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# **Laramie Energy**

## **End of Well Cement Report**

**Bruton 19-18E 05-077-10369**  
**S:30 T:9S R:93W Mesa CO**

CallSheet #: 971 (Surface), 983 (Production)  
Proposal #: 13473



**Attention:** Mr. Chuck Mallary | (303) 859-3634 | [cmallary@laramie-energy.com](mailto:cmallary@laramie-energy.com)  
Laramie Energy  
1401 17th St, Suite 1400 | Denver, CO 80202

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Dear Mr. Mallary,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,

**Zen Keith**

Technical Specialist-II | (307) 757-7178 | [Zen.Keith@bjservices.com](mailto:Zen.Keith@bjservices.com)

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## Surface Post Job Report

### 1 Job Details & Summary

#### 1.1 Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Thread	Top (ft)	Bottom (ft)	Excess (%)
Open Hole	Outer	n/a	11	n/a	n/a	0	1560	75
Casing	Inner	8.625	8.097	24	STC	0	1548	0

#### 1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Bulk Trailer	E391	Busheri, Hamza	Hamm, Robert	130
Bulk Trailer	512	Johnson, Brandon	Joseph Trenton	130
Cement Pump	104	Gilliam, Glen		130
Light Duty Pickups	3	Roush, James	Boyd, Brian	130

#### 1.3 Timing

Event	Date/Time
Call Out	7/4/2017 11:30
Depart Facility	7/4/2017 13:30
On Location	7/4/2017 15:30
Rig Up Iron	7/4/2017 16:30
Job Started	7/4/2017 20:01
Job Completed	7/4/2017 21:20
Rig Down Iron	7/4/2017 21:35
Depart Location	7/4/2017 22:15

#### 1.4 General Job Information

Metrics	Value
Well Fluid Density	9.2 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	250 bbls
Rig Circulation Time	1.5 hours
Calculated Displacement	96 bbls
Actual Displacement	95.5 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	20 bbls
Well Topped Out	No

#### 1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	34
Yield Point	23
10 sec. SGS	9
10 min. SGS	21
30 min. SGS	51
Filtrate	6.8
Flow Line Temp.	132

#### 1.6 Job Details

Metrics	Value
Flare Prior to Job	No
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	9.2 lb/gal
Well Fluid Density Out of Well	9.2 lb/gal

#### 1.7 Job Details (cont.)

Metrics	Value
BHCT	82 °F
BHST	106 °F

#### 1.8 Circulation

Lost Circulation Experienced
No



### 1.9 Job Execution Information

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft <sup>3</sup> /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Top (ft)
1	1	Water	Flush	8.33			42.00		40.00	0
1	2	ALTCem S100-12	Lead	12.00	2.53	14.85		191.00	85.94	0
1	3	ALTCem S100-12	Tail	12.50	2.22	12.58		124.00	49.10	1024
1	4	Water	DisplacementFinal	8.33			42.00		95.00	0

### 1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Lead	ALTCem S100-12	AC3-10	Cement	100.00	%
1	2	Lead	ALTCem S100-12	ACL-10	Accelerator	2.00	lb/sk
1	2	Lead	ALTCem S100-12	ACL-20	Accelerator	5.00	%BWOB
1	2	Lead	ALTCem S100-12	ADF-11	Defoamer	0.30	%BWOB
1	2	Lead	ALTCem S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	2	Lead	ALTCem S100-12	AXE-30	Extender	2.00	lb/sk
1	3	Tail	ALTCem S100-12	AC3-10	Cement	100.00	%
1	3	Tail	ALTCem S100-12	ACL-10	Accelerator	2.00	lb/sk
1	3	Tail	ALTCem S100-12	ACL-20	Accelerator	5.00	%BWOB
1	3	Tail	ALTCem S100-12	ADF-11	Defoamer	0.30	%BWOB
1	3	Tail	ALTCem S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	3	Tail	ALTCem S100-12	AXE-30	Extender	2.00	lb/sk

