Schlumberger

Company: **ENTEK GRB, LLC**
Well: **BATTLE MOUNTAIN FEDERAL 14-10L**
Field: **SLATER DOME**
County: **MOFFAT** State: **COLORADO**

CEMENT BOND LOG
CBL-VDL
GR-CCL

County:	MOFFAT
Field:	SLATER DOME
Location:	SURFACE HOLE LOCATION
Well:	BATTLE MOUNTAIN FEDERAL
Company:	ENTEK GRB, LLC

LOCATION
SURFACE HOLE LOCATION
1656' FSL & 888' FEL/NESE

Elev.: K.B. 6694.00 ft
G.L. 6676.00 ft
D.F. 6693.00 ft

Permanent Datum: GROUND LEVEL Elev.: 6676.00 ft
Log Measured From: KELLY BUSHING 18.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05081076410000	14	T12N	R89W

Logging Date	9-Aug-2011
Run Number	1
Depth Driller	7440 ft
Schlumberger Depth	7407 ft
Bottom Log Interval	7407 ft
Top Log Interval	200 ft
Casing Fluid Type	KCL MUD
Salinity	
Density	8.7 lbm/gal
Fluid Level	1300 ft
BIT/CASING/TUBING STRING	
Bit Size	8.750 in
From	18 ft
To	7440 ft
Casing/Tubing Size	7.000 in
Weight	23 lbm/ft
Grade	
From	18 ft
To	7440 ft
Maximum Recorded Temperatures	180 degF
Logger On Bottom Time	9-Aug-2011 19:30
Unit Number Location	2379 VERNAL
Recorded By	JEREMY WILLIAMS
Witnessed By	KRISTEN STOCKS

	Run 1	Run 2	Run 3	Run 4
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				
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 Time				
Unit Number Location				
Recorded By				
Witnessed By				

DEPTH SUMMARY LISTING

Date Created: 9-AUG-2011 22:51:48

Depth System Equipment

Depth Measuring Device		**Tension Device**		**Logging Cable**	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46ZV XXS
Serial Number:	6122	Serial Number:	1159	Serial Number:	709025
Calibration Date:	22-APR-2011	Calibration Date:	26-JUL-2011	Length:	24000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	8093	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-6	Calibration RMS:	15		
Wheel Correction 2:	-7	Calibration Peak Error:	23		

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	SPECTRAL DENSITY
Reference Log Run Number:	1
Reference Log Date:	31-JUL-2011
Subsequent Trip Down Log Correction:	0.00 FT

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH POLICIES FOLLOWED
2. Z CHART USED AS SECONDARY DEPTH CONTROL
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 : HNGS	OS1 :
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
TOOL RAN AS PER TOOL SKETCH	
ALL WELLSITE AND CASING DATA PROVIDED BY CLIENT	
MATRIX: SANDSTONE	
NO REPEAT AS PER CLIENT REQUEST	
EXPECTED GREE PIPE AMPLITUDE: 59mV	
YOUR CREW: BRAD SLAGOWSKI	

RUN 1		RUN 2	
SERVICE ORDER #:	B02U-00140	SERVICE ORDER #:	
PROGRAM VERSION:	18C0-147	PROGRAM VERSION:	
FLUID LEVEL:	1300 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

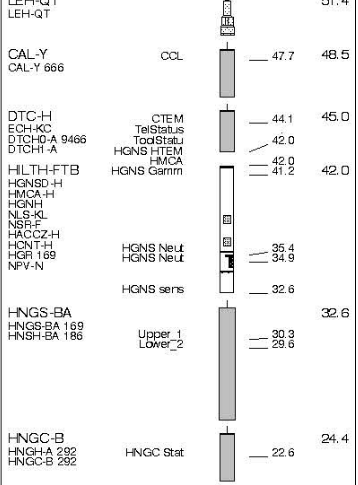
EQUIPMENT DESCRIPTION

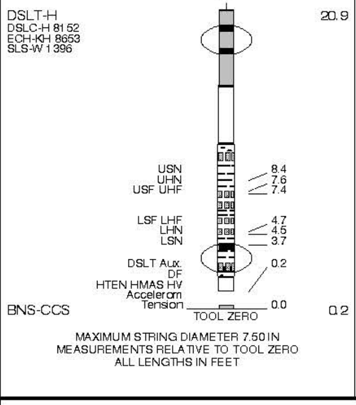
RUN 1 | RUN 2

SURFACE EQUIPMENT

GSR-U	NCS-VB
GSR-U/Y	WITM (DTS)-A
NCT-B	
CNB-AB	

DOWNHOLE EQUIPMENT





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MAIN PASS 0 PSI

MAXIS Field Log

Company: ENTEK GRB, LLC **Well: BATTLE MOUNTAIN FEDERAL 14-10L**

Input DLIS Files

DEFAULT	SONIC_NGS_TLD_MCFL_008LUP	FN:10	PRODUCER	09-Aug-2011 19:40	7417.5 FT	199.5 FT

Output DLIS Files

DEFAULT	SONIC_NGS_TLD_MCFL_011PUP	FN:14	PRODUCER	09-Aug-2011 22:37	7425.0 FT	206.5 FT
RTB	SONIC_NGS_TLD_MCFL_011PUP	FN:15	PRODUCER	09-Aug-2011 22:27	7425.0 FT	206.5 FT

