



# Laramie Energy

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## End of Well Cement Report

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Nichols 0994-24-10W 05-077-10395

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

Quote #:

| Execution #:

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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,

Gage Putnam  
Field Engineer I | (307) 887-4243 | [Gage.Putnam@BJServices.com](mailto:Gage.Putnam@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>	2/21/2018	<b>Well</b>	Nichols 0994-24-10W
<b>End Date</b>	2/21/2018	<b>County</b>	MESA
<b>Client</b>	LARAMIE ENERGY	<b>State/Province</b>	CO
<b>Client Field Rep</b>	Matt Settles	<b>API</b>	05-077-10395
<b>Service Supervisor</b>	Mark Rust	<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

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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			1,558.00	75.00		
Casing	8.10	8.63	24.00	1,547.00		J-55	ST&C

**Shoe Length (ft):** 48

# Cementing Treatment



## HARDWARE

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<b>Bottom Plug Used?</b>	No	<b>Tool Type</b>	Float Collar
<b>Top Plug Used?</b>	Yes	<b>Tool Depth (ft)</b>	1,500.00
<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>	2,360.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	17.00	<b>Job Pumped Through</b>	Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	STC
<b>Landing Collar Depth (ft)</b>	1,500	<b>Top Connection Size</b>	8.625

## CIRCULATION PRIOR TO JOB

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<b>Well Circulated By</b>	Rig	<b>Solids Present at End of Circulation</b>	No
<b>Circulation Prior to Job</b>	Yes	<b>Flare Prior to/during the Cement Job</b>	No
<b>Circulation Time (min)</b>	60.00	<b>Gas Present</b>	No
<b>Lost Circulation Prior to Cement Job</b>	No		
<b>Mud Density In (ppg)</b>	9.20		

## TEMPERATURE

# Cementing Treatment




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<b>Ambient Temperature (°F)</b>	18.00	<b>Slurry Cement Temperature (°F)</b>	91.00
<b>Mix Water Temperature (°F)</b>	60.00	<b>Flow Line Temperature (°F)</b>	

## BJ FLUID DETAILS

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Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	Fresh Water	8.3300			0.00				40.0000
Lead Slurry	BJCem S100.3.01D	12.0000	2.5329	14.89	0.00	1,024.00	191	480.0000	85.5000
Tail Slurry	BJCem S100.3.01D	12.5000	2.2282	12.62	1,024.00	500.00	107	237.0000	42.1000
Displacement Final	Water	8.3300			0.00			0.0000	96.0000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Lead Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem S100.3.01D	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.0000	LBS/SK
Lead Slurry	BJCem S100.3.01D	IntegraSeal CELLO	0.1300	LBS/SK
Lead Slurry	BJCem S100.3.01D	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A- 7P, PELLETS	2.0000	LBS/SK
Lead Slurry	BJCem S100.3.01D	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	BJCem S100.3.01D	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	BJCem S100.3.01D	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Tail Slurry	BJCem S100.3.01D	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.0000	LBS/SK
Tail Slurry	BJCem S100.3.01D	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
Tail Slurry	BJCem S100.3.01D	IntegraSeal CELLO	0.1300	LBS/SK
Tail Slurry	BJCem S100.3.01D	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A- 7P, PELLETS	2.0000	LBS/SK

## TREATMENT SUMMARY

# Cementing Treatment



Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
2/22/2018 3:17 AM	Fresh Water	6.00	40.00	423.00		
2/22/2018 3:27 AM	BJCem S100.3.01D	6.00	85.50	462.00		
2/22/2018 3:43 AM	BJCem S100.3.01D	5.00	42.10	240.00		
2/22/2018 3:56 AM	Water	7.00	94.50	1,056.00		

	Min	Max	Avg
Pressure (psi)	240.00	1,056.00	545.25
Rate (bpm)	5.00	7.00	6.00

## DISPLACEMENT AND END OF JOB SUMMARY

<b>Displaced By</b>	BJ	<b>Amount of Cement Returned/Reversed</b>	38.00
<b>Calculated Displacement Volume (bbls)</b>	96.00	<b>Method Used to Verify Returns</b>	Visual
<b>Actual Displacement Volume (bbls)</b>	96.00	<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>	0.50
<b>Bump Plug Pressure (psi)</b>	1,644.00	<b>Total Volume Pumped (bbls)</b>	284.00
<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



