NABORS COMPLETION & PRODUCTION SERVICES CO.

GAMMA RAY CCL CEMENT BOND SECTOR VDL

Company	NOBLE ENERGY INC.
Well	COUGAR B02-68-1HN
Field	WATTENBERG
County	WELD
State	COLORADO

Company NOBLE ENERGY INC.
Well COUGAR B02-68-1HN
Field WATTENBERG
County WELD State COLORADO
Location: API #: 0512336407
BHL: 990' FNL & 660' FEL
NW/NW
SEC 2 TWP 5N RGE 64W
Other Services

Permanent Datum	GL	Elevation 4640	Elevation
Log Measured From	KB		K.B. 4664
Drilling Measured From	KB		D.F.
			G.L. 4640

Date	FEBRUARY 24, 2014
Run Number	ONE
Depth Driller	10318
Depth Logger	6852
Bottom Logged Interval	6852
Top Log Interval	SURFACE
Open Hole Size	8-3/4
Type Fluid	WATER
Density / Viscosity	N/A
Max. Recorded Temp.	239°F
Estimated Cement Top	210
Time Well Ready	PORTABLE MAST
Time Logger on Bottom	2-3/4 PROBE 101024/010
Equipment Number	4838
Location	45
Recorded By	GREG NOLAN
Witnessed By	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# J-55	24	1992
Prot. String				
Production String	7	26# P-110 IC	24	7019
Liner	4-1/2	11.6# P-110 IC	6860.4	10303

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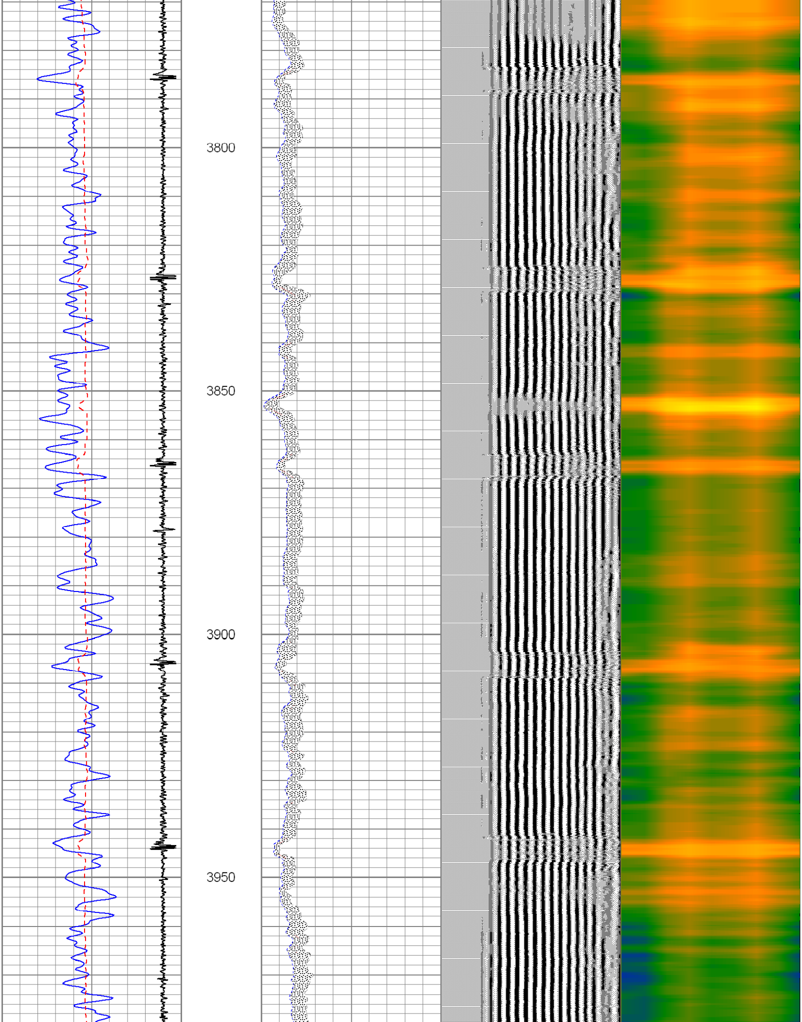
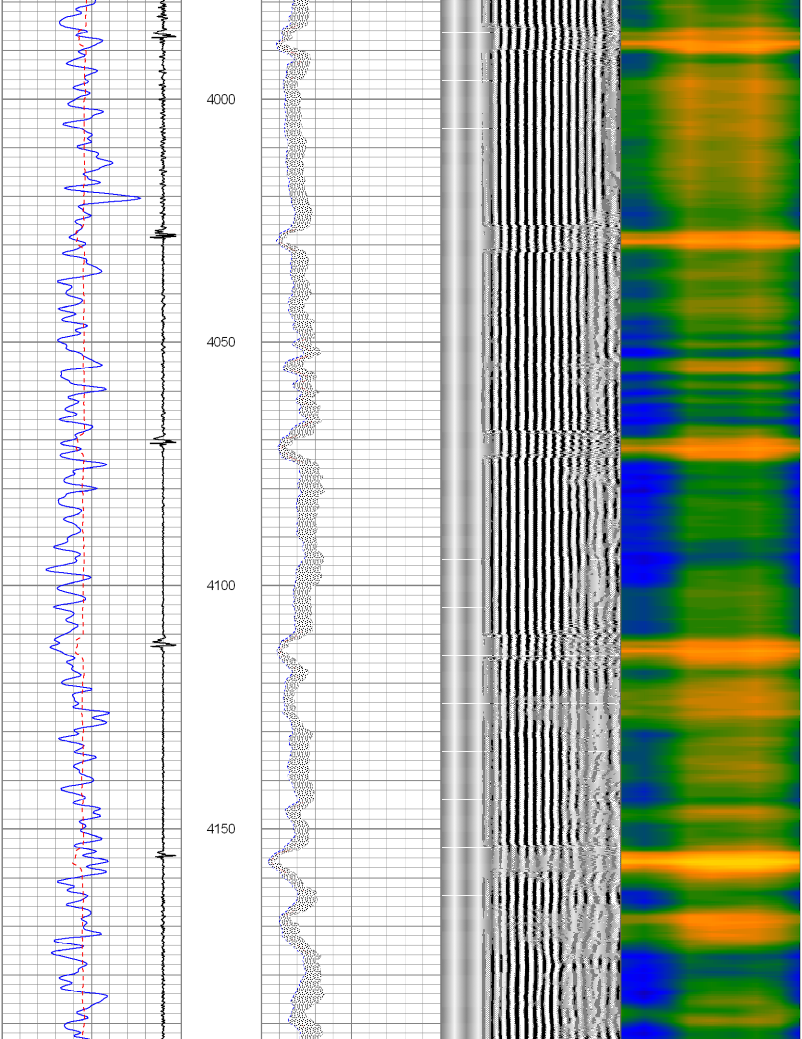
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

