HALLIBURTON

RADIAL CEMENT BOND LOG

Company LARAMIE ENERGY
Well FURR 22-07A
Field RULISON
County GARFIELD State CO

Company	LARAMIE ENERGY
Well	FURR 22-07A
Field	RULISON
County	GARFIELD State CO

API No.: 05045184720000 Serv #: 7592110

Location: SURFACE HOLE:
2282' FNL & 2284' FEL

BOTTOM HOLE:
1906' FNL & 1643' FEL

Sec: 22 Twp: 7S Rge: 95W

Other Services
RMT

Permanent Datum GROUND LEVEL Elevation 6698'
Log Measured From KB , 21 Ft. above perm. datum
Drilling Measured From KB

Elevation
K.B. 6719'
D.F. 6718'
G.L. 6698'

Date @ Time Logged	31/AUG/2010 @ 1600	Type Fluid in Hole	WATER
Run No.	ONE	Density of Fluid	8.34 PPG
Depth - Driller	7981'	Fluid Level	FULL
Depth - Logger	7930'	Cement Top Est. Logged	LOGGED
Bottom - Logged Interval	7923'	Equipment / Location	10971659 / GJ
Top - Log Interval	200'	Recorded by	GILBERT
Max. Recorded Temp.	212	Witnessed by	N/A

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

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
				4.5"	11.6#	SURFACE	7981'

<<< Fold Here >>>

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

HES CBL LOGGED 31/AUG/2010 IS THE PRIMARY LOG FOR THIS WELL

RMT - RBT LOGGED IN COMBINATION

LOGGED INTERVALS PER CUSTOMER REQUEST

LOG MERGED AT 5550'

SHORT JOINTS: 4830' - 4851' & 6954' - 6976'

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, GRAND JUNCTION, CO

Service Ticket No. 7592110 API No. 05045184720000 PGM Ver WARRIOR 7.0

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

EQUIPMENT DATA

TELEMETRY		RMTE-A		RCBL			
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	214878	Serial No.	A010	Serial No.	11001142	Serial No.	
Model No.	TTTC-U	Model No.	RMTE-A	Model No.	RBT-004	Model No.	
Diameter	1.69"	Diameter	2.125"	Diameter	3.125"	Diameter	

LOGGING DATA

General Data

Pass	Depths		Well Head	Speed	Logging Run Comments
No.	From	To	Pressure	Ft/Min	
ONE	7930'	200'	O PSI	15	MAIN LOG SECTION

	GAMMA RAY		CCL		AMPLITUDE			
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	-2700	300	0	100		

DIRECTIONAL INFORMATION

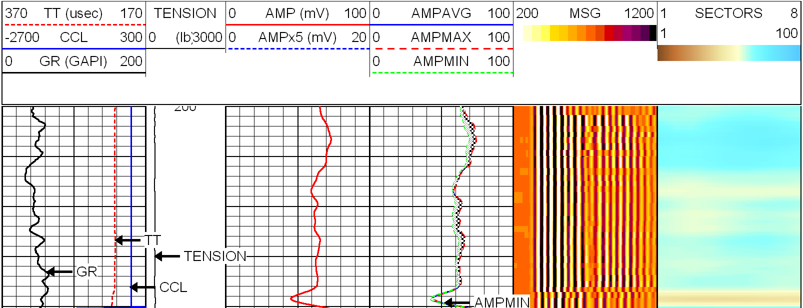
Maximum Deviation		deg. @		KOP		

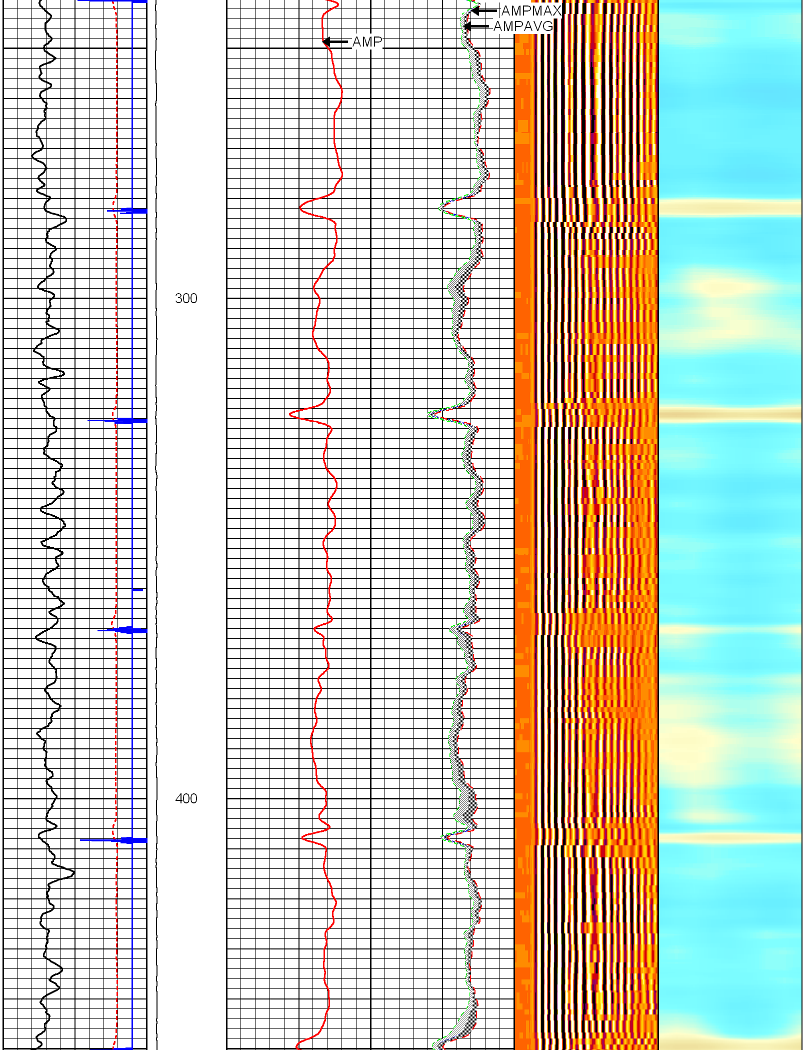
HALLIBURTON

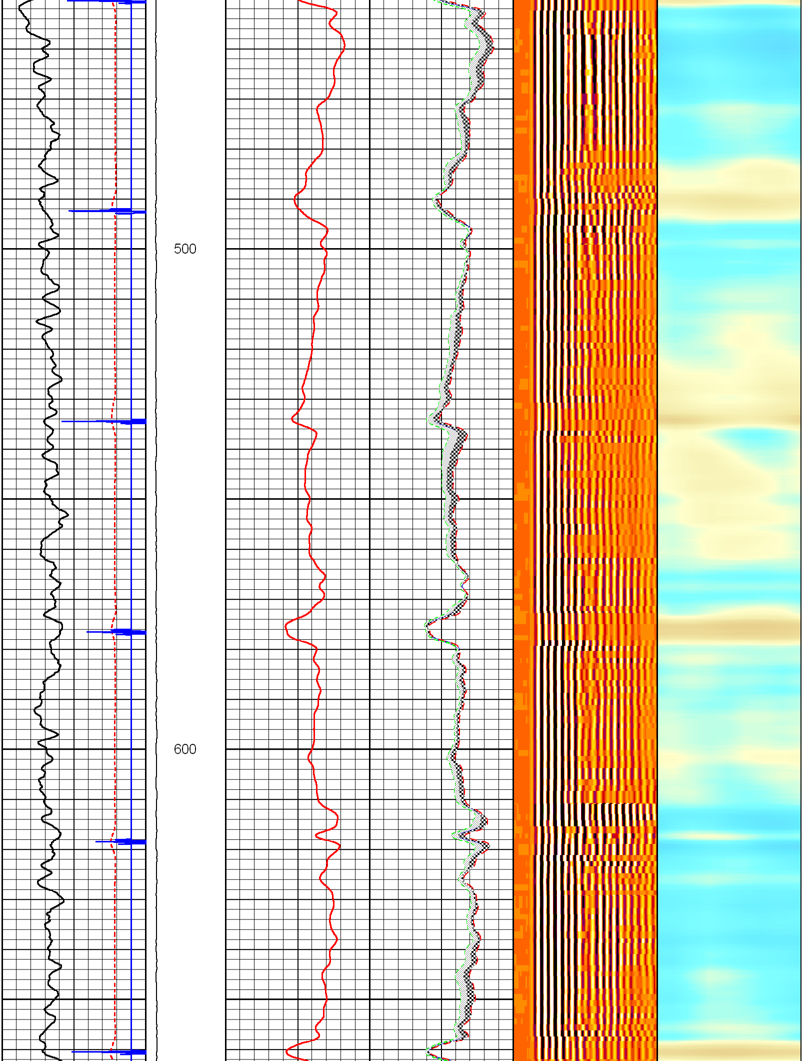
MAIN LOG SECTION

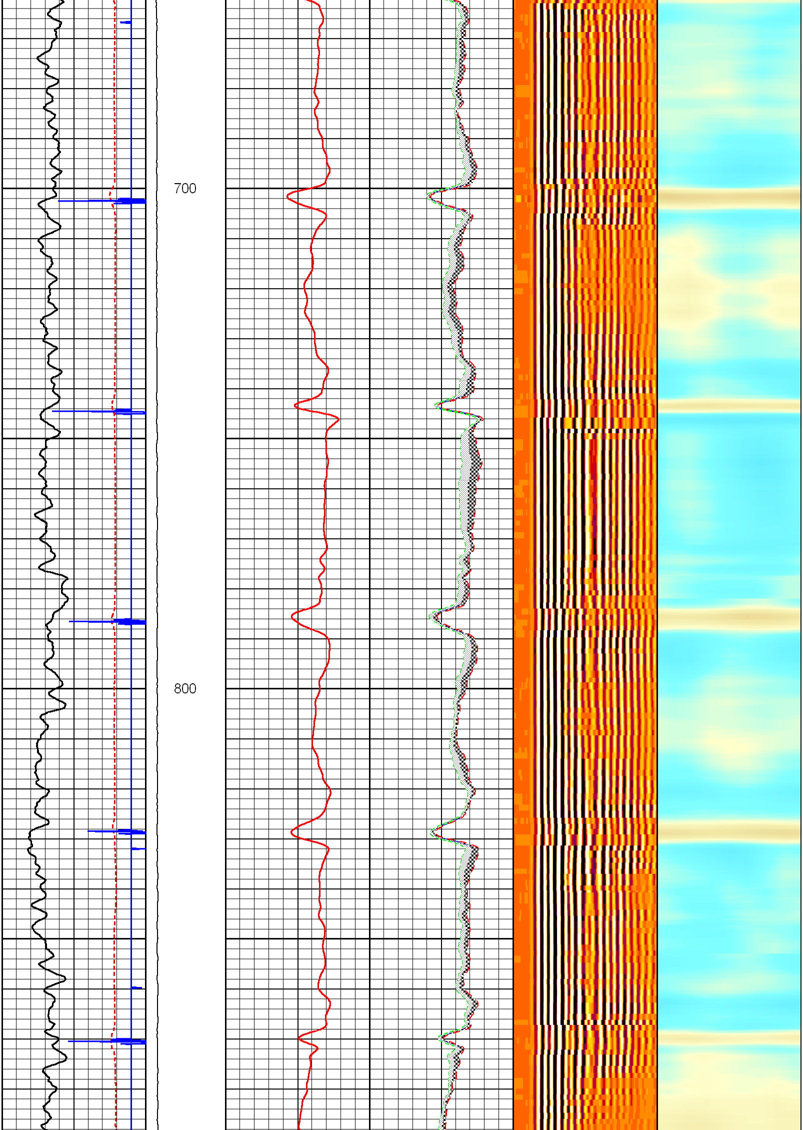
5" = 100'

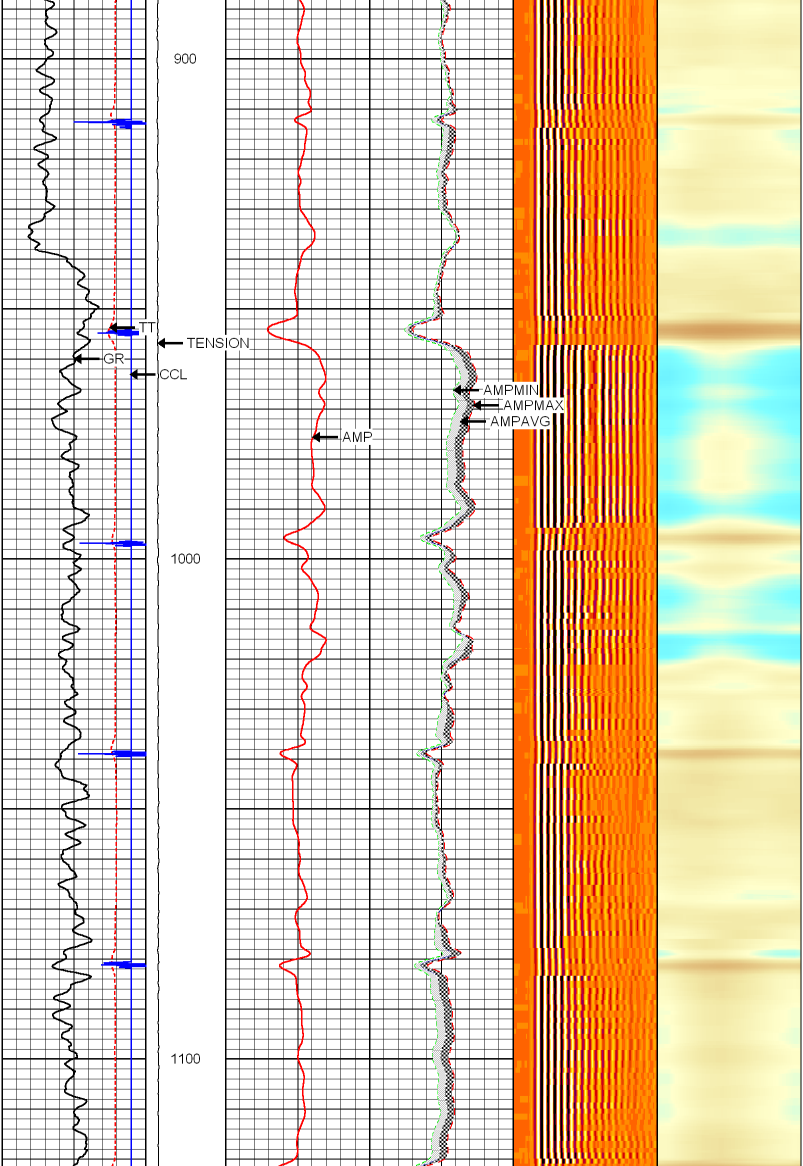
Database File: lar_07a_merge.db
Dataset Pathname: merge1
Presentation Format: radial
Dataset Creation: Tue Aug 31 21:16:21 2010
Charted by: Depth in Feet scaled 1:240

