

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Monday, October 02, 2017

## **Leonard 9C SURFACE**

Job Date: Sunday, August 27, 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 9C** 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 27 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 #: 389404	Ship To #: 3809051	Quote #:	Sales Order #: 0904261476							
Customer: EXTRACTION OIL & GAS -		Customer Rep: Shawn McIntyre								
Well Name: LEONARD	Well #: 9C	API/UWI #: 05-123-45044-00								
Field: WATTENBERG	City (SAP): FIRESTONE	County/Parish: WELD	State: COLORADO							
Legal Description: NW SW-21-2N-67W-1740FSL-494FWL										
Contractor: UNKNOWN		Rig/Platform Name/Num: WORKOVER RIG								
Job BOM: 7521 7521										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199		Srvc Supervisor: Bryce Muir								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	1566ft	Job Depth TVD	1566							
Water Depth		Wk Ht Above Floor	3 FT							
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	0	9.625	8.921	36	8 RD	J-55	0	1566	0	0
Open Hole Section			13.5				0	1566	0	0
Tools and Accessories										
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	1566		Bottom Plug	9.625			
Float Collar	9.625	1	WF	1532		SSR plug set	9.625			
Insert Float	9.625					Plug Container	9.625	1	HES	
Stage Tool	9.625					Centralizers	9.625			
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	Red Dye Spacer	Red Dye Spacer	10	bbl	8.33					
Fluid #										
2	SwiftCem	SWIFTCM (TM) SYSTEM	550	sack	13.5	1.74		5	9.2	
9.20 Gal		FRESH WATER								

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*Cementing Job Summary*

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	Fresh Water	Fresh Water	117	bbl	8.33				
Cement Left In Pipe		Amount	44 ft		Reason			Shoe Joint	
Comment: WE ARRIVED ON LOCATION AT 1545 HOURS ON 08/26/2017. 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 08/27/2017 AT 0200 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 117.4 BBL DISPLACEMENT. WE SLOWED OUR RATE THE LAST 20 BBLs OF DISPLACEMENT TO 3 BARRELS PER MINUTE. WE GOT GOOD CEMENT TO SURFACE AT 90 BBLs DISPLACEMENT PUMPED FOR A TOTAL OF 27 BBLs OF CEMENT TO SURFACE. WE LANDED THE PLUG AT 117 BBLs PUMPED. PLUG WAS LANDED AT 465 PSI AND WE PRESSURED UP TO 1031 PSI AND HELD FOR 3 MINUTES. CHECKED THE FLOATS AND THEY HELD. WE GOT ½ BBL OF FLUID BACK TO THE RED TIGER.									

## 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	8/26/2017	12:00:00	USER				CREW CALLED OUT FOR JOB. LOAD UP ALL EQUIPMENT AND MATERIALS TO PERFORM SURFACE CASING JOB.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	8/26/2017	15:00:00	USER				DISCUSS HAZARDS ASSOCIATED WITH DRIVING TRUCKS TO LOCATION. DISCUSS CONVOY ORDER, ROUTE OF TRAVEL, AND PLACES TO STOP IF NEEDED.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	8/26/2017	15:15:00	USER				
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	8/26/2017	15:45:00	USER				
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	8/26/2017	16:00:00	USER				ASSESS LOCATION TO IDENTIFY THE BEST WAY TO SPOT EQUIPMENT AND RIG UP.
Event	6	Other	Other	8/26/2017	16:15:00	USER				SPOT PUMPING EQUIPMENT.
Event	7	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/26/2017	16:45:00	USER				DISCUSS HAZARDS ASSOCIATED WITH RIGGING UP AND PACKING IRON ON LOCATION WHILE DRILLING OPERATIONS ARE BEING PERFORMED.
Event	8	Rig-Up Equipment	Rig-Up Equipment	8/26/2017	17:00:00	USER				
Event	9	Other	Other	8/26/2017	17:30:00	USER				WAIT FOR RIG TO FINISH DRILLING WELL AND RUN CASING.
Event	10	Rig-Up Equipment	Rig-Up Equipment	8/27/2017	02:00:00	USER				RIG UP PLUG CONTAINER AND PUMPING LINES. LOAD 9.625" TOP PLUG. PLUG LOADED BY BRYCE MUIR.
Event	11	Start Job	Start Job	8/27/2017	02:33:18	COM6	8.42	0.00	-12.70	
Event	12	Other	Other	8/27/2017	02:36:50	COM6	8.41	0.00	-19.70	PUMP 2 BBLS OF FRESH WATER TO FILL PUMPS AND LINES.
Event	13	Test Lines	Test Lines	8/27/2017	02:39:04	COM6	8.42	0.00	1071.30	CONDUCT A LOW PRESSURE TEST TO 500 PSI TO TEST RED TIGER PRESSURE KICKOUTS.
Event	14	Test Lines	Test Lines	8/27/2017	02:39:56	COM6	8.40	0.00	2184.30	CONDUCT A HIGH PRESSURE TEST TO 1700 PSI TO TEST PUMP AND LINES.

