



Laramie Energy

End of Well Cement Report

Nichols Federal 0994-24-20E 05-077-10383

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

Quote #: 11783/11784

I Execution #: 06789/06882



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	5/16/2018	Field Ticket#	FT-06789-D4Y8D10202-91936
End Date	5/17/2018	Well	Nichols Federal 0994-24-20E
Client	LARAMIE ENERGY	API#	05-077-10383
Client Field Rep.	Matt Settles	Well Classification	
Service Sup.	Shaun Clark	County	MESA
District	Rifle, CO	State/Province	CO
Type of Job	Surface	Formation	
Execution ID	EXC-06789-D4Y8D102	Rig	H&P 290
Project ID	PRJ1006818		

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			1,571.00	40.00		
Casing	8.02	8.63	28.00	1,565.00		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)	1,519.00
Bottom Plug Size	8.625	Max Casing Pressure - Rated (psi)	6,080.00
Top Plug Used?	Yes	Max Casing Pressure - Operated (psi)	3,000.00
Top Plug Provided By	Non BJ	Pipe Movement	None
Top Plug Size	8.625	Job Pumped Through	Manifold
Centralizers Used	Yes	Top Connection Thread	8RD
Centralizers Quantity	4.00	Top Connection Size	8.625
Centralizers Type	Bow		
Landing Collar Depth (ft)	1,490		

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	4.00
Circulation Time (min)	60.00	10 min SGS	10.00
Circulation Rate (bpm)	6.00	30 min SGS	20.00
Circulation Volume (bbls)	360.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.40	Gas Units	0
PV Mud In	6		
YP Mud In	8		

TEMPERATURE

Ambient Temperature (°F)	49.00	Slurry Cement Temperature (°F)	65.00
Mix Water Temperature (°F)	55.00	Flow Line Temperature (°F)	85.00

BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	Fresh Water	8.3300			0.00				40.0000
Lead Slurry	BJCem S100.3.01D	12.0000	2.5329	14.89	0.00	1,030.00	154	397.0000	70.7000
Tail Slurry	BJCem S100.3.01D	12.5000	2.2282	12.62	1,030.00	500.00	87	192.0000	34.2000
Displacement Final	Water	8.3300			0.00			0.0000	94.0000

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Lead Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem S100.3.01D	CEMENT EXTENDER,SODIUM METASILICATE A-2 ANHYDROUS	2.0000	LBS/SK
Lead Slurry	BJCem S100.3.01D	Foam Preventer, FP-25	0.3000	BWOB
Lead Slurry	BJCem S100.3.01D	IntegraSeal CELLO	0.1300	LBS/SK
Lead Slurry	BJCem S100.3.01D	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Lead Slurry	BJCem S100.3.01D	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Tail Slurry	BJCem S100.3.01D	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Tail Slurry	BJCem S100.3.01D	IntegraSeal CELLO	0.1300	LBS/SK
Tail Slurry	BJCem S100.3.01D	CEMENT EXTENDER,SODIUM METASILICATE A-2 ANHYDROUS	2.0000	LBS/SK
Tail Slurry	BJCem S100.3.01D	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Tail Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
Tail Slurry	BJCem S100.3.01D	Foam Preventer, FP-25	0.3000	BWOB

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
5/16/2018 10:29 PM	Fresh Water	3.00	40.00	75.00		
5/16/2018 10:52 PM	BJCem S100.3.01D	4.20	70.70	139.00		
5/16/2018 11:12 PM	BJCem S100.3.01D	3.30	34.20	100.00		
5/16/2018 11:25 PM	Water	6.00	93.00	181.00		

	Min	Max	Avg
Pressure (psi)	0.00	3,000.00	400.00
Rate (bpm)	0.00	8.50	5.00

Cementing Treatment



DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	20.00
Calculated Displacement Volume (bbls)	94.80	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	94.00	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	2.00
Bump Plug Pressure (psi)	1,600.00	Total Volume Pumped (bbls)	238.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement returns During Job	Full	Lost Circulation During Cement Job	No

