

# HALLIBURTON

iCem<sup>®</sup> Service

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

United States of America, COLORADO

Date: Friday, April 26, 2019

**Interchange B N35-20-1N Production**

Sincerely,  
**Tyler Hill**

## 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 **Interchange B N35-20-1N** 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 56 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> 3955884		<b>Quote #:</b>		<b>Sales Order #:</b> 0905639628					
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS						<b>Customer Rep:</b> DANNY HERRERA					
<b>Well Name:</b> INTERCHANGE B			<b>Well #:</b> N35-20-1N			<b>API/UWI #:</b> 05-014-20845-00					
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> BROOMFIELD		<b>County/Parish:</b> BROOMFIELD		<b>State:</b> COLORADO					
<b>Legal Description:</b> NE SW-10-1S-68W-2474FSL-1550FWL											
<b>Contractor:</b> PATTERSON-UTI ENERGY					<b>Rig/Platform Name/Num:</b> PATTERSON 901						
<b>Job BOM:</b> 7523 7523											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HX38199					<b>Srv Supervisor:</b> Thomas Haas						
<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>		18375ft		<b>Job Depth TVD</b>		7852					
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		5					
<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	0	9.625	8.921	36			0	1657	0	1657	
Casing	0	5.5	4.892	17	BTC	P-110	0	18375	0	7852	
Open Hole Section			8.75				1657	18380	1657	7852	
<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>Top Plug</b>	5.5	1	NCS		
<b>Float Shoe</b>	5.5	1	NCS	18375		<b>Bottom Plug</b>	5.5	1	NCS		
<b>Float Collar</b>	5.5	1	NCS	18362							
						<b>Plug Container</b>	5.5	1	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	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS			50	bbl	12.5	2.73	16.6	7	1710
5 lbm/bbl		<b>SEM-94P, 35 LB SACK - (1023987)</b>									

205.68 lbm/bbl		BARITE, BULK (100003681)							
5 lbm/bbl		SEM-93P, 35 LB SACK - (1023977)							
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	ElastiCem	ELASTICEM (TM) SYSTEM	585	sack	13.2	1.6	7.75	8	4534
0.75 %		SCR-100 (100003749)							
7.75 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	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.6	7.7	8	4736
0.75 %		SCR-100 (100003749)							
5.10 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
4	ElastiCem	ELASTICEM (TM) SYSTEM	1693	sack	13.2	1.57	7.66	8	12968
0.75 %		SCR-100 (100003749)							
7.66 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
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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
6	Displacement	Displacement	406	bbl	8.33			8	
Cement Left In Pipe		Amount	NONE		Reason			Shoe Joint	

Mix Water:	pH 7	Mix Water Chloride:	<300 ppm	Mix Water Temperature:	61 °F
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal F.W.	Disp. Temperature:	58 °F
Plug Bumped?	Yes	Bump Pressure:	2400 psi	Floats Held?	Yes
Cement Returns:	56 bbl	Returns Density:	N/A	Returns Temperature:	N/A
<b>Comment</b> Plug bumped at calculated displacement, final circulating pressure of 2450 psi, wet shoe disk burst at 3218 psi, floats held, 3 bbl back to the truck. 56 bbl 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 (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	4/25/2019	13:00:00	USER					CREW CALLED OUT AT 13:00 4/25/2019, REQUESTED ON LOCATION 21:00 4/25/2019. CREW PICKED UP CEMENT, CHEMICALS (25 GAL D-AIR, 1538 GAL FDP LATEX, 10 GAL MMCR), 100 LBS SUGAR, AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 11645065/10784082 Bulk 660: 11255761/10867521 SOFT SIDE: 12113644/12051659 PUMP ELITE: 11897034/11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	4/25/2019	17:30:00	USER					DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	4/25/2019	19:00:00	USER					STARTED JOURNEY MANAGEMENT.