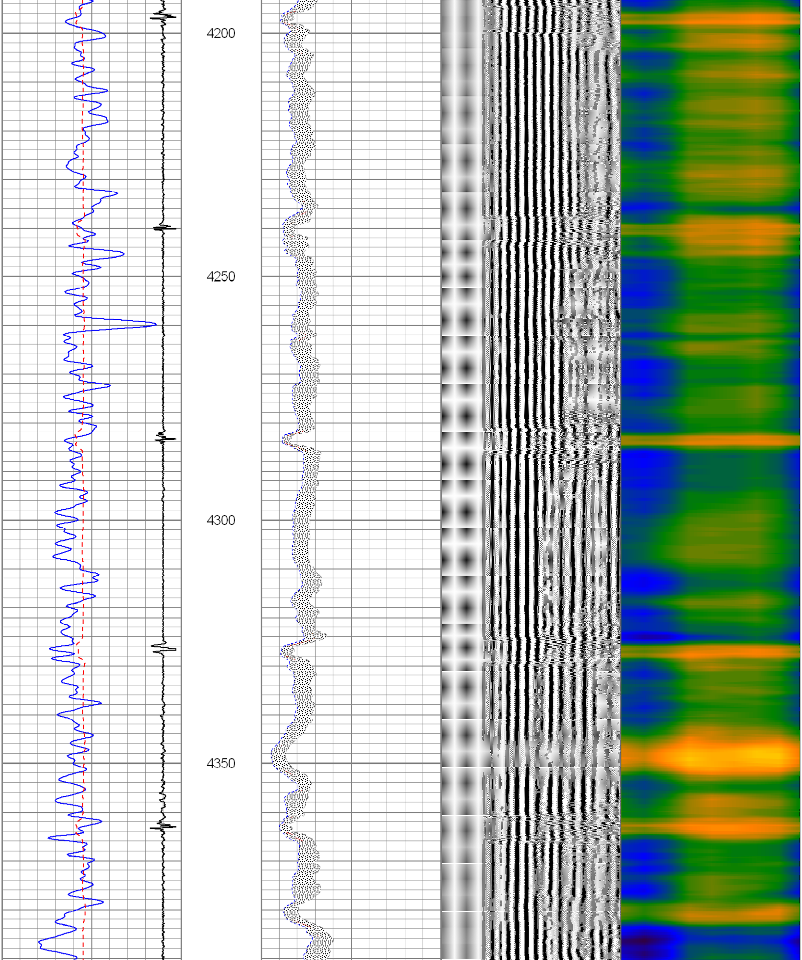
Comments

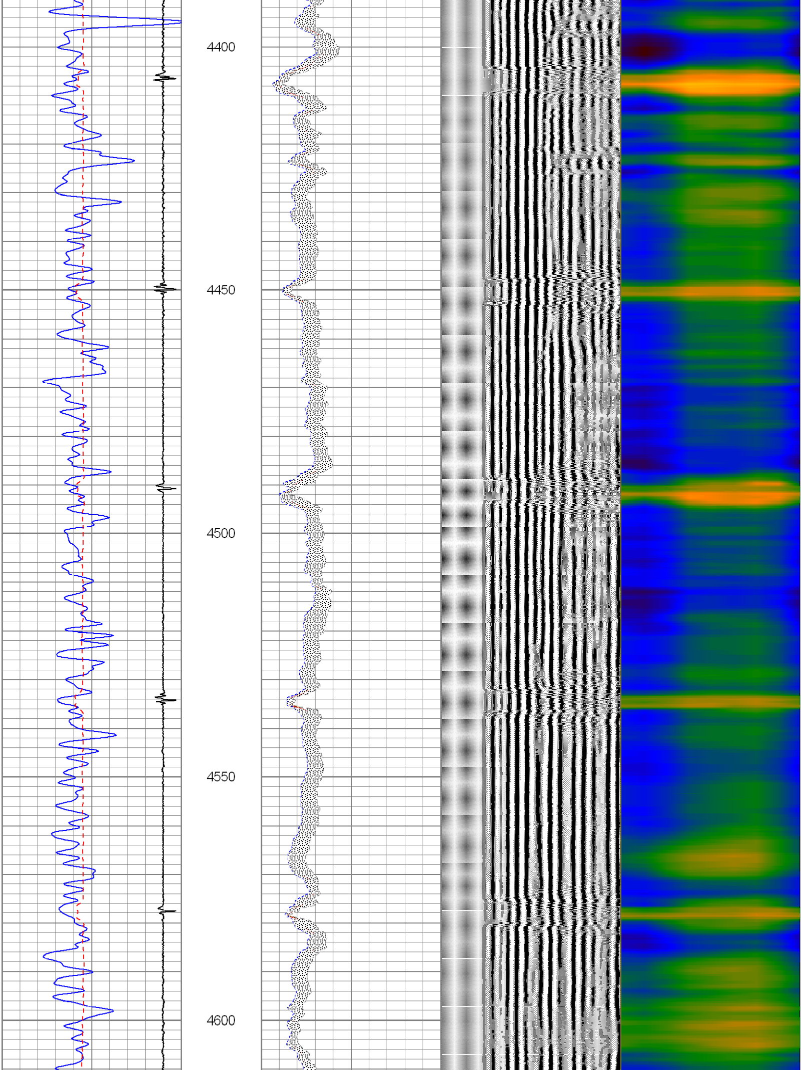
THANK YOU FOR CHOOSING NCPS!!!!
LOG NOT CORRELATED
WCR 57 & WCR 62, E.25, S.1, W INTO
EASTERNMOST WELL OF A 3 WELL PAD

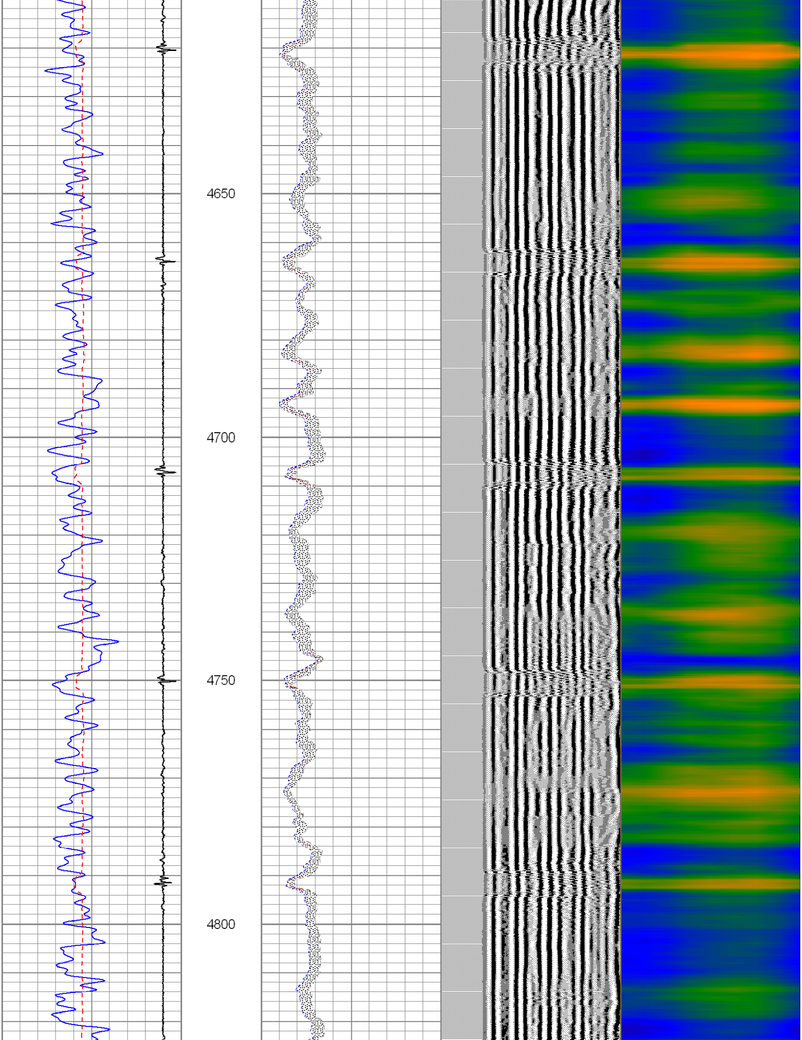
Database File:	cbl noble cougar b02-68-1hn.db
Dataset Pathname:	pass3
Presentation Format:	sector2
Dataset Creation:	Mon Feb 24 11:40:06 2014 by Log SCH 120430
Charted by:	Depth in Feet scaled 1:240

