



Procedure to Re-enter & Properly P&A Well Prior to Offset HZ Fracs COA for Silverton DSU

Supervisor: Bob Weitzel
Cell: 970-481-8730

HERGENREDER 32-15

05-123-13148
605' FSL, 1895' FEL
SWSE Sec 32, T5N, R63W
Weld County, CO

Proposed Work:

Locate Well and Make-Up Wellhead

- 1.) Call line locates & provide 48 hr. Form 42 notice to COGCC prior to 'excavation and rig up.'
- 2.) Survey and locate abandoned well, mark with stake, and take location photos.
- 3.) Excavate to expose top of surface casing.
- 4.) Prepare location as necessary for rig.
- 5.) If metal plate is welded on as cap, weld 2" collar to top of 8-5/8" surface casing cap. Make up to collar, pneumatic drill with non-sparking bit. Drill out cap, venting possible trapped gas.
- 6.) Once verified that no gas exists beneath top of surface casing plate, cut off surface casing below plate with torch, dress up smooth.
- 7.) Butt weld 8-5/8" casing to dressed cut, bringing threaded end of casing to ground level.
- 8.) Make up to 8-5/8" casing one 8-5/8" collar, and an 8-5/8" starter wellhead.
- 9.) NU flange adaptor and 5k BOP, test BOP.

Drill out Old Plug/s and Set New Plugs

- 10.) MIRU Rig
- 11.) RIH with 7-7/8" bit (original bore hole) & 5" drill pipe.
- 12.) Drill out surface 10 and 20 sx cement plugs to 450', PSI test or pump-in test to check for lost circulation.
- 13.) If cannot control drilling losses with LCM material, pump 100 sx cement squeeze to control losses.
- 14.) Continue RIH, cleaning out old mud, and wash down with fluid density to maintain slight overbalanced conditions (expect ~ 9.0 ppg). RIH and clean out to target depth of +/- 6,000'. Circulate hole clean.
- 15.) PU Gyro tool and survey the well inside the drill pipe.
- 16.) TOOH drill string, and bit. LD bit & PU and RIH with open ended 5" drill pipe to +/- 6,000'.
- 17.) Perform flow check to ensure well is static.
- 18.) RU cementers. Pump 184 sack balanced plug of 15.8 ppg Class G 'neat' cement inside 7-7/8" open hole from +/- 6,000' up to ~5,500'.

Calculated Sacks for Niobrara Coverage - Plug 1 Re-Entry

Assume Class G Neat
Desired Coverage of 500'
Assume all 7-7/8" Open hole 25% Excess
Yield : 1.15 cu ft / sx

$$500 \text{ lin ft} * \frac{0.3382 \text{ cu ft}}{1 \text{ lin ft}} * \frac{1 \text{ sx}}{1.15 \text{ cu ft}} * 125\% = 184 \text{ Sacks Cement}$$



- 19.) If balanced plug job pumped as designed, SOH with 5" drill pipe to 1,600'. If any indication of issues with balanced plug, WOC and tag if necessary.
- 20.) Perform flow check to ensure well is static.
- 21.) RU cementers. Pump 260 sack balanced plug of 15.8 ppg Class G 'neat' cement inside 7-7/8" open hole from +/- 1,600' plug up to ~900'.

Calculated Sacks for Fox Hill Protection - Plug 2 Re-Entry

Assume Class G Neat
 Desired Coverage of 700' (1,600' to 900')
 Assume all 7-7/8" Open hole 25% Excess
 Yield : 1.15 cu ft / sx

$$700 \text{ lin ft} * \frac{0.3382 \text{ cu ft}}{1 \text{ lin ft}} * \frac{1 \text{ sx}}{1.15 \text{ cu ft}} * 125\% = \text{257 Sacks Cement}$$

- 22.) Pull 5" drill pipe to 500'. Roll hole clean. WOC.
- 23.) RIH with and tag top of cement plug, **confirm TOC**.
- 24.) Verify that all fluid migration (liquid and gas) has been eliminated. Shut in well to see if PSI builds, open well and check for any flow. (If fluid migration or pressure remains, contact COGCC)
- 25.) SOH 5" drill pipe to 453' (150' below surface casing shoe). RU cementers. Pump 160 sacks of 15.8 ppg Class G 'neat' across surface shoe to surface.

Calculated Sacks for Surface Plug in Casing - Plug 3 Re-Entry

Assume Class G Neat
 Desired Coverage of 453' (150 below surface shoe to surface)
 150' of 7-7/8" Open Hole, + 303' of 8-5/8" Casing
 Yield : 1.15 cu ft / sx

$$150 \text{ lin ft} * \frac{0.3382 \text{ cu ft}}{1 \text{ lin ft}} * \frac{1 \text{ sx}}{1.15 \text{ cu ft}} = 44 \text{ Sacks Cement}$$

$$303 \text{ lin ft} * \frac{0.3575 \text{ cu ft}}{1 \text{ lin ft}} * \frac{1 \text{ sx}}{1.15 \text{ cu ft}} = 94 \text{ Sacks Cement}$$

16 Excess
154 Total Sacks Cement

- 26.) POOH with drill pipe. Top off pipe displacement when out of hole. RD cementers.
- 27.) RDMO.

Reclaim

- 28.) Leave bell hole and well uncapped for 5 days to ensure successful plugging.
- 29.) Excavate around wellhead to 8' below grade, cut off 8-5/8" casing, weld on cap with weep hole.
- 30.) Inscribe well name & number, legal location and API on cap.
- 31.) Obtain GPS location data as per COGCC Rule 215.
- 32.) Backfill hole and reclaim surface to original conditions.