

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Wednesday, January 09, 2019

Guttersen D29-778 Production

Job Date: Sunday, December 30, 2018

Sincerely,

Adam McKay

The Road to Excellence Starts with Safety

| | | | | | | | | | | | |
|--|---------------------------------------|-------------------------------|--------------|---|---------------|-----------------------------------|-------------------------------|----------------------------------|----------------------|----------------------|----------------------------|
| Sold To #: 345242 | | Ship To #: 3908531 | | Quote #: | | Sales Order #: 0905372822 | | | | | |
| Customer: NOBLE ENERGY INC-EBUS | | | | | | Customer Rep: Tim Simkins | | | | | |
| Well Name: GUTTERSEN | | | | Well #: D29-778 | | API/UWI #: 05-123-48038-00 | | | | | |
| Field: WATTENBERG | | City (SAP): KEENESBURG | | County/Parish: WELD | | State: COLORADO | | | | | |
| Legal Description: SW NW-29-3N-64W-2356FNL-973FWL | | | | | | | | | | | |
| Contractor: H & P DRLG | | | | Rig/Platform Name/Num: H & P 321 | | | | | | | |
| Job BOM: 7523 7523 | | | | | | | | | | | |
| Well Type: HORIZONTAL OIL | | | | | | | | | | | |
| Sales Person: HALAMERICA\HB70026 | | | | Srv Supervisor: Nicholas Cummins | | | | | | | |
| Job | | | | | | | | | | | |
| | | | | | | | | | | | |
| Formation Name | | | | | | | | | | | |
| Formation Depth (MD) | | Top | 1946ft | | Bottom | 17682ft | | | | | |
| Form Type | | | | | | BHST | 230 degF | | | | |
| Job depth MD | | 17662ft | | | | Job Depth TVD | 6923ft | | | | |
| 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 | 0 | 9.625 | 8.921 | 36 | | | 0 | 1946 | 0 | | |
| Casing | 0 | 5.5 | 4.778 | 20 | | | 0 | 17662 | 6923 | | |
| Open Hole Section | | | 8.5 | | | | 2500 | 6486 | 6923 | | |
| Open Hole Section | | | 8.5 | | | | 6486 | 17682 | 6923 | | |
| Tools and Accessories | | | | | | | | | | | |
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make | | |
| Guide Shoe | 5.5 | 1 | HES | 17662 | | Top Plug | 5.5 | 1 | HES | | |
| | | | | | | Bottom Plug | 5.5 | 2 | HES | | |
| Float Collar | 5.5 | 1 | HES | 17615 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 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 w/ Chems | Tuned Spacer III | | | 120 | bbl | 11.5 | 3.78 | 23.5 | 4 | |

| | |
|----------------|--|
| 0.60 gal/bbl | DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665) |
| 147.42 lbm/bbl | BARITE, BULK (100003681) |
| 0.60 gal/bbl | MUSOL(R) A, 5 GAL PAIL (100064220) |
| 34.70 gal/bbl | 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 |
|----------|------------|-----------------------|-----|---------|------------------------|----------------|---------------|--------------|---------------------|
| 2 | ElastiCem | ELASTICEM (TM) SYSTEM | 140 | sack | 13.2 | 1.68 | | 8 | 8.04 |
| 8.04 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 | 417 | sack | 13.2 | 1.68 | | 6 | 8.06 |
| 0.55 % | | SCR-100 (100003749) | | | | | | | |
| 8.06 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 | 1251 | 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 | 391 | bbl | 8.33 | | | 10 | |

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
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|---------------------|--------|-------|--------|------------|
| Cement Left In Pipe | Amount | 47 ft | Reason | Shoe Joint |
|---------------------|--------|-------|--------|------------|

| | | | | | |
|------------|------|---------------------|----------|------------------------|------|
| Mix Water: | pH 7 | Mix Water Chloride: | <400 ppm | Mix Water Temperature: | 65 F |
|------------|------|---------------------|----------|------------------------|------|

| | | | | | |
|--|--|--------------------|-------------|--------------------|-------|
| | | Plug Displaced by: | 8.33 lb/gal | Disp. Temperature: | 75 °F |
|--|--|--------------------|-------------|--------------------|-------|

