

Company: BLACK RAVEN ENERGY

Well: LAUGHLIN #2

Field: ADENA

County: MORGAN

State: COLORADO

SLIM CEMENT MAPPING LOG
GAMMA RAY – CCL – TEMPERATUR

County: MORGAN
Field: ADENA
Location: SEC. 7–1N–57W
Well: LAUGHLIN #2
Company: BLACK RAVEN ENERGY

LOCATION		Elev.:	
SEC. 7-1N-57W SE SE SW		K.B.	4503.00 ft
		G.L.	4490.00 ft
		D.F.	4502.00 ft
Permanent Datum:	GROUND LEVEL	Elev.: 4490.00 ft	
Log Measured From:	KELLY BUSHING	13.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		
API Serial No. 05-087-05336-000C		Section 7	Township 1N
			Range 57W

Run 1		Run 2		Run 3	
Oil Density					
Water Salinity					
Gas Gravity					
Bo					
Bw					
1/Bq					
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	18-Feb-2014		
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Run Number	1		
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Depth Driller	5620 ft		
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Schlumberger Depth	5605 ft		
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Bottom Log Interval	5596 ft		
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Top Log Interval	3000 ft		
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Casing Fluid Type	FRESH WATER		
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Salinity			
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Density	8.4 lbm/gal		
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Fluid Level	3152 ft		
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BIT/CASING/TUBING STRING			
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Bit Size	7.875 in		
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From	13 ft		
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To	5620 ft		
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Casing/Tubing Size	5.500 in		
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Weight	15.5 lbm/ft		
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Grade			
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From	13 ft		
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To	5620 ft		
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Maximum Recorded Temperatures	169 degF		
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Logger On Bottom	18-Feb-2014	11:30	
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Unit Number	354	FT MORGAN	
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Recorded By	JASON BARRY		
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Witnessed By	BILLY HATAWAY		
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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.

REMA

REMARKS: RUN NUMBER 2

TOOL RAN AS PER TOOL SKETCH

EXIT TIME: 12:45

MAX RECORDED PRESSURE: 1042 PSIA

MAIN PASS | LOGGED UNDER ZERO SURFACE PRESSURE

THANK YOU FOR CHOOSING E&P WIRELINE. A SCHLUMBERGER COMPANY

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

STOP

RUN 2

DOWNHOLE EQUIPMENT

30.3

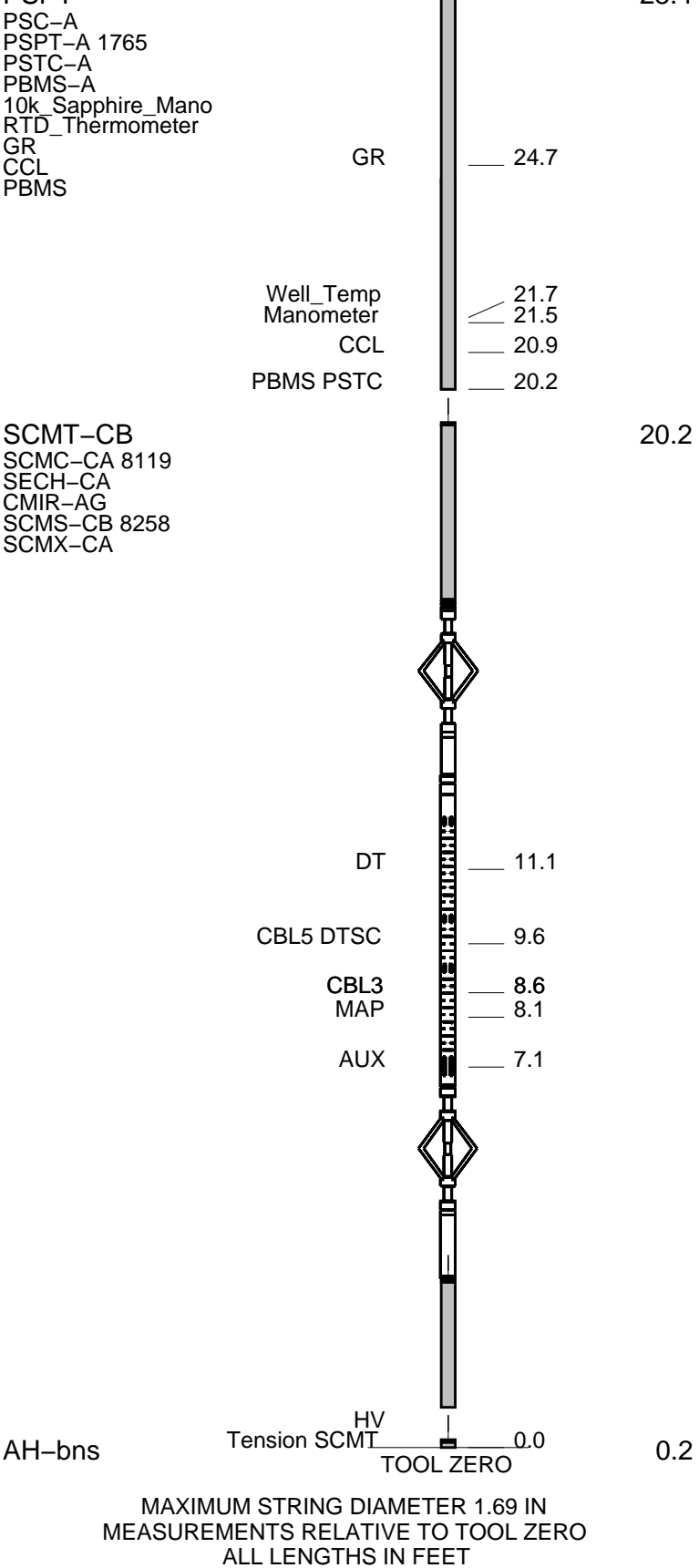
28.7

28 4

□

□

28.4





MAIN PASS CBL VDL

MAXIS Field Log

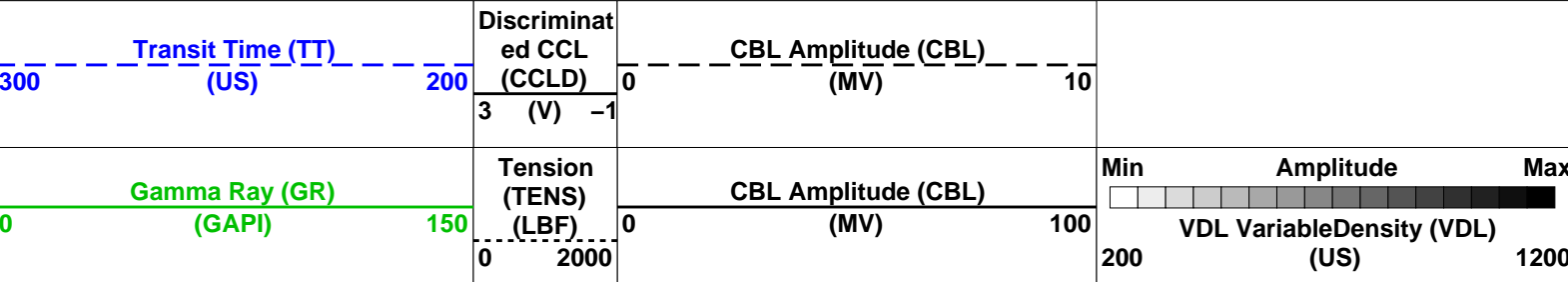
Company: BLACK RAVEN ENERGY Well: LAUGHLIN #2

