

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Saturday, March 18, 2017

## **TC AIMS 2-9-11 SURFACE**

Job Date: Monday, February 20, 2017

Sincerely,

**Julia Nichols**

## 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 2-9-11** cement **Surface** 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 45 barrels 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 [Ft. Lupton]**

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## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404	Ship To #: 3762969	Quote #:	Sales Order #: 0903850433							
Customer: EXTRACTION OIL & GAS		Customer Rep: Hans Cary								
Well Name: TC AIMS	Well #: 2-9-11	API/UWI #: 05-123-43747-00								
Field: WATTENBERG	City (SAP): GREELEY	County/Parish: WELD	State: COLORADO							
Legal Description: SE NE-8-5N-66W-2574FNL-1192FEL										
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: FATTERSON 341								
Job BOM: 7521										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199		Srv Supervisor: Bradley Hinkle								
<b>Job</b>										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST								
Job depth MD	1587ft	Job Depth TVD	1587ft							
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
Open Hole Section			13.5				0	1600		0
Casing		9.625	8.921	36			0	1600		0
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make		
Guide Shoe	9.625				Top Plug	9.625	1	HES		
Float Shoe	9.625	1		1587	Bottom Plug	9.625		HES		
Float Collar	9.625	1		1545	SSR plug set	9.625		HES		
Insert Float	9.625				Plug Container	9.625		HES		
Stage Tool	9.625				Centralizers	9.625		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	Spacer	Red Dye Water Spacer	10	bbl	8.34			3		
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	
2	Primary Cement	SWIFTCEN (TM) SYSTEM	550	sack	13.5	1.74		7	9.2	

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*Cementing Job Summary*

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
3	Displacement	Fresh Water	119	bbl	8.34			6	
Cement Left In Pipe		Amount	42 ft			Reason		Shoe Joint	
Mix Water:		pH 6.5	Mix Water Chloride:		0 ppm		Mix Water Temperature:		58 °F °C
Cement Temperature:		71 °F	Plug Displaced by:## lb/gal kg/m3 XXXX			Disp. Temperature:		## °F °C	
Plug Bumped?		Yes	Bump Pressure:#### psi MPa			Floats Held?		Yes/No	
Cement Returns:		45 bbl	Returns Density:## lb/gal kg/m3			Returns Temperature:		## °F °C	
Comment 45 bbls 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)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	2/19/2017	21:00:00	USER				Crew called for an on location of 0200 on 2/20/2017. Crew was Bradley Hinkle, Luke Kosakewich, Scott Lyles, Thomas McDiffit and Anuar Almanzan
Event	2	Depart Shop for Location	Depart Shop for Location	2/19/2017	23:45:00	USER				Pre-journey safety meeting.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	2/20/2017	00:30:00	USER				Sign in, perform a site assessment and pre rig-up safety meeting. Rig had roughly 500 feet to drill.
Event	4	Other	Check-in With Customer	2/20/2017	00:35:00	USER				Check-in and get numbers. TD: 1596. TP: 1587. FC: 1542. 9.625" 36# Casing inside a 13.5" OH. Mud weight 8.5 ppg.
Event	5	Start Job	Start Job	2/20/2017	06:54:13	COM5	0.00	0.00	1.00	
Event	6	Test Lines	Test Lines	2/20/2017	07:00:24	COM5	8.24	0.00	2982.00	Fill lines with 2 bbls fresh water. Pressure test lines with a 500 PSI electronic kick-out test.
Event	7	Pump Spacer 1	Pump Spacer 1	2/20/2017	07:01:58	COM5	8.21	0.00	54.00	Pump 10 bbls red dye water.
Event	8	Check Weight	Check weight	2/20/2017	07:09:23	COM5	8.23	0.00	65.00	Cement weighed at 13.3 ppg.
Event	9	Pump Cement	Pump Cement	2/20/2017	07:11:53	COM5	13.45	3.50	165.00	Pump 170 bbls (550 sacks) SwiftCem mixed at 13.5 ppg. Density verified by pressurized scales.
Event	10	Check Weight	Check weight	2/20/2017	07:19:54	COM5	13.57	8.00	331.00	Cement weighed at 13.5 ppg.
Event	11	Check Weight	Check weight	2/20/2017	07:29:17	COM5	13.53	7.00	254.00	Cement weighed at 13.5 ppg.
Event	12	Other	Pressure Kick-Out	2/20/2017	07:35:43	USER	13.61	0.10	660.00	Pressure kick-out indicating a possible bridge down hole. Reset kick-outs and slowly resumed pumping.
Event	13	Shutdown	Shutdown	2/20/2017	07:44:57	COM5	14.30	0.00	-15.00	
Event	14	Drop Top Plug	Drop Top Plug	2/20/2017	07:45:08	COM5	14.29	0.00	-15.00	Top plug loaded by removing cap on cement head and dropping.
Event	15	Pump Displacement	Pump Displacement	2/20/2017	07:45:16	COM5	14.29	0.00	-15.00	Pump 119 bbls fresh water. Good returns throughout. 45

