HALLIBURTON

ACOUSTIC CEMENT BOND LOG

Company KINDER MORGAN CO2 CO LP
Well COW CANYON CS #1
Field MCELMO DOME
County MONTEZUMA State CO

Company	KINDER MORGAN CO2 CO LP
Well	COW CANYON CS #1
Field	MCELMO DOME
County	MONTEZUMA State CO

API No.: 05-083-06709-0000 Serv #: 901221601
Location: SURFACE HOLE LOCATION:
1350' FNL & 210' FWL

LAT: 37.526170
LONG: -108.939440

Sec: 27 Twp: 38N Rge: 19W

Other Services
GAUGE RING
CAST
RMT

Permanent Datum GROUND LEVEL Elevation 6459'
Log Measured From KB , 22.5' Ft. above perm. datum
Drilling Measured From KB

Elevation
K.B. 6481.5'
D.F. 6480.5'
G.L. 6459'

Date @ Time Logged	27 MAR 2014	Type Fluid in Hole	WATER
Run No.	ONE	Density of Fluid	8.4#
Depth - Driller	8306'	Fluid Level	FULL
Depth - Logger	8264'	Cement Top Est. Logged	SEE LOG
Bottom - Logged Interval	8264'	Equipment / Location	11726117 / G.J.
Top - Log Interval	SURFACE	Recorded by	D. SOLIS
Max. Recorded Temp.	197 DEG F	Witnessed by	R. SCOTT

CEMENTING DATA	Surface String	Protection String	Production String	Liner
Date / Time Cemented	N/A	N/A	N/A	N/A
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
ONE	12.25"	SURFACE	3000'	9.625"	36.0#	SURFACE	3000'
TWO	8.75"	3000'	8306'	7.0"	29 & 32#	SURFACE	8306'

<<< 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 WHICH 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

CORRELATED TO HALLIBURTON LAS DATA DATED: 06 MAR 2014 AT 8200'.

GR-CBL-CAST RAN IN COMBINATION.

LOG INTERVALS PER CUSTOMER REQUEST.

WELL WAS CEMENTED WITH NITRIFIED FOAM CEMENT.

THANK YOU FOR HOOSING HALLIBURTON ENERGY SERVICES.

Service Ticket No.	901221601	API No.	05-083-06709-0000	PGM Ver	111027_R5

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

EQUIPMENT DATA

TELEMETRY		CEMENT BOND TOOL		CAST ELECTRONICS		CAST MANDREL	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11510542	Serial No.	11858780	Serial No.	12030244	Serial No.	438_12030243
Model No.	TTTC-U-002	Model No.	CBL-M	Model No.	CAST-M	Model No.	CAST-M
Diameter	1.688"	Diameter	2.75"	Diameter	2.75"	Diameter	3.125"

LOGGING DATA

General Data

Pass	Depths		Well Head	Speed	Logging Run Comments
No.	From	To	Pressure	Ft/Min	
ONE	8264'	SURFACE	0	52	MAIN LOG SECTION

	GAMMA RAY		TRAVEL TIME		AMPLITUDE		MSG	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	450	250	0	100	200	1160

DIRECTIONAL INFORMATION

Maximum Deviation	N/A	deg. @	N/A	KOP	N/A	

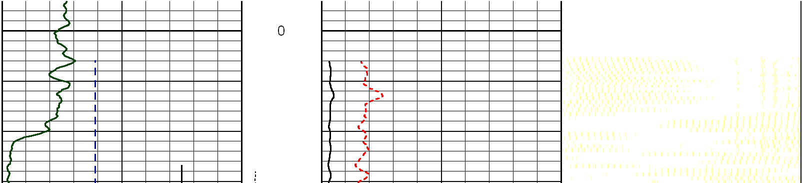
HALLIBURTON

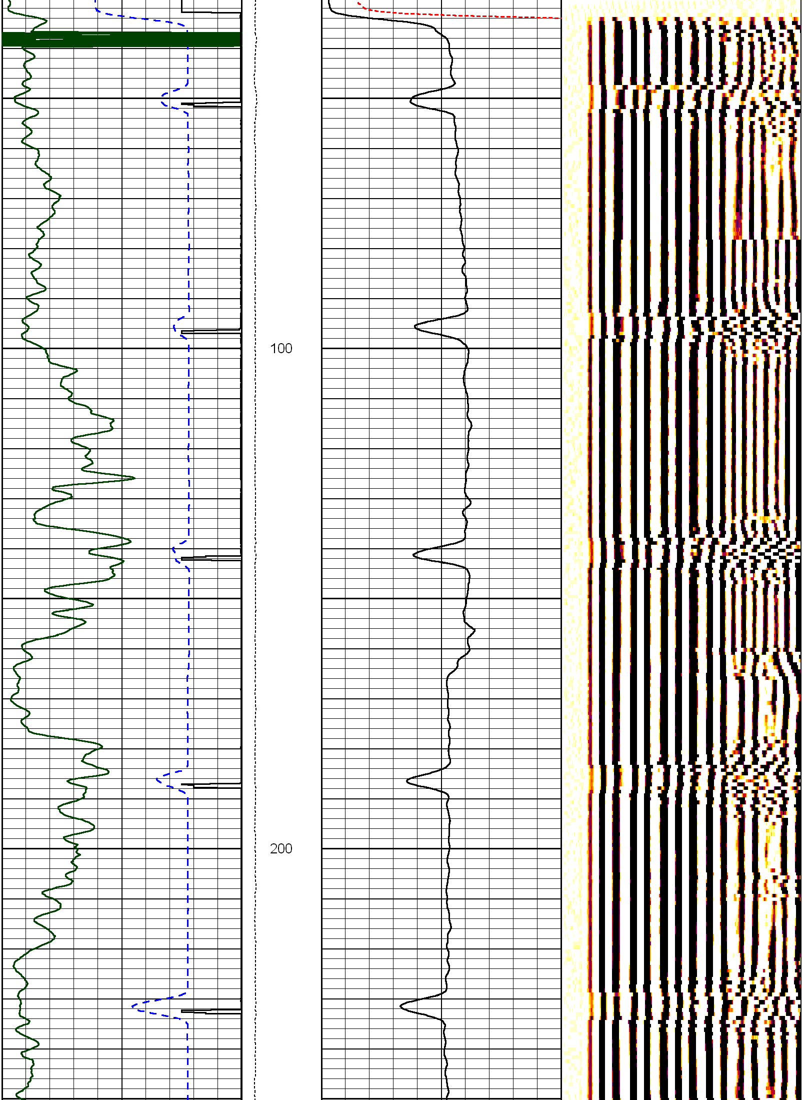
MAIN LOG SECTION

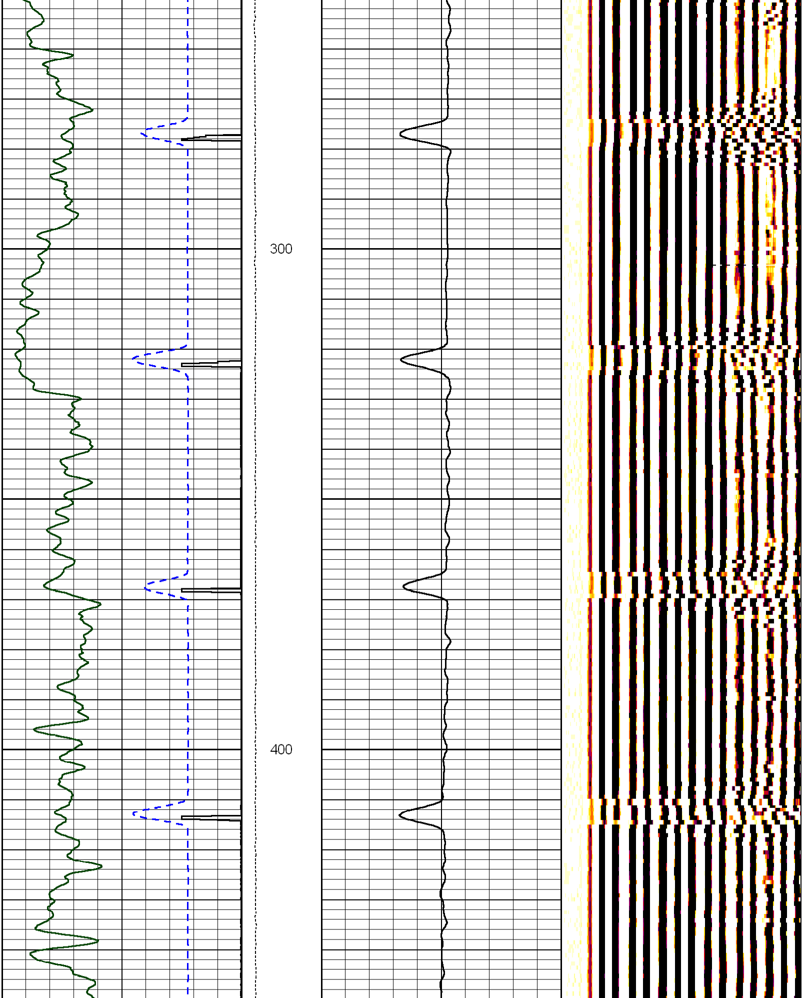
5" = 100'

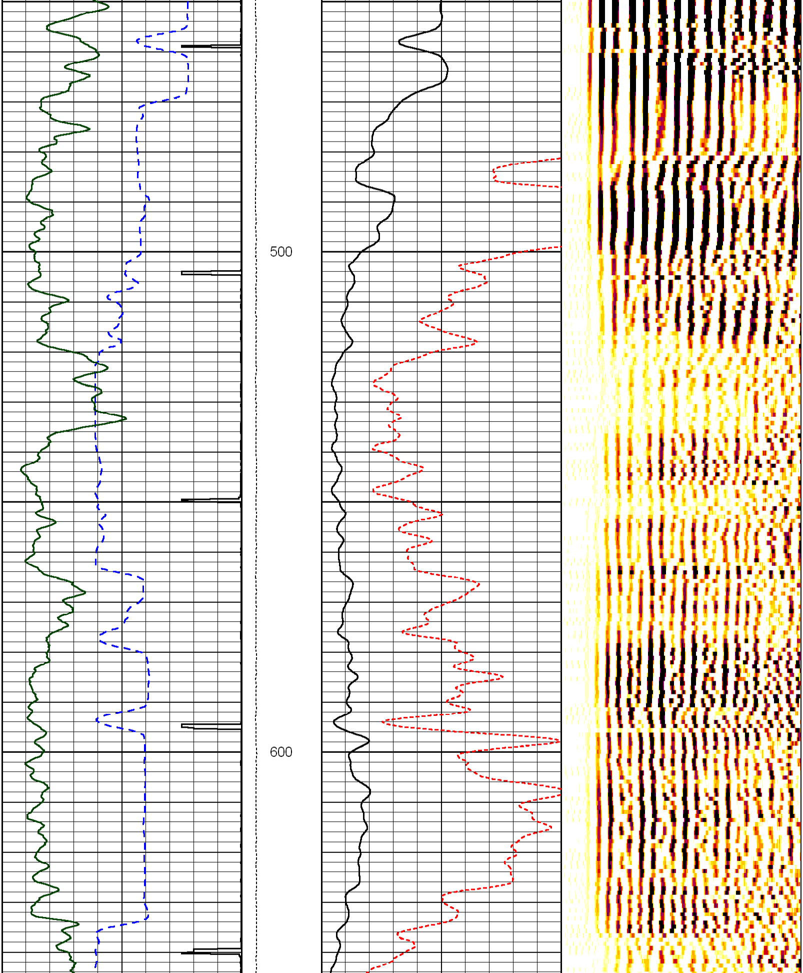
Database File:	cs1_cast.db
Dataset Pathname:	CBLMAIN
Presentation Format:	hcbl
Dataset Creation:	Thu Mar 27 19:08:24 2014
Charted by:	Depth in Feet scaled 1:240

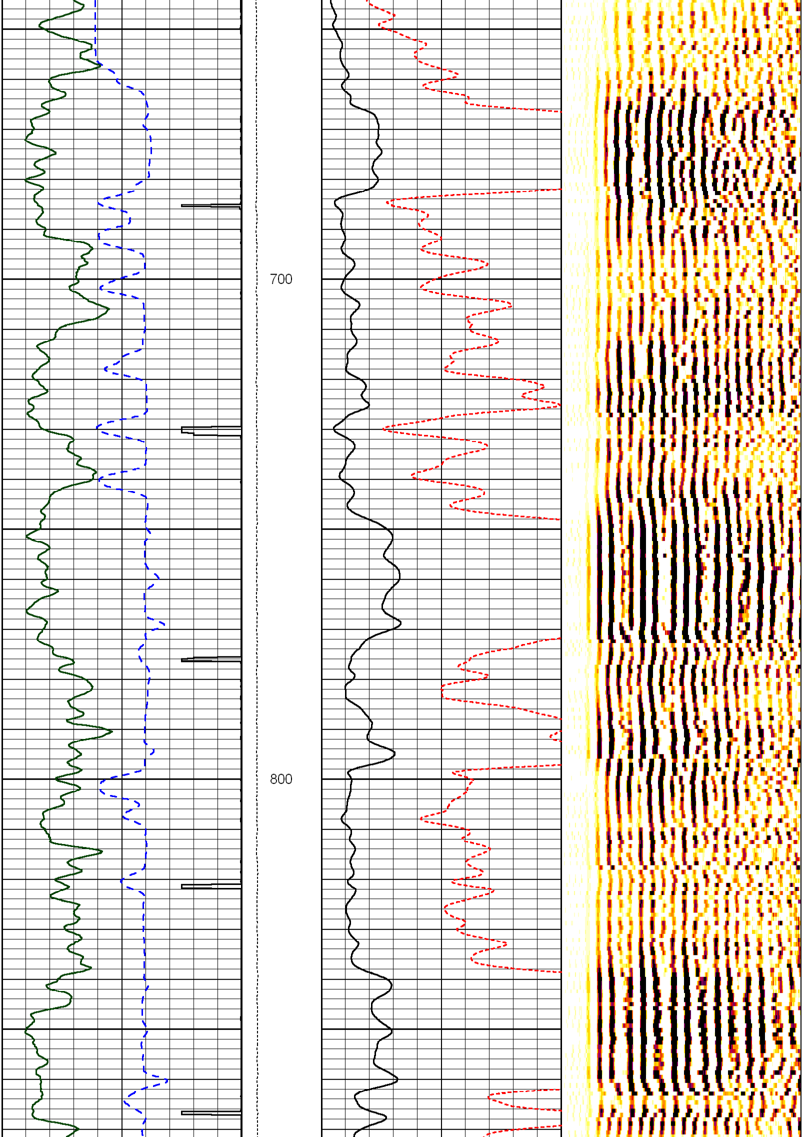
3' Travel Time	LTEN	0 3' Amplitude (MV) 100	200 MSG 1160
0 Gamma Ray (GAPI) 200	0 (lb) 2000	0 3' Amplitude X5 (MV) 20	10 500
accl			

