

# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Sunday, July 14, 2019

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

API# 05-045-23928-00

Sincerely,

**Grand Junction Cement Engineering**

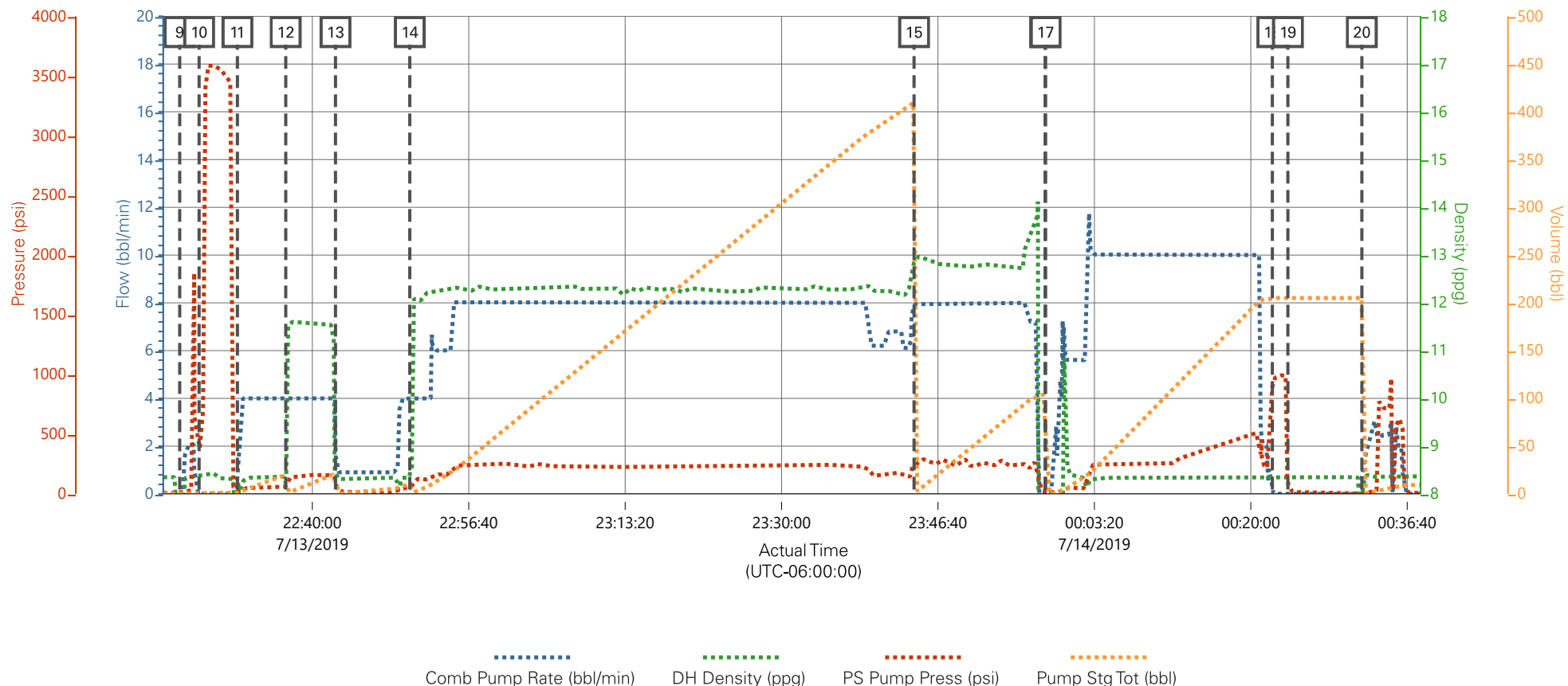
## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	7/13/2019	16:00:00	USER					REQUESTED ON LOCATION 7/13/19 @ 22:00
Event	2	Crew Leave Shop	7/13/2019	17:30:00	USER					
Event	3	Depart Yard Safety Meeting	7/13/2019	19:25:00	USER					JSA COMPLETED
Event	4	Arrive At Loc	7/13/2019	21:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	7/13/2019	21:05:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	7/13/2019	21:10:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	7/13/2019	21:15:00	USER					
Event	8	Pre-Job Safety Meeting	7/13/2019	22:00:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	7/13/2019	22:25:52	COM4					9 5/8"-36# CASING IN 14 3/4" OH, TD 2605', TP 2595', ST 26.7', MUD 8.9 PPG, WATER TEMP 50, PH 7, CHLORIDES 0
Event	10	Test Lines	7/13/2019	22:27:56	COM4			3000.00		TEST LINES TO 3000 PSI
Event	11	Pump Spacer 1	7/13/2019	22:32:01	COM4	4.00	8.33	55.00	20.00	20 BBLS FRESH WATER
Event	12	Pump Spacer 2	7/13/2019	22:37:10	COM4	4.00	10.50	160.00	20.00	20 BBLS SUPERFLUSH
Event	13	Pump Spacer 1	7/13/2019	22:42:28	COM4	4.00	8.33	60.00	10.00	10 BBLS FRESH WATER

