

<div>C&amp;J ENERGY SERVICES</div>	PDC ENERGY	YARD CALL	3/27/2019		DISTRICT
	Popham 18N	RTS DATE	3/28/2019		Brighton
		YARD RTN	3/27/2019		
Personnel/Equipment					
Driver	Assignment	Tractor	Trailer	Comments	
TONY YATES	SERVICE SUPERVISOR	201356	449087		
SIARHEI DZMITRYIEU	SR OPERATOR				
AJ STAPLES	SR OPERATOR		445051		
JUAN	OPERAROR		445067		
MIKE ARTHUR	OPERATOR		444002		
BLEND INFO					
Amount	Units	System/Additives	Density (ppg)	Yield (cuft/sk)	Water Req. (gal/sk)
0	SX	0			
0.00					
0.00	SX	80 bbls water + 1600 lbs SAPP			
80.00	bbl	+20.0 PPB CJ890			
0	SX	80 bbls ppg Weighted Spacer - 80 bbls of 12.5 ppg Weighted Spacer: 66.3 bbl Fresh Water + 17570 lbs Barite + 80 lbs Citric Acid + 997 lbs MS Spacer + 40 lbs X-Air			
80.00	bbl	+219.63 PPB CJ300+1.0 PPB CJ209+0.5 PPB CJ776+12.46 PPB CJ801	12.5		
25	SX	C&J Non Latex Lead 1-1			
0.00		50 % CJ914+50 % CJ010-74 +2.0 % CJ020+0.4 % CJ548+0.3 % CJ240+10.0 % CJ041+0.3 % CJX157011	14	1.37	5.98
755	SX	C&J Latex Lead 1-1			
183.60	bbl	50 % CJ914+50 % CJ010-74 +2.0 % CJ020+0.4 % CJ548+0.3 % CJ240+10.0 % CJ041+0.3 % CJX157011+1.0 GPS CJ550L+0.2 GPS CJ891	14	1.37	4.71
1040	SX	C&J Tail 1-1			
224.23	bbl	65 % CJ914+35 % CJ010-74 +0.3 % CJ704+0.15 % CJ210K+0.5 % CJ511	14.5	1.22	5.41
0	SX	Displacement			
0	SX				
0	SX				
275.68	bbl				

# Job Summary

Ticket Number	Ticket Date
TN# <b>BCO-1903-0126</b>	<b>3/28/2019</b>

COUNTY	COMPANY	API Number
<b>Weld</b>	<b>PDC ENERGY</b>	<b>05-123-47823</b>
WELL NAME	RIG	JOB TYPE
<b>Popham 18N</b>	<b>Ensign 161</b>	<b>Production Casing</b>
SURFACE WELL LOCATION	CJES Field Supervisor	CUSTOMER REP
<b>40.33724 -104.53751</b>	<b>TONY YATES</b>	<b>Antonio Barrientos</b>

EMPLOYEES

<b>WELL PROFILE</b>			
Max Treating Pressure (psi):	4500	Bottom Hole Static Temperature (°F):	
Bottom Hole Circulating Temperature (°F):		Well Type:	OIL

## Open Hole

1	Size (in)	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
	8.5	1632	12460	0	6623
2	Size (in)	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)

## Casing/Tubing/Drill Pipe

Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
Surface	9.625	36		0	1632	0	1632
Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
Production	5.5	20		0	12460	0	6623
Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)

## CEMENT DATA

<b>Stage 1:</b>	From Depth (ft):	<b>2310</b>	To Depth (ft):	<b>6971</b>
Type: <b>Lead cement</b>	Volume (sacks):	<b>780</b>	Volume (bbls):	<b>190.4</b>
Cement & Additives:		Density (ppg)	Yield (ft³/sk)	Water Req.
Lead		14	1.37	4.71

<b>Stage 2:</b>	From Depth (ft):	<b>6971</b>	To Depth (ft):	<b>12460</b>
Type: <b>Tail cement</b>	Volume (sacks):	<b>1040</b>	Volume (bbls):	<b>226</b>
Cement & Additives:		Density (ppg)	Yield (ft³/sk)	Water Req.
Tail cement		14.5	1.22	5.41

<b>Stage 3:</b>	From Depth (ft):		To Depth (ft):	
Type:	Volume (sacks):		Volume (bbls):	
Cement & Additives:		Density (ppg)	Yield (ft³/sk)	Water Req.