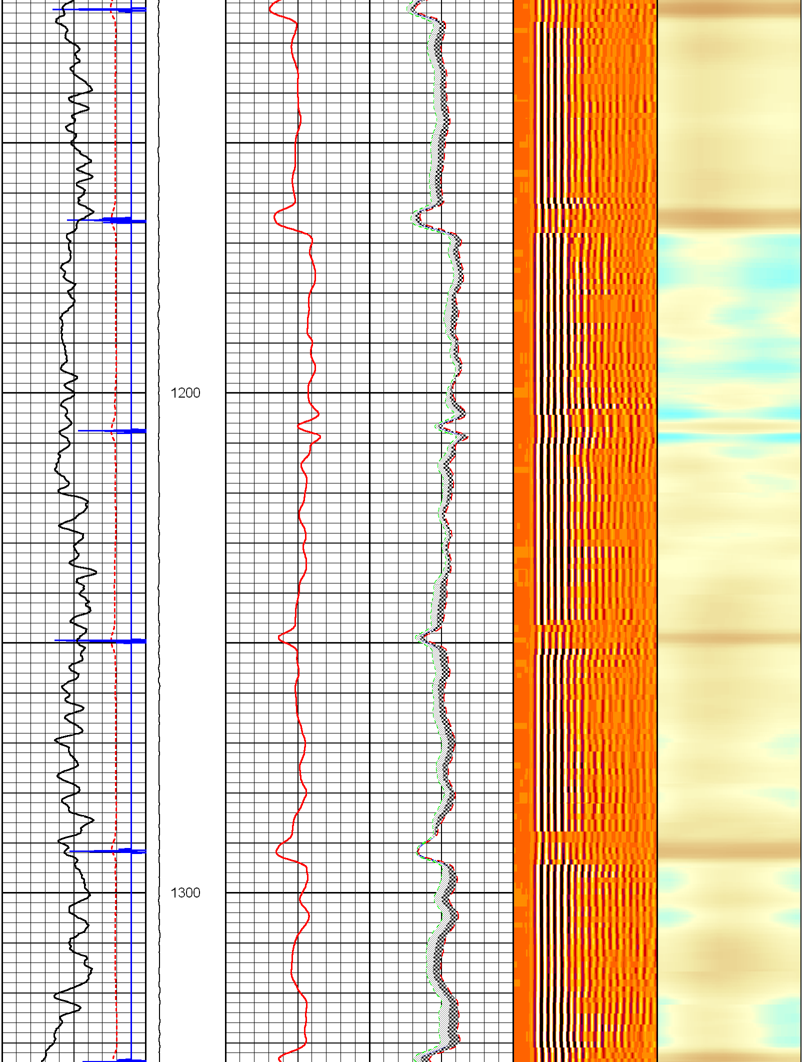


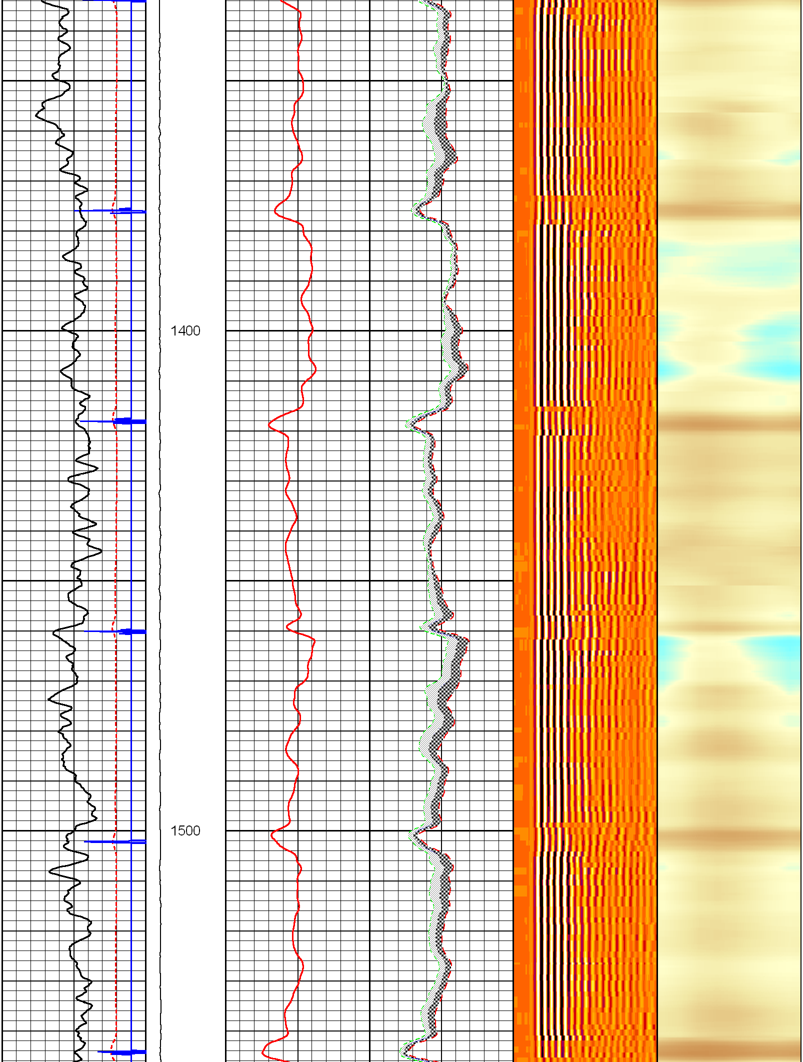


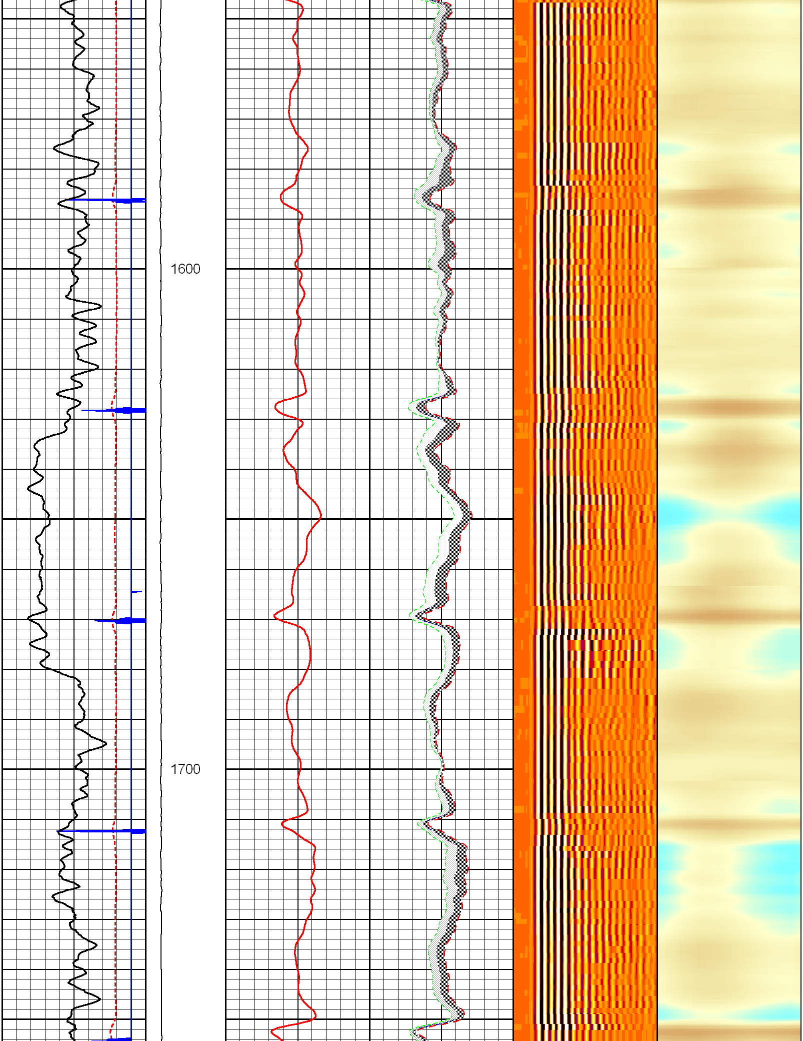


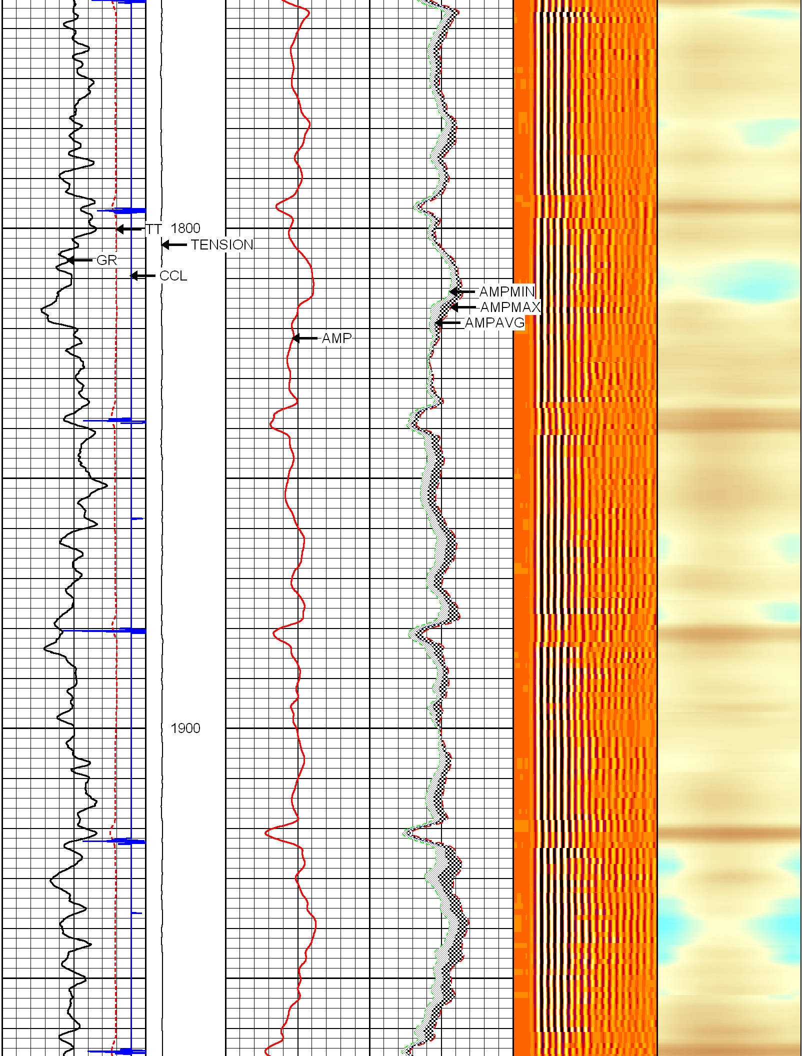


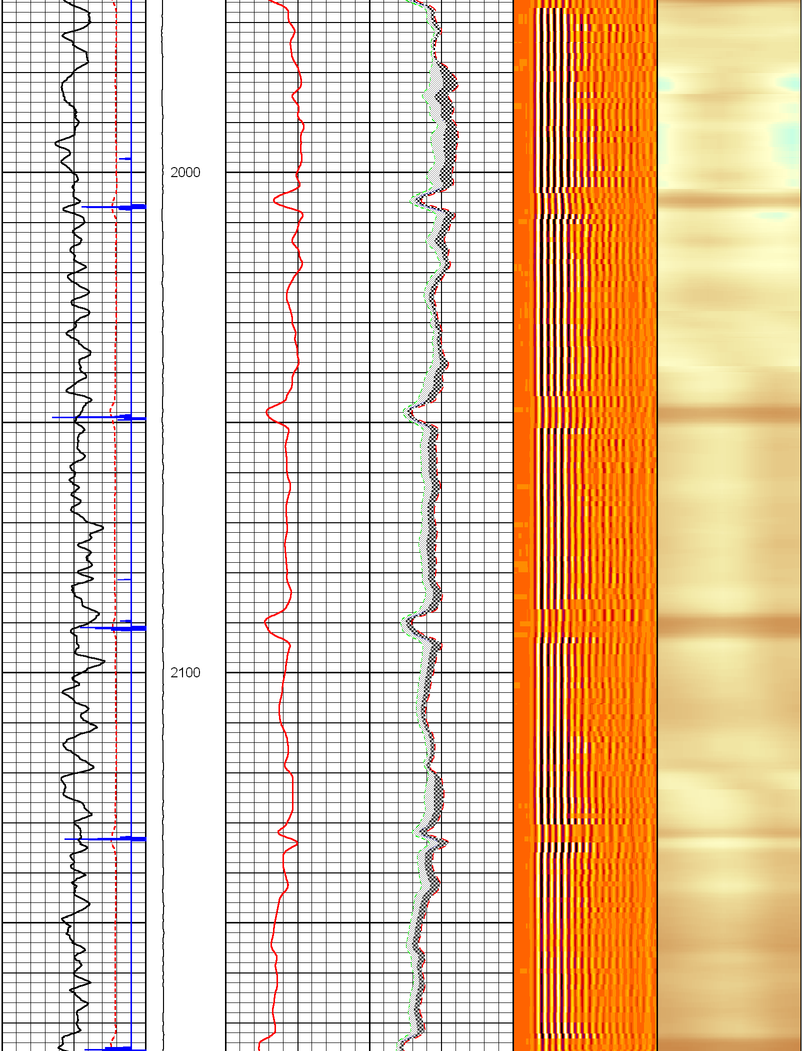


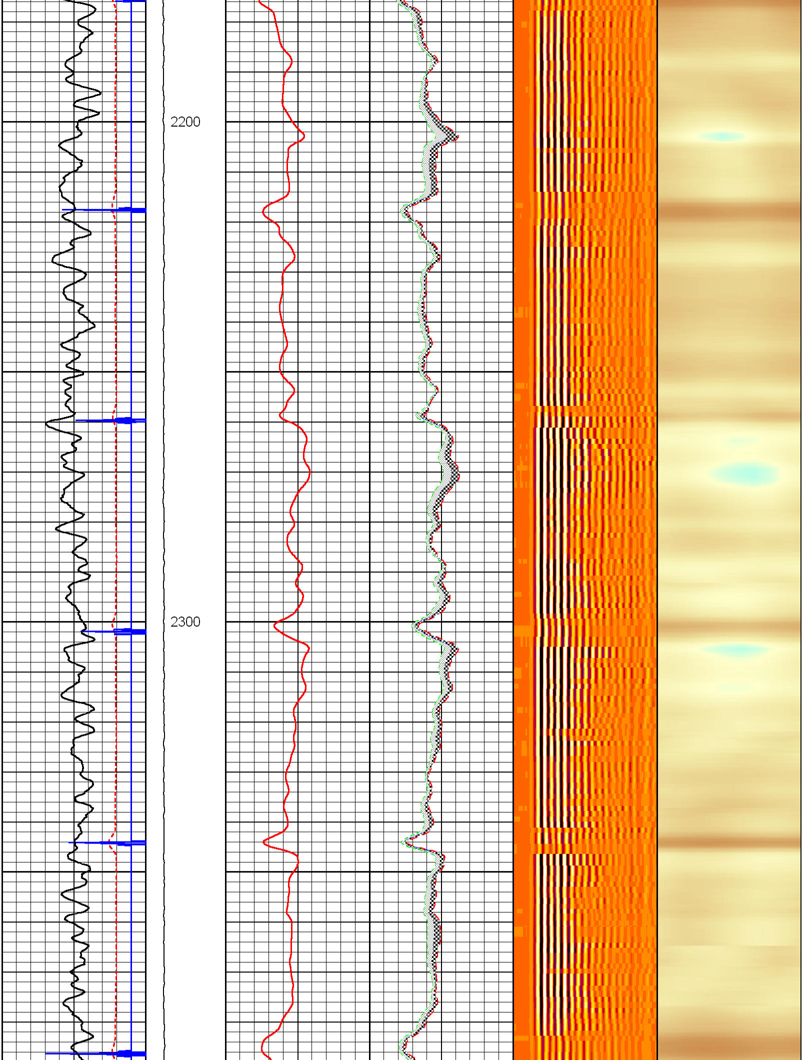


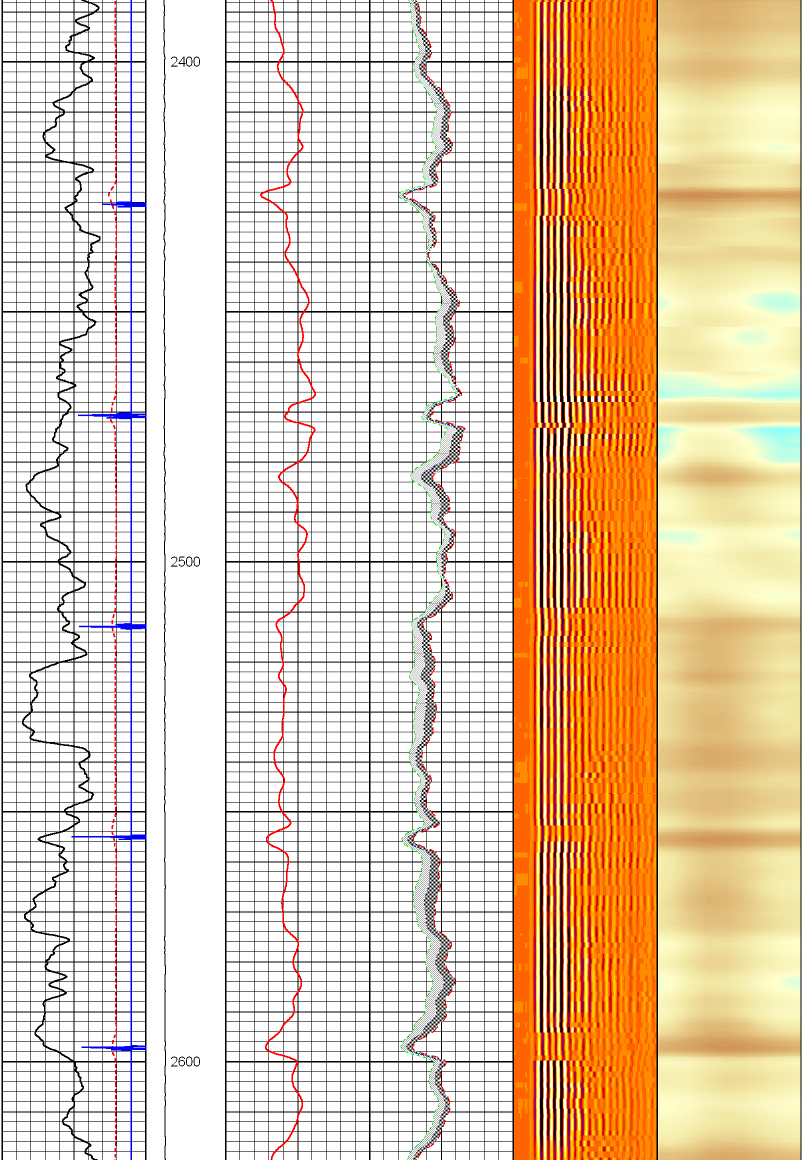


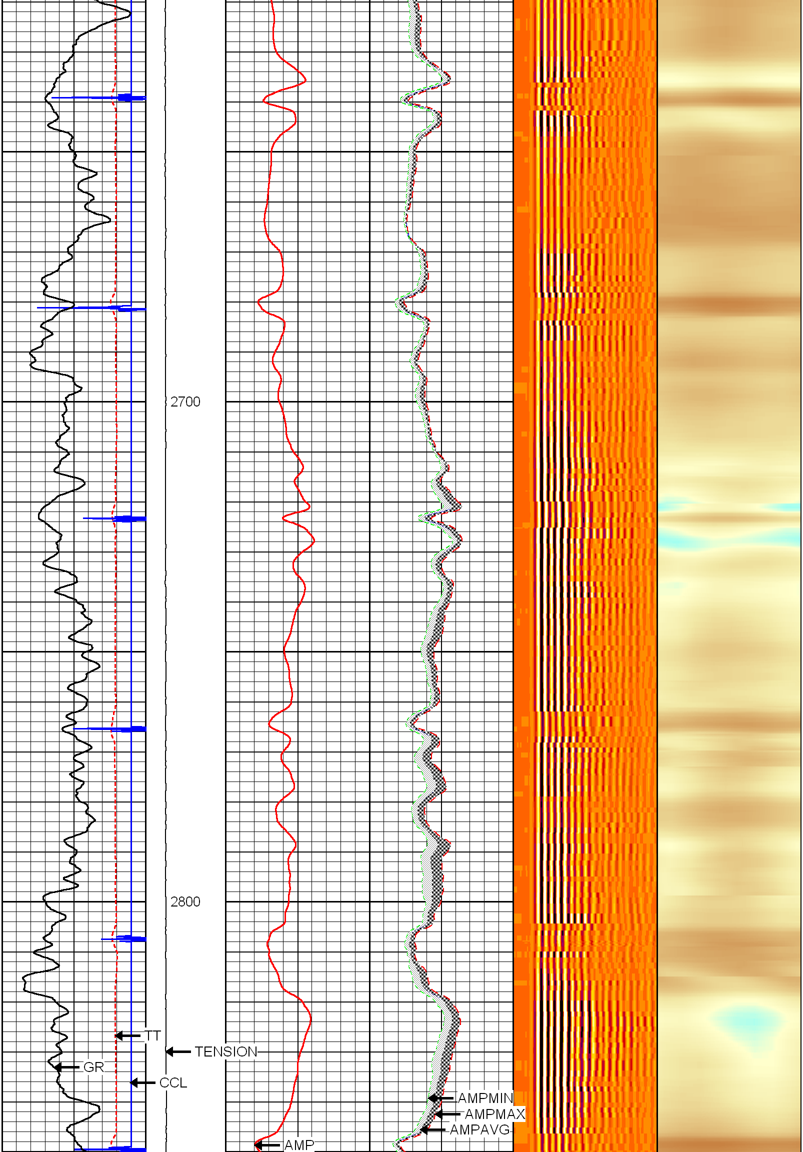


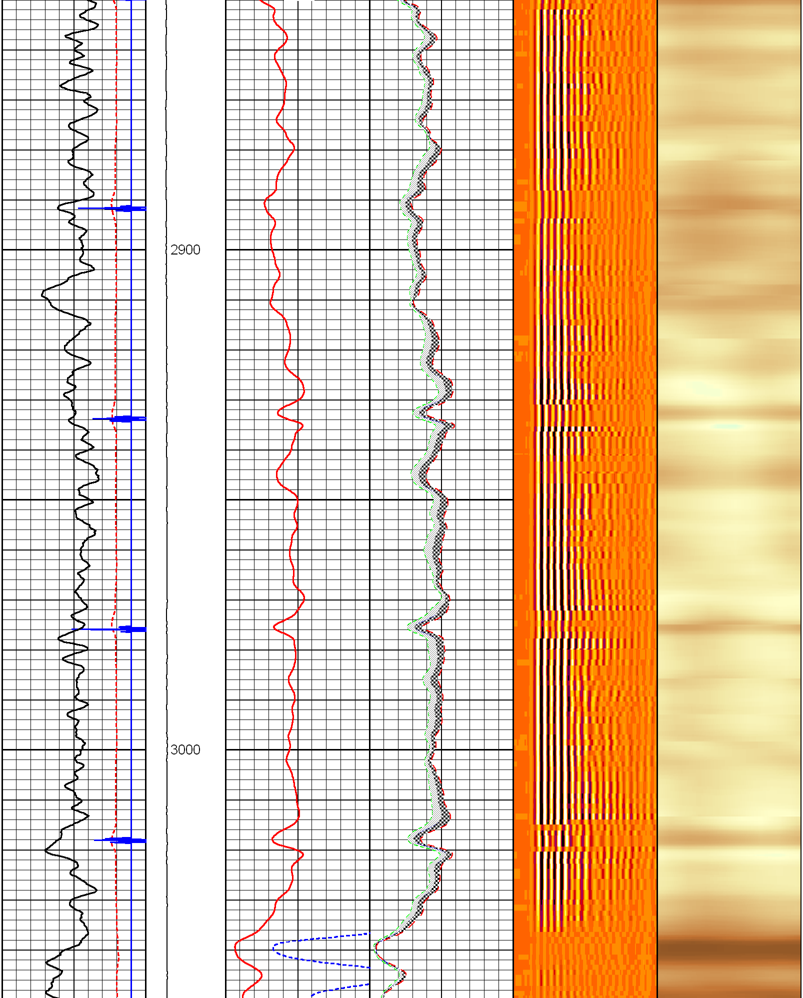


