 4" wire-line overshot.

03-25-83 Ran overshot on sandline to 4301', recovered inner core barrel. Made up fabricated 4.25" clusterite mill on 2-7/8" tubing. Made trip in and milled on junk 2-1/2 hours. Made trip for 4-1/2" Globe basket. Reamed hole from 4273' to 4303' and rotated basket to 4304.7'. Made trip out, recovered 3 pieces of iron. Built up basket shoe with clusterite.

- 03-26-83 Made trip in with 4-1/2" Globe basket to 4235', tools stopped. Reamed hole to 4269'. Made trip to unplug basket. Cleaned out bridge from 4227' to 4244' and hole to 4305' with 70% to 80% returns. Rotated basket to 4306'. Made trip out, no junk recovery. Made trip in with oriented core barrel and 4.25" bit. Cleaned out bridges at 4271' and 4291'. Attempted to retrieve inner barrel, made trip out.
- 03-27-83 Cleaned out 45' of solid fill in tools. Mixed 150 barrels of 55 viscosity polymer mud. Made trip in. Cleaned out bridge at 4245' and hole to 4306'. Attempted to cut 4.25" core #8, no core. Made trip out for 4-1/2" Globe basket.
- 03-28-83 Made trip in with jars and 4-1/2" Globe basket on 2-7/8" tubing. Milled on junk fill from 4282' to 4306'. Rotated basket from 4306' to 4308'. Made trip out, no junk recovery. Ran Birdwell fluid density log, checked fluid level at 279'. Ran caliper tool to 4265', unable to get deeper. Rigged up and attempted to rotate 5-1/2" casing deeper, no success. Started pulling 5-1/2" casing.
- 03-29-83 Completed pulling 5-1/2" casing. Made trip in with 6-3/4" bit on 4-1/2" drill pipe. Opened 4-1/2" hole to 6-3/4" from 4281' to 4293' using polymer and gel mud.
- 03-30-83 Opened 4-1/2" hole to 6-3/4" from 4293' to 4308' and drilled 6-3/4" hole to 4318'. Made trip for 6-7/8" Globe basket. Reamed 6-3/4" hole to 6-7/8" from 4275' to 4318' and rotated basket to 4320'. Conditioned hole and worked tools free from junk. Rotated basket to 4322' for core #8. Pumped in high viscosity mud and made trip out. Filled hole with drilling fluid. Ran Birdwell caliper log to 4318' T.D. and collar log to 4319' T.D.
- 03-31-83 Fluid slowly dropping downhole. Ran Birdwell spinner survey at 500' and 1600', no indication of fluid movement. Ran fluid density log, check fluid level at 68'. Rigged up to run 5-1/2", 15.50# casing. Ran 5-1/2" casing and tagged bottom at 4322'. Rotated and set casing at 4324'. Made up surface installation and rigged up coring equipment. Made trip in with 4.25" core bit and barrel on HCQ rods and cleaned out 3' fill to 4322'. Started cutting 4.25" core #9 from 4322' to 4324' using polymer and gel mud.
- 04-01-83 Completed core #9 from 4324' to 4327'. Cut 4.25" cores #10 thru #14 from 4327' to 4392' with full returns. Core #12 was oriented.
- 04-02-83 Cut 4.25" cores #15 thru #20 from 4392' to 4460'.
- 04-03-83 Cut 4.25" cores #21 thru #27 from 4460' to 4527'. Core #25 was oriented.

04-04-83 Cut 4.25" cores #28 thru #32 from 4527' to 4573'. Cleaned out fill, inner barrel sanded up at 4546', bit not drilling. Made trip for bit change at 4546'.

04-05-83 Cut 4.25" cores #33 thru #39 from 4573' to 4601'. Tools torqued at 4588', pin jumped box and screwed back in. Made trip out to lengthen core barrel 2' and made up anti jamming head on oriented inner barrel.

04-06-83 Made trip in, cleaned out bridge at 4540' and hole to 4601'. Cut 4.25" cores #40 thru #42 from 4601' to 4631' with good returns. Rods parted at 90', screwed back in and rods parted again. Fished rods using a spear at 90' and replaced damaged rod. Lowered tools and started cutting 4.25" core #43 at 4631'.

04-07-83 Cut 4.25" cores #43 thru #47 from 4631' to 4666'. Cleaned out 10' fill at 4652' and 4' fill at 4660'. Made trip for anti jamming barrel head and lengthened inner barrel. Cleaned out 4' fill to 4666'.

04-08-83 Cut 4.25" cores #48 to #53 from 4666' to 4712.5'. Core #52 was oriented.

04-09-83 Cut 4.25" cores #53 thru #57 from 4712.5' to 4766' with no returns. Made trip for bit change at 4762'.

04-10-83 Cut 4.25" cores #58 thru #64 from 4766' to 4840'.

04-11-83 Tools started torquing. Made trip to clean out core barrel. Cut 4.25" cores #65 thru #72 from 4840' to 4902' with no returns.

04-12-83 Cut 4.25" cores #73 thru #76 from 4902' to 4924'. Made trip out laying down HCQ rods. Started laying down 2-7/8" tubing.

04-13-83 Laid down 2-7/8" tubing. Pulled and laid down 5-1/2" casing. Rigged up 2 Atlas 1200 compressors and made up 6-3/4" drilling assembly.

04-14-83 Made trip in with 6-3/4" bit on 4-1/2" drill pipe, no fluid indicated at 1165'. Stage circulated from 2008' to 3885'. Made trip to add jet subs above bit at 298.77', 578.89' and 875.02'. Stage circulated from 1698' to fill at 4305'. Cleaned out fill, opened 6" hole to 6-3/4" from 4322' to 4324' and 4.25" hole to 4327' using air foam.

04-15-83 Opened 4.25" hole to 6-3/4" from 4327' to 4494'.

04-16-83 Opened 4.25" hole to 6-3/4" from 4494' to 4787'.

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04-17-83 Opened 4.25" hole to 6-3/4" from 4787' to 4870'. Made trip for bit change at 4792', stage circulated in and cleaned out 2' fill.

04-18-83 Opened 4.25" hole to 6-3/4" from 4870' to 4923', tight hole. Worked tools free with 123,000# pull. Made trip out, bit worn and out of gauge. Removed 3 jet subs and started in the hole with new bit, stage circulating.