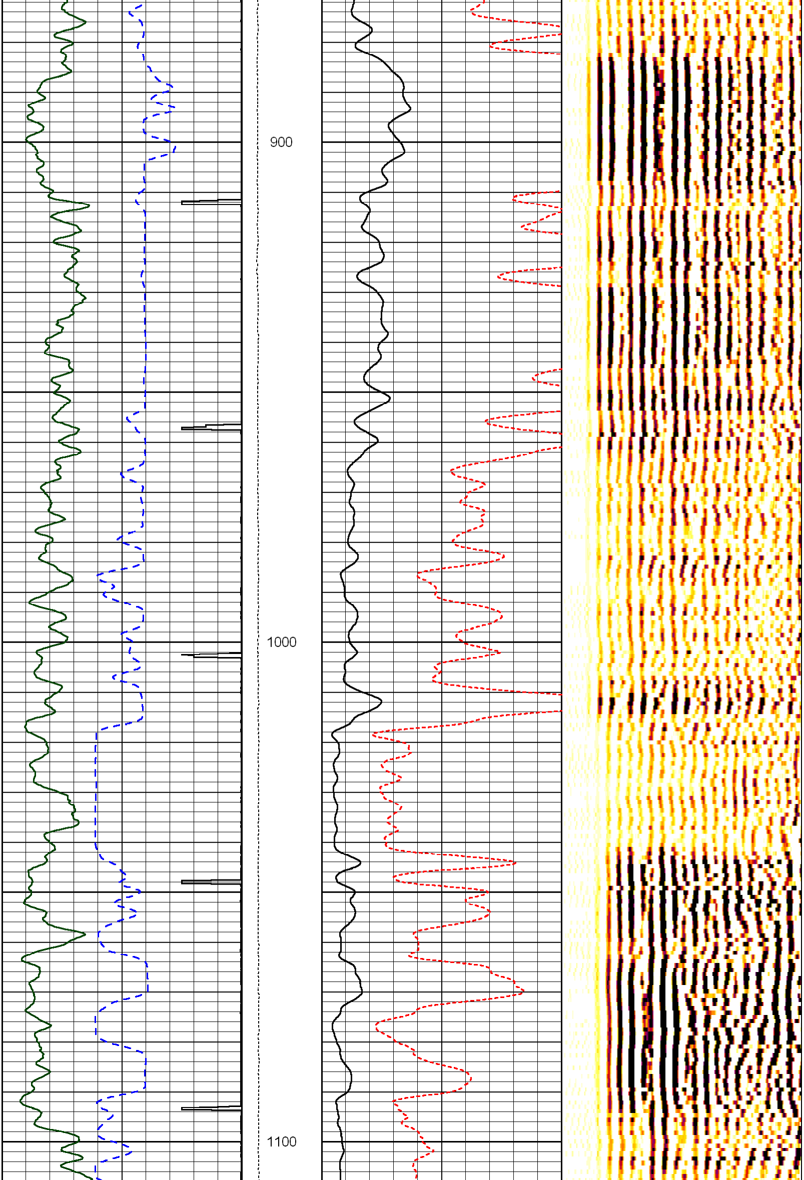


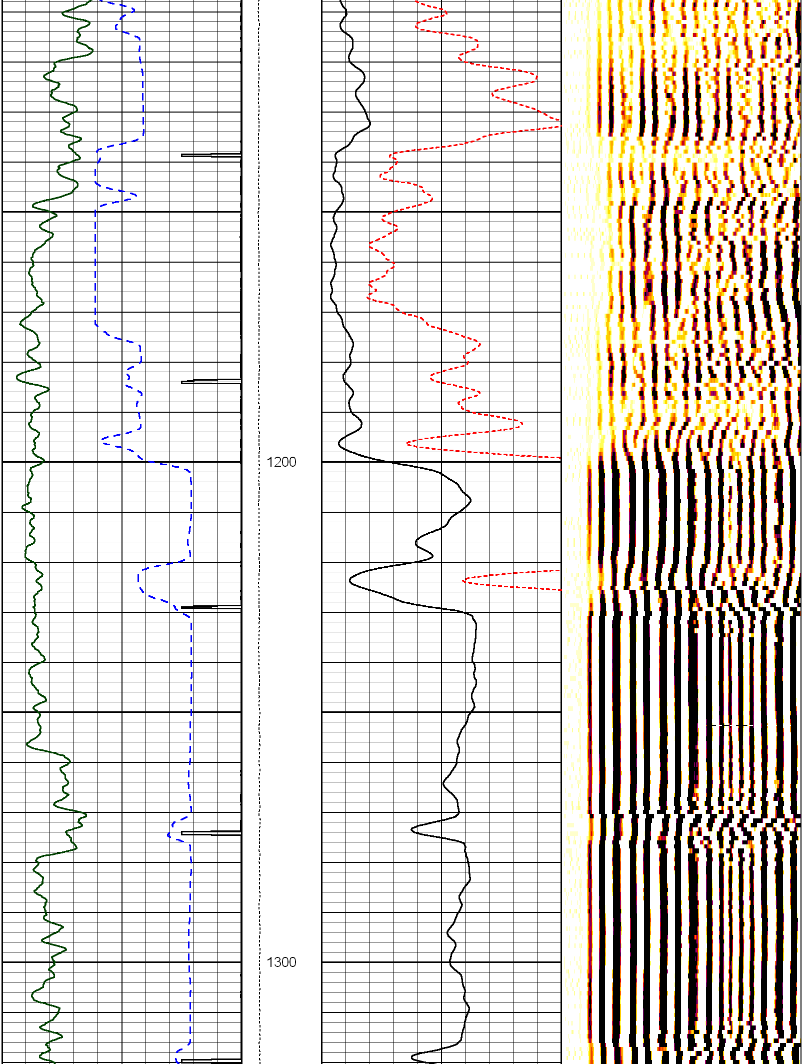


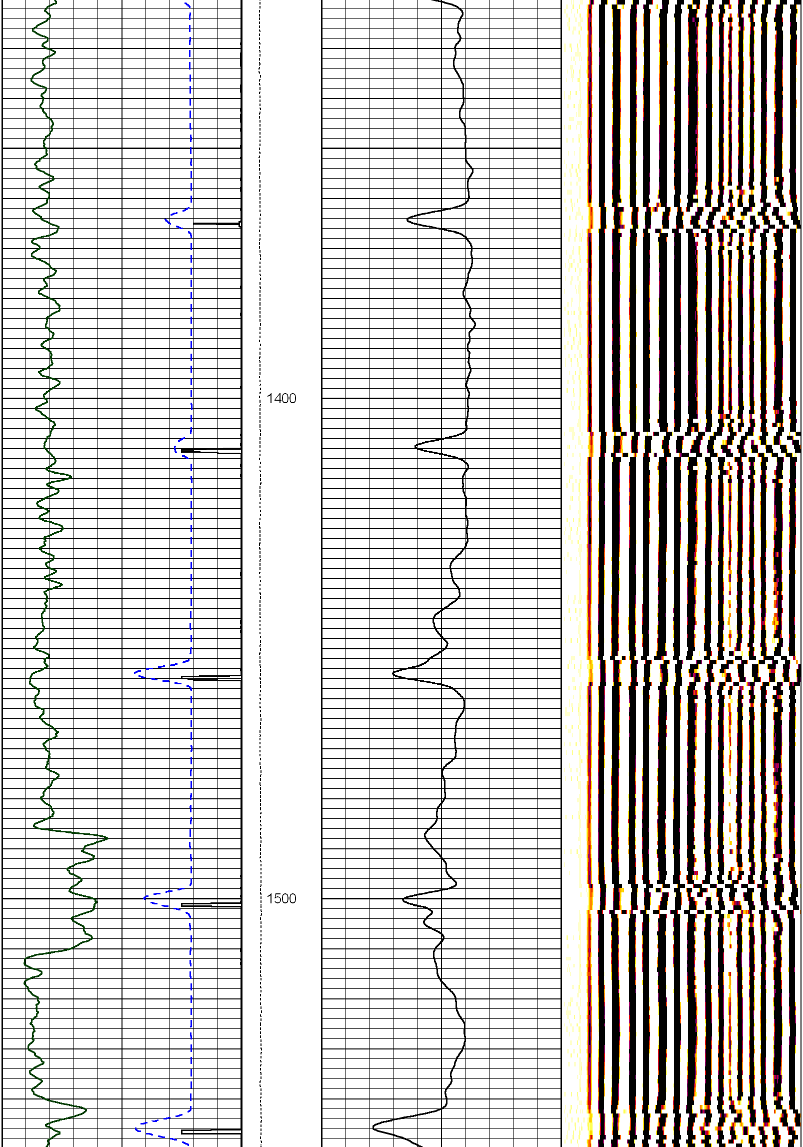


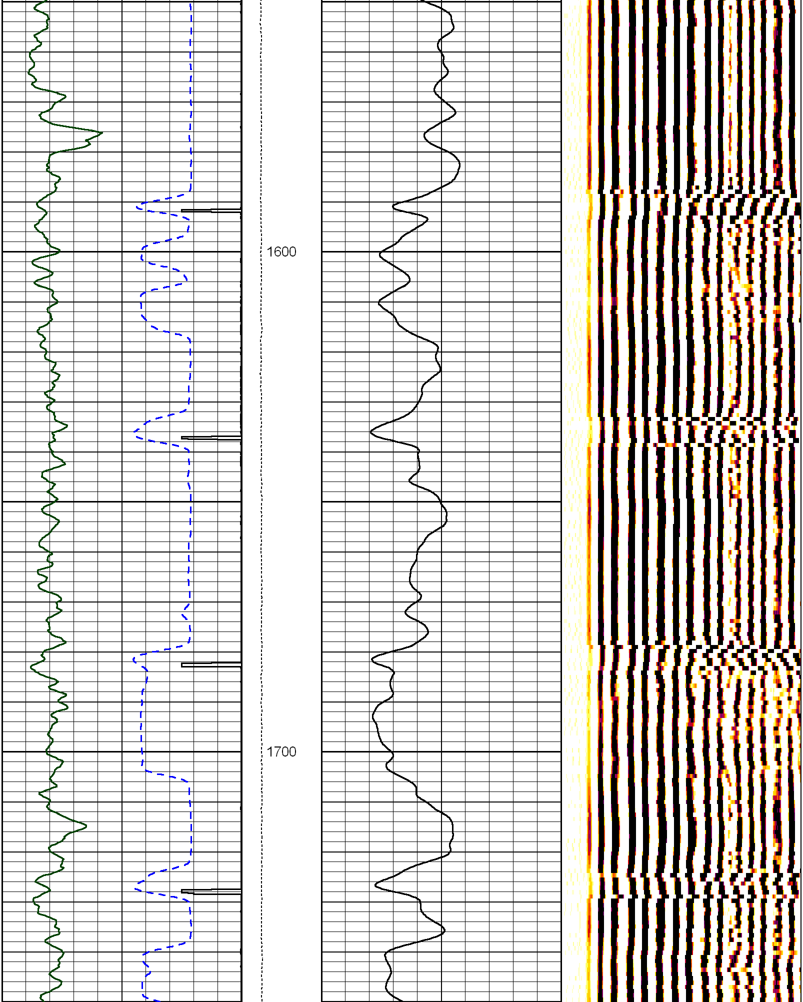


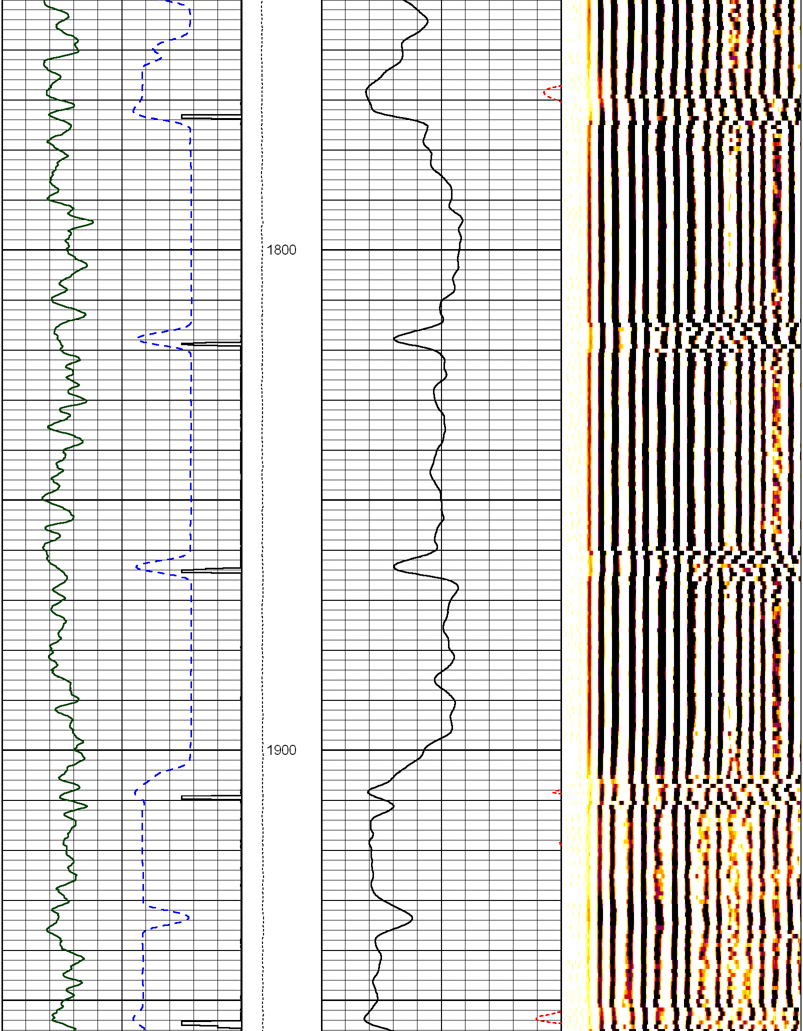


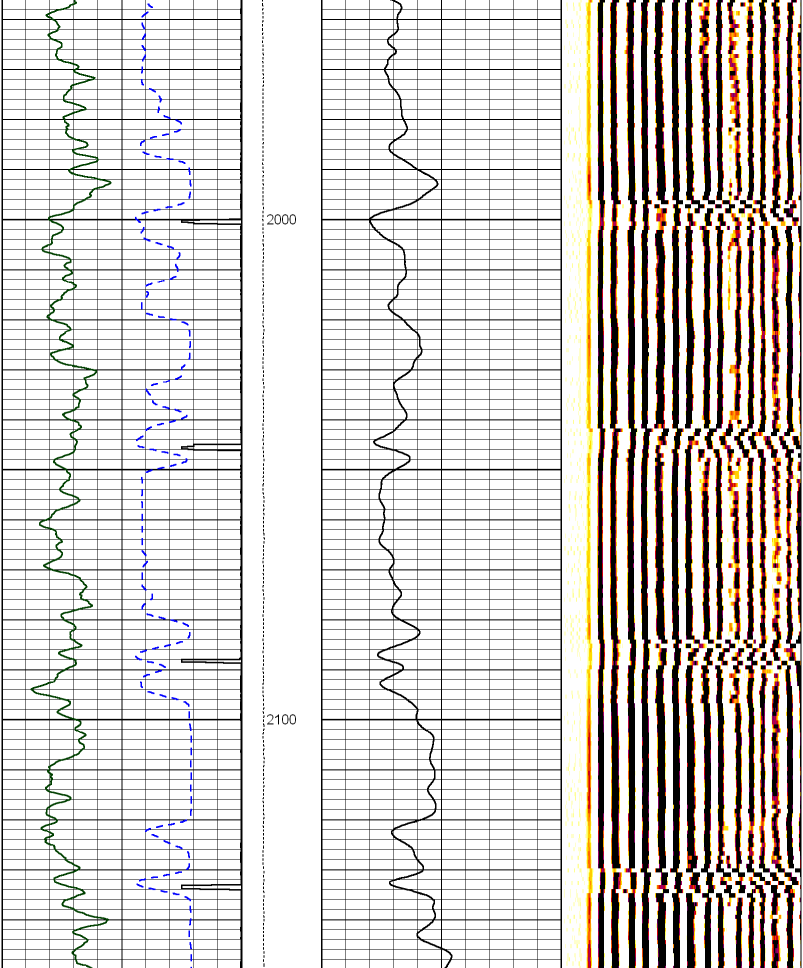


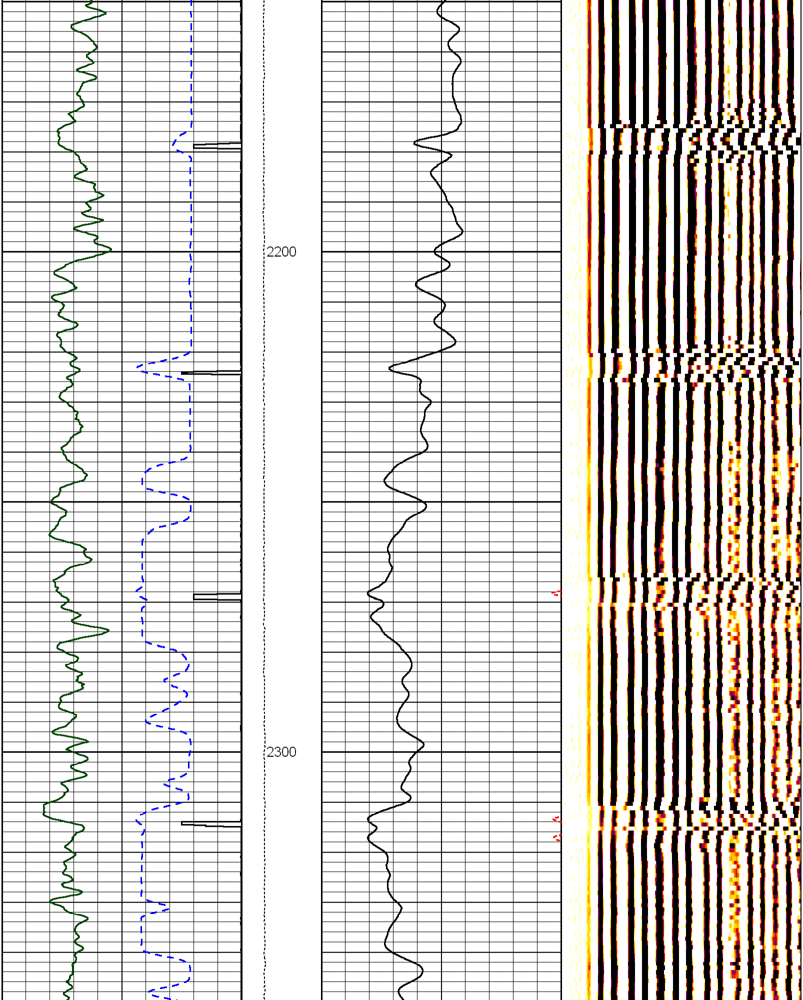


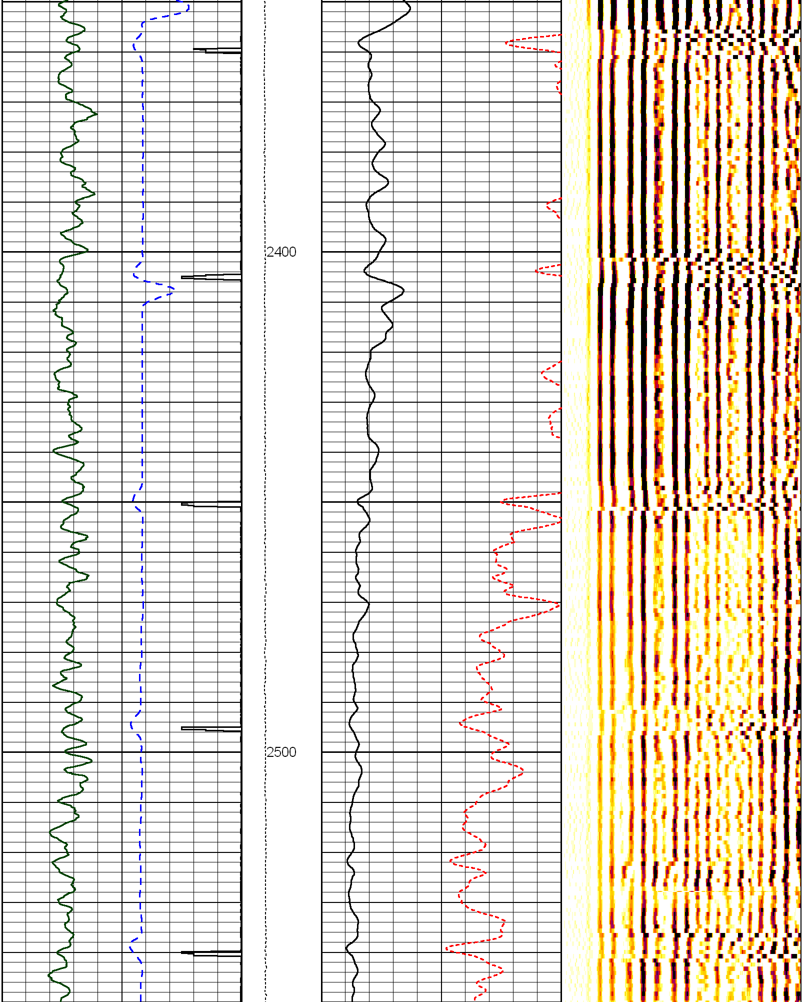


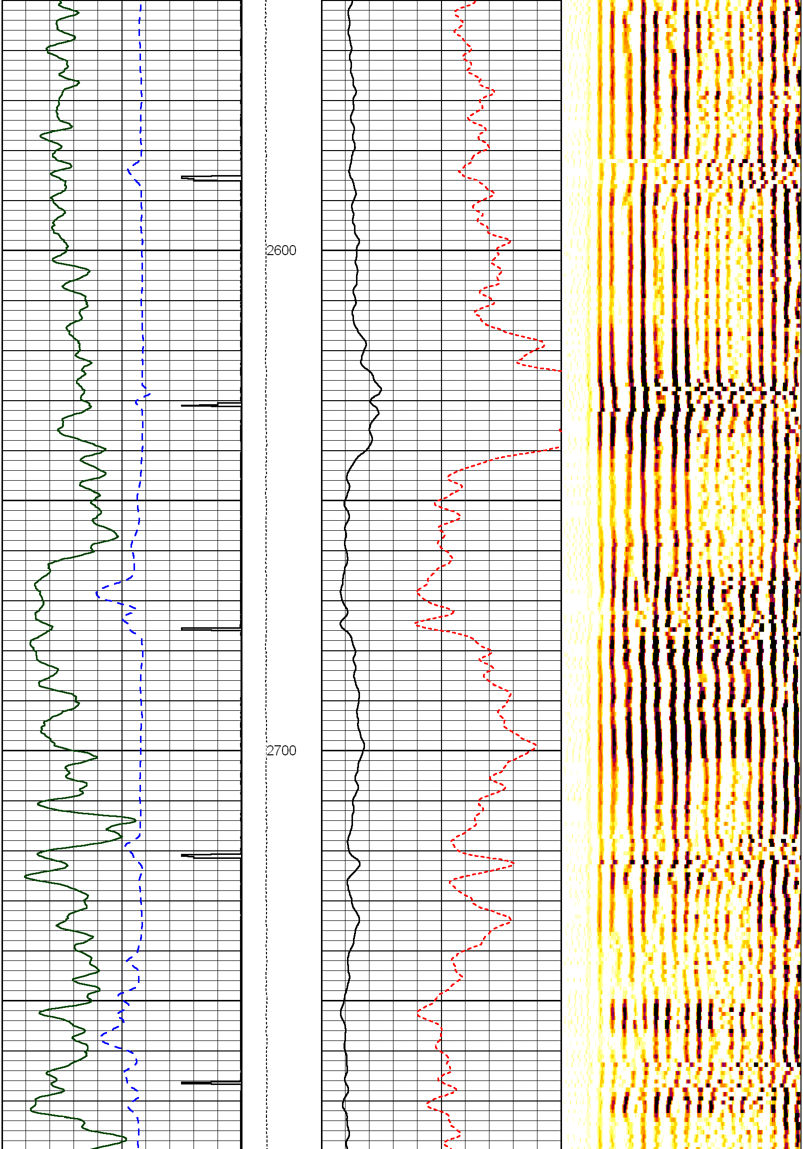


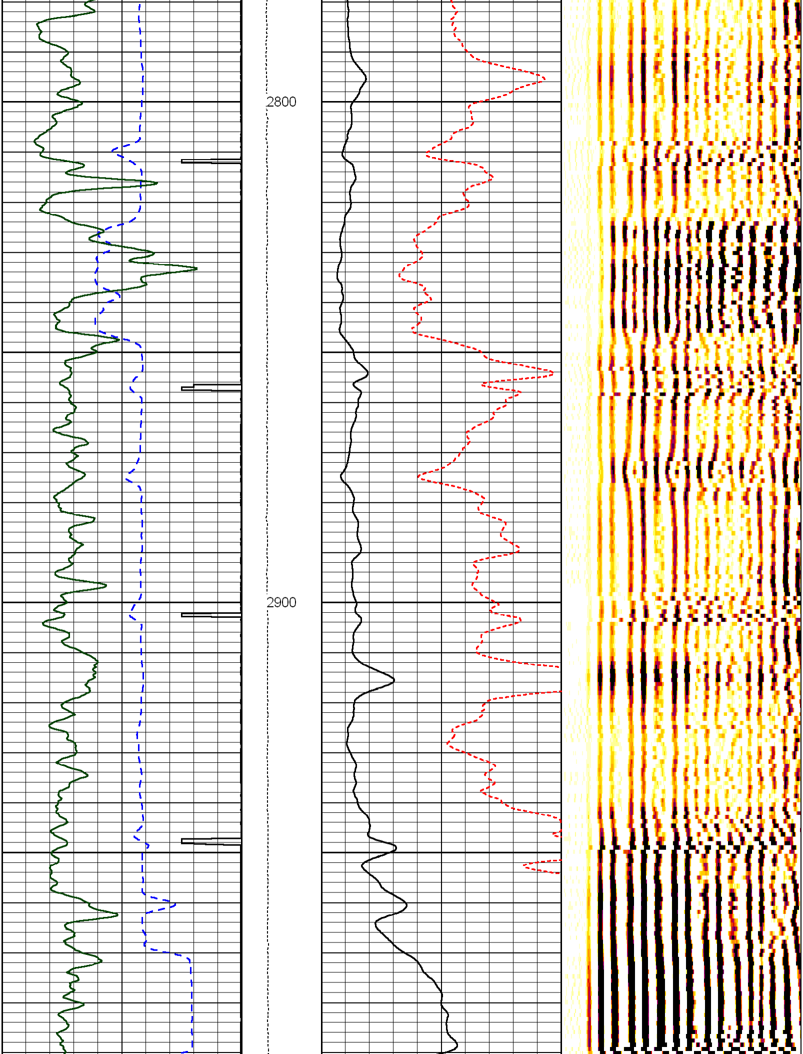


