

**HALLIBURTON**

**CAST-M  
ADVANCED CEMENT  
EVALUATION**

**COMPANY** CONOCO PHILLIPS  
**WELL** BOMHOFF 5 8H  
**FIELD** NIOBRARA  
**COUNTY** ARAPAHOE  
**STATE** CO

**Location:** LAT: 39DEC 43' 8.818"N W  
LON: 104DEC 33' 49.226"

**Elevations:** K.B.: 5633' R.T.: 5632' G.L.: 5609'

Date Processed	12/08/2013	Logs Processed	CASE
Job Number		Date Logged	12/06/2013
Interval Processed	0'-6669'	Type Fluid In Hole	WATER
Processed By	PHILIP GRANT	Location	CO
Processed At	DENVER FRS		

--- COMPUTER PROCESSED PRODUCT ---

— Fold Here —

Service Ticket No.:	N/A	API Serial No.:	0500507180	PGM Version:	XL v5.1
<b>DIRECTIONAL INFORMATION</b>					
Maximum Deviation		deg. @		KOP	
<b>Remarks:</b>					
CCL-GR-CBLM-CASTM RAN IN COMBINATION.					
EXPECTED CASING 7" OD 32# 6.094" ID THICKNESS 0.453					
CAST-M LOGS ACQUIRED IN CIM MODE AT 72 SHOTS AND 4 SCANS/FT WTH 4.375" HEAD					
LOG SPICED AT 556.25'					
CEMENT TOP AT 80'					
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.					
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.					
HALLIBURTON					

**CASING AND TUBING RECORD  
CONOCO PHILLIPS  
BOMHOFF 5 8H**

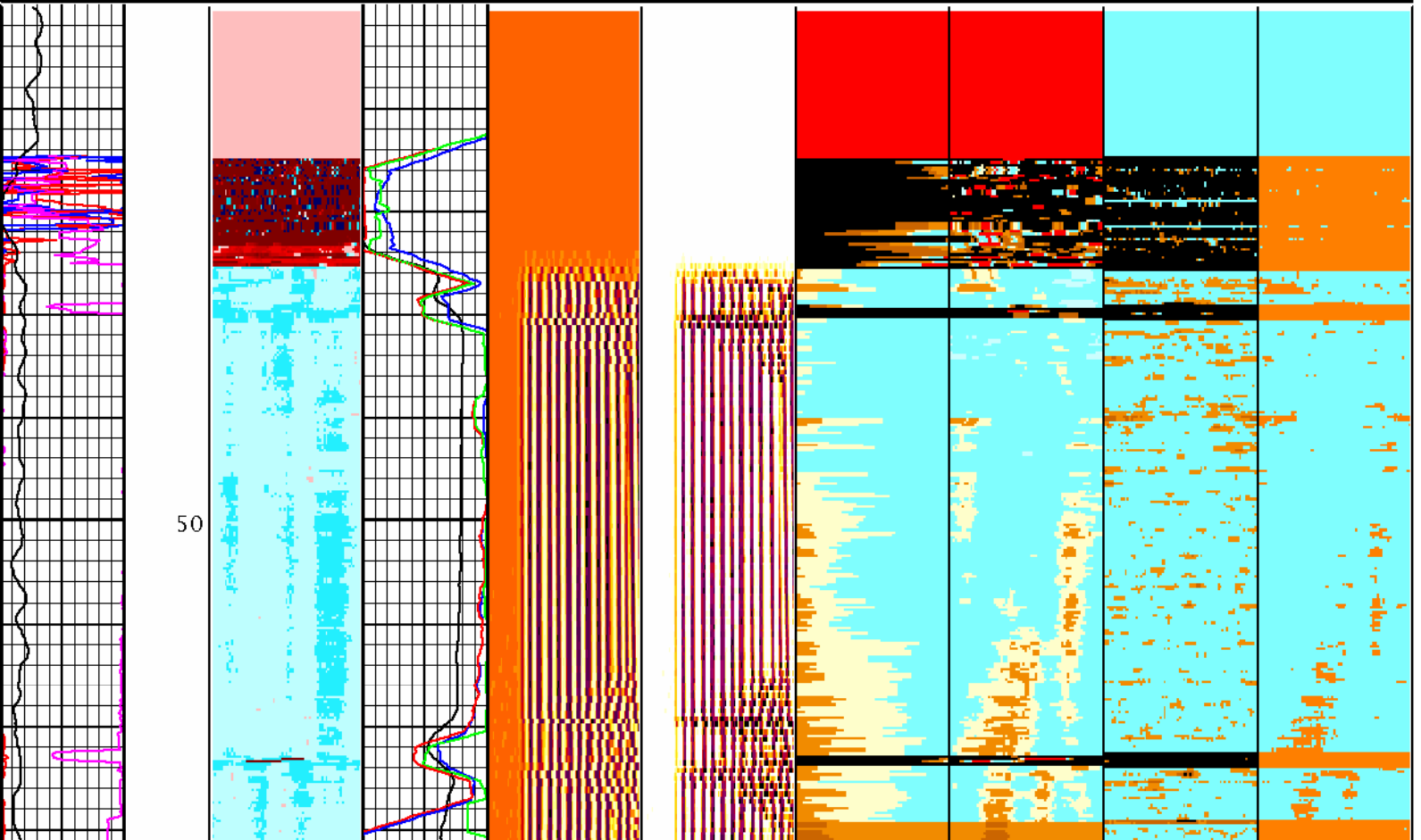
DENVER ACE ON  
NIOBRARA  
ARAPAHOE COUNTY  
COLORADO

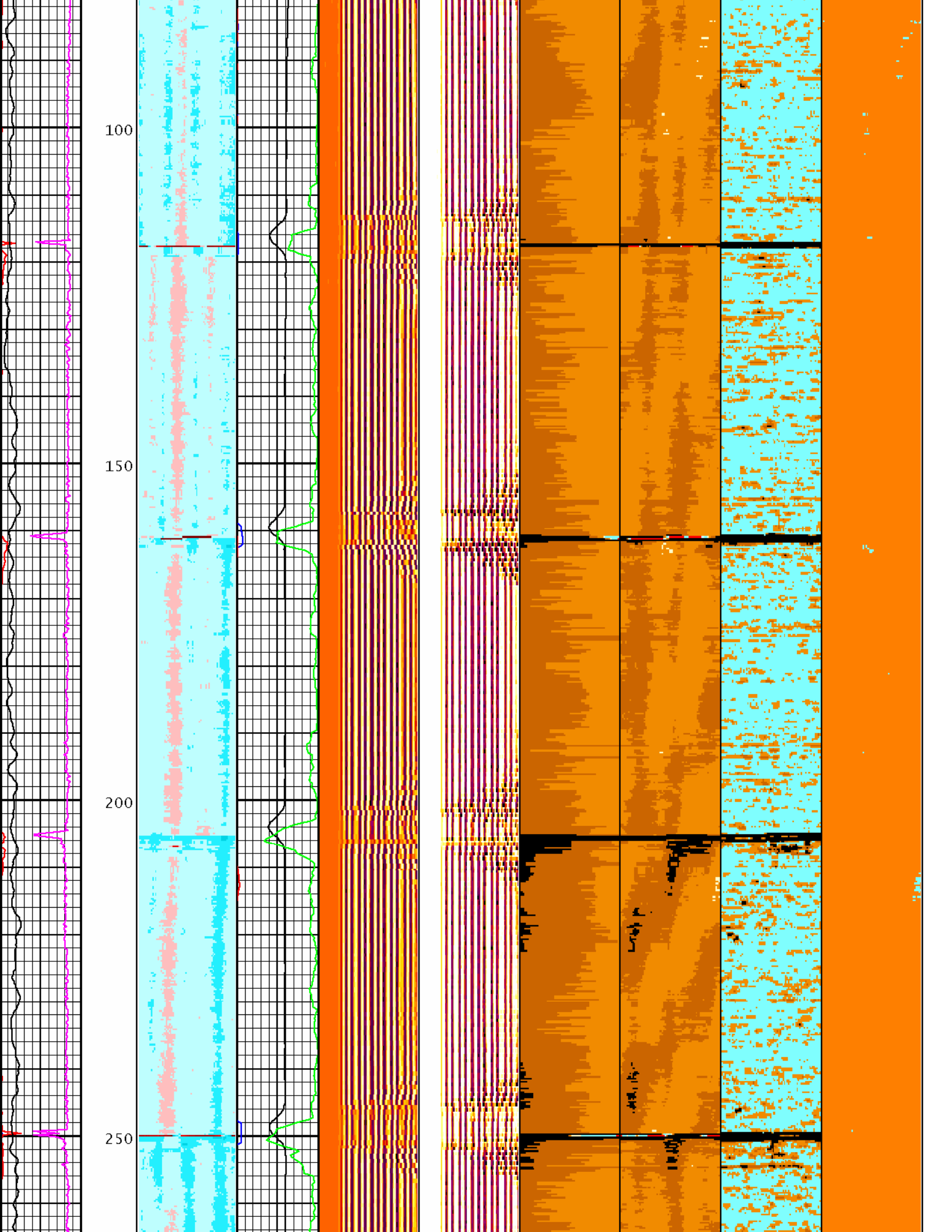
OD	ID	THK	WEIGHT	FROM	TO
7"	6.094"	0.453"	32#	SURFACE	7915'

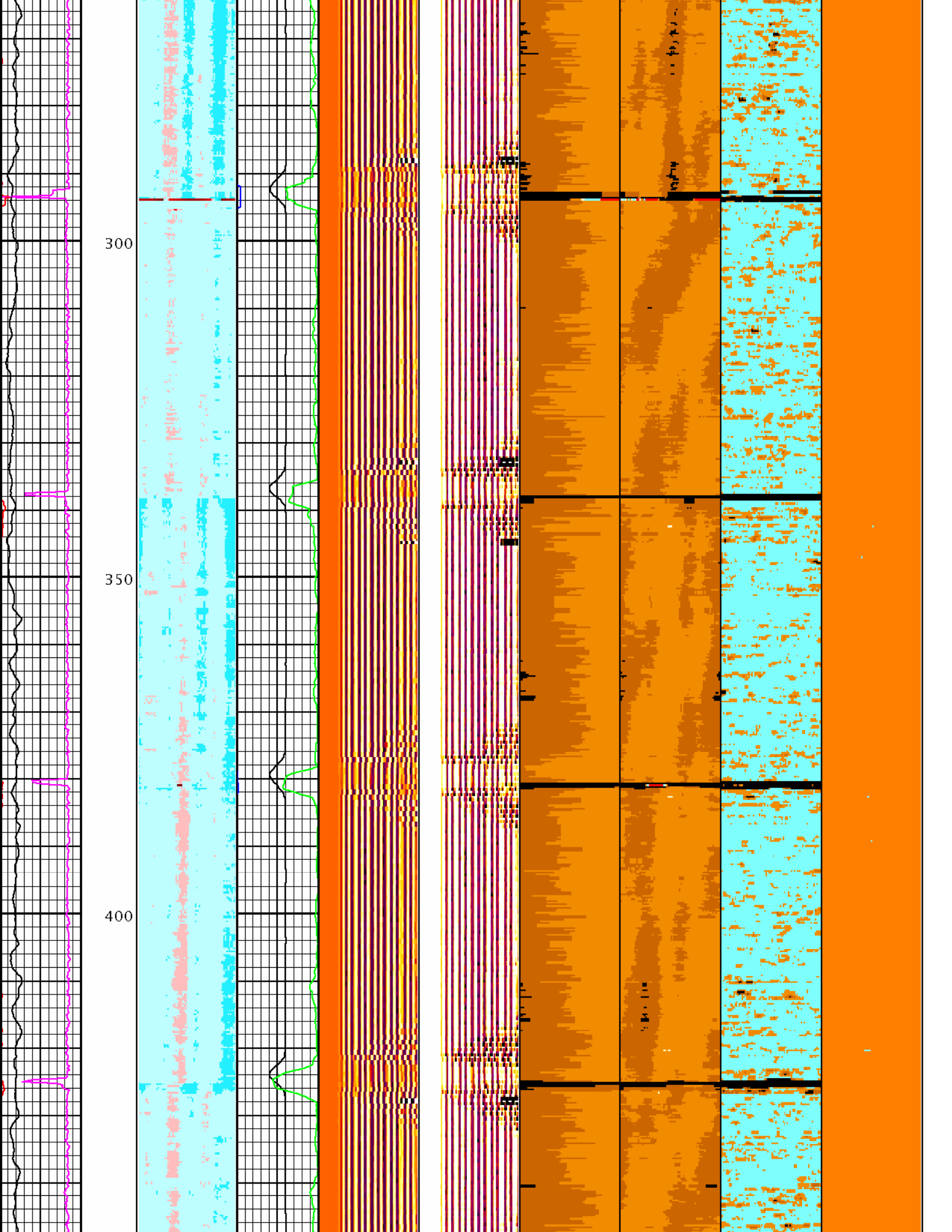
**HALLIBURTON**

Version No: | hc:3.0  
 Data File: MERGE.c1s  
 Format File: DENVER\_ACE.spc  
 Plot Time: 2013-12-08 11:36:29  
 Database Time: 08:55:24  
 Top Depth: 0.00  
 Bottom Depth: 6669.50

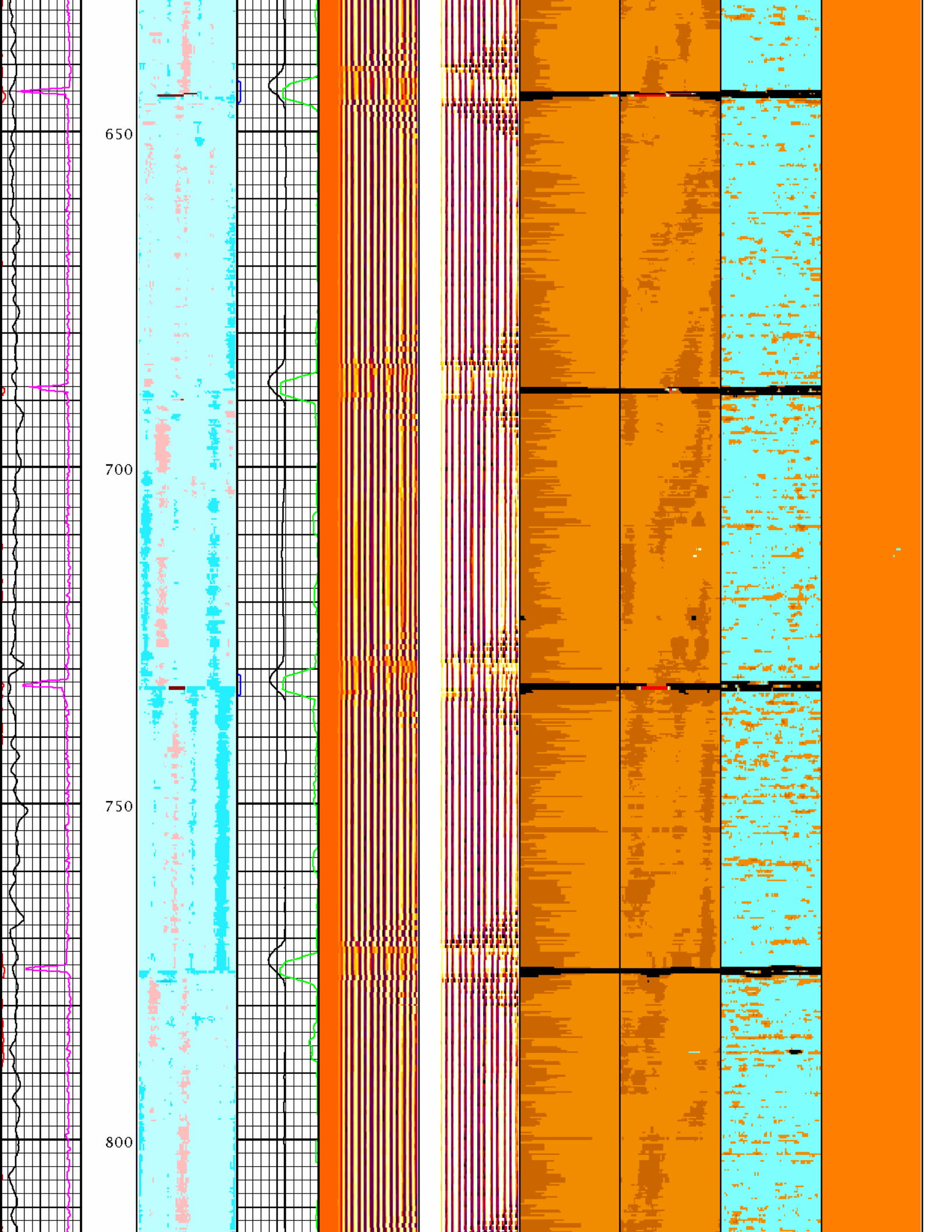
QUALITY TRACK	DEPTH TRACK	RADIUS IMAGE	CEMENT INDEX	CBL MSG	CBL MSG TOTAL	VOLUMETRIC IMPEDANCE	IMPEDANCE MAP	DERIVATIVE MAP	CEMENT TOTAL
ECTY	1:200 FT.	PRADN	AMP	WMSG	WMSGT	ZPV	ZP	DZ	CEMT
0 1		0 72	0 100	0 240	0 240	1 72	1 72	1 72	1 72
OVAL			FCBI						
0 1			1 0						
GR			FCEMBI						
0 150			1 0						
AVZ			FCBIDZ						
12 2			1 0						
		-0.25 0.25		-2000 2000	0 2000	0 6.15	0 6.15	0 0.88	0 1

