NABORS COMPLETION & PRODUCTION SERVICES CO.

GAMMA RAY CCL CEMENT BOND SECTOR VDL

Company	NOBLE ENERGY INC.
Well	COUGAR B02-67-1HN
Field	WATTENBERG
County	WELD
State	COLORADO

Company NOBLE ENERGY INC.

Well COUGAR B02-67-1HN

Field WATTENBERG

County WELD State COLORADO

Location: API #: 0512336406

BHL: 1650' FNL & 660' FEL
NW/NW

SEC 2 TWP 5N RGE 64W

Other Services

Permanent Datum	GL	Elevation	4641	Elevation
Log Measured From	KB			K.B. 4665
Drilling Measured From	KB			D.F.
				G.L. 4641

Date	FEBRUARY 24, 2014
Run Number	ONE
Depth Driller	10350
Depth Logger	6856
Bottom Logged Interval	6856
Top Log Interval	SURFACE
Open Hole Size	8-3/4
Type Fluid	WATER
Density / Viscosity	N/A
Max. Recorded Temp.	243°F
Estimated Cement Top	790
Time Well Ready	PORTABLE MAST
Time Logger on Bottom	2-3/4 PROBE 101020/010
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	2000
Prot. String				
Production String	7	26# P-110 IC	24	7088
Liner	4-1/2	11.6# P-110 IC	6981.8	10340

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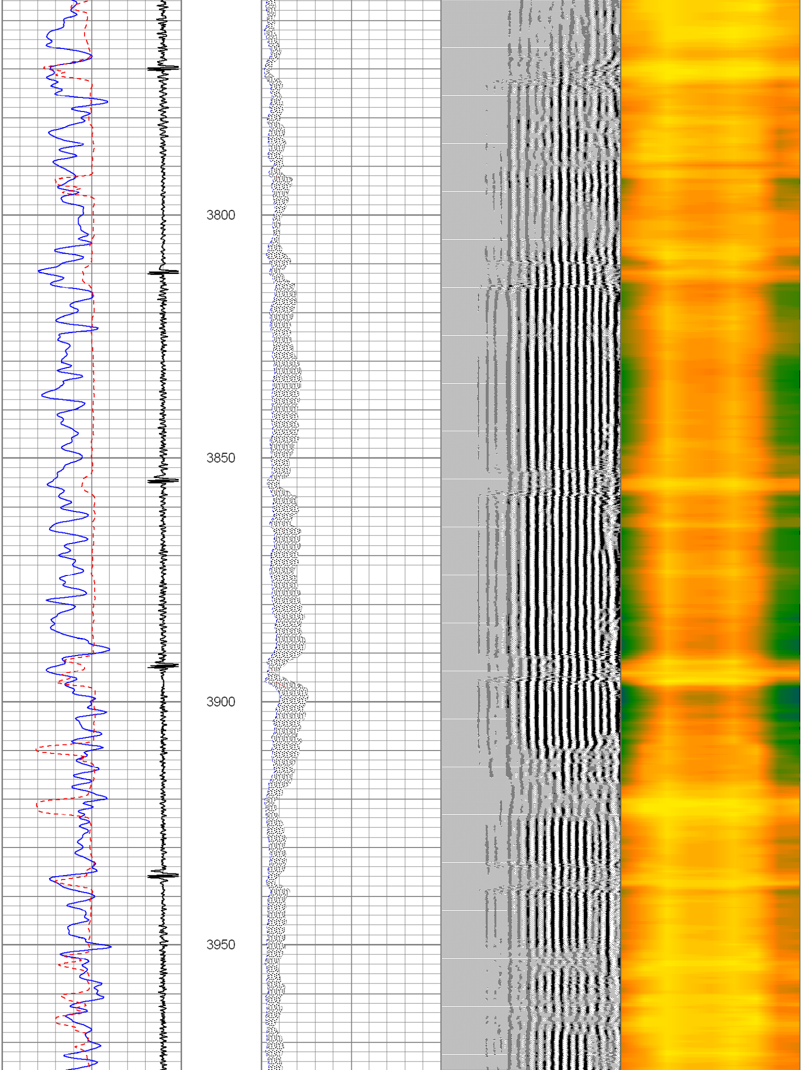
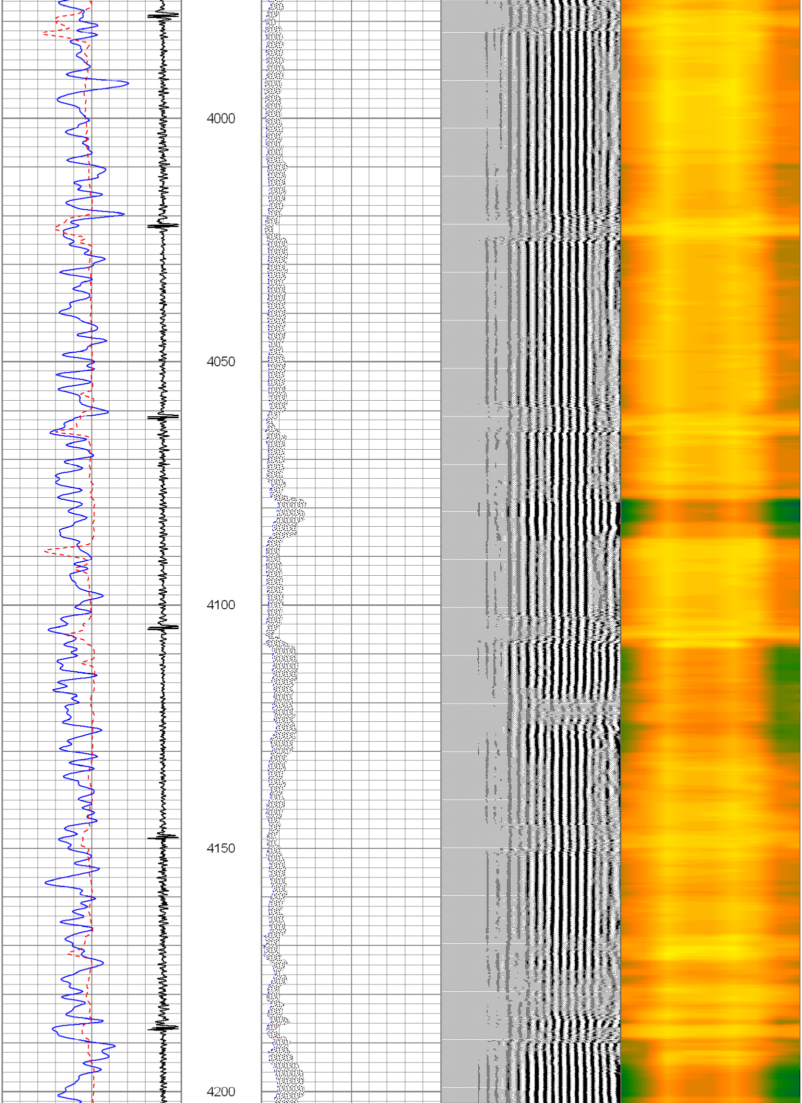
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

