



Caerus

Surface Post Job Report

NPR 22D-10-596 05-045-23756

S:10 T:5S R:96W Garfield CO

Quote #:

I Execution #:



Caerus

Attention: Mr. Steve Schmitz | (720) 880-6412 | sschmitz@caerusoilandgas.com

Caerus | 1001 17th Street, Suite 1600 | Denver, CO 80202

Dear Mr. Schmitz,

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 | (970) 632-2006 | 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	1/7/2018	Well	NPR 22D-10-596
End Date	1/9/2018	County	GARFIELD
Client	CAERUS OPERATING, LLC	State/Province	CO
Client Field Rep	Bud Wenzel	API	05-045-23756
Service Supervisor	Paul Linn III	Formation	-
Field Ticket No.	Surface	Rig	H&P 273
District	Rifle, CO	Type of Job	Surface

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Open Hole	14.75			2,000.00	2,000.00	25.00		
Open Hole	14.75			2,274.00	2,274.00			
Casing	8.92	9.63	36.00	2,252.00	2,252.00		J-55	LTC
Previous Casing	19.50	20.00	52.73	100.00	100.00			

Shoe Length (ft): 43

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Bottom Plug Provided By	-	Tool Depth (ft)	2,252.00
Bottom Plug Size	-	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)	3,520.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	2,816.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	7.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	Buttress
Landing Collar Depth (ft)	2,169	Top Connection Size	9.625

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	2.00
Circulation Time (min)	60.00	10 min SGS	3.00
Circulation Rate (bpm)	12.50	30 min SGS	7.00
Circulation Volume (bbls)	750.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	Yes	Gas Present	No
Mud Density In (ppg)	8.70	Gas Units	0
Mud Density Out (ppg)	0.00		
PV Mud In	9		
PV Mud Out	-		
YP Mud In	6		
YP Mud Out	-		

TEMPERATURE

Ambient Temperature (°F)	28.00	Slurry Cement Temperature (°F)	50.00
Mix Water Temperature (°F)	54.30	Flow Line Temperature (°F)	61.00

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	Fresh Water	8.33					20.00
Spacer / Pre Flush / Flush	Sodium Silicate	10.00					20.00
Spacer / Pre Flush / Flush	Fresh Water	8.33					20.00
Lead Slurry	S100-12	12.00	2.5298	14.86	704	1,774.00	315.90
Tail Slurry	S100-12	12.50	2.2256	12.59	162	358.00	63.70
Displacement Final	Displacement	8.33				0.00	190.20
Top Out Slurry	S100-12	12.50	2.2256	12.59	300	669.00	119.10

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	Sodium Silicate	SILICATE, SODIUM, A-3L	21.00	GPB
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	Foam Preventer, FP-25	0.30	BWOB
Lead Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
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
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
Tail Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
Tail Slurry	S100-12	Foam Preventer, FP-25	0.30	BWOB
Tail Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK
Top Out Slurry	S100-12	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.00	LBS/SK
Top Out Slurry	S100-12	CEMENT EXTENDER, GYPSUM, A-10	5.00	BWOB
Top Out Slurry	S100-12	CEMENT, ASTM TYPE III	100.00	PCT
Top Out Slurry	S100-12	IntegraSeal CELLO	0.13	LBS/SK
Top Out Slurry	S100-12	Foam Preventer, FP-25	0.30	BWOB
Top Out Slurry	S100-12	CEMENT EXTENDER, SODIUM METASILICATE, A-2	2.00	LBS/SK

Cementing Treatment



TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Comments
1/8/2018 11:04 AM	Fresh Water	6.50	20.00	358.00	
1/8/2018 11:08 AM	Sodium Silicate	6.00	20.00	543.00	
1/8/2018 11:11 AM	Fresh Water	6.50	20.00	328.00	
1/8/2018 11:16 AM	S100-12	4.00	317.22	135.00	LEAD
1/8/2018 12:11 PM	S100-12	6.00	64.34	303.00	TAIL
1/8/2018 12:25 PM	Displacement	7.00	167.66	178.00	
1/8/2018 12:00 AM	S100-12	2.00	119.10	96.00	TOP OUT

