

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS-EBUS**

Date: Wednesday, June 12, 2019

### **Livingston S19-25-11C Surface**

Job Date: Tuesday, June 11, 2019

Sincerely,  
**Bryce Hinsch**

## Legal Notice

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## Table of Contents

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|     |  |    |
|-----|--|----|
| 1.0 | Cementing Job Summary .....                          | 4  |
| 1.1 | Executive Summary .....                              | 4  |
| 2.0 | Real-Time Job Summary .....                          | 7  |
| 2.1 | Job Event Log .....                                  | 7  |
| 3.0 | Attachments.....                                     | 10 |
| 3.1 | Extraction Livingston S19-25-11C Surface Chart ..... | 10 |

## 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 **Livingston S19-25-11C** cement **surface** 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 22 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**

*The Road to Excellence Starts with Safety*

|  |                   |                               |                           |   |  |                                   |                               |                       |                      |                      |                            |
|--|-------------------|-------------------------------|---------------------------|---|--|-----------------------------------|-------------------------------|-----------------------|----------------------|----------------------|----------------------------|
| <b>Sold To #:</b> 369404                                 |                   | <b>Ship To #:</b> 3883601     |                           | <b>Quote #:</b>                         |  | <b>Sales Order #:</b> 0905754724  |                               |                       |                      |                      |                            |
| <b>Customer:</b> EXTRACTION OIL & GAS -                  |                   |                               |                           |   | <b>Customer Rep:</b> Justin Humphries    |                                   |                               |                       |                      |                      |                            |
| <b>Well Name:</b> LIVINGSTON                             |                   |                               | <b>Well #:</b> S19-25-11C |   |  | <b>API/UWI #:</b> 05-014-20749-00 |                               |                       |                      |                      |                            |
| <b>Field:</b> WATTENBERG                                 |                   | <b>City (SAP):</b> BROOMFIELD |                           | <b>County/Parish:</b> BROOMFIELD        |  |                                   | <b>State:</b> COLORADO        |                       |                      |                      |                            |
| <b>Legal Description:</b> NW SE-7-1S-68W-2331FSL-1348FEL |                   |                               |                           |   |  |                                   |                               |                       |                      |                      |                            |
| <b>Contractor:</b>                                       |                   |                               |                           | <b>Rig/Platform Name/Num:</b> CARTEL 15 |  |                                   |                               |                       |                      |                      |                            |
| <b>Job BOM:</b> 7521 7521                                |                   |                               |                           |   |  |                                   |                               |                       |                      |                      |                            |
| <b>Well Type:</b> HORIZONTAL OIL                         |                   |                               |                           |   |  |                                   |                               |                       |                      |                      |                            |
| <b>Sales Person:</b> HALAMERICA\HX38199                  |                   |                               |                           |   | <b>Srvc Supervisor:</b> Nicholas Cummins |                                   |                               |                       |                      |                      |                            |
| <b>Job</b>   |                   |                               |                           |   |  |                                   |                               |                       |                      |                      |                            |
| <b>Formation Name</b>                                    |                   |                               |                           |   |  |                                   |                               |                       |                      |                      |                            |
| <b>Formation Depth (MD)</b>                              |                   | <b>Top</b> 80ft               |                           |   | <b>Bottom</b>                            |                                   |                               | 1598ft                |                      |                      |                            |
| <b>Form Type</b>   |                   |                               |                           |   | <b>BHST</b>                              |                                   |                               |                       |                      |                      |                            |
| <b>Job depth MD</b>                                      |                   | 1598ft                        |                           |   | <b>Job Depth TVD</b>                     |                                   |                               |                       |                      |                      |                            |
| <b>Water Depth</b>                                       |                   |                               |                           |   | <b>Wk Ht Above Floor</b>                 |                                   |                               | 4ft                   |                      |                      |                            |
| <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> |                            |
| Open Hole Section  |                   |                               | 13.5                      |   |  |                                   | 0                             | 1598                  |                      | 0                    |                            |
| Casing   |                   | 9.625                         | 8.921                     | 36                                      |  |                                   | 0                             | 1596                  |                      | 0                    |                            |
| <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   | 9.625             | 1                             |                           | 1596                                    |  | Top Plug                          | 9.625                         | 1                     | HES                  |                      |                            |
| Float Shoe   | 9.625             |                               |                           |   |  | Bottom Plug                       | 9.625                         |                       |                      |                      |                            |
| Float Collar   | 9.625             | 1                             |                           | 1553                                    |  | SSR plug set                      | 9.625                         |                       |                      |                      |                            |
| Insert Float   | 9.625             |                               |                           |   |  | Plug Container                    | 9.625                         |                       | HES                  |                      |                            |
| Stage Tool   | 9.625             |                               |                           |   |  | Centralizers                      | 9.625                         |                       |                      |                      |                            |
| <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  | Red Dye Spacer    | Red Dye Spacer                |                           |   | 10                                       | bbl                               | 8.33                          |                       |                      |                      |                            |