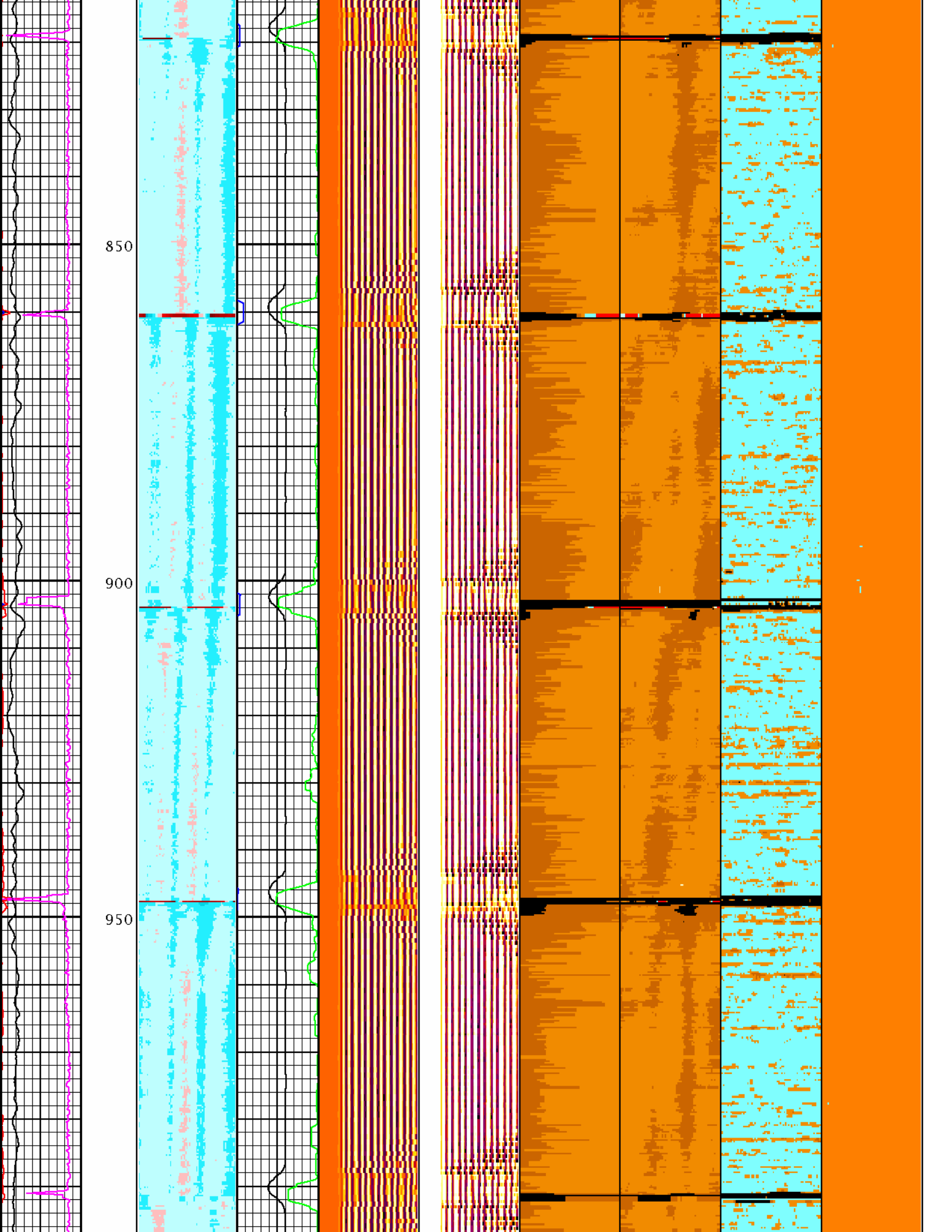


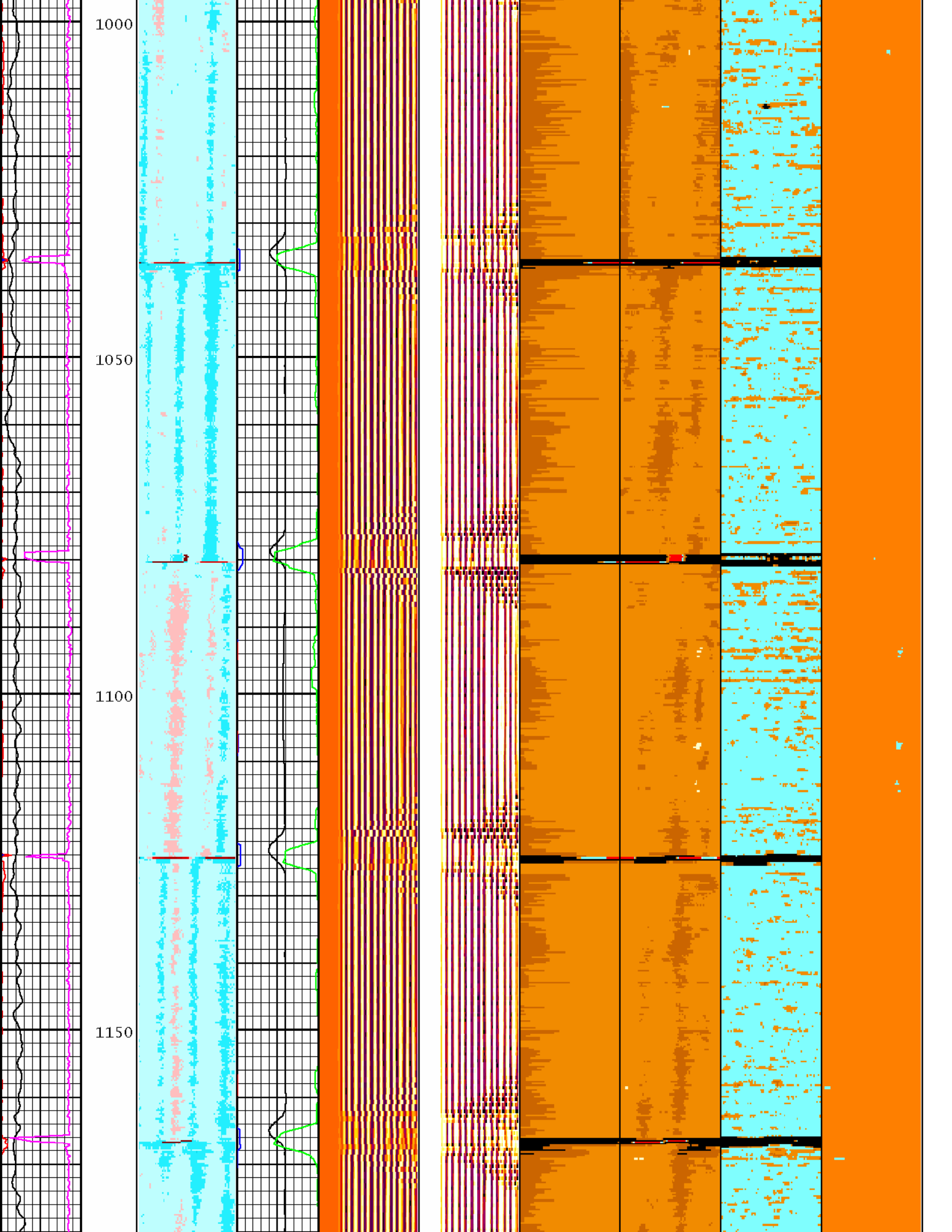


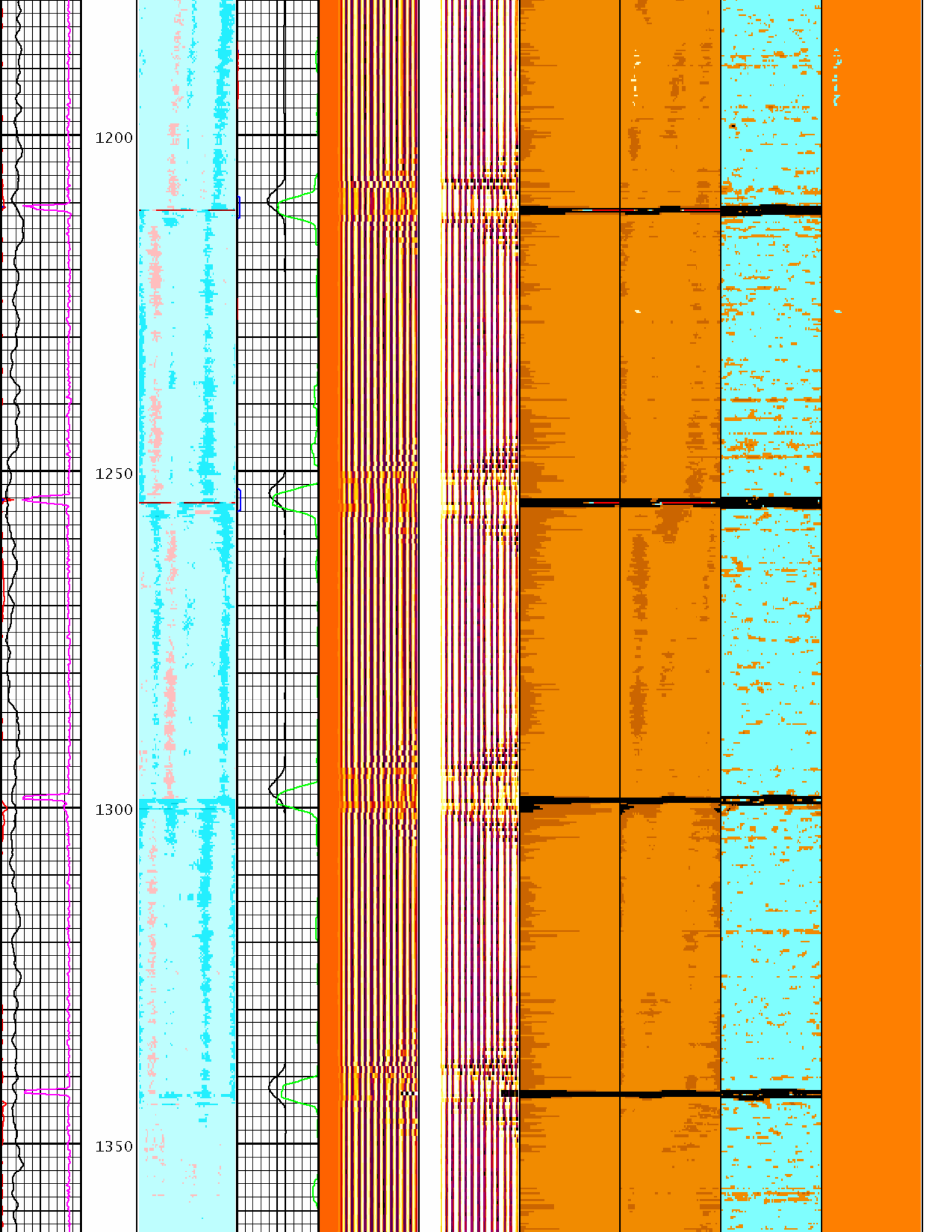


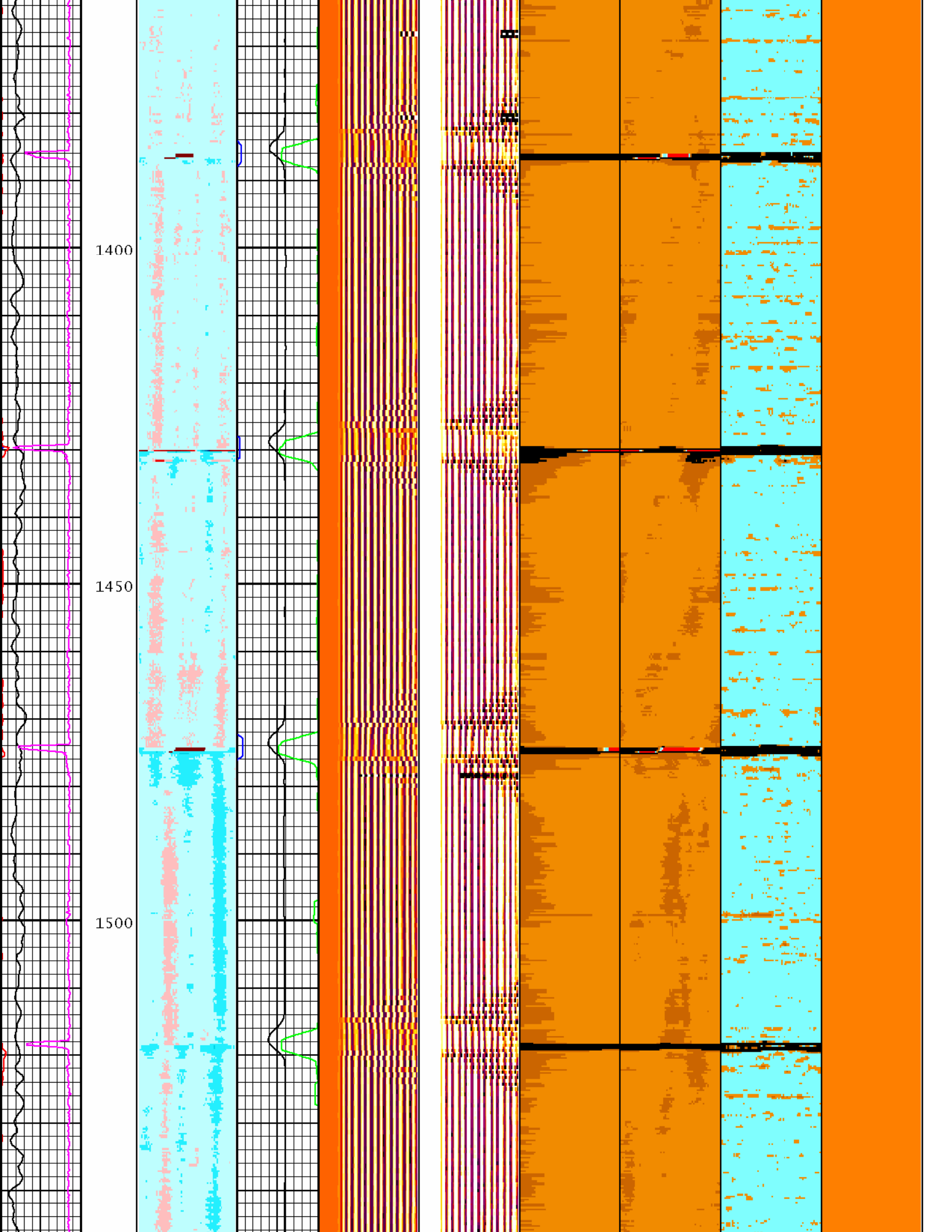


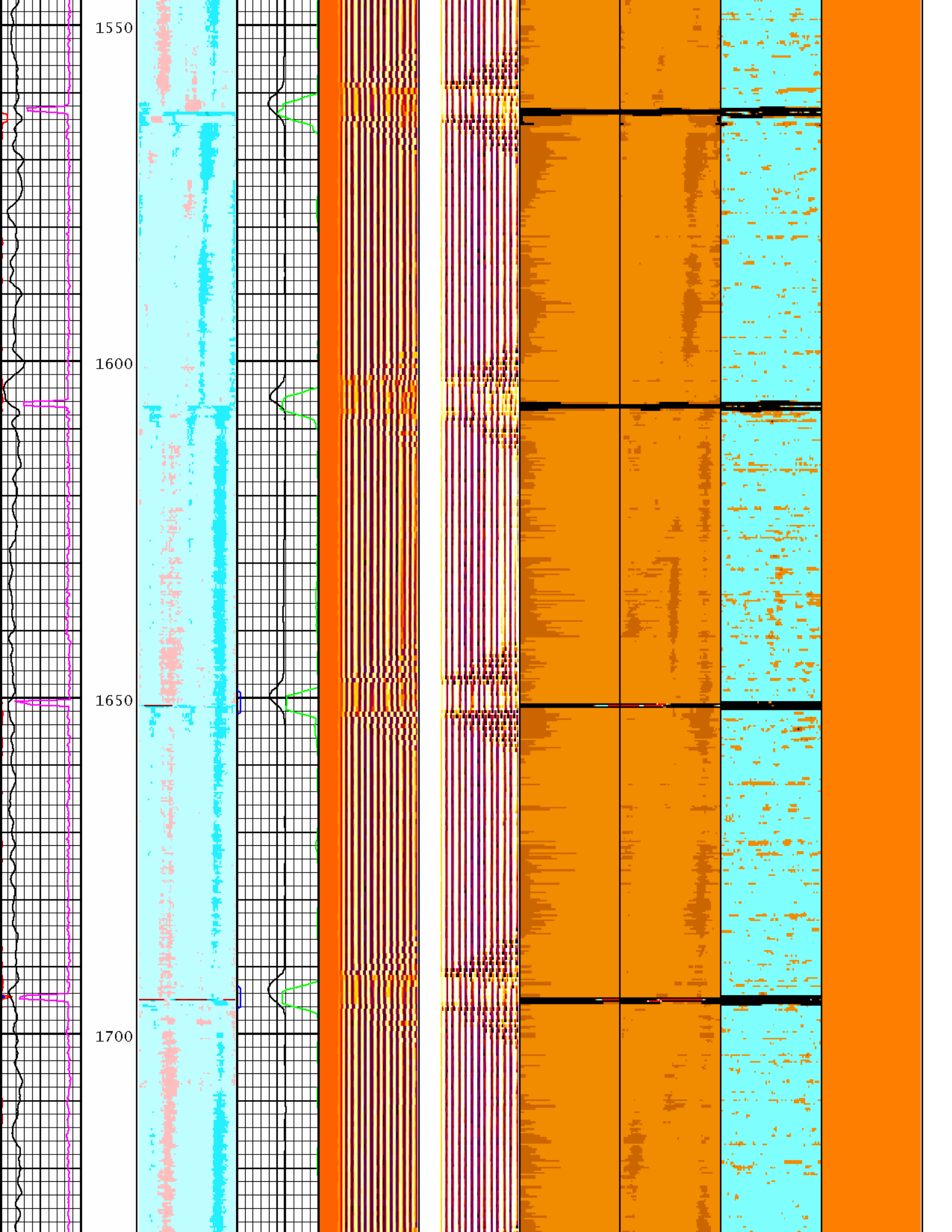




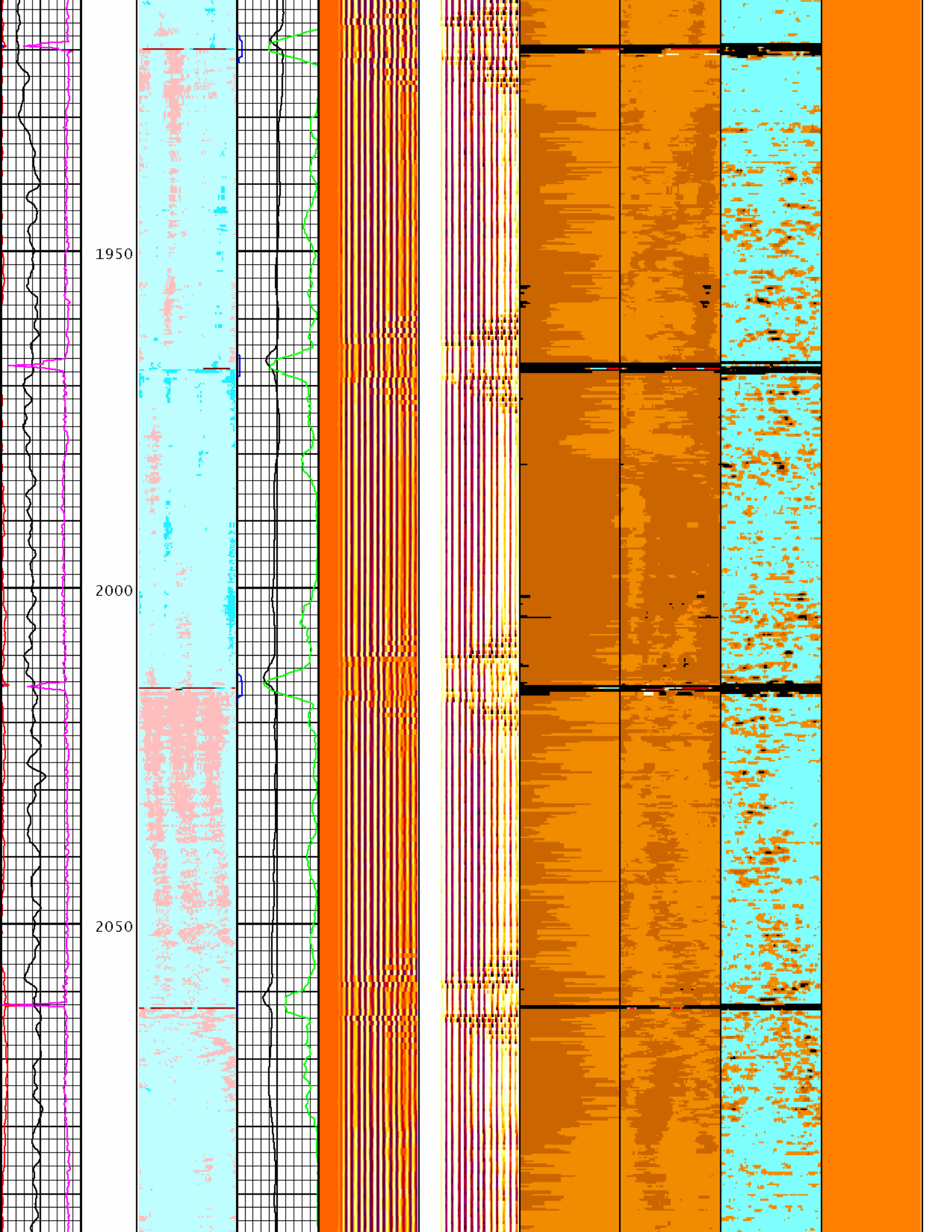


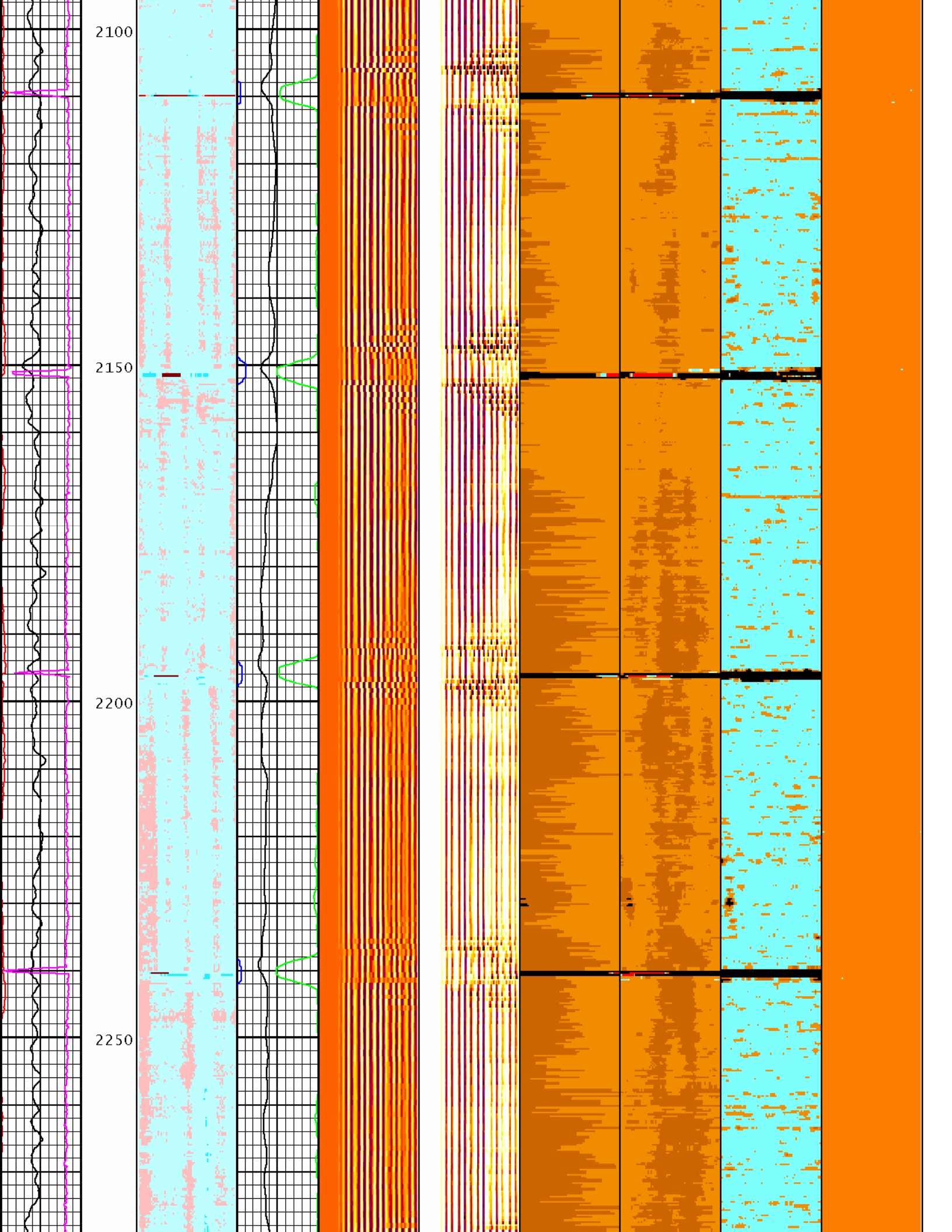


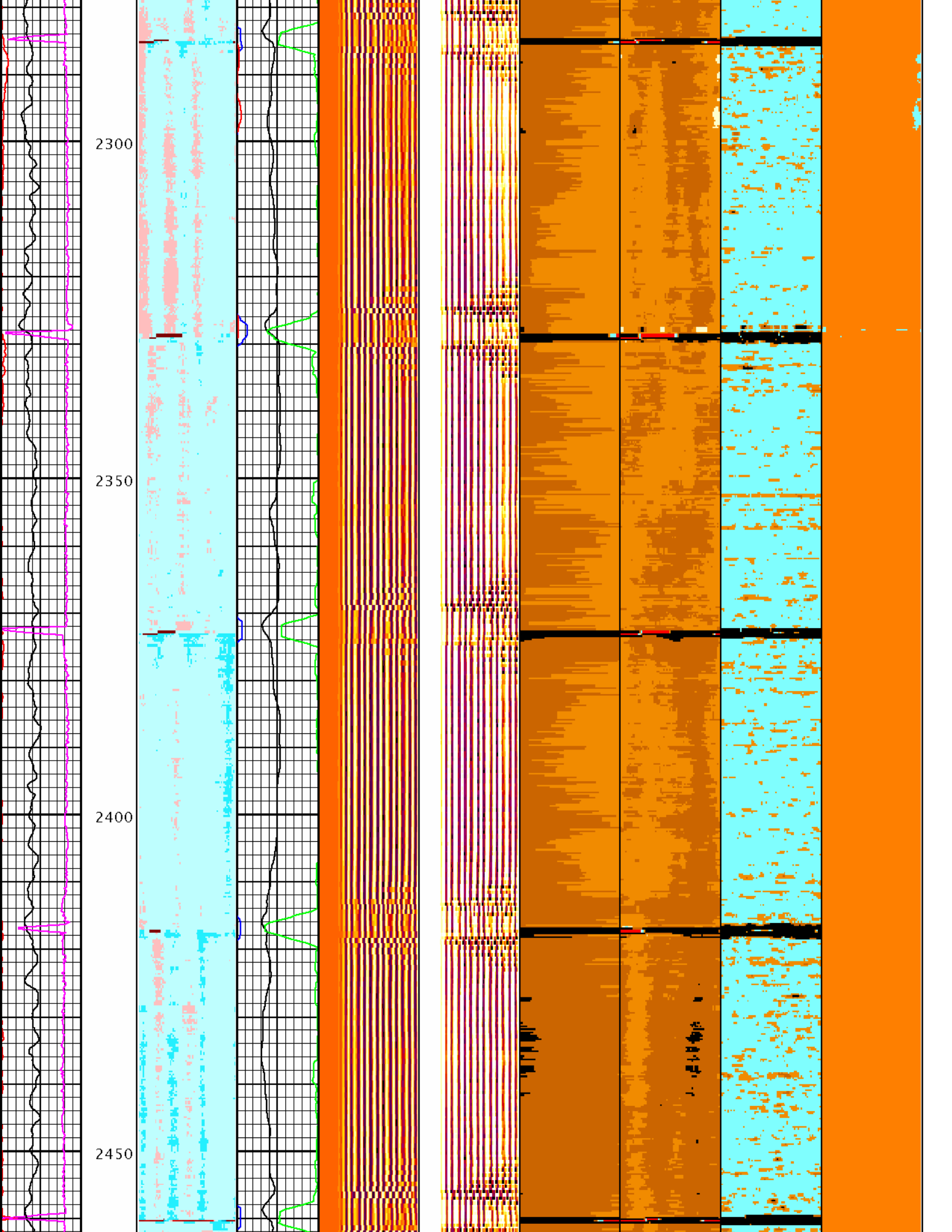


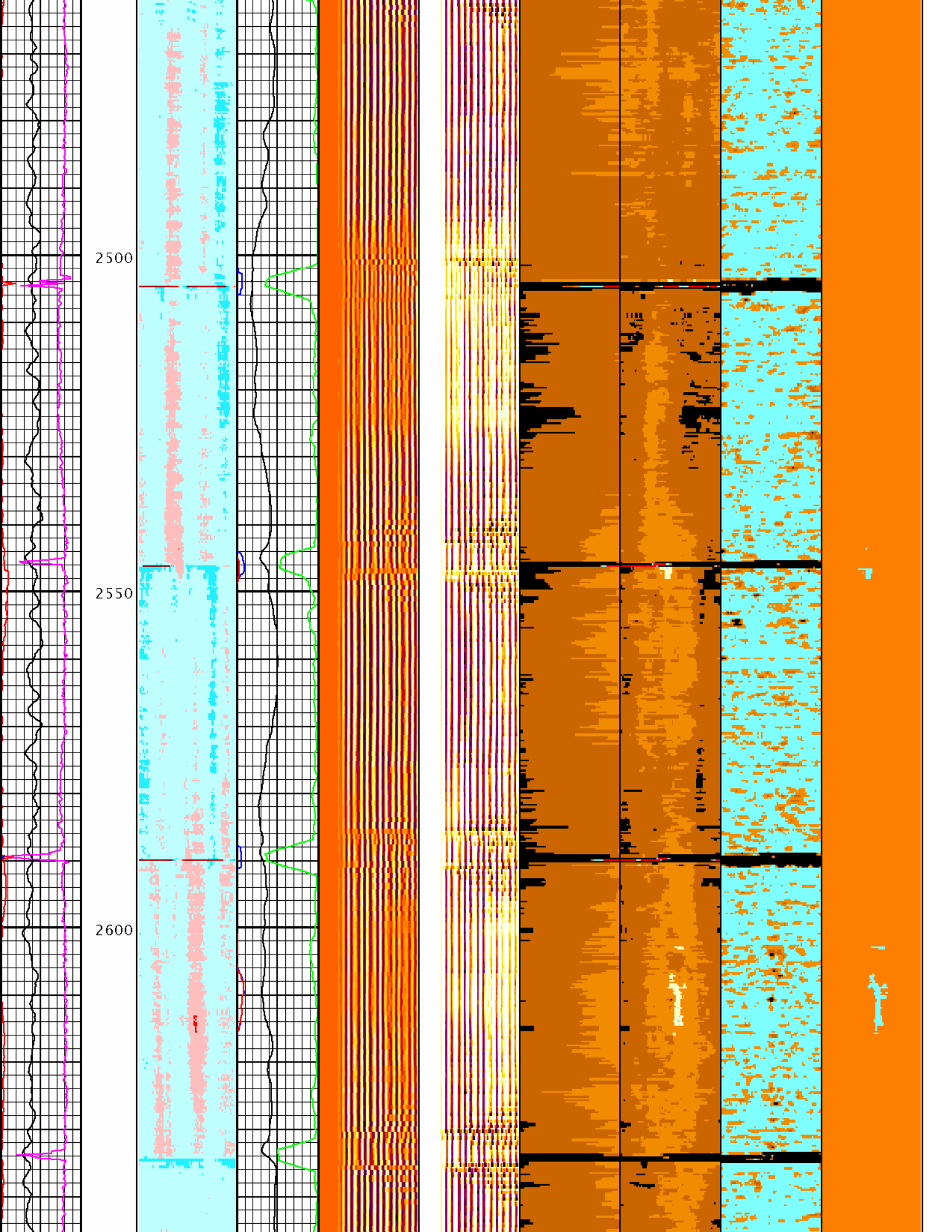




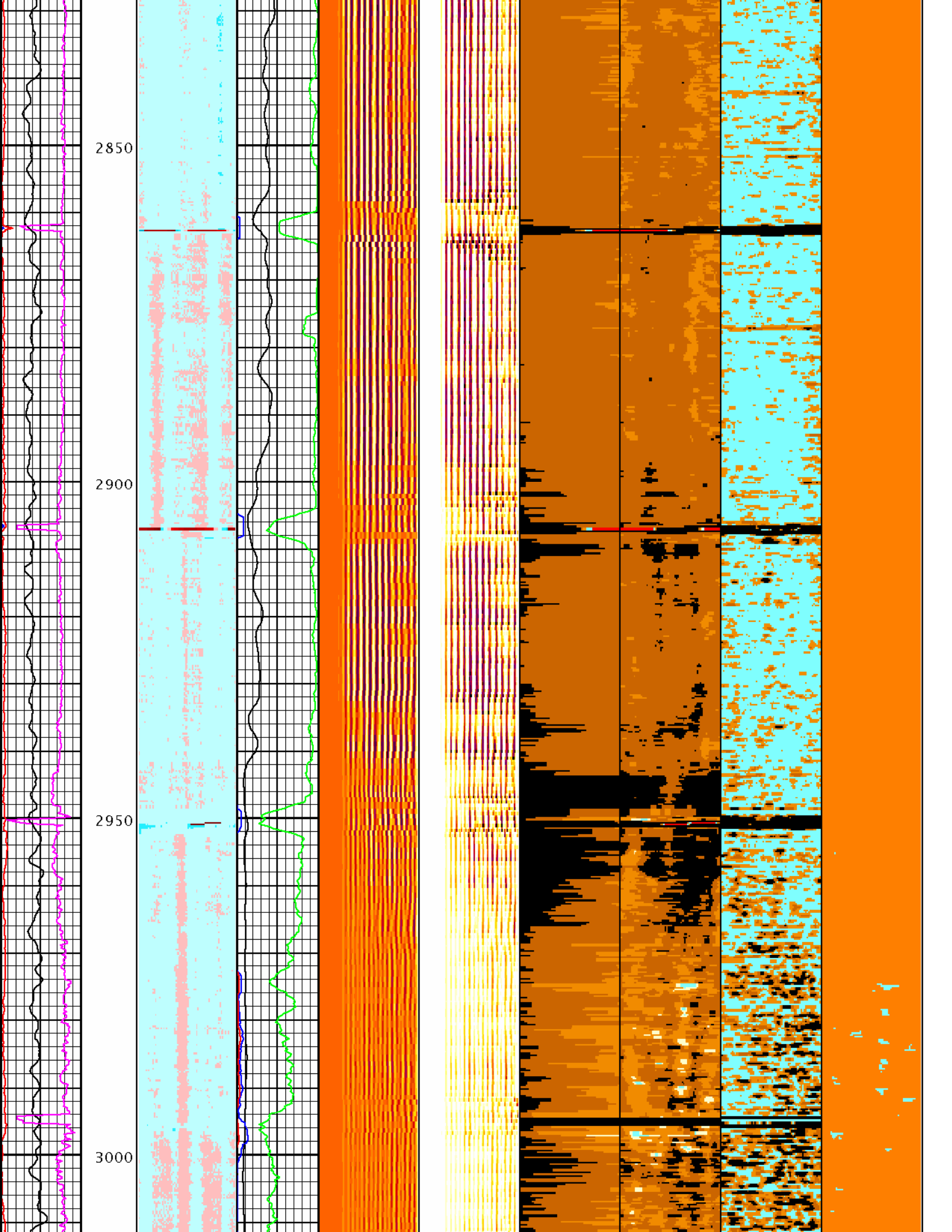


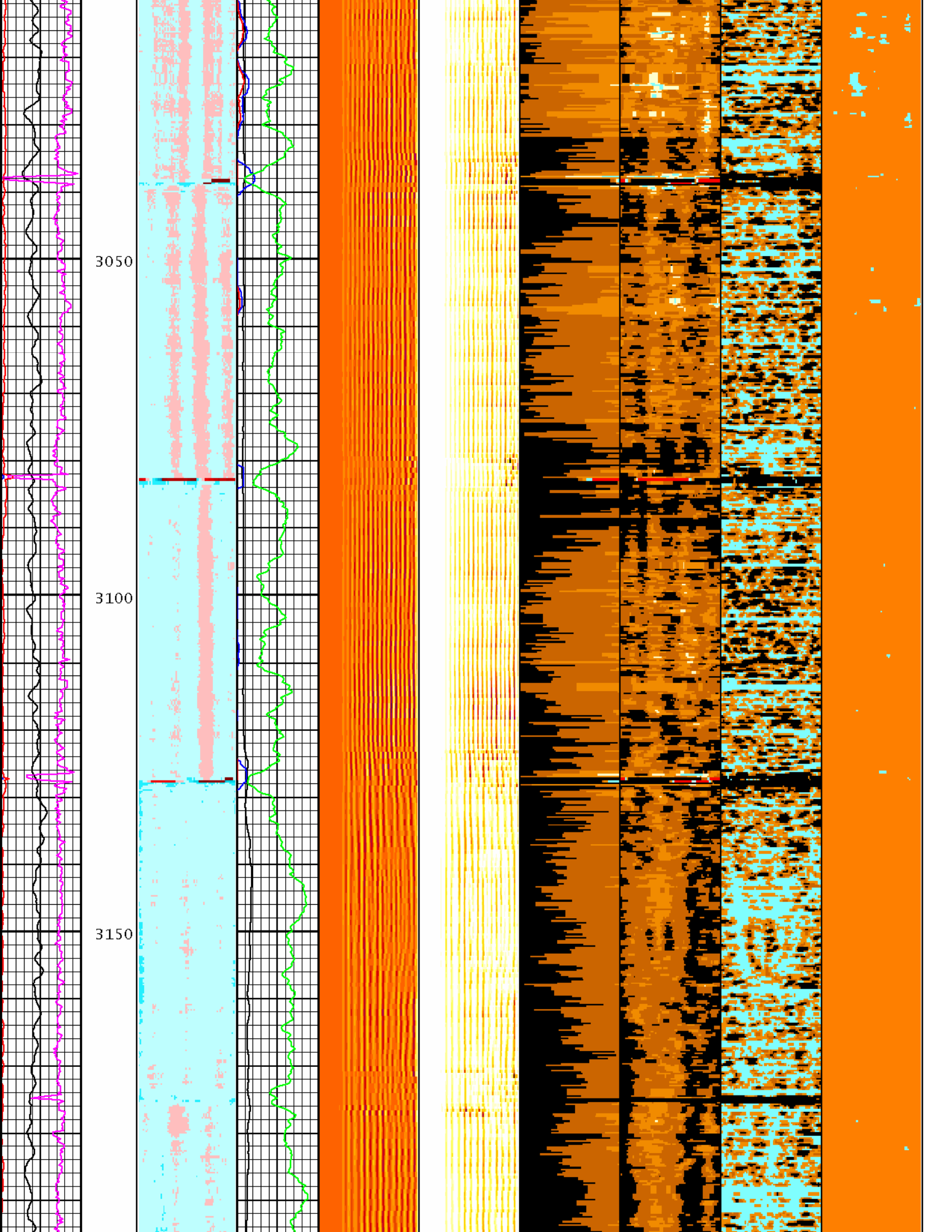


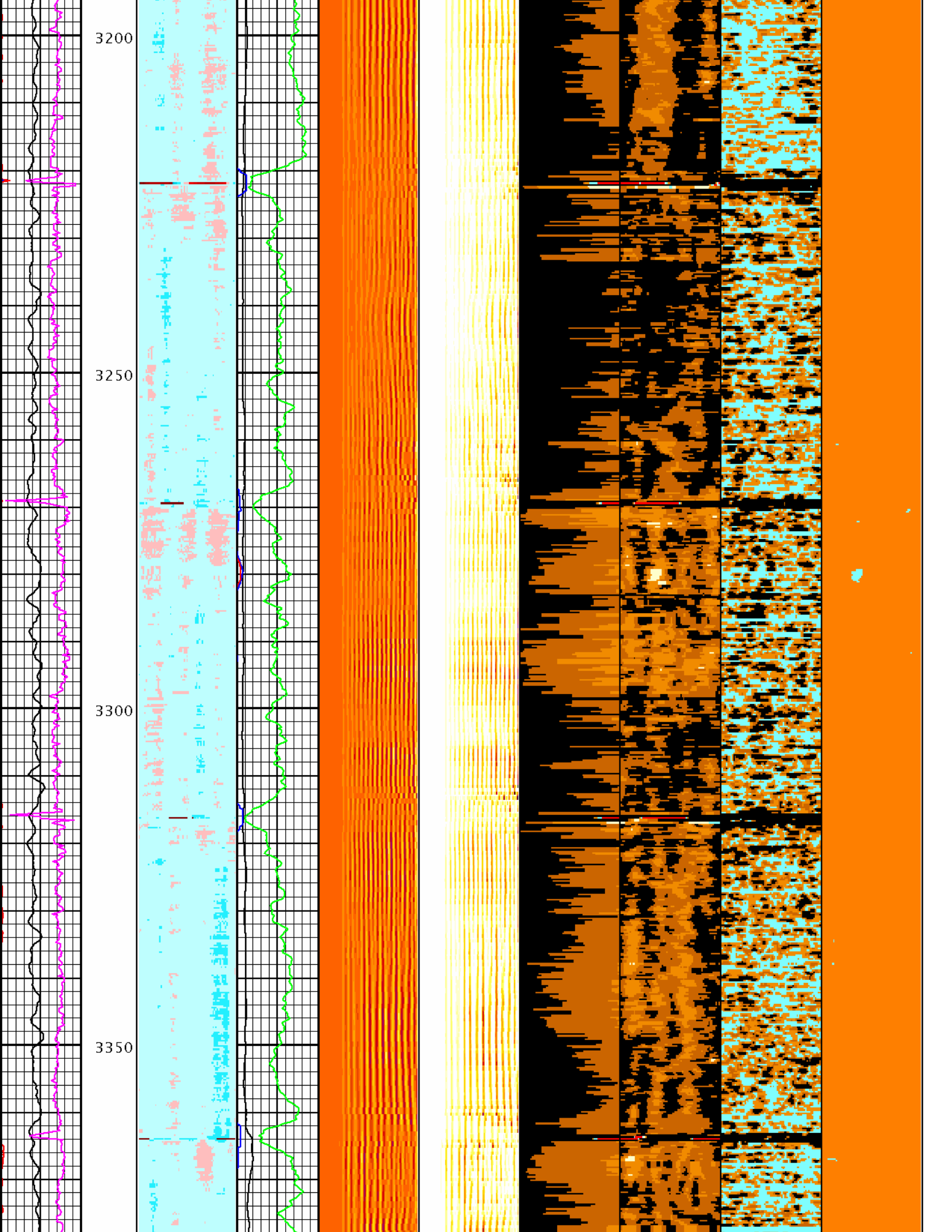


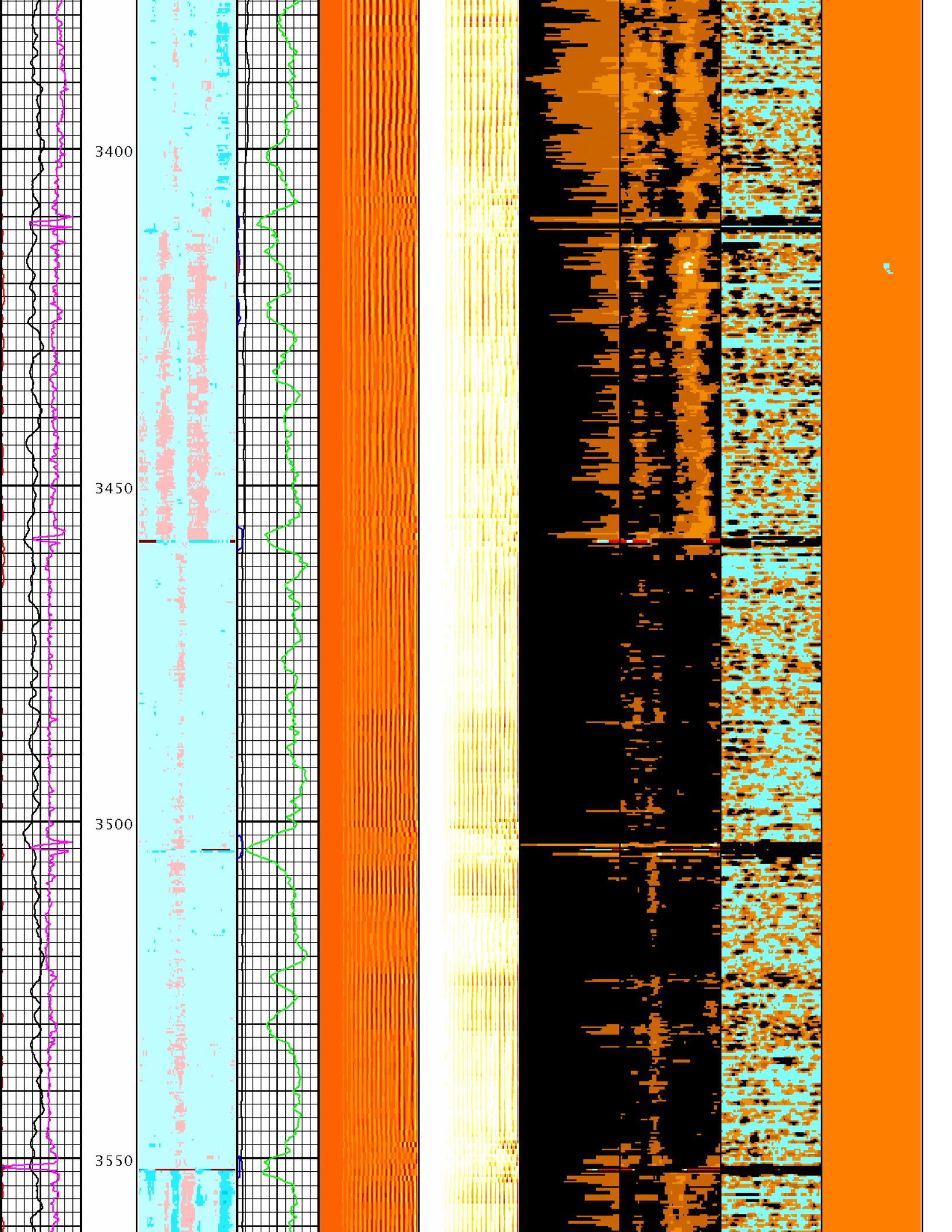


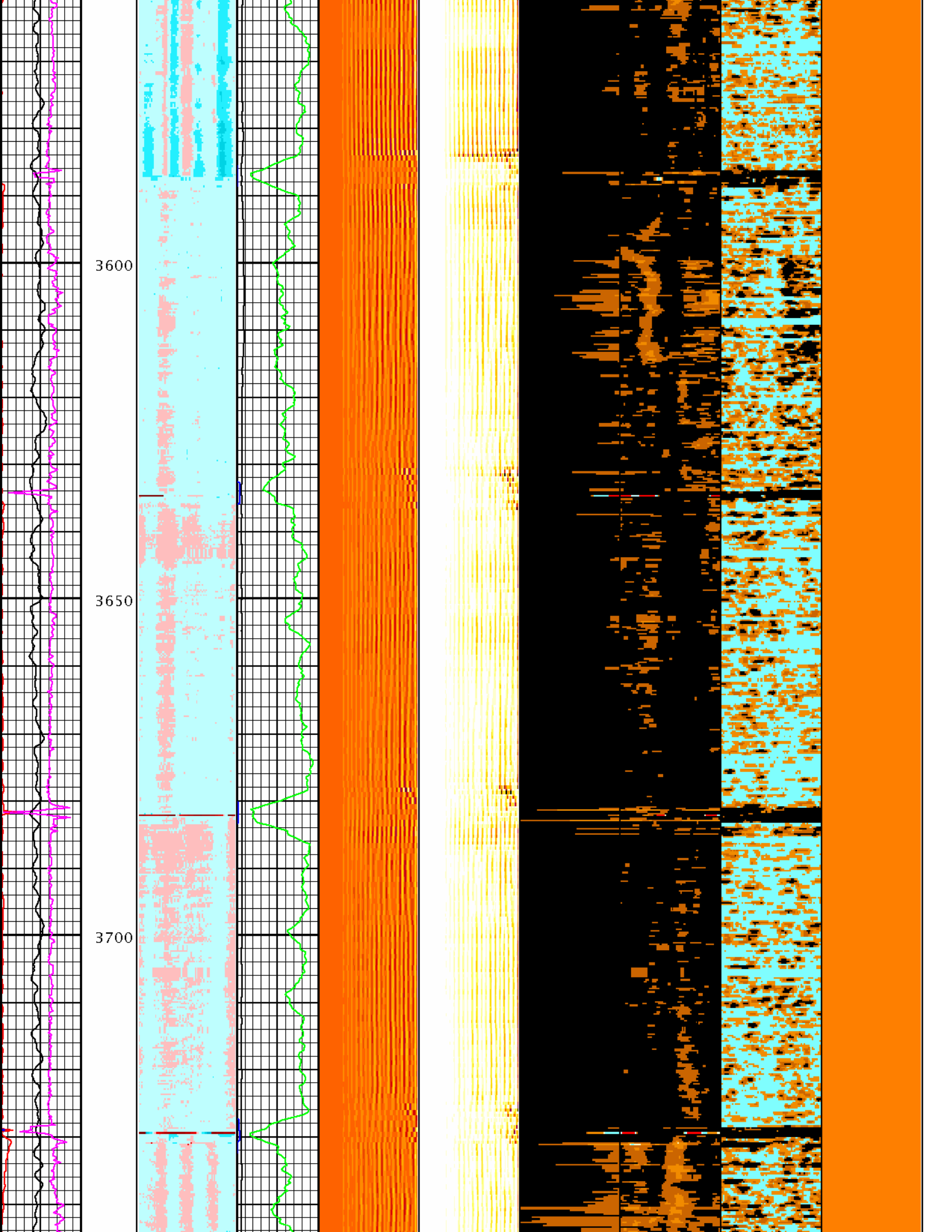


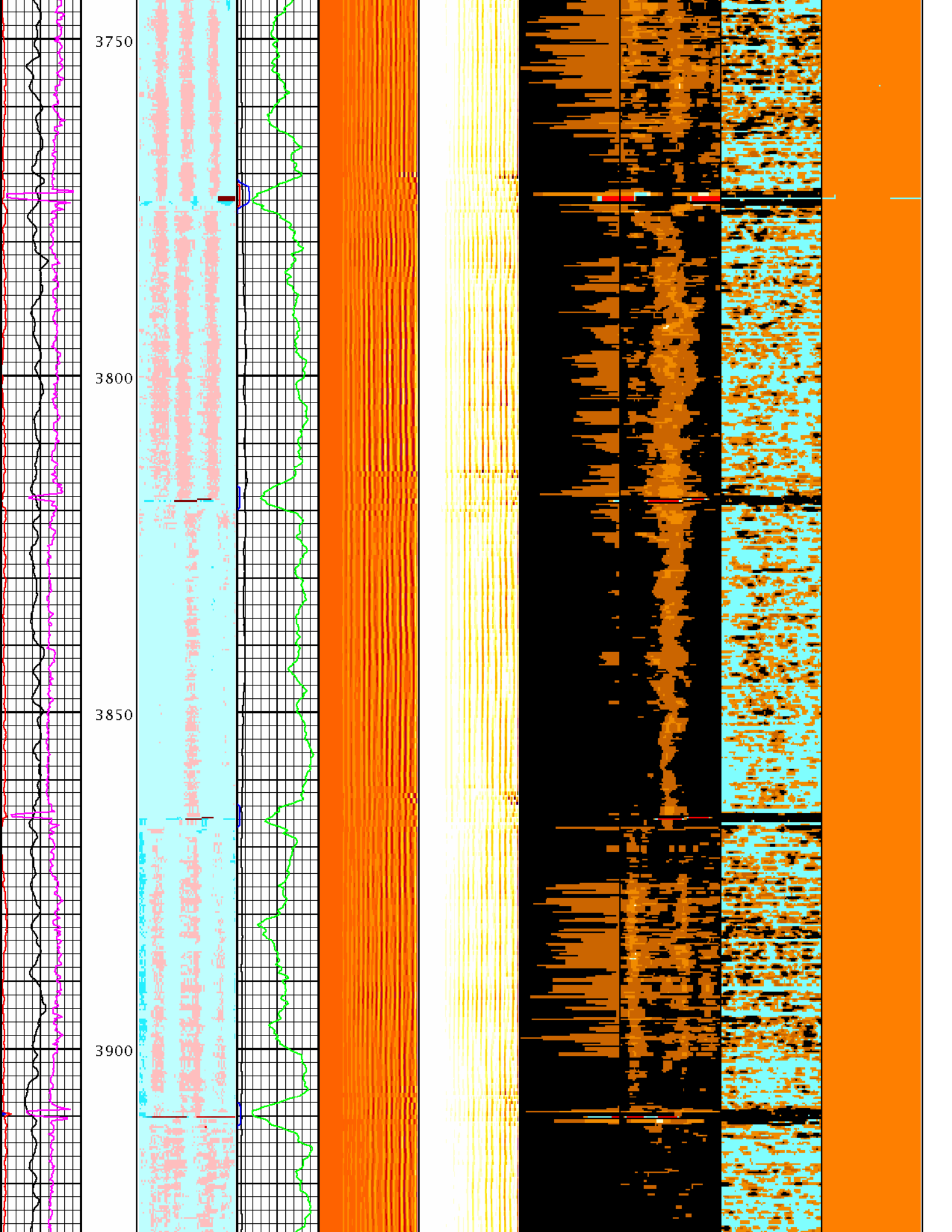


