

Graham 1
40.573356 / -104.043390
05-123-05365

Graham 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 9-5/8" casing and necessary length of casing to reach ground level. Weld another 9-5/8" slip collar.
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. PU and RIH with mule shoe and 2-7/8" L80 tubing down to 6115'.
13. RU cement crew, pressure test lines to 4,500 psi, and spot plug from 6115'-5815' with 15.8 ppg (1.15 cuft/sk) Class G neat cement (100 sks) to cover the Niobrara formation.
 - **FROM THIS POINT MOVING FORWARD:** Must wait a sufficient time on all subsequent plugs to confirm static conditions. If at any time after placing this plug there is evidence of pressure or of fluid migration, contact engineer before continuing operations.
 - **IF CIRCULATION IS NOT MAINTAINED WHILE PUMPING PLUG:**
 - i. POOH to surface casing. Wait 4 hours and tag TOC. Record tag depth. If tag is deeper than 5915', contact engineer.
14. POOH and spot plug from 1560'-1410' with 15.8 ppg (1.15 cuft/sk) Class G neat cement (50 sks) to cover the Pierre formation.
15. POOH to surface casing. Wait 4 hours and tag TOC. Record tag depth. If tag is deeper than 1460', contact engineer.
16. POOH and spot plug from 466' to surface with 15.8 ppg (1.15 cuft/sk) Class G neat cement (185 sks).
 - **IF CEMENT DOES NOT RETURN TO SURFACE:**
 - i. POOH. Wait 4 hours and tag TOC. Record tag depth. If tag is deeper than 366', contact engineer.
 - ii. Pump 15.8 ppg (1.15 cuft/sk) Class G neat cement at tag depth to surface.
17. RDMO. Top off cement after rig has moved, if necessary.
18. After surface plug has set, cut casing to 5' below ground level and weld on a plate to seal the well.
19. Inscribe the well's legal location, well name and number, and API number on the plate as shown:

| |
|--|
| 1988' FSL, 2020' FWL, NESW Sec 13, T7N, R60W |
| Graham 1 |
| 05-123-05365 |
20. Photograph welded name plate and conduct bubble test before proceeding.
21. After Bubble Test is successfully performed, backfill hole and reclaim surface to original conditions.
22. Cover up the well and remediate the disturbed area.

Graham 1 Cement Plug Table

| CEMENT PLUG TABLE | | | | | | | | | |
|--|--------------------|------------------|--------------------------|-----------------------|---------------------|----------------------------------|------------------------|------------------------|--------------------------|
| Plug Number | Plug Status | Formation | Plug Bottom Depth | Plug Top Depth | Cement Class | Yield (ft³/sk) | Number of Sacks | Must Be Tagged? | Maximum Tag Depth |
| 1 | Existing | D&J Sand | 6778' | 6615' | Unknown | Unknown | 50 | No | N/A |
| 2 | New | Niobrara | 6115' | 5815' | G | 1.15 | 100 | Possibly | 5915' |
| 3 | New | Fox Hills | 1560' | 1410' | G | 1.15 | 50 | Yes | 1460' |
| 4 | New | Fresh Water | 466' | Surface | G | 1.15 | 185 | Possibly | 366' |
| TOTAL NEW SKS OF CEMENT REQUIRED: | | | | | | | 335 | | |