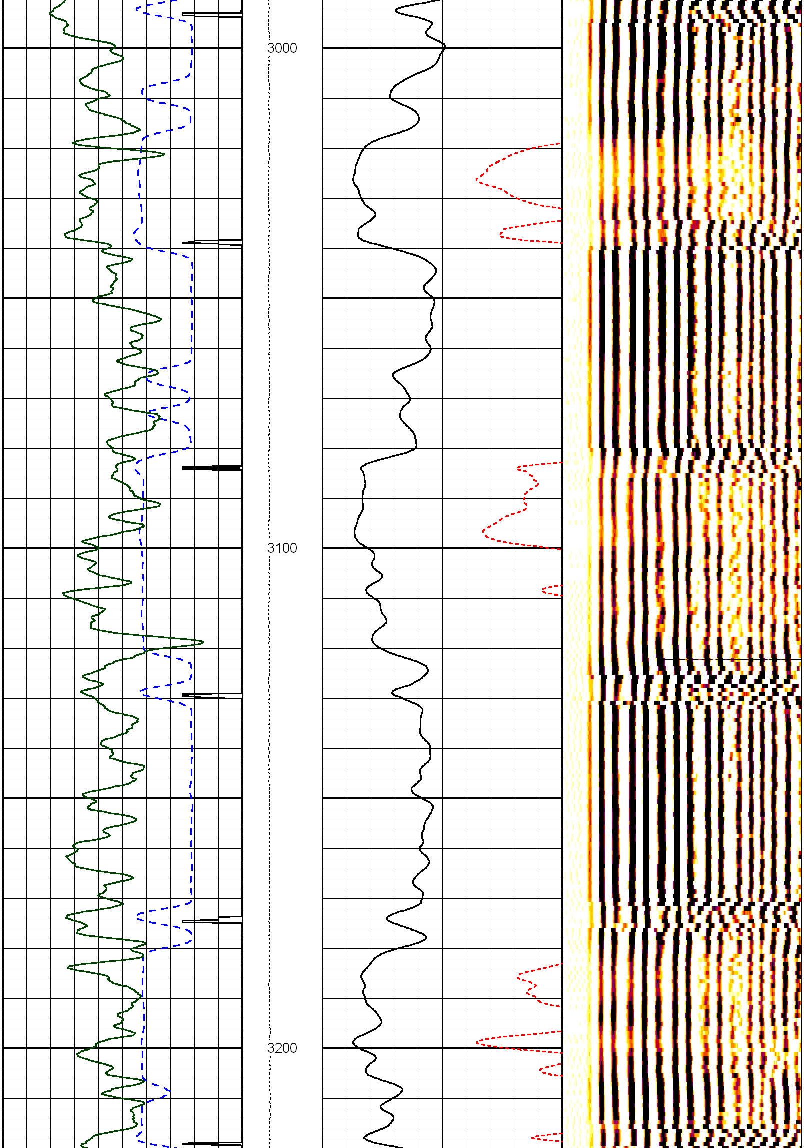


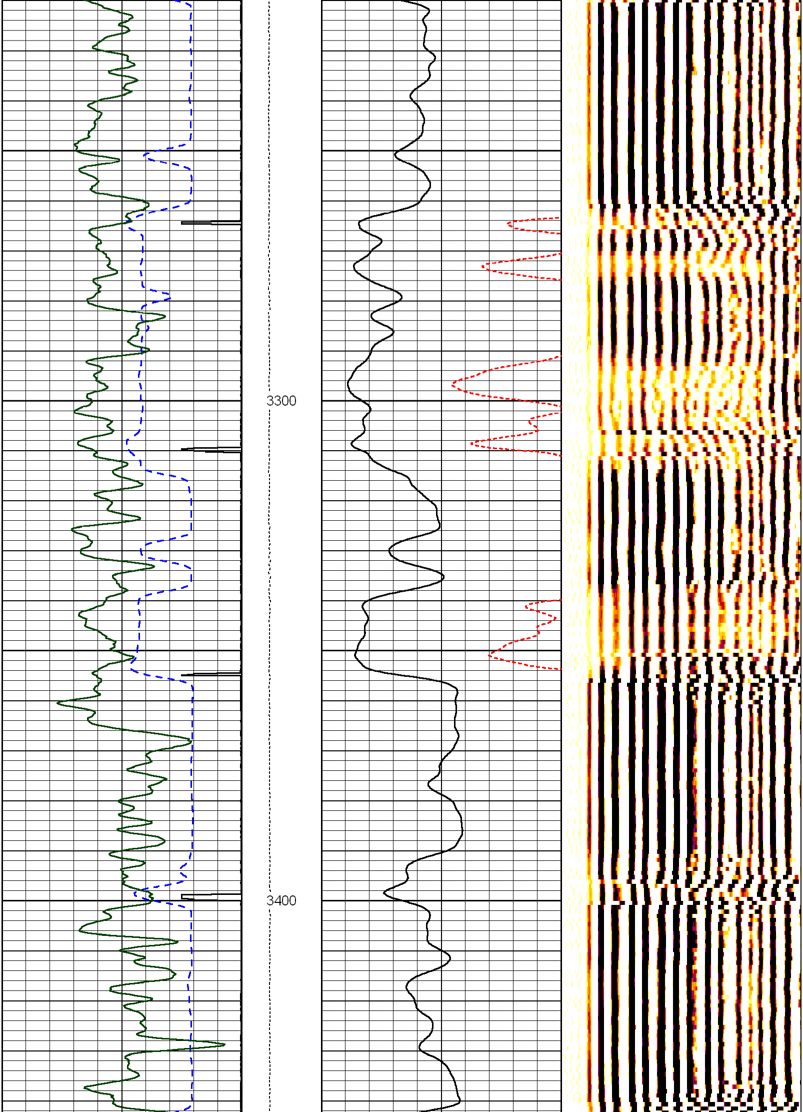


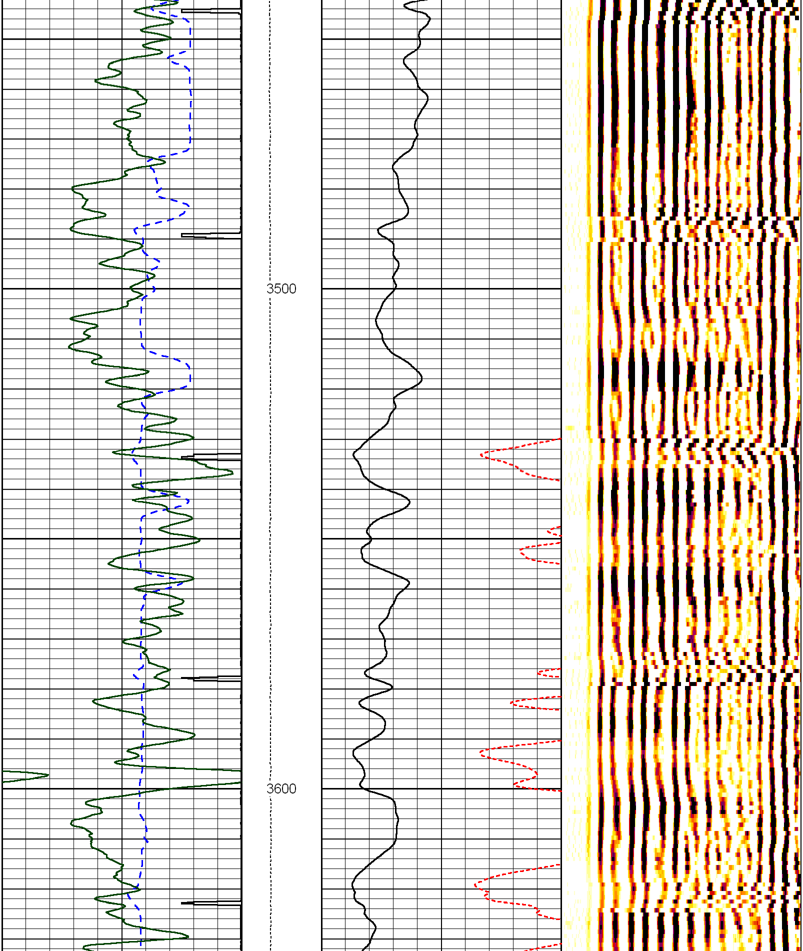


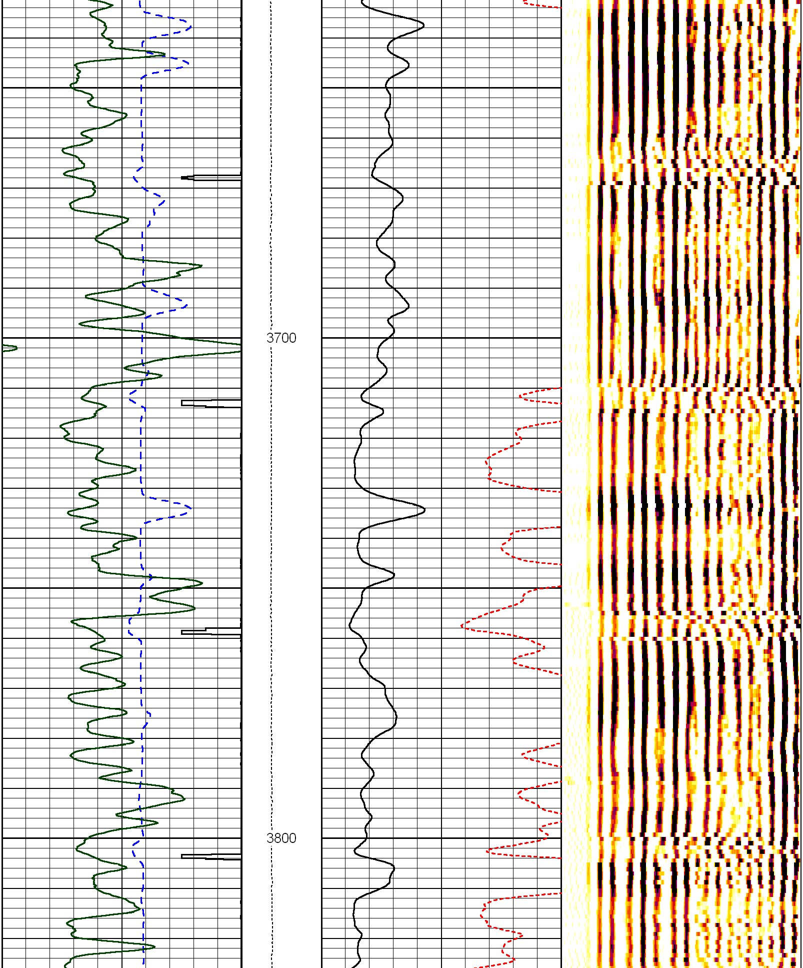








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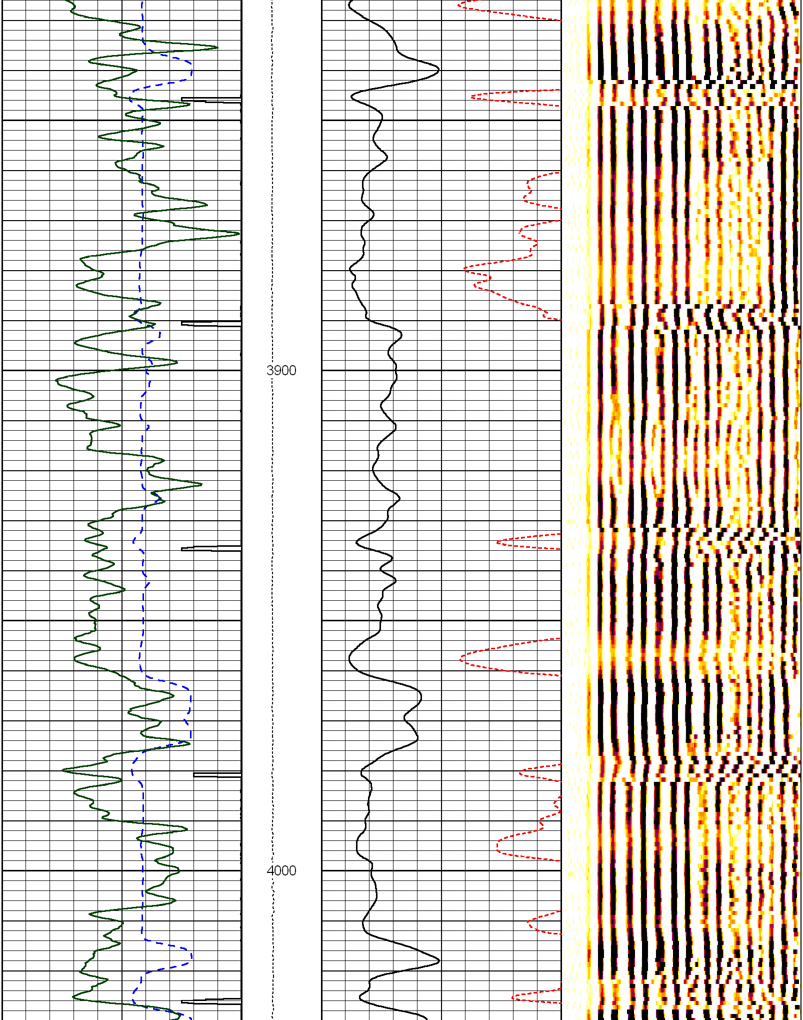
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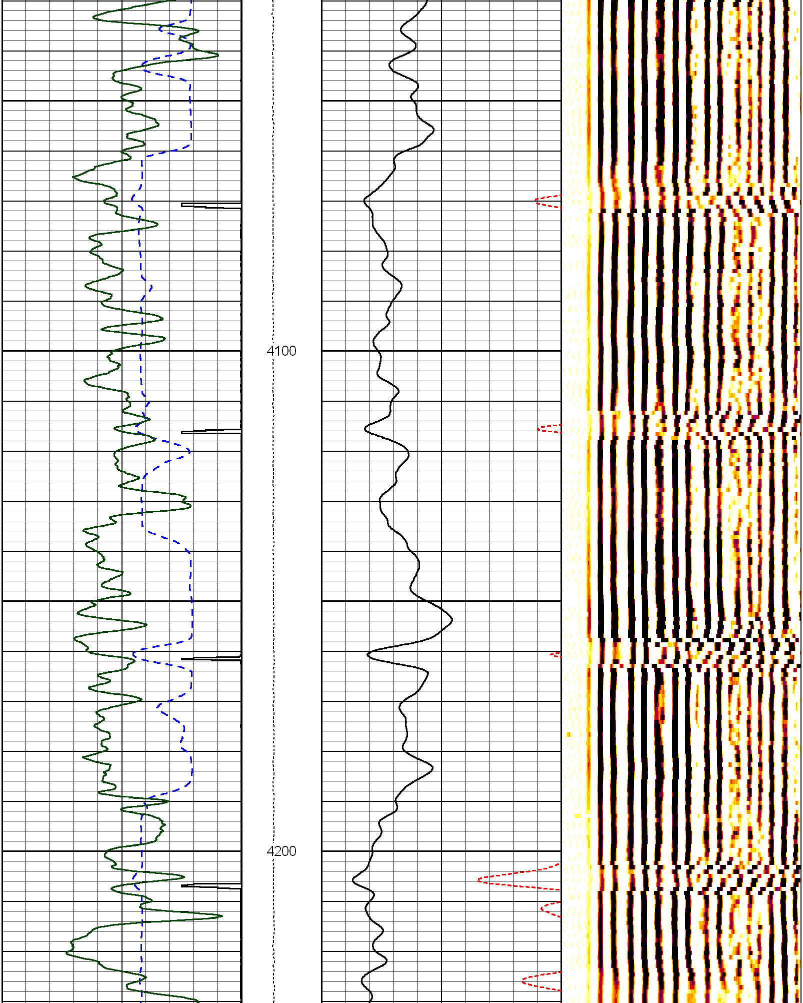
