

## 1 Job Details & Summary

### 1.1 Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Thread	Top (ft)	Bottom (ft)	Excess (%)
Casing	Outer	9.625	8.921	36	n/a	0	1542	0
Open Hole	Outer	n/a	8.5	n/a	n/a	1542	11848	18
Casing	Inner	5.5	4.892	17	n/a	0	11840	18

### 1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Silo	657			
Silo	658			
Bulk Trailer	PPC41311	Schuebel, Kasey	Staples, Anthony	200
Cement Pump	101	Bobby Grimaldo	Soto, Ruben	200
Light Duty Pickups	5	Jesus Saldivar	Orlando Fuentes	200

### 1.3 Timing

Event	Date/Time
Call Out	7/11/2017 07:00
Depart Facility	7/11/2017 09:30
On Location	7/11/2017 11:30
Rig Up Iron	7/11/2017 12:00
Job Started	7/11/2017 14:40
Job Completed	7/11/2017 18:30
Rig Down Iron	7/11/2017 18:40
Depart Location	7/11/2017 20:00

### 1.4 General Job Information

Metrics	Value
Well Fluid Density	10.4 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	900 bbls
Rig Circulation Time	2 hours
Calculated Displacement	274.05 bbls
Actual Displacement	275 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	50 bbls

### 1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	12
Yield Point	8
10 sec. SGS	5
10 min. SGS	13
30 min. SGS	16
Filtrate	5.6
Flow Line Temp.	130

### 1.6 Job Details

Metrics	Value
Flare Prior to Job	No
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	10.4 lb/gal
Well Fluid Density Out of Well	10.4 lb/gal

### 1.7 Job Details (cont.)

Metrics	Value
BHCT	220 °F
BHST	220 °F



## 1.8 Circulation

Lost Circulation Experienced
No

Circulation Details:

## 1.9 Job Execution Information

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft <sup>3</sup> /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Top (ft)
1	1	Water	Flush	8.33			42.00		40.00	0
1	2	CD Spacer	Spacer	11.00			33.78		40.00	0
1	3	ALTCem P100-X2	Lead	12.50	2.06	11.77		200.00	73.48	0
1	4	ALTCem P100-X2	Lead	12.50	2.07	11.81		660.00	243.34	0
1	5	ALTCem P50-X1	Tail	13.50	1.47	7.43		970.00	254.76	5385
1	6	Water & MMCR	Displacement	8.33			41.90		10.00	11595
1	7	Water w/ Clay Protection and Biocide	DisplacementFinal	8.33			41.91		266.00	0



### 1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Spacer	CD Spacer	ASR-20	StrengthRetrogression	179.59	lb/bbl
1	2	Spacer	CD Spacer	AVS-10	Viscosifier	1.00	lb/bbl
1	3	Lead	ALTCem P100-X2	AC3-10	Cement	100.00	%
1	3	Lead	ALTCem P100-X2	ADF-11	Defoamer	0.30	%BWOB
1	3	Lead	ALTCem P100-X2	AFL-10	FluidLoss	0.30	%BWOB
1	3	Lead	ALTCem P100-X2	AR-31	Retarder	0.18	%BWOB
1	3	Lead	ALTCem P100-X2	AVS-20	Viscosifier	0.10	%BWOB
1	4	Lead	ALTCem P100-X2	AC3-10	Cement	100.00	%
1	4	Lead	ALTCem P100-X2	ABX-30	BondEnhancer	0.40	%BWOB
1	4	Lead	ALTCem P100-X2	ADF-11	Defoamer	0.30	%BWOB
1	4	Lead	ALTCem P100-X2	AFL-10	FluidLoss	0.30	%BWOB
1	4	Lead	ALTCem P100-X2	AR-31	Retarder	0.18	%BWOB
1	4	Lead	ALTCem P100-X2	AVS-20	Viscosifier	0.10	%BWOB
1	5	Tail	ALTCem P50-X1	ACG-10	Cement	50.00	%
1	5	Tail	ALTCem P50-X1	AFA-10	Extender	50.00	%
1	5	Tail	ALTCem P50-X1	ADF-11	Defoamer	0.30	%BWOB
1	5	Tail	ALTCem P50-X1	AFL-50	FluidLoss	0.20	%BWOB
1	5	Tail	ALTCem P50-X1	AR-20	Retarder	0.10	%BWOB
1	5	Tail	ALTCem P50-X1	AVS-10	Viscosifier	0.10	%BWOB
1	5	Tail	ALTCem P50-X1	AVS-50	Viscosifier	2.00	%BWOB
1	6	Displacement	Water & MMCR	AR-61	Retarder	0.10	gal/bbl
1	7	DisplacementFinal	Water w/ Clay Protection and Biocide	ASF-50	ClayProtection	0.08	gal/bbl
1	7	DisplacementFinal	Water w/ Clay Protection and Biocide	Biocide	Other	0.01	gal/bbl