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|--------------|-----|----------------|----------|--------------|-----|
| Plug Bumped? | Yes | Bump Pressure: | 1860 psi | Floats Held? | Yes |
|--------------|-----|----------------|----------|--------------|-----|

| | | | | | |
|-----------------|-------|--|--|--|--|
| Cement Returns: | 0 bbl | | | | |
|-----------------|-------|--|--|--|--|

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|---------|--|
| Comment | |
|---------|--|

2.0 Real-Time Job Summary

2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DS Pump Press (psi) | DH Density (ppg) | Comb Pump Rate (bbl/min) | Comments |
|-------|----------|--|--|------------|----------|--------|------------------------|---------------------|-----------------------------|--|
| Event | 1 | Call Out | Call Out | 12/29/2018 | 09:00:00 | USER | | | | The crew was called out on 12/29/18 at 0900. The customer requested HES on location at 1400 on 12/29/18. |
| Event | 2 | Depart from Service Center or Other Site | Depart from Service Center or Other Site | 12/29/2018 | 13:00:00 | USER | | | | The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey. The crew departed service center. |
| Event | 3 | Arrive at Location from Service Center | Arrive at Location from Service Center | 12/29/2018 | 14:10:00 | USER | | | | The crew arrived on location safely. The rig was still running casing. The supervisor met with the Company man and received numbers. TD 19,975', TP 17,662' 5 1/2" 20# P-110, FC 17,615', PC 1,946' 9 5/8" 36# J-55, TVD 6,923', OH 8 1/2", Mud 9.8 ppg. |
| Event | 4 | Assessment Of Location Safety Meeting | Assessment Of Location Safety Meeting | 12/29/2018 | 14:20:00 | USER | | | | Crew discussed all potential hazards on location. |
| Event | 5 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 12/29/2018 | 14:30:00 | USER | | | | Crew held a safety meeting discussing the rig up procedure. Also all potential hazards associated with rigging up all HES equipment and lines. |
| Event | 6 | Rig-Up Equipment | Rig-Up Equipment | 12/29/2018 | 14:40:00 | USER | | | | The crew rigged up all HES equipment and lines. |
| Event | 7 | Rig-Up Completed | Rig-Up Completed | 12/29/2018 | 18:30:00 | USER | | | | Rig up completed, no one got hurt. |
| Event | 8 | Safety Meeting - Pre Job | Safety Meeting - Pre Job | 12/29/2018 | 19:50:00 | USER | | | | The crew and all personal involved with cement job discussed all potential hazards associated with job. Followed by the job procedure to ensure everyone understood the plan of action |
| Event | 9 | Start Job | Start Job | 12/29/2018 | 20:42:05 | COM6 | | | | Primed up pumps and lines. Started Recording data from 11826999. |
| Event | 10 | Drop Bottom Plug | Drop Bottom Plug | 12/29/2018 | 20:43:08 | COM6 | | | | Company man dropped bottom plug. |
| Event | 11 | Test Lines | Test Lines | 12/29/2018 | 20:50:33 | COM6 | 2493.30 | 8.62 | | We pressure tested the rigs IBOP to 2,500 psi. Then we pressure tested all HES lines to 4,700 psi. |
| Event | 12 | Pump Spacer 1 | Pump Spacer 1 | 12/29/2018 | 20:59:38 | COM6 | 272.30 | 11.65 | 4.10 | We pumped 120 bbls of spacer with surfactants at 4 bpm. Pressure was at 280 psi. 11.5 ppg 3.78 yield 23.5 gal/sk. We |

verified density using pressurized scales.

