



# Laramie Energy

## End of Well Cement Report

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Nichols 0994-24-02W 05-077-10402

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

Quote #: 04263/04264

I Execution #: 02506/02629

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# Laramie Energy

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Attention: Mr. Aaron Duncan | (303) 339-4913 | [aduncan@laramie-energy.com](mailto:aduncan@laramie-energy.com)

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

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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

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# Cementing Treatment



<b>Start Date</b>	1/9/2018	<b>Well</b>	Nichols 0994-24-02W
<b>End Date</b>	1/9/2018	<b>County</b>	MESA
<b>Client</b>	LARAMIE ENERGY	<b>State/Province</b>	CO
<b>Client Field Rep</b>	Roger Foster	<b>API</b>	05-077-10402
<b>Service Supervisor</b>	Glen Gilliam	<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)	TVD (ft)	Excess(%)	Grade	Thread
Open Hole	11.00			1,545.00	1,545.00	75.00		
Casing	8.10	8.63	24.00	1,535.00	1,545.00		J-55	ST&C
Previous Casing	15.25	16.00	65.00	60.00	60.00	0.00		

**Shoe Length (ft):** 43

## 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>	1,492.00
<b>Bottom Plug Size</b>	8.625	<b>Max Tubing Pressure - Rated (psi)</b>	0.00
<b>Top Plug Used?</b>	Yes	<b>Max Tubing Pressure - Operated (psi)</b>	0.00
<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>	2,000.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	5.00	<b>Job Pumped Through</b>	No Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	8 ROUND
<b>Landing Collar Depth (ft)</b>	1,492	<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	-
Circulation Time (min)	1.00	10 min SGS	-
Circulation Rate (bpm)	10.00	30 min SGS	-
Circulation Volume (bbls)	600.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	Yes	Gas Present	No
Mud Density In (ppg)	-	Gas Units	0
Mud Density Out (ppg)	-		
PV Mud In	-		
PV Mud Out	-		
YP Mud In	-		
YP Mud Out	-		

## TEMPERATURE

Ambient Temperature (°F)	29.00	Slurry Cement Temperature (°F)	-
Mix Water Temperature (°F)	52.00	Flow Line Temperature (°F)	-

## 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	8.33					40.00
Lead Slurry	S100-12	12.00	2.5329	14.89	191	480.00	85.50
Tail Slurry	S100-12	12.50	2.2282	12.62	107	237.00	42.10
Displacement Final	Water	8.33				0.00	95.00

# Cementing Treatment



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

## TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)
1/9/2018 7:00 AM	Fresh Water	4.00	40.00	190.00
1/9/2018 7:20 AM	S100-12	2.00	85.50	89.00
1/9/2018 7:39 AM	S100-12	3.00	42.10	111.00
1/9/2018 7:52 AM	Water	5.50	94.50	310.00

	Min	Max	Avg
Pressure (psi)	1.00	3,000.00	315.00
Rate (bpm)	1.00	7.00	5.50

# Cementing Treatment



## DISPLACEMENT AND END OF JOB SUMMARY

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Displaced By	BJ	Amount of Cement Returned/Reversed	35.00
Calculated Displacement Volume (bbls)	95.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	95.00	Amount of Spacer to Surface	0.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amount Bled Back After Job	0.50
Bump Plug Pressure (psi)	390.00	Total Volume Pumped (bbls)	95.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement returns During Job	Full	Lost Circulation During Cement Job	No