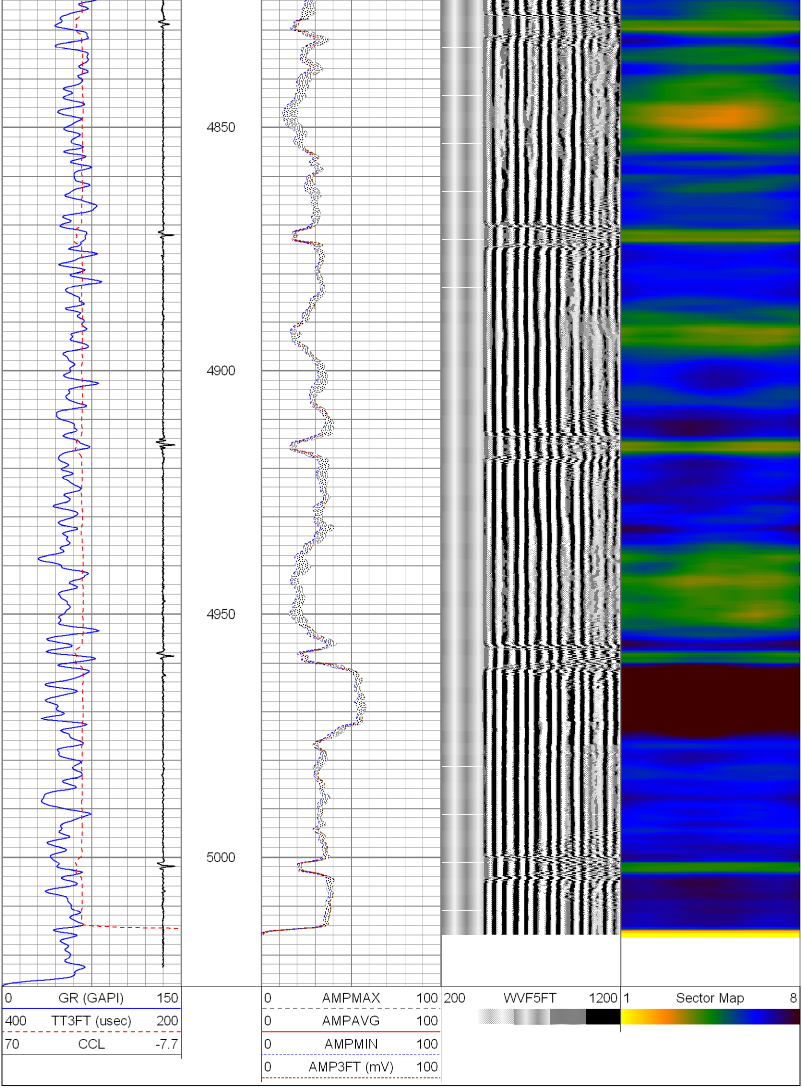












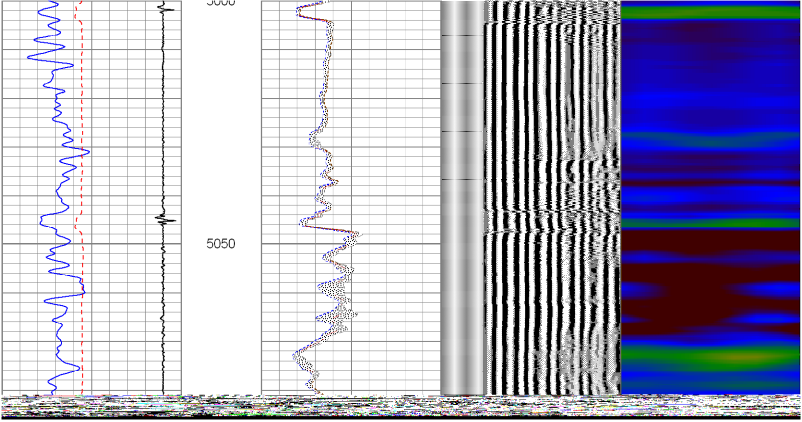
Database File: cbl noble cougar b02-68-1hn.db
Dataset Pathname: pass2
Presentation Format: sector2
Dataset Creation: Mon Feb 24 11:22:56 2014 by Log SCH 120430
Charted by: Depth in Feet scaled 1:240

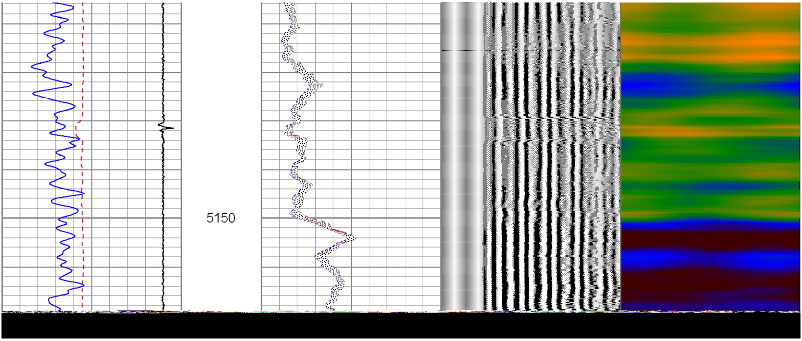
0 GR (GAPI) 200
400 TT3FT (usec) 200
70 CCL -7.7

