HALLIBURTON

RADIAL
CEMENT BOND LOG

Company MINERAL RESOURCES
Well WESTMOOR 5 2-6-2
Field GREELEY
County WELD State CO

Company MINERAL RESOURCES
Well WESTMOOR 5 2-6-2
Field GREELEY
County WELD State CO

API No.: 05-123-34640 Serv #: 9884987
Location: SHL: 2313' FSL, 1240' FWL
BHL: 1347' FNL, 1498' FWL
LAT/LON: 40.43104/-104.73945

Sec: 2 Twp: 5N Rge: 66w

Other Services

Permanent Datum	G.L.	Elevation	4701	Elevation
Log Measured From	K.B. , 19 Ft. above perm. datum			K.B. 4720 D.F. 4720 G.L. 4701
Drilling Measured From	K.B.			

Date @ Time Logged	10/13/12@1900	Type Fluid in Hole	FRESH WATER
Run No.	ONE	Density of Fluid	8.33
Depth - Driller	8338	Fluid Level	70
Depth - Logger	8237	Cement Top Est. Logged	2962
Bottom - Logged Interval	8237	Equipment / Location	11875120 / GJ
Top - Log Interval	2700	Recorded by	NATHANIEL MILES
Max. Recorded Temp.	200	Witnessed by	RICK OHLEMEIER

CEMENTING DATA	Surface String	Protection String	Production String	Liner
Date / Time Cemented				
Primary / Squeeze	PRIMARY	PRIMARY		
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs
Cement Volume	250 SACKS	570 SACKS		
Cement Type / Weight	/	/	/	/
Formulation				
Mud Type / Mud Wgt.	/	/	/	/

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
SURFACE	12.25	0	469	8.625	24	0	469
PROTECTION	7.875	469	8338	4.5	11.6	0	8338

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HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHCIH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

THORIUM BLANKET: 230 GAPI
ESTIMATED TOC: 2962'

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES
YOUR CREW TODAY: NATHANIEL MILES, RICHARD MACKIE, ZACH MACINTOSH,
KEITH BIRLSON, AND JOSEPH FORSTER

Service Ticket No. 9884987 API No. 05-123-34640 PGM Ver WARRIOR 7.0

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

TTTCU		RBT					
Run No.	ALL	Run No.	ALL	Run No.		Run No.	
Serial No.	214878	Serial No.	11002211	Serial No.		Serial No.	
Model No.	001	Model No.	011	Model No.		Model No.	
Diameter	1.69	Diameter	3.125	Diameter		Diameter	

LOGGING DATA

General Data

Pass No.	Depths From	Depths To	Well Head Pressure	Speed Ft/Min	Logging Run Comments
MAIN1	8249	2700	NONE	65	

Pass No.	GR Scale L	GR Scale R	AMPLITUDE Scale L	AMPLITUDE Scale R	TRAVEL TIME Scale L	TRAVEL TIME Scale R	Scale L	Scale L
ALL	0	200	0	100	650	150		

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP		

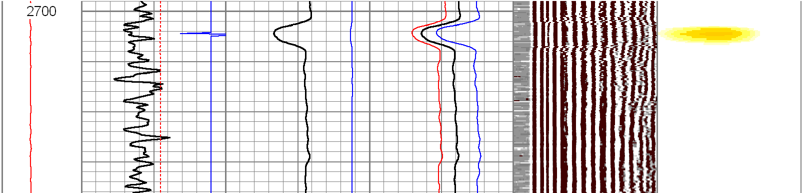
MAIN LOG SECTION

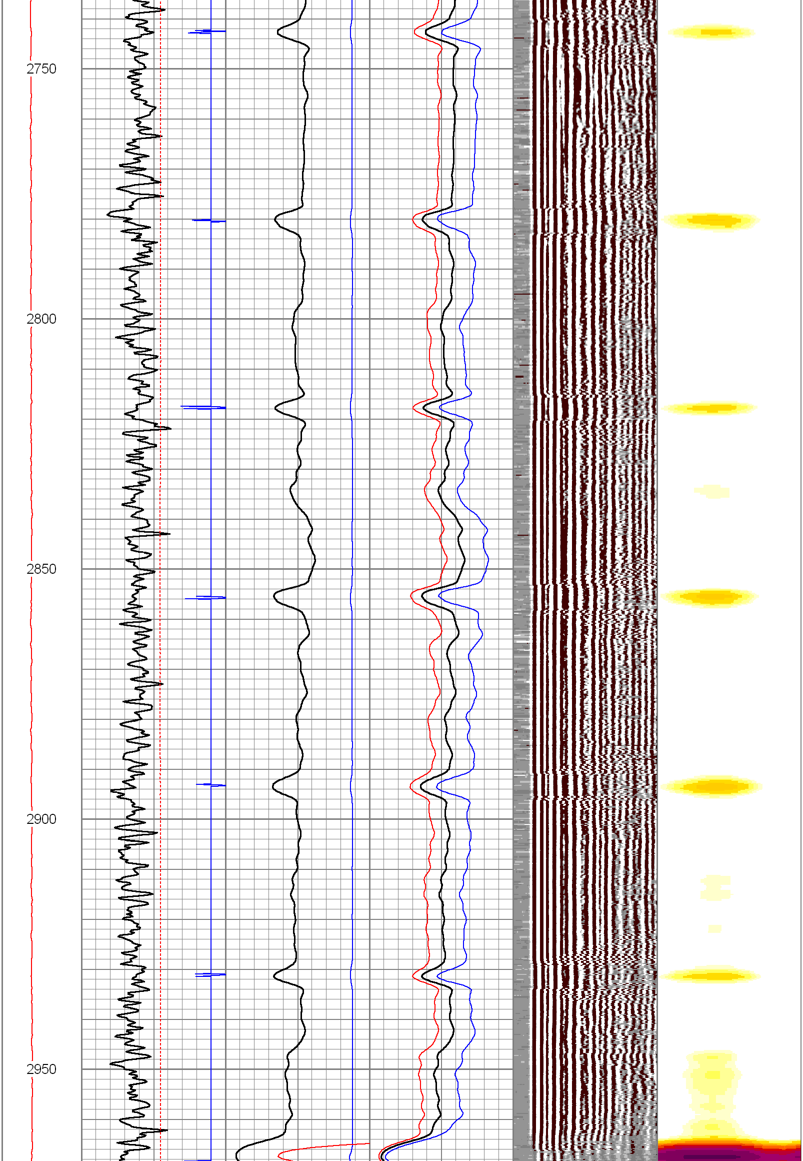
HALLIBURTON

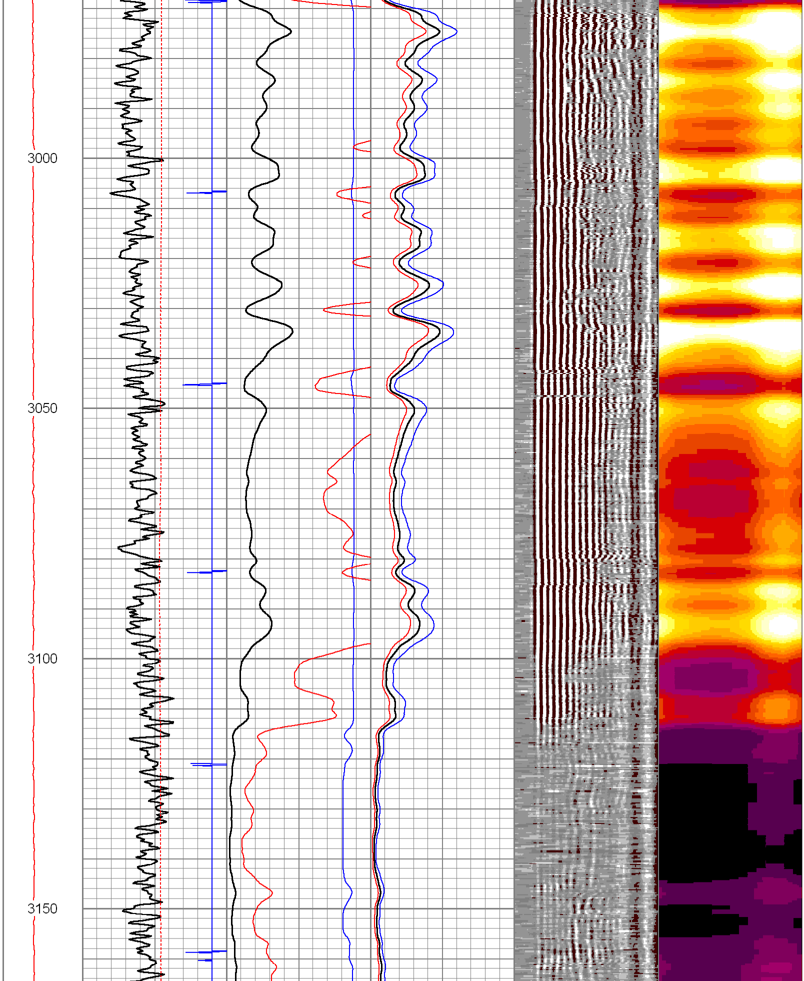
SCALE 1:240

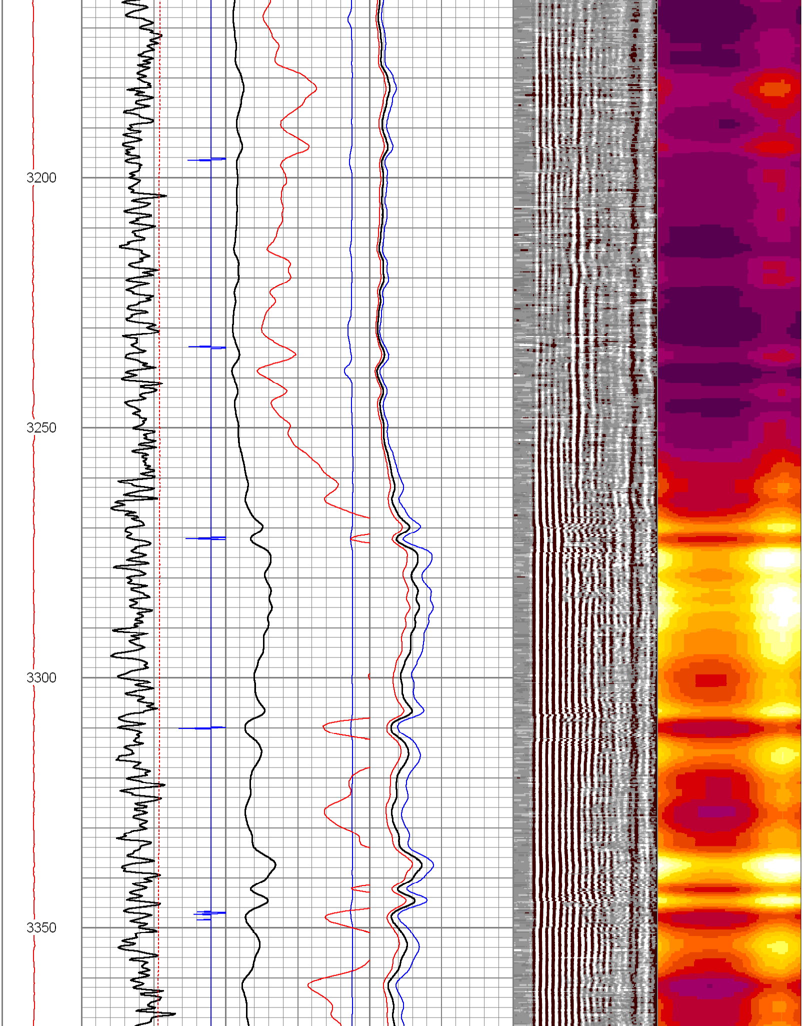
Database File:	westmoor.db
Dataset Pathname:	WELD/5-2-6-2/RBT/MAIN1
Presentation Format:	rbtnm
Dataset Creation:	Sat Oct 13 19:00:15 2012 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

