HALLIBURTON

iCem® Service

# EXTRACTION OIL & GAS

United States of America

Date: Thursday, October 20, 2016

## Winder #12

Production
Job Date: Saturday, July 30, 2016

Sincerely,
Lauren Roberts

# Legal Notice

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# 1.0 Cementing Job Summary

## 1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Winder #12** 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.

**20 bbl. of cement 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 #:** 369404 | **Ship To #:** 3535888 | **Quote #:** | **Sales Order #:** 0903445009 |
| **Customer:** EXTRACTION OIL & GAS | | **Customer Rep:** E | |
| **Well Name:** WINDER | **Well #:** 12 | | **API/UWI #:** 05-123-39583-00 |
| **Field:** SEVERANCE | **City (SAP):** WINDSOR | **County/Parish:** WELD | **State:** COLORADO |
| **Legal Description:** NE NE-9-6N-67W-962FNL-684FEL | | | |
| **Contractor:** PATTERSON-UTI ENERGY | | **Rig/Platform Name/Num:** PATTERSON 341 | |
| **Job BOM:** 7523 | | | |
| **Well Type:** HORIZONTAL OIL | | | |
| **Sales Person:** HALAMERICA\HX38199 | | **Srvc Supervisor:** Andrew Stahlke | |

## Job

| | | | |
|---|---|---|---|
| **Formation Name** | | | |
| **Formation Depth (MD)** | **Top** | **Bottom** | |
| **Form Type** | | **BHST** | |
| **Job depth MD** | 17250ft | **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 | | | 0 | 1535 | | 0 |
| Casing | | 5.5 | 4.778 | 20 | | | 0 | 17250 | 0 | 0 |
| Open Hole Section | | | 7.875 | | | | 1535 | 17250 | 1535 | 7102 |

## Tools and Accessories

| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make |
|---|---|---|---|---|---|---|---|---|---|
| Guide Shoe | 5.5 | | | 17250 | | Top Plug | 5.5 | 1 | KLX |
| 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 | |
| 35.40 gal/bbl | | FRESH WATER | | | | | | | |
| 149.34 lbm/bbl | | BARITE, 100 LB SK (100003680) | | | | | | | |
| 0.30 gal/bbl | | DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665) | | | | | | | |
| 0.30 gal/bbl | | MUSOL A, 330 GAL TOTE - (790828) | | | | | | | |

last updated on 7/30/2016 7:05:03 AM

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## *Cementing Job Summary*

| 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 | ElastiCem | ELASTICEM (TM) SYSTEM | 150 | sack | 13.2 | 1.57 | | 8 | 7.48 |
| 7.48 Gal | | FRESH WATER | | | | | | | |
| 0.90 % | | HR-5, 50 LB SK (100005050) | | | | | | | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 3 | ElastiCem W/ Super CBL | ELASTICEM (TM) SYSTEM | 1950 | sack | 13.2 | 1.57 | | 8 | 7.49 |
| 7.49 Gal | | FRESH WATER | | | | | | | |
| 0.80 % | | HR-5, 50 LB SK (100005050) | | | | | | | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Displacement | Displacement | 381 | bbl | 8.33 | | | 8 | |

| | | | | | |
|---|---|---|---|---|---|
| Cement Left In Pipe | Amount | ft | Reason | | Shoe Joint |
| Mix Water: | pH ## | Mix Water Chloride: | ## ppm | Mix Water Temperature: | ## °F °C |
| Cement Temperature: | ## °F °C | Plug Displaced by: | ## lb/gal kg/m3 XXXX | Disp. Temperature: | ## °F °C |
| Plug Bumped? | Yes/No | Bump Pressure: | #### psi MPa | Floats Held? | Yes/No |
| Cement Returns: | ## bbl m3 | Returns Density: | ## lb/gal kg/m3 | Returns Temperature: | ## °F °C |
| Comment | | | | | |