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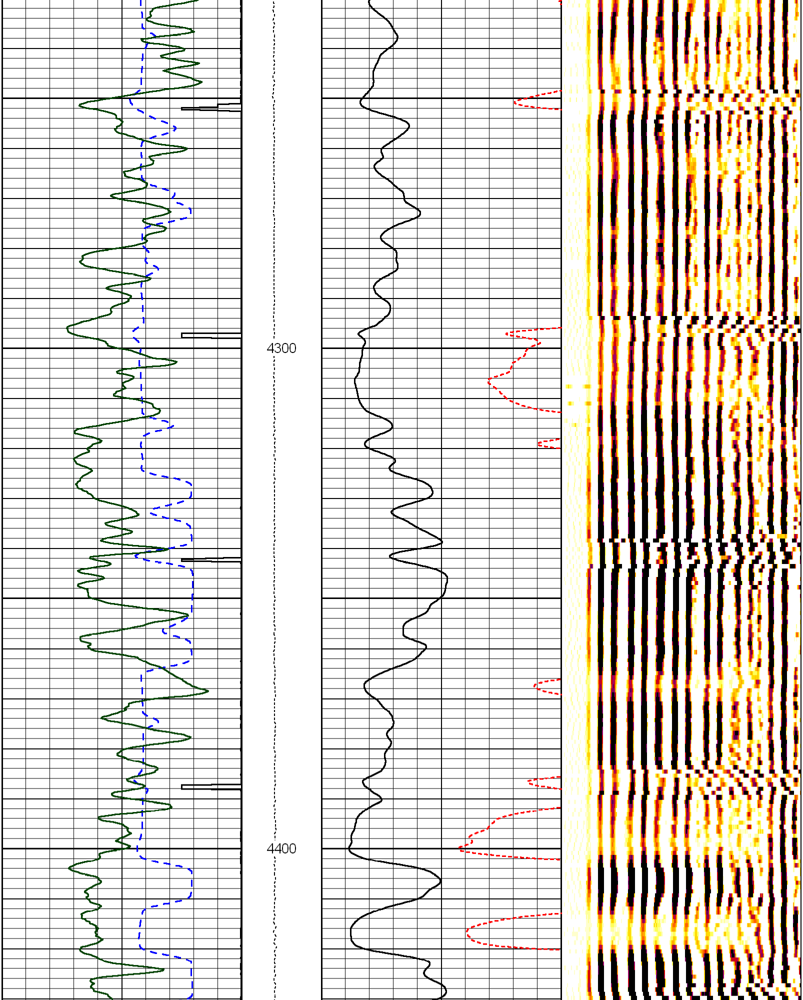
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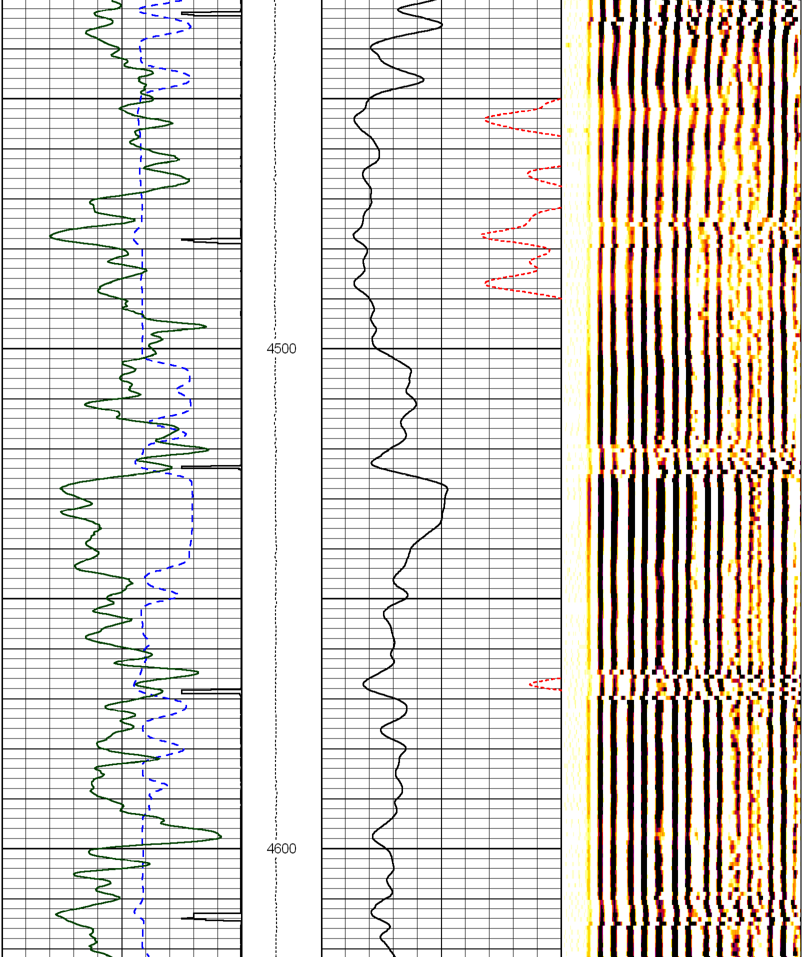
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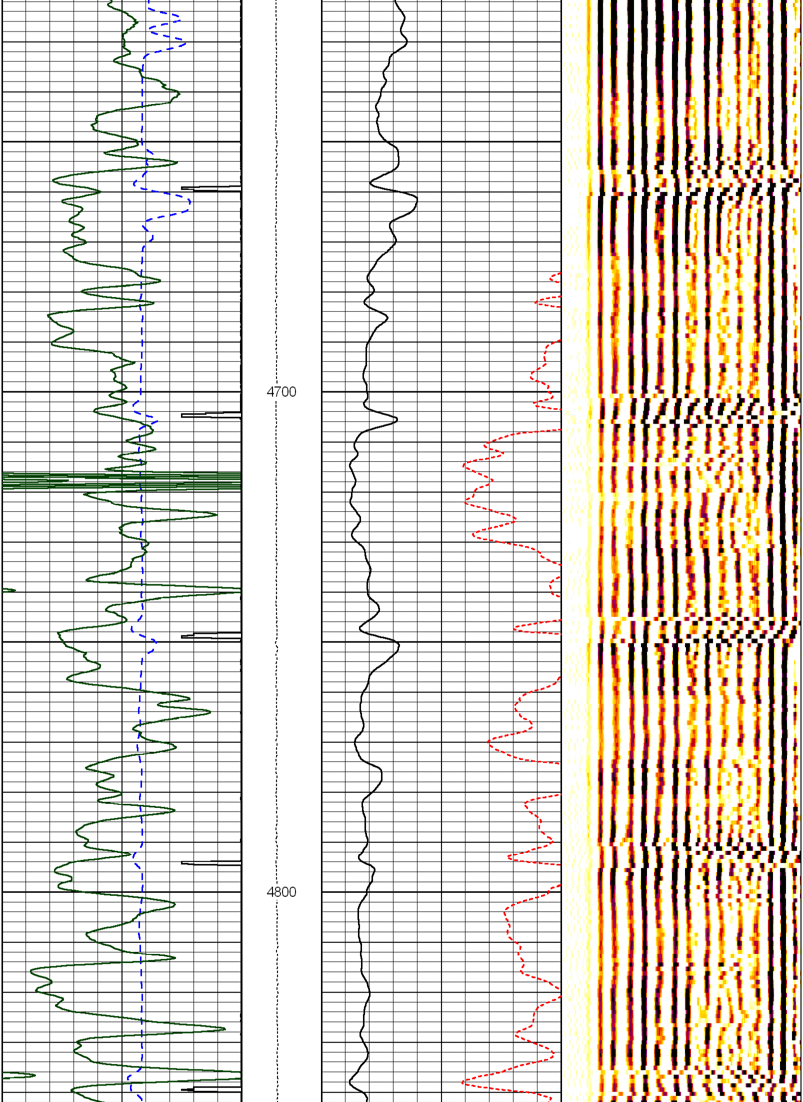
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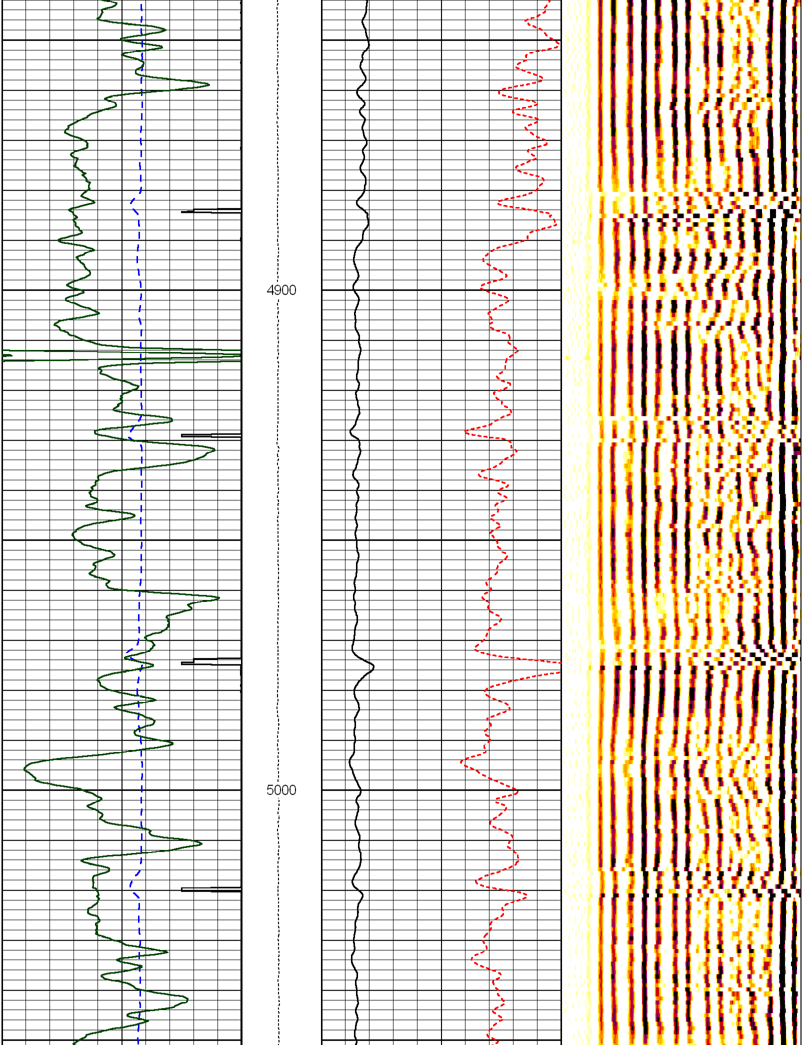
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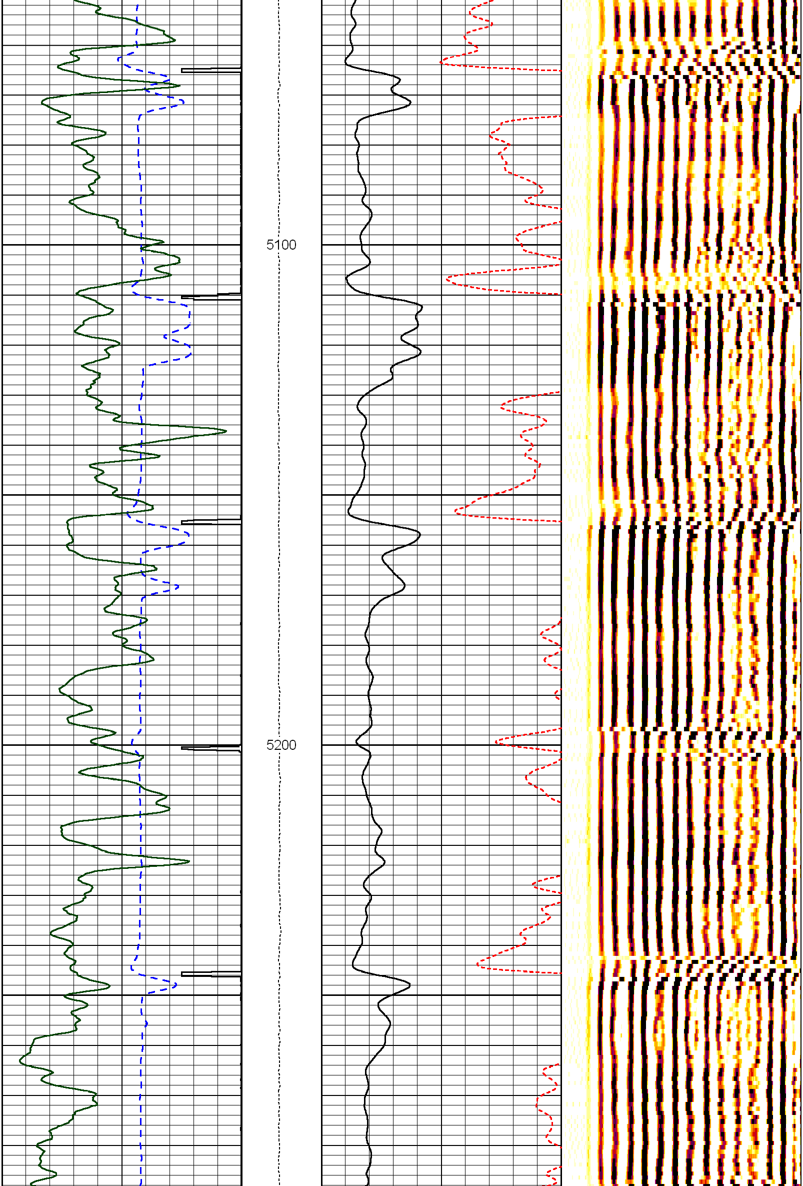
