

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242	Ship To #: 3723090	Quote #:	Sales Order #: 0904156167							
Customer: NOBLE ENERGY INC - EBUS		Customer Rep: DAVE NILSON								
Well Name: FREEDOM FEDERAL	Well #: LC21-630	API/UWI #: 05-123-42803-00								
Field: WILDCAT	City (SAP): KEOTA	County/Parish: WELD	State: COLORADO							
Legal Description: NW SW-22-9N-59W-1588FSL-399FWL										
Contractor: Noble		Rig/Platform Name/Num: H&P 524								
Job BOM: 7523 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HB70026		Srv Supervisor: Vitali Neverdasov								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST	230 degF							
Job depth MD	11085ft	Job Depth TVD	11085							
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	0	9.625	8.921	36	8 RD	J-55	0	1927	0	1927
Casing	0	5.5	4.778	20	BTC	P-110	0	11075	0	6076
Open Hole Section			8.5				1927	11085	0	6076
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	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 ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
2	ElastiCem	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.568		6	7.54	

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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	443	sack	13.2	1.6		6	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
4	NeoCem NT1	NeoCem TM	579	sack	13.2	2.04		5	9.75
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	224.7	bbl	8.33				
Cement Left In Pipe		Amount	43'		Reason			Shoe Joint	
Comment : TOTC 5943'. TOLC 1841'. TOP OF SPACER 172'.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	7/15/2017	23:00:00	USER				For Location @ 04:30
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	7/16/2017	02:15:00	USER				Journey management meeting held prior to departure
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	7/16/2017	02:31:00	USER				Called Journey
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	7/16/2017	04:39:00	USER				89 Miles to location. Discussed numbers and job procedures with Customer. Rig is running casing.
Event	5	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	7/16/2017	04:53:00	USER				JSA to discuss the hazards of rig-up
Event	6	Rig-Up Equipment	Rig-Up Equipment	7/16/2017	04:59:00	USER				Spot and Rig-up all surface lines and equipment up to the Buffer zone
Event	7	Casing on Bottom	Casing on Bottom	7/16/2017	06:32:00	USER				Landing joint brought to floor and landed
Event	8	Circulate Well	Circulate Well	7/16/2017	06:41:00	USER				Rig is circulating @ 10 BPM, 630 psi. MW 9.5 PV 11, YP 5
Event	9	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/16/2017	07:49:00	USER				With all essential personnel, to discuss the hazards of pumping the job, and pump schedule.
Event	10	Drop Bottom Plug	Drop Bottom Plug	7/16/2017	08:21:00	USER				Drop first bottom plug.
Event	11	Start Job	Start Job	7/16/2017	08:24:00	USER				With water supplied from uprights, water tested good to mix cement, PH 7, Cl 0, Temp 73
Event	12	Test Lines	Test Lines	7/16/2017	08:30:00	USER	8.55		4336.00	Load line with 2 bbls of water. Test lines @ 4430 psi
Event	13	Pump Spacer	Pump Spacer	7/16/2017	08:33:00	USER	11.42	3.30	254.00	80bbls tuned spacer @11.5 ppg with 48 gallons dual spacer B, 48 gallons musol A, 10 gallons de-air. verified with pressurized scales.
Event	14	Drop Bottom Plug	Drop Bottom Plug	7/16/2017	08:52:00	USER				Drop 2ND bottom plug.
Event	15	Pump Lead Cement	Pump Lead Cement	7/16/2017	08:57:00	USER	13.27	7.90	511.00	Pump First lead 150 sks(42.7 bbls) Elasticem no CBL @ 13.2 ppg,

verified with pressurized scales

Event	16	Pump Lead Cement	Pump Lead Cement	7/16/2017	09:03:00	USER	13.24	7.90	502.00	Pump 2ND Lead cement 443 sks (126.2 bbls) Elasticem with CBL @ 13.2 PPG.
Event	17	Pump Tail Cement	Pump Tail Cement	7/16/2017	09:22:00	USER	13.09	7.90	565.00	Pump 579sks(210.4 bbls) NeoCem @ 13.2 ppg, verified with pressurized scales.
Event	18	Shutdown	Shutdown	7/16/2017	09:51:00	USER				Finished pumping cement
Event	19	Clean Lines	Clean Lines	7/16/2017	09:54:00	USER				Blow lines with rig air.Wash pumps and lines.
Event	20	Drop Top Plug	Drop Top Plug	7/16/2017	09:57:00	USER				Drop top plug.
Event	21	Pump Displacement - Start	Pump Displacement - Start	7/16/2017	10:02:00	USER	8.23	9.40	302.00	244,7 bbls fresh water. First 20 bbls with MMCR + Biocide. Rest with Biocede. First 180 bbls @ 9.5 BPM @ 2232 PSI. Last 24.7 BBLS @ 2.8 BPM @ 1671 PSI
Event	22	Bump Plug	Bump Plug	7/16/2017	10:35:00	USER	8.26	2.70	1658.00	@500 psi over final circulating pressure of 1679 psi @ 2.8 bpm.
Event	23	Check Floats	Check Floats	7/16/2017	10:41:00	USER				Hold pressure for 5 min for casing test. Bleed off pressure. Floats held. 3 bbls back
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	7/16/2017	10:44:00	USER				JSA to discuss the hazards of rig-down
Event	25	End Job	End Job	7/16/2017	10:50:00	USER				
Event	26	Depart Location Safety Meeting	Depart Location Safety Meeting	7/16/2017	12:15:00	USER				Journey managment meeting held prior to depature
Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	7/16/2017	12:27:00	USER				Called Jorney