

# HALLIBURTON

iCem<sup>®</sup> Service

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

**Interchange B S22-30-16C 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 **Interchange B S22-30-16C** 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 30 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> 3901404		<b>Quote #:</b>		<b>Sales Order #:</b> 0905976359					
<b>Customer:</b> EXTRACTION OIL & GAS -					<b>Customer Rep:</b> EXTRACTION REP						
<b>Well Name:</b> INTERCHANGE B			<b>Well #:</b> S22-30-16C			<b>API/UWI #:</b> 05-014-20783-00					
<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-2205FSL-1706FWL											
<b>Contractor:</b> ENSIGN DRLG					<b>Rig/Platform Name/Num:</b> ENSIGN 147						
<b>Job BOM:</b> 7521 7521											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HX38199					<b>Srv Supervisor:</b> Kyle Bath						
<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>		1660ft			<b>Job Depth TVD</b>		1660 ft				
<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>	
<b>Casing</b>		9.625		36			0	1660	0	1660	
<b>OH</b>		13.5					0	1665	0	1665	
<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			1660		<b>Top Plug</b>	9.625		HES		
<b>Float Shoe</b>	9.625					<b>Bottom Plug</b>	9.625		HES		
<b>Float Collar</b>	9.625					<b>SSR plug set</b>	9.625		HES		
<b>Insert Float</b>	9.625					<b>Plug Container</b>	9.625		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	SWIFTCEM (TM) SYSTEM	575	sack	13.5	1.74		5	9.17
9.17 Gal		<b>FRESH WATER</b>							
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	125	bbl	8.33				
<b>Cement Left In Pipe</b>									
<b>Amount</b>		42 ft			<b>Reason</b>			<b>Shoe Joint</b>	
Mix Water: pH 7		Mix Water Chloride: 0 ppm			Mix Water Temperature: 65 °F				
Cement Temperature: ## °F °C		Plug Displaced by: 8.4 lb/gal			Disp. Temperature: 65 °F				
Plug Bumped? Yes		Bump Pressure: 540 psi			Floats Held? Yes				
Cement Returns: 30 bbl		Returns Density: ## lb/gal kg/m <sup>3</sup>			Returns Temperature: ## °F °C				
<b>Comment</b> received 30 bbls cement to surface									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comments
Event	1	Check Floats	Call Out	9/13/2019	10:30:00	USER				CREW CALLED OUT, REQUESTED ON LOCATION 17:00
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/13/2019	12:15:00	USER				DISCUSS ROUTE AND HAZARDS
Event	3	Crew Leave Yard	Crew Leave Yard	9/13/2019	12:30:00	USER				CREW DEPART YARD
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/13/2019	14:30:00	USER				ARRIVE ON LOCATION, RIG PULLING DP UPON HES ARRIVAL, RECIEVED NUMBERS FROM CO REP TD 1665, TP 1660.12, SJ 43.75, CSG 9 5/8 36#, PREV CSG 16"@ 108', HOLE 13.5, MUD 8.4
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	9/13/2019	14:45:00	USER				DISCUSS LOCATION HAZARDS AND HOW TO MITIGATE THEM, WATER TEST TEMP 65, CHLORIDES 0, PH 7
Event	6	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	9/13/2019	15:00:00	USER				DISCUSS HAZARDS AND WAYS TO MITIGATE THEM
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	9/13/2019	18:30:00	USER	0.00	1.00	8.43	PRE JOB SAFETY MEETING WITH RIG CREW AND CO REP
Event	8	Start Job	Start Job	9/13/2019	18:43:16	COM4	0.00	1.00	8.49	START RECORDING DATA
Event	9	Test Lines	Test Lines	9/13/2019	18:47:26	COM4	0.00	23.00	8.21	TEST LINES TO 4500 PSI
Event	10	Pump Spacer 1	Pump Spacer 1	9/13/2019	18:56:57	COM4	0.00	19.00	8.30	PUMP 10 BBS FRESH WATER WITH RED DYE 2 BPM 50 PSI
Event	11	Check Weight	Check Weight	9/13/2019	19:02:06	COM4	0.80	82.00	8.24	
Event	12	Pump Lead Cement	Pump Lead Cement	9/13/2019	19:03:03	COM4	0.80	80.00	8.25	MIX AND PUMP 575 SKS 178 BBLS CEMENT 13.5 PPG, 1.74 FT3/SK, 9.17 GAL/SK 7 BPM 240 PSI, CALCULATED TOC SURFACE
Event	13	Check Weight	Check Weight	9/13/2019	19:08:21	COM4	7.20	310.00	13.68	
Event	14	Drop Top Plug	Drop Top Plug	9/13/2019	19:32:48	USER	0.00	15.00	0.35	LAUNCH TOP PLUG

Event	15	Pump Displacement	Pump Displacement	9/13/2019	19:33:08	COM4	0.00	15.00	0.36	PUMP 125 BBLS FRESH WATER DISPLACEMENT 8 BPM 640 PSI, RECIEVED 30 BBLS CEMENT TO SURFACE
Event	16	Bump Plug	Bump Plug	9/13/2019	19:52:49	USER	3.10	665.00	8.28	BUMP PLUG AT 550 PSI TOOK TO 1080 PSI
Event	17	Check Floats	Check Floats	9/13/2019	19:55:08	USER	0.00	1080.00	8.31	FLOATS HELD TOOK 1 BBL BACK TO TRUCK
Event	18	End Job	End Job	9/13/2019	19:56:26	COM4	0.00	2.00	8.26	STOP RECORDING DATA
Event	19	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	9/13/2019	20:00:00	USER				DISCUSS HAZARDS AND WAYS TO MITIGATE THEM
Event	20	Depart Location Safety Meeting	Depart Location Safety Meeting	9/13/2019	21:10:00	USER				DISCUSS HAZARDS AND ROUTE
Event	21	Crew Leave Location	Crew Leave Location	9/13/2019	21:30:00	USER				THANK YOU FOR USING HALLIBURTON, KYLE BATH AND CREW

3.0 Attachments

3.1 Interchange B S22-30-16C Surface – Job Chart