Customer Name LARAMIE  
 Well Name NICHOLS 24-02W  
 Job Type Surface

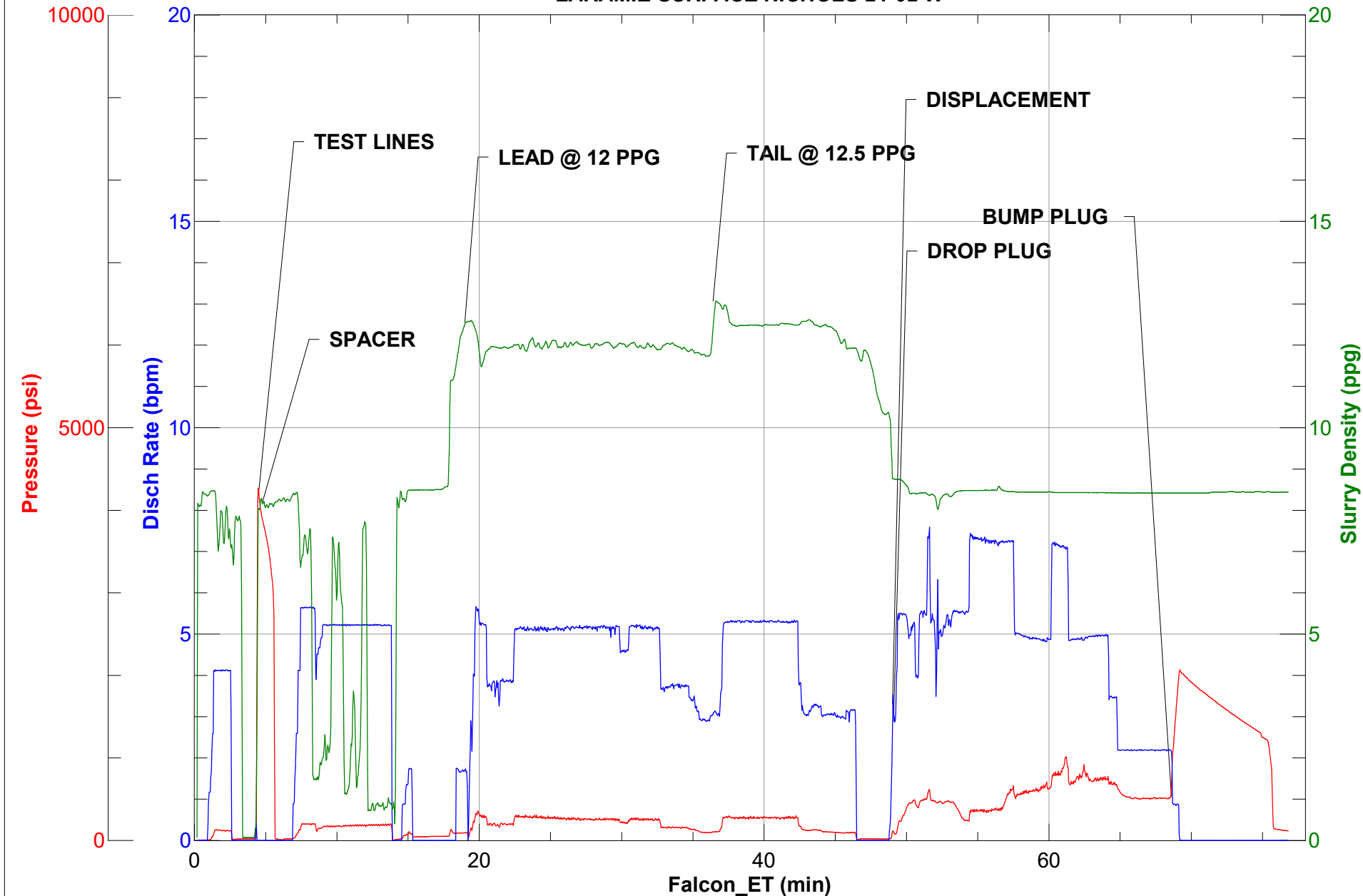
District Rifle  
 Supervisor GLEN GILLIAM  
 Engineer GAGE PUTNAM



