

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Wednesday, October 03, 2018

Emmy H25-711 Production

Job Date: Sunday, September 16, 2018

Sincerely,

Adam McKay

Legal Notice

Disclaimer:

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Table of Contents

1.0 Cementing Job Summary 4

1.1 Executive Summary4

2.0 Real-Time Job Summary 7

2.1 Job Event Log7

3.0 Attachments..... 9

3.1 Emmy H25-711 -Custom Results.png.....9

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Emmy H25-711** 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.

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]

The Road to Excellence Starts with Safety

| | | | | | | | | | | |
|---|------------------------------|------------------------|-----------------|----------------------------------|----------------------------|---------------------------|----------------|---------------|--------------|---------------------|
| Sold To #: 345242 | | Ship To #: 3883734 | | Quote #: | | Sales Order #: 0905130589 | | | | |
| Customer: NOBLE ENERGY INC-EBUS | | | | Customer Rep: John Drahota | | | | | | |
| Well Name: EMMY | | | Well #: H25-711 | | API/UWI #: 05-123-46968-00 | | | | | |
| Field: WATTENBERG | | City (SAP): KEENESBURG | | County/Parish: WELD | | State: COLORADO | | | | |
| Legal Description: SW SE-25-3N-65W-285FSL-1693FEL | | | | | | | | | | |
| Contractor: H & P DRLG | | | | Rig/Platform Name/Num: H & P 517 | | | | | | |
| Job BOM: 7523 7523 | | | | | | | | | | |
| Well Type: HORIZONTAL OIL | | | | | | | | | | |
| Sales Person: HALAMERICA\HB70026 | | | | Srvc Supervisor: Nicholas Roles | | | | | | |
| Job | | | | | | | | | | |
| Formation Name | | | | | | | | | | |
| Formation Depth (MD) | | Top | | Bottom | | | | | | |
| Form Type | | | | BHST | | 230 degF | | | | |
| Job depth MD | | 17513ft | | Job Depth TVD | | 6588ft | | | | |
| Water Depth | | | | Wk Ht Above Floor | | 4ft | | | | |
| 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 | 1935 | 0 | 1935 |
| Casing | | 5.5 | 4.778 | 20 | | | 0 | 17513 | 0 | 6588 |
| Open Hole Section | | | 8.5 | | | | 2462 | 6605 | 2462 | 6588 |
| Open Hole Section | | | 8.5 | | | | 6605 | 17528 | 0 | 0 |
| Tools and Accessories | | | | | | | | | | |
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make | |
| Guide Shoe | 5.5 | | | 17513 | | Top Plug | 5.5 | 1 | HES | |
| Float Shoe | 5.5 | | | | | Bottom Plug | 5.5 | 2 | HES | |
| Float Collar | 5.5 | | | 17463 | | 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 | | 120 | bbl | 11.5 | 3.78 | | 7 | |