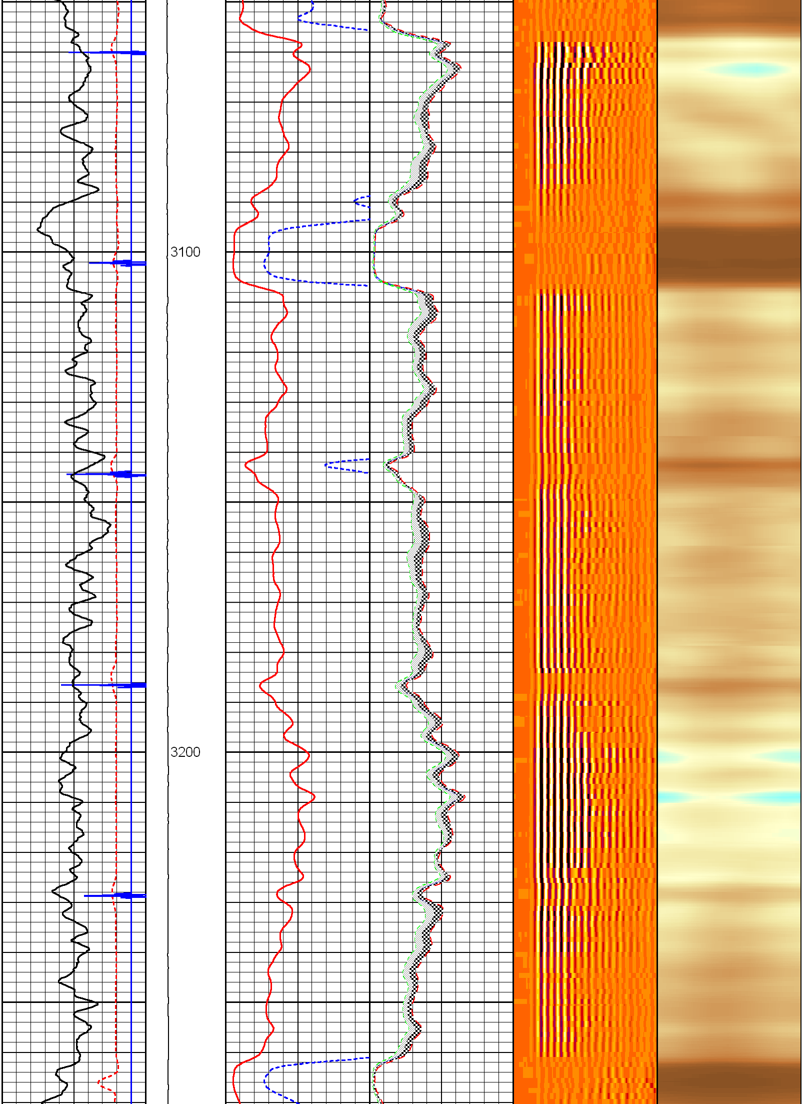


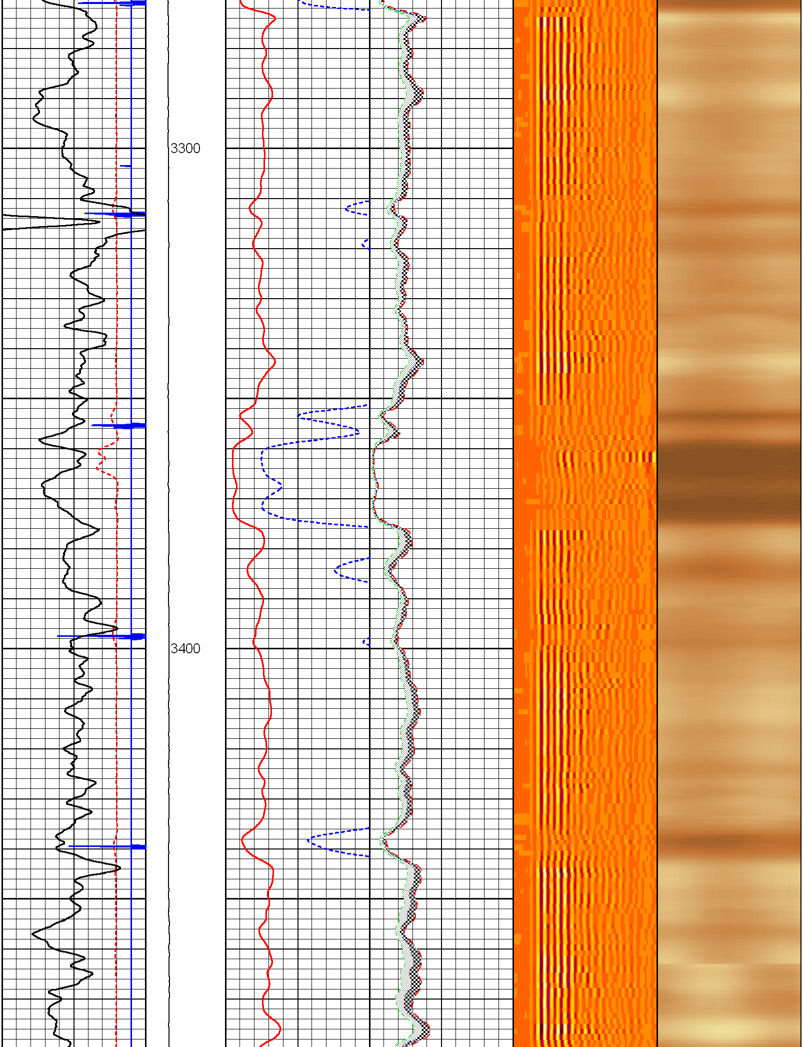


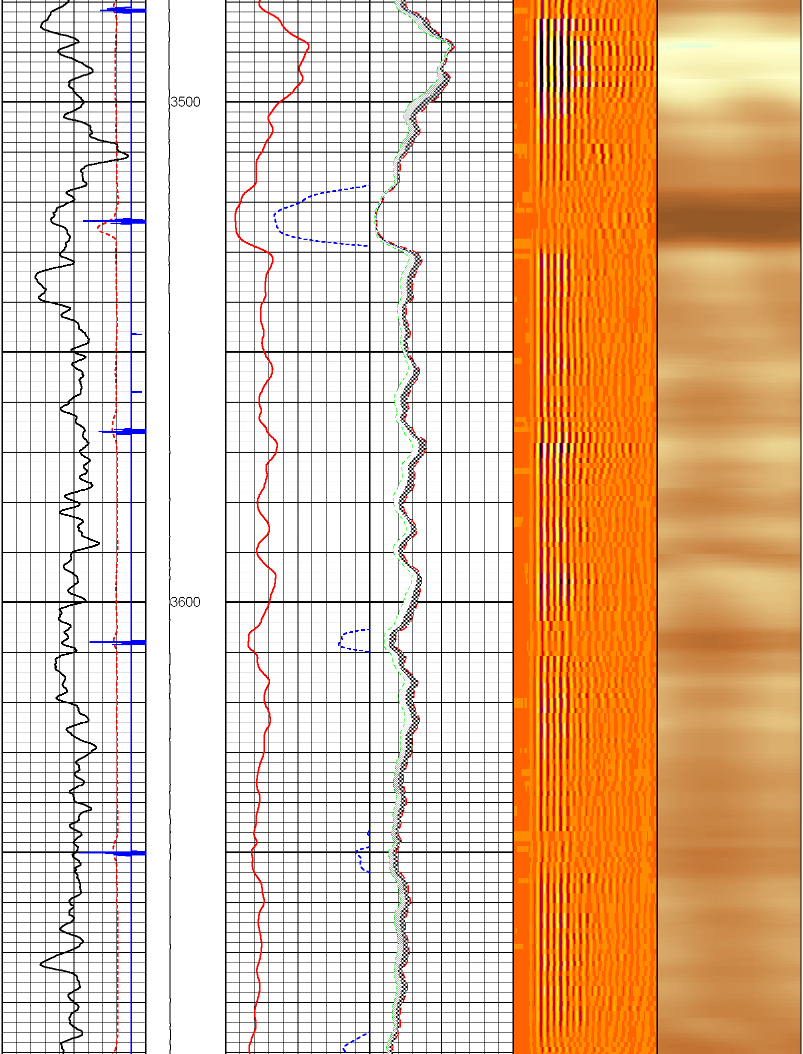


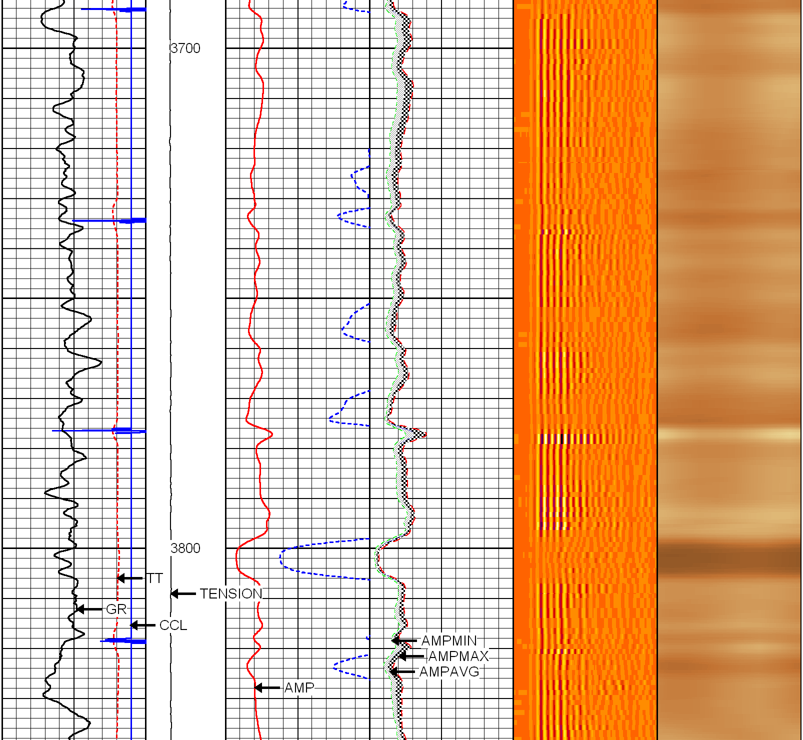


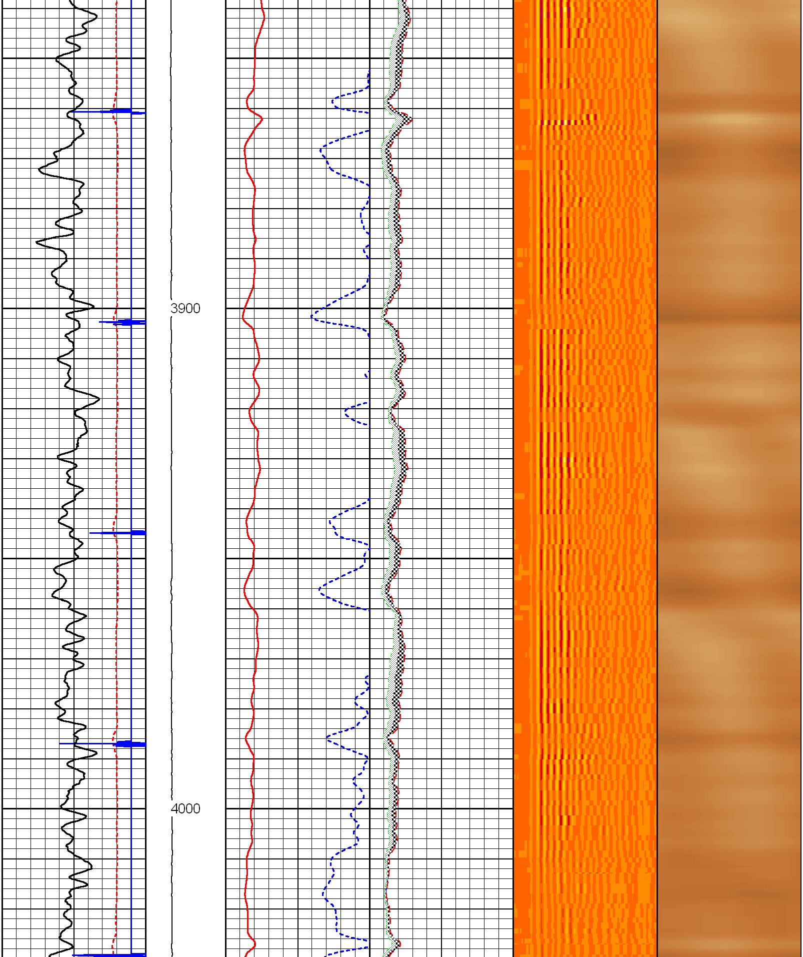








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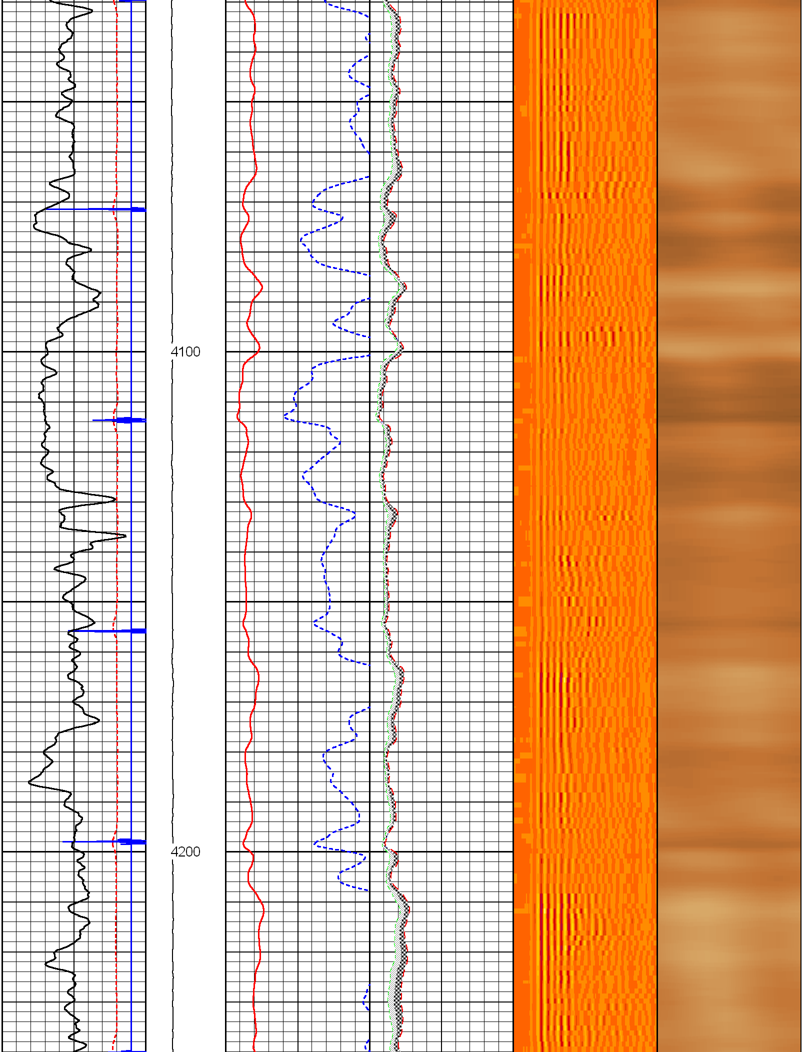
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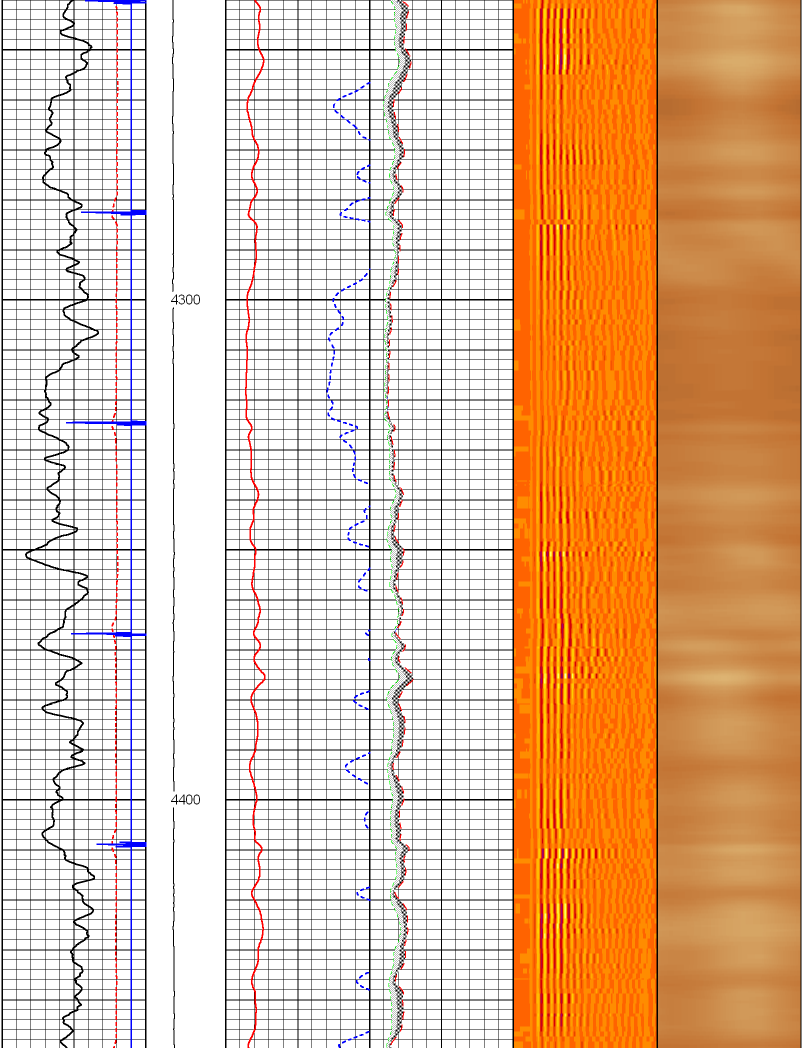
