



**Nelson Ranches A-7
REDTAIL
Remedial Cement
API No. 051231965100
AFE #**

WELL DATA

Surface Location: 2,280' FSL & 2,280' FEL of Sec 20, T10N, R58W, Weld County, CO

Elevations: Ground Level: 4807 ft Kelly Bushing: 4818 ft (11' KB)

Depths: Total Depth: 6670 ft KBMD

Surface Casing:

<u>OD</u>	<u>Grade</u>	<u>Weight</u>	<u>ID</u>	<u>Drift</u>	<u>Cap</u>	<u>Collapse</u>	<u>Burst</u>	<u>Tensile</u>
8-5/8"	J-55	24	8.097 in	7.972 in	0.0636 bbl/ft	1370 psi	2950 psi	244,000 Lbs.

Production Casing:

<u>OD</u>	<u>Grade</u>	<u>Weight</u>	<u>ID</u>	<u>Drift</u>	<u>Cap</u>	<u>Collapse</u>	<u>Burst</u>	<u>Tensile</u>
4-1/2"	L-80	11.6	4.000 in	3.875 in	0.0155 bbl/ft	6350 psi	7780 psi	212,000 Lbs.

OBJECTIVE

The following is a procedure to place remedial cement in order to isolate the Niobrara formation and uphole groundwater zones in the Nelson Ranches A-7 well located in Weld County, Colorado.

***Note: All values in red need to be verified with CBL**

Remedial Cement Procedure

1. MIRU WO rig. Mob-in pump, tank, tubing float, and all other necessary equipment. NU 7-1/16" 5K BOP w/ 2-3/8" pipe rams on top and blind rams on bottom, pressure test high and low, function test BOP. Have delivered clean 500-bbl upright tank and fill with fresh water. Fresh water to be used for cementing operation, circulating, and cement displacement.
2. Bleed any pressure off well. TOOH with 2-3/8" tbg laying down on tbg float. PU 2-3/8" workstring, bit and scraper for 4-1/2" csg, TIH to 6,550 ftKB. TOOH, LD tools.
3. PU composite BP for 4-1/2", 11.6 lb/ft casing. RIH and set BP @ 6,525 ftKB. Dump bail 5 sks of cmt on top of BP. Circulate well clean. TOOH w/ 2-3/8" workstring standing back. Change out Larkin head for 5K wellhead equipment.
4. MIRU wireline company. PU CBL logging tools and NU pack-off or lubricator. RIH w/ logging tools to 6,450 ftKB and log under 1,500 psi. Send processed log to engineer **ASAP** and verify depths prior to moving forward.
5. PU 1-ft perforating guns loaded w/ 4 spf, 90 degree phasing (0.50" EHD) and pack off, NU pack-off to BOP. RIH w/ gun and fire gun **5,700 ftKB**. POOH with spent gun, ND pack-off, LD gun, and ensure all shots fired.
6. PU cement retainer for 4-1/2" 11.6 lb/ft csg, TIH on 2-3/8" tbg. Set retainer at **5,650 ftKB**. Sting into CR and establish circulation to surface. If circulation is established, circulate 200 bbls fresh water mixed with 20 bbls of chem wash (circulate full amount or when returns clean up). Pull into test position, pressure test tbg to 1,000 psi., sting back in and establish injection rate into perforations, target 2 bpm injection rate (monitor 4-1/2" csg for pressure). Record rate and pressure. Pass onto engineering and cement company.
7. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix and pump 80 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement, squeezing through perforations @ **5,700 ftKB**. Shut in surface csg valve, sting out, spot 5 sks cement on top of CR. TOOH w/ 4 stands, reverse clean with fresh water. TOOH w/ remaining tbg. Let cement cure overnight.

