

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3919644		Quote #:		Sales Order #: 0906116213					
Customer: NOBLE ENERGY INC-EBUS				Customer Rep: Dave Nielson							
Well Name: GUTTERSEN STATE			Well #: DD30-745		API/UWI #: 05-123-48666-00						
Field: WATTENBERG		City (SAP): ROGGEN		County/Parish: WELD		State: COLORADO					
Legal Description: SE SE-30-3N-63W-482FSL-929FEL											
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 321							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB31357				Srv Supervisor: Nicholas Cummins							
Job											
Formation Name											
Formation Depth (MD)		Top	1922ft	Bottom		17224ft					
Form Type				BHST							
Job depth MD		17209ft		Job Depth TVD		6725ft					
Water Depth				Wk Ht Above Floor		3ft					
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	1922	0	0	
Casing		5.5	4.892	17			0	17209	0	0	
Open Hole Section			8.5				1922	17224	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	HES		
Float Shoe	5.5	1	HES	17209		Bottom Plug	5.5	2	HES		
Float Collar	5.5	1	HES	17161		SSR plug set	5.5				
Alpha Sleeve	5.5	1		17064		Plug Container	5.5				
Stage Tool	5.5					Centralizers	5.5	186	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	Tuned Prime Spacer	SBM FDP-C1337-18 CEMENT SPACER SYS			120	bbl	11.5	3.87	24.5		
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

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2	ElastiCem	ELASTICEM (TM) SYSTEM	140	sack	13.2	1.67	8.04	6	
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	ElastiCem w/ SCBL	ELASTICEM (TM) SYSTEM	504	sack	13.2	1.67	8.04	6	
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
4	NeoCem NT1	NeoCem TM	1137	sack	13.2	2.04	9.79	8	
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
5	Displacement	Displacement	398	bbl	8.33				
Cement Left In Pipe		Amount	48 ft			Reason		Shoe Joint	
Mix Water:		pH 7	Mix Water Chloride:			<400 ppm		Mix Water Temperature:	
								60 °F	
Cement Temperature:		N/A	Plug Displaced by:			8.33 lb/gal		Disp. Temperature:	
								54 °F	
Plug Bumped?		Yes	Bump Pressure:			2700 psi		Floats Held?	
								Yes	
Cement Returns:		0 bbl	Returns Density:			N/A		Returns Temperature:	
								N/A	
<b>Comment</b> 120 bbls Spacer 42 bbls Cap 150 bbls Lead 413 bbls Tail 398 bbls Displacement with MMCR in the first 20 bbls Final lift 2,100psi Bump pressure 2,700 5 bbls back to truck, floats held No Spacer to surface Estimated top of Cap 2,380' Estimated top of Lead 3,410' Estimated top of Tail 7,086'									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Depart from Service Center or Other Site	Depart from Service Center or Other Site	11/27/2019	21:30:00	USER	The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey. The crew departed service center.
Event	2	Call Out	Call Out	11/28/2019	04:30:00	USER	The crew was called out on 11/28/19 at 0430. The customer requested HES on location at 1030 on 11/28/19.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	11/28/2019	04:30:01	USER	The crew was already staged on location. The supervisor met with the Company man and received numbers. TD 17,224', TP 17,209' 5 1/2" 17# P-110, FC 17,161', PC 1,922' 9 5/8" 36# J-55, TVD 6,725', OH 8 1/2", Mud 9.6 ppg.
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	11/28/2019	10:30:00	USER	Crew discussed all potential hazards on location.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	11/28/2019	12:00:00	USER	Crew held a safety meeting discussing the rig up procedure. Also all potential hazards associated with rigging up all HES equipment and lines.

Event	6	Rig-Up Equipment	Rig-Up Equipment	11/28/2019	12:15:00	USER	The crew rigged up all HES equipment and lines.
Event	7	Rig-Up Completed	Rig-Up Completed	11/28/2019	14:30:00	USER	Rig up completed, no one got hurt.
Event	8	Safety Meeting - Pre Job	Safety Meeting - Pre Job	11/28/2019	15:30:00	USER	The crew and all personal involved with cement job discussed all potential hazards associated with job. Followed by the job procedure to ensure everyone understood the plan of action
Event	9	Start Job	Start Job	11/28/2019	16:30:16	COM1	Started recording data from Elite 11189145. Company man loaded bottom plug. Filled lines with 5 bbls of water at 3 bpm. Pressure was at 200 psi.
Event	10	Test Lines	Test Lines	11/28/2019	16:34:21	COM1	Pressure tested all HES lines to 4,700 psi. The pressure test passed. Then pressure tested the rigs IBOP to 1,500 psi. The pressure test passed
Event	11	Pump Spacer 1	Pump Spacer 1	11/28/2019	16:45:39	COM1	Pumped 120 bbls of spacer with dry surfactants at 6 bpm. Pressure was at 380 psi. 11.5 ppg 3.87 yield 24.5 gal/sk. We verified density using pressurized scales. Mix Water gal 4,262 actual 4,126 gal.
Event	12	Check Weight	Check Weight	11/28/2019	16:49:46	USER	The sample weighed up at 11.5 ppg.