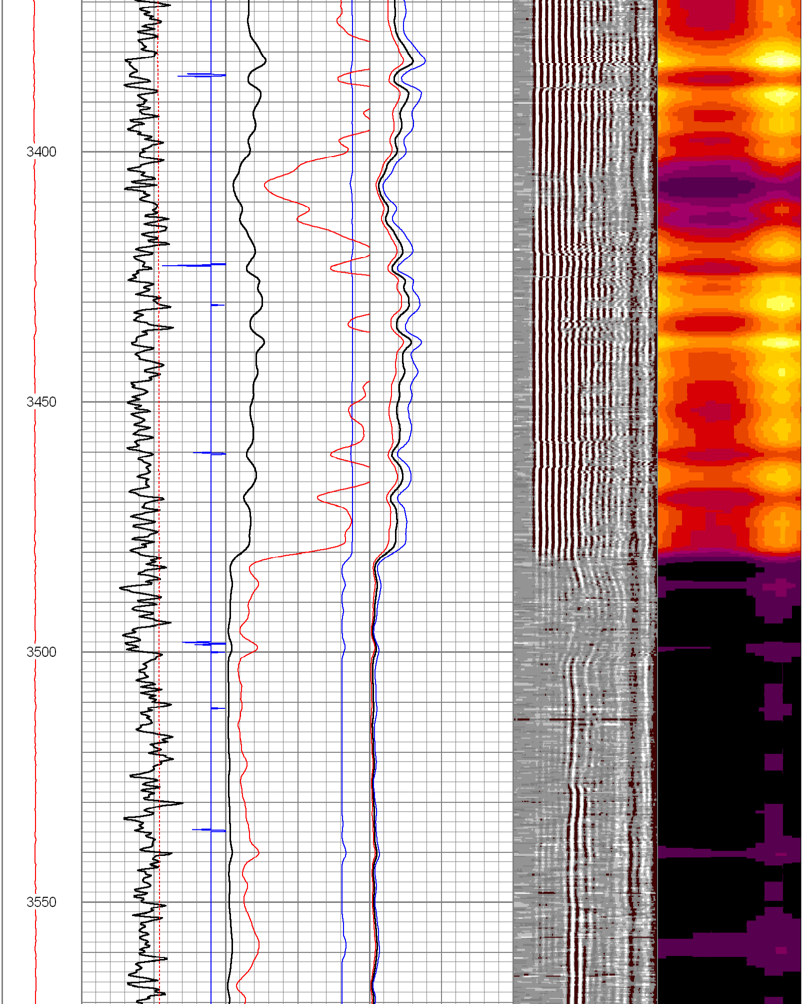
LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb) 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		40 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		

