J-W WIRELINE COMPANY

CEMENT BOND GAMMA RAY COLLAR CORRELATION LOG

Company	NOBLE ENERGY INC.
Well	THUNDERHEAD USX AB 25-99 HZ
Field	WATTENBERG
County	WELD
State	COLORADO

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Well THUNDERHEAD USX AB 25-99 HZ
Field WATTENBERG
County WELD State COLORADO
Location: API #: 05-123-30695-00
BHL: 1349' FSL & 664' FEL
SEC. 25 TWP. 7N RGE. 64W
NW NW
SEC TWP RGE

Other Services

Permanent Datum	GROUND LEVEL	Elevation 4786	Elevation
Log Measured From	KELLY BUSHING		K.B. 4799
Drilling Measured From	KELLY BUSHING		D.F. 4799 G.L. 4786

Date	02-JANUARY-2010
Run Number	ONE
Depth Driller	7081
Depth Logger	6009
Bottom Logged Interval	6008
Top Log Interval	SURFACE
Open Hole Size	8.75
Type Fluid	WATER
Density / Viscosity	--
Max. Recorded Temp.	188
Estimated Cement Top	3400
Time Well Ready	--
Time Logger on Bottom	--
Equipment Number	2405/SECTOR
Location	BRIGHTON
Recorded By	HAYES
Witnessed By	MR JOE BRNAK

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

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	9 5/8	36 #	SURFACE	742
Prot. String				
Production String				
Liner	7"	26 #	SURFACE	7081

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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

Calibration Report

Database File: tunderhead usx ab 25-99hz.db
Dataset Pathname: pass4
Dataset Creation: Sat Jan 02 10:07:13 2010 by Log Std Casedhole 08121

Gamma Ray Calibration Report

Serial Number:	101sgr	
Tool Model:	TEKCO	
Performed:	Sun Jun 13 13:33:21 1993	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	1234	
Tool Model:	275RIB	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	1248.658	ft

Master Calibration, performed Sat Jan 02 09:26:53 2010:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	2.498	3.000	62.165	23.686	3.000
CAL	0.000	1.214				
5'	0.000	2.500	3.000	62.165	23.666	3.000
SUM						
S1	0.000	0.218	0.000	100.000	457.833	0.000
S2	0.000	0.061	0.000	100.000	1635.130	0.000
S3	0.000	0.017	0.000	100.000	6045.756	0.000
S4	0.000	0.101	0.000	100.000	986.988	0.000
S5	0.000	0.153	0.000	100.000	653.478	0.000
S6	0.000	0.101	0.000	100.000	991.768	0.000
S7	0.000	0.083	0.000	100.000	1201.349	0.000
S8	0.000	0.011	0.000	100.000	9082.040	0.000

Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	1.214	1.000	0.000

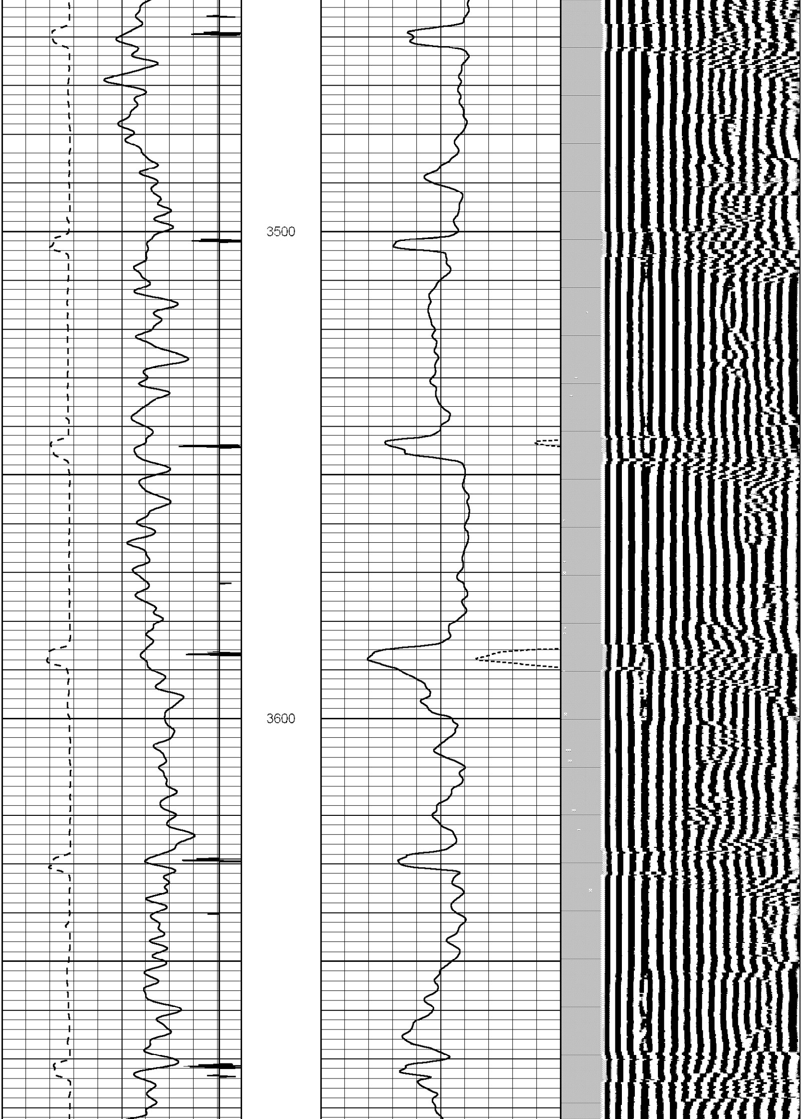
Air Zero Calibration, performed Mon Sep 11 12:40:00 2006:

