

**HALLIBURTON**

## Cementing Job Summary

*The Road to Excellence Starts with Safety*

Sold To #: 345242		Ship To #: 3730124		Quote #:		Sales Order #: 0904115368				
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: Dave Nielsen						
Well Name: DIAMONDBACK FEDERAL		Well #: LC22-770		API/UWI #: 05-123-42970-00						
Field: WILDCAT		City (SAP): RAYMER		County/Parish: WELD		State: COLORADO				
Legal Description: NE NW-22-9N-59W-400FNL-1349FWL										
Contractor: Noble				Rig/Platform Name/Num: H&P 524						
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HB70026				Srvc Supervisor: Steven Markovich						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST		215 degF				
Job depth MD		10928ft		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	1948	0	0
Casing		5.5	4.778	20		P-110	0	10928	0	0
Open Hole Section			8.5				1948	8051	0	0
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	80	bbl	11.5	3.84		5		
34.60 gal/bbl		FRESH WATER								
0.60 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								
0.60 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
145.18 lbm/bbl		BARITE, BULK (100003681)								
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	150	sack	13.2	1.57		6	7.54	
7.54 Gal		FRESH WATER								
0.25 %		SCR-100 (100003749)								

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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	1.6		6	7.68
0.20 %		SCR-100 (100003749)							
7.68 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
4	NeoCem NT1	NeoCem TM	549	sack	13.2	2.04		5	9.75
9.71 Gal		FRESH WATER							
0.05 %		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
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33				
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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	220	bbl	8.33				
Comment Estimated Top of Tail Cement 6067' Estimated Top of Lead 2 Cement 2876' Estimated Top of Lead Cement 1818' Estimated top of Spacer 147'									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	DS Pump Press (psi)	Comb Pump Rate (bbl/min)	Comments
Event	1	Start Job	Start Job	6/26/2017	14:55:00	USER				TD 10938' TP 10928' FC 10878' 5 1/2 20# CSG 8 1/2 OPH 9 5/8 36# Surf CSG 1948'. Estimated Top of Tail Cement 6067' Estimated Top of Lead 2 Cement 2876' Estimated top of Lead Cement 1818' Eastimated top of Sapcer 147'. Water test PH 7 Chlorides >200 Hardness >80 Sulfates >200 Iron 0
Event	2	Test Lines	Test Lines	6/26/2017	14:59:31	COM4	8.23	3998.00		Perform 500psi kick out test. Kickouts worked. Re set kick outs to 4000 psi and brought the pressure up and held for 3 mins.
Event	3	Drop Bottom Plug	Drop Bottom Plug	6/26/2017	15:08:23	USER				Plug loaded into the casing by company rep and pushed down with the CRT.
Event	4	Check Weight	Check Weight	6/26/2017	15:10:36	COM4	8.29	29.00	0.00	Weight for spacer verified by pressurized scales.
Event	5	Pump Spacer 1	Pump Spacer 1	6/26/2017	15:12:54	COM4	11.40	174.00	2.70	Pump 80bbls of 11.5ppg 3.84 yield Spacer. Added 50 gallons of both Musol A, and Dual spacer surf B on the fly. Pumped at 5bbl/min 166psi.
Event	6	Check Weight	Check Weight	6/26/2017	15:18:34	COM4	11.44	157.00	4.20	Weight verified by pressurized scales.
Event	7	Drop Bottom Plug	Drop Bottom Plug	6/26/2017	15:31:31	USER				Plug loaded into casing by company rep and pushed down by the CRT
Event	8	Check Weight	Check Weight	6/26/2017	15:34:00	COM4				Weight for Lead cement was verified by pressurized scales.
Event	9	Pump Lead Cement	Pump Lead Cement	6/26/2017	15:36:56	COM4	13.30	451.00	6.40	Pump 41.94bbls (150sks) 13.2ppg 1.57yield Lead Cement. Pumped at 8bbl/min 400psi
Event	10	Check Weight	Check Weight	6/26/2017	15:40:37	COM4	13.18	566.00	8.00	Weight verified by pressurized scales.
Event	11	Pump Cement	Pump Cement	6/26/2017	15:43:15	COM4	13.35	584.00	8.00	Pump 130.2bbls (457sks) 13.2ppg 1.6yield Lead Cement2. Pumped at 8bbl/min 560psi
Event	12	Pump Tail Cement	Pump Tail Cement	6/26/2017	15:59:37	COM4	13.18	686.00	8.00	Pump 199.4bbls (549sks) 13.2ppg 2.04yield Tail Cement. Pumped at 8bbl/min 686psi
Event	13	Check Weight	Check Weight	6/26/2017	16:00:01	COM4	13.03	710.00	8.00	Weight verified by pressurized scales.

Event	14	Check Weight	Check Weight	6/26/2017	16:13:30	COM4	13.31	750.00	8.00	Weight verified by pressurized scales.
Event	15	Shutdown	Shutdown	6/26/2017	16:25:22	COM4				Shutdown. Rig up to blow down lines and clean pumps and lines.
Event	16	Drop Top Plug	Drop Top Plug	6/26/2017	16:39:26	COM4				Plug dropped by company rep and pushed down with CRT
Event	17	Pump Displacement	Pump Displacement	6/26/2017	16:39:38	COM4	8.30	431.00	10.00	Pump 240bbls. First 20bbls with MMCR then 220 with Biocide water. Pumped at 10bbl/min 429psi and lowered rate as pressure climbed.
Event	18	Bump Plug	Bump Plug	6/26/2017	17:10:23	COM4	8.35	1545.00	2.80	Final lift pressure was 1517psi took 500psi over and held for 5 mins.
Event	19	Check Floats	Check Floats	6/26/2017	17:15:12	USER				After 5 mins pressure was 2169psi. Opened up release line to check floats. After 3bbls back floats held.
Event	20	End Job	End Job	6/26/2017	17:22:50	COM4				Thank you Steve Markovich and Crew.