

Company

Well

Field

County

East Cheyenne Gas Storage, LLC.

DOROTHY STRANGE #1 WP-D011

West Peetz

Logan

State

CO

Company

Well

Field

County

Logan

State

CO

East Cheyenne Gas Storage, LLC.

DOROTHY STRANGE #1 WP-D011

West Peetz

Sec: 6

Twp: 11N

Rge: 52W

Permanent Datum

Log Measured From

Drilling Measured From

G.L

K.B.

K.B.

Elevation

4547'

4560'

Elevation

4560'

D.F.

4560'

Elevation

4547'

G.L.

4547'

Date @ Time Logged

Run No.

Depth - Driller

Depth - Logger

Bottom - Logged Interval

Top - Log Interval

Max. Recorded Temp.

3/26/2016 @ 17:00

ONE

6220'

5137'

5054'

SURFACE

Type Fluid in Hole

Density of Fluid

Fluid Level

Cement Top Est. Logged

Equipment / Location

Recorded by

FRESH WATER

8.4#

SURFACE

N/A

11875120 / BRIGHTON

J. SCHMIDT & P. DIMPFL

CEMENTING DATA

Surface

Protection

Production

Liner

String

String

String

Date / Time Cemented

Primary / Squeeze

Expected

Compressive Strength

Cement Volume

Cement Type / Weight

Formulation

Mud Type / Mud Wgt.

psi@

hrs

psi@

hrs

psi@

hrs

psi@

hrs

Run Number

Bit

From

To

Size

Weight

From

To

9-5/8"

25.4#

0"

215'

5.5"

15.5#

0'

5298'

CIRCUMFERENTIAL ACOUSTIC SCANNING TOOL

CASING INSPECTION

<<< Fold Here >>>

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.

Comments

1. LOG WAS CORRELATED TO J-W WIRELINE CEMENT BOND LOG DATED 02/04/2011.
2. CAST CONFIG: 3 5/8" HEAD, BLACK 450KHz TRANSDUCER, CIM, 72 SHOTS, 12SPF
3. POOR DATA QUALITY IN MID WELL INTERVAL DUE TO WELLBORE FLUID CONDITIONS.

HALLIBURTON CREW: JASON WILKERSON & BRANDON SHUPE

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, BRIGHTON, CO

Service Ticket No.	903182643	API No.	05-075-07146-0000	PGM Ver	WARRIOR 8
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
TELEMETRY		CAST			
Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	10010734	Serial No.	11501505	Serial No.	
Model No.	TTTC-U-002	Model No.	CAST-M	Model No.	
Diameter	1.688"	Diameter	2.125"	Diameter	
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

ONE	PLUG	SURFACE	0 PSI	15 FPM	MAIN LOG SECTION			
	GAMMA RAY		IR		THICKNESS		IMPEDANCE	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
	0 API	150 API	2.6	3.6	0.26	0.46	0	6.15
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

MAIN PASS TOP SECTION

HALLIBURTON

5" = 100'

