

# HALLIBURTON

iCem<sup>®</sup> Service

## **HIGHLANDS NATURAL RESOURCES CORP-EB**

Date: Tuesday, May 08, 2018

### **Buckskin 5-64 15-16-1BHZ Surface**

Job Date: Sunday, April 22, 2018

Sincerely,  
**Tyler Hill**

## Legal Notice

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### Disclaimer:

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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 **Buckskin 5-64 15-16-1BHZ** 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 15 BBL's 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**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 380910		<b>Ship To #:</b> 3863324		<b>Quote #:</b> 0022432429		<b>Sales Order #:</b> 0904799509					
<b>Customer:</b> HIGHLANDS NATURAL RESOURCES CORP-EB				<b>Customer Rep:</b> Tim							
<b>Well Name:</b> BUCKSKIN			<b>Well #:</b> 5-64 15-16-1BHZ		<b>API/UWI #:</b> 05-005-07343-00						
<b>Field:</b> WILDCAT		<b>City (SAP):</b> AURORA		<b>County/Parish:</b> ARAPAHOE		<b>State:</b> COLORADO					
<b>Legal Description:</b> NE SE-15-5S-64W-2380FSL-440FEL											
<b>Contractor:</b> WHITE MOUNTAIN OPERATING				<b>Rig/Platform Name/Num:</b> WHITE MOUNTAIN 344							
<b>Job BOM:</b> 7521 7521											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HB41307				<b>Srv Supervisor:</b> Nicholas Roles							
<b>Job</b>											
<b>Formation Name</b>											
<b>Formation Depth (MD)</b>		<b>Top</b>		<b>Bottom</b>							
<b>Form Type</b>				<b>BHST</b>							
<b>Job depth MD</b>		2105ft		<b>Job Depth TVD</b>							
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>							
<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	LTC	J-55	0	2105		2105	
Open Hole Section			13.5				0	2115		2115	
<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			2105		Top Plug	9.625		HES		
Float Shoe	9.625					Bottom Plug	9.625		HES		
Float Collar	9.625			2060		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 #: 1</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>
1	Fresh Water Spacer	Fresh Water Spacer			20	bbl	8.33			4	

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		355	sack	12	2.483		8	14.4
14.40 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	SwiftCem	SWIFTCEM (TM) SYSTEM		440	sack	13.5	1.763		8	9.01
9.01 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
4	Displacement	Displacement		159	bbl	8.33			7	
Cement Left In Pipe		Amount	45 ft			Reason			Shoe Joint	
Comment Got 15bbbls cement to surface. Estimated TOT-1630'										

## 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)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	4/22/2018	04:00:00	USER				Called out by Service Coordinator for O/L at 0800
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	4/22/2018	07:15:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	4/22/2018	07:30:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	4/22/2018	08:30:00	USER				Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment. Rig had just landed and began circulating.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	4/22/2018	08:45:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	4/22/2018	09:00:00	USER				Water test- PH-6, Chlor-0, Temp-85.
Event	7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	4/22/2018	10:00:00	USER	8.12	0.00	9.00	Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	4/22/2018	10:24:11	COM4	8.26	0.00	3.00	TD-2115', TP-2105' 9.625" 36#, FC-2060', OH-13.5", MUD-8.8#

Event	9	Test Lines	Test Lines	4/22/2018	10:26:15	USER	8.08	0.00	15.00	Pumped 3bbls to fill lines, established circulation, shutdown and closed manifold, performed 500psi k/o function test, continued with 5th gear stall at 1760psi proceeded to bring pressure to 3000psi. Held good no leaks.
Event	10	Pump Spacer 1	Pump Spacer 1	4/22/2018	10:30:59	COM4	8.11	0.00	6.00	Pumped 10bbls fresh water with 2# Red Dye at 4bpm 100psi.
Event	11	Pump Spacer 2	Pump Spacer 2	4/22/2018	10:34:56	COM4	8.05	4.30	78.00	Pumped 10bbls fresh water at 4bpm
Event	12	Pump Lead Cement	Pump Lead Cement	4/22/2018	10:41:10	COM4	8.32	0.00	5.00	Pumped 355sks or 157bbls 12# 2.483y 14.4g/s Swiftcem at 8bpm
Event	13	Check Weight	Check Weight	4/22/2018	10:47:03	COM4	11.97	6.20	159.00	Weight verified with pressurized mud scales.
Event	14	Check Weight	Check Weight	4/22/2018	10:56:57	COM4	12.03	7.90	216.00	Weight verified with pressurized mud scales.
Event	15	Pump Tail Cement	Pump Tail Cement	4/22/2018	11:06:20	COM4	13.15	8.00	264.00	Pumped 440sks or 138bbls 13.5# 1.763Y 9.01g/s Swiftcem at 8bpm
Event	16	Check Weight	Check Weight	4/22/2018	11:09:37	COM4	13.68	8.00	292.00	Weight verified with pressurized mud scales.
Event	17	Check Weight	Check Weight	4/22/2018	11:12:18	COM4	13.37	7.10	221.00	Weight verified with pressurized mud scales.
Event	18	Check Weight	Check Weight	4/22/2018	11:14:50	COM4	13.68	7.70	272.00	Weight verified with pressurized mud scales.
Event	19	Drop Top Plug	Drop Top Plug	4/22/2018	11:27:18	COM4	14.80	0.00	-5.00	Dropped by HES supervisor, witnessed by company man.
Event	20	Pump Displacement	Pump Displacement	4/22/2018	11:27:23	COM4	11.67	0.00	-5.00	Pumped 159bbls of fresh water at 7bpm 530psi.



Event	21	Bump Plug	Bump Plug	4/22/2018	11:59:35	COM4	8.29	0.00	1138.00	Slowed down to 3bpm at 140bbls away, final circulating pressure - 655psi, Bumped at 1200psi.
Event	22	Check Floats	Check Floats	4/22/2018	12:02:16	USER	8.30	0.00	987.00	Released pressure and got 1bbl back, floats held.
Event	23	End Job	End Job	4/22/2018	12:05:04	COM4	8.28	0.00	4.00	Got 15bbls cement to surface.
Event	24	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	4/22/2018	12:10:00	USER	8.29	0.00	4.00	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	25	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	4/22/2018	13:45:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	26	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	4/22/2018	14:00:00	USER				Pre journey management prior to departure.

3.0 Attachments

3.1 Buckskin 5-64 15-16-1BHZ Surface.png

