

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Friday, June 07, 2019

Interchange B N35-20-7N Production

Job Date: Sunday, May 26, 2019

Sincerely,
Bryce Hinsch

Legal Notice

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Interchange B N35-20-7N** 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 52 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

Sold To #: 369404		Ship To #: 3901283		Quote #:		Sales Order #: 0905712972				
Customer: EXTRACTION OIL & GAS-EBUS						Customer Rep: Danny Herrera				
Well Name: INTERCHANGE B				Well #: N35-20-7N		API/UWI #: 05-014-20775-00				
Field: WATTENBERG		City (SAP): BROOMFIELD		County/Parish: BROOMFIELD		State: COLORADO				
Legal Description: NE SW-10-1S-68W-2500FSL-1655FWL										
Contractor: PATTERSON-UTI ENERGY					Rig/Platform Name/Num: PATTERSON 901					
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199					Srv Supervisor: Thomas Haas					
Job										
Formation Name										
Formation Depth (MD)		Top				Bottom				
Form Type				BHST						
Job depth MD		18643ft		Job Depth TVD		7858				
Water Depth				Wk Ht Above Floor		6				
Perforation Depth (MD)		From		To						
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	0	9.625	8.921	36			0	1651	0	1651
Casing	0	5.5	4.892	17	BTC	P-110	0	18643	0	18643
Open Hole Section			8.75				1651	18653	1651	18653
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
						Top Plug	5.5	1	NCS	
Float Shoe	5.5	1	NCS	18643		Bottom Plug	5.5	1	NCS	
Float Collar	5.5	1	NCS	18638						
Insert Flot	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5									
Fluid Data										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS	50	bbl	12.5	2.74	16.6	8	1702	
5 lbm/bbl		SEM-94P, 35 LB SACK - (1023987)								
205.22 lbm/bbl		BARITE, BULK (100003681)								

5 lbm/bbl		SEM-93P, 35 LB SACK - (1023977)							
1 lbm/bbl		FE-2 (100001615)							
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	ElastiCem	ELASTICEM (TM) SYSTEM	585	sack	13.2	1.6	7.75	8	4534
0.75 %		SCR-100 (100003749)							
7.75 Gal		FRESH WATER							
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	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.6	7.74	8	4760
0.75 %		SCR-100 (100003749)							
5.24 Gal		FRESH WATER							
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	ElastiCem	ELASTICEM (TM) SYSTEM	1732	sack	13.2	1.57	7.66	8	13267
0.75 %		SCR-100 (100003749)							
7.66 Gal		FRESH WATER							
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	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
1 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)							
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	412	bbl	8.33			8	
Cement Left In Pipe		Amount	N/A		Reason			Shoe Joint	

Mix Water:	pH 7	Mix Water Chloride:	<300 ppm	Mix Water Temperature:	66 °F
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal F.W.	Disp. Temperature:	63 °F
Plug Bumped?	Yes	Bump Pressure:	2300 psi	Floats Held?	Yes
Cement Returns:	52 bbl	Returns Density:	N/A	Returns Temperature:	N/A
Comment Plug bumped at calculated displacement, final circulating pressure of 2300 psi, wet shoe disk DID NOT burst, released pressure back to the truck, floats held, received 6 bbl back. Cement returned to surface 380 bbl into displacement, 52 bbl of cement to surface.					

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	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/25/2019	00:45:00	USER					DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	2	Call Out	Call Out	5/25/2019	10:00:00	USER					CREW CALLED OUT AT 10:00 5/25/2019, REQUESTED ON LOCATION 16:00 5/25/2019. CREW PICKED UP CEMENT, CHEMICALS (20 GAL D-AIR, 1538 GAL FDP LATEX, 10 GAL MMCR), 100 LBS SUGAR, AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 12113644/10866489 Bulk 660: 110867098/12644881 SOFT SIDE: 11645065/12051678 PUMP ELITE: 11897034/11645460.
Event	3	Crew Leave Yard	Crew Leave Yard	5/25/2019	13:00:00	USER					STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	5/25/2019	14:00:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1651', CASING: 5.5" 17# @ 18643', 5' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 7858', 10 PPG WELL FLUID, FRESH WATER DISPLACEMENT.

Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	5/25/2019	14:10:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	5/25/2019	14:20:00	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	5/25/2019	20:30:00	USER	8.42	0.00	-5.00	8.60	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	5/25/2019	21:10:21	COM4	8.44	0.00	-7.00	0.00	START JOB DATA RECORDING.
Event	9	Drop Bottom Plug	Drop Bottom Plug	5/25/2019	21:10:50	USER	8.44	0.00	-3.00	0.00	PLUG WAS LOADED DIRECTLY INTO LANDING JOINT.
Event	10	Test Lines	Test Lines	5/25/2019	21:12:52	COM4	8.70	0.00	107.00	1.40	PRESSURE TESTED LINES TO 4800 PSI, 500 PSI KICK OUT AT 1400 PSI, 5TH GEAR STALL AT 1930 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	5/25/2019	21:17:02	COM4	8.72	0.00	29.00	0.00	PUMP 50 BBLS OF FDP SPACER @ 12.5 LB/GAL, ADDED 5 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Pump Cap Cement	Pump Cap Cement	5/25/2019	21:25:46	COM4	13.07	8.30	962.00	0.10	PUMP 585 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.6 YIELD, 7.75 GAL/SK, 166.7 BBLS, CALCULATED TOC @ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.

Event	13	Pump Lead Cement	Pump Lead Cement	5/25/2019	21:46:38	COM4	13.17	8.50	647.00	0.10	PUMP 615 SKS OF GASSTOP @ 13.2 LB/GAL, 1.6 YIELD, 7.74 GAL/SK, 175.3 BBLS, CALCULATED TOL 2476', MIX WATER MIXED WITH 1538 GAL OF LATEX AND 15 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Tail Cement	Pump Tail Cement	5/25/2019	22:07:00	COM4	13.31	8.90	790.00	0.10	PUMP 1732 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.66 GAL/SK, 484.3 BBLS, CALCULATED TOT @ 6773', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	15	Cement At Bottom	Cement At Bottom	5/25/2019	22:14:37	USER	13.32	8.20	1220.00	68.10	BOTTOM PLUG RUPTURED AT 1400 PSI.
Event	16	Shutdown	Shutdown	5/25/2019	23:12:40	COM4	14.40	0.00	110.00	527.30	SHUTDOWN TO CLEAN PUMPS/LINES AND DROP TOP PLUG.
Event	17	Drop Top Plug	Drop Top Plug	5/25/2019	23:20:21	COM4	-0.24	0.00	-4.00	537.20	PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN.
Event	18	Pump Displacement	Pump Displacement	5/25/2019	23:20:32	COM4	-0.24	0.00	-4.00	0.00	BEGIN PUMPING CALCULATED DISPLACEMENT OF 432 BBL FRESH WATER, 10 GAL OF MMCR ADDED TO THE FIRST 20 BBL.
Event	19	Cement Returns to Surface	Cement Returns to Surface	5/26/2019	00:12:45	USER	8.38	6.10	2704.00	374.20	CEMENT RETURNED TO SURFACE 380 BBL INTO DISPLACEMENT, 52 BBL OF CEMENT TO SURFACE.
Event	20	Bump Plug	Bump Plug	5/26/2019	00:27:13	COM4	8.39	0.00	2934.00	437.20	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL

											CIRCULATING PRESSURE OF 2300 PSI.
Event	21	Other	Rupture Disk	5/26/2019	00:30:40	USER	8.44	0.00	4081.00	438.90	PRESSURE UP TO RUPTURE WET SHOE DISK. DISK DID NOT RUPTURE. HES PRESSURED UP TO 3800 PSI, HELD FOR 2 MIN BLED PRESSURE OFF TO 2500, PUMPED BACK INTO IT UNTIL 4100 PSI, HELD FOR A 2 MIN, BLED PRESURE DOWN TO 2000 PSI, PUMPED BACK INTO IT AT 2.8 BBL/MIN UP TO 4400 PSI. BLED PRESSURE BAK TO THE TRUCK, RECIEVED 6.5 BBL BACK.
Event	22	Monitor Pressure	Monitor Flow	5/26/2019	00:43:50	USER	8.37	0.00	176.00	444.70	MONITORED FLOW BACK TO THE TRUCK, FLOATS HOLDING.
Event	23	Other	Rupture Disk	5/26/2019	00:58:34	USER	8.34	0.00	-4.00	444.70	PRESSURED UP TO RUPTURE WET SHOE DISK, PRESSURED UP TO 4200 PSI, HELD FOR 2 MIN, BLED PRESSURE BACK TO TRUCK, 6 BBL BACK. PLUG DID NOT RUPTURE.
Event	24	End Job	End Job	5/26/2019	01:13:10	COM4	8.36	0.00	0.00	0.00	
Event	25	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	5/26/2019	01:15:00	USER	8.36	0.00	0.00	0.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	26	Rig-Down Completed	Rig-Down Completed	5/26/2019	02:00:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.

Event	27	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/26/2019	02:20:00	USER	DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	28	Crew Leave Location	Crew Leave Location	5/26/2019	02:30:00	USER	THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.

3.0 Attachments

3.1 Extraction Interchange B N35-20-7N Production Chart