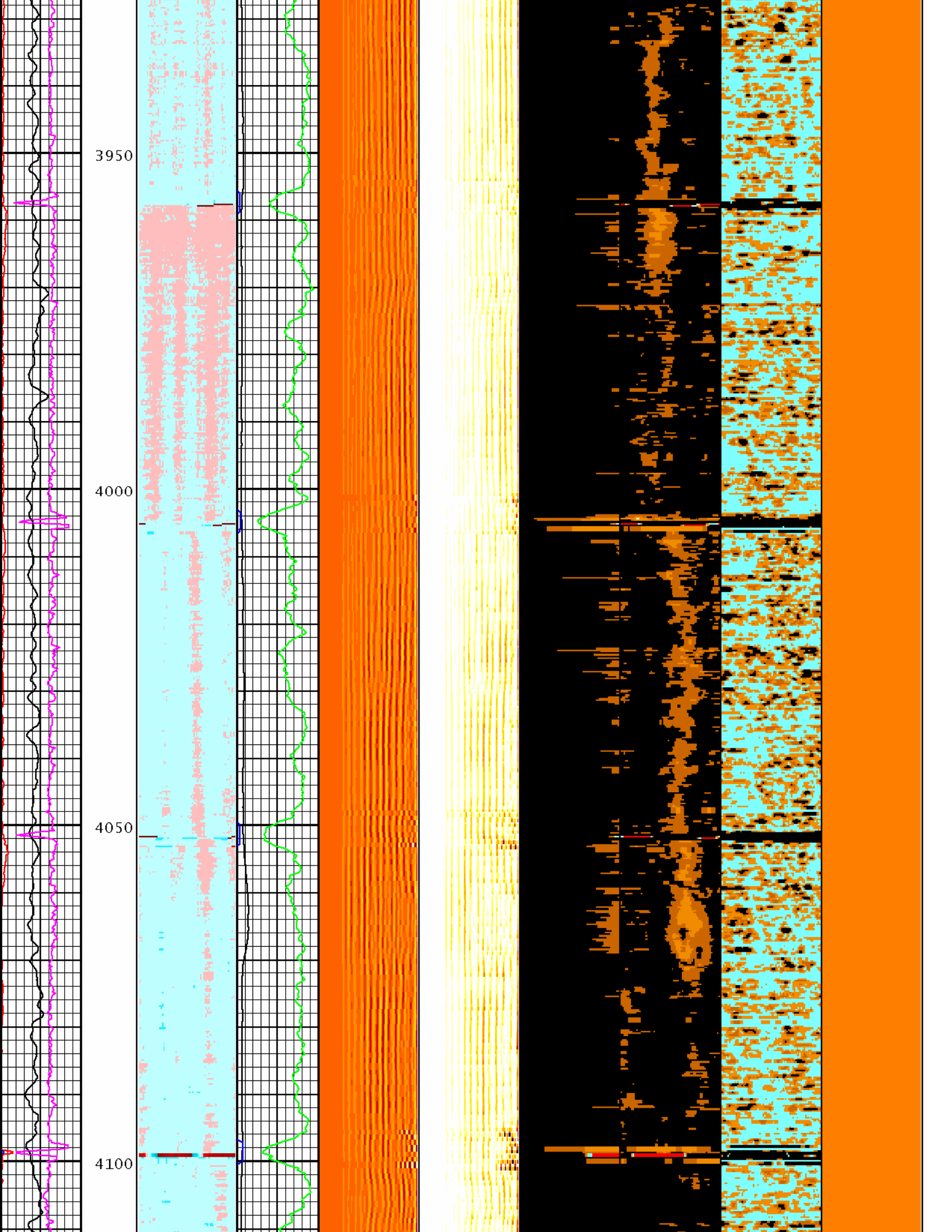


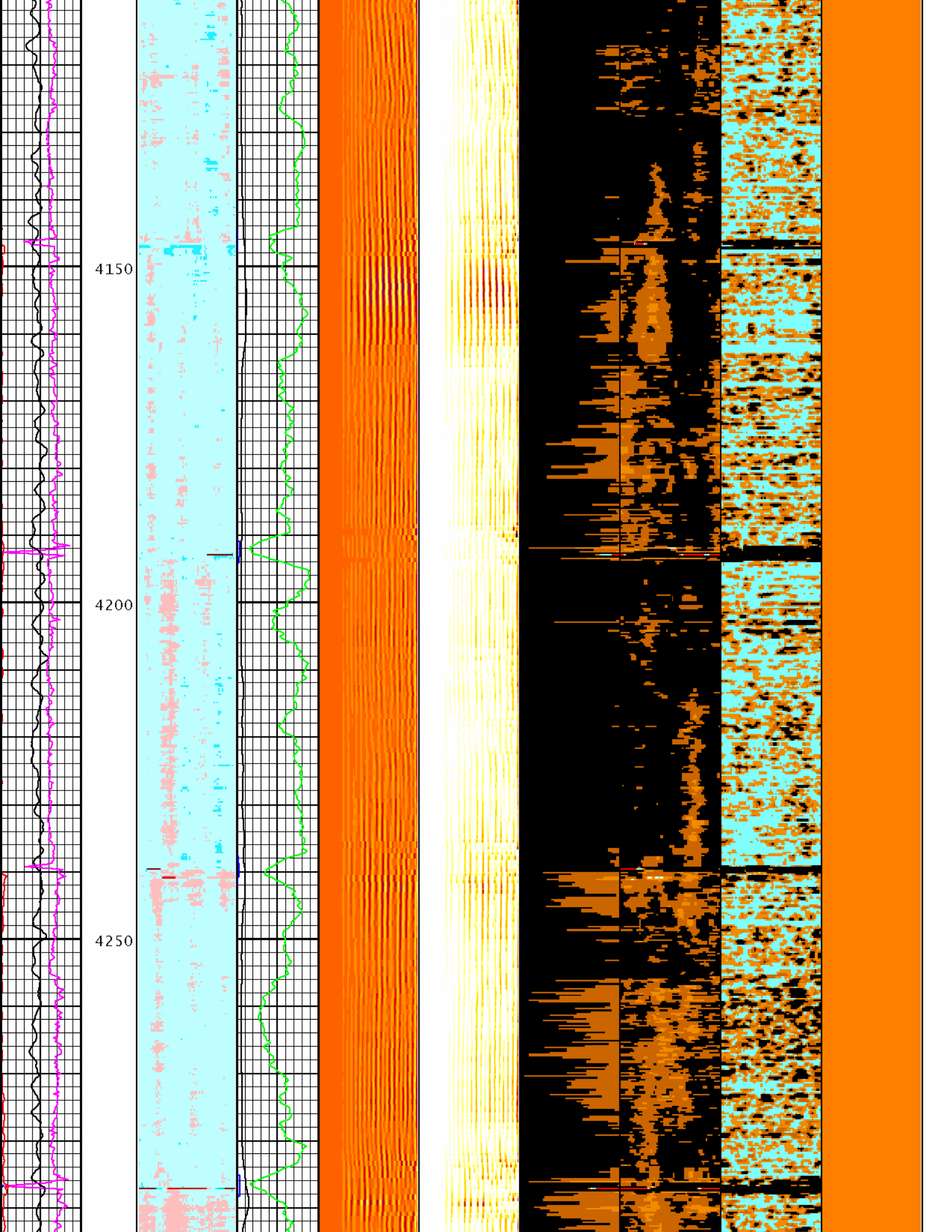


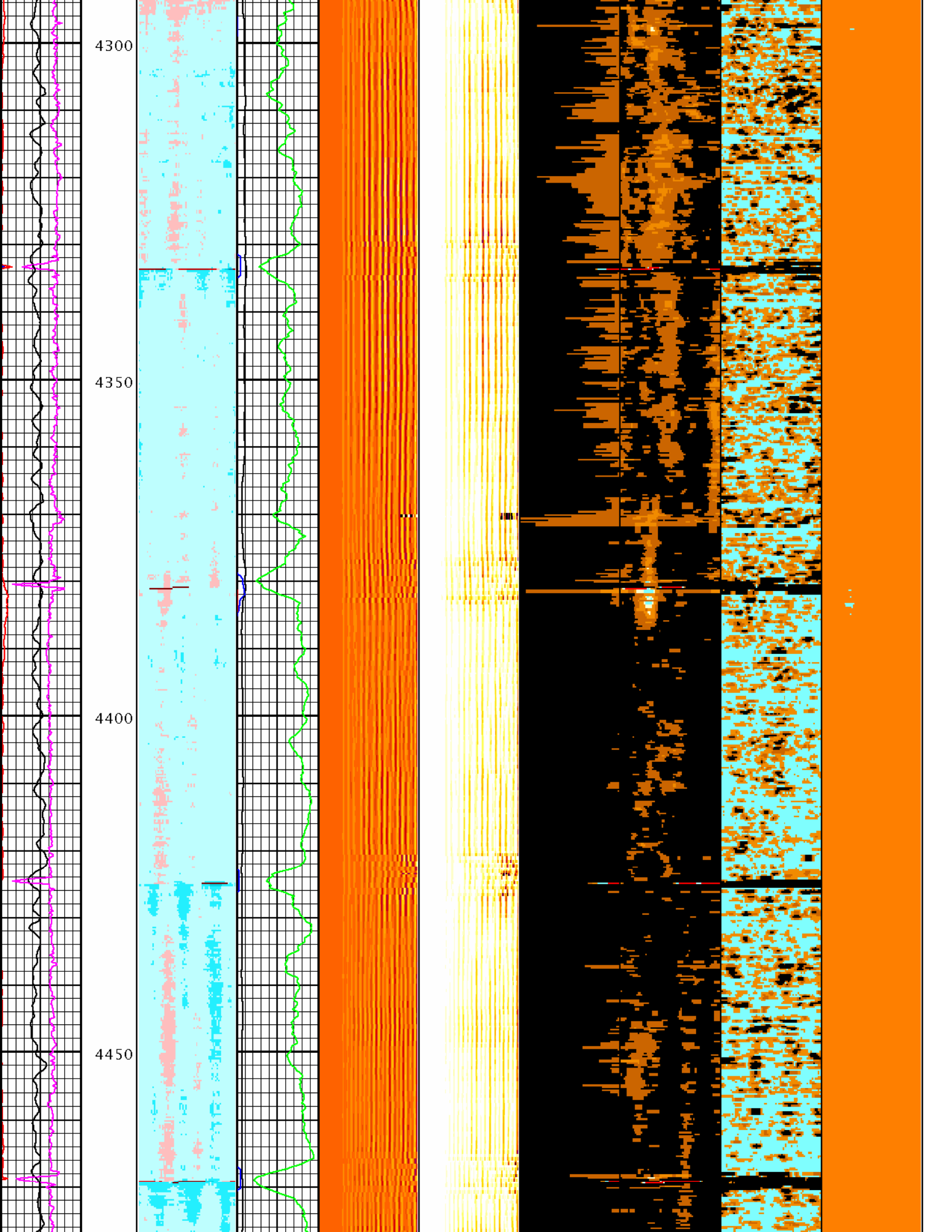


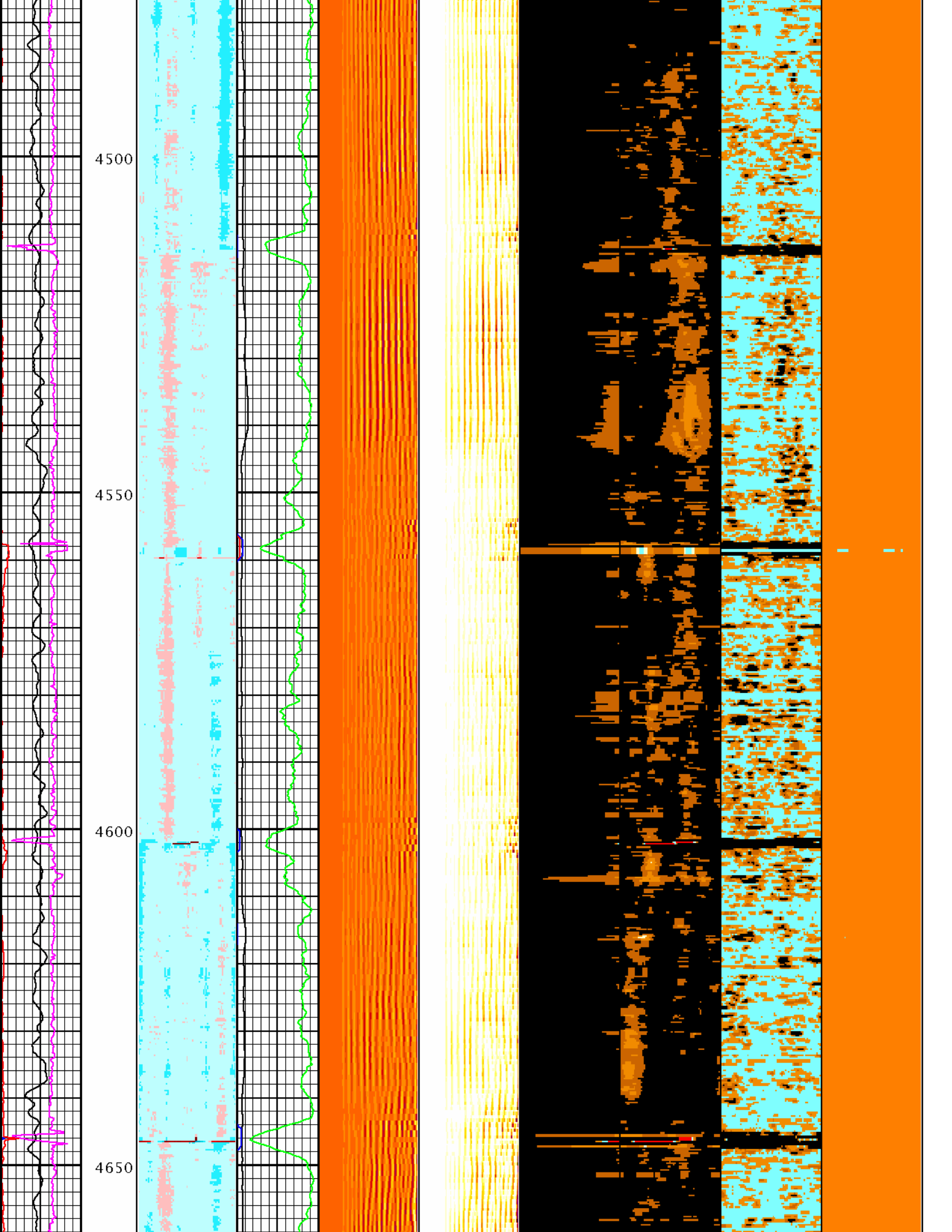




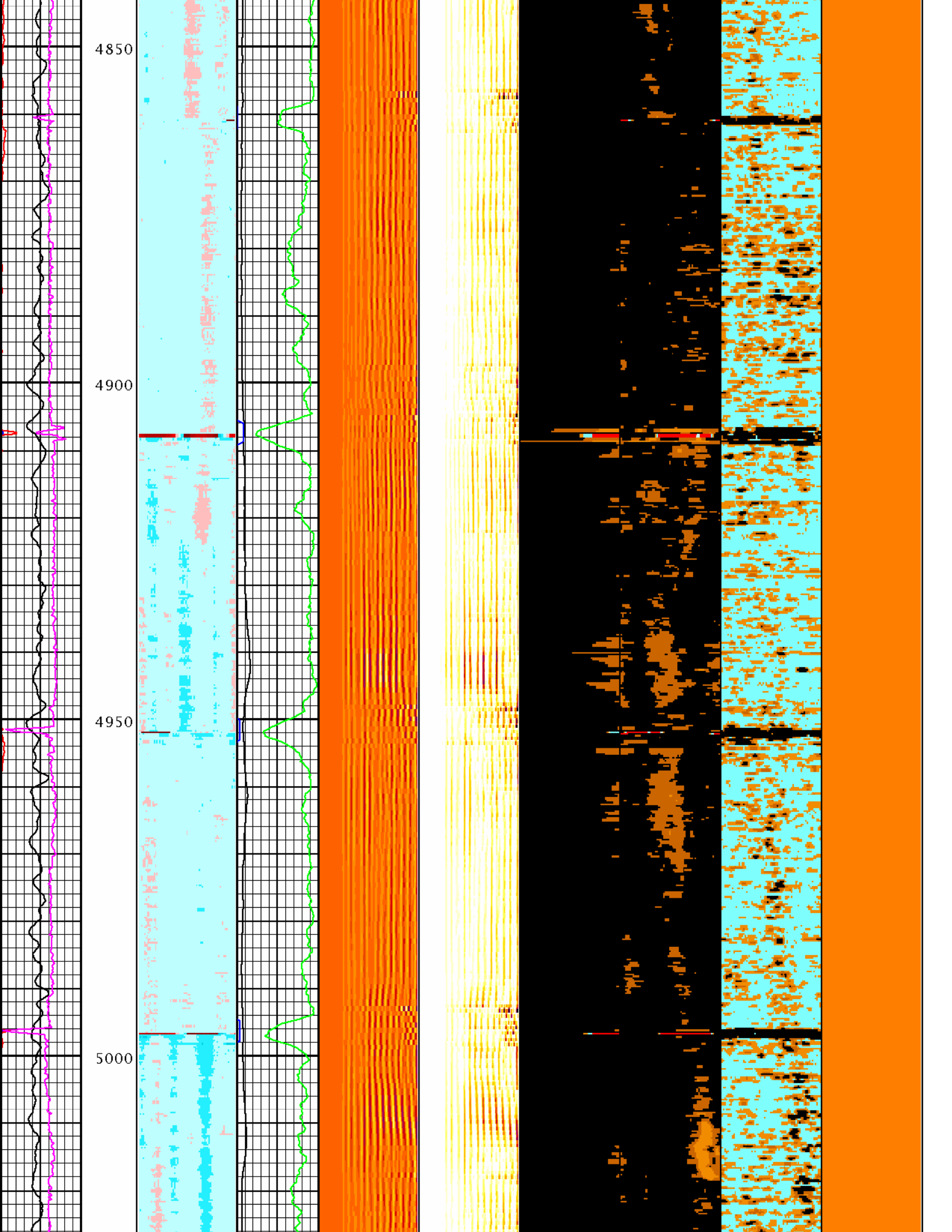


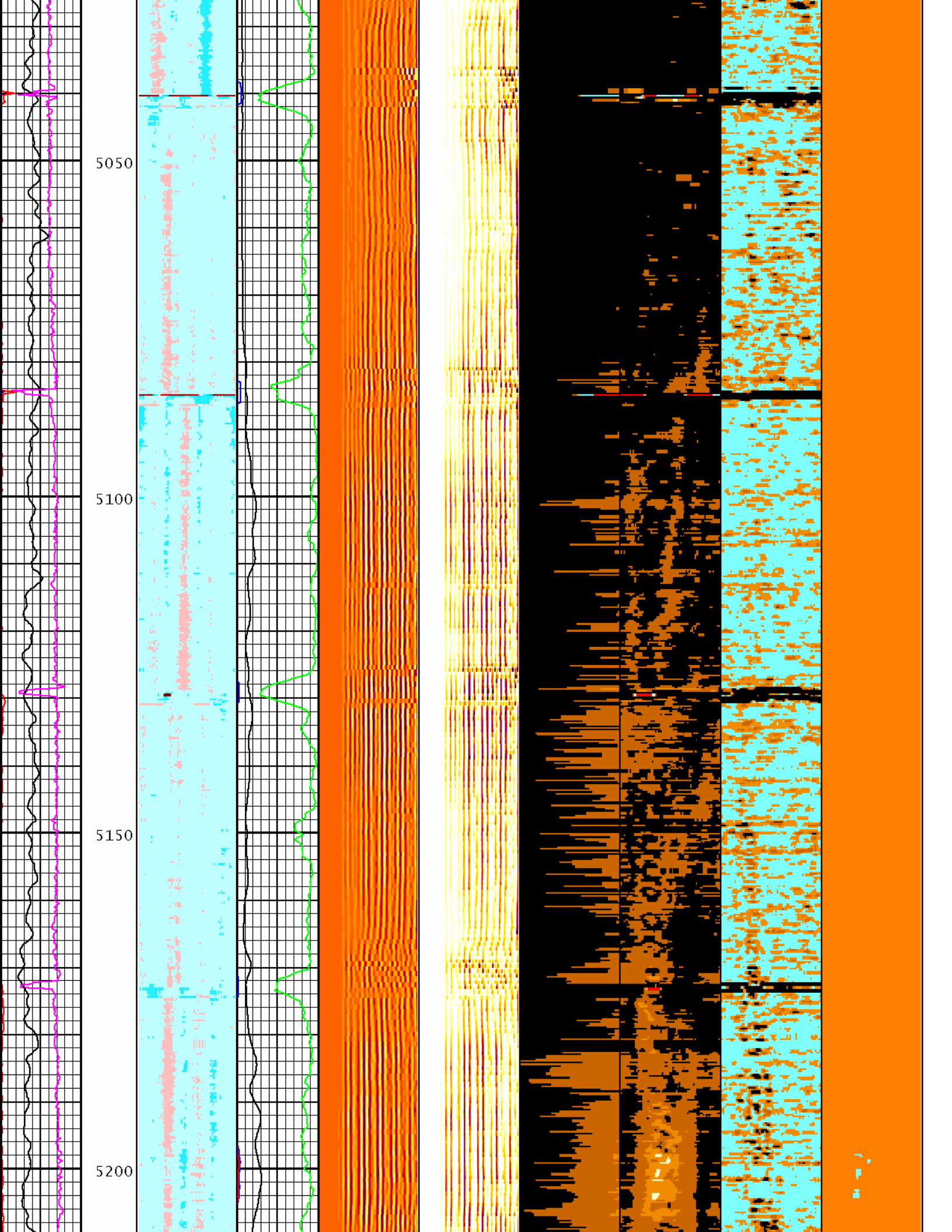




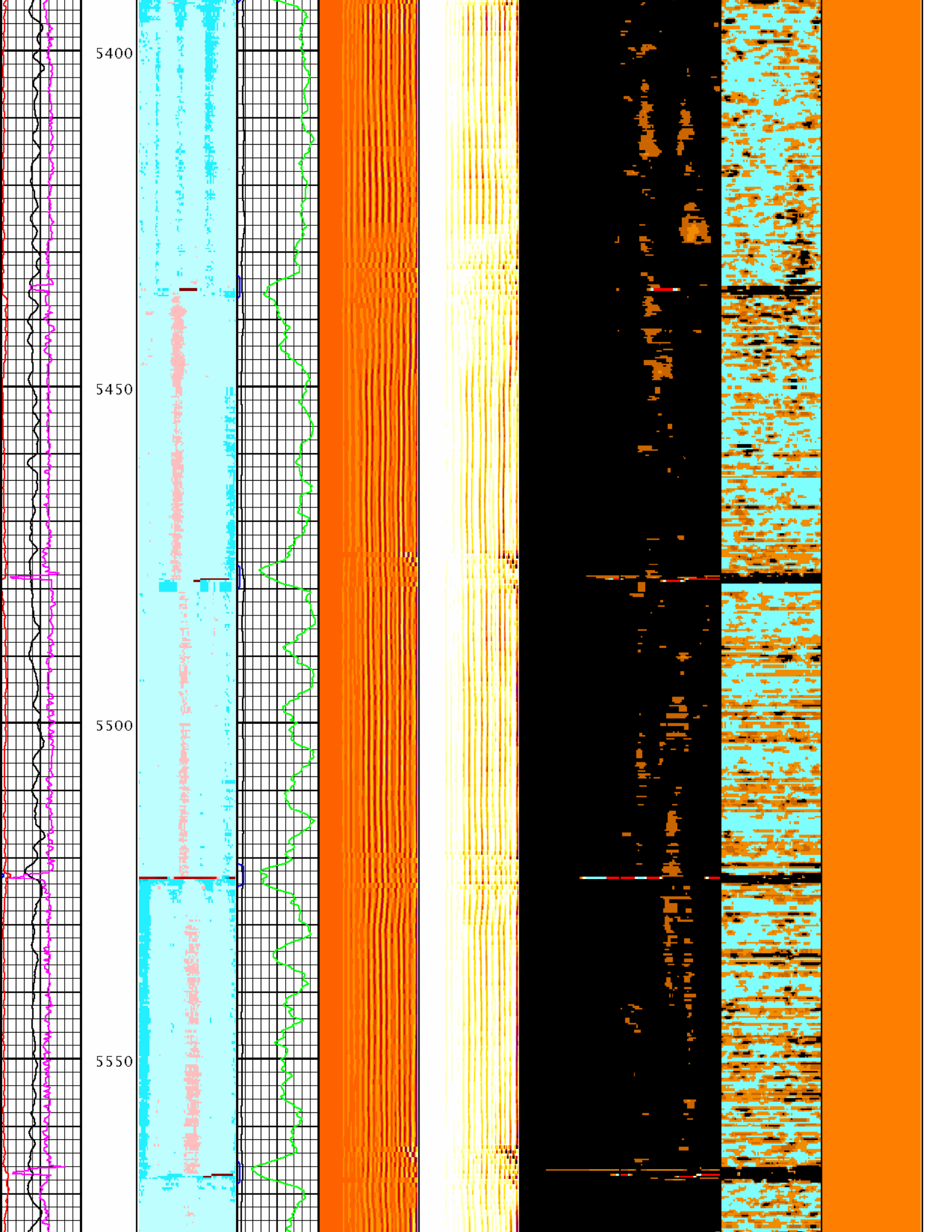




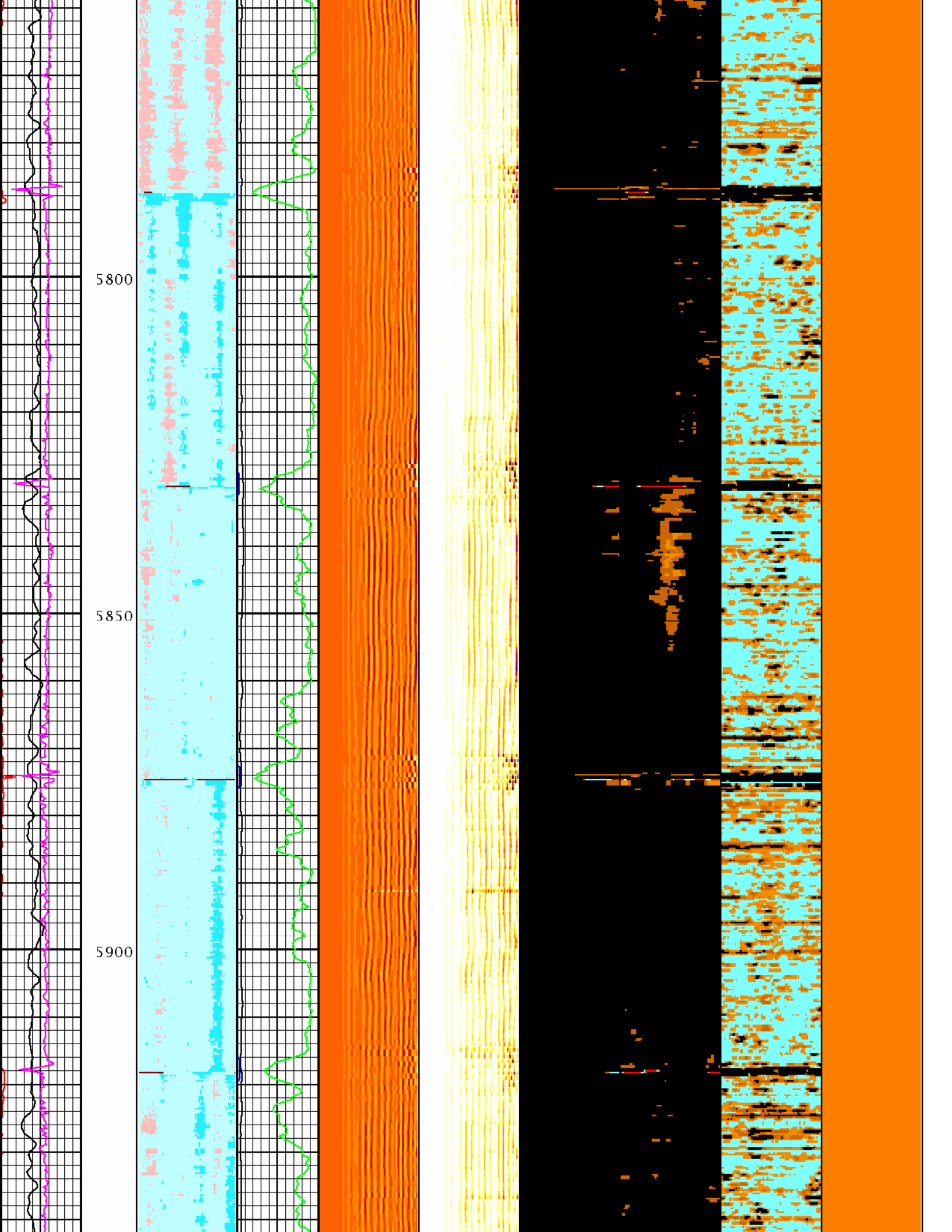


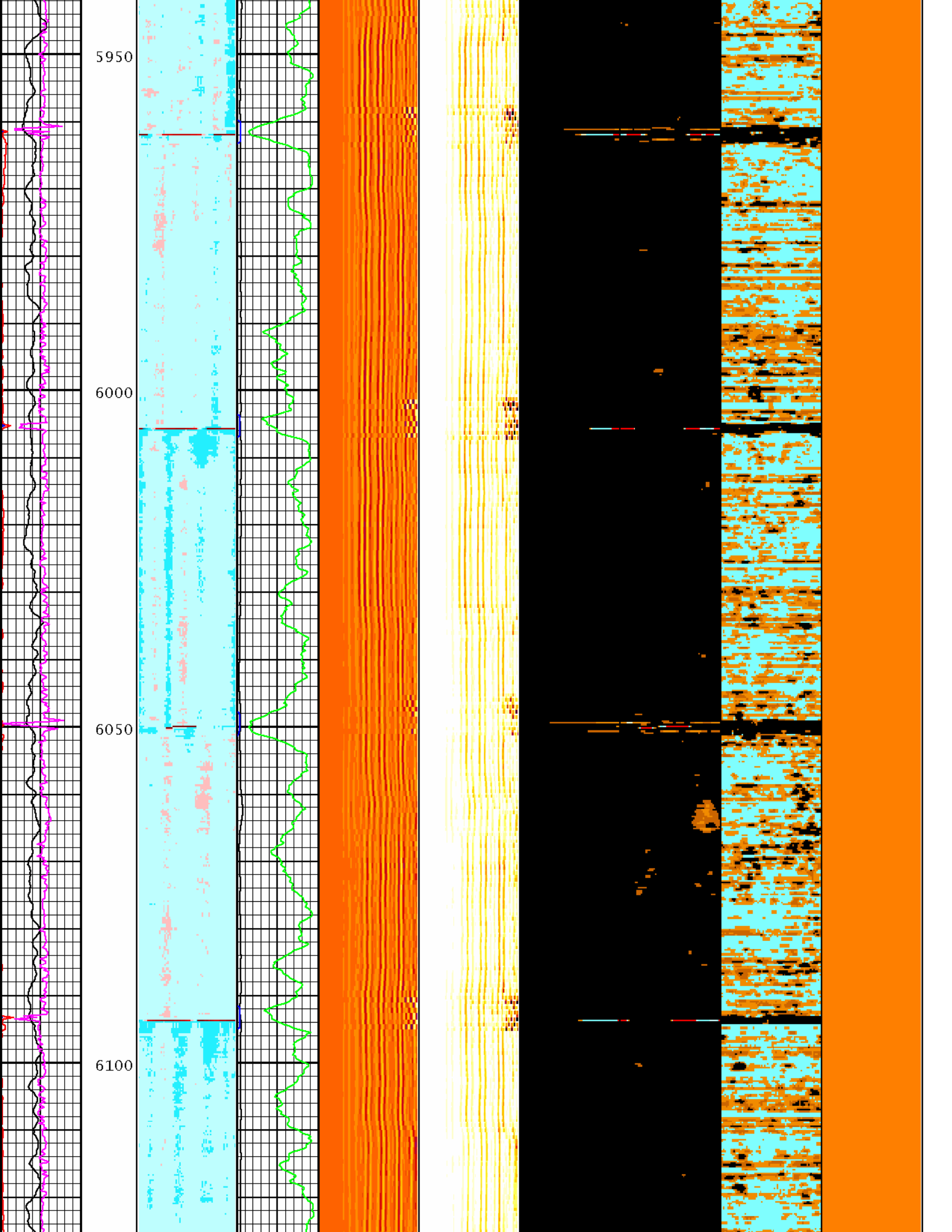




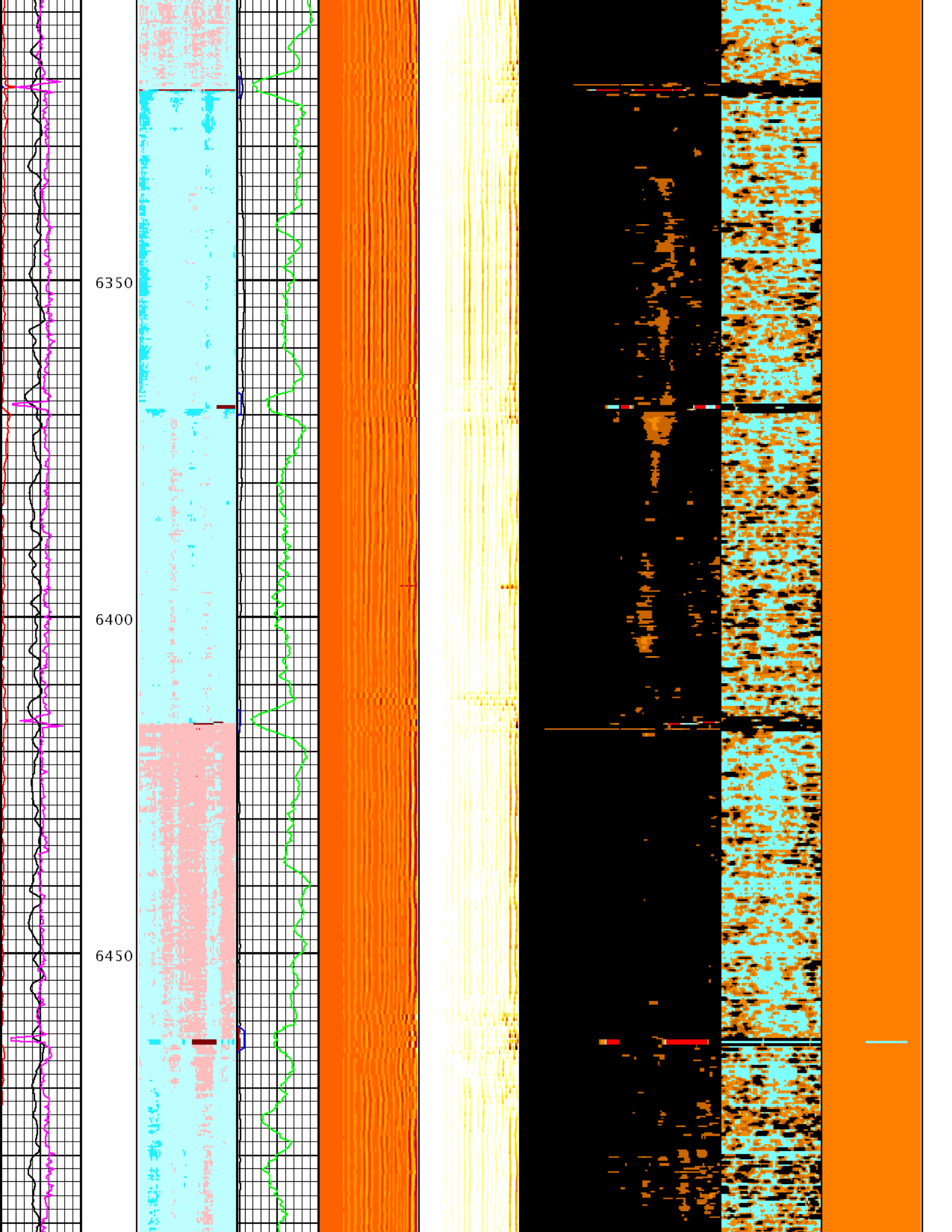


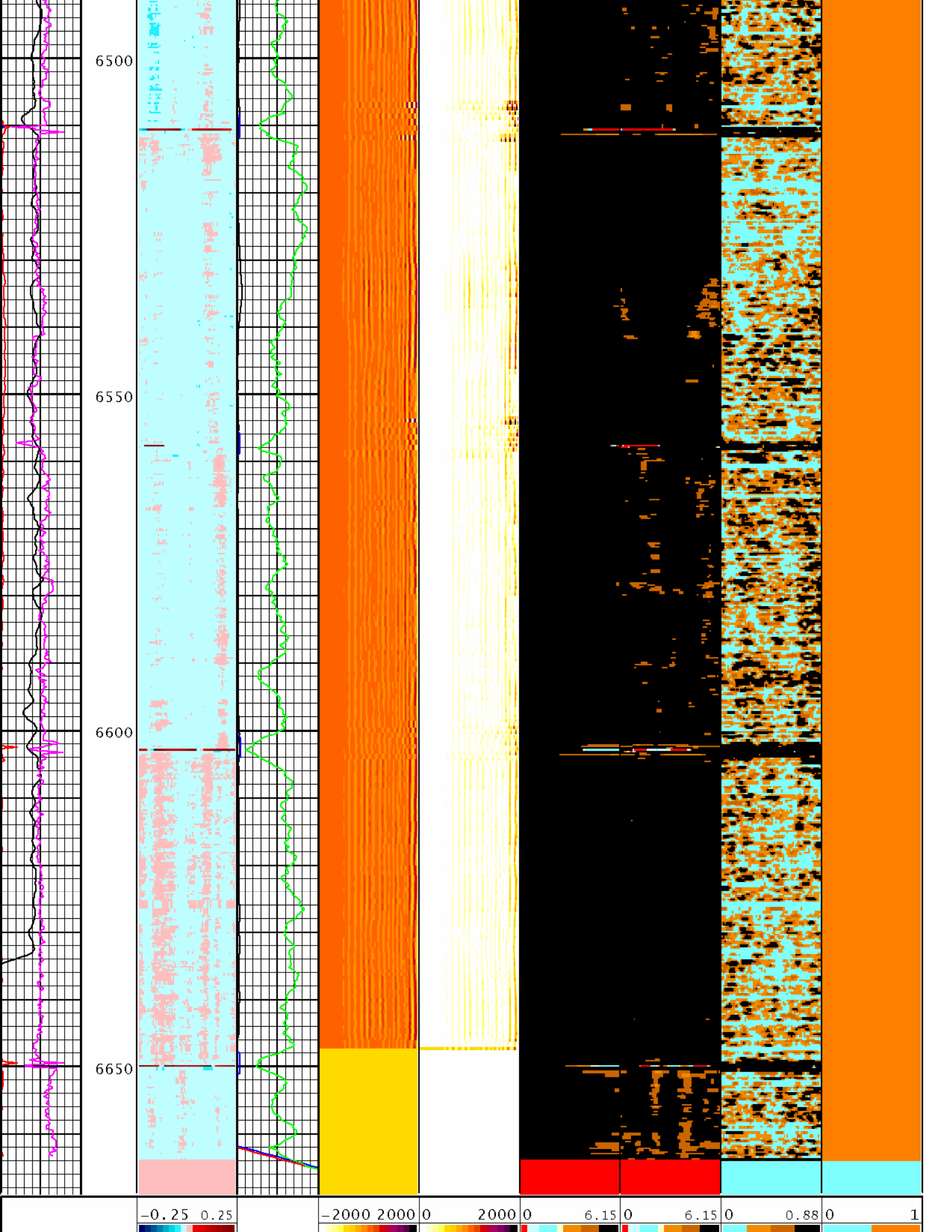












AVZ 12 2			FCBIDZ 1 0							
GR 0 150			FCEMBI 1 0							
OVAL 0 1			FCBI 1 0							
