

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS-EBUS

Rock Springs District, Wyoming

For: H&P 318

Date: Sunday, January 12, 2020

PJR - RWF-332-12 Surface

API# 05-045-24284-00

Sincerely,

John Keane

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 | 1-12-2019 | 04:00 | MST |
| On Location | 1-12-2019 | 09:00 | MST |
| Job Started | 1-12-2019 | 12:50 | MST |
| Job Complete | 1-12-2019 | 13:45 | MST |
| Depart Location | 1-12-2019 | 15:05 | MST |

1.2 Job Overview

| | | Units | Description |
|----|--|---------|-------------|
| 1 | Surface temperature at time of job | °F | 22 |
| 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 | 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 | 148 |
| 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 | 77.1 |
| 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 | 0 |
| 17 | Was lost circulation experienced at any time ? | Y/N | N |

1.3 Planned Pumping Schedule

| Description | Stage No. | Density (ppg) | Rate (bbl/min) | Yield (ft ³ /sack) | Water Req. (gal/sack) | Volume (bbl) | Bulk Cement (sacks) | Duration (min) |
|------------------------------------|-----------|------------------|-------------------|----------------------------------|--------------------------|-----------------|------------------------|-------------------|
| TEP Surface Mud | 1 | 8.40 | 4.00 | | | 0.00 | | 0.00 |
| Fresh Water Spacer | 2 | 8.33 | 8.00 | | | 20.00 | | 2.50 |
| VariCem GJ1 Lead Q3 2018 2500622/1 | 3 | 12.30 | 8.00 | 2.3787 | 13.772 | 52.96 | 125.00 | 6.62 |
| VariCem GJ1 Tail Q3 2018 2500623/1 | 4 | 12.80 | 8.00 | 2.1124 | 11.779 | 56.44 | 150.00 | 7.05 |
| Top Plug/Start Displacement | | | | | | | | |
| Fresh Water Displacement | 5-1 | 8.33 | 10.00 | | | 55.50 | | 5.55 |
| Fresh Water Displacement | 5-2 | 8.33 | 2.00 | | | 20.00 | | 10.00 |
| Total: | | | | | | 204.90 | | 31.72 |

1.4 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 | 62 | °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 | 1/12/2020 | 04:00:00 | USER | | | | | REQUESTED ON LOCATION TIME 10:00 |
| Event | 2 | Pre-Convoy Safety Meeting | 1/12/2020 | 08:00:00 | USER | | | | | WITH HES, JSA COMPLETED, 1 IRON TRUCK, 1 ELITE CEMENTING UNIT, 1 660 BULK TRUCK |
| Event | 3 | Arrive At Loc | 1/12/2020 | 09:00:00 | USER | | | | | RIG ON BOTTOM WITH CASING, CIRCULATING UPON HES ARRIVAL |
| Event | 4 | Assessment Of Location Safety Meeting | 1/12/2020 | 09:15:00 | USER | | | | | WITH HES, JSA COMPLETED, SDS OFFERED FOR ALL HES MATERIALS |
| Event | 5 | Pre-Rig Up Safety Meeting | 1/12/2020 | 09:30:00 | USER | | | | | WITH HES, 1 LINE RAN TO THE FLOOR, 1 9.625 IN QUICK-LATCH PLUG CONTAINER |
| Event | 6 | Rig-Up Equipment | 1/12/2020 | 09:45:00 | USER | | | | | |
| Event | 7 | Water Test | 1/12/2020 | 10:00:00 | USER | | | | | TEMP 62 DEG F, PH 7.0, CHLOR 0 |
| Event | 8 | Comment | 1/12/2020 | 10:10:00 | USER | | | | | TD 1052 FT, TP 1042 9.625 IN 36 LB/FT J-55, HOLE 13.5 IN, SHOE 44.6 FT |
| Event | 9 | Comment | 1/12/2020 | 10:15:00 | USER | | | | | RIG CIRCULATION, 300 BBL, 10 BBL/MIN, 148 PSI, MWT 9.8 LB/GAL WBM, PIPE WAS STATIC, RAT HOLE LENGTH 10 FT |
| Event | 10 | Pre-Job Safety Meeting | 1/12/2020 | 12:00:00 | USER | | | | | WITH HES, TEP, AND H&P 318 |
| Event | 11 | Start Job | 1/12/2020 | 12:43:35 | COM6 | | | | | |
| Event | 12 | Fill Lines | 1/12/2020 | 12:50:15 | USER | 94.00 | 8.41 | 3.00 | 1.70 | 5 BBL FRESH WATER |
| Event | 13 | Test Lines | 1/12/2020 | 12:54:11 | USER | 3532.00 | 8.31 | 0.00 | 3.10 | LOW TEST AT 1000 PSI, HIGH TEST AT 3500 PSI, PRESSURE HOLDING |
| Event | 14 | Pump Fresh Water Spacer | 1/12/2020 | 13:01:04 | USER | 74.00 | 8.26 | 3.90 | 0.80 | 20 BBL FRESH WATER |
| Event | 15 | Pump Lead Cement | 1/12/2020 | 13:06:09 | USER | 189.00 | 12.33 | 4.00 | 1.00 | MIXED AT 12.3 LB/GAL, (VARICEM) 125 SKS, 2.38 FT3/SK, 13.74 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES |

