



Laramie Energy End of Well Cement Report

**Bruton 19-03W 05-077-10432
S:19 T:9S R:93W Mesa CO**

CallSheet #: 1268 (Surface), 1277 (Production)
Proposal #: 13888



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

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

Field Office 28730 US-6, Rifle, CO 81650
Phone: (307) 360-3062

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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	60	1550	75
Casing	Inner	8.625	8.097	24	STC	0	1550	0
Casing	Outer	16	15.25	65	n/a	0	60	0

1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Bulk Trailer	E496	Richey, Steven		130
Bulk Trailer	512			
Cement Pump	PPC11250	Youngberg, Wendell	McNeal, Lawrence	130
Cement Chemical	403	Busheri, Hamza		130
Light Duty Pickups	2	Roush, James		130

1.3 Timing

Event	Date/Time
Call Out	9/2/2017 03:00
Depart Facility	9/2/2017 05:15
On Location	9/2/2017 06:45
Rig Up Iron	9/2/2017 07:00
Job Started	9/2/2017 08:10
Job Completed	9/2/2017 09:15
Rig Down Iron	9/2/2017 09:30
Depart Location	9/2/2017 10:30

1.4 General Job Information

Metrics	Value
Well Fluid Density	9.5 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	500 bbls
Rig Circulation Time	2 hours
Calculated Displacement	96 bbls
Actual Displacement	95 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	16 bbls
Well Topped Out	No

1.5 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	9.5 lb/gal
Well Fluid Density Out of Well	9.5 lb/gal

1.6 Job Details (cont.)

Metrics	Value
BHCT	82 °F
BHST	106 °F



1.7 Circulation

Lost Circulation Experienced
No

1.8 Job Execution Information

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft ³ /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	S100-12	Lead	12.00	2.53	14.85		190.00	85.49	0
1	3	S100-12	Tail	12.50	2.22	12.58		120.00	47.52	1050
1	4	Water	DisplacementFinal	8.33			42.00		97.00	0

1.9 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Lead	S100-12	AC3-10	Cement	100.00	%
1	2	Lead	S100-12	ACL-10	Accelerator	2.00	lb/sk
1	2	Lead	S100-12	ACL-20	Accelerator	5.00	%BWOB
1	2	Lead	S100-12	ADF-11	Defoamer	0.30	%BWOB
1	2	Lead	S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	2	Lead	S100-12	AXE-30	Extender	2.00	lb/sk
1	3	Tail	S100-12	AC3-10	Cement	100.00	%
1	3	Tail	S100-12	ACL-10	Accelerator	2.00	lb/sk
1	3	Tail	S100-12	ACL-20	Accelerator	5.00	%BWOB
1	3	Tail	S100-12	ADF-11	Defoamer	0.30	%BWOB
1	3	Tail	S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	3	Tail	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	BJ CALL OUT	9/2/2017	03:00					BJ CALLED OUT FOR SURFACE JOB WITH A RTS OF 08:00 AM
2	SAFETY MEETING	9/2/2017	05:05					JM W/CREW
3	DEPART FACILITY	9/2/2017	05:15					BJ CREW DEPART FACILITY
4	ARRIVE LOCATION	9/2/2017	06:45					BJ ON LOCATION
5	SAFETY MEETING	9/2/2017	06:55					STEACS BRIEFING WITH BJ
6	SPOT TRUCKS	9/2/2017	07:00					SPOT TRUCKS
7	RIG UP IRON	9/2/2017	07:15					RIG UP ALL EQUIPMENT
8	SAFETY MEETING WITH RIG CREW	9/2/2017	07:58					SAFETY MEETING WITH RIG CREW
9	RIG UP CEMENT HEAD	9/2/2017	08:06					RIG UP CEMENT HEAD TO CASING
10	BREAK CIRCULATION	9/2/2017	08:12	8.34	5	5	110	BREAK CIRCULATION
11	TEST LINES	9/2/2017	08:14	8.34				TEST LINES 3000
12	FRESH WATER SPACER	9/2/2017	08:18	8.34	6	35	184	FRESH WATER SPACER
13	BATCH UP LEAD SLURRY	9/2/2017	08:26	12				BATCH UP LEAD SLURRY @ 12.0 PPG
14	LEAD SLURRY	9/2/2017	08:32	12	6	86	270	LEAD SLURRY DOWN HOLE
15	LEAD SLURRY	9/2/2017	08:39	12	6		240	50 BBLS GONE LEAD SLURRY
16	BATCH UP TAIL SLURRY	9/2/2017	08:43	12.5				BATCH UP TAIL SLURRY @ 12.5 PPG
17	TAIL SLURRY	9/2/2017	08:46	12.5	6	47	275	TAIL SLURRY DOWNHOLE
18	SHUT DOWN	9/2/2017	08:55					SHUT DOWN DROP TOP PLUG
19	DISPLACEMENT	9/2/2017	08:56	8.34	5	86	115	START DISPLACEMENT
20	CEMENT TO SURFACE	9/2/2017	09:07					CEMENT TO SURFACE
21	SLOW RATE	9/2/2017	09:09	8.34	2	10	406	SLOW RATE TO 2 BPM TO BUMP
22	BUMP PLUG	9/2/2017	09:10	8.34			411	BUMP PLUG FCP: 411 PSI. 16 BBLS CEMENT TO SURFACE. FLOATS HOLDING 1 BBLS BACK AFTER BLED OFF
23	CASING TEST	9/2/2017	09:12				2014	PRESSURE UP TO 2000 PSI CASING TEST
24	BLEED PRESSURE	9/2/2017	09:22					BLEED PRESSURE CHECK FLOATS 1 BBL BACK
25	SAFETY MEETING	9/2/2017	09:28					RIG DOWN MTG WITH CREW
26	RIG DOWN	9/2/2017	09:35					RIG DOWN ALL EQUIPMENT
27	DEPART LOCATION	9/2/2017	10:30					DEPART LOCATION