ECTY 0 1	1:200 FT.	PRADN 0 72	AMP 0 100	WMSG 0 240	WMSGT 0 240	ZPV 1 72	ZP 1 72	DZ 1 72	CENT 1 72	

QUALITY TRACK	DEPTH TRACK	RADIUS IMAGE	CEMENT INDEX	CBL MSG	CBL MSG TOTAL	VOLUMETRIC IMPEDANCE	IMPEDANCE MAP	DERIVATIVE MAP	CEMENT TOTAL
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Version No: | hc:3.0  
 Data File: MERGE.cls  
 Format File: DENVER\_ACE.spc  
 Plot Time: 2013-12-08 11:36:53  
 Database Time: 08:55:24

Top Depth: 0.00  
 Bottom Depth: 6669.50

**HALLIBURTON**

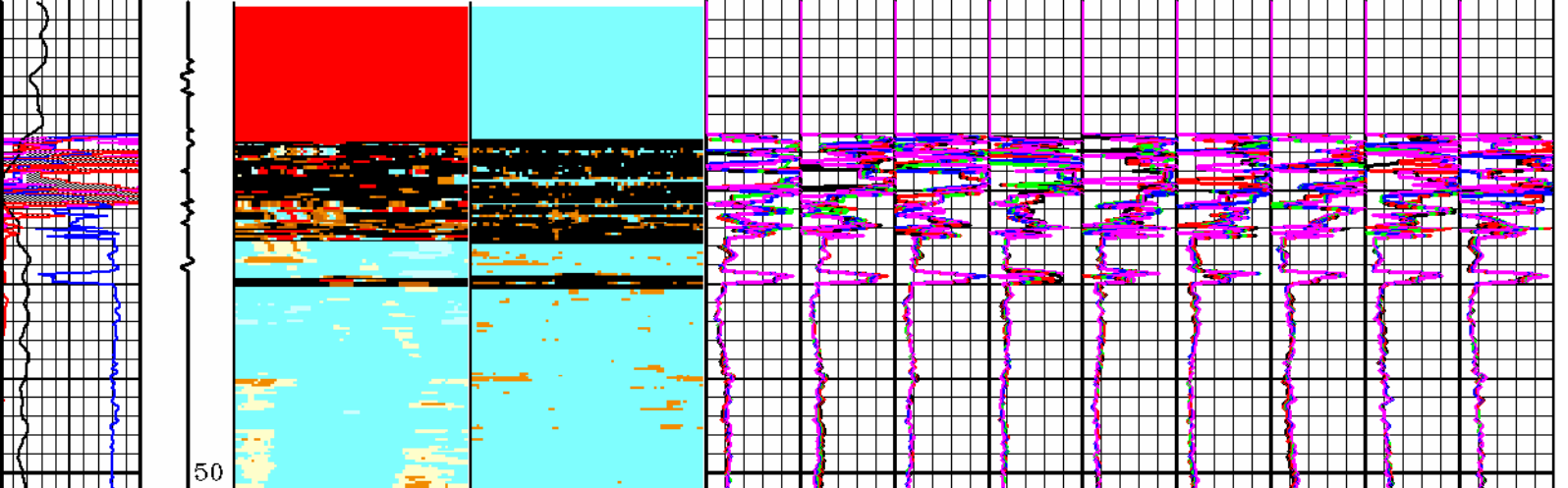
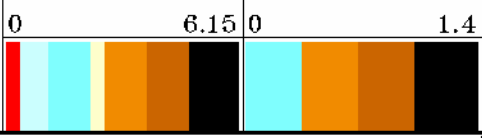
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 Plot Time: 2013-12-08 11:37:25  
 Database Time: 08:55:24

