

Duel #1

**Tornado Project Area
Weld County, Colorado**



P&A PROCEDURE

March 11, 2014

Executive Brief

The scope of this work is to re-enter the old wellbore that had previously been plugged and abandoned. The well will be properly plugged and abandoned by setting cement plugs to isolate the Niobrara, freshwater zones, and setting a cement cap near the surface. Then the surface casing will have a plate welded as final seal 5' below the surface. The old wellbore will then be buried and the surface location will be remediated.

| Well Information | |
|------------------------------|--|
| Surface Location | 660' FSL & 1980' FEL from the Section Line |
| Lat/Long | Lat: 40.627995 & Long:-104.03746 |
| API Number | 05-123-05494 |
| AFE Number | |
| Ground Level Elevation, feet | 4923 |
| Working Interest | 100% |
| Estimated TD, feet | 6945 |

| Formation Tops | |
|-----------------|-----------|
| Top Names | Footage |
| Freshwater Zone | 0' - 500' |
| Niobrara | 6077 |
| D Sand | 6804 |
| J Sand | 6892 |

| Existing Tubular Data | | | | | | | | | | |
|-----------------------|---------|--------|-------|--------|-------|--------|-------------------|----------------------|----------|---------------------|
| Size in | Depth | Weight | Grade | ID | Drift | Thread | Burst w/ No SF | Collapse w/ No SF | Capacity | Capacity |
| | (MD ft) | lb/ft | | In | In | | Psi | Psi | Bbl/ft | ft ³ /ft |
| 10.75 | 111 | 32.75 | J55 | 10.136 | 9.98 | STC | 2,950 | 1,370 | 0.09980 | 0.56035 |

All personnel should keep their speed down to **30 mph** once they are near a residence or in a high traffic area to minimize dust.

PERFORM SAFETY CHECKS AND SAFETY MEETING

Perform safety meeting prior to rigging up **ANY** equipment on location. Discuss the job procedure and objectives with all personnel on location. Document the safety meeting on the report sent to Carrizo. Make note of all potential risks/hazards, and clearly identify an emergency route and emergency vehicle. Also make note of any new or inexperienced personnel on location. Ensure proper Personal Protective Equipment (PPE) is used during the job. Minimums are hard hats, steel toes, and safety glasses.

PROCEDURE

1. Locate old surface casing using magnetometer. Record the GPS coordinates and the datum used for the GPS coordinates.

- Set a stake and try to locate the boundaries of the old pad site.
2. Dig down to the old surface casing and cut plate off. Weld on 10 3/4" pup jt (if needed for height) and flanged for BOP.
 3. MIRU workover rig and related equipment including power swivel, mud tank and pump. NU the rig BOP's.

Re-enter & Cleanout Wellbore

4. Test the BOP's to 250 psi for a low test and 3,000 psi for a high test. RU the work floor and PU 2 7/8" 8 rd work string, 3-6 1/2" DCs, and a 6 3/4" rock bit. Pressure test surface casing to 1000 psi.
5. Drill up cement plugs at surface and from 71' to 151'. Continue washing down to 5 1/2" casing stub at 4500 '. Circulate and POOH
6. GIH with tubing to top of casing, circulate mud and prepare to set cement plugs.

Set Cement Plugs and Abandon Well

7. RU cementers. Test lines to 4,500 psi.
8. Set plugs coming up hole according to the following Cement Plug Table.
9. Once the top plug has been set cut casing to 5' below surface and weld on a plate to seal the well. Cover up the well and remediate the disturbed area with the appropriate seed mix.

| Re-entry Hole Data | | |
|----------------------|-----------------|------------------------------|
| Planned Hole Size in | Capacity bbl/ft | Capacity ft ³ /ft |
| 9.875 | 0.09472 | 0.53187 |
| 9.875 x 5.5 | 0.06534 | 0.3669 |

| Cement Plug Table | | | | | | |
|-------------------|-----------------------|----------------|----------------|--------------|---------------------------|-----------------|
| Plug Number | Formation or Location | Plug Btm Depth | Plug Top Depth | Cement Class | Yield ft ³ /sk | Number of Sacks |
| 1 | Casing Stub | 4500 | 4200 | G | 1.18 | 135 |
| 2 | Fresh Water Zone | 600 | 0 | G | 1.18 | 271 |

Total **406** sacks