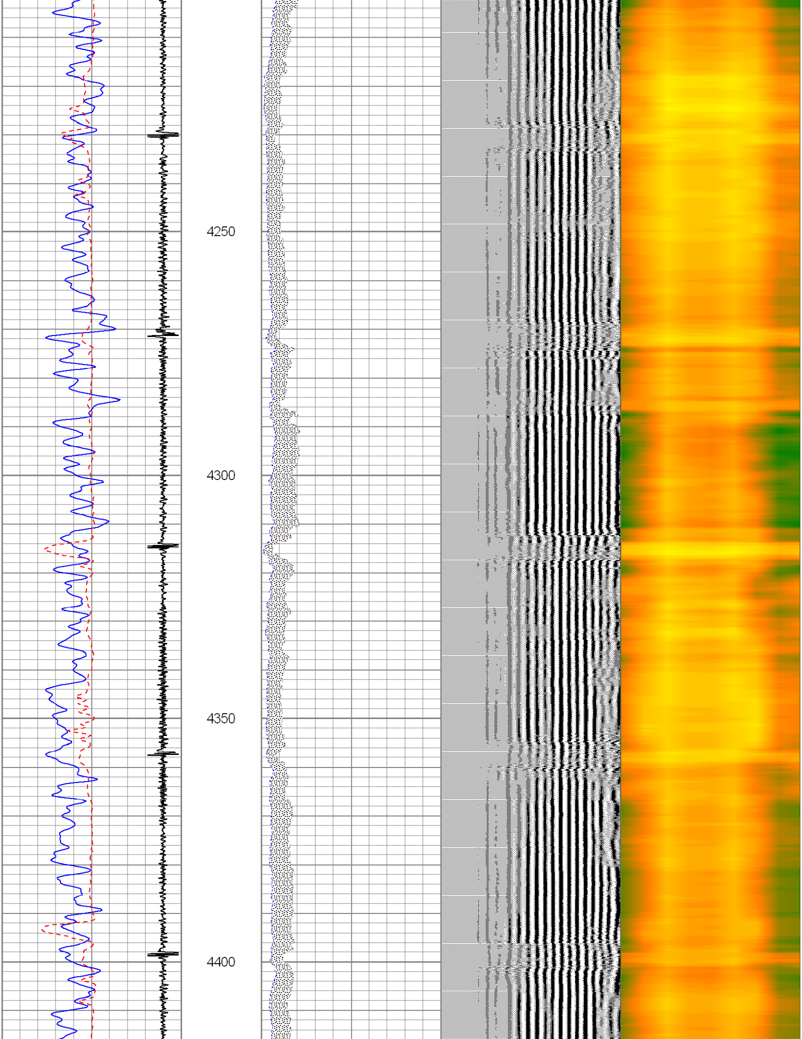
Comments

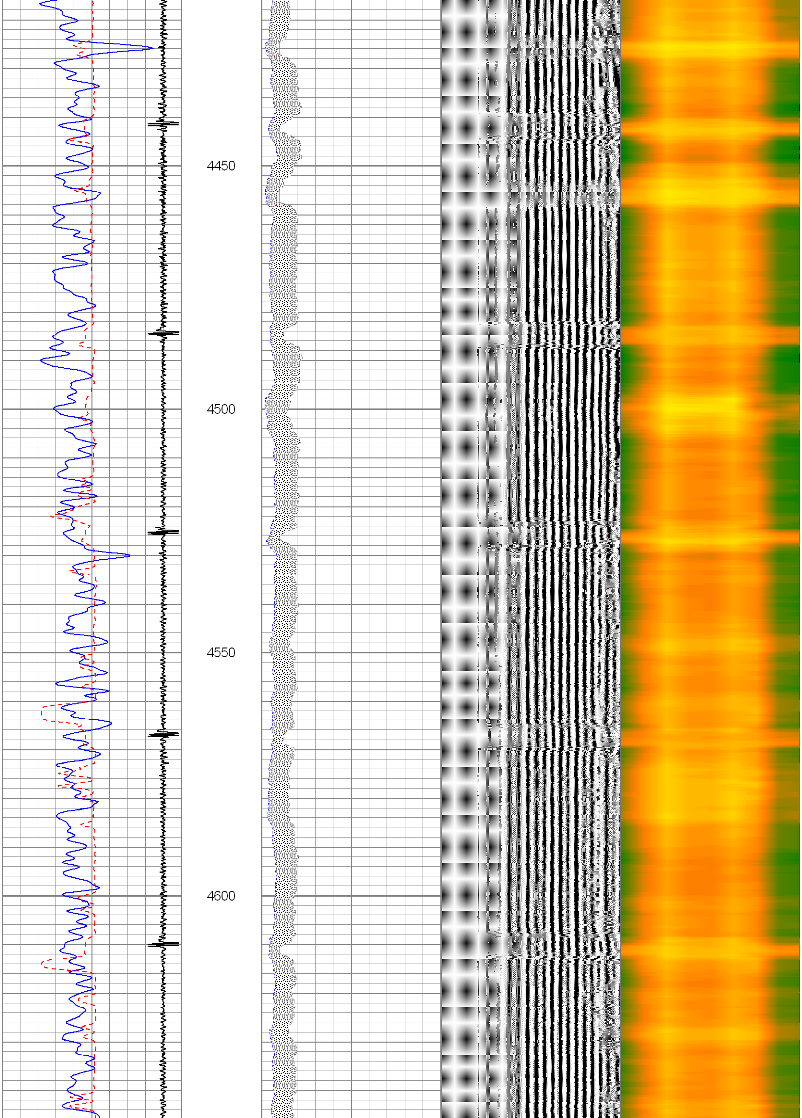
THANK YOU FOR CHOOSING NCPS!!!!
LOG NOT CORRELATED
WCR 57 & WCR 62, E.25, S .1, W INTO
WESTERNMOST WELL OF A 3 WELL PAD