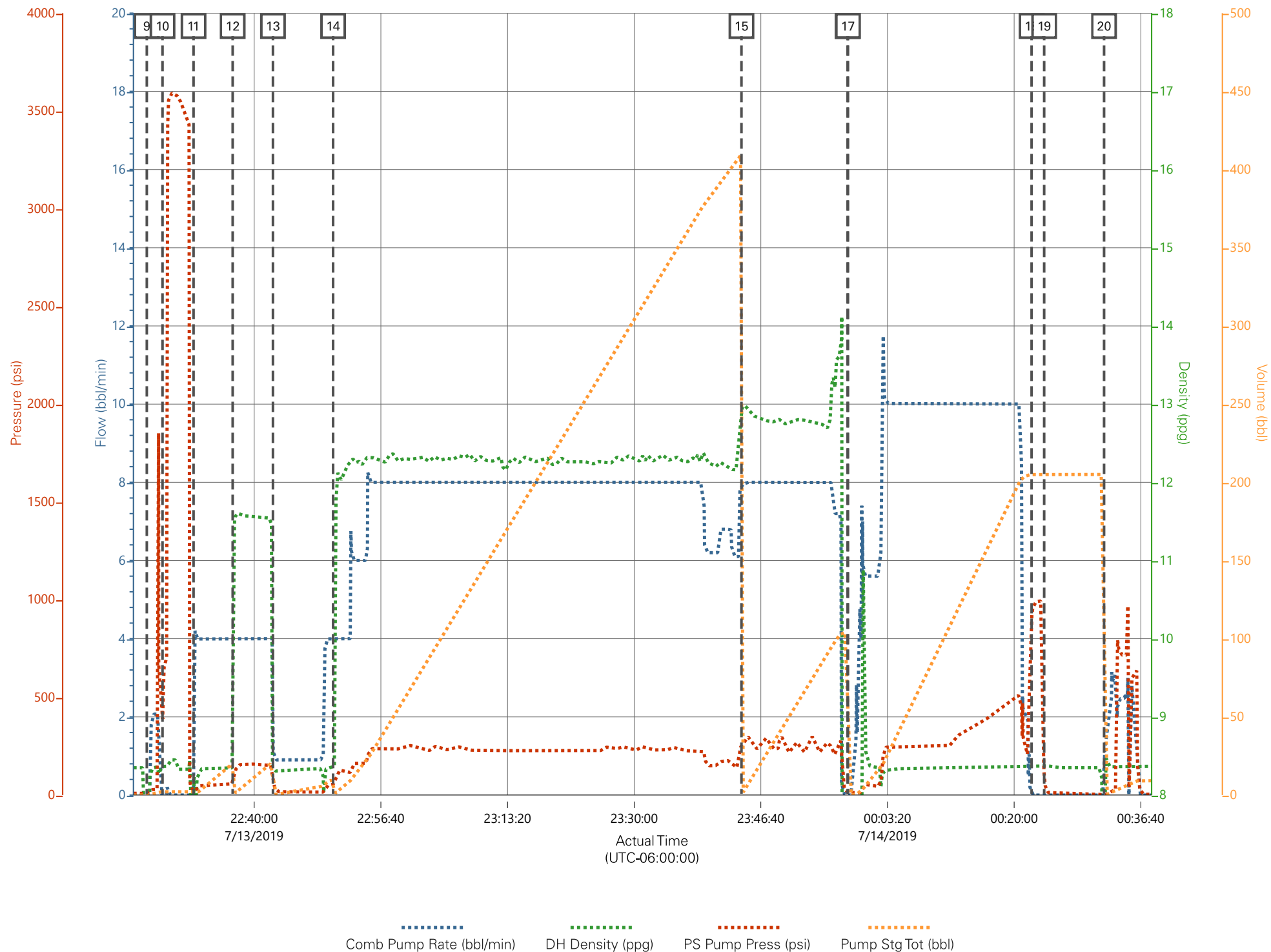
Event	14	Pump Lead Cement	7/13/2019	22:50:23	COM4	8.00	12.30	240.00	370.60	370.6 BBLS LEAD CEMENT, 878 SKS @ 12.3 PPG / 2.37 YLD / 13.74 GAL/SK
Event	15	Pump Tail Cement	7/13/2019	23:44:07	COM4	8.00	12.80	285.00	94.70	94.7 BBLS TAIL CEMENT, 252 SKS @ 12.8 PPG / 2.11 YLD / 11.75 GAL/SK
Event	16	Drop Top Plug	7/13/2019	23:58:05	COM4					PLUG AWAY
Event	17	Pump Displacement	7/13/2019	23:58:08	COM4	10.00	8.33	500.00	197.00	197 BBLS FRESH WATER DISPLACEMENT
Event	18	Bump Plug	7/14/2019	00:22:18	COM4	2.00	8.33	220.00	197.00	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL LIFT PRESSURE 220 PSI @ 2 BBL/MIN, BROUGHT TO 990 PSI
Event	19	Check Floats	7/14/2019	00:23:57	USER					FLOATS HELD, 1 BBL BACK TO PUMP
Event	20	Pump Water	7/14/2019	00:31:50	USER	3.00			7.00	7 BBLS SUGAR WATER TO CLEAR PARASITE
Event	21	Pump Cement	7/14/2019	01:10:52	USER	3.00	15.60	50.00	43.20	43.2 BBLS TOP OUT CEMENT, 204 SKS @ 15.6 PPG / 1.19 YLD / 5.23 GAL/SK, 50 LBS CaCl AND 12 BBLS SUPERFLUSH USED
Event	22	End Job	7/14/2019	02:30:00	COM4					PIPE LEFT STATIC, NO RETURNS THROUGHOUT, TOPPED OUT WITH 43.2 BBLS, 40# SUGAR USED, NO ADD HOURS, 5 TRANSPORT HOURS
Event	23	Pre-Rig Down Safety Meeting	7/14/2019	02:40:00	USER					JSA COMPLETED
Event	24	Rig-Down Equipment	7/14/2019	02:45:00	USER					
Event	25	Pre-Convoy Safety Meeting	7/14/2019	03:25:00	USER					JSA COMPLETED
Event	26	Crew Leave Location	7/14/2019	03:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - RYAN MARTIN AND CREW