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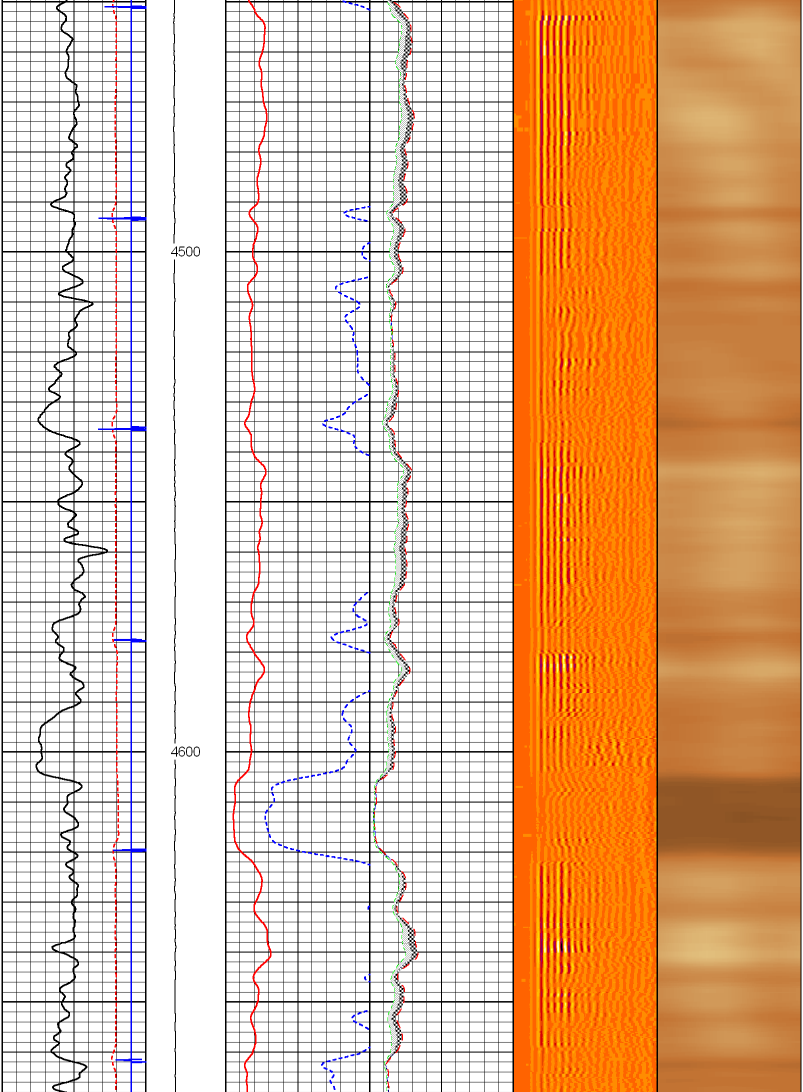
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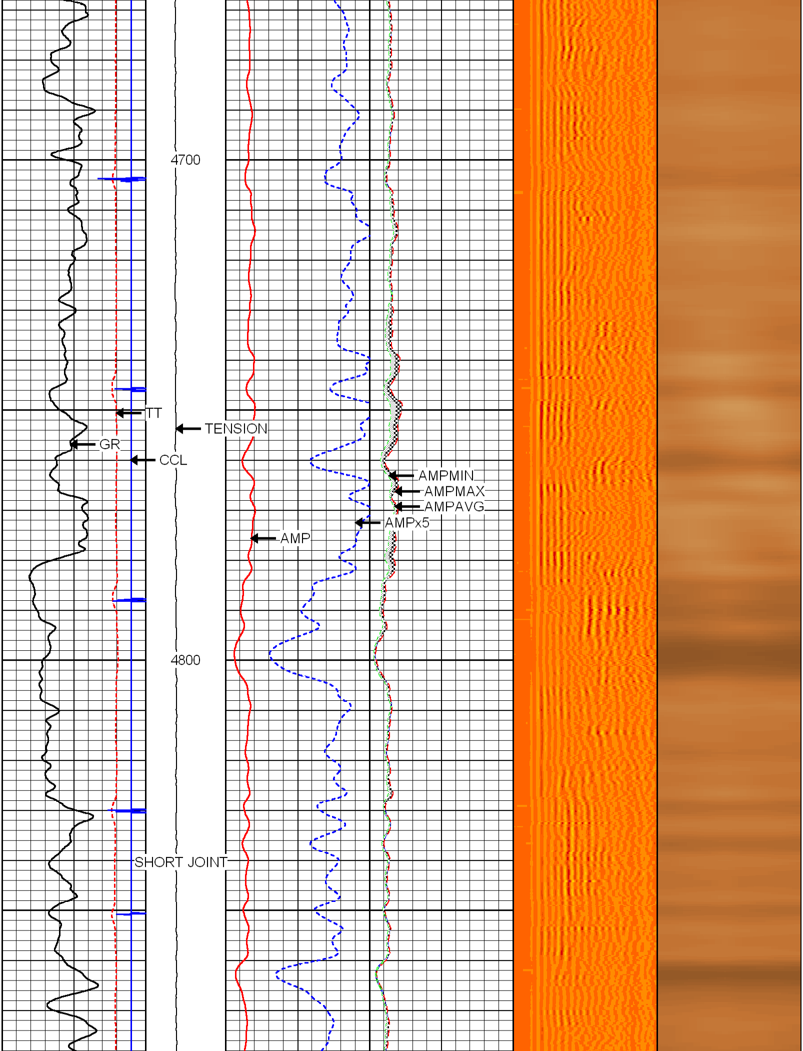
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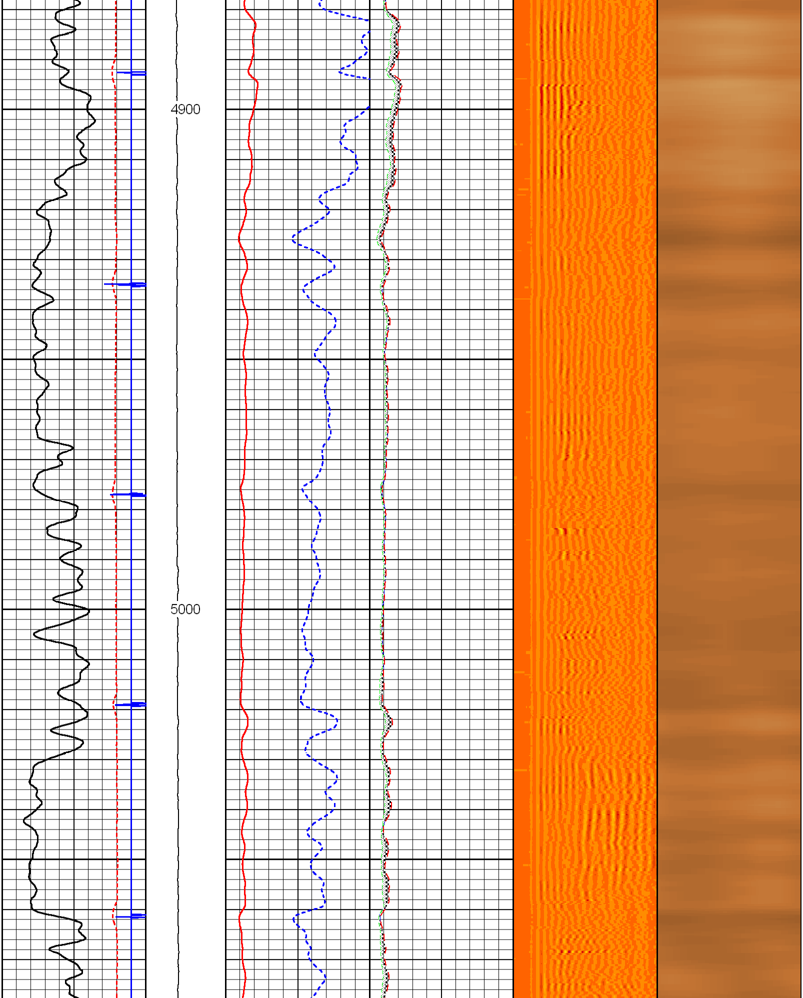
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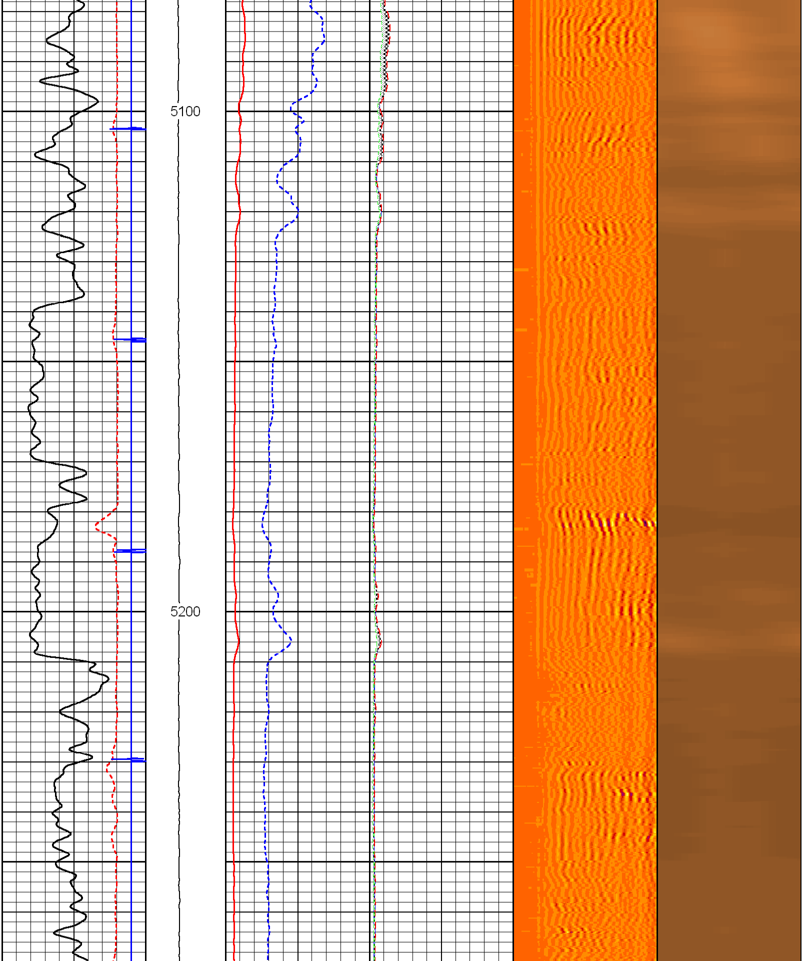