<b>Stage 4:</b>	From Depth (ft):		To Depth (ft):	
Type:	Volume (sacks):		Volume (bbls):	
Cement & Additives:		Density (ppg)	Yield (ft³/sk)	Water Req.

## SUMMARY

				Stage 1	Stage 2	
Preflushes:	80	bbls of	SAPP	Calculated Displacement (bbl):	275.7	
	80	bbls of	Weighted Spacer	Actual Displacement (bbl):	275.7	
	18	bbls of	Fresh Water			
Total Preflush/Spacer Volume (bbl):			178	Plug Bump (Y/N):	Y	Bump Pressure (psi): 1950
Total Slurry Volume (bbl):			416.2	Lost Returns (Y/N):	N	(if Y, when) _____
Total Fluid Pumped			869.9			
Returns to Surface:		Preflush	54	bbls		

Job Notes (fluids pumped / procedures / tools / etc.):

DROPPED BOTTOM PLUG , PUMPED 80 BBL OF SAPP,80 BBL OF WEIGHTED SPACER,10 BBL OF FRESH H2O,25 SX OF LEAD NON LATEX CEMENT @14PPG/1.37,755 SX OF LEAD LATEX CEMENT @14PPG/1.37, 1040 SX OF TAIL CEMENT @ 14.5 PPG/1.22, DROPPED TOP PLUG AND DISPLACED WITH 275.7 BBL OF FRESH H2O PER CUSTOMER REQUEST.ETOC AT 2310' SEE JOB LOG FOR DETAILS.

Thank You For Using

CJES O-TEX Cementing

Customer Representative Signature:

## Cement Job Log



Customer:	PDC ENERGY	Date:	1/0/1900	Serv. Supervisor:	TONY YATES			
Cust. Rep.:	Antonio Barrientos	Ticket #:	BCO-1903-0126	Serv. Center	Brighton - 3021			
Lease:	Popham 18N	API Well #:	05-123-47823	County:	Weld State: CO			
Well Type:	Oil	Rig:	Ensign 161	Type of Job:	Production Casing			
Materials Furnished by C&J ENERGY SERVICES								
Plugs	Casing Hardware	Physical Slurry Properties						
		Sacks of Cement	Fluid Dens (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Mix Water (bbls)
0								
80 bbls water + 1600 lbs SAPP	+20.0 PPB CJ890						80.00	
80 bbls ppg Weighted Spacer - 80 bbls of	+219.63 PPB CJ300+1.0 PPB CJ209+0.5 PPB CJ776+12.46 PPB CJ801		12.5				80.00	
C&J Non Latex Lead 1-1	50 % CJ914+50 % CJ010-74 +2.0 % CJ020+0.4 % CJ548+0.3 % CJ240+10.0 % CJ041+0.3 % CJX157011	25	14		1.37	5.98	6.08	4
C&J Latex Lead 1-1	50 % CJ914+50 % CJ010-74 +2.0 % CJ020+0.4 % CJ548+0.3 % CJ240+10.0 % CJ041+0.3 % CJX157011+1.0 GPS CJ550L+0.2 GPS CJ891	755	14		1.37	4.71	183.66	85
C&J Tail 1-1	65 % CJ914+35 % CJ010-74 +0.3 % CJ704+0.15 % CJ210K+0.5 % CJ511	1040	14.5		1.22	5.41	225.18	134
Displacement							275.68	
50 % CJ914+50 % CJ010-74+2.0 % CJ020								
Displacement Chemicals:								