04-19-83 Stage circulated in, reamed 6-3/4" hole from 4914' to 4923' and opened 4.25" hole to 6-3/4" to 4924'. Drilled 6-3/4" hole from 4924' to 4997' using air foam. Made trip to add 3 jet subs in drilling string at 4990'.

04-20-83 Drilled 6-3/4" hole from 4997' to 5140'.

04-21-83 Drilled 6-3/4" hole from 5140' to 5182'. Worked stuck pipe and conditioned hole at 5152', unloaded hole 45 minutes at 5160', no returns. Pulled up and unloaded hole 15 minutes, broke circulation at 4066' and 4624'. Attempted to break circulation at 4996'.

04-22-83 Pulled up and stage circulated in from 4329'. Attempted to circulate hole at 5182', no returns. Made trip out and laid down 4-1/2" drill pipe. Laid down derrick and repaired damaged crown and bent derrick girts.

04-23-83 Raised derrick and rigged up. Replaced bottom hole drilling assembly. Started in the hole with 1516.07' of 3-1/2" drill pipe below 4-1/2" drill pipe.

04-24-83 Repaired Joy booster pump and made trip in to 3229'. Stage circulated in and cleaned out 2' fill. Drilled 6-3/4" hole from 5182' to 5314'.

04-25-83 Drilled 6-3/4" hole from 5314' to 5536'. Drilled last 3' with no returns and pulled up to 4542' to attempt to break circulation.

04-26-83 Unable to get returns. Pulled up in stages to 4200', no returns. Made trip for bit, float change and cleaned out jet subs. Stage circulated in from 4200'. Drilled 6-3/4" hole from 5536' to 5570'.

04-27-83 Drilled 6-3/4" hole from 5570' to 5799'.

04-28-83 Drilled 6-3/4" hole from 5799' to 5900'. Conditioned hole and made trip out. Made up 6-1/8" core bit and 60' core barrel. Started in the hole with core assembly on 3-1/2" and 4-1/2" drill pipe.

04-29-83 Made trip in stage circulating from 3207', no fill. Cut 6-1/8" core #77 from 5900' to 5902' using air and soap. Made trip out, bit plugged.

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04-30-83 Changed bit, removed jet sub, made trip in and washed to bottom. Cut 6-1/8" core #78 from 5902' to 5909'. Made trip to retrieve core and cleaned out 2' fill. Started cutting 6-1/8" core #79 from 5909' to 5911'.

05-01-83 Completed cutting core #79 from 5911' to 5914', core barrel jammed. Made trip for core and core barrel repair, cleaned out 1' fill. Cut 6-1/8" core #80 from 5914' to 5923'. Started running Eastman gyroscopic survey using Birdwell equipment.

05-02-83 Completed gyroscopic survey on 25' stations to 5695', could not get below jars. Made trip out with 4-1/2" and 3-1/2" drill pipe and core #80. Attempted to run a series of Dresser Atlas logs, equipment not working properly. Started running Birdwell caliper log.

05-03-83 Completed caliper log to 5919' T.D. Ran borehole compensated density log to 5920' T.D. and epithermal neutron-gamma ray log to 5918' T.D. Ran Dresser Atlas dual induction log to 5920' T.D., neutron-gamma ray log to 5918' T.D. and dielectric log to 5920' T.D.

05-04-83 Ran gamma-ray spectrum log to 5918' T.D. and borehole compensated acoustic log to 5918' T.D. Ran Birdwell temperature log to 5913' T.D., maximum temperature of 131°F indicated between 4500' and 4900'. Ran magnetometer log to 5914' T.D. going in, tool pressure damaged logging out. Ran fluid density log, fluid level indicated at 1192'. Ran vibroseis survey to 5913' T.D., logged from 5913' to 4275' on 25' stations.

05-05-83 Ran Production Logging Services temperature log while pumping in clear water at 50 gpm from 5913' to 1193'. Ran tracejector log. Made up Centrillift pump on 5-1/2" casing. Started in the hole along with 2-3/8" Hydril monitor line with mule shoe on bottom. Bottom of monitor line secured to pump at bottom of motor.

05-06-83 Landed pump at 1430.21' with intake at 1369.49' and monitor line at 1428.71'. Made up surface installations and calibrated USGS transducer. Checked fluid level at 1192'. Started USGS pump down test at 1200 hours.

05-07-83 Ran pump down test to 1530 hours. Started monitoring water recovery.

05-08-83 Monitored water recovery to 1000 hours, static water level at 1185' at 0830 hours. Started pump down test.

05-09-83 Continued pump down test.

05-10-83 Continued pump down test.

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05-11-83 Ran pump down tests to 0930 hours. Ran Production Logging Service tracejector tests to 1800 hours. Checked static fluid level at 1216.7' and temperature at 135°F. Continued USGS pump down tests.

05-12-83 Ran pump down tests to 1530 hours, fluid level at 1216'. Started monitoring fluid recovery.

05-13-83 Monitored fluid recovery to 1000 hours. Made trip out and laid down 5-1/2" casing, Centrilift pump and 2-3/8" hydril monitor line. Attempted to run Westech TV camera, repaired conductor cable equipment.

05-14-83 Ran TV camera 5725', conductor cable not long enough to reach T.D. Made up TAM straddle packer on 2-7/8", 8rd. tubing. Space between packers was 130'. Ran and set packers at 4160' and 4290'. Started running USGS hydrological tests.

05-15-83 Ran hydrologic tests. Released and reset packers at 4250' and 4380', tool leaked. Made trip out for packer change. Made trip in and attempted to set packers in 7-5/8" liner, packers would not set properly. Made trip out.

05-16-83 Changed straddle packer, spacing between packers still 130'. Ran and set packers at 4160' and 4290'. Ran hydrologic tests. Released and reset packers 4400' and 4530'. Ran hydrologic tests. Released and reset packers at 4530' and 4660'. Started running hydrologic tests.