**2 Job Logs**

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
1	JOB CALLOUT	7/4/2017	11:30					BJ CALLED WITH A RTS OF 17:00 FOR LARAMIE SURFACE
2	JM MEETING	7/4/2017	13:00					JOURNEY MANAGEMENT MEETING WITH BJ CREW
3	LEAVE DISTRICT	7/4/2017	13:30					LEAVE DISTRICT
4	ARRIVE LOCATION	7/4/2017	15:30					BJ CREW ARRIVE AT LARAMIE LOCATION
5	STEACS BREIFING	7/4/2017	15:45					STEACS BREIFING WITH BJ CREW
6	SPOT EQUIPMENT	7/4/2017	16:25					SPOT EQUIPMENT
7	RIG UP EQUIPMENT	7/4/2017	16:35					RIG UP EQUIPMENT
8	W.O.R.	7/4/2017	17:00					RIG RUNNING CASING, BJ ON STANDBY
9	CASING ON BOTTOM	7/4/2017	19:35					CASING LANDED, RIG CIRCULATING
10	SAFETY MEETING	7/4/2017	19:40					SAFETY MEETING WITH RIG CREW
11	RIG UP CEMENT HEAD	7/4/2017	19:55					RIG UP CEMENT HEAD TO WELL
12	BREAK CIRCULATION	7/4/2017	20:01	8.34	3	5	70	BREAK CIRCULATION, DROP BOTTOM PLUG
13	TEST LINES	7/4/2017	20:03	8.34				TEST LINES 3000 PSI
14	F.W. SPACER	7/4/2017	20:08	8.34	5	35	200	FRESH WATER SPACER
15	BATCH UP LEAD	7/4/2017	20:12	12				BATCH UP LEAD SLURRY @ 12 PPG
16	LEAD CEMENT	7/4/2017	20:15	12	5	86	525	LEAD SLURRY @ 12 PPG DOWN HOLE
17	LEAD CEMENT	7/4/2017	20:26	12	5		175	50 BBLS GONE OF LEAD CEMENT
18	BATCH UP TAIL CEMENT	7/4/2017	20:36	12.5	3			BATCH UP TAIL SLURRY @ 12.5 PPG
19	TAIL CEMENT	7/4/2017	20:39	12.5	5	49	250	TAIL SLURRY @ 12.5 PPG DOWNHOLE
20	SHUT DOWN DROP PLUG	7/4/2017	20:50					SHUT DOWN DROP TOP PLUG
21	START DISPLACEMENT	7/4/2017	20:52	8.34	5	10	130	START DISPLACEMENT
22	DISPLACEMENT	7/4/2017	20:59	8.34	7.5	50	460	50 BBLS GONE OF DISPLACEMENT
23	SLOW RATE	7/4/2017	21:07	8.34	2	86	342	SLOW RATE TO 2 BPM TO LAND TOP PLUG
24	BUMP PLUG	7/4/2017	21:09			95.5	462	BUMP PLUG WITH F.C.P. OF 462 PSI



