Schlumberger

Company: OXY US LA BASIN

Well: DOM-002
Field: DOMINGUEZ
County: LOS ANGELES State: CALIFORNIA

ULTRASONIC IMAGER TOOL
CEMENT BOND LOG
GAMMA RAY TIE-IN

Received –
OCT 09 2013

County: LOS ANGELES
Field: DOMINGUEZ
Location: SURFACE LAMBERT COORDIN
Well: DOM-002
Company: OXY US LA BASIN

LOCATION

SURFACE LAMBERT COORDINATES
N : 4062757.10
E : 4214076.00

Elev.: K.B. 193.81 ft
G.L. 168.72 ft
D.F.

Permanent Datum: GROUND LEVEL Elev.: 168.72 ft
Log Measured From: KELLY BUSHING 25.09 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
03727148	33	3S	13W

Logging Date	8-May-2011		
Run Number	FOUR		
Depth Driller	13182 ft		
Schlumberger Depth	12570 ft		
Bottom Log Interval	12570 ft		
Top Log Interval	9600 ft		
Casing Fluid Type	8% KCL GELITE / SP 101		
Salinity	39000 ppm		
Density	13.2 lbm/gal		
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size	8.500 in		
From	13182 ft		
To	10000 ft		
Casing/Tubing Size	7.000 in		
Weight	32 lbm/ft		
Grade	K55		
From	13182 ft		
To	9647 ft		
Maximum Recorded Temperatures	194 degF		
Logger On Bottom / Time	8-May-2011	12:32	
Unit Number / Location	2220	LONG BEACH	
Recorded By	S.CORBYN / A.PETER		
Witnessed By	RON MORSE		

		Run 1	Run 2
PVT DATA	Oil Density		
	Water Salinity	39000 ppm	
	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		

Run 3

Run 4

DEPTH SUMMARY LISTING

Date Created: 8-MAY-2011 14:40:55

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46ZV XXS
Serial Number:	7024	Serial Number:	6	Serial Number:	708230
Calibration Date:	27-Apr-2011	Calibration Date:	27-APR-2011	Length:	16000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	80698	Conveyance Method:	Wireline
Calibration Cable Type:	7-46ZV XS	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-5	Calibration RMS:	35		
Wheel Correction 2:	-5	Calibration Peak Error:	70		

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	LATEROLOG RESISTIVITY
Reference Log Run Number:	THREE
Reference Log Date:	28-April-2011
Subsequent Trip Down Log Correction:	20.00 FT

Depth Control Remarks

1. All Schlumberger depth control procedures followed
2. IDW used as primary depth reference, Z-Chart used as secondary
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: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
NO PACKOFF REQUESTED	

MATRIX: SANDSTONE DENSITY: 2.65 G/CC
TOTAL CHLORIDES: 39000 ppm
MAX TEMP: 193.5 DEG F

RIG: H&P 236

THANK YOU FOR USING SCHLUMBERGER!

RUN 1		RUN 2	
SERVICE ORDER #:	BC0R-00169	SERVICE ORDER #:	
PROGRAM VERSION:	19C0-187	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

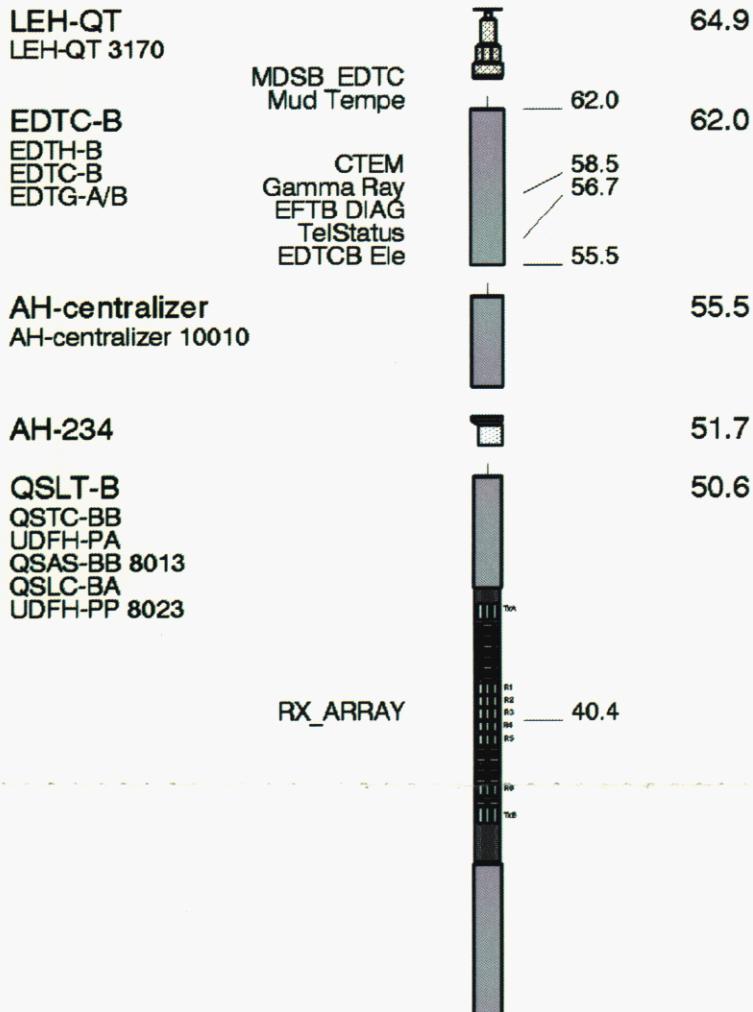
EQUIPMENT DESCRIPTION

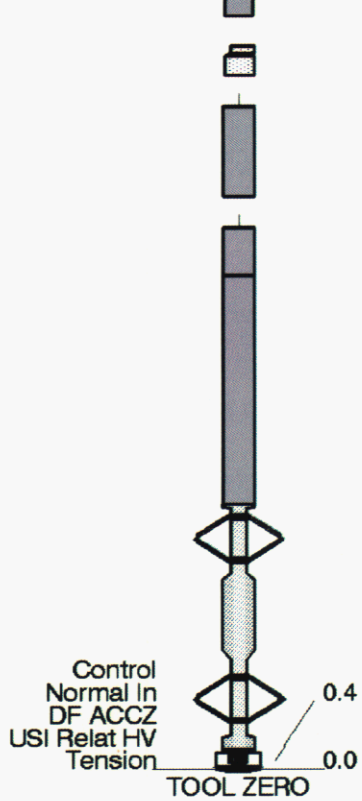
RUN 1 | RUN 2

SURFACE EQUIPMENT

WITM (EDTS)-A

DOWNHOLE EQUIPMENT





MAXIMUM STRING DIAMETER 4.65 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

Correlation

MAXIS Field Log

Input DLIS Files

DEFAULT	USI_SONIC_014LUP	FN:10	PRODUCER	08-May-2011 12:32	12549.5 FT	9581.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_017PUP	FN:13	PRODUCER	08-May-2011 14:32	12569.5 FT	9601.0 FT
CUSTOMER	USI_SONIC_017PUC	FN:14	CUSTOMER	08-May-2011 14:32	12569.5 FT	9601.0 FT

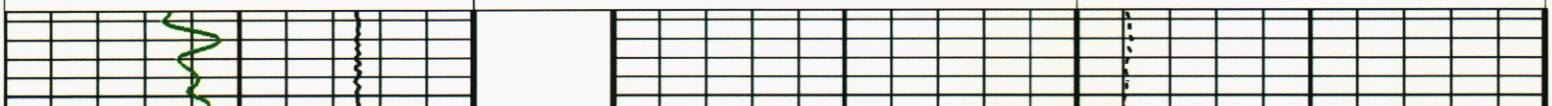
OP System Version: 19C0-187

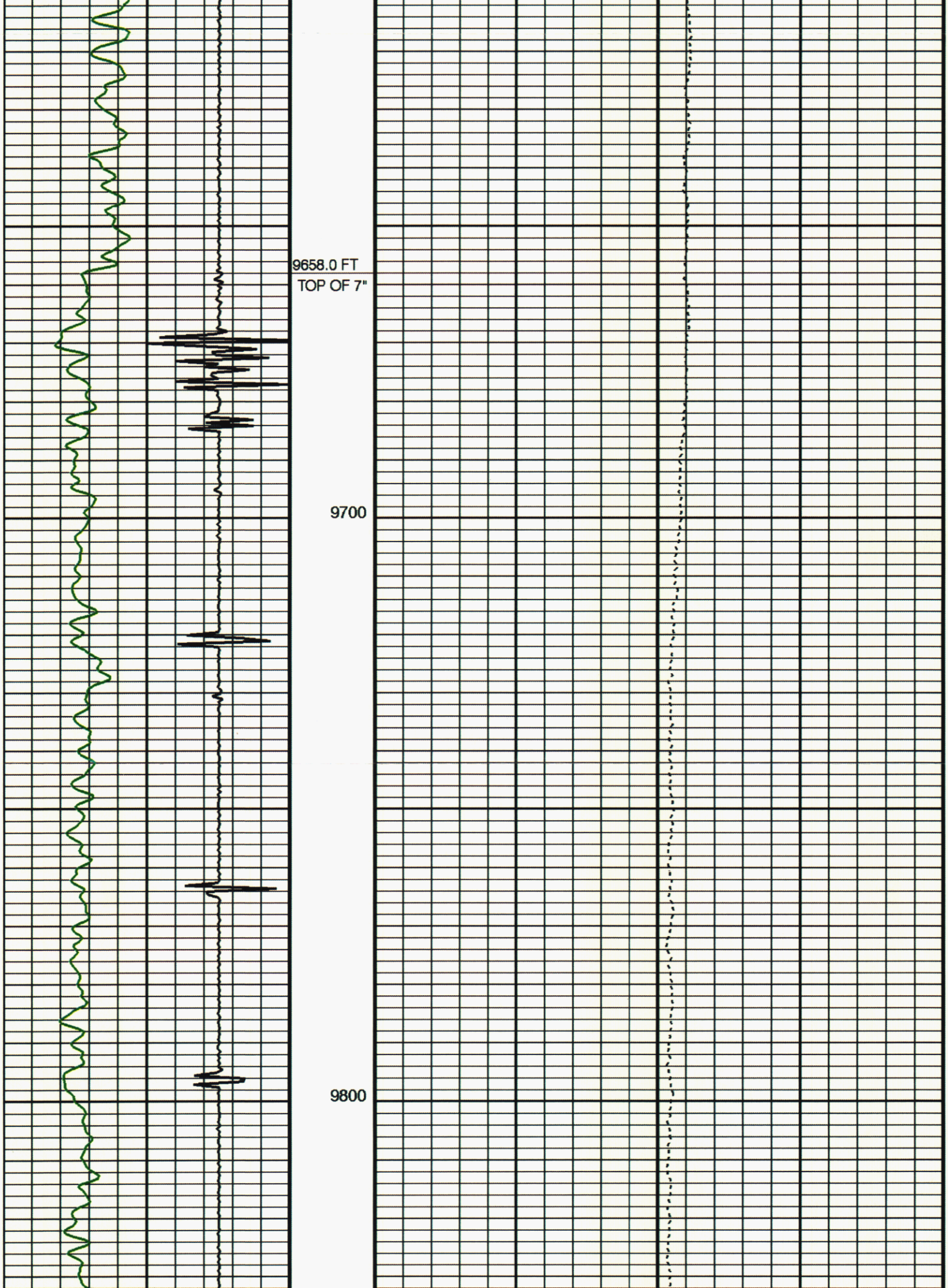
USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

