



# Laramie Energy

---

## End of Well Cement Report

---

Nichols 0994-24-07W 05-077-10404

S:24 T:9S R:94W Mesa, CO

Quote #:

| Execution #:

---



# Laramie Energy

---

Attention: Mr. Aaron Duncan | [aduncan@laramie-energy.com](mailto:aduncan@laramie-energy.com)

---

Laramie Energy | 1401 17th St, Suite 1400 | Denver, CO 80202

---

Dear Mr. Duncan,

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  
Field Engineer III | (307) 757-7178 | [Zen.Keith@bjservices.com](mailto:Zen.Keith@bjservices.com)

Field Office 28730 US-6, Rifle, CO 81650  
Phone: (970) 632-2412

Sales Office 999 18th St. Suite 1200 Denver, CO 80202  
Phone: (281) 408-2361

---

# Cementing Treatment



<b>Start Date</b>	11/18/2017	<b>Well</b>	Nichols 0994-24-07W
<b>End Date</b>	2/28/2018	<b>County</b>	MESA
<b>Client</b>	LARAMIE ENERGY	<b>State/Province</b>	CO
<b>Client Field Rep</b>		<b>API</b>	05-077-10404
<b>Service Supervisor</b>		<b>Formation</b>	
<b>Field Ticket No.</b>	Surface	<b>Rig</b>	H&P 290
<b>District</b>	Rifle, CO	<b>Type of Job</b>	Surface

## WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	Excess(%)	Grade	Thread
Previous Casing	15.25	16.00	65.00	60.00	0.00		
Open Hole	11.00			1,524.00	75.00		
Casing	8.10	8.63	24.00	1,524.00		J-55	ST&C

**Shoe Length (ft):** 40

## HARDWARE

<b>Bottom Plug Used?</b>	Yes	<b>Tool Type</b>	Float Collar
<b>Bottom Plug Provided By</b>	Non BJ	<b>Tool Depth (ft)</b>	1,546.00
<b>Bottom Plug Size</b>	8.625	<b>Max Tubing Pressure - Rated (psi)</b>	
<b>Top Plug Used?</b>	Yes	<b>Max Tubing Pressure - Operated (psi)</b>	
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Rated (psi)</b>	2,950.00
<b>Top Plug Size</b>	8.625	<b>Max Casing Pressure - Operated (psi)</b>	2,360.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	18.00	<b>Job Pumped Through</b>	Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	8 round
<b>Landing Collar Depth (ft)</b>	1,484	<b>Top Connection Size</b>	8.625

# Cementing Treatment



## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	10 sec SGS	20.00
Circulation Time (min)	120.00	10 min SGS	46.00
Circulation Rate (bpm)	10.00	30 min SGS	84.00
Circulation Volume (bbls)	1,200.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.60	Gas Units	0
Mud Density Out (ppg)	9.60		
PV Mud In	32		
PV Mud Out	32		
YP Mud In	24		
YP Mud Out	24		

## TEMPERATURE

Ambient Temperature (°F)	9.00	Slurry Cement Temperature (°F)	36.00
Mix Water Temperature (°F)	34.00	Flow Line Temperature (°F)	90.00

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	Fresh Water	8.3300					40.0000
Lead Slurry	S100-12	12.0000	2.5329	14.89	191	480.0000	85.5000
Tail Slurry	S100-12	12.5000	2.2282	12.62	107	237.0000	42.1000
Displacement Final	Water	8.3300				0.0000	94.5000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Lead Slurry	S100-12	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.00	LBS/SK
Lead Slurry	S100-12	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Lead Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.00	BWOB
Lead Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
Lead Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK
Tail Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
Tail Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK
Tail Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.00	BWOB
Tail Slurry	S100-12	CEMENT, ASTM TYPE III	100.00	PCT
Tail Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.00	LBS/SK
Tail Slurry	S100-12	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB

## TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
12/5/2017 8:20 AM	Fresh Water	5.00	40.00	282.00		
12/5/2017 8:50 AM	S100-12	5.00	85.50	301.00		
12/5/2017 9:05 AM	S100-12	5.00	42.10	322.00		
12/5/2017 9:16 AM	Water	7.00	94.50	231.00		