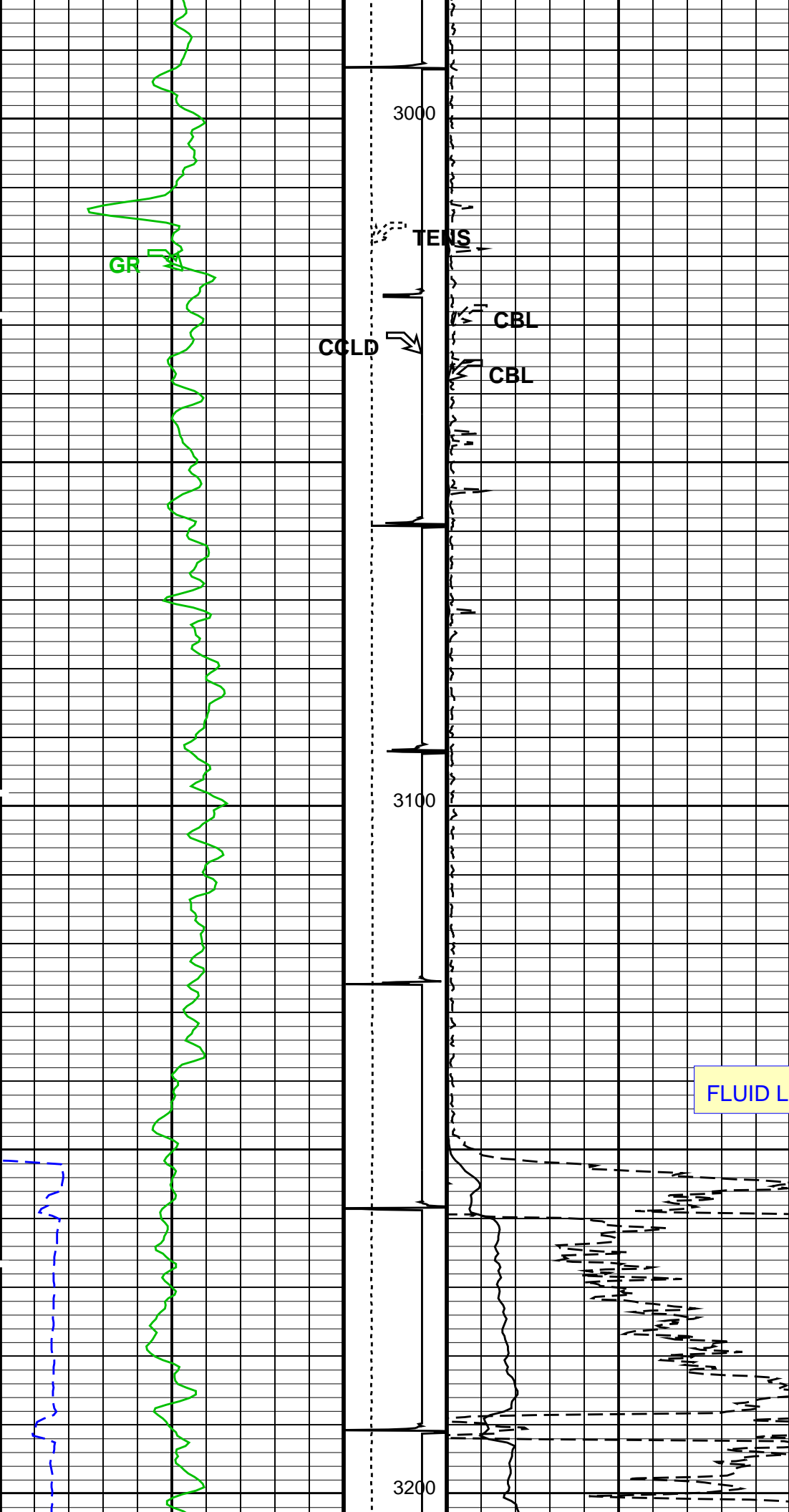
Input DLIS Files						
DEFAULT	SCMT_PSP_004LUP	FN:3	PRODUCER	18-Feb-2014 11:44	5618.0 FT	2980.1 FT
Output DLIS Files						
DEFAULT	SCMT_PSP_006PUP	FN:5	PRODUCER	18-Feb-2014 12:27	5618.0 FT	2980.5 FT

