

# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Tuesday, August 20, 2019

**CC 0697-03-10W Surface PJR**

API# 05-045-23927-00

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	8/20/2019	02:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	8/20/2019	04:30:00	USER					JOURNEY MANAGEMENT COMPLETE, AS WELL AS JSA
Event	3	Crew Leave Yard	8/20/2019	05:00:00	USER					
Event	4	Arrive At Loc	8/20/2019	07:00:00	USER					JOURNEY MANAGEMENT CLOSED OUT.
Event	5	Rig-Up Equipment	8/20/2019	07:25:00	USER					
Event	6	Assessment Of Location Safety Meeting	8/20/2019	07:30:00	USER					
Event	7	Pre-Rig Up Safety Meeting	8/20/2019	07:35:00	USER					JSA COMPLETE
Event	8	Pre-Job Safety Meeting	8/20/2019	08:30:00	USER					JSA COMPLETE
Event	9	Other	8/20/2019	09:02:44	USER					WATER TEST: PH-7, CL-0, TEMP-72  WELL INFO: 9 5/8 36# SET @ 2598.35, TD-2610, F.C.- 2557.74, HOLE- 14.5, MUD#-9.0
Event	10	Other	8/20/2019	09:03:34	USER					MUD SCALES CHECKED WITH WATER PRIOR TO JOB.
Event	11	Start Job	8/20/2019	09:07:51	COM5					
Event	12	Test Lines	8/20/2019	09:12:40	USER			3552.00		3552 PSI

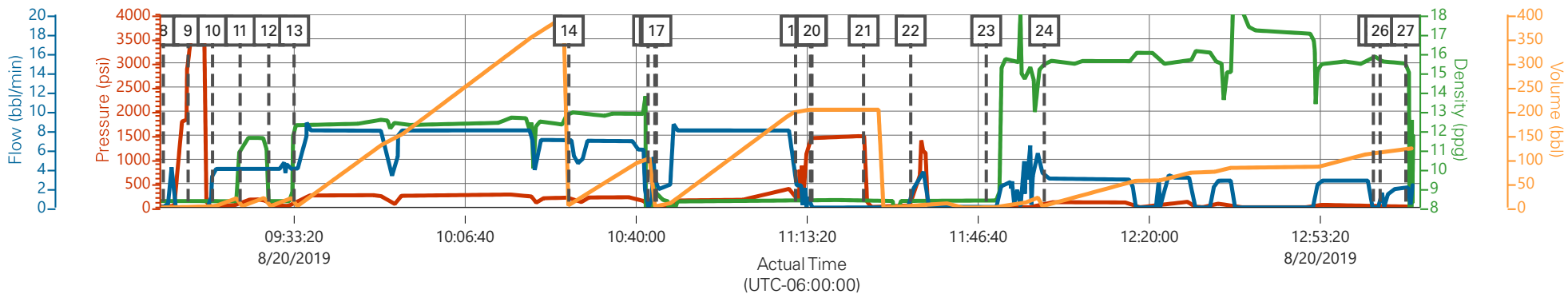
Event	13	Pump Spacer 1	8/20/2019	09:17:26	USER	8.33	4.00	30.00	20.0	FRESH WATER
Event	14	Pump Spacer 2	8/20/2019	09:22:48	USER	11.20	4.00	102.00	20.0	SUPERFLUSH
Event	15	Pump Spacer 1	8/20/2019	09:28:23	USER	8.33	4.00	57.00	20.0	FRESH WATER
Event	16	Pump Lead Cement	8/20/2019	09:33:20	USER	12.30	8.00	106.00	370.6	878 SKS VARICEM, 12.3 PPG, 2.37 FT3/SK, 13.74 GAL/SK
Event	17	Pump Tail Cement	8/20/2019	10:26:52	USER	12.80	8.00	247.00	94.7	252 SKS VARICEM, 12.8 PPG, 2.11 FT3/SK, 11.75 GAL/SK
Event	18	Shutdown	8/20/2019	10:42:19	USER					TO DROP TOP PLUG AND WASH UP ON TOP OF PLUG.
Event	19	Drop Top Plug	8/20/2019	10:43:38	USER					AWAY
Event	20	Pump Displacement	8/20/2019	10:43:56	USER	8.33	8.0	400.0	197.7	FRESH WATER
Event	21	Slow Rate	8/20/2019	11:11:04	USER	8.33	2.30	196.00	187.7	TO BUMP PLUG
Event	22	Bump Plug	8/20/2019	11:13:57	USER			1443.00		PLUG BUMPED ON CALCULATED
Event	23	Other	8/20/2019	11:14:15	USER			1455.00		CASING TEST FOR 10 MINS.
Event	24	Check Floats	8/20/2019	11:24:19	USER			1481.00		1.5 BBLS BACK TO TRUCK, FLOATS HELD
Event	25	Standby Other	8/20/2019	11:33:30	USER	8.33	2.0	56.00	10.00	PUMP 10 BBLS OF SUGAR WATER DOWN PARASITE STRING. 10 LBS SUGAR USED
Event	26	Pump Spacer	8/20/2019	11:48:13	USER	8.33	1.00	8.00	1.00	FRESH WATER TO MAKE SURE IRON IS CLEAR
Event	27	Pump Cement	8/20/2019	11:59:32	USER	15.60	3.00	112.00	96.7	456 SKS TOP OUT, 15.6 PPG, 1.19 FT3/SK, 5.24 GAL/SK. 2 BAGS OF CALCIUM CHLORIDE IN CEMENT  RAN 12 BBLS OF SUPERFLUSH DOWN BACKSIDE TOTAL
Event	28	SHUTDOWN	8/20/2019	13:03:40	USER					SHUTDOWN CEMENT
Event	29	End Job	8/20/2019	13:05:00	USER					NO CEMENT OR RETURNS TO SURFACE DURING THE PRIMARY JOB. NO PIPE MOVEMENT.

