



Laramie Energy

End of Well Cement Report

Nichols 0994-24-06E 05-077-10405

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

Quote #: 03243/03456

I Execution #: 01825/01951



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,

Zen Keith
Field Engineer III | (307) 757-7178 | 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



Start Date	12/14/2017	Well	Nichols 0994-24-06E
End Date	12/14/2017	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep		API	05-077-10405
Service Supervisor		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			1,562.00	75.00		
Casing	8.10	8.63	24.00	1,552.00		J-55	ST&C

Shoe Length (ft): 46

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	1,506.00
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	18.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8 ROUND
Landing Collar Depth (ft)	1,506	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)	98.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No

TEMPERATURE

Ambient Temperature (°F)	34.00	Slurry Cement Temperature (°F)
Mix Water Temperature (°F)	55.00	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	96.0000

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
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	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	CEMENT EXTENDER, GYPSUM, A-10	5.00	BWOB
Lead 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 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	CEMENT, ASTM TYPE III	100.00	PCT
Tail Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK
Tail Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
12/14/2017 3:06 PM	Fresh Water	4.50	40.00	197.00		
12/14/2017 3:21 PM	S100-12	5.00	85.50	325.00		
12/14/2017 3:40 PM	S100-12	2.50	42.10	71.00		
12/14/2017 3:51 PM	Water	7.00	94.50	378.00		

Cementing Treatment



	Min	Max	Avg
Pressure (psi)	0.00	3,000.00	450.00
Rate (bpm)	1.00	10.00	5.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	24.00
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)	518.00	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
 Well Name NICHOLS 24-06 E
 Job Type Surface

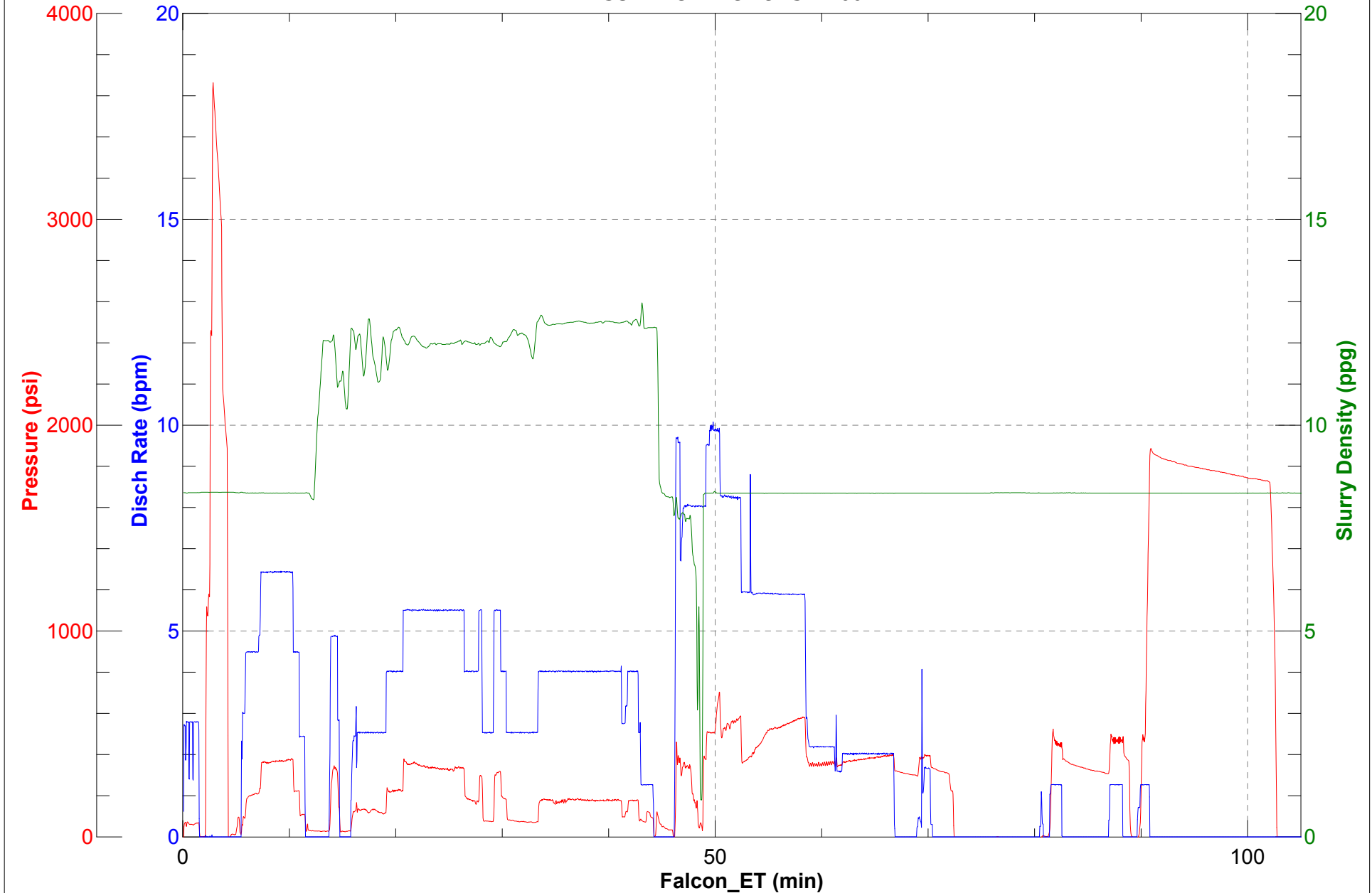
District Rifle
 Supervisor GLEN GILLIAM
 Engineer ZEN KEITH