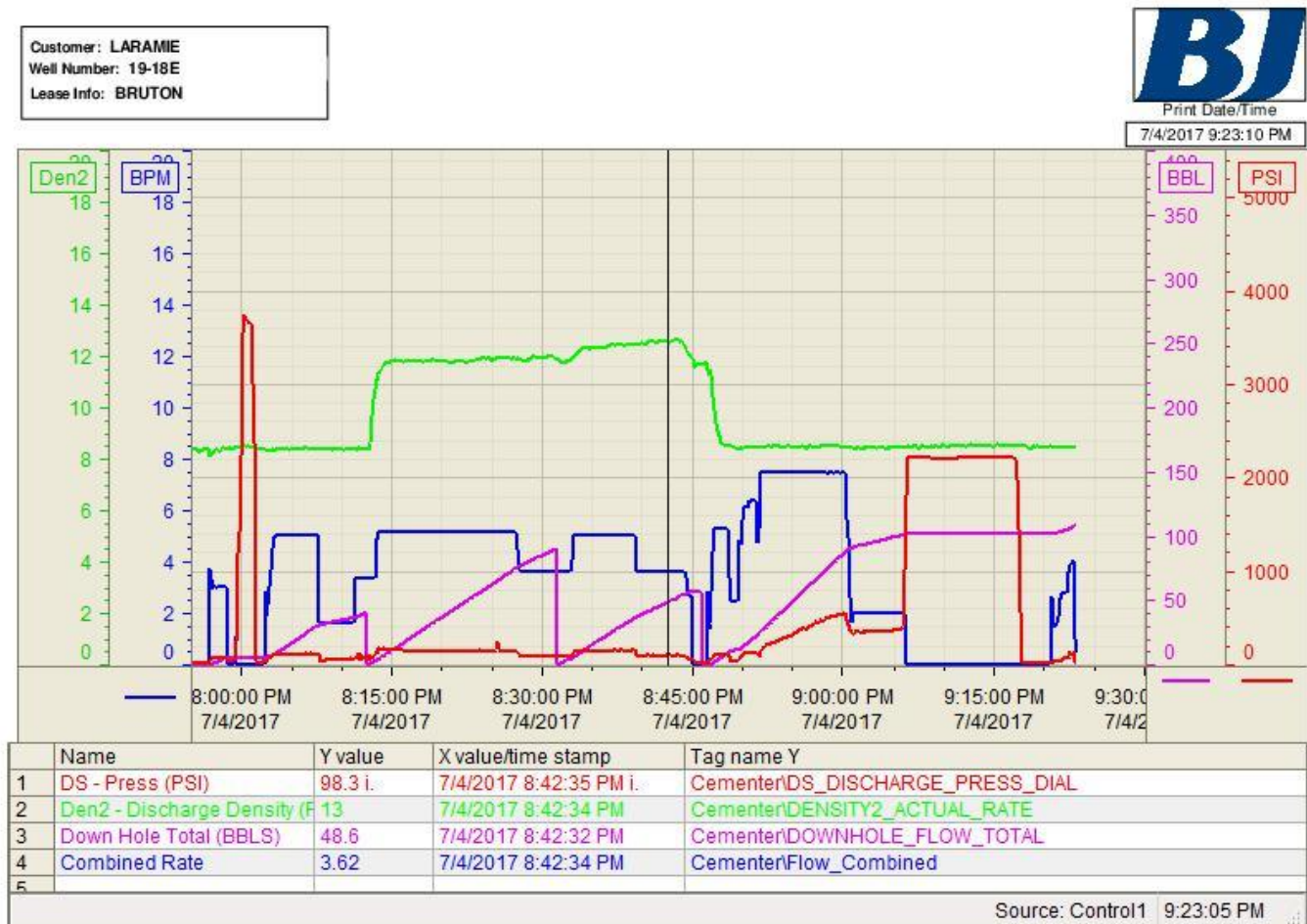
25	CASING TEST	7/4/2017	21:10				2152	PRESSURE UP ON CASING TO 2152 PSI HOLD 10 MINS
26	BLEED PRESSURE	7/4/2017	21:20				0	BLEED PRESSURE, CHECK FLOATS, 1 BBL BACK TO TANK
27	RIG DOWN MEETING	7/4/2017	21:25					RIG DOWN MEETING WITH BJ CREW
28	RIG DOWN EQUIPMENT	7/4/2017	21:35					RIG DOWN ALL EQUIPMENT
29	PRE- CONVOY MEETING	7/4/2017	22:00					PRE-CONVOY MEETING
30	DEPART LOCATION	7/4/2017	22:15					DEPART LOCATION FOR BJ FACILITY
31	OTHER	7/4/2017	00:00					FULL RETURNS DURING JOB. 20 BBLS CEMENT TO SURFACE. NO TOP JOB REQUIRED



### 3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	75 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	80	0-1000
Total Hardness	70 mg/L	0-500 mg/L
Carbonates	140 mg/L	0-100 mg/L
Sulfates	<300 mg/L	0-1500 mg/L
Potassium	450 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

### 4 Pump Diagrams





# Production Post Job Report

## 1 Job Details & Summary

### 1.1 Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Thread	Top (ft)	Bottom (ft)	Excess (%)
Casing	Outer	8.625	8.097	24	STC	0	1524	0
Casing	Inner	4.5	4	11.6	LTC	0	7818	0
Open Hole	Outer	n/a	8.88	n/a	n/a	1524	7828	10

### 1.2 Equipment / People

Unit Type	Unit	Power Unit	Employee #1	Mileage
Silo	6 (Silo)			
Silo	7 (silo)			
Bulk Trailer	506		Busheri, Hamza	130
Cement Pump	3K80	PPC11250	Gilliam, Glen	130
Light Duty Pickups	2		Roush, James	130

