

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Friday, April 21, 2017

### **RBF 8 Surface**

Job Date: Tuesday, April 04, 2017

Sincerely,

**Julia Nichols**

## Legal Notice

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **RBF 8** cement **Surface** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

**Approximately 60 barrels of cement were returned to surface.**

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

**Halliburton [Ft. Lupton]**

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## Cementing Job Summary

The Road to Excellence Starts with Safety

|   |            |                      |       |                                   |                        |                           |               |              |                     |               |
|---|------------|----------------------|-------|-----------------------------------|------------------------|---------------------------|---------------|--------------|---------------------|---------------|
| Sold To #: 389404                                 |            | Ship To #: 3788187   |       | Quote #:                          |                        | Sales Order #: 0903946403 |               |              |                     |               |
| Customer: EXTRACTION OIL & GAS -                  |            |                      |       | Customer Rep: Sean McIntyre       |                        |                           |               |              |                     |               |
| Well Name: RBF                                    |            | Well #: 8            |       | API/UWI #: 05-123-44440-00        |                        |                           |               |              |                     |               |
| Field: WATTENBERG                                 |            | City (SAP): WINDSOR  |       | County/Parish: WELD               |                        | State: COLORADO           |               |              |                     |               |
| Legal Description: SE NE-22-6N-67W-2057FNL-300FEL |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Contractor:                                       |            |                      |       | Rig/Platform Name/Num: Spud Rig   |                        |                           |               |              |                     |               |
| Job BOM: 7521                                     |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Well Type: HORIZONTAL OIL                         |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Sales Person: HALAMERICA\HX38199                  |            |                      |       | Srvc Supervisor: Michael Loughran |                        |                           |               |              |                     |               |
| Job   |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Formation Name                                    |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Formation Depth (MD)                              |            | Top                  |       | Bottom                            |                        |                           |               |              |                     |               |
| Form Type   |            |                      |       | BHST                              |                        |                           |               |              |                     |               |
| Job depth MD                                      |            | 1538ft               |       | Job Depth TVD                     |                        | 1538ft                    |               |              |                     |               |
| Water Depth                                       |            |                      |       | Wk Ht Above Floor                 |                        | 3ft                       |               |              |                     |               |
| Perforation Depth (MD)                            |            | From                 |       | To                                |                        |                           |               |              |                     |               |
| Well Data   |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Description                                       | New / Used | Size in              | ID in | Weight lbm/ft                     | Thread                 | Grade                     | Top MD ft     | Bottom MD ft | Top TVD ft          | Bottom TVD ft |
| Casing  |            | 9.625                | 8.921 | 36                                |                        | J-55                      | 0             | 1538         | 0                   | 1538          |
| Open Hole Section                                 |            |                      | 13.5  |                                   |                        |                           | 0             | 1541         | 0                   | 1541          |
| Tools and Accessories                             |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Type  | Size in    | Qty                  | Make  | Depth ft                          |                        | Type                      | Size in       | Qty          | Make                |               |
| Guide Shoe  |            |                      |       |                                   |                        | Top Plug                  | 9.625         | 1            | HES                 |               |
| Float Shoe  | 9.625      | 1                    |       | 1538                              |                        | Bottom Plug               |               |              |                     |               |
| Float Collar                                      | 9.625      | 1                    |       | 1495                              |                        | SSR plug set              |               |              |                     |               |
| Insert Float                                      |            |                      |       |                                   |                        | Plug Container            | 9.625         | 1            | HES                 |               |
| Stage Tool  |            |                      |       |                                   |                        | Centralizers              |               |              |                     |               |
| Fluid Data  |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Stage/Plug #: 1                                   |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Fluid #   | Stage Type | Fluid Name           | Qty   | Qty UoM                           | Mixing Density lbm/gal | Yield ft3/sack            | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |               |
| 1   | Spacer     | Red Dye Spacer       | 10    | bbl                               | 8.33                   |                           |               | 2            | 420                 |               |
| Stage/Plug #: 2                                   |            |                      |       |                                   |                        |                           |               |              |                     |               |
| Fluid #   | Stage Type | Fluid Name           | Qty   | Qty UoM                           | Mixing Density lbm/gal | Yield ft3/sack            | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |               |
| 2   | Cement     | SWIFTCEM (TM) SYSTEM | 625   | sack                              | 13.5                   | 1.74                      | 9.2           | 7.5          | 5750                |               |
| 9.20 Gal  |            | FRESH WATER          |       |                                   |                        |                           |               |              |                     |               |

