

# HALLIBURTON

iCem<sup>®</sup> Service

## **LARAMIE ENERGY LLC-EBUS**

**For: Aaron Duncan**

Date: Thursday, April 12, 2018

**Gunderson 0994-14-15E Surface PJR**

API# 05-077-10540-00

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

### 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	Pass-Side Pump Pressure (psi)	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Pump Stage Total (bbl)	Comments
Event	1	Call Out	4/11/2018	17:30:00	USER					REQUESTED ON LOCATION @ 0000
Event	2	Pre-Convoy Safety Meeting	4/11/2018	19:00:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	4/11/2018	19:10:00	USER					1 F550, 1 PUMP TRUCK & 1 660 BULK TURCK
Event	4	Arrive At Loc	4/11/2018	20:40:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	4/11/2018	20:45:00	USER					MET WITH COMP REP, SHANE, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7, CHLORIDES- 0, TEMP- 61 F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	4/11/2018	20:50:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	4/11/2018	21:00:00	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	4/11/2018	23:45:00	USER					ALL HES AND RIG CREW PRESENT
Event	9	Start Job	4/11/2018	23:52:00	COM3					TD 1570', TP 1560', SJ 42.27', OH 11", CSG 8.625" 24#, MUD 8.8 PPG.
Event	10	Prime Pumps	4/11/2018	23:52:38	USER	35.00	8.33	1.00	2.0	8.33 PPG FRESH WATER
Event	11	Test Lines	4/11/2018	23:59:00	COM3	3321.00	8.33	0.50	0.5	ALL LINES HELD PRESSURE AT 3321 PSI
Event	12	Pump Spacer 1	4/12/2018	00:01:47	COM3	160.00	8.33	4.00	0.0	8.33 PPG FRESH WATER (20 BBL)

