

Well Name: Apache Canyon 05-08

Conductor Casing Cement

API/UWI 05071091330000	Location T34S-R67W-S05	Field Name Purgatoire River	Permit Number 20065933	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 7,716.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 6/5/2007 21:30	Rig Release Date 6/8/2007 20:00

Conductor Casing Cement, 6/6/2007 01:15

Type Casing	Cementing Start Date 6/6/2007	Cementing End Date 6/6/2007	Wellbore Original Hole	String Conductor, 48.5ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd cond w/ 88 sks MIDCON II Trinidad Surf Blend Mixed @ 14.0 ppg & cir 14 bbls cmt to pit

1, 3.0-52.0ftKB

Top Depth (ftKB) 3.0	Bottom Depth (ftKB) 52.0	Full Return? Yes	Vol Cement Ret (bbl) 14.0	Top Plug? Yes	Bottom Plug? No
Initial Pump Rate (bbl/min) 3	Final Pump Rate (bbl/min) 3	Avg Pump Rate (bbl/min) 3		Final Pump Pressure (psi) 35.0	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

Spacer

Fluid Type Spacer	Fluid Description 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 80.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives

Add	Type	Conc

Cement

Fluid Type Cement	Fluid Description 14.0	Amount (sacks) 88	Class Midcon II	Volume Pumped (bbl) 26.0
Estimated Top (ftKB) 3.0	Estimated Bottom Depth (ftKB) 52.0	Percent Excess Pumped (%)	Yield (ft³/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 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 40.0
Estimated Top (ftKB) 3.0	Estimated Bottom Depth (ftKB) 52.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives

Add	Type	Conc

Surface Casing Cement, 6/6/2007 21:15

Type Casing	Cementing Start Date 6/6/2007	Cementing End Date 6/6/2007	Wellbore Original Hole	String Surface, 496.2ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd surf csg w/ 247 sks MIDCON II Trinidad Surface cmt mixed @ 14.0 ppg & circ 35 bbls cmt to pit

1, 2.5-500.0ftKB

Top Depth (ftKB) 2.5	Bottom Depth (ftKB) 500.0	Full Return? Yes	Vol Cement Ret (bbl) 35.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 3	Final Pump Rate (bbl/min) 3	Avg Pump Rate (bbl/min) 3		Final Pump Pressure (psi) 220.0	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

Spacer

Fluid Type Spacer	Fluid Description 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 35.0
Estimated Top (ftKB) 2.5	Estimated Bottom Depth (ftKB) 500.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)



Cement Jobs by Well

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API/UWI 05071091330000	Location T34S-R67W-S05	Field Name Purgatoire River	Permit Number 20065933	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 7,716.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 6/5/2007 21:30	Rig Release Date 6/8/2007 20:00

Cement Fluid Additives		
Add	Type	Conc

Cement				
Fluid Type Cement	Fluid Description 14.0	Amount (sacks) 247	Class Midcon II	Volume Pumped (bbl) 73.0
Estimated Top (ftKB) 2.5	Estimated Bottom Depth (ftKB) 500.0	Percent Excess Pumped (%)	Yield (ft³/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 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 28.0
Estimated Top (ftKB) 2.4	Estimated Bottom Depth (ftKB) 450.0	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Production Casing Cement, 6/9/2007 13:00				
Type Casing	Cementing Start Date 6/9/2007	Cementing End Date 6/10/2007	Wellbore Original Hole	String Production, 2,283.1ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd prod csg in 2 stages w/ 145 sks MIDCON II TRINIDAD Prod Blend 1st stage mixed @ 13.0 ppg f/b 156 sks 2nd Stage LEAD mixed @ 12.0 ppg f/b 95 sks TA.I.L mixed @ 13.0 ppg
"NO CIRC TO PIT"

1, 1,516.5-2,360.0ftKB					
Top Depth (ftKB) 1,516.5	Bottom Depth (ftKB) 2,360.0	Full Return? No	Vol Cement Ret (bbl)	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) 220.0	Plug Bump Pressure (psi) 900.0
Pipe Reciprocated? No	Reciprocation Stroke Length (ft)	Reciprocation Rate (spm)		Pipe Rotated? No	Pipe RPM (rpm)
Tagged Depth (ftKB) 2,237.0	Tag Method	Depth Plug Drilled Out To (ftKB)		Drill Out Diameter (in)	Drill Out Date

Spacer				
Fluid Type Spacer	Fluid Description 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 35.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 100.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)



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Gr Elev (ft) 7,716.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 6/5/2007 21:30	Rig Release Date 6/8/2007 20:00

Cement Fluid Additives				
Add		Type		Conc
Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
Cement Fluid Additives				
Add		Type		Conc
Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
Cement Fluid Additives				
Add		Type		Conc
Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
Cement Fluid Additives				
Add		Type		Conc
Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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)



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Cement Fluid Additives		
Add	Type	Conc

Spacer				
Fluid Type Spacer	Fluid Description 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Cement				
Fluid Type Cement	Fluid Description 13.0	Amount (sacks) 145	Class Midcon II	Volume Pumped (bbl) 53.0
Estimated Top (ftKB) 1,516.5	Estimated Bottom Depth (ftKB) 2,360.0	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

Displacement				
Fluid Type Displacement	Fluid Description 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 53.3
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 2,237.8	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

2, 552.0-1,516.5ftKB					
Top Depth (ftKB) 552.0	Bottom Depth (ftKB) 1,516.5	Full Return? No	Vol Cement Ret (bbl)	Top Plug? Yes	Bottom Plug? Yes
Initial Pump Rate (bbl/min) 4	Final Pump Rate (bbl/min) 4	Avg Pump Rate (bbl/min) 4	Final Pump Pressure (psi) 130.0	Plug Bump Pressure (psi) 1,780.0	
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	

Open Stage collar				
Fluid Type Open Stage collar	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl) 1.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,516.5	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 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)



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Cement Fluid Additives		
Add	Type	Conc

Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Spacer				
Fluid Type Spacer	Fluid Description 9.0	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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 8.6	Amount (sacks)	Class	Volume Pumped (bbl) 4.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.60	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

2nd Stage LEAD				
Fluid Type 2nd Stage LEAD	Fluid Description 12.0	Amount (sacks) 156	Class Midcon II	Volume Pumped (bbl) 71.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,016.5	Percent Excess Pumped (%)	Yield (ft³/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

2nd Stage TAIL				
Fluid Type 2nd Stage TAIL	Fluid Description 13.0	Amount (sacks) 95	Class Midcon II	Volume Pumped (bbl) 34.0
Estimated Top (ftKB) 1,016.5	Estimated Bottom Depth (ftKB) 1,516.5	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

Displacement				
Fluid Type Displacement	Fluid Description 8.4	Amount (sacks)	Class	Volume Pumped (bbl) 36.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,516.5	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)



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Gr Elev (ft) 7,716.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 6/5/2007 21:30	Rig Release Date 6/8/2007 20:00

Cement Fluid Additives

Add	Type	Conc