

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Monday, October 23, 2017

Houlihan 4-64 22B 21-1 SURFACE

Job Date: Tuesday, October 17, 2017

Sincerely,

Julia Nichols

Legal Notice

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **HOULIHAN 4-64 22B 21-1** cement **SURFACE** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

Approximately 40 bbls of cement were returned to surface.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

Halliburton [Fort Lupton]

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404	Ship To #: 3816001	Quote #:	Sales Order #: 0904367794							
Customer: EXTRACTION OIL & GAS -		Customer Rep: Kalyn Holgate and Larry Siegel								
Well Name: HOULIHAN 4-64 22B	Well #: 21-1	API/UWI #: 05-005-07306-00								
Field: WILDCAT	City (SAP): AURORA	County/Parish: ARAPAHOE	State: COLORADO							
Legal Description: SE SE-22-4S-64W-1232FSL-1120FEL										
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: PATTERSON 341								
Job BOM: 7521 7521										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199		Srv Supervisor: Nicholas Roles								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST								
Job depth MD	2050ft	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	0	9.625	8.921	36	8 RD	J-55	0	2050	0	2050
Open Hole Section			13.5				0	2065	0	2065
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	9.625					Top Plug	9.625	1	HES	
Float Shoe	9.625			2050		Bottom Plug	9.625		HES	
Float Collar	9.625					SSR plug set	9.625		HES	
Insert Float	9.625					Plug Container	9.625	1	HES	
Stage Tool	9.625					Centralizers	9.625		HES	
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	Red Dye Spacer	Red Dye Spacer	10	bbl	8.33			8		
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	SwiftCem	SWIFTCM (TM) SYSTEM	700	sack	13.5	1.74		8	9.2	
9.20 Gal		FRESH WATER								

last updated on 10/23/2017 1:57:18 PM

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ICEM SERVICE

(v. 4.4.18)

Created: Monday, October 23, 2017

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Cementing Job Summary

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
3	Fresh Water	Fresh Water	155	bbl	8.33			8	
Cement Left In Pipe		Amount	41 ft		Reason			Shoe Joint	
Comment Got 40bbbls cement to surface.									

