



Johnston 1

Plug and Abandon Operations Procedure

API # 051231966800

AFE #

WELL DATA

Surface Location: 1930' FSL & 660' FWL of Sec 32, T10N, R58W, Weld County, CO

Elevations: Ground Level: 4,770 ft Kelly Bushing: 4,781 ft 11.0 ft (KB)

Depths: Total Depth: 6,639 ft KBMD Perforations: 6,488' - 6,491'

Casing	Depth	OD	Grade	Weight	ID	Drift	Cap	Collapse	Burst	Tensile
Surface	215 ft	8-5/8"	J-55	24.0 #	8.097 in	7.972 in	0.0637 bbl/ft	1,430 psi	3,480 psi	451,000 lbs.
Prod.	6,639 ft	4-1/2"	L-80	11.6 #	4.000 in	3.875 in	0.0155 bbl/ft	6,350 psi	7,780 psi	212,000 lbs.

Tubing	Depth	OD	Grade	Weight	ID	Drift	Cap	Collapse	Burst	Tensile
2-3/8"	324 ft	2-3/8"	J-55	4.7 #	1.995 in	1.900 in	0.0040 bbl/ft	8,100 psi	7,700 psi	72,000 lbs.

Notes

Casing leaks from 1489' - 1566' & a lower leak at from 2950' - 3029'.

10 joints of tubing in hole.

There is an RBP with sand on top of it at 2,950'.

There is a CICR at 1,432' with a failed cement squeeze between it and the RBP. Expect to see cement stringers.

Niobrara top: 5698'. Lower Pierre: 1550'.

No CBL on file.

Drill hole is 7 7/8".

All depths are KB.

OBJECTIVE

The following is a procedure to plug and abandon the Johnston 1 vertical well that is currently shut in.

Operations Procedure

1. Notify COGCC at least 48-hours prior to the start of operations using a Form 42. Verify with Stephen Cantú that this is completed prior to moving the rig in. 830-719-5404
2. Take certified GPS coordinates of exposed wellhead. Information is required for the Form 6 submittal when P&A work is complete.
3. MIRU plugging rig. Mob-in pump, tank, 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. Heat as necessary. Fresh water to be used for cementing operation, circulating, and cement displacement.
4. PU & RIH 2 3/8" tubing string with CICR stinger nipple. Sting into CICR and establish injection rate. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix 125 sacks of Class G , 1.15 cu-ft/sk 15.8ppg cement. (Yield 25.6 bbls). Attempt to squeeze all cement into the casing failure. Sting out, and reverse tubing clean.
5. POOH tubing, and PU & RIH with a 3-1/2" rock bit and casing scraper with ~1,430' of 2-3/8" workstring. Tag CICR that is set at 1,432'.
6. RU power swivel and start drilling out CICR. Continue drilling out cement stringers and/or any solid cement that may be present. Drill out to 2,940' to the sand that is set on RBP at 2,950'. Pressure test squeeze to 300 psi. NOTE: If it holds, then we will consider this casing leak repaired. If it fails, then we will pump a balanced plug across this zone later on in the job. Contingency details below.
7. TOOH standing back and LD bit and scraper. RIH with RBP retrieving head to 2,940'. Start circulating to clean off sand from on top of RBP. Latch on to, release, POOH, and LD RBP.
8. RU slickline with Gyro. Run survey on well from 6,488' (top of perforated interval) to surface. Verify good data. RD Slickline.
9. PU & RIH with CIBP (4" 11.6# casing) and RIH with 2-3/8" PH-6 workstring. Set CIBP at 6,450'.
10. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix 125 sacks of Class G , 1.15 cu-ft/sk 15.8ppg cement. (Yield 25.6 bbls).

bbls). Pump cement on top of CIBP.

11. POOH LD tubing to 5,775'. Mix 20 sacks of Class G, 1.15 cu-ft/sk 15.8ppg cement. (Yield 4.1 bbls). Place balanced plug from 5775' to 5510'. TOOHD 4 stands and reverse clean with fresh water. Shut down for day.
12. RIH and tag top of cement noting depth. TOOHD LD tubing to 3060'.
13. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix 15 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement (yield 3.1 bbls). Place balanced plug from 3060' to 2860'. TOOHD 4 stands and reverse clean with fresh water. Shut down for day.
14. RIH and tag top of cement noting depth. Ensure top of cement is at least at 2950'.
15. CONTINGENCY: If squeeze to repair leak from 1489' - 1566' failed, then MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix 20 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement (yield 4.1 bbls). Place balanced plug from 1650' to 1400'. TOOHD 4 stands and reverse clean with fresh water. Shut down for day.
16. IF SQUEEZE SUCCEEDED: MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix 10 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement (yield 2.05 bbls). Place balanced plug from 1650' to 1520'. TOOHD 4 stands and reverse clean with fresh water. Shut down for day.
17. RIH and tag top of cement noting depth. If squeeze was successful, then plug top needs to be at 1550'. If squeeze was not successful, then plug top needs to be at 1475'. In either case, if the plug top is not at the required depth, then mix and pump cement to bring plug top to required depth.
18. TOOHD LD tubing.
19. MU perforating tools. RIH to 265' and shoot circulation holes in the production casing. Establish circulation up surface casing.
20. MIRU cement crew. Pressure test surface lines to 2,000 psi. Mix 80 sks, Class G, 1.15 cu-ft/sk, 15.8 ppg cement (yield 16.4 bbls). Pump cement and circulate around to cover surface casing shoe, and fill the surface/production casing annulus, as well as the production casing.
21. RD BOPs and remove wellhead. Check to verify that cement is still at surface. RD workover rig. Dig down below surface and cut off casing at least 5' from surface.
22. If cement is not at surface: fill surface casing and production casing with cement to surface.
23. Verify any existing flowlines are abandoned properly according to COGCC regulations, and that they are flushed and capped on both ends.
24. Weld on cap with plugging information plate. (API # - 051231966800) (Well Name - Johnston 1) (Legal location - 1930' FSL & 660' FWL of Sec 32, T10N, R58W, Weld County, CO)
25. Back Fill Cellar.
26. Reclaim disturbed surface.

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
Production Engineer: Stephen Cantú	Cell: (830) 719-5404, Office: (303) 390-4093
Rig Supervisor: Brent Brown	Cell: (701) 290-0123, Office: (970) 407-3009