



DRILLING REPORT

APACHE CANYON #30-2

850' FNL & 3495' FWL (NW¼NE¼)

Section 30-33S-67W

Las Animas County, Colorado

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ETD: 1750' (Trinidad)
CONTRACTOR: Finley Drilling Co.
ELEVATIONS: 7235' GL, 7243' KB

10/09/90 Depth 540'. Previously set 23' of 13-3/8" conductor and grouted to surface. Spud well with 12-1/4" bit on October 8, 1990. Drilled with air-mist to 540'. Survey 1/2° @ 305'. Ran 12 jts 8-5/8" 24 #/ft casing and landed @ 527' KB. Cemented with 375 sx class "G" with 2% CaCl₂ + 1/4 #/sx flocele. Cement circulated to surface.
Daily Cost Cumulative Cost (location cost of

10/10/90 Depth 1321'. Pulling bit for core barrel run. WOC 8 hrs. TIH with 7-7/8" bit drill out 8-5/8" shoe and drill with air-mist. Surveys: 2-3/4° @ 521', 2-3/4° @ 820', 3° @ 1121'.
Daily Cost Cumulative Cost

10/11/90 Depth 1390'. Cored a total of 60' in four trips with Core barrel. Recovered 3' of coal (1339-42) and 2' of coal (1372-74) from upper Vermejo section. TIH with 7-7/8" bit, drill ahead with air-mist.
Daily Cost Cumulative Cost

10/12/90 Depth 1760'. Cored 60' in lower Vermejo. Recovered 2' from 1641-43. TIH with 7-7/8" bit and drilled to TD.
Daily Cost Cumulative Cost

10/13/90 Depth 1760'. Logging. Conditioned hole. POH. RU Schlumberger. Hit bridge @ 800'. TIH with 7-7/8" bit wash through bridge, condition for logs.
Daily Cost Cumulative Cost

10/14/90 Depth 1760'. Ran Schlumberger DIL-SFL and CNL-LDT logs with high resolution run TD to surface casing. Ran GST log 1760 to 1400' and 900' to surface casing. TIH open ended with DP, spotted 1000 gal Temblock-100 pill on bottom. POH. TIH with bit, wash to bottom. POH. Ran 5-1/2" 14 #/ft casing and landed shoe @ 1765'. Mixed and pumped 100 sx silicalite with 4% CaCl₂, 2% gel, 1% thixset A, 0.25% thixset B and 1/2 #/sx flocele. No circulation during job. Set slips. Released rig.
Daily Cost Cumulative Cost

*** FINAL REPORT UNTIL COMPLETION ***

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COMPLETION

10/17/90	Bury deadmen, MIRU Little R Well Service, PU 2-7/8 tbg., stand back. Rocky Mountain Wireline Service ran CBL/VDL from TD of 1746' to 1000' indicating little to no cement behind the pipe. Ran log with 1000 psi on casing. SDFN. Daily Completion Cost	Cumulative Completion Cost
10/18/90	RMWS shot 4 squeeze holes at 1720 phased 120°. RIH with Baker cmt. retainer, set @ 1694'. RU Halco, pumped 20 bbl. 50# WG-12 slickwater with 4% CaCl ₂ . Sting out, reverse out for spacer, sting in, pump 10 bbl. super flush, overdisplace, SD 20 minutes, mix and pump 150 sxs Class "G" cement with 1/4 #/sxs flocele, 4% CaCl ₂ . No pressure, no sign of lift. Overdisplace 5 BW, SD 3 hours. Repeat procedure with slight blow on backside indicating some lift. Pumped 1-2 BPM @ 200-300 psi. Displace cmt to retainer, sting out, reverse out 1 bbl. cmt., COH with tubing. SDFN. Daily Completion Cost	Cumulative Completion Cost
10/19/90	RMWS bond log shows TOC @ 1575'. SD, move to Picketwire 29-1 for long string cement job. Daily Completion Cost	Cumulative Completion Cost
10/23/90	RMWS RIH shot 4 perf squeeze holes @ 1520'. RIH with 45 jts. 2-7/8" tbg., set Baker cmt retainer @ 1489'. Halco pumped 10 Bbl gelled slickwater and 100 sxs silicalite with 25 sxs Class "G" on tail for strength @ perms. Limited circulation returns of 5 Bbl (±), with vacuum @ SD. PU 6 DC and tbg., RIH, drill out retainer after 4 hours. SD. Daily Completion Cost	Cumulative Completion Cost
10/24/90	Resume drilling cement to 1520'. Tag bottom @ 1746', circulate hole clean, COH-LD tbg. and DC. RMWS ran CBL/VDL indicating good cement 1700 to 1575, 1524 to 1450, 1440 to 1410, with questionable stringers from 1410 to 1180. SDFN, RD, move to Picketwire 29-1 Daily Completion Cost	Cumulative Completion Cost
10/26/90	RMWS ran CBL/VDL with 500 psi indicating improved amplitude readings due to possible micro-annulus. SD. Move to Ciruela Canyon 31-7. Daily Completion Cost	Cumulative Completion Cost
11/02/90	MIRU Little R Schlumberger RIH, shot 1' @ 4 spf @ 1318 per CBL. PU Baker cmt. vet, RIH, SD. Halco RCM truck down for major repairs. Daily Completion Cost	Cumulative Completion Cost
11/05/90	Broke down squeeze perms @ 750, establish rate 3 BPM @ 600 psi. Set cement retainer, Halco mixed and pumped 50 sxs Class "A" cement with 2% CaCl ₂ and 1/4 #/sx flocele. With approximately 2-1/2 Bbl behind pipe a 1000# running squeeze was achieved, sting out, reverse out, PU DC & bit, RIH to tag. SDFN. Daily Completion Cost	Cumulative Completion Cost
11/06/90	Little R RU to drill, drill out cement and retainer, tag TD @ 1746, circulate hole clean. RD, prepare to move to Apache Canyon 30-5 for Long String cement job. SDFN due to blizzard conditions. Daily Completion Cost	Cumulative Completion Cost