| | | | | | | | | | | |
|-------|----|-----------------------------|-----------|----------|------|--------|-------|------|-------|--|
| Event | 16 | Pump Tail Cement | 1/12/2020 | 13:15:45 | USER | 283.00 | 12.80 | 6.00 | 1.00 | MIXED AT 12.8 LB/GAL,(VARICEM) 150 SKS, 2.11 FT3/SK, 11.74 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 17 | Shutdown | 1/12/2020 | 13:21:58 | USER | 310.00 | 12.69 | 6.20 | 46.10 | |
| Event | 18 | Drop Top Plug | 1/12/2020 | 13:23:00 | USER | -22.00 | -0.03 | 0.00 | 47.60 | PLUG LAUNCHED, CUSTOMER WITNESSED |
| Event | 19 | Pump Displacement | 1/12/2020 | 13:24:11 | USER | 104.00 | 9.20 | 4.00 | 1.50 | FRESH WATER |
| Event | 20 | Slow Rate | 1/12/2020 | 13:33:00 | USER | 217.00 | 8.03 | 2.10 | 69.40 | SLOWED AT 67 BBL AWAY TO 2 BBL/MIN |
| Event | 21 | Bump Plug | 1/12/2020 | 13:36:20 | USER | 228.00 | 8.01 | 2.00 | 76.20 | PLUG BUMPED AT CALCULATED DISPLACEMENT, 245 PSI |
| Event | 22 | Check Floats | 1/12/2020 | 13:37:36 | USER | 770.00 | 8.01 | 0.00 | 76.90 | FLOATS HOLDING, 745 PSI PRESSURE HOLDING, .5 BBL RETURNED TO THE TANKS |
| Event | 23 | End Job | 1/12/2020 | 13:45:00 | USER | 2.00 | 7.97 | 0.60 | 76.90 | GOOD CIRCULATION, NO ADD HOURS, RIG DID NOT USE SUGAR, RIG USED TOP PLUG, |
| Event | 24 | Pre-Rig Down Safety Meeting | 1/12/2020 | 13:50:00 | USER | | | | | WITH HES, JSA COMPLETED |
| Event | 25 | Rig Down Lines | 1/12/2020 | 14:00:00 | USER | | | | | |
| Event | 26 | Pre-Convoy Safety Meeting | 1/12/2020 | 15:00:00 | USER | | | | | WITH HES, JSA COMPLETED |
| Event | 27 | Comment | 1/12/2020 | 15:05:00 | USER | | | | | SPACER 20 BBL FRESH WATER, LEAD CEMENT 53 BBL, TAIL CEMENT 56 BBL, FINAL DISPLACEMENT 77 BBL, 14 BBL CEMENT CIRCULATED TO SURFACE, TOP OF TAIL CEMENT 434 FT |
| Event | 28 | Crew Leave Location | 1/12/2020 | 15:10:00 | USER | | | | | THANKS FOR USING HALLIBURTON, JOHN KEANE AND CREW |

3.0 Attachments

3.1 TEP-RWF-332-12-Surface.png