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	12/14/2017	12:00	CALLOUT						BJ CREW CALLED OUT WITH RTS OF 13:00
2	12/14/2017	12:00	ON LOCATION						BJ CREW ON LOCATION READY TO RIG UP
3	12/14/2017	13:00	STEACS						STEACS MEETING WITH BJ CREW ON RIG UP AND JOB
4	12/14/2017	13:15	RIG UP						BJ CREW RIGS UP EQUIPMENT
5	12/14/2017	14:15	PIPE ON BOTTOM						RIG CIRCULATING
6	12/14/2017	14:40	SAFETY MEETING						SAFETY MEETING WITH RIG CREW
7	12/14/2017	15:00	STAB HEAD						BJ CREW STABS HEAD
8	12/14/2017	15:06	BROKE CIRCULATION		8.33	2.7	5	73	BROKE CIRCULATION FROM RIG
9	12/14/2017	15:08	TEST LINES						TEST LINES AT 3000 PSI
10	12/14/2017	15:10	SPACER		8.33	4.5	35	197	35 BBLS OF FRESH WATER SPACER
11	12/14/2017	15:20	BATCH UP LEAD		12				BATCH UP LEAD CEMENT AT 12 PPG
12	12/14/2017	15:21	LEAD DOWN HOLE		12	5		325	LEAD CEMENT DOWN HOLE AT 12 PPG
13	12/14/2017	15:33	50 BBLS GONE		12	5.5	50	331	50 BBLS GONE LEAD CEMENT, 73 BBLS TOTAL
14	12/14/2017	15:40	BATCH UP TAIL		12.5				BATCH UP TAIL CEMENT AT 12.5 PPG
15	12/14/2017	15:41	TAIL DOWN HOLE		12.5	2.5		71	TAIL CEMENT DOWN HOLE AT 12.5 PPG
16	12/14/2017	15:46	25 BBLS GONE		12.5	4	25	175	25 BBLS GONE TAIL CEMENT, 43 BBLS TOTAL
17	12/14/2017	15:51	DROP TOP PLUG						SHUT DOWN, DROP TOP PLUG
18	12/14/2017	15:58	50 BBLS GONE		8.33	8	50	562	50 BBLS GONE DISPLACEMENT
19	12/14/2017	16:38	BUMP PLUG		8.33	1	96	518	BUMP PLUG, FCP- 518 PSI
20	12/14/2017	16:48	CHECK FLOATS						FLOATS HELD .5 BBLS BACK
21	12/14/2017	17:00	STEACS						STEACS MEETING WITH BJ CREW ABOUT RIGGING DOWN
22	12/14/2017	17:05	RIG DOWN						BJ CREW RIGS DOWN EQUIPMENT AND WASH PUMP TRUCK
23	12/14/2017	17:45	JOB COMPLETE/AAR						BJ CREW DONE, JOB COMPLETE/AAR
24	12/14/2017		***MISC***						BUMPED PLUG, FCP-518 PSI, TOOK TO 1900 PSI FOR CASING TEST 10 MINS, FLOATS HELD .5 BBLS BACK, 24 BBLS OF CEMENT TO SURFACE, NO ISSUES DURING JOB