OP System Version: 18C0-147

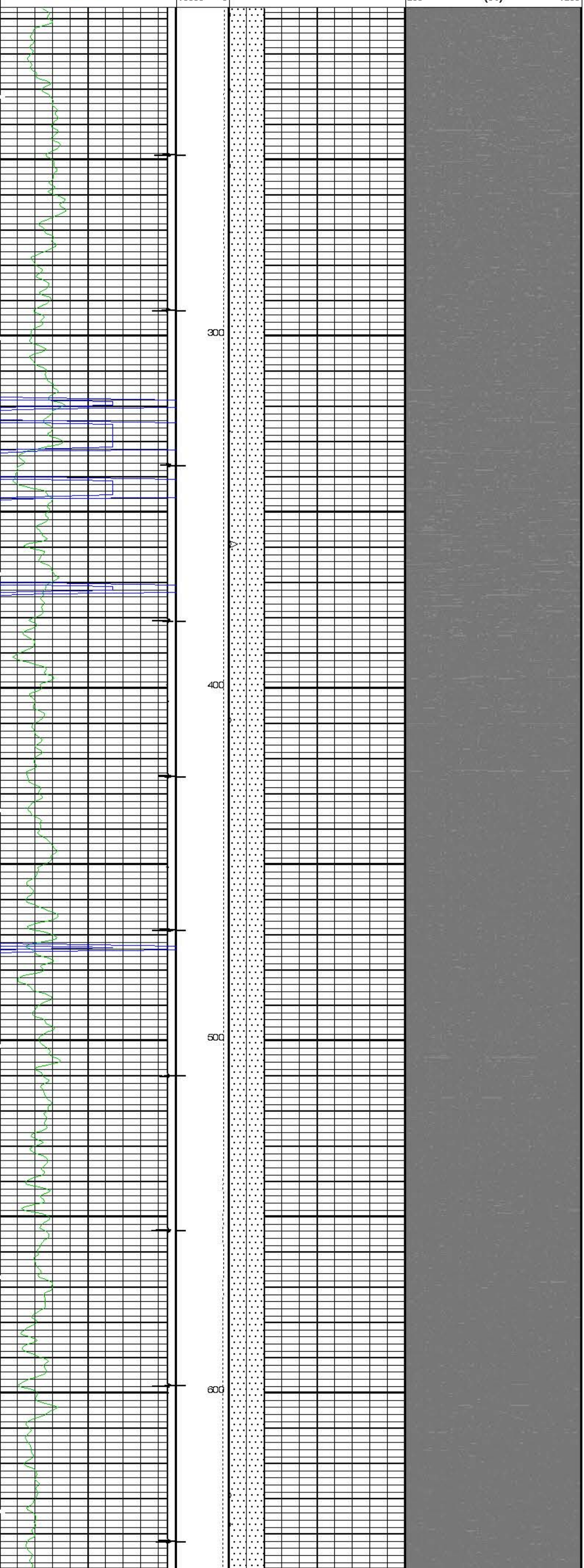
DSLT-H	18C0-147	HNGC-B	18C0-147
HNGS-BA	18C0-147	HILTH-FTB	18C0-147
DTC-H	18C0-147	CAL-Y	18C0-147

