

# HALLIBURTON

iCem<sup>®</sup> Service

## EXTRACTION OIL & GAS-EBUS

**United B S16-20-17N Production**

Job Date: Monday, January 03, 2022

Sincerely,

**Meghan Van Zyl**

## Legal Notice

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **United B S16-20-17N** 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 55 bbls of cement were 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 Fort Lupton**

|                                                        |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
|--------------------------------------------------------|-------------------|-------------------------------|--------------|------------------------------------------|---------------|-----------------------------------|-------------------------------|-----------------------|----------------------|----------------------|----------------------------|
| <b>Sold To #:</b> 369404                               |                   | <b>Ship To #:</b> 3909281     |              | <b>Quote #:</b>                          |               | <b>Sales Order #:</b> 0907594601  |                               |                       |                      |                      |                            |
| <b>Customer:</b> EXTRACTION OIL & GAS-EBUS             |                   |                               |              |                                          |               | <b>Customer Rep:</b> Manny Parras |                               |                       |                      |                      |                            |
| <b>Well Name:</b> UNITED B                             |                   |                               |              | <b>Well #:</b> S16-20-17N                |               | <b>API/UWI #:</b> 05-014-20809-00 |                               |                       |                      |                      |                            |
| <b>Field:</b> WATTENBERG                               |                   | <b>City (SAP):</b> BROOMFIELD |              | <b>County/Parish:</b> BROOMFIELD         |               | <b>State:</b> COLORADO            |                               |                       |                      |                      |                            |
| <b>Legal Description:</b> NE NE-9-1S-68W-436FNL-916FEL |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Contractor:</b> ENSIGN DRLG                         |                   |                               |              | <b>Rig/Platform Name/Num:</b> ENSIGN 769 |               |                                   |                               |                       |                      |                      |                            |
| <b>Job BOM:</b> 7523 7523                              |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Well Type:</b> HORIZONTAL OIL                       |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Sales Person:</b> HALAMERICA\HX41066                |                   |                               |              | <b>Srvc Supervisor:</b> Nicholas Roles   |               |                                   |                               |                       |                      |                      |                            |
| <b>Job</b>                                             |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Formation Name</b>                                  |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Formation Depth (MD)</b>                            |                   | <b>Top</b>                    |              |                                          |               | <b>Bottom</b>                     |                               |                       |                      |                      |                            |
| <b>Form Type</b>                                       |                   |                               |              | <b>BHST</b>                              |               |                                   |                               |                       |                      |                      |                            |
| <b>Job depth MD</b>                                    |                   | 18226ft                       |              | <b>Job Depth TVD</b>                     |               |                                   |                               |                       |                      |                      |                            |
| <b>Water Depth</b>                                     |                   |                               |              | <b>Wk Ht Above Floor</b>                 |               |                                   |                               |                       |                      |                      |                            |
| <b>Perforation Depth (MD)</b>                          |                   | <b>From</b>                   |              | <b>To</b>                                |               |                                   |                               |                       |                      |                      |                            |
| <b>Well Data</b>                                       |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Description</b>                                     | <b>New / Used</b> | <b>Size in</b>                | <b>ID in</b> | <b>Weight lbm/ft</b>                     | <b>Thread</b> | <b>Grade</b>                      | <b>Top MD ft</b>              | <b>Bottom MD ft</b>   | <b>Top TVD ft</b>    | <b>Bottom TVD ft</b> |                            |
| Casing                                                 |                   | 9.625                         | 8.921        | 36                                       |               |                                   | 0                             | 1622                  | 0                    | 1622                 |                            |
| Casing                                                 |                   | 5.5                           | 4.892        | 17                                       |               |                                   | 0                             | 18226                 | 0                    | 8015                 |                            |
| Open Hole Section                                      |                   |                               | 8.75         |                                          |               |                                   | 1622                          | 18235                 | 0                    | 8015                 |                            |
| <b>Tools and Accessories</b>                           |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Type</b>                                            | <b>Size in</b>    | <b>Qty</b>                    | <b>Make</b>  | <b>Depth ft</b>                          |               | <b>Type</b>                       | <b>Size in</b>                | <b>Qty</b>            | <b>Make</b>          |                      |                            |
| Guide Shoe                                             | 5.5               |                               |              |                                          |               | Top Plug                          | 5.5                           | 1                     | HES                  |                      |                            |
| Float Shoe                                             | 5.5               |                               |              | 18226                                    |               | Bottom Plug                       | 5.5                           | 1                     | HES                  |                      |                            |
| Float Collar                                           | 5.5               |                               |              | 18221                                    |               | SSR plug set                      | 5.5                           |                       | HES                  |                      |                            |
| Insert Float                                           | 5.5               |                               |              |                                          |               | Plug Container                    | 5.5                           | 1                     | HES                  |                      |                            |
| Stage Tool                                             | 5.5               |                               |              |                                          |               | Centralizers                      | 5.5                           |                       | HES                  |                      |                            |
| <b>Fluid Data</b>                                      |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Stage/Plug #: 1</b>                                 |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Fluid #</b>                                         | <b>Stage Type</b> | <b>Fluid Name</b>             |              |                                          | <b>Qty</b>    | <b>Qty UoM</b>                    | <b>Mixing Density lbm/gal</b> | <b>Yield ft3/sack</b> | <b>Mix Fluid Gal</b> | <b>Rate bbl/min</b>  | <b>Total Mix Fluid Gal</b> |
| 1                                                      | Tuned Prime       | TUNED PRIME CEMENT SPACER SYS |              |                                          | 50            | bbl                               | 11.5                          | 3.73                  |                      | 6                    |                            |
| <b>Fluid Data</b>                                      |                   |                               |              |                                          |               |                                   |                               |                       |                      |                      |                            |
| <b>Fluid #</b>                                         | <b>Stage Type</b> | <b>Fluid Name</b>             |              |                                          | <b>Qty</b>    | <b>Qty UoM</b>                    | <b>Mixing Density lbm/gal</b> | <b>Yield ft3/sack</b> | <b>Mix Fluid Gal</b> | <b>Rate bbl/min</b>  | <b>Total Mix Fluid Gal</b> |