# LARAMIE - CC FEDERAL 697-03-03W - 9 5/8" SURFACE CASING

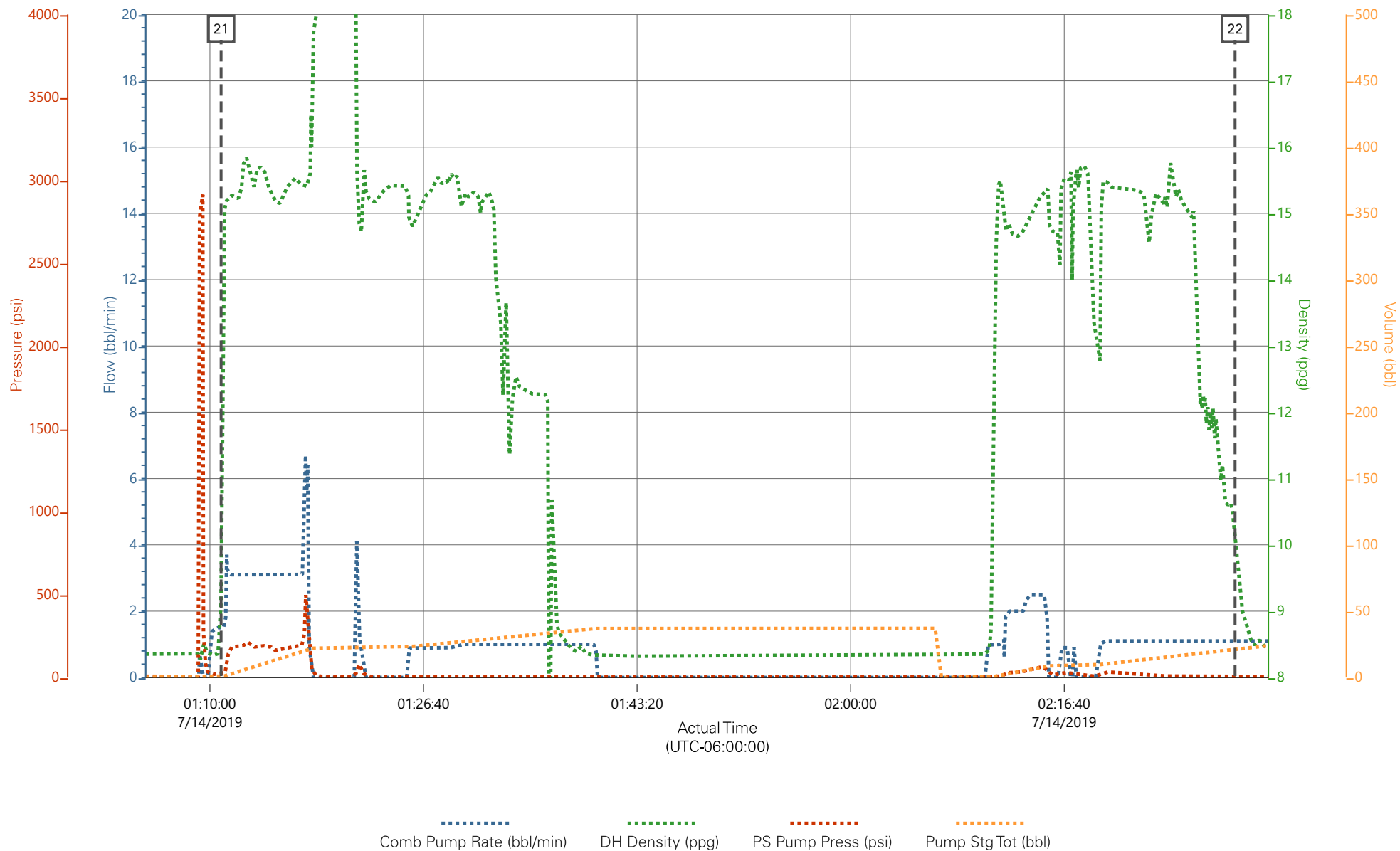


Description	Actual Time (UTC-06:00:00)	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)
9 Start Job	22:25:52	0.00	0.08	7.00	0.00
10 Test Lines	22:27:56	0.00	8.37	390.00	2.10
11 Pump Spacer 1	22:32:01	0.00	8.10	10.00	0.00
12 Pump Spacer 2	22:37:10	4.00	8.35	55.00	20.10
13 Pump Spacer 1	22:42:28	2.20	8.25	89.00	21.20
14 Pump Lead Cement	22:50:23	4.00	8.34	53.00	0.00
15 Pump Tail Cement	23:44:07	7.90	12.84	285.00	409.90
16 Drop Top Plug	23:58:05	0.00	-0.03	12.00	104.00
17 Pump Displacement	23:58:08	0.00	-0.03	12.00	104.00
18 Bump Plug	00:22:18	0.00	8.36	905.00	205.00
19 Check Floats	00:23:57	0.00	8.37	101.00	205.00
20 Pump Water	00:31:50	0.00	0.62	1.00	205.00

# LARAMIE - CC FEDERAL 697-03-03W - 9 5/8" SURFACE CASING



# LARAMIE - CC FEDERAL 697-03-03W - 9 5/8" SURFACE CASING TOP OUT



Description	Actual Time (UTC-06:00:00)	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)	
21 Pump Cement	01:10:52	1.50	9.13	20.00	0.70	
22 End Job	02:30:00	1.10	10.02	6.00	21.10	