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	1/8/2018	21:00	CALLOUT						BJ CREW CALLED OUT WITH AN RTS OF 04:00 1-9-18
2	1/9/2018	0:00	YARD TIME						BJ CREW ARRIVE AT YARD AND GET EQUIPMENT READY FOR JOB
3	1/9/2018	0:45	STEACS/JOURNEY						STEACS/ JOURNEY WITH BJ CREW ON CONVOY TO LOCATION
4	1/9/2018	1:00	DEPART YARD						BJ CREW DEPARTS YARD
5	1/9/2018	2:45	ARRIVE ON LOCATION						BJ CREW ARRIVES ON LOCATION, RIG IS CONNECTING CRT TOOL
6	1/9/2018	3:00	DOWN TIME						BJ CREW DOWN UNTIL RIG IS DONE RUNNING CASING AND CIRCULATING
7	1/9/2018	5:00	STEACS RIG UP						STEACS MEETING WITH BJ CREW ON RIG UP
8	1/9/2018	5:15	RIG UP EQUIPMENT						BJ CREW RIGS UP EQUIPMENT
9	1/9/2018	5:30	PIPE ON BOTTOM						PIPE ON BOTTOM, RIG CIRCULATING 10 BPM FOR 1 HR 600 BBLs
10	1/9/2018	6:30	SAFETY MEETING						SAFETY MEETING WITH RIG CREW ON JOB PROCEDURE
11	1/9/2018	6:50	STAB HEAD						BJ CREW STABS HEAD TO WELL
12	1/9/2018	7:00	FILL LINES		8.33	4	5	190	FILL LINES WITH 5 BBLs FRESH WATER
13	1/9/2018	7:07	TEST LINES						TEST LINES TO 3000 PSI
14	1/9/2018	7:09	SPACER		8.33	5.5	35	200	35 BBLs FRESH WATER SPACER
15	1/9/2018	7:18	BATCH UP LEAD		12				BATCH UP LEAD CEMENT AT 12 PPG
16	1/9/2018	7:20	LEAD DOWN HOLE		12	2		89	LEAD CEMENT DOWN HOLE AT 12 PPG
17	1/9/2018	7:32	50 BBLs GONE		12	5	50	270	50 BBLs GONE LEAD CEMENT/ 86 BBLs TOTAL
18	1/9/2018	7:38	BATCH UP TAIL		12.5				BATCH UP TAIL CEMENT AT 12.5 PPG
19	1/9/2018	7:39	TAIL DOWN HOLE		12.5	3		111	TAIL CEMENT DOWN HOLE AT 12.5 PPG
20	1/9/2018	7:43	20 BBLs GONE		12.5	5.5	20	300	20 BBLs GONE TAIL CEMENT/ 42 BBLs TOTAL
21	1/9/2018	7:52	SHUT DOWN						SHUT DOWN, DROP TOP PLUG, START DISPLACEMENT
22	1/9/2018	8:00	50 BBLs GONE		8.33	7	50	789	50 BBLs GONE DISPLACEMENT
23	1/9/2018	8:02	CEMENT TO SURFACE		8.33	5.5	60	689	CEMENT TO SURFACE- 35 BBLs
24	1/9/2018	8:12	BUMP PLUG		8.33	2	95	390	BUMP PLUG, FCP-390 PSI TOOK TO 2054 PSI HELD FOR 10 MINS
25	1/9/2018	8:22	CHECK FLOATS						FLOATS HELD .5 BBLs BACK
26	1/9/2018	8:30	STEACS RIG DOWN						STEACS MEETING WITH BJ CREW ON RIG DOWN AND WASH UP PUMP
27	1/9/2018	8:35	RIG DOWN						BJ CREW RIGS DOWN EQUIPMENT
28	1/9/2018	9:30	JOB COMPLETE						JOB COMPLETE, AAR WITH BJ CREW
29	1/9/2018	9:45	STEACS/ JOURNEY						STEACS/ JOURNEY WITH BJ CREW ON CONVOY BACK TO YARD
30	1/9/2018	10:15	DEPART LOCATION						BJ CREW DEPARTS LOCATION
31	1/9/2018		***MISC***						BUMP PLUG, FCP-390 PSI TOOK TO 2054 PSI HELD FOR 10 MINS, FLOATS HELD .5 BBLs BACK, 95 BBLs FOR DISPLACEMENT, 35 BBLs OF CEMENT BACK TO SURFACE



LARAMIE SURFACE NICHOLS 24-02 W





# Cementing Treatment



<b>Start Date</b>	1/11/2018	<b>Well</b>	Nichols 0994-24-02W
<b>End Date</b>	1/12/2018	<b>County</b>	MESA
<b>Client</b>	LARAMIE ENERGY	<b>State/Province</b>	CO
<b>Client Field Rep</b>	ROGER FOSTER	<b>API</b>	05-077-10402
<b>Service Supervisor</b>		<b>Formation</b>	
<b>Field Ticket No.</b>	Production	<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)	Excess(%)	Grade	Thread
Previous Casing	8.10	8.63	24.00	1,535.00		P-110	ST&C
Open Hole	8.88			7,765.00	10.00		
Casing	4.00	4.50	11.60	7,755.00		L-80	LT&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>	7,675.00
<b>Bottom Plug Size</b>	4.500	<b>Max Tubing Pressure - Rated (psi)</b>	0.00
<b>Top Plug Used?</b>	Yes	<b>Max Tubing Pressure - Operated (psi)</b>	0.00
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Rated (psi)</b>	10,690.00
<b>Top Plug Size</b>	4.500	<b>Max Casing Pressure - Operated (psi)</b>	4,000.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	139.00	<b>Job Pumped Through</b>	No Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	8 ROUND
<b>Landing Collar Depth (ft)</b>	7,675	<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	13.00
Circulation Time (min)	1.00	10 min SGS	48.00
Circulation Rate (bpm)	10.00	30 min SGS	69.00
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	23		
PV Mud Out	23		
YP Mud In	22		
YP Mud Out	22		