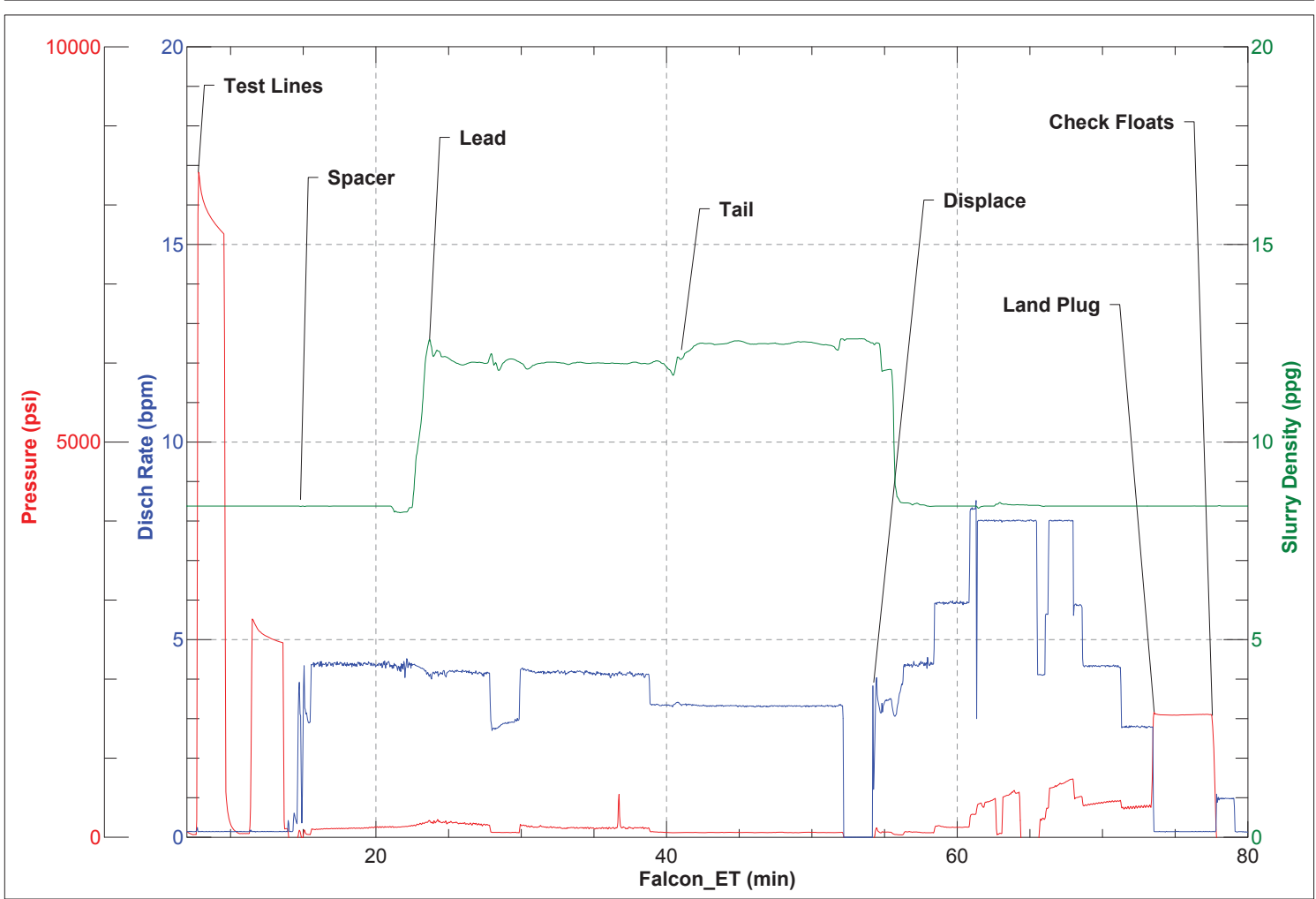
Customer Name LARAMIE District Rifle
 Well Name NICHOLS FED 24-20E Supervisor SHAUN CLARK
 Job Type Surface Engineer GAGE PUTNAM



Seq No.	Start Date	Start Time	Event	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	5/16/2018	17:00	CALL OUT					CREW CALL OUT ON LOCATION TIME OF 22:00
2	5/16/2018	19:30	ARRIVE ON LOCATION					BJ CREW ARRIVED ON LOCATION
3	5/16/2018	19:35	SPOT EQUIPMENT					SPOT IN BULK TRUCK
4	5/16/2018	19:40	STEACS					PRE RIG UP SAFETY MEETING WITH ALL BJ SERVICES CEMENT CREW
5	5/16/2018	20:30	RIG UP					RIG UP ALL GROUND EQUIPMENT
6	5/16/2018	22:15	SAFETY MEETING					PRE JOB SAFETY MEETING WITH RIG CREW AND ALL BJ SERVICES CEMENT CREW.
7	5/16/2018	22:18	DROP PLUG					DROP BOTTOM PLUG
8	5/16/2018	22:28	RIG UP					LOAD PLUGS IN PLUG CONTAINER, STAB PLUG CONTAINER, HOOK LINES TO PLUG CONTAINER
9	5/16/2018	22:29	FILL LINE	8.33	3	5	75	FILL LINES WITH 5 BBLS FRESH WATER
10	5/16/2018	22:33	PRESSURE TEST				3000	PRESSURE TEST TO 3000 PSI
11	5/16/2018	22:40	SPACER	8.33	3.5	10	90	FRESH WATER SPACER
12	5/16/2018	22:51	SPACER	8.33	4.3	35	130	FRESH WATER SPACER
13	5/16/2018	22:52	LEAD CEMENT	12		70.2		LEAD CEMENT 12 PPG 154 SKS 2.53 CUFT/SK 14.89 GAL/SK FOR A TOTAL OF 70.2 BBLS OF LEAD. SCALED AT 12.1 MUD. CALCULATED TOP OF LEAD IS 0 FT CALCULATED HEIGHT OF LEAD IS 685 FT
14	5/16/2018	22:55	LEAD CEMENT	12	4.2	10	142	PUMPED LEAD CEMENT
15	5/16/2018	23:06	LEAD CEMENT	12	4.2	50	168	PUMPED LEAD CEMENT
16	5/16/2018	23:11	LEAD CEMENT	12	3.3	70	110	PUMPED LEAD CEMENT
17	5/16/2018	23:12	TAIL CEMENT	12.5		34		TAIL CEMENT 12.5 PPG 87 SKS 2.23 CUFT/SK 12.62 GAL/SK FOR A TOTAL OF 34 BBLS OF TAIL. SCALED AT 12.5. CALCULATED TOP OF TAIL IS 868.5 FT CALCULATED HEIGHT OF TAIL IS 692.5 FT
18	5/16/2018	23:15	TAIL CEMENT	12.5	3.3	40	105	PUMPED TAIL CEMENT
19	5/16/2018	23:20	TAIL CEMENT	12.5	3.3	34	100	FINISHED PUMPING TAIL CEMENT WITH 34 BBLS AWAY
20	5/16/2018	23:25	SHUT DOWN					SHUT DOWN
21	5/16/2018	23:26	DROP PLUG					DROP TOP PLUG. VERIFIED BY DRILLER
22	5/16/2018	23:28	DISPLACEMENT	8.33	5.9	10	181	FRESH WATER DISPLACEMENT WITH FIRST 10 BBLS THREW MIX TUB
23	5/16/2018	23:38	DISPLACEMENT	8.33	8	50	619	FRESH WATER DISPLACEMENT
24	5/16/2018	23:40	CEMENT TO SURFACE			74		20 BBLS OF CEMENT TO SURFACE. VISUALLY VERIFIED
25	5/16/2018	23:44	DISPLACEMENT	8.33	3	84	400	FRESH WATER DISPLACEMENT
26	5/16/2018	23:53	DISPLACEMENT	8.33	3	94	1600	FRESH WATER DISPLACEMENT
27	5/16/2018	23:54	LAND PLUG				1600	LANDED PLUG
28	5/16/2018	23:56	CHECK FLOATS					CHECK FLOATS FLOATS HELD 2 BBL BACK
29	5/17/2018	0:00	SAFETY MEETING					PRE RIG DOWN SAFETY MEETING WITH RIG CREW
30	5/17/2018	1:00	RIG DOWN					RIGGED DOWN ALL EQUIPMENT
31	5/17/2018	1:00	AAR					AFTER ACTION REVIEW
32	5/17/2018	1:40	STEACS					PRE CONVOY SAFETY MEETING
33	5/17/2018	2:00	DEPART LOCATION					DEPART FROM LOCATION FOR RIFLE YARD. THANK YOU FOR USING BJ SERVICES
34								
35	MISC.							FCP - 400 PSI
36								CEMENT TO SURFACE - 20 BBLS
37								FLOATS HELD 2 BBLS BACK



JobMaster Program Version 4.02C1
Job Number:
Customer:
Well Name:



Cementing Treatment



Start Date	5/19/2018	Field Ticket#	FT-06882-N0V3P30202-90034
End Date	5/19/2018	Well	Nichols Federal 0994-24-20E
Client	LARAMIE ENERGY	API#	05-077-10383
Client Field Rep.	Roger Foster	Well Classification	
Service Sup.	Jerod Dent	County	MESA
District	Rifle, CO	State/Province	CO
Type of Job	Long String	Formation	
Execution ID	EXC-06882-N0V3P302	Rig	H&P 290
Project ID	PRJ1006905		

