

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-095-02469 County Tyler District Meade
Quad Middlebourne 7.5' Pad Name Neat Pad Field/Pool Name -----
Farm name Roger R. Weese Well Number Jameson Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4363549m Easting 505368m
Landing Point of Curve Northing 4363434.27m Easting 504643.56m
Bottom Hole Northing 4366733m Easting 503447m

Elevation (ft) 1005' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air - Foam & 4% KCL
Mud - Polymer

Date permit issued 10/4/2017 Date drilling commenced 11/15/2017 Date drilling ceased 11/11/2018
Date completion activities began 12/14/2018 Date completion activities ceased 3/21/2019
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 100', 121', 166' Open mine(s) (Y/N) depths No JUN 14 2019
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths No WV Department of
Coal depth(s) ft 1441' Cavern(s) encountered (Y/N) depths No Environmental Protection
Is coal being mined in area (Y/N) No

Reviewed by: **Reviewea**

JCB
6/24/2019

API 47-095 02469 Farm name Roger R. Weese Well number Jameson Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	105'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	375'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2619'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	18726'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6885'		4.7#, N-80		
Packer type and depth set		N/A					

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	204 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	325 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	900 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	680 sx (Lead) 1880 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 18745' MD, 6240' TVD (BHL), 6313' (Deepest Point Drilled) Loggers TD (ft) 18745' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6200'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor - 0

Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface

Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

API 47- 095 - 02469 Farm name Roger R. Weese Well number Jameson Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
*PLEASE SEE ATTACHED EXHIBIT 1					

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
*PLEASE SEE ATTACHED EXHIBIT 2								

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API 47- 095 02469 Farm name Roger R. Weese Well number Jameson Unit 1H

PRODUCING FORMATION(S)	DEPTHS			
	6258' (TOP)	TVD	6956' (TOP)	MD
Marcellus				

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 10028 mcfpd Oil 195 bpd NGL --- bpd Water 3 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	
	NAME TVD	TVD	MD	MD	

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Allied Horizontal Wireline Services
Address 381 Colonial Manor Road City North Huntington State PA Zip 15642

Cementing Company C&J Energy Services
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223
Signature  Title Permitting Agent Date 6/10/2019

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/16/2019	18567.7		60	Marcellus
2	2/16/2019	18368.236	18536.456	60	Marcellus
3	2/17/2019	18168.772	18336.992	60	Marcellus
4	2/17/2019	17969.308	18137.528	60	Marcellus
5	2/18/2019	17769.844	17938.064	60	Marcellus
6	2/18/2019	17570.38	17738.6	60	Marcellus
7	2/19/2019	17370.916	17539.136	60	Marcellus
8	2/20/2019	17171.452	17339.672	60	Marcellus
9	2/21/2019	16971.988	17140.208	60	Marcellus
10	2/21/2019	16772.524	16940.744	60	Marcellus
11	2/22/2019	16573.06	16741.28	60	Marcellus
12	2/22/2019	16373.596	16541.816	60	Marcellus
13	2/22/2019	16174.132	16342.352	60	Marcellus
14	2/23/2019	15974.668	16142.888	60	Marcellus
15	2/23/2019	15775.204	15943.424	60	Marcellus
16	2/24/2019	15575.74	15743.96	60	Marcellus
17	2/24/2019	15376.276	15544.496	60	Marcellus
18	2/24/2019	15176.812	15345.032	60	Marcellus
19	2/25/2019	14977.348	15145.568	60	Marcellus
20	2/25/2019	14777.884	14946.104	60	Marcellus
21	2/26/2019	14578.42	14746.64	60	Marcellus
22	2/26/2019	14378.956	14547.176	60	Marcellus
23	2/26/2019	14179.492	14347.712	60	Marcellus
24	2/26/2019	13980.028	14148.248	60	Marcellus
25	2/27/2019	13780.564	13948.784	60	Marcellus
26	2/27/2019	13581.1	13749.32	60	Marcellus
27	2/27/2019	13381.636	13549.856	60	Marcellus
28	2/28/2019	13182.172	13350.392	60	Marcellus
29	2/28/2019	12982.708	13150.928	60	Marcellus
30	2/28/2019	12783.244	12951.464	60	Marcellus
31	3/1/2019	12583.78	12752	60	Marcellus
32	3/1/2019	12384.316	12552.536	60	Marcellus
33	3/1/2019	12184.852	12353.072	60	Marcellus
34	3/2/2019	11985.388	12153.608	60	Marcellus
35	3/2/2019	11785.924	11954.144	60	Marcellus
36	3/2/2019	11586.46	11754.68	60	Marcellus
37	3/2/2019	11386.996	11555.216	60	Marcellus
38	3/3/2019	11187.532	11355.752	60	Marcellus
39	3/3/2019	10988.068	11156.288	60	Marcellus
40	3/3/2019	10788.604	10956.824	60	Marcellus
41	3/4/2019	10589.14	10757.36	60	Marcellus
42	3/4/2019	10389.676	10557.896	60	Marcellus
43	3/4/2019	10190.212	10358.432	60	Marcellus
44	3/4/2019	9990.748	10158.968	60	Marcellus
45	3/5/2019	9791.284	9959.504	60	Marcellus
46	3/5/2019	9591.82	9760.04	60	Marcellus
47	3/6/2019	9392.356	9560.576	60	Marcellus
48	3/7/2019	9192.892	9361.112	60	Marcellus
49	3/7/2019	8993.428	9161.648	60	Marcellus
50	3/7/2019	8793.964	8962.184	60	Marcellus
51	3/8/2019	8594.5	8762.72	60	Marcellus
52	3/8/2019	8395.036	8563.256	60	Marcellus
53	3/8/2019	8195.572	8363.792	60	Marcellus
54	3/9/2019	7996.108	8164.328	60	Marcellus
55	3/9/2019	7796.644	7964.864	60	Marcellus
56	3/9/2019	7597.18	7765.4	60	Marcellus
57	3/10/2019	7397.716	7565.936	60	Marcellus
58	3/10/2019	7198.252	7366.472	60	Marcellus
59	3/10/2019	6998.788	7167.008	60	Marcellus

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EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (tbs)	Amount of Nitrogen/ other (units)
1	2/16/2019	73.9	7567	7071	2702	176675	5307.429	N/A
2	2/16/2019	75.9	7889	6071	3132	404200	8466.024	N/A
3	2/17/2019	75	8029	6648	3893	400505	9082.405	N/A
4	2/17/2019	71.7	8165	6157	3964	406020	8365.357	N/A
5	2/18/2019	74.9	8096	6395	3391	409580	8395.69	N/A
6	2/18/2019	74.61	8144	4235	3568	403260	8438.381	N/A
7	2/19/2019	74.9	8127	5768	4081	407100	8943.929	N/A
8	2/20/2019	74.09	8108	5721	4405	397720	8141.476	N/A
9	2/21/2019	75.09	7932	5694	3549	402640	8296.929	N/A
10	2/21/2019	76.67	8148	5951	3570	407420	8357.381	N/A
11	2/22/2019	71.78	8131	6040	4081	410040	8460.476	N/A
12	2/22/2019	74.31	8306	4951	3517	405860	8277.548	N/A
13	2/22/2019	77.18	8397	5854	4047	408720	8250.524	N/A
14	2/23/2019	74.99	7963	5609	3547	411600	8237.452	N/A
15	2/23/2019	73.5	8108	5969	3808	401460	8059.452	N/A
16	2/24/2019	76.91	8031	5899	3449	415920	8337.333	N/A
17	2/24/2019	77.42	8038	5637	3644	398020	8158.857	N/A
18	2/24/2019	77.65	8090	5771	3562	403500	8664.429	N/A
19	2/25/2019	75.64	8060	5534	3316	407760	8202.024	N/A
20	2/25/2019	78.09	7981	5607	3612	397620	7933.333	N/A
21	2/26/2019	78.99	8022	5768	3614	411460	8431.095	N/A
22	2/26/2019	76.38	8118	5418	3898	408960	8150.905	N/A
23	2/26/2019	74.93	8313	5626	3834	402100	8060	N/A
24	2/26/2019	79.85	8210	5585	4772	408740	8173.024	N/A
25	2/27/2019	80.25	8183	6334	3770	410580	8175.714	N/A
26	2/27/2019	78.92	7937	5317	3836	406560	8250.595	N/A
27	2/27/2019	76.69	7823	5632	3896	397480	8004.714	N/A
28	2/28/2019	77.92	8152	5442	3711	402560	8175.81	N/A
29	2/28/2019	72.66	8053	5310	4107	403460	9513.5	N/A
30	2/28/2019	76.3	7974	5561	3692	388625	7887.714	N/A
31	3/1/2019	74.19	7943	5246	3528	397720	9835.69	N/A
32	3/1/2019	80.1	7567	5444	3701	403360	8065.143	N/A
33	3/1/2019	80.43	7579	5900	3876	402100	8107.452	N/A
34	3/2/2019	80	7664	5314	3826	403320	8057.19	N/A
35	3/2/2019	79.17	7601	5468	3666	413595	8193.762	N/A
36	3/2/2019	78.91	7594	5500	3504	404620	8063	N/A
37	3/2/2019	82.06	7914	5316	4141	406420	8063.881	N/A
38	3/3/2019	81.92	7827	5342	3822	403980	8000	N/A
39	3/3/2019	78	7268	5467	4183	408980	8103.405	N/A
40	3/3/2019	72.95	7697	5412	3952	404480	8167.524	N/A
41	3/4/2019	79.08	7396	5370	3388	400780	8101.738	N/A
42	3/4/2019	80.2	7515	5352	3674	406320	8106.667	N/A
43	3/4/2019	80.9	7195	5449	3767	408260	8059.548	N/A
44	3/4/2019	81.66	7532	5258	4422	402980	7881.952	N/A
45	3/5/2019	80.7	7369	5562	3700	405800	8099.738	N/A
46	3/5/2019	78.3	7454	5233	3757	412520	8105.381	N/A
47	3/6/2019	79.88	7332	5209	3510	400740	8230.143	N/A
48	3/7/2019	78.01	7078	5814	3428	407700	8164.738	N/A
49	3/7/2019	81.3	7212	5277	3835	401740	7941.762	N/A
50	3/7/2019	77.23	6825	5121	3616	400680	8165.333	N/A
51	3/8/2019	76.85	6964	5773	3814	405780	8094.048	N/A
52	3/8/2019	81	7092	5979	3798	399340	7881.095	N/A
53	3/8/2019	81.38	7272	5978	3992	403200	8735.714	N/A
54	3/9/2019	83.04	7358	6572	3900	402980	8113.333	N/A
55	3/9/2019	80.35	6942	6757	3741	402660	7914.452	N/A
56	3/9/2019	80.05	6913	7036	3802	401880	7707.524	N/A
57	3/10/2019	79.71	6973	6475	4279	405960	8657.5	N/A
58	3/10/2019	80.85	6910	6229	3827	429410	8290.238	N/A
59	3/10/2019	80.7	6576	5890	3572	424410	8940.786	N/A
		77.1	7,906	5,644	3,758	17,988,860	370,106	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	0	190	0	190
Sandy siltstone	190	290	190	290
Sandstone	290	600	290	600
Silty Sandstone	600	870	600	870
limey siltstone	870	945	870	945
silty sandstone, tr. coal	945	1,095	945	1,095
silty sandstone	1,095	1,490	1,095	1,490
silty shale	1,490	1,620	1,490	1,620
sandstone, tr coal	1,620	1,630	1,620	1,630
silty sandstone	1,630	1,670	1,630	1,670
sandstone	1,670	1,745	1,670	1,745
sandy shale	1,745	1,770	1,745	1,770
shaly sand	1,770	1,838	1,770	1,888
Big Lime	1,853	2,554	1,903	2,634
Fifty Foot Sandstone	2,554	2,690	2,634	2,777
Gordon	2,690	3,001	2,777	3,113
Fifth Sandstone	3,001	3,087	3,113	3,209
Bayard	3,087	3,875	3,209	4,088
Speechley	3,875	4,177	4,088	4,431
Balltown	4,177	4,553	4,431	4,848
Bradford	4,553	4,888	4,848	5,221
Benson	4,888	5,174	5,221	5,545
Alexander	5,174	6,163	5,545	6,702
Sycamore	6,030	6,139	6,514	6,678
Middlesex	6,139	6,227	6,678	6,861
Burkett	6,227	6,246	6,861	6,916
Tully	6,246	6,258	6,916	6,956
Marcellus	6,258	NA	6,956	NA

*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/16/2019
Job End Date:	3/10/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02469-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Jameson Unit 1H
Latitude:	39.42137800
Longitude:	-80.93781400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,313
Total Base Water Volume (gal):	18,060,696
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	86.17080	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.23890	

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SCALECHEK LP-70	Halliburton	Scale Inhibitor								
					Listed Below					
WG-36 GELLING AGENT	Halliburton	Gelling Agent			Listed Below					
HYDROCHLORIC ACID	Halliburton	Solvent			Listed Below					
SP BREAKER	Halliburton	Breaker			Listed Below					
SAND-PREMIUM WHITE-40/70	Halliburton	Proppant			Listed Below					
SAND-COMMON WHITE-100 MESH, SSA-2	Halliburton	Proppant			Listed Below					
MC B-8614	Halliburton	Biocide			Listed Below					
FDP-S1296-17	Halliburton	Corrosion Inhibitor			Listed Below					
EXCELERATE PS-2	Halliburton	Friction Reducer			Listed Below					

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SAND- PREMIUM WHITE-30/50	Halliburton	Proppant			Listed Below				
Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients.									
			Crystalline silica, quartz	14808-60-7	100.00000	13.55148			
			Hydrochloric acid	7647-01-0	15.00000	0.02781			
			Acrylamide acrylate polymer	Proprietary	30.00000	0.01787			Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01787			
			Inorganic salt	Proprietary	30.00000	0.01787			
			Ethylene glycol	107-21-1	60.00000	0.00967			
			Guar gum	9000-30-0	100.00000	0.00657			
			Glutaraldehyde	111-30-8	30.00000	0.00292			
			Telmer	Proprietary	10.00000	0.00161			
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00049			
			Sodium persulfate	7775-27-1	100.00000	0.00018			
			Sodium polyacrylate	9003-04-7	1.00000	0.00016			
			Methanol	67-56-1	100.00000	0.00015			
			Ethanol	64-17-5	1.00000	0.00010			
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00004			
			Modified thiourea polymer	Proprietary	30.00000	0.00004			
			Phosphoric acid	7664-38-2	0.10000	0.00001			

