

# HALLIBURTON

iCem<sup>®</sup> Service

## **Laramie Energy LLC-EBUS**

**For: Aaron Duncan**

Date: Saturday, April 28, 2018

**Gunderson 994-14-17E Surface PJR**

API # 05-077-10530-00

Sincerely,

**Grand Junction Cement Engineering**

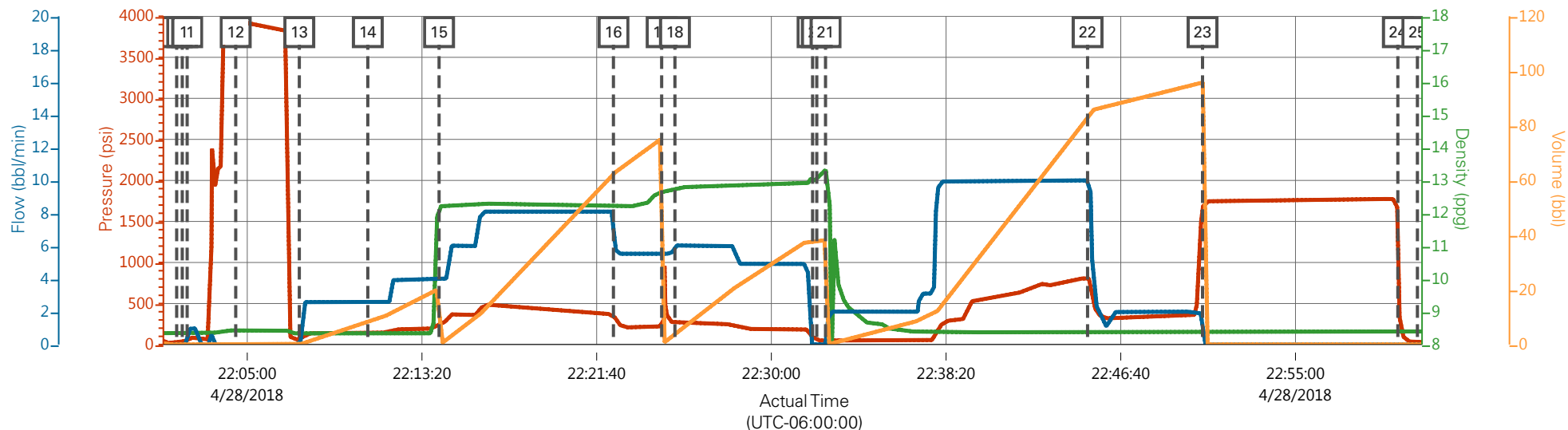
## 1.0 Real-Time Job Summary

## 1.1 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	4/28/2018	16:00:00	USER					REQUESTED ON LOCATION @ 21:30
Event	2	Depart Yard Safety Meeting	4/28/2018	17:15:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	4/28/2018	17:30:00	USER					1 HT 400 PUMP TRUCK E4, 1 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	4	Arrive At Loc	4/28/2018	19:30:00	USER					ARRIVED TO LOCATION 2 HOURS EARLY, RIG RUNNING CASING.
Event	5	Assessment Of Location Safety Meeting	4/28/2018	19:45:00	USER					MET WITH COMP REP, WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE. COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Spot Equipment	4/28/2018	20:30:00	USER					1 HT 400 PUMP TRUCK E4, 1 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	7	Pre-Rig Up Safety Meeting	4/28/2018	21:00:00	USER					ALL HES PRESENT
Event	8	Pre-Job Safety Meeting	4/28/2018	21:54:52	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 10 BPM PRIOR TO JOB, PRESSURE @ 75 PSI
Event	9	Start Job	4/28/2018	22:01:38	COM5					TD-1560', TP-1550', SJ-45.52', CSG-8.625" 32# J55, OH-11", MUD-9.1PPG
Event	10	Drop Bottom Plug	4/28/2018	22:01:54	USER					VERIFIED BY FLAG INDICATOR
Event	11	Prime Lines	4/28/2018	22:02:08	COM5	8.33	1.6	60	2	FRESH WATER
Event	12	Test Lines	4/28/2018	22:04:27	COM5			3930		PRESSURE HELD

