

Job Details & Summary

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	1546	0
Open Hole	Outer	n/a	8.5	n/a	n/a	1546	6700	20
Casing	Inner	5.5	4.778	20	n/a	0	16497	0
Open Hole	Outer	n/a	8.5	n/a	n/a	6700	16507	15

Equipment / People

Unit Type	Unit	Power Unit	Employee #1	Employee #2	Mileage
Field Bin	604				138
Plug Container	150509				138
Bulk Trailer	502	204	Bueghly, Steve	Saldivar, Jesus	138
Cement Pump	102	202	Hyde, Zack	Chaparro, Hector	138
Field Bin	602				138
Light Duty Pickups	3		Fuentes, Orlando	Hyde, Tyson	138
Swage	150529				138

Timing

Event	Date/Time
Call Out	12/13/2016 09:00
Depart Facility	12/13/2016 12:00
On Location	12/13/2016 13:30
Rig Up Iron	12/13/2016 14:00
Job Started	12/14/2016 08:30
Job Completed	12/14/2016 13:30
Rig Down Iron	12/14/2016 14:00
Depart Location	12/14/2016 15:00

General Job Information

Metrics	Value
Well Fluid Density	10.3 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	1453 bbls
Rig Circulation Time	3 hours
Calculated Displacement	365.8 bbls
Actual Displacement	361 bbls
Total Spacer to Surface	100 bbls
Total CMT to Surface	71 bbls
Well Topped Out	No

Well Fluid Details

Metrics	Value
Plastic Viscosity	13
Yield Point	8
10 sec. SGS	3
10 min. SGS	6
30 min. SGS	10
Filtrate	3.6

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	10.3 lb/gal
Well Fluid Density Out of Well	10.3 lb/gal

Job Details (cont.)

Metrics	Value
BHCT	220 °F
BHST	220 °F

Circulation

Lost Circulation Experienced
No



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		60.00	0
1	2	CD Spacer	Spacer	11.00			33.76		40.00	0
1	3	ALTCem P100-X2	Lead	12.50	2.07	11.76		890.00	327.40	0
1	4	ALTCem P50-X1	Tail	13.50	1.47	7.35		1970.00	517.22	3856
1	5	MMCR Water	Displacement	8.33			41.90		5.00	16384
1	6	Water w/ Clay Protection and Biocide	DisplacementFinal	8.33			41.91		365.80	0

Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Spacer	CD Spacer	ASR-20	StrengthRetrogression	179.30	lb/bbl
1	2	Spacer	CD Spacer	AR-31	Retarder	0.64	lb/bbl
1	2	Spacer	CD Spacer	AVS-10	Viscosifier	0.80	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-20	Defoamer	0.03	gal/sk
1	3	Lead	ALTCem P100-X2	AFL-10	FluidLoss	0.30	%BWOB
1	3	Lead	ALTCem P100-X2	AR-31	Retarder	0.15	%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-20	Defoamer	0.03	gal/sk
1	4	Tail	ALTCem P50-X1	AFL-50	FluidLoss	0.20	%BWOB
1	4	Tail	ALTCem P50-X1	AR-10	Retarder	0.80	%BWOB
1	4	Tail	ALTCem P50-X1	AR-31	Retarder	0.05	%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	Displacement	MMCR Water	AR-61	Retarder	0.10	gal/bbl
1	6	DisplacementFinal	Water w/ Clay Protection and Biocide	ASF-50	ClayProtection	0.08	gal/bbl
1	6	DisplacementFinal	Water w/ Clay Protection and Biocide	Biocide	Other	0.01	gal/bbl