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## Cementing Job Summary

| Fluid #             | Stage Type   | Fluid Name  | Qty                 | Qty UoM | Mixing Density<br>lbm/gal | Yield<br>ft3/sack      | Mix Fluid<br>Gal       | Rate<br>bbl/min | Total Mix<br>Fluid<br>Gal |
|---------------------|--------------|-------------|---------------------|---------|---------------------------|------------------------|------------------------|-----------------|---------------------------|
| 3                   | Displacement | Fresh Water | 116                 | bbl     | 8.33                      |                        |                        | 8               | 4872                      |
|                     |              |             |                     |         |                           |                        |                        |                 |                           |
| Cement Left In Pipe |              | Amount      | 43 ft               |         | Reason                    |                        |                        | Shoe Joint      |                           |
| Mix Water:          |              | pH 7.0      | Mix Water Chloride: |         |                           | 0 ppm                  | Mix Water Temperature: |                 | 50 °F                     |
| Cement Temperature: |              | N/A         | Plug Displaced by:  |         |                           | 8.3 lb/gal fresh water | Disp. Temperature:     |                 | 50 °F                     |
| Plug Bumped?        |              | Yes         | Bump Pressure:      |         |                           | 500 psi                | Floats Held?           |                 | Yes                       |
| Cement Returns:     |              | 80 bbl      | Returns Density:    |         |                           | N/A                    | Returns Temperature:   |                 | N/A                       |
| Comment             |              |             |                     |         |                           |                        |                        |                 |                           |