Event	4	Arrive At Loc	Arrive At Loc	4/25/2019	20:00:00	USER	END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1657', CASING: 5.5" 17# @ 18375', 13' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 7852', 9.9 PPG WELL FLUID, FRESH WATER DISPLACEMENT.				
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	4/25/2019	20:10:00	USER	HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.				
Event	6	Rig-Up Equipment	Rig-Up Equipment	4/25/2019	20:20:00	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	4/26/2019	00:00:00	USER	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.				
Event	8	Start Job	Start Job	4/26/2019	00:33:30	USER	START JOB DATA RECORDING.				
Event	9	Drop Bottom Plug	Drop Bottom Plug	4/26/2019	00:34:09	USER	PLUG LEFT PUP JOINT, VERIFIED BY COMPANY MAN.				
Event	11	Test Lines	Test Lines	4/26/2019	00:35:00	RTD Import	PRESSURE TESTED LINES TO 4900 PSI, 500 PSI KICK OUT AT 400 PSI, 5TH GEAR STALL AT 2230 PSI.				
Event	20	Pump Spacer 1	Pump Spacer 1*	4/26/2019	00:38:14	RTD Import	20.74	8.91	0.00	1.46	PUMP 50 BBLS OF FDP SPACER @ 12.5 LB/GAL,

											ADDED 5 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	98	Pump Cap Cement	Pump Cap Cement*	4/26/2019	00:53:47	RTD Import					PUMP 585 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.6 YIELD, 7.75 GAL/SK, 166.7 BBLS, CALCULATED TOC @ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	115	Pump Lead Cement	Pump Lead Cement*	4/26/2019	01:12:34	RTD Import					PUMP 615 SKS OF GASSTOP @ 13.2 LB/GAL, 1.6 YIELD, 7.7 GAL/SK, 175.3 BBLS, CALCULATED TOL 2475', MIX WATER MIXED WITH 1538 GAL OF LATEX AND 20 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	151	Pump Tail Cement	Pump Tail Cement*	4/26/2019	01:33:32	RTD Import					PUMP 1693 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.66 GAL/SK, 473.4 BBLS, CALCULATED TOT @ 6772', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	245	Shutdown	Shutdown	4/26/2019	02:35:27	RTD Import	17.88	15.00	0.00	497.29	SHUTDOWN TO WASH PUMPS/LINES AND DROP TOP PLUG.
Event	276	Drop Top Plug	Drop Top Plug	4/26/2019	02:43:21	RTD Import					PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN.
Event	277	Pump Displacement	Pump Displacement*	4/26/2019	02:43:25	RTD Import					BEGIN PUMPING CALCULATED DISPLACEMENT OF 426 BBL FRESH WATER, 10 GAL OF MMCR ADDED TO THE FIRST 20 BBL.

Event	279	Cement Returns to Surface	Cement Returns to Surface	4/26/2019	03:37:25	USER					CEMENT RETURNED TO SURFACE 370 BBL INTO DISPLACEMENT, 56 BBL OF CEMENT TO SURFACE.
Event	283	Bump Plug	Bump Plug	4/26/2019	03:47:25	RTD Import					PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE OF 2450 PSI.
Event	286	Other	Rupture Disk	4/26/2019	03:48:14	USER	2929.36	8.15	0.00	429.89	DISK RUPTURED AT 3218 PSI.
Event	287	Other	Wet Shoe	4/26/2019	03:48:37	USER					PUMP A 5 BBL WET SHOE.
Event	288	Check Floats	Check Floats	4/26/2019	03:50:22	USER	1265.52	8.10	0.00	435.48	RELEASED PRESSURE BACK TO THE TRUCK, FLOATS HELD, RECIEVED 3 BBL BACK.
Event	290	End Job	End Job	4/26/2019	03:51:13	USER					END JOB DATA RECORDING.
Event	291	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	4/26/2019	03:55:00	USER					DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	292	Rig-Down Completed	Rig-Down Completed	4/26/2019	04:00:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	293	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	4/26/2019	05:45:00	USER					DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	294	Crew Leave Location	Crew Leave Location	4/26/2019	06:00:00	USER					THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.

## 3.0 Attachments

### 3.1 Extraction Production Interchange B N35-20-1N-Custom Results.png