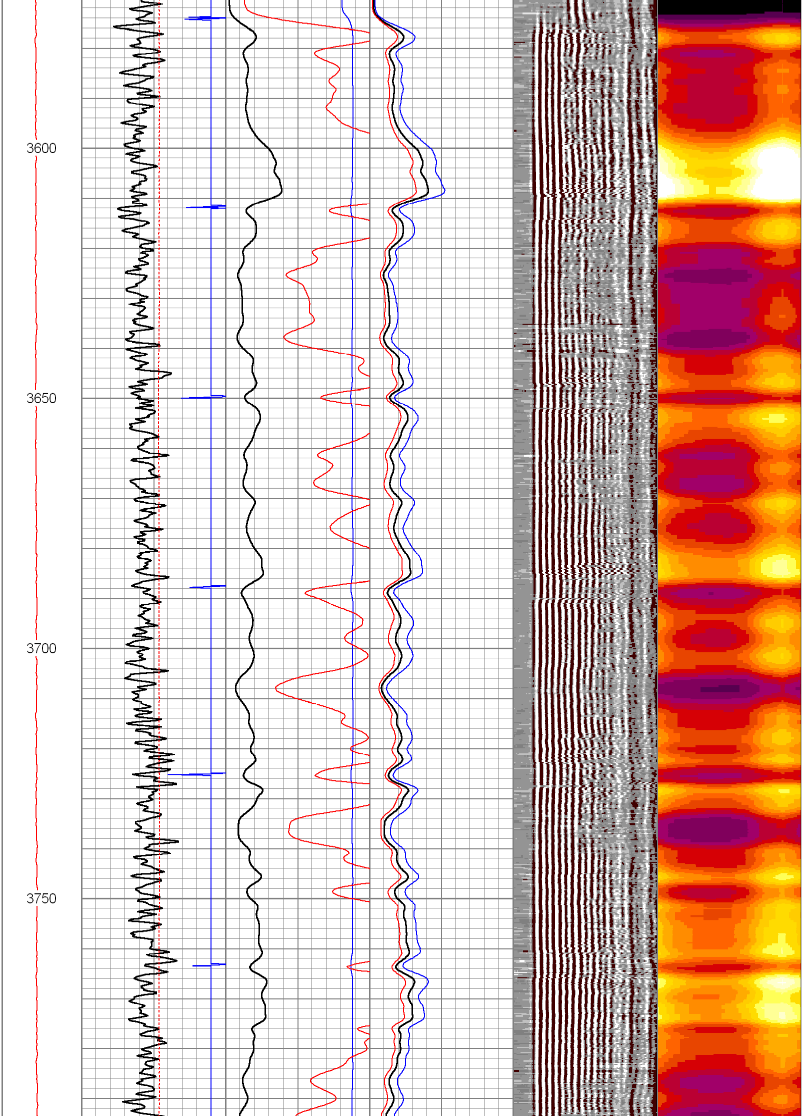


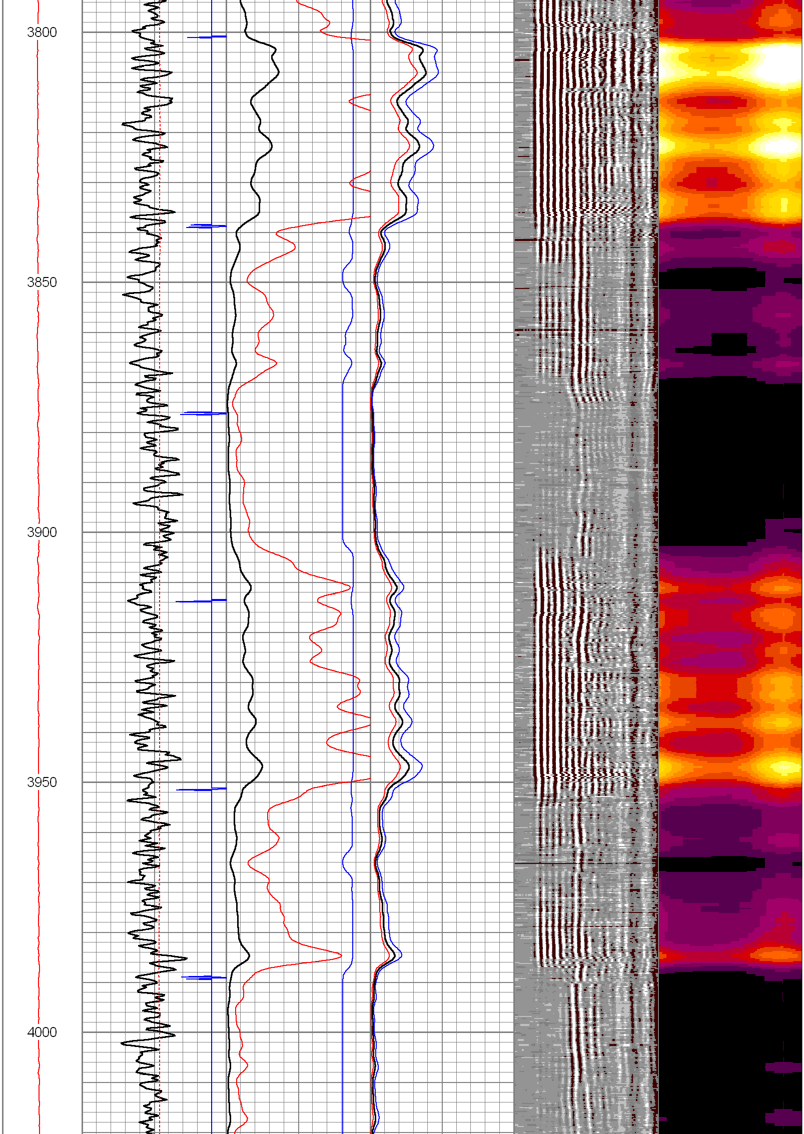


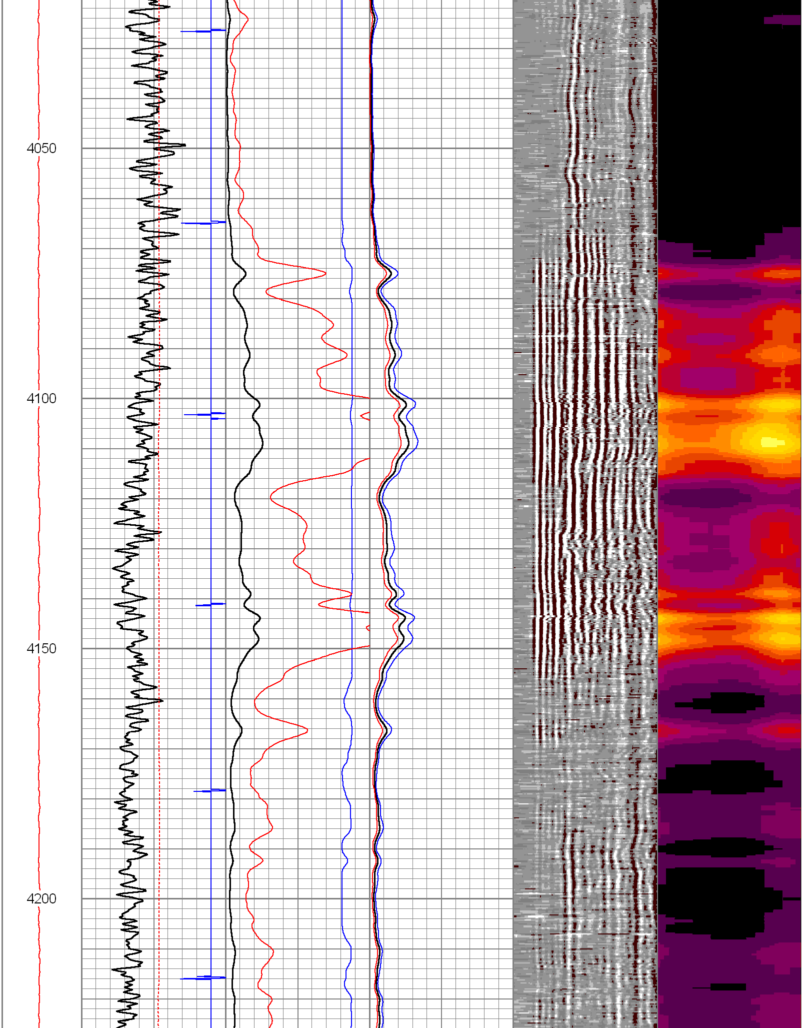


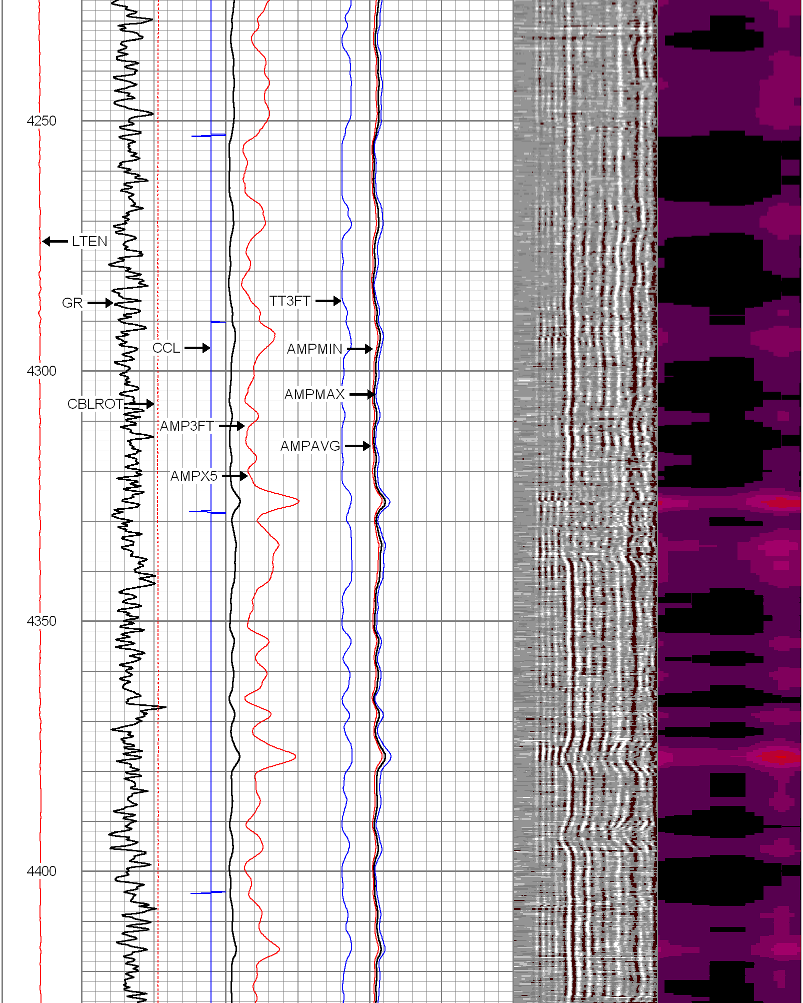


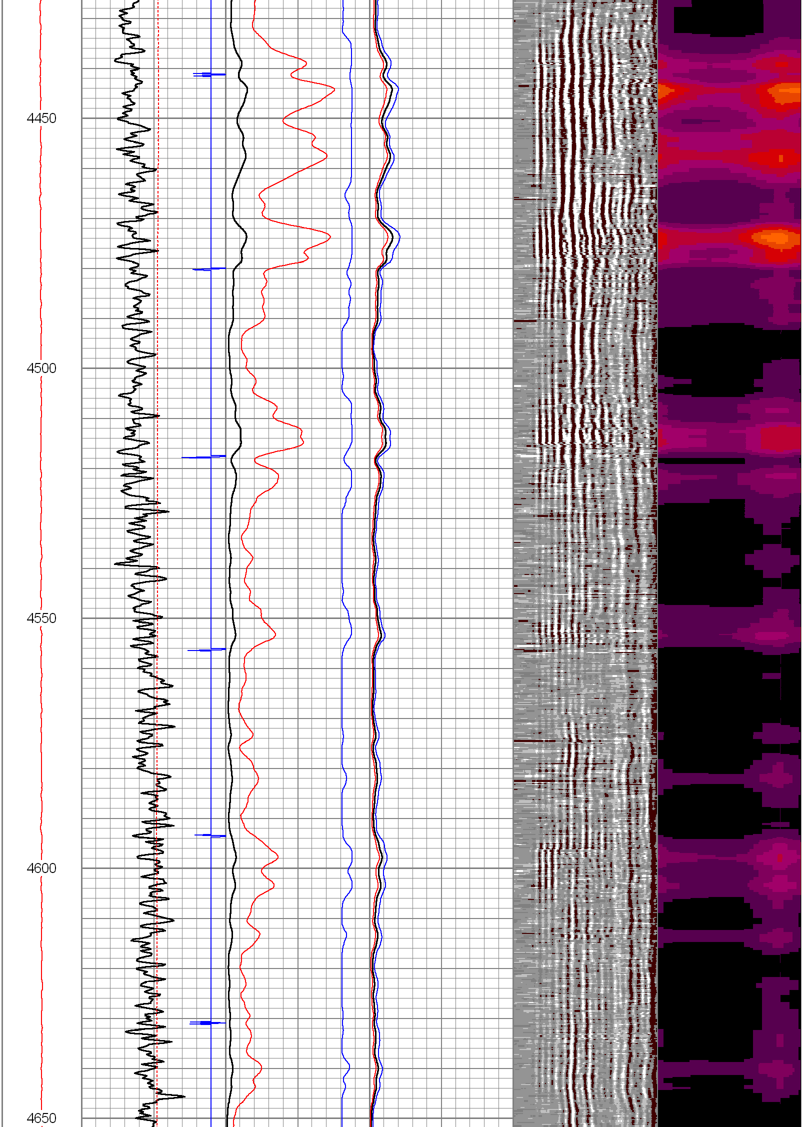


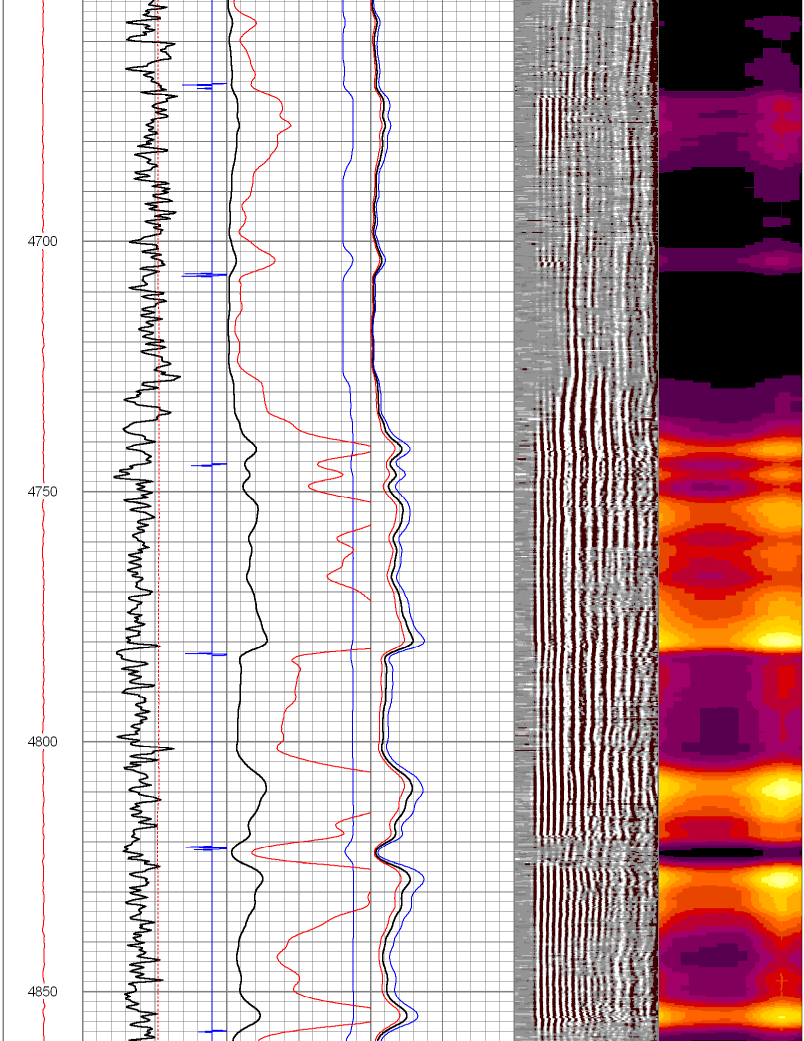


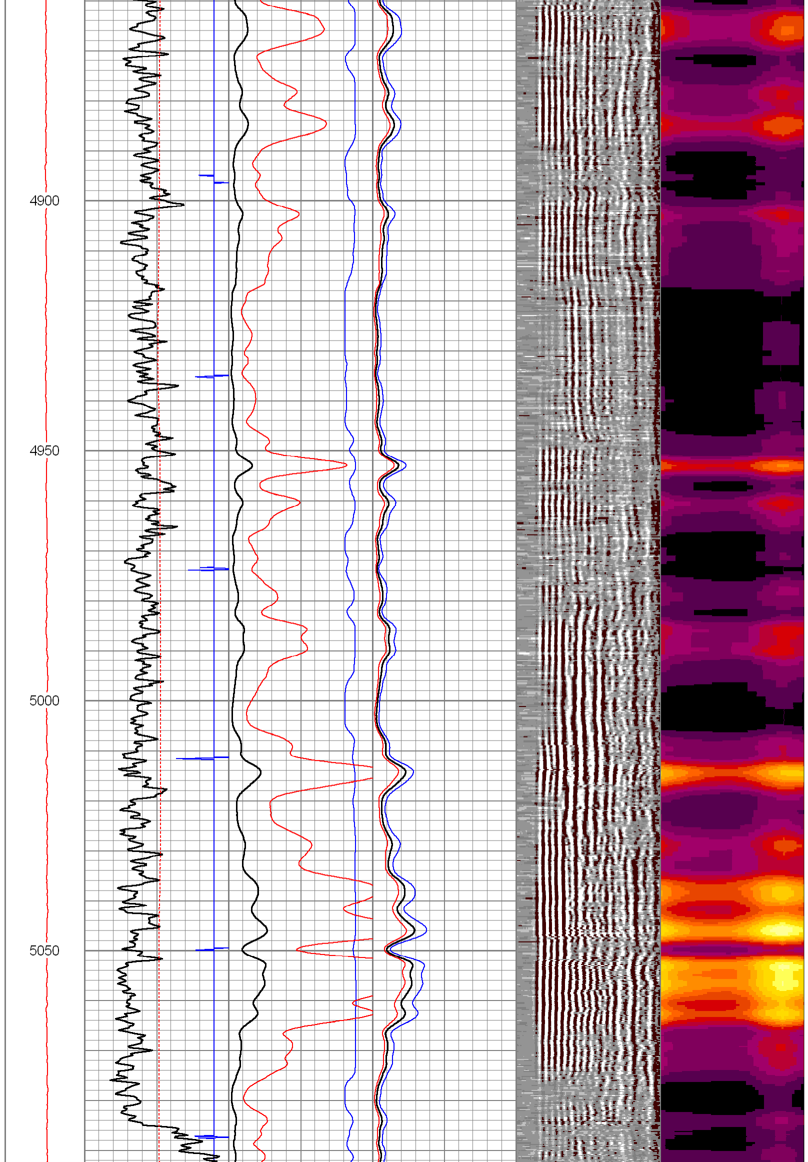


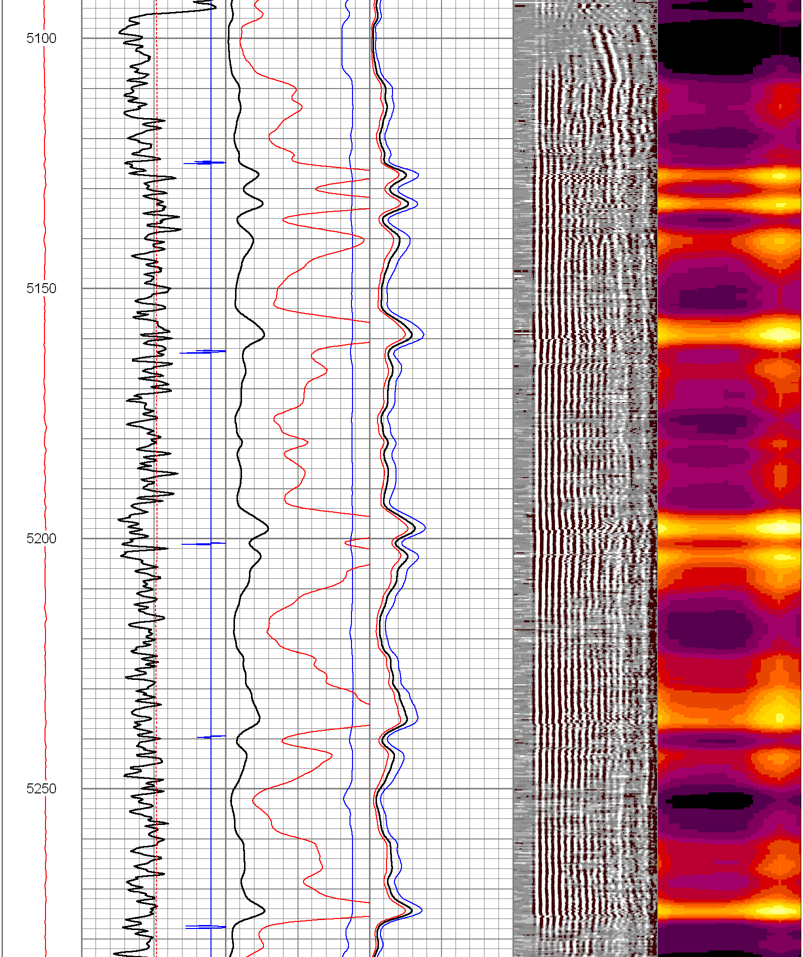


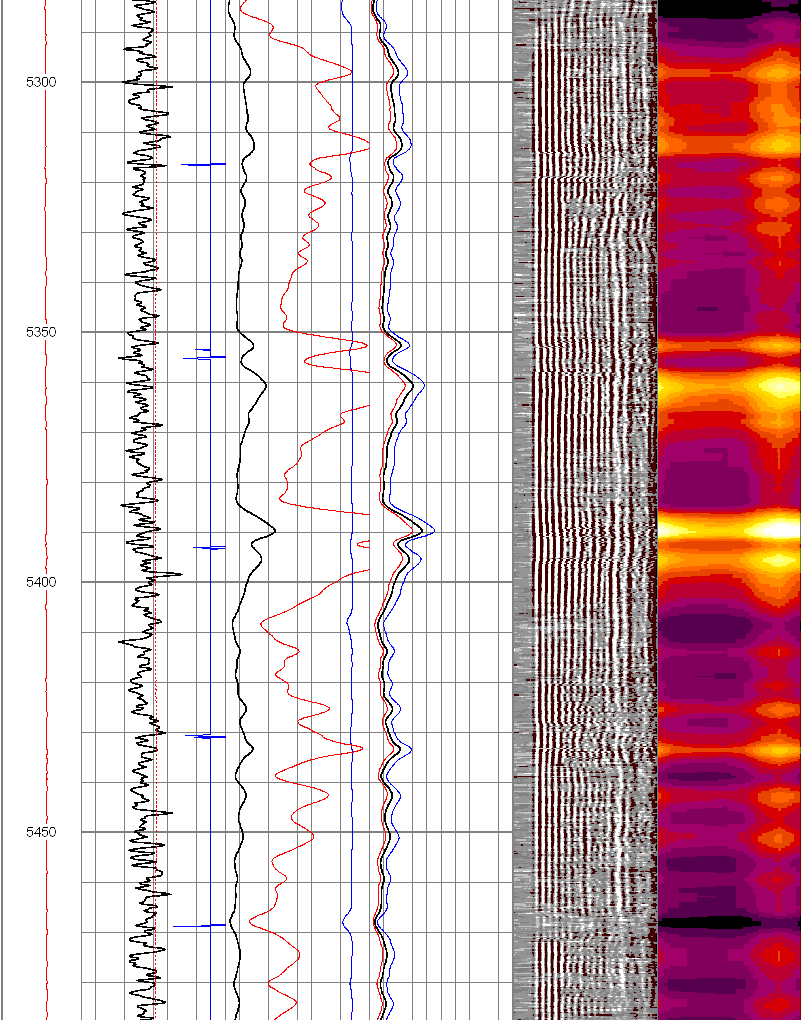


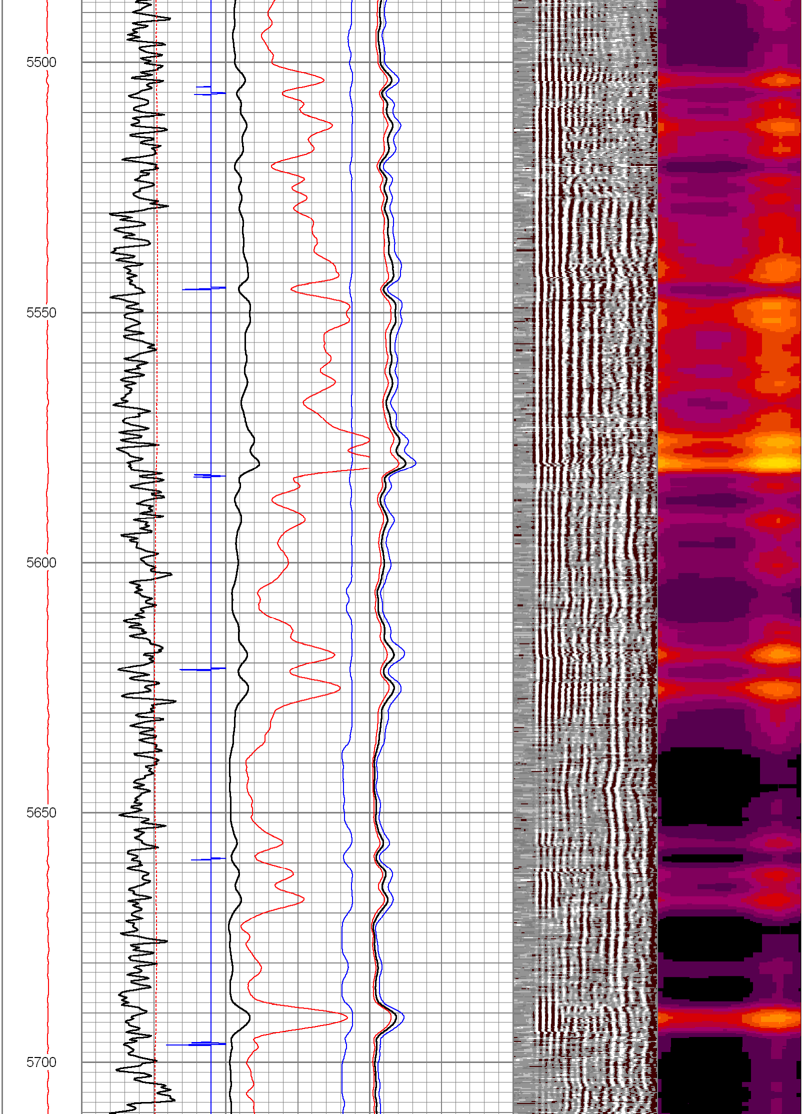


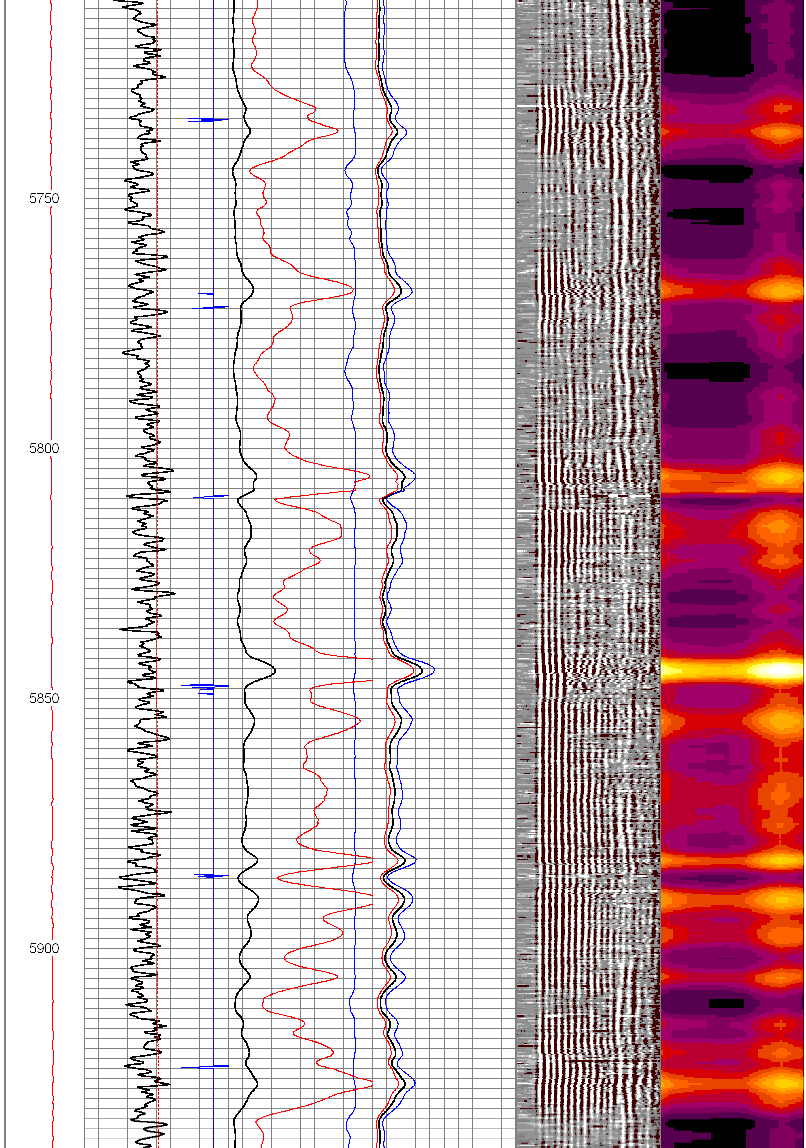


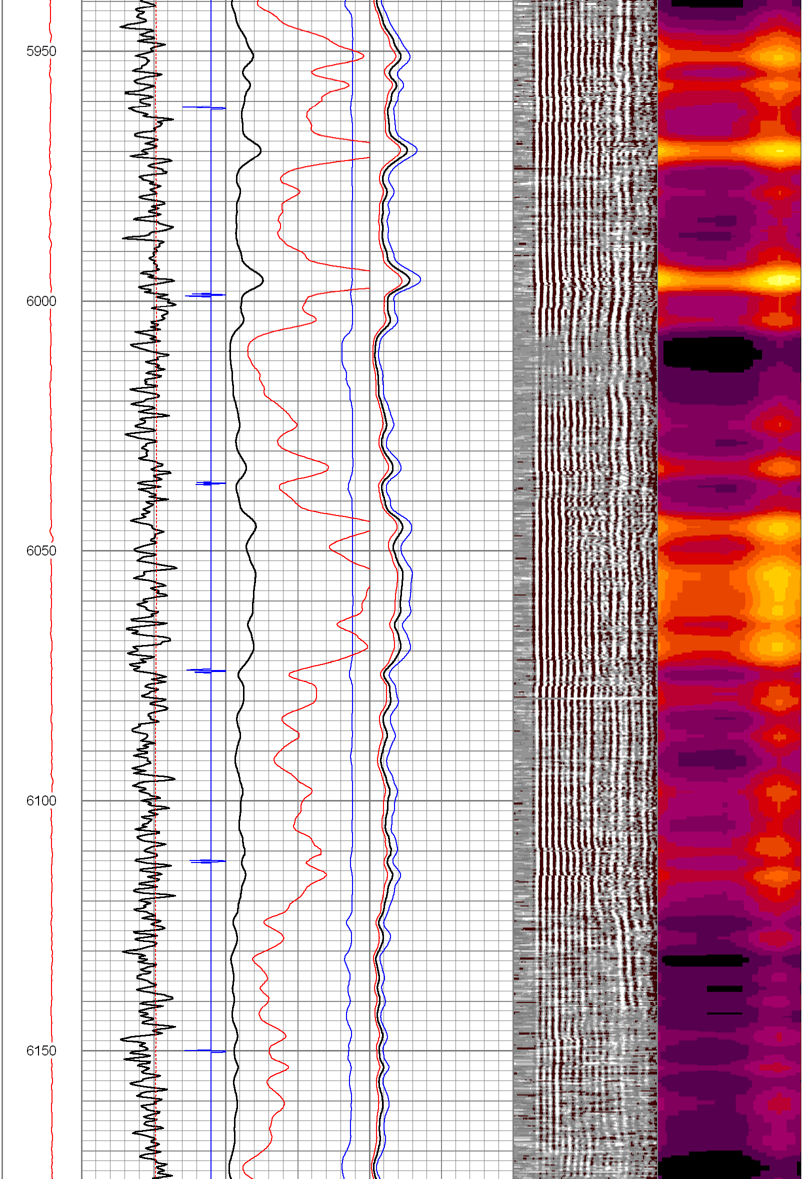


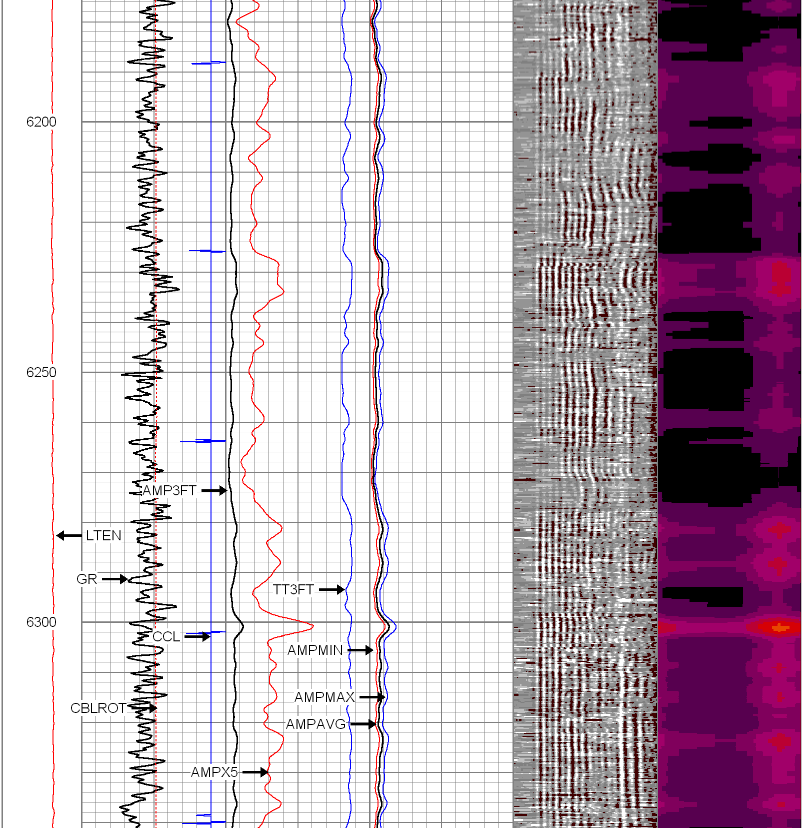


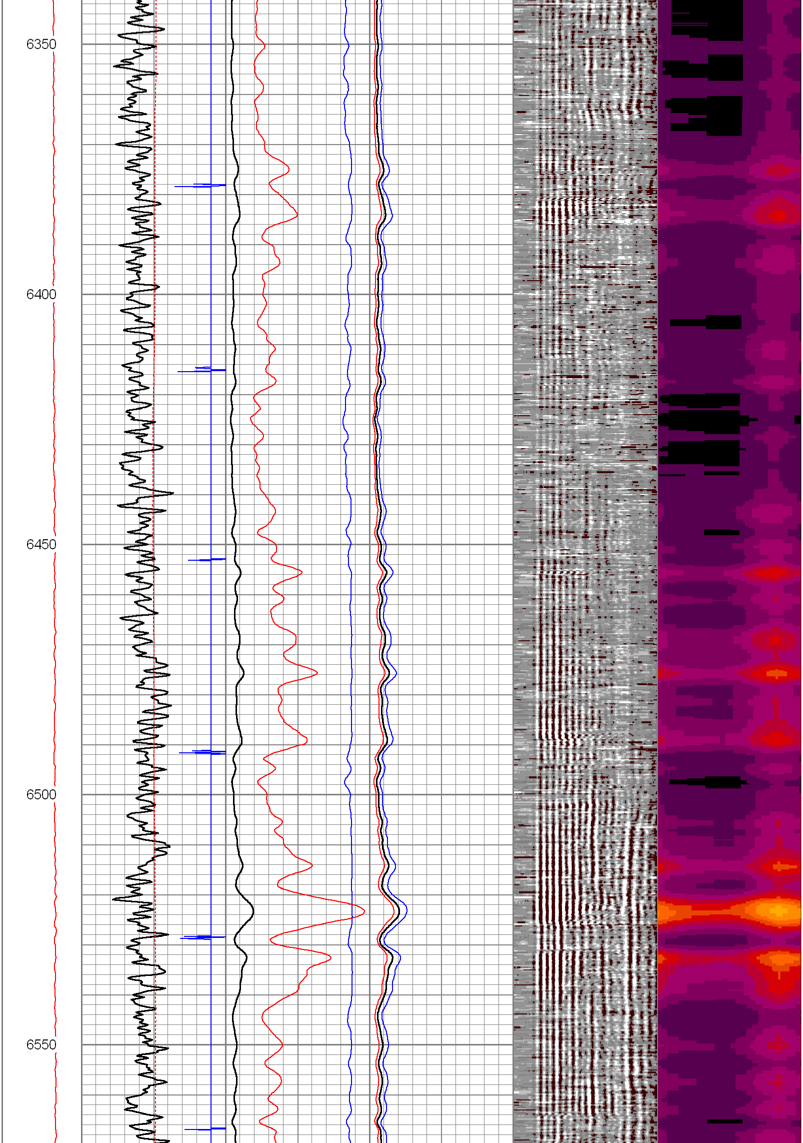


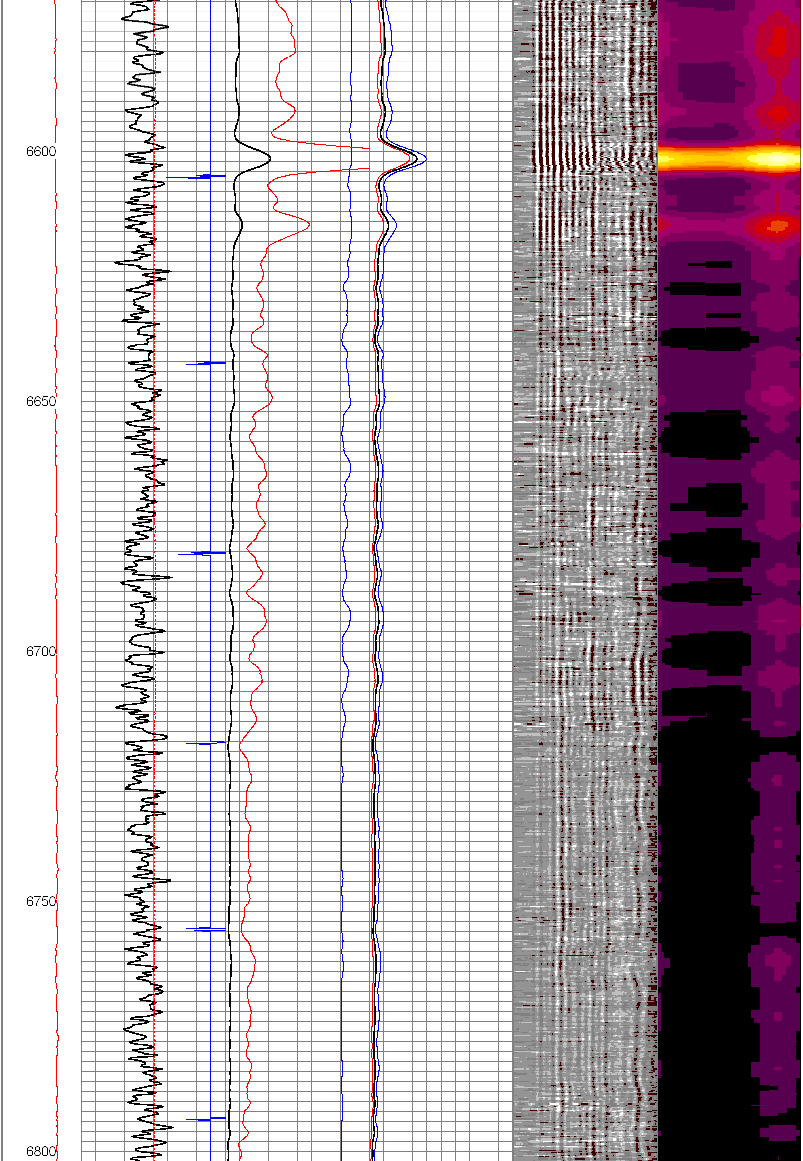


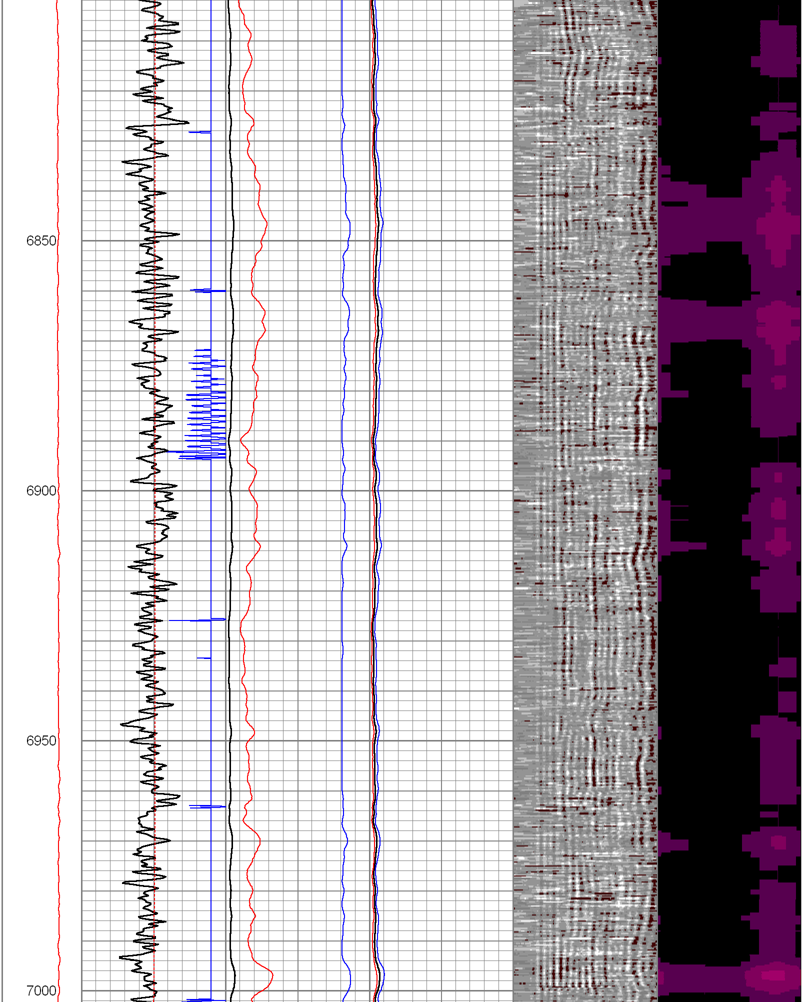


