



Laramie Energy

End of Well Cement Report

Nichols 0994-13-20E 05-077-10403

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

Quote #: 05641/05642

| Execution #: 03362/03475



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	2/3/2018	Well	Nichols 0994-13-20E
End Date	2/4/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep	ROGER FOSTER	API	05-077-10403
Service Supervisor	Glen Gilliam	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)	Excess(%)	Grade	Thread
Previous Casing	15.25	16.00	65.00	60.00	0.00		
Open Hole	11.00			1,559.00	75.00		
Casing	8.10	8.63	24.00	1,549.00		J-55	ST&C

Shoe Length (ft): 40

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	1,509.00
Bottom Plug Size	8.625	Max Tubing Pressure - Rated (psi)	0.00
Top Plug Used?	Yes	Max Tubing Pressure - Operated (psi)	0.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	2,950.00
Top Plug Size	8.625	Max Casing Pressure - Operated (psi)	2,000.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	5.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8 ROUND
Landing Collar Depth (ft)	1,509	Top Connection Size	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)	0.50	10 min SGS	-
Circulation Rate (bpm)	10.00	30 min SGS	-
Circulation Volume (bbls)	300.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	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)	76.00
Mix Water Temperature (°F)	68.00	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, SODIUM METASILICATE, A-2	2.0000	LBS/SK
Lead Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	S100-12	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A- 7P, PELLETS	2.0000	LBS/SK
Lead Slurry	S100-12	IntegraSeal CELLO	0.1300	LBS/SK
Lead Slurry	S100-12	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	S100-12	CEMENT, ASTM TYPE III	100.0000	PCT
Tail Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Tail Slurry	S100-12	IntegraSeal CELLO	0.1300	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	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A- 7P, PELLETS	2.0000	LBS/SK

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)
2/4/2018 1:48 AM	Fresh Water	2.50	40.00	95.00
2/4/2018 1:55 AM	S100-12	4.00	85.50	236.00
2/4/2018 2:12 AM	S100-12	3.00	42.10	76.00
2/4/2018 2:22 AM	Water	8.00	94.50	400.00

	Min	Max	Avg
Pressure (psi)	1.00	300.00	256.00
Rate (bpm)	1.00	10.00	6.00

Cementing Treatment



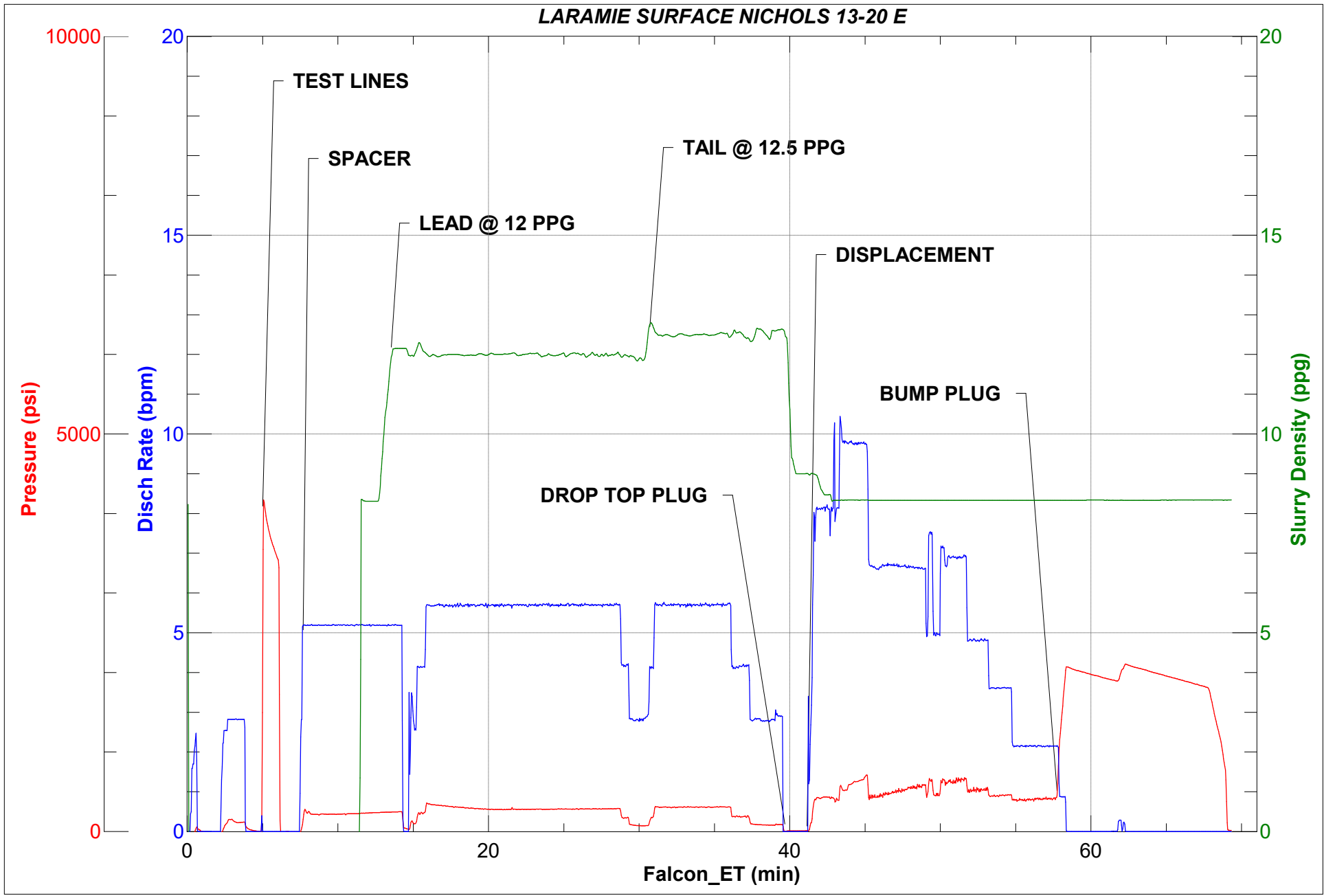
DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	40.00
Calculated Displacement Volume (bbls)	96.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	96.00	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)	408.00	Total Volume Pumped (bbls)	96.00
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 District Rifle
 Well Name NICHOLS 13-20 E Supervisor GLEN GILLIAM
 Job Type Surface Engineer GAGE PUTNAM



