



Casing, Liner and Cement report

Production Casing

Well Name Emerald 93X	Lease Emerald	Field Name Rangely	Business Unit Mid-Continent/Alaska
Ground Elevation (ft) 5,519.00	Original RKB Elevation (ft) 5,535.00	Current RKB Elevation (ft) 5,535.00	Mud Line Elevation (ft)
			Water Depth (ft)

Prod Tree Loc: - Original Hole, 8/18/2011 6:17:02 AM			
RKB (MD)	Incl	RKB (TVD)	Schematic - Actual
0	0.0	0	
16	0.1	16	
17	0.1	17	
20	0.1	20	
21	0.1	21	
96	0.6	96	
755	1.0	755	
1,146	0.2	1,146	
1,230	0.8	1,230	
1,300	0.4	1,300	
1,339	0.5	1,339	
1,942	0.4	1,942	
1,944	0.4	1,944	
1,988	0.8	1,988	
1,989	0.8	1,989	
2,010	1.0	2,010	
2,337	2.0	2,337	
2,962	13.2	2,962	
3,096	15.2	3,086	
3,314	18.1	3,295	
3,670	22.1	3,628	
3,749	21.9	3,702	
4,416	21.3	4,324	
4,565	20.2	4,463	
4,648	19.8	4,541	
4,694	20.2	4,584	
4,773	21.0	4,658	
5,070	17.9	4,939	
5,411	16.3	5,263	
5,530	16.4	5,377	
5,545	16.5	5,391	
5,619	16.0	5,462	
6,208	13.7	6,031	
6,209	13.7	6,031	
6,269	12.6	6,090	
6,269	12.6	6,091	
6,297	12.6	6,117	
6,332	12.7	6,151	
6,336	12.7	6,155	
6,349	12.8	6,168	
6,350	12.8	6,169	
6,350	12.8	6,170	
6,356	12.8	6,175	
6,366	12.9	6,185	
6,370	12.9	6,189	
6,371	12.9	6,190	
6,427	13.1	6,244	
6,428	13.1	6,245	
6,470			
6,475			
6,510			
6,697			
6,866			
6,900			

Last Mud Check

Date	Mud/Brine Type	Depth (MD) (ftKB)	Fluid Density (lb/gal)	Hidden (cp)	Hidden (lb/100ft²)
5/27/2011	Water Based	6,475	9.10		

Casing

Casing Description	Run Date	String OD (in)	Top Depth (MD) (ft...)	Set Depth (MD) (ft...)	Dens Fluid (lb/gal)
Production Casing	5/27/2011 20:00	7	0	6,428	

Jts	Item Description	OD (in)	ID (in)	Wt (lbs/ft)	Grade	Len (ft)	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)
1	KBGL					16.00	0	16
1	Casing Hanger	7	6.366	23.00		5.30	16	21
1...	Casing Joint	7	6.366	23.00	FS-80	6,327.83	21	6,349
1	Float Collar	7	6.366	23.00		1.20	6,349	6,350
2	Casing Joint	7	6.366	23.00	FS-80	76.25	6,350	6,427
1	Float Shoe	7	6.366	23.00		1.40	6,427	6,428

Cement: Production Casing Cement

Cementing Start Date	Cementing End Date	Wellbore
5/27/2011	5/28/2011	Original Hole
Evaluation Method	Cement Evaluation Results	
	Partial returns throughout job. Did not get cement to surface	

Cement Stages: Production Casing Cement

Top (ftKB)	Bottom (ftKB)	Full Return? (Cmnt Rtn...)	Top Plug?	Bottom Plug?
17.0	6,428.0	No 0.0	No	No
Q (start) (bbl/min)	Q (end) (bbl/min)	Q (avg) (bbl/min)	P (final) (psi)	Plug Bump Pressure (psi)
4	6	5	1,300.0	2,300.0
Pipe Reciprocated?	Stroke (ft)	Reciprocation Rate (spm)	Pipe Rotated?	Pipe RPM (rpm)
No			No	
Depth Tagged (ftKB)	Tag Method	Plug Depth (ftKB)	Drill Out Diameter (in)	Drill Out Date

