

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

United States of America, COLORADO

WS-SUNRISE 1-5-5

Sincerely,

Meghan Jacobs

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 **WS-Sunrise 1-5-5** 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.

Approximately 50bbbls of cement returned to surface.

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]

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Cementing Job Summary

The Road to Excellence Starts with Safety

| | | | | | | | | | | |
|---|------------|--|--------------------------------------|------------------------------|----------------------------|---------------------------|-----------------------------|---------------|--------------|---------------------|
| Sold To #: 369404 | | Ship To #: 3847416 | | Quote #: | | Sales Order #: 0904715550 | | | | |
| Customer: EXTRACTION OIL & GAS | | | | Customer Rep: Shayne | | | | | | |
| Well Name: WS-SUNRISE | | | Well #: 1-5-5 | | API/UWI #: 05-123-46047-00 | | | | | |
| Field: WATTENBERG | | City (SAP): GREELEY | | County/Parish: WELD | | State: COLORADO | | | | |
| Legal Description: SW SE-32-6N-65W-248FSL-1722FEL | | | | | | | | | | |
| Contractor: PATTERSON-UTI ENERGY | | | Rig/Platform Name/Num: PATTERSON 346 | | | | | | | |
| Job BOM: 7523 7523 | | | | | | | | | | |
| Well Type: HORIZONTAL OIL | | | | | | | | | | |
| Sales Person: HALAMERICA\HX38199 | | | | Srcv Supervisor: Bryan Kraft | | | | | | |
| Job | | | | | | | | | | |
| Formation Name | | | | | | | | | | |
| Formation Depth (MD) | | Top | | Bottom | | | | | | |
| Form Type | | | | | | | | | | |
| Job depth MD | | 11817ft | | Job Depth TVD | | 6969ft | | | | |
| Water Depth | | | | | | | | | | |
| 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 | | J-55 | 0 | 1595 | 0 | 1595 |
| Casing | 0 | 5.5 | 4.778 | 20 | BTC | P-110 | 0 | 11817 | 0 | 6969 |
| Open Hole Section | | | 8.5 | | | | 1595 | 11830 | 1595 | 6969 |
| Tools and Accessories | | | | | | | | | | |
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make | |
| Guide Shoe | | | | | | Top Plug | 5.5 | 1 | KLX | |
| Float Shoe | 5.5 | 1 | | 11817 | | Bottom Plug | | | | |
| Float Collar | 5.5 | 1 | | 11812 | | SSR plug set | | | | |
| Insert Float | | | | | | Plug Container | 5.5 | 1 | HES | |
| Stage Tool | | | | | | Centralizers | | | | |
| Fluid Data | | | | | | | | | | |
| Stage/Plug #: 1 | | | | | | | | | | |
| Fluid # | Stage Type | Fluid Name | | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
| 1 | Spacer | TUNED SPACER III | | 50 | bbl | 11.5 | 3.73 | 23.4 | 4 | 1761 |
| 149.34 lbm/bbl | | BARITE, BULK (100003681) | | | | | | | | |
| 35 gal/bbl | | FRESH WATER | | | | | | | | |
| 0.50 gal/bbl | | MUSOL A, 330 GAL TOTE - (790828) | | | | | | | | |
| 0.50 gal/bbl | | DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665) | | | | | | | | |

