

Well Name: Apache Canyon 19-14

Conductor Casing Cement

API/UWI 05071089270000	Location T34S-R67W-S19	Field Name Purgatoire River	Permit Number 20063024	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 7,614.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 1/22/2007 13:00	Rig Release Date 1/26/2007 05:00

Conductor Casing Cement, 1/22/2007 13:45					
Type Casing	Cementing Start Date 1/22/2007	Cementing End Date 1/22/2007	Wellbore Original Hole	String Conductor, 22.0ftKB	
Cementing Company Wal-Mart	Evaluation Method	Cement Evaluation Results			

Comment
Cmt'd conductor casing f/ 22' to 3' GL w/ 8 sks Quik-Crete

1, 3.0-22.0ftKB					
Top Depth (ftKB) 3.0	Bottom Depth (ftKB) 22.0	Full Return? Yes	Vol Cement Ret (bbl) 0.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 1	Final Pump Rate (bbl/min) 1	Avg Pump Rate (bbl/min) 1		Final Pump Pressure (psi) 0.0	Plug Bump Pressure (psi) 0.0
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)		Pipe Rotated? No	Pipe RPM (rpm)
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)		Drill Out Diameter (in)	Drill Out Date

Cement					
Fluid Type Cement	Fluid Description 15.00	Amount (sacks) 8	Class A	Volume Pumped (bbl) 1.4	
Estimated Top (ftKB) 3.0	Estimated Bottom Depth (ftKB) 22.0	Percent Excess Pumped (%)		Yield (ft ³ /sack) 1.00	Mix H2O Ratio (gal/sack) 5.00
Free Water (%)	Density (lb/gal) 15.00	Plastic Viscosity (cP)		Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives					
Add	Type			Conc	

Surface Casing Cement, 1/24/2007 14:45					
Type Casing	Cementing Start Date 1/24/2007	Cementing End Date 1/24/2007	Wellbore Original Hole	String Surface, 499.8ftKB	
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results			

Comment
HES cmt'd surface casing w/ 265 sks MIDCON II Trinidad Surface Blend in 4 stages

1, 100.0-505.0ftKB					
Top Depth (ftKB) 100.0	Bottom Depth (ftKB) 505.0	Full Return? No	Vol Cement Ret (bbl) 0.0	Top Plug? Yes	Bottom Plug? No
Initial Pump Rate (bbl/min) 2	Final Pump Rate (bbl/min) 2	Avg Pump Rate (bbl/min) 2		Final Pump Pressure (psi) 130.0	Plug Bump Pressure (psi) 100.0
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)		Pipe Rotated? No	Pipe RPM (rpm)
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)		Drill Out Diameter (in)	Drill Out Date

Spacer					
Fluid Type Spacer	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 70.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 505.0	Percent Excess Pumped (%)		Yield (ft ³ /sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)		Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives					
Add	Type			Conc	

Surface Cement					
Fluid Type Surface Cement	Fluid Description 14.00	Amount (sacks) 170	Class Midcon II	Volume Pumped (bbl) 50.0	
Estimated Top (ftKB) 100.0	Estimated Bottom Depth (ftKB) 505.0	Percent Excess Pumped (%)		Yield (ft ³ /sack) 1.66	Mix H2O Ratio (gal/sack) 7.76
Free Water (%)	Density (lb/gal) 14.00	Plastic Viscosity (cP)		Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives					
Add	Type			Conc	

Displacement					
Fluid Type Displacement	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 27.0	
Estimated Top (ftKB) 505.0	Estimated Bottom Depth (ftKB) 505.0	Percent Excess Pumped (%)		Yield (ft ³ /sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)		Thickening Time (hr)	1st Compressive Strength (psi)

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Conductor Casing Cement

API/JWI 05071089270000	Location T34S-R67W-S19	Field Name Purgatoire River	Permit Number 20063024	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 7,614.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 1/22/2007 13:00	Rig Release Date 1/26/2007 05:00