Event	30	Post-Job Safety Meeting (Pre Rig-Down)	8/20/2019	13:10:00	USER
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Event	31	Crew Leave Location	8/20/2019	15:00:00	USER
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THANK YOU FOR USING HALLIBURTON CEMENT,  
JAMES LEIST AND CREW.

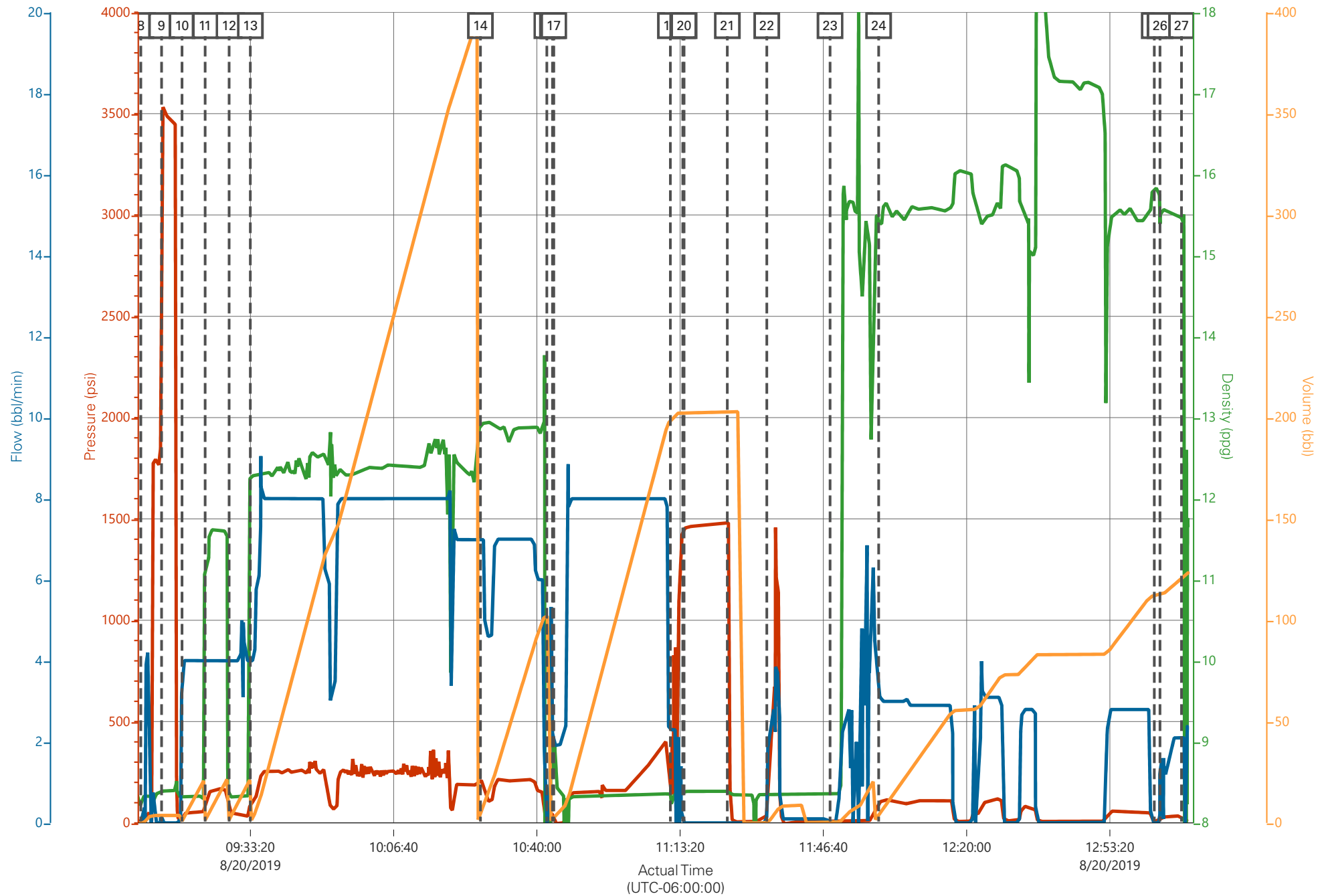
# Laramie CC 0697-03-10W Surface



PS Pump Press (psi)    DH Density (ppg)    Comb Pump Rate (bbl/min)    Pump Stg Tot (bbl)

Description	Actual Time (UTC-06:00:00)	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	
8 Start Job	09:07:51	2.00	8.30	0.00	0.00	
9 Test Lines	09:12:40	3552.00	8.41	0.00	3.70	
10 Pump Spacer 1	09:17:26	28.00	8.33	4.00	0.70	
11 Pump Spacer 2	09:22:48	102.00	11.18	4.00	1.30	
12 Pump Spacer 1	09:28:23	58.00	8.31	4.00	1.50	
13 Pump Lead Cement	09:33:20	106.00	12.32	4.00	0.40	
14 Pump Tail Cement	10:26:52	210.00	12.93	7.00	5.20	
15 Shutdown	10:42:19	5.00	-0.07	0.00	102.10	
16 Drop Top Plug	10:43:38	37.00	8.66	2.80	2.50	
17 Pump Displacement	10:43:56	-4.00	8.66	1.90	3.10	
18 Slow Rate	11:11:04	196.00	8.36	2.30	198.50	
19 Bump Plug	11:13:57	1443.00	8.39	0.00	202.90	
20 Other	11:14:15	1455.00	8.39	0.00	202.90	
21 Check Floats	11:24:19	1481.00	8.39	0.00	202.90	
22 Standby Other	11:33:30	56.00	8.35	0.10	0.00	
23 Pump Spacer	11:48:13	8.00	8.36	0.00	0.60	
24 Pump Cement	11:59:32	112.00	15.41	3.60	4.30	
25 SHUTDOWN	13:03:40	3.00	15.83	0.00	112.00	
26 End Job	13:05:00	19.00	15.37	1.40	112.00	
27 Post-Job Safety Meeting (Pre Rig-Down)	13:10:00	35.00	15.47	2.10	120.70	

