

# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC-EBUS**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Friday, August 31, 2018

**BCU 0993-21-09E Surface PJR**

API# 05-077-10513-00

Sincerely,

**Grand Junction Cement Engineering**

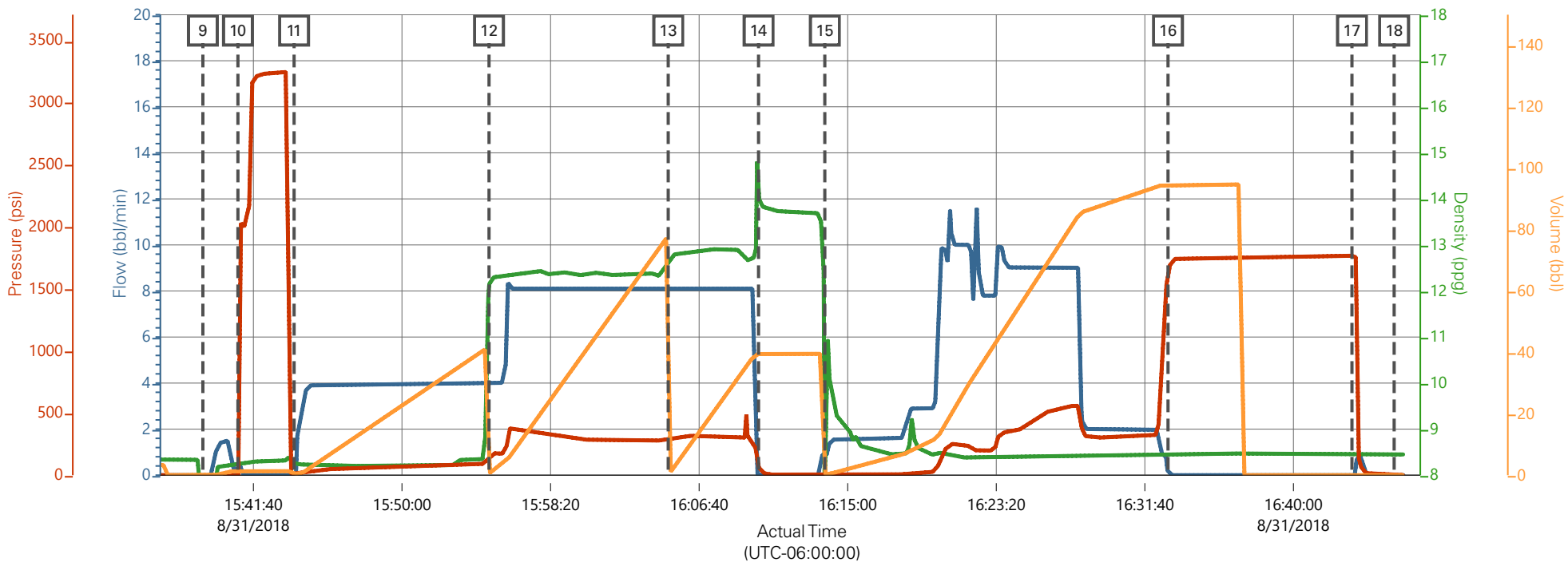
## 2.0 Real-Time Job Summary

## 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	8/31/2018	08:30:00	USER					REQUESTED ON LOCATION 8/31/18 @ 14:30
Event	2	Depart Yard Safety Meeting	8/31/2018	10:55:00	USER					JSA COMPLETED
Event	3	Crew Leave Shop	8/31/2018	11:00:00	USER					
Event	4	Arrive At Loc	8/31/2018	13:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	8/31/2018	13:05:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	8/31/2018	13:25:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	8/31/2018	13:30:00	USER					
Event	8	Pre-Job Safety Meeting	8/31/2018	15:30:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	8/31/2018	15:38:50	COM4					8 5/8"-32# CASING IN 11" OH, TD 1551', TP 1541', ST 45.2', MUD PPG, WATER TEMP 65, PH 7, CHLORIDES 0
Event	10	Test Lines	8/31/2018	15:40:48	COM4			3000.00		TEST LINES TO 3000 PSI
Event	11	Pump Spacer 1	8/31/2018	15:43:57	COM4	4.00	8.33	65.00	40.00	40 BBLS FRESH WATER SPACER
Event	12	Pump Lead Cement	8/31/2018	15:54:53	COM4	8.00	14.30`	270.00	73.20	73.2 BBLS LEAD CEMENT, 167 SKS @ 12.3 PPG / 2.46 YLD / 14.17 GAL/SK
Event	13	Pump Tail Cement	8/31/2018	16:04:56	COM4	8.10	12.80	300.00	36.50	36.5 BBLS TAIL CEMENT, 94 SKSK @ 12.8 PPG / 2.18 YLD / 12.11 GAL/SK

