

OCCIDENTAL PETROLEUM CORPORATION

Please contact your area engineer with any questions concerning this procedure.

7/27/2021

PLUG and ABANDONMENT PROCEDURE

GRAZNAK 10-11

API: 05-123-22150



Step Description

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| 1 | Review Previous Open Wells Reports/Well History. If you have questions or concerns, contact Foreman/Engineer. |
| 2 | COA: Provide 48 hour notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). |
| 3 | Notify Automation Removal Group at least 24 hours prior to rig move. Request they catch and remove plunger, isolate production equipment, and remove any automation prior to rig MIRU. |
| 4 | MIRU Slickline. Pull production equipment and tag bottom. Record tag depth, casing/tubing pressures and fluid level in Open Wells. Gyro was run on 10/01/14. RDMO Slickline. |
| 5 | Prepare location for base beam equipped rig. Install perimeter fence as needed. |
| 6 | COA: Verify Form 17 (State Bradenhead Test) has been run within 60 days of RU. |
| 7 | Refer to the Rockies Well Services Guidelines document whenever rigging up BOP and WL, or whenever tripping in or out of the well. Consult with Foreman/Engineer before deviating from these guidelines. |
| 8 | Upon RU, check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. Blow down bradenhead and leave open during working hours. Re-check pressure each day and input value in the "Casing press." box in Open Wells. |
| 9 | MIRU WO rig. Verify BOP and wellhead rating, inspect for appropriate API standards, pressure test BOP. Kill well as necessary using biocide treated fresh water. ND WH. NU BOP. Unland tbg. **Barrier Management** Fluid will be the only barrier while NU BOP. Stop and review JSA. |
| 10 | TOOH and SB 3910' of 2-3/8" tbg. LD remaining 2-3/8" tbg. |
| 11 | MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to tag sand plug at 7600'. POOH. If plug tagged deeper than 7600', contact engineering for update to plugging orders. |
| 12 | PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7000' (collars at 6985' & 7028'). POOH. Slowly top fill well to clear out all gas. Pressure test CIBP to 500 psi. RIH and dump 2 sx cement on CIBP. POOH. |
| 13 | PU and RIH with two 4', 3-1/8" perf guns with 4 spf. Shoot 16 squeeze holes at 4050' and 16 squeeze holes at 3850'. RDMO WL. |
| 14 | PU and TIH with (4-1/2", 11.6#) packer on 2-3/8" tbg. Set packer at 3910'. |
| 15 | Establish circulation with treated water. Reverse circulate as needed. Use slugs of mud thinner and surfactant if required. Circulate the hole until returns are clean. |
| 16 | Release packer. TOOH, SB 2-3/8" tbg. LD packer. |
| 17 | PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 3910'. |
| 18 | MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Sussex Squeeze: 75 sx (18.6 bbl or 105 cf) of the Sussex AGM blend (1% CaCl & 12% Gyp, 14 ppg & 1.39 cf/sx). Underdisplace by 2.5 bbls. Volume is based on 140' in the casing below the CICR, 200' in the casing-hole annulus with 50% excess, and 160' on top of the CICR. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. |
| 19 | Pull out of cement. TOOH to 3250'. Reverse circulate to ensure no cement is left in the tbg. |
| 20 | TOOH and SB 740' of 2-3/8" tbg. LD stinger, and remaining tbg. |
| 21 | COA: Confirm and document static conditions in the well before placing the next plug. If there is evidence of pressure or fluid migration at any time after placing the Sussex plug, contact Engineering. |
| 22 | MIRU WL. PU and RIH with one 4', 3-1/8" perf gun with 4 spf. Shoot 16 squeeze holes at 1800'. RDMO WL. |
| 23 | Establish circulation down the casing and out the bradenhead with treated water. Reverse circulate as needed. Use slugs of mud thinner and surfactant if required. Continue to circulate until the hole is clean. |
| 24 | MIRU cementers. Pump Squeeze: 110 sx (23.8 bbl or 134 cf) of the Upper AGM blend (1% CaCl & 4% Gyp, 15.8 ppg & 1.21 cf/sx) down the casing. Volume is based on 300' in the casing-hole annulus with 50% excess, and 400' in the casing. Displace cement with Water to 1400'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. |