| 36.09 gal/bbl | FRESH WATER | | | | | | | | |
|---|---|-----------------------|-----------------|------------------------|------------------------|----------------|---------------|--------------|---------------------|
| 0.60 gal/bbl | MUSOL(R) A, 5 GAL PAIL (100064220) | | | | | | | | |
| 147.42 lbm/bbl | BARITE, BULK (100003681) | | | | | | | | |
| 0.60 gal/bbl | DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665) | | | | | | | | |
| | | | | | | | | | |
| 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 | 140 | sack | 13.2 | 1.68 | | 5 | 8.04 |
| 8.06 Gal | FRESH WATER | | | | | | | | |
| 0.95 % | SCR-100 (100003749) | | | | | | | | |
| | | | | | | | | | |
| 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 | 425 | sack | 13.2 | 1.68 | | 8 | 8.06 |
| 0.50 % | SCR-100 (100003749) | | | | | | | | |
| 8.08 Gal | FRESH WATER | | | | | | | | |
| | | | | | | | | | |
| 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 | NeoCem NT1 | NeoCem TM | 1228 | sack | 13.2 | 2.04 | | 8 | 9.75 |
| 9.75 Gal | FRESH WATER | | | | | | | | |
| 0.08 % | SCR-100 (100003749) | | | | | | | | |
| | | | | | | | | | |
| 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 |
| 5 | Displacement | Displacement | 387 | bbl | 8.33 | | | 10 | |
| | | | | | | | | | |
| Cement Left In Pipe | Amount | 50 ft | Reason | | | | Shoe Joint | | |
| Mix Water: | pH 06 | Mix Water Chloride: | 00 ppm | Mix Water Temperature: | | | 72 °F °C | | |
| Cement Temperature: | ## °F °C | Plug Displaced by: | 8.33 lb/gal | Disp. Temperature: | | | 72 °F °C | | |
| Plug Bumped? | Yes | Bump Pressure: | #### psi MPa | Floats Held? | | | Yes | | |
| Cement Returns: | ## bbl m3 | Returns Density: | ## lb/gal kg/m3 | Returns Temperature: | | | ## °F °C | | |
| Comment Got Obbbs spacer to surface. Estimated TOL#1-2632', TOL#2-3662', TOT-6775' | | | | | | | | | |

2.0 Real-Time Job Summary

2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DH Density (ppg) | Comb Pump Rate (bbl/min) | DS Pump Press (psi) | Comments |
|-------|----------|--|--|-----------|----------|--------|---------------------|-----------------------------|------------------------|---|
| Event | 1 | Call Out | Call Out | 9/16/2018 | 00:00:00 | USER | | | | Called out by Service Coordinator for O/L at 0600 |
| Event | 2 | Depart Yard Safety Meeting | Depart Yard Safety Meeting | 9/16/2018 | 03:45:00 | USER | | | | Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive. |
| Event | 3 | Depart from Service Center or Other Site | Depart from Service Center or Other Site | 9/16/2018 | 04:00:00 | USER | | | | Journey Management prior to departure |
| Event | 4 | Arrive at Location from Service Center | Arrive at Location from Service Center | 9/16/2018 | 05:00:00 | USER | | | | Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment. |
| Event | 5 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 9/16/2018 | 05:15:00 | USER | | | | Discussed rigging up hazards and procedure according to HMS. |
| Event | 6 | Other | Other | 9/16/2018 | 06:00:00 | USER | | | | Water test- PH-6, Chlor-0, Temp-68. |
| Event | 7 | Safety Meeting - Pre Job | Safety Meeting - Pre Job | 9/16/2018 | 13:15:00 | USER | | | | Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority. |
| Event | 8 | Start Job | Start Job | 9/16/2018 | 13:40:00 | COM4 | | | | TD-17528', TP-17513' 5.5" 20#, FC-17463', TVD-6588', SURF-1935' 9.625" 36#, OH-8.5" MUD-9.4# |
| Event | 9 | Drop Bottom Plug | Drop Bottom Plug | 9/16/2018 | 13:46:56 | USER | | | | Dropped by HES supervisor, witnessed by company man. |
| Event | 10 | Test Lines | Test Lines | 9/16/2018 | 13:49:43 | COM4 | 8.47 | | 4597.00 | Pumped 5bbls fresh water to fill lines, closed 2" lo torc, performed 500psi k/o function test, followed with 5th gear stall at 1590psi, perform 4500psi test on line. Held pressure, no leaks. proceeded to bring pressure to 3000psi on Kelley line, pressure stabilized and held with no leaks. |
| Event | 11 | Pump Spacer 1 | Pump Spacer 1 | 9/16/2018 | 13:56:31 | COM4 | 11.78 | 4.00 | 209.00 | Pumped 120bbls Tuned Spacer III 11.5# 3.78y 23.5g/s with 70g Musol A, 70g Dual Spacer B and 20g D-Air at 7bpm 340psi. |
| Event | 12 | Drop Bottom Plug | Drop Bottom Plug | 9/16/2018 | 14:17:07 | COM4 | | | | Dropped by HES supervisor, witnessed by company man. |
| Event | 13 | Pump Lead Cement | Pump Lead Cement | 9/16/2018 | 14:17:15 | COM4 | 12.99 | 4.00 | 41.00 | Pumped 140sks or 42bbls Elasticem w/o CBL 13.2# 1.68y 8.04g/s at 5bpm 290psi. |