Event	14	Drop Top Plug	8/31/2018	16:10:00	USER					PLUG AWAY
Event	15	Pump Displacement	8/31/2018	16:13:43	COM4	9.00	8.33	550.00	91.10	91.1 BBLS BBLS FRESH WATER DISPLACEMENT
Event	16	Bump Plug	8/31/2018	16:32:58	COM4	2.00	8.33	320.00	91.10	PLUG BUMPED AT CALCULATED, FINAL CIRCULATING PRESSURE 320 PSI @ 2 BBL/MIN, BROUGHT TO 1600 PSI FOR 10 MINUTE CASING TEST
Event	17	CHECK FLOATS	8/31/2018	16:43:17	COM4					FLOATS HELD, 1 BBL BACK TO PUMP
Event	18	End Job	8/31/2018	16:45:39	COM4					PIPOE LEFT STATIC, GOOD CIRCUALTION THROUGHOUT, 18 BBLS LEAD CEMENT TO SURFACE,1-8 5/8" TOP PLUG USED, NO SUGAR AND NO ADD HOURS CHARGED
Event	19	Pre-Rig Down Safety Meeting	8/31/2018	16:55:00	USER					JSA COMPLETED
Event	20	Rig-Down Equipment	8/31/2018	17:00:00	USER					
Event	21	Pre-Convoy Safety Meeting	8/31/2018	17:25:00	USER					JSA COMPLETED
Event	22	Crew Leave Location	8/31/2018	17:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - RYAN MARTIN AND CREW

# LARAMIE - BCU 993-21-09E - 8 5/8" SURFACE CASING



Comb Pump Rate (bbl/min) 0    DH Density (ppg) 8.45    PS Pump Press (psi) 1    Pump Stg Tot (bbl) 0

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	15:38:50	0.00	0.63	-2.00	0.00
10 Test Lines	15:40:48	0.00	8.22	-5.00	1.30
11 Pump Spacer 1	15:43:57	0.00	8.26	4.00	1.30
12 Pump Lead Cement	15:54:53	4.00	12.14	151.00	0.60
13 Pump Tail Cement	16:04:56	8.10	12.66	297.00	78.00
14 Drop Top Plug	16:10:00	0.00	14.09	63.00	39.50
15 Pump Displacement	16:13:43	0.90	6.92	14.00	0.20
16 Bump Plug	16:32:58	0.10	8.45	1635.00	94.70
17 CHECK FLOATS	16:43:17	0.00	8.48	1763.00	0.00
18 End Job	16:45:39	0.00	8.45	1.00	0.00

