

Company: Cascade Petroleum LLC

Well: Forristall State 22-10S-56W-01

Field: Wildcat

County: Lincoln

State: Colorado

County: Lincoln

Field: Wildcat

Location: SENW, Sec 22 T 10S R 56W

Well: Forristall State 22-10S-56W-01

Company: Cascade Petroleum LLC

Cement Bond Log

CBL – VDL

CCL – GR

SENW, Sec 22 T 10S R 56W

SHL: 1600' FSL x 1600' FWL

Elev.: K.B. 5504.00 ft

G.L. 5489.00 ft

D.F. 5503.00 ft

LOCATION

Permanent Datum: GROUND LEVEL

Log Measured From: Kelly Bushing

Drilling Measured From: Kelly Bushing

Elev.: 15.00 ft

above Perm. Datum

API Serial No.

05-073-06491-000C

Section 22

Township 10S

Range 56W

PVT DATA			Run 1	Run 2	Run 3
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	11-Feb-2013			
Run Number	1			
Depth Driller	8400 ft			
Schlumberger Depth	8235 ft			
Bottom Log Interval	8230 ft			
Top Log Interval	5230 ft			
Casing Fluid Type	Water based mud			
Salinity				
Density	8.6 lbm/gal			
Fluid Level	0 ft			
BIT/CASING/TUBING STRING				
Bit Size	7.875 in			
From	8400 ft			
To	520 ft			
Casing/Tubing Size	5.500 in			
Weight	17 lbm/ft			
Grade	N-80			
From	0 ft			
To	8400 ft			
Maximum Recorded Temperatures	203 degF			
Logger On Bottom	11-Feb-2013		10:00	
Unit Number	383	Fort Morgan		
Recorded By	Christopher Ryan Parent			
Witnessed By	Mike Decker			

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: 11-FEB-2013 9:48:30

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-C	Type:	CMTD-C	Type:	1-25P
Serial Number:	6220	Serial Number:	3571	Serial Number:	383
Calibration Date:		Calibration Date:	24-Jan-2013	Length:	18000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	787135		
Calibration Cable Type:	1-25P	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	-3	Calibration RMS:		Rig Type:	LAND
Wheel Correction 2:	-4	Calibration Peak Error:			

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

- 1.
- 2.
- 3.
- 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: RST Sigma	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
1. Cement bond log ran under 0PSI surface induced.	
2. Maximum recorded temperature was 203DEGF.	
3. Maximum recorded pressure was 3531PSI.	
4. CBL and RST Sigma Ran in Combo.	
5. 5.5" 17# N-80 casing.	
6. Estimated top of cement 5730FT.	
7. Tied in with GR peaks from reference log at 8061.5FT. log indicated on depth	

7. Head in with CN peaks from reference log at 8220FT. Log indicated CN depth summary.	
8. Tagged float collar at ~8235FT.	
Your crew today has been Christopher Parent and Mark Hoffman.	
Thank you for choosing E&P Wireline, we appreciate your business!	

RUN 1			RUN 2		
SERVICE ORDER #:	BYKM-00080		SERVICE ORDER #:		
PROGRAM VERSION:	19C2-270		PROGRAM VERSION:		
FLUID LEVEL:	0 ft		FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

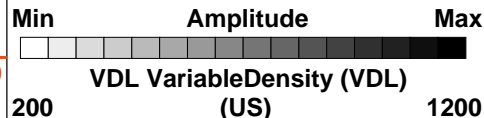
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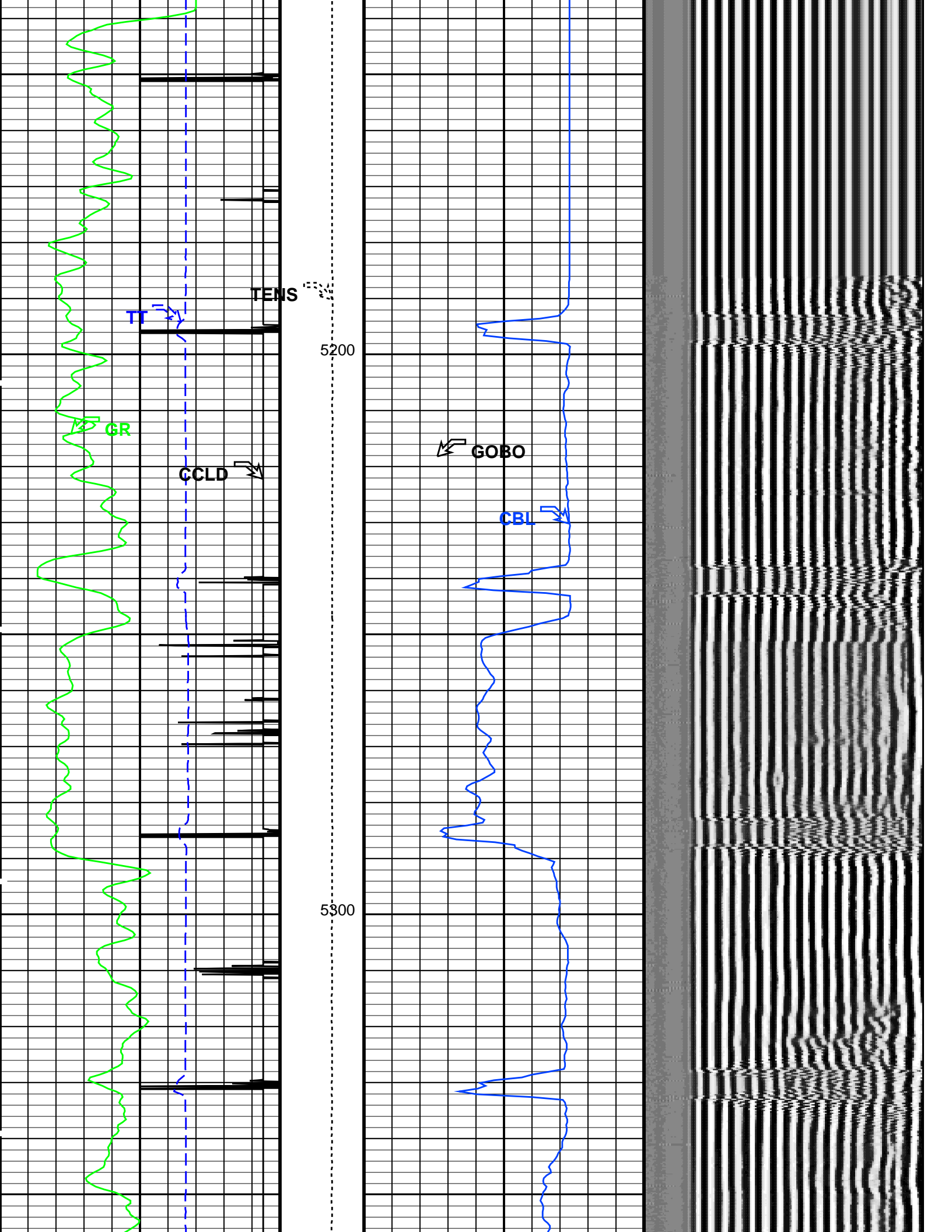
WITM-A 3571 PSC_16MHZ	SURFACE EQUIPMENT
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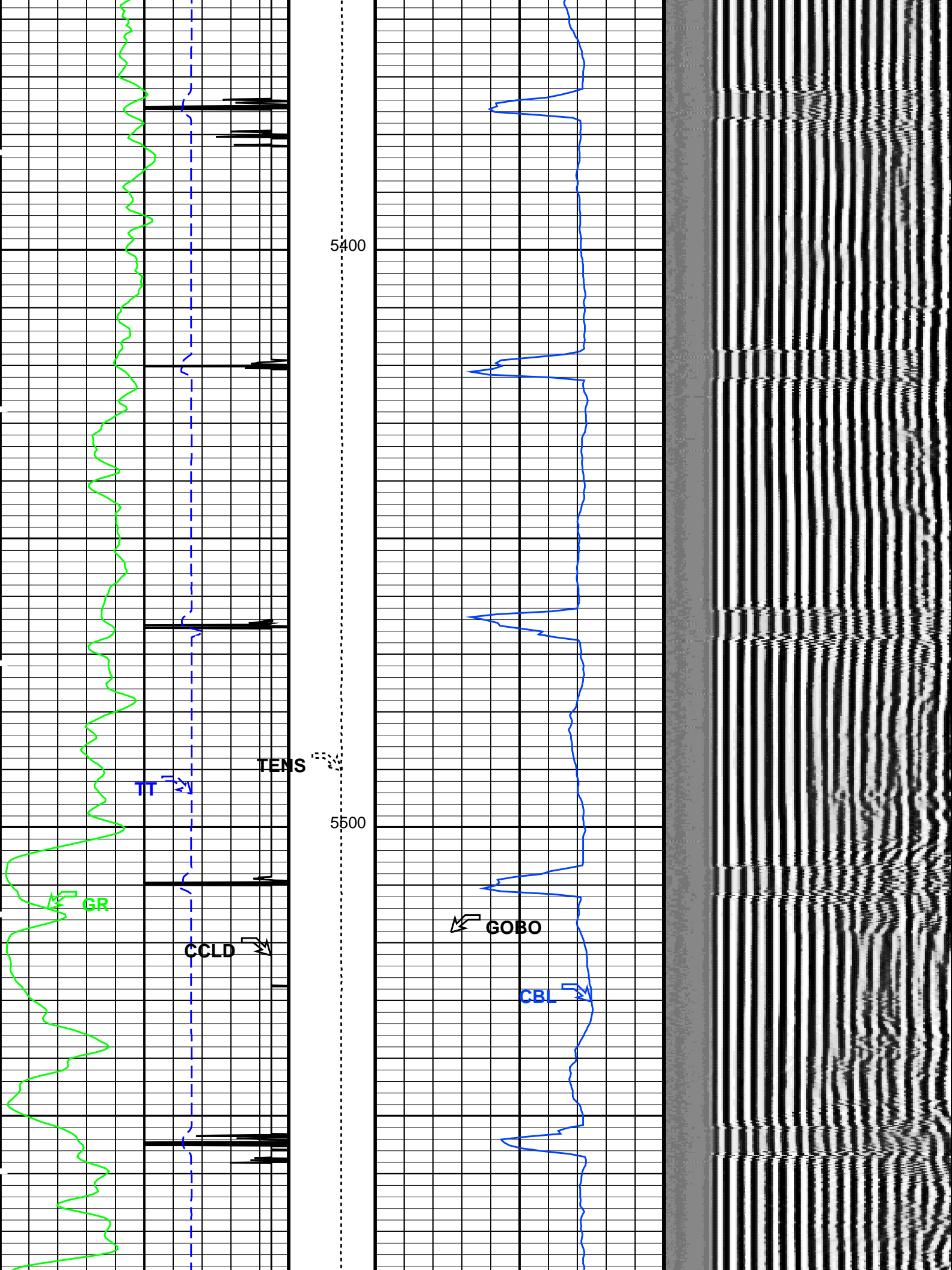
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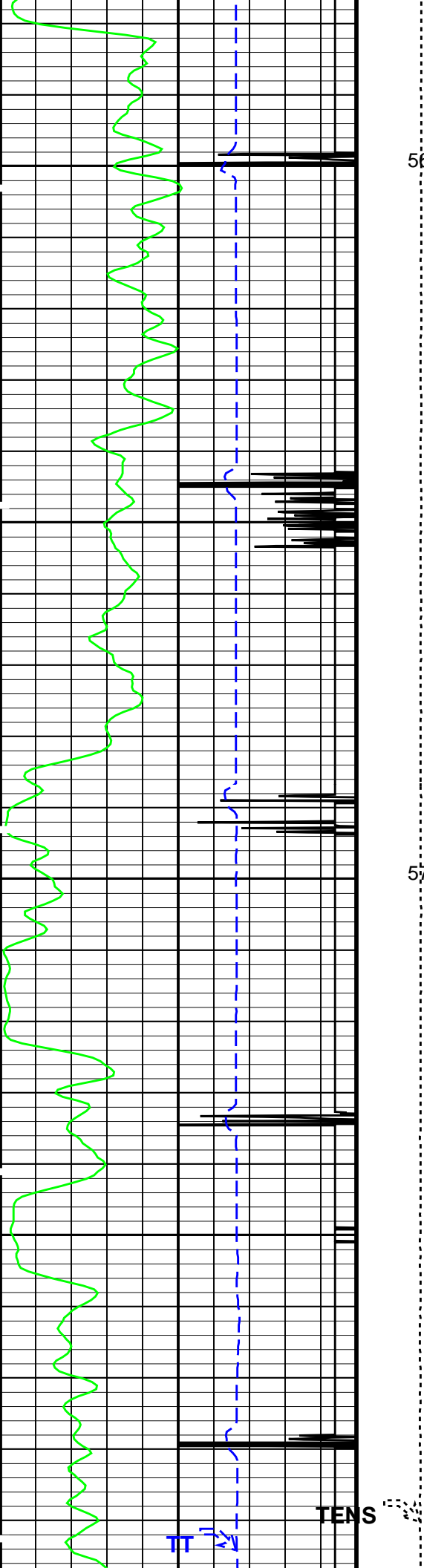
Equipment	Depth (ft)
MH-22	53.3
AH-38	51.7
PSPT	51.5
PSC-A	
PSTC-A 1949	
PBMS-B 2810	
CQG_F_Mano	
RTD_Thermometer	
GR	47.8
CCL	44.7
PBMS	44.4
RST-C	44.0
RSCH-A 292	43.2
RSC-E 701	
RSS-A 217	
RSXH-A 303	
RSX-E 701	
RSC-A Far	34.1
RSC-A PNG	
RSC-A Nea	
RSX-A PNG	33.6