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Company	Antero Resources	Location:	API #: 47095024690	Other Services
Well	Jameson 1H	Latitude:		
Field	Marcellus	Longitude:		
County	Tyler	SEC	TWP	RGE
State	West Virginia	Permanent Datum	Ground Level	Elevation
		Log Measured From	Ground Level	-
		Drilling Measured From	Kelly Bushing	
				K.B. - D.F. - G.L. -

Date	13 - December - 2018		
Run Number	One		
Depth Driller	18,726 ft		
Depth Logger	6,964 ft		
Bottom Logged Interval	6,954 ft		
Top Log Interval	Surface		
Open Hole Size	N/A		
Type Fluid	Fresh Water		
Density / Viscosity	8.3 lbs/gal		
Max. Recorded Temp.	136 °F		
Estimated Cement Top	2,700 ft		
Time Well Ready	11:30		
Time Logger on Bottom	12:11		
Equipment Number	2612		
Location	Irwin, PA		
Recorded By	Jim Cleland		
Witnessed By	Curt Anderson		
Borehole Record			
Run Number	Bit	From	To
Tubing Record			
	Size	Weight	From To
Casing Record	Size	Wgt/ft	Top Bottom
Surface String	13-3/8"	-	-
Prod. String	9-5/8"	-	-
Production String	5 1/2 in	23#	-
Liner			18,726 ft

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

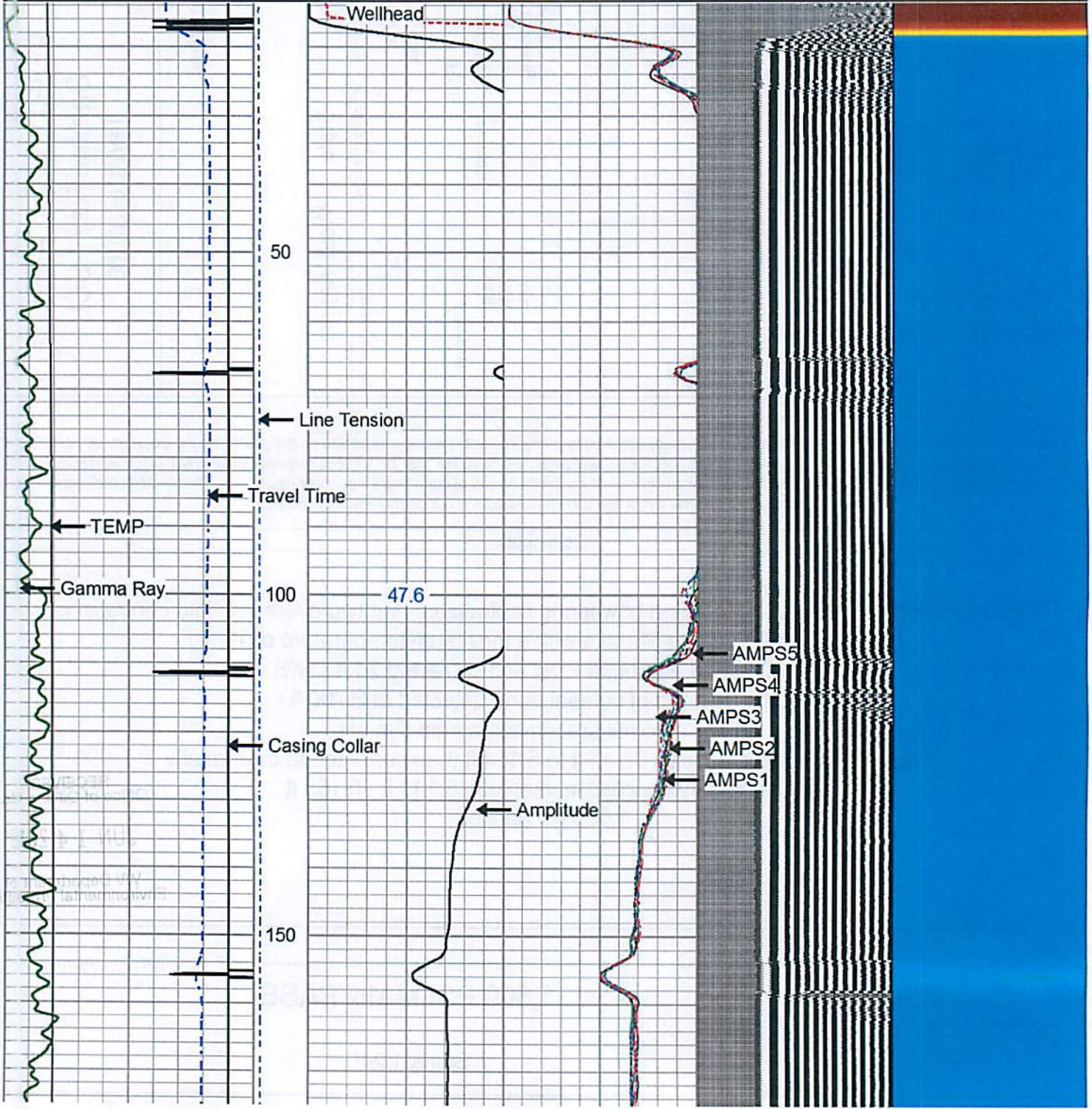
Comments

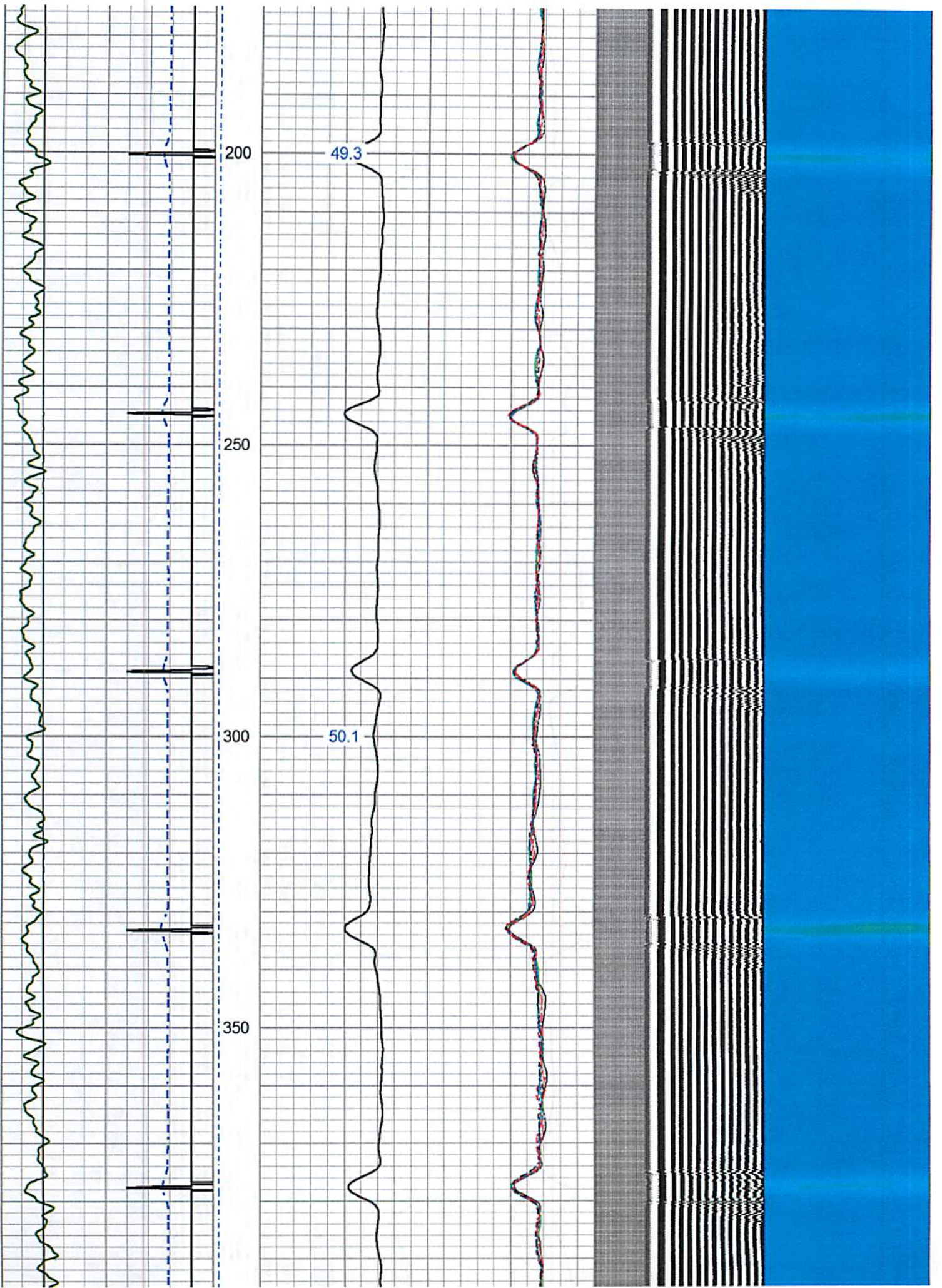
Bond tool centralized with three inline bowspring centralizers and two overbody rigid centralizers
 Logged from 6,954 ft to Surface with a maximum temperature of 136° F
 Tool zeroed at ground level and corrected 24 ft to KB
 Estimated top of cement bond detected at 2,700 ft
 Free pipe calibration taken from Jim 1H
 Marker joint detected from 5,144 ft to 5,154 ft then corrected to casing tally
 Casing tally denoted marker joint 5,143 ft - 5,153 ft
 1,500 psi applied

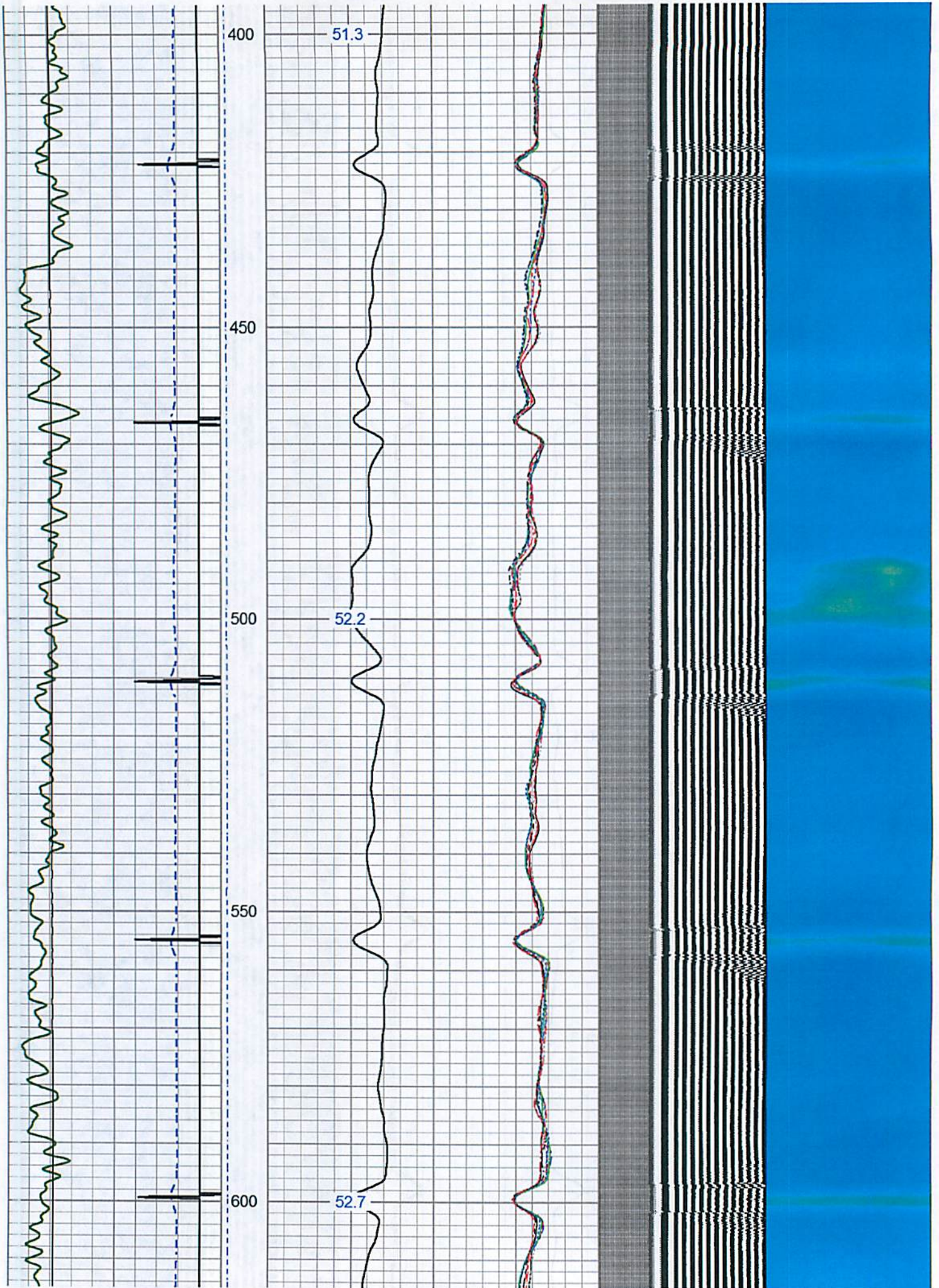
RECEIVED
Office of Oil and Gas
JUN 14 2019
WV Department of Environmental Protection