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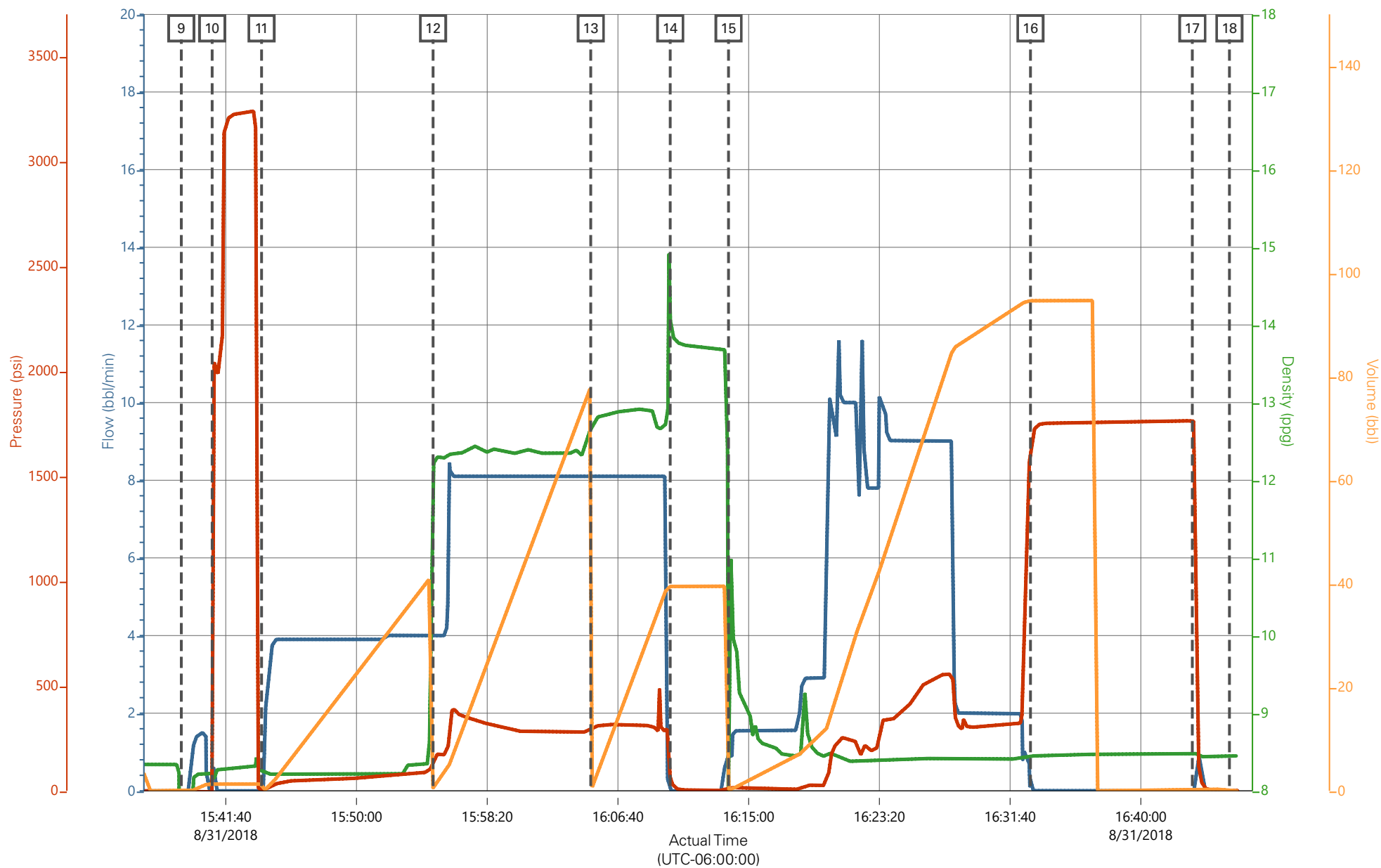
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Customer : Laramie Energy LLC  
Representative : MATT SETTLES

Job Date : 8/31/2018  
Sales Order # : 905106044

Well : BCU 993-21-09E  
ELITE #8 : KIEL CHRIST / RYAN MARTIN

# LARAMIE - BCU 993-21-09E - 8 5/8" SURFACE CASING



Comb Pump Rate (bbl/min) 0 DH Density (ppg) 8.45 PS Pump Press (psi) 1 Pump Stg Tot (bbl) 0