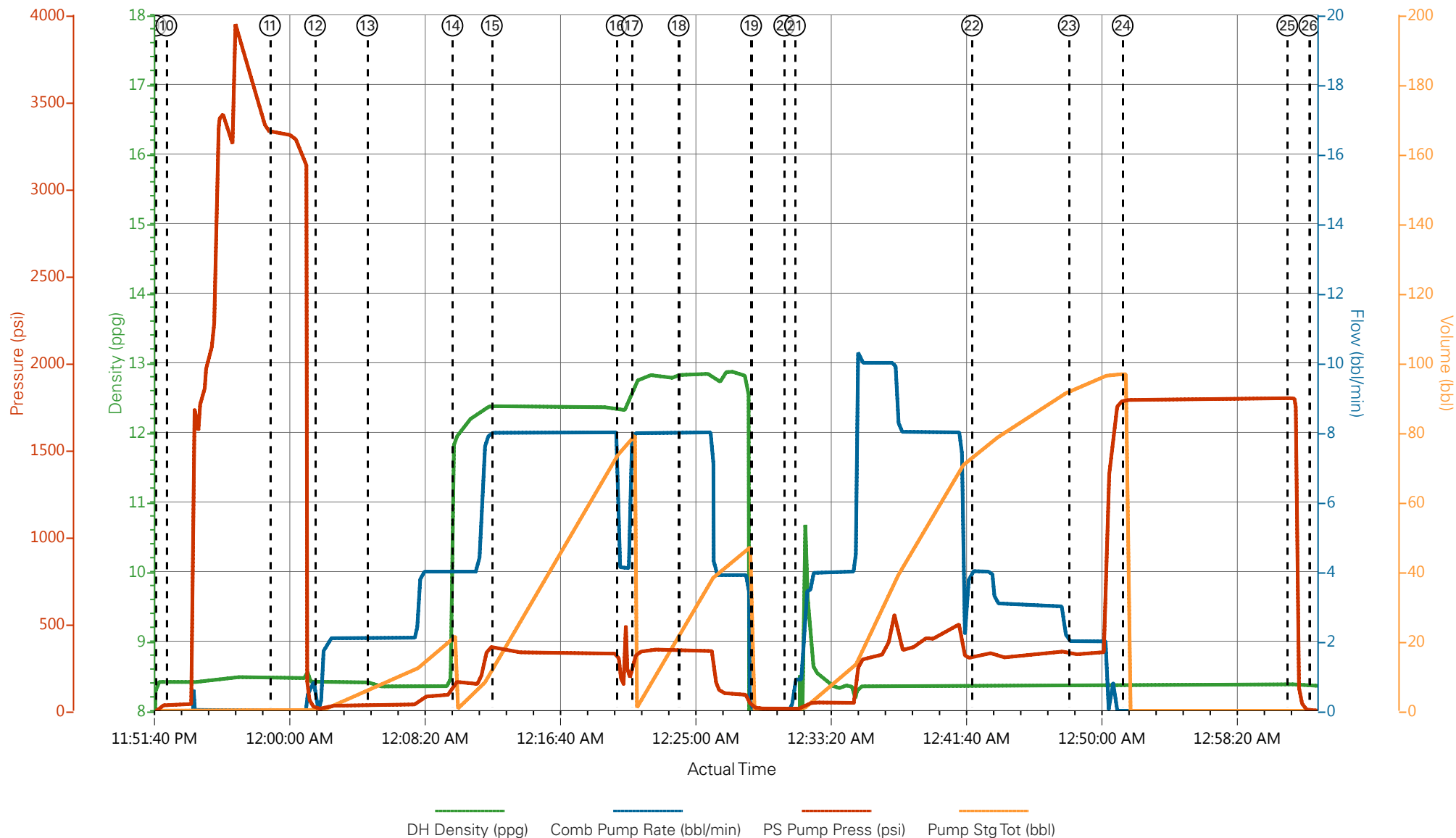
Event	13	Drop Bottom Plug	4/12/2018	00:05:00	USER					PLUG WENT, VERIFIED BY CO REP
Event	14	Pump Lead Cement	4/12/2018	00:10:15	COM3	340.00	12.30	8.00	73.0	VARICEM CEMENT 167 SKS (73 BBLS), 12.3 PPG, 2.46 FT3/SK, 14.17 GAL/SK
Event	15	Check weight	4/12/2018	00:12:40	COM3					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Slow Rate	4/12/2018	00:20:21	USER	540.00	12.30	4.00		SLOWED RATE FOR BOTTOM PLUG, PER CO REP.
Event	17	Pump Tail Cement	4/12/2018	00:21:17	COM3	340.00	12.80	8.00	42.0	VARICEM CEMENT 109 SKS (42 BBLS), 12.8 PPG, 2.18 FT3/SK, 12.11 GAL/SK.
Event	18	Check weight	4/12/2018	00:24:10	COM3					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	19	Shutdown	4/12/2018	00:28:38	USER					END OF CEMENT
Event	20	Drop Top Plug	4/12/2018	00:30:40	COM3					PLUG WENT, VERIFIED BY CO REP
Event	21	Pump Displacement	4/12/2018	00:31:20	COM3	470.00	8.33	64.7	64.7	8.34 PPG FRESH WATER (96.7 BBLS)
Event	22	Slow Rate	4/12/2018	00:42:14	USER	325.00	8.34	4.00	23.0	SLOWED RATE FOR CEMENT RETURNS, PER CO REP.
Event	23	Slow Rate	4/12/2018	00:48:11	USER	321.00	8.35	2.00	10.0	SLOW RATE TO 2 BPM PER CO REP TO LAND PLUG
Event	24	Bump Plug	4/12/2018	00:51:30	COM3	350.00	8.33	2.00	96.7	LAND PLUG AT 350 PSI, BROUGHT UP TO 1797 PSI FOR CASING TEST
Event	25	Check Floats	4/12/2018	01:01:38	USER	1797.00	8.38	0.00	96.7	FLOATS HELD, 1 BBL BACK TO TRUCK
Event	26	End Job	4/12/2018	01:03:00	COM3					RETURNS THROUGHOUT JOB, PIPE WAS NOT RECIPROCATED, 33 BBL OF CEMENT BACK TO SURFACE
Event	27	Post-Job Safety Meeting (Pre Rig-Down)	4/12/2018	01:05:00	USER					ALL HES PRESENT
Event	28	Rig-Down Equipment	4/12/2018	01:10:00	USER					ALL HES PRESENT
Event	29	Pre-Convoy Safety Meeting	4/12/2018	01:30:00	USER					ALL HES PRESENT

