

W	R	U	L	N	T	F	G	W	C	T	F	B		F	D	S	C	T	B	S	D	R	L
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Company: Origin Energy Resources Ltd.

Well: Trefoil-1

Field: Trefoil

Log: ENSCO 102

Country: Australia

Field: Trefoil
Location: GDA94 Zone 55
Well: Trefoil-1
Company: Origin Energy Resources Ltd.

USI-CBL-VDL-GR-CC
Cement Evaluation Log
1:200 Scale

LOCATION		
GDA94 Zone 55	Elev.:	K.B. 39.9 m
Northings 5,586,346 m		G.L. -68.9 m
Eastings 361,028 m		D.F. 39.9 m
Permanent Datum:	Mean Sea Level	
Log Measured From:	Drill Floor (RT)	39.9 m above Perm. Datum
Drilling Measured From:	Drill Floor (RT)	

State: Tasmania	Max. Well Deviation 0.16 deg	Longitude 145 22' 30.87"E	Latitude 39 51' 41.58"S
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Logging Date	7-Dec-2004
Run Number	Suite-1, Run 9
Depth Driller	3400.71 m
Schlumberger Depth	3395 m
Bottom Log Interval	3395 m
Top Log Interval	2350 m
Casing Fluid Type	NaCl Brine
Salinity	57000 ppm
Density	8.9 lbm/gal
Fluid Level	0 m
BIT/CASING/TUBING STRING	
Bit Size	8.500 in
From	2421 m
To	3543.13 m
Casing/Tubing Size	3543.13 m
Weight	6.625 in
Grade	24 lbm/ft
From	L80
To	2421 m
Maximum Recorded Temperatures	3543.13 m
Logger On Bottom	121 degC
Unit Number	7-Dec-2004
Location	571 VEA
Recorded By	G. Ruthven/J. Robertson
Witnessed By	M. Lanzer/H. Amos

PVT DATA			
Oil Density	Run 1	Run 2	Run 3
Water Salinity	57000 ppm		
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation	0.16 deg		
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No	4		
Lead Cement Type			
Volume			
Density	1.89325 g/cm3		
Water Loss			
Additives			
Tail Cement Type	ABC "G" Cement		
Volume	119 m3		
Density	1.89325 g/cm3		
Water Loss	113 cm3		
Additives	D066,Gasstop,D080		
Expected Cement Top	2319 m		
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			
Location			
Recorded By			
Witnessed By			

DEPTH SUMMARY LISTING

Date Created: 7-DEC-2004 22:05:14

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-E Serial Number: 1914 Calibration Date: 24-Mar-2004 Calibrator Serial Number: 9 Calibration Cable Type: 7-46V-XS Wheel Correction 1: -5 Wheel Correction 2: -5	Type: CMTD-B/A Serial Number: 2336 Calibration Date: 28-Apr-2004 Calibrator Serial Number: 1051 Calibration Gain: 0.87 Calibration Offset: 115.00	Type: 7-46ZV-XS Serial Number: 74172 Length: 7324.04 M Conveyance Method: Wireline Rig Type: Offshore_Fixed

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	SP-HRLA-PEX-CMR-GR Nuclear Resistivity Pri
Reference Log Run Number:	Suite-1 Run 1
Reference Log Date:	24-Nov-2004
Subsequent Trip Down Log Correction:	0.10 M

Depth Control Remarks

1. Subsequent trip in hole. Log correlated to above reference log.
2. Primary depth reference IDW-E
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.

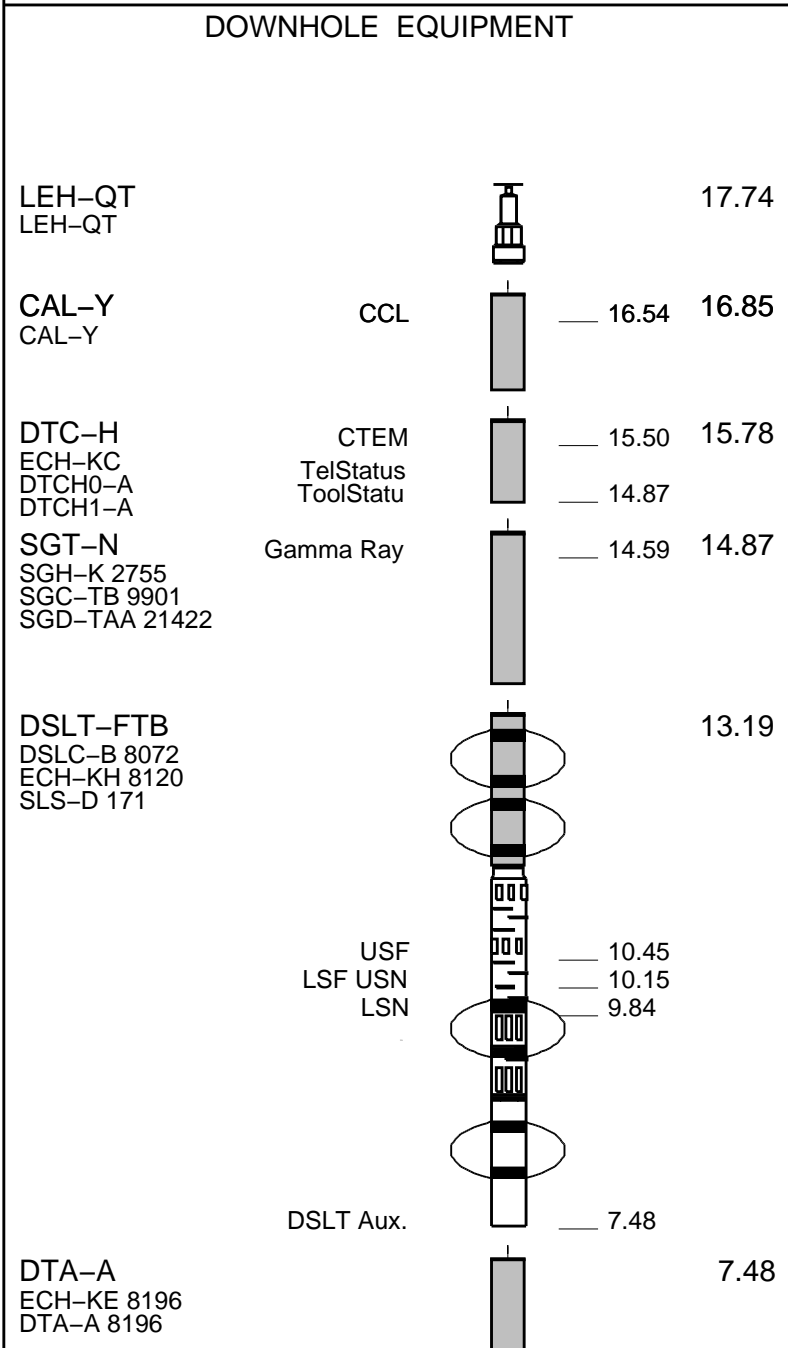
OTHER SERVICES1	OTHER SERVICES2
OS1: SP-HRLA-PEX-CMR-G	OS1:
OS2: FMI-DSI-HNGS	OS2:
OS3: MDT-GR	OS3:
OS4: MSCT-GR	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Subsequent run in hole. Log correlated to Run 1, SP-HRLA-PEX-CMR-GR dated 24-Nov-04.	
Toolstring run as per tool sketch, with 4 x Gemco centralizers on the CBL tool and 2 x roller centralizers on the USIT.	
Objective of this survey was to verify zonal isolation, particularly around planned perforation intervals.	
USIT was logged down from surface in FPM mode to gather data for fluid properties.	
USIT was logged up in measurement mode at 5 deg angular and 6 inch vertical resolution.	
Main pass logged from 3395m to 2350m inside the 6 5/8" liner.	
Repeat section logged from 3030m to 2960m at clients request.	
PBDT was not tagged due to the rotating sub on the bottom of the USIT tool.	

Top of cement was identified at approximately 2620m.
Maximum recorded temperature from the thermometers in the logging head was 121 degC.

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

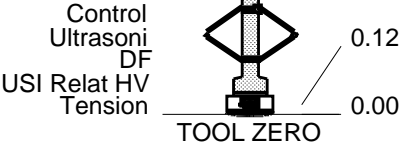
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT
GSR-U/Y
WITM (DTS)-A



USIT-A
ECH-MRA
USIC-A
USIS-A
USRS-B

6.26



MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Client: Origin Energy Resources Ltd.

Well: Trefoil-1

Field: Trefoil

State: Tasmania

Country: Australia

Drawing Date: 12/6/2004

ALL DEPTHS TAKEN FROM DRILLER

Rig Name: Ensco-102

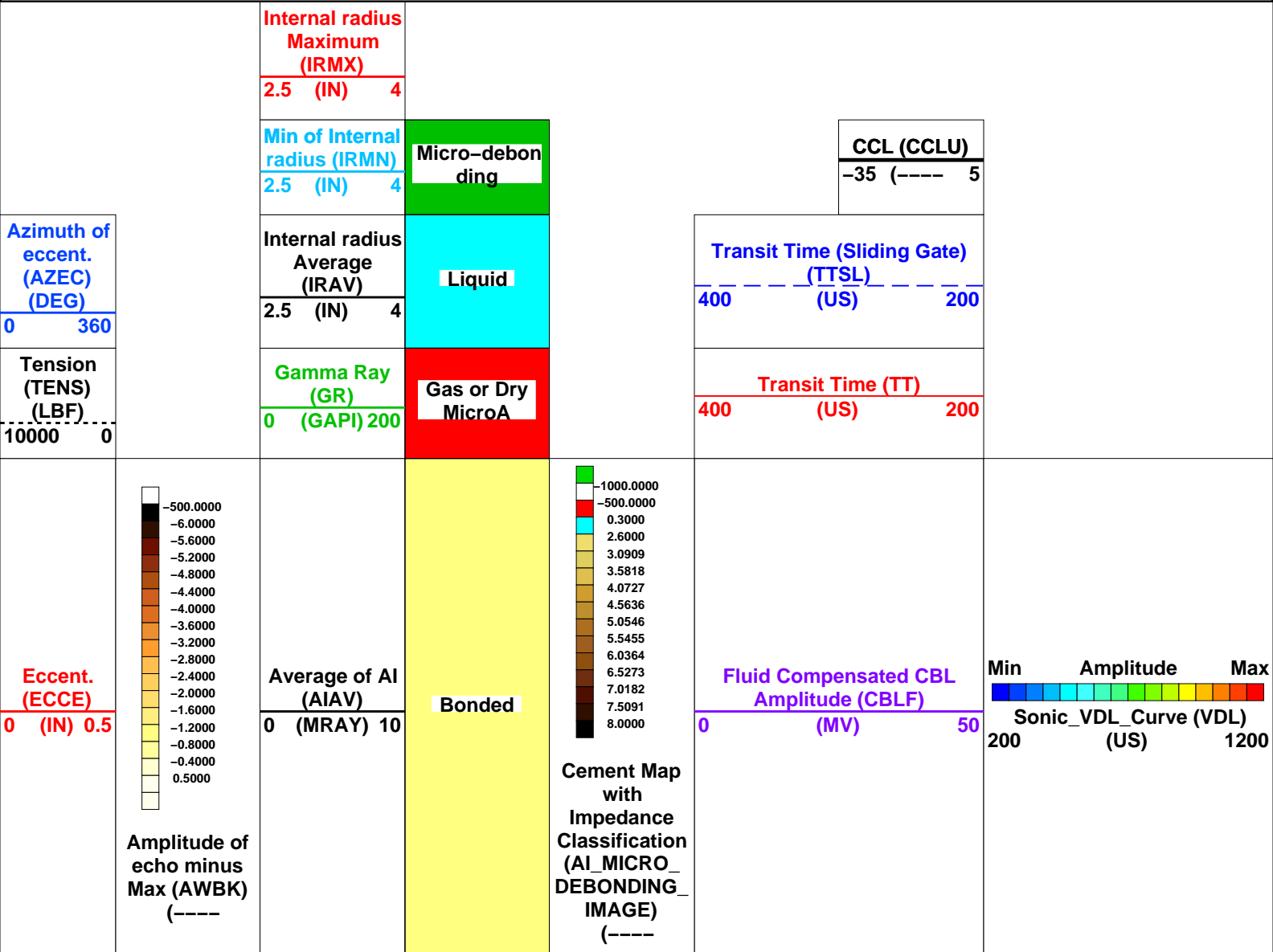
Reference Datum: Mean Sea Level

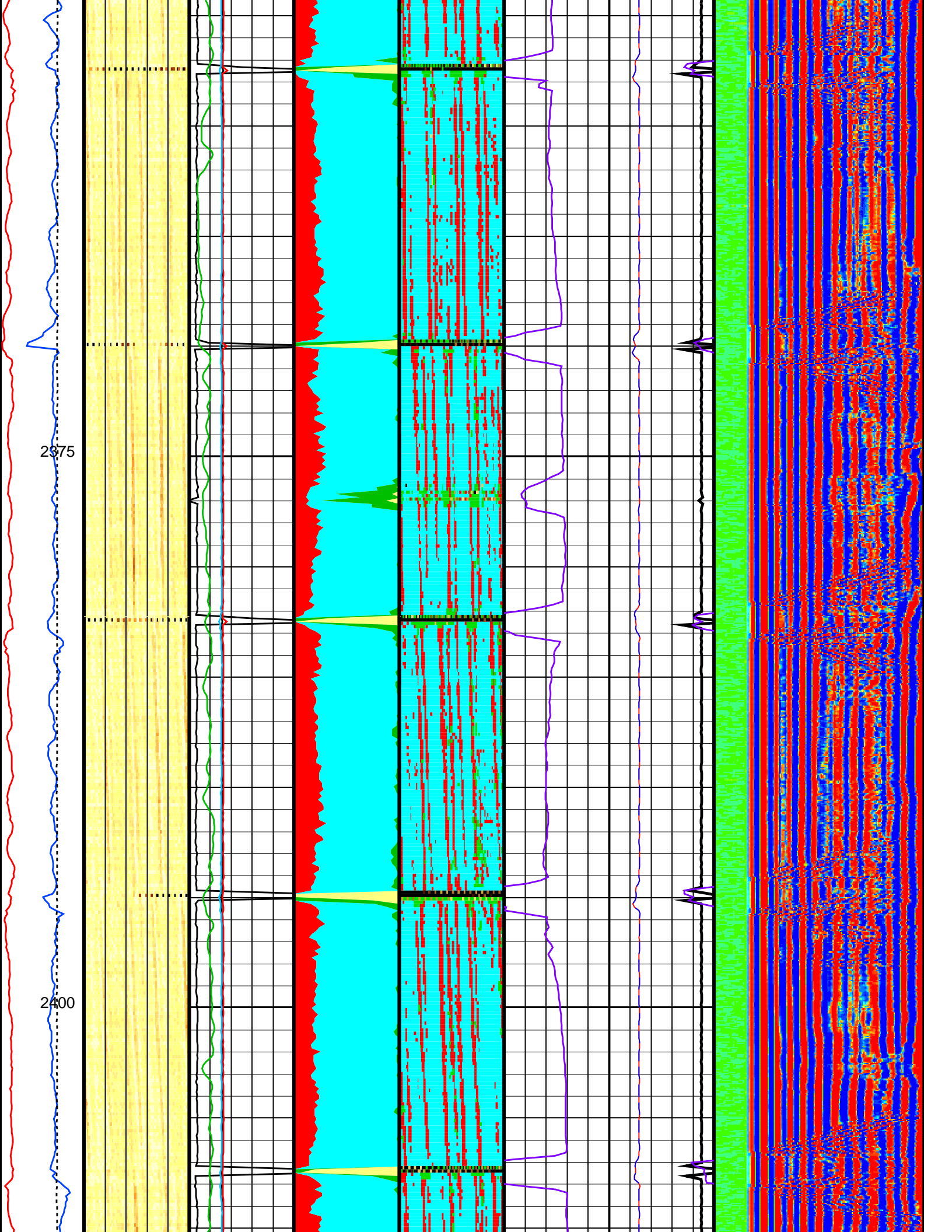
Elevation: 0.0 m

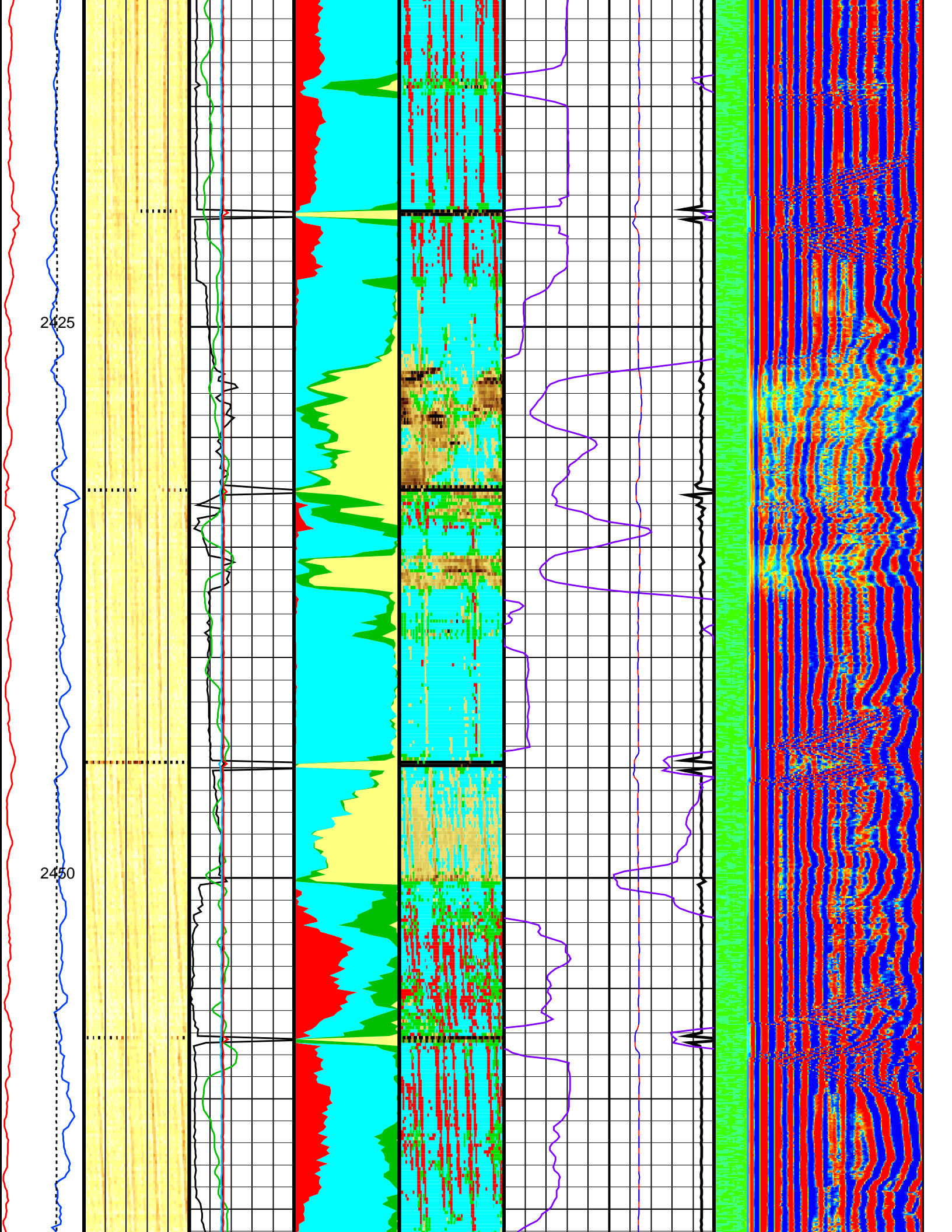
Production String	(in)		(m)	Well Schematic	(m)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	30.000		Casing String
					142.6	30.000		Casing Shoe
					214.6	20.000		Casing Shoe
					659.6	13.375	12.615	Casing Shoe

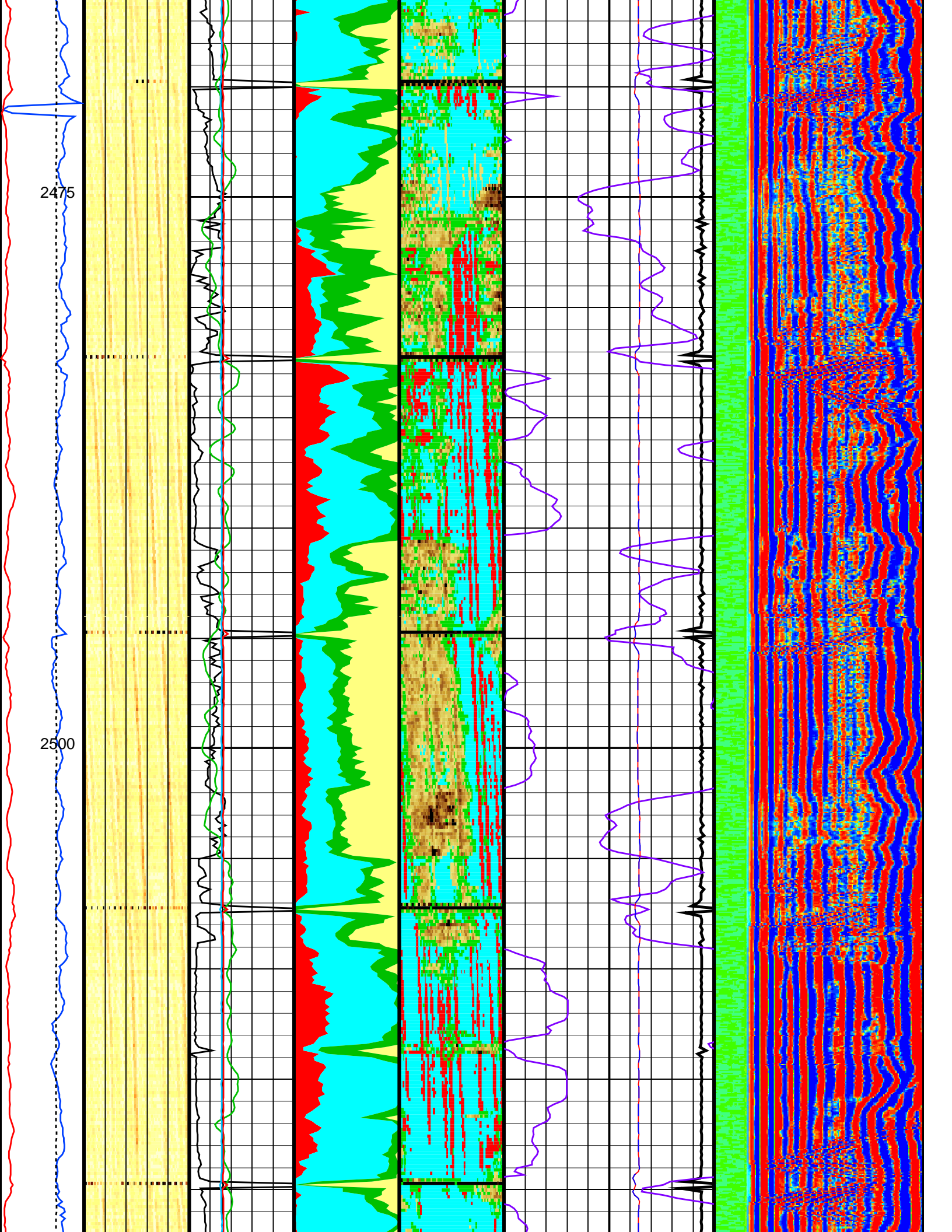
Logging of well parameters

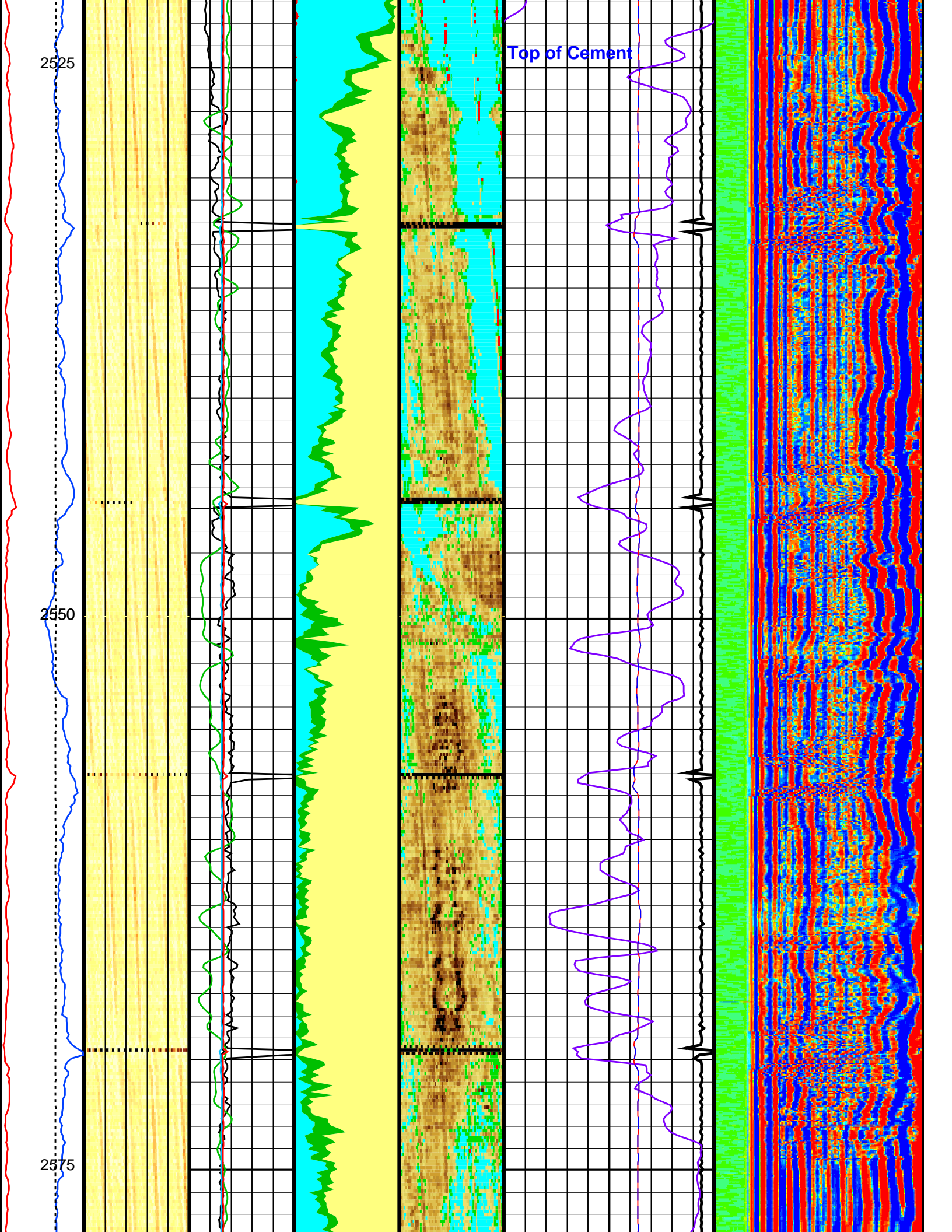
Depth	Fluid Velocity (DFVL)	Acoustic Impedance (ZMUD)
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3000.00	181.64	1.79
2500.00	181.46	1.78
2000.00	181.46	1.78

