

The Road to Excellence Starts with Safety

Sold To #: 345242	Ship To #: 3745083	Quote #:	Sales Order #: 0903530217
Customer: NOBLE ENERGY INC - EBUS		Customer Rep: Woody Beadsley	
Well Name: HARPER	Well #: LD21-668	API/UWI #: 05-123-43291-00	
Field: WILDCAT	City (SAP): RAYMER	County/Parish: WELD	State: COLORADO
Legal Description: SW NW-22-9N-58W-1746FNL-330FWL			
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 517	
Job BOM: 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB61755		Srcv Supervisor: Vaughn Oteri	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type		BHST	230 degF
Job depth MD	10798ft	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	1928	0	1928
Casing		5.5	4.778	20			0	10782	0	6755
Open Hole Section			8.5				1938	10798	1928	6755

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			10782	Bottom Plug	5.5	1	HES
Float Collar	5.5			10739	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5		
Stage Tool	5.5				Centralizers	5.5		

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	40	bbl	11.5	3.78		5		

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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	11.5	3.79		5		
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 Lead w/o CBL	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		5	7.53	
7.53 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	ElastiCem Lead W/ CBL	ELASTICEM (TM) SYSTEM	452	sack	13.2	1.6		5	7.69	
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	EconoCem Tail	ECONOCEM (TM) SYSTEM	689	sack	13.5	1.68		5	7.98	
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	237	bbl	8.33					
Cement Left In Pipe		Amount	42 ft		Reason			Shoe Joint		
Comment No spacer back to surface Calculated Hotc-5052.69 Totc-5729.31 Holc-4117.64 Tolc-1611.67										

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	PS Pump Rate (bbl/min)	DS Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	9/10/2016	00:00:00	USER					Call out from ARC hub
Event	2	Arrive At Loc	Arrive At Loc	9/10/2016	05:00:00	USER					Arrived on location meet with company rep to discuss job process and concerns advised that they were going to circulate for 1.5 hours and then they would be ready
Event	3	Other	Other	9/10/2016	05:10:00	USER					TD-10798 TP-10782 FC-10739 SURF-1928 MUD-9.5 Casing 5.5 20#
Event	4	Start Job	Start Job	9/10/2016	07:12:25	COM4	-91.00	8.36	0.00	0.00	Held pre-job safety meeting with all hands on location to discuss job process and hazards
Event	5	Test Lines	Test Lines	9/10/2016	07:16:49	COM4	62.00	8.50	0.00	0.00	Pressure tested pumps and lines found no leaks and pressure held good 4509psi
Event	6	Test Lines	Test Lines	9/10/2016	07:21:25	COM4	13.00	8.48	0.00	0.00	Pressure tested Kelly hose to IBOP 2935psi
Event	7	Check Weight	Check weight	9/10/2016	07:31:38	COM4	18.00	8.42	0.00	0.00	Confirm weight of 11.5ppg on scales
Event	8	Pump Spacer 1	Pump Spacer 1	9/10/2016	07:34:19	COM4	83.00	11.26	1.40	0.00	Mixed 40bbl of 11.5ppg Tuned Spacer III with surfactants
Event	9	Pump Spacer 2	Pump Spacer 2	9/10/2016	07:45:10	COM4	570.00	11.53	3.50	3.50	Mixed 40bbl of 11.5ppg Tuned Spacer III without surfactants at 6.5bpm 177psi
Event	10	Drop Bottom Plug	Drop Bottom Plug	9/10/2016	07:51:39	COM4	70.00	11.34	0.00	0.00	Released bottom plug witnessed by company rep
Event	11	Check Weight	Check weight	9/10/2016	07:53:17	COM4	70.00	11.33	0.00	0.00	Confirm weight of 13.2ppg on scales
Event	12	Pump Lead Cement	Pump Lead Cement	9/10/2016	07:55:43	COM4	454.00	13.10	3.90	2.10	Mixed 602sks or 168bbl of 13.2ppg y-1.6 g/sk7.69 ElastiCem at 8.0bpm 830psi
Event	13	Pump Tail Cement	Pump Tail Cement	9/10/2016	08:17:59	COM4	491.00	13.34	4.00	0.70	Mixed 689sks or 206bbl of 13.5ppg y-1.68 g/sk7.98 EconoCem at 8.0bpm 741psi
Event	14	Check Weight	Check weight	9/10/2016	08:18:02	COM4	493.00	13.34	4.00	0.80	Confirm weight of 13.5ppg on scales

Event	15	Shutdown	Shutdown	9/10/2016	08:50:45	COM4	111.00	13.35	0.00	0.00	Shut down so that rig can blow lines clean with air
Event	16	Clean Lines	Clean Lines	9/10/2016	08:50:54	COM4	111.00	13.35	0.00	0.00	Washed pumps and lines with fresh water
Event	17	Drop Top Plug	Drop Top Plug	9/10/2016	08:51:05	COM4	110.00	13.35	0.00	0.00	Released plug witnessed by company rep
Event	18	Pump Displacement	Pump Displacement	9/10/2016	08:59:25	COM4	42.00	-0.15	0.00	0.00	Pumped 237bbl of fresh water to displace cement
Event	19	Bump Plug	Bump Plug	9/10/2016	09:27:33	COM4	2570.00	8.35	0.00	0.00	Bumped plug 500psi over final pump pressure 1818/2230 psi
Event	20	Other	Other	9/10/2016	09:30:14	COM4	2632.00	8.35	0.00	0.00	Released pressure back to pump truck to check floats 3.5bbl back
Event	21	End Job	End Job	9/10/2016	09:33:04	COM4	37.00	8.29	0.00	0.00	No spacer to surface Calculated hotc5052.69 totc5729.31 holc4117.64 tol1611.67