Cement Fluids: Production Casing Cement

Fluid Type	Fluid Description	Quantity (...)	Class	Volume Pumped (bbl)
Spacer				30.0
Estimated Top (ftKB)	Estimated Bottom (ftKB)	Yield (ft³/sack)	Fluid Mix Ratio (gal/sack)	Free Water (%)
Density (lb/gal)	Zero Gel Time (lb/100ft²)	Thickening Time (hrs)	1st Compressive Strength (psi)	

Cement Fluid Additives

Add	Type	Conc

Cement Fluids: Production Casing Cement

Fluid Type	Fluid Description	Quantity (...)	Class	Volume Pumped (bbl)
Lead		440	G	172.0
Estimated Top (ftKB)	Estimated Bottom (ftKB)	Yield (ft³/sack)	Fluid Mix Ratio (gal/sack)	Free Water (%)
		2.20	9.48	
Density (lb/gal)	Zero Gel Time (lb/100ft²)	Thickening Time (hrs)	1st Compressive Strength (psi)	
11.00				

Cement Fluid Additives

Add	Type	Conc

Cement Fluids: Production Casing Cement

Fluid Type	Fluid Description	Quantity (...)	Class	Volume Pumped (bbl)
Tail		350	G	107.0
Estimated Top (ftKB)	Estimated Bottom (ftKB)	Yield (ft³/sack)	Fluid Mix Ratio (gal/sack)	Free Water (%)
		1.72	5.92	
Density (lb/gal)	Zero Gel Time (lb/100ft²)	Thickening Time (hrs)	1st Compressive Strength (psi)	
11.70				

Cement Fluid Additives

Add	Type	Conc

Cement Fluids: Production Casing Cement

Fluid Type	Fluid Description	Quantity (...)	Class	Volume Pumped (bbl)
Displacement				250.0
Estimated Top (ftKB)	Estimated Bottom (ftKB)	Yield (ft³/sack)	Fluid Mix Ratio (gal/sack)	Free Water (%)
Density (lb/gal)	Zero Gel Time (lb/100ft²)	Thickening Time (hrs)	1st Compressive Strength (psi)	



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Prod Tree Loc: - Original Hole, 8/18/2011 6:17:02 AM			Schematic - Actual	
ftKB (MD)	Incl	ftKB (TVD)		
0	0.0	0		
16	0.1	16		
17	0.1	17		
20	0.1	20		
21	0.1	21	Des:Condu	OD:16in,
96	0.6	96	OD:15.125in	Top
755	1.0	755	(MD):16-96	(MD):16
1,146	0.2	1,146	ftKB,	Length:80.0
1,230	0.8	1,230	5/4/11/2011	
1,300	0.4	1,300		
1,339	0.5	1,339		
1,942	0.4	1,942		
1,944	0.4	1,944		
1,988	0.8	1,988	Des:Surface	OD:9
1,989	0.8	1,989	Casing	5/8in,
2,010	1.0	2,010	Cement,	ID:8.906in,
2,337	2.0	2,337	Depth	Top
2,962	13.2	2,956	(MD):16-1,989	(MD):16
3,096	15.2	3,086	ftKB,	Length:1.9
3,314	18.1	3,295	5/12/2011	
3,670	22.1	3,628		
3,749	21.9	3,702		
4,416	21.3	4,324		
4,565	20.2	4,463		
4,648	19.8	4,541		
4,694	20.2	4,584		
4,773	21.0	4,658		
5,070	17.9	4,939		
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6,336	12.7	6,155		
6,349	12.8	6,168		
6,350	12.8	6,169		
6,350	12.8	6,170		
6,356	12.8	6,175		
6,366	12.9	6,185		
6,370	12.9	6,189		
6,371	12.9	6,190		
6,427	13.1	6,244	Des:Product	OD:7in,
6,428	13.1	6,245	Casing,	Top
6,470			(MD):17-6,428	(MD):0
6,475			ftKB,	Length:6.4
6,510			5/27/2011	
6,697				
6,866				
6,900				

Cement Fluid Additives

Add	Type	Conc
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