	Min	Max	Avg
Pressure (psi)	64.00	1,046.00	313.00
Rate (bpm)	2.00	7.00	6.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	167.66	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	166.00	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)	442.00	Total Volume Pumped (bbls)	570.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	Yes
Cement returns During Job	None	Lost Circulation During Cement Job	Yes

Customer Name CAERUS District Rifle
 Well Name NPR 22D-10-596 Supervisor ANDREW LINN
 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	1/7/2018	13:30	CALL OUT					CALL OUT ON LOCATION TIME OF 02:00 1/8/18
2	1/7/2018	15:00	STEACS					PRE CONVOY SAFETY MEETING
3	1/7/2018	15:22	LEAVE RIFLE YARD					LEAVE RIFLE YARD FOR H&P 273
4	1/7/2018	17:20	ARRIVE ON LOCATION					ARRIVE ON LOCATION. RIG CREW WAS PULLING DRILL PIPE
5	1/7/2018	17:25	SITE ASSESSEMENT					SITE ASSESSEMENT
6	1/7/2018	17:40	STEACS					PRE RIG UP SAFETY MEETING
7	1/7/2018	18:00	RIG UP					SPOT IN EQUIPMENT AND RIG UP ALL GROUND EQUIPMENT
8	1/8/2018	10:10	SAFETY MEETING					PRE JOB SAFETY MEETING WITH RIG CREW AND ALL BJ SERVICES CEMENT CREW
9	1/8/2018	10:25	RIG UP					LOAD PLUG IN PLUG CONTAINER, STAB PLUG CONTAINER, AND HOOK UP LINES TO PLUG CONTAINER
10	1/8/2018	10:48	FILL LINES	8.33	1.5	5	64	FILL LINES WITH 5 BBLS. OF FRESH WATER AT 1.5 BBLS./MIN.
11	1/8/2018	10:55	PRESSURE TEST				5890	PRESSURE TEST TO 5890 PSI. PRESSURE HELD
12	1/8/2018	11:04	FRESH WATER SPACER	8.33	6.5	20	412	REMAINING 15 BBLS. OF FRESH WATER FOR A TOTAL OF 20 BBLS. OF FRESH WATER
13	1/8/2018	11:10	SODIUM SILICATE SPACER	10	6.5	20	324	SODIUM SILICATE SPACER 50/50
14	1/8/2018	11:14	FRESH WATER SPACER	8.33	6.5	20	336	FRESH WATER SPACER
15	1/8/2018	11:16	LEAD CEMENT	12	4	5	135	LEAD CEMENT 12 PPG. 704 SKS. 2.53 CUFT./SK. 14.89 GAL./SK. FOR 317.22 BBLS OF LEAD REQUIRING A TOTAL OF 249.58 BBLS. OF MIX WATER. WEIGHT VERIFIED WITH MUD SCALES. CALCULATED TOP OF LEAD IS 0 FT. CALCULATED HEIGHT OF LEAD IS 1749.86 FT.
16	1/8/2018	11:22	LEAD CEMENT	12	6	30	290	PUMPED LEAD CEMENT
17	1/8/2018	11:26	LEAD CEMENT	12	6	50	281	PUMPED LEAD CEMENT
18	1/8/2018	11:33	LEAD CEMENT	12	6	100	268	PUMPED LEAD CEMENT
19	1/8/2018	11:43	LEAD CEMENT	12	6	150	279	PUMPED LEAD CEMENT
20	1/8/2018	11:52	LEAD CEMENT	12	6	200	274	PUMPED LEAD CEMENT
21	1/8/2018	12:00	LEAD CEMENT	12	6	250	246	PUMPED LEAD CEMENT
