

PLUG AND ABANDONMENT PROCEDURE

KUIPERS POOLING UNIT 1

- | Step | Description of Work |
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| 1 | Call foreman or lead operator at least 24 hr prior to rig move. Request that 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 *halfway between top and bottom perms of producing formation* making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO slickline services -----Pressure bomb only if there is no commingled zone. Production must be from one zone. |
| 3 | Provide notice of MIRU to COGCC field inspector as specified in approved Form 6. |
| 4 | Notify IOC when rig mobilizes to location to generate workorder for flowline removal and one call for line locates. |
| 5 | Prepare location for base beam equipped rig. |
| 6 | MIRU, MI 230 jts 2-3/8" work string, kill as necessary using clean fresh water with biocide and circulate. ND WH. NU BOP. Unseat landing jt, LD. |
| 7 | Notify cementers to be on call. Provide volumes (120 sx 50/50 Poz "G" w/ 20% silica flour, 3% gel, 0.1% sodium metasilicate and 0.4% FL-52 mixed at 13.5 ppg and 1.71 cf/sk (7.875"+60% No Caliper Log in file), 270 sx class "G", w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cf/sx (9"+40% Offset Caliper Log found); 290 sx Type III CaCl ₂ cement mixed at 14.0 ppg and 1.53 cf/sx (7.875"+60%)). |
| 8 | TOOH and LD 1.66" production tubing. |
| 9 | RIH gauge ring for 4.5" 10.5#/ft csg to 7760'. |
| 10 | RIH CIBP, set at 7710'. PT CIBP to 1000 psi. PU dump bailer, dump bail 2 sx class "G" cement on CIBP. |
| 11 | RUN CBL from 7685' to surface. Contact production engineer if cement is found shallower than 7070'. Confirm all CIBP, CICR, perforation and casing cut depths with CBL. |
| 12 | PU 2-1' 3-1/8" perf guns with 3 spf, 0.5" dia 120° phasing. Shoot 1' of squeeze holes at 7000' and 6600'. RD WL. |
| 13 | PU CICR on 2-3/8" work string. TIH to 6630' hydrotesting tubing in to 3000 psi. Roll hole using water containing biocide. |
| 14 | Set CICR at 6630'. Initiate circulation through CICR using water containing biocide. Note rate and pressure. |
| 15 | RU cement services. |

- 16 Pump 120 sx 50/50 Poz "G" w/ 20% silica flour, 3% gel, 0.1% sodium metasilicate and 0.4% FL-52 mixed at 13.5 ppg and 1.71 cf/sk. Underdisplace by 3 bbls, unsting from retainer and dump remaining 3 bbls on top of CICR.
- 17 PUH 6 stands. Reverse circulate 50 BBL water containing biocide to clear tubing. TOOH.
- 18 RU WL. PU 2-1' 3-1/8" perf guns with 3 spf, 0.5" dia 120° phasing. Shoot 1' of squeeze holes at 4730' and at 4200'. RD WL.
- 19 PU CICR on production tubing and set at 4230'. Initiate circulation through CICR using water containing biocide. Note rate and pressure.
- 20 RU cement services.
- 21 Pump 20 bbl Sodium Metasilicate immediately preceding cement.
- 22 Pump 270 sx class "G", w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sx. Underdisplace by 3 bbls, unsting from retainer and dump remaining on top of CICR.
- 23 PUH 6 stands. Reverse circulate 30 BBL water containing biocide to clear tubing.
- 24 P&SB 1345' tbg. LD remainder.
- 25 RU WL. Crack coupling or shoot off casing at 1245'. RDMO WL. Circulate hole using 100 BBL water containing biocide to remove any gas.
- 26 NDBOP, NDTH.
- 27 NU BOP on casing head, install 4-1/2" pipe rams.
- 28 TOOH with 4-1/2" casing, LD.
- 29 TIH into csg stub using production tubing to 1345'.
- 30 Spot 290 SX Type III CaCl₂ cement mixed at 14.0 ppg and 1.53 cuft/sx.
- 31 PUH to 250'. Circulate 16 BBLs water containing biocide to clear tubing.
- 32 TOOH. WOC 4 hrs.
- 33 TIH and tag. If cement is below 459', discuss with production engineer. TOOH.
- 34 Fill casing with water containing biocide from tag to 100'.
- 35 MIRU WL. RIH 8-5/8" CIBP to 100'. Set, PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
- 36 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. This does not include uploading bond logs to the COGCC. That procedure has not changed.

- 37 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 38 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 39 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 40 Welder cut 8 5/8" casing minimum 5' below ground level.
- 41 MIRU ready cement mixer. Use 4500psi compressive strength cement, (NO gravel) fill stubout.
- 42 Weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number
- 43 Properly abandon flowlines per Rule 1103.
- 44 Back fill hole with fill. Clean location, level.
- 45 Submit Form 6 to COGCC ensuring to provide "As performed" WBD identifying operations completed.

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