Database File

dorothy_1_cast.db

Dataset Pathname

MAIN_TOP_LAST

Presentation Format

1pim5

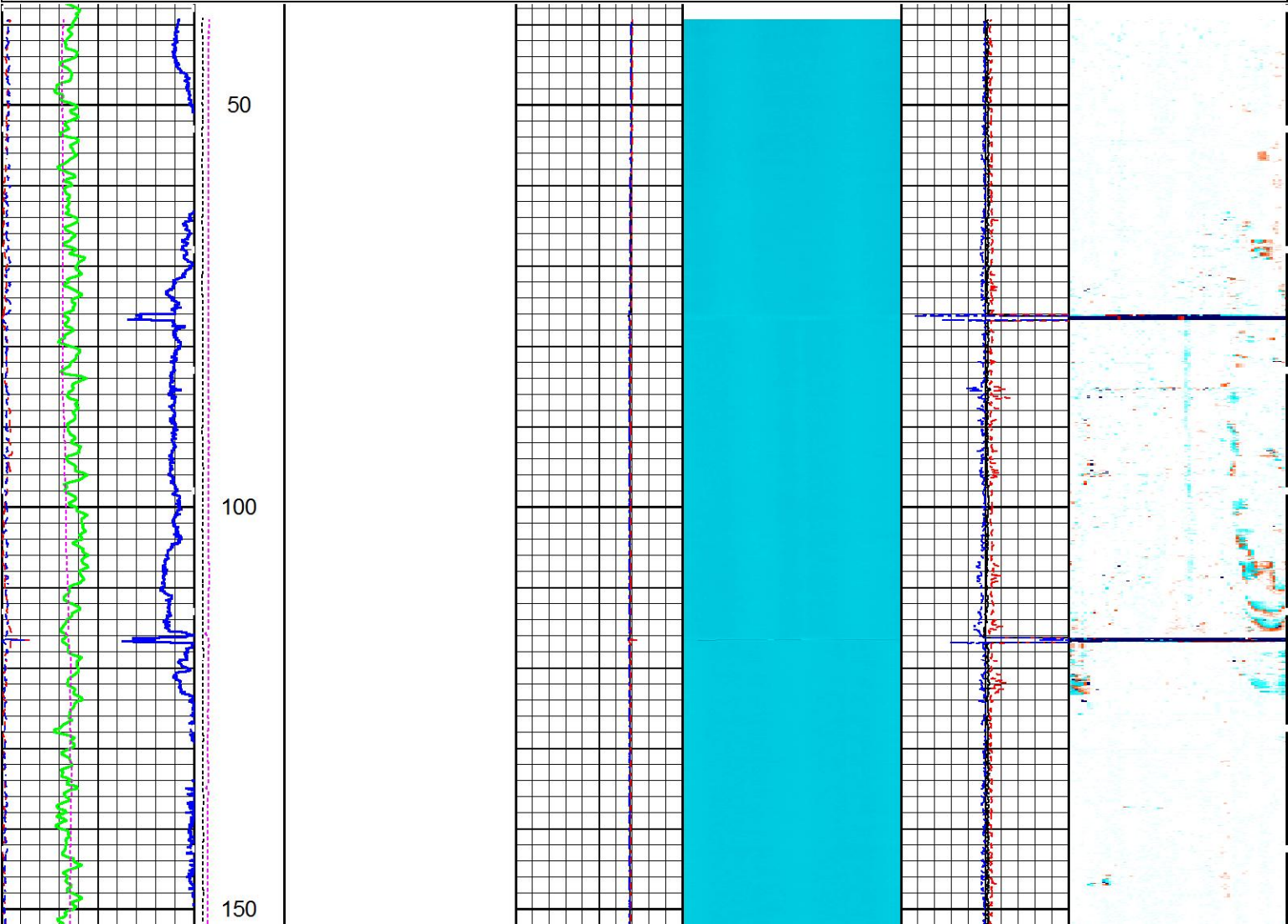
Dataset Creation

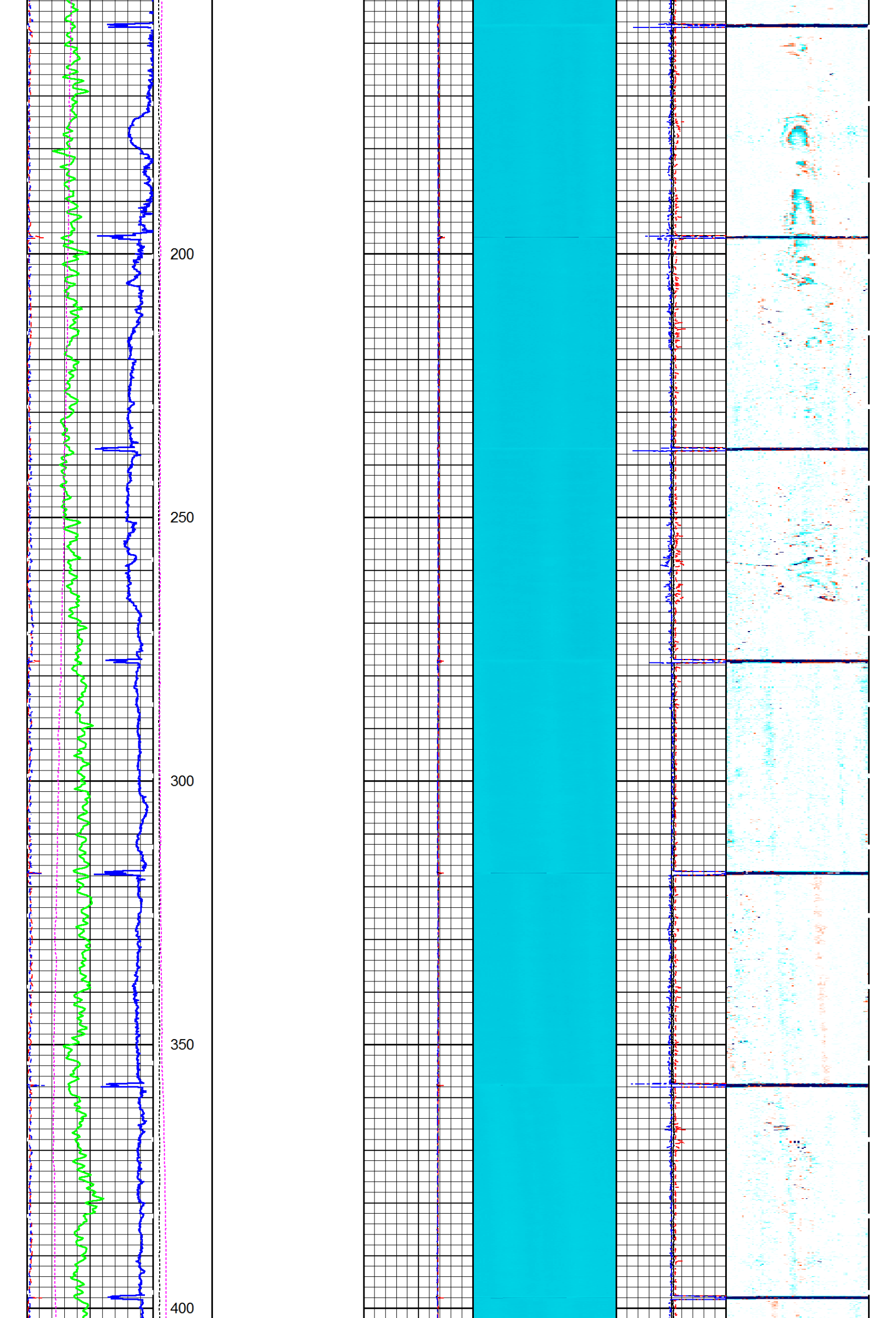
Sat Mar 26 20:58:54 2016

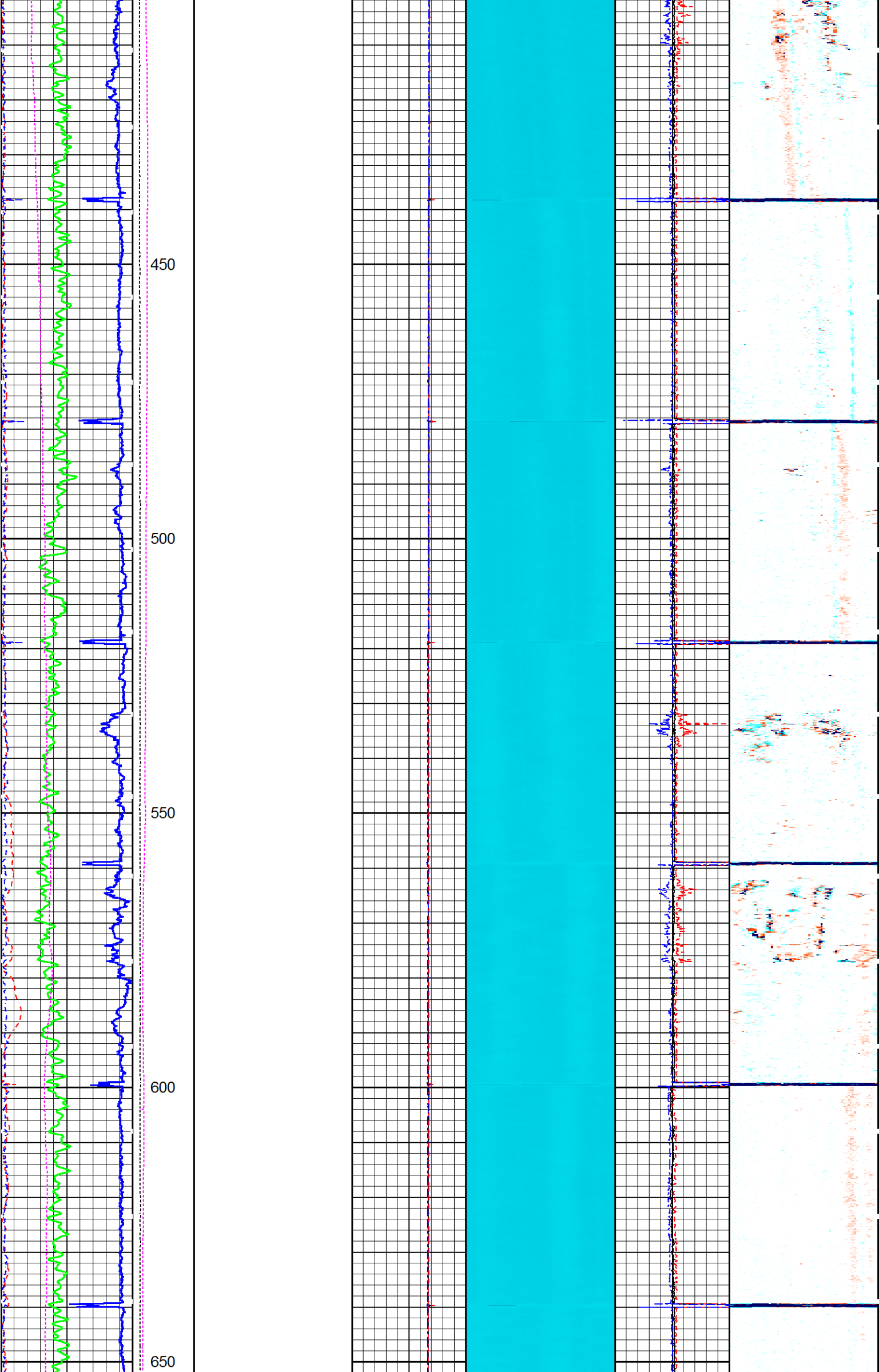
Charted by

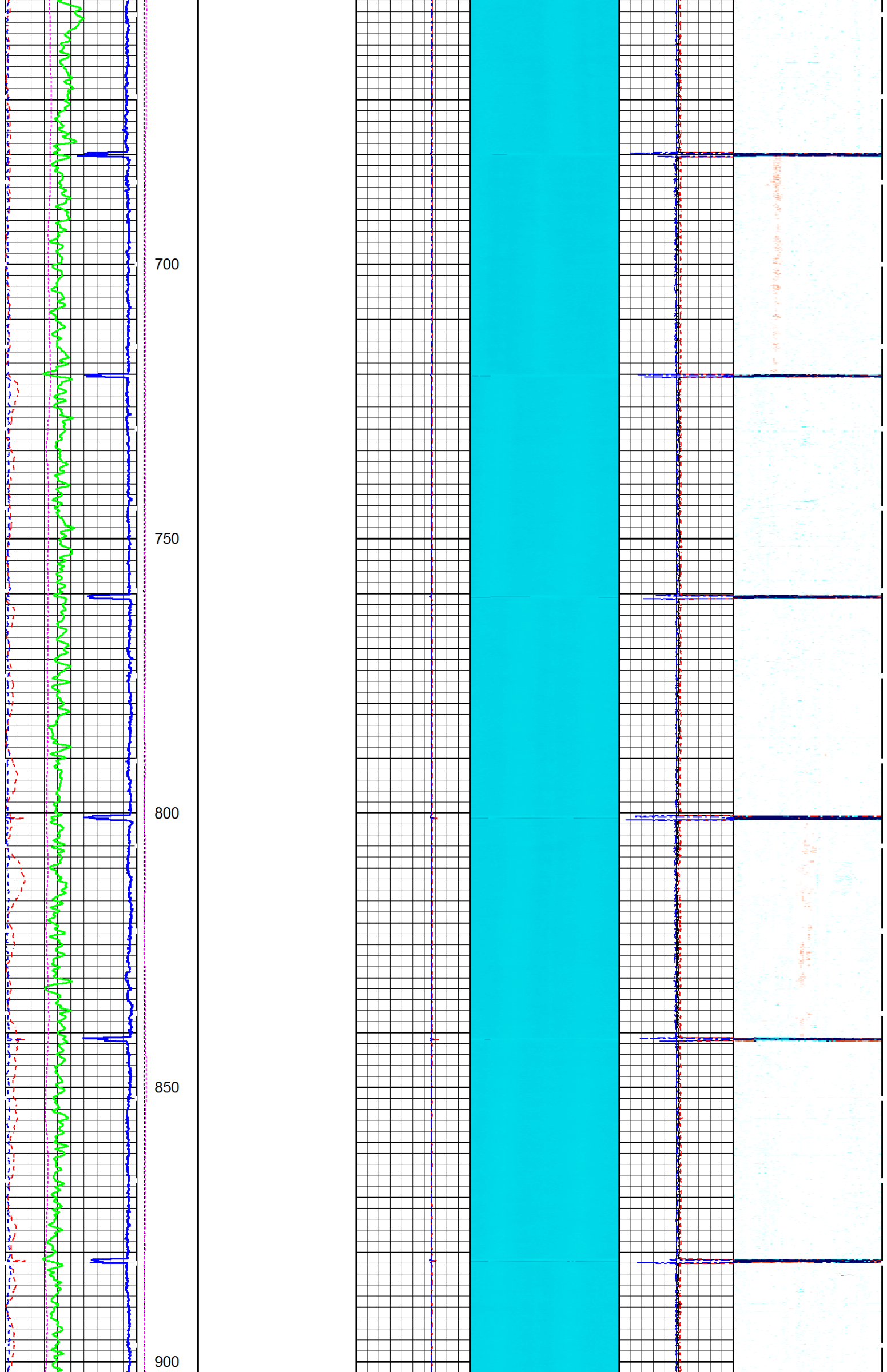
Depth in Feet scaled 1:240

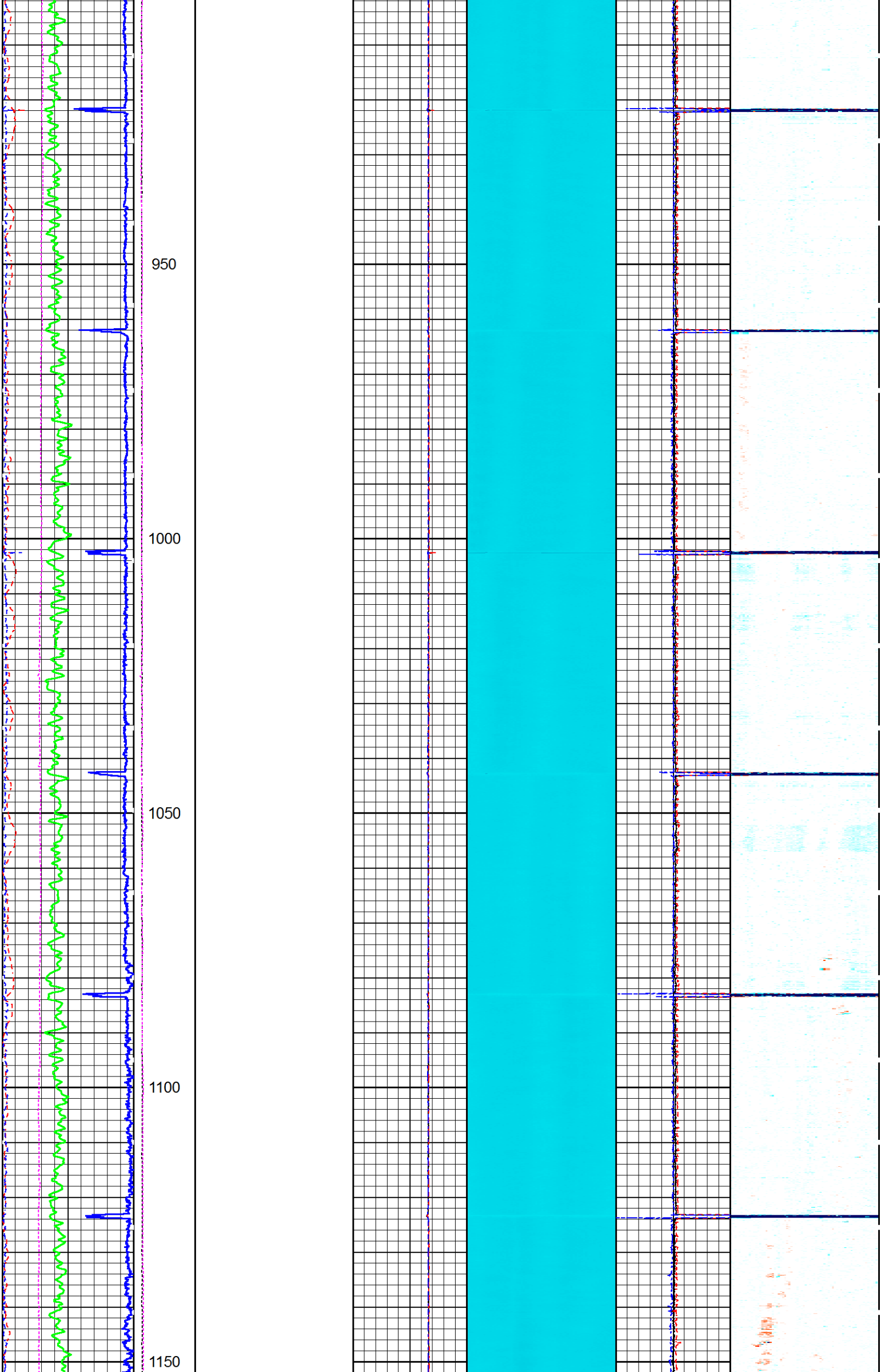
300 CCL 10	LTEN		IR_AVG	0 IR 360	THK_AV	0 THICKNESS 360