# Cementing Treatment



	Min	Max	Avg
Pressure (psi)	0.00	2,050.00	500.00
Rate (bpm)	0.00	7.00	5.00

## DISPLACEMENT AND END OF JOB SUMMARY

---

<b>Displaced By</b>	BJ	<b>Amount of Cement Returned/Reversed</b>	22.00
<b>Calculated Displacement Volume (bbls)</b>	95.60	<b>Method Used to Verify Returns</b>	Visual
<b>Actual Displacement Volume (bbls)</b>	95.60	<b>Amount of Spacer to Surface</b>	40.00
<b>Did Float Hold?</b>	Yes	<b>Pressure Left on Casing (psi)</b>	0.00
<b>Bump Plug</b>	Yes	<b>Amount Bled Back After Job</b>	0.75
<b>Bump Plug Pressure (psi)</b>	568.00	<b>Total Volume Pumped (bbls)</b>	263.30
<b>Were Returns Planned at Surface</b>	Yes	<b>Top Out Cement Spotted</b>	No
<b>Cement returns During Job</b>	Full	<b>Lost Circulation During Cement Job</b>	No

Customer Name Laramie Energy  
 Well Name Nichols 24-07E  
 Job Type Surface

District Rifle  
 Supervisor Allen Tippetts  
 Engineer \_\_\_\_\_



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	12/5/2017	0:01	Call Out						BJ Services Crew Called out for Laramie Siurface Casing Job. Onlocation time 1400
2	12/5/2017								
3	12/5/2017								
4	12/5/2017	0:01	Waiting						Waiting on location for rig to TD well and run casing
5	12/5/2017	5:00	STEACS						STEACS briefing with BJ Services crew. Discuss job procedures, rig-up, safety concerns, task assignments, NDZ, muster points, and contingency plans.
6	12/5/2017	5:15	Spot Equipment						Spot BJ Services equipment.
7	12/5/2017	5:30	Rig-Up						Rig-Up surface equipment.
8	12/5/2017	8:00	STEACS						STEACS briefing with BJ Services crew rig crew, and company rep. Discuss job procedures, rig-up, safety concerns, task assignments, NDZ, muster points, and contingency plans.
9	12/5/2017	8:10	Rig-Up						Finial rig-up of surface equipment
10	12/5/2017	8:20	Pump Water		8.33	2	5	115	Pump 5 barrels fresh water to fill pumps and lines.
11	12/5/2017	8:23	Pressure Test					3000	Pressure test surface equipment to 3000PSI
12	12/5/2017	085:25	Release Pressure						Release pressure. Good test
13	12/5/2017	8:25	Punmp Water		8.33	5	35	282	Pump fresh water spacer
14	12/5/2017	8:50	Pump Lead Cement		12		86.06	301	Mix and pump 86.06 (191 sks) barrels lead cement @12.0 PPG, 2.53 YLD, 14.89 GAL/SK
15	12/5/2017	9:05	Pump Tail Cement		12.5		42.496	322	Mix and pump 42.496 (107sks) barrels tail cement @ 12.5 PPG, 2.23 YLD, 12.62 GAL/SK
16	12/5/2017	9:16	Pump Displacement		8.33	10	95.42	231	Pump 95.42 barrels fresh waer displacement
17	12/5/2017	9:28	Land Plug						Land Plug. Finial circulating pressure 587
18	12/5/2017	9:28	Pressure Test						Pressure test casing to 2024 PSI for 10 min
19	12/5/2017	9:38	Release Pressure						Release pressure. .75 barrels back to truck
20	12/5/2017	10:00	STEACS						STEACS briefing with BJ Services crew. Discuss rig-down, safety concerns, task assignments, NDZ, muster points, and contingency plans.
21	12/5/2017	10:15	Rig-Down						Rig-Down all surface equipment
22	12/5/2017	10:50	STEACS						STEACS briefing. Discuss directions to Rifle Yard, Weather conditions, night driving, road conditions, SWA, travel termination, and driver fatigue.
23	12/5/2017	11:00	Derpart Location						Depart Laramie Energy for Rifle Yard
24	12/5/2017								
25	12/5/2017								Plugs landed, job pumped per job program. Full returns during job. No equipment issues, silos blown down on previous job. Good score card. 22 barrels cement to surface

