HALLIBURTON

iCem® Service

EXTRACTION OIL & GAS

Date: Thursday, May 18, 2017

TC Hiland Knolls 1-9-11

Production

Job Date: Wednesday, March 22, 2017

Sincerely,

Justin Lansdale

Legal Notice

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Table of Contents

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **TC Hiland Knolls 1-9-11** 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]

The Road to Excellence Starts with Safety

Sold To #: 369404	**Ship To #:** 3754122	**Quote #:**	**Sales Order #:** 0903914254
Customer: EXTRACTION OIL & GAS		**Customer Rep:** Kalyn Holgate	
Well Name: TC HILAND KNOLLS	**Well #:** 1-9-11		**API/UWI #:** 05-123-43512-00
Field: WATTENBERG	**City (SAP):** GREELEY	**County/Parish:** WELD	**State:** COLORADO
Legal Description: SE NE-8-5N-66W-2638FNL-1191FEL			
Contractor: PATTERSON-UTI ENERGY		**Rig/Platform Name/Num:** PATTERSON 341	
Job BOM: 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		**Srvc Supervisor:** Vaughn Oteri	

Job

Formation Name				
Formation Depth (MD)	**Top**		**Bottom**	
Form Type			**BHST**	
Job depth MD	20200ft		**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		9.625	8.921	36			0	1612	0	1612
Casing		5.5	4.778	20			0	20185	0	7100
Open Hole Section			8.5				1612	20200	1612	7100

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	5.5					**Top Plug**	5.5	1	KLX
Float Shoe	5.5			20185		**Bottom Plug**	5.5		
Float Collar	5.5			20180		**SSR plug set**	5.5		
Insert Float	5.5					**Plug Container**	5.5	1	HES
Stage Tool	5.5					**Centralizers**	5.5		

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	3.74		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 W/O CBL	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		6	7.48
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	ElastiCem	ELASTICEM (TM) SYSTEM	3100	sack	13.2	1.57		6	7.49
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	Displacement	Displacement	446	bbl	8.33			8	

Cement Left In Pipe	**Amount**	ft	Reason	**Shoe Joint**

Comment 70bbl 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	Comments
Event	1	Call Out	Call Out	3/22/2017	09:00:00	USER	Call out from ARC hub
Event	2	Arrive at Rig	Arrive at Rig	3/22/2017	17:30:00	USER	Arrived on location met with company rep to discuss job process and concerns
Event	3	Other	Other	3/22/2017	17:31:00	USER	TD-20200 TP-20185 FC-20180 Mud-9.3ppg Casing 5.5 20# Surf-1612
Event	4	Start Job	Start Job	3/22/2017	21:30:10	COM4	Held pre-job safety meeting with all hands on location to dicuss job process and hazards
Event	5	Test Lines	Test Lines	3/22/2017	21:56:06	COM4	Pressure tested pumps and lines with fresh water 4675psi
Event	6	Pump Spacer 1	Pump Spacer 1	3/22/2017	22:01:22	COM4	Mixed 50bbl of 11.5ppg Tuned spacer lll at 4.0bpm 150psi
Event	7	Pump Cement	Pump Cement	3/22/2017	22:15:13	COM4	Mixed 3250sks or 908bbl of 13.2ppg Y-1.57 G/sk-7.48 Elasticem at 8.0bpm 375psi
Event	8	Check Weight	Check weight	3/22/2017	22:17:14	COM4	Confirmed weight on scales of 13.2ppg
Event	9	Check Weight	Check weight	3/22/2017	22:29:32	COM4	Confirmed weight on scales of 13.2ppg
Event	10	Shutdown	Shutdown	3/23/2017	00:11:02	COM4	
Event	11	Clean Lines	Clean Lines	3/23/2017	00:11:05	COM4	Washed pumps and lines with fresh water
Event	12	Drop Top Plug	Drop Top Plug	3/23/2017	00:11:08	COM4	KLX tool hand released plug witnessed by company rep and HES supervisor
Event	13	Pump Displacement	Pump Displacement	3/23/2017	00:18:55	COM4	Pumped 446bbl of fresh water to displace cement
Event	14	Bump Plug	Bump Plug	3/23/2017	01:09:45	COM4	Bumped plug 500 psi over final pump pressure

Event	15	Pressure Up Well	Pressure Up Well	3/23/2017	01:10:58	COM4	Pressure up plug to blow disc and pumped 5bbl of fresh water for wet shoe
Event	16	Other	Other	3/23/2017	01:13:58	COM4	Released pressure back to pump truck to check floats, Floats were not holding
Event	17	Check Floats	Other	3/23/2017	01:26:09	USER	Released pressure back to pump truck to check floats, Floats were not holding
Event	18	Other	Other	3/23/2017	01:56:44	USER	Closed well to see what pressure would build
Event	19	Other	Pumped well fluid	3/23/2017	02:00:57	USER	Pumped 4bbl back into well
Event	20	Check Floats	Check Floats	3/23/2017	02:07:10	USER	Released pressure back to pump truck to check floats, Floats were not holding
Event	21	Pump Well Fluid	Pump Well Fluid	3/23/2017	02:16:08	USER	Pumped 4bbl back into well
Event	22	Check Floats	Check Floats	3/23/2017	02:25:20	USER	Released pressure back to pump truck to check floats, Floats were not holding
Event	23	Pump Well Fluid	Pump Well Fluid	3/23/2017	02:40:45	USER	Pumped 4bbl back into well
Event	24	Check Floats	Check Floats	3/23/2017	02:43:58	USER	Released pressure back to pump truck to check floats, Floats were not holding, Closed well at cement manifold and wait on cement
Event	25	End Job	End Job	3/23/2017	02:56:03	COM4	

3.0 Attachments

3.1 Case 1-Custom Results.png