Item	Value
MH-22	53.3
MH-22	
Detail MT	
TelStatus	
CTEM	
AH-38	51.7
PSPT	51.5
PSC-A	
PSPT-B 2810	
PSTC-A 1949	
PBMS-B 2810	
CQG_F_Mano	
RTD_Thermometer	
GR	47.8
Well_Temp	44.7
CQG Manom	44.4
CCL	44.0
PBMS	43.2
PBMS PSTC	
RST-C	43.2
RSCH-A 292	
RSC-E 701	
RSS-A 217	
RSXH-A 303	
RSX-E 701	
RSC-A Far	34.1
RSC-A PNG	
RSC-A Nea	
RSX-A PNG	33.6



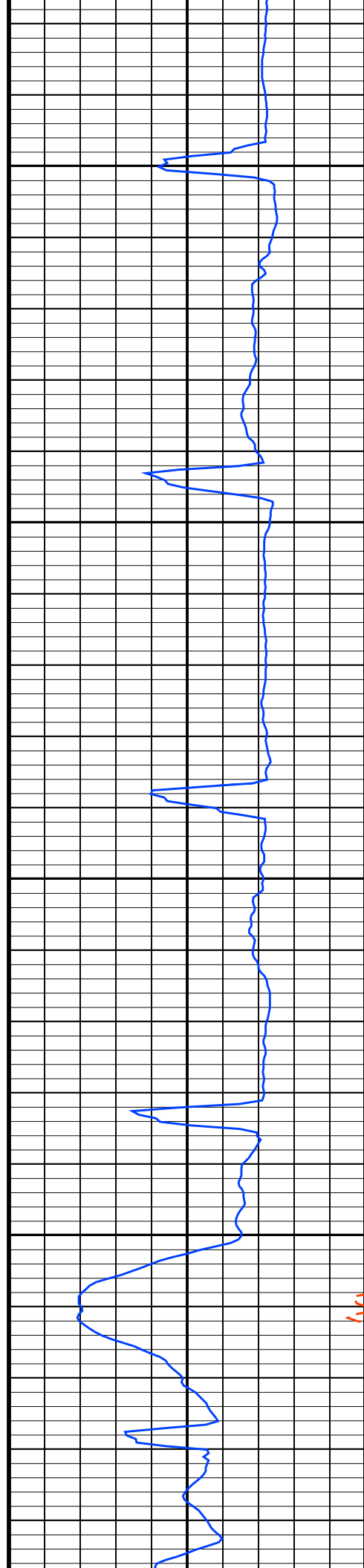




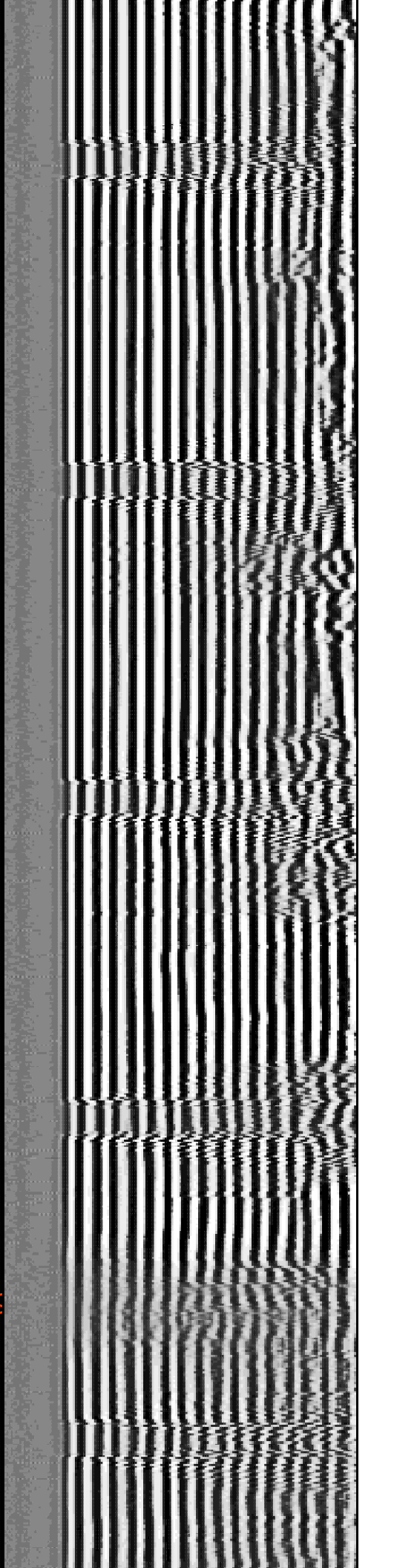


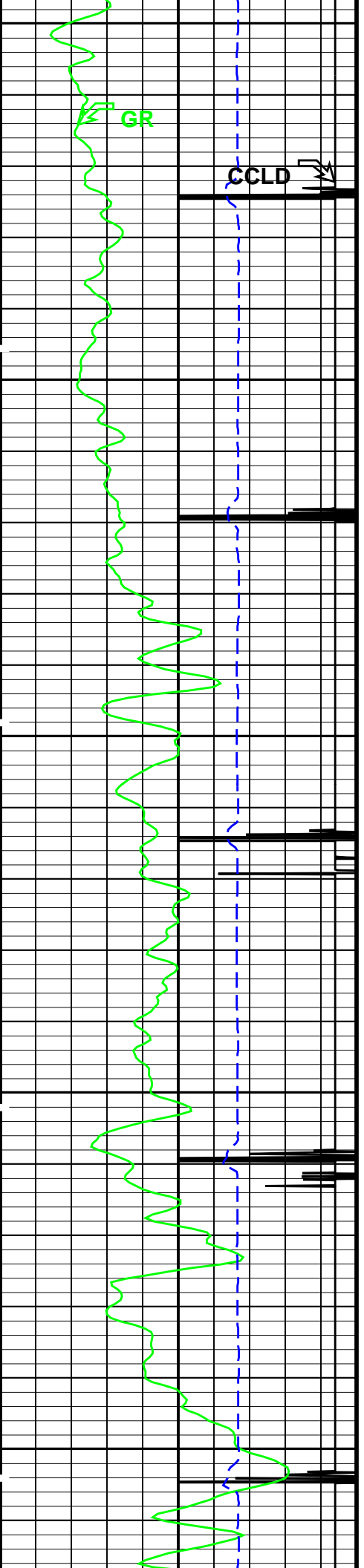
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5700



5.5

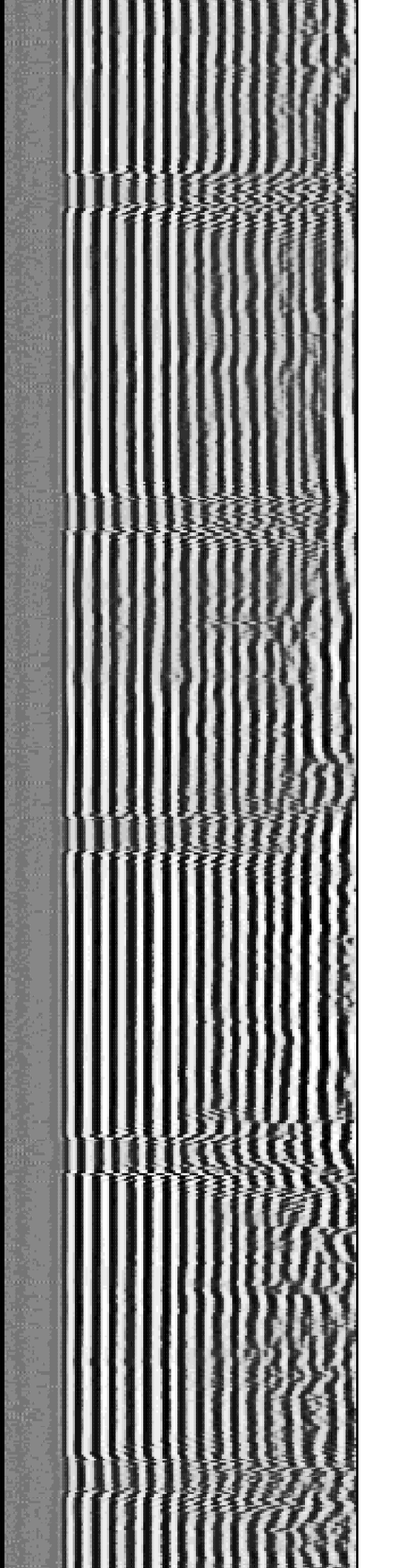
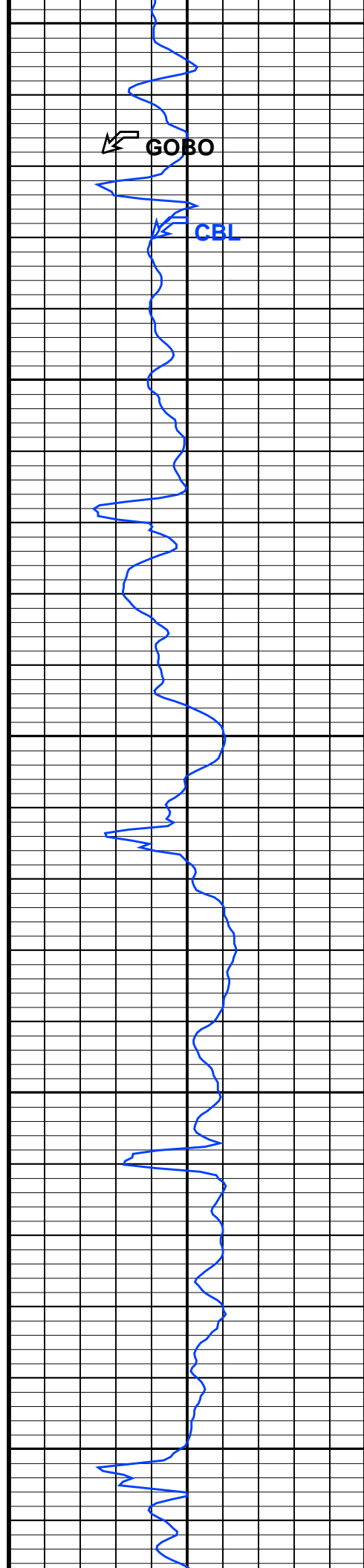