05-17-83 Ran hydrologic tests. Released and reset packers at 4670' and 4800'. Ran hydrologic test. Made trip to change straddle packer spacing to 150'. Set packers at 4240' and 4390'. Attempted to run hydrologic tests. Made trip out to check 2-7/8" tubing and changed bottom packer. Ran and set packers at 4240' and 4390'. Ran hydrologic tests. Released and reset packers at 4800' and 4950'. Started running hydrologic tests.

05-18-83 Attempted tests. Changed transducer. Attempted tests. Changed transducer. Ran hydrologic tests. Released and reset packers at 4950' and 5100'. Ran hydrologic tests.

05-19-83 Released and reset packers at 5100' and 5250'. Ran hydrologic tests. Made trip for packer check. Set packers at 4240' and 4390'. Ran hydrologic retest. Made trip out for packer repair.

05-20-83 Waited for packer parts and repair to 1200 hours. Made trip in with straddle packer, 150' spacing between packers. Set packers at 4240' and 4390'. Ran hydrologic tests.

05-21-83 Completed tests. Released and reset packers at 4800' and 4950'. Ran hydrologic tests. Released and reset packers at 5240' and 5390'. Ran hydrologic tests. Released and reset packers at 5390' and 5540'.

05-22-83 Ran hydrologic tests, tools leaked. Made trip for packer repair. Set packers at 5390' and 5540'. Ran hydrologic tests. Released and reset packers at 5690' and 5840'. Ran hydrologic tests.

05-23-83 Completed hydrologic tests. Released packers, laid down 2-7/8" tubing and TAM packers. Started rigging down.

05-24-83 Rigged down and moved out. Hole completed 5-24-83.

06-02-83 Ran Dresser Atlas compensated acoustic and frac logs to 5916' T.D. using Birdwell mast.

06-23-83 Ran Birdwell stabilized temperature log and electric log to 5893' T.D. Ran dump bailer for fluid sample.

07-17-83 Ran USGS temperature, caliper, and televiwer logs as directed. Fluid level indicated at 1191.4' on televiwer log. Ran sonic log for test purpose.

10-22-83 Ran Birdwell geophone to 4400'. Ran seismic tests as directed by USGS.

10-27-83 Ran Westech TV camera from 4256' to 4700', camera did not operate properly. Fluid level was at 1240'.

11-18-83 Ran USGS gravimeter log as directed.

11-19-83 Completed running gravimeter as directed.

11-20-83 Ran Westech TV camera to 5888' T.D. using Birdwell mast. Recorded TV run from 4242' to 5888'.

01-03-84 Moved in Portadrill rig #85122 and drilled four 12-1/4" anchor holes to 10'. Set in anchors, rigged down, and moved out. Moved in Ideco #37, rig #85116 and started rigging up.

01-05-84 Rig secured from 1-3-84 to 1330 hours, 1-5-84. Ran Birdwell caliper log to 5910' T.D. Made up TAM straddle packer with 8' spacing on new 2-7/8" EUE tubing. Made trip in and set straddle packer in 7-5/8" liner at 1600'. Tested packers and started calibrating USGS equipment.

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01-06-84 Released straddle packer and made trip to recover packer setting tool and service packers. Reset straddle packer at 1600' and calibrated USGS instruments. Released straddle packer and made trip to service packers for 8' spacing. Set packers to test zone from 5106' to 5114'. Ran USGS test #1. Released straddle packer and pulled tools up into 7-5/8" liner. Secured rig at 2400 hours.

01-09-84 Rig secured from 1-6-84 to 1-9-84. Lowered tools and set packers to test zone from 5106' to 5114'. Ran USGS test #2. Released straddle packer and made trip, replaced packers, and changed packer spacing to 4'. Set packers to test zone from 5106' to 5110'. Ran USGS test #3. Released straddle packer.

01-10-84 Worked on USGS equipment to 0200 hours. Lowered and set packers to test zone from 5128' to 5132'. Ran USGS test #4. Released and pulled straddle packer up into 7-5/8" casing. Waited on Halliburton pump from 1030 hours to 1700 hours. Lowered straddle packer to 5190', tested, and calibrated equipment.

01-11-84 Set packers to test zone from 5158' to 5162'. Ran USGS test #5 and frac test #3. Released and attempted to set packers to test zone from 5125' to 5129', packers would not set. Made trip for packer change. Attempted to test packers in 7-5/8" liner at 3335', wrong packers. Made trip for straddle packer change with 4' spacing. Set packers to test zone from 5128' to 5132' and calibrated equipment.

01-12-84 Attempted to run frac test, unable to pressure up. Made trip out and changed packer assembly. Tested packers in 10-3/4" casing at surface. Made trip in and set packers to test zone from 5128' to 5132', packers failed. Made trip out, 1 packer element had ruptured. Dressed packer assembly, made trip in, and set packers to test zone from 5128' to 5132'.

01-13-84 Ran USGS frac test #7. Released and set packers to test zone from 5679' to 5683'. Ran USGS test #8. Released and set tight packers to test zone from 5679.4' to 5683.4'. Attempted USGS test #9, test no good. Made trip to change straddle packer, 1 packer element had ruptured. Set packers to test zone from 5551' to 5555'. Ran USGS test #10. Released and pulled straddle packer up into 7-5/8" liner. Secured rig at 2400 hours.

01-16-84 Rig secured from 1-13-84 to 1-16-84. Made trip out and laid down straddle packer. Made trip in with TAM 4' dual element rubber impression packer (9' long) on 2-7/8" EUE tubing. Set center at 5534' and oriented packer. Ran USGS test #1. Released packer and made trip out.

UE-25p #1
Hole History
Page 21

01-17-84 Laid down 2-7/8" tubing. Made trip in with 33 joints of 2-7/8" tubing and filled tubing with water. Pressure tested tubing to 3800 psi using Teledyne pump. Swabbed out water and laid down tubing. Ran and landed 1.9" tubing open ended at 1370.84'. Ran and landed #2 string of 1.9" tubing with bottom closed at 1354.69'. #2 string was marked with yellow tape. Started rigging down.

01-18-84 Rigged down and moved out.

05-15-84 Construction filled 1.9" tubing with plugged bottom with water.

03-07-85 Installed USGS continuous recording water level transducer at 1200' with present fluid level at 1190'.