0 GR (GAPI)150			1.2 (in) 3.2	1.2 3.2	(in)	0.165 0.365
0 ECC (in) 1	0 (2500		IR_MAX		0.165 0.365	
0 OVAL (in) 0.2	RB		1.2 (in) 3.2		THK_MAX	
ACCL	(deg)		IR_MIN		(in)	
-1 DEV (deg) 9	-1 359		1.2 (in) 3.2		0.165 0.365	
					THK_MIN	
					(in)	
					0.165 0.365	

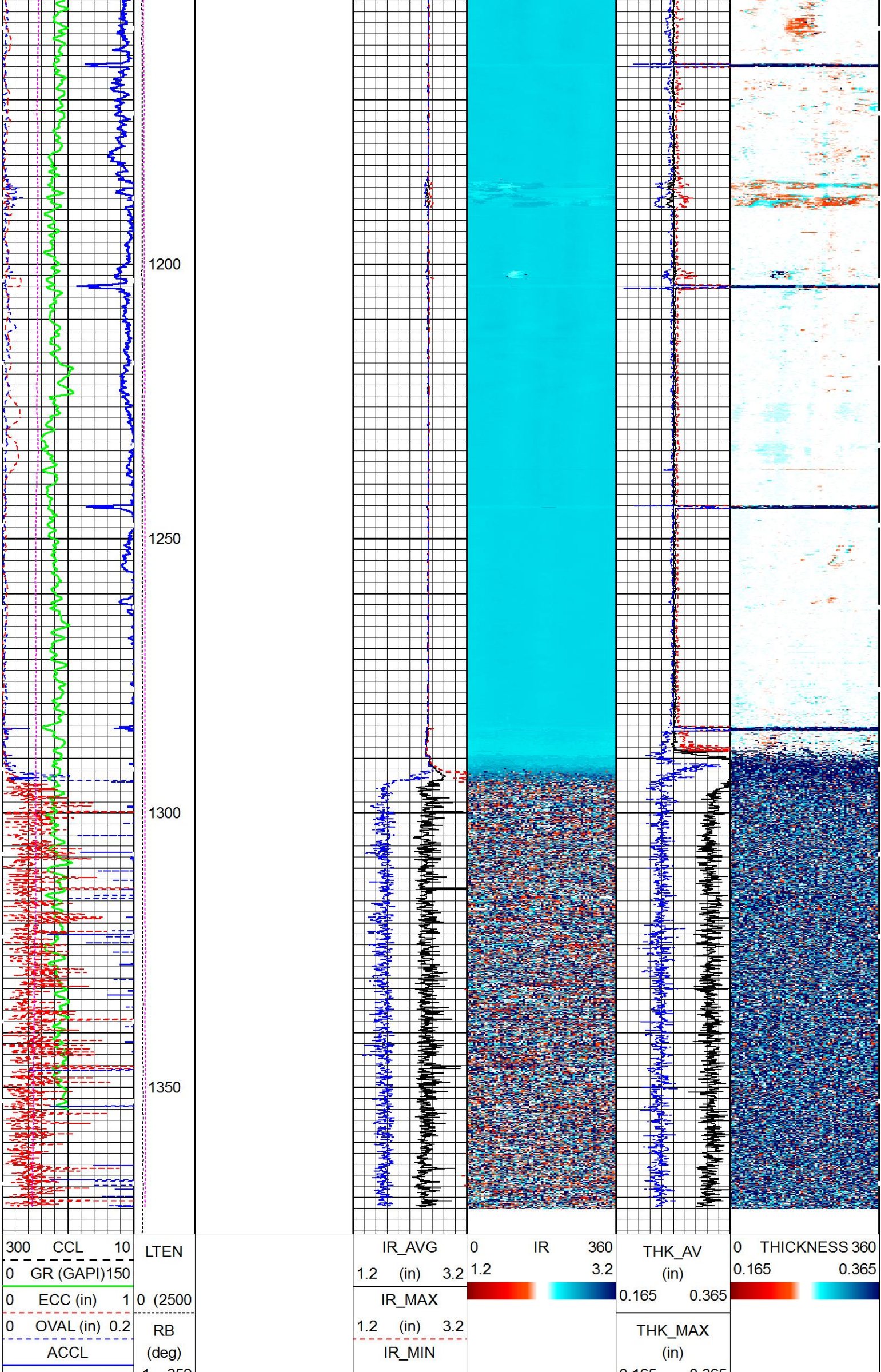












-1	DEV (deg)	9	-1	359	1.2	(in)	3.2	0.165	0.365
								THK_MIN	
								(in)	
								0.165	0.365



