

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

Rock Springs District, Colorado

For: H&P 318

Date: Tuesday, November 12, 2019

GM 313-8 Surface

API# 05-045-24090

Job Date: Tuesday, November 12, 2019

Sincerely,

Rock Springs Engineering

Legal Notice

Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. iCem 3D Displacement results are used to understand how fluids intermix during a cement job. Simulation and 3D displacement results are not intended as and should not be used as a replacement for bond logs in determining top of cement. Current 3D model calculations are known to model more volume than the input volume for standard cases due to known calculation improvements required. For rotational cases, the modeled volume will be impacted by the same calculations impacting the standard cases, as well as additional constraints imposed to make the calculation time required operationally feasible. Therefore, until further notice, 3D displacement results should not be used for replacement of a bond log, or used as an identifier of top of cement. HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

Table of Contents

1.0 Cementing Job Summary 4

 1.1 Executive Summary4

2.0 Real-Time Job Summary 5

 2.1 Job Event Log5

3.0 Attachments..... 7

 3.1 Pressure Test.png7

 3.2 Job Chart.png8

 3.3 Job Chart No Events.png9

 3.4 Casing Test.png10

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

2.0 Real-Time Job Summary

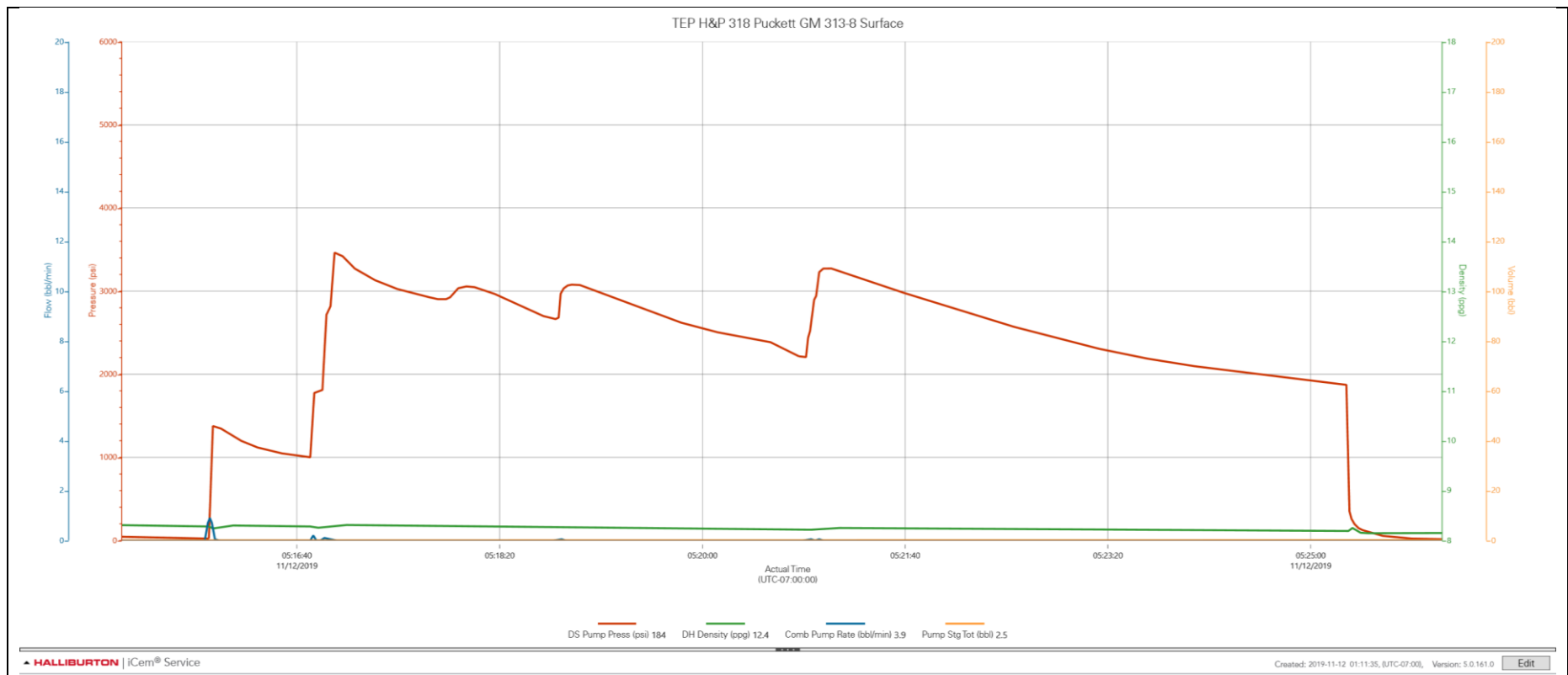
2.1 Job Event Log

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	11/11/2019	20:00:00	USER					
