

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

United States of America, COLORADO

Date: Sunday, March 05, 2017

### **TC Hiland Knolls 3-9-11**

Surface

Job Date: Friday, February 24, 2017

Sincerely,

**Justin Lansdale**

## Legal Notice

---

### Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. Accordingly, HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

Table of Contents

---

Cementing Job Summary ..... 4

    Executive Summary .....4

Real-Time Job Summary ..... 7

    Job Event Log.....7

    Custom Graph.....9

## 1.0 Cementing Job Summary

---

### 1.1 Executive Summary

---

Halliburton appreciates the opportunity to perform the cementing services on the **TC Hiland Knolls 3-9-11** 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.

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*

<b>Sold To #:</b> 369404		<b>Ship To #:</b> 3754137		<b>Quote #:</b>		<b>Sales Order #:</b> 0903850436					
<b>Customer:</b> EXTRACTION OIL & GAS				<b>Customer Rep:</b> Larry Siegel							
<b>Well Name:</b> TC HILAND KNOLLS			<b>Well #:</b> 3-9-11		<b>API/UWI #:</b> 05-123-43516-00						
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> GREELEY		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO					
<b>Legal Description:</b> NE SE-8-5N-66W-2616FSL-1190FEL											
<b>Contractor:</b> PATTERSON-UTI ENERGY				<b>Rig/Platform Name/Num:</b> PATTERSON 341							
<b>Job BOM:</b> 7521											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HX38199				<b>Srv Supervisor:</b> Michael Loughran							
<b>Job</b>											
<b>Formation Name</b>											
<b>Formation Depth (MD)</b>		<b>Top</b>	0	<b>Bottom</b>		1635					
<b>Form Type</b>				<b>BHST</b>							
<b>Job depth MD</b>		1603ft		<b>Job Depth TVD</b>		1603					
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		5					
<b>Perforation Depth (MD)</b>		<b>From</b>		<b>To</b>							
<b>Well Data</b>											
<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>	
Casing		9.625	8.921	36			0	1603		0	
Open Hole Section			13.5				0	1635		0	
<b>Tools and Accessories</b>											
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>		
Guide Shoe	9.625					Top Plug	9.625	1	HES		
Float Shoe	9.625	1		1603		Bottom Plug	9.625		HES		
Float Collar	9.625	1		1560		SSR plug set	9.625		HES		
Insert Float	9.625					Plug Container	9.625	1	HES		
Stage Tool	9.625					Centralizers	9.625		HES		
<b>Fluid Data</b>											
<b>Stage/Plug #:</b> 1											
<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>
1	Red Dye Water Spacer	Red Dye Water Spacer			20	bbl	8.34			2	

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	SwiftCem	SWIFTCEM (TM) SYSTEM	550	sack	13.5	1.74		6.5	9.2
94 lbm		TYPE I / II CEMENT, BULK (101439798)							
9.20 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	Displacement	Displacement	120	bbl	8.34			7	
Cement Left In Pipe		Amount	43ft		Reason			Shoe Joint	
Mix Water:		pH 7	Mix Water Chloride: 0 ppm			Mix Water Temperature:		50 °F °C	
Comment 27 BBLS CEMENT TO SURFACE									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Call Out	Call Out	2/24/2017	00:01:00	USER	Callout for on loc. time 0700
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	2/24/2017	04:45:00	USER	Discuss route, Safe driving, start JM
Event	3	Crew Leave Yard	Crew Leave Yard	2/24/2017	05:00:00	USER	
Event	4	Arrive At Loc	Arrive At Loc	2/24/2017	06:00:00	USER	Meet with customer to discuss job. Rig running casing
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	2/24/2017	06:05:00	USER	hazard hunt, discuss where to spot trucks
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	2/24/2017	06:30:00	USER	JSA safe rig up
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	2/24/2017	09:45:00	USER	With all associated personnel. Discuss hazards of our equipment, iron, pressure
Event	8	Rig-Up Equipment	Rig-Up Equipment	2/24/2017	09:50:00	USER	rig up all surface lines and iron to buffer zone
Event	9	Start Job	Start Job	2/24/2017	09:58:38	COM1	BEGIN RECORDING DATA
Event	10	Test Lines	Test lines	2/24/2017	10:04:44	USER	HMS PRESSURE TEST TO 3000
Event	11	Pump Spacer 1	Pump Spacer 1	2/24/2017	10:10:10	COM1	20 BBLS FRESH WATER WITH RED DYE IN FIRST 10 BBLS
Event	12	Pump Lead Cement	Pump Lead Cement	2/24/2017	10:22:09	COM1	550 SACKS SWIFTCM, 170.44 BBLS, 13.5 PPG, 1.74 YIELD, 9.2 GAL/SACK
Event	13	Shutdown	Shutdown	2/24/2017	10:58:40	COM1	
Event	14	Drop Top Plug	Drop Top Plug	2/24/2017	11:00:12	COM1	WITNESSED BY CUSTOMER
Event	15	Pump Displacement	Pump Displacement	2/24/2017	11:01:14	COM1	120 BBLS FRESH WATER, SEE CEMENT AT 93 BBLS INTO DISPLACEMENT, 27 BBLS CEMENT TO SURFACE

Event	16	Bump Plug	Bump Plug	2/24/2017	11:28:15	COM1	500 PSI OVER FINAL CIRCULATING PRESSURE
Event	17	Pressure Up	Pressure Up	2/24/2017	11:29:30	COM1	CASING TEST TO 1500 PSI
Event	18	Check Floats	Check Floats	2/24/2017	11:31:46	USER	RELEASE PRESSURE, FLOATS HOLD, 1 BBL BACK TO TRUCK
Event	19	End Job	End Job	2/24/2017	11:36:54	COM1	STOP RECORDING DATA
Event	20	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	2/24/2017	11:40:00	USER	JSA safe rig down
Event	21	Rig Down Lines	Rig Down Lines	2/24/2017	11:45:00	USER	
Event	22	Crew Leave Location	Crew Leave Location	2/24/2017	12:30:00	USER	Start JM. Thanks for choosing Halliburton!



2.2 Custom Graph

