

# HALLIBURTON

iCem<sup>®</sup> Service

## **CATAMOUNT ENERGY PARTNERS LLC-EBUS**

United States of America, COLORADO

**For: BRETT HOUSTON**

Date: Tuesday, July 24, 2018

**JAQUES #11**

LA PLATA, JAQUES #11

CATAMOUNT

Job Date: Saturday, July 14, 2018

Sincerely,

**LEMONT JOJOLA**

## Legal Notice

---

### Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. iCem 3D Displacement results are used to understand how fluids intermix during a cement job. Simulation and 3D displacement results are not intended as and should not be used as a replacement for bond logs in determining top of cement. Current 3D model calculations are known to model more volume than the input volume for standard cases due to known calculation improvements required. For rotational cases, the modeled volume will be impacted by the same calculations impacting the standard cases, as well as additional constraints imposed to make the calculation time required operationally feasible. Therefore, until further notice, 3D displacement results should not be used for replacement of a bond log, or used as an identifier of top of cement. HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

## Table of Contents

---

1.0	Job Design .....	4
1.1	Pump Schedule .....	4
2.0	Real-Time Job Summary .....	5
2.1	Job Event Log .....	5
3.0	Attachments.....	8
3.1	CATAMOUNT -Custom Results.png.....	8

## 1.0 Job Design

### 1.1 Pump Schedule

Description	Stage No.	Density (ppg)	Rate (bbl/min)	Yield (ft <sup>3</sup> /sack)	Water Req. (gal/sack)	Volume (bbl)	Bulk Cement (sacks)	Duration (min)
Spud Mud	1	8.40	4.00			0.00		0.00
Fresh Water	2	8.33	4.00			10.00		2.50
Surface Blend 2334018	3	15.80	4.50	1.1745	5.156	61.71	295.00	13.71
Top Plug/Start Displacement								
Fresh Water	4-1	8.33	5.00			13.00		2.60
Fresh Water	4-2	8.33	2.00			10.10		5.05
<b>Total:</b>						<b>94.81</b>		<b>23.86</b>

*\*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.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	PS Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	7/14/2018	06:00:00	USER					CEMENT CREW CALLED OUT
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	7/14/2018	08:30:00	USER					SAFETY MEETING HELD WITH CEMENT CREW
Event	3	Depart Home for Location	Depart Home for Location	7/14/2018	08:45:00	USER					1-PICKUP 11583927, 1- RED TIGER 12638114, 1- BULK TRUCKS 11338219 - 10001398
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	7/14/2018	10:00:00	USER					SAFETY MEETING HELD WITH CEMENT CREW
Event	5	Arrive At Loc	Arrive At Loc	7/14/2018	10:00:00	USER					CEMENT CREW ARRIVES ON LOCATION
Event	6	Comment	Comment	7/14/2018	10:05:00	USER					RIG CREW IS RUNNING IN HOLE WITH CASING AT TIME OF ARRIVAL
Event	7	Rig-Up Equipment	Rig-Up Equipment	7/14/2018	10:05:00	USER					CEMENT CREW RIGS UP EQUIPMENT
Event	8	Other	Tubulars	7/14/2018	10:10:00	USER	-38.00	0.00	0.00	0.00	TD = 396 FT, TP = 8 5/8" 24# SET @ 381 FT, SJ = 40 FT, OH =12 1/4"
Event	9	Other	Water Test	7/14/2018	10:15:00	USER	-39.00	-1.01	0.00	0.00	TEMPERATURE = 60 DEGREES, CHLORIDES = 0, PH = 7
Event	10	Start Job	Start Job	7/14/2018	10:25:48	COM5	35.00	8.32	0.00	0.00	
Event	11	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/14/2018	11:00:22	USER	-10.00	8.46	0.00	0.00	SAFETY MEETING HELD WITH EVERYONE ON LOCATION
Event	12	Pressure Test	Pressure Test	7/14/2018	11:13:53	USER	2058.00	8.35	0.00	2.10	PRESSURE TEST GOOD TO

											/// PSI
Event	13	Check Weight	Check Weight	7/14/2018	11:17:16	COM5	2820.00	8.55	0.00	2.10	CHECK CEMENT WEIGHT = 15.8#
Event	14	Pump Spacer	Pump Spacer	7/14/2018	11:18:24	USER	0.00	8.39	1.10	2.10	PUMPED 10 BBLS H2O
Event	15	Pump Cement	Pump Cement	7/14/2018	11:20:30	USER	67.00	9.88	4.50	0.30	295 SKS 1.18 CUFT/SK 5.24 GAL/SK = 62 BBLS @ 15.8# 37 BBLS H2O REQ
Event	16	Cement Returns to Surface	Cement Returns to Surface	7/14/2018	11:34:33	USER	131.00	16.46	4.50	63.30	CALCULATED 31 BBLS OF CEMENT BACK TO SURFACE, ACTUALLY CIRCULATED 30 BBLS OF CEMENT BACK TO SURFACE
Event	17	Shutdown	Shutdown	7/14/2018	11:35:01	USER	111.00	16.41	1.70	65.30	SHUTDOWN DROP PLUG
Event	18	Pump Displacement	Pump Displacement	7/14/2018	11:35:41	USER	3.00	17.03	0.00	0.00	CALCULATED 21.6 BBLS TO DISPLACE CEMENT, ACTUALLY PUMPED 21 BBLS TANK TO TANK MARK TO MARK
Event	19	Shutdown	Shutdown	7/14/2018	11:36:38	USER	99.00	8.00	5.10	4.20	SHUTDOWN END JOB, THANK YOU FOR CHOOSING HALLIBURTON LEMONT JOJOLA AND CREW
Event	20	Bump Plug	Bump Plug	7/14/2018	11:41:30	USER	129.00	7.51	2.70	20.80	CALCULATED 132 PSI TO LAND PLUG, PLUG BUMPED @ 274 PSI PRESSURED UP TO 769 PSI
Event	21	Check Floats	Check Floats	7/14/2018	11:46:40	USER	550.00	7.57	0.00	21.00	CHECK FLOATS, FLOATS HELD 1/4 BBLS BACK
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	7/14/2018	11:55:00	USER					SAFETY MEETING HELD WITH CEMENT CREW
Event	23	Rig-Down Equipment	Rig-Down Equipment	7/14/2018	12:00:00	USER					CEMENT CREW RIGS DOWN EQUIPMENT
Event	24	Depart Location	Depart Location	7/14/2018	12:35:00	USER					CENEMT CREW DEPARTS LOCATION

---

Event	25	Depart Location Safety Meeting	Depart Location Safety Meeting	7/14/2018	21:30:00	USER	SAFETY MEETING HELD WITH CEMENT CREW
-------	----	--------------------------------	--------------------------------	-----------	----------	------	--------------------------------------

---

3.0 Attachments

3.1 CATAMOUNT -Custom Results.png