### 1.3 Timing

Event	Date/Time
Call Out	7/7/2017 13:30
Depart Facility	7/7/2017 14:35
On Location	7/7/2017 17:00
Rig Up Iron	7/7/2017 17:25
Job Started	7/7/2017 22:17
Job Completed	7/8/2017 00:00
Rig Down Iron	7/8/2017 01:30
Depart Location	7/8/2017 02:45

### 1.4 General Job Information

Metrics	Value
Well Fluid Density	9.6 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	300 bbls
Rig Circulation Time	1.5 hours
Calculated Displacement	120 bbls
Actual Displacement	119.5 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	0 bbls

### 1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	20
Yield Point	15
10 sec. SGS	5
10 min. SGS	18
30 min. SGS	42
Filtrate	0.95
Flow Line Temp.	92

### 1.6 Job Details

Metrics	Value
Flare Prior to Job	No
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	9.6 lb/gal
Well Fluid Density Out of Well	9.4 lb/gal

### 1.7 Job Details (cont.)

Metrics	Value
BHCT	177 °F
BHST	238 °F

### 1.8 Circulation

Lost Circulation Experienced
No

**1.9 Job Execution Information**

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft <sup>3</sup> /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Top (ft)
1	1	CD Spacer	Spacer	11.00			33.15		40.00	115
1	2	ALTCem P100-X2	Lead	12.70	1.97	11.07		803.00	282.21	1024
1	3	ALTCem P70-X1	Tail	13.50	1.90	9.55		401.00	135.66	5678
1	4	Water w/ ASF-50	DisplacementFinal	8.33			41.92		121.00	0

**1.10 Job Fluid Details**

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	1	Spacer	CD Spacer	ASR-20	StrengthRetrogression	179.73	lb/bbl
1	1	Spacer	CD Spacer	AR-10	Retarder	1.40	lb/bbl
1	1	Spacer	CD Spacer	ASF-20	Surfactant	0.50	gal/bbl
1	1	Spacer	CD Spacer	AVS-10	Viscosifier	0.80	lb/bbl
1	2	Lead	ALTCem P100-X2	AC3-10	Cement	100.00	%
1	2	Lead	ALTCem P100-X2	ABX-30	BondEnhancer	0.30	%BWOB
1	2	Lead	ALTCem P100-X2	ADF-11	Defoamer	0.30	%BWOB
1	2	Lead	ALTCem P100-X2	ADS-10	Dispersant	0.10	%BWOB
1	2	Lead	ALTCem P100-X2	AR-10	Retarder	0.50	%BWOB
1	2	Lead	ALTCem P100-X2	AVS-10	Viscosifier	0.10	%BWOB
1	3	Tail	ALTCem P70-X1	ACG-10	Cement	70.00	%
1	3	Tail	ALTCem P70-X1	AFA-10	Extender	20.00	%
1	3	Tail	ALTCem P70-X1	AXE-20	Extender	10.00	%
1	3	Tail	ALTCem P70-X1	ABX-30	BondEnhancer	0.20	%BWOB
1	3	Tail	ALTCem P70-X1	ADF-11	Defoamer	0.30	%BWOB
1	3	Tail	ALTCem P70-X1	AFL-10	FluidLoss	0.40	%BWOB
1	3	Tail	ALTCem P70-X1	AR-10	Retarder	0.30	%BWOB
1	3	Tail	ALTCem P70-X1	ASR-20	StrengthRetrogression	25.00	%BWOB
1	3	Tail	ALTCem P70-X1	AVS-50	Viscosifier	6.00	%BWOB
1	4	DisplacementFinal	Water w/ ASF-50	ASF-50	ClayProtection	0.08	gal/bbl

