

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Thursday, June 15, 2017

### **RBF 8 Production**

Job Date: Sunday, May 07, 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 Production** 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 25 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 #: 0904009343 |               |              |                     |               |  |
|---|------------------------------|--|-----------|--------------------------------------|-----------------------------------|---------------------------|---------------|--------------|---------------------|---------------|--|
| Customer: EXTRACTION OIL & GAS                    |                              |  |           | Customer Rep: Todd Stephens          |                                   |                           |               |              |                     |               |  |
| 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-87W-2057FNL-300FEL |                              |  |           |                                      |                                   |                           |               |              |                     |               |  |
| Contractor: PATTERSON-UTI ENERGY                  |                              |  |           | Rig/Platform Name/Num: PATTERSON 348 |                                   |                           |               |              |                     |               |  |
| Job BOM: 7523 7523                                |                              |  |           |                                      |                                   |                           |               |              |                     |               |  |
| Well Type: HORIZONTAL OIL                         |                              |  |           |                                      |                                   |                           |               |              |                     |               |  |
| Sales Person: HALAMERICA\HX38199                  |                              |  |           |                                      | Srcv Supervisor: Steven Markovich |                           |               |              |                     |               |  |
| Job   |                              |  |           |                                      |                                   |                           |               |              |                     |               |  |
| Formation Name                                    |                              |  |           |                                      |                                   |                           |               |              |                     |               |  |
| Formation Depth (MD)                              |                              | Top  |           |                                      | Bottom                            |                           |               |              |                     |               |  |
| Form Type   |                              |  |           | BHST                                 |                                   |                           |               |              |                     |               |  |
| Job depth MD                                      |                              | 16525ft  |           |                                      | Job Depth TVD                     |                           |               |              |                     |               |  |
| Water Depth                                       |                              |  |           | Wk Ht Above Floor                    |                                   |                           |               |              |                     |               |  |
| 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             | 1554         | 0                   | 1554          |  |
| Casing  |                              | 5.5  | 4.778     | 20                                   |                                   | P-110                     | 0             | 16525        | 0                   | 0             |  |
| Open Hole Section                                 |                              |  | 8.5       |                                      |                                   |                           | 1554          | 16535        | 0                   | 0             |  |
| Tools and Accessories                             |                              |  |           |                                      |                                   |                           |               |              |                     |               |  |
| Type  | Size in                      | Qty  | Make      | Depth ft                             | Type                              | Size in                   | Qty           | Make         |                     |               |  |
| Guide Shoe  | 5.5                          |  |           | 16525                                | Top Plug                          | 5.5                       |               | HES          |                     |               |  |
| Float Shoe  | 5.5                          |  |           |                                      | Bottom Plug                       | 5.5                       |               | HES          |                     |               |  |
| Float Collar                                      | 5.5                          |  |           |                                      | SSR plug set                      | 5.5                       |               | HES          |                     |               |  |
| Insert Float                                      | 5.5                          |  |           |                                      | Plug Container                    | 5.5                       |               | HES          |                     |               |  |
| Stage Tool  | 5.5                          |  |           |                                      | Centralizers                      | 5.5                       |               | HES          |                     |               |  |
| 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   | 11.5 lb/gal Tuned Spacer III | Tuned Spacer III                                 | 50        | bbl                                  | 11.5                              | 3.74                      |               | 6            |                     |               |  |
| 149.34 lbm/bbl                                    |                              | BARITE, BULK (100003681)                         |           |                                      |                                   |                           |               |              |                     |               |  |
| 35.40 gal/bbl                                     |                              | FRESH WATER                                      |           |                                      |                                   |                           |               |              |                     |               |  |
| 0.30 gal/bbl                                      |                              | MUSOL A, 330 GAL TOTE - (790828)                 |           |                                      |                                   |                           |               |              |                     |               |  |
| 0.30 gal/bbl                                      |                              | DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003685) |           |                                      |                                   |                           |               |              |                     |               |  |

