Furrow 1
40.376788 / -104.146182
05-087-06430

Furrow 1 Procedure

1. Survey and locate plugged wellbore. Set a stake and record as-drilled GPS coordinates.
2. Excavate around wellbore to expose the top of the surface casing.
3. Cut existing cap off wellbore. Weld a slip collar to both 5-1/2" and 8-5/8" casing and necessary length of casing to reach ground level. Weld another 8-5/8" slip collar at surface. If no 5-1/2" casing at surface, contact engineer.
4. MIRU workover rig.
5. Install wellhead and BOP. Test BOP.
6. PU and RIH with 6-1/4" tricone bit, 10 3-1/2" drill collars, and 2-7/8", 6.5#, L80, EUE workstring.
7. Drill out 1st surface cement plug and circulate hole clean.
8. Continue drilling or RIH to top of 2nd surface casing plug. Record depth of plug.
9. Pressure test surface casing to 250 psi. If surface casing fails pressure test, contact engineer and hunt holes.
10. After pressure test of surface casing, drill out surface casing plug. If pressure is encountered below surface casing plug, circulate hole with mud or kill fluid until well is dead or blown down.
11. POOH and LD 6-1/4" tricone bit.
12. RU wireline and RIH with CBL down to 6,300'. Send results to engineer.

Procedure assumes TOC at 5988', Niobrara plug may change depending on true TOC

13. RBIH with perf gun on wireline and shoot holes at 5846'. POOH.
14. PU and RIH with CICR on 2-7/8" workstring and set CICR at 5796'.
15. Establish circulation through the CICR and back up the annulus to surface.
16. RU cement crew, pressure test lines to 4,500 psi and squeeze 15.8 ppg Class G neat cement through retainer and into perfs (75 sks).
17. Disengage from CICR and pump a balanced plug from 5796'-5696' with 15.8 ppg (1.15 cuft/sk) Class G neat cement (12 sks).
18. POOH and SU workstring.
19. RBIH with perf gun on wireline and shoot holes at 1537'. POOH.
20. RBIH with CICR on 2-7/8" workstring and set CICR at 1487'.
21. Establish circulation through the CICR and back up the annulus to surface.
22. RU cement crew, pressure test lines to 4,500 psi and squeeze 15.8 ppg Class G neat cement through retainer and into perfs (52 sks).
23. Disengage from CICR and pump a balanced plug from 1487'-1387' with 15.8 ppg (1.15 cuft/sk) Class G neat cement (12 sks).
24. POOH and SU workstring.
25. RBIH with perf gun on wireline and shoot holes at 316'. POOH.
26. RBIH with workstring to 316', establish circulation through the perfs and back up the annulus to surface.
27. RU cement crew, pressure test lines to 4,500 psi and squeeze 15.8 ppg Class G neat cement through perfs and back up to surface (115 sks).
28. RDMO. Top off cement after rig has moved, if necessary.
29. After surface plug has set, cut casing to 5' below ground level and weld on a plate to seal the well.
30. Inscribe the well's legal location, well name and number, and API number on the plate as shown:

1980' FSL, 1780' FEL, NESW Sec 13, T7N, R60W
Graham 23-13
05-123-11616

31. Photograph welded name plate and conduct bubble test before proceeding.
32. After Bubble Test is successfully performed, backfill hole and reclaim surface to original conditions.
33. Cover up the well and remediate the disturbed area.

Furrow 1 Cement Plug Table

CEMENT PLUG TABLE									
Plug Number	**Plug Status**	**Formation**	**Location**	**Plug Bottom Depth**	**Plug Top Depth**	**Cement Class**	**Yield (ft^3/sk)**	**Number of Sacks**	
1.1	Existing	D Sand	Open Hole	6528'	6519'	Unknown	Unknown	3	30
1.2	Existing	D Sand	Casing	6519'	6300'	Unknown	Unknown	27	
2.1	New	Niobrara	Casing	5846'	5796'	G	1.15	6	75
2.2	New	Niobrara	Annulus	5846'	5546'	G	1.15	69	
3	New	Niobrara	Casing	5796'	5696'	G	1.15	12	
4.1	New	Fox Hills	Casing	1537'	1487'	G	1.15	6	52
4.2	New	Fox Hills	Annulus	1537'	1337'	G	1.15	46	
5	New	Fox Hills	Casing	1487'	1387'	G	1.15	12	
6.1	New	Surface	Casing	316'	Surface	G	1.15	38	115
6.2	New	Surface	Annulus	316'	266'	G	1.15	12	
6.3	New	Surface	Annulus	266'	Surface	G	1.15	65	
TOTAL NEW SKS OF CEMENT REQUIRED:								**266**	