



Plug to Abandon Procedure

Well Name: Horseshoe Canyon 1-21

Prepared By: _____

Wayne P. Bankert
Reg. & Env. Manager

Horseshoe Canyon 1-21
Workover Procedure

COMPLETIONS SUMMARY

WELL NAME: HSC 1-21

API # 05-077-08456-00

DESCRIPTION / OBJECTIVE: MIRU Service rig to Plug to Abandon wellbore.

WELL INFORMATION

Surface Location: SWSW Section 21, T9S, R97W
 900' FSL & 1000' FWL
 Lat/Long: 39.253995/-108.229054
 Mesa County, CO

Bottom Hole Location: Same

TD (MD/TVD): 7850' MD/7850' TVD

PBTD (MD/TVD): 7806' MD/7806' TVD

Perforations 3030' – 3292': 7592'-7774'

Casing Program Surface: 9 5/8 " 36 lb/ft K-55 at 400' (TOC @ Surface)
 Intermediate: 7" 23.0 lb/ft K-55 at 4090' (TOC @ 2678')
 Liner: 4 1/2" 11.6# K-55 LTC at 7850' (TOC @ 2240')
 Tie-back @ 3850'

Tubing 2 3/8" 4.7 lb/ft L-70 at 7566'. (244 jts)
 4 1/2" Sur-Loc Packer @ 3517' KB

Capacity:

2 3/8" Tubing:	0.00387 bbls/ft
4 1/2" Casing:	0.0155 bbls/ft
2 3/8" x 4 1/2":	0.0101 bbls/ft
7" Casing:	0.0393 bbls/ft
7" x 10 3/4 ":	0.0505 bbls/ft
7' x 8 3/4"(H):	0.0268 bbls/ft

Elevation: GL: 5656' RKB: 5671' (15' KB)

Stratigraphy: Lower Wasatch base not present

Current well status: Workover 7/05 Re-set packer at 3013' KB.

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Take DeBeque exit off I-70. Head south from DeBeque onto 45 ½ Rd for approximately 6.7 miles to the intersection of 45 ½ Rd and Horse Canyon Road on the right. Turn right on Horse Canyon Rd and travel approximately 2.3 miles to an intersection. Turn right and travel 2.2 miles to a “Y” intersection. Take the right fork and continue another ~ 0.1 mile another “Y”. Take the left and continue 0.76 miles staying on the ridgeline road to the HSC 1-21 well pad access.

Alternate Route: From the intersection of Highway 65 and 45 ½ road in Plateau Canyon, travel North on 45 ½ Rd 4.4 mile to the intersection of Horse Canyon Road on the left. From there, follow instructions above.

PROCEDURE:**Plug to abandon:**

1. Hold pre-job safety meeting with all personnel involved in each component of this operation.
2. MIRU Service rig to pull 2 3/8” 4.7 lb/ft L-80 grade production tubing.
3. Top kill well as necessary with water.
4. ND production tree and NU BOPE.
5. Release tubing hanger; pull up and circulate to determine if Sur Loc packer at 3517’ has a bypass. If circulation is established, circulate 160 bbls water to verify no sand on packer.
6. Release Packer and POOH with tubing, packer, and lower assembly. NOTE: If packer will not release, contact Engineer for instructions.
7. Unlatch 4 ½” casing from hanger in preparation to free point pipe.
8. RU wireline service and free point 4 ½” Casing. Verify 4 ½” is 100 % free at +/- 470’.
9. RD wireline and reset 4 1/2” in hanger.

Plug 1:

10. PU 4 ½” CIBP and RIH on 2 3/8” tubing to set at 7550’.
11. Plug: MIRU Cement service company and spot 10 sks Class G cement mixed at 15.8 ppg (Yield 1.15 cu.ft./sk, Water 4.97 gal/sk) on top of CIBP.
12. POOH laying down tubing to +/- 4000’. (~115 jts)

Plug 2:

13. Plug: Balance 300’ cement plug in 4 ½” casing across liner top. MIRU cement service company and pump 25 sks Class G cement mixed at 15.8 ppg (yield - 1.15 cu.ft./sk, water - 4.97 gal/sk) and displace with fresh water to balance cement plug. (plug 3700’-4000’)
14. PO of cement.
15. WOC 2 hrs. RIH and tag top. If tag is at +/- 3650-3750’, continue with procedure.
16. TOOH and rack back ~2730’ of tubing (~88 jts). Lay down remainder.

Plug 3:

17. PU 4 1/2” CIBP and RIH on 2 3/8” tubing to set at +/-2730’.

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18. Plug: MIRU Cement service company and spot 10 sks Class G cement mixed at 15.8 ppg (Yield 1.15 cu.ft./sk, Water 4.97 gal/sk) on top of CIBP.
19. TOOH and rack back +/- 400' of tubing (~13 jts). Lay down remainder

Cut and Pull 4 ½" Casing from 400' to surface:

- Release 4 ½ " from casing hanger
- RU wireline and RIH with Chemical cutter and cut 4 ½" casing at +/- 470'.
- RD wireline
- Pull and lay down 4 ½" casing.

Plug 4:

20. PU 7" CIBP and RIH on 2 3/8" tubing to set at +/- 460'.
21. TOOH of hole and rack back tubing.
22. RIH with 3 3/8" perf gun and shoot 4 spf 90 degree phased 21 gram charges at 450' in 7" intermediate.
23. Rig up to intermediate casing and pump water to establish circulation between intermediate casing and surface casing. IF circulation is established pump 60 bbl of water to flush out Intermediate casing by surface casing annulus. If circulation cannot be established contact Engineer for instructions
24. TIH with tubing to +/- 450'.
25. MIRU cement service company and pump 55 sks Class G cement mixed at 15.8 ppg (yield - 1.15 cu.ft./sk, water - 4.97 gal/sk) and displace with fresh water to balance cement plug.
26. Pull out of cement and allow cement to balance in 7" and 7" x 9 5/8" annulus.
27. WOC 2 hrs. RIH and tag cement.
28. POOH

Plug 5:

29. RIH with 3 3/8" perf gun and shoot 4 holes 90 degree phased at 100'.
30. Rig up cement service company to pump down intermediate casing and circulate up casing annulus.
31. Plug: Establish circulation with fresh water and pump 40 sks Class G neat cement to fill intermediate casing and surface casing annulus.
32. Cut off casing 3-4' below GL. Top off cement if necessary.
33. RDMO Cement service company.
34. RDMO Service rig.
35. Install abandonment marker over SHL as per BLM regulations. The following minimum information shall be permanently placed on the marker with a plate beaded on by welding:
 - a. Operator name
 - b. Federal Lease Serial Number
 - c. Well name and number
 - d. API number
 - e. Location by ¼ ¼ Section, Township and Range.

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CONTACTS:

Reg. and Env. Manager

Wayne Bankert -970-985-5383 (c)
-970-812-5310 (o)

Completions Manager

John Grubich – 970-589-9496 (c)
970-812-5312 (o)

Production Manager

Eric Lane – 970-640-9172

Production Superintendent

Luke Cody – 970-618-2571

Completion Consultant

Dan Hacking – 970-778-1063

COGCC

Shannon Collett - 303-894-2100 ex 5102
970-250-0130 (c)

Craig Burger - 303-894-2100 ex 5687
970-319-4794 (c)