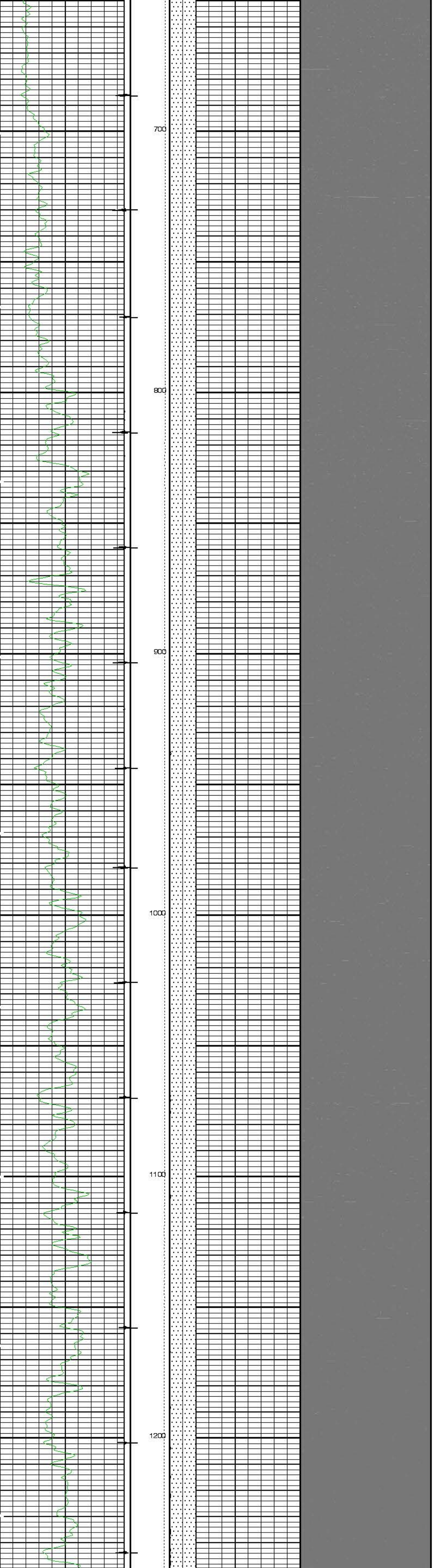
PIP SUMMARY

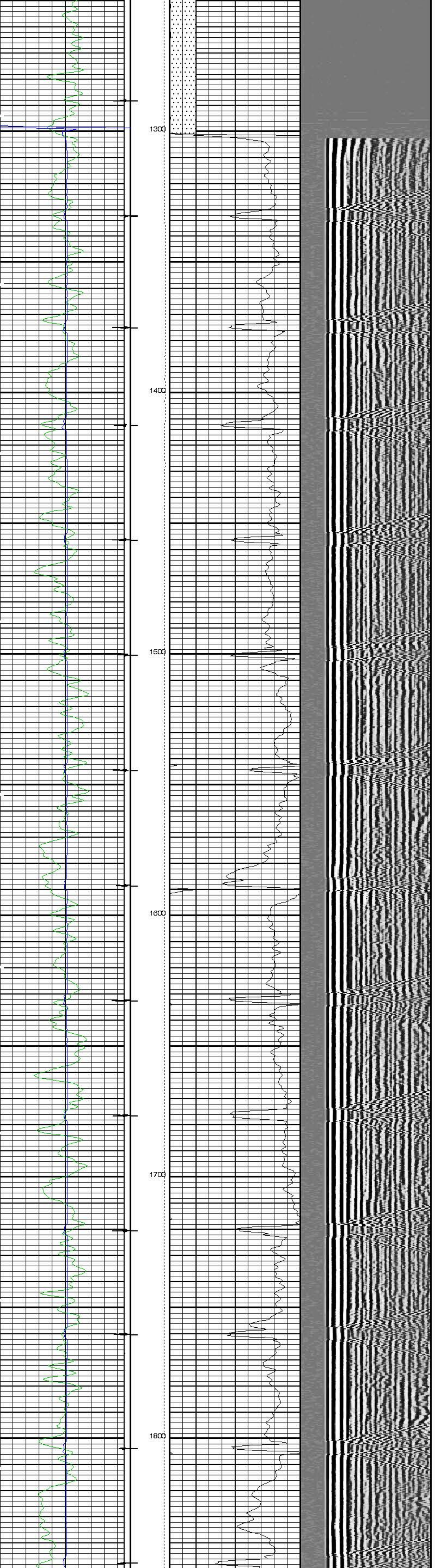
⊢ Casing Collars

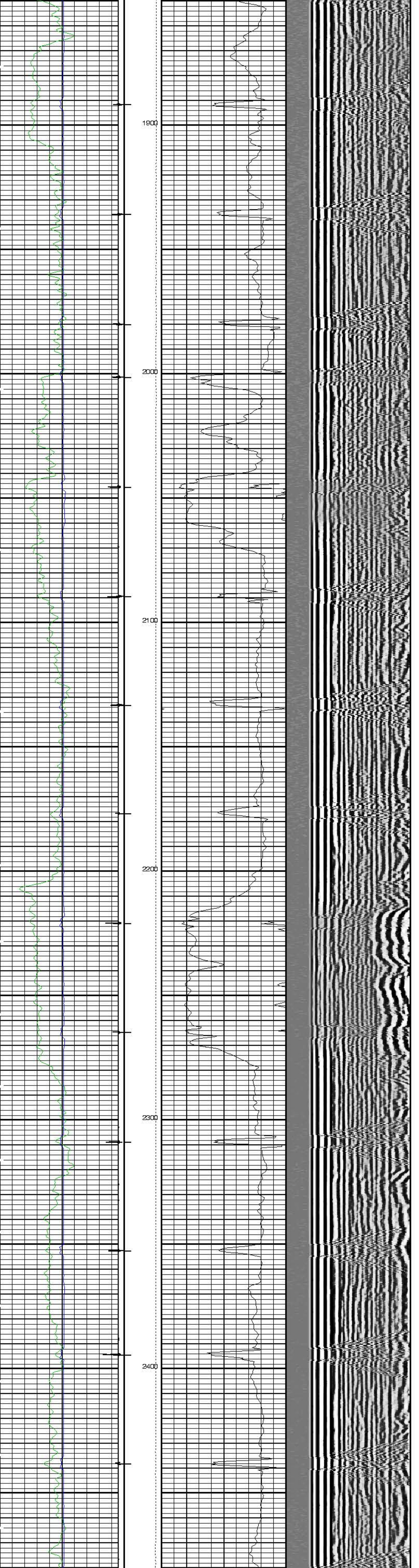
▶ Time Mark Every 60 S

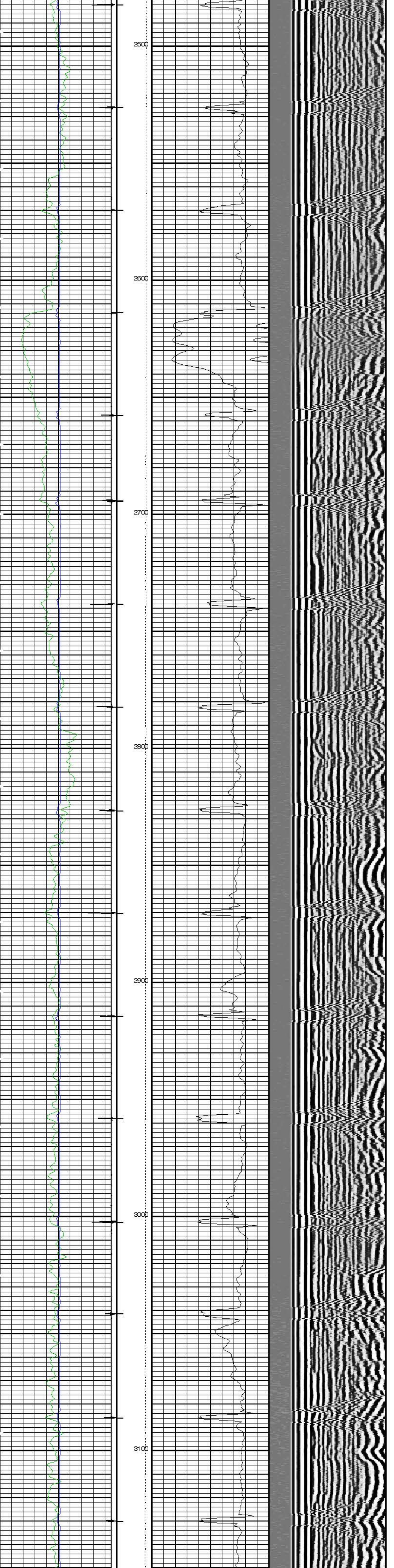
CasCollar From CCL to T1		GoodBond From ACBL to GOBO	
Casing Collar Locator (CCL) -19 (----) 1		Good Bond (GOBO) 0 (MV) 10	
Transit Time (TT) 400 (US) 200		CBL Amplitude (CBL) 0 (MV) 50	
Gamma Ray (GR) 0 (GAPI) 150	Tension (TENS) (LBF) 10000 0	CBL Amplitude (CBL) 0 (MV) 10	Min Amplitude Max VDL VariableDensity (VDL) 200 (US) 1200