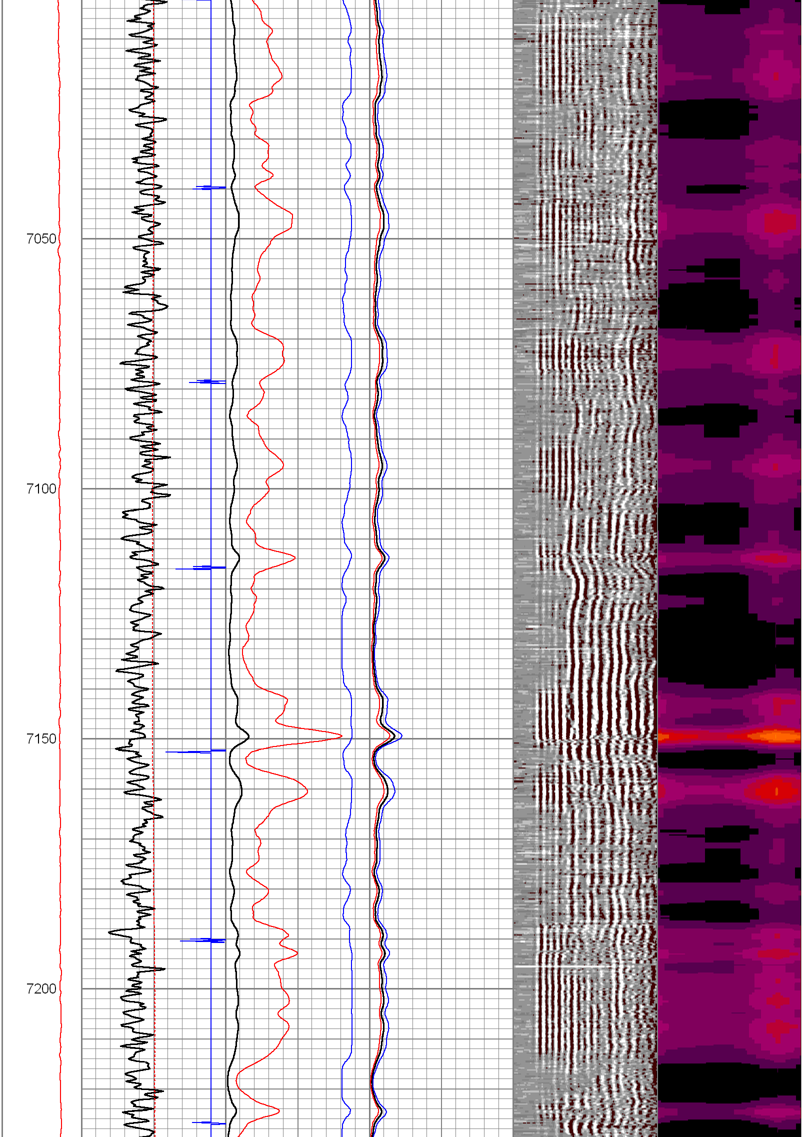


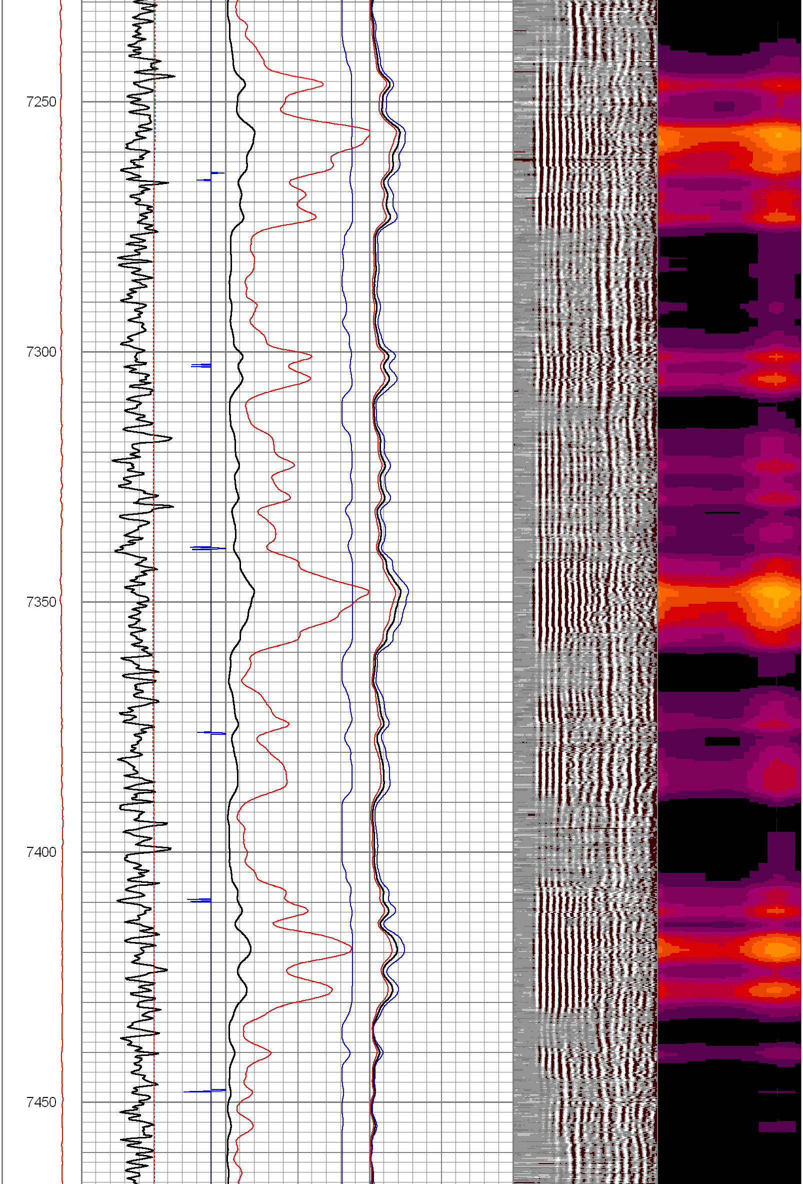


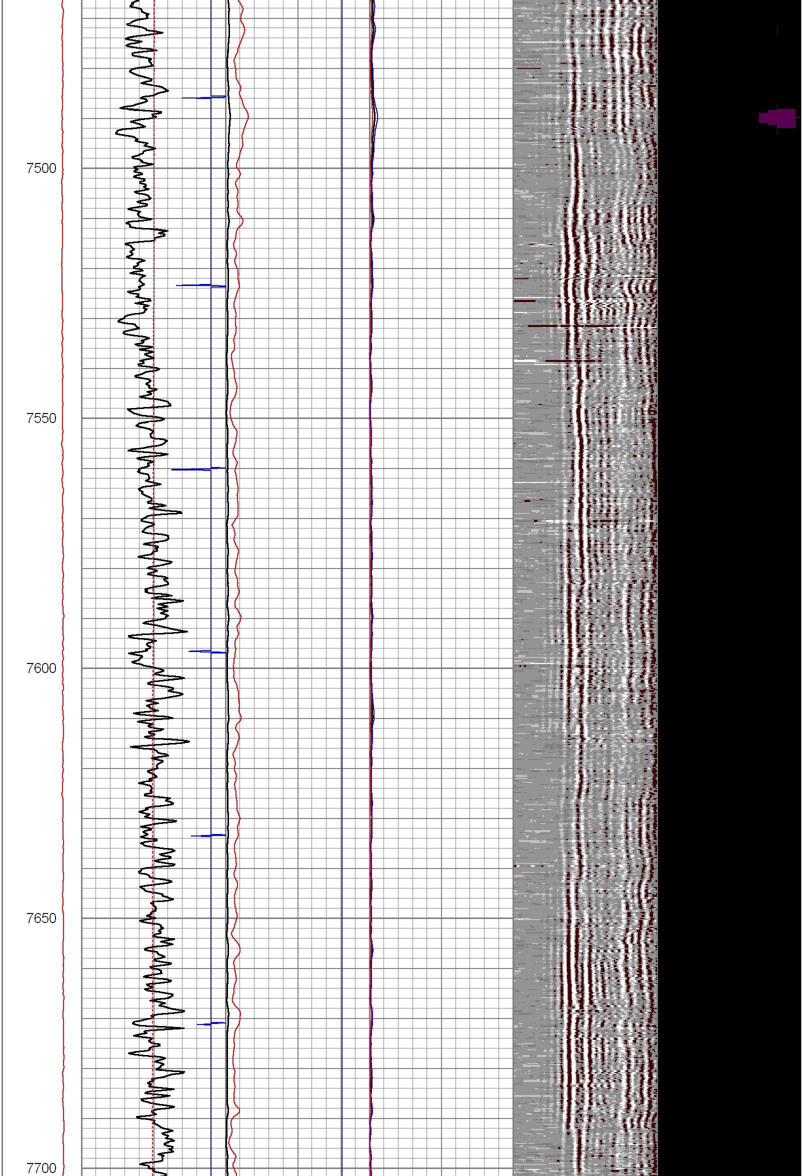


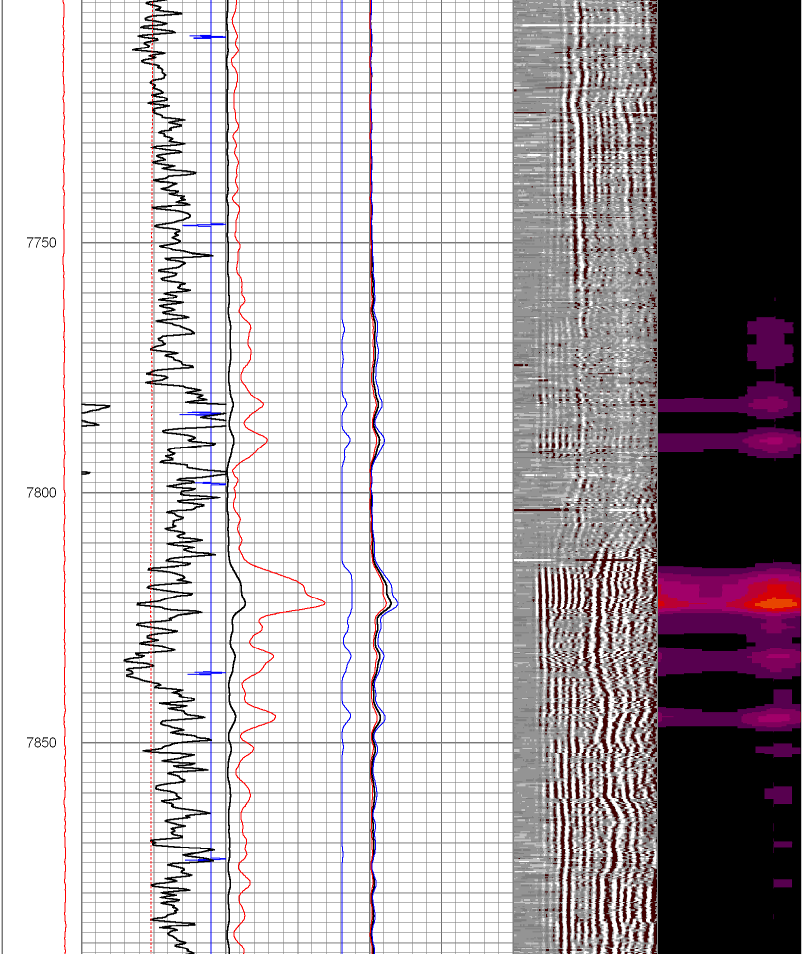


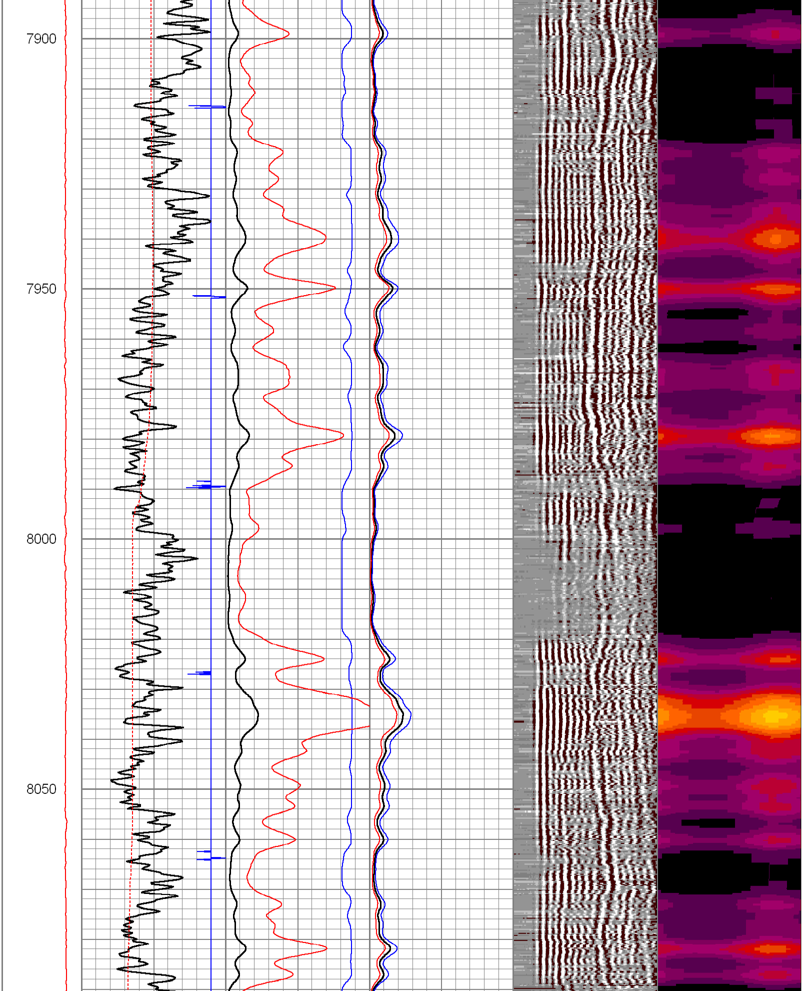


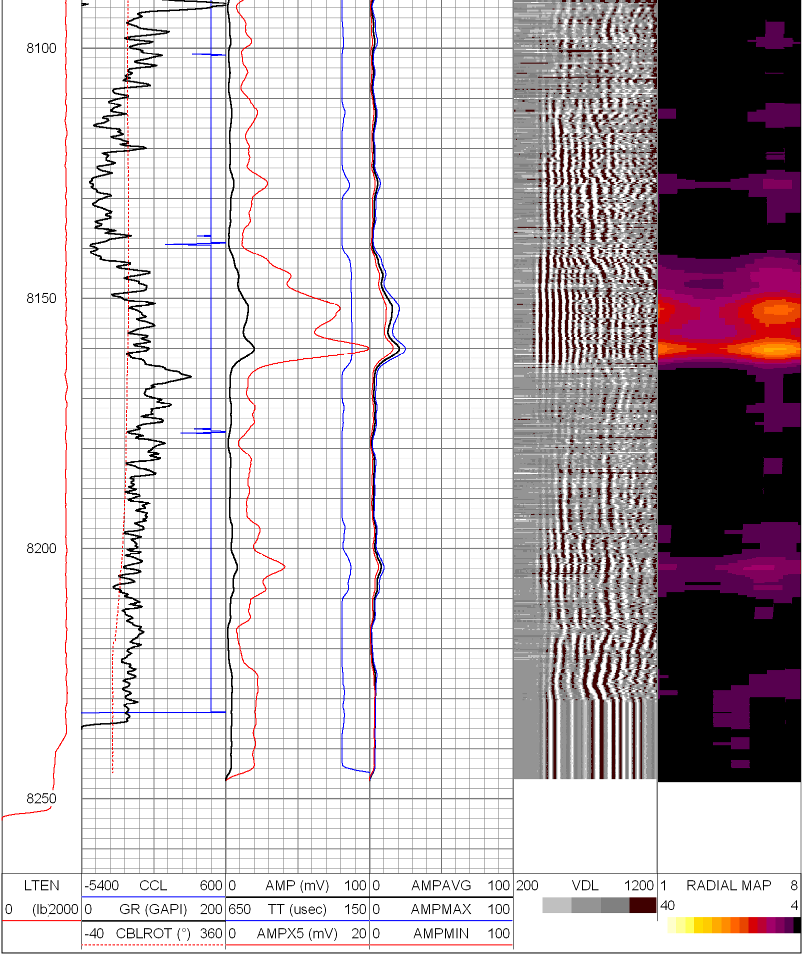












HALLIBURTON

MAIN LOG SECTION

SCALE 1:240

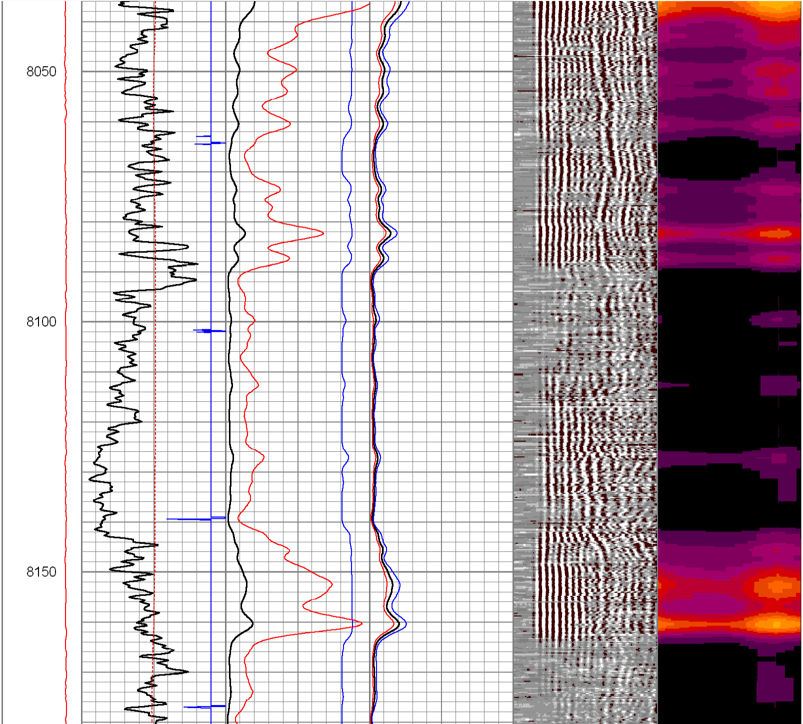
HALLIBURTON

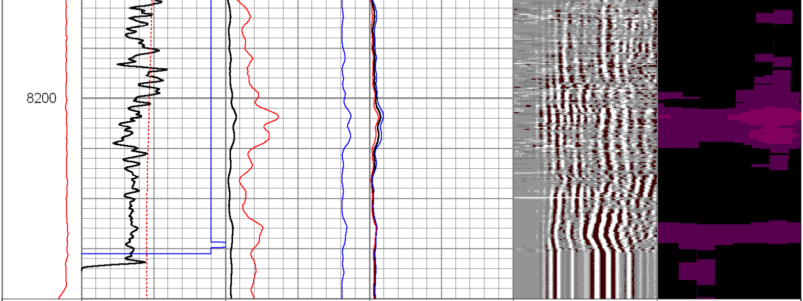
REPEAT LOG SECTION

SCALE 1:240

Database File:	westmoor.db
Dataset Pathname:	WELD/5-2-6-2/RBT/REPEAT1
Presentation Format:	rbtnm
Dataset Creation:	Sat Oct 13 18:48:58 2012 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		40 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		