▼ **HALLIBURTON** | iCem® Service

Created: 2019-07-13 21:59:48, (UTC-06:00), Version: 4.5.139

Edit

Customer : Laramie Energy LLC

Job Date : 7/14/2019

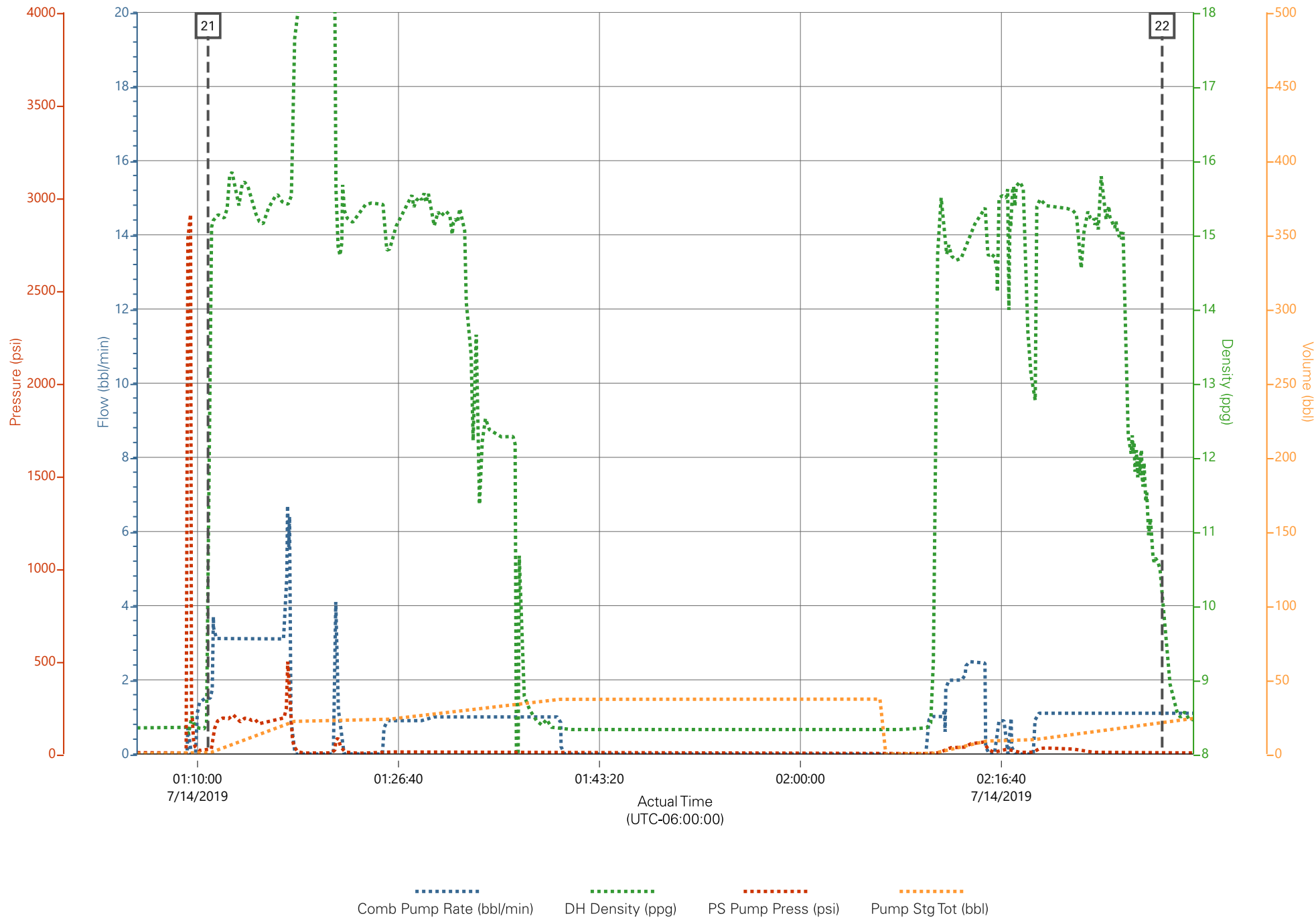
Well : CC FEDERAL 697-03-03W

Representative : MATT SETTLES

Sales Order # : 905834240

ELITE #4 : PAUL SALAZAR / RYAN MARTIN

# LARAMIE - CC FEDERAL 697-03-03W - 9 5/8" SURFACE CASING TOP OUT



# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Wednesday, July 17, 2019

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

API# 05-045-23928-00

Sincerely,

**Grand Junction Cement Engineering**



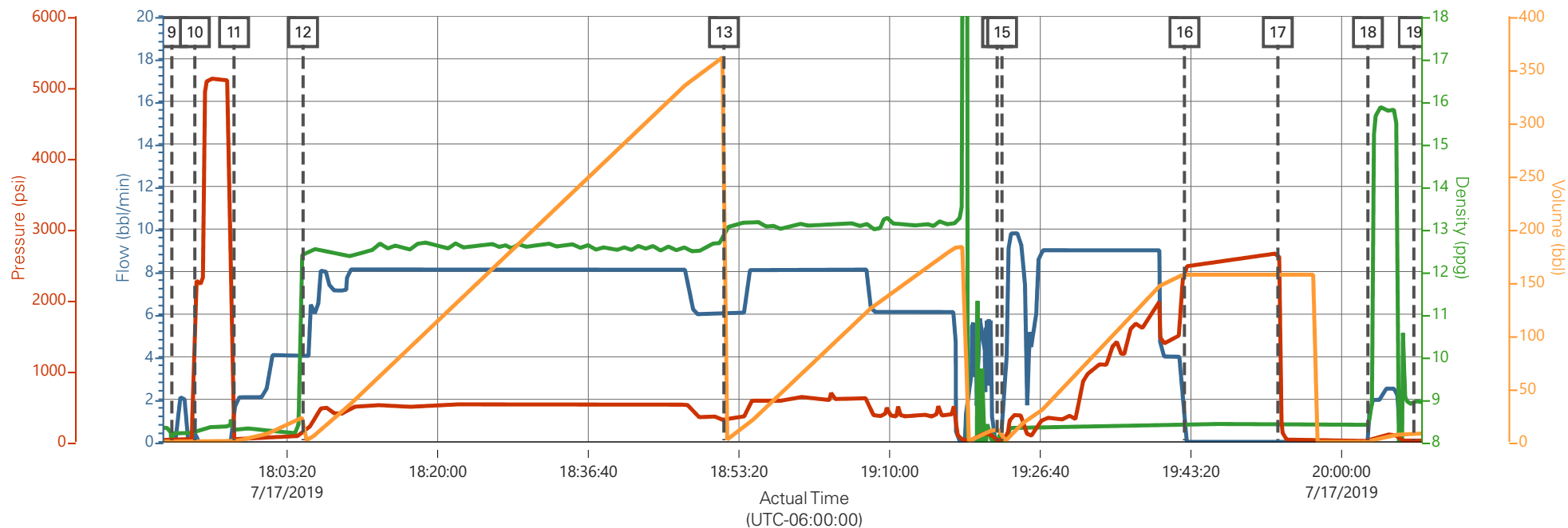
## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	7/17/2019	07:00:00	USER					REQUESTED ON LOCATION 7/17/19 @ 15:00
Event	2	Depart Yard Safety Meeting	7/17/2019	10:55:00	USER					JSA COMPLETED
Event	3	Crew Leave Shop	7/17/2019	11:00:00	USER					
Event	4	Arrive At Loc	7/17/2019	13:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	7/17/2019	13:15:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	7/17/2019	13:25:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	7/17/2019	13:30:00	USER					
Event	8	Pre-Job Safety Meeting	7/17/2019	17:00:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	7/17/2019	17:50:35	COM4					4 1/2"-11.6# CASING IN 8 3/4" OH, TD 10260', TP 10250', ST 42.1', MUD 8.9 PPG, WATER TEMP 55, PH 7 CHLORIDES 0
Event	10	Test Lines	7/17/2019	17:53:08	USER			5000.00		TEST LINES TO 5000 PSI
Event	11	Pump Spacer 1	7/17/2019	17:57:28	COM4	4.00	8.40	80.00	20.00	20 BBLS MUDFLUSH
Event	12	Pump Lead Cement	7/17/2019	18:05:06	COM4	8.00	12.50	510.00	364.40	364.4 BBLS LEAD CEMENT, 1176 SKS @ 12.5 PPG / 1.74 YLD / 9.1 GAL/SK