HALLIBURTON

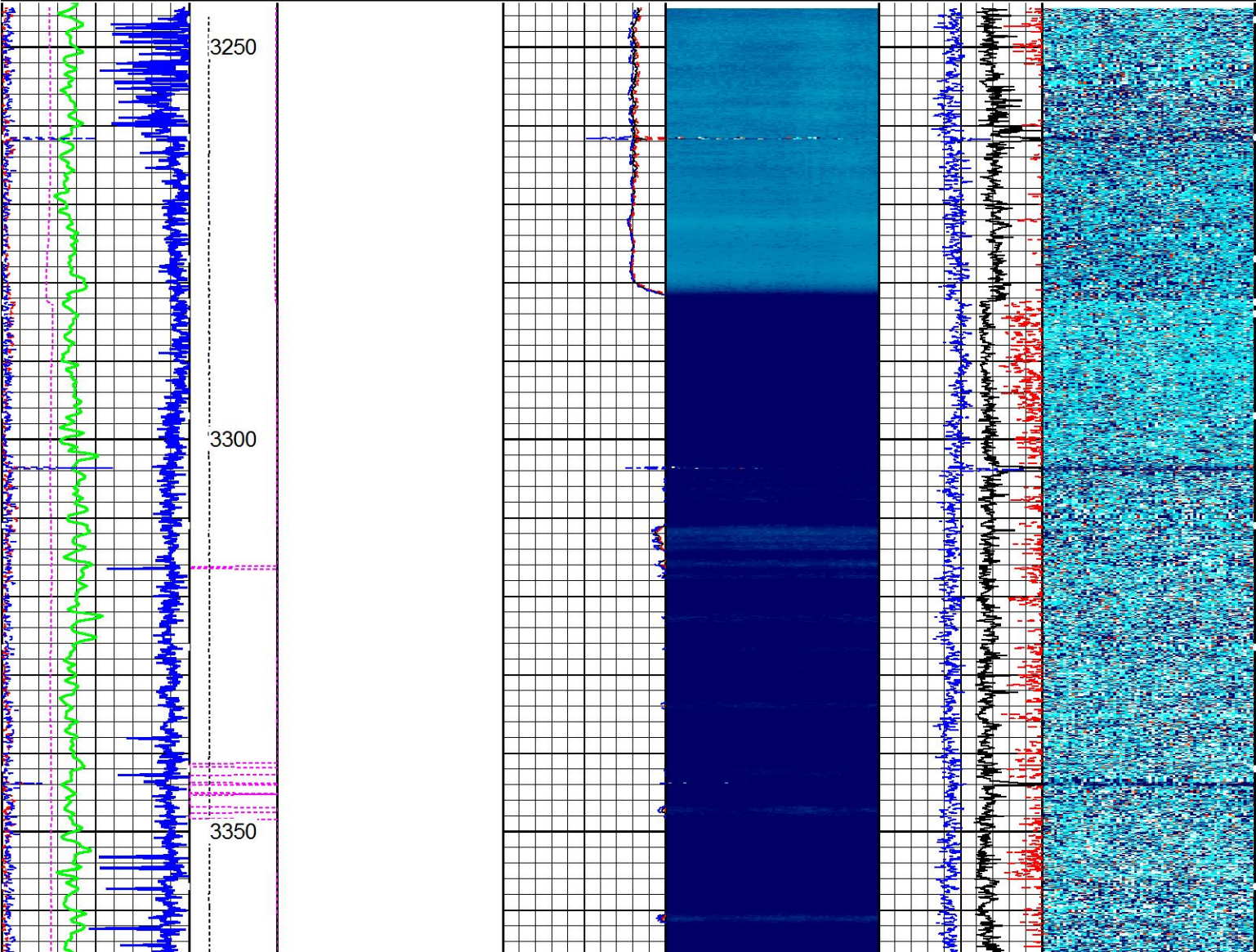
MAIN PASS TOP SECTION

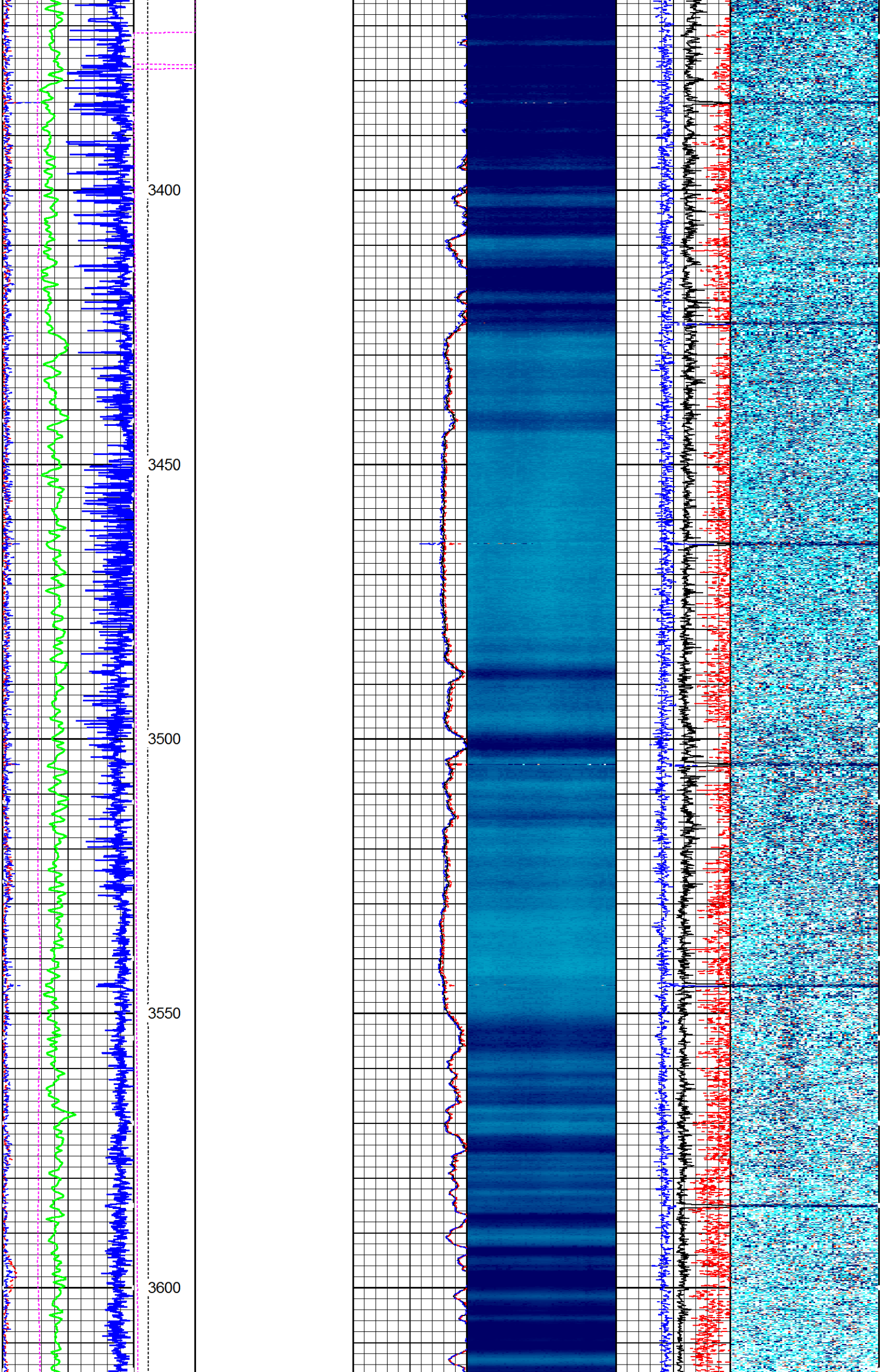
5" = 100'

