NABORS
COMPLETION & PRODUCTION SERVICES CO.

GAMMA RAY CCL CEMENT BOND SECTOR VDL

Company	NOBLE ENERGY INC.
Well	WELLS RANCH AE20-68-1HN
Field	WATTENBERG
County	WELD
State	COLORADO

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Well WELLS RANCH AE20-68-1HN
Field WATTENBERG
County WELD **State** COLORADO

Location: API #: 0512337217
BHL: 990' FNL & 535' FEL
NW/NW
SEC 20 TWP 6N RGE 62W

Other Services

Permanent Datum	GL	Elevation 4841	Elevation K.B. 4871 D.F. G.L. 4841
Log Measured From	KB		
Drilling Measured From	KB		

Date	DECEMBER 11, 2013
Run Number	ONE
Depth Driller	10911
Depth Logger	6620
Bottom Logged Interval	6620
Top Log Interval	SURFACE
Open Hole Size	8-3/4
Type Fluid	WATER
Density / Viscosity	N/A
Max. Recorded Temp.	210°F
Estimated Cement Top	630
Time Well Ready	PORTABLE MAST
Time Logger on Bottom	2-3/4 PROBE 101020/785
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	30	973.2
Prot. String	7	26# P-110 IC	30	7031.7
Production String	4-1/2	11.6# HCP-110	6871.2	10901
Liner				

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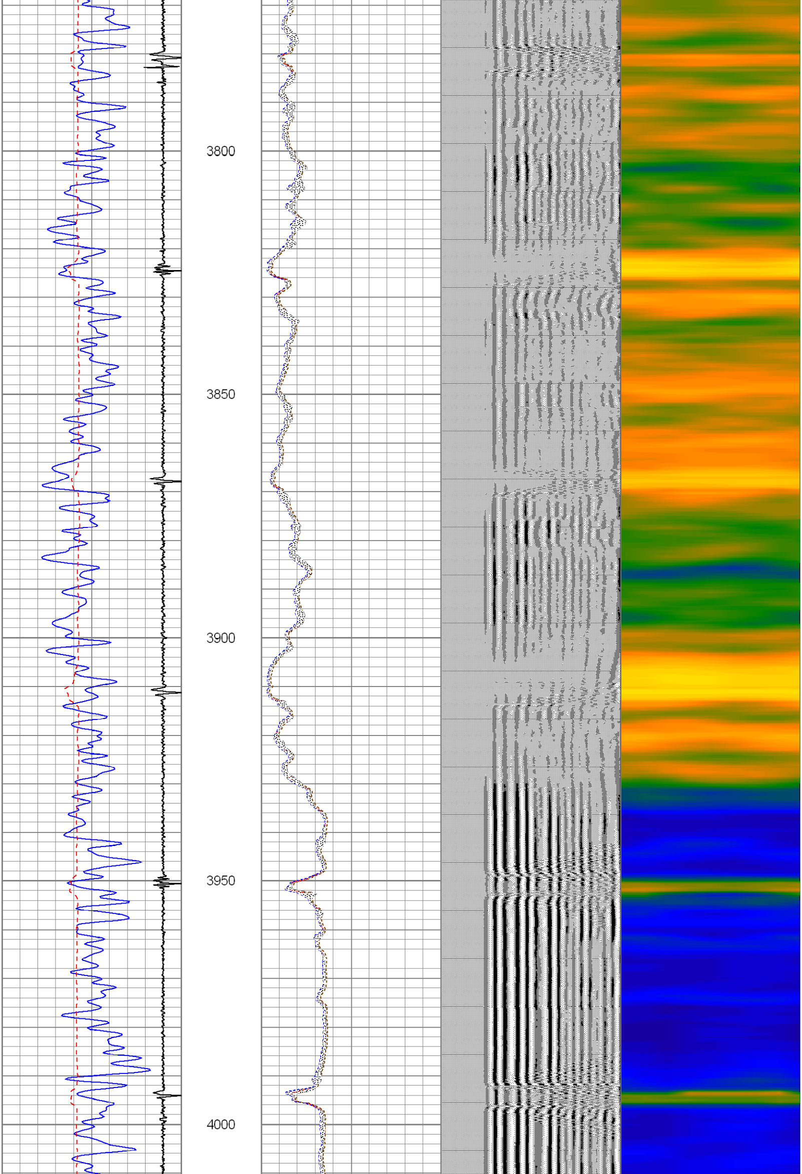
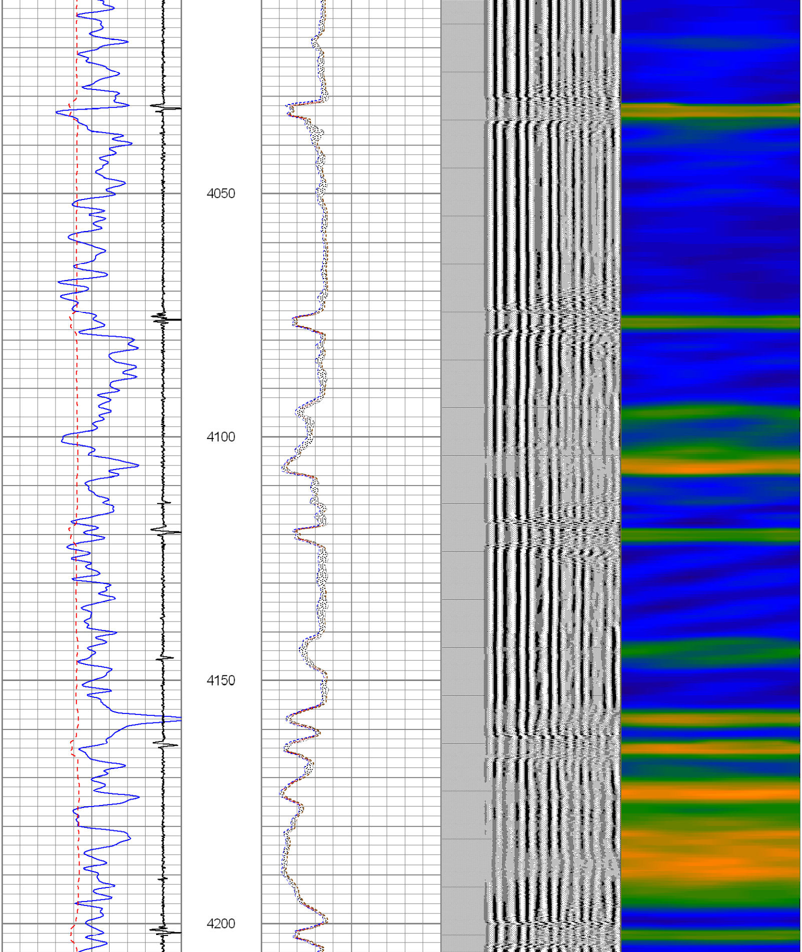
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

