

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Tuesday, October 03, 2017

### **Leonard 4N Production**

Job Date: Monday, September 18, 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 4N** 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 40 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 #: 3809723		Quote #:		Sales Order #: 0904306952					
Customer: EXTRACTION OIL & GAS				Customer Rep: Jose Torres							
Well Name: LEONARD		Well #: 4N		API/UWI #: 05-123-45046-00							
Field: WATTENBERG		City (SAP): FIRESTONE		County/Parish: WELD		State: COLORADO					
Legal Description: NW SW-21-2N-87W-1880FSL-494FWL											
Contractor: CYCLONE				Rig/Platform Name/Num: CYCLONE 37							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Aaron Smith							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		12177ft		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	1569	0	0	
Casing		5.5	4.778	20			0	12150	0	0	
Open Hole Section			8.5				1569	12177	0	0	
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	1	KLX	12150		Bottom Plug	5.5		HES		
Float Collar	5.5	1	KLX	12145		SSR plug set	5.5		HES		
Insert Float	5.5					Plug Container	5.5	1	HES		
Stage Tool	5.5					Centralizers	5.5		HES		
Fluid Data											
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III			50	bbl	11.5	3.73		6	
Fluid Data											
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	ElastiCem	ELASTICEM (TM) SYSTEM			1950	sack	13.19	1.574		6	7.53

last updated on 10/3/2017 12:54:25 PM

Page 1 of 2

iCem® Service

(v. 4.4.18)

Created: Tuesday, October 03, 2017

HALLIBURTON

*Cementing Job Summary*

7.53 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	Displacement	Displacement	270	bbl	8.33			8	
Cement Left In Pipe		Amount	5 ft		Reason			Shoe Joint	
Comment 40 bbls cement to surface									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