Top Depth: 0.00  
 Bottom Depth: 6669.50

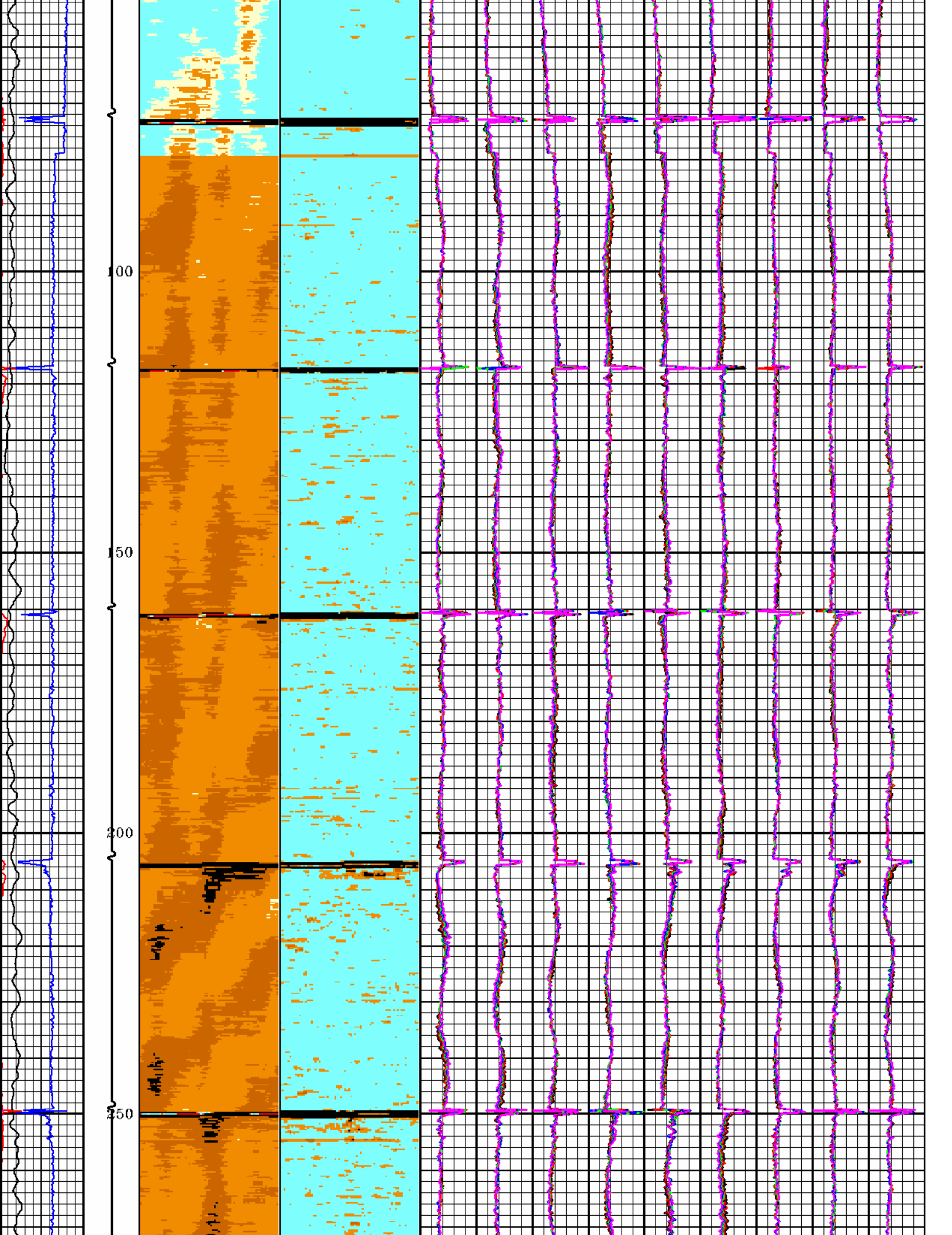
**HALLIBURTON**

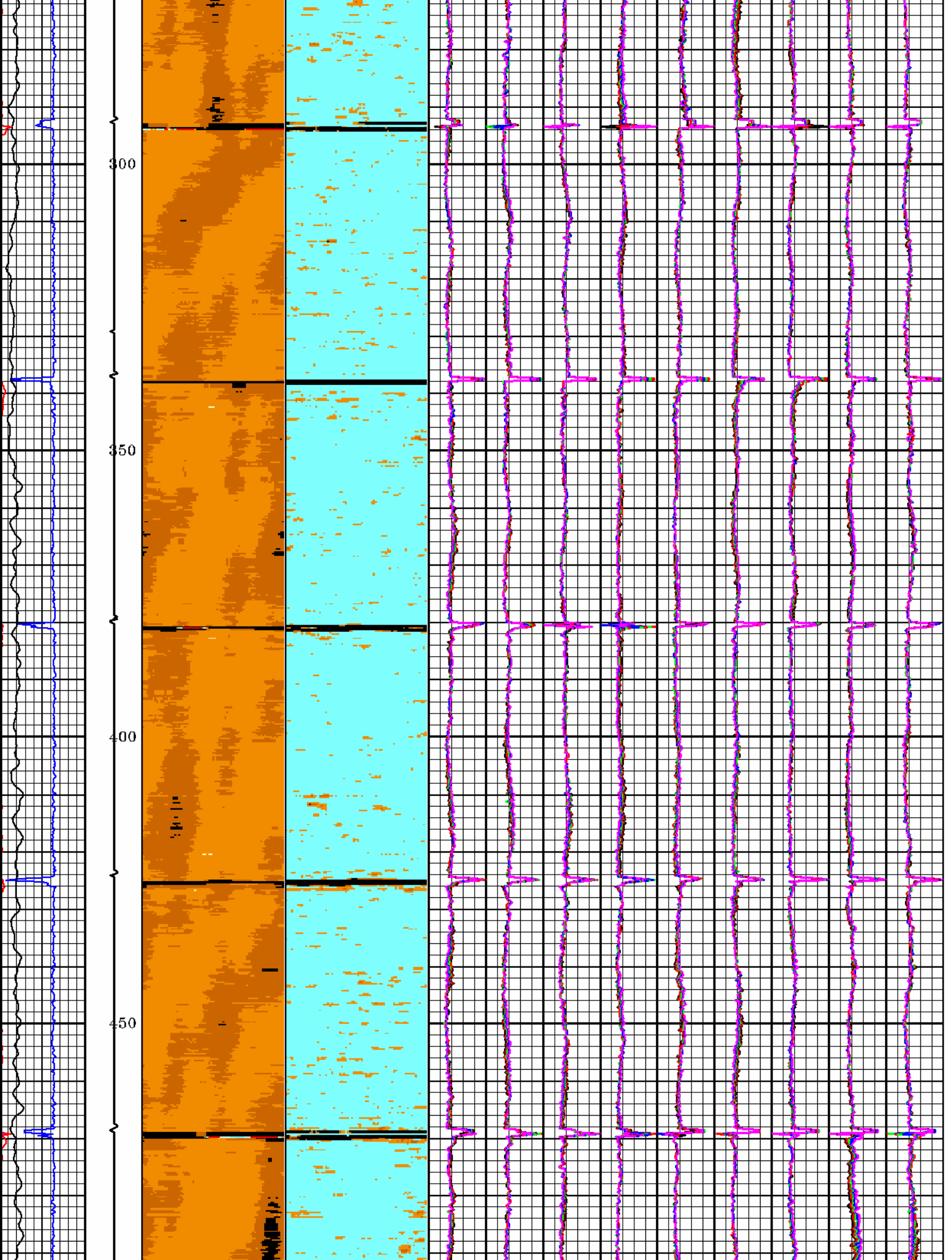
WELLBORE DATA	IMPEDANCE MAP	DZ	SEG. A	SEG. B	SEG. C	SEG. D	SEG. E	SEG. F	SEG. G	SEG. H	SEG. I
ECTY											

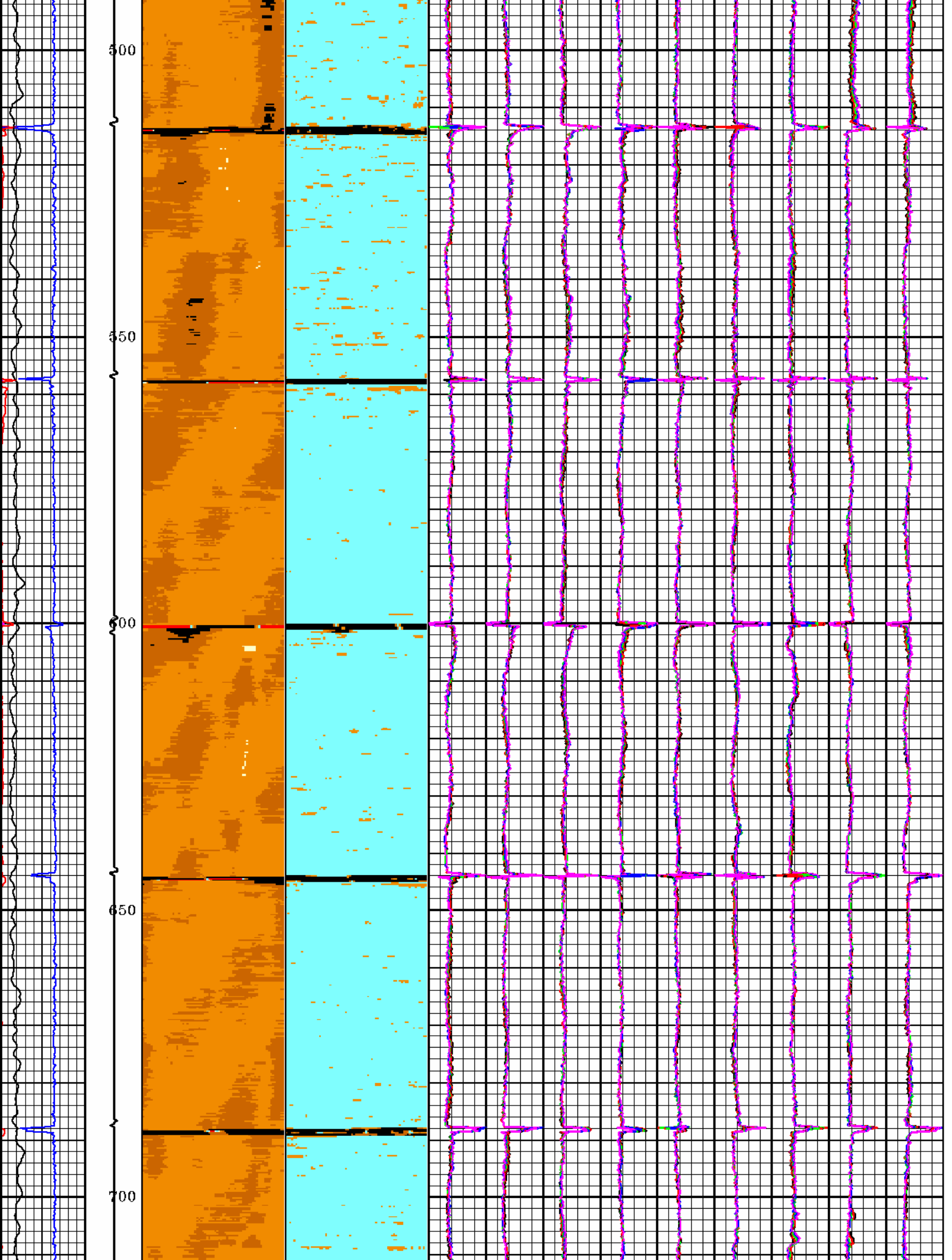
ZAVG 0 10	1:240 FT.	ZP 1 72	DZ 1 72	CA1 0 10	CB1 0 10	CC1 0 10	CD1 0 10	CE1 0 10	CF1 0 10	CG1 0 10	CH1 0 10	CI1 0 10
GR 0 150				CA2 0 10	CB2 0 10	CC2 0 10	CD2 0 10	CE2 0 10	CF2 0 10	CG2 0 10	CH2 0 10	CI2 0 10
OVALITY 0 1				CA3 0 10	CB3 0 10	CC3 0 10	CD3 0 10	CE3 0 10	CF3 0 10	CG3 0 10	CH3 0 10	CI3 0 10
ECTY 0 1				CA4 0 10	CB4 0 10	CC4 0 10	CD4 0 10	CE4 0 10	CF4 0 10	CG4 0 10	CH4 0 10	CI4 0 10
				CA5 0 10	CB5 0 10	CC5 0 10	CD5 0 10	CE5 0 10	CF5 0 10	CG5 0 10	CH5 0 10	CI5 0 10

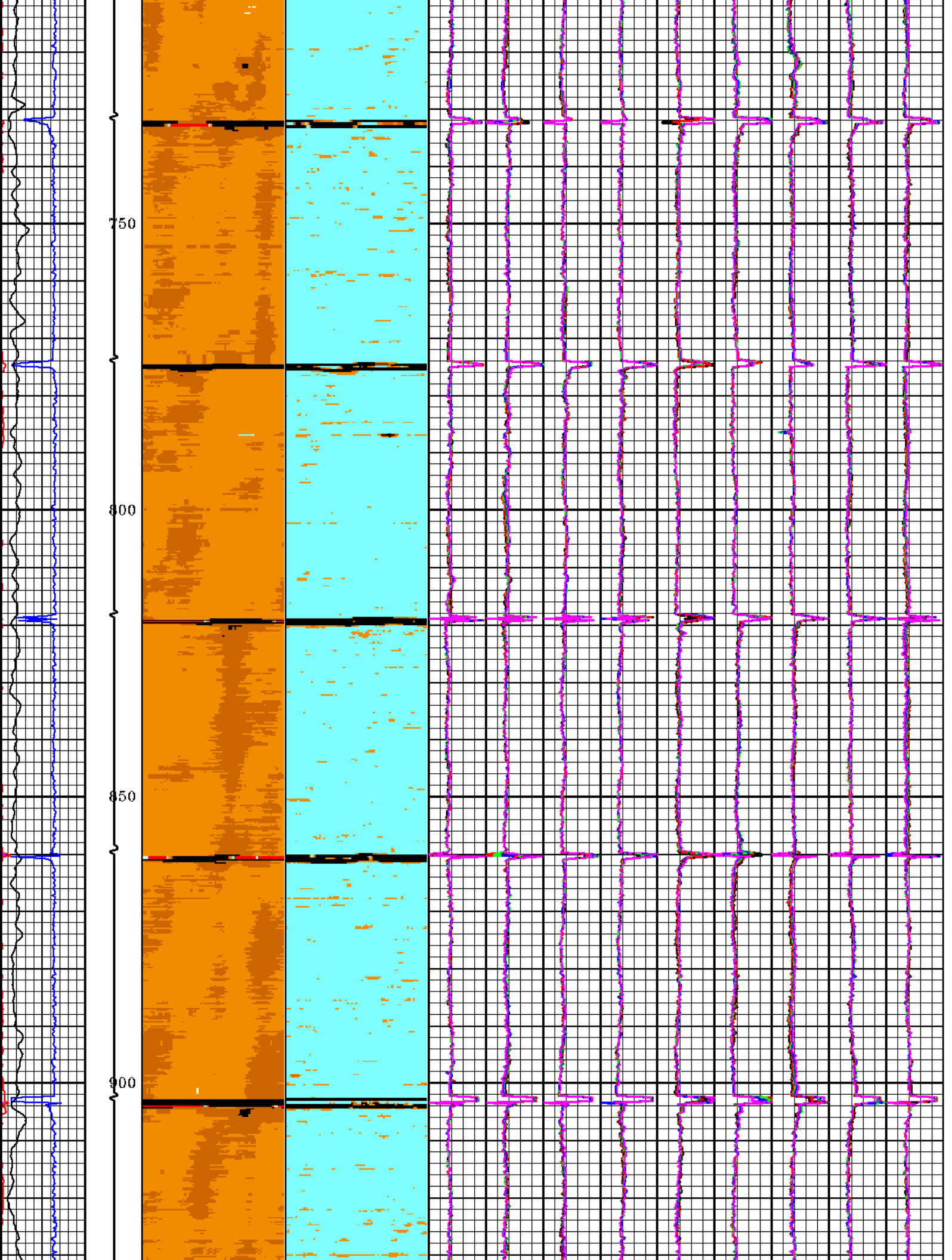


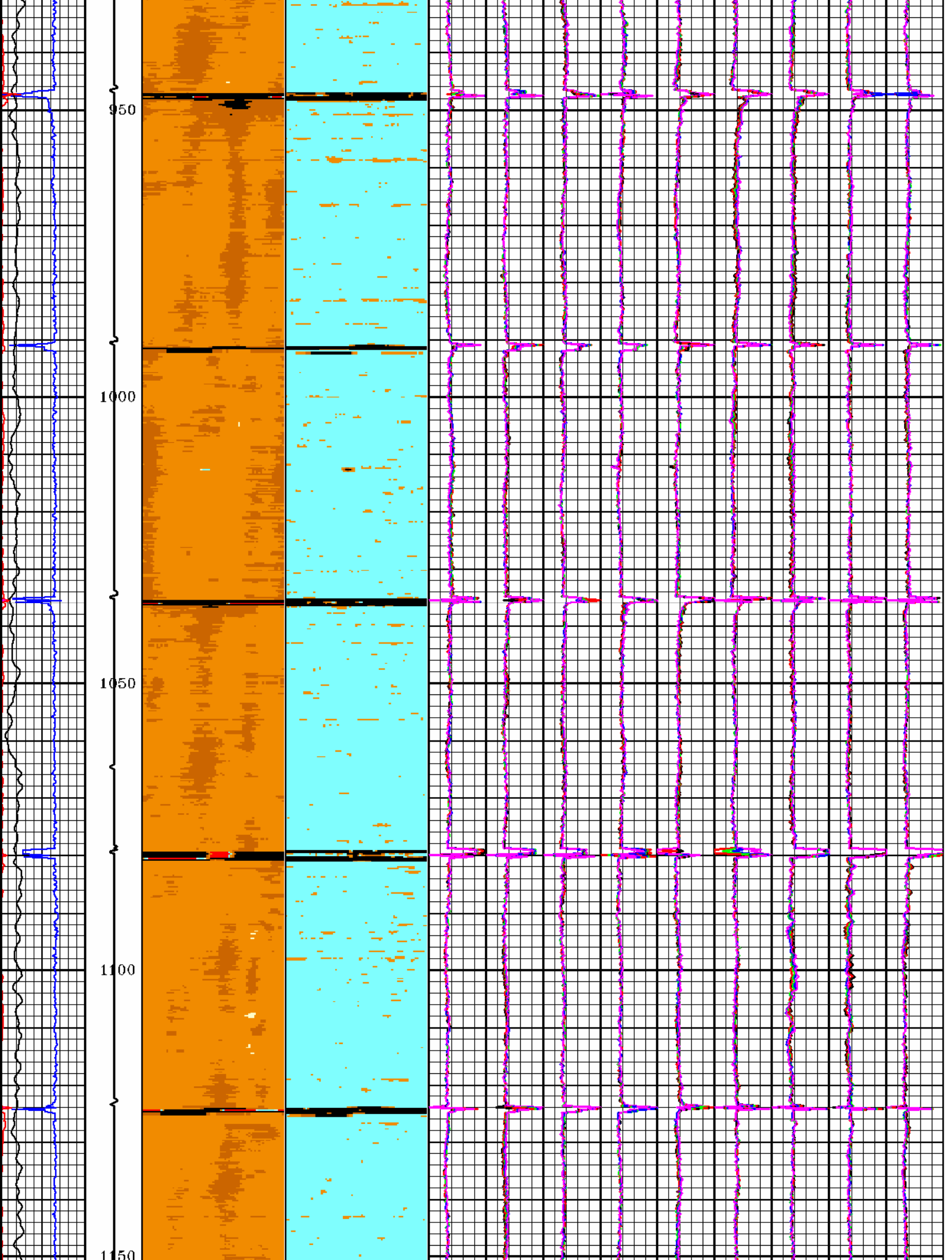
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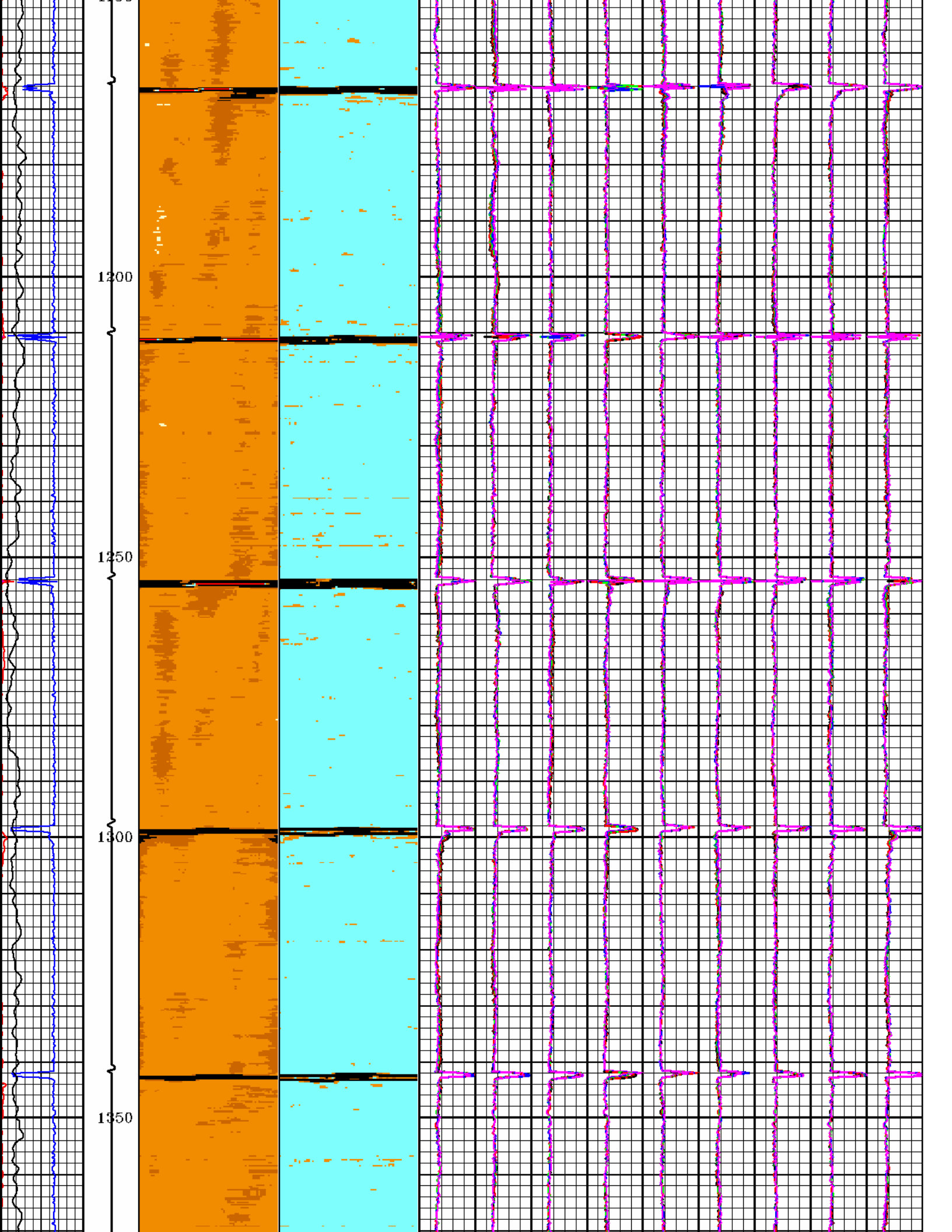