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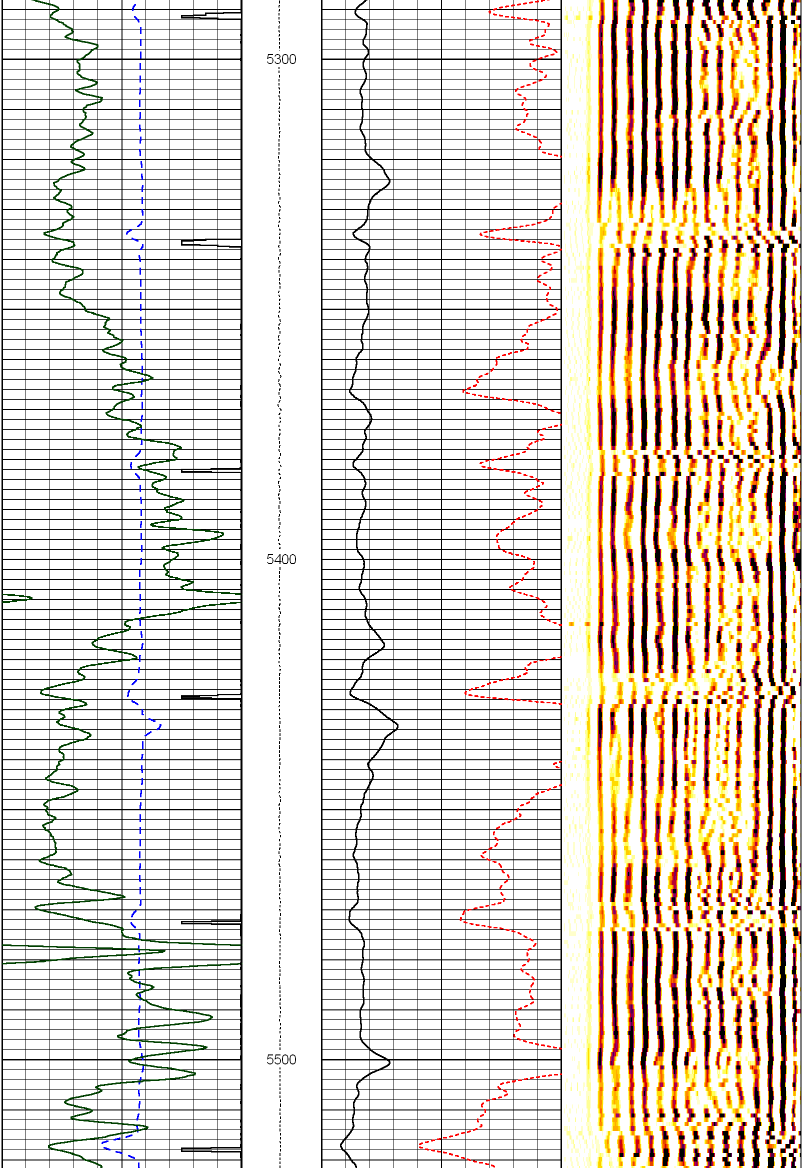
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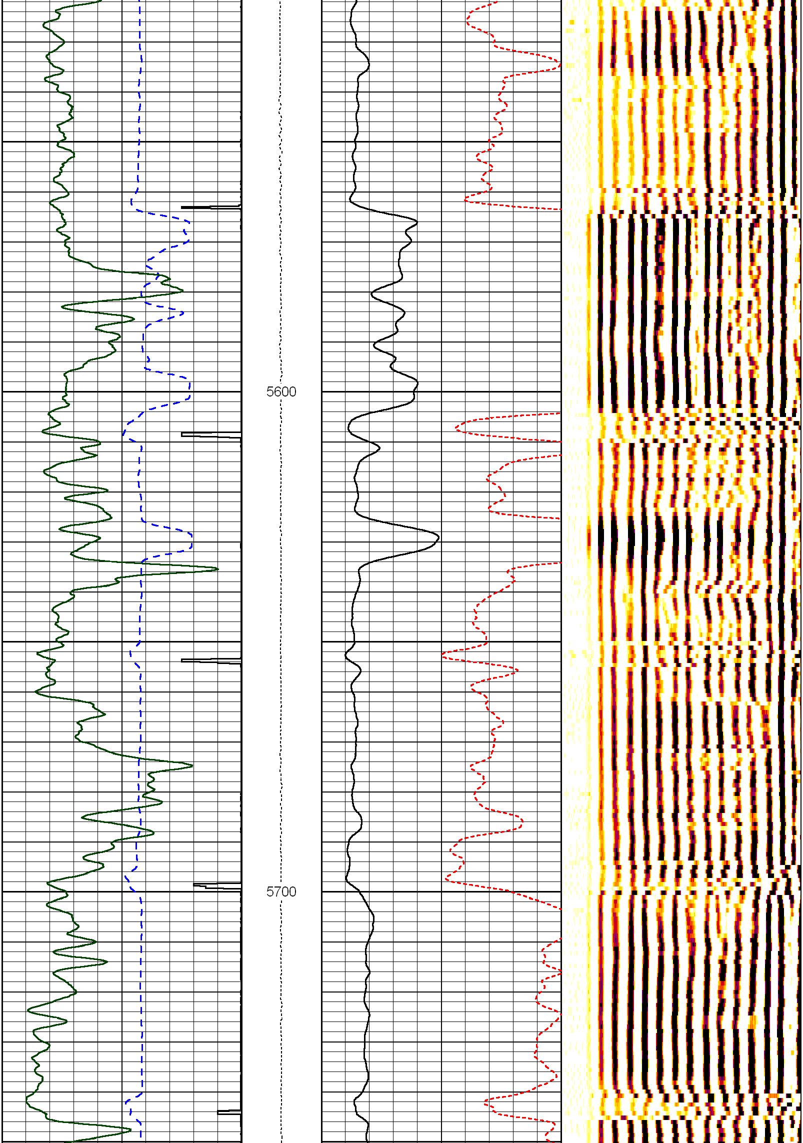
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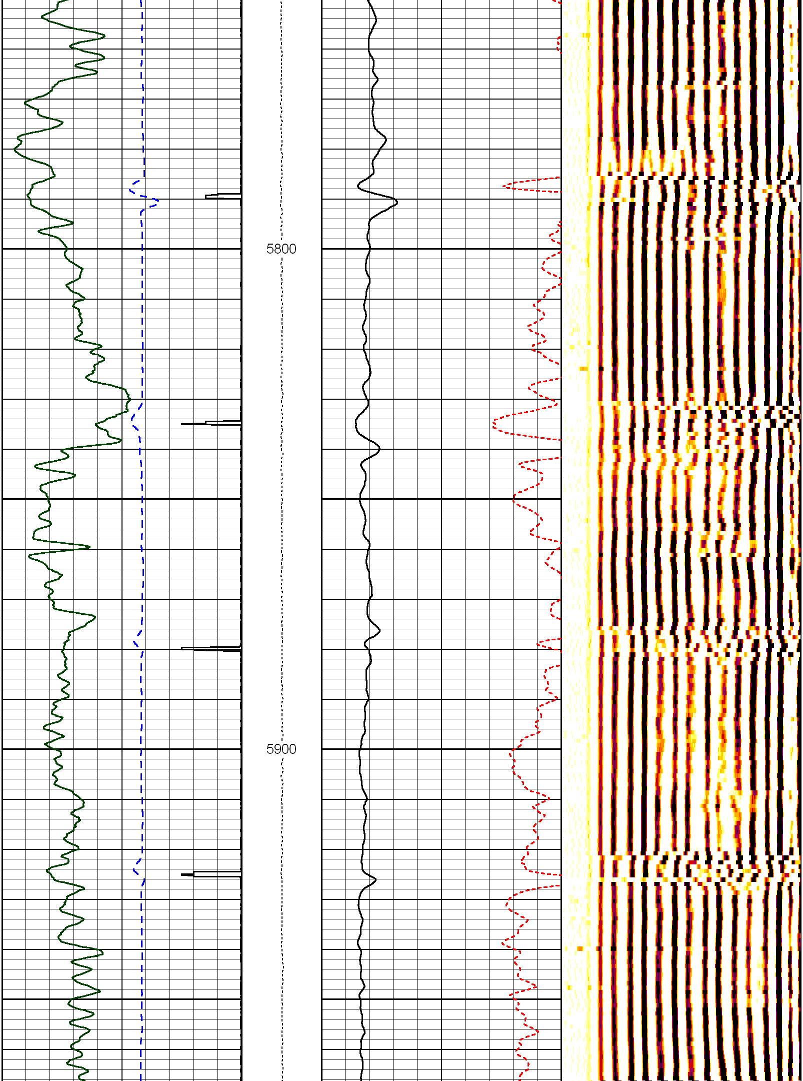
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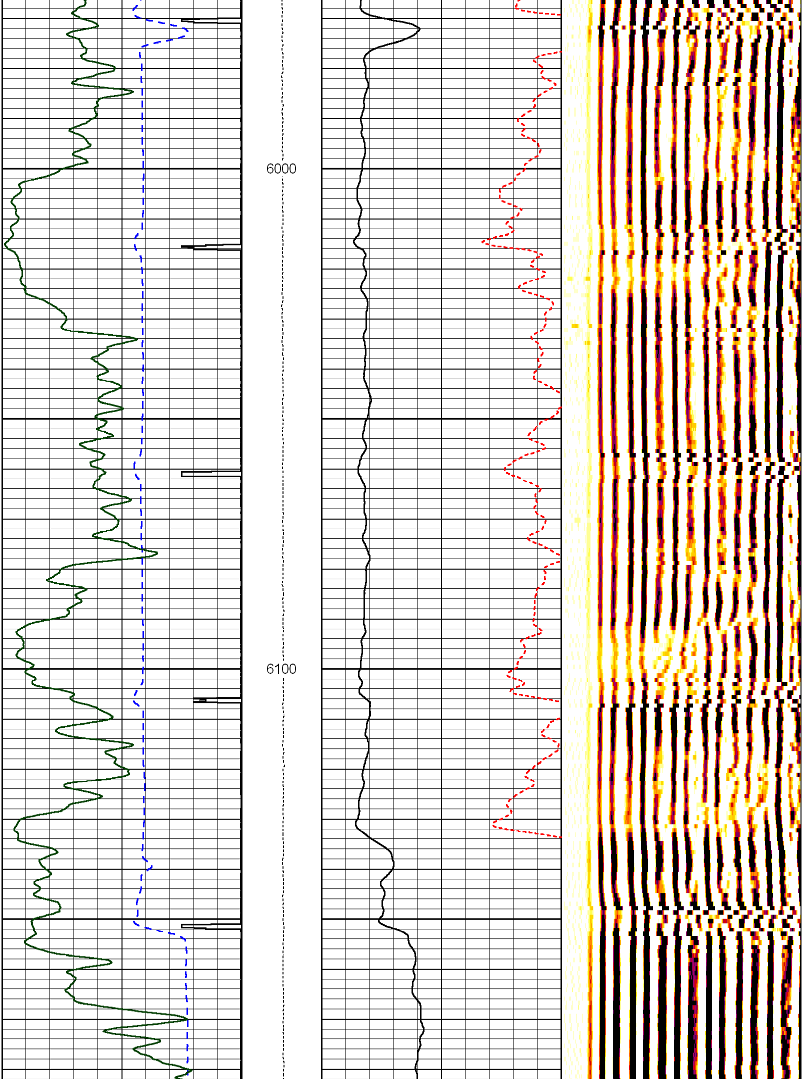
