

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Tuesday, October 03, 2017

Extraction Leonard 2N Production

Job Date: Tuesday, September 12, 2017

Sincerely,
Bryce Hinsch

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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.....	11
3.1	Extraction Leonard 2N Production Job Chart	11

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Leonard 2N 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 26 bbls 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]

The Road to Excellence Starts with Safety

Sold To #: 369404	Ship To #: 3809736	Quote #:	Sales Order #: 0904289086
Customer: EXTRACTION OIL & GAS		Customer Rep: Jose Torres	
Well Name: LEONARD		Well #: 2N	API/UWI #: 05-123-45045-00
Field: WATTENBERG	City (SAP): FIRESTONE	County/Parish: WELD	State: COLORADO
Legal Description: NW SW-21-2N-67W-1936FSL-494FWL			
Contractor: CYCLONE		Rig/Platform Name/Num: CYCLONE 37	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		Srvc Supervisor: Nicholas Peterson	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	12,231'		Job Depth TVD 7,516'
Water Depth			Wk Ht Above Floor 5'
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	1580	0	1580
Casing		5.5	4.778	20			0	12218	0	0
Open Hole Section			8.5				1580	12231	0	7516

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make	
Guide Shoe	5.5			12218	Top Plug	5.5		HES	
Float Shoe	5.5				Bottom Plug	5.5		HES	
Float Collar	5.5				SSR plug set	5.5		HES	
Insert Float	5.5				Plug Container	5.5		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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Spacer	Tuned Spacer III	50	bbl	11.5	3.73	23.4	6	1,170	
0.50 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
149.34 lbm/bbl		BARITE, BULK (100003681)								
35 gal/bbl		FRESH WATER								

0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
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	Cement	ELASTICEM (TM) SYSTEM	2000	sack	13.2	1.57	7.54	6	15,080
7.54 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	Fresh Water	271	bbl	8.33		42	8	11,382
Cement Left In Pipe	Amount	5 ft			Reason			Shoe Joint	
Mix Water:	pH 7.0	Mix Water Chloride:	0 ppm		Mix Water Temperature:		68 °F		
Cement Temperature:	## °F	Plug Displaced by:	8.33 lb/gal		Disp. Temperature:		68 °F		
Plug Bumped?	Yes	Bump Pressure:	2900 psi		Floats Held?		Yes		
Cement Returns:	26 bbl	Returns Density:	13.2 lb/gal		Returns Temperature:		## °F		
Comment: Pumped 50 bbls Tuned Spacer, 559 bbls Cement, 271 bbls displacement. Plug bumped floats held 2 bbls back got 26 bbls cement to surface.									

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	9/11/2017	21:30:00	USER				CREW CALLED OUT AT 23:30, REQUESTED ON LOCATION 02:30. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 10866493, AND PUMP 11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/12/2017	00:45:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	9/12/2017	01:00:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	9/12/2017	01:30:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,579, 5.5" CASING: 20 LB/FT TOTAL 12,218', 8.5" HOLE, TD 12,231', 5.0' SHOE TRAC, TVD- 7,516'. WF-10.0 LB/FT. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 04:30 09/12/2017. RIG

										CIRCULATED BOTTOMS UP.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/12/2017	04:00:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	9/12/2017	04:15:00	USER				CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Rig-Up Completed	Rig-Up Completed	9/12/2017	05:15:00	USER				RIG UP COMPLETE WAITED ON RIG TO FINISH CIRCULATING.
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/12/2017	05:30:00	USER	0.00	0.00	-7.00	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS.
Event	9	Start Job	Start Job	9/12/2017	05:53:42	COM5	0.00	0.00	-9.00	BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	9/12/2017	05:56:01	COM5	0.00	0.00	27.00	PRESSURE TESTED IRON TO 5000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 900 PSI, 5TH GEAR STALL OUT @ 1950 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	9/12/2017	06:02:59	COM5	0.00	3.20	154.00	PUMP 50 BBLS OF TUNED SPACER @ 11.5 LB/GAL, 10 GALLONS D-AIR, 25 GALS DUAL SPACER B, 25 GALS MUSOL A. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 4.5 BBLS/MIN @ 112 PSI.
Event	12	Pump Cement	Pump Cement	9/12/2017	06:16:01	COM5	13.35	8.10	536.00	PUMPED 2000 SKS OF ELASTICEM @ 13.2 LB/GAL,

1.57 FT3/SK, 7.54 GAL/SK.
 559.23 BBLS, HOL
 CALCULATED @ 12,218',
 TOL @ SURFACE 49 BBLS
 CALCULATED BACK TO
 SURFACE. DENSITY VERIFIED
 BY PRESSURIZED MUD
 SCALES. PUMP RATE 8
 BBLS/MIN @ 385 PSI.

Event	13	Shutdown	Shutdown	9/12/2017	07:27:36	COM5	13.91	0.00	-2.00	BROKE CAP ON PLUG CONTAINER TO LOAD PLUG.
Event	14	Clean Lines	Clean Lines	9/12/2017	07:31:15	USER	15.23	0.90	-8.00	SHUTDOWN TO WASH LINES WITH 6 BBLS FRESH WATER. RIG BLEW AIR BACK THROUGH STAND PIPE TO WASH UP TANK.
Event	15	Drop Top Plug	Drop Top Plug	9/12/2017	07:44:59	COM5	8.21	0.00	51.00	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	16	Pump Displacement	Pump Displacement	9/12/2017	07:46:30	COM5	8.32	0.00	-11.00	BEGIN CALCULATED DISPLACEMENT OF 271 BBLS WITH FRESH WATER. CEMENT TO SURFACE 245 BBLS AWAY, 26 BBLS CEMENT TO SURFACE.
Event	17	Bump Plug	Bump Plug	9/12/2017	08:23:29	COM5	8.24	0.00	2841.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2900 PSI PRESSURED 500 PSI OVER BUMP.
Event	18	Shift Tool - Lower	Shift Tool Lower	9/12/2017	08:24:47	USER	8.28	2.00	3233.00	RUPTURE DISC @ 4,120 PSI. PUMPED 5 BBL WET SHOE.
Event	19	Check Floats	Check Floats	9/12/2017	08:27:07	USER	8.24	0.00	2061.00	RELEASED PRESSURE, FLOATS HELD, 2 BBLS BACK.
Event	20	End Job	End Job	9/12/2017	08:29:38	COM5				STOP RECORDING JOB DATA.
Event	21	Pre-Rig Down Safety	Pre-Rig Down Safety	9/12/2017	08:45:00	USER				DISCUSSED POSSIBLE

		Meeting	Meeting					HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	22	Rig-Down Equipment	Rig-Down Equipment	9/12/2017	09:00:00	USER		RIG DOWN BULK AND MIXING EQUIPMENT.
Event	23	Rig-Down Completed	Rig-Down Completed	9/12/2017	10:00:00	USER		ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	24	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/12/2017	10:15:00	USER		CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	25	Crew Leave Location	Crew Leave Location	9/12/2017	10:30:00	USER		THANK YOU FOR USING HALLIBURTON – NICK PETERSON AND CREW.

3.0 Attachments

3.1 Extraction Leonard 2N Production Job Chart