## 2 Job Logs

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
1	Call Out	7/11/2017	07:00					BJ Services Crew Gets Called Out
2	Depart Facility	7/11/2017	09:30					BJ Services Crew Departs Facility Cheyenne W
3	Arrive on Location	7/11/2017	11:30					BJ Services Crew Arrives on Location
4	Pre-Rig Up Meeting	7/11/2017	12:00					BJ Services Crew Had a Pre-Rig up Meeting
5	Rig Up	7/11/2017	12:00					BJ Services Crew Rigs Up Pump and Iron
6	Safety Meeting	7/11/2017	13:30					BJ Services Crew Had A Safety Meeting With Rig Hand And CoMan - Went Over Job Procedure
7	Pressure Test	7/11/2017	14:40				6400	Pressure Test Lines To 6400 Psi
8	Pump Flush	7/11/2017	14:45	8.33	4	40	150	Pumped 40 BBL Fresh Water Flush At 4 Bpm W/150 psi
9	Pump Spacer	7/11/2017	15:05	11	4	40	200	Pumped 40 BBL Of CD Spacer At 11 ppg at 4 BPM W/200 Psi
10	Pump Lead Cement	7/11/2017	15:18	12.5	6	317	500	Pumped 317 BBL Total Of Lead Cement (200sks 12.5 ppg 2.06yld 11.77 g/sk)(660 sks 12.5 ppg 2.07 yld 11.81 g/sk)At 6 BPM w/500 psi
11	Pump Tail Cement	7/11/2017	16:21	13.5	6	254	600	Pumped 254 BBL Of Tail Cement (970 sks 13.5 ppg 1.47 yld 7.43 g/sk ) At 6 BPM W/600 psi
12	Shut Down	7/11/2017	17:16					Shut Down Pumping Cement
13	Wash Pump/Lines	7/11/2017	17:19					Wash Pumps and Lines To Pit
14	Drop Bottom Plug	7/11/2017	17:24					Drop Bottom Plug
15	Pump 10 BBL Wet Shoe	7/11/2017	17:26	8.33	5	10	50	Pumped 10 BBL Of Fresh Water W/ 1 Gal Ar-61 At 5 BPM w/50 psi
16	Drop Top Plug	7/11/2017	17:29					Drop Top Plug
17	Start Disp.	7/11/2017	17:29	8.33	8		400	Start Pumping Disp. At 8 BPM W/
18	Spacer to Surface	7/11/2017	17:54	8.33	8	185	2200	At 185 BBL away Into Disp. Got Spacer to Surface At 8 BPM W/2200 Psi
19	Cement to Surface	7/11/2017	17:59	8.33	8	225	2500	At 225 BBL Away into Disp. Got Cement to Surface At 8 BPM W/ 2500 Psi
20	Slow Rate	7/11/2017	18:03	8.33	3	250	1900	At 250 BBL Away into Disp. Slow Down Rate To 3 BPM W/1900 Psi
21	Bumped 1st Plug	7/11/2017	18:08	8.33	3	265	2500	Rupture Bottom Plug At 2500 Psi At 3 Bpm Pressure Dropped To 2000 Psi



22	Land Plug	7/11/2017	18:12	8.33	3	275	2526	Land Top Plug At 275 BBL Away At 3 BPM Final Circ. Pressure Was 2040 Psi Bumped Plug To 2526 Psi Hold For 3 Min
23	Check Floats	7/11/2017	18:15					Check Floats Got 2.5 BBL Back
24	Other	7/11/2017	00:00					Cement to Surface - 50 BBL
25	Other	7/11/2017	00:00					Spacer to Surface - 40 BBL
26	Other	7/11/2017	00:00					Calculated Top of Tail Cement - 5385.4'

### 3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	75 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	120 mg/L	0-3000 mg/L
Total Alkalinity	180	0-1000
Total Hardness	0 mg/L	0-500 mg/L
Carbonates	75 mg/L	0-100 mg/L
Sulfates	>200 mg/L	0-1500 mg/L
Potassium	450 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

### 4 Pump Diagrams

Customer: Cub Creek Energy  
Well Number: 10  
Lease Info: Litzenberger



Print Date/Time

7/11/2017 6:57:44 PM

