

## HALLIBURTON

## Cementing Job Summary

*The Road to Excellence Starts with Safety*

Sold To #: 345242	Ship To #: 3727541	Quote #:	Sales Order #: 0503752557
Customer: NOBLE ENERGY INC - EBUS		Customer Rep: Justin Fields	
Well Name: HOLLIDAY FEDERAL		Well #: LC23-780	API/UWI #: 05-123-42950-00
Field: WILDCAT	City (SAP): KEOTA	County/Parish: WELD	State: COLORADO
Legal Description: SW SW-11-9N-59W-334FSL-979FWL			
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 524	
Job BOM: 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA/HB61755		Srv Supervisor: Nicholas Kries	
Job			

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST
Job depth MD	16698ft		Job Depth TVD
Water Depth			Wk Ht Above Floor
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	1909	0	1909
Casing		5.5	4.778	20			0	16698	0	6150
Open Hole Section			8.5				1909	16710	1909	6150

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			16698	Bottom Plug	5.5	2	HES	
Float Collar	5.5			16654	SSR plug set	5.5		HES	
Insert Float	5.5				Plug Container	5.5		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 <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	11.5	3.78		5		
	147.42 lbm/bbl	BARITE, BULK (100003681)								
	35.10 gal/bbl	FRESH WATER								
	0.40 gal/bbl	DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								
	0.40 gal/bbl	MUSOL A, 330 GAL TOTE - (790828)								

last updated on 1/24/2017 10:52:36 AM

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iCem Service

(v. 4.3.44)

Created: Wednesday, March 01, 2017

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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
2	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	11.5	3.79		5	
147.42 lbm/bbl			BARITE, BULK (100003681)						
35.90 gal/bbl			FRESH WATER						
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 Lead W/O CBL	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		7	7.54
7.54 Gal			FRESH WATER						
0.30 %			SCR-100 (100003749)						
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	ElastiCem W /CBL	ELASTICEM (TM) SYSTEM	520	sack	13.2	1.6		7	7.69
0.30 %			SCR-100 (100003749)						
7.69 Gal			FRESH WATER						
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	NeoCem Tail	NeoCem TM	1210	sack	13.2	2.04		8	9.75
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
6	Displacement	Displacement	368	bbl	8.33			8	
Cement Left In Pipe		Amount	44 ft				Reason		Shoe Joint
Comment Got 10bbbls spacer to surface. Estimated tops-Lead-1477'. Tail-6063'									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	1/24/2017	17:30:00	USER				Crew call out for o/i at 0330
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/24/2017	00:30:00	USER				all crew aware of hazards and directions. all fit to drive.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	1/24/2017	02:00:00	USER				Met with company man to discuss job details and procedure. Performed hazard hunt and site assessment.
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/24/2017	02:45:00	USER				All hse present. Discussed bulk and iron placement and all red zone areas. Caution taped high pressure zones.
Event	5	Other	Other	1/24/2017	03:00:00	USER				Water Test- PH-6 Chlo-0 Temp-60
Event	6	Start Job	Start Job	1/24/2017	05:53:49	COM1				TD-16710', TP-16698' 5.5" 20#, FC-16654', TVD-6150', SURF-1909' 9.625" 36#, OH-8.5", MUD-9.3#.
Event	7	Drop Plug	Drop Plug	1/24/2017	05:55:24	USER				Dropped by HSE supervisor, witnessed by company man.
Event	8	Test Lines	Test Lines	1/24/2017	05:58:37	COM1	0.00	8.90	4361.00	Pumped 5bbls fresh water, shutdown, performed 500psi k/o function test, proceeded to bring up pressure to 4500psi. Pressure held and no leaks.
Event	9	Pump Spacer 1	Pump Spacer 1	1/24/2017	06:06:55	COM1	4.10	11.89	348.00	Pumped 80bbls of 11.5# 3.79y 23.8g/s Tuned Spacer III with 16g Musol A, 16g Dual Spacer B and 10g D-Air in first 40bbls, at 5bpm 390psi.
Event	10	Check Weight	Check Weight	1/24/2017	06:07:49	COM1	5.00	12.01	337.00	Weight verified with pressurized mud scales.
Event	11	Check Weight	Check Weight	1/24/2017	06:16:55	COM1	6.00	11.37	276.00	Weight verified with pressurized mud scales.
Event	12	Drop Bottom Plug	Drop Bottom Plug	1/24/2017	06:25:24	COM1	0.00	11.45	20.00	Dropped by HSE supervisor, witnessed by company man.
Event	13	Pump Lead Cement	Pump Lead Cement	1/24/2017	06:26:38	COM1	6.10	13.31	421.00	Pumped 150sks or 41.9bbls of 13.2# 1.57y 7.59g/s Elasticem w/o CBL at 7bpm 560psi, followed by 520sks or 148bbls of 13.2# 1.6y 7.69g/s Elasticem w/CBL at 5bpm 480psi.
Event	14	Check Weight	Check Weight	1/24/2017	06:28:17	COM1	6.10	13.31	473.00	Weight verified with pressurized mud scales.