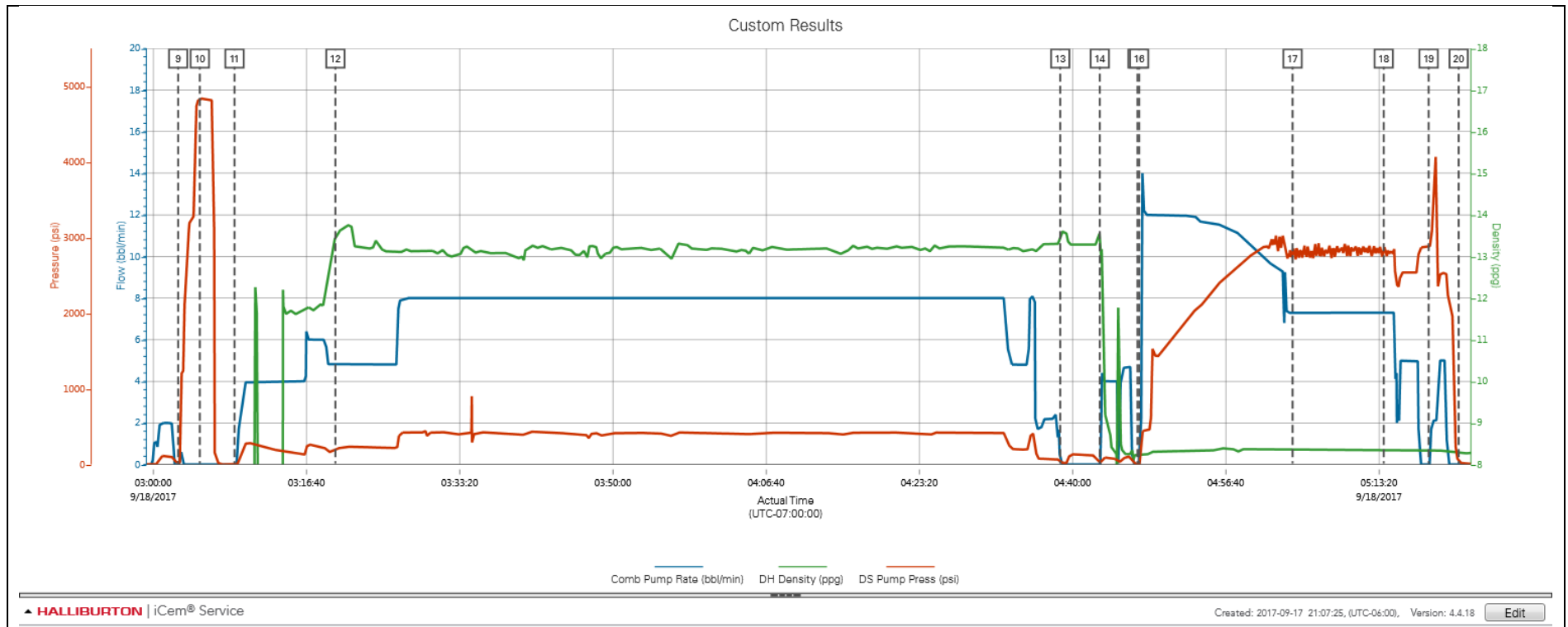
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	9/17/2017	20:00:00	USER				For on location @ midnight
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/17/2017	23:00:00	USER				Journey management meeting prior to departure.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	9/17/2017	23:15:00	USER				Journey called into dispatch
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/17/2017	23:45:00	USER				With all equipment and materials.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/17/2017	23:50:00	USER				JSA to discuss the hazards of rig-up.
Event	6	Rig-Up Equipment	Rig-Up Equipment	9/17/2017	23:55:00	USER				Rig-up all surface lines and equipment.
Event	7	Rig-Up Completed	Rig-Up Completed	9/18/2017	00:45:00	USER				With no incidents or injuries.
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/18/2017	02:00:00	USER				With all essential personnel to discuss the job and hazards of the job.
Event	9	Start Job	Start Job	9/18/2017	03:02:43	COM5	0.00	0.00	25.00	With water supplied from uprights. Water tested good to mix cement, PH 7, CL 52 PPM, Temp 68.
Event	10	Test Lines	Test Lines	9/18/2017	03:05:04	COM5	0.00	0.00	4837.00	@5000 psi, pressure test was good.
Event	11	Pump Spacer 1	Pump Spacer 1	9/18/2017	03:08:50	COM5	0.00	0.00	-1.00	50 bbls tuned spacer @11.5 ppg, 3.73 ft3/sk, 23.4 gal/sk, verified with pressurized scales. 4 bpm, 140 psi.
Event	12	Pump Lead Cement	Pump Lead Cement	9/18/2017	03:19:49	COM5	4.80	13.47	198.00	1950 sks (545.25 bbls) Elasticem @ 13.2 ppg, 1.57 ft3/sk, 7.53 gal/sk. Verified with pressurized scales, 450 psi.
Event	13	Shutdown	Shutdown	9/18/2017	04:38:40	COM5	0.00	13.59	43.00	To blow lines down.
Event	14	Clean Lines	Clean Lines	9/18/2017	04:42:58	COM5	0.00	13.57	15.00	Wash pumps and lines to the pit.
Event	15	Drop Top Plug	Drop Top Plug	9/18/2017	04:47:04	COM5	0.00	8.22	4.00	KLX hand loaded top plug in plug container, verified by customer rep.

Event	16	Pump Displacement	Pump Displacement	9/18/2017	04:47:15	COM5	0.00	8.20	3.00	270 bbls fresh water.
Event	17	Other	Spacer Returns to Surface	9/18/2017	05:03:56	COM5	7.30	8.34	2742.00	@180 bbls displacement, 50 bbls to surface.
Event	18	Other	Cement Returns to surface	9/18/2017	05:13:51	COM5	7.30	8.34	2776.00	@230 bbls displacement, 40 bbls to surface.
Event	19	Bump Plug	Bump Plug	9/18/2017	05:18:44	COM5	0.00	8.32	2884.00	@500 over final circulating pressure 2570 psi.
Event	20	End Job	End Job	9/18/2017	05:22:00	COM5				End recording data.
Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/18/2017	05:30:00	USER	2.80	8.33	75.00	JSA to discuss the hazards of rig-down
Event	22	Rig-Down Equipment	Rig-Down Equipment	9/18/2017	05:35:00	USER				Rig-down all equipment and surface lines
Event	23	Rig-Down Completed	Rig-Down Completed	9/18/2017	06:00:00	USER				With no incidents or injuries.
Event	24	Depart Location Safety Meeting	Depart Location Safety Meeting	9/18/2017	06:15:00	USER				Journey management meeting held prior to departure.
Event	25	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/18/2017	06:30:00	USER				Thanks for choosing Halliburton Cementing, Aaron Smith and Crew.



## 3.0 Attachments

### 3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