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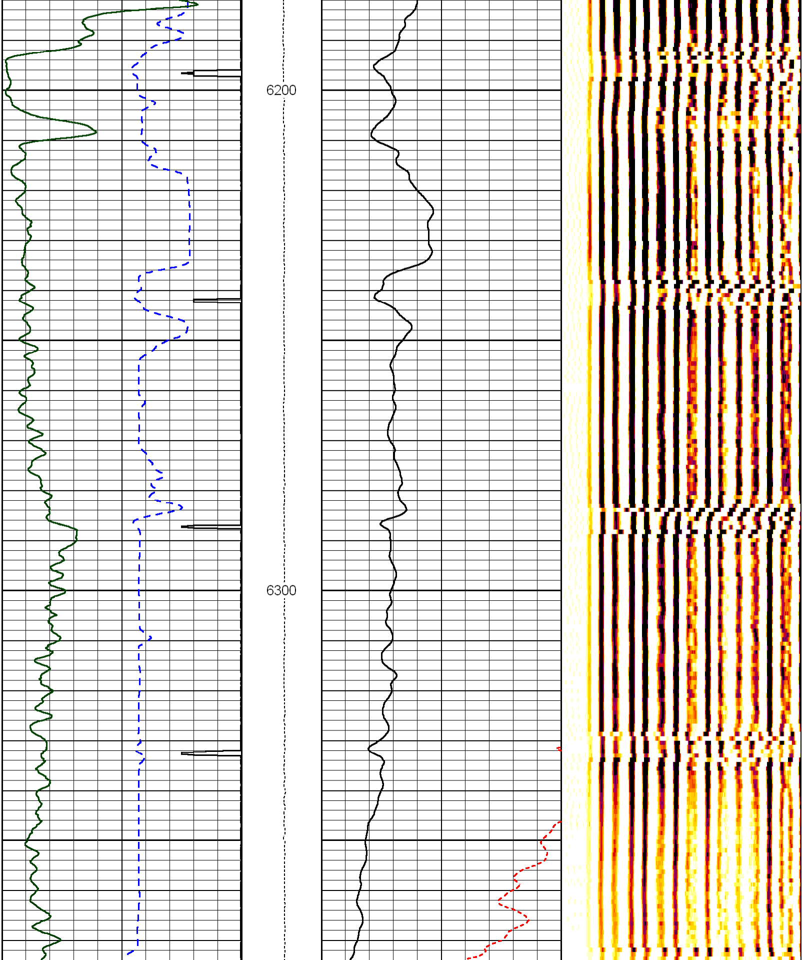
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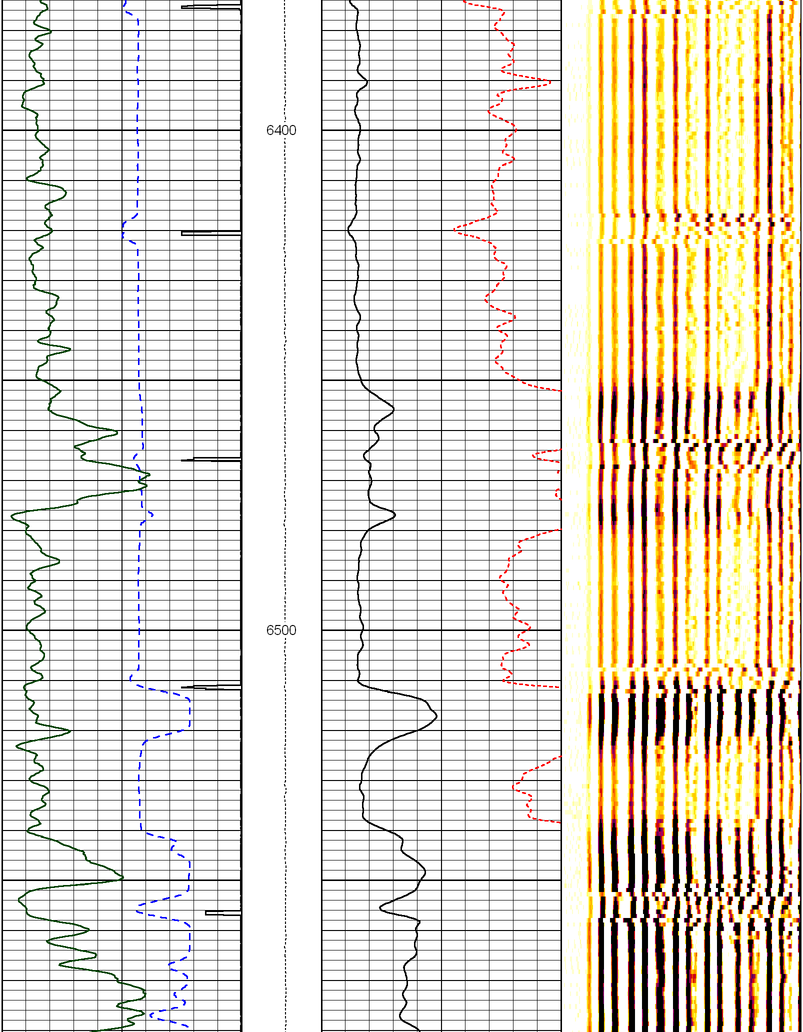
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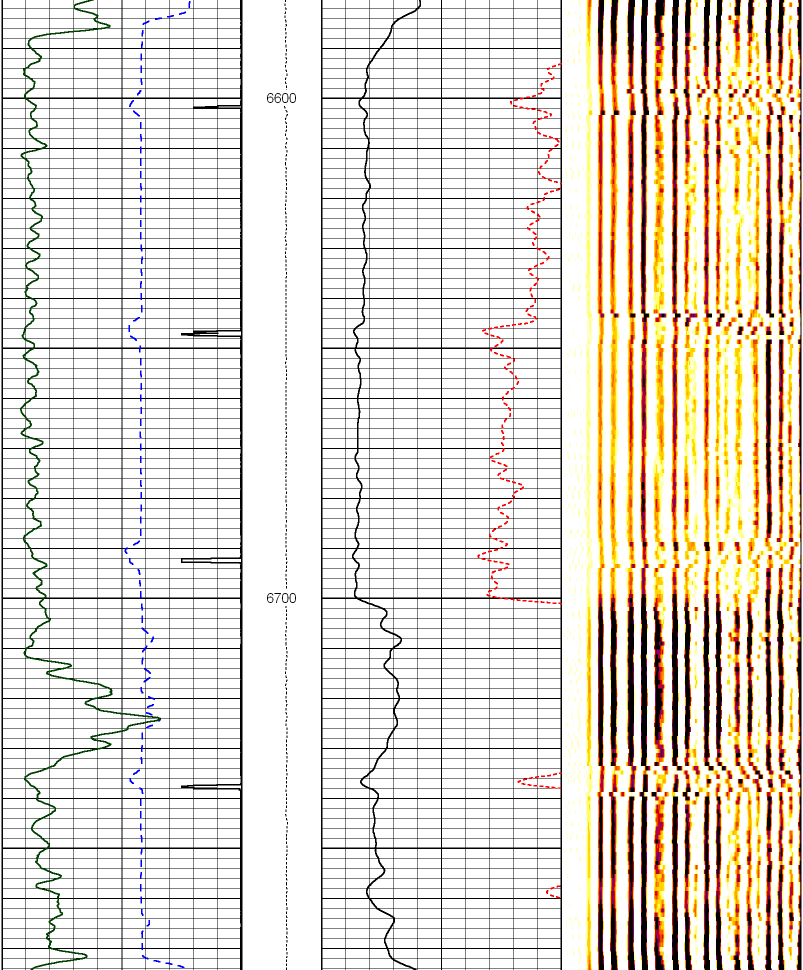
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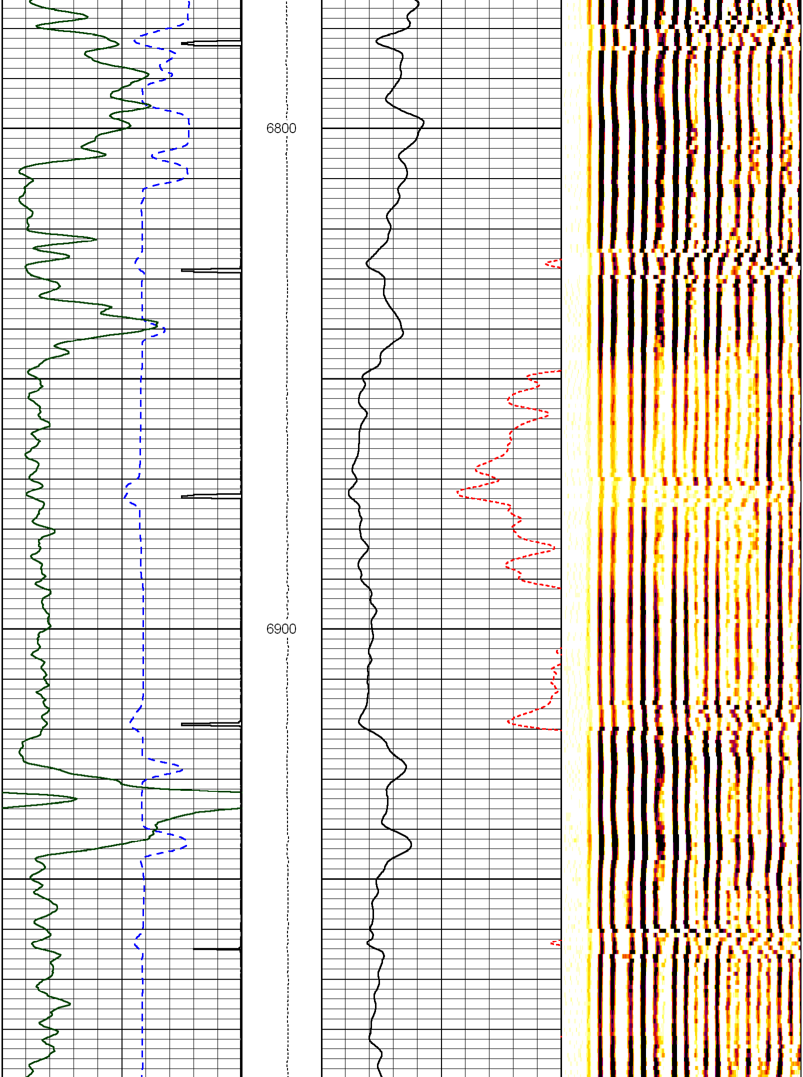
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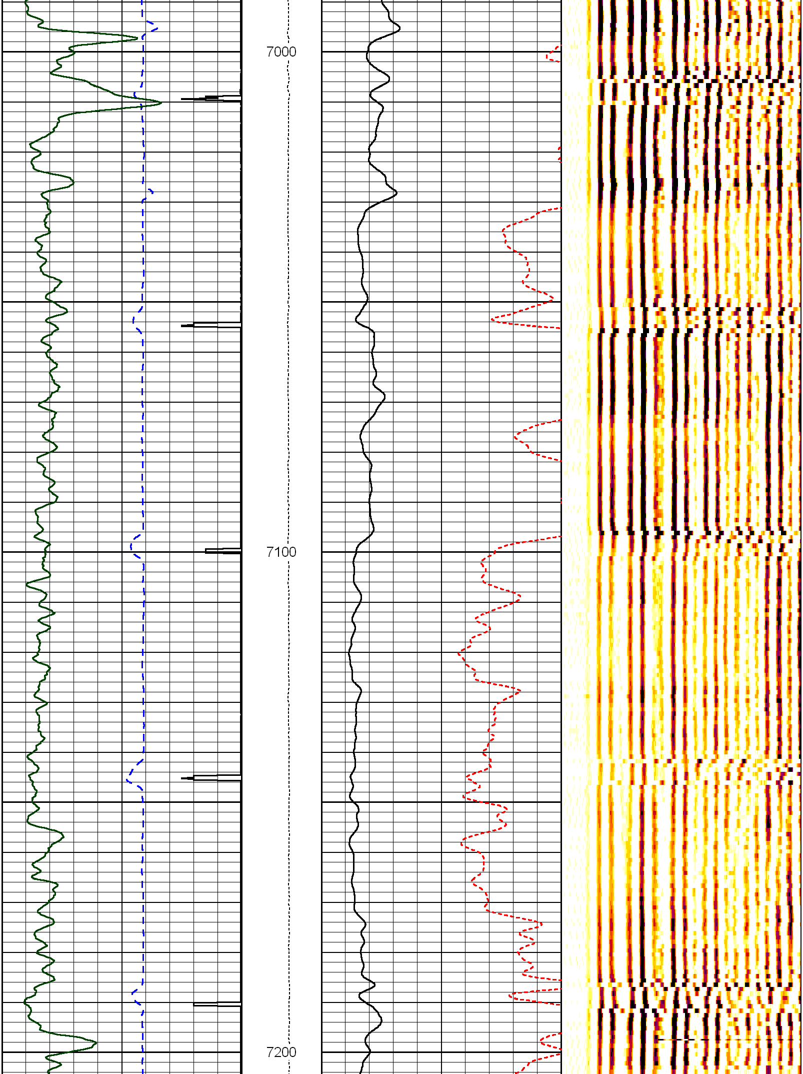