3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	60 °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

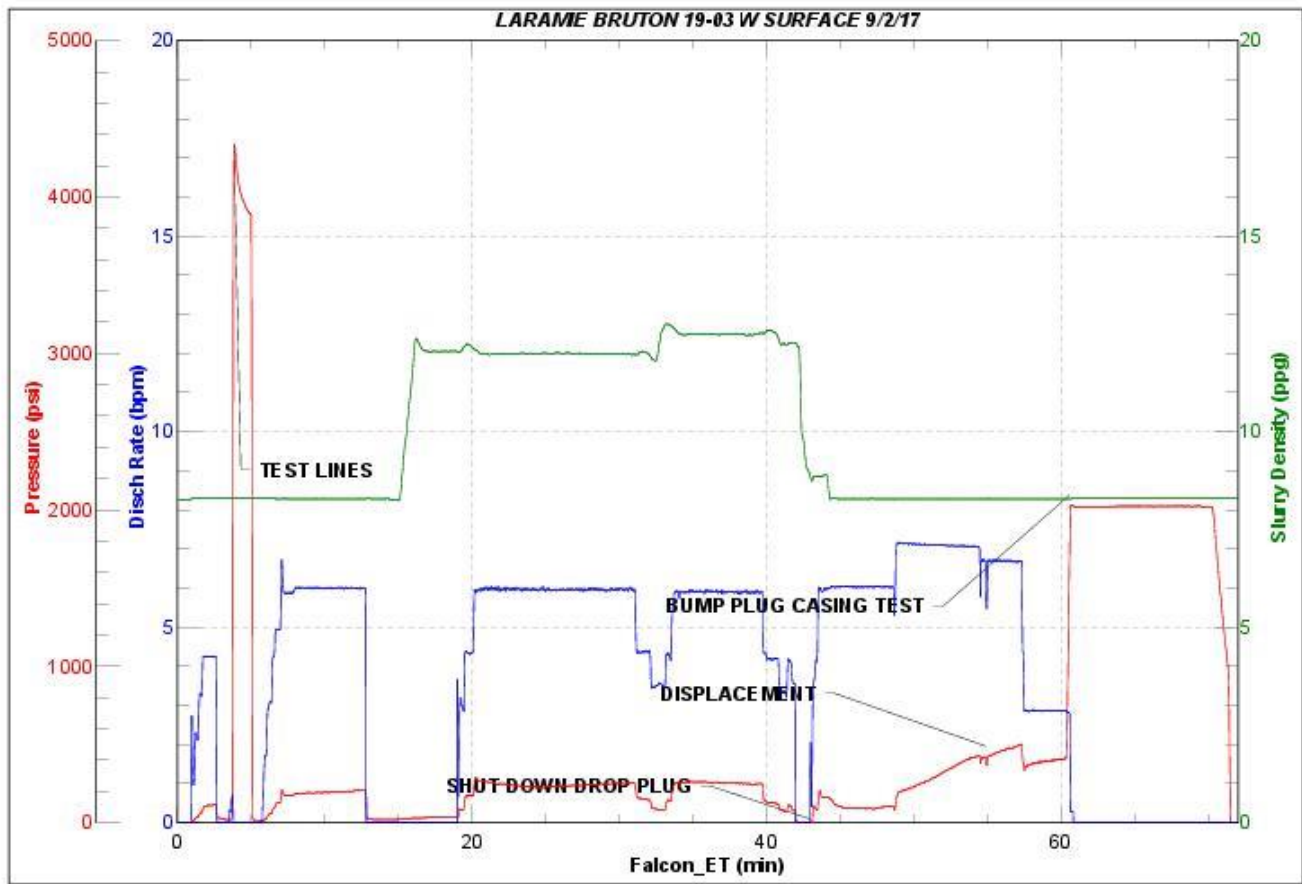


JobMaster Program Version 4.02C1

Job Number: 1268

Customer: Laramie Energy

Well Name: Bruton 19-03W



BJ Services

Job Start: Saturday, September 02, 2017

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	1550	0
Casing	Inner	4.5	4	11.6	LTC	0	7947	0
Open Hole	Outer	n/a	8.88	n/a	n/a	1550	7957	10

1.2 Equipment / People

Unit Type	Unit	Employee #1	Mileage
Silo	6 (Silo)		
Silo	7 (silo)		
Bulk Trailer	E466	Aden, Alan	120
Light Duty Pickups	4	Linn III, Paul	120
Cement Chemical	403	Ham, Robert	120
Cement Pump	104	Turek, Chad	120

1.3 Timing

Event	Date/Time
Call Out	9/4/2017 22:30
Depart Facility	9/4/2017 22:30
On Location	9/5/2017 02:30
Rig Up Iron	9/5/2017 02:45
Job Started	9/5/2017 05:00
Job Completed	9/5/2017 07:50
Rig Down Iron	9/5/2017 08:20
Depart Location	9/5/2017 09:00

1.4 General Job Information

Metrics	Value
Well Fluid Density	9.6 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	600 bbls
Rig Circulation Time	1 hours
Calculated Displacement	121.77 bbls
Actual Displacement	122 bbls
Total Spacer to Surface	60 bbls
Total CMT to Surface	20 bbls
Well Topped Out	No

1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	29
Yield Point	29
10 sec. SGS	9
10 min. SGS	32
30 min. SGS	58
Filtrate	7.5
Flow Line Temp.	121

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	9.6 lb/gal

1.7 Job Details (cont.)

Metrics	Value
BHCT	176 °F
BHST	237 °F

1.8 Circulation

Lost Circulation Experienced
No

**1.9 Job Execution Information**

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft ³ /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Top (ft)
1	1	CD Spacer	Spacer	11.00			32.84		60.00	0
1	2	P100-X2	Lead	12.70	1.97	11.07		820.00	288.18	1024
1	3	P70-X1	Tail	13.50	1.90	9.55		402.00	136.00	5797
1	4	Water w/ ASF-50	DisplacementFinal	8.33			41.92		123.00	0

