

**NNWSI  
HOLE HISTORIES**

**UE-29a #1  
UE-29a #2**

**BY  
FENIX & SCISSON, INC.**

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

**NOVEMBER, 1986**

HYDROLOGY DOCUMENT NUMBER 279

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**NNWSI  
HOLE HISTORIES**

**UE-29a #1  
UE-29a #2**

**by**

**Reports and CEP Section**

**Abstract**

**This report is a compilation of data from two hydrologic exploratory core holes drilled to help identify the area geology and hydrology. The two bore holes were drilled between September, 1981 and January, 1982 under the guidance of the U. S. Geological Survey in Area 29, Nevada Test Site. Data presented in the hole histories include all locations, daily activities, coring records, review of hole conditions, and geophysical log lists, and microfiche copies of the geophysical logs run by the Fenix & Scisson, Inc. subcontractor.**

**FENIX & SCISSON, INC.  
HOLE HISTORY DATA  
NNWSI**

Approved: Jerry Nell Covington  
Date: Nov 10, 1986

Hole No.: UE-29a #1	Type Hole: Hydrologic Test Hole
User: USGS	Area: 29
Location: NTS	County: Nye
Surface Coordinates: N 797,729.01' E 585,574.86'	Site Prep. W.O. #:
Ground Elev.: 3986.7'	W.O. #: 3404-132
Bottom Hole Coord: @	Top Casing Elev.: 3984.4'
Rig On Location:	Ref:
Circulating Media: Air Foam and Lithium Chloride	Spudded: 09-25-81
Main Rig & Contractor: Ideco 525 - REECO	Completed: 10-06-81
No. Of Compressors & Capacity:	

Bore Hole Record			Casing Record					
From	To	Size	I.D.	Wt/Ft.	Wall	From	To	Ft <sup>3</sup> Cement
0'	38'	36"	30"		1/4"	0'	35'	216
38'	215'	26"						

Total Depth: 215' Plugs:  
Junk: 13-3/8" skirt, 28" O.D. wall hook, 7-3/4" x 30' drill collar. \*

Logging Data:

Rigs Used						
Rig No.	Name	Class	Days Operating	Sec. W/Crew	Sec. W/O Crew	Total Days On Location
85124	Ideco 525	II	14.25			14.25

Remarks: \* 26" flange-type bit

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UE-29a #1  
HOLE HISTORY

- 09-22-81 Moved in Ideco #525, rig #85124 and started rigging up.
- 09-23-81 Continued rigging up.
- 09-24-81 Continued rigging up. Drilled mouse and rat holes. Lost bit in rat hole, tried to screw back on.
- 09-25-81 Fished for 15" bit in rat hole. Washed hole to fish at 20'. Sidetracked around fish and drilled 15" rat hole to 39' with Dyna-Drill. Made up 36" bit and drilled 36" hole from 0' to 26' using conventional circulation with air foam.
- 09-26-81 Drilled 36" hole from 26' to 38'. Dewatered hole from 1100 hours to 1400 hours. Laid down tools. Ran 1 joint of 30" I.D., 1/4" wall casing and set at 35.12'. Stemmed inside the casing with sand. Cemented the annulus to surface using REECO Redi-Mix truck with 216 ft<sup>3</sup> of grout + 2% CaCl<sub>2</sub>. CIP at 1630 hours. Calculated annular volume was 37 ft<sup>3</sup>.
- 09-27-81 Rigged up and cleaned out sand and cement to 38'. Drilled 26" hole from 38' to 58' with conventional circulation using air foam and lithium chloride.
- 09-28-81 Drilled 26" hole from 58' to 155'.
- 09-29-81 Drilled 26" hole from 155' to 215'. Conditioned hole at 212', cleaned out 3' of fill. Hole continued to slough, cleaned out 5' of fill. Made trip out, tight hole. Changed to 12-1/4" bit and Dyna-Drill and cleaned out mouse hole. Laid down tools.
- 09-30-81 Made up 26" bit with flange and made trip in. Circulated hole and checked tools. Made trip out, lost drill collar, crossover sub, flange and bit. Made trip in open-ended, attempted to screw into drill collar. Made trip out, no recovery. Made up fishing tools. Made trip with yellow overshot, 7-3/4" grapple and 22" skirt, too small. Made up blue overshot with 8" grapple and 15" skirt.
- 10-01-81 Made trip in hole with 8" grapple on overshot. Made trip out, no recovery. Made trip with overshot, 7-3/4" grapple and 22" skirt, unable to get over fish. Made trip with 6-5/8" drill pipe open-ended, attempted to unload hole. Made trip with 12-1/4" bit and cleaned out fill from 115' to 150'. Made trip with 7-7/8" grapple with 25" skirt on overshot, unable to latch onto fish.
- 10-02-81 Made trip for 24" guide shoe built up to 27", no recovery. Made trip with 12-1/4" bit and cleaned out fill from 111.38' to 130.38'. Conditioned hole and made trip out.
- 10-03-81 Made trip with fabricated 13-3/8" wall hook and overshot, no recovery. Hole sloughed below 70'. Made trip in with 26" bit to clean out hole.