Event	13	Pump Tail Cement	7/17/2019	18:51:40	COM4	8.00	13.00	600.00	160.80	160.8 BBLS TAIL CEMENT, 519 SKS @ 13.0 PPG / 1.74 YLD / 7.99 GAL/SK
Event	14	Drop Top Plug	7/17/2019	19:21:53	COM4					PLUGS AWAY
Event	15	Pump Displacement	7/17/2019	19:22:26	COM4	9.00	8.33	2000.00	158.20	158.2 BBLS FRESH WATER DISPLACEMENT WITH 1 GALLON MMCR AND 5 GALLONS CLA-WEB THROUGHOUT, SPACER TO SURFACE AND AIR SHUT OFF AT 130 BBLS AWAY, 10 BBLS SPACER TO SURFACE
Event	16	Bump Plug	7/17/2019	19:42:37	COM4	4.00	8.33	1500.00	158.20	PLUG BUMPED AT CALCULATED, FINAL LIFT PRESSURE 1500 PSI @ 4 BBL/MIN, BROUGHT TO 2500 PSI FOR 10 MINUTE CASING TEST
Event	17	CHECK FLOATS	7/17/2019	19:52:57	COM4			2658.00		FINAL CASING TEST PRESSURE 2658 PSI, FLOATS HELD, 1.5 BBLS BACK TO PUMP
Event	18	Pump Cement	7/17/2019	20:02:55	USER	2.50	15.60	100.00	6.30	6.3 BBLS TAIL CEMENT, 30 SKS @ 15.6 PPG / 1.18 YLD / 5.23 GAL/SK
Event	19	End Job	7/17/2019	20:08:00	COM4					PIPE LEFT STATIC, RETURNS THROUGHOUT, 60 LBS SUGAR USED, NO ADD HOURS
Event	20	Pre-Rig Down Safety Meeting	7/17/2019	20:15:00	USER					JSA COMPLETED
Event	21	Rig-Down Equipment	7/17/2019	20:20:00	USER					
Event	22	Pre-Convoy Safety Meeting	7/17/2019	20:55:00	USER					JSA COMPLETED
Event	23	Crew Leave Location	7/17/2019	21:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - RYAN MARTIN AND CREW

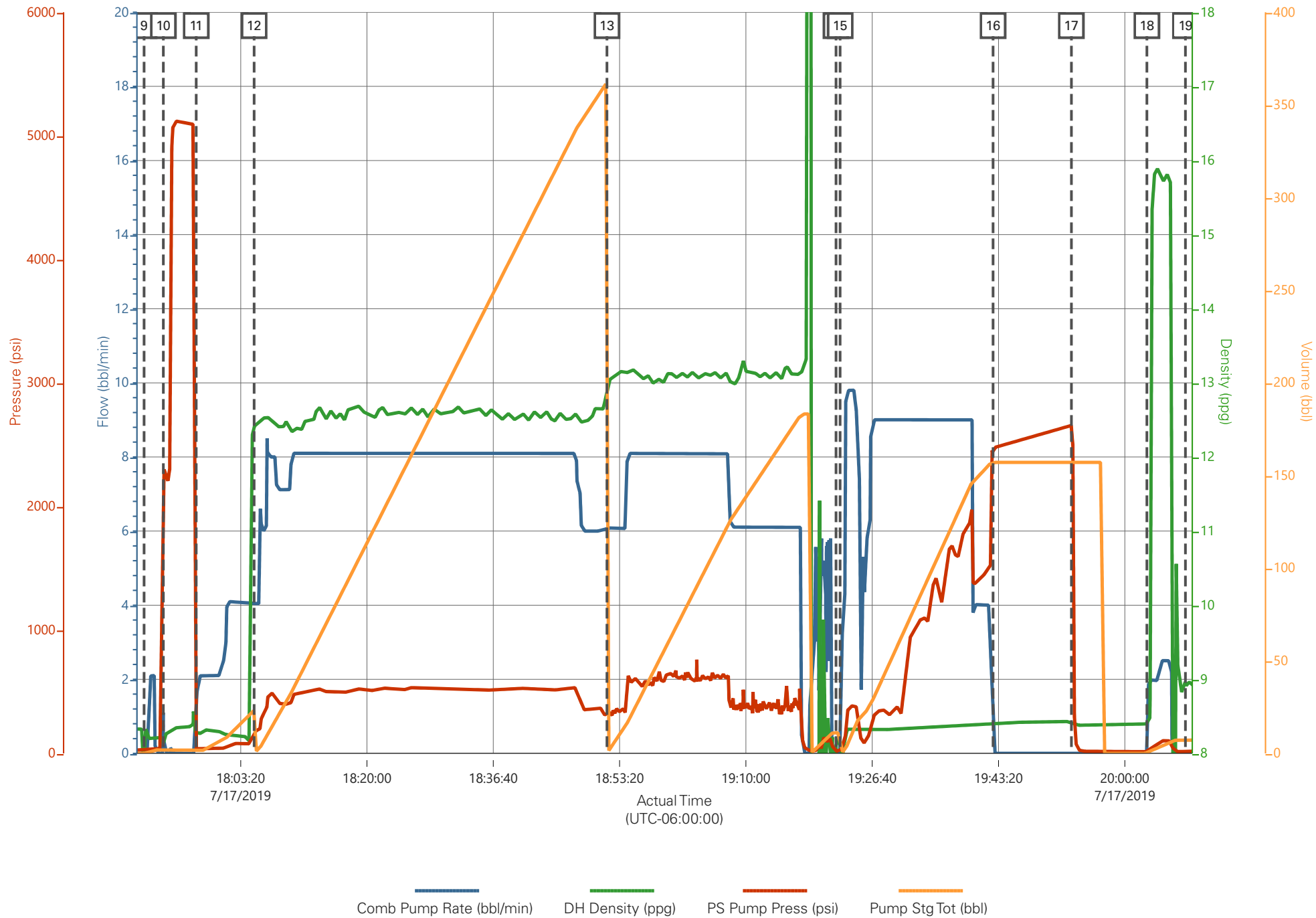
# LARAMIE - CC FEDERAL 697-03-03W - 4 1/2" PRODUCTION CASING