# Laramie CC 0697-03-10W Surface



# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Saturday, August 24, 2019

**CC 0697-03-10W Production PJR**

API# 05-045-23927-00

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

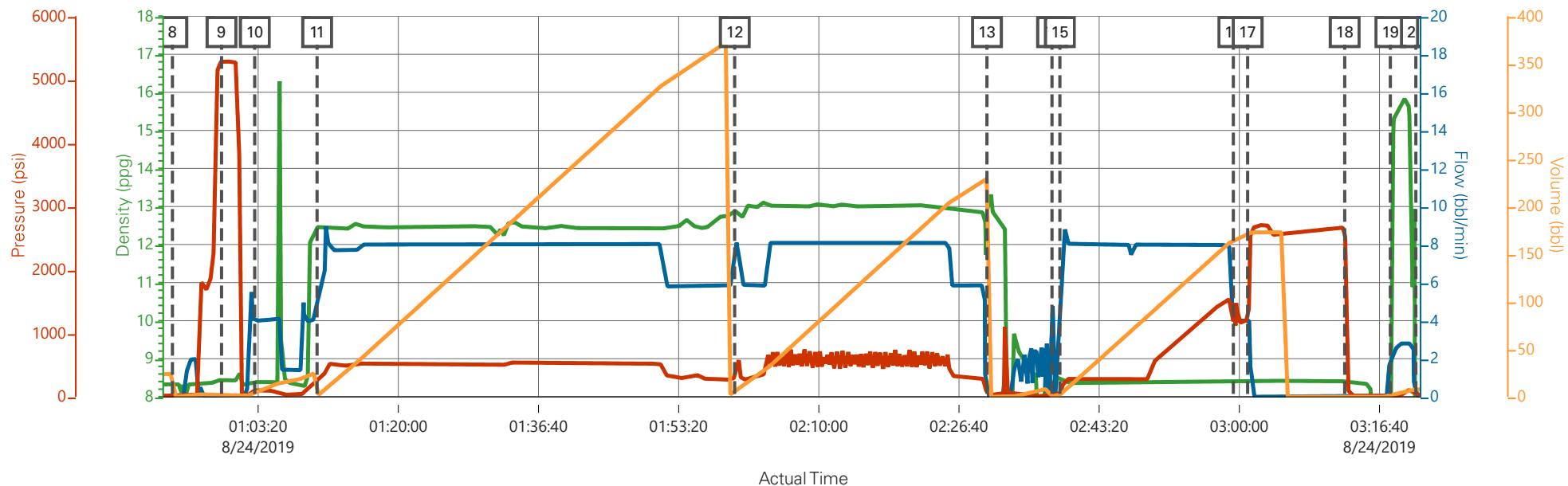
### 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	8/23/2019	11:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	8/23/2019	15:30:00	USER					JOURNEY MANAGEMENT COMPLETE, AS WELL AS JSA
Event	3	Crew Leave Yard	8/23/2019	16:00:00	USER					
Event	4	Arrive At Loc	8/23/2019	17:30:00	USER					JOURNEY MANAGEMENT CLOSED OUT. RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	8/23/2019	18:00:00	USER					
Event	6	Pre-Rig Up Safety Meeting	8/23/2019	18:30:00	USER					JSA COMPLETE
Event	7	Rig-Up Equipment	8/23/2019	18:30:00	USER					2 SILOS, 1 ELITE, 1 BULK TRUCKS, 2 UPRIGHT WATER TANKS
Event	8	Other	8/24/2019	00:10:00	USER					WATER TEST: PH-7, CL-0, TEMP-69  WELL INFO: 4.5 11.6# SET AT 10535, TD-10547, S.J.-43.33, HOLE- 8 3/4, MUD#- 9.0, 9 5/8 36# SET @ 2598
Event	9	Other	8/24/2019	00:20:00	USER					MUD SCALES CHECKED WITH WATER PRIOR TO JOB.
Event	10	Pre-Job Safety Meeting	8/24/2019	00:40:51	USER					JSA COMPLETE
Event	11	Start Job	8/24/2019	00:53:09	COM5					