Event	13	Pump Spacer	4/28/2018	22:07:29	COM5	8.32	4.0	270	20	FRESH WATER
Event	14	Check Weight	4/28/2018	22:10:45	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	15	Pump Lead Cement	4/28/2018	22:14:09	COM5	12.3	8.0	440	69.2	158 SKS VARICEM GJ5 CMT 12.3 PPG, 2.46 FT3/SK, 14.17 GAL/SK
Event	16	Slow Rate	4/28/2018	22:22:28	USER					SLOWED RATE FOR BOTTOM PLUG
Event	17	Pump Tail Cement	4/28/2018	22:24:46	COM5	12.8	6.0	250	37	95 SKS VARICEM GJ5 CMT 12.8 PPG, 2.18 FT3/SK, 12.11 GAL/SK
Event	18	Check Weight	4/28/2018	22:25:24	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	19	Shutdown	4/28/2018	22:31:58	USER					END OF CEMENT
Event	20	Drop Top Plug	4/28/2018	22:32:10	USER					VERIFIED BY FLAG INDICATOR
Event	21	Pump Displacement	4/28/2018	22:32:35	COM5	8.33	10	800	81.6	FRESH WATER
Event	22	Slow Rate	4/28/2018	22:45:05	USER	8.33	2.0	360	10	SLOWED TO BUMP PLUG
Event	23	Bump Plug	4/28/2018	22:50:34	COM5	8.33	2.0	360	91.6	BUMPED PLUG TOOK PRESSURE UPTO 1600 PSI FOR A 10 MIN CASING TEST
Event	24	Check Floats	4/28/2018	22:59:53	USER			1774		FLOATS HELD 3/4 BBL FLOW BACK TO TRUCK
Event	25	End Job	4/28/2018	23:00:49	COM5					RETURNS THROUGHOUT JOB, 22 BBLS CMT TO SURFACE
Event	26	Post-Job Safety Meeting (Pre Rig-Down)	4/28/2018	23:15:00	USER					ALL HES PRESENT
Event	27	Pre-Convoy Safety Meeting	4/28/2018	23:45:00	USER					ALL HES PRESENT
Event	28	Crew Leave Location	4/29/2018	00:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, DUSTIN HYDE AND CREW