Event    30    Crew Leave Location    4/12/2018    01:45:00    USER

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THANK YOU FOR CHOOSING HALLIBURTON  
CEMENT, CHRIS SMITH AND CREW

# LARAMIE - GUNDERSON 0994-14-15 E - 8.625" SURFACE



- |   |                          |                    |                      |   |
|---|--------------------------|--------------------|----------------------|---|
| ① Call Out                              | ⑦ Rig-Up Equipment       | ⑬ Drop Bottom Plug | ⑰ Shutdown           | 25 Check Floats                           |
| ② Pre-Convoy Safety Meeting             | ⑧ Pre-Job Safety Meeting | ⑭ Pump Lead Cement | 20 Drop Top Plug     | 26 End Job                                |
| ③ Crew Leave Yard                       | ⑨ Start Job              | ⑮ Check weight     | 21 Pump Displacement | 27 Post-Job Safety Meeting (Pre Rig-Down) |
| ④ Arrive At Loc                         | ⑩ Prime Pumps            | ⑯ Slow Rate        | 22 Slow Rate         | 28 Rig-Down Equipment                     |
| ⑤ Assessment Of Location Safety Meeting | ⑪ Test Lines             | ⑰ Pump Tail Cement | 23 Slow Rate         | 29 Pre-Convoy Safety Meeting              |
| ⑥ Pre-Rig Up Safety Meeting             | ⑫ Pump Spacer 1          | ⑱ Check weight     | 24 Bump Plug         | 30 Crew Leave Location                    |

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Created: 2018-04-11 21:23:40, Version: 4.2.393

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Customer : LARAMIE ENERGY II LLC EBUSINESS