Event	12	Test Lines	8/24/2019	00:58:59	USER			5290.00		5290 PSI
Event	13	Pump Spacer	8/24/2019	01:02:56	USER	8.40	4.00	104.00	20.0	MUD FLUSH
Event	14	Pump Lead Cement	8/24/2019	01:10:21	USER	12.50	8.00	540.0	344.3	1111 SKS ECONOCCEM, 12.5 PPG, 1.74 FT3/SK, 9.1 GAL/SK
Event	15	Pump Tail Cement	8/24/2019	02:00:00	USER	13.0	8.00	331.00	195.8	632 SKS EXPANDACEM, 13 PPG, 1.74 FT3/SK, 7.99 GAL/SK
Event	16	Shutdown	8/24/2019	02:30:00	USER					TO WASH UP PUMPS AND LINES, AND DROP TOP PLUGS
Event	17	Drop Top Plug	8/24/2019	02:37:44	USER					2 TOP PLUGS AWAY
Event	18	Pump Displacement	8/24/2019	02:38:40	USER	8.40	8.00	1550.0	163.7	FRESH WATER WITH 5 GAL CLA WEB, 1 GAL MMCR
Event	19	Slow Rate	8/24/2019	02:59:18	USER	8.40	4.00	1171.00	150.0	TO BUMP PLUGS
