

# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

**For: Laramie**

Date: Tuesday, October 02, 2018

**Buzzard Creek Unit 993-21-05E Surface PJR**

API #: 05-077-10508

Sincerely,

**Grand Junction Cement Engineering**

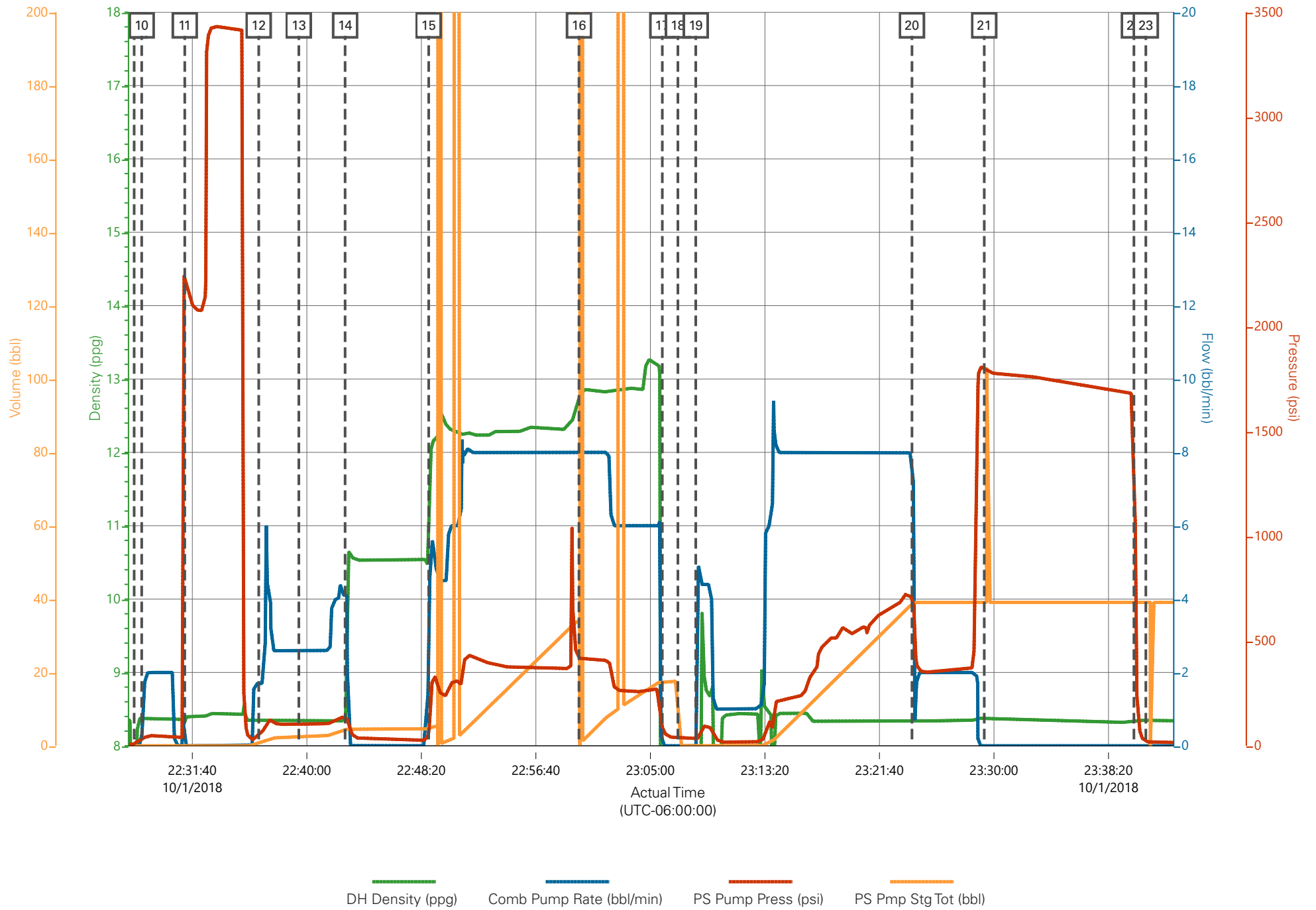
## 1.0 Real-Time Job Summary

### 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pmp Stg Tot (bbl)	PS Pump Press (psi)	Comments
Event	1	Call Out	10/1/2018	13:00:00						Requested on Location @ 19:00
Event	2	Pre-Convoy Safety Meeting	10/1/2018	14:50:00						
Event	3	Crew Leave Yard	10/1/2018	15:00:00						1 Elite, 1 660's, 1 pickup
Event	4	Arrive At Loc	10/1/2018	19:00:00						Rig running casing
Event	5	Assessment Of Location Safety Meeting	10/1/2018	19:10:00						JSA completed - Customer offered/received SDS - water test pH 7.0, CI <200, temp 62 degrees
Event	6	Pre-Rig Up Safety Meeting	10/1/2018	19:20:00						
Event	7	Rig-Up Equipment	10/1/2018	19:34:01						DME iron to ground manifold, standpipe. Water hoses to both uprights, bulk hose to 660.
Event	8	Pre-Job Safety Meeting	10/1/2018	21:57:16						All HES personnel, rig crew, and company rep.
Event	9	Start Job	10/1/2018	22:27:26						TD 1584', TP 1573', SJ 47.04', OH 11", Csg 8 5/8" 24 lb/ft J-55, Mud 9.0 ppg.
Event	10	Fill Lines	10/1/2018	22:27:59		8.33	2	85	5	Fresh Water
Event	11	Test Lines	10/1/2018	22:31:07				3432		Held pressure 2 minutes