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

Description	Actual Time (UTC-06:00:00)	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)
9 Start Job	17:50:35	0.00	6.89	18.00	0.00
10 Test Lines	17:53:08	0.00	8.11	2319.00	2.00
11 Pump Spacer 1	17:57:28	0.00	8.28	29.00	2.00
12 Pump Lead Cement	18:05:06	4.10	12.42	176.00	0.00
13 Pump Tail Cement	18:51:40	6.10	12.94	325.00	0.10
14 Drop Top Plug	19:21:53	0.00	8.08	16.00	11.20
15 Pump Displacement	19:22:26	0.00	8.17	17.00	0.00
16 Bump Plug	19:42:37	0.00	8.41	2487.00	157.10
17 CHECK FLOATS	19:52:57	0.00	8.43	2658.00	157.10
18 Pump Cement	20:02:55	0.00	8.40	13.00	0.00
19 End Job	20:08:00	0.00	8.92	13.00	7.10

# LARAMIE - CC FEDERAL 697-03-03W - 4 1/2" PRODUCTION CASING



### Job Information

<b>Request/Slurry</b>	2569997/1	<b>Rig Name</b>		<b>Date</b>	13/JUL/2019
<b>Submitted By</b>	Aaron Katz	<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 Federal 0697-03-03W

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10379 ft	<b>BHST</b>	119°C / 246°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9787 ft	<b>BHCT</b>	80°C / 176°F
<b>Pressure</b>	6151 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	<b>Mud Trade Name</b>	<b>Density</b>
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### Cement Information - Lead Design



<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>MP</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		EconoCem Lead					Slurry Density	12.5	lbm/gal
							Slurry Yield	1.74	ft3/sack
							Water Requirement	9.1	gal/sack
							Total Mix Fluid	9.1	gal/sack
							Water Source	Fresh Water	
							Water Chloride		

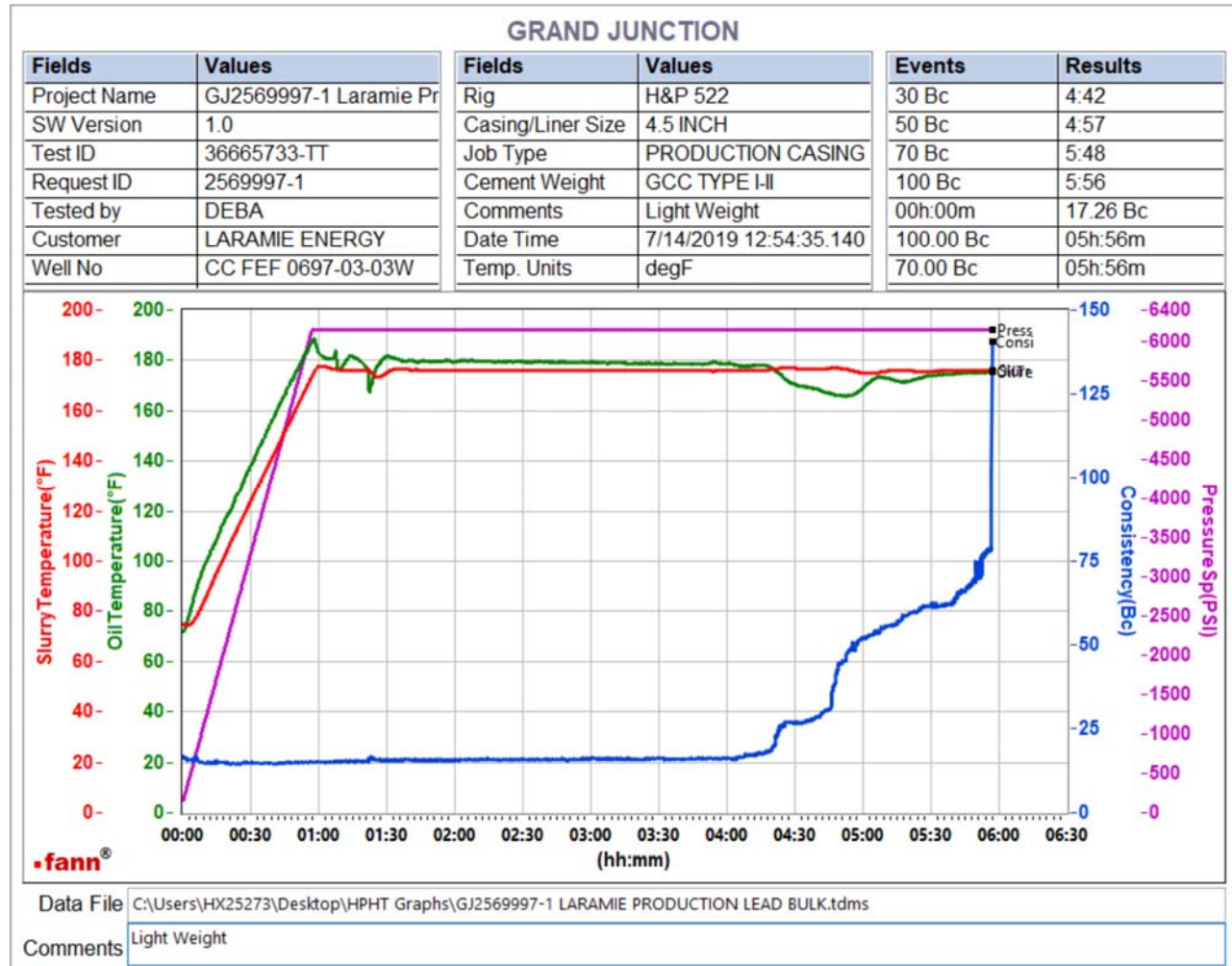
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# **Operation Test Results Request ID 2569997/1**

**Thickening Time - ON-OFF-ON, Request Test ID:36665733**

**15/JUL/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)
176	6151	57	4:42	4:57	5:48	5:56	16	67	15	16



total sks=1176  
 CS0825, TR#8677, 525 SKS  
 CS0826, TR#8678, 525 SKS  
 deflected from 15Bc--- > 16Bc  
 Heat of hydration at 4:20