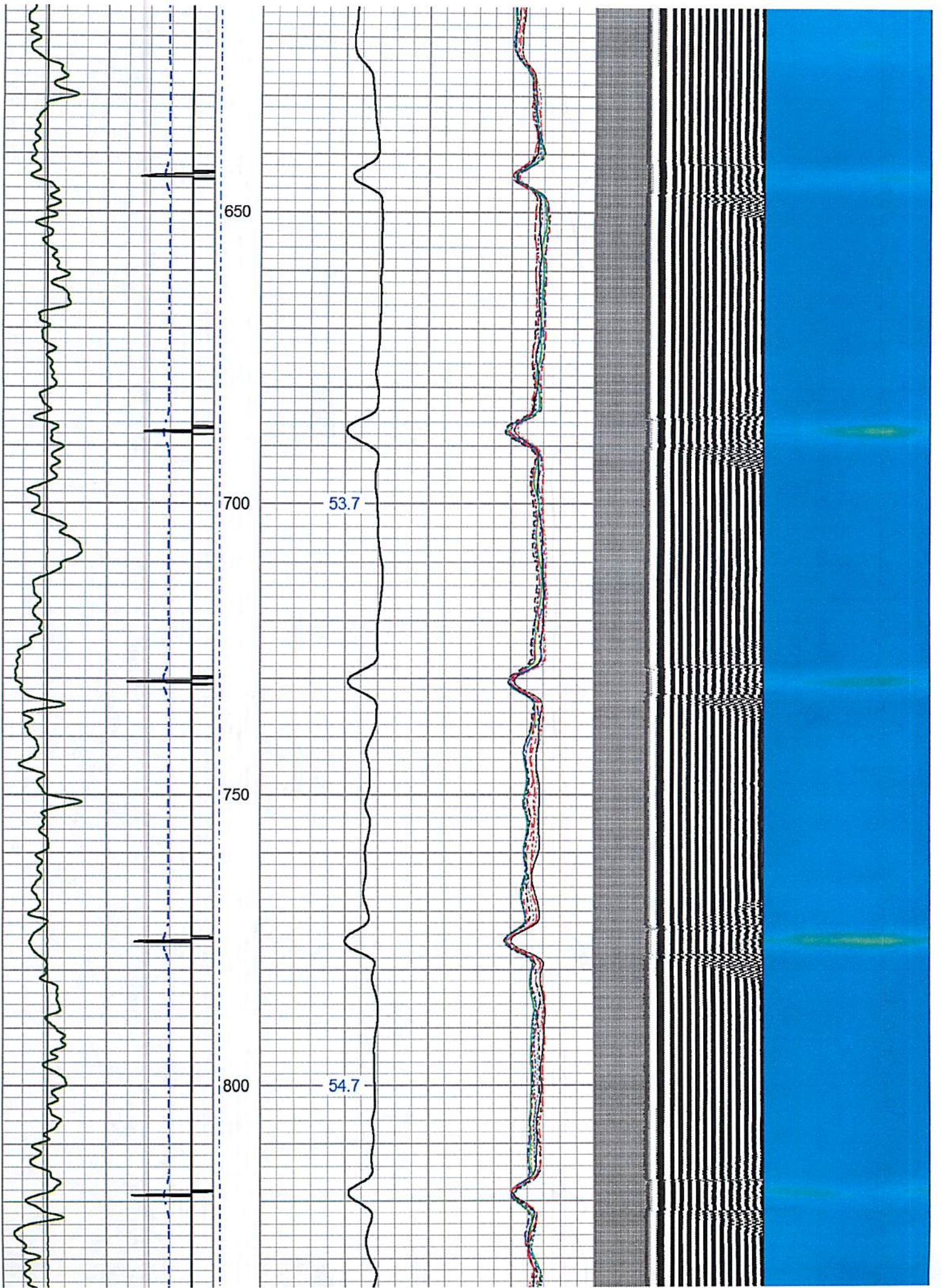
Database File c:\users\user\desktop\antero neat logs\antero resources_jameson_unit1h_rcbl.db
 Dataset Pathname Main Pass
 Presentation Format ahws_rcbl_jc
 Dataset Creation Thu Dec 13 13:54:44 2018
 Charted by Depth in Feet scaled 1:240

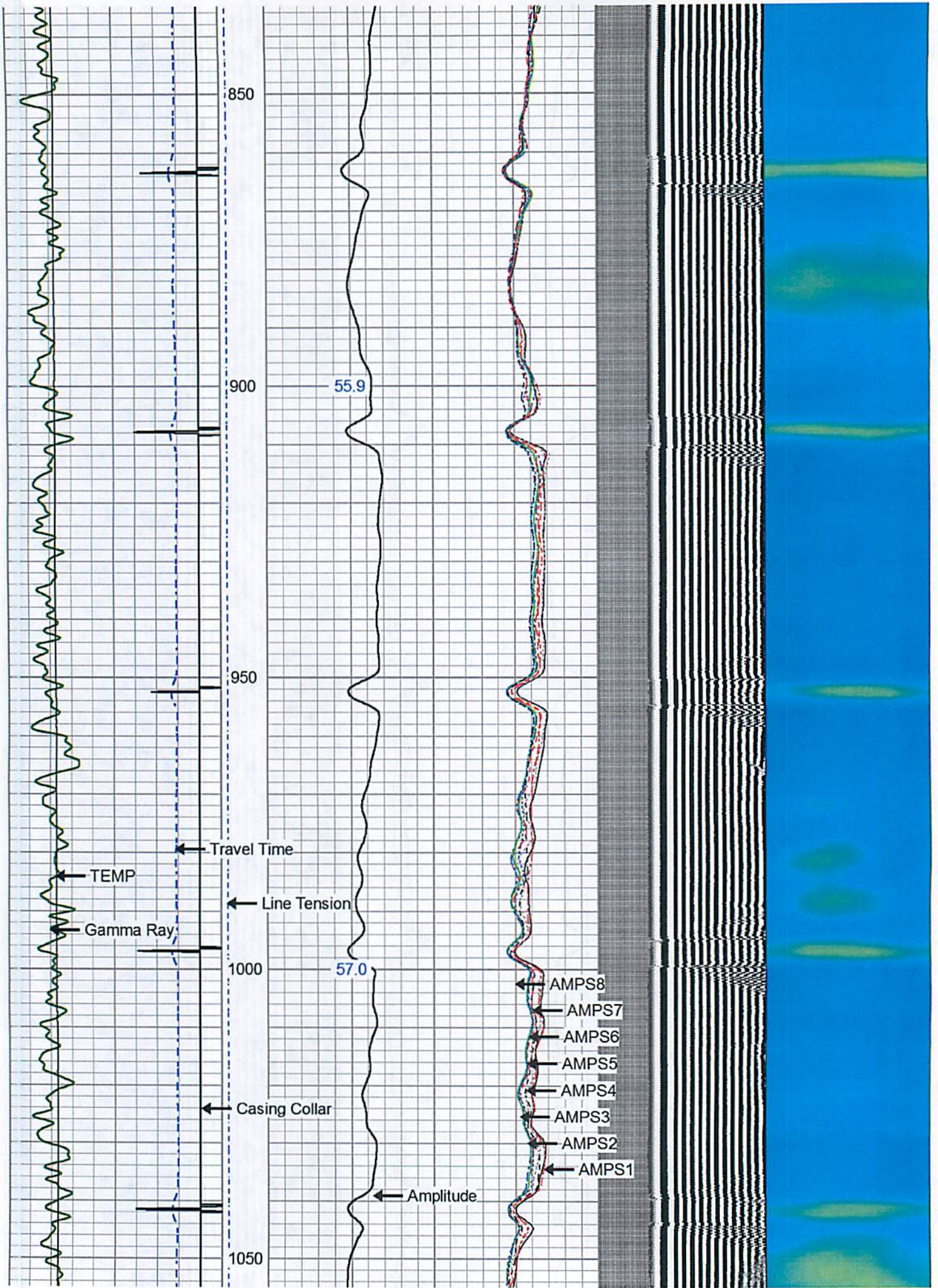
420	Travel Time (usec)	220	e Tens	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	(lb)	0	Amplified Amplitude	10	-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	300	(2500)	0	(mV)	10	-5	AMPS3	150				
0	TEMP (degF)	250			TEMP		-5	AMPS4	150				
					(degF)		-5	AMPS5	150				
							-5	AMPS6	150				
							-5	AMPS7	150				
							-5	AMPS8	150				