UE-25p #1
CORE RECORD

<u>Core No.</u>	<u>Interval</u>	<u>Footage Cored</u>	<u>Footage Recovered</u>	<u>% Recovery</u>	<u>Oriented F&S Geol.</u>
1	3445.0 - 3462.0	17.0	16.1	95	
2	3913.0 - 3929.0	16.0	13.0	81	
3	4185.0 - 4215.0	30.0	30.0	100	Pz fm.
4	4273.0 - 4289.0	16.0	16.7	104	
5	4289.0 - 4291.0	2.0	2.0	100	
6	4291.0 - 4293.0	2.0	2.1	105	Fishing
7	4293.0 - 4303.0	10.0	8.3	83	
8	4318.0 - 4322.0	4.0	2.7	68	
9	4322.0 - 4327.0	5.0	7.6	152	
10	4327.0 - 4345.0	18.0	7.2	40	
11	4345.0 - 4346.0	1.0	1.5	150	
12	4346.0 - 4356.0	10.0	10.0	100	Oriented
13	4356.0 - 4374.0	18.0	17.6	98	
14	4374.0 - 4392.0	18.0	18.0	100	
15	4392.0 - 4409.0	17.0	15.3	90	
16	4409.0 - 4415.0	6.0	6.8	113	
17	4415.0 - 4424.0	9.0	9.8	109	
18	4424.0 - 4442.0	18.0	18.2	101	
19	4442.0 - 4452.0	10.0	10.0	100	Oriented
20	4452.0 - 4460.0	8.0	8.0	100	
21	4460.0 - 4469.0	9.0	9.0	100	
22	4469.0 - 4478.0	9.0	9.0	100	
23	4478.0 - 4484.0	6.0	6.0	100	
24	4484.0 - 4494.0	10.0	10.0	100	
25	4494.0 - 4503.0	9.0	9.0	100	Oriented
26	4503.0 - 4513.0	10.0	10.0	100	
27	4513.0 - 4527.0	14.0	14.0	100	
28	4527.0 - 4545.0	18.0	18.0	100	
29	4545.0 - 4556.0	11.0	11.5	105	
30	4556.0 - 4565.0	9.0	7.75	86	
31					Clean out hole
32	4565.0 - 4573.0	8.0	8.8	110	
33	4573.0 - 4578.0	5.0	5.0	100	
34	4578.0 - 4583.5	5.5	4.5	82	
35	4583.5 - 4588.5	5.0	5.0	100	
36	4588.5 - 4589.5	1.0	1.0	100	
37	4589.5 - 4593.5	4.0	3.8	95	
38	4593.5 - 4598.0	4.5	3.4	76	
39	4598.0 - 4601.0	3.0	3.3	110	
40	4601.0 - 4608.5	7.5	7.5	100	
41	4608.5 - 4621.0	12.5	9.5	76	
42	4621.0 - 4631.0	10.0	10.0	100	
43	4631.0 - 4642.0	11.0	12.0	109	
44	4642.0 - 4652.0	10.0	7.9	79	
45	4652.0 - 4660.0	8.0	8.0	100	
46	4660.0 - 4666.0	6.0	6.0	100	
47	4666.0 - 4666.0	0.0	3.0		Fill

UE-25p #1
CORE RECORD
Page 2

<u>Core No.</u>	<u>Interval</u>	<u>Footage Cored</u>	<u>Footage Recovered</u>	<u>% Recovery</u>	<u>Oriented F&S Geol.</u>
48	4666.0 - 4675.0	9.0	1.0	11	Oriented
49	4675.0 - 4676.0	1.0	0.0	0	
50	4676.0 - 4686.5	10.5	10.5	100	
51	4686.5 - 4704.0	17.5	16.4	94	
52	4704.0 - 4712.5	8.5	10.0	118	
53	4712.5 - 4724.0	11.5	11.0	96	
54	4724.0 - 4742.0	18.0	18.0	100	
55	4742.0 - 4761.0	19.0	19.0	100	
56	4761.0 - 4762.0	1.0	0.3	30	
57	4762.0 - 4766.0	4.0	3.5	88	
58	4766.0 - 4772.0	6.0	6.0	100	
59	4772.0 - 4783.0	11.0	10.8	98	
60	4783.0 - 4794.0	11.0	9.9	90	
61	4794.0 - 4802.0	8.0	7.8	98	
62	4802.0 - 4813.0	11.0	10.2	93	
63	4813.0 - 4831.0	18.0	1.5	8	
64	4831.0 - 4840.0	9.0	0.25	3	
65	4840.0 - 4850.0	10.0	11.5	115	
66	4850.0 - 4862.0	12.0	12.0	100	
67	4862.0 - 4863.0	1.0	0.5	50	
68	4863.0 - 4872.0	9.0	9.2	102	
69	4872.0 - 4875.0	3.0	2.0	67	
70	4875.0 - 4883.0	8.0	6.0	75	
71	4883.0 - 4893.0	10.0	10.0	100	
72	4893.0 - 4902.0	9.0	9.0	100	
73	4902.0 - 4906.0	4.0	3.2	80	
74	4906.0 - 4912.0	6.0	3.0	50	
75	4912.0 - 4920.0	8.0	8.1	101	
76	4920.0 - 4924.0	4.0	4.0	100	
77	5900.0 - 5902.0	2.0	2.0	100	
78	5902.0 - 5909.0	7.0	4.0	57	
79	5909.0 - 5914.0	5.0	4.5	90	
80	5914.0 - 5923.0	9.0	4.0	44	