UE-29a #1  
Hole History  
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- 10-04-81      Cleaned out 26" hole from 70' to 109', conditioned hole and made trip for 12-1/4" bit. Cleaned hole from 109' to 139' and conditioned hole. Made trip for 24" wall hook, no recovery. Made trip for diaphragm pump on 2-3/8" tubing. Pumped out fluid from 87' to 119'.
- 10-05-81      Pumped out fluid to 0300 hours. Made trip for 24" wall hook built up to 28" diameter. Attempted to fish for drill collar at 109'. Left 13-3/8" skirt and wall hook in the hole. Made trip with diaphragm pump on 2-3/8" tubing and pumped out fluid. 13-3/8" O.D. skirt, 28" O.D. wall hook, 7-3/4" O.D. x 30' drill collar and 26" flange type bit were left in hole. Laid down pump and started rigging down to skid rig.
- 10-06-81      Moved out rig. Hole abandoned 10-6-81.
- 12-02-81      Ran diaphragm pump on 2-3/8" tubing in hole to 113' with 10' of 3" suction hose below the pump. Ran 2-1/4" AX casing monitor line to 110'. Started pumping out water.
- 12-03-81      Operation secured to 1600 hours. Continued running pump down test.
- 12-04-81      Continued running pump down test.
- 12-06-81      Completed running pump down test to 2300 hours.

UE-29a #1  
REVIEW OF HOLE CONDITIONS

762 mm (30") casing was set at 10.7 m (35') in a 914 mm (36") hole drilled to 11.6 m (38'). The annulus was cemented to surface with 6.12 m<sup>3</sup> (216 ft<sup>3</sup>) of cement slurry. Calculated annular volume was 1.05 m<sup>3</sup> (37 ft<sup>3</sup>). 660 mm (26") hole was drilled to 65.5 m (215') with conventional drilling using air foam and lithium chloride. Drill pipe parted at top of first drill collar. After several attempts to fish out junk and due to hole sloughing badly, the hole was abandoned 10-6-81. One 197 mm (7-3/4") drill collar, 2 crossover subs, 660 mm (26") flange type bit [total 11.2 m (36.67')], 0.8 m (2.5') of 340 mm (13-3/8") skirt and 711 mm (28") O.D. wall hook were left in the hole below 33.5 m (110'). Hydrologic pump down test was run between 12-2-81 and 12-6-81.

**FENIX & SCISSON, INC.  
HOLE HISTORY DATA  
NNWSI**

Approved: Jerry Full Covington  
Date: Nov 10, 1986

Hole No.: UE-29a #2	Type Hole: Hydrologic Test Hole
User: USGS	Area: 29
Location: NTS	County: Nye
Surface Coordinates: N 797,744.95'	E 585,546.92'
Ground Elev.: 3987.4'	Pad Elev.:
Bottom Hole Coord:	@
Rig On Location:	Spudded: 10-06-81
Circulating Media: Polymer - Air Foam	Completed: 12-03-81
Main Rig & Contractor: Ideco 525 - REECO	
No. Of Compressors & Capacity:	

Bore Hole Record			Casing Record					
From	To	Size	I.D.	Wt/Ft.	Wall	From	To	Ft <sup>3</sup> Cement
0'	40'	36"	30"		1/4"	0'	39'	200
40'	160'	26"	20"		1/4"	0'	160'	760
160'	295'	18-1/2"	16"		1/2"	0'	284'	260
295'	814'	14-3/4"	10.05"	40.50#		0'	811'	
814'	1165'	15"	(Underreamed)					
1165'	1383'	9-7/8"	1.6" tubing (O.D.)			0'	1172'	

Total Depth: 1383' Plugs:  
Junk:  
Logging Data: Caliper (5), Free point, Collar locator, Nuclear cement top locator, Fluid density (5), Density, Epithermal neutron, Gamma ray, Nuclear annular investigation, Temperature, Electric (2), Magnetometer (2). \*

Rigs Used						
Rig No.	Name	Class	Days Operating	Sec. W/Crew	Sec. W/O Crew	Total Days On Location
85124	Ideco 525	II	50.63	0.04	8.33	59.00
85172	Joy #1	VIII	19.67		10.00	29.67

Remarks: \* 3-D velocity (2), Vibroseis

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**UE-29a #2**  
**HOLE HISTORY**

10-06-81 Moved Ideco #525, rig #85124, 25' west and 15' north of UE-29a #1 and started rigging up.

