

RWF 414-4

Casing Repair Recommendation

Procedure:

1. MIRUSU, pump and tanks
2. ND Tree and NU BOPE

Prep to Cement

3. PU Tubing and TIH with Packer and 5 jts of tailpipe
4. Dump 5 sx sand on top of RBP.
5. Set packer above RBP. Pressure test RBP to 1000 psi.
6. With packer, pressure test casing to further isolate interval that leaks. (Current area identified is 1942' – 2402').
7. With leak area identified, record stabilize pressure required to establish injection rate of 1 bpm.
8. TIH so the bottom of tailpipe is set at deepest leak.

Cementing – Bullhead into Surface/Production Casing annulus

9. Mix 225 sx cement. Spot cement to end of tailpipe. (Tubing Volume = 9.3 bbls, 22 sx, need 7.1 bbls, 17 sx placed in casing)
10. TOH with tubing so that the packer is at 1350' (EOT will be +/-1500', 440' above the topmost leak). Set packer.
11. Make sure the Bradenhead valve is CLOSED.
12. Pump 15 sx (6 bbls) cement into holes or until max pressure of 600 psi is reached – whichever comes first.

Cementing – Circulation/Hesitation

13. OPEN Bradenhead Valve to allow circulation.
14. Pump cement into holes at rate of 2+ bpm (pressure not to exceed 600 psi)
15. Pump a total of 225 sx. Displace with produced water to EOT.
16. CLOSE Bradenhead Valve
17. Pressure up on tubing to pressure recorded in step 7 + 200 psi.
18. Shut down pumping for 15 minutes. (If pressure drops below stabilized pressure recorded in step 7 during the shut in phase, then bump pressure by 100 psi).
19. At end of 15 minutes shut in, step up pressure by 150 psi.
20. Repeat steps until surface pressure reaches 600 psi
21. Do not pump more than 5 bbls total during hesitation squeezes.
22. Hold and monitor pressure for 2 hours.
23. At end of 2 hours, slowly bleed off pressure and watch for returns.
24. Release packer and TOH.

Land Production String

25. TIH with bit for 4-1/2" 11.6 ppf casing.
26. Drill up cement, noting top and bottom depths.
27. Pressure test casing to 500 psi.
28. If pressure test fails to hold, then evaluate for re-squeeze.
29. TOH with bit.
30. RU Wireline Unit and run CBL from 3000' to TOC. RD Wireline Unit.
31. TIH with RBP retrieving head.
32. Circulate sand off RBP, latch on and TOH

33. TIH with production string (NC, SN and tubing).

34. Land EOT between 8120'- 8150'.

35. ND BOPE and NU Tree

Cement blend:

Weight: 12.3 lb/gal

Yield: 2.33 ft³/sx

Water Required: 13.55 gal/sx (72 bbls total for cement + displacement volume)

Sacks Required: 225