

## BRACHTENBACH 2

1. Gyro ran on 11/9/11.
2. Call Foreman or Lead Operator at least 24 hr prior to rig move. Request that they catch and remove plunger, isolate production equipment and remove any automation equipment prior to the rig showing up. Install perimeter fence as needed.
3. Provide notice of MIRU to COGCC field inspector as specified in approved Form 6.
4. Notify CDC when rig moves on location to generate workorder for flowline removal and one call for line locates.
5. Prepare location for base beam rig.
6. MIRU WO rig. Kill well using water and biocide. ND wellhead.NU BOP.
7. Notify cementer of blends and volumes.
8. PUH w/ tbg to break any sand bridges, noting not to exceed the safety tensile load of 2-3/8", 4.7# tbg of 57,384 lbs. (80% of upset joint yield strength).
9. TOO H with 2-3/8" tbg and stand back.
10. MIRU WL. RIH with Junk Basket/Gauge Ring on WL to  $\pm$  7720'. TOO H with Junk Basket/Gauge Ring.
11. PU and RIH with CIBP for 4-1/2", 11.6# K-55 csg at 7710' (50' above top JS perfs 7760-7796).POOH. Pressure test plug to 1000 psi for 15 min.MO WL.
12. MIRU cementer. Spot a balanced plug 30 sx (1:1:3 'Poz:G:Gel'+20% Silica flour, 0.4% CFL-2 + 0.1% SMS + 0.05% CR-4) of cement (1.66 cuft/sk) from 7130'-7710'. RDMO Cementer.
13. RU WL. PU and RIH with CCL and 3-1/8" perf guns and perforate casing at 7090' (20' above existing TOC @7130') with 3 spf, 0.38" EHD, 33.65" penetration, 120 deg phasing, 1' net, 3 shot total. RDMO WL.
14. PU and RIH with 4.5" CICR on setting tool and 2-3/8" tubing to set CICR at 6580' (desired TOC 6580') in 4-1/2" casing. Hydrotest to 3000 psi while RIH. Set CICR
15. RU cementer. Pump 250 sx (9.5" caliper and 20% excess) of cement(1:1:3 'Poz:G:Gel'+20% Silica flour, 0.4% CFL-2 + 0.1% SMS + 0.05% CR-4) to reach TOC @ 6580'. Underdisplace by 3 bbl, sting out of retainer and place on CICR.
16. PUH to 6280' (300' above estimated top of cement) with 2-3/8" tubing and circulate conventionally with drilling mud until no cement returns to surface. RD cementer.
17. P & SB tubing for next depth (5255'), LD remainder.
18. MIRU WL. RIH with 2-1' x CCL and 3-1/8" perf guns and perforate casing at 5255' (50' below base of Shannon @ 5203') with 3 spf, 0.38" EHD, 33.65" penetration, 120 deg phasing, 1' net, 3 shot total.
19. PUH and perf casing at 4730' (230' above top of Sussex @ 4958') with 3 spf, 0.50" EHD, >6.0" penetration, 120 deg phasing, 1' net, 3 shot total. POOH with CCL and perf guns and RDMO WL.
20. PU and RIH with 4.5" CICR on setting tool and 2-3/8" tubing to set CICR at 4760' (30' below top perfs) in 4-1/2" casing. Set CICR and establish circulation through squeeze holes at 4730'&5255' and note returns in OpenWells report.
21. RU cementer. Once pumping rate has been established, pump 5 bbl water, followed by 20 bbl Sodium Metasilicate ahead of cement, followed by 5 bbl water. Pump 275 sx (11.5" caliper and

40% excess) of cement (1:2:4 'Poz:III:Gel'+3%(BWOW)KCL+1%SMS+0.4%CR-4+0.2%SPC-2+2lb/sk PS Flake) 1.93cuft/sx) from 4730'&5255'. Underdisplace by 3 bbl, sting out of retainer and place on CICR. Note returns during cement job in OpenWells report.

22. PUH to 4400' (300' above estimated top of cement) with 2-3/8" tubing and circulate conventionally with drilling mud until no cement returns to surface. RD cementer.
23. MIRU WL. Run CBL from 2500' to surface to find existing TOC in wellbore. Forward CBL to [a.Leila.Shahryari@anadarko.com](mailto:a.Leila.Shahryari@anadarko.com) .If bottom of cement is shallower than 900' do not proceed with prog and wait on Evans engineer for prog modification.
24. PU and RIH with CCL and 3-1/8" perf guns and perforate casing at 1200' (100' below base of Fox Hills 1107') with 3 spf, 0.38" EHD, 33.65" penetration, 120 deg phasing, 1' net, 3 shot total. RDMO WL.
25. PU and RIH with 4.5" CICR on setting tool and 2-3/8" tubing to set CICR at 250' in 4-1/2" casing. Set CICR.
26. RU cementer. Pump 130 sx (1.46cuft/sx) of cement(Type III + 0.2% SPC-2) to reach TOC @ 250'. Underdisplace by 3 bbl, sting out of retainer and place on CICR. Pressure test CICR to 1000 psi for 15min. (If CICR does not hold contact Evans engineer and do not RDMO WO rig)
27. RDMO WO rig.
28. Cut surface casing 5 ft below ground level and weld on cap.
29. Wellsite supervisor turn all paper copies of cementing reports/invoices and logs in to Sabrina Frantz.
30. NOTE: During the job, wellsite supervisor should instruct the logging and cementing contractors to e-mail all logs, job reports/invoices to Sabrina Frantz.
31. Have excavation contractor notify One-Call to clear for digging around wellhead and flowline removal.
32. Check top of cement inside 9-5/8" surface casing. If cement is not of sufficient height (less than 25' below ground level), place redi-mix cementer on will call.
33. Excavate hole around surface casing of sufficient size and depth to allow welder to cut off 8-5/8" surface casing at least 5' below ground level.
34. Have welder cut off 9-5/8" surface casing at least 5' below ground level.
35. If needed, MIRU ready cement mixer. Use 4,500 psi compressive strength redi-mix cement (sand and cement only, no gravel) to finish filling surface casing to top of cut off.
36. Have welder weld on steel marker plate. (Note: marker shall be labeled with well name and number, legal location (¼ ¼ description) and API number.
37. Properly abandon flowlines as per Rule 1103.
38. Have excavation contractor back fill hole with native material. Clean up location and have leveled to plant any vegetation required.
39. Submit Form 6 to COGCC. Provide "As Plugged" wellbore diagram identifying the specific plugging completed.