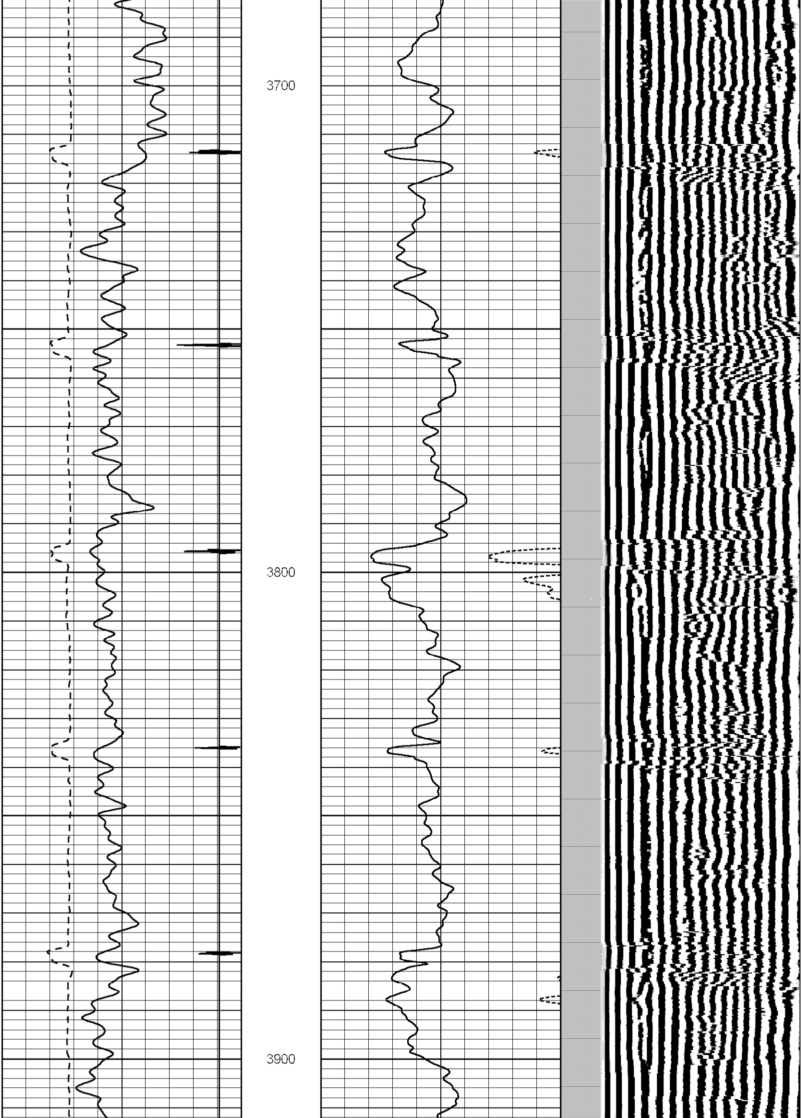
	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

