HALLIBURTON

iCem® Service

TERRA ENERGY PARTNERS

For: H&P 318

Date: Monday, October 21, 2019

Terra GM 544-8 Production

API# 05-045-24086

Sincerely,
Rock Springs Engineering

Legal Notice

Disclaimer:

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services for this cementing services 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.

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, Rock Springs

Job Times

	Date	Time	Time Zone
Called Out	10/20/2019	2000	MST
On Location	10/21/2019	0800	MST
Job Started	10/21/2019	1542	MST
Job Complete	10/21/2019	1721	MST
Depart Location	10/21/2019	1900	MST

1.2 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	45
2	Mud type (OBM, WBM, SBM, Water, Brine)	lb/gal	WBM
3	Actual mud density	lb/gal	9.7
4	Time circulated before job	HH:MM	02:30
5	Mud volume circulated	Bbls	1500
6	Rate at which well was circulated	Bpm	10
7	Pipe movement during hole circulation	Y/N	Y
8	Rig pressure while circulating	Psi	865
9	Time from end mud circulation to start of job	HH:MM	00:10
10	Pipe movement during cementing	Y/N	Y
11	Calculated displacement	Bbls	117.4
12	Job displaced by	Rig/HES	HES
13	Annular flow before job	Y/N	N
14	Annular flow after job	Y/N	N
15	Length of rat hole	Ft	5
16	Units of gas detected while circulating	Units	3174
17	Was lost circulation experienced at any time ?	Y/N	N

1.3 Water Analysis Report

CEMENT MIX WATER REQUIREMENTS

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Temperature	68	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

2.0 Real-Time Job Summary

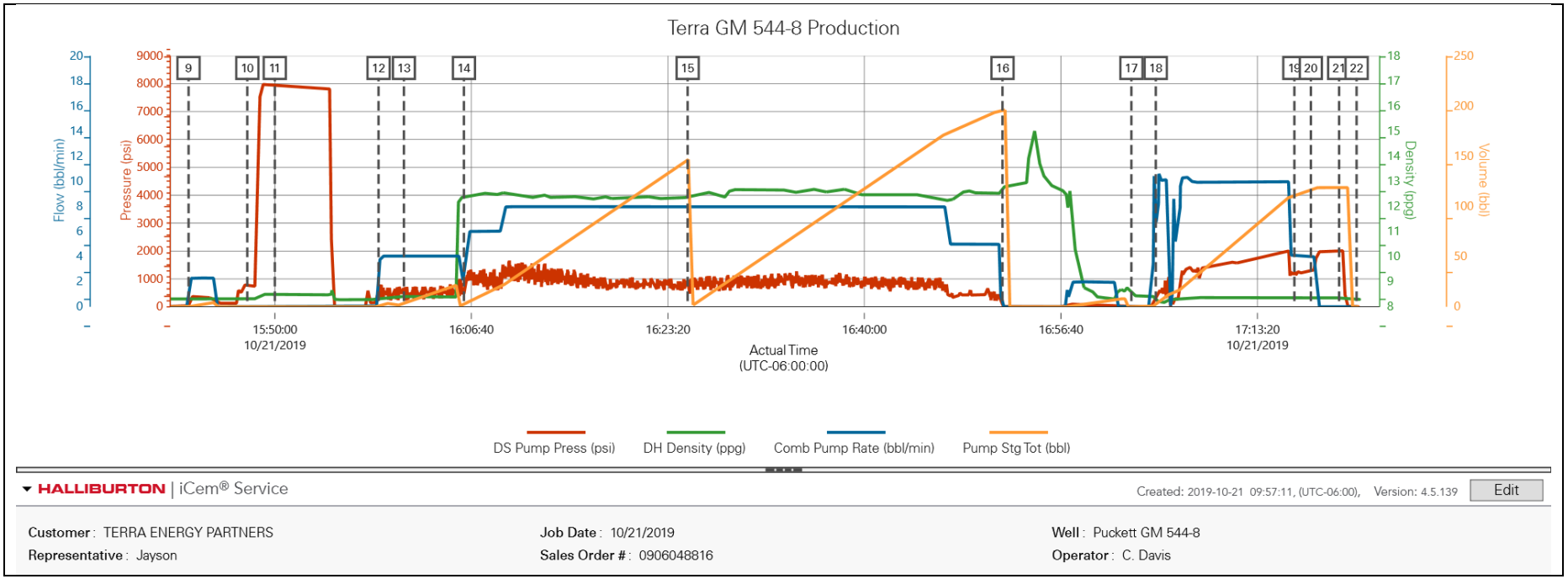
2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	10/20/2019	20:00:00	USER					Crew requested on location @ 10:30
Event	2	Pre-Convoy Safety Meeting	10/20/2019	21:00:00	USER					Have a JSA with crew on the hazards of driving to location
Event	3	Crew Leave Yard	10/20/2019	21:10:00	USER					
Event	4	Arrive At Loc	10/21/2019	08:00:00	USER					HD-7612, Casing-4.5 11.6# @7606.7', SJ-30.64' PC- 9.625" 36# @ 1012' Hole 8.75", Mud 9.7#
Event	5	Pre-Rig Up Safety Meeting	10/21/2019	08:10:00	USER					Have a JSA with crew on spotting equipment and rigging up bulk, water, and iron on the ground.
Event	6	Rig-Up Equipment	10/21/2019	08:15:00	USER					
Event	7	Pre-Job Safety Meeting	10/21/2019	11:00:00	USER					HES has a JSA with rig crew to go over the job and the hazards of rigging up the floor and pumping the job
Event	8	Rig Info	10/21/2019	11:15:00	USER					Tob-14:00, Rate- 10 Bpm, 865 Psi, 3174 units of gas, and 0 loses
Event	16	Start Job	10/21/2019	15:42:41	USER	20.11	8.29	1.21	0.06	Pump 5 Bbl of h2o ahead
Event	24	Pressure Test	10/21/2019	15:47:40	USER	755.12	8.33	0.00	0.01	500 psi low pressure kick out test
Event	29	Pressure Test	10/21/2019	15:50:00	USER	7916.80	8.49	0.00	0.04	Pressure test HES iron to 7700 psi No leaks
Event	49	Pump Water	10/21/2019	15:58:48	USER	540.43	8.32	2.54	0.25	pump 5 Bbl of h2o behind
Event	59	Pump Spacer	10/21/2019	16:00:57	USER	317.30	8.41	4.04	3.54	Pump 20 Bbl of Mud Flush 4 Bpm
Event	62	Pump Lead Cement	10/21/2019	16:06:02	USER	441.99	12.35	2.70	1.87	Pump 145 Bbl(370sks) of NeoCem GJ3 cement @ 12.3 ppg, 2.2 ft/3, 11.39 gal/sk @ 8 Bpm
Event	68	Pump Tail Cement	10/21/2019	16:25:01	USER	807.62	12.37	7.96	146.22	Pump 191.7 Bbl(515sks) of NeoCem GJ3 Tail cement @ 12.5 ppg, 2.09 ft/3, 10.6 gal/sk @ 8 Bpm
Event	229	Shutdown	10/21/2019	16:51:43	USER	8.86	12.78	0.00	196.10	Shutdown/ Wash pumps and lines to the pit