1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	1	Spacer	CD Spacer	ASR-20	StrengthRetrogression	179.97	lb/bbl
1	1	Spacer	CD Spacer	AR-10	Retarder	1.40	lb/bbl
1	1	Spacer	CD Spacer	ASF-20	Surfactant	0.80	gal/bbl
1	1	Spacer	CD Spacer	AVS-10	Viscosifier	0.80	lb/bbl
1	2	Lead	P100-X2	AC3-10	Cement	100.00	%
1	2	Lead	P100-X2	ABX-30	BondEnhancer	0.30	%BWOB
1	2	Lead	P100-X2	ADF-11	Defoamer	0.30	%BWOB
1	2	Lead	P100-X2	ADS-10	Dispersant	0.10	%BWOB
1	2	Lead	P100-X2	AR-10	Retarder	0.50	%BWOB
1	2	Lead	P100-X2	AVS-10	Viscosifier	0.10	%BWOB
1	3	Tail	P70-X1	ACG-10	Cement	70.00	%
1	3	Tail	P70-X1	AFA-10	Extender	20.00	%
1	3	Tail	P70-X1	AXE-20	Extender	10.00	%
1	3	Tail	P70-X1	ABX-30	BondEnhancer	0.20	%BWOB
1	3	Tail	P70-X1	ADF-11	Defoamer	0.30	%BWOB
1	3	Tail	P70-X1	AFL-10	FluidLoss	0.40	%BWOB
1	3	Tail	P70-X1	AR-10	Retarder	0.30	%BWOB
1	3	Tail	P70-X1	ASR-20	StrengthRetrogression	25.00	%BWOB
1	3	Tail	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	Call out	9/4/2017	20:30					On location time pf 06:00
2	Safety Meeting	9/4/2017	20:35					Pre convoy safety meeting with BJ crew
3	Depart Rifle yard	9/4/2017	20:40					Depart Rifle yard for H&P 290
4	Arrive on location	9/5/2017	02:30					All of cement crew arrive on location
5	Safety Meeting	9/5/2017	02:35					Pre rig up safety meeting
6	Rig up	9/5/2017	02:40					Rig up ground equipment
7	Safety Meeting	9/5/2017	04:45					Pre job safety meeting with rig crew and BJ cement crew
8	Rig up	9/5/2017	05:00					Stab plug container and rig up the floor
9	Fill lines	9/5/2017	05:15					pump 5 BBLS. Ahead
10	Pressure test	9/5/2017	05:20					Pressure tested to 5700PSI. Pressure held
11	Spacer	9/5/2017	05:25	11	4	60	324	60 BBLS. Of weighted spacer at 11 PPG. Requiring 46.9 BBLS. Mix water
12	Lead	9/5/2017	05:40	12.7	5.5		237	Lead cement 820 SKS. 12.7 PPG. 1.97 FT3/SK. 11.07GAL/SK. Requiring 216.13 BBLS mix water. Used mud scales to verify weight.
13	Lead	9/5/2017	05:56	12.7	6.5		364	Picked up rate to 6.5 bpm with 65 BBLS. Away.
14	Lead	9/5/2017	06:07	12.7	6.5		276	150 BBLS of Lead cement away
15	Shut down	9/5/2017	06:40					Shut down. Lost water from rig tank while swapping to tail
16	Lead	9/5/2017	06:48	12.7	5		255	Pumped all of Lead. Total pumped 356 BBLS.
17	Tail	9/5/2017	06:48	13.5	6		230	Tail cement 402 SKS. 13.5 PPG. 1.9 SK3/FT. 9.55 GAL./SK. Requiring 91.41 BBLS. Mix water
18	Tail	9/5/2017	07:00	13.5	4		138	Slowed to 4 bpm to swap to Bulk truck with 100 BBLS. Away.
19	Tail	9/5/2017	07:03	13.5	5.5		355	Picked the rate back to 5.5 bpm
20	Tail	9/5/2017	07:12	13.5	5.5		254	finished pumping Tail cement. Total Tail pumped 153 BBLS.
21	Shut down	9/5/2017	07:13					Shut down
22	Wash pump and lines	9/5/2017	07:14					wash pumps and lines to catch can
23	Drop top plug	9/5/2017	07:21					Dropped top plug. Verified by Driller



24	Displacement	9/5/2017	07:22	8.33	5		244	First 10 BBLS. Of displacement at 5 bpm
25	Displacement	9/5/2017	07:23	8.33	10		1765	Pumped 10 bpm got all of weighted spacer back and 20 BBLS. Of Lead cement to surface.
26	Slow rate	9/5/2017	07:36	8.33	4		2200	Slowed to 4 bpm to land the plug.
27	land plug	9/5/2017	07:38				3100	landed the plug at 2200 PSI. took to 3100 PSI.
28	Casing Test	9/5/2017	07:43				3100	Casing test at 3100 for 10 mins.
29	Check floats	9/5/2017	07:53					Floats held. 1 1/2 BBLS back to the truck
30	Safety Meeting	9/5/2017	08:00					Pre rig down safety meeting
31	Rig down	9/5/2017	08:15					Rigged down the floor.
32	Wash pump and lines	9/5/2017	08:16					wash pumps and lines to catch can
33	Rig down	9/5/2017	08:30					Rigged down the rest of the equipment
34	Safety Meeting	9/5/2017	08:35					AAR attended by all BJ cement crew
35	Safety Meeting	9/5/2017	08:40					Pre convoy safety meeting with BJ crew
36	Leave location	9/5/2017	09:00					Depart H&P 290
37		9/5/2017	00:00					Thank you for using BJ services, Andrew Linn and crew.

3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	56.5 °F	50-80 °F
pH Level	6	5.5-8.5
Chlorides	<1 mg/L	0-3000 mg/L
Total Alkalinity	180	0-1000
Total Hardness	250 mg/L	0-500 mg/L
Carbonates	n/a mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	1500 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

4 Pump Diagrams