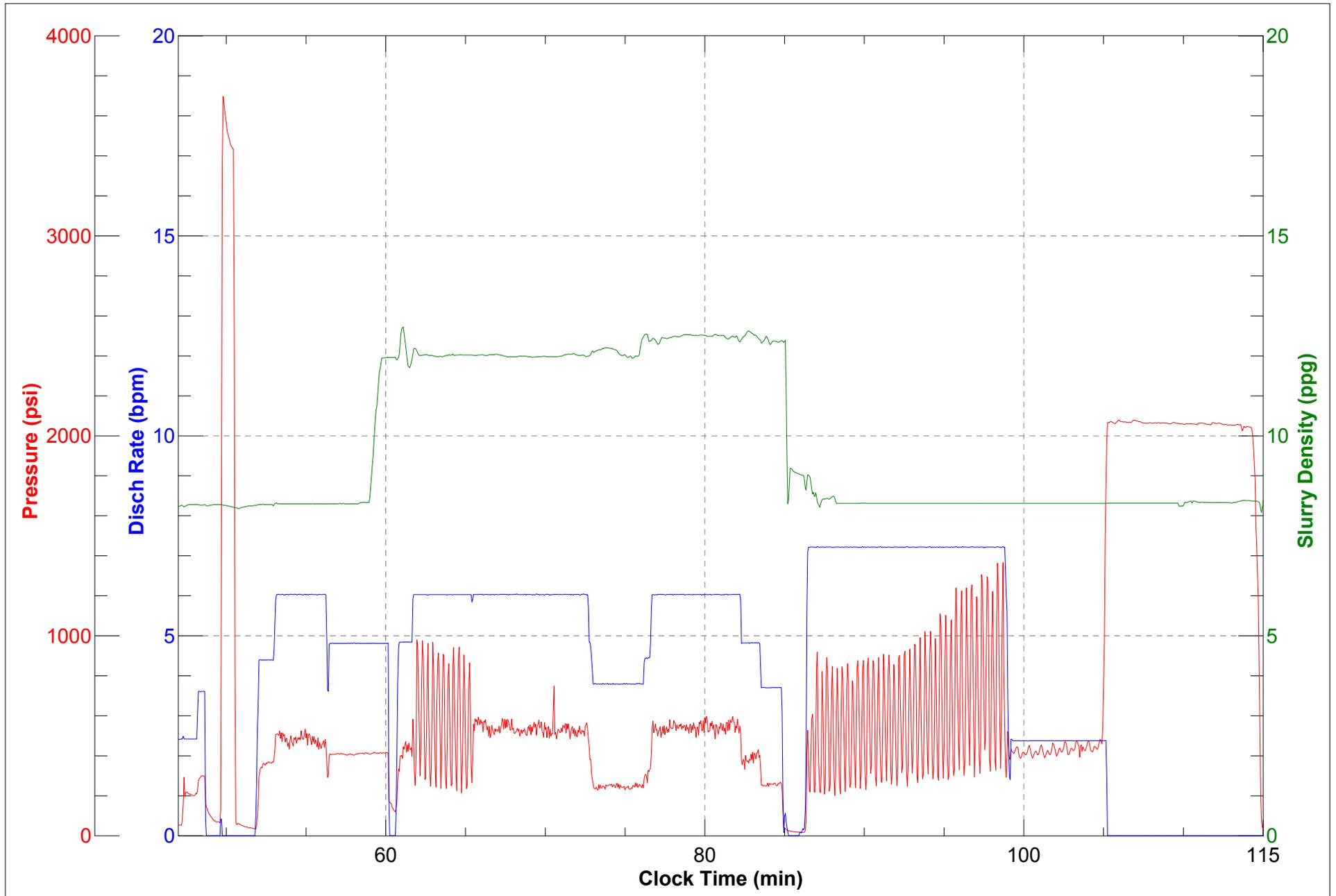


**JobMaster Program Version 4.02C1**

**Job Number: 1313**

**Customer: Lariane Energy**

**Well Name: Nichols 24-07E**



# Cementing Treatment



<b>Start Date</b>	11/18/2017	<b>Well</b>	Nichols 0994-24-07W
<b>End Date</b>	12/8/2017	<b>County</b>	MESA
<b>Client</b>	LARAMIE ENERGY	<b>State/Province</b>	CO
<b>Client Field Rep</b>	Roger Foster	<b>API</b>	05-077-10404
<b>Service Supervisor</b>	Allen Tippetts	<b>Formation</b>	-
<b>Field Ticket No.</b>	FT-01655-L9T7M00202-96426	<b>Rig</b>	H&P 290
<b>District</b>	Rifle, CO	<b>Type of Job</b>	Long String

## WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Open Hole	8.88			7,531.00	7,349.00	10.00		
Casing	4.00	4.50	11.60	7,521.00	7,349.00		L-80	LT&C
Previous Casing	8.10	8.63	24.00	1,524.00	1,497.00		J-55	ST&C