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11/07/90 Schlumberger ran CBL-VDL-CET indicating good bond from 1302 down to 15. SDFN.

Daily Completion Cost

Cumulative Completion Cost

11/08/90 Little R RIH with tubing, swab well down to 1500. COH, Schlumberger RIH with 4-1/2" perf guns, shot the following intervals @ 4 SPF:

Per RMWS-CBL	1661-63	1502-04
	1639-41	1467-71
	1594-96	1393-95
	1573-75	1370-72

Plans are to shoot additional 4 SPF 11/09/90. SDFN.

Daily Completion Cost

Cumulative Completion Cost

11/09/90 Schlumberger shot additional 4 SPF in same intervals. RIH with scraper on tbg., COH, PU Halco PIP system, RIH, set below bottom perms, pressure test to 2400 psi., COH to 1st interval, set tools performed this and subsequent breakdowns with the following results:

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Interval	Surf Pressure	Static HH	BH Break	HCL Volume	Rate
1661-63	1700	719	2419	100	2 BPM
1639-41	1750	710	2349	100	2 BPM
1594-96	1750	690	2440	100	2 BPM
1573-75	1850	681	2531	150	2 BPM
1502-04	1900	650	2550	100	2 BPM
1467-71	1900	635	2535	250	2 BPM
1393-95	1800	603	2403	100	2 BPM
1370-72	1750	593	2343	300	2 BPM

After COH, LD tools, RIH with swab, recovered 35 BW. SDFN. 37 BLWTR.

Daily Completion Cost

Cumulative Completion Cost

11/10/90 Resume swabbing with IFL @ 1000, SFL @ 1250, made 40 BW. SD, RD.

Daily Completion Cost

Cumulative Completion Cost

11/14/90 Little R returned, resumed swabbing, IFL @ 1300' with SN @ 1400. As swabbing continues SFL raises to 1000 possibly due to influx and gas cutting. Continue swabbing, recover 40 BW, SDFN.

Daily Completion Cost

Cumulative Completion Cost

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11/15/90	Resume swabbing to purge for water sample. Recovered 25 BW, filled sample containers, sent to lab. SD, RD. Daily Completion Cost	Cumulative Completion Cost
11/28/90	MIRU Serfco from Liberal, KS., frac well with gelled water and 24,000# 40/70 sand, 239,000# 10/20 sand, and 210# 8/12 sand. Avg. rate 60 bpm, avg. press. 220 psi., ISIP -0-. Total fluid pumped 2,843 BW. Daily Completion Cost	Cumulative Completion Cost
12/06/90	Little R MIRU, RIH w/notched collar to 1670, no sand. Cott, MU Co-Rod 3-1/2" series 200 progressive cavity pump stator with no turn tool on bottom. Set bottom of stator @ 1347'. RIH with 7/8 rods on rotor, land in stator with 7/8 rod subs and 16' x 1-1/4" polished rod. Mount 40 HP VED unit, SDFN. Daily Completion Cost	Cumulative Completion Cost
12/07/90	Complete electrical/generator/propane/plumbing installation. Start pump @ 1:30 PM. Daily Completion Cost	Cumulative Completion Cost
12/08/90	Made 820 BW, 2303 BLWTR. No gas show.	
12/09/90	Made 102 BW, generator down due to mechanical problems. 2201 BLWTR.	
12/10/90	Made 619 BW, no gas show, 1582 BLWTR.	
12/11/90	Pump down, tubing parted. Little R COH with rods and rotor, RIH with Andco spear, retrieve tubing string. Tubing parted @ 50' and 300' with significant wear in 6 places near TD. Suspect deviation problem or unit unlevel. Repairs made, replaced bad tubing joints, RIH with original assembly, re-leveled and braced unit, started pump.	
12/12/90	Made 755 BW, no gas shows, 827 BLWTR.	
12/13/90	Made 930 BW, no gas shows, total load recovered.	
12/14/90	Tubing parted again, confirming excessive deviation. New submergible pump system ordered, anticipated arrival and installation during the late December or early January.	

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