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| 25 | Leave valves open for 10 minutes to allow cement to balance between the production and surface casing. If 2 bbls or more of displacement fluid flows back through the production casing, shut in well to ensure TOC remains at a workable depth. |
| 26 | COA: WOC 8 hours. If there is evidence of pressure or fluid migration, contact Engineering as there will need to be additional remediation attempts before the SC shoe plug. |
| 27 | TIH with 2-3/8" tubing and tag cement top to verify TOC inside production casing. TOOH and SB 740' of tubing. |
| 28 | PU and TIH with mechanical cutter on 2-3/8" tbg. Cut 4-1/2", 11.6# casing at 740'. TOOH and LD cutter. |
| 29 | Attempt to establish circulation and circulate (53 bbl) with biocide treated fresh water. |
| 30 | ND BOP. ND TH. Un-land casing. Rig max pull shall be 100,000#. Max pull over string weight shall be 50,000#. If unable to unland, contact Foreman/Engineer. **Barrier Management** Fluid will be the only barrier while unlanding casing. Stop and review JSA. |
| 31 | Install BOP on casing head with 4-1/2", 11.6# pipe rams. **Barrier Management** Fluid will be the only barrier while NU BOP. Stop and review JSA. |
| 32 | TOOH and LD all 4-1/2", 11.6# casing. Remove 4-1/2", 11.6# pipe rams and install 2-3/8" pipe rams. |
| 33 | TIH with mule shoe on 2-3/8" tubing to 740'. Establish circulation to surface with biocide treated fresh water and pump at least three hole-volumes (159 bbl) to clean up wellbore. |
| 34 | COA: Verify and document that all pressure and fluid migration has been eliminated prior to placing the SC shoe plug at 740'. If there is evidence of pressure or fluid migration, contact Engineering. |
| 35 | MIRU cementers. Pump Stub Plug: Pump 120 sx (25.9 bbl or 146 cf) of the Upper AGM blend (1% CaCl & 4% Gyp, 15.8 ppg & 1.21 cf/sx). Volume is based on 100' in 7.875" bit size open hole with 100% excess factor. 200' in the 8-5/8", 24# surface casing with no excess. The plug is designed to cover 740'-440'. Collect wet and dry samples of cement to be left on rig. RDMO Cementers. Notify engineering if circulation is ever lost during job. |
| 36 | COA: If cement was not circulated to surface, then WOC 4 hours. Tag TOC. TOC must be 590' or shallower. If tag is too deep or there is evidence of pressure or fluid migration, contact Engineering. |
| 37 | Pull out of cement. TOOH to 250'. Reverse circulate tbg clean. WOC. |
| 38 | TIH and tag cement to verify appropriate coverage above the surface casing shoe. Consult with Foreman/Engineer on when to PT casing. Pressure test casing to 500 psi and hold for 15 minutes. Notify engineering if tag is low or pressure test fails. |
| 39 | TOOH to 250' laying down tbg. Establish circulation to surface. |
| 40 | MIRU Cementers. Pump Surface Plug: Pump 80 sx (16.4 bbl or 92 cf) of the Neat G Cement (15.8 ppg & 1.15 cf/sx). Volume based on 250' inside 8-5/8", 24# surface casing with no excess. Cement will be from 250' to surface. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig. |
| 41 | Pull out of cement. TOOH, LD all 2-3/8" tbg. PU and TIH with 16' of tbg subs. Top off cement to surface. Circulate clean. TOOH and LD tbg subs. RDMO cementers. ND BOP. Install night cap. RDMO WO rig. |
| 42 | Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hours of completion of the job. |
| 43 | Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist. |
| 44 | Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines. |
| 45 | Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level. |
| 46 | Welder cut casing minimum 5' below ground level. |
| 47 | Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number. |
| 48 | Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com. |
| 49 | Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete. |
| 50 | Back fill hole with fill. Clean location, and level. |
| 51 | Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed. |

Vertical Well.