Event	236	Drop Top Plug	10/21/2019	17:02:39	USER	-1.46	8.52	0.00	0.00	Drop top plug witnessed by Co-Man
Event	237	Pump Displacement	10/21/2019	17:04:43	USER	368.86	8.29	6.58	2.23	Pump 117.4 Bbl of H2O displacement @ 10 Bpm with 1 gal of MMCR in the first 10 Bbl and 3 lbs of BE-6 in the first 30
Event	243	Slow Rate	10/21/2019	17:16:28	USER	1251.06	8.34	3.99	111.30	Slow rate to 4 Bpm for the last 10 Bbl
Event	244	Bump Plug	10/21/2019	17:17:52	USER	1269.81	8.34	4.00	116.89	Bump plug/ Final circ psi was 1269, brought it up to 2008 psi for 5 min
Event	260	Check Floats	10/21/2019	17:20:58	USER	10.73	8.30	0.00	118.74	Floats held/ 1 Bbl back to the truck
Event	262	End Job	10/21/2019	17:21:45	USER	6.04	8.30	0.00	0.00	Full returns throughout entire job, Est top of tail is at 4111', top of lead is at 1461'
Event	263	Pre-Rig Down Safety Meeting	10/21/2019	17:25:55	USER					JSA with crew on rigging down the equipment and lines
Event	264	Rig Down Equipment	10/21/2019	17:30:05	USER					
Event	265	Depart Location Safety Meeting	10/21/2019	18:50:00	USER					JSA with the crew on driving back to the yard
Event	266	Crew Leave Location	10/21/2019	19:00:00	USER					Thank you for choosing Halliburton, Steve Dickenson

3.0 Attachments

3.1 Terra Puckett GM 544-8 Production-Custom Results.png



3.2 Terra Puckett GM 544-8 Production no-Custom Results (1).png