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## Operation Test Results Request ID 2569997/2

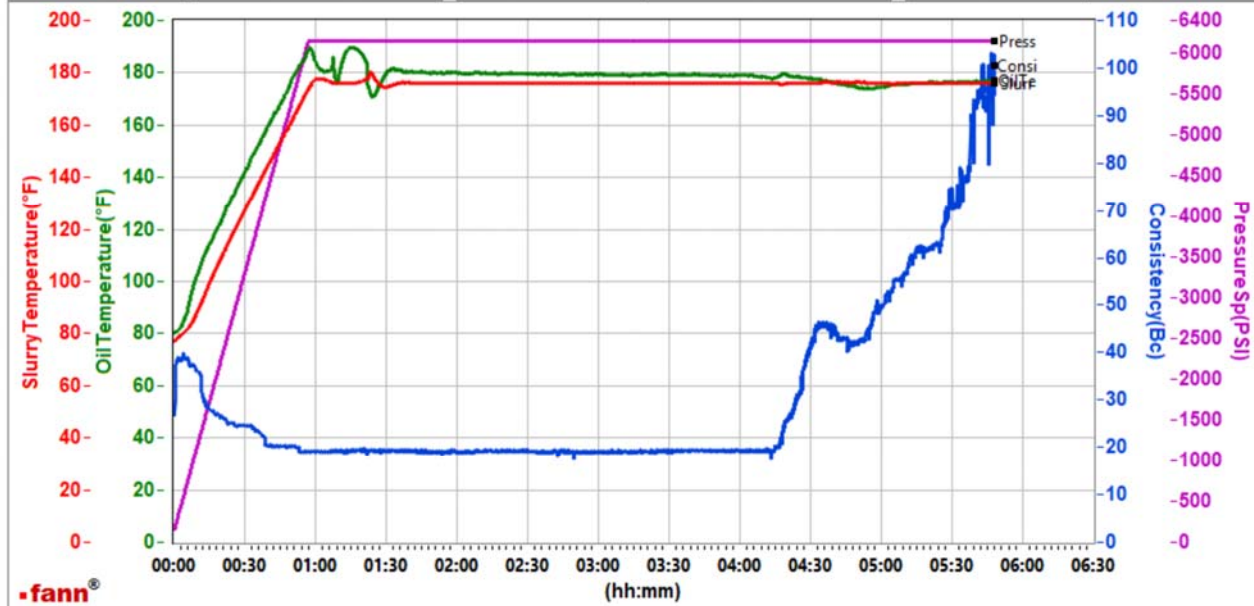
Thickening Time - ON-OFF-ON, Request Test ID:36670430

16/JUL/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)
176	6151	57	4:24	5:01	5:29	5:43	27	67	15	19

### GRAND JUNCTION

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2569997-2 Laramie Pr	Rig	H&P 522	30 Bc	4:24
SW Version	1.0	Casing/Liner Size	4.5 INCH	50 Bc	5:01
Test ID	366670430-TT	Job Type	PRODUCTION CASING	70 Bc	5:29
Request ID	2569997-2	Cement Weight	GCC TYPE I-II	100 Bc	5:43
Tested by	DEBA	Comments	Light Weight	00h:00m	0:0
Customer	LARAMIE ENERGY	Date Time	7/15/2019 06:18:15.873	0	0:0
Well No	CC FEF 0697-03-03W	Temp. Units	degF	0	0:0



Data File C:\Users\HX25273\Desktop\HPHT Graphs\GJ2569997-2 LARAMIE PRODUCTION LEAD BULK.tdms

Comments Light Weight

total sks=1176  
CS0829 TR#1972 R 126 sks  
no deflection, 19Bc--- > 19Bc

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## Job Information

<b>Request/Slurry</b>	2569998/1	<b>Rig Name</b>		<b>Date</b>	13/JUL/2019
<b>Submitted By</b>	Aaron Katz	<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 Federal 0697-03-03W

## Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10379 ft	<b>BHST</b>	119°C / 246°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9787 ft	<b>BHCT</b>	80°C / 176°F
<b>Pressure</b>	6151 psi				

## Drilling Fluid Information

<b>Mud Supplier Name</b>		<b>Mud Trade Name</b>		<b>Density</b>	
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## Cement Information - Tail Design

<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>MP</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		ThermaCem Tail					Slurry Density	13	lbm/gal
							Slurry Yield	1.74	ft3/sack
							Water Requirement	7.99	gal/sack
							Total Mix Fluid	7.99	gal/sack
							Water Source	Fresh Water	
							Water Chloride		

