

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

United States of America

Date: Sunday, January 22, 2017

## **TC Aims C5-9-11**

Production

Job Date: Tuesday, January 03, 2017

Sincerely,

**Justin Lansdale**

## Legal Notice

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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 **TC Aims C5-9-11 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.

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]**



## Cementing Job Summary

*The Road to Excellence Starts with Safety*

Sold To #: 369404		Ship To #: 3762942		Quote #:		Sales Order #: 0903745543					
Customer: EXTRACTION OIL & GAS				Customer Rep: Hans Cary							
Well Name: TC AIMS			Well #: C5-9-11			API/UWI #: 05-123-43744-00					
Field: WATTENBERG		City (SAP): GREELEY		County/Parish: WELD		State: COLORADO					
Legal Description: SE NE-8-5N-66W-2606FNL-1192FEL											
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 341							
Job BOM: 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199					Srcv Supervisor: Nicholas Roles						
<b>Job</b>											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type					BHST						
Job depth MD		20262ft			Job Depth TVD		7278ft				
Water Depth					Wk Ht Above Floor						
Perforation Depth (MD)		From			To						
<b>Well Data</b>											
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	1565	0	1565	
Casing		5.5	4.778	20			0	20262	0	7278	
Open Hole Section			8.5				1565	20275	1565	7278	
<b>Tools and Accessories</b>											
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make			
Guide Shoe	5.5				Top Plug	5.5		HES			
Float Shoe	5.5			20262	Bottom Plug	5.5		HES			
Float Collar	5.5				SSR plug set	5.5		HES			
Insert Float	5.5				Plug Container	5.5	1	HES			
Stage Tool	5.5				Centralizers	5.5		HES			
<b>Fluid Data</b>											
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	11.5	3.74		5			
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									
149.34 lbm/bbl		BARITE, BULK (100003681)									
36.09 gal/bbl		FRESH WATER									
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)									

last updated on 1/4/2017 3:26:07 AM

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*Cementing Job Summary*

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	
2	ElastiCem W/O CBL	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		6	7.48	
7.48 Gal		FRESH WATER								
0.90 %		HR-5, 50 LB SK (100005050)								
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	ElastiCem	ELASTICEM (TM) SYSTEM	3070	sack	13.2	1.57		8	7.49	
7.49 Gal		FRESH WATER								
0.80 %		HR-5, 50 LB SK (100005050)								
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	Displacement	Displacement	447.6	bbbl	8.33			10		
<b>Cement Left In Pipe</b>	<b>Amount</b>	<b>0ft</b>	<b>Reason</b>				<b>Wet shoe</b>			
<b>Comment</b> Got 10bbbls cement back to pits.										

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)
Event	1	Call Out	Call Out	1/3/2017	08:00:00	USER			Crew call out for o/l at 1400
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/3/2017	12:45:00	USER			all crew aware of hazards and directions. all fit to drive.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	1/3/2017	14:00:00	USER			Met with company man to discuss job details and procedure. Performed hazard hunt and site assessment. Rig had 2000' left ro run.
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/3/2017	14:30:00	USER			All hse present. Discussed bulk and iron placement and all red zone areas. Caution taped high pressure zones.
Event	5	Other	Other	1/3/2017	15:00:00	USER			Water Test- PH-6 Chlo-0 Temp-60 Cement temp- 64
Event	6	Start Job	Start Job	1/4/2017	22:03:37	COM2			TD-20275', TP-20262' 5.5" 20#, FC-20255', TVD-7278', OH-8.5", SURF-1565' 9.625" 36#.
Event	7	Test Lines	Test Lines	1/4/2017	22:23:58	COM2			Filled lines with 3bbls fresh water, shutdown, closed 2" valves on manifold and performed k/o function test at 500psi, proceeded to bring pressure up to 4800psi. Held good no leaks.
Event	8	Pump Spacer 1	Pump Spacer 1	1/4/2017	22:35:09	COM2			Pumped 50bbls Tuned Spacer III with 15g Musol A, 15g Dual Spacer B and 10g D-Air at 5bpm 200psi.
Event	9	Start Job	Start Job	1/4/2017	22:38:45	COM2			Flecs screen froze up and had to restart flecs to begin job again.
Event	10	Pump Spacer 1	Pump Spacer 1	1/4/2017	22:39:30	COM2			
Event	11	Check Weight	Check Weight	1/4/2017	22:46:34	COM2			Weight verified by pressurized mud scales.

Event	12	Pump Lead Cement	Pump Lead Cement	1/4/2017	22:51:51	COM2	Pumped 150sks or 42bbls Elasticem w/o CBL at 5bpm 240psi.
Event	13	Check Weight	Check Weight	1/4/2017	22:52:49	COM2	Weight verified by pressurized mud scales.
Event	14	Pump Tail Cement	Pump Tail Cement	1/4/2017	22:59:01	COM2	Pumped 3070sks or 858bbls of 13.2# 1.57y 7.48g/s Elasticem w/CBL at 8bpm 470psi.
Event	15	Check Weight	Check Weight	1/4/2017	23:02:57	COM2	Weight verified by pressurized mud scales.
Event	16	Check Weight	Check Weight	1/4/2017	23:31:12	USER	Weight verified by pressurized mud scales.
Event	17	Check Weight	Check Weight	1/4/2017	23:58:12	COM2	Weight verified by pressurized mud scales.
Event	18	Check Weight	Check Weight	1/4/2017	00:38:24	COM2	
Event	19	Drop Top Plug	Drop Top Plug	1/4/2017	01:11:51	COM2	Dropped by KLX tool hand, witnessed by HSE supervisor and company man.
Event	20	Pump Displacement	Pump Displacement	1/4/2017	01:11:57	COM2	Pumped 447.6 bbls fresh water at 10bpm 2580psi.
Event	21	Bump Plug	Bump Plug	1/4/2017	02:02:09	USER	Slowed to 5bpm 15bbls from calculated bump and final circulating pressure at 5bpm 2703psi. Bumped plug at 3100psi. As we bumped disc burst at 3118psi.
Event	22	Circulate Well	Circulate Well	1/4/2017	02:03:36	USER	Once we burst disc, made sure it was indeed burst and pumped 2bbls at 2bpm to see if pressure rose and it didnt so we proceeded to pump 5bbls total for wet shoe at 5bpm 2895psi.
Event	23	Other	Other	1/4/2017	02:07:19	COM2	Checked floats and got 3.5bbls back and floats held.
Event	24	End Job	End Job	1/4/2017	02:09:26	COM2	Got 10bbls cement back to pits.
Event	25	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	1/4/2017	02:15:00	USER	All HSE present. Discussed red zone areas and trapped pressure hazards. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius.
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/4/2017	09:00:00	USER	All HSE present and fit to drive. Aware of

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Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	1/4/2017	09:30:00	USER	directions and hazards. Pre journey managment prior to departure.
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2.2 Custom Graph