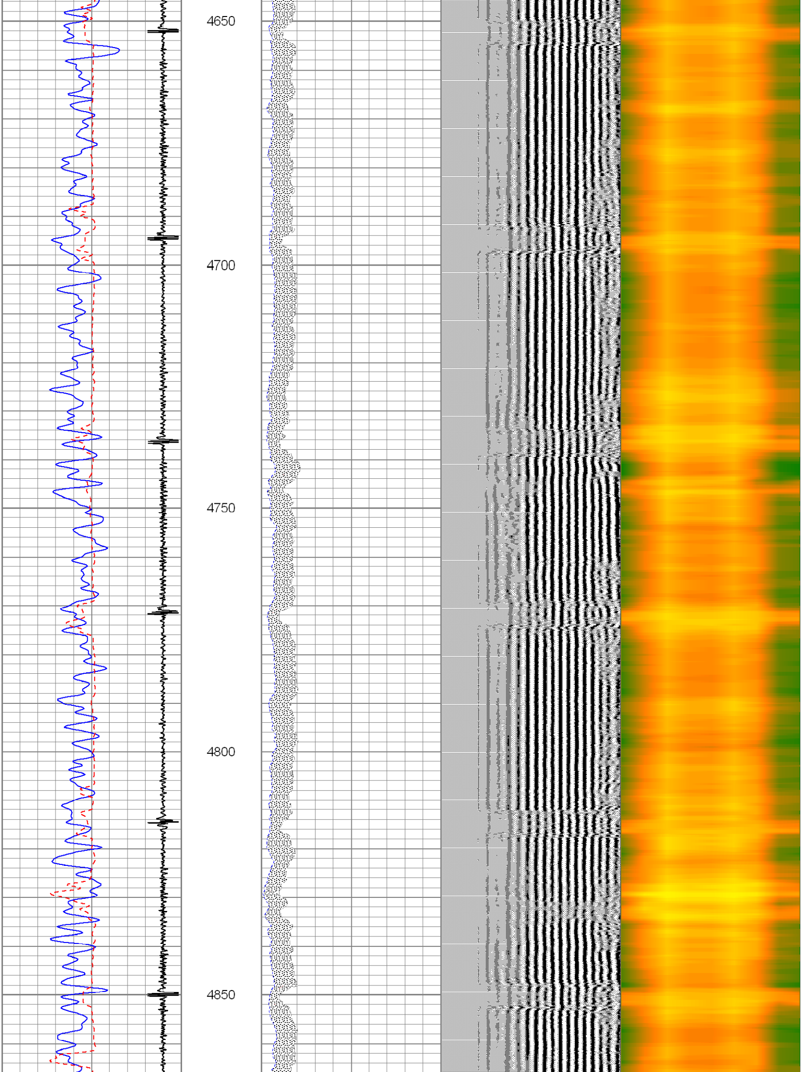
Database File:	cbl noble cougar b02-67-1hn.db
Dataset Pathname:	pass3
Presentation Format:	sector2
Dataset Creation:	Mon Feb 24 08:16:17 2014 by Log SCH 120430
Charted by:	Depth in Feet scaled 1:240