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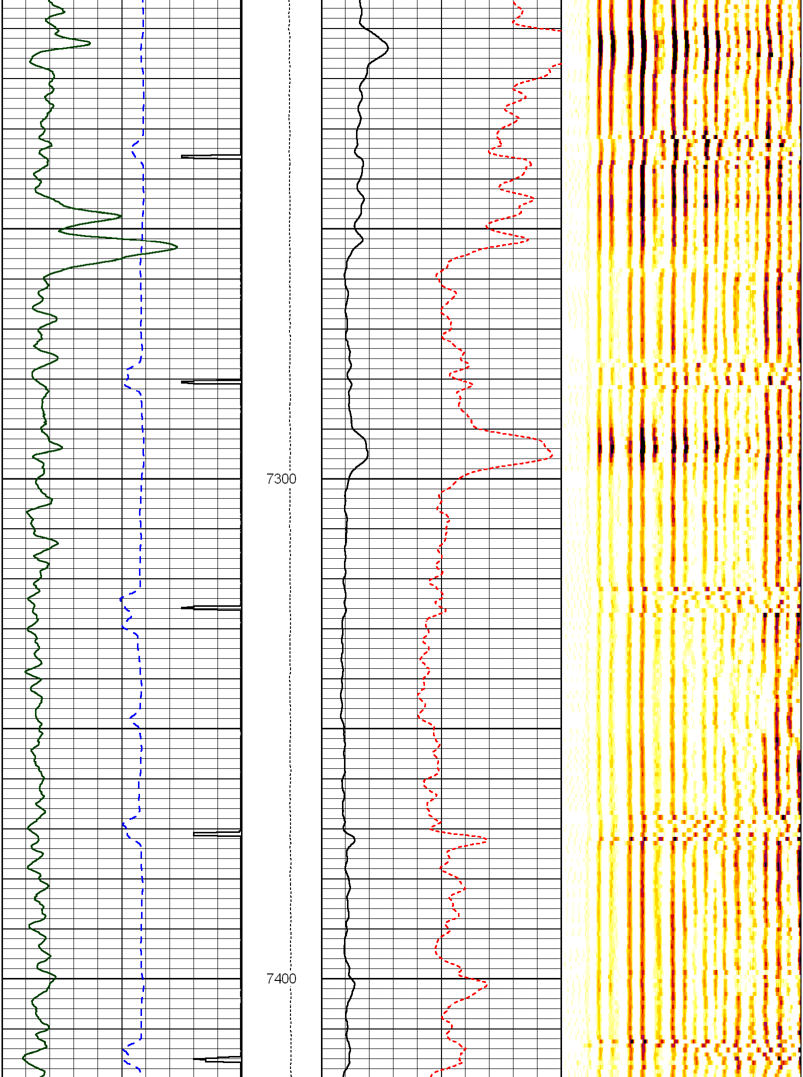
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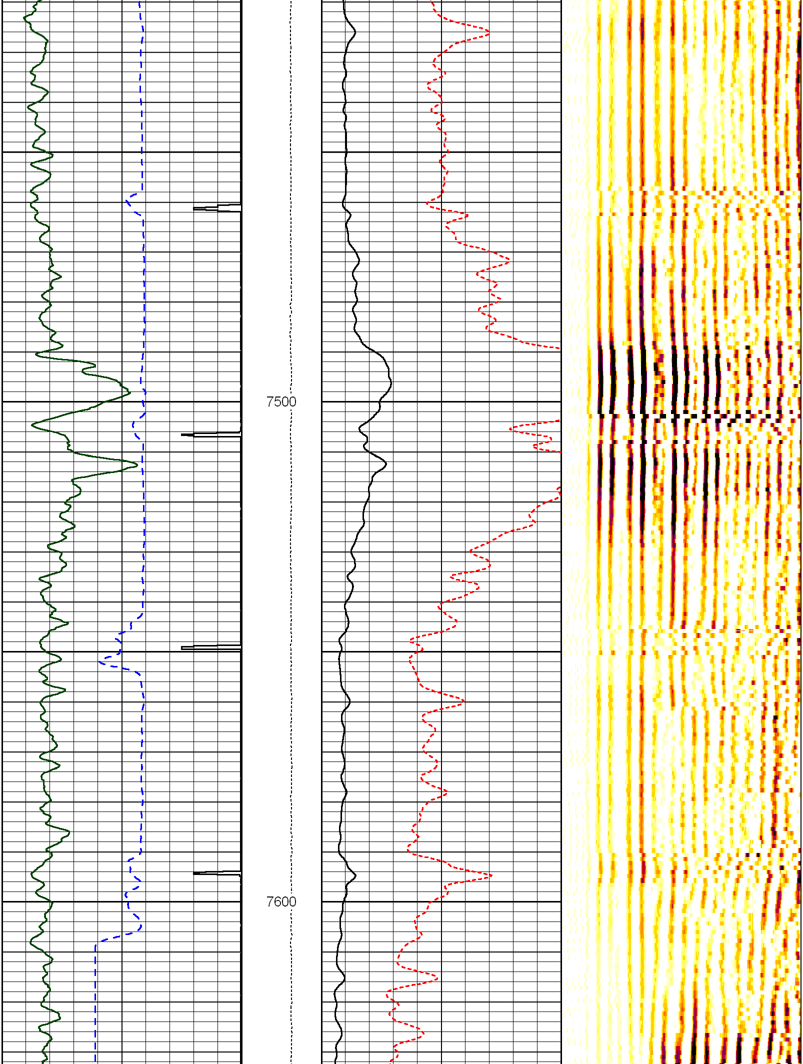
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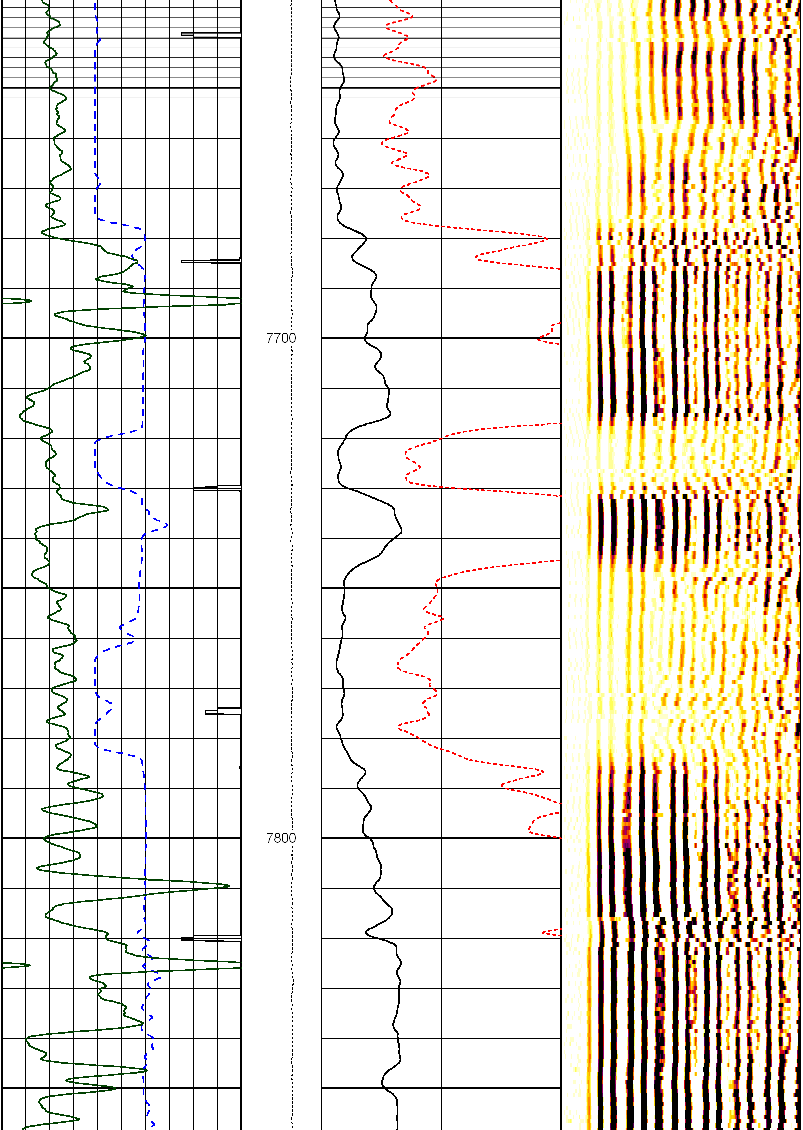
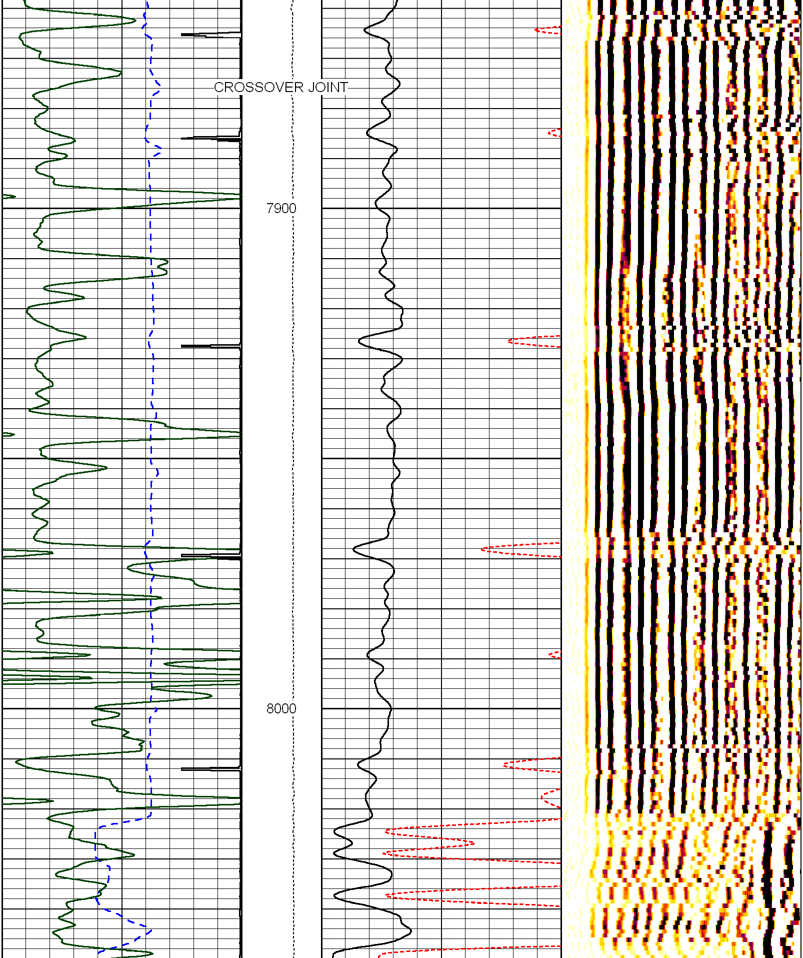
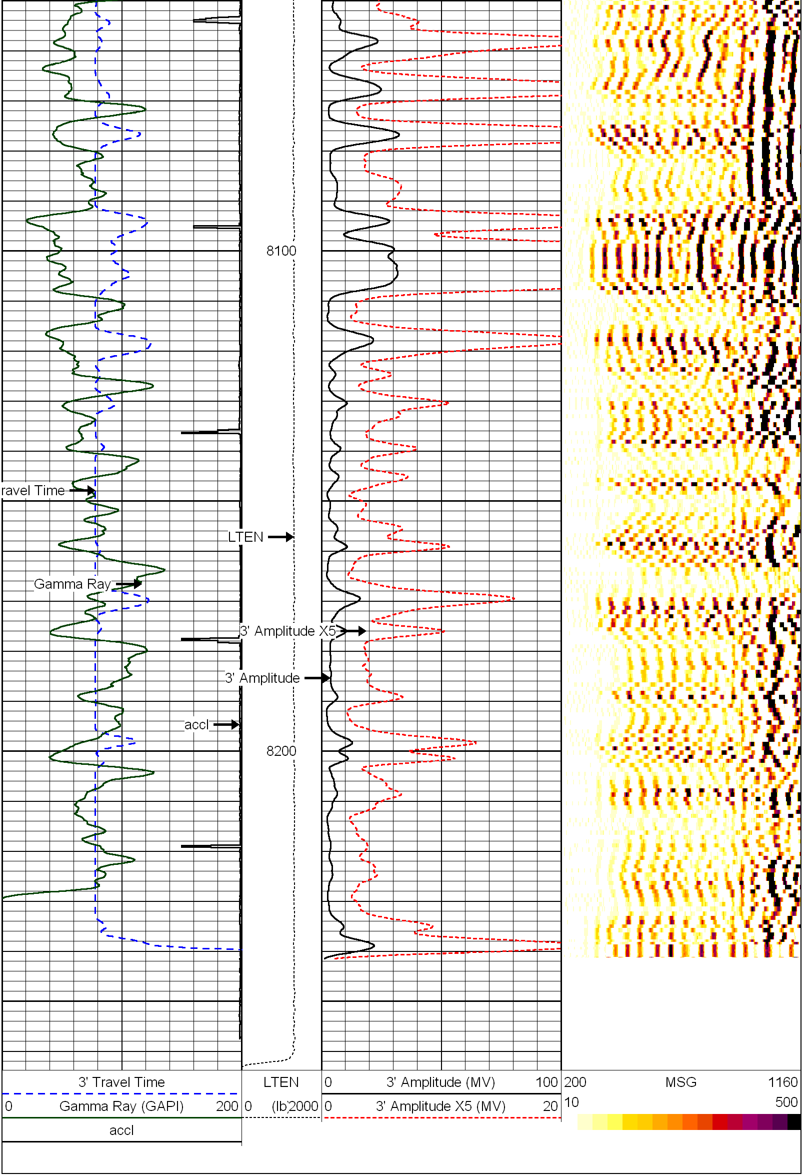






