

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	1541	0
Open Hole	Outer	n/a	8.5	n/a	n/a	1541	11891	18
Casing	Inner	5.5	4.892	17	n/a	0	11878	18

1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Bulk Trailer	PPC41311	Schuebel, Kasey	Soto Jr., Ruben	160
Light Duty Pickups	5	Fuentes, Orlando		160
Light Duty Pickups	4	Kresge, Adam		160
Cement Pump	101	Groneman, Josh		160

1.3 Timing

Event	Date/Time
Call Out	7/17/2017 12:00
Depart Facility	7/17/2017 14:00
On Location	7/17/2017 16:00
Rig Up Iron	7/17/2017 16:30
Job Started	7/17/2017 18:51
Job Completed	7/17/2017 21:58
Rig Down Iron	7/17/2017 22:30
Depart Location	7/18/2017 23:59

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	275.02 bbls
Actual Displacement	272 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	30 bbls

1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	12
Yield Point	8
10 sec. SGS	5
10 min. SGS	11
30 min. SGS	13
Filtrate	5.2
Flow Line Temp.	110

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 ³ /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	5427
1	6	Water & MMCR	Displacement	8.33			41.90		10.00	11651
1	7	Water w/ Clay Protection and Biocide	DisplacementFinal	8.33			41.91		267.00	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	7/17/2017	12:00					BJ services Crew Gets Called Out
2	Depart Facility	7/17/2017	14:00					BJ services Crew Departs Facility Cheyenne WY
3	Arrive On Location	7/17/2017	16:00					BJ services Crew Arrives On Location
4	Pre Rig Up Meeting	7/17/2017	16:30					BJ services Crew Had A Pre Rig Up Meeting
5	Rig Up	7/17/2017	16:30					BJ services Crew Rigs Up Pump And Iron
6	Safety Meeting	7/17/2017	18:30					BJ services Crew Had A Safety Meeting With Rig Hands And CoMan - Went Over Job Procedure
7	Pressure Test	7/17/2017	18:51				6500	Pressure Test Lines To 6500 Psi
8	Pump Flush	7/17/2017	18:56	8.33	4	40	450	Pumped 40 BBL H2o Flush Ahead At 4 BPM W/450 psi
9	Pump Spacer	7/17/2017	19:01	11	6	40	499	Pumped 40 BBL 11 PPG CD Spacer At 6 BPM W/499 Psi
10	Pump Lead Cement	7/17/2017	19:06	12.5	6	317	125	Pumped 317 BBL (200 sks 12.5ppg 2.06yld 11.77g/sk) (660sks 12.5 2.07 yld 11.81g/sk) Of Lead Cement At 6 BPM W/125 psi
11	Pump Tail Cement	7/17/2017	20:10	13.5	6	254	207	Pumped 254 BBL (970sks 13.5 ppg 1.47yld 7.43 g/sk) Of Tail Cement At 6 BPM W/207 psi
12	Shut Down	7/17/2017	21:00					Shut Down Pumping Cement
13	Clean Pumps/Lines	7/17/2017	21:03	8.33	5	10	15	Clean Pumps and Lines To Pit
14	Drop Bottom Plug	7/17/2017	21:10					Drop Bottom Plug
15	Pump Water	7/17/2017	21:12	8.33	5	10	20	Pumped 10 BBL Fresh Water W/ 1 gal AR-61 For Wet Shoe
16	Shut Down	7/17/2017	21:14					Shut Pumping Water
17	Drop Top Plug	7/17/2017	21:14					Drop Top Plug
18	Start Displacement	7/17/2017	21:15	8.33	8		200	Start Pumping h2o Disp. W/ Adds At 8 BPM W/200 psi
19	Spacer To Surface	7/17/2017	21:42	8.33	8	202	2150	At 202 BBL Away Into Disp. Got Spacer To Surface At 8 BPM W/2150 Psi
20	Cement to Surface	7/17/2017	21:46	8.33	8	242	2200	At 242 BBL Away Into Disp. Got Cement To Surface At 8 BPM W/2200 psi
21	Slow Rate	7/17/2017	21:48	8.33	3	255	1800	At 255 BBL away Into Disp. Slow Rate To 3 BPM W/1800 Psi
22	Burst 1st Plug	7/17/2017	21:50	8.33	3	262	3200	At 262 BBL Away Into Disp. Bursts 1st Plug At 3200 psi At 3 Bpm,



								Pressure Dropped Back To 1900 psi
23	Land Plug	7/17/2017	21:54	8.33	3	272	2350	Land Plug At 272 BBL Final Circ. Pressure was 1900 psi Bumped Plug To 2350 psi
24	Check Floats	7/17/2017	21:58					Check Floats Got 2.5 BBL Back
25	Pre-Rig Down Meeting	7/17/2017	22:00					BJ services Crew Had A Pre Rig Down Meeting
26	Rig Down	7/17/2017	22:30					BJ Services Crew Rigs Down Pump And Iron
27	Depart Location	7/18/2017	23:59					BJ Services Crew Departs Location
28	Other	7/18/2017	00:00					Cement To Surface - 30 BBL
29	Other	7/18/2017	00:00					Spacer To Surface - 40 BBL
30	Other	7/18/2017	00:00					Calculated Top of Tail Cement - 5426.5'

3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	70 °F	50-80 °F
pH Level	6	5.5-8.5
Chlorides	200 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	1 mg/L	0-300 mg/L

4 Pump Diagrams

