

## **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. 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 (Justin Medina 720-471-0006) 24 hours prior to MIRU.
6. MIRU drilling rig and auxiliary equipment. Pre-mix mud tanks to 10.0 ppg MW.
7. Install 11" 5M BOP plus rotating head. Notify COGCC Inspector (Justin Medina 720-471-0006) 24 hours prior to BOP test. Conduct 250 psi low / 5000 psi high pressure tests.
8. Pick up 7-7/8" rock bit, near bit stabilizer, motor, bit sub with float, one drill collar, stabilizer, one drill collar or HWDP, and stabilizer. Drill out surface plug from surface to approximately 31'.
9. Pressure test surface casing to 200 psi low / 1000 psi high for 10 minutes each. If test fails, contact engineering to discuss need to remediate at end of job. Proceed to Step 10.
10. Drill through surface casing shoe at 201', continue drilling cement to approximately 220'. (surface casing shoe @ 201') Circulate hole clean.
11. Wash and ream to next expected plug at ~1450'. Circulate hole with clean mud. Discard old mud in waste tank. T00H.
12. Pick up 6-1/8" rock bit, 5-7/8" motor, bit sub with float, and 4-6 drill collars. TIH and tag plug.
13. Drill plug carefully with very little WOB (~1klbs) to avoid sidetracking. Time drill through plug. Expect bottom of plug at ~2000'-2030'. *(set 1700-2030' w/ light cement. Bottom of the Fox Hills @ 2080')* 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.
14. Raise mud weight to 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.

15. Attempt to drill to at least 7700'. Condition mud as necessary until well bore is stable.
16. RU wireline. Run gyro tool to bottom. Gather surveys every 100' coming out of hole. TOH and lay down BHA. Check gyro tool to ensure all data recorded properly.
17. RIH with a 2-3/8" (or 2-7/8") open-ended string.
18. Contact COGCC field inspector (Justin Medina 720-471-0006) 24hr prior to cementing. Rig up cement equipment and pump plugs as follows:
  - **Plug 1:** 7650' to 7066' (plug isolating Niobrara) 200 sx Class G cement with additives as needed. Assume 8-7/8" hole size plus 50% excess.
  - Lay down drill pipe to 5400'. Confirm and document well is static prior to pumping Plug 2. Ensure 4 hour wait time between Plug 1 and Plug 2.
  - **Plug 2:** 5400' to 5192' (plug isolating Sussex) 75 sx Class G cement with additives as needed. Assume 8-7/8" hole size plus 50% excess.
  - Lay down drill pipe to 3050'. Confirm and document well is static prior to pumping Plug 3. Ensure 4 hour wait time between Plug 2 and Plug 3.
  - **Plug 3:** 3050' – 2394' (base of Upper Pierre) 200 sx Premium Gas Block cement. Assume 8-7/8" hole size. If full returns not maintained while pumping cement, WOC six hours and tag plug.
  - Lay down drill pipe to 2180'. Confirm and document well is static prior to pumping plug 4.
  - **Plug 4:** 2180' to 1281' (~100' below base of Fox Hills to 2080') 350 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 8-7/8" hole size.
  - Lay down drill pipe to 910'. Confirm and document well is static prior to pumping plug 5.
  - **Plug 5:** 910' to 810' (~50' below base of Denver @ 858') 60 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 8-7/8" hole size.
  - Lay down drill pipe to 300'. Confirm and document well is static prior to pumping plug 6.
  - **Plug 6:** 300' to surface' (shoe set @ 201') 150 sx Class G cement, mixed at 15.8 ppg plus accelerator and additives as needed. Assume 8-7/8" hole size plus 50% excess. Adjust cement volume as necessary to circulate to surface. Pump cement until cement is seen at surface.
19. ND BOP. Ensure and document all casing and annular spaces are cemented to surface.
20. Rig down rig and all other auxiliary equipment. Move off location.
21. 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 well file.
22. 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.
23. Restore surface location and reclaim per arrangements with the surface owner.

**Note:** Ensure all cement, wireline, and rig tickets are saved in the well file and/or emailed to the engineering for subsequent reporting.