

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS

Interchange B S22-30-15N Production

Sincerely,
Meghan Jacobs

Legal Notice

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Table of Contents

1.0	Cementing Job Summary	4
1.1	Executive Summary	4
2.0	Real-Time Job Summary	7
2.1	Job Event Log	7
3.0	Attachments.....	10
3.1	Interchange B S22-30-15N Production – Job Chart.....	10

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Interchange B S22-30-15N** 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 55 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 #: 3901213		Quote #:		Sales Order #: 0905775614				
Customer: EXTRACTION OIL & GAS-EBUS					Customer Rep: Danny Herrera					
Well Name: INTERCHANGE B			Well #: S22-30-15N			API/UWI #: 05-014-20780-00				
Field: WATTENBERG		City (SAP): BROOMFIELD		County/Parish: BROOMFIELD			State: COLORADO			
Legal Description: NE SW-10-1S-68W-2200FSL-1689FWL										
Contractor: PATTERSON-UTI ENERGY					Rig/Platform Name/Num: PATTERSON 901					
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199					Srv Supervisor: Nicholas Roles					
Job										
Formation Name										
Formation Depth (MD)		Top			Bottom					
Form Type					BHST					
Job depth MD		24645ft			Job Depth TVD					
Water Depth					Wk Ht Above Floor					
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	1665	0	1665
Casing	0	5.5	4.892	17	BTC	P-110	0	24645	0	7941
Open Hole Section			8.5				1665	9849	1665	7941
Open Hole Section			8.75				9849	24655	0	0
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			24645		Top Plug	5.5	1		
Float Shoe	5.5					Bottom Plug	5.5	1		
Float Collar	5.5			24640		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	bbbl	12.5	2.74		6	
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	586	sack	13.2	1.6		8	7.75
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		8	7.71
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	2736	sack	13.2	1.57		8	7.66
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			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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	552	bbbl	8.33			10	
Cement Left In Pipe									
Amount		0 ft			Reason			Wet Shoe	
Mix Water: pH 07		Mix Water Chloride: 0 ppm			Mix Water Temperature: 60 °F °C				
Cement Temperature: 60 °F °C		Plug Displaced by: 8.33 lb/gal			Disp. Temperature: 60 °F °C				
Plug Bumped? Yes		Bump Pressure: 2700 psi MPa			Floats Held? Yes				
Cement Returns: 55 bbl		Returns Density: ## lb/gal kg/m3			Returns Temperature: 100 °F				
Comment Got 55bbbls Cement to surface. EST TOT: 6271', TOL: 2382'									

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>	Comments
Event	1	Pressure Up Well	Call Out	6/20/2019	17:00:00	USER				Called out by Service Coordinator for O/L at 0130
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/20/2019	23:45:00	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	6/21/2019	00:00:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	6/21/2019	00:30:00	USER				Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/21/2019	00:45:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	6/21/2019	01:30:00	USER				Water test- PH-6, Chlor-0, Temp-65. Cement temp-70.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	6/21/2019	08:00:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	6/21/2019	17:14:56	COM4	0.00	8.45	-2.00	TD- OH-8.75"-9849', 8.5"-24655', TP-24645' 5.5" 17#, TVD-7941', SURF-1665' 9.625" 36#, MUD 9.9#
Event	9	Drop Bottom Plug	Drop Bottom Plug	6/21/2019	17:16:54	COM4	0.00	8.43	-1.00	Dropped by HES supervisor, witnessed by company man.
Event	10	Test Lines	Test Lines	6/21/2019	17:18:01	COM4	0.00	8.32	149.00	Pumped 3bbls fresh water to fill lines at 43bpm 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	6/21/2019	17:24:41	COM4	0.00	8.30	14.00	Pumped 50bbls of 12.5# 2.74y 16.6g/s FDP Spacer with 10g D-air at 6bpm 4365psi.

