

1.2 Cementing Job Summary

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3535169		Quote #:		Sales Order #: 0901611050					
Customer: NOBLE ENERGY INC E-BUSINESS				Customer Rep: JOSH KANWISCHER							
Well Name: SHABLE			Well #: K08-69-1HN			API/UWI #: 05-123-39561-00					
Field: WATTENBERG		City (SAP): MILLIKEN		County/Parish: WELD		State: COLORADO					
Legal Description: NE NE-7-4N-66W-629FNL-290FEL											
Contractor:				Rig/Platform Name/Num: H&P 321							
Job BOM: 7525											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA/HB21661					Srcv Supervisor: Joseph Fantasia						
Job											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type		BHST			240 degF						
Job depth MD		14701ft			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	
Drill Pipe	3	4	3.34	14	BTC	P-110	0	6084	0		
Casing	3	7	6.276	26	BTC	P-110	0	7383	0		
Casing	3	4.5	4	11.6	BTC	P-110	6084	14701			
Open Hole Section			6.125		BTC		7383	15806			
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make			
Guide Shoe	4.5	1		14701	Top Plug	4.5	1	HES			
Float Shoe	4.5	1			Bottom Plug	4.5	1	HES			
Float Collar	4.5	1			SSR plug set	4.5	1	HES			
Insert Float	4.5	1			Plug Container	4.5	1	HES			
Stage Tool	4.5	1			Centralizers	4.5	1	HES			
Miscellaneous Materials											
Gelling Agt		Conc		Surfactant		Conc	Acid Type		Qty	Conc	
Treatment Fld		Conc		Inhibitor		Conc	Sand Type		Size	Qty	
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	60	bbl	11.5	3.75		5			
148.73 lbm/bbl			BARITE, BULK (100003681)								
36 gal/bbl			FRESH WATER								

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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/mi n	Total Mix Fluid Gal
2	Expandacem B2	EXPANDACEM (TM) SYSTEM	100	sack	13.8	1.67		5	7.68
7.68 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/mi n	Total Mix Fluid Gal
3	Expandacem B2	EXPANDACEM (TM) SYSTEM	502	sack	13.8	1.68		4	7.69
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/mi n	Total Mix Fluid Gal
4	Water	Water	179	bbl	8.33			1	
Cement Left In Pipe		Amount	42 ft		Reason			Shoe Joint	
Comment									

**1.4 Water Field Test**

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	>200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness		ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium		ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3).
Bicarbonates		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium		ppm	5000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if Potassium levels are measured as high, so should the chlorides)
Iron	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	60	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

**Submitted Respectfully by: \_\_\_\_\_JOSEPH FANTASIA\_\_\_\_\_**

**1.5 Job Event Log**

Type	Seq. No.	Activity	Graph Label	Date	Time	Combined Pump Rate (bbl/min)	Downhole Density (ppg)	Pass-Side Pump Pressure (psi)	Comment
Event	1	Depart Shop for Location	Depart Shop for Location	8/23/2014	19:30:00				PRE-CONVOY SAFETY MEETING
Event	2	Arrive at Location from Service Center	Arrive at Location from Service Center	8/23/2014	20:00:00				ARRIVE AT LOCATION AND PERFORM A SITE ASSESSMENT. RIG RUNNING DRILL PIPE STANDS.
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/23/2014	20:15:00				PERFORM PRE RIG UP SAFETY MEETING AND BEGIN SPOTTING TRUCKS AND RIGGING UP IRON.
Event	4	Safety Meeting	Safety Meeting	8/24/2014	02:00:00	0.00	2.64	37.00	PERFORM PRE-JOB SAFETY MEETING WILL ALL PERSONEL ON LOCATION.
Event	5	Start Job	Start Job	8/24/2014	02:18:41	0.00	11.93	31.00	
Event	6	Test Lines	Test Lines	8/24/2014	02:22:44	0.00	8.29	1591.00	PRESSURE TEST LINES TO 4700 PSI
Event	7	Pump Spacer 1	Pump Spacer 1	8/24/2014	02:30:59	1.00	8.29	43.00	PUMP 60 BBLs TUNED SPACER MIXED AT 11.5 PPG USING WATER SUPPLIED BY RIG. DENSITY VERIFIED BY SCALES.
Event	8	Pump Lead Cement	Pump Lead Cement	8/24/2014	02:52:37	1.00	10.45	40.00	PUMP 29 BBLs 13.8 PPG EXPANDACEM USING WATER SUPPLIED BY RIG. 24.6 LBS FE-2 ADDED TO MIX WATER. DENSITY VERIFIED BY SCALES.
Event	9	Pump Tail Cement	Pump Tail Cement	8/24/2014	03:02:42	4.80	13.82	327.00	PUMP 150 BBLs 13.8 PPG EXPANDACEM USING WATER SUPPLIED BY RIG. FIRST 20 BBLs OF CEMENT MIXED WITH 16.4 LBS OF FE-2. DENSITY VERIFIED BY SCALES. 50 BBLs IN MAX RATE OF 3 BBL/ MINUTE AT 2000 PSI CIRCULATING PRESSURE.
Event	10	Shutdown	Shutdown	8/24/2014	03:43:12	0.00	13.27	79.00	
Event	11	Clean Lines	Clean Lines	8/24/2014	03:45:55	1.00	13.23	53.00	
Event	12	Drop Top Plug	Drop Top Plug	8/24/2014	03:52:53	0.00	8.15	29.00	THIRD PARTY PLUG PRELOADED IN THIRD PARTY CEMENT HEAD.
Event	13	Pump Displacement	Pump Displacement	8/24/2014	03:53:24	1.00	8.11	31.00	PUMP 179 BBLs WATER WITH 18 GAL MMCR ADDED USING WATER SUPPLIED BY RIG. LOSS CIRCULATION AT TIMES THROUGHOUT DISPLACING. HOLE PACKED OFF AT 65 BBLs AWAY. HIGH PRESSURE THROUGHOUT AT 1.5 BBL/ MINUTE MAX RATE @ 4700 PSI CIRCULATING PRESSURE.
Event	14	Check Floats	Check Floats	8/24/2014	06:47:37	0.00	7.88	192.00	TOE SLEEVE WAS SHIFTED OPEN. UNABLE TO CHECK FLOAT VALVE.
Event	15	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	8/24/2014	06:55:00	0.00	7.90	42.00	RIG DOWN SAFETY MEETING WITH HES PERSONEL
Event	16	End Job	End Job	8/24/2014	07:02:23	0.00	7.88	20.00	RIG COCPLETED SETTING PACKER, BACKSIDE PRESSURE TEST AND CLEANING 7" CASING. NO CEMENT OR SPACER TO SURFACE.