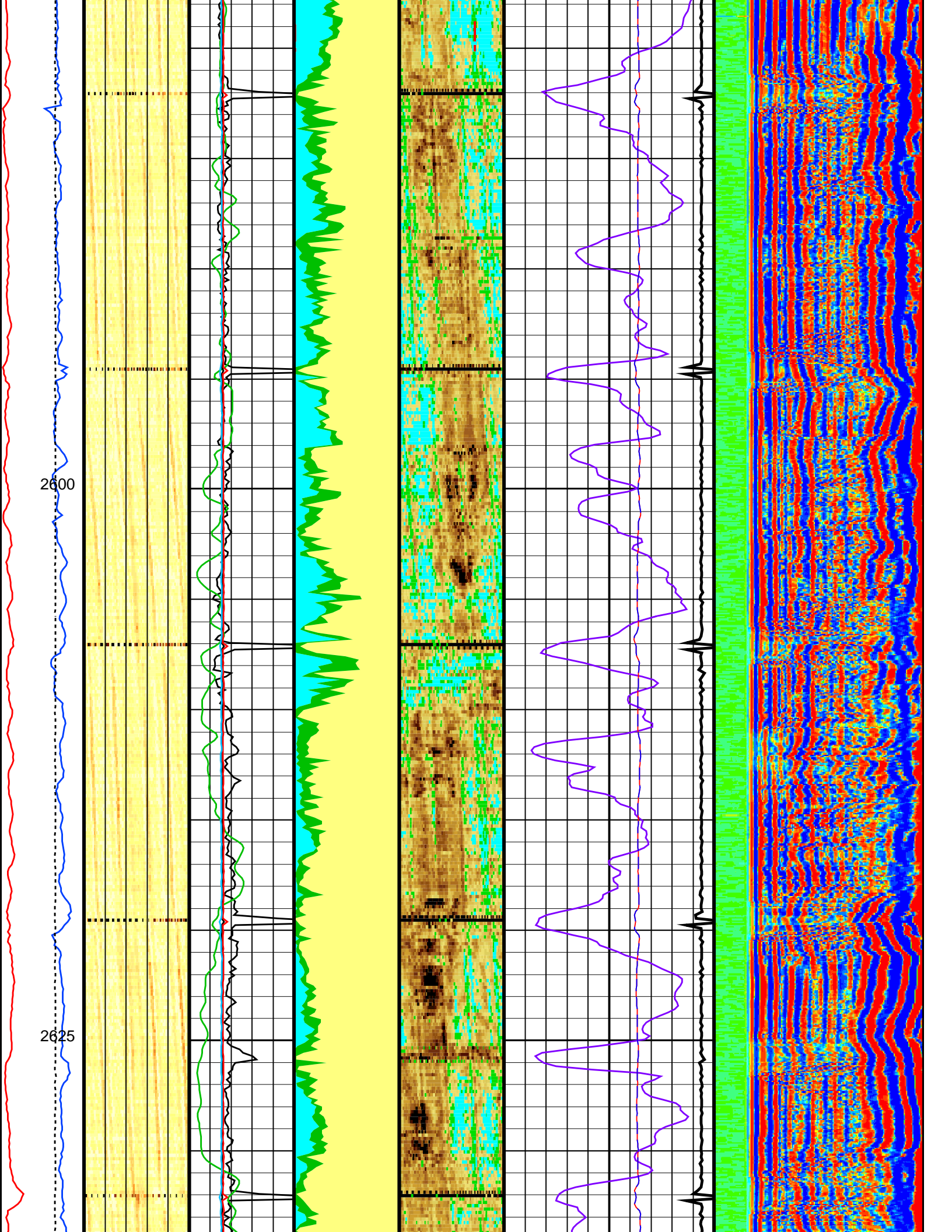


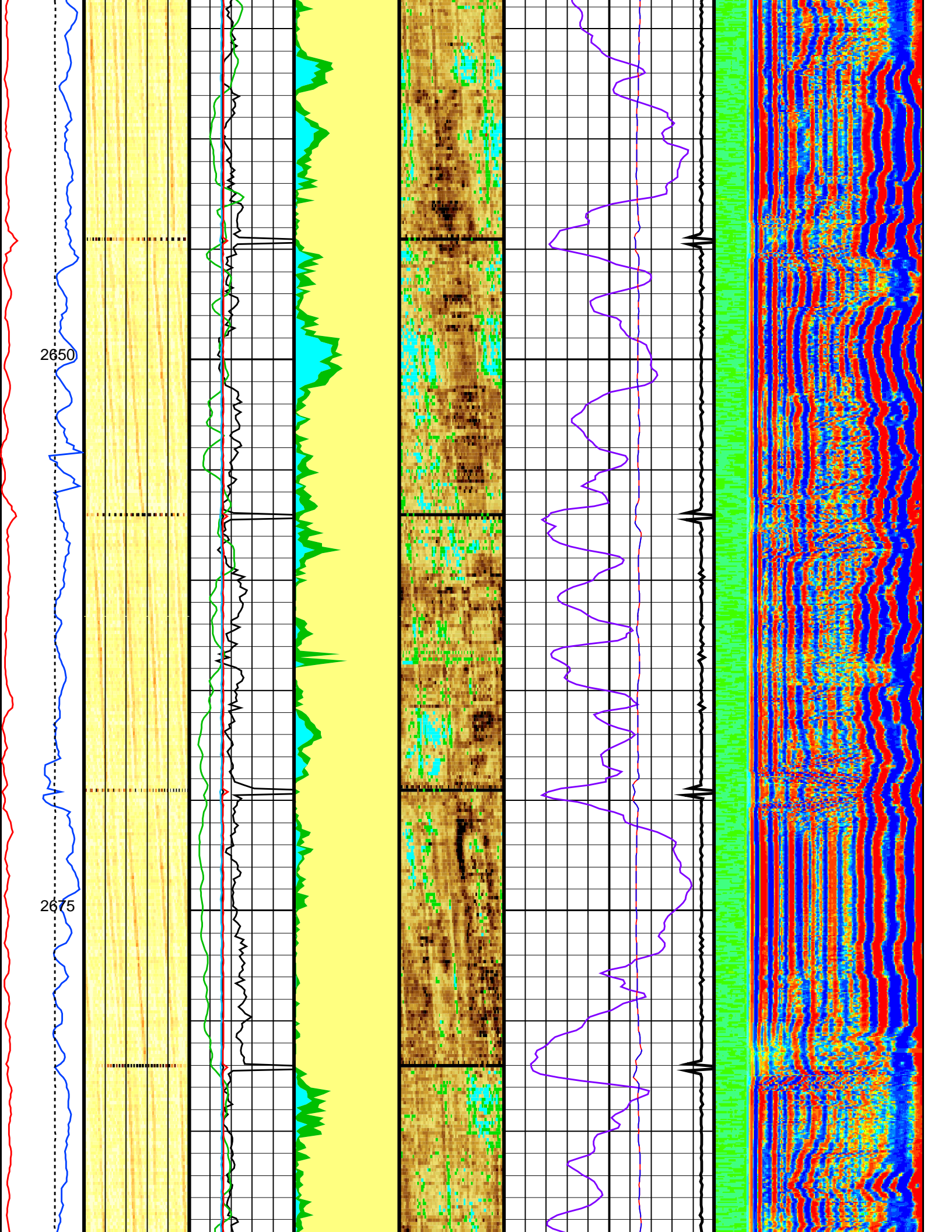


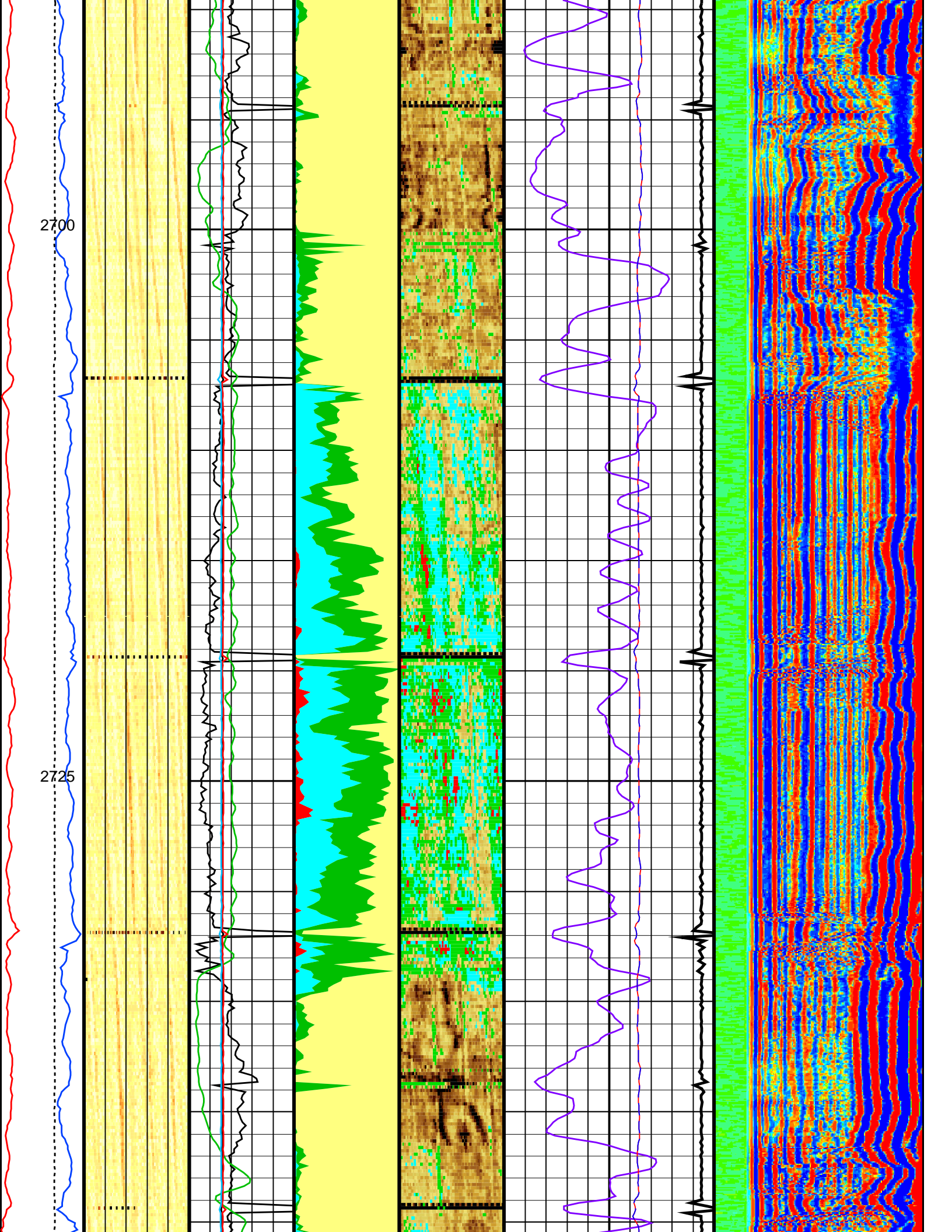


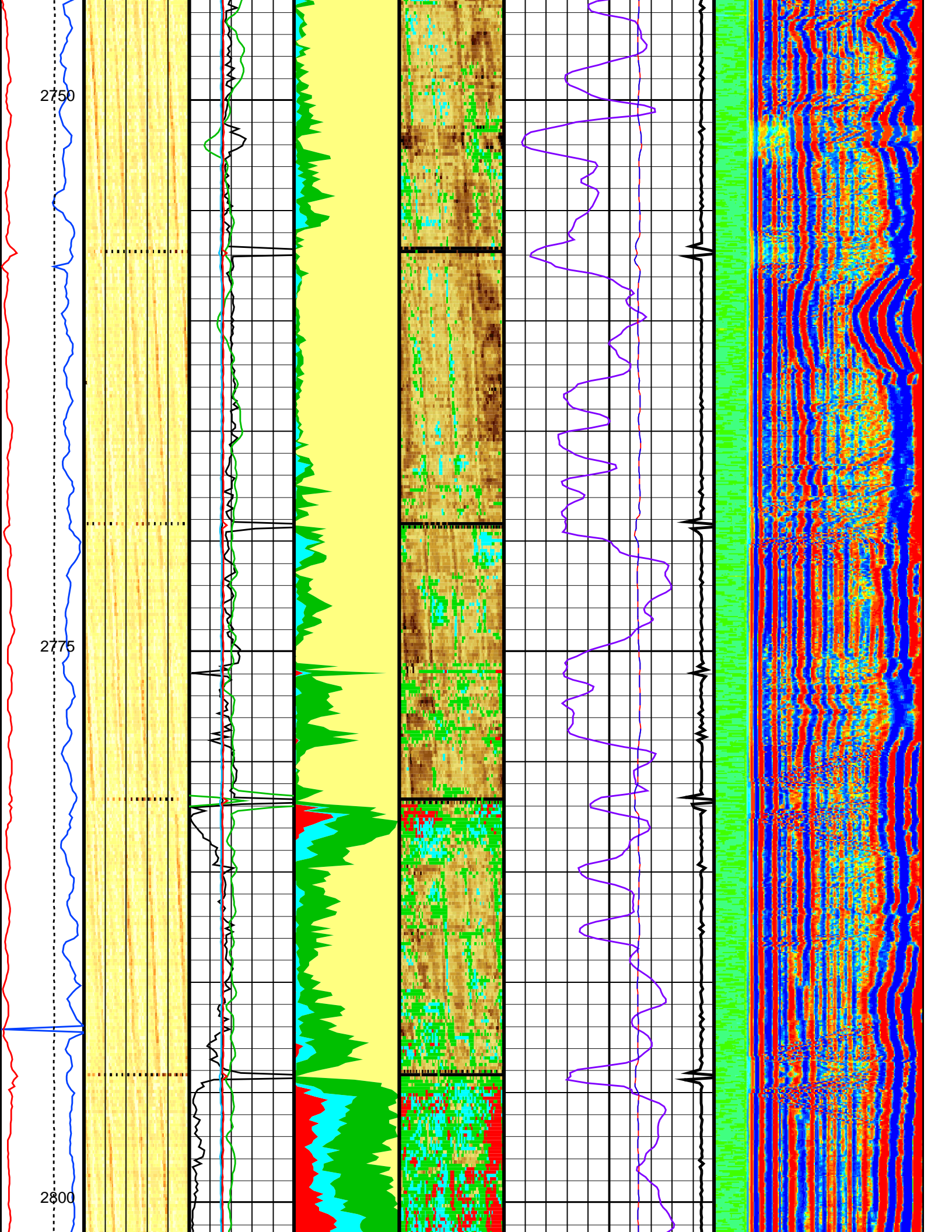


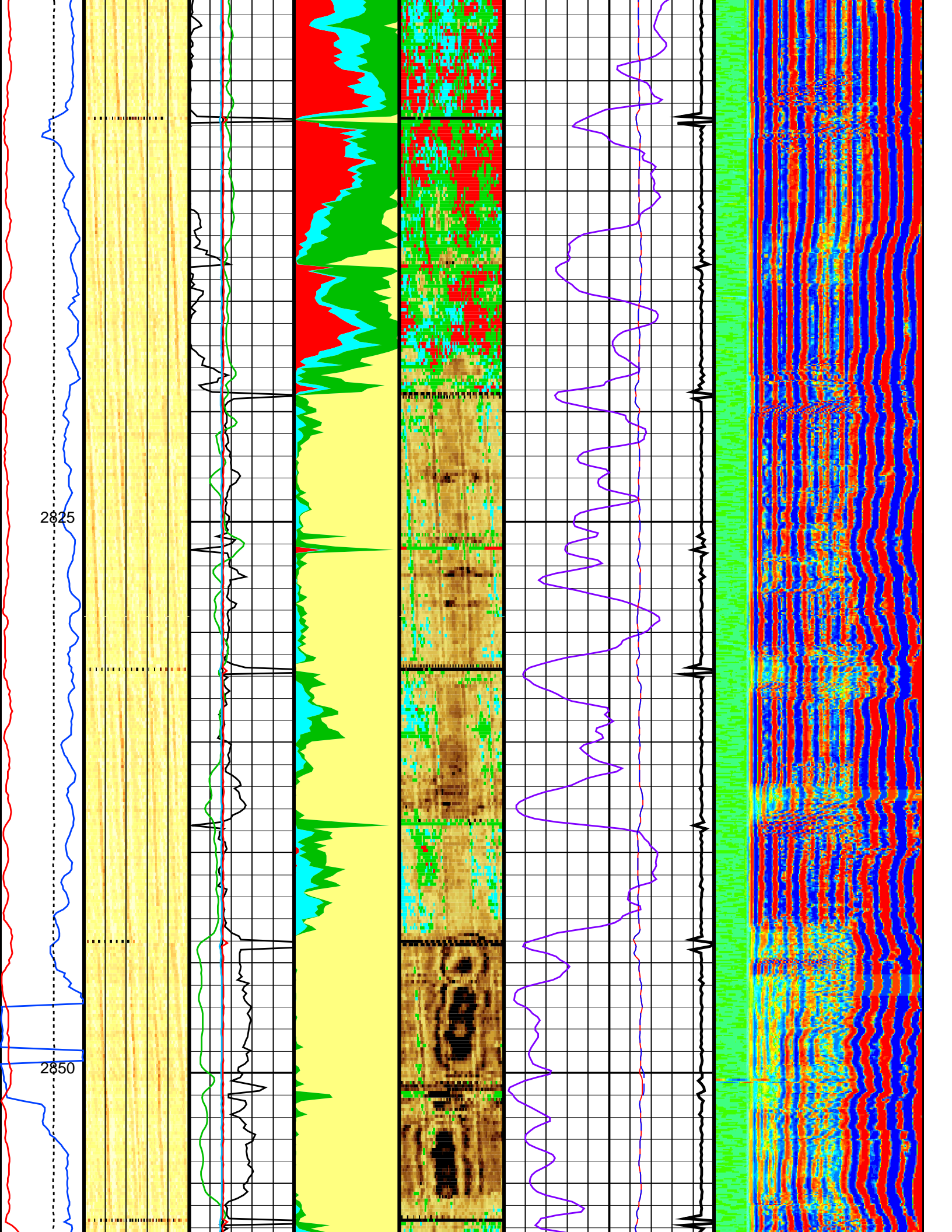


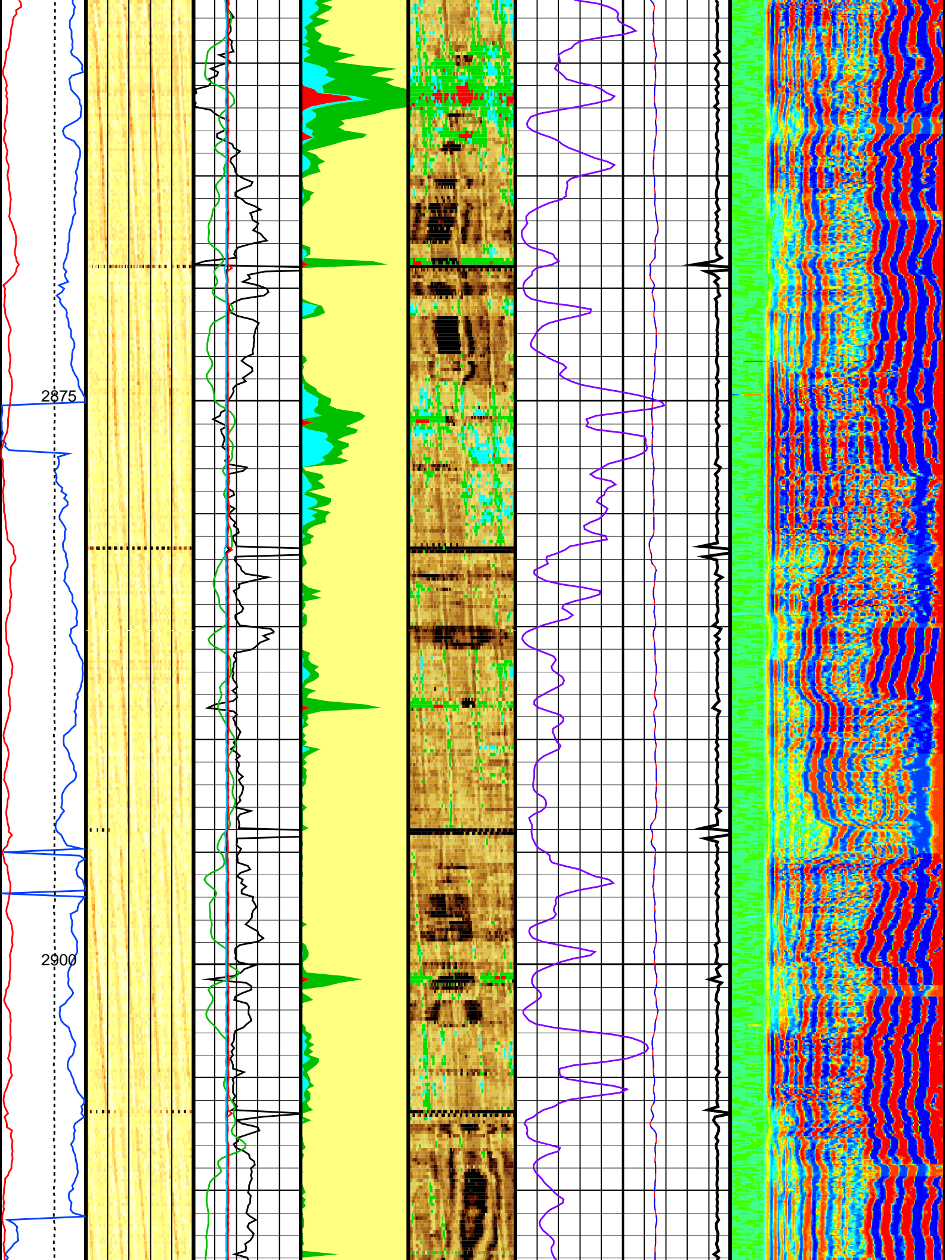


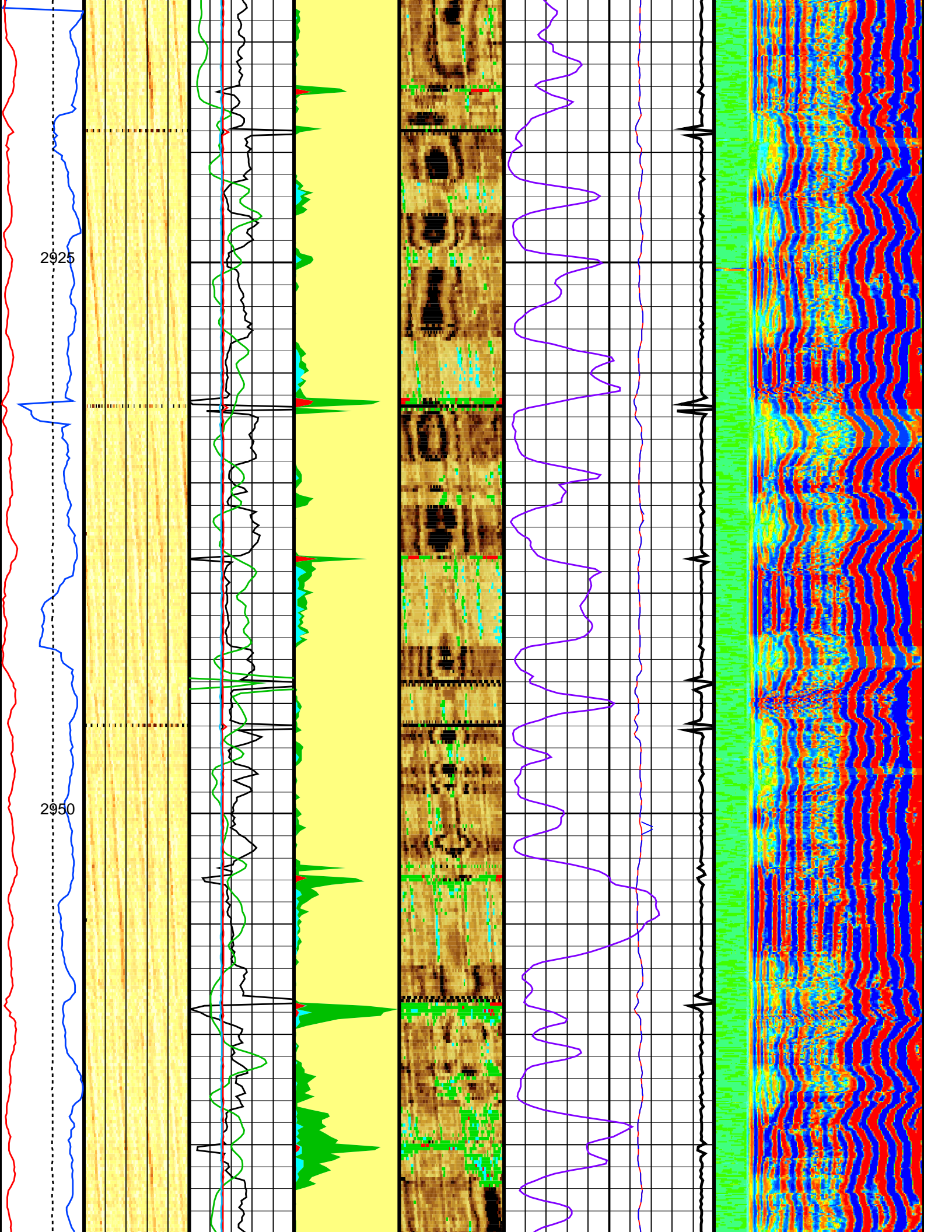


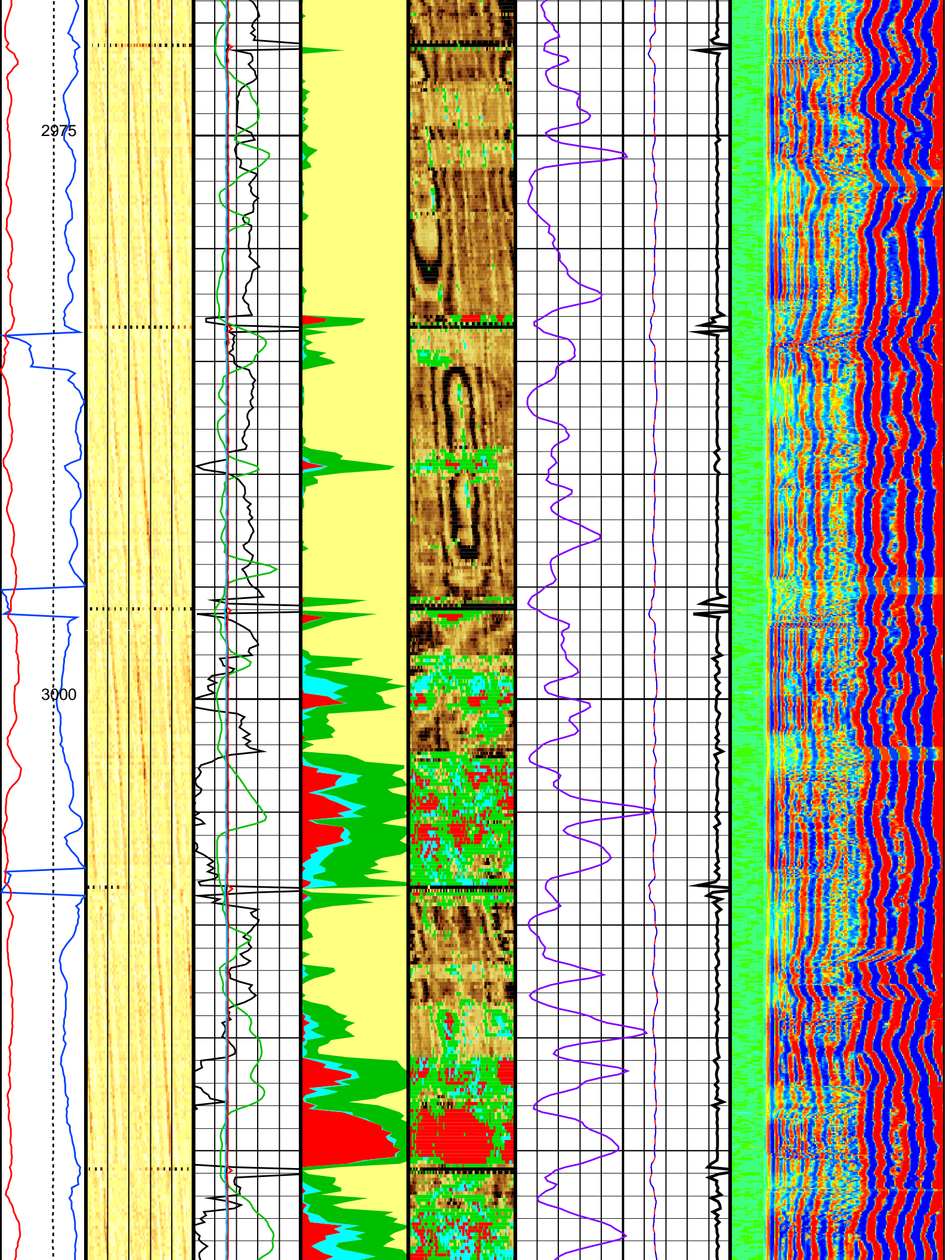


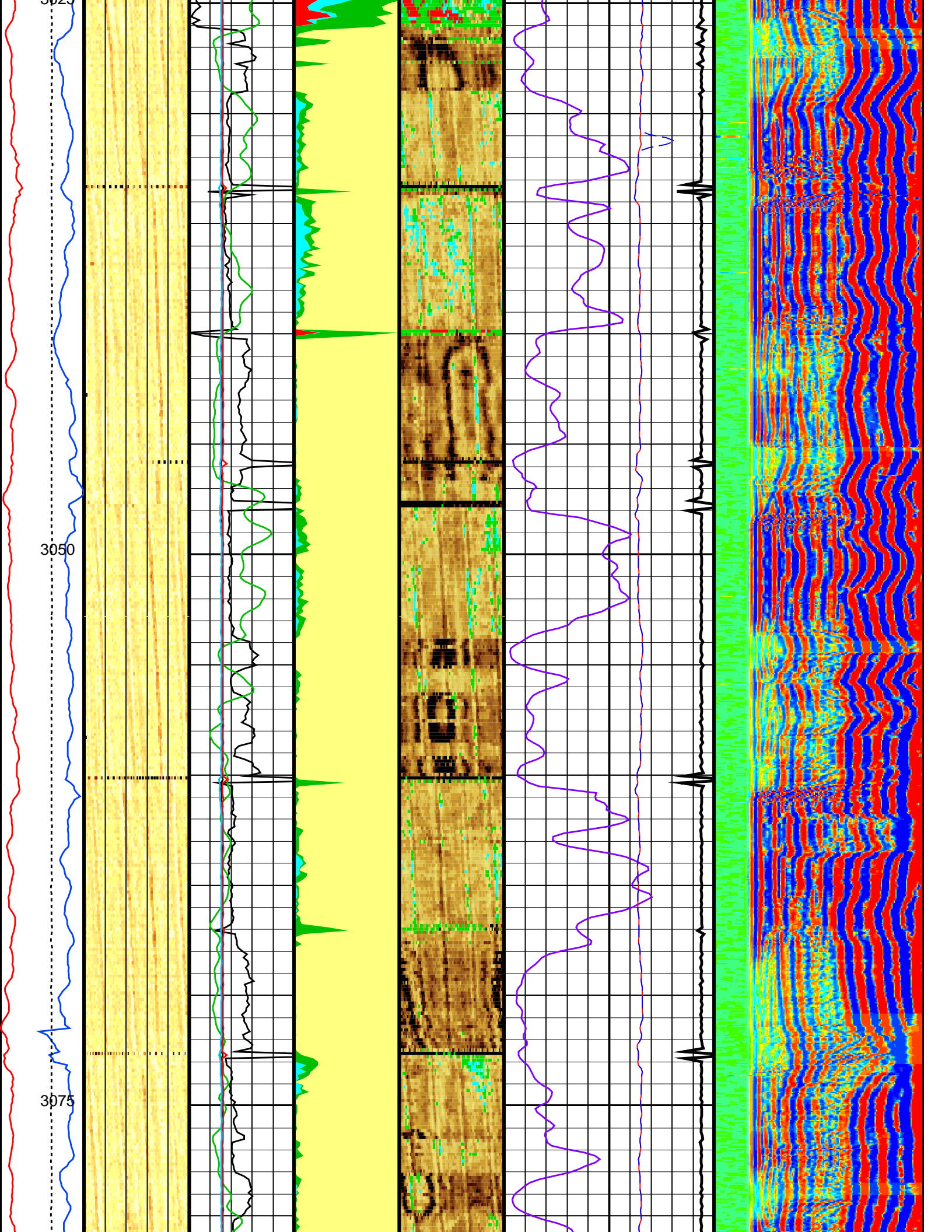


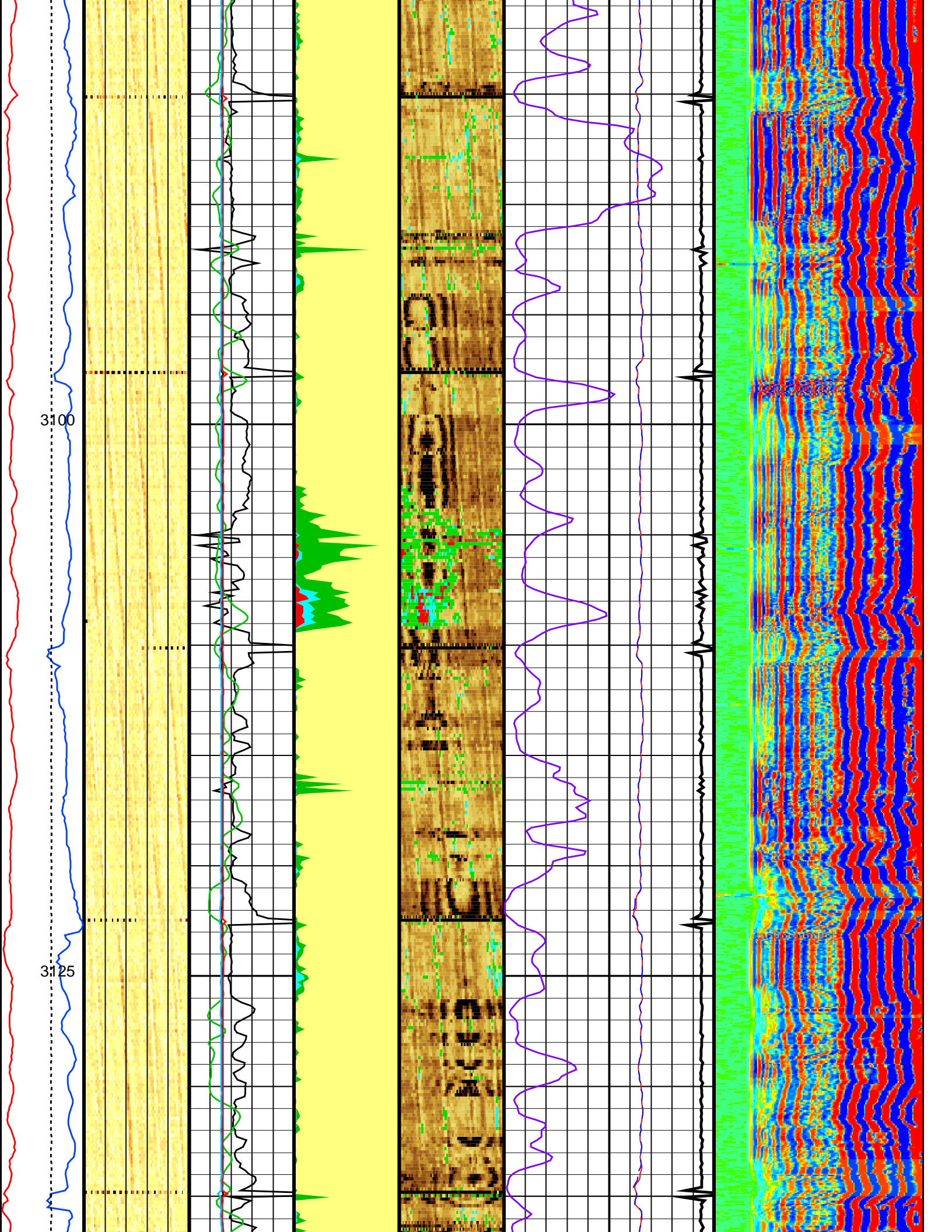


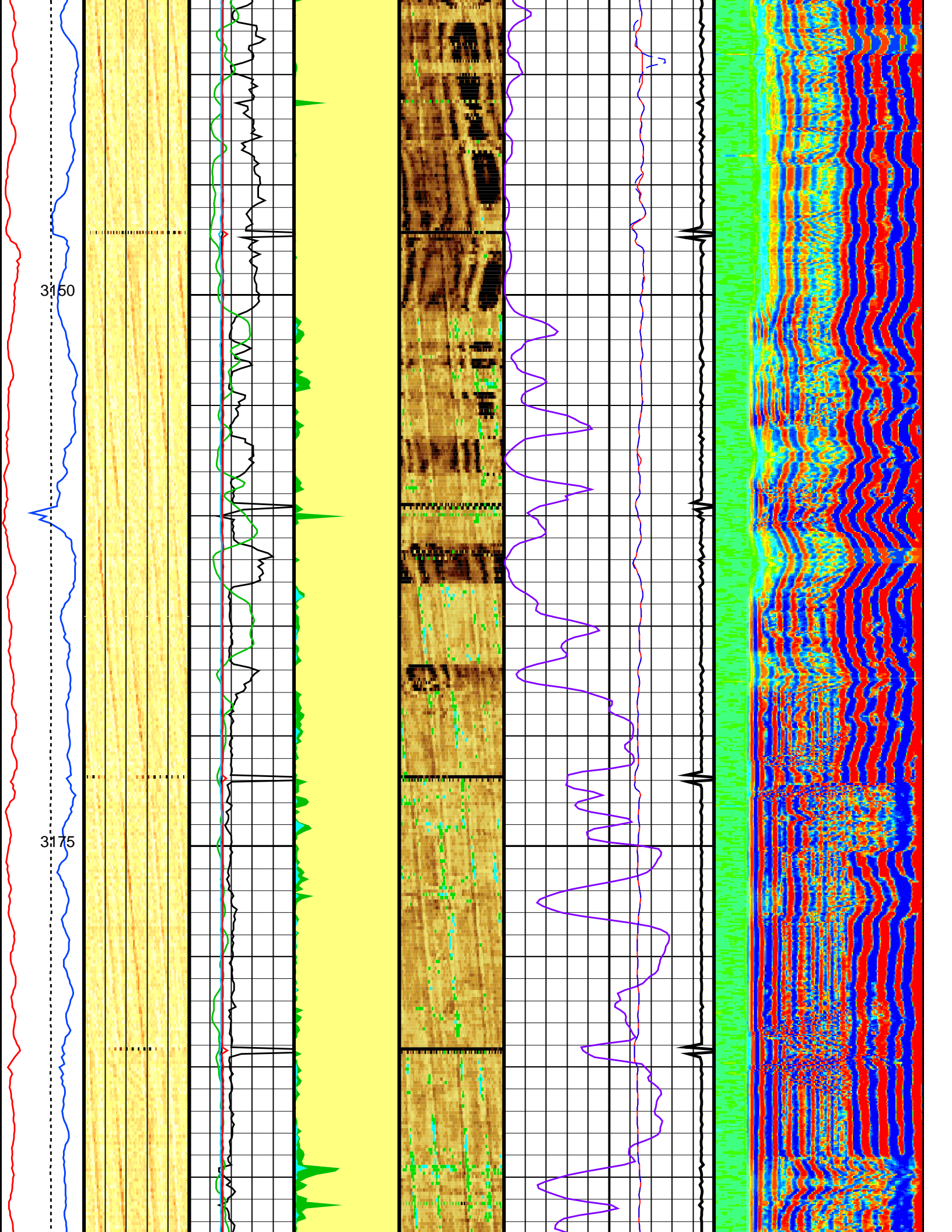


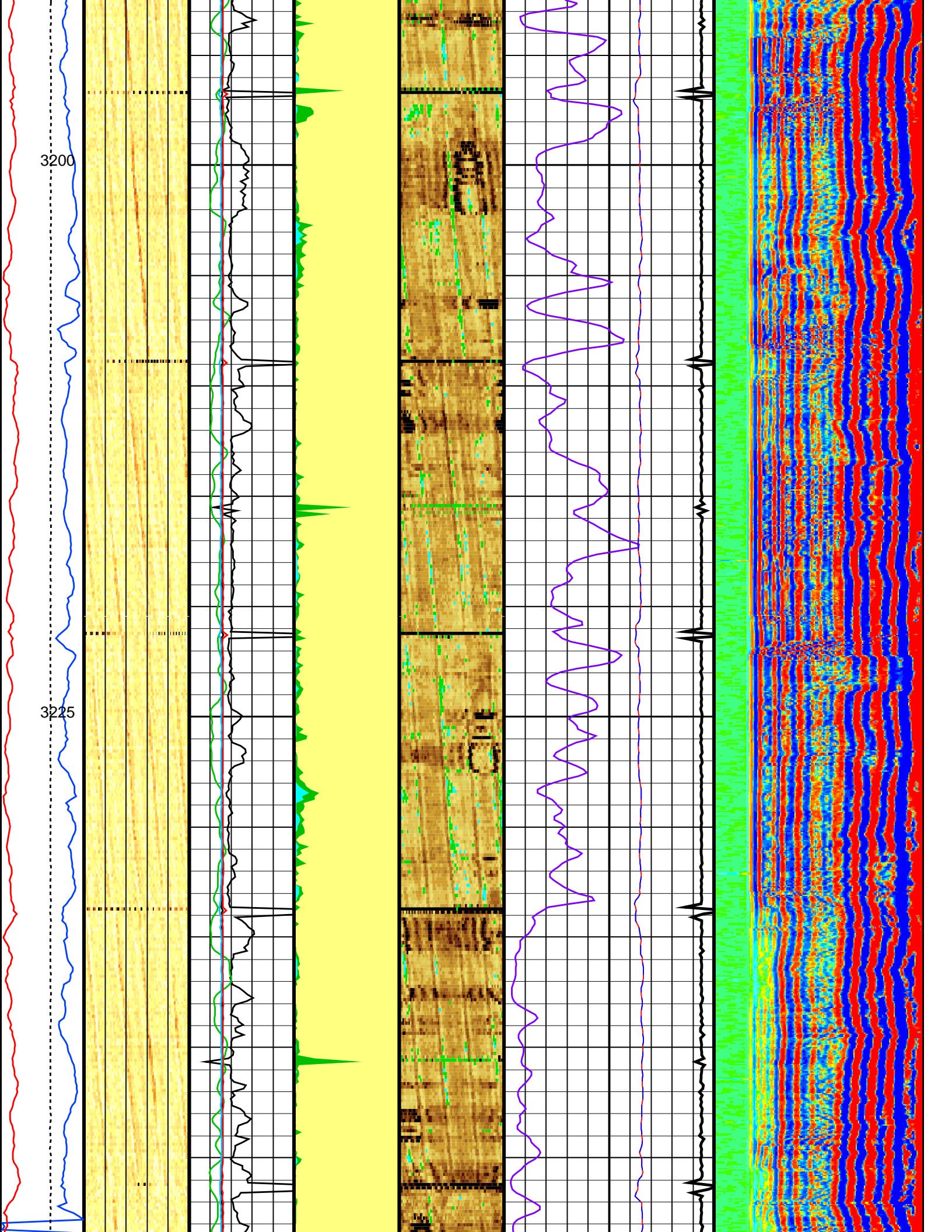


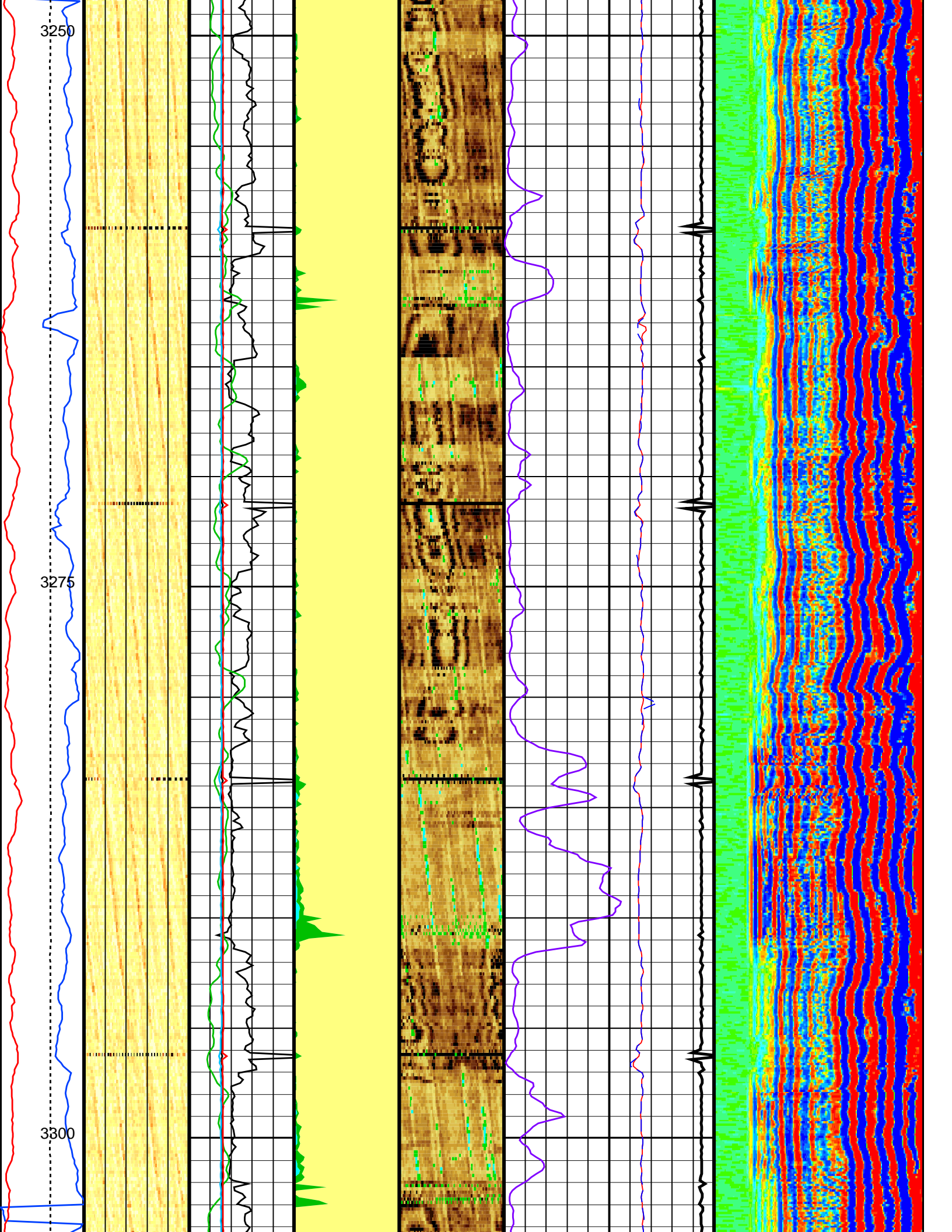


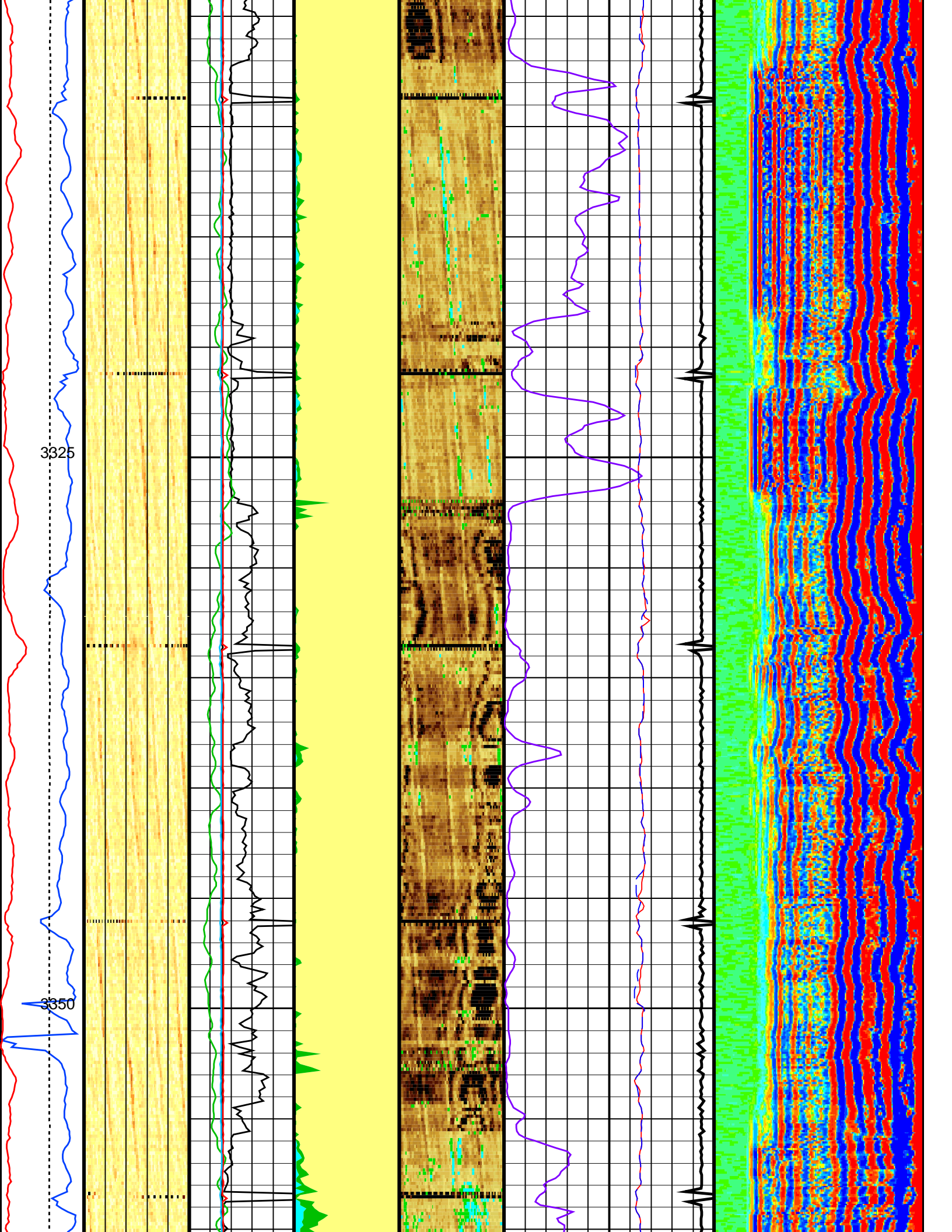


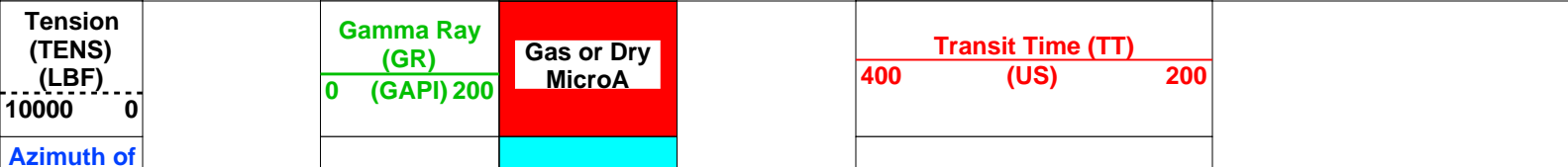
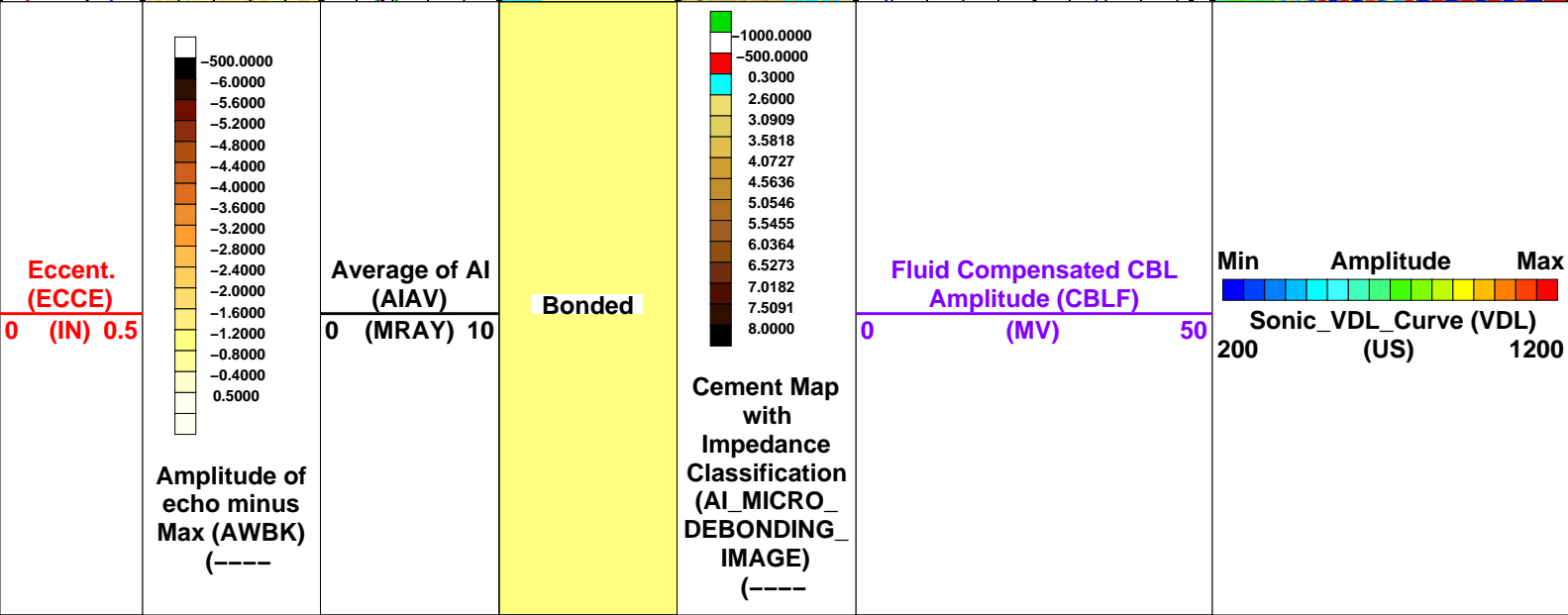
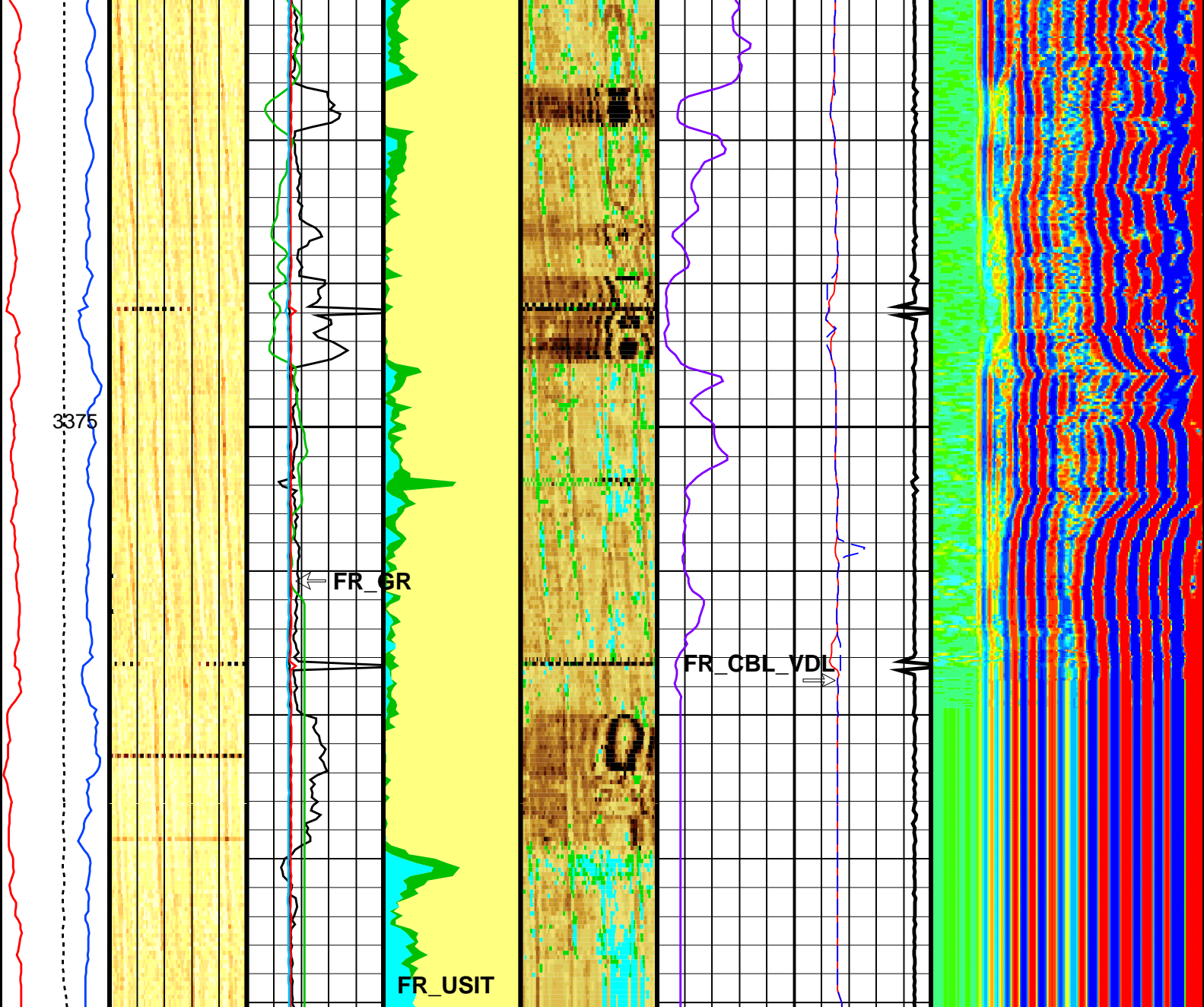












eccent. (AZEC) (DEG)	Internal radius Average (IRAV)	Liquid	Transit Time (Sliding Gate) (TTSL) (US)	400	200
0	2.5 (IN)	4			
	Min of Internal radius (IRMN)	Micro-debon ding	CCL (CCLU)	-35	5
	2.5 (IN)	4			
	Internal radius Maximum (IRMX)				
	2.5 (IN)	4			

Format: NewUSI_CBL_Client		Vertical Scale: 1:200		Graphics File Created: 07-Dec-2004 21:09	
OP System Version: 12C0-301					
MCM					
USIT-A	12C0-301	DTA-A	12C0-301		
DSLT-FTB	12C0-301	SGT-N	12C0-301		
DTC-H	12C0-301	CAL-Y	12C0-301		
USI : LOW Frequency Compression Mode Used For Logging.					
Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.					

Parameters					
DLIS Name	Description	Value			
USIT-A: Ultrasonic Imaging					
	T^3 Processing Length for FPM	26.045	US		
	Corrosion range maximum	0.076	IN		
	Corrosion range minimum	-0.076	IN		
AGMN	Minimum Gain of Cartridge	-4	DB		
AGMX	Maximum Gain of Cartridge	20	DB		
BERJ	Bad Echo Rejection	ON			
CDIA	Casing Outer Diameter	6.625	IN		
CDUN	Curves Unit Declared in Presentation Manager	IN			
CSDE	Casing Density	7800	K/M3		
CSID	Casing Inner Diameter	5.921	IN		
CYST	Casing Yield Strength	0	KPA		
DFVL	Default Fluid Velocity	182	US/F		
DOT	Diameter of Transducer Sensor	2.874	IN		
EMXV	EMEX Voltage	10	V		
FDII	FPM Data Interpolation Interval	0	M		
IMAR	Image Rotation	OFF			
MW	Mud Weight	1.06645	G/C3		
OPLEV	USIT Remove Flagged Data Level	level2			
RCOD	Reference Calibrator Outer Diameter	7	IN		
RCSO	Reference Calibrator Standoff	1.1811	IN		
