

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS-EBUS**

Date: Thursday, October 05, 2017

### **Leonard 10N Production**

Job Date: Tuesday, October 03, 2017

Sincerely,

**Julia Nichols**

## 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

---

1.0	Cementing Job Summary .....	4
1.1	Executive Summary .....	4
2.0	Real-Time Job Summary .....	7
2.1	Job Event Log .....	7
3.0	Attachments.....	9
3.1	Custom Results – Job Chart with Events .....	9
3.2	Custom Results – Job Chart without Events.....	10

## 1.0 Cementing Job Summary

---

### 1.1 Executive Summary

---

Halliburton appreciates the opportunity to perform the cementing services on the **Leonard 10N** 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.

**Approximately 59 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]**

**HALLIBURTON**

*Cementing Job Summary*

The Road to Excellence Starts with Safety

Sold To #: 389404		Ship To #: 3809533		Quote #:		Sales Order #: 0904342047					
Customer: EXTRACTION OIL & GAS				Customer Rep: Hans Cary							
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: CYCLONE				Rig/Platform Name/Num: CYCLONE 37							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srvc Supervisor: Luke Kosakewich							
<b>Job</b>											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type											
BHST											
Job depth MD		12118ft			Job Depth TVD		7408ft				
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	
Casing	0	9.625	8.921	36			0	1592	0	1592	
Casing	0	5.5	4.778	20			0	12110	0	7408	
Open Hole Section			8.5				1580	12118	1592	7408	
<b>Tools and Accessories</b>											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe						Top Plug	5.5	1	KLX		
Float Shoe	5.5			12110		Bottom Plug					
Float Collar	5.5			12105		SSR plug set					
Insert Float						Plug Container	5.5	1	Halliburton		
Stage Tool						Centralizers					
<b>Fluid Data</b>											
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	3.73		5	
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	ELASTICEM (TM) SYSTEM			2000	sack	13.2	1.57		8	7.53

last updated on 10/5/2017 12:17:18 PM

Page 1 of 2

**HALLIBURTON**

*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	Displacement	Displacement	268.5	bbl	8.33			8		
<b>Cement Left In Pipe</b>		<b>Amount</b>	0 ft		<b>Reason</b>			Wet Shoe		
<p><b>Comment</b> Full returns throughout the job. Got 59 bbls. of cement to surface. Floats held and got 2 bbls of fluid back to the truck. Pressured up to 3,996 psi. to burst the plug. Pumped 5 bbls. of fresh water for a wet shoe.</p>										

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comments
Event	1	Call Out	Call Out	10/2/2017	20:45:00	USER				Crew was called out at 20:45 for an on location time of 02:00.
Event	2	Depart Location Safety Meeting	Depart Location Safety Meeting	10/3/2017	00:10:00	USER				Held a pre journey safety meeting and JSA with the crew.
Event	3	Depart Shop for Location	Depart Shop for Location	10/3/2017	00:20:00	USER				Started journey management with dispatch and left the yard.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	10/3/2017	00:40:00	USER				Crew performed a site assessment and hazard hunt on location. Checked in with the customer and discussed the job procedures, rig up and well bore schematics to calculate the job. The rig was running casing.
Event	5	Other	Other	10/3/2017	00:45:00	USER				W
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/3/2017	00:50:00	USER				Held a pre rig up safety meeting and JSA with the crew.
Event	7	Rig-Up Equipment	Rig-Up Equipment	10/3/2017	00:55:00	USER				The crew rigged up all lines, hoses and equipment for the job.
Event	8	Safety Meeting	Safety Meeting	10/3/2017	03:45:00	USER				Held a pre job safety meeting and JSA with all personnel on location.
Event	9	Start Job	Start Job	10/3/2017	04:46:12	COM4	0.00	-11.00	8.42	Pumped 3 bbls. of fresh water to fill lines.
Event	10	Test Lines	Test Lines	10/3/2017	04:50:56	COM4	0.00	4494.00	8.55	Pressure tested lines to 4,900 psi. with a 500 psi. electronic kick out test.
Event	11	Pump Spacer 1	Pump Spacer 1	10/3/2017	05:08:50	COM4	3.80	351.00	11.75	Pumped 50 bbls. of Tuned Spacer III with surfactants mixed at 11.5 ppg.,Yield: 3.73 ft3/sks, 23.4 gal/sks. Density was verified by pressurized scales.
Event	12	Pump Cement	Pump Cement	10/3/2017	05:21:49	COM4	4.10	218.00	13.15	Pumped 560 bbls. (2000 sks.) of Elasticem with Super CBL mixed at 13.2 ppg.,Yield: 1.57 ft3/sks, 7.53 gal/sks. Density was verified by pressurized scales.

Event	13	Check Weight	Check weight	10/3/2017	05:46:06	COM4	8.10	604.00	13.22	Cement weight up at 13.2 ppg.
Event	14	Check Weight	Check weight	10/3/2017	06:03:57	COM4	8.10	568.00	13.22	Cement weight up at 13.2 ppg.
Event	15	Shutdown	Shutdown	10/3/2017	06:42:46	COM4	0.00	-3.00	14.07	Shutdown and the rig blew the iron down to the wash up pit.
Event	16	Clean Lines	Clean Lines	10/3/2017	06:47:21	COM4	0.00	-8.00	13.65	Washed pumps and lines until clean.
Event	17	Drop Top Plug	Drop Top Plug	10/3/2017	06:53:00	COM4	0.00	-7.00	8.12	Dropped the top plug which was witnessed by the customer.
Event	18	Pump Displacement	Pump Displacement	10/3/2017	06:53:38	COM4	0.00	-10.00	8.14	Pumped 268.5 bbls. of fresh water for displacement.
Event	19	Bump Plug	Bump Plug	10/3/2017	07:33:15	COM4	0.00	2680.00	8.28	Bumped the plug 500 psi. over 2,500 psi. at 4.5 bpm. Finale pressure was 3,000 psi. Held for 1 minute. Got 50 bbls. of spacer and 59 bbls. of cement to surface including the 5 bbl. wet shoe.
Event	20	Other	Other	10/3/2017	07:33:21	COM4	0.00	2679.00	8.28	Pressured up to 3,996 psi. to burst the plug and pumped 5 bbls. of fresh water for a wet shoe.
Event	21	End Job	End Job	10/3/2017	07:37:24	COM4	0.00	-5.00	8.18	Washed up pumps and lines until clean.
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/3/2017	07:50:00	USER	0.00	2.00	8.22	Held a pre rig down safety meeting and JSA.
Event	23	Rig-Down Equipment	Rig-Down Equipment	10/3/2017	07:55:00	USER	3.00	42.00	8.27	Rigged down all lines, hoses and equipment.
Event	24	Depart Location Safety Meeting	Depart Location Safety Meeting	10/3/2017	10:00:00	USER				Held a pre journey safety meeting with the crew.
Event	25	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	10/3/2017	10:15:00	USER				Started journey management with dispatch and left location.

3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

