



Laramie Energy

End of Well Cement Report

Nichols 0994-24-09E 05-077-10410

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

Quote #: 02121/02137

I Execution #: 01091/01223



Laramie Energy

Attention: Mr. Aaron Duncan | 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	11/18/2017	Well	Nichols 0994-24-09E
End Date	2/28/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep		API	05-077-10410
Service Supervisor		Formation	
Field Ticket No.	24-09E Surface	Rig	
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			1,569.00	1,569.00	75.00		
Casing	8.10	8.63	24.00	1,524.00	1,508.00		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	8.650	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)	2,950.00
Top Plug Size	8.650	Max Casing Pressure - Operated (psi)	2,360.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	18.00	Job Pumped Through	No Manifold
Centralizers Type	Rigid	Top Connection Thread	8.625
Landing Collar Depth (ft)	1,484	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)		10 min SGS	
Circulation Rate (bpm)		30 min SGS	
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)	9.10	Gas Units	
Mud Density Out (ppg)	9.10		
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

TEMPERATURE

Ambient Temperature (°F)	20.00	Slurry Cement Temperature (°F)	38.00
Mix Water Temperature (°F)	36.00	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	2.2239	12.60	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	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.00	LBS/SK
Lead Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK
Lead Slurry	S100-12	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Lead Slurry	S100-12	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.00	BWOB
Lead Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
Tail Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
Tail Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK
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	CEMENT, ASTM TYPE III	100.00	PCT

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
	Fresh Water	5.00	40.00			
	S100-12	5.00	85.50			
	S100-12	5.00	42.10			
	Water	9.00	96.00			

	Min	Max	Avg
Pressure (psi)	0.00	3,000.00	800.00
Rate (bpm)	2.00	9.00	5.00

DISPLACEMENT AND END OF JOB SUMMARY

Cementing Treatment



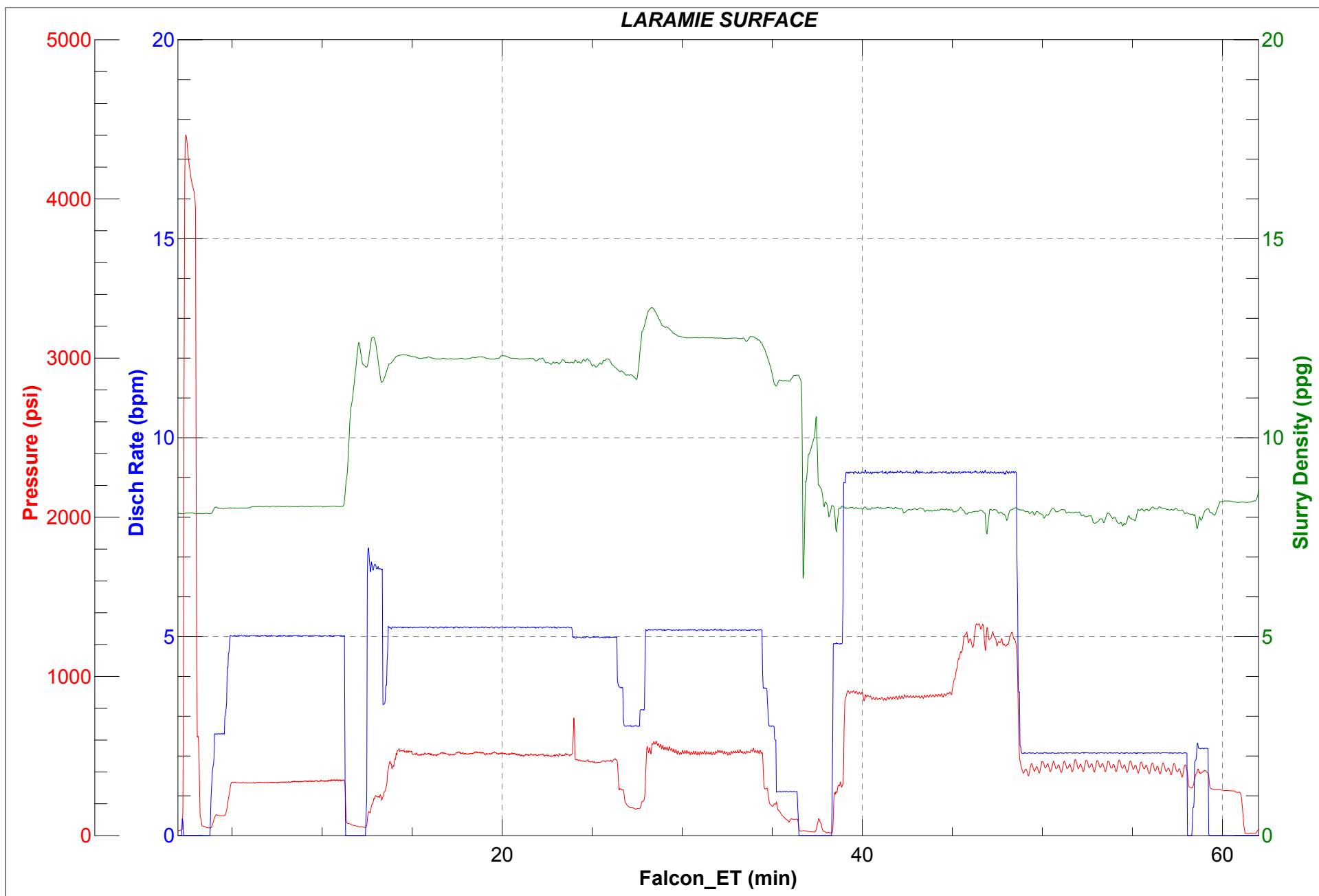
Displaced By	BJ	Amount of Cement Returned/Reversed	17.00
Calculated Displacement Volume (bbls)	96.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	98.00	Amount of Spacer to Surface	
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	No	Amount Bled Back After Job	0.50
Bump Plug Pressure (psi)		Total Volume Pumped (bbls)	98.00
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 24-09E
 Job Type SURFACE