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | Comments |
|---|---|---|---|---|---|---|---|
| Event | 1 | Call Out | Call Out | 7/29/2016 | 12:15:00 | USER | |
| Event | 2 | Arrive At Loc | Arrive At Loc | 7/29/2016 | 16:30:00 | USER | |
| Event | 3 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 7/29/2016 | 16:45:00 | USER | |
| Event | 4 | Rig-Up Equipment | Rig-Up Equipment | 7/29/2016 | 16:55:50 | USER | |
| Event | 5 | Rig-Up Completed | Rig-Up Completed | 7/30/2016 | 19:00:00 | USER | |
| Event | 6 | Pre-Job Safety Meeting | Pre-Job Safety Meeting | 7/30/2016 | 01:30:00 | USER | TP- 5.5 20# P-110 17164' SJ-5' OH- 7 7/8 TD- 17170' TVD- 7112' PC- 9 5/8 36# 1557' WF-8.0 OBM |
| Event | 7 | Start Job | Start Job | 7/30/2016 | 02:50:00 | COM8 | * From start job to end job all event times are an hour ahead* |
| Event | 8 | Other | Other | 7/30/2016 | 02:59:00 | COM8 | Pumped 5 bbls f/w to fill lines. |
| Event | 9 | Test Lines | Test Lines | 7/30/2016 | 03:03:00 | COM8 | Tested lines to 5000 psi and reset KO to 3500 psi. |
| Event | 10 | Check Weight | Check weight | 7/30/2016 | 03:11:00 | COM8 | Confirmed spacer weight with pressurized mud scales. 11.5 ppg |
| Event | 11 | Pump Spacer 1 | Pump Spacer 1 | 7/30/2016 | 03:12:00 | COM8 | Pumped 50 bbls tuned spacer at 11.5 ppg. |
| Event | 12 | Check Weight | Check weight | 7/30/2016 | 03:26:00 | COM8 | Confirmed lead cement weight with pressurized mud scales. 13.2 ppg |
| Event | 13 | Pump Lead Cement | Pump Lead Cement | 7/30/2016 | 03:27:00 | COM8 | Mixed and pumped 150 sks / 42 bbls of lead cement at 13.2 ppg. HOL - 200' TOL- 0' |
| Event | 14 | Pump Tail Cement | Pump Tail Cement | 7/30/2016 | 03:33:00 | COM8 | Mixed and pumped 1950 sks / 545 bbls of tail cement at 13.2 ppg. HOT- 16964' TOT- 200' |
| Event | 15 | Check Weight | Check Weight | 7/30/2016 | 03:36:00 | USER | Confirmed tail cement weight with pressurized mud scales. 13.2 ppg |
| Event | 16 | Check Weight | Check weight | 7/30/2016 | 03:53:00 | COM8 | Confirmed tail cement weight with pressurized mud scales. 13.2 ppg |
| Event | 17 | Check Weight | Check weight | 7/30/2016 | 04:03:00 | COM8 | Confirmed tail cement weight with pressurized mud scales. 13.2 ppg |
| Event | 18 | Check Weight | Check weight | 7/30/2016 | 04:14:00 | COM8 | Confirmed tail cement weight with pressurized mud scales. 13.2 ppg |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Event | 19 | Check Weight | Check weight | 7/30/2016 | 04:24:00 | COM8 | Confirmed tail cement weight with pressurized mud scales. 13.2 ppg |
| Event | 20 | Check Weight | Check weight | 7/30/2016 | 04:42:09 | COM8 | Confirmed tail cement weight with pressurized mud scales. 13.2 ppg |
| Event | 21 | Clean Lines | Clean Lines | 7/30/2016 | 04:51:35 | COM8 | Washed Pumps and lines |
| Event | 22 | Drop Top Plug | Drop Top Plug | 7/30/2016 | 04:59:34 | COM8 | Dropped 5.5 KLX top plug. |
| Event | 23 | Pump Displacement | Pump Displacement | 7/30/2016 | 04:59:57 | COM8 | Pumped 381 bbls calculated f/w displacement. Had good returns entire job and got back 20 bbls of cement. |
| Event | 24 | Bump Plug | Bump Plug | 7/30/2016 | 05:39:00 | COM8 | Bumped plug at 2900 psi. |
| Event | 25 | Other | Other | 7/30/2016 | 05:42:00 | COM8 | Pressured up to 4100 psi and ruptured disc and pumped 5 bbls f/w. |
| Event | 26 | Other | Other | 7/30/2016 | 05:47:01 | COM8 | Floats held got 3 bbls back. |
| Event | 27 | End Job | End Job | 7/30/2016 | 05:49:54 | COM8 | |
| Event | 28 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 7/30/2016 | 07:00:00 | USER | |

## 3.0 Attachments

### 3.1 Case 1-Custom Results.png