Event	2	Pre Journey	11/12/2019	00:15:00	USER					Discuss all travel related safety issues with crew
Event	3	Leave Staging Area	11/12/2019	00:30:00	USER					
Event	4	Arrive at Job	11/12/2019	01:00:00	USER					Meet with customer J.G. Wade and get numbers. 9.625" 36 lb casing set at 1014', 13.5" hole at 1020', 9.6 ppg WBM in the hole, 18" Conductor set at 72', 36' Shoe Joint. Mud properties: PV 12@120, YP 12, Gels 6/22/32. Water Test: pH 6.5, Temp 70, Cl <200. Rig was running casing when we arrived on location. ~ 20 joints left to run.
Event	5	Site Assement	11/12/2019	01:05:00	USER					Identify and discuss all hazards with the crew
Event	6	Spot Equipment	11/12/2019	01:10:00	USER					Use spotters and radios
Event	7	Pre Rig Up	11/12/2019	01:15:00	USER					Discuss all rig up related safety issues with crew
Event	8	Rig Up	11/12/2019	01:20:00	USER					
Event	9	Pre Job	11/12/2019	05:00:00	USER					Discuss all job related safety issues and pump schedule with customer, crew, and rig crew.
Event	10	Start Job	11/12/2019	05:11:30	USER					
Event	11	Fill Lines	11/12/2019	05:12:29	USER	3.00	8.27	0.80	0.00	5 bbls water
Event	12	Pressure Test	11/12/2019	05:21:00	USER	3274.00	8.24	0.00	0.10	Low and high pressure tests
Event	13	Pump Water	11/12/2019	05:27:00	USER	17.00	8.15	0.80	0.10	20 bbls
Event	14	Pump Lead Cement	11/12/2019	05:33:00	USER	103.00	12.35	0.00	0.90	53 bbls lead cement 12.3 ppg, 2.38 cuft/sk, 13.74 gal/sk 125 sks. 41 bbls water needed.
Event	15	Pump Tail Cement	11/12/2019	05:40:54	USER	517.00	12.81	8.00	2.00	57 bbls cement 12.8 ppg, 2.11 cuft/sk, 11.74 gal/sk, 150 sks. 42 bbls water needed.