UE-25p #1
REVIEW OF HOLE CONDITIONS

610 mm (24") casing was set at 11.0 m (36') in a 762 mm (30") hole drilled to 12.8 m (42') and the annulus cemented to surface in 3 stages with 13.17 m³ (465 ft³) of cement slurry, 11-14-82. Calculated annular volume was 2.10 m³ (74 ft³). 445 mm (17-1/2") hole was drilled to 103.9 m (341') with conventional circulation using air foam. Caliper, magnetometer, density, electric, fluid density logs, and vibroseis survey from 91.4 m (300') to 30.5 m (100') were run 11-16-82 and 11-17-82. No fluid was indicated in the hole. The hole was opened to 559 mm (22") to 103.0 m (338'). Caliper log was run 11-18-82. 406 mm (16") casing was set at 99.1 m (325') and the annulus cemented to surface in 10 stages with 37.52 m³ (1325 ft³) of cement slurry 11-21-82. Calculated annular volume was 21.72 m³ (767 ft³). 375 mm (14-3/4") hole was drilled to 487.1 m (1598'). Fluid density, caliper, magnetometer, density, epithermal neutron, electric, 3-D velocity, gamma ray, temperature logs, vibroseis survey from 478.5 m (1570') to 84.7 m (278') on 7.6 m (25') stations, and TV camera were run 11-30-82 and 12-01-82. Fluid density log indicated fluid level at 384.7 m (1262'). Sidewall samples were taken 12-02-82 and 12-03-82. The average curve on caliper log #4 run 12-03-82 indicated the hole to be eroded with maximum enlargement of 832 mm (32-3/4") at 99.4 m (326'). 273 mm (10-3/4") casing was set at 481.9 m (1581') with a packer at 479.8 m (1574'). 251 mm (9-7/8") hole was drilled to 1304.2 m (4279'). Caliper, fluid density, gamma ray, epithermal neutron, temperature, magnetometer, acoustic, frac, electric-gamma ray, density-neutron-gamma ray, gamma ray spectrum logs, and vibroseis survey were run between 01-16-83 and 01-18-83. The average curve on caliper log #5 indicated hole enlargement of 775 mm (30-1/2") at 872.3 m (2862') and hole enlargement beyond maximum arm diameter of 883 mm (34-3/4") from 1196.3 m (3925') to bottom of log at 1197.9 m (3930'). Caliper logs were run between 1211.3 m (3974') and 1140.3 m (3741') 01-22-83. The hole was cemented from fill at 1203.0 m (3947') to 1193.3 m (3915') with 1.42 m³ (50 ft³) of cement slurry 01-22-83. The 273 mm (10-3/4") casing was pulled up to 385.9 m (1266'). Caliper logs, hydrologic tests, TV camera were run and water samples taken between 01-24-83 and 02-18-83. The 273 mm (10-3/4") casing was landed at 476.7 m (1564') and bottom of casing annulus cemented with 3.54 m³ (125 ft³) of cement slurry 02-19-83. Cement was drilled out and hole cleaned out to 1199.4 m (3935'). Caliper and NCTL logs were run 02-22-83, annular casing cement top indicated at 462.4 m (1517'). Calculated annular volume was 3.23 m³ (114 ft³). Hydrologic tests were run between 02-23-83 and 03-01-83. 251 mm (9-7/8") hole was cleaned out to 1304.2 m (4279'). A series of acoustic, caliper, gamma ray spectrum, compensated density, electric, compensated acoustic-gamma ray, compensated neutron, temperature, magnetometer logs, and vibroseis survey were run between 03-05-83 and 03-09-83. 194 mm (7-5/8") liner was set at 1297.2 m (4256') with top at 453.2 m (1487'). The annulus was stage cemented at 4 depths with a total of 35.71 m³ (1261 ft³) of cement slurry 03-16-83. Calculated annular volume was 16.85 m³ (595 ft³). 175 mm (6-7/8") hole was drilled to 1317.3 m (4322'). 171 mm (6-3/4") hole was drilled to 1798.3 m (5900') and 156 mm (6-1/8") hole drilled to a total depth of 1805.3 m (5923'). 77 cores were cut between 1302.4 m (4273') and bottom. Gyroscopic survey, caliper, density, epithermal neutron, gamma ray, dual induction, neutron, dielectric, gamma ray spectrum, acoustic, temperature, magnetometer, fluid density logs, vibroseis, and tracejector surveys were run between 05-01-83 and 05-05-83. Maximum recorded temperature was 55°C (131°F) and fluid level indicated at 363.3 m (1192'). Hydrologic tests were run between 05-14-83 and 05-23-83. Hole completed 05-24-83. Acoustic and frac logs were run 06-02-83.

UE-25p #1
Review of Hole Conditions
Page 2

Temperature, electric logs were run and fluid sample taken 06-23-83. Temperature, caliper, sonic logs, and televiewer were run 07-17-83. Seismic tests were conducted 10-22-83. Gravimeter log was run 11-19-83 and TV camera was run 11-20-83. The average curve on caliper log #15 run 01-05-84 indicated a slightly eroded zone below 194 mm (7-5/8") casing to 1547.2 m (5076') with maximum hole enlargement of 292 mm (11-1/2") at 1392.3 m (4568') and a uniform hole to log T.D. at 1801.4 m (5910'). Hydrologic tests were run between 01-05-84 and 01-17-84. 48 mm (1.9") open ended tubing was landed at 417.9 m (1371') and 48 mm (1.9") plugged bottom tubing was landed at 413.0 m (1355'), 01-17-84. Plugged bottom tubing was filled with water, 05-15-84. USGS fluid recorder was installed with downhole instrument at 365.8 m (1200'), 03-07-85. Fluid level was at 362.7 m (1190'), 03-07-85.



