

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

| | | | | | | | | | | |
|--|------------------------------|-----------------------|-------|----------------------------------|------------------------|---------------------------|---------------|--------------|---------------------|---------------|
| Sold To #: 345242 | | Ship To #: 3805799 | | Quote #: | | Sales Order #: 0904271643 | | | | |
| Customer: NOBLE ENERGY INC - EBUS | | | | Customer Rep: Charles Collver | | | | | | |
| Well Name: WELLS RANCH | | Well #: BB11-674 | | API/UWI #: 05-123-44966-00 | | | | | | |
| Field: WATTENBERG | | City (SAP): GILL | | County/Parish: WELD | | State: COLORADO | | | | |
| Legal Description: NW NW-11-5N-63W-765FNL-235FWL | | | | | | | | | | |
| Contractor: Noble | | | | Rig/Platform Name/Num: H&P 524 | | | | | | |
| Job BOM: 7523 7523 | | | | | | | | | | |
| Well Type: HORIZONTAL OIL | | | | | | | | | | |
| Sales Person: HALAMERICA\HB70026 | | | | Srcv Supervisor: Luke Kosakewich | | | | | | |
| Job | | | | | | | | | | |
| Formation Name | | | | | | | | | | |
| Formation Depth (MD) | | Top | | Bottom | | | | | | |
| Form Type | | | | BHST | | 230 degF | | | | |
| Job depth MD | | 17114ft | | Job Depth TVD | | 6469ft | | | | |
| 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 | 1956 | 0 | 1956 |
| Casing | 0 | 5.5 | 4.778 | 20 | | P-110 | 0 | 17110 | 1943 | 6469 |
| Open Hole Section | | | 8.5 | | | | 6497 | 17114 | 0 | 0 |
| 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 | 3.78 | | 4 | | |
| | | | | | | | | | | |
| 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 | 1.571 | | 8 | 7.53 | |
| | | | | | | | | | | |
| 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/ SCBL | ELASTICEM (TM) SYSTEM | 486 | sack | 13.2 | 1.603 | | 8 | 7.7 | |

iCem® Service

(v. 4.4.18)

Created: Thursday, September 07, 2017

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| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|--|-------------------|-------------------|------|---------|---------------------------|-------------------|------------------|---------------------|---------------------------|
| 4 | NeoCem NT1 | NeoCem TM | 1233 | sack | 13.2 | 2.04 | | 8 | 9.75 |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
| 5 | MMCR Displacement | MMCR Displacement | 20 | bbl | 8.33 | | | 10 | |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft3/sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
| 6 | Displacement | Displacement | 357 | bbl | 8.33 | | | 10 | |
| | | | | | | | | | |
| Cement Left In Pipe | | Amount | 49ft | | Reason | | | Shoe Joint | |
| | | | | | | | | | |
| Comment Full returns throughout the job. No spacer to surface. Estimated top of tail 6,156', top of lead 2,756', top of cap 1,761', top of spacer 91'. Floats held. Got 3.5 bbls. of fluid back the truck. | | | | | | | | | |

