

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242	Ship To #: 3908594	Quote #:	Sales Order #: 0906240129
Customer: NOBLE ENERGY INC-EBUS		Customer Rep: JIM TURNER	
Well Name: GUTTERSEN	Well #: Y05-749	API/UWI #: 05-123-48047-00	
Field: WATTENBERG	City (SAP): KEENESBURG	County/Parish: WELD	State: COLORADO
Legal Description: SE NW-29-3N-64W-2211FNL-2375FWL			
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 321	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB31357		Srvc Supervisor: Nikolaus Kornafel	

### Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	19969ft		
Water Depth	Job Depth TVD		
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	1927	0	1927
Casing		5.5	4.892	17			0	20016	0	6922
Open Hole Section			8.5				1927	20036	1927	6922

### Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5	1		20016	Top Plug	5.5	1	HES
Float Shoe	5.5				Bottom Plug	5.5	2	HES
Float Collar	5.5	1		19969				
Insert Float	5.5				Plug Container	5.5	1	HES
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	SPACER	SBM FDP-C1337-18 CEMENT SPACER SYS	120	bbl	11.5	3.87	24.42	5	4,215

  

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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## Cementing Job Summary

2	CAP CEMENT	ELASTICEM (TM) SYSTEM	140	sack	13.2	1.65	8.39	6	1,174
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
3	LEAD CEMENT	ELASTICEM (TM) SYSTEM	499	sack	13.2	1.67	8.04	6	4,011
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
4	TAIL CEMENT	NeoCem TM	1,460	sack	13.2	2.04	9.79	8	14,293
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
5	MMCR Displacement	MMCR Displacement	20	bbl	8.34			8	
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
6	Displacement	Displacement	444	bbl	8.33			8	
<b>Cement Left In Pipe</b>									
<b>Amount</b>	42 ft	<b>Reason</b>				<b>Shoe Joint</b>			
Mix Water:	pH 6.9	Mix Water Chloride:	0 ppm	Mix Water Temperature:	50 °F				
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	50 °F				
Plug Bumped?	Yes	Bump Pressure:	2,013 psi	Floats Held?	Yes				
Cement Returns:	0 bbl	Returns Density:	N/A	Returns Temperature:	N/A				
<b>Comment</b> DROPPED THE FIRST BOTTOM PLUG, PUMPED 120 BBLS OF SPACER FOLLOWED BY ANOTHER BOTTOM PLUG AND THEN PUMPED 42 BBLS OF CAP CEMENT FOLLOWED BY 149 BBLS OF LEAD CEMENT FOLLOWED BY 531 BBLS OF TAIL CEMENT. DROPPED THE TOP PLUG AND DISPLACED WITH 464 BBLS OF FRESH WATER. BUMPED THE PLUG AND BROUGHT PRESSURE 500 OVER AND HELD FOR A 5 MINUTE CASING TEST. RELEASED PRESSURE AND FLOATS HELD, 5.5 BBLS BACK TO THE TRUCK.									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Other	Call Out	1/18/2020	01:00:00	USER	CREW CALLED OUT AT 01:00, REQUESTED ON LOCATION 07:30. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 11527037, BULK 660 11633848, AND PUMP 11826999.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/18/2020	03:50:00	USER	CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	1/18/2020	04:00:00	USER	STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	1/18/2020	05:00:00	USER	END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,927, 5.5" CASING: 17 LB/FT TOTAL 20,015', 8.5" HOLE, TD 20,036', SHOE TRAC- 48', TVD- 6,922'. PUMP FRESH WATER DISPLACEMENT 464 BBLS. CASING LANDED @ 10:00 01/18/2020. RIG CIRCULATED BOTTOMS UP.

Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/18/2020	06:30:00	USER	HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	1/18/2020	06:45:00	USER	CREW STAGED EQUIPMENT, RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/18/2020	13:00:00	USER	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS.
Event	8	Check Weight	Check Weight	1/18/2020	15:13:33	COM11	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	9	Start Job	Start Job	1/18/2020	15:16:00	COM11	BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	1/18/2020	15:19:05	COM11	PRESSURE TESTED IRON TO 4,800 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 300 PSI, 5TH GEAR STALL OUT @ 1,417 PSI.
Event	11	Other	Other	1/18/2020	15:24:04	USER	SWAPPED OUT CHICKSEN DUE TO LEAK ON THE SWIVEL.
Event	12	Test Lines	Test Lines	1/18/2020	15:31:01	USER	TEST LINES AFTER SWAPPING OUT CHICKSEN @ 4,500 PSI.
Event	13	Test Lines	Test Lines	1/18/2020	15:35:26	USER	TESTED RIGS IBOB TO 1,500 PSI.
Event	14	Drop Bottom Plug	Drop Bottom Plug	1/18/2020	15:37:24	COM11	PLUG LOADED IN CASING BY CO. MAN.

Event	15	Pump Spacer 1	Pump Spacer 1	1/18/2020	15:38:06	COM11	PUMP 120 BBLS OF SPACER @ 11.5 LB/GAL, 3.87 FT3/SK, 24.42 GAL/SK 10 GALLONS D-AIR. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 610 PSI.
Event	16	Drop Bottom Plug	Drop Bottom Plug	1/18/2020	16:00:41	COM11	PLUG LOADED IN CASING BY CO. MAN.
Event	17	Pump Cement	Pump Cement	1/18/2020	16:03:38	COM11	PUMPED 140 SKS OF ELASTICEM CAP CEMENT @ 13.2 LB/GAL, 1.65 FT3/SK, 8.39 GAL/SK. TOC @ 2,369. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 4 BBLS/MIN @ 180 PSI.
Event	18	Pump Lead Cement	Pump Lead Cement	1/18/2020	16:11:09	COM11	PUMPED 499 SKS OF ELASTICEM LEAD CEMENT @ 13.2 LB/GAL, 1.67 FT3/SK, 8.04 GAL/SK. TOL @ 3,377. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 580 PSI.
Event	19	Check Weight	Check Weight	1/18/2020	16:27:12	COM11	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	20	Pump Tail Cement	Pump Tail Cement	1/18/2020	16:32:26	COM11	PUMPED 1,460 SKS OF NEOCEM TAIL CEMENT @ 13.2 LB/GAL, 2.04 FT3/SK, 9.79 GAL/SK. TOT CALCULATED @ 7,014. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 750 PSI.
Event	21	Check Weight	Check Weight	1/18/2020	16:33:29	COM11	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.

Event	22	Check Weight	Check Weight	1/18/2020	17:10:04	COM11	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	23	Shutdown	Shutdown	1/18/2020	17:41:18	COM11	SHUTDOWN TO WASH LINES.
Event	24	Drop Top Plug	Drop Top Plug	1/18/2020	17:48:38	COM11	PLUG LOADED INTO THE CASING BY CO. MAN.
Event	25	Pump Displacement	Pump Displacement	1/18/2020	17:49:25	COM11	BEGIN CALCULATED DISPLACEMENT OF 464 BBLS WITH FRESH WATER. 10 GAL OF MMCR IN THE FIRST 20 BBLS AND 6LB OF BIOCIDES THROUGHOUT THE REST.
Event	26	Displ Reached Cement	Displ Reached Cement	1/18/2020	17:53:36	COM11	CAUGHT CEMENT @ 35 BBLS INTO DISPLACEMENT.
Event	27	Bump Plug	Bump Plug	1/18/2020	18:43:13	COM11	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,013 PSI PRESSURED UP TO 2,575 PSI AND HELD PRESSURE FOR 5 MINUTES
Event	28	Other	Other	1/18/2020	18:47:53	COM11	RELEASED PRESSURE, FLOATS HELD, 5.5 BBLS BACK.
Event	29	End Job	End Job	1/18/2020	18:50:51	COM11	STOP RECORDING JOB DATA.
Event	30	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	1/18/2020	18:55:00	USER	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.

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Event	31	Rig-Down Completed	Rig-Down Completed	1/18/2020	20:00:00	USER	ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
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Event	32	Safety Meeting - Departing Location	Safety Meeting - Departing Location	1/18/2020	20:45:00	USER	CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW. THANK YOU FOR USING HALLIBURTON – NICK KORNAFEL AND CREW.
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## 3.0 Attachments

### 3.1 Job Chart

