

HALLIBURTON

iCem[®] Service

NOBLE ENERGY INC-EBUS

Date: Wednesday, October 03, 2018

Emmy State H25-731 Production

Job Date: Wednesday, September 26, 2018

Sincerely,

Adam McKay

Legal Notice

Disclaimer:

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Emmy State H25-731** 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

iCem® Service

(v. 4.5.139)

Created: Wednesday, October 03, 2018

| | | | |
|---------------------------------------------------|------------------------|----------------------------------|----------------------------|
| Sold To #: 345242 | Ship To #: 3883670 | Quote #: | Sales Order #: 0905156791 |
| Customer: NOBLE ENERGY INC-EBUS | | Customer Rep: Gary Stapleton | |
| Well Name: EMMY STATE | | Well #: H25-731 | API/UWI #: 05-123-46971-00 |
| Field: WATTENBERG | City (SAP): KEENESBURG | County/Parish: WELD | State: COLORADO |
| Legal Description: SW SE-25-3N-65W-285FSL-1760FEL | | | |
| Contractor: H & P DRLG | | Rig/Platform Name/Num: H & P 517 | |
| 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 | 17293ft | Job Depth TVD | 6898 |
| 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 | 1938 | 0 | 1938 |
| Casing | | 5.5 | 4.778 | 20 | | | 0 | 17280 | 0 | 6898 |
| Open Hole Section | | | 8.5 | | | | 2604 | 6637 | 2604 | 6637 |
| Open Hole Section | | | 8.5 | | | | 6637 | 17293 | 6637 | 6898 |

| Tools and Accessories | | | | | | | | | |
|-----------------------|---------|-----|------|----------|--|----------------|---------|-----|------|
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make |
| Guide Shoe | | | | | | Top Plug | 5.5 | 1 | HES |
| Float Shoe | 5.5 | 1 | | 17279.8 | | Bottom Plug | 5.5 | 1 | HES |
| Float Collar | 5.5 | 1 | | 17232.5 | | SSR plug set | | | |
| Insert Float | | | | | | Plug Container | | | |
| Stage Tool | | | | | | Centralizers | | | |

| 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 W SURFACTANT | 120 | bbl | 11.5 | 3.78 | | 6 | | |

| 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 | | 6 | 8.04 | |
| 3 | ElastiCem w/ SCBL | ELASTICEM (TM) SYSTEM | 410 | sack | 13.2 | 1.68 | | 8 | 8.06 | |
| 4 | NeoCem NT1 | NeoCem TM | 1215 | sack | 13.2 | 2.04 | | 8 | 9.75 | |
| 5 | Displacement | Displacement | 382.2 | bbl | 8.33 | | | 10 | | |
| | | | | | | | | | | |
| Cement Left In Pipe | | Amount | 48 ft | | Reason | | | Shoe Joint | | |
| Mix Water: | | pH 7 | Mix Water Chloride: 0 ppm | | Mix Water Temperature: | | | 62 °F | | |
| Plug Bumped? | | Yes | Bump Pressure: 1,700 psi | | Floats Held? | | | Yes | | |
| <p>Comment There were full returns throughout the job. Halliburton bumped the plug 500 psi. over 1,700 psi. at 3 bpm. Finale pressure was 2,300 psi. We held pressure for a minute. Pressure held. We circulated no spacer or cement to surface. We checked floats. Floats held. Got 4.5 bbls. of fluid back to the truck. Estimated tops based on the assumption that TOS is 0' are TOT; 6,637', TOL; 3,631', TOC; 2,604'.</p> | | | | | | | | | | |

2.0 Real-Time Job Summary

2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DS Pump Press <i>(psi)</i> | Comb Pump Rate <i>(bbl/min)</i> | DH Density <i>(ppg)</i> | Comments |
|-------|----------|----------------------------------------|----------------------------------------|-----------|----------|--------|-------------------------------|------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Event | 1 | Call Out | Call Out | 9/25/2018 | 20:00:00 | USER | | | | Crew was called out at 20:00 for an on location time of 02:00. |
| Event | 2 | Depart Yard Safety Meeting | Depart Yard Safety Meeting | 9/26/2018 | 00:15:00 | USER | | | | Crew held a pre journey safety meeting and JSA. |
| Event | 3 | Depart Shop for Location | Depart Shop for Location | 9/26/2018 | 00:30:00 | USER | | | | Started journey management with dispatch and left location. |
| Event | 4 | Arrive at Location from Service Center | Arrive at Location from Service Center | 9/26/2018 | 01:30:00 | USER | | | | Crew performed a site assessment, safety meeting and hazard hunt on location. Checked in with the customer and discussed the job procedures, rig up and well bore schematics. The rig was running casing. |
| Event | 5 | Other | Other | 9/26/2018 | 01:35:00 | USER | | | | Well bore: MD: 17,293', TP: 5.5" 20# set at 17,279.8', FC: 17,232.5', TVD: 6,898', SC: 9.625" 36# set at 1,937.8'. OH: 8.5". Mud # 9.5 ppg. Water test: PH: 7, Chlorides: 0, Temp: 62 Degrees. |
| Event | 6 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 9/26/2018 | 01:40:00 | USER | | | | The crew held a pre rig up safety meeting and JSA. |
| Event | 7 | Rig-Up Equipment | Rig-Up Equipment | 9/26/2018 | 01:45:00 | USER | | | | The crew rigged up all lines, hoses and equipment for the job. |
| Event | 8 | Safety Meeting | Safety Meeting | 9/26/2018 | 04:50:00 | USER | | | | Halliburton cement crew held a pre cement job safety meeting and JSA with third party personnel and rig crew. |
| Event | 9 | Start Job | Start Job | 9/26/2018 | 05:09:13 | COM5 | | | | Pumped 3 bbls. of fresh water at 3 bpm. to fill lines and establish circulation. |
| Event | 10 | Test Lines | Test Lines | 9/26/2018 | 05:13:48 | COM5 | 5095.00 | | 8.29 | Pressure tested lines to 6,500 psi. with a 500 psi. electronic kick out test. Pressure tested lbop to 3,000 psi. with a 500 psi. electronic kick out test. |
| Event | 11 | Drop Bottom Plug | Drop Bottom Plug | 9/26/2018 | 05:23:16 | COM5 | | | | Halliburton loaded and dropped the bottom plug which, was witnessed by the customer. |
| Event | 12 | Pump Spacer 1 | Pump Spacer 1 | 9/26/2018 | 05:23:22 | COM5 | 126.00 | 3.00 | 11.34 | Pumped 120 bbls. of Tuned Spacer III with surfactants mixed at 11.5 |