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Cementing Job Summary

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|--|--------------|----------------------------|---------------------|---------|---------------------------|--------------------------------|------------------------|---------------------|---------------------------|
| 2 | Cement | ELASTICEM (TM) SYSTEM | 1950 | sack | 13.2 | 1.57 | 7.53 | 8 | 14684 |
| | | 7.53 Gal FRESH WATER | | | | | | | |
| | | 0.45 % SCR-100 (100003749) | | | | | | | |
| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
| 3 | Displacement | FRESH WATER | 262 | bbl | 8.33 | | | 10 | 11004 |
| Cement Left In Pipe | | Amount | 0 ft | | Reason | | | Wet Shoe Joint | |
| Mix Water: | | pH 7 | Mix Water Chloride: | | <300 ppm | | Mix Water Temperature: | | 50 °F |
| Cement Temperature: | | N/A | Plug Displaced by: | | 8.33lb/gal Fresh Water | | Disp. Temperature: | | 50 °F |
| Plug Bumped? | | Yes | Bump Pressure: | | 2342 psi | | Floats Held? | | Yes |
| Cement Returns: | | 50 bbl | Returns Density: | | N/A | | Returns Temperature: | | N/A |
| Comment: The plug bumped @ calculated displacement @ 2342 PSI, shutdown for 1 minute @ 2980 PSI. The disc ruptured @ 4234 PSI and pumped a 5 BBL wet shoe. The floats held and received 1.5 BBLs back to the truck. Total of 50 BBLs cement returned to surface. | | | | | | | | | |

2.0 Real-Time Job Summary

2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DH Density <i>(ppg)</i> | Comb Pump Rate <i>(bbl/min)</i> | DS Pump Press <i>(psi)</i> | Comments |
|-------|----------|---------------------------|---------------------------|-----------|----------|--------|----------------------------|------------------------------------|-------------------------------|---|
| Event | 1 | Call Out | Call Out | 3/19/2018 | 04:30:00 | USER | | | | CREW CALLED OUT AT 4:30 3/19/2018, REQUESTED ON LOCATION 9:30 3/19/2018. CREW PICKED UP CEMENT, CHEMICALS (25 GAL MUSOL, 25 GAL DUAL SPACER B, 10 GAL D-AIR), 100 LBS SUGAR, AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 12644849/12649238 PUMP ELITE: 111897034/11645460. |
| Event | 2 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 3/19/2018 | 07:15:00 | USER | | | | DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW. |
| Event | 3 | Crew Leave Yard | Crew Leave Yard | 3/19/2018 | 07:30:00 | USER | | | | STARTED JOURNEY MANAGEMENT. |
| Event | 4 | Arrive At Loc | Arrive At Loc | 3/19/2018 | 09:00:00 | USER | | | | END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1595', CASING: 5.5" 20# @ 11817', 5' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 6969', 10.0 PPG WELL FLUID, FRESH WATER DISPLACEMENT. |
| Event | 5 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 3/19/2018 | 09:10:00 | USER | | | | HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER. |
| Event | 6 | Rig-Up Equipment | Rig-Up Equipment | 3/19/2018 | 09:15:00 | USER | | | | CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB. |
| Event | 7 | Pre-Job Safety Meeting | Pre-Job Safety Meeting | 3/19/2018 | 11:45:00 | USER | 8.43 | 0.00 | 4.00 | MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS. |
| Event | 8 | Start Job | Start Job | 3/19/2018 | 12:39:22 | COM6 | 8.41 | 0.00 | 2.00 | BEGIN RECORDING JOB DATA. |
| Event | 9 | Test Lines | Test Lines | 3/19/2018 | 12:45:56 | USER | 8.29 | 0.00 | 57.00 | PRESSURE TESTED IRON TO 4500 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 400 PSI, 5TH GEAR STALL OUT @ 2100 PSI. |
| Event | 10 | Pump Spacer 1 | Pump Tuned Spacer @ | 3/19/2018 | 12:57:30 | COM6 | 11.40 | 1.70 | 218.00 | PUMP 50 BBLS OF TUNED SPACER @ 11.5 LB/GAL, |

11.5 ppg

DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
ADDED 25 GAL MUSOL, 25 GAL DUAL SPACER B, AND
10 GAL D-AIR TO SPACER.