UE-25p #1
"AS BUILT" DRAWING
 NOT TO SCALE

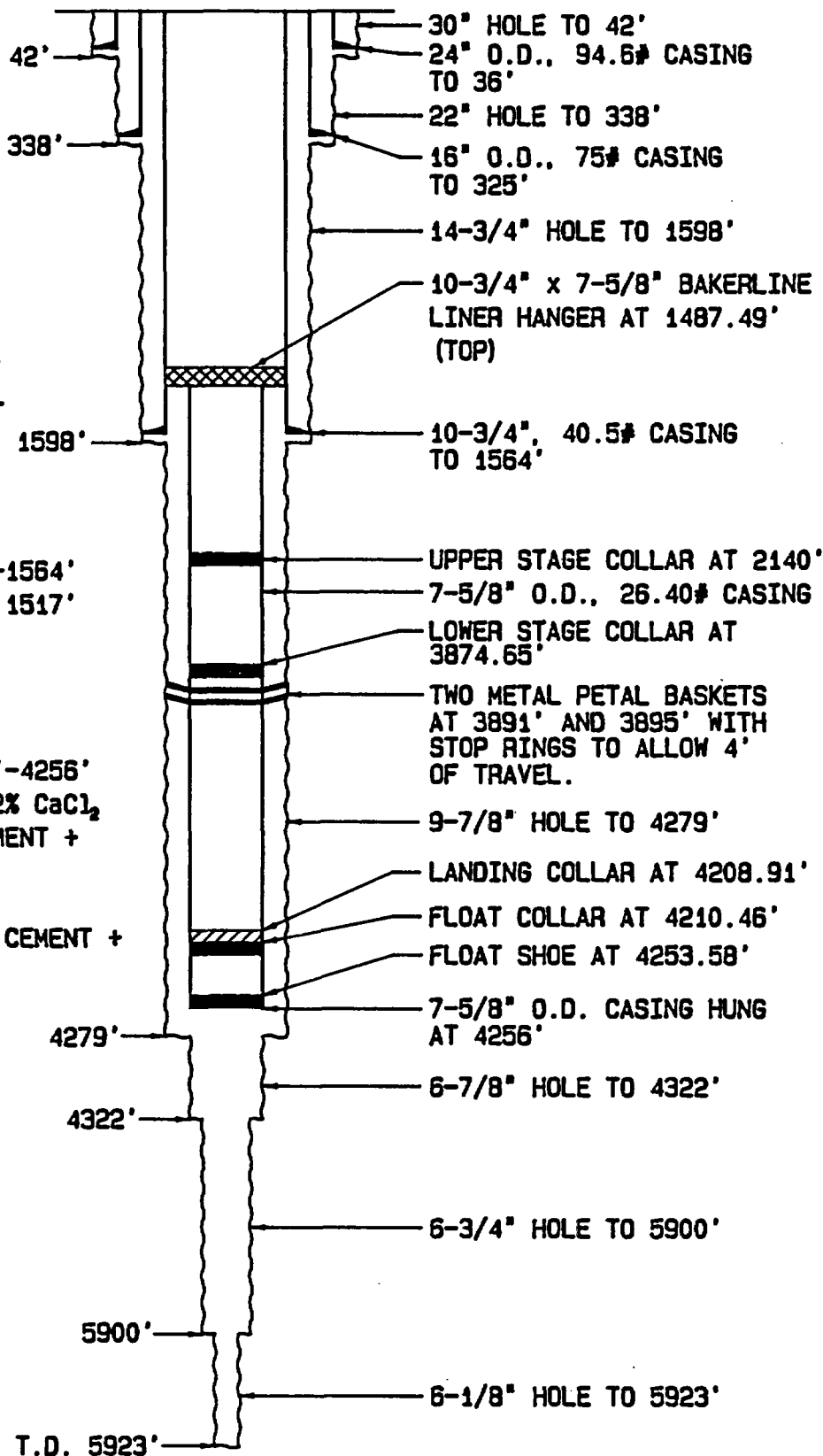
CEMENTING RECORD:

24" O.D. CASING 0'-36'
 3 STAGES NEAT CEMENT +
 2% CaCl_2
 USED 465 ft^3
 CALC. 74 ft^3

16" O.D. CASING 0'-325'
 10 STAGES NEAT CEMENT +
 2% CaCl_2 & LCM
 USED 1325 ft^3
 CALC. 767 ft^3

10-3/4" O.D. CASING 0'-1564'
 CEMENTED FROM 1564' TO 1517'
 NEAT CEMENT + 2% CaCl_2
 USED 125 ft^3
 CALC. 114 ft^3

7-5/8" O.D. LINER 1487'-4256'
 STAGE 1 NEAT CEMENT + 2% CaCl_2
 STAGE 2 & 3 CLASS A CEMENT +
 20% DIACEL D + 2% CaCl_2
 USED 1186 ft^3
 STAGE 4 (SQUEEZE) NEAT CEMENT +
 2% CaCl_2 (75 ft^3)
 TOTAL USED 1261 ft^3
 CALC. 595 ft^3



Appendix A

GEOPHYSICAL LOGS RUN IN DRILL HOLE

PAGE 1 of 8

HOLE: UE-25p#1

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED BTM LOG</u>	<u>INTERNAL TOP LOG</u>
Caliper	(1,3)	1	11/16/82	Birdwell	309'	6'
Caliper	(1,4)	2	11/18/82	Birdwell	319'	5'
Caliper	(1,5)	3	11/30/82	Birdwell	1,578'	272'
Caliper	(2,2)	4	12/3/82	Birdwell	1,569'	275'
Caliper	(2,4)	5	1/16/83	Birdwell	3,930'	1,498'
Caliper	(3,2)	6	1/22/83	Birdwell	3,966'	3,850'
Caliper	(3,3)	7	1/22/83	Birdwell	3,953'	3,688'
Caliper	(3,4)	8	1/24/83	Birdwell	1,584'	1,200'
Caliper	(3,5)	9	1/24/83	Birdwell	3,921'	1,206'
Caliper	(4,3)	10	2/22/83	Birdwell	3,915'	1,498'
Caliper	(5,1)	11	3/7/83	Birdwell	4,050'	3,876'
Caliper	(5,2)	12	3/8/83	Birdwell	4,246'	3,927'
Caliper	(5,3)	13	3/30/83	Birdwell	4,310'	4,190'
Caliper	(5,4)	14	5/2/83	Birdwell	5,912'	4,180'
Caliper	(6,1)	15	1/5/84	Birdwell	5,903'	4,200'
Caliper	(1,1)	1	2/11/82	U.S. Geological Surveys	3,935'	3,675'
Caliper	(6,3)	1	3/5/83	Dresser Atlas	3,932'	1,562'
Casing Collar Locator	(6,5)	1	2/19/83	Birdwell	1,574'	1,388'
Casing Collar Locator	(7,1)	2-3	3/1/83	Birdwell	2,388'	2,000'
Casing Collar Locator	(7,4)	4	3/11/83	Birdwell	1,851'	1,434'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

