

# HALLIBURTON

iCem<sup>®</sup> Service

## **NOBLE ENERGY INC-EBUS**

Date: Tuesday, May 22, 2018

### **Larson A23-651 Production**

Job Date: Wednesday, May 16, 2018

Sincerely,

Adam McKay

## HALLIBURTON

## Cementing Job Summary

*The Road to Excellence Starts with Safety*

Sold To #: 345242	Ship To #: 3827169	Quote #:	Sales Order #: 0904847045
Customer: NOBLE ENERGY INC - EBUS		Customer Rep:	
Well Name: LARSON	Well #: A23-651	API/UWI #: 05-123-45512-00	
Field: WATTENBERG	City (SAP): GILL	County/Parish: WELD	State: COLORADO
Legal Description: SW NW-19-6N-63W-2374FNL-535FWL			
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 321	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB70026		Srv Supervisor: Prince Perez	

### Job

Job depth MD	18,031'	BHST	230 degF
		Job Depth TVD	6,755'
		Wk Ht Above Floor	5

### 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		J-55	0	1969	0	0
Casing	0	5.5	4.778	20	BUTTRESS	P-110	0	18031	0	6755
Open Hole Section			8.5				1969	18045	0	0
Open Hole Section			8.5				1969	18045	0	0

### 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	Spacer	Tuned Spacer III	120	bbl	11.5	3.73	23.3	4	4,209

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	Cap Lead	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57	7.53	7	1,130

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	Lead	ELASTICEM (TM) SYSTEM	484	sack	13.2	1.6	7.69	8	3,721

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(v. 4.5.139)

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Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	Tail	NeoCem TM	1,255	sack	13.2	2.04	9.75	6	12,236
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
5	Displacement	Fresh Water	399.3	bbl	8.33			8	
Cement Left In Pipe		Amount	Reason				Shoe Joint		
Mix Water: pH 7		Mix Water Chloride: <500 ppm			Mix Water Temperature: 64 °F				
Cement Temperature: ## °F °C		Plug Displaced by: 8.33 lb/gal			Disp. Temperature: 64 °F				
Plug Bumped? Yes		Bump Pressure: 2,500 psi MPa			Floats Held? Yes				
Cement Returns: 0 bbl		Returns Density: ## lb/gal			Returns Temperature: ## °F °C				
Comment									
120 bbls of tuned spacer III, 41.9 bbls of Cap Elasticem, 137.92 bbls of Elasticem w/super CBL, 455.97 bbls of NeoCem and 399.3 bbls of fresh water displacement with MMCR in the first 20. No Spacer back.									

## 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	5/16/2018	09:30:00	USER				CREW CALLED OUT AT 09:30, REQUESTED ON LOCATION 015:30. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 11527037, 10679720, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/16/2018	13:40:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Shop	Crew Leave Shop	5/16/2018	13:50:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	5/16/2018	14:45:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,969, 5.5" CASING: 20 LB/FT TOTAL 18,030.8', 8.5" HOLE, TD 18,045', 43.1' SHOE TRAC, TVD- 6,755'. PUMP FRESH WATER DISPLACEMENT WITH MMCR FIRST 20 BBLS. CASING LANDED @ 16:30 05/16/2018. RIG CIRCULATED 2 BOTTOMS UP.
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	5/16/2018	14:50:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	5/16/2018	15:00:00	USER				RIG UP BULK AND MIXING EQUIPMENT.
Event	7	Rig-Up Completed	Rig-Up Completed	5/16/2018	17:00:00	USER				WAITED ON RIG TO FINISH CIRCULATING.
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/16/2018	17:30:00	USER				MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	9	Drop Bottom Plug	Drop Bottom Plug	5/16/2018	17:43:00	USER				PLUG PLACED IN CASING, VERIFIED BY COMPANY MAN.
Event	10	Start Job	Start Job	5/16/2018	18:42:00	COM4				BEGIN RECORDING JOB DATA.
Event	11	Test Lines	Test Lines	5/16/2018	18:44:56	COM4	8.10		2471.00	PRESSURE TESTED IRON TO 2,500 PSI TO TEST AGAINST RIGS STAND PIPE. KICKOUTS SET @ 500 PSI, KICKED OUT @ 430 PSI, 5TH GEAR STALL OUT @ 2,000 PSI. 2,500 PRESSURE TEST KICKED OUT @2,400 PSI. THEN TESTED TO 4,500 PSI AGAINST OUR IRON. KICKED OUT @ 4,400 PSI.

