HALLIBURTON

iCem® Service

## EXTRACTION OIL & GAS

**Livingston S19-25-5C Surface**

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 **Livingston S19-25-5C** 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 20 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*

| | | | |
|---|---|---|---|
| **Sold To #:** 369404 | **Ship To #:** 3883619 | **Quote #:** | **Sales Order #:** 0905754373 |
| **Customer:** EXTRACTION OIL & GAS - | | **Customer Rep:** Extraction Rep | |
| **Well Name:** LIVINGSTON | **Well #:** S19-25-5C | | **API/UWI #:** 05-014-20755-00 |
| **Field:** WATTENBERG | **City (SAP):** BROOMFIELD | **County/Parish:** BROOMFIELD | **State:** COLORADO |
| **Legal Description:** NW SE-7-1S-68W-2332FSL-1456FEL | | | |
| **Contractor:** | | **Rig/Platform Name/Num:** CARTEL 15 | |
| **Job BOM:** 7521 7521 | | | |
| **Well Type:** HORIZONTAL OIL | | | |
| **Sales Person:** HALAMERICA\HX38199 | | **Srvc Supervisor:** Michael Herbig | |

**Job**

| | | | | |
|---|---|---|---|---|
| **Formation Name** | | | | |
| **Formation Depth (MD)** | **Top** | | **Bottom** | |
| **Form Type** | | | **BHST** | |
| **Job depth MD** | 1615ft | | **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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Open Hole Section | | | 13.5 | | | | 0 | 1617 | | 0 |
| Casing | | 9.625 | 8.921 | 36 | | | 0 | 1615 | | 0 |

**Tools and Accessories**

| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make |
|---|---|---|---|---|---|---|---|---|---|
| **Guide Shoe** | 9.625 | | | 1615 | | **Top Plug** | 9.625 | | HES |
| **Float Shoe** | 9.625 | | | | | **Bottom Plug** | 9.625 | | HES |
| **Float Collar** | 9.625 | | | 1573 | | **SSR plug set** | 9.625 | | HES |
| **Insert Float** | 9.625 | | | | | **Plug Container** | 9.625 | | HES |
| Stage Tool | 9.625 | | | | | **Centralizers** | 9.625 | | HES |

**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 | Red Dye Spacer | Red Dye Spacer | 10 | bbl | 8.33 | | | | |

| 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 | SwiftCem | SWIFTCEM (TM) SYSTEM | 525 | sack | 13.5 | 1.74 | | 5 | 9.2 |
| 9.20 Gal | | **FRESH WATER** | | | | | | | |

| 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 | Fresh Water | Fresh Water | 120 | bbl | 8.33 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Cement Left In Pipe | **Amount** | ft | Reason | **Shoe Joint** | |
| Mix Water: | pH ## | **Mix Water Chloride:** | ## ppm | Mix Water Temperature: | **## °F °C** |
| Cement Temperature: | ## °F °C | **Plug Displaced by:** | ## lb/gal kg/m3 XXXX | Disp. Temperature: | **## °F °C** |
| Plug Bumped? | Yes/No | **Bump Pressure:** | #### psi MPa | Floats Held? | **Yes/No** |
| Cement Returns: | ## bbl m3 | **Returns Density:** | ## lb/gal kg/m3 | Returns Temperature: | **## °F °C** |