## Cement Job Log



Customer:	PDC ENERGY				Date: 1/0/1900				Serv. Supervisor: TONY YATES			
Cust. Rep.:	Antonio Barrientos				Ticket #: BCO-1903-0126				Serv. Center Brighton - 3021			
Lease:	Popham 18N				API Well #: 05-123-47823				County: Weld		State: CO	
Well Type:	Oil				Rig: Ensign 161				Type of Job: Production Casing			
OPEN HOLE DATA				TUBULAR DATA								
8.5 OH (1631'-12464')				5.5 #20 (0'-12460')		SIZE WEIGHT	THREAD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS				
9.625 #36 (0'-1631')				TOP		BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
									12421	12428		
WELL FLUID		DISPLACEMENT FLUID			DIFF PRESS (psi)	CSG LIFT (psi)	MAX PRESS (psi)				WATER ON LOC (bbl)	
TYPE	DENSITY	VOLUME	TYPE	DENSITY								
MUD	10.8 ppg	275.7 bbl	H2O	8.3 ppg	1631		4500				1000	
Time	Rate (bbl/min)	Csg. Press. (psi)	Tbg. Press. (psi)	Ann. Press. (psi)	Stg. Vol. (bbl)	Cum. Vol. (bbl)	Stage Details					
12:00 AM						0	ARRIVE ON LOCATION					
12:15 AM						0	SPOT EQUIPMENT					
12:30 AM						0	RIG UP IRON AND HOSES					
8:15 AM						0	PRE JOB SAFETY MEETING					
8:39 AM	3	600				3	LOAD LINES TO TEST					
8:40 AM		5100				3	TEST PUMP AND LINES TO 5000 PSI					
8:48 AM	3	436			80	83	START SAPP SPACER					
9:10 AM	6.5	1000			80	163	START BARITE SPACER AT 12.5/3.43					
9:24 AM	6.5	700			10	173	START FRESH WATER SPACER					
9:25 AM		0				173	SHUT DOWN DROP BOTTOM PLUG					
9:29 AM	5	486			6	179	START 25 SX OF LEAD SLURRY AT 14 PPG/1.37 NON LATEX CEMENT					
9:30 AM	6	900			184.2	363.2	START 755 SX OF LEAD SLURRY AT 14 PPG/1.37 LATEX CEMENT					
10:05 AM	6.5	900			226	589.2	START 1040 SX OF TAIL SLURRY AT 14.5 PPG/1.22 CEMENT					
10:36 AM	0	0				589.2	SHUT DOWN, WASH PUMPS AND LINES, DROP TOP PLUG					
10:50 AM	8	1750			275.7	864.9	DISPLACEMENT					
11:33 AM	0	1950				864.9	BUMPED PLUG					
11:35 AM	2	3500				864.9	OPENED WET SHOE SUB AT 3500 PSI					
11:35 AM	4	1920			5	869.9	PUMPED 5 BBL OF H2O THROUGH WET SHOE					
11:37 AM	0	1545				869.9	SHUT DOWN					
11:38 AM							CHECK FLOATS(FLOATS HOLDING) 1.5 BBL OF H2O BACK					
Left Yard	3/27/19 10:00 PM			Left Loc.	3/28/19 1:30 PM			Start Pump	3/28/19 8:39 AM			
Arrived Loc.	3/28/19 12:00 AM			Returned Yd.	3/28/19 3:00 PM			End Pump	3/28/19 11:37 AM			
Bumped Plug (psi)	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Top of Cement (ft)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Casing Rotation	Standby Charged(hrs)	Casing Reciprocation		
Yes	1950	Yes	0	0	2310	Yes	4500		0			
							<div>TONY YATES</div> <div>3/28/2019</div>					
							<div>Service Supervisor</div> <div>Date</div>					