PSI
PHOENIX SURVEYS, INC.

V.D.L. C.C.L. GAMMA RAY CEMENT BOND LOG

Company	BLACK RAVEN ENERGY, INC.
Well	R.M. HOUGH "B" #4
Field	ADENA
County	MORGAN
State	COLORADO

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Location: API # : 05-087-05377

2303' FNL X 1635' FEL
SE SW NE

SEC 7 TWP 1N RGE 57W

Other Services
NONE

Permanent Datum	GL	Elevation	4484'
Log Measured From	---		
Drilling Measured From	---		

Elevation
K.B. ---
D.F. ---
G.L. 4484'

Date	SEPT. 14 2011		
Run Number	ONE		
Depth Driller	---		
Depth Logger	5594'		
Bottom Logged Interval	5582'		
Top Log Interval	3440'		
Open Hole Size	7.875"		
Type Fluid	WATER		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
Estimated Cement Top	N/A		
Time Well Ready	N/A		
Time Logger on Bottom	N/A		
Equipment Number	54		
Location	FORT MORGAN		
Recorded By	RANDY AZEVEDO		
Witnessed By	CHRIS REED		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String				
Prot. String	5.5"	15.5 LB		
Production String				
Liner				

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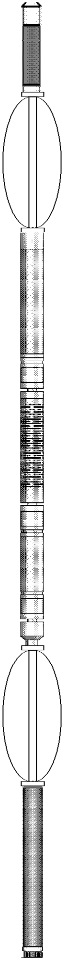
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