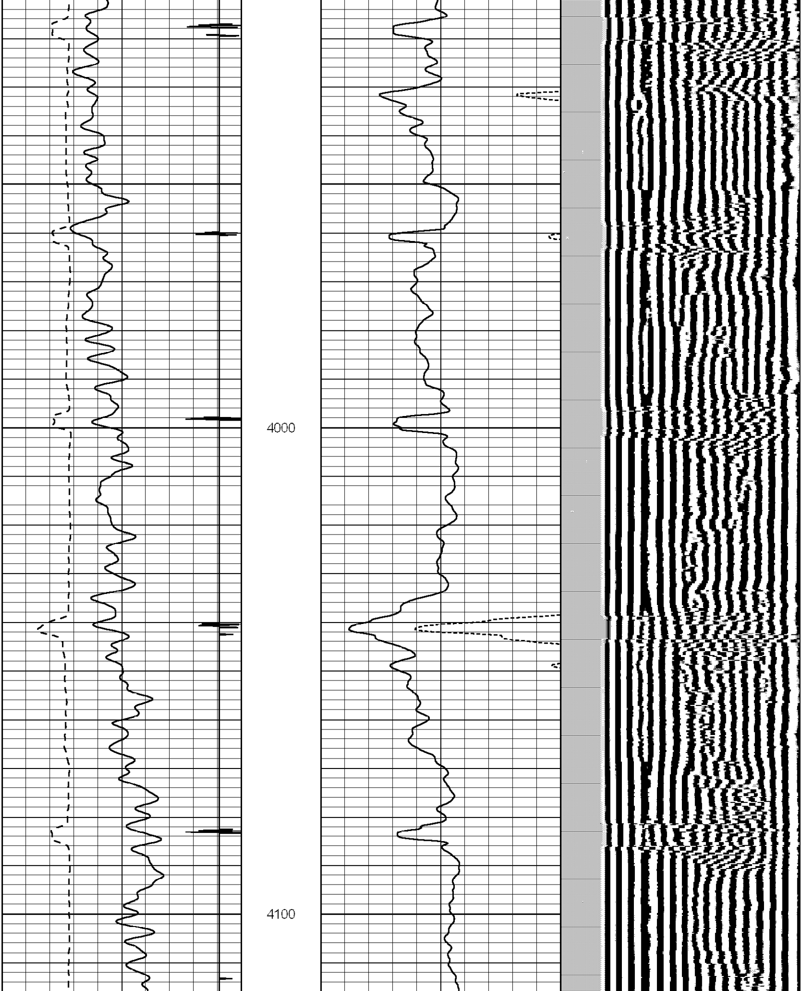
Temperature Calibration Report

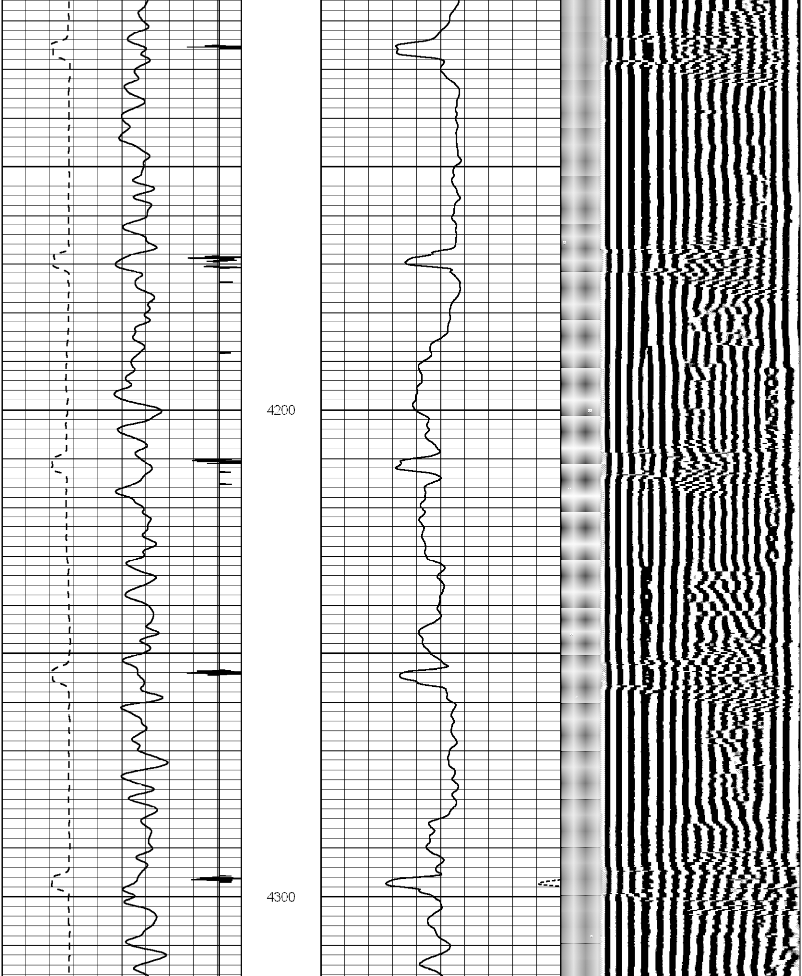
Serial Number:	1234	
Tool Model:	275RIB	
Performed:	Tue Jan 13 08:08:36 2009	
	Reference	Reading
Low Reference:	75.00 degF	300.00 usec
High Reference:	400.00 degF	1282.00usec
Gain:	0.33	
Offset:	-30.00	
Delta Spacing	1	

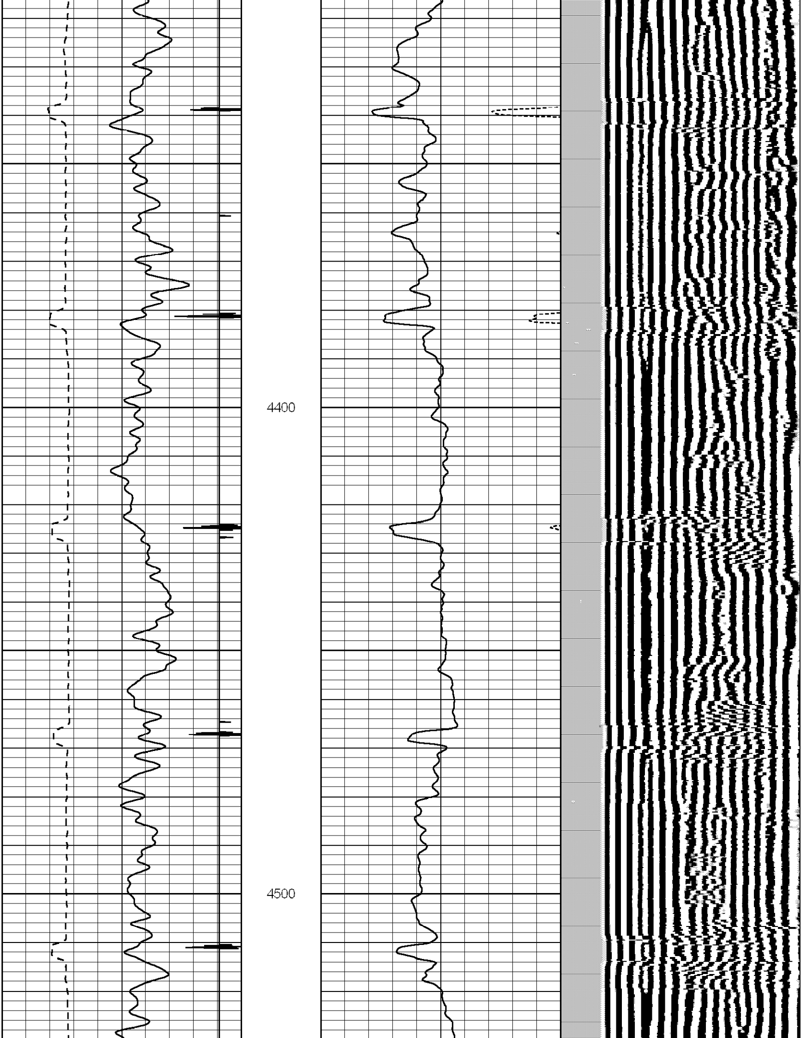
Database File: tunderhead usx ab 25-99hz.db
Dataset Pathname: pass4
Presentation Format: scbl_dr
Dataset Creation: Sat Jan 02 10:07:13 2010 by Log Std Casedhole 08121
Charted by: Depth in Feet scaled 1:240