10-07-81 Rigged up. Drilled 36" hole from 0' to 24'. Cleaned out 10' fill and drilled 36" hole from 24' to 40'. Circulated hole 15 minutes, 10' of fill in hole. Conditioned hole.

10-08-81 Circulated hole with 100 viscosity polymer. Made trip out of hole and laid down tools. Ran and set 1 joint of 30" I.D., 1/4" wall casing at 39'. Blew fluid out of hole. Ran 2-3/8" Hydril tubing to 40'. Cemented the annulus using National Cementers as follows:

<u>State No.</u>	<u>Interval</u>	<u>Cement Used Ft<sup>3</sup></u>	<u>Calc. Ft<sup>3</sup></u>	<u>CIP</u>
1	39' - 33.44'	50 neat cement + 2% CaCl <sub>2</sub>	11	0630 Hrs.
2	33.44' - 0'	<u>150</u> "	<u>67</u>	1130 Hrs.
TOTALS		200 Ft <sup>3</sup>	78 Ft <sup>3</sup>	

Made up 26" flange type bit. Made trip in and drilled out cement to 40'. Drilled 26" hole from 40' to 49' with conventional circulation using polymer.

10-09-81 Drilled 26" hole from 49' to 117', hole sloughing from 107' to 117'. Cleaned out 5' of fill. Made trip for bit check. Cleaned out 9' of fill, circulated hole. Drilled hole from 117' to 150'. Cleaned out 11' of fill, circulated hole.

10-10-81 Conditioned hole with 60 viscosity polymer. Cleaned out 16' of fill. Drilled 26" hole from 150' to 160'. Circulated and conditioned hole with 100 viscosity polymer. Made trip out, laid down tools. Welded and ran 3 joints of 20" I.D., 1/4" wall casing along with a slotted 2-3/8" Hydril grout line guide welded on the outside. Hit bridge at 80'. Made trip out. Picked up 26" bit.

10-11-81 Made trip in, cleaned out bridge at 80' and 24' of fill. Conditioned hole with 100 viscosity polymer. Pulled up, cleaned out fill and conditioned hole. Made trip out. Attempted to run 20" casing in hole, hit bridge at 120'. Made trip inside the casing with 18-1/2" bit, cleaned out 5' fill. Lowered and set 20" casing at 160'. Made trip out and laid down tools. Centered and welded 20" casing to 30" casing.

10-12-81 Ran 1.6" Hydril tubing inside grout line guide. Cemented 20" casing inside 30" casing using National Cementers as follows:

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Hole History  
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10-12-81 (Cont.)	State No.	Interval	Cement Used Ft <sup>3</sup>	Calc. Ft <sup>3</sup>	CIP
	1	160' - 153'	40 neat cement 2% CaCl <sub>2</sub>	10	0200 Hrs.
	2	153' - 128'	120 "	35	1030 Hrs.
	3	128' -	550 "		1600 Hrs.
	4	- 0'	50 "	226	1745 Hrs.
	TOTALS		760 Ft <sup>3</sup>	271 Ft <sup>3</sup>	

Made trip in with 18-1/2" bit and drilled out cement from 154' to 160'. Drilled 18-1/2" hole from 160' to 165'. Conditioned hole. Made trip out.

10-13-81 Ran and set 9-5/8" O.D., 36# casing at 165'. Made trip in and cut 6-1/8" core #1 from 165' to 174', core jammed. Made trip to rig up to core using air foam. Cleaned out 7' fill and cut 6-1/8" core #2 from 174' to 182' with conventional circulation using air foam.

10-14-81 Made trip for core #2. Cut 6-1/8" core #3 from 182' to 196'. Made trip out and pulled 9-5/8" casing. Filled hole to 166' with polymer mud. Opened 6-1/8" hole to 18-1/2" from 165' to 196', drilled hole to 241' and conditioned hole.

10-15-81 Cleaned out 9' fill and reamed hole from 197' to 241', hole continued sloughing. Made trip and drilled 18-1/2" hole from 241' to 295'. Conditioned hole and made trip out. Started in the hole with welded 16" O.D. casing along with a 1.6" grout line welded on the outside.

10-16-81 Casing stopped at 168'. Tagged fill at 268' with sand line. Pulled out 16" casing. Made trip in with 18-1/2" bit and cleaned out fill from 260' to bottom. Conditioned hole, pulled up and checked 21' fill. Made trip for two 17-1/2" reamers. Reamed hole from 160' to 295'. Pulled up and checked 16' fill.