Job Date : 4/11/2018

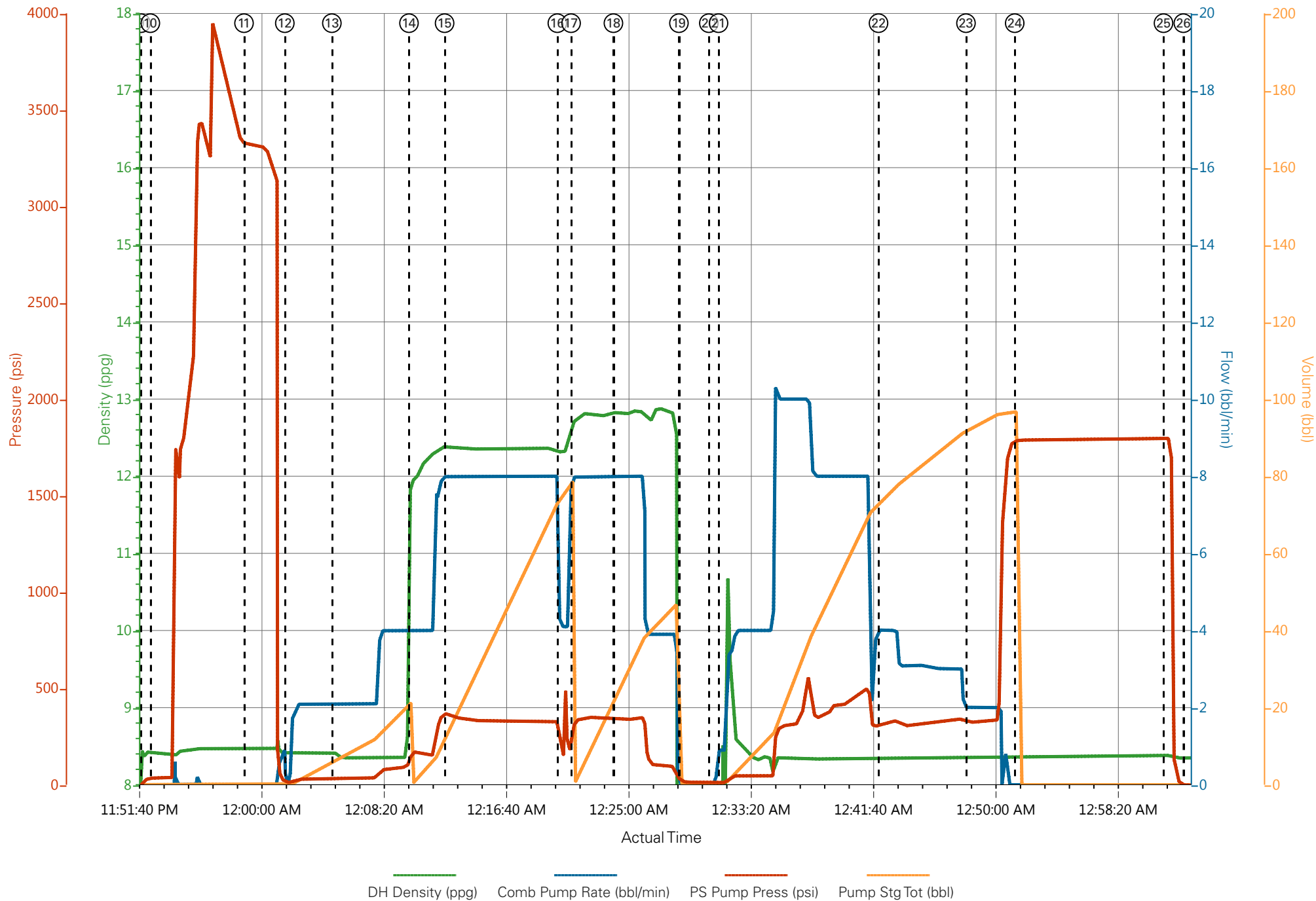
Well : GUNDERSON 0994-14-15 E

Representative : SHANE

Sales Order # : 904772562

ELITE 8 : C.SMITH/R.HOEY

# LARAMIE - GUNDERSON 0994-14-15 E - 8.625" SURFACE



# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC-EBUS**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Sunday, April 15, 2018

