



Laramie Energy

End of Well Cement Report

Nichols 0994-24-01W 05-077-10418

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

Quote #: 04267/04268

I Execution #: 02669/02667



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	1/12/2018	Well	Nichols 0994-24-01W
End Date	1/13/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep	ROGER FOSTER	API	05-077-10418
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			1,566.00	75.00		
Casing	8.10	8.63	24.00	1,556.00		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)	1,513.00
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	No	Pipe Movement	None
Centralizers Quantity		Job Pumped Through	No Manifold
Centralizers Type		Top Connection Thread	8 ROUND
Landing Collar Depth (ft)	1,513	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	No	10 sec SGS	
Circulation Time (min)	60	10 min SGS	
Circulation Rate (bpm)	10	30 min SGS	
Circulation Volume (bbls)	620	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No

TEMPERATURE

Ambient Temperature (°F)	17.00	Slurry Cement Temperature (°F)
Mix Water Temperature (°F)	45.00	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	96.000

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	IntegraSeal CELLO	0.1300	LBS/SK
Lead Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A- 7P, PELLETS	2.0000	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	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.0000	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	IntegraSeal CELLO	0.1300	LBS/SK

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
1/13/2018 12:52 AM	Fresh Water	4.00	40.00	52.00		
1/13/2018 1:12 AM	S100-12	4.00	85.50	278.00		
1/13/2018 1:28 AM	S100-12	3.00	42.10	51.00		
1/13/2018 1:40 AM	Water	4.00	96.00	31.00		

	Min	Max	Avg
Pressure (psi)	20.00	3,000.00	225.00
Rate (bpm)	1.00	7.00	5.50

Cementing Treatment



DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	26.00
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	1.00
Bump Plug Pressure (psi)	325	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

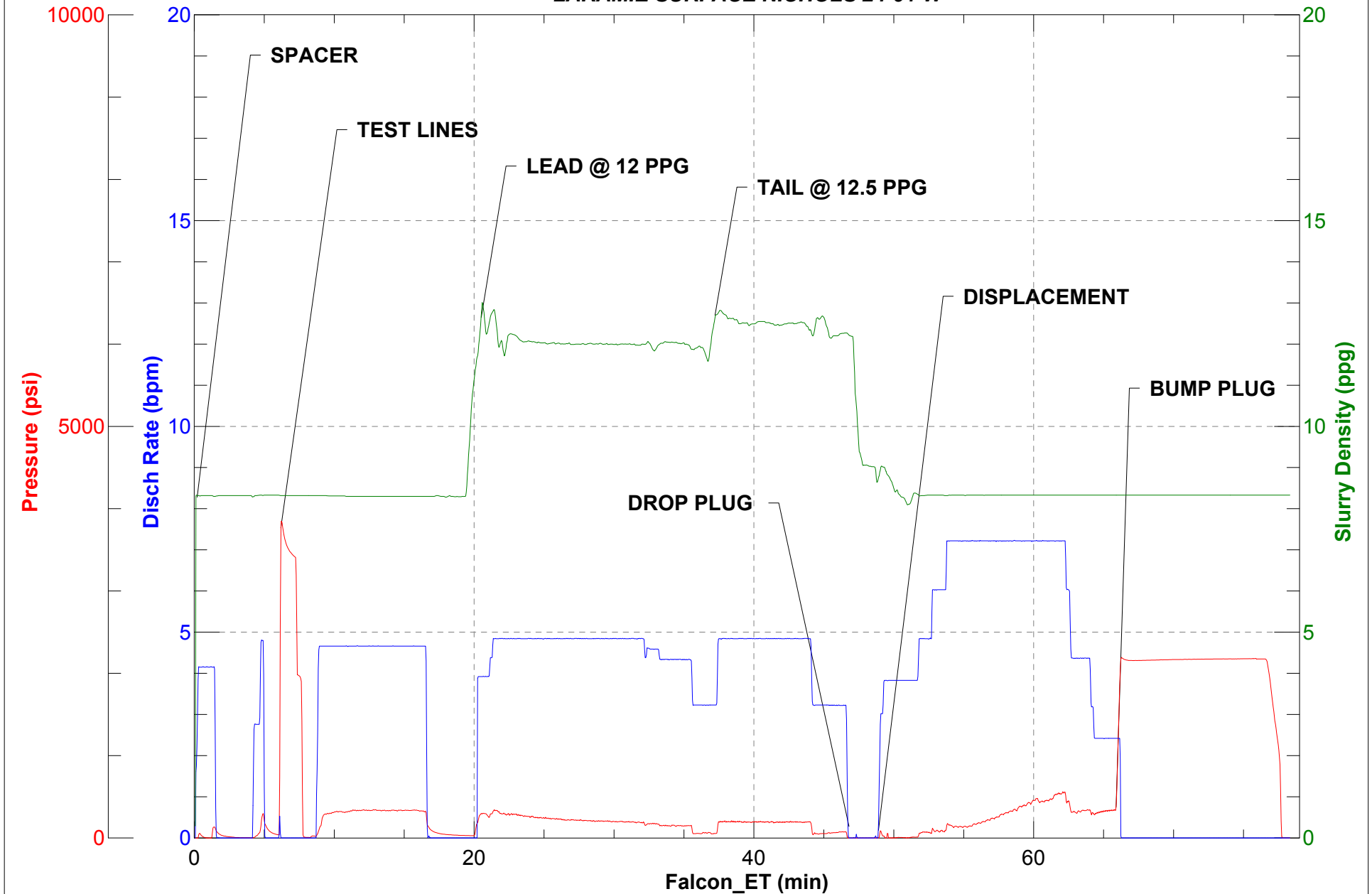


Customer Name LARAMIE District Rifle
 Well Name NICHOLS 24-01 W Supervisor GLEN GILLIAM
 Job Type Surface Engineer ZEN KEITH

Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure	Comments
1	1/12/2018	5:30	CALLOUT						BJ CREW CALLED OUT TO LOCATION WITH AN RTS OF 00:00 1-13-18
2	1/12/2018	21:00	YARD TIME						ALL OF BJ CREW ARRIVES AT YARD
3	1/12/2018	21:15	STEACS/JOURNEY						STEACS/ JOURNEY WITH BJ CREW ON TRAVELING TO LOCATION
4	1/12/2018	21:20	DEPART YARD						BJ CREW DEPARTS YARD
5	1/12/2018	22:30	ARRIVE ON LOCATION						BJ CREW ARRIVES ON LOCATION
6	1/12/2018	22:40	STEACS RIG UP						STEACS MEETING WITH BJ CREW ON RIG UP AND JOB PROCEDURE
7	1/12/2018	22:45	RIG UP EQUIPMENT						BJ CREW RIGS UP EQUIPMENT
8	1/12/2018	23:15	CASING						RIG RUNNING CASING
9	1/13/2018	0:30	SAFETY MEETING						SAFETY MEETING WITH RIG CREW
10	1/13/2018	0:40	STAB HEAD						BJ CREW STABS HEAD
11	1/13/2018	0:52	FILL LINES		8.33	4	5	52	FILL LINES WITH 5 BBLS FRESH WATER
12	1/13/2018	0:57	TEST LINES						TEST LINES AT 3000 PSI
13	1/13/2018	1:00	WATER SPACER		8.33	4.5	35	230	35 BBLS FRESH WATER SPACER
14	1/13/2018	1:10	BATCH UP LEAD		12				BATCH UP LEAD CEMENT AT 12 PPG
15	1/13/2018	1:12	LEAD DOWN HOLE		12	4		278	LEAD CEMENT DOWN HOLE AT 12 PPG
16	1/13/2018	1:22	50 BBLS GONE		12	5	50	200	50 BBLS LEAD CEMENT GONE/ 86 BBLS TOTAL
17	1/13/2018	1:28	BATCH UP TAIL		12.5				BATCH UP TAIL CEMENT AT 12.5 PPG
18	1/13/2018	1:29	TAIL DOWN HOLE		12.5	3		51	TAIL CEMENT DOWN HOLE AT 12.5 PPG
19	1/13/2018	1:33	20 BBLS GONE		12.5	5	20	190	20 BBLS TAIL CEMENT GONE/ 42 BBLS TOTAL
20	1/13/2018	1:40	SHUT DOWN						SHUT DOWN DROP TOP PLUG
21	1/13/2018	1:40	START DISPLACEMENT		8.33	4		31	KICK OUT PLUG, START DISPLACEMENT
22	1/13/2018	1:49	50 BBLS GONE		8.33	7	50	280	50 BBLS GONE DISPLACEMENT
23	1/13/2018	1:52	CEMENT TO SURFACE		8.33	7	70	250	70 BBLS AWAY, CEMENT TO SURFACE, 26 BBLS
24	1/13/2018	1:58	BUMP PLUG		8.33	2.5	96	325	BUMP PLUG FCP-325 PSI TOOK TO 2160 PSI HELD FOR 10 MINS
25	1/13/2018	2:08	CHECK FLOATS						FLOATS HELD 1 BBL BACK
26	1/13/2018	2:15	STEACS RIG DOWN						STEACS MEETING WITH BJ CREW ON RIG DOWN AND WASH PUMP
27	1/13/2018	2:25	RIG DOWN EQUIPMENT						BJ CREW RIGS DOWN EQUIPMENT
28	1/13/2018	3:00	AAR MEETING						AAR MEETING WITH BJ CREW
29	1/13/2018	3:15	STEACS/ JOURNEY						STEACS JOURNEY WITH BJ CREW ON CONVOY BACK TO YARD
30	1/13/2018	3:45	DEPART LOCATION						BJ CREW DEPARTS LOCATION
31	1/13/2018		***MISC***						BUMP PLUG FCP-325 PSI TOOK TO 2160 PSI HELD FOR 10 MINS, 26 BBLS OF CEMENT TO SURFACE, FLOATS HELD 1 BBL BACK, NO ISSUES DURING JOB, FULL RETURNS



