

Well Name: Apache Canyon 05-04

Conductor Casing Cement

API/UWI 05071088170000	Location T34S-R67W-S05	Field Name Purgatoire River	Permit Number 20061863	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 7,838.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 7/10/2006 00:00	Rig Release Date 7/13/2006 00:30

Conductor Casing Cement, 7/10/2006 21:30

Type Casing	Cementing Start Date 7/10/2006	Cementing End Date 7/10/2006	Wellbore Original Hole	String Conductor, 23.0ftKB
Cementing Company Redi-Crete	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd to surface w/ 11 sks Redi-Crete

1, 0.0-23.0ftKB

Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 23.0	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 11.4	Amount (sacks) 11	Class A	Volume Pumped (bbl) 2.3
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB) 23.0	Percent Excess Pumped (%)	Yield (ft³/sack) 1.18	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 11.40	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives

Add	Type	Conc

Surface Casing Cement, 7/11/2006 09:00

Type Casing	Cementing Start Date 7/11/2006	Cementing End Date 7/11/2006	Wellbore Original Hole	String Surface, 225.5ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd 8-5/8" surf csg w/ 156 sks MIDCON II Trinidad Surf Blend & circ 2 bbls (7 sks) to pit

1, 0.0-230.0ftKB

Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 230.0	Full Return? Yes	Vol Cement Ret (bbl) 2.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 3	Final Pump Rate (bbl/min) 1	Avg Pump Rate (bbl/min) 2		Final Pump Pressure (psi) 150.0	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 8.33	Amount (sacks)	Class	Volume Pumped (bbl) 20.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.33	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) 156	Class G	Volume Pumped (bbl) 41.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB) 230.0	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
Trinidad Surface Blend		

Displacement

Fluid Type Displacement	Fluid Description 8.33	Amount (sacks)	Class	Volume Pumped (bbl) 10.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft³/sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.33	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

API/UWI 05071088170000	Location T34S-R67W-S05	Field Name Purgatoire River	Permit Number 20061863	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 7,838.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 7/10/2006 00:00	Rig Release Date 7/13/2006 00:30

Cement Fluid Additives		
Add	Type	Conc

Production Casing Cement, 7/13/2006 00:30				
Type Casing	Cementing Start Date 7/13/2006	Cementing End Date 7/13/2006	Wellbore Original Hole	String Production, 2,407.7ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd 1st stage w/140 sx. Could not open stage tool after several attempts. RD without pumping 2nd stage.

1, 1,130.0-2,420.0ftKB					
Top Depth (ftKB) 1,130.0	Bottom Depth (ftKB) 2,420.0	Full Return? No	Vol Cement Ret (bbl)	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) 490.0	Plug Bump Pressure (psi) 1,142.0
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	Amount (sacks)	Class	Volume Pumped (bbl) 60.0
Estimated Top (ftKB) 1,400.0	Estimated Bottom Depth (ftKB) 2,420.0	Percent Excess Pumped (%)	Yield (ft ³ /sack)	Mix H2O Ratio (gal/sack)
Free Water (%)	Density (lb/gal) 8.33	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

LCM				
Fluid Type LCM	Fluid Description	Amount (sacks)	Class Prem Lite	Volume Pumped (bbl) 60.0
Estimated Top (ftKB) 1,400.0	Estimated Bottom Depth (ftKB) 2,420.0	Percent Excess Pumped (%)	Yield (ft ³ /sack) 2.04	Mix H2O Ratio (gal/sack) 10.58
Free Water (%)	Density (lb/gal) 9.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

1st Stage Cement				
Fluid Type 1st Stage Cement	Fluid Description	Amount (sacks) 140	Class Prem Lite	Volume Pumped (bbl) 51.0
Estimated Top (ftKB) 1,601.3	Estimated Bottom Depth (ftKB) 2,420.0	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
Trinidad Prod Blend		

Displacement				
Fluid Type Displacement	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl) 56.0
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB) 2,364.1	Percent Excess Pumped (%)	Yield (ft ³ /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

Cement Squeeze, 8/5/2006 00:00				
Type Squeeze	Cementing Start Date 8/5/2006	Cementing End Date 8/5/2006	Wellbore Original Hole	String Production, 2,407.7ftKB
Cementing Company	Evaluation Method	Cement Evaluation Results		
Comment				

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<stagenum>, 0.0-1,128.0ftKB

Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 1,128.0	Full Return? No	Vol Cement Ret (bbl)	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min)	Final Pump Rate (bbl/min)	Avg Pump Rate (bbl/min)		Final Pump Pressure (psi)	Plug Bump Pressure (psi)
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

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Fluid Type	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl)
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Percent Excess Pumped (%)	Yield (ft ³ /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