

# HALLIBURTON

iCem<sup>®</sup> Service

**EXTRACTION OIL & GAS**  
**INTERCHANGE B S22-30-14N**

Sincerely,

**Alexandria Dionigi**

## 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 S22-30-14N** 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 100 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> 3901284		<b>Quote #:</b>		<b>Sales Order #:</b> 0905791251					
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS						<b>Customer Rep:</b> Danny Herrera					
<b>Well Name:</b> INTERCHANGE B				<b>Well #:</b> S22-30-14N		<b>API/UWI #:</b> 05-014-20779-00					
<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-2196FSL-1671FWL											
<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>Srvc Supervisor:</b> Nikolaus Kornafel							
<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>		24382ft				<b>Job Depth TVD</b>					
<b>Water Depth</b>						<b>Wk Ht Above Floor</b>					
<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	1655	0	0	
Casing	0	5.5	4.892	17	BTC	P-110	0	24382	0	0	
Open Hole Section			8.75				1655	9757	0	7795	
Open Hole Section			8.5				9757	24392	0	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	5.5	1		24382		Top Plug	5.5	1			
Float Shoe	5.5					Bottom Plug	5.5	1			
Float Collar	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 #:</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	SPACER	SBM FDP-C1337-18 CEMENT SPACER SYS			50	bbl	12.5	2.74	16.6	6	1,693

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 CEMENT	ELASTICEM (TM) SYSTEM	585	sack	13.2	1.6	7.75	8	4,533
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	LATEX LEAD CEMENT	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.6	7.71	8	4,741
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 CEMENT	ELASTICEM (TM) SYSTEM	2750	sack	13.2	1.57	7.66	8	21,065
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	
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	545	bbl	8.33			8	
Cement Left In Pipe		Amount	8 ft		Reason			Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	0 ppm			Mix Water Temperature:	69 °F		
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal			Disp. Temperature:	69 °F		
Plug Bumped?	No	Bump Pressure:	N/A psi			Floats Held?	No		
Cement Returns:	100 bbl	Returns Density:	N/A			Returns Temperature:	N/A		
Comment PUMPED 50 BBLS OF SPACER FOLLOWED BY 167 BBLS OF CAP CEMENT FOLLOWED BY 176 BBLS OF LEAD LATEX CEMENT FOLLOWED BY 769 BBLS OF TAIL CEMENT. DROPPED TOP PLUG AND DISPLACED WITH 566 BBLS OF FRESH WATER. DID NOT BUMP THE PLUG AT CALCULATED DISPLACEMENT. CHECKED FLOATS, FLOATS DID NOT HOLD.									

## 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)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	6/27/2019	06:00:00	USER					CREW CALLED OUT AT 0600, REQUESTED ON LOCATION 13:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 10866497, BULK 660 10246780, SOFTSIDE 12051670 AND PUMP 11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/27/2019	08:30:00	USER					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	6/27/2019	09:00:00	USER					STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	6/27/2019	09:30:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,655, 5.5" CASING: 17 LB/FT TOTAL 24,382', 8.5" HOLE, TD 24,392', SHOE TRAC- 5', TVD- 7,795'. PUMP FRESH WATER DISPLACEMENT 565 BBLS. CASING LANDED @ 21:00 06/27/2019. RIG CIRCULATED BOTTOMS UP.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/27/2019	10:00:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	6/27/2019	10:15:00	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	6/27/2019	22:00:00	USER	8.40	0.00	-3.00	16.80	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW

COMMUNICATED POTENTIAL SAFETY  
HAZARDS, AND JOB DETAILS.

Event	8	Start Job	Start Job	6/27/2019	22:42:06	COM5	8.41	0.00	-5.00	16.80	BEGIN RECORDING JOB DATA.
Event	9	Check Weight	Check Weight	6/27/2019	22:47:01	COM5	8.41	0.00	-5.00	0.00	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	10	Test Lines	Test Lines	6/27/2019	22:56:56	COM5	8.38	0.00	28.00	3.70	PRESSURE TESTED IRON TO 5,000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 900 PSI, 5TH GEAR STALL OUT @ 2,100 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	6/27/2019	23:01:45	COM5	8.39	0.00	17.00	0.00	PUMP 50 BBLS OF FDP SPACER @ 12.5 LB/GAL, 2.74 FT3/SK, 16.6 GAL/SK 10 GALLONS D-AIR. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 5 BBLS/MIN @ 540 PSI.
Event	12	Pump Lead Cement	Pump Lead Cement	6/27/2019	23:08:29	COM5	12.38	8.60	569.00	43.90	PUMPED 585 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.60 FT3/SK, 7.75 GAL/SK. 167 BBLS, TOL @ SURFACE. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 580 PSI.
Event	13	Check Weight	Check Weight	6/27/2019	23:18:11	COM5	13.35	8.60	540.00	82.90	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Cement	Pump Cement	6/27/2019	23:29:27	COM5	13.30	8.60	508.00	179.40	PUMPED 615 SKS OF GASTOP @ 13.2 LB/GAL, 1.60 FT3/SK, 7.71 GAL/SK. 176 BBLS, 1,538 GALS LATEX, TOL @ 2,034.79'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 540 PSI.
Event	15	Check Weight	Check Weight	6/27/2019	23:32:49	COM5	13.28	8.60	580.00	28.70	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	16	Pump Tail Cement	Pump Tail Cement	6/27/2019	23:52:35	COM5	13.45	8.60	609.00	189.30	PUMP 2,750 SKS OF ELASTACEM @ 13.2 LB/GAL, 1.57 FT3/SK, 7.66 GAL/SK, 769 BBLS. TOT CALCULATED @ 5,929.23. DENSITY VERIFIED BY



PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 550 PSI.											
Event	17	Check Weight	Check Weight	6/27/2019	23:53:37	COM5	13.21	8.60	534.00	8.80	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	18	Check Weight	Check Weight	6/28/2019	00:24:57	COM5	13.21	8.60	502.00	249.30	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	19	Check Weight	Check Weight	6/28/2019	00:59:45	COM5	13.24	8.60	538.00	548.70	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	20	Shutdown	Shutdown	6/28/2019	01:34:29	COM5	10.21	0.00	46.00	829.50	SHUTDOWN TO WASH LINES.
Event	21	Drop Top Plug	Drop Top Plug	6/28/2019	01:42:46	COM5	3.94	0.00	-2.00	840.20	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	22	Pump Displacement	Pump Displacement	6/28/2019	01:42:50	COM5	4.33	0.00	-2.00	840.20	BEGIN CALCULATED DISPLACEMENT OF 566 BBLS WITH FRESH WATER. 415 BBLS INTO DISPLACEMENT SPACER BACK TO SURFACE. PUMPED CALCULATED DISPLACEMENT WITH NO INDICATION OF A BUMPED PLUG. ATTEMPTED TO CHECK FLOATS, FLOATS DID NOT HOLD. SHUT THE WELL IN ON THE CEMENT HEAD MANIFOLD AND RECOMMENDED TO WAIT ON CEMENT FOR 4 HOURS.
Event	23	End Job	End Job	6/28/2019	03:27:09	COM5	8.39	0.00	1947.00	0.00	STOP RECORDING JOB DATA.

3.0 Attachments

3.1 EXTRACTION INTERCHANGE S22-30-14N 5.5 PRODUCTION-Custom Results.png

