

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS-EBUS**

Rock Springs District, WY

### **For: H&P 318**

Date: Sunday, October 27, 2019

### **Puckett**

Garfield, Puckett

API# 05-045-24100

Job Date: Sunday, October 27, 2019

Sincerely,

**Rock Springs Engineering**

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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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
<b>Called Out</b>	10/26/2019	2200	MST
<b>On Location</b>	10/27/2019	0345	MST
<b>Job Started</b>	10/27/2019	0700	MST
<b>Job Completed</b>	10/27/2019	0845	MST
<b>Departed Location</b>	10/27/2019	0930	MST

## 1.2 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	35
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9.8
4	Time circulated before job	HH:MM	01:25
5	Mud volume circulated	Bbls	515
6	Rate at which well was circulated	Bpm	6
7	Pipe movement during hole circulation	Y/N	Y
8	Rig pressure while circulating	Psi	750
9	Time from end mud circulation to start of job	HH:MM	00:20
10	Pipe movement during cementing	Y/N	Y
11	Calculated displacement	Bbls	103.16
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	10
16	Units of gas detected while circulating	Units	2,200
17	Was lost circulation experienced at any time ?	Y/N	N

1.3 Water Analysis Report

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**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	70	°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

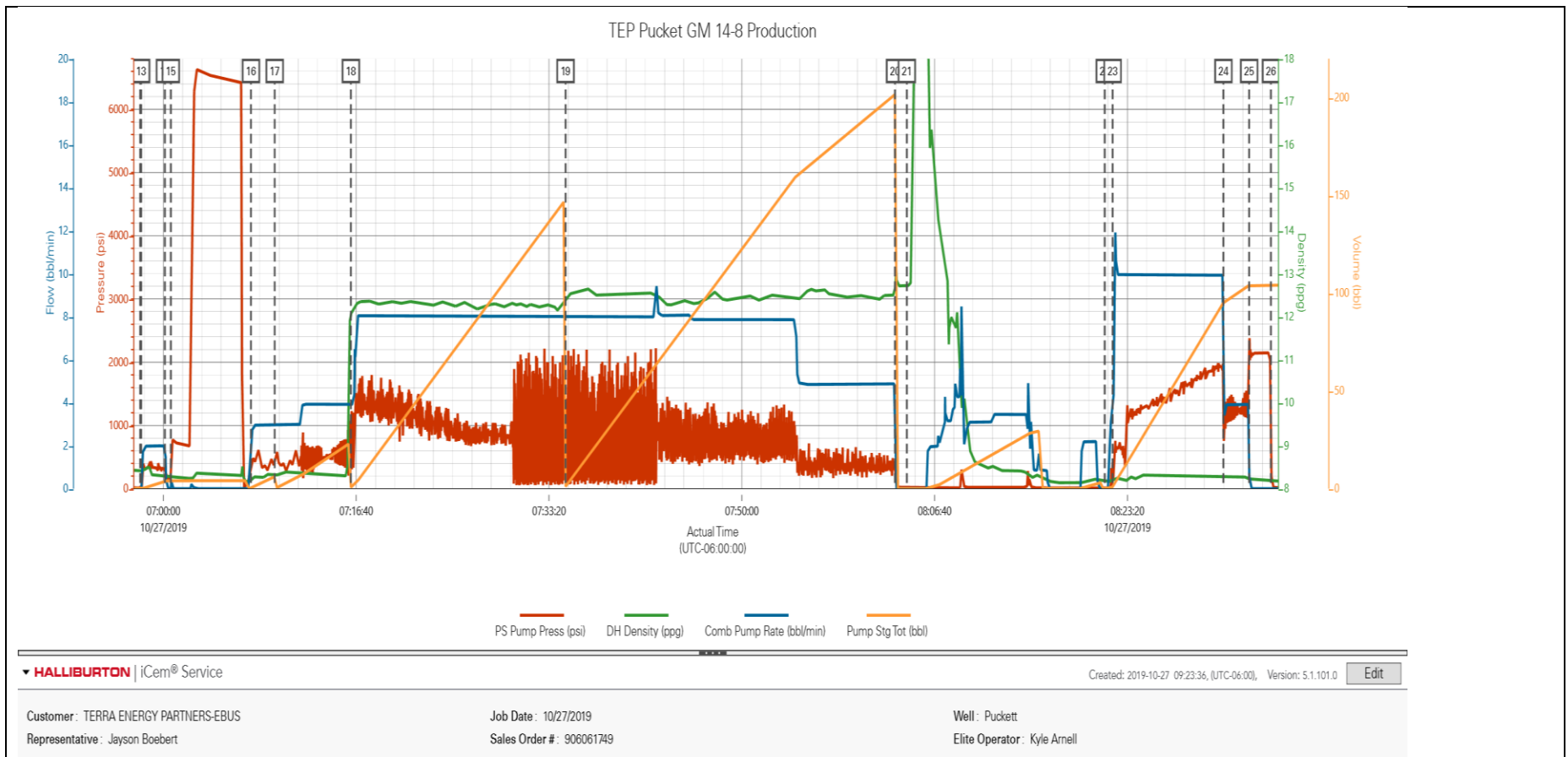
Type	Seq. No.	Graph Label	Date	Time	Source	PS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	10/26/2019	22:00:00	USER					CREW CALLED OUT TO H&P 318 FOR TERRA ENERGY PRODUCTION JOB. REQUESTED ON LOCATION AT 0400.
Event	2	Pre-Convoy Safety Meeting	10/27/2019	00:01:00	USER					ALL HAZARDS ASSOCIATED WITH DRIVING TO LOCATION DISCUSSED AMONG CREW MEMBERS
Event	3	Crew Leave Yard	10/27/2019	01:00:00	USER					CREW LEFT GRAND JUNCTION YARD.
Event	4	Arrive At Location	10/27/2019	03:45:00	USER					RIG WAS RUNNING CASING UPON HES ARRIVAL
Event	5	Assessment Of Location Safety Meeting	10/27/2019	03:46:00	USER					WITH ALL HES PERSONNEL
Event	6	Spot Equipment	10/27/2019	04:00:00	USER					SPOT EQUIPMENT
Event	7	Pre-Rig Up Safety Meeting	10/27/2019	04:10:00	USER					ALL HAZARDS ASSOCIATED WITH RIG UP DISCUSSED AMONG THE CREW
Event	8	Rig-Up Equipment	10/27/2019	04:20:00	USER					1-ELITE RCM PUMP TRUCK, 2-1,700 FT3 SILOS, 1-660 FT3 BULK TRUCK, 1-IRON TRUCK
Event	9	Rig-Up Completed	10/27/2019	05:00:00	USER					RIG UP COMPLETED WAITED FOR RIG TO FINISH RUNNING CASING
Event	10	Check Weight	10/27/2019	05:01:00	USER					PRESSURIZED MUD SCALES CALIBRATED USING FRESH WATER PRIOR TO JOB. ALL FLUID DENSITIES VERIFIED USING PRSSURIZED MUD SCALES THROUGHOUT JOB
Event	11	Pre-Job Safety Meeting	10/27/2019	06:40:00	USER					ALL HAZARDS ASSOCIATED WITH PUMPING THE JOB DISCUSSED AMONG ALL MEMEBRS ON LOCATION.
Event	19	Start Job	10/27/2019	06:58:00	USER	11.69	8.42	0.00	0.00	WE HAD ISSUES WITH THE COLLAR ON THE CASING PUP JOINT LEAKING. WE HAD TO TAKE OUR CEMENT HEAD OFF AND TIGHTEN THE COLLAR ON THE PUP JOINT.
Event	20	Pump Water	10/27/2019	06:58:05	USER	11.69	8.41	0.00	0.00	PUMP 4 BBL H2O TO PRIME PUMPS AND LINES. PUMPED AT 2 BPM WITH 300 PSI

