J-W WIRELINE COMPANY

SECTOR BOND
GAMMA RAY
COLLAR LOG

Company	NOBLE ENERGY INC.
Well	KNAUB PC G04-67-1HN
Field	WATTENBERG
County	WELD
State	COLORADO

Company NOBLE ENERGY INC.

Well KNAUB PC G04-67-1HN

Field WATTENBERG

County WELD State COLORADO

Location: API #: 05-123-36284-00

CL: NW SW

SEC. 4 TWP. 4N RGE. 65W

BHL: 1650' FNL & 535' FEL

SEC TWP RGE

Other Services: NONE

Permanent Datum GROUND LEVEL Elevation 4618

Log Measured From KELLY BUSHING

Drilling Measured From KELLY BUSHING

Elevation

K.B. 4648

D.F. 4648

G.L. 4618

Date	04-APRIL-2013
Run Number	ONE
Depth Driller	11321
Depth Logger	7207
Bottom Logged Interval	7206
Top Log Interval	SURFACE
Open Hole Size	8 3/4
Type Fluid	WATER
Density / Viscosity	---
Max. Recorded Temp.	215
Estimated Cement Top	1110
Time Well Ready	---
Time Logger on Bottom	---
Equipment Number	2405/TECKO
Location	BRIGHTON
Recorded By	HAYES
Witnessed By	MR. BILL MANSFIELD

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	637
Prot. String				
Production String	4.5	11.6#	7366.9	11306
Liner	7.0	23#	SURFACE	7502.1

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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

Sensor	Offset (ft)	Description	Len (ft)	OD (in)	Wt (lb)
CCL	19.57	CCL-275tekco (2.75TEKCO) 2 3/4 TEK CCL Earth Mag	1.96	2.75	20.00
		CENT-TEKCO (101)	2.73	2.75	10.00
TEMP	12.78				
WVFS1	11.49				
WVFS2	11.49	275CTEKSECWTWSLCANS-275RIB (123 2 3/4" (R.I.B.) TOOL 3FT, 5FT and 8EA RIB SIGNALS 400 DEG "F" @20K PSI With Sliding Cans For Pressure Ballance	9.13	2.75	102.00
WVFS3	11.49				
WVFS4	11.49				
WVFS5	11.49				
WVFS6	11.49				
WVFS7	11.49				
WVFS8	11.49				
WVF3FT	10.74				
WVFCAL	10.74				
WVFSYNC	10.74				
WVF5FT	9.74				
WVFTEMP	6.41				
		CENT-TEKCO (101)	2.73	2.75	10.00
		GR-TEKCO (101sgr)	3.68	2.75	30.00
GR	1.06				