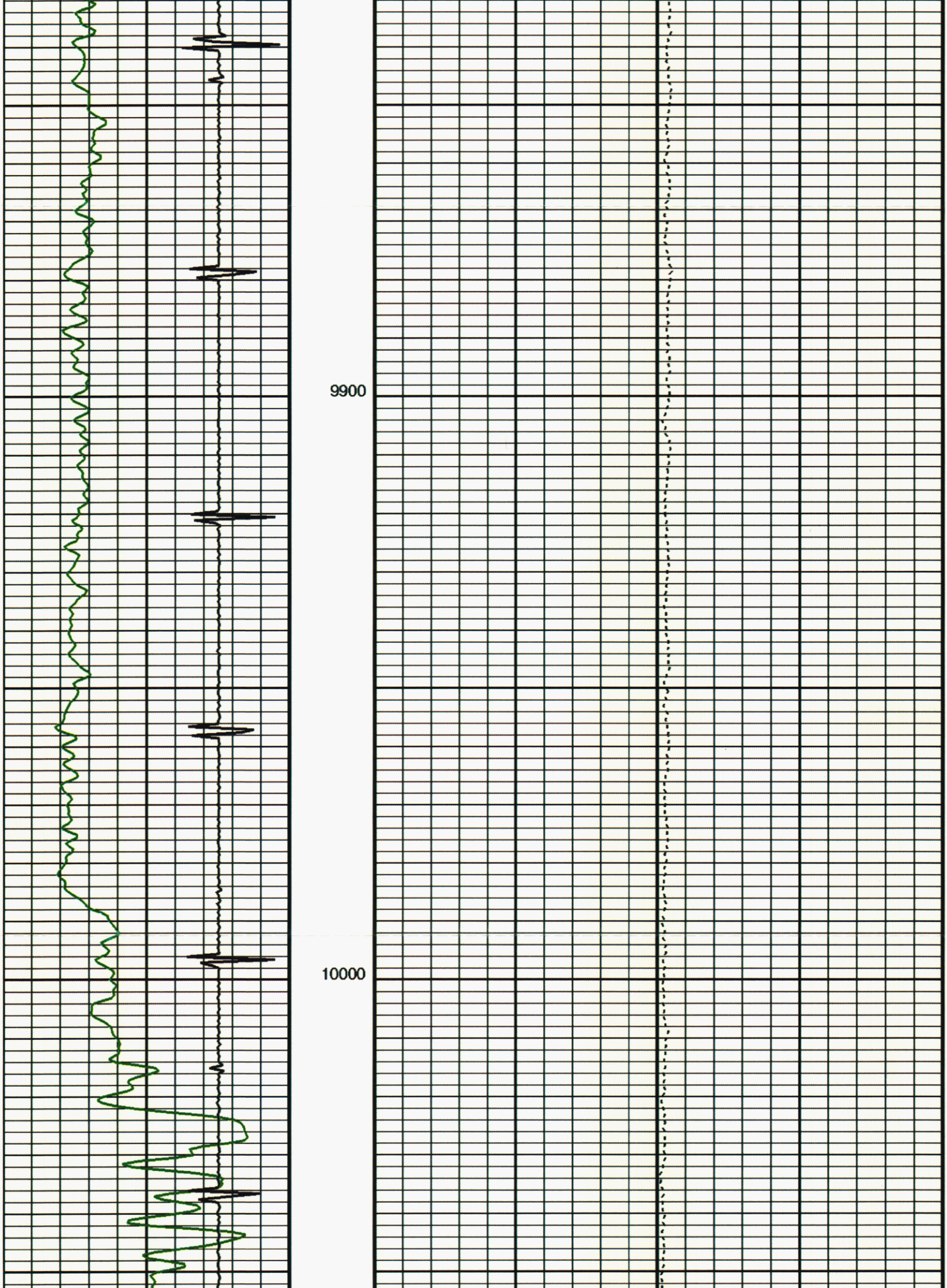
CCL (CCLU)
-30 (----) 10

Gamma Ray (GR_EDTC)
0 (GAPI) 100

Tension (TENS)
5000 (LBF) 0




9658.0 FT
TOP OF 7"
9700
9800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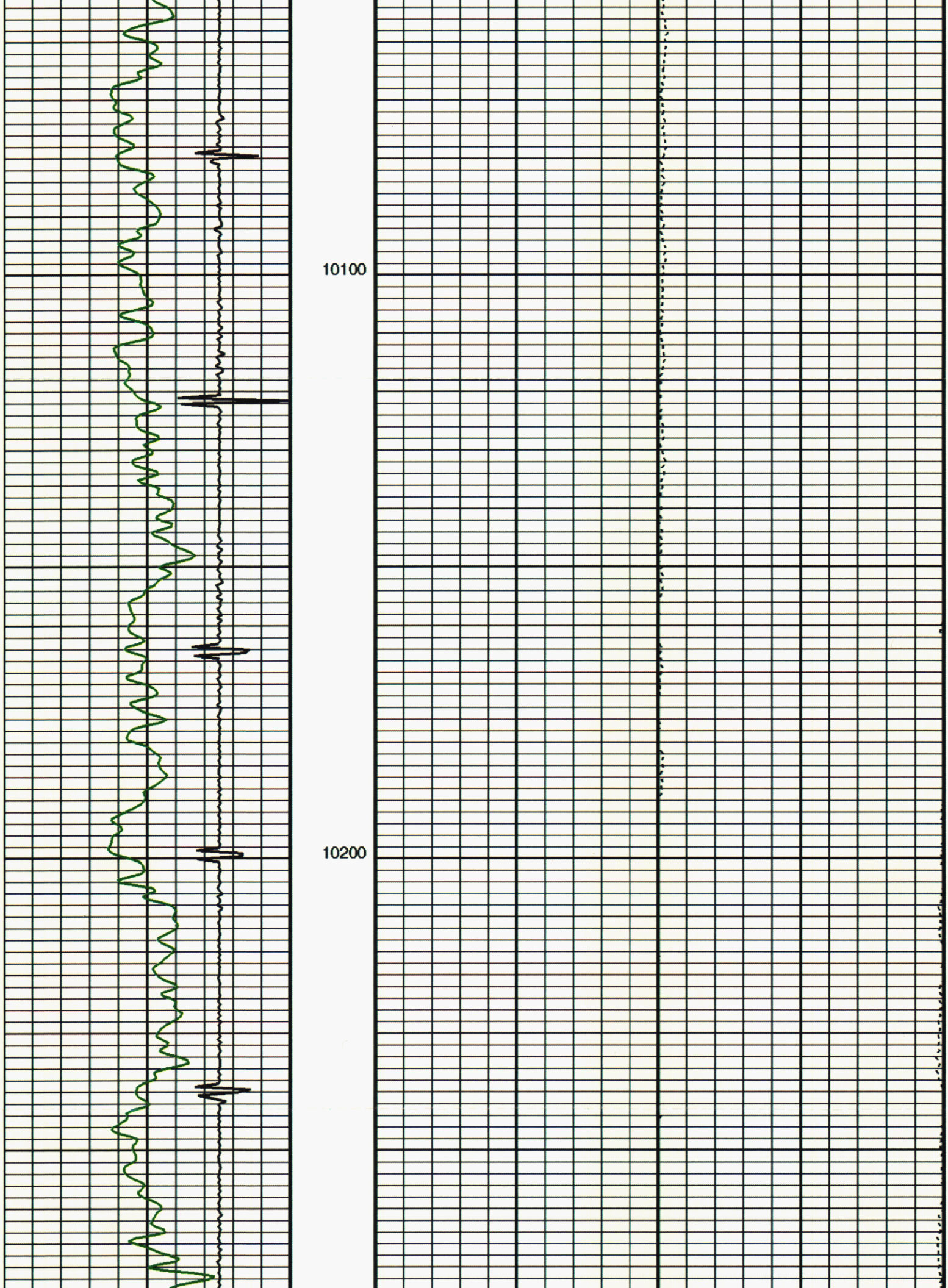
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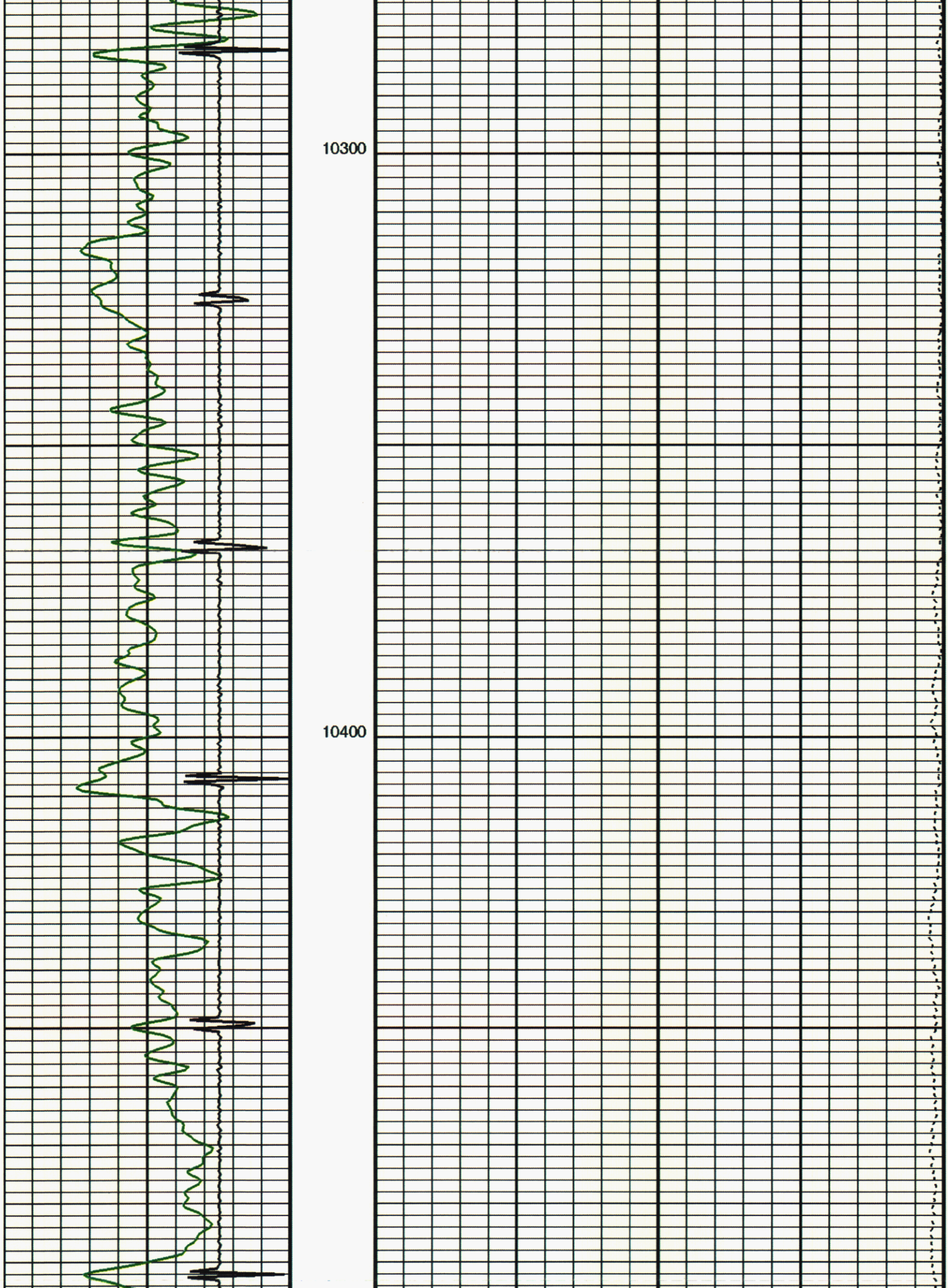
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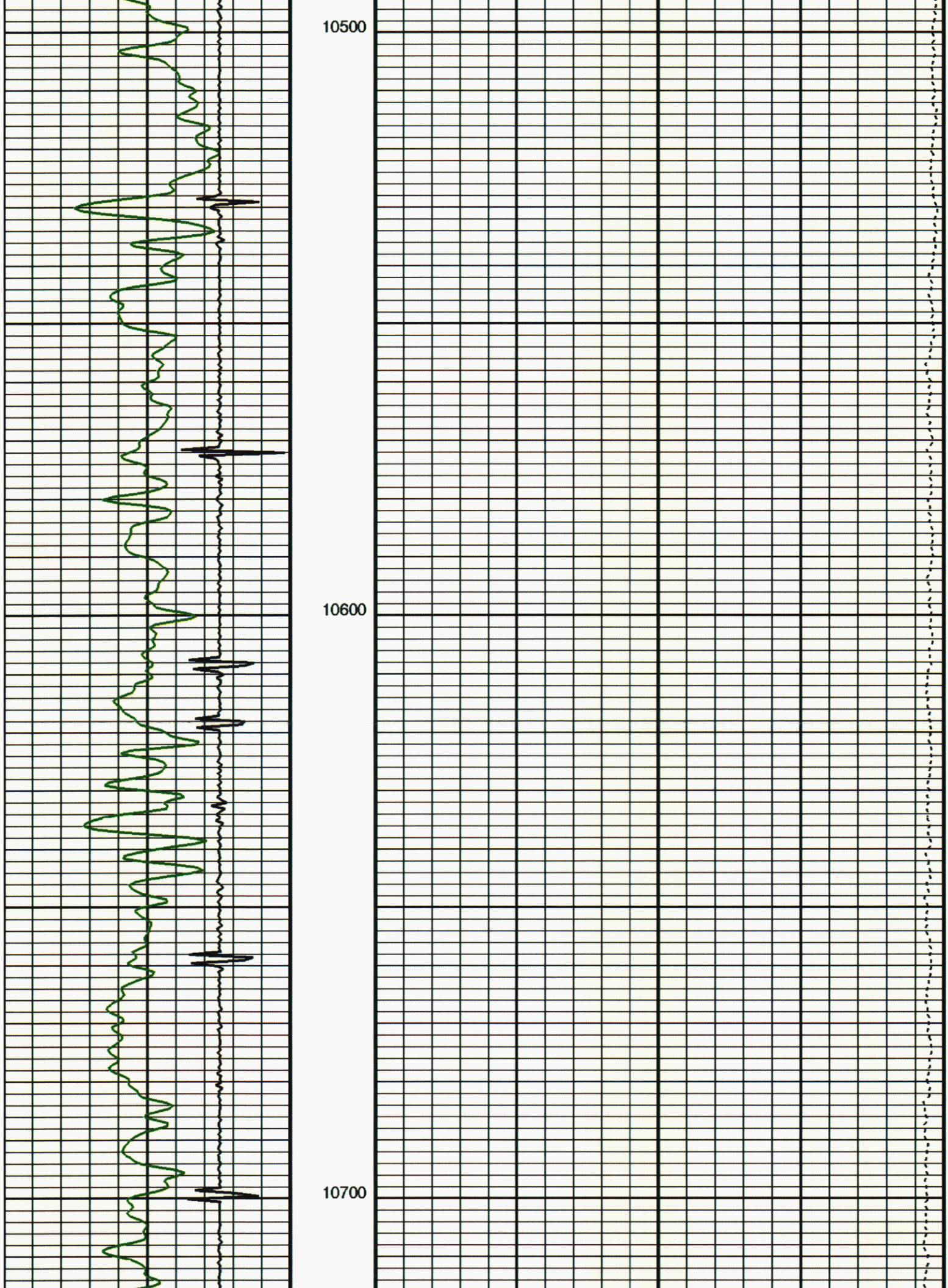
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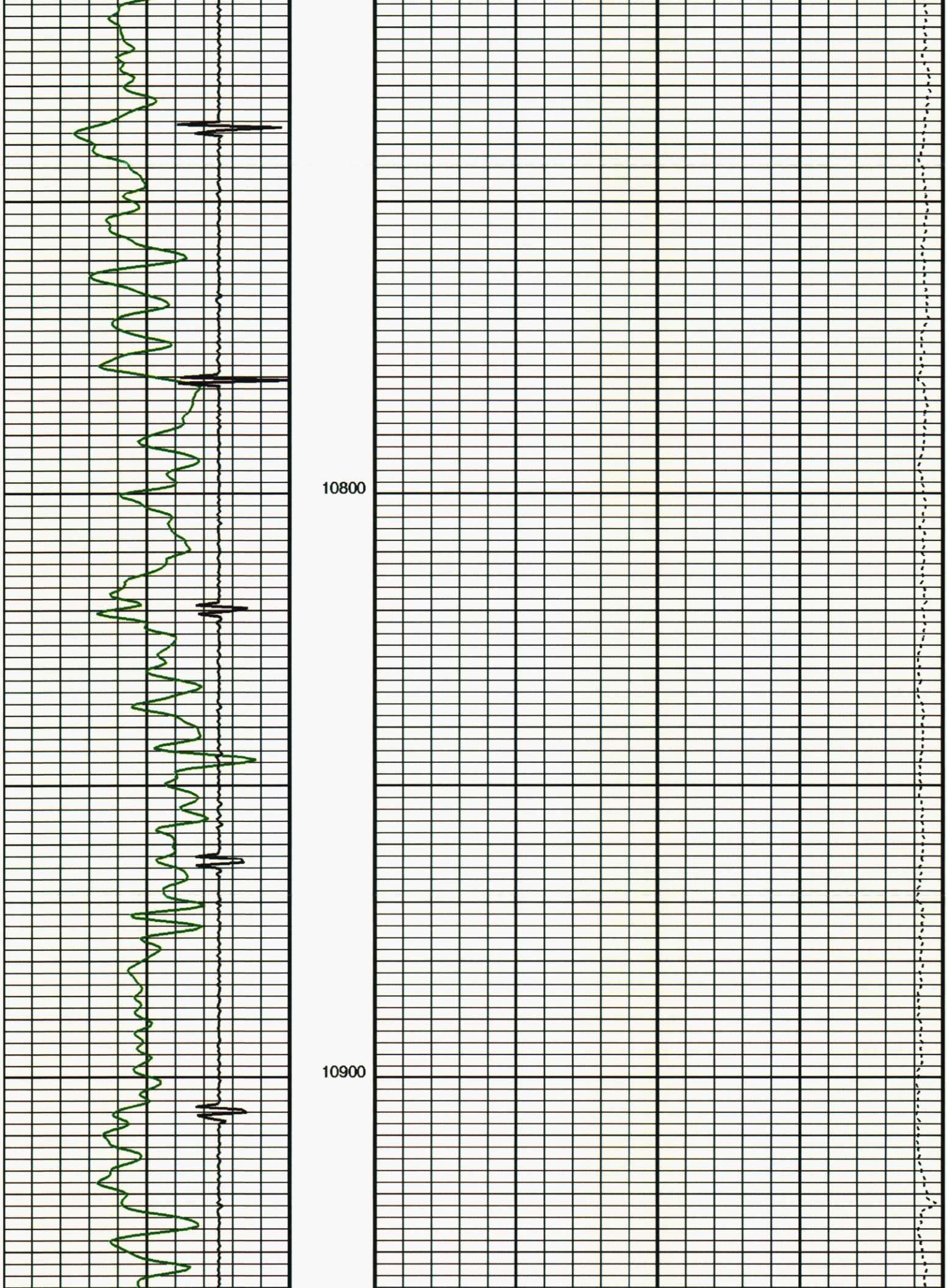
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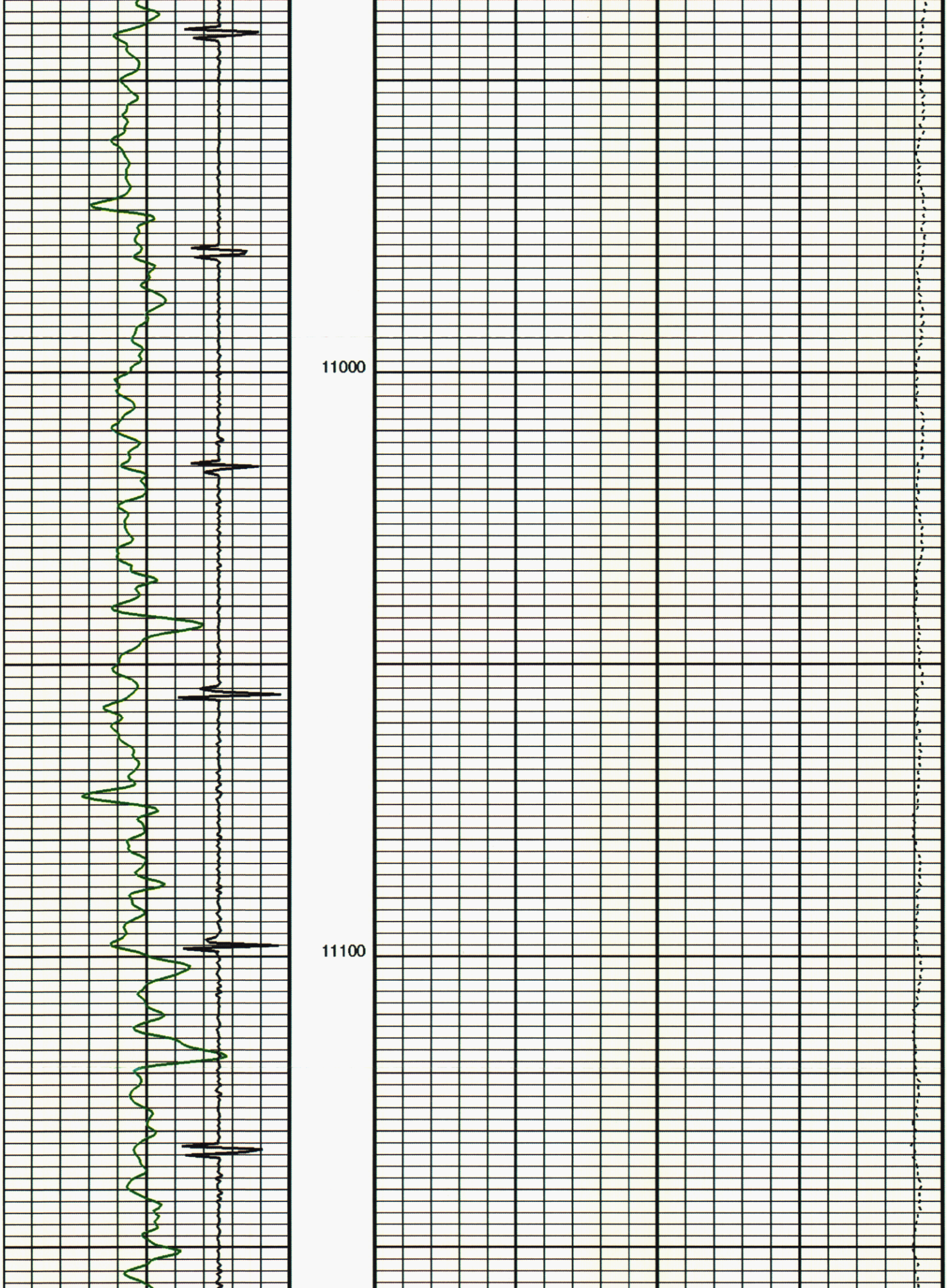
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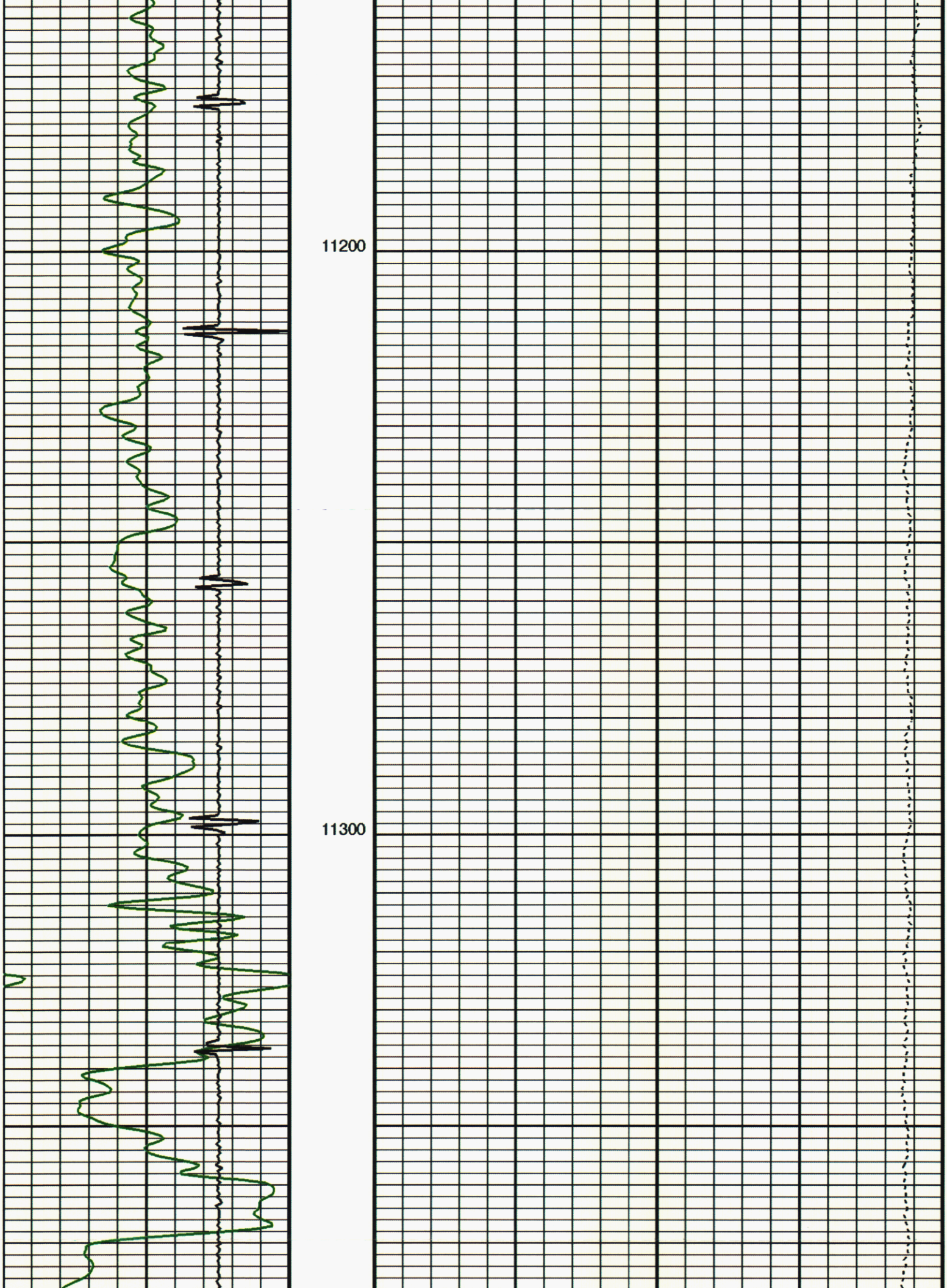
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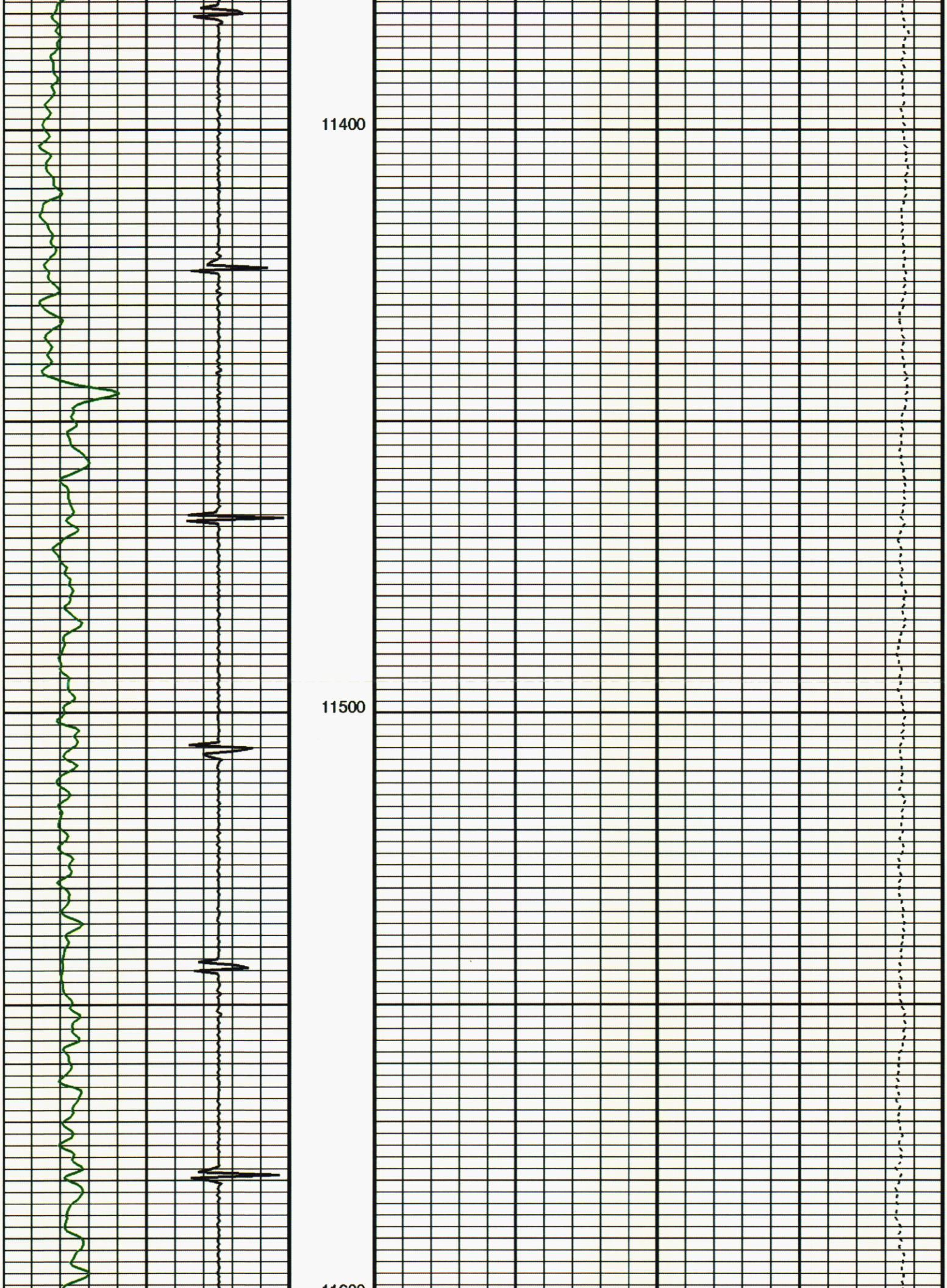
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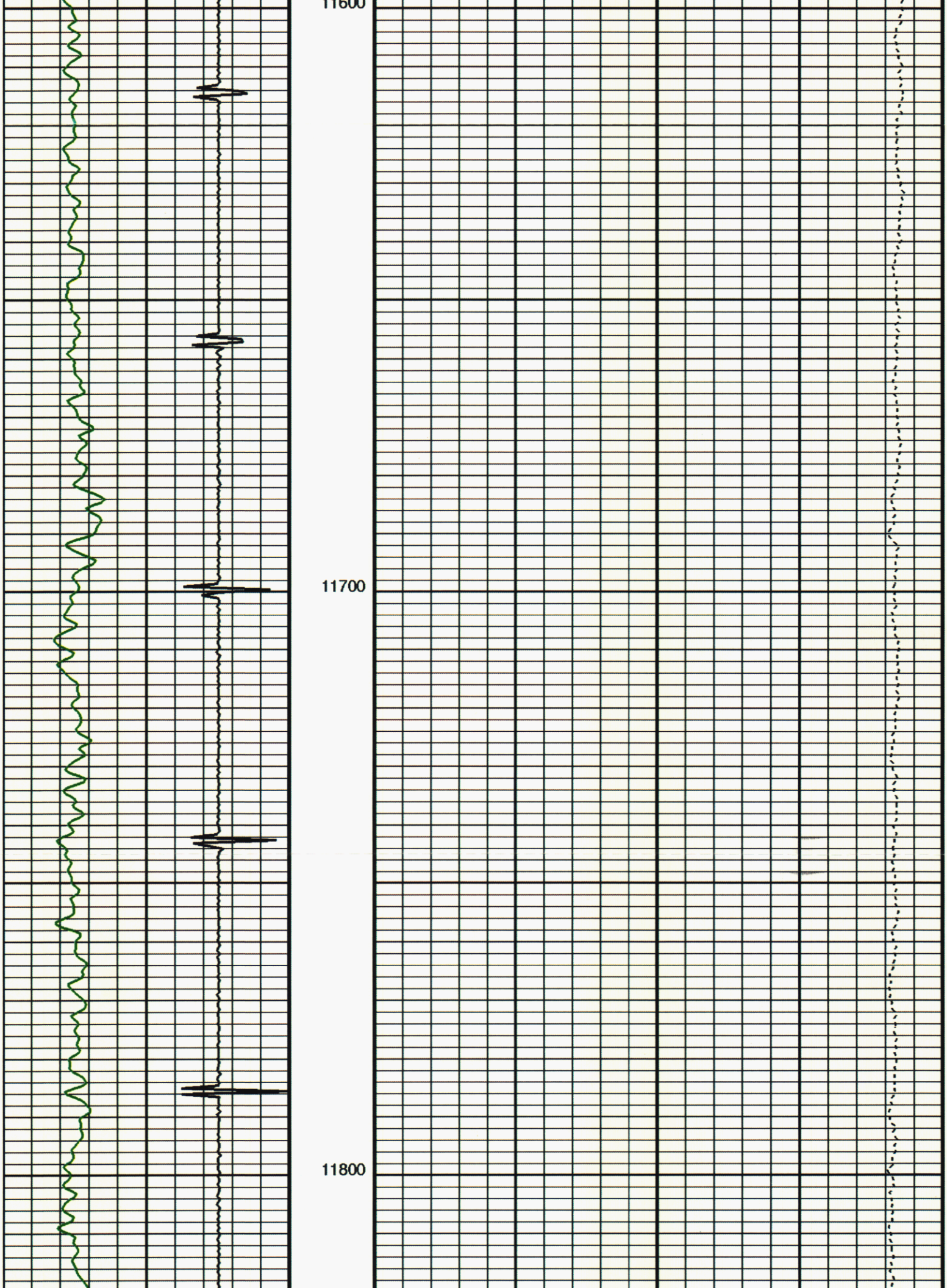
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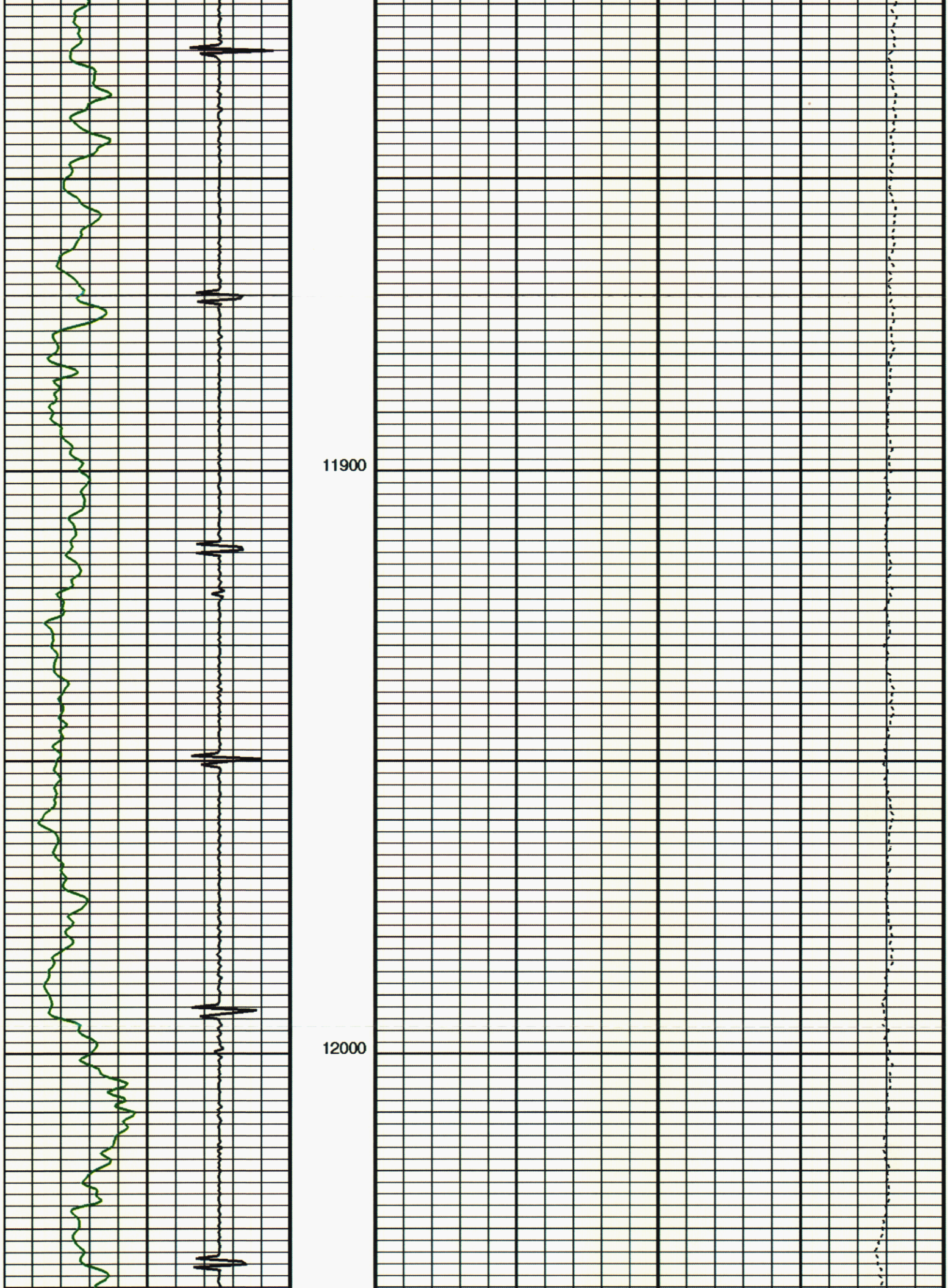
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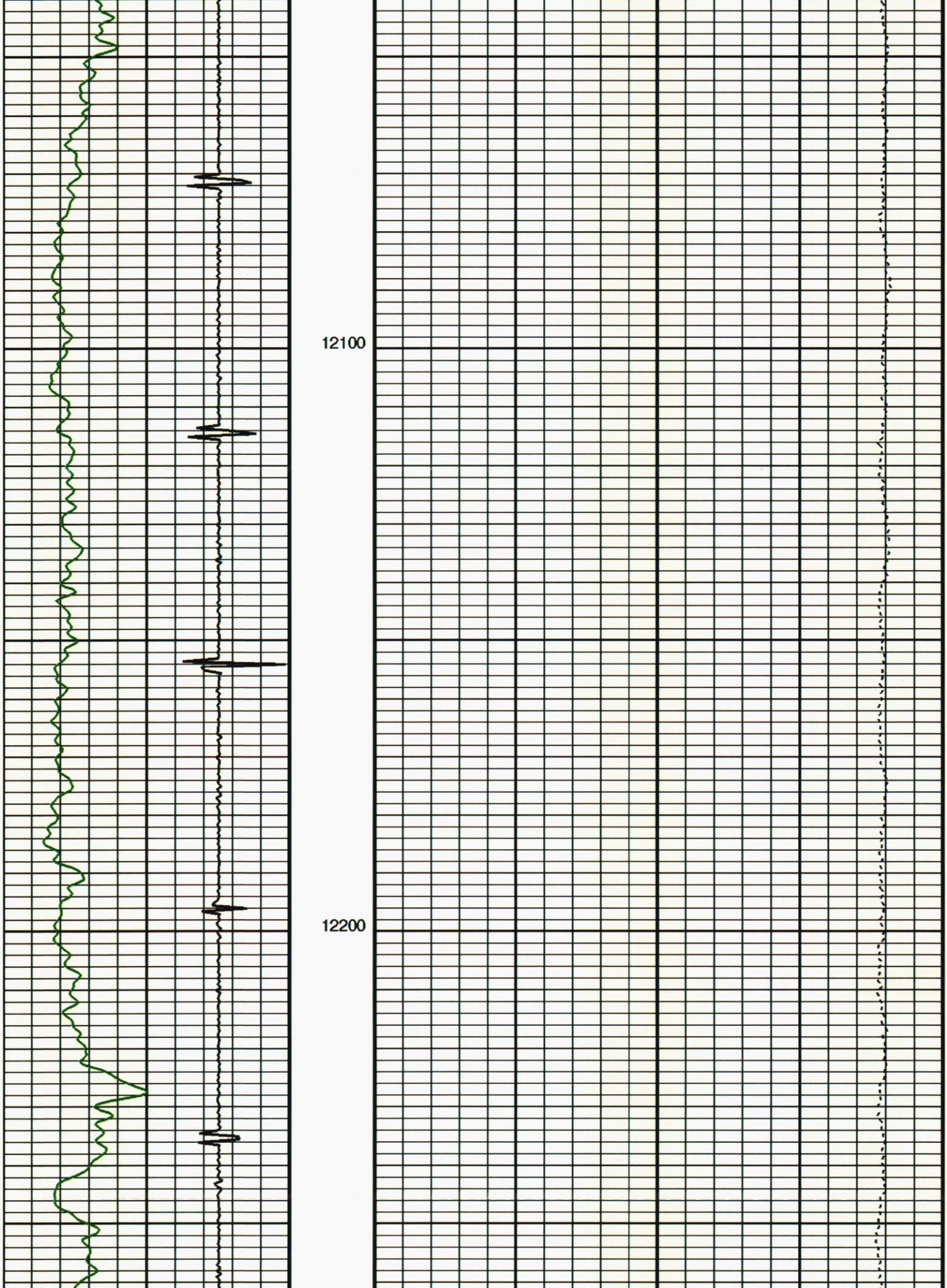
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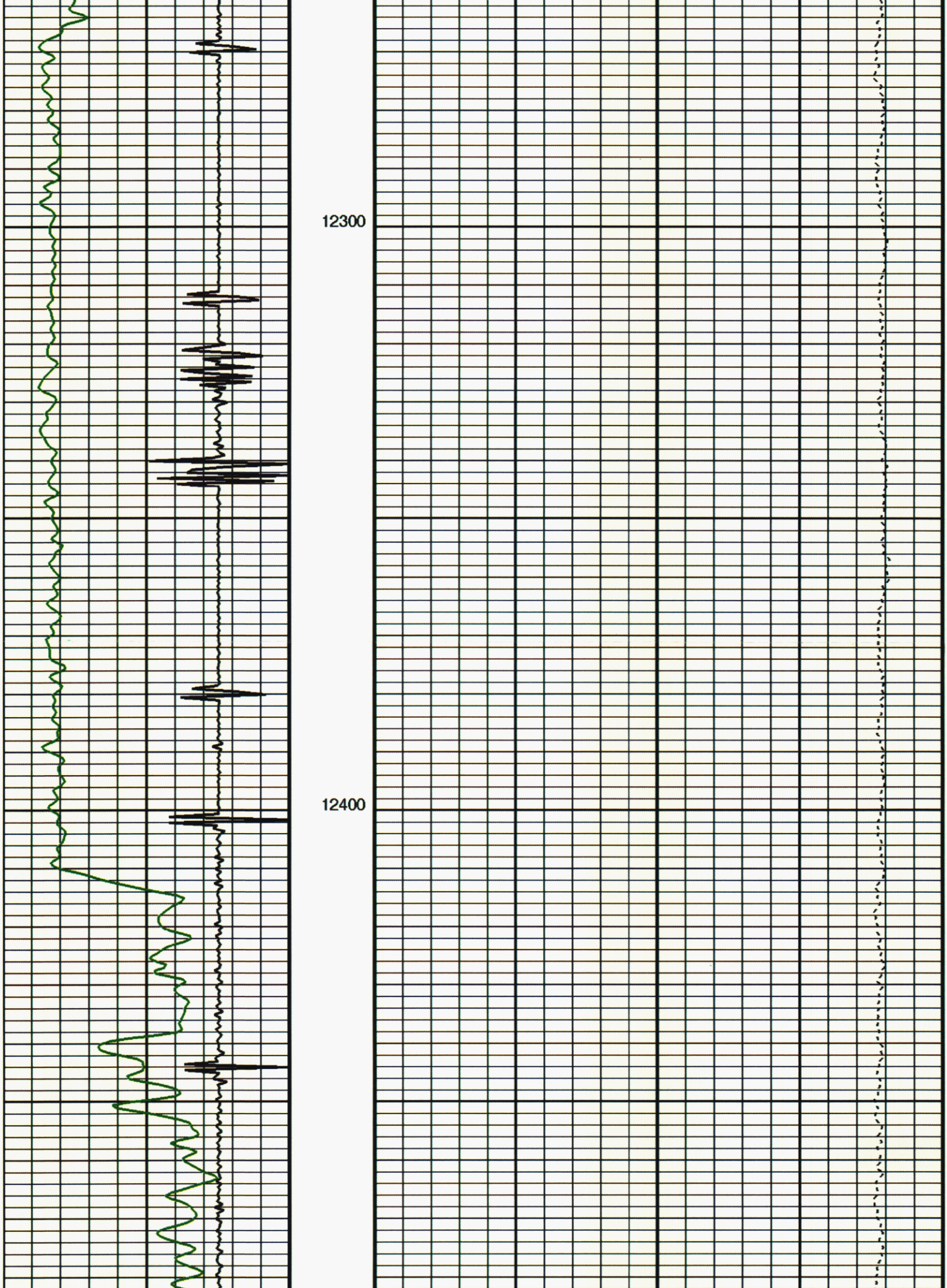
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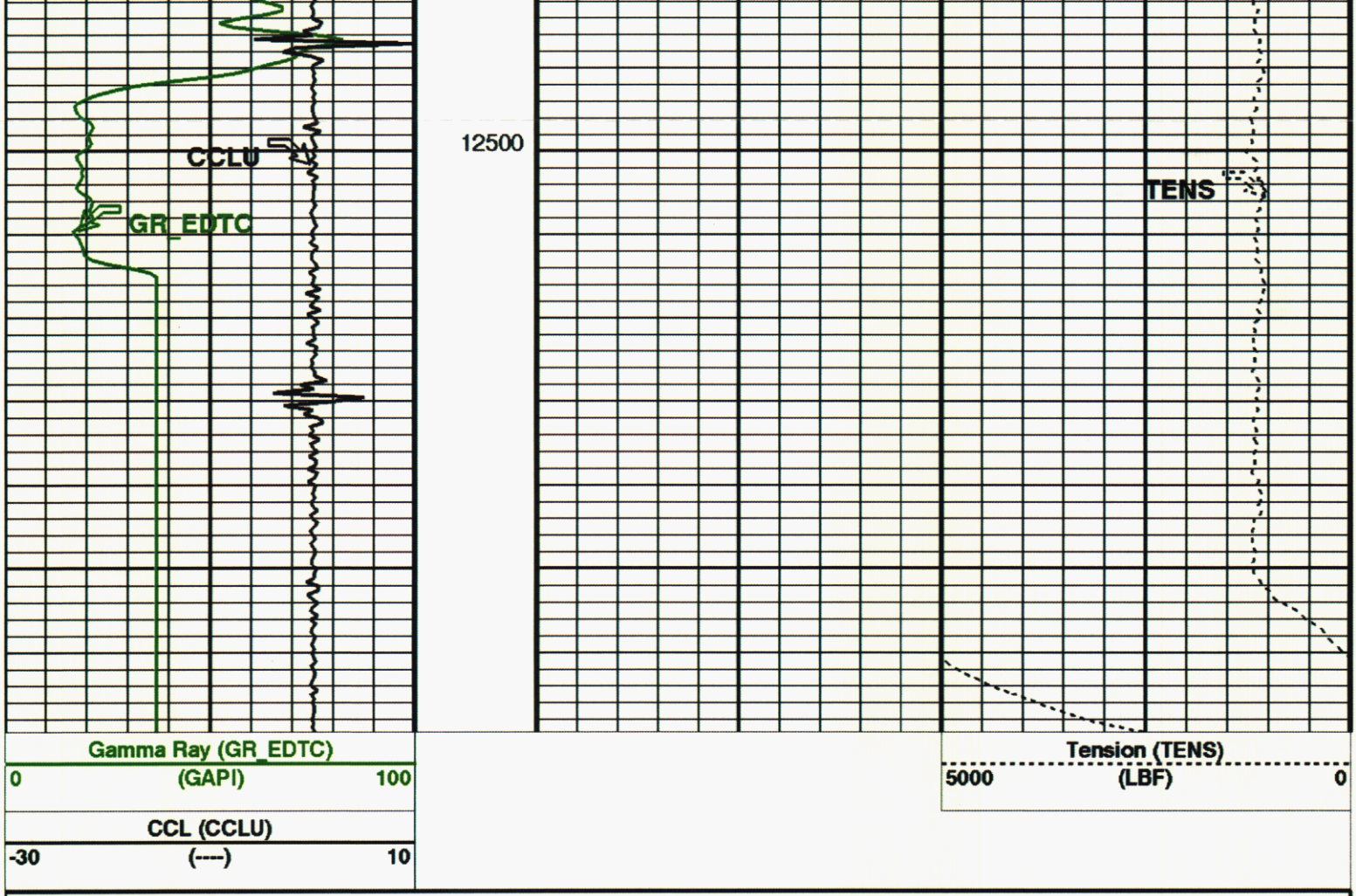