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	Excess(%)	Grade	Thread
Previous Casing	8.02	8.63	28.00	1,530.00		J-55	ST&C
Open Hole	7.88			6,107.00	26.00		
Open Hole	7.88			8,128.00	39.00		
Casing	4.00	4.50	11.60	8,118.00		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)	8,032.60
Bottom Plug Size	4.500	Max Casing Pressure - Rated (psi)	7,560.00
Top Plug Used?	Yes	Max Casing Pressure - Operated (psi)	6,048.00
Top Plug Provided By	Non BJ	Pipe Movement	None
Top Plug Size	4.500	Job Pumped Through	Manifold
Centralizers Used	Yes	Top Connection Thread	8 RD
Centralizers Type	Bow	Top Connection Size	4.5
Landing Collar Depth (ft)	8,077		

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	20.00
Circulation Time (min)	60.00	10 min SGS	45.00
Circulation Rate (bpm)	10.00	30 min SGS	58.00
Circulation Volume (bbls)	600.00	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	
PV Mud In	22		
YP Mud In	36		

TEMPERATURE

Ambient Temperature (°F)	46.00	Slurry Cement Temperature (°F)	58.00
Mix Water Temperature (°F)	56.00	Flow Line Temperature (°F)	86.00

BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	11.0000			0.00				60.0000
Lead Slurry	BJCem P100.3.01R	12.7000	1.9849	11.10	1,030.00	5,077.00	727	1,434.0000	255.3000
Tail Slurry	BJCem P70.6.01R	13.5000	1.8561	9.31	6,107.00	2,050.00	346	657.0000	116.8000
Displacement Final	Water + ResCare +Biocide	8.3300			0.00			0.0000	125.5000

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	RETARDER, R-3	1.4000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	GELLANT WATER, GW-86	0.8000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	168.8967	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	RETARDER, R-7C	0.3000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	EXTENDER, BENTONITE	10.0000	PPB
Lead Slurry	BJCem P100.3.01R	RETARDER, R-3	0.5000	BWOB
Lead Slurry	BJCem P100.3.01R	DISPERSANT, CD-31	0.1000	BWOB
Lead Slurry	BJCem P100.3.01R	BONDING AGENT, BA-60	0.3000	BWOB
Lead Slurry	BJCem P100.3.01R	Foam Preventer, FP-25	0.3000	BWOB
Lead Slurry	BJCem P100.3.01R	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem P100.3.01R	GELLANT WATER, GW-86	0.1000	BWOB
Lead Slurry	BJCem P100.3.01R	IntegraSeal PHENO	0.5000	LBS/SK
Lead Slurry	BJCem P100.3.01R	IntegraSeal CELLO	0.2500	LBS/SK
Tail Slurry	BJCem P70.6.01R	CEMENT, CLASS G	70.0000	PCT
Tail Slurry	BJCem P70.6.01R	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	BJCem P70.6.01R	SAND, S-8, Silica Flour, 200 Mesh	25.0000	BWOB
Tail Slurry	BJCem P70.6.01R	BONDING AGENT, BA-60	0.2000	BWOB
Tail Slurry	BJCem P70.6.01R	IntegraSeal CELLO	0.2500	LBS/SK
Tail Slurry	BJCem P70.6.01R	IntegraSeal PHENO	0.5000	LBS/SK
Tail Slurry	BJCem P70.6.01R	Flyash (Rockies)	20.0000	PCT
Tail Slurry	BJCem P70.6.01R	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	BJCem P70.6.01R	Foam Preventer, FP-25	0.3000	BWOB
Tail Slurry	BJCem P70.6.01R	RETARDER, R-3	0.2000	BWOB
Tail Slurry	BJCem P70.6.01R	BONDING AGENT, BA-90	10.0000	PCT
Displacement Final	Water + ResCare +Biocide	CLAY STABILIZER ResCare CS	0.0800	GPB

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
5/19/2018 8:58 PM	IntegraGuard EZ Spacer	5.00	60.00	282.00		
5/19/2018 9:13 PM	BJCem P100.3.01R	5.00	255.30	391.00		
5/19/2018 10:05 PM	BJCem P70.6.01R	5.00	116.80	286.00		
5/19/2018 10:36 PM	Water + ResCare +Biocide	10.00	125.50	2,826.00		