RCTH	Reference Calibrator Thickness	0.2952	IN		
SDNV	Number of Vertical Samples used for Micro-debonding Computation	5			
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	0.5			
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	0.3			
SUBT	Ultrasonic Subassembly Type	Sub_7_inch_S			
TCUB	T^3 Processing Level	Vax_Loop			
THDH	Maximum Search Thickness (percentage of nominal)	130			
THDL	Minimum Search Thickness (percentage of nominal)	70			
THNO	Nominal Thickness of Casing	0.352	IN		
TMUC	Type of Mud	BRINE			
UMAO	USIT Measurement Angular Offset	-10	DEG		
UPAT	Emission Pattern	Pattern_375K			
USTO	Ultrasonic Time Offset	-2	US		
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch			
UWKM	Ultrasonic Working Mode	5DEG_6IN_LF			
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F		
WLEN	T^3 Processing Length	21.1081	US		
ZCAS	Acoustic Impedance of Casing	46.25	MRAY		
ZINI	Initial Estimate of Cement Impedance	-1	MRAY		
ZMUD	Acoustic Impedance of Mud	1.48	MRAY		
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY		
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY		
DSLT-FTB: Digitizing					
	Sonic Logging Tool				
	DSLT Firing Mode	CBL_C			

AGC	Automatic Gain Control Status	ON	
AMSG	Auxiliary Minimum Sliding Gate	142	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBAF	CBL Adjustment Factor	0.63	
CBCF	CBL Correction Factor	4	
CBLG	CBL Gate Width	45	US
CDTS	C-Delta-T Shale	100	US/F
CSTR	Compressive Strength of Cement	3800	PSIA
DDEL	Digitizing Delay	0	US
DETE	Delta-T Detection	E1	
DFAD	Digital First Arrival Detection Switch	HOST	
DIVL	DSLT Depth Sampling Interval	60	
DRCS	DSLT DLIS Recording Size	120	
DSIN	Digitizing Sample Interval	10	
DTCM	Delta-T Computation Mode	FULL	
DTF	Delta-T Fluid	189	US/F
DTFS	DSLC Telemetry Frame Size	133	
DTM	Delta-T Matrix	56	US/F
DWCO	Digitizing Word Count	120	
FCF	CBL Fluid Compensation Factor	1	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MAHTR	Manual High Threshold Reference	40	
MCI	Minimum Cemented Interval for Isolation	2.64795	M
MGAI	Maximum Gain	1000	
MIGA	Minimum Gain	1	
MNHT	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	1.14861	MV
NMSG	Near Minimum Sliding Gate	250	US
NMXG	Near Maximum Sliding Gate	750	US