Parameters

DLIS Name	Description	Value	
	USIT-D: Ultrasonic Imaging - D		
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	32	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.094	IN
DFVL	Default Fluid Velocity	190	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	125	V
MW	Mud Weight	13.2	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.453	IN
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_60U_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	27.1647	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
	System and Miscellaneous		
CWEI	Casing Weight	32.00	LB/F
DO	Depth Offset for Playback	20.0	FT
PP	Playback Processing	NORMAL	

Format: GR_CCL Vertical Scale: 5" per 100' Graphics File Created: 08-May-2011 14:32

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

Input DLIS Files

DEFAULT	USI_SONIC_014LUP	FN:10	PRODUCER	08-May-2011 12:32	12549.5 FT	9581.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_017PUP	FN:13	PRODUCER	08-May-2011 14:32
CUSTOMER	USI_SONIC_017PUC	FN:14	CUSTOMER	08-May-2011 14:32

Schlumberger

CBL

MAXIS Field Log

Company: OXY US LA BASIN

Well: DOM-002

Input DLIS Files

DEFAULT	USI_SONIC_014LUP	FN:10	PRODUCER	08-May-2011 12:32	12549.5 FT	9581.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_017PUP	FN:13	PRODUCER	08-May-2011 14:32	12569.5 FT	9601.0 FT
CUSTOMER	USI_SONIC_017PUC	FN:14	CUSTOMER	08-May-2011 14:32	12569.5 FT	9601.0 FT

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

PIP SUMMARY

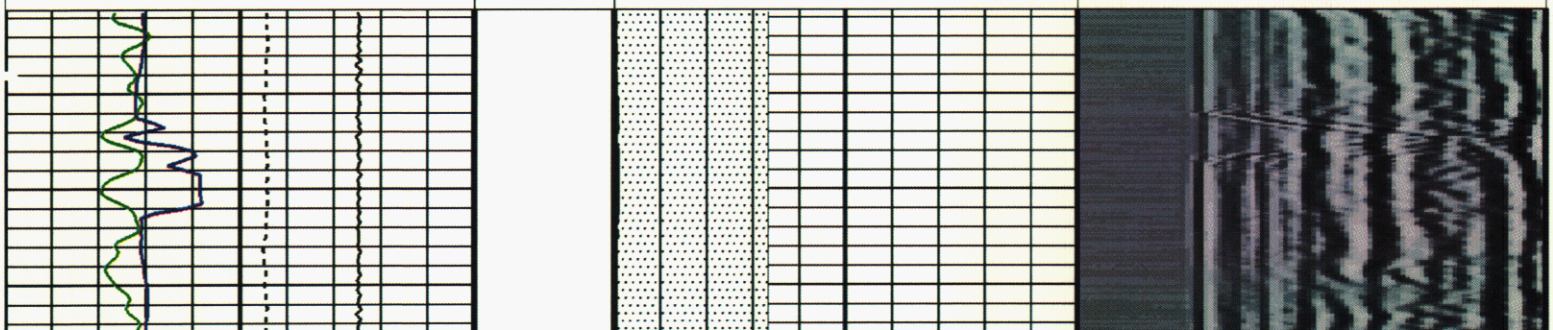
Time Mark Every 60 S

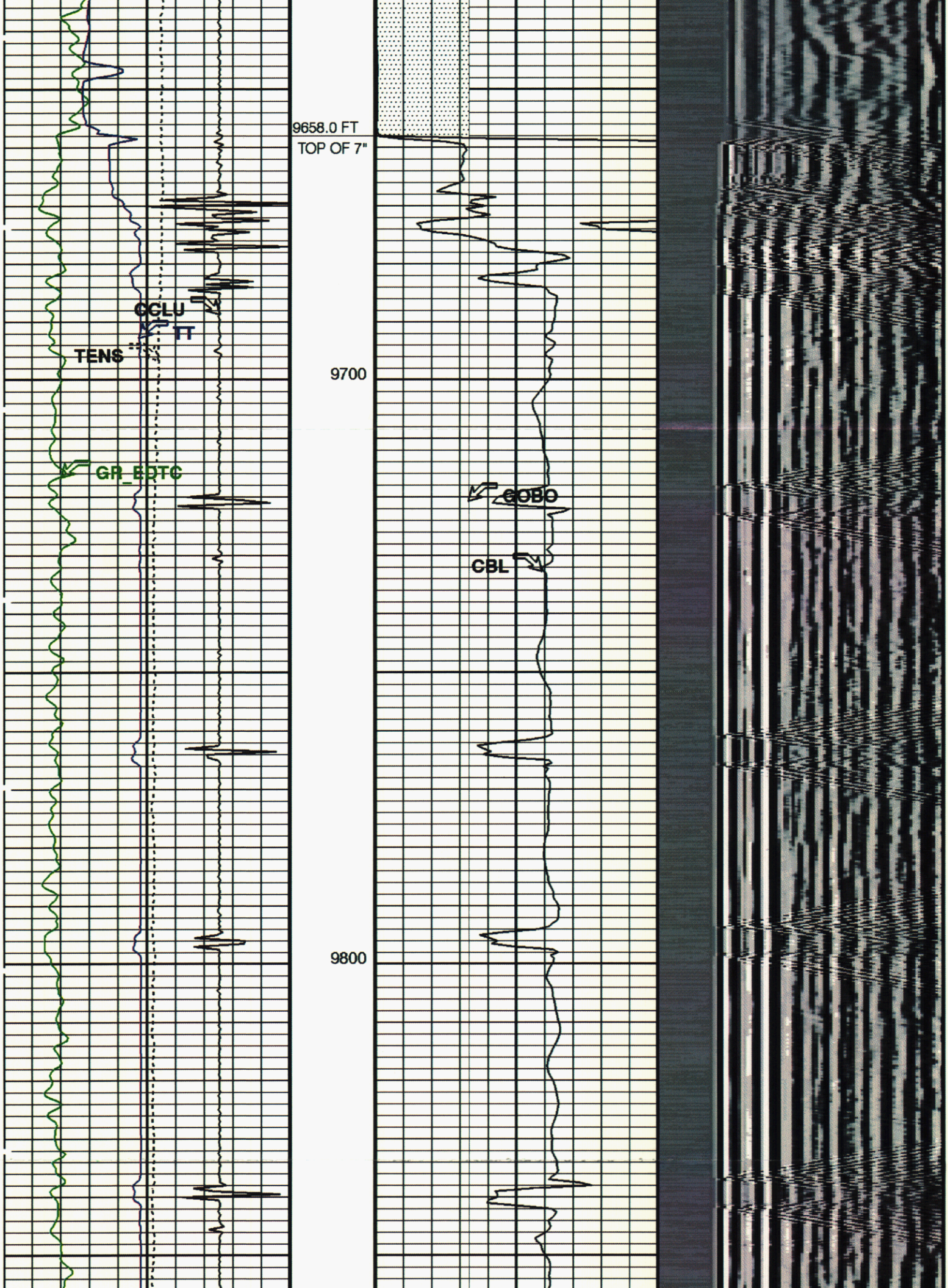
CCL (CCLU)			GoodBond From ACBL to GOBO		
-30	(----)	10			
Transit Time (TT)			Good Bond (GOBO)		
400	(US)	200	0	(MV)	20
Tension (TENS)			CBL Amplitude (CBL)		
10000	(LBF)	0	0	(MV)	100
Gamma Ray (GR_EDTC)			CBL Amplitude (CBL)		
0	(GAPI)	150	0	(MV)	20

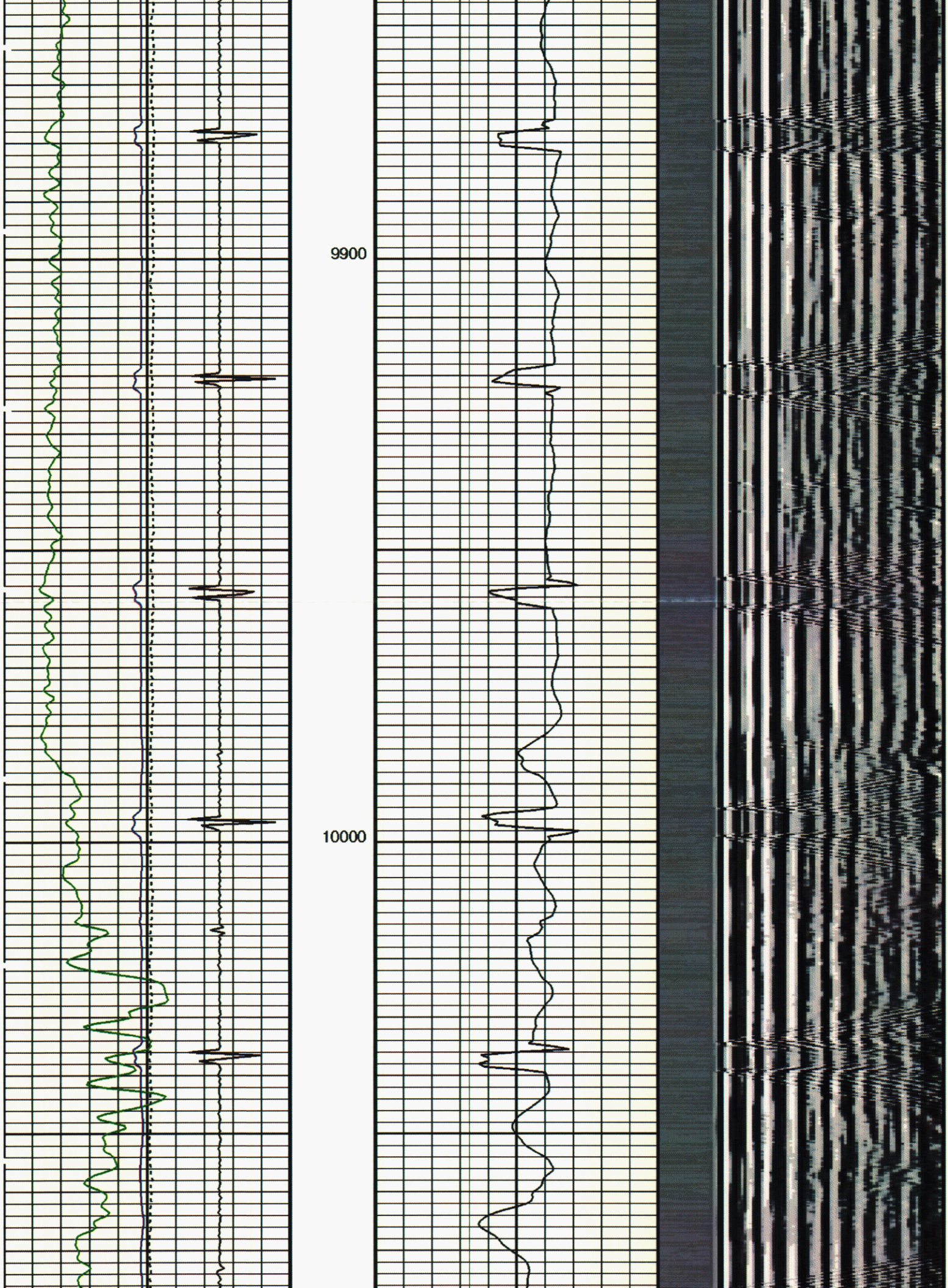
Min Amplitude Max

VDL VariableDensity (VDL)

200 (US) 1200




9658.0 FT
TOP OF 7"
CCLU
TT
TENS
9700
GR_EDTC
GOBO
CBL
9800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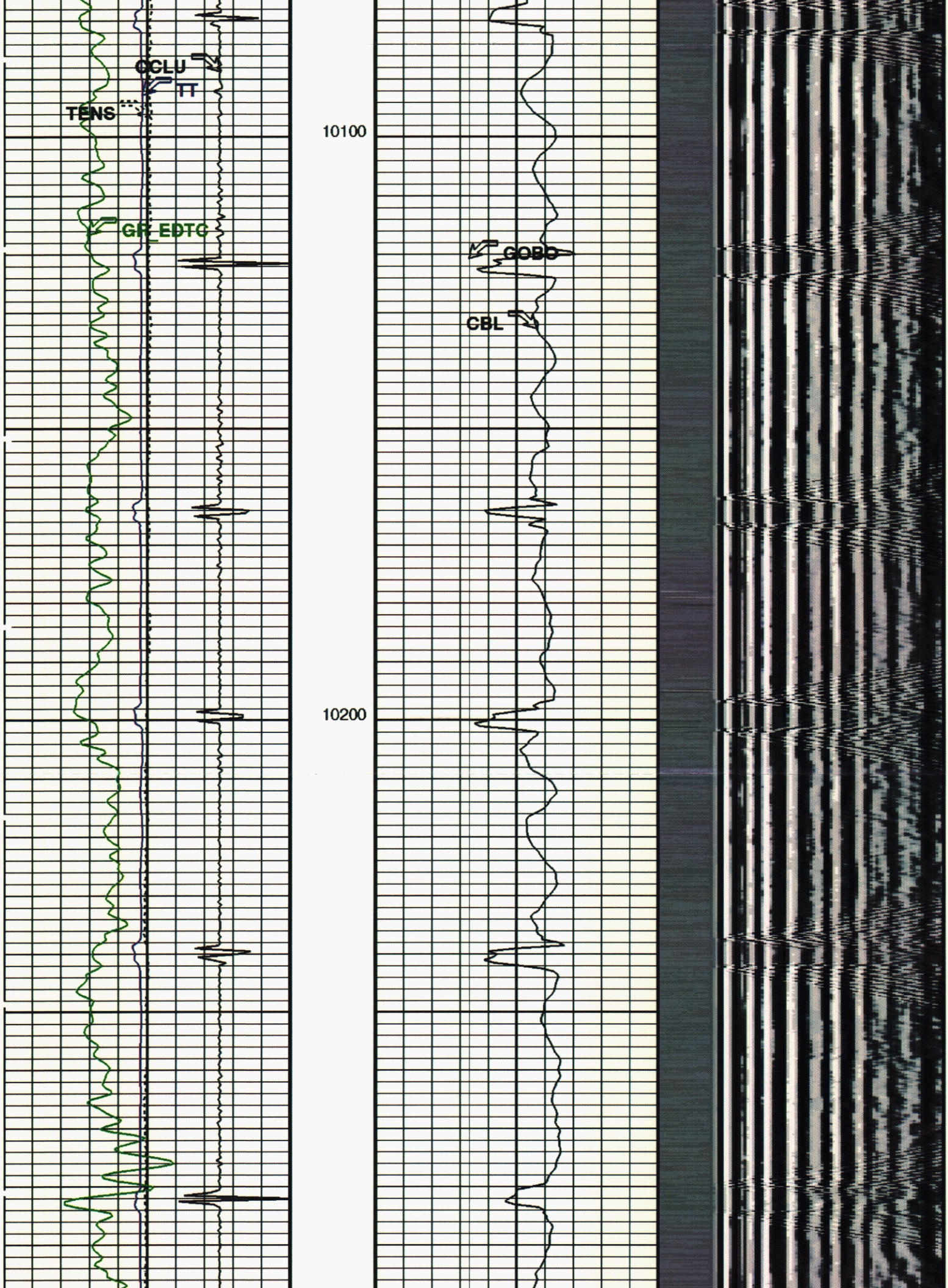
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TT
TENS
GR_EDTC
10100
GOBO
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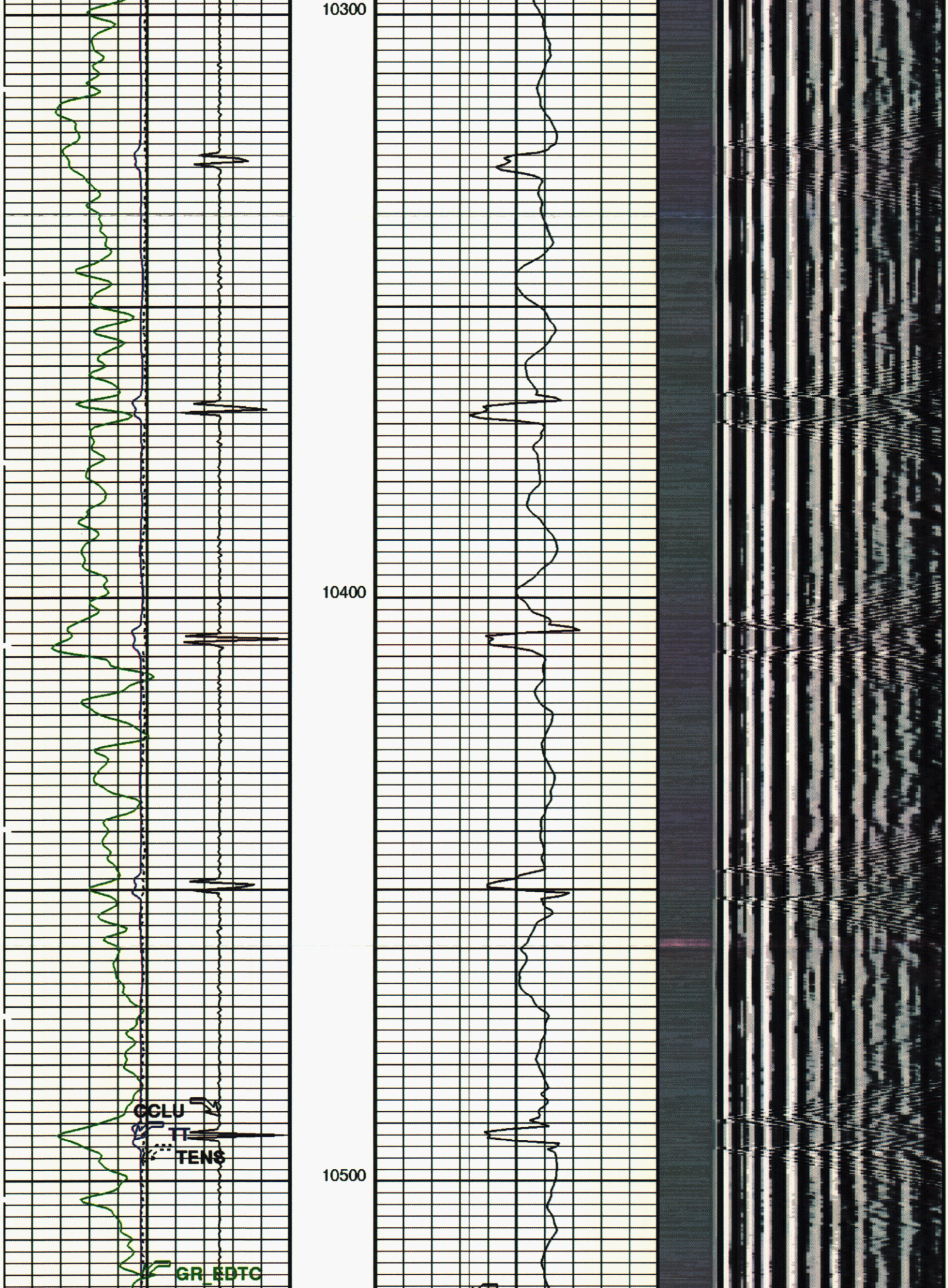
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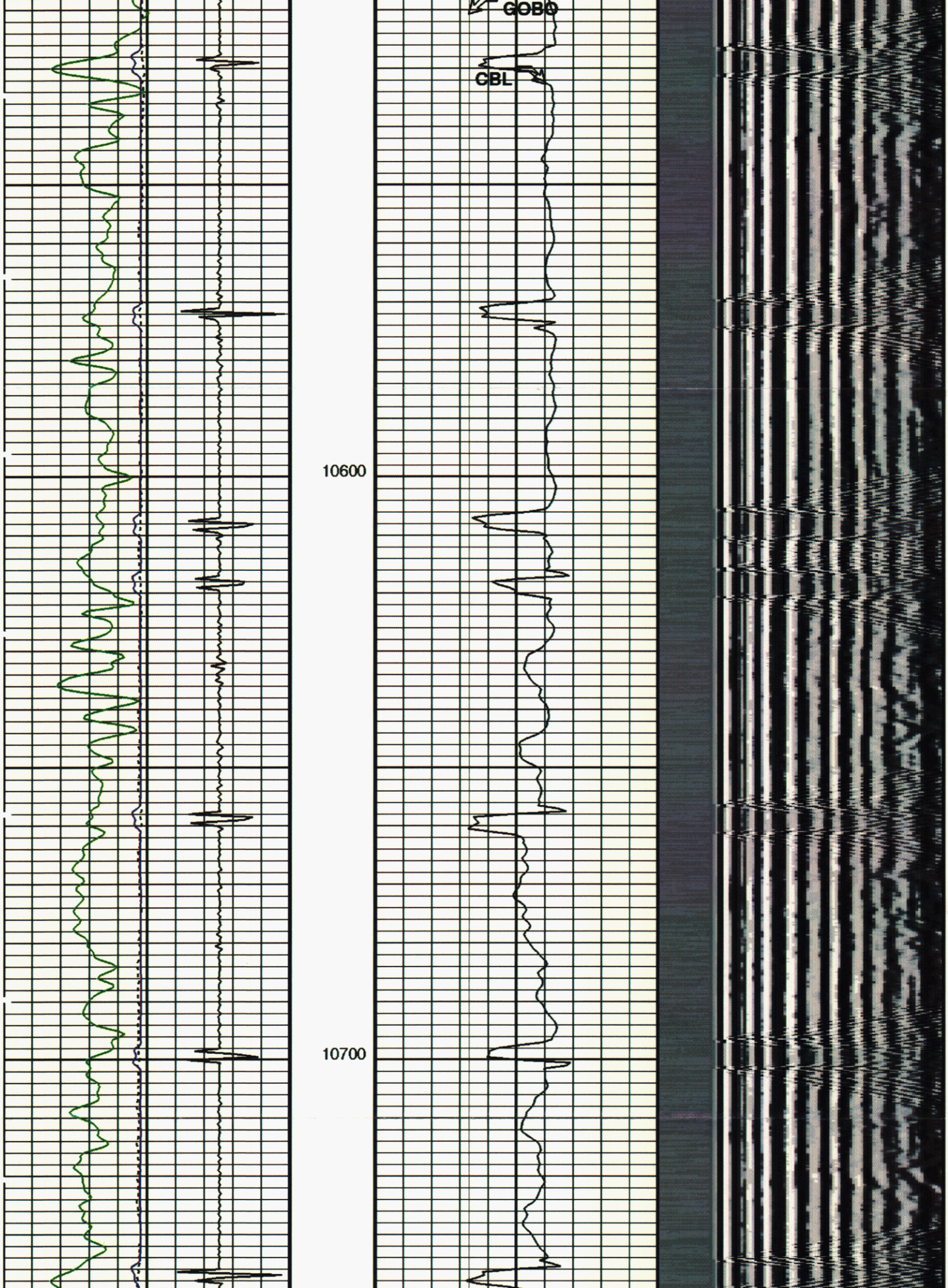
CCLU
TT
TENS
GR_EDTC