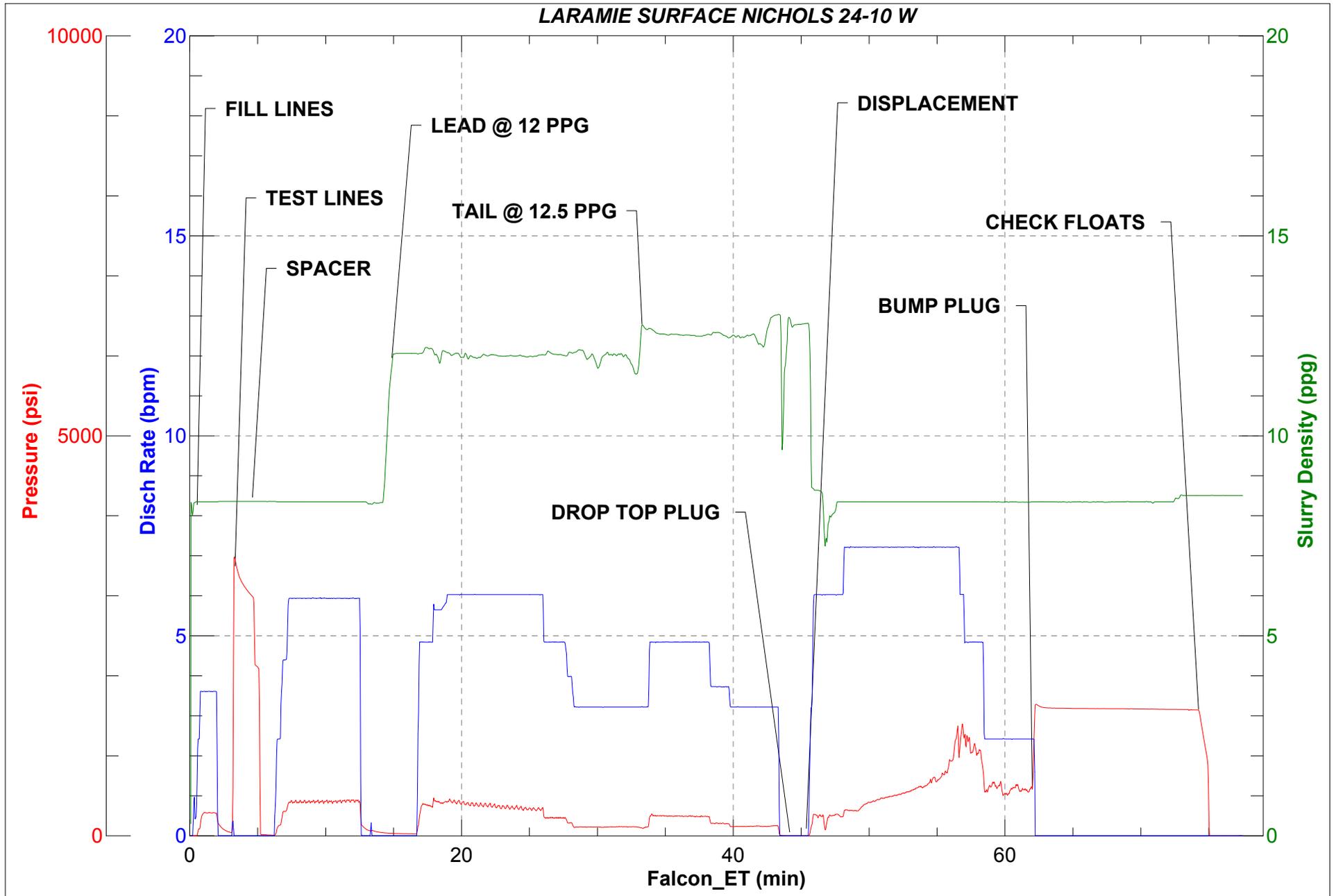
Customer Name Laramie Energy  
 Well Name Nichols 0994-24-10W  
 Job Type Surface