# HALLIBURTON

iCem<sup>®</sup> Service

**Laramie Energy LLC-EBUS**

United States of America, COLORADO

**For: Aaron Duncan**

Date: Tuesday, September 04, 2018

**BCU 0993-21-09E Production PJR**

API# 05-077-10513-00

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

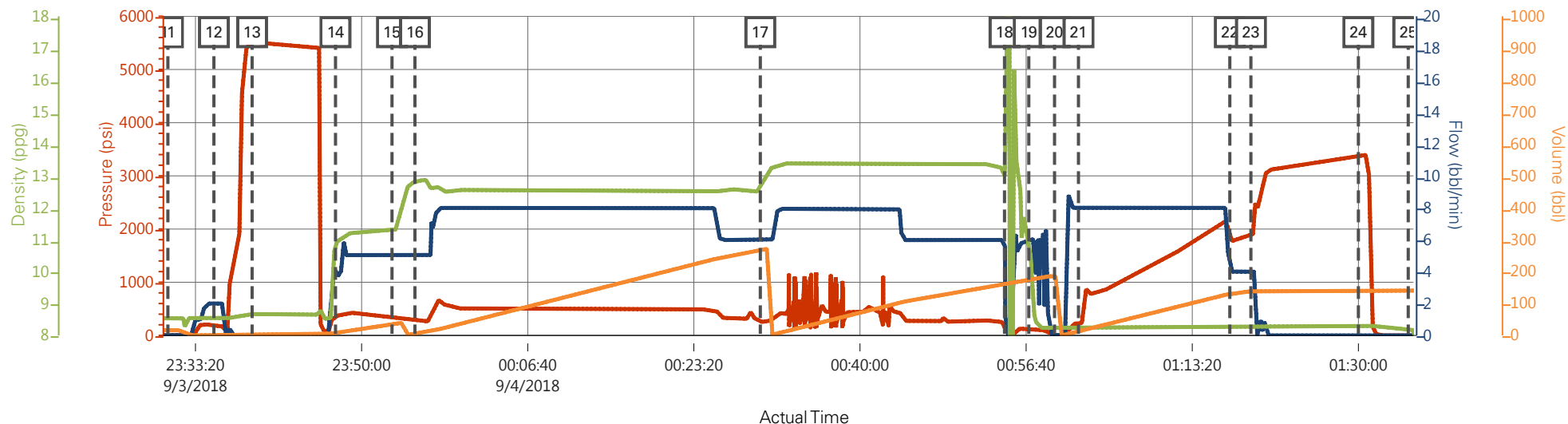
Type	Seq. No.	Graph Label	Date	Time	Source	PS Pump Press (psi)	Comb Pump Rate (bbl/min)	DH Density (ppg)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	9/3/2018	16:00:00	USER					REQUESTED ON LOCATION TIME 22:00
Event	2	Pre-Convoy Safety Meeting	9/3/2018	17:45:00	USER					WITH HES, JSA COMPLETED, 1 F-550, 1 ELITE CEMENTING UNIT, 1 660 BULK TRUCK
Event	3	Arrive At Loc	9/3/2018	20:00:00	USER					RIG RUNNING CASING, UPON HES ARRIVAL, ALL EQUIPMENT AND MATERIALS ON LOCATION
Event	4	Assessment Of Location Safety Meeting	9/3/2018	20:15:00	USER					WITH HES, JSA COMPLETED, SDS OFFERED FOR ALL HES MATERIALS
Event	5	Pre-Rig Up Safety Meeting	9/3/2018	20:30:00	USER					WITH HES, 1 LINE RAN TO THE FLOOR, 1 LINE RAN TO THE PIT, MANIFOLD ON THE GROUND, 1 4.5 IN, DOUBLE STACK QUICK-LATCH PLUG CONTAINER, WATER LINES RAN TO THE DAY TANK AND UPRIGHT, 2 CEMENT SILOS
Event	6	Rig-Up Equipment	9/3/2018	20:45:00	USER					
Event	7	Water Test	9/3/2018	21:00:00	USER					TEMP 65 DEG F, PH 7.0, CHLOR 0
Event	8	Comment	9/3/2018	21:10:00	USER					TD 9140 FT, TP 9135 4.5 IN 11.6 LB/FT P-110, SET AT 9130 FT, HOLE 7.875 IN, SHOE 81.18 FT, SURFACE SET AT 1540 FT 8.625 IN 32 LB/FT J-55
Event	9	Comment	9/3/2018	21:30:00	USER					RIG CIRCULATION, 600 BBL, 10 BBL/MIN, 579 PSI, MWT 9.2 LB/GAL WBM, PIPE WAS STATIC, RAT HOLE LENGTH 10 FT, Mud YP/PV, 10/7 10sec/10min/30min gel, 3/4/5, PASON GAS 600 UNITS

Event	10	Pre-Job Safety Meeting	9/3/2018	23:20:00	USER	13.00	0.00	8.54	16.30	WITH HES, LARAMIE ENERGY, AND HP 522
Event	11	Start Job	9/3/2018	23:30:34	USER	-1.00	0.00	8.54	16.30	
Event	12	Fill Lines	9/3/2018	23:35:11	USER	200.00	2.00	8.56	3.30	5 BBL FRESH WATER, RETURNS AT 2 BBL AWAY
Event	13	Test Lines	9/3/2018	23:39:01	USER	5526.00	0.00	8.67	5.10	LOW TEST AT 900 PSI, HIGH TEST AT 5526 PSI, PRESSURE HOLDING
Event	14	Pump Tuned Spacer III	9/3/2018	23:47:23	USER	416.00	4.10	10.92	7.10	MIXED AT 11 LB/GAL, 40 BBL, 4.86 FT3/SK, 31.9 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES
Event	15	Drop Bottom Plug	9/3/2018	23:53:03	USER	322.00	5.00	11.31	34.70	PLUG LAUNCHED, CUSTOMER WITNESSED
Event	16	Pump Lead Cement	9/3/2018	23:55:21	USER	277.00	5.00	12.81	5.40	MIXED AT 12.5 LB/GAL (NEOCER), 752 SKS, 1.94 FT3/SK, 9.59 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES
Event	17	Pump Tail Cement	9/4/2018	00:30:00	USER	257.00	6.00	12.71	267.30	MIXED AT 13.3 LB/GAL, (THERMOCEM) 460 SKS, 1.74FT3/SK, 7.80 GAL/SK, DENSITY VERIFIED USING PRESSURIZED MUD SCALES
Event	18	Shutdown	9/4/2018	00:54:30	USER	223.00	6.00	12.95	166.10	
Event	19	Clean Lines	9/4/2018	00:56:56	USER	115.00	6.00	10.59	175.50	WASHED PUMPS AND LINES TO THE CELLAR
Event	20	Drop Top Plug	9/4/2018	00:59:31	USER	-2.00	0.00	8.27	185.50	PLUG LAUNCHED, CUSTOMER WITNESSED
Event	21	Pump Displacement	9/4/2018	01:01:55	USER	227.00	8.00	8.23	9.10	FRESH WATER, 1 GAL MMCR, 5 GAL CLA WEB ADDED, 5 LBS BE-6 USED
Event	22	Slow Rate	9/4/2018	01:17:06	USER	1748.00	4.00	8.27	130.10	SLOWED AT 131 BBL AWAY TO 4 BBL/MIN
Event	23	Bump Plug	9/4/2018	01:19:13	USER	1895.00	4.00	8.28	138.50	PLUG BUMPED AT CALCULATED DISPLACEMENT, 1850 PSI
Event	24	Check Floats	9/4/2018	01:30:00	USER	3384.00	0.00	8.30	140.70	FLOATS HOLDING, PERFORMED A 10 MIN CASING TEST 3384 PSI, PRESSURE HOLDING, 2 BBL RETURNED TO THE TANKS
Event	25	End Job	9/4/2018	01:35:00	USER	12.00	0.00	8.18	140.70	GOOD CIRCULATION, NO ADD HOURS, RIG USED 40 LBS SUGAR, RIG USED TOP AND