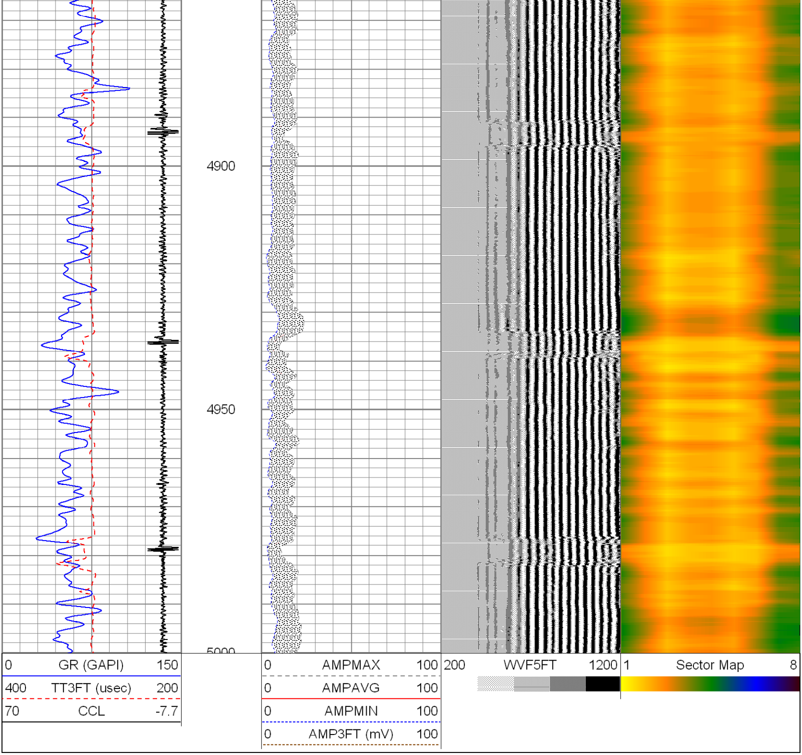






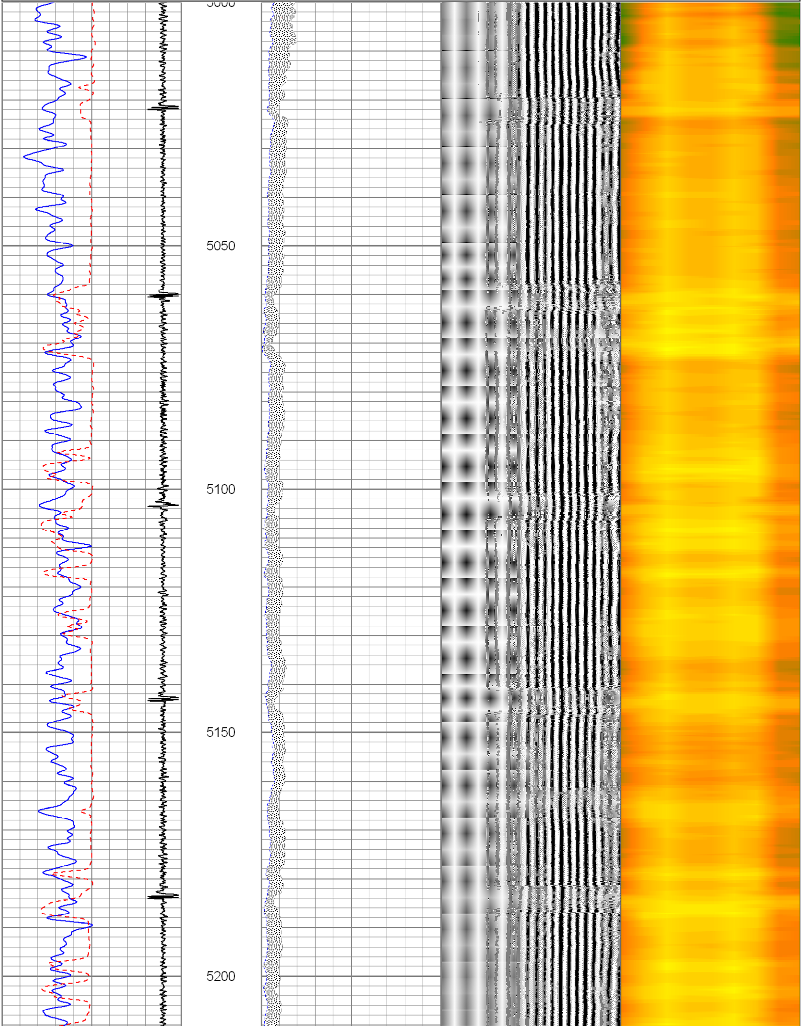


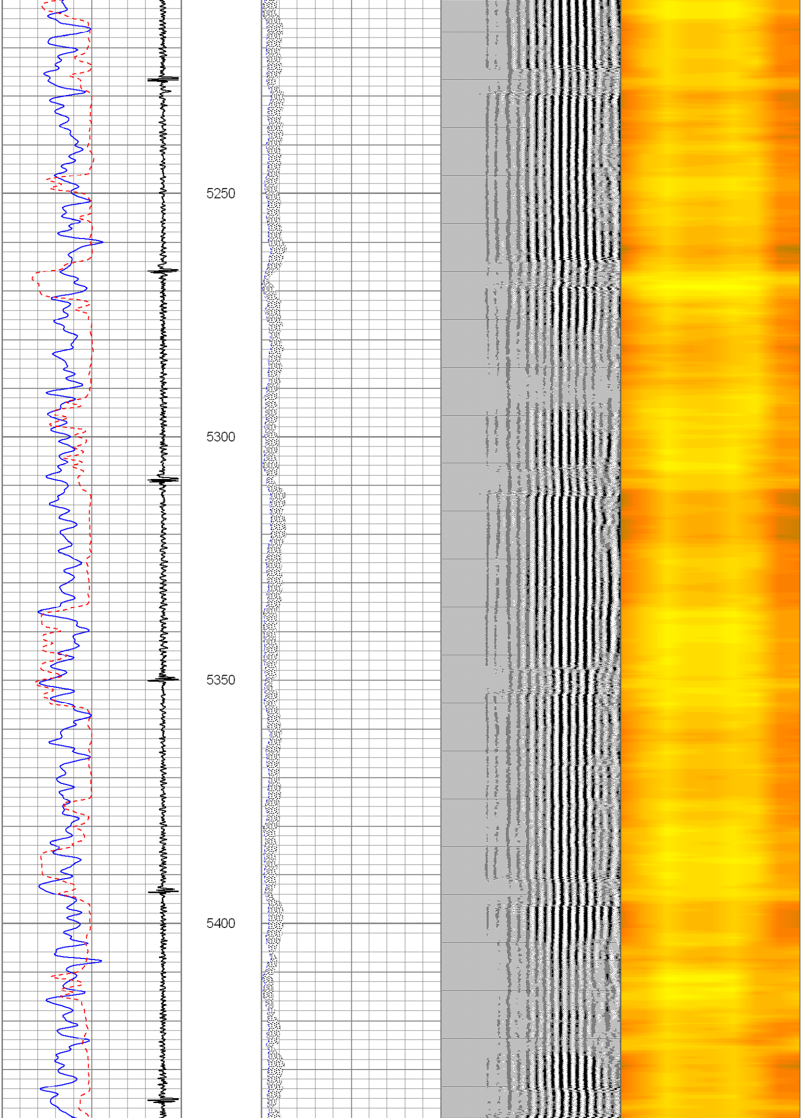


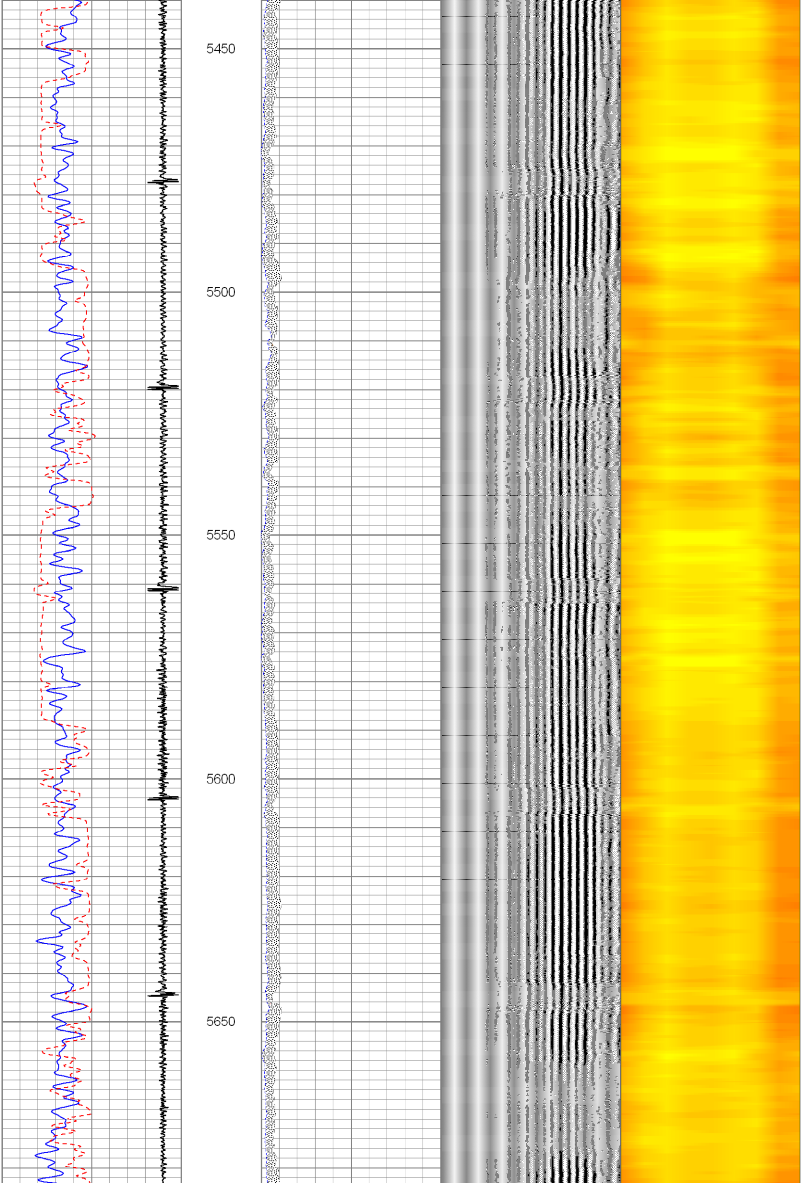


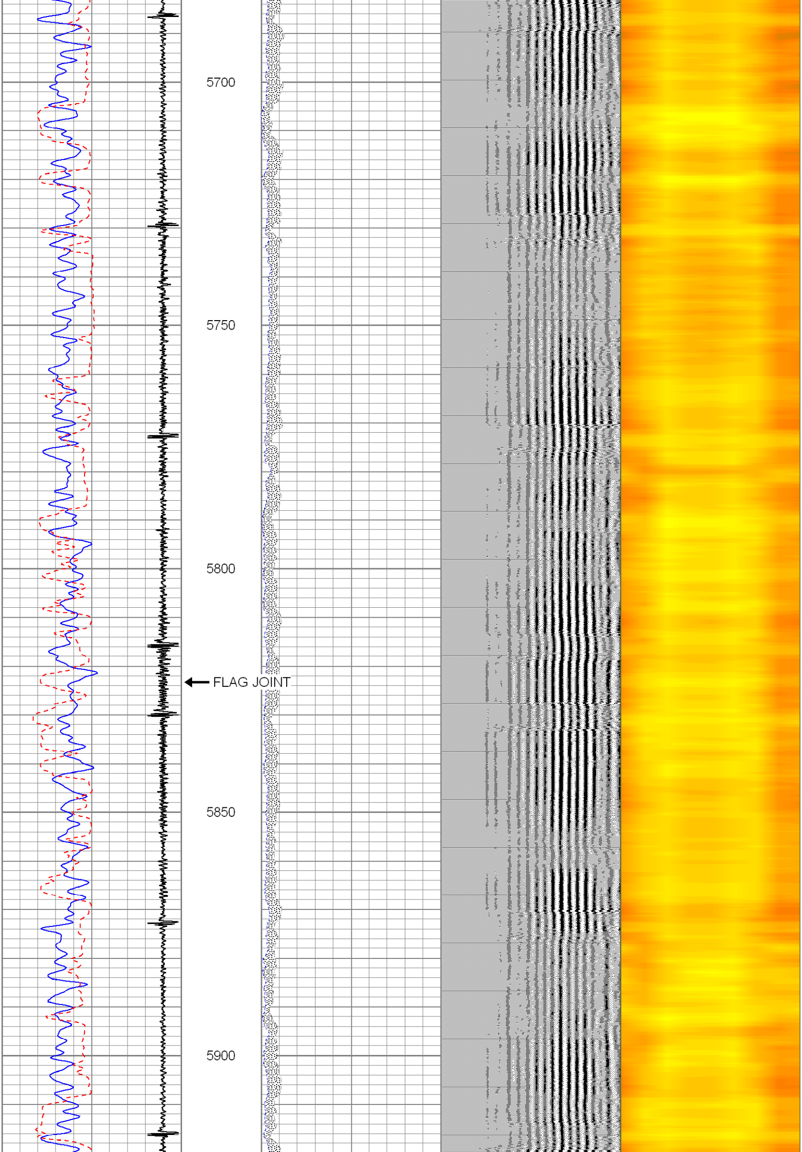