LARAMIE SURFACE NICHOLS 24-01 W



Cementing Treatment



Start Date	1/16/2018	Well	Nichols 0994-24-01W
End Date	1/16/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep	Matt Settles	API	05-077-10418
Service Supervisor	Shaun Clark	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	1,477.00		J-55	ST&C
Casing	4.00	4.50	11.60	7,838.00	7,838.00		L-80	LT&C
Open Hole	8.88			7,848.00	7,848.00	10.00		

Shoe Length (ft): 79

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	7,758.50
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)	6,048.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	5,000.00
Centralizers Used	No	Pipe Movement	None
Centralizers Quantity	143.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8 RD
Landing Collar Depth (ft)	7,758	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)	60.00	10 min SGS	44.00
Circulation Rate (bpm)	7.00	30 min SGS	67.00
Circulation Volume (bbls)	180.00	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)	9.90		
PV Mud In	72		
PV Mud Out	72		
YP Mud In	48		
YP Mud Out	48		

TEMPERATURE

Ambient Temperature (°F)	7.00	Slurry Cement Temperature (°F)	50.00
Mix Water Temperature (°F)	40.00	Flow Line Temperature (°F)	122.00

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	827	1,629.0000	290.0000
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	120.9000

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	GELLANT WATER, GW-86	0.8000	PPB
Spacer / Pre Flush / Flush	CD Spacer	R-6 LOW TEMP RETARDER 50 LB BAG BJS	1.4000	PPB
Lead Slurry	P100-X2	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.5000	BWOB
Lead Slurry	P100-X2	BONDING AGENT, BA-60	0.3000	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	CEMENT, ASTM TYPE III	100.0000	PCT
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	Flyash (Rockies)	20.0000	PCT
Tail Slurry	P70-X1	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.2000	BWOB
Tail Slurry	P70-X1	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	P70-X1	SAND, S-8, Silica Flour, 200 Mesh	25.0000	BWOB
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	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)
1/16/2018 8:00 AM	CD Spacer	5.00	60.00	157.00
1/16/2018 10:26 AM	P100-X2	5.00	290.00	400.00
1/16/2018 11:17 AM	P70-X1	5.00	129.40	200.00
1/16/2018 11:54 AM	Freshwater with Clay Stabilizer	10.00	120.90	600.00

