

## PLUG AND ABANDONMENT PROCEDURE

**HSR-B/R D 8-20 | API: 05-123-18321**

1. Note: Production Casing = 2 7/8" OD, 6.5#/ft, J-55; Production Hole Drilled 7 7/8" to 7224'.
2. Note: Production Tubing = 1.66" OD, 2.33#/ft, J-55 set at 7045'.
3. Note: Well needs gyro ran
4. Provide 48 hr notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.).
5. MIRU slick line. Pull bumper spring and tag bottom. Note tag depth in OpenWells. RDMO slickline services.
6. Prepare location for base beam equipped rig. Install perimeter fence as needed.
7. Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.
8. MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing joint.
9. POOH and SB 7045' of tubing.
10. Notify cementers to be on call. Provide volumes listed below:
  - 10.1 Nio/Cd Balanced Plug: 20 sks (4.8 bbls) of class "G" w/ 20% silica flour, 0.4% CD -32, 0.4% ASA -301 and R-3 to achieve 2:30 pump time mixed at 15.8 ppg and 1.38 cuft/sk (6850'-6000' inside 2 7/8", 6.5# casing, no excess)
  - 10.2 SX Circulate Squeeze: 210 sks class "G", 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sk for a total of 43 bbl of slurry (410' inside 2 7/8", 6.5# casing, no excess and 410' in 9-1/2" borehole diameter annular section with 20% excess).
  - 10.3 Balanced Plug: 140 sks of Type III cement, with 1/4 # per sk cello flake and CaCl<sub>2</sub> a necessary, mixed at 14.8 ppg and 1.33 cuft/sk for a total of 33.1 bbl of slurry (187' inside 9-1/2" OH + 20% excess, and 200' inside 8-5/8" surface casing).
11. MIRU Warrior wireline. Run gauge ring for 2 7/8" OD, 6.5# to 6900'. Run gyro from 6900' to surface.
12. PU and RIH with CIBP for 2 7/8" OD, 6.5#/ft, J-55 casing. Set CIBP at 6850'. POOH
13. Pressure test casing and CIBP to 3,000 psi and hold for 15 minutes. Call engineering if test fails. RDMO wireline.
14. Hydro test to 3000 psi while RIH with 1.66" OD tubing to CIBP at 6850'. Tag and record depth.
15. MIRU cementers.
16. Establish circulation and pump 20 sks (4.8 bbls) of class "G" w/ 20% silica flour, 0.4% CD -32, 0.4% ASA -301 and R-3 to achieve 2:30 pump time mixed at 15.8 ppg and 1.38 cuft/sk (6850'-6000' inside 2 7/8", 6.5# casing, no excess)
17. PUH to 5700' and circulate clean. POOH LD 1.66" OD tubing.
18. MIRU wireline.
19. PU two 1-1/16" perf gun with 6 spf, 60 degree phasing, .37" EHD and 2.70" penetration. Shoot 2' of perfs at 4290' for a total of 12 holes. RDMO WL.

TOC: 6330' FHM: 692' SX Top: 4081' Nio Top: 6842'

SX & SH non-productive within 1 mile

Bald Eagle 1/4 mile STIP

Need to run gyro

2-7/8' casing (originally Elk Exploration)

20. Establish circulation with fresh water and biocide and circulate until clean. If unable to establish circulation to surface with good rate, contact engineer to discuss potential of cutting the casing at 4290'.
21. MIRU Cementers. Precede cement with 20 bbl of SMS and a 10 bbl fresh water spacer immediately preceding cement.
22. Pump 210 sks class "G", 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sk for a total of 43 bbl of slurry (410' inside 2 7/8", 6.5# casing, no excess and 410' in 9-1/2" borehole diameter annular section with 20% excess). Displace with wiper plug and 22 bbls of water to place top of cement at 3880'. Shut well in to prevent cement flow-back.
23. WOC 4 hours or recommended time by cementing services.
24. MIRU WL. Tag top of cement with sinker bar. If not above 3880' call Evans engineering to discuss options.
25. Shoot off casing at or below 800'. RDMO WL.
26. Circulate water containing biocide down casing and up annulus through open bradenhead valve to remove any gas. Be sure to circulate until there is no pressure, gas, or condensate remaining.
27. ND BOP, ND TH.
28. Install BOP on casing head with 2 7/8" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.
29. Unland 2 7/8" casing and establish circulation.
30. MIRU Cementers. Pump 10 bbl SAPP with a minimum of 20 bbl fresh water spacer. Pump Balanced Plug down 2 7/8" casing: 140 sks of Type III cement, with 1/4 # per sk cello flake and CaCl<sub>2</sub> a necessary, mixed at 14.8 ppg and 1.33 cuft/sk for a total of 33.1 bbl of slurry (187' inside 9-1/2" OH + 20% excess, and 200' inside 8-5/8" surface casing).
31. PUH to 300'. Circulate with water containing biocide to clean tubing until clear.
32. TOOH. WOC 4 hrs. Tag Cement with tbg. If cement top is at or above 513' proceed to next step, otherwise, call Evans engineering. TOOH and LD all tbg on trailer.
33. MIRU WL. RIH 8-5/8" CIBP to 80'. Set, PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
34. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hrs of the completion of the job.
35. Supervisor submit paper copies of all invoices, logs, and reports to Evans specialist.
36. Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
37. Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
38. Welder cut 8 5/8" casing minimum 5' below ground level.
39. MIRU ready cement mixer. Use 4500 psi compressive strength cement, (NO gravel) fill stubout.
40. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
41. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
42. Properly abandon flowlines per Rule 1103.
43. Back fill hole with fill. Clean location, level.

TOC: 6330' FHM: 692' SX Top: 4081' Nio Top: 6842'  
 SX & SH non-productive within 1 mile  
 Bald Eagle 1/4 mile STIP  
 Need to run gyro  
 2-7/8' casing (originally Elk Exploration)

44. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed. File electronic Form 42 once abandonment complete.

TOC: 6330' FHM: 692' SX Top: 4081' Nio Top: 6842'  
SX & SH non-productive within 1 mile  
Bald Eagle ¼ mile STIP  
Need to run gyro  
2-7/8' casing (originally Elk Exploration)