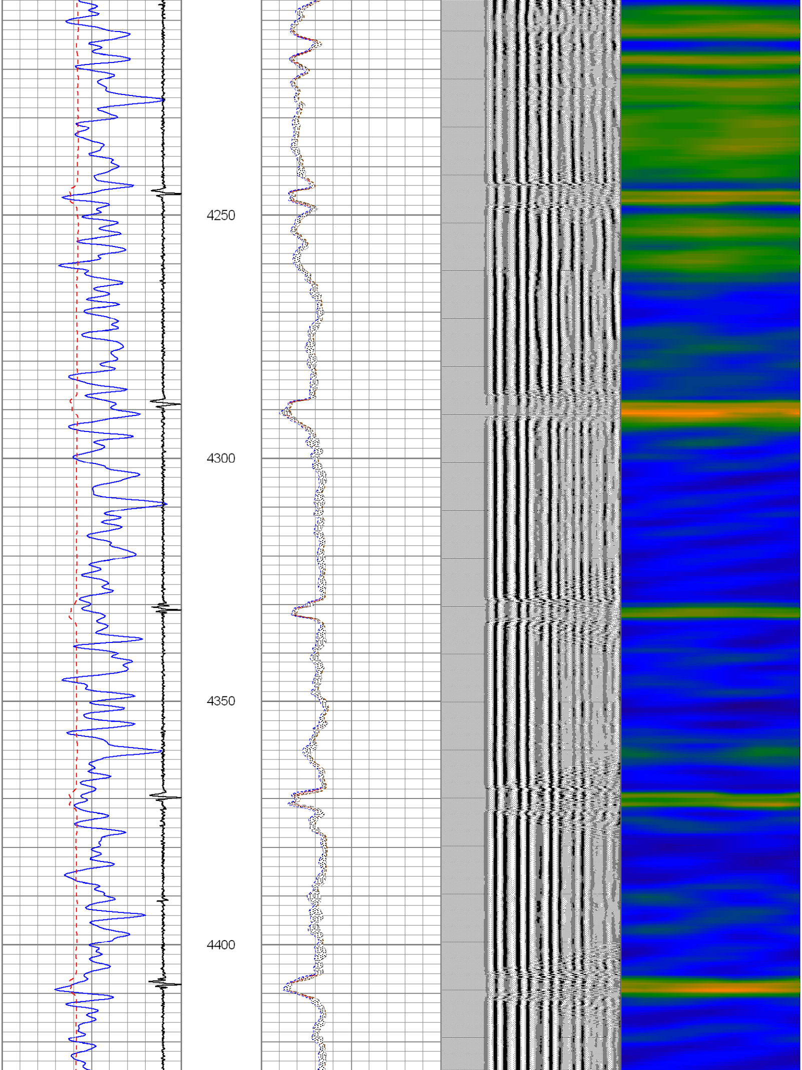
Comments

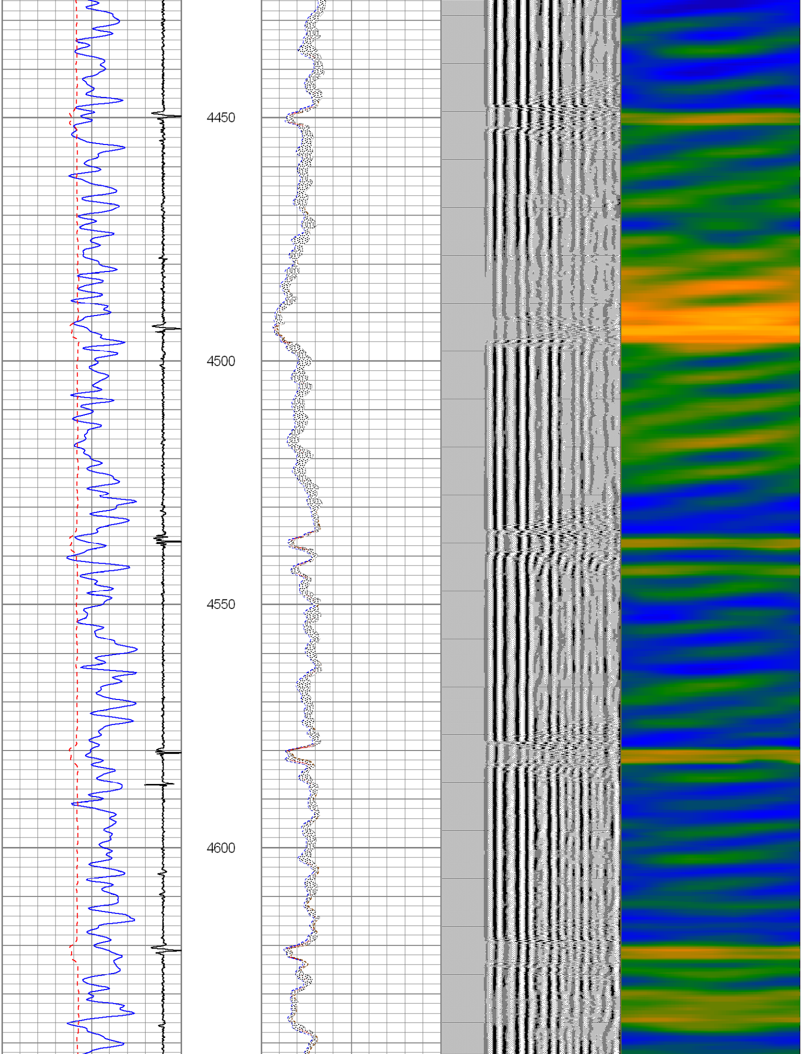
THANK YOU FOR CHOOSING NCPS!!!!
LOG NOT CORRELATED
WCR 67 & WCR 68, E.2, S.25, E3, S.5, E.8, N INTO
FOURTH WELL FROM THE NORTH OF AN 8 WELL PAD