Dataset: knaub pc g04-67-1hn.db: field/well/run1/pass2

Total Length: 20.22 ft

Total Weight: 172.00 lb

O.D. 2.75 in

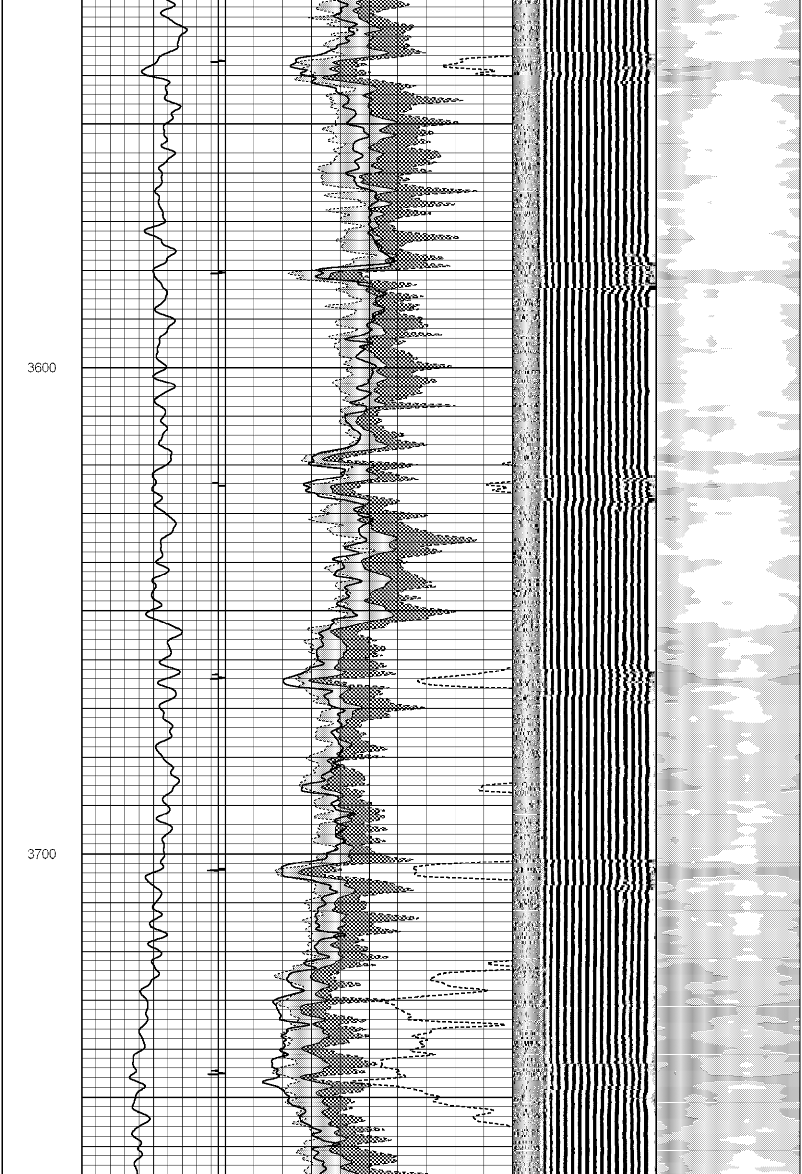
Database File: knaub pc g04-67-1hn.db

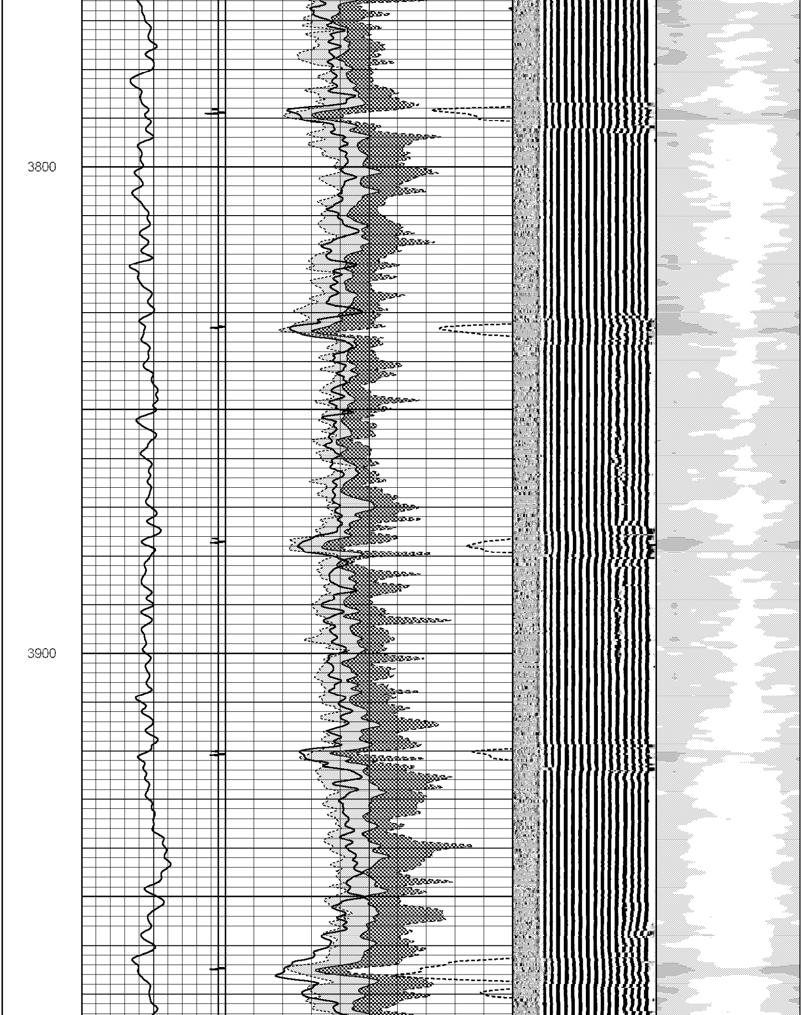
Dataset Pathname: pass2

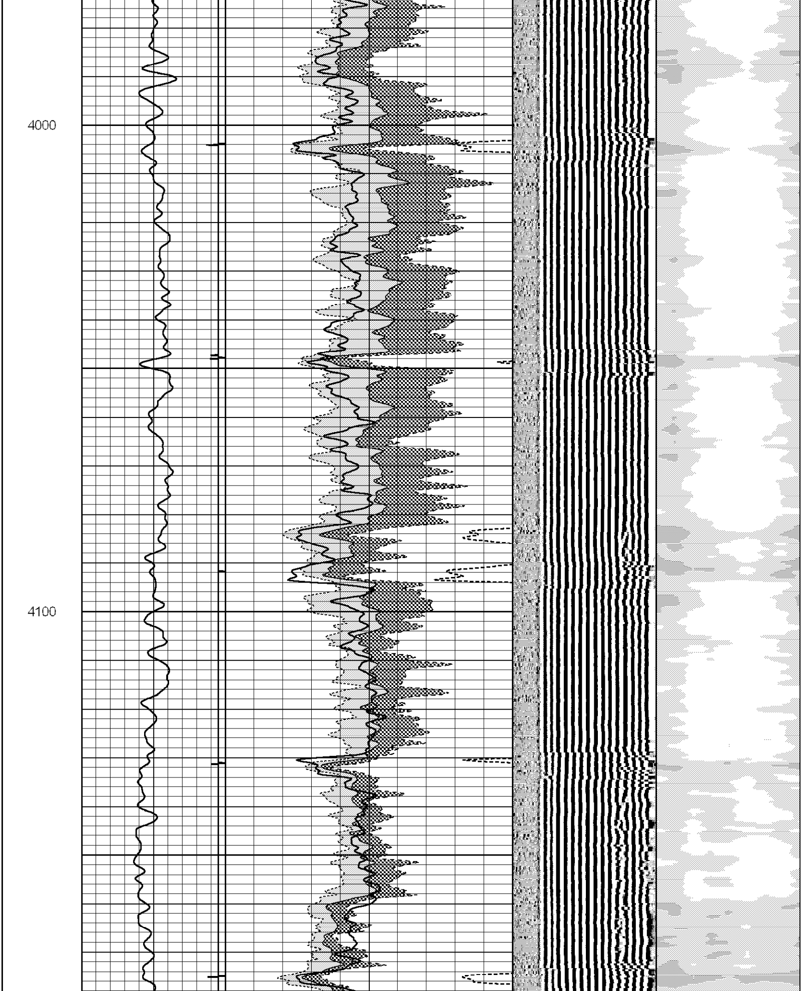
Presentation Format: scbl01

