



Laramie Energy

End of Well Cement Report

Nichols 0994-13-21E 05-077-10416

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

Quote #: 05125/05127

I Execution #: 02906/03040



Laramie Energy

Attention: Mr. Aaron Duncan | (303) 339-4913 | 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,

Gage Putnam
Field Engineer I | (307) 887-4243 | 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

Cementing Treatment



Start Date	1/21/2018	Well	Nichols 0994-13-21E
End Date	1/21/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep	Matt Settles	API	05-077-10416
Service Supervisor	Shaun Clark	Formation	-
Field Ticket No.	Surface	Rig	H&P 290
District	Rifle, CO	Type of Job	Surface

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Previous Casing	15.25	16.00	65.00	60.00	60.00	0.00		
Open Hole	11.00			1,561.00	1,561.00	75.00		
Casing	8.10	8.63	24.00	1,551.00	1,551.00		J-55	ST&C

Shoe Length (ft): 43

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	1,507.00
Bottom Plug Size	8.625	Max Tubing Pressure - Rated (psi)	-
Top Plug Used?	Yes	Max Tubing Pressure - Operated (psi)	-
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	2,900.00
Top Plug Size	8.625	Max Casing Pressure - Operated (psi)	2,500.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	4.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8RD
Landing Collar Depth (ft)	1,507	Top Connection Size	8.625

Cementing Treatment



CIRCULATION PRIOR TO JOB

Well Circulated By	BJ	Solids Present at End of Circulation	No
Circulation Prior to Job	No	10 sec SGS	-
Circulation Time (min)	60.00	10 min SGS	-
Circulation Rate (bpm)	6.00	30 min SGS	-
Circulation Volume (bbls)	350.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.50	Gas Units	0
Mud Density Out (ppg)	9.60		
PV Mud In	NO REPORT		
PV Mud Out	NO REPORT		
YP Mud In	NO REPORT		
YP Mud Out	NO REPORT		

TEMPERATURE

Ambient Temperature (°F)	22.00	Slurry Cement Temperature (°F)	70.00
Mix Water Temperature (°F)	65.00	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	8.3300					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 EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.0000	LBS/SK
Lead Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Lead Slurry	S100-12	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	S100-12	Foam Preventer, FP-25	0.3000	BWOB
Lead Slurry	S100-12	IntegraSeal CELLO	0.1300	LBS/SK
Tail Slurry	S100-12	IntegraSeal CELLO	0.1300	LBS/SK
Tail Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Tail Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Tail Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.0000	LBS/SK
Tail Slurry	S100-12	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	S100-12	CEMENT, ASTM TYPE III	100.0000	PCT

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)
1/21/2018 12:52 PM	Fresh Water	5.00	40.00	310.00
1/21/2018 1:00 PM	S100-12	4.00	85.50	197.00
1/21/2018 1:26 PM	S100-12	4.00	42.10	190.00
1/21/2018 1:42 PM	Water	8.00	96.00	700.00

	Min	Max	Avg
Pressure (psi)	190.00	700.00	349.25
Rate (bpm)	4.00	8.00	5.25

Cementing Treatment



DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	30.00
Calculated Displacement Volume (bbls)	96.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	95.00	Amount of Spacer to Surface	40.00
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)	1,200.00	Total Volume Pumped (bbls)	259.00
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 ENERGY
Well Name Nichols 13-21E
Job Type Surface

