

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3727939		Quote #:		Sales Order #: 0903762407					
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: JW Irwin							
Well Name: EARP FEDERAL			Well #: LC23-745			API/UWI #: 05-123-42940-00					
Field: WILDCAT		City (SAP): KEOTA		County/Parish: WELD			State: COLORADO				
Legal Description: SW SE-11-9N-59W-363FSL-2360FEL											
Contractor: H & P DRLG					Rig/Platform Name/Num: H & P 524						
Job BOM: 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HB61755					Srcv Supervisor: Nathaniel Moore						
Job											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type					BHST						
Job depth MD		16478ft			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	1931	0	1931	
Casing		5.5	4.778	20			0	16470	0	0	
Open Hole Section			8.5				1929	16479	1931	6010	
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			16470		Bottom Plug	5.5	2	HES		
Float Collar	5.5					SSR plug set	5.5		HES		
Insert Float	5.5					Plug Container	5.5		HES		
Stage Tool	5.5					Centralizers	5.5		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)									

last updated on 3/2/2017 10:34:01 AM

Page 1 of 2

HALLIBURTON

Cementing Job Summary

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
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 ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
3	ElastiCem	ELASTICEM™ SYSTEM	150	sack	13.2	1.57		5	7.53	
7.53 Gal		FRESH WATER								
0.30 %		SCR-100 (100003749)								
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
4	ElastiCem W /CBL	ELASTICEM™ SYSTEM	495	sack	13.2	1.6		5	7.68	
0.30 %		SCR-100 (100003749)								
7.68 Gal		FRESH WATER								
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
5	NeoCem Tail	NeoCem™	1220	sack	13.2	2.04		5	9.75	
9.75 Gal		FRESH WATER								
0.05 %		SCR-100 (100003749)								
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
6	Displacement	Displacement	365	bbl	8.33					
Cement Left In Pipe		Amount	44 ft				Reason		Shoe Joint	

15 bbl spacer to surface

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Comments
Event	1	Call Out	Call Out	1/8/2017	15:00:00	USER				OL time 2300. Verify equipment and materials
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	1/9/2017	21:00:00	USER				
Event	3	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	1/9/2017	22:30:00	USER				Sign in with customer. Spot in and rig up equipment.
Event	4	Other	Meet with customer rep	1/9/2017	01:00:00	USER				TD 16478' 8.5" open hole. TP 16470.7' 5.5" 20# P-110. SJ 43.26'. Surface 1931' 9.625" 36# J-55. TVD 6010'. MW 9.5 ppg oil based mud.
Event	5	Pre-Job Safety Meeting	Pre-Job Safety Meeting	1/9/2017	02:30:00	USER				Discuss job procedure with HES and rig crew.
Event	6	Start Job	Start Job	1/9/2017	03:05:00	COM1				Fill lines 3 bbl water
Event	7	Test Lines	Test Lines	1/9/2017	03:11:55	COM1	5078.00	8.74	0.00	500 psi kickout test and 4800 psi pressure test
Event	8	Drop Bottom Plug	Drop Bottom Plug	1/9/2017	03:15:00	USER	264.00	8.60	0.00	
Event	9	Pump Spacer 1	Pump Spacer 1	1/9/2017	03:27:40	COM1	184.00	12.05	2.90	80 bbl tuned spacer 11.5 ppg 3.78 ft3/sk 23.8 gal/sk. Surfactant in first 40 bbl.
Event	10	Check Weight	Check weight	1/9/2017	03:30:27	COM1	360.00	11.25	4.00	11.5 ppg verified with pressurized scales
Event	11	Drop Bottom Plug	Drop Bottom Plug	1/9/2017	03:43:32	COM1	67.00	11.72	0.00	
Event	12	Check Weight	Check weight	1/9/2017	03:51:34	COM1	31.00	11.63	0.00	Lead 13.2 ppg
Event	13	Pump Lead Cement	Pump Lead Cement	1/9/2017	03:55:43	COM1	294.00	13.24	4.00	150 sks 1st lead 13.2 ppg 1.57 ft3/sk 7.54 gal/sk
Event	14	Pump Lead Cement	Pump Lead Cement	1/9/2017	04:02:15	COM1	586.00	13.24	6.00	495 sks /141 bbl 2nd lead 13.2 ppg 1.6 ft3/sk 7.69 gal/sk
Event	15	Check Weight	Check weight	1/9/2017	04:02:42	COM1	634.00	13.29	6.00	13.2 ppg
Event	16	Pump Tail Cement	Pump Tail Cement	1/9/2017	04:26:18	COM1	292.00	13.20	4.00	1220 sks tail 13.2 ppg 2.04 ft3/sk 9.75 gal/sk
Event	17	Check Weight	Check weight	1/9/2017	04:26:53	COM1	305.00	13.13	4.00	13.2 ppg

Event	18	Shutdown	Shutdown	1/9/2017	05:29:38	COM1	132.00	13.16	0.00	Wash pumps and lines and blow down iron with rig air.
Event	19	Drop Top Plug	Drop Top Plug	1/9/2017	05:44:25	COM1	-16.00	8.13	0.00	Witnessed by company rep
Event	20	Pump Displacement	Pump Displacement	1/9/2017	05:44:29	COM1	-16.00	8.13	0.00	365 bbl water displacement with MMCR in first 20 bbl.
Event	21	Other	Spacer to surface	1/9/2017	06:19:03	USER	2764.00	8.24	9.30	15 bbl spacer to surface
Event	22	Bump Plug	Bump Plug	1/9/2017	06:23:06	COM1	3123.00	8.23	0.00	Final circulating pressure 2700 psi. Pressured up to 3100 psi and held for 5 minutes.
Event	23	Other	Check Floats	1/9/2017	06:27:10	USER				5 bbl back. Floats held.
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	1/9/2017	06:28:00	USER				
Event	25	End Job	End Job	1/9/2017	06:31:42	COM1				
Event	26	Depart Location Safety Meeting	Depart Location Safety Meeting	1/9/2017	08:00:00	USER				