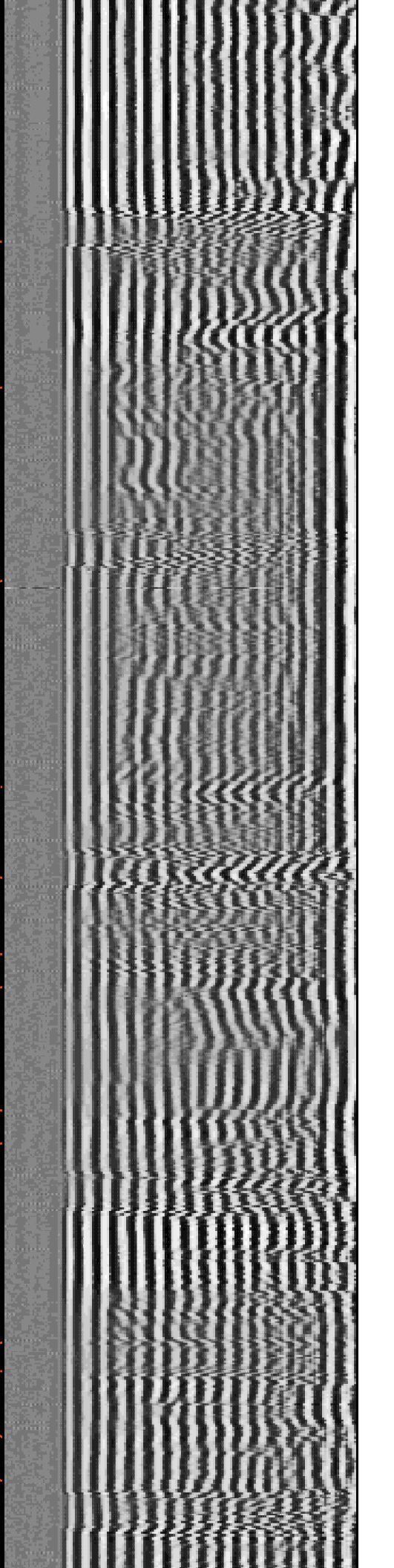
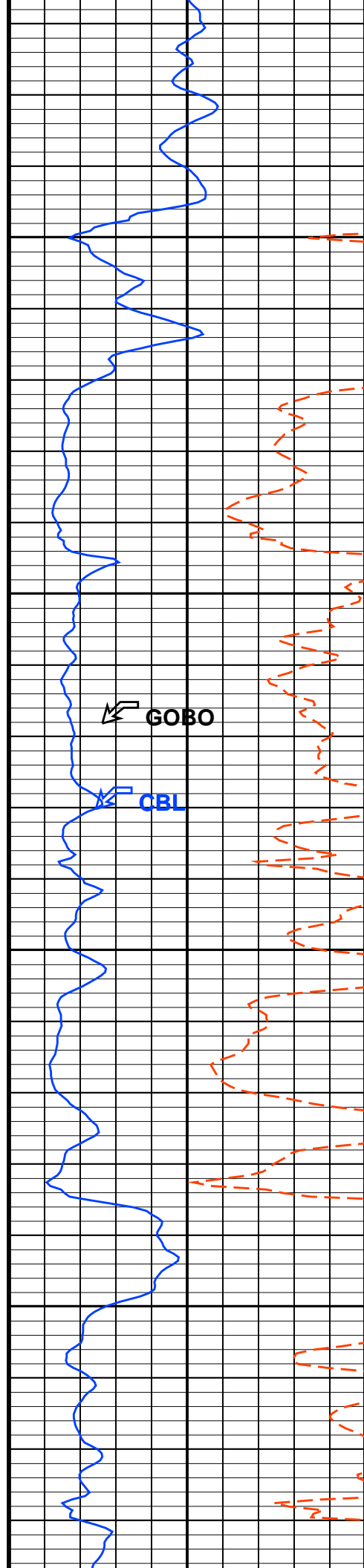
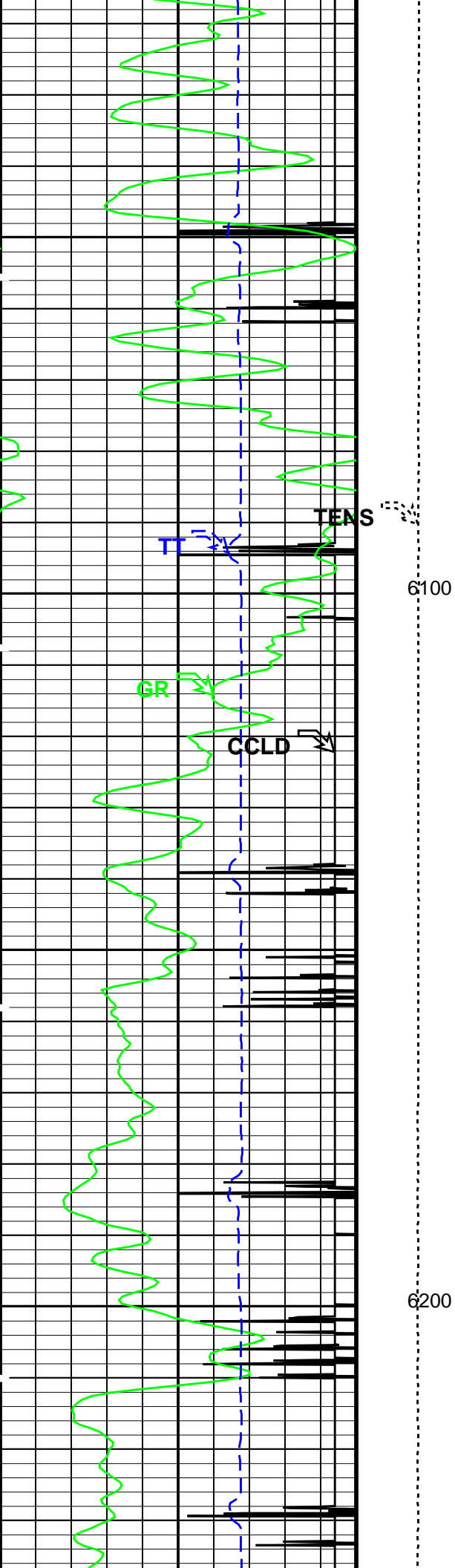


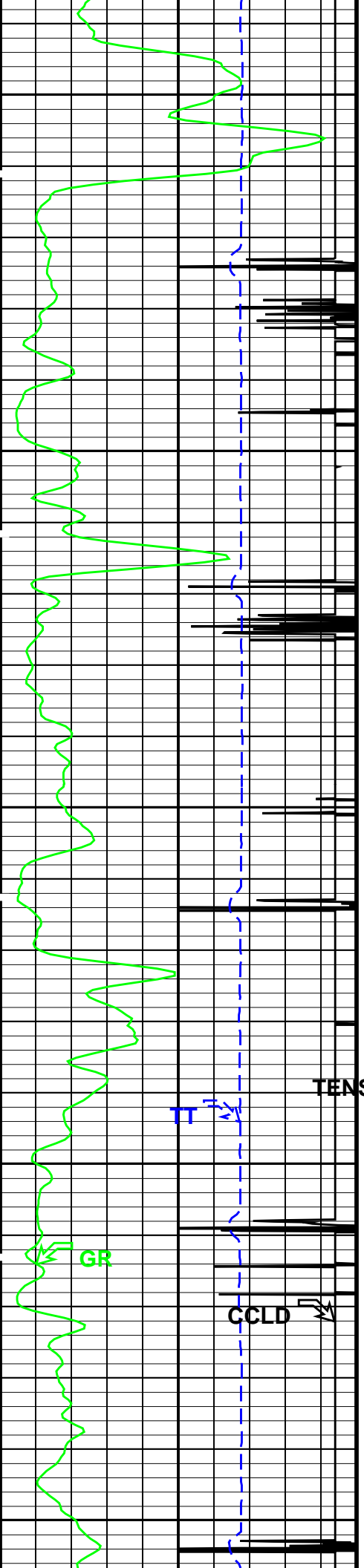
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5900

6000







6300

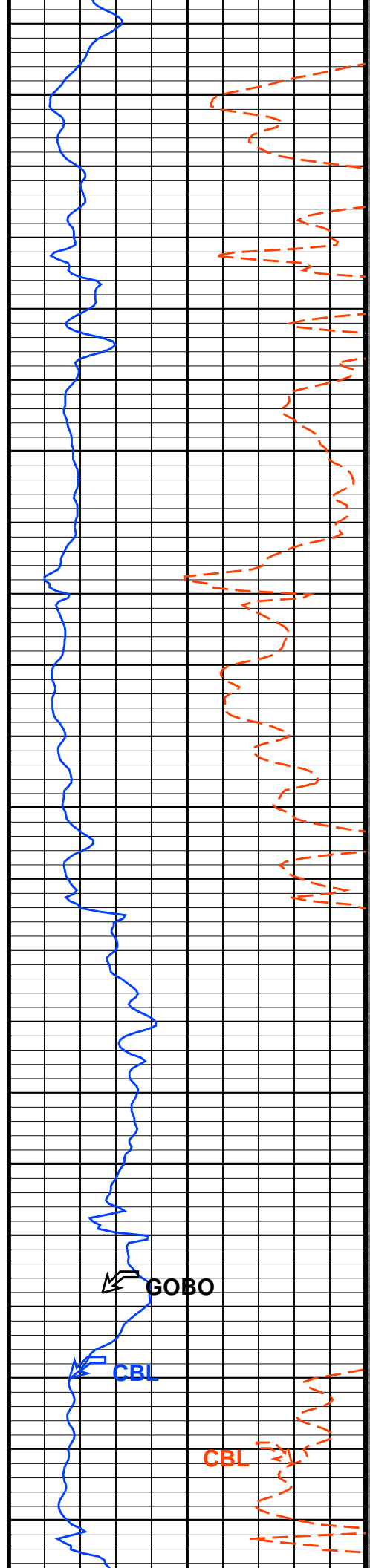
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TENS

TT

GR

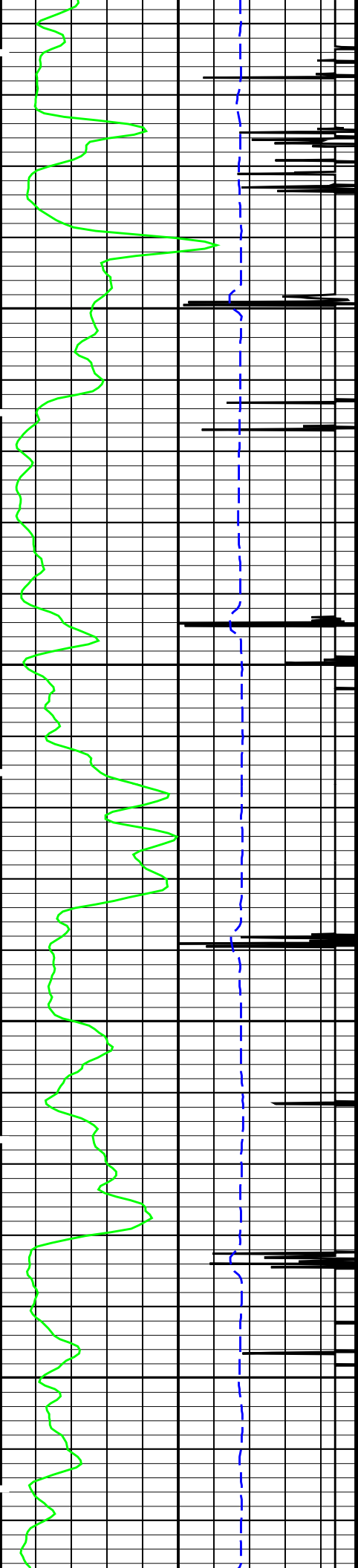
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GOBO