## 2 Job Logs

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
1	CREW CALLOUT	7/7/2017	13:30					LARAMIE ENERGY CALLED OUT BJ WITH RTS OF 20:00
2	J.M. MEETING	7/7/2017	14:10					JOURNEY MANAGEMENT MEETING WITH BJ CREW
3	DEPART FACILITY	7/7/2017	14:30					CREW DEPARTED FACILITY
4	ARRIVE LOCATION	7/7/2017	17:00					ARRIVE LOCATION
5	STEACS MEETING	7/7/2017	17:10					STEACS BRIEFING WITH CREW
6	SPOT EQUIPMENT	7/7/2017	17:25					SPOT PUMP, AND OTHER EQUIPMENT
7	RIG UP EQUIPMENT	7/7/2017	17:30					RIG UP IRON, BULK, AND WATER LINES
8	W.O.R.	7/7/2017	18:15					WAITING ON RIG (RUNNING CASING)
9	P.O.B.	7/7/2017	21:15					PIPE ON BOTTOM
10	RIG CIRCULATING	7/7/2017	21:20					RIG CIRCULATING WELL BEFORE CEMENT JOB
11	SAFETY MEETING WITH RIG CREW	7/7/2017	21:50					SAFETY MEETING WITH RIG CREW AND BJ
12	RIG UP CEMENT HEAD	7/7/2017	22:10					RIG UP CEMENT HEAD TO CASING
13	BREAK CIRCULATION	7/7/2017	22:17	8.34	3	5	300	BREAK CIRCULATION
14	TEST LINES	7/7/2017	22:20			0.5		TEST LINES 5000
15	BATCH UP SPACER	7/7/2017	22:30	11				BATCH UP SPACER @ 11 PPG
16	SPACER AHEAD	7/7/2017	22:34	11	4.5	40	371	SPACER AHEAD @ 11 PPG
17	BATCH UP LEAD SLURRY	7/7/2017	23:00	12.7				BATCH UP LEAD SLURRY @ 12.7 PPG
18	LEAD AHEAD	7/7/2017	23:04	12.7	4.5	282	186	LEAD SLURRY @ 12.7 PPG DOWN HOLE
19	LEAD CEMENT	7/7/2017	23:14	12.7	6		275	50 BBLS GONE LEAD SLURRY
20	LEAD CEMENT	7/7/2017	23:22	12.7	6		278	100 BBLS GONE LEAD SLURRY
21	LEAD CEMENT	7/7/2017	23:31	12.7	6		281	150 BBLS GONE LEAD SLURRY
22	LEAD CEMENT	7/7/2017	23:40	12.7	6		287	200 BBLS GONE LEAD SLURRY
23	LEAD CEMENT	7/7/2017	23:49	12.7	6		287	250 BBLS GONE LEAD SLURRY
24	BATCH UP TAIL SLURRY	7/7/2017	23:54	13.5	3	135.7		BATCH UP TAIL SLURRY @ 13.7 PPG
25	TAIL AHEAD	7/7/2017	23:55	13.5	6		368	TAIL SLURRY @ 13.7 PPG DOWNHOLE
26	TAIL CEMENT	7/8/2017	00:02	13.5	6		435	50 BBLS GONE TAIL SLURRY



27	TAIL CEMENT	7/8/2017	00:11	13.5	6		440	100 BBLS GONE TAIL SLURRY
28	SHUT DOWN WASH LINES	7/8/2017	00:23	8.34		10	50	SHUT DOWN WASH PUMPS AND LINES
29	DROP TOP PLUG	7/8/2017	00:31					DROP TOP PLUG
30	START DISPLACEMENT	7/8/2017	00:32	8.34	5	110	145	START DISPLACEMENT FW+ ADS-50
31	DISPLACEMENT	7/8/2017	00:42	8.34	8		1418	50 BBLS GONE DISPLACEMENT
32	DISPLACEMENT	7/8/2017	00:49	8.34	8		2189	100 BBLS GONE DISPLACEMENT
33	SLOW RATE	7/8/2017	00:50	8.34	2	10	2215	SLOW RATE 2 BPM TO BUMP PLUG
34	BUMP PLUG	7/8/2017	00:52		2		1899	LAND TOP PLUG
35	CASING TEST	7/8/2017	00:53				3066	PRESSURE UP TO 3000 PSI CASING TEST HOLD 10 MINS
36	BLEED PRESSURE	7/8/2017	01:05				3216	BLEED PRESSURE, CHECK FLOATS, 1.5 BBLS TO SURFACE
37	RIG DOWN MEETING	7/8/2017	01:15					RIG DOWN MEETING WITH BJ CREW
38	RIG DOWN EQUIPMENT	7/8/2017	01:30					RIG DOWN ALL BJ EQUIPMENT
39	CONVOY MEETING	7/8/2017	02:30					PRE CONVOY MEETING BEFORE HEADING TO DISTRICT
40	DEPART LOCATION	7/8/2017	02:45					DEPART LOCATION