GOBO
CBL
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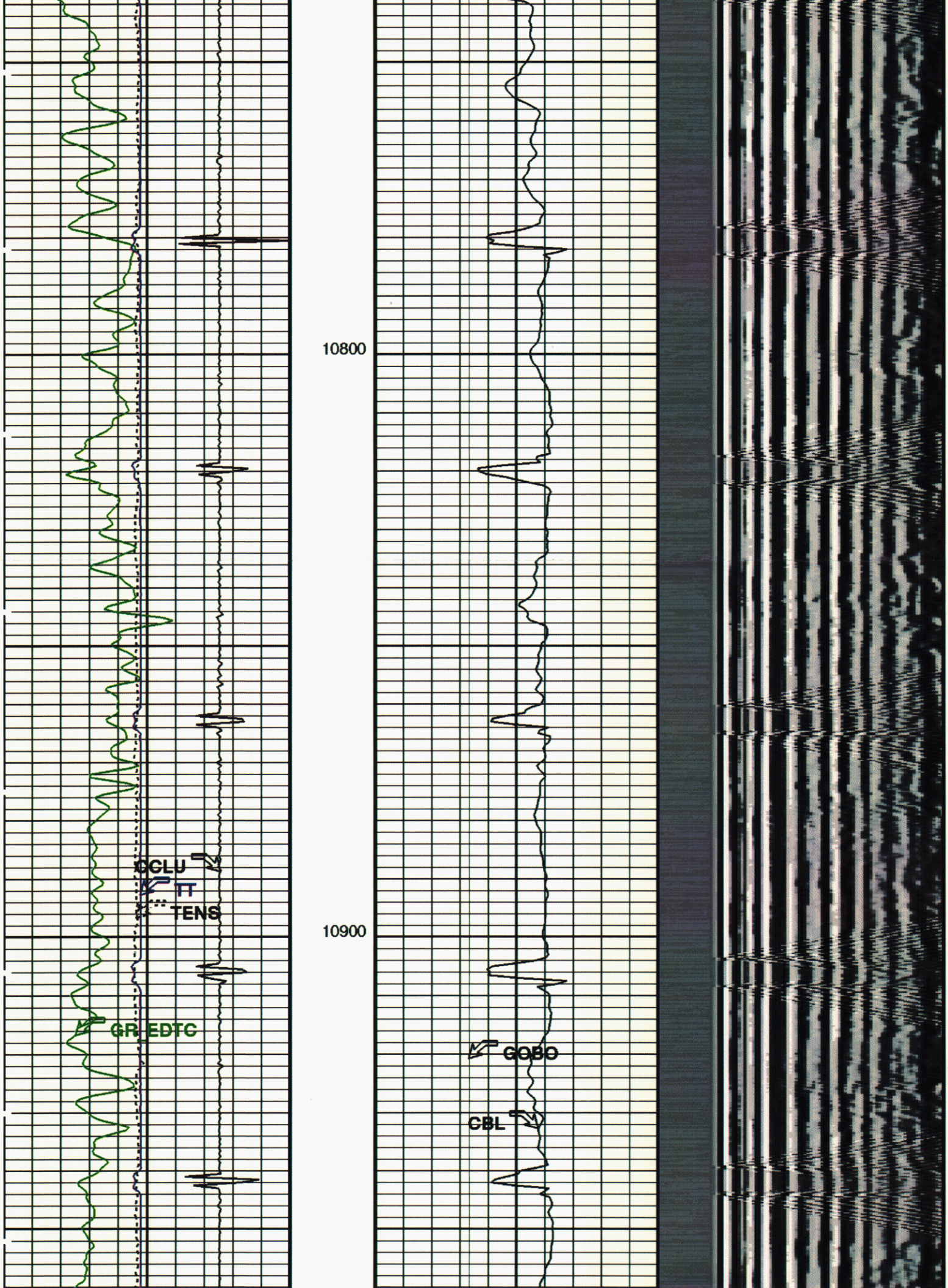
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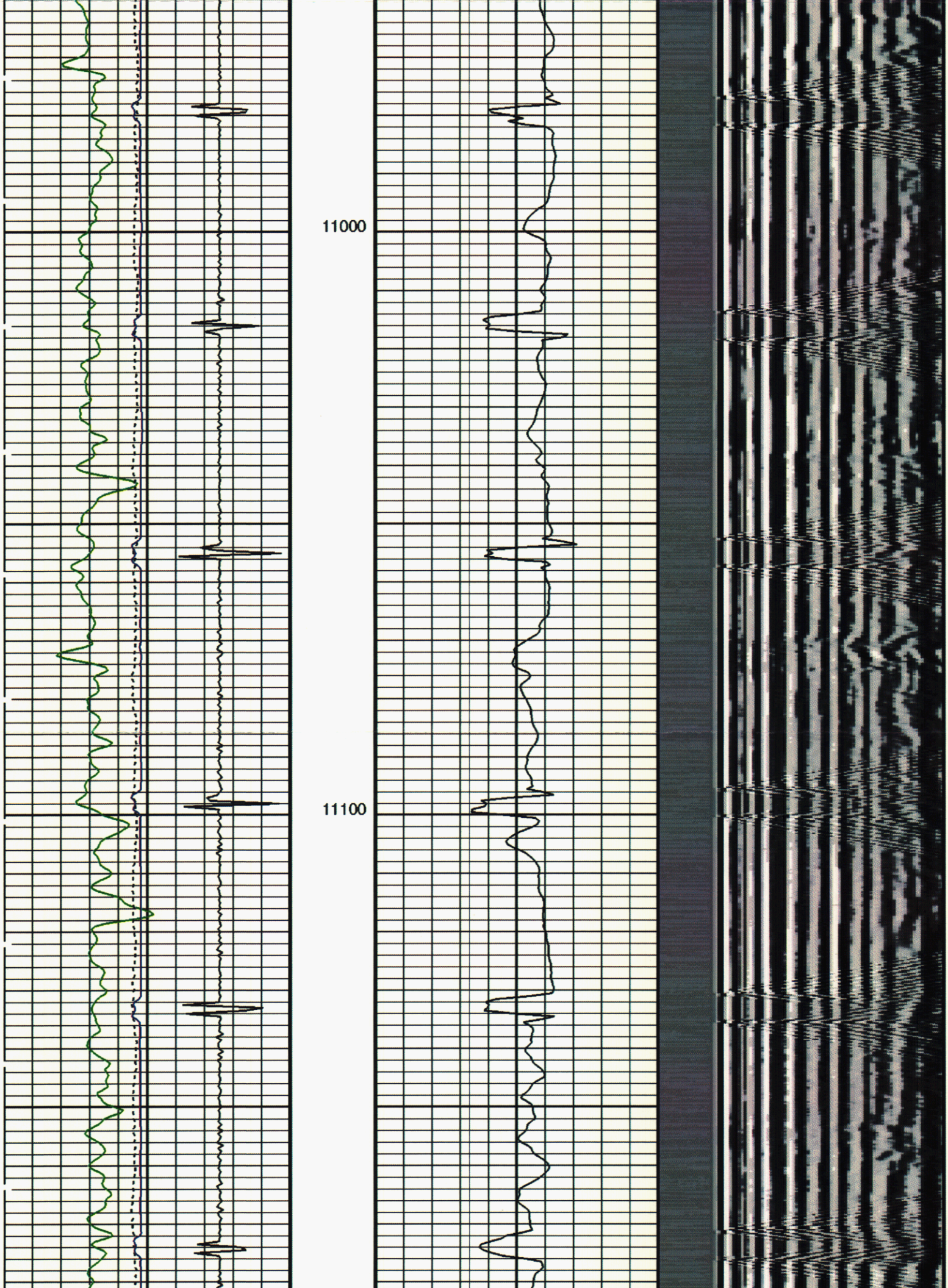
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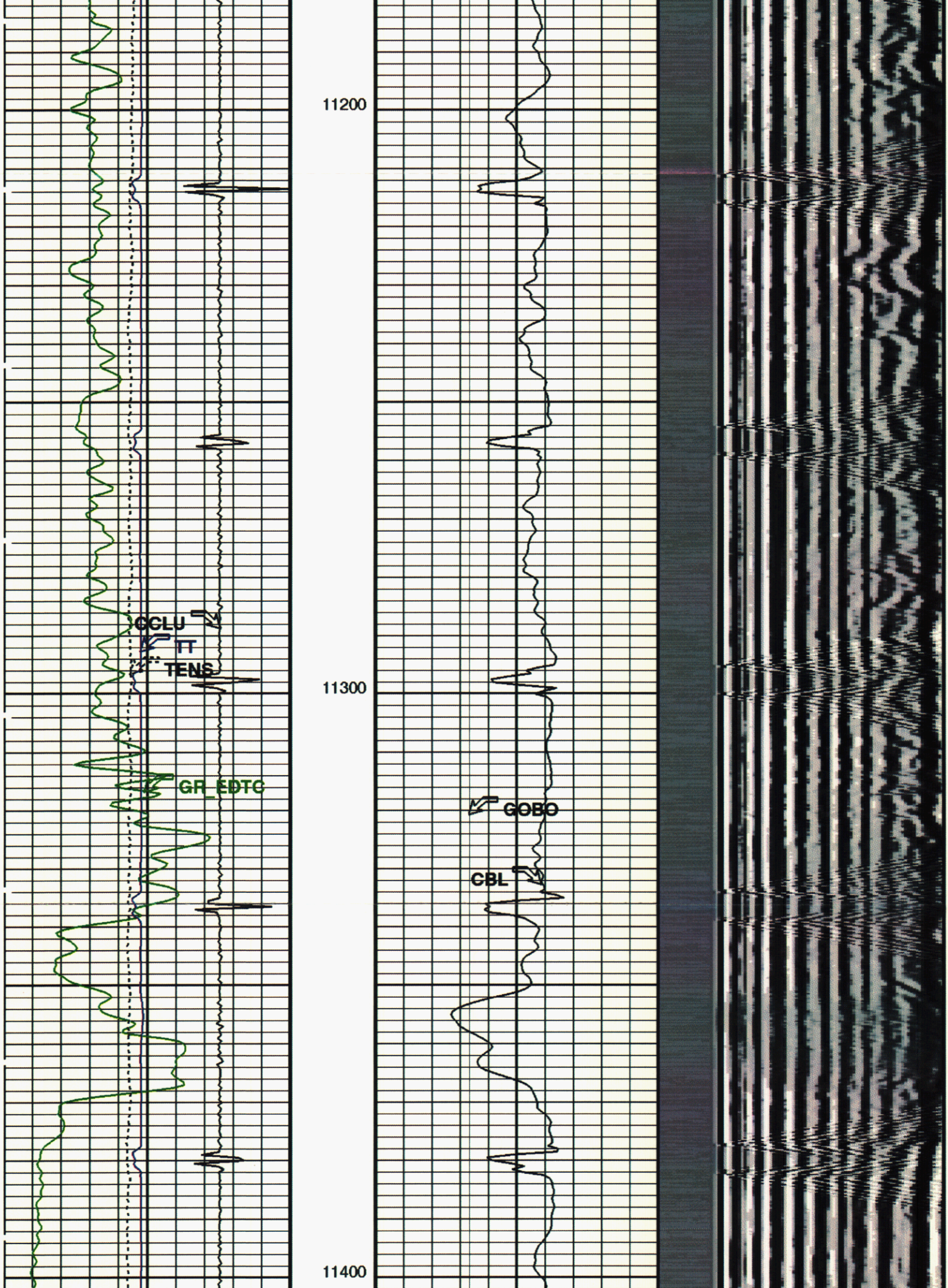
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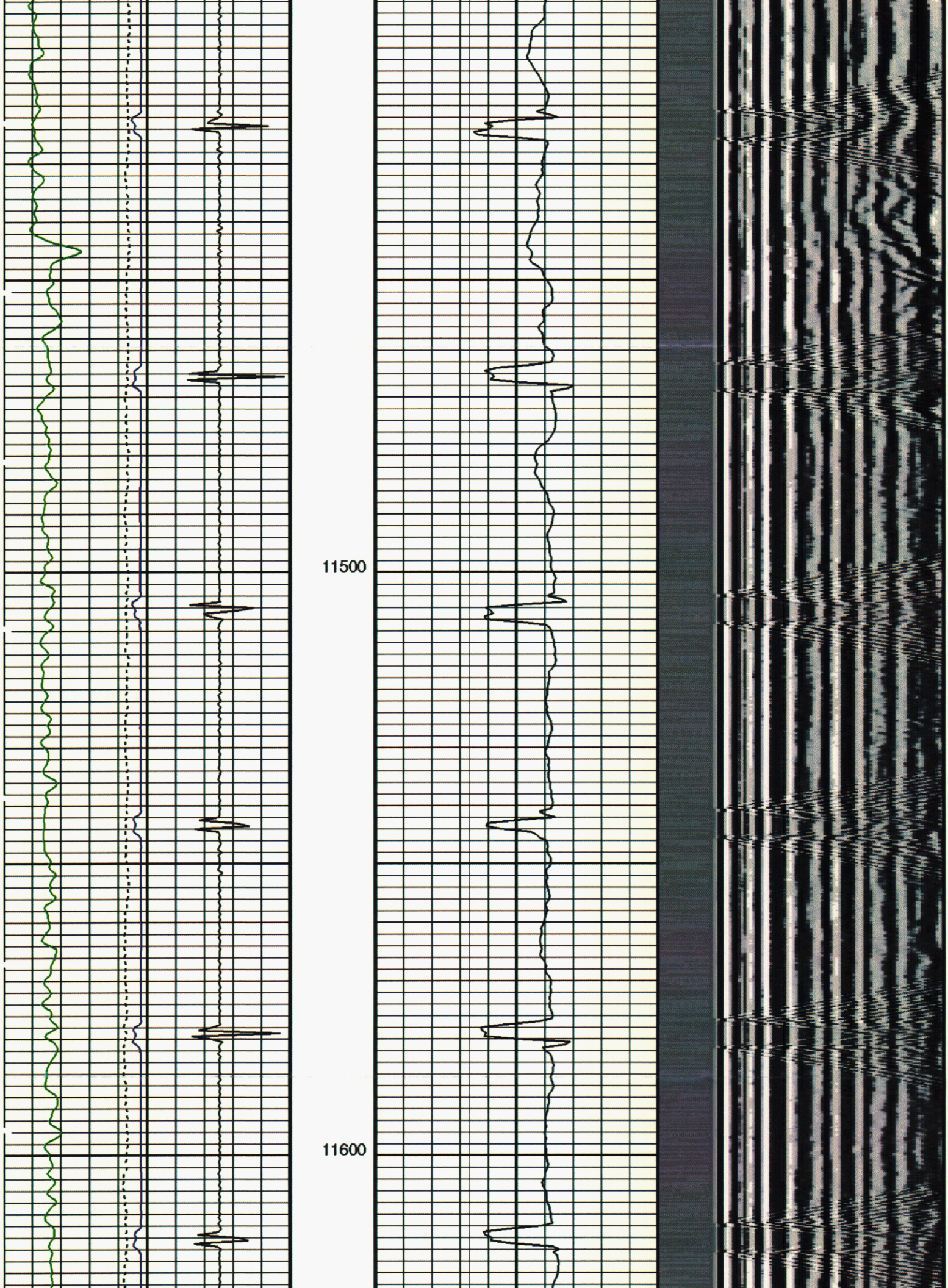
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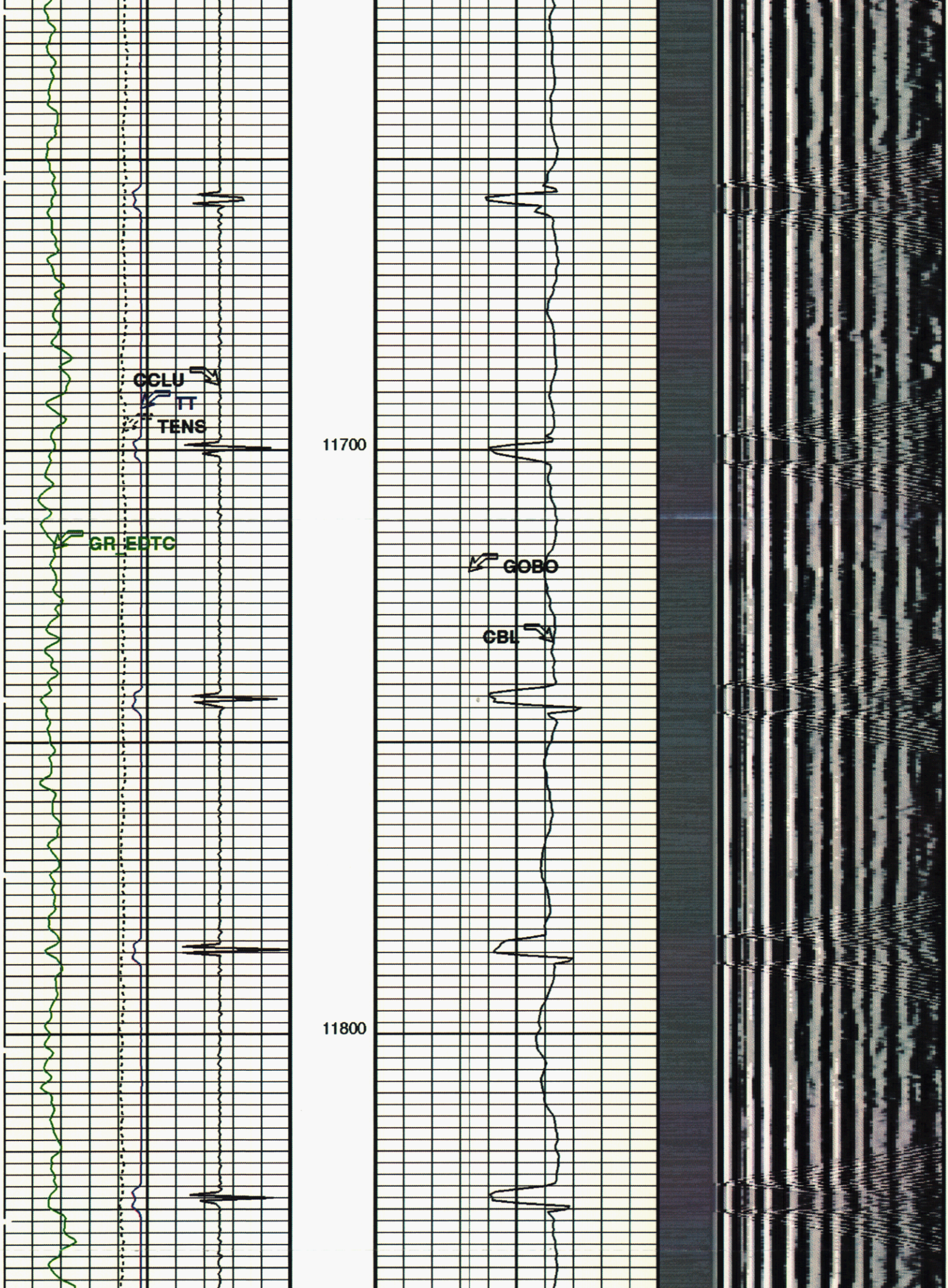
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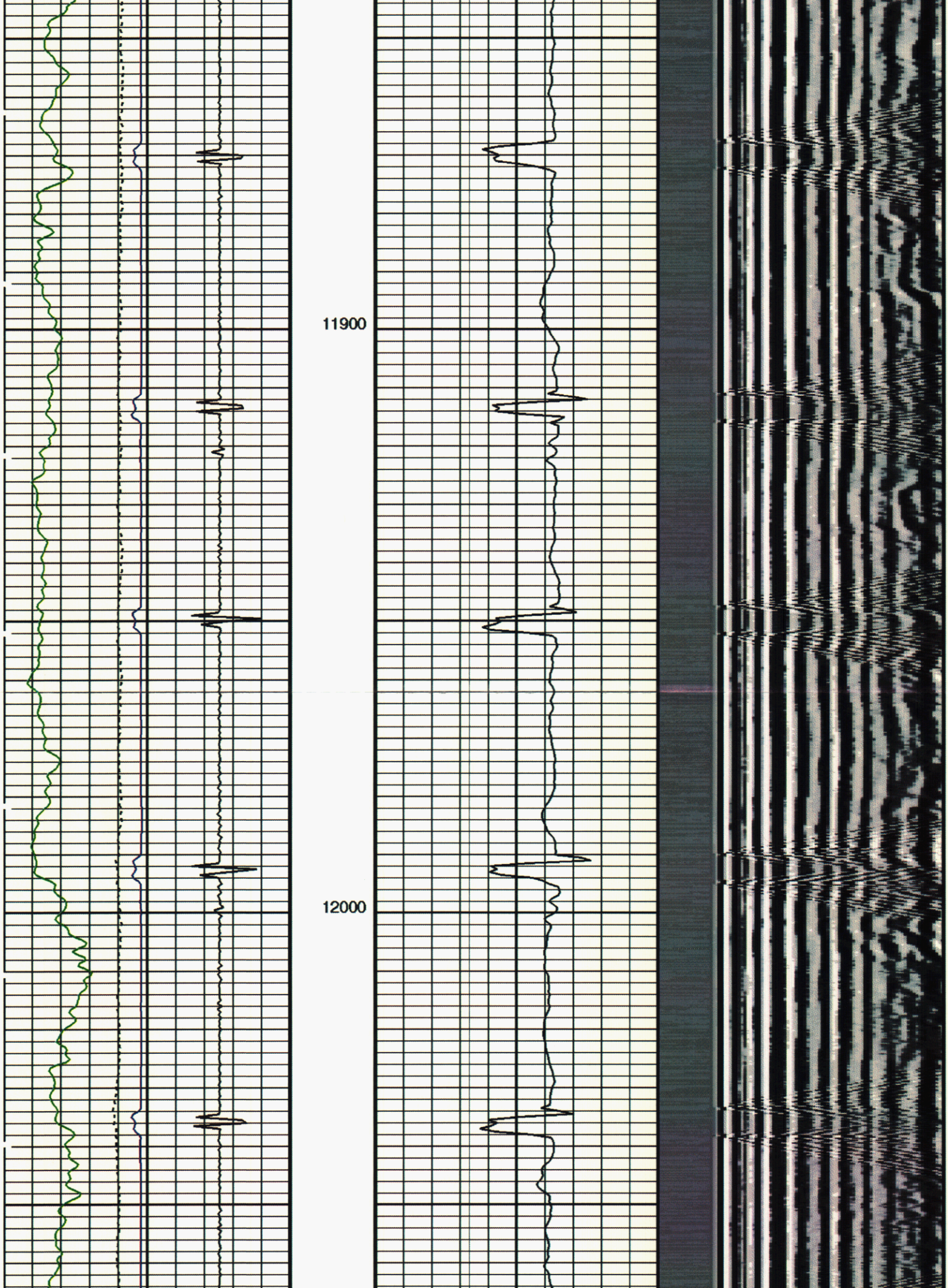
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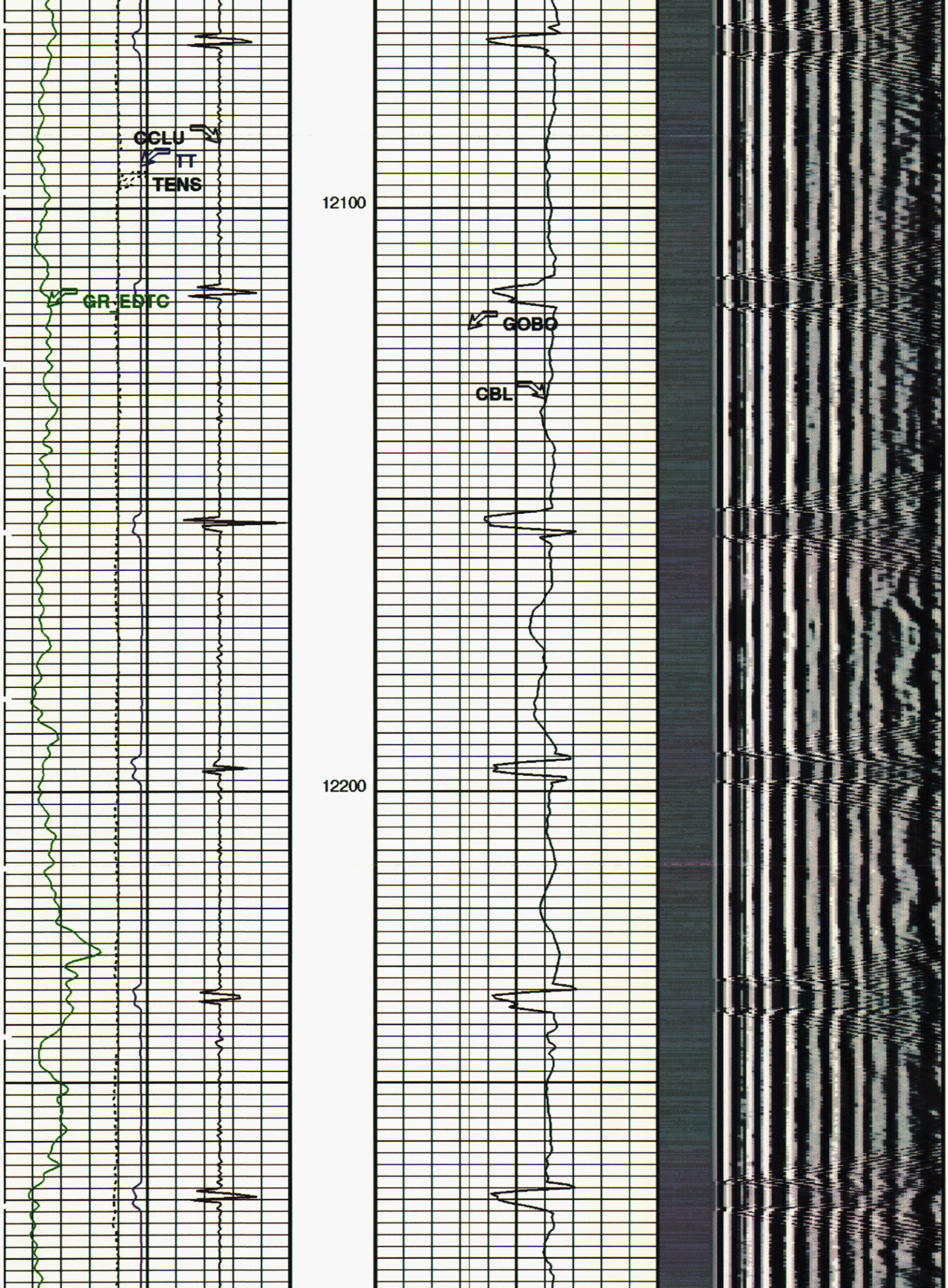
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TENS
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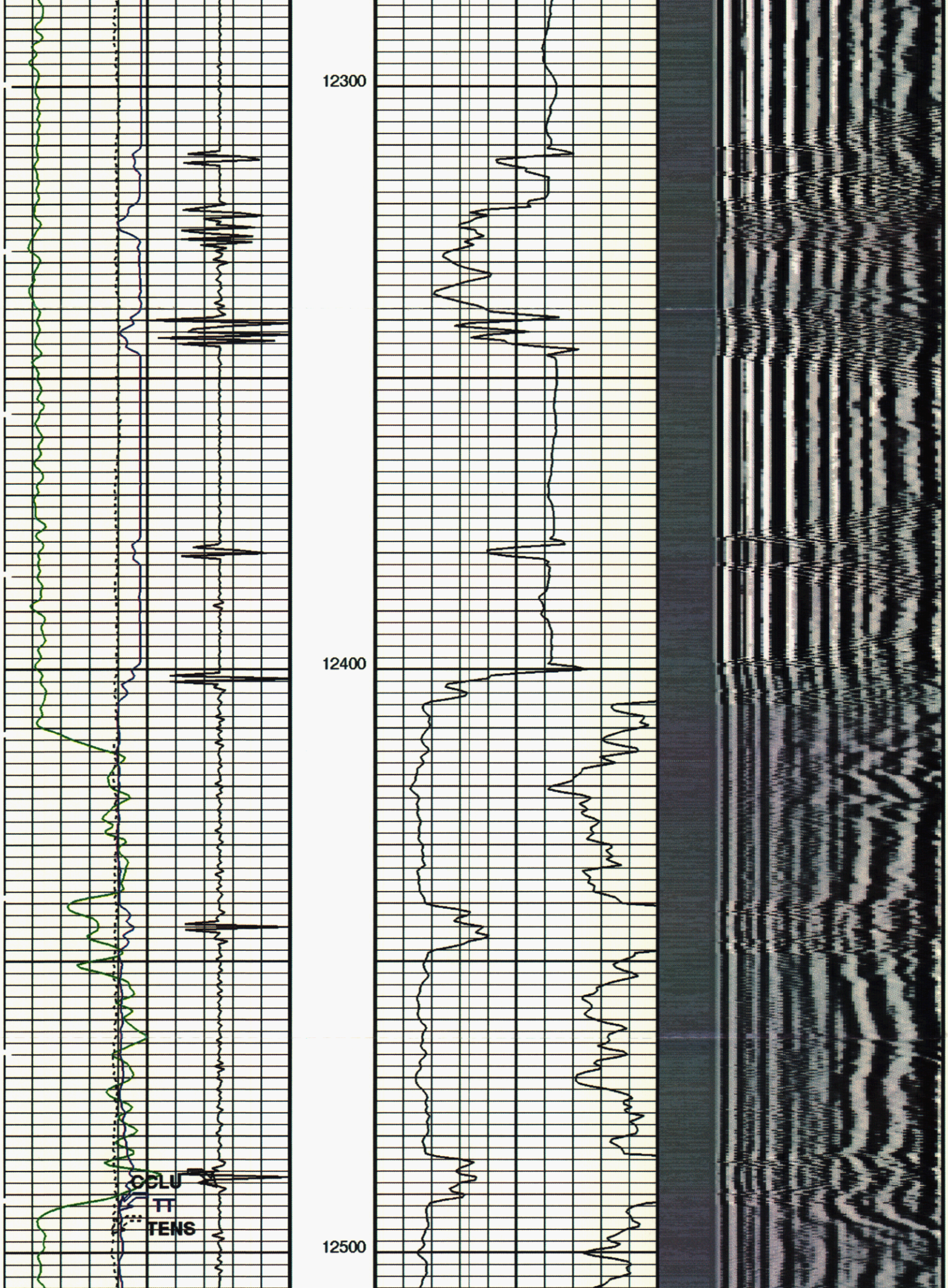
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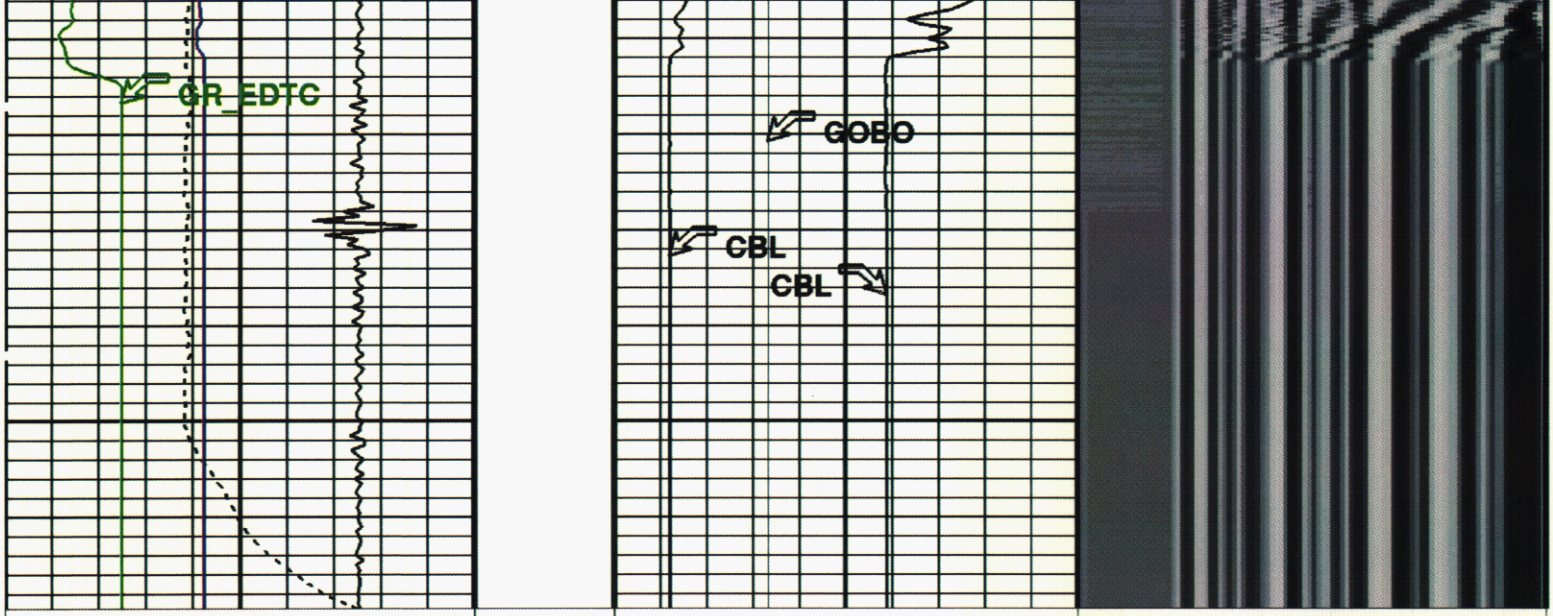
12500
CCLU
TT
TENS