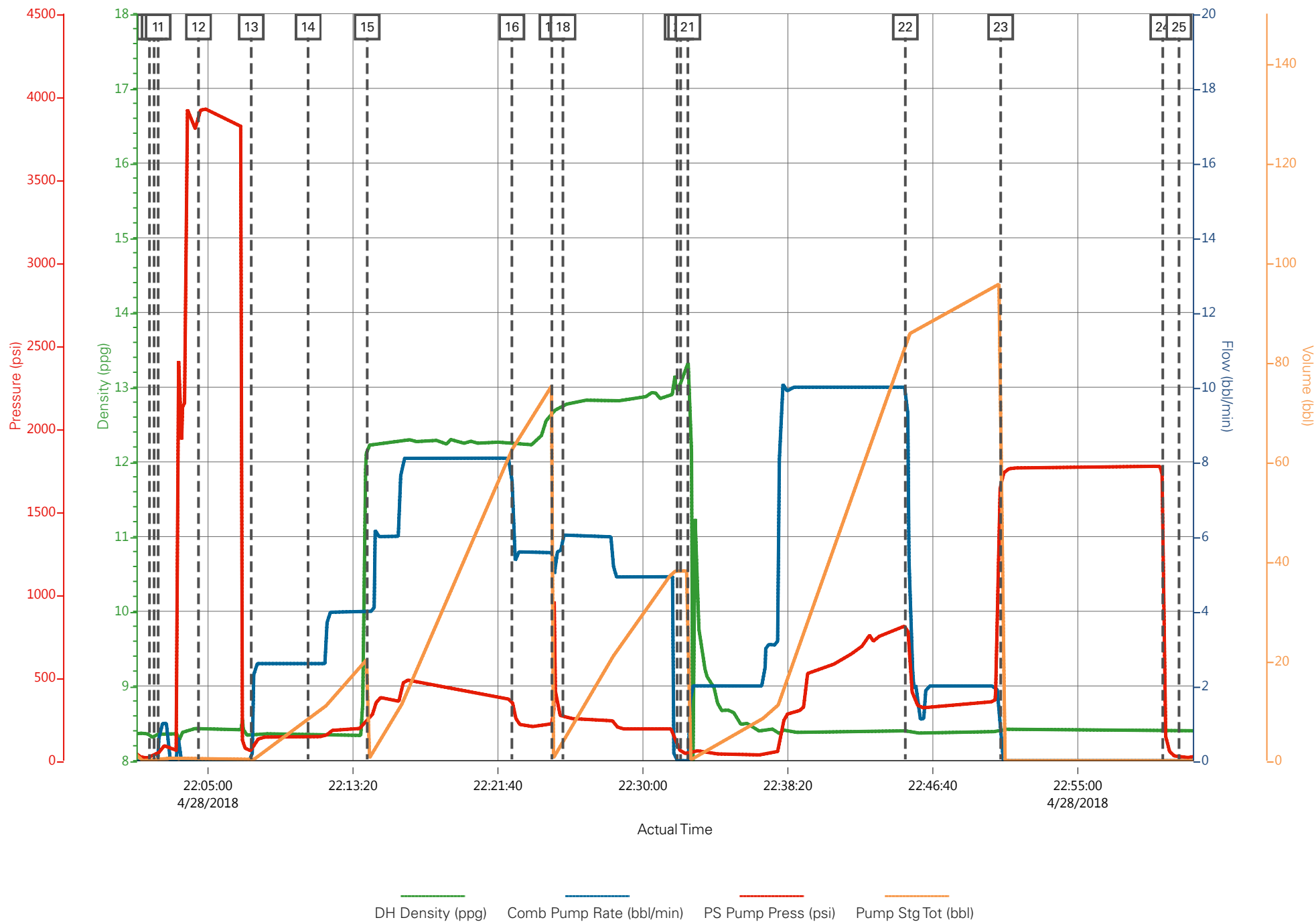
# Laramie Gunderson 994-14-17E Surface



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)
Start Job	22:01:58	18.00	8.30	0.00	0.00
Drop Bottom Plug	22:01:54	39.00	8.33	0.00	0.00
Prime Lines	22:02:08	43.00	8.38	0.00	0.00
Test Lines	22:04:27	3891.00	8.43	0.00	0.50
Pump Spacer	22:07:29	58.00	8.35	0.00	0.50
Check Weight	22:10:45	144.00	8.34	2.60	8.30
Pump Lead Cement	22:14:09	253.00	12.21	4.00	20.40
Slow Rate	22:22:28	364.00	12.26	8.10	62.40
Pump Tail Cement	22:24:46	225.00	12.65	5.60	0.00
Check Weight	22:25:24	263.00	12.74	6.00	3.60
Shutdown	22:31:58	88.00	12.93	0.00	38.10
Drop Top Plug	22:32:10	58.00	13.07	0.00	38.10
Pump Displacement	22:32:35	39.00	13.33	0.00	0.00
Slow Rate	22:45:05	804.00	8.40	10.00	83.60
Bump Plug	22:50:34	1672.00	8.42	0.00	95.80
Check Floats	22:59:53	1479.00	8.42	0.00	0.00
End Job	23:00:49	21.00	8.42	0.00	0.00