| | | | | | | | | | | |
|-------|----|-----------------------------|-----------------------------|------------|----------|------|--------|-------|-------|--|
| Event | 13 | Shutdown | Shutdown | 12/29/2018 | 21:22:18 | COM6 | | | | Shutdown to drop bottom plug and batch cap cement. |
| Event | 14 | Drop Bottom Plug | Drop Bottom Plug | 12/29/2018 | 21:25:00 | USER | | | | |
| Event | 15 | Pump Cap Cement | Pump Cap Cement | 12/29/2018 | 21:32:01 | COM6 | 411.30 | 13.46 | 6.20 | We pumped 42 bbls (140 sks) of cap cement at 8 bpm. Pressure was at 600 psi. 13.2 ppg 1.68 yield 8.04 gal/sk. We verified density using pressurized scales. |
| Event | 16 | Pump Lead Cement | Pump Lead Cement | 12/29/2018 | 21:39:26 | COM6 | 561.12 | 13.03 | 8.00 | We pumped 125 bbls (417 sks) of lead cement at 5 bpm. Pressure was at 350 psi. 13.2 ppg 1.68 yield 8.06 gal/sk. We verified density using pressurized scales. |
| Event | 17 | Pump Tail Cement | Pump Tail Cement | 12/29/2018 | 22:00:30 | COM6 | 619.30 | 13.00 | 8.00 | We pumped 455 bbls (1,251 sks) of Tail cement at 8 bpm. Pressure was at 750 psi. 13.2 ppg 2.04 yield 9.75 gal/sk. We verified density using pressurized scales. |
| Event | 18 | Clean Lines | Clean Lines | 12/29/2018 | 23:05:15 | COM6 | | | | Shutdown and blew air from the rig floor to the wash up tank. The company man loaded the bottom plug. We washed pumps and lines to the wash up tank. |
| Event | 19 | Drop Top Plug | Drop Top Plug | 12/29/2018 | 23:17:04 | COM6 | | | | Bottom plug dropped. |
| Event | 20 | Pump Displacement | Pump Displacement | 12/29/2018 | 23:19:48 | COM6 | 482.30 | 8.27 | 10.10 | We pumped the calculated displacement of 391 bbls at 10 bpm. With MMCR in the first 20 bbls and Biocide throughout till the last 30 bbls. We slowed rate as needed. |
| Event | 21 | Bump Plug | Bump Plug | 12/30/2018 | 00:06:28 | COM6 | 1886.3 | 8.28 | 3.30 | We bumped the plug. Final circulating pressure was 1,860 psi. We pressured up to 2,350 before shutting down. |
| Event | 22 | Other | Check Floats | 12/30/2018 | 00:11:01 | COM6 | | | | We bled pressure off the well back to the truck. We got 4.5 bbls back. |
| Event | 23 | End Job | End Job | 12/30/2018 | 00:14:16 | COM6 | | | | Cement job complete. Estimated top of cap cement 2,515'. Estimated top of lead cement 3,544'. Estimated top of tail cement 6,608'. We got 4 bbls of spacer to surface. |
| Event | 24 | Pre-Rig Down Safety Meeting | Pre-Rig Down Safety Meeting | 12/30/2018 | 00:15:00 | USER | | | | Crew held a safety meeting discussing the rig down procedure. Also all potential hazards associated with rigging down all HES equipment and lines. |
| Event | 25 | Rig-Down Equipment | Rig-Down Equipment | 12/30/2018 | 00:25:00 | USER | | | | The crew rigged down all HES equipment and lines. |
| Event | 26 | Rig-Down Completed | Rig-Down Completed | 12/30/2018 | 01:25:00 | USER | | | | Rig down completed no one got hurt. |

| | | | | | | | |
|-------|----|--|--|------------|----------|------|---|
| Event | 27 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 12/30/2018 | 01:30:00 | USER | The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey. |
| Event | 28 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 12/30/2018 | 01:40:00 | USER | Nick Cummins and crew would like to thank you for your business, and choosing Halliburton Cement! Please feel free to call if you have any questions. |

3.0 Attachments

3.1 Cement Job With Events.png