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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/mi<br>n | Total Mix<br>Fluid<br>Gal |
|---|----------------|-----------------------|------|---------|---------------------------|-------------------|------------------|---------------------|---------------------------|
| 2   | ElastiCem Lead | ELASTICEM (TM) SYSTEM | 2600 | sack    | 13.2                      | 1.57              |                  | 5                   | 7.53                      |
|   | 0.40 %         | SCR-100 (100003749)   |      |         |                           |                   |                  |                     |                           |
|   | 7.53 Gal       | FRESH WATER           |      |         |                           |                   |                  |                     |                           |
|   |                |                       |      |         |                           |                   |                  |                     |                           |
| Fluid #   | Stage Type     | Fluid Name            | Qty  | Qty UoM | Mixing Density<br>lbm/gal | Yield<br>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/mi<br>n | Total Mix<br>Fluid<br>Gal |
| 3   | Displacement   | Displacement          | 365  | bbl     | 8.34                      |                   |                  |                     |                           |
| <p><b>Comment</b> 50bbls of spacer and 25 bbls of cement to surface. Dart burst at 3804psi pumped 5bbls past for wet shoe. Checked floats, didn't hold. Got 8 bbls back. Shut in well and pumped the 8bbls back in. Checked floats and floats held.</p> |                |                       |      |         |                           |                   |                  |                     |                           |

