

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Monday, October 02, 2017

### **Leonard 10N Surface**

Job Date: Saturday, August 26, 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 **Leonard 10N** 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 16 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 [Fort Lupton]**

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*Cementing Job Summary*

*The Road to Excellence Starts with Safety*

Sold To #: 369404		Ship To #: 3809533		Quote #:		Sales Order #: 0904261465					
Customer: EXTRACTION OIL & GAS -				Customer Rep: Shawn McIntyre							
Well Name: LEONARD			Well #: 10N		API/UWI #: 05-123-45050-00						
Field: WATTENBERG		City (SAP): FIRESTONE		County/Parish: WELD		State: COLORADO					
Legal Description: NW SW-21-2N-67W-1712FSL-494FWL											
Contractor: UNKNOWN				Rig/Platform Name/Num: WORKOVER RIG							
Job BOM: 7521 7521											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srcv Supervisor: Bryce Muir							
<b>Job</b>											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type											
BHST											
Job depth MD		1576ft		Job Depth TVD		3 ft.					
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	1576	0	1576	
Casing	0	9.625	8.921	36	8 RD	J-55	0	1576	0	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	WF	1576		Bottom Plug	9.625				
Float Collar	9.625	1	WF	1534		SSR plug set	9.625				
Insert Float	9.625					Plug Container	9.625	1	HES		
Stage Tool	9.625					Centralizers	9.625				
<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	Red Dye Spacer	Red Dye Spacer			10	bbl	8.33				
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	SwiftCem	SWIFTCEM (TM) SYSTEM			550	sack	13.5	1.74	9.2	5	9.2
9.20 Gal		FRESH WATER									

last updated on 10/2/2017 2:30:40 PM

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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	Fresh Water	Fresh Water	118	bbl	8.33					
Cement Left In Pipe		Amount	44 ft		Reason			Shoe Joint		
<p>Comment: WE ARRIVED ON LOCATION AT 0800 HOURS ON 08/25/2017. WE SPOTTED IN OUR EQUIPMENT AND RIGGED UP OUR IRON TO THE RED ZONE. THE RIG WAS STILL PERFORMING DRILLING OPERATIONS. WE WAITED ON LOCATION UNTIL THE WELL WAS DRILLED AND THE CASING WAS RAN. ON 08/26/2017 AT 0400 WE RIGGED UP THE PLUG CONTAINER AND BEGAN TO PERFORM THE CEMENT JOB. WE PUMPED 10 BBLs OF FRESH WATER SPACER WITH RED DYED ADDED TO THE 10 BBLs. WE THEN PUMPED OUR 170 BBLs OF PRIMARY CEMENT. WE PUMPED THE JOB AT 6 BARREL PER MINUTE MONITORING PRESSURE THROUGHOUT THE JOB. WHEN ALL THE CEMENT WAS PUMPED DOWNHOLE WE SHUTDOWN TO DROP THE TOP PLUG. 9.625" TOP PLUG WAS DROPPED BY BRYCE MUIR. WE WASHED UP ON TOP OF THE PLUG WITH THE FIRST 10 BBLs OF OUR 118.5 BBL DISPLACEMENT. WE SLOWED OUR RATE THE LAST 20 BBLs OF DISPLACEMENT TO 3 BARRELS PER MINUTE. WE GOT GOOD CEMENT TO SURFACE AT 102 BBLs DISPLACEMENT PUMPED FOR A TOTAL OF 16 BBLs OF CEMENT TO SURFACE. WE LANDED THE PLUG AT 118 BBLs PUMPED. PLUG WAS LANDED AT 450 PSI AND WE PRESSURED UP TO 850 PSI AND HELD FOR 3 MINUTES. CHECKED THE FLOATS AND THEY HELD. WE GOT 1/2 BBL OF FLUID BACK TO THE RCM.</p>										

