

HALLIBURTON

iCem[®] Service

CATAMOUNT EXPLORATION LLC

For: Reed Fischer

Date: Sunday, November 12, 2017

IGS-145B

IGS-145B

CATAMOUNT - IGS-145B - PRODUCTION

Job Date: Saturday, November 11, 2017

Sincerely,

Farmington Cement Engineering

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Table of Contents

1.0 Job Design 4

1.1 Overview.....4

1.2 Pump Schedule4

2.0 Real-Time Job Summary 5

2.1 Job Event Log5

3.0 Attachments..... 8

3.1 CATAMOUNT - IGS-145B - PRODUCTION-Chart With Events.png8

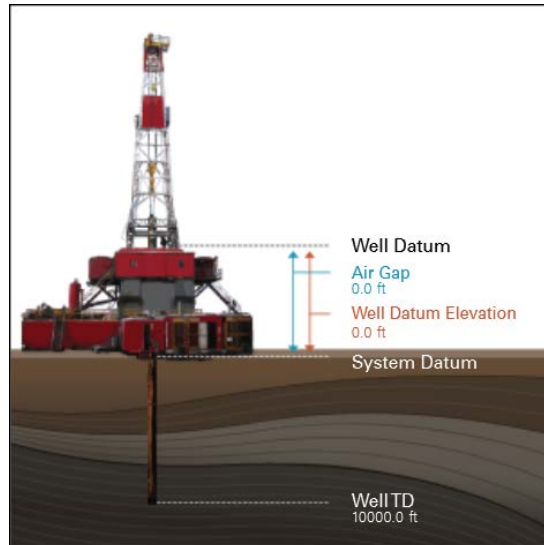
3.2 CATAMOUNT - IGS-145B - PRODUCTION- Chart.png9

1.0 Job Design

1.1 Overview

| | |
|----------------|---------------------|
| Job Type | Primary Cement Job |
| Injection Path | Casing/Conventional |
| Foam Job | No |

Well Snapshot



Simulations Performed

1.2 Pump Schedule

| Description | Stage No. | Density (ppg) | Rate (bbl/min) | Yield (ft ³ /sack) | Water Req. (gal/sack) | Volume (bbl) | Bulk Cement (sacks) | Duration (min) |
|-----------------------------|-----------|------------------|-------------------|----------------------------------|--------------------------|-----------------|------------------------|-------------------|
| Int Mud | 1 | 9.20 | 4.00 | | | 0.00 | | 0.00 |
| Tuned Spacer | 2 | 11.50 | 5.00 | | | 20.00 | | 4.00 |
| PRB Lead 2334020/1 | 3 | 12.30 | 5.00 | 2.4347 | 13.641 | 47.70 | 110.00 | 9.54 |
| PRB Lead 2334020/1 w/CBL | 4 | 12.30 | 5.00 | 2.4347 | 13.641 | 67.21 | 155.00 | 13.44 |
| PRB Tail 2334025/1 | 5-1 | 13.50 | 5.00 | 1.8690 | 9.406 | 49.93 | 150.00 | 9.99 |
| Shutdown | 5-2 | | | 1.8690 | 9.406 | | 0.00 | 10.00 |
| Top Plug/Start Displacement | | | | | | | | |
| Fresh Water | 6-1 | 8.33 | 5.00 | | | 60.00 | | 12.00 |
| Fresh Water | 6-2 | 8.33 | 4.00 | | | 20.00 | | 5.00 |
| Fresh Water | 6-3 | 8.33 | 2.00 | | | 11.06 | | 5.53 |
| Total: | | | | | | 275.90 | | 69.50 |

*Pump schedule may include additional rows for displacement if "Automatic Rate Adjustment" was enabled and ECDs approached the fracture gradient.

