

# HALLIBURTON

iCem<sup>®</sup> Service

**NOBLE ENERGY INC-EBUS**

United States of America, COLORADO

Date: Tuesday, July 03, 2018

**Larson A23-668 Production**

Job Date: Saturday, June 30, 2018

Sincerely,

Adam McKay

*The Road to Excellence Starts with Safety*

Sold To #: 345242	Ship To #: 3813463	Quote #:	Sales Order #: 0904949458
Customer: NOBLE ENERGY INC-EBUS		Customer Rep: Charles Collever	
Well Name: LARSON	Well #: A23-668	API/UWI #: 05-123-45094-00	
Field: WATTENBERG	City (SAP): GILL	County/Parish: WELD	State: COLORADO
Legal Description: NE NE-24-6N-64W-698FNL-275FEL			
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 321	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB70026		Srvc Supervisor: Thomas Haas	

**Job**

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST 230 degF
Job depth MD	17385ft		Job Depth TVD 6990
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	NEW	9.625	8.921	36			0	1949	0	1949
Casing	NEW	5.5	4.778	20			0	17385	0	6990
Open Hole Section			8.5				1949	6919	1949	6919
Open Hole Section			8.5				6919	17400	6919	6990

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	HES
Float Shoe	5.5	1	HES	17385	Bottom Plug	5.5	2	HES
Float Collar	5.5	1	HES	17338	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5		
Stage Tool					Centralizers	5.5		

**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	11.5 lb/gal Tuned Spacer III w/ Chems	Tuned Spacer III	120	bbl	11.5	3.73	23.3	5	4208
0.60 gal/bbl		<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>							

35.10 gal/bbl	<b>FRESH WATER</b>
0.60 gal/bbl	<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>
149.34 lbm/bbl	<b>BARITE, BULK (100003681)</b>

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	150	sack	13.2	1.57	7.53	8	1128

7.52 Gal	<b>FRESH WATER</b>
0.90 %	<b>SCR-100 (100003749)</b>

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	ElastiCem w/ SCBL	ELASTICEM (TM) SYSTEM	489	sack	13.2	1.6	7.69	8	3760

0.40 %	<b>SCR-100 (100003749)</b>
7.69 Gal	<b>FRESH WATER</b>

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
4	NeoCem NT1	NeoCem TM	1180	sack	13.2	2.04	9.75	8	11505

9.75 Gal	<b>FRESH WATER</b>
0.08 %	<b>SCR-100 (100003749)</b>

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
5	Displacement	Displacement	386	bbl	8.33				

<b>Cement Left In Pipe</b>	<b>Amount</b>	47 ft	<b>Reason</b>	<b>Shoe Joint</b>	
Mix Water:	pH 7	<b>Mix Water Chloride:</b>	<300 ppm	Mix Water Temperature:	63 °F
Cement Temperature:	N/A	<b>Plug Displaced by:</b>	8.33 lb/gal F.W	Disp. Temperature:	63°F
Plug Bumped?	Yes	<b>Bump Pressure:</b>	1600 psi	Floats Held?	Yes
Cement Returns:	NONE	<b>Returns Density:</b>	N/A	Returns Temperature:	NA

**Comment** The plug bumped @ calculated displacement @ 1600 PSI, shutdown for 5 minutes @ 2200 PSI. Checked the floats, the floats held and received 4 BBLS back to the truck ,nothing returned to surface.