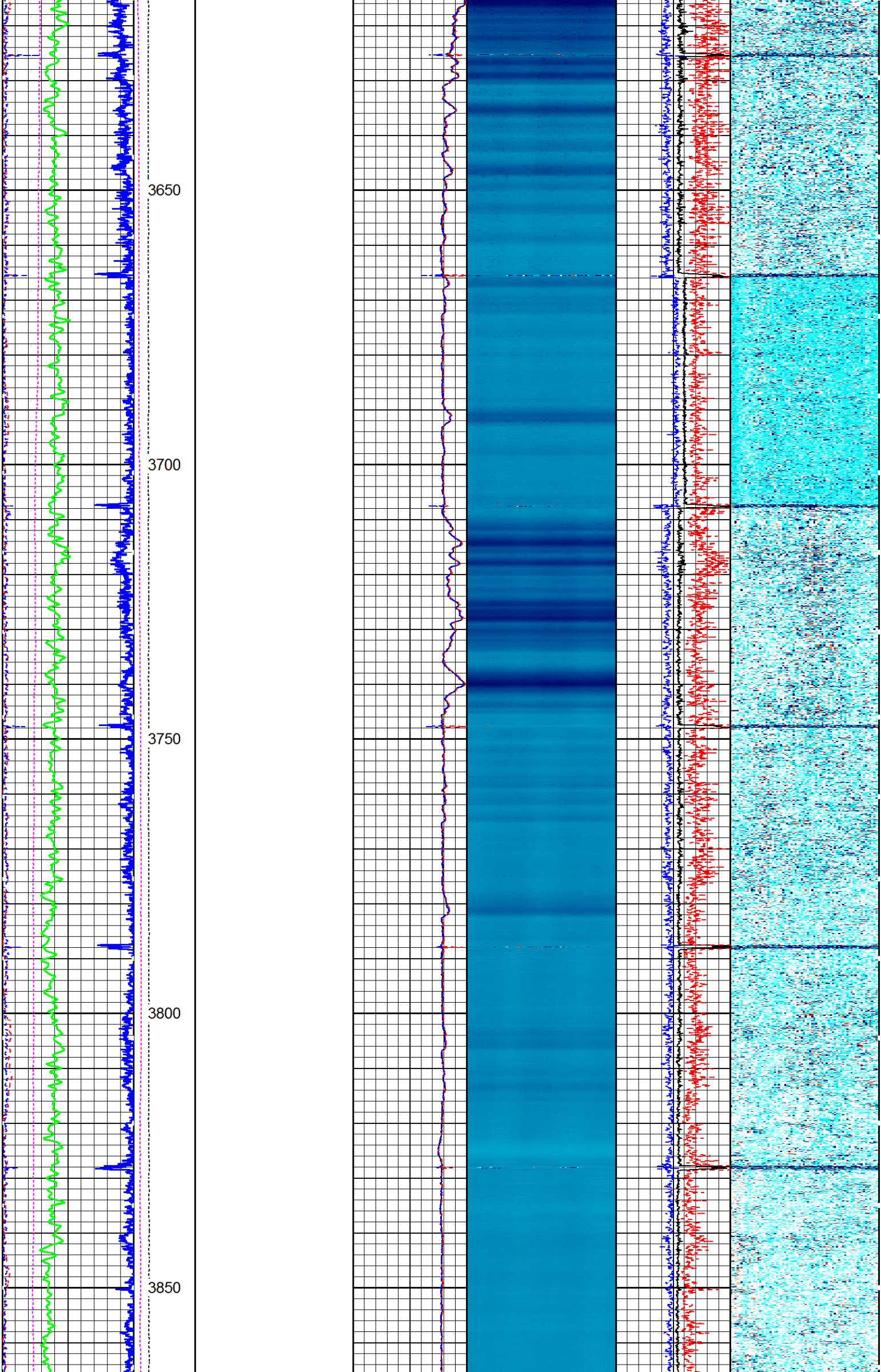
HALLIBURTON	MAIN PASS BOTTOM SECTION
5" = 100'	

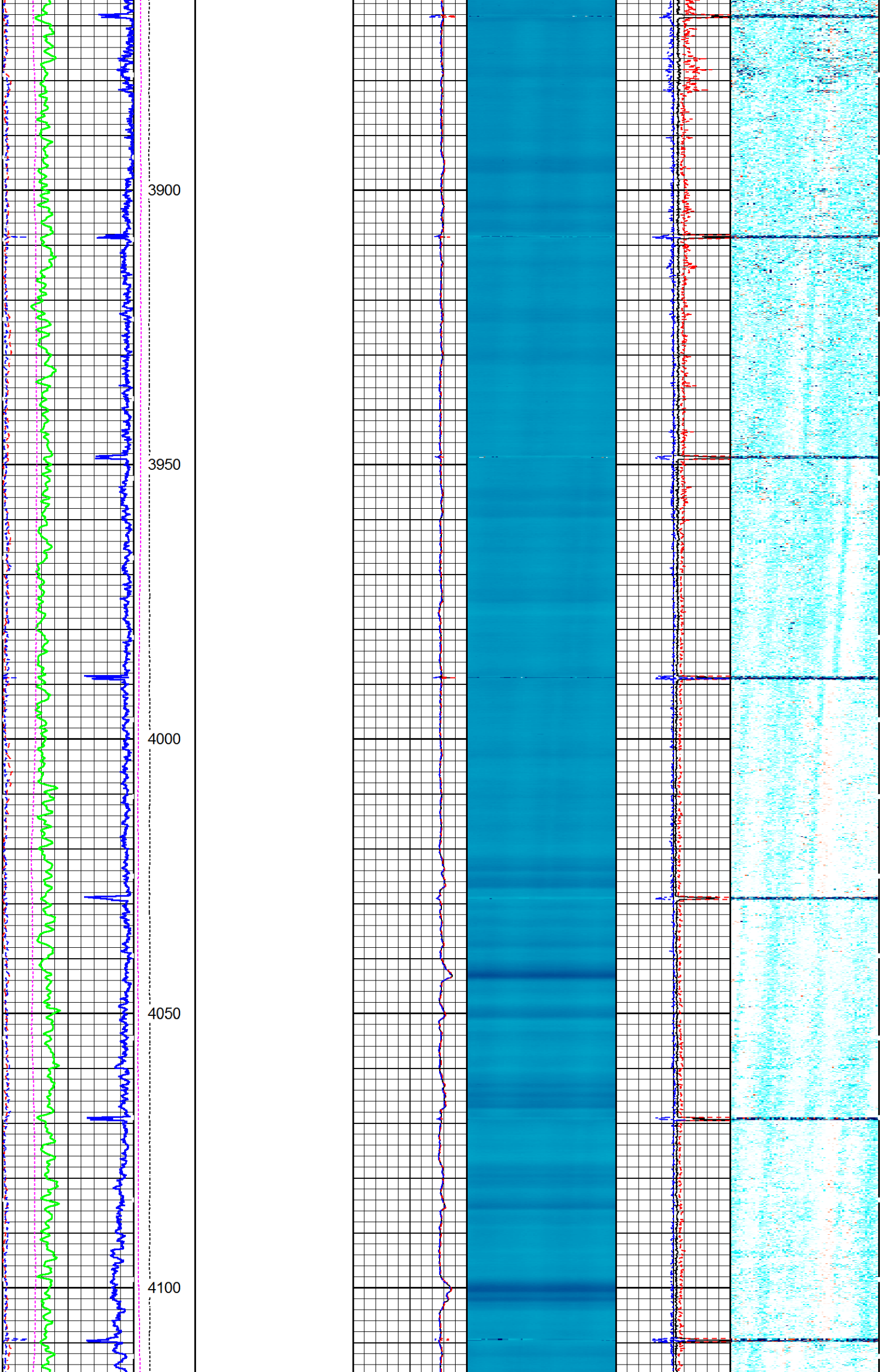
Database File
dorothy_1_cast.db
Dataset Pathname
MAIN_TOP
Presentation Format
1pim5
Dataset Creation
Sat Mar 26 14:46:12 2016
Charted by
Depth in Feet scaled 1:240