Event	15	Standby Other	Standby Other	1/24/2017	06:43:11	USER	6.20	13.16	420.00	Had trouble getting pressure to build in silo, had 2 air supplies and would not get above 13psi, started with 25psi. Hooked up 3rd air line and resumed cement.
Event	16	Check Weight	Check Weight	1/24/2017	06:52:47	COM1	6.40	13.23	443.00	Weight verified with pressurized mud scales.
Event	17	Pump Tail Cement	Pump Tail Cement	1/24/2017	07:00:25	COM1	6.40	12.93	413.00	Pumped 1210sk or 440bbls of 13.2# 2.04y 9.75g/s of NeoCem at 8bpm 570psi.
Event	18	Other	Other	1/24/2017	07:11:17	COM1	0.00	12.98	107.00	Flecs control stand shutdown on us, black screen, had to reboot.
Event	19	Check Weight	Check Weight	1/24/2017	07:17:48	COM1	5.80	13.16	460.00	Weight verified with pressurized mud scales.
Event	20	Check Weight	Check Weight	1/24/2017	07:38:25	COM1	5.80	13.28	528.00	Weight verified with pressurized mud scales.
Event	21	Check Weight	Check Weight	1/24/2017	07:46:59	COM1				Weight verified with pressurized mud scales.
Event	22	Other	Other	1/24/2017	08:16:32	COM1	0.00	0.03	-22.00	Shutdown and rig hooked up air to blow down lines to pits, followed by pump 5bbls fresh water to pits to clean pump and lines.
Event	23	Drop Top Plug	Drop Top Plug	1/24/2017	08:21:31	COM1	0.00	8.15	-22.00	Dropped by HSE supervisor, witnessed by company man.
Event	24	Pump Displacement	Pump Displacement	1/24/2017	08:21:39	COM1	0.00	8.15	-23.00	Pumped 368bbls fresh water with 10g MicroMatrixCementRetarder in first 20bbls. Pumped at 8bpm 1800psi.
Event	25	Bump Plug	Bump Plug	1/24/2017	09:15:14	COM1	0.00	8.34	2225.00	Slowed down to 3bpm 15bbls out, Final circulating pressure 1741psi. Bumped up to 2240psi.
Event	26	Other	Other	1/24/2017	09:17:11	COM1	0.00	8.26	123.00	Checked floats and got 3.5bbls back to truck.
Event	27	Shutdown	Shutdown	1/24/2017	09:22:55	COM1	0.00	8.28	57.00	Rig packer cup was leaking, so to pressure up casing, had to replace.
Event	28	Pressure Up Well	Pressure Up Well	1/24/2017	09:41:14	COM1	0.00	8.39	2157.00	Pumped 3.5bbls back into it to test at 2245psi for 5min. Pressure held.
Event	29	End Job	End Job	1/24/2017	09:51:50	COM1				Got 10bbls spacer back to pits.
Event	30	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	1/24/2017	10:00:00	USER	3.00	0.45	48.00	All HSE present. Discussed red zone areas and trapped pressure hazards. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius.
Event	31	Pre-Convoy Safety	Pre-Convoy Safety	1/24/2017	11:30:00	USER				All HSE present and fit to drive. Aware of directions and

		Meeting	Meeting				hazards.
Event	32	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	1/24/2017	12:00:00	USER	Pre journey managment prior to departure.