# LARAMIE - GUNDERSON 994-14-17E - 8 5/8" SURFACE



# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

**For: Laramie**

Date: Tuesday, May 01, 2018

**Gunderson 994-14-17E Production PJR**

API #: 05-077-10530

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

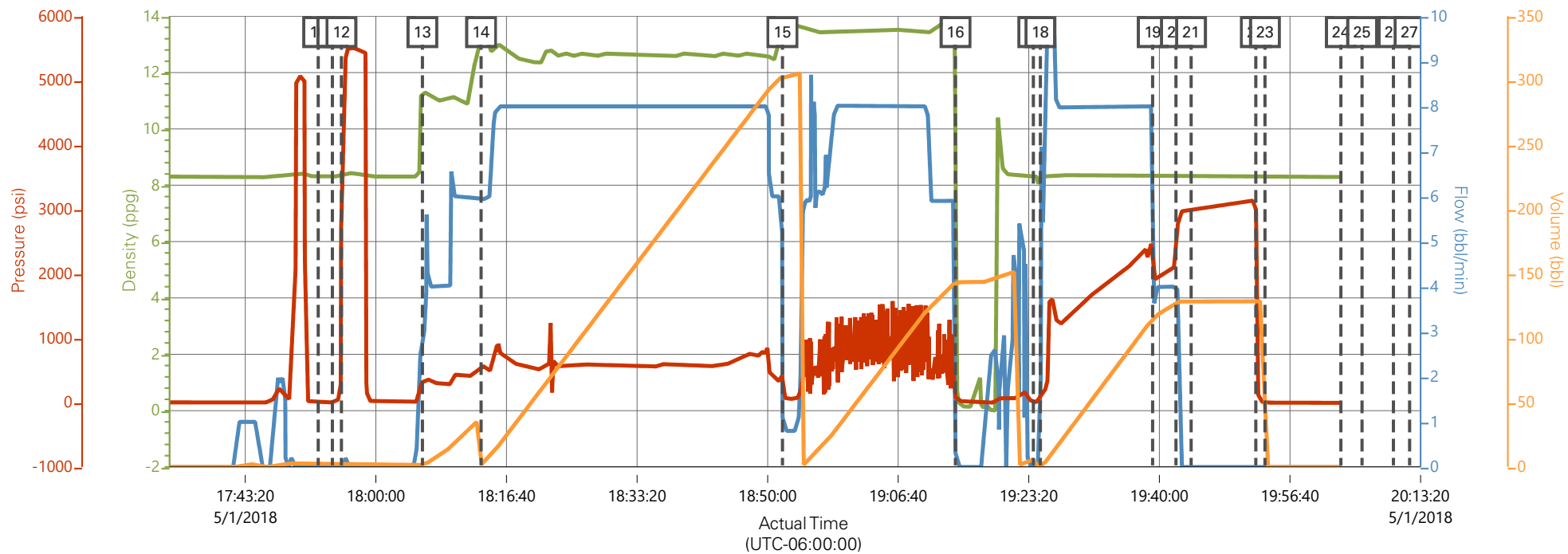
## 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	5/1/2018	10:00:00						Requested on Location @ 16:00
Event	2	Pre-Convoy Safety Meeting	5/1/2018	13:00:00						
Event	3	Crew Leave Yard	5/1/2018	13:33:00						1 Elite, 1 660, 1 pickup
Event	4	Arrive at Rig	5/1/2018	16:00:00						Rig Running Casing
Event	5	Assessment Of Location Safety Meeting	5/1/2018	16:10:00						JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 52 degrees
Event	6	Pre-Rig Up Safety Meeting	5/1/2018	16:20:00						
Event	7	Rig-Up Equipment	5/1/2018	16:30:00						1 hardline to standpipe, water hoses to upright, bulk hose to 660 and silos.
Event	8	Other	5/1/2018	17:00:00						Rig Circulated 60 mins prior to cement job at 450 gpm 880 psi
Event	9	Pre-Job Safety Meeting	5/1/2018	17:10:00						All HES personnel, rig crew, and company rep
Event	10	Start Job	5/1/2018	17:52:38						Csg 4 1/2" 11.6# TP 8303.35, SJ 87.69', FC 8215.66 OH 7 7/8", Prev. Csg 8.625" 24#@ 1570, Mud 9.1 ppg.
Event	11	Fill Lines	5/1/2018	17:54:26		8.33	2	280	5	Fresh Water