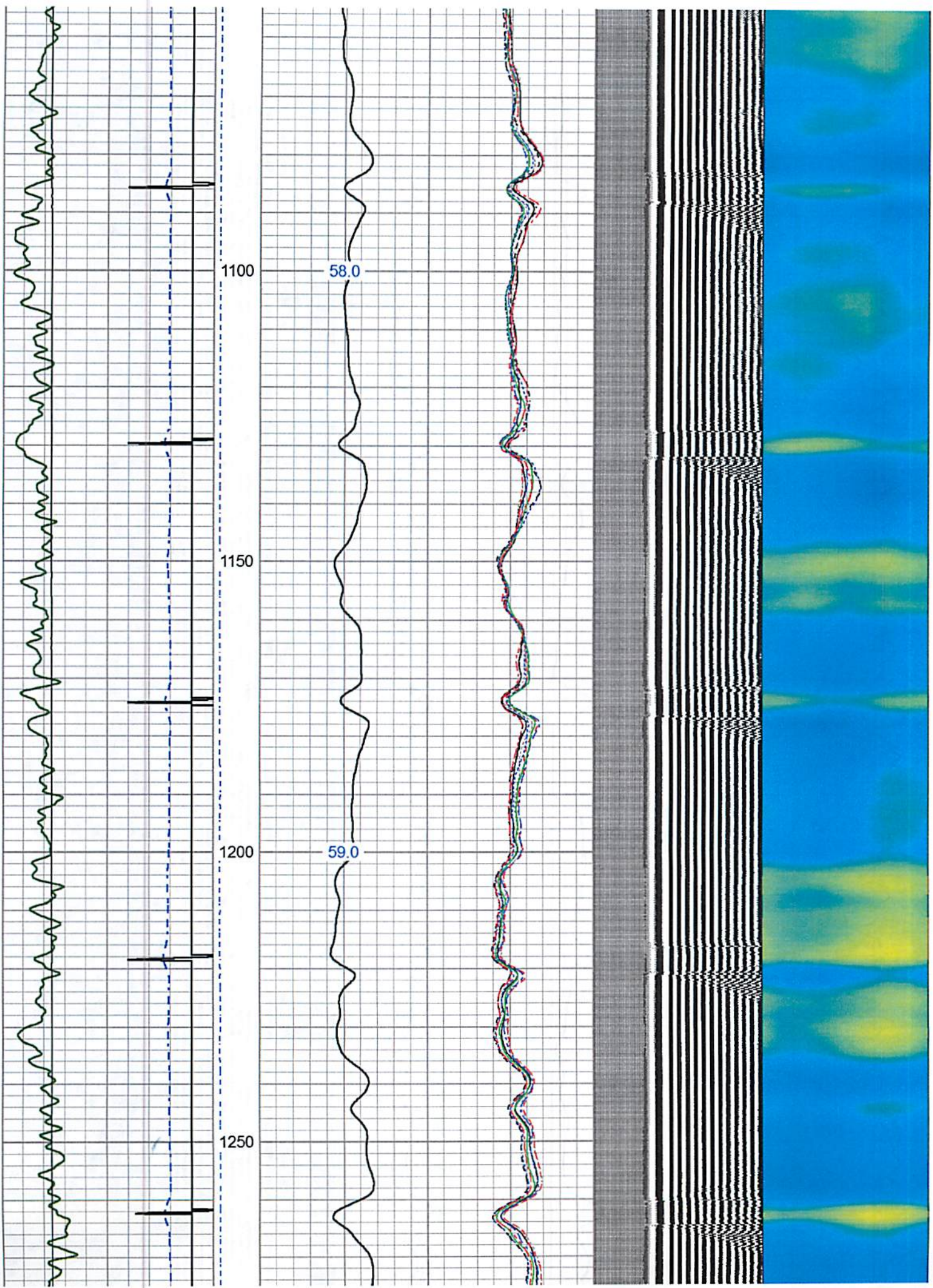


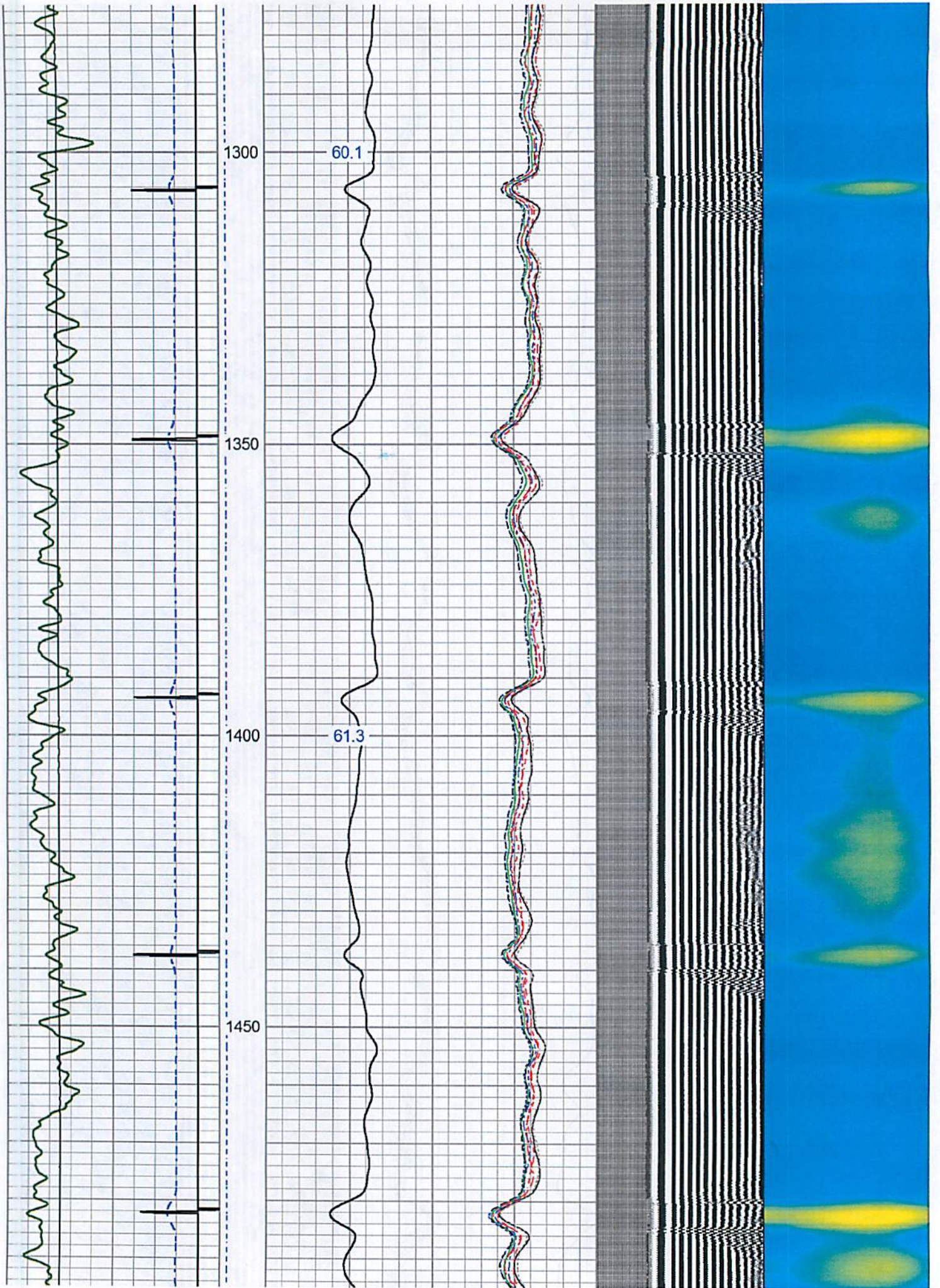


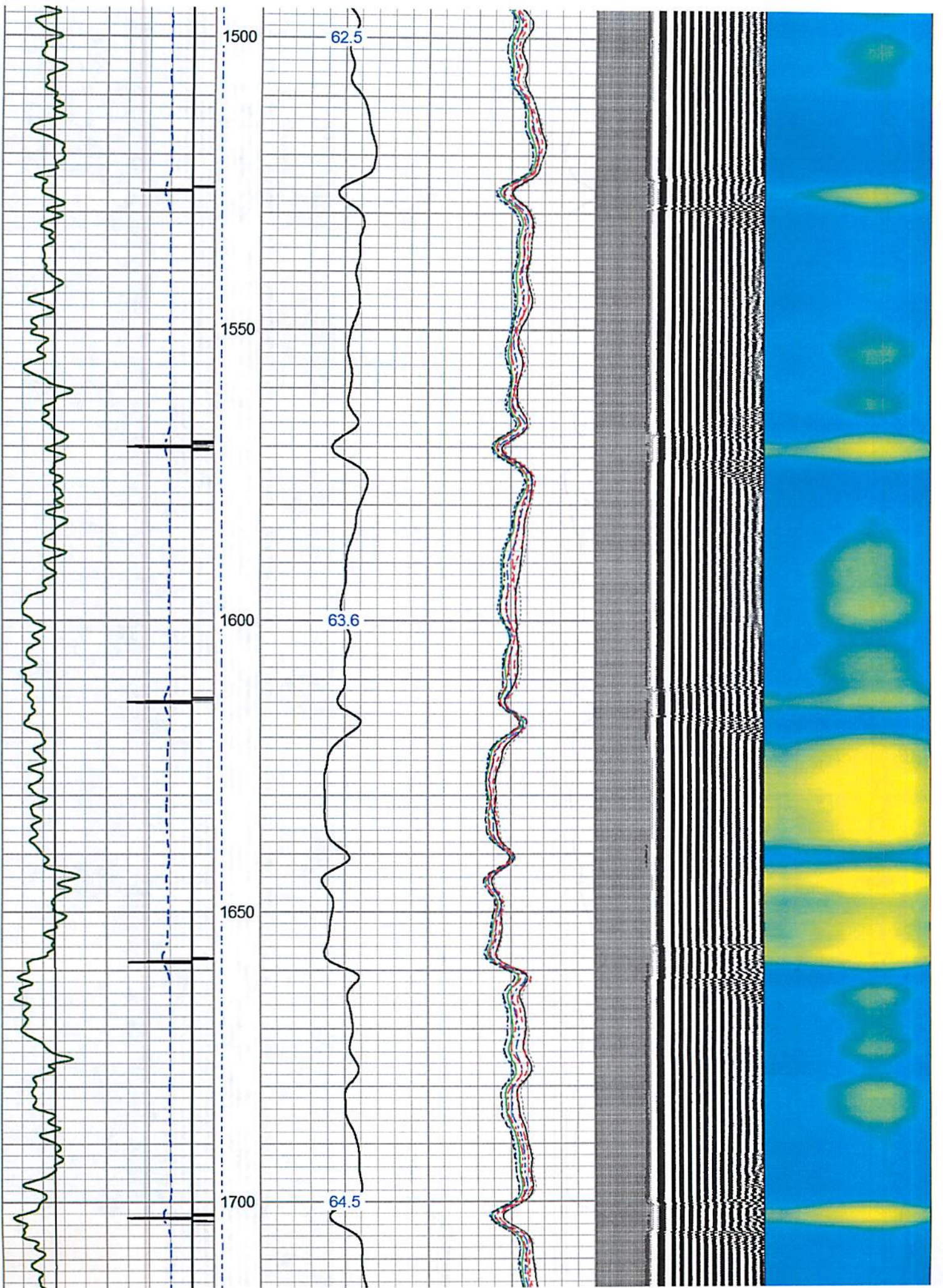


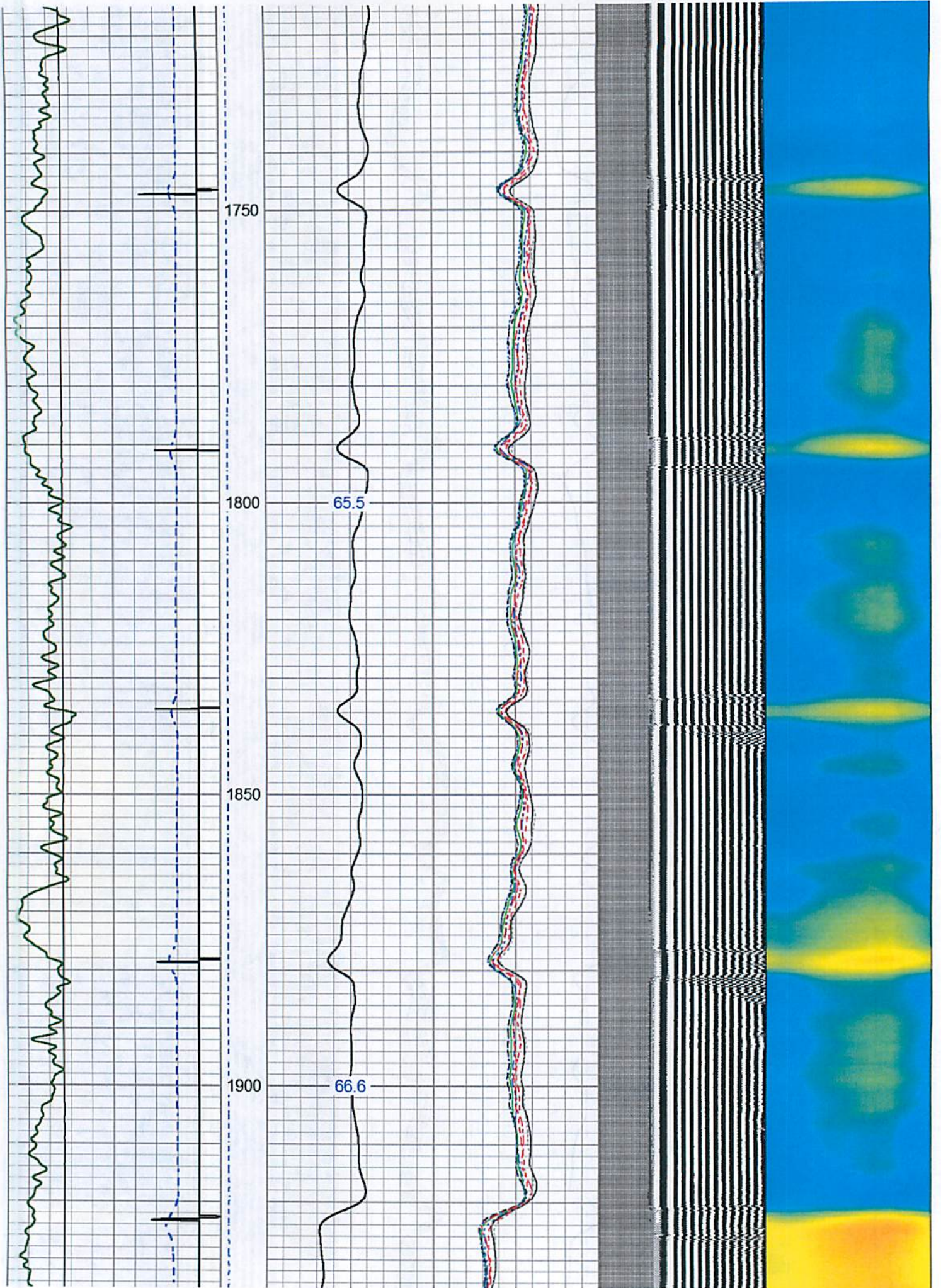