**Gunderson 994-14-15E Production PJR**

API# 05-077-10540-00

Sincerely,

**Grand Junction Cement Engineering**

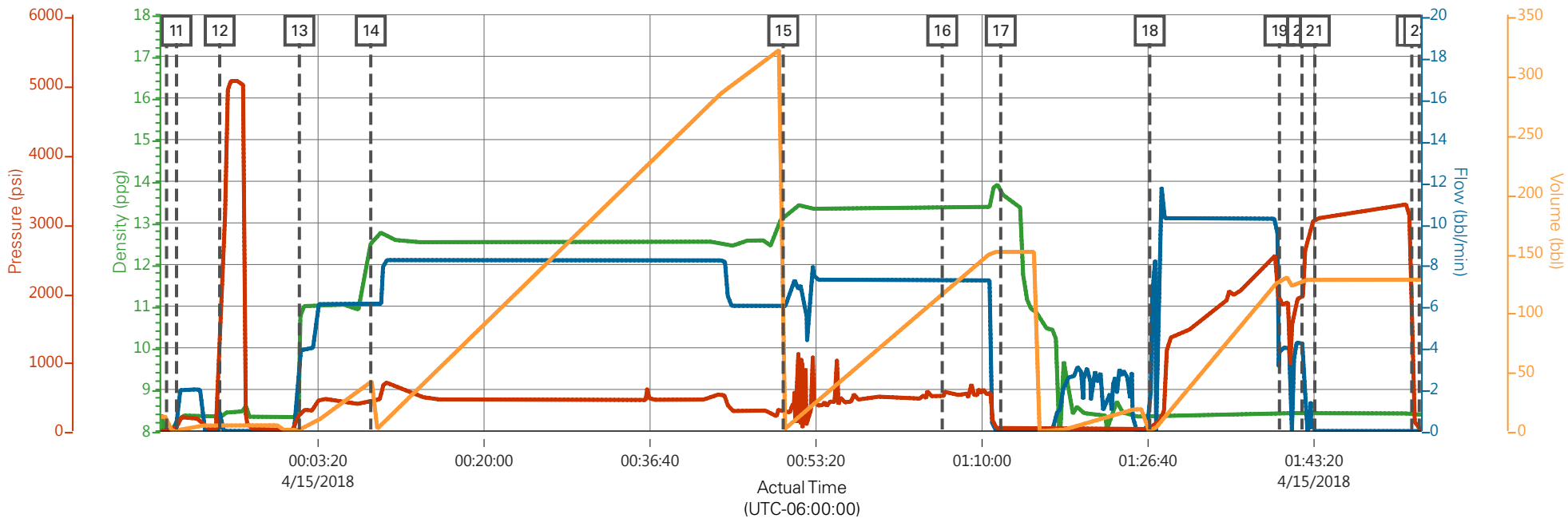
## 1.0 Real-Time Job Summary

### 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	4/14/2018	16:00:00						Requested on Location @ 22:00
Event	2	Pre-Convoy Safety Meeting	4/14/2018	20:00:00						
Event	3	Crew Leave Yard	4/14/2018	20:15:00						1 Elite, 1 660, 1 pickup
Event	4	Arrive at Rig	4/14/2018	22:00:00						Rig On Bottom With Casing
Event	5	Assessment Of Location Safety Meeting	4/14/2018	22:10:00						JSA completed - Customer offered/received SDS - water test pH 7.0, CI <200, temp 52 degrees
Event	6	Pre-Rig Up Safety Meeting	4/14/2018	22:15:00						
Event	7	Rig-Up Equipment	4/14/2018	22:20:00						1 hardline to standpipe, water hoses to upright, bulk hose to 660 and silos.
Event	8	Other	4/14/2018	22:30:00						Rig Circulated 1 Hr prior to cement job at 450 gpm 850 psi
Event	9	Pre-Job Safety Meeting	4/14/2018	23:35:11						All HES personnel, rig crew, and company rep
Event	10	Start Job	4/14/2018	23:48:07						TD 8252', Csg 4 1/2" 11.6# TP 8241.35, SJ 84.91', FC 8156.44 OH 7 7/8", Prev. Csg 8.625" 24#@ 1530, Mud 9.4 ppg.
Event	11	Fill Lines	4/14/2018	23:49:07		8.33	2	185	5	Fresh Water
Event	12	Test Lines	4/14/2018	23:53:27				5060		Held pressure 2 minutes no leaks
Event	13	Pump Spacer	4/15/2018	00:01:27		8.33	6	480	40	Tuned Spacer III @ 11 ppg, drop bottom plug

ahead of spacer									
Event	14	Pump Lead Cement	4/15/2018	00:08:37	12.5	8	750	298.5	864 sks 12.5 ppg 1.94 yield 9.6 gal/sk
Event	15	Pump Tail Cement	4/15/2018	00:50:02	13.3	7.2	580	121.7	410 Sks 13.3 ppg 1.73 yield 7.81 gal/sk
Event	16	Shutdown	4/15/2018	01:06:00					Wash lines to cellar
Event	17	Drop Top Plug	4/15/2018	01:11:53					Verify Plug Launched
Event	18	Pump Displacement	4/15/2018	01:26:50	8.33	10	2575		Clay-Web Water
Event	19	Slow Rate	4/15/2018	01:39:52	8.33	4	1880	116	Slow Rate 10 bbls to calculated displacement
Event	20	Bump Plug	4/15/2018	01:42:07			3268	126.4	Plug Bumped at 1880 psi, Brought up to 3268 psi
Event	21	Casing Test	4/15/2018	01:43:25					Held Pressure For 10 Min.
Event	22	Check Floats	4/15/2018	01:53:09					Floats held – 1 ½ bbl back to the truck
Event	23	End Job	4/15/2018	01:53:54					good returns throughout job, 3 bbls of Tuned Spacer to surface.
Event	24	Pre-Rig Down Safety Meeting	4/15/2018	01:59:46					40 lbs sugar, no add hours
Event	25	Rig-Down Equipment	4/15/2018	02:02:02					
Event	26	Pre-Convoy Safety Meeting	4/15/2018	02:29:54					
Event	27	Crew Leave Location	4/15/2018	02:31:33					Thanks For Using Halliburton Cement. Chris Martinez And Crew.

# Gunderson 994-14-15E 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)
12 Test Lines	23:53:27	8.33	0.80	2022.00	4.80
13 Pump Spacer	00:01:27	9.55	3.80	246.00	1.00
14 Pump Lead Cement	00:08:37	12.46	6.10	470.00	41.20
15 Pump Tail Cement	00:50:02	13.16	6.00	292.00	0.90
16 Shutdown	01:06:00	13.38	7.30	498.00	114.60
17 Drop Top Plug	01:11:53	13.74	0.00	27.00	150.60
18 Pump Displacement	01:26:50	8.35	1.40	39.00	0.20
19 Slow Rate	01:39:52	8.39	3.90	1798.00	126.20
20 Bump Plug	01:42:07	8.40	4.20	1923.00	125.80
21 Casing Test	01:43:25	8.43	0.00	3058.00	127.30
22 Check Floats	01:53:09	8.40	0.00	1506.00	127.30
23 End Job	01:53:54	8.36	0.00	40.00	127.30

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Created: 2018-04-14 22:55:40, (UTC-06:00), Version: 4.5.139

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Customer : Laramie Energy LLC