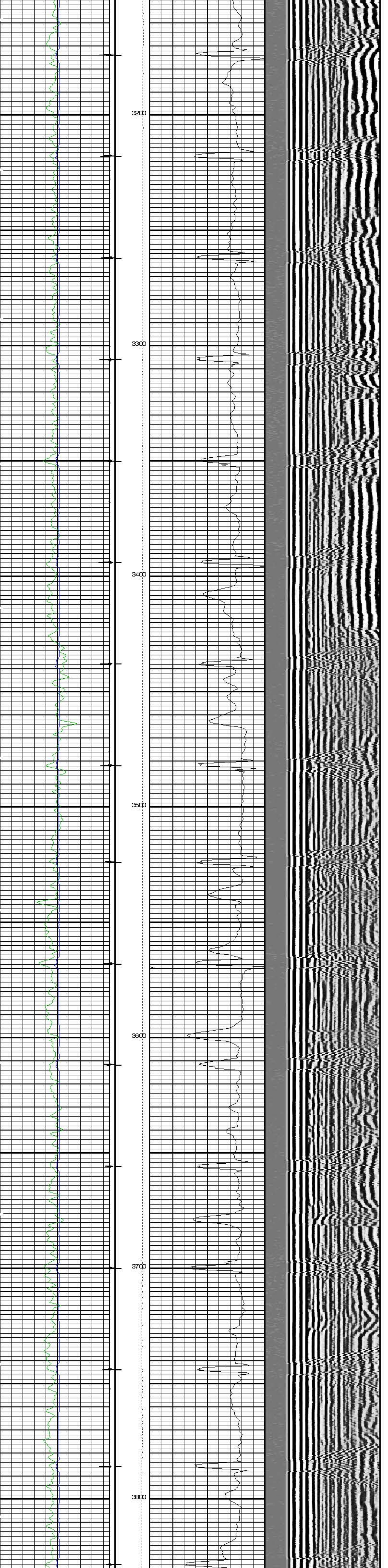


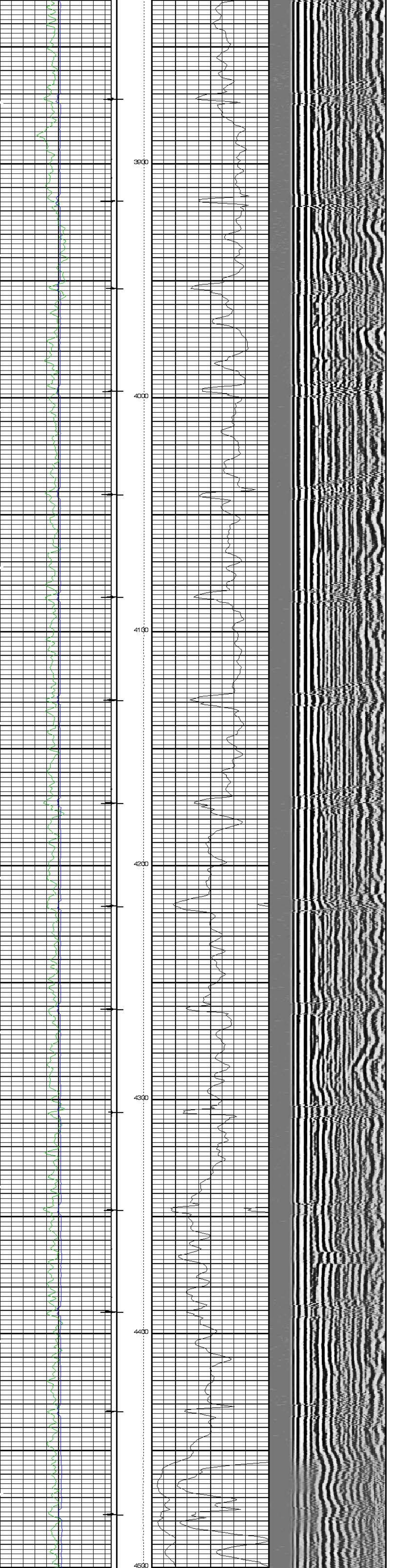


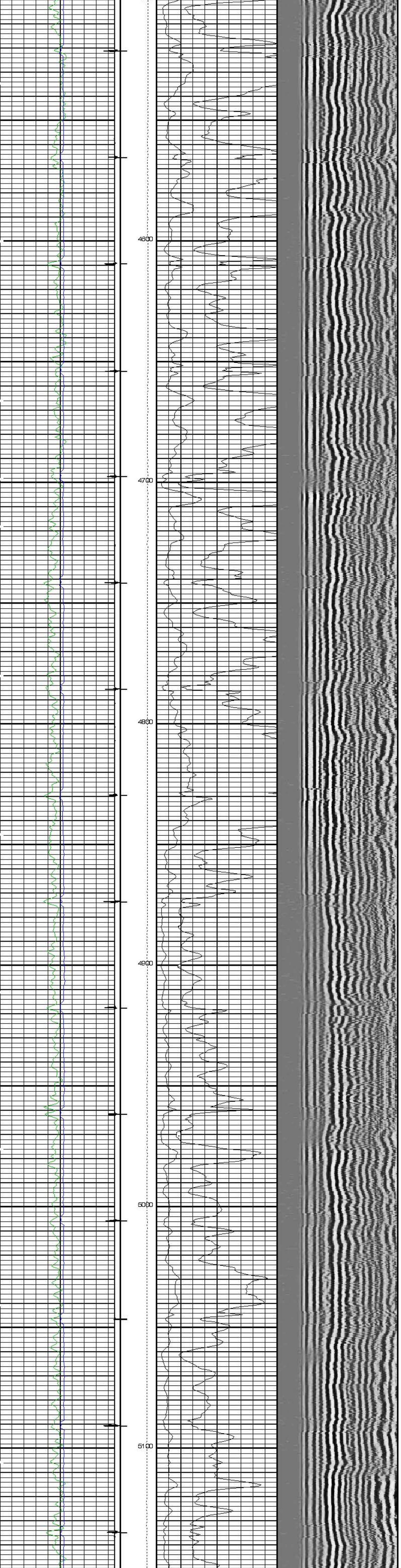


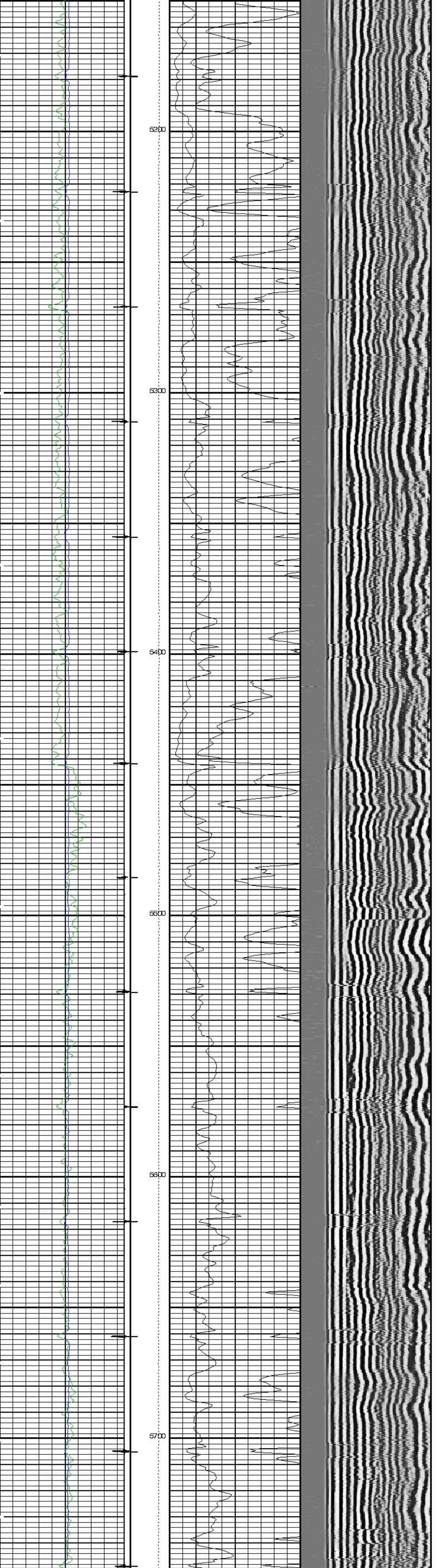


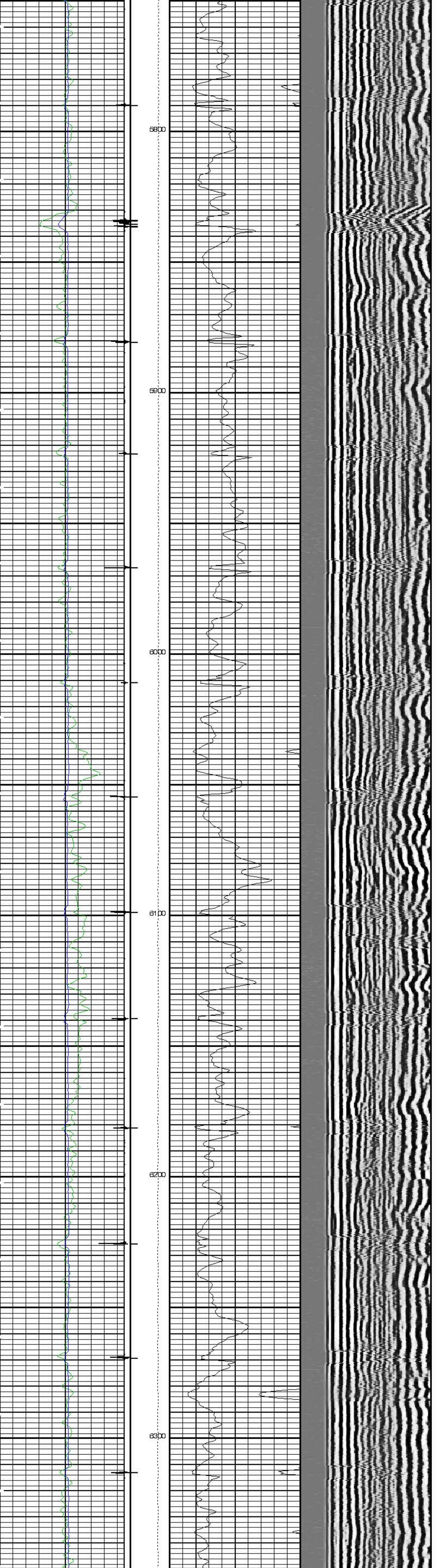


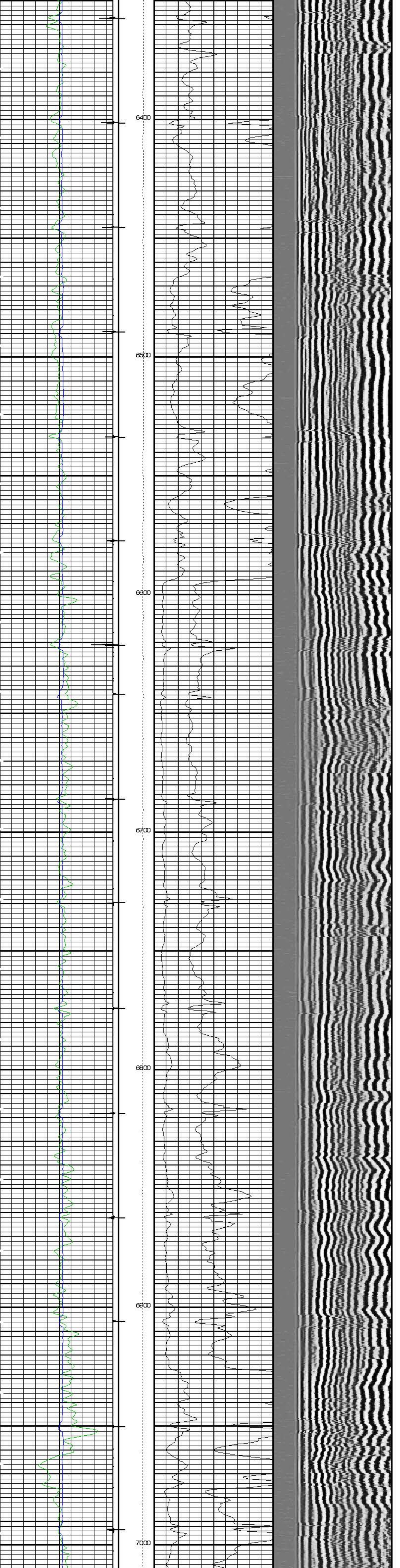


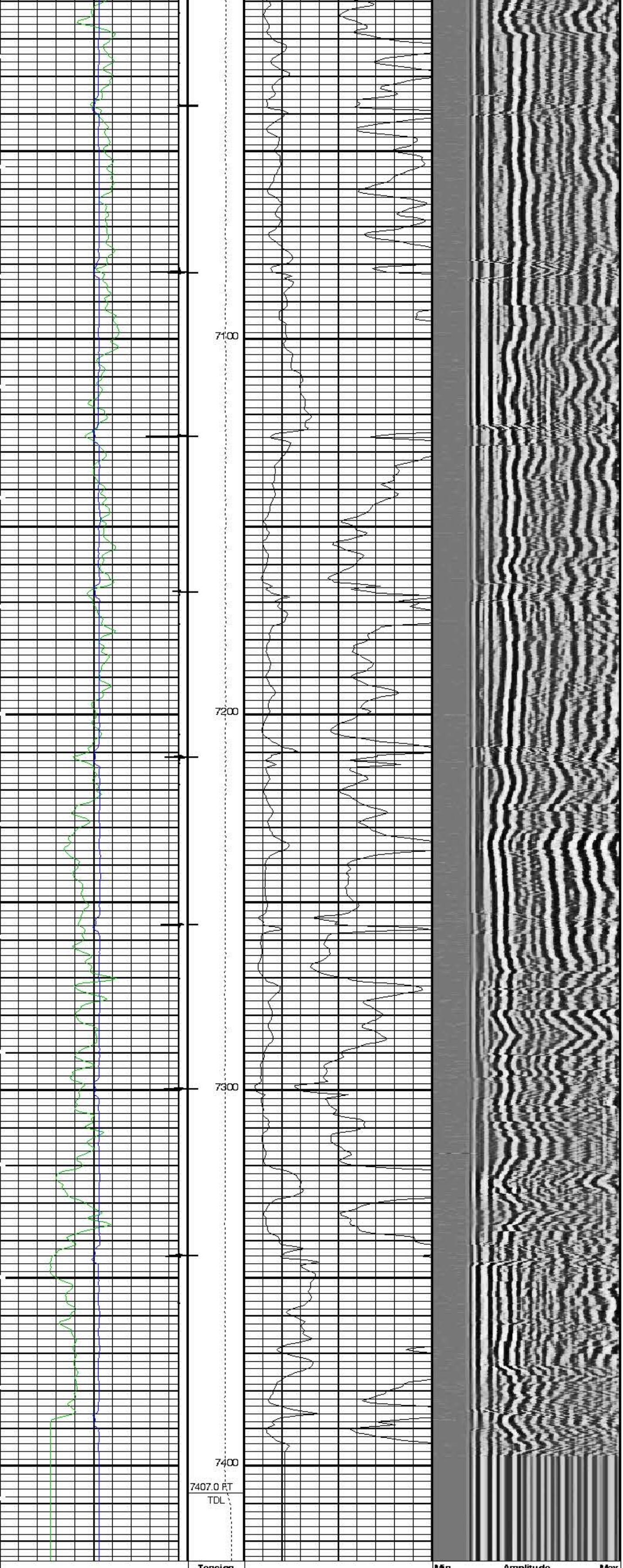












Gamma Ray (GR)	Tension (TENS) (LBF)	CBL Amplitude (CBL)	Min Amplitude Max VDL VariableDensity (VDL)
0 (GAPI) 150	10000 0	0 (MV) 10	200 (US) 1200