Database File: cbl noble cougar b02-67-1hn.db
Dataset Pathname: pass2
Presentation Format: sector2
Dataset Creation: Mon Feb 24 07:59:47 2014 by Log SCH 120430
Charted by: Depth in Feet scaled 1:240

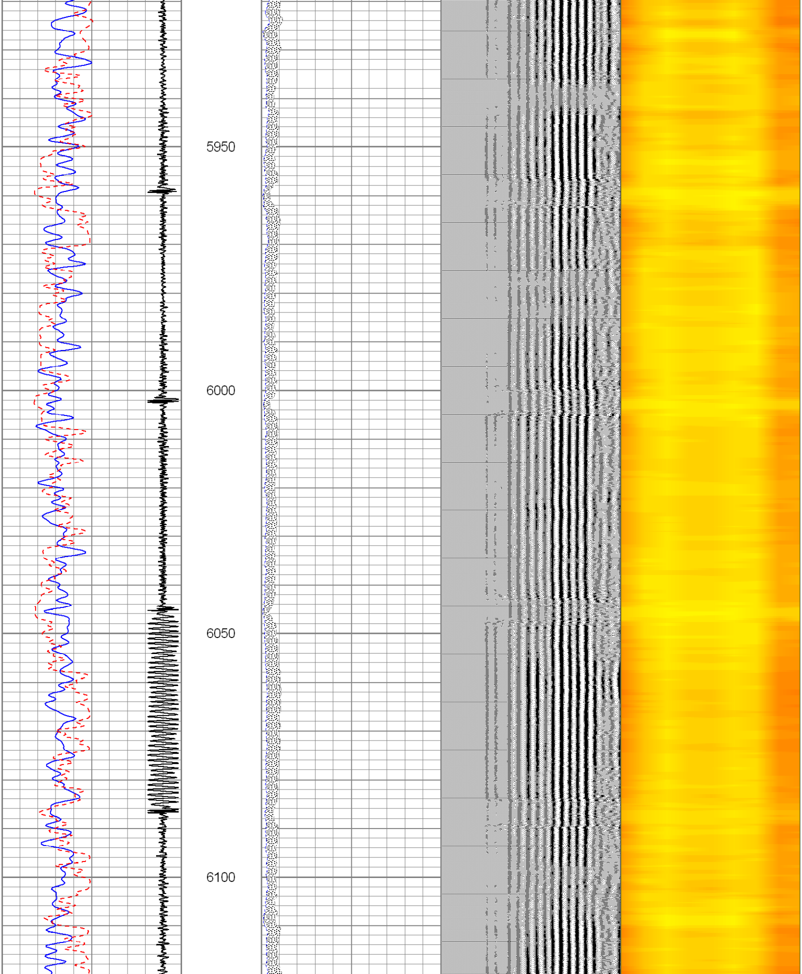
0 GR (GAPI) 200
400 TT3FT (usec) 200
70 CCL -7.7
0 AMPMAX 100
0 AMPAVG 100
0 AMPMIN 100
0 AMP3FT (mV) 100
200 WVF5FT 1200
1 Sector Map 8