2.0 Real-Time Job Summary

2.1 Job Event Log

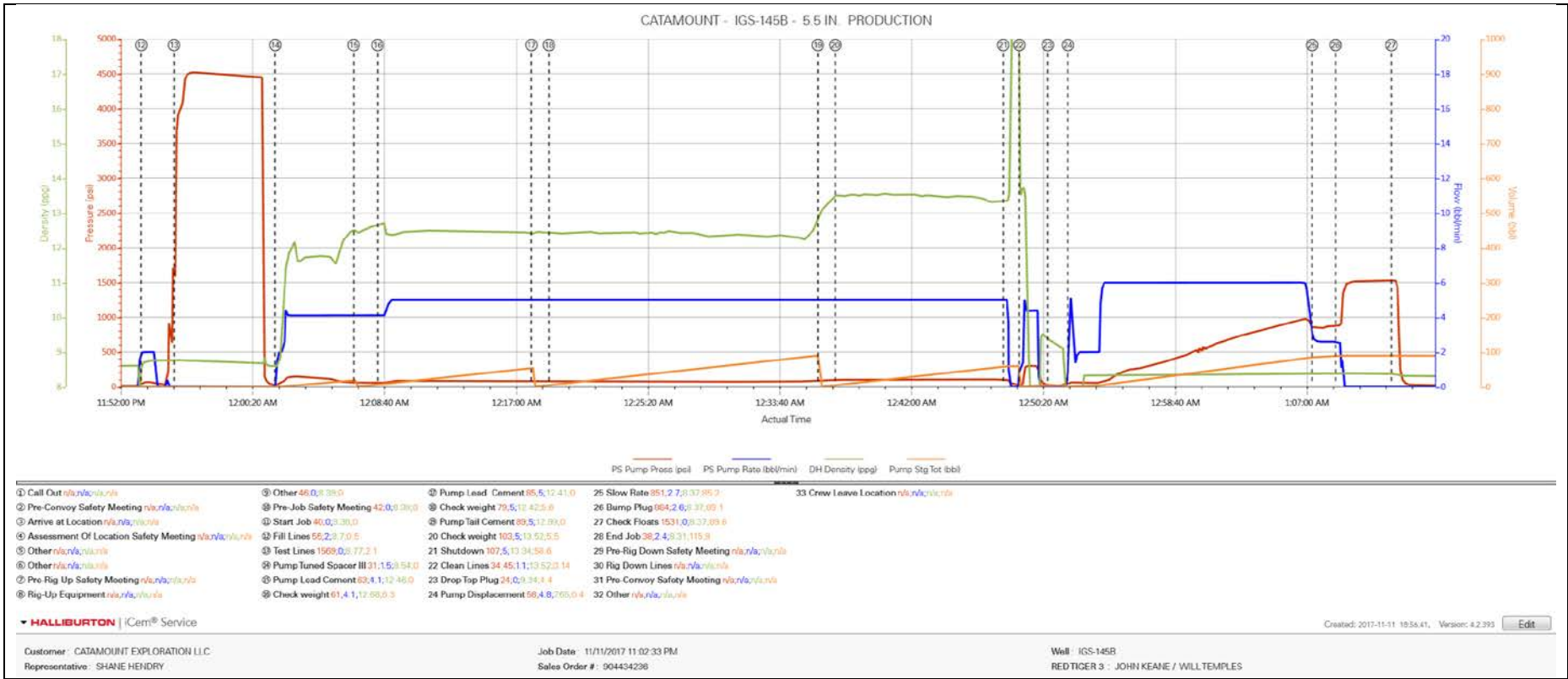
| Type | Seq. No. | Graph Label | Date | Time | Source | PS Pump Press (psi) | PS Pump Rate (bbl/min) | DH Density (ppg) | Pump Stg Tot (bbl) | Comments |
|-------|----------|---------------------------------------|------------|----------|--------|------------------------|---------------------------|---------------------|-----------------------|--|
| Event | 1 | Call Out | 11/11/2017 | 14:30:00 | USER | | | | | REQUESTED ON LOCATION TIME 18:30 |
| Event | 2 | Pre-Convoy Safety Meeting | 11/11/2017 | 16:10:00 | USER | | | | | WITH HES, JSA COMPLETED, 1 F-450, 1 RED TIGER CEMENTING UNIT, 2 660 BULK TRUCKS |
| Event | 3 | Arrive at Location | 11/11/2017 | 17:20:00 | USER | | | | | RIG RUNNING CASING, UPON HES ARRIVAL |
| Event | 4 | Assessment Of Location Safety Meeting | 11/11/2017 | 17:40:00 | USER | | | | | WITH HES, JSA COMPLETED, SDS OFFERED FOR ALL HES MATERIALS |
| Event | 5 | Other | 11/11/2017 | 18:00:00 | USER | | | | | WATER TEST, CHLOR 0, TEMP 54 DEG F, PH 7.4 |
| Event | 6 | Other | 11/11/2017 | 19:00:00 | USER | | | | | TD 3950 FT, TP 3935 FT, CSG 5.5 IN. 17.0 LB/FT J-55, HOLE 7.875 IN. SHOE 45.08 FT, SURFACE SET AT 406 FT, 9.625 IN 36 LB/FT J-55 |
| Event | 7 | Pre-Rig Up Safety Meeting | 11/11/2017 | 22:30:00 | USER | | | | | WITH HES, JSA COMPLETED |
| Event | 8 | Rig-Up Equipment | 11/11/2017 | 22:45:00 | USER | | | | | 1 LINE RAN TO THE FLOOR, 1 LINE RAN TO THE PIT, MANIFOLD ON THE GROUND, 1 5.5 IN. QUICK-LATCH PLUG CONTAINER |
| Event | 9 | Other | 11/11/2017 | 23:25:00 | USER | | | | | RIG CIRCULATION: 756 BBL, 6.3 BBL/MIN, 283 PSI, PIPE WAS STATIC, RAT HOLE LENGTH 15 FT, MWT 9.6 LB/GAL WBM |
| Event | 10 | Pre-Job Safety Meeting | 11/11/2017 | 23:30:00 | USER | 42.00 | 0.00 | 8.38 | 0.0 | WITH HES, CATAMOUNT, AND D&J 3, JSA COMPLETED |
| Event | 11 | Start Job | 11/11/2017 | 23:46:32 | COM4 | 40.00 | 0.00 | 8.36 | 0.0 | |
| Event | 12 | Fill Lines | 11/11/2017 | 23:53:24 | USER | 55.00 | 2.00 | 8.33 | 2.0 | 2 BBL FRESH WATER, RETURNS AT 1 BBL AWAY |