10-17-81 Cleaned out fill and conditioned hole at 295'. Made trip out. Removed grout line welded on outside and belled portion on bottom of 16" casing. Rewelded and worked 16" I.D., 1/2" wall casing down the hole circulating the hole with 14-3/4" bit. Dropped casing down the hole, bottom at 295' with top at 6' below surface. Pulled out drill pipe and bit.

10-18-81 Rigged up and attempted to pull casing, no success. Made trip in with 12-1/4" bit and circulated hole. Worked casing to 60,000# above string wt. and pulled casing up to 3' above surface with bottom at 284'. Made trip out with 12-1/4" bit. Centered and welded 16" casing to the 20" casing. Made trip with 14-3/4" bit. Cleaned out 12' fill and circulated hole between the 16" and 20" casing. Cemented the annulus to surface using National Cementers

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Hole History  
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- 10-18-81 (Cont.) with 200 ft<sup>3</sup> of neat cement + 2% CaCl<sub>2</sub>. CIP at 2200 hours. Topped off at surface with 60 ft<sup>3</sup> of neat + 2% CaCl<sub>2</sub>. CIP at 2400 hours. Calculated annular volume was 159 ft<sup>3</sup>.
- 10-19-81 Installed rotating head. Made trip in with 14-3/4" bit on 6-5/8" drill pipe. Cleaned out cement and hole from 245' to 295'. Drilled 14-3/4" hole from 295' to 300' with conventional circulation using air foam. Made trip out.
- 10-20-81 Laid down stabilizer and made trip in. Cleaned out 5' fill and drilled 14-3/4" hole from 300' to 334'. Made trip for 14-3/4" stabilizers. Drilled 14-3/4" hole from 334' to 590'.
- 10-21-81 Drilled 14-3/4" hole from 590' to 682'. Hole had 12' to 20' fill after connections. Circulated hole and made trip for core bit and barrel. Cleaned out 12' fill and circulated hole.
- 10-22-81 Cut 6-1/4" core #4 from 682' to 696'. Made trip for 14-3/4" bit. Attempted to run fluid probe at 500', no reading. Cleaned out fill from 662' to 682'. Opened 6-1/4" hole to 14-3/4" from 682' to 696'. Dewatered hole at 1500 hours. Worked stuck pipe and made trip out. Made second attempt to run USGS fluid probe, no reading. Made trip in to bridge at 633'. Dewatered hole and attempted to make trip out. Fill above bit, pulled 100,000# 30' to free tools. Ran Birdwell fluid density log to fluid at 122'. Waited 30 minutes and ran fluid density log to fluid at 112'.
- 10-23-81 Changed bit and made trip in to bridge at 574'. Cleaned out bridge and fill from 636' to 692', hole continued sloughing. Drilled 14-3/4" hole from 692' to 800'. Had 7' to 9' fill after each connection.
- 10-24-81 Drilled 14-3/4" hole from 800' to 814'. Made trip out and repaired weight indicator from 0230 hours to 1100 hours. Made trip in to bridge at 495'. Washed and reamed hole from 495' to 681', hole fell in. Worked stuck tools up to 648.75'.
- 10-25-81 Worked stuck tools with occasional returns, no movement. Ran 2-3/8" tubing down the annulus to fill at 280'. Unloaded upper annulus using air. Worked on equipment from 1700 hours.
- 10-26-81 Repaired rig equipment to 1400 hours. Ran 2-3/8" tubing down the annulus to fill at 503'. Attempted to unload the annulus. Made trip to unplug tubing. Pumped down the tubing at 503' and down the 6-5/8" drill pipe with bit at 631.77' using air foam, no movement with pull up to 330,000#.
- 10-27-81 Repaired weight indicator to 0330 hours. Worked stuck pipe up 7' with partial returns. Attempted to run Birdwell free point locator, equipment failure. Worked on equipment from 1600 hours.