**Shoe Length (ft):** 80

## HARDWARE

<b>Bottom Plug Used?</b>	Yes	<b>Tool Type</b>	Float Collar
<b>Bottom Plug Provided By</b>	Non BJ	<b>Tool Depth (ft)</b>	7,429.00
<b>Bottom Plug Size</b>	4.500	<b>Max Tubing Pressure - Rated (psi)</b>	-
<b>Top Plug Used?</b>	Yes	<b>Max Tubing Pressure - Operated (psi)</b>	-
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Rated (psi)</b>	7,780.00
<b>Top Plug Size</b>	4.500	<b>Max Casing Pressure - Operated (psi)</b>	6,224.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	118.00	<b>Job Pumped Through</b>	Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	8 round
<b>Landing Collar Depth (ft)</b>	7,452	<b>Top Connection Size</b>	4.5

# Cementing Treatment



## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	10 sec SGS	8.00
Circulation Time (min)	60.00	10 min SGS	32.00
Circulation Rate (bpm)	10.00	30 min SGS	53.00
Circulation Volume (bbls)	600.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.60	Gas Units	0
Mud Density Out (ppg)	9.60		
PV Mud In	16		
PV Mud Out	16		
YP Mud In	15		
YP Mud Out	15		

## TEMPERATURE

Ambient Temperature (°F)	15.00	Slurry Cement Temperature (°F)	98.00
Mix Water Temperature (°F)	98.00	Flow Line Temperature (°F)	88.00

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	CD Spacer	11.0000					60.0000
Lead Slurry	P100-X2	12.7000	1.9775	11.11	770	1,516.0000	270.0000
Tail Slurry	P70-X1	13.5000	1.9033	9.59	381	724.0000	128.9000
Displacement Final	Freshwater with Clay Stabilizer	8.3300				0.0000	115.8000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Spacer	SAND, S-8, Silica Flour, 200 Mesh	179.97	PPB
Spacer / Pre Flush / Flush	CD Spacer	Spacer Surfactant, SS-247, (BJS Only)	0.80	GPB
Spacer / Pre Flush / Flush	CD Spacer	R-6 LOW TEMP RETARDER 50 LB BAG BJS	1.40	PPB
Spacer / Pre Flush / Flush	CD Spacer	GELLANT WATER, GW-86	0.80	PPB
Lead Slurry	P100-X2	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	P100-X2	GELLANT WATER, GW-86	0.10	BWOB
Lead Slurry	P100-X2	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.50	BWOB
Lead Slurry	P100-X2	DISPERSANT, CD-31	0.10	BWOB
Lead Slurry	P100-X2	BONDING AGENT, BA-60	0.30	BWOB
Lead Slurry	P100-X2	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Tail Slurry	P70-X1	AXE-20	10.00	PCT
Tail Slurry	P70-X1	CEMENT, CLASS G	70.00	PCT
Tail Slurry	P70-X1	Flyash (Rockies)	20.00	PCT
Tail Slurry	P70-X1	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.30	BWOB
Tail Slurry	P70-X1	FLUID LOSS, FL-24, (BJS Only)	0.40	BWOB
Tail Slurry	P70-X1	SAND, S-8, Silica Flour, 200 Mesh	25.00	BWOB
Tail Slurry	P70-X1	EXTENDER, BENTONITE	6.00	BWOB
Tail Slurry	P70-X1	BONDING AGENT, BA-60	0.20	BWOB
Tail Slurry	P70-X1	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Displacement Final	Freshwater with Clay Stabilizer	CLAY STABILIZATION, ResCare CS	0.08	GPB

# Cementing Treatment



## TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)
12/9/2017 5:07 AM	CD Spacer	6.00	60.00	532.00
12/9/2017 5:23 AM	P100-X2	6.00	270.00	652.00
12/9/2017 6:23 AM	P70-X1	6.00	128.90	534.00
12/9/2017 6:51 AM	Freshwater with Clay Stabilizer	10.00	115.80	892.00