Event	12	Test Lines	5/1/2018	17:55:36			5603		Held pressure 2 minutes no leaks
Event	13	Pump Spacer	5/1/2018	18:05:56	11.0	6	462	40	Tuned Spacer III @ 11 ppg, drop bottom plug ahead of spacer
Event	14	Pump Lead Cement	5/1/2018	18:13:25	12.5	8	900	269.5	858 sks 12.5 ppg 1.94 yield 9.6 gal/sk
Event	15	Pump Tail Cement	5/1/2018	18:51:54	13.3	8	900	121.7	395 Sks 13.3 ppg 1.73 yield 7.81 gal/sk
Event	16	Shutdown	5/1/2018	19:13:58					Wash lines to cellar
Event	17	Drop Top Plug	5/1/2018	19:23:55					Verify Plug Launched
Event	18	Pump Displacement	5/1/2018	19:24:49	8.33	8	2280	127.3	Fresh Water
Event	19	Slow Rate	5/1/2018	19:39:09	8.33	4	2000	117	Slow Rate 10 bbls to calculated displacement
Event	20	Bump Plug	5/1/2018	19:42:07	8.33		3000		Plug Bumped at 2000 psi, Brought up to 3000 psi
Event	21	Casing Test	5/1/2018	19:44:03					3000 psi for 10 min
Event	22	Check Floats	5/1/2018	19:52:19					Floats held – 1 ½ bbl back to the truck
Event	23	End Job	5/1/2018	19:53:29					good returns throughout job, 30 bbls of cement to surface.
Event	24	Pre-Rig Down Safety Meeting	5/1/2018	20:03:09					40 lbs sugar, No add hours
Event	25	Rig-Down Equipment	5/1/2018	20:05:52					
Event	26	Pre-Convoy Safety Meeting	5/1/2018	20:09:52					
Event	27	Crew Leave Location	5/1/2018	20:11:56					Thanks For Using Halliburton Cement. Chris Martinez And Crew.