OP System Version: 19C2-270			
SCMT-CB	19C2-270	PSPT	19C2-270

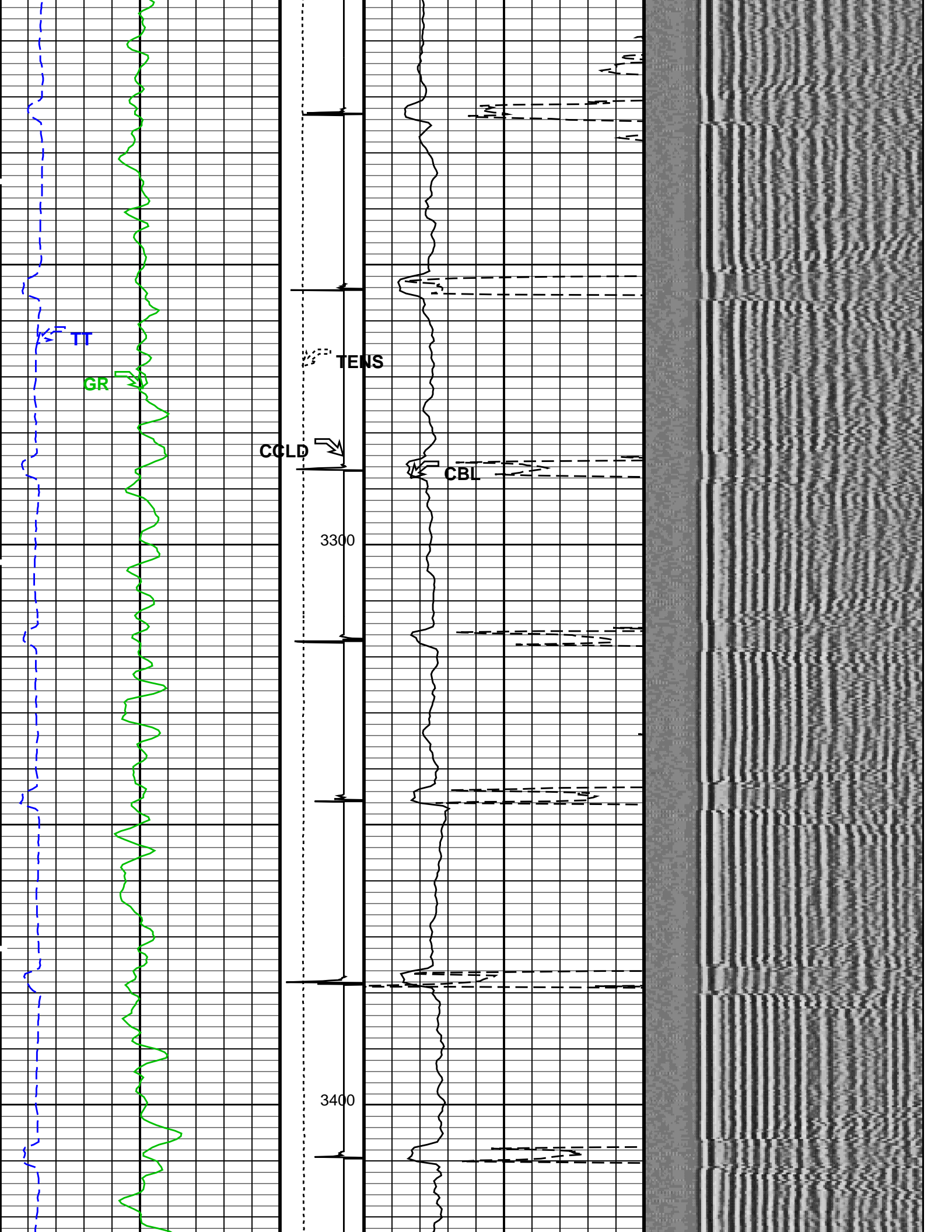
PIP SUMMARY

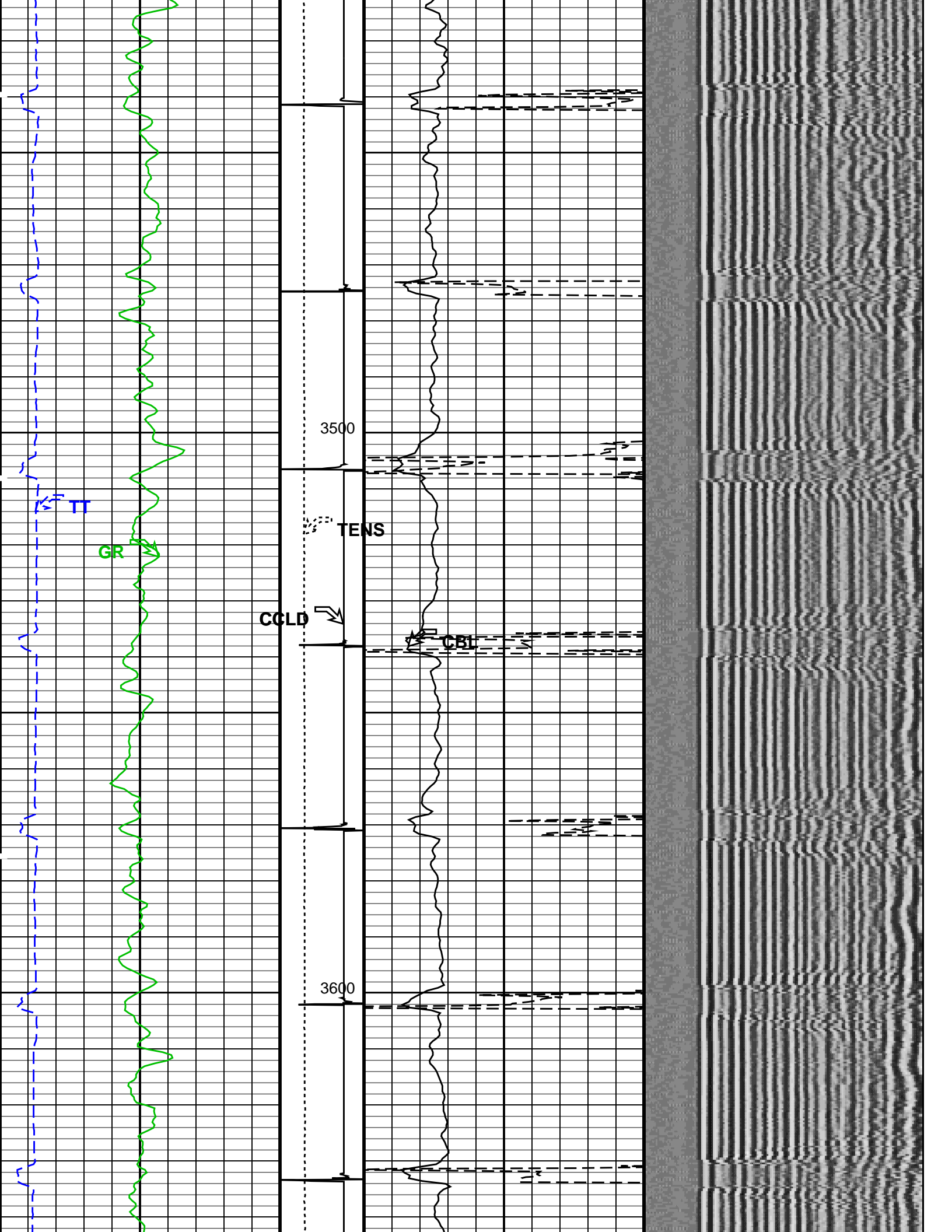
Time Mark Every 60 S

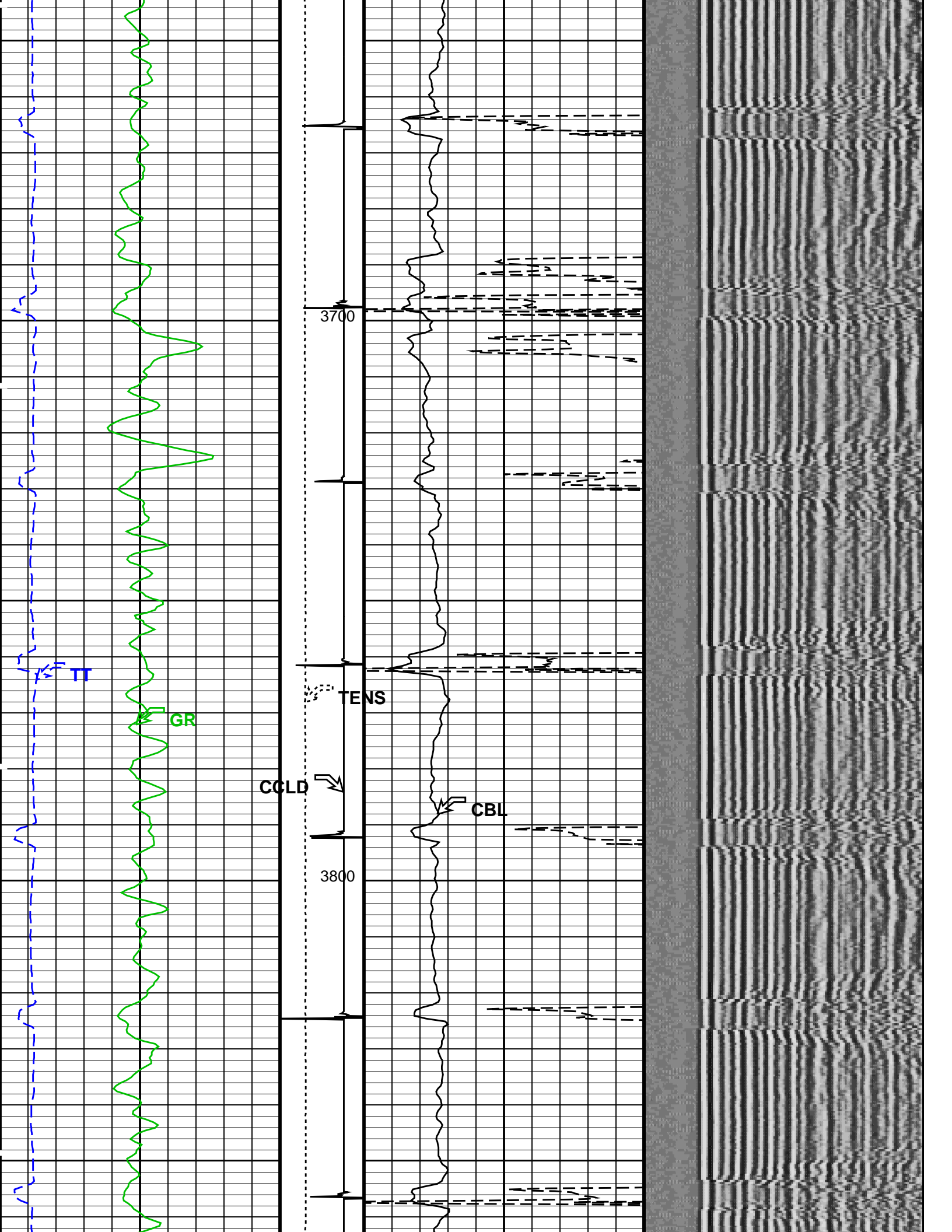