2.0 Real-Time Job Summary

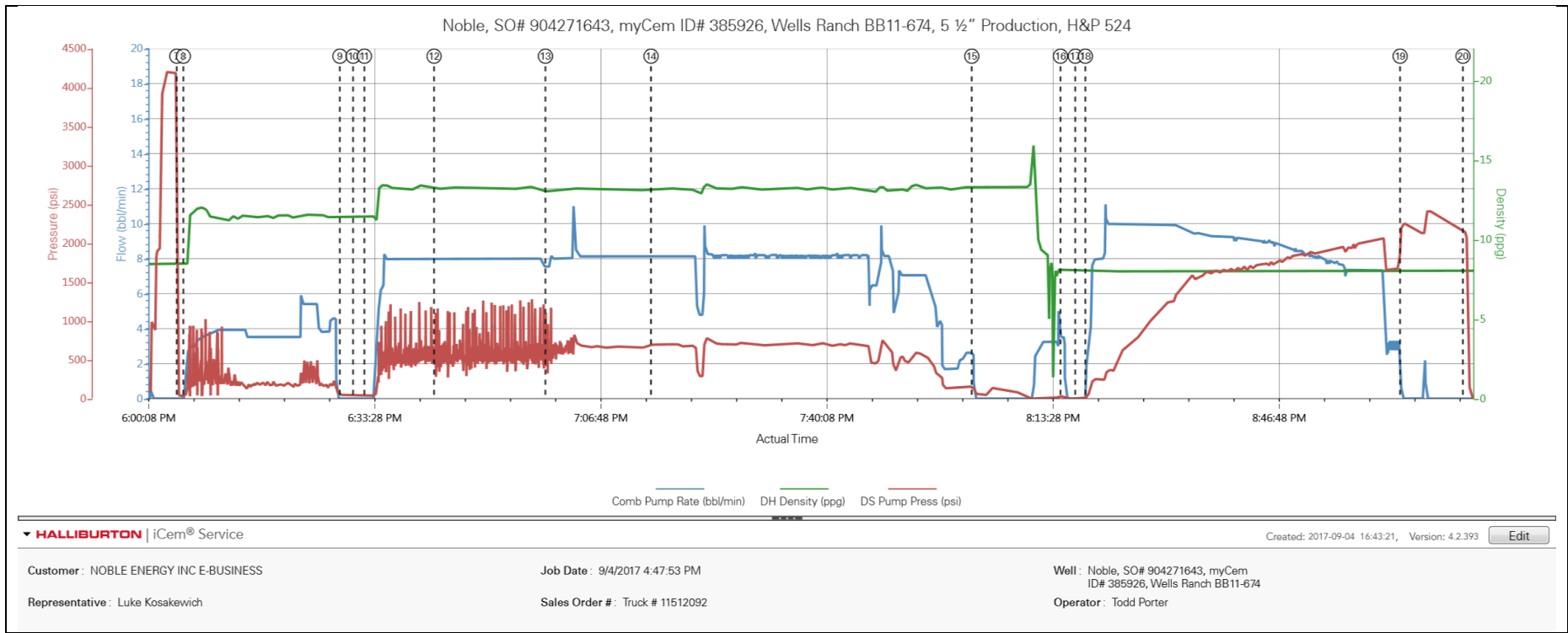
2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | Comb Pump Rate (bbl/min) | DH Density (ppg) | DS Pump Press (psi) | Comments |
|-------|----------|--|--|----------|----------|--------|-----------------------------|---------------------|------------------------|--|
| Event | 1 | Call Out | Call Out | 9/4/2017 | 16:47:53 | USER | | | | Crew was called out 08:00 for an on location time of 15:00. |
| Event | 2 | Depart Shop for Location | Depart Shop for Location | 9/4/2017 | 16:59:34 | USER | | | | Crew left the yard for location. |
| Event | 3 | Arrive at Location from Service Center | Arrive at Location from Service Center | 9/4/2017 | 17:00:02 | USER | | | | Performed a site assesment and hazard hunt. Checked in with the customer. Disscussed job procedures and well bore schematics to calculate the job. |
| Event | 4 | Other | Other | 9/4/2017 | 17:01:39 | USER | | | | Well bore: MD: 17,114', TP: |
| Event | 5 | Start Job | Start Job | 9/4/2017 | 17:47:00 | COM4 | | | | Pumped 3 bbls. of fresh water to fill lines. |
| Event | 6 | Test Lines | Test Lines | 9/4/2017 | 17:49:38 | COM4 | | 8.49 | 4212.00 | Pressure tested lines to 4,300 with a 500 psi. electronic kick out test. |
| Event | 7 | Drop Bottom Plug | Drop Bottom Plug | 9/4/2017 | 18:04:38 | USER | | | | Released the plug wittnesed by the customer. |
| Event | 8 | Pump Spacer 1 | Pump Spacer 1 | 9/4/2017 | 18:05:36 | COM4 | 3.70 | 11.33 | 402.00 | Pumped 80 bbls. of Tuned Spacer III mixed at 11.5 ppg. Yeild 3.78 ft3/sack, 23.5 gal/sack. |
| Event | 9 | Shutdown | Shutdown | 9/4/2017 | 18:28:41 | COM4 | | | | |
| Event | 10 | Drop Bottom Plug | Drop Bottom Plug | 9/4/2017 | 18:30:38 | COM4 | | | | Realesed the bottom plug witnessed by the customer. |
| Event | 11 | Pump Lead Cement | Pump Lead Cement | 9/4/2017 | 18:32:18 | COM4 | 8.00 | 13.22 | 590.00 | Pupmed 42 bbls. (150 sks) of Elasticem without Super CBL mixed at 13.2 ppg. Yeild 1.57 ft3/ sack, 7.53 gal/sack. Pumped 139 bbls. (486 sks.)of Elasticem with Super CBL mixed at 13.2 ppg. Yeild 1.603 ft3/sack, 7.7 gai/sack. |
| Event | 12 | Check Weight | Check weight | 9/4/2017 | 18:42:34 | COM4 | 8.00 | 13.21 | 504.00 | Cement weight up at 13.2 ppg. |
| Event | 13 | Pump Tail Cement | Pump Tail Cement | 9/4/2017 | 18:58:59 | COM4 | 7.60 | 13.13 | 958.00 | Pumped 448 bbls. (1233 sks) of Neocem mixed at 13.2 ppg. Yeild 2.04 ft3/sack, 9.75 gal/sack. |
| Event | 14 | Check Weight | Check weight | 9/4/2017 | 19:14:33 | COM4 | 8.20 | 13.21 | 664.00 | Cement weight up at 13.2 ppg. |
| Event | 15 | Shutdown | Shutdown | 9/4/2017 | 20:01:50 | COM4 | 0.00 | 13.29 | 111.00 | Rig blew down the iron to the wash up pit. |

| | | | | | | | | | | |
|-------|----|-------------------|-------------------|----------|----------|------|-------|------|---------|---|
| Event | 16 | Clean Lines | Clean Lines | 9/4/2017 | 20:14:55 | COM4 | | | | Washed pumps and lines until clean. |
| Event | 17 | Drop Top Plug | Drop Top Plug | 9/4/2017 | 20:17:06 | COM4 | | | | Dropped the top plug witnessed by the customer. |
| Event | 18 | Pump Displacement | Pump Displacement | 9/4/2017 | 20:18:35 | COM4 | 10.00 | 8.00 | 601.00 | Pumped 377 bbls. of fresh water with MMCR in the first 20 bbls. and Algicide throughout the rest of displacement. |
| Event | 19 | Bump Plug | Bump Plug | 9/4/2017 | 21:04:59 | COM4 | 3.10 | 8.06 | 1673.00 | Bumped the plug 500 psi. over 1,650 psi. at 2.8 bpm. Finale pressure 2,400 psi. |
| Event | 20 | Other | Other | 9/4/2017 | 21:14:15 | COM4 | | | | Bled off pressure to check floats. Floats held. Got 3.5 bbls. of fluid back to the truck. |
| Event | 21 | End Job | End Job | 9/4/2017 | 21:17:24 | COM4 | | | | Washed pumps and lines until clean. Rigged down all lines and equipment. |

3.0 Attachments

3.1 Case 1-Custom Results.png



3.2 Case 1-Custom Results (1).png

