

# HALLIBURTON

iCem<sup>®</sup> Service

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

**Interchange A S16-20-20N Production**

Job Date: Monday, January 17, 2022

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 **Interchange A S16-20-20N** 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 62 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> 9007957	<b>Quote #:</b>	<b>Sales Order #:</b> 0907618620
<b>Customer:</b> EXTRACTION OIL AND GAS-EBUS		<b>Customer Rep:</b> Kris Peterson / Brent Moon	
<b>Well Name:</b> INTERCHANGE A		<b>Well #:</b> S16-20-20N	<b>API/UWI #:</b> 05-014-20849-00
<b>Field:</b> WATTENBERG	<b>City (SAP):</b> BROOMFIELD	<b>County/Parish:</b> BROOMFIELD	<b>State:</b> COLORADO
<b>Legal Description:</b> SW NW-10-1S-68W-2093FNL-930FWL			
<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> Michael Loughran	

**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>	18194ft <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	1648	0	1648
Casing		5.5	4.892	17			0	18194	0	7951
Open Hole Section			8.5				1648	18212	1648	7951

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	CITADEL
Float Shoe	5.5			18194	Bottom Plug	5.5	1	CITADEL
Float Collar	5.5			18189	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		

**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	3.83		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		8	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	755	sack	13	1.56		8	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	1540	sack	13.2	1.59		8	7.76
0.65 %		<b>HR-5, 50 LB SK (100005050)</b>							
7.76 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	422	bbl	8.33			8	
<b>Cement Left In Pipe</b>									
<b>Amount</b>		5 ft			<b>Reason</b>			<b>Shoe Joint</b>	
Mix Water: pH 6		Mix Water Chloride: LESS 200 ppm			Mix Water Temperature: 69 °F				
Cement Temperature:		Plug Displaced by: 8.33 lb/gal			Disp. Temperature:				
Plug Bumped? Yes		Bump Pressure: 3500 psi			Floats Held? Yes				
Cement Returns:		Returns Density: 13 lb/gal			Returns Temperature: ## °F °C				
<b>Comment 62 BBLS CEMENT TO SURFACE</b>									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Seq No.	Activity	Graph Label	Date	Time	Dwnhole Density (ppg)	Cmb Pump Rate (bbl/min)	Pump A Pressure (psi)	Cmb Stg Total (bbl)	Comments
1	Call Out	Call Out	1/16/2022	12:00:00					CREW CALLED OUT AT 1200 HRS. 1/16/2022 REQUESTED ON LOCATION 0600 HRS. 1/16/2022
2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/16/2022	16:30:00					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
3	Crew Leave Yard	Crew Leave Yard	1/16/2022	17:00:00					CREW LEAVES YARD
4	Arrive At Loc	Arrive At Loc	1/16/2022	18:10:00					MEET WITH CO. MAN TO DISCUSS JOB. 17# P-110 18194', TD 18212', TVD 7951', F/C 18189', 9.625" 36# 1648', HOLE 8.5", MUD 10.2#, MAX PRESSURE 3200 PSI, WATER 69 DEGREES, PH7, CHLORIDES LESS 200 PPM. 80 GALLONS MMCR PRE LOADED IN 400 BBL UPRIGHT BEFORE CREW ARRIVAL.
5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/16/2022	18:20:00					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
6	Rig-Up Equipment	Rig-Up Equipment	1/16/2022	18:25:00					CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/16/2022	22:00:00	-1.01	0.00	0.66	0.00	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS. RIG CIRCULATES 1 BOTTOMS UP. 520 GPM/1480 PSI
8	Start Job	Start Job	1/16/2022	22:09:06	2.58	0.83	4.63	0.06	BEGIN RECORDING DATA