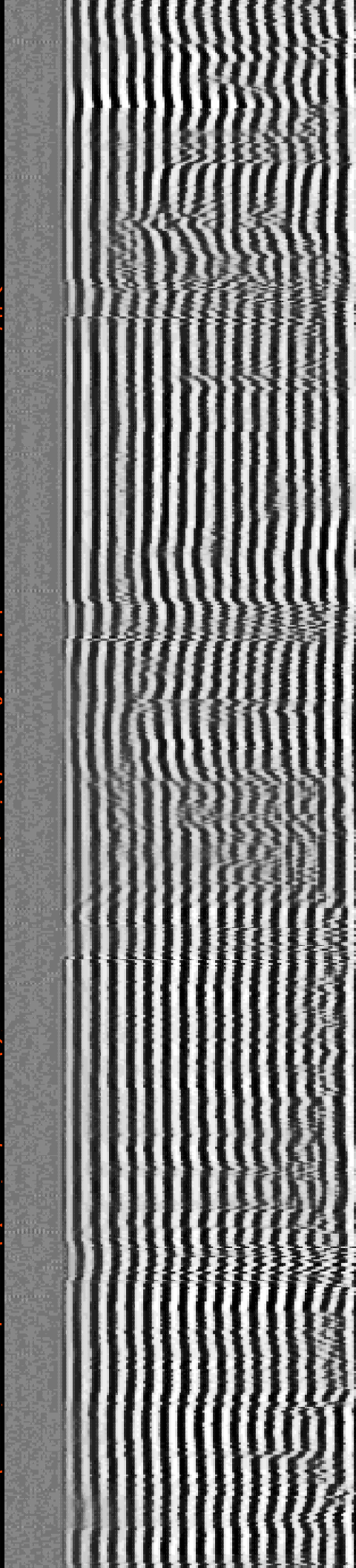
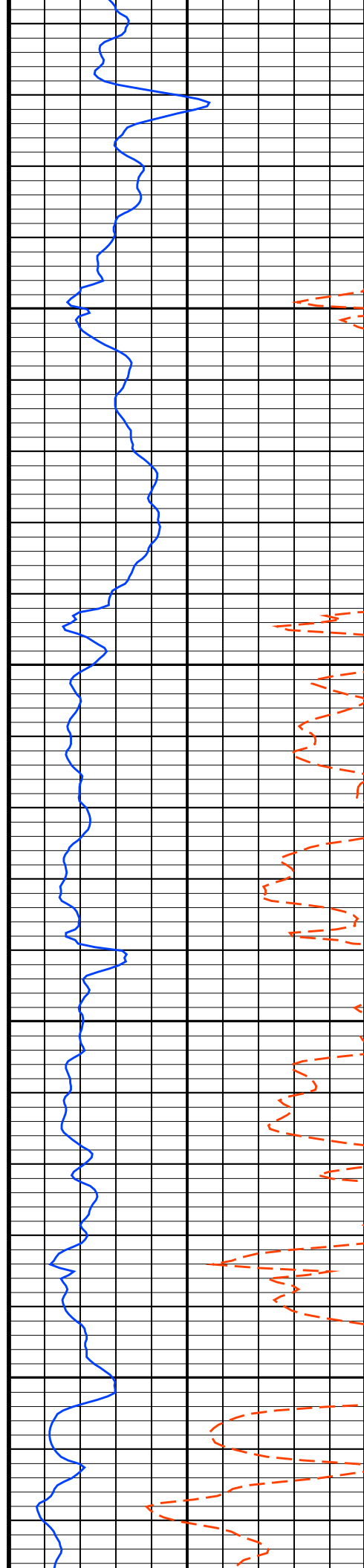
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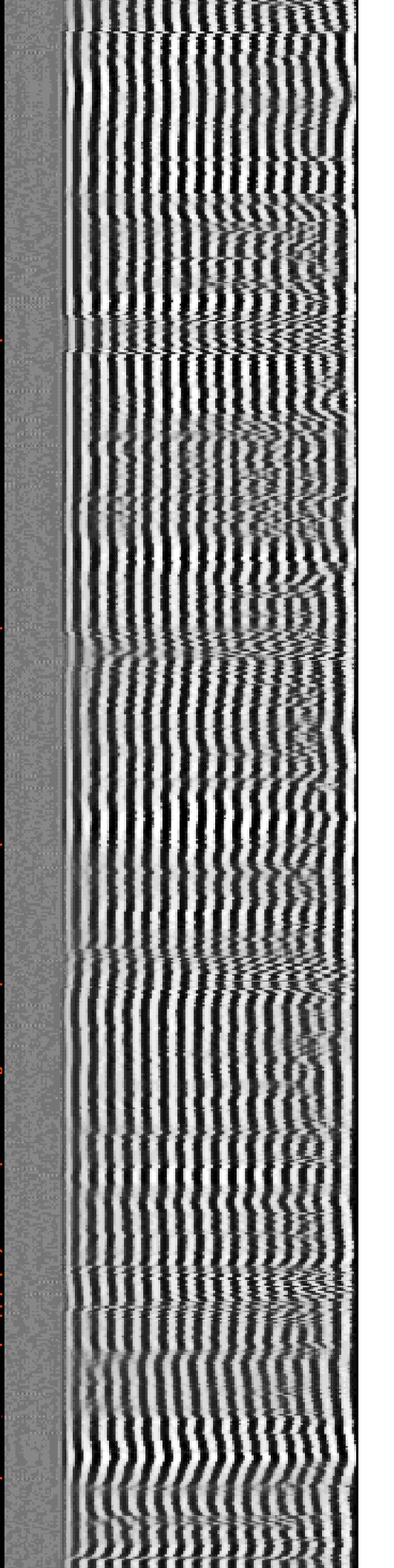
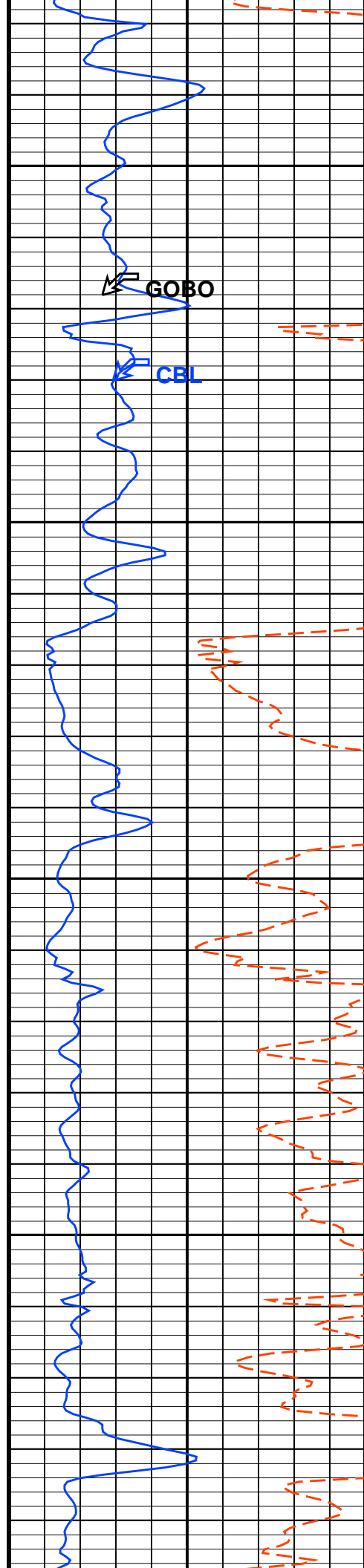
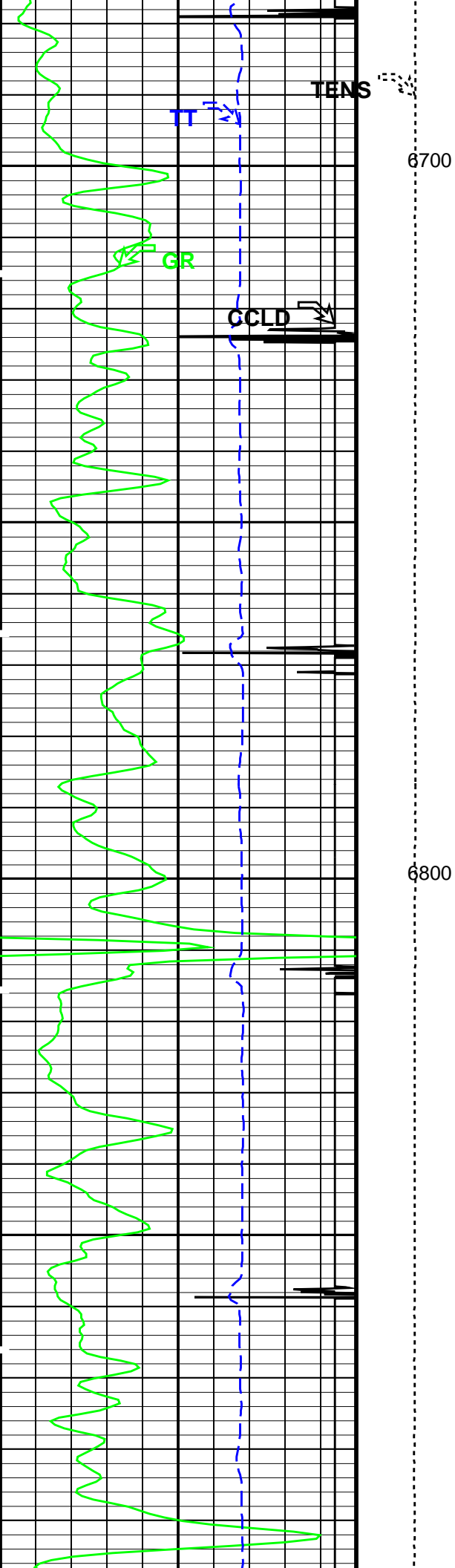
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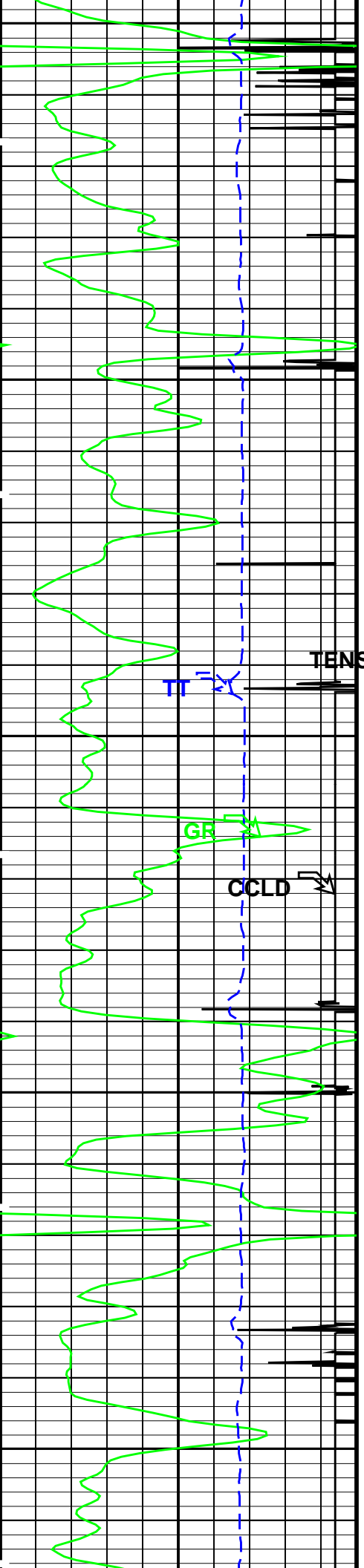


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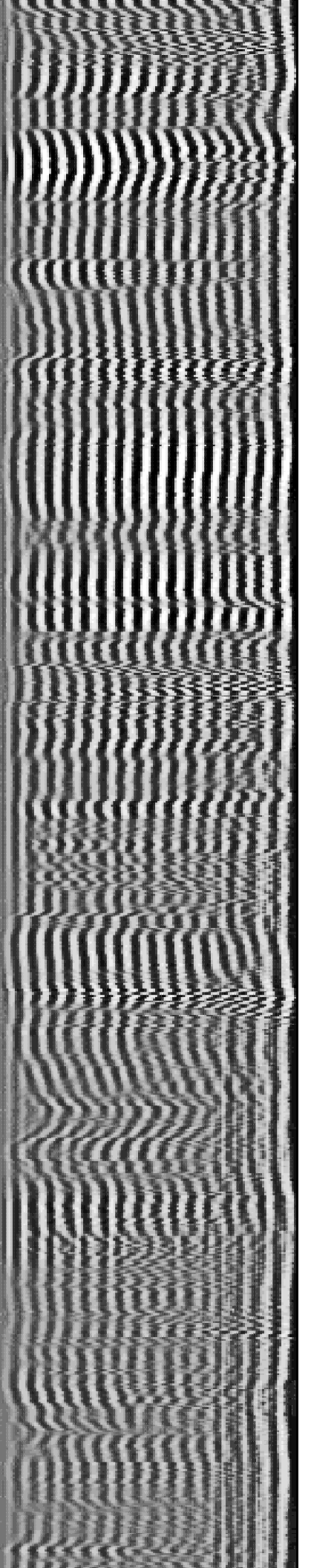
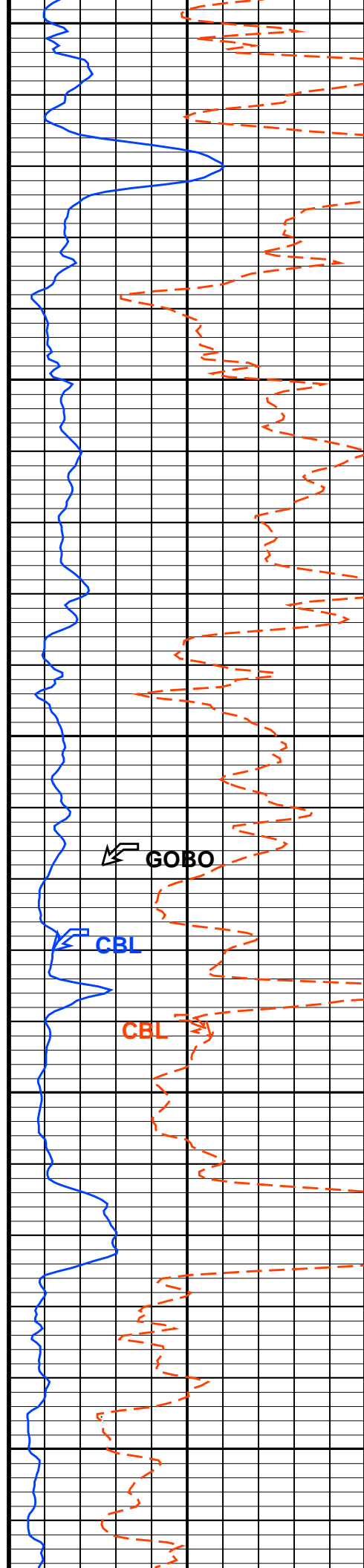