Transit Time (TT) 400 (US) 200		**CBL Amplitude (CBL)** 0 (MV) 50	
Casing Collar Locator (CCL) -19 (----) 1		**Good Bond (GOBO)** 0 (MV) 10	
CasCollar From CCL to T1		GoodBond From ACBL to GOBO	

PIP SUMMARY

⊢ Casing Collars

▶ Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 09-Aug-2011 22:37

OP System Version: 18C0-147

DSLT-H	18C0-147	HNGC-B	18C0-147
HNGS-BA	18C0-147	HILTH-FTB	18C0-147
DTC-H	18C0-147	CAL-Y	18C0-147

Information for DSLT Sonde Status and Casing Features

Sonde Type	Not Recorded
Sonde Serial Number	Not Recorded (0)
Casing Size (CSIZ)	7.0 IN
Casing Weight (CWEI)	23.0 LB/F
Expected CBL Amplitude in Free Pipe Section (CBRA)	62.0 MV
Minimum Sonic Amplitude (MSA : 100% Cement)	0.836822 MV
Minimum Sonic Amplitude (MSA : 80% Cement)	1.97963 MV
Date of Master Calibration	Not Recorded
CBL Correction Factor (Master Calibration)	2.50000
Depth of Before Calibration (BDEP)	Not Recorded
CBL Adjustment Factor (CBAF : Before Calibration)	1.0