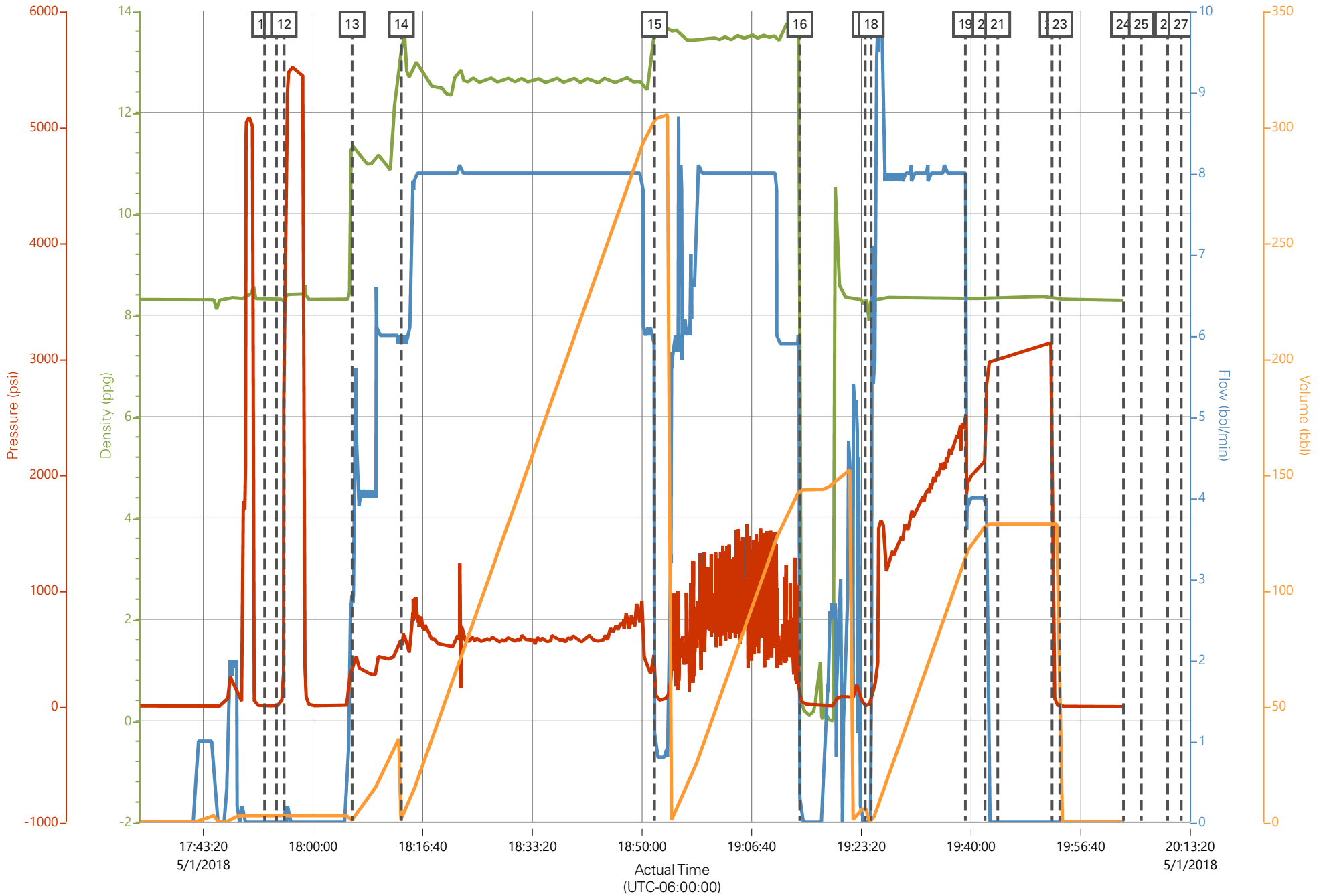
# PA 532-26 Production



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

Description	Actual Time (UTC-06:00:00)	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)
11 Fill Lines	17:54:26	8.31	0.00	2.00	2.80
12 Test Lines	17:55:36	8.31	0.00	2800.00	2.80
13 Pump Spacer	18:05:56	11.39	2.70	339.00	1.00
14 Pump Lead Cement	18:13:25	13.22	5.90	528.00	1.60
15 Pump Tail Cement	18:51:54	13.57	1.10	225.00	303.60
16 Shutdown	19:13:58	13.39	1.00	83.00	143.50
17 Drop Top Plug	19:23:55	8.30	0.00	2.00	5.70
18 Pump Displacement	19:24:49	8.30	1.60	54.00	0.10
19 Slow Rate	19:39:09	8.34	8.00	2508.00	115.30
20 Bump Plug	19:42:07	8.33	4.00	2127.00	127.60
21 Casing Test	19:44:03	8.36	0.00	2983.00	128.60
22 Check Floats	19:52:19	8.36	0.00	3101.00	128.60
23 End Job	19:53:29	8.32	0.00	0.00	0.00

# PA 532-26 Production



DH Density (ppg)

Comb Pump Rate (bbl/min)

DS Pump Press (psi)

Pump Stg Tot (bbl)

## Job Information

Request/Slurry	2470374/1	Rig Name	H&P 522	Date	25/APR/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Laramie Energy	Location	Garfield	Well	Gunderson 994-14-17E

## Well Information

Casing/Liner Size	4.5 in	Depth MD	8250 ft	BHST	112°C / 233°F
Hole Size	7.875 in	Depth TVD	7442 ft	BHCT	74°C / 166°F
Pressure	4509 psi				

## Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	9.9 lbm/gal
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## Cement Information - Lead Design



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		NeoCem				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft3/sack
						Water Requirement	9.623	gal/sack
						Total Mix Fluid	9.623	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

## Operation Test Results Request ID 2470374/1

## Mixability (0 - 5) - 0 is not mixable

28/APR/2018

Mixability rating (0 - 5)

5

Avg rpm mixing under load (~12,000)

12000

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# Thickening Time - ON-OFF-ON

29/APR/2018

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
166	4509	47	3:46	4:07	4:15	5:04	13	57	15	15