Dataset Creation: Thu Apr 04 18:51:02 2013 by Log SCH 111116

Charted by: Depth in Feet scaled 1:240

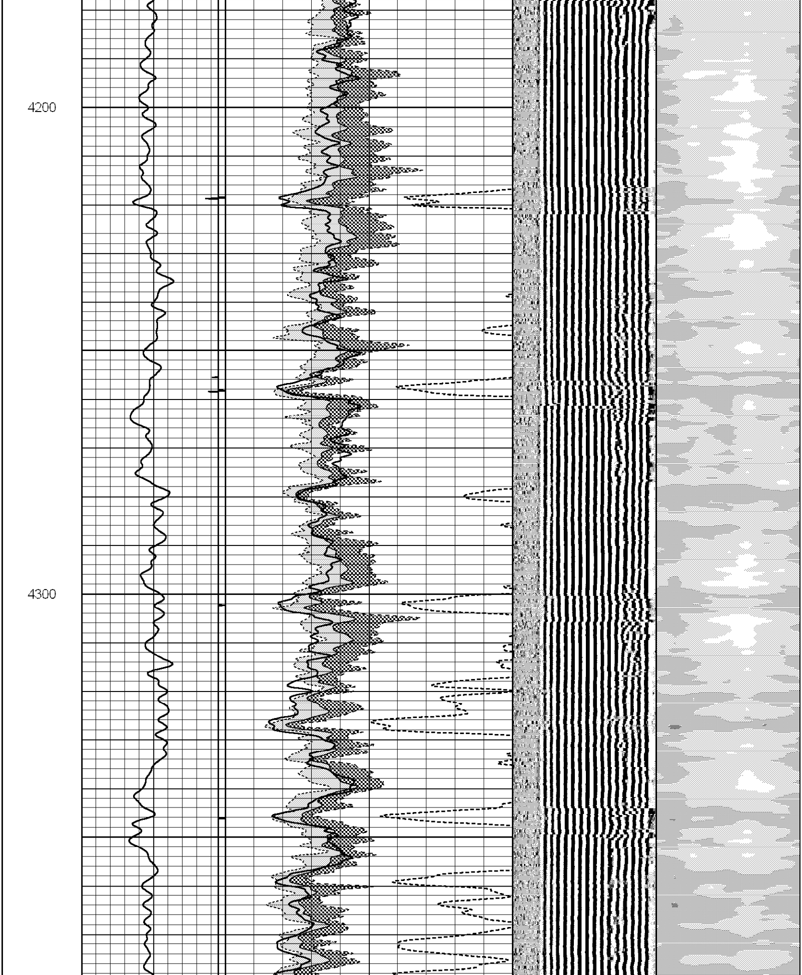


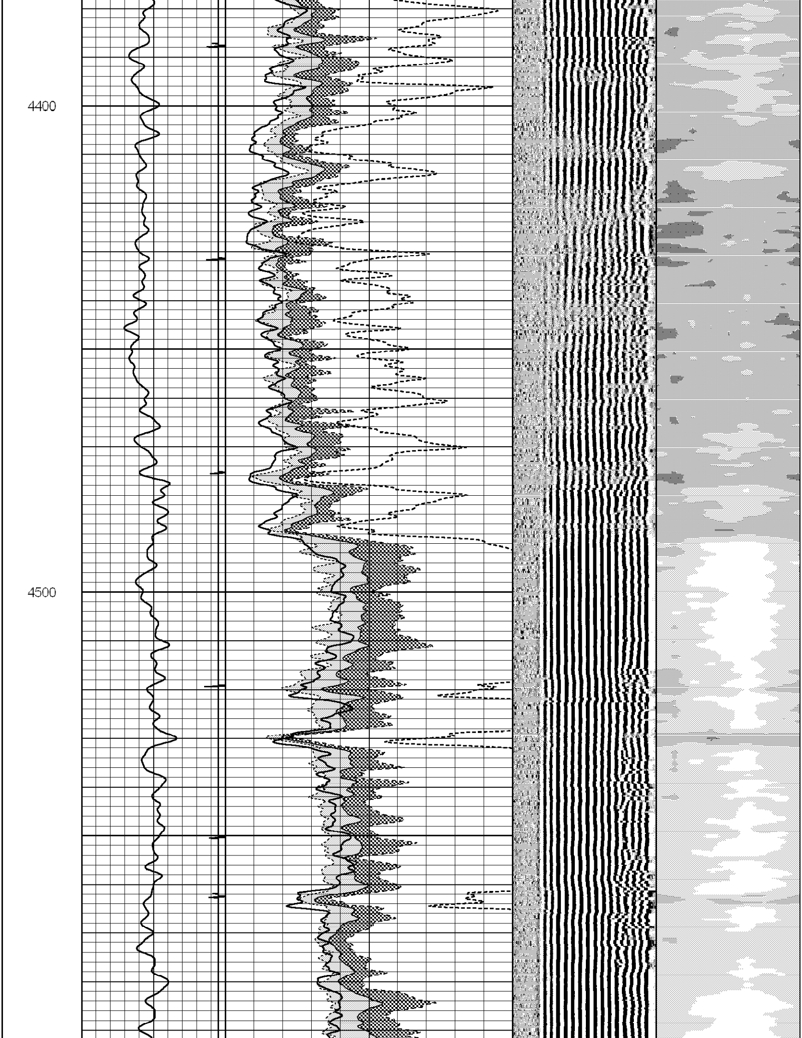


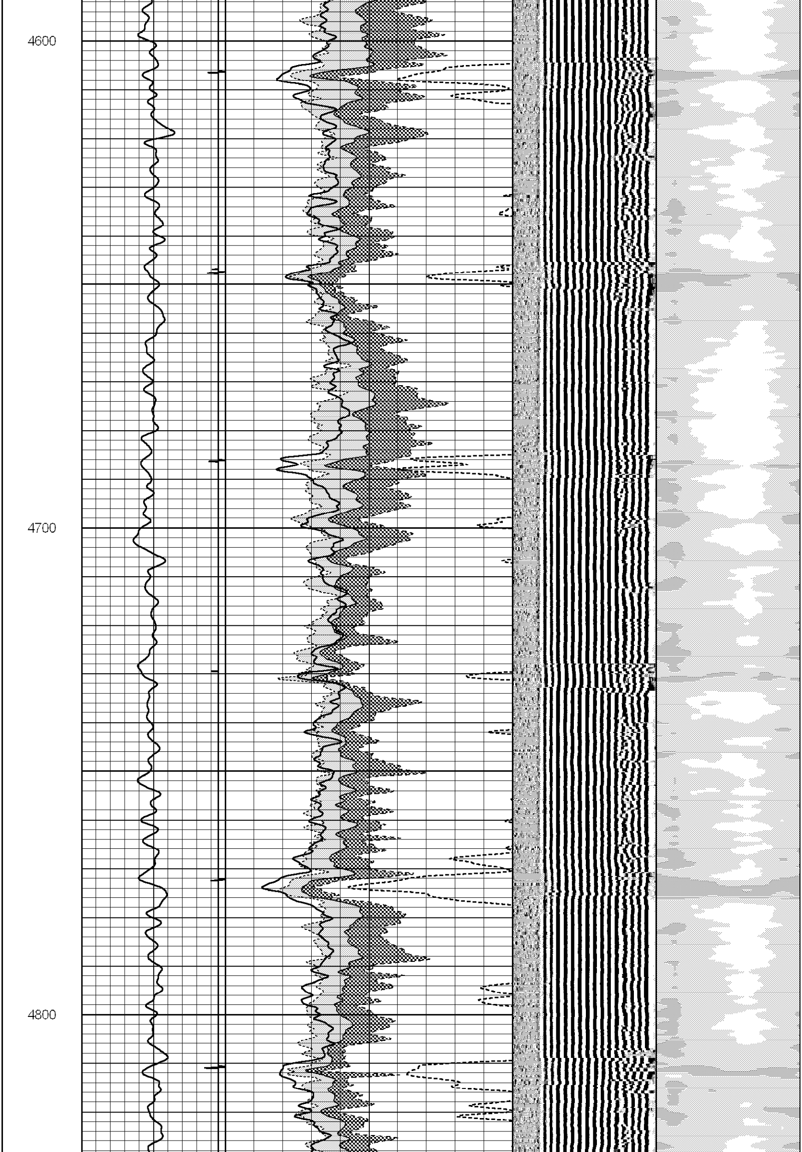


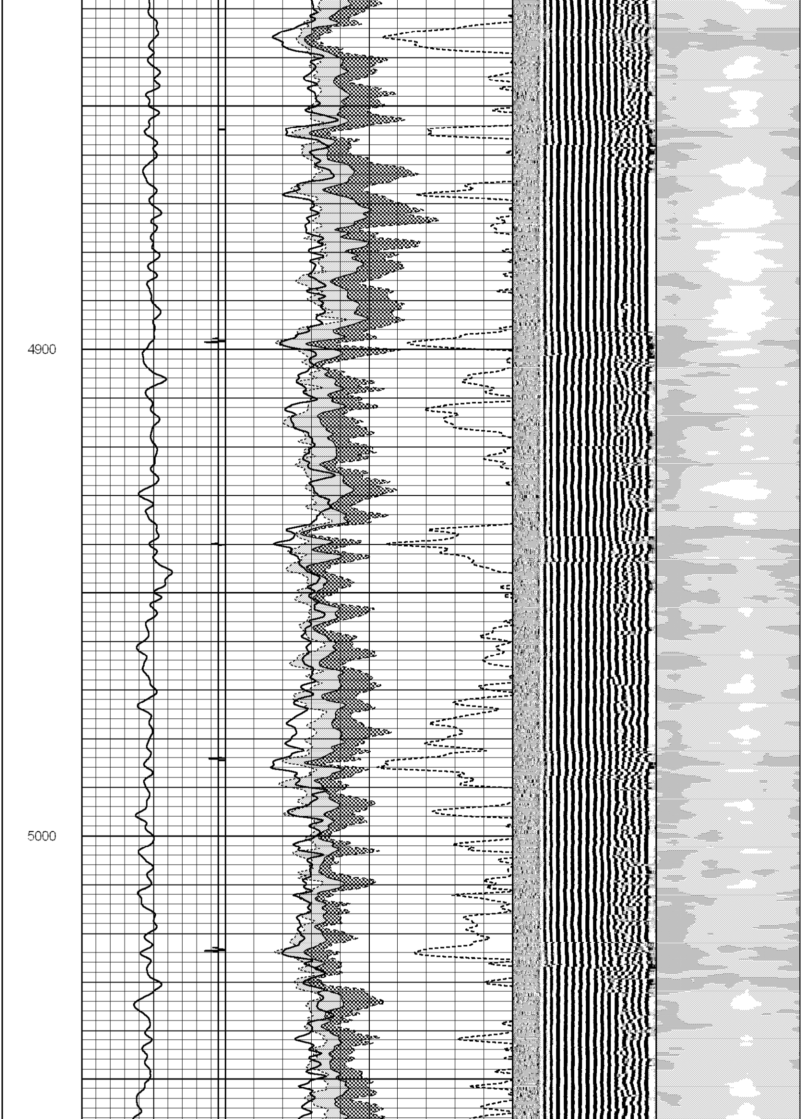
4200

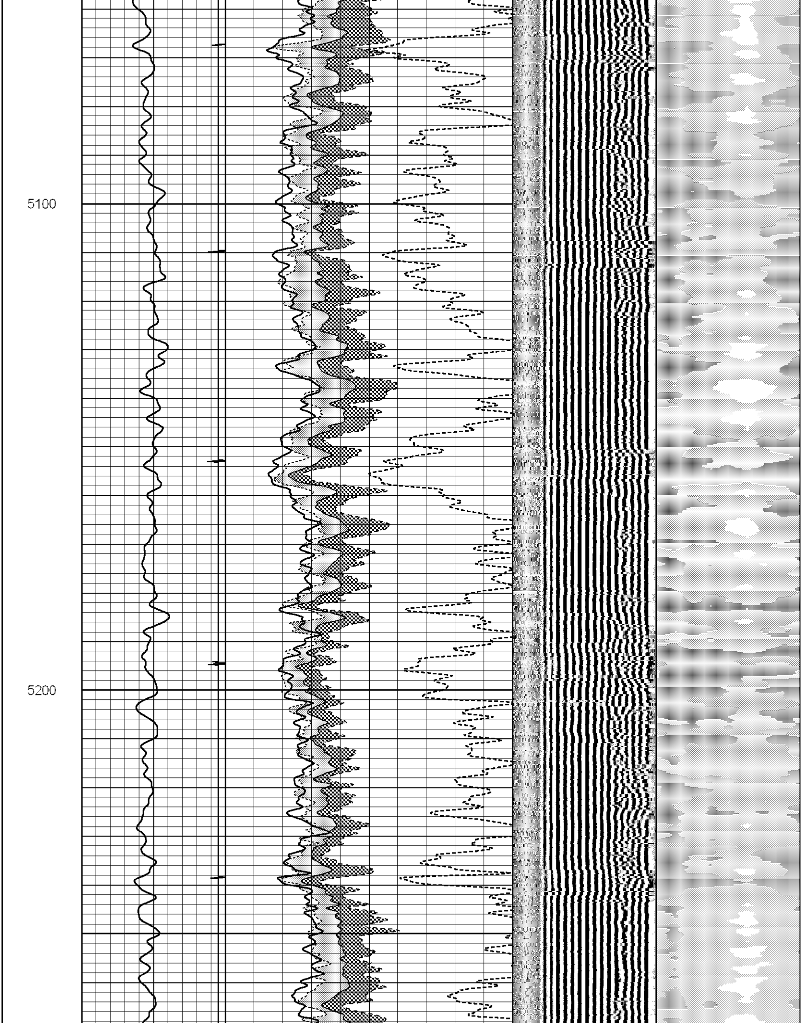
4300