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- 10-28-81 Worked stuck pipe with up to 330,000# pull to 1500 hours, moved drill pipe 7-1/2". Ran Birdwell NAIL and collar locator log to 620' T.D. Ran free point locator, pipe not free at 600'. Shot string shot at 579', no success.
- 10-29-81 Attempted to back off drill pipe with string shot #2 and #3 (8' of 800 grain primacord) at 552', no success. Backed off drill pipe with string shot #4 (8' of 800 grain primacord) at 455'. Laid down drill pipe. Made up tools, made trip in and jarred on fish. Screwed into fish at 465.28' and jarred free. Unloaded hole. Made trip out with fish. Laid down tools. Ran Birdwell caliper log, tool stopped at 513'. Ran electric log to 512'.
- 10-30-81 Ran LLNL magnetometer log to 513', Birdwell gamma ray log to 514', temperature log to 513', vibroseis survey on 25' stations to 475' and formation density log to 450'. Rigged up to drill with 8-5/8" x 5" dual string.
- 10-31-81 Worked on drilling assembly and rig equipment.
- 11-01-81 Rigged up and made trip in with 14-3/4" bit on 8-5/8" x 5" dual string drill pipe. Cleaned out fill from 513' to 535', hole kept sloughing in and sticking tools. Started out of hole laying down dual string drill pipe.
- 11-02-81 Laid down drill pipe and drilling assembly. Rigged up, ran and set 10-3/4" O.D., 40.50# casing at 506.26'. Made up 9-7/8" drilling assembly.
- 11-03-81 Waited on drilling equipment. Made trip with 8-3/4" bit on 4-1/2" drill pipe to fill at 520'. Installed rotating head. Made trip in with 8-3/4" bit on 4-1/2" drill pipe to fill at 520'. Stripped 1 joint of 10-3/4" casing over kelly. Casing stopped at 518' with bit at 532'.
- 11-04-81 Attempted to wash 10-3/4" casing down hole, no success. Pulled casing up to 506' and removed top joint. Made trip out with 8-3/4" bit. Welded well head and flange on the 16" casing. Made trip in with 9-7/8" bit and jars on 4-1/2" drill pipe to fill at 512'. Cleaned out fill to 547' using air foam.
- 11-05-81 Cleaned out fill from 547' to 557'. Reamed tight hole from 526' to 557' several times, hole kept sloughing in. Pulled up then checked hole, fill at 530'. Made trip out. Pumped 10-3/4" casing to 527', casing stopped. Pulled casing up to 506'. Made trip in with 9-7/8" bit, cleaned out fill from 495' to 557', conditioned hole and made trip out. Circulated casing to 527'.
- 11-06-81 Worked 10-3/4" casing from 527' to 580'.

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- 11-07-81 Made trip in with 9-7/8" bit and cleaned out fill from 536' to 691'. Pulled up and checked bridge at 660'. Cleaned out bridge, conditioned hole and made trip out. Lowered 10-3/4" casing to 650' and started rotating casing down.
- 11-08-81 Rotated casing to 656.97'. Made trip in with 9-7/8" bit and cleaned out fill from 653' to 773'. Conditioned hole and made trip out. Lowered casing to 740.86'. Made trip and cleaned out hole to 814', junk on bottom.
- 11-09-81 Washed 10-3/4" casing to 811.50', unable to get deeper. Welded the casing to the 16" casing. Rigged up and made trip in with Globe junk basket. Cleaned out fill from 800' to 814'.
- 11-10-81 Made trip out and recovered 4" core but no junk. Made trip in with core barrel and bit, conditioned hole. Cut 6-1/8" core #5 from 812' to 821'.
- 11-12-81 Rig secured from 11-10-81 to 0800 hours, 11-12-81. Made trip in with 9-7/8" bit on 4-1/2" drill pipe and cleaned out fill to 814'. Opened 6-1/8" hole to 9-7/8" from 814' to 821'. Drilled 9-7/8" hole from 821' to 930'.
- 11-13-81 Drilled 9-7/8" hole from 930' to 1383' with and without air foam. Hole was sloughing below 1376'. Had poor returns between 1360' and 1376'.
- 11-14-81 Made trip out. Ran Birdwell caliper log to fill at 1195'. Made trip and cleaned out fill from 1106' to 1383'. Ran caliper log to 1182' T.D.
- 11-15-81 Made up 15" underreamer on 4-1/2" drill pipe. Made trip in and opened 9-7/8" hole to 15" from 811.5' to 867' using air foam. Made trip for cutter change at 847'.
- 11-16-81 Made trip for cutter change. Opened 9-7/8" hole from 867' to 877'. Made trip for 9-7/8" bit and cleaned out fill from 1080' to 1200', unable to clean out fill due to hole sloughing in. Made trip out. Ran Birdwell caliper log to 1196' T.D. Ran fluid density log, checked fluid level at 146'.
- 11-17-81 Ran electric log to 1193', density borehole compensated log to 1192', Simplex televiewer to 1150', magnetometer log to 1186', gamma ray-epithermal neutron log to 1160' and 3-D velocity logs to 1135'.
- 11-18-81 Ran vibroseis survey on 25' stations. Ran fluid density log, checked fluid at 108' at 0230 hours. Ran USGS fluid probe, checked fluid level at 110.5' at 1130 hours. Made trip in with 9-7/8"