Event	12	Pump Spacer	10/1/2018	22:36:30		8.33	4	130	15	Fresh Water
Event	13	Check Weight	10/1/2018	22:39:25						Density verified via mud cup
Event	14	Shut Down	10/1/2018	22:42:47						shut down fix leaking water hose

Event	15	Pump Lead Cement	10/1/2018	22:48:52	12.3	8	440	75.4	172 sacks, 12.3 ppg, 2.46 yield, 14.17 gal/sk
Event	16	Pump Tail Cement	10/1/2018	22:59:48	12.8	8	400	36.9	95 sks, 12.8 ppg, 2.18 Yield, 12.11 gal/sk
Event	17	Shutdown	10/1/2018	23:05:52					Wash up on plug
Event	18	Drop Top Plug	10/1/2018	23:07:00					Co-Rep Verify Plug Launched
Event	19	Pump Displacement	10/1/2018	23:08:18	8.33	8	720	97	Fresh Water
Event	20	Slow Rate	10/1/2018	23:24:02	8.33	2	355	87	Slow Rate 10 bbls to Calculated Displacement
Event	21	Bump Plug	10/1/2018	23:29:18			1810		Plug Bumped at 355 psi, Brought up to 1800 psi, 10 min casing test @ 1800 psi
Event	22	Check Floats	10/1/2018	23:40:11					Floats held – 1 bbl back to the truck
Event	23	End Job	10/1/2018	23:41:03					Good returns throughout job. 17 bbl of cement to surface
Event	24	Pre-Rig Down Safety Meeting	10/1/2018	23:53:52					40 lbs of sugar used, HES top plug used, 0 add hours.
Event	25	Rig-Down Equipment	10/1/2018	23:56:06					
Event	26	Pre-Convoy Safety Meeting	10/2/2018	00:15:37					
Event	27	Crew Leave Location	10/2/2018	00:18:18					Thanks for using Halliburton Cement, Chris Martinez and crew.

