

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	1543	0
Open Hole	Outer	n/a	8.5	n/a	n/a	1552	12175	18
Casing	Inner	5.5	4.892	17	n/a	0	12165	0

1.2 Equipment / People

Unit Type	Unit	Employee #1	Mileage
Bulk Trailer	505	Mellon, Zacahria	126
Silo	657		126
Silo	658		126
Cement Pump	103	Bell, Wesley	126
Tractor	301	Hyde, Zack	126
Light Duty Pickups	54	Hazen, Chase	126

1.3 Timing

Event	Date/Time
Call Out	8/23/2017 12:30
Depart Facility	8/23/2017 14:00
On Location	8/23/2017 16:00
Rig Up Iron	8/23/2017 16:24
Job Started	8/23/2017 19:09
Job Completed	8/23/2017 21:58
Rig Down Iron	8/23/2017 22:20
Depart Location	8/23/2017 23:45

1.4 General Job Information

Metrics	Value
Well Fluid Density	10.6 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	na bbls
Rig Circulation Time	3 hours
Calculated Displacement	281.6 bbls
Actual Displacement	283 bbls
Total Spacer to Surface	40 bbls
Total CMT to Surface	50 bbls

1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	13
Yield Point	8
10 sec. SGS	4
10 min. SGS	15
30 min. SGS	19
Filtrate	4.4

1.6 Job Details

Metrics	Value
Flare Prior to Job	Yes
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	10.6 lb/gal
Well Fluid Density Out of Well	10.6 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			33.78		40.00	0
1	3	P100-X2	Lead	12.50	2.06	11.77		200.00	73.47	17
1	4	P100-X2	Lead	12.50	2.07	11.81		700.00	258.06	1550
1	5	P50-X1	Tail	13.50	1.47	7.43		970.00	254.76	6911
1	6	Water & MMCR	Displacement	8.33			41.90		10.00	11779
1	7	Water w/ Clay Protection and Biocide	DisplacementFinal	8.33			41.91		271.00	0



1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom	Start (gal)	End (gal)	Used (gal)
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	P100-X2	AC3-10	Cement	100.00	%			
1	3	Lead	P100-X2	ADF-11	Defoamer	0.30	%BWOB			
1	3	Lead	P100-X2	AFL-10	FluidLoss	0.30	%BWOB			
1	3	Lead	P100-X2	AR-31	Retarder	0.16	%BWOB			
1	3	Lead	P100-X2	AVS-20	Viscosifier	0.10	%BWOB			
1	4	Lead	P100-X2	AC3-10	Cement	100.00	%			
1	4	Lead	P100-X2	ABX-30	BondEnhancer	0.40	%BWOB			
1	4	Lead	P100-X2	ADF-11	Defoamer	0.30	%BWOB			
1	4	Lead	P100-X2	AFL-10	FluidLoss	0.30	%BWOB			
1	4	Lead	P100-X2	AR-31	Retarder	0.16	%BWOB			
1	4	Lead	P100-X2	AVS-20	Viscosifier	0.10	%BWOB			
1	5	Tail	P50-X1	ACG-10	Cement	50.00	%			
1	5	Tail	P50-X1	AFA-10	Extender	50.00	%			
1	5	Tail	P50-X1	ADF-11	Defoamer	0.30	%BWOB			
1	5	Tail	P50-X1	AFL-50	FluidLoss	0.20	%BWOB			
1	5	Tail	P50-X1	AR-20	Retarder	0.10	%BWOB			
1	5	Tail	P50-X1	AVS-10	Viscosifier	0.10	%BWOB			
1	5	Tail	P50-X1	AVS-50	Viscosifier	2.00	%BWOB			
1	6	Displacement	Water & MMCR	AR-61	Retarder	0.10	gal/bbl	1	0	1
1	7	DisplacementFinal	Water w/ Clay Protection and Biocide	ASF-50	ClayProtection	0.08	gal/bbl	22	0	22
1	7	DisplacementFinal	Water w/ Clay Protection and Biocide	Biocide	Other	0.01	gal/bbl	3	0	3

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	Arrive on location	8/23/2017	16:00					arrive on location, requested time was 18:30
2	Rig In	8/23/2017	16:24					Spot and rig in pump and bulk units, run pump lines, wash up line, water lines
3	Waiting	8/23/2017	17:30					Wait on rig to finish circulating, rig used BJ circulating swedge
4	Safety Meeting	8/23/2017	18:30					Hold pre job safety meeting with rig crew and pump crew. Discuss job procedure and job hazards
5	Fill lines	8/23/2017	19:09	8.34	2	2	200	Fill lines with fresh water
6	Pressure test	8/23/2017	19:11	8.34			4000	Pressure test lines, no leaks
7	Pump Preflush	8/23/2017	19:13	8.34	5	38	200	Pump 38bbls of fresh water ahead
8	Pump Spacer	8/23/2017	19:21	11	5	40	220	Pump 40bbls of Spacer at 11ppg
9	Pump Lead 1	8/23/2017	19:24	12.5	6	73.5	300	Pump 73.5bbls of Lead 1 cement at 12.5ppg, 200sk, Y: 2.06, WR: 11.77, 56.1bbls of mix water
10	Pump Lead 2	8/23/2017	19:41	12.5	6	258.1	330	Pump 258.1bbls of Lead 2 cement at 12.5ppg, 700sk, Y: 2.07, WR: 11.81, 197bbls of mix water
11	Pump Tail	8/23/2017	20:27	13.5	6	254.8	400	Pump 254.8bbls of Tail cement at 13.5ppg, 970sk, Y: 1.47, WR: 7.43, 171.6bbls of mix water
12	Shut Down, Clean lines	8/23/2017	21:04					Finish mixing cement, clean pumps and lines to rig tank
13	Drop Bottom Plug	8/23/2017	21:12	8.34	5	10	200	Drop bottom burst plug, pump 10bbls of water with 1gal AR-61
14	Drop Top Plug	8/23/2017	21:14	8.34	8	0	400	Drop Top plug, zero totalizer, begin displacement with ASF-50 and Biocide in displacement fluid
15	Pump	8/23/2017	21:23	8.34	8	50	1000	50bbls of displacement away
16	Pump	8/23/2017	21:29	8.34	8	50	1400	100bbls of displacement away
17	Pump	8/23/2017	21:36	8.34	8	50	2000	150bbls of displacement away
18	Pump	8/23/2017	21:42	8.34	8	50	2200	200bbls of displacement away, Spacer to surface at 190bbls of displacement away
19	Pump	8/23/2017	21:49	8.34	8	50	2200	250bbls of displacement away, Cement to surface at 230bbls away. 50bbls of cement to surface total
20	Slow Rate	8/23/2017	21:50	8.34	3	10	1700	260bbls away, slow rate for last 20bbls
21	Land Plug	8/23/2017	21:58	8.34	3	23	1800	283bbls away land second plug and bump to 2300psi. First plug landed and burst at 273away.



22	Check Floats	8/23/2017	22:03	8.34	0			Floats do not hold, 3bbls back
23	Pump	8/23/2017	22:05	8.34	2	3	2500	Land plug again
24	Check Floats	8/23/2017	22:08	8.34				Floats do no hold, 3bbls back
25	Pump	8/23/2017	22:16	8.34	2	2	1800	Land plug again, shut in PLH with 1800psi
26	Job complete	8/23/2017	22:16					
27	Rig Out	8/23/2017	22:20					
28	Leave location	8/23/2017	23:30					

3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	70 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	120	0-1000
Total Hardness	0 mg/L	0-500 mg/L
Carbonates	0 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	5 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

4 Pump Diagrams