District Rifle
Supervisor SHAUN CLARK
Engineer GAGE PUTNAM

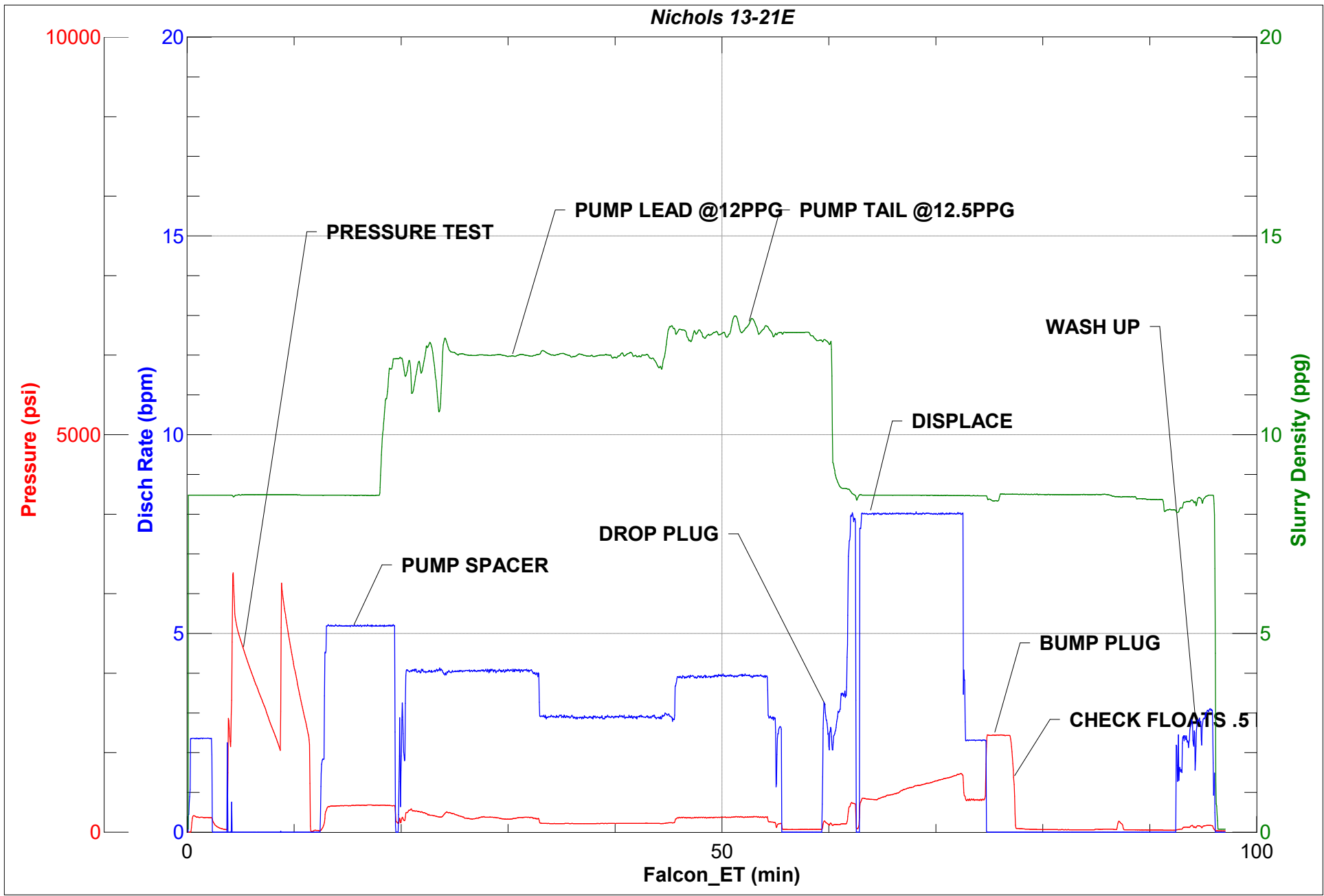
Seq No.	Start Date	Start Time	Category	Event	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	1/21/2018	2:30	Mobilization	Callout					BJ CREW CALLED OUT WITH A RTS OF 6:00
2	1/21/2018	3:00	Mobilization						JOURNEY MANAGEMENT WITH BJ CREW
3	1/21/2018	3:00	Mobilization	Leave Location					LEAVE DISTRICT
4	1/21/2018	5:00	Mobilization	Arrive on Location					ARRIVE ON LOCATION
5	1/21/2018	5:10	Operational						STEACS BRIEFING WITH BJ CREW
6	1/21/2018	5:15	Operational	Spot Units					SPOT TRUCKS
7	1/21/2018	5:30	Operational	Rig Up					RIG UP ALL EQUIPMENT
8	1/21/2018	6:00	StandBy	Customer					BJ ON STANDBY, RIG RUNNING CASING
9	1/21/2018	11:30	Operational	Prime Up					PIPE ON BOTTOM, RIG TO CIRCULATE
10	1/21/2018	12:00	Operational	Safety Meeting					SAFETY MEETING WITH BJ CREW, COMPANY, AND RIG CREW
11	1/21/2018	12:05	Operational	Rig Up					RIG UP CEMENT HEAD TO CASING
12	1/21/2018	12:40	Operational	Start Pumping	8.34	2.3	5	290	BREAK CIRCULATION
13	1/21/2018	12:52	Operational	Pressure Test					TEST LINES 2000
14	1/21/2018	12:59	Operational	Pump Spacer	8.34	5	10	310	10 BBL FRESH WATER SPACER
16	1/21/2018	13:00	Operational	Pump Spacer	8.34	5	40	330	35 BBL FRESH WATER SPACER
17	1/21/2018	13:05	Operational	Pump Lead Cement		4	81	248	BATCH UP LEAD CEMENT @ 12.0 PPG (191 SXS Y- 2.53 MW- 14.89)
18	1/21/2018	13:06	Operational	Pump Lead Cement	12	4	23	197	LEAD CEMENT @ 12.0 PPG DOWNHOLE