District Rifle  
 Supervisor Mark W. Rust  
 Engineer Gage Putnam

Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	2/21/2018 22:00	Mobilization	Callout		1					Leave Rifle District
2	2/22/2018 0:00	Mobilization	Arrive on Location		48					Arrive on Location
3	2/22/2018 0:15	Operational	Spot Units		49					Spot pump
4	2/22/2018 0:25	Operational	Rig Up		50					Safety meeting/Begin Rig Up
5	2/22/2018 1:00	StandBy	Customer		85					Rigged up/Crew off duty
6	2/22/2018 2:30	Operational	Safety Meeting		53					Safety meeting with Rig Crew/Customer
7	2/22/2018 3:00	Operational	Other (See comments)		76					Stab cement head/Load top plug
8	2/22/2018 3:11	Operational	Start Pumping		55	8.34	3.5	5	236	Load lines with 5 bbls of FW
9	2/22/2018 3:13	Operational	Pressure Test		54	8.34			3000	Test lines/Check for leaks
10	2/22/2018 3:17	Operational	Pump Spacer		56	8.34	6	35	423	Pump water spacer
11	2/22/2018 3:24	Operational	Pump Lead Cement		58	12				Batch up first tub of lead cement
12	2/22/2018 3:27	Operational	Pump Lead Cement		58	12	6	0	462	Start downhole with lead cement
13	2/22/2018 3:36	Operational	Pump Lead Cement		58	12	6	50	359	Pumping lead cement
14	2/22/2018 3:43	Operational	Pump Lead Cement			12	3	80	122	Pumping lead cement
15	2/22/2018 3:43	Operational	Pump Tail Cement		60	12.5	3	0	102	Swap to tail cement
16	2/22/2018 3:48	Operational	Pump Tail Cement		60	12.5	5	20	240	Pumping Tail Cement
17	2/22/2018 3:55	Operational	Drop Top Plug		63					Shut down/Drop top plug
18	2/22/2018 3:56	Operational	Pump Displacement		64	8.34	6	0	345	Start displacement
19	2/22/2018 4:04	Operational	Pump Displacement		64	8.34	7	50	603	Pumping Displacement
20	2/22/2018 4:11	Operational	Pump Displacement			8.34	7	58	732	Cement returns back to surface
21	2/22/2018 4:05	Operational	Cement Back to Surface		66	8.34	2	90	594	Pumping Displacement
22	2/22/2018 4:13	Operational	Land Plug		67	8.34	2	96	1644	Bump plug/Test Casing/ Final Circ. 600psi
23	2/22/2018 4:14	Operational	Other (See comments)		76				1644	Test casing to 1600psi
24	2/22/2018 4:24	Operational	Other (See comments)		76				1610	Prepare to release pressure
25	2/22/2018 4:26	Operational	Check Floats		68				0	Bleed off pSi/Check Floats 0.5bbls back
26	2/22/2018 4:30	Operational	Clean Pumps and Lines		62					Pump sugar water/Wash up in Cellar
27	2/22/2018 5:00	Operational	Rig Down		73					Safety meeting/Start rig down
28	2/22/2018 6:30	Mobilization	Leave Location							Leave location with equipment
29	2/22/2018 0:00		***MISC***							Bump plug, Final circ. Psi 600, tested casing to 1644 held for 10mins, bleed pressure check floats, 0.5bbls back, circulated 38bbls of ceemnt to surfcae. No issues during job.



LARAMIE SURFACE NICHOLS 24-10 W



# Cementing Treatment



<b>Start Date</b>	2/25/2018	<b>Well</b>	Nichols 0994-24-10W
<b>End Date</b>	2/25/2018	<b>County</b>	MESA
<b>Client</b>	LARAMIE ENERGY	<b>State/Province</b>	CO
<b>Client Field Rep</b>	MATT SETTLES	<b>API</b>	05-077-10395
<b>Service Supervisor</b>	SHAUN CLARK	<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

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Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	Excess(%)	Grade	Thread
Previous Casing	8.10	8.63	24.00	1,524.00		J-55	ST&C
Open Hole	8.88			7,531.00	10.00		
Casing	4.00	4.50	11.60	7,525.00		L-80	LT&C

**Shoe Length (ft):** 80

## HARDWARE

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<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>	7,438.00
<b>Bottom Plug Size</b>	4.500	<b>Max Casing Pressure - Rated (psi)</b>	10,690.00
<b>Top Plug Used?</b>	Yes	<b>Max Casing Pressure - Operated (psi)</b>	5,000.00
<b>Top Plug Provided By</b>	Non BJ	<b>Pipe Movement</b>	None
<b>Top Plug Size</b>	4.500	<b>Job Pumped Through</b>	No Manifold
<b>Centralizers Used</b>	Yes	<b>Top Connection Thread</b>	8RD
<b>Centralizers Quantity</b>	90.00	<b>Top Connection Size</b>	4.5
<b>Centralizers Type</b>	Bow		
<b>Landing Collar Depth (ft)</b>	7,477		

# 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	2.00
Circulation Time (min)	60.00	10 min SGS	
Circulation Rate (bpm)	6.00	30 min SGS	11.00
Circulation Volume (bbls)	360.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.50		
PV Mud In	12		
YP Mud In	10		

