

PLUG AND ABANDONMENT PROCEDURE

WOLF UPRR 42-31 # 2

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 plunger, isolate production equipment and remove any automation prior to rig MIRU.
2	Prepare location for base beam equipped rig. Install perimeter fence as needed.
3	Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.
4	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD. Spot additional 4 jts of 2-3/8" tbg on location.
5	Notify Cementers to be on call.
6	PU 2-3/8" tbg and RIH and tag CIBP with 2 sk cement cap at ~6900'. Pick up 5'.
7	MIRU Slickline. PU and RIH with 2-3/8" XN plug and set in XN nipple at ~6895'.
8	PT 2-3/8" tubing to 3000 psi for 15 minutes.
9	POOH w/ XN nipple. RDMO Slickline.
10	"RU Cementers. Pump Niobrara balanced plug on top CIBP: 41.5 cu-ft (30 sks) ""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 6400'.
11	PUH 20 jts and circulate hole clean. (Note: known casing leaks from 2520' to 3055').
12	POOH and SB 164 jts 2-3/8" tbg. Lay down XN nipple and notched collar and remaining tbg.
13	ND BOP and wellhead. 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.
14	MIRU Wireline. Cut off 4-1/2" csg at 5055'. RDMO WL.
15	Swap over to mud and circulate bottoms up to remove and gas from wellbore. (Assuming 11" hole size plus 20% excess, plan on having ~670 bbls drilling mud on site)
16	POOH and LD 4-1/2" csg. Remove the 4-1/2" pipe rams and Install 2-3/8" pipe rams.
17	RIH w/ 2-3/8" tbg to csg stub at 5055'. RIH 100' past the 4-1/2" csg stub to 5155'.
18	RU Cementers. Precede cement with 20 bbl sodium metasilicate followed by 20 bbls fresh water spacer.

- 19 Spot Sussex balanced plug: 690 cu-ft (600 sks) "G" w/0.25pps cello flake, 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 is 4100' based on 11" hole with 20% excess. POH to ~4000' and circulate hole clean. WOC per cement company recommendation.
- 20 RIH and tag plug. Plug should be tagged at or above 4110'. If not, consult Evans Engineering.
- 21 PUH to leave end of tbg at 1160'. Lay down remaining tbg.
- 22 MIRU Cementers. Pump Fox Hills plug: Pump mud flush of 10 bbls SAPP and 20 bbl water ahead of 864.5 cu-ft (650 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 recommendation. Plug size is based on 11" hole with 40% excess covering 1160' to shoe of surface casing at 314' plus capacity of surface casing to 100'. PUH to 100' and Circulate out any excess cmt. TOH and WOC at least 4 hours per cement company recommendation.
- 23 RIH and tag top of plug at 100'. Call Reed Boeger in Evans to verify enough coverage. POOH and LD 2-3/8" tbg.
- 24 RU wireline. RIH and set CIBP in the 8 5/8", 24# surface casing at 80'. PT CIBP and surface casing to 1000 psi for 15 minutes. Assuming successful test, RD wireline.
- 25 RDMO workover rig.
- 26 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.
- 27 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 28 Excavation crew to notify One Call to clear area around wellhead and flowlines.
- 29 Excavate hole around surface casing of sufficient size to allow welder to cut off 8 5/8" casing at least 5' Below ground level (depending on land owner requirements).
- 30 Welder cut casing minimum 5' below ground level.
- 31 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 32 Fill surface casing with cement (4500 psi compressive strength, no gravel).
- 33 Spot weld steel marker plate on top of sfc casing stub. Marker shall be labeled with well name, well number, legal location (1/4 1/4 descriptor) and API number.
- 34 Back fill hole with native material. Reclaim location to landowner specifications
- 35 Submit Form 6 to COGCC. Provide "As plugged" wellbore diagram identifying the specific plugging completed. Submit gyro survey with Form 6.

Reed Boeger - Sr. Production Engineer
reed.boeger@anadarko.com
970.506.5987 (work)
512.217.1852 (cell)