

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

Legal Notice

Warning Disclaimer

Although the information contained in this report is based on sound engineering practices, the copyright owner(s) does (do) not accept any responsibility whatsoever, in negligence or otherwise, for any loss or damage arising from the possession or use of the report whether in terms of correctness or otherwise. The application, therefore, by the user of this report or any part thereof, is solely at the user's own risk.

Limitations of Liability

Except as expressly set forth herein, there are no representations or warranties by Halliburton, express or implied, including implied warranties of merchantability and/or fitness for a particular purpose. In no event will Halliburton or its suppliers be liable for consequential, incidental, special, punitive or exemplary damages (including, without limitation, loss of data, profits, use of hardware, or software). Customer accepts full responsibility for any investment made based on results from the Software. Any interpretations, analyses or modeling of any data, including, but not limited to Customer data, and any recommendation or decisions based upon such interpretations, analyses or modeling are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional may differ. Accordingly, Halliburton cannot and does not warrant the accuracy, correctness or completeness of any such interpretation, recommendation, modeling or other products of the Software Product. As such, any interpretation, recommendation or modeling resulting from the Software for the purpose of any drilling, well treatment, production or financial decision will be at the sole risk of Customer. Under no circumstances will Halliburton or its suppliers be liable for any damages.

Table of Contents

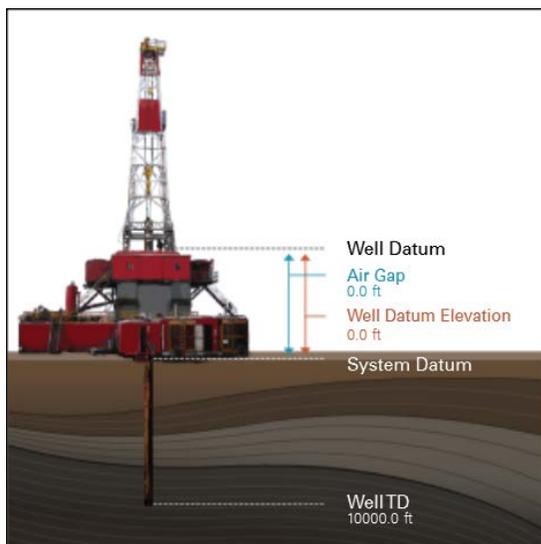
1.0	Job Design	4
1.1	Overview.....	4
1.2	Pump Schedule	4
2.0	Real-Time Job Summary	5
2.1	Job Event Log	5
3.0	Attachments.....	8
3.1	CATAMOUNT - IGS-145B - PRODUCTION-Chart With Events.png	8
3.2	CATAMOUNT - IGS-145B - PRODUCTION- Chart.png	9

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

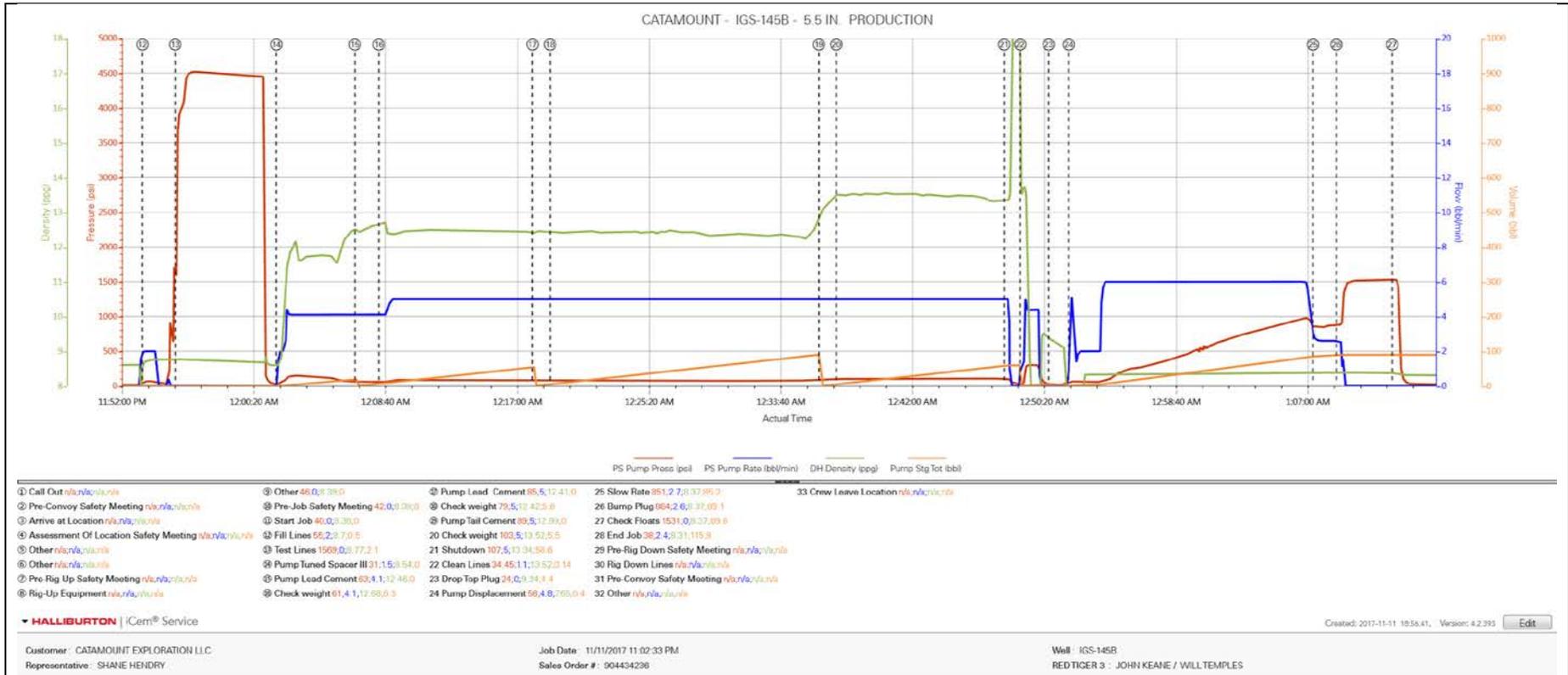
Type	Seq. No.	Graph Label	Date	Time	Source	PS Pump Press (psi)	PS Pump Rate (bbl/min)	DH Density (ppg)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	11/11/2017	14:30:00	USER					REQUESTED ON LOCATION TIME 18:30
Event	2	Pre-Convoy Safety Meeting	11/11/2017	16:10:00	USER					WITH HES, JSA COMPLETED, 1 F-450, 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