SURFACE NICHOLS 24-06 E



Cementing Treatment



Start Date	12/17/2017	Well	Nichols 0994-24-06E
End Date	12/17/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep	Roger Foster	API	05-077-10405
Service Supervisor	Javier Castillo	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
Open Hole	8.88			7,656.00	7,436.00	10.00		
Casing	4.00	4.50	11.60	7,654.00	7,436.00		L-80	LT&C
Previous Casing	8.10	8.63	24.00	1,552.00	1,496.00		J-55	ST&C

Shoe Length (ft): 80

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	7,574.00
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)	6,224.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	118	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8RD
Landing Collar Depth (ft)	7,574	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	16.00
Circulation Time (min)	-	10 min SGS	39.00
Circulation Rate (bpm)	-	30 min SGS	56.00
Circulation Volume (bbls)	-	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.70	Gas Units	0
Mud Density Out (ppg)	9.70		
PV Mud In	18		
PV Mud Out	18		
YP Mud In	16		
YP Mud Out	16		

TEMPERATURE

Ambient Temperature (°F)	25.00	Slurry Cement Temperature (°F)	85.00
Mix Water Temperature (°F)	85.00	Flow Line Temperature (°F)	96.00

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	789	1,556.0000	277.1000
Tail Slurry	P70-X1	13.5000	1.8511	9.33	393	727.0000	113.0000
Displacement Final	Freshwater with Clay Stabilizer	8.3300				0.0000	117.7000

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	GELLANT WATER, GW-86	0.80	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
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	BONDING AGENT, BA-60	0.30	BWOB
Lead Slurry	P100-X2	DISPERSANT, CD-31	0.10	BWOB
Lead Slurry	P100-X2	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
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	CEMENT, CLASS G	70.00	PCT
Tail Slurry	P70-X1	EXTENDER, BENTONITE	6.00	BWOB
Tail Slurry	P70-X1	Flyash (Rockies)	20.00	PCT
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
Tail Slurry	P70-X1	BONDING AGENT, BA-90	10.00	PCT
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)
12/17/2017 4:23 PM	CD Spacer	5.00	60.00	475.00
12/17/2017 4:50 PM	P100-X2	5.00	277.00	317.00
12/17/2017 5:43 PM	P70-X1	5.00	113.00	515.00
12/17/2017 6:16 PM	Freshwater with Clay Stabilizer	6.00	117.00	1,006.00

	Min	Max	Avg
Pressure (psi)	273.00	3,117.00	475.00
Rate (bpm)	5.00	5.00	5.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	117.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	117.00	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	1.25
Bump Plug Pressure (psi)	1,887.00	Total Volume Pumped (bbls)	570.00
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 0994-24-06E Supervisor JAVIER CASTILLO
 Job Type LONG STRING Engineer GAGE PUTNAM