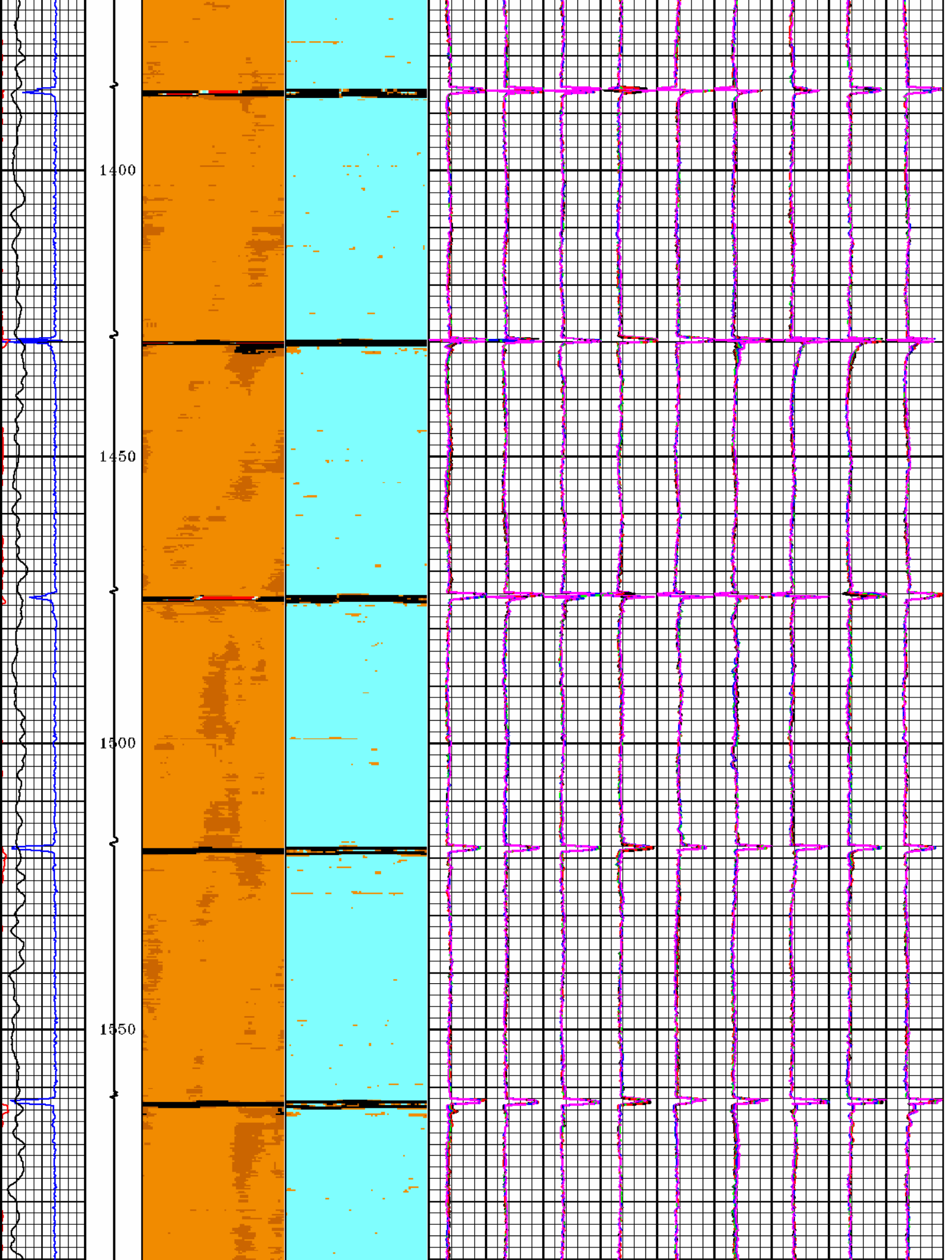


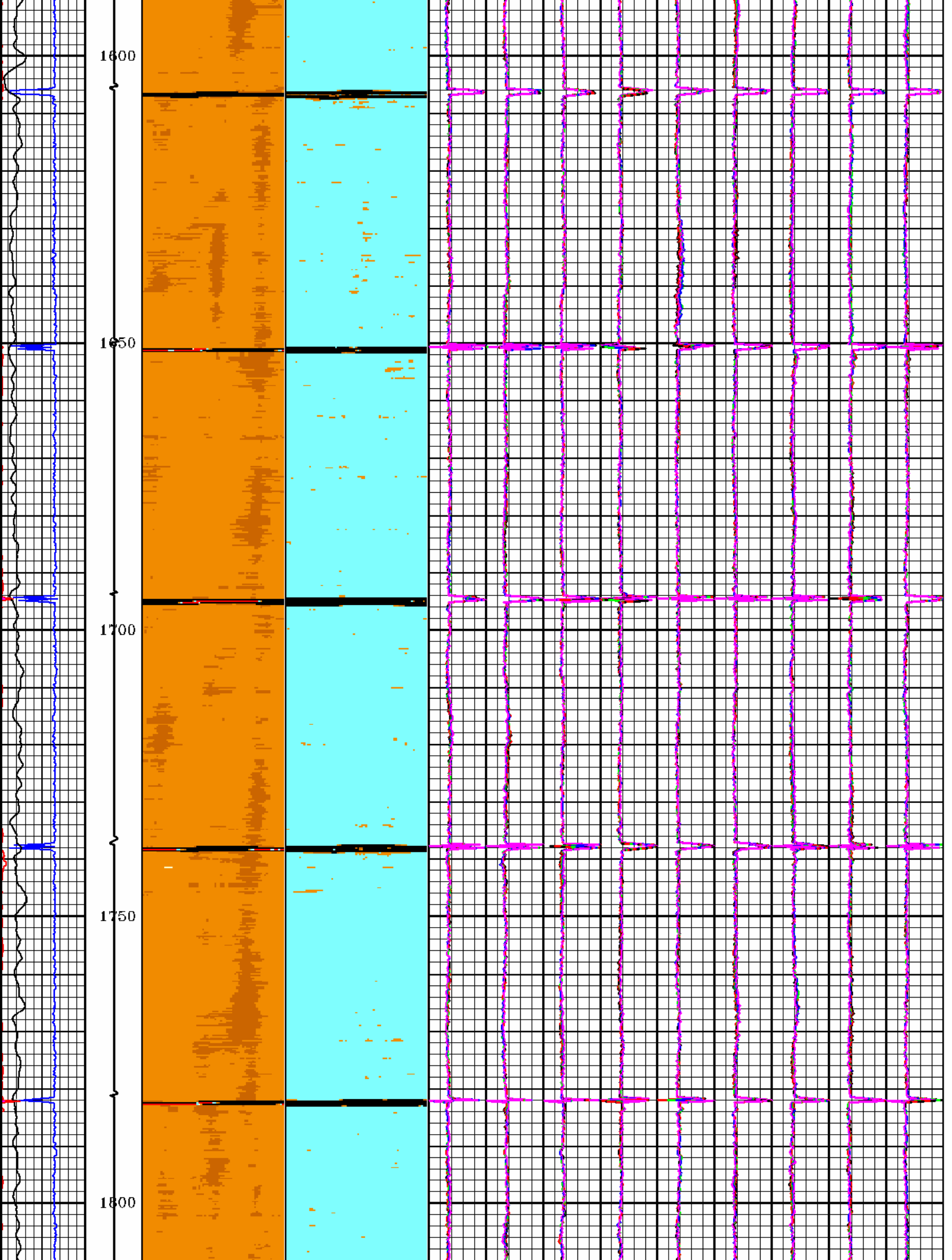


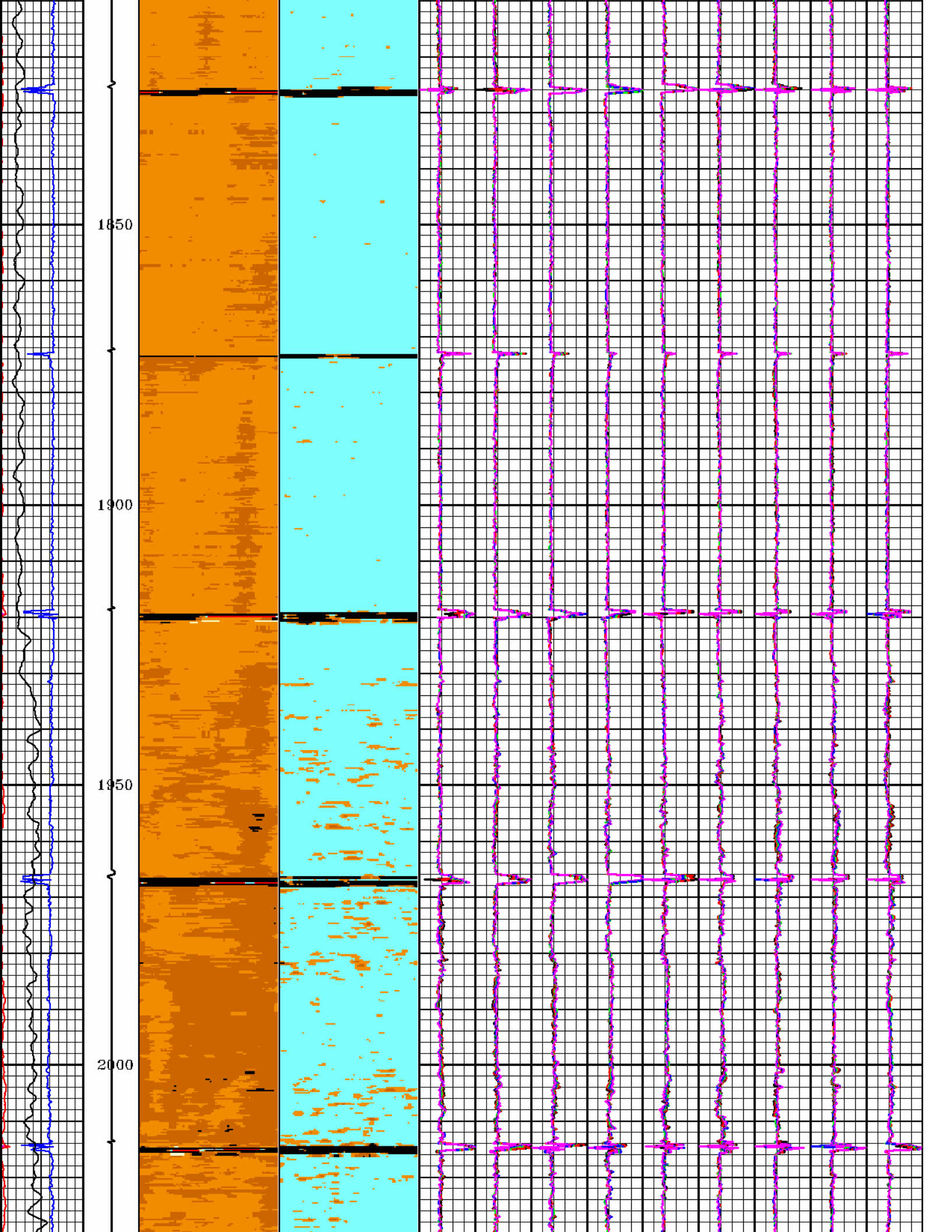


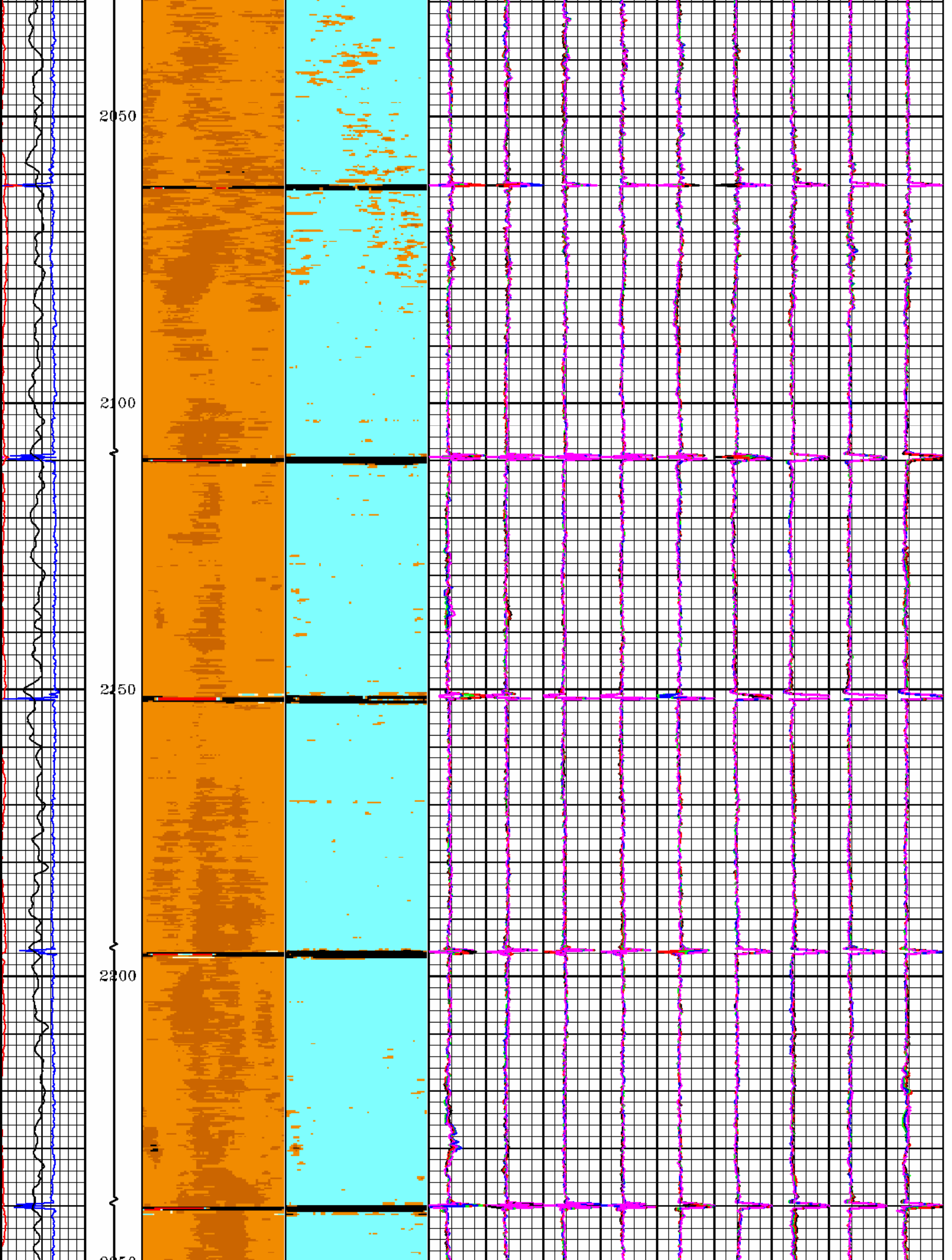


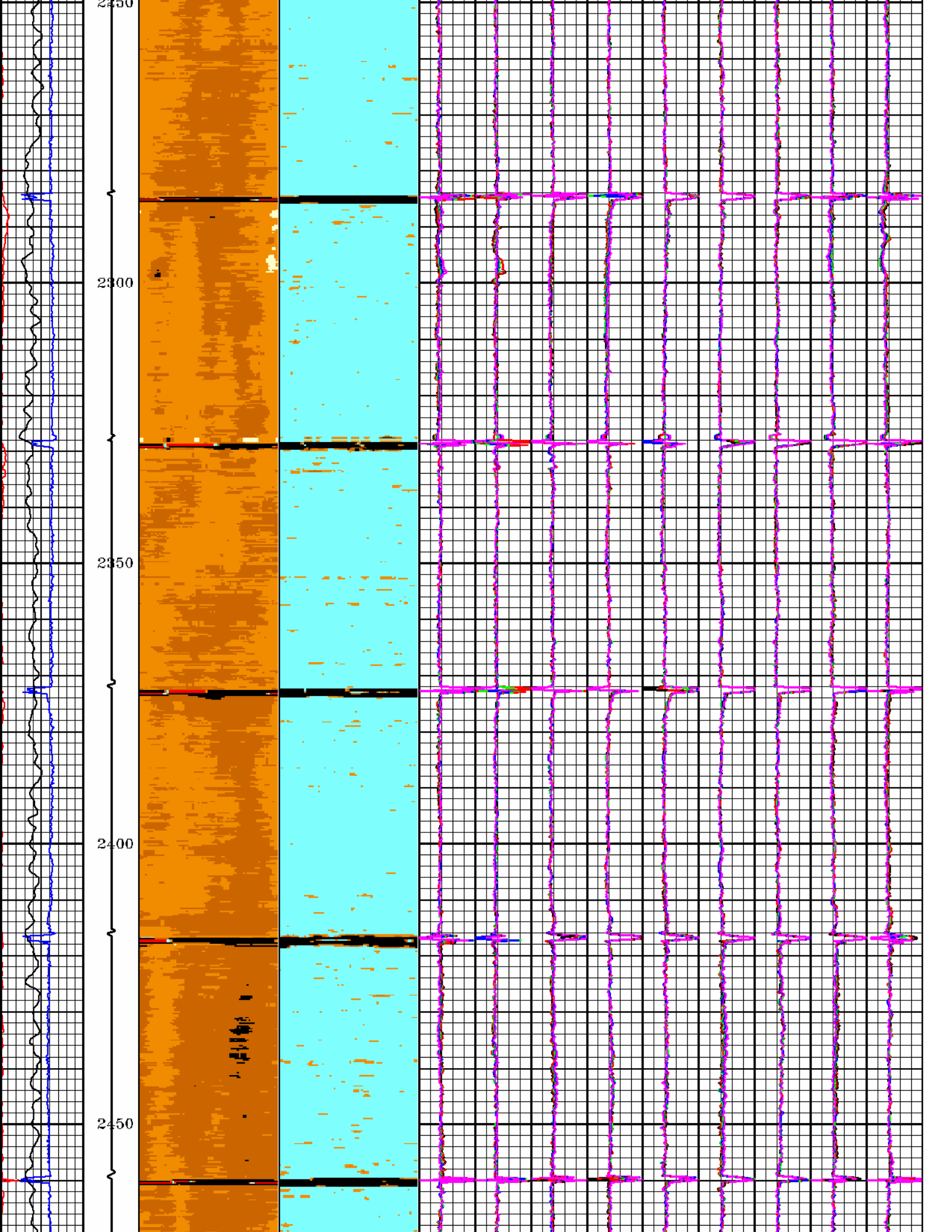


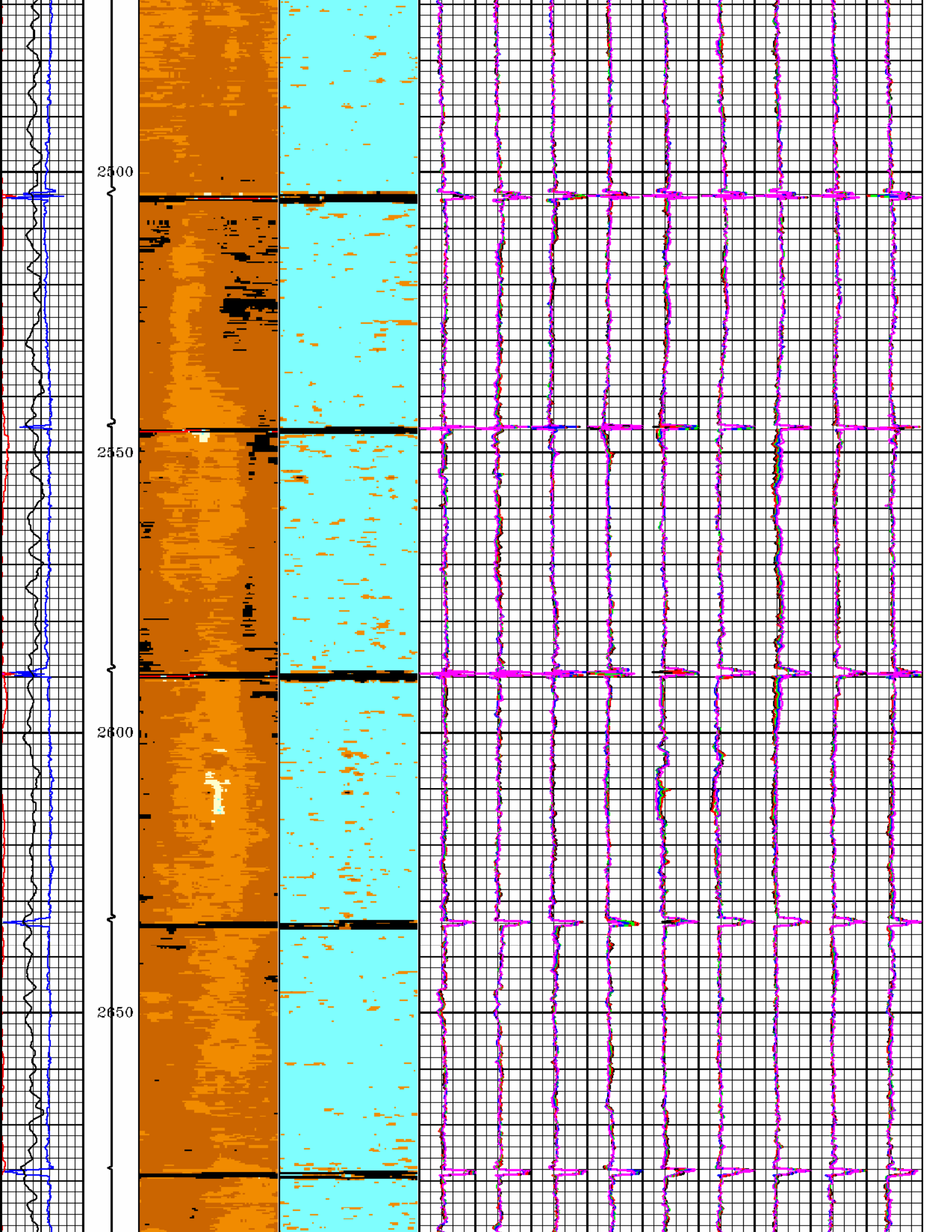


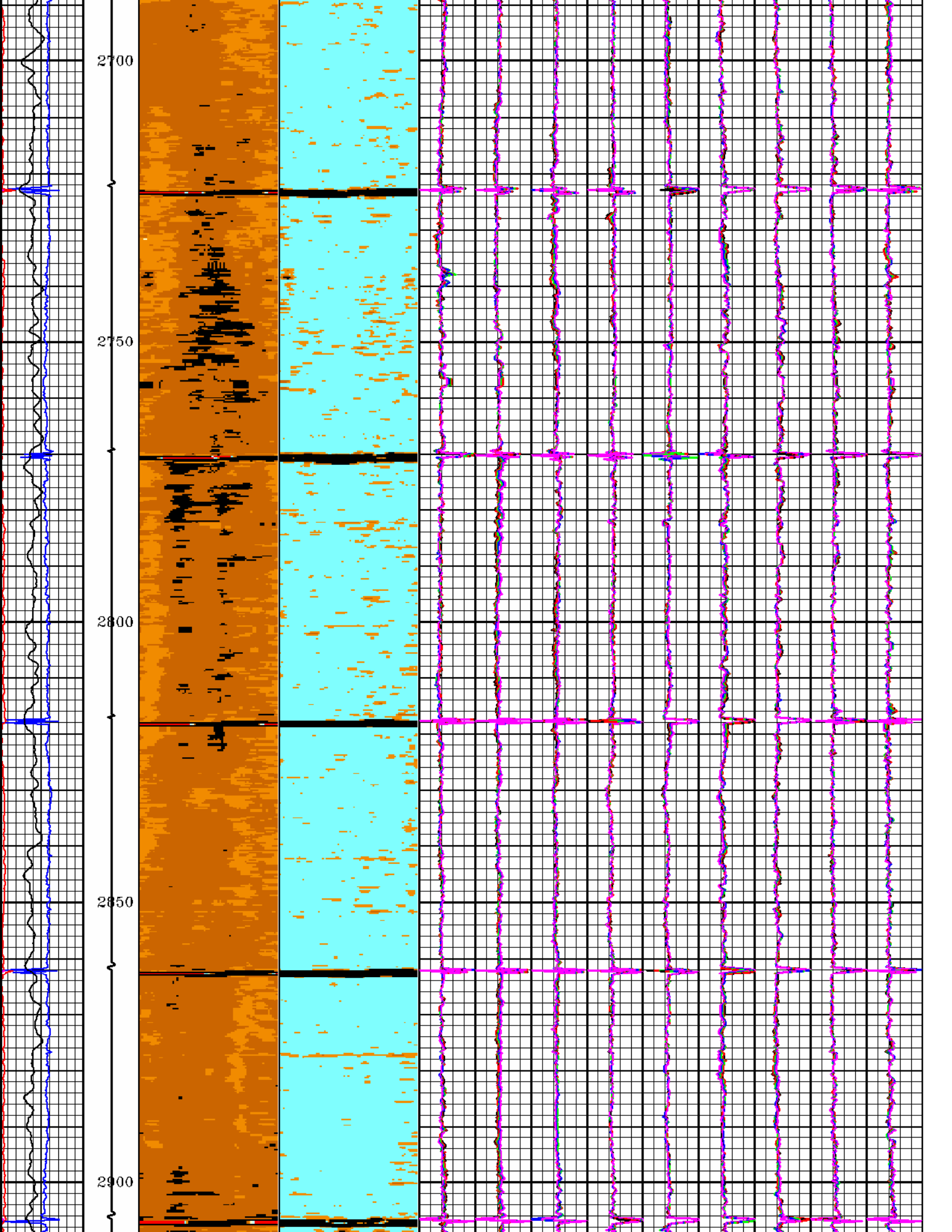


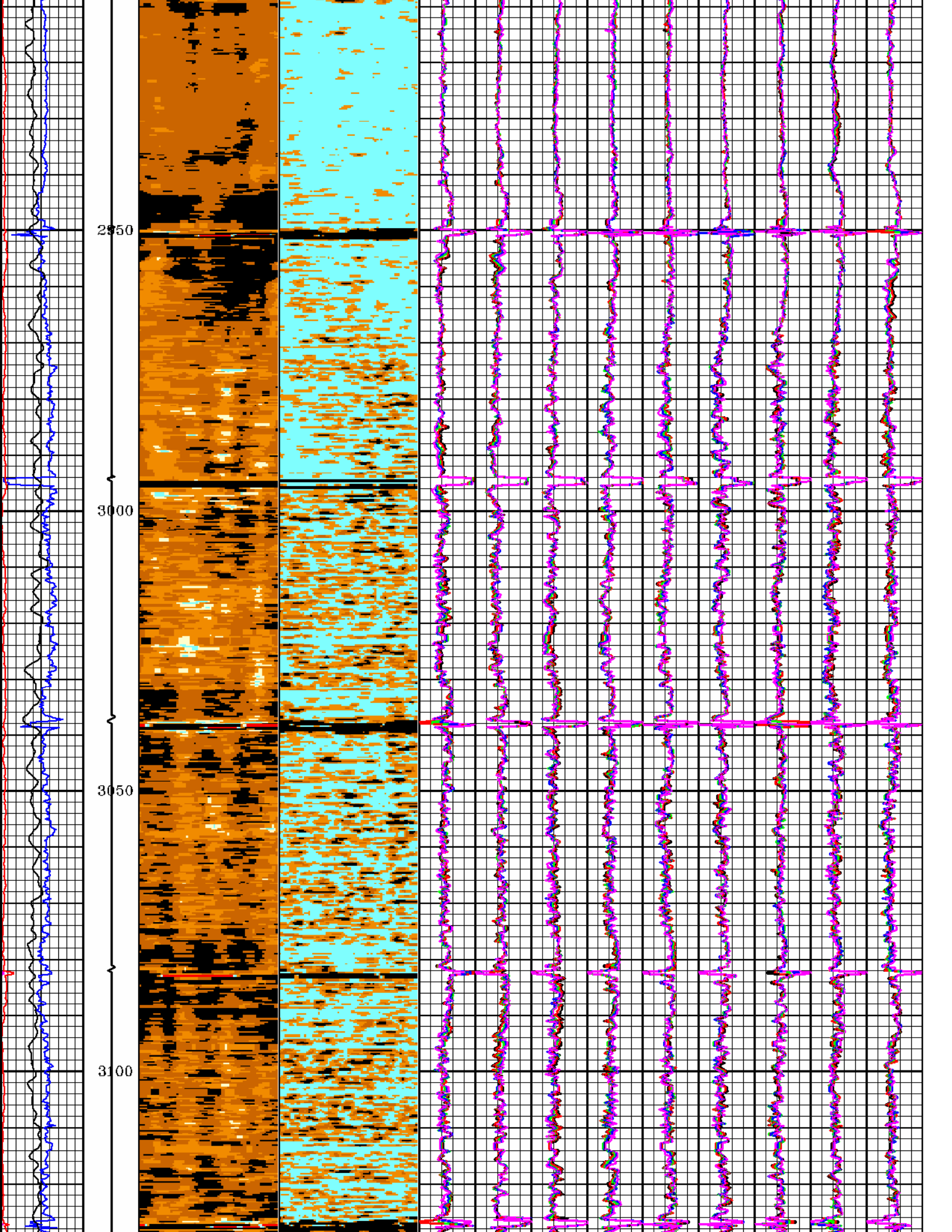


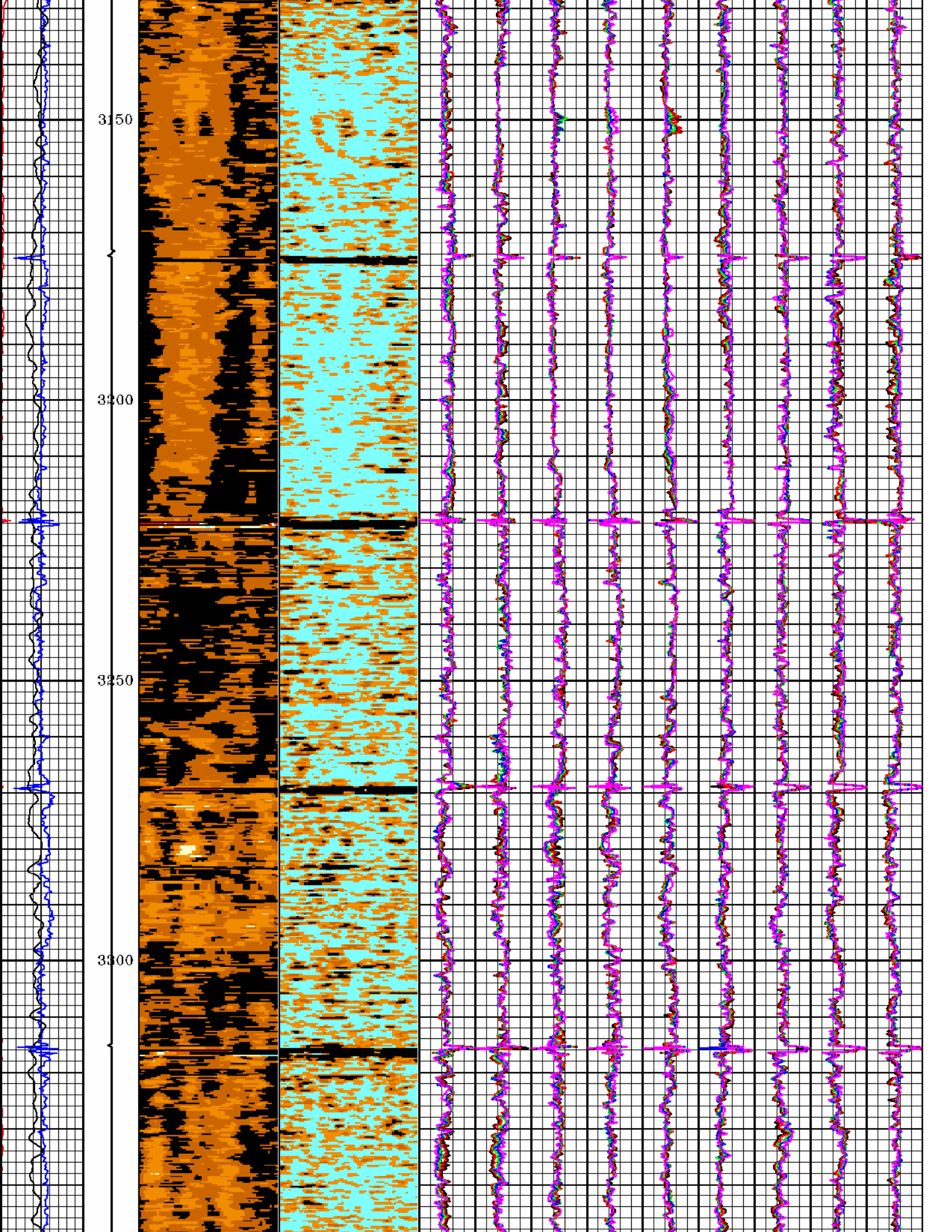


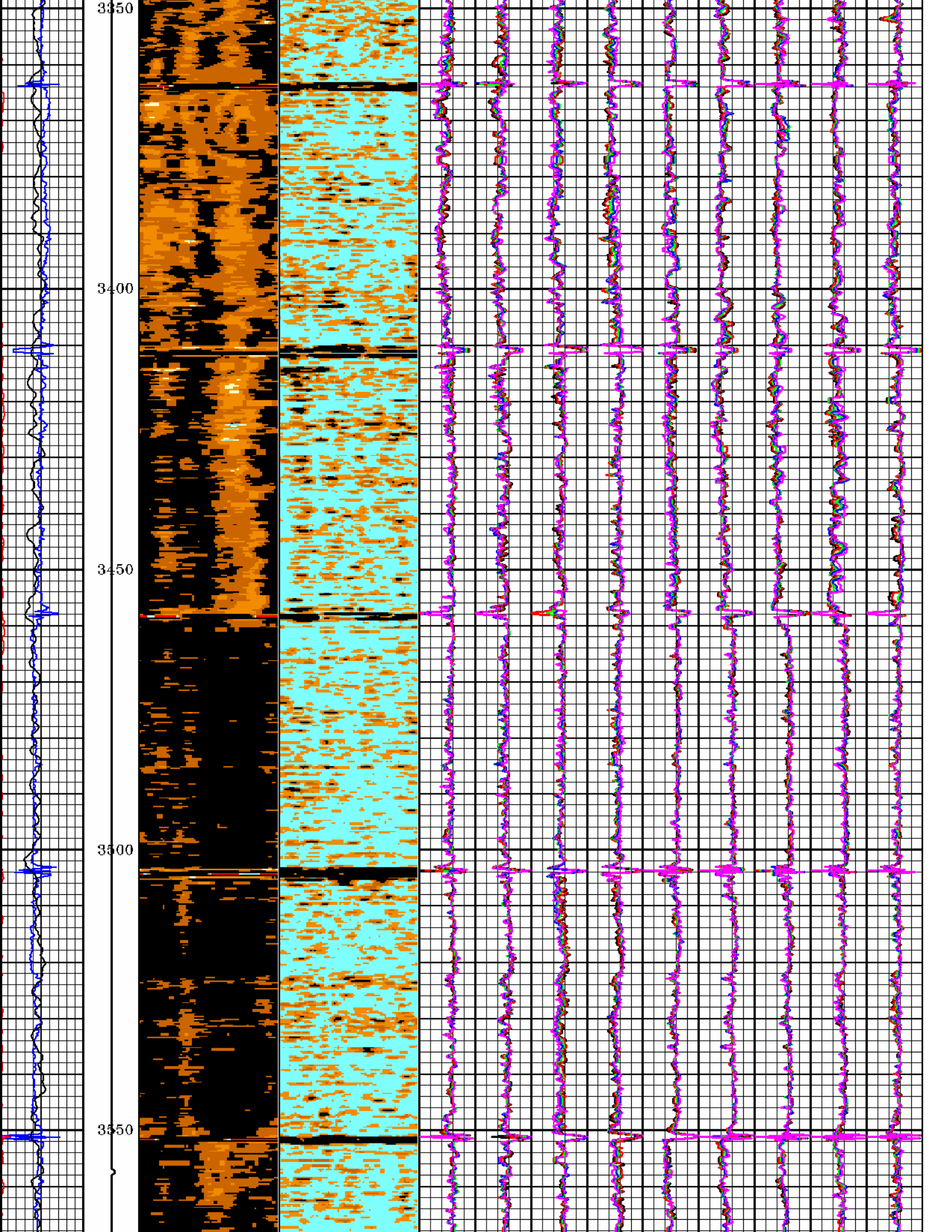


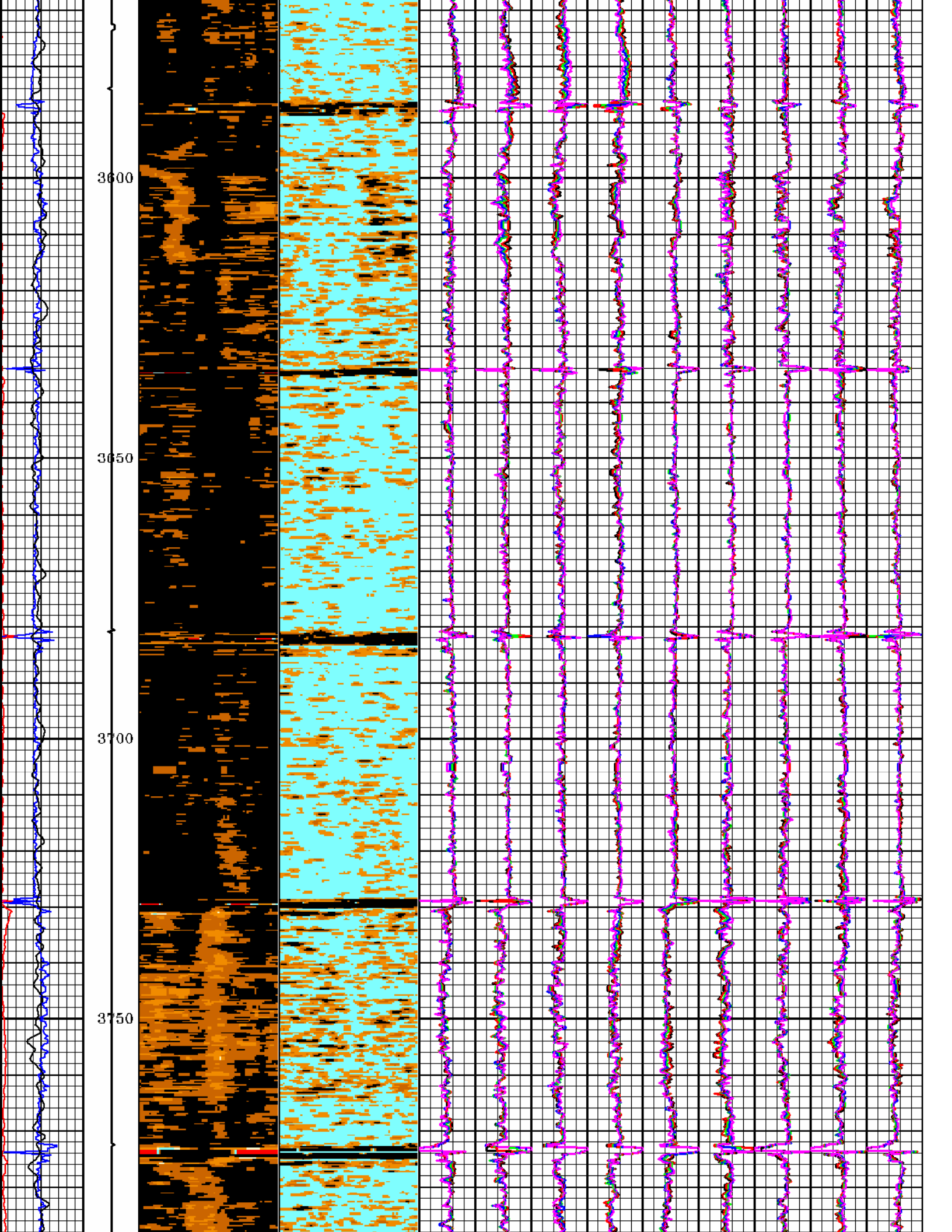


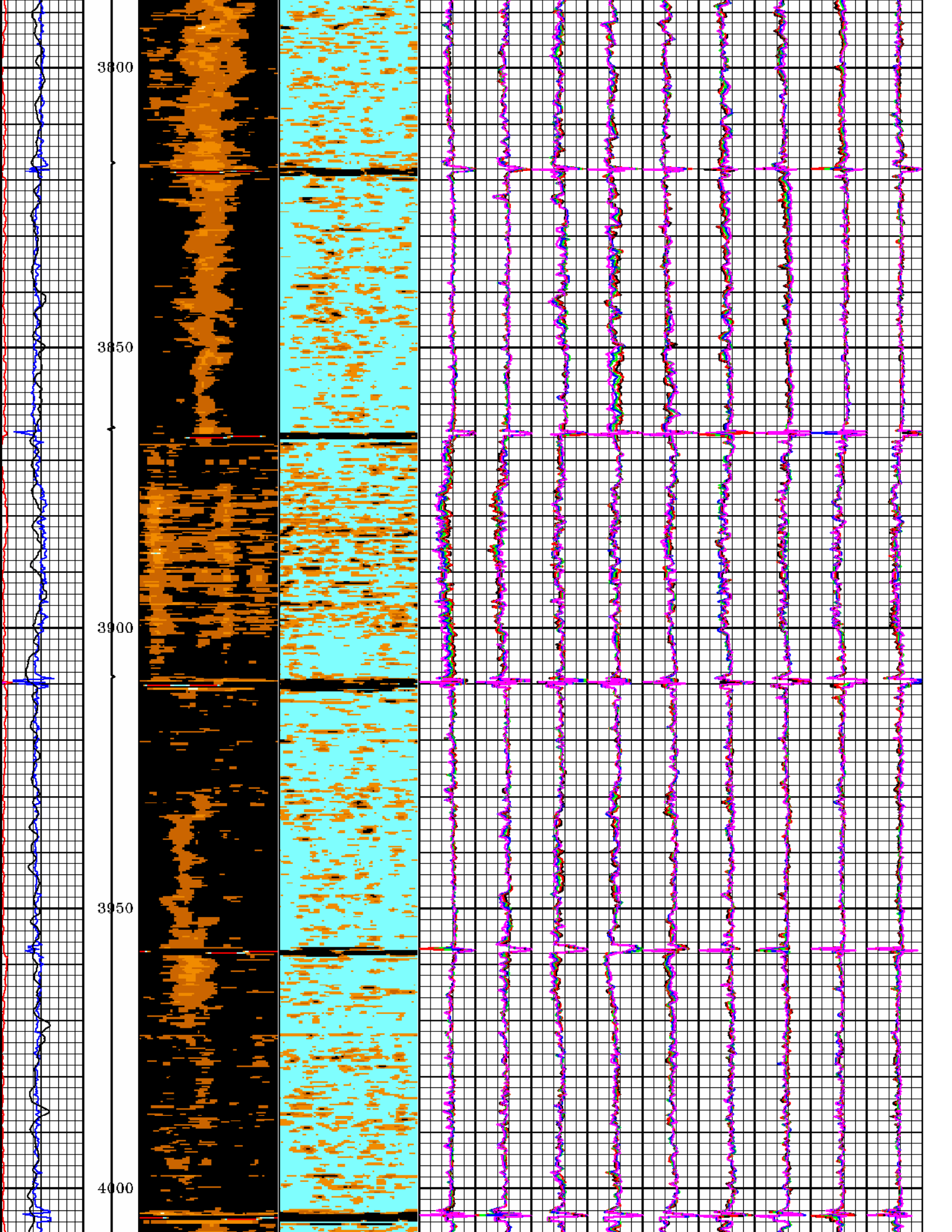


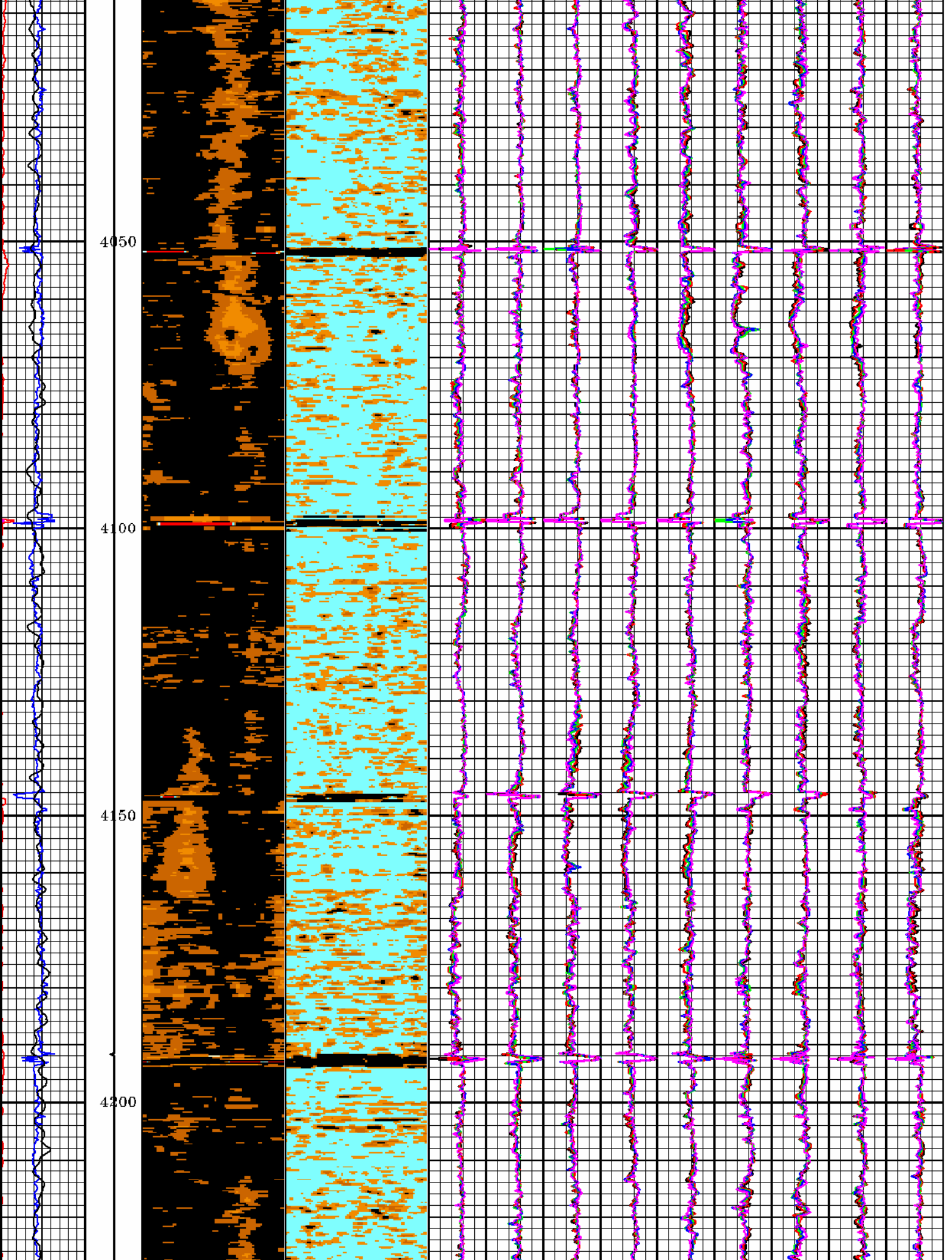


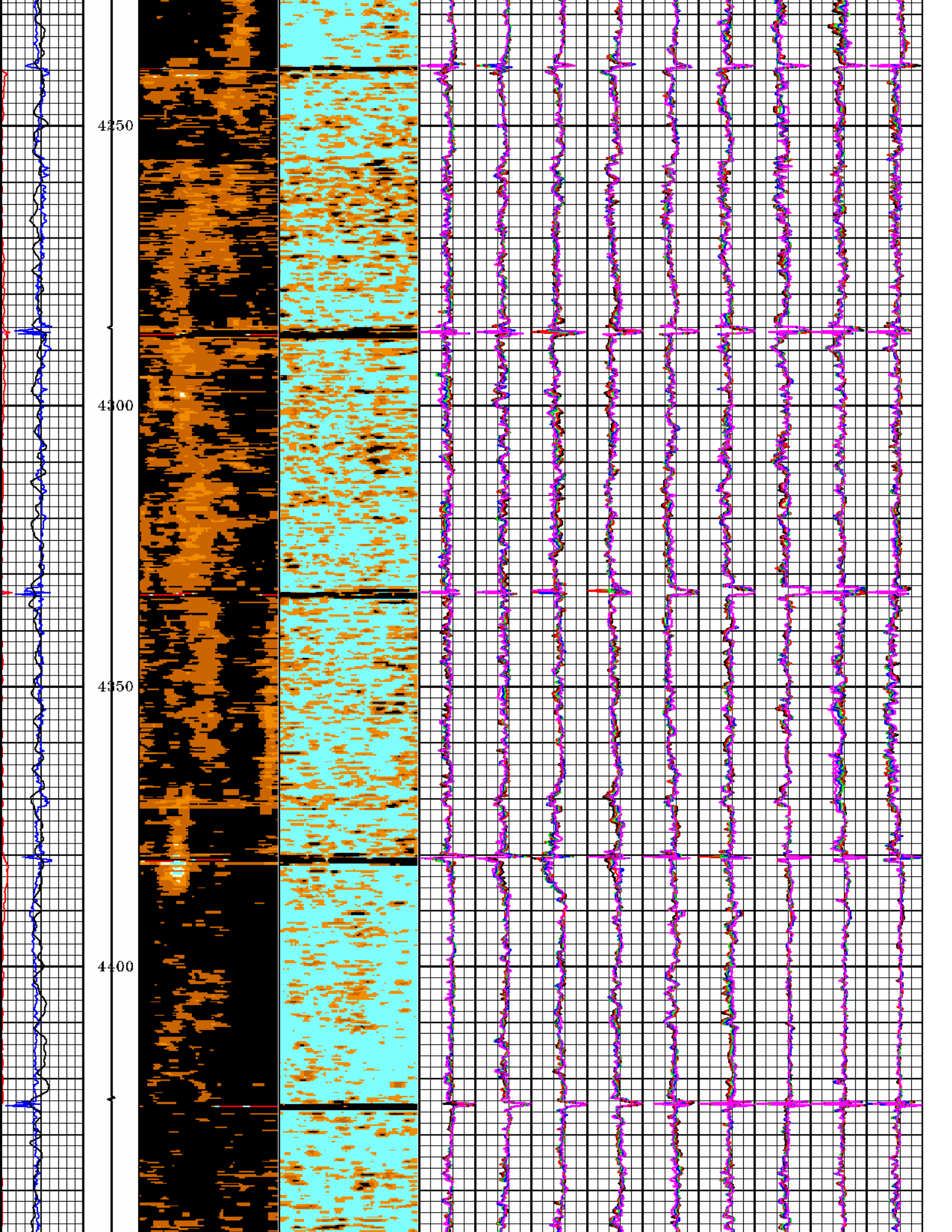


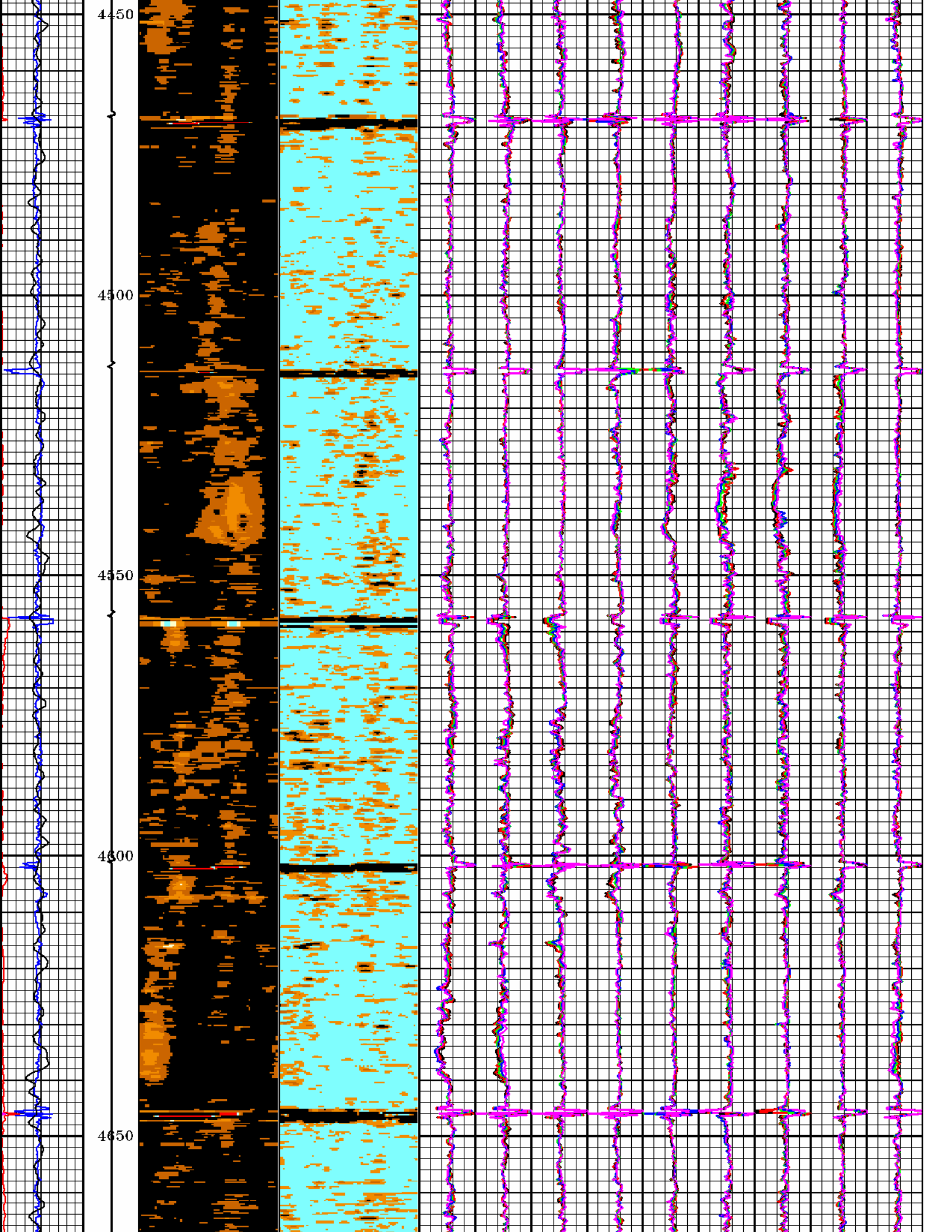