Parameters

DLIS Name	Description	Value	
DSLT-H: Digitizing Sonic Logging Tool			
	DSLT Firing Mode	CBL_W	
	Telemetry Mode	DSLC_FTB	
AMSG	Auxiliary Minimum Sliding Gate	120	US
CBAF	CBL Adjustment Factor	1	
CBLG	CBL Gate Width	63	US
DDEL	Digitizing Delay	0	US
DRCS	DSLT DLIS Recording Size	120	
DSIN	Digitizing Sample Interval	10	
DTFS	DSLC Telemetry Frame Size	236	
DWCO	Digitizing Word Count	120	
GAI	Manual Gain	40	
GOBO	Good Bond	1.97963	MV
MAHTR	Manual High Threshold Reference	2624	
MGAI	Maximum Gain	1000	
MNHTR	Minimum High Threshold Reference	30	
NMSG	Near Minimum Sliding Gate	274	US
NMXG	Near Maximum Sliding Gate	750	US
RATE	Firing Rate	R7	
SFAF	Sonic Formation Attenuation Factor	0	DB/F
SGCL	Sliding Gate Closing Delta-T	250	US/F
SGDT	Sliding Gate Delta-T	57	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	
VDLG	VDL Manual Gain	5	
WAGC	Waveform AGC Allow/Disallow	OFF	
WMOD	Waveform Firing Mode	FULL	
CAL-Y: Casing Anomaly Locator - Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
DO	Depth Offset for Playback	7.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	**SONIC_NGS_TLD_MCFL_008LUP**	**FN:10**	**PRODUCER**	**09-Aug-2011 19:40**	**7417.5 FT**	**199.5 FT**

Output DLIS Files

DEFAULT	**SONIC_NGS_TLD_MCFL_011PUP**	**FN:14**	**PRODUCER**	**09-Aug-2011 22:37**
RTB	**SONIC_NGS_TLD_MCFL_011PUP**	**FN:15**	**PRODUCER**	**09-Aug-2011 22:27**

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Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check							
Before: 9-Aug-2011 18:56							
Na 511 Peak Loc	40.00	N/A	39.61	N/A	N/A	1.000	
Na 511 Peak Res	15.50	N/A	15.77	N/A	N/A	2.000	%
High Voltage	1150	N/A	1049	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	N/A	143.7	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	N/A	10.04	N/A	N/A	2.000	%
Temperature	59.90	N/A	78.73	N/A	N/A	N/A	DEGF
Na Count Rate	45.00	N/A	10.08	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check							
Before: 9-Aug-2011 18:56							
Na 511 Peak Loc	40.00	N/A	39.70	N/A	N/A	1.000	
Na 511 Peak Res	15.50	N/A	15.14	N/A	N/A	2.000	%
High Voltage	1150	N/A	1084	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	N/A	142.7	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	N/A	8.052	N/A	N/A	2.000	%
Temperature	59.90	N/A	77.74	N/A	N/A	N/A	DEGF
Na Count Rate	45.00	N/A	10.38	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2							
Before: 9-Aug-2011 18:56							
Coincidence Count Rate Ratio	1.000	N/A	0.9780	N/A	N/A	0.05000	

Digitizing Sonic Logging Tool / Equipment Identification

Primary Equipment:		
BHC Sonde	SLS - W	1396
Digitizing Sonic Logging Cartridge	DSLC - H	8152
Auxiliary Equipment:		
Electronics Cartridge Housing	ECH - KH	8653

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC - B	292
Auxiliary Equipment:		
HNGC Housing	HNGH - A	292

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS - BA	169
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH - BA	186
Gamma Source Radioactive	GSR - U	

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Measurement	Value	(Minimum)	(Nominal)	(Maximum)
Before	Na 511 Peak Loc	39.61	37.50	40.00	43.50
Before	Na 511 Peak Res %	15.77	12.00	15.50	19.00
Before	High Voltage V	1049	900.0	1150	1600
Before	Na 1785 Peak Loc	143.7	135.0	142.6	150.3
Before	Na 1785 Peak Res %	10.04	7.000	8.500	11.00
Before	Temperature DEGF	78.73	-20.00	59.90	140.0
Before	Na Count Rate CPS	10.08	10.00	45.00	100.0

Before: 9-Aug-2011 18:56

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Measurement	Value	(Minimum)	(Nominal)	(Maximum)
Before	Na 511 Peak Loc	39.70	37.50	40.00	43.50
Before	Na 511 Peak Res %	15.14	12.00	15.50	19.00
Before	High Voltage V	1084	900.0	1150	1600
Before	Na 1785 Peak Loc	142.7	135.0	142.6	150.3
Before	Na 1785 Peak Res %	8.052	7.000	8.500	11.00
Before	Temperature DEGF	77.74	-20.00	59.90	140.0
Before	Na Count Rate CPS	10.38	10.00	45.00	100.0

Before: 9-Aug-2011 18:56

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value	(Minimum)	(Nominal)	(Maximum)
Before		0.9780	0.9500	1.000	1.050

Before: 9-Aug-2011 18:56

DTS Telemetry Tool / Equipment Identification

Primary Equipment:		
DTC-H Auxiliary Cartridge	DTCH - A	
DTC-H Telemetry Cartridge	DTCH - A	9466
Auxiliary Equipment:		
DTCH Telemetry Cartridge Housing	ECH - KC	

Company:	**ENTEK GRB, LLC**
Well:	**BATTLE MOUNTAIN FEDERAL 14-10L**
Field:	**SLATER DOME**
County:	**MOFFAT**
State:	**COLORADO**

Schlumberger

CEMENT BOND LOG
CBL-VDL
GR-CCL