**Comment**

## 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) | DS Pump Press (psi) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Event | 1 | Check Floats | Call Out | 6/6/2019 | 22:00:00 | USER | | | | Crew notified at 22:00 |
| Event | 2 | Event | Pre-Convoy safety meeting | 6/6/2019 | 23:30:00 | USER | | | | All personnel present. Discuss driving hazards |
| Event | 3 | Crew Leave Yard | Crew Leave Yard | 6/7/2019 | 00:30:00 | USER | | | | Crew leave yard for location. |
| Event | 4 | Arrive At Loc | Arrive At Loc | 6/7/2019 | 02:00:00 | USER | | | | Rig running DP when crew arrived |
| Event | 5 | Assessment Of Location Safety Meeting | assessment of location | 6/7/2019 | 02:05:00 | USER | | | | FS 1617, FC 1573, CSG 9.625 36# OH 13.5, MUD 8.3 WATERTEST<br>temp 62<br>sulfates<200<br>chlorides 0<br>ph 7 |
| Event | 6 | Pre-Rig Up Safety Meeting | Pre-Rig up Safety Meeting | 6/7/2019 | 02:15:00 | USER | | | | All personnel present. JSA signed. |
| Event | 7 | Rig-Up Equipment | Rig-Up Equipment | 6/7/2019 | 02:30:00 | USER | | | | Rig up pump and lines. |
| Event | 8 | Start Job | Start Job | 6/7/2019 | 09:17:20 | COM4 | 0.00 | 8.37 | -2.00 | Start HES pumping unit. |
| Event | 9 | Test Lines | Test Lines | 6/7/2019 | 09:20:24 | USER | 0.00 | 8.43 | 48.00 | Test lines 3500psi |
| Event | 10 | Pump Spacer | Pump Spacer | 6/7/2019 | 09:29:58 | USER | 0.80 | 8.28 | 37.00 | Pump 10bbls red dye spacer at 3.5bpm 100psi |
| Event | 11 | Pump Lead Cement | Pump Lead Cement | 6/7/2019 | 09:33:29 | USER | 3.80 | 8.48 | 119.00 | Pump 161bbls cement at 7bpm 340psi at 13.5ppg, 1.74yld, 9.2gal/sk. Weight verified using pressurized mud scale. |
| Event | 12 | Check Weight | Check Weight | 6/7/2019 | 09:43:31 | USER | 7.00 | 13.55 | 285.00 | Check weight. Weight verified using pressurized mud scale. |
| Event | 13 | Shutdown | Shutdown, End cement | 6/7/2019 | 09:57:52 | USER | 7.00 | 13.30 | 131.00 | Shutdown, End cement |
| Event | 14 | Drop Top Plug | Drop Top Plug | 6/7/2019 | 09:59:42 | USER | 0.00 | 0.49 | -8.00 | Drop top plug, witnessed by company man. |
| Event | 15 | Pump Displacement | Pump Displacement | 6/7/2019 | 10:01:53 | USER | 1.60 | 6.94 | -4.00 | Pump displacement 7bpm 300psi |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Event | 16 | Slow Rate | Slow Rate | 6/7/2019 | 10:16:38 | USER | 6.90 | 8.56 | 625.00 | Slow rate prior to bump. |
| Event | 17 | Bump Plug | Bump Plug | 6/7/2019 | 10:24:14 | USER | 3.00 | 8.56 | 555.00 | Bump plug 120bbls away. 520 to 1070psi |
| Event | 18 | Check Floats | Check Floats | 6/7/2019 | 10:25:35 | USER | 0.00 | 8.58 | 1005.00 | Check floats. 1/2bbl back. Returned 20bbls cement to surface. |
| Event | 19 | End Job | End Job | 6/7/2019 | 10:26:07 | COM4 | 0.00 | 8.56 | 17.00 | End HES pumping unit. |
| Event | 20 | Pre-Rig Down Safety Meeting | Rig Down Lines | 6/7/2019 | 10:45:00 | USER | | | | All personnel present. JSA signed. |
| Event | 21 | Rig-Down Equipment | Rig-Down Equipment | 6/7/2019 | 11:00:00 | USER | | | | Rig down pump and lines. |
| Event | 22 | Event | Pre-Convoy safety meeting | 6/7/2019 | 14:00:00 | USER | | | | All personnel present. Discuss driving hazards. |
| Event | 23 | Depart Location | Depart Location | 6/7/2019 | 14:30:00 | USER | | | | Crew leave location. |

# 3.0 Attachments

## 3.1 Livingston S19-25-5C Surface – Job Chart