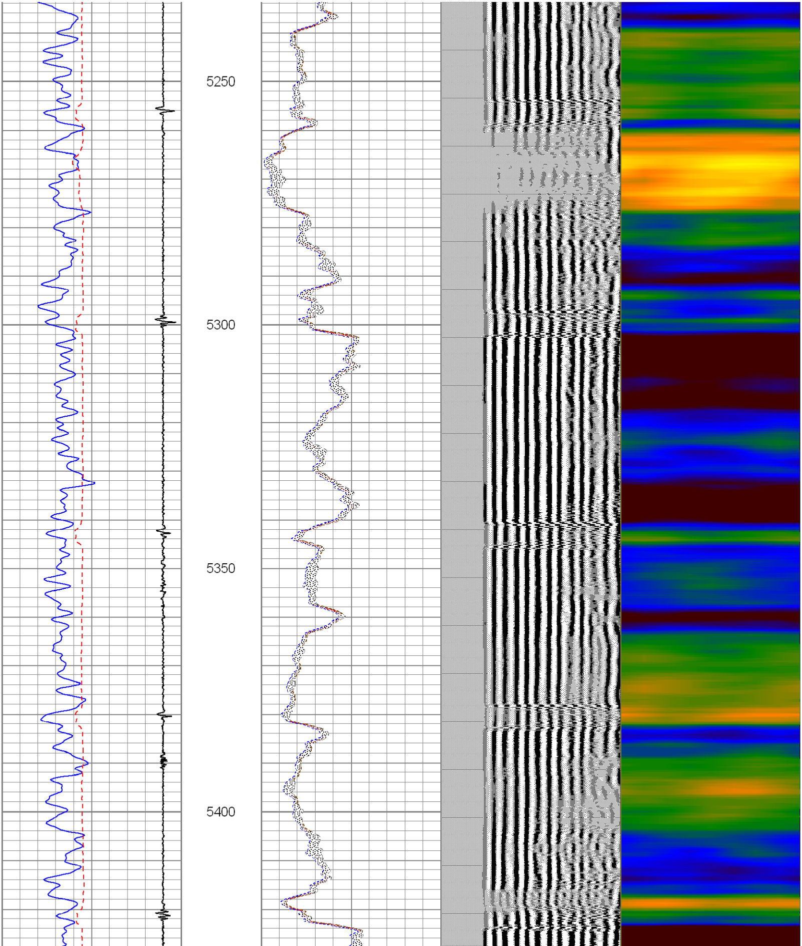
0 AMPMAX 100
0 AMPAVG 100
0 AMPMIN 100
0 AMP3FT (mV) 100