Event	20	Bump Plug	8/24/2019	03:01:00	USER	8.40	4.00	1200.00	163.7	PLUGS BUMPED, CASING TEST FOR 10 MINS
Event	21	Check Floats	8/24/2019	03:12:32	USER			2669.00		FLOATS HELD 1.5 BBLS BACK TO TRUCK
Event	22	Other	8/24/2019	03:17:58	USER	15.6	2.0	100.0	6.0	PUMP PARASITE STRING WITH 30 SKS OF TOP OUT CEMENT, 15.6 PPG, 1.19 FT3/SK, 5.24 GAL/SK
Event	23	End Job	8/24/2019	03:21:00	USER					CAUGHT CIRCULATION AT 60 GONE IN LEAD CMT, GOOD CIRCULATION AFTER THAT WHILE AIR WAS ON, NO PIPE MOVEMENT, NO SPACER TO SURFACE
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	8/24/2019	03:22:55	USER					JSA COMPLETE
Event	25	Crew Leave Location	8/24/2019	04:30:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

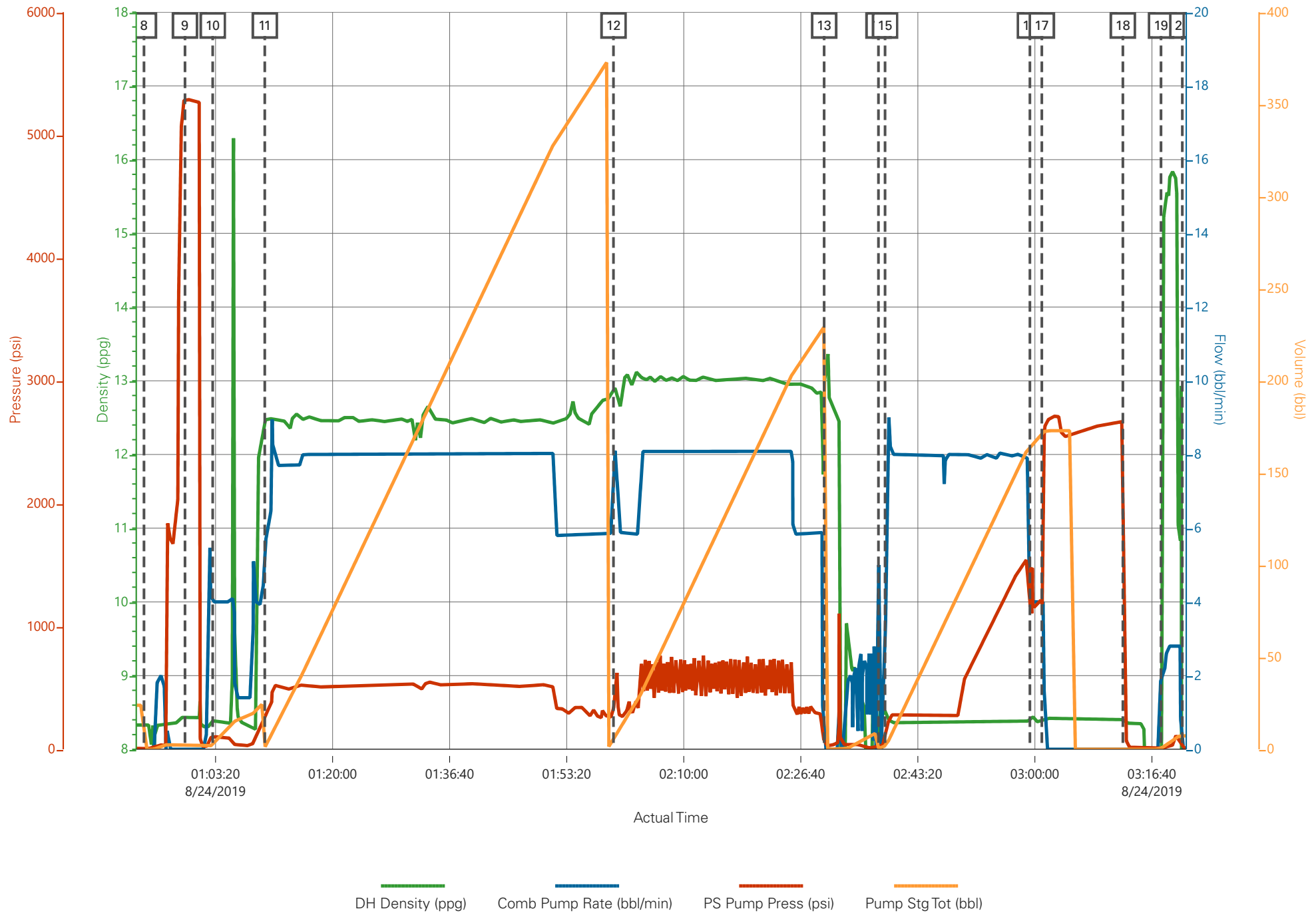
# LARAMIE ENERGY - CC 697-03-10W - 4.5" PRODUCTION CASING