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- 11-18-81 button bit and 15" underreamer. Underreamed undergauge hole to 15" (Cont.) from 811.5' to 870'.
- 11-19-81 Underreamed undergauge hole to 15" from 870' to 877' and 9-7/8" hole to 15" to 994'. Made trip for cutter change at 934'.
- 11-20-81 Underreamed 9-7/8" hole to 15" from 994' to 1111'. Made trip for cutter change at 1019'.
- 11-21-81 Underreamed 9-7/8" hole to 15" from 1111' to 1165'. No under-reaming necessary from 1159' to 1165'. Made trip out and laid down tools. Ran Birdwell caliper log to 1169' T.D. Rigged up to lower 10-3/4" casing. Pressured up to 300 psi and started working stuck casing. 10-3/4" casing came up the hole and top landed in the derrick.
- 11-22-81 Top of 10-3/4" casing landed approximately 25' below stabbing board bending 2 girts on back side of derrick. Waited on safety inspection.
- 11-23-81 Waited on rig safety inspection to 1630 hours. Cut off 10-3/4" casing at surface, laid down and welded on cover. Cut off rat and mouse hole pipe at surface and welded on covers. Started rigging down for rig repair.
- 11-24-81 Continued rigging down and moved in a crane. Crew on standby from 1600 hours due to high wind.
- 11-25-81 Crew on standby to 0800 hours. Attempted to lower derrick. Continued rigging down. Ran Birdwell fluid density and NCTL logs to 1168' T.D., checked fluid level at 180'. Secured rig at 2400 hours.
- 11-28-81 Rig secured from 11-25-81 to 0800 hours, 11-28-81. Ran Birdwell caliper log to 1165' T.D. and collar log to 820'. Secured rig at 1600 hours.
- 12-01-81 Rig secured from 11-28-81 to 0800 hours, 12-1-81. Rigged up to lower derrick using a 90 ton crane. Started moving out equipment.
- 12-02-81 Rig secured to 0800 hours. Continued rigging down. Secured rig at 2400 hours.
- 12-03-81 Rig secured to 0800 hours. Laid down derrick. Attempted to pull 10-3/4" casing up to 18,000# using 90 ton crane, no movement. Moved out rig and equipment. Hole completed 12-3-81.
- 12-21-81 Moved in Joy #1, rig #85172, and rigged up. Made trip in with a 9-7/8" taper reamer and smoothed out 10-3/4" casing from 186.35' to 188.35'.

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- 12-22-81 Smoothed 10-3/4" casing from 188.35' to 190.35'. Ran in hole to 800' with 2-3/8" drill pipe. Made trip out and laid down. Rigged up pump on 5-1/2", 8rd. casing with 2-3/8" Hydril monitor line and started trip in.
- 12-23-81 Set pump at 340.49' and started pumping water from the hole at 650 gpm for USGS tests. Lowered pump from 340.49' to 733' and continued pumping water from hole from 2000 hours to 2400 hours.
- 12-24-81 Continued hydrologic tests. Secured rig at 1600 hours.
- 01-04-82 Rig secured from 12-24-81 to 0800 hours, 01-04-82. Repaired and tested Centrilt pump. Waited on orders and cleaned up location.
- 01-05-82 Waited on orders to 1500 hours. Rigged up and started running hydrologic test.
- 01-06-82 Continued running hydrologic test.
- 01-07-82 Continued running hydrologic test.
- 01-08-82 Ran Gearhart-Owens trace ejector survey. Ran hydrologic test.
- 01-09-82 Continued running hydrologic test.
- 01-10-82 Ran hydrologic test to 1000 hours. Made trip out and laid down Centrilt pump. Perforated the 10-3/4" casing using Birdwell with 1 hole per foot from 700' to 474'.
- 01-11-82 Perforated the 10-3/4" casing with 1 hole per foot from 474' to 285'. Spot dumped 30# of sodium bromide at 811' using Birdwell dump bailer. Ran and set 7-5/8" O.D. Lynes packer with center of packing element at 805'.
- 01-12-82 Made up Centrilt pump on 5-1/2" casing. Made trip in with pump along with monitor line. Set pump at 774.31' with intake at 732.31' and monitor line at 723.25'. Started hydrologic pump test at 2100 hours.
- 01-13-82 Continued hydrologic pump test.
- 01-14-82 Continued hydrologic pump down test. Started running Gearhart-Owens trace ejector. Ran temperature and gamma ray logs.
- 01-15-82 Ran hydrologic pump down test. Ran trace ejector test from 1400 hours to 2030 hours.
- 01-16-82 Continued running hydrologic pump down test.
- 01-17-82 Continued running hydrologic pump down test.

UE-29a #2  
Hole History  
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- 01-18-82 Ran hydrologic pump down test to 1000 hours. Pulled 5-1/2" casing, Centrilift pump and monitor line. Made trip with 2-7/8" tubing and retrieved Lynes packer. Started running USGS logs as directed.
- 01-19-82 Completed running logs. Ran and hung 1.6" tubing at 1171.64'. Started rigging down.
- 01-20-82 Rigged down and moved out.
- 12-08-82 Attempted to run Gearhart temperature log from Birdwell mast truck down 1.6" Hydril tubing, O.D. of tool too large, no log.

