



Company: QUICKSILVER RESOURCES INC.

Well: PIRTLAW PARTNERS LTD 32-09

Field: WILDCAT

County: ROUTT State: COLORADO

SLIM CEMENT MAPPING LOG
GR-CCL

County: ROUTT
Field: WILDCAT
Location:
Well: PIRTLAW PARTNERS LTD 32-09
Company: QUICKSILVER RESOURCES INC

LOCATION		Elev.:	K.B.	6776.00 ft
Permanent Datum:	GROUND LEVEL	Elev.:	G.L.	6760.00 ft
Log Measured From:	KELLY BUSHING		D.F.	6775.00 ft
Drilling Measured From:	KELLY BUSHING	16.00 ft	above Perm. Datum	
API Serial No.	05-107-06250-0000	Section	Township	Range

	Run 1	Run 2	Run
PVT DATA			
Oil Density			
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation			
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No			
Lead Cement Type			
Volume			
Density			
Water Loss			
Additives			
Tail Cement Type			
Volume			
Density			
Water Loss			
Additives			
Expected Cement Top			

Logging Date	15-Jul-2013
Run Number	1
Depth Driller	5219 ft
Schlumberger Depth	4617 ft
Bottom Log Interval	4608 ft
Top Log Interval	16 ft
Casing Fluid Type	FRESH WATER
Salinity	
Density	8.4 lbm/gal
Fluid Level	25 ft
BIT/CASING/TUBING STRING	
Bit Size	11.000 in
From	16 ft
To	5219 ft
Casing/Tubing Size	9.625 in
Weight	40 lbm/ft
Grade	
From	16 ft
To	5219 ft
Maximum Recorded Temperatures	130 degF
Logger On Bottom	15-Jul-2013
Unit Number	391
Recorded By	KIRSTIE BUNTING
Witnessed By	HEATHER MCSLOOP

Logging Date	
Run Number	
Depth Driller	
Schlumberger Depth	
Bottom Log Interval	
Top Log Interval	
Casing Fluid Type	
Salinity	
Density	
Fluid Level	
BIT/CASING/TUBING STRING	
Bit Size	
From	
To	
Casing/Tubing Size	
Weight	
Grade	
From	
To	
Maximum Recorded Temperatures	
Logger On Bottom	
Unit Number	
Recorded By	
Witnessed By	

DEPTH SUMMARY LISTING

Date Created: 3-JUN-2013 9:46:48

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B	Type: CMTD-B/A	Type: 1-25ZT
Serial Number: 6214	Serial Number: 3421	Serial Number: 112136
Calibration Date: 4-24-2012	Calibration Date: 6-3-2013	Length: 19500 FT
Calibrator Serial Number:	Calibrator Serial Number: 174878	Conveyance Method: Wireline
Calibration Cable Type: 1-25P	Number of Calibration Points: 10	Rig Type: LAND
Wheel Correction 1: -3	Calibration RMS: 2	
Wheel Correction 2: -4	Calibration Peak Error: 6	

Depth Control Parameters

Log Sequence: First Log In the Well
Rig Up Length At Surface:
Rig Up Length At Bottom:
Rig Up Length Correction:
Stretch Correction:
Tool Zero Check At Surface:

Depth Control Remarks

<ol style="list-style-type: none"> 1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES USED 2. IDW USED AS PRIMARY DEPTH CONTROL 3. SWPT DRUM COUNTER USED AS SECONDARY DEPTH CONTROL 4. 5. 6.

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1	OTHER SERVICES2
OS1: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE	
TOOL RUN AS PER TOOL SKETCH	
ENTRANCE: 14:00	
TIME ON BOTTOM: 14:15	
EXIT: 15:30	

MAXIMUM RECORDED TEMPERATURE: 130 DEGF
 MAXIMUM RECORDED PRESSURE: 1992 PSIA
 TOOL RUN IN 9 5/8 IN CASING=OUT OF TOLERANCE FOR SCMT
 LOGGED UNDER ZERO SURFACE PRESSURE

THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY
 CREW: KBUNTING, KIRWIN, WAZIZ, KJOHNS

RUN 1		
SERVICE ORDER #:	CGF9-00087	
PROGRAM VERSION:	19C0-187	
FLUID LEVEL:	25 ft	
LOGGED INTERVAL	START	STOP

RUN 2		
SERVICE ORDER #:		
PROGRAM VERSION:		
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

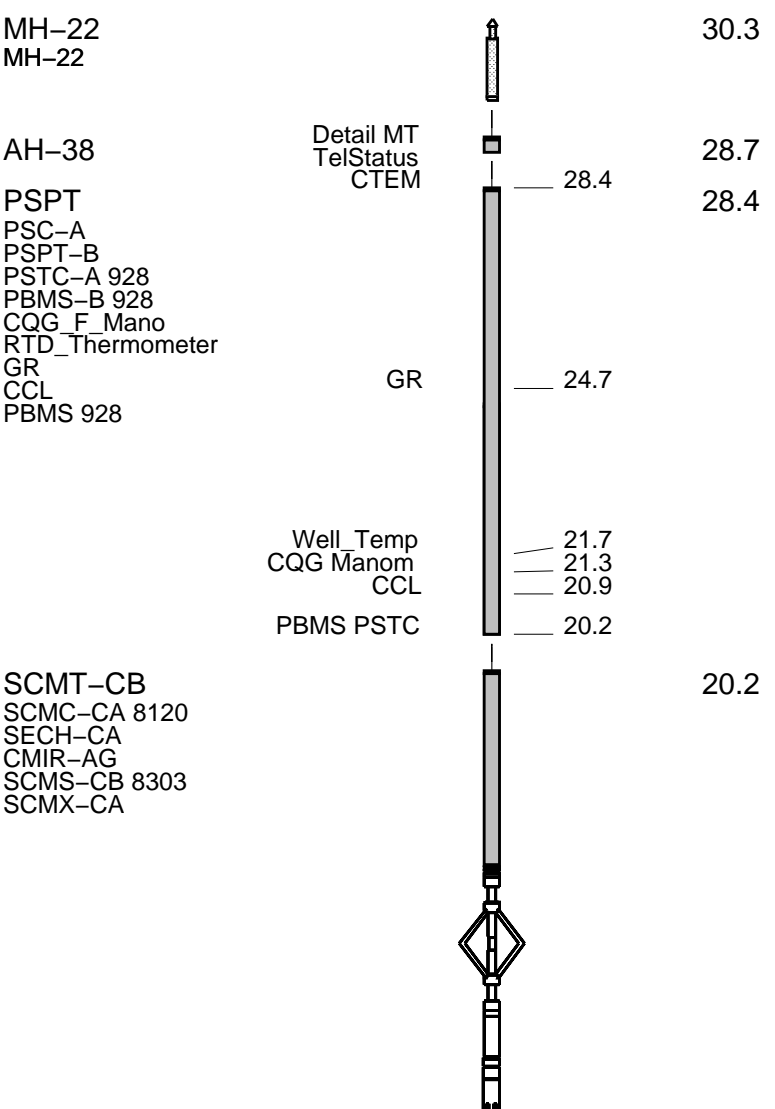
RUN 1

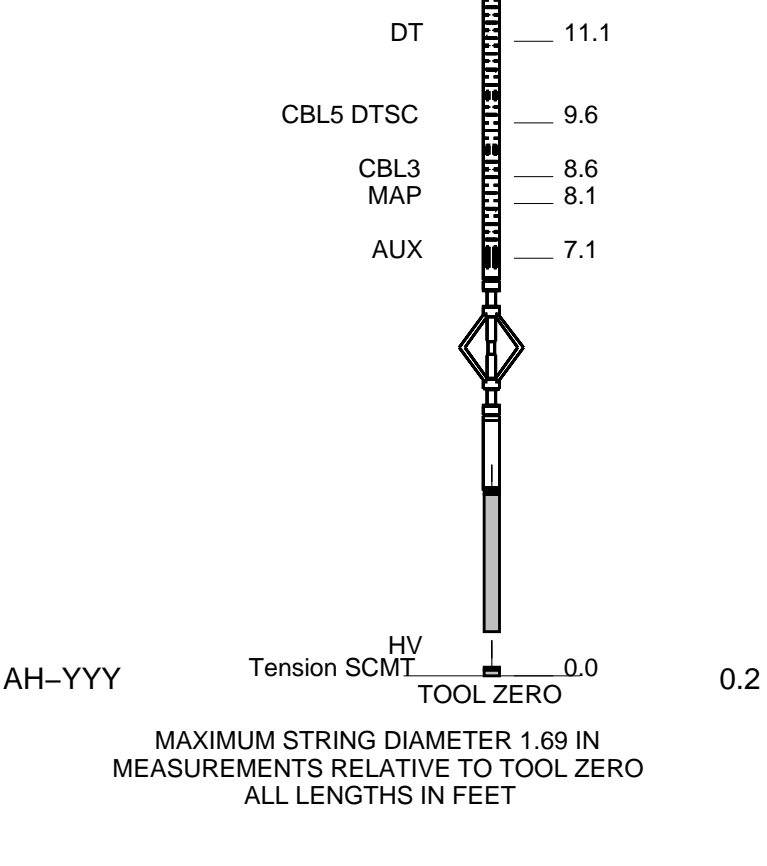
RUN 2

SURFACE EQUIPMENT

WITM-A
PSC_16MHZ

DOWNHOLE EQUIPMENT





MAIN PASS CBL VDL

MAXIS Field Log

Company: QUICKSILVER RESOURCES INC. Well: PIRTLAW PARTNERS LTD 32-09

Input DLIS Files

DEFAULT	SCMT_PSP_005LUP	FN:4	PRODUCER	15-Jul-2013 14:10	4627.0 FT	18.6 FT
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Output DLIS Files

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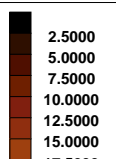
OP System Version: 19C0-187

SCMT-CB	SRPC-5214-H2-2012-OP19	PSPT	SRPC-5214-H2-2012-OP19
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PIP SUMMARY

Time Mark Every 60 S

Discriminat ed CCL (CCLD)	Transit Time (TT)		CBL Amplitude (CBL)	
	(V)	(US)	(MV)	
3	260	160 0	10	

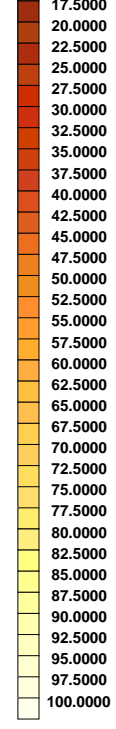


Tension
(TENS)
(LBF)

Gamma Ray (GR)
(GAPI)

CBL Amplitude (CBL)
(MV)

Min Amplitude Max
VDL Variable Density (VDL)
(US)



CBL Amplitude Mapping
Image (0 – 100) (MPWF)
(MV)

