

Cementing Report

Legal Well Name: ANADARKO ARROWHEAD RIVER F-56 Spud Date: 1/21/2004
 Common Well Name: ARROWHEAD RIVER F-56 Report #: 1 Report Date: 2/3/2004
 Event Name: RE ENTER Start: 1/16/2004 End: 2/6/2004

Cement Job Type: Primary

Primary	Squeeze Open Hole	Squeeze Casing	Plug
Hole Size: 156.00 (mm)	Hole Size:	Hole Size:	Hole Size:
TMD Set: 2,846.50 (m)	SQ TMD: (m)	TMD Set:	Top Set: (m)
Date Set: 2/3/2004	SQ Date:	Date Set:	BTM set: (m)
Csg Type: PRODUCTION LINER	SQ Type:	Csg Type:	Plug Date:
Csg Size: 114.30 (mm)		SQ TMD:	Plug Type:
		SQ Date:	Drilled Out:
Cmtd. Csg: PRODUCTION LINER	Cmtd. Csg:	Cmtd. Csg:	Cmtd. Csg:

Cement Co: HALLIBURTON

Cementer: DERRICK OAKFORD

Pipe Movement: NO MOVEMENT

Pipe Movement

Rot Time Start: : Time End: : RPM: Init Torque: (N-m) Avg Torque: (N-m) Max Torque: (N-m)
 Rec Time Start: 05:30 Time End: 06:30 SPM: 15 Stroke Length: 8.0 (m) Drag Up: (daN) Drag Down: (daN)

Stage No: 1 of 1

Type: SINGLE STAGE	Start Mix Cmt: 07:27	Disp Avg Rate: 0.50 (m³/min)	Returns:
Volume Excess %: 25.00	Start Slurry Displ: 07:31	Disp Max Rate: 1.20 (m³/min)	Total Mud Lost: (m³)
Meas. From: RKB	Start Displ: 07:51	Bump Plug: Y	Cmt Vol to Surf: (m³)
Time Circ Prior	End Pumping: 08:13	Press Prior: 7,500 (kPa)	
To Cementing: 1.00	End Pump Date: 2/4/2004	Press Bumped: 12,000 (kPa)	Ann Flow After: N
Mud Circ Rate: 1.00 (m³/min)	Top Plug: Y	Press Held: 2 (min)	Mixing Method: JET
Mud Circ Press: 10,000 (kPa)	Bottom Plug: Y	Float Held: Y	Density Meas By: WT SCALE

Mud Data

Type: CACO3 POLYMER Density: 1,050 (kg/m³) Visc: 4 PV/YP: 11.0 (mPa*s)/4.8 (Pa) Gels 10 sec: 3.0 (Pa) Gels 10 min: 5.0 (Pa)
 Bottom Hole Circulating Temperature: (°C) Bottom Hole Static Temperature: 135 (°C)
 Displacement Fluid Type: Density: 1,050 (kg/m³) Volume: 11.33 (m³)

Stage No: 1 Slurry No: 1 of 1**Slurry Data**

Fluid Type: LEAD	Description:	Class: CLASS G	Purpose: ZONAL ISOL
Slurry Interval: 2,406.12 (m) To: 2,846.50 (m)	Cmt Vol: 6.700 (tonne)	Density: 1,860 (kg/m³)	Yield: 1.080 (m³/t)
Water Source: LAKE C-48	Slurry Vol: 7.30 (m³)	Water Vol: 4.08 (m³)	Other Vol: (m³)
			Foam Job: N

Test Data

Thickening Time: 3.50	Temperature: 110 (°C)	Compressive Strength 1: 3.12	Time	Temp	Pressure
Free Water: (%)	Temperature: (°C)	Compressive Strength 2:		110 (°C)	3,500 (kPa)
Fluid Loss: (mL)	Temperature: (°C)			(°C)	(kPa)
Fluid Loss Pressure: (°C)					

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Stage No: 1 Slurry No: 1 of 1 - Additives

Trade Name	Type	Concentration	Units	Liquid Conc.	Units
SSA-1	FLUID LOSS	40.000	%		
HALAD-344		0.600	%		
CFR-3		0.500	%		
HR-12		0.300	%		

Casing Test**Shoe Test****Liner Top Test**

Test Press: (kPa)	Pressure: (kg/m ³)	Liner Lap:	
For: (min)	Tool:	Pos Test: (kg/m ³)	Tool:
Cement Found between	Open Hole: (m)	Neg Test: (kg/m ³)	Tool:
Shoe and Collar:	Hrs Before Test:	Hrs Before Test:	
		Cement Found on Tool:	

Log/Survey Evaluation**Interpretation Summary**

CBL Run:	Cement Top: (m)
Under Pressure: (kPa)	How Determined:
Bond Quality:	TOC Sufficient:
Cet Run:	Job Rating:
Bond Quality:	If Unsuccessful Detection Indicator:
Temp Survey:	Remedial Cementing Required:
Hrs Prior to Log:	Number of Remedial Squeezes: