

Well Name: Apache Canyon 31-16

Conductor Casing Cement

API/UWI 05071088140000	Location T33S-R67W-S31	Field Name Purgatoire River	Permit Number 20061871	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 8,035.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 7/13/2006 09:00	Rig Release Date 7/16/2006 08:00

Conductor Casing Cement, <dtmstart>

Type Casing	Cementing Start Date	Cementing End Date	Wellbore Original Hole	String Conductor, 23.0ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment

<stagenum>, 0.0-23.0ftKB

Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 23.0	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

<typ>

Fluid Type	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl)
Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	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

Surface Casing Cement, 7/14/2006 02:15

Type Casing	Cementing Start Date 7/14/2006	Cementing End Date 7/14/2006	Wellbore Original Hole	String Surface, 812.0ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment

Cmt'd 8-5/8" surf csg w/ 335 sks MIDCON II Trinidad Surface Blend mixed @ 14.0 ppg (1.66 yield) & circ 186 sks to pit. CIP & JC @ 03:32 hrs 7/14/06

1, 0.0-820.0ftKB

Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 820.0	Full Return? Yes	Vol Cement Ret (bbl) 52.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 4	Final Pump Rate (bbl/min) 2	Avg Pump Rate (bbl/min) 3		Final Pump Pressure (psi) 275.0	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) 55.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 820.0	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) 335	Class G	Volume Pumped (bbl) 99.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 820.0	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 8.33	Amount (sacks)	Class	Volume Pumped (bbl) 49.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 767.9	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 05071088140000	Location T33S-R67W-S31	Field Name Purgatoire River	Permit Number 20061871	State/Province Colorado	Well Configuration Type Vertical
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Cement Fluid Additives		
Add	Type	Conc

Production Casing Cement, 7/16/2006 10:00				
Type Casing	Cementing Start Date 7/16/2006	Cementing End Date 7/16/2006	Wellbore Original Hole	String Production, 2,600.6ftKB
Cementing Company Halliburton Energy Services	Evaluation Method	Cement Evaluation Results		

Comment
Cmt'd 5-1/2" prod csg w/ 155 sks 1stage & 265 sks 2nd stage. No cmt to surface

1, 1,807.0-2,625.0ftKB					
Top Depth (ftKB) 1,807.0	Bottom Depth (ftKB) 2,625.0	Full Return? No	Vol Cement Ret (bbl) 0.0	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) 390.0	Plug Bump Pressure (psi) 1,290.0
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) 67.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 2,625.0	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

LCM				
Fluid Type LCM	Fluid Description 9.00	Amount (sacks)	Class	Volume Pumped (bbl) 60.0
Estimated Top (ftKB) 1,807.0	Estimated Bottom Depth (ftKB) 2,625.0	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

1st Stage Cmt				
Fluid Type 1st Stage Cmt	Fluid Description 13.0	Amount (sacks) 155	Class Prem Lite	Volume Pumped (bbl) 56.0
Estimated Top (ftKB) 1,807.0	Estimated Bottom Depth (ftKB) 2,625.0	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
Trinidad Prod Blenc		

Displacement				
Fluid Type Displacement	Fluid Description 8.33	Amount (sacks)	Class	Volume Pumped (bbl) 61.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 2,558.6	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

2, 800.0-1,808.0ftKB					
Top Depth (ftKB) 800.0	Bottom Depth (ftKB) 1,808.0	Full Return? No	Vol Cement Ret (bbl) 0.0	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) 440.0	Plug Bump Pressure (psi) 2,110.0
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

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Spacer					
Fluid Type Spacer	Fluid Description 8.33	Amount (sacks)	Class	Volume Pumped (bbl) 10.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,808.0	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

LCM					
Fluid Type LCM	Fluid Description 9.00	Amount (sacks)	Class	Volume Pumped (bbl) 40.0	
Estimated Top (ftKB) 1,808.0	Estimated Bottom Depth (ftKB) 200.0	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

2nd Stage Cmt					
Fluid Type 2nd Stage Cmt	Fluid Description 13.0	Amount (sacks) 265	Class Prem Lite	Volume Pumped (bbl) 96.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,808.0	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
Trinidad Prod Blend		

Displacement					
Fluid Type Displacement	Fluid Description 8.33	Amount (sacks)	Class	Volume Pumped (bbl) 43.0	
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 1,808.0	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