

OPENHOLE RE-ENTRY PLUG AND ABANDONMENT PROCEDURE

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WICKED 1

Step	Description of Work
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| 1 | Well is situated in a field in close proximity to the "Medical Center of the Rockies" and the Outlets at Loveland and various other businesses. Take extreme caution with road traffic, pedestrian traffic and ensure utmost cleanliness of the location. This well was P&A'd in 2000 and is openhole down to the 5-1/2" casing stub at 5400'. |
| 2 | Locate and expose 8 5/8" casing stub. Extend stub to surface and install 8 5/8"x 11" SOW, 3M casing head with 3000 psi ball valves in both outlets. Prepare location for workover rig. Install perimeter fence as needed. |
| 3 | Provide notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). |
| 4 | MIRU workover rig equipped for openhole re-entry work. NU 9" 3000 psi BOP stack on casing head. PT BOP and csg head per approved Form 2. Function test BOPE. NU rotating head on BOP. Hook up return line to shale shaker on flat tank. Spot trailer with 222 jnts of 2-7/8" WS, necessary drill collars and bits. Consider rigging up mud mixing equipment on site. |
| 5 | PU 7 7/8" rock bit, necessary drill collars and drill pipe/work string (WS). Drill through existing cement plugs at surface (10 sk) and at the base of surface casing (70 sk plug ~200'-350') using fresh water with biocide. |
| 6 | Once surface cement plugs are drilled, displace hole with drilling mud and continue in hole. |
| 7 | RIH to 5400' and tag 5-1/2" casing stub. Circulate to condition the hole. |
| 8 | POOH and lay down drill bit and drill collars as necessary. |
| 9 | Notify Cementers to be on call. |
| 10 | RIH 2-7/8" WS while hydrotesting to 3000 psi open ended to the 5-1/2" casing stub @ 5400'. Attempt to re-enter the 5-1/2" stub. Circulate and RIH to cement capped CIBP at 7000'. Contact Evans Engineering if unable to get at least 100' into the stub. |
| 11 | RU VES. Run gyro from EOT to surface. Send results to Sabrina Frantz and the COGCC. RD VES. |
| 12 | RU Cementers. Pump Nio stub plug. Spot cement plug consisting of 442 cu-ft (320 sx) "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 yield. Volume based on 1600' inside the 5-1/2" csg and 400' in the openhole assuming 8.5" hole size and 40% excess. |
| 13 | POOH to ~ 5000' and circulate hole clean with mud. WOC per cement company recommendation. RIH and Tag plug at 5000'. LD WS to place end of WS at 4325'. |
| 14 | Pump Sussex balanced plug. Spot cement plug consisting of 483 cu-ft (420 sx) "G" w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 with CaCl ₂ as necessary. Mixed at 15.8 ppg, 1.15 cuft/sack. Cement to be preceded by sodium metasilicate mixed in 20 bbls water per cementing company recommendation. Calculated top of plug is 3925' based on 12.5" hole with 40% excess. |

- 15 POOH to ~ 3600' and circulate clean. WOC per cement company recommendation. RIH and Tag plug at 3925'. LD WS to place end of WS at 1300'.
- 16 Pump Fox Hills balanced plug. Pump mud flush of 10 bbls SAPP then 20 bbls water spacer ahead of 293 cu-ft (220 sx) Type III w/cello flake and CaCl₂ as deemed necessary, mixed at 1.33 cf per sack, 14.8 ppg. Plug size is based on 10.5" hole with 40% excess covering 500' to shoe of surface casing at 300' plus capacity of surface casing to 100'.
- 17 POOH to ~ 100' and circulate clean. TOOH and WOC per cement company recommendation.
- 18 PU casing scraper for 8-5/8" and RIH to 100'. POOH and LD scraper and WS.
- 19 RU WL. Run and set CIBP in the 8 5/8", 32# surface casing at 80'. PT CIBP and surface casing to 1000 psi for 15 minutes. Assuming successful test, RD WL. RDMO WO Rig.
- 20 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.
- 21 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 22 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 23 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 24 Welder cut casing minimum 5' below ground level.
- 25 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 26 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 27 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 28 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 29 Back fill hole with fill. Clean location, level.
- 30 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.