0 2000

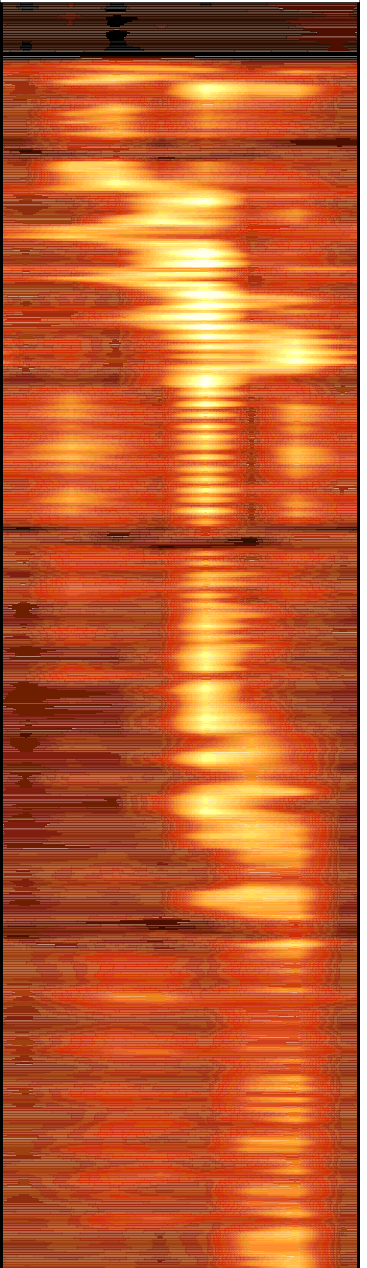
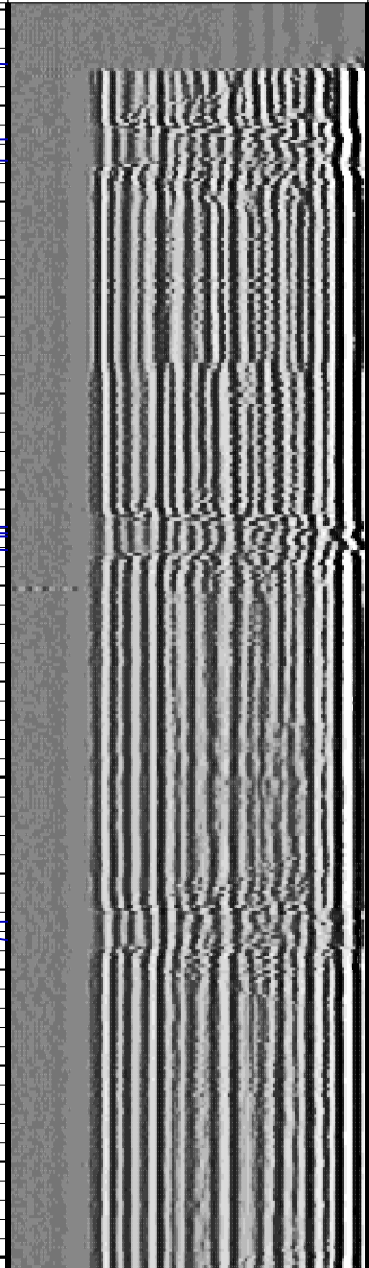
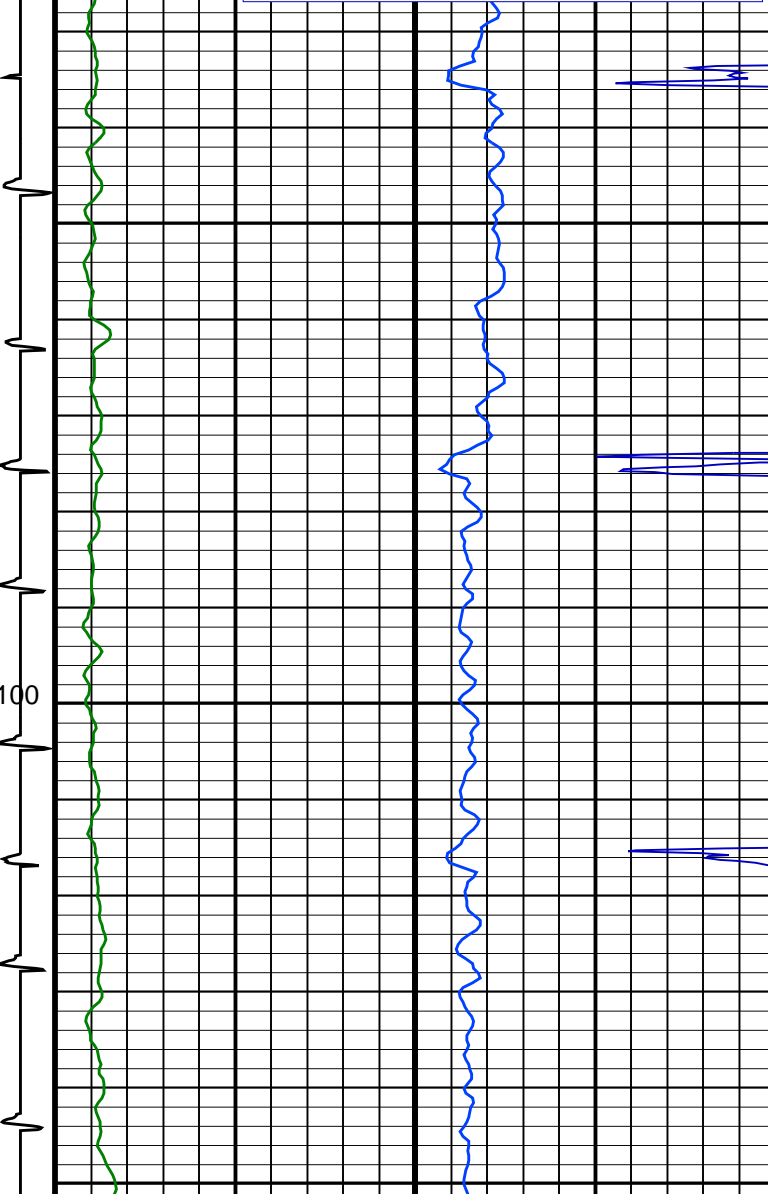
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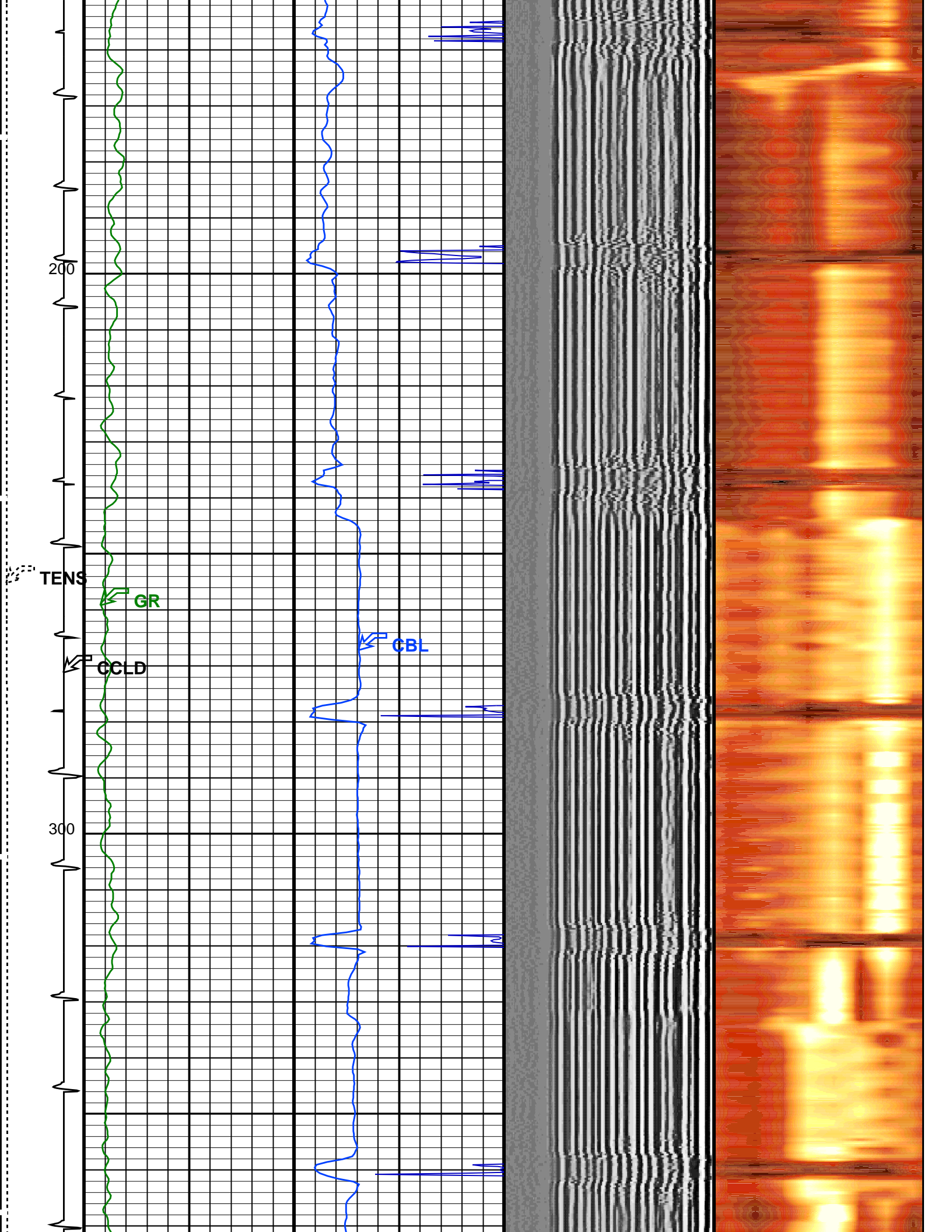
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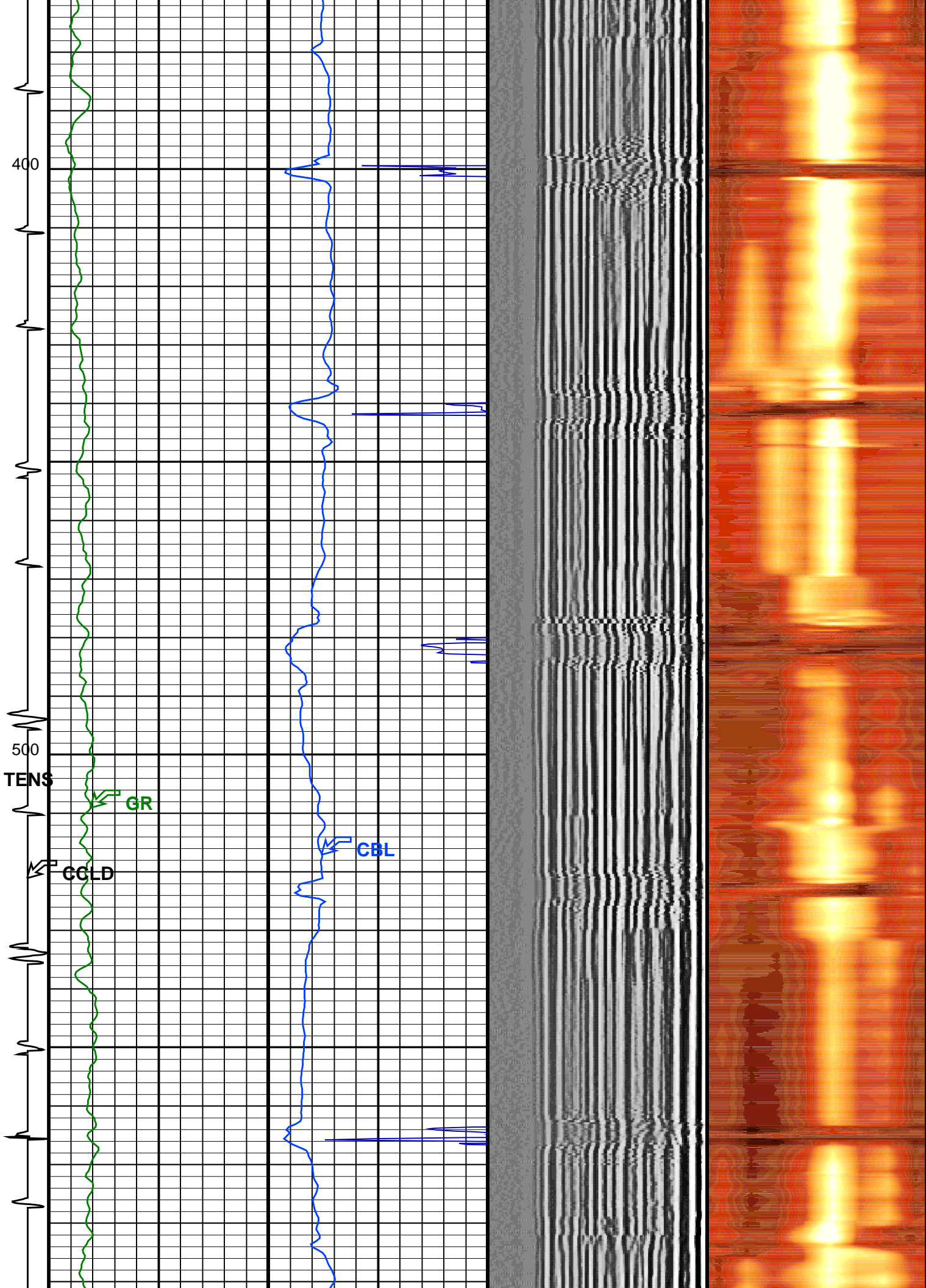
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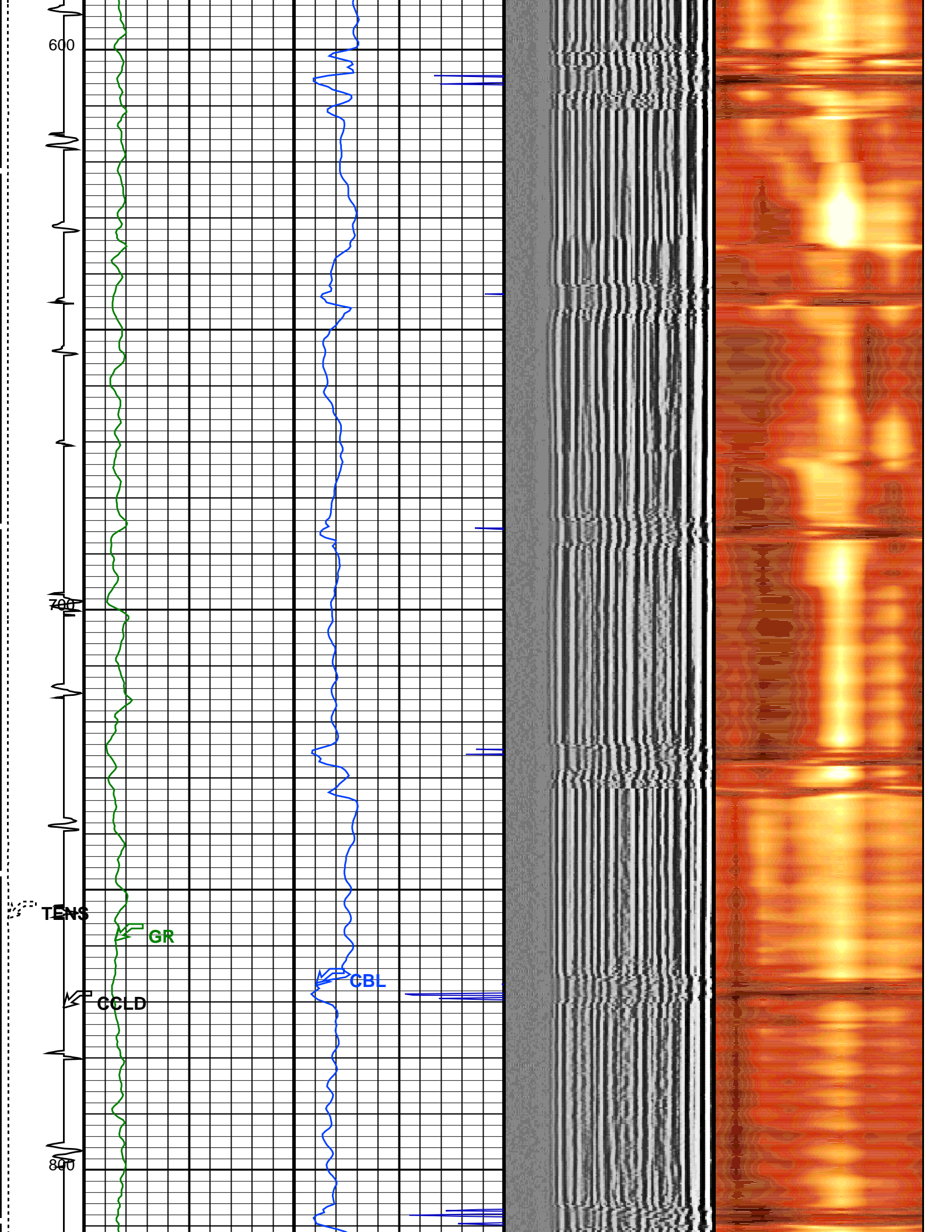
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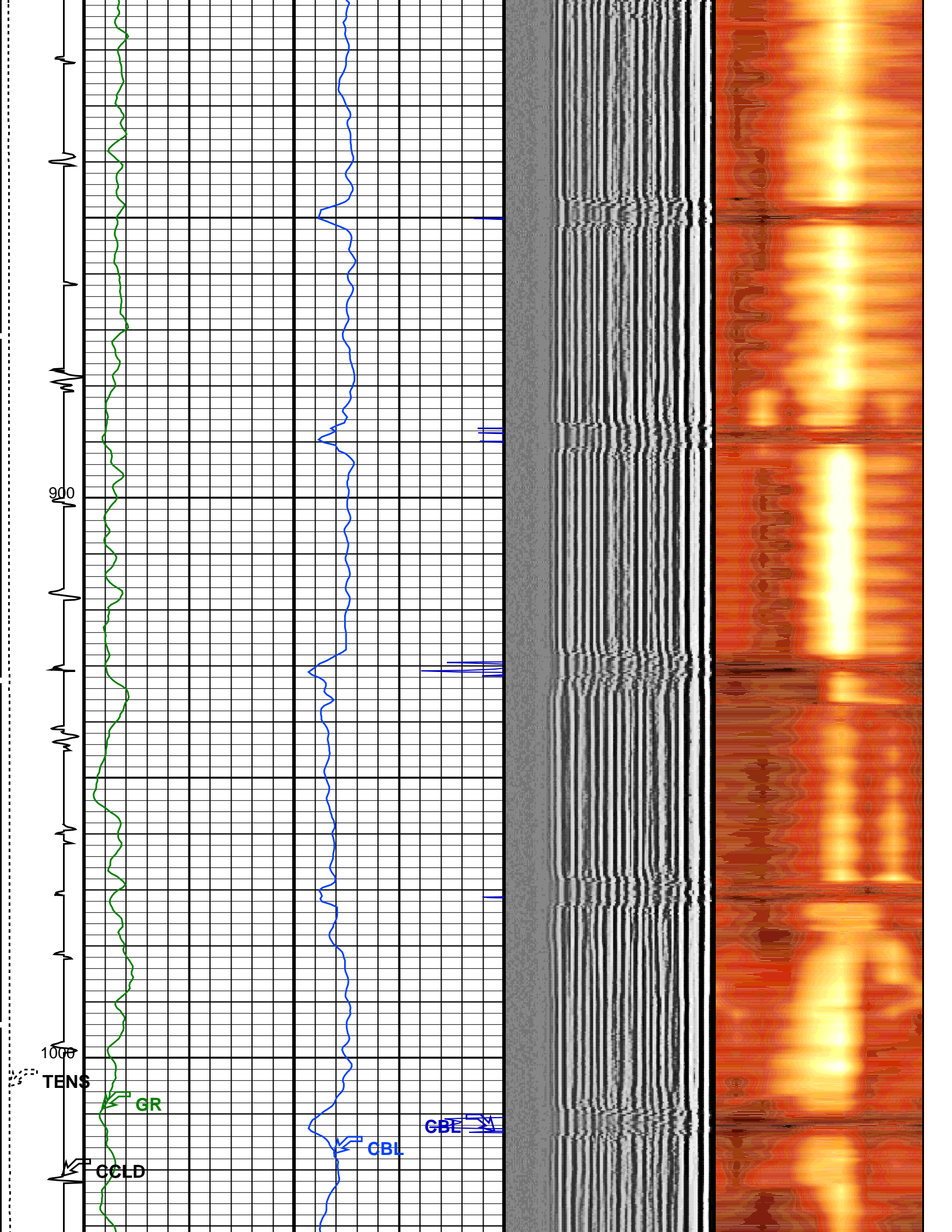
Last Reading ALL SENSORS 25 FT