Job Date : 4/15/2018

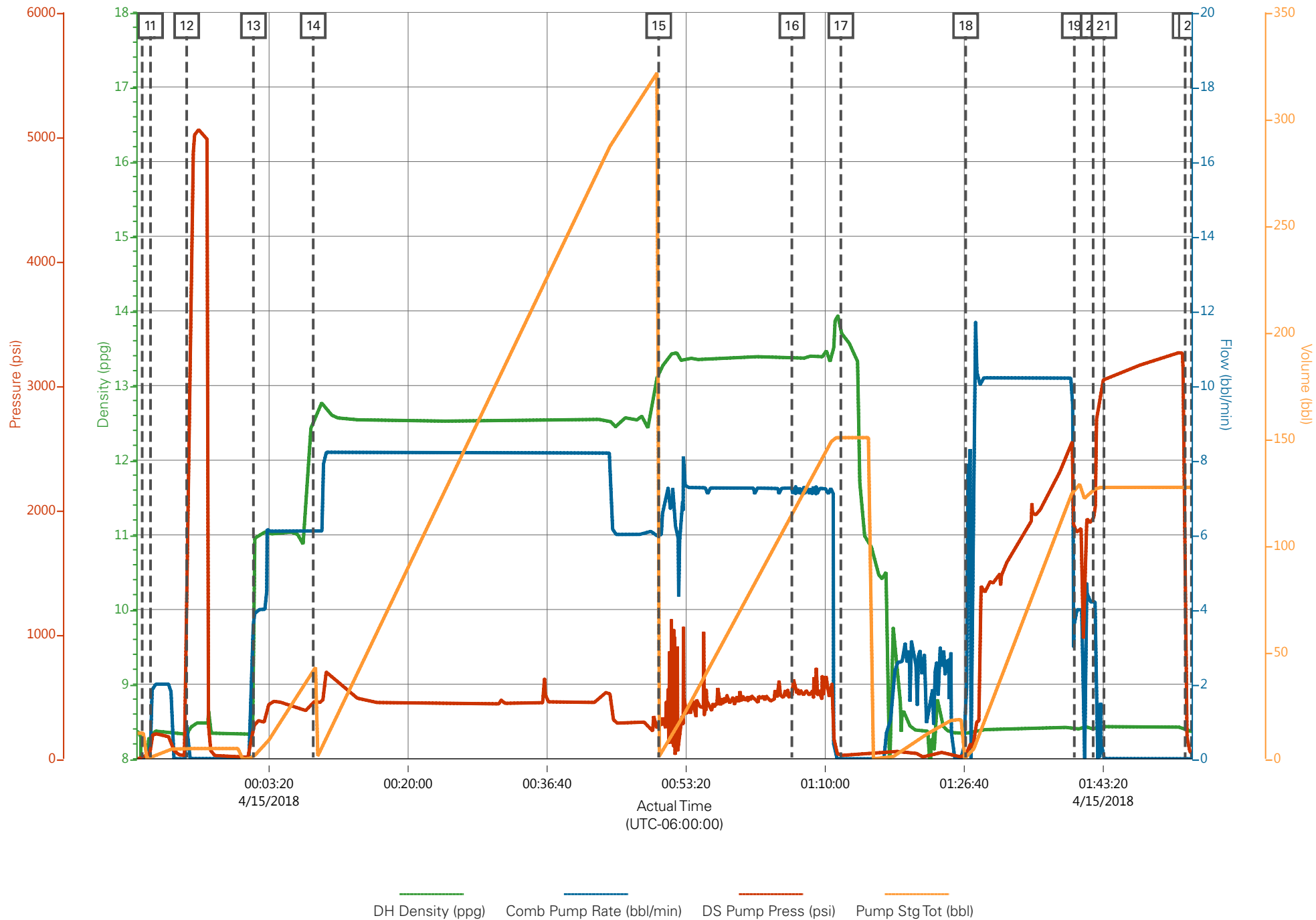
Well : Gunderson

Representative : Shane Heard

Sales Order # : 904774607

Elite 4 : Chris Martinez / Dillon Martin

# Gunderson 994-14-15E Production



## Job Information

Request/Slurry	2466064/1	Rig Name	H&P 522	Date	09/APR/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Laramie Energy	Location	Garfield	Well	Gunderson 994-14-15E

## Well Information

Casing/Liner Size	4.5 in	Depth MD	8276 ft	BHST	112°C / 233°F
Hole Size	7.875 in	Depth TVD	7457 ft	BHCT	75°C / 167°F
Pressure	4533 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		

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# Operation Test Results Request ID 2466064/1

## Thickening Time - ON-OFF-ON

10/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)
167	4533	48	3:59	4:08	4:14	4:29	11	58	15	9