| | | | | | | | | | | |
|-------|----|-----------------------------|-----------------------------|-----------|----------|------|-------|------|---------|---|
| Event | 11 | Pump Cement | Pump Cement @ 13.2 ppg | 3/19/2018 | 13:10:23 | COM6 | 13.26 | 3.90 | 273.00 | PUMP 1950 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.53 GAL/SK, 545 BBLS, TOC @ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES. |
| Event | 12 | Shutdown | Shutdown | 3/19/2018 | 14:24:57 | COM6 | 13.00 | 0.00 | 83.00 | SHUTDOWN TO WASH PUMPS AND LINES, DROP TOP PLUG. |
| Event | 13 | Drop Top Plug | Drop Top Plug | 3/19/2018 | 14:38:34 | COM6 | 8.51 | 0.00 | -30.00 | PLUG LEFT CONTAINER, VERIFIED BY CO. MAN. AND TOOL HAND. |
| Event | 14 | Pump Displacement | Pump Displacement | 3/19/2018 | 14:39:57 | COM6 | 0.45 | 1.80 | -2.00 | BEGIN CALCULATED DISPLACEMENT OF 262 BBLS WITH FRESH WATER. |
| Event | 15 | Cement Returns to Surface | Cement Returns to Surface | 3/19/2018 | 15:02:06 | USER | 8.56 | 9.60 | 2882.00 | CEMENT RETURNS TO SURFACE @ 212 BBLS INTO DISPLACEMENT. TOTAL AMOUNT OF 50 BBLS OF CEMENT TO SURFACE. |
| Event | 16 | Bump Plug | Bump Plug | 3/19/2018 | 15:08:37 | USER | 8.55 | 5.00 | 2342.00 | PLUG BUMPED AT CALCULATED DISPLACEMENT. FINAL CIRCULATING PRESSURE OF 2342 PSI. |
| Event | 17 | Shutdown | Shutdown | 3/19/2018 | 15:08:48 | USER | 8.55 | 0.00 | 2986.00 | SHUTDOWN FOR 1 MINUTE @ 2980 PSI. |
| Event | 18 | Other | Rupture Disc | 3/19/2018 | 15:10:11 | USER | 8.58 | 2.10 | 4163.00 | DISC BURST @ 4234 PSI. |
| Event | 19 | Pump Displacement | Pump Wet Shoe | 3/19/2018 | 15:10:26 | USER | 8.55 | 0.00 | 1928.00 | PUMP 5 BBL WET SHOE. |
| Event | 20 | Check Floats | Check Floats | 3/19/2018 | 15:12:24 | USER | 8.55 | 0.00 | 1818.00 | RELEASED PRESSURE, FLOATS HELD, 1.5 BBLS BACK. |
| Event | 21 | End Job | End Job | 3/19/2018 | 15:13:17 | COM6 | | | | STOP RECORDING JOB DATA. |
| Event | 22 | Pre-Rig Down Safety Meeting | Pre-Rig Down Safety Meeting | 3/19/2018 | 15:20:00 | USER | 8.65 | 2.20 | 17.00 | DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES. |
| Event | 23 | Rig-Down Completed | Rig-Down Completed | 3/19/2018 | 16:00:00 | USER | | | | ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL. |
| Event | 24 | Pre-Convoy Safety Meeting | Pre-Convoy Safety Meeting | 3/19/2018 | 16:15:00 | USER | | | | DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW. |
| Event | 25 | Crew Leave Location | Crew Leave Location | 3/19/2018 | 16:30:00 | USER | | | | THANK YOU FOR USING HALLIBURTON - BRYAN |

3.0 Attachments

3.1 WS-SUNRISE 1-5-5 – Job Chart with Events

WS-Sunrise 1-5-5 Production



DH Density (ppg) Comb Pump Rate (bbl/min) DS Pump Press (psi)

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Edit

Customer: EXTRACTION OIL & GAS-EBUS
Representative: Bryan Kraft

Job Date: 3/19/2018 11:36:49 AM
Sales Order #: 904715550

Well: WS-SUNRISE 1-5-5
Operator / Elite: Kan Broom / 11645460

3.2 WS-SUNRISE 1-5-5 – Job Chart without Events