UE-29a #2  
MUD REPORT  
 0600 hrs. to 0600 hrs.

(Drilling Specialists Time Log)

<u>DATE</u> 0600/0600	<u>HOLE</u> Depth Size	<u>REMARKS</u>	<u>WATER</u> Barrels	<u>SOAP</u> Gallons	<u>WFR II</u> Gallons	<u>OTHER</u>
10-08-81	40' 36"	30", 1/4" w. csg. & 39' 50 ft <sub>3</sub> neat +2	2,140		210	
09	69' 26"	150 ft <sub>3</sub> neat + 2				
10	150' 26"	Hole sloughing				
11	160' 26"	Hole sloughing				
12		Attempt to run csg. Worked 20" csg. to 160' 40 ft <sub>3</sub>	400		265	90 Vis.
13	165' 18-1/2"	720 ft <sub>3</sub> (4 stages) 9-5/8" csg. @ 165'				
14	190' 6-1/8"	Core				
15	196' 6-1/8"	Core - Pull 9-5/8" csg.			165	FL @ 166'
	241' 18-1/2"	Attempt to run 16" csg.				
16	295' 18-1/2"	Attempt 16" csg.				
17		Clean sloughing hole				
18		Drop 16" csg. Fish				
19		16" csg set @ 284' 260 ft <sub>3</sub>				
20	334' 14-3/4"					
21	620' 14-3/4"	Hole sloughing				
22	696' 6-1/8"	Core-Fill	775	225		2 Gals. LiCl
23	696' 6-1/8"	Bridges & Fill				
24	814' 6-1/8"	Hole sloughing				
25		Caving - Work Stuck pipe	1,200	400		
26		Equip. repair - Work pipe	950	215		6 Gals. LiCl
27		Equip. repair -				
28		Work pipe Work stuck pipe				
29		Back off shot (2), Back off @ 455'				
30		Recovered fish, logging				
31		Logging Rig dual string pipe.				

UE-29a #2  
 MUD REPORT

<u>DATE</u> 0600/0600	<u>HOLE</u> Depth Size	<u>REMARKS</u>	<u>WATER</u> Barrels	<u>SOAP</u> Gallons	<u>WFR II</u> Gallons	<u>OTHER</u>
11-01-81		Equip. repair				
02		Trip dual string, jet				
		sub didn't work				
03		Running 10-3/4", 40.50#				
		csg. - washing w/bit				
04		Washing in csg.				
05		Washing in csg.				
06		Washing in csg.	1,000	200		
07		Washing in csg.	1,100	98		
08		Washing in csg.				
		Washed csg. to 741'	83			
09	815' 9-7/8"	Junk in hole Set 10-3/4"				
		csg. @ 811.5'				
		Globe basket - 4" core				
20 10		Core				
11	821' 6-1/8"	Holiday				
12						
13	1050' 9-7/8"		350	80		
14	1383' 9-7/8"	Core - Sloughing		162		
15		CAL				
16	873' 15"	Underream from 811'	440	70		
17	877' 15"	Logging - Fill	400	100		
18		Logging				
19	906' 15"	Underream	465	115		
20	1019' 15"	Underream				
22		Attempt to pull 10-3/4" csg.				
		Damaged rig.				
12-03-81		Moved out Ideco 525				Hole completed
12-21-81		Moved in Joy #1				
12-23-81		Hydrologic Pump down				
12-25-81		Holidays				
01-05-82		Hydro tests				
01-20-82						
01-21-82		Moved out Joy #1				