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure	Comments
1	12/17/2017	8:00	CALL OUT						ON LOCATION AT 14:00HRS
2	12/17/2017	11:50	MEETING						STEACS JOURNEY MANAGEMENT MEETING WITH BJ CREW
3	12/17/2017	12:00	LEAVE YARD						LEAVE YARD
4	12/17/2017	14:00	ARRIVE ON LOC.						ARRIVE ON LOCATION
5	12/17/2017	14:15	MEETING						STEACS SAFETY MEETING
6	12/17/2017	14:25	RIG UP						PUT UP TARPS AND HEAT ON CEMENT PUMP, RIG UP PUMPING IRON STAYING AWAY FROM RED ZONE, RIG UP WATER HOSES, RIG UP BULK HOSES
7	12/17/2017	15:50	COMPLETE						RIG UP COMPLETE
9	12/17/2017	16:00	MEETING						PRE-JOB SAFETY MEETING WITH RIG CREW
10	12/17/2017	16:17	SPACER		8.34	2	5	430	FILL LINES
11	12/17/2017	16:19	TEST LINES					5400	PRESSURE TEST PUMPING IRON TO 5100PSI
12	12/17/2017	16:23	SPACER		8.34	5	60	475	PUMP WEIGHTED SPACER AT 11 PPG
19	12/17/2017	16:40	LEAD SLURRY		12.7				BEGIN LEAD SLURRY 12.7, 1.97, 11.07, SETUP TIME AT 70BC 5:26HRS
20	12/17/2017	16:50	LEAD SLURRY		12.7	5	50	317	50BBLS PUMPED OF LEAD SLURRY
21	12/17/2017	17:00	LEAD SLURRY		12.7	5	50	273	100BBLS PUMPED OF LEAD SLURRY
22	12/17/2017	17:10	LEAD SLURRY		12.7	5	50	279	150BBLS PUMPED OF LEAD SLURRY
23	12/17/2017	17:20	LEAD SLURRY		12.7	5	50	273	200BBLS PUMPED OF LEAD SLURRY
24	12/17/2017	17:30	LEAD SLURRY		13.5	5	77	344	277BBLS PUMPED OF LEAD SLURRY
25	12/17/2017	17:33	TAIL SLURRY		13.5				BEGIN TAIL SLURRY 13.5, 1.62, 9.33, SETUP TIME AT 70BC 4:57HRS
26	12/17/2017	17:43	TAIL SLURRY		13.5	5	50	515	50BBLS PUMPED OF TAIL SLURRY
27	12/17/2017	17:53	TAIL SLURRY		13.5	5	63	525	113BBLS PUMPED OF TAIL SLURRY
28	12/17/2017	17:58	SHUTDOWN						SHUTDOWN/WASH LINES
29	12/17/2017	18:08	DISPLACEMENT		8.4				BEGIN DISPLACEMENT
30	12/17/2017	18:16	DISPLACEMENT		8.4	6	50	1006	50BBLS PUMPED OF DISPLACEMENT
31	12/17/2017	18:24	DISPLACEMENT		8.4	6	50	1893	100BBLS PUMPED OF DISPLACEMENT
32	12/17/2017	18:27	DISPLACEMENT		8.4	2	17	1750	SLOW RATE WITH 17BBLS LEFT OF DISPLACEMENT
33	12/17/2017	18:35	LAND TOP PLUG					3117	BUMP TOP PLUG, CIRCULATION THROUGH ENTIRE JOB
34	12/17/2017	18:45	CHECK FLOATS						FLOATS HELD, 1.25BBLS FLOW BACK
35	12/17/2017	18:50	MEETING						RIG DOWN SAFETY MEETING
36	12/17/2017	19:00	RIG DOWN						RIG DOWN BJ EQUIPMENT
37	12/17/2017	20:30	RIG DOWN						RIG DOWN COMPLETE
38	12/17/2017	20:40	MEETING						AAR MEETING WITH BJ CREW
39	12/17/2017	21:00	DEPART						LEAVE LOCATION
40	12/17/2017								ESTIMATED TOP OF TAIL AT 4900FT, 30BBLS OF WEIGHTED SPACER CIRCULATED TO SURFACE
41	12/17/2017								THANK YOU FOR YOUR BUSINESS FROM JAVIER AND CREW



LARAMIE 4 1/2 PRODUCTION

