



## Cement Jobs by Well

Well Name: Apache Canyon 13-12X

### Conductor Casing Cement

API/UWI 05071088280000	Location T34S-R68W-S13	Field Name Purgatoire River	Permit Number 20061869	State/Province Colorado	Well Configuration Type Vertical
Gr Elev (ft) 8,394.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 8/17/2006 10:15	Rig Release Date 8/20/2006 17:00

#### Conductor Casing Cement, 8/17/2006 11:15

Type Casing	Cementing Start Date 8/17/2006	Cementing End Date 8/17/2006	Wellbore Original Hole	String Conductor, 23.0ftKB
Cementing Company Wal-Mart	Evaluation Method	Cement Evaluation Results		

Comment  
Cmt'd cond w/ 10 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 18.0	Amount (sacks) 10	Class A	Volume Pumped (bbl) 1.8
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 23.0	Percent Excess Pumped (%)	Yield (ft³/sack) 1.00	Mix H2O Ratio (gal/sack) 5.00
Free Water (%)	Density (lb/gal) 18.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

#### Cement Fluid Additives

Add	Type	Conc

#### Surface Casing Cement, 8/18/2006 09:15

Type Casing	Cementing Start Date 8/18/2006	Cementing End Date 8/18/2006	Wellbore Original Hole	String Surface, 216.2ftKB
Cementing Company BJ Services Company	Evaluation Method	Cement Evaluation Results		

Comment  
Cmt'd surf csg w/ 92 sks & circ 10 bbls to pit

#### 1, 0.0-220.0ftKB

Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 220.0	Full Return? Yes	Vol Cement Ret (bbl) 10.0	Top Plug? No	Bottom Plug? No
Initial Pump Rate (bbl/min) 3	Final Pump Rate (bbl/min) 2	Avg Pump Rate (bbl/min) 2		Final Pump Pressure (psi) 110.0	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) 25.0
Estimated Top (ftKB) 0.0	Estimated Bottom Depth (ftKB) 220.0	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 14.6	Amount (sacks) 92	Class Type III	Volume Pumped (bbl) 23.0
Estimated Top (ftKB) -3.0	Estimated Bottom Depth (ftKB) 220.0	Percent Excess Pumped (%)	Yield (ft³/sack) 1.40	Mix H2O Ratio (gal/sack) 14.60
Free Water (%)	Density (lb/gal) 14.60	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) 10.0
Estimated Top (ftKB) -3.0	Estimated Bottom Depth (ftKB) 220.0	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)



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Gr Elev (ft) 8,394.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 8/17/2006 10:15	Rig Release Date 8/20/2006 17:00

Cement Fluid Additives		
Add	Type	Conc
CaCl2		2.0
Cellophane Flakes		0.25

Production Casing Cement, 8/20/2006 18:30				
Type Casing	Cementing Start Date 8/20/2006	Cementing End Date 8/20/2006	Wellbore Original Hole	String Production, 2,376.0ftKB
Cementing Company BJ Services Company	Evaluation Method	Cement Evaluation Results		
Comment				

1, 1,984.0-2,376.0ftKB					
Top Depth (ftKB) 1,984.0	Bottom Depth (ftKB) 2,376.0	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) 0	Avg Pump Rate (bbl/min) 1		Final Pump Pressure (psi) 198.0	Plug Bump Pressure (psi) 736.0
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

Lead				
Fluid Type Lead	Fluid Description	Amount (sacks) 210	Class Prem Lite	Volume Pumped (bbl) 99.0
Estimated Top (ftKB) 1,000.0	Estimated Bottom Depth (ftKB) 2,000.0	Percent Excess Pumped (%)	Yield (ft³/sack) 2.65	Mix H2O Ratio (gal/sack) 14.87
Free Water (%)	Density (lb/gal) 11.50	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Tail				
Fluid Type Tail	Fluid Description	Amount (sacks) 132	Class Prem Lite	Volume Pumped (bbl) 53.0
Estimated Top (ftKB) 2,000.0	Estimated Bottom Depth (ftKB) 2,376.0	Percent Excess Pumped (%)	Yield (ft³/sack) 2.29	Mix H2O Ratio (gal/sack) 12.16
Free Water (%)	Density (lb/gal) 12.00	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)

Cement Fluid Additives		
Add	Type	Conc

Cement Squeeze, 10/11/2006 00:00				
Type Squeeze	Cementing Start Date 10/11/2006	Cementing End Date 10/11/2006	Wellbore Original Hole	String Production, 2,376.0ftKB
Cementing Company	Evaluation Method	Cement Evaluation Results		
Comment				

<stagenum>, 1,578.0-1,935.0ftKB					
Top Depth (ftKB) 1,578.0	Bottom Depth (ftKB) 1,935.0	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



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Cement Squeeze, 2/7/2007 00:00

Type Squeeze	Cementing Start Date 2/7/2007	Cementing End Date 2/20/2007	Wellbore Original Hole	String Production, 2,376.0ftKB
Cementing Company	Evaluation Method	Cement Evaluation Results		

Comment

<stagenum>, 1,218.0-1,371.0ftKB

Top Depth (ftKB) 1,218.0	Bottom Depth (ftKB) 1,371.0	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

<stagenum>, 1,100.0-1,141.0ftKB

Top Depth (ftKB) 1,100.0	Bottom Depth (ftKB) 1,141.0	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

<stagenum>, 860.0-1,033.0ftKB

Top Depth (ftKB) 860.0	Bottom Depth (ftKB) 1,033.0	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



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Gr Elev (ft) 8,394.00	Casing Flange Elevation (ft)	KB-Ground Distance (ft) 0.00	KB-Casing Flange Distance (ft)	Spud Date 8/17/2006 10:15	Rig Release Date 8/20/2006 17:00

<stagenum>, 730.0-755.0ftKB					
Top Depth (ftKB) 730.0	Bottom Depth (ftKB) 755.0	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

<stagenum>, 0.0-700.0ftKB					
Top Depth (ftKB) 0.0	Bottom Depth (ftKB) 700.0	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