PHOENIX SURVEYS, INC.

Cement Bond Log
Gamma Ray-CCL-VDL

Company Black Raven Energy, LLC
Well Hough B-7
Field Adena
County Morgan
State Colorado

Company	Black Raven Energy, LLC
Well	Hough B-7
Field	Adena
County	Morgan
State	Colorado

Location: API # : 05-087-05376-0000

2310' FNL x 330' FEL
SE SE NE
SEC 7 TWP 1N RGE 57W

Other Services
NONE

Permanent Datum	Ground Level	Elevation
Log Measured From	Kelly Bushing	
Drilling Measured From	Kelly Bushing	

Elevation
K.B.
D.F.
G.L.

Date	November 14, 2011		
Run Number	1		
Depth Driller	N/A		
Depth Logger	5583'		
Bottom Logged Interval	5571'		
Top Log Interval	3330'		
Open Hole Size	N/A		
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			
Witnessed By			

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

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String				
Prot. String				
Production String				
Liner				

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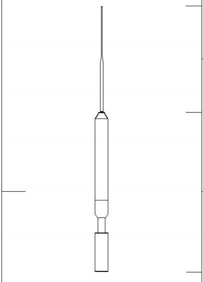
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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

Thanks For Using Phoneix Surveys!!
SO#201869

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			STNDRD Standard Cable Head	1.00	1.69	1.00
CCL	0.00		CCL_SHT-SDSSHTCCL (SDSDEMO) DEMO TOOL - DIMENSIONS INVALID	1.50	3.13	20.00

Dataset:	hough_b-7.db: field/well/run1/pass3
Total Length:	2.50 ft
Total Weight:	21.00 lb
O.D.	3.13 in

Calibration Report

Database File: hough_b-7.db
Dataset Pathname: pass2
Dataset Creation: Mon Nov 14 12:17:02 2011 by Log Std Casedhole 10081