	Min	Max	Avg
Pressure (psi)	157.00	600.00	339.25
Rate (bpm)	5.00	10.00	6.25

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	121.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	120.00	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)	3,000.00	Total Volume Pumped (bbls)	589.50
Were Returns Planned at Surface	No	Top Out Cement Spotted	No
Cement returns During Job	None	Lost Circulation During Cement Job	No

Customer Name Larmie Energy District Rifle
 Well Name Nichols 0994-24-01W Supervisor Shaun Clark
 Job Type Long String 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	1/16/2018	5:00	Callout						CREW CALLED OUT RTS 0700 hr 1/16/18
2	1/16/2018	5:30	Hold Steacs/Leave yard						Leave Rifle Yard
3	1/16/2018	6:30	Arrive location						ARRIVED AT 6:30
4	1/16/2018	6:35	Hold Steacs						Hold Steacs
5	1/16/2018	7:00	Spot trucks/ Rig up						Spot trucks/ Rig up
6	1/16/2018	7:30	Wait on casing run						Bj on standby waiting on rig
7	1/16/2018	8:30	On bottom w casing						Rig on Bottom with casing
8	1/16/2018	9:30	Safety Meeting						Hold pre job safety meeting with rig crew
9	1/16/2018	10:00	Stab Head						Stab Head
10	1/16/2018	10:00	Fill Lines		8.33	2	5	287	Fill lines
11	1/16/2018	10:02	Pressure test						Pressure test to 5000 psi
12	1/16/2018	10:05	CD Spacer		11	4.9	10	160	11 PPG Weighted spacer
13	1/16/2018	10:15	CD Spacer		11	5.7	60	292	60 BBL spacer gone
14	1/16/2018	10:26	Batch up Cement		12.7	0	0	NA	Batch up Lead cement to 12.7 ppg (615 sacks/Y-
15	1/16/2018	10:36	Pump Lead @ 12.7ppg		12.7	5.7	50	296	50 BBL lead gone
16	1/16/2018	10:45	Pump Lead		12.7	5.7	100	300	100 BBL Lead gone
17	1/16/2018	11:00	Pump Lead		12.5	5.7	150	310	150 BBL Lead gone
18	1/16/2018	11:09	Pump Lead		12.7	5.7	200	338	200 BBL Lead gone
19	1/16/2018	11:19	Pump Lead		12.5	2.3	218	127	Slow rate do to poor delivery
20	1/16/2018	11:20	Bring up Tail @13.5ppg		13	2.3	3	129	Bring on Tail @13.5 ppg (110 sacks / Y- 1.85 / MW- 9.34)
21	1/16/2018	11:23	Pump Tail		13.5	2.5	50	132	Pump 50 BBL Tail
22	1/16/2018	11:27	Pump Tail		13.5	4.9	60	185	Pump 100 BBL tail slow rate
23	1/16/2018	11:35	Pump Tail		13.5	2.2	100	129	Pump 129 BBL tail
24	1/16/2018	11:46	End Cement		13.5	0	129	0	Shut down on cement
25	1/16/2018	11:48	Drop Plug/wash Lines						Wash lines drop plug
26	1/16/2018	11:53	Start Displacement						Start displacement W. 3% Kcl
27	1/16/2018	11:54	Pump Displacement		8.3	6	40	635	Pump 10 BBL displacement
28	1/16/2018	11:56	Pump Displacement		8.5	8	50	850	Pump 50 BBL displacement
29	1/16/2018	12:06	Pump Displacement		8.5	8	130	1834	Pump 100 BBL displacement
30	1/16/2018	12:09	Pump Displacement		8.5	6	110	1607	Pump 120 BBL displacement, slow rate to bump
31	1/16/2018	12:12	Bump Plug		8.5	4	120	3000	Bump Plug to 3000psi Hold pressure 15 min for casing
32	1/16/2018	12:27	Casing test		8.5	0	120	3300	Hold pressure 15 min.
33	1/16/2018	12:27	Check Floats						Bleed off / 1.5 BBL back
34	1/16/2018	12:30	Hold Rig down Steacs						Rig down meeting with BJ crew
35	1/16/2018	13:32	Rig down						Rig down
36	1/16/2018	14:00	Journey Management						Discuss decending hill / Journey management
37	1/16/2018	14:30	End Job						End Job
38	1/16/2018	14:30	Leave location						Leave location