19	1/21/2018	13:17	Operational	Pump Lead Cement	12	4	50	208	50 BBLS GONE LEAD SLURRY
20	1/21/2018	13:25	Operational	Pump Lead Cement	12	2	84	112	86 BBLS GONE LEAD SLURRY
25	1/21/2018	13:26	Operational	Pump Tail Cement	12.5				BATCH UP TAIL SLURRY @ 12.5 PPG (107 SXS Y- 2.22 MW-12.62)
26	1/21/2018	13:28	Operational	Pump Tail Cement	12.5	3	10	115	TAIL CEMENT @ 12.5 PPG DOWN HOLE
27	1/21/2018	13:40	Operational	Pump Tail Cement	12.5	4	40	190	40 BBLS GONE TAIL SLURRY
28	1/21/2018	13:42	Operational	Pump Displacement			96		DROP TOP PLUG START DISPLACEMENT
29	1/21/2018	13:44	Operational	Pump Displacement	12.5	4	10	200	2 BBLS @ 12.5 PPG ON TOP OF PLUG
30	1/21/2018	13:50	Operational	Pump Displacement	8.34	8	50	370	50 BBLS GONE DISPLACEMENT
31	1/21/2018	13:53	Operational	Pump Displacement	8.34	8	80	750	80 BBLS GONE DISPLACEMENT
33	1/21/2018	13:55	Operational	Pump Displacement	8.34	2.3	86	400	SLOW RATE TO BUMP PLUG
34	1/21/2018	13:56	Operational	Land Plug					BUMP PLUG 1200 PSI
35	1/21/2018	14:00	Operational	Check Floats					BLEED PRESSURE, CHECK FLOATS 0.5 BBLS BACK
	1/21/2018		Operational	Cement Back to Surface					30 bbl CEMENT TO SURFACE
53	1/21/2018	13:58	Operational	End Pumping					SHUT DOWN BLEED PRESSURE
54	1/21/2018	14:00	Operational	Safety Meeting					RIG DOWN MEETING WITH BJ CREW
55	1/21/2018	14:10	Operational	Clean Pumps and Lines					START WASH UP OF PUMP AND RIG DOWN EQUIPMENT
56	1/21/2018	15:15	Operational	Safety Meeting					JOURNEY MANAGEMENT WITH BJ CREW