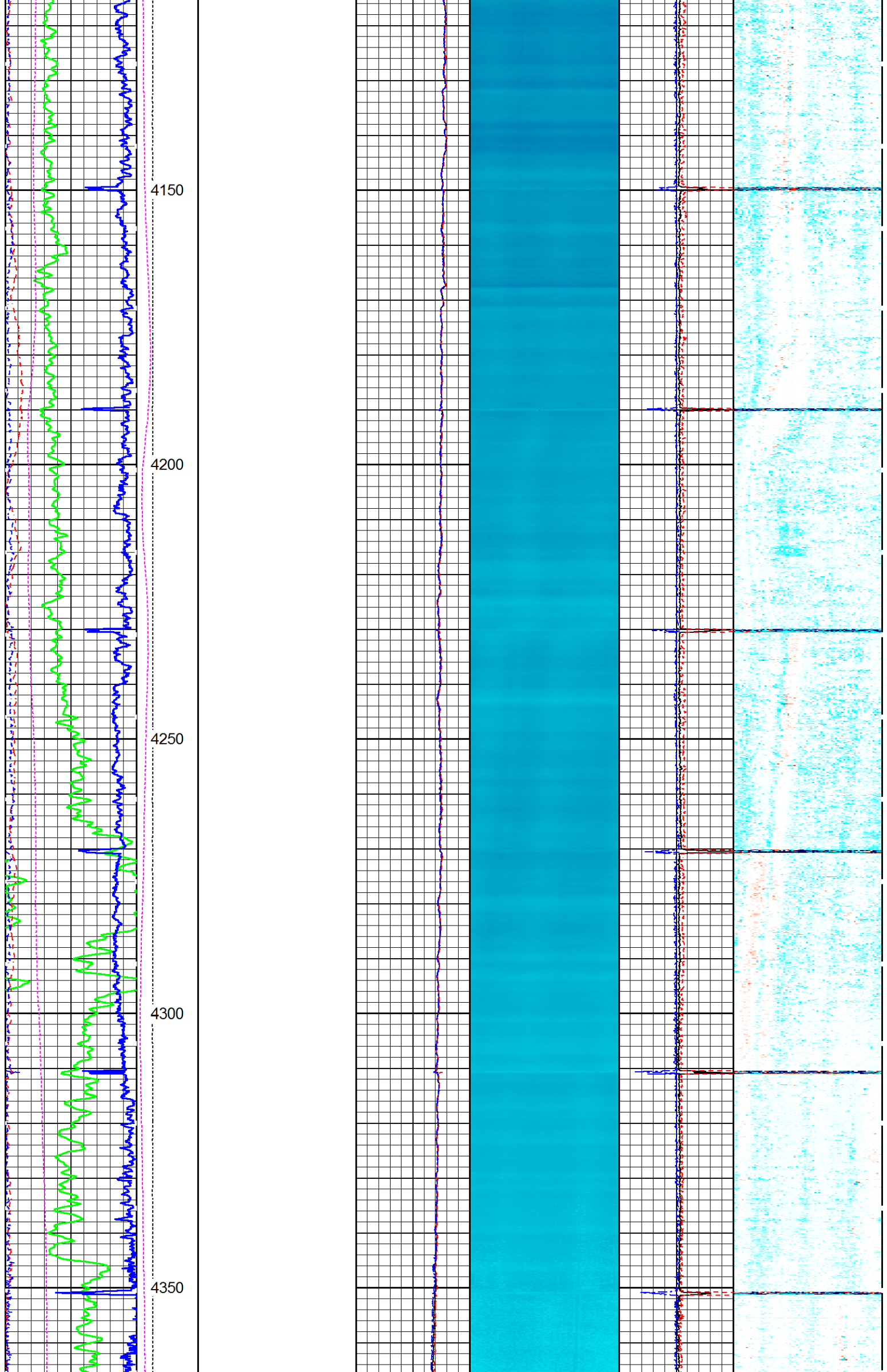
300	CCL	10	LTEN	IR_AVG	0	IR	360	THK_AV	0	THICKNESS	360
0	GR (GAPI)	150		1.2 (in) 3.2	1.2	3.2	(in)	0.165 0.365			
0	ECC (in)	1	0 (2500	IR_MAX				0.165 0.365			
0	OVAL (in)	0.2	RB	1.2 (in) 3.2				THK_MAX			
	ACCL		(deg)	IR_MIN				(in)			
-1	DEV (deg)	9	-1 359	1.2 (in) 3.2				0.165 0.365			
								(in)			
								0.165 0.365			