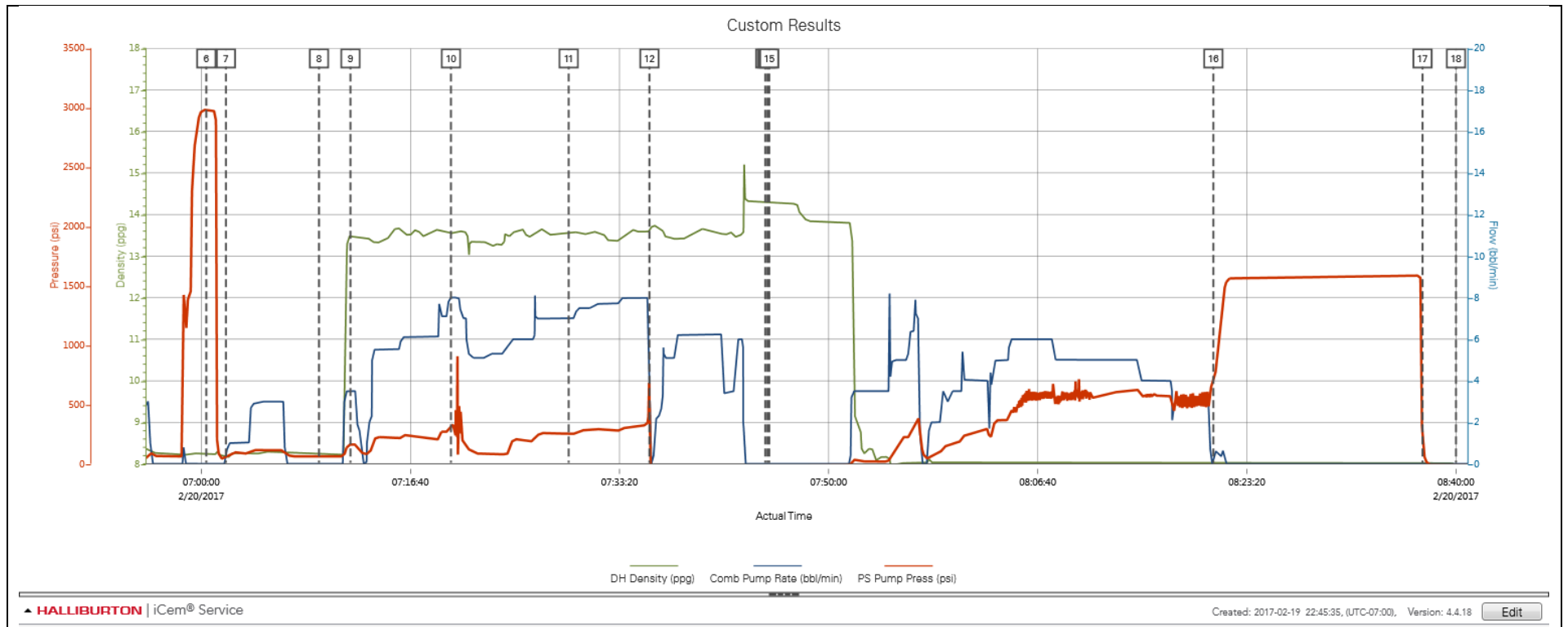
bbls cement to surface.

Event	16	Bump Plug	Bump Plug	2/20/2017	08:20:40	USER	8.03	0.00	708.00	Bump plug at 600 PSI and increased pressure to 1500 PSI for a 15 minute casing test.
Event	17	Check Floats	Check Floats	2/20/2017	08:37:20	USER	8.01	0.00	230.00	Floats held. Half bbl back.
Event	18	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	2/20/2017	08:40:00	USER				Pre rig-down safety meeting.
Event	19	End Job	End Job	2/20/2017	08:46:03	COM5				
Event	20	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	2/20/2017	09:30:00	USER				Pre-journey safety meeting.



## 3.0 Attachments

### 3.1 Custom Results – Job Chart with Events



## 3.2 Custom Results – Job Chart without Events