BOTTOM PLUGS										
Event	26	Pre-Rig Down Safety Meeting	9/4/2018	01:45:00	USER	7.00	4.00	9.89	143.90	WITH HES, JSA COMPLETED
Event	27	Rig Down Lines	9/4/2018	01:50:00	USER	111.00	6.00	10.52	167.60	
Event	28	Pre-Convoy Safety Meeting	9/4/2018	02:10:00	USER					WITH HES, JSA COMPLETED
Event	29	Comment	9/4/2018	02:20:00	USER					SPACER , 40 BBL TUNED SPACER III, LEAD CEMENT 260 BBL, TAIL CEMENT 142.6 BBL, FINAL DISPLACEMENT 140.3 BBL, 50 % RETURNS FOR THE LAST 20 BBL DISPLACEMENT
Event	30	Crew Leave Location	9/4/2018	02:30:00	USER					THANKS FOW USING HALLIBURTON, JOHN KEANE AND CREW

# LARAMIE ENERGY - BCU-993-21-09E - PRODUCTION



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

Description	Actual Time	PS Pump Press (psi)	Comb Pump Rate (bbl/min)	DH Density (ppg)	Pump Stg Tot (bbl)	
11 Start Job	23:30:34	-1.00	0.00	8.54	16.30	
12 Fill Lines	23:35:11	200.00	2.00	8.56	3.30	
13 Test Lines	23:39:01	5526.00	0.00	8.67	5.10	
14 Pump Tuned Spacer III	23:47:23	416.00	4.10	10.92	7.10	
15 Drop Bottom Plug	23:53:03	322.00	5.00	11.31	34.70	
16 Pump Lead Cement	23:55:21	277.00	5.00	12.81	5.40	
17 Pump Tail Cement	00:30:00	257.00	6.00	12.71	267.30	
18 Shutdown	00:54:30	213.00	6.00	12.98	166.00	
19 Clean Lines	00:56:56	115.00	6.00	10.59	175.50	
20 Drop Top Plug	00:59:31	-2.00	0.00	8.27	185.50	
21 Pump Displacement	01:01:55	227.00	8.00	8.23	9.10	
22 Slow Rate	01:17:06	1748.00	4.00	8.27	130.10	
23 Bump Plug	01:19:13	1895.00	4.00	8.28	138.50	
24 Check Floats	01:30:00	3384.00	0.00	8.30	140.70	
25 End Job	01:35:00	12.00	0.00	8.18	140.70	

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Customer : Laramie Energy LLC

