

## Short Procedure: Union Pacific 72X31 - Squeeze csg leak and P&A

1. MIRU workover rig and equipment. Check pressure on all casing strings (including bradenhead). **Record tubing and casing pressures every day on the WellView report.**

2. Bleed off pressure. Kill well with 10.0 ppg or less KMW, if necessary.

**NOTE: Unless there is a well control event, do not pump heavier than 10.0 ppg KWF. Confirm with the Workover Engineer and Superintendent that well is WellSafe Well Design Certified prior to using CaCl<sub>2</sub>.**

3. Set BPV in hanger (**WSEA 10A**), if possible. N/D tree. N/U 7-1/16" 5K BOP with 3K Washington head, 3K annular and 2-7/8" pipe rams on top of blind rams (**WSEA 8A**). Pull BPV. Test BOPE to 250 psi low/1400 psi high.

NOTE: If BPV cannot be set, the well must be monitored for flow for 15 minutes or longer before installing BOP.

4. Caliper elevators and document in WellView. P/U additional joints and TIH and latch RBP @ 4,525'. TOOH with the 2-7/8" tubing laying down. L/D RBP.
5. P/U RBP retrieval tool. TIH to RBP @ 5,580'. Latch RBP and TOOH. L/D RBP.
6. P/U 7" CICR and TIH to 5,580' and set. Establish injection rate to perforations.
7. MIRU cement provider. Test lines to 500 psi above established injection rate pressure. Squeeze Weber perforations (5636'-6170') with ~215 sxs of 15.8 ppg, 1.15 ft<sup>3</sup>/sx, Class "G" cmt (~44 bbls). Sting out of retainer with 4 bbls of cmt in the tubing and leave 4 bbls (100') of cement on top of the retainer. TOOH. P/U 7" packer and TIH and set 50' above TOC. Ensure cmt has reached 500 psi compressive strength. **Pressure test cmt/CICR to the greater of MASP or 500 psi for 15 minutes (WSEA 10B)**. Spot plug mud to 4,683'. TOOH.
8. P/U 7" CICR and TIH to 4,600' and set. Establish injection rate into casing leak interval (4,653'-4,683').
9. MIRU cement provider. Test lines to 500 psi above established injection rate pressure. Squeeze casing leak with ~55 sxs of 15.8 ppg, 1.15 ft<sup>3</sup>/sk, Class "G" cmt (~11 bbls). Sting out of retainer with 4 bbls cmt in the tubing and leave 4 bbls (100') of cement on top of the retainer. Spot plug mud to 3,070'. TOOH.

10. MIRU E-line. Test lubricator to 500 psi for 5 min. P/U perf guns, RIH, and perforate the 7" with 90° phasing, 4 SPF guns at 3070'. POOH. RDMO with E-line. Establish injection rate from surface.

**NOTE: Method used to squeeze perforations will be based on injection rate. Volumes may be adjusted as well. Will need to communicate with the COGCC on the squeeze method and volumes. May have to tag TOC.**

11. MIRU cement provider. Test lines to 500 psi above established injection rate pressure. Squeeze perforations @ 3,070' with ~ 64 sxs of 15.8 ppg, 1.15 ft<sup>3</sup>/sk, Class "G" cmt (~13 bbls). Displace cmt leaving 7 bbls bbls cmt inside the casing.

**NOTE: Method used to squeeze perforations will be based on injection rate. Volumes may be adjusted as well. Will need to communicate with the COGCC on the squeeze method and volumes. May have to tag cmt.**

12. MIRU E-line. Test lubricator to 500 psi for 5 min. P/U perf guns, RIH to 826' (50' below the surface casing shoe) and perf 7" with 90° phasing, 4 SPF guns. POOH. RDMO with E-line. Establish injection rate from surface.

13. MIRU cement provider. Test lines to 500 psi above established injection rate pressure. Squeeze perforations @ 826' with ~ 498 sxs of 15.8 ppg, 1.15 ft<sup>3</sup>/sk, Class "G" cmt (~102 bbls). WOC to achieve 500 psi compressive strength. **Pressure test surface cmt plug to the greater of MASP or 500 psi for 15 minutes (WSEA 10C).**

**NOTE: Method used to squeeze perforations will be based on injection rate. Volumes may be adjusted as well. Will need to communicate with the COGCC on the squeeze method and volumes. May have to tag TOC.**

14. **Flow Check well for 15 minutes (WSEA 10D).** N/D BOPE. Cut all casing and anchors & remove to 3' below grade. Verify cmt to surface. Weld on dry hole marker.
15. Notify production personal in field office and contact pumper that location is ready for final reclamation. Complete Ownership Transfer Document from D&C to Operations. RDMO workover rig and equipment. **ENSURE LOCATION IS CLEAN.**