Customer Name LARAMIE ENERGY
Well Name Nichols 13-21E
Job Type Surface

District Rifle
Supervisor SHAUN CLARK
Engineer GAGE PUTNAM

Seq No.	Start Date	Start Time	Category	Event	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
57	1/21/2018	15:30	Mobilization	Leave Location					LEAVE LOCATION
58	1/21/2018								
59	1/21/2018								FCP- 720PSI, BUMP PLUG-1200 PSI, BLEED PRESSURE FLOATS HOLDING- .5 BBLS
60	1/21/2018								
61	1/21/2018	0:00							CALCULATED CEMENT TOPS- LEAD - 0' TAIL- 634



Cementing Treatment



Start Date	1/23/2018	Well	Nichols 0994-13-21E
End Date	1/24/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep		API	05-077-10416
Service Supervisor		Formation	
Field Ticket No.	Production	Rig	H&P 290
District	Rifle, CO	Type of Job	Long String

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Previous Casing	8.10	8.63	24.00	1,524.00	1,451.00		J-55	ST&C
Open Hole	8.88			8,017.00	8,017.00	10.00		
Casing	4.00	4.50	11.60	8,007.00	8,007.00		L-80	BTC

Shoe Length (ft): 86

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	7,920.00
Bottom Plug Size	4.500	Max Tubing Pressure - Rated (psi)	
Top Plug Used?	Yes	Max Tubing Pressure - Operated (psi)	
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	7,780.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	4,000.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	139.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8rd
Landing Collar Depth (ft)	7,920	Top Connection Size	4.5

Cementing Treatment



CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	No	10 sec SGS	
Circulation Time (min)	45.00	10 min SGS	
Circulation Rate (bpm)	7.00	30 min SGS	
Circulation Volume (bbls)	185.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.30	Gas Units	
Mud Density Out (ppg)			
PV Mud In			
YP Mud In			

TEMPERATURE

Ambient Temperature (°F)	9.00	Slurry Cement Temperature (°F)	56.00
Mix Water Temperature (°F)	74.00	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	CD Spacer	11.0000					60.0000
Lead Slurry	P100-X2	12.7000	1.9775	11.11	861	1,693.0000	301.5000
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	123.8000

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Spacer	SAND, S-8, Silica Flour, 200 Mesh	179.9700	PPB
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
Lead Slurry	P100-X2	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	P100-X2	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.5000	BWOB
Lead Slurry	P100-X2	DISPERSANT, CD-31	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
Lead Slurry	P100-X2	GELLANT WATER, GW-86	0.1000	BWOB
Tail Slurry	P70-X1	Flyash (Rockies)	20.0000	PCT
Tail Slurry	P70-X1	CEMENT, CLASS G	70.0000	PCT
Tail Slurry	P70-X1	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	P70-X1	BONDING AGENT, BA-60	0.2000	BWOB
Tail Slurry	P70-X1	BONDING AGENT, BA-90	10.0000	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	SAND, S-8, Silica Flour, 200 Mesh	25.0000	BWOB
Tail Slurry	P70-X1	Foam Preventer, FP-25	0.3000	BWOB
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
1/24/2018 5:22 AM	CD Spacer	5.00	60.00	423.00		
1/24/2018 5:39 AM	P100-X2	6.00	301.50	370.00		
1/24/2018 6:36 AM	P70-X1	5.00	129.40	411.00		
1/24/2018 7:28 AM	Freshwater with Clay Stabilizer	10.00	123.80	1,656.00		

	Min	Max	Avg
Pressure (psi)	0.00	4,000.00	850.00
Rate (bpm)	0.00	10.00	5.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	123.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	122.50	Amount of Spacer to Surface	10.00
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)	3,191.00	Total Volume Pumped (bbls)	613.00
Were Returns Planned at Surface	No	Top Out Cement Spotted	No
Cement returns During Job	None	Lost Circulation During Cement Job	No