Job Logs

Line	#	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Annular Pressure (psi)	Comment
1		Call Out	12/13/2016	0:900						ALTCem Crew Gets Called Out
2		Depart Facility	12/13/2016							ALTCem Crew Departs Facility - Cheyenne Wy
3		Arrive On Location	12/13/2016							ALTCem Crew Arrives On Location - Got Number From Co Man TD- 16507', TVD- 7392', TC- 16497', FC- 19' (5.5 " 20# P-110 Casing) (8.5 " O.H) Well Fluid 10.3 PPG
4		Pre Rig Up Meeting	12/13/2016							ALTCem Crew Had A Pre Rig Up Meeting
5		Rig Up	12/14/2016							ALTCem Crew Rigs Up Pump And Iron
6		Waiting	12/15/2016							Waiting On Rig To Run Casing
7		Other	12/13/2016							Rig Is Having Problems Getting Casing To Bottom Company Man Decides To Release Crew
8		Leave Location	12/13/2016	21:30						ALTCem Crew Leaves Location
9		Casing On Bottom	12/14/2016	04:30						Rig Landed Casing On Bottom
10		Call Out	12/14/2016	05:00						ALTCem Crew Gets Called Out
11		Arrive On Location	12/14/2016	06:30						ALTCem Crew Arrives On Location
12		Safety Meeting	12/14/2016	08:30						ALTCem Crew Had Safety Meeting With Rig Hands And Company Man Went Over Job Procedure
13		Pressure Test	12/14/2016	08:51				6500		Pressure Test Pumps and Lines To 6500 PSI
14		Pump Spacer	12/14/2016	09:03	8.33	5	60	807		Pumped 60 BBL Of Water Spacer At 5 BPM W/807 PSI
15		Pump CD Spacer	12/14/2016	09:09	11	6	40	995		Pumped 40 BBL Of CD Spacer At 11 PPG At 6 BPM W/995 PSI
16		Pump Lead Cement	12/14/2016	09:19	12.5	6	328	921		Pumped 328 BBL Of Lead Cement (890 SKS 12.5 PPG 2.07 Yld 11.76 Yld) At 6 BPM W/921 PSI
17		Pump Tail Cement	12/14/2016	10:16	13.5	6	515.75	274		Pumped 515 BBL Of Tail Cement (1970 SKS 13.5 PPG 1.47 Yld 7.35 G/Sk) At 6 BPM W/274 Psi
18		Shut Down	12/14/2016	11:45						Shut Down Pumping Cement
19		Clean Pumps	12/14/2016	11:46						Wash Pumps And Lines To Pit
20		Drop Plug	12/14/2016	11:50						Tool Hand And ALTCem Crew Drops Bottom Plug
21		Pump MMCR	12/14/2016	11:51	8.33	2.5	5	300		Pumped 5 BBL Of Water W/ 2 Gal AR-61
22		Shut Down	12/14/2016	11:55						Shut Down Pumping
23		Drop Plug	12/14/2016	11:56						Tool Hand And ALTCem Crew Drops Top Plug
24		Start Displacement	12/14/2016	11:56	8.33	8	0	460		Start Pumping Water Displacement W/ ASF-50 & Biocide At 8 BPM W/460 PSI
25		Spacer To Surface	12/14/2016	12:29	8.33	8	256	2651		At 256 BBL Away Into Displacement Got CD Spacer To Surface
26		Cement To Surface	12/14/2016	12:35	8.33	8	290	2829		At 290 BBL Away Into Displacement Got Cement To Surface
27		Slow Rate	12/14/2016	12:42	8.33	2	345	1779		At 345 BBL Away Slow Down Rate To 2 BPM W/1779 PSI
28		Ruptured Disc	12/14/2016	12:47	8.33	2	356	2780		At 356 BBL Away Into Displacement Ruptured Disc On Bottom Plug At 2780 Psi At 2 BPM Pressure Dropped Back To 1820 Psi
29		Land Plug	12/14/2016	12:50	8.33	2	361	1898		Land Plug At 361 BBL Away Final Circ Pressure Was 1898 PSI
30		Bumped Plug	12/14/2016	12:50	8.33	2	361	2784		Bumped Plug To 2784 PSI
31		Check Floats	12/14/2016	12:55						Check Floats Got 4 BBL Back And Still Flowing Slow Back To Pump



32	Pressure Up Plug	12/14/2016	13:01				2991		Company Man Decides To Bump Plug Again To 2991 Psi And Hold For 5 Min
33	Check Floats	12/14/2016	13:06						Check Floats Got 3.5 BBL Back And Still Was Flowing Back To Pump Slowly
34	Pressure Up Plug	12/14/2016	13:23				2000		Pressure Up Plug To 2000 PSI And Customer Decides To Shut In Well At Cement Head
35	Pre Rig Down Meeting	12/14/2016	13:30						ALTCem Crew Had A Pre Rig Down Meeting
36	Rig Down	12/14/2016	14:00						ALTCem Crew Rigs Down Pump Nad Iron
37	Depart Location	12/14/2016	15:00						ALTCem Crew Departs Location
38	Other	12/14/2016							Got 71 BBL Of Cement Back To Surface
39	Other	12/14/2016							Got 100 BBL Of Spacer Back To Surface

Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	65 °F	50-80 °F
pH Level	5	5.5-8.5
Chlorides	1 mg/L	0-3000 mg/L
Total Alkalinity	0	0-1000
Total Hardness	>70 mg/L	0-500 mg/L
Carbonates	4 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	0 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

Pump Diagrams