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure	Comments
1	2/3/2018	18:00	CALLOUT						BJ CREW CALLED OUT TO LOCATION WITH AN RTS OF 23:00
2	2/3/2018	20:00	YARD CALL						BJ CREW HAS A YARD CALL AT 20:00
3	2/3/2018	20:15	STEACS/ JOURNEY						STEACS/ JOURNEY WITH BJ CREW ON ROUTE TO LOCATION
4	2/3/2018	20:20	DEPART YARD						BJ CREW DEPARTS YARD TO LOCATION
5	2/3/2018	21:45	ON LOCATION						BJ CREW ON LOCATION, SPOT EQUIPMENT
6	2/3/2018	21:55	STEACS/ RIG UP						STEACS RIG UP MEETING WITH BJ CREW
7	2/3/2018	22:00	RIG UP EQUIPMENT						BJ CREW RIGS UP EQUIPMENT
8	2/4/2018	1:05	PIPE ON BOTTOM			10	300		PIPE ON BOTTOM, RIG CIRCULATING HOLE
9	2/4/2018	1:26	SAFETY MEETING						SAFETY MEETING WITH RIG CREW
10	2/4/2018	1:40	STAB HEAD						BJ CREW STABS HEAD
11	2/4/2018	1:42	FILL LINES		8.33	2.5	5	95	FILL LINES 5 BBLS FRESH WATER
12	2/4/2018	1:45	TEST LINES						TEST LINES AT 3000 PSI
13	2/4/2018	1:48	SPACER		8.33	5	35	270	FRESH WATER SPACER 35 BBLS
14	2/4/2018	1:54	BATCH UP LEAD		12				BATCH UP LEAD CEMENT AT 12 PPG
15	2/4/2018	1:55	LEAD DOWN HOLE		12	4		237	LEAD CEMENT DOWN HOLE AT 12 PPG
16	2/4/2018	2:05	50 BBLS GONE		12	6	50	279	50 BBLS LEAD CEMENT GONE/ 86 BBLS TOTAL
17	2/4/2018	2:11	BATCH UP TAIL		12.5	3		76	BATCH UP TAIL CEMENT AT 12.5 PPG
18	2/4/2018	2:15	20 BBLS GONE		12.5	6	20	307	20 BBLS TAIL CEMENT GONE/42 BBLS TOTAL
19	2/4/2018	2:21	SHUT DOWN						SHUT DOWN DROP TOP PLUG
20	2/4/2018	2:22	DISPLACEMENT		8.33	8		400	KICK OUT PLUG, START DISPLACEMENT
21	2/4/2018	2:28	50 BBLS GONE		8.33	6.5	50	520	50 BBLS GONE DISPLACEMENT
22	2/4/2018	2:29	CEMENT TO SURFACE		8.33	6.5	56	558	56 BBLS GONE, 40 BBLS OF CEMENT TO SURFACE
23	2/4/2018	2:40	BUMP PLUG		8.33	2	96	408	BUMP PLUG FCP-408 PSI TOOK TO 2045 HELD FOR 10 MINS
24	2/4/2018	2:50	CHECK FLOATS						FLOATS HELD .5 BBLS BACK
25	2/4/2018	2:52	STEACS/ RIG DOWN						STEACS RIG DOWN WITH BJ CREW
26	2/4/2018	2:55	RIG DOWN EQUIP						BJ CREW RIGS DOWN EQUIPMENT
27	2/4/2018	3:45	AAR						AAR MEETING WITH BJ CREW
28	2/4/2018	4:15	STEACS/ JOURNEY						STEACS MEETING WITH BJ CREW ON CONVOY BACK TO YARD
29	2/4/2018	4:30	DEPART LOCATION						BJ CREW DEPARTS LOCATION
30	2/4/2018		***MISC***						BUMPED PLUG FCP 408 PSI TOOK TO 2045 PSI HELD 10 MINS, FLOATS HELD .5 BBLS BACK, 40 BBLS OF CEMENT TO SURFACE. CALCULATED DISPLACEMENT WAS 96, ACTUAL DISPLACEMENT WAS 96, NO ISSUES DURING JOB. FULL RETURNS