— DH Density (ppg)    
 — Comb Pump Rate (bbl/min)    
 — PS Pump Press (psi)    
 — Pump Stg Tot (bbl)

Description	Actual Time	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	
8 Start Job	00:53:09	8.33	0.00	7.00	0.00	
9 Test Lines	00:58:59	8.44	0.00	5294.00	2.50	
10 Pump Spacer	01:02:56	8.39	4.00	104.00	3.00	
11 Pump Lead Cement	01:10:21	12.47	5.20	261.00	1.10	
12 Pump Tail Cement	02:00:00	12.90	8.10	331.00	5.70	
13 Shutdown	02:30:00	12.81	0.00	59.00	229.00	
14 Drop Top Plug	02:37:44	8.32	3.30	29.00	0.30	
15 Pump Displacement	02:38:40	8.53	3.30	36.00	1.80	
16 Slow Rate	02:59:18	8.38	4.00	1171.00	164.90	
17 Bump Plug	03:01:00	8.38	4.00	1205.00	171.60	
18 Check Floats	03:12:32	8.41	0.00	2665.00	0.00	
19 Other	03:17:58	4.98	1.90	9.00	0.60	
20 End Job	03:21:00	1.55	0.00	19.00	7.80	

# LARAMIE ENERGY - CC 697-03-10W - 4.5" PRODUCTION CASING



### Job Information

<b>Request/Slurry</b>	2577676/2	<b>Rig Name</b>	H&P 522	<b>Date</b>	16/AUG/2019
<b>Submitted By</b>	Patrick Ealey	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Laramie Energy	<b>Location</b>	Garfield	<b>Well</b>	CC 0697-03-10W

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10586 ft	<b>BHST</b>	123°C / 254°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	10215 ft	<b>BHCT</b>	89°C / 192°F
<b>Pressure</b>	6451 psi				

### Cement Information - Lead Design



<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<b>Cement Properties</b>		
100	% BWOC	Cement Blend	Slurry Density	12.5	lbm/gal
9.1	gal/sack	Fresh Water	Slurry Yield	1.74	ft3/sack
0.25	lb/sk	Pol-E-Flake	Water Requirement	9.1	gal/sack
0.5	lb/sk	Pheno Seal Coarse	Total Mix Fluid	9.1	gal/sack
			Water Source	Fresh Water	

