

*The Road to Excellence Starts with Safety*

Sold To #: 345242	Ship To #: 3919174	Quote #:	Sales Order #: 0905766763
Customer: NOBLE ENERGY INC-EBUS		Customer Rep: John Drahota	
Well Name: GUTTERSEN STATE		Well #: D23-741	API/UWI #: 05-123-48624-00
Field: WATTENBERG	City (SAP): KEENESBURG	County/Parish: WELD	State: COLORADO
Legal Description: SW SE-23-3N-64W-761FSL-1511FEL			
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 517	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB31357		Srcv Supervisor: Nicholas Cummins/ Josh Washburn	

**Job**

<b>Formation Name</b>				
<b>Formation Depth (MD)</b>	<b>Top</b>	1957ft	<b>Bottom</b>	17637ft
<b>Form Type</b>			<b>BHST</b>	230 degF
<b>Job depth MD</b>	17618ft		<b>Job Depth TVD</b>	
<b>Water Depth</b>			<b>Wk Ht Above Floor</b>	
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>	

**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	1957	0	1957
Casing		5.5	4.892	17			0	17618	0	0
Open Hole Section			8.5				1957	17637	1957	6830

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5	1	HES	17637	Top Plug	5.5	1	HES
Float Shoe	5.5				Bottom Plug	5.5	2	HES
Float Collar	5.5	1	HES	17570	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5		
Stage Tool	5.5				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	Tuned Spacer III	120	bbl	11.5	3.79	23.5	4	4183

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	140	sack	13.2	1.68	8.04	8	1126

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	516	sack	13.2	1.68	8.06	6	4158
4	NeoCem NT1	NeoCem TM	422.9	bbl	13.2	2.04	9.75	6	11349
5	Displacement	Displacement	408	bbl	8.33			9	
<b>Cement Left In Pipe</b>		<b>Amount</b>	48 ft		<b>Reason</b>			<b>Shoe Joint</b>	
Mix Water:		pH 7	Mix Water Chloride:		<400 ppm		Mix Water Temperature:		63 °F
Cement Temperature:		N/A	Plug Displaced by:		8.33 lb/gal		Disp. Temperature:		63 °F
Plug Bumped?:		Yes	Bump Pressure:		1870 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									
154 bbls Lead									
423 bbls Tail									
408 bbls Displacement first 20 mmcr biocide throughout till last 50 bbls									
Bumped plug floats held 5 bbls back									
Estimated top of Lead 2,504'									
Estimated top of Tail 7,956'									
Some traces of interface to surface but no spacer.									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	6/22/2019	17:30:00	USER					The crew was called out on 6/22/19 at 1730. The customer requested HES on location at 2230 on 6/22/19.
Event	2	Depart from Service Center or Other Site	Depart from Service Center or Other Site	6/22/2019	20:45:00	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	3	Arrive at Location from Service Center	Arrive at Location from Service Center	6/22/2019	21:30:00	USER					The crew arrived on location safely. The rig was still running casing. The supervisor met with the Company man and received numbers. TD 17,637', TP 17,617.5' 5 1/2" 17# P-110, FC 17,569.7', PC 1,957.2' 9 5/8" 36# J-55, TVD 6,830', OH 8 1/2", Mud 9.5 ppg.
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	6/22/2019	21:40:00	USER					Crew discussed all potential hazards on location.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/22/2019	21:50:00	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	6/23/2019	00:15:00	USER					The crew rigged up all HES equipment and lines.
Event	7	Rig-Up Completed	Rig-Up Completed	6/23/2019	02:30:00	USER					Rig up completed, no one got hurt.
Event	8	Safety Meeting - Pre Job	Safety Meeting - Pre Job	6/23/2019	06:35:00	USER	-14.00	8.54	0.00	29.30	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	6/23/2019	07:24:15	COM1	1.00	8.62	0.00	0.00	Started recording data from Elite 11645460.
Event	10	Drop Bottom Plug	Drop Bottom Plug	6/23/2019	07:24:34	COM1	1.00	8.62	0.00	0.00	Company man loaded bottom plug.
Event	11	Other	Fill Lines	6/23/2019	07:24:43	COM1	0.00	8.62	0.00	0.00	Filled lines with 3 bbls of water at 3 bpm, pressure was at 170 psi.
Event	12	Test Lines	Test Lines	6/23/2019	07:27:46	COM1	107.00	8.46	0.00	3.20	Pressure tested all HES lines to 5,000 psi. Had issues testing found leaking 1 in valve. Replaced valve and pressure test passed. Then pressure tested the rigs IBOP to 2,500 psi,
Event	13	Pump Spacer 1	Pump Spacer 1	6/23/2019	07:59:55	COM1	19.00	8.44	0.00	1.50	We pumped 120 bbls of spacer with surfactants at 4 bpm. Pressure was at 280 psi. 11.5 ppg 3.79 yield 23.5 gal/sk. We verified density using pressurized scales.