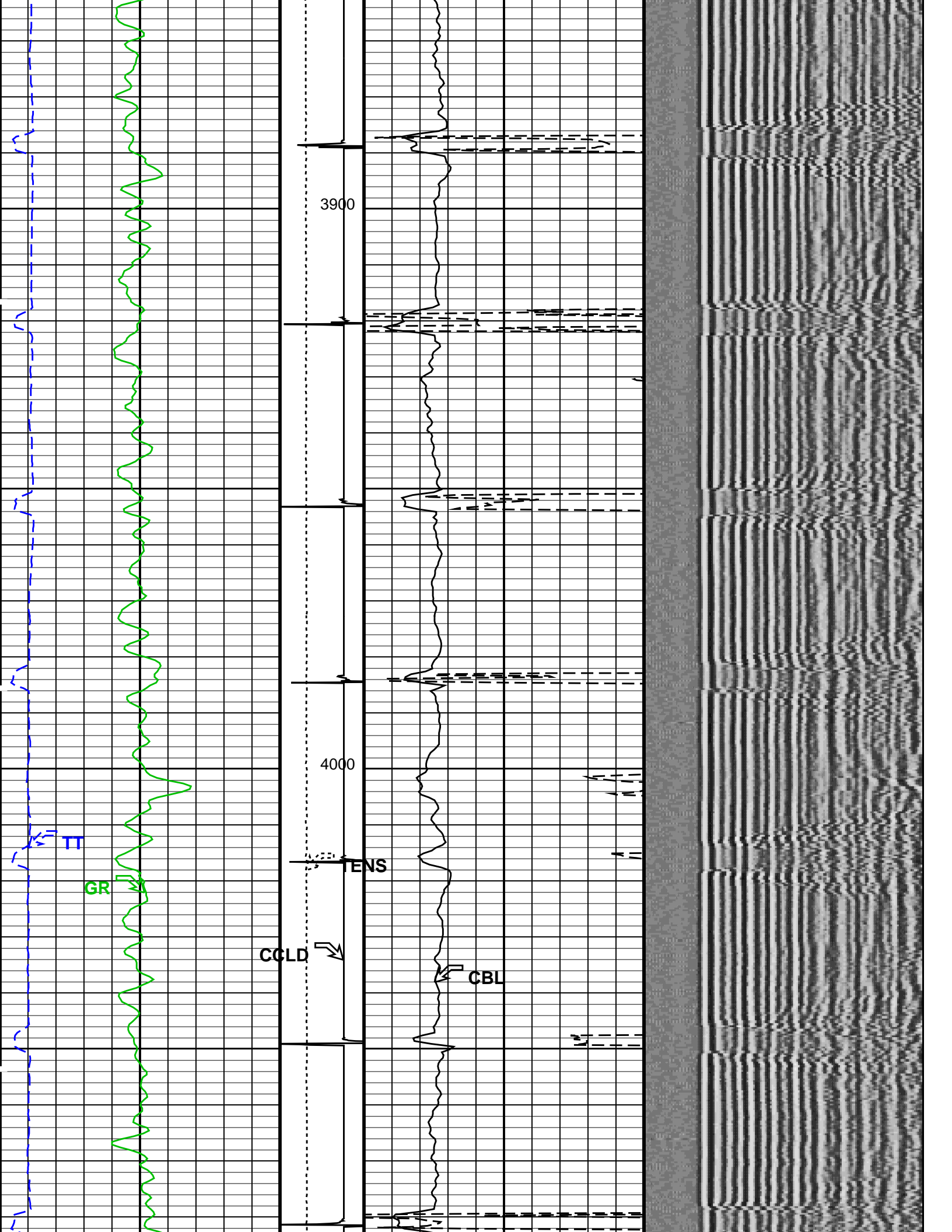


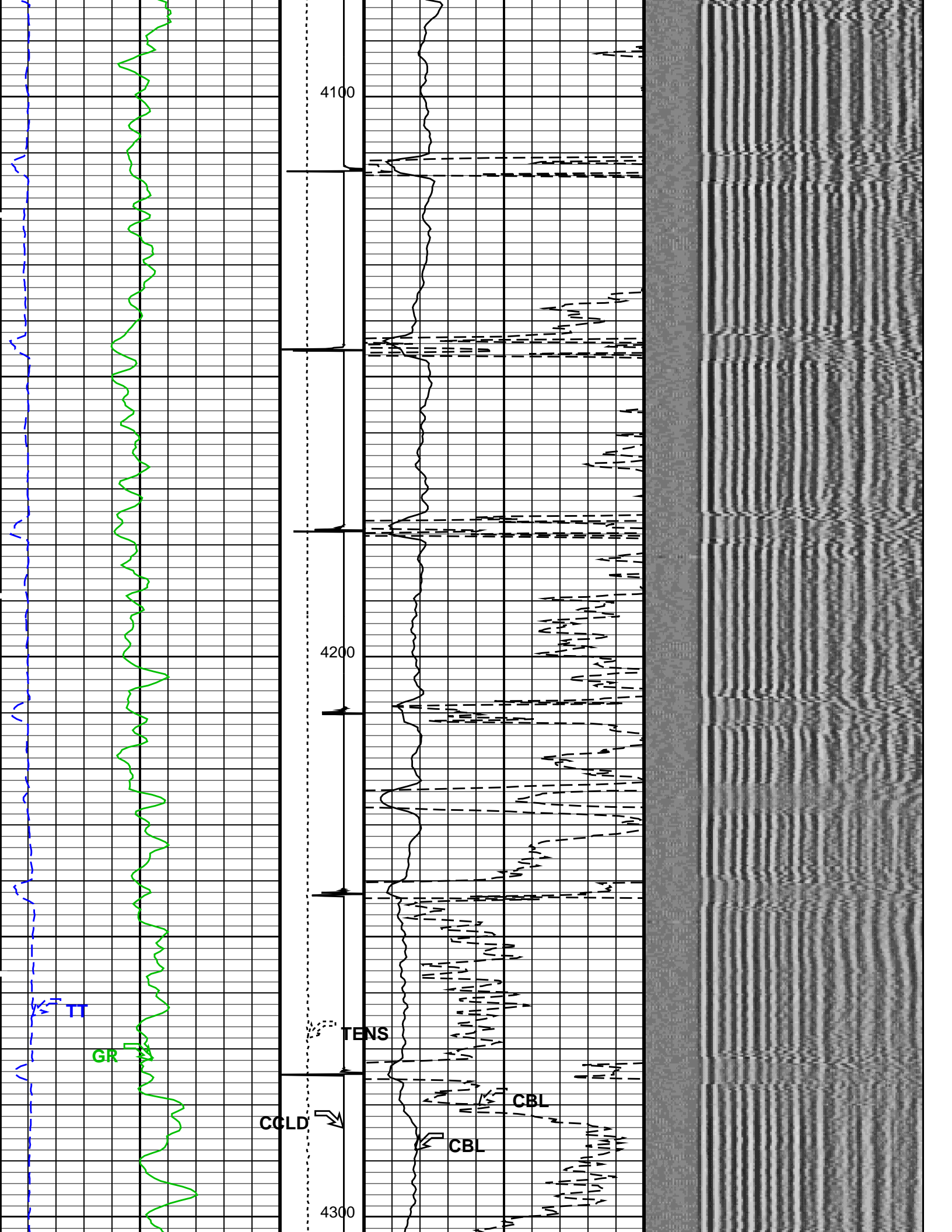
FLUID LEVEL 3152 FT

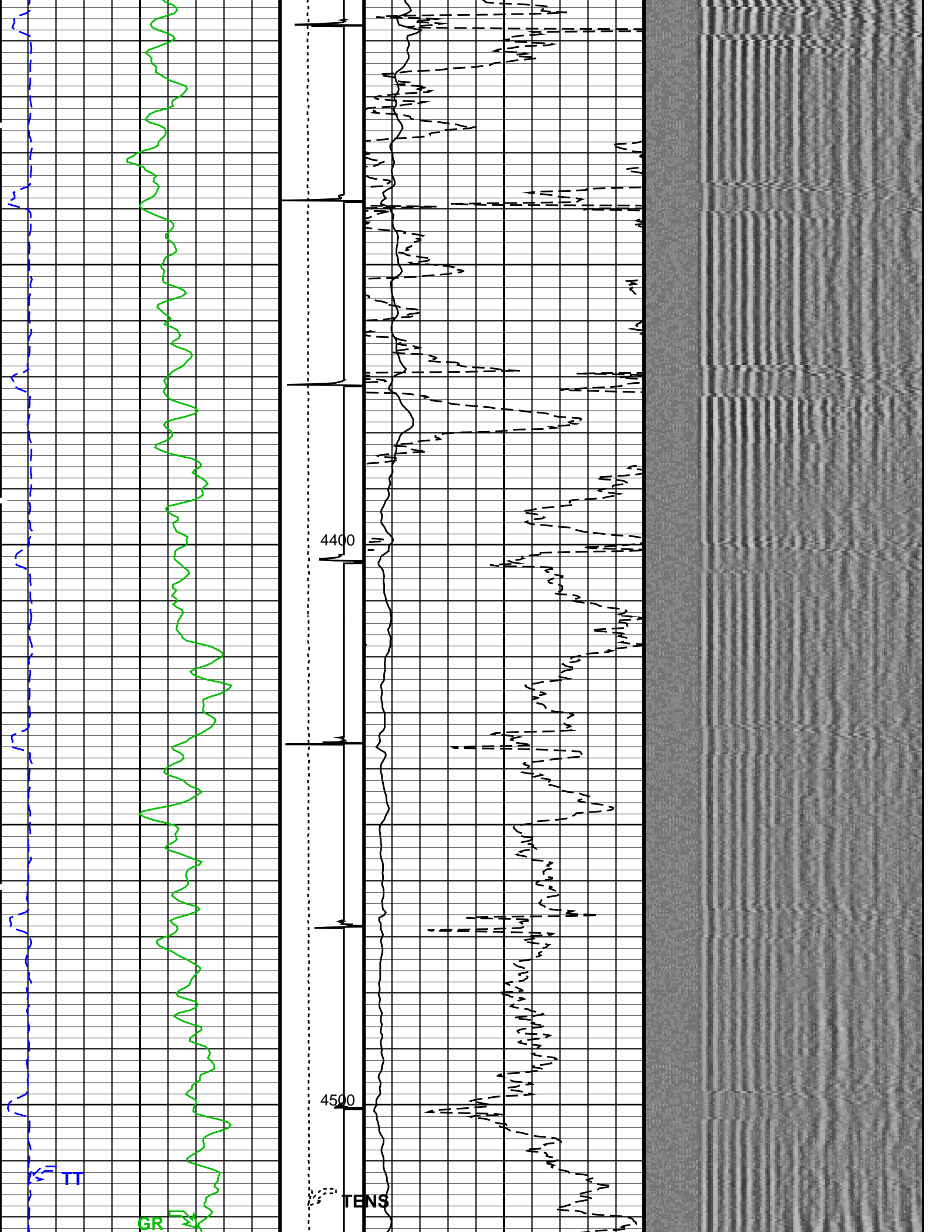


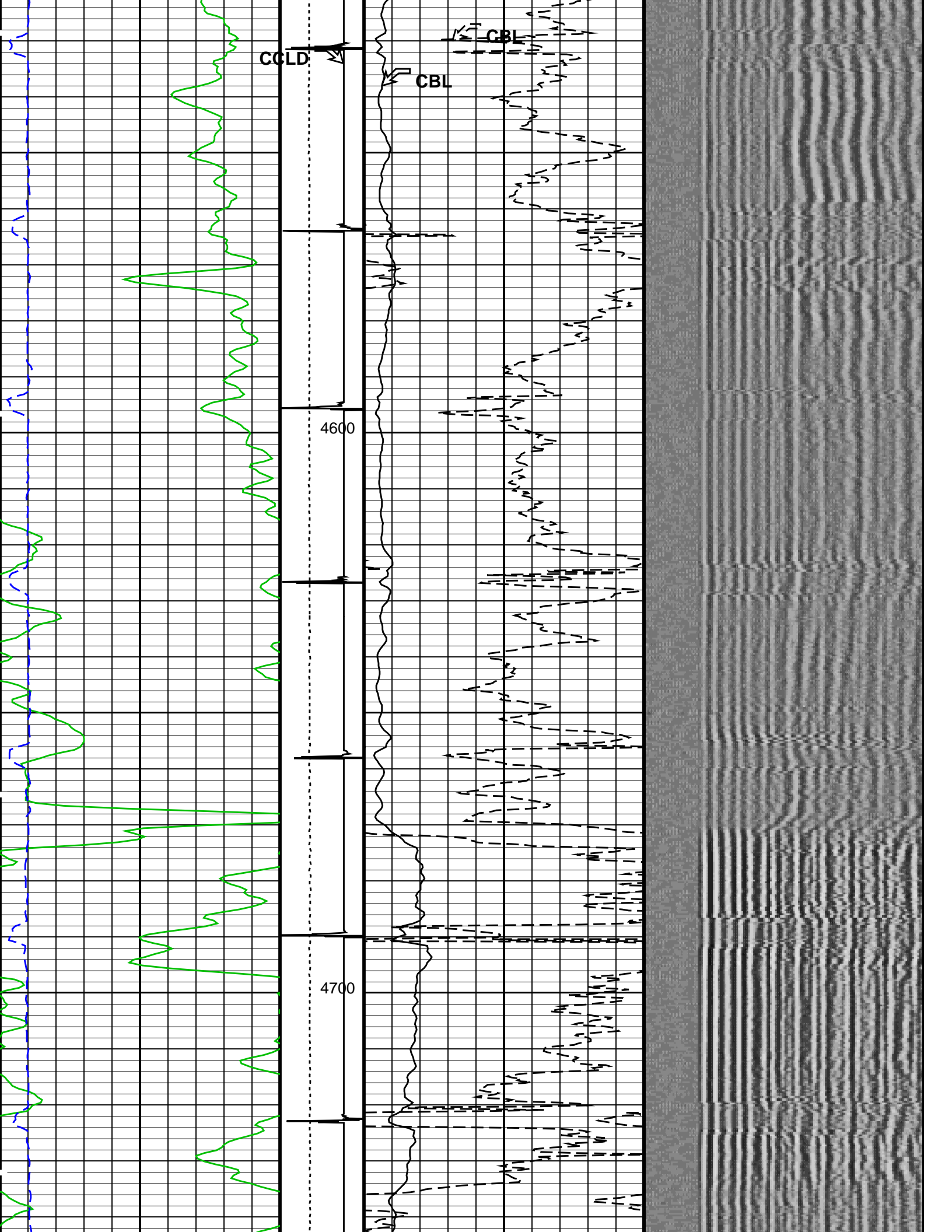