### Operation Test Results Request ID 2577676/2

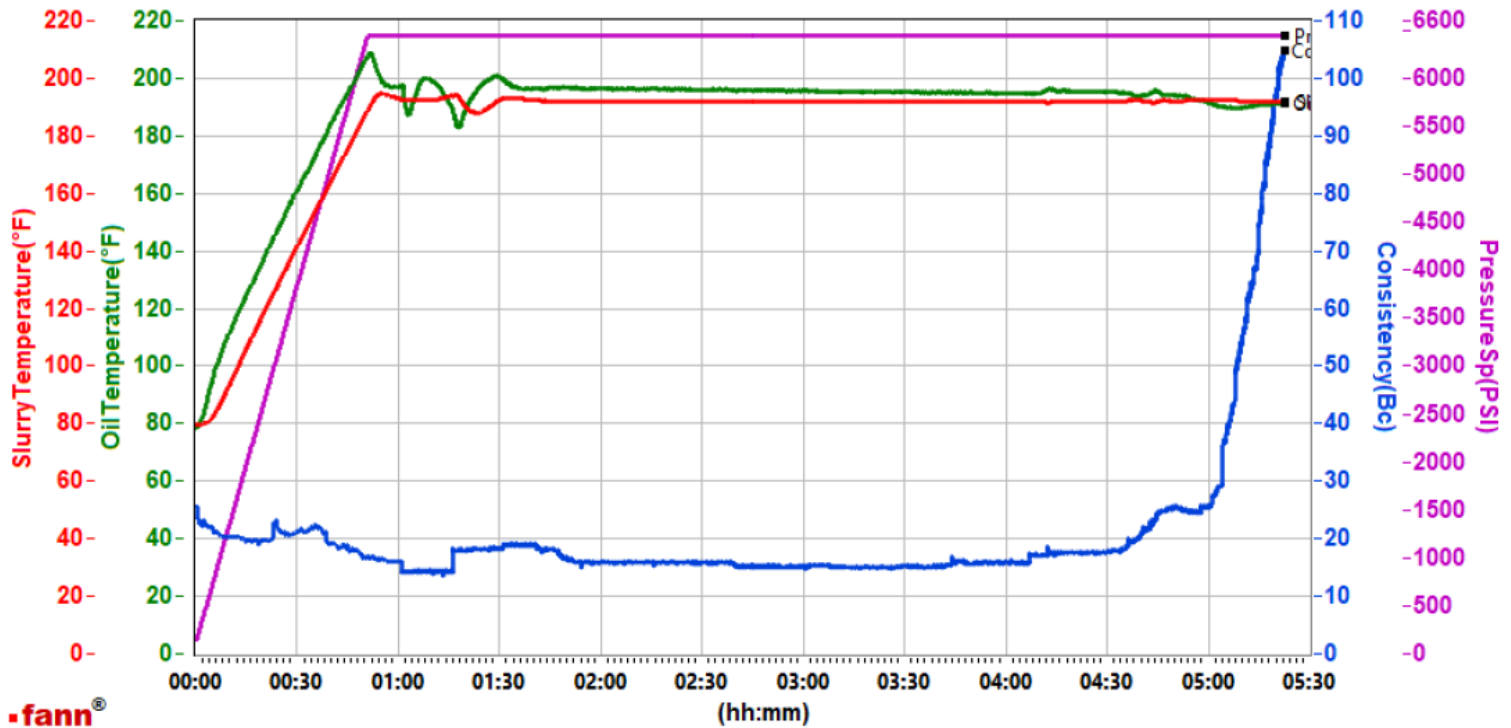
<b>Mixability (0 - 5) - 0 is not mixable, Request Test ID:36774626</b>			<b>21/AUG/2019</b>
<b>Mixability rating (0 - 5)</b>	<b>Avg rpm mixing under load (~12,000)</b>	<b>Blend addition time (sec) @ 4,000 RPM</b>	
5	12000	0	

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# Thickening Time - ON-OFF-ON, Request Test ID:36774627

21/AUG/2019

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
192	6451	51	5:04	5:08	5:15	5:20	26	61	15	18



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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

<b>Request/Slurry</b>	2577677/1	<b>Rig Name</b>	H&P 522	<b>Date</b>	16/AUG/2019
<b>Submitted By</b>	Patrick Ealey	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Laramie Energy	<b>Location</b>	Garfield	<b>Well</b>	CC 0697-03-10W

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10586 ft	<b>BHST</b>	123°C / 254°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	10215 ft	<b>BHCT</b>	89°C / 192°F
<b>Pressure</b>	6451 psi				

### Cement Information - Tail Design



<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<b>Cement Properties</b>		
100	% BWOC	Cement Blend	Slurry Density	13	lbm/gal
7.99	gal/sack	Fresh Water	Slurry Yield	1.74	ft3/sack
3	lb/sk	Kol-Seal	Water Requirement	7.99	gal/sack
0.25	% BWOC	HR-601	Total Mix Fluid	7.99	gal/sack
0.25	lb/sk	Pol-E-Flake			
0.5	lb/sk	Pheno Seal Coarse			
			Water Source	Fresh Water	

