

# HALLIBURTON

iCem<sup>®</sup> Service

## EXTRACTION OIL & GAS-EBUS

**United B S16-20-16C Production**

Job Date: Tuesday, December 28, 2021

Sincerely,

**Meghan Van Zyl**

## 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 **United B S16-20-16C** 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 47 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**

<b>Sold To #:</b> 369404	<b>Ship To #:</b> 3909410	<b>Quote #:</b>	<b>Sales Order #:</b> 0907583171
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS		<b>Customer Rep:</b> Manny Parras and Joe Long	
<b>Well Name:</b> UNITED B		<b>Well #:</b> S16-20-16C	<b>API/UWI #:</b> 05-014-20810-00
<b>Field:</b> WATTENBERG	<b>City (SAP):</b> BROOMFIELD	<b>County/Parish:</b> BROOMFIELD	<b>State:</b> COLORADO
<b>Legal Description:</b> NE NE-9-1S-68W-454FNL-920FEL			
<b>Contractor:</b> ENSIGN DRLG		<b>Rig/Platform Name/Num:</b> ENSIGN 769	
<b>Job BOM:</b> 7523 7523			
<b>Well Type:</b> HORIZONTAL OIL			
<b>Sales Person:</b> HALAMERICA\HX41066		<b>Srvc Supervisor:</b> Nicholas Roles	

**Job**

<b>Formation Name</b>	
<b>Formation Depth (MD)</b>	<b>Top</b> <input type="text"/> <b>Bottom</b> <input type="text"/>
<b>Form Type</b>	<b>BHST</b>
<b>Job depth MD</b>	18429ft <b>Job Depth TVD</b> <input type="text"/>
<b>Water Depth</b>	<b>Wk Ht Above Floor</b> <input type="text"/>
<b>Perforation Depth (MD)</b>	<b>From</b> <input type="text"/> <b>To</b> <input type="text"/>

**Well Data**

Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing		9.625	8.921	36			0	1622	0	1622
Casing		5.5	4.892	17			0	18429	0	8226
Open Hole Section			8.75				1622	18444	1622	8226

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	DwnHI Tech
Float Shoe	5.5			18429	Bottom Plug	5.5	1	DwnHL Tech
Float Collar	5.5			18424	SSR plug set	5.5		HES
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		HES

**Fluid Data**

**Stage/Plug #: 1**

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
1	Tuned Prime	TUNED PRIME CEMENT SPACER SYS	50	bbl	11.5	3.73		6	

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	Cap	SBM CEM ELASTICEM™ SYS	550	sack	13	1.67		9	8.33

0.35 %		<b>SCR-100, 1200 LB BAG - (1126328)</b>							
8.33 Gal		<b>FRESH WATER</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	FDP-C1371 SYS	SBM CEM FDP-C1371 SYS	735	sack	13	1.56		9	7.24
7.24 Gal		<b>FRESH WATER</b>							
5 %		<b>CHANNELFIX, 44 LB BAG - (1107429)</b>							
0.27 %		<b>SCR-100, 1200 LB BAG - (1126328)</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	ElastiCem	SBM CEM ELASTICEM™ SYS	1585	sack	13.2	1.59		9	7.75
0.70 %		<b>HR-5, 50 LB SK (100005050)</b>							
7.75 Gal		<b>FRESH WATER</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
5	Displacement	Displacement	427	bbl	8.33			10	
<b>Cement Left In Pipe</b>									
<b>Amount</b>	5 ft		<b>Reason</b>				<b>Shoe Joint</b>		
Mix Water: pH	7	Mix Water Chloride:	>3000 ppm		Mix Water Temperature: 45 °F °C				
Cement Temperature: ## °F °C		Plug Displaced by:	8.33 lb/gal		Disp. Temperature: 45 °F °C				
Plug Bumped? Yes		Bump Pressure:	3700 psi MPa		Floats Held? Yes				
Cement Returns: 47 bbl m3		Returns Density: ## lb/gal kg/m3			Returns Temperature: ## °F °C				
<b>Comment</b> Got 47bbls Cement to surface. Est TOT-7424', TOL-2424'.									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Seq No.	Activity	Graph Label	Date	Time	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
1	Call Out	Call Out	12/28/2021	06:30:00					Called out by service coordinator for OL time of 1300.
2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	12/28/2021	11:45:00					Discuss all hazards associated with journey, directions to destination, complete journey management if needed, and ensure all convoy is fit for duty.
3	Arrive at Location from Service Center	Arrive at Location from Service Center	12/28/2021	12:00:00					Upon arrival to location, signed in with onsite safety personnel. Met with company man and discussed job specific requirements and specifications.
4	Depart from Service Center or Other Site	Depart from Service Center or Other Site	12/28/2021	12:00:00					Depart from service center or other job site.
5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	12/28/2021	12:15:00					Held pre rig up JSA for hazards, hazard hunt with crew, and discussed plan for spotting equipment and rigging up lines for job. Discussed muster points and closest emergency location as well as coordinates.
6	Rig-Up Equipment	Rig-Up Equipment	12/28/2021	12:30:00					Begin rig up with crew.
7	Rig-Up Completed	Rig-Up Completed	12/28/2021	13:30:00					Complete rig up for job to nearest point before red zone.
8	Other	Other	12/28/2021	14:00:00					Mix water test results- PH-7, Chlo-0, Temp-65F.