Event	14	Drop Bottom Plug	Drop Bottom Plug	6/23/2019	08:23:47	COM1	0.00	11.18	0.00	121.10	Company man loaded bottom plug.
Event	15	Pump Cap Cement	Pump Cap Cement	6/23/2019	08:30:23	COM1	44.00	10.72	1.80	121.50	Pumped 42 bbls (140 sks) of cap cement at 8 bpm. Pressure was at 600 psi. 13.2 ppg 1.68 yield 8.04 gal/sk. We verified density using pressurized scales
Event	16	Pump Lead Cement	Pump Lead Cement	6/23/2019	08:35:58	COM1	806.00	13.66	8.00	0.10	We pumped 154 bbls (516 sks) of lead cement at 6 bpm. Pressure was at 531 psi. 13.2 ppg 1.68 yield 8.06 gal/sk. We verified density using pressurized scales.
Event	17	Check Weight	Check Weight	6/23/2019	08:48:27	COM1	341.00	13.09	4.00	52.00	Scale weighed up at 13.1 ppg.
Event	18	Pump Tail Cement	Pump Tail Cement	6/23/2019	09:06:27	COM1	597.00	13.58	6.10	160.50	Pumped 423 bbls (1,164 sks) of Tail cement at 8 bpm. Pressure was at 1,073 psi. 13.2 ppg 2.04 yield 9.75 gal/sk. We verified density using pressurized scales.
Event	19	Check Weight	Check Weight	6/23/2019	09:06:44	COM1	616.00	13.54	6.10	1.70	Scale weighed up 13.44 ppg.
Event	20	Check Weight	Check Weight	6/23/2019	09:32:42	COM1	1083.00	13.16	8.30	209.10	Scale weighed up 13.2 ppg.
Event	21	Check Weight	Check Weight	6/23/2019	09:50:28	COM1	794.00	13.16	7.00	334.20	Scale weighed up 13.15 ppg.
Event	22	Check Weight	Check Weight	6/23/2019	09:54:03	COM1	772.00	13.19	7.00	359.30	Scale weighed up 13.41 ppg.
Event	23	Shutdown	Shutdown	6/23/2019	10:06:59	COM1	160.00	13.12	0.00	429.50	Shutdown and blew air from the rig floor to the wash up tank. The company man loaded the top plug. Pumped 10 bbls of fresh water to wash pumps and lines.

Event	24	Drop Top Plug	Drop Top Plug	6/23/2019	10:18:44	COM1	-1.00	8.12	0.00	440.40	Company man witnessed plug drop.
Event	25	Pump Displacement	Pump Displacement	6/23/2019	10:18:48	COM1	0.00	8.12	0.00	0.00	Pumped the calculated displacement of 408 bbls at 10 bpm. With MMCR in the first 20 bbls and Biocide throughout until the last 50 bbls. We slowed rate as needed.
Event	26	Bump Plug	Bump Plug	6/23/2019	11:17:21	COM1	2550.00	8.08	0.00	414.80	We bumped the plug. Final circulating pressure was 1,870 psi. We pressured up to 2,580 before shutting down. After the 5 min casing test we bled pressure off the well back to the truck. We got 5 bbls back.
Event	27	End Job	End Job	6/23/2019	11:25:51	COM1	1.00	8.04	0.00	0.00	Cement job complete. Stopped recording data from Elite 11645460. Estimated top of Lead cement 2,504'. Estimated top of Tail cement 7,956'. Some traces of interface to surface but no spacer.
Event	28	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/23/2019	11:26:00	USER	2.00	8.04	0.00	0.00	Crew held a safety meeting discussing the rig down procedure. Also all potential hazards associated with rigging down all HES equipment and lines.
Event	29	Rig-Down Equipment	Rig-Down Equipment	6/23/2019	11:45:00	USER	35.00	8.07	4.20	26.30	The crew rigged down all HES equipment and lines.
Event	30	Rig-Down Completed	Rig-Down Completed	6/23/2019	12:53:00	USER					Rig down completed no one got hurt.

Event	31	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/23/2019	13:10:00	USER	The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey.
Event	32	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	6/23/2019	13:20:00	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.

## 3.0 Attachments

### 3.1 Cement Job With Events.png