Customer Name LARAMIE
Well Name NICHOLS 0994-21-13E
Job Type Long String

District Rifle
Supervisor JAMES ROUSH
Engineer GAGE PUTNAM

Seq No.	Start Date	Start Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	1/23/2018	22:30	Mobilization	Callout		1					BJ CREW CALLED OUT WITH A RTS OF 02:30 AM 1/24/18
2	1/23/2018	23:15	Mobilization								JOURNEY MANAGEMENT WITH BJ CREW
3	1/23/2018	23:30	Mobilization	Leave Location							LEAVE DISTRICT
4	1/24/2018	1:00	Mobilization	Arrive on Location		48					ARRIVE ON LOCATION
5	1/24/2018	1:20	Operational								STEACS BREIFING WITH BJ CREW
6	1/24/2018	1:45	Operational	Spot Units		49					SPOT TRUCKS
7	1/24/2018	1:55	Operational	Rig Up		50					RIG UP ALL EQUIPMENT
9	1/24/2018	3:44	Operational	Prime Up		52					PIPE ON BOTTOM, RIG TO CIRCULATE
10	1/24/2018	4:30	Operational	Safety Meeting		53					SAFETY MEETING WITH BJ CREW, COMPANY, AND RIG CREW
11	1/24/2018	4:54	Operational	Rig Up		50					RIG UP CEMENT HEAD TO CASING
12	1/24/2018	5:02	Operational	Start Pumping		55	8.34	3	5	377	BREAK CIRCULATION
13	1/24/2018	5:04	Operational	Pressure Test		54					TEST LINES 5000
14	1/24/2018	5:22	Operational	Pump Spacer		56	11	5	60	423	WEIGHTED SPACER @ 11 PPG
	1/24/2018		Operational	Pump Spacer			11	4		195	50 BBLS GONE SPACER
22	1/24/2018	5:39	Operational	Pump Lead Cement		58	12.7				BATCH UP LEAD CEMENT @ 12.7 PPG (861 SXS Y- 1.97 MW- 11.11)
23	1/24/2018	5:45	Operational	Pump Lead Cement		58	12.7	5.5	302	380	LEAD CEMENT @ 12.7 PPG DOWNHOLE
24	1/24/2018	5:51	Operational	Pump Lead Cement		58	12.7	6		366	50 BBLS GONE LEAD SLURRY
25	1/24/2018	6:00	Operational	Pump Lead Cement		58	12.7	6		362	100 BBLS GONE LEAD SLURRY
26	1/24/2018	6:09	Operational	Pump Lead Cement		58	12.7	6		368	150 BBLS GONE LEAD SLURRY
27	1/24/2018	6:18	Operational	Pump Lead Cement		58	12.7	6		365	200 BBLS GONE LEAD SLURRY
	1/24/2018	6:27	Operational	Pump Lead Cement				6		370	250 BBLS GONE LEAD SLURRY
	1/24/2018	6:34	Operational	Pump Lead Cement				3		123	300 BBLS GONE LEAD SLURRY
28	1/24/2018	6:36	Operational	Pump Tail Cement		60	13.5				BATCH UP TAIL SLURRY @ 13.5 PPG (393 SXS Y- 1.85 MW-9.33)



Customer Name LARAMIE
Well Name NICHOLS 0994-21-13E
Job Type Long String

District Rifle
Supervisor JAMES ROUSH
Engineer GAGE PUTNAM

Seq No.	Start Date	Start Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
29	1/24/2018	6:39	Operational	Pump Tail Cement		60	13.5	5	129.5	411	TAIL CEMENT @ 13.5 PPG DOWN HOLE
30	1/24/2018	6:46	Operational	Pump Tail Cement		60	13.5	5		405	50 BBLS GONE TAIL SLURRY
31	1/24/2018	6:59	Operational	Pump Tail Cement		60	13.5	4		292	100 BBLS GONE TAIL SLURRY
32	1/24/2018	7:11	Operational	Clean Pumps and Lines		62	8.34	3	10	120	WASH PUMPS AND LINES
33	1/24/2018	7:18	Operational	Drop Top Plug		63	8.43	6	113	330	DROP TOP PLUG START DISPLACEMENT
34	1/24/2018	7:28	Operational	Pump Displacement		64	8.43	10		1630	50 BBLS GONE DISPLACEMENT
35	1/24/2018	7:30	Operational	Pump Displacement		64	8.43	10		2155	100 BBLS GONE DISPLACEMENT
36	1/24/2018	7:34	Operational	Pump Displacement		64	8.43	2	10	1646	SLOW RATE TO BUMP PLUG
37	1/24/2018	7:36	Operational	Land Plug		67	8.43			3191	BUMP PLUG, PRESSURE UP TO 3000 PSI
38	1/24/2018	7:46	Operational	Check Floats		68					BLEED PRESSURE, CHECK FLOATS, 1.5 BBL BACK
39	1/24/2018	7:55	Operational	Safety Meeting		53					RIG DOWN MEETING WITH BJ CREW AND RIG HANDS
40	1/24/2018	8:05	Operational	Rig Down		73					START RIG DOWN ALL UNITS
41	1/24/2018	9:20	Operational	Safety Meeting		53					JOURNEY MANAGEMENT WITH BJ CREW
42	1/24/2018	9:30	Mobilization	Leave Location		74					LEAVE LOCATION
43	1/24/2018										
45	1/24/2018		Operational	Other (See comments)		76					FCP- 1656, BUMP PLUG- 3191 PSI, FLOATS HOLDING 1.5 BBLS BACK