District RIFLE
 Supervisor KEN ESTEP
 Engineer ZEN



Seq No.	Start Date	Start Time	Event	Equipment	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	11/19/2017	13:00	CALL OUT						CALL OUT-CUSTOMER WANTS CREW ON LOCATION AT 22:00
2	11/19/2017	16:15	SAFETY MEETING						JOURNEY MANAGEMENT SAFETY MEETING WITH CREW
3	11/19/2017	16:30	DEPART YARD						LEAVE YARD FOR LOCATION
4	11/19/2017	19:30	ARRIVE ON LOCATION						ON LOCATION
5	11/19/2017	19:45	SAFETY MEETING						STEACS SAFETY MEETING WITH CREW
6	11/19/2017	20:00	RIG UP						RIG UP IRON AND HOSES
7	11/19/2017	21:00	WAIT ON RIG						WAIT ON RIG TO RUN CASING
8	11/20/2017	1:00	SAFETY MEETING						SAFETY MEETING WITH RIG CREW AND CREW
9	11/20/2017	1:54	RIG UP						RIG UP CEMENT HEAD AND HOSES
10	11/20/2017	2:00	PROBLEM						FROZEN TUB SUCTION VALVE ON TRUCK
11	11/20/2017	2:31	PUMP H2O		8.33	2	5	92	PUMP 5BBLs H2O
12	11/20/2017	2:38	TEST LINES					3508	PRESSURE TEST LINES TO 3500
13	11/20/2017	2:42	PUMP H2O		8.33	2.5	35	126	PUMP 35BBLs H2O
14	11/20/2017	2:51	PUMP LEAD CEMENT		12	5	75	453	PUMP 191 SKS LEAD CEMENT @ 12PPG 2.53 YEILD 14.89GAL/SK 86BBLs
15	11/20/2017	3:07	PUMP TAIL CEMENT		12.5	5	37	571	PUMP 107 SKS TAIL CEMENT @ 12.5PPG 2.22 YEILD 12.6GAL/SK 42BBLs
16	11/20/2017	3:15	SHUT DOWN						SHUT DOWN DROP TOP PLUG
17	11/20/2017	3:17	DISPLACEMENT		8.33	9		886	PUMP FRESH WATER DISPLACEMENT
18	11/20/2017	3:21	DISPLACEMENT		8.33	9	30	886	30BBLs PUMPED
19	11/20/2017	3:24	DISPLACEMENT		8.33	9	60	1281	60BBLs PUMPED
20	11/20/2017	3:27	CEMENT TO SURFACE				79	1274	CEMENT TO SURFACE @ 79BBLs PUMPED
21	11/20/2017	3:28	SLOW RATE		8.33	2	86	395	SLOW RATE @ 86BBLs PUMPED
22	11/20/2017	3:29	SHUT DOWN				98	430	SHUT DOWN WITH 98BBLs DISPLACEMENT PUMPED/PLUG DID NOT LAND/STUCK IN CEMENT HEAD
23	11/20/2017	3:31	CHECK FLOAT						CHECK FLOATS/HELD 1/2BBL BACK
24	11/20/2017	3:33	PRE RIG DOWN						PRE RIG DOWN STEACS MEETING WITH CREW
25	11/20/2017	3:50	RIG DOWN						WASH PUMP UP/PICKLE PUMP/RIG DOWN HEAD AND IRON
26	11/20/2017	5:00	SAFETY MEETING						JOURNEY MANAGEMENT SAFETY MEETING WITH CREW
27	11/20/2017	5:30	DEPART LOCATION						LEAVE LOCATION