LTEN	CCL	AMP	AMPAVG	VDL	RADIAL MAP
LTEN	-5400 CCL 600	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 200	650 TT (usec) 150	0 AMPMAX 100		40 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		

HALLIBURTON

REPEAT LOG SECTION

SCALE 1:240

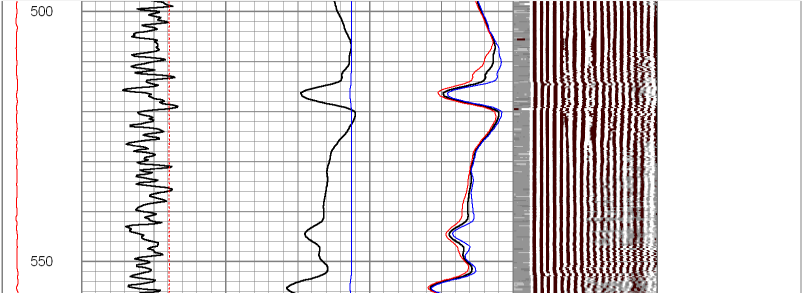
HALLIBURTON

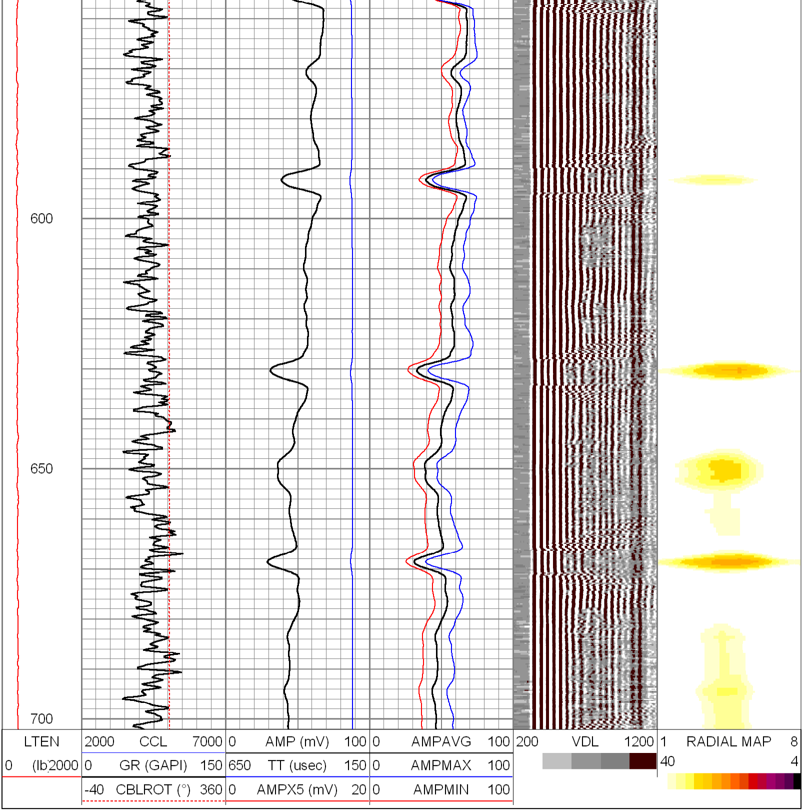
FREE PIPE LOG SECTION

SCALE 1:240

Database File:	westmoor.db
Dataset Pathname:	WELD/5-2-6-2/RBT/FREEPIPE1
Presentation Format:	rbtnm
Dataset Creation:	Sat Oct 13 18:03:18 2012 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

LTEN	CCL	AMP	AMPAVG	VDL	RADIAL MAP
LTEN	2000 CCL 7000	0 AMP (mV) 100	0 AMPAVG 100	200 VDL 1200	1 RADIAL MAP 8
