

PLUG AND ABANDONMENT PROCEDURE

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WEBER L 4-5

- | 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 Automation Removal Team at least 24 hr prior to rig move. Request they isolate production equipment and remove any automation prior to rig showing up. Install perimeter fence as needed. |
| 2 | RU Slickline services. RIH, pull bumper spring and tag bottom. (Last activity in well was a gyro run from 7200'). Make note in Openwells of tag depth. |
| 3 | Prepare location for base beam equipped rig. |
| 4 | Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL. |
| 5 | MIRU workover rig. ND WH, NU BOPs. Spot trailer with 30 jnts of 1.66" IJ tubing for replacement. Circulate with fresh water with biocide to control well. |
| 6 | Notify Cementers to be on call. |
| 7 | MIRU WL. RIH w/ gauge ring and junk basket for 2-7/8", 6.5#, csg to 7300'. RIH w/ CIBP for 2-7/8" tbg and set at 7226'. (Nearest collars are at 7220' and 7236'). RD WL. |
| 8 | RIH w/ 1.66" IJ tbg while hydrotesting to 3000 psi. Tag CIBP at 7226' and PU 5'. Circulate tubing with fresh water and biocide to remove all gas and PT casing to 3000 psi for 15 minutes. Notify Evans Engineering of results of PT. |
| 9 | "RU Cementers. Pump Niobrara balanced plug: 5 bbls (20 sks) ""G"" w/ 20% silica 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. Cement to cover from 7226' to 6600' inside the 2-7/8"" casing. |
| 10 | PUH while laying down to 6200' and circulate hole clean of excess cement. POOH and LD tbg on trailer. |
| 11 | MIRU WL. Cut casing at or below 4540'. RD WL. |
| 12 | Circulate down the casing taking returns up the surface casing removing all gas from wellbore. Pump ~1.5x wellbore volumes ~ 450 bbls fresh water with biocide. Plan on pumping 5 gallon sweeps of mud thinner as needed during circulation to condition wellbore for cement job. If unable to establish circulation, contact Evans Engineering. |
| 13 | ND BOP and wellhead. Install a BOP on surface casing head with 2-7/8" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet. |
| 14 | RU Cementers. Pump Sussex Balanced plug: Preceed cement with 5 bbls water, 20 bbls Sodium Metasilicate (SMS) and another 5 bbl fresh water spacer ahead of 80 bbls (390 sks) "G" w/ 0.4% |

CD-32, 0.4% ASA-301, .25 pps cello flake with CaCl₂ as necessary. Mixed at 15.8 ppg, 1.15 cuft/sack. Calculated top of plug is at 4030' in 11.5" openhole with 20% excess. PUH to ~3700' and circulate hole clean. WOC per cement company recommendation.

- 15 RIH w/ 2-7/8" csg and tag top of plug at 4030' or shallower. PUH while laying down to 1100'.
- 16 RU Cementers. Pump Fox Hills Balanced plug: Pump 10 bbls SAPP mud flush followed by 20 bbls fresh water spacer ahead of 99.5 bbls (420 sx) Type III w/ .25 pps cello flake and CaCl₂ as deemed necessary, mixed at 1.33 cf per sack, 14.8 ppg. Plug size is based on ~9.5" offset hole with 40% excess covering 1100' to shoe of surface casing at 412' plus capacity of surface casing to 200'. PUH to 100' and circulate out any excess cmt. TOH and WOC per cement company recommendation.
- 17 RIH and tag top of plug. Plug needs to be tagged at 300' or higher. POOH and LD 2-7/8" csg.
- 18 RU WL. RIH 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. RDMO workover rig.
- 19 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.
- 20 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 21 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 22 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 23 Welder cut casing minimum 5' below ground level.
- 24 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 25 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 26 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 27 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 28 Back fill hole with fill. Clean location, level.
- 29 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.