

PLUG AND ABANDONMENT PROCEDURE

HSR-Houston "B" 4-16

Step	Description of Work
1	Note: Production Casing = 4 1/2" OD, 11.6#/ft, I-80; Production Hole Drilled @ 8 5/8"
2	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 foreman or lead operator at least 24 hr prior to rig move. Request they catch and remove the plunger, isolate production equipment and remove any automation prior to rig showing up. Install perimeter fence as needed.
3	MIRU slickline services and VES. Pull bumper spring and tag bottom. Run pressure bomb and obtain pressure gradient survey from surface to 7479' making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering.
4	Run gyro survey from 7479' to surface with stops every 100'. Forward gyro survey data to Sabrina Frantz and invoices to Sabrina Frantz. RDMO slickline services and VES.
5	Notify IOC when rig mobilizes to location to generate workorder for flowline removal & one call for line locates.
6	Prepare location for base beam equipped rig.
7	MIRU, kill as necessary using clean fresh water with biocide and circulate. ND WH. NU BOP. Unseat landing jt, LD.
8	Notify cementers to be on call. Provide volumes listed below:
8.1	Niobrara Plug: 30 sx 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/sk (400' inside 4 1/2" Casing, no excess)
8.2	SX Plug: 60 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 cf/sx.
8.3	Stub Plug: 230 sx Type III CaCl ₂ cement w/0.25 pps cello flake mixed at 14.0 ppg and 1.53 cf/sx (100' in 4 1/2" prod casing, 300' in 7-7/8" OH + 60% excess, and 200' in 8 5/8" surface casing)
9	TOOH 2 3/8 " production tubing. Stand Back.
10	MIRU WL. RIH gauge ring for 4 1/2" 11.6#/ft casing to 7125'. POOH.
11	RIH CIBP w/ WL. Set at +/- 7050' (collars located at 7033' and 7076'). Dump bail 2 sx class "G" cement on CIBP.
12	Pressure test CIBP to 1000 psi.
15	RIH to 7050' w/ 2 3/8" tubing while hydrotesting to 3,000 psi.
16	RU Cementers. Pump Niobrara Plug: 30 sx 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/sk to place cement in 4-1/2" production casing.
17	PUH to 4400'. Circulate 95 bbls water containing biocide to clear tubing.
21	Pump SX plug: 60 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 cf/sx to place cement in 4-1/2" casing.

- 23 PUH 5 stands. Circulate 55 bbls water containing biocide to clear tubing. Then, TOO and SB remainder of tbg.
- 24 RU WL. Shoot off casing at or below 1100'. RDMO WL. Circulate a full circulation with water containing biocide to remove any gas.
- 25 NDBOP, NDTH.
- 26 Install BOP on casing head with 4 1/2" pipe rams.
- 27 TOO with 4 1/2" casing, LD.
- 28 RIH with 2 3/8 " tubing to 1200'.
- 29 RU Cementers. Spot Stub Plug: 230 sx Type III CaCl₂ cement w/0.25 pps cello flake mixed at 14.0 ppg and 1.53 cf/sx (100' in 4 1/2" prod casing, 300' in 7-7/8" OH + 60% excess, and 200' in 8 5/8" surface casing).
- 30 Circulate 5 bbls water containing biocide to clear tubing.
- 31 TOO. WOC 4 hrs. Tag Cement. Cement top needs to be at or above 485'; Proceed assuming TOC is at or above 485'. Otherwise, call production engineer.
- 32 MIRU WL. RIH 8 5/8" CIBP to 80'. Set, PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
- 33 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hrs of the completion of the job.
- 34 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 35 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 36 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 37 Welder cut 8 5/8" casing minimum 5' below ground level.
- 38 MIRU ready cement mixer. Use 4500 psi compressive strength cement, (NO gravel) fill stubout.
- 39 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 40 Properly abandon flowlines per Rule 1103.
- 41 Back fill hole with fill. Clean location, level.
- 42 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed. File electronic Form 42 once abandonment complete.

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