Event	12	Check Weight	Check Weight	6/21/2019	17:26:29	COM4	5.20	12.22	424.00	Weight verified with pressurized mud scales.
Event	13	Check Weight	Check Weight	6/21/2019	17:29:26	COM4	5.20	12.54	277.00	Weight verified with pressurized mud scales.
Event	14	Pump Lead Cement	Pump Lead Cement	6/21/2019	17:34:30	COM4	6.00	12.08	241.00	Pumped 586sks or 167bbls of 13.2# 1.6y 7.75g/s Elasticem at 8bpm 510psi.
Event	15	Check Weight	Check Weight	6/21/2019	17:36:21	COM4	6.00	13.13	302.00	Weight verified with pressurized mud scales.
Event	16	Check Weight	Check Weight	6/21/2019	17:46:01	COM4	8.20	13.48	605.00	Weight verified with pressurized mud scales.
Event	17	Pump Cement	Pump Cement	6/21/2019	17:57:30	COM4	8.20	13.15	614.00	Pumped 615sks or 175bbls of 13.2# 1.6y 7.71g/s GasStop with 1538g FDP Latex and 20g D-air at 8bpm.
Event	18	Check Weight	Check Weight	6/21/2019	17:59:28	COM4	8.20	13.12	726.00	Weight verified with pressurized mud scales.
Event	19	Check Weight	Check Weight	6/21/2019	18:11:45	COM4	8.20	13.15	756.00	Weight verified with pressurized mud scales.
Event	20	Pump Tail Cement	Pump Tail Cement	6/21/2019	18:20:05	COM4	8.20	13.16	632.00	Pumped 2736sks or 765bbls of 13.2# 1.57y 7.66g/s Elasticem at 8bpm 488psi.
Event	21	Check Weight	Check Weight	6/21/2019	18:21:52	COM4	8.20	13.08	623.00	Weight verified with pressurized mud scales.
Event	22	Check Weight	Check Weight	6/21/2019	18:34:53	COM4	8.10	13.25	597.00	Weight verified with pressurized mud scales.
Event	23	Other	Other	6/21/2019	18:46:10	COM4	8.10	13.29	950.00	Burst the bottom plug at 1938psi and 611bbls total away. Pressure was sporadic but eventually leveled out
Event	24	Check Weight	Check Weight	6/21/2019	18:55:55	COM4	8.10	13.28	605.00	Weight verified with pressurized mud scales.
Event	25	Check Weight	Check Weight	6/21/2019	19:22:43	COM4	8.10	13.16	618.00	Weight verified with pressurized mud scales.
Event	26	Check Weight	Check Weight	6/21/2019	19:46:35	COM4				Weight verified with pressurized mud scales.
Event	27	Shutdown	Shutdown	6/21/2019	20:00:56	COM4	0.00	16.61	49.00	Rig blew down iron, followed with 10bbls fresh water through pumps and lines.
Event	28	Drop Top Plug	Drop Top Plug	6/21/2019	20:08:16	COM4	0.00	8.97	5.00	Dropped by HES supervisor, witnessed by company man.
Event	29	Pump Displacement	Pump Displacement	6/21/2019	20:08:19	COM4	0.00	8.86	4.00	Pumped 572bbls fresh water at 10bpm with 10g MMCR in first 20bbls.
Event	30	Bump Plug	Bump Plug	6/21/2019	21:36:31	COM4	0.00	8.12	2658.00	Slowed down at 530bbls away to 3bpm, final circulating pressure-2288psi. Accidently sucked the tub

dry, causing a pressure kick out and flow to stop before plug pump Bump pressure-2700psi.

Event	31	Pressure Up Well	Pressure Up Well	6/21/2019	21:38:05	USER	1.00	8.13	3044.00	Pressured up to burst plug at 3300psi, continued to pump 5bbls at 5bpm 2560psi.
Event	32	Other	Other	6/21/2019	21:39:53	COM4	0.00	8.09	2142.00	Released pressure and got 4.5bbls back. Floats held.
Event	33	End Job	End Job	6/21/2019	21:41:56	COM4	0.00	8.05	3.00	Got 55bbls Cement to surface. EST TOT: 6271', TOL: 2382'
Event	34	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/21/2019	21:45:00	USER	0.00	8.04	-1.00	Discussed rigging down hazards and procedure according to HMS with all HES personnel
Event	35	Safety Meeting - Departing Location	Safety Meeting - Departing Location	6/21/2019	23:15:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	36	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	6/21/2019	23:30:00	USER				Pre journey management prior to departure.

3.0 Attachments

3.1 Interchange B S22-30-15N Production – Job Chart

