

## HALLIBURTON

## Cementing Job Summary

*The Road to Excellence Starts with Safety*

Sold To #: 345242	Ship To #: 3727937	Quote #:	Sales Order #: 0903732571							
Customer: NOBLE ENERGY INC - EBUS		Customer Rep: Justin Fields								
Well Name: EARP FEDERAL	Well #: LC23-735	API/UWI #: 05-123-42941-00								
Field: WILDCAT	City (SAP): KEOTA	County/Parish: WELD	State: COLORADO							
Legal Description: SW SE-11-9N-59W-363FSL-2285FEL										
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 524								
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HB61755		Srvc Supervisor: Bradley Hinkle								
<b>Job</b>										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	16556ft	Job Depth TVD								
Water Depth	Wk Ht Above Floor									
Perforation Depth (MD)	From	To								
<b>Well Data</b>										
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	1902	0	1902
Casing		5.5	4.778	20			0	16708	0	0
Open Hole Section			8.5				1902	16708	1902	6005
<b>Tools and Accessories</b>										
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	1	HES	16555.8	Bottom Plug	5.5	2	HES		
Float Collar	5.5	1	HES	16511.6	SSR plug set	5.5		HES		
Insert Float	5.5				Plug Container	5.5		HES		
Stage Tool	5.5				Centralizers	5.5		HES		
<b>Fluid Data</b>										
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	Spacer	Tuned Spacer III	40	bbl	11.5	3.78	23.8	4		
Stage/Plug #: 2										
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	Spacer	Tuned Spacer III	40	bbl	11.5	3.79	24.4	4		

last updated on 12/28/2016 6:40:12 PM

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iCem® Service

(v. 4.3.44)

Created: Wednesday, January 11, 2017

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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	1 <sup>st</sup> Lead	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		6	7.54
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	2 <sup>nd</sup> Lead	ELASTICEM (TM) SYSTEM	520	sack	13.2	1.603		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
5	Tail	NeoCem TM	1220	sack	13.2	2.04		6	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
6	Displacement	Fresh Water	365	bbl	8.33			7	
Cement Left In Pipe		Amount	44 ft		Reason			Shoe Joint	
Mix Water:		pH 6.5	Mix Water:00 ppm			Mix Water Temperature:		55 °F °C	
			Chloride:						
Cement Temperature:		48 °F °C	Plug Displaced by:## lb/gal kg/m3 XXXX			Disp. Temperature:		## °F °C	
Plug Bumped?		Yes	Bump Pressure:1975 psi MPa			Floats Held?		Yes	
Cement Returns:## bbl m3			Returns Density:## lb/gal kg/m3			Returns Temperature:		## °F °C	
Comment									

## 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)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	12/28/2016	01:00:00	USER					Crew called for an on location of 0730. Crew was Bradley Hinkle, Luke Kosakewich, Ken Hulse (Crown), Brian Smith (Crown) and Scott Lyles (Crown).
Event	2	Depart Shop for Location	Depart Shop for Location	12/28/2016	04:30:00	USER					Pre-journey safety meeting.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	12/28/2016	06:45:00	USER					Sign in, perform a site assessment and pre rig-up safety meeting. Approximately 1500 feet of casing left to run.
Event	4	Other	Check-in With Customer	12/28/2016	06:50:00	USER					Check-in with customer and get numbers. TD: 16571. TP: 16555.8. FC:16511.6 TVD: 6080. 5.5" 20# casing in a 8.5" OH. Surface casing set at 1902. 9.625" 36#. Mud weight 9.35#.
Event	5	Safety Meeting	Safety Meeting	12/28/2016	12:15:00	USER	25.00	8.46	0.00	78.40	Pre-job safety meeting with all personnel on location.
Event	6	Start Job	Start Job	12/28/2016	13:41:33	COM5	-3.00	0.07	0.00	0.00	
Event	7	Test Lines	Test Lines	12/28/2016	13:45:14	COM5	53.00	8.76	0.10	1.90	Pressure test lines with a 500 PSI EKO test.
Event	8	Drop Bottom Plug	Drop Bottom Plug	12/28/2016	13:57:00	USER	25.00	8.63	0.00	1.90	Bottom plug loaded directly into casing.
Event	9	Pump Spacer 1	Pump Spacer 1	12/28/2016	13:57:06	COM5	25.00	8.63	0.00	1.90	Pump 40 bbls Tuned Spacer mixed at 11.5 ppg with surfactants added. Density verified by pressurized scales.
Event	10	Pump Spacer 2	Pump Spacer 2	12/28/2016	14:08:27	COM5	220.00	11.58	4.50	39.70	Pump 40 bbls Tuned Spacer mixed 11.5 ppg. Density verified by pressurized scales.