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

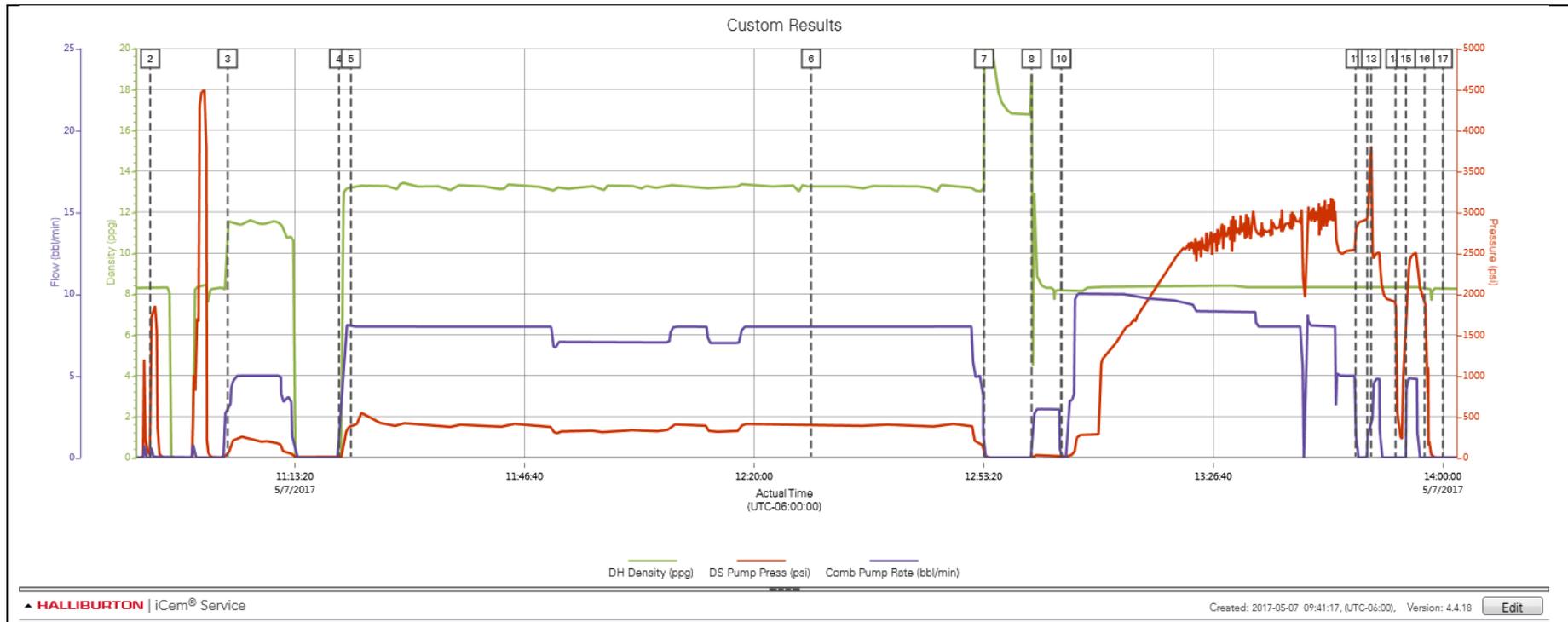
| Type  | Seq. No. | Activity           | Graph Label       | Date     | Time     | Source | DH Density<br><i>(ppg)</i> | DS Pump Press<br><i>(psi)</i> | Comb Pump Rate<br><i>(bbl/min)</i> | Comments  |
|-------|----------|--------------------|-------------------|----------|----------|--------|----------------------------|-------------------------------|------------------------------------|---|
| Event | 1        | Start Job          | Start Job         | 5/7/2017 | 10:44:03 | COM4   | 8.29                       | -7.00                         | 0.00                               | TD 16535' TP 16525' FC 16523' 5 1/2 20# CSG Surface CSG 9 5/8 1554'   |
| Event | 2        | Test Lines         | Test Lines        | 5/7/2017 | 10:52:19 | COM4   | 8.30                       | 28.00                         | 0.00                               | 500 kick out test then bring up to 4500psi and hold for 3 mins.   |
| Event | 3        | Pump Spacer 1      | Pump Spacer 1     | 5/7/2017 | 11:03:35 | COM4   | 11.46                      | 52.00                         | 2.90                               | Pump 50bbls of 11.5ppg 3.74yield Tuned Spacer III. 5bbls/min 240psi   |
| Event | 4        | Check Weight       | Check Weight      | 5/7/2017 | 11:19:44 | COM4   | -0.14                      | 3.00                          | 0.00                               | Weight verified by pressurized scales   |
| Event | 5        | Pump Lead Cement   | Pump Lead Cement  | 5/7/2017 | 11:21:28 | COM4   | 13.20                      | 379.00                        | 8.00                               | Pump 727bbls (2600sks) 13.2ppg 1.57 yied Cement. 8bbls/min 413psi   |
| Event | 6        | Check Weight       | Check Weight      | 5/7/2017 | 12:28:17 | COM4   | 13.26                      | 404.00                        | 8.00                               | Weight verified by pressurized scales   |
| Event | 7        | Shutdown           | Shutdown          | 5/7/2017 | 12:53:24 | COM4   | 18.19                      | 59.00                         | 0.00                               | Shutdown. Rig to blow down stand pipe to wash up tank.  |
| Event | 8        | Clean Lines        | Clean Lines       | 5/7/2017 | 13:00:17 | COM4   | 18.42                      | -6.00                         | 0.00                               | clean pumps and lines   |
| Event | 9        | Drop Top Plug      | Drop Top Plug     | 5/7/2017 | 13:04:34 | COM4   | 8.14                       | 12.00                         | 0.00                               | Plug loaded by KLX hand. Plug drop verified by KLX company hand and myself.   |
| Event | 10       | Pump Displacement  | Pump Displacement | 5/7/2017 | 13:04:37 | COM4   | 8.14                       | 10.00                         | 0.00                               | Pump 365 bbls of fresh water. Spacer interface at 288 away cement to surface at 340 away giving us 25bbls of cement to surface. |
| Event | 11       | Bump Plug          | Bump Plug         | 5/7/2017 | 13:47:20 | COM4   | 8.33                       | 2743.00                       | 4.90                               | Bumed plug at 2530psi took to 2939psi   |
| Event | 12       | Pressure Up        | Pressure Up       | 5/7/2017 | 13:49:01 | USER   | 8.35                       | 2905.00                       | 0.00                               | Pump at 2bbl/min to burst dart.   |
| Event | 13       | Other Logging Pass | Other             | 5/7/2017 | 13:49:35 | USER   | 8.36                       | 3804.00                       | 2.00                               | Dart burst at 3804psi Bring pump up to 5bbl/min to pump 5bbl wet shoe   |
| Event | 14       | Other              | Other             | 5/7/2017 | 13:53:07 | COM4   | 8.32                       | 1908.00                       | 0.00                               | Check floats. Got 8bbls of water back and flow did not stop. Shut in flow.  |
| Event | 15       | Other              | Other             | 5/7/2017 | 13:54:38 | COM4   | 8.31                       | 1422.00                       | 0.50                               | Pump the 8bbls of water back int well at 5bbl/min and   |

held for 3 mins

|       |    |         |         |          |          |      |      |         |      |   |
|-------|----|---------|---------|----------|----------|------|------|---------|------|---|
| Event | 16 | Other   | Other   | 5/7/2017 | 13:57:21 | COM4 | 8.32 | 1947.00 | 0.00 | Checked floats by surging release line. Floats held we got back 2 1/2 bbls of water back. |
| Event | 17 | End Job | End Job | 5/7/2017 | 14:00:00 | COM4 | 8.26 | -1.00   | 0.00 | Thank you Markovich and crew  |

3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