## TEMPERATURE

Ambient Temperature (°F)	25.00	Slurry Cement Temperature (°F)	95.00
Mix Water Temperature (°F)	80.00	Flow Line Temperature (°F)	

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	11.0000			0.00				60.0000
Lead Slurry	BJCem P100.3.01R	12.7000	1.9791	11.12	1,024.00	4,483.00	772	1,522.0000	271.0000
Tail Slurry	BJCem P70.6.01R	13.5000	1.8512	9.35	5,507.00	2,050.00	393	727.0000	129.4000
Displacement Final	Water + ResCare +Biocide	8.3300			0.00			0.0000	116.2000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	179.9700	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	GELLANT WATER, GW-86	0.8000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	RETARDER, R-7C	0.3000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	RETARDER, R-3	1.4000	PPB
Lead Slurry	BJCem P100.3.01R	RETARDER, R-3	0.5000	BWOB
Lead Slurry	BJCem P100.3.01R	BONDING AGENT, BA-60	0.3000	BWOB
Lead Slurry	BJCem P100.3.01R	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem P100.3.01R	GELLANT WATER, GW-86	0.1000	BWOB
Lead Slurry	BJCem P100.3.01R	DISPERSANT, CD-31	0.1000	BWOB
Lead Slurry	BJCem P100.3.01R	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	BJCem P70.6.01R	SAND, S-8, Silica Flour, 200 Mesh	25.0000	BWOB
Tail Slurry	BJCem P70.6.01R	Flyash (Rockies)	20.0000	PCT
Tail Slurry	BJCem P70.6.01R	CEMENT, CLASS G	70.0000	PCT
Tail Slurry	BJCem P70.6.01R	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	BJCem P70.6.01R	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	BJCem P70.6.01R	BONDING AGENT, BA-60	0.2000	BWOB
Tail Slurry	BJCem P70.6.01R	BONDING AGENT, BA-90	10.0000	PCT
Tail Slurry	BJCem P70.6.01R	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	BJCem P70.6.01R	RETARDER, R-3	0.2000	BWOB
Displacement Final	Water + ResCare +Biocide	CLAY STABILIZER ResCare CS	0.0800	GPB

## TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
2/25/2018 5:30 PM	IntegraGuard EZ Spacer	5.30	60.00	500.00		
2/25/2018 6:00 PM	BJCem P100.3.01R	5.30	271.00	426.00		
2/25/2018 7:00 PM	BJCem P70.6.01R	5.30	129.40	550.00		
2/25/2018 8:00 PM	Water + ResCare +Biocide	10.00	117.00	2,000.00		

# Cementing Treatment



	Min	Max	Avg
Pressure (psi)	0.00	5,000.00	600.00
Rate (bpm)	0.50	10.00	6.00

## DISPLACEMENT AND END OF JOB SUMMARY

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<b>Displaced By</b>	BJ	<b>Amount of Cement Returned/Reversed</b>	0.00
<b>Calculated Displacement Volume (bbls)</b>	115.60	<b>Method Used to Verify Returns</b>	Visual
<b>Actual Displacement Volume (bbls)</b>	117.00	<b>Amount of Spacer to Surface</b>	0.00
<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>	
<b>Bump Plug Pressure (psi)</b>	2,300.00	<b>Total Volume Pumped (bbls)</b>	577.00
<b>Were Returns Planned at Surface</b>	Yes	<b>Top Out Cement Spotted</b>	No
<b>Cement returns During Job</b>	Partial	<b>Lost Circulation During Cement Job</b>	No