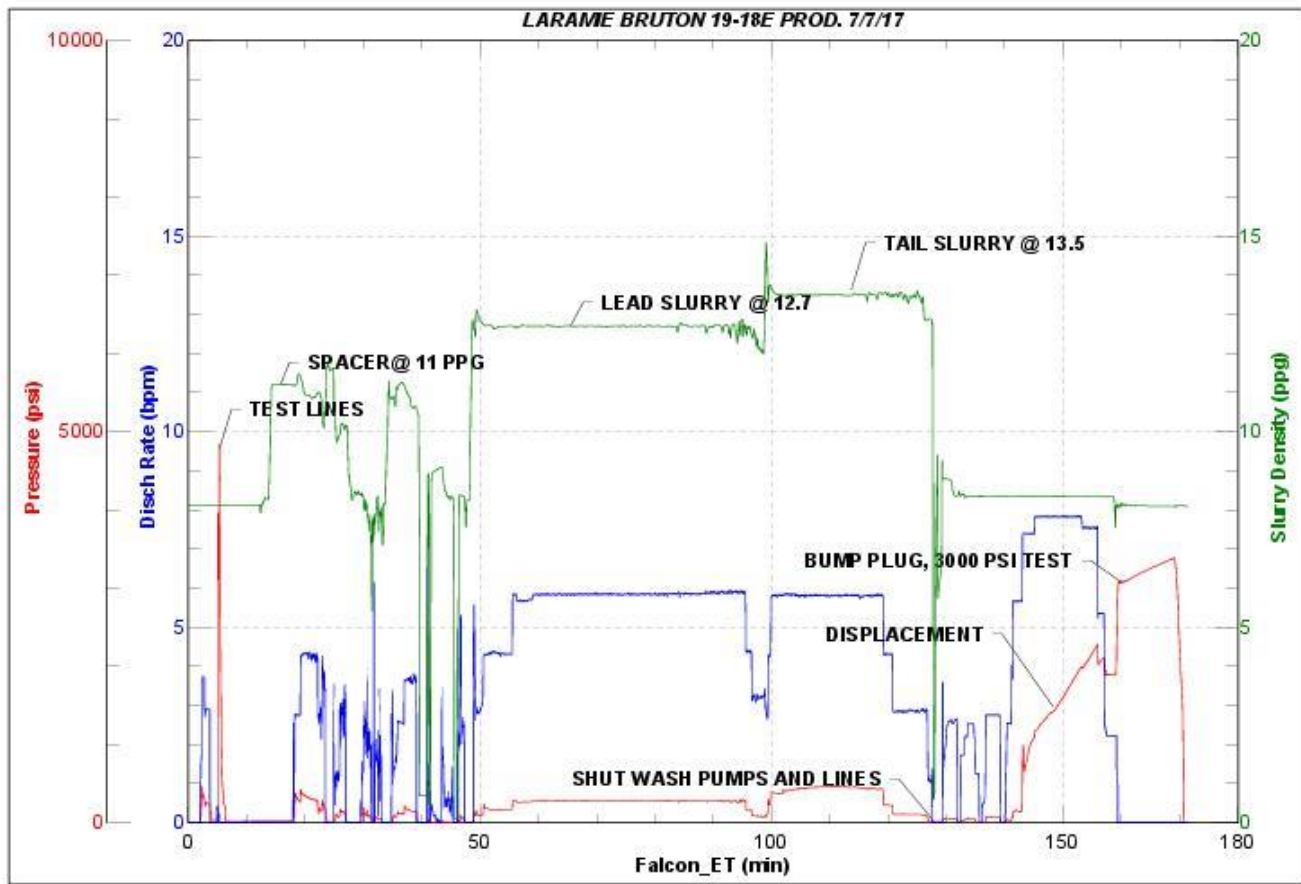
### 3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	73 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	80	0-1000
Total Hardness	70 mg/L	0-500 mg/L
Carbonates	140 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	450 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

## 4 Pump Diagrams



Job Number: 983  
Customer: LARAMIEENERGY  
Well Name: BRUTON 19-18E



Job Start: Friday, July 07, 2017