22	1/8/2018	12:06	LEAD CEMENT	12	5.5	263	218	SLOWED RATE LOST WATER. DAY TANK WAS EMPTY.
23	1/8/2018	12:10	LEAD CEMENT	12	3	280	49	PUMPED LEAD CEMENT
24	1/8/2018	12:11	LEAD CEMENT	12	3	287	85	FINISHED PUMPING LEAD CEMENT WITH 287 BBLS. AWAY.
25	1/8/2018	12:11	TAIL CEMENT	12.5	6	5	303	TAIL CEMENT 12.5 PPG. 162 SKS. 2.23 CUFT./SK. 12.62 GAL./SK. FOR 64.34 BBLS OF TAIL REQUIRING A TOTAL OF 48.68 BBLS. OF MIX WATER. WEIGHT VERIFIED WITH MUD SCALES. CALCULATED TOP OF TAIL IS 1749.86 FT. CALCULATED HEIGHT OF TAIL IS 502.14 FT.
26	1/8/2018	12:18	TAIL CEMENT	12.5	4.5	40	181	PUMPED TAIL CEMENT
27	1/8/2018	12:20	TAIL CEMENT	12.5	4.5	50	172	PUMPED TAIL CEMENT
28	1/8/2018	12:22	TAIL CEMENT	12.5	4.5	56.8	168	FINISHED PUMPING TAIL CEMENT WITH 56.8 BBLS. AWAY.
29	1/8/2018	12:22	SHUT DOWN					SHUT DOWN
30	1/8/2018	12:24	DROP PLUG					DROP TOP PLUG VERIFIED BY COMPANY MAN
31	1/8/2018	12:25	DISPLACEMENT	8.33	7	10	303	FRESH WATER DISPLACEMENT WITH THE FIRST 4 BBLS. OF DISPLACEMENT BEING TAIL CEMENT AT 12.5 PPG.
32	1/8/2018	12:36	DISPLACEMENT	8.33	6.5	50	210	FRESH WATER DISPLACEMENT
33	1/8/2018	12:44	DISPLACEMENT	8.33	6.5	100	441	FRESH WATER DISPLACEMENT
34	1/8/2018	12:52	DISPLACEMENT	8.33	6.5	150	593	FRESH WATER DISPLACEMENT
35	1/8/2018	12:53	DISPLACEMENT	8.33	6.5	157	602	FRESH WATER DISPLACEMENT
36	1/8/2018	12:53	DISPLACEMENT	8.33	2	158	368	FRESH WATER DISPLACEMENT
37	1/8/2018	12:57	DISPLACEMENT	8.33	2	167	442	FRESH WATER DISPLACEMENT
38	1/8/2018	12:57	LAND PLUG				1046	LANDED PLUG AT 442 PSI. TOOK TO 1046 PSI.
39	1/8/2018	13:00	CHECK FLOATS					CHECK FLOATS FLOATS HELD 1 BBL. BACK
40	1/8/2018	13:08	RIG UP TO PARASITE STRING					BREAK OFF OF PLUG CONTAINER AND RIG UP TO PARASITE STRING
41	1/8/2018	13:13	PUMP ON PARASITE STRING	8.33	2	1	0	PUMP ON PARASITE STRING
42	1/8/2018	13:15	BREAK CIRCULATION ON PARASITE STING	8.33	2	6	356	BREAK CIRCULATION ON PARASITE STING WITH 6 BBLS. AWAY AT 356 PSI.
43	1/8/2018	13:17	SHUT DOWN					SHUT DOWN
44	1/8/2018	13:22	WASH PUMPS AND LINES					WASH PUMPS AND LINES TO CELLAR
45	1/8/2018	13:20	WAIT 4 HOURS					WAIT 4 HOURS TO TOP OUT AGAIN. START TOP OUT AT 11:15
46	1/8/2018	17:00	SAFETY MEETING					PRE TOP OUT SAFETY MEETING WITH RIG CREW AND ALL BJ SERVICES CEMENT CREW
47	1/8/2018	17:15	RIG UP					RIG UP TO TOP OUT
48	1/8/2018	17:26	CALCIUM CHLORIDE					200 LBS. OF CALCIUM CHLORIDE IN 2.5 BBLS. OF FRESH WATER