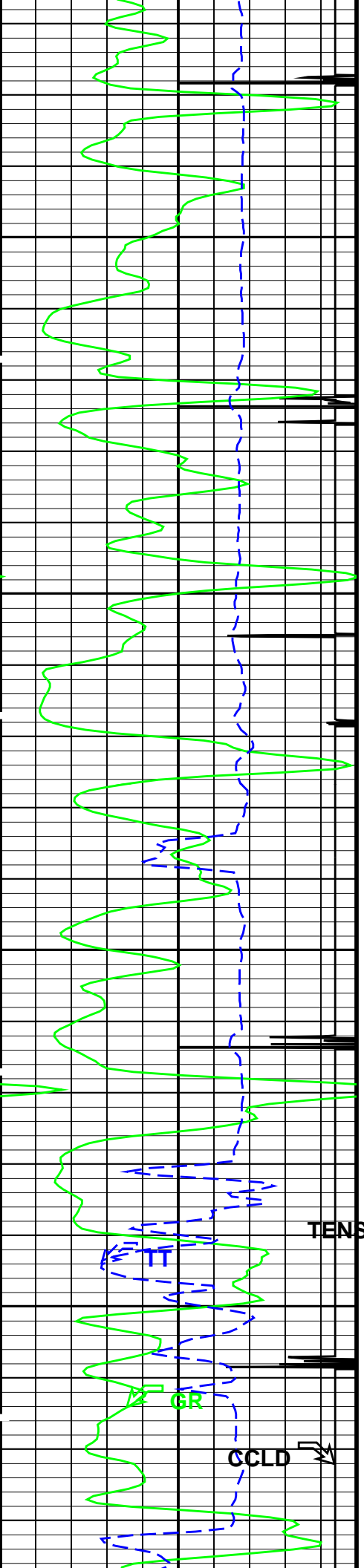


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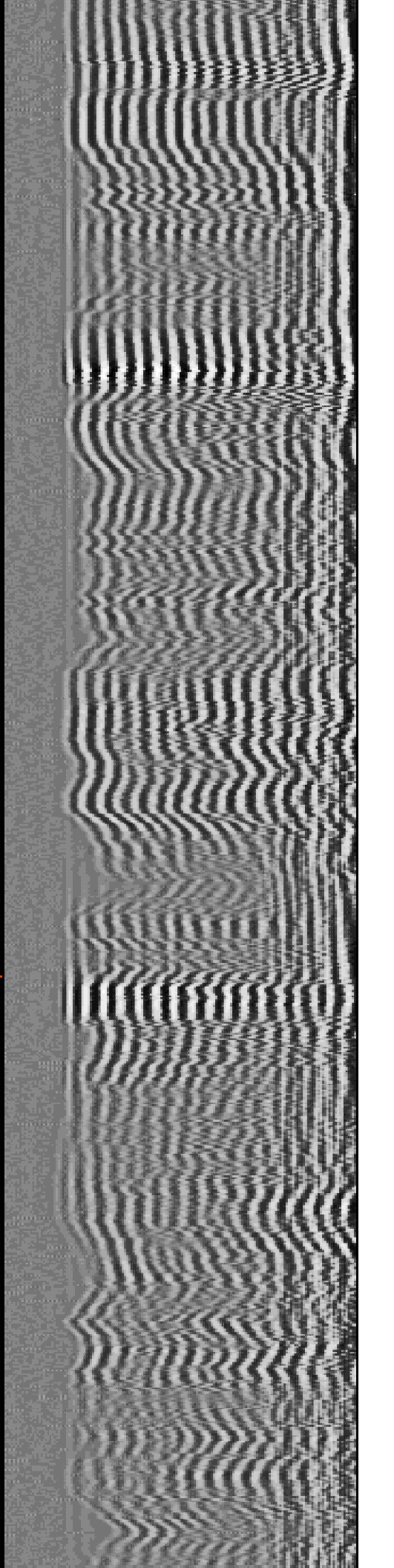
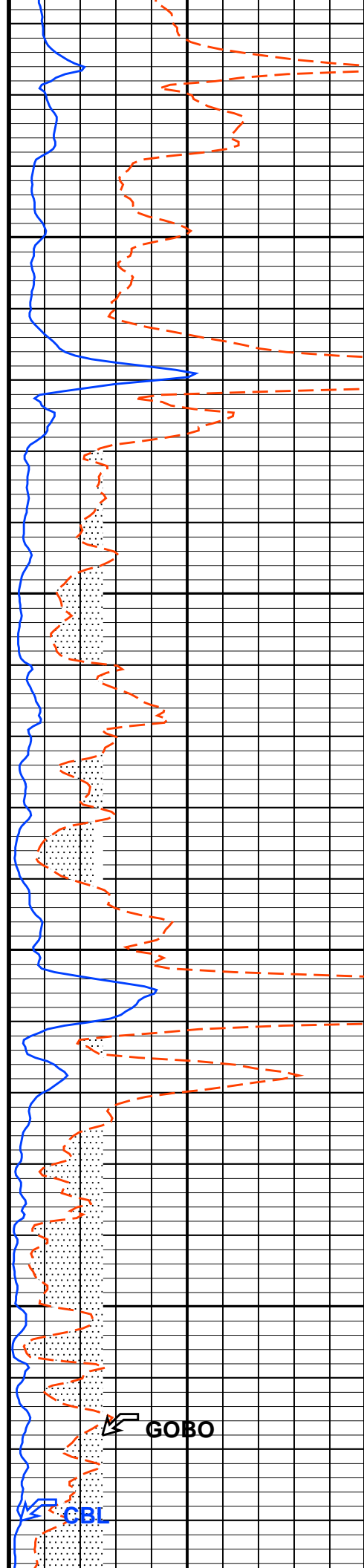
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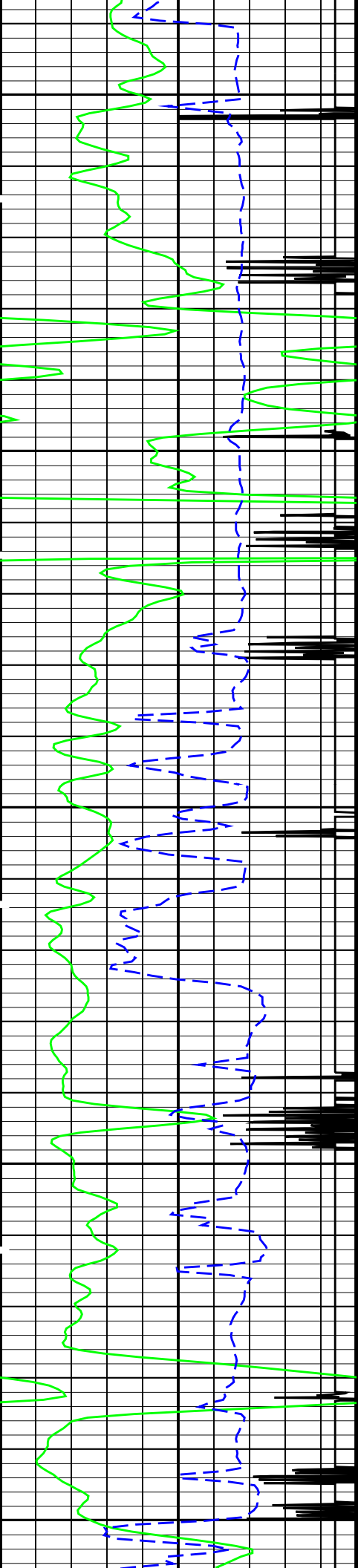