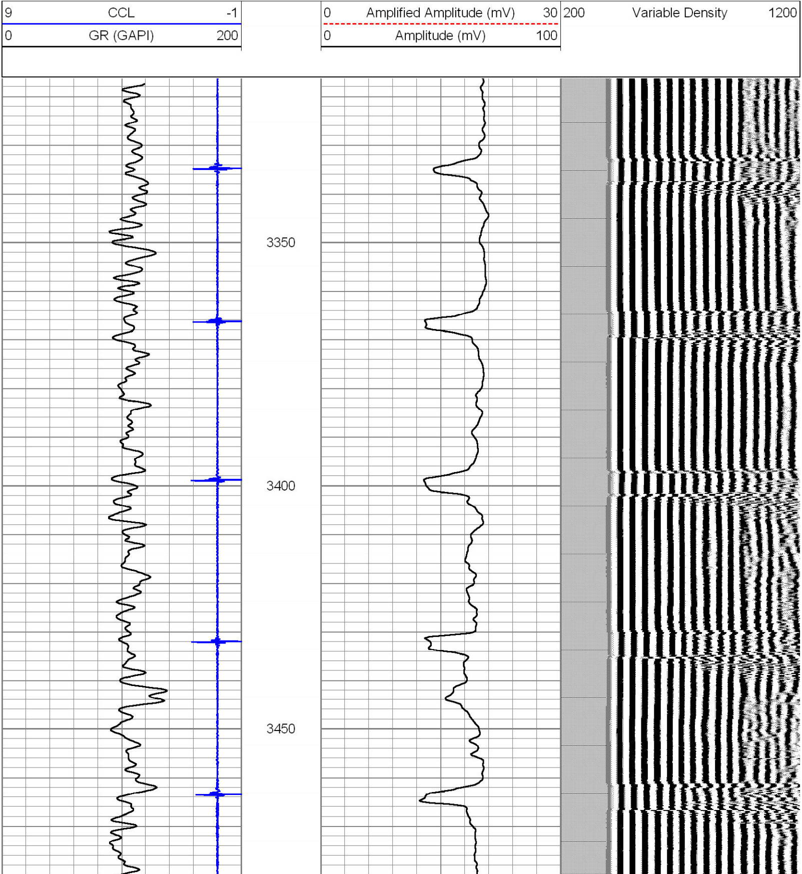
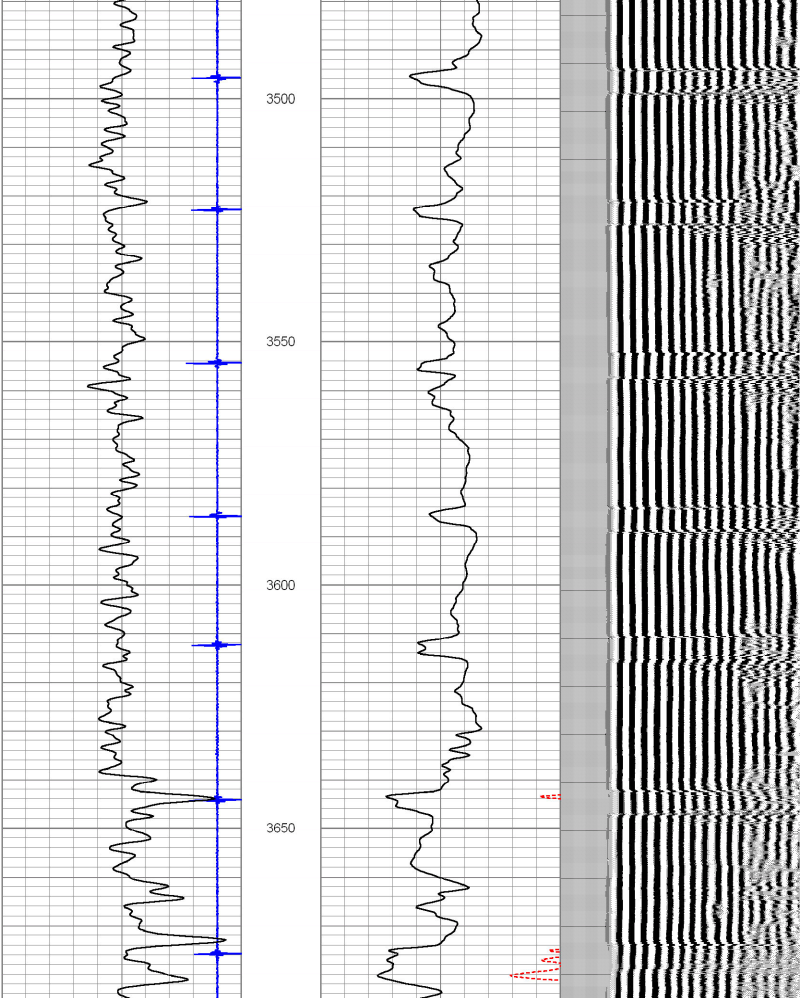
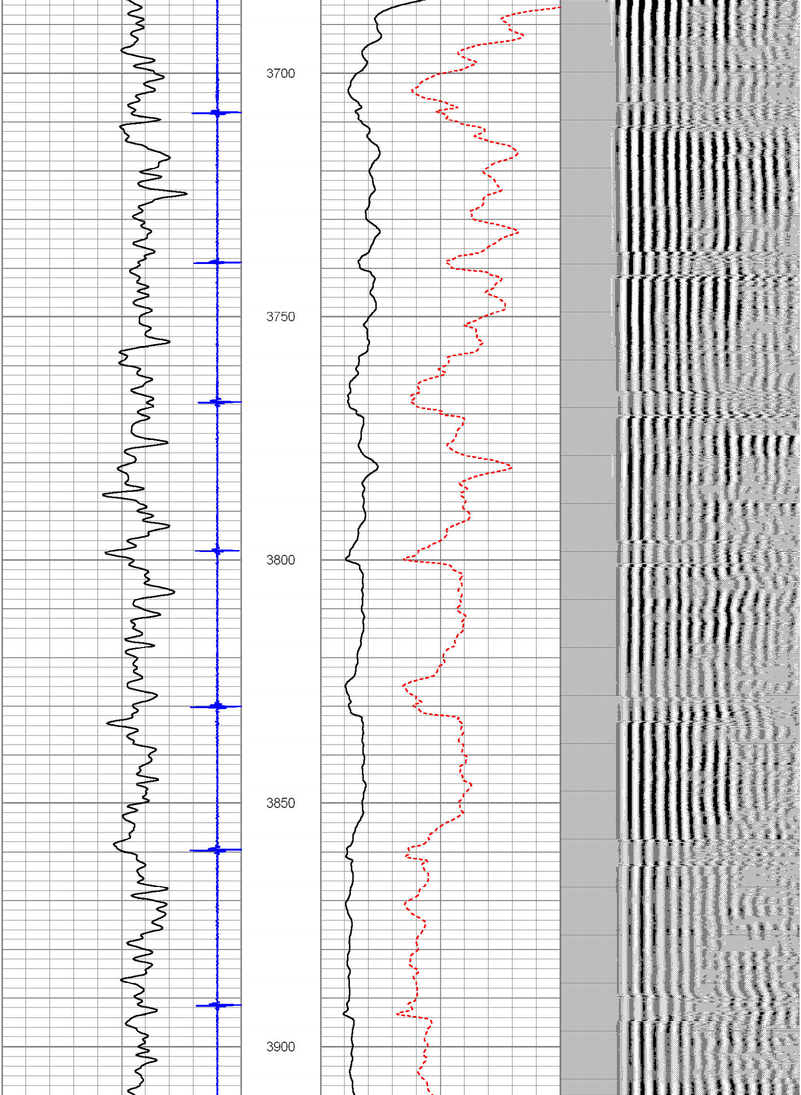
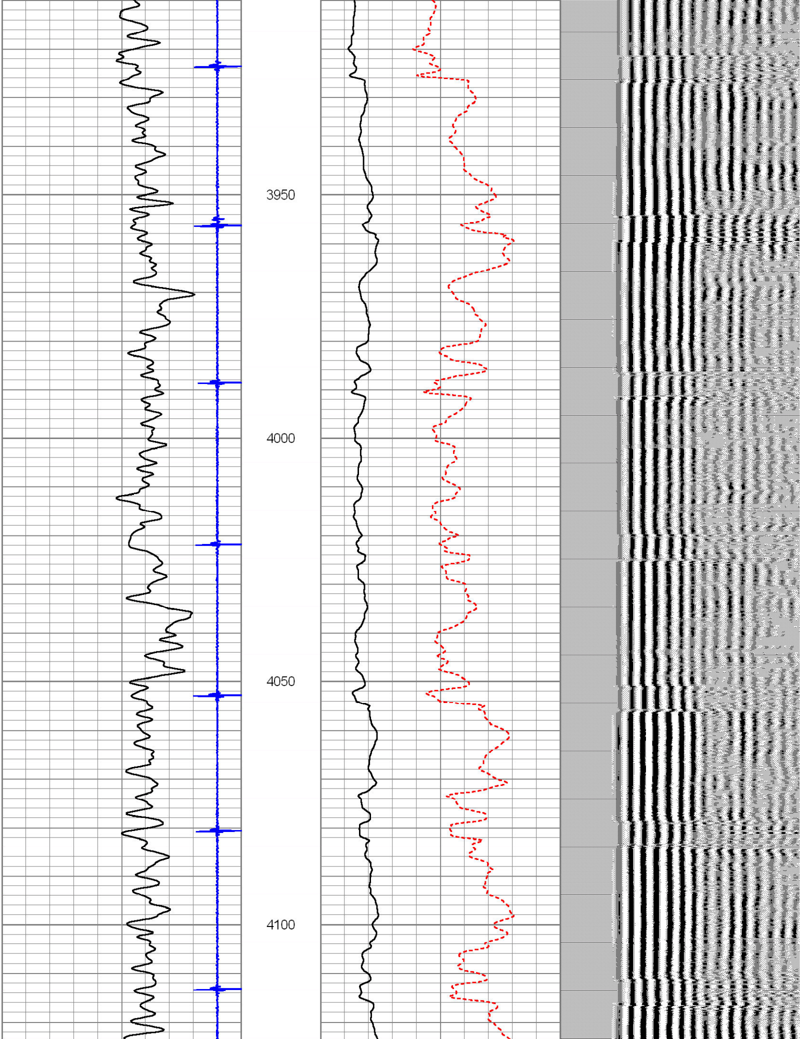