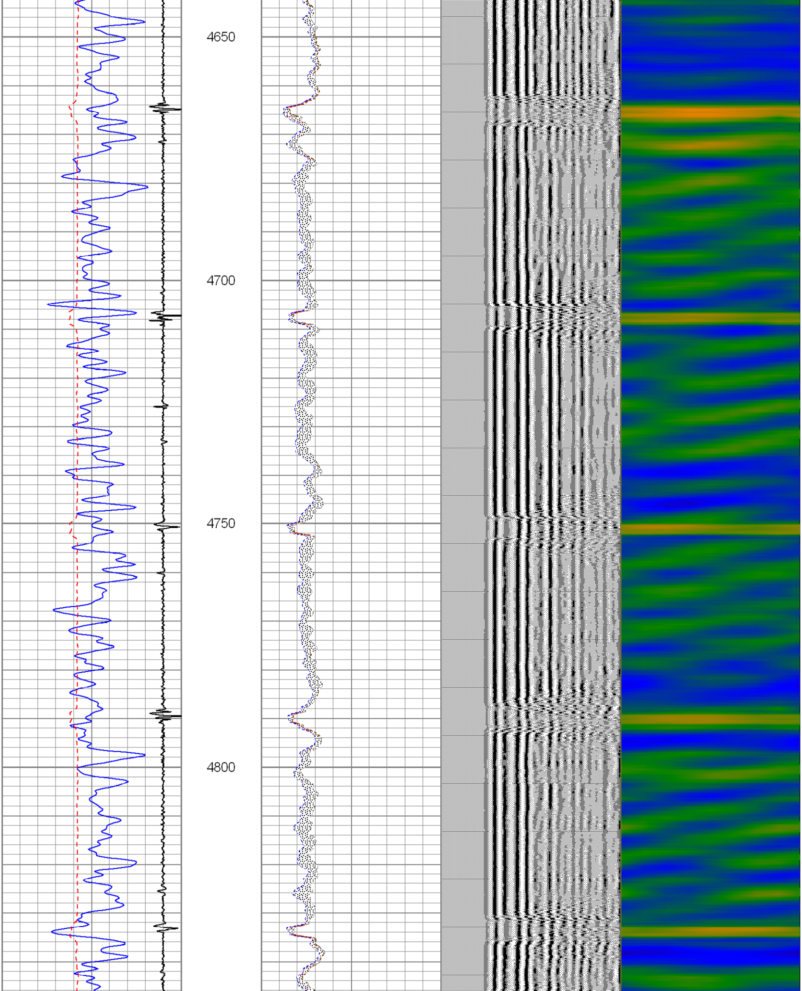
Database File:	cbl noble wells ranch ae20-68-1hn.db
Dataset Pathname:	pass3
Presentation Format:	sector2
Dataset Creation:	Wed Dec 11 10:42:19 2013 by Log SCH 120430
Charted by:	Depth in Feet scaled 1:240