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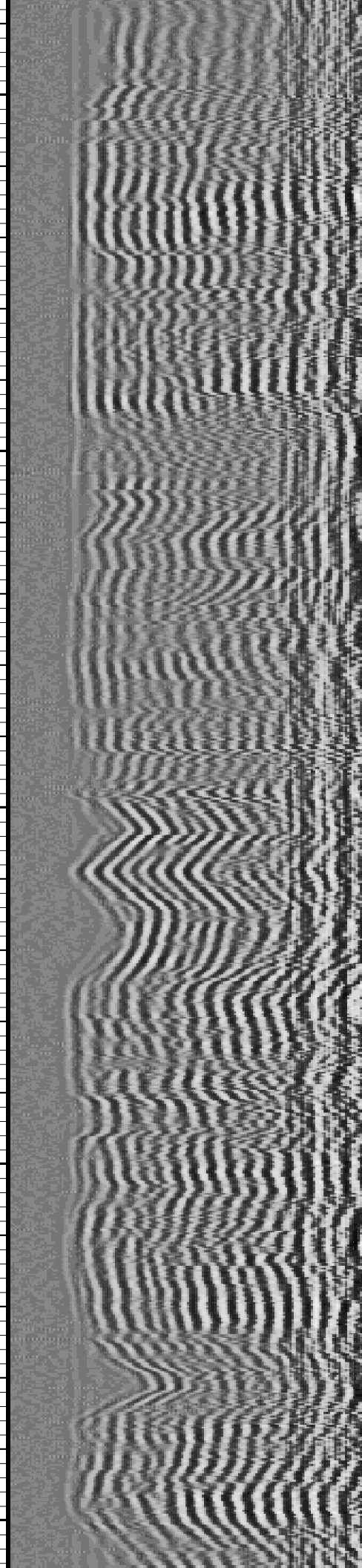
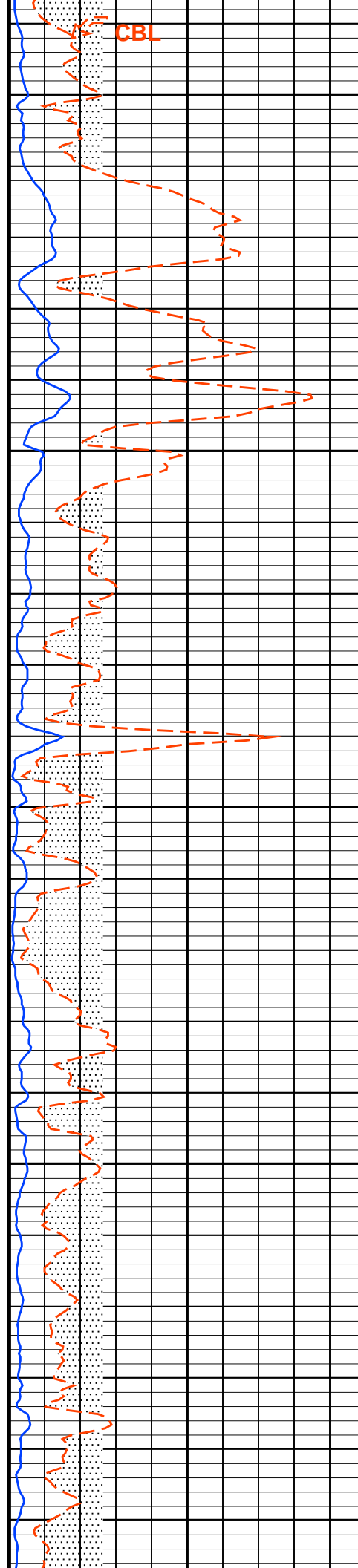
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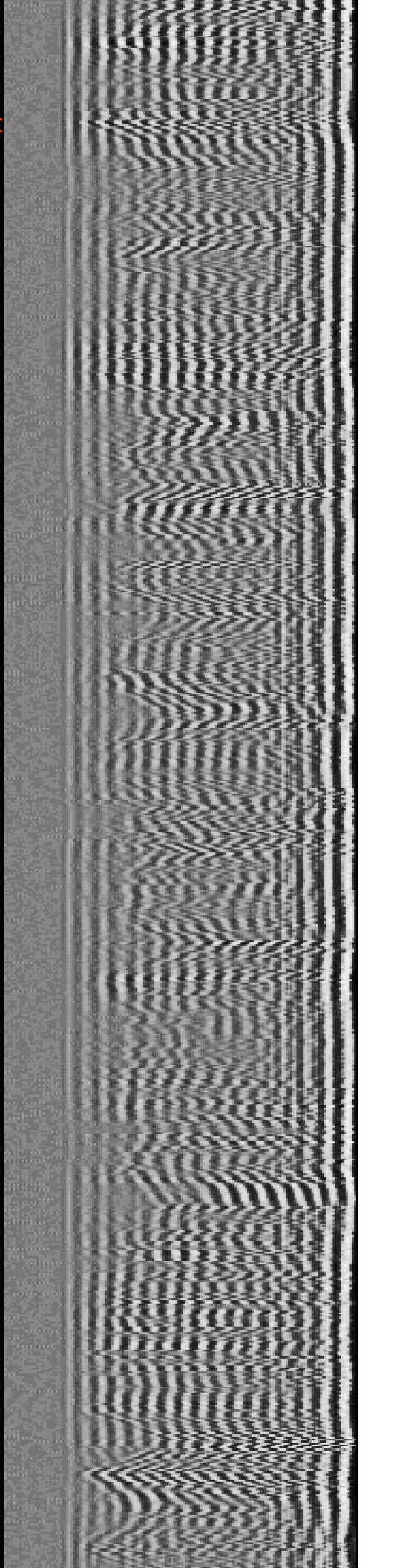
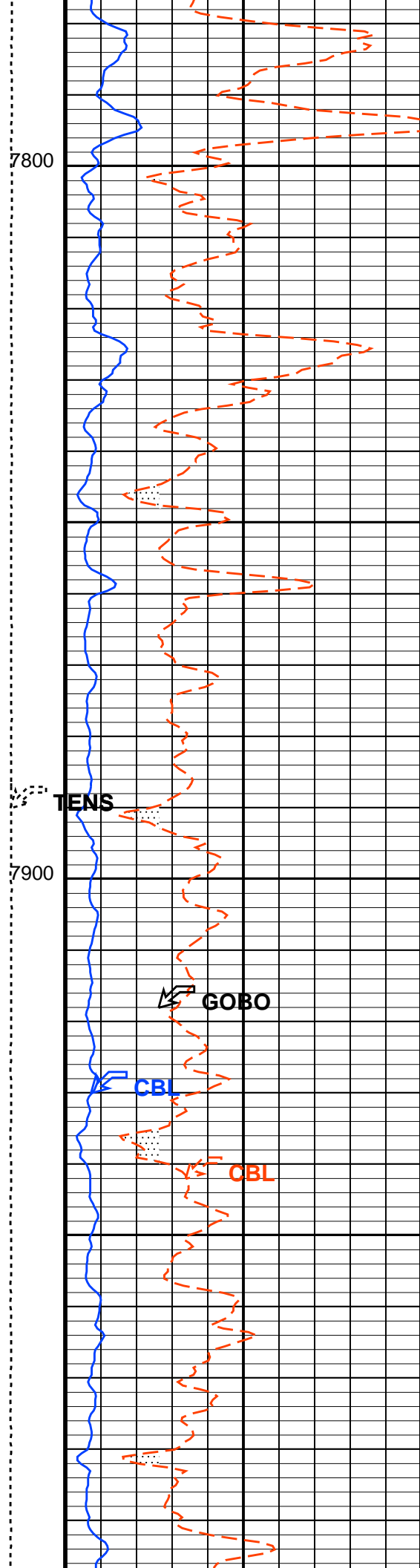
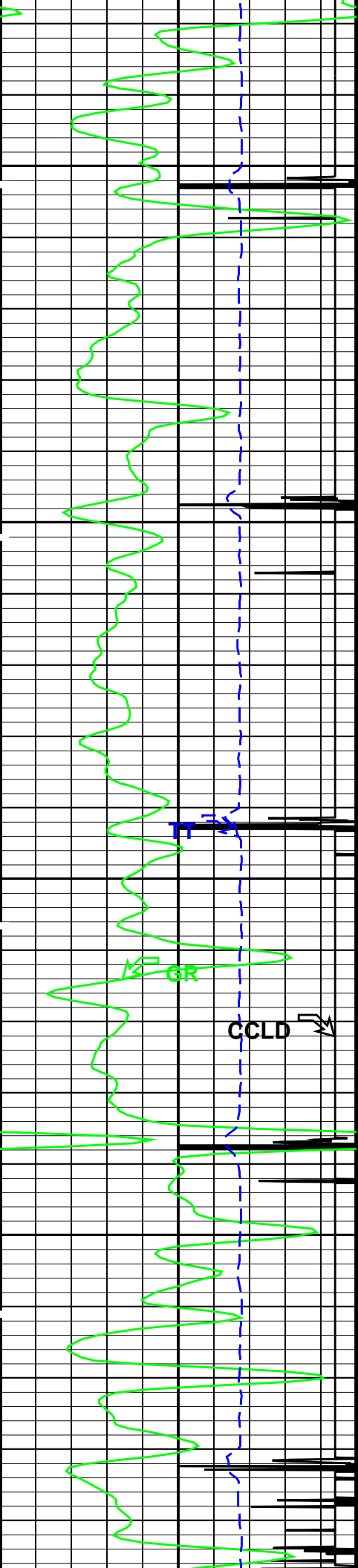


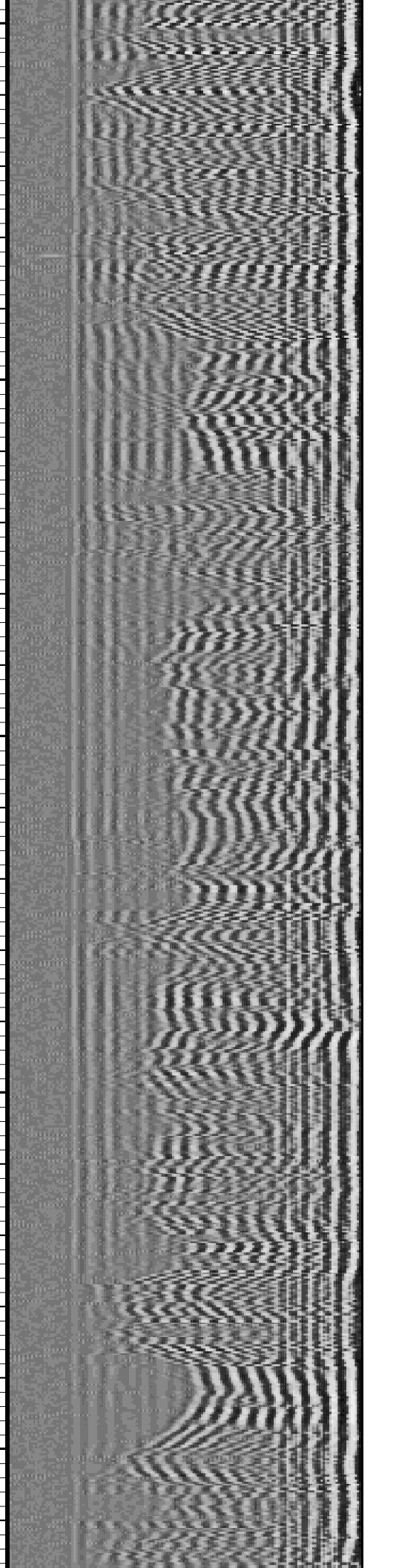
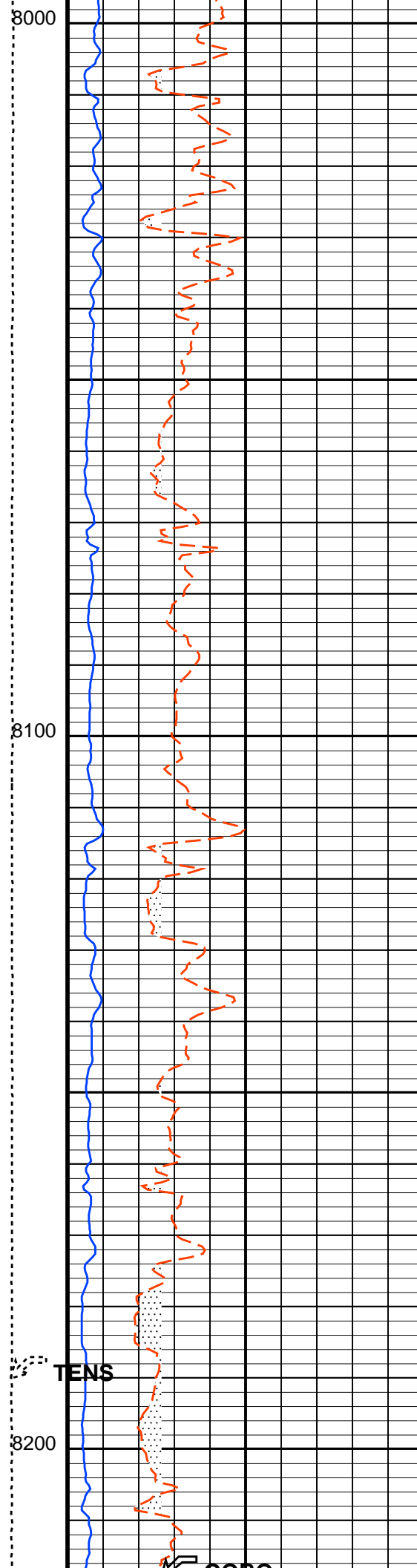
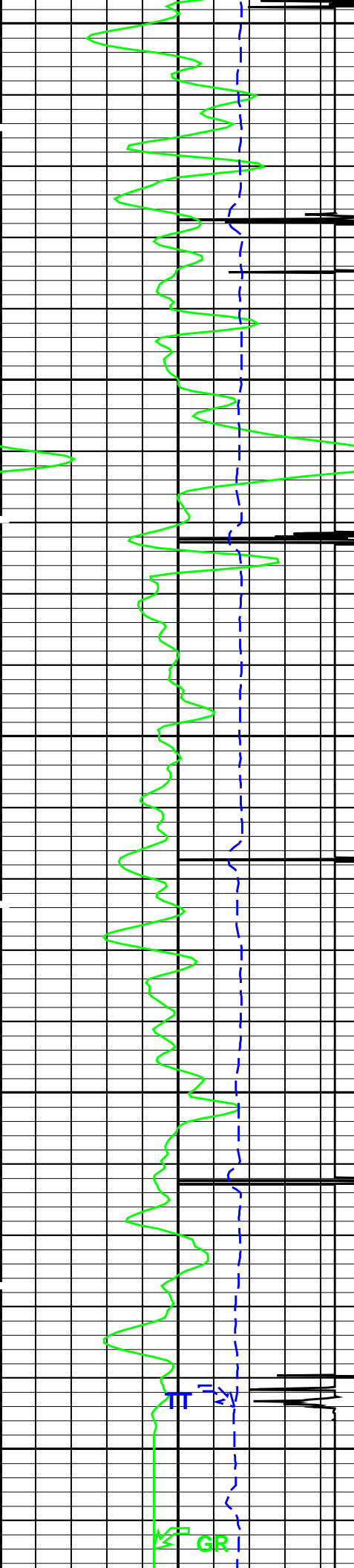