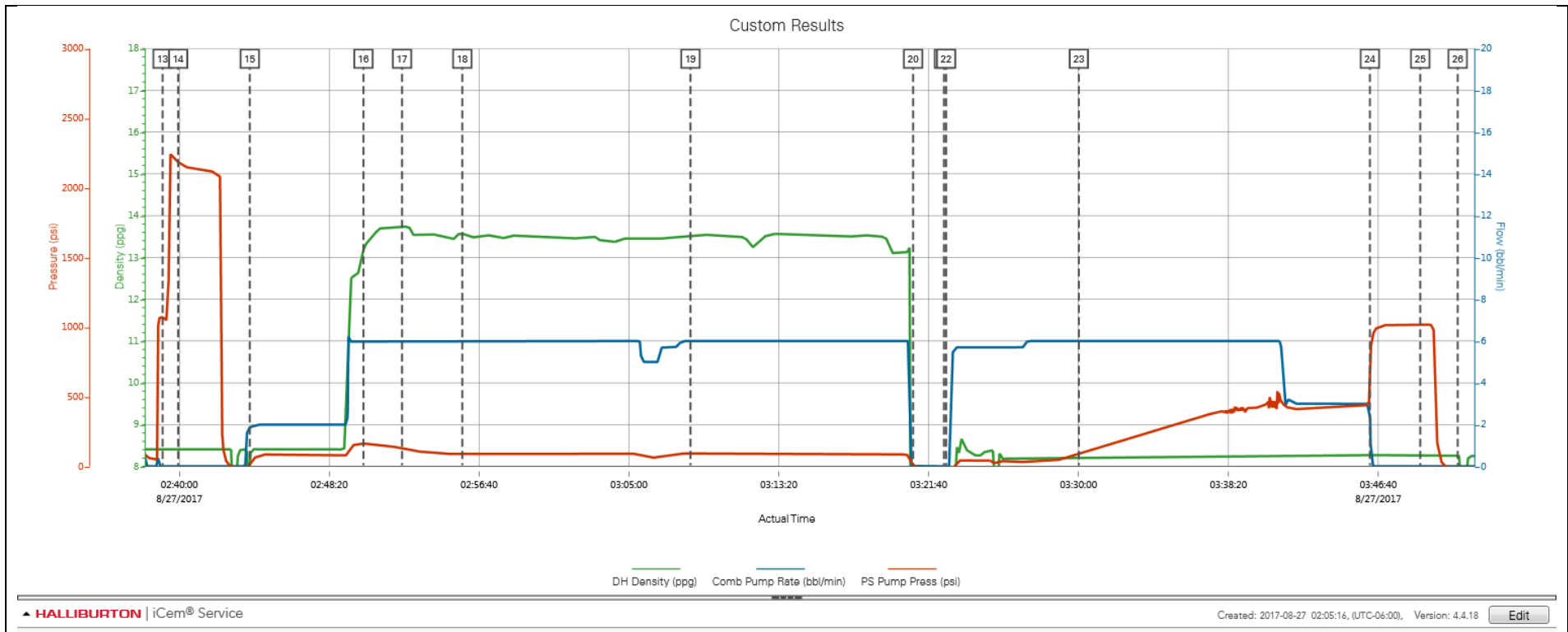
Event	15	Pump Spacer 1	Pump Spacer 1	8/27/2017	02:43:55	COM6	8.17	1.90	24.30	PUMPED 10 BBLS OF RED DYE SPACER. PUMPED AT 2 BPM AT 90 PSI WHILE WE WEIGHED UP CEMENT. GOOD CIRCULATION.
Event	16	Pump Cement	Pump Cement	8/27/2017	02:50:14	COM6	13.18	6.00	175.30	PUMPED 170 BBLS OF PRIMARY CEMENT. 550 SACKS @ 13.5 #/GAL 1.74 CUFT/SK 9.2 GAL/SK. WE PUMPED CEMENT AT 6 BPM AT 150 PSI. GOOD CIRCULATION.
Event	17	Check Weight	Check weight	8/27/2017	02:52:23	COM6	13.75	6.00	124.30	WEIGH CONFIRMED BY PRESSURIZED MUD BALANCE.
Event	18	Check Weight	Check weight	8/27/2017	02:55:44	COM6	13.56	6.00	90.30	WEIGH CONFIRMED BY PRESSURIZED MUD BALANCE.
Event	19	Check Weight	Check weight	8/27/2017	03:08:25	COM6	13.51	6.00	95.30	WEIGH CONFIRMED BY PRESSURIZED MUD BALANCE.
Event	20	Shutdown	Shutdown	8/27/2017	03:20:48	COM6	0.31	0.00	9.30	
Event	21	Drop Top Plug	Drop Top Plug	8/27/2017	03:22:31	COM6	0.20	0.00	-20.70	DROPPED 9.625" TOP PLUG. PLUG DROPPED BY BRYCE MUIR.
Event	22	Pump Displacement	Pump Displacement	8/27/2017	03:22:38	COM6	0.20	0.00	-20.70	PUMPED 117.4 BBLS OF FRESH WATER DISPLACEMENT. THE FIRST 10 BBLS OF DISPLACEMENT WE RAN THROUGH OUR MIXING TUB TO WASH UP ON TOP OF THE PLUG. GOOD CIRCULATION.