Cementing Treatment



Start Date	11/18/2017	Well	Nichols 0994-24-09E
End Date	2/28/2018	County	MESA
Client	LARAMIE ENERGY	State/Province	CO
Client Field Rep	Roger Foster	API	05-077-10410
Service Supervisor	Andrew Linn	Formation	-
Field Ticket No.	FT-01223-K4M9S30202-39597	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	1,508.00		J-55	ST&C
Open Hole	8.88			7,622.00	7,622.00	10.00		
Casing	4.00	4.50	11.60	7,612.00	7,612.00		L-80	LT&C

Shoe Length (ft): 80

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	7,521.00
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)	4,960.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	3,968.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	115.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	8 rnd.
Landing Collar Depth (ft)	7,529	Top Connection Size	4.5

Cementing Treatment



CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Solids Present at End of Circulation	Yes
Circulation Prior to Job	Yes	10 sec SGS	9.00
Circulation Time (min)	180.00	10 min SGS	39.00
Circulation Rate (bpm)	5.00	30 min SGS	58.00
Circulation Volume (bbls)	900.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.20	Gas Units	0
Mud Density Out (ppg)	9.30		
PV Mud In	26		
PV Mud Out	26		
YP Mud In	25		
YP Mud Out	25		

TEMPERATURE

Ambient Temperature (°F)	42.00	Slurry Cement Temperature (°F)	62.00
Mix Water Temperature (°F)	65.40	Flow Line Temperature (°F)	51.00

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	781	1,543.0000	275.4100
Tail Slurry	P70-X1	13.5000	1.9033	9.59	381	725.0000	129.0000
Displacement Final	Freshwater with Clay Stabilizer	8.3300				0.0000	117.0000