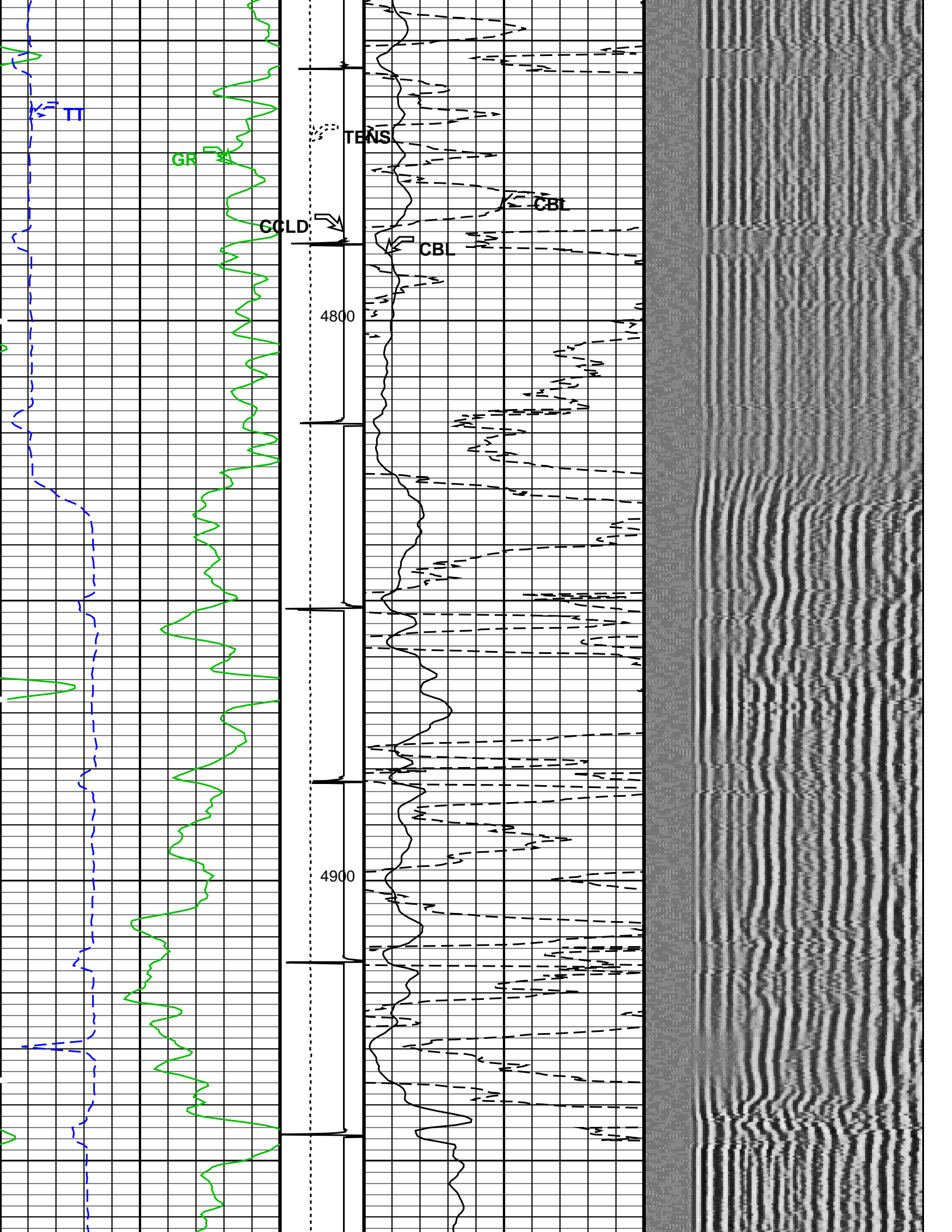


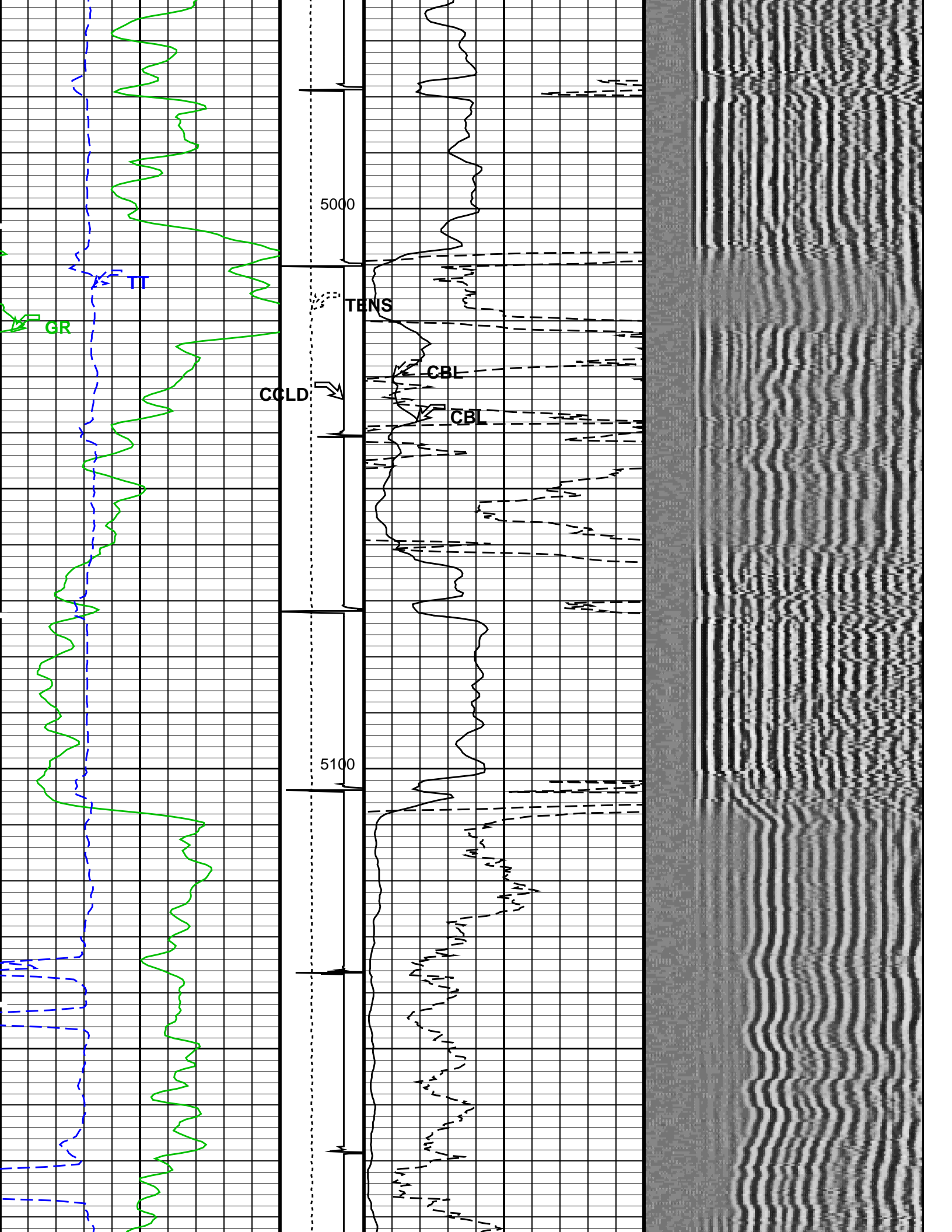


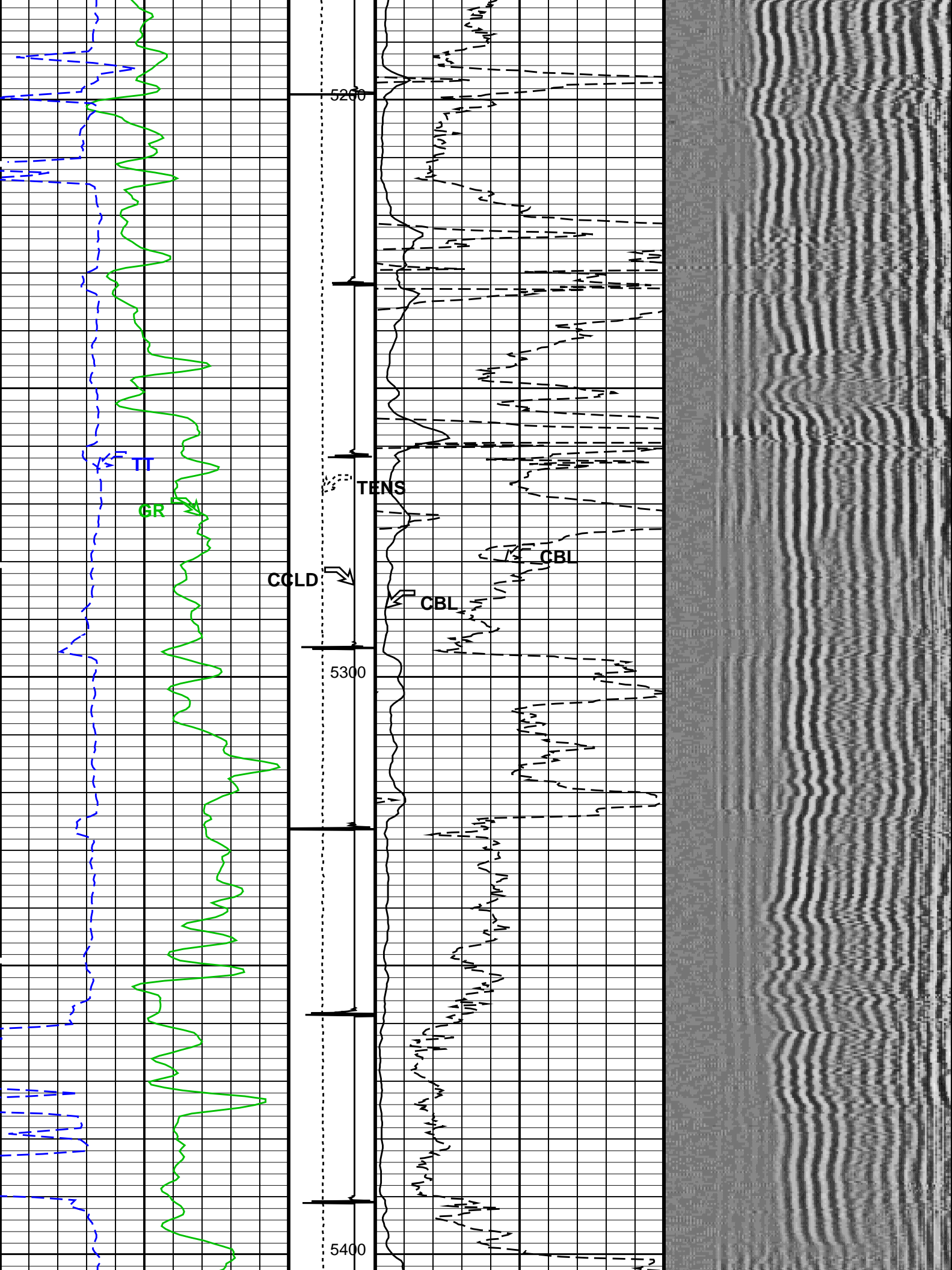


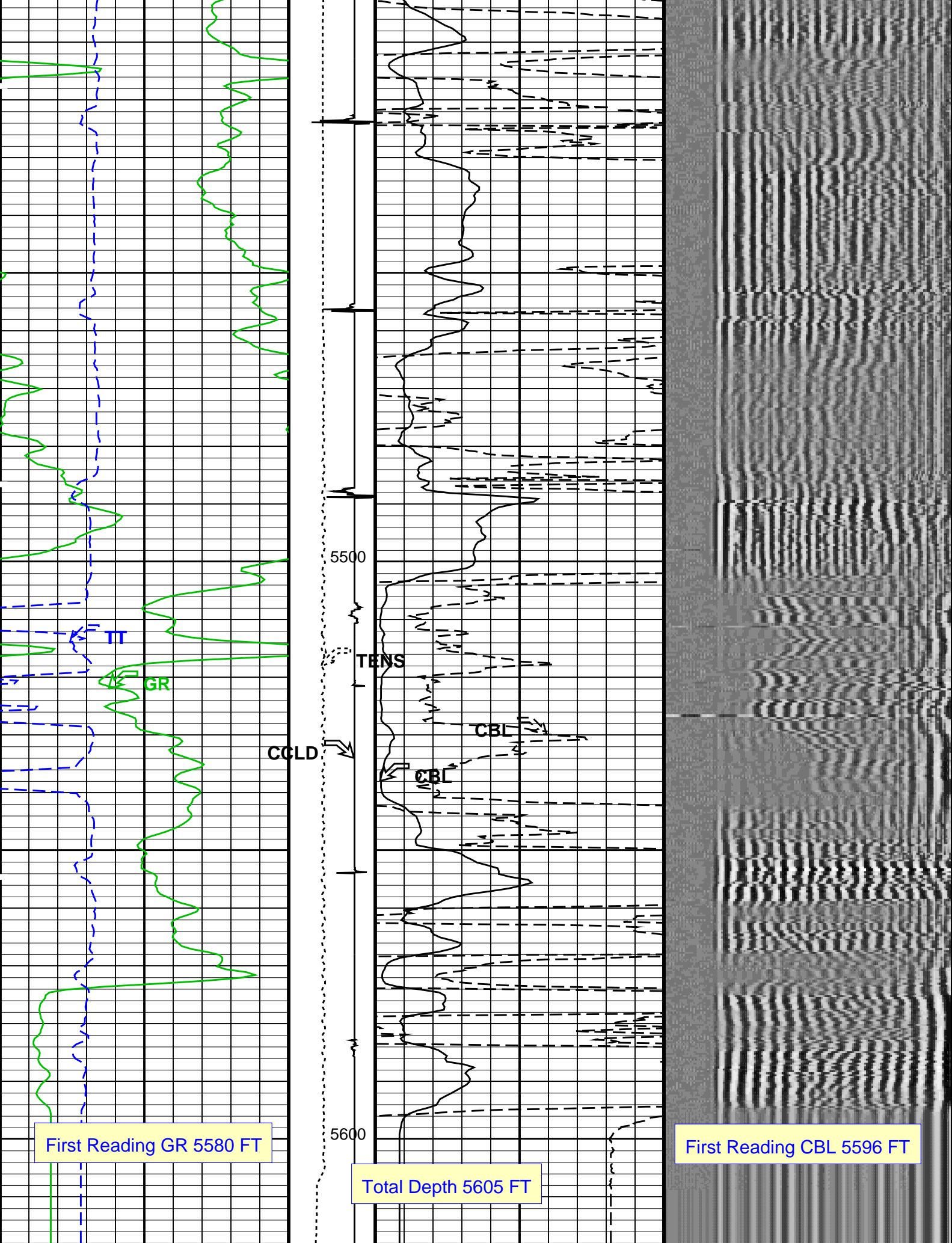












Gamma Ray (GR) (GAPI)		150	(LBF)	0	CBL Amplitude (CBL) (MV)	100	VDL Variable Density (VDL) (US)		1200
		0	2000				200		
Transit Time (TT) (US)		300	200	Discriminated CCL (CCLD) (V)	0	CBL Amplitude (CBL) (MV)	10		
				3	-1				