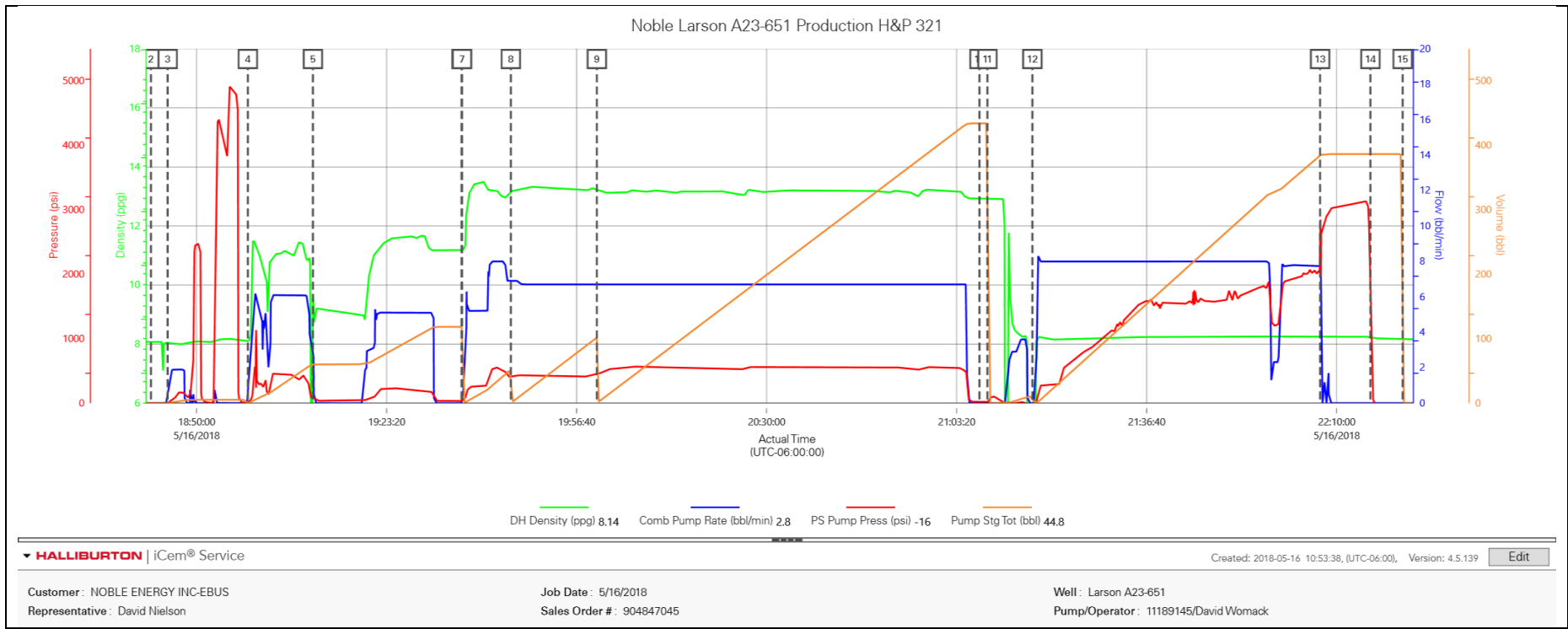
Event	12	Pump Spacer 1	Pump Spacer 1	5/16/2018	18:59:00	COM4	11.04	6.10	435.00	PUMP 120 BBLS OF TUNED SPACER III @ 11.5 LB/GAL, 20 GALS D-AIR. HOTS CALCULATED @ 2,470.9' WITH 5.2 BBLS BACK. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 5 BBLS/MIN @ 240 PSI.
Event	13	Shutdown	Shutdown	5/16/2018	19:10:25	USER				SHUTDOWN DUE TO DELIVERY ISSUES FROM BULK TRUCK.
Event	14	Drop Bottom Plug	Drop Bottom Plug	5/16/2018	19:36:29	COM4				PLUG PLACED IN CASING, VERIFIED BY CO. MAN.
Event	15	Pump Lead Cement	Pump Lead Cement	5/16/2018	19:36:35	COM4	13.21	8.00	525.00	PUMPED 150 SKS OF CAP ELASTICEM @ 13.2 LB/GAL, 1.57 CUFT/SK, 7.53 GALL/SK TOTAL 41.94 BBLS. HOC CALCULATED 1,027.9'. TOC CALCULATED @ 2,470.9' DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BPM @ 430 PSI.
Event	16	Pump Cement	Pump Cement	5/16/2018	19:45:08	COM4	13.17	6.90	416.00	PUMPED 484 SKS OF ELASTICEM W/SCBL @ 13.2 LB/GAL, 1.6 CUFT/SK, 7.69 GALL/SK TOTAL 137.92 BBLS. HOC CALCULATED 3,380.4'. TOL CALCULATED @ 3,498.2' DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BPM @ 420PSI
Event	17	Pump Tail Cement	Pump Tail Cement	5/16/2018	20:00:13	COM4	13.20	6.70	452.00	PUMPED 1255 SKS OF NEOCEM @ 13.2 LB/GAL, 2.04 FT3/SK, 9.75 GAL/SK. 455.97 BBLS, HOT CALCULATED @ 11,152.2' TOT CALCULATED @ 6,878.6'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BBLS/MIN @ 545 PSI.
Event	18	Drop Top Plug	Drop Top Plug	5/16/2018	21:07:20	COM4				PLUG PLACED IN CASING. VERIFIED BY CO. MAN.