Total sks = 858

CS0963, Trailer 8658, 429 sks

CS0964, Trailer 8677, 429 sks

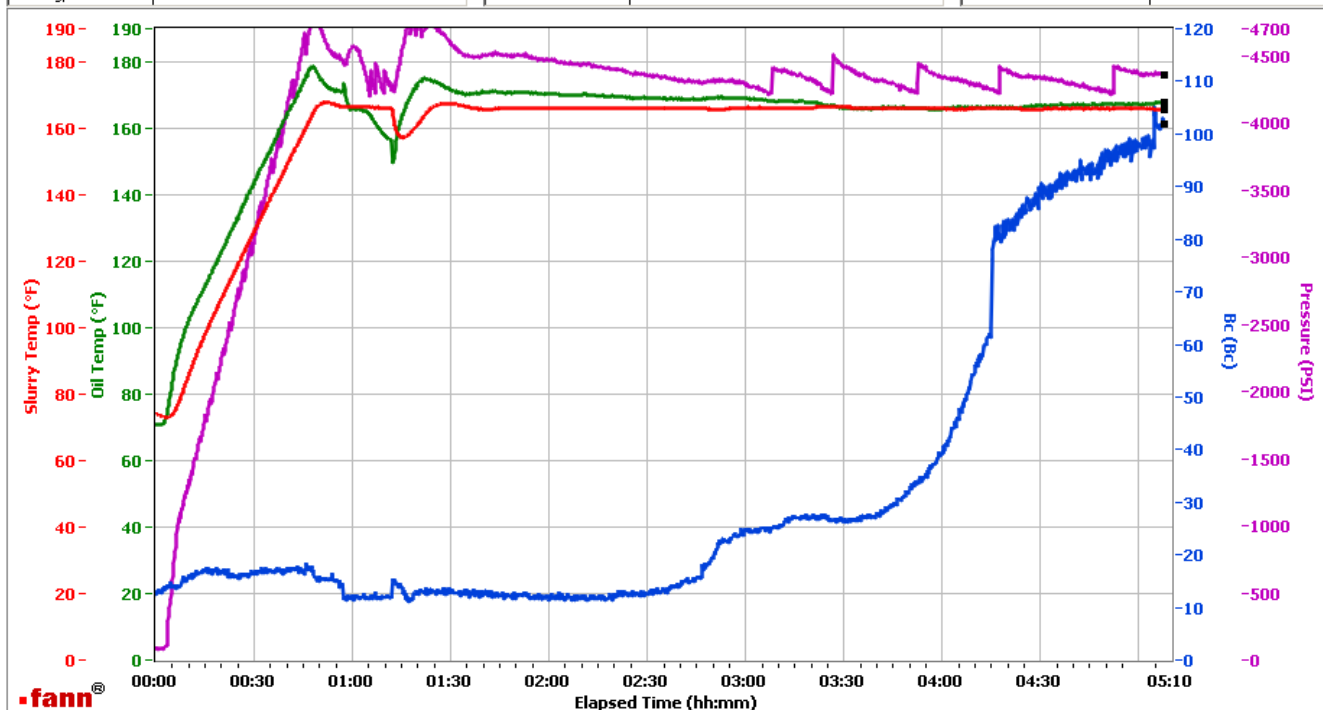
no deflection, 15Bc--- > 15Bc

## Grand Junction Colorado

Fields	Values
Project Name	2470374-1 LARAMIE BULK PRODUCTION LE
Test ID	35446563 - TT
Request ID	2470374-1
Tested by	CT
Customer	LARAMIE ENERGY
Well No	GUNDERSON 994-14-17E
Rig	H&P 522
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	GCC TYPE I-II
Cement Weight	Standard
Test Date	04/29/18
Test Time	3:35 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:46m
40.00 Bc	04h:00m
50.00 Bc	04h:07m
70.00 Bc	04h:15m
100.00 Bc	05h:04m
00h:30m	16.48
01h:00m	11.64
01h:30m	12.95



Data File C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files\Content.IE5\AFG5UB25\GJ2470374-1 LARAMIE BULK PRODUCTION LEAD[1].tdms

Comments CS0963, TRAILER 8658, 429 SKS - CS0964, TRAILER 8677, 429 SKS

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### Job Information

Request/Slurry	2470375/1	Rig Name	H&P 522	Date	25/APR/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Laramie Energy	Location	Garfield	Well	Gunderson 994-14-17E

### Well Information

Casing/Liner Size	4.5 in	Depth MD	8250 ft	BHST	112°C / 233°F
Hole Size	7.875 in	Depth TVD	7442 ft	BHCT	74°C / 166°F
Pressure	4509 psi				

### Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	9.9 lbm/gal
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### Cement Information - Tail Design



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		ThermaCem				Slurry Density	13.3	lbm/gal
						Slurry Yield	1.733	ft3/sack
						Water Requirement	7.799	gal/sack
						Total Mix Fluid	7.799	gal/sack
						Water Source	Field (Fresh) Water	
						Water Chloride	N/A	