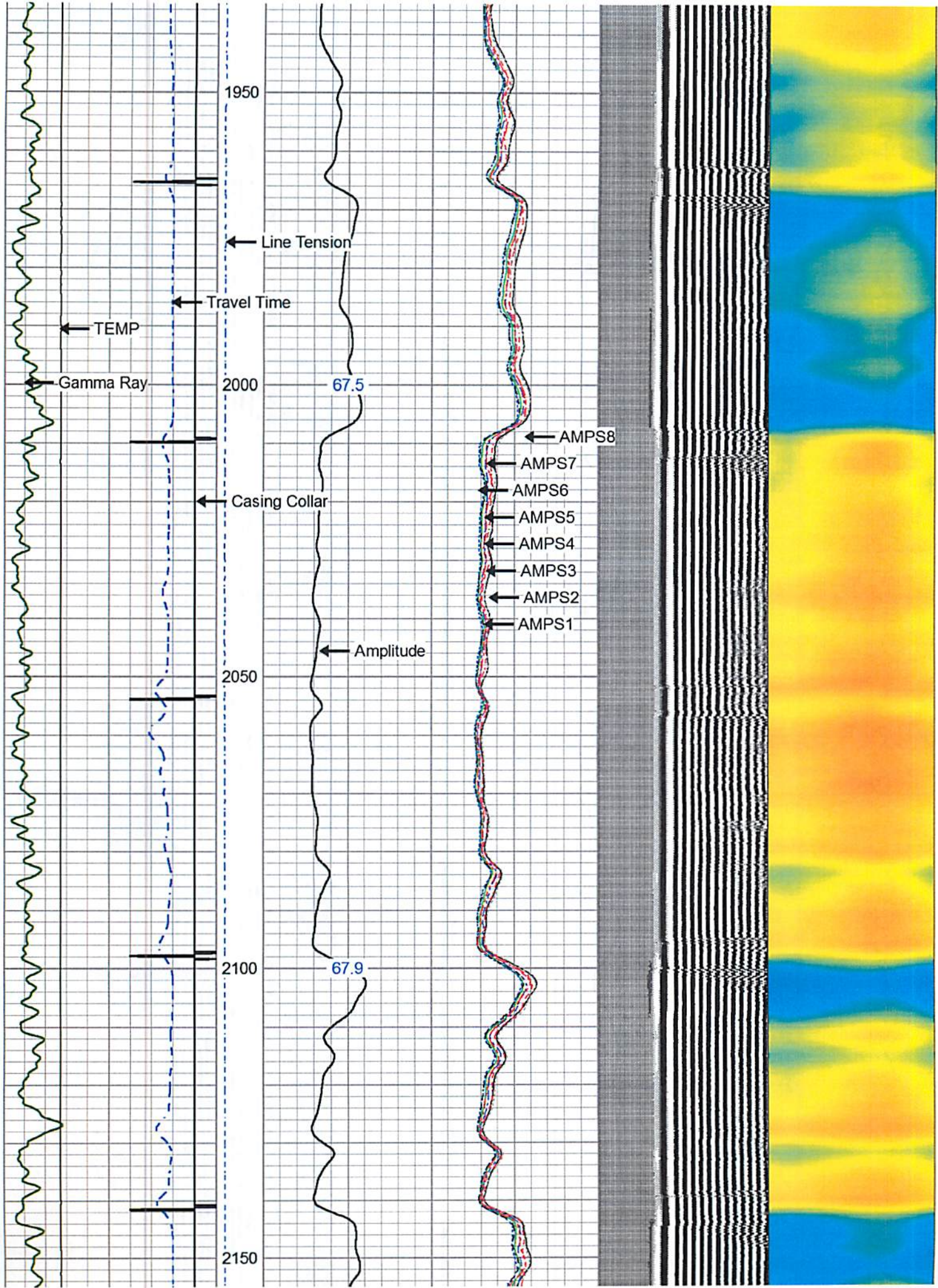


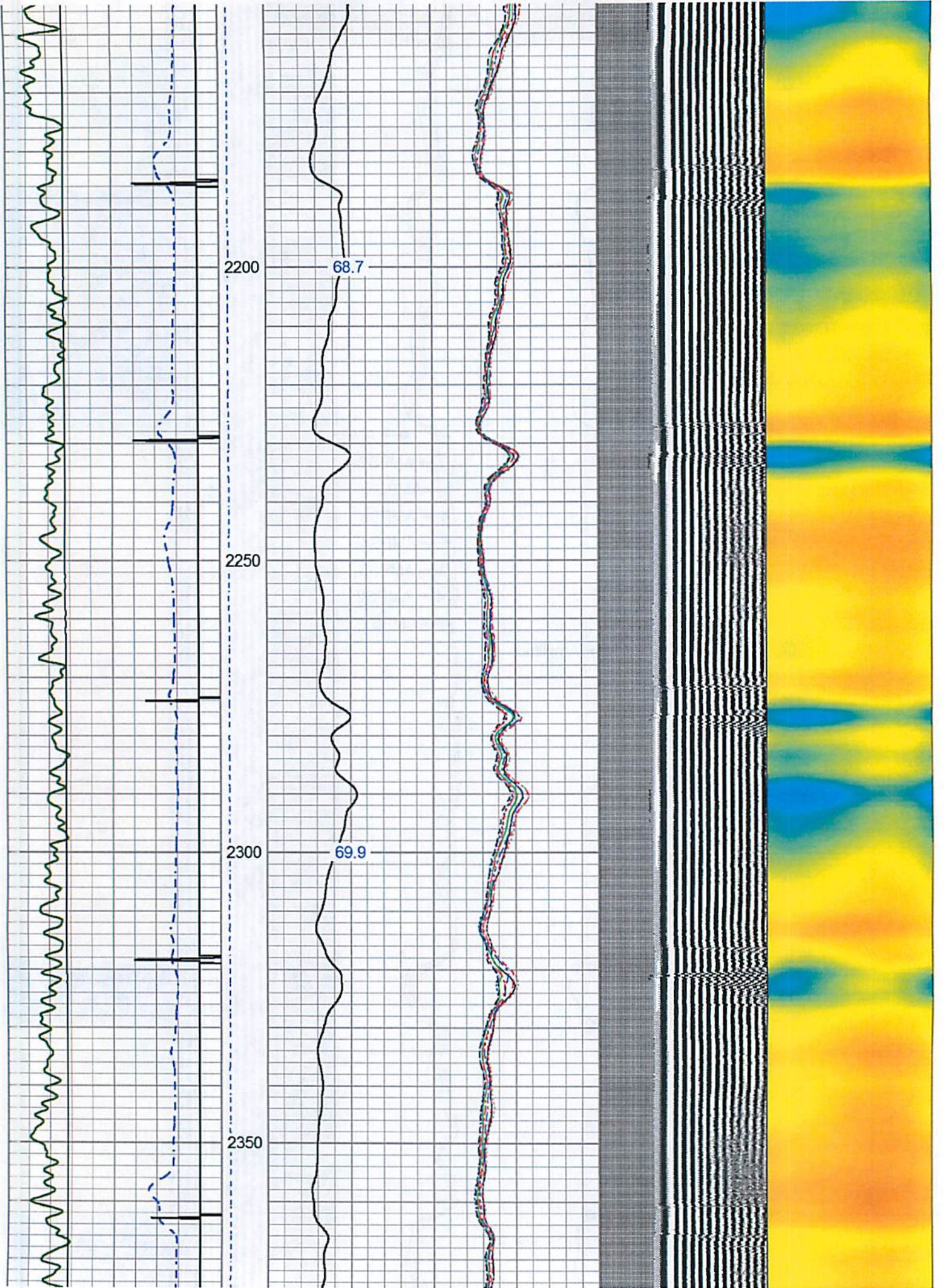


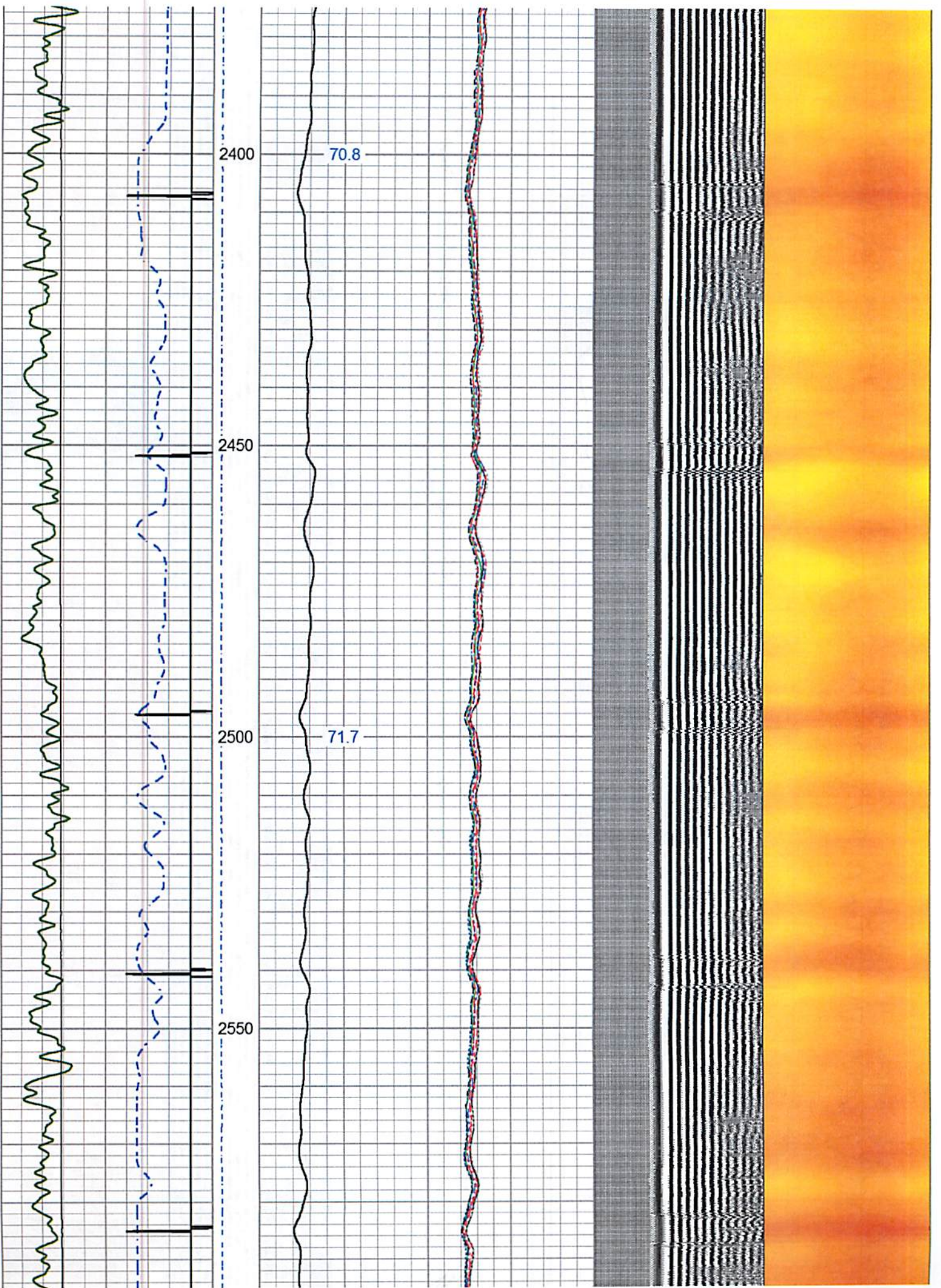


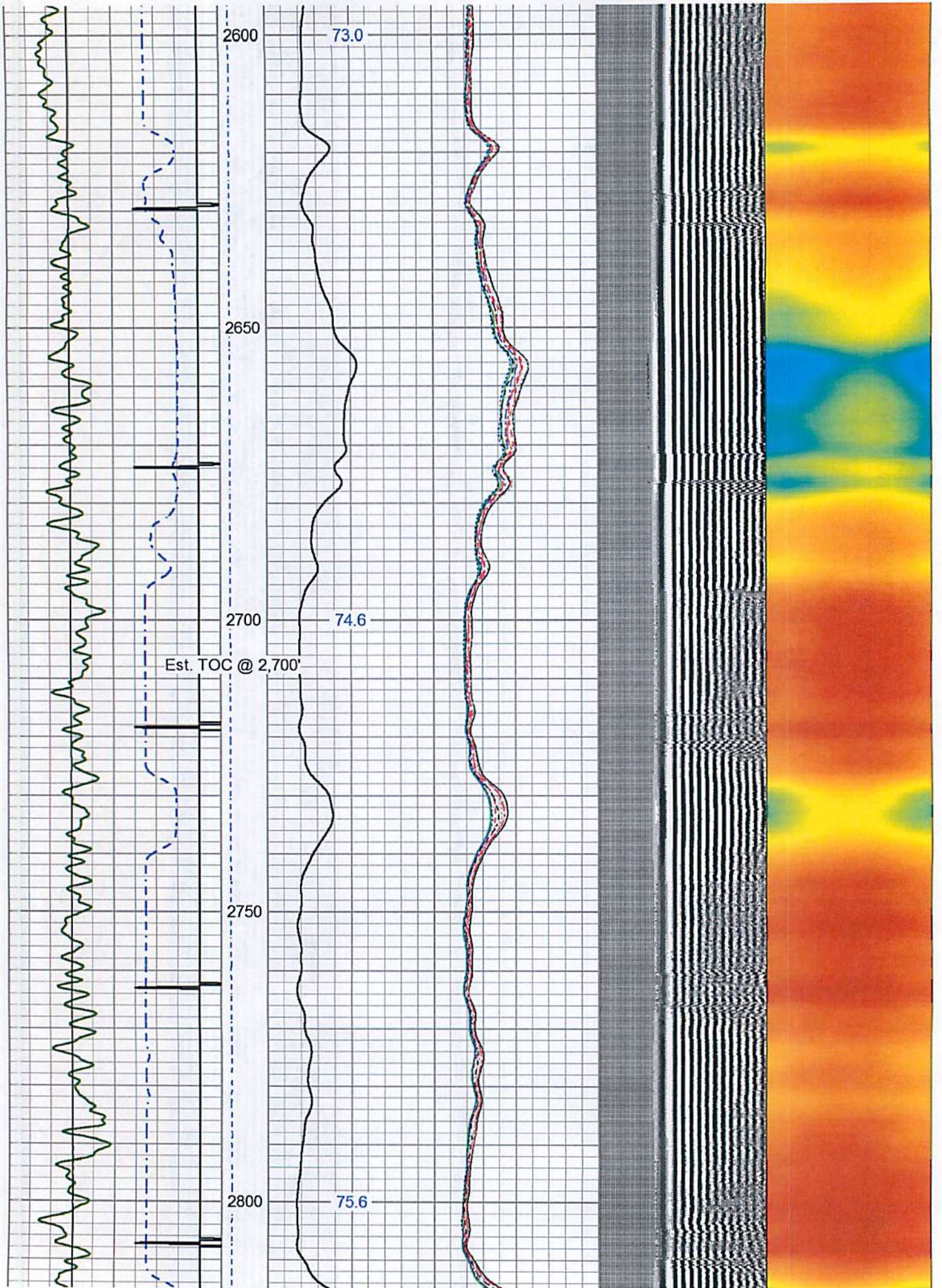