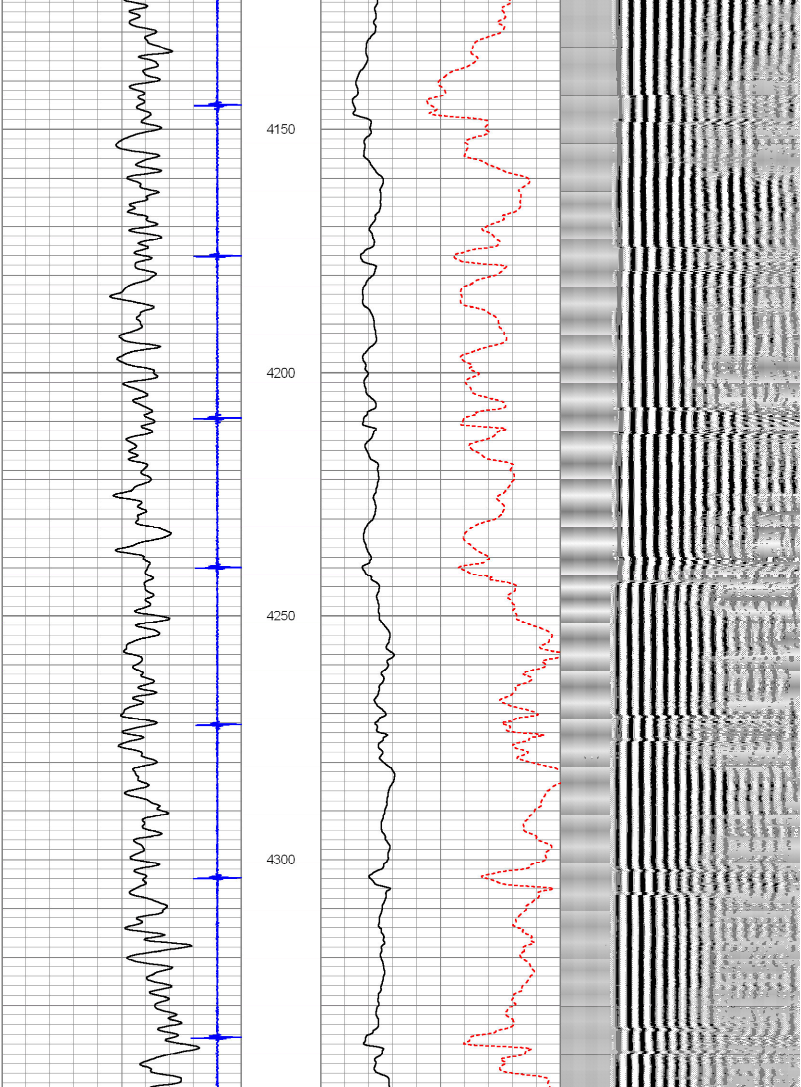
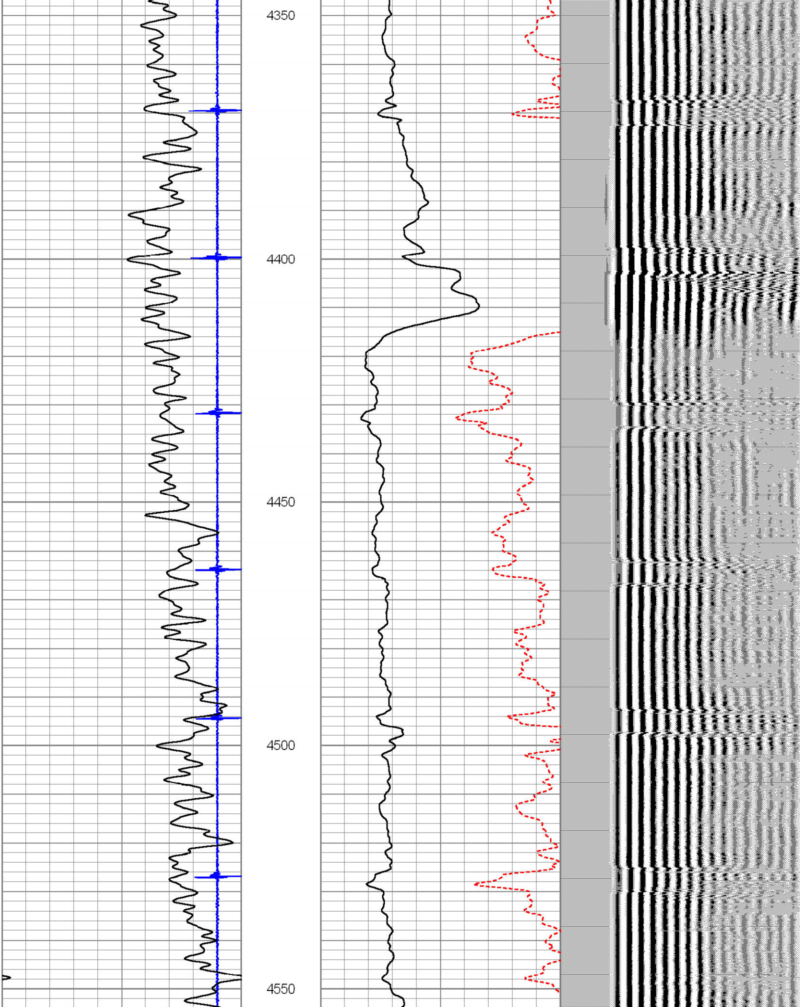
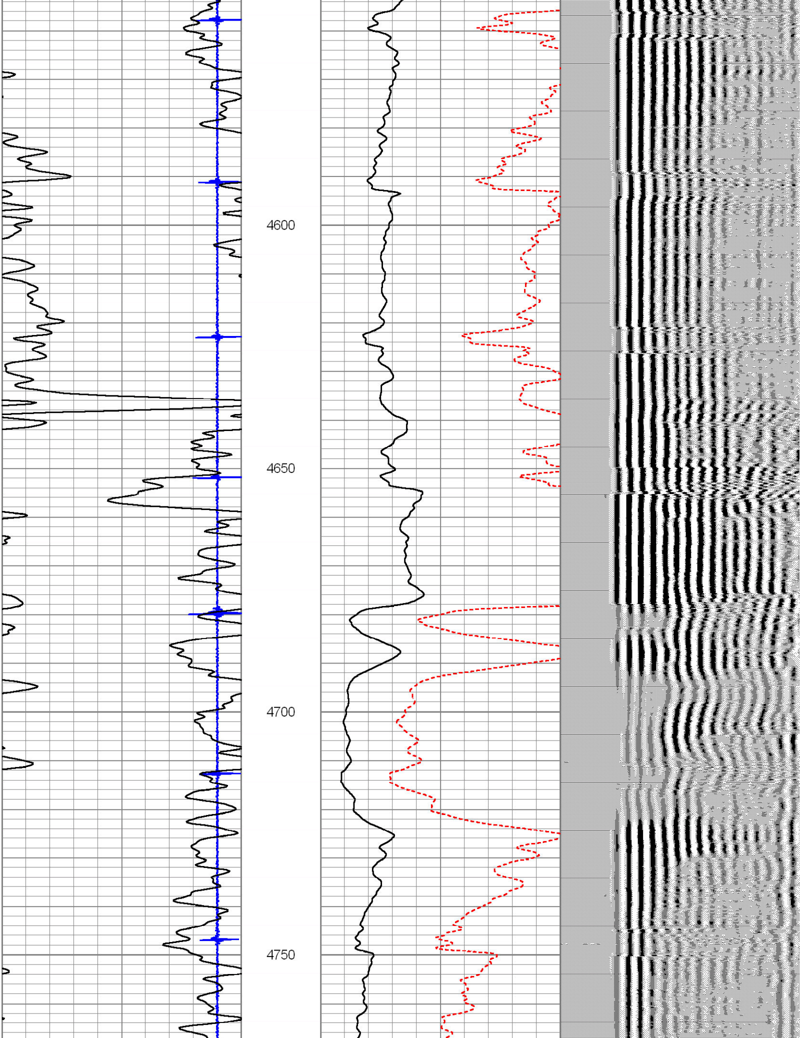
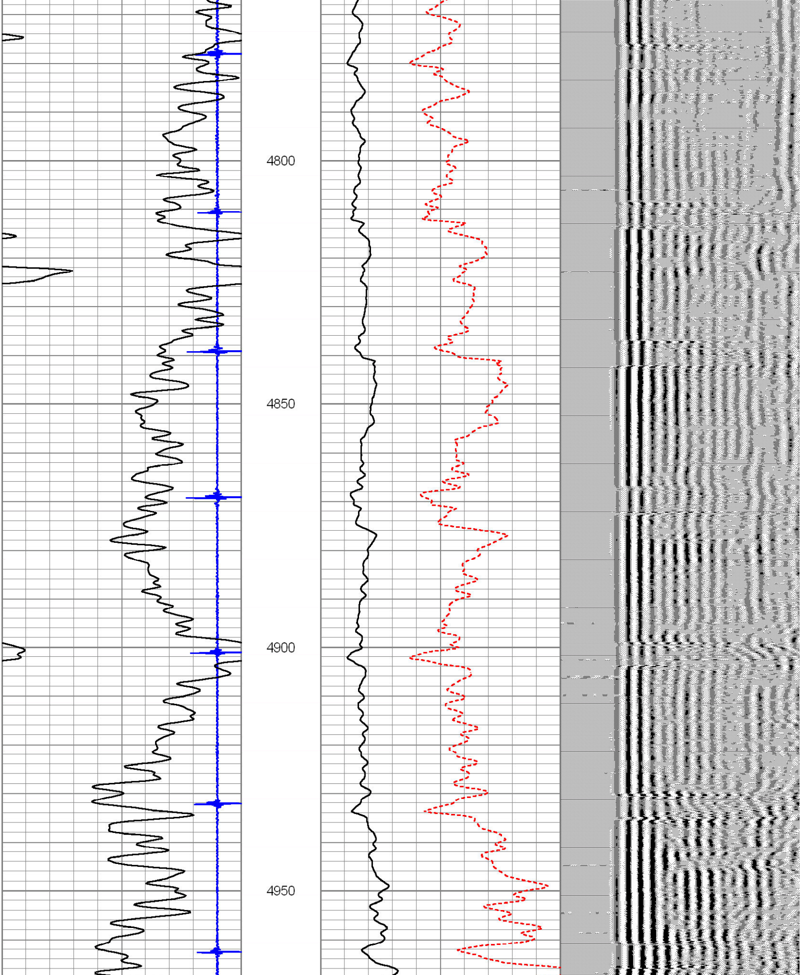
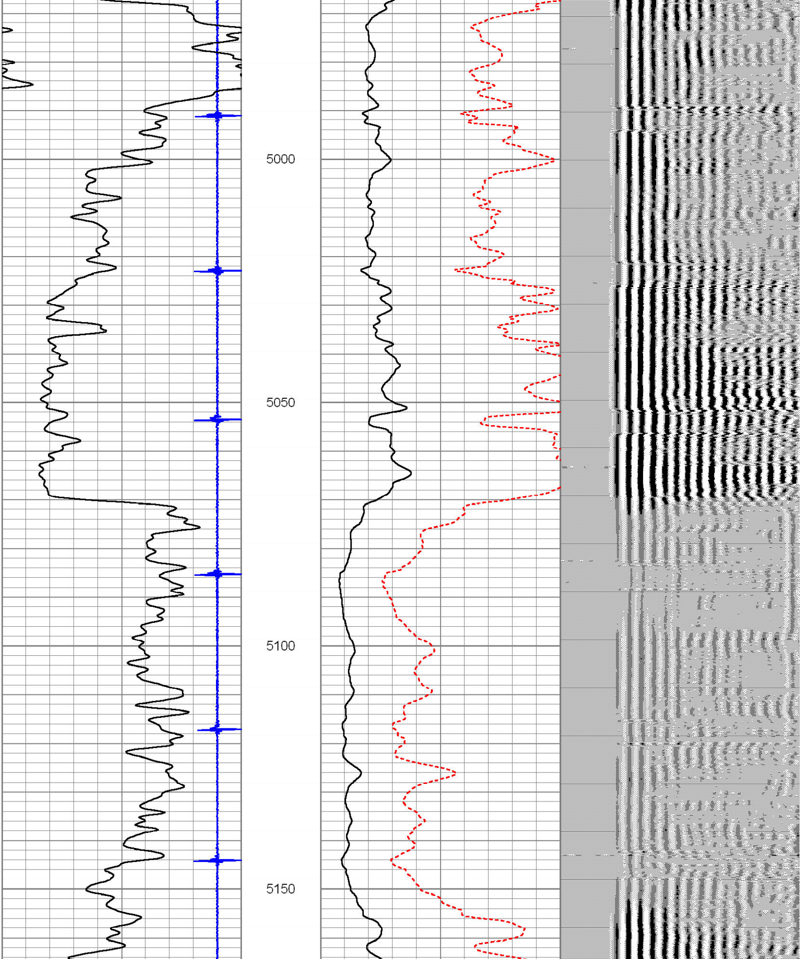
