

SAFETY is OUR HIGHEST PRIORITY

**Hold well site safety meetings each morning prior to beginning work.
Review critical parameters and daily objectives as well as emergency action plans.
Verify that all personnel understand & are prepared for each day's work**

Hold additional Safety Meetings as needed for Significant Operations

Plug and Abandon Procedure:

1. Mobilize workover/PA rig to location.
 - Check tubing and casing pressures
 - Bleed off any observed pressure
 - Proceed only when well is dead with 0 psi on tubing and casing
2. Kill well as necessary. NDWH and NUBOP. Send wellhead for salvage.
3. RIH w/ 2-3/8" work string to bottom to circulate 9.6 ppg waterbase mud to load casing. POOH
4. RIH to set CIPB @ 6,880' to isolate Niobrara perforations
5. RU cementers and spot 50' Class H cement plug from 6,880' – 6,830'
 - Bottom of plug at 6,880'
 - Plug height = 50' which places top of plug at 6,830'
 - Volume of plug:
 $50' \text{ of } 5\text{-}1/2" \text{ } 17\# \text{ csg} = 50' \times 0.1305 \text{ ft}^3/\text{ft} = 6.5 \text{ ft}^3$
 $6.5 \text{ ft}^3 = 6 \text{ sx Class H @ } 16.4 \text{ ppg}$
6. MIRU casing jacks and wireline unit.
7. Find free point of 5-1/2" casing. RIH w/cutter and cut casing at freepoint. Allow hole to u-tube, filling with 9.5 ppg mud as necessary. CBL shows decent bond to appx 5,660'
8. POOH and lay down 5-1/2" 17# casing and RD wireline.
9. Send 5-1/2" casing for salvage credit.
10. RIH w/ 2-3/8" work string to 1,315' to spot 100' Class H cement plug from 1,315' – 1,215'
 - Bottom of plug at 1,315'
 - Plug height = 100'
Volume of plug:
 $100' \text{ of } 9\text{-}5/8" \text{ } 40\# \text{ csg} = 100' \times 0.4257 \text{ ft}^3/\text{ft} = 43 \text{ ft}^3$
 $43 \text{ ft}^3 = 41 \text{ sx Class H @ } 16.4 \text{ ppg}$

19. Cut off all wellheads and casings 3' below surface.

20. Place 50' of cement in top of surface casing.

➤ Volume of plug:

$$50' \text{ of } 9\text{-}5/8" \text{ 40\# csg} = 50' \times 0.4257 \text{ ft}^3/\text{ft} = 21 \text{ ft}^3$$

$$21 \text{ ft}^3 = 20 \text{ sx Class H @ 16.4 ppg}$$

21. Remove all surface equipment. Weld on well cap, clean and remediate location per COGCC rules