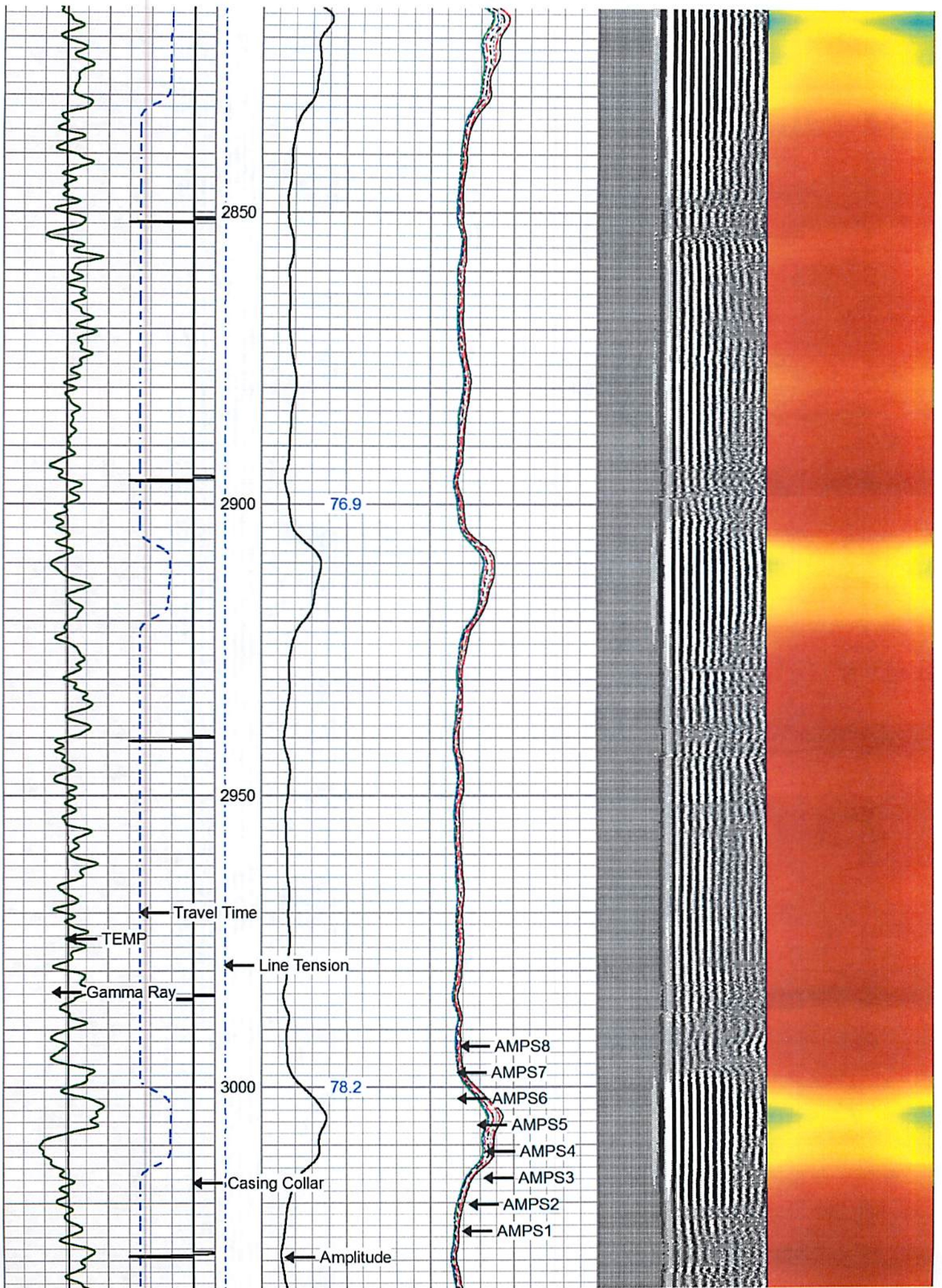


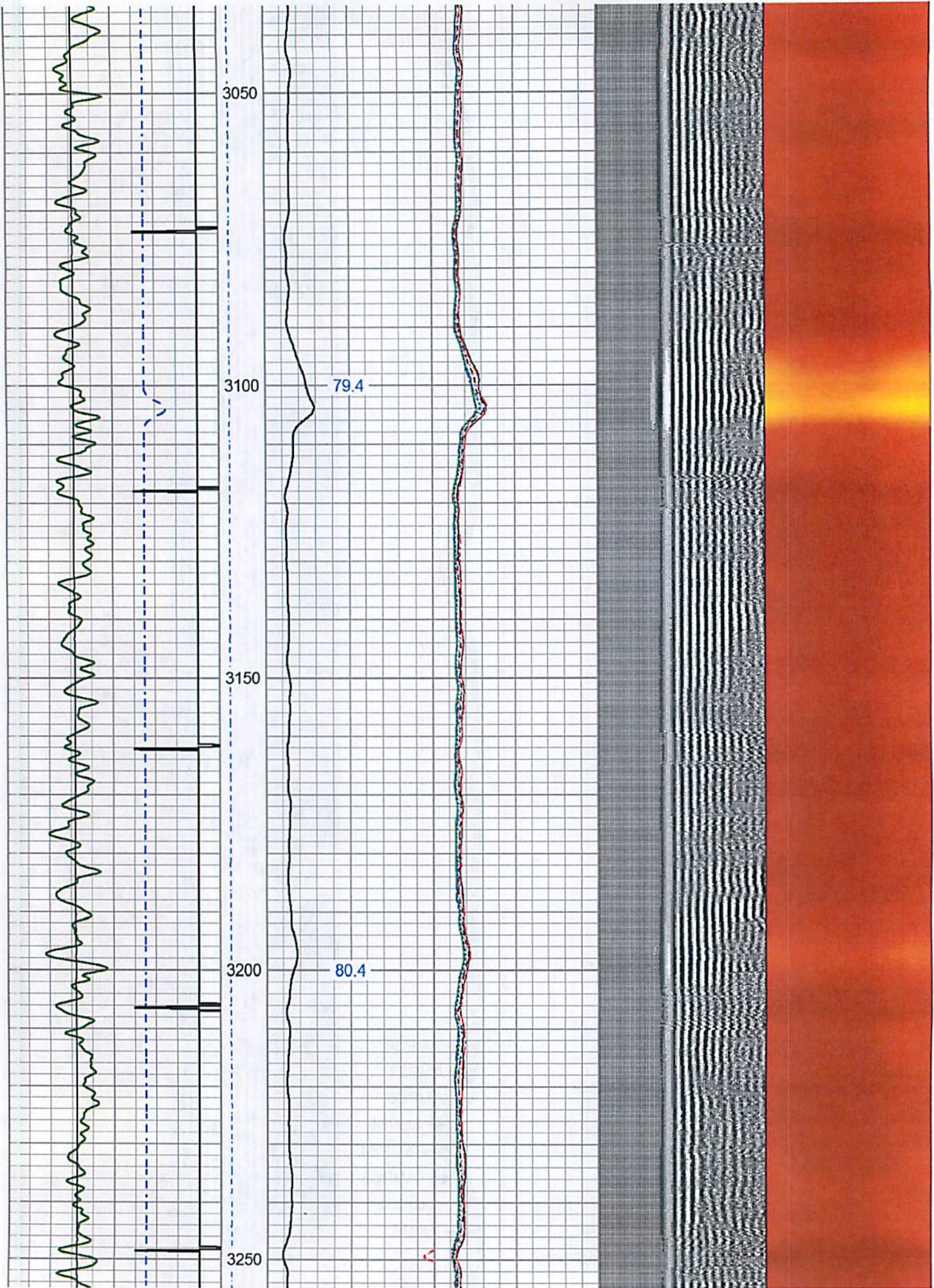


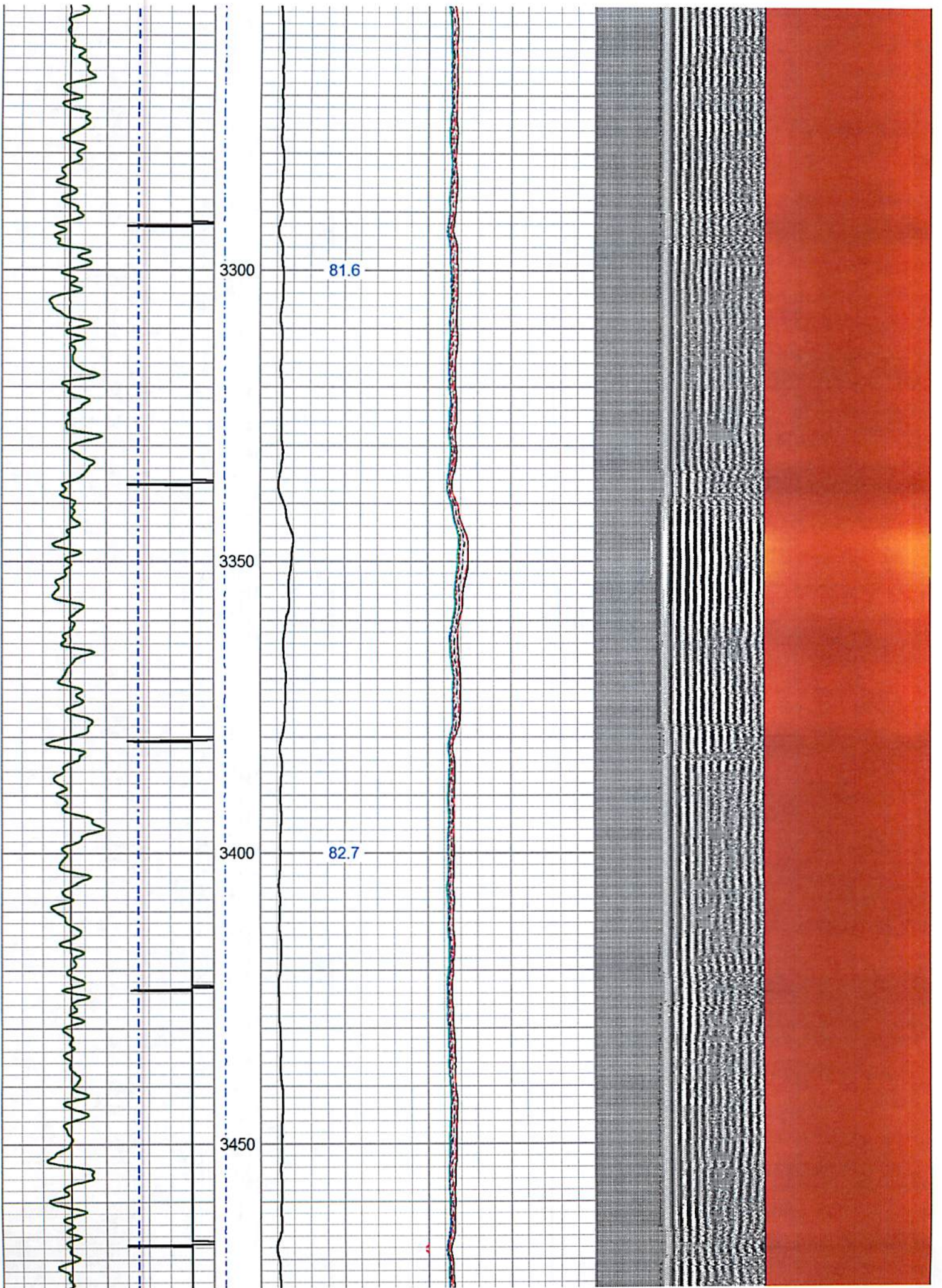


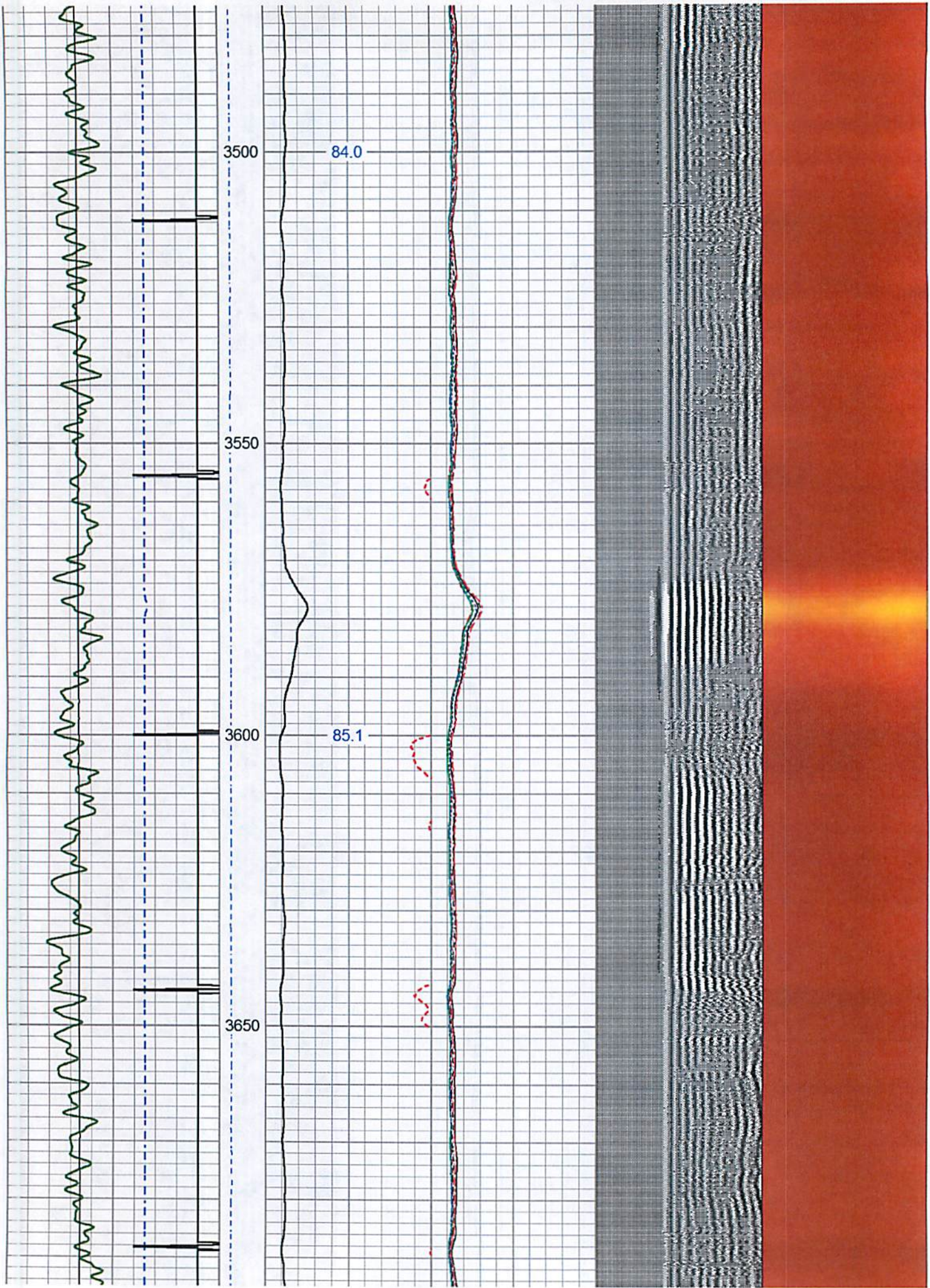