2.0 Real-Time Job Summary

2.1 Job Event Log

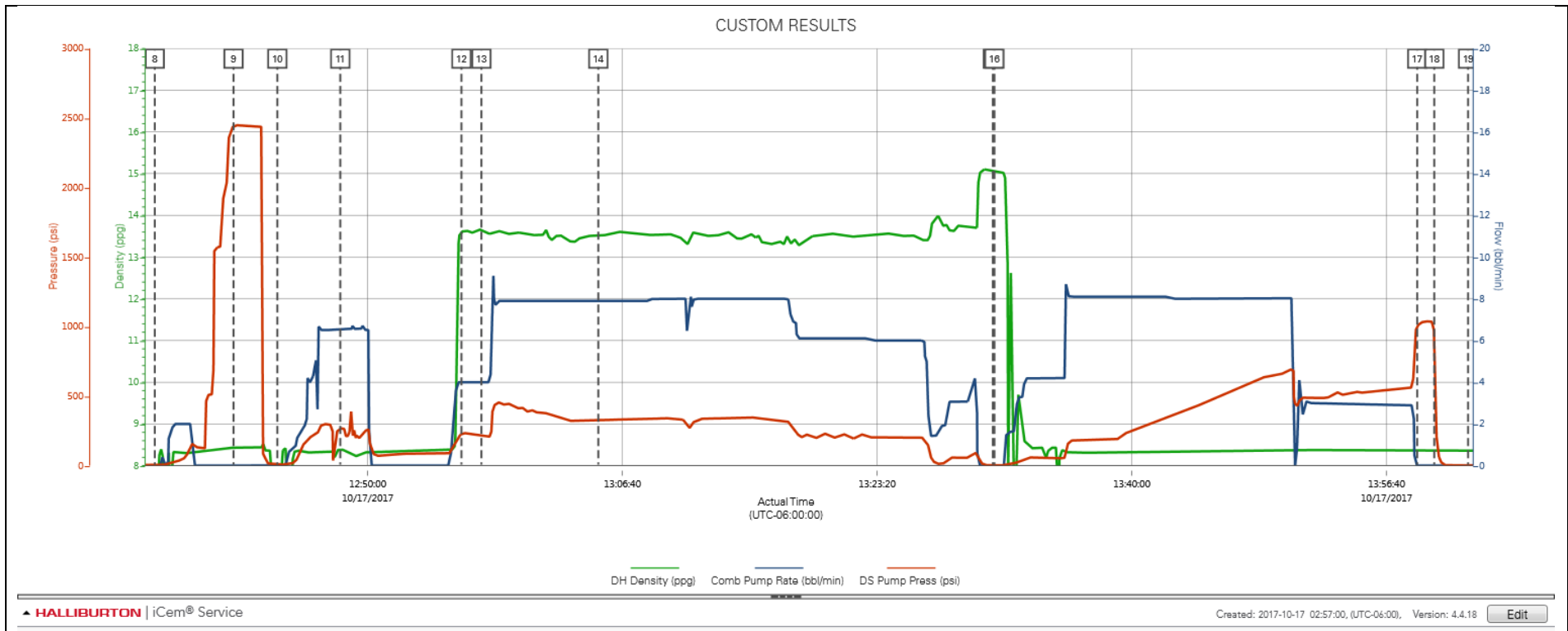
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	10/16/2017	19:30:00	USER				Called out by Service Coordinator for O/L at 0230
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	10/17/2017	00:15:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	10/17/2017	00:30:00	USER				Journey Management prior to departure
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	10/17/2017	01:30:00	USER				Upon arrival met with company man to discuss job details and calculations, performed hazard hunt and site assessment.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/17/2017	01:45:00	USER				Discussed rigging up hazards and procedure according to HMS.
Event	6	Other	Other	10/17/2017	02:00:00	USER				Water test- PH-6, Chlor-0, Temp-55. Cement temp-60.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/17/2017	05:00:00	USER				Held safety meeting with all job associated personnel to discuss job procedure, hazards and stop work authority.
Event	8	Start Job	Start Job	10/17/2017	12:36:04	COM4	0.49	0.00	5.00	TD-2065', TP-2050' 9.625" 36#, FC-2009', OH-12.25", MUD-9#
Event	9	Test Lines	Test Lines	10/17/2017	12:41:13	COM4	8.43	0.00	2442.00	Pumped 3bbls to fill lines, established circulation, shutdown and closed manifold, performed 500psi k/o function test, continued with 5th gear stall at 1585psi proceeded to bring pressure to 2500psi. Held good no leaks.
Event	10	Pump Spacer 1	Pump Spacer 1	10/17/2017	12:44:05	COM4	0.17	0.00	9.00	Pumped 15bbls fresh water ahead to circulate casing at 8bpm 200psi.
Event	11	Pump Spacer 2	Pump Spacer 2	10/17/2017	12:48:12	COM4	8.38	6.50	265.00	Pumped 10bbls fresh water with 2# Red Dye at 8bm 230psi.
Event	12	Pump Cement	Pump Cement	10/17/2017	12:56:08	COM4	13.62	4.00	231.00	Pumped 700sks or 217bbls 13.5# 1.74y 9.2g/s Swiftcem

at 8bpm 340psi.

Event	13	Check Weight	Check weight	10/17/2017	12:57:26	COM4	13.65	4.00	212.00	Weight verified with pressurized mud scales.
Event	14	Check Weight	Check weight	10/17/2017	13:05:05	COM4	13.55	7.90	330.00	Weight verified with pressurized mud scales.
Event	15	Drop Top Plug	Drop Top Plug	10/17/2017	13:30:54	COM4	15.05	0.00	2.00	Dropped by HES supervisor, witnessed by company man.
Event	16	Pump Displacement	Pump Displacement	10/17/2017	13:31:00	COM4	15.05	0.00	2.00	Pumped 155bbls of fresh water at 8bpm 404psi.
Event	17	Bump Plug	Bump Plug	10/17/2017	13:58:40	COM4	8.37	0.00	996.00	Slowed down to 3bpm at 135bbls away, final circulating pressure - 530psi, Bumped at 1040psi.
Event	18	Check Floats	Check Floats	10/17/2017	13:59:47	USER	8.37	0.00	917.00	Released pressure and got 1bbl back to truck. Floats Held.
Event	19	End Job	End Job	10/17/2017	14:02:00	COM4	8.35	0.00	-1.00	Got 40bbls cement to surface.
Event	20	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/17/2017	14:10:00	USER	0.00	0.00	-1.00	Discussed rigging down hazards and procedure according to HMS.
Event	21	Depart Location Safety Meeting	Depart Location Safety Meeting	10/17/2017	15:45:00	USER				Held meeting with all personnel in convoy to discuss directions and hazards associated with drive, all fit to drive.
Event	22	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	10/17/2017	16:00:00	USER				Pre journey management prior to departure.

3.0 Attachments

3.1 CUSTOM RESULTS – JOB CHART WITH EVENTS



3.2 CUSTOM RESULTS – JOB CHART WITHOUT EVENTS

