

## PLUG AND ABANDONMENT PROCEDURE

### BUSKER 11-28A

- | Step | Description of Work  |
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| 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 IOC (970-506-5980) at least 24 hr prior to rig move. Request they catch and remove plunger, isolate production equipment and remove any automation prior to rig MIRU. |
| 2    | MIRU slickline services. Pull bumper spring and tag bottom. RDMO slickline services.   |
| 3    | Prepare location for base beam equipped rig. Install perimeter fence as needed.  |
| 4    | Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.   |
| 5    | MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.  |
| 6    | TOOH and stand back 2 3/8" production tubing (222 jts landed @ 8098').   |
| 7    | MIRU WL. PU and RIH with 4-1/2" gauge ring to 8100'.   |
| 8    | PU and RIH with 4-1/2" CIBP and set at 8050'. PT casing and CIBP to 1000 psi for 15 minutes. RDMO WL.  |
| 9    | Notify cementers to be on call.  |
| 10   | RIH 2-3/8" tbg while hydrotesting to 3000 psi. Tag CIBP at 8050' and pick up 5'.   |
| 11   | RU Cementers. Pump Niobrara balanced plug on top of CIBP: 96.36 cu-ft & 70 sx) "G" w/ 20% silical flour, 0.4% CD-32, 0.4% ASA-301, and R-3 to achieve 2:30 pump time mixed at 15.8 ppg and 1.38 cuft/sk. Calculated top of plug in the 4-1/2" csg is 6950'.  |
| 12   | PUH to leave end of tubing at 5400' and circulate hole clean with fresh water w/biocide.   |
| 13   | Pump Sussex Balanced plug: 92 cu-ft (80 sks) "G" w/ 0.4% CD-32, 0.4% ASA-301 with CaCl <sub>2</sub> as necessary mixed at 15.8 ppg, 1.15 cuft/sack. Calculated top of plug at 4300' based in the 4-1/2" csg covering the Stage Tool at 5328'.  |
| 14   | PUH to ~4000' and circulate hole clean. WOC per cement company recommendation.   |
| 15   | RIH and tag top of plug at 4300'. POOH, standing back 46 jts and laying down the rest.   |
| 16   | ND BOP and wellhead. Install a BOP on surface casing head with 4-1/2" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.  |
| 17   | MIRU Wireline. Cut off 4-1/2" csg at 1350'. RDMO WL. Circulate using water and biocide to remove any gas from wellbore.  |
| 18   | POOH and LD 4-1/2" csg. Remove the 4-1/2" pipe rams and Install 2-3/8" pipe rams.  |

- 19 RIH w/ 2-3/8" tbg open ended 100' past the 4-1/2" csg stub to 1450'.
- 20 RU Cementers. Pump mud flush of 10 bbls SAP followed by 20 bbls water spacer.
- 21 Pump Fox Hills Balanced plug: 412 cu-ft (310 sx) Type III w/cello flake and CaCl<sub>2</sub> as deemed necessary, mixed at 1.33 cf per sack, 14.8 ppg. Plug size is based on 9" hole with 20% excess covering 1350' to shoe of surface casing at 718' plus capacity of surface casing to 500'.
- 22 PUH to 150' and Circulate out any excess cmt. TOH and WOC per cement company recommendation.
- 23 RIH and tag top of plug. Plug needs to be tagged at 532' or shallower. Consult Evans Engineering to confirm tag. POOH and LD 2-3/8" tbg.
- 24 RU wireline. Run and set CIBP in the 8 5/8", 24# surface casing at 80'. PT CIBP and surface casing to 1000 psi for 15 minutes. Assuming successful test, RD wireline.
- 25 RDMO workover rig.
- 26 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hrs of completion of the job.
- 27 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 28 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 29 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 30 Welder cut casing minimum 5' below ground level.
- 31 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 32 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 33 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 34 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 35 Back fill hole with fill. Clean location, level.
- 36 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

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