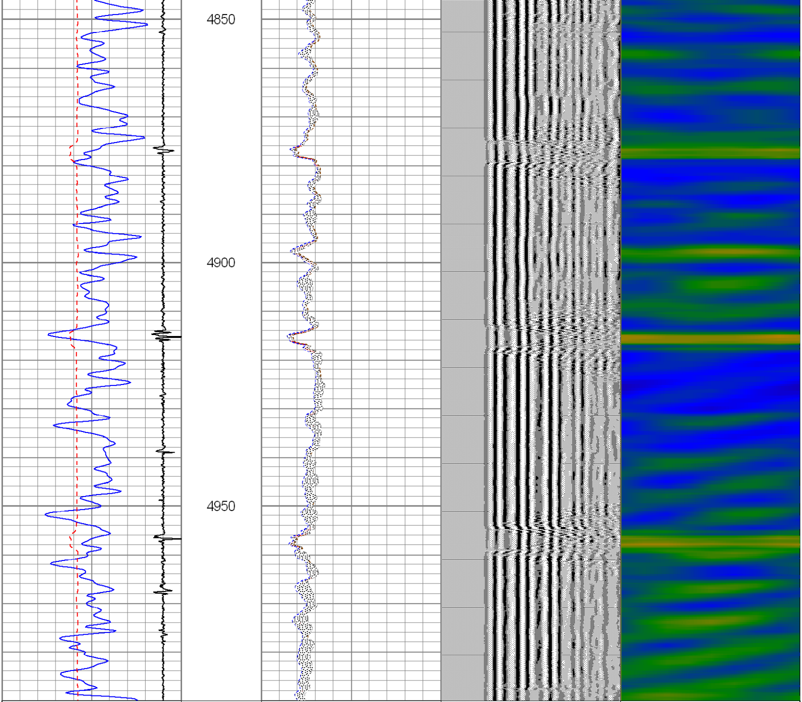








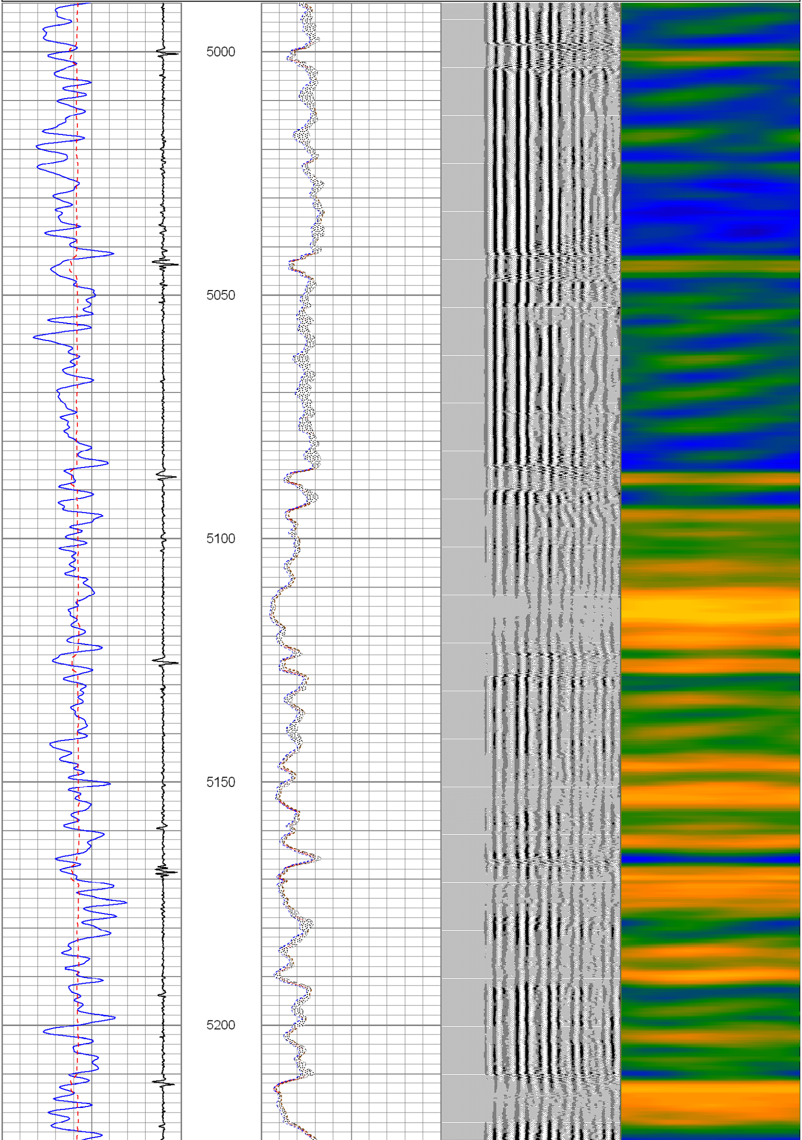


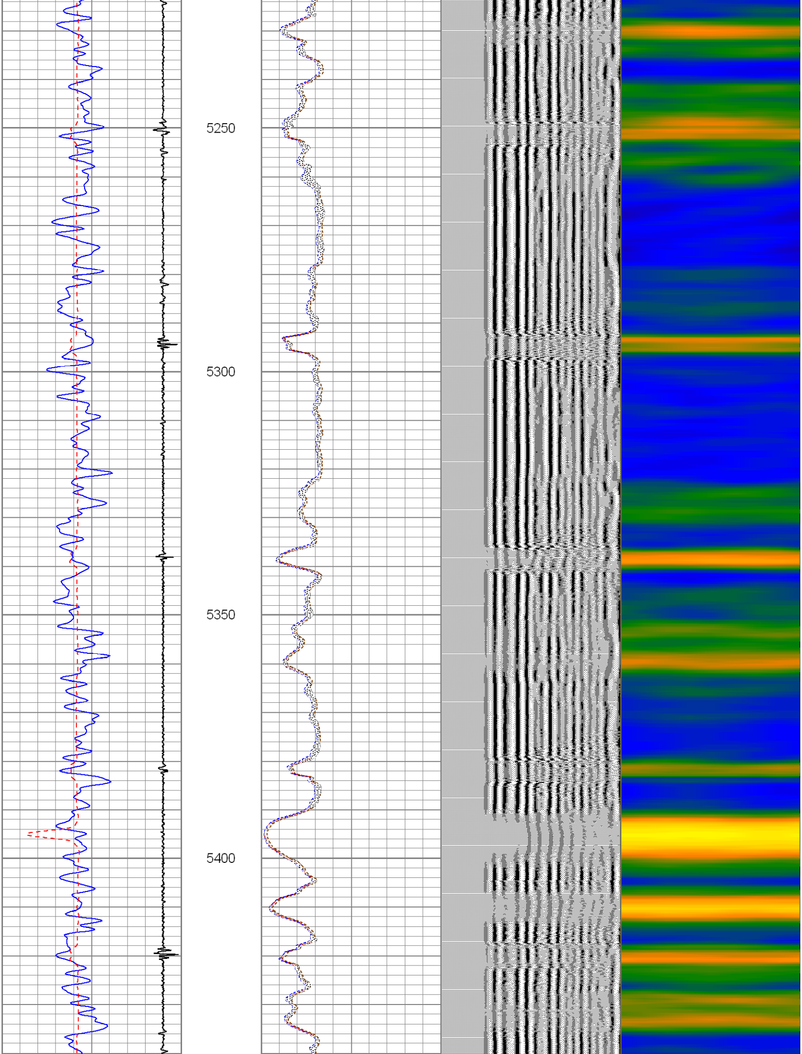


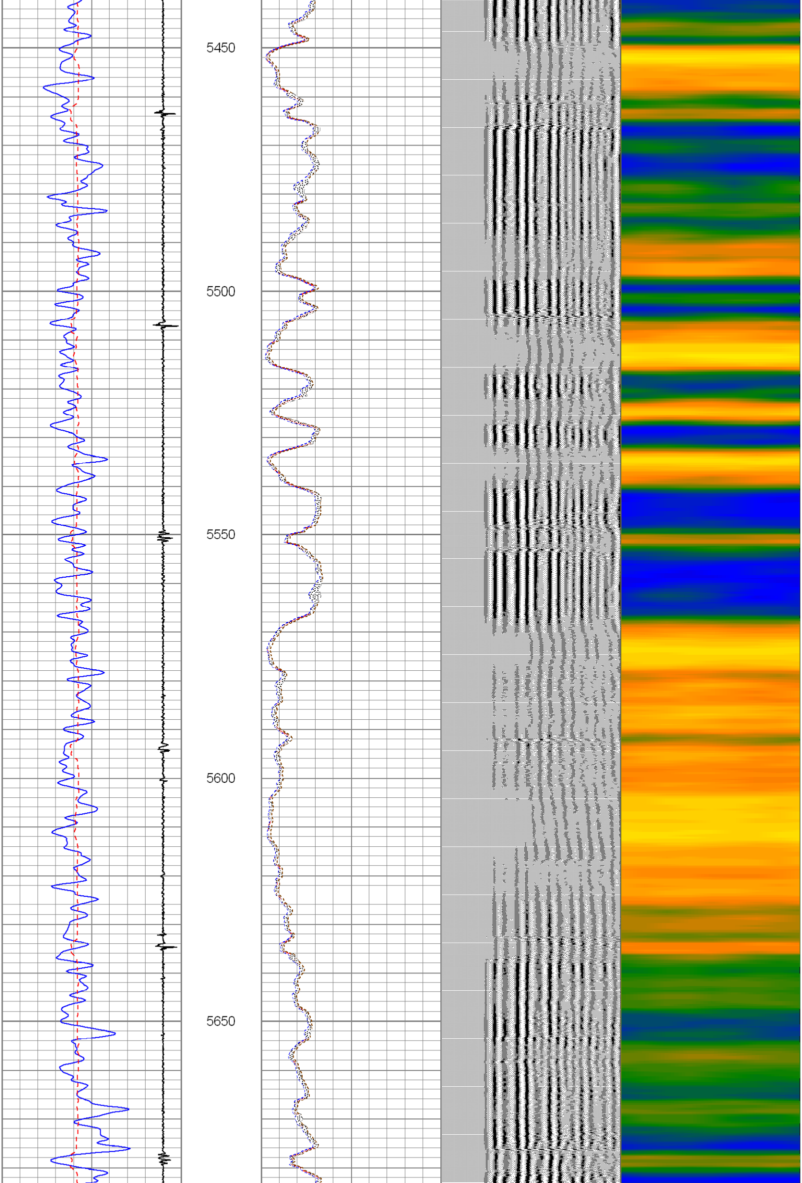
0	GR (GAPI)	150	0	AMPMAX	100	200	WVF5FT	1200	1	Sector Map	8
400	TT3FT (usec)	200	0	AMPAVG	100						
40	CCL	-4.4	0	AMPMIN	100						
			0	AMP3FT (mV)	100						