NUMP	Number of Detection Passes	2	
RATE	Firing Rate	R5	
RDFA	Reset DFAD	OFF	
SDTH	Switch Down Threshold	20000	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate Status	ON	
SGAI	Selectable Acquisition Gain	1X	
SGCL	Sliding Gate Closing Delta-T	250	US/F
SGCW	Sliding Gate Closing Width	25	US
SGDT	Sliding Gate Delta-T	57	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SUTH	Switch Up Threshold	1000	
VDLG	VDL Manual Gain	5	
WAGC	Waveform AGC Allow/Disallow	OFF	
WGAJ	Waveform Manual Gain	20	
WGDT	Waveform Gain Delta-T	240	US/F
WGIN	Waveform Gain Interval	2540	US
WMOD	Waveform Firing Mode	FULL	
SGT-N: Scintillation Gamma-Ray - N			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	130	DEGC
DPPM	Density Porosity Processing Mode	STAN	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	SGT Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	20	DEGC
SOGR	SGT Standoff Distance	1.6	IN
CAL-Y: Casing Anomaly Locator - Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	6.625	IN
CWEI	Casing Weight	24.00	LB/F
DFD	Drilling Fluid Density	8.90	LB/G
DO	Depth Offset for Playback	0.1	M
MST	Mud Sample Temperature	24.60	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.1738	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	3395	M
TDD	Total Depth - Driller	3400.71	M

TDL	Total Depth – Logger				99999.00	M
TWS	Temperature of Connate Water Sample				37.78	DEGC
Input DLIS Files						
DEFAULT	USI_SONIC_024LUP	FN:29	PRODUCER	07-Dec-2004 18:53	3395.0 M	2352.9 M
Output DLIS Files						
DEFAULT	USI_SONIC_032PUP	FN:45	PRODUCER	07-Dec-2004 21:09		
BACKUP	USI_SONIC_032PUP	FN:46	PRODUCER	07-Dec-2004 21:09		



Repeat Section



Company: Origin Energy Resources Ltd. Well: Trefoil-1

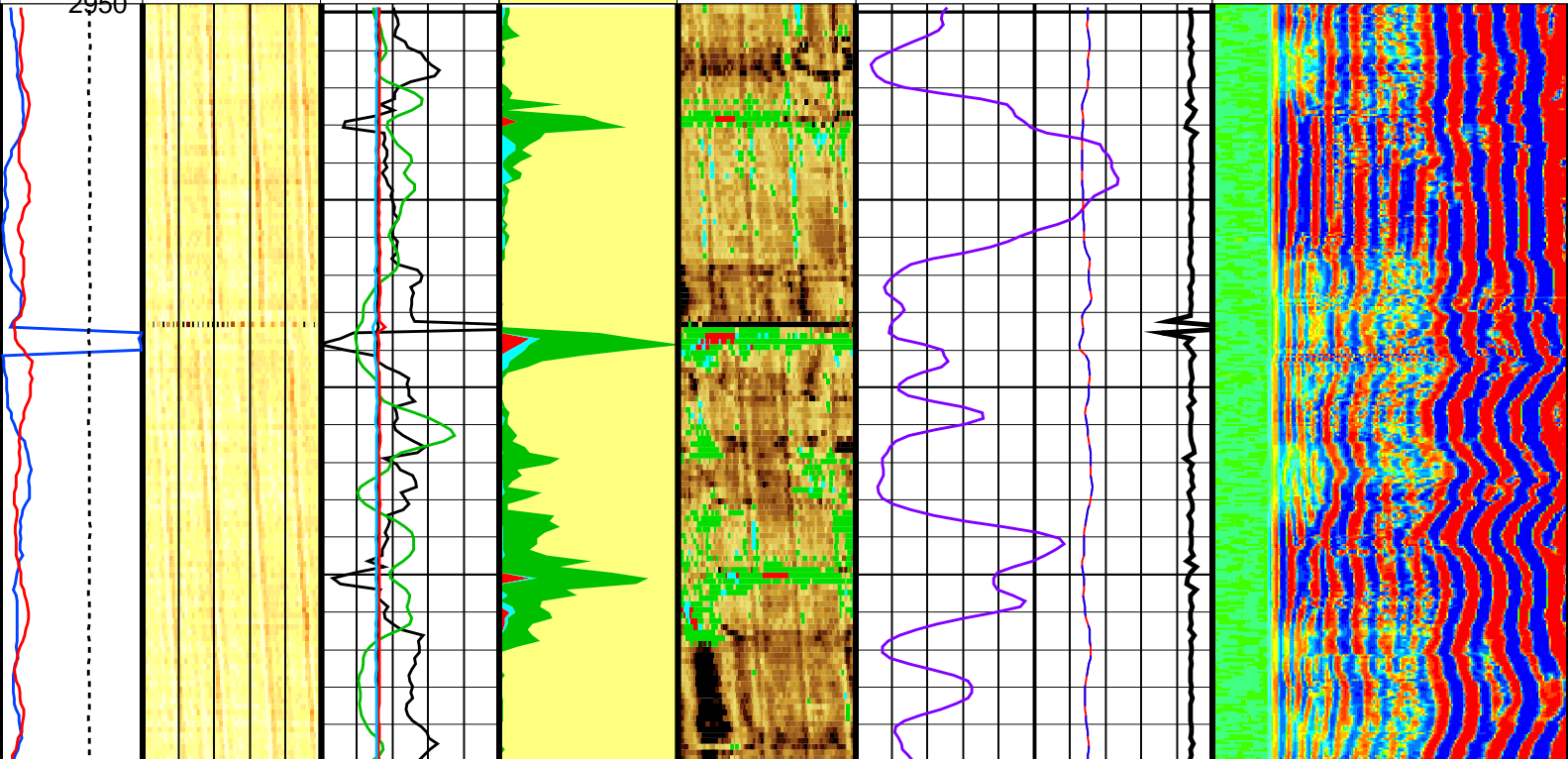
Input DLIS Files					
DEFAULT	USI_SONIC_034LUP	FN:49	PRODUCER	07-Dec-2004 21:19	3050.0 M 2948.9 M
Output DLIS Files					
DEFAULT	USI_SONIC_038PUP	FN:56	PRODUCER	07-Dec-2004 21:48	3050.3 M 2949.7 M
BACKUP	USI_SONIC_038PUP	FN:57	PRODUCER	07-Dec-2004 21:48	3050.3 M 2949.7 M

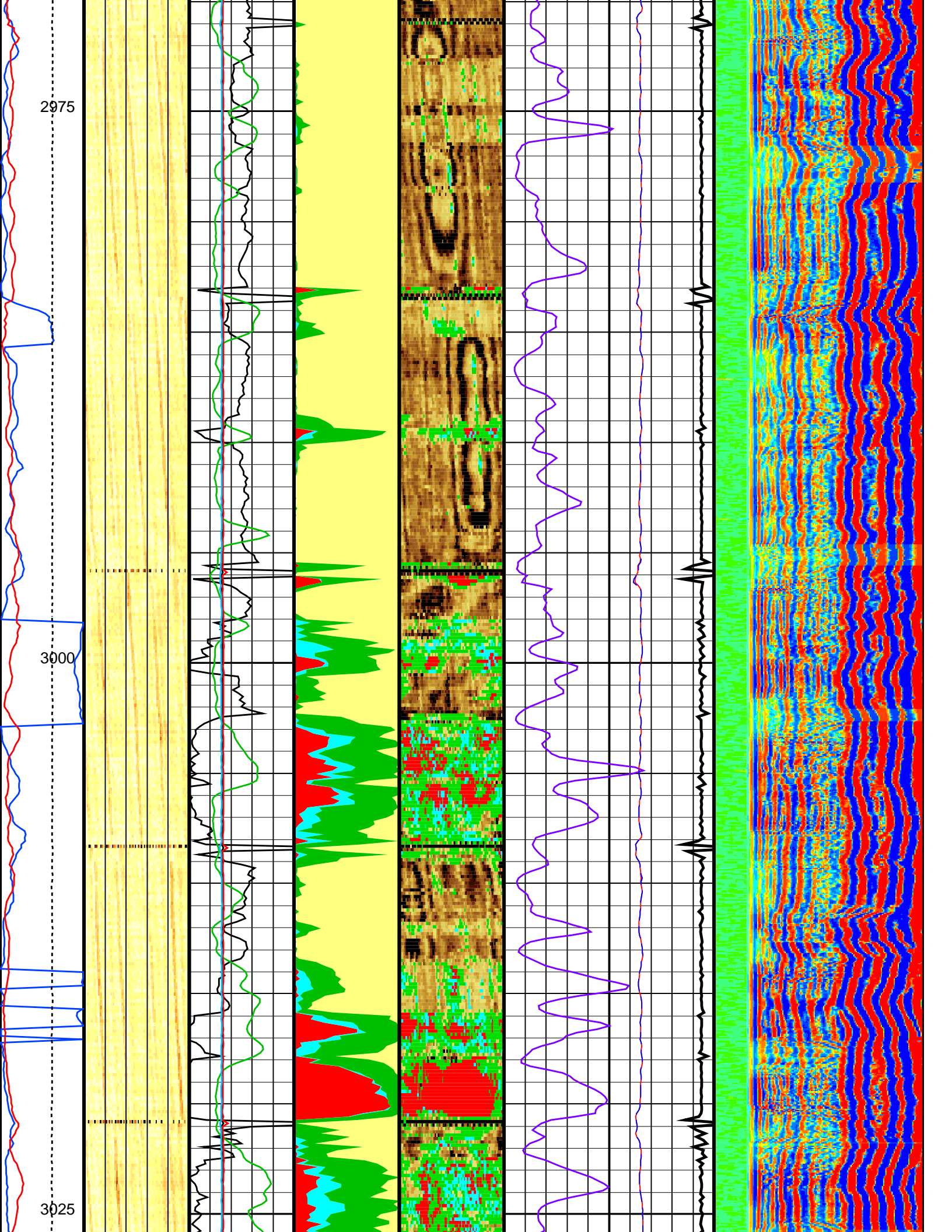
OP System Version: 12C0-301					
MCM					
USIT-A	12C0-301	DTA-A	12C0-301		
DSLT-FTB	12C0-301	SGT-N	12C0-301		
DTC-H	12C0-301	CAL-Y	12C0-301		