Gamma Ray (GR_EDTC) 0 (GAPI) 150	CBL Amplitude (CBL) 0 (MV) 20	Min Amplitude Max; VDL VariableDensity (VDL) 200 (US) 1200
Tension (TENS) 10000 (LBF) 0	CBL Amplitude (CBL) 0 (MV) 100	
Transit Time (TT) 400 (US) 200	Good Bond (GOBO) 0 (MV) 20	
CCL (CCLU) -30 (----) 10	GoodBond From ACBL to GOBO	

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 08-May-2011 14:32

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

<<<Slim Sonic Cement Evaluation Information Summary>>>

Sonde Serial Number			
Current Casing Size	7.0 IN		
Casing Weight	32.0 LB/F		
Expected CBL Amplitude in Free Pipe Section	63 MV	Minimum Sonic Amplitude	3.74153 MV (100% Cement) 6.58124 MV (80% Cement)
Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	Not Done	Depth of Before Calibration	12224.6 FT
CBL Correction Factor for CBL Mode	0.500000	CBL Adjustment Factor (CBAF)	0.894364
CBL Correction Factor for CBLB Mode	0.500000		
VDL Ratio for CBLB Mode	1.0		

Parameters

DLIS Name	Description	Value
USIT-D: Ultrasonic Imaging - D		
AGMN	Minimum Gain of Cartridge	-4 DB

AGMX	Maximum Gain of Cartridge	32	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.094	IN
DFVL	Default Fluid Velocity	190	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	125	V
MW	Mud Weight	13.2	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.453	IN
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_60U_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	27.1647	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
QSLT-B: SlimXtreme Sonic Logging Tool			
BILI	Bond Index Level for Zone Isolation	0.8	
CBAF	CBL Adjustment Factor	0.894364	
CBLG	CBL Gate Width	50	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	63	MV
CMCF	CBL Cement Type Compensation Factor	1	
CTHI	Casing Thickness	0.457456	IN
DETE	Detection Peak	E1	
DFAD_INTERVAL_MODE	Detection Interval Mode for first arrival	FIXED	
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	1	
GOBO	Good Bond	6.58124	MV
MAHTR	Manual High Threshold Refernce	40	
MATT	Maximum Attenuation	9.56176	DB/F
MNHTR	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	3.74153	MV
NMSG	Near Minimum Sliding Gate	290	US
NUMP	Number of Detection Passes	2	
SGAD	Sliding Gate Allow/Disallow	OFF	
SGDT	Sliding Gate Delta-T	57	US/F
SLEV	Signal Level for Threshold Control	5000	
VDLG	VDL Manual Gain	5	
VDM	VDL Display Mode	R5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CWEI	Casing Weight	32.00	LB/F
DFD	Drilling Fluid Density	13.20	LB/G
DO	Depth Offset for Playback	20.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	USI_SONIC_014LUP	FN:10	PRODUCER	08-May-2011 12:32	12549.5 FT	9581.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_017PUP	FN:13	PRODUCER	08-May-2011 14:32
CUSTOMER	USI_SONIC_017PUC	FN:14	CUSTOMER	08-May-2011 14:32

Schlumberger

USIT MAIN PASS
7" CASING

MAXIS Field Log

Input DLIS Files

DEFAULT	USI_SONIC_014LUP	FN:10	PRODUCER	08-May-2011 12:32	12549.5 FT	9581.0 FT

Output DLIS Files

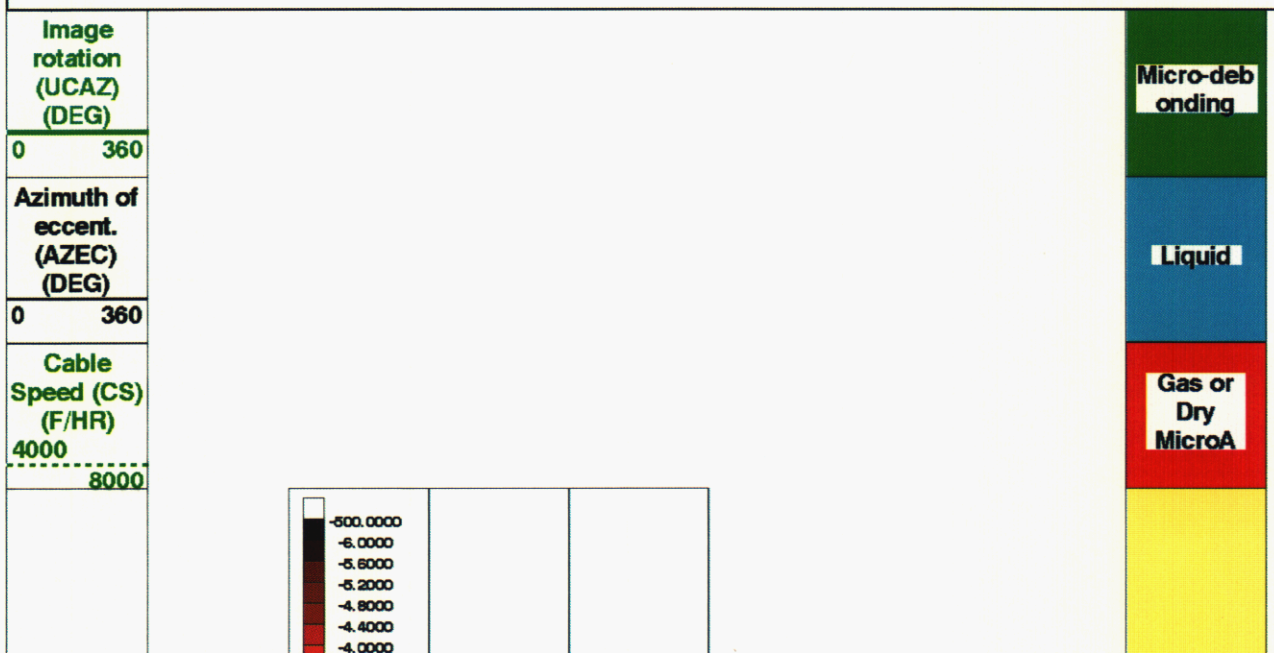
DEFAULT	USI_SONIC_017PUP	FN:13	PRODUCER	08-May-2011 14:32	12569.5 FT	9601.0 FT
CUSTOMER	USI_SONIC_017PUC	FN:14	CUSTOMER	08-May-2011 14:32	12569.5 FT	9601.0 FT

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

Zoning of Mud Parameters

Depth	Fluid Velocity (DFVL)	Acoustic Impedance (ZMUD)
12000.00	188.96	2.33
11000.00	190.82	2.36
10000.00	189.44	2.35
9000.00	191.07	2.34



CCL (CCLU) (----)
-20 20

Amplitude of echo minus Max (AWBK) (----)
-3.6000
-3.2000
-2.8000
-2.4000
-2.0000
-1.6000
-1.2000
-0.8000
-0.4000
0.5000

Min of Internal radius (IRMN) (IN)
3.7 2.7

Min of Internal radius (IRMN) (IN)
2.7 3.7

Bonded

Rev. speed (RSAV) (RPS)
-8 -6

Maximum of Amplitude (AWMX)
0 (DB) 75

Internal radius Maximum (IRMX) (IN)
3.7 2.7

Internal radius Maximum (IRMX) (IN)
2.7 3.7

Maximum of Thickness (THMX) (IN)
0.1 0.6

Gas or Dry MicroA Ratio (GASR)
1 (----) 0

Rev. speed (RSAV) (RPS)
6 (RPS) 8

Average of Amplitude (AWAV)
0 (DB) 75

Internal radius Average (IRAV) (IN)
3.7 2.7

Internal radius Average (IRAV) (IN)
2.7 3.7

Average of Thickness (THAV) (IN)
0.1 0.6

Microdebonding Ratio (MDR)
1 (----) 0

Eccent. (ECCE)
0 (IN) 0.5

Process. flags (UFLG) (----)
0.5000
1.5000
2.5000
3.5000
6.5000

Min. of Amplitude (AWMN)
0 (DB) 75

External radius Average (ERAV) (IN)
3.7 2.7

External radius Average (ERAV) (IN)
2.7 3.7

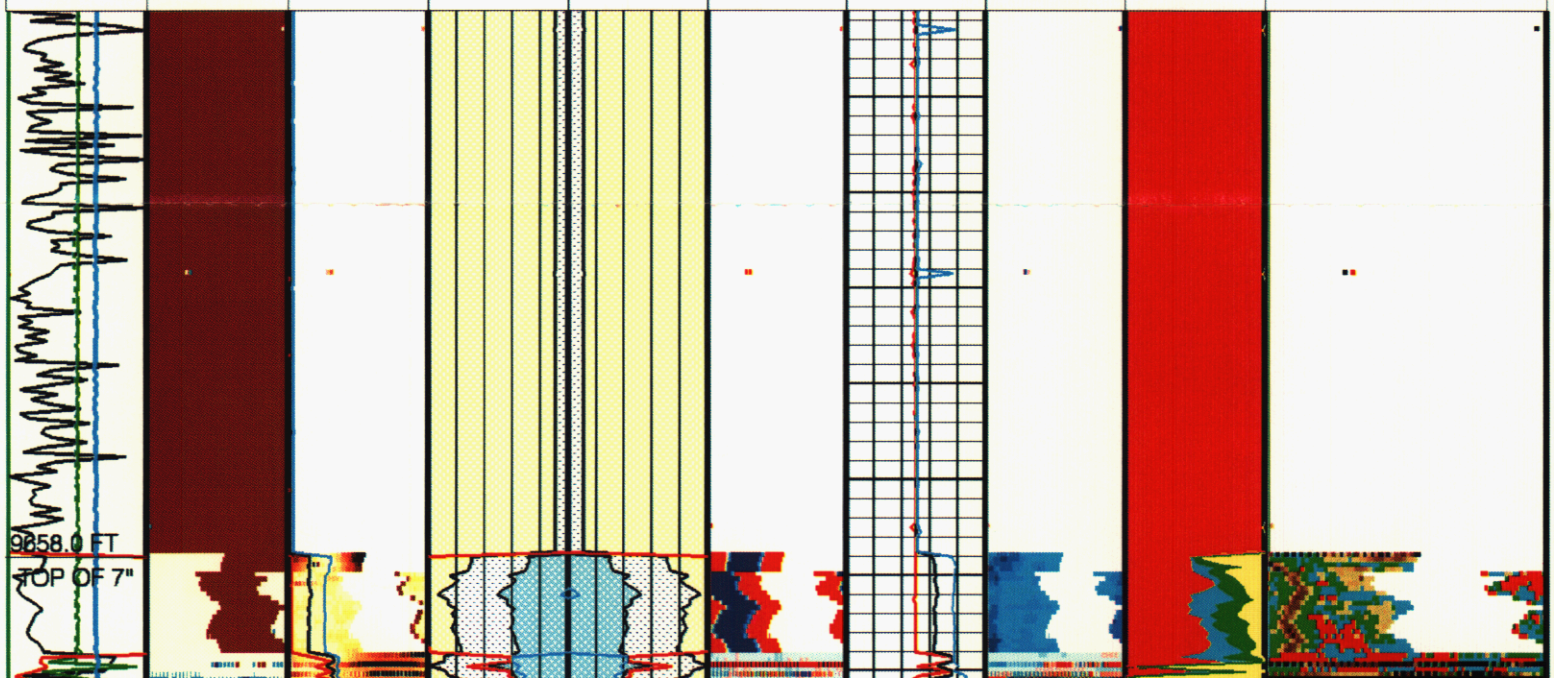
Internal radii minus Ave (IRBK) (----)
-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

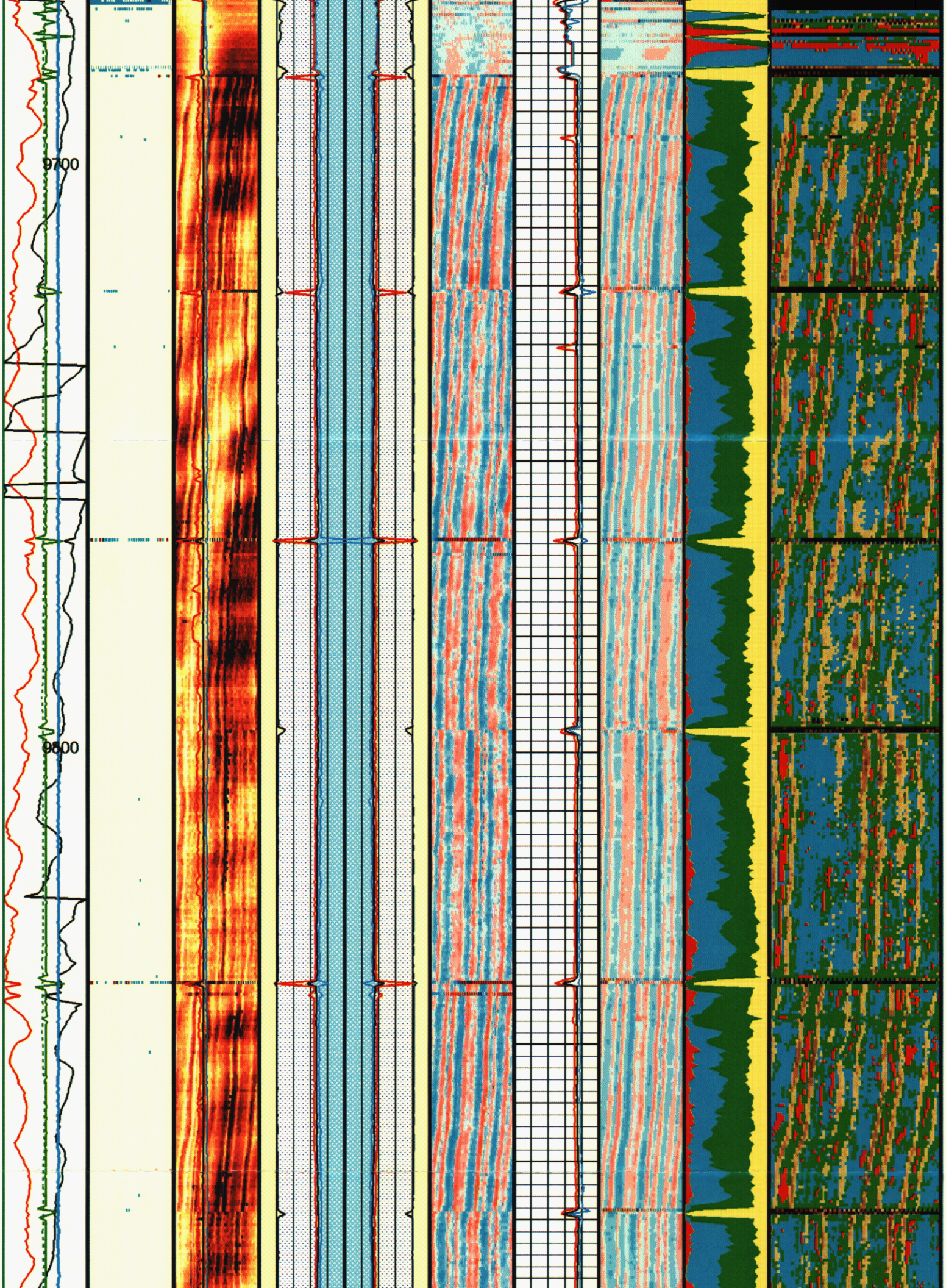
Min of Thickness (THMN) (IN)
0.1 0.6

Thickness minus Ave (THBK) (----)
-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Cement Ratio (CEMR)
1 (----) 0

Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (----)
-1000.0000
-500.0000
0.3000
2.6000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

