

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS-EBUS

Rock Springs District, Colorado

For: H&P 318

Date: Sunday, November 03, 2019

GM 444-8 Surface

API# 05-045-24102

Job Date: Sunday, November 03, 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	11-3-2019	02:00	MST
On Location	11-3-2019	05:30	MST
Job Started	11-3-2019	08:00	MST
Job Complete	11-3-2019	09:00	MST
Depart Location	11-3-2019	10:00	MST

1.2 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	28
2	Mud type (OBM, WBM, SBM, Water, Brine)	lb/gal	WBM
3	Actual mud density	lb/gal	9.3
4	Time circulated before job	HH:MM	00:30
5	Mud volume circulated	Bbls	300
6	Rate at which well was circulated	Bpm	10
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure while circulating	Psi	350
9	Time from end mud circulation to start of job	HH:MM	00:05
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	75.8
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	7
16	Units of gas detected while circulating	Units	NA
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	7.0	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Temperature	81	°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	11/3/2019	02:00:00	USER					REQUESTED ON LOCATION TIME 06:00
Event	2	Pre-Convoy Safety Meeting	11/3/2019	04:30:00	USER					WITH HES, JSA COMPLETED, 1 IRON TRUCK, 1 ELITE CEMENTING UNIT, 1 660 BULK TRUCK
Event	3	Arrive At Loc	11/3/2019	05:30:00	USER					RIG RUNNING CASING, UPON HES ARRIVAL
Event	4	Assessment Of Location Safety Meeting	11/3/2019	05:45:00	USER					WITH HES, JSA COMPLETED, SDS OFFERED FOR ALL HES MATERIALS
Event	5	Pre-Rig Up Safety Meeting	11/3/2019	06:00:00	USER					WITH HES, 1 LINE RAN TO THE FLOOR, 1 9.625 IN QUICK-LATCH PLUG CONTAINER
Event	6	Rig-Up Equipment	11/3/2019	06:10:00	USER					
Event	7	Water Test	11/3/2019	06:20:00	USER					TEMP 82 DEG F, PH 7.0, CHLOR 0
Event	8	Comment	11/3/2019	06:30:00	USER					TD 1030 FT, TP 1022.7 FT 9.625 IN 36 LB/FT, HOLE 13.5 IN, SHOE 40.7 FT
Event	9	Comment	11/3/2019	06:45:00	USER					RIG CIRCULATION, 300 BBL, 10 BBL/MIN, 270 PSI, MWT 9.3 LB/GAL WBM, PIPE WAS STATIC, RAT HOLE LENGTH 7 FT
Event	10	Start Job	11/3/2019	06:54:48	USER					
Event	11	Pre-Job Safety Meeting	11/3/2019	07:40:00	USER					WITH HES, TEP, AND H&P 318
Event	12	Start Job	11/3/2019	08:09:12	COM8					
Event	13	Fill Lines	11/3/2019	08:09:57	USER	58.00	9.03	2.10	0.80	5 BBL FRESH WATER
Event	14	Test Lines	11/3/2019	08:15:58	USER	3436.00	8.17	0.00	5.10	LOW TEST AT 1200 PSI, HIGH TEST AT 3436 PSI, PRESSURE HOLDING
Event	15	Pump Fresh Water Spacer	11/3/2019	08:18:26	USER	96.00	8.23	2.20	0.60	FRESH WATER, 20 BBL

Event	16	Pump Lead Cement	11/3/2019	08:27:04	USER	225.00	11.86	4.00	0.40	MIXED AT 12.3 LB/GAL, (VARICEM) 125 SKS, 2.38 FT3/SK, 13.74 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES
Event	17	Pump Tail Cement	11/3/2019	08:34:56	USER	641.00	12.61	8.10	2.00	MIXED AT 12.8 LB/GAL, 150 SKS (VARICEM), 2.38 FT3/SK, 13.74 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES
Event	18	Shutdown	11/3/2019	08:41:58	USER	391.00	12.55	6.00	52.80	
Event	19	Drop Top Plug	11/3/2019	08:44:01	USER	-21.00	13.00	0.00	54.10	PLUG LAUNCHED, CUSTOMER WITNESSED
Event	20	Pump Displacement	11/3/2019	08:45:59	USER	107.00	8.75	3.60	2.20	FRESH WATER
Event	21	Slow Rate	11/3/2019	08:54:22	USER	233.00	8.28	2.00	66.10	SLOWED AT 75 BBL AWAY TO 2 BBL/MIN
Event	22	Bump Plug	11/3/2019	08:58:00	USER	222.00	8.29	2.00	73.40	PLUG BUMPED AT CALCULATED DISPLACEMENT, 225 PSI
Event	23	Check Floats	11/3/2019	08:59:44	USER	1044.00	8.26	0.00	74.00	FLOATS HOLDING, PRESSURE HOLDING, .5 BBL RETURNED TO THE TANKS
Event	24	End Job	11/3/2019	09:10:00	USER					GOOD CIRCULATION, NO ADD HOURS, RIG DID NOT USE SUGAR, RIG USED TOP PLUG
Event	25	Pre-Rig Down Safety Meeting	11/3/2019	09:15:00	USER					WITH HES, JSA COMPLETED
Event	26	Rig Down Lines	11/3/2019	09:20:00	USER					
Event	27	Pre-Convoy Safety Meeting	11/3/2019	10:00:00	USER					WITH HES, JSA COMPLETED
Event	28	Comment	11/3/2019	10:10:00	USER					SPACER 20 BBL FRESH WATER, LEAD CEMENT 53 BBL, TAIL CEMENT 56, FINAL DISPLACEMENT 75.8 BBL, 25 BBL CEMENT CIRCUALTED TO SURFACE, TOP OF LEAD CEMENT 414 FT
Event	29	Crew Leave Location	11/3/2019	10:15:00	USER					THANKS FOR USING HALLIBURTON, JOHN KEANE AND CREW

3.0 Attachments

3.1 TEP - GM 444-8 - SURFACE.png