| Fluid #  | Stage Type | Fluid Name           | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft <sup>3</sup> /sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
|----------|------------|----------------------|-----|---------|------------------------|-----------------------------|---------------|--------------|---------------------|
| 2        | SwiftCem   | SWIFTCEM (TM) SYSTEM | 525 | sack    | 13.5                   | 1.74                        | 9.2           | 8            | 4830                |
| 9.20 Gal |            | <b>FRESH WATER</b>   |     |         |                        |                             |               |              |                     |

| Fluid # | Stage Type  | Fluid Name  | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft <sup>3</sup> /sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
|---------|-------------|-------------|-----|---------|------------------------|-----------------------------|---------------|--------------|---------------------|
| 3       | Fresh Water | Fresh Water | 120 | bbl     | 8.33                   |                             |               |              |                     |

| Cement Left In Pipe | Amount | Reason                         | Shoe Joint                  |
|---------------------|--------|--------------------------------|-----------------------------|
|                     | 45 ft  |                                |                             |
| Mix Water:          | pH 7   | Mix Water Chloride: <400 ppm   | Mix Water Temperature: 54°F |
| Cement Temperature: | 54 °F  | Plug Displaced by: 8.33 lb/gal | Disp. Temperature: 54 °F    |
| Plug Bumped?        | Yes    | Bump Pressure: 517 psi         | Floats Held? Yes            |
| Cement Returns:     | 22 bbl | Returns Density: 13.2 lb/gal   | Returns Temperature:        |