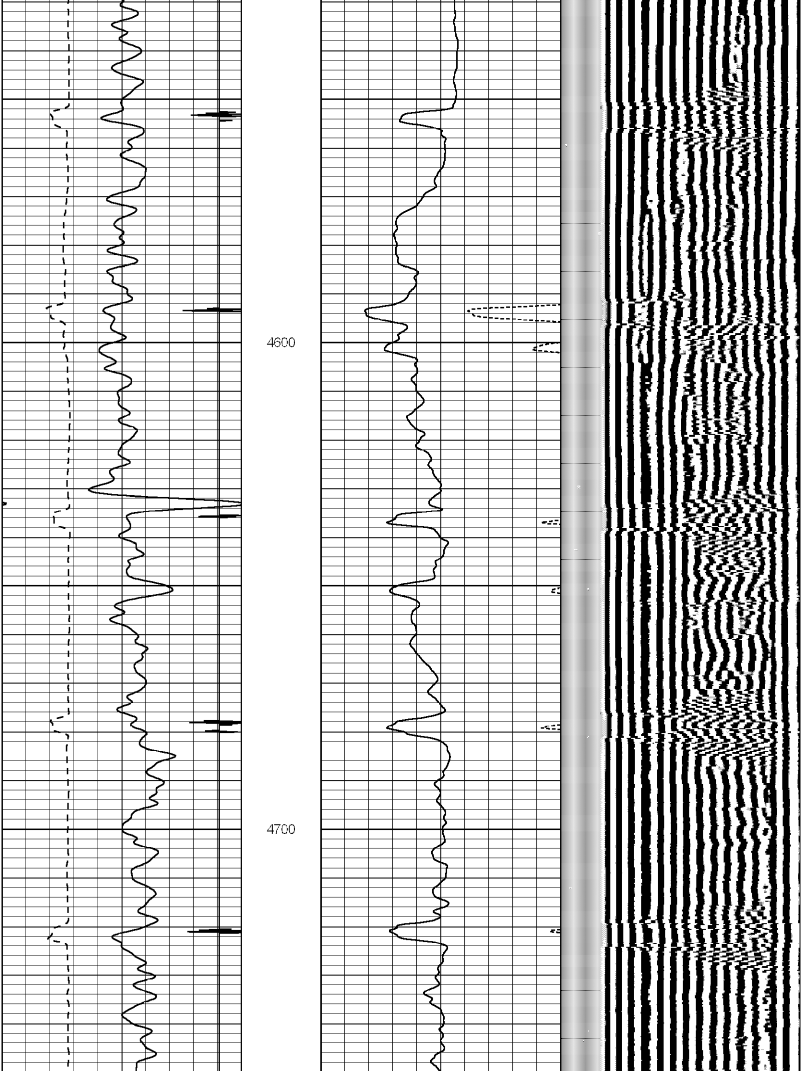


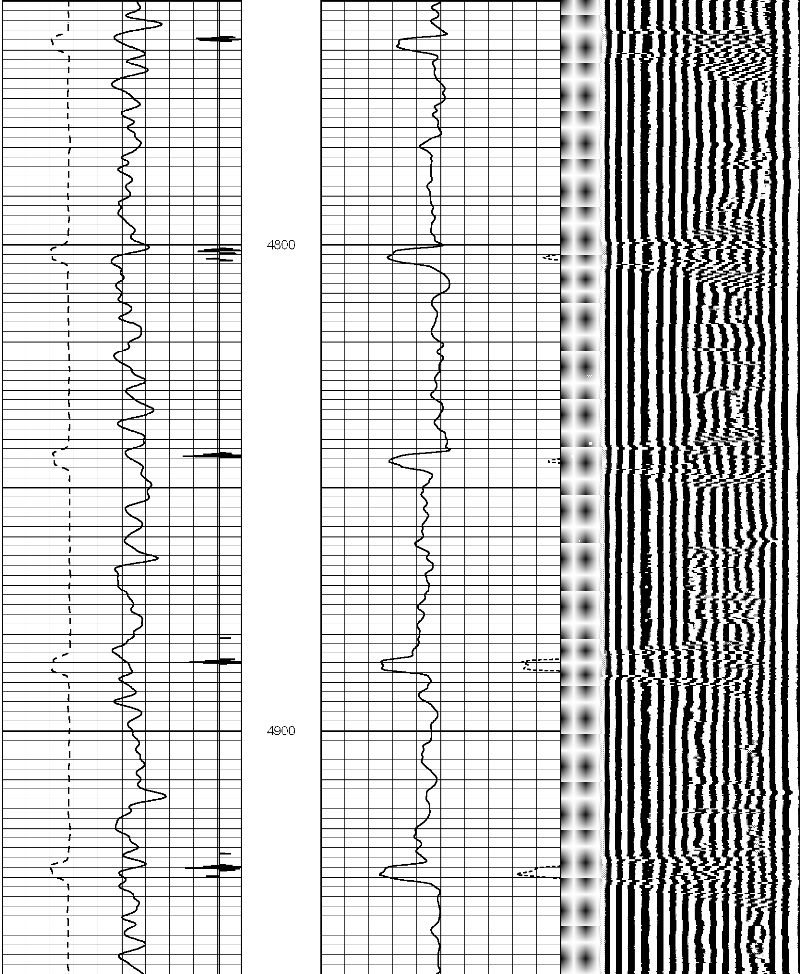