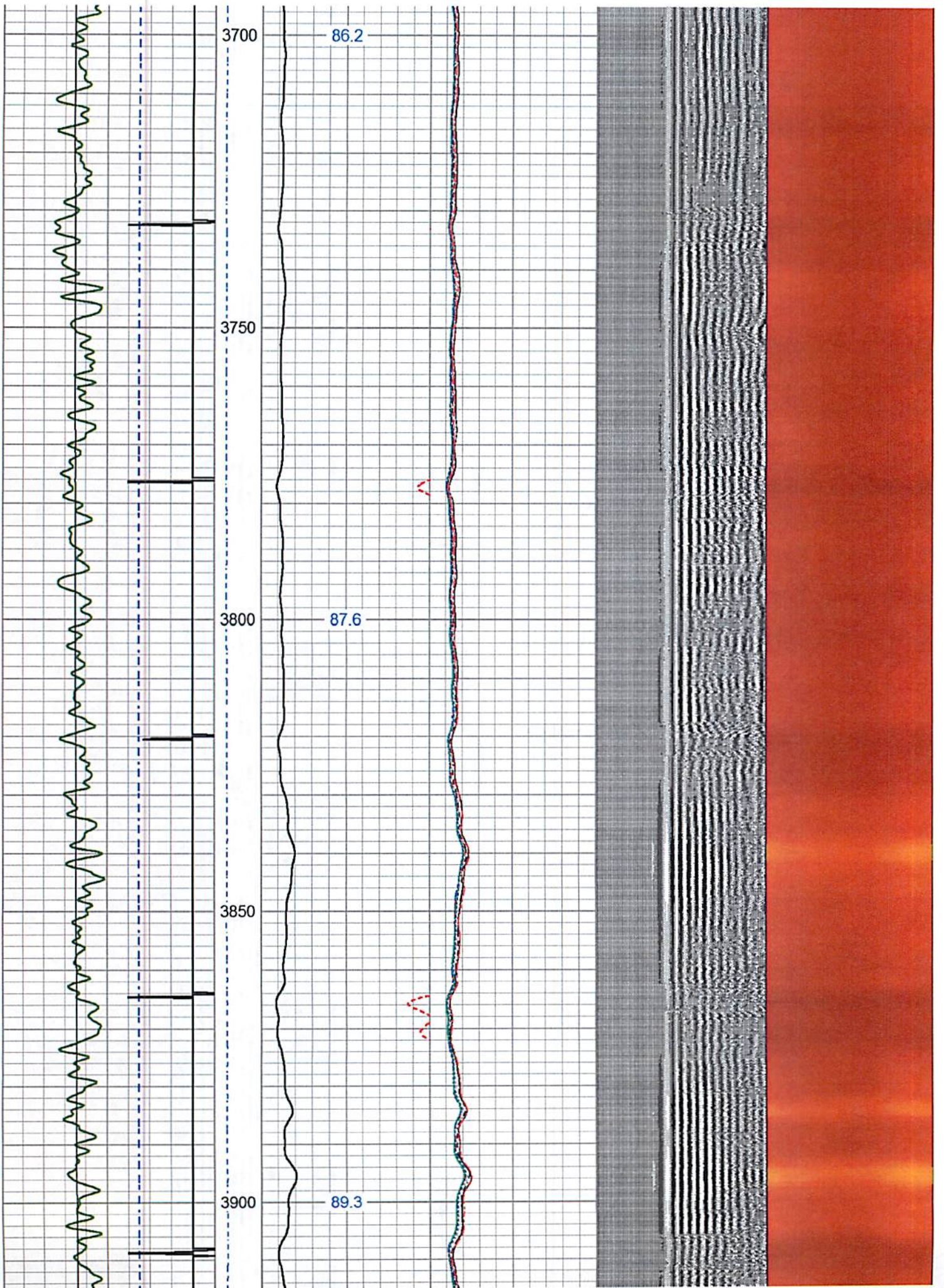


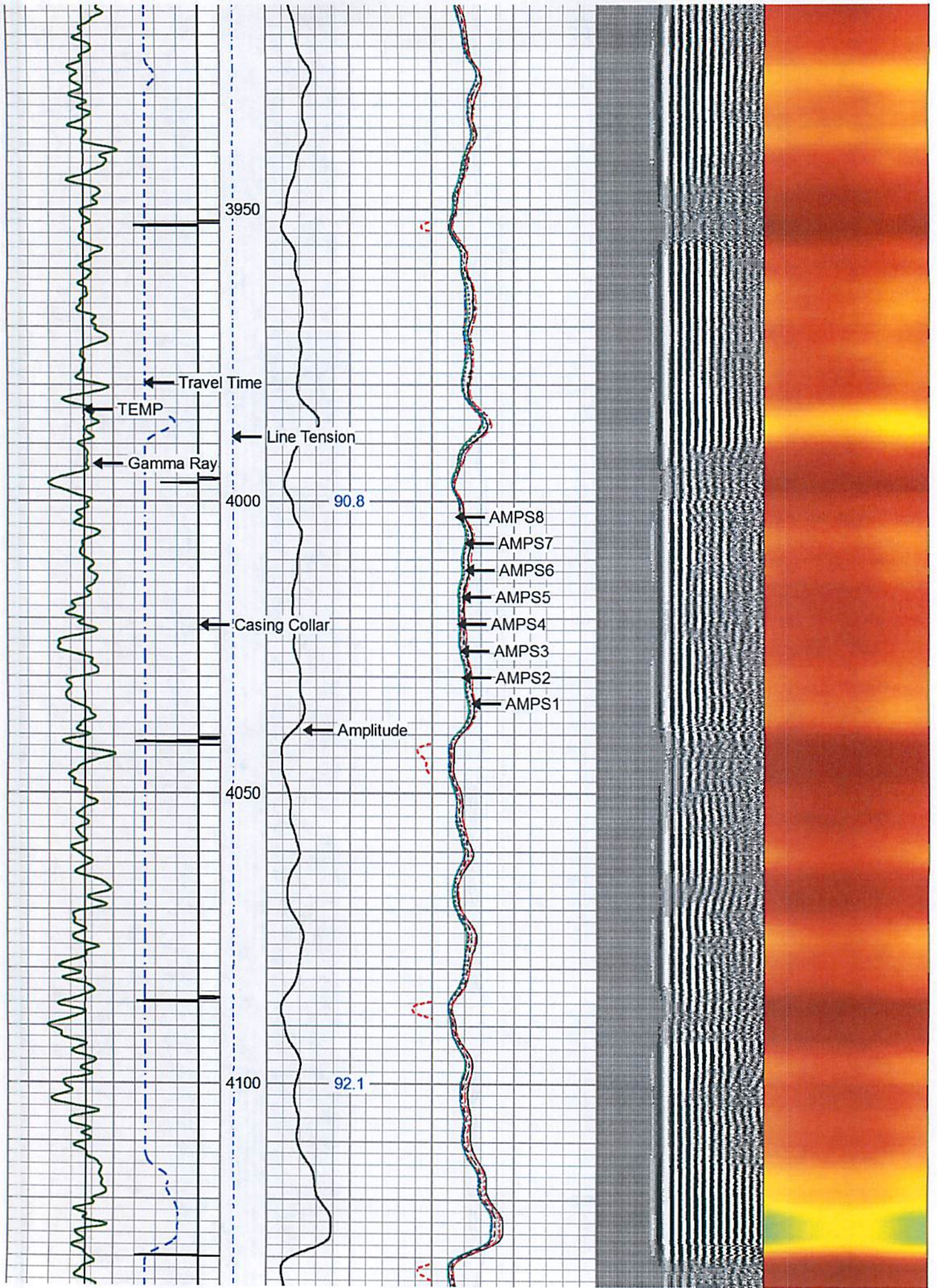


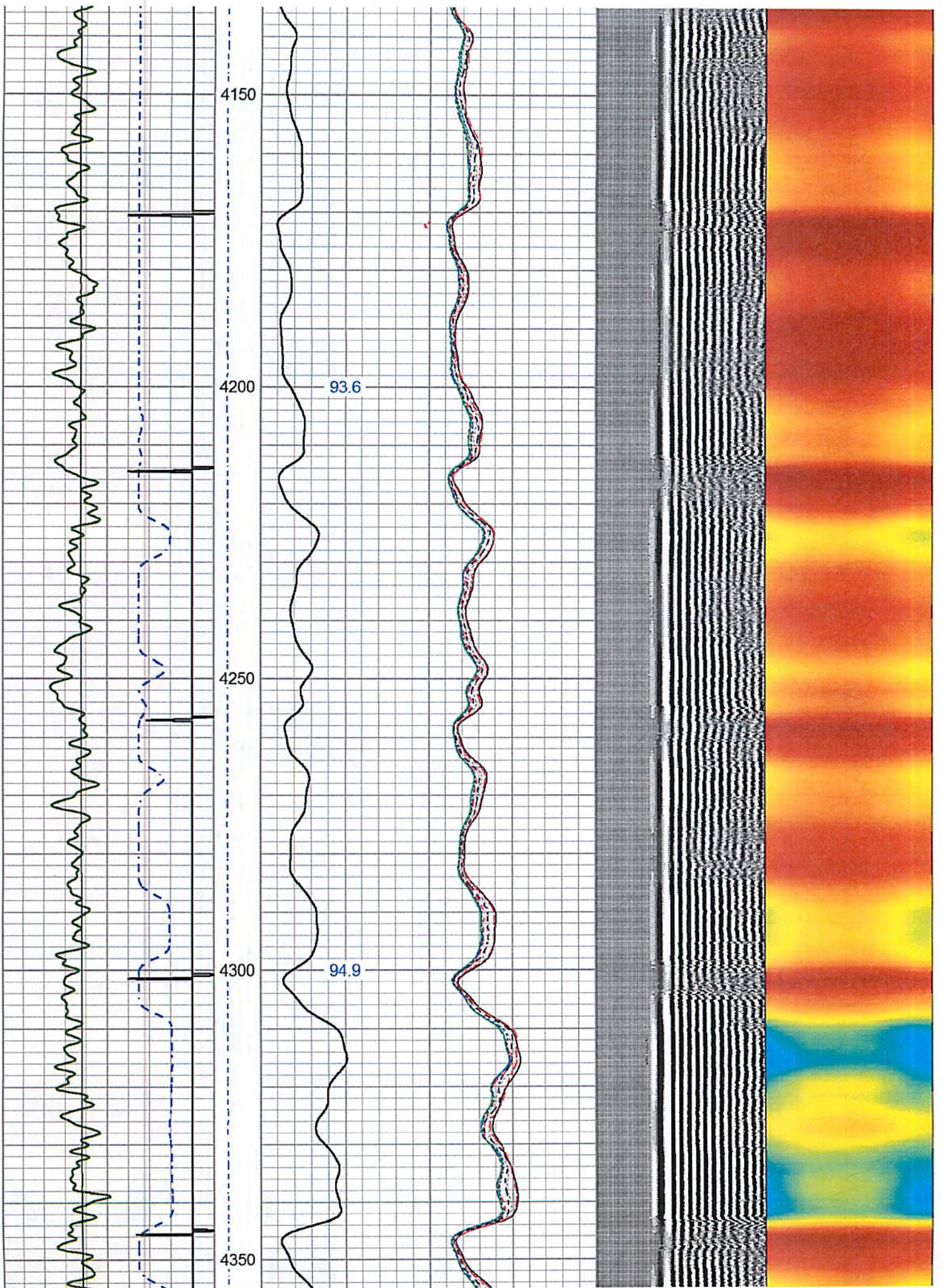


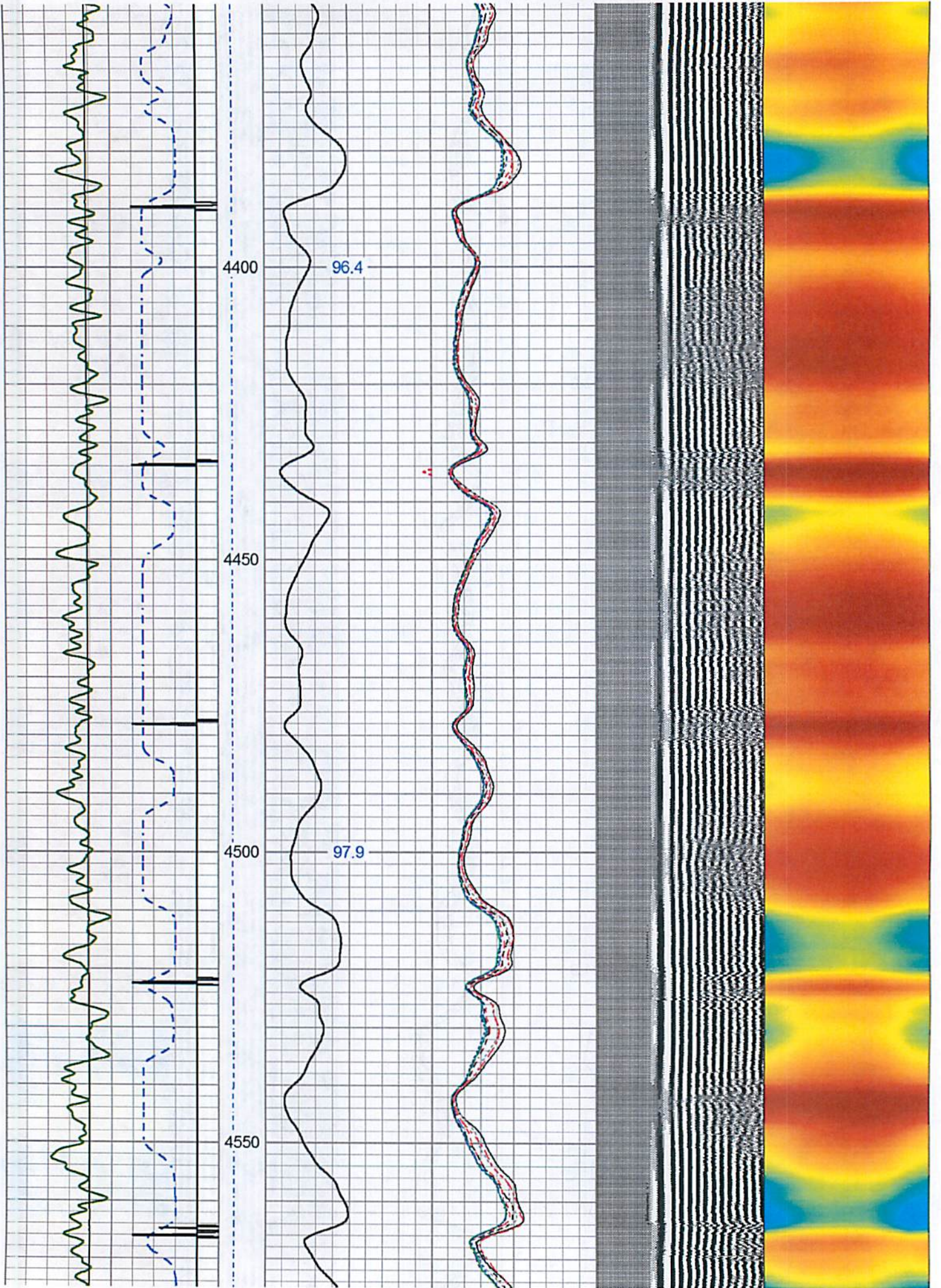