Job Date : 9/4/2018

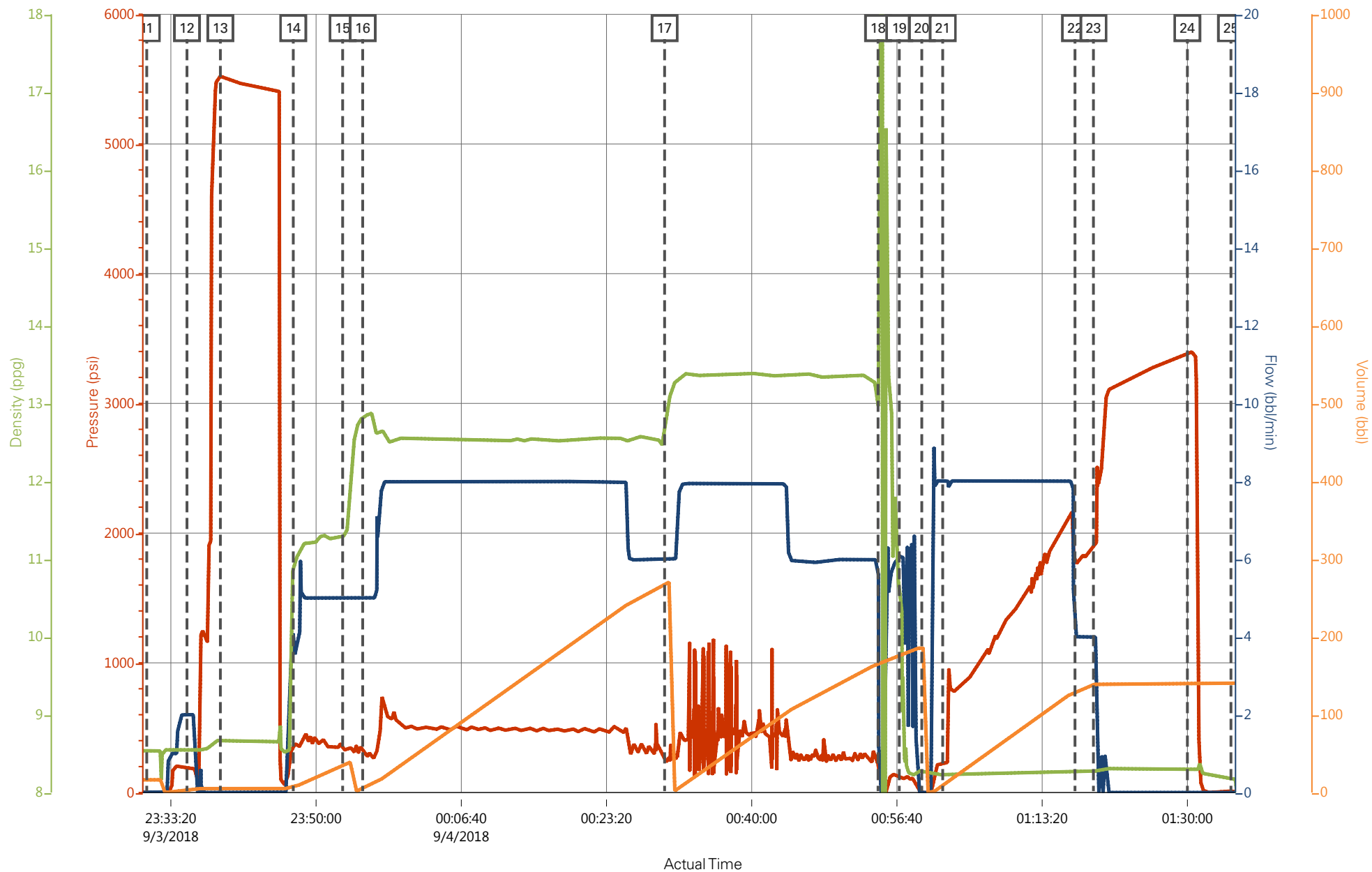
Well : BCU-993-21-09E

Representative : SHANE HEARD

Sales Order # : 905106906

ELITE 1 : JOHN KEANE / KEVIN REED

# LARAMIE ENERGY - BCU-993-21-09E - PRODUCTION



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

## Job Information

Request/Slurry	2497746/1	Rig Name	H&P 522	Date	29/AUG/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Laramie Energy	Location	Garfield	Well	BCU 0993-21-09E

## Well Information

Casing/Liner Size	4.5 in	Depth MD	9137 ft	BHST	106°C / 223°F
Hole Size	7.875 in	Depth TVD	8291 ft	BHCT	67°C / 152°F
Pressure	5104 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
9.61	gal/sack	Field (Fresh) Water	Lab	25.07.18	7-25-18	Slurry Yield	1.945 ft3/sack
						Water Requirement	9.614 gal/sack
						Total Mix Fluid	9.614 gal/sack
						Water Source	Field (Fresh) Water
						Water Chloride	

