

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3730122		Quote #:		Sales Order #: 0903716863					
Customer: NOBLE ENERGY INC - EBUS				Customer Rep:							
Well Name: BROWNING FEDERAL			Well #: LC24-780			API/UWI #: 05-123-42967-00					
Field: WILDCAT		City (SAP): RAYMER		County/Parish: WELD		State: COLORADO					
Legal Description: SW SW-24-9N-59W-980FSL-728FWL											
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 524							
Job BOM: 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB61755				Srvc Supervisor: Nathaniel Moore							
Job											
Job depth MD		10852 ft		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	1915	0	1915	
Casing		5.5	4.778	20			0	10846	0	6040	
Open Hole Section			8.5				1915	10852	1915	6040	
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			10846		Bottom Plug	5.5	2	HES		
Fluid Data											
Stage/Plug #: 1											
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /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			
147.42 lbm/bbl		BARITE, BULK (100003681)									
36.09 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)									
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal

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2	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	11.5	3.79			
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 ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	ElastiCem	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		5	7.54
7.53 Gal		FRESH WATER							
0.35 %		SCR-100 (100003749)							
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	ElastiCem W /CBL	ELASTICEM (TM) SYSTEM	520	sack	13.2	1.6		5	7.69
0.35 %		SCR-100 (100003749)							
7.69 Gal		FRESH WATER							
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	NeoCem Tail	NeoCem TM	525	sack	13.2	2.04		5	9.75
9.75 Gal		FRESH WATER							
0.06 %		SCR-100 (100003749)							
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
6	Displacement	Displacement	239	bbl	8.33				
Cement Left In Pipe	Amount	48 ft		Reason				Shoe Joint	

Traces of spacer to surface

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Comments
Event	1	Call Out	Call Out	12/14/2016	18:00:00	USER				Verify equipment and materials
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	12/14/2016	21:00:00	USER				Journey management with crew
Event	3	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	12/14/2016	23:15:00	USER				Rig running casing. Spot in and rig up equipment
Event	4	Drop Bottom Plug	Drop Bottom Plug	12/14/2016	03:25:00	USER	218.00	-0.01	1.00	
Event	5	Start Job	Start Job	12/14/2016	03:28:53	COM1	207.00	8.06	0.00	Fill lines 3 bbl water
Event	6	Test Lines	Test Lines	12/14/2016	03:36:41	COM1	4738.00	8.51	0.00	Test lines to 4500 psi with 500 psi kick out test.
Event	7	Check Weight	Check Weight	12/14/2016	03:53:00	USER	-7.00	8.39	0.00	Spacer 11.5 ppg
Event	8	Pump Spacer 1	Pump Spacer 1	12/14/2016	03:56:53	COM1	95.00	12.14	2.00	80 bbl tuned spacer with surfactants in first 40 bbl. 11.5 ppg 3.79 ft3/sk 23.8 gal/sk
Event	9	Shutdown	Shutdown	12/14/2016	04:17:05	COM1	104.00	11.52	0.00	
Event	10	Drop Bottom Plug	Drop Bottom Plug	12/14/2016	04:17:12	COM1	102.00	11.52	0.00	
Event	11	Check Weight	Check Weight	12/14/2016	04:27:00	USER	51.00	11.44	0.00	Lead 13.2 ppg
Event	12	Pump Lead Cement	Pump Lead Cement	12/14/2016	04:28:25	COM1	213.00	13.03	5.00	150 sks with cbl and 520 sks without cbl. 191 bbl 13.2 pg 1.6 ft3/sk 7.69 gal/sk
Event	13	Pump Tail Cement	Pump Tail Cement	12/14/2016	05:03:09	COM1	374.00	13.24	5.00	525 sks/191 bbl 13.2 ppg 2.04 ft3/sk 9.75 gal/sk
Event	14	Check Weight	Check weight	12/14/2016	05:09:07	COM1	690.00	13.20	8.00	Tail. 13.2 ppg
Event	15	Shutdown	Shutdown	12/14/2016	05:31:22	COM1	308.00	13.02	0.00	Wash pumps and lines, blow down iron to washup tank.
Event	16	Drop Top Plug	Drop Top Plug	12/14/2016	05:44:39	COM1	222.00	8.01	0.00	Witnessed by company rep
Event	17	Pump Displacement	Pump Displacement	12/14/2016	05:45:24	COM1	219.00	8.01	0.00	239 bbl water displacement with MMCR in first 20 bbl.
Event	18	Bump Plug	Bump Plug	12/14/2016	06:30:58	COM1	1915.00	8.08	0.00	1580 psi final pump pressure. Pressured up to 2000 psi.

Held for 1 minute

Event	19	Other	Check floats	12/14/2016	06:32:00	USER	29.00	8.08	0.00	3 bbl back. Floats held
Event	20	End Job	End Job	12/14/2016	06:44:12	COM1				
Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	12/14/2016	06:45:00	USER				
Event	22	Depart Location Safety Meeting	Depart Location Safety Meeting	12/14/2016	09:00:00	USER				