

Federal 4-24 (API: 05-081-06741) Abandonment Procedure

Note: Follow BLM Rules and Regulations for minimum cement density. All volume between plugs must be filled with 9.0ppg equivalent density or greater mud.

Notify BLM before all cement plugs and all perforating operations.

Mustang Energy Contact: Matt Smith 661-809-8699

BLM Petroleum Engineer Contact: Sean Simpson 970-878-3846

1 Prior to Rig, verify wellhead. Program and Diagram Differ!!

2 MIRU Double with 5M Class II BOPE.

3 Fill 500 bbl 'T' Tank with 200+ bbls produced water.

4 Blow Down well through separator to facility.

5 Circulate down tubing and up the casing with returns plumbed to the 'T' Tank.

6 Keep hole full of water at all times.

7 POOH with tubing. Remove Profile Nipple and save.

8 RIH with bit and scraper to ~4,200'. POOH, L/D Bit and Scraper.

9 M/U and RIH with cement retainer to ~4,100'.

10 Mix and pump 45 cf of 15.8 ppg Class G cement.

Leave 100' of cement on top of the retainer.

Note: Various cement additives may be needed to keep the slurry stable at this depth (retarder, dispersant, fluid loss control, etc) - BHST ~130 degF

Total Cement Volume Bottom Plug: 45 cf, 15.8 ppg Class G + Additives

11 POOH 200' above ETOC. Circulate long way 1.5 hole volumes.

12 Wait on cement.

Note: Might have to wait overnight depending on BLM scheduling and time of plugging.

13 M/U packer and tubing, RIH tag top of cement.

14 POOH above top of cement. Set packer. Test casing.

Note: Follow BLM recommendations for test pressure and length of test.

If casing does not test, call engineer (Matt Smith) - plan will need to be amended.

15 If casing passes test, POOH to 1,500'.

Note: All fluid in between plugs needs to be a 9.0 ppg equivalent mud at a minimum.

16 Set a 100' balanced plug from 1,500' to 1,400'. (approx 15 cf of 15.8 ppg class G cement)

17 Ensure tubing is clear of cement. Spot 9.0 mud or greater as POOH.

18 POOH and stand back tubing.

19 RU wireline truck, perforate 50' below surface casing shoe at 386'.

20 Establish circulation up annulus. M/U and RIH with cement retainer. Set at 336'.

21 Mix and pump ~126 cf of 15.8 ppg class G cement.

Note: More cement may be required to bring to surface in 5-1/2" x 8-5/8" annulus.

22 Dig out and cut off wellhead minimum 3' below grade.

23 Top off 5-1/2" casing and all annuli as required.

24 Weld on dry hole plate with legal ID.

25 Prior to back filling - secure legal GPS coordinates.

26 Backfill cellar. Remove rig anchors.

Cement Calculations: Federal 4-24 (API: 05-081-06741)

Plug #1 50% Excess volume down to bottom perforation

Plug #1 100' above retainer

Capacity of 5-1/2" 15.5# 0.0238 bbls/ft

Plug Top 4100

Plug Bottom 4190

Plug Length 90

Plug below retainer 3.213 bbls

Plug above retainer 2.38 bbls

Total Volume 7.64694 bbls

42.9345 cf

Round Up 45 cf

Plug #2 100' Plug at 1,500'

Capacity of 5-1/2" 15.5# 0.0238 bbls/ft

Plug Top 1400

Plug Bottom 1500

Plug Length 100

Total Volume 2.38 bbls

13.3627 cf

Round Up 15 cf

Plug #3 Surface Squeeze and Top Plug

Capacity of 5-1/2" 15.5# 0.0238 bbls/ft

Capacity of 5-1/2" x 8-5/8" annulus 0.0343 bbls/ft

50' below retainer 1.19 bbls

Annulus 13.2398 bbls 74.3362

336' to surface 7.9968 bbls 44.8988

Total Volume 22.4266 bbls

125.916 cf

Round Up 126 cf

WELLBORE DIAGRAM

Company: Mustang Resources LLC
 Lease Name: Federal 4-24
 Lease Number: C-1727
 Location: Sec. 24, T9N, R91W
 County: Moffat, Colorado
 Date Updated: 3/11/2016

KB 6689'
 KB= 11'
 GL 6678'

Spud: 8/9/1991
 API: 05-081-06741
 KB @ 11'