9	Safety Meeting - Pre Job	Safety Meeting - Pre Job	12/28/2021	16:30:00	0.00	0.00	53.00	1.90	Held job specific hazards as well as confirming job procedure with co man and rest of crew associated with job.
10	Start Job	Start Job	12/28/2021	16:53:02	7.98	0.00	-5.00	10.40	TD-18444', OH-8.5", TP-18429' 5.5" 17#, TVD-8226', SURF-1622' 9.625" 36#, MUD 10.8#
11	Drop Bottom Plug	Drop Bottom Plug	12/28/2021	16:54:23	7.99	2.90	231.00	1.00	Dropped by HES supervisor, witnessed by company man.
12	Test Lines	Test Lines	12/28/2021	16:55:15	8.33	0.00	236.00	3.30	Pumped 5bbls fresh water to fill lines at 4bpm 320psi, shut manifold, and performed 500psi k/o function test, followed with 5th gear stall at 1800psi, proceeded to bring pressure to 4500psi, held well and no leaks.
13	Pump Spacer 1	Pump Spacer 1	12/28/2021	17:05:19	8.32	0.00	144.00	3.30	Pumped 50bbls of 12.5# 2.74y 16.55g/s FDP Spacer with 10g D-air at 6bpm 447psi.
14	Check Weight	Check Weight	12/28/2021	17:07:32	12.02	1.60	297.00	3.40	Weight verified with pressurized mud scales.
15	Pump Lead Cement	Pump Lead Cement	12/28/2021	17:18:30	13.15	2.50	230.00	37.20	Pumped 550sks or 164bbls of 13# 1.67y 8.33g/s Elasticem at 9bpm 498psi.
16	Check Weight	Check Weight	12/28/2021	17:27:52	13.12	4.00	262.00	28.50	Weight verified with pressurized mud scales.
17	Check Weight	Check Weight	12/28/2021	17:39:05	13.10	8.80	605.00	110.20	Weight verified with pressurized mud scales.
18	Pump Lead Cement	Pump Lead Cement	12/28/2021	17:47:57	14.95	0.00	7.00	156.80	Pumped 735sks 204bbls 13# 1.56y 7.24g/s Gasstop at 9bpm 500psi.
19	Check Weight	Check Weight	12/28/2021	17:58:38	13.02	9.10	749.00	60.40	Weight verified with pressurized mud scales.
20	Pump Tail Cement	Pump Tail Cement	12/28/2021	18:17:24	12.97	2.20	143.00	0.00	Pumped 1585sks or 449bbls 13.2# 1.59y 7.75g/s Elasticem at 9bpm 550psi.
21	Check Weight	Check Weight	12/28/2021	18:32:04	13.19	9.00	576.00	76.90	Weight verified with pressurized mud scales.
22	Check Weight	Check Weight	12/28/2021	18:49:17	13.22	9.00	590.00	221.00	Weight verified with pressurized mud scales.

23	Shutdown	Shutdown	12/28/2021	19:19:28	14.57	0.00	-4.00	483.20	Shutdown, washed up through pumps and lines with fresh water. Pumped total of 15bbls until clean.
24	Test Lines	Test Lines	12/28/2021	19:22:01	13.63	1.20	422.00	0.30	Had a leak on a washup hose and shutdown to get realigned.
25	Drop Top Plug	Drop Top Plug	12/28/2021	19:36:56	8.28	0.00	-11.00	20.30	Dropped by HES supervisor, witnessed by company man.
26	Pump Displacement	Pump Displacement	12/28/2021	19:37:00	8.32	0.00	0.00	0.00	Pumped 427bbls fresh water at 10bpm.
27	Bump Plug	Bump Plug	12/28/2021	20:41:18	8.38	0.00	3324.00	430.30	Slowed down at 400bbls away to 5bpm, final circulating pressure-2700psi. Bump pressure-3700psi.
28	Other	Other	12/28/2021	20:43:01	8.39	0.00	3692.00	430.80	Released pressure and got 6bbls back. Floats held.
29	End Job	End Job	12/28/2021	20:45:02	8.33	0.00	-12.00	430.80	Got 47bbls Cement to surface. Est TOT-7424', TOL-2424'.
30	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	12/28/2021	20:46:00	8.32	0.00	-12.00	0.00	Held safety meeting with crew prior to rig down, discussed possibility of trapped pressure, swing radius, slips trips and falls, pinch points and risks associated with rig down.
31	Rig Down Lines	Rig Down Lines	12/28/2021	21:00:00	8.39	0.00	-10.00	21.20	Begin rig down
32	Rig-Down Completed	Rig-Down Completed	12/28/2021	22:00:00					Rig down complete with no injuries, spills or damage to equipment.
33	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	12/28/2021	22:15:00					Held safety meeting with convoy, discussed trip hazards, directions and all crew fit for duty prior to departure.
34	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	12/28/2021	22:30:00					Depart location, if applicable journey will be submitted.



3.0 Attachments

3.1 Real Time iCem Job Chart