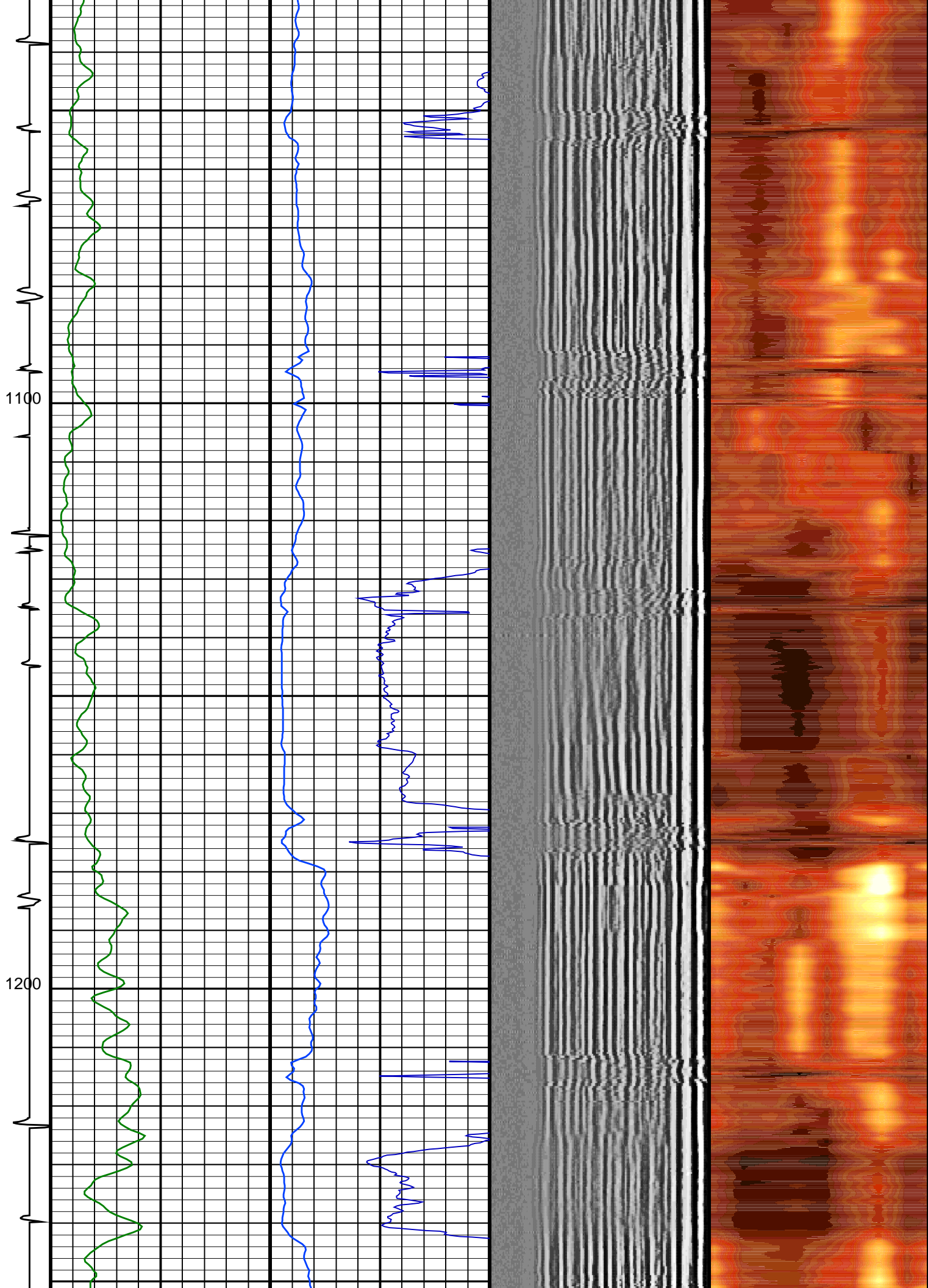


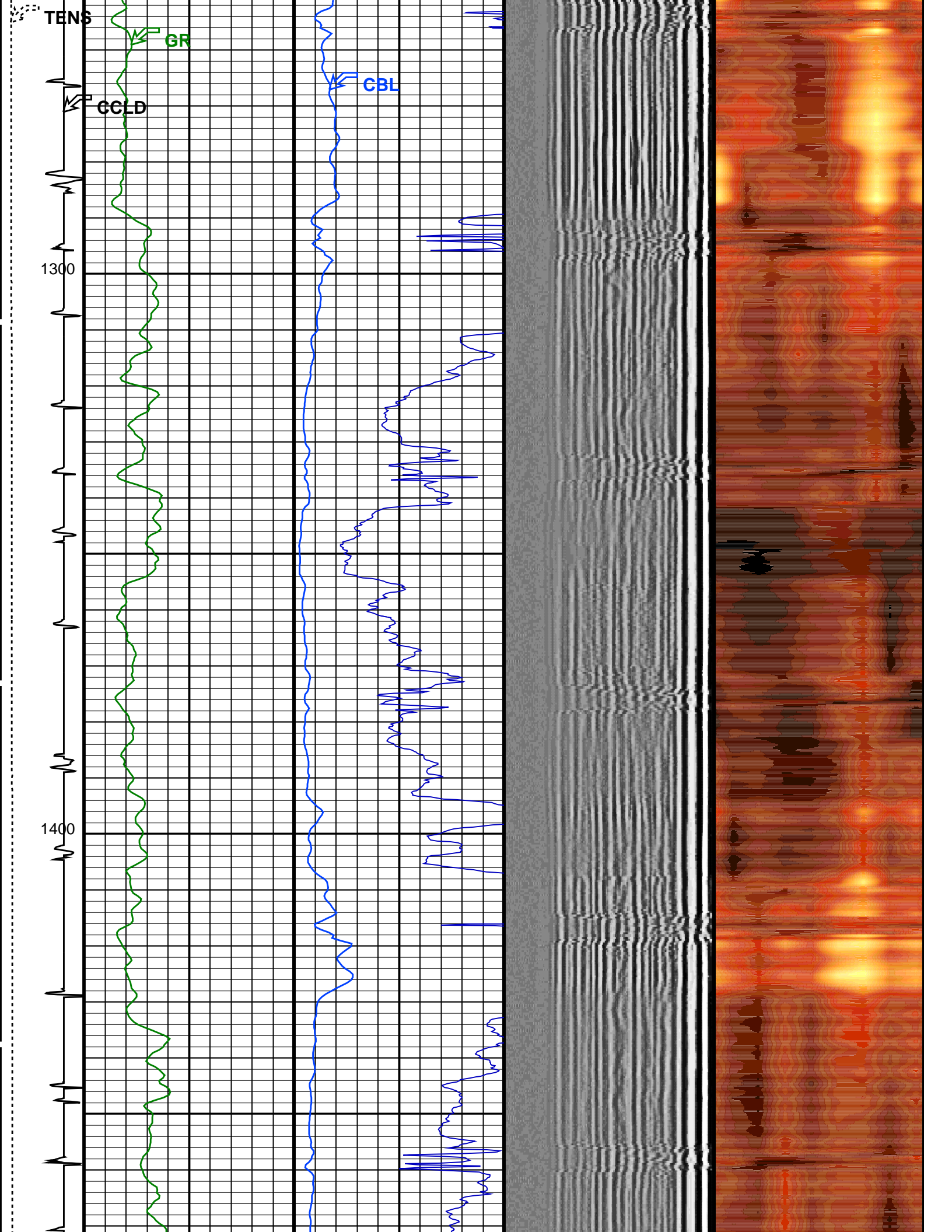


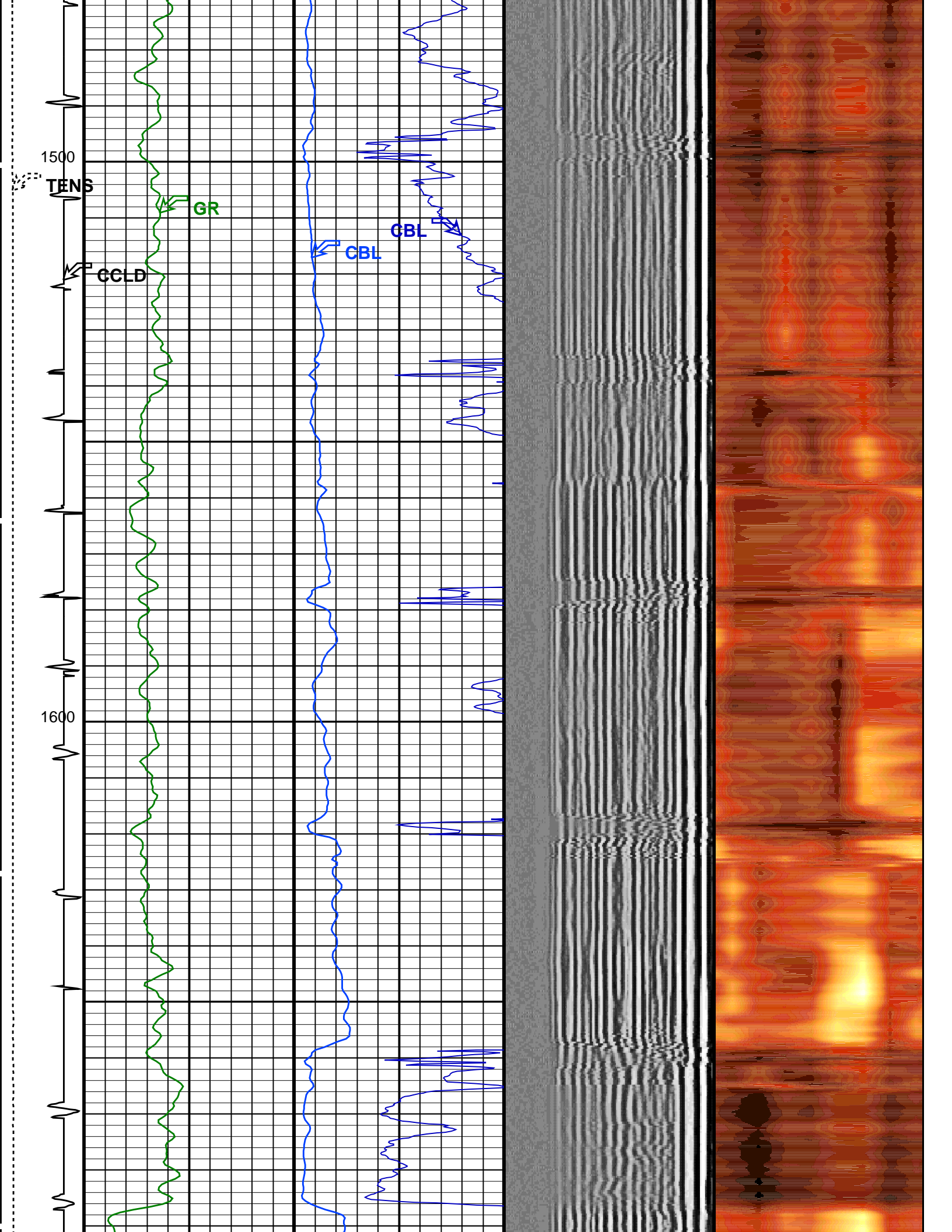












1700

1800

1900

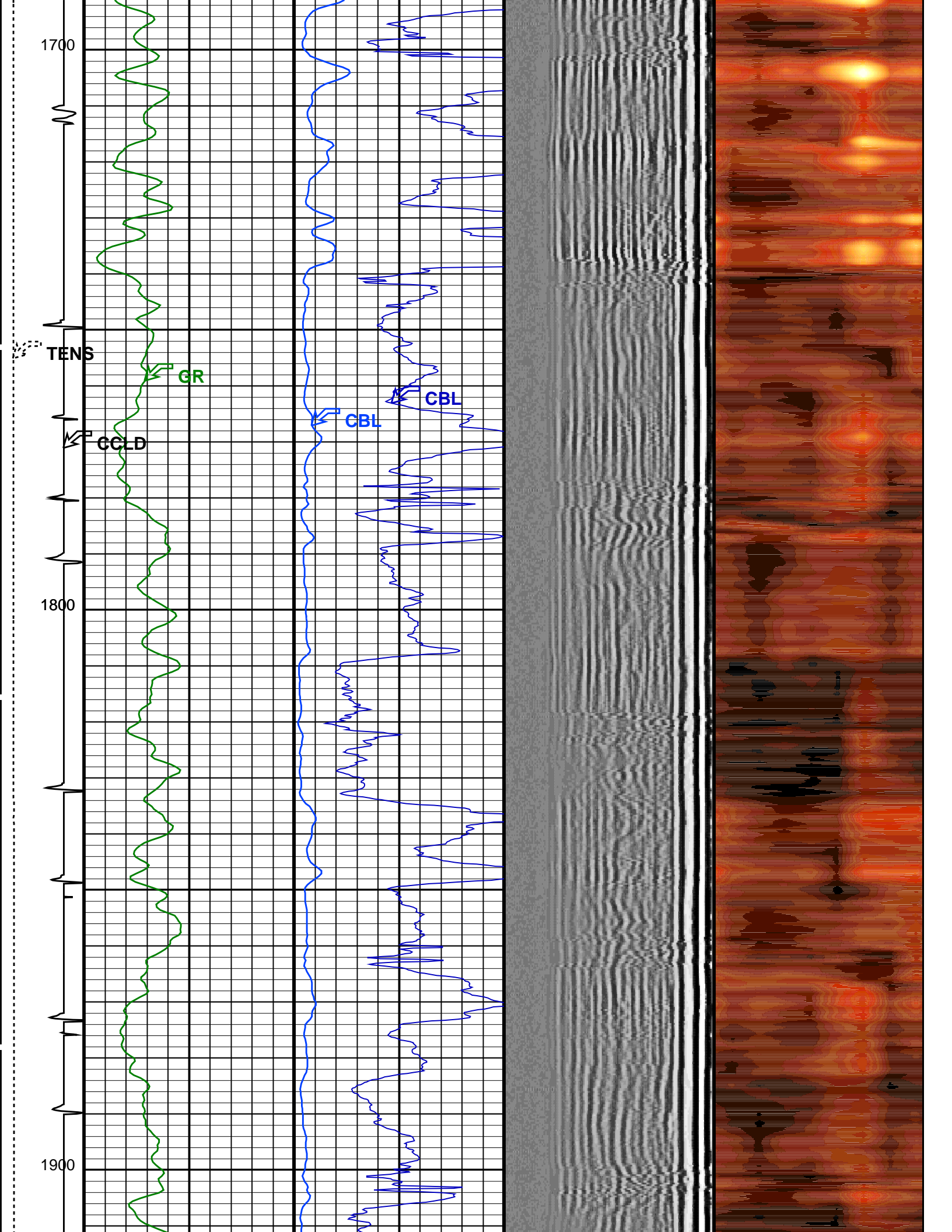
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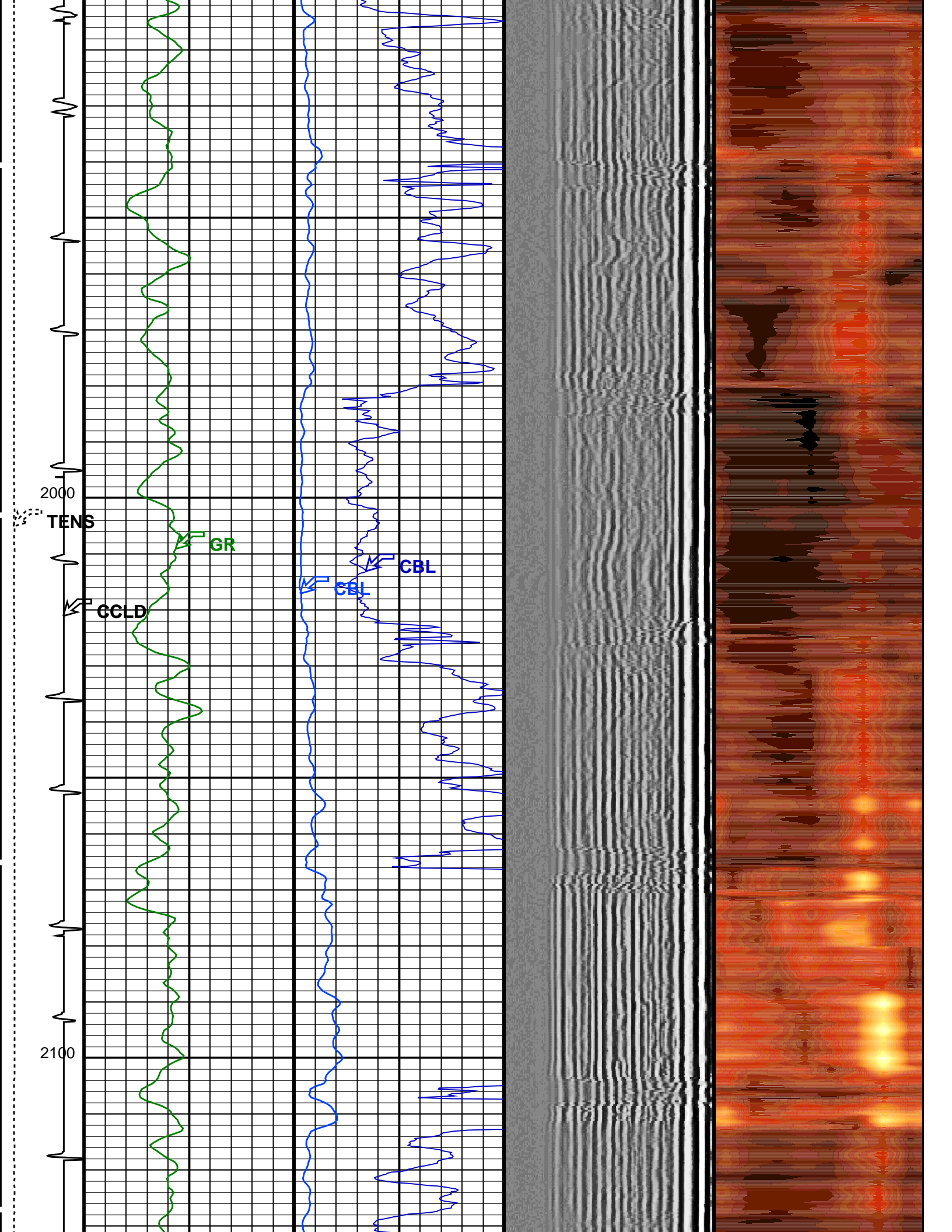