Cement Fluid Additives		
Add	Type	Conc

2, 50.0-100.0ftKB					
Top Depth (ftKB) 50.0	Bottom Depth (ftKB) 100.0	Full Return? No	Vol Cement Ret (bbl) 0.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 2	Final Pump Rate (bbl/min) 2	Avg Pump Rate (bbl/min) 2	Final Pump Pressure (psi) 0.0	Plug Bump Pressure (psi) 0.0	
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)	Pipe Rotated? No	Pipe RPM (rpm)	
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill Out Diameter (in)	Drill Out Date	

Surface Cement				
Fluid Type Surface Cement	Fluid Description 14.0	Amount (sacks) 34	Class Midcon II	Volume Pumped (bbl) 10.0
Estimated Top (ftKB) 50.0	Estimated Bottom Depth (ftKB) 100.0	Percent Excess Pumped (%)	Yield (ft ³ /sack) 1.66	Mix H2O Ratio (gal/sack) 7.76
Free Water (%)	Density (lb/gal) 14.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

3, 22.0-50.0ftKB					
Top Depth (ftKB) 22.0	Bottom Depth (ftKB) 50.0	Full Return? No	Vol Cement Ret (bbl) 0.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 2	Final Pump Rate (bbl/min) 2	Avg Pump Rate (bbl/min) 2	Final Pump Pressure (psi) 0.0	Plug Bump Pressure (psi) 0.0	
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)	Pipe Rotated? No	Pipe RPM (rpm)	
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill Out Diameter (in)	Drill Out Date	

Surface Cement				
Fluid Type Surface Cement	Fluid Description 14.0	Amount (sacks) 34	Class Midcon II	Volume Pumped (bbl) 10.0
Estimated Top (ftKB) 22.0	Estimated Bottom Depth (ftKB) 50.0	Percent Excess Pumped (%)	Yield (ft ³ /sack) 1.66	Mix H2O Ratio (gal/sack) 7.76
Free Water (%)	Density (lb/gal) 14.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

4, 2.5-22.0ftKB					
Top Depth (ftKB) 2.5	Bottom Depth (ftKB) 22.0	Full Return? Yes	Vol Cement Ret (bbl) 4.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 2	Final Pump Rate (bbl/min) 2	Avg Pump Rate (bbl/min) 2	Final Pump Pressure (psi) 0.0	Plug Bump Pressure (psi) 0.0	
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)	Pipe Rotated? No	Pipe RPM (rpm)	
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill Out Diameter (in)	Drill Out Date	

Surface Cement				
Fluid Type Surface Cement	Fluid Description 14.0	Amount (sacks) 27	Class Midcon II	Volume Pumped (bbl) 8.0
Estimated Top (ftKB) 2.5	Estimated Bottom Depth (ftKB) 22.0	Percent Excess Pumped (%)	Yield (ft ³ /sack) 1.66	Mix H2O Ratio (gal/sack) 7.76
Free Water (%)	Density (lb/gal) 14.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Production Casing Cement, 1/26/2007 06:30				
Type Casing	Cementing Start Date 1/26/2007	Cementing End Date 1/26/2007	Wellbore Original Hole	String Production, 2,025.6ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
HES cmt'd prod csg in 2 stages w/ 304 sks MIDCON II

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Gr Elev (ft) 7,614.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 1/22/2007 13:00	Rig Release Date 1/26/2007 05:00

1, 1,874.0-2,100.0ftKB					
Top Depth (ftKB) 1,874.0	Bottom Depth (ftKB) 2,100.0	Full Return? No	Vol Cement Ret (bbl) 0.0	Top Plug? Yes	Bottom Plug? No
Initial Pump Rate (bbl/min) 4	Final Pump Rate (bbl/min) 4	Avg Pump Rate (bbl/min) 4	Final Pump Pressure (psi) 40.0	Plug Bump Pressure (psi) 550.0	
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)	Pipe Rotated? No	Pipe RPM (rpm)	
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill Out Diameter (in)	Drill Out Date	

Spacer					
Fluid Type Spacer	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 55.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 2,100.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives					
Add	Type	Conc			