PAGE 2 of 8

HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED BTM LOG</u>	<u>INTERNAL TOP LOG</u>
Casing Collar Locator	(7,5)	5	3/13/83	Birdwell	2,102'	1,474'
Casing Collar Locator	(7,2)	6	3/30/83	Birdwell	4,315'	4,140'
Casing Collar Locator	(29,2)	7	6/23/83	Birdwell	5,912'	5,909'
Density-Borehole Compensated	(9,1)	1	11/16/82	Birdwell	315'	20'
Density-Borehole Compensated	(9,2)	2	11/30/82	Birdwell	1,581'	290'
Density-Borehole Compensated	(9,5)	3	3/8/83	Birdwell	4,213'	2,879'
Density-Borehole Compensated	(10,2)	4	3/9/83	Birdwell	4,253'	3,950'
Density-Borehole Compensated	(10,3)	5	5/3/83	Birdwell	5,917'	4,190'
Densilog- Gamma Ray (2")	(10,5)	1	1/18/83	Dresser Atlas	3,930'	1,582'
Densilog- Gamma Ray (5")	(11,1)	1	1/18/83	Dresser Atlas	3,930'	1,582'
Fluid Density for Water Location	(11,3)	1	11/17/82	Birdwell	317'	252'
Fluid Density for Water Location	(11,4)	2	11/30/82	Birdwell	1,282'	1,214'
Fluid Density for Water Location	(11,5)	3	12/1/82	Birdwell	1,309'	1,200'
Fluid Density for Water Location	(12,1)	4	1/17/83	Birdwell	1,280'	1,200'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

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HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED BTM LOG</u>	<u>INTERNAL TOP LOG</u>
Fluid Density for Water Location	(12,2)	5	1/27/83	Birdwell	1,319'	1,300'
Fluid Density for Water Location	(12,3)	6	2/18/83	Birdwell	1,300'	1,170'
Fluid Density for Water Location	(12,4)	7	3/9/83	Birdwell	1,280'	1,220'
Fluid Density for Water Location	(12,5)	8	3/14/83	Birdwell	3,100'	1,800'
Fluid Density for Water Location	(12,5)	9	3/14/83	Birdwell	1,500'	900'
Fluid Density for Water Location	(13,1)	10	3/15/83	Birdwell	1,310'	1,130'
Fluid Density for Water Location	(13,2)	11	3/28/83	Birdwell	300'	216'
Fluid Density for Water Location	(13,3)	12	3/31/83	Birdwell	110'	50'
Fluid Density for Water Location	(13,4)	13	5/4/83	Birdwell	1,220'	1,150'
Gamma Ray	(18,2)	1	12/1/82	Birdwell	1,580'	300'
Gamma Ray	(18,4)	2	1/17/83	Birdwell	3,927'	1,550'
Epithermal Neutron	(17,1)	1	12/1/82	Birdwell	1,583'	300'
Epithermal Neutron	(17,3)	2	1/17/83	Birdwell	3,924'	1,540'
Epithermal Neutron	(17,5)	3	5/3/83	Birdwell	5,918'	4,182'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

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HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED INTERNAL</u>	
					<u>BTM LOG</u>	<u>TOP LOG</u>
BHC Acoustic Fraclog-Gamma Ray (5")	(21,4)	1	5/3/83	Dresser Atlas	5,902'	4,257'
BHC Acoustic Fraclog-Gamma Ray (2")	(21,4)	2	3/9/83	Dresser Atlas	4,260'	4,000'
BHC Acoustic Fraclog Gamma Ray (5")	(19,4)	2	6/2/83	Dresser Atlas	5,902'	4,256'
BHC Acoustilog- Gamma Ray (2")	(20,1)	1	1/18/83	Dresser Atlas	3,922'	1,582'
BHC Acoustilog- Gamma Ray (5")	(20,2)	1	1/18/83	Dresser Atlas	3,922'	1,582'
BHC Acoustilog- Gamma Ray (5")	(21,3)	2	3/9/83	Dresser Atlas	4,261'	4,000'
BHC Acoustilog- Gamma Ray (2")	(21,2)	2	3/9/83	Dresser Atlas	4,261'	4,000'
BHC Acoustilog- Gamma Ray (2")	(20,4)	1	5/3/83	Dresser Atlas	5,910'	4,257'
BHC Acoustilog- Gamma Ray (5")	(20,5)	1	5/3/83	Dresser Atlas	5,910'	4,257'
BHC Acoustilog- Gamma Ray (5")	(22,1)	2	6/2/83	Dresser Atlas	5,902'	4,257'
Spectralog Gamma Ray (5")	(24,5)	1	1/18/83	Dresser Atlas	3,930'	0'
Spectralog Gamma Ray (2")	(25,4)	1	5/4/83	Dresser Atlas	5,917'	3,500'
Spectralog Gamma Ray (2")	(24,4)	1	1/18/83	Dresser Atlas	3,930'	0'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

PAGE 5 of 8

HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED INTERNAL</u>	
					<u>BTM LOG</u>	<u>TOP LOG</u>
Spectralog Gamma Ray (2")	(25,2)	2	3/8/83	Dresser Atlas	4,212'	2,900'
BHC Acoustic Fraclog Gamma Ray (5")	(19,1)	1	1/18/83	Dresser Atlas	3,922'	1,582'
Spectralog Gamma Ray (5")	(25,3)	2	3/8/83	Dresser Atlas	4,212'	2,900'
Spectralog Gamma Ray (5")	(25,5)	1	5/4/83	Dresser Atlas	5,917'	3,500'
Compensated Neutron (2")	(22,3)	1	1/18/83	Dresser Atlas	3,920'	1,582'
Compensated Neutron (5")	(22,4)	1	1/18/83	Dresser Atlas	3,920'	1,582'
Compensated Neutron (2")	(23,5)	1	5/3/83	Dresser Atlas	5,918'	4,000'
Compensated Neutron (5")	(24,1)	1	5/3/83	Dresser Atlas	5,918'	4,000'
Compensated Neutron (2")	(23,1)	2	3/8/83	Dresser Atlas	4,212'	2,900'
Compensated Neutron (5")	(23,2)	2	3/8/83	Dresser Atlas	4,212'	2,900'
Compensated Neutron (2")	(23,3)	3	3/9/83	Dresser Atlas	4,260'	4,000'
Compensated Neutron (5")	(23,4)	3	3/9/83	Dresser Atlas	4,260'	4,000'
Acoustic Fraclog w/Compensation	(24,3)	1	3/18/83	Dresser Atlas	4,257'	3,900'
Induction	(13,5)	1	11/17/82	Birdwell	311'	29'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