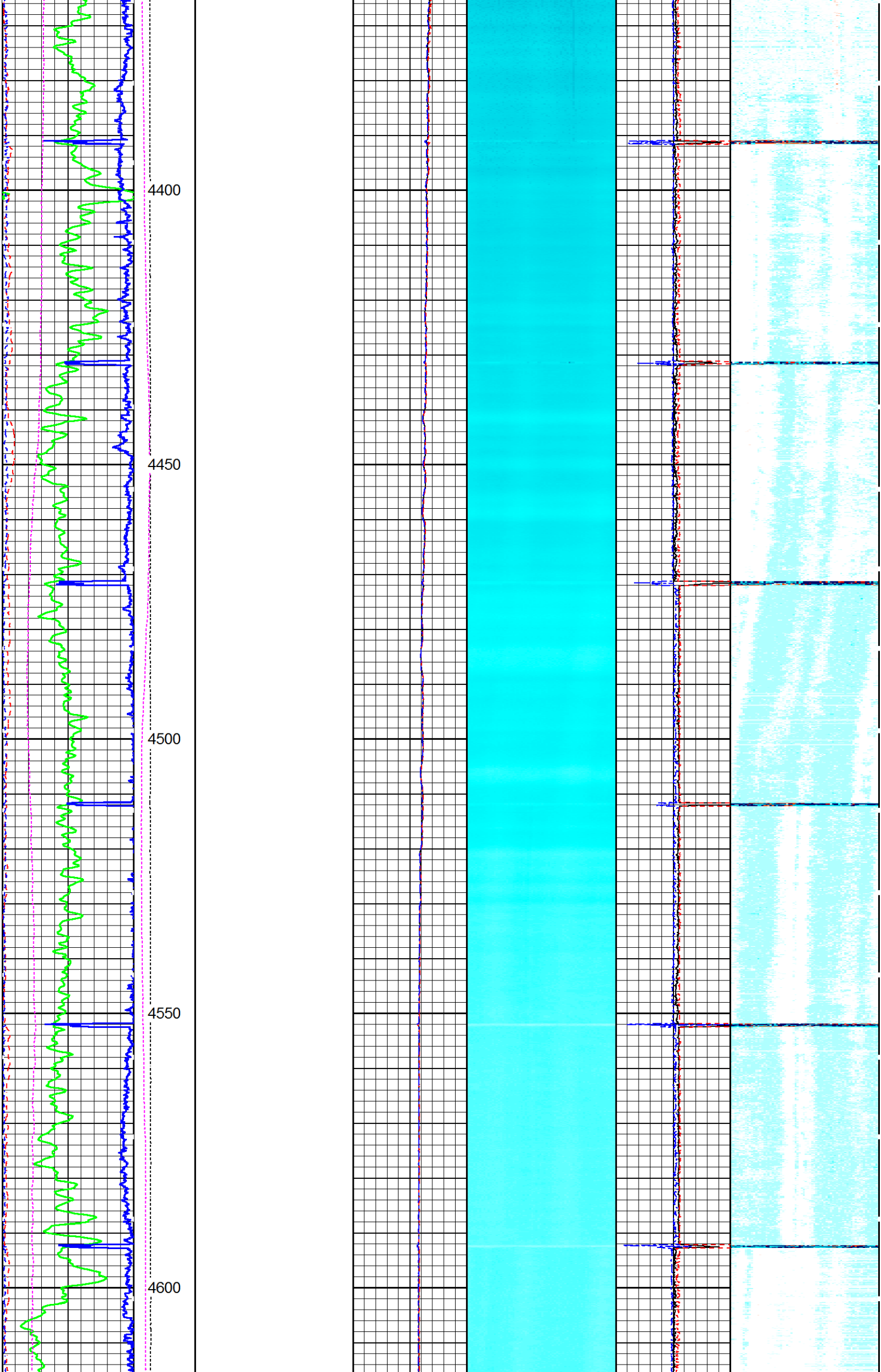


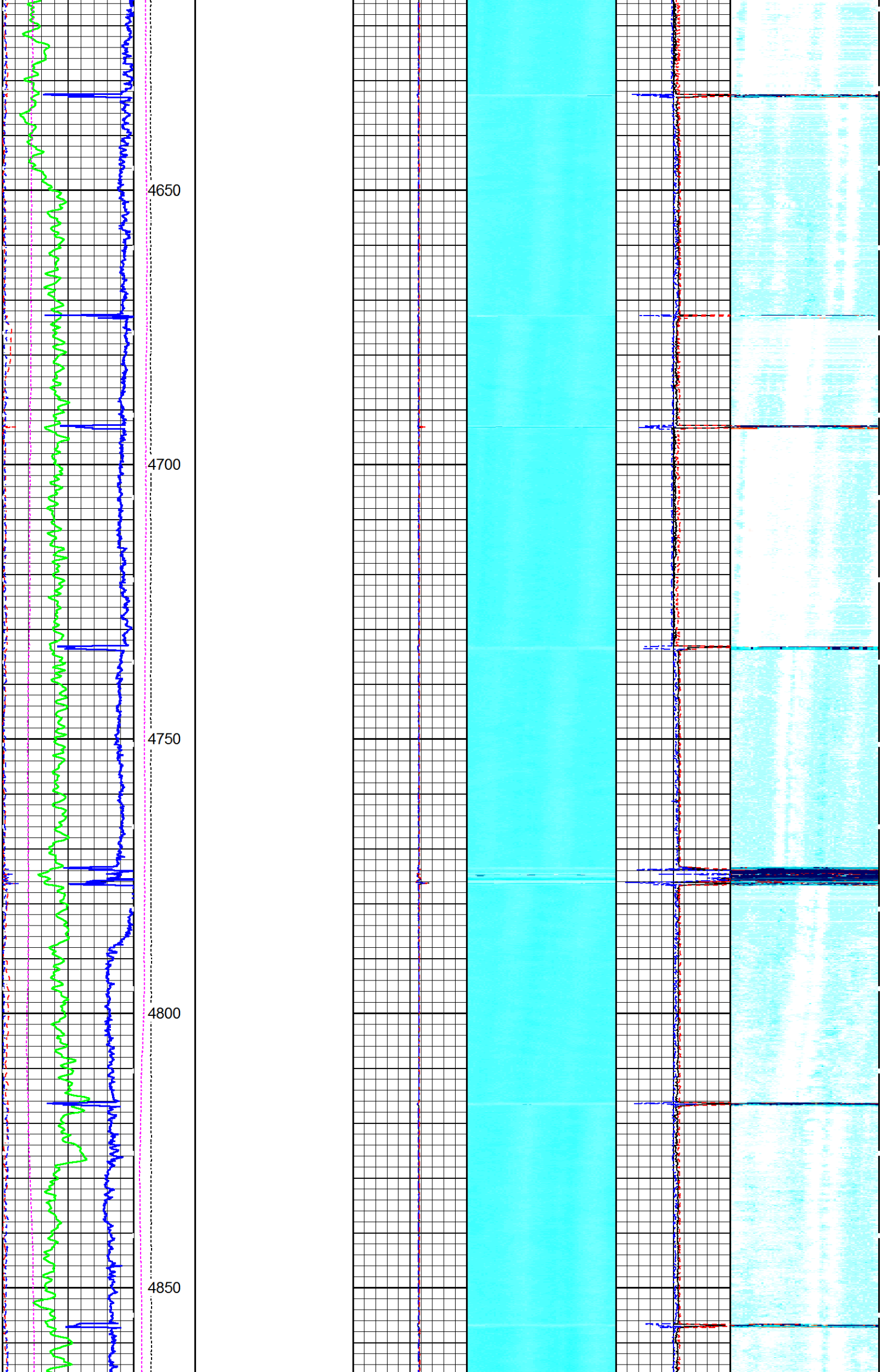


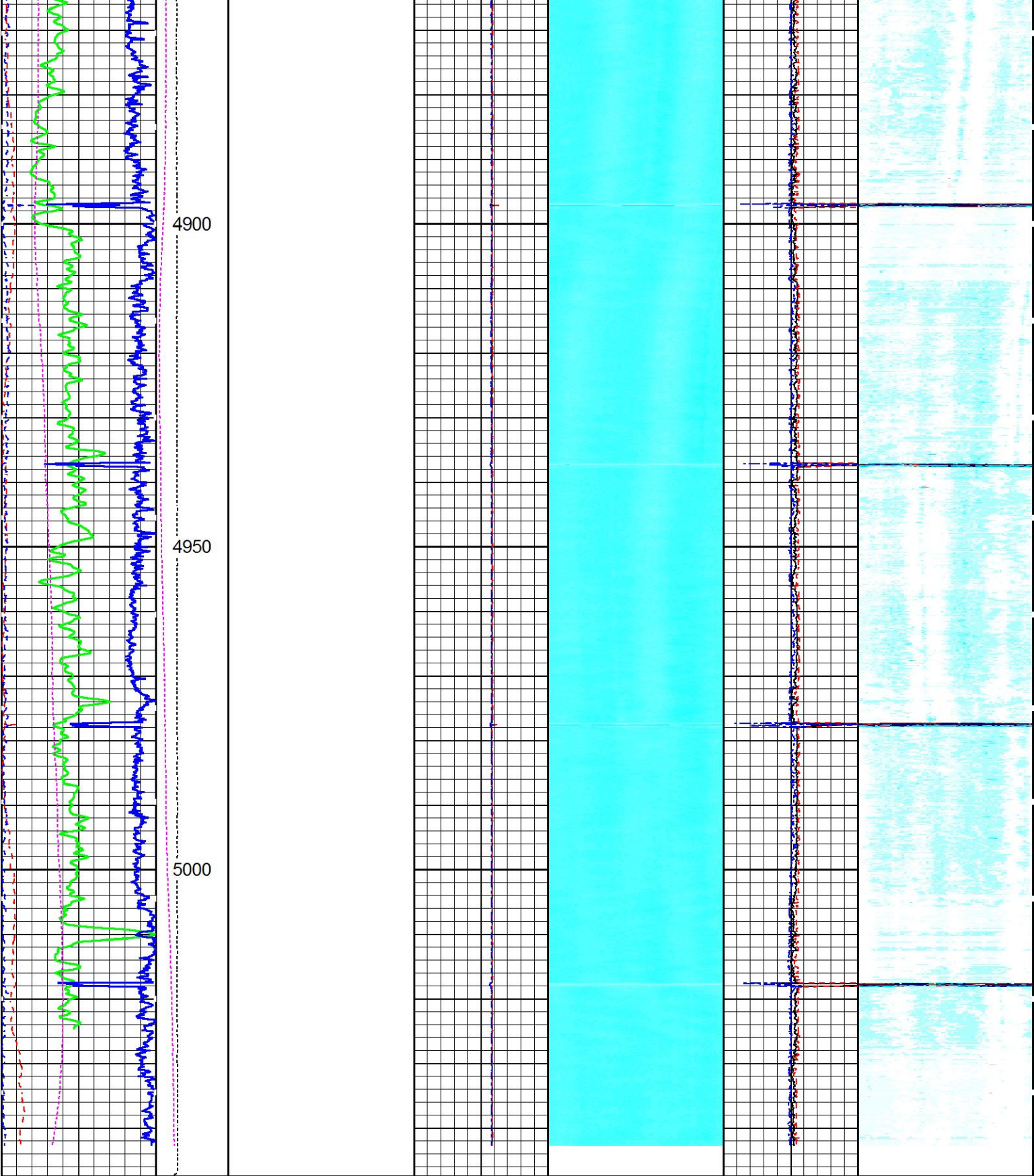












300	CCL	10	LTEN
0	GR (GAPI)	150	
0	ECC (in)	1	0 (2500)
0	OVAL (in)	0.2	RB
	ACCL		(deg)
-1	DEV (deg)	9	-1 359



IR_AVG	0	IR	360	THK_AV	0	THICKNESS	360
1.2 (in)	3.2	1.2	3.2	(in)	0.165	0.365	0.165 0.365
IR_MAX				THK_MAX			
1.2 (in)	3.2			(in)	0.165	0.365	
IR_MIN				THK_MIN			
1.2 (in)	3.2			(in)	0.165	0.365	

