

RECOMMENDED DRILLING & COMPLETION PROCEDURE

A.F.E. NO. 450

David Fasken ----- HALE STATE NO. 1-Y ----- Lea County, New Mexico

1. Drill 17-1/2" hole to 400' with spud mud.
2. Set 13-3/8" casing at 400', cement to surface and install 12" - 3000 psi W.P. casinghead and B.O.P. stack. (Estimate 300 sxs. Halliburton Lite with 2% CaCl plus 100 sxs. Class "C" with 2% CaCl.)
3. Drill 12-1/4" hole with brine water to 4500', control seepage with paper, run Drilprodco hole volume survey at 4200'.
4. Set and cement 8-5/8" casing at 4500' with sufficient cement to circulate. (Estimate 1400 sxs. Halliburton Lite with 15# salt/sack and 1/4# Flocele per sack, slurry weight 12.4#/gal., plus 200 sxs. Class "C" with 2% CaCl, slurry weight 14.8#/gal.) W.O.C. time 18 hours. Install 12" - 3000 psi W.P. x 10" - 3000 psi W.P. spool with secondary seal and bit guide, choke manifold, B.O.P.'s and Hydril.
5. Before 9000', test casing to 2300 psi and casing spool, B.O.P.'s and choke manifold to 3000 psi, and Hydril to 1500 psi with Yellow Jacket.
6. Drill 7-7/8" hole to total depth of 11,900' using fresh water to 7200', use 4% KCl water to 10,200', mud up with polymer starch mud with 8.7#/gal., 38-40 sec. viscosity, 10 cc water loss. At 11,000' increase viscosity as necessary to maintain hole to total depth.
7. Drill stem test all shows below the Abo.
8. Run logs (CNL-FDC with Gamma Ray, DLL, Dip Meter, and BHC Integrated Sonic).
9. Set and cement 4-1/2" oil string (resin coated and centralized through pay zone):

 First Stage: 350 sxs. Class "H" - Halliburton Lite w/6# KCl/sx., 0.6% Halad 22, 0.4% CFR-2, 1/4# Flocele/sx., plus 500 sxs. Class "H" w/3# KCl/sx., 0.8% Halad 22, 0.4% CFR-2, 1/4# Flocele/sx.

 Second Stage: With D.V. tool at approximately 8,500' 720 sxs. Class "C" - Halliburton Lite w/6# KCl/sx., 0.6% Halad 22, 0.4% CFR-2, 1/2# Flocele/sx. plus 150 sxs. Class "C" neat. Pump plugs down with fresh water, run temperature survey to locate cement top.
10. Install 10" - 3000 psi W.P. x 6" - 3000 psi W.P. tubinghead and Christmas Tree.
11. Rig down and move out rotary tools.
12. Set mast anchors, move in and rig up pulling unit and reverse drilling unit, drill D.V. tool and clean out to float collar.
13. Test casing to 3000 psig.
14. Displace fluid in tubing and tubing-casing annulus with 2% KCl water and spot acid over proposed perforating interval, pull tubing.
15. Perforate pay zone and displace acid.
16. Run hookwall packer and seating nipple on tubing and swab test well.
17. Further stimulate based upon swab tests.
18. Test and evaluate.
19. Pull tubing and packer.
20. Rerun tubing with appropriate bottom hole equipment for either hydraulic pumping or rod pumping.