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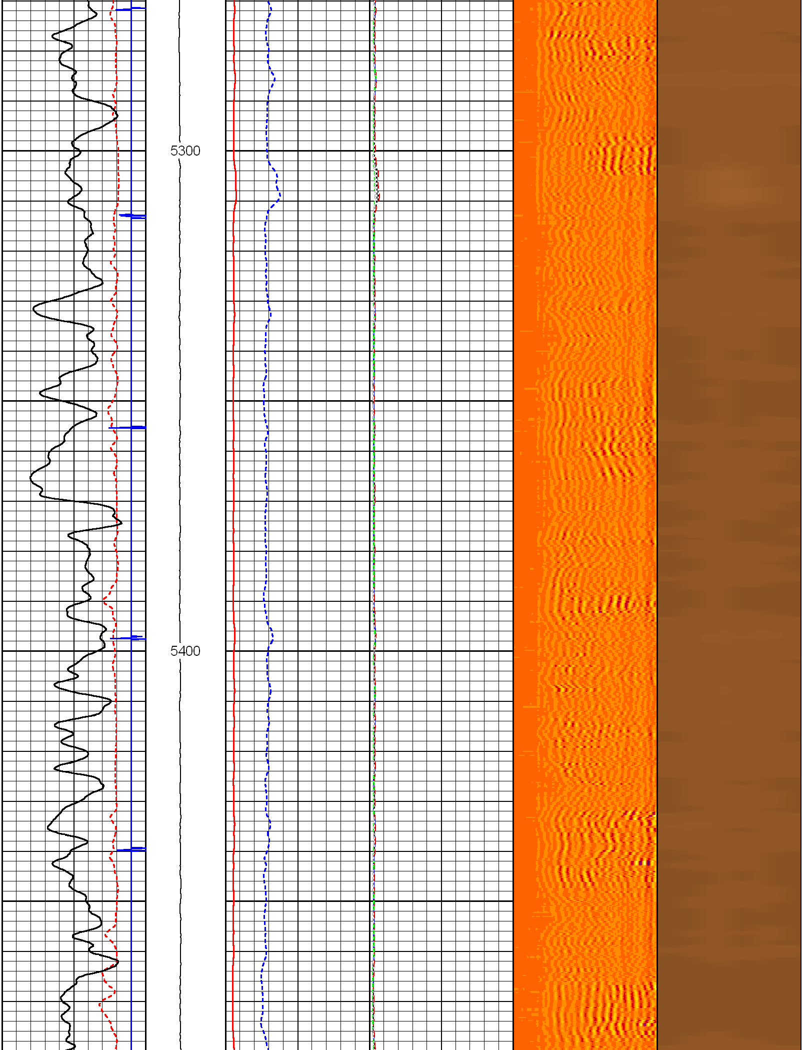
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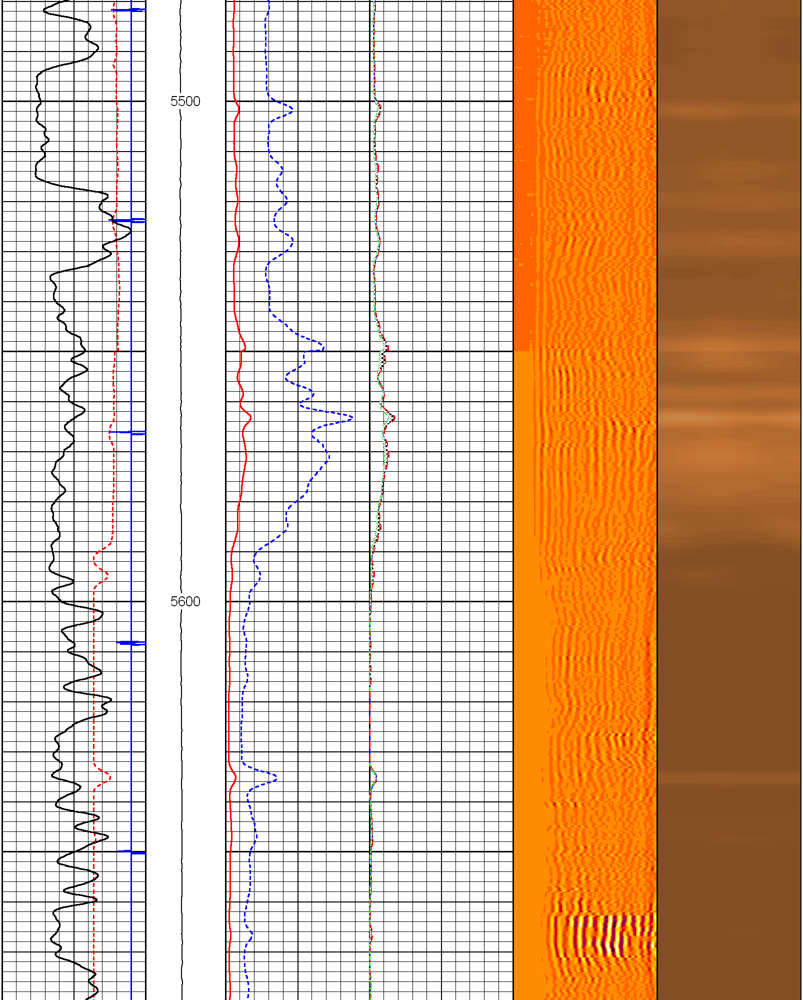
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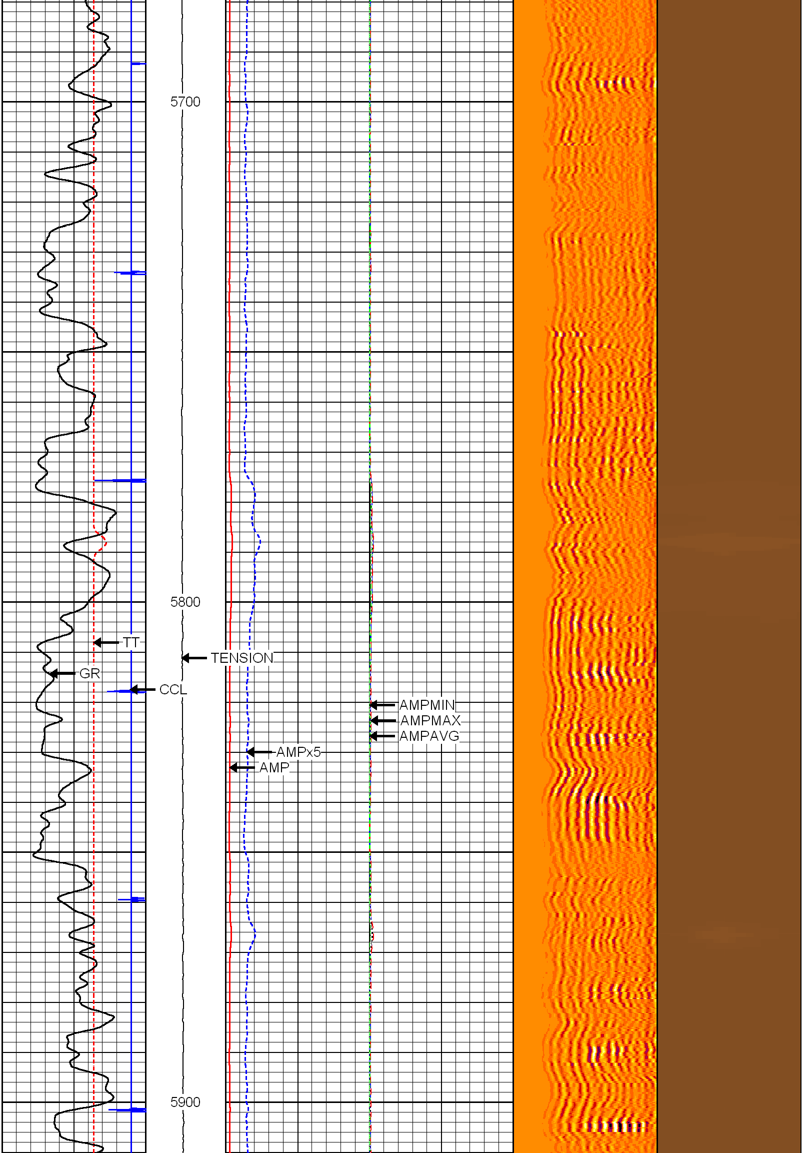
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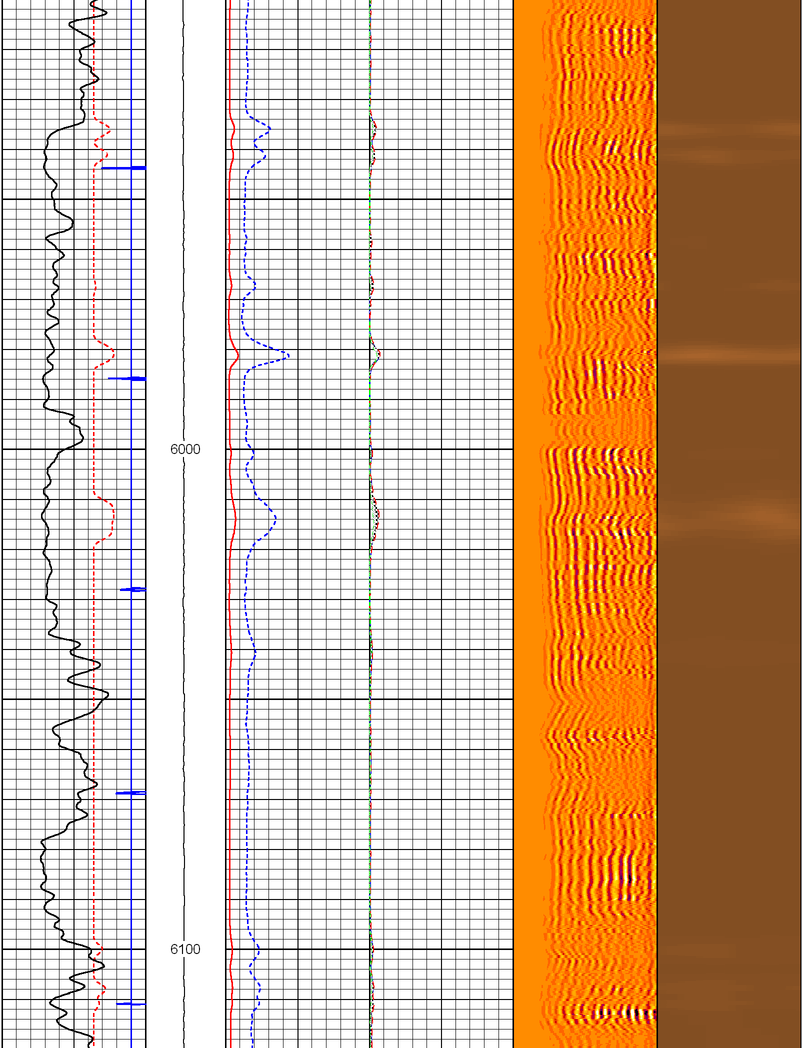
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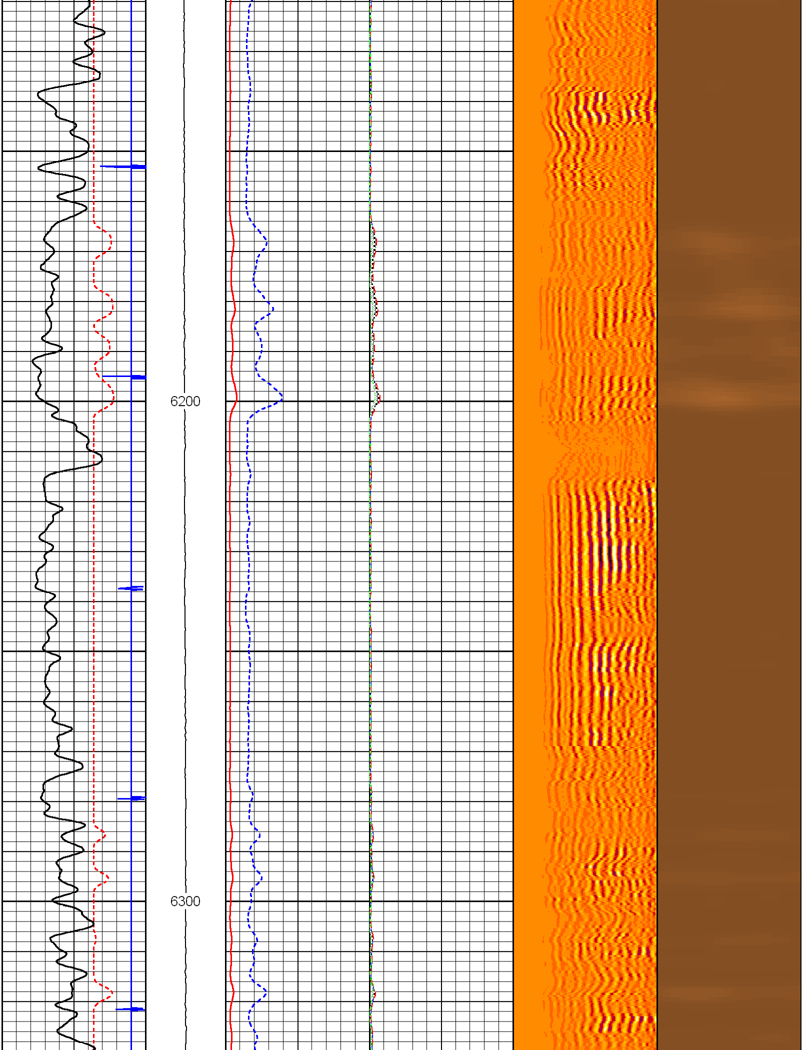