Event	13	Shutdown	Shutdown	11/28/2019	17:10:03	COM1	Shutdown to load 2nd bottom plug.
Event	14	Drop Bottom Plug	Drop Bottom Plug	11/28/2019	17:13:06	COM1	Company man dropped second bottom plug.
Event	15	Pump Cap Cement	Pump Cap Cement	11/28/2019	17:16:22	COM1	We pumped 42 bbls (140 sks) of cap cement at 6 bpm. Pressure was at 380 psi. 13.2 ppg 1.67 yield 8.04 gal/sk. We verified density using pressurized scales. Mix Water gal 1,126 actual 1,038 gal.
Event	16	Check Weight	Check Weight	11/28/2019	17:17:50	COM1	The sample weighed up at 13.2 ppg.
Event	17	Check Weight	Check Weight	11/28/2019	17:24:33	COM1	The sample weighed up at 13.2 ppg.
Event	18	Pump Lead Cement	Pump Lead Cement	11/28/2019	17:24:38	COM1	We pumped 150 bbls (504 sks) of lead cement at 8 bpm. Pressure was at 570 psi. 13.2 ppg 1.67 yield 8.04 gal/sk. We verified density using pressurized scales. Mix Water gal 4,052 actual 4,634 gal.
Event	19	Pump Tail Cement	Pump Tail Cement	11/28/2019	17:50:50	COM1	We pumped 413 bbls (1,137 sks) of Tail cement at 8 bpm. Pressure was at 630 psi. 13.2 ppg 2.04 yield 9.79 gal/sk. We verified density using pressurized scales. Mix Water gal 11,131 actual 10,741 gal.
Event	20	Check Weight	Check Weight	11/28/2019	17:51:35	COM1	The sample weighed up at 13.2 ppg.

Event	21	Shutdown	Shutdown	11/28/2019	18:45:18	COM1	Shutdown and aligned valves to pump to wash up tank. Pumped 15 bbls of fresh water to wash pumps and lines. Then blew from the rig floor to the wash up tank.
Event	22	Drop Top Plug	Drop Top Plug	11/28/2019	18:51:53	COM1	Company man loaded top plug.
Event	23	Pump Displacement	Pump Displacement	11/28/2019	18:56:41	COM1	Pumped the calculated displacement of 398 bbls at 10 bpm. We adjusted rate to 3 bpm the last 20 bbls. With MMCR in the first 20 bbls and 6 bags of BE-3 throughout until the last 50 bbls.
Event	24	Bump Plug	Bump Plug	11/28/2019	19:51:55	COM1	Bumped the plug calculated. Final lift pressure was 2,100 psi. Pressured up to 2,700 psi before shutting down. After five minutes we bled pressure back to the truck. 5 bbls back, Floats held.
Event	25	End Job	End Job	11/28/2019	19:59:33	COM1	Cement job complete. Stopped recording data from Elite 11189145. No spacer to surface. Estimated top of Cap 2,380'. Estimated top of Lead 3,410'. Estimated top of Tail 7,086'.
Event	26	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	11/28/2019	20:00:00	USER	Crew held a safety meeting discussing the rig down procedure. Also all potential hazards associated with rigging down all HES equipment and lines.
Event	27	Rig-Down Equipment	Rig-Down Equipment	11/28/2019	20:10:00	USER	The crew rigged down all HES equipment and lines.
Event	28	Rig-Down Completed	Rig-Down Completed	11/28/2019	21:15:00	USER	Rig down completed no one got hurt.
Event	29	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	11/28/2019	21:50:00	USER	The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey.

Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	11/28/2019	22:00:00	USER	Nick Cummins and crew would like to thank you for your business, and choosing Halliburton Cement! Please feel free to call if you have any questions.
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3.0 Attachments

3.1 Job Chart

