

PLUG AND ABANDONMENT PROCEDURE

HSR-SCOTTSDALE RANCHES 7-2

- | 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 the plunger, isolate production equipment and remove any automation prior to rig showing up. Install perimeter fence as needed. |
| 2 | MIRU Slickline. Pull bumper spring and tag TD. |
| 3 | Prepare location for base beam equipped rig. |
| 4 | MIRU workover rig. Circulate well with water w/ biocide to kill the well. ND wellhead. NU BOPs. Unseat landing jt. |
| 5 | POOH and SB 2-3/8" tbg landed at 7156' (227 jts). |
| 6 | MIRU Wireline. PU gauge ring for 4-1/2" 11.6# and RIH to 6860'. POOH and LD gauge ring. |
| 7 | RIH with 4-1/2" CIBP to 6830'. PT csg to 1000 psi for 15 minutes. RDMO Wireline. |
| 8 | Notify Cementers to be on call. |
| 9 | RIH on 2-3/8" tbg while hydrotesting to 3000 psi. Tag CIBP at 6830' and pick up 5'. |
| 10 | RU Cementers. Pump Niobrara balanced plug on top of CIBP: 41.4 cu-ft (30 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. Calculated top in the 4-1/2" csg is 6350'. |
| 11 | PUH to leave end of 2-3/8" tbg at 6000' and circulate hole clean. POOH standing back 128 jts and laying down the rest. |
| 12 | MIRU Wireline. PU and RIH with 2-1' 3-1/8" perf guns with 3 spf, 0.5" diam, 120 phasing. Shoot 1' of squeeze holes at 4520' and 4000'. RDMO WL. |
| 13 | PU 4-1/2" CICR and RIH on 2-3/8" tbg. Set CICR at 4030'. |
| 14 | Establish injection rate through sqz holes. Pump 5 bbls fresh water w/ biocide followed by 20 bbls sodium metasilicate followed by 5 bbls spacer fresh water w/ biocide. |
| 15 | Pump Sussex Suicide plug: 207 cu-ft (180 sks) "G" w/0.25pps cello flake, 0.4% CD-32, 0.4% ASA-301. Underdisplace by 3 bbls and sting out of CICR, leaving the final 3 bbls on top of the CICR. Mixed at 15.8 ppg, 1.15 cuft/sack. Volumes based on 8.25" hole plus 20% excess and 4-1/2" csg to 3850'. |
| 16 | PUH to ~3500' and circulate hole clean with fresh water w/ biocide. POOH standing back 34 jts and laying down the rest. |
| 17 | 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. |

- 18 MIRU Wireline. Cut off 4-1/2" csg at 970' per CCL. RDMO WL. Circulate bottoms up using water and biocide to remove any gas from wellbore.
- 19 POOH and LD 4-1/2" csg. Remove the 4-1/2" pipe rams and Install 2-3/8" pipe rams.
- 20 RIH w/ 2-3/8" tbg open ended 100' past the 4-1/2" csg stub to 1070'.
- 21 MIRU Cementers. Pump Fox Hills Balanced plug: Pump mud flush of 10 bbls SAPP and 20 bbl water ahead of 240 cu-ft (180 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 8.25" hole with 20% excess covering 1070' to shoe of surface casing at 669' plus capacity of surface casing to 450'.
- 22 PUH to 100' and circulate out any excess cmt. WOC per cement company recommendation.
- 23 RIH and tag top of plug. Plug should be tagged at 469' or shallower. Call Evans Engineering to verify enough coverage. POOH and LD 2-3/8" tbg.
- 24 RU wireline. 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.
- 25 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.
- 26 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 27 Excavation crew to notify One Call to clear area around wellhead and flowlines.
- 28 Excavate hole around surface casing of sufficient size to allow welder to cut off 8 5/8" casing at least 5' Below ground level (depending on land owner requirements).
- 29 Welder cut casing minimum 5' below ground level.
- 30 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 31 Fill surface casing with cement (4500 psi compressive strength, no gravel).
- 32 Spot weld steel marker plate on top of sfc casing stub. Marker shall be labeled with well name, well number, legal location (1/4 1/4 descriptor) and API number.
- 33 Back fill hole with native material. Reclaim location to landowner specifications
- 34 Submit Form 6 to COGCC. Provide "As plugged" wellbore diagram identifying the specific plugging completed.

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