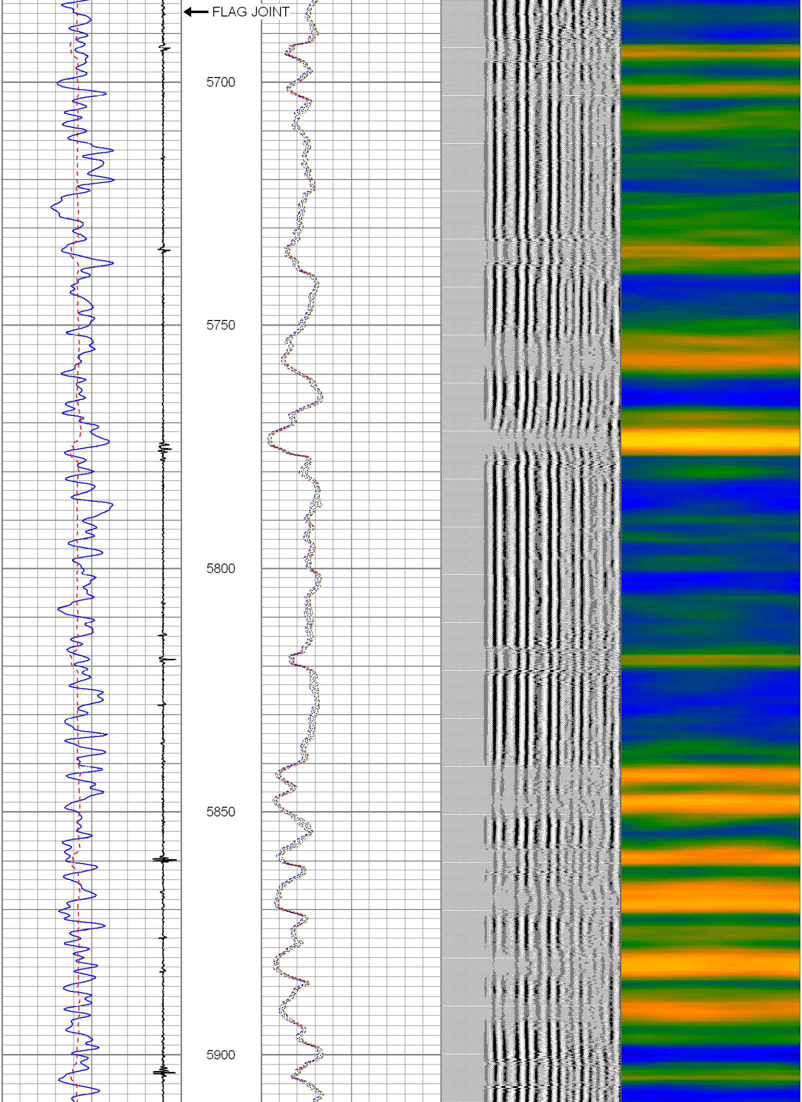
Database File: cbl noble wells ranch ae20-68-1hn.db
Dataset Pathname: pass2
Presentation Format: sector2
Dataset Creation: Wed Dec 11 10:27:33 2013 by Log SCH 120430
Charted by: Depth in Feet scaled 1:240

