PLUG AND ABANDOMENT PROCEDURE

BROWN 16-35

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 plunger, isolate production equipment and remove any automation prior to rig MIRU.
2	MIRU slickline services and pressure bomb services. Pull bumper spring, tag bottom, and run pressure bomb survey and obtain pressure gradient survey from surface to 7364' making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO pressure bomb services. RDMO slickline services and VES.
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. A Form17 dated 7/24/2014 showed ~300 psi on the Bradenhead producing ~1 bbl condensate in 15 minutes.
5	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.
6	POOH and stand back 2-3/8" tbg. (237 jnts landed at 7458')
7	MIRU WL. RIH w/ gauge ring for 4-1/2" 11.6# csg to 7200'.
8	RIH and Set 4-1/2" CIBP at 7130'. PT csg and CIBP to 1000 psi for 15 minutes. RDMO WL.
9	Notify Cementers to be on call.
10	RIH 2-3/8" tbg while hydrotesting to 3000 psi to CIBP at 7130'. Tag CIBP and pick up 5'.
11	RU Cementers. Pump Niobrara plug consisting of 34.5 cu-ft (25 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. Calculated top in the 4-1/2" csg is 6800'.
12	PUH to 6500' and circulate hole clean. PUH to 4825' laying down tbg.
13	Pump Sussex Balanced plug: 46 cu-ft (40 sks) "G" w/ 0.4% CD-32, 0.4% ASA-301 with CaCl2 as necessary. Mixed at 15.8 ppg, 1.15 cuft/sack. Calculated top of plug at 4300' based in the 4-1/2" csg. PUH to ~3800' and circulate hole clean. WOC per cement company recommendation. RD Cementers.
14	RIH and tag top of plug at 4300'. POOH, standing back 50 jts and laying down the rest.
15	MIRU Wireline. Cut off 4-1/2" csg at 1450'. RDMO WL. Circulate using water and biocide to remove all gas and condensate from wellbore. Note: Well had ~300 psi on the Bradenhead on 7/24/2014 producing gas and condensate.
16	ND BOP and tubing head. 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.

17 POOH and LD 4-1/2" csg. Remove the 4-1/2" pipe rams and Install 2-3/8" pipe rams.

18 RIH w/ 2-3/8" WS open ended 100' into the 4-1/2" csg stub to 1550'.

19 MIRU Cementers. Pump Fox Hills Balanced plug: Pump mud flush of 10 bbls SAPP followed by 20 bbls water ahead of 213 cu-ft (170 sx) Type III w/cello flake and CaCl2 as deemed necessary, mixed at 1.33 cf per sack, 14.8 ppg. POH and WOC per cementing company reccomendation. Plug size is based on 6-1/4" hole with 20% excess covering 1550' to shoe of surface casing at 861' plus capacity of surface casing to 600'. PUH to 150' and Circulate out any excess cmt. TOH and WOC per cement company recommendation.

20 RIH and tag top of plug. Plug needs to be tagged at 660' or shallower. POOH and LD 2-3/8" tbg.

21 RU wireline. Run and set CIBP in the 7", 20# surface casing at 100'. PT CIBP and surface casing to 1000 psi for 15 minutes. Assuming successful test, RD wireline. RDMO workover rig.

22 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.

23 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.

24 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.

25 Excavate hole around surface casing enough to allow welder to cut casing minimum 5’ below ground level.

26 Welder cut casing minimum 5' below ground level.27 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).28 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.

29 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.

30 Back fill hole with fill. Clean location, level.31 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

Reed Boeger – Sr. Production Engineer
970-506-5987 – Office 512-217-1852 – Cell
Reed.boeger@anadarko.com