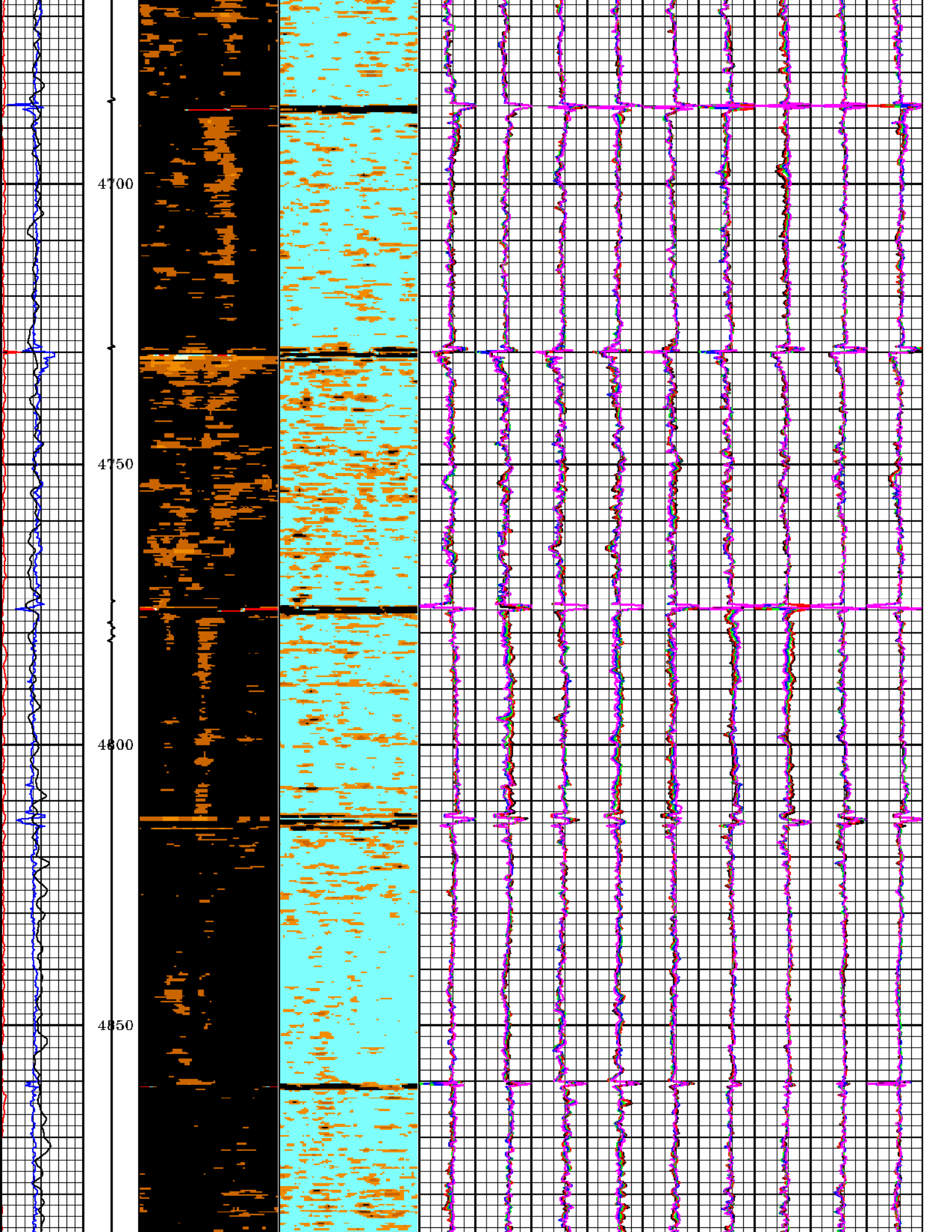


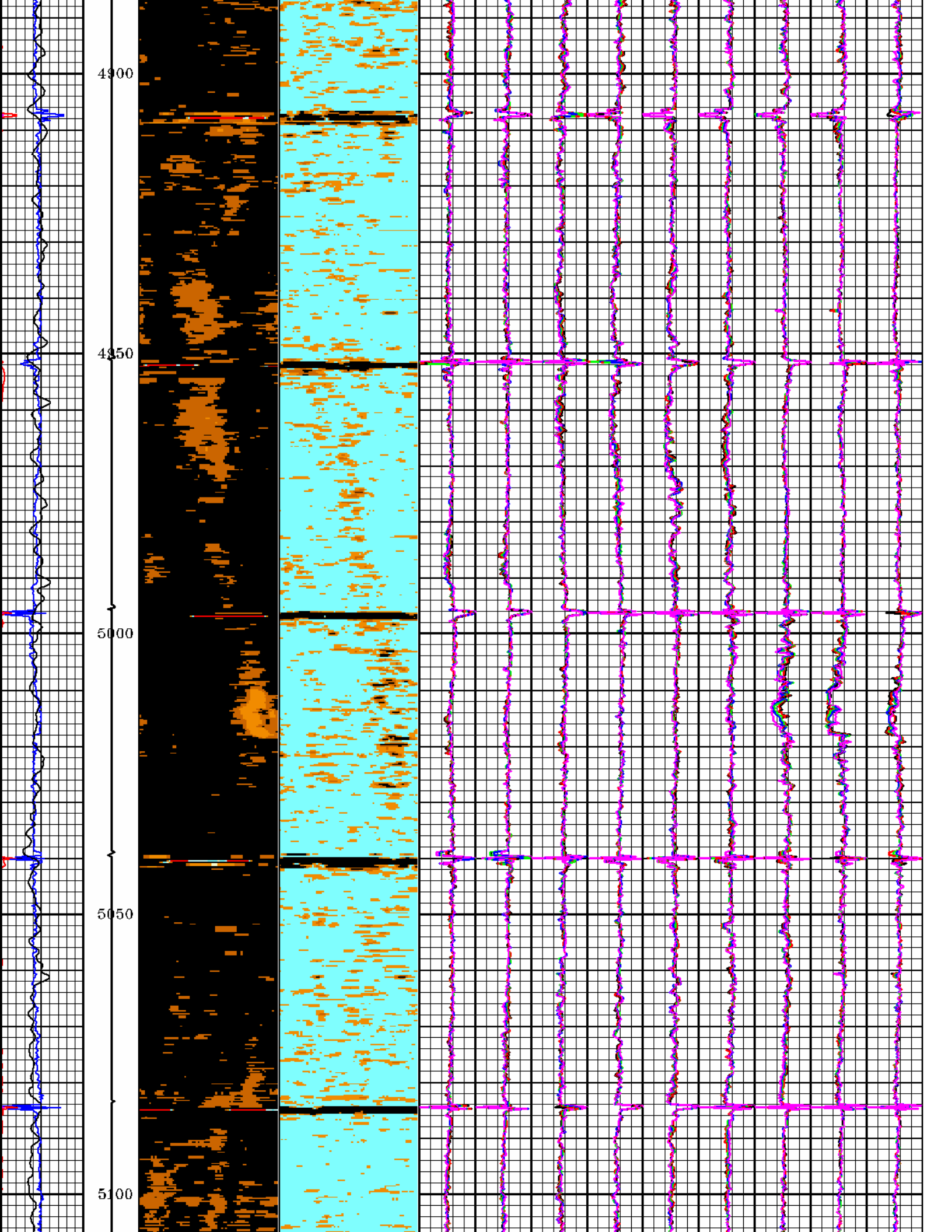


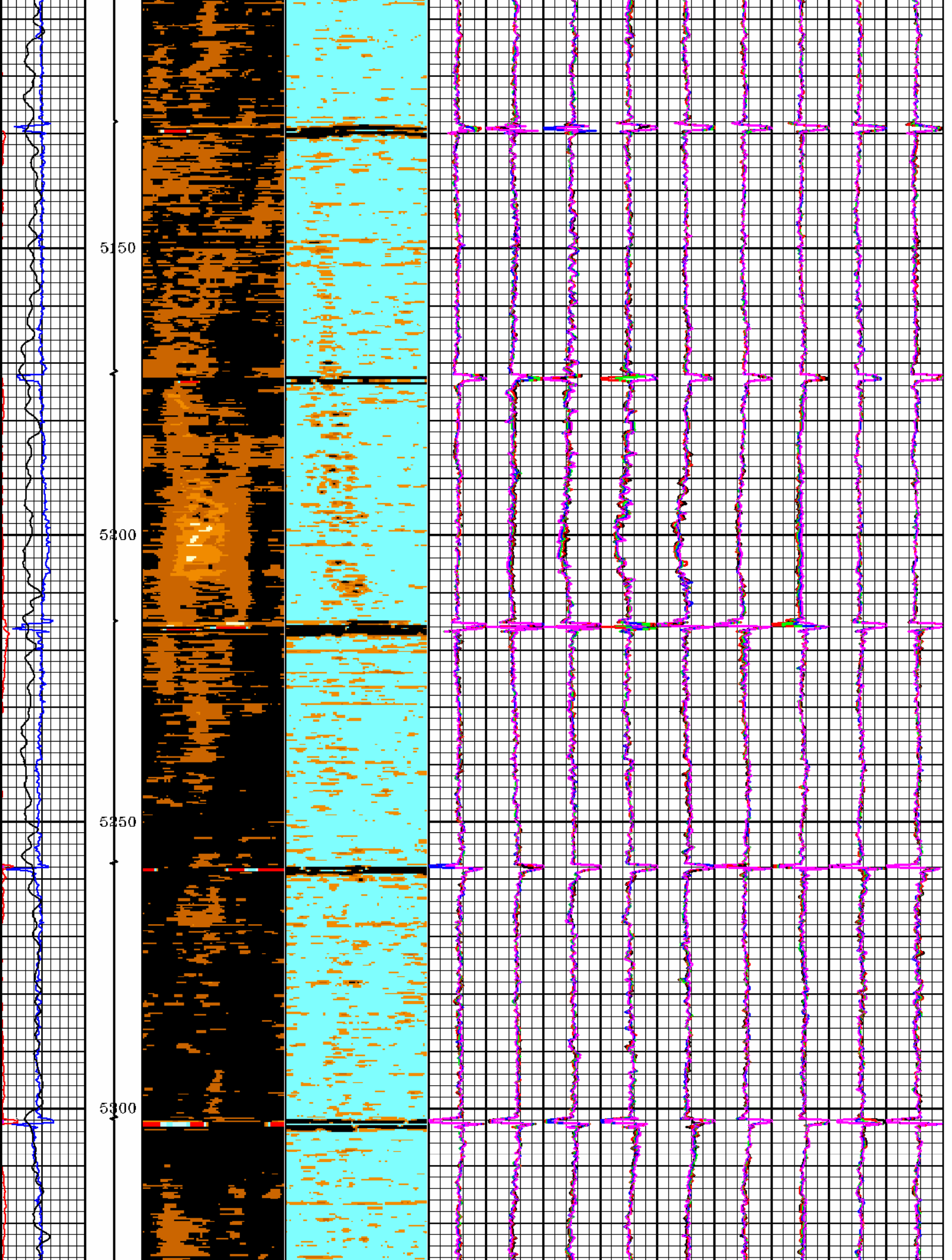


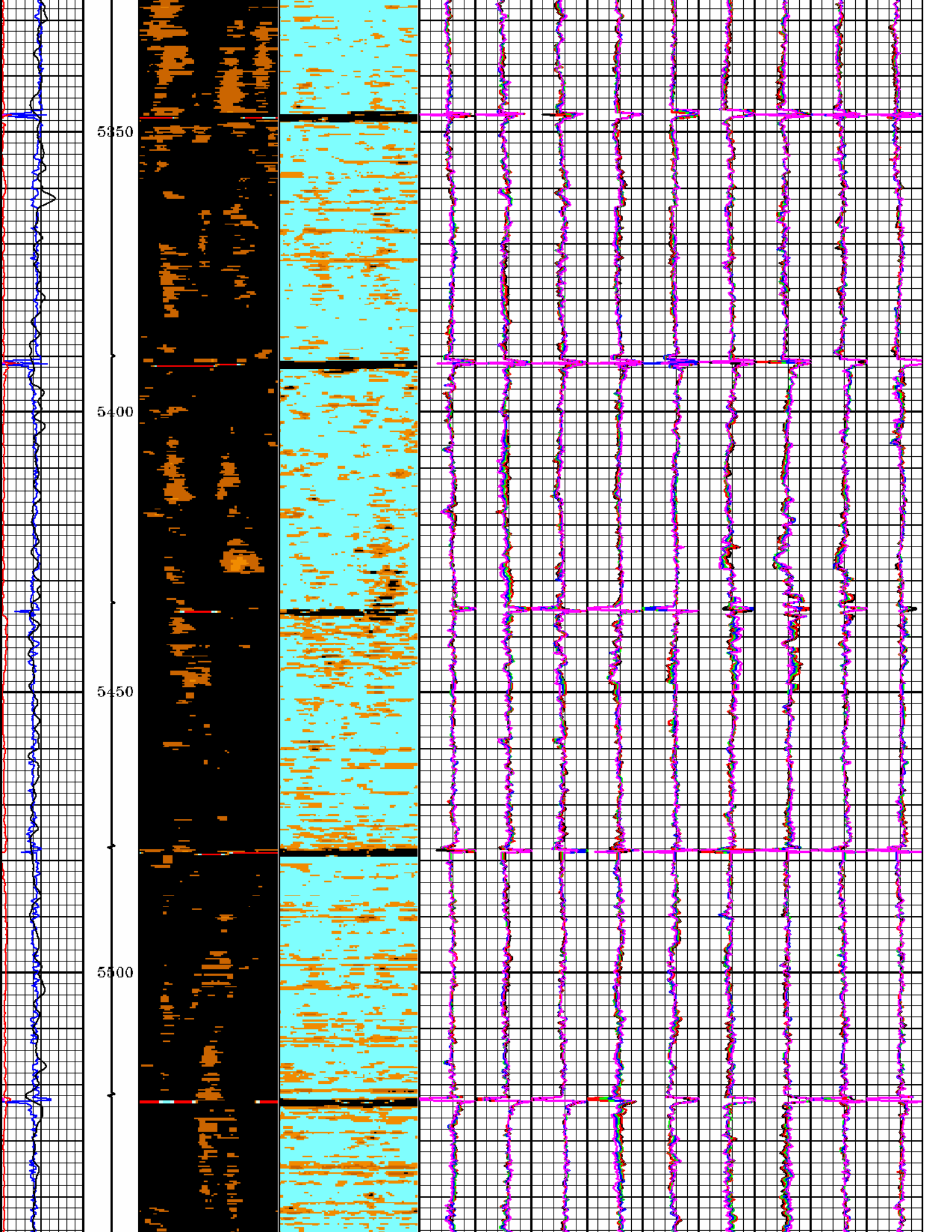


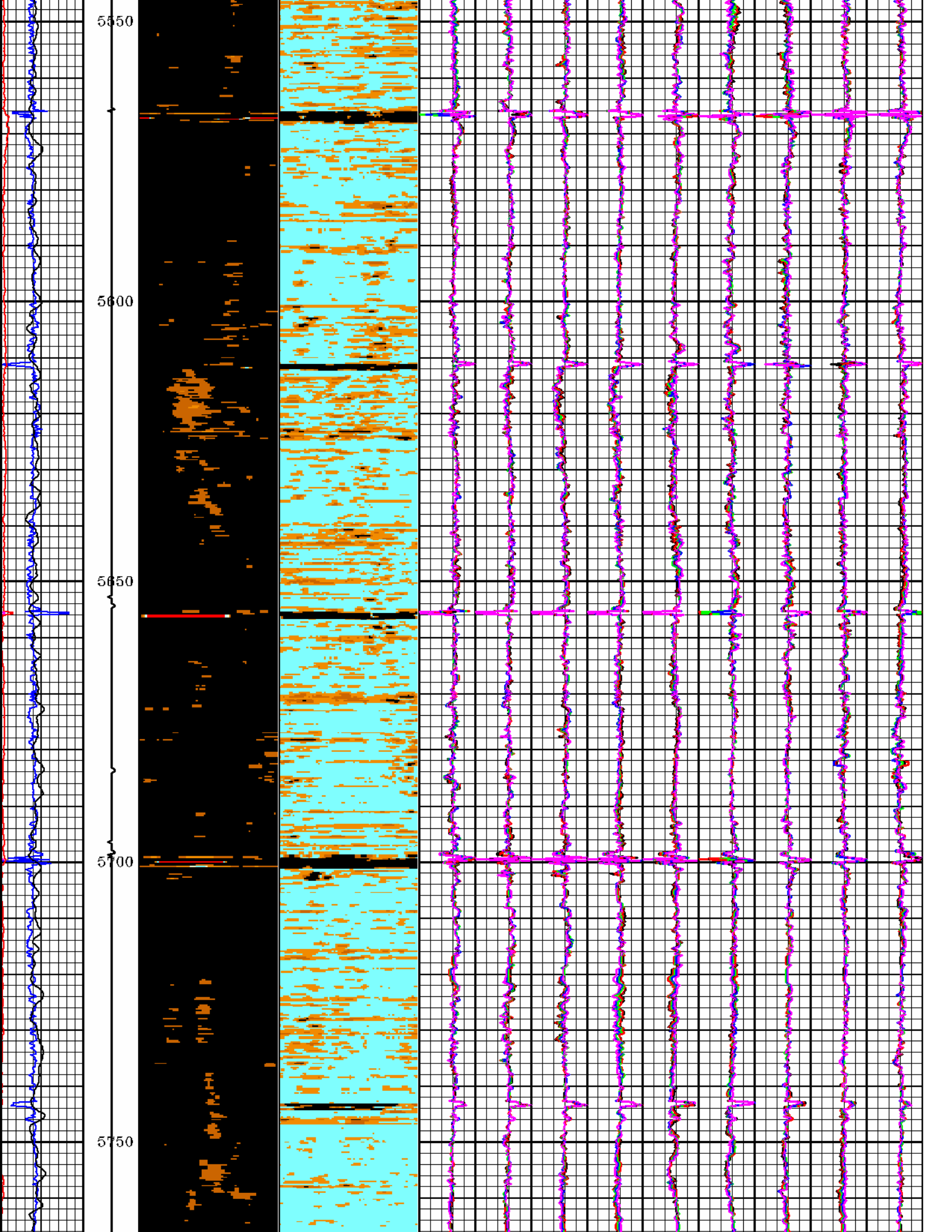


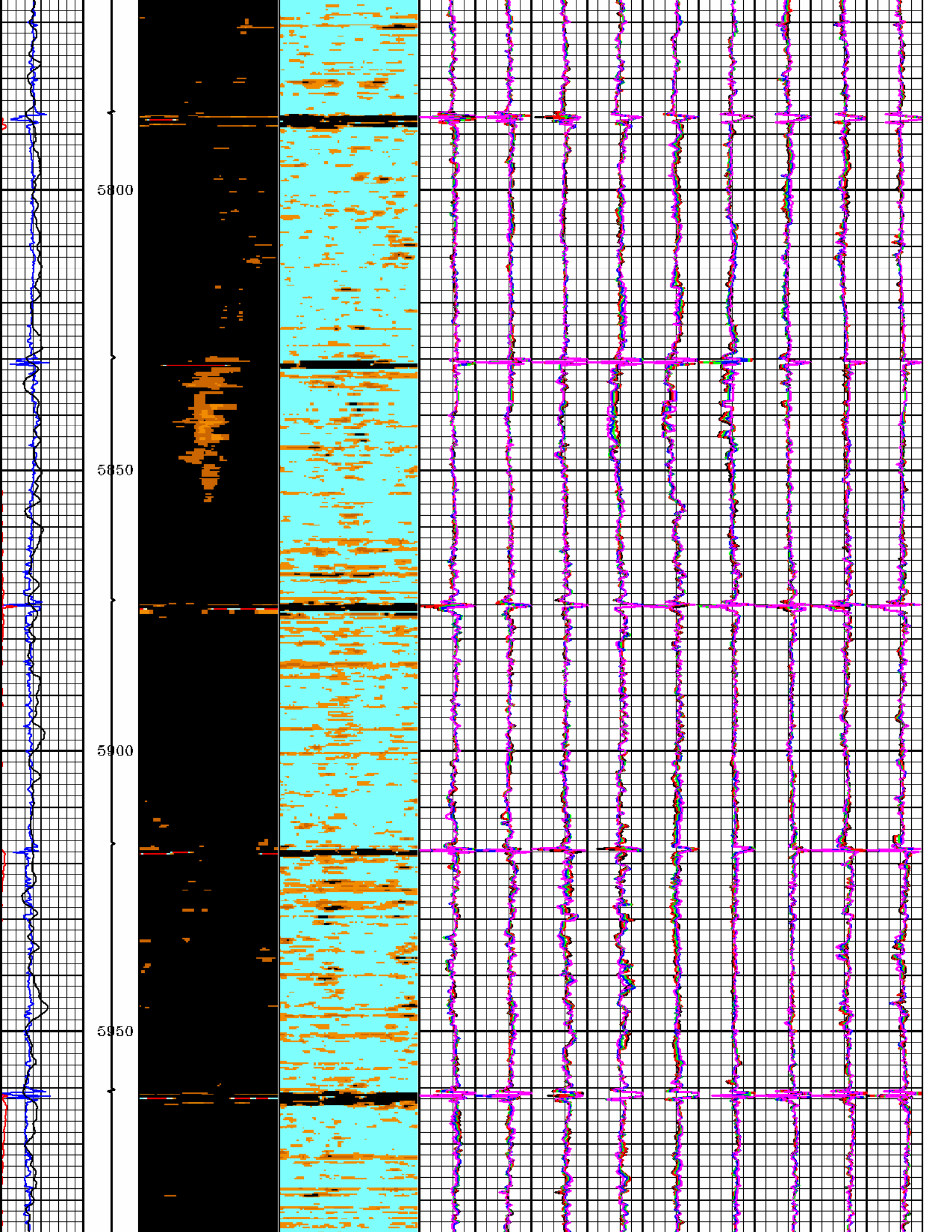


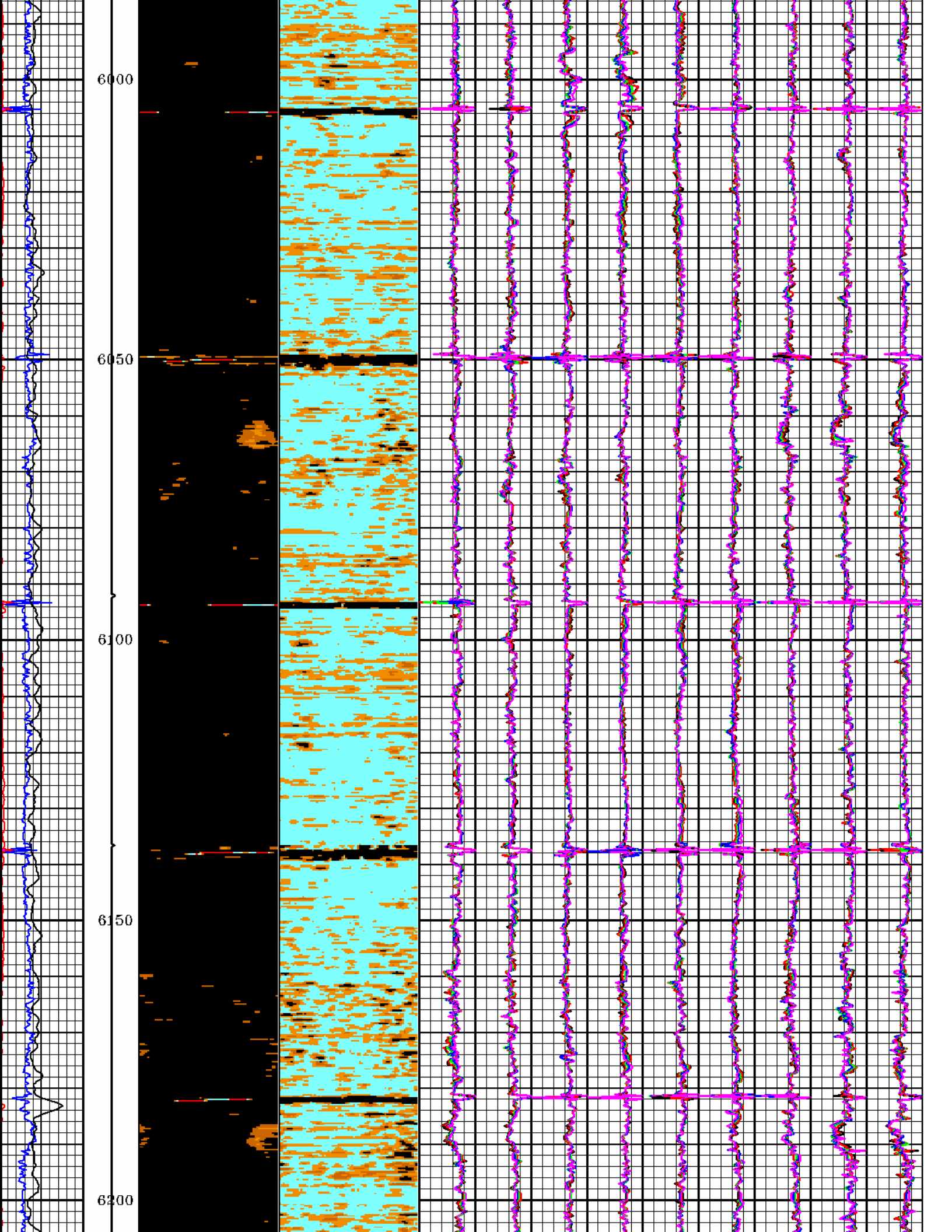


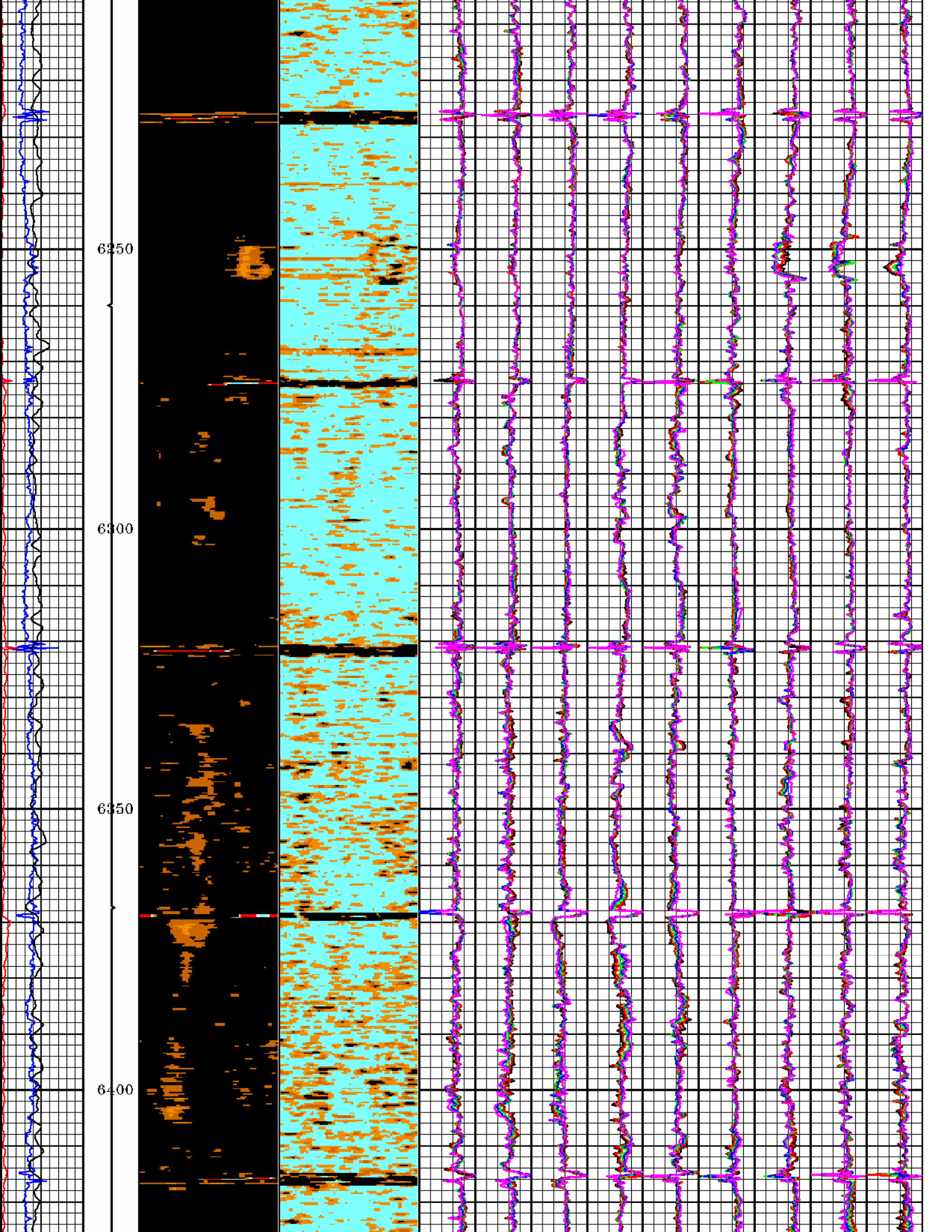


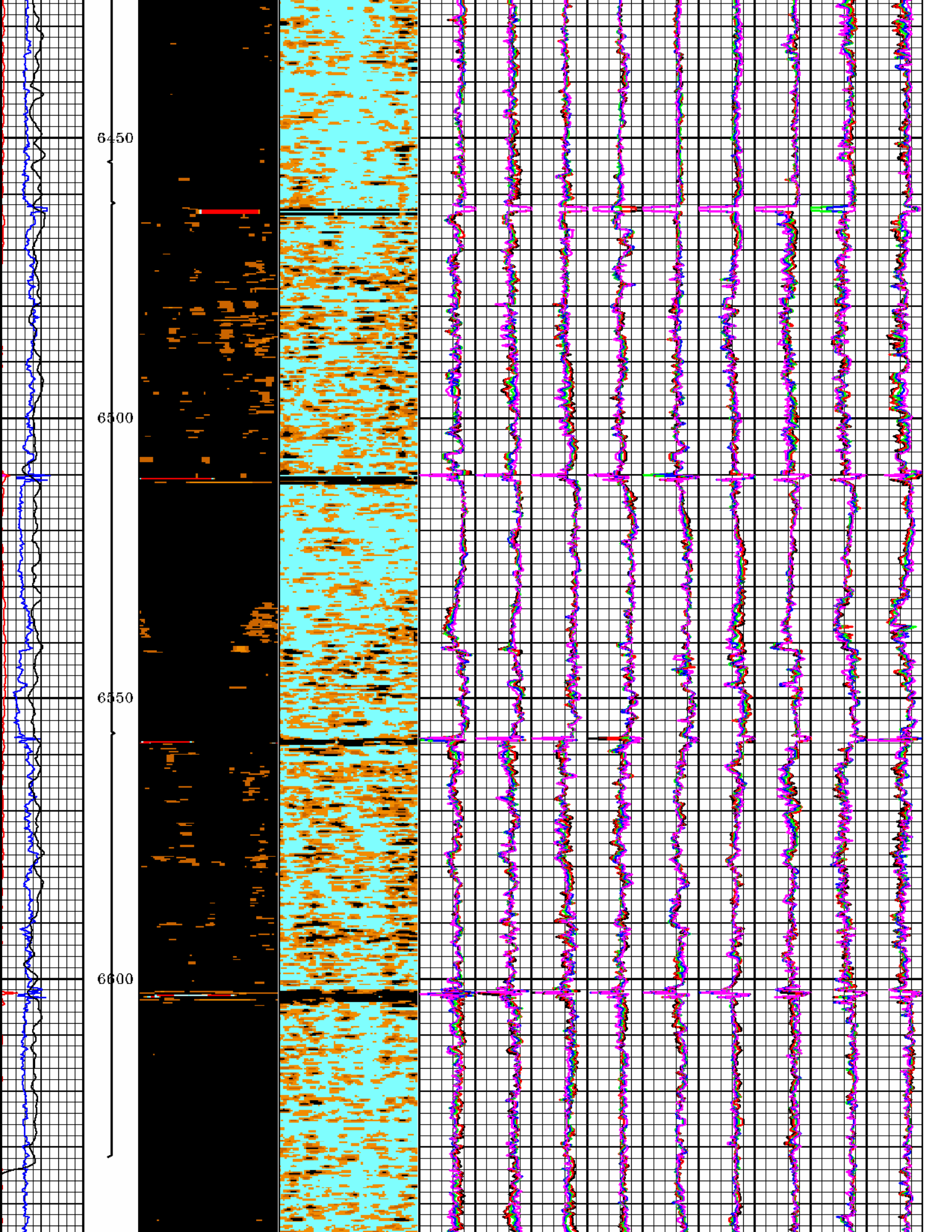


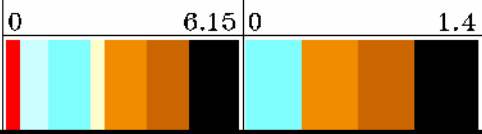
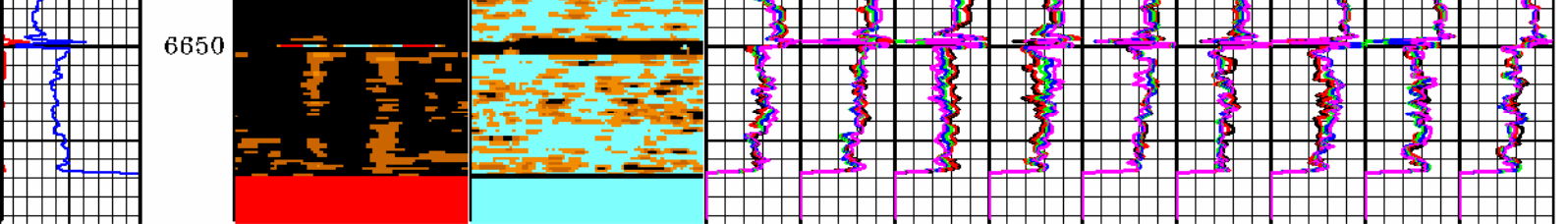












				CA5	CB5	CC5	CD5	CE5	CF5	CG5	CH5	CI5
ECTY	1			100	100	100	100	100	100	100	100	100
QUALITY	1			100	100	100	100	100	100	100	100	100
GR	160			100	100	100	100	100	100	100	100	100
ZAVG	0	1:240 FT.	ZP	100	100	100	100	100	100	100	100	100
			DZ	100	100	100	100	100	100	100	100	100
				100	100	100	100	100	100	100	100	100

<b>ECTY</b>												
WELLBORE DATA		IMPEDANCE MAP	DZ	SEG. A	SEG. B	SEG. C	SEG. D	SEG. E	SEG. F	SEG. G	SEG. H	SEG. I

Version No: 1 hc:3.0  
 Data File: MERGE.cls  
 Format File: ACE\_SEG\_CURVES.spc  
 Plot Time: 2013-12-08 11:37:43  
 Database Time: 08:55:24

Top Depth: 0.00  
 Bottom Depth: 6669.50

COMPANY	CONOCO PHILLIPS		
WELL	BOMHOFF 5 8H		
FIELD	NIOBRARA		
COUNTY	ARAPAHOE	STATE	CO
<b>HALLIBURTON</b>	<b>CAST-M ADVANCED CEMENT EVALUATION</b>		