

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Houlihan 4-64 22B 21-1 Production

Job Date: Sunday, October 22, 2017

Sincerely,

Fort Lupton District Cement

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 **Houlihan 4-64 22B 21-1** 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.

65 bbls of cement to surface

5 bbls of wet shoe pumped

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 Fort Lupton

The Road to Excellence Starts with Safety

| | | | | | | | | | | |
|--|------------------------------|----------------------------------|--------------|--------------------------------------|----------------------------|---------------------------|---------------|--------------|---------------------|---------------|
| Sold To #: 369404 | | Ship To #: 3816001 | | Quote #: | | Sales Order #: 0904378622 | | | | |
| Customer: EXTRACTION OIL & GAS | | | | Customer Rep: LARRY SIEGEL | | | | | | |
| Well Name: HOULIHAN 4-64 22B | | | Well #: 21-1 | | API/UWI #: 05-005-07306-00 | | | | | |
| Field: WILDCAT | | City (SAP): AURORA | | County/Parish: ARAPAHOE | | State: COLORADO | | | | |
| Legal Description: SE SE-22-4S-64W-1232FSL-1120FEL | | | | | | | | | | |
| Contractor: PATTERSON-UTI ENERGY | | | | Rig/Platform Name/Num: PATTERSON 341 | | | | | | |
| Job BOM: 7523 7523 | | | | | | | | | | |
| Well Type: HORIZONTAL OIL | | | | | | | | | | |
| Sales Person: HALAMERICA\HX38199 | | | | Srv Supervisor: Vitalijs Neverdasovs | | | | | | |
| Job | | | | | | | | | | |
| Formation Name | | | | | | | | | | |
| Formation Depth (MD) | | Top | | Bottom | | | | | | |
| Form Type | | | | BHST | | | | | | |
| Job depth MD | | 17453ft | | 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 | 2050 | 0 | 2050 |
| Casing | | 5.5 | 4.778 | 20 | BTC | P-110 | 0 | 17453 | 0 | 7550 |
| Open Hole Section | | | 8.5 | | | | 2050 | 17453 | 0 | 7550 |
| Tools and Accessories | | | | | | | | | | |
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make | |
| Guide Shoe | 5.5 | | | | | Top Plug | 5.5 | 1 | NA | |
| Float Shoe | 5.5 | 1 | NA | 17444 | | Bottom Plug | 5.5 | | | |
| Float Collar | 5.5 | 1 | NA | 17439 | | SSR plug set | 5.5 | | | |
| Insert Float | 5.5 | | | | | Plug Container | 5.5 | 1 | HES | |
| Stage Tool | 5.5 | | | | | Centralizers | 5.5 | 289 | | |
| 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 | 3.73 | | 6 | | |
| 0.50 gal/bbl | | MUSOL A, 330 GAL TOTE - (790828) | | | | | | | | |
| 149.34 lbm/bbl | | BARITE, BULK (100003681) | | | | | | | | |

| | | | | | | | | | |
|---|--------------|--|-------|---------|---------------------------|-------------------|------------------|-----------------|------------------------|
| 35 gal/bbl | | FRESH WATER | | | | | | | |
| 0.50 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 | 2815 | sack | 13.2 | 1.57 | | 6 | 7.54 |
| 7.54 Gal | | FRESH WATER | | | | | | | |
| 0.30 % | | 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 | Displacement | Displacement | 386.7 | bbl | 8.33 | | | 8 | |
| | | | | | | | | | |
| Cement Left In Pipe | | Amount | 0 | | Reason | | | | |
| | | | | | | | | | |
| Comment : 65 BBLS OF CEMENT BACK TO SURFACE | | | | | | | | | |