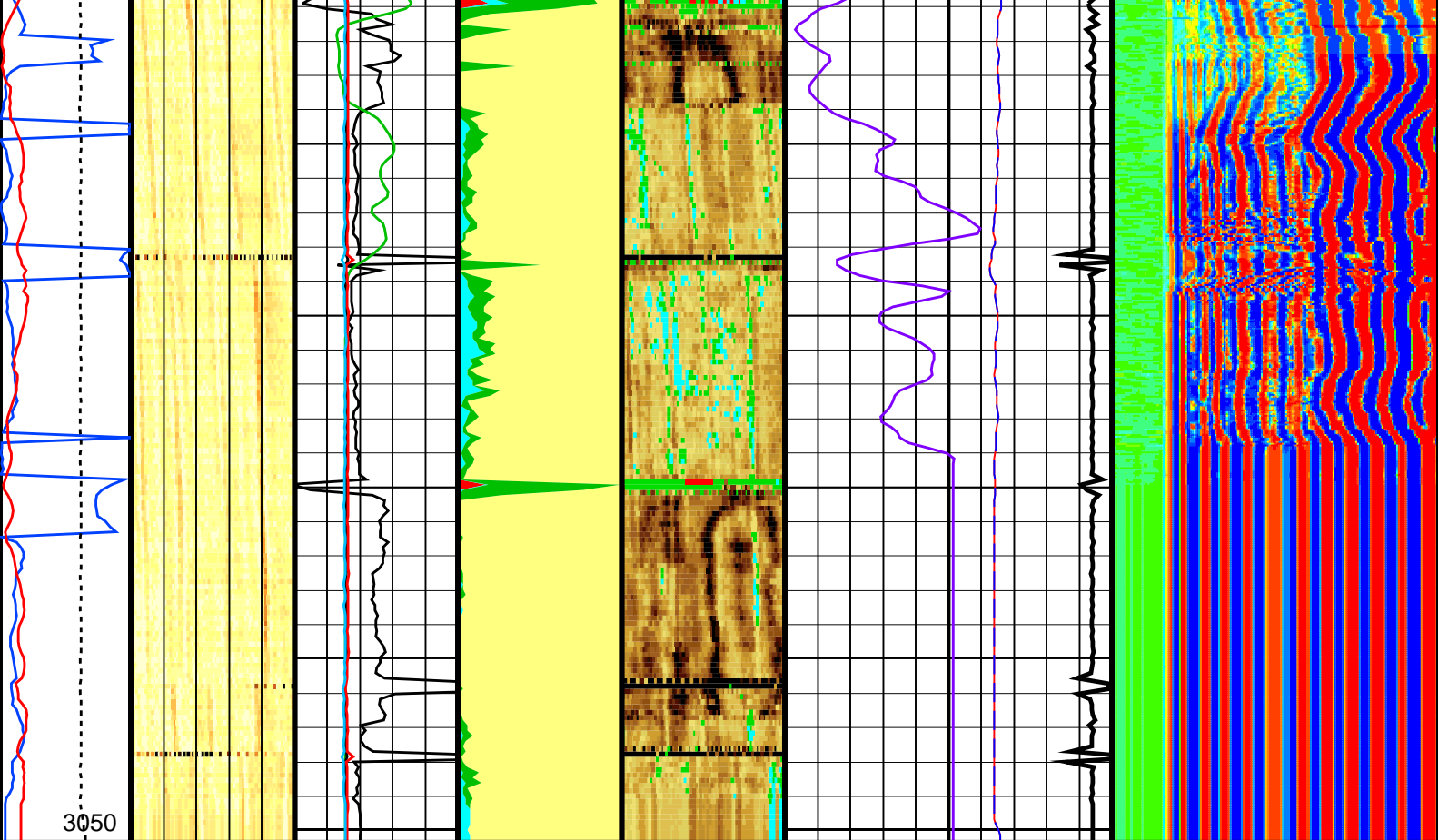
Zoning of Mud Parameters		
Depth	Fluid Velocity (DFVL)	Acoustic Impedance (ZMUD)
3395.00	181.64	1.79
3000.00	181.64	1.79
2500.00	181.46	1.78
2000.00	181.46	1.78

<div> <div>Azimuth of eccent. (AZEC) (DEG)</div> <div>0 360</div> </div> <div> <div>Tension (TENS) (LBF)</div> <div>10000 0</div> </div>	<div>Internal radius Maximum (IRMX)</div> <div>2.5 (IN) 4</div>			
	<div>Min of Internal radius (IRMN)</div> <div>2.5 (IN) 4</div>	Micro-debonding		<div>CCL (CCLU)</div> <div>-35 (----) 5</div>
	<div>Internal radius Average (IRAV)</div> <div>2.5 (IN) 4</div>	Liquid		<div>Transit Time (Sliding Gate) (TTSL) (US)</div> <div>400 ---- 200</div>
	<div>Gamma Ray (GR)</div> <div>0 (GAPI) 200</div>	Gas or Dry MicroA		<div>Transit Time (TT) (US)</div> <div>400 ---- 200</div>

<div>Eccent. (ECCE)</div> <div>0 (IN) 0.5</div>	<div>Amplitude of echo minus Max (AWBK) (----)</div> <div> <div>-500.0000</div> <div>-6.0000</div> <div>-5.6000</div> <div>-5.2000</div> <div>-4.8000</div> <div>-4.4000</div> <div>-4.0000</div> <div>-3.6000</div> <div>-3.2000</div> <div>-2.8000</div> <div>-2.4000</div> <div>-2.0000</div> <div>-1.6000</div> <div>-1.2000</div> <div>-0.8000</div> <div>-0.4000</div> <div>0.5000</div> </div>	<div>Average of AI (AIAY)</div> <div>0 (MRAY) 10</div>	<div>Bonded</div> <div> <div>-1000.0000</div> <div>-500.0000</div> <div>0.3000</div> <div>2.6000</div> <div>3.0909</div> <div>3.5818</div> <div>4.0727</div> <div>4.5636</div> <div>5.0546</div> <div>5.5455</div> <div>6.0364</div> <div>6.5273</div> <div>7.0182</div> <div>7.5091</div> <div>8.0000</div> </div> <div>Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (----)</div>	<div>Fluid Compensated CBL Amplitude (CBLF) (MV)</div> <div>0 ---- 50</div>	<div>Min Amplitude Max</div> <div>Sonic_VDL_Curve (VDL) (US)</div> <div>200 ---- 1200</div>
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<div><div>Eccent. (ECCE)</div><div>0 (IN) 0.5</div></div>	<div><div>Amplitude of echo minus Max (AWBK) (----</div><div><div><div>-500.0000</div><div>-6.0000</div><div>-5.6000</div><div>-5.2000</div><div>-4.8000</div><div>-4.4000</div><div>-4.0000</div><div>-3.6000</div><div>-3.2000</div><div>-2.8000</div><div>-2.4000</div><div>-2.0000</div><div>-1.6000</div><div>-1.2000</div><div>-0.8000</div><div>-0.4000</div><div>0.5000</div></div></div></div>	<div><div>Average of AI (AIAV)</div><div>0 (MRAY) 10</div></div>	<div><div>Bonded</div></div>	<div><div>Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (----</div><div><div><div>-1000.0000</div><div>-500.0000</div><div>0.3000</div><div>2.6000</div><div>3.0909</div><div>3.5818</div><div>4.0727</div><div>4.5636</div><div>5.0546</div><div>5.5455</div><div>6.0364</div><div>6.5273</div><div>7.0182</div><div>7.5091</div><div>8.0000</div></div></div></div>	<div><div>Fluid Compensated CBL Amplitude (CBLF)</div><div>0 (MV) 50</div></div>	<div><div>MinAmplitudeMax</div><div>Sonic_VDL_Curve (VDL) (US)</div><div>2001200</div></div>
<div><div>Tension (TENS) (LBF)</div><div>100000</div></div> <div><div>Azimuth of eccent. (AZEC) (DEG)</div><div>0360</div></div>	<div><div>Gamma Ray (GR)</div><div>0 (GAPI) 200</div></div> <div><div>Internal radius Average (IRAV)</div><div>2.5 (IN) 4</div></div> <div><div>Min of Internal radius (IRMN)</div><div>2.5 (IN) 4</div></div> <div><div>Internal radius Maximum (IRMX)</div><div>2.5 (IN) 4</div></div>	<div><div>Gas or Dry MicroA</div></div> <div><div>Liquid</div></div> <div><div>Micro-debonding</div></div>	<div><div>Transit Time (TT)</div><div>400 (US) 200</div></div> <div><div>Transit Time (Sliding Gate) (TTSL) (US)</div><div>400200</div></div> <div><div>CCL (CCLU)</div><div>-35 (----) 5</div></div>			

OP System Version: 12C0-301

MCM

USIT-A	12C0-301	DTA-A	12C0-301
DSLT-FTB	12C0-301	SGT-N	12C0-301
DTC-H	12C0-301	CAL-Y	12C0-301

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value	
USIT-A: Ultrasonic Imaging			
	T^3 Processing Length for FPM	26.045	US
	Corrosion range maximum	0.076	IN
	Corrosion range minimum	-0.076	IN
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	6.625	IN
CDUN	Curves Unit Declared in Presentation Manager	IN	
CSDE	Casing Density	7800	K/M3
CSID	Casing Inner Diameter	5.921	IN
CYST	Casing Yield Strength	0	KPA
DFVL	Default Fluid Velocity	182	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	0	V
FDII	FPM Data Interpolation Interval	0	M
IMAR	Image Rotation	OFF	
MW	Mud Weight	1.06645	G/C3
OPLEV	USIT Remove Flagged Data Level	level2	
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
SDNV	Number of Vertical Samples used for Micro-debonding Computation	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	0.5	
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	0.3	
SUBT	Ultrasonic Subassembly Type	Sub_7_inch_S	
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THNO	Nominal Thickness of Casing	0.352	IN
TMUC	Type of Mud	BRINE	
UMAO	USIT Measurement Angular Offset	-10	DEG
UPAT	Emission Pattern	Pattern_375K	
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.1081	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.48	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
DSLT-FTB: Digitizing			
	Sonic Logging Tool		
	DSLT Firing Mode	CBL_C	
	Telemetry Mode	DSLC_FTB	
AGC	Automatic Gain Control Status	ON	
AMSG	Auxiliary Minimum Sliding Gate	142	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBAF	CBL Adjustment Factor	0.63	
CBCF	CBL Correction Factor	4	
CBLG	CBL Gate Width	45	US
CDTS	C-Delta-T Shale	100	US/F
CSTR	Compressive Strength of Cement	3800	PSIA
DDEL	Digitizing Delay	0	US
DETE	Delta-T Detection	E1	
DFAD	Digital First Arrival Detection Switch	HOST	
DIVL	DSLT Depth Sampling Interval	60	
DRCS	DSLT DLIS Recording Size	120	
DSIN	Digitizing Sample Interval	10	
DTCM	Delta-T Computation Mode	FULL	

DT	Delta-T Fluid	189	US/F
DTFS	DSLC Telemetry Frame Size	133	
DTM	Delta-T Matrix	56	US/F
DWCO	Digitizing Word Count	120	
FCF	CBL Fluid Compensation Factor	1	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MAHTR	Manual High Threshold Reference	40	
MCI	Minimum Cemented Interval for Isolation	2.64795	M
MGAI	Maximum Gain	1000	
MIGA	Minimum Gain	1	
MNHTR	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	1.14861	MV
NMSG	Near Minimum Sliding Gate	250	US
NMXG	Near Maximum Sliding Gate	750	US
NUMP	Number of Detection Passes	2	
RATE	Firing Rate	R5	
RDFA	Reset DFAD	OFF	
SDTH	Switch Down Threshold	20000	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate Status	ON	
SGAI	Selectable Acquisition Gain	1X	
SGCL	Sliding Gate Closing Delta-T	250	US/F
SGCW	Sliding Gate Closing Width	25	US
SGDT	Sliding Gate Delta-T	57	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SUTH	Switch Up Threshold	1000	
VDLG	VDL Manual Gain	5	
WAGC	Waveform AGC Allow/Disallow	OFF	
WGAJ	Waveform Manual Gain	20	
WGDT	Waveform Gain Delta-T	240	US/F
WGIN	Waveform Gain Interval	2540	US
WMOD	Waveform Firing Mode	FULL	
SGT-N: Scintillation Gamma-Ray - N			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	130	DEGC
DPPM	Density Porosity Processing Mode	STAN	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	SGT Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	20	DEGC
SOGR	SGT Standoff Distance	1.6	IN
CAL-Y: Casing Anomaly Locator - Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	6.625	IN
CWEI	Casing Weight	24.00	LB/F
DFD	Drilling Fluid Density	8.90	LB/G
DO	Depth Offset for Playback	0.3	M
MST	Mud Sample Temperature	24.60	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.1738	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	3395	M
TDD	Total Depth - Driller	3400.71	M
TDL	Total Depth - Logger	-50000.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

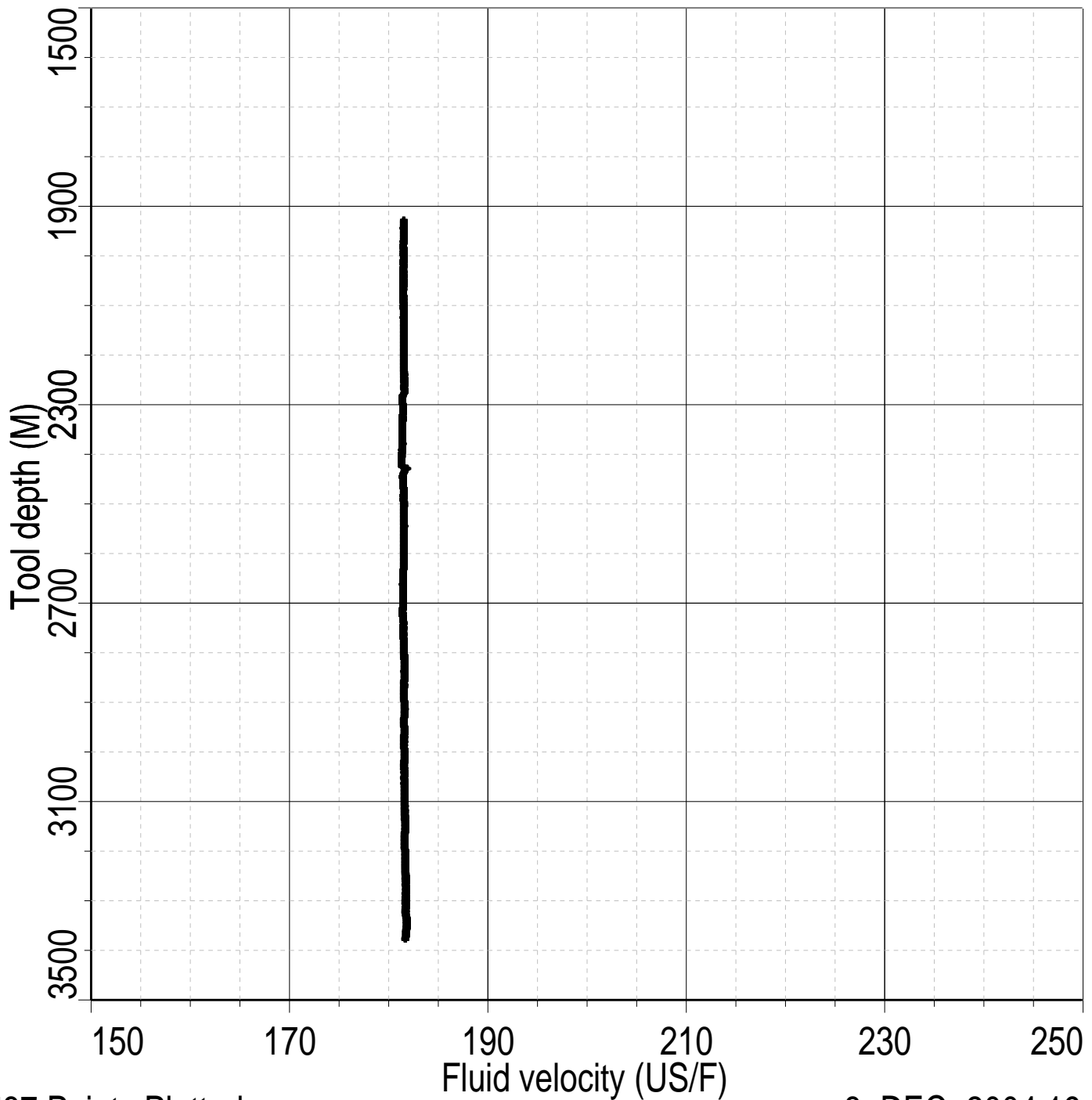
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Output DLIS Files

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BACKUP	USI_SONIC_038PUP	FN:57	PRODUCER	07-Dec-2004 21:48