# Laramie, BCU 993-21-05E, 8 5/8" Surface



# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC**

United States of America, COLORADO

Date: Wednesday, October 17, 2018

**BCU 0993-21-05E Production**

Laramie BCU 0993-21-05E Production

API# 05-077-10508

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

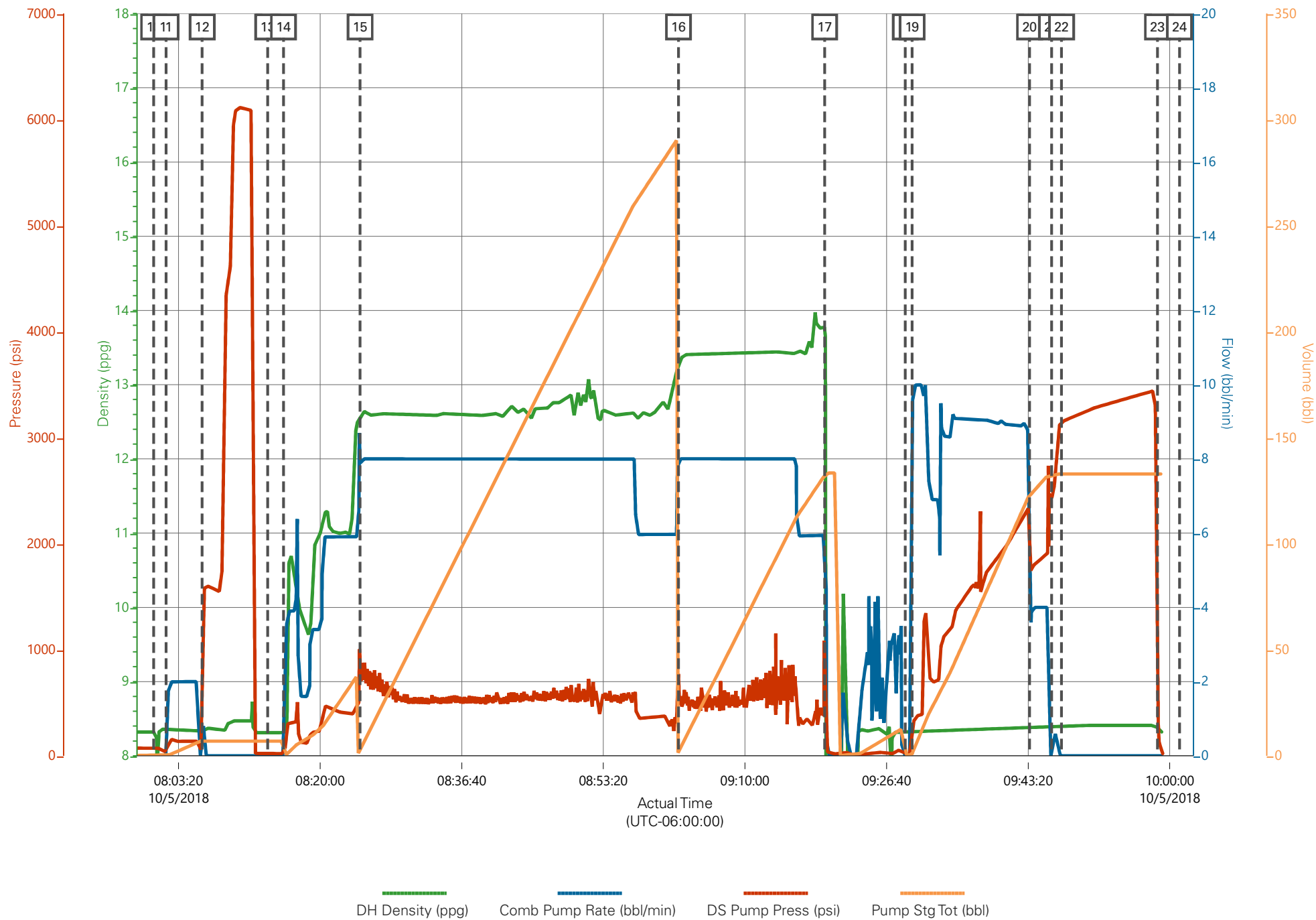
## 1.1 Job Event Log

Type	Seq. No.	Activity	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	Call Out	10/5/2018	00:01:00						Requested on Location @ 07:30
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/5/2018	04:45:00						
Event	3	Crew Leave Yard	Crew Leave Yard	10/5/2018	05:00:00						1 Elite, 1 660's, 1 pickup
Event	4	Arrive At Loc	Arrive At Loc	10/5/2018	06:00:00						Rig on bottom casing
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	10/5/2018	06:10:00						JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 58 degrees
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/5/2018	06:30:00						
Event	7	Rig-Up Equipment	Rig-Up Equipment	10/5/2018	06:40:00						DME iron to ground manifold, standpipe, hardline to pit. Water hoses to both uprights, bulk hoses to Silo's and 660.
Event	8	Other	Other	10/5/2018	06:45:00						Rig Circulated 1 hrs prior to cement job at 404gpm 610 psi. Mud scales calibrated to drinking water prior to job.
Event	9	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/5/2018	07:00:00						All HES personnel, rig crew, and company rep.
Event	10	Other	Start Job	10/5/2018	08:00:25						TD 8588', TP 8578', SJ 83.25', OH 7 7/8", Csg 4.5" 11.6 lb/ft P-110 Prev.

