

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Monday, January 22, 2018

### **Berthoud East Farms 8E-10-11C Production**

Job Date: Thursday, January 18, 2018

Sincerely,

**Bryce Hinsch**

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Table of Contents

---

Cementing Job Summary ..... 4

    Executive Summary .....4

Real-Time Job Summary ..... 7

    Job Event Log.....7

Attachments..... 10

    Berthoud East Farms 8E-10-11C Production Job Chart.....10

## 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 **Berthoud East Farms 8E-10-11C** 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 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 #: 3833879		Quote #:		Sales Order #: 0904576427				
Customer: EXTRACTION OIL & GAS				Customer Rep: Shane						
Well Name: BERTHOUD FARMS			Well #: 8E-10-11C		API/UWI #: 05-123-45724-00					
Field: WATTENBERG		City (SAP): MEAD		County/Parish: WELD		State: COLORADO				
Legal Description: NE SE-7-4N-68W-1548FSL-1002FEL										
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srvc Supervisor: Ryan Stevens						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		10677ft		Job Depth TVD		6250				
Water Depth				Wk Ht Above Floor		5'				
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	New	9.625	8.921	36		J-55	0	1545	0	0
Casing	New	5.5	4.778	20	BTC	P-110	0	10677		6250
Open Hole Section			8.5				1545	10690		6250
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe						Top Plug	5.5	1	KLX	
Float Shoe	5.5	1	KLX	10,677		Bottom Plug				
Float Collar	5.5	1	KLX	10,673		SSR plug set				
Insert Float						Plug Container	5.5	1	HES	
Stage Tool						Centralizers				
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	11.5	3.73	23.4	5		
149.34 lbm/bbl		BARITE, BULK (100003681)								
35 gal/bbl		FRESH WATER								

0.50 gal/bbl		<b>MUSOL A, 330 GAL TOTE - (790828)</b>							
0.50 gal/bbl		<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
2	ElastiCem	ELASTICEM (TM) SYSTEM	1,820	sack	13.2	1.57	7.53	8	13,704
0.45 %		<b>SCR-100 (100003749)</b>							
7.53 Gal		<b>FRESH WATER</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
3	Displacement	Displacement	236.9	bbl	8.34			10	9,949
<b>Cement Left In Pipe</b>									
<b>Amount</b>	0 FT				<b>Reason</b>			<b>WET SHOE</b>	
<b>Mix Water:</b>	pH 7	<b>Mix Water Chloride:</b>	200 ppm			<b>Mix Water Temperature:</b>		62 °F	
<b>Cement Temperature:</b>		<b>Plug Displaced by:</b>	8.34 GAL/LB			<b>Disp. Temperature:</b>		134 F	
<b>Plug Bumped?</b>	Yes	<b>Bump Pressure:</b>	2950 psi			<b>Floats Held?</b>		Yes	
<b>Cement Returns:</b>	60 bbl	<b>Returns Density:</b>				<b>Returns Temperature:</b>		°F	
<b>Comment</b> 60 BBLS OF CEMENT BACK TO SURFACE									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Driv-Side Pump Pressure (psi)	Comments
Event	1	Call Out	Call Out	1/18/2018	13:00:00	USER				CREW CALLED OUT FOR JOB. CREW PICKED UP PUMP 11645460, BULK TRUCK, PLUG CNTAINER AND BULK TRUCK FROM FORT LUPTON YARD.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/18/2018	14:55:14	USER				CREW DISCUSSED HAZARDS ALONG ROUTE
Event	3	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/18/2018	17:45:00	USER				DISCUSS HAZARDS ALONG ROUTE
Event	4	Crew Leave Yard	Crew Leave Yard	1/18/2018	18:00:00	USER				STARTED JOURNEY MANAGEMENT
Event	5	Arrive At Loc	Arrive At Loc	1/18/2018	18:45:00	USER				END JOURNEY MANAGEMENT MEET WITH COMPANY MAN AND DISCUSS JOB PROCEDURES
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/18/2018	19:00:00	USER				CREW DISCUSSED HAZARDS ASSOCIATED WITH RIGGING UP.
Event	7	Rig-Up Equipment	Rig-Up Equipment	1/18/2018	19:10:00	USER				CREW RIGGED UP PUMP AND BULK EQUIPMENT TO PERFORM JOB.
Event	8	Rig-Up Completed	Rig-Up Completed	1/18/2018	19:15:00	USER				EQUIPMENT WAS READY TO PERFORM JOB.
Event	9	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/18/2018	19:30:00	USER	8.50	8.20	267.00	MEET WITH RIG CREW AND HES PERSONNEL TO DISCUSS JOB PROCEDURES AND JSA.