## TEMPERATURE

Ambient Temperature (°F)	20.00	Slurry Cement Temperature (°F)	
Mix Water Temperature (°F)	55.00	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	809	1,600.0000	284.9000
Tail Slurry	P70-X1	13.5000	1.8511	9.33	393	727.0000	129.4000
Displacement Final	Freshwater with Clay Stabilizer	8.3300				0.0000	119.6000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Spacer	R-6 LOW TEMP RETARDER 50 LB BAG BJS	1.4000	PPB
Spacer / Pre Flush / Flush	CD Spacer	GELLANT WATER, GW-86	0.8000	PPB
Spacer / Pre Flush / Flush	CD Spacer	SAND, S-8, Silica Flour, 200 Mesh	179.9700	PPB
Lead Slurry	P100-X2	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	P100-X2	DISPERSANT, CD-31	0.1000	BWOB
Lead Slurry	P100-X2	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.5000	BWOB
Lead Slurry	P100-X2	GELLANT WATER, GW-86	0.1000	BWOB
Lead Slurry	P100-X2	Foam Preventer, FP-25	0.3000	BWOB
Lead Slurry	P100-X2	BONDING AGENT, BA-60	0.3000	BWOB
Tail Slurry	P70-X1	CEMENT, CLASS G	70.0000	PCT
Tail Slurry	P70-X1	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	P70-X1	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.2000	BWOB
Tail Slurry	P70-X1	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	P70-X1	SAND, S-8, Silica Flour, 200 Mesh	25.0000	BWOB
Tail Slurry	P70-X1	Flyash (Rockies)	20.0000	PCT
Tail Slurry	P70-X1	BONDING AGENT, BA-60	0.2000	BWOB
Tail Slurry	P70-X1	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	P70-X1	BONDING AGENT, BA-90	10.0000	PCT
Displacement Final	Freshwater with Clay Stabilizer	CLAY STABILIZER ResCare CS	0.0800	GPB

# Cementing Treatment



## TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
1/12/2018 12:20 AM	CD Spacer	6.00	60.00	676.00		
1/12/2018 12:48 AM	P100-X2	5.00	284.90	414.00		
1/12/2018 1:46 AM	P70-X1	5.00	129.40	410.00		
1/12/2018 2:21 AM	Freshwater with Clay Stabilizer	5.00	119.60	575.00		

	Min	Max	Avg
Pressure (psi)	10.00	5,000.00	345.00
Rate (bpm)	1.00	10.00	5.50

## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	119.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	118.00	Amount of Spacer to Surface	30.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amount Bled Back After Job	1.50
Bump Plug Pressure (psi)	1,809.00	Total Volume Pumped (bbls)	118.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement returns During Job	Full	Lost Circulation During Cement Job	No