| 2                                                                      | Cap              | SBM CEM ELASTICEM™<br>SYS         | 550                 | sack    | 13                           | 1.67              |                     | 9                      | 8.33                   |          |
|------------------------------------------------------------------------|------------------|-----------------------------------|---------------------|---------|------------------------------|-------------------|---------------------|------------------------|------------------------|----------|
| 0.35 %                                                                 |                  | SCR-100, 1200 LB BAG - (1126328)  |                     |         |                              |                   |                     |                        |                        |          |
| 8.33 Gal                                                               |                  | FRESH WATER                       |                     |         |                              |                   |                     |                        |                        |          |
|                                                                        |                  |                                   |                     |         |                              |                   |                     |                        |                        |          |
| Fluid #                                                                | Stage Type       | Fluid Name                        | Qty                 | Qty UoM | Mixing<br>Density<br>lbm/gal | Yield<br>ft3/sack | Mix<br>Fluid<br>Gal | Rate<br>bbl/mi<br>n    | Total Mix Fluid<br>Gal |          |
| 3                                                                      | FDP-C1371<br>SYS | SBM CEM FDP-C1371 SYS             | 760                 | sack    | 13                           | 1.56              |                     | 9                      | 7.24                   |          |
| 7.24 Gal                                                               |                  | FRESH WATER                       |                     |         |                              |                   |                     |                        |                        |          |
| 5 %                                                                    |                  | CHANNELFIX, 44 LB BAG - (1107429) |                     |         |                              |                   |                     |                        |                        |          |
| 0.27 %                                                                 |                  | SCR-100, 1200 LB BAG - (1126328)  |                     |         |                              |                   |                     |                        |                        |          |
|                                                                        |                  |                                   |                     |         |                              |                   |                     |                        |                        |          |
| Fluid #                                                                | Stage Type       | Fluid Name                        | Qty                 | Qty UoM | Mixing<br>Density<br>lbm/gal | Yield<br>ft3/sack | Mix<br>Fluid<br>Gal | Rate<br>bbl/mi<br>n    | Total Mix Fluid<br>Gal |          |
| 4                                                                      | ElastiCem        | SBM CEM ELASTICEM™<br>SYS         | 1530                | sack    | 13.2                         | 1.59              |                     | 9                      | 7.75                   |          |
| 0.70 %                                                                 |                  | HR-5, 50 LB SK (100005050)        |                     |         |                              |                   |                     |                        |                        |          |
| 7.75 Gal                                                               |                  | FRESH WATER                       |                     |         |                              |                   |                     |                        |                        |          |
|                                                                        |                  |                                   |                     |         |                              |                   |                     |                        |                        |          |
| Fluid #                                                                | Stage Type       | Fluid Name                        | Qty                 | Qty UoM | Mixing<br>Density<br>lbm/gal | Yield<br>ft3/sack | Mix<br>Fluid<br>Gal | Rate<br>bbl/mi<br>n    | Total Mix Fluid<br>Gal |          |
| 5                                                                      | Displacement     | Displacement                      | 423                 | bbl     | 8.33                         |                   |                     | 10                     |                        |          |
|                                                                        |                  |                                   |                     |         |                              |                   |                     |                        |                        |          |
| Cement Left In Pipe                                                    |                  | Amount                            | 5 ft                |         | Reason                       |                   |                     | Shoe Joint             |                        |          |
| Mix Water:                                                             |                  | pH 7                              | Mix Water Chloride: |         |                              | >3000 ppm         |                     | Mix Water Temperature: |                        | 60 °F °C |
| Cement Temperature:                                                    |                  | ## °F °C                          | Plug Displaced by:  |         |                              | 8.33 lb/gal       |                     | Disp. Temperature:     |                        | 60 °F °C |
| Plug Bumped?                                                           |                  | Yes                               | Bump Pressure:      |         |                              | 3600 psi MPa      |                     | Floats Held?           |                        | Yes      |
| Cement Returns:                                                        |                  | 55 bbl m3                         | Returns Density:    |         |                              | ## lb/gal kg/m3   |                     | Returns Temperature:   |                        | ## °F °C |
| <b>Comment</b> Got 55bbls Cement to surface. Est TOT-7613', TOL-2441'. |                  |                                   |                     |         |                              |                   |                     |                        |                        |          |