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	Comments
Event	1	Call Out	Call Out	6/30/2018	04:00:00	USER				CREW CALLED OUT AT 4:00 6/30/2018, REQUESTED ON LOCATION 8:00 6/30/2018. CREW PICKED UP CEMENT, CHEMICALS (70 GAL MUSOL A, 70 GAL DUAL SPACER B, 20 GAL D-AIR, 10 GAL MMCR), 100 LBS SUGAR, PLUG CONTAINER AND MANIFOLD FROM FORT LUPTON, CO. BULK 660: 11360541/10866493, BULK 660: 11005806/10025027, PUMP ELITE 11897034/11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/30/2018	07:15:00	USER				DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	3	Crew Leave Yard	Crew Leave Yard	6/30/2018	07:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	6/30/2018	09:00:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# J-55 @ 1949', 5.5" CASING: 20# @17385', 47' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 6990', 9.8 PPG WELL FLUID, FRESH WATER DISPLACEMENT.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/30/2018	09:20:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	6/30/2018	09:30:00	USER				CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	6/30/2018	11:30:00	USER				MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	6/30/2018	11:46:57	COM4				BEGIN JOB DATA RECORDING.
Event	9	Drop Bottom Plug	Drop Bottom Plug	6/30/2018	11:47:34	USER				PLUG LEFT LANDING JOINT, VERIFIED BY COMPANY MAN.
Event	10	Test Lines	Test Lines	6/30/2018	11:51:00	COM4	8.36		2940.00	PRESSURE TESTED I BOP TO 2800 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 400 PSI, 5TH GEAR STALL OUT @ 1875 PSI.
Event	11	Test Lines	Test Lines	6/30/2018	11:55:39	USER	8.39		4502.00	PRESSURE TESTED IRON TO 4500 PSI.
Event	12	Pump Spacer 1	Pump Spacer 1	6/30/2018	12:05:22	COM4	11.47	4.00	307.00	PUMP 120 BBLs OF TUNED SPACER @ 11.5 LB/GAL, ADDED 70 GAL MUSOL A, 70 GAL DUAL SPACER B, 20 GAL D-AIR, DENSITY VERIFIED

BY PRESSURIZED MUD SCALES.

Event	13	Shutdown	Shutdown	6/30/2018	12:32:00	USER				SHUTDOWN TO DROP BOTTOM PLUG.
Event	14	Drop Bottom Plug	Drop Bottom Plug	6/30/2018	12:38:20	USER				PLUG LEFT LANDING JOINT, VERIFIED BY COMPANY MAN.
Event	15	Pump Lead Cement	Pump Cap Cement	6/30/2018	12:38:34	COM4	13.18	8.10	770.00	PUMP 150 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.53 GAL/SK, 42 BBLs, CALCULATED TOC @ 2483', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	16	Pump Lead Cement	Pump Lead Cement	6/30/2018	12:45:26	COM4	13.32	8.10	655.00	PUMP 489 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.6 YIELD, 7.69 GAL/SK, 139 BBLs, CALCULATED TOL @ 3512', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	17	Pump Tail Cement	Pump Tail Cement	6/30/2018	12:59:53	COM4	13.21	8.10	648.00	PUMP 1180 SKS OF NEOCEM @ 13.2 LB/GAL, 2.04 YIELD, 9.75 GAL/SK, 428 BBLs, CALCULATED TOT @ 6919', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	18	Shutdown	Shutdown	6/30/2018	13:53:01	USER				SHUTDOWN TO CLEAN PUMPS AND LINES.
Event	19	Clean Lines	Clean Lines	6/30/2018	14:00:25	USER				CLEAN PUMPS AND LINES.
Event	20	Drop Top Plug	Drop Top Plug	6/30/2018	14:06:06	COM4				PLUG LEFT LANDING JOINT, VERIFIED BY COMPANY MAN.
Event	21	Pump Displacement	Pump Displacement	6/30/2018	14:06:08	COM4	8.60	10.00	148.00	BEGIN CALCULATED DISPLACEMENT 386 BBL FRESH WATER. 10 GAL MMCR IN FIRST 20 BBL, 15 GAL BIOCIDES TROUGH OUT THE REST.
Event	22	Bump Plug	Bump Plug	6/30/2018	14:49:39	COM4	8.59	2.70	1971.00	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE OF 1600 PSI. NOTHING RETURNED TO SURFACE.
Event	23	Other	Casing Test	6/30/2018	14:50:00	USER	8.58	0.00	2147.00	5 MIN CASING TEST AT 2200 PSI.
Event	24	Check Floats	Check Floats	6/30/2018	14:55:56	USER				RELEASED PRESSURE BACK TO THE TRUCK, FLOATS HELD 4BBL BACK.
Event	25	End Job	End Job	6/30/2018	14:57:54	COM4				STOP JOB DATA RECORDING.
Event	26	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/30/2018	15:00:00	USER	8.57	0.00	-3.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	27	Rig-Down Completed	Rig-Down Completed	6/30/2018	16:00:00	USER				ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	28	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/30/2018	16:10:00	USER				DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	29	Crew Leave Location	Crew Leave Location	6/30/2018	16:30:00	USER				THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.

## 3.0 Attachments

### 3.1 Noble Production H&P 321 Larson A23-668-Custom Results.png