Total sks = 864

CS0844 TR#2878 432 SKS

C S0845 TR#1513 432 SKS

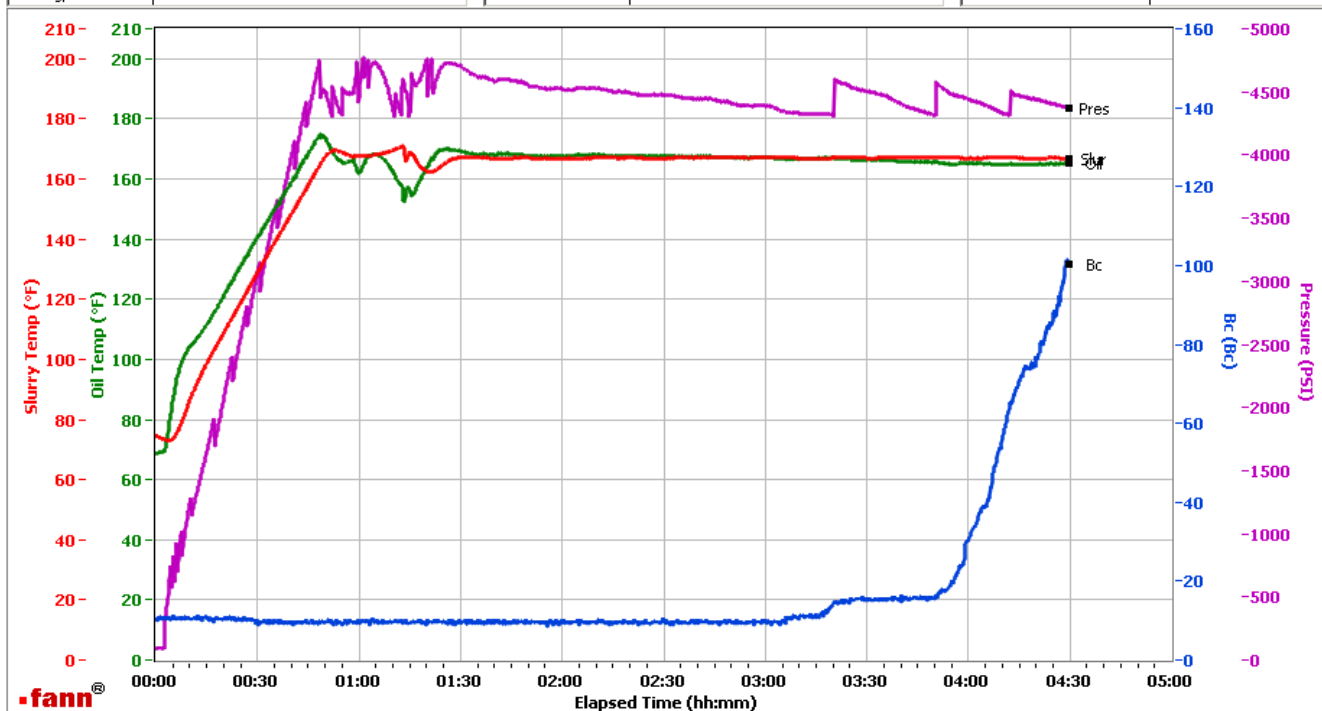
Deflection: 9 - 9

## Grand Junction Colorado

Fields	Values
Project Name	GJ24646064-1 LARAMIE PRODUCTION BULK
Test ID	35404127
Request ID	GJ24646064-1
Tested by	DEBA
Customer	LARAMIE ENERGY
Well No	GUNDERSON 994-14-15E
Rig	H&P 522
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	GCC TYPE I-II
Cement Weight	Standard
Test Date	05/18/11
Test Time	11:02 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.1219

Events	Results
30.00 Bc	03h:59m
40.00 Bc	04h:05m
50.00 Bc	04h:08m
70.00 Bc	04h:14m
100.00 Bc	04h:29m
00h:30m	9.49
01h:00m	10.00
01h:30m	9.33



Data File C:\Documents and Settings\HPHT\Local Settings\Temporary Internet Files\Content.IE5\KD2P415J\GJ24646064-1 LARAMIE PRODUCTION BULK LEAD[1].tdms

Comments CS0844 TR#2878 432 SKS AND CS0845 TR#1513 432 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2466065/1	Rig Name	H&P 522	Date	09/APR/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Laramie Energy	Location	Garfield	Well	Gunderson 994-14-15E

