

PLUG AND ABANDONMENT PROCEDURE

TANDOWSKY 8-21 (HSR)

Step	Description of Work
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 MIRU.
2	MIRU slickline services. Pull bumper spring and tag bottom. RDMO slickline services.
3	Prepare location for base beam equipped rig. Install perimeter fence as needed.
4	Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.
5	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.
6	TOOH and stand back 2 3/8" production tubing (229 jts landed @ 7338').
7	MIRU WL. RIH gauge ring for 4 1/2" 11.6 #/ft casing to 7100'. POOH.
8	Set CIBP at 7000' to abandon Codell and Niobrara perms. Pressure test CIBP to 1000 psi.
9	RIH 2 3/8" tubing to 7000' while hydrotesting to 3,000 psi.
10	RU Cementers. Pump Niobrara/Codell plug w/ 2 3/8" tubing: 30 sx (41.4 cuft) Class "G" w/ 20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 mixed at 15.8 ppg and 1.38 cuft/sx to place plug from 7000' to 6600'. Volume based on 400' inside 4 1/2" casing, no excess. RD Cementers.
11	PUH to 6400' and circulate to clear tubing. POOH.
12	MIRU WL. RIH with 2-1' 3-1/8" perf guns with 3 spf, 0.5" diam 120° phasing. Shoot 1' of squeeze holes at 4540' and 4100'. RDMO WL.
13	PU 4 1/2" CICR and RIH on 2 3/8" tubing. Set CICR @ 4130'.
14	RU Cementers. Establish injection through squeeze holes. Pump 5 bbl water w/ biocide, 20 bbl Sodium Metasilicate, and another 5 bbl spacer immediately preceding cement. Pump Sussex Suicide Squeeze: 200 sx (230 cuft) 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 to place plug from 4540' to 4100'. Underdisplace by 3 bbls and unsting from CICR spotting at least 100' cement on top of squeeze holes. Volume based on 540' inside 4 1/2" casing with no excess plus 440' in 8.5" open hole with 40% excess. RD Cementers.
15	PUH to 3800', circulate hole clean using fresh water w/ biocide. POOH, standing back 1300', LD remainder.

- 16 MIRU WL. Shoot off casing at or below 1200'. RDMO WL. Circulate one full circulation with water containing biocide to remove any gas.
- 17 NDBOP, NDTH. Install BOP on casing head with 4 1/2" pipe rams.
- 18 POOH with 1200' of 4 1/2" casing, LD. Remove 4 1/2" pipe rams and install 2 3/8" pipe rams.
- 19 RIH with 2 3/8" WS to 1300'.
- 20 RU Cementers. Precede cement with 10 bbl SAPP and a 20 bbl (min) fresh water spacer. Spot Stub Plug: 250 sx (333 cuft) Type III w/ cello flake and CaCl₂ as deemed necessary at 14.8 ppg and 1.33 cuft/sx (100' inside 4 1/2" production casing with no excess, 447' in 8.5" open hole with 40% excess, 203' inside surface casing with no excess). The plug will cover 1300' - 550'. RD cementers.
- 21 Trip up to 100' and circulate WS clean using fresh water treated with biocide. TOOH.
- 22 WOC 4 hrs. Tag cement. Cement top needs to be above 550'.
- 23 MIRU WL. RIH 8 5/8" CIBP to 80'. Set and pressure test to 1000 psi for 15 minutes. RDMO WL and WO rig.
- 24 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.
- 25 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 26 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 27 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 28 Welder cut casing minimum 5' below ground level.
- 29 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 30 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 31 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 32 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 33 Back fill hole with fill. Clean location, level.
- 34 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

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