

DRILLING SUMMARY

LOCATION: FISHLAKE 88-11

The site and sump at Fishlake 88-11 was constructed using locally available equipment recommended by Bob Jamison of Combined Metals. Local men and equipment were used to upgrade and maintain the roads and for dust control, as well as construction of the cement slab for the drilling rig. A 36" conductor hole was drilled and a 14' joint of 30" conductor casing was cemented using local ready-mix.

The price for the construction of the drilling-site was badly underestimated due to the volumes to be moved and the extreme hardness of the material to be ripped. It is recommended that engineering reports of volumes and best layouts of the site to the terrain be obtained and turnkey bids be used in the future.

Willbros Rig 10 was mobilized from near Elk City, Oklahoma to the drilling site in Fishlake Valley, Nevada a distance of appr. 1300 miles without incident and rigged up ready to spud the well on April 11, 1984.

4|11-14|84 The well was spudded using a Smith 26" hole opener to center-punch the hole. A 17  $\frac{1}{2}$ " bit was used to drill the hole to a depth of 314'. The 26" hole-opener was then picked-up and the hole opened to 26".

NOTE: No weight was required to open the section of hole from 131' to 169' indicating that washing out of the hole may make it desirable to use low water loss mud.

4|15|84 7 joints of 20" 133 lb. J-55 Vetco casing was run and set with the shoe at 278'. HOWCO cemented with 470 sacks of H-cement with 2 percent CACL plus 40 percent SSA-1. CIP AT 6:05am.

4|16|84 W.O.C. 12 hours and nipple up 20" in drill.

4|17-18|84 Drilled 17  $\frac{1}{2}$ " hole from 314' to 965'. Lost complete returns at 928'. Mixed and pumped in LCM pills and regained returns.

4|19|84 Drilled 965' to 1061. Ran 26 joints of 13  $\frac{3}{8}$ " 61 lb., K-55, Buttress casing. Set casing shoe at 1051' and FC at 1007'. HOWCO cemented

- 4|19|84 (cont.) with lead slurry as follows: 380 sacks "H" cement, 35 percent SSA-1, 1 cubic ft. perlite per sack, 3 percent bent., (13.5 ppg ), Tailed-in with 200 sacks "H" cement, 40 percent SSA-1, .01 percent HR-5. Pumped 10 bbls. water ahead. Bumped plug with 900 psi. CIP at 10:30 pm 4|19|84. Good cement returns and circulation through out job.
- 4|20-21|84 WOC and Nipple-up 13 $\frac{5}{8}$ " BOPE . Test BOPE - OK
- 4|22-5|11|84 Drilled 12 $\frac{1}{4}$ " hole from 1061'- 6150'. ( 8-12 $\frac{1}{4}$ " bits were used ) No unusual problems were encountered. A small loss circulation zone was noted at 5417'-5424', a loss of 20 bbls, and another at 5820'.
- 5|12|84 Schlumberger ran the following logs. Dual- Ind., Gamma, Neutron Density Caliper, SP, and temperature. Loggers TD 6147'.  
NOTE: The caliper log showed that large sections of the hole from the bottem of the surface casing to approximately 4000' had eroded to 24" or more. As careful attention was given to the bit hydraulics, it is recommended that a low water loss mud system be used on any additional wells drilled in the area.
- 5|13-22|84 Ran a SRC kuster time, temperature survey and cont. drilling 12 $\frac{1}{4}$ " hole from 6150'-8149'. ( used 2-12 $\frac{1}{4}$ " bits ). Lost complete returns during a connection at 8149'. Mixed mud volume and placed LCM pills in loss circulation zone. HOWCO set 2 sand plugs from 8041 to bottem. Pumped loss circulation pill on to top of sand plug and regained circulation. HOWCO set 110 sacks "H" cement with 35 percent SSA-1, 1.5 percent HR-12. Polished off top of cement plug to 7900'. Circ. and cond mud and hole for logs. Schlumberger ran Dual Ind. Gamma, Neutron Density, Caliper and SP.
- 5|23-27|84 Waited on casing and circulate and condition hole. Ran 153 joints 9 $\frac{5}{8}$ " , 43.5 lb., N-80, Butress casing (5987.42 ). Hung casing shoe at 6803' with FC at 6721', with Midway liner hanger at 802'. HOWCO cemented as follows: Pumped 50 bbls. water ahead of cement, followed by lead slurry of 1150 sacks of "H" cement with 127 lbs. spherlite per

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(cont.) sack, 40 percent SSA-1, .06 percent econolite, 2.2 percent HR-12, followed by tail-in slurry of 355 sacks of "H" cement, 40 percent SSA-1, .75 percent CFR-2, 1 percent HR-12, good circulation until 930 bbls of slurry were displaced outside of casing. Lost complete returns and annulus plugged off. Did not bump plug. WOC 12 hours and tested lap. Lap leaking.

- 5|28|84 HOWCO tested lap using 13 $\frac{3}{8}$ " RTTS Packer, pumped and squeezed 200 ft<sup>3</sup> "G" cement with 40 percent SSA-1, 0.5 percent CFR-2. Squeezed lap to 600 psi
- 5|29|84 Cleaned out cement 732'-802'. Tested lap with 600 psi - OK. Drilled and cleaned out liner to top of FS at 6801. Displaced with fresh water.
- 5|30-31|84 Schlumberger ran CEL. Ran 8 $\frac{1}{2}$ " bit and cleaned out cement 6803'-7940'. Found top of hard cement plug at 7940'. Drilled cement 7940'-8041'. Clean out sand plug 8041'-8139' and lost complete returns. Clean out to 8149' without returns.
- 6|1|84 Rig-up to test well, run NOWSCO tubing, tubing parted at 802'. Fish out NOWSCO tubing.
- 6|2|84 Replaced NOWSCO tubing truck, blow well. Well flowing.
- 6|3|84 Flowing well, GEOTHERMEX tested well.
- 6|4|84 Ran temperature-pressure survey, RIH with 8 $\frac{1}{2}$ " bit and cleaned out fill 7455'-7693'. Hole sloughing using fresh water. Stuck pipe, workpipe free.
- 6|5|84 Change over to mud.
- 6|6-7|84 Cleaned out fill to 8100', circulate and condition hole. Cleaned out

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- 6|6-7|84 (cont.) to 8130' and lost circulation, cleanout to 8147 without circulation. Ran 39 joints 7" 26lb., K-55, LTC casing (1568.47). Hung bullnosed casing at 8140' with top of Midway liner hanger at 6563'. Bottom 4 joints slotted with 16-2 $\frac{1}{2}$ " - 6 - .125 (141.60) from 8139' - 7997'.
- 6|8-12|84 NOWSCO kicked off well. Flow well. Ran 2 temperature and pressure logs. Killed well with fresh water.
- 6|13-15|84 Cool down well. Schlumberger ran temperature and collar locator log. Bottom 8130'. 9' fill on bottom. MRT-326<sup>0</sup> F. Ran CEL from 800'-4000' Fluid level 100'. Cooled well with 1010 bbls. fresh water at 27.3 bbls. min. Perforated 7" liner with 4 -  $\frac{1}{2}$ " holes per foot from 8129' - 7692' Total of 1498 SCS. Rigged up Western Air and NOWSCO tubing truck and blowing well from 500'. Well flowing in 7 minutes.
- 6|16-19|84 Flow and test well. Rig Down WILLBROS RIG 10.

RIG RELEASED AT 7:00pm 6|18|84