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

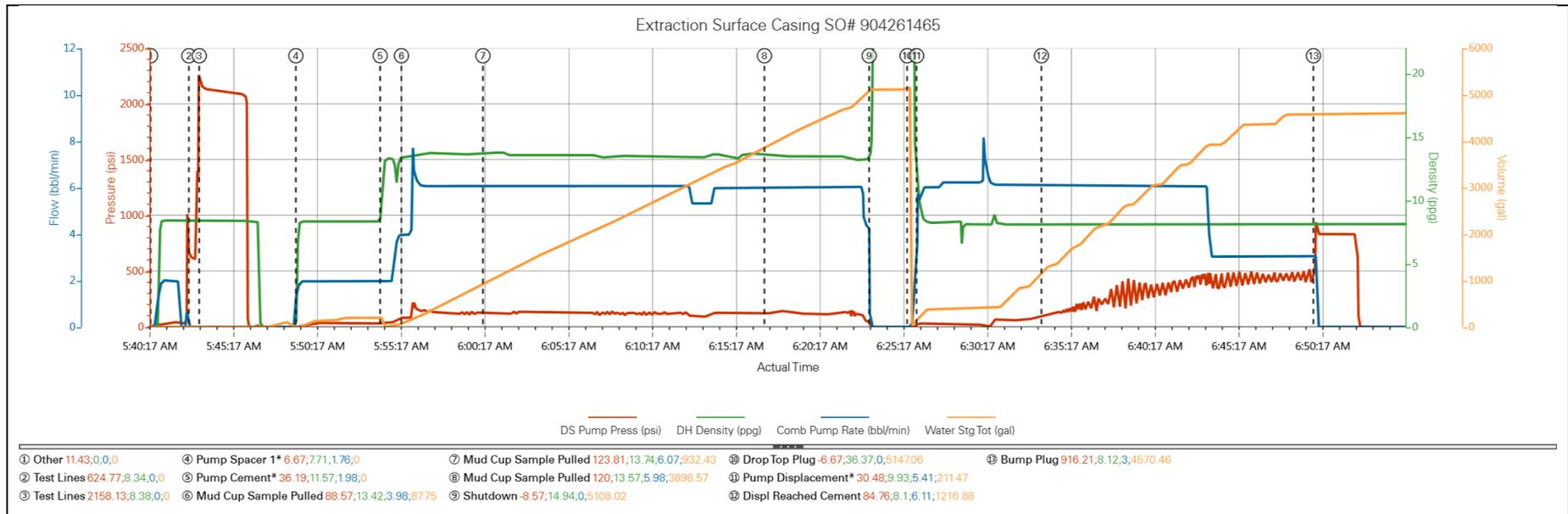
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Call Out	Call Out	8/25/2017	04:00:00	USER	CREW CALLED OUT TO PERFORM SURFACE CASING JOB. LOAD UP TRUCKS AND MAKE SURE ALL REQUIRED EQUIPMENT IS LOADED AND READY.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/25/2017	07:15:00	USER	DISCUSS HAZARDS ASSOCIATED WITH DRIVING TRUCKS TO LOCATION. DISCUSSED ROUTE OF TRAVEL AND CONVOY ORDER.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	8/25/2017	07:30:00	USER	
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	8/25/2017	08:00:00	USER	ARRIVE AT LOCATION AND PERFORM A WORK SITE ASSESSMENT OF LOCATION.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/25/2017	08:10:00	USER	DISCUSS HAZARDS ASSOCIATED WITH RIGGING UP AND PACKING IRON ON LOCATION WHILE DRILLING OPERATIONS ARE UNDERWAY.
Event	6	Rig-Up Equipment	Rig-Up Equipment	8/25/2017	08:20:00	USER	
Event	7	Other	Other	8/25/2017	09:00:00	USER	WAIT FOR DRILLING RIG TO FINISH DRILLING WELL.
Event	8	Other	Other	8/25/2017	22:00:00	USER	RIG CREW RIGGING UP TO RUN CASING.
Event	9	Rig-Up Equipment	Rig-Up Equipment	8/26/2017	04:00:00	USER	RIG UP PLUG CONTAINER AND IRON ON THE RIG FLOOR. GET READY TO PUMP.
Event	10	Start Job	Start Job	8/26/2017	04:39:00	USER	
Event	11	Other	Other	8/26/2017	04:40:29	RTD Import	PUMP 2 BBLS OF FRESH WATER TO FILL PUMPS AND LINES.
Event	12	Test Lines	Test Lines	8/26/2017	04:42:46	RTD Import	CONDUCT A LOW PRESSURE TEST TO 500 PSI TO TEST THE RCM KICKOUTS TO MAKE SURE THEY ARE FUNCTIONING PROPERLY.
Event	13	Test Lines	Test Lines	8/26/2017	04:43:23	RTD Import	CONDUCT A HIGH PRESSURE TEST TO 2000 PSI TO TEST PUMPS AND LINES.
Event	14	Pump Spacer 1	Pump Spacer 1*	8/26/2017	04:49:09	RTD Import	PUMP 10 BBLS OF DYED SPACER. PUMPED AT 2 BPM AT 22 PSI.
Event	15	Pump Cement	Pump Cement*	8/26/2017	04:54:11	RTD Import	PUMPED 170 BBLS OF PRIMARY CEMENT. 550 SACKS AT 13.5 #/GAL 1.74 CUFT/SK 9.2 GAL/SK. PUMPED CEMENT AT 6 BPM AT 130 PSI. GREAT CIRCULATION DURING THE JOB UP TO THIS