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

| Seq<br>No. | Activity                                       | Graph Label                                    | Date     | Time     | DH<br>Density<br>(ppg) | Comb<br>Pump<br>Rate<br>(bbl/min) | DS<br>Pump<br>Press<br>(psi) | Pump<br>Stg Tot<br>(bbl) | Comments                                                                                                                                                                                                       |
|------------|------------------------------------------------|------------------------------------------------|----------|----------|------------------------|-----------------------------------|------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | Call Out                                       | Call Out                                       | 1/3/2022 | 06:00:00 |                        |                                   |                              |                          | Called out by service coordinator for OL time of 1230.                                                                                                                                                         |
| 2          | Pre-Convoy<br>Safety Meeting                   | Pre-Convoy Safety<br>Meeting                   | 1/3/2022 | 10:00:00 |                        |                                   |                              |                          | Discuss all hazards associated with journey, directions to destination, complete journey management if needed, and ensure all convoy is fit for duty.                                                          |
| 3          | Depart from<br>Service Center<br>or Other Site | Depart from Service<br>Center or Other<br>Site | 1/3/2022 | 10:15:00 |                        |                                   |                              |                          | Depart from service center or other job site.                                                                                                                                                                  |
| 4          | Arrive at<br>Location from<br>Service Center   | Arrive at Location<br>from Service Center      | 1/3/2022 | 11:00:00 |                        |                                   |                              |                          | Upon arrival to location, signed in with onsite safety personnel. Met with company man and discussed job specific requirements and specifications.                                                             |
| 5          | Pre-Rig Up<br>Safety Meeting                   | Pre-Rig Up Safety<br>Meeting                   | 1/3/2022 | 11:05:00 |                        |                                   |                              |                          | Held pre rig up JSA for hazards, hazard hunt with crew, and discussed plan for spotting equipment and rigging up lines for job. Discussed muster points and closest emergency location as well as coordinates. |
| 6          | Rig-Up<br>Equipment                            | Rig-Up Equipment                               | 1/3/2022 | 11:15:00 |                        |                                   |                              |                          | Begin rig up with crew.                                                                                                                                                                                        |
| 7          | Rig-Up<br>Completed                            | Rig-Up Completed                               | 1/3/2022 | 12:30:00 |                        |                                   |                              |                          | Complete rig up for job to nearest point before red zone.                                                                                                                                                      |
| 8          | Other                                          | Other                                          | 1/3/2022 | 12:30:00 |                        |                                   |                              |                          | Mix water test results- PH-7, Chlo-0, Temp-65F.                                                                                                                                                                |