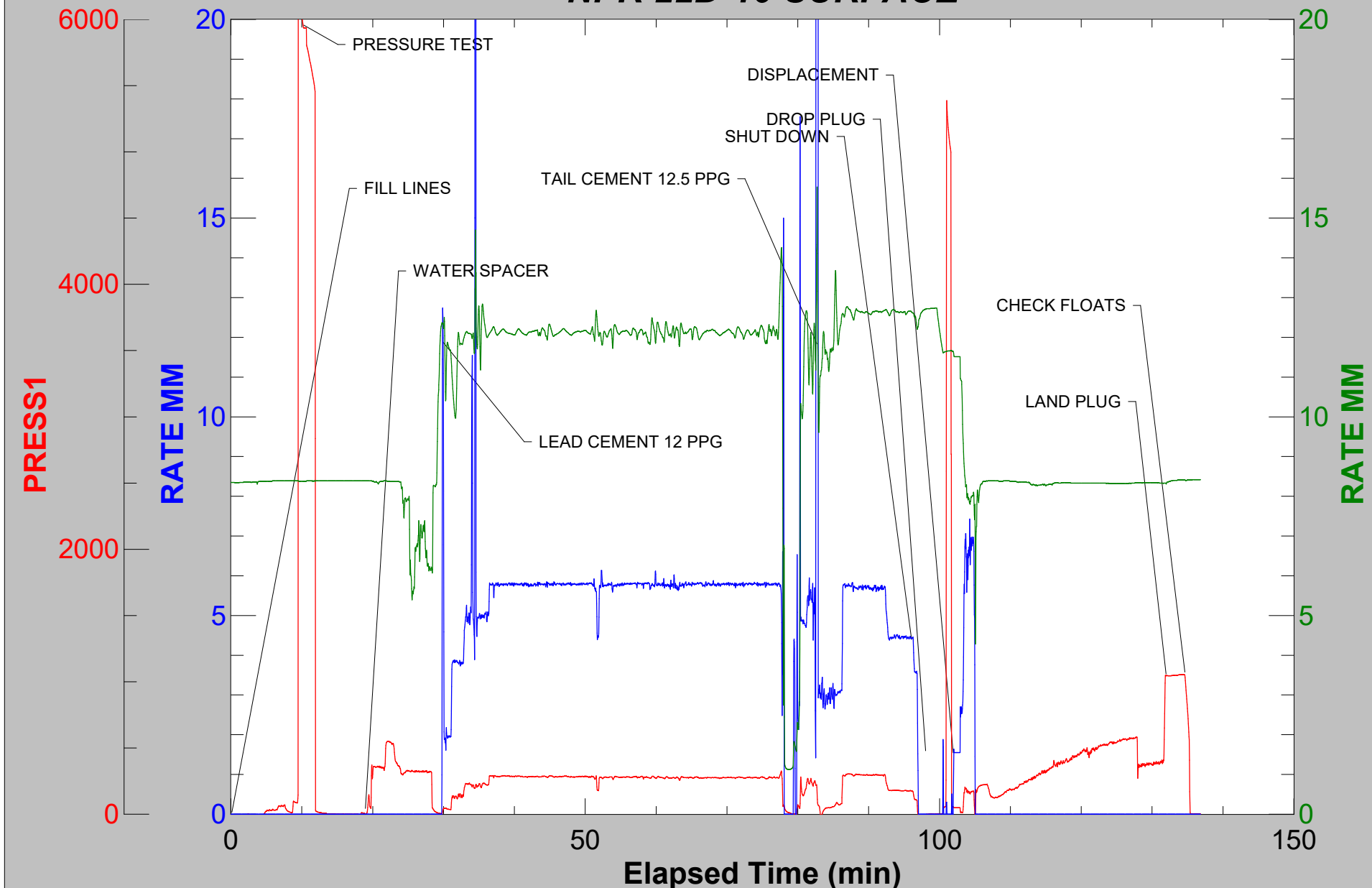
Customer Name CAERUS District Rifle
 Well Name NPR 22D-10-596 Supervisor ANDREW LINN
 Job Type Surface Engineer GAGE PUTNAM