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Spacer	GELLANT WATER, GW-86	0.80	PPB
Spacer / Pre Flush / Flush	CD Spacer	SAND, S-8, Silica Flour, 200 Mesh	179.97	PPB
Spacer / Pre Flush / Flush	CD Spacer	R-6 LOW TEMP RETARDER 50 LB BAG BJS	1.40	PPB
Spacer / Pre Flush / Flush	CD Spacer	Spacer Surfactant, SS-247, (BJS Only)	0.80	GPB
Lead Slurry	P100-X2	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	P100-X2	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.50	BWOB
Lead Slurry	P100-X2	GELLANT WATER, GW-86	0.10	BWOB
Lead Slurry	P100-X2	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Lead Slurry	P100-X2	BONDING AGENT, BA-60	0.30	BWOB
Lead Slurry	P100-X2	DISPERSANT, CD-31	0.10	BWOB
Tail Slurry	P70-X1	Flyash (Rockies)	20.00	PCT
Tail Slurry	P70-X1	CEMENT, CLASS G	70.00	PCT
Tail Slurry	P70-X1	R-6 LOW TEMP RETARDER 50 LB BAG BJS	0.30	BWOB
Tail Slurry	P70-X1	AXE-20	10.00	PCT
Tail Slurry	P70-X1	FLUID LOSS, FL-24, (BJS Only)	0.40	BWOB
Tail Slurry	P70-X1	BONDING AGENT, BA-60	0.20	BWOB
Tail Slurry	P70-X1	SAND, S-8, Silica Flour, 200 Mesh	25.00	BWOB
Tail Slurry	P70-X1	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Tail Slurry	P70-X1	EXTENDER, BENTONITE	6.00	BWOB
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)
11/25/2017 2:07 PM	CD Spacer	6.50	60.00	120.00
11/25/2017 2:26 PM	P100-X2	5.50	275.40	323.00
11/25/2017 3:15 PM	P70-X1	5.50	129.00	423.00
11/25/2017 3:46 PM	Freshwater with Clay Stabilizer	7.00	117.00	300.00

	Min	Max	Avg
Pressure (psi)	120.00	2,930.00	435.00
Rate (bpm)	2.00	10.00	5.50

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	116.57	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	116.00	Amount of Spacer to Surface	20.00
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)	1,487.00	Total Volume Pumped (bbls)	581.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement returns During Job	None	Lost Circulation During Cement Job	No

