

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Friday, May 10, 2019

Interchange B N35-20-4N Production

Job Date: Friday, May 10, 2019

Sincerely,
Tyler Hill

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 N35-20-4N 5.5" 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 60 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 #: 3691166	Quote #:	Sales Order #: 0905683577
Customer: EXTRACTION OIL & GAS-EBUS		Customer Rep: Manny Parras	
Well Name: INTERCHANGE B		Well #: N35-20-4N	API/UWI #: 05-014-20774-00
Field: WATTENBERG	City (SAP): Broomfield	County/Parish: WELD	State: COLORADO
Legal Description: NE NW-9-5N-65W-1164FNL-1755FWL			
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: PATTERSON 901	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		Srcv Supervisor: Nicholas Roles	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	18470ft	Job Depth TVD	7806'
Water Depth		Wk Ht Above Floor	4'
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	1662	0	1662
Casing	0	5.5	4.892	17	BTC	P-110	0	18464.5	0	7806
Open Hole Section			8.75				1662	18470	1662	7806

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			18464.5	Top Plug	5.5	1	
Float Shoe	5.5				Bottom Plug	5.5	1	
WS Sub	5.5			18459.5	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 ft3/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	2.73		5	

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	1.57		8	7.66

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
3	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.56		8	7.61

0.75 %	SCR-100 (100003749)
5.01 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	1725	sack	13.2	1.57		8	7.66

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	bbbl	8.33			5	

0.50 gal/bbl	MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)
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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	408	bbbl	8.33			10	

Cement Left In Pipe	Amount	0 ft	Reason	Wet Shoe
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Mix Water:	pH 06	Mix Water Chloride:	0 ppm	Mix Water Temperature:	65 °F °C
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Cement Temperature:	69 °F °C	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	65 °F °C
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Plug Bumped?	Yes	Bump Pressure:	2650 psi MPa	Floats Held?	Yes
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Cement Returns:	## bbl	Returns Density:	## lb/gal kg/m3	Returns Temperature:	## °F °C
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Comment Est TOT-6650', TOL-2361' Got 65bbbls cap 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>	DH Density <i>(ppg)</i>	DS Pump Press <i>(psi)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Check Floats	Call Out	5/9/2019	17:00:00	USER					Called out by Service Coordinator for O/L at 2200
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/9/2019	21:15:00	USER					Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	5/9/2019	21:30:00	USER					Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	5/9/2019	22:00:00	USER					Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment.
Event	5	Other	Other	5/9/2019	22:05:00	USER					Water test- PH-6, Chlor-0, Temp-65. Cement temp-70.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	5/9/2019	22:15:00	USER					Discussed rigging up hazards and procedure according to HMS.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/10/2019	05:00:00	USER					Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	5/10/2019	05:54:10	COM4	0.00	8.25	0.00	0.00	TD-18470', OH-8.5", TP-18464' 5.5" 17#, TVD-7806', SURF-1662' 9.625" 36#, MUD 9.8#

Event	9	Drop Bottom Plug	Drop Bottom Plug	5/10/2019	05:56:46	COM4	2.60	8.35	291.00	1.20	Dropped by HES supervisor, witnessed by company man.
Event	10	Test Lines	Test Lines	5/10/2019	05:57:48	COM4	0.00	8.32	153.00	2.60	Pumped 3bbls 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.
Event	11	Pump Spacer 1	Pump Spacer 1	5/10/2019	06:05:48	COM4	0.00	8.28	107.00	0.00	Pumped 50bbls of 12.5# 2.74y 16.6g/s FDP Spacer with 10g D-air at 4bpm 465psi.
Event	12	Pump Lead Cement	Pump Lead Cement	5/10/2019	06:30:34	COM4	4.10	13.06	219.00	0.00	Pumped 585sks or 167bbls of 13.2# 1.6y 7.75g/s Elasticem at 8bpm 510psi.
Event	13	Check Weight	Check Weight	5/10/2019	06:39:08	COM4	3.80	12.90	148.00	35.20	Weight verified with pressurized mud scales.
Event	14	Pump Lead Cement	Pump Lead Cement	5/10/2019	07:00:09	COM4	8.20	13.14	551.00	195.50	Pumped 615sks or 175bbls of 13.2# 1.6y 7.7g/s GasStop with 1538g FDP Latex and 62g D-air at 8bpm.
Event	15	Pump Tail Cement	Pump Tail Cement	5/10/2019	07:28:07	COM4	8.20	13.33	656.00	209.10	Pumped 1725sks or 482bbls of 13.2# 1.57y 7.66g/s Elasticem at 8bpm 488psi.
Event	16	Check Weight	Check Weight	5/10/2019	07:30:34	COM4	8.20	13.34	636.00	20.00	Weight verified with pressurized mud scales.
Event	17	Standby - Other - see comments	Standby - Other - see comments	5/10/2019	07:32:11	USER	8.00	13.30	1342.00	33.30	Bumped bottom plug at 30bbls into tail, pressure got to 1500psi, stayed high for approx 15bbls then pressure lined out to normal pumping pressure.

Event	18	Check Weight	Check Weight	5/10/2019	07:55:41	COM4	8.00	13.22	580.00	221.50	Weight verified with pressurized mud scales.
Event	19	Shutdown	Shutdown	5/10/2019	08:31:39	COM4	0.00	12.79	62.00	470.90	Shutdown to wash pumps and lines.
Event	20	Drop Top Plug	Drop Top Plug	5/10/2019	08:41:09	COM4	0.00	3.99	9.00	483.30	Dropped by HES supervisor, witnessed by company man.
Event	21	Pump Displacement	Pump Displacement	5/10/2019	08:41:12	COM4	0.00	4.33	9.00	483.30	Pumped 428bbbls fresh water at 10bpm with 10g MMCR in first 20bbbls.
Event	22	Bump Plug	Bump Plug	5/10/2019	09:42:01	COM4	0.00	8.15	2918.00	430.90	Slowed down at 400bbbls away to 5bpm, final circulating pressure-2650psi. Bump pressure-2880psi.
Event	23	Pressure Up Well	Pressure Up Well	5/10/2019	09:42:44	COM4	0.00	8.14	2980.00	430.90	Pressured up to burst plug at 3000psi, continued to pump 5bbbls at 5bpm 1450psi.
Event	24	Check Floats	Check Floats	5/10/2019	09:46:33	USER	0.00	8.14	323.00	437.90	Released pressure and got 4bbbls back. Floats held.
Event	25	End Job	End Job	5/10/2019	09:48:39	COM4	0.00	8.11	4.00	437.90	Got 60bbbls Cement to surface. EST TOT: 6650', TOL: 2361'
Event	26	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	5/10/2019	09:50:00	USER	0.00	8.11	5.00	437.90	Discussed rigging down hazards and procedure according to HMS with all HES personnel
Event	27	Safety Meeting - Departing Location	Safety Meeting - Departing Location	5/10/2019	11:30:00	USER					Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	28	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	5/10/2019	11:45:00	USER					Pre journey management prior to departure.

3.0 Attachments

3.1 Interchange B N35-20-4N-Custom Results.png