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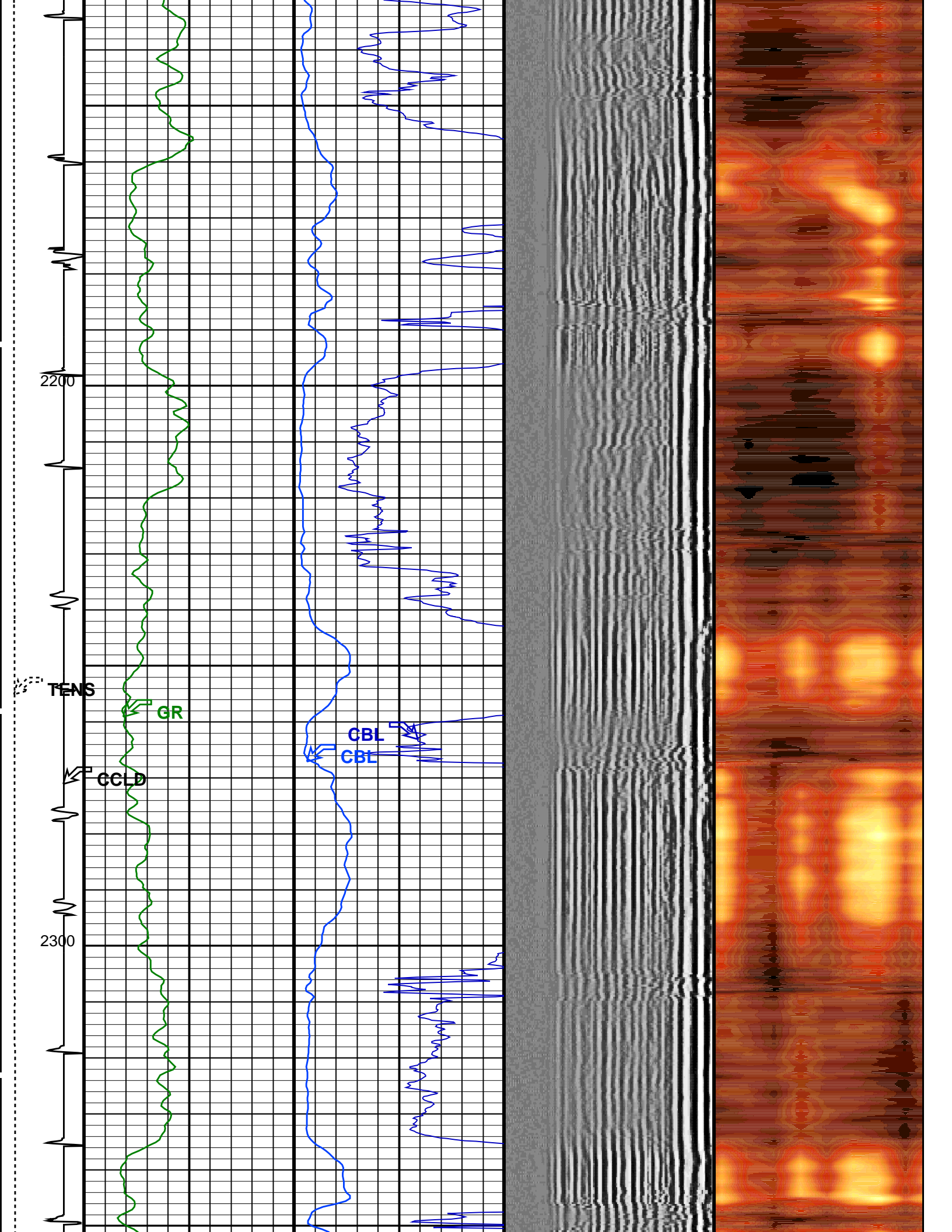
GR

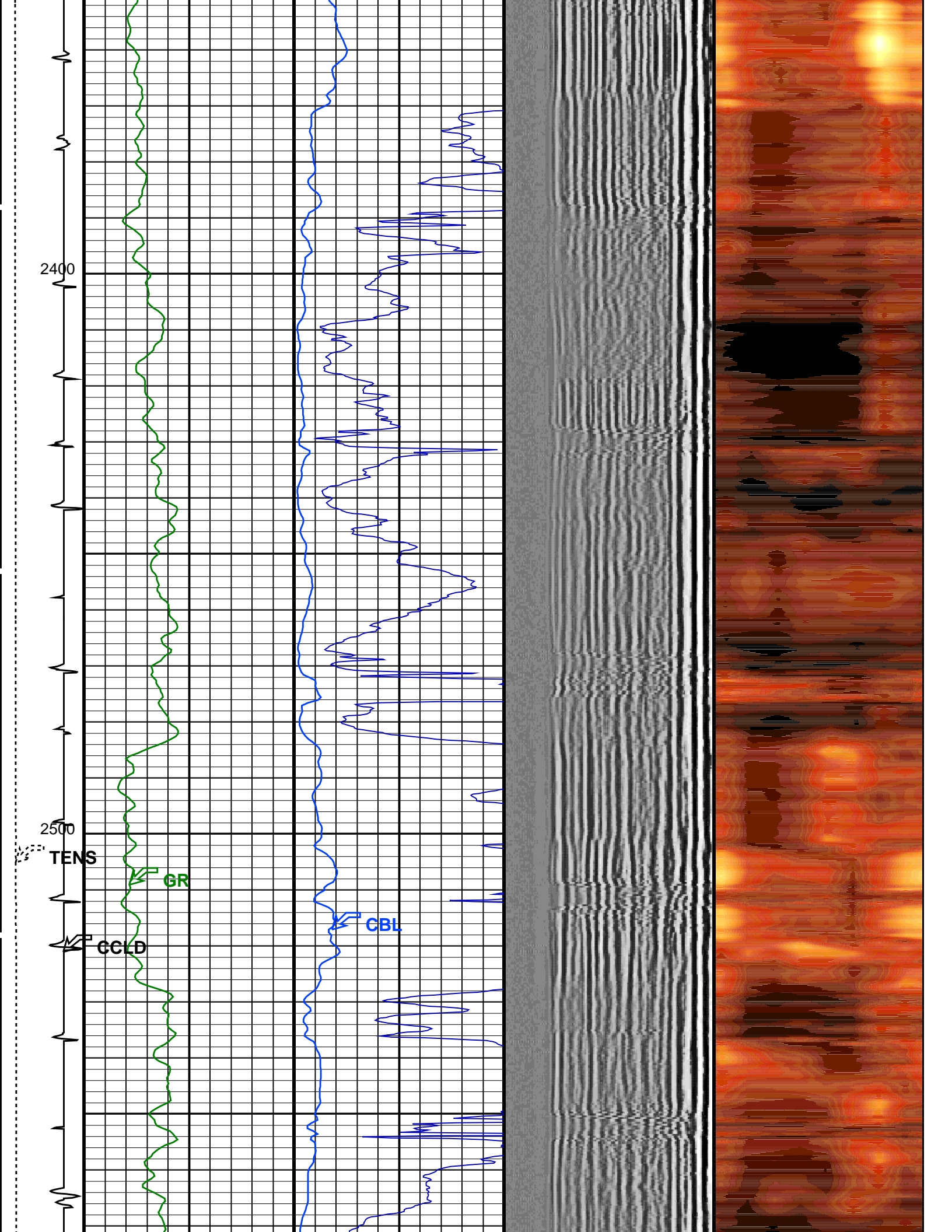
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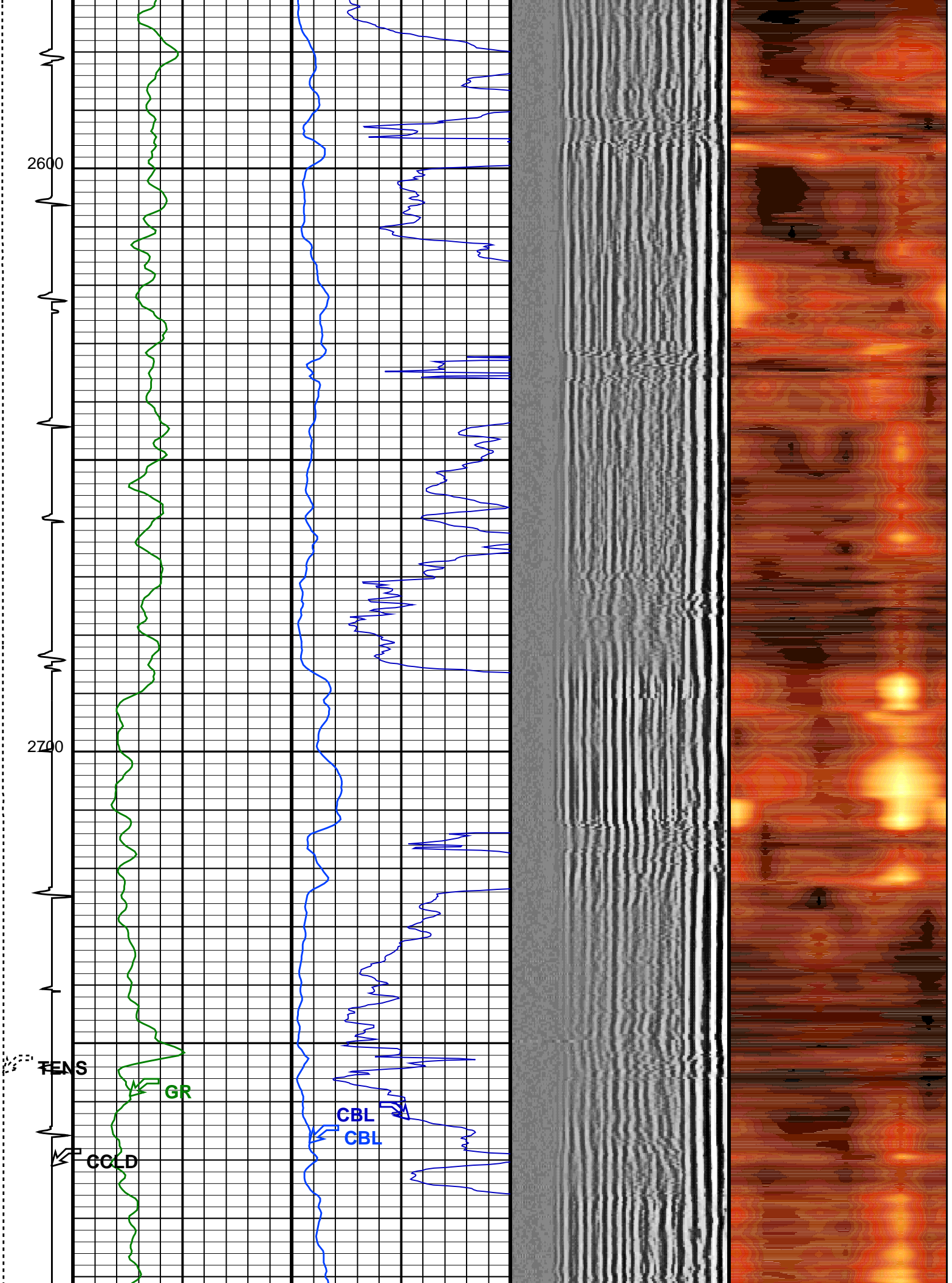
CBL