Csg. 8.625" 24# @ 1573', Mud 10.2 ppg.

Event	11	Other	Fill Lines	10/5/2018	08:01:52	8.33	2	170	5	Fresh Water
Event	12	Test Lines	Test Lines	10/5/2018	08:06:07			6077		Held pressure 2 minutes
Event	13	Check Weight	Check Weight	10/5/2018	08:13:50					Density verified via mud cup
Event	14	Pump Spacer	Pump Spacer	10/5/2018	08:15:42	11.0	6	475	40	11.0 ppg Tuned spacer
Event	15	Pump Lead Cement	Pump Lead Cement	10/5/2018	08:24:42	12.5	8	680	274.7	795 sks, 12.5 ppg, 1.94 yield, 9.59 gal/sk
Event	16	Pump Tail Cement	Pump Tail Cement	10/5/2018	09:02:10	13.3	8	750	113.4	366 sks, 13.3 ppg, 1.74 Yield, 7.8 gal/sk
Event	17	Shutdown	Shutdown	10/5/2018	09:19:23					Wash lines to pit
Event	18	Drop Top Plug	Drop Top Plug	10/5/2018	09:28:52					Co-Rep Verify Plug Launched
Event	19	Pump Displacement	Pump Displacement	10/5/2018	09:29:41	8.33	10	2340	131.7	5 Gal BE-6, 1 gal MCCR, 5 gal Clay-Web
Event	20	Slow Rate	Slow Rate	10/5/2018	09:43:30	8.33	4	1900	121	Slow Rate 10 bbls to Calculated Displacement
Event	21	Bump Plug	Bump Plug	10/5/2018	09:46:05			3402		Plug Bumped at 1900 psi, Brought up to 3402 psi
Event	22	Pressure Test	Pressure Test	10/5/2018	09:47:16					3000 psi for 10 min.
Event	23	Check Floats	Check Floats	10/5/2018	09:58:33					Floats held – 1.5 bbl back to the truck
Event	24	Other	End Job	10/5/2018	10:01:09					Good returns throughout job. no spacer to surface
Event	25	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/5/2018	10:04:46					40 lbs sugar, HES top and bottom plug used,
Event	26	Rig-Down Equipment	Rig-Down Equipment	10/5/2018	10:08:45					0 add hours
Event	27	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/5/2018	10:29:11					
Event	28	Crew Leave Location	Crew Leave Location	10/5/2018	10:33:41					Thanks for using Halliburton Cement, Chris Martinez and crew.

# Laramie, BCU 993-21-05E 4 1/2" Production





### Job Information

<b>Request/Slurry</b>	2505421/1	<b>Rig Name</b>	H&P 522	<b>Date</b>	30/SEP/2018
<b>Submitted By</b>	Lukas Van Zyl	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Laramie Energy	<b>Location</b>	Garfield	<b>Well</b>	BCU 0993-21-05E

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	8550 ft	<b>BHST</b>	103°C / 218°F
<b>Hole Size</b>	7.875 in	<b>Depth TVD</b>	7713 ft	<b>BHCT</b>	63°C / 146°F
<b>Pressure</b>	4699 psi				