	Min	Max	Avg
Pressure (psi)	100.00	5,000.00	1,500.00
Rate (bpm)	2.00	10.00	6.00

## DISPLACEMENT AND END OF JOB SUMMARY

<b>Displaced By</b>	BJ	<b>Amount of Cement Returned/Reversed</b>	0.00
<b>Calculated Displacement Volume (bbls)</b>	115.16	<b>Method Used to Verify Returns</b>	Visual
<b>Actual Displacement Volume (bbls)</b>	115.16	<b>Amount of Spacer to Surface</b>	40.00
<b>Did Float Hold?</b>	Yes	<b>Pressure Left on Casing (psi)</b>	0.00
<b>Bump Plug</b>	No	<b>Amount Bled Back After Job</b>	1.50
<b>Bump Plug Pressure (psi)</b>	1,512.00	<b>Total Volume Pumped (bbls)</b>	601.62
<b>Were Returns Planned at Surface</b>	Yes	<b>Top Out Cement Spotted</b>	No
<b>Cement returns During Job</b>	Full	<b>Lost Circulation During Cement Job</b>	No

Customer Name Laramie Energy  
 Well Name Nichols 0994-24-07W  
 Job Type Long String

District Rifle  
 Supervisor Allen Tippetts  
 Engineer Gage Putnam



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	12/8/2017	22:00	Call Out						BJ Service cement crew called out for Laramie Energy. On location time 04:00 12/4/2017
2	12/8/2017	23:45	STEACS						STEACS briefing with crew to cover journey management. Discuss directions, driving conditions, weather, convoy order, safety concerns, pre-trip inspections, and reasons to stop trip.
3	12/9/2017	0:10	Depart Facility						Depart Rifle Yard for Laramie Energy
4	12/9/2017	1:30	Inspection						Vehicle inspection at De Beque
5	12/9/2017	2:30	Arrive At Location						BJ Services crew arrive at Laramie Energy.
6	12/9/2017	2:45	STEACS						STEACS briefing with BJ Services crew. Discuss job procedures, safety concerns, rig-up procedures, SWA, muster points, contingency plans, and job/task assignments
7	12/9/2017	3:00	Rig-Up						Rig-Up surface equipment
8	12/9/2017	4:00	STEACS						STEACS briefing with BJ Services crew rig crew, and company rep. Discuss job procedures, safety concerns, rig-up procedures, SWA, muster points, contingency plans, and job/task assignments
9	12/9/2017	4:30	Rig-Up						Final Rig-up of surface equipment
10	12/9/2017	5:00	Pump Water		8.33	2	5	523	Pump 5 barrels fresh water ahead to fill pumps and lines
11	12/9/2017	5:02	Pressure Test						Pressure test surface equipment to 3000 PSI
12	12/9/2017	5:03	Release Pressure						Release pressure. Good Test
14	12/9/2017	5:07	Pump Spacer		11	6	60	532	Mix and pump 60 barrels spacer
15	12/9/2017	5:23	Pump Lead Cement		12.7	6	271.53	652	Mix and pump 271.53 Barrels (770 sks) lead cement @ 12.7 PPG 1.97 YLD, 11.11 GAL/SK
18	12/9/2017	6:23	Pump Tail Cement		13.5	6	128.93	534	Mix and pump 128.93 Barrels (381 sks) tail cement @ 13.5 PPG, 1.90 YLD, 9.59 GAL/SK
19	12/9/2017	6:45	Shutdown						Shutdown wash pumps and lines to pit. Drop plug. Plug witnessed by company rep.
20	12/9/2017	6:51	Pump Displacement		8.33	10	115.15	892	Pump 115.15 barrels fresh water displacement with clay stabilizer
21	12/9/2017	7:02	Slow Rate		8.33	10			Slow rate to 2 barrels / min with 100 barrels away
22	12/9/2017	7:09	Land Plug					1512	Land plug with 115.15 barrels displacement away. Final circulating pressure 1512 PSI
23	12/9/2017	7:21	Release Pressure						Pressure casing to 3165 PSI hold for 10 min. Release pressure. Good Test 1.5 barrels back to truck
24	12/9/2017	7:30	STEACS						STEACS briefing with BJ Services crew. Discuss job procedures, safety concerns, rig-down procedures, SWA, muster points, contingency plans, and job/task assignments
25	12/9/2017	7:45	Rig-Down						Rig-Down all surface equipment not staying on location. Pump truck and both bulk trucks are staying in position and rigged up.
26	12/9/2017	9:00	End Job						End Job. Crew staying on location.
27									
28	12/9/2017								Job pumped per plan. Barrels cement to surface, Plug bumped. Floats holding with barrels back to truck. Casing on bottom @ 03:30 circulating at 10 b/min for 60 min