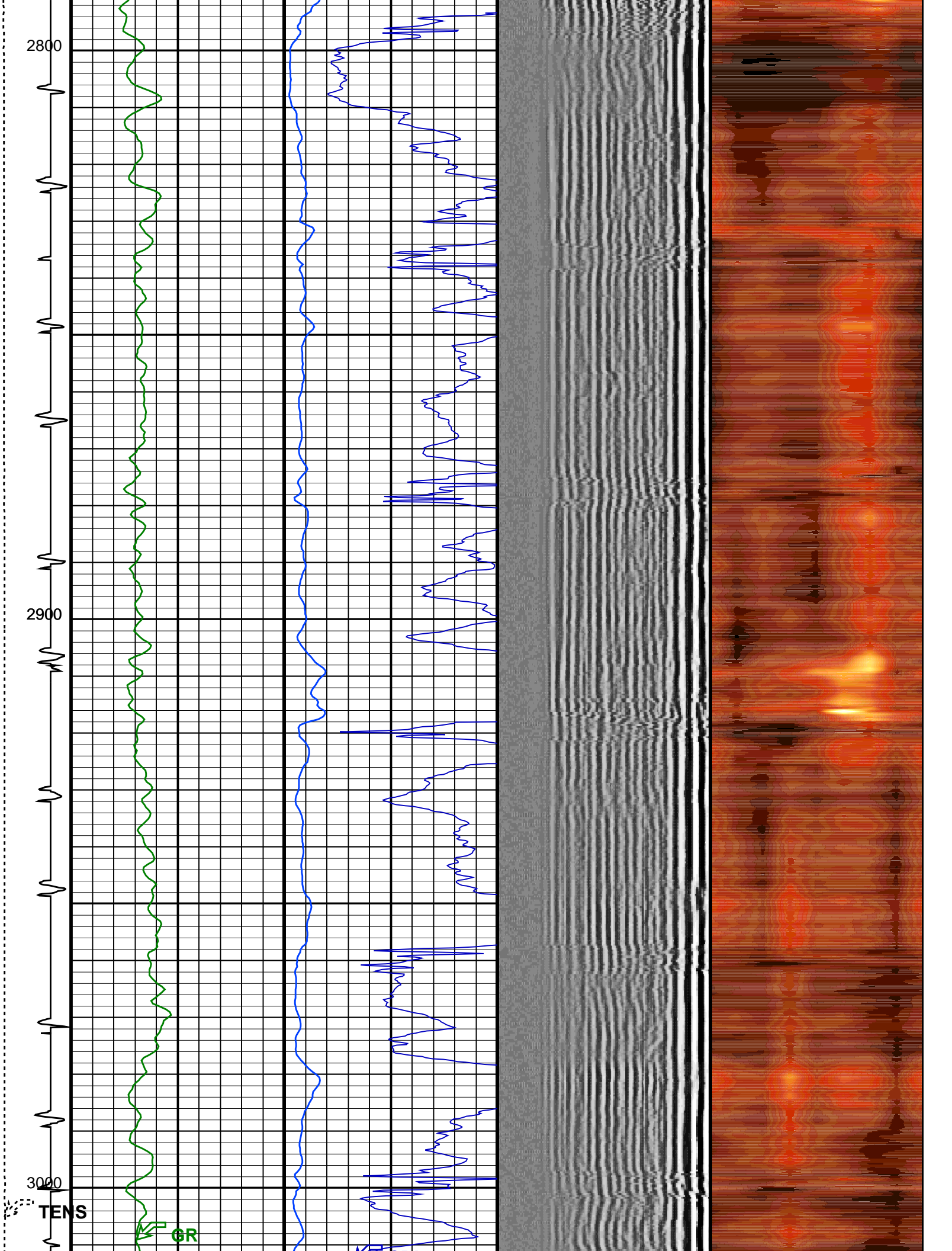
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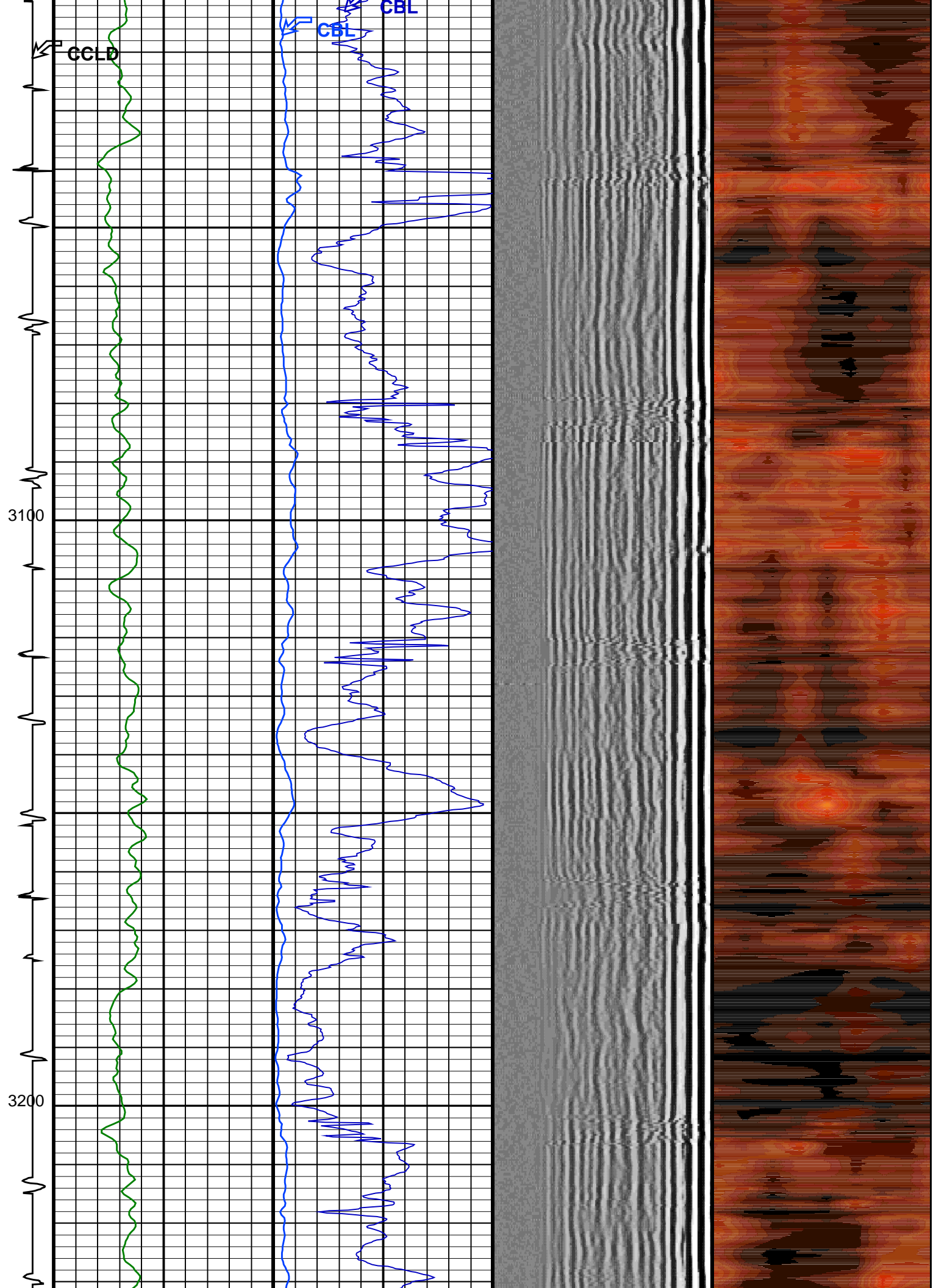
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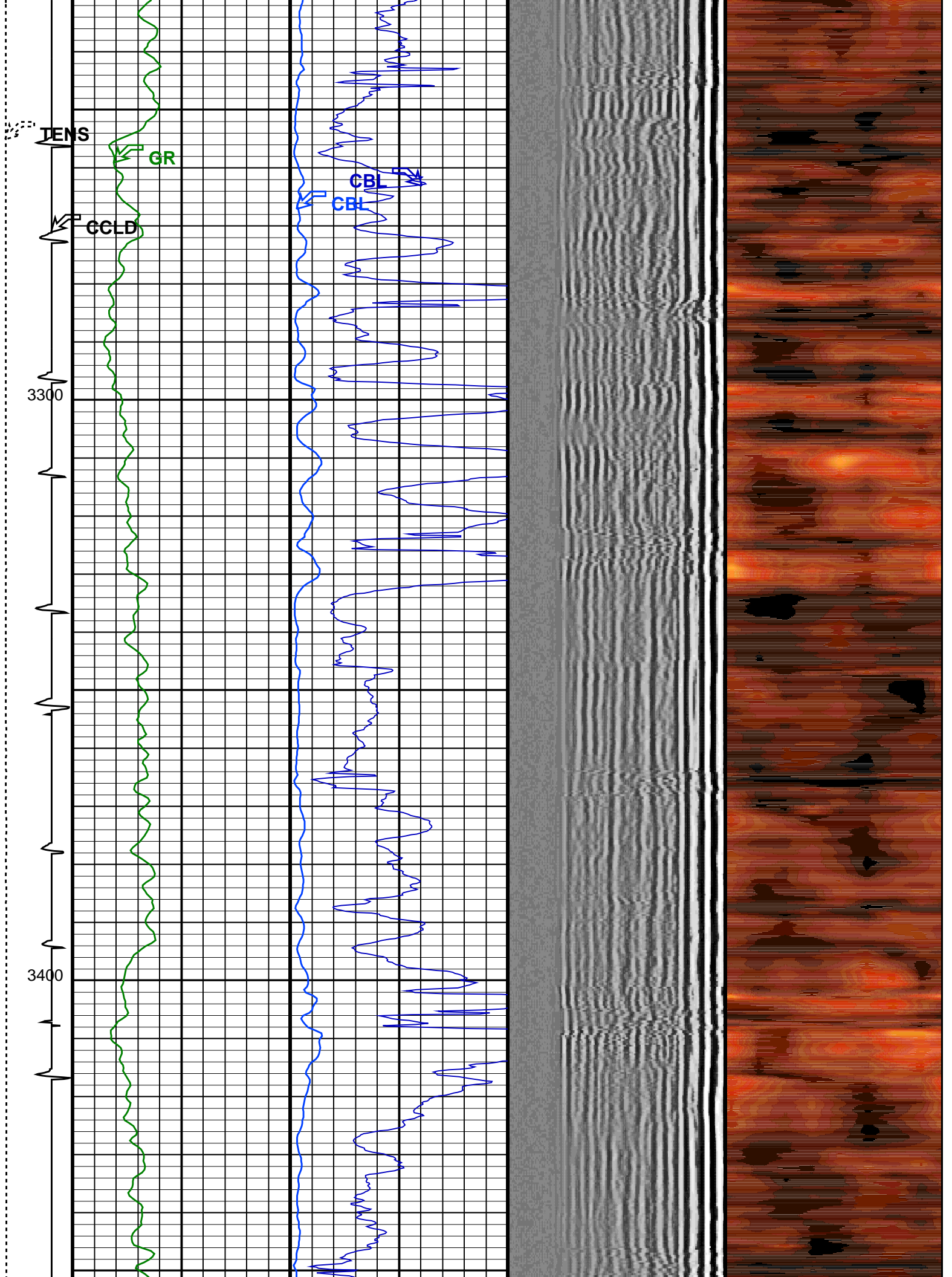
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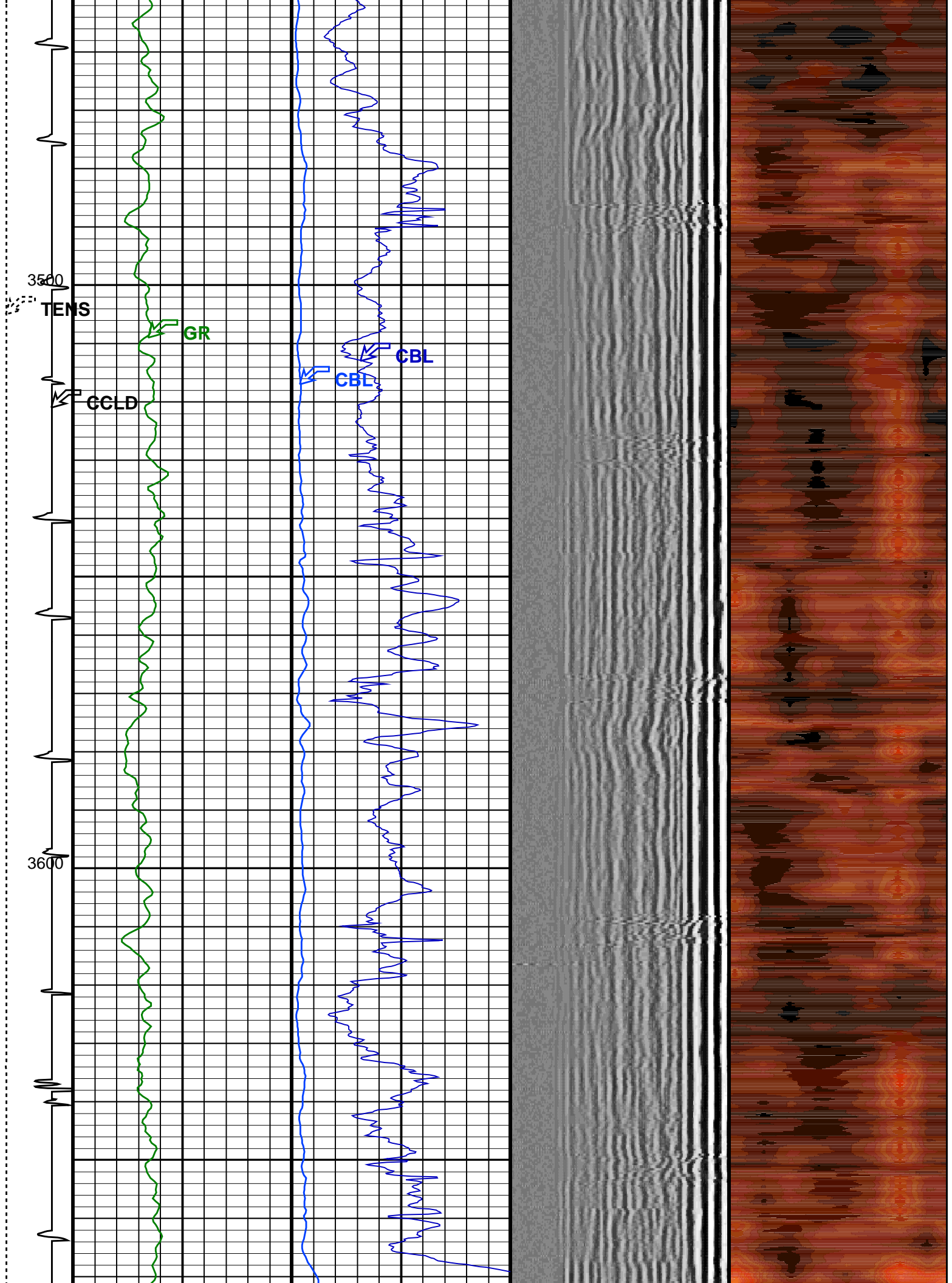
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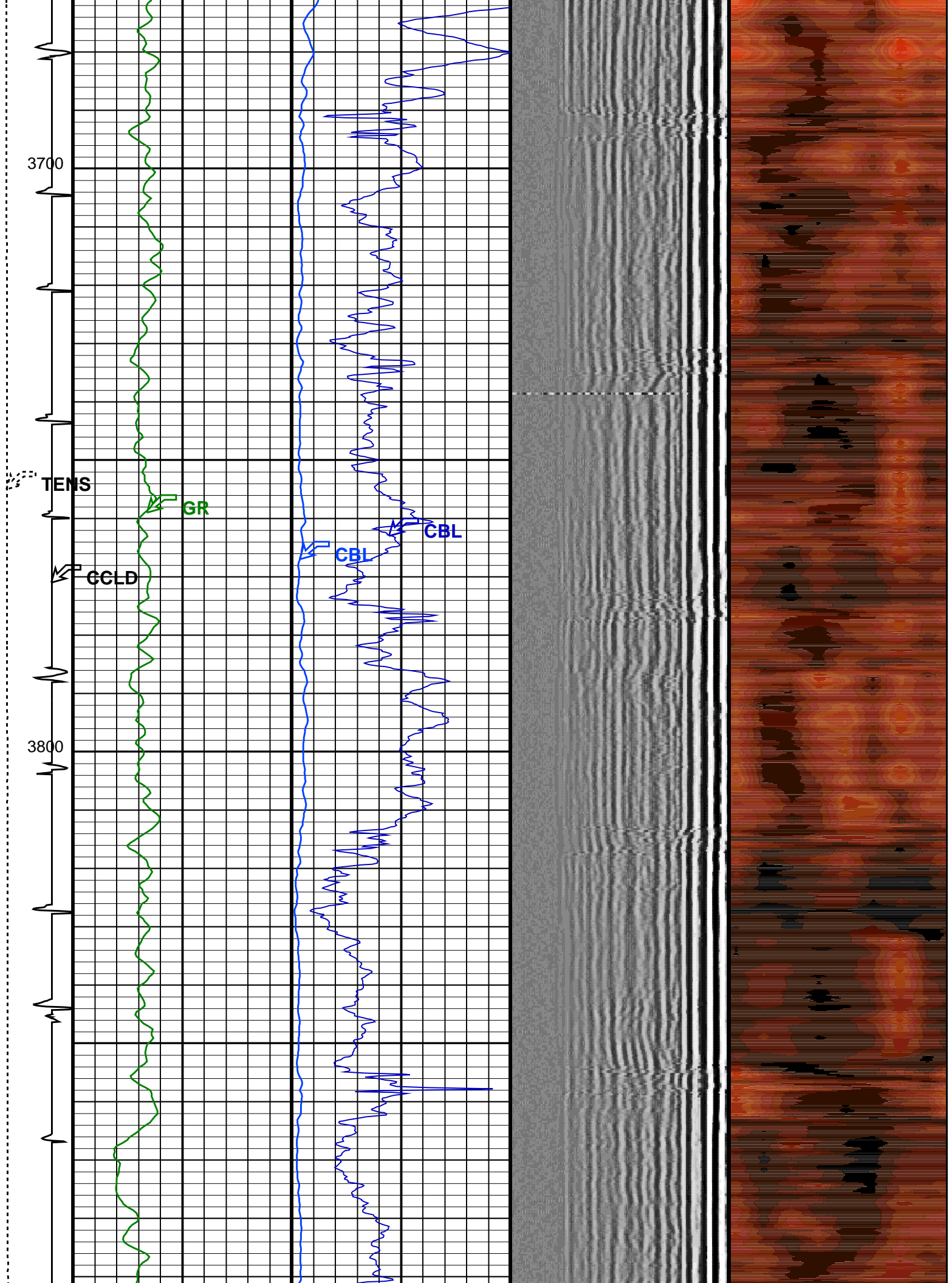
GR