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 18-Feb-2014 12:27

OP System Version: 19C2-270

SCMT-CB 19C2-270 PSPT 19C2-270

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8258		
Current Casing Size	5.5000 IN		
Casing Weight	15.5000 LB/F		
Expected CBL Amplitude in Free Pipe Section	71 MV	Minimum Sonic Amplitude	0.747325 MV (100% Cement)
			1.85806 MV (80% Cement)
		MAP Minimum Sonic Amplitude	5.57177 MV (100% Cement)
			9.92646 MV (80% Cement)
Master Calibration (Normalization)	Before Calibration (Adjustment)		
Date of Master Calibration	1-AUG-2012		
CBL Correction Factor	0.0712122	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.0973827	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.101954		
MAP 3 Correction Factor	0.100504		
MAP 4 Correction Factor	0.106228		
MAP 5 Correction Factor	0.113710		
MAP 6 Correction Factor	0.102595		
MAP 7 Correction Factor	0.119115		
MAP 8 Correction Factor	0.104243		

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	238.916	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	352.916	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	60	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	71	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	0.277592	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	1.85806	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	181.916	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	15.2359	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCL	Minimum Gate Width for Isolation	4.75	FT

MCI	Minimum Cemented Interval for Isolation	4.75	FT
MMSA	MAP Minimum Sonic Amplitude	5.57177	MV
MSA	Minimum Sonic Amplitude	0.747325	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	15.50	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	5605	FT

Input DLIS Files

DEFAULT SCMT_PSP_004LUP FN:3 PRODUCER 18-Feb-2014 11:44 5618.0 FT 2980.1 FT

Output DLIS Files

DEFAULT SCMT_PSP_006PUP FN:5 PRODUCER 18-Feb-2014 12:27



REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: BLACK RAVEN ENERGY Well: LAUGHLIN #2

Input DLIS Files

DEFAULT SCMT_PSP_003LUP FN:2 PRODUCER 18-Feb-2014 11:37 5620.0 FT 5378.0 FT
DEFAULT SCMT_PSP_006PUP FN:5 PRODUCER 18-Feb-2014 12:27 5618.0 FT 2980.5 FT

Output DLIS Files

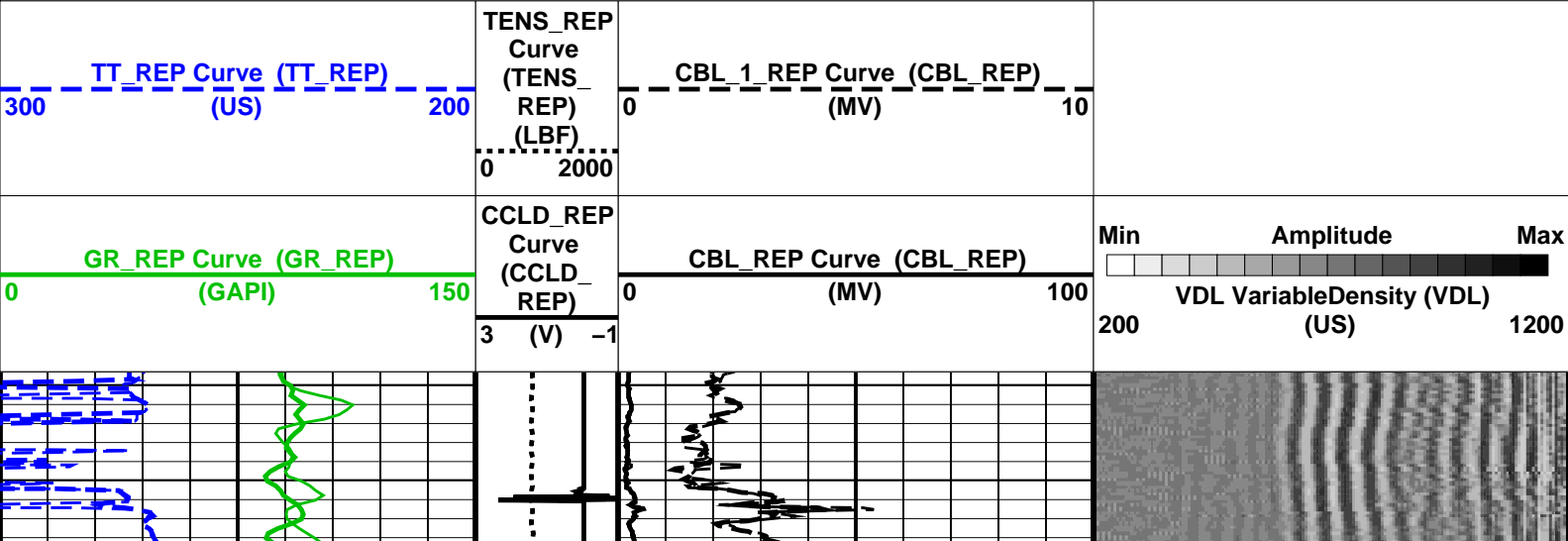
DEFAULT SCMT_PSP_009PUP FN:8 PRODUCER 18-Feb-2014 12:31 5620.0 FT 5378.0 FT

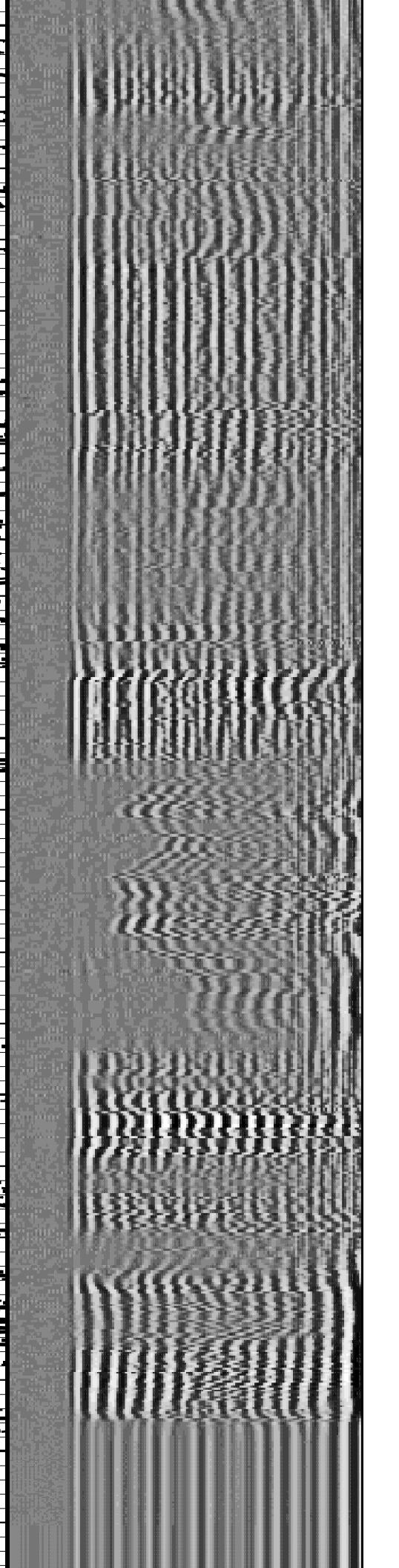
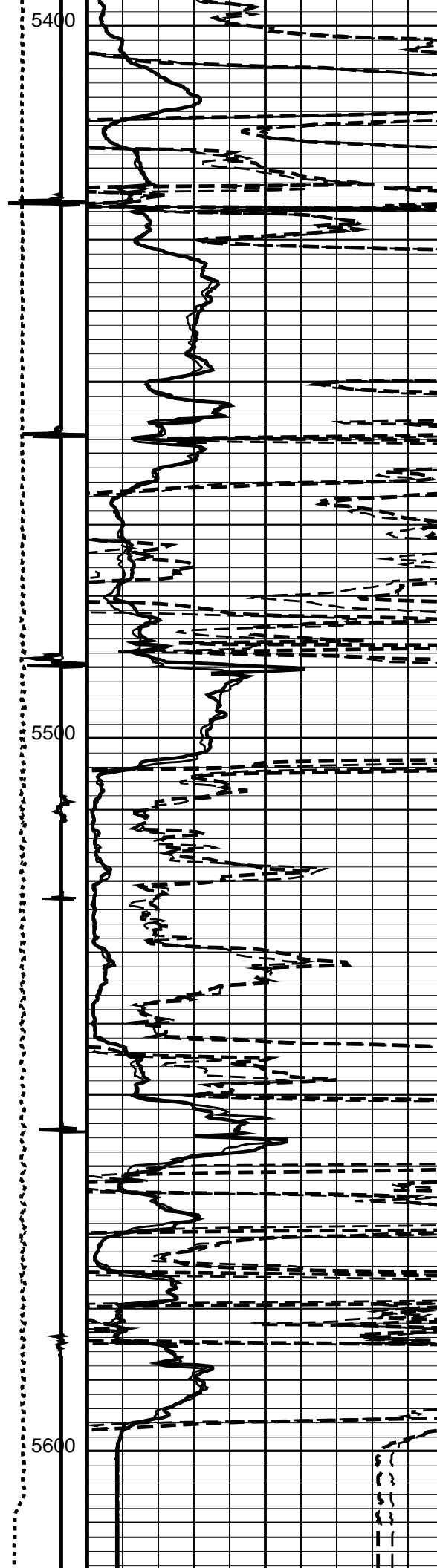
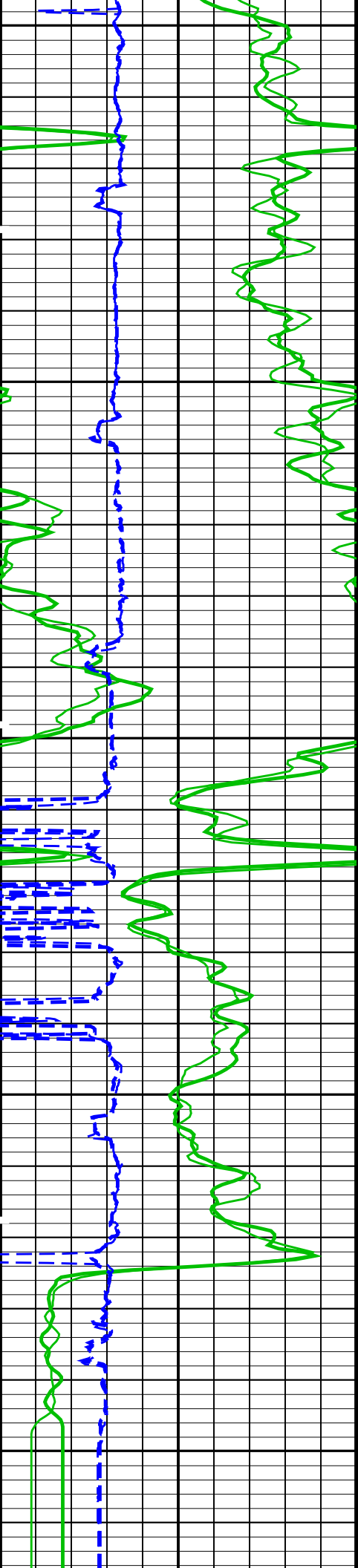
OP System Version: 19C2-270