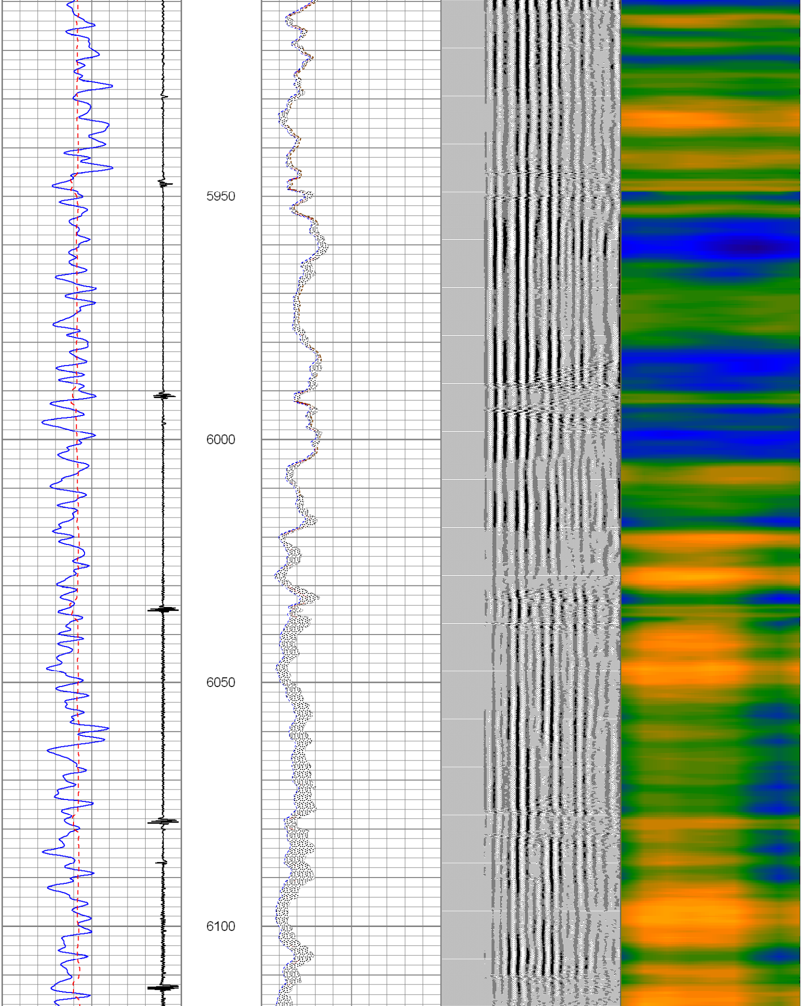
0	GR (GAPI)	200	0	AMPMAX	100	200	WVF5FT	1200	1	Sector Map	8
400	TT3FT (usec)	200	0	AMPAVG	100						
70	CCL	-7.7	0	AMPMIN	100						
			0	AMP3FT (mV)	100						