3900

4000

4100

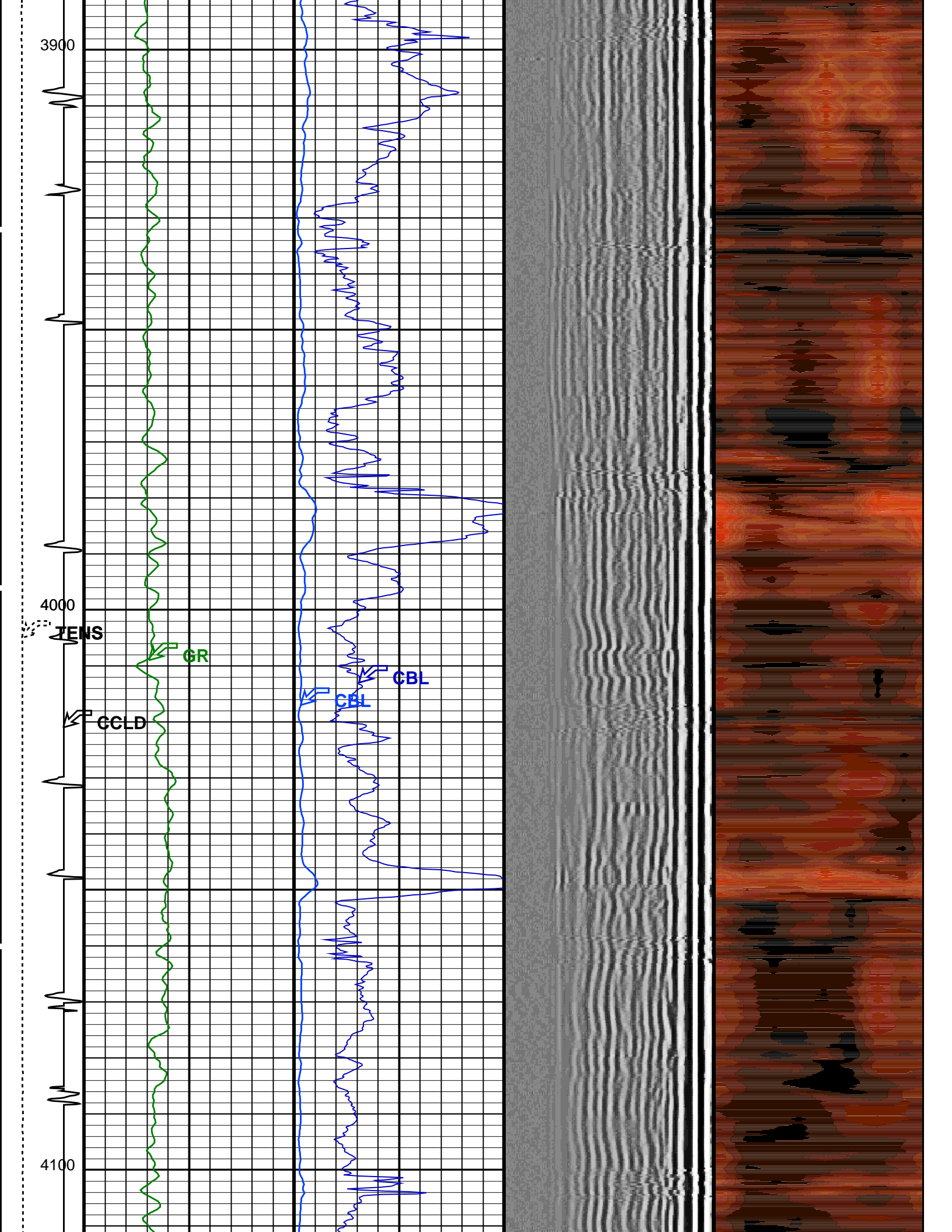
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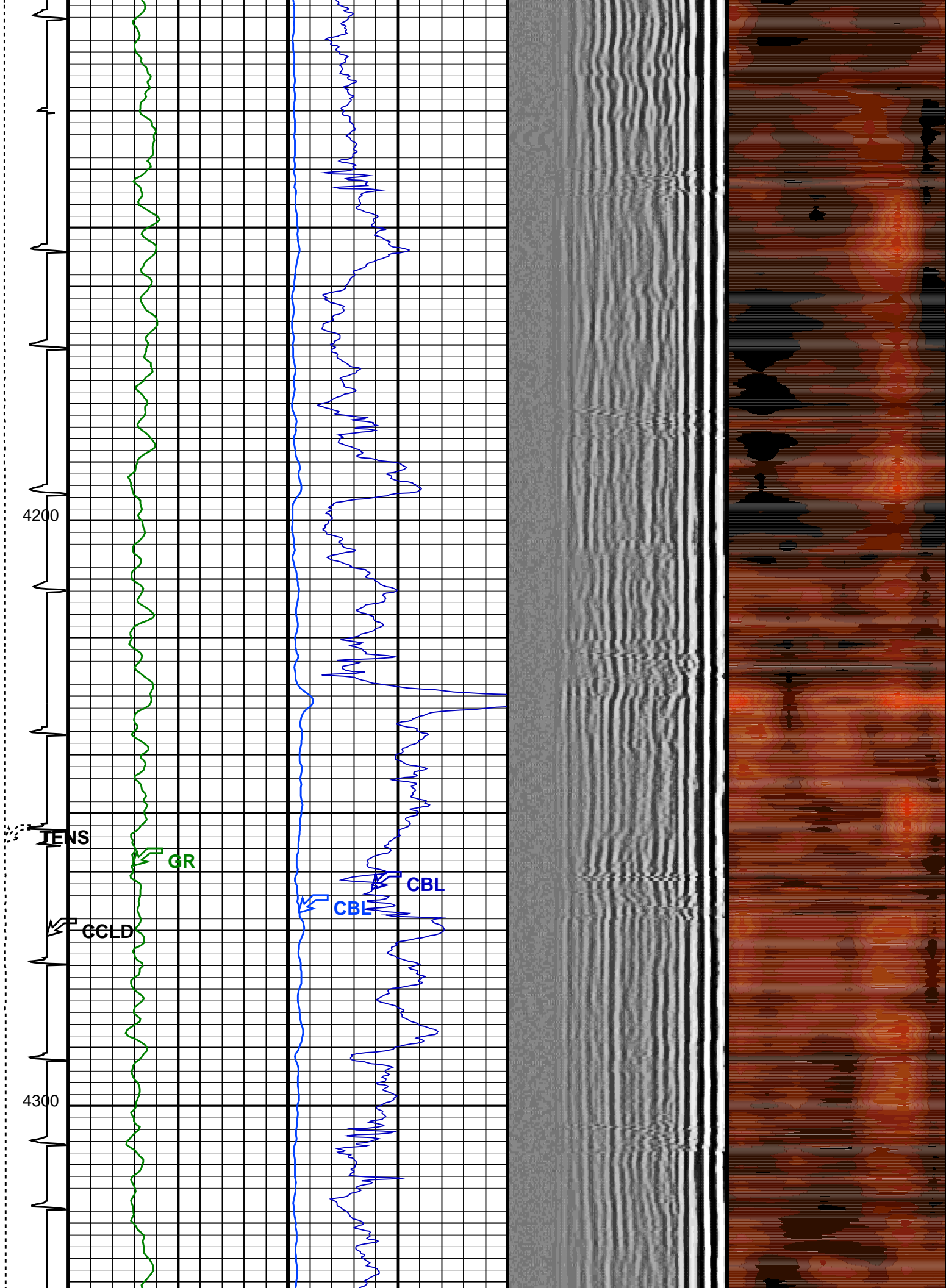
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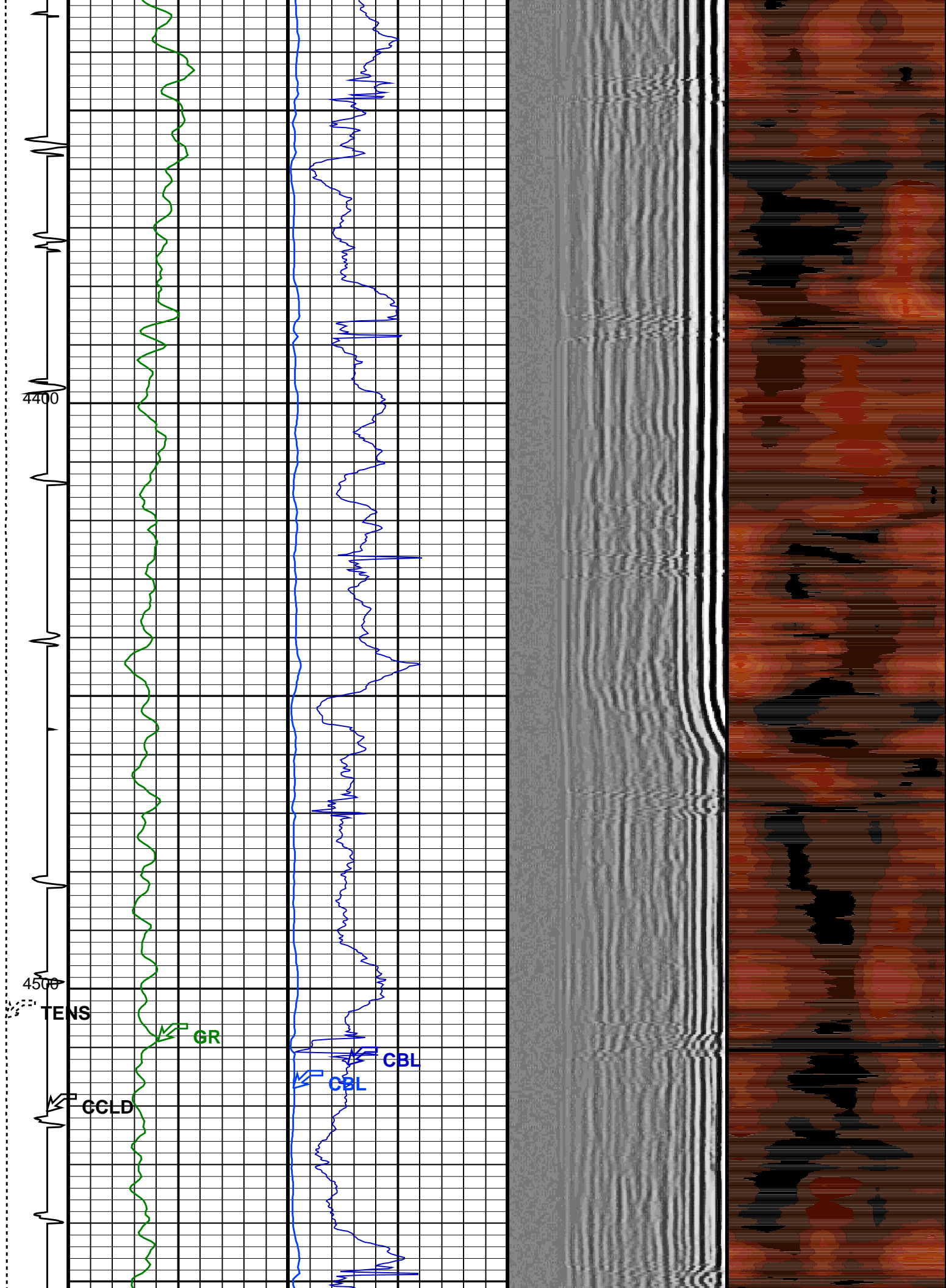
GCLD