| | | | | | | | | | | |
|-------|----|-----------------------|------------|----------|------|---------|------|-------|------|---|
| Event | 13 | Test Lines | 11/11/2017 | 23:56:48 | COM4 | 4517.00 | 0.00 | 8.33 | 2.1 | PRESSURE TEST LINES TO 4519 PSI, NO LEAKS. |
| Event | 14 | Pump Tuned Spacer III | 11/12/2017 | 00:02:26 | COM4 | 126.00 | 4.30 | 11.46 | 1.3 | MIXED AT 11.5 LB/GAL, 20 BBL, 3.73 FT3/SK, 24 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 15 | Pump Lead 1 Cement | 11/12/2017 | 00:06:50 | COM4 | 63.00 | 4.10 | 12.40 | 47.6 | MIXED AT 12.3 LB/GAL, 110 SKS, 2.43 FT3/SK, 13.61 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 16 | Check weight | 11/12/2017 | 00:08:21 | COM4 | 61.00 | 4.10 | 12.40 | 6.3 | DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 17 | Pump Lead 2 Cement | 11/12/2017 | 00:18:04 | COM4 | 85.00 | 5.00 | 12.41 | 67.1 | MIXED AT 12.3 LB/GAL, 155 SKS, 2.43 FT3/SK, 13.64 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 18 | Check weight | 11/12/2017 | 00:19:11 | COM4 | 79.00 | 5.00 | 12.42 | 5.6 | DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 19 | Pump Tail Cement | 11/12/2017 | 00:36:11 | COM4 | 89.00 | 5.00 | 13.50 | 50.0 | MIXED AT 13.5 LB/GAL, 150 SKS, 1.87 FT3/SK, 9.4 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 20 | Check weight | 11/12/2017 | 00:37:17 | COM4 | 103.00 | 5.00 | 13.52 | 5.5 | DENSITY VERIFIED USING PRESSURIZED MUD SCALES |
| Event | 21 | Shutdown | 11/12/2017 | 00:47:54 | USER | 107.00 | 5.00 | 13.34 | 58.6 | |
| Event | 22 | Clean Lines | 11/12/2017 | 00:48:55 | COM4 | | | | | WASHED PUMPS AND LINES TO THE RESERVE PIT |
| Event | 23 | Drop Top Plug | 11/12/2017 | 00:50:43 | USER | 24.00 | 0.00 | 9.34 | 4.4 | PLUG LAUNCHED, CUSTOMER WITNESSED |
| Event | 24 | Pump Displacement | 11/12/2017 | 00:51:59 | COM4 | 58.00 | 4.80 | 8.33 | 0.4 | FRESH WATER |
| Event | 25 | Slow Rate | 11/12/2017 | 01:07:26 | USER | 851.00 | 2.70 | 8.37 | 80.0 | SLOWED RATE TO 2 BBL/MIN AT 80 BBL AWAY |
| Event | 26 | Bump Plug | 11/12/2017 | 01:08:55 | USER | 884.00 | 2.60 | 8.37 | 90.2 | PLUG BUMPED AT CALCULATED DISPLACEMENT, 890 PSI |

| | | | | | | | | | | |
|-------|----|-----------------------------|------------|----------|------|---------|------|------|------|--|
| Event | 27 | Check Floats | 11/12/2017 | 01:12:27 | USER | 1531.00 | 0.00 | 8.37 | 90.2 | FLOATS HOLDING, .5 BBL RETURNED TO THE TRUCK |
| Event | 28 | End Job | 11/12/2017 | 01:30:08 | COM4 | | | | | GOOD CIRCULATION, NO ADD HOURS, RIG USED 100 LBS SUGAR, RIG SUPPLIED THE TOP PLUG |
| Event | 29 | Pre-Rig Down Safety Meeting | 11/12/2017 | 01:40:00 | USER | | | | | WITH HES, JSA COMPLETED |
| Event | 30 | Rig Down Lines | 11/12/2017 | 01:45:00 | USER | | | | | |
| Event | 31 | Pre-Convoy Safety Meeting | 11/12/2017 | 02:30:00 | USER | | | | | WITH HES, JSA COMPLETED |
| Event | 32 | Other | 11/12/2017 | 02:30:01 | USER | | | | | SPACER 20 BBL TUNED SPACER III, LEAD 1 CEMENT 47.6 BBL, LEAD 2 CEMENT 67.1 BBL, TAIL CEMENT 50 BBL, FINAL DISPLACEMENT 90.2 BBL, TOP OF TAIL CEMENT 2350 FT, 20 BBL CEMENT CIRCULATED TO SURFACE |
| Event | 33 | Crew Leave Location | 11/12/2017 | 02:40:00 | USER | | | | | THANKS FOR USING HALLIBURTON, JOHN KEANE AND CREW |

3.0 Attachments

3.1 CATAMOUNT - IGS-145B - PRODUCTION-Chart With Events.png



3.2 CATAMOUNT - IGS-145B - PRODUCTION- Chart.png