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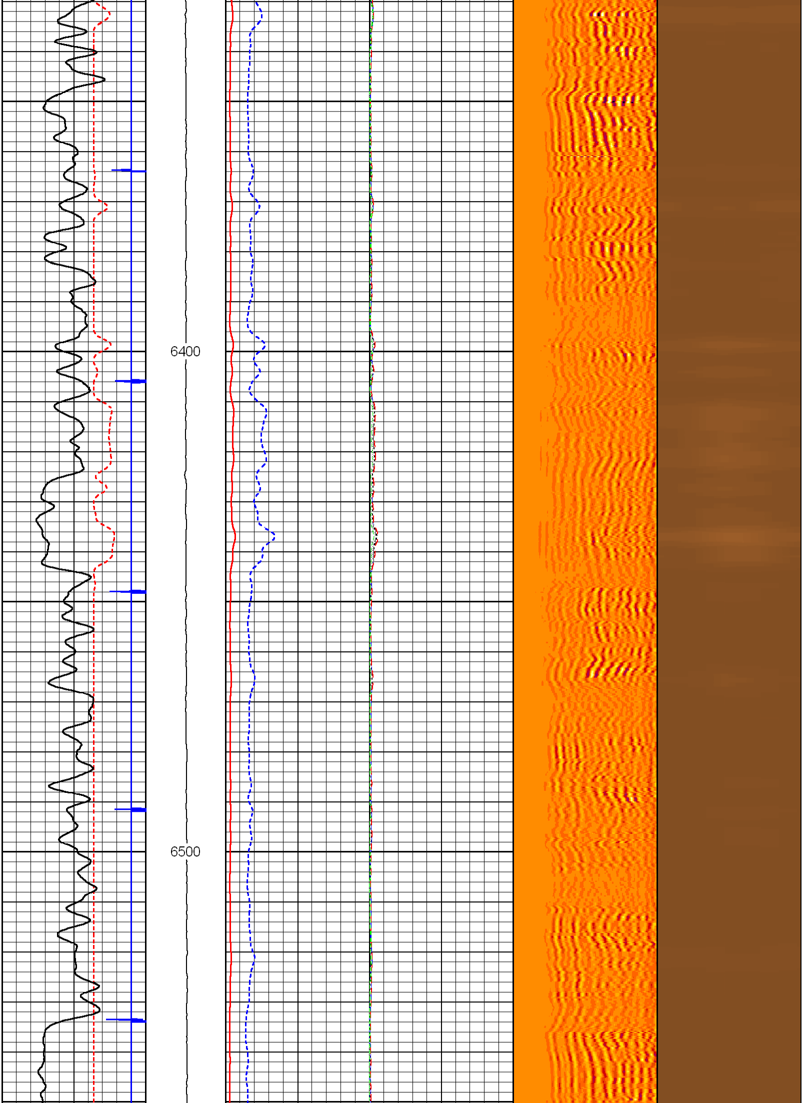
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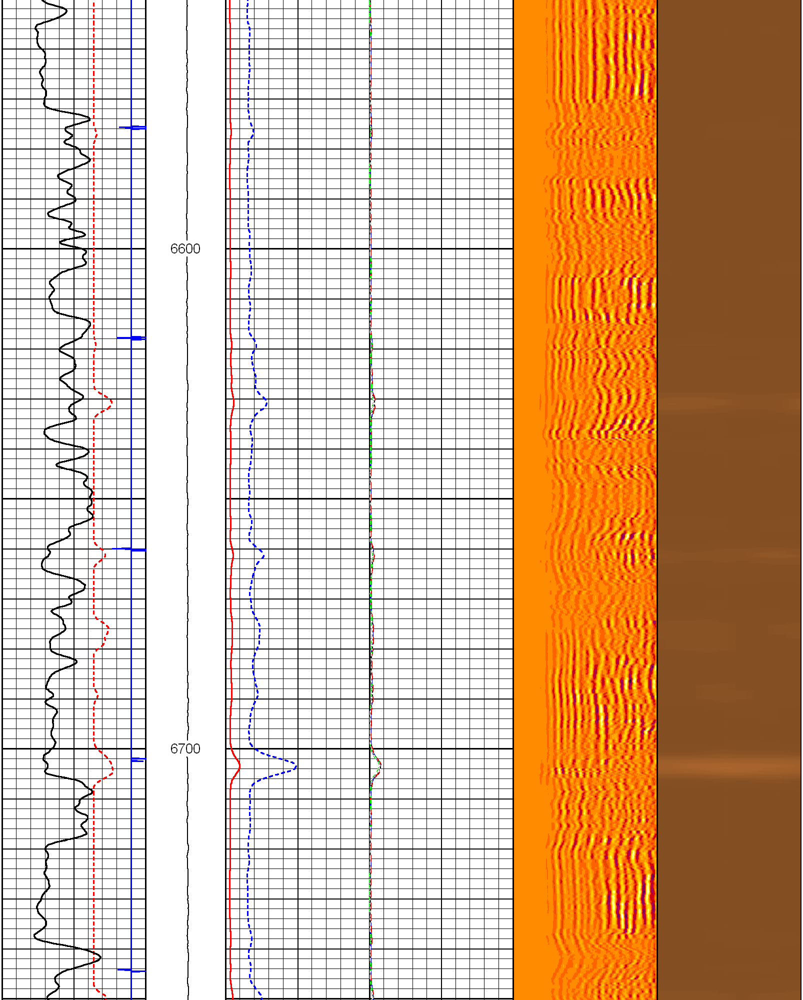
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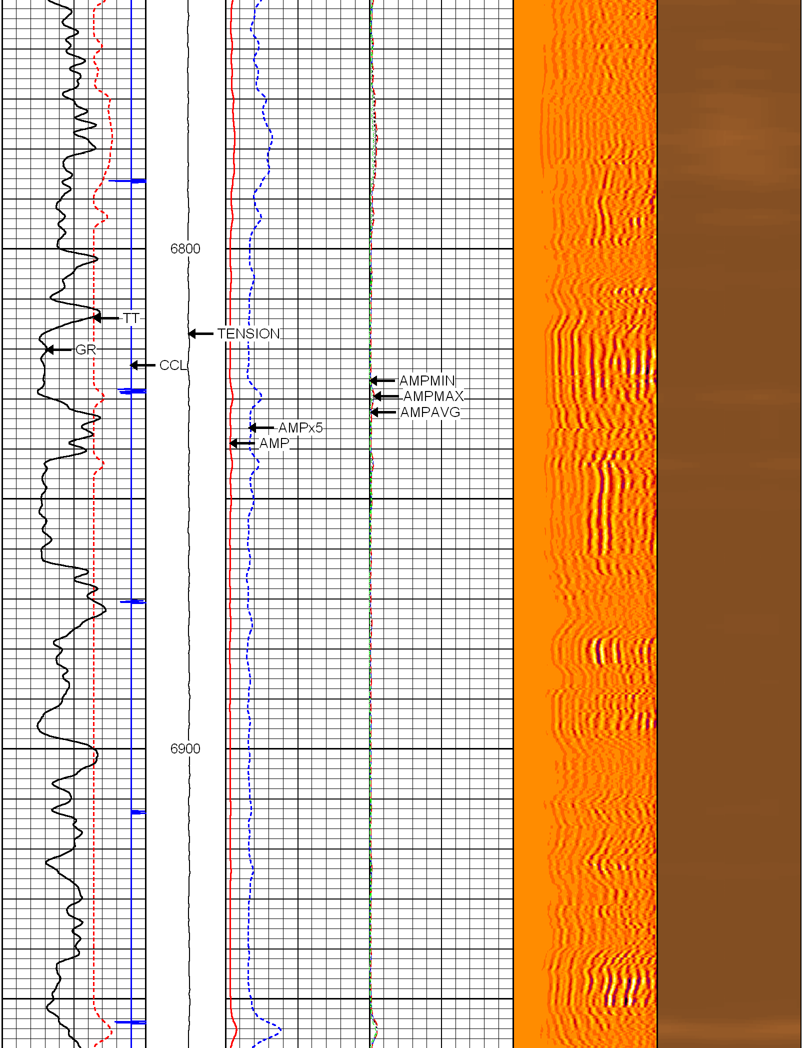
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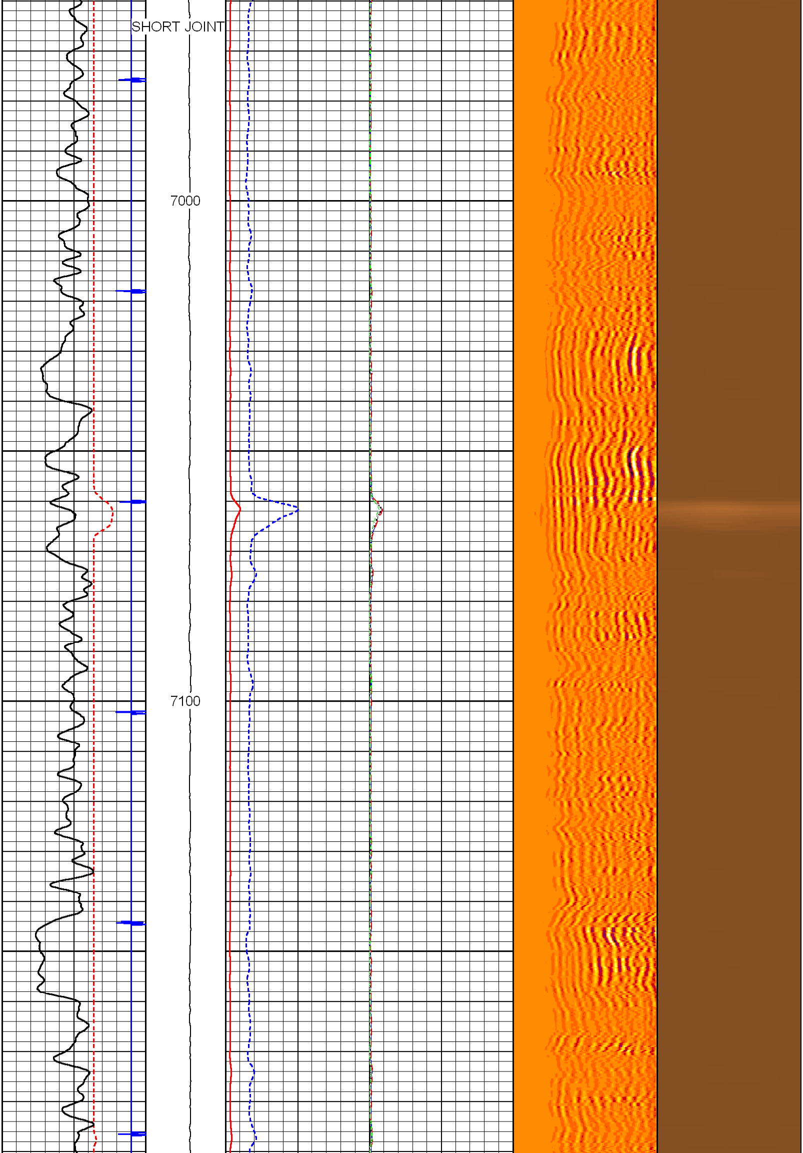