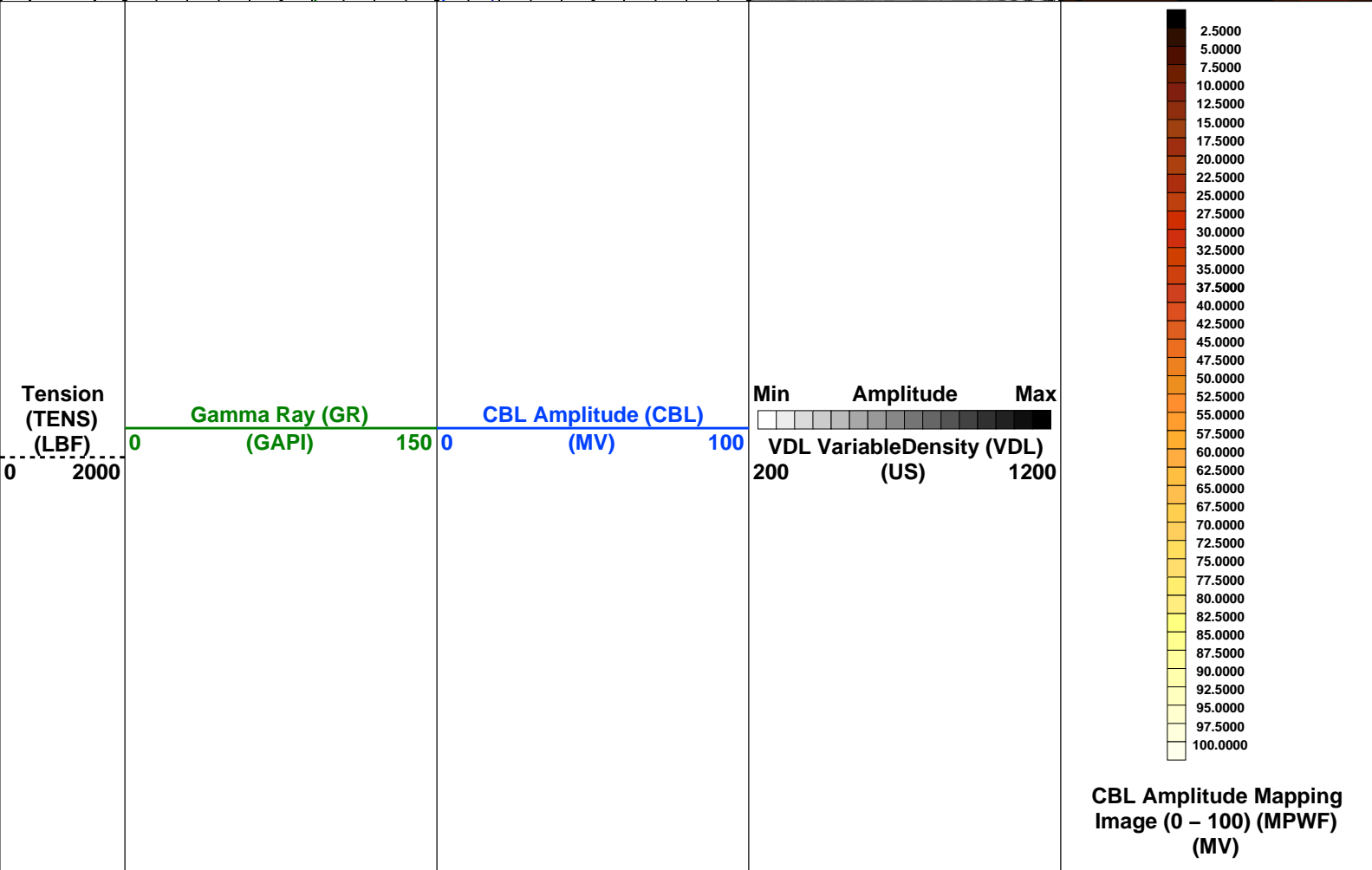
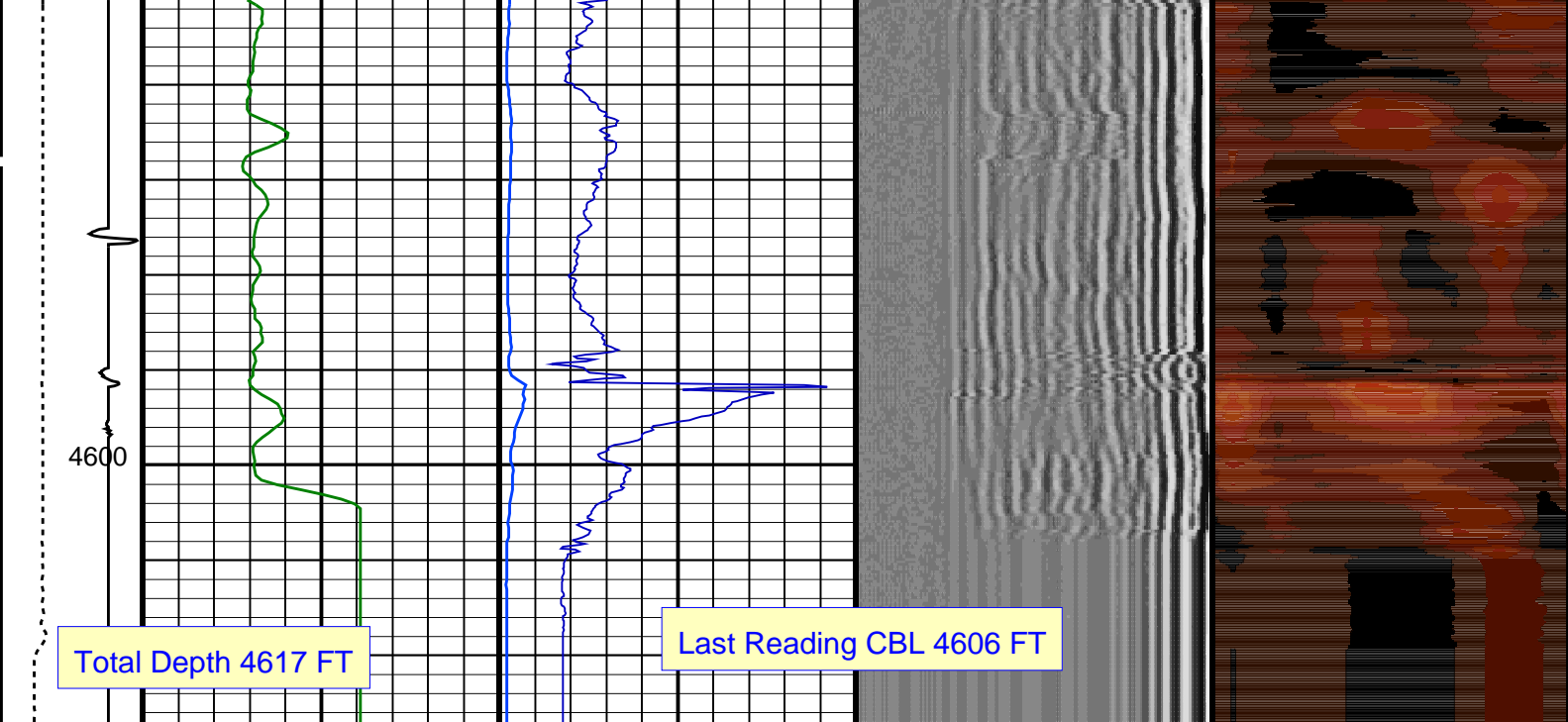
CE

CBL









PIP SUMMARY

Time Mark Every 60 S

Format: Scmt_VDL_Image Vertical Scale: 5" per 100' Graphics File Created: 15-Jul-2013 15:32

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8303		
Current Casing Size	9.62500 IN		
Casing Weight	40.0 LB/F		
Expected CBL Amplitude in Free Pipe Section	52 MV	Minimum Sonic Amplitude	2.28268 MV (100% Cement)
			4.26537 MV (80% Cement)
		MAP Minimum Sonic Amplitude	14.4041 MV (100% Cement)
			21.2222 MV (80% Cement)
Master Calibration (Normalization)	Before Calibration (Adjustment)		
Date of Master Calibration	7-SEP-2012		
CBL Correction Factor	0.0756720	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.136845	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.165126		
MAP 3 Correction Factor	0.125717		
MAP 4 Correction Factor	0.196395		
MAP 5 Correction Factor	0.147692		
MAP 6 Correction Factor	0.128887		
MAP 7 Correction Factor	0.150775		
MAP 8 Correction Factor	0.144577		

Parameters

DLIS Name	Description	Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	297.009	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	411.009	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	65	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	52	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.4058	IN
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	4.26537	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	240.009	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	10.6448	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	14.8138	FT
MMSA	MAP Minimum Sonic Amplitude	14.4041	MV
MSA	Minimum Sonic Amplitude	2.28268	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
RBC	Relative Bearing Correction Allow/Disallow	ALLOW	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	40.00	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	4617	FT

Input DLIS Files

DEFAULT	SCMT_PSP_005LUP	FN:4	PRODUCER	15-Jul-2013 14:10	4627.0 FT	18.6 FT
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Output DLIS Files

DEFAULT SCMT_PSP_007PUP FN:6 PRODUCER 15-Jul-2013 15:32



REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: QUICKSILVER RESOURCES INC.

Well: PIRTLAW PARTNERS LTD 32-09

Input DLIS Files

DEFAULT	SCMT_PSP_006LUP	FN:5	PRODUCER	15-Jul-2013 15:26	502.0 FT	273.2 FT
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Output DLIS Files

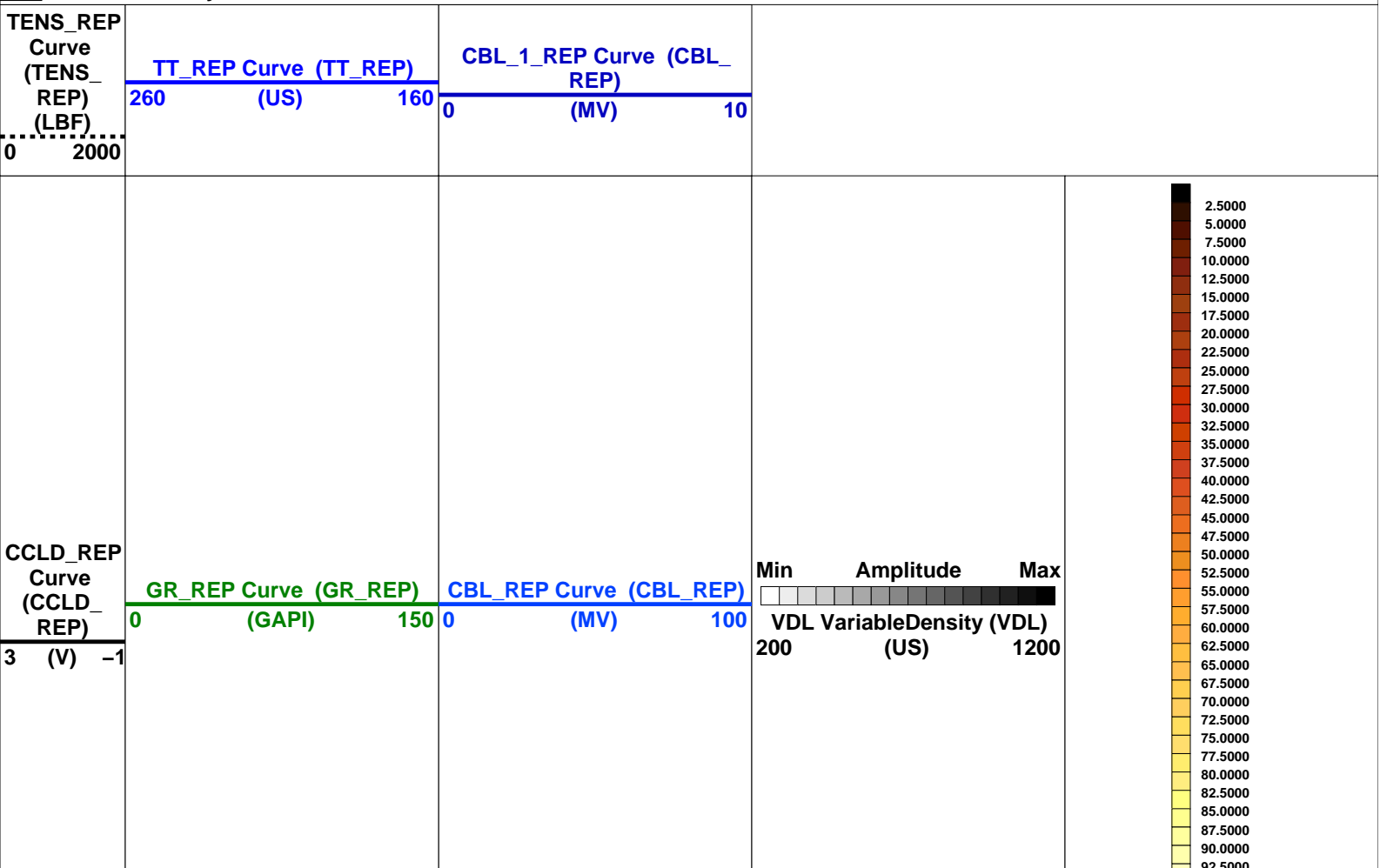
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OP System Version: 19C0-187