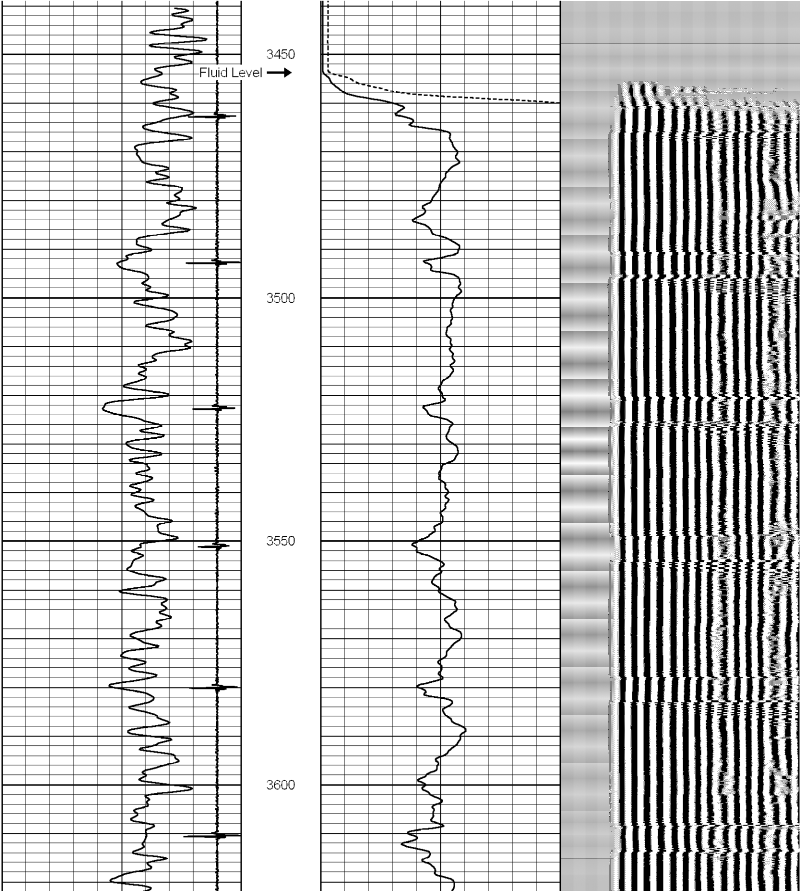
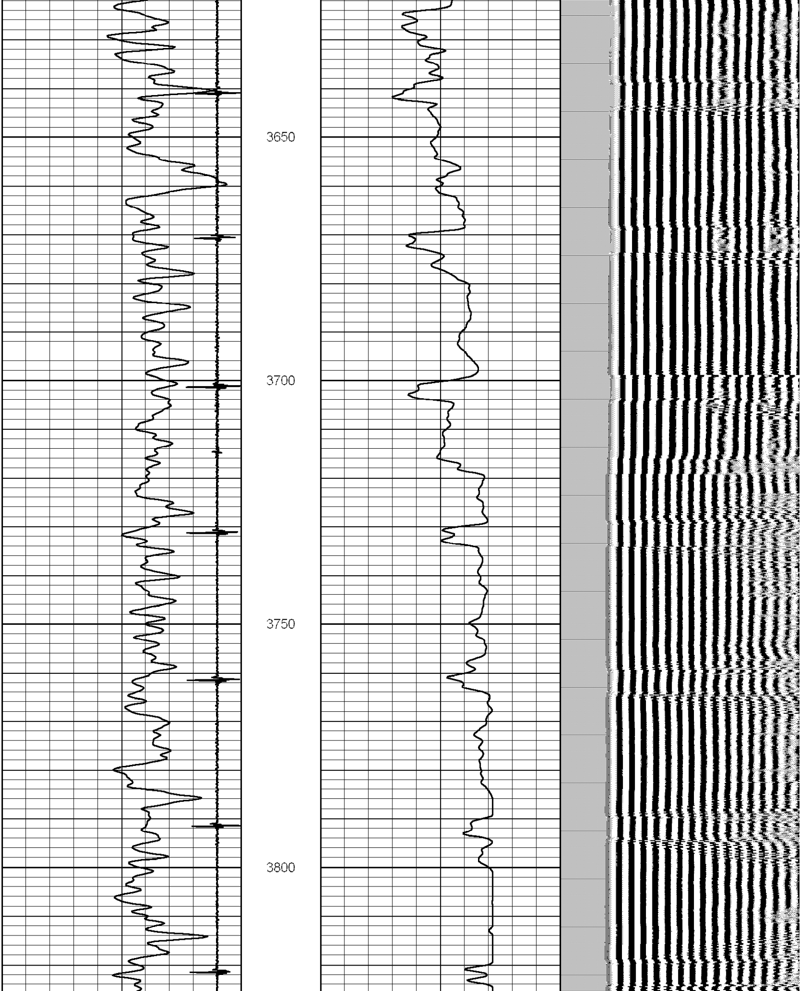
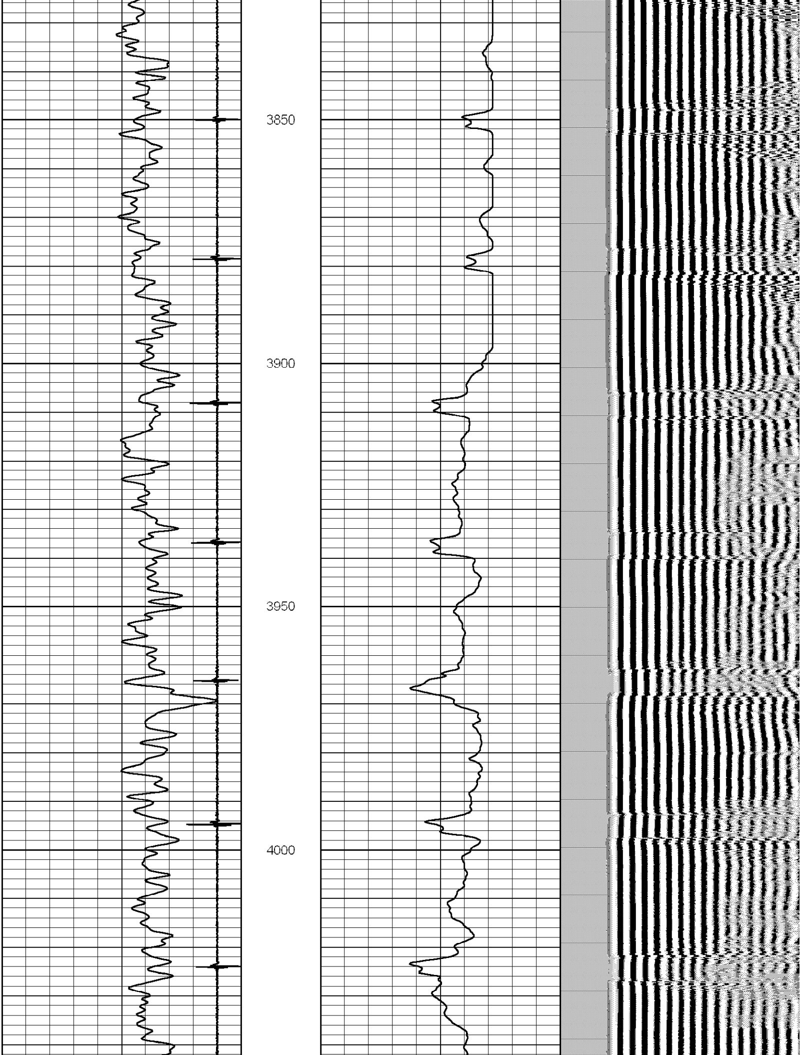
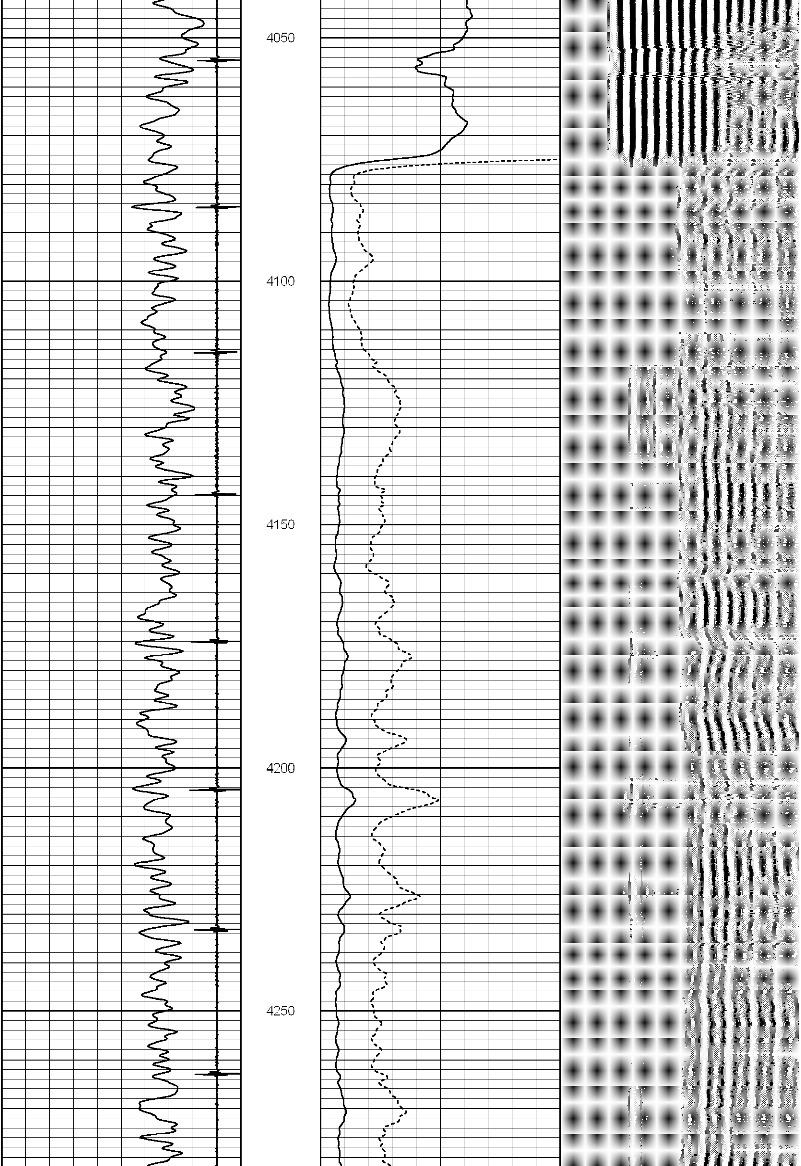
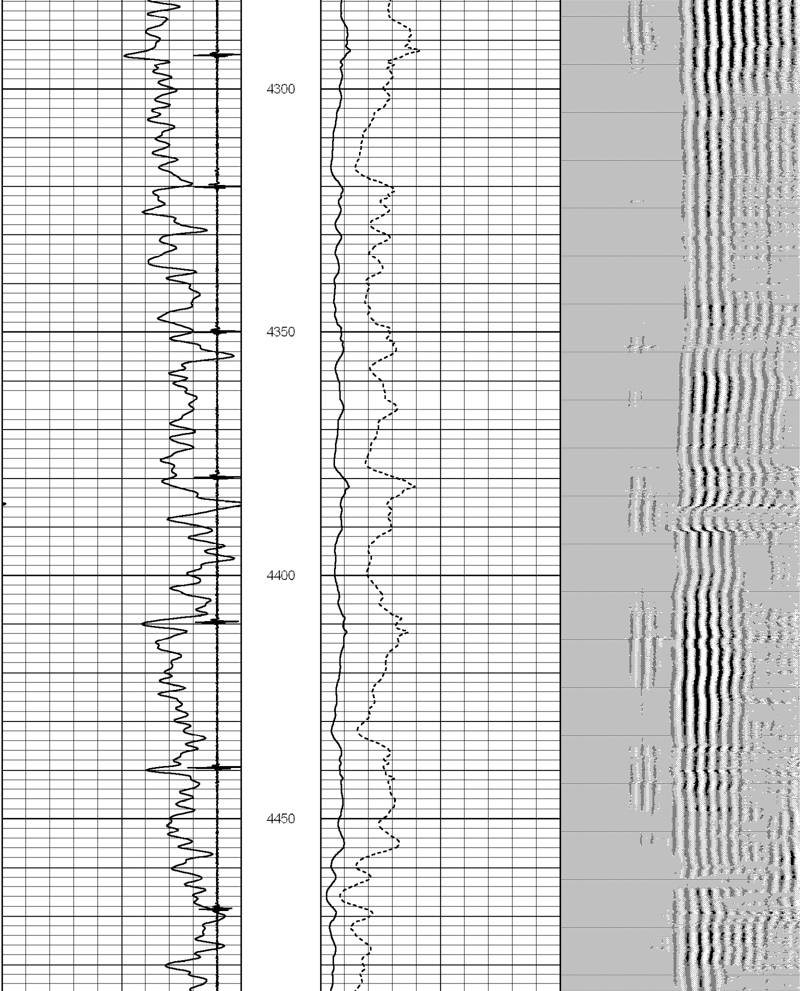