Event	22	Shutdown	10/27/2019	07:00:08	USER	355.76	8.30	2.00	3.94	SHUTDOWN TO LINE OUT VALVES FOR PRESSURE TESTING.
Event	24	Pressure Test	10/27/2019	07:00:39	USER	217.01	8.27	0.07	4.07	SET KICKOUTS TO 500 PSI FOR LOW TEST TO ENSURE KICKOUTS FUNCTIONING PROPERLY. BROUGHT PRESSURE UP TO 6,600 PSI FOR HIGH TEST.
Event	31	Pump H2O Spacer	10/27/2019	07:07:34	USER	381.07	8.18	1.94	0.19	PUMPED 6 BBL OF H2O SPACER. PUMPED AT 3 BPM WITH 550 ON THE PRESSURE
Event	35	Pump Mud Flush III Spacer	10/27/2019	07:09:37	USER	419.51	8.32	2.96	6.18	PUMP 20 BBL MUD FLUSH III SPACER. PUMPED AT 4 BPM WITH 550 PSI. USED 80 LBS MUD FLUSH III FOR SPACER.
Event	54	Pump Lead Cement	10/27/2019	07:16:13	USER	1174.21	12.08	3.93	0.79	PUMP 133.2 BBL NEOCEM LEAD CEMENT. 340 SKS AT 12.3 PPG, 2.2 FT3/SK, 11.39 GAL/SK. PUMPED AT 8 BPM WITH 1,400 PSI. USED 75 LBS OF WELL LIFE 1094 IN LEAD CEMENT.
Event	98	Pump Tail Cement	10/27/2019	07:34:46	USER	1149.84	12.39	8.02	1.20	PUMP 147.7 BBL NEOCEM TAIL CEMENT. 465 SKS AT 12.5 PPG, 2.09 FT3/SK, 10.6 GAL/SK. PUMPED AT 8 BPM WITH 900 PSI.
Event	186	Shutdown	10/27/2019	08:03:15	USER	16.38	12.52	0.22	201.73	SHUTDOWN TO CLEAN PUMPS AND LINES AND DROP TOP PLUG.
Event	188	Clean Lines	10/27/2019	08:04:16	USER	19.19	12.72	0.00	0.00	WASH PUMPS AND LINES TO THE CELLAR
Event	194	Drop Top Plug	10/27/2019	08:21:22	USER	10.75	8.18	0.00	0.00	DROP HES TOP PLUG. PLUG LAUNCHED. WITNESSED BY CUSTOMER REP.
Event	195	Pump KCL H2O Displacement	10/27/2019	08:22:03	USER	414.82	8.20	3.71	0.85	PUMP 1053.16 BBL KCL H2O DISPLACEMENT. PUMPED AT 10 BPM WITH 2,000 PSI.
Event	196	Slow Rate	10/27/2019	08:31:38	USER	1646.72	8.30	7.61	95.39	SLOW RATE TO 4 BPM 10 BBL PRIOR TO CALCULATED DISPLACEMENT.
Event	197	Bump Plug	10/27/2019	08:33:52	USER	2015.16	8.21	0.55	104.15	PLUG BUMPED AT 4 BPM. FCP-1,400 PSI. BROUGHT PRESSURE UP TO 2,120 PSI. TOTAL DISPLACEMENT-103.16 BBL
Event	201	Check Floats	10/27/2019	08:35:44	USER	1057.02	8.22	0.00	104.15	FLOATS HOLDING. RETURNED 1 BBL FLUID TO TRUCK.
Event	203	End Job	10/27/2019	08:40:00	USER					PIPE WAS RECIPRICATED DURING JOB. GOOD CIRCULATION THROUGHOUT JOB.
Event	204	Pre-Rig Down Safety Meeting	10/27/2019	08:41:00	USER					ALL HAZARDS ASSOCIATED WITH RIG DOWN DISCUSSED AMONG THE CREW
Event	205	Rig-Down Equipment	10/27/2019	08:50:00	USER					
Event	206	Rig-Down Completed	10/27/2019	09:30:00	USER					