Cementing Treatment



	Min	Max	Avg
Pressure (psi)	132.00	2,826.00	400.00
Rate (bpm)	2.50	10.00	5.50

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)	124.50	Amount of Spacer to Surface	50.00
Did Float Hold?	Yes	Amount Bled Back After Job	1.00
Bump Plug	Yes	Total Volume Pumped (bbls)	555.90
Bump Plug Pressure (psi)	2,862.00	Top Out Cement Spotted	No
Were Returns Planned at Surface	Yes	Lost Circulation During Cement Job	No
Cement returns During Job	None		

Customer Name Laramie Energy District Rifle
 Well Name Nichols 24-20E Supervisor Jerod Dent
 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	5/19/2018	11:00	Callout						BJ crew called to Laramie Nichols 24-20E Production
2	5/19/2018	13:00	Depart Facility						BJ crew depart for location
3	5/19/2018	15:00	Arrive on location						BJ crew arrive at location.
4	5/19/2018	15:30	Safety meeting						Discuss spotting in equipment and hazards on location
5	5/19/2018	15:35	Spot equipment						Spot in all equipment
6	5/19/2018	15:45	Rig up						Rig up all equipment
7	5/19/2018	17:00	Waiting						Wait on rig to run casing
8	5/19/2018	19:00	Rig up						Rig up floor and remaining ground fittings
									BJ crew, customer representative and rig crew discuss job procedures and safety concerns such as muster point, emergency contacts, fire ext, first aid, pinch points, red zones, SSE, pressure etc.
9	5/19/2018	20:30	Safety meeting						
10	5/19/2018	20:52	Start job						BJ crew start cement job
11	5/19/2018	20:53	Fill lines		8.33	2	5	342	Fill lines with 2 bbls water ahead / Drop bottom plug
12	5/19/2018	20:55	Pressure test						Pressure test lines to 5,000 psi
13	5/19/2018	20:58	Pump Spacer		11	5	60	282	Pump 60 bbls EZ Spacer at 11 ppg ahead
14	5/19/2018	21:13	Pump Lead		12.7	5.5	0	391	Mix and Pump 727 sks of BJ Cem P100 cement at 12.7 ppg, 1.98 yld, 11.1 gal/sk. (Total of 257 bbls cement / 192 bbls mix water)
15	5/19/2018	21:27	Pump Lead		12.7	5.5	50	389	50 bbls Lead away
16	5/19/2018	21:35	Pump Lead		12.7	5.5	100	371	100 bbls Lead away
17	5/19/2018	21:44	Pump Lead		12.7	5.5	150	359	150 bbls Lead away
18	5/19/2018	21:53	Pump Lead		12.7	5.5	200	356	200 bbls Lead away
19	5/19/2018	22:02	Pump Lead		12.7	5.5	250	327	250 bbls Lead away
20	5/19/2018	22:05	Pump Lead		12.7	2.5	257	118	257 bbls Lead away
21	5/19/2018	22:05	Pump Tail		13.5	5.5	0	286	Mix and Pump 346 sks of BJ Cem P70 cement at 13.5 ppg, 1.85 yld, 9.31 gal/sk. (Total of 114.4 bbls cement / 77 bbls mix water)
22	5/19/2018	22:13	Pump Tail		13.5	5.5	50	433	50 bbls Tail away
23	5/19/2018	22:22	Pump Tail		13.5	5.5	100	334	100 bbls Tail away
24	5/19/2018	22:24	Pump Tail		13.5	2.5	114.4	132	114.4 bbls Tail away
25	5/19/2018	22:25	Shutdown						Shutdown / Drop top plug
26	5/19/2018	22:26	Wash Lines						Wash pumps and lines
27	5/19/2018	22:36	Pump Displacement		8.33	10	0	1615	Begin pumping water displacement with ResCare and Biocide
28	5/19/2018	22:43	Pump Displacement		8.33	10	50	2242	50 bbls displacement away
29	5/19/2018	22:48	Pump Displacement		8.33	10	100	3309	100 bbls displacement away
30	5/19/2018	22:50	Slow Rate		8.33	4	114.5	2676	Slow rate with 114.5 bbls displacement away
31	5/19/2018	22:53	Land Plug				124.5	2826	Land plug with 124.5 bbls displacement away
32	5/19/2018	23:04	Check Floats						Check floats, floats held with 1 bbl back to pump
33	5/19/2018	23:05	Rig Down						Rig down all equipment
34	5/19/2018	23:58	Depart location						Depart location for facility
									50 bbls of spacer to surface, plug landed at 2820 psi, floats held with 1 bbl back to pump.
35	5/19/2018	23:59	Other						



JobMaster Program Version 4.02C1

Job Number: 5588

Customer: Laramie

Well Name: Nichols 24-20E