Customer Name LARMIE ENERGY  
 Well Name NICHOLS 24-10W  
 Job Type Long String

District Rifle  
 Supervisor Shaun Clark  
 Engineer ZEN KEITH



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	2/25/2018	11:00	Hold Steacs/Leave yard						CREW CALLED OUT RTS
2	2/25/2018	13:00	Arrive location						ARRIVED AT
3	2/25/2018	13:05	Hold Steacs						Hold Steacs
4	2/25/2018	14:30	Spot trucks/ Rig up						Spot trucks/ Rig up
5	2/25/2018	16:30	Wait on casing run						BJ on standby waiting on rig
6	2/25/2018	16:30	On bottom w casing						Rig on Bottom with casing
7	2/25/2018	17:15	Hold Pre job sfty mtng						Hold pre job safety meeting with rig crew
8	2/25/2018	17:30	Stab Head						Stab Head
9	2/25/2018	17:35	Fill Lines	Cement Pump Truck	8.33	2	5	400	Fill lines
10	2/25/2018	17:46	Pressure test	Cement Pump Truck				5870	Pressure test to 5000 psi
11	2/25/2018	17:50	Pump weighted Spcr	Cement Pump Truck	8.3	5.4	10	514	Fresh 11 PPG spacer
12	2/25/2018	17:58	Pump weighted Spcr	Cement Pump Truck	8.3	5.4	50	50	50 BBL spacer gone
13	2/25/2018	18:02	Pump weighted Spcr	Cement Pump Truck	8.3	5	60		60 BBL spacer gone
14	2/25/2018	18:04	Batch up Cement	Cement Pump Truck	12.7		272		Batch up Lead cement to 12.7ppg (615 sacks/Y-1.98/MW-11.1)
15	2/25/2018	18:15	Pump Lead @ 12.7ppg	Cement Pump Truck	12.7	5.3	50	429	50 BBL lead gone
16	2/25/2018	18:24	Pump Lead @ 12.7ppg	Cement Pump Truck	12.7	5.3	100	450	100 BBL Lead gone
17	2/25/2018	18:34	Pump Lead @ 12.7ppg	Cement Pump Truck	12.5	5.3	150	430	150 BBL Lead gone
18	2/25/2018	18:43	Pump Lead @ 12.7ppg	Cement Pump Truck	12.7	5.3	200	440	200 BBL Lead gone
19	2/25/2018	18:53	Pump Lead @ 12.7ppg	Cement Pump Truck	12.7	2.7	250	280	250 BBL lead gone
20	2/25/2018	18:55	Bring up Tail @13.5ppg	Cement Pump Truck	13.5		129		Bring on Tail @13.5 ppg (110 sacks / Y- 1.85 / MW- 9.34
21	2/25/2018	19:05	Prob w knife gate	Cement Pump Truck					KNIFE GATE STUCK IN POSITION COULD NOT OPEN OR CLOSE
22	2/25/2018	19:09	ADJUST	Cement Pump Truck					ADJUSTED TO BULK FLOW
23	2/25/2018	19:10	Pump Tail	Cement Pump Truck	13.5	5.2	50	600	Pump 50 BBL Tail
24	2/25/2018	19:15	Pump Tail	Cement Pump Truck	13.5	0	83	280	Pump 80 shut down to bach up tail off Bulk truck
25	2/25/2018	19:22	Pump Tail	Cement Pump Truck	13.5	5.2	100	621	Pump 100 BBL tail
26	2/25/2018	19:28	End Cement	Cement Pump Truck	13.3	2.2	129	380	Shut down on cement
27	2/25/2018	19:35	Drop Plug/wash Lines	Plug Container					Wash lines drop plug
28	2/25/2018	19:44	Start Displacement	Cement Pump Truck	8.33	4	10	435	Start displacement W. Res care and biocycle
29	2/25/2018	19:48	Pump Displacement	Cement Pump Truck	8.5	10	50	1933	Pump 50 BBL displacement
30	2/25/2018	19:54	Pump Displacement	Cement Pump Truck	8.5	10	100	2472	Pump 100 BBL displacement
31	2/25/2018	20:00	Slow rate to bump	Cement Pump Truck	8.5	4	110	2200	Pump 110 BBL displacement , slow rate to bump
32	2/25/2018	20:05	No bump	Cement Pump Truck					Pumped calculated didn't bump
33	2/25/2018	20:10	Pump 1/2 ST	Cement Pump Truck	8.5	1	116	2000	Client said to pump 1/2 shoe / did so didn't bump
34	2/25/2018	20:15	Verify	Cement Pump Truck					ask to verify plug gone from head by client // bleed off & Verified Plug was gone
35	2/25/2018	20:20	Bump Plug	Cement Pump Truck	8.5	2	117	3000	Client said to pump 2 more BBL pumped 2 and bumped plug
36	2/25/2018	20:24	Casing Test						Bring pressure to 3k for pressure test noticed leak on stand pipe bleed off fix n retest
37	2/25/2018	20:34	Casing test						brought pressure to 3100 held for 10 min
38	2/25/2018	20:40	check Floats						Bleed off / 1 BBL back
39	2/25/2018	21:00	Hold Rig down Steacs						Rig down meeting with BJ crew
40	2/25/2018	21:10	Rig down						Rig down
41	2/25/2018	22:30	Journey Management						Discuss descending hill / Journey management
42	2/25/2018	22:30	End Job						End Job
43	2/25/2018	23:00	Leave location						Leave location



JobMaster Program Version 4.02C1  
Job Number: 3427  
Customer: LARMIE  
Well Name: NICHOLS 24-10W