Index: 3377.5 – 1927.3 M

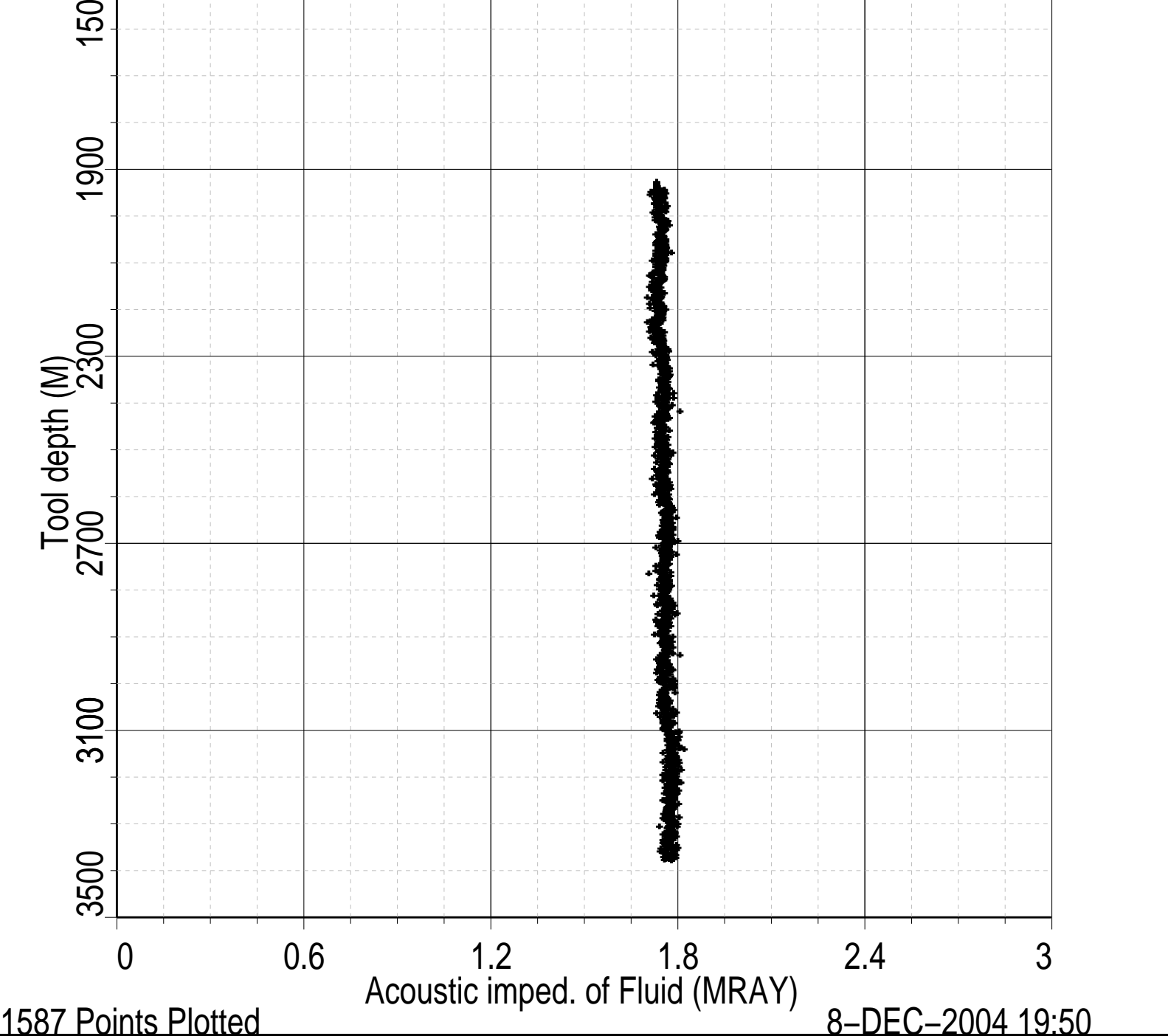


1587 Points Plotted

8-DEC-2004 19:50

Index: 3377.5 – 1927.3 M





Correlation for Cased Hole Logs

MAXIS Field Log

Company: Origin Energy Resources Ltd. Well: Trefoil-1

Input DLIS Files

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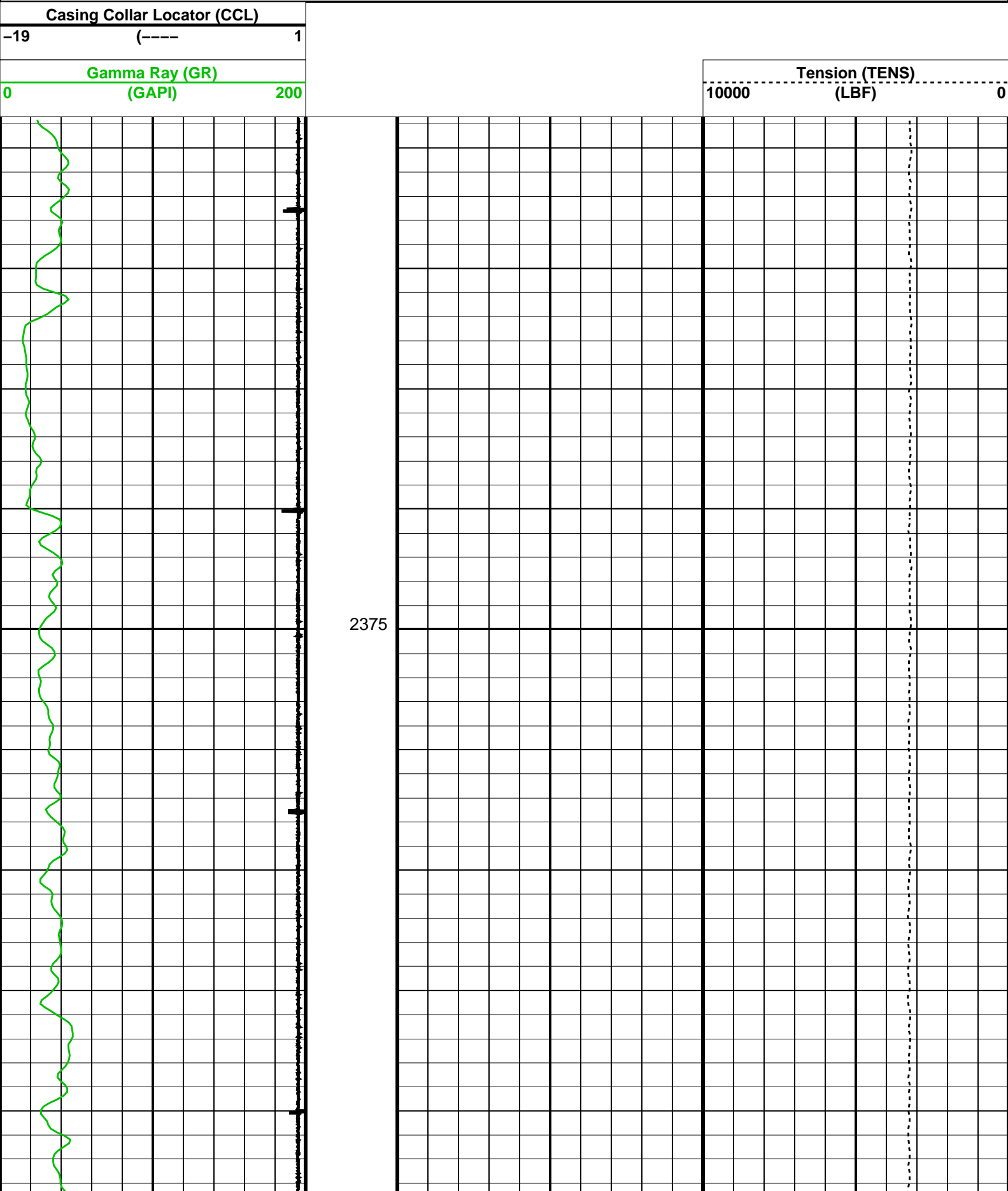
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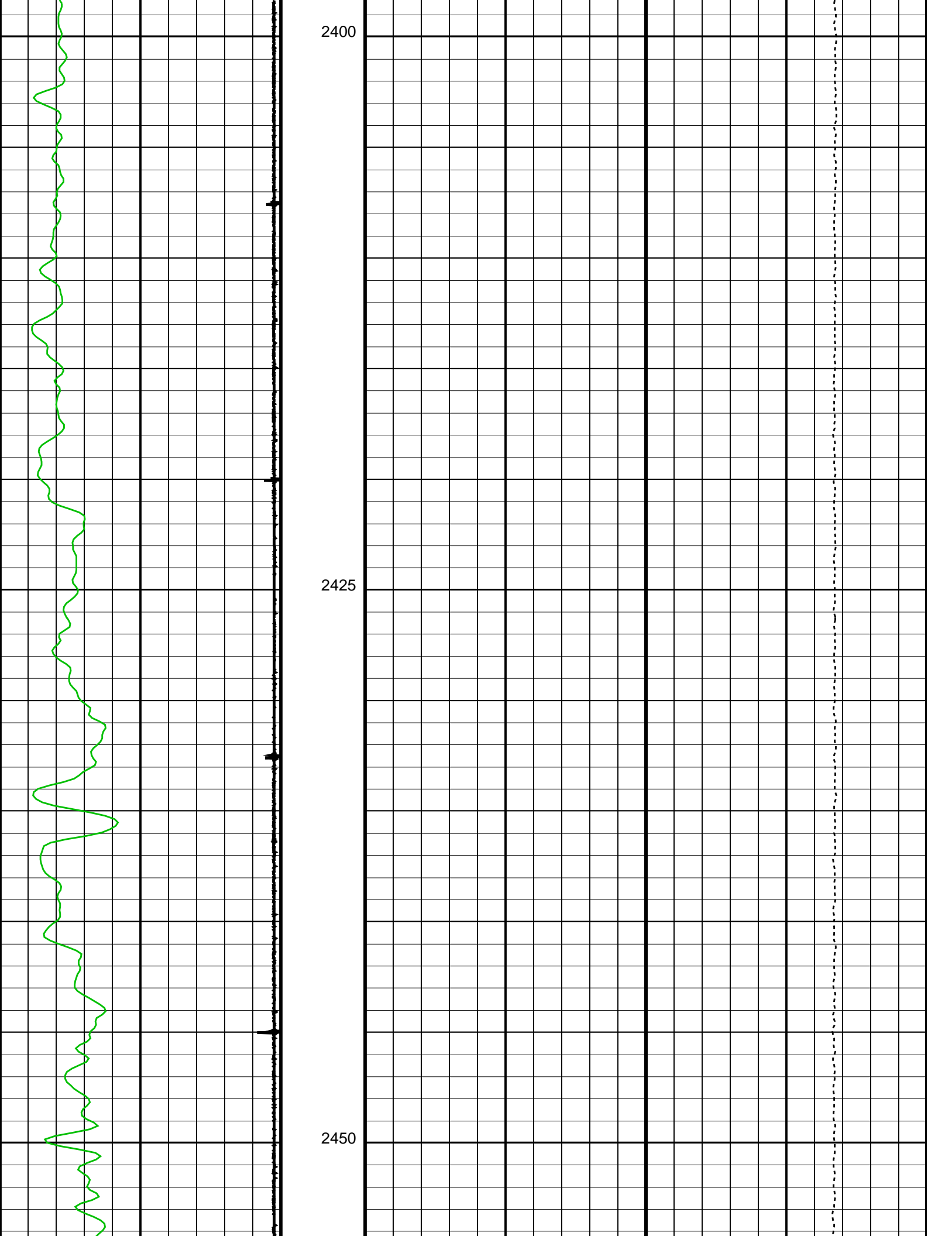
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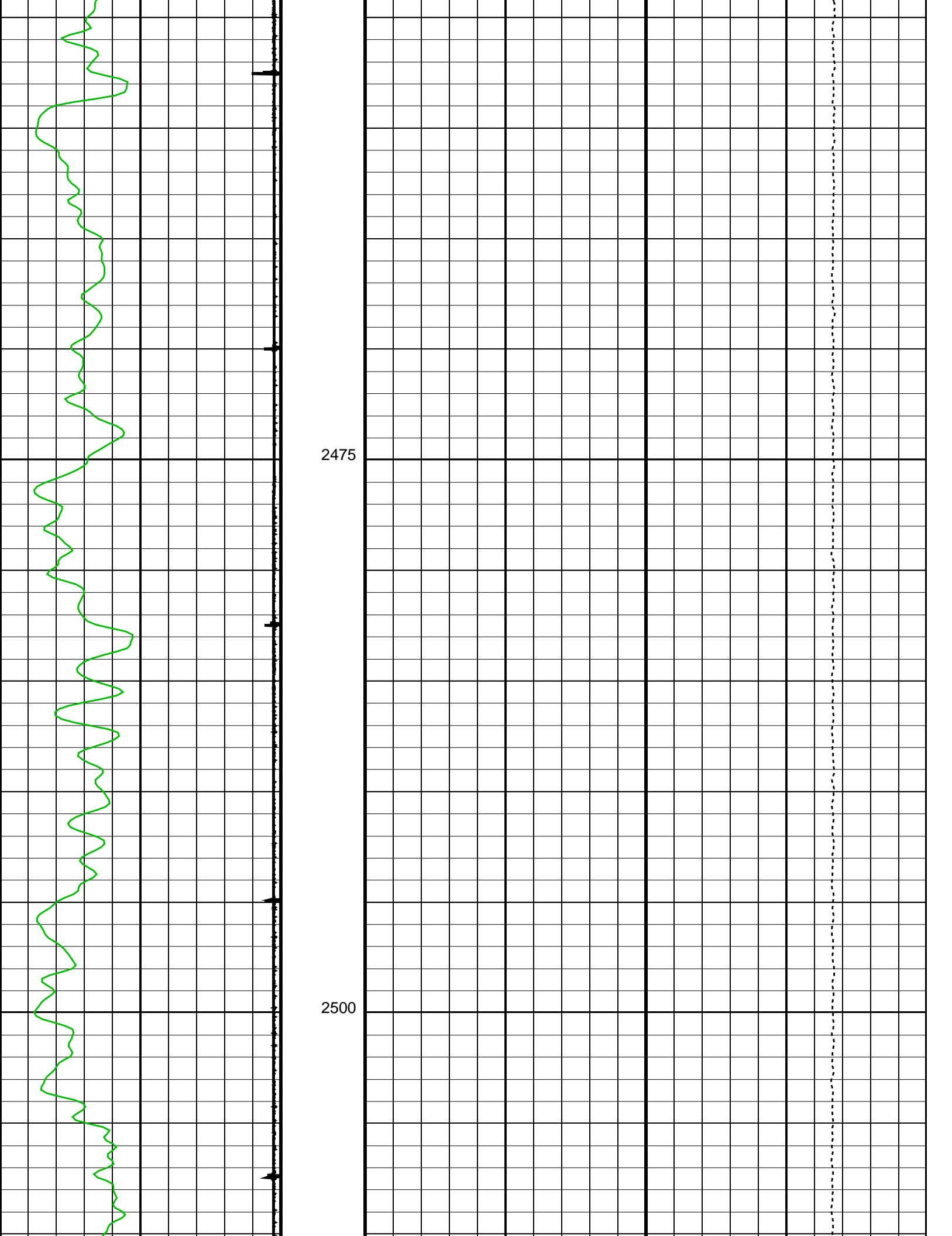
OP System Version: 12C0-301

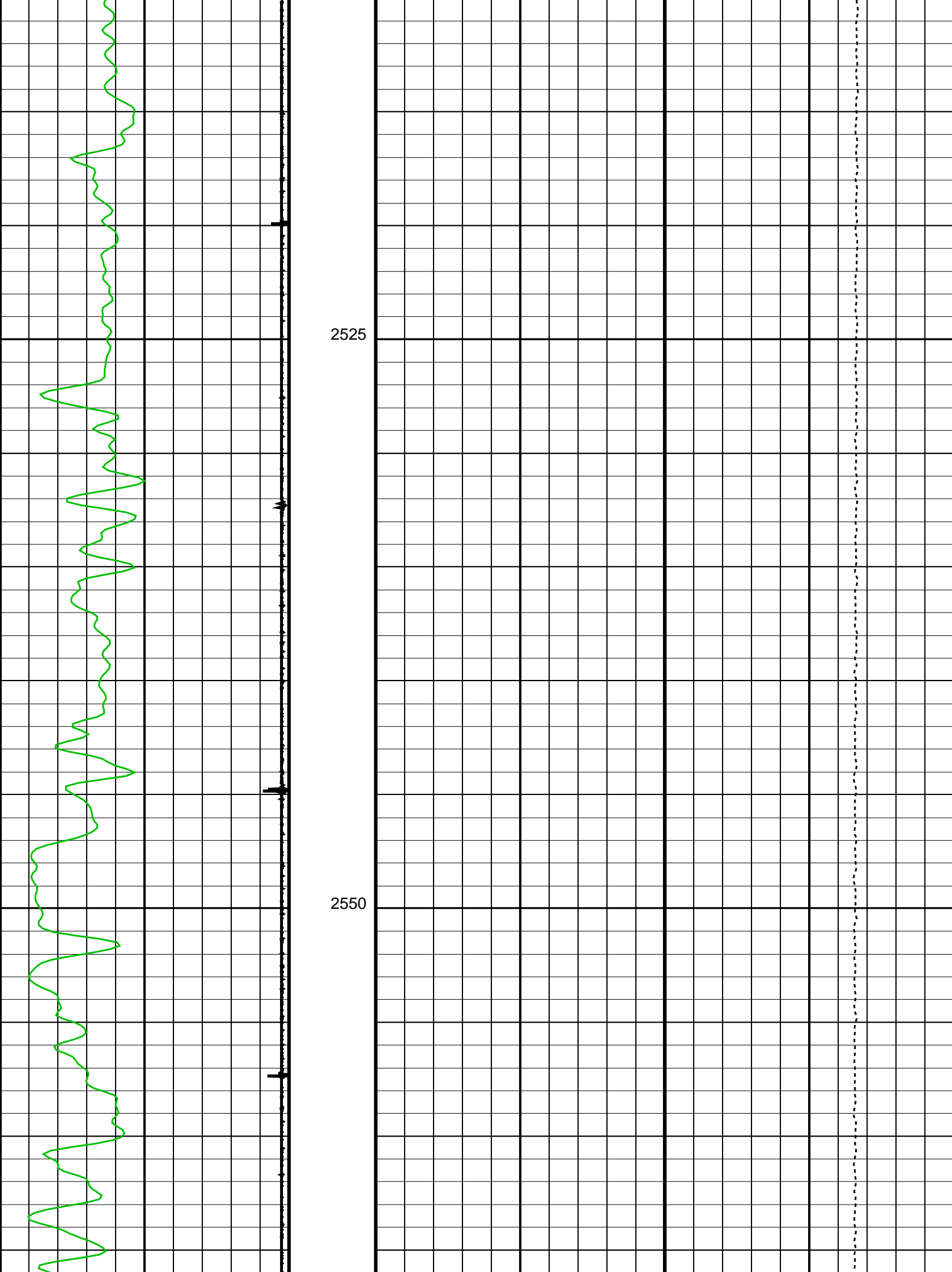
MCM

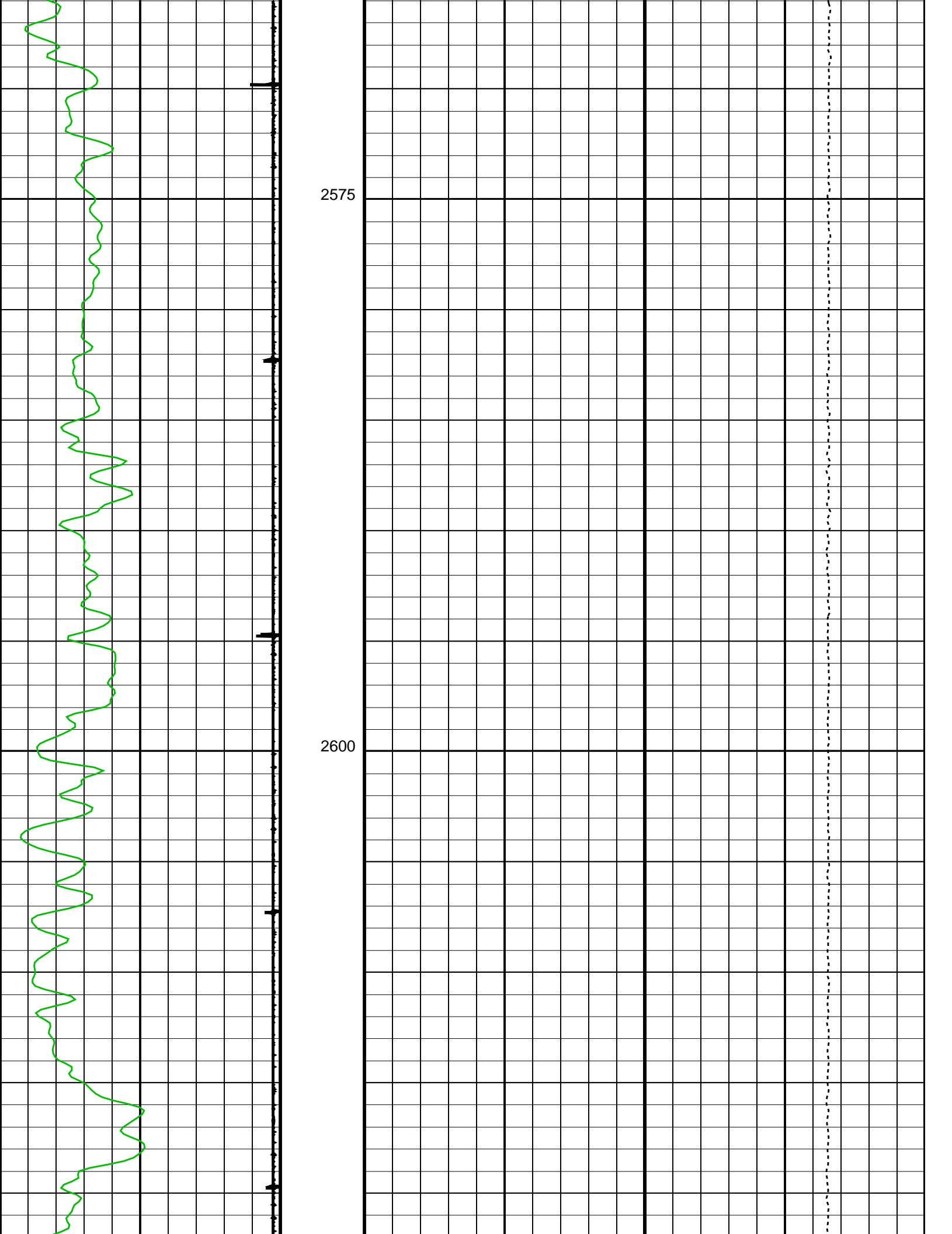
USIT-A	12C0-301	DTA-A	12C0-301
DSLT-FTB	12C0-301	SGT-N	12C0-301
DTC-H	12C0-301	CAL-Y	12C0-301