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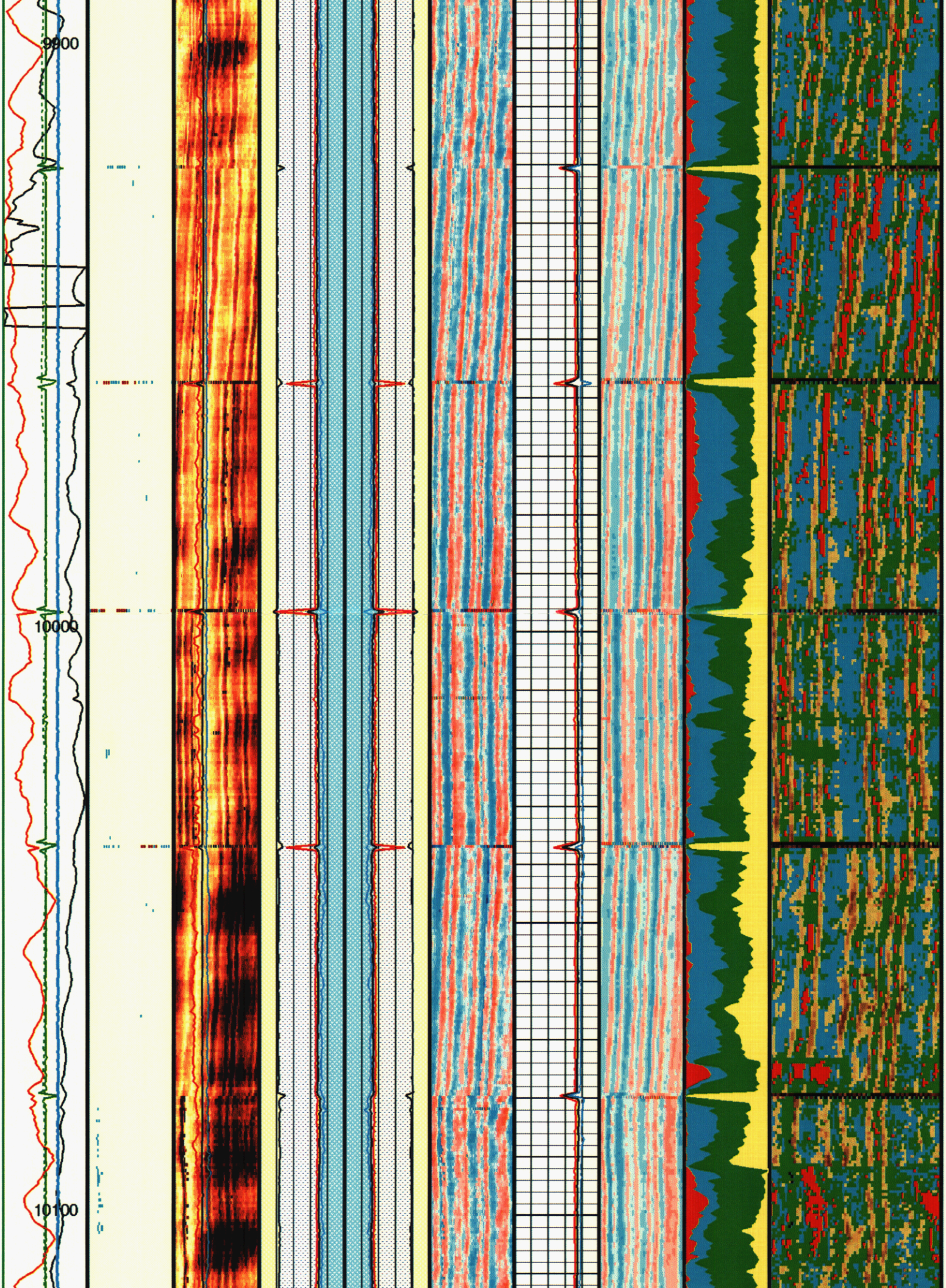
9800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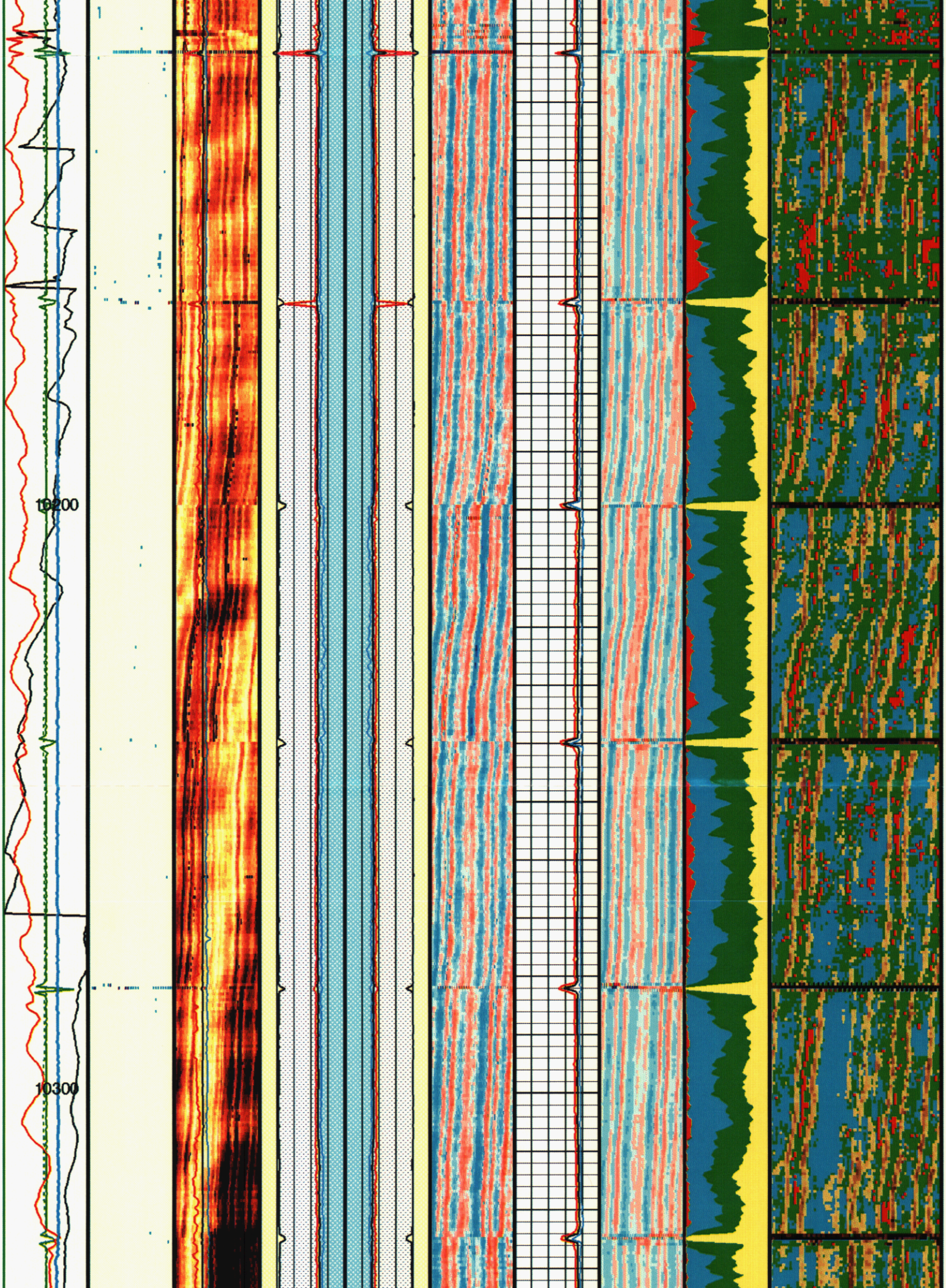
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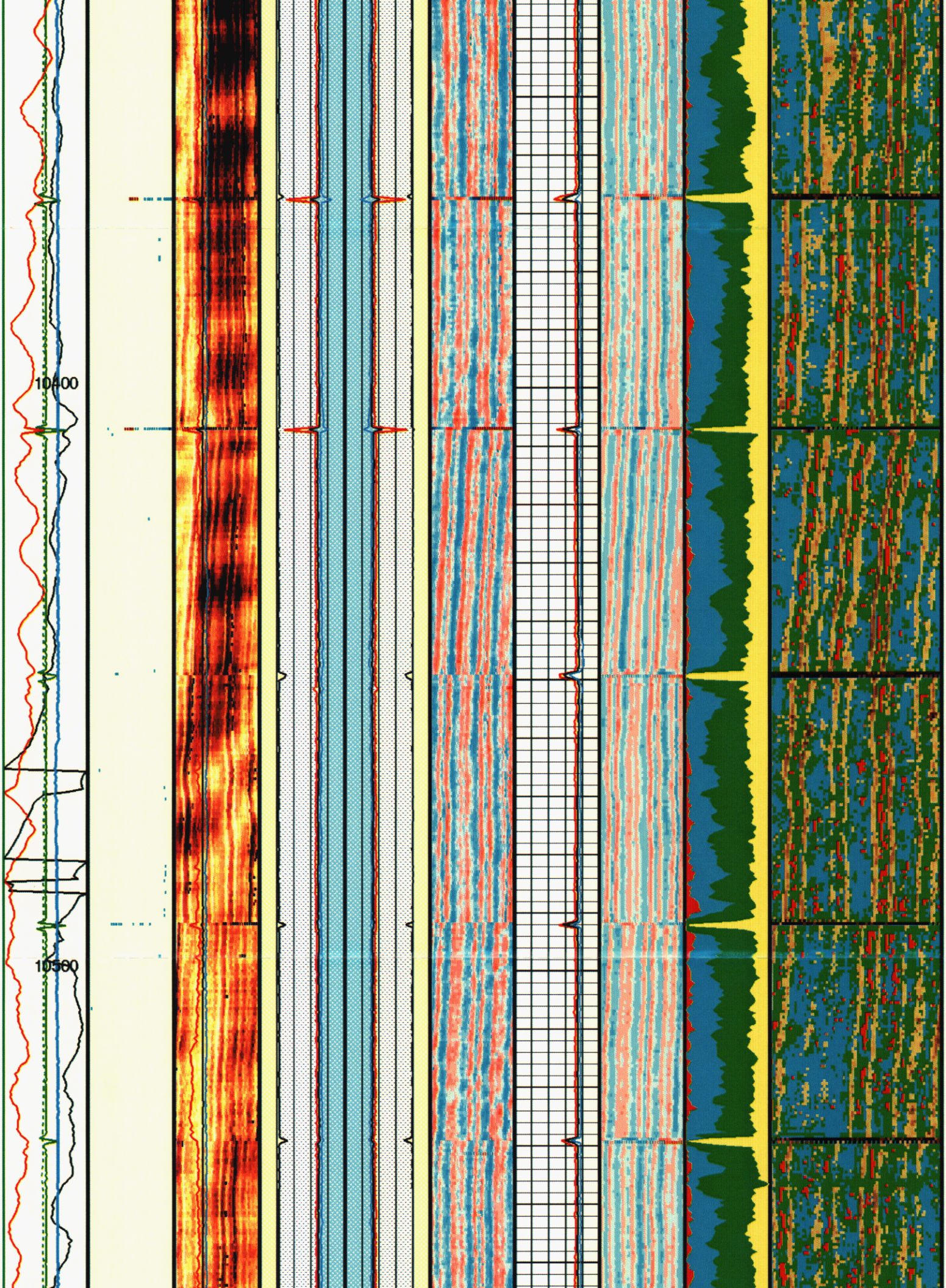
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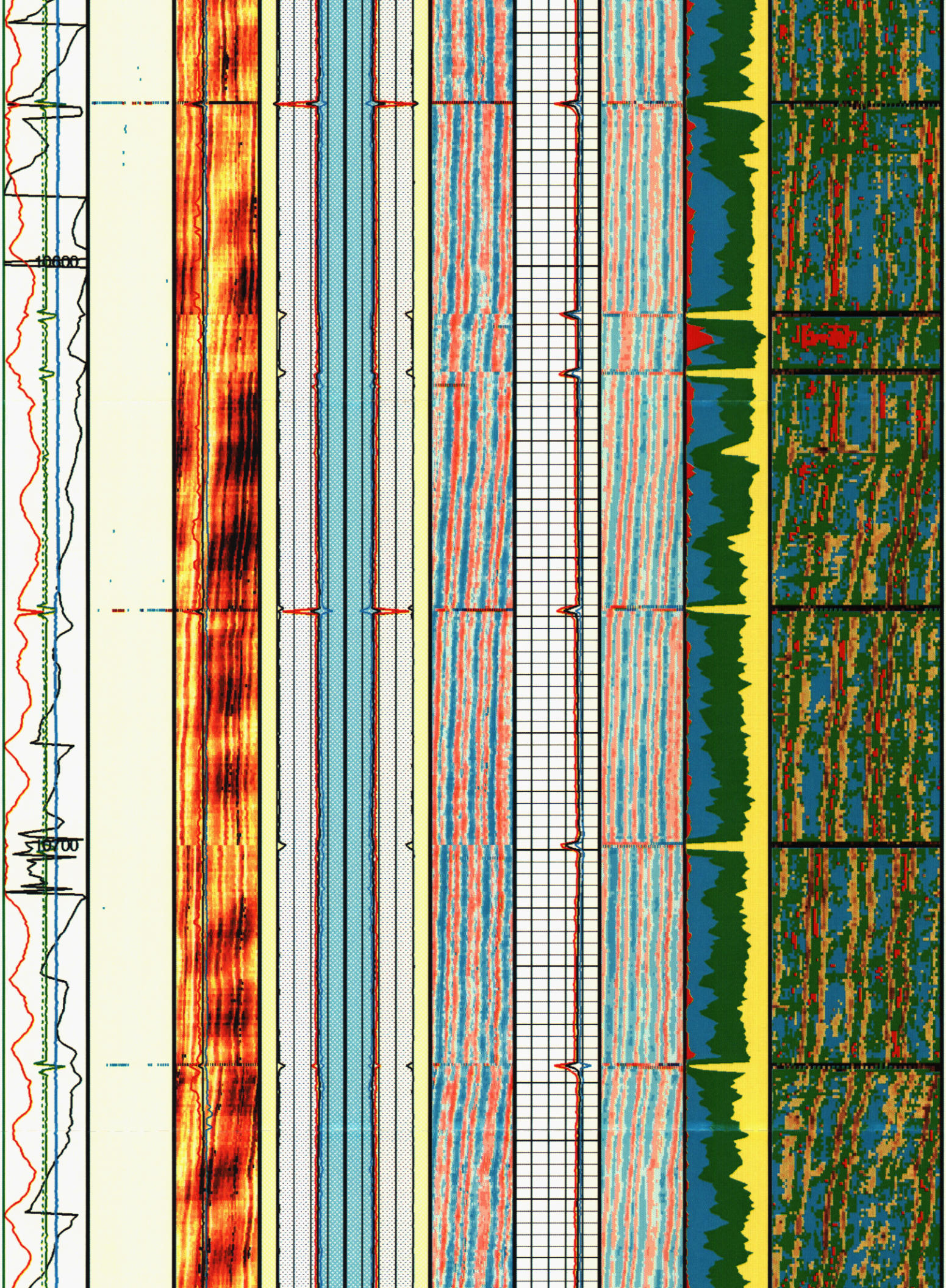
10500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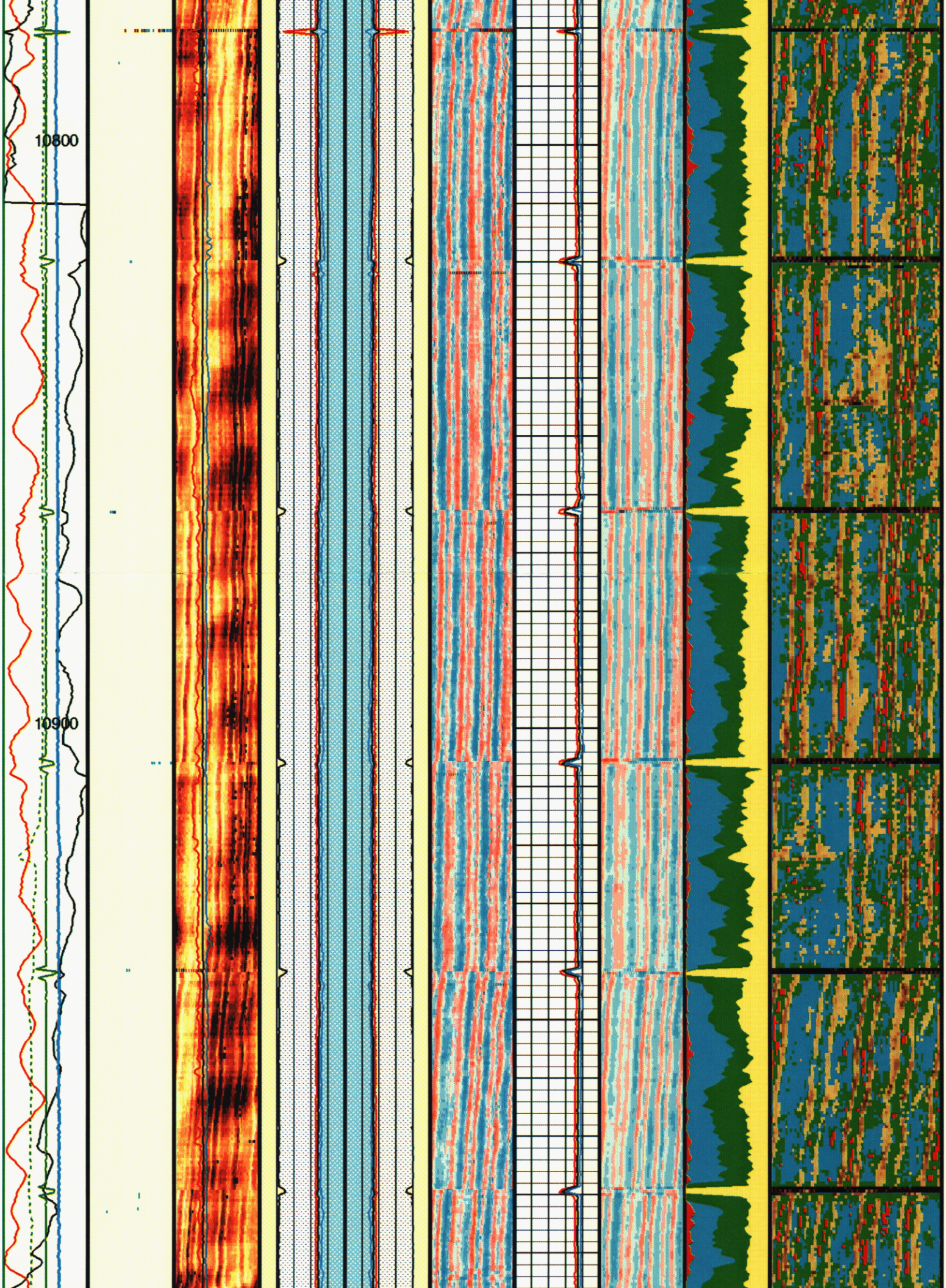
10700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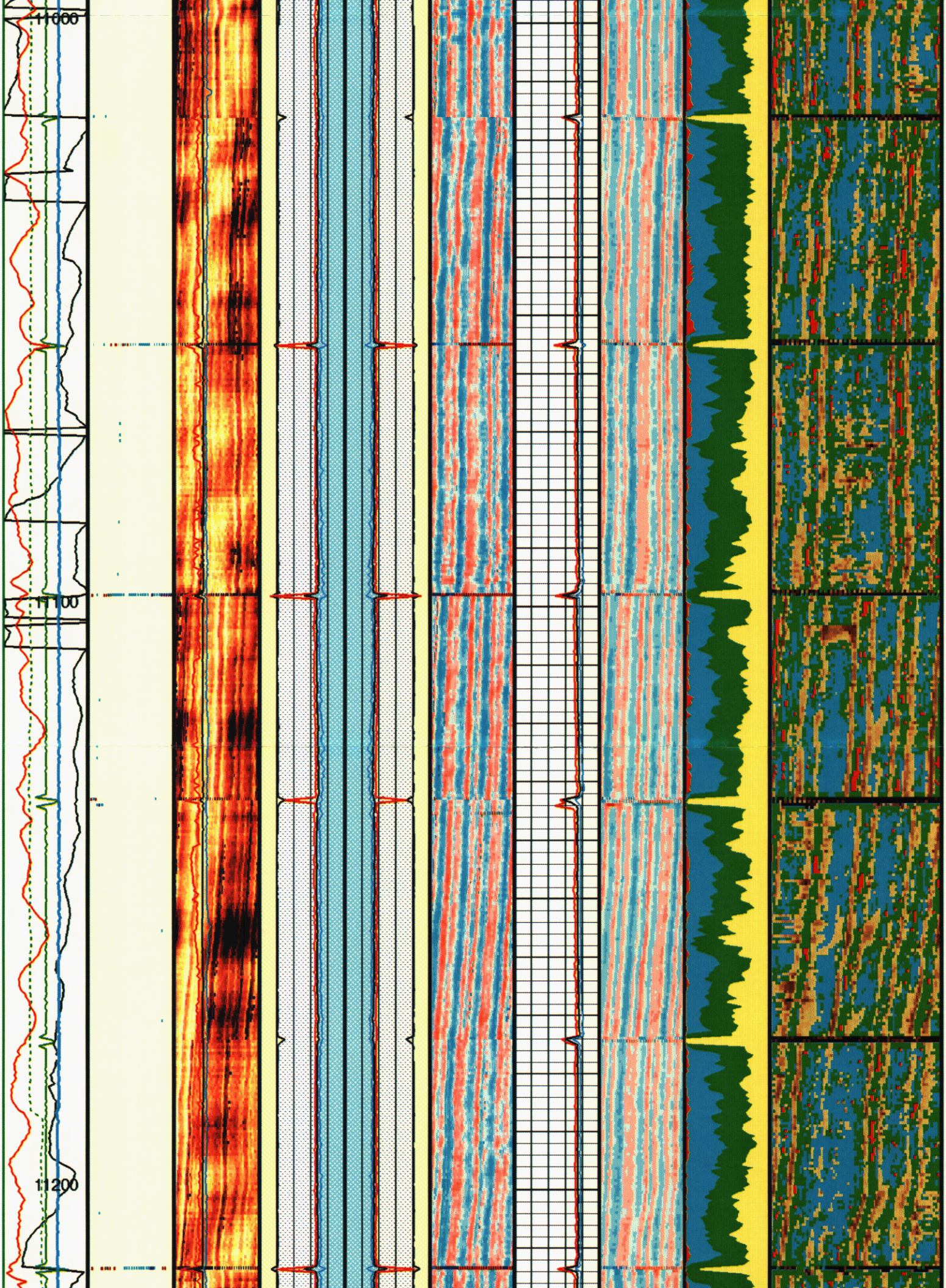
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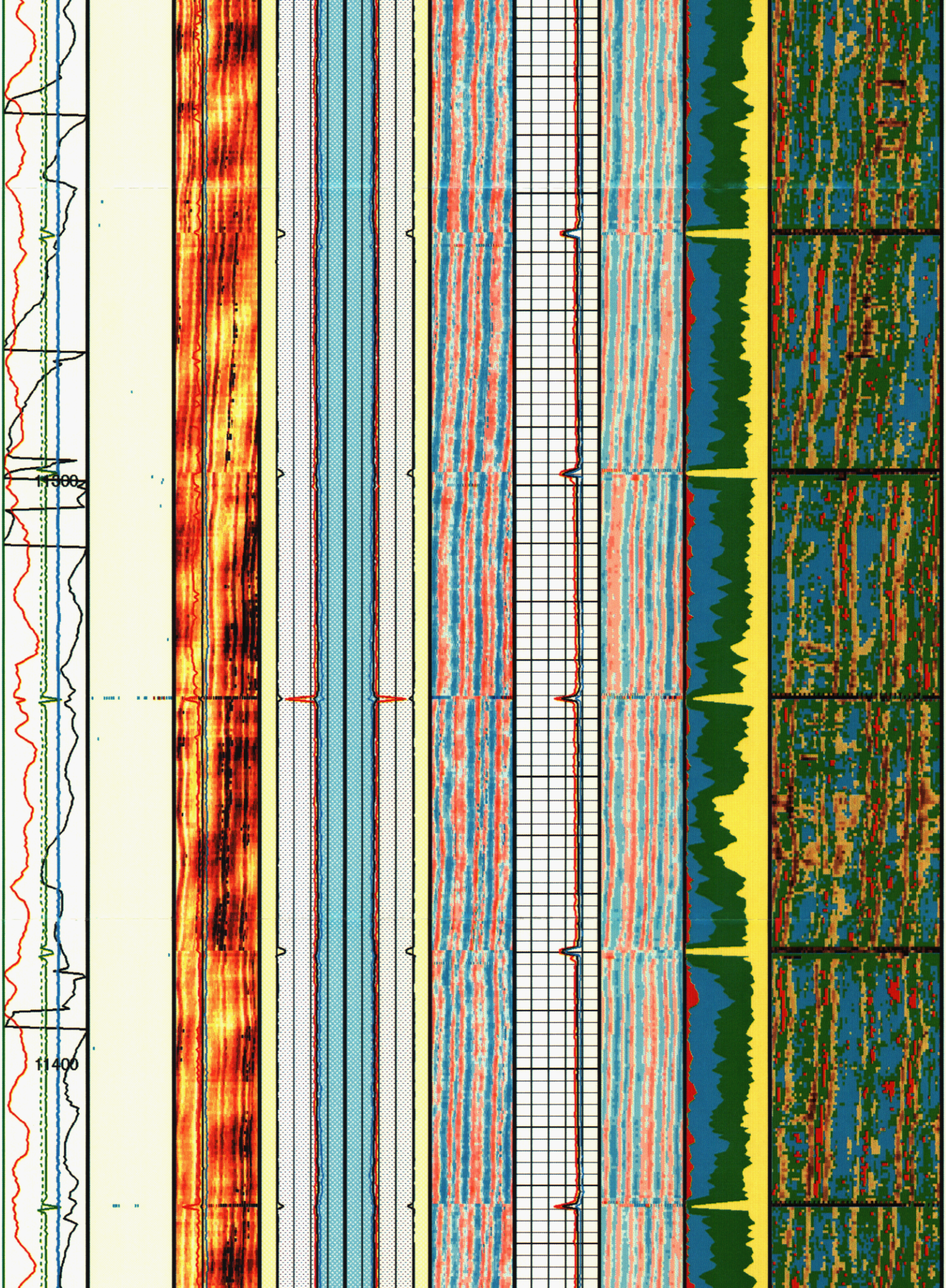
11100
11200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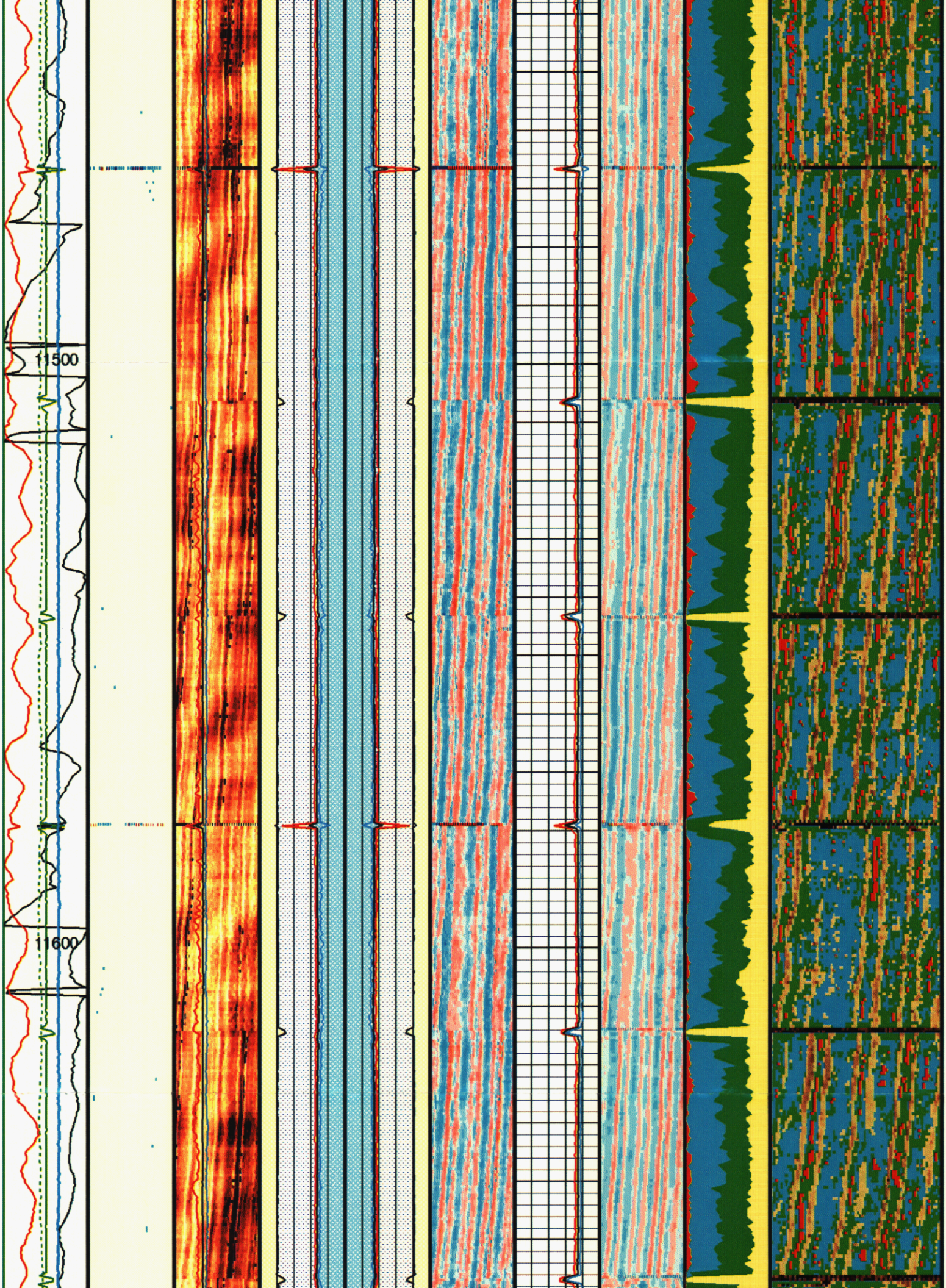
11400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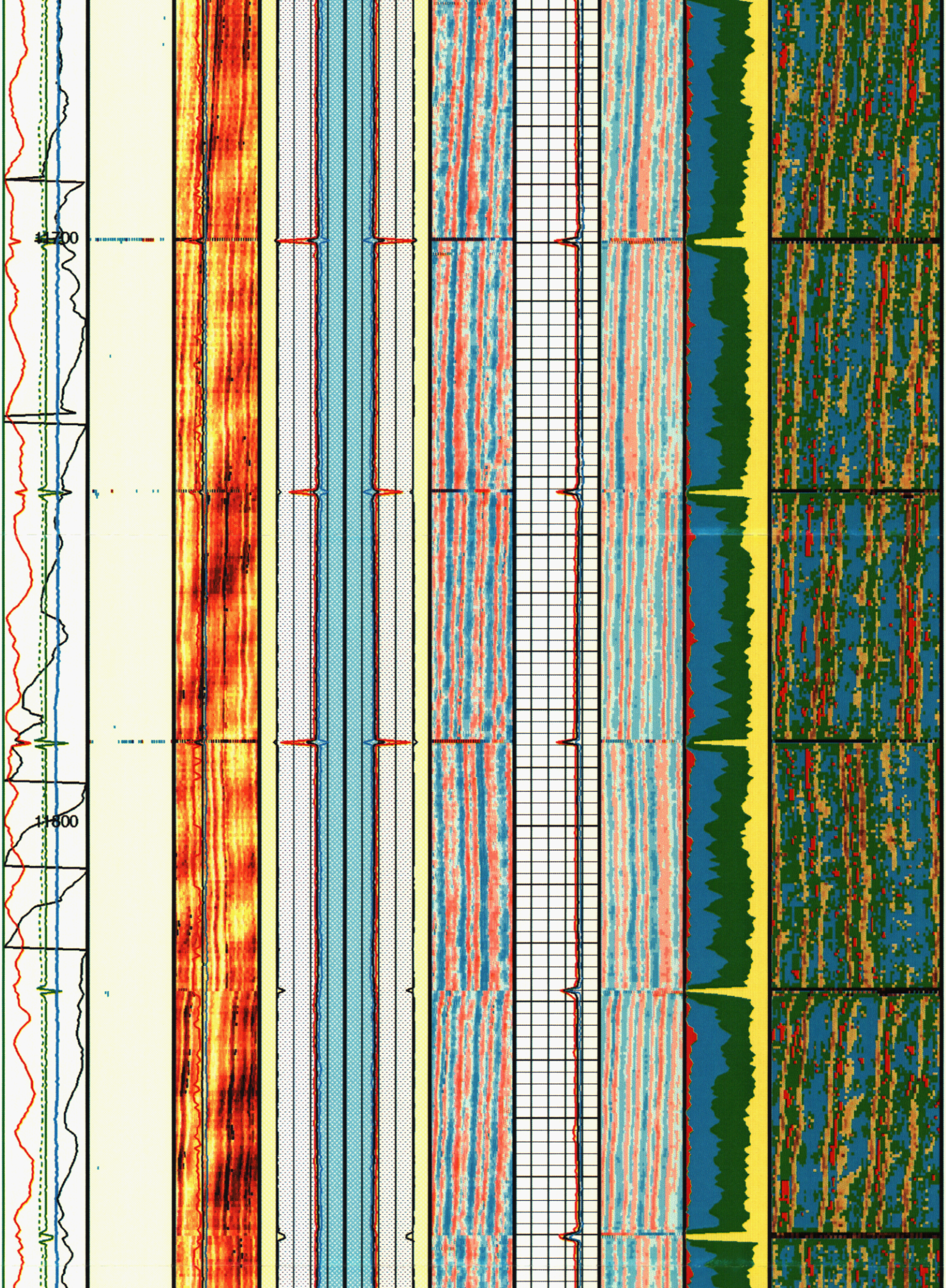
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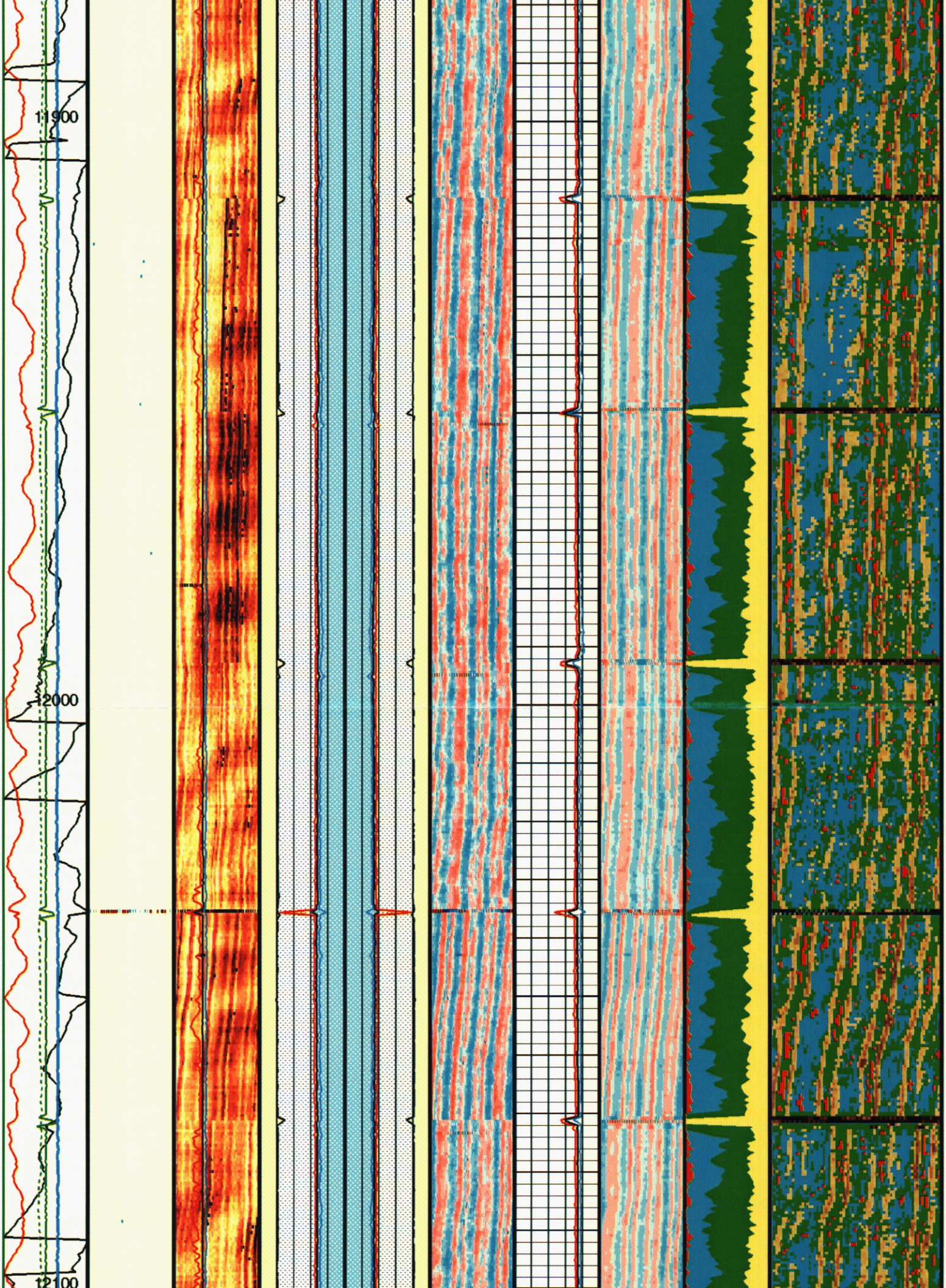
11800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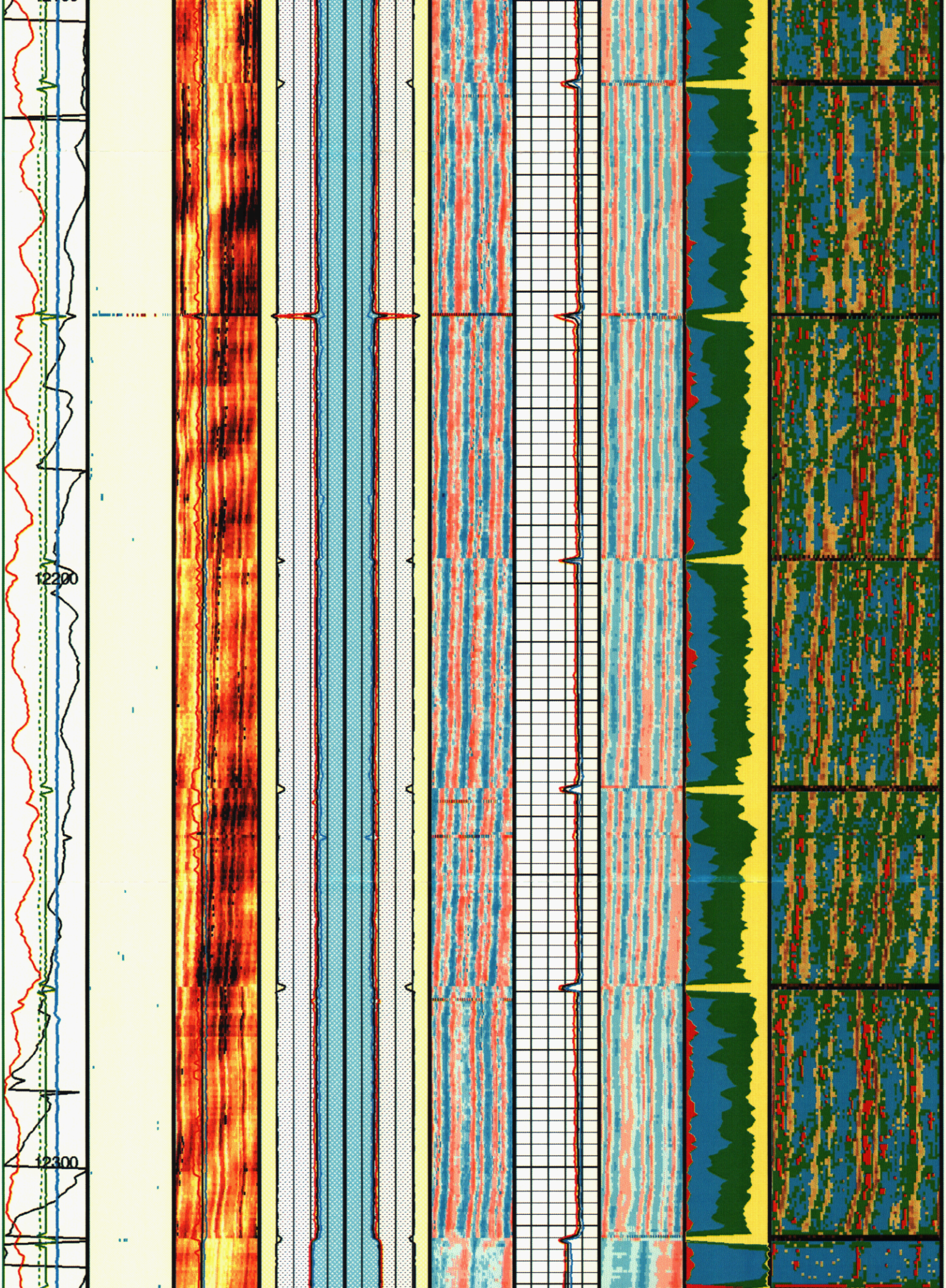
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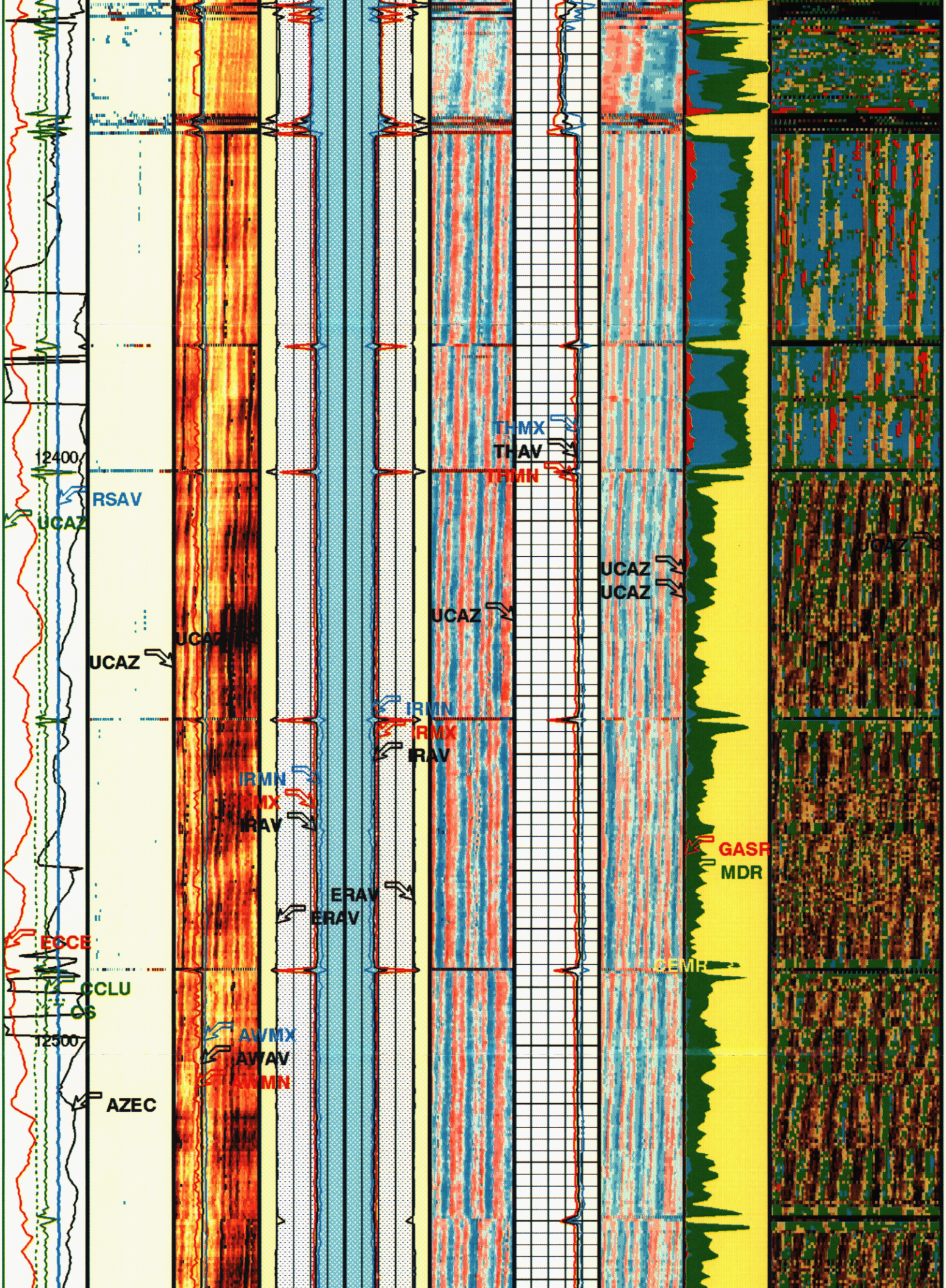
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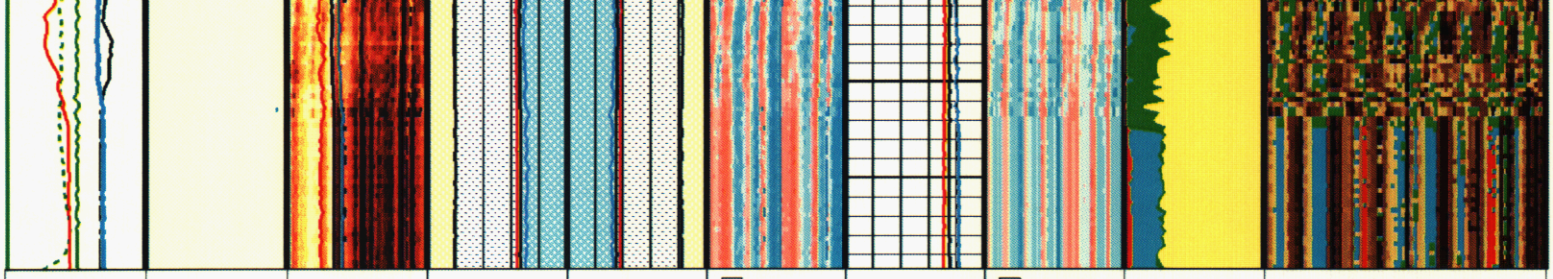
RSAV
UCAZ
UCAZ
UCAZ
THMX
THAV
THMN
UCAZ
UCAZ
UCAZ
UCAZ
IRMN
IRMX
IRAV
IRMN
IRAV
GASR
MDR
ERAV
ERAV
ECCE
CCLU
CS
12500
AWMX
AWAV
AWMN
AZEC