### Drilling Fluid Information

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



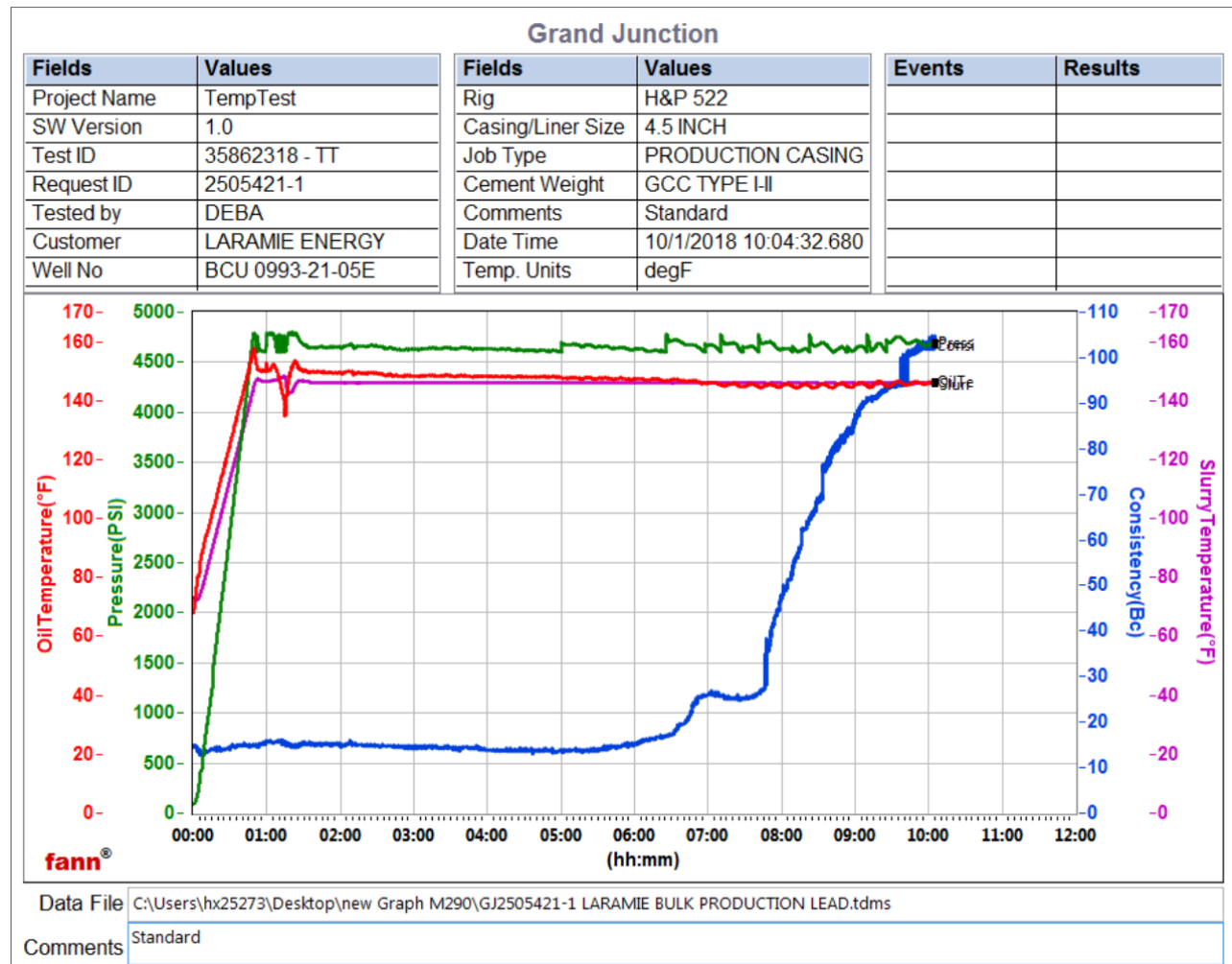
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		NeoCem Lead				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.946	ft3/sack
						Water Requirement	9.615	gal/sack
						Total Mix Fluid	9.615	gal/sack
						Water Source	Field (Fresh) Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

02/OCT/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)
146	4699	49	7:47	8:05	8:33	9:41	14	59	15	14



Total sks = 795  
 CS2192 TR#8658 397.5 sks  
 CS2193 TR#8677 397.5 SKS  
 no deflection, 14Bc--- > 14Bc

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

<b>Request/Slurry</b>	2505422/1	<b>Rig Name</b>	H&P 522	<b>Date</b>	30/SEP/2018
<b>Submitted By</b>	Lukas Van Zyl	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Laramie Energy	<b>Location</b>	Garfield	<b>Well</b>	BCU 0993-21-05E

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	8550 ft	<b>BHST</b>	103°C / 218°F
<b>Hole Size</b>	7.875 in	<b>Depth TVD</b>	7713 ft	<b>BHCT</b>	63°C / 146°F
<b>Pressure</b>	4699 psi				