### Operation Test Results Request ID 2470375/1

#### Mixability (0 - 5) - 0 is not mixable

28/APR/2018

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

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# Thickening Time - ON-OFF-ON

29/APR/2018

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)
166	4509	47	3:07	3:23	3:28	3:29	17	57	15	17

Total sks = 395

CS0965, Trailer 1513, 395 sks

no deflection was recorded on the graph, 17Bc--- > 17Bc

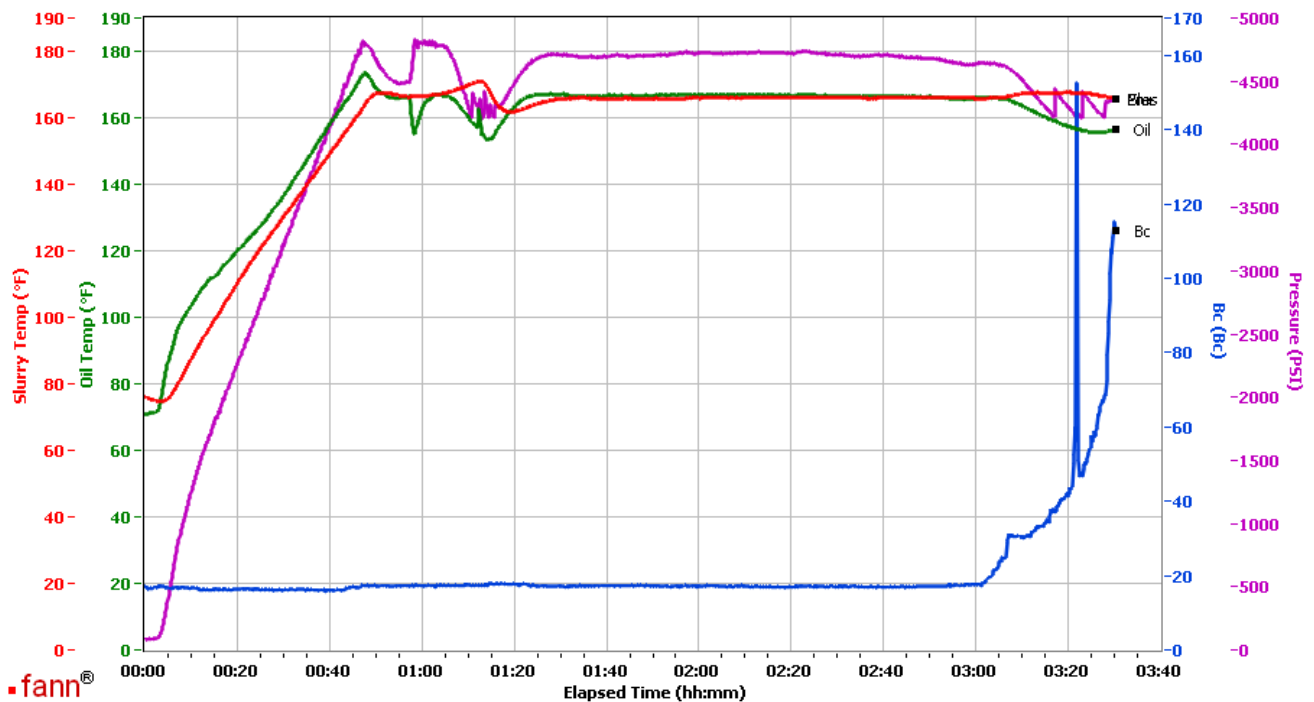
Please note the heat of hydration at 3:07

## Grand Junction Colorado

Fields	Values
Project Name	2470375-1 LARAMIE BULK PRODUCTION TA
Test ID	35446565 - TT
Request ID	2470375-1
Tested by	CT
Customer	LARAMIE ENERGY
Well No	GUNDERSON 994-14-17E
Rig	H&P 522
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	04/28/18
Test Time	4:38 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:07m
40.00 Bc	03h:18m
50.00 Bc	03h:23m
70.00 Bc	03h:21m
100.00 Bc	03h:21m
00h:30m	15.92
01h:00m	17.29
01h:30m	16.96



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Comments CS0965, TRAILER 1513, 395 SKS

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