Eccent. (ECCE)
0 (IN) 0.5

Process. flags (UFLG) (----)
0.5000
1.5000
2.5000
3.5000
6.5000

Min. of Amplitude (AWMN)
0 (DB) 75

External radius Average (ERAV) (IN)
3.7 2.7

External radius Average (ERAV) (IN)
2.7 3.7

Internal radii minus Ave (IRBK) (----)
-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Min of Thickness (THMN) (IN)
0.1 0.6

Thickness minus Ave (THBK) (----)
-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Cement Ratio (CEMR)
1 (----) 0

Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (----)
-1000.0000
-500.0000
0.3000
2.6000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Rev. speed (RSAV)
6 (RPS) 8

Average of Amplitude (AWAV)
0 (DB) 75

Internal radius Average (IRAV) (IN)
3.7 2.7

Internal radius Average (IRAV) (IN)
2.7 3.7

Average of Thickness (THAV) (IN)
0.1 0.6

Microdebonding Ratio (MDR)
1 (----) 0

Rev. speed (RSAV) (RPS)
-8 -6

Maximum of Amplitude (AWMX)
0 (DB) 75

Internal radius Maximum (IRMX) (IN)
3.7 2.7

Internal radius Maximum (IRMX) (IN)
2.7 3.7

Maximum of Thickness (THMX) (IN)
0.1 0.6

Gas or Dry MicroA Ratio (GASR)
1 (----) 0

CCL (CCLU) (----)
-20 20

Amplitude of echo minus Max (AWBK) (----)
-500.0000
-6.0000
-5.6000
-5.2000
-4.8000
-4.4000
-4.0000
-3.6000
-3.2000
-2.8000
-2.4000
-2.0000
-1.6000
-1.2000
-0.8000
-0.4000
0.0000

Min of Internal radius (IRMN) (IN)
3.7 2.7

Min of Internal radius (IRMN) (IN)
2.7 3.7

Bonded

Cable Speed (CS) (F/HR)
4000
8000

Gas or Dry MicroA

Azimuth of eccent. (AZEC)

Liquid

(DEG)
0 360

Image rotation (UCAZ) (DEG)
0 360

Micro-debonding

Format: USIT_5 Vertical Scale: 5" per 100' Graphics File Created: 08-May-2011 14:32

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

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-D: Ultrasonic Imaging - D			
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	32	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.094	IN
DFVL	Default Fluid Velocity	190	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	125	V
FDII	FPM Data Interpolation Interval	0	FT
IMAR	Image Rotation	OFF	
MW	Mud Weight	13.2	LB/G
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	
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.453	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_60U_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	27.1647	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
System and Miscellaneous			
CWEI	Casing Weight	32.00	LB/F
DO	Depth Offset for Playback	20.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	USI_SONIC_014LUP	FN:10	PRODUCER	08-May-2011 12:32	12549.5 FT	9581.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_017PUP	FN:13	PRODUCER	08-May-2011 14:32
CUSTOMER	USI_SONIC_017PUC	FN:14	CUSTOMER	08-May-2011 14:32

Schlumberger

CBL REPEAT SECTION

MAXIS Field Log

Company: OXY US LA BASIN

Well: DOM-002

Input DLIS Files

DEFAULT	USI_SONIC_010LUP	FN:6	PRODUCER	08-May-2011 12:09	12534.5 FT	12268.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_018PUP	FN:15	PRODUCER	08-May-2011 14:38	12554.5 FT	12288.0 FT
CUSTOMER	USI_SONIC_018PUC	FN:16	CUSTOMER	08-May-2011 14:38	12554.5 FT	12288.0 FT

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

PIP SUMMARY

Time Mark Every 60 S

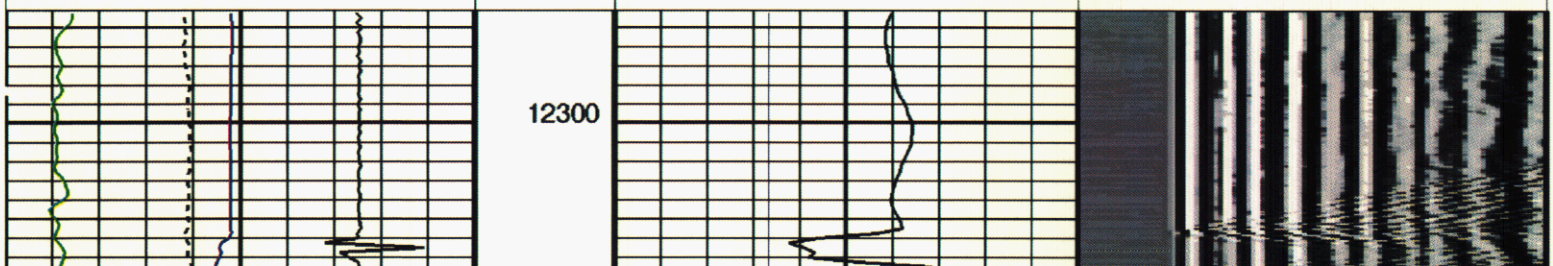
CCL (CCLU)		
-30	(----)	10
Transit Time (TT)		
400	(US)	200
Tension (TENS)		
10000	(LBF)	0
Gamma Ray (GR_EDTC)		
0	(GAPI)	150

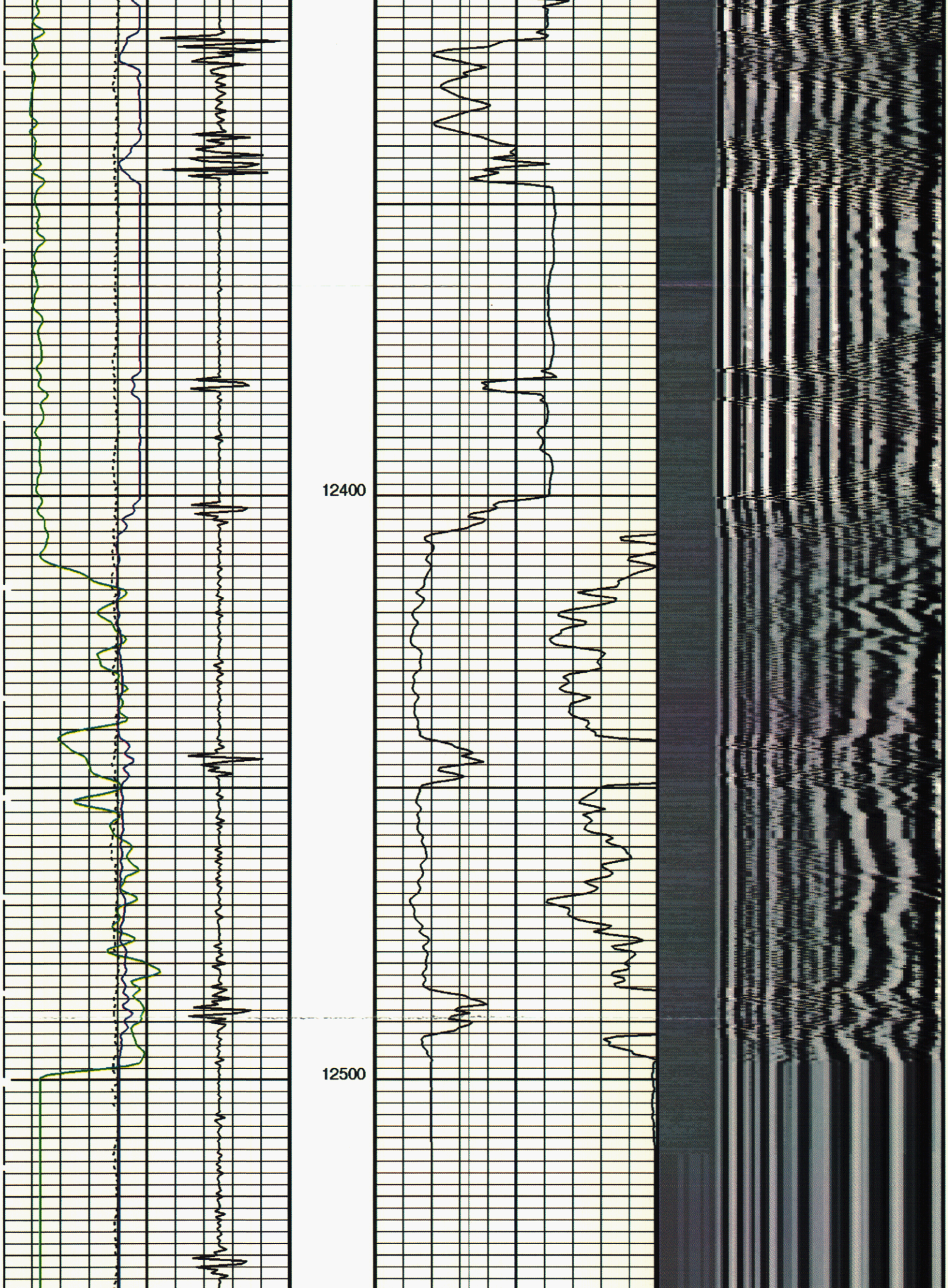
GoodBond From ACBL to GOBO		
Good Bond (GOBO)		
0	(MV)	20
CBL Amplitude (CBL)		
0	(MV)	100
CBL Amplitude (CBL)		
0	(MV)	20

Min Amplitude Max

VDL VariableDensity (VDL)

200 (US) 1200

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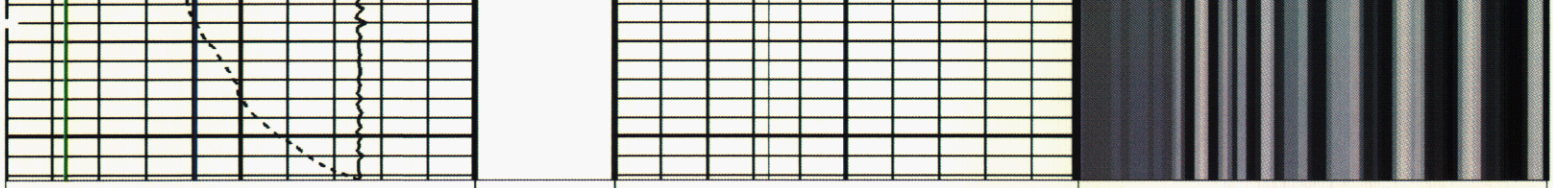

Gamma Ray (GR_EDTC)		
0	(GAPI)	150
Tension (TENS)		
10000	(LBF)	0
Transit Time (TT)		
400	(US)	200
CCL (CCLU)		
-30	(----)	10

CBL Amplitude (CBL)		
0	(MV)	20
CBL Amplitude (CBL)		
0	(MV)	100
Good Bond (GOBO)		
0	(MV)	20
GoodBond From ACBL to GOBO		

Min Amplitude Max

VDL VariableDensity (VDL)

200 (US) 1200

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 08-May-2011 14:38

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

<<<Slim Sonic Cement Evaluation Information Summary>>>

Sonde Serial Number			
Current Casing Size	7.0 IN		
Casing Weight	32.0 LB/F		
Expected CBL Amplitude in Free Pipe Section	63 MV	Minimum Sonic Amplitude	3.74153 MV (100% Cement) 6.58124 MV (80% Cement)
Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	Not Done	Depth of Before Calibration	12224.6 FT
CBL Correction Factor for CBL Mode	0.500000	CBL Adjustment Factor (CBAF)	0.894364
CBL Correction Factor for CBLB Mode	0.500000		
VDL Ratio for CBLB Mode	1.0		

Parameters

DLIS Name	Description	Value	
USIT-D: Ultrasonic Imaging - D			
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	32	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.094	IN
DFVL	Default Fluid Velocity	190	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	125	V
MW	Mud Weight	13.2	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.453	IN

USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_60U_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	27.1647	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
QSLT-B: SlimXtreme Sonic Logging Tool			
BILI	Bond Index Level for Zone Isolation	0.8	
CBAF	CBL Adjustment Factor	0.894364	
CBLG	CBL Gate Width	50	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	63	MV
CMCF	CBL Cement Type Compensation Factor	1	
CTHI	Casing Thickness	0.457456	IN
DETE	Detection Peak	E1	
DFAD_INTERVAL_MODE	Detection Interval Mode for first arrival	FIXED	
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	1	
GOBO	Good Bond	6.58124	MV
MAHTR	Manual High Threshold Refernce	40	
MATT	Maximum Attenuation	9.56176	DB/F
MNHTR	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	3.74153	MV
NMSG	Near Minimum Sliding Gate	290	US
NUMP	Number of Detection Passes	2	
SGAD	Sliding Gate Allow/Disallow	OFF	
SGDT	Sliding Gate Delta-T	57	US/F
SLEV	Signal Level for Threshold Control	5000	
VDLG	VDL Manual Gain	5	
VDM	VDL Display Mode	R5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CWEI	Casing Weight	32.00	LB/F
DFD	Drilling Fluid Density	13.20	LB/G
DO	Depth Offset for Playback	20.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	USI_SONIC_010LUP	FN:6	PRODUCER	08-May-2011 12:09	12534.5 FT	12268.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_018PUP	FN:15	PRODUCER	08-May-2011 14:38
CUSTOMER	USI_SONIC_018PUC	FN:16	CUSTOMER	08-May-2011 14:38

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USIT REPEAT SECTION

MAXIS Field Log

Input DLIS Files

DEFAULT	USI_SONIC_010LUP	FN:6	PRODUCER	08-May-2011 12:09	12534.5 FT	12268.0 FT

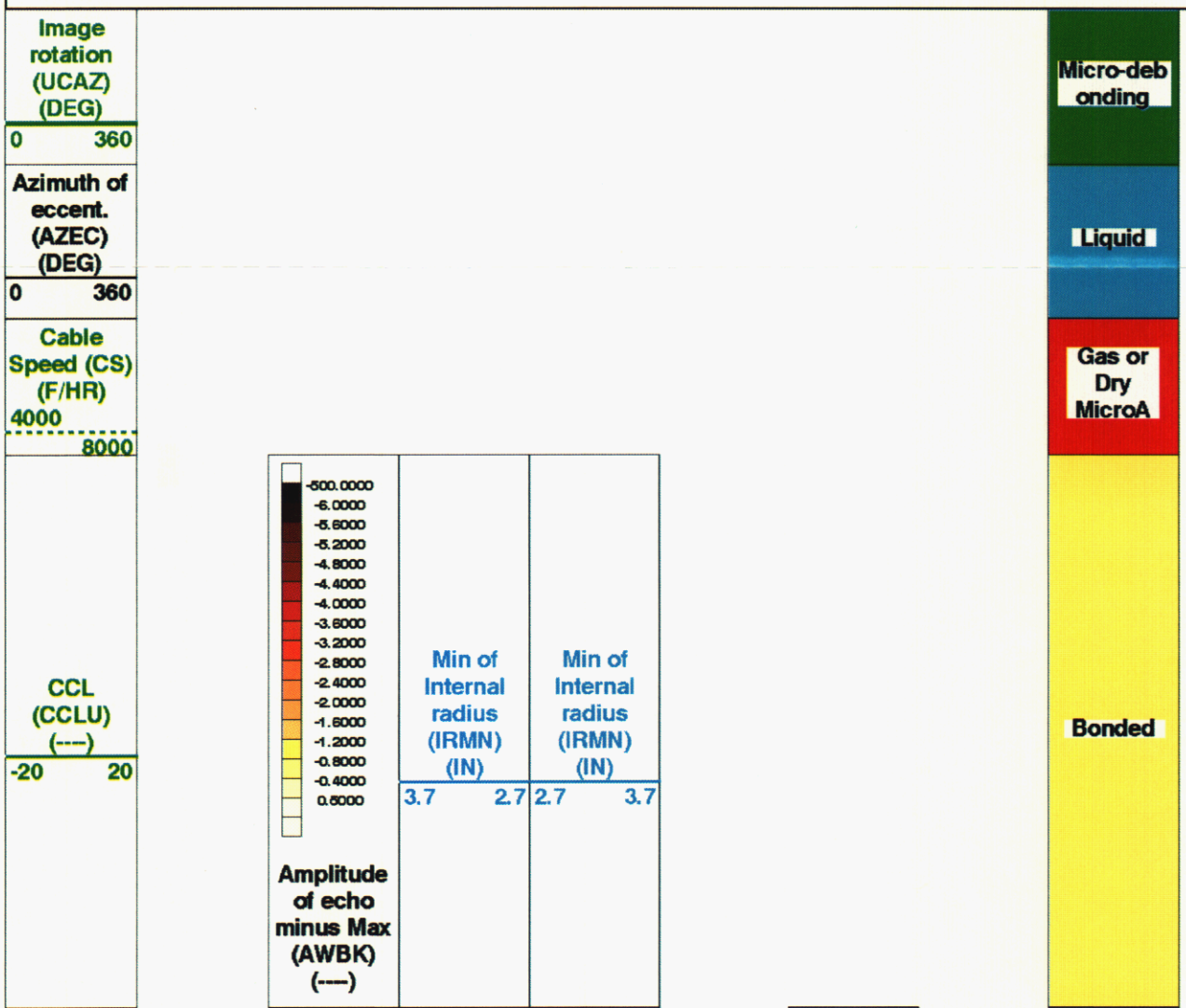
Output DLIS Files

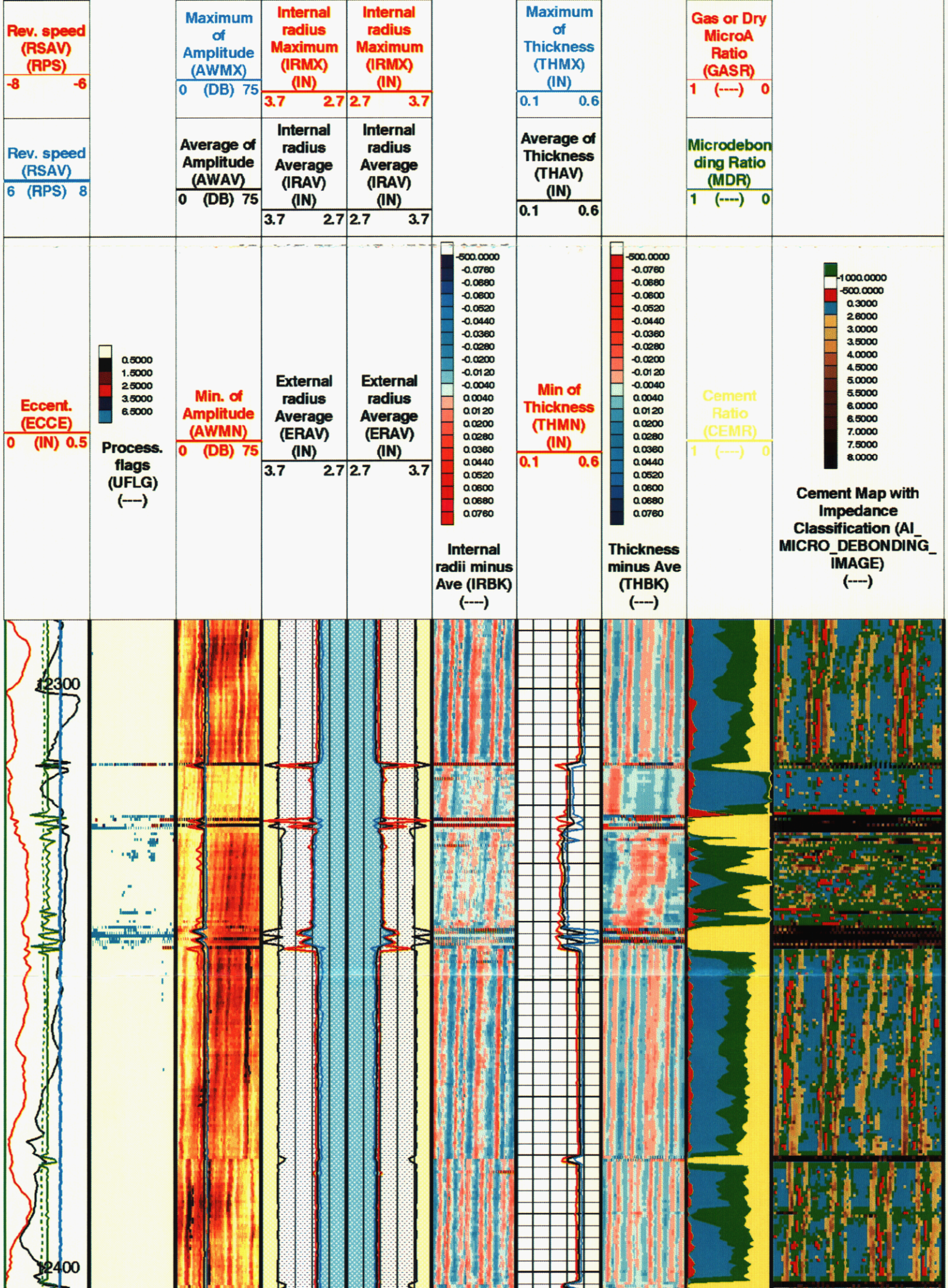
DEFAULT	USI_SONIC_018PUP	FN:15	PRODUCER	08-May-2011 14:38	12554.5 FT	12288.0 FT
CUSTOMER	USI_SONIC_018PUC	FN:16	CUSTOMER	08-May-2011 14:38	12554.5 FT	12288.0 FT