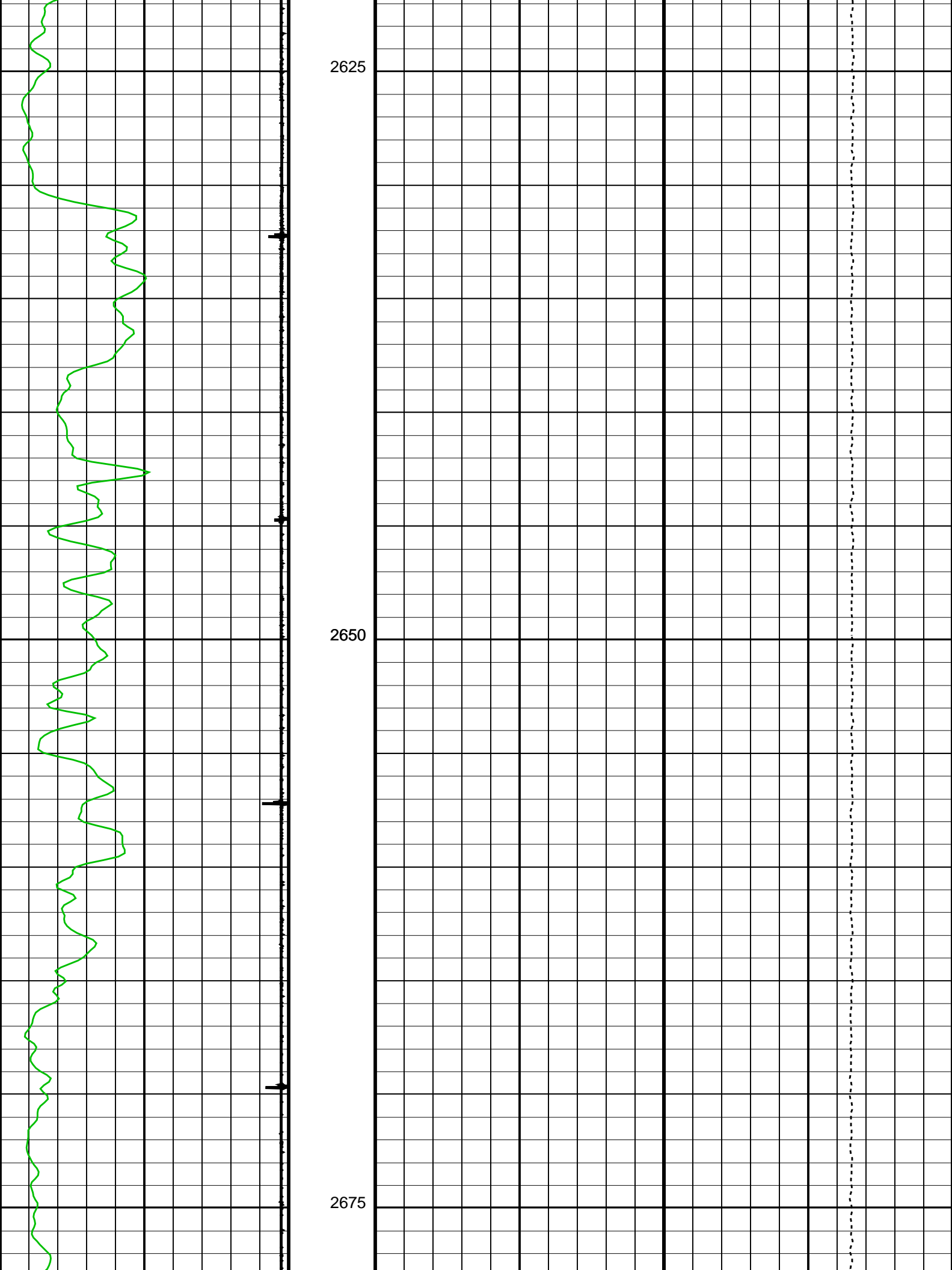


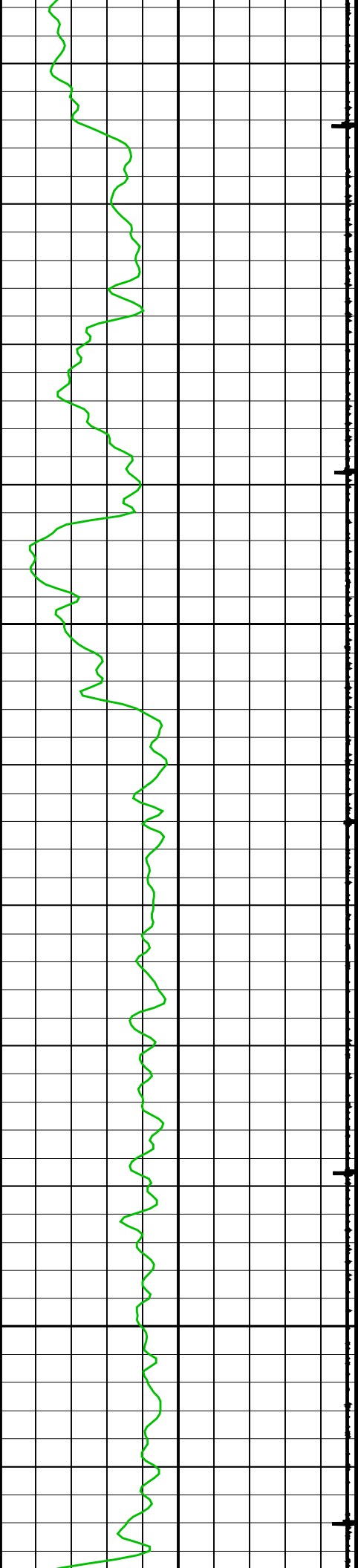






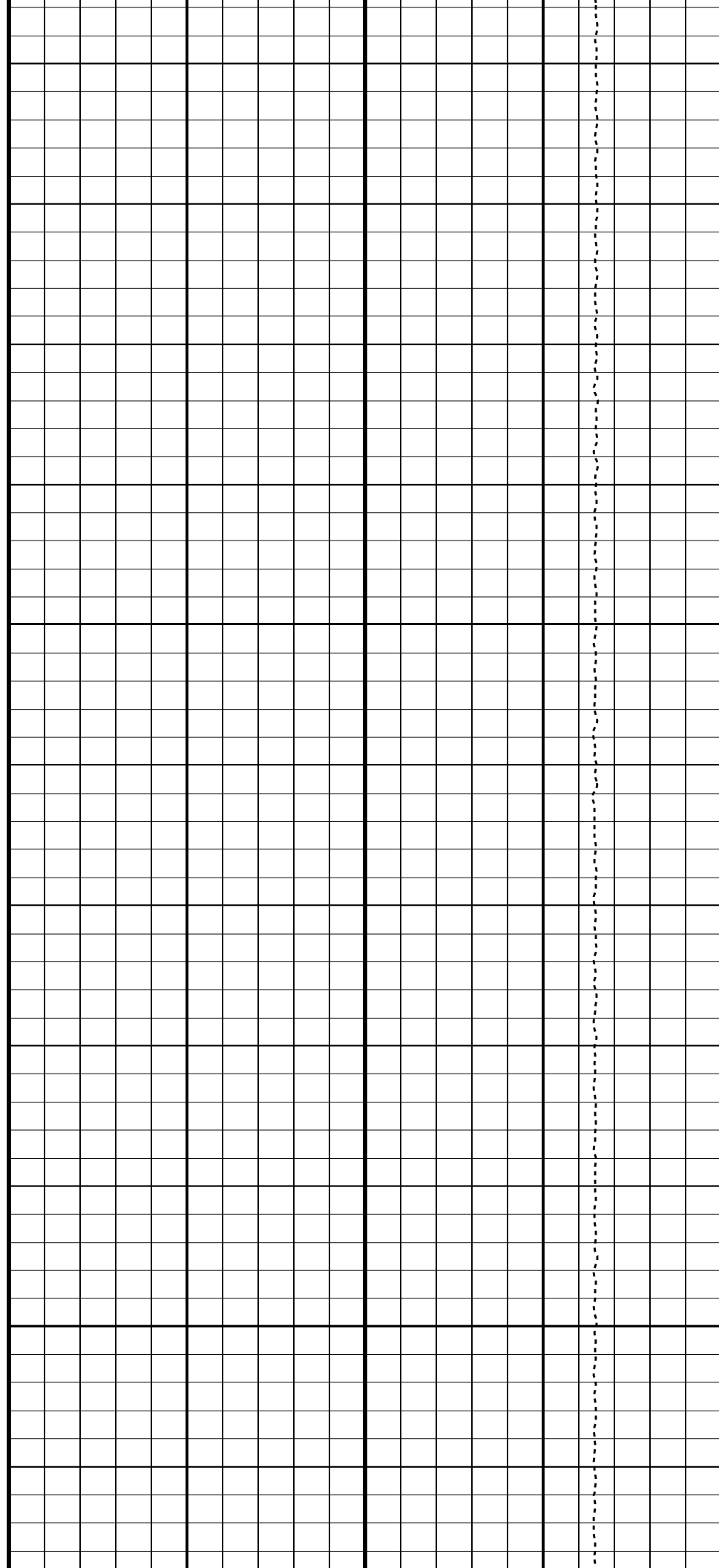


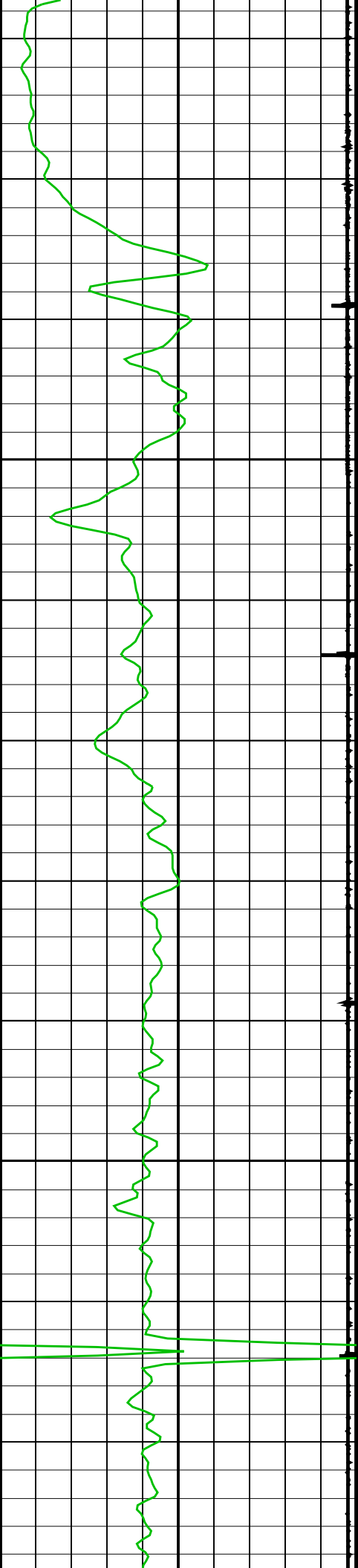




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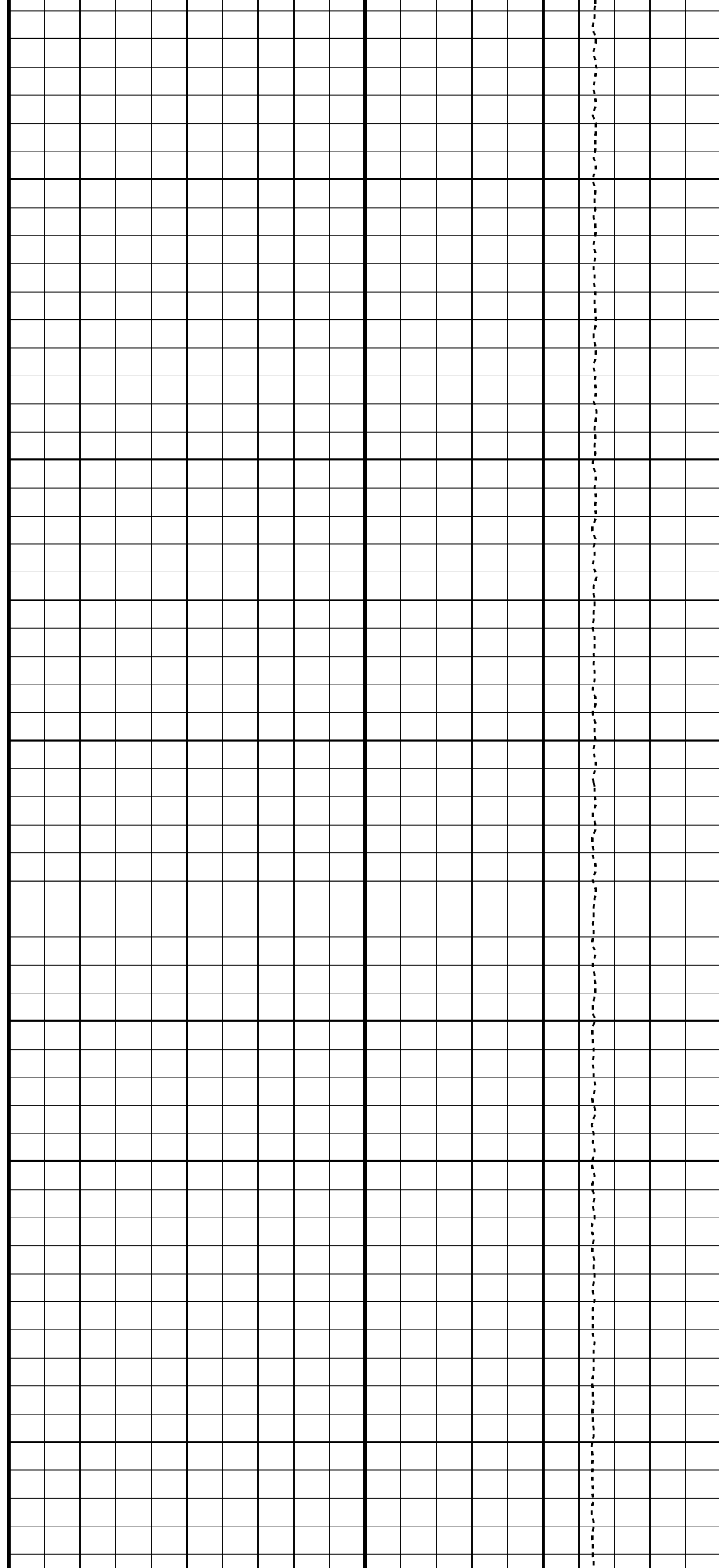
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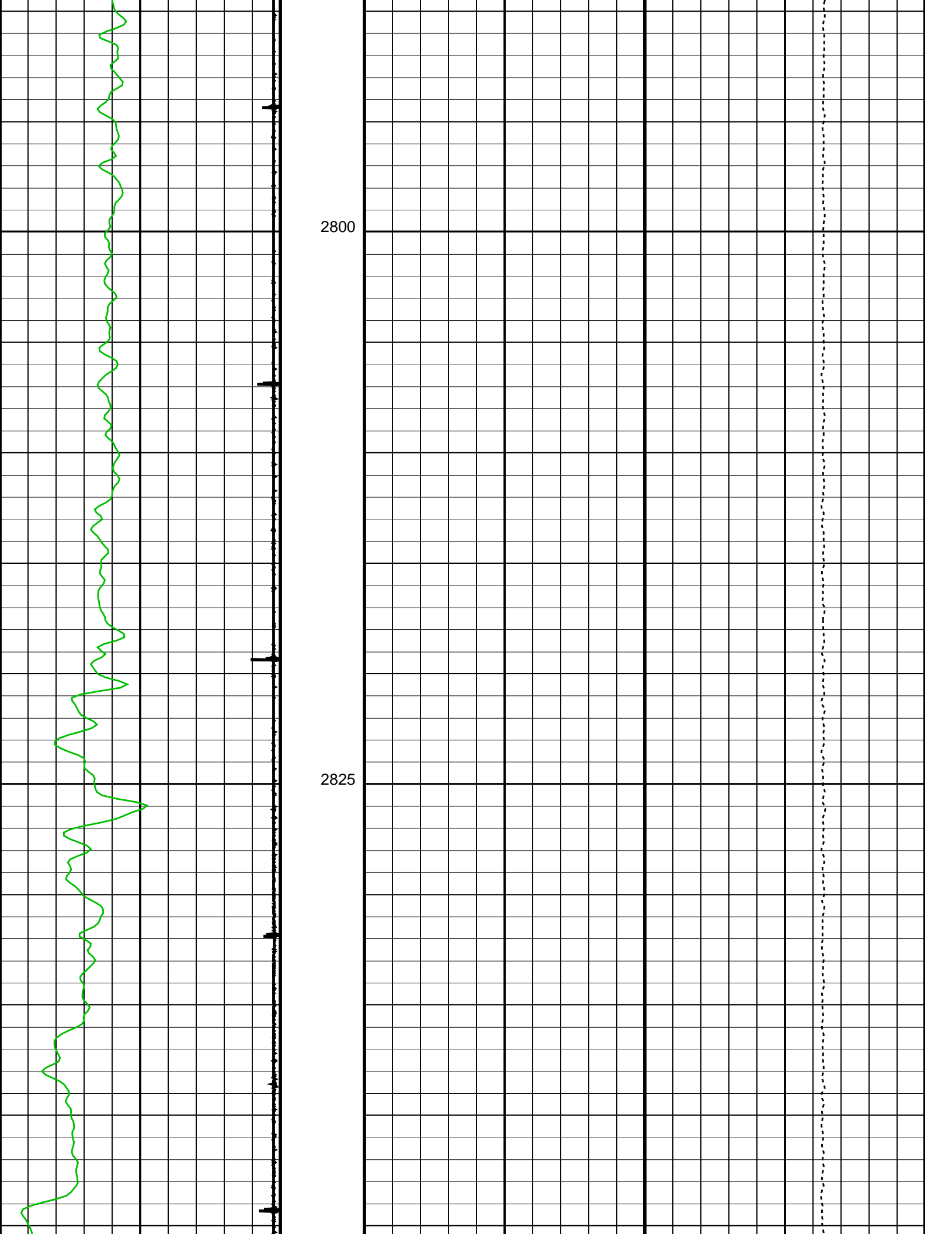


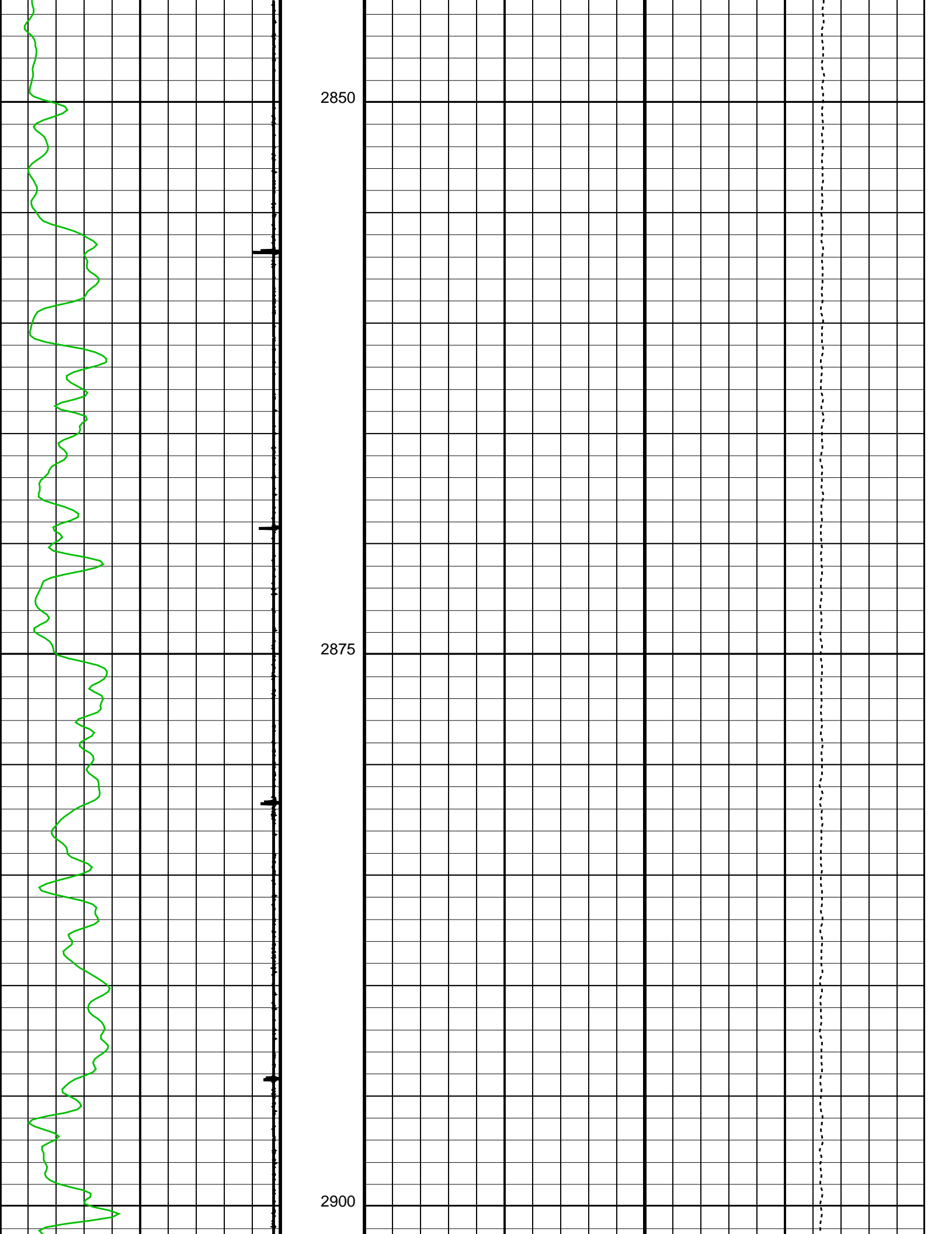


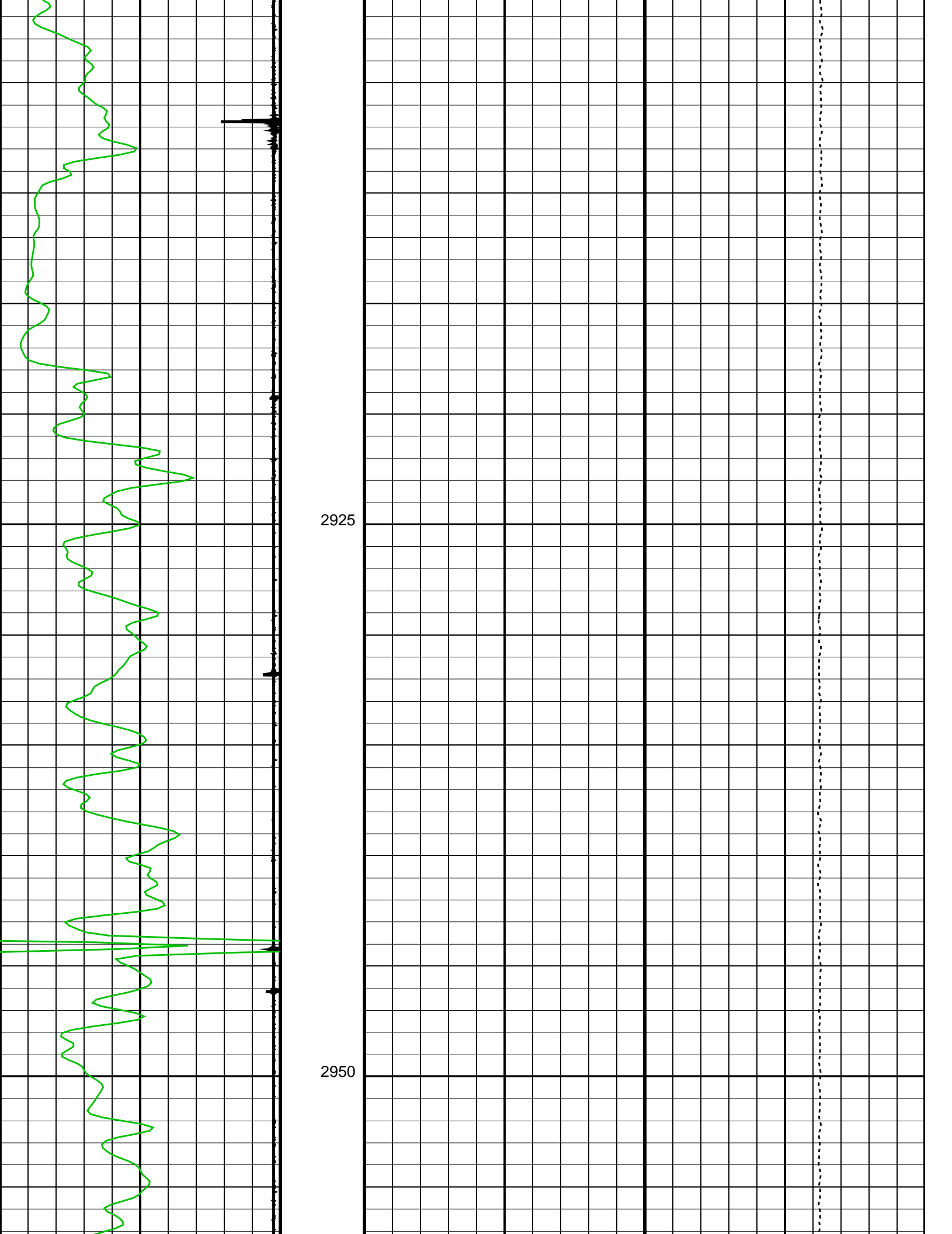
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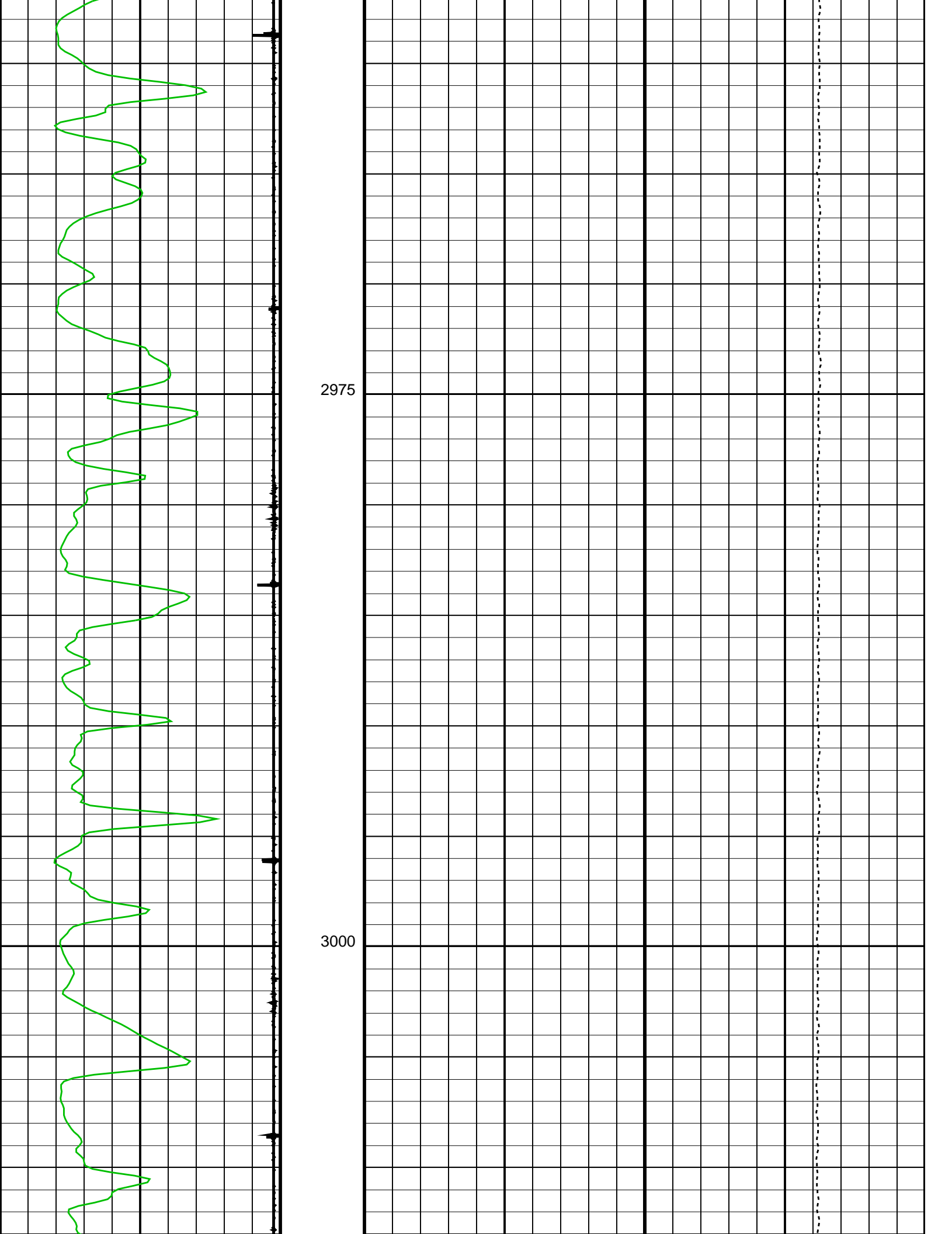
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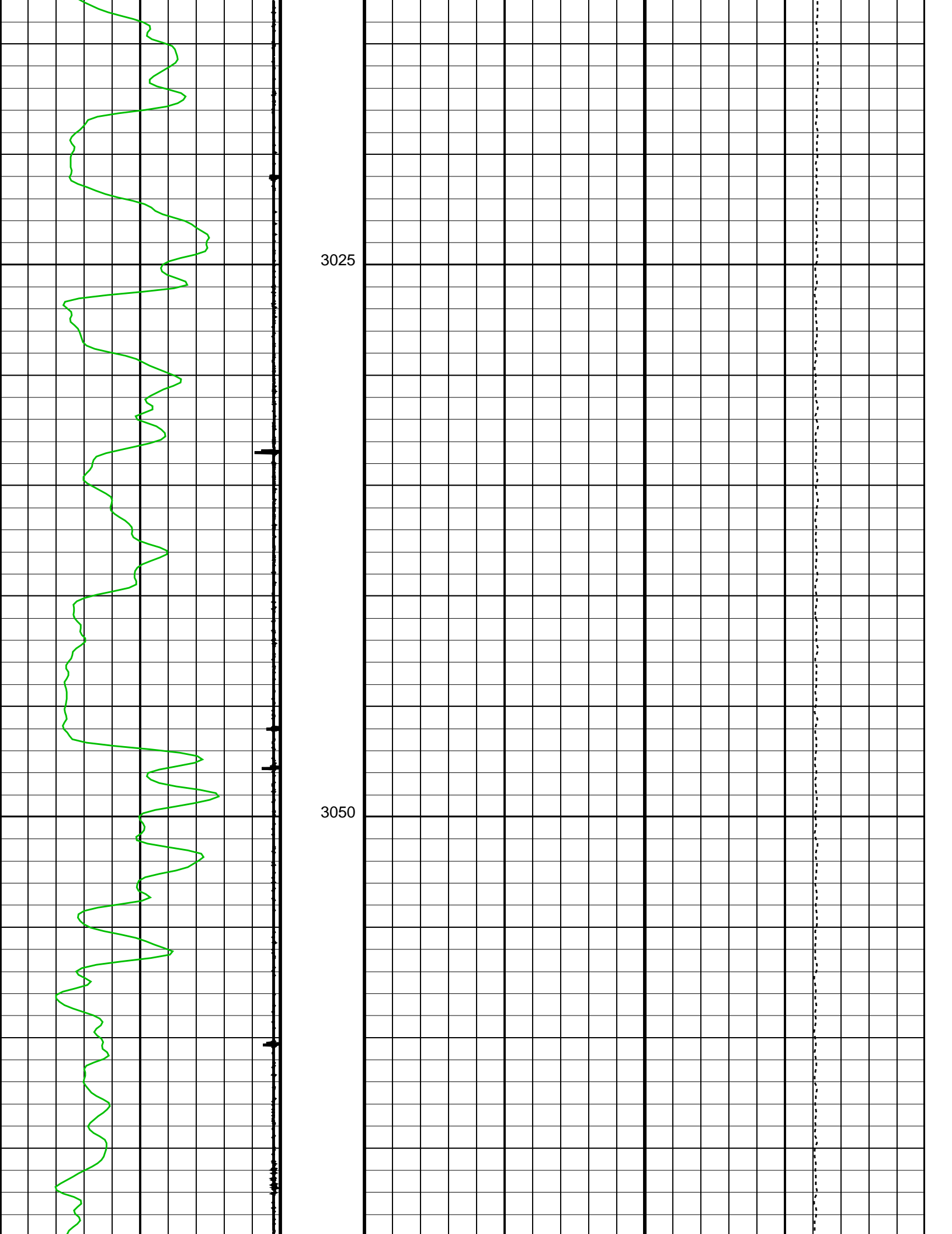


