

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	1541	11592	15
Casing	Inner	5.5	4.892	17	n/a	0	11582	0

1.2 Equipment / People

Unit Type	Unit	Power Unit	Employee #1	Mileage
Silo	658			
Silo	657			75
Bulk Trailer	501		Cook, John	150
Cement Pump	101	201	Hyde, Zack	150
Light Duty Pickups	8		Boyd, Brian	150

1.3 Timing

Event	Date/Time
Call Out	4/12/2017 12:00
Depart Facility	4/12/2017 13:30
On Location	4/12/2017 15:00
Rig Up Iron	4/12/2017 15:15
Job Started	4/12/2017 19:58
Job Completed	4/12/2017 23:08
Rig Down Iron	4/12/2017 23:15
Depart Location	4/13/2017 01:00

1.4 General Job Information

Metrics	Value
Well Fluid Density	10 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	1000 bbls
Rig Circulation Time	3 hours
Calculated Displacement	268 bbls
Actual Displacement	270 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	5 bbls
Well Topped Out	No

1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	12
Yield Point	10
10 sec. SGS	5
10 min. SGS	20
30 min. SGS	24
Filtrate	5.8
Flow Line Temp.	120

1.6 Job Details

Metrics	Value
Flare Prior to Job	Yes
Flare Prior to Job	5000 units
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	10 lb/gal
Well Fluid Density Out of Well	8.33 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 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			33.24		40.00	0
1	3	ALTCem P100-X2	Lead	12.50	2.07	11.81		815.00	300.52	0
1	4	ALTCem P50-X1	Tail	13.50	1.47	7.43		940.00	246.88	6357
1	5	Water w/ Clay Protection and Biocide	DisplacementFinal	8.33			41.91		270.00	0

1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Spacer	CD Spacer	ASR-20	StrengthRetrogression	179.69	lb/bbl
1	2	Spacer	CD Spacer	AR-31	Retarder	0.51	lb/bbl
1	2	Spacer	CD Spacer	ASF-20	Surfactant	0.50	gal/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	ABX-30	BondEnhancer	0.40	%BWOB
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	0.20	%BWOB
1	3	Lead	ALTCem P100-X2	AVS-20	Viscosifier	0.10	%BWOB
1	4	Tail	ALTCem P50-X1	ACG-10	Cement	50.00	%
1	4	Tail	ALTCem P50-X1	AFA-10	Extender	50.00	%
1	4	Tail	ALTCem P50-X1	ADF-11	Defoamer	0.30	%BWOB
1	4	Tail	ALTCem P50-X1	AFL-50	FluidLoss	0.20	%BWOB
1	4	Tail	ALTCem P50-X1	AR-20	Retarder	0.10	%BWOB
1	4	Tail	ALTCem P50-X1	AVS-10	Viscosifier	0.10	%BWOB
1	4	Tail	ALTCem P50-X1	AVS-50	Viscosifier	2.00	%BWOB
1	5	DisplacementFinal	Water w/ Clay Protection and Biocide	ASF-50	ClayProtection	0.08	gal/bbl
1	5	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	4/12/2017	12:00					Customer requested crew to be on location at 18:00
2	Depart Location	4/12/2017	13:30					Crew departs from shop
3	Arrive On Location	4/12/2017	15:00					Crew arrives on location and meet with customer and get numbers
4	Safety Meeting	4/12/2017	15:05					Meeting with BJ crew over spotting equipment and take assessment of location and hazards of rigging up
5	Rig Up Iron	4/12/2017	15:15					Crew rigs up iron and hoses
6	Waiting	4/12/2017	16:00					Waiting on rig to land casing and casing crew to rig down to rig up
7	Rig Lands Casing	4/12/2017	16:30					Rig lands casing and rig up head for rig to start circulating
8	Waiting	4/12/2017	16:35					Wait 3 hours for rig to circulate
9	Safety Meeting	4/12/2017	19:25					Safety meeting with BJ crew, rig crew and company over job procedures and hazards of job
10	Rig Up Floor	4/12/2017	19:35					Rig up rest of the floor
11	Fill Lines	4/12/2017	19:58	8.33	3	3	420	Fill pumps and lines
12	Pressure Test	4/12/2017	20:03	8.33	0.5	0.5	5000	Pressure test iron and head to 5000 PSI
13	Pump Flush	4/12/2017	20:05	8.33	6	40	630	Pump 40 bbls of fresh water flush
14	Pump Spacer	4/12/2017	20:12	11	6	40	600	Pump 40 bbls of 11 PPG spacer
15	Pump Lead Cement	4/12/2017	20:18	12.5	6	300		Pump 300 bbls of Lead Cement at 12.5 PPG at 6 bpm (815 sks, 12.5PPG, 2.07 Y, 11.81 Gals/Sks)
16	Pump Lead Cement	4/12/2017	20:30	12.5	6	100	320	100 bbls into lead cement
17	Pump Lead Cement	4/12/2017	20:42	12.5	6	100	230	200 bbls into cement
18	Pump Lead Cement	4/12/2017	20:59	12.5	6	100	399	300 bbls into cement
19	Pump Tail Cement	4/12/2017	21:02	13.5	6	246		Pump 246 bbls of Tail Cement At 13.5 PPG at 6bpm (940 sks, 13.50 PPG, 1.47 Y, 7.43 Gals/Sks)
20	Pump Tail Cement	4/12/2017	21:14	13.5	6	100	481	100 bbls into tail cement
21	Pump Tail Cement	4/12/2017	21:28	13.5	6	100	350	200 bbls into tail cement
22	Pump Tail Cement	4/12/2017	21:58	13.5	6	46	230	246 bbls into tail cement
23	Shut Down	4/12/2017	22:01					Shut down pumping



24	Wash Pump and Lines	4/12/2017	22:08	8.33	3		30	Wash pumps and lines into 3-way tank
25	Drop Bottom Plug	4/12/2017	22:13	8.33	2	10	200	Pump 10 bbls of fresh water with MCCR and drop bottom plug
26	Drop Top Plug	4/12/2017	22:16	8.33	2			Drop Top Plug
27	Pump Displacement	4/12/2017	22:17	8.33	8	270		Pump 270 bbl of fresh water displacement at 8 bpm
28	Pump Displacement	4/12/2017	22:31	8.33	8	100	1400	100 bbls into displacement
29	Pump Displacement	4/12/2017	22:45	8.33	8	100	1568	200 bbls into displacement
30	Pump Displacement	4/12/2017	22:51	8.33	8	50	1689	250 bbls into displacement
31	Slow Rate	4/12/2017	22:55	8.33	2	20	1455	Last 20 bbls of displacement slow rate to 2 bpm
32	Land Plug	4/12/2017	23:05	8.33	2	270	2120	Land plug at 2000 PSI requested by customer
33	Check Floats	4/12/2017	23:08					got 1.5 bbls back
34	Safety Meeting	4/12/2017	23:10					Safety meeting with BJ crew over rigging down iron and equipment
35	Rig Down Iron	4/12/2017	23:15					Rig down iron and hoses
36	Depart Location	4/13/2017	01:00					Crew departs from location

3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	66 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	80	0-1000
Total Hardness	70 mg/L	0-500 mg/L
Carbonates	140 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