### Well Information

Casing/Liner Size	4.5 in	Depth MD	8276 ft	BHST	112°C / 233°F
Hole Size	7.875 in	Depth TVD	7457 ft	BHCT	75°C / 167°F
Pressure	4533 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

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# Operation Test Results Request ID 2466065/1

## Thickening Time - ON-OFF-ON

11/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)
167	4533	48	5:42	5:43	5:43	6:44	13	58	15	13

Total sks = 395

CS0846, Trailer 8476, 395 sks

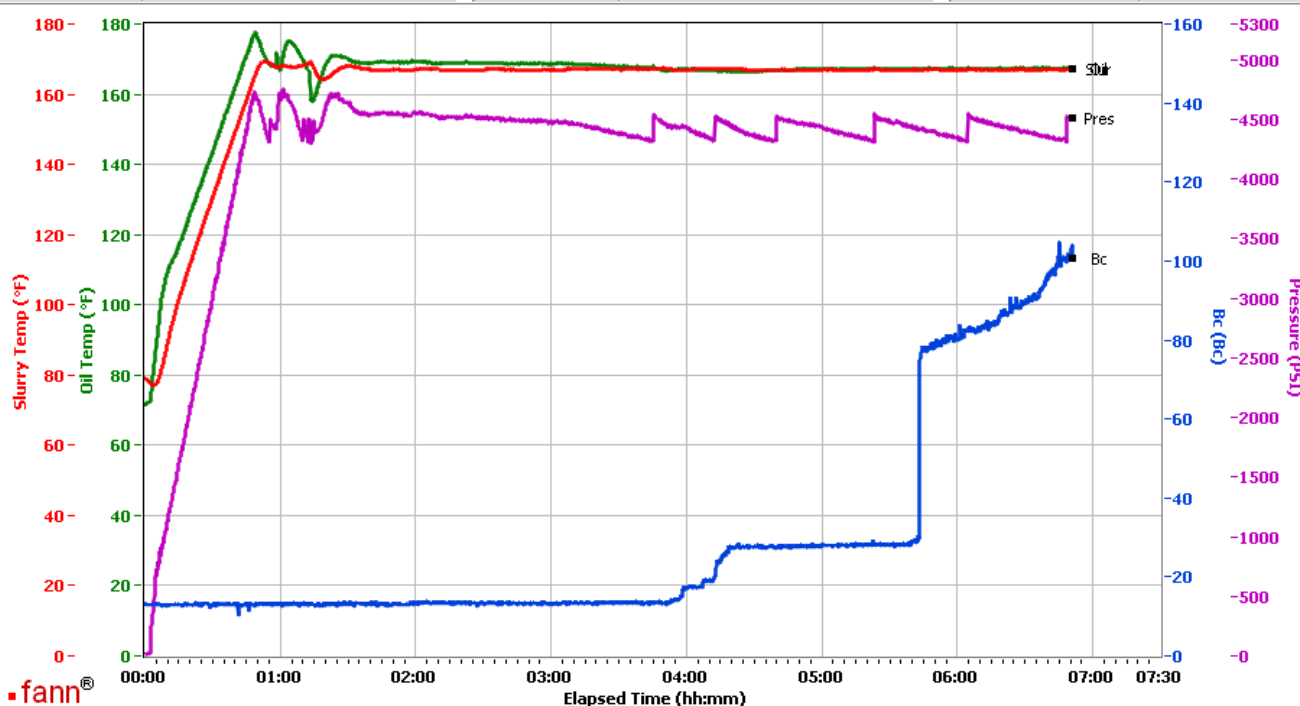
No deflection

## Grand Junction Colorado

Fields	Values
Project Name	2466065-1 LARAMIE BULK PRODUCTION TA
Test ID	35404129 - TT
Request ID	2466065-1
Tested by	CT
Customer	LARAMIE ENERGY
Well No	GUNDERSON 994-14-15E
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	04/10/18
Test Time	05:36 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	05h:42m
40.00 Bc	05h:43m
50.00 Bc	05h:43m
70.00 Bc	05h:43m
100.00 Bc	06h:44m
00h:30m	12.94
01h:00m	12.79
01h:30m	13.00



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2466065-1 LARAMIE BULK PRODUCTION TAIL.tdms

Comments CS0846, TRAILER 8476, 395 SKS

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