

# HALLIBURTON

iCem<sup>®</sup> Service

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

Date: Friday, July 05, 2019

### **Interchange B N35-20-3N Production**

Job Date: Monday, May 06, 2019

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 N35-20-3N** 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 60 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 Ft. Lupton**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 369404		<b>Ship To #:</b> 3954849		<b>Quote #:</b>		<b>Sales Order #:</b> 0905677205					
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS						<b>Customer Rep:</b>					
<b>Well Name:</b> INTERCHANGE B			<b>Well #:</b> N35-20-3N			<b>API/UWI #:</b> 05-014-20843-00					
<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-2483FSL-1585FWL											
<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> Prince Perez							
<b>Job</b>											
<b>Formation Depth (MD)</b>		<b>Top</b> 0'		<b>Bottom</b>		18,288'					
<b>Job depth MD</b>		18,281'		<b>Job Depth TVD</b>		7,726'					
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		5'					
<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	1652	0	1652	
Casing	0	5.5	4.892	17	BTC	P-110	0	18281	0	7726	
Open Hole Section			8.75				1652	18288	1652	7726	
<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	1		18,281		Top Plug	5.5	1			
Float Shoe	5.5					Bottom Plug	5.5	1			
Float Collar	5.5	1		18,275		SSR plug set	5.5				
Insert Float	5.5					Plug Container	5.5	1	HES		
Stage Tool	5.5					Centralizers	5.5				
<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	Spacer	SBM FDP-C1337-18 CEMENT SPACER SYS			50	bbl	12.5	2.74	16.6	8	1,701

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	Cap	ELASTICEM (TM) SYSTEM	585	sack	13.2	1.6	7.75	8	4,534
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	Lead	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.6	7.7	8	4,736
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	Tail	ELASTICEM (TM) SYSTEM	1,701	sack	13.2	1.57	7.66	8	13,030
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	Displacement	MMCR Displacement	20	bbl	8.33			6	
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	404	bbl	8.33			10	
Cement Left In Pipe		Amount	0 ft		Reason			Wet Shoe	

Mix Water:	pH 7	Mix Water Chloride:	<300 ppm	Mix Water Temperature:	60 °F
Cement Temperature:	## °F	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	60 °F
Plug Bumped?	Yes	Bump Pressure:	2,414 psi	Floats Held?	Yes
Cement Returns:	60 bbl	Returns Density:	13.2 lb/gal	Returns Temperature:	## °F

## Comment

Pumped 50 bbls of FDP Spacer with 20 gallons of D-Air.

Pumped 166.7 bbls of Elasticem.

Pumped 175.3 bbls of Gasstop cement with 1,538 gallons of Latex and 40 gallons of D-air.

Pumped 475.6 bbls of Elasticem.

Pumped 424 bbls of fresh water displacement with MMCR in the first 20 bbls.

Pumped a 5 bbl wet shoe.

3 bbls back on the floats.

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	5/5/2019	19:00:00	USER				CREW CALLED OUT AT 19:00, REQUESTED ON LOCATION 01:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660, 11023106, 10867439, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/5/2019	22:45:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Shop	Crew Leave Shop	5/5/2019	22:55:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	5/6/2019	00:00:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9/58" 36 LB/FT @ 1,652', 5.5" CASING: 17 LB/FT TOTAL 18,281', 8 1/2" HOLE, TD 18,288', 6' SHOE TRAC, TVD- 7,726'. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 04:00 5/6/2019.
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	5/6/2019	00:10:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH



										LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	5/6/2019	00:20:00	USER				RIG UP BULK AND MIXING EQUIPMENT.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/6/2019	04:40:00	USER	8.28	0.00	-1.00	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Rig-Up Completed	Rig-Up Completed	5/6/2019	05:35:00	USER	8.28	0.00	-2.00	
Event	9	Start Job	Start Job	5/6/2019	05:39:50	COM4	8.01	0.00	-3.00	BEGIN RECORDING JOB DATA.
Event	10	Drop Bottom Plug	Drop Bottom Plug	5/6/2019	05:40:16	COM4	8.28	0.00	-6.00	PLUG LOADED BY COMPANY MAN.
Event	11	Test Lines	Test Lines	5/6/2019	05:44:27	COM4	8.47	0.00	4861.00	PRESSURE TESTED IRON TO 4,700 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1,100 PSI, 5TH GEAR STALL OUT @ 2,040 PSI. 4,700 PRESSURE TEST KICKED OUT @ 4,700 PSI
Event	12	Pump Spacer 1	Pump Spacer 1	5/6/2019	05:47:42	COM4	8.35	0.00	4.00	PUMP 50 BBLS OF TUNED PRIME @ 12.5 LB/GAL, 2.74 CUFT/SK, 16.6 GALL/SK. 20 GALS D-AIR. 50 BBLS CALCULATED TO RETURN TO SURFACE. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 570 PSI.
Event	13	Pump Cap Cement	Pump Cap Cement	5/6/2019	05:59:04	COM4	13.06	8.30	846.00	PUMPED 585 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.6 FT3/SK, 7.75 GAL/SK. 166.7 BBLS. HOC CALCULATED @ 2,328.1'. 60 BBLS CALCULATED TO

										RETURN TO SURFACE. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 860 PSI
Event	14	Pump Lead Cement	Pump Lead Cement	5/6/2019	06:21:56	COM4	13.24	8.00	628.00	PUMPED 615 SKS OF GASSTOP @ 13.2 LB/GAL, 1.6 FT3/SK, 7.7 GAL/SK WITH 40 GALLONS OF D- AIR. 175.3 BBLS. HOL CALCULATED @ 4,295.3', TOL CALCULATED @ 2,328.1'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 630 PSI
Event	15	Pump Tail Cement	Pump Tail Cement	5/6/2019	06:46:33	COM4	13.35	8.00	759.00	PUMP 1,701 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.66 GAL/SK, 475.6 BBLS. HOT CALCULATED @ 11,657.6', TOT CALCULATED @ 6,623.4'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 640 PSI.
Event	16	Shutdown	Shutdown	5/6/2019	07:58:11	COM4	8.65	0.00	21.00	SHUTDOWN TO WASH LINES.
Event	17	Drop Top Plug	Drop Top Plug	5/6/2019	08:00:42	COM4	8.05	0.00	-1.00	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	18	Pump Displacement	Pump Displacement	5/6/2019	08:00:46	COM4	8.06	0.00	-1.00	BEGIN CALCULATED DISPLACEMENT OF 424 BBLS WITH FRESH WATER. MMCR IN THE FIRST 20 BBLS. PUMP RATE 10 BPM @ 2,750 PSI. CAUGHT CEMENT @ 50 BBLS INTO DISPLACEMENT. SPACER TO SURFACE @ 314 BBLS INTO

										DISPLACEMENT. 50 BBLS OF TUNED SPACER TO SURFACE. CEMENT TO SURFACE @ 364 BBLS INTO DISPLACEMENT. 60 BBLS OF CEMENT TO SURFACE. SLOW RATE TO 3 BPM @ 400 BBLS INTO DISPLACEMENT.
Event	19	Bump Plug	Bump Plug	5/6/2019	09:07:47	COM4	8.14	2.90	2414.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,414 PSI PRESSURED 500 PSI OVER BUMP.
Event	20	Shift Tool - Lower	Shift Tool - Lower	5/6/2019	09:08:19	USER	8.16	0.00	3039.00	SHEARED @ 3,039 PSI FOLLOWED BY A 5 BBL WET SHOE.
Event	21	Check Floats	Check Floats	5/6/2019	09:11:14	USER	8.13	0.00	545.00	RELEASED PRESSURE, FLOATS HELD, 3 BBLS BACK.
Event	22	End Job	End Job	5/6/2019	09:12:28	COM4	8.10	0.00	-9.00	STOP RECORDING JOB DATA.
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	5/6/2019	09:15:00	USER				DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	24	Rig-Down Equipment	Rig-Down Equipment	5/6/2019	09:25:00	USER				RIG DOWN BULK AND MIXING EQUIPMENT.
Event	25	Rig-Down Completed	Rig-Down Completed	5/6/2019	11:40:00	USER				
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/6/2019	11:50:00	USER				CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	27	Crew Leave Location	Crew Leave Location	5/6/2019	12:00:00	USER				THANK YOU FOR USING HALLIBURTON – PRINCE PEREZ AND CREW.



## 3.0 Attachments

### 3.1 Interchange B N35-20-3N Production.png

