

*The Road to Excellence Starts with Safety*

Sold To #: 345242	Ship To #: 3968496	Quote #:	Sales Order #: 0906102298
Customer: NOBLE ENERGY INC-EBUS		Customer Rep: Charles Cullver	
Well Name: WELLS RANCH STATE		Well #: AA32-783	API/UWI #: 05-123-50174-00
Field: WATTENBERG	City (SAP): GILL	County/Parish: WELD	State: COLORADO
Legal Description: 5-5N-63W-300FNL-700FWL			
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: Adam Covington	

**Job**

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>		BHST	230 degF
<b>Job depth MD</b>	16924ft	<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	1954	0	0
Casing		5.5	4.892	17			0	16924	0	6850
Open Hole Section			8.5				1954	16936	0	6850

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			16924	Top Plug	5.5	1	HES
Float Shoe	5.5				Bottom Plug	5.5	2	HES
Float Collar	5.5				SSR plug set	5.5		HES
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		HES

**Fluid Data**

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal

1	Tuned Prime Spacer	SBM FDP-C1337-18 CEMENT SPACER SYS	120	bbbl	11.5	3.87		6		
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	1.67		8	8.03	
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	457	sack	13.2	1.67		8	8.04	
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	1140	sack	13.2	2.04		8	9.79	
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	392	bbbl	8.33			10		
<b>Cement Left In Pipe</b>		<b>Amount</b>	42 ft		<b>Reason</b>			<b>Shoe Joint</b>		
<b>Mix Water:</b>		pH 7	<b>Mix Water Chloride:</b> 0 ppm			<b>Mix Water Temperature:</b> 87 °F				
<b>Cement Temperature:</b>		87 °F	<b>Plug Displaced by:</b> 8.33 lb/gal			<b>Disp. Temperature:</b> 87 °F				
<b>Plug Bumped?</b>		Yes	<b>Bump Pressure:</b> 2100 psi			<b>Floats Held?</b> Yes				
<b>Cement Returns:</b>		0 bbl	<b>Returns Density:</b> 9.5 lb/gal			<b>Returns Temperature:</b>				
<b>Comment</b> FCP-2100 PSI THEN TOOK PRESSURE UP TO 2500 PSI. HOLD FOR 5 MINUTES AS PER CO. MAN. 4.5 BBLS BACK WHEN CHECKED FLOATS. GOT INTERFACE BACK @380 BBLS INTO DISPLACEMENT. DIDN'T GET GOOD SPACER BACK. TOCC-2411' TOLC-3440' TOTC-6773'										

## 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>	Comb Pump Total <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	11/14/2019	19:00:00	USER					HES CREW MEMBERS WERE CALLED OUT BY SERVICE COORDINATOR FOR AN ON LOCATION TIME OF 0100
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	11/14/2019	21:00:00	USER					MET WITH ALL HES CREW MEMBERS AND DISCUSSED DIRECTIONS, NIGHT TIME DRIVING AND FOLLOWING DISTANCES.
Event	3	Depart Shop for Location	Depart Shop for Location	11/14/2019	21:30:00	USER					CREW DEPARTED YARD FOR LOCATION.
Event	4	Arrive At Loc	Arrive At Loc	11/14/2019	23:00:00	USER					ARRIVED AT LOCATION EARLY. PERFORMED HAZARD HUNT AND TALKED TO CO. MAN. WAS NOT READY FOR US TO SPOT YET. GOT NUMBERS. OH-8.5" TD-16936' TP-16924' 5.5" 17#. SHOE-16876' SC-1954' 9 5/8" 36#. TVD-6850' MUD-9.5#. WATER-- 87 DEGREES, CHLORIDES-0, PH-7.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	11/15/2019	05:00:00	USER					MET WITH ALL HES CREW MEMBERS AND DISCUSSED SWINGS, TEAM LIFTS AND PINCH POINTS.
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	11/15/2019	07:30:00	USER	3.00	0.00	0.00	0.00	MET WITH ALL HES CREW AND RIG CREW MEMBERS. DISCUSSED EMERGENCY

											PROTOCOL, JOB PROCEDURE AND PRESSURES.
Event	7	Start Job	Start Job	11/15/2019	08:03:17	COM5	5.00	7.51	0.00	0.00	FILLED LINES WITH 3 BBLS OF FRESH WATER. 3 BPM, 150 PSI.
Event	8	Test Lines	Test Lines	11/15/2019	08:05:16	COM5	173.00	8.94	0.00	3.10	PERFORMED A 500 PSI KICKOUT TEST (1156 PSI). THEN PERFORMED A 5TH GEAR STALL OUT (1891 PSI). THEN WENT UP TO 4800 PSI PRESSURE TEST.
Event	9	Drop Bottom Plug	Drop Bottom Plug	11/15/2019	08:20:00	USER	2161.00	8.81	0.00	5.20	CO. MAN DROPPED HALLIBURTON 5.5" BOTTOM PLUG 1. ADAM COVINGTON WITNESSED.
Event	10	Pump Spacer 1	Pump Spacer 1	11/15/2019	08:21:57	COM5	27.00	8.68	0.00	5.20	PUMPED 120 BBLS OF 11.5#, 3.87y, 24.5wr TUNED PRIME SPACER AT 6 BPM, 377 PSI. ADDED 20 GALLONS OF D-AIR ON THE FLY.
Event	11	Check Weight	Check Weight	11/15/2019	08:25:03	COM5	377.00	11.56	5.80	16.80	USED PRESSURIZED MUD SCALES TO WEIGH UP SPACER. SPACER WEIGHED UP AT 11.5#.
Event	12	Drop Bottom Plug	Drop Bottom Plug	11/15/2019	08:44:18	COM5	201.00	11.52	6.00	126.50	CO. MAN DROPPED HALLIBURTON 5.5" 2ND BOTTOM PLUG. ADAM COVINGTON WITNESSED.
Event	13	Pump Lead Cement	Pump Cap Cement	11/15/2019	08:45:33	COM5	193.00	11.45	6.00	133.90	PUMPED 42 BBLS (140 SKS) OF 13.2#, 1.67y, 8.03wr CAP LEAD CEMENT AT 8 BPM, 854 PSI. CALCULATED MIXED GALLONS 1,124 G/ ACTUAL 1,010 G.