POINT.

Event	16	Check Weight	Mud Cup Sample Pulled	8/26/2017	04:55:27	RTD Import	CEMENT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	17	Check Weight	Mud Cup Sample Pulled	8/26/2017	05:00:19	RTD Import	CEMENT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	18	Check Weight	Mud Cup Sample Pulled	8/26/2017	05:17:07	RTD Import	CEMENT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	19	Shutdown	Shutdown	8/26/2017	05:23:22	RTD Import	Shutdown
Event	20	Drop Top Plug	Drop Top Plug	8/26/2017	05:25:38	RTD Import	DROP 9.625" TOP PLUG. PLUG DROPPED BY BRYCE MUIR.
Event	21	Pump Displacement	Pump Displacement*	8/26/2017	05:26:11	RTD Import	PUMPED 118.5 BBLS OF FRESH WATER DISPLACEMENT. PUMPED AT 6 BPM AT 20 PSI.
Event	22	Displ Reached Cement	Displ Reached Cement	8/26/2017	05:33:39	RTD Import	DISPLACEMENT REACHED CEMENT. GREAT CIRCULATION. PUMPING AT 6 BPM AT 250 PSI
Event	23	Bump Plug	Bump Plug	8/26/2017	05:49:53	RTD Import	LANDED PLUG AT 450 PSI AND PRESSURED UP TO 850 PSI AND HELD FOR 3 MINUTES. WE GOT 16 BBLS OF GOOD CEMENT TO SURFACE.
Event	24	Check Floats	Check Floats	8/26/2017	05:54:00	USER	FLOATS HELD. WE GOT 1/2 BBL BACK TO THE RCM.
Event	25	End Job	End Job	8/26/2017	05:57:00	USER	
Event	26	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/26/2017	06:00:00	USER	DISCUSS HAZARDS ASSOCIATED WITH RIGGING DOWN AND PACKING IRON ON LOCATION.
Event	27	Rig-Down Equipment	Rig-Down Equipment	8/26/2017	06:15:00	USER	
Event	28	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/26/2017	07:00:00	USER	DISCUSS HAZARDS ASSOCIATED WITH DRIVING TRUCKS BACK TO THE SERVICE CENTER. DISCUSSED ROUTE OF TRAVEL AND CONVO ORDER.
Event	29	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	8/26/2017	07:20:00	USER	JOB WAS COMPLETED SAFELY BY BRYCE MUIR AND CREW. THANK YOU AND STAY SAFE.

## 3.0 Attachments

### 3.1 Custom Results – Job Chart with Events



### 3.2 Custom Results – Job Chart without Events

