

PRELIMINARY PROCEDURE

MEDICINE LAKE STRAT TEST #2

Well 17-6

STRAT #2 = 17-6
(See original
Occidental Well log)

Proposed TD = 3000'

Locations: NW, SW, Sect. 33 - T43N - R4E, Siskiyou County, California

Elevation: ± above sea level

Invoice
Charge No.:

Objective: To obtain stratigraphic and geothermal gradient information in the Medicine Lake area.

Anticipated Problems: Lost circulation and heavy water influx from surface to TD.

Control Wells: See attached correspondence: Lithology in Medicine Lake Strat Test #2

Drilling Supervisor: Bill Jackson, Home Telephone 801/255-6361
Office Telephone 801/263-3129

Drilling Engineer: Neale Roberts, Home Telephone 801/268-6880
Office Telephone 801/263-3129

- Procedure:
1. Clear location and dig reserve pits. Set 20" conductor at ± 80' and cement to surface. Dig cellar according to BOP-substructure dimensions.
 2. MI & RU rotary drilling rig. Weld on drilling nipple and flow line. Make up flow diverter with stripping rubber.
 3. MU 17 1/2" bit, air hammer and NB 3 point roller reamer and spud in. Pick up float sub with float, 7" drill collar, string stabilizer at 30' and 60', and 2 more stands of 7" drill collars while drilling.
 4. Drill 17 1/2" hole to ± 300'. Fill hole with 8.8 ppg mud with +35 sec/qt viscosity. Circulate and condition hole (at least two hole volumes). POOH.
 5. RU and run ± 300' x 13 3/8" casing per attached casing program.
 6. Cement casing per attached cementing program.
 7. Cut off 13 3/8" casing and weld on 12" x 13 3/8" SOW braden-head. NU and test double gate BOP with blind and pipe rams (500 psi x 15 min) and rotating head (100 psi x 15 min).

8. Make up 12 1/4" bit, NB 3 point roller reamer, float sub with float, 7" drill collar, WB hardface string stab, 7" drill collar, stabilizer and 2 stands 7" drill collars. Drill to \pm 1000'. Drill with low bit weight (15-20K) and high RPM (70-110) to minimize deviation. Run single shot surveys on all bit trips. Should deviation exceed 5% run survey every stand and attempt to reduce hole angle or hold at 5%.
9. Circulate and condition hole. POOH.
10. RU and run \pm 1000' x 9 5/8" casing per attached casing program.
11. Cement casing per attached cementing program.
12. Slack off on casing, ND BOPs and cut off 9 5/8" casing.
13. Cut off 12" bradenhead and weld on 9 5/8" x 10" bradenhead. NU and test 2-10" series 900 double gate BOP with blind and pipe rams and annular (400 psi x 15 min), test rotating head to 100 psi for 15 min).
14. MU 8 1/2" bit with NB WB Tungsten hardface stab, float sub with float, one 4" drill collars and HWDP as available, WB Tungsten hardface stab, drill collars or HWDP as needed for weight (\pm 30 K). Drill 8 1/2" hole to a maximum of 3000'. Circulate and condition hole. POOH. Should hole problems be encountered, run 7" casing and cement with same composition and procedure as 9 5/8" casing.
15. RU and run 2 7/8" 6.5# J55 EUE tubing with mule shoe and plate welded on bottom to \pm 15' off bottom. Fill tubing with water and land in tubing hanger.
16. With well dead, ND BOP & NU 10" x 2 1/2" EUE adapter, x-0, and full opening valve.
17. RD and MO rig. Clean location and fill pits.
18. Review site restoration with Surface Managing Agency.

ATTACHMENT #1

MEDICINE LAKE STRAT TEST #2

MUD PROGRAM

17 1/2" surface hole: 0 - + 300'
Mud System: Spud mud - gel, lime*

Mud Properties: Mud Weight = 8.7 - 9.0 ppg
Funnel Viscosity = + 35 sec/qt
PV/YP = 1/1
Fluid Loss - No Control
pH = 9+

COMMENTS

Spud with clear water adding lime to flocculate drilled solids and maintain pH. High-viscosity gel sweeps (40-50 sec/qt) to clean hole. Run solids control equipment at all times while circulating.

12 1/4" & 8 1/2" hole: + 300' - + 1000'
Mud System: Gel - Lignite

Mud Properties: Mud Weight = 8.8 - 9.1 ppg
Funnel Viscosity = 30-40 sec/qt
PV/YP = 1/1
Fluid Loss = 10-15 cc
pH = 9.5

COMMENTS

Lower calcium to 150 or less. Mud up with bentonite (viscosity) and lignite (disperse and control fluid loss). Add Drispac to supplement lignite for fluid loss control. Run all solids control equipment continuously. Carbonate contamination, indicated by high gel strengths and a high yield point, may occur as temperatures increase. This should be treated with small additions of lime. Overtreatment can result in high temperature cementation. As lost circulation and water influx become a problem, water mud back and aerate if necessary. Increase corrosion inhibition as air volumes increase. If lost circulation continues to be a problem and water influx is apparent, convert to a relaxed foam to clean hole.

6 1/4" hole: + 2000' - + 3000'
Mud System: Same as previous interval

Mud Properties: Mud Weight = 8.8 - 9.1 ppg
Funnel Viscosity = 30-40 sec/qt
PV/YP = 1/1 - 2/1
Fluid Loss = 6-12cc
pH = 9.5

*To be used only after air/foam drilling has failed.

COMMENTS

Add caustic for pH control. Precipitate calcium with soda ash. Run solids control equipment continuously. For lost circulation and water influx, see previous interval.