

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

For: H&P 318

Date: Saturday, October 12, 2019

Puckett GM 514-8 Production

GARFIELD, Puckett GM 514-8

API # 05-045-24094

Job Date: Saturday, October 12, 2019

Sincerely,

Rock Springs Engineering

Legal Notice

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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	10/11/19	18:00	MST
On Location	10/12/19	03:00	MST
Job Started	10/12/19	09:10	MST
Job Complete	10/12/19	11:42	MST
Depart Location	10/12/19	13:00	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	9.8
4	Time circulated before job	HH:MM	01:00
5	Mud volume circulated	Bbls	475
6	Rate at which well was circulated	Bpm	10
7	Pipe movement during hole circulation	Y/N	YES
8	Rig pressure while circulating	Psi	1500
9	Time from end mud circulation to start of job	HH:MM	0:10
10	Pipe movement during cementing	Y/N	Y
11	Calculated displacement	Bbls	107.2
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	0
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	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	10/11/2019	18:00:00	USER					Crew requested on location @ 03:00
Event	2	Pre-Convoy Safety Meeting	10/11/2019	21:00:00	USER					Have a JSA with crew on the hazards of driving to location
Event	3	Crew Leave Yard	10/11/2019	21:15:00	USER					
Event	4	Arrive At Loc	10/12/2019	03:00:00	USER					HD-6950, Casing-4.5 11.6# 6947.22' SJ-31.2' PC- 9.625" 36# @ 1017' Hole 8.75", Mud 9.8#
Event	5	Pre-Rig Up Safety Meeting	10/12/2019	03:05:00	USER					Have a JSA with crew on spotting equipment and rigging up bulk, water, and iron on the ground.
Event	6	Rig-Up Equipment	10/12/2019	03:10:00	USER					
Event	7	Pre-Job Safety Meeting	10/12/2019	07:00:00	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	10/12/2019	07:10:00	USER					Tob-08:30, Rate- 10 Bpm, 1500 Psi,
Event	9	Pump Water	10/12/2019	09:17:10	USER	-21.30	8.29	0.00	0.00	pump 5 Bbl of h2o ahead
Event	12	Pressure Test	10/12/2019	09:20:42	USER	118.39	8.29	0.00	5.03	500 psi low pressure kick out test
Event	25	Pressure Test	10/12/2019	09:24:44	USER	6353.80	8.38	0.00	5.04	Pressure test HES iron to 8000 psi No leaks
Event	34	Pump Spacer	10/12/2019	09:29:53	USER	675.27	8.31	5.25	0.90	Pump 20 Bbl of Mud flush III spacer @ 8.4 ppg @ 5 Bpm
Event	38	Pump Cement	10/12/2019	09:36:26	USER	2393.74	12.47	5.01	22.84	Pump 135 Bbl(345 sks) of NEOCEM cement @ 12.3 ppg, 2.21 ft/3, 11.58 gal/sk @ 8 Bpm
Event	66	Shutdown	10/12/2019	09:42:47	USER	269.33	11.30	6.62	19.61	Shutdown due to mixing issues
Event	96	Shutdown	10/12/2019	09:53:17	USER	213.08	12.25	3.33	70.43	shut down due to leak on hes iron
Event	165	Pump Cement	10/12/2019	10:25:17	USER	31.20	12.53	5.29	2.73	Pump 172 Bbl(460sks) of NEOCEM cement @ 12.4 ppg, 12.5 ft/3, 10.79 gal/sk @ 8 Bpm

Event	250	Shutdown	10/12/2019	11:08:22	USER	-15.68	14.06	0.00	0.00	Shutdown/ Wash pumps and lines to the pit
Event	256	Drop Top Plug	10/12/2019	11:16:20	USER	-22.24	-0.49	0.00	0.00	Drop top plug witnessed by Co-Man
Event	261	Pump Displacement	10/12/2019	11:18:33	USER	-22.24	-0.17	0.00	0.00	Pump 107.2 Bbl of displacement @ 10 Bpm with 1 gal of MMCR in the first 10 Bbl
Event	264	Slow Rate	10/12/2019	11:34:18	USER	842.15	10.50	3.72	129.30	Slow rate to 4 Bpm for the last 20 Bbl
Event	265	Bump Plug	10/12/2019	11:39:57	USER	180.00	9.75	0.00	136.11	Bump plug/ Final circ psi was 180, brought it up to 2600 psi for 5 min
Event	266	Check Floats	10/12/2019	11:42:04	USER					Floats held/ 1 Bbl back to the truck est top of tail cement at 3811' est top of lead cement at 1343' and est top of Mud Flush at 979"
Event	267	Pre-Rig Down Safety Meeting	10/12/2019	11:42:40	USER					JSA with crew on rigging down the equipment and lines
Event	268	Rig Down Equipment	10/12/2019	11:45:00	USER					
Event	269	Depart Location Safety Meeting	10/12/2019	12:45:00	USER					JSA with the crew on driving back to the yard
Event	270	Crew Leave Location	10/12/2019	13:00:00	USER					Thank you for choosing Halliburton, Brandon Hunt and Crew

3.0 Attachments

3.1 TERRA H&P 318 PUCKETT GM 514-8 PRODUCTION 906034805-Custom Results.png