Event	23	Displ Reached Cement	Displ Reached Cmnt	8/27/2017	03:30:01	COM6	8.19	6.00	87.30	DISPLACEMENT REACH CEMENT AT 38 BBLS PUMPED. WE GOT RED DYE SPACER TO SURFACE AFTER PUMPING 70 BBLS OF DISPLACEMENT. AT 90 BBLS DISPLACEMENT PUMPED WE GOT GOOD CEMENT TO SURFACE. WE GOT 27 BBLS OF GOOD CEMENT TO SURFACE.
Event	24	Bump Plug	Bump Plug	8/27/2017	03:46:12	COM6	8.25	2.50	665.30	LANDED PLUG AT CALCULATED DISPLACEMENT. WE LANDED THE PLUG AT 465 PSI AND PRESSURED UP 500 PSI OVER FINAL CIRCULATING PRESSURE TO 1031 PSI. HELD FOR 3 MINUTES.
Event	25	Check Floats	Check Floats	8/27/2017	03:49:00	USER	8.26	0.00	1016.30	FLOATS HELD AND WE GOT 1/2 BBL BACK TO THE RED TIGER.
Event	26	End Job	End Job	8/27/2017	03:51:05	COM6	8.25	0.00	-9.70	
Event	27	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/27/2017	04:15:00	USER				DISCUSS HAZARDS ASSOCIATED WITH RIGGING DOWN AND PACKING IRON ON LOCATION.
Event	28	Rig-Down Equipment	Rig-Down Equipment	8/27/2017	04:30:00	USER				
Event	29	Pre-Convoy Safety	Pre-Convoy Safety	8/27/2017	05:00:00	USER				DISCUSSED HAZARDS ASSOCIATED WITH DRIVING TRUCKS



		Meeting	Meeting				BACK TO THE SERVICE CENTER. DISCUSSED DRIVER FATIGUE AND WHAT TO DO IF TOO TIRED TO DRIVE.
Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	8/27/2017	05:15:00	USER	JOB WAS SAFELY COMPLETED 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