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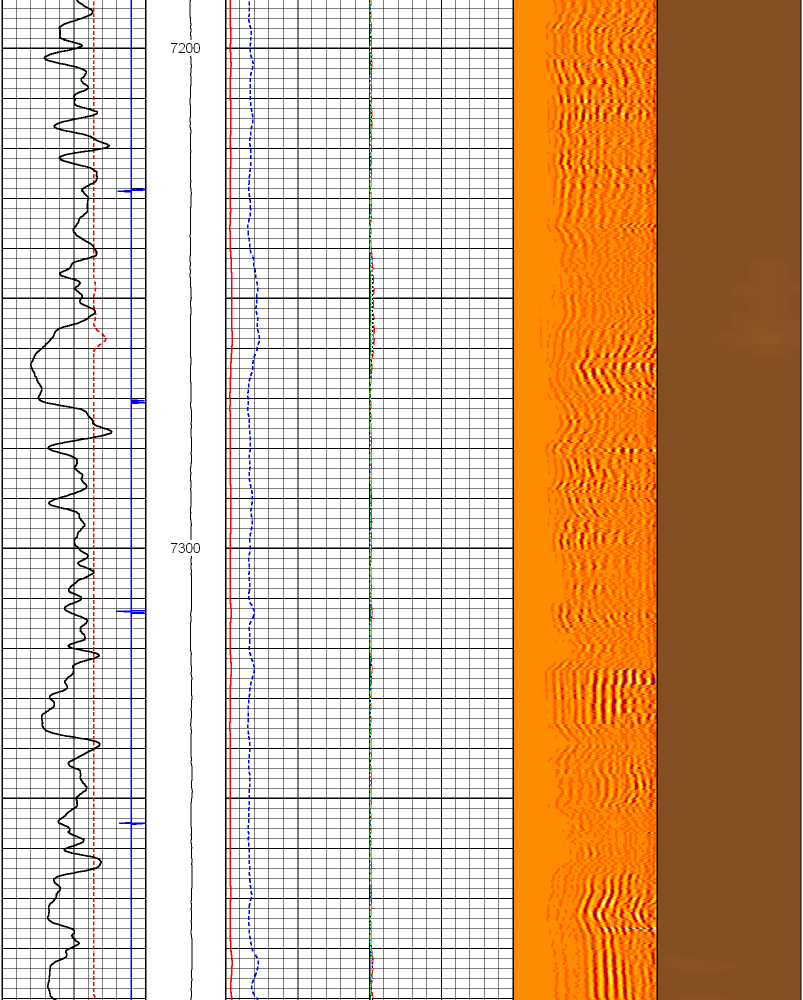
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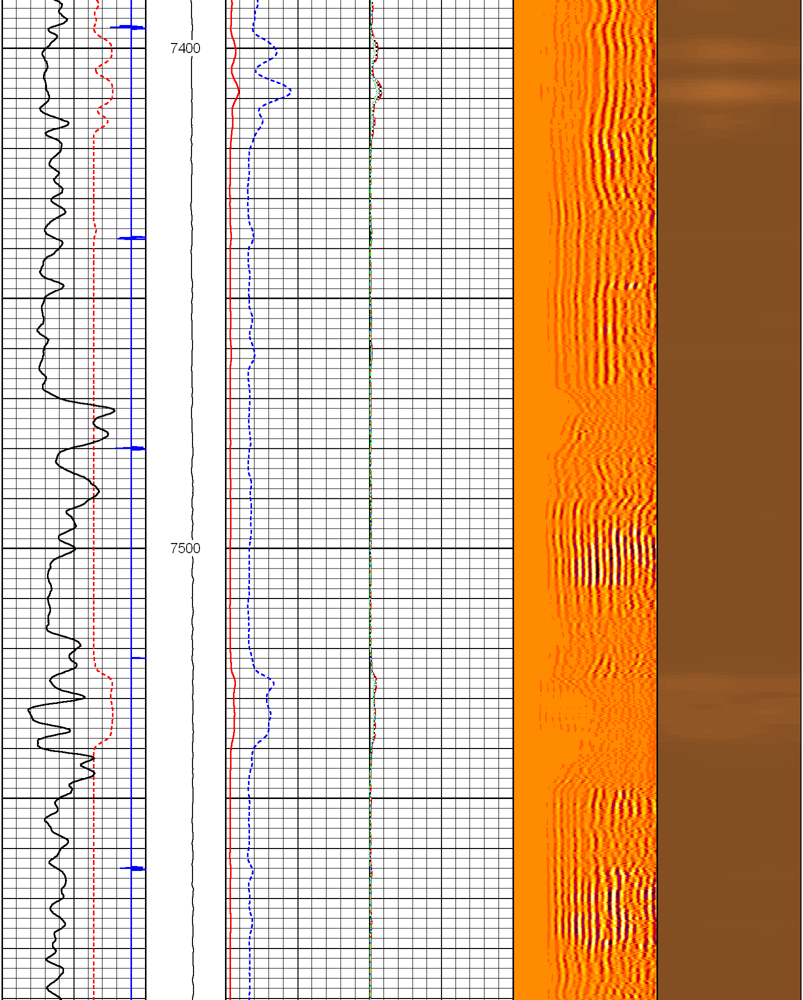
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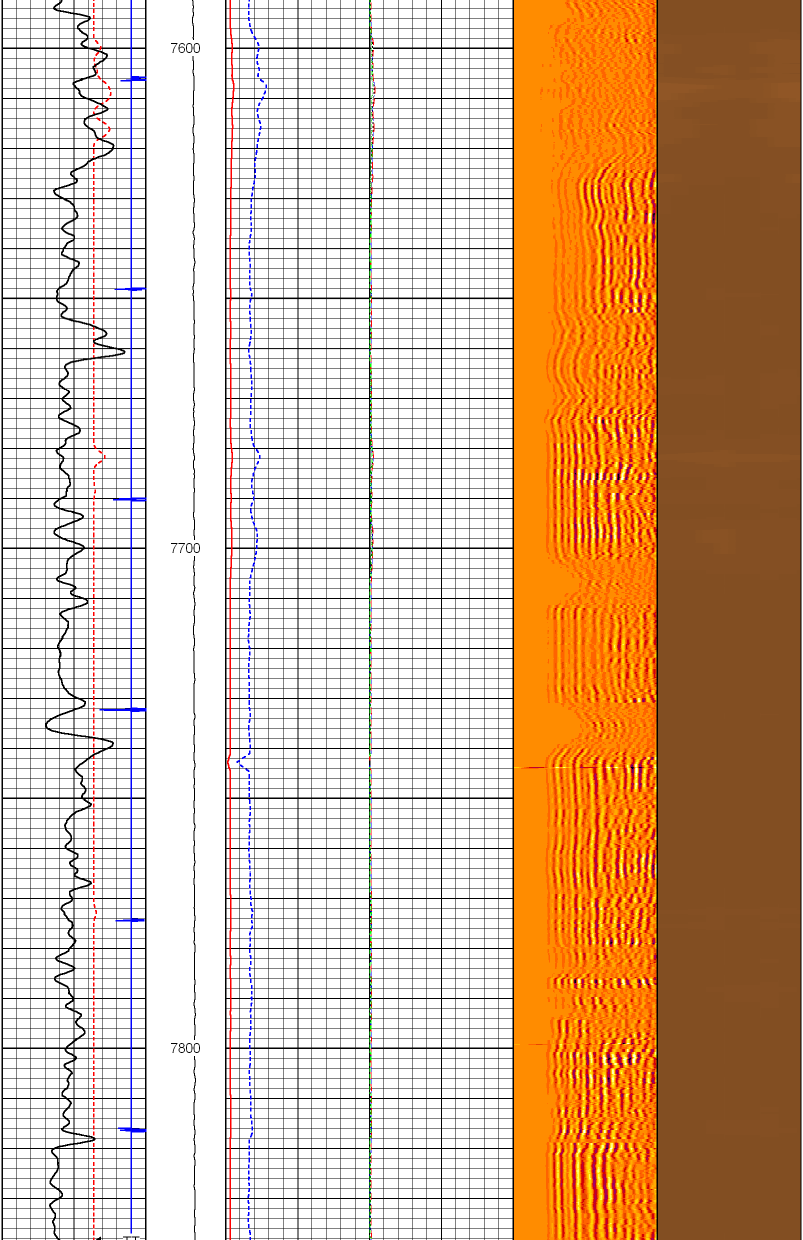
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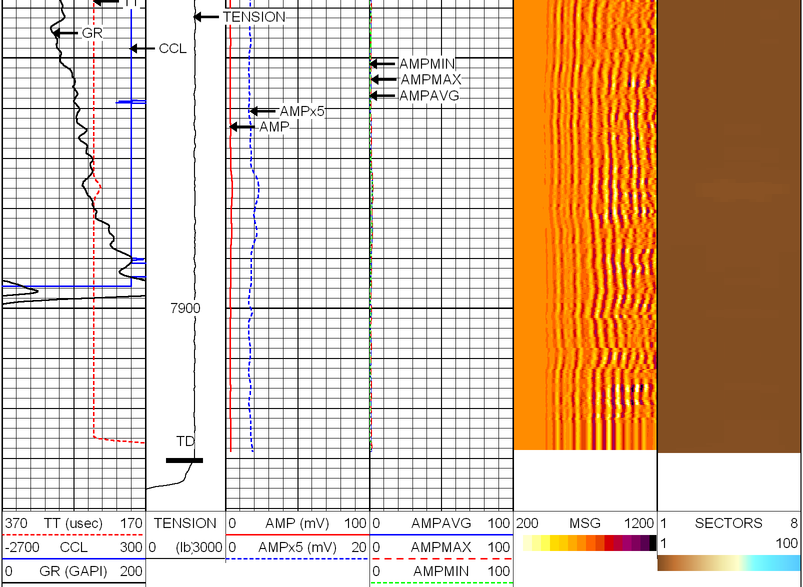

