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Jacks Draw 13

API 05-081-06165

Plugging Procedure

1. Test dead man anchors and replace as needed.
2. Dig and fence off an 8' x 8' x 6' (L x W x D) pit to accommodate cement cleanup.
3. Move in and rig up a contract workover rig with pipe racks, catwalk, rig pump and rig tank.
4. Move in and spot one 400 bbl tank and fill with fresh water.
5. Lay flow lines from the wellhead to the rig tank.
6. Check and record tubing pressure and casing pressure. Bleed-off any pressures to rig tank.
7. Pump 30 bbls fresh water down the tubing for well control.
8. Remove upper wellhead. Install a 7-1/16" 5000 psi hydraulically operated double gate BOP equipped with 2-3/8" pipe rams in the top gate and blind rams in the bottom gate. Function test both the blind and pipe rams. Hook up a flow line from the BOP to the rig tank.
9. Prep to pull tubing. Pick up and un-land tubing and remove hanger.
10. POOH standing back.
11. Round trip a 3-7/8" bit & scraper dressed for 4-1/2" 11.6# casing to ~ 5,150'.

Plug 1 (squeeze perfs) Cement yield assumed for all plugs is 1.15 ft³/sk.

12. Pick up a cast iron cement retainer (CICR) dressed for 4-1/2", 11.6# casing and trip in hole on tubing. Set retainer @ 5,058' or ~50' above the top perforation.
13. Rig up cementers and establish an injection rate and pressure through the CICR. Sting out of the CICR. Mix 50 sacks (~10 bbls) of cement and displace to end of tubing. Note tubing volume @ 5,058' is ~20 bbls.
14. Sting into the retainer and squeeze the perforations with 40 sacks (~8 bbl.) of cement below the CICR.
15. Sting out and POOH slowly to 4,938'. Reverse out cement leaving 100' of cement on top of the retainer.

Spacer 1 (4,938' – 3,620')

16. Mix and spot 9 ppg Poz Gel from 4,938' to 3,620' (~ 26 bbl.). POOH to ~3620'.

Plug 2 (balanced plug across TOC)

17. Lay a 140' balanced cement plug from 3,620' to 3,480' with 15 sacks (~3 bbl.) which includes +25% excess. POOH laying down to 3,420' and reverse out cement.

Spacer 2 (3,420' – 335')

18. Mix and spot 9 ppg Poz Gel from 3,420' to 335' (~ 48 bbls).

19. POOH laying down to ~230' then stand back to surface.

20. Hook up a flow line from the 9-5/8" surface casing wing valve to the rig tank and bleed off pressure.

21. Rig up wireline and perforate the 4-1/2" casing @ 335' with 4 spf at 90 degree phasing. Rig down wireline.

22. Pick up a CICR dressed for 4-1/2" 11.6# casing and trip in hole on tubing. Set CICR @ 230', ~54' above csg shoe.

Plug 3 (squeeze 9-5/8" shoe and circulate cement to surface in 4-1/2" casing)

23. Establish an injection rate and pressure through the CICR and watch for returns from the surface casing. Sting out of the CICR. Mix 65 sacks (~13 bbls) of cement.

24. Sting into the retainer and squeeze the perforations with 45 sacks (~9 bbls) of cement below the CICR.

25. Sting out and circulate cement to surface inside the 4-1/2" casing. Volume is about 15 sacks or ~ 3 bbls.

26. POOH laying down.

Plug 4 (surface plug in the 4-1/2" casing and the 4-1/2"x 9-5/8" ann.)

27. Nipple down the BOP and remove the tubing spool. Cut off casing head 3' below ground level.

28. Using 1" line pipe, spot a surface cement plug from 50' to surface in the 4-1/2" x 9-5/8" annulus with ~15 sacks (~3 bbl.).

29. Top off cement in the 4-1/2" casing stub as needed.

30. Install a regulation dry hole marker on casing stub. Note the GPS coordinates of the wellbore location for future reference.

31. Backfill around the dry hole marker and the cement pit.

32. Rig down and move off all rig and rental equipment.

33. Reclaim location per BLM requirements.