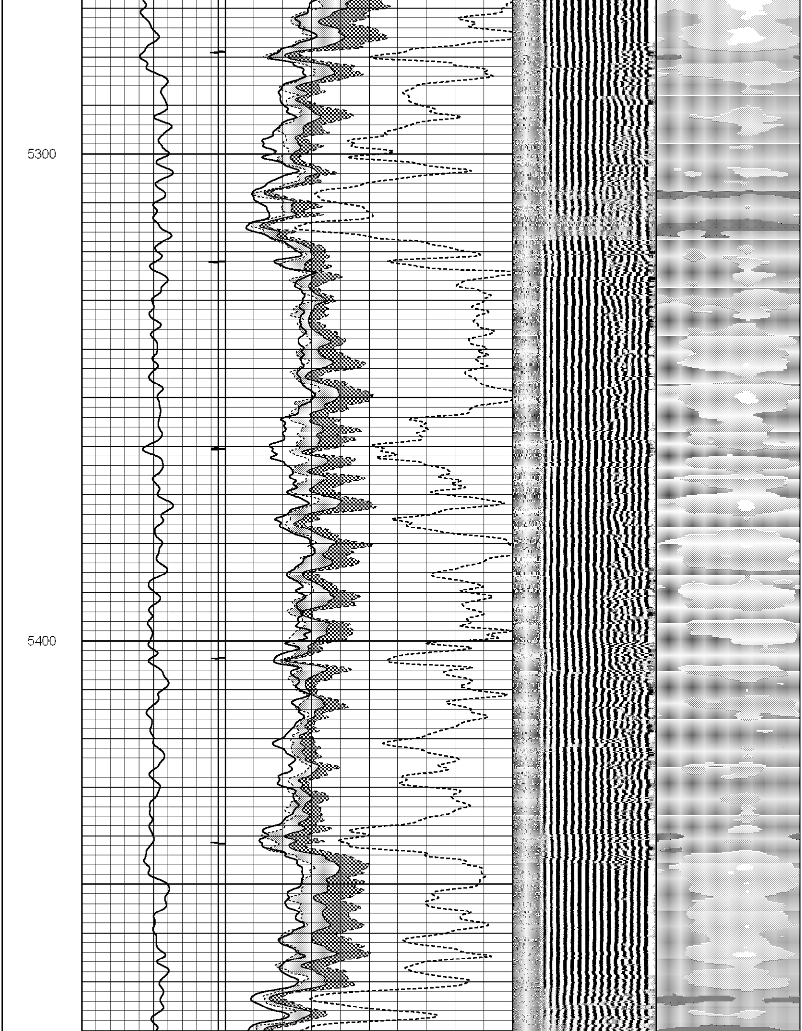


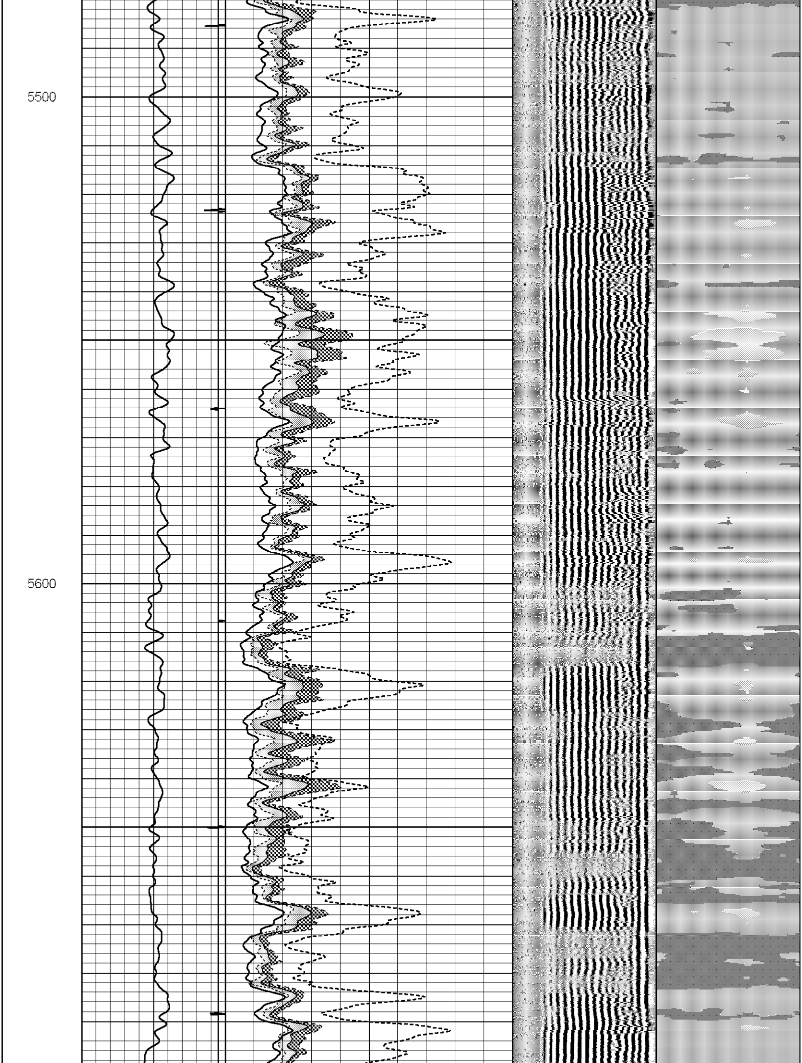


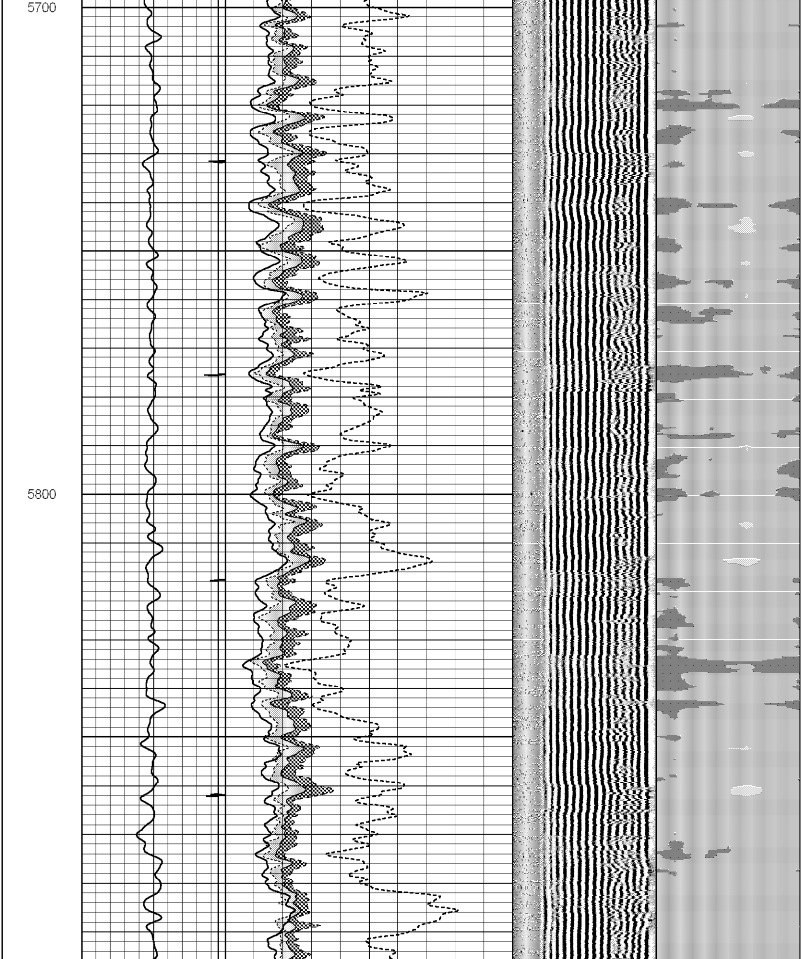


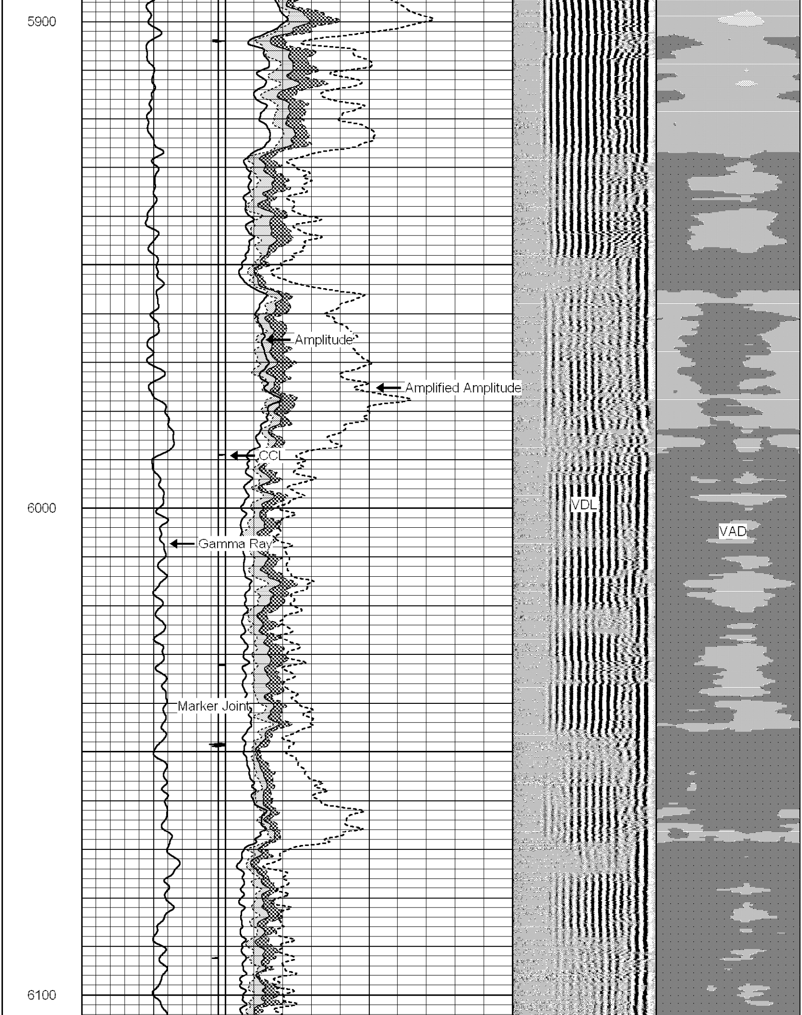


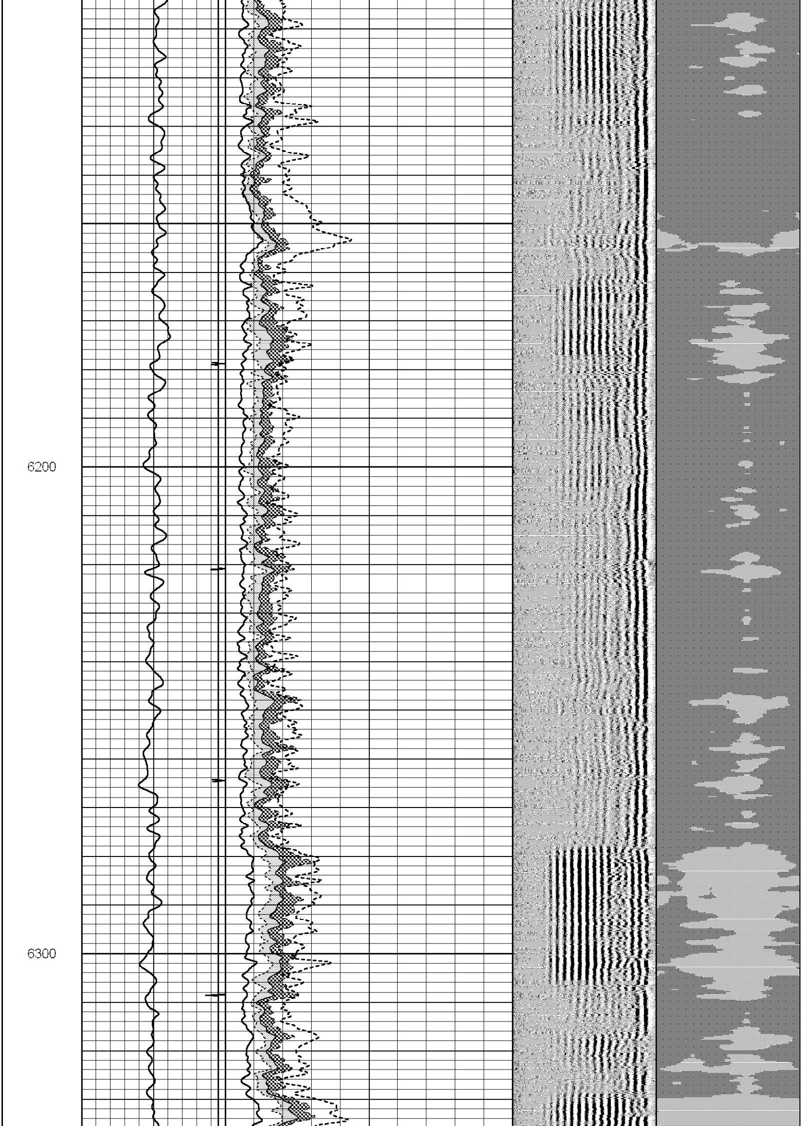


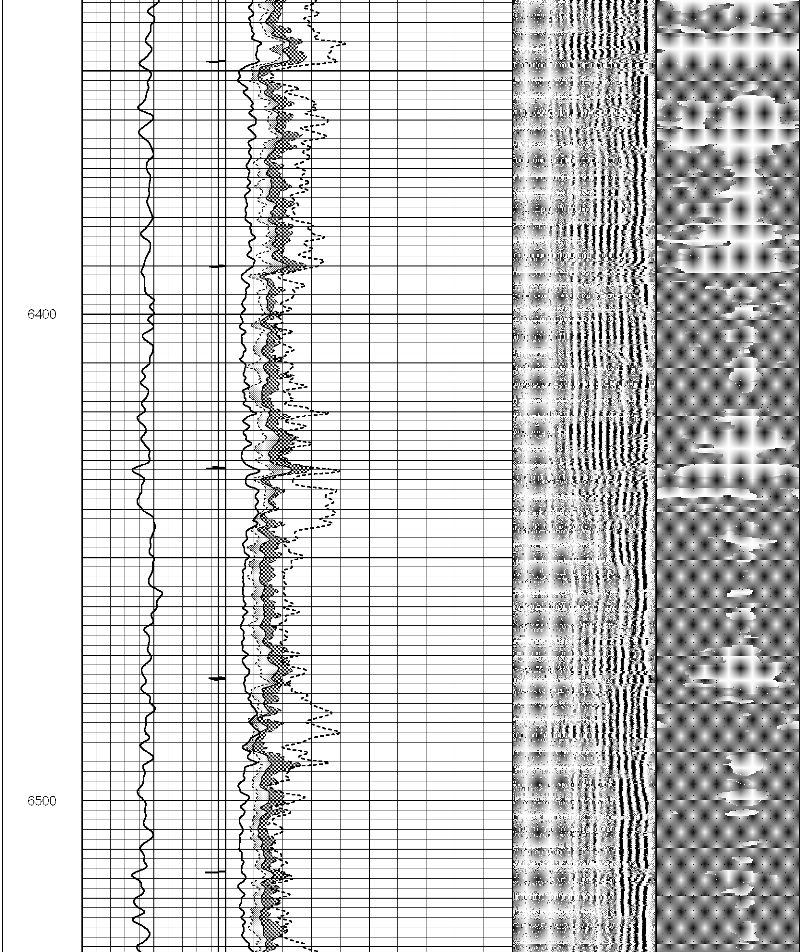






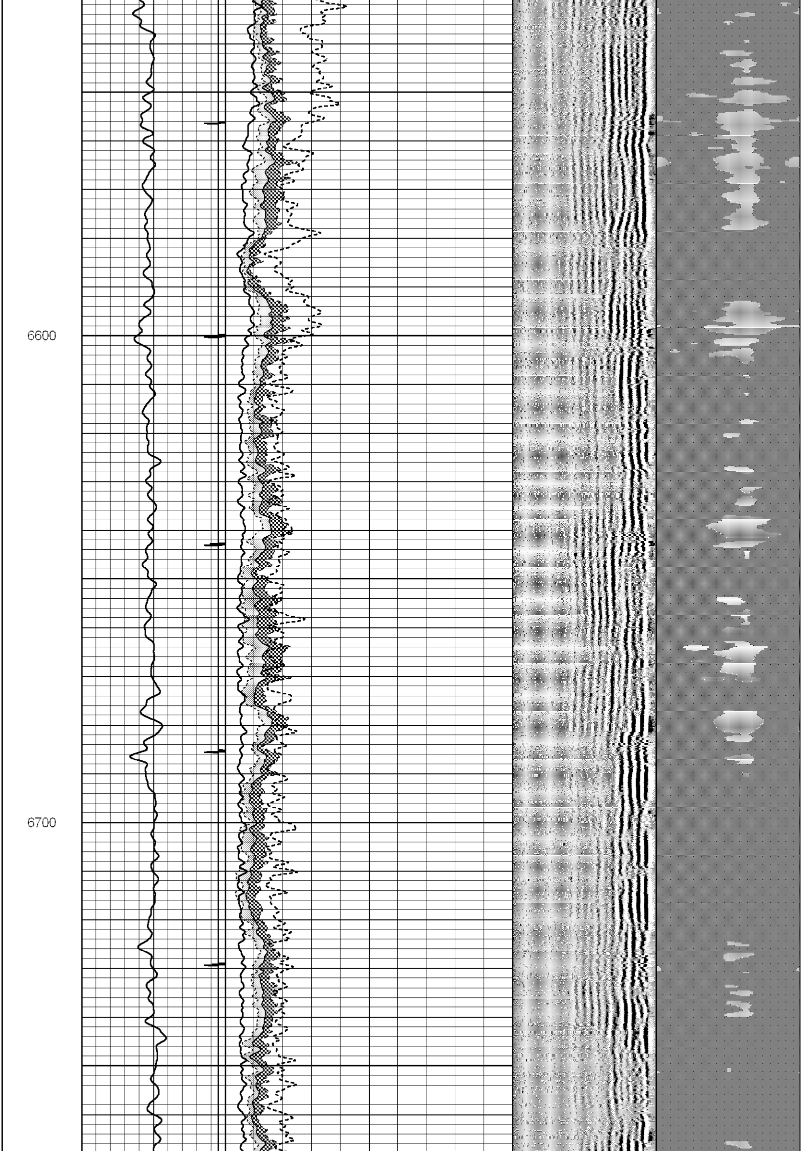


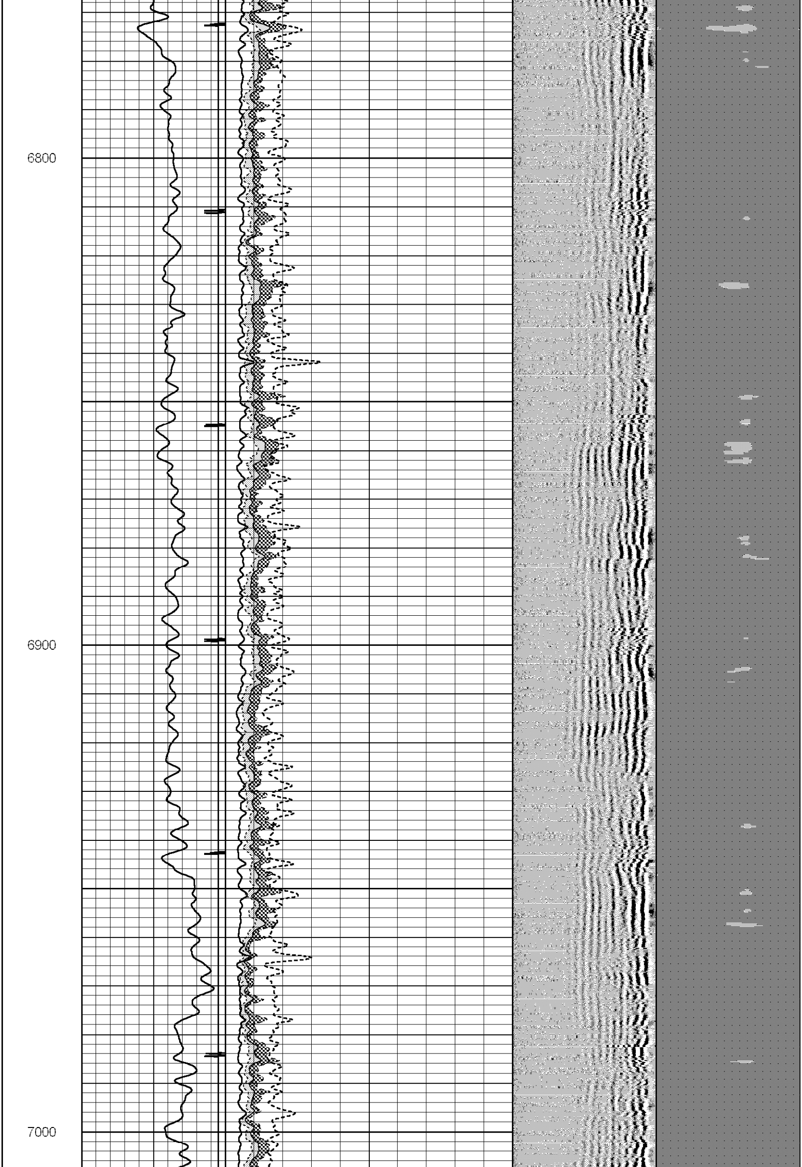