Dynamic LCM					
Fluid Type Dynamic LCM	Fluid Description 9.00	Amount (sacks)	Class	Volume Pumped (bbl) 100.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 446.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal) 9.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives					
Add	Type	Conc			

Spacer					
Fluid Type Spacer	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 10.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 0.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives					
Add	Type	Conc			

Superflush LCM					
Fluid Type Superflush LCM	Fluid Description 8.5	Amount (sacks)	Class	Volume Pumped (bbl) 30.0	
Estimated Top (ftKB) 446.0	Estimated Bottom Depth (ftKB) 1,346.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal)	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives					
Add	Type	Conc			

Spacer					
Fluid Type Spacer	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 10.0	
Estimated Top (ftKB) 446.0	Estimated Bottom Depth (ftKB) 446.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal)	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives					
Add	Type	Conc			

1st stage cmt					
Fluid Type 1st stage cmt	Fluid Description 13.0	Amount (sacks) 126	Class Midcon II	Volume Pumped (bbl) 46.0	
Estimated Top (ftKB) 1,346.0	Estimated Bottom Depth (ftKB) 2,100.0	Percent Excess Pumped (%)	Yield (ft³/sack) 2.04	Mix H2O Ratio (gal/sack) 10.58	
Free Water (%)	Density (lb/gal) 13.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives					
Add	Type	Conc			
Production Blend					

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Gr Elev (ft) 7,614.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 1/22/2007 13:00	Rig Release Date 1/26/2007 05:00

Displacement					
Fluid Type Displacement	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 47.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,979.7	Percent Excess Pumped (%)	Yield (ft ³ /sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives		
Add	Type	Conc

2, 91.0-1,346.0ftKB					
Top Depth (ftKB) 91.0	Bottom Depth (ftKB) 1,346.0	Full Return? Yes	Vol Cement Ret (bbl) 15.0	Top Plug? Yes	Bottom Plug? No
Initial Pump Rate (bbl/min) 4	Final Pump Rate (bbl/min) 4	Avg Pump Rate (bbl/min) 4	Final Pump Pressure (psi) 430.0	Plug Bump Pressure (psi) 1,500.0	
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)	Pipe Rotated? No	Pipe RPM (rpm)	
Tagged Depth (ftKB)	Tag Method	Depth Plug Drilled Out To (ftKB)	Drill Out Diameter (in)	Drill Out Date	

Spacer					
Fluid Type Spacer	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 10.0	
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft ³ /sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives		
Add	Type	Conc

Lead Cement					
Fluid Type Lead Cement	Fluid Description 12.0	Amount (sacks) 93	Class Midcon II	Volume Pumped (bbl) 42.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 846.0	Percent Excess Pumped (%)	Yield (ft ³ /sack) 2.56	Mix H2O Ratio (gal/sack) 14.50	
Free Water (%)	Density (lb/gal) 12.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives		
Add	Type	Conc

Tail Cement					
Fluid Type Tail Cement	Fluid Description 13.0	Amount (sacks) 85	Class Midcon II	Volume Pumped (bbl) 31.0	
Estimated Top (ftKB) 846.0	Estimated Bottom Depth (ftKB) 1,346.0	Percent Excess Pumped (%)	Yield (ft ³ /sack) 2.04	Mix H2O Ratio (gal/sack) 10.58	
Free Water (%)	Density (lb/gal) 13.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives		
Add	Type	Conc

Displacement					
Fluid Type Displacement	Fluid Description 8.34	Amount (sacks)	Class	Volume Pumped (bbl) 32.0	
Estimated Top (ftKB) 1,346.0	Estimated Bottom Depth (ftKB) 1,346.0	Percent Excess Pumped (%)	Yield (ft ³ /sack)	Mix H2O Ratio (gal/sack)	
Free Water (%)	Density (lb/gal) 8.34	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)	

Cement Fluid Additives		
Add	Type	Conc

Cement Squeeze, 3/3/2007 00:00					
Type Squeeze	Cementing Start Date 3/3/2007	Cementing End Date 3/3/2007	Wellbore Original Hole	String Production, 2,025.6ftKB	
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results			
Comment					