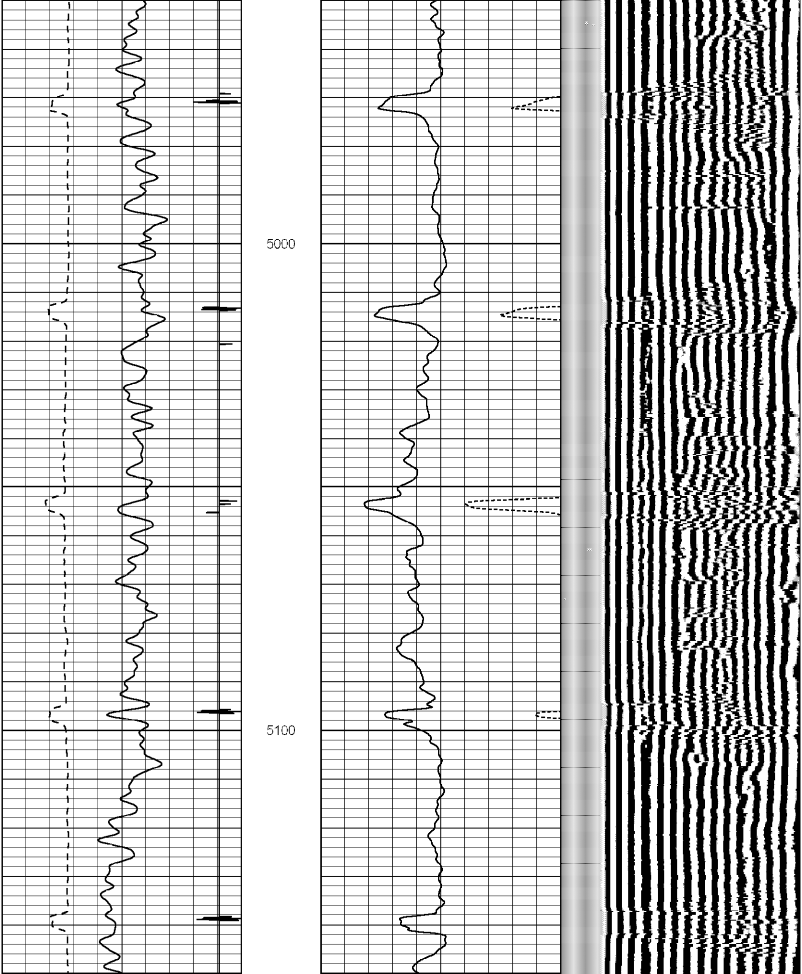


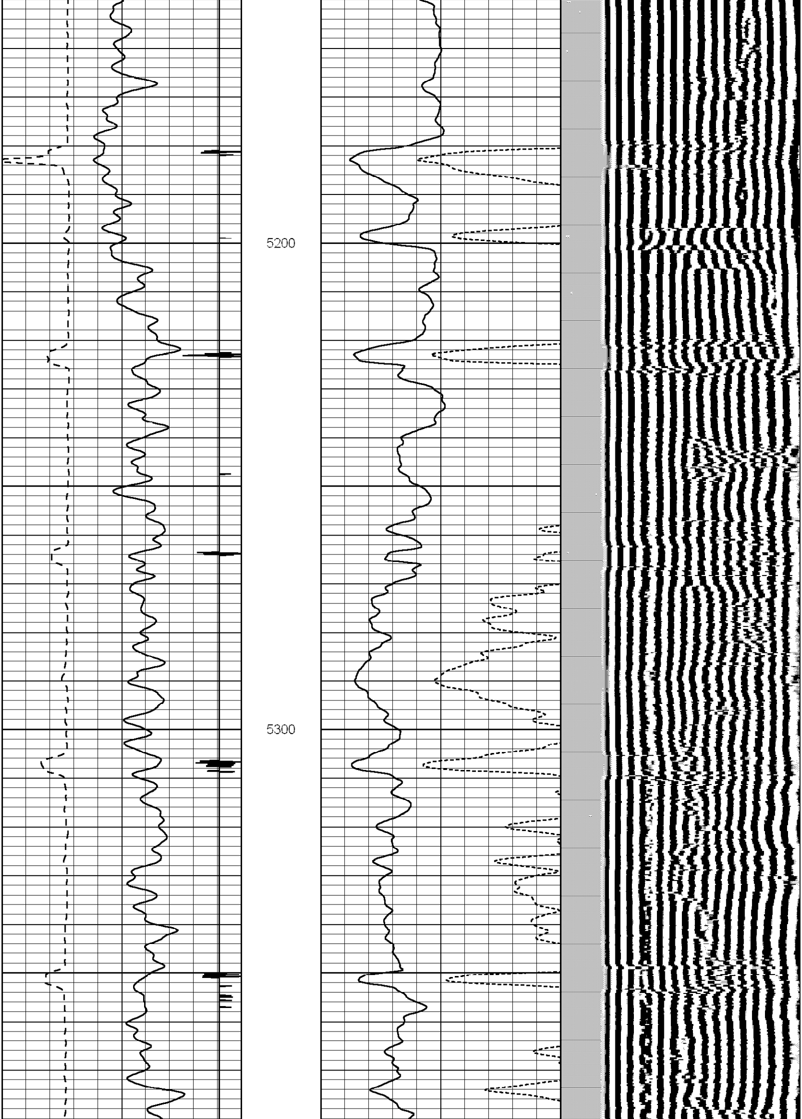


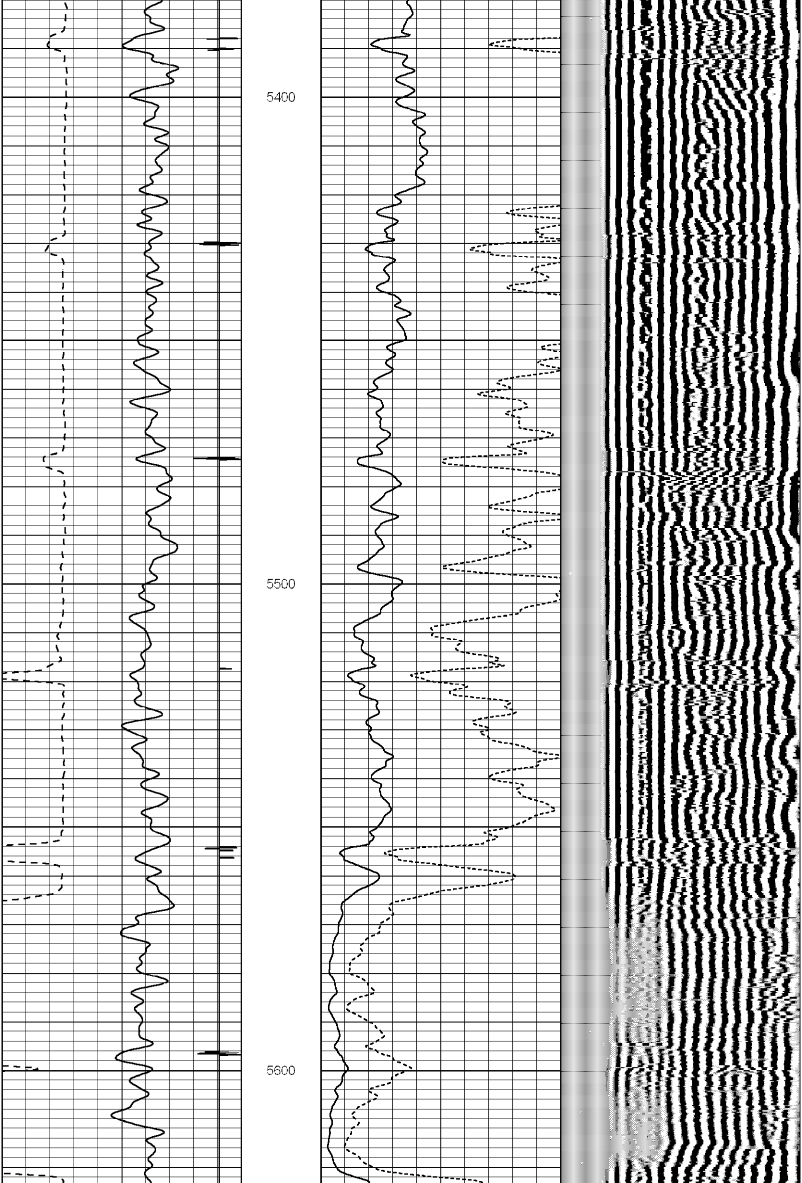