Event	207	Pre-Convoy Safety Meeting	10/27/2019	09:40:00	USER	ALL HAZARDS ASSOCIATED WITH DRIVING FROM LOCATION DISCUSSED AMONG CREW MEMBERS
Event	208	Crew Leave Location	10/27/2019	09:50:00	USER	
Event	209	Well Info	10/27/2019	09:51:00	USER	TD-6,691', TP-6,685.31' SET AT 6,681' SHOE- 29.78', HOLE-8 3/4", MUD- 9.8 PPG WBM, CSG-4 1/2" 11.6 LB/FT P-110, PREV CSG SET AT 1,010' 9 5/8" 36 LB/FT
Event	210	Rig Info	10/27/2019	09:52:00	USER	RIG ON BOTTOM AT 0545. CIRCULATED AT 6 BPM WITH 735 PSI. 515 BBL CIRCULATED. GAS- 2,200 UNITS
Event	211	Job Info	10/27/2019	09:53:00	USER	CALCULATED TOP OF TAIL CEMENT-3,495.63'. CALCULATED TOP OF LEAD CEMENT-1,060.63'. USED 80 LBS MUD FLUSH III, AND 10 GALLONS D-AIR FOR JOB. USED HES TOP PLUG. USED 1 GALLON MMCR. USED 3 POUNDS BE-6. USED 75 POUNDS OF WELLIFE 1094. 100 POUNDS OF SUGAR RETURNED TO THE BULK PLANT.
Event	212	Comment	10/27/2019	09:54:00	USER	THANK YOU FOR USING HALLIBURTON CEMENT DEPARTMENT. ZACHARY CRUTCHMAN AND CREW.

3.0 Attachments

3.1 TEP Puckett GM 14-8 - With Events.png



3.2 TEP Puckett GM 14-8- Without Events.png