|    |                          |                          |          |          |       |      |        |        |                                                                                                                                                                                                                        |
|----|--------------------------|--------------------------|----------|----------|-------|------|--------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9  | Safety Meeting - Pre Job | Safety Meeting - Pre Job | 1/3/2022 | 15:00:00 |       |      |        |        | Held job specific hazards as well as confirming job procedure with co man and rest of crew associated with job.                                                                                                        |
| 10 | Start Job                | Start Job                | 1/3/2022 | 17:01:01 | 7.96  | 0.00 | 0.00   | 0.00   | TD-18235', OH-8.5", TP-18226' 5.5" 17#,FC-18221, TVD-8015', SURF-1622' 9.625" 40#, MUD 10.6#                                                                                                                           |
| 11 | Drop Bottom Plug         | Drop Bottom Plug         | 1/3/2022 | 17:01:57 | 7.99  | 2.50 | 183.00 | 0.60   | Dropped by HES supervisor, witnessed by company man.                                                                                                                                                                   |
| 12 | Test Lines               | Test Lines               | 1/3/2022 | 17:03:12 | 8.33  | 0.00 | 167.00 | 3.10   | Pumped 5bbls fresh water to fill lines at 4bpm 320psi, shut manifold, and performed 500psi k/o function test, followed with 5th gear stall at 1800psi, proceeded to bring pressure to 4500psi, held well and no leaks. |
| 13 | Pump Spacer 1            | Pump Spacer 1            | 1/3/2022 | 17:06:27 | 8.32  | 0.00 | 70.00  | 3.10   | Pumped 50bbls of 12.5# 2.74y 16.55g/s FDP Spacer with 10g D-air at 6bpm 447psi.                                                                                                                                        |
| 14 | Check Weight             | Check Weight             | 1/3/2022 | 17:10:02 | 11.61 | 4.80 | 391.00 | 13.00  | Weight verified with pressurized mud scales.                                                                                                                                                                           |
| 15 | Check Weight             | Check Weight             | 1/3/2022 | 17:13:37 | 11.90 | 4.80 | 332.00 | 31.90  | Weight verified with pressurized mud scales.                                                                                                                                                                           |
| 16 | Pump Cap Cement          | Pump Cap Cement          | 1/3/2022 | 17:15:11 | 11.80 | 5.00 | 298.00 | 0.00   | Pumped 550sks or 164bbls of 13# 1.67y 8.33g/s Elasticem at 9bpm 498psi.                                                                                                                                                |
| 17 | Check Weight             | Check Weight             | 1/3/2022 | 17:21:37 | 12.91 | 5.40 | 307.00 | 33.90  | Weight verified with pressurized mud scales.                                                                                                                                                                           |
| 18 | Check Weight             | Check Weight             | 1/3/2022 | 17:31:14 | 12.88 | 9.60 | 556.00 | 118.30 | Weight verified with pressurized mud scales.                                                                                                                                                                           |
| 19 | Pump Lead Cement         | Pump Lead Cement         | 1/3/2022 | 17:37:13 | 12.41 | 9.40 | 272.00 | 172.70 | Pumped 760sks 211bbls 13# 1.56y 7.24g/s Gasstop at 9bpm 800psi.                                                                                                                                                        |
| 20 | Pump Tail Cement         | Pump Tail Cement         | 1/3/2022 | 17:59:59 | 12.81 | 9.50 | 686.00 | 388.00 | Pumped 1530sks or 433bbls 13.2# 1.59y 7.75g/s Elasticem at 9bpm 855psi.                                                                                                                                                |
| 21 | Check Weight             | Check Weight             | 1/3/2022 | 18:03:47 | 13.18 | 9.40 | 648.00 | 35.90  | Weight verified with pressurized mud scales.                                                                                                                                                                           |
| 22 | Check Weight             | Check Weight             | 1/3/2022 | 18:20:09 | 13.31 | 9.30 | 657.00 | 189.30 | Weight verified with pressurized mud scales.                                                                                                                                                                           |