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) | PS Pump Press (psi) | Comments |
|-------|----------|--|--|------------|----------|--------|-----------------------------|---------------------|------------------------|--|
| Event | 1 | End Job | End Job | 10/22/2017 | 00:00:00 | USER | | | | |
| Event | 2 | Call Out | Call Out | 10/22/2017 | 03:00:00 | USER | | | | ON LOCATION TIME @ 10:00 |
| Event | 3 | Depart Yard Safety Meeting | Depart Yard Safety Meeting | 10/22/2017 | 07:35:00 | USER | | | | HELD JSA PRIOR LEAVING THE YARD |
| Event | 4 | Depart Shop for Location | Depart Shop for Location | 10/22/2017 | 07:45:00 | USER | | | | CALLED JORNEY |
| Event | 5 | Arrive at Location from Service Center | Arrive at Location from Service Center | 10/22/2017 | 08:44:00 | USER | | | | ARRIVED TO LOCATION, 42 MILES. DISCUSS NUMBERS AND JOB PROCEDURE WITH CUSTOMER. RIG IS RUNNING CASING. |
| Event | 6 | Other | Other | 10/22/2017 | 08:53:00 | USER | | | | SPOT TRUCKS |
| Event | 7 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 10/22/2017 | 09:01:00 | USER | | | | HELD PRE RIG UP SAFETY MEETING |
| Event | 8 | Rig-up Lines | Rig UP Lines | 10/22/2017 | 09:10:00 | USER | | | | RIG UP ALL SURFACE LINES TO THE BUFFER ZONE. |
| Event | 9 | Casing on Bottom | CASING ON BUTTOM | 10/22/2017 | 12:21:00 | USER | | | | RIG START CIRCULATING 10 BPM @ 2100 PSI |
| Event | 10 | Other | Other | 10/22/2017 | 12:25:00 | USER | | | | CEMENT CREW IS FINISHING RIG UP |
| Event | 11 | Safety Meeting - Pre Job | Safety Meeting - Pre Job | 10/22/2017 | 12:35:00 | USER | | | | PRE JOB SAFETY MEETING |
| Event | 12 | Start Job | Start Job | 10/22/2017 | 13:05:00 | USER | 0.00 | 8.52 | -2.47 | |

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| | | | | | | | | | | |
|-------|----|--------------------------------|--------------------------------|------------|----------|------|------|-------|---------|--|
| Event | 13 | Pressure Test | Pressure Test | 10/22/2017 | 13:13:53 | USER | 0.00 | 8.16 | 38.85 | LOAD LINE AND PRESSURE TEST TO 4980 PSI |
| Event | 14 | Pump Spacer | Pump Spacer | 10/22/2017 | 13:19:37 | USER | 1.93 | 9.11 | 194.77 | BATCH/ WEIGH/ PUMP 50 BBLS OF TUNED SPACER WITH SURFACTANS |
| Event | 15 | Pump Cement | Pump Cement | 10/22/2017 | 13:32:15 | USER | 5.10 | 12.67 | 592.09 | BATCH/ WEIGH/ PUMP 2815 SKS (787 BBLS) OF ELASTICEM @ 13.2 PPG |
| Event | 16 | Shutdown | Shutdown | 10/22/2017 | 15:37:00 | USER | 0.00 | 14.30 | 0.34 | |
| Event | 17 | Drop Top Plug | Drop Top Plug | 10/22/2017 | 15:39:00 | USER | 0.00 | 13.00 | 91.45 | LOAD AND DROP TOP PLUG |
| Event | 18 | Clean Lines | Clean Lines | 10/22/2017 | 15:40:00 | USER | 0.00 | 13.01 | 88.64 | WASH PUMPS AND LINES |
| Event | 19 | Pump Displacement | Pump Displacement | 10/22/2017 | 15:45:00 | USER | 0.00 | 8.62 | -9.99 | PUMP DISPLACEMENT. PER CUSTOMER NO MMCR |
| Event | 20 | Bump Plug | Bump Plug | 10/22/2017 | 16:30:00 | USER | 0.00 | 8.40 | 3037.96 | FINAL CIRCULATING PRESSURE 2570 @ 5 BPM |
| Event | 21 | Other | Other | 10/22/2017 | 16:32:00 | USER | 2.00 | 8.41 | 3657.89 | BURST DISC @ 3698 AND PUMP 5 BBLS WET SHOE |
| Event | 22 | Shutdown | Shutdown | 10/22/2017 | 16:33:00 | USER | 5.15 | 8.38 | 2430.25 | |
| Event | 23 | Check Floats | Check Floats | 10/22/2017 | 16:35:00 | USER | 0.00 | 8.36 | 1158.47 | FLOATS HELD |
| Event | 24 | End Job | End Job | 10/22/2017 | 16:37:00 | USER | | | | END JOB |
| Event | 25 | Safety Meeting - Pre Rig-Down | Safety Meeting - Pre Rig-Down | 10/22/2017 | 16:39:00 | USER | | | | RIG DOWN SAFETY MEETING |
| Event | 26 | Depart Location Safety Meeting | Depart Location Safety Meeting | 10/22/2017 | 17:40:00 | USER | | | | HELD JSA PRIOR LEAVING LOCATION |

| | | | | | | |
|-------|----|-----------------|-----------------|------------|----------|------|
| Event | 27 | Depart Location | Depart Location | 10/22/2017 | 18:15:00 | USER |
|-------|----|-----------------|-----------------|------------|----------|------|

3.0 Job Chart

3.1 Job Chart