Cementing Treatment



Start Date	2/6/2018	Well	Nichols 0994-13-20E
End Date	2/6/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep		API	05-077-10403
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)	Excess(%)	Grade	Thread
Previous Casing	8.10	8.63	24.00	1,549.00		J-55	ST&C
Open Hole	8.88			8,130.00	10.00		
Casing	4.00	4.50	11.60	8,120.00		L-80	LT&C

Shoe Length (ft): 87

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	
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)	10,690.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	8,552.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity		Job Pumped Through	
Centralizers Type		Top Connection Thread	8RD
Landing Collar Depth (ft)	8,037	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	Yes	10 sec SGS	5.00
Circulation Time (min)	65.00	10 min SGS	21.00
Circulation Rate (bpm)	10.00	30 min SGS	57.00
Circulation Volume (bbls)	650.00	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	
PV Mud In	21		
YP Mud In	16		

TEMPERATURE

Ambient Temperature (°F)	31.00	Slurry Cement Temperature (°F)	48.00
Mix Water Temperature (°F)	45.00	Flow Line Temperature (°F)	87.00

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	875	1,726.0000	307.3000
Tail Slurry	P70-X1	13.5000	1.8511	9.33	393	727.0000	129.4000
Displacement Final	Freshwater with Clay Stabilizer	8.3300				124.5000	124.5000

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	RETARDER, R-7C	0.3000	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	BONDING AGENT, BA-60	0.3000	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	DISPERSANT, CD-31	0.1000	BWOB
Lead Slurry	P100-X2	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	P70-X1	CEMENT, CLASS G	70.0000	PCT
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	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	P70-X1	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	P70-X1	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	P70-X1	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.2000	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

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Comments
2/6/2018 3:20 PM	CD Spacer	4.00	60.00	121.00	CD SPACER
2/6/2018 3:35 PM	P100-X2	6.00	307.30	317.00	LEAD
2/6/2018 4:33 PM	P70-X1	6.00	129.40	475.00	TAIL

Cementing Treatment



2/6/2018 5:13 PM	Freshwater with Clay Stabilizer	10.00	125.20	2,287.00	DISPLACEMENT
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	Min	Max	Avg
Pressure (psi)	121.00	2,287.00	1,204.00
Rate (bpm)	4.00	10.00	7.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	124.50	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	14.50	Amount of Spacer to Surface	12.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amount Bled Back After Job	0.75
Bump Plug Pressure (psi)	1,976.00	Total Volume Pumped (bbls)	630.00
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 District RIFLE
 Well Name NICHOLS 0994-13-20E Supervisor JAVIER CASTILLO
 Job Type LONG STRING Engineer GAGE PUTNAM



Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
2/6/2018	6:00	CALL OUT						ON LOCATION AT 15:00HRS
2/6/2018	10:20	MEETING						STEACS JOURNEY MANAGEMENT MEETING WITH BJ CREW
2/6/2018	10:30	LEAVE YARD						LEAVE YARD
2/6/2018	12:05	ARRIVE ON LOC.						ARRIVE ON LOCATION, RIG RUNNING CASING
2/6/2018	12:15	MEETING						STEACS SAFETY MEETING
2/6/2018	12:20	RIG UP						RIG UP PUMPING IRON STAYING AWAY FROM RED ZONE, RIG UP WATER HOSES, RIG UP BULK HOSES
2/6/2018	14:00	COMPLETE						RIG UP COMPLETE, RIG LANDED CASING AT 13:20HRS
2/6/2018	14:25	MEETING						PRE-JOB SAFETY MEETING WITH RIG CREW, RIG CIRCULATED 65 MINUTES AT 10BPM
2/6/2018	15:08	SPACER		8.34	2	5	257	FILL LINES
2/6/2018	15:11	TEST LINES					5200	PRESSURE TEST PUMPING IRON TO 5100PSI
2/6/2018	15:20	SPACER		11	4	60	121	PUMP WEIGHTED SPACER AT 11 PPG
2/6/2018	15:35	LEAD SLURRY		12.7				BEGIN LEAD SLURRY 875SKS AT 12.7PPG, 1.97YIELD, 11.11GAL/SK
2/6/2018	15:46	LEAD SLURRY		12.7	6	50	317	50BBLS PUMPED OF LEAD SLURRY
2/6/2018	15:55	LEAD SLURRY		12.7	6	50	315	100BBLS PUMPED OF LEAD SLURRY
2/6/2018	16:04	LEAD SLURRY		12.7	5.7	50	317	150BBLS PUMPED OF LEAD SLURRY
2/6/2018	16:13	LEAD SLURRY		12.7	5.7	50	329	200BBLS PUMPED OF LEAD SLURRY
2/6/2018	16:22	LEAD SLURRY		13.5	5.7	79	330	307BBLS PUMPED OF LEAD SLURRY
2/6/2018	16:42	TAIL SLURRY		13.5				BEGIN TAIL SLURRY, 393SKS AT 13.5PPG, 1.85YIELD, 9.33GAL/SK
2/6/2018	16:51	TAIL SLURRY		13.5	5.7	50	475	50BBLS PUMPED OF TAIL SLURRY
2/6/2018	16:53	TAIL SLURRY		13.5	5.7	79	457	129BBLS PUMPED OF TAIL SLURRY
2/6/2018	17:00	SHUTDOWN						SHUTDOWN/WASH LINES
2/6/2018	17:13	DISPLACEMENT		8.34				BEGIN DISPLACEMENT
2/6/2018	17:18	DISPLACEMENT		8.34	10	50	1681	50BBLS PUMPED OF DISPLACEMENT
2/6/2018	17:24	DISPLACEMENT		8.34	9	69	2100	100BBLS PUMPED OF DISPLACEMENT
2/6/2018	17:26	DISPLACEMENT		8.34	2.5	5.4	2287	SLOW RATE WITH 17BBLS LEFT OF DISPLACEMENT
2/6/2018	17:28	LAND TOP PLUG					3000	BUMP TOP PLUG, CIRCULATION THROUGH ENTIRE JOB
2/6/2018	17:38	CHECK FLOATS						HELD PSI FOR 10 MINUTES, PSI DID NOT HOLD ON CASING, FLOATS HELD, 0.75BBLS FLOW BACK
2/6/2018	17:50	TEST LINES						TEST BJ LINES, PSI HELD
2/6/2018	17:57	TEST CASING						PSI TEST CASING, PSI DID NOT HOLD
2/6/2018	18:00	TEST CASING		8.34	1	1.5	3000	TESTED CASING TO 3000, PSI FELL TO 279 PSI

Customer Name LARAMIE District RIFLE
 Well Name NICHOLS 0994-13-20E Supervisor JAVIER CASTILLO
 Job Type LONG STRING Engineer GAGE PUTNAM



Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
2/6/2018	18:08							RELEASE PSI, FLOW BACK 0.5BBL
2/6/2018	18:25	TEST CASING		8.35	1	0.6	1500	TESTED CASING TO 1500PSI, PSI DID NOT HOLD, FELL TO 1100 PSI
2/6/2018	18:26	RELEASE PSI						RELEASE PSI, FLOW BACK 0.5BBL
2/6/2018	18:30							SHUT IN HEAD
2/6/2018	19:00							CHECKED TO SEE IF FLOATS STILL HELD, FLOATS HELD AND RIG DOWN CMT HEAD
2/6/2018	19:05	MEETING						RIG DOWN MEETING
2/6/2018	19:10	RIG DOWN						PICKLE PUMP AND RIG DOWN
2/6/2018	19:45	RIG DOWN						RIG DOWN COMPLETE
2/6/2018	19:50							12BBLS CD SPACER TO SURFACE, CALCULATED TOP OF TAIL 5790ft
2/6/2018	20:00	LEAVE LOCATION						
2/6/2018	21:01							THANK YOU FOR YOUR BUSINESS FROM JAVIER AND CREW



LARAMIE 4 1/2 PRODUCTION