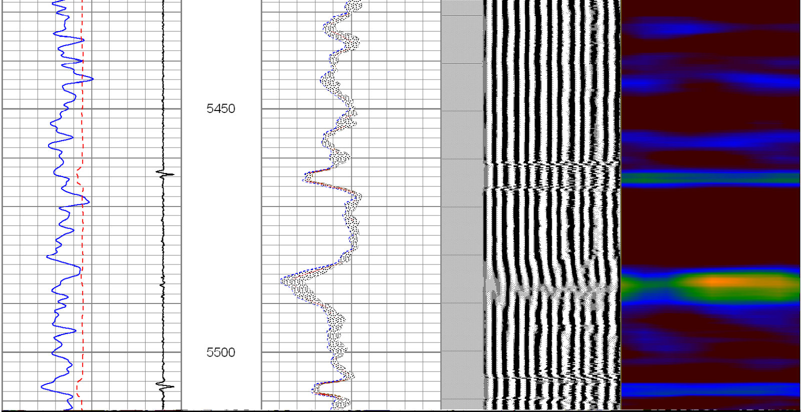
200 WVF5FT 1200

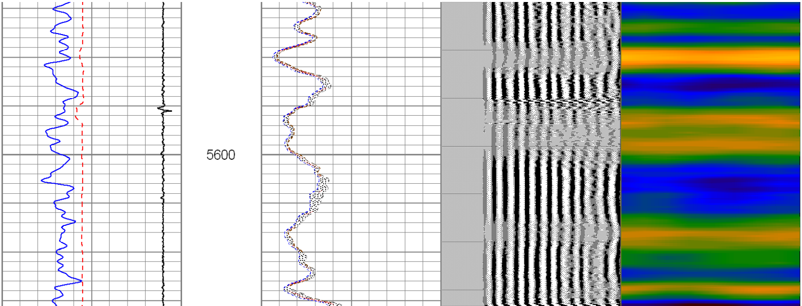
1 Sector Map 8

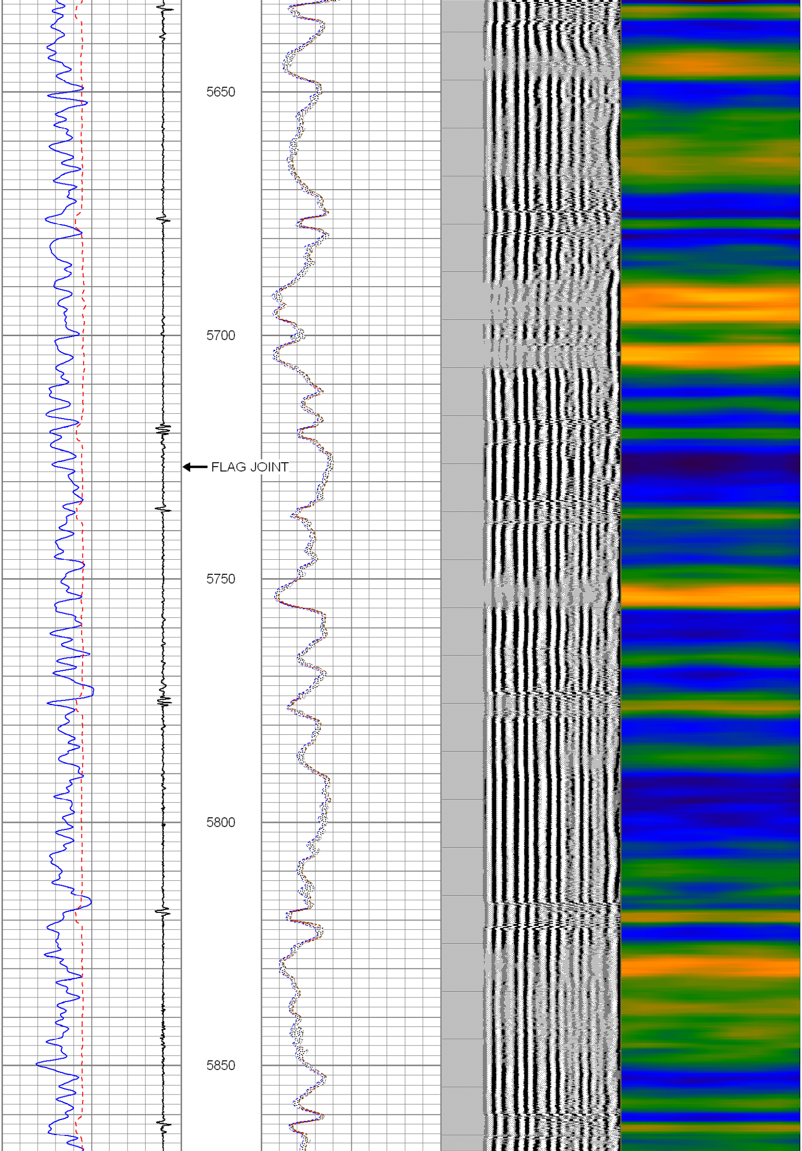


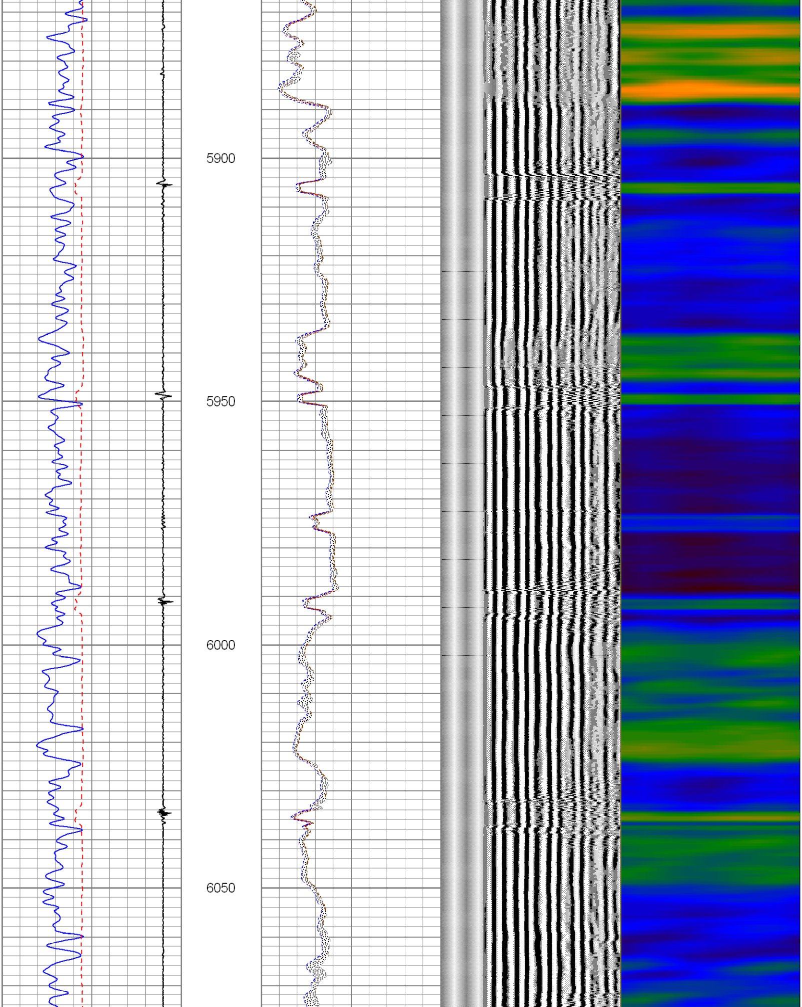


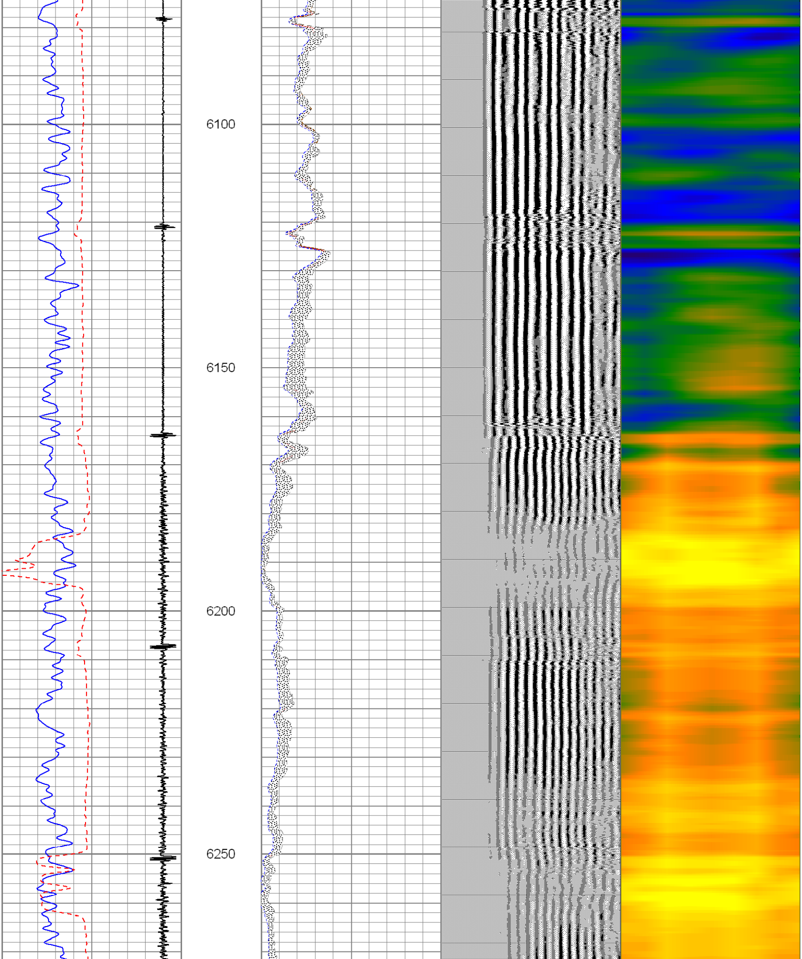


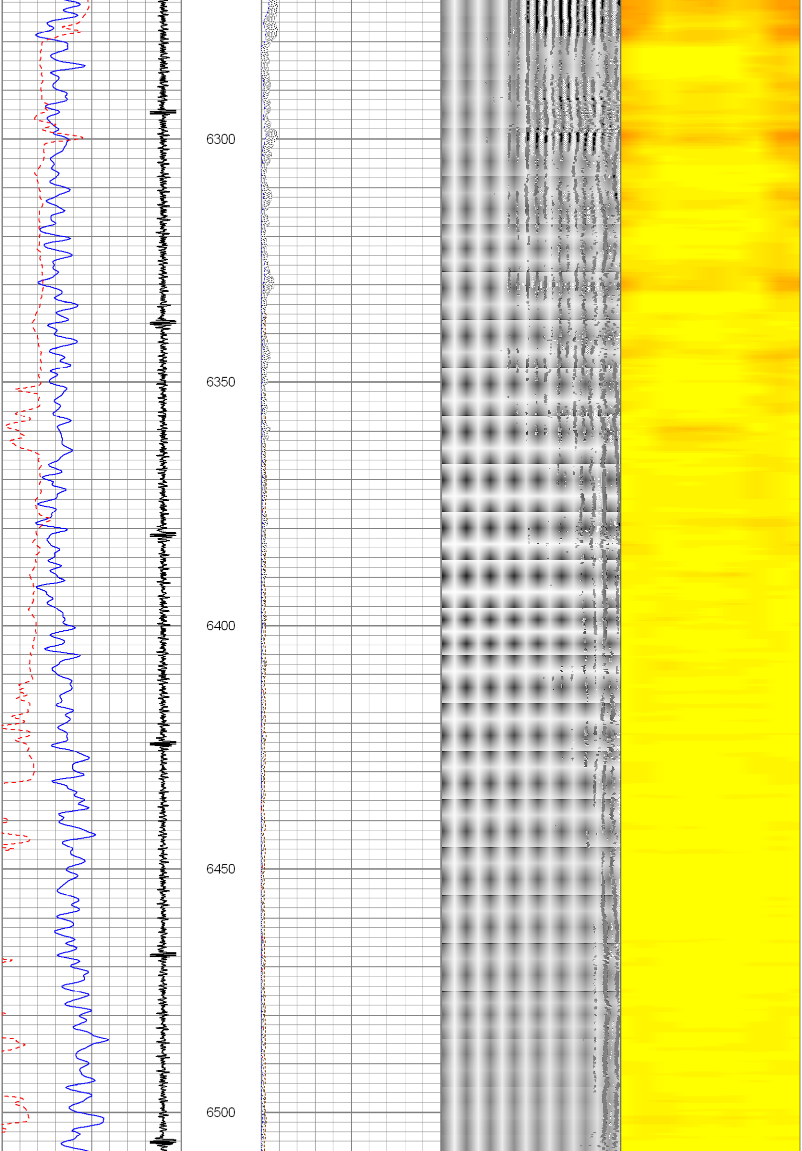


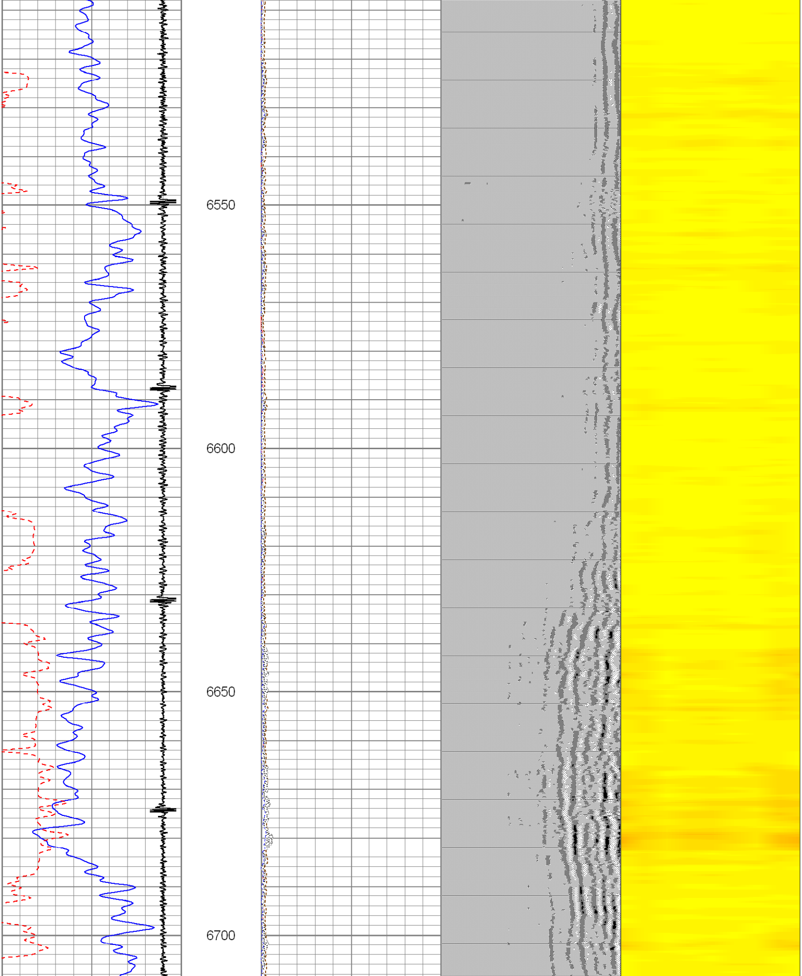


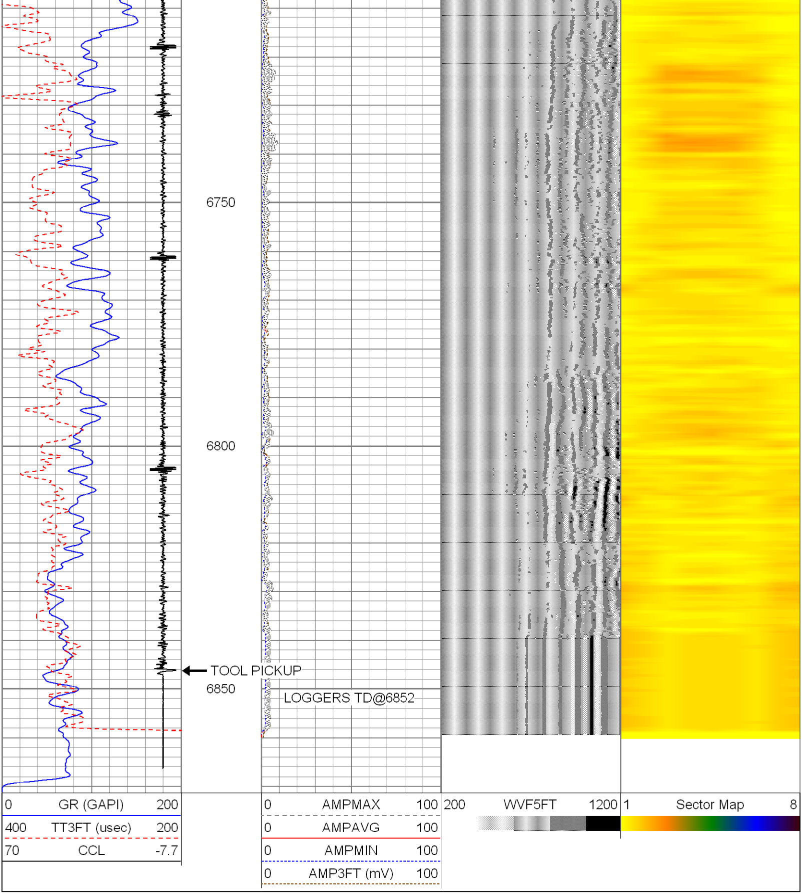












Calibration Report

Database File: cbl noble cougar b02-68-1hn.db
Dataset Pathname: pass2
Dataset Creation: Mon Feb 24 11:22:56 2014 by Log SCH 120430