HALLIBURTON

MAIN LOG SECTION

5" = 100'

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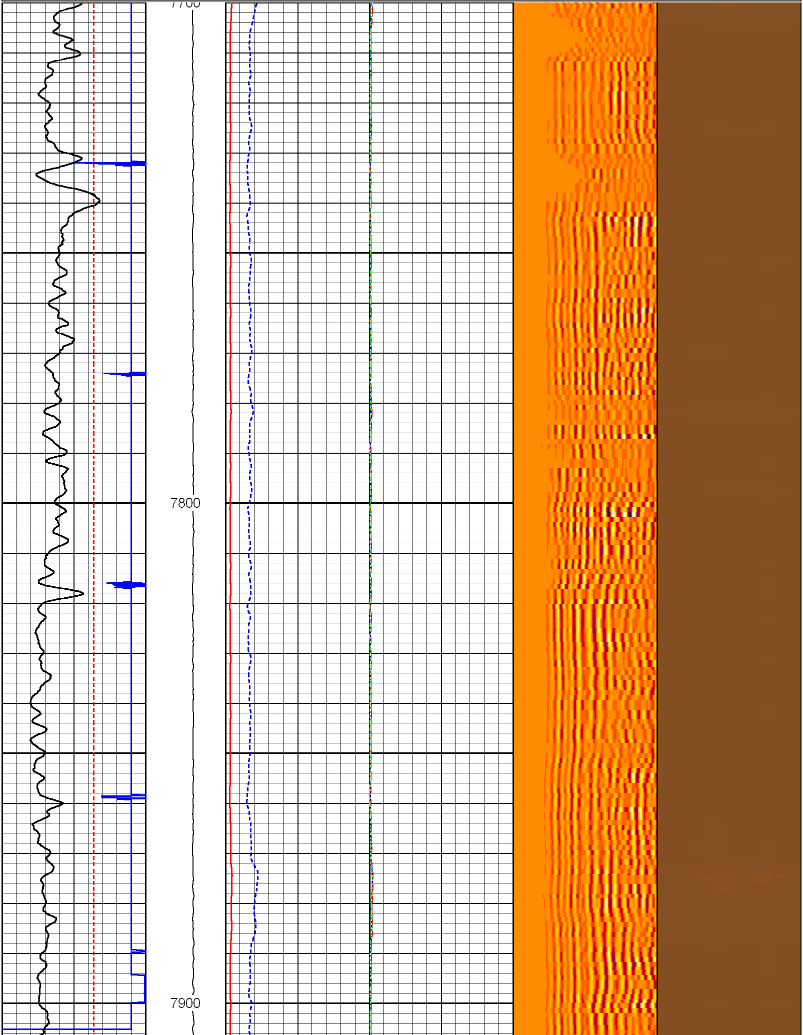
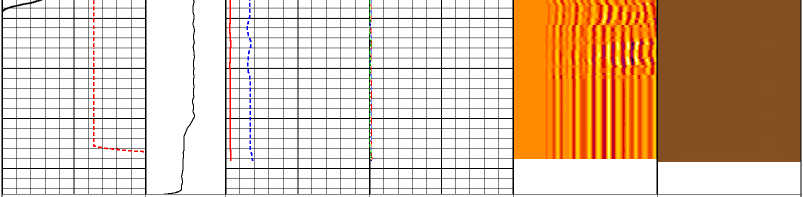
REPEAT PASS SECTION

5" = 100'

Database File:	lar_07a_combo.db
Dataset Pathname:	REPEAT2
Presentation Format:	radial
Dataset Creation:	Tue Aug 31 13:58:56 2010 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

370 TT (usec) 170	TENSION	0 AMP (mV) 100	0 AMPAVG 100	200 MSG 1200	1 SECTORS 8
-2700 CCL 300	0 (lb) 3000	0 AMPx5 (mV) 20	0 AMPMAX 100		1 100
0 GR (GAPI) 200			0 AMPMIN 100		





370 TT (usec) 170	TENSION	0 AMP (mV) 100	0 AMPAVG 100	200 MSG 1200	1 SECTORS 8
-2700 CCL 300	0 (lb3000	0 AMPx5 (mV) 20	0 AMPMAX 100		1 100
0 GR (GAPI) 200			0 AMPMIN 100		

HALLIBURTON

REPEAT PASS SECTION

5" = 100'

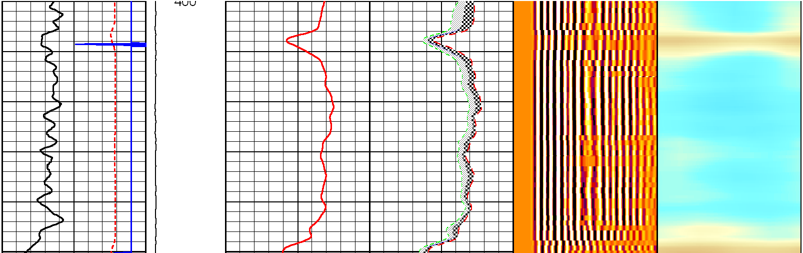
HALLIBURTON

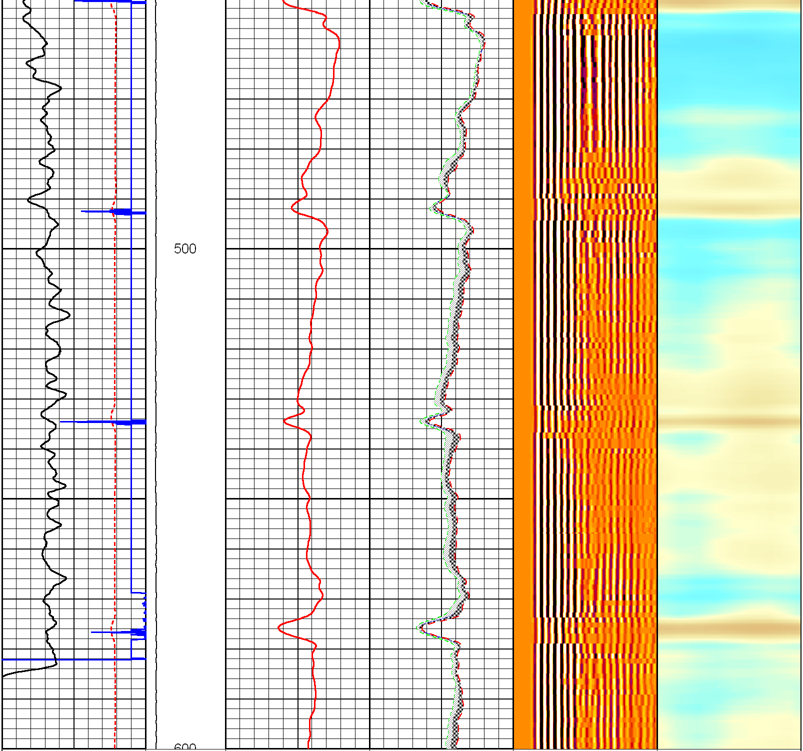
FREE PIPE SECTION

5" = 100'

Database File:	lar_07a_combo.db
Dataset Pathname:	FREE1
Presentation Format:	radial
Dataset Creation:	Tue Aug 31 12:36:41 2010 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

370 TT (usec) 170	TENSION	0 AMP (mV) 100	0 AMPAVG 100	200 MSG 1200	1 SECTORS 8
-2700 CCL 300	0 (lb3000	0 AMPx5 (mV) 20	0 AMPMAX 100		1 100
0 GR (GAPI) 200			0 AMPMIN 100		





370 TT (usec) 170	TENSION	0 AMP (mV) 100	0 AMPAVG 100	200 MSG 1200	1 SECTORS 8
-2700 CCL 300	0 (lb) 3000	0 AMPx5 (mV) 20	0 AMPMAX 100		1 100
0 GR (GAPI) 200			0 AMPMIN 100		

HALLIBURTON

FREE PIPE SECTION

5" = 100'

Calibration Report

Database File: lar_07a_combo.db
Dataset Pathname: MAIN3
Dataset Creation: Tue Aug 31 18:22:57 2010 by Log Halliburton Casedho

Segmented Cement Bond Log Calibration Report

Serial Number: 1142
Tool Model: 004

Calibration Casing Diameter: 4.500 in
Calibration Depth: 474.092 ft

Master Calibration, performed Tue Aug 31 12:35:09 2010:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.018	0.804	2.000	81.196	96.302	3.763
5FT	-0.013	0.729	2.000	81.196	106.728	3.433
S1	-0.011	0.857	0.000	81.196	93.592	1.023
S2	-0.012	0.828	0.000	81.196	96.631	1.156
S3	-0.012	0.788	0.000	81.196	101.491	1.239
S4	-0.014	0.774	0.000	81.196	103.046	1.450
S5	-0.015	0.789	0.000	81.196	101.094	1.481
S6	-0.013	0.818	0.000	81.196	97.700	1.269
S7	-0.014	0.858	0.000	81.196	93.074	1.317
S8	-0.014	0.879	0.000	81.196	90.901	1.267

Calibration Report

Serial Number: 1142
Tool Model: 004
Performed:

	Reference (degF)	Reading ()
Low:	0.000	0.000
High:	1.000	1.000
	Gain = 1.000	Offset= 0.000

Reservoir Monitor Tool Elite Calibration Report

Serial-Model: A010-A

Shop Calibration Performed: Sat Aug 14 14:55:46 2010

Linearity Results (Generator Off)

Near Detector 7 Peaks Found

Channel	Amplitude	FWHM
52.33	0.01025	5.13
94.94	0.00440	5.55
107.50	0.00764	7.66
134.79	0.00027	8.92
149.30	0.00023	9.53
183.39	0.00052	9.57
197.02	0.00038	12.10
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00

Near Detector
H Position 52.33 C Position 107.50 FE Position 183.39
Linearity Correction 3.96

Far Detector 6 Peaks Found

Channel	Amplitude	FWHM
52.36	0.01337	6.14
96.79	0.00173	5.38
109.40	0.00521	8.42
138.37	0.00017	6.00
151.23	0.00037	10.16
184.47	0.00050	8.71
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00

Far Detector

H Position 52.36 C Position 109.40 FE Position 184.47

Linearity Correction 2.57

Carbon/Oxygen Mode

Stabilization

	Reading	Range
GENV	84.42	70 - 100 Volts
RAW ITCR2	3363	3000 - 3500 CPS

Near Detector

	Channel	Expected	Amplitude	FWHM	Tol
H	50	52	0.0273	5.17	<6.00
FE	202	198	0.0784	----	----

NGAIN = 0.960   NZOFF = 4.469

Far Detector

	Channel	Expected	Amplitude	FWHM	Tol
H	54	52	0.0324	5.54	<6.50
FE	202	198	0.0012	----	----

FGAIN = 0.997   FZOFF = -1.291

	Result	Expected
COIR2	0.440	0.41 - 0.47
LIRI2	1.407	1.20 - 1.60
TCCR2	4005	3000 - 5000 CPS
ITCR2	3262	3000 - 3500 CPS

Capture Mode

Stabilization

	Reading	Range
GENV	91.43	70 - 100 Volts
FCAP	10108	9500 - 10500 CPS

Result	Logged	Expected Value	Diff.	Tol.	Units
Ratio Normalizer	4.91	4.90	0.01	+/- 0.40	
Ratio Inel Norm	1.03	1.00	0.03	+/- 0.15	
Near Spaced Count	10693	8100 - 13000			CPS
Far Spaced Count	10185	9000 - 11000			CPS
Sigma Form Near	23.73	23.50	0.23	+/- 1.00	C.U.
Sigma Bore Near	77.11	77.00	0.11	+/- 5.00	C.U.
Sigma Form Far	22.43	22.40	0.03	+/- 0.50	C.U.
Ratio Near/Far	1.05	1.05	-0.00	+/- 0.15	
Ratio N/F Inel	1.80	1.81	-0.01	+/- 0.25	
Near Error	0.77	<5.00			
Far Error	1.27	<5.00			

Near Background	136	<500
Far Background	117	<200
Near Resolving Time	1.257	0.00 - 2.00
Far Resolving Time	1.227	0.00 - 2.00

Calibration Software Modules

PNLS Module	2009.11.9.0
RMTE Module	2010.3.15.2

Gamma Ray Calibration Report

Type / Serial: ULTRA_LINK / 214878

SHOP CALIBRATION Tue Aug 31 12:05:34 2010

	Counts/Sec.	Gain	Offset	Jig	Units
Background	37.5				cps
Calibrator	170.0				cps
		1.7350			GAPI/cps

PRIMARY VERIFICATION Tue Aug 31 12:09:11 2010

	Counts/Sec.	Gain	Offset	Jig	Units
Background	67.5				cps
Calibrator	295.1				cps
Difference				227.6	GAPI

BEFORE SURVEY VERIFICATION

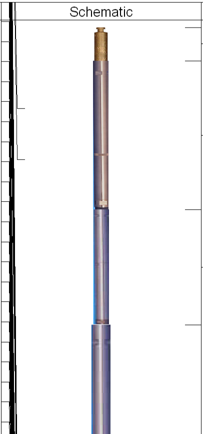
	Counts/Sec.	Gain	Offset	Jig	Units
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

AFTER SURVEY VERIFICATION

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

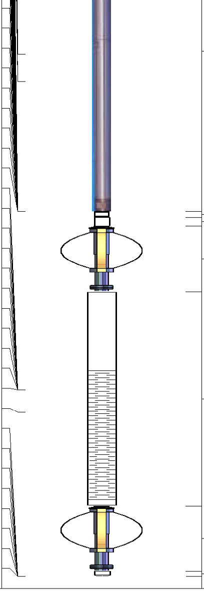
Sensor	Offset (ft)
REPV	16.11
REPI	16.11
GENV	16.11
GENI	16.11
ISV	16.11
ISI	16.11
IONI	16.11
LSHV	16.11
SSHV	16.11
ROMTEMP	16.11
FLASKTEMP	16.11
CNTL	16.11
GNCTL	16.11
SPECSTAT	16.11
FSTAT	16.11
REPV	16.11
REPI	16.11
GENV	16.11
GENI	16.11
ISV	16.11
ISI	16.11

Schematic



Description	Len (ft)	OD (in)	Wt (lb)
STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
TTTCU-ULTRA_LINK (214878) Through Tubing Telemetry Cartridge - Ultrawire	6.55	1.69	33.00
RMTE_PS-PS_RMTE (A057) POWER SUPPLY RMTE	5.09	1.69	18.50

IONI	16.11
LSHV	16.11
SSHV	16.11
ROMTEMP	16.11
FLASKTEMP	16.11
CNTL	16.11
GNCTL	16.11
SPECSTAT	16.11
FSTAT	16.11
WVF3FT	8.23
WVFS1	8.23
WVFS2	8.23
WVFS3	8.23
WVFS4	8.23
WVFS5	8.23
WVFS6	8.23
WVFS7	8.23
WVFS8	8.23
CBLTEMP	8.23
CBLROT	8.23
WVF5FT	7.23
LLMTEN	0.00
XHUTEMP	0.00
XHUCURR	0.00
XHUVOLT	0.00
XHUSTAT	0.00
TSTAMP	0.00
ITEMPX	0.00
HVOLTX	0.00



RMTE-A (A010) RMTE	14.17	2.13	77.00
GoxSondex Go Box x Sondex Pin CrossOver	0.27	1.69	1.00
AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
RBT_CENT	2.88	2.63	35.00
RBT-004 (1142) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
RBT_CENT	2.88	2.63	35.00
BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20

Dataset:	lar_07a_combo.db: field/well/run1/MAIN3
Total Length:	43.41 ft
Total Weight:	344.70 lb
O.D.	3.13 in

Company	LARAMIE ENERGY		
Well	FURR 22-07A		
Field	RULISON		
County	GARFIELD	State	CO

HALLIBURTON

RADIAL CEMENT BOND LOG