

## 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	1552	11900	18
Casing	Inner	5.5	4.892	17	n/a	0	11890	0

### 1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Bulk Trailer	504	Agosto, Miguel		140
Silo	657			140
Silo	658			140
Cement Pump	101	Cook, John	Seghetti, Joshua	140
Light Duty Pickups	5	Hyde, Andrew		140

### 1.3 Timing

Event	Date/Time
Call Out	6/30/2017 15:00
Depart Facility	6/30/2017 16:30
On Location	6/30/2017 18:00
Rig Up Iron	6/30/2017 18:20
Job Started	6/30/2017 20:49
Job Completed	7/1/2017 00:04
Rig Down Iron	7/1/2017 00:30
Depart Location	7/1/2017 01:45

### 1.4 General Job Information

Metrics	Value
Well Fluid Density	11 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	400 bbls
Rig Circulation Time	2 hours
Calculated Displacement	274.6 bbls
Actual Displacement	274.5 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	15 bbls

### 1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	17
Yield Point	16
10 sec. SGS	5
10 min. SGS	32
30 min. SGS	45
Filtrate	4.8

### 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	11 lb/gal
Well Fluid Density Out of Well	11 lb/gal

### 1.7 Job Details (cont.)

Metrics	Value
BHCT	220 °F
BHST	220 °F



### 1.8 Circulation

Lost Circulation Experienced
No

### 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	27
1	4	ALTCem P100-X2	Lead	12.50	2.07	11.81		670.00	247.03	1560
1	5	ALTCem P50-X1	Tail	13.50	1.47	7.43		1045.00	274.46	6691
1	6	Water & MMCR	Displacement	8.33			41.90		10.00	11494
1	7	Water w/ Clay Protection and Biocide	DisplacementFinal	8.33			41.91		268.00	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	6/30/2017	15:00					BJ crew gets called out and requested on location at 21:00
2	Safety Meeting	6/30/2017	16:00					BJ crew talks about the hazards of driving to location
3	Depart Yard	6/30/2017	16:30					Depart Yard
4	Arrive On Location	6/30/2007	18:00					Arrive on location
5	Safety Meeting	6/30/2017	18:05					BJ crew talks about the hazards of spotting in equipment and rigging up
6	Rig Up	6/30/2017	18:20					Rig up
7	Safety Meeting	6/30/2017	20:00					BJ and rig crew talk about the hazards of pumping the job
8	Fill Lines	6/30/2017	20:49	8.33	2	3	400	Pump 3 bbls of water ahead
9	Pressure Test	6/30/2017	20:51					Pressure test pumps and lines to 6000 psi
10	Pump Water	6/30/2017	20:53	8.33	4	40	234	Pump 40 bbls of water
11	Pump Spacer	6/30/2017	21:07	11	4	40	750	Pump 40 bbls of CD Spacer at 11 ppg
12	Pump Lead Cement	6/30/2017	21:17	12.5	6	73.5	1100	Mix up and pump 200 sks of ALTCem P100-X2 Lead cement at 12.5 ppg, yield 2.06, 11.77 gal/sk 73.5 bbls
13	Pump Lead Cement	6/30/2017	21:28	12.5	6	247	800	Mix up and pump 670 sks of ALTCem P100-X2 Lead cement at 12.5 ppg, yield 2.06, 11.77 gal/sk 247 bbls
14	Pump Tail Cement	6/30/2017	22:08	13.5	6	274.5	400	Mix up and pump 1045 sks of ALTCem P100-X2 tail cement at 13.5 ppg, yield 1.47, 7.43 gal/sk 274.5 bbls
15	Shutdown	6/30/2017	22:57					Shutdown to line out manifold to wash pumps and lines
16	Wash Pumps and Lines	6/30/2017	23:00					Wash pumps and lines to the pit
17	Drop Bottom Plug	6/30/2017	23:05					Company man witness plug leave manifold
18	Pump Water	6/30/2017	23:07	8.33	5	10	300	Pump 5 bbls of water
19	Drop Top Plug	6/30/2017	23:08					Company man witness plug leave manifold
20	Pump Displacement	6/30/2017	23:09	8.33	8	254	2100	Pump bbls of water displacement with 22 gals of ASF-50
21	Slow Rate	6/30/2017	23:43	8.33	3	20	1800	Slow rate the last 20 bbls to 3 bpm
22	Bump Plug	6/30/2017	23:50					Bump plug at 1800 psi, took it up to 2370 psi



23	Check Floats	6/30/2017	23:53					Floats didn't hold pressure back up to 2450 psi, check floats and they still didn't hold
24	Safety Meeting	7/1/2017	00:20					BJ crew talked about the hazards of rigging down
25	Rig Down	7/1/2017	00:30					Rig down
26	Depart Location	7/1/2017	01:45					Depart location
27	Other	7/1/2017	01:46					Estimated top of tail at 5166 ft, got 15bbls cement to surface

### 3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	65 °F	50-80 °F
pH Level	6	5.5-8.5
Chlorides	72 mg/L	0-3000 mg/L
Total Alkalinity	120	0-1000
Total Hardness	300 mg/L	0-500 mg/L
Carbonates	140 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	300 mg/L	0-3000 mg/L
Iron	7 mg/L	0-300 mg/L

### 4 Pump Diagrams