Gamma Ray Calibration Report

Type / Serial: Probe275dig / 101010

SHOP CALIBRATION

Mon Feb 24 09:03:36 2014

	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	1.0				cps
		0.6000			GAPI/cps

PRIMARY VERIFICATION

	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

BEFORE SURVEY VERIFICATION

	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

AFTER SURVEY VERIFICATION

	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

Segmented Cement Bond Log Calibration Report

Serial Number:	101024	
Tool Model:	Probe	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	486.250	ft

Master Calibration, performed Mon Feb 24 09:02:22 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	1.498	1.500	62.165	40.715	1.192
CAL	0.007	1.748				
5'	0.007	1.834	1.500	62.165	33.206	1.254
SUM						
S1	0.007	1.276	0.000	62.165	49.011	-0.354
S2	0.007	1.378	0.000	62.165	45.352	-0.339
S3	0.007	1.516	0.000	62.165	41.212	-0.302
S4	0.007	1.589	0.000	62.165	39.303	-0.294
S5	0.007	1.572	0.000	62.165	39.735	-0.294
S6	0.007	1.587	0.000	62.165	39.351	-0.292
S7	0.007	1.488	0.000	62.165	41.986	-0.313
S8	0.007	1.368	0.000	62.165	45.691	-0.336

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	0.007	1.748	1.000	0.000

Air Zero Calibration, performed Mon Feb 24 11:03:16 2014:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.006	0.000	0.001
5'	0.007	0.000	0.001
SUM			
S1	0.005	0.000	0.002
S2	0.007	0.000	0.001
S3	0.007	0.000	0.001
S4	0.006	0.000	0.001
S5	0.006	0.000	0.001
S6	0.006	0.000	0.001
S7	0.006	0.000	0.001
S8	0.007	0.000	0.001