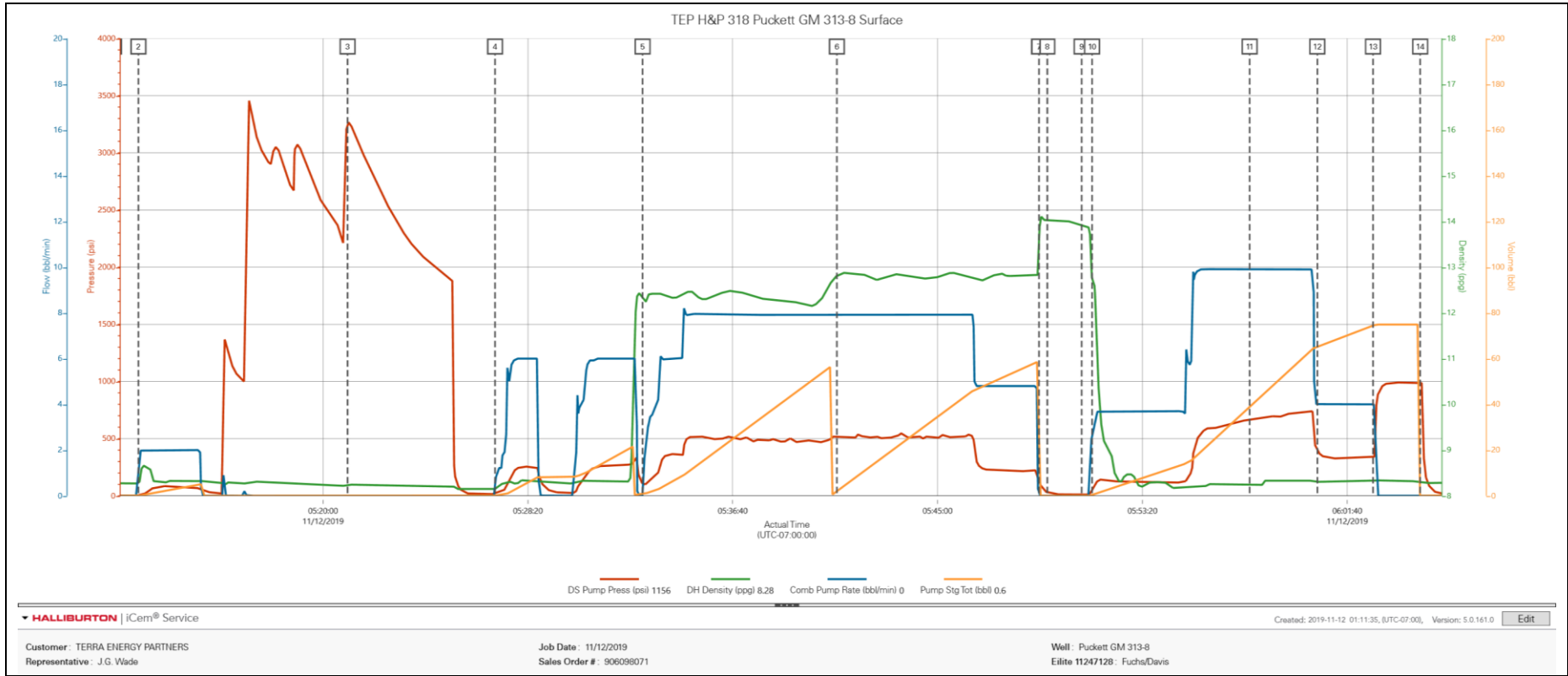
Event	16	Shutdown	11/12/2019	05:49:08	USER	120.00	13.67	0.00	0.00	Shutdown to drop plug
Event	17	Clean Lines	11/12/2019	05:49:28	USER	29.00	14.02	0.00	0.00	Wash up on top of the plug.
Event	18	Drop Top Plug	11/12/2019	05:50:52	USER	11.00	13.91	0.00	0.00	Customer to witness and verify.
Event	19	Pump Displacement	11/12/2019	05:51:17	USER	55.00	12.73	2.50	0.30	76 bbls Water 8.33 ppg
Event	20	Cement Returns to Surface	11/12/2019	05:57:42	USER	665.00	8.24	9.90	38.90	40 bbls of cement to surface.
Event	21	Slow Rate	11/12/2019	06:00:27	USER	394.00	8.31	4.00	65.30	Last 10 bbls
Event	22	Bump Plug	11/12/2019	06:02:43	USER	339.00	8.32	4.00	74.50	392 psi differential, 428 psi to lift pipe.
Event	23	Check Floats	11/12/2019	06:04:38	USER	986.00	8.31	0.00	0.00	Floats held. .5 bbls back
Event	24	Casing Test	11/12/2019	06:11:11	USER	1241.00	8.30	0.00	0.60	1200 psi for 15 min
Event	25	End Job	11/12/2019	06:24:12	COM5					
Event	26	End Job	11/12/2019	06:26:00	USER					
Event	27	Total Fluid Volumes	11/12/2019	06:27:00	USER					Spacer: 20 Lead: 53 Tail: 57 Displacement: 76
Event	28	Items to return	11/12/2019	06:28:00	USER					100 lbs sugar
Event	29	Pre Rig Down	11/12/2019	06:30:00	USER					Discuss all rig up related safety issues with crew
Event	30	Rig Down	11/12/2019	06:35:00	USER					
Event	31	Pre Journey	11/12/2019	07:45:00	USER					Discuss all travel related safety issues with crew
Event	32	Leave Job	11/12/2019	08:00:00	USER					Thank you for your business! Benjamin Fuchs and crew.