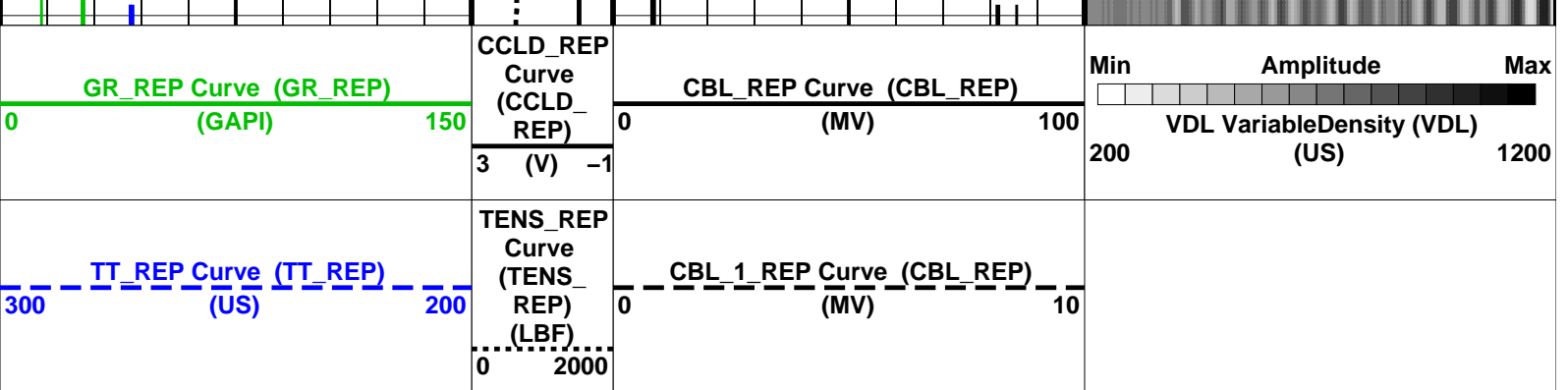
SCMT-CB 19C2-270 PSPT 19C2-270

PIP SUMMARY

☒ Time Mark Every 60 S







PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100'

Graphics File Created: 18-Feb-2014 12:31

OP System Version: 19C2-270

SCMT-CB 19C2-270 PSPT 19C2-270

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MAP 3 Correction Factor	0.100504		
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MAP 5 Correction Factor	0.113710		
MAP 6 Correction Factor	0.102595		
MAP 7 Correction Factor	0.119115		
MAP 8 Correction Factor	0.104243		

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CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	238.916	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	352.916	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	60	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	71	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	0.277592	IN
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FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	

GOBO	Good Bond	1.85806	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	181.916	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	15.2359	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCi	Minimum Cemented Interval for Isolation	4.75	FT
MMSA	MAP Minimum Sonic Amplitude	5.57177	MV
MSA	Minimum Sonic Amplitude	0.747325	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	15.50	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	1.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	5605	FT

Input DLIS Files

DEFAULT	SCMT_PSP_003LUP	FN:2	PRODUCER	18-Feb-2014 11:37	5620.0 FT	5378.0 FT
DEFAULT	SCMT_PSP_006PUP	FN:5	PRODUCER	18-Feb-2014 12:27	5618.0 FT	2980.5 FT

Output DLIS Files

DEFAULT	SCMT_PSP_009PUP	FN:8	PRODUCER	18-Feb-2014 12:31
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Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	BLACK RAVEN ENERGY	Tool:	PSP
Field:	ADENA	Sub Type:	PBMS
Well:	LAUGHLIN #2	Sensor:	Clock Model
Run date:	18-Feb-2014		

PBMS Digitalization Clock

Sonde Serial NB

Sensor Serial NB 1814

Calib Date ddmmyy 110302

Matrix Size 16

Coeff CRC 57FB

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	-.278669829802E+03	+.206462481394E+01	-.200507522376E+00
	Temp**3	Temp**4	Temp**5
Temp**0	+.155313739686E-02	-.281738273771E-06	0.0

Client: BLACK RAVEN ENERGY

Field: ADENA

Well: LAUGHLIN #2

Run date: 18-Feb-2014

Tool: PSP

Sub Type: PBMS

Sensor: Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR SAPPHIRE PBMS-A.1814 S/N:

1814

110302

66

AE02

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	-.308953940890E+05	+.223047702735E+05	-.713154026131E+04
Tp**1	+.227089761470E+05	-.158157409157E+05	+.520051556745E+04
Tp**2	-.206216623257E+03	+.838339315475E+02	-.906461429479E+01
Tp**3	+.319488728163E+01	-.715783601545E+00	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

	Tt**3	Tt**4	Tt**5
Tp**0	+.108808096586E+04	-.648431252497E+02	0.0
Tp**1	-.813784851935E+03	+.496980689771E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**3	0.0	0.0	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

:

1814

110302

66

Matrix Size 66
Coeff CRC 5582

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	+.222234281547E+04	-.153153479852E+01	-.173545070280E+01
Tt**1	-.138182033329E+04	+.305081197614E+01	+.426915224573E+00
Tt**2	+.302356244254E+03	-.108612322954E+01	-.427426491089E-01
Tt**3	-.233607410950E+02	+.117972171386E+00	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

	Tp**3	Tp**4	Tp**5
Tt**0	+.357829782963E+00	-.410666492778E-01	0.0
Tt**1	-.368532159901E-01	+.479386351224E-02	0.0
Tt**2	0.0	0.0	0.0
Tt**3	0.0	0.0	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

Client: BLACK RAVEN ENERGY
Field: ADENA
Well: LAUGHLIN #2
Run date: 18-Feb-2014

Tool: PSP
Sub Type: PBMS
Sensor: GR

PBMS Gamma Ray

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

RESISTORS FOR GR SENSOR N.33422, TOOL PBMS-AA1814. SENSOR S/N:

33422

141101

12

B632

GR HV Rt

	Rt**0	Rt**1
Rt**0	+.150000000000e+04	+.384000000000e+04

Client: BLACK RAVEN ENERGY

Field: ADENA

Well: LAUGHLIN #2

Run date: 18-Feb-2014

Tool: PSP

Sub Type: PBMS

Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR RTD THERMOMETER PBMS-A.1814 S/N:

1814

110302

16

BB41

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	+.166216935849E+03	-.442983636935E+03	+.222536735195E+03
	Tt**3	Tt**4	Tt**5
Tt**0	-.393638959762E+02	+.262167857726E+01	0.0

Company: BLACK RAVEN ENERGY

Well: LAUGHLIN #2

Field: ADENA

County: MORGAN

State: COLORADO

Schlumberger

SLIM CEMENT MAPPING LOG

GAMMA RAY – CCL – TEMPERATUR