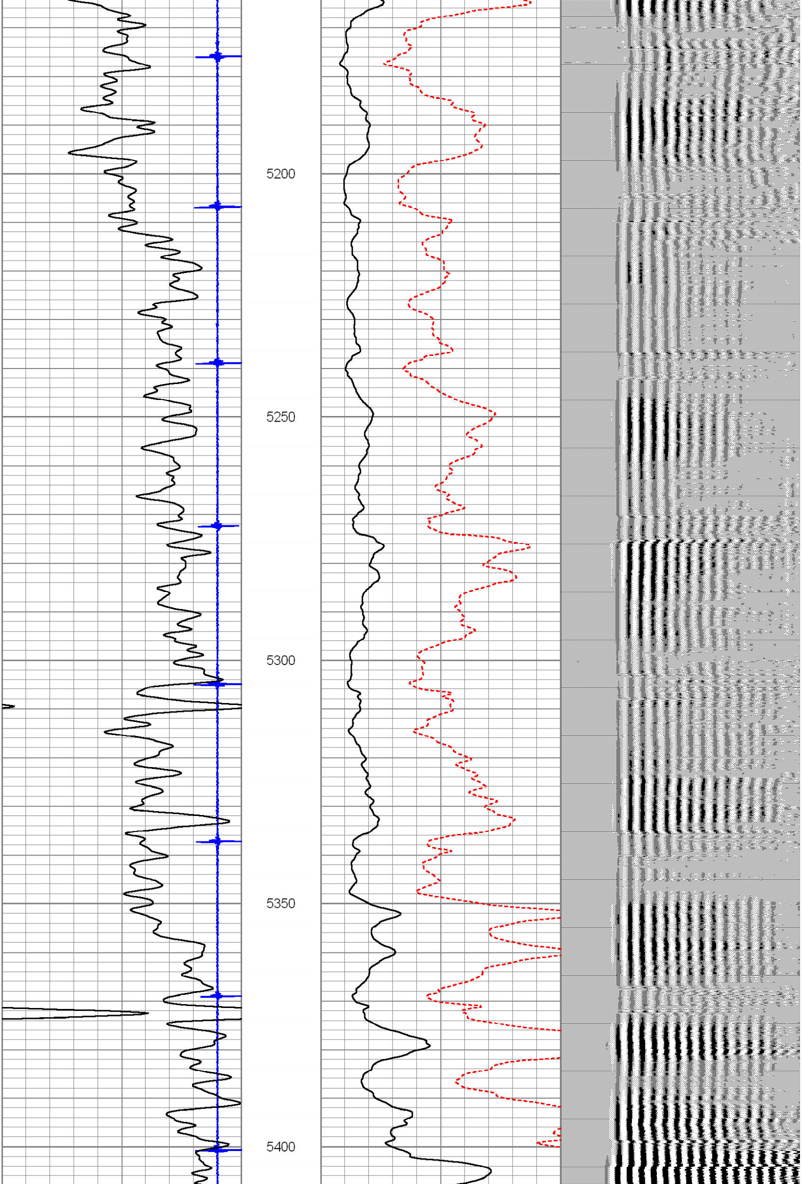
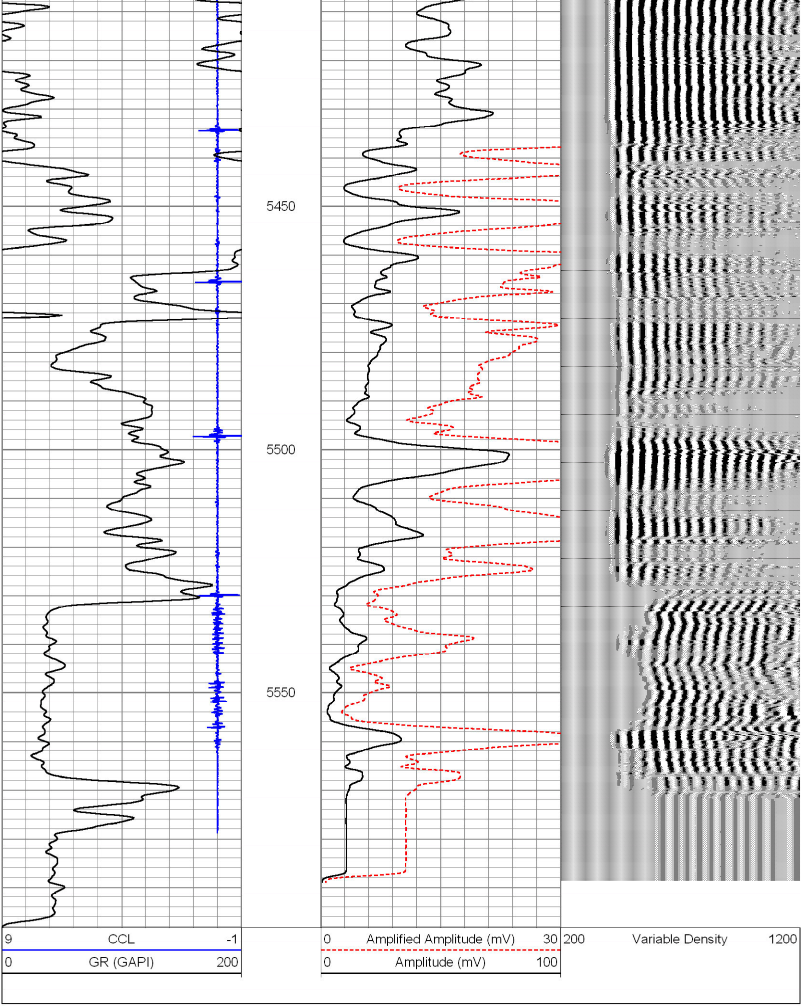
Gamma Ray Calibration Report

Serial Number:	51013	
Tool Model:	probe 2.75	
Performed:	Mon Sep 22 09:55:30 2008	
Calibrator Value:	1400.0	GAPI
Background Reading:	26.8	cps
Calibrator Reading:	1120.0	cps
Sensitivity:	0.9000	GAPI/cps

Cement Bond Log Calibration Report

Serial Number:	050215		
Tool Model:	Probe		
Performed:	Mon Nov 14 12:06:54 2011		
Depth:	146.582	ft	
Casing Diameter:	4.5	in	

	3' Spacing	5' Spacing	
Signal Zero:	0	0	mV
Calibrated Amplitude:	81.1961	81.1961	mV
Reading at Signal Zero:	-0.02	-0.0121094	V
Reading in Free Pipe:	2.49878	2.2675	V
Gain:	32.2363	35.6184	
Offset:	0.644726	0.431316	

Database File:	hough_b-7.db
Dataset Pathname:	pass2
Presentation Format:	cbl_dr
Dataset Creation:	Mon Nov 14 12:17:02 2011 by Log Std Casedhole 10081
Charted by:	Depth in Feet scaled 1:240