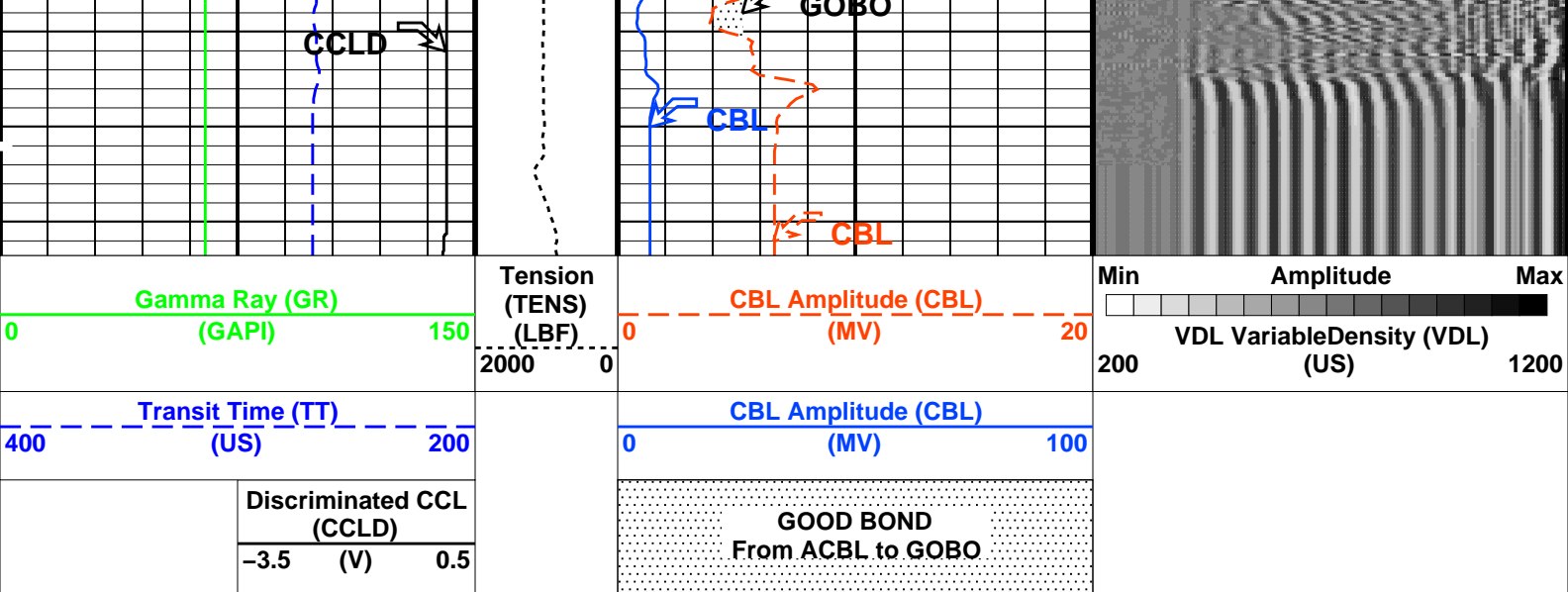
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7500









PIP SUMMARY

Time Mark Every 60 S

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	243.137 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	357.137 US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20 MV
CBLG	CBL Gate Width	40 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	0.306128 IN
DTF	Delta-T Fluid	204.5 US/F
FATT	Acoustic Attenuation due to Fluid	0 DB/F
FCF	CBL Fluid Compensation Factor	0.97682
GOBO	Good Bond	2.61257 MV
MAPD	SCMT MAP Peak Detection Mode	PEAK
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	186.137 US
MAPT	SCMT MAP Fixed Threshold Level	30 MV
MATT	Maximum Attenuation	13.848 DB/F
MCCF	MAP Cement Type Compensation Factor	1
MCI	Minimum Cemented Interval for Isolation	4.75 FT
MMSA	MAP Minimum Sonic Amplitude	7.2608 MV
MSA	Minimum Sonic Amplitude	1.14425 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	17.00 LB/F
DFD	Drilling Fluid Density	8.60 LB/G
TD	Total Depth	8390 FT

Format: Def_CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 11-Feb-2013 10:05

OP System Version: 19C2-270

SCMT-CB	19C2-270	RST-C	19C2-270
PSPT	19C2-270		

Output DLIS Files

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CLIENT	SCMT_RST_PSP_010LUC	FN:14	CUSTOMER	11-Feb-2013 10:05

Company: Cascade Petroleum LLC

Well: Forristall State 22-10S-56W-0

Input DLIS Files

DEFAULT	SCMT_RST_PSP_016LUP	FN:23	PRODUCER	11-Feb-2013 11:16	7368.5 FT	6998.5 FT
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Output DLIS Files

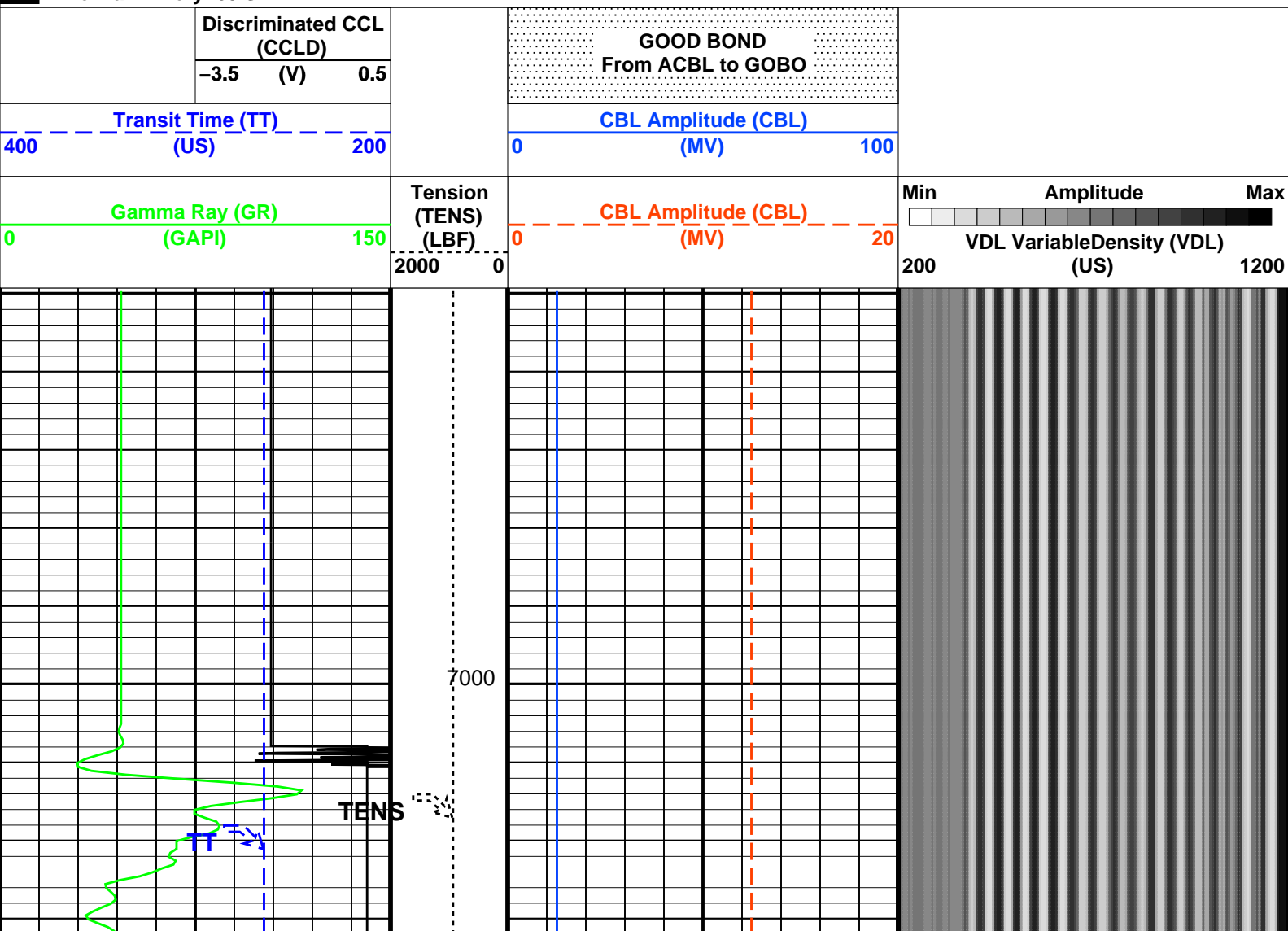
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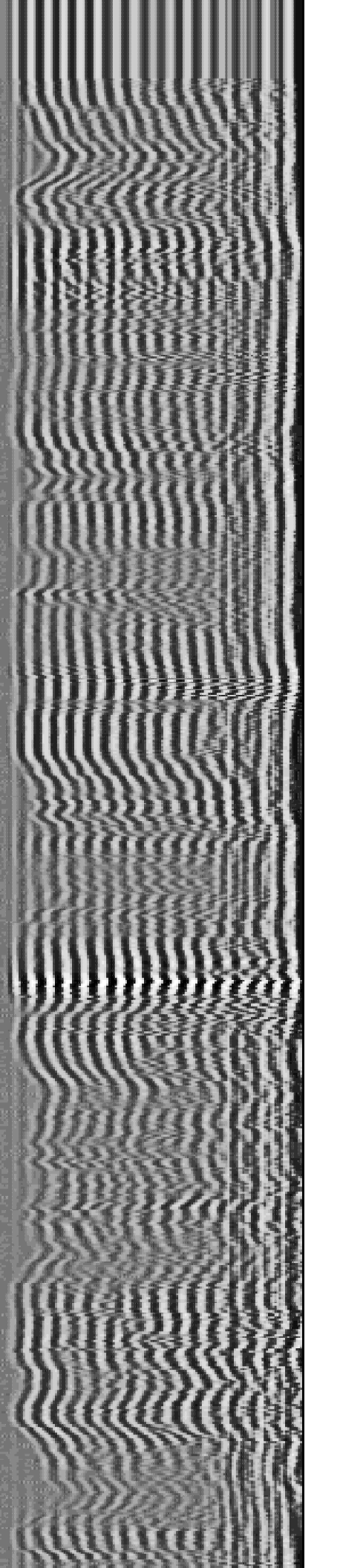
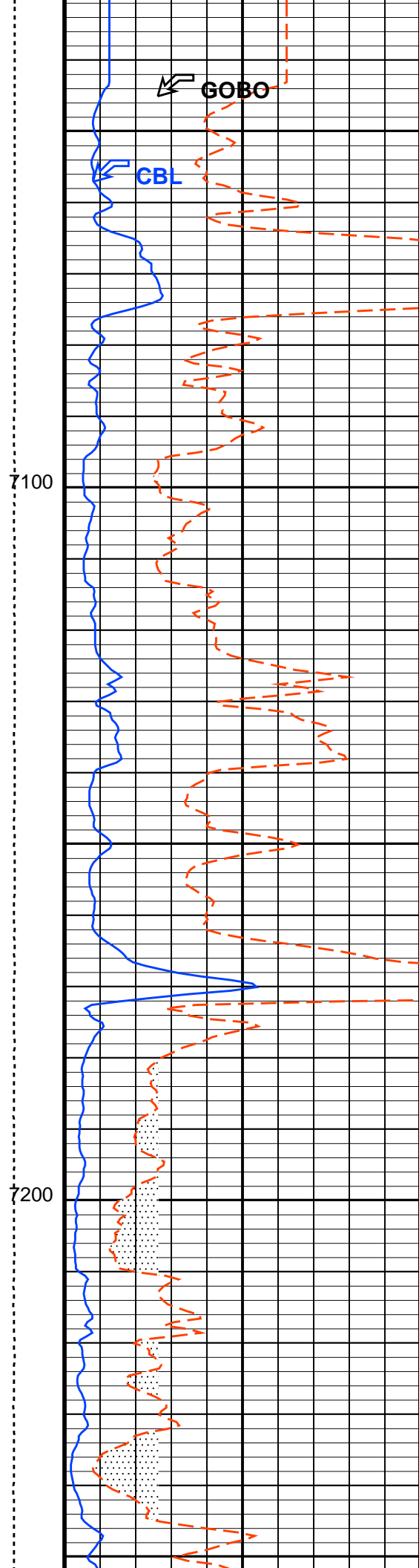
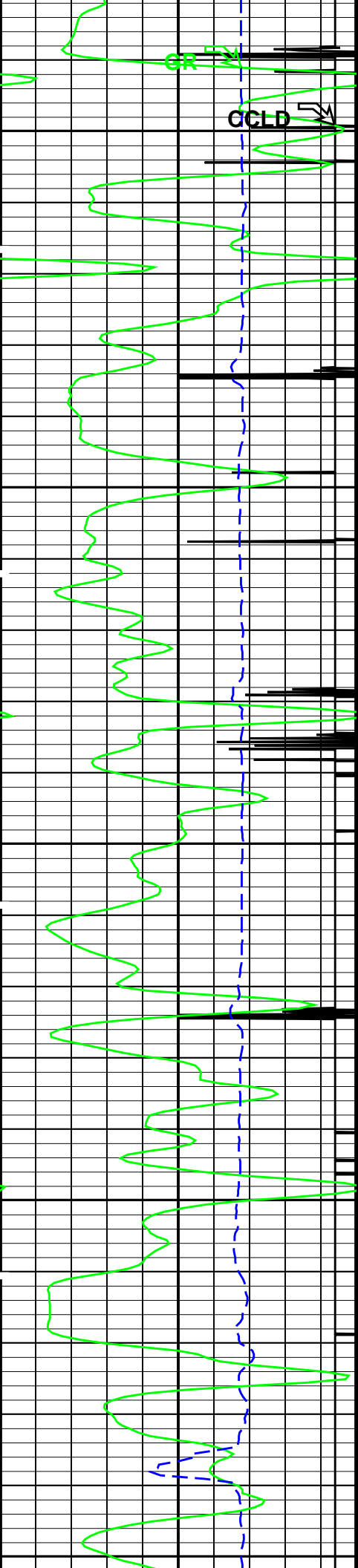
OP System Version: 19C2-270