Event	19	Clean Lines	Clean Lines	5/16/2018	21:08:44	COM4				BLEW DOWN THE LINES PRIOR TO WASH UP.
Event	20	Pump Displacement	Pump Displacement	5/16/2018	21:16:37	COM4	8.21	8.00	281.00	BEGIN CALCULATED DISPLACEMENT OF 399.3 BBLS WITH FRESH WATER. PUMPED THE FIRST 20 BBLS WITH MMCR. BIOCIDES THROUGHOUT DISPLACEMENT UP UNTIL THE LAST 40 BBLS. NO SPACER BACK TO SURFACE.
Event	21	Bump Plug	Bump Plug	5/16/2018	22:07:05	COM4	8.24	7.80	2022.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,553 PSI PRESSURED 500 PSI OVER BUMP. HELD PRESSURE FOR 5 MINS.
Event	22	Check Floats	Check Floats	5/16/2018	22:15:55	USER				RELEASED PRESSURE, FLOATS HELD, 3 BBLS BACK.
Event	23	End Job	End Job	5/16/2018	22:21:34	COM4				STOP RECORDING JOB DATA.
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	5/16/2018	22:30:00	USER				DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	25	Rig-Down Equipment	Rig-Down Equipment	5/16/2018	22:40:00	USER				RIG DOWN BULK AND MIXING EQUIPMENT.
Event	26	Rig-Down Completed	Rig-Down Completed	5/16/2018	23:20:00	USER				ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND

LOCATION WAS CLEAN.

Event	27	Crew Leave Location	Crew Leave Location	5/16/2018	23:30:00	USER	THANK YOU FOR USING HALLIBURTON – PRINCE PEREZ AND CREW.
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3.0 Attachments

3.1 Noble Larson A23-651 H&P 321-Custom Results.png



## 3.2 Noble Larson A23-651 H&P 321-Production.png