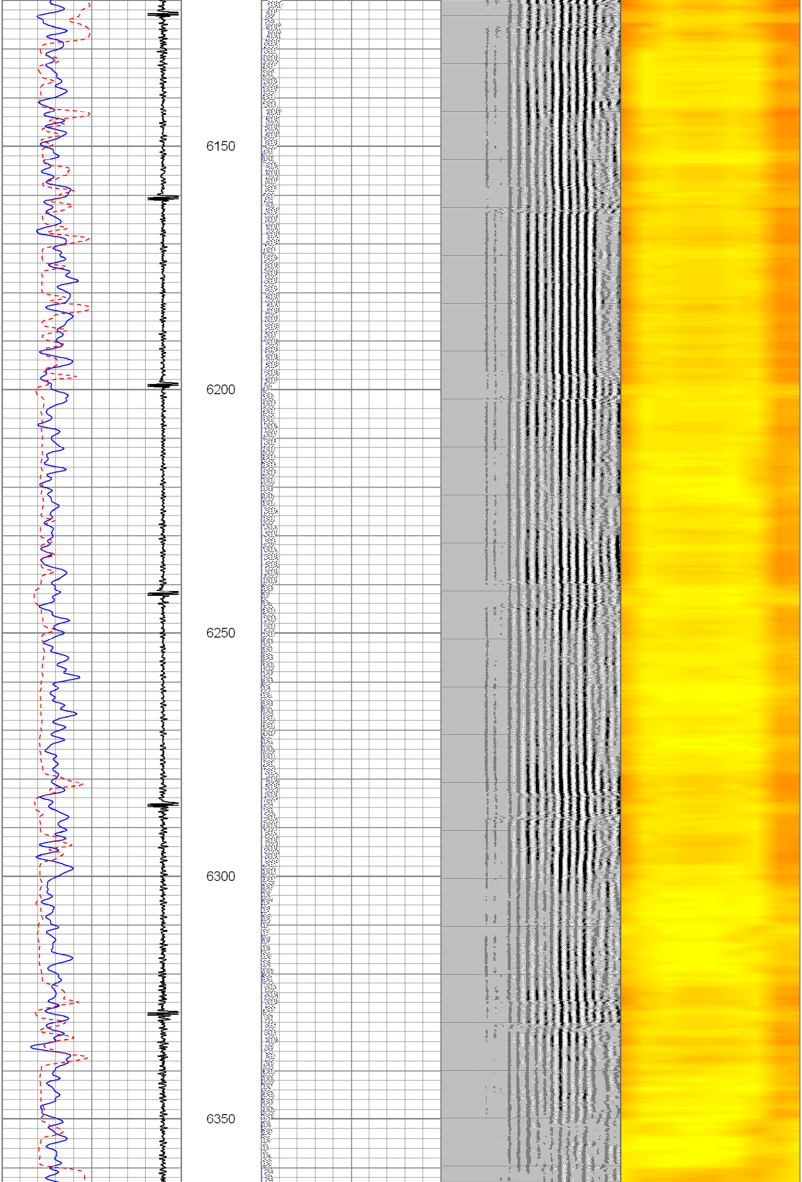


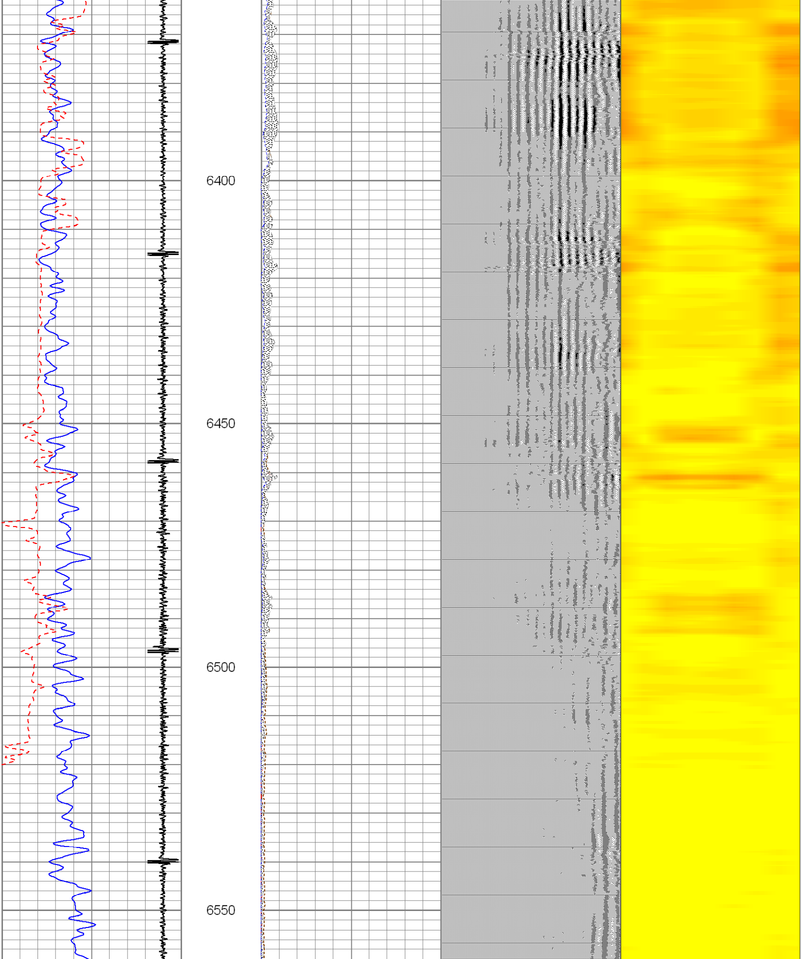


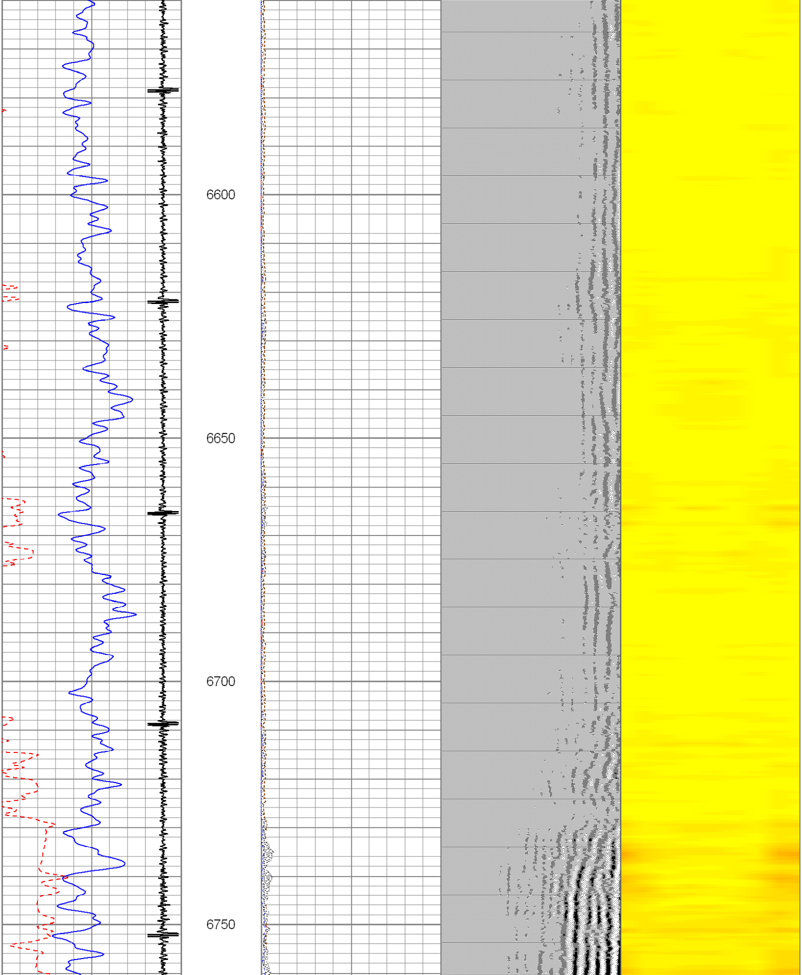


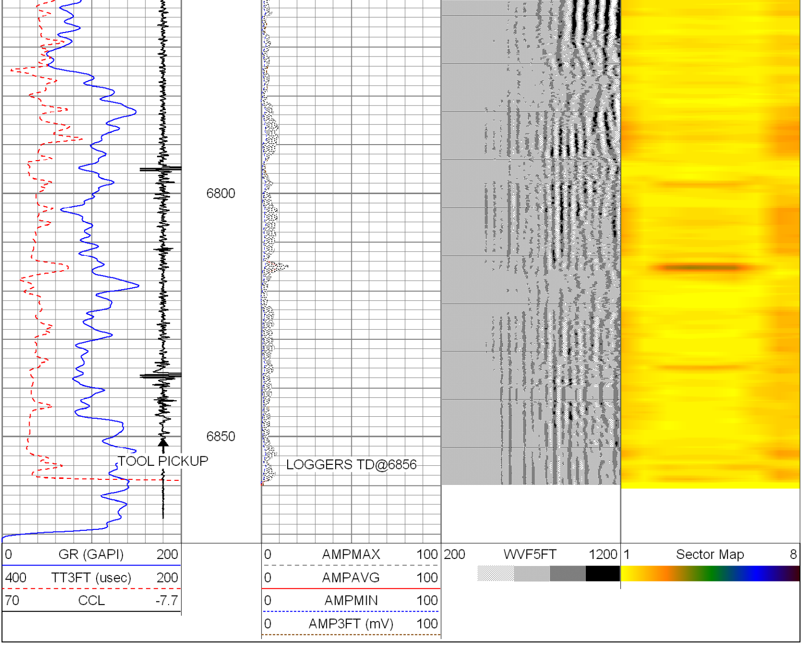












Calibration Report

Database File: cbl noble cougar b02-67-1hn.db
Dataset Pathname: pass2
Dataset Creation: Mon Feb 24 07:59:47 2014 by Log SCH 120430

Gamma Ray Calibration Report

Type / Serial: Probe275dig / 101010

SHOP CALIBRATION

Wed Nov 27 09:12:09 2013

	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: 468.567 ft

Master Calibration, performed Mon Feb 24 07:39:24 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	1.522	1.500	62.165	40.068	1.190
CAL	0.008	1.634				
5'	0.007	1.869	1.500	62.165	32.597	1.256
SUM						
S1	0.007	1.286	0.000	62.165	48.601	-0.360
S2	0.008	1.408	0.000	62.165	44.409	-0.344
S3	0.007	1.569	0.000	62.165	39.802	-0.296
S4	0.008	1.667	0.000	62.165	37.475	-0.290
S5	0.008	1.643	0.000	62.165	38.021	-0.286
S6	0.008	1.616	0.000	62.165	38.646	-0.293
S7	0.008	1.471	0.000	62.165	42.467	-0.322
S8	0.008	1.362	0.000	62.165	45.886	-0.346

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	0.008	1.634	1.000	0.000

Air Zero Calibration, performed Mon Feb 24 07:32:32 2014:

	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