

PLUG AND ABANDONMENT PROCEDURE

FRANK 5-8

Step Description of Work

Note: Production Casing = 4 1/2" OD, 11.6#/ft, I-80; Production Hole Drilled @ 7 7/8";

- 1 Provide 48 hr notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). Call foreman or lead operator at least 24 hr prior to rig move. Request they catch and remove the plunger, isolate production equipment and remove any automation prior to rig showing up. Install perimeter fence as needed.
- 2 MIRU slickline services. Pull bumper spring and tag bottom. Run pressure bomb and obtain pressure gradient survey from surface to 7800' making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO slickline services.
- 3 Notify IOC when rig mobilizes to location to generate workorder for flowline removal & one call for line locates.
- 4 Prepare location for base beam equipped rig. MI ~15 additional 2 3/8 " prod tbg jts.
- 5 MIRU, kill as necessary using clean fresh water with biocide and circulate. ND WH. NU BOP. Unseat landing jt, LD.
- 6 Notify cementers to be on call. Provide volumes listed below:
 - 6_1 Niobrara Plug: 40 sx class G w/ 20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 mixed at 15.8 ppg and 1.38 cuft/sk (7.9 bbls) (Inside 4 1/2" Casing, no excess)
 - 6_2 Sussex Casing Plug: 50 sx class "G", 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cf/sx (9.4 bbls) (inside 4 1/2" casing)
 - 6_3 Stub Plug: 330 sx Type III CaCl₂ cement w/0.25 pps cello flake mixed at 14.0 ppg and 1.53 cf/sx (88.8 bbls) (100' in 4 1/2" prod casing, 424' in 12 1/4" OH + 20% Caliper Log, and 206' in 8 5/8" surface casing)
- 7 TOOH 2 3/8 " production tubing. Stand Back.
- 8 MIRU WL. RIH gauge ring for 4 1/2" 11.6#/ft casing to 7787'.
- 9 RIH CIBP w/ WL. Set at 7690'. PU dump bailer, dump bail 2 sx class 'G' cement on CIBP. PT Casing to 1000 psi. RDMO Wireline.
- 10 RIH to 7110' w/ 2 3/8 " tubing while hydrotesting to 3,000 psi.
- 11 RU Cementers. Pump Niobrara Plug: 40 sx class G w/ 20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 mixed at 15.8 ppg and 1.38 cuft/sk (7.9 bbls) (Inside 4 1/2" Casing, no excess) to place balanced plug.
- 12 PUH 11 stands. Circulate 90 bbls water containing biocide to clear tubing. P&LD tbg to 4600'.
- 13 RU Cementers. Pump Sussex Casing Plug: 50 sx class "G", 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cf/sx (9.4 bbls) (inside 4 1/2" casing) to place balanced plug from 4600' to 3995'.
- 14 PUH 12 stands. Circulate 55 bbls water containing biocide to clear tubing. TOOH & WOC 4 hrs. Tag Cement. If Cement is below 3998', call production engineer. Otherwise, P&LD tbg to 1320'. SB Remainder.
- 15 RU WL. Shoot off casing at or below 1220'. RDMO WL. Circulate a full circulation with water containing biocide to remove any gas.
- 16 NDBOP, NDTH.
- 17 Install BOP on casing head with 4 1/2" pipe rams.

- 18 TOO H with 4 1/2" casing, LD.
- 19 RIH with 2 3/8 " tubing to 1320'.
- 20 RU Cementers. Spot Stub Plug: 330 sx Type III CaCl₂ cement w/0.25 pps cello flake mixed at 14.0 ppg and 1.53 cf/sx (88.8 bbls) (100' in 4 1/2" prod casing, 424' in 12 1/4" OH + 20% Caliper Log, and 206' in 8 5/8" surface casing).
- 21 Circulate 5 bbls water containing biocide to clear tubing.
- 22 TOO H. WOC 4 hrs. Tag Cement. Cement top needs to be above 696'; Proceed assuming TOC is above 696'. Otherwise, call production engineer.
- 23 MIRU WL. RIH 8 5/8" CIBP to 100'. Set, PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
- 24 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hrs of the completion of the job.
- 25 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 26 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 27 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 28 Welder cut 8 5/8" casing minimum 5' below ground level.
- 29 MIRU ready cement mixer. Use 4500 psi compressive strength cement, (NO gravel) fill stubout.
- 30 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 31 Properly abandon flowlines per Rule 1103.
- 32 Back fill hole with fill. Clean location, level.
- 33 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed. File electronic Form 42 once abandonment complete.