**Comment**

10 bbl Red Dye

163 bbls Cement

120 bbls Displacement

Bump 517 pressured up to 1,200 psi

Floats Held .5 bbls back

Estimated 22 bbls of cement to surface

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

| Type  | Seq. No. | Activity                                 | Graph Label                              | Date      | Time     | Source | DS Pump Press<br><i>(psi)</i> | DH Density<br><i>(ppg)</i> | Comb Pump Rate<br><i>(bbl/min)</i> | Pump Stg Tot<br><i>(bbl)</i> | Comments   |
|-------|----------|--|--|-----------|----------|--------|-------------------------------|----------------------------|------------------------------------|------------------------------|--|
| Event | 1        | Call Out                                 | Call Out                                 | 6/11/2019 | 06:30:00 | USER   |                               |                            |                                    |                              | The crew was called out on 6/11/19 at 0630. The customer requested HES on location at 1100 on 6/11/19.   |
| Event | 2        | Depart from Service Center or Other Site | Depart from Service Center or Other Site | 6/11/2019 | 10:15:00 | 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   | 6/11/2019 | 11:15:00 | USER   |                               |                            |                                    |                              | The crew arrived on location safely. The rig was still running casing. The supervisor met with the Company man and received numbers. TD 1,598', TP 1,598 9 5/8" 36# J-55, FC 1,553', PC 80' 15. 1/2" ID, OH 13 1/2", Mud 8.33 ppg. |
| Event | 4        | Assessment Of Location Safety Meeting    | Assessment Of Location Safety Meeting    | 6/11/2019 | 11:20:00 | USER   |                               |                            |                                    |                              | Crew discussed all potential hazards on location.  |
| Event | 5        | Pre-Rig Up Safety Meeting                | Pre-Rig Up Safety Meeting                | 6/11/2019 | 11:25:00 | 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         | 6/11/2019 | 11:35:00 | USER |         |       |      |        | The crew rigged up all HES equipment and lines.  |
| Event | 7  | Rig-Up Completed         | Rig-Up Completed         | 6/11/2019 | 11:55:00 | USER | 67.00   | 8.27  | 0.00 | 0.00   | Rig up completed, no one got hurt.   |
| Event | 8  | Safety Meeting - Pre Job | Safety Meeting - Pre Job | 6/11/2019 | 13:10:00 | USER | 0.00    | 8.34  | 0.00 | 0.00   | 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                | 6/11/2019 | 13:16:53 | COM1 | -7.00   | 8.36  | 0.00 | 0.00   | Started recording data from Elite 11512092. Filled lines with 3 bbls of water at 2 bpm, pressure was at 27 psi.  |
| Event | 10 | Test Lines               | Test Lines               | 6/11/2019 | 13:26:48 | COM1 | 2453.00 | 8.36  | 0.00 | 3.00   | Pressure tested all HES lines to 2,500 psi. The pressure test passed.  |
| Event | 11 | Pump Spacer 1            | Pump Spacer 1            | 6/11/2019 | 13:29:12 | COM1 | -4.00   | 8.32  | 0.00 | 0.00   | Pumped 10 bbls of Red Dye Fresh Water Spacer.  |
| Event | 12 | Pump Cement              | Pump Cement              | 6/11/2019 | 13:34:33 | COM1 | 20.00   | 8.31  | 2.50 | 13.70  | Pumped 163 bbls (525 sks) of Lead cement at 8 bpm, pressure was at 270 psi. 13.2 ppg 1.74 yield 9.2 gal/sk. Used pressurized scales to verify density.                                 |
| Event | 13 | Drop Top Plug            | Drop Top Plug            | 6/11/2019 | 14:04:22 | COM1 | 7.00    | 12.36 | 1.40 | 91.40  | Company man verified plug left container.  |
| Event | 14 | Pump Displacement        | Pump Displacement        | 6/11/2019 | 14:04:41 | COM1 | 5.00    | 9.33  | 1.40 | 91.80  | Pumped the calculated displacement of 120 bbls.  |
| Event | 15 | Bump Plug                | Bump Plug                | 6/11/2019 | 14:25:46 | COM1 | 1087.00 | 8.32  | 0.00 | 117.30 | Bumped plug, final circulating pressure was 517 psi. Pressured up 500 psi over then kicked out. Pressure rose to 1,200 psi.  |

|       |    |  |  |           |          |      |         |      |      |        |   |
|-------|----|--|--|-----------|----------|------|---------|------|------|--------|---|
| Event | 16 | Other  | Checked Floats                                   | 6/11/2019 | 14:27:19 | COM1 | 1149.00 | 8.33 | 0.00 | 117.30 | Bled pressure back to truck. Got .5 bbls back, Floats held.   |
| Event | 17 | End Job  | End Job  | 6/11/2019 | 14:28:19 | COM1 | -13.00  | 8.30 | 0.00 | 0.00   | Cement job complete. Stopped recording data. Estimated 22 bbls of cement to surface.  |
| Event | 18 | Pre-Rig Down Safety Meeting                      | Pre-Rig Down Safety Meeting                      | 6/11/2019 | 14:30:00 | USER | -9.00   | 8.30 | 0.00 | 0.00   | Crew held a safety meeting discussing the rig down procedure. Also all potential hazards associated with rigging down all HES equipment and lines.    |
| Event | 19 | Rig-Down Equipment                               | Rig-Down Equipment                               | 6/11/2019 | 14:45:00 | USER | -9.00   | 4.65 | 2.50 | 33.10  | The crew rigged down all HES equipment and lines.   |
| Event | 20 | Rig-Down Completed                               | Rig-Down Completed                               | 6/11/2019 | 15:10:00 | USER |         |      |      |        | Rig down completed no one got hurt.   |
| Event | 21 | Pre-Convoy Safety Meeting                        | Pre-Convoy Safety Meeting                        | 6/11/2019 | 15:40:00 | USER |         |      |      |        | The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey.               |
| Event | 22 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 6/11/2019 | 15:45:00 | 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 Extraction Livingston S19-25-11C Surface Chart