Seq No.	Start Date	Start Time	Event	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
49	1/8/2018	17:28	SODIUM SILICATE SPACER					SODIUM SILICATE SPACER
								PUMP TOP OUT CEMENT 200 SKS. 2.23 CUFT./SK. 12.62 GAL./SK. FOR 79.43 BBLS OF TOP OUT REQUIRING A TOTAL OF 60.1 BBLS. OF MIX WATER. WEIGHT VERIFIED WITH MUD SCALES.
50	1/8/2018	17:35	TOP OUT	12.5	2	10	96	
51	1/8/2018	18:00	TOP OUT	12.5	2	50	89	PUMPED TOP OUT CEMENT
								FINISHED PUMPING TOP OUT CEMENT WITH 75.6 BBLS. AWAY.
52	1/8/2018	18:11	TOP OUT	12.5	2	75.6	71	
53	1/8/2018	18:12	SHUT DOWN					SHUT DOWN
54	1/8/2018	18:25	WASH PUMPS AND LINES					WASH PUMPS AND LINES TO CELLAR
55	1/8/2018	18:11	WAIT 4 HOURS					WAIT 4 HOURS TO TOP OUT AGAIN. START TOP OUT AT 22:00
56	1/8/2018	22:27	CALCIUM CHLORIDE					200 LBS. OF CALCIUM CHLORIDE IN 2 BBLS. OF FRESH WATER
57	1/8/2018	22:32	SODIUM SILICATE SPACER					SODIUM SILICATE SPACER
								PUMP TOP OUT CEMENT 100 SKS. 2.23 CUFT./SK. 12.62 GAL./SK. FOR 30.05 BBLS OF TOP OUT REQUIRING A TOTAL OF 39.72 BBLS. OF MIX WATER. WEIGHT VERIFIED WITH MUD SCALES.
58	1/8/2018	22:38	TOP OUT	12.5	2	10	96	
59	1/8/2018	22:46	TOP OUT	12.5	2	34	76	PUMPED TOP OUT CEMENT
60	1/8/2018	22:46	CEMENT TO SURFACE					CEMENT TO SURFACE. SHUT DOWN CEMENT FELL
61	1/8/2018	22:50	TOP OUT	12.5	2	36	100	PUMPED TOP OUT CEMENT
								CEMENT TO SURFACE. SHUT DOWN CEMENT STAYED AT SURFACE
62	1/8/2018	23:00	CEMENT TO SURFACE					
63	1/8/2018	23:00	SHUT DOWN					SHUT DOWN
								PRE RIG DOWN SAFETY MEETING WITH ALL BJ SERVICES CEMENT CREW.
64	1/8/2018	23:08	SAFETY MEETING					
65	1/8/2018	23:22	WASH PUMPS AND LINES					WASH PUMPS AND LINES TO 3- SIDED TANK
66	1/8/2018	23:22	BLOW DOWN SILO					BLOW DOWN SILO 1
67	1/8/2018	23:53	RIG DOWN					RIG DOWN ALL EQUIPMENT
68	1/9/2018	0:11	AAR					AFTER ACTION REVIEW
69	1/9/2018	0:30	STEACS					PRE CONVOY SAFETY MEETING
								DEPART FROM H&P 273 FOR RIFLE YARD. THANK YOU FOR USING BJ SERVICES, ANDREW LINN AND CREW.
70	1/9/2018	0:55	DEPART LOCATION					



NPR 22D-10 SURFACE





NPR 22D-10 TOP OUT