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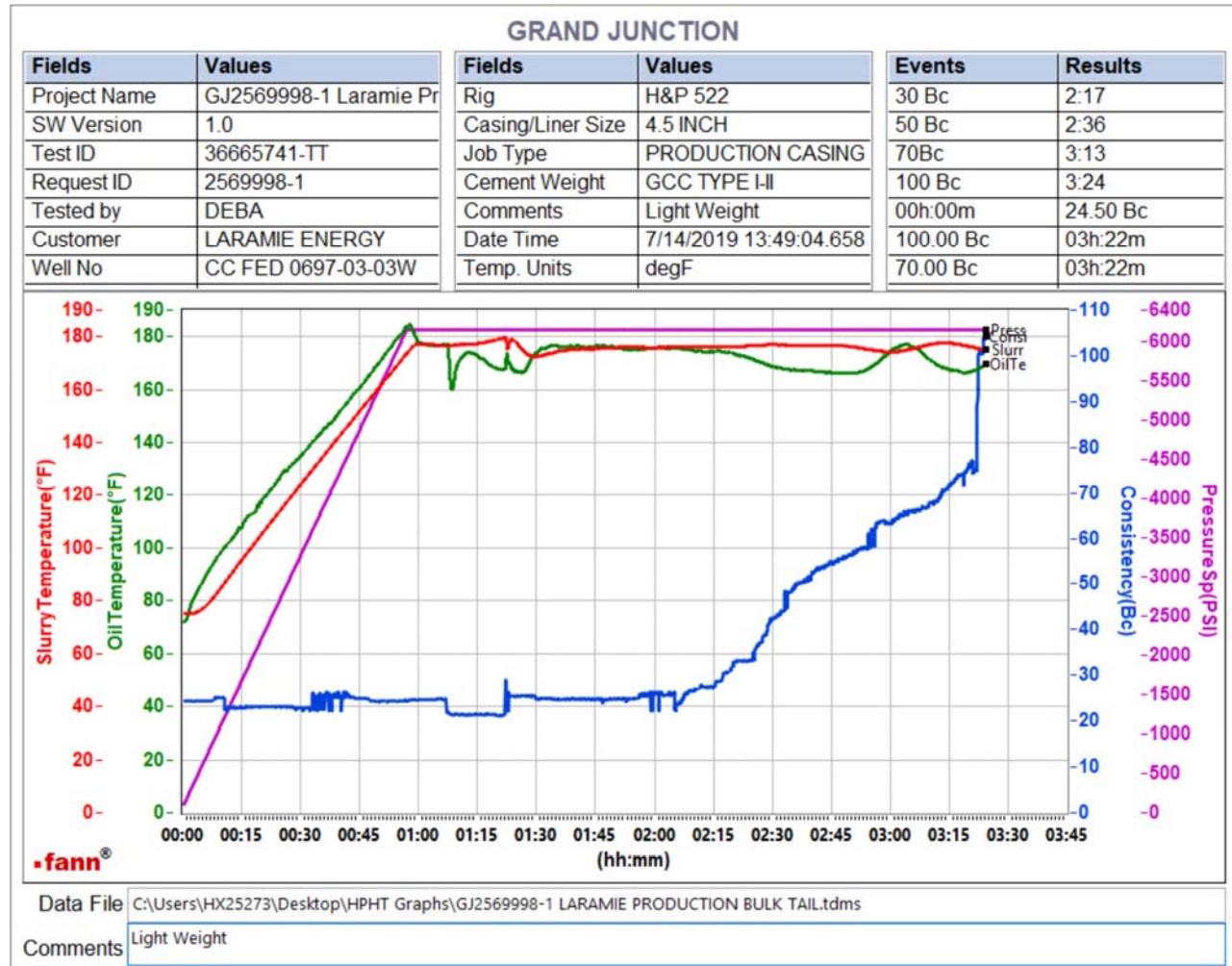


## Operation Test Results Request ID 2569998/1

Thickening Time - ON-OFF-ON, Request Test ID:36665741

15/JUL/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)
176	6151	57	2:17	2:36	3:13	3:24	24	67	15	26



total sks=519  
 CS0827 TR#1513 400 SKS  
 deflected from 21Bc--- > 26Bc--- > 23Bc Within one minute  
 heat of hydration at 2:06

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## Operation Test Results Request ID 2569998/2

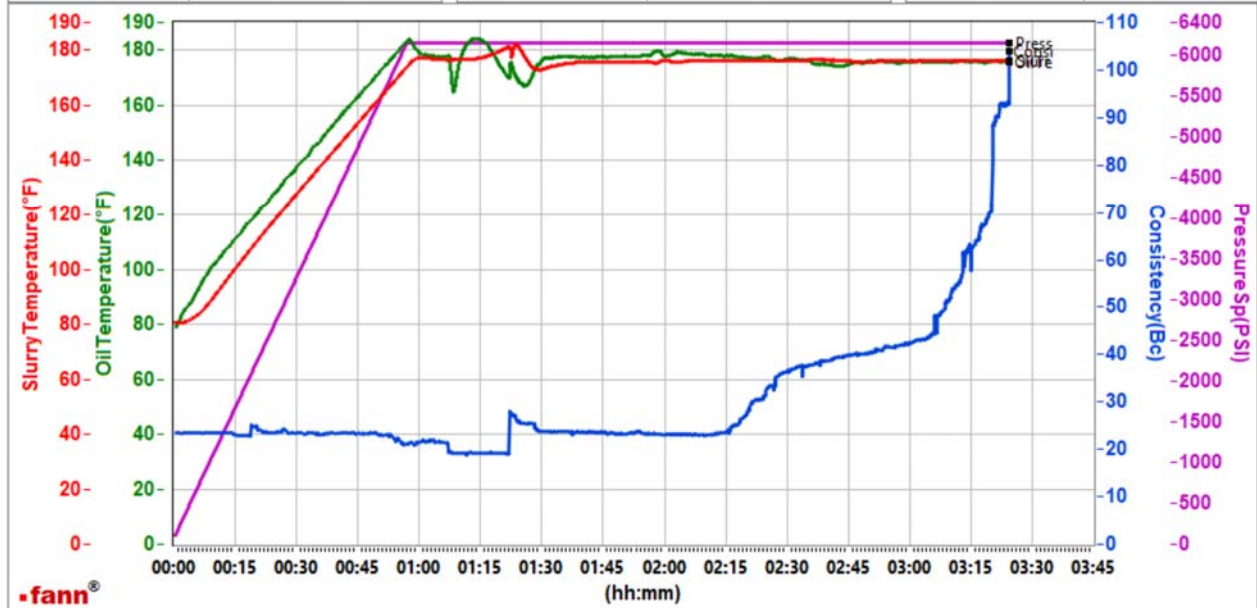
Thickening Time - ON-OFF-ON, Request Test ID:36670435

15/JUL/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)
176	6151	57	2:21	3:08	3:19	3:24	23	67	15	31

### GRAND JUNCTION

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2569998-2 Laramie Pr	Rig	H&P 522	30 Bc	2:21
SW Version	1.0	Casing/Liner Size	4.5 INCH	50 Bc	3:08
Test ID	366670435-TT	Job Type	PRODUCTION CASING	70 Bc	3:19
Request ID	2569998-2	Cement Weight	GCC TYPE I-II	100 Bc	3:24
Tested by	DEBA	Comments	Light Weight	00h:00m	0
Customer	LARAMIE ENERGY	Date Time	7/15/2019 06:31:51.065	0	0:0
Well No	CC FED 0697-03-03W	Temp. Units	degF	0	0:0



Data File C:\Users\HX25273\Desktop\HPHT Graphs\GJ2569998-2 LARAMIE PRODUCTION BULK TAIL.tdms

Comments Light Weight

total sks=519

CS0828 TR#1972 F 119 SKS

deflected from 18Bc--- > 31Bc--- > 27Bc within one minute.

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