# RE-ENTRY PLUG AND ABANDOMENT PROCEDURE

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RUSCH 34-15 (05-123-10152)

| Step | Description of Work |
|---|---|
| 1 | The 8-5/8" casing parted during drilling ops at 7106' and approx. 78' was recovered during P&A in 1981, so expected 8-5/8" casing stub is ~68' below ground level. Excavate down 10'-15' looking for cemented column. Set ~16" culvert over cemented column and slowly backfill location to leave top of culvert 1' above ground level. Hole was filled with 10# mud prior to Abandonment. |
| 2 | Prepare location for basebeam workover rig. Install perimeter fence as needed. |
| 3 | 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.). |
| 4 | MIRU DR-24 Dual Rotary Air rig over 16" culvert conductor. Hook up return line from 16" culvert to dumpster or tank to contain cuttings. Spot 5-20' joints of 12" pipe. |
| 5 | MU casing shoe with welded tungsten carbide buttons to drill with casing. |
| 6 | Air drill down over the cemented 12-1/4" hole with 12" casing down to ~70'. POOH drill string and LD bit. RIH with camera to see how the 12" casing is lined up over casing stub. Attempt to swallow the 8-5/8" into the 12" casing and continue drilling down 20'. Circulate hole clean with air. Dump cement down backside to cement in the 12" casing down to ~100'. |
| 7 | PU 7 7/8" junk mill or rock bit and drill through existing cement inside the 8-5/8" stub at least 5' in order to make a clean cut. |
| 8 | RIH with inside casing cutter. Cut 8-5/8" casing. Fish on casing stub and POOH and LD stub. RIH with mill and dress top of casing. POOH and LD mill. |
| 9 | PU casing patch for 8-5/8" 24# casing and RIH and set at casing stub at ~70'. |
| 10 | PU 2 joints of 8-5/8" 24# casing and engage patch. Circulate 20 sacks Type 3 cement down the 8-5/8" taking returns to surface up the 12" x 8-5/8" annulus. Displace with 5 bbls freshwater followed by wiper plug. WOC 8 hours and then RIH and tag wiper plug. RDMO Dual Rotary Rig. |
| 11 | Cut 8-5/8" to ground level and install 8 5/8"x 11" SOW, 3M casing head with 3000 psi ball valves in both outlets. |
| 12 | MIRU openhole re-entry capable workover rig. NU 9" 3000 psi BOP stack on casing head. PT BOP and csg head per approved Form 2. Function test BOPE . NU rotating head on BOP. Hook up return line to shale shaker on flat tank. Spot trailer with 225 joints of 2-7/8" WS. |
| 13 | PU 7 7/8" junk mill or rock bit, necessary drill collars and drill pipe. Drill through existing cement plugs from 80' to 167' w/ water. |
| 14 | Once cement plug is drilled, swap over to mud and continue RIH and tag TD at ~7106'. Circulate well with mud to get all gas out of hole and to condition the hole. Notify Evans Engineering of tag depth. |
| 15 | POOH and LD drill collars and bit. RIH WS open ended back to TD at ~7106'. Notify Cementers to be on call. |
| 16 | RU VES. Run gyro survey from end of WS to surface making stops every 100'. Send invocie and results to Sabrina Frantz in the Evans office. RD VES. |

17 "RU Cementers. Pump Niobrara balanced plug of 320 sacks (78 bbls) ""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. Plug size based on 9"" hole and 40% excess. Calculated TOC is 6400'.

18 PUH to 6000' and circulate excess cement out. Continue P&LD to leave end of WS at 4220'.

19 Pump 20 bbls sodium metasilicate followed by fresh water spacer of at least 20 bbls immediately ahead of cement.

20 "Pump Sussex balanced plug consisting of 400 sacks (82.3 bbls) ""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. Plug size based on 12"" hole and 40% excess. Calculated TOC is at 3800'. RD Cementers.

21 PUH to 3300' and circulate out excess cement. WOC 4 hours then RIH and tag TOC.

22 P&LD to leave end of WS at 1000'.

23 RU Cementers. Pump 10 bbls SAPP mud flush followed by 20 bbls fresh water immediately ahead of 710 sacks (168 bbls) Type III w/ cello flake and CaCl2, mixed at 14.8 ppg and 1.33 cuft/sk. Plug size based on 12" hole size plus 40% excess. Calculated TOC is 30'. P&LD all except last joint of WS. Circulate hole clean from 30' then POOH and WOC.

24 RIH and tag TOC w/ 2-7/8" WS.

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 Joleen Kramer.

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 casing minimum 5’ below ground level.

29 Welder cut 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.