### Operation Test Results Request ID 2577677/1

**Mixability (0 - 5) - 0 is not mixable, Request Test ID:36760633**

**20/AUG/2019**

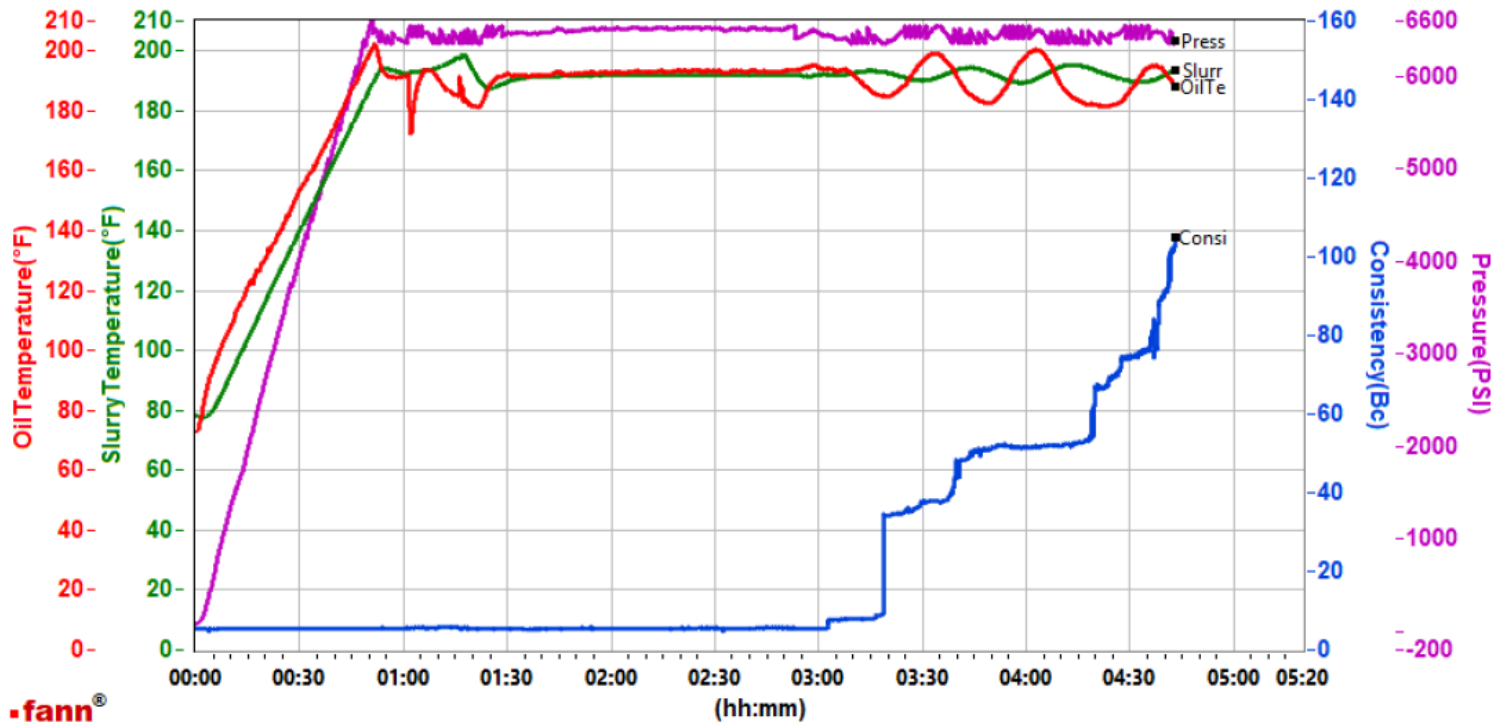
<b>Mixability rating (0 - 5)</b>	<b>Avg rpm mixing under load (~12,000)</b>
5	12000

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# Thickening Time - ON-OFF-ON, Request Test ID:36760634

21/AUG/2019

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
192	6451	51	3:18	3:44	4:23	4:41	6	61	15	6



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