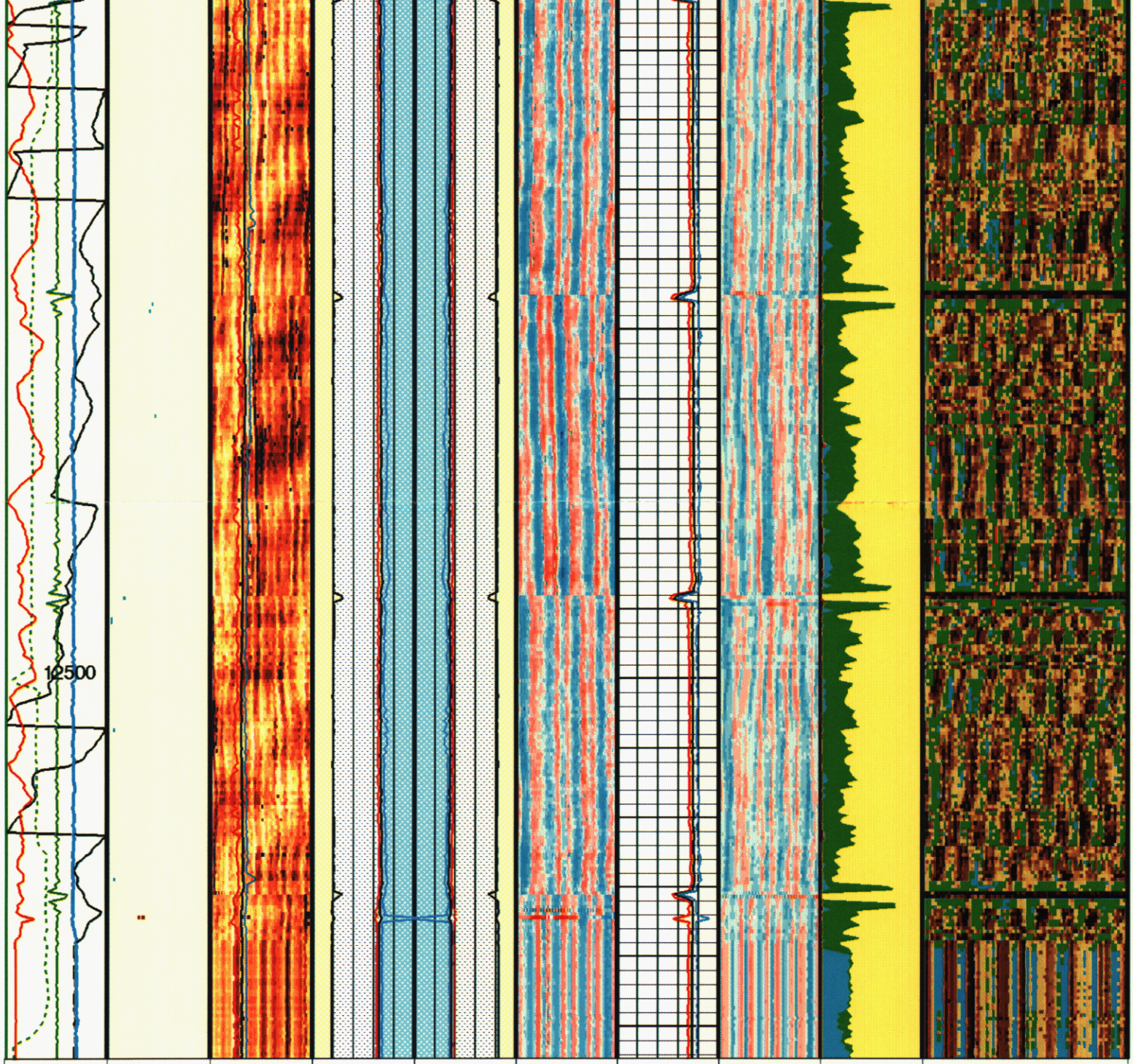
OP System Version: 19C0-187

Zoning of Mud Parameters

Depth	Fluid Velocity (DFVL)	Acoustic Impedance (ZMUD)
12000.00	188.96	2.33
11000.00	190.82	2.36
10000.00	189.44	2.35
9000.00	191.07	2.34




Rev. speed (RSAV) (RPS)
-8 -6
Rev. speed (RSAV)
6 (RPS) 8
Eccent. (ECCE)
0 (IN) 0.5
0.5000
1.5000
2.5000
3.5000
6.5000
Process. flags (UFLG) (----)
Maximum of Amplitude (AWMX)
0 (DB) 75
Average of Amplitude (AWAV)
0 (DB) 75
Min. of Amplitude (AWMN)
0 (DB) 75
Internal radius Maximum (IRMX) (IN)
3.7 2.7
Internal radius Average (IRAV) (IN)
3.7 2.7
External radius Average (ERAV) (IN)
3.7 2.7
Internal radius Maximum (IRMX) (IN)
2.7 3.7
Internal radius Average (IRAV) (IN)
2.7 3.7
External radius Average (ERAV) (IN)
2.7 3.7
-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Internal radii minus Ave (IRBK) (----)
Maximum of Thickness (THMX) (IN)
0.1 0.6
Average of Thickness (THAV) (IN)
0.1 0.6
Min of Thickness (THMN) (IN)
0.1 0.6
Thickness minus Ave (THBK) (----)
Gas or Dry MicroA Ratio (GASR)
1 (----) 0
Microdebonding Ratio (MDR)
1 (----) 0
Cement Ratio (CEMR)
1 (----) 0
-1000.0000
-500.0000
0.3000
2.6000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000
Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (----)
12300
12400



Eccent. (ECCE)
0 (IN) 0.5

0.5000
1.5000
2.5000
3.5000
6.5000

Process. flags (UFLG)
(----)

Min. of Amplitude (AWMN)
0 (DB) 75

External radius Average (ERAV) (IN)
3.7 2.7

External radius Average (ERAV) (IN)
2.7 3.7

-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Internal radii minus Ave (IRBK)
(----)

Min of Thickness (THMN) (IN)
0.1 0.6

-500.0000
-0.0760
-0.0680
-0.0600
-0.0520
-0.0440
-0.0360
-0.0280
-0.0200
-0.0120
-0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Thickness minus Ave (THBK)
(----)

Cement Ratio (CEMR)
1 (----) 0

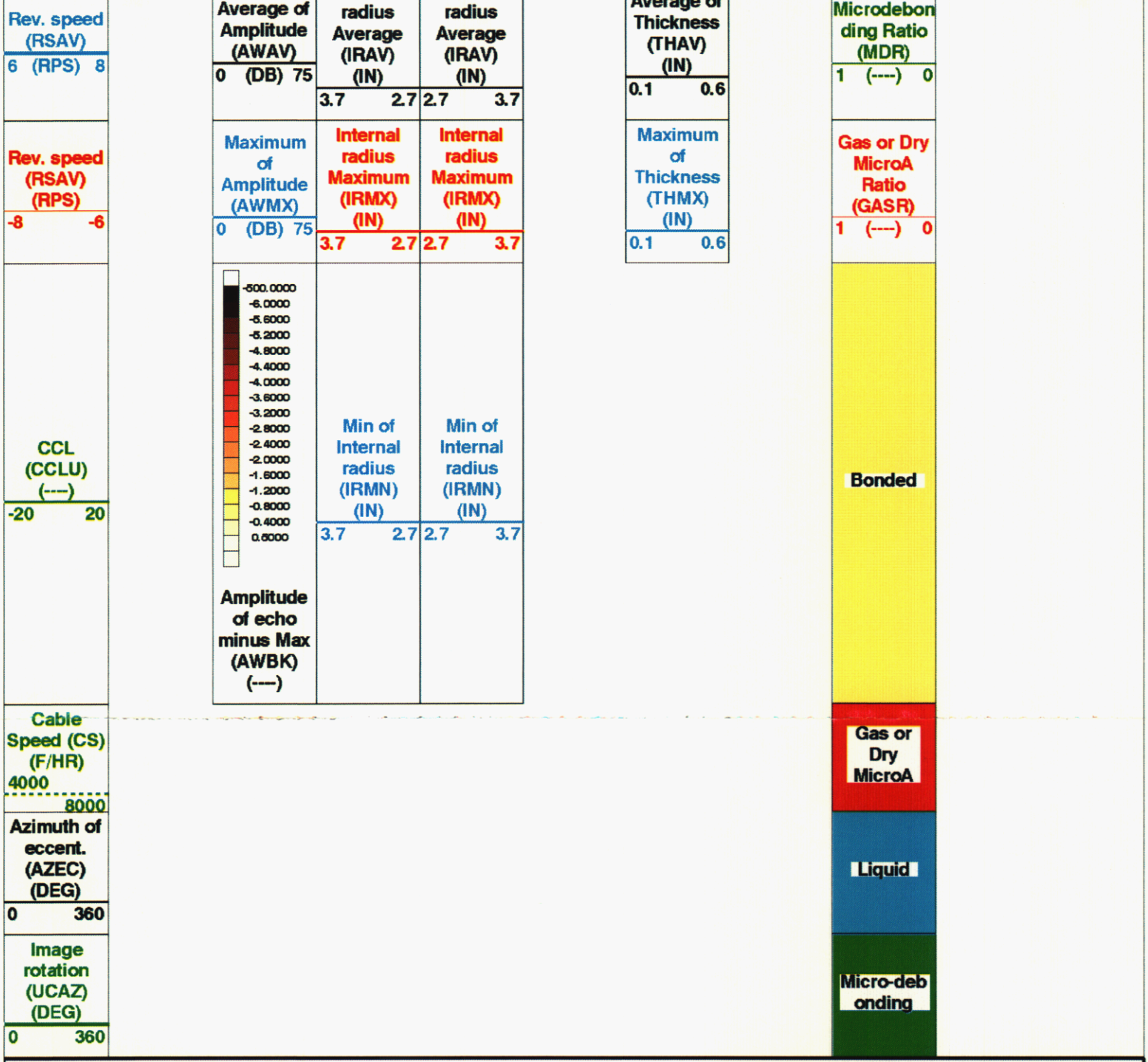
-1000.0000
-500.0000
0.3000
2.6000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE)
(----)

Internal

Internal

Average of



Format: USIT_5 **Vertical Scale: 5" per 100'** **Graphics File Created: 08-May-2011 14:38**

OP System Version: 19C0-187

USIT-D	19C0-187	QSLT-B	19C0-187
EDTC-B	19C0-187		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

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-D: Ultrasonic Imaging - D		
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	32	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.094	IN
DFVL	Default Fluid Velocity	190	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	125	V
FDII	FPM Data Interpolation Interval	0	FT
IMAR	Image Rotation	OFF	
MW	Mud Weight	13.2	LB/G
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	
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.453	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_60U_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	27.1647	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
	System and Miscellaneous		
CWEI	Casing Weight	32.00	LB/F
DO	Depth Offset for Playback	20.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	USI_SONIC_010LUP	FN:6	PRODUCER	08-May-2011 12:09	12534.5 FT	12268.0 FT

Output DLIS Files

DEFAULT	USI_SONIC_018PUP	FN:15	PRODUCER	08-May-2011 14:38
CUSTOMER	USI_SONIC_018PUC	FN:16	CUSTOMER	08-May-2011 14:38

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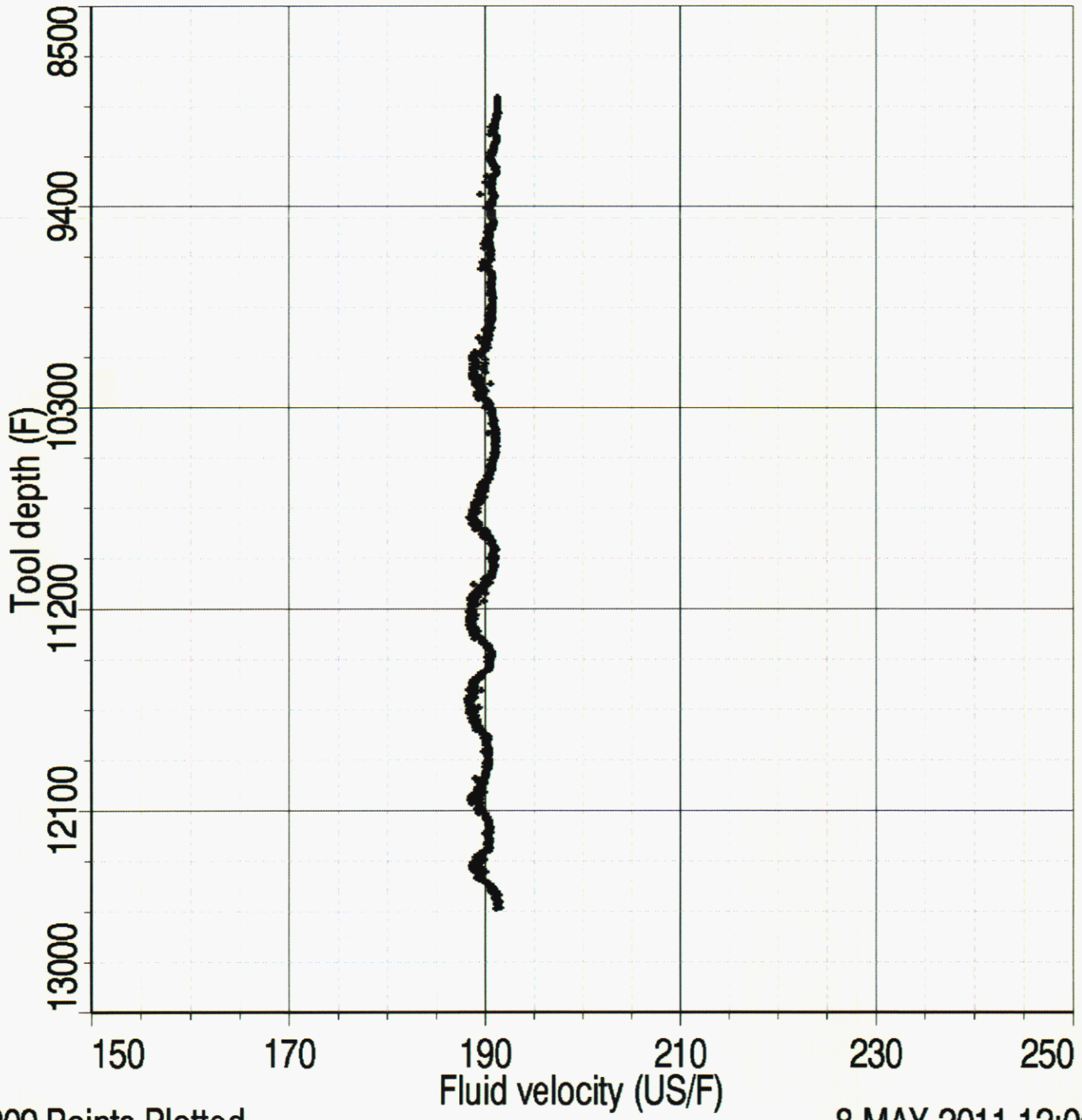
FPM CROSSPLOTS

MAXIS Field Log

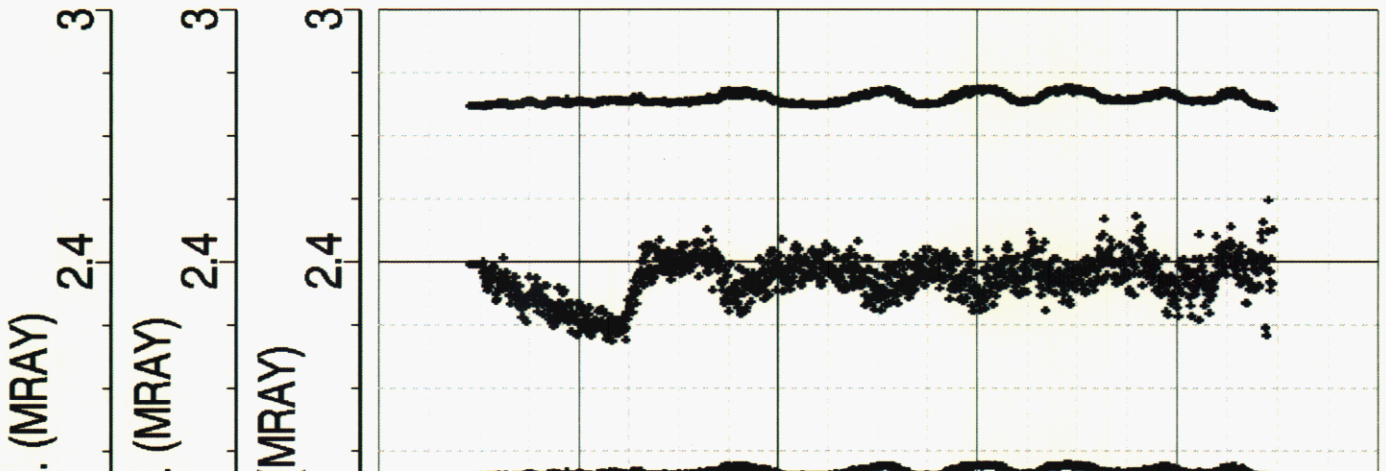
Index: 8910.0 - 12534.0 FT

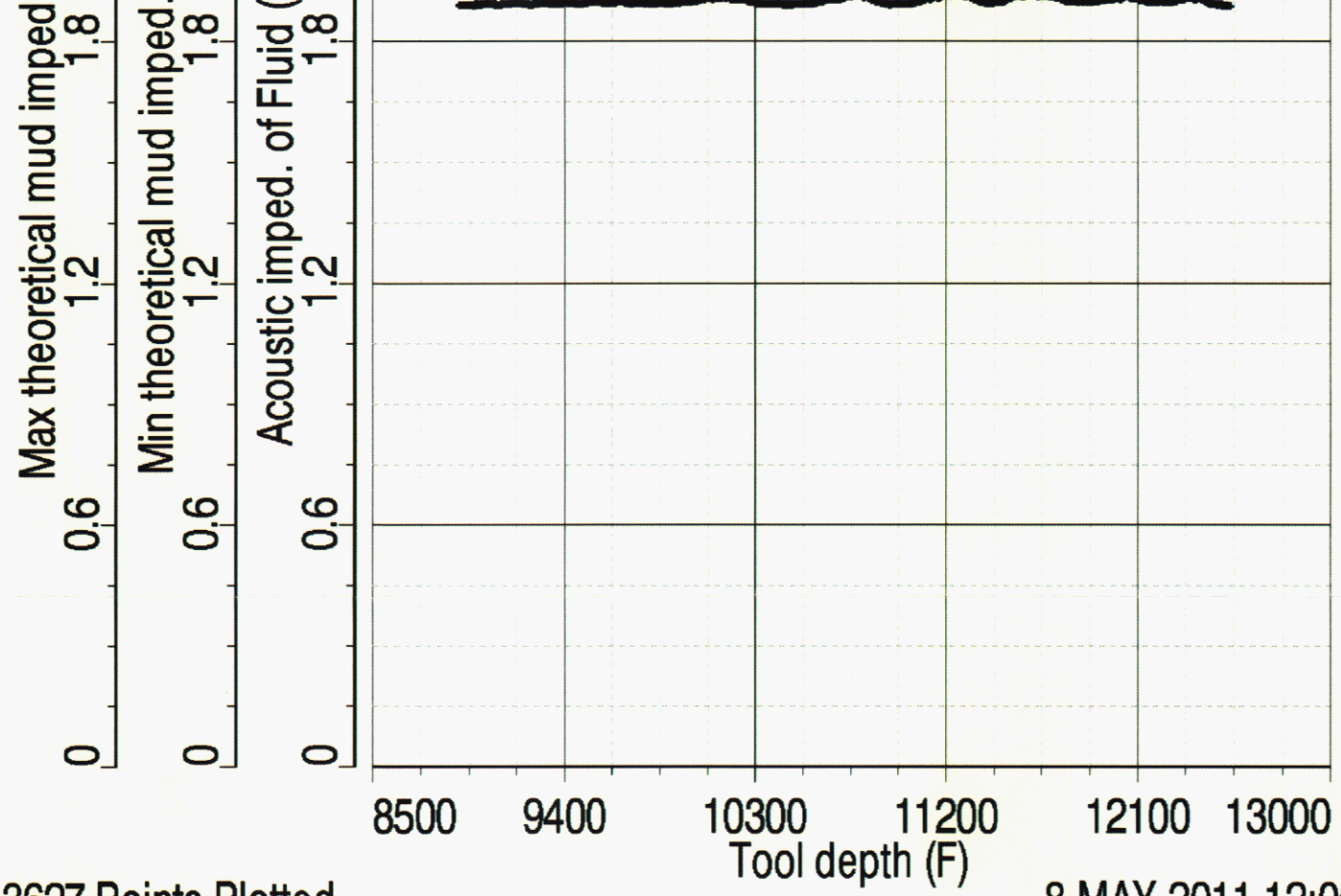


1209 Points Plotted

8-MAY-2011 12:06

Index: 8910.0 - 12534.0 FT

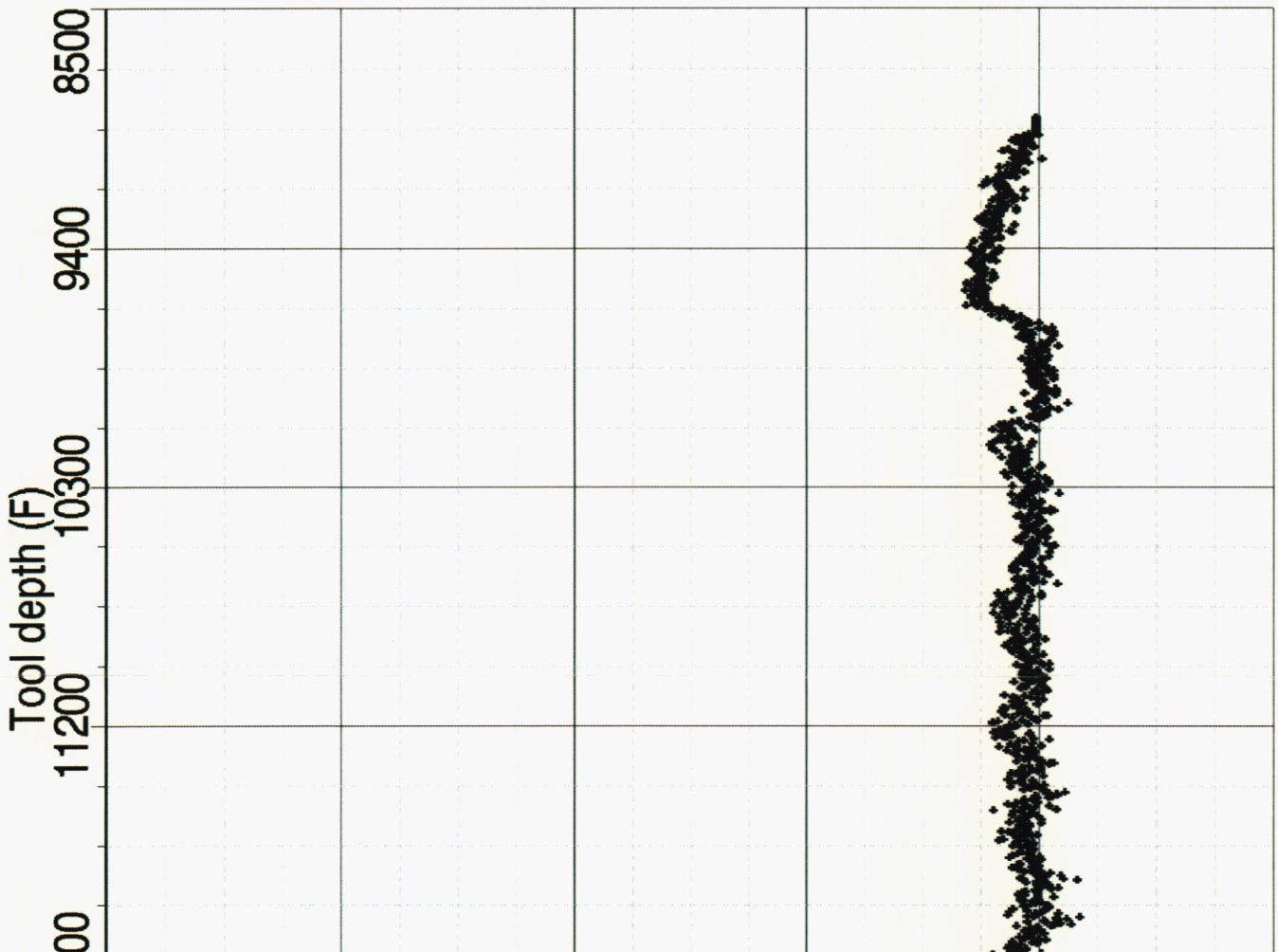


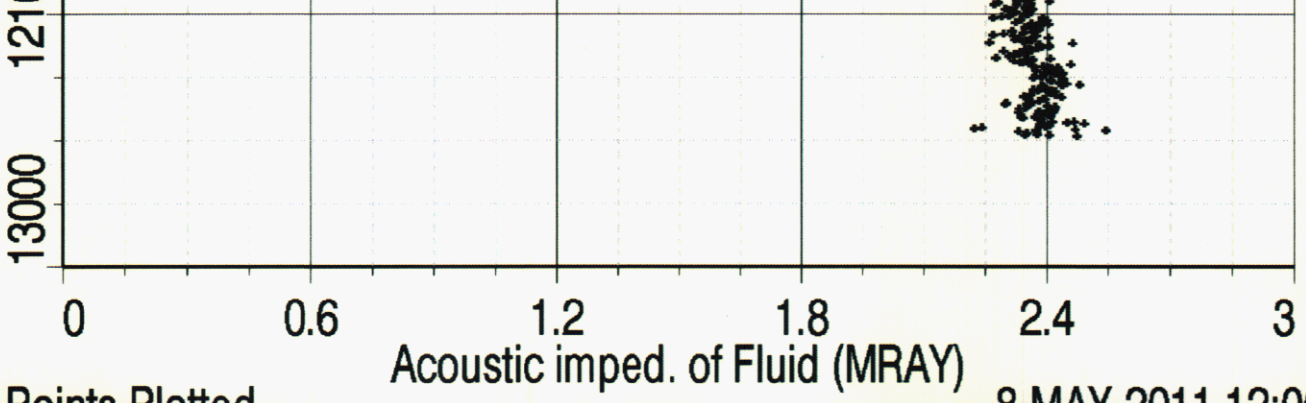


3627 Points Plotted

8-MAY-2011 12:06

Index: 8910.0 - 12534.0 FT





1209 Points Plotted

8-MAY-2011 12:06

Company: OXY US LA BASIN

Schlumberger

Well: DOM-002
Field: DOMINGUEZ
County: LOS ANGELES
State: CALIFORNIA

ULTRASONIC IMAGER TOOL
CEMENT BOND LOG
GAMMA RAY TIE-IN

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