SCMT-CB SRPC-5214-H2-2012-OP19 PSPT SRPC-5214-H2-2012-OP19

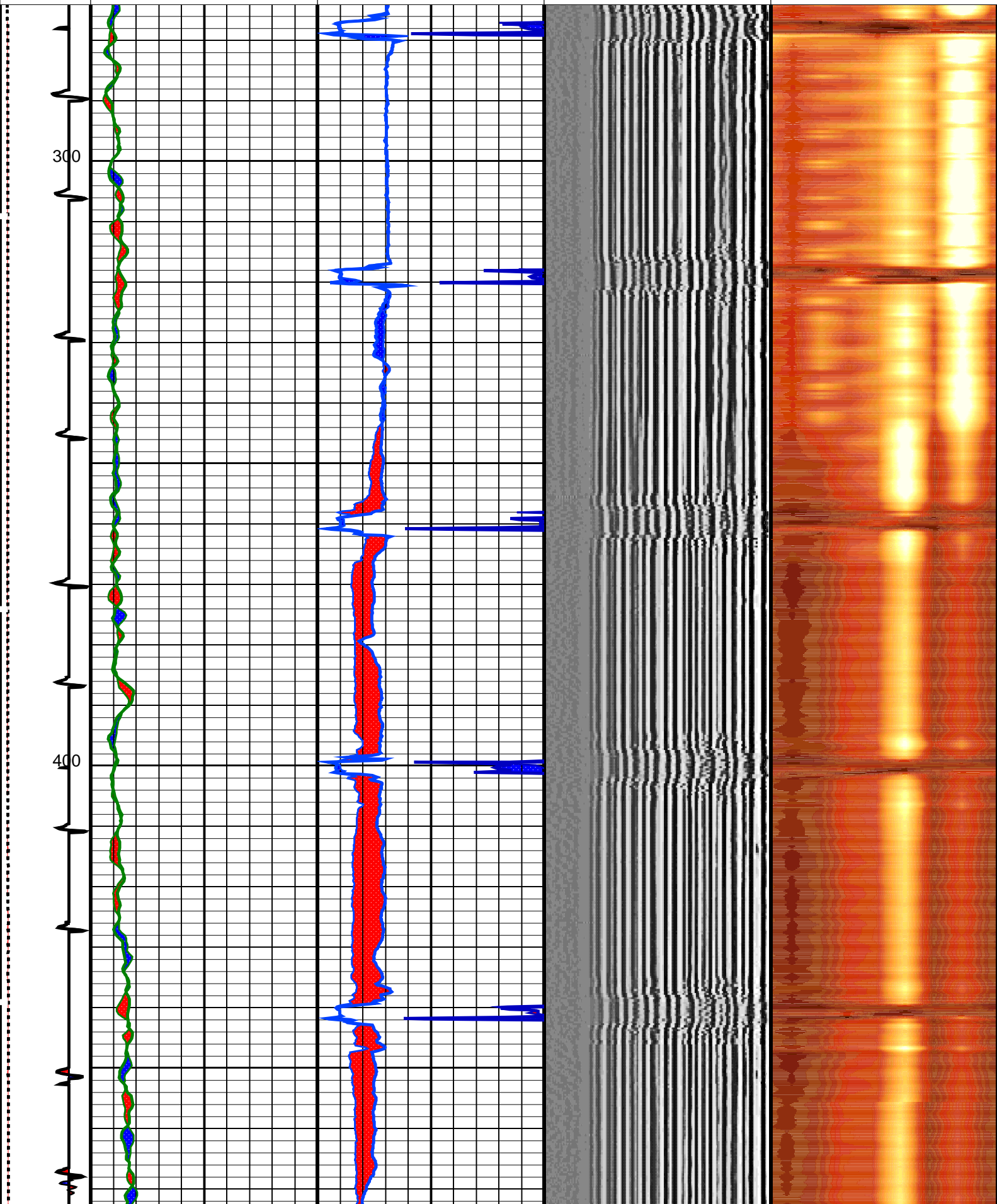
PIP SUMMARY

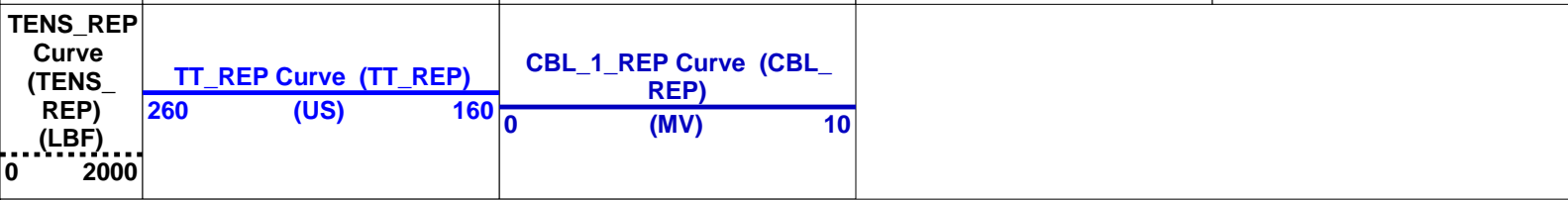
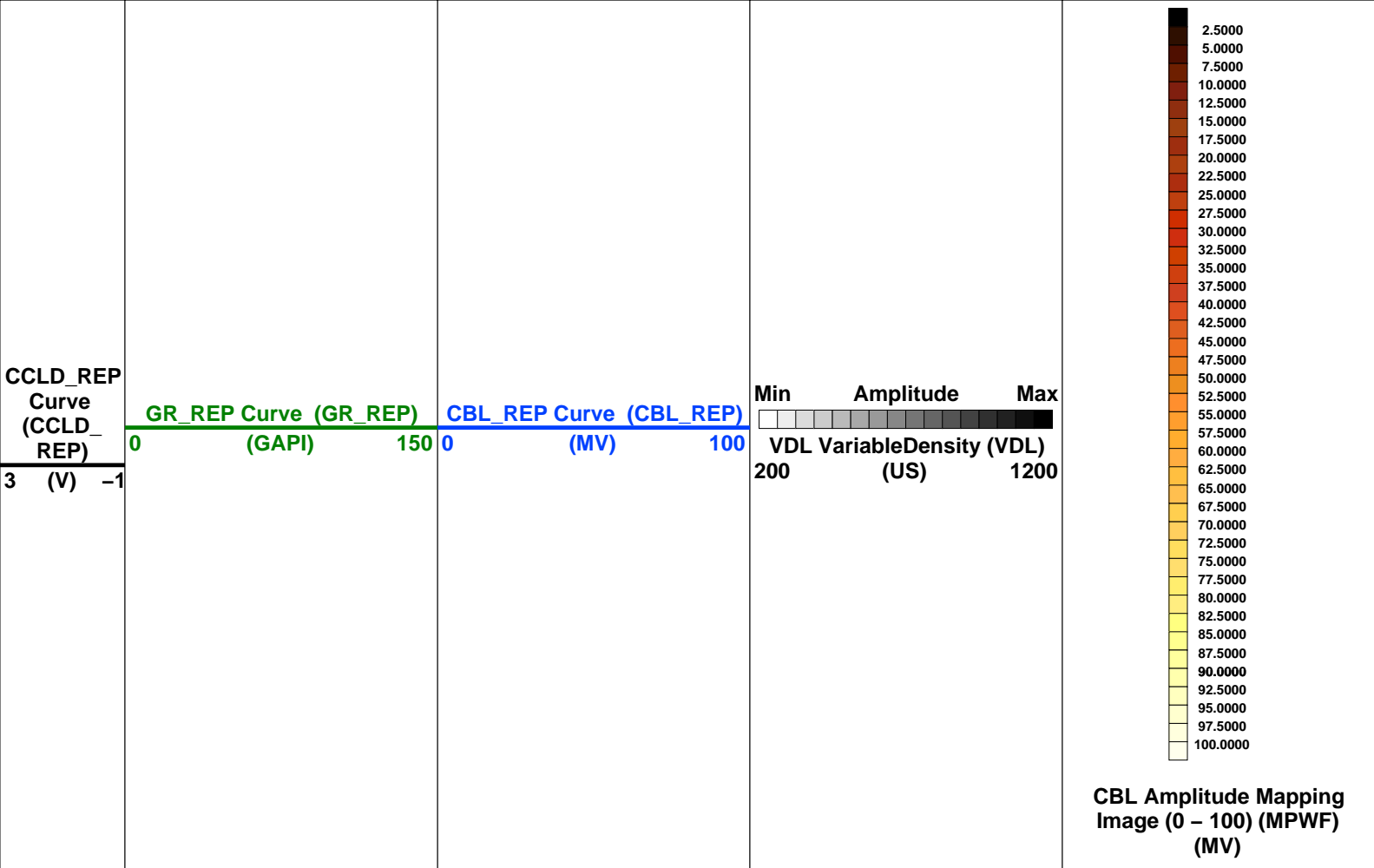
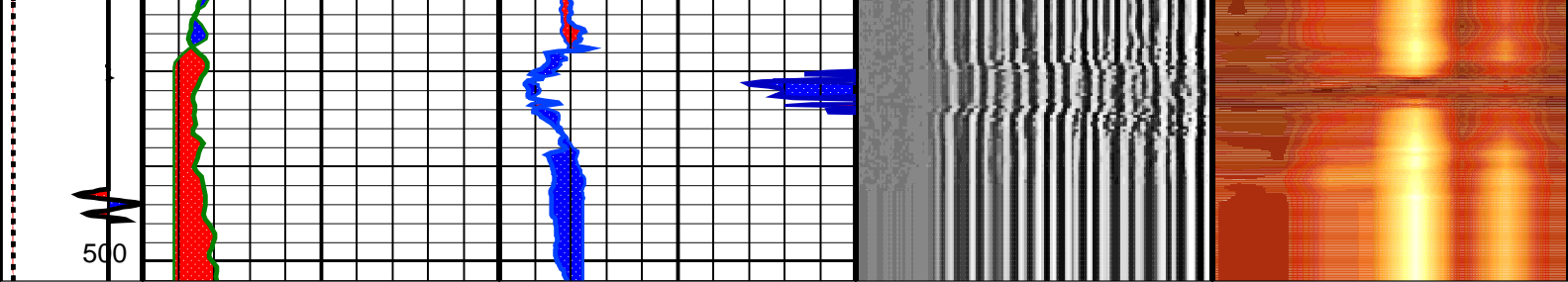
Time Mark Every 60 S



92.5000
95.0000
97.5000
100.0000

CBL Amplitude Mapping
Image (0 - 100) (MPWF)
(MV)





PIP SUMMARY

Time Mark Every 60 S

Format: Scmt_VDL_Image_REP

Vertical Scale: 5" per 100'

Graphics File Created: 15-Jul-2013 15:35

OP System Version: 19C0-187

SCMT-CB SRPC-5214-H2-2012-OP19 PSPT SRPC-5214-H2-2012-OP19

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8303		
Current Casing Size	9.62500 IN		
Casing Weight	40.0 LB/F		
Expected CBL Amplitude in Free Pipe Section	52 MV	Minimum Sonic Amplitude	2.28268 MV (100% Cement)
			4.26537 MV (80% Cement)
		MAP Minimum Sonic Amplitude	14.4041 MV (100% Cement)
			21.2222 MV (80% Cement)

Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	7-SEP-2012		
CBL Correction Factor	0.0756720	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.136845	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.165126		
MAP 3 Correction Factor	0.125717		
MAP 4 Correction Factor	0.196395		
MAP 5 Correction Factor	0.147692		
MAP 6 Correction Factor	0.128887		
MAP 7 Correction Factor	0.150775		
MAP 8 Correction Factor	0.144577		

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DLIS Name	Description	Value	
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BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	297.009	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	411.009	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	65	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	52	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.4058	IN
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	4.26537	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	240.009	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	10.6448	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	14.8138	FT
MMSA	MAP Minimum Sonic Amplitude	14.4041	MV
MSA	Minimum Sonic Amplitude	2.28268	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
RBC	Relative Bearing Correction Allow/Disallow	ALLOW	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	40.00	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	4617	FT

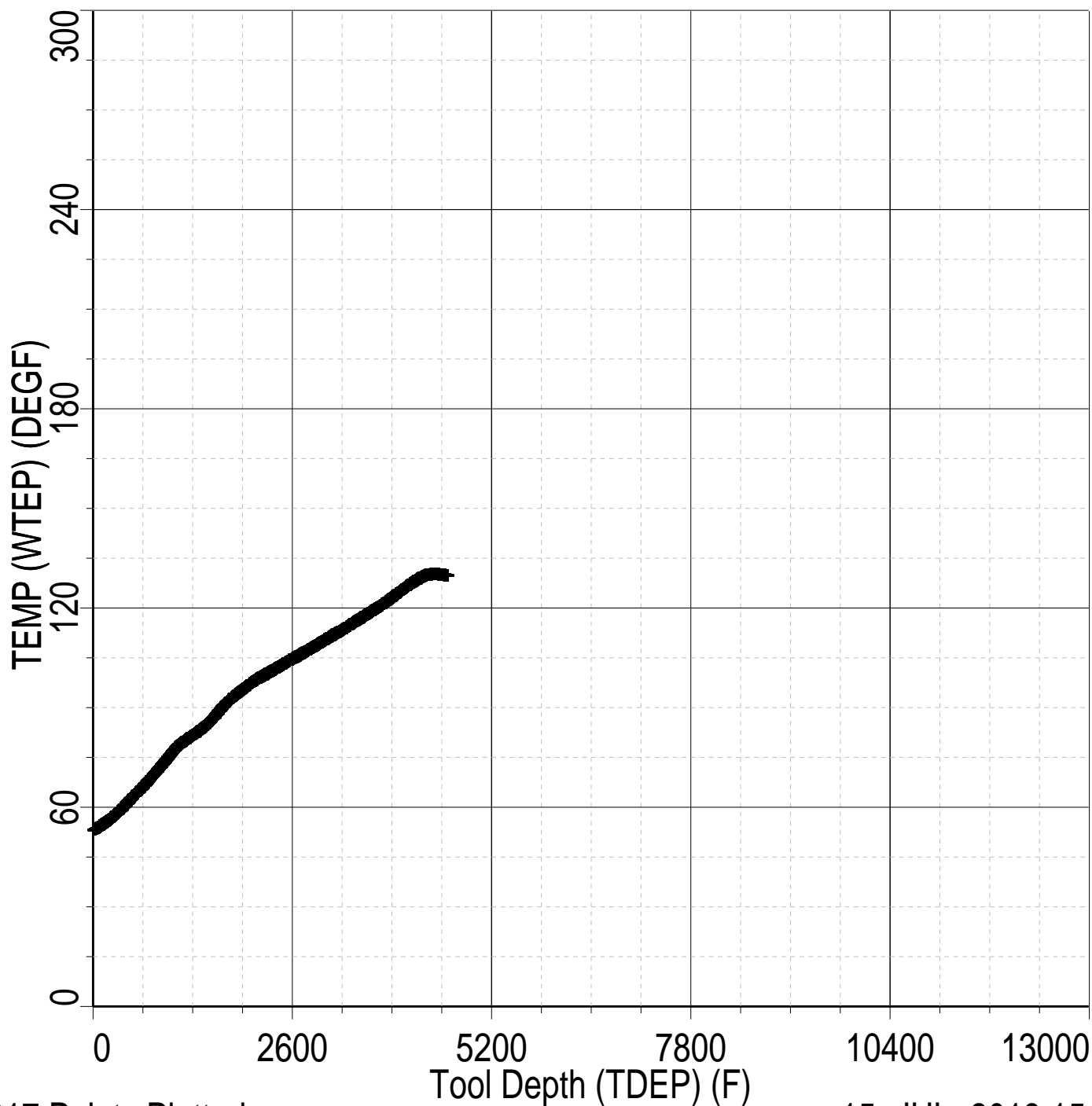
Input DLIS Files

DEFAULT	SCMT_PSP_006LUP	FN:5	PRODUCER	15-Jul-2013 15:26	502.0 FT	273.2 FT
DEFAULT	SCMT_PSP_007PUP	FN:6	PRODUCER	15-Jul-2013 15:32	4627.0 FT	19.0 FT

Output DLIS Files

DEFAULT	SCMT_PSP_009PUP	FN:8	PRODUCER	15-Jul-2013 15:35		
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Index: 4627.0 – 19.0 FT



9217 Points Plotted

15-JUL-2013 15:34

Schlumberger

PBMS COEFFICIENTS

Client: QUICKSILVER RESOURCES INC.
Field: WILDCAT
Well: PIRTLAW PARTNERS LTD 32-09
Run date: 15-Jul-2013

Tool: PSP
Sub Type: PBMS
Sensor: GR

PBMS Gamma Ray

Sonde Serial NB RESISTORS FOR GR SENSOR N.33223,TOOL PBMS-BA0928. SENSOR S/N:
Sensor Serial NB 33223
Calib Date ddmmyy 090800
Matrix Size 12
Coeff CRC CFE2

GR HV Rt

Rt**0

Rt**1

Rt**0

+ .182000000000e+04

+ .332000000000e+04

Client: QUICKSILVER RESOURCES INC.
Field: WILDCAT
Well: PIRTLAW PARTNERS LTD 32-09
Run date: 15-Jul-2013

Tool: PSP
Sub Type: PBMS
Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB COEFFICIENTS FOR RTD THERMOMETER PBMS-B.928 S/N:
Sensor Serial NB 928
Calib Date ddmmyy 280612
Matrix Size 16
Coeff CRC A24E

WTemp Coeff

Tt**0

Tt**1

Tt**2

Tt**0

- .391987973189E+03

+ .191346892512E+03

- .440920753451E+02

Tt**3

Tt**4

Tt**5

Tt**0	+.957191300908E+01	-.711421725686E+00	0.0
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Client: QUICKSILVER RESOURCES INC.
Field: WILDCAT
Well: PIRTLAW PARTNERS LTD 32-09
Run date: 15-Jul-2013

Tool: PSP
Sub Type: PBMS
Sensor: CQG

PBMS Quartz Gauge type F

Sonde Serial NB COEFFICIENTS FOR CQG PBMS-B.928 S/N:
Sensor Serial NB 928
Calib Date ddmmyy 280612
Matrix Size 66
Coeff CRC 9DC3

Pres Coeff

Fb**0 Fb**1 Fb**2

Fc**0	+.714463802232E+04	+.183434658655E-01	-.156620073569E-06
Fc**1	-.100638308957E+01	-.119899563644E-04	-.912155899025E-10
Fc**2	+.936268101283E-06	+.423898071451E-10	+.958076371919E-15
Fc**3	+.185123362373E-11	+.203107925433E-15	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

Fb**3 Fb**4 Fb**5

Fc**0	-.746577997611E-10	-.588773826860E-15	-.622250441458E-19
Fc**1	-.120636521092E-15	+.400325894750E-19	0.0
Fc**2	0.0	0.0	0.0
Fc**3	0.0	0.0	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 928
 Calib Date ddmmyy 280612
 Matrix Size 66
 Coeff CRC 283B

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+1.117016867873E+03	-.284359629614E-03	+6.04391180345E-08
Fb**1	-.598309140812E-02	+1.182731130848E-07	+1.160166486172E-12
Fb**2	-.307621454576E-07	+3.00601550309E-12	+3.11233548560E-17
Fb**3	-.419658736767E-12	+1.117473708647E-16	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

	Fc**3	Fc**4	Fc**5
Fb**0	+1.114322792679E-12	+1.153807711176E-17	-.736714260866E-21
Fb**1	-.528037875456E-18	-.220337637519E-21	0.0
Fb**2	0.0	0.0	0.0
Fb**3	0.0	0.0	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 928
 Calib Date ddmmyy 280612
 Matrix Size 16
 Coeff CRC 093F

Clock Freq Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+3.10874009898E+05	+2.88920923041E-02	+6.97940727038E-06
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.657432344763E-10	-.412920638782E-15	+2.13369826099E-20

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 928
 Calib Date ddmmyy 280612
 Matrix Size 16
 Coeff CRC 8419

Clock Temp Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+ .115369519827E+03	- .565338877075E-02	- .333717531829E-07
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	- .124387135327E-12	+ .713102327208E-16	- .316084316842E-20



MASTER CALIBRATION

MAXIS Field Log

Slim Cement Mapping Tool, 1-11/16 OD / Equipment Identification

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX - CA	
Slim Cement Mapping Sonde	SCMS - CB	8303
Slim Cement Mapping Cartridge	SCMC - CA	8120

Auxiliary Equipment:

Slim Electronics Cartridge Housing	SECH - CA
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Slim Cement Mapping Tool, 1-11/16 OD Master Calibration

SCMT CBL and MAP Amplitude Normalization in SFT-155/-255

Phase	MAP 1 Amplitude Plus MV	Value	Phase	MAP 2 Amplitude Plus MV	Value
Master		876.9	Master		726.7
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	MAP 3 Amplitude Plus MV	Value	Phase	MAP 4 Amplitude Plus MV	Value
Master		954.5	Master		611.0
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	MAP 5 Amplitude Plus MV	Value	Phase	MAP 6 Amplitude Plus MV	Value
Master		812.5	Master		931.0
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	MAP 7 Amplitude Plus MV	Value	Phase	MAP 8 Amplitude Plus MV	Value
Master		795.9	Master		830.0
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	CBL Amplitude Plus MV	Value			
Master		1269			
	1000 (Minimum) 1350 (Nominal) 1700 (Maximum)				

Master: 7-Sep-2012 16:30

Company: **QUICKSILVER RESOURCES INC.**

Schlumberger

Well: **PIRTLAW PARTNERS LTD 32-09**

Field: **WILDCAT**

County: **ROUTT**

State: **COLORADO**

SLIM CEMENT MAPPING LOG
GR-CCL