| | | | | | | | | | | |
|-------|----|--|--|-----------|----------|------|-------|-------|---------|--|
| Event | 14 | Check Weight | Check Weight | 9/16/2018 | 14:20:46 | COM4 | 13.20 | 4.30 | 240.00 | Weight verified with pressurized mud scales. |
| Event | 15 | Pump Lead Cement | Pump Lead Cement | 9/16/2018 | 14:26:09 | COM4 | 13.18 | 6.60 | 314.00 | Pumped 425sks or 127bbls Elasticem w/CBL 13.2# 1.68y 8.06g/s at 8bpm 450psi. |
| Event | 16 | Check Weight | Check Weight | 9/16/2018 | 14:27:52 | COM4 | 13.24 | 6.60 | 309.00 | Weight verified with pressurized mud scales. |
| Event | 17 | Check Weight | Check Weight | 9/16/2018 | 14:40:38 | COM4 | 13.18 | 8.00 | 378.00 | Weight verified with pressurized mud scales. |
| Event | 18 | Pump Tail Cement | Pump Tail Cement | 9/16/2018 | 14:45:21 | COM4 | 13.13 | 8.00 | 457.00 | Pumped 1228sks or 446bbls 13.2# 2.04y 9.75g/s Neocem at 8bpm 600psi. |
| Event | 19 | Check Weight | Check Weight | 9/16/2018 | 14:55:24 | COM4 | 13.25 | 8.00 | 538.00 | Weight verified with pressurized mud scales. |
| Event | 20 | Check Weight | Check Weight | 9/16/2018 | 15:16:22 | COM4 | 13.25 | 8.20 | 560.00 | Weight verified with pressurized mud scales. |
| Event | 21 | Shutdown | Shutdown | 9/16/2018 | 15:49:46 | COM4 | | | | Shutdown, rig blew air through lines to pits, followed with 5bbls fresh water through pumps and lines. |
| Event | 22 | Drop Top Plug | Drop Top Plug | 9/16/2018 | 15:50:18 | COM4 | | | | Dropped by HES supervisor, witnessed by company man. |
| Event | 23 | Pump Displacement | Pump Displacement | 9/16/2018 | 15:50:22 | COM4 | 8.34 | 10.80 | 332.00 | Pumped 387bbls fresh water with 10g MMCR in first 20bbls, 20g Algicide throughout. |
| Event | 24 | Bump Plug | Bump Plug | 9/16/2018 | 16:35:09 | COM4 | 8.38 | 2.90 | 1621.00 | Slowed down to 3bpm at 355bbls away, final circulating pressure-1700psi, Bump pressure-2200psi. Held for 5min pressure test. |
| Event | 25 | Check Floats | Check Floats | 9/16/2018 | 16:40:56 | USER | | | | Released pressure and got 4bbls fresh water to truck, floats held. |
| Event | 26 | End Job | End Job | 9/16/2018 | 16:42:39 | COM4 | | | | Got 0bbls spacer to surface. Estimated TOL#1-2632', TOL#2-3662',TOT-6775' |
| Event | 27 | Safety Meeting - Pre Rig-Down | Safety Meeting - Pre Rig-Down | 9/16/2018 | 16:45:00 | USER | | | | All HSE present. Discussed red zone areas and trapped pressure hazards. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius. |
| Event | 28 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 9/16/2018 | 18:15:00 | USER | | | | All HSE present and fit to drive. Aware of directions and hazards. |
| Event | 29 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 9/16/2018 | 18:30:00 | USER | | | | Pre journey managment prior to departure. |

3.0 Attachments

3.1 Emmy H25-711 -Custom Results.png