3.0 Attachments

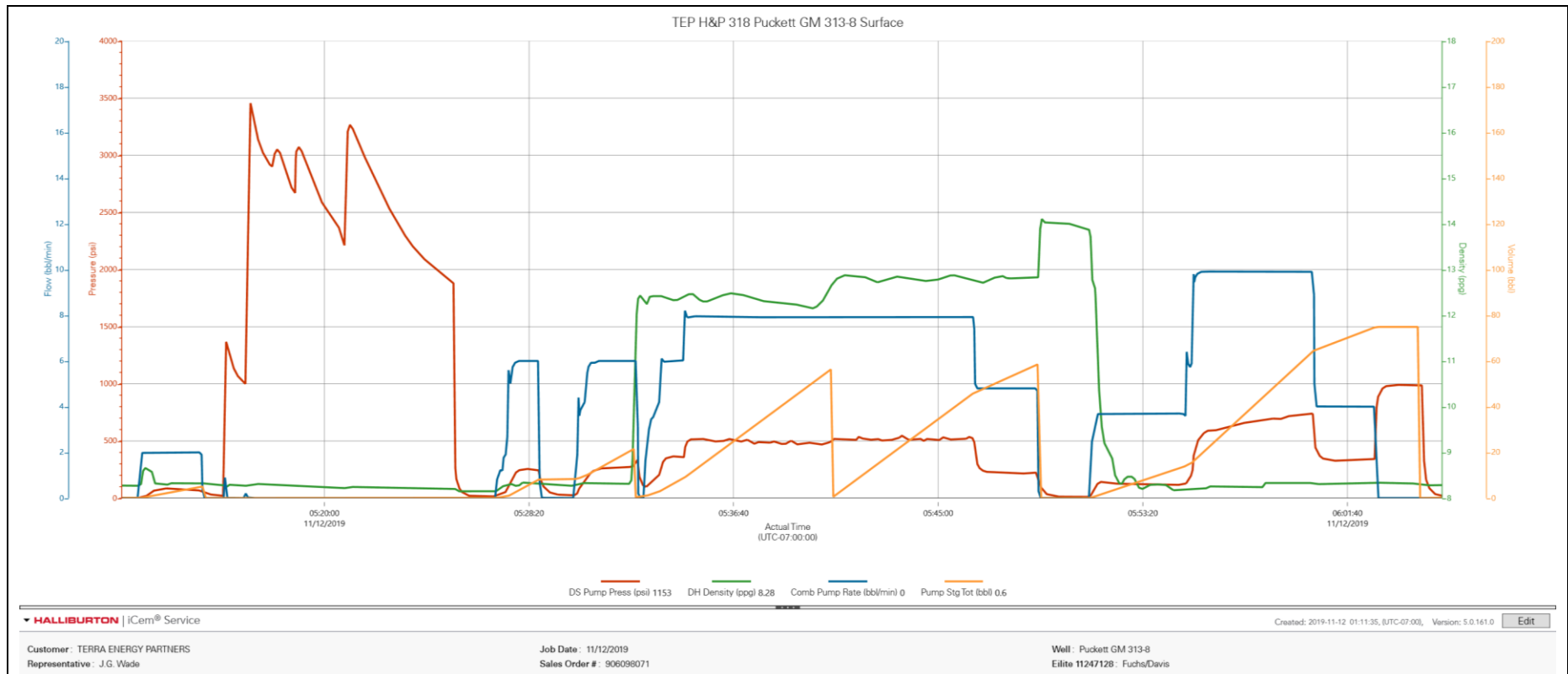
3.1 Pressure Test.png



3.2 Job Chart.png



3.3 Job Chart No Events.png



3.4 Casing Test.png