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HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED INTERNAL BTM LOG TOP LOG</u>
Induction Electric	(14,1)	2	11/30/82	Birdwell	1,577' 326'
Dual Induction Focused Log (2")	(14,3)	1	1/18/83	Dresser Atlas	3,930' 1,582'
Dual Induction Focused Log (5")	(14,4)	1	1/18/83	Dresser Atlas	3,930' 1,582'
Dual Induction Focused Log (2")	(14,5)	2	3/9/83	Dresser Atlas	4,262' 4,000'
Dual Induction Focused Log (5")	(14,5)	2	3/9/83	Dresser Atlas	4,262' 4,000'
Dual Induction Focused Log (5")	(15,1)	1	5/3/83	Dresser Atlas	5,917' 4,257'
Dual Induction (2")	(15,1)	1	5/3/83	Dresser Atlas	5,917' 4,257'
Electric	(15,5)	1	6/23/83	Birdwell	5,908' 4,226'
Dielectric	(15,3)	1	5/4/83	Dresser Atlas	5,914' 4,256'
Magnetometer	(26,3)	1	11/30/82	Birdwell	1,578' 330'
Magnetometer	(26,4)	2	1/17/83	Birdwell	2,860' 1,590'
Total Magnetic Intensity	(26,2)	1	11/16/82	Lawrence Livermore National Laboratory	315' 43'
Total Magnetic Intensity	(26,3)	1	11/30/82	Lawrence Livermore National Laboratory	1,579' 330'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

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HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED BTM LOG</u>	<u>INTERNAL TOP LOG</u>
3-D Magnetometer	(26,5)	3-A,B,C	3/9/83	Lawrence Livermore National Laboratory	4,250'	3,992'
Nuclear Annulus Investigation	(27,1)	1	11/18/82	Birdwell	326'	290'
Nuclear Annulus Investigation	(27,2)	2	3/11/82	Birdwell	1,860'	1,450'
Nuclear Cement Top Locator	(7,3)	1	2/22/83	Birdwell	1,702'	1,352'
Nuclear Cement Top Locator	(7,4)	2	3/11/83	Birdwell	1,861'	1,444'
Nuclear Cement Top Locator	(7,5)	3	3/13/83	Birdwell	2,113'	1,448'
Nuclear Cement Top Locator	(7,5)	4	3/13/83	Birdwell	2,113	1,470'
Nuclear Cement Top Locator	(8,1)	5	3/14/83	Birdwell	4,242'	1,402'
Acoustic Cement Bond/Variable Density Log/ Gamma Ray (5")	(8,3)	1	5/3/83	Dresser Atlas	4,260'	1,190'
Spinner Survey	(27,4)	1	3/16/83	Birdwell	4,240'	1,144'
Temperature	(27,5)	1	12/1/82	Birdwell	1,582'	0'
Temperature	(28,1)	2	1/17/83	Birdwell	3,930'	50'
Temperature	(28,3)	3	3/9/83	Birdwell	4,254'	3,950'
Temperature	(28,4)	4	5/4/83	Birdwell	5,913'	5'
Temperature	(29,2)	5	6/23/83	Birdwell	5,912'	4'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

PAGE 8 of 8

HOLE: UE-25p#1 (continued)

PRETERTIARY TEST HOLE

<u>LOG TYPE</u>	<u>MICROFICHE (sheet,row)</u>	<u>RUN NO.</u>	<u>LOG DATE</u>	<u>LOGGING COMPANY</u>	<u>LOGGED BTM LOG</u>	<u>INTERNAL TOP LOG</u>
Temperature- Tracer	(29,5)	1	2/8/83	Gearhart	3,926'	1,000'
Temperature- Tracer	(30,5)	2	2/18/83	Gearhart	3,916'	1,150'
Temperature- Tracer	(34,5)	1	5/5/83	Production Logging Services, Inc.	5,913'	800'
Temperature- Tracer	(31,3)	2	5/11/83	Production Logging Services, Inc.	5,914'	900'
3-D/Velocity (6')	(32,3)	1	12/1/82	Birdwell	1,580'	1,249'
3-D/Velocity (3')	(32,3)	2	12/1/82	Birdwell	1,577'	1,247'
3-D/Velocity (6')	(32,4)	3	3/14/83	Birdwell	4,249'	3,612'
3-D/Velocity (6')	(32,4)	4	3/15/83	Birdwell	3,625'	1,100'
Geophone Survey (VSP)	(33,1)	1	11/17/82	Birdwell	300'	100'
Geophone Survey (VSP)	(33,2)	2	12/1/82	Birdwell	1,570'	278'
Geophone Survey (VSP)	(33,4)	3	1/16/83	Birdwell	3,925'	1,575'
Geophone Survey (VSP)	(34,2)	4	3/9/83	Birdwell	4,225'	4,000'
Geophone Survey (VSP)	(34,3)	5	5/4/83	Birdwell	5,900'	4,275'

VIDEO TAPES RUN IN DRILL HOLE

<u>Hole</u>	<u>Run #</u>	<u>From</u>	<u>To</u>
UE-25p #1	1	0'	751'
	2	751'	1257'
	1	1250'	1686'
	2	1686'	2445'
	3	2445'	3370'
	4	3370'	3932'
	1	4257'	4676'
	2	4676'	5119'
	3	5119'	5725'
	4	5725'	0'
	1	4240'	4988'
	2	4988'	5888'
	3	3000'	0'

Item Description:	NNWSI HOLE HISTORY UE-25p #1 November 1986	
Availability:	<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
Sensitivity:	<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Non-Sensitive—Copyright <input type="checkbox"/> Sensitive <input type="checkbox"/> Sensitive—Copyright	
Electronic Media Type: (If applicable)	Microfiche	
Contact:	US Nuclear Regulatory Commission Office of Nuclear Materials Safety and Safeguards Yucca Mountain Project Manager	
Storage/File Location:	US Nuclear Regulatory Commission Office of Nuclear Materials Safety and Safeguards Two White Flint North Room T7- E34 11545 Rockville Pike Rockville, Maryland 20852-2738	