**UE-29a #2**  
**REVIEW OF HOLE CONDITIONS**

762 mm (30") casing was set at 11.9 m (39') in a 914 mm (36") hole drilled to 12.2 m (40'). The annulus was cemented to surface in 2 stages with 5.66 m<sup>3</sup> (200 ft<sup>3</sup>) of cement slurry. Calculated annular volume was 2.21 m<sup>3</sup> (78 ft<sup>3</sup>). 508 mm (20") casing was set at 48.8 m (160') in a 660 mm (26") hole drilled to 48.8 m (160'). The annulus was cemented to surface in 4 stages with 21.52 m<sup>3</sup> (760 ft<sup>3</sup>) of cement slurry. Calculated annular volume was 7.67 m<sup>3</sup> (271 ft<sup>3</sup>). 470 mm (18-1/2") hole was drilled to 89.9 m (295'). 3 cores were cut from 50.3 m (165') to 59.7 m (196'). 406 mm (16") casing was set at 86.6 m (284') and the annulus cemented to surface in 2 stages with 7.36 m<sup>3</sup> (260 ft<sup>3</sup>) of cement slurry. Calculated annular volume was 4.50 m<sup>3</sup> (159 ft<sup>3</sup>). 375 mm (14-3/4") hole was drilled to 248.1 m (814'). 1 core was cut from 207.9 m (682') to 212.1 m (696'). 273 mm (10-3/4") casing was set at 247.3 m (811.5'). 1 core was cut from 248.1 m (814') to 250.2 m (821'). 251 mm (9-7/8") hole was drilled to 421.5 m (1383') using air foam and then underreamed to 381 mm (15") to 355.1 m (1165'). The average curve on a caliper log run to fill at 360.3 m (1182') on 11-14-81 indicated a maximum hole enlargement of 699 mm (27-1/2") at 359.1 m (1178'). Hole enlargement started at 354.8 m (1164'). Caliper, fluid density, electric, density, televiewer, magnetometer, gamma ray, epithermal neutron, 3-D velocity logs and vibroseis survey were run 11-16-81 to 11-18-81. The average curve on a caliper log run to fill at 355.1 m (1165') on 11-28-81 indicated a gauge hole below 273 mm (10-3/4") casing at 247.2 m (811') to 353.0 m (1158'). Hole completed 12-3-81. Hydrologic tests were run between 12-23-81 and 01-18-82. 273 mm (10-3/4") casing was perforated between 86.9 m (285') and 213.4 m (700'), 01-11-82. 41 mm (1.6") tubing was hung at 357.2 m (1172'), 01-19-82.

**UE-29a #2**  
**CORE RECORD**

<u>Core No.</u>	<u>Interval Cored-Feet</u>	<u>Feet Cored</u>	<u>Feet Recovered</u>	<u>% Recovery</u>
1	165' - 174'	9	2.5	28
2	174' - 182'	8	3.5	44
3	182' - 196'	14	12.6	90
4	682' - 696'	14	12.0	86
5	812' - 821'	9	9.0	100

(Core #5 - 812' to 814' fill)

GEOPHYSICAL LOGS RUN IN DRILL HOLE

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HOLE: UE-29a #2

<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	(1,1)	1	10/29/81	Birdwell	509'	250'
Caliper	(1,2)	2	11/14/81	Birdwell	1,179'	770'
Caliper	(1,3)	3	11/16/81	Birdwell	1,188'	760'
Caliper	(1,4)	4	11/21/81	Birdwell	1,160'	770'
Caliper	(1,5)	5	11/28/81	Birdwell	1,158'	-6'
Casing Collar Locator	(5,2)	1	10/28/81	Birdwell	612'	20'
Casing Collar Locator	(2,2)	2	11/28/81	Birdwell	820'	-10'
Casing Collar Locator	(2,3)	3	1/11/82	Birdwell	800'	174'
Density-Borehole Compensated	(2,5)	1	11/17/81	Birdwell	1,190'	787'
Density/Dual Proximity	(2,4)	1	10/30/81	Birdwell	448'	274'
Fluid Density for Water Location	(3,1)	1	10/22/81	Birdwell	140'	100'
Fluid Density for Water Location	(3,1)	2	10/22/81	Birdwell	130'	100'
Fluid Density for Water Location	(3,2)	3	11/16/81	Birdwell	168'	130'
Fluid Density for Water Location	(3,3)	4	11/18/81	Birdwell	124'	90'
Fluid Density for Water Location	(3,4)	5	11/25/81	Birdwell	1,165'	0'
Free Point Indicator	(4,2)	1	10/28/81	Birdwell	600'	150'

GEOPHYSICAL LOGS RUN IN DRILL HOLE

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HOLE: UE-29a #2

<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>
Gamma Ray	(4,3)	1	10/30/81	Birdwell	513'	260'
Epithermal Neutron	(4,4)	1	11/17/81	Birdwell	1,185'	770'
Electric	(3,5)	1	10/30/81	Birdwell	509'	270'
Electric	(4,1)	2	11/17/81	Birdwell	1,193'	795'
Magnetometer	(4,5)	1	10/30/81	Birdwell	513'	300'
Magnetometer	(5,1)	2	11/17/81	Birdwell	1,186'	810'
Nuclear Cement Top Locator	(5,3)	1	11/25/81	Birdwell	50'	0'
Nuclear Annulus Investigation	(5,2)	1	10/28/81	Birdwell	620'	20'
Temperature	(5,4)	1	10/30/81	Birdwell	513'	0'
3-D/Velocity (3')	(5,5)	1	11/17/81	Birdwell	1,163'	788'
3-D/Velocity (4')	(5,5)	2	11/17/81	Birdwell	1,180'	795'
Geophone Survey (VSP)	(6,1)	1	10/30/81	Birdwell	475'	53'
Geophone Survey (VSP)	(6,2)	2	11/17/81	Birdwell		In file