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

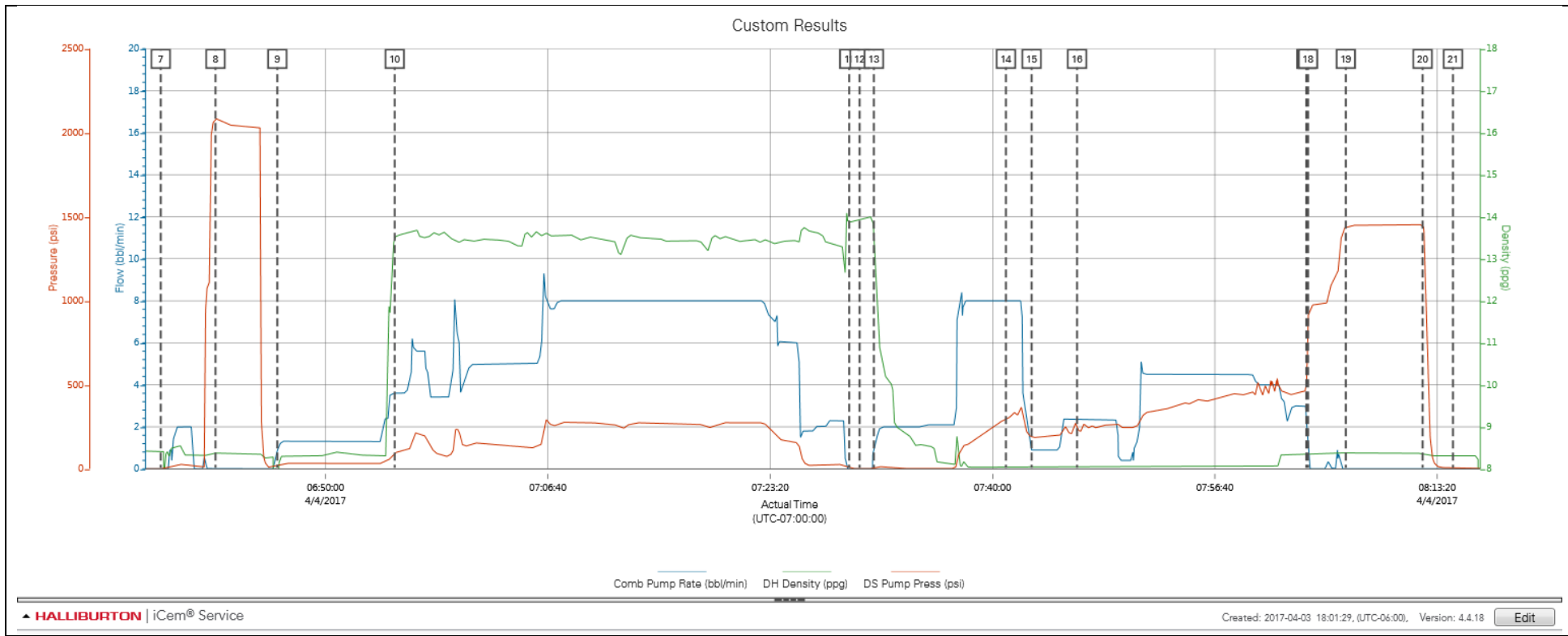
| Type  | Seq. No. | Activity                  | Graph Label               | Date     | Time     | Source | Comb Pump Rate<br>(bbl/min) | DH Density<br>(ppg) | DS Pump Press<br>(psi) | Comments  |
|-------|----------|---------------------------|---------------------------|----------|----------|--------|-----------------------------|---------------------|------------------------|---|
| Event | 1        | Call Out                  | Call Out                  | 4/3/2017 | 22:00:00 | USER   |                             |                     |                        | Crew called out, on location time of 6:00 4/4/2017.   |
| Event | 2        | Crew Leave Yard           | Crew Leave Yard           | 4/3/2017 | 22:30:00 | USER   |                             |                     |                        | Started journey management. Crew left Fort Lupton, CO.  |
| Event | 3        | Arrive At Loc             | Arrive At Loc             | 4/4/2017 | 00:00:00 | USER   |                             |                     |                        | Meet with customer to discuss job. Rig was drilling the surface when crew arrived on location.  |
| Event | 4        | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 4/4/2017 | 05:20:00 | USER   |                             |                     |                        | JSA and identify hazards of rigging up to well head. Discuss iron, bulk, and water hoses to be rigged up.   |
| Event | 5        | Rig-Up Equipment          | Rig-Up Equipment          | 4/4/2017 | 05:30:00 | USER   | 0.00                        | 0.03                | 116.00                 | Rig up iron, bulk, and water hoses.   |
| Event | 6        | Pre-Job Safety Meeting    | Pre-Job Safety Meeting    | 4/4/2017 | 06:30:00 | USER   | 0.00                        | 8.43                | 2.00                   | With all associated personnel, discuss hazards of job and safety related material.  |
| Event | 7        | Start Job                 | Start Job                 | 4/4/2017 | 06:37:39 | COM1   |                             |                     |                        | Fill lines and establish circulation with well.   |
| Event | 8        | Test Lines                | Test Lines                | 4/4/2017 | 06:41:45 | USER   | 0.00                        | 8.38                | 2086.00                | Pressure test line to 2000 psi. Kickouts set at 500 psi, kicked out at 1200 psi, 5th gear stall at 1800 psi. Thomas Haas assisted with the pressure test. |
| Event | 9        | Pump Spacer 1             | Pump Fresh Water Spacer   | 4/4/2017 | 06:46:23 | USER   | 0.90                        | 7.14                | 20.00                  | Pump 10 bbls of red dyed fresh water spacer.  |
| Event | 10       | Pump Cement               | Pump Cement               | 4/4/2017 | 06:55:11 | USER   | 3.60                        | 13.51               | 98.00                  | Pump 625 sack SwiftCem Cement. 194 bbls, Density: 13.5 ppg, Yield: 1.74 ft3/sack, Water Req: 9.2 gal/sack.  |
| Event | 11       | Shutdown                  | Shutdown                  | 4/4/2017 | 07:29:15 | USER   | 0.00                        | 13.86               | 4.00                   | Shutdown to drop top plug.  |
| Event | 12       | Drop Top Plug             | Drop Top Plug             | 4/4/2017 | 07:30:02 | USER   | 0.00                        | 13.93               | 1.00                   | Drop top plug, verified by driller.   |
| Event | 13       | Pump Displacement         | Pump Displacement         | 4/4/2017 | 07:31:06 | USER   | 1.00                        | 13.28               | 4.00                   | Pump 116 bbls fresh water displacement  |
| Event | 14       | Spacer Returns to Surface | Spacer to Surface         | 4/4/2017 | 07:41:00 | USER   | 8.00                        | 8.04                | 287.00                 | Red dyed spacer to surface at 40 bbls into displacement.  |
| Event | 15       | Slow Rate                 | Slow Rate                 | 4/4/2017 | 07:42:56 | USER   | 0.90                        | 8.03                | 188.00                 | Rigs cellar pump was not able to keep up with returns, slowed rate as to not overflow the cellar until issue was resolved.                                |