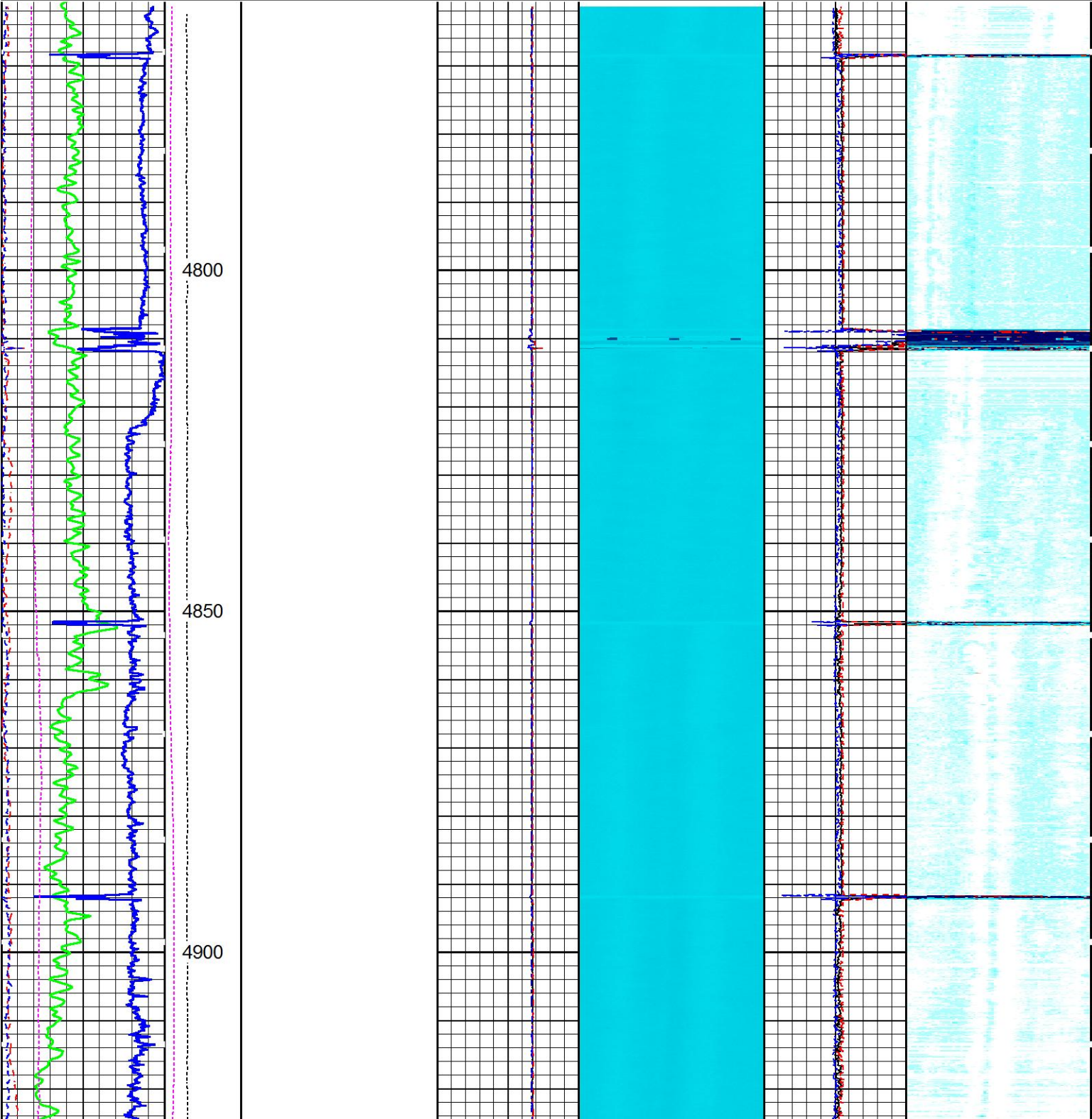
MAIN PASS BOTTOM SECTION

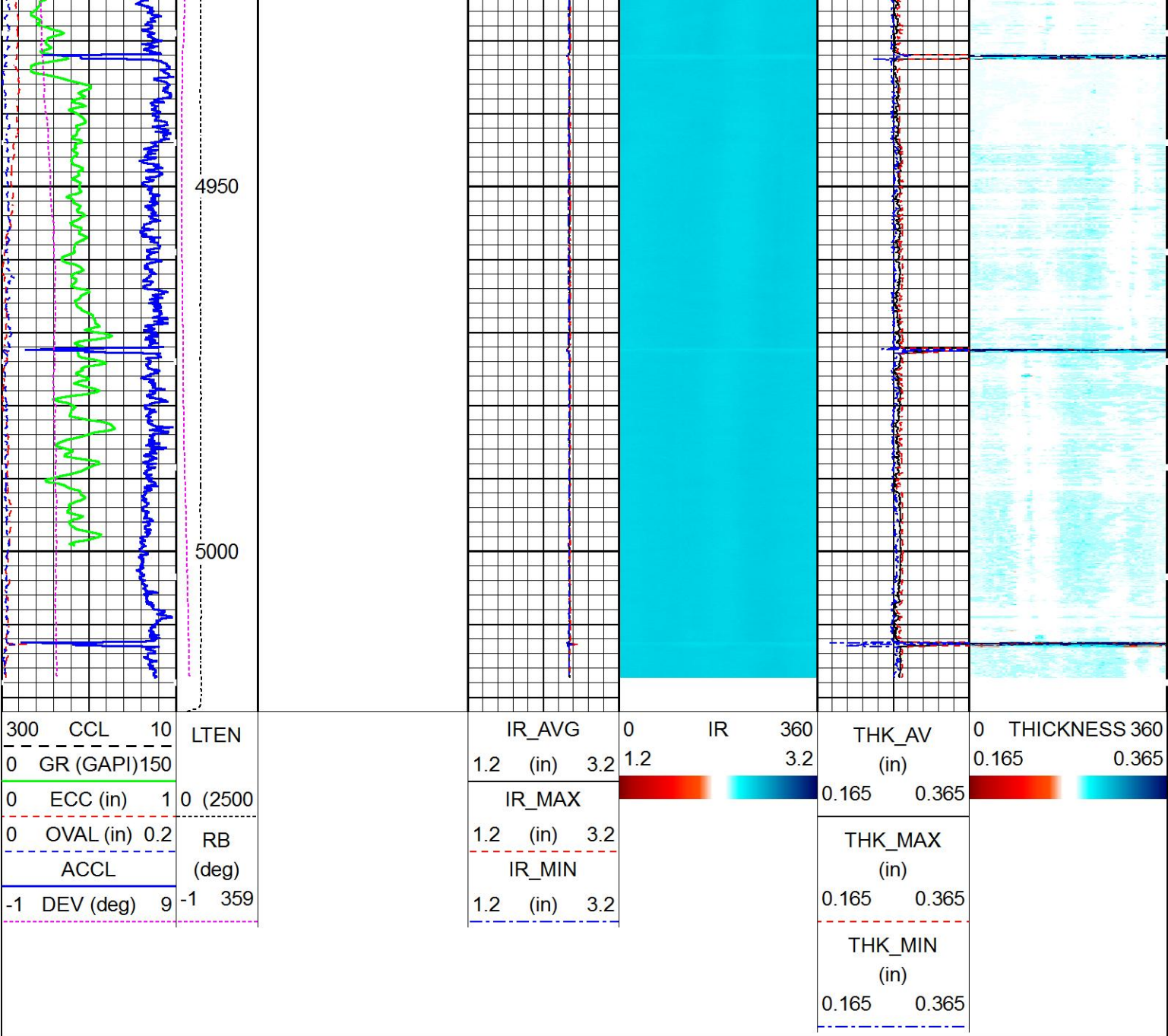
HALLIBURTON

5" = 100'

Database File dorothy_1_cast.db
Dataset Pathname RPT5
Presentation Format 1pim5
Dataset Creation Sat Mar 26 19:46:35 2016
Charted by Depth in Feet scaled 1:240

300	CCL	10	LTEN		IR_AVG	0	IR	360	THK_AV	0	THICKNESS	360
0	GR (GAPI)	150			1.2 (in) 3.2	1.2		3.2	(in)	0.165		0.365
0	ECC (in)	1	0 (2500		IR_MAX				0.165	0.365		
0	OVAL (in)	0.2	RB (deg)		1.2 (in) 3.2				THK_MAX			
	ACCL				IR_MIN				(in)	0.165	0.365	
-1	DEV (deg)	9	-1 359		1.2 (in) 3.2				THK_MIN			
									(in)	0.165	0.365	





REPEAT PASS

5" = 100'

(PULLED AFTER MAIN PASS)

HALLIBURTON

Log Variables

DatabaseC:\ProgramData\Warrior\Data\dorothy_1_cast.db
Dataset field/well/run1/MAIN_TOP/_vars_


Top - Bottom

BHSAL1	BHSAL2	BHTEMP_Src	BITSIZE	BORSAL	BOTTEMP	CASED?	CASEOD
1	0	ITEMPX	in 7.875	kppm 150	degF 169	Yes	in 5.5
CASETHCK	CASEWGHT	LTH	MudWgt	PERFS	POROS1	POROS2	RHO�F
in 0.275	lb/ft 15.5	Sandstone	lb/gal 8.5	0	1	0	0.25
SO	SRFTEMP	TDEPTH	UHSGC	USERFTT	ZREF		
in 0	degF 0	ft 0	NONE	usec/ft 0	MRayl 1.7		

Calibration Report

Database File dorothy_1_cast.db
Dataset Pathname MAIN_TOP_LAST
Dataset Creation Sat Mar 26 20:58:54 2016

Circumferential Acoustic Scanning Tool Downhole Calibration Report						
Serial-Model:		11501505-3 5/8 EXT SCAN				
Calibration Performed:		Sat Mar 26 20:29:30 2016				
Averaged Results						
Name	Value	Units				
TT-Main	43.9	usec				
Amp-Main	92.4					
Frq-Main	344.2	khz				
TT-Mud	45.4	usec				
Amp-Mud	83.6					
TT-LWw1	44.0	usec				
TT-LWw2	84.2	usec				
Amp-LWw1	93.2					
Amp-LWw2	45.6					
Frq-LWw	372.6	khz				
TT-MWw1	46.0	usec				
TT-MWw2	87.2	usec				
Amp-MWw1	87.4					
Amp-MWw2	25.3					
Frq-MWw	273.4	khz				
Calibrated Offsets						
Name	Value					
TCAL	3.7					
MCAL	4.2					
XY Accelerometers Calibration Report						
Performed:	(Not Performed)					
	Low Read.	High Read.		Low Ref.	High Ref.	
X Accelerometer	0.000	1.000	gee	0.000	1.000	gee
Y Accelerometer	0.000	1.000	gee	0.000	1.000	gee
Gamma Ray Calibration Report						
Serial Number:	10010734					
Tool Model:	002					
Performed:	Tue Mar 08 14:57:04 2016					
Calibrator Value:	190.0	GAPI				
Background Reading:	42.0	cps				
Calibrator Reading:	184.4	cps				
Sensitivity:	1.3349	GAPI/cps				

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	23.55		STNDCH-STND_CH Fishing Neck	1.50	2.00	1.00
			TTTCU-002 (10010734) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
GR	21.30					

			XHU-003 (11899561) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00	
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00	
			HAL-CAST-M-ELECT-CAST-M-Elect (12037.574) CAST M ELECTRONIC		2.75	30.00	
			HAL-CAST-M-3 5/8 EXT SCAN (115015056.65 3 5/8 EXT SCAN CASTM		3.13	276.00	
AccY2	0.00						
AccX2	0.00						
AccY1	0.00						
AccX1	0.00						
SCAN	0.00						
LOCTIM	0.00						
UTCTIM	0.00						
LLMTEN	0.00						
		Dataset:	dorothy_1_cast.db: field/well/run1/MAIN_TOP_LAST				
		Total length:	27.12 ft				
		Total weight:	439.00 lb				
		O.D.:	3.13 in				

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HALLIBURTON		CIRCUMFERENTIAL ACOUSTIC SCANNING TOOL CASING INSPECTION			