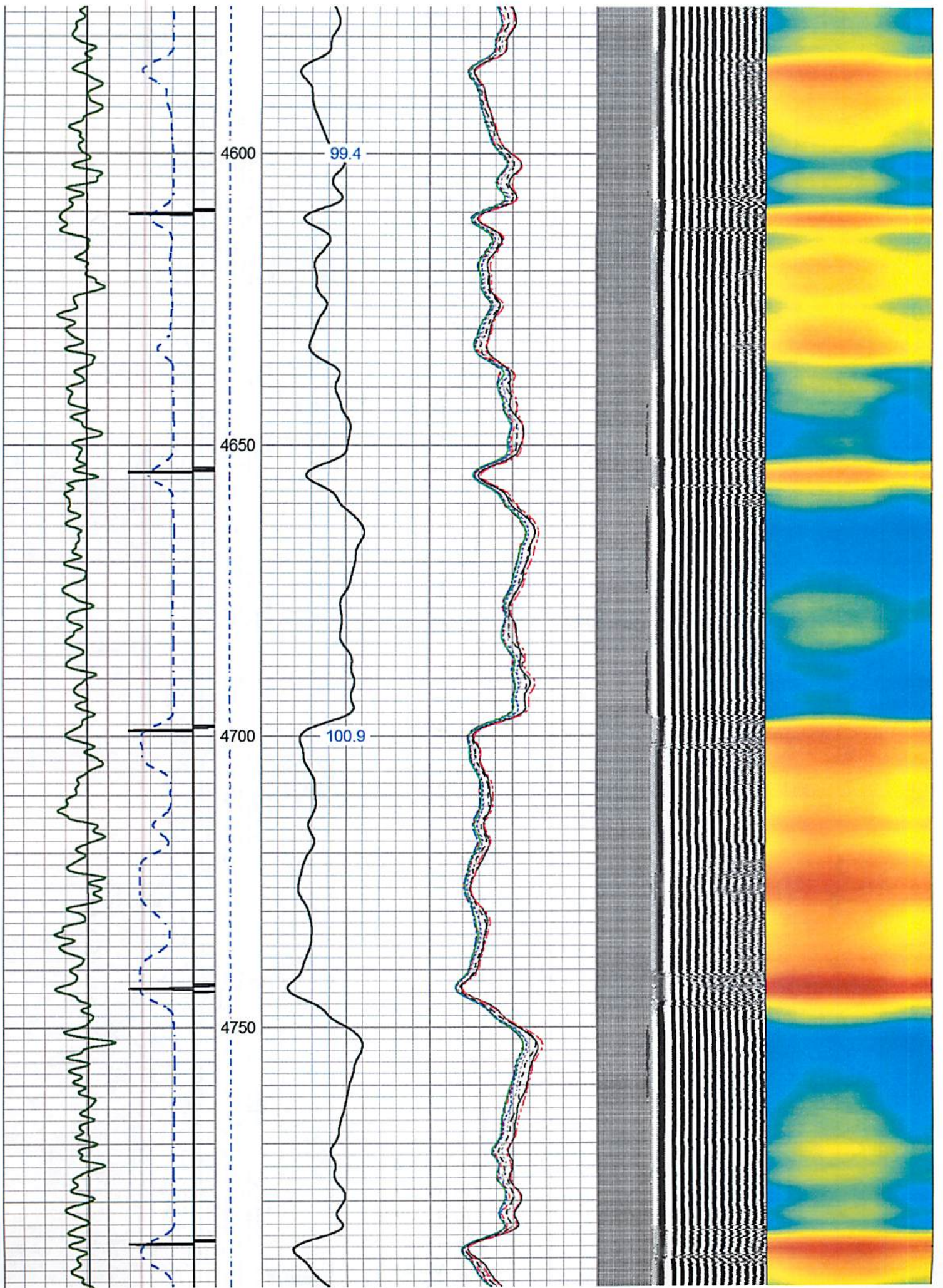


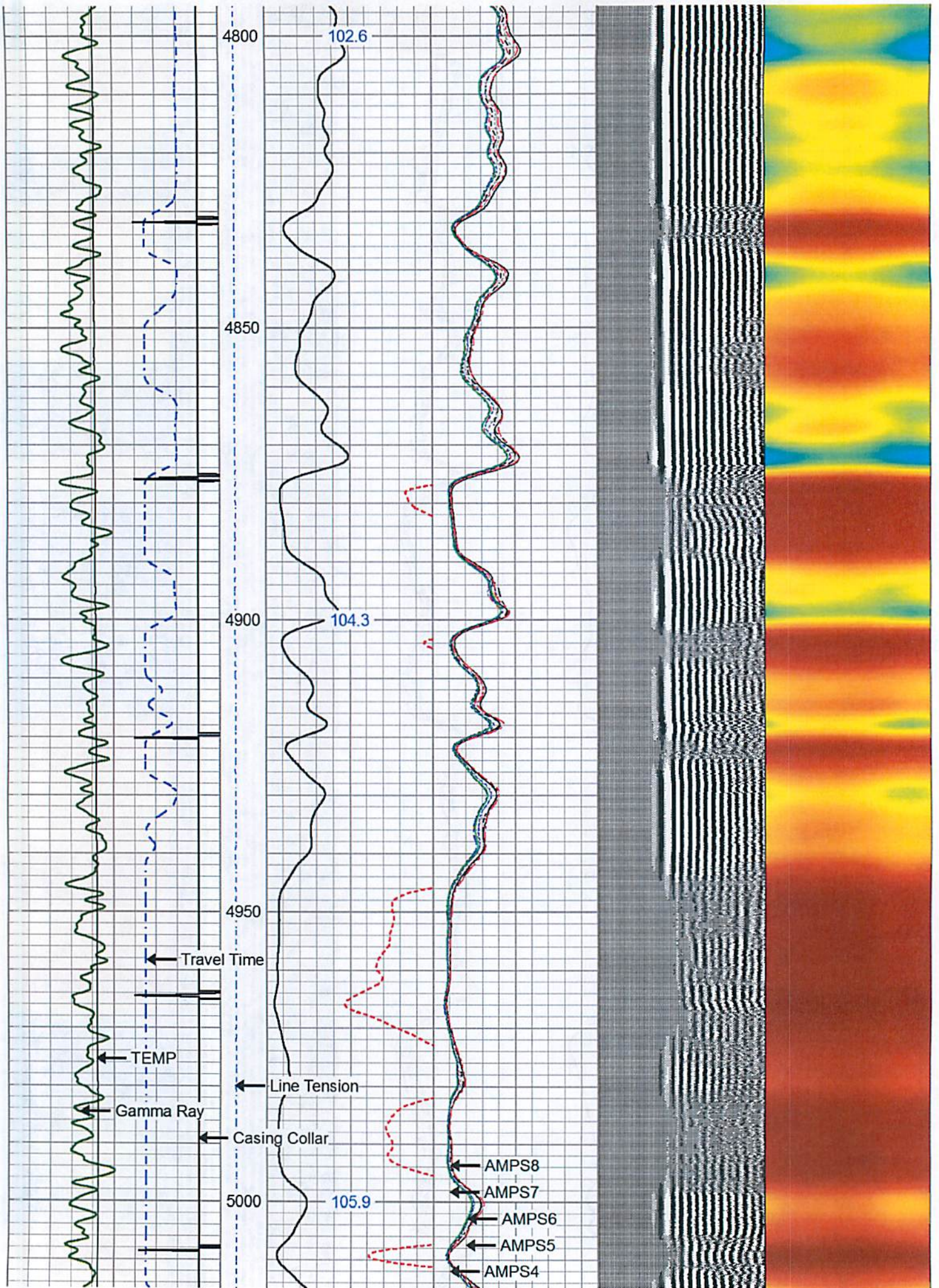


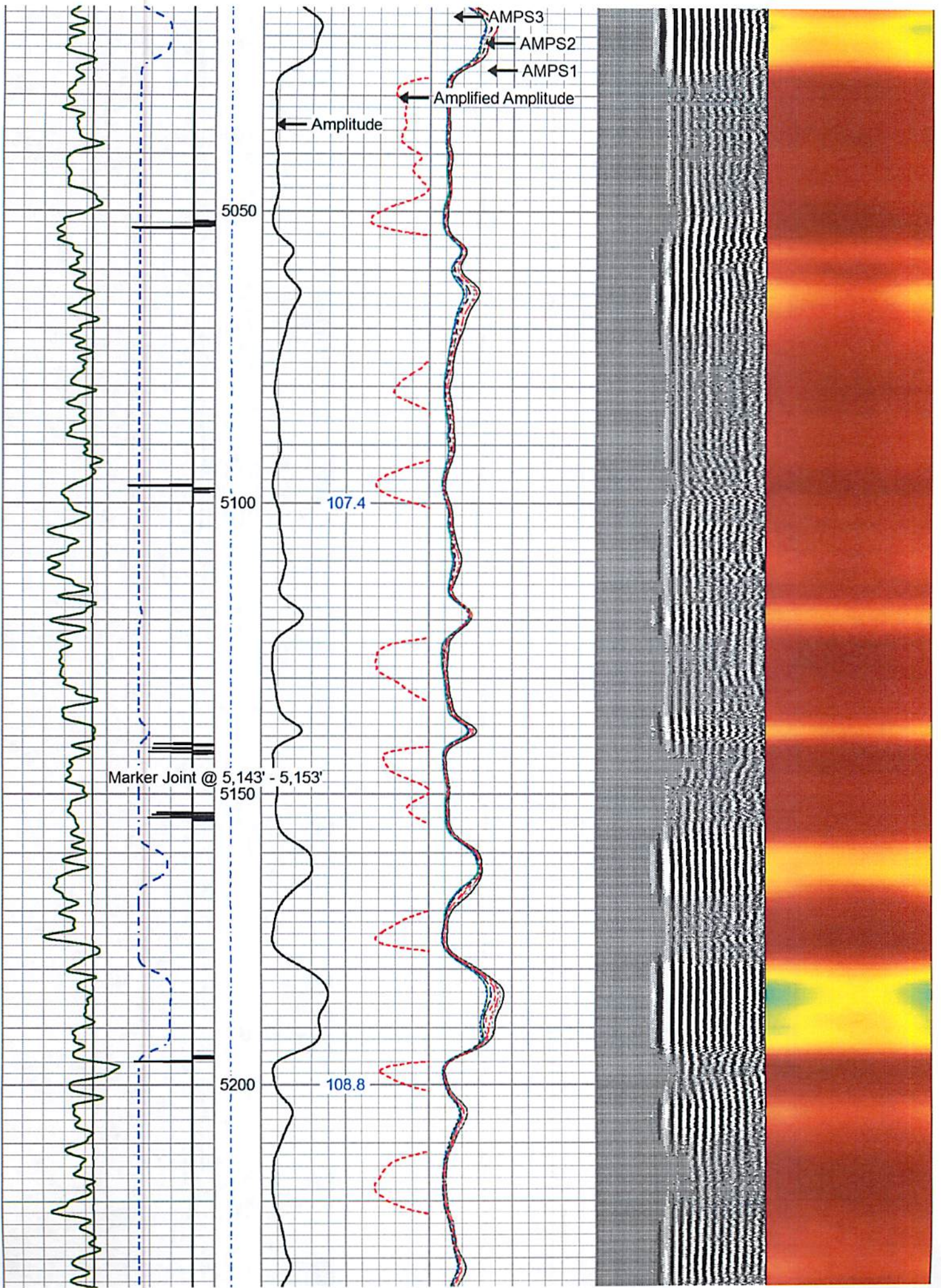


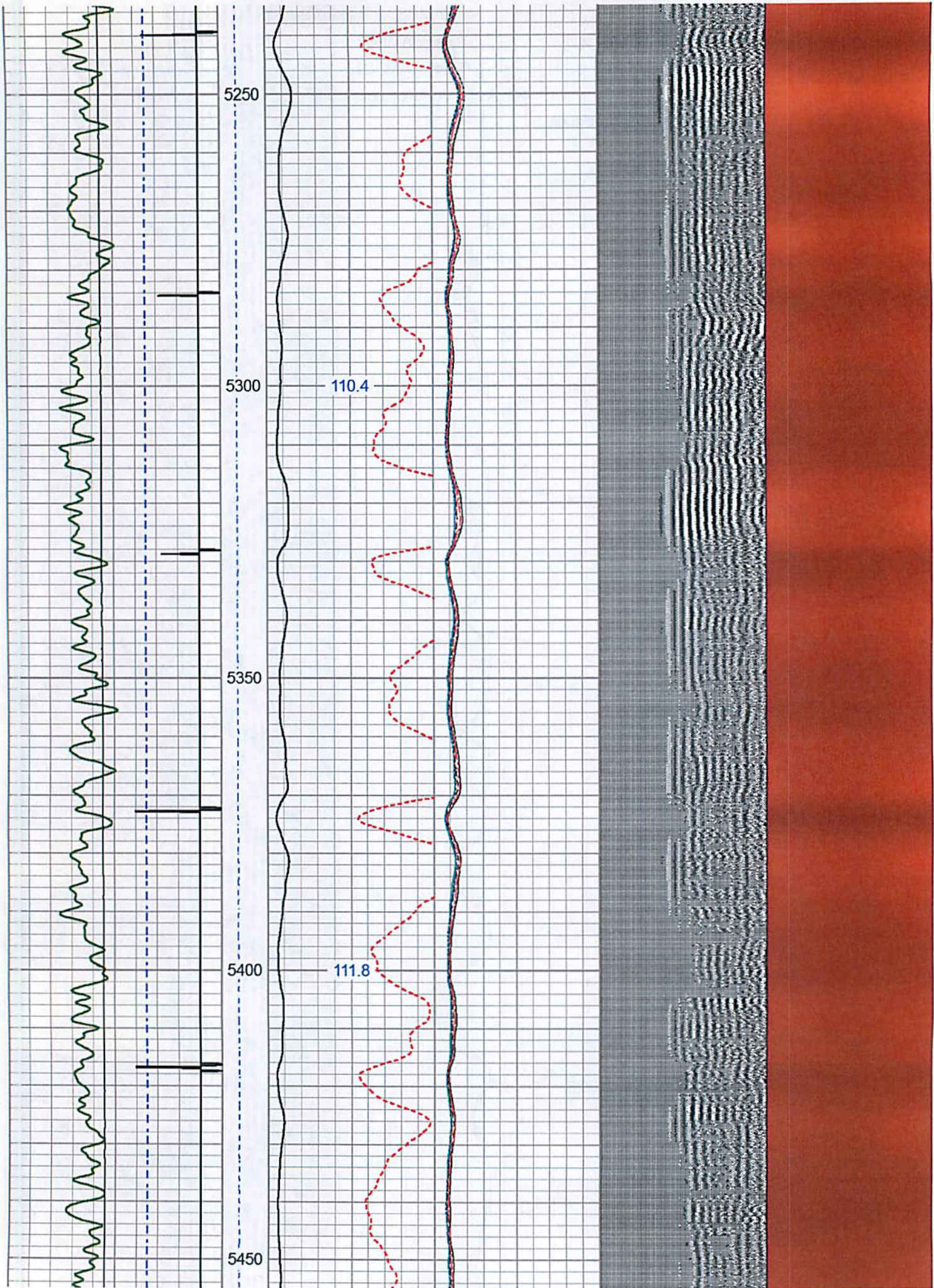


