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PLUG AND ABANDOMENT PROCEDURE

WARDELL 20-41

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 Automation Removal Group at least 24 hr prior to rig move. Request they pull plunger, isolate production equipment and remove any automation prior to rig MIRU.
2	Check and report surface casing pressure. If surface casing is not accessible at ground level, re-plumb so valve is at ground level.
3	Prepare location for base beam equipped rig. Install perimeter fence as needed.
4	This well as a gyro from Oct 26, 2014
5	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD. Tbg is landed @ 7182' KB w/ 224 jts.
6	TOOH and stand back 1.9" tbg.
7	MIRU WL. RIH gauge ring for 3 1/2" 9.3# casing to 7200'. POH.
9	RIH 3 1/2" CIBP and set @ 7140' to abandon Codell perfs. Presure test CIBP and casing to 3000 psi for 15 minutes. RDWL.
10	TIH w 1.9" tbg open ended to CIBP at 7140'. Hydro -test tbg to 3000 psi.
11	RU cementers and equalize a balanced plug above CIBP from 7140' to 6500' as follows: 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. (31 cuft of slurry).
12	POH to ~6300 and circulate tbg clean using fresh water treated with biocide. TOOH and LD all 1.9'' tbg.
13	RUWL. PU 2' 2-1/8" perf guns with 3 spf, 0.5" dia 120° phasing. Shoot 2' of squeeze holes at 4610'.
15	RU Cementers. Establish circulation to surface with fresh water treated with biocide. If circulation cannot be established contact Evans engineering before proceeding. Pump 5 bbl water w/ biocide, 20 bbl Sodium Metasilicate, and another 5 bbl spacer immediately preceding cement.
16	Pump Sussex Squeeze: 285 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/sk (215 cuft of slurry) to place cement to 4000'. Cement volume based on 9.25" hole with 20% excess. Caliper log dated 7/12/93 on file. Displace with wiper plug to 4000'. WOC per cementing companies recommendations.
18	RU WL. Tag wiper plug at ~4000'. Crack coupling or cut casing at 1235'. RDMO WL. Circulate bottoms up and continue circulating to remove any gas from wellbore.

19 ND BOP and wellhead. Install BOP on surface casing head with 3 1/2" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.

20 TOOH and LD 1235' of 3 1/2'' casing.

21 RIH with 1.9'' tubing open-ended to 1335' (100' inside 3 1/2" stub).

22 RU cementers. Establish circulation with fresh water treated with biocide. If circulation cannot be established contact Evans engineering before proceeding. Pump 10 bbl SAPP (Sodium Acid Pyrophosphate) followed by 20 bbl (min.) fresh water spacer immediately preceding cement.

23 Pump balanced Stub Plug to surface: 475 sx Type III w/0 .25#/sk cello flake and CaCl2 as deemed necessary mixed at 14.8 ppg and 1.33 cf/sx (630 cuft of slurry). Cement volume based on 100' in 3 1/2'' csg, 623' in 8 5/8" csg, and 612' in 9.25" OH + 40% excess. (based on 9.25'' OH with 40% excess from caliper log 7/12/93). We should circulate cement to surface.

24 TOOH. WOC per cementing company recommendation. Tag Cement. TOC should be at 520' or above. If not, consult Evans Engineering.

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 Evans Engineering Specialist.

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

28 Excavate hole around surface casing enough to allow welder to cut 8 5/8” casing minimum 5’ below ground level.

29 Welder cut 8 5/8'' casing minimum 5' below ground level.

30 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).

31 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.

32 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.

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

34 Back fill hole with fill. Clean location, level.

35 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.