



## Cement

Well Name: Churchill 28E-423

### Cement

#### Surface Casing Cement, Casing, 3/4/2015 15:15

Type Casing	String Surface, 927.0ftKB	Start Date 3/4/2015	Cementing End Date 3/4/2015	Wellbore Original Hole	Job Drilling - original, 3/2/2015 23:00	Cementing Company Cementers Well Service Inc	Cement Objective CEMENT SURFACE CASING	Eval Method Returns to Surface
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#### Cement Stages

Stg # 1	Description Surface Casing Cement					Objective		Top Depth (ftKB) 13.0	Bottom Depth (ftKB) 927.0	Pump Start Date 3/4/2015		Pump End Date 3/4/2015		Top Plug? No	Btm Plug? No									
Initial Pump Rate (bbl/min) 4		Final Pump Rate (bbl/min) 5		Avg Pump Rate (bbl/min) 5		Final Pump Pressure (psi) 400.0		Plug Bump Pressure (psi) 800.0		Pressure Held (psi) 800.0		Pressure Release Date 3/4/2015		Full Return? No	Vol Cement Ret (bbl) 8.0		Volume Lost (bbl) 0.0							
Recip? No	Stroke (ft)	Recip Rate (...)		Rotat... Yes	RPM (rpm)		Pipe Movement Note				MD Tagged (...) 879.0		Tag Method Drill Bit		Tag Wt (100... 5,000		Prop... No	Depth Plug... 935.0	Tag Cement Date 3/5/2015		Drill Out Date 3/5/2015		Drill Out Dia (...) 8 3/4	

#### Cement Fluids

Fluid	Est Top (ftKB)	Est Btm (ftKB)	Pump Start Date	Pump End Date	Class	Amount (sacks)	Mix H2O Ratio (gal/sack)	Yield (ft³/sack)	Vol Pumped (bbl)	Excess (%)	Dens (lb/gal)
Lead	13.0	927.0	3/4/2015	3/4/2015	G	770	5.20	1.18	161.8		15.20

#### Intermediate Casing Cement, Casing, 3/10/2015 03:45

Type Casing	String Intermediate, 7,252.0ftKB	Start Date 3/10/2015	Cementing End Date 3/10/2015	Wellbore Original Hole	Job Drilling - original, 3/2/2015 23:00	Cementing Company Baker Hughes	Cement Objective CEMENT 7" CASING	Eval Method Cement Bond Log
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#### Cement Stages

Stg # 1	Description Intermediate Casing Cement				Objective		Top Depth (ft)KB 13.0	Bottom Depth (ft)KB 7,252.0	Pump Start Date 3/10/2015		Pump End Date 3/10/2015		Top Plug? No	Btm Plug? Yes			
Initial Pump Rate (bbl/min) 5		Final Pump Rate (bbl/min) 4		Avg Pump Rate (bbl/min) 4		Final Pump Pressure (psi) 1,746.0		Plug Bump Pressure (psi) 2,521.0		Pressure Held (psi) 2,521.0		Pressure Release Date 3/10/2015		Full Return? Yes	Vol Cement Ret (bbl) 10.0	Volume Lost (bbl) 0.0	
Recip? No	Stroke (ft)	Recip Rate (...)	Rotat... No	RPM (rpm)	Pipe Movement Note			MD Tagged (...)	Tag Method Drill Bit			Tag Wt (100...) 5,000	Prop... No	Depth Plug...	Tag Cement Date 3/10/2015	Drill Out Date 3/10/2015	Drill Out Dia (...) 6 1/8

#### Cement Fluids

Fluid	Est Top (ftKB)	Est Btm (ftKB)	Pump Start Date	Pump End Date	Class	Amount (sacks)	Mix H2O Ratio (gal/sack)	Yield (ft³/sack)	Vol Pumped (bbl)	Excess (%)	Dens (lb/gal)
Lead	13.0	5,000.0	3/10/2015	3/10/2015	Premium Lite	306	18.18	2.99	162.9		11.20
Tail	5,000.0	7,252.0	3/10/2015	3/10/2015	50:50 poz / G	316	5.90	1.38	77.6		14.60

#### Liner Cement, Casing, 3/16/2015 09:45

Type Casing	String Liner, 13,916.0ftKB	Start Date 3/16/2015	Cementing End Date 3/16/2015	Wellbore Original Hole	Job Drilling - original, 3/2/2015 23:00	Cementing Company Baker Hughes	Cement Objective CEMENT 4 1/2" CASING	Eval Method Calculated
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#### Cement Stages

Stg # 1	Description Liner Cement				Objective			Top Depth (ftKB) 6,138.8	Bottom Depth (ftKB) 13,916.0	Pump Start Date 3/16/2015		Pump End Date 3/16/2015		Top Plug? No	Btm Plug? No						
Initial Pump Rate (bbl/min) 3		Final Pump Rate (bbl/min) 3		Avg Pump Rate (bbl/min) 3		Final Pump Pressure (psi) 2,184.0		Plug Bump Pressure (psi) 2,621.0		Pressure Held (psi) 2,621.0		Pressure Release Date 3/16/2015		Full Return? Yes	Vol Cement Ret (bbl) 14.0		Volume Lost (bbl) 0.0				
Recip? No	Stroke (ft)	Recip Rate (...)		Rotat... No	RPM (rpm)		Pipe Movement Note			MD Tagged (...)		Tag Method		Tag Wt (100...	Prop... No	Depth Plug...	Tag Cement Date		Drill Out Date		Drill Out Dia (...)

#### Cement Fluids

Fluid	Est Top (ftKB)	Est Btm (ftKB)	Pump Start Date	Pump End Date	Class	Amount (sacks)	Mix H2O Ratio (gal/sack)	Yield (ft³/sack)	Vol Pumped (bbl)	Excess (%)	Dens (lb/gal)
Lead	6,138.8	13,916.0	3/16/2015	3/16/2015	50:50 poz / G	430	10.31	2.06	157.5		13.00