

**Objective:**

Find well and prep to re-enter well. Drill out all plugs. Plug well again with improved plugging requirements.

**Procedure:**

1. Contractor to obtain Line locates for ground disturbance. Locate well or casing stump. Have surveyor gather an as built survey of well location for records. Notify GIS group to obtain updated GPS coordinates (gisdata@crestonepr.com) Refer to all COA's from COGCC approved Form 6.
2. Construct location and temporary access for the site.
3. Dig up stump of original surface casing. Cut off marker and prep for a slip on collar with pup joint to get surface flange to ground level. Install 8-5/8" x 11" 3K flange. Install small cellar if necessary.
4. Back fill area and prep for rig.
5. Submit Form 42 electronically to COGCC 48 hours prior to MIRU. Notify COGCC Inspector (Susan Sherman 719-775-1111) 24 hours prior to MIRU.
6. MIRU drilling rig and auxiliary equipment. Pre-mix mud tanks to 10.0 ppg MW.
7. Install 11" 3M BOP plus rotating head. Notify COGCC Inspector (Susan Sherman 719-775-1111) 24 hours prior to BOP test. Conduct 250 psi low / 5000 psi high pressure tests.
8. Pick up 7-7/8" tricone bit and drill collars. Drill out surface plug from surface to approximately 35'. TOH and LD bit. PU 7-7/8" PDC bit and 6-3/4" motor. TIH to plug #2 at ~185'. Drill cement to 195'.
9. Pressure test surface casing to 200 psi low / 1000 psi high for 10 minutes each. If test fails, see steps 12-14. Prepare to run 7" FJ casing to ~850' after drilling 75'-100' of OH plug. This will require discussion on next tool string.
10. Drill out cement to ~250'. Circulate hole clean when surface plug is drilled out. Wash and ream to next expected plug at ~1650'. Circulate hole with clean mud. Discard old mud in waste tank. If surface casing pressure tested, go to step 15. If surface casing failed pressure test, follows steps 11-14.
11. Drill plug carefully with very little WOB (~1klbs) to avoid sidetracking. Time drill through 125'-175' of plug. Pay very close attention to any gas noticed in returns. Take returns through gas buster if hydrocarbons or pressure are present when plug is drilled. Do not go through choke manifold unless necessary to minimize strain on surface casing shoe. Notify local fire department if any flaring takes place. Once upper portion of plug is drilled then condition hole and TOH.
12. Rig up casing running tools. Run 7" 26# P110HC R-3 ULTFJ casing and set at 850'. Cement with 125 sx SLB cement (assumes 50% excess, cement volume may need to be dramatically adjusted based on observed hole conditions). Consider having enough

cement to pump until returns are seen at surface (~500sx). WOC 6 hrs prior to drilling out. If cement is not seen at surface a temp log or CBL will need to be run.

13. ND BOP. Make up 7-1/16" 5M casing head. Install 7-1/16" x 11" crossover spool. NU 7-1/16" BOPE. Pressure test casing to 1000 psi.
14. Pick up 6-1/8" PDC or mill tooth bit, 5" motor, bit sub with float, MWD tool, and 4-6 drill collars. TIH and tag plug.
15. Drill plug carefully with very little WOB (~1klbs) to avoid sidetracking. Time drill through plug. Expect bottom of plug at ~2000'. Take returns through gas buster if hydrocarbons or pressure are present when plug is drilled. Do not go through choke manifold unless necessary to minimize strain on surface casing shoe. Notify local fire department if any flaring takes place. Take surveys every 100'-200' while drilling plug.
16. Raise mud weight to 10.5-11.0 ppg to address possible gas and help with hole cleaning. Wash and ream in hole and circulate continuously with fresh mud. Discard the original well fluid in waste tank. Expect heavy flow of cuttings, slough, dehydrated mud, old cement, and oil/gas in returns. Pump sweeps and circulate as needed. Raise mud weight as needed to control sloughing and oil/gas flow. If bridge or obstruction is encountered, attempt to wash or otherwise remove with minimum rotation to avoid sidetracking out of old hole. Circulate through gas buster and control flare with mud weight. Avoid going on choke unless necessary to protect casing shoe. Take surveys every 500'.
17. Wash down to 7810' (Niobrara formation top – 7706').
18. Condition mud as necessary until well bore is stable. TOH and LD drilling tools.
19. Ensure survey data is recorded for entire wellbore. Run gyro if necessary when back on bottom.
20. TIH with 4" drill pipe open-ended.
21. Contact COGCC field inspector Susan Sherman (719-775-1111) 24hr prior to cementing. Rig up cement equipment and pump plugs as follows:
  - Plug 1: 7810' to 7600' (plug isolating Niobrara) 100 sx Class G "Nio" cement w/ silica flour, retarder, and additives as needed. Assume 7-7/8" hole size plus 50% excess.
  - Lay down drill pipe to 3115'. SD long enough to confirm and document well is static prior to pumping Plug 2.
  - Plug 2: 3115' – 2865' (base of Upper Pierre) 145 sx Schlumberger Premium Gas Block cement. Assume 7-7/8" hole size plus 100% excess. If full returns not maintained while pumping cement, WOC six hours and tag plug.
  - Lay down drill pipe to 2000'. Confirm and document well is static prior to pumping plug 3.
  - Plug 3: 2000' to 1660' (~125' below base of Fox Hills to 1660') 150 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 7-7/8" hole size plus 50% excess. **WOC six hours and tag plug (required tag by COGCC).**
  - Lay down drill pipe to 1580'. Confirm and document well is static prior to pumping plug 4.

- Plug 4: 1580' to 1200' (50' below deepest water well and ~100' above L-A base) 165 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 7-7/8" hole size plus 50% excess. **WOC six hrs and tag plug.**
- Lay down drill pipe to 1060'. Confirm and document well is static prior to pumping plug 5.
- Plug 4: 1060' to 635' (50' below U-A base and ~100' above Denver base) 175 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 7-7/8" hole size plus 50% excess. **WOC six hrs and tag plug.**
- Plug 5: 260' to surface (50' below 8-5/8" casing shoe). Approximately 100 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 7-7/8" hole size plus 50% excess. Adjust cement volume as necessary to circulate cement to surface. (If cement is not circulated to surface, shut-in, WOC 4 hours then tag plug -- must be at 155' or shallower and provide 10 sack plug at surface.) Pump in two stages if necessary. (If 7" casing is run to 850', combine plugs 4 and 5.)

22. ND BOP. Ensure and document all casing and annular spaces are cemented to surface.

23. Rig down rig and all other auxiliary equipment. Move off location.

24. Wait 5 days after final plug to cut and cap. Excavate around wellhead. Cut off casing 4 ft below ground level. Inspect cement top with FLIR camera to ensure no evidence of gas. Save in wellfile.

25. Weld on metal plate with 1" weep hole and dry hole marker. Dry hole marker must include well name, API, QtrQtr STR, Lat/Long, and date.

26. Restore surface location and reclaim per arrangements with the surface developer.

27. Ensure all cement, wireline, and rig tickets are emailed to the office for subsequent reporting.