8. TIH w/ tbg, tag TOC, and record depth. Pass information onto engineer. TOO H, LD tbg.
9. MIRU wireline company. PU CBL logging tools and NU pack-off or lubricator. RIH w/ logging tools to 5,600 ftKB and log under 1,500 psi. Send processed log to engineer **ASAP** and verify depths prior to moving forward. TOO H, LD tools.
10. PU 1-ft perforating guns loaded w/ 4 spf, 90 degree phasing (0.50" EHD) and pack off, NU pack-off to BOP. RIH w/ gun and fire gun 1,800 ftKB. POOH with spent gun, ND pack-off, LD gun, and ensure all shots fired.
11. PU cement retainer for 4-1/2" 11.6 lb/ft csg, TIH on 2-3/8" tbg. Set retainer at 1,750 ftKB. Sting into CR, close BOP rams, open csg valve, close hydril, and establish circulation to surface. If circulation is established, circulate 100 bbls fresh water mixed with 20 bbls of chem wash (circulate full amount or when returns clean up). Record rate and pressure. Pass onto engineering and cement company.
12. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix and pump 80 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement, circulate squeeze through perforations @ 1,800 ftKB and up to surface. Shut in surface csg valve, sting out, spot 5 sks cement on top of CR. TOO H w/ 4 stands, reverse clean with fresh water. TOO H w/ remaining workstring laying down. Let cement cure overnight.
13. TIH w/ tbg, tag TOC, and record depth. Pass information onto engineer. TOO H, LD tbg.
14. MIRU wireline company. PU CBL logging tools and NU pack-off or lubricator. RIH w/ logging tools to 1,700 ftKB and log under 1,500 psi. Send processed log to engineer **ASAP** and verify depths prior to moving forward.
15. MIRU wireline company. PU 1-ft perforating guns loaded w/ 4 spf, 90 degree phasing (0.50" EHD) and pack off, NU pack-off to BOP. RIH w/ gun and fire gun 850 ftKB. POOH with spent gun, ND pack-off, LD gun, and ensure all shots fired.
16. PU cement retainer for 4-1/2" 11.6 lb/ft csg, TIH on 2-3/8" tbg. Set retainer at 800 ftKB. Sting into CR, close BOP rams, open csg valve, close hydril, and establish circulation to surface. If circulation is established, circulate 50 bbls fresh water mixed with 10 bbls of chem wash (circulate full amount or when returns clean up). Record rate and pressure. Pass onto engineering and cement company.
17. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix and pump 130 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement, circulate squeeze through perforations @ 850 ftKB and up to surface. Shut in surface csg valve, sting out, spot 5 sks cement on top of CR. TOO H w/ 4 stands, reverse clean with fresh water. TOO H w/ remaining workstring laying down. Let cement cure overnight.
18. TIH w/ tbg, tag TOC, and record depth. Pass information onto engineer. TOO H, LD tbg.
19. MIRU wireline company. PU CBL logging tools and NU pack-off or lubricator. RIH w/ logging tools to 800 ftKB and log under 1,500 psi. Send processed log to engineer **ASAP** and verify depths prior to moving forward.
20. ND BOP, NU WH, RDMO WO rig.
21. Verify pressure gauges are installed. Monitor pressures daily during offset frac operations.

Whiting Operating stresses safety and environmental stewardship in all operations. Safety tailgate meetings are encouraged prior to commencing with any major wellsite task. Spills of notable size should be reported and recorded. The proper personal protective equipment (PPE) should be worn at all times while on location. Should there be any questions regarding Whiting's safety/environmental policies, the Wellsite Supervisor will provide instruction.

EMERGENCY CONTACT INFORMATION

Contacts	Phone Number & Description
EMERGENCY	911 or (800) 472-2121
Sheriff's Department (Sterling, CO)	(970) 522-3512 (Logan County)
New Raymer Fire Dept	(970) 437-5713
After Hours Emergency (WOG)	
Engineer: James Kopp	Cell: (303) 681-1997, Office: (303) 357-1410
Rig Supervisor: Brent Brown	Cell: (701) 290-0123
Operations Supervisor: Mike Staab	Cell: (307) 299-0095, Office: (970) 493-2900