|       |    |  |  |          |          |      |      |      |         |   |
|-------|----|--|--|----------|----------|------|------|------|---------|---|
| Event | 16 | Cement Returns to Surface              | Cement to Surface                      | 4/4/2017 | 07:46:20 | USER | 2.30 | 8.05 | 254.00  | Good cement returns to surface at 56 bbls into displacement. 60 bbls cement to surface.         |
| Event | 17 | Bump Plug                              | Bump Plug                              | 4/4/2017 | 08:03:31 | USER | 3.00 | 8.34 | 478.00  | Plug bumped at calculated displacement. Bumped at 500 psi, brought up to 1000 psi and shutdown. |
| Event | 18 | Shutdown                               | Shutdown                               | 4/4/2017 | 08:03:39 | USER | 0.00 | 8.34 | 900.00  | Shutdown for 5 minutes  |
| Event | 19 | Pressure Test                          | Casing Pressure Test                   | 4/4/2017 | 08:06:28 | USER | 0.00 | 8.38 | 1441.00 | Casing pressure test, 1500 psi for 5 minutes.   |
| Event | 20 | Check Floats                           | Check Floats                           | 4/4/2017 | 08:12:14 | USER | 0.00 | 8.37 | 1452.00 | Release pressure.   |
| Event | 21 | End Job                                | End Job                                | 4/4/2017 | 08:14:31 | COM1 |      |      |         | Floats held, 1 bbls back.   |
| Event | 22 | Post-Job Safety Meeting (Pre Rig-Down) | Post-Job Safety Meeting (Pre Rig-Down) | 4/4/2017 | 08:25:00 | USER |      |      |         | JSA and discuss rigging down iron, bulk, and water hoses.                                       |
| Event | 23 | Rig Down Lines                         | Rig Down Lines                         | 4/4/2017 | 08:30:00 | USER |      |      |         | Rig down bulk, water hoses, and iron.   |
| Event | 24 | Pre-Convoy Safety Meeting              | Pre-Convoy Safety Meeting              | 4/4/2017 | 09:00:00 | USER |      |      |         | Plan route, hazards of journey, and complete pre-trip inspections.                              |
| Event | 25 | Crew Leave Location                    | Crew Leave Location                    | 4/4/2017 | 09:15:00 | USER |      |      |         | Start Journey management. Thank you for choosing Halliburton, Mike Loughran and crew.           |



3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