Event	11	Shutdown	Shutdown	12/28/2016	14:16:41	COM5	84.00	11.22	0.00	35.70	
Event	12	Drop Bottom Plug	Drop Bottom Plug	12/28/2016	14:17:15	COM5	64.00	11.29	0.00	35.70	Bottom plug loaded directly into casing.
Event	13	Pump Lead Cement	Pump Lead Cement	12/28/2016	14:27:40	COM5	52.00	11.19	0.00	35.70	Pump 42 bbls (150 sacks) ElastiCem without Super-CBL mixed at 13.2 ppg. Density verified by pressurized scales.
Event	14	Pump Lead Cement	Pump Lead Cement	12/28/2016	14:35:54	COM5	400.00	12.95	6.10	41.80	Pump 145 bbls (520 sacks) ElastiCem mixed at 13.2 ppg. Density verified by pressurized scales.
Event	15	Check Weight	Check weight	12/28/2016	14:45:37	COM5	436.00	13.27	6.10	59.10	Cement weighed at 13.3 ppg.
Event	16	Pump Tail Cement	Pump Tail Cement	12/28/2016	15:00:22	COM5	450.00	13.38	6.10	148.90	Pump 443 bbls (1220 sacks) NeoCem mixed at 13.2 ppg. Density verified by pressurized scales.
Event	17	Check Weight	Check weight	12/28/2016	15:01:40	COM5	493.00	13.07	6.10	7.90	
Event	18	Check Weight	Check weight	12/28/2016	15:05:15	COM5	523.00	13.15	6.10	29.70	
Event	19	Check Weight	Check weight	12/28/2016	15:10:50	COM5	549.00	13.31	6.10	63.70	
Event	20	Check Weight	Check weight	12/28/2016	15:26:47	COM5	497.00	13.20	6.10	160.90	
Event	21	Check Weight	Check weight	12/28/2016	16:22:57	COM5	561.00	13.31	6.50	508.60	
Event	22	Shutdown	Shutdown	12/28/2016	16:34:40	COM5	68.00	13.04	0.00	567.20	
Event	23	Clean Lines	Clean Lines	12/28/2016	16:37:33	COM5	36.00	13.02	0.00	567.20	Rig blew down cement into washup tank. HES washed pumps and lines to tank until clean.
Event	24	Drop Top Plug	Drop Top Plug	12/28/2016	16:42:53	COM5	29.00	8.04	0.00	574.40	Pump 364 bbls fresh water (first 20 with MMCR)

Event	25	Pump Displacement	Pump Displacement	12/28/2016	16:42:58	COM5	28.00	8.04	0.00	574.40	Pump 364 bbls fresh water (first 20 with MMCR). Good returns throughout.
Event	26	Bump Plug	Bump Plug	12/29/2016	17:37:14	USER	1680.00	8.61	5.00	358.20	Bump plug at 1975 PSI and increased to 2500 PSI. Pressure didn't hold due to leak on rig.
Event	27	Pressure Up Well	Pressure Up Well	12/29/2016	18:04:31	USER	8.00	8.20	1.40	359.90	Due to leak the decision was made to sting out CRT and install HES swadge. Tested casing at 2200 PSI for 5 minutes.
Event	28	Check Floats	Check Floats	12/29/2016	18:13:13	USER	85.00	8.30	0.00	362.50	Floats held. 4 bbls back
Event	29	End Job	End Job	12/29/2016	18:14:00	USER	6.00	8.27	0.00	362.50	
Event	30	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	12/29/2016	18:15:00	USER	1.00	8.25	0.00	362.50	Pre rig-down safety meeting.
Event	31	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	12/29/2016	20:00:00	USER					Pre-journey safety meeting.