Event	14	Pump Lead Cement	Pump Lead Cement	11/15/2019	08:54:43	COM5	524.00	13.04	8.00	183.00	PUMPED 136 BBLs (457 SKS) OF 13.2#, 1.67y, 8.04wr ELASTICEM LEAD CEMENT AT 8 BPM, 650 PSI. CALCULATED MIX GALLONS 3,674 G/ ACTUAL 3,350 G.
Event	15	Check Weight	Check Weight	11/15/2019	09:06:31	COM5	660.00	13.30	7.90	276.60	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.3#.
Event	16	Pump Tail Cement	Pump Tail Cement	11/15/2019	09:13:13	COM5	576.00	12.94	8.00	329.70	PUMPED 414 BBLs (1140 SKS) OF 13.2#, 2.04y, 9.79wr NEOCEM TAIL CEMENT AT 8 BPM, 576 PSI. CALCULATED MIXED GALLONS 11,160 G/ ACTUAL 10,780 G.
Event	17	Check Weight	Check Weight	11/15/2019	09:16:11	COM5	767.00	13.16	7.80	353.10	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.1#.
Event	18	Check Weight	Check Weight	11/15/2019	09:27:54	COM5	749.00	13.14	7.80	444.80	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.1#.
Event	19	Check Weight	Check Weight	11/15/2019	09:51:12	COM5	784.00	13.24	7.80	626.90	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.2#.
Event	20	Shutdown	Shutdown	11/15/2019	10:10:56	COM5	73.00	13.01	0.00	759.30	SHUTDOWN TO BLOW LINES TO TANK, WASH UP PUMPS AND LINES AND TO DROP TOP PLUG.
Event	21	Drop Top Plug	Drop Top Plug	11/15/2019	10:20:22	COM5	47.00	1.64	0.00	773.60	CO. MAN DROPPED 5.5" HALLIBURTON TOP PLUG. ADAM COVINGTON WITNESSED.

Event	22	Pump Displacement	Pump Displacement	11/15/2019	10:20:26	COM5	37.00	6.69	0.00	773.60	PUMPED 392 BBLS OF FRESH WATER DISPLACEMENT. FIRST 20 BBLS HAD 10 GALLONS OF MMCR DISPERSED. THEN DISPLACEMENT UP TO 300 BBLS GONE HAD 3 LBS OF BE-3 DROPPED INTO TANKS. STARTED OFF AT 9.5 BPM, 228 PSI.
Event	23	Bump Plug	Bump Plug	11/15/2019	11:13:28	COM5	2456.00	8.19	0.00	1180.10	SLOWED DOWN AT 360 BBLS AWAY TO 3 BPM. BUMPED PLUG AT 3 BPM, FCP-2100 PSI THEN TOOK PRESSURE UP TO 2500 PSI. HOLD FOR 5 MINUTES AS PER CO. MAN.
Event	24	Other	Check Floats	11/15/2019	11:18:16	COM5	2516.00	8.17	0.00	1180.10	CHECKED FLOATS. FLOW STOPPED AFTER 4.5 BBLS BACK TO THE TRUCK. INDICATING THAT THE FLOATS HELD.
Event	25	End Job	End Job	11/15/2019	11:20:32	COM5	24.00	8.11	0.00	1180.10	GOT INTERFACE BACK @380 BBLS INTO DISPLACEMENT. DIDN'T GET GOOD SPACER BACK. TOCC-2411' TOLC-3440' TOTC-6773'.
Event	26	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	11/15/2019	11:30:00	USER					MET WITH HES CREW MEMBERS, DISCUSSED TEAM LIFTS, PINCH POINTS AND WALKING SURFACES.
Event	27	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	11/15/2019	12:45:00	USER					MET WITH HES CREW AND DISCUSSED HOS, DIRECTIONS AND FOLLOWING DISTANCES.
Event	28	Depart Location	Depart Location	11/15/2019	13:00:00	USER					JOB COMPLETED SAFELY BY ADAM COVINGTON AND

CREW. THANKS FOR  
CHOOSING HALLIBURTON.

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## 3.0 Attachments

### 3.1 Wells Ranch State AA32-783-Custom Results.png