## Operation Test Results Request ID 2497746/1

Mixability (0 - 5) - 0 is not mixable			31/AUG/2018
Mixability rating (0 - 5)	Avg rpm mixing under load (~12,000)	Blend addition time (sec) @ 4,000 RPM	
5	12000	0	

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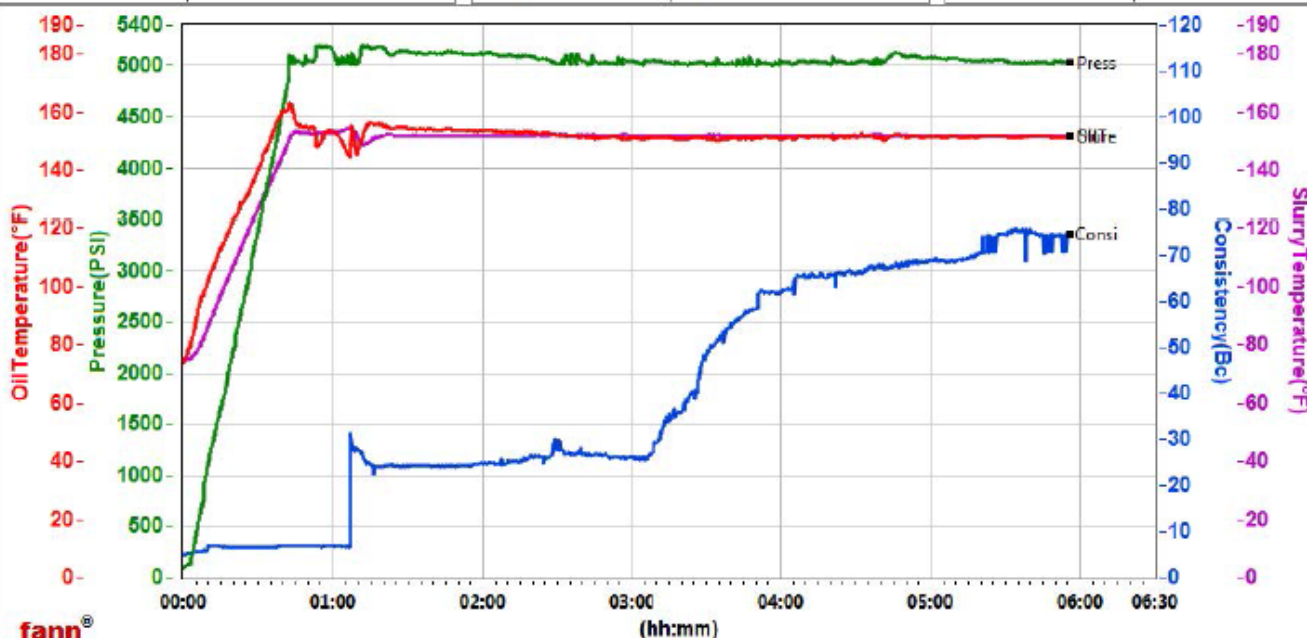
# Thickening Time - ON-OFF-ON

01/SEP/2018

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)	Termination time (hh:mm)	Termination Bc
152	5104	42	1:07	3:31	5:18	5	52	15	36	5:55	75

## GRAND JUNCTION, COLORADO

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	H&P 522	30 BC	1:07
SW Version	1.0	Casing/Liner Size	4.5 INCH	50 BC	3:31
Test ID	35784672 - TT	Job Type	PRODUCTION	70 BC	5:18
Request ID	2497747-1	Cement Weight			
Tested by	CT	Comments	Light Weight		
Customer	LARAMIE	Date Time	9/1/2018 04:48:21.199		
Well No	BCU 0993-21-09E	Temp. Units	degF		



Data File C:\Users\HL85329\Desktop\000 Graphs\GJ2497746-1 LARAMIE PRODUCTION BULK LEAD - DIP SAMPLE TRAILER 8476.tdms

Comments Light Weight

Conditions: Pump 59min, SD 15 min

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2497747/1	Rig Name	H&P 522	Date	29/AUG/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Laramie Energy	Location	Garfield	Well	BCU 0993-21-09E