Customer Name LARAMIE District Rifle
 Well Name NICHOLS 24-09E Supervisor ANDREW LINN
 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 (psi)	Comments
1	11/25/2017	2:30	CALL OUT						CALL OUT ON LOCATION TIME OF 09:00
2	11/25/2017	4:30	STEACS						JOURNEY MANAGEMENT SAFETY MEETING
3	11/25/2017	5:15	LEAVE YARD						DEPART RIFLE YARD FOR H&P 290
4	11/25/2017	8:00	ARRIVE ON LOCATION						ARRIVE ON H&P 290
5	11/25/2017	8:05	SITE ASSESSMENT						PERFORM SITE ASSESSMENT
6	11/25/2017	8:15	STEACS						PRE RIG UP SAFETY MEETING
7	11/25/2017	8:30	RIG UP						SPOT IN EQUIPMENT AND RIG UP ALL GROUND EQUIPMENT
8	11/25/2017	11:30	STEACS						PRE JOB SAFETY MEETING WITH RIG CREW AND ALL BJ SERVICES CEMENT CREW
9	11/25/2017	11:45	STAND BY						RIG WAS HAVING ISSUES CIRCULATING. HOLE WAS BRIDGING OFF
									LOAD PLUGS IN PLUG CONTAINER, STAB PLUG CONTAINER AND HOOK LINES TO PLUG CONTAINER
10	11/25/2017	13:45	RIG UP						
11	11/25/2017	13:54	FILL LINES		8.33	2	5	445	FILL LINES WITH 5 BBLs. OF FRESH WATER
12		13:57	DROP PLUG						DROP BOTTOM PLUG
13	11/25/2017	13:58	PRESSURE TEST					5205	PRESSURE TEST TO 5205 PSI PRESSURE HELD
14	11/25/2017		SPACER		8.33	1	10	114	FRESH WATER SPACER WHILE BRINGING SPACER TO WEIGHT
15	11/25/2017	14:23	SPACER		11	6.5	57	120	WEIGHTED SPACER 11 PPG. WITH 48 GALS. OF ASF-20
									LEAD CEMENT 12.7 PPG. 781 SKS. 1.98 FT3/SK 11.11 GAL/SK. REQUIRING 206.59 BBLs. OF MIX WATER HEIGHT OF LEAD IS 4465.94 FT. WITH A TOP OF 0 FT. WEIGHT VERIFIED WITH MUD SCALES
16	11/25/2017	14:26	LEAD		12.7	5.5	5	342	
17	11/25/2017	14:36	LEAD		12.7	5.5	50	323	LEAD CEMENT
18	11/25/2017	14:47	LEAD		12.7	5.5	100	309	LEAD CEMENT
19	11/25/2017	14:56	LEAD		12.7	5.5	150	373	LEAD CEMENT
20	11/25/2017	15:03	LEAD		12.7	5.5	200	368	LEAD CEMENT
21	11/25/2017	15:15	LEAD		12.7	4.5	250	274	FINISHED PUMPING LEAD CEMENT
									TAIL CEMENT 13.5 PPG. 381 SKS. 1.90 FT3/SK 9.59 GAL/SK. REQUIRING 87 BBLs. OF MIX WATER HEIGHT OF TAIL IS 3146.06 FT. TOP OF TAIL IS 4465.94 FT. WEIGHT VERIFIED WITH MUD SCALES.
22	11/25/2017	15:17	TAIL		13.5	5.5	10	423	
23	11/25/2017	15:24	TAIL		13.5	5.5	50	467	TAIL CEMENT
24	11/25/2017	15:34	TAIL		13.5	5.5	100	552	TAIL CEMENT
25	11/25/2017	15:38	TAIL		13.5	4.5	124	286	FINISHED PUMPING TAIL CEMENT
26	11/25/2017	15:38	SHUT DOWN						SHUT DOWN
27	11/25/2017	15:39	WASH PUMPS & LINES						WASH PUMP AND LINES TO 3-SIDED TANK
28	11/25/2017	15:46	DROP PLUG						DROPPED TOP PLUG, VERIFIED BY COMPANY MAN
29	11/25/2017	15:47	DISPLACEMENT		8.33	7	10	300	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
30	11/25/2017	15:49	DISPLACEMENT		8.33	6	20	416	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
31	11/25/2017	15:51	DISPLACEMENT		8.33	10	30	1156	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
32	11/25/2017	15:55	DISPLACEMENT		8.33	10	70	1540	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
33	11/25/2017	15:56	DISPLACEMENT		8.33	9.5	80	1687	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
34	11/25/2017	15:59	DISPLACEMENT		8.33	8.5	100	1804	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
35	11/25/2017	16:00	DISPLACEMENT		8.33	4	106	1487	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
36	11/25/2017	16:00	SPACER TO SURFACE						10 BBLs. OF WEIGHTED SPACER TO SURFACE
37	11/25/2017	16:02	DISPLACEMENT		8.33	4	116	1506	FRESH WATER DISPLACEMENT WITH 48 GALS. OF ASF-50
38	11/25/2017	16:02	CASING TEST					2930	PRESSURED UP TO 2930 PSI. AND HELD FOR 10 MINS.
39	11/25/2017	16:14	CHECK FLOATS						CHECK FLOATS FLOATS HELD 1 1/2 BBLs. BACK
40	11/25/2017	16:16	STEACS						PRE RIG DOWN SAFETY MEETING WITH RIG CREW
41	11/25/2017	16:20	RIG DOWN						RIG DOWN RIG FLOOR
42	11/25/2017	16:20	WASH PUMPS & LINES						WASH PUMPS AND LINES AND PICKLED PUMP AND BLEW DOWN SILOS
43	11/25/2017	16:40	STEACS						PRE RIG DOWN SAFETY MEETING WITH ALL BJ SERVICES CEMENT CREW
44	11/25/2017	16:50	RIG DOWN						RIG DOWN ALL EQUIPMENT
45	11/25/2017	17:15	AAR						AFTER ACTION REVIEW
46	11/25/2017	17:20	STEACS						PRE CONVOY SAFETY MEETING. PUMP AND CURTAIN SIDE AND PICKUP STAYED ON LOCATION FOR SURFACE
47	11/25/2017	17:30	DEPART FROM LOCATION						BULK TRUCK DEPARTED FROM LOCATION. THANK YOU FOR USING BJ SERVICES, ANDREW LINN AND CREW