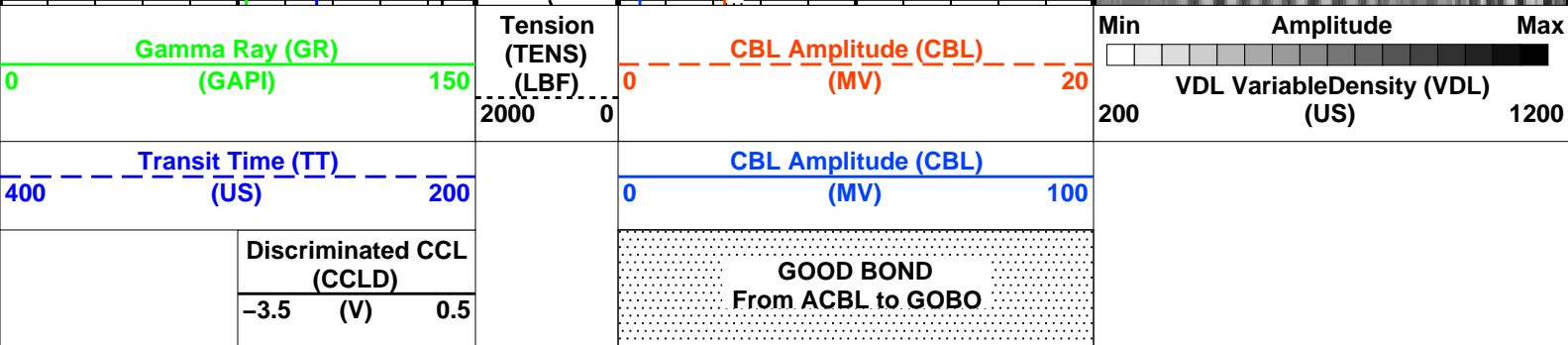
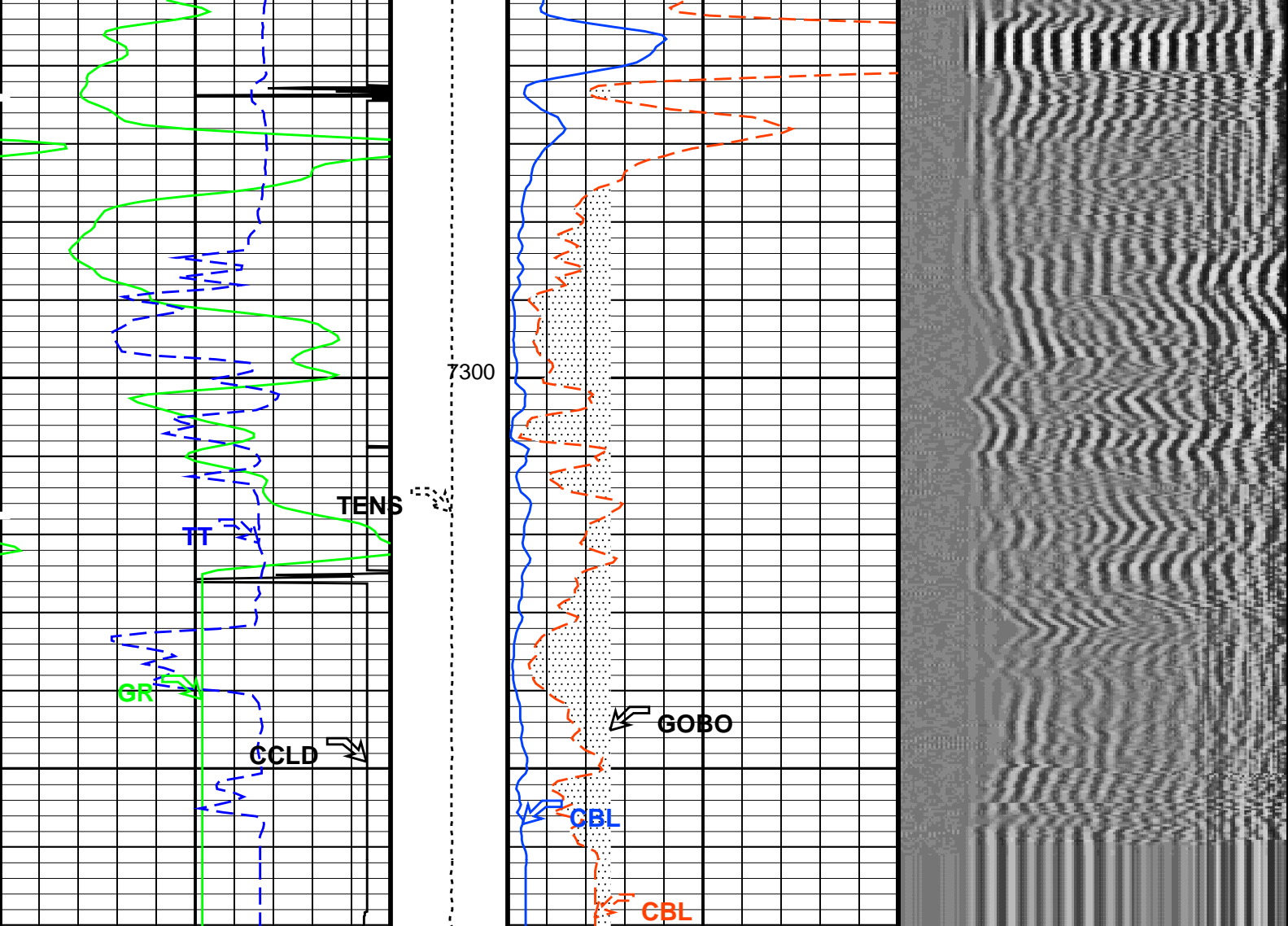
SCMT-CB	19C2-270	RST-C	19C2-270
PSPT	19C2-270		

PIP SUMMARY

Time Mark Every 60 S







PIP SUMMARY

Time Mark Every 60 S

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	243.137	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	357.137	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	40	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	0.306128	IN
DTF	Delta-T Fluid	204.5	US/F
FAFF	Fluid Attenuation Factor	22.5	US/F

FAT I	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.97682	
GOBO	Good Bond	2.61257	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	186.137	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	13.848	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	4.75	FT
MMSA	MAP Minimum Sonic Amplitude	7.2608	MV
MSA	Minimum Sonic Amplitude	1.14425	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	17.00	LB/F
DFD	Drilling Fluid Density	8.60	LB/G
DO	Depth Offset for Playback	2.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	8390	FT

Format: Def_CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 11-Feb-2013 11:25

OP System Version: 19C2-270

SCMT-CB	19C2-270	RST-C	19C2-270
PSPT	19C2-270		

Input DLIS Files

DEFAULT	SCMT_RST_PSP_016LUP	FN:23	PRODUCER	11-Feb-2013 11:16	7368.5 FT	6998.5 FT
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Output DLIS Files

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CLIENT	SCMT_RST_PSP_020PUC	FN:30	CUSTOMER	11-Feb-2013 11:25

Schlumberger

Calibrations

MAXIS Field Log

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

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX - CA	8213
Slim Cement Mapping Sonde	SCMS - CB	8258
Slim Cement Mapping Cartridge	SCMC - CA	8213

Auxiliary Equipment:

Slim Electronics Cartridge Housing	SECH - CA
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








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

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX – CA	8213
Slim Cement Mapping Sonde	SCMS – CB	8258
Slim Cement Mapping Cartridge	SCMC – CA	8213

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			1232	Master			1177
	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			1194	Master			1130
	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			1055	Master			1170
	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			1007	Master			1151
	500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)			500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)	
Phase	CBL Amplitude Plus MV		Value				
Master			1348				
	1000 (Minimum)	1350 (Nominal) 1700 (Maximum)					
Master: 1–Aug–2012 14:37							

Client:	Tool:	PSP
Field:	Sub Type:	PBMS
Well:	Sensor:	GR
Run date:		

PBMS Gamma Ray

Sonde Serial NB	RESISTORS FOR GR SENSOR N.34089, TOOL PBMS-BA2810. SENSOR S/N:
Sensor Serial NB	34089
Calib Date ddmmyy	060305
Matrix Size	12
Coeff CRC	47B8

GR HV Rt

Rt0**

Rt1**

Rt0**

+.200000000000e+04

+.157000000000e+04

Client:

Field:

Well:

Run date:

Tool:

Sub Type:

Sensor:

PSP

PBMS

WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR RTD THERMOMETER PBMS-B.2810 S/N:

2810

070705

16

3277

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	-.439583547032E+04	+.452521056389E+04	-.179601761835E+04
	Tt**3	Tt**4	Tt**5
Tt**0	+.323728677907E+03	-.217721584943E+02	0.0

Client:

Field:

Well:

Run date:

Tool:

Sub Type:

Sensor:

PSP

PBMS

CQG

PBMS Quartz Gauge type F

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR CQG PBMS–B.2810 S/N:

2810

070705

66

DA7D

Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+.667020730149E+04	+.110346038650E–01	–.354704229652E–06
Fc**1	–.104743313027E+01	–.125492720922E–04	–.953915991902E–10
Fc**2	+.103801075992E–05	+.457270212154E–10	+.961716751102E–15
Fc**3	+.115609541168E–11	–.150248544544E–16	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	–.815328952957E–10	–.131162626064E–14	–.315513204115E–19
Fc**1	–.179136457934E–15	+.471546198958E–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

Calib Date ddmmyy

Matrix Size

Coeff CRC

:

2810

070705

66

AD30

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+.112999405824E+03	–.296223598620E–03	+.959508365714E–08
Fb**1	–.602734329602E–02	+.181678832589E–07	+.234405532701E–12
Fb**2	–.405482331907E–07	+.698408611678E–12	+.770471024350E–17
Fb**3	+.257356326929E–12	+.704134550169E–18	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	+.451788949772E–12	–.985211573392E–16	–.102940521722E–19
Fb**1	–.300846393720E–16	–.564175776622E–20	0.0
Fb**2	0.0	0.0	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 2810
 Calib Date ddmmyy 070705
 Matrix Size 16
 Coeff CRC CE1B

Clock Freq Coeff

	(Fb'–Fc')**0	(Fb'–Fc')**1	(Fb'–Fc')**2
(Fb'–Fc')**0	+.310924966209E+05	+.329370660210E–02	+.637620093985E–06
	(Fb'–Fc')**3	(Fb'–Fc')**4	(Fb'–Fc')**5
(Fb'–Fc')**0	–.674315503033E–10	–.444930306850E–15	+.515756333707E–20

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 2810
 Calib Date ddmmyy 070705
 Matrix Size 16
 Coeff CRC B4AF

Clock Temp Coeff

	(Fb'–Fc')**0	(Fb'–Fc')**1	(Fb'–Fc')**2
(Fb'–Fc')**0	+.114225664481E+03	–.579307646212E–02	–.360082877455E–07
	(Fb'–Fc')**3	(Fb'–Fc')**4	(Fb'–Fc')**5
(Fb'–Fc')**0	+.327587237737E–11	–.192368138564E–15	+.231843195827E–20

Company: Cascade Petroleum LLC

Well: Forristall State 22–10S–56W–01

Field: Wildcat

County: Lincoln

State: Colorado