Event	10	Start Job	Start Job	1/18/2018	19:55:47	COM4	8.42	0.00	-22.00	START RECORDING JOB DATA
Event	11	Test Lines	Test Lines	1/18/2018	20:27:30	COM4	8.46	0.00	5753.00	PRESSURE TEST PUMPS AND LINES TO 5720 PSI. EKO SET @ 500 KICKED OUT @ 1,479 PSI.
Event	12	Pump Spacer 1	Pump Spacer 1	1/18/2018	20:37:05	COM4	8.37	0.00	-7.00	PUMP 50 BBLS OF TUNED SPACER @ 11.5 PPG YIELD 3.73 MIX WATER 23.4. DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	13	Pump Cement	Pump Cement	1/18/2018	20:48:31	COM4	13.23	5.00	249.00	PUMP 1,820 SXS OF ELASTICEM @ 13.2 PPG YIELD 1.57 MIX WATER 7.53. CALCULATED 62 BBLS BACK TO SURFACE.
Event	14	Shutdown	Shutdown	1/18/2018	22:01:27	COM4	13.06	0.10	165.00	SHUT DOWN AND WASH PUMPS AND LINES
Event	15	Drop Top Plug	Drop Top Plug	1/18/2018	22:10:19	COM4				KLX HAND DROPE TOP PLUG. VERIFIED BY COMPANY REP.
Event	16	Pump Displacement	Pump Displacement	1/18/2018	22:10:23	COM4				PUMP CALCULATED DISPLACEMENT OF 236 BBLS
Event	17	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	1/18/2018	22:35:00	USER	8.16	9.60	2878.00	CREW DISCUSSED HAZARDS ASSOATED WITH RIGGING DOWN.
Event	18	Bump Plug	Bump Plug	1/18/2018	22:37:21	COM4	8.15	0.00	2956.00	BUMPED PLUG @ 5 BPM.2,950 PSI. FINAL CIRCULATING PRESSURE @ 2300 PSI. 60 BBLS OF CEMENT BACK TO SURFACE
Event	19	Other	Other	1/18/2018	22:38:49	COM4	8.12	5.00	2249.00	BURST PLUG @ 3,700 PSI AND PUMP 5 BBLS FOR WET SHOE
Event	20	Check Floats	Check Floats	1/18/2018	22:40:38	USER	7.98	0.00	31.00	CHECK FLOATS, FLOATS



HELD 2 BBLS BACK.										
Event	21	End Job	End Job	1/18/2018	22:41:41	COM4	7.97	0.00	-5.00	STOP RECORDING JOB DATA
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	1/18/2018	23:00:00	USER	-0.37	0.00	-20.00	CREW DISCUSSED RIG DOWN PROCDURES AND JSA.
Event	23	Rig-Down Completed	Rig-Down Completed	1/18/2018	23:35:00	USER				EQUIPMENT WAS RIGGED DOWN AND LOCATION WAS CLEAN.
Event	24	Crew Leave Location	Crew Leave Location	1/18/2018	23:59:00	USER				THANKS RYAN STEVENS AND CREW.

3.0 Attachments

3.1 Berthoud East Farms 8E-10-11C Production Job Chart

