

# HALLIBURTON

iCem<sup>®</sup> Service

**EXTRACTION OIL & GAS-EBUS**

**Livingston S19-25-15N Surface**

Sincerely,  
**Meghan Jacobs**

## Legal Notice

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### Disclaimer:

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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 **Livingston S19-25-15N** 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*

<b>Sold To #:</b> 369404		<b>Ship To #:</b> 9007664		<b>Quote #:</b>		<b>Sales Order #:</b> 0906070010					
<b>Customer:</b> EXTRACTION OIL & GAS -				<b>Customer Rep:</b> MANNY							
<b>Well Name:</b> LIVINGSTON			<b>Well #:</b> S19-25-15N			<b>API/UWI #:</b> 05-014-20847-00					
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> BROOMFIELD		<b>County/Parish:</b> BROOMFIELD		<b>State:</b> COLORADO					
<b>Legal Description:</b> NE SE-7-1S-68W-2331FSL-1276FEL											
<b>Contractor:</b> PATTERSON-UTI ENERGY				<b>Rig/Platform Name/Num:</b> PATTERSON 901							
<b>Job BOM:</b> 7521 7521											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HX38199				<b>Srv Supervisor:</b> Lance Carpenter							
<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>		1636ft		<b>Job Depth TVD</b>		1636					
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		3					
<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		13.5					0	1645	0	1636	
Casing		9.625		36			0	1636	0	1636	
<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>		
<b>Guide Shoe</b>	9.625			1636		<b>Top Plug</b>	9.625	1	HES		
<b>Float Shoe</b>	9.625					<b>Bottom Plug</b>	9.625		HES		
<b>Float Collar</b>	9.625			1594		<b>SSR plug set</b>	9.625		HES		
<b>Insert Float</b>	9.625					<b>Plug Container</b>	9.625	1	HES		
<b>Stage Tool</b>	9.625					<b>Centralizers</b>	9.625		HES		
<b>Fluid Data</b>											
<b>Stage/Plug #:</b> 1											
<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	SWIFTCM (TM) SYSTEM	550	sack	13.5	1.74		5	9.17

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	123	bbl	8.33				

Cement Left In Pipe	Amount	41 ft	Reason	Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	400 ppm	Mix Water Temperature:	56 °F
Cement Temperature:	## °F °C	Plug Displaced by:	8.4 lb/gal Water	Disp. Temperature:	## °F °C
Plug Bumped?	Yes	Bump Pressure:	490 psi	Floats Held?	Yes
Cement Returns:	20 bbl	Returns Density:	## lb/gal kg/m3	Returns Temperature:	## °F °C

**Comment**

JOB PUMPED AS DESIGNED. WATER ON THIS ONE WAS AN ISSUE AND RAN OUT TWICE BUT FINISHED WITHOUT INCIDENT. NO ACCIDENT, INJURY OR SPILL. DOWNHOLE DENSITY NOT READING CORRECTLY BUT ALL CEMENT VERIFIED WITH PRESSURIZED MUD BALANCE AND CONFIRMED WITH MIX WATER. DROPPED TOP PLUG AFTER CEMENT. ALL SPACER TO SURFACE AND 20 BBL CEMENT TO SURFACE. FINAL CIRCULATING PRESSURE 2BPM AT 490 PSI. TOOK TO 900 PSI. CHECKED FLOATS, FLOATS HELD ½ BBL BACK.

TOP OF CEMENT – SURFACE WITH 20 BBL BACK

ALL SPACER TO SURFACE

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Comments
Event	1	Check Floats	Comment	10/31/2019	06:00:00	USER				CREW STAYED FROM LAST JOB. REQUESTED BACK 0600
Event	2	Casing on Bottom	Casing on Bottom	10/31/2019	10:15:00	USER				CASING ON BOTTOM. RIG DOWN CASING CREW AND RIG UP HES PLUG CONTAINER AND LINES TO CIRCULATED
Event	3	Safety Meeting	Safety Meeting	10/31/2019	10:30:00	USER				CREW, RIG CREW AND CUSTOMER REP HAVE PRE JOB SAFETY MEETING DISCUSSING MUSTER AREAS, RED ZONES, SLIPS TRIPS FALLS, CONTINGENCIES, HAZARDS AND THE JOB PROCEEDURE
Event	4	Start Job	Start Job	10/31/2019	10:48:57	COM6	37.00	6.85	0.90	START JOB
Event	5	Circulate Well	Circulate Well	10/31/2019	10:54:48	USER	37.00	6.42	0.00	CIRCULATE WELL. HAD ONE FROZEN VALVE AND HAD TO RELOCATE WATER LINE BEFORE CIRCULATING. 5 BPM AT 200 PSI
Event	6	Test Lines	Test Lines	10/31/2019	11:13:21	COM6	3184.00	6.81	0.00	PRESSURE TEST HES LINES TO 3000 PSI. HELD FOR A FEW MINUTES. GOOD TEST
Event	7	Pump Spacer 1	Pump Spacer 1	10/31/2019	11:16:41	COM6	92.00	6.76	0.00	PUMP 10 BBL RED DYE SPACER
Event	8	Pressure Up Well	Pressure Up Well	10/31/2019	11:30:13	COM6	445.00	10.63	7.10	PUMP 170 BBL SWIFTCHEM 13.5# 1.74 YIELD 9.17 GAL 550 SACKS
Event	9	Comment	Comment	10/31/2019	11:51:14	USER	24.00	1.02	6.80	RAN OUT OF WATER. HAD TO MOVE TO ANOTHER TANK
Event	10	Shutdown	Shutdown	10/31/2019	12:15:37	USER				SHUTDOWN
Event	11	Drop Top Plug	Drop Top Plug	10/31/2019	12:18:26	USER				DROP TOP PLUG

Event	12	Pump Displacement	Pump Displacement	10/31/2019	12:19:28	USER				PUMP 123 BBL WATER DISPLACEMENT
Event	13	Comment	Comment	10/31/2019	12:38:46	USER	407.00	6.81	0.00	RAN OUT OF WATER AGAIN AND MOVED TO ANOTHER TANK
Event	14	Bump Plug	Bump Plug	10/31/2019	12:49:06	USER				BUMP PLUG. FINAL CIRCULATING PRESSURE 490 PSI AT 2 BPM
Event	15	Check Floats	Check Floats	10/31/2019	12:49:44	USER				CHECK FLOATS, FLOATS HELD, 1/2 BBL BACK
Event	16	Depart Location	Depart Location	10/31/2019	15:00:00	USER				CREW IS RIGGED DOWN AND READY TO DEPART. CREW HAS JOURNEY MANAGEMENT SAFETY MEETING DISCUSSING ROUTE, CONVOY ORDER, HOURS OF SERVICE, COMMUNICATION, AND DEPART FROM LOCATION



## 3.0 Attachments

### 3.1 Livingston S19-25-15N Surface – Job Chart