ppg., Yield: 3.78 ft3/sks, 23.5 gal/sks. Density was verified by pressurized scales.

| | | | | | | | | | | |
|-------|----|--------------------------------------------------|--------------------------------------------------|-----------|----------|------|---------|-------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Event | 13 | Shutdown | Shutdown | 9/26/2018 | 05:46:05 | USER | | | | Loaded the second bottom plug that was witnessed by the customer. |
| Event | 14 | Drop Bottom Plug | Drop Bottom Plug | 9/26/2018 | 05:48:43 | COM5 | | | | Dropped the bottom plug which, was witnessed by the customer. |
| Event | 15 | Pump Lead Cement | Pump Lead Cement | 9/26/2018 | 05:50:57 | COM5 | 530.00 | 6.10 | 13.41 | Pumped 42 bbls. (140 sks.) of Elasticem W/O Super CBL mixed at 13.2 ppg., Yield: 1.68 ft3/sks, 8.04 gal/sks. Density was verified by pressurized scales. |
| Event | 16 | Pump Lead Cement | Pump Lead Cement | 9/26/2018 | 05:58:52 | COM5 | 557.00 | 6.10 | 13.44 | Pumped 123 bbls. (410 sks.) of Elasticem mixed at 13.2 ppg., Yield: 1.68 ft3/sks, 8.06 gal/sks. Density was verified by pressurized scales. |
| Event | 17 | Pump Tail Cement | Pump Tail Cement | 9/26/2018 | 06:17:37 | COM5 | 516.00 | 6.00 | 13.12 | Pumped 441 bbls. (1215 sks.) of Neocem mixed at 13.2 ppg. Yield: 2.04 ft3/sks, 9.75 gal/sks. Density was verified by pressurized scales. |
| Event | 18 | Shutdown | Shutdown | 9/26/2018 | 07:13:48 | COM5 | | | | Washed pumps and lines until clean and dry. |
| Event | 19 | Drop Top Plug | Drop Top Plug | 9/26/2018 | 07:25:42 | COM5 | | | | Dropped the top plug, which was witnessed by the customer. |
| Event | 20 | Pump Displacement | Pump Displacement | 9/26/2018 | 07:25:49 | COM5 | 495.00 | 10.10 | 7.76 | Pumped 382.2 bbls. of fresh water with MMCR in the first 20 bbls. and Biocide was added throughout the rest of displacement. |
| Event | 21 | Bump Plug | Bump Plug | 9/26/2018 | 08:06:00 | COM5 | 1738.00 | 3.10 | 7.86 | Halliburton bumped the plug 500 psi. over 1,700 psi. at 3 bpm. Final pressure was 2,300 psi. We held pressure for a minute. Pressure held. We circulated no spacer or cement to surface. Estimated tops based on the assumption that TOS is 0' are TOT; 6,637', TOL; 3,631', TOC; 2,604'. |
| Event | 22 | Check Floats | Check Floats | 9/26/2018 | 08:11:42 | USER | | | | Bled off pressure to check floats. Floats held. We got 4.5 bbls. of fresh water back to the truck. |
| Event | 23 | End Job | End Job | 9/26/2018 | 08:14:50 | COM5 | | | | Washed and blew down lines, pumps, and hoses until clean and dry. |
| Event | 24 | Pre-Rig Down Safety Meeting | Pre-Rig Down Safety Meeting | 9/26/2018 | 08:17:00 | USER | | | | Halliburton cement crew held a pre rig down safety meeting and JSA. |
| Event | 25 | Rig-Down Equipment | Rig-Down Equipment | 9/26/2018 | 08:22:00 | USER | | | | Rigged down all lines, hoses and equipment. |
| Event | 26 | Safety Meeting - Departing Location | Safety Meeting - Departing Location | 9/26/2018 | 10:20:00 | USER | | | | Held a pre journey safety meeting with the crew. |
| Event | 27 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 9/26/2018 | 10:30:00 | USER | | | | Started journey management with dispatch and left location. |

3.0 Attachments

3.1 Noble, SO# 905156791, Emmy State H25-731, 5 1/2" Production.png