HALLIBURTON

MAIN LOG SECTION

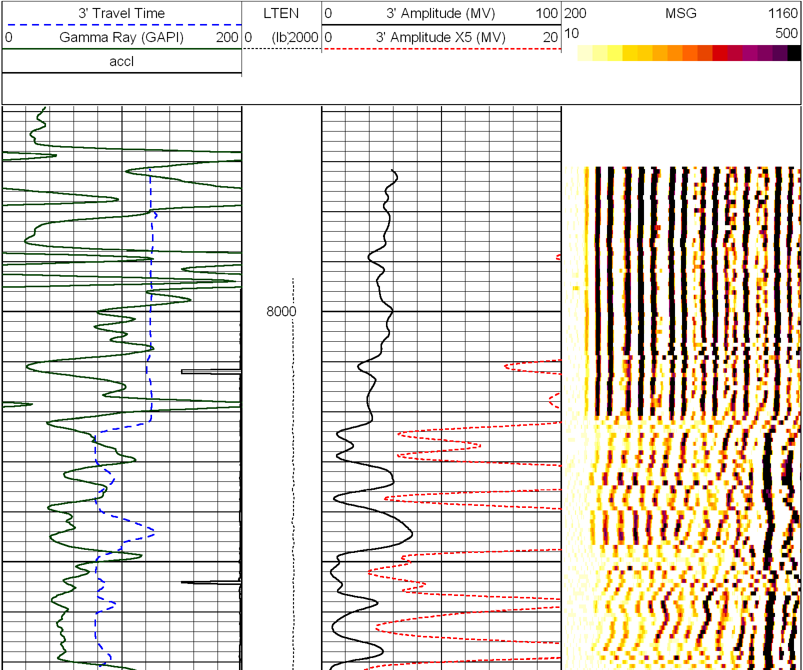
5" = 100'

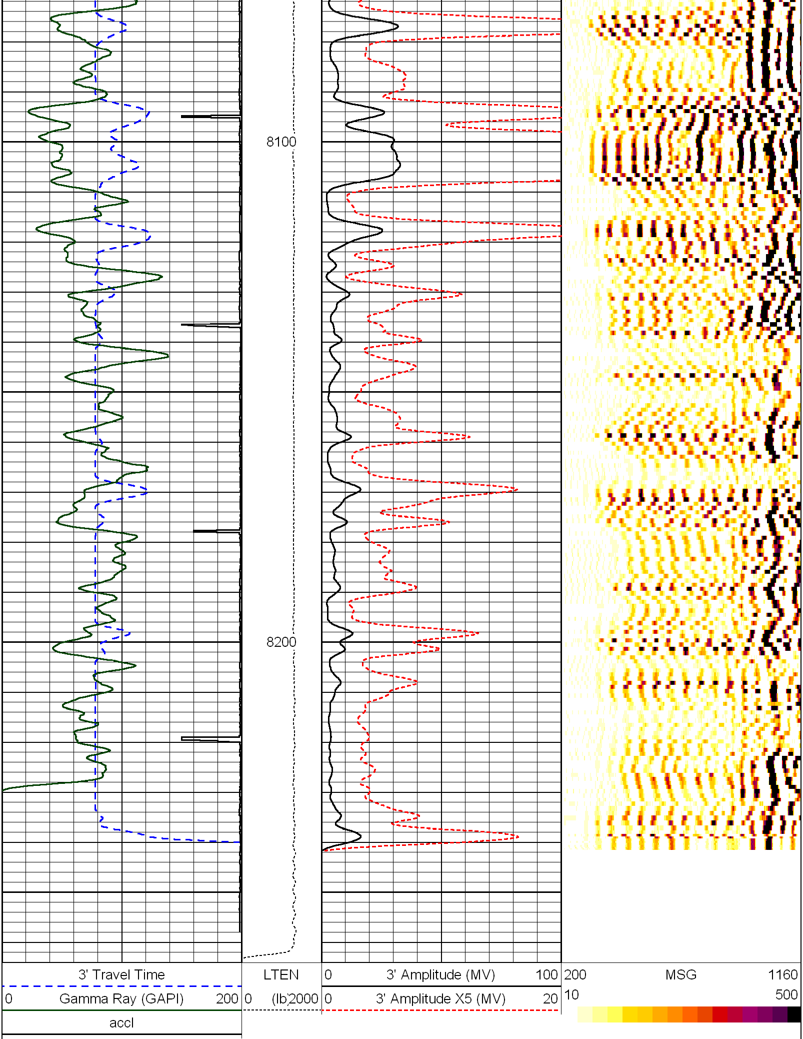
HALLIBURTON

REPEAT LOG SECTION

5" = 100'

Database File:	cs1_cast.db
Dataset Pathname:	CBLRPT
Presentation Format:	hcbl
Dataset Creation:	Thu Mar 27 19:06:17 2014
Charted by:	Depth in Feet scaled 1:240





HALLIBURTON

REPEAT LOG SECTION

5" = 100'

HALLIBURTON

FREE PIPE LOG SECTION

5" = 100'

Database File:	cs1_cast.db
Dataset Pathname:	free1
Presentation Format:	hcbl
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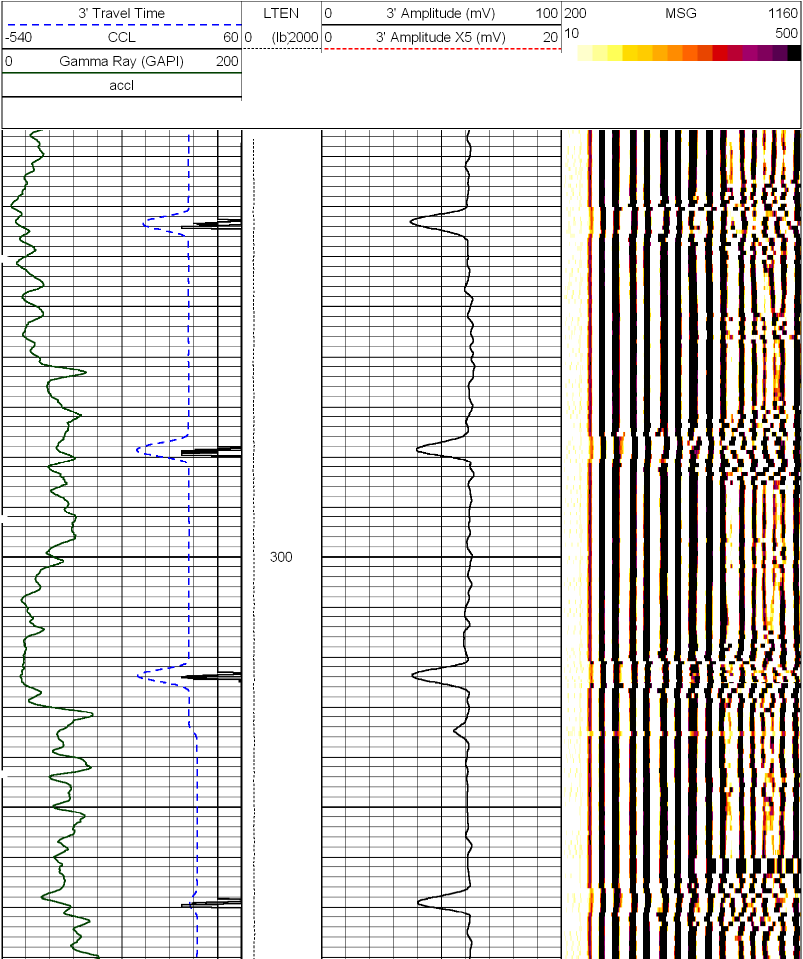
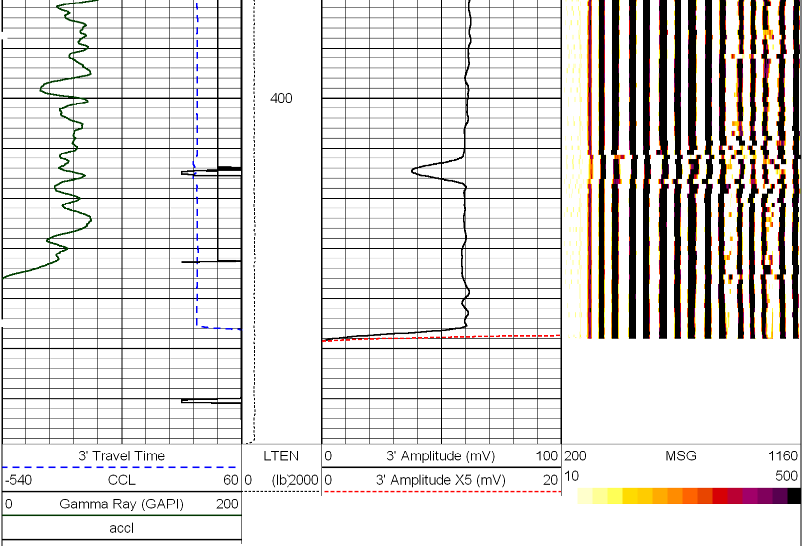
Charted by:	Depth in Feet scaled 1:240





HALLIBURTON

FREE PIPE LOG SECTION

5" = 100'

Calibration Report

Database File: cs1_cast.db
Dataset Pathname: MAIN1
Dataset Creation: Thu Mar 27 15:37:31 2014 by Log Halliburton Casedho

Circumferential Acoustic Scanning Tool Shop Calibration Report

Serial-Model: 438_12030243-4 3/8 SCAN

Calibration Performed: Wed Mar 26 13:36:24 2014

	Mudcell Transducer		Main Transducer		
	Measured	Expected	Measured	Expected	Units
W/O Calibrator	48.20	44.00	N/A	N/A	usec
W Calibrator	39.40	35.00	55.65	50.00	usec

Calibrated Offsets

Name	Value	Units
TCAL	5.6459	usec
MCAL	4.1990	usec

XY Accelerometers Calibration Report

Performed: Not Performed

	Low Read.	High Read.		Low Ref.	High Ref.	
X Accelerometer	0.000	1.000	gee	0.000	1.000	gee
Y Accelerometer	0.000	1.000	gee	0.000	1.000	gee

Cement Bond Log Shop Calibration Report

Serial-Model: 11858780-A

Calibration Performed: Thu Mar 27 14:37:31 2014

Free Pipe Calibration

	Measured	Units
TT	287.6	usec
Amplitude	413.5	mV
Log Base Line	1.2	mV

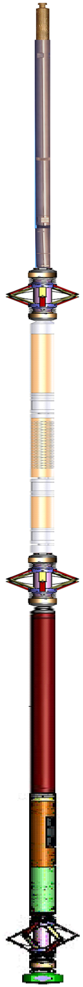
Calibration References and Gain

Name	Value	Units
Pipe O.D.	7.000	in
Pipe Weight	29.0	lb/ft
Pipe Ref. Amp.	62.2	mV
Amp. Gain	0.151	

Gamma Ray Calibration Report

Type / Serial: 002 / 11510512

	Counts/Sec.	Gain	Offset	Jig	Units
SHOP CALIBRATION	Thu Mar 27 13:46:07 2014				
Background	21.6				cps
Calibrator	217.3				cps
		2.2123			GAPI/cps
PRIMARY VERIFICATION	Thu Mar 27 13:49:18 2014				
Background	43.0				cps
Calibrator	480.5				cps
Difference				437.4	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
AFTER SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI



Sensor	Offset (ft)
CCL	36.22
GR	33.96
Temp	24.25
AMP3FT	22.00
TT3FT	22.00
LLMTEN	0.00
LOCTIM	0.00
SCAN	0.00
AccX1	0.00
AccY1	0.00
AccX2	0.00
AccY2	0.00

Description	Len (ft)	OD (in)	Wt (lb)
STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
TTTCU-002 (11510512) Through Tubing Telemetry Cartridge - Ultrawire	7.66	1.69	37.00
XHU-003 (12218041) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
HCBLM-A (11858780) Halliburton HCBLM Tool	9.38	2.75	116.00
CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
HAL-CAST-M-ELECT-CAST-M-Elect (1203 4) CAST M ELECTRONIC	7.58	2.75	30.00
HAL-CAST-M-4 3/8 SCAN (438_12030243 4 3/8 SCAN CASTM	7.78	4.38	276.00

Dataset: cs1_cast.db: field/well/run1/MAIN1
Total Length: 39.80 ft
Total Weight: 517.00 lb
O.D. 4.38 in

Company	KINDER MORGAN CO2 CO LP
Well	COW CANYON CS #1
Field	MCELMO DOME
County	MONTEZUMA
State	CO

HALLIBURTON

ACOUSTIC CEMENT
BOND LOG