0 (lb 2000	0 GR (GAPI) 150	650 TT (usec) 150	0 AMPMAX 100		40 4
	-40 CBLROT (°) 360	0 AMPX5 (mV) 20	0 AMPMIN 100		





HALLIBURTON

FREE PIPE LOG SECTION

SCALE 1:240

Log Variables

Database:C:\Warrior\Data\westmoor.db
Dataset: WELD/5-2-6-2/RBT/MAIN1

Top - Bottom

PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	CASEOD in	PERFS	TDEPTH ft
202	11.6	81	0	0.8	4.5	0	0

BOTTEMP degF	BITSIZE in
188	7.875

Calibration Report

Database File: westmoor.db
Dataset Pathname: WELD/5-2-6-2/RBT/MAIN1
Dataset Creation: Sat Oct 13 19:00:15 2012 by Log Halliburton Casedho

Gamma Ray Calibration Report

Type / Serial: 001 / 000001

SHOP CALIBRATION

Sat Oct 13 13:58:58 2012

	Counts/Sec.	Gain	Offset	Jig	Units
Background	49.0				cps
Calibrator	190.3				cps
		1.6277			GAPI/cps

PRIMARY VERIFICATION

Sat Oct 13 14:01:31 2012

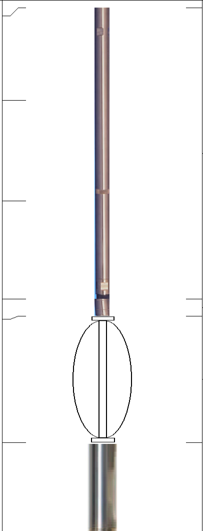
	Counts/Sec.	Gain	Offset	Jig	Units
Background	77.9				cps
Calibrator	308.6				cps
Difference				230.7	GAPI

BEFORE SURVEY VERIFICATION

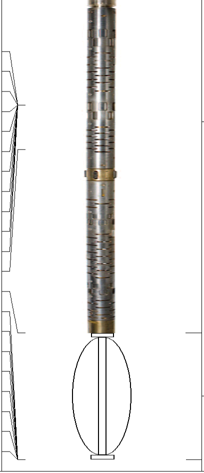
	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

AFTER SURVEY VERIFICATION

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

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
TTTCU	22.08					
CCL	19.99					
			TTTCU-001 (000001) Through Tubing Telemetry Cartridge - Ultrawire	6.55	1.69	33.00
GR	17.73					
AUH	15.53		AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
CENT	15.15					
			CBLINLINE	2.83	3.25	
RBT	12.31					

WVF3FT	7.97
WVFS1	7.97
WVFS2	7.97
WVFS3	7.97
WVFS4	7.97
WVFS5	7.97
WVFS6	7.97
WVFS7	7.97
WVFS8	7.97
CBLTEMP	7.97
CBLROT	7.97
WVF5FT	6.97
CENT	2.83
LLMTEN	0.00
XHUTEMP	0.00
XHUCURR	0.00
XHUVOLT	0.00
XHUSTAT	0.00
TSTAMP	0.00
ITEMPX	0.00
HVOLTX	0.00



RBT-004 (000001) Radial Bond Tool (UW 3 1/8) 20K Rated	9.48	3.13	140.00
CBLINLINE	2.83	3.25	

Dataset: westmoor.db: WELD/5-2-6-2/RBT/MAIN1
Total Length: 22.08 ft
Total Weight: 176.00 lb
O.D. 3.25 in

Company	MINERAL RESOURCES
Well	WESTMOOR 5 2-6-2
Field	GREELEY
County	WELD
State	CO

HALLIBURTON

RADIAL
CEMENT BOND LOG