9	Drop Bottom Plug	Drop Bottom Plug	1/16/2022	22:09:24	3.69	0.82	19.87	0.30	BOTTOM PLUG VERIFIED BY BRENT
10	Test Lines	Test Lines	1/16/2022	22:10:59	8.76	0.00	249.96	2.23	TEST HES LINES 4800 PSI
11	Pump Spacer 1	Pump Spacer 1	1/16/2022	22:16:30	8.64	0.00	76.80	0.00	50 BBLs TUNED PRME SPACER. 11.5 PPG, 3.83 YIELD, 24.15 GAL/SACK. D-AIR MIX ON FLY
12	Pump Cap Cement	Pump Cap Cement	1/16/2022	22:27:47	13.01	5.37	457.93	0.09	550 SACKS SBMCCEM CAP CEMENT. 163.58 BBLs. 13 PPG, 1.67 YIELD, 8.33 GAL/SACK. TOCC=0'
13	Pump Lead Cement	Pump Lead Cement	1/16/2022	22:47:59	12.92	7.98	357.77	0.07	755 SACKS FDP-C1371 SYS SBMCCEM LEAD CEMENT. 209.77 BBLs. 13 PPG, 1.56 YIELD, 7.24 GAL/SACK. CALCULATED TOLC=2364'
14	Pump Tail Cement	Pump Tail Cement	1/16/2022	23:12:52	12.94	8.66	497.40	0.14	1540 SACKS SBMCCEM ELASTICEM TAIL CEMENT. 436.09 BBLs. 13.2 PPG, 1.59 YIELD, 7.76 GAL/SACK. CALCULATED TOTC=7505'
15	Shutdown	Shutdown	1/17/2022	00:04:58	-0.95	0.00	81.78	446.87	SHUTDOWN
16	Clean Lines	Clean Lines	1/17/2022	00:06:57	-0.95	0.00	32.50	0.00	CLEAN PUMPS AND LINES. USED 50 LBS SUGAR TO HIGH WALL. USED 17 BBL WATER FOR WASH UP.
17	Shutdown	Shutdown	1/17/2022	00:13:21	7.57	0.61	36.35	15.88	SHUTDOWN
18	Drop Top Plug	Drop Top Plug	1/17/2022	00:14:25	7.58	0.00	31.42	15.89	TOP PLUG VERIFIED BY BRENT
19	Pump Displacement	Pump Displacement	1/17/2022	00:14:55	7.58	0.00	32.25	0.00	422 BBLs FRESH WATER DISPLACEMENT. 80 GALLONS MICRO MATRIX CEMENT RETARDER PRE LOADED BY RIG IN 400 BBL UP RIGHT. OVERBOARD AT 283 BBLs, SPACER AT 310 BBLs, CMT AT 360 BBLs. 62 BBLs CEMENT TO SURFACE
20	Bump Plug	Bump Plug	1/17/2022	01:08:52	8.59	0.00	3316.55	421.13	FCP 2900 PSI/4 BPM, BUMP PRESSURE 3500 PSI
21	Check Floats	Check Floats	1/17/2022	01:13:07	8.37	0.00	328.13	421.13	FLOATS HOLD/5 BBLs BACK. FLUSH RIGS STACK W/22 BBLs WATER AND 50 LBS SUGAR. 100 LBS SUGAR

TOTAL JOB. 70 GALLONS D-AIR TOTAL. 80 GALLONS  
 MMCR TOTAL. 1035 BBLs WATER TOTAL

22	End Job	End Job	1/17/2022	01:14:15	8.32	0.00	37.30	0.00	STOP RECORDING DATA
23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	1/17/2022	01:24:40					DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
24	Rig-Down Equipment	Rig-Down Equipment	1/17/2022	01:28:58					RIG DOWN BULK AND MIXING EQUIPMENT
25	Rig-Down Completed	Rig-Down Completed	1/17/2022	02:40:00					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/17/2022	03:00:00					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
27	Crew Leave Location	Crew Leave Location	1/17/2022	03:30:00					THANK YOU FOR USING HALLIBURTON – MIKE LOUGHRAN AND CREW.

3.0 Attachments

3.1 Real Time iCem Job Chart

