

State Land 2

API 05-081-05576

Proposed Plugging Procedure

Objective

- To plug and abandon the well in accordance with state and federal regulations.
1. Prior to job, and with at least 48-hour notice, notify BLM and COGCC of plugging operations and schedule for an inspector to be present on location. Call 811 with notice and then test and/or replace dead man anchors as needed. Remove any chemical tanks and production lines to side of location.
 2. Daily, and prior to any change in job objective, a JSA must be filled out and records kept.
 3. Move in and rig up a workover rig with pipe racks, catwalk, rig pump, rig tank and cement returns tank.
 4. Move in and spot one 400 bbl tank and fill with fresh water.
 5. Check and record wellhead pressures. Bleed-off any pressures to sales equipment, blowdown tank, or rig tank.
 6. Kill well by pumping water down the tubing.
 7. ND production tree. Install a 7-1/16" 5K 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 rams. Hook up a flow line from the BOP to the rig tank.
 - 11" 3000 psi bonnet.
 8. Pick up and un-land tubing.
 9. POOH laying down tubing. Scan for NORM and send to junk.
 - 12/1988, tubing hasn't been removed since recompletion.
 10. Take delivery of work string needed to run scraper to 2,237' (50' above TD).
 - 05/1931, open hole completion is from 2,260'-2,287' (TD).
 11. Pick up a bit and casing scraper dressed for 10-3/4" 40.5# casing. TIH to \pm 2,237'.
 12. POOH standing back work string. Lay down bit and scraper.

Plug 1 (Squeeze Wasatch and Balance Plug Across TOC) & Spacer 1

13. Pick up a cast iron cement retainer (CICR) dressed for 10-3/4", 40.5# casing and trip in hole on tubing. Set retainer at \pm 2,237'.

- Set CICR no more than 100' above producing zone, otherwise notify Engineering.
 - Squeezed perforations at 2,190'-2,214' (12/1988).
 - TOC (good cement) at 2,162' (12/1988).
14. Pressure test tubing and valve in CICR to 2,500 psi.
15. Pressure test casing to 500 psi.
- If casing will not test, notify engineering. Casing holes will be located after perforations have been squeezed.
16. Shear out of retainer and circulate a hole volume of fresh water.
- Approx. 9 bbls tbg + 208 bbls ann = 217 bbls.
17. Sting into CICR. Rig up cementers. Establish an injection rate and pressure through the CICR with at least the tubing volume.
- If no injection rate can be established, then contact Engineering.
18. Shear out of CICR. Mix 129 sacks (\pm 26 bbl) of cement and displace to end of tubing.
- Volume is calculated from CICR set at 2,237' to TD at 2,287' with a 50% excess, plus additional needed for top of retainer and plug across TOC.
 - Hole size unknown. Assumed hole size is 12-1/4" from 2,260'-2,287'.
19. Sting into the retainer and squeeze the perforations with 45 sacks (\pm 9 bbl) of cement below CICR.
20. Sting out and place 84 sacks (\pm 17 bbl) on top of the retainer. Slowly POOH 175' and reverse circulate out any remaining cement.
- COGCC requires a minimum of 100' in length of any cement plug and a minimum of 100' above each zone being protected.
 - Plug will extend from CICR at 2,237' to 100' above TOC at 2,162'.
21. Spot 9 ppg Poz Gel from top of Plug 1 (approx. 2,062') to 1,331' (\pm 72 bbl).
22. POOH laying down to 1,331', then standing back to surface.

Plug 2 (Squeeze Surface Casing Shoe) & Spacer 2

23. RU wireline and perforate casing with 4 spf at 1,331' (50' below the casing shoe). POOH with wireline.
- Be prepared for possible flow from open annuli into cellar as liquid columns balance.
 - Fluid weight in 10-3/4" x 13-3/8" annulus is unknown.
24. PU CICR dressed for 10-3/4", 40.5# casing and TIH on tubing. Set retainer at \pm 1,231'.
25. Pressure test tubing and valve in CICR to 2,500 psi.
26. Shear out CIRC, mix 200 sacks (\pm 41 bbl) of cement and displace to end of tubing.
- Approx. 12 bbl (15-1/2" x 13-3/8", 200') + 9 bbl (13-3/8" x 10-3/4", 200') + 20 bbl (10-3/4", 200').
 - Assumed 15-1/2" is ID.
27. Sting into CICR and squeeze casing shoe with 151 sacks (\pm 31 bbl) of cement below CICR.
28. Sting out and place 49 sacks (\pm 10 bbl) on top of the retainer. Slowly POOH 100' and reverse

circulate out any remaining cement. **Let cement setup overnight.**

29. Spot 9 ppg Poz Gel from 1,131' to surface (\pm 111 bbl).

30. POOH laying down to surface.

Plug 3 (Surface Cap)

31. RU wireline and perforate casing with 4 spf at 50'. POOH with wireline.

32. RIH with tubing to 50' and attempt to slow circulate between 10-3/4" x 13-3/8" annulus.

33. ND BOPE and install night cap on 10-3/4" wellhead.

34. RDMO workover rig.

35. MI equipment to excavate around casing strings.

- Cellar bottom estimated at 14.5' below GL.
- 15-1/2" surface casing is landed in clamps at 10.92' below GL.
- 13-3/8" intermediate casing is landed in 15-1/2" x 13-3/8" gas packing clamps at 9.75' below GL.
- 10-3/4" production casing is landed in clamps at 4.50' below GL.

36. Excavate around wellhead to bottom of cellar. Taper out and bell out for safety. Put up fence around bell hole.

37. MIRU cement crew.

38. HU to 10-3/4" casing. Prime pump and fill lines to pressure test.

39. With minimal volume, pump down the 10-3/4" casing to establish circulation from the open annuli into cellar.

- Approx. 3 bbl (15-1/2" x 13-3/8", 50') + 2 bbl (13-3/8" x 10-3/4", 50') + 5 bbl (10-3/4", 50').
- Assumed 15-1/2" is ID.

40. Mix and pump at least 49 sacks (\pm 10 bbl) of cement for a 50' surface plug.

- COGCC and BLM require a minimum of 50' of cement in all annuli to surface.

41. Rig up crane to 13-3/8" and cut off below GL. **Discuss cut depth with regulatory representative prior to cut.**

42. Rig up crane to 10-3/4", 40.5# casing and cut off below GL. **Discuss cut depth with regulatory representative prior to cut.**

43. Wait a minimum of 5 days after last plug before capping or sealing well. Must be completed within 90 days.

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

45. Backfill around the dry hole marker and bell hole around casing strings. Clean out and remove cement tank. Move off location.

46. Reclaim location per Federal and State requirements.