Customer Name LARAMIE  
 Well Name NICHOLS 24-02 W  
 Job Type Long String

District Rifle  
 Supervisor GLEN GILLIAM  
 Engineer ZEN KEITH



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (nsi)	Comments
1	1/11/2018	16:30	CALLOUT						BJ CREW CALLED OUT WITH AN RTS TIME OF 22:00
2	1/11/2018	17:30	YARD TIME						ALL CREW MEMBERS AT YARD BY 17:30
3	1/11/2018	18:10	STEACS/JOURNEY						STEACS/ JOURNEY WITH BJ CREW FOR CONVOY TO LOCATION
4	1/11/2018	18:15	DEPART YARD						BJ CREW DEPARTS YARD
5	1/11/2018	20:15	ARRIVE ON LOCATION						BJ CREW ARRIVES ON LOCATION AND SPOTS TRUCK, CHECK FOR HAZARDS
6	1/11/2018	20:25	STEACS/ RIG UP						STEACS MEETING WITH BJ CREW ON RIG UP AND JOB OPERATIONS
7	1/11/2018	20:30	RIG UP EQUIPMENT						BJ CREW RIGS UP EQUIPMENT
8	1/11/2018	23:00	PIPE ON BOTTOM						PIPE ON BOTTOM RIG CIRCULATING 1 HR
9	1/11/2018	23:45	SAFETY MEETING						SAFETY MEETING WITH RIG CREW ON JOB PROCEDURE
10	1/12/2018	0:05	STAB HEAD						BJ CREW STABS HEAD
11	1/12/2018	0:10	FILL LINES		8.33	4	5	375	FILL LINES WITH 5 BBLS FRESH WATER
12	1/12/2018	0:12	TEST LINES						TEST LINES AT 5000 PSI
13	1/12/2018	0:14	BATCH UP SPACER		11				BATCH UP SPACER AT 11 PPG
14	1/12/2018	0:20	SPACER DOWN HOLE		11	6		676	SPACER DOWN HOLE AT 11 PPG
15	1/12/2018	0:35	50 BBLS GONE		11	3	50	275	50 BBLS GONE SPACER/ 60 BBLS TOTAL
16	1/12/2018	0:47	BATCH UP LEAD		12.7				BATCH UP LEAD CEMENT AT 12.7 PPG
17	1/12/2018	0:48	LEAD DOWN HOLE		12.7	5		414	LEAD CEMENT DOWN HOLE AT 12.7 PPG
18	1/12/2018	1:01	50 BBLS GONE		12.7	5	50	275	50 BBLS GONE LEAD CEMENT
19	1/12/2018	1:12	100 BBLS GONE		12.7	5	100	290	100 BBLS GONE LEAD CEMENT
20	1/12/2018	1:22	150 BBLS GONE		12.7	5.5	150	359	150 BBLS GONE LEAD CEMENT
21	1/12/2018	1:31	200 BBLS GONE		12.7	5.5	200	350	200 BBLS GONE LEAD CEMENT
22	1/12/2018	1:40	250 BBLS GONE		12.7	5.5	250	346	250 BBLS GONE LEAD CEMENT/ 283 BBLS TOTAL
23	1/12/2018	1:45	BATCH UP TAIL		13.5				BATCH UP TAIL CEMENT AT 13.5 PPG
24	1/12/2018	1:46	TAIL DOWN HOLE		13.5	5		410	TAIL CEMENT DOWN HOLE AT 13.5 PPG
25	1/12/2018	1:54	50 BBLS GONE		13.5	5	50	337	50 BBLS GONE TAIL CEMENT
26	1/12/2018	2:07	100 BBLS GONE		13.5	5	100	347	100 BBLS GONE TAIL CEMENT/ 129 BBLS TOTAL
27	1/12/2018	2:14	SHUT DOWN						SHUT DOWN, WASH PUMPS AND LINES
28	1/12/2018	2:21	DROP PLUG						DROP PLUG, START DISPLACMENT
29	1/12/2018	2:21	DISPLACEMENT		8.33	5		575	START DISPLACEMENT
30	1/12/2018	2:25	50 BBLS GONE		8.33	10	50	1493	50 BBLS GONE DISPLACEMENT
31	1/12/2018	2:33	100 BBLS GONE		8.33	10	100	2166	100 BBLS GONE DISPLACEMENT
32	1/12/2018	2:37	BUMP PLUG		8.33	2.5	118	1809	BUMP PLUG, FCP-1809 PSI TOOK TO 3127 PSI HELD FOR 10 MINS
33	1/12/2018	2:47	CHECK FLOATS						FLOATS HELD 1.5 BBLS BACK
34	1/12/2018	2:55	STEACS/ RIG DOWN						STEACS MEETING WITH BJ CREW ON RIG DOWN PROCEDURE, WASH PUMP
35	1/12/2018	3:00	RIG DOWN EQUIP						BJ CREW RIGS DOWN EQUIPMENT
36	1/12/2018	3:55	AAR/ JOB COMPLETE						AAR WITH BJ CREW ON JOB
37	1/12/2018	4:15	STEACS/ JOURNEY						STEACS/ JOURNEY WITH BJ CREW
38	1/12/2018	4:30	DEPART LOCATION						BJ CREW DEPARTS LOCATION
39	1/12/2018		***MISC***						BUMP PLUG, FCP-1809 PSI TOOK TO 3127 PSI HELD FOR 10 MINS, FLOATS HELD 1.5 BBLS BACK, 30 BBLS OF SPACER BACK TO SURFACE, FULL RETURNS.