### Well Information

Casing/Liner Size	4.5 in	Depth MD	9137 ft	BHST	106°C / 223°F
Hole Size	7.875 in	Depth TVD	8291 ft	BHCT	67°C / 152°F
Pressure	5104 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
7.79	gal/sack	Field (Fresh) Water	Lab	25.07.18	7-25-18	Slurry Yield	1.737 ft3/sack
20	% BWOC	SS-200 silica flour	Bulk Blend	29.08.18	Tank 6&25	Water Requirement	7.785 gal/sack
5	lb/sk	Kol-Seal	Bulk Blend	29.08.18	Tank 1&20	Total Mix Fluid	7.785 gal/sack
0.25	lb/sk	Pol-E-Flake	Bulk Blend	29.08.18	N/A		
0.2	% BWOC	HR-601	Bulk Blend	29.08.18	84		
0.5	lb/sk	Pheno Seal Coarse	Bulk Blend	29.08.18	201141092	Water Source	Field (Fresh) Water
						Water Chloride	

### Operation Test Results Request ID 2497747/1

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

31/AUG/2018

Mixability rating (0 - 5)	Avg rpm mixing under load (~12,000)	Blend addition time (sec) @ 4,000 RPM
4	12000	0

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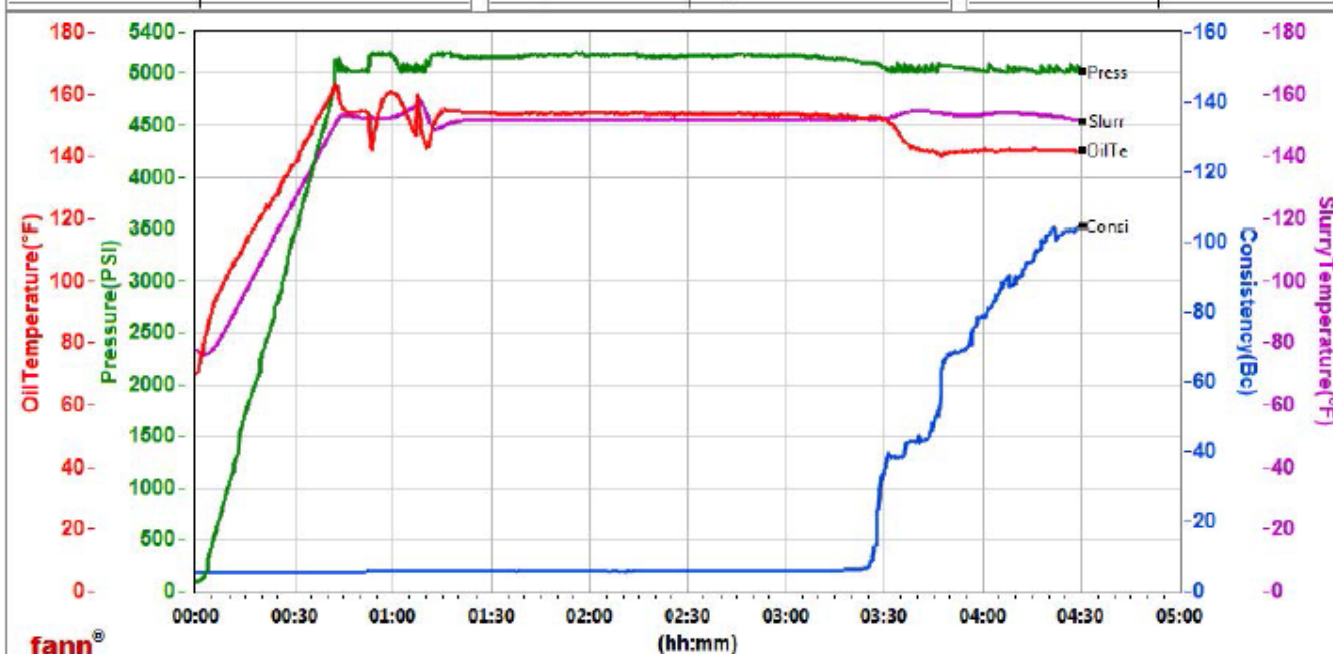
# Thickening Time - ON-OFF-ON

01/SEP/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)
152	5104	42	3:28	3:45	3:55	4:18	5	59	15	6

## GRAND JUNCTION, COLORADO

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	H&P 522	30 BC	3:28
SW Version	1.0	Casing/Liner Size	4.5 INCH	50 BC	3:45
Test ID	35777233	Job Type	PRODUCTION	70 BC	3:55
Request ID	2497747-1	Cement Weight		100 BC	4:18
Tested by	JASON	Comments	Light Weight		
Customer	LARAMIE	Date Time	8/31/2018 12:31:19.659		
Well No	BCU 0993-21-09E	Temp. Units	degF		



Data File C:\Users\H185329\Desktop\000 Graphs\GJ2497747-1 LARAMIE PRODUCTION BULK TAIL.tdms

Comments Light Weight

Conditions: pump 59min, SD 15 min

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