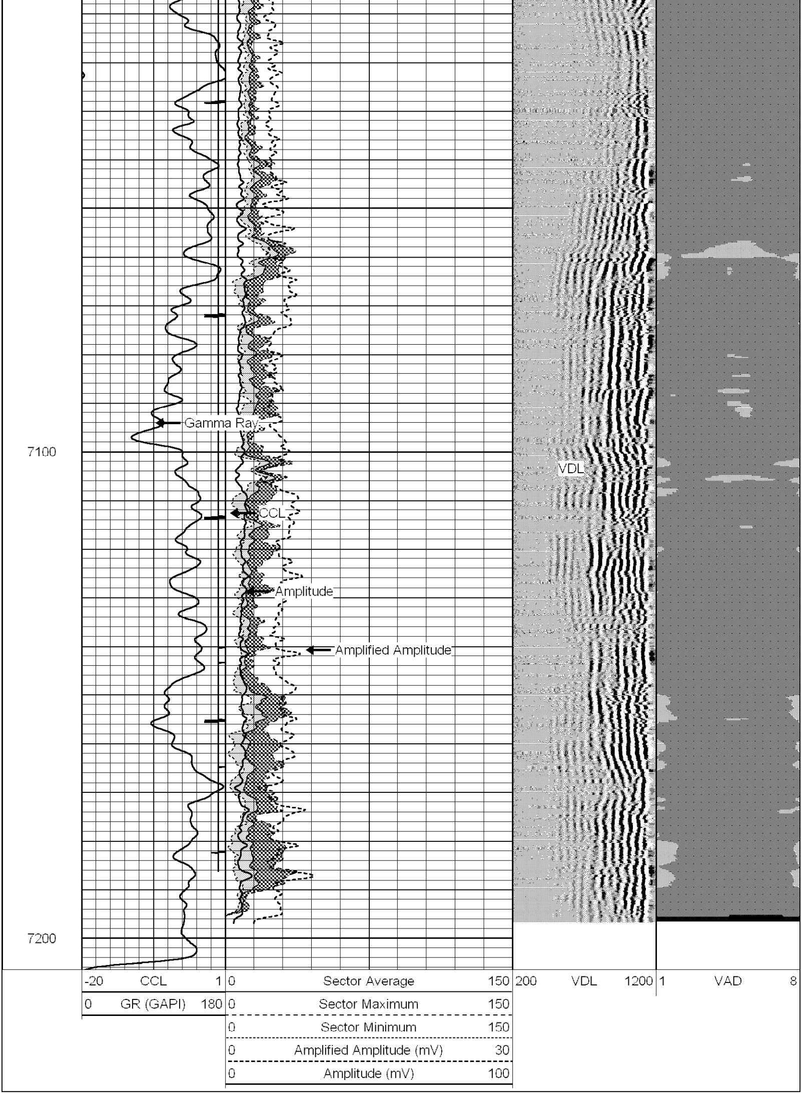


6600

6700







Calibration Report

Database File: knaub pc g04-67-1hn.db
Dataset Pathname: pass2
Dataset Creation: Thu Apr 04 18:51:02 2013 by Log SCH 111116

Gamma Ray Calibration Report

Serial Number: 101sgr
Tool Model: TEKCO
Performed: Sun Jun 13 14:33:21 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: 718.367 ft

Master Calibration, performed Thu Apr 04 18:31:45 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	2.500	3.000	62.165	23.666	3.000
CAL	0.000	0.165				
5'	0.000	2.500	3.000	62.165	23.666	3.000
SUM						
S1	0.000	1.481	0.000	100.000	67.525	0.000
S2	0.000	1.694	0.000	100.000	59.021	0.000
S3	0.000	1.645	0.000	100.000	60.783	0.000
S4	0.000	1.621	0.000	100.000	61.703	0.000
S5	0.000	1.487	0.000	100.000	67.240	0.000
S6	0.000	1.295	0.000	100.000	77.223	0.000
S7	0.000	1.544	0.000	100.000	64.783	0.000
S8	0.000	1.500	0.000	100.000	66.661	0.000

Internal Reference Calibration, performed Wed Dec 31 18:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	0.165	1.000	0.000

Air Zero Calibration, performed Mon Sep 11 13:40:00 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: Mon Mar 04 20:12:36 2013

	Reference	Reading
Low Reference:	300.00 degF	50.00 usec
High Reference:	400.00 degF	300.00 usec

Gain: 0.40
Offset: 280.00
Delta Spacing 1