### Drilling Fluid Information

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



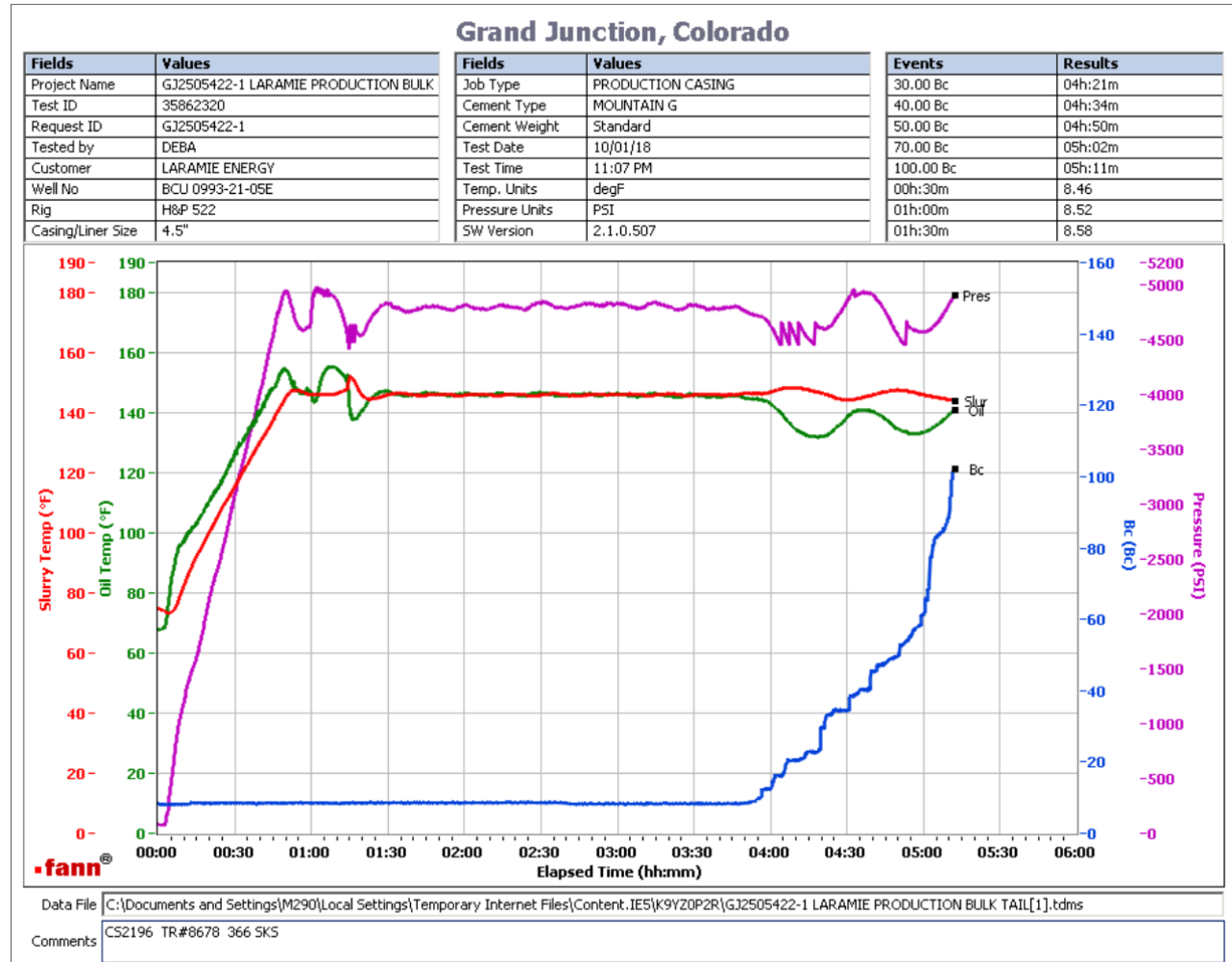
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		ThermaCem Tail				Slurry Density	13.3	lbm/gal
						Slurry Yield	1.738	ft3/sack
						Water Requirement	7.795	gal/sack
						Total Mix Fluid	7.795	gal/sack
						Water Source	Field (Fresh) Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

02/OCT/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)
146	4694	49	4:21	4:50	5:02	5:11	8	59	15	9



Total SKS = 366  
 CS2196 TR#8678 366 sks  
 Deflection: 9 - 9

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