|    |                                                  |                                                  |          |          |       |       |         |        |                                                                                                                                                                                   |
|----|--------------------------------------------------|--------------------------------------------------|----------|----------|-------|-------|---------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23 | Shutdown                                         | Shutdown                                         | 1/3/2022 | 18:48:28 | 13.43 | 0.00  | 97.00   | 447.00 | Shutdown, washed up through pumps and lines with fresh water. Pumped total of 15bbls until clean.                                                                                 |
| 24 | Drop Top Plug                                    | Drop Top Plug                                    | 1/3/2022 | 18:56:52 | 8.41  | 0.00  | -22.00  | 14.50  | Dropped by HES supervisor, witnessed by company man.                                                                                                                              |
| 25 | Pump Displacement                                | Pump Displacement                                | 1/3/2022 | 18:56:55 | 8.41  | 0.00  | -21.00  | 14.50  | Pumped 423bbls fresh water at 10bpm.                                                                                                                                              |
| 26 | Bump Plug                                        | Bump Plug                                        | 1/3/2022 | 19:58:21 | 8.46  | 0.00  | 3594.00 | 427.10 | Slowed down at 400bbls away to 4bpm, final circulating pressure-2600psi. Bump pressure-3600psi.                                                                                   |
| 27 | Other                                            | Other                                            | 1/3/2022 | 19:58:44 | 8.46  | 0.00  | 3602.00 | 427.10 | Released pressure and got 5bbls back. Floats held.                                                                                                                                |
| 28 | End Job                                          | End Job                                          | 1/3/2022 | 20:00:41 | 8.39  | 0.00  | 17.00   | 427.10 | Got 55bbls Cement to surface. Est TOT-7613', TOL-2441'.                                                                                                                           |
| 29 | Pre-Rig Down Safety Meeting                      | Pre-Rig Down Safety Meeting                      | 1/3/2022 | 20:05:00 | 8.37  | 10.40 | 320.00  | 13.40  | Held safety meeting with crew prior to rig down, discussed possibility of trapped pressure, swing radius, slips trips and falls, pinch points and risks associated with rig down. |
| 30 | Rig Down Lines                                   | Rig Down Lines                                   | 1/3/2022 | 20:15:00 | 8.41  | 0.00  | 13.00   | 27.90  | Begin rig down                                                                                                                                                                    |
| 31 | Rig-Down Completed                               | Rig-Down Completed                               | 1/3/2022 | 21:15:00 |       |       |         |        | Rig down complete with no injuries, spills or damage to equipment.                                                                                                                |
| 32 | Pre-Convoy Safety Meeting                        | Pre-Convoy Safety Meeting                        | 1/3/2022 | 21:30:00 |       |       |         |        | Held safety meeting with convoy, discussed trip hazards, directions and all crew fit for duty prior to departure.                                                                 |
| 33 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 1/3/2022 | 22:00:00 |       |       |         |        | Depart location, if applicable journey will be submitted.                                                                                                                         |

3.0 Attachments

3.1 Real Time iCem Job Chart