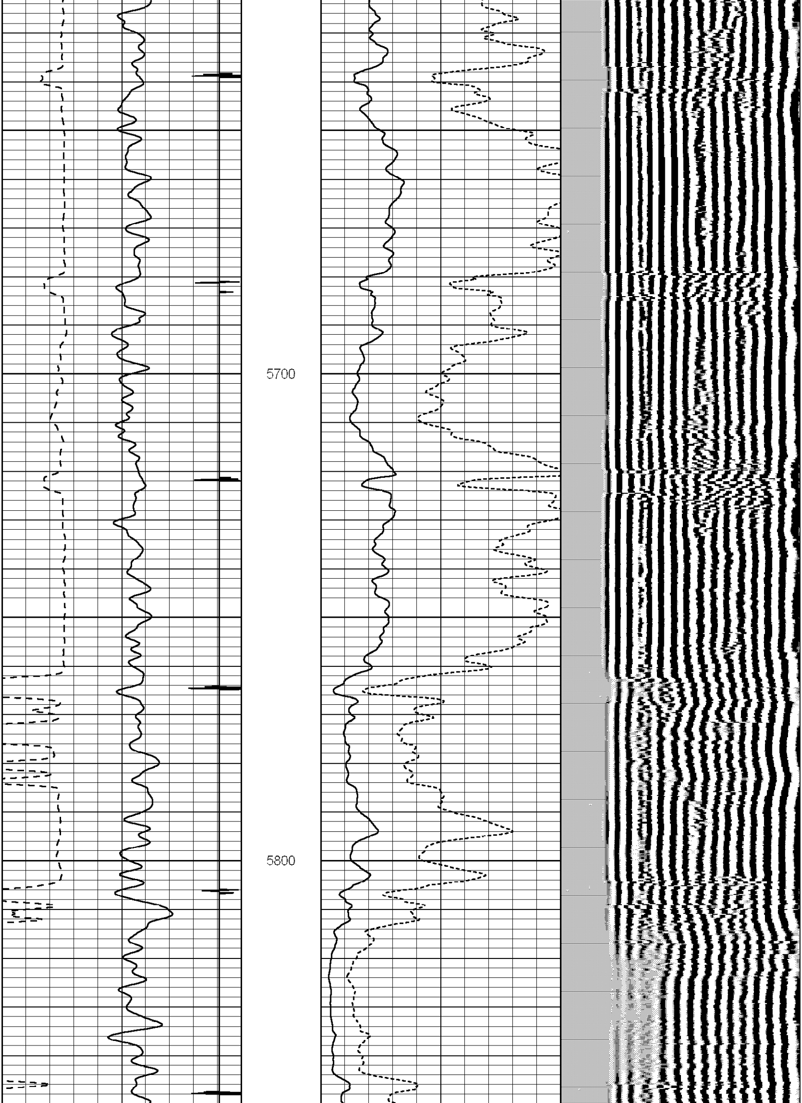


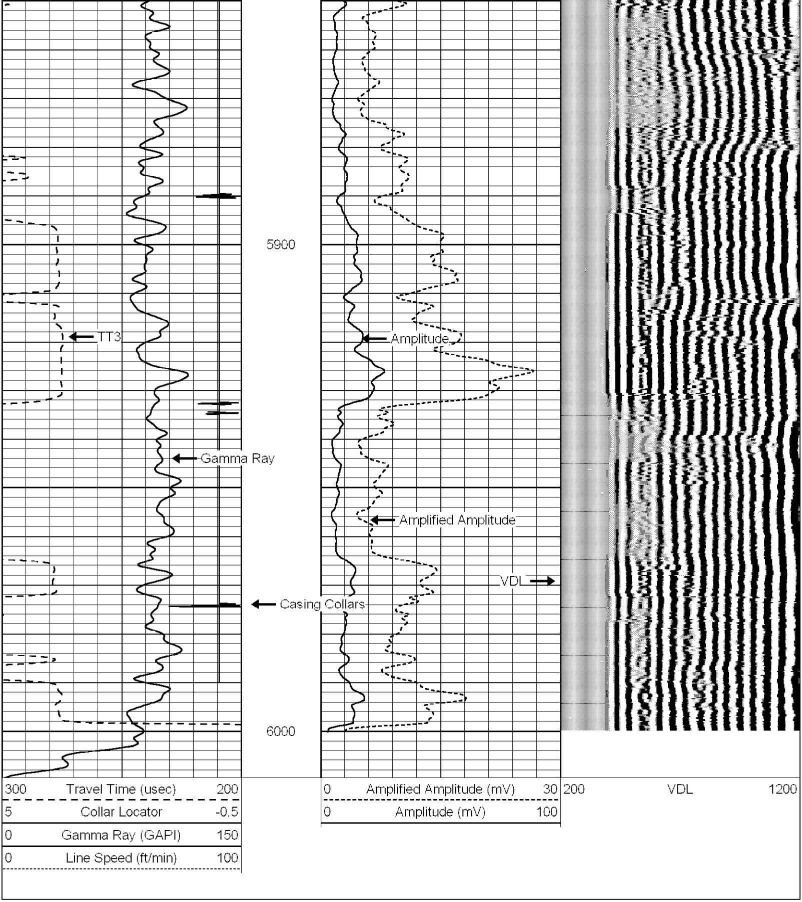


