



**Horsetail 19N-1924M
REDTAIL
Operations Procedure
API No. 051233988500**

WELL DATA

Surface Location: 660' FSL & 2,656' FEL of Sec 19, T10N, R57W, Weld County, CO

Elevations: Ground Level: 4748 ft. Kelly Bushing: 4767 ft. (18.5' KB)

Depths: Total Depth: 9370 ft. KBMD

Surface Casing: Set @ 1,564'

<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>
9-5/8"	J-55	36.00 lb.	8.921 in	8.765 in	0.0773 bbl/ft	2020 psi	3520 psi	394000 lbs.

Production Casing: Set @ 9,328'

<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>
7"	L-80	29 lb.	6.814 in	6.059 in	0.0371 bbl/ft	7020 psi	8160 psi	676000 lbs

OBJECTIVE

The following is a procedure to plug and abandon the Horsetail 19N-1924M

Operations Procedure:

1. Provide the COGCC with 48-hour notice of MIRU via electronic Form 42.
2. MIRU workover rig. Mob-in pump, swivel, two (2) 500 bbl working tanks, one (1) 500 bbl flat tank, and all other necessary equipment. ND wellhead, 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. NU circulating head.
3. MIRU Wireline. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 8,940' KB. POOH spent gun, LD gun, ensure all shots fired.
4. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 8,840', establish rate into perfs & record pressure. MIRU cmt company, squeeze perfs w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOO. H.
5. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 7,710' KB. POOH spent gun, LD gun, ensure all shots fired.
6. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 7,610', establish rate into perfs & record pressure. Squeeze perfs w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOO. H.
7. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 7,150' KB. POOH spent gun, LD gun, ensure all shots fired.
8. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 7,050', establish rate into perfs & record pressure. Squeeze perfs w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOO. H.
9. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 6,600' KB. POOH spent gun, LD gun, ensure all shots fired.
10. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 6,500', establish rate into perfs & record pressure. Squeeze perfs w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOO. H.

11. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 6,110' KB. POOH spent gun, LD gun, ensure all shots fired.
12. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 6,010', establish rate into perms & record pressure. Squeeze perms w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOOH.
13. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 5,370' KB. POOH spent gun, LD gun, ensure all shots fired.
14. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 5,270', establish rate into perms & record pressure. Squeeze perms w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOOH.
15. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 1,610' KB. POOH spent gun, LD gun, ensure all shots fired.
16. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 1,510', establish rate into perms & record pressure. Squeeze perms w/ 50 sks Class G, 15.8 lb., 1.5% CaCl, cmt. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOOH.
17. PU 1-ft perforating gun loaded w/ 4 spf, 90 degree phasing (0.50" EHD). RIH w/ gun and perforate @ 750' KB. POOH spent gun, LD gun, ensure all shots fired.
18. PU cmt retainer, TIH on 2-3/8" workstring and set cmt retainer at 650'. RU pump lines to production csg head outlet, access csg head (A section valve, open valve and plumb to flow back tank, slide blind rams. Pump freshwater down 7" csg and establish circulation out A section outlet to flowback tank. Mix and pump 110 sks Class G, 15.8 lb., 1.5% CaCl, circulating cement down 7" csg and out A section. Sting-out & leave 5 sks on top of cement retainer. POOH w/ 2 joints of workstring standing back, reverse clean, TOOH.
19. Mix and pump 10 sks Class G, 15.8 lb., 1.5% CaCl, cmt., balancing plug from 50' to surface.
20. Cut off WH to 5' below GL and fill hole.
21. Weld on cap with plugging information plate. Backfill cellar.

SAFETY & ENVIRONMENTAL

****EMERGENCY CONTACTS BELOW****

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: Bryan Olmstead	Cell: (970) 290-8333