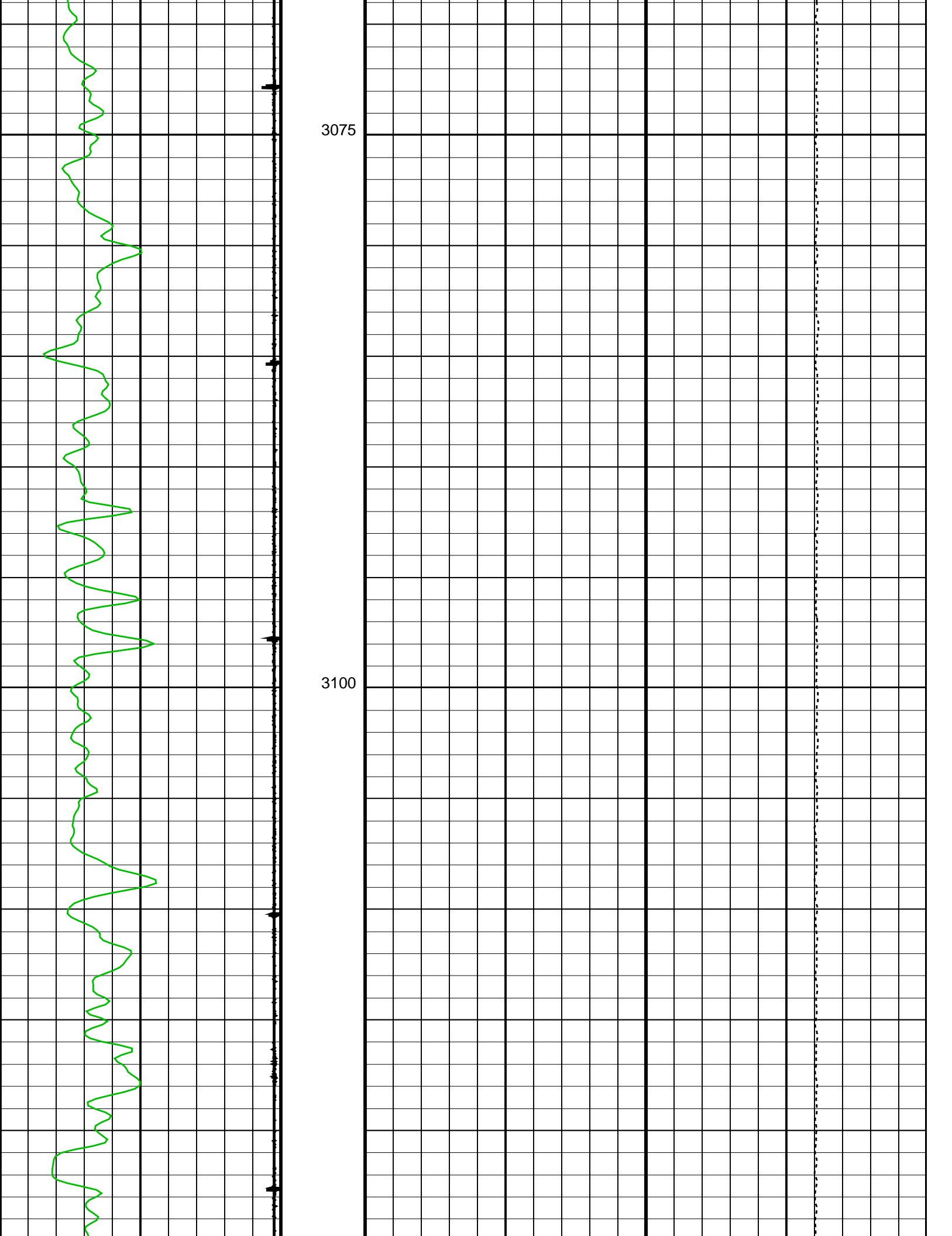


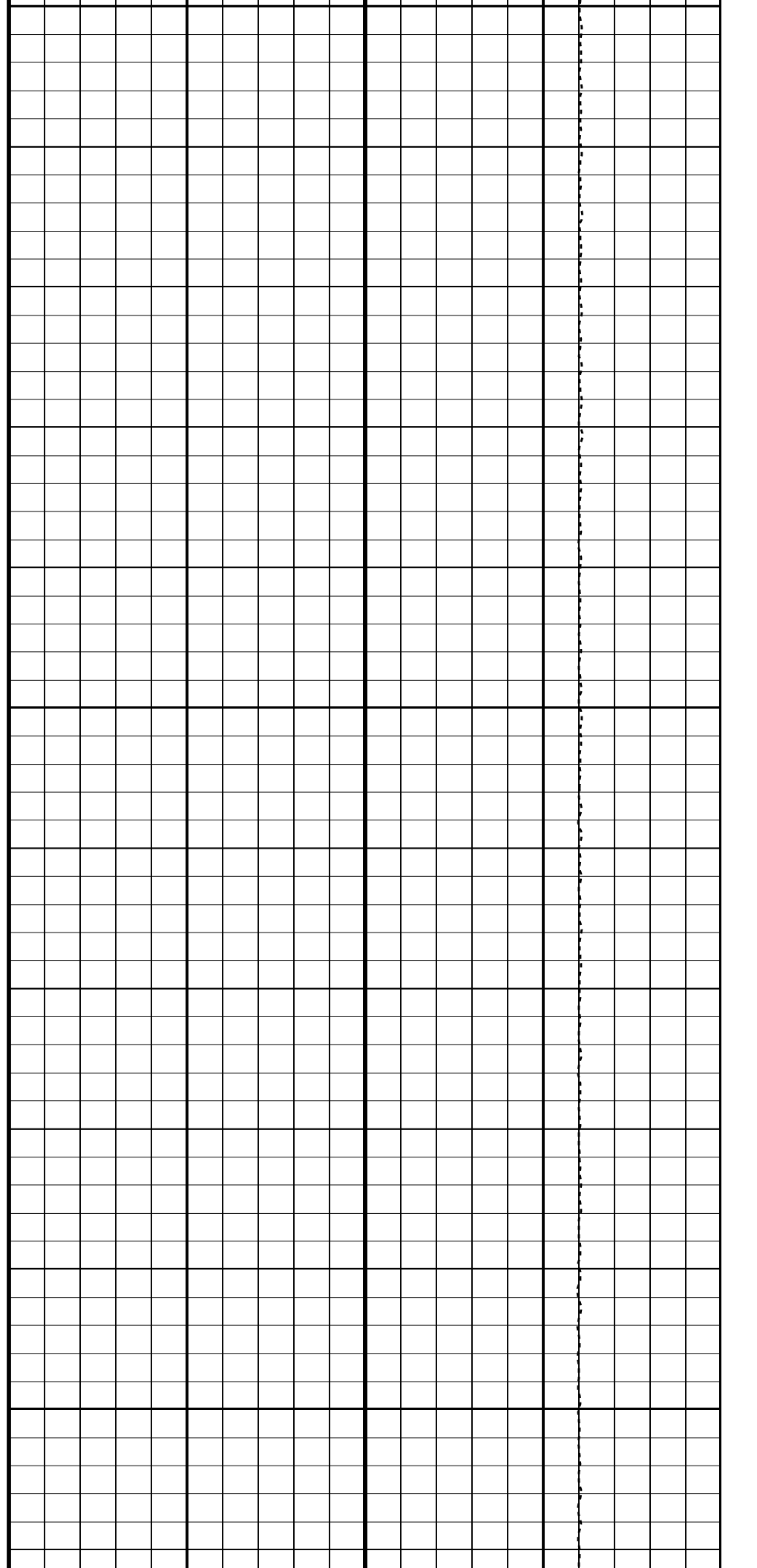
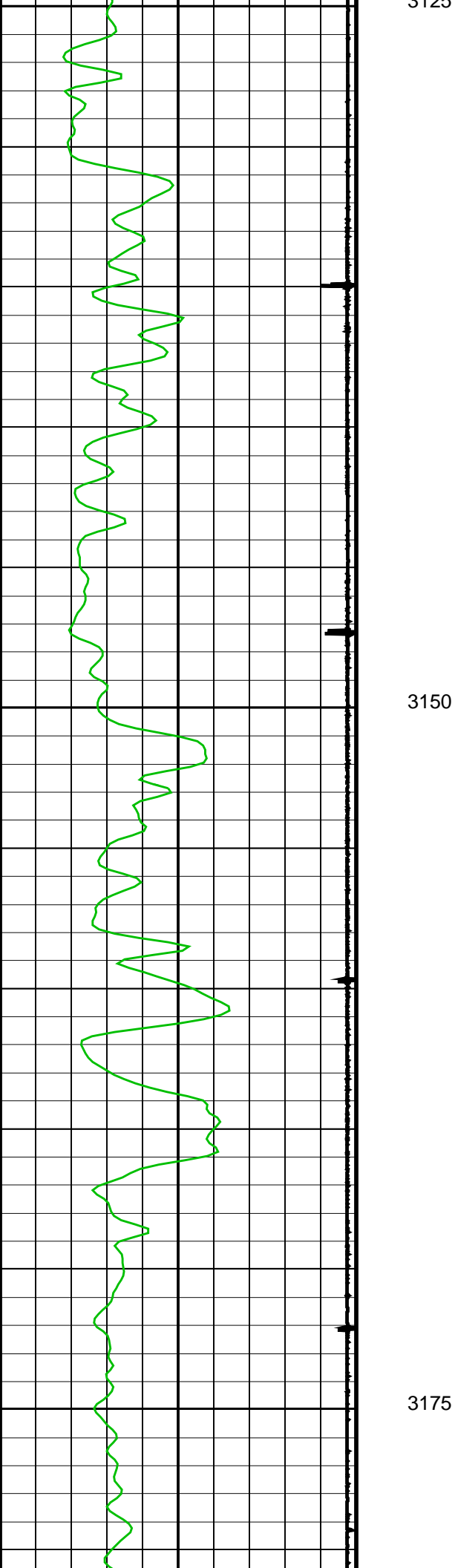


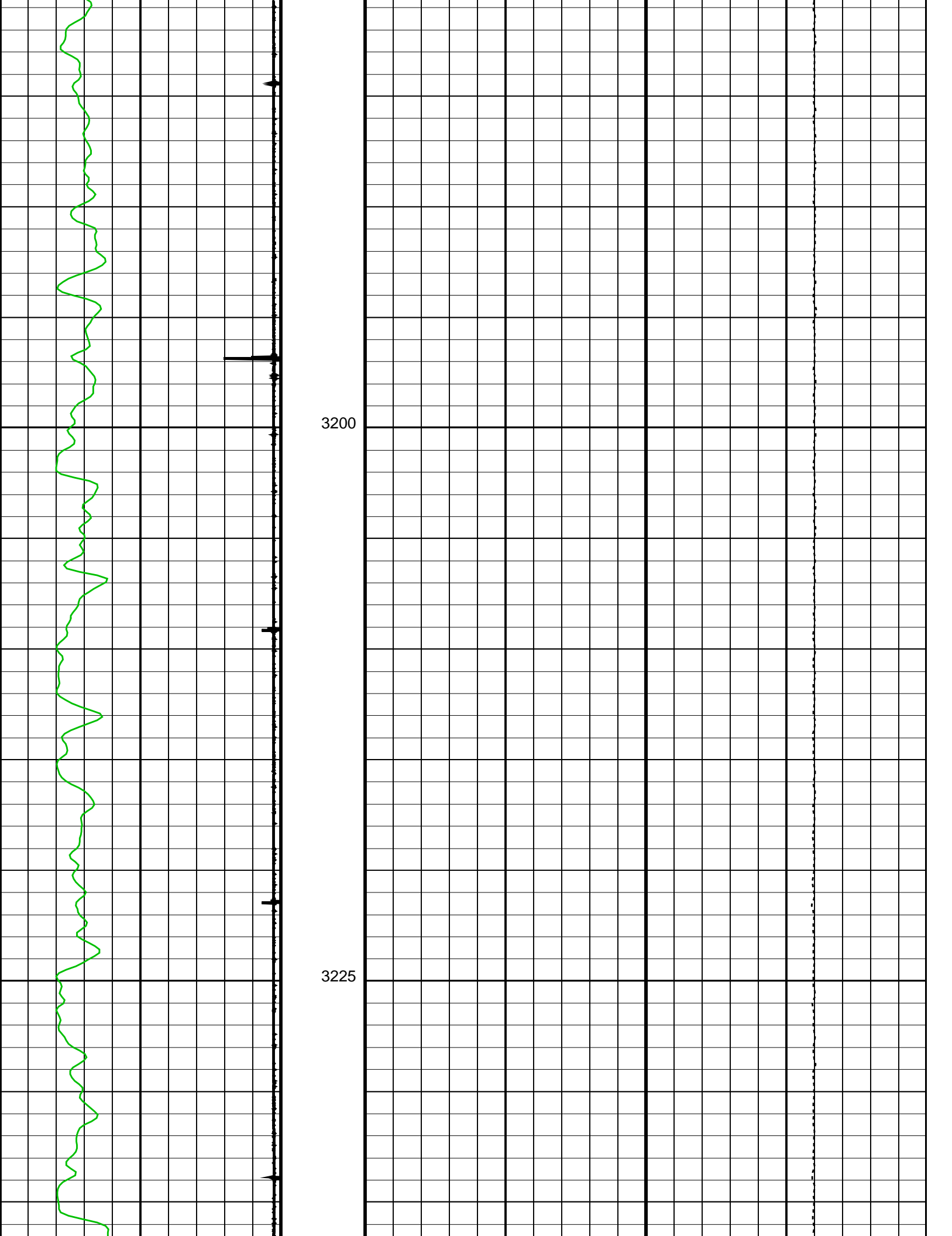


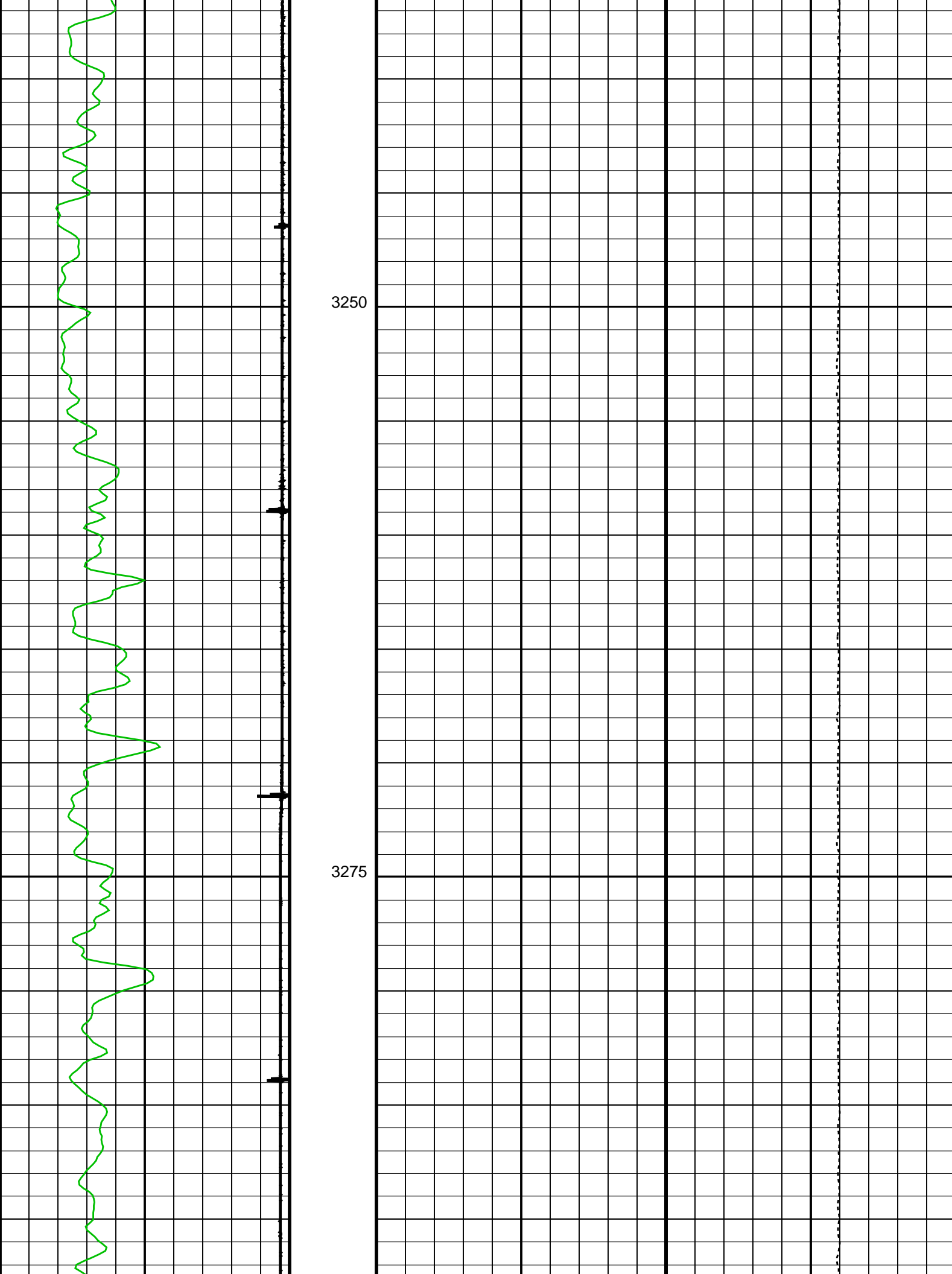


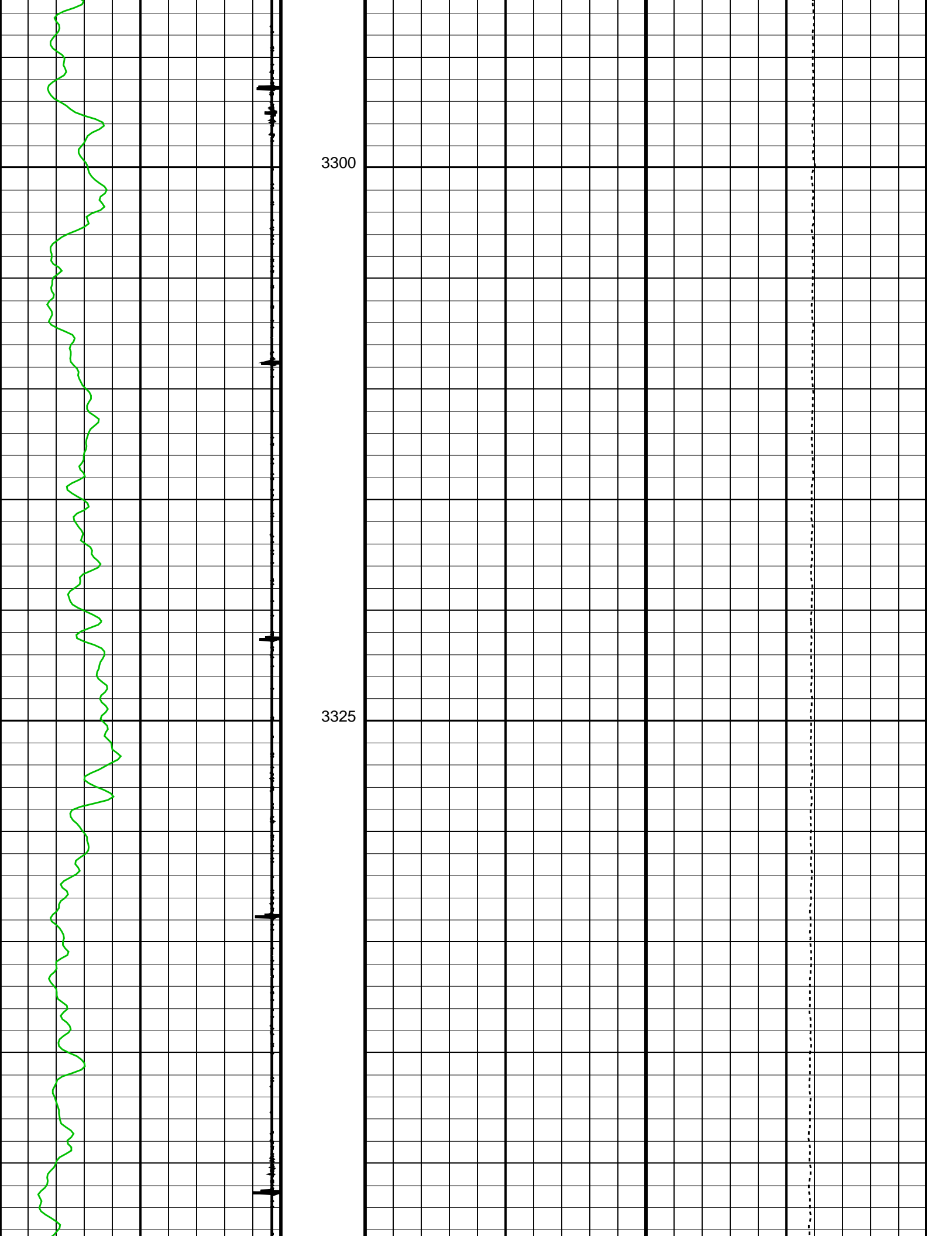


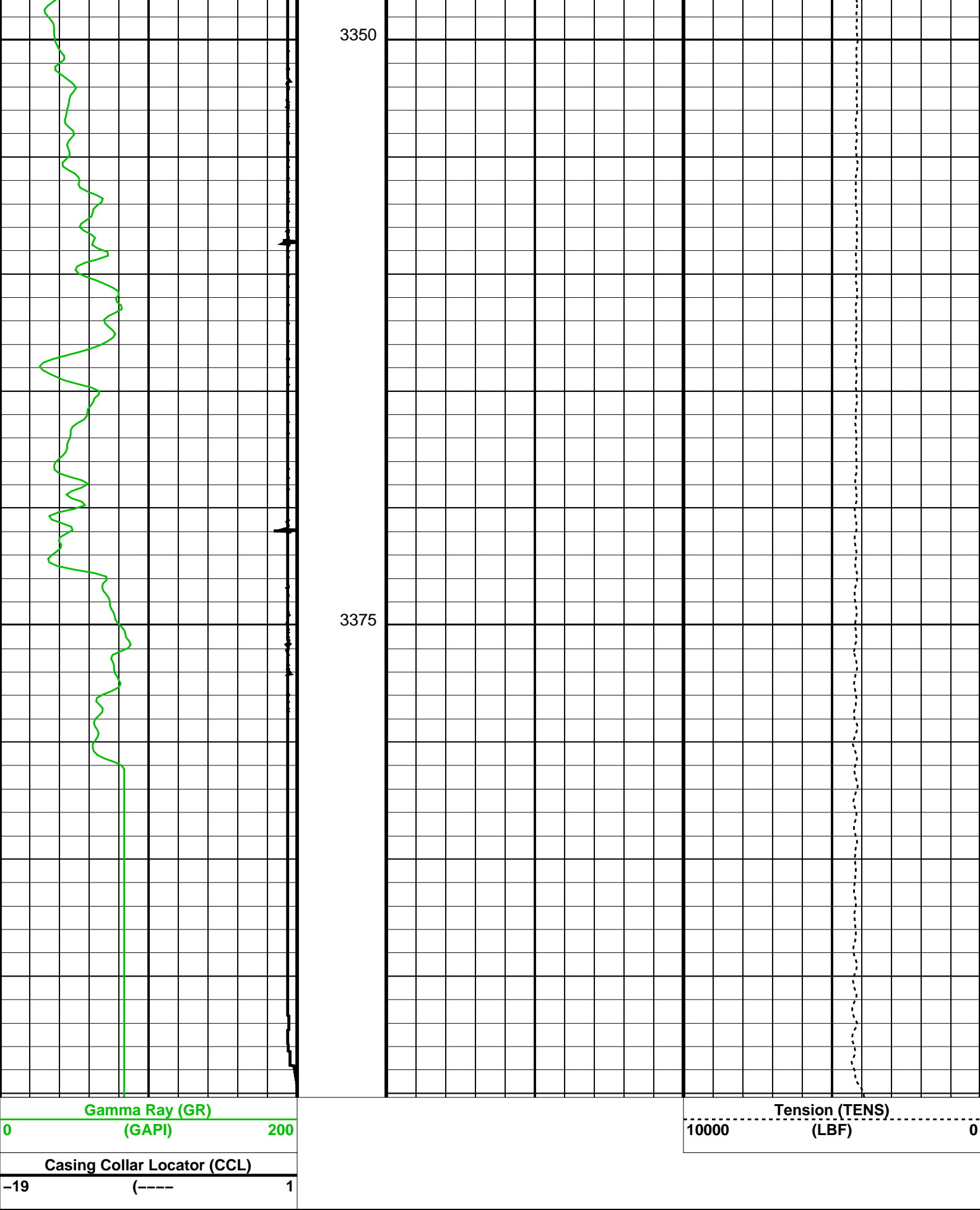












Parameters		
DLIS Name	Description	Value




Input DLIS Files						
DEFAULT	USI_SONIC_024LUP	FN:29	PRODUCER	07-Dec-2004 18:53	3395.0 M	2352.9 M
Output DLIS Files						
DEFAULT	USI_SONIC_032PUP	FN:45	PRODUCER	07-Dec-2004 21:09		
BACKUP	USI_SONIC_032PUP	FN:46	PRODUCER	07-Dec-2004 21:09		



MAXIS Field Log

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
Scintillation Gamma-Ray – N Wellsite Calibration – Detector Calibration							
Before: 5-Dec-2004 22:03							
Gamma Ray (Jig – Bkg)	167.0	N/A	167.0	N/A	N/A	15.18	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

Scintillation Gamma-Ray – N / Equipment Identification			
Primary Equipment:			
Scintillation Gamma Cartridge	SGC – TB	9901	
Scintillation Gamma Detector	SGD – TAA	21422	
Auxiliary Equipment:			
Scintillation Gamma Housing	SGH – K	2755	
Gamma Source Radioactive	GSR – U/Y		

Scintillation Gamma-Ray – N Wellsite Calibration																	
Detector Calibration																	
Phase	Gamma Ray Background			GAPI	Value	Phase	Gamma Ray (Jig – Bkg)			GAPI	Value	Phase	Gamma Ray (Calibrated)			GAPI	Value
Before					4.640	Before					167.0	Before					165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)				151.8 (Minimum)	167.0 (Nominal)	182.2 (Maximum)				150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)		
Before: 5-Dec-2004 22:03																	

Company: **Origin Energy Resources Ltd.**

Schlumberger

Well: **Trefoil-1**

Field: **Trefoil**

Rig: **ENSCO 102**

Country: **Australia**

USI-CBL-VDL-GR-CC
Cement Evaluation Log
1:200 Scale