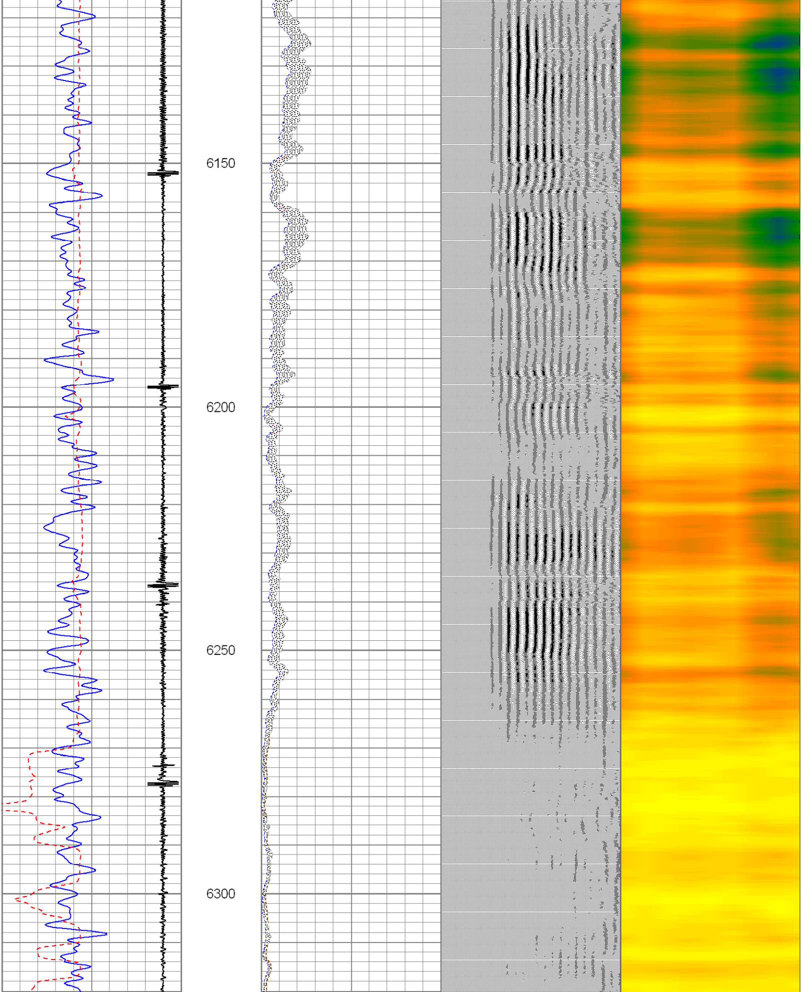


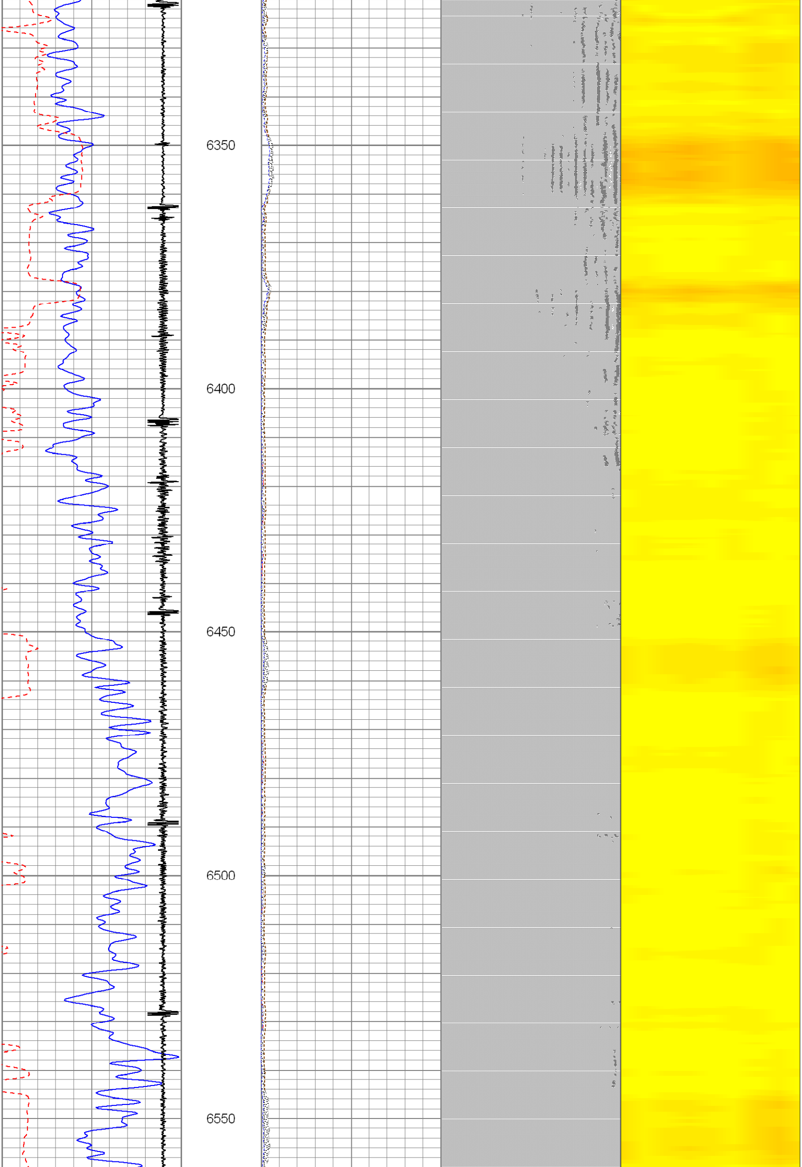


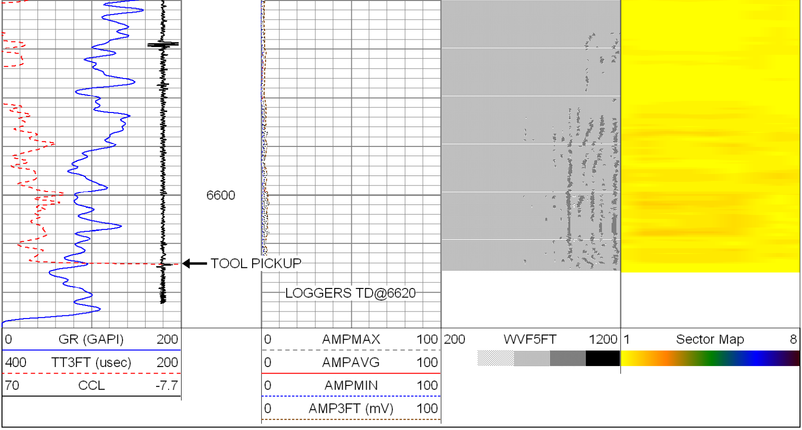












Calibration Report

Database File: cbl noble wells ranch ae20-68-1hn.db
Dataset Pathname: pass2
Dataset Creation: Wed Dec 11 10:27:33 2013 by Log SCH 120430

Gamma Ray Calibration Report

Type / Serial: Probe275dig / 110785

SHOP CALIBRATION Fri Nov 08 09:38:30 2013

	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	1.0				cps
		0.4400			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: 101020
Tool Model: Probe

Calibration Casing Diameter: 7.000 in
Calibration Depth: 167.767 ft

Master Calibration, performed Wed Dec 11 10:08:33 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.007	1.061	1.500	62.165	57.554	1.075
CAL	0.007	1.183				
5'	0.007	1.127	1.500	62.165	54.190	1.095
SUM						
S1	0.007	1.228	0.000	62.165	50.911	-0.375
S2	0.007	1.197	0.000	62.165	52.245	-0.383
S3	0.007	1.116	0.000	62.165	56.080	-0.413
S4	0.007	0.995	0.000	62.165	62.928	-0.459
S5	0.007	0.885	0.000	62.165	70.848	-0.525
S6	0.006	0.878	0.000	62.165	71.349	-0.461
S7	0.007	1.014	0.000	62.165	61.705	-0.429
S8	0.008	1.176	0.000	62.165	53.227	-0.415

Internal Reference Calibration, performed Fri Jan 13 14:30:16 2012:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.007	1.183	1.000	0.000

Air Zero Calibration, performed Tue Dec 10 14:53:01 2013:

	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