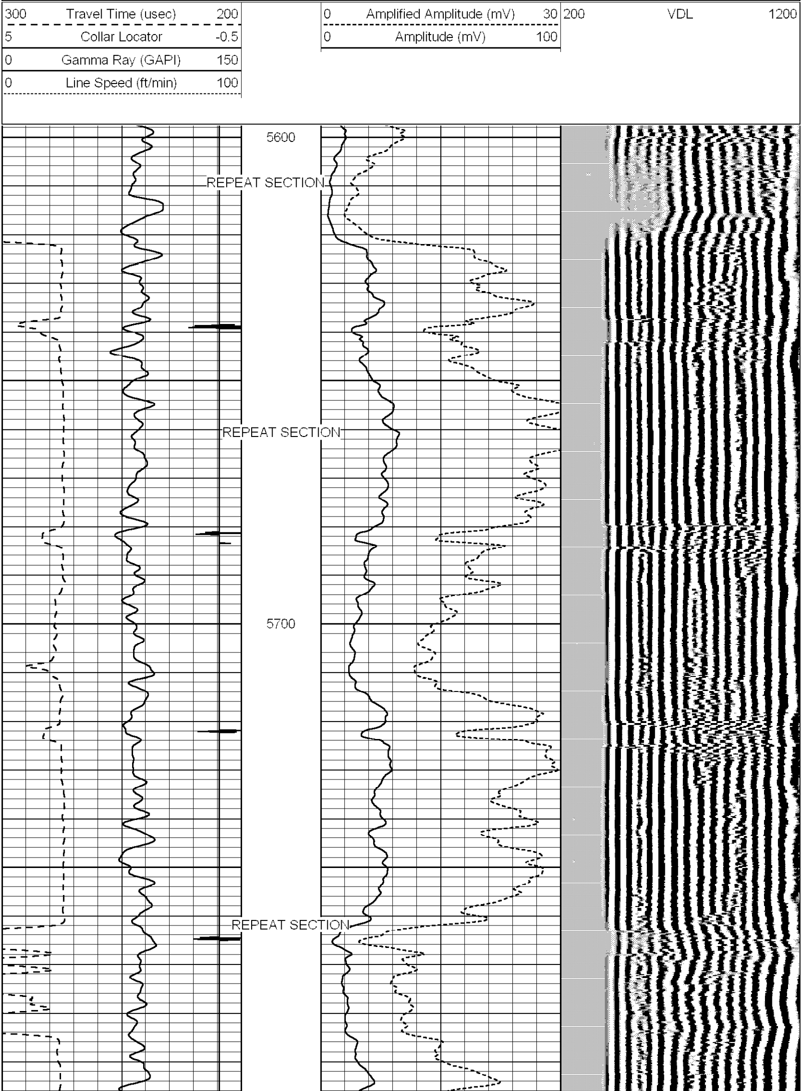
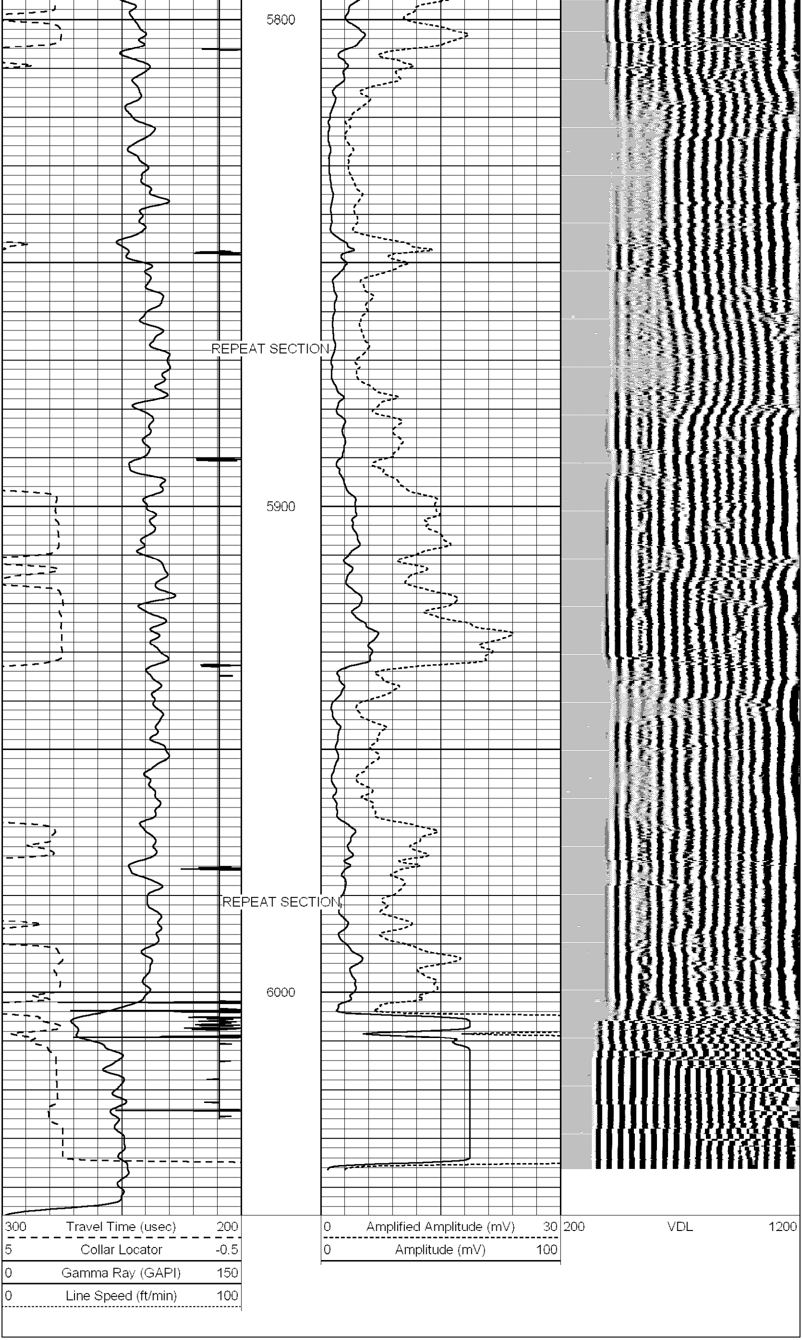










Database File: tunderhead usx ab 25-99hz.db
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Charted by: Depth in Feet scaled 1:240