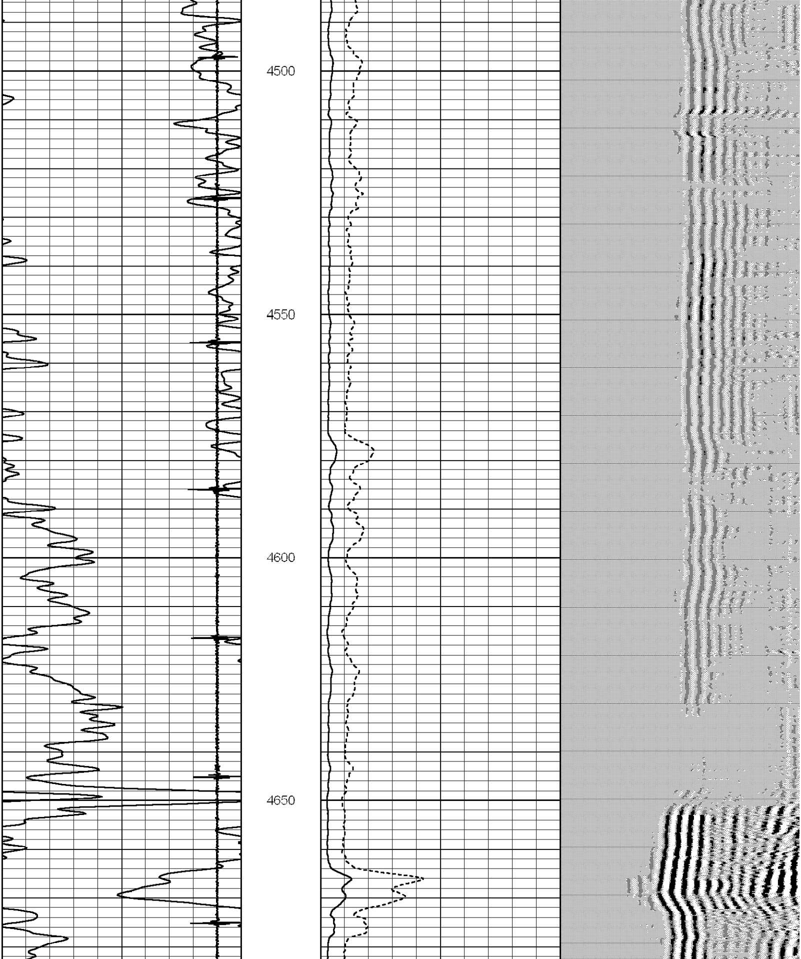
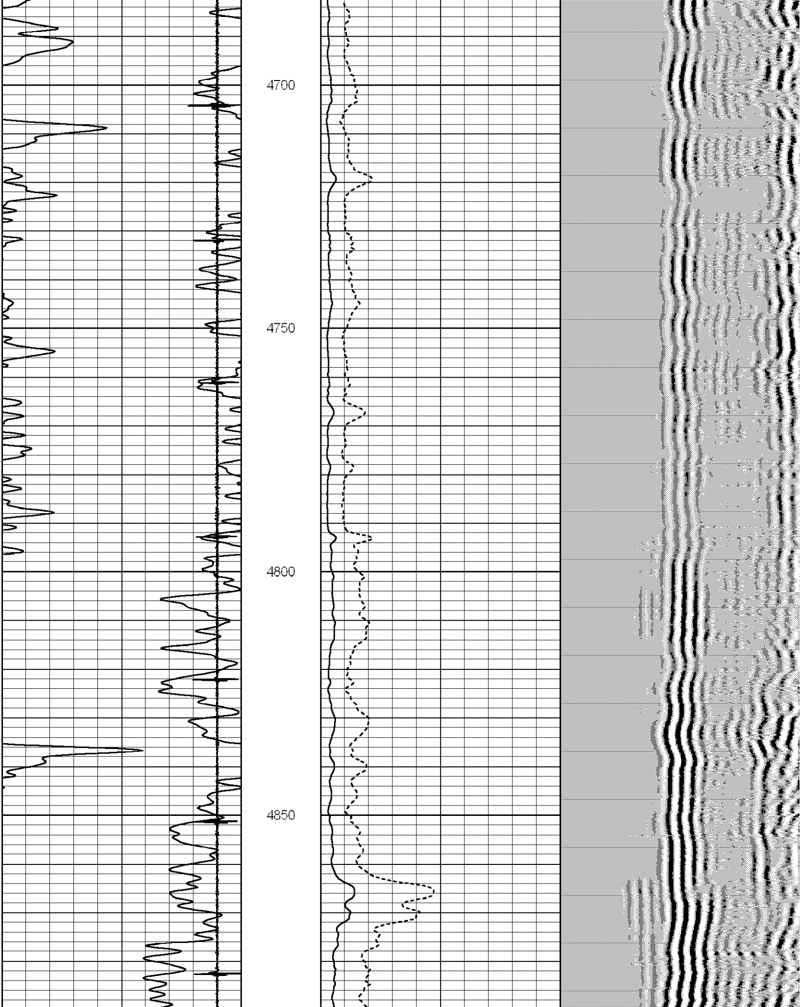
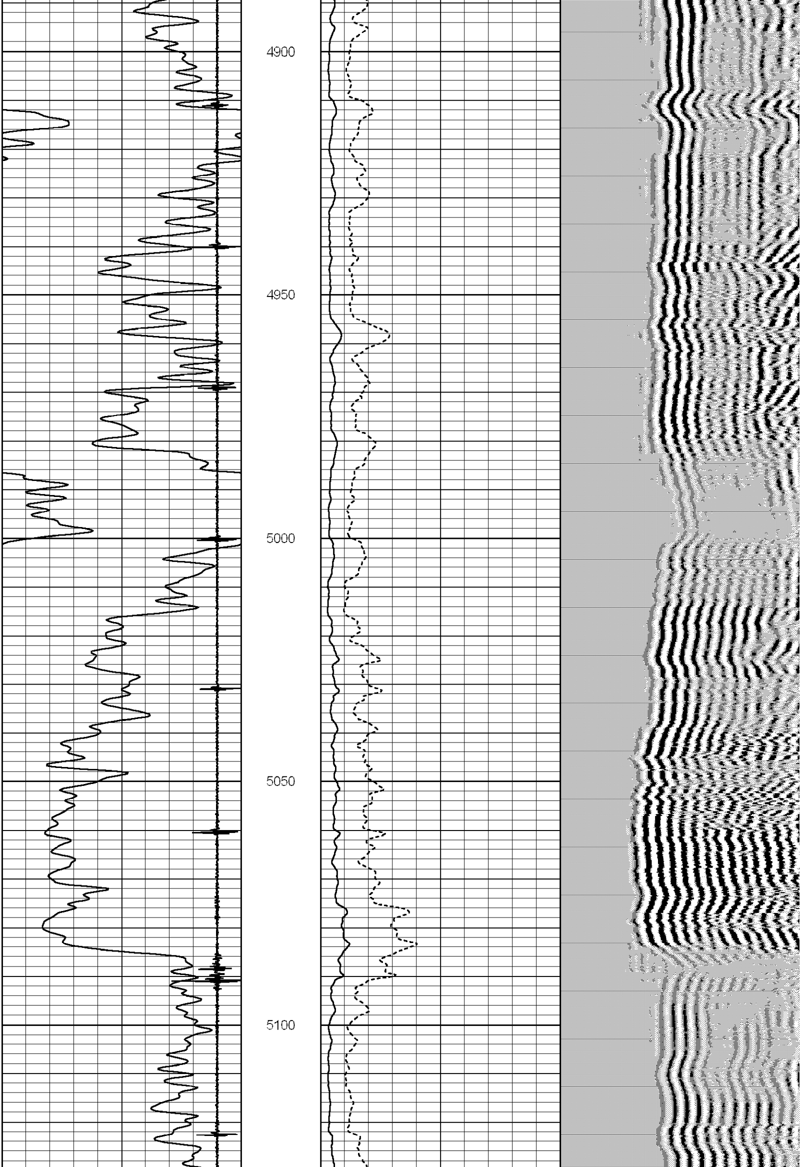
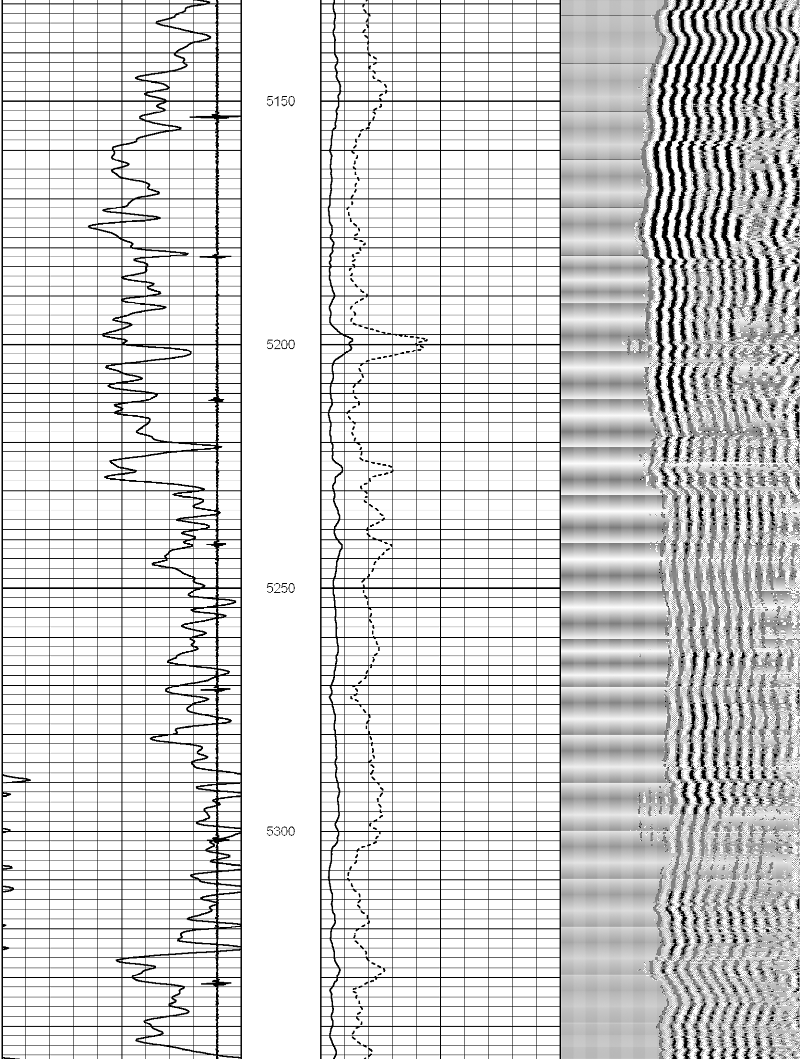
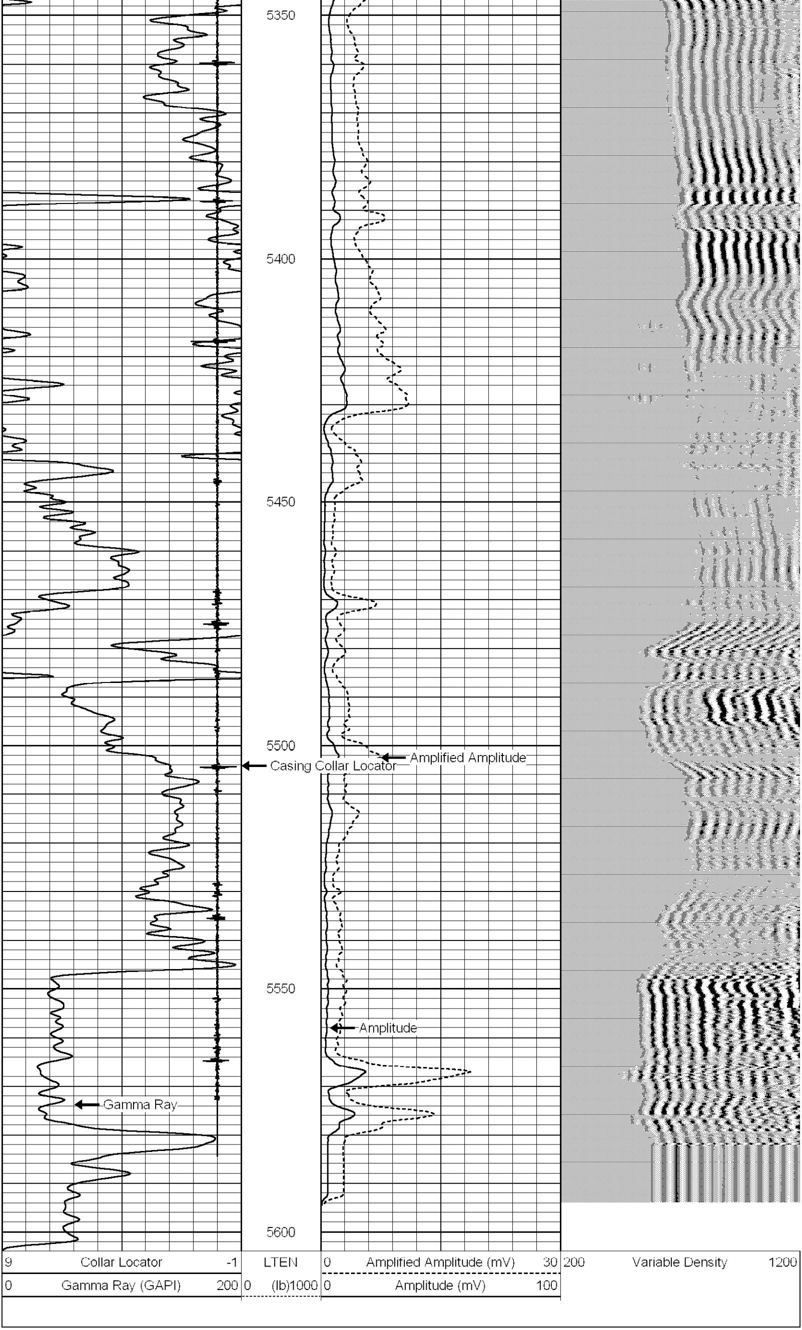
Comments

THANK YOU FOR USING P.S.I.

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
CCL	19.31		CCL-titan01 (01t)	1.92	2.75	
			SDSCENT Centralizer for testing	3.00	3.25	20.00
WVF3	10.92		CBL-Probe (050215) Probe 2.75" Dual Receiver Bond	8.75	2.75	60.00
WVF5	9.92					
			SDSCENT Centralizer for testing	3.00	3.25	20.00
			GR-probe 2.75 (51013)	3.67	2.75	100.00
GR	1.13					

Dataset:	hough b4.db: field/well/run1/pass2
Total Length:	20.33 ft
Total Weight:	200.00 lb
O.D.	3.25 in

Database File:	c:\warrior\data\black raven\hough b4.db
Dataset Pathname:	pass2
Presentation Format:	cbl_dr
Dataset Creation:	Wed Sep 14 14:19:06 2011 by Log SCH 110722
Charted by:	Depth in Feet scaled 1:240

9 Collar Locator -1	LTEN	0 Amplified Amplitude (mV) 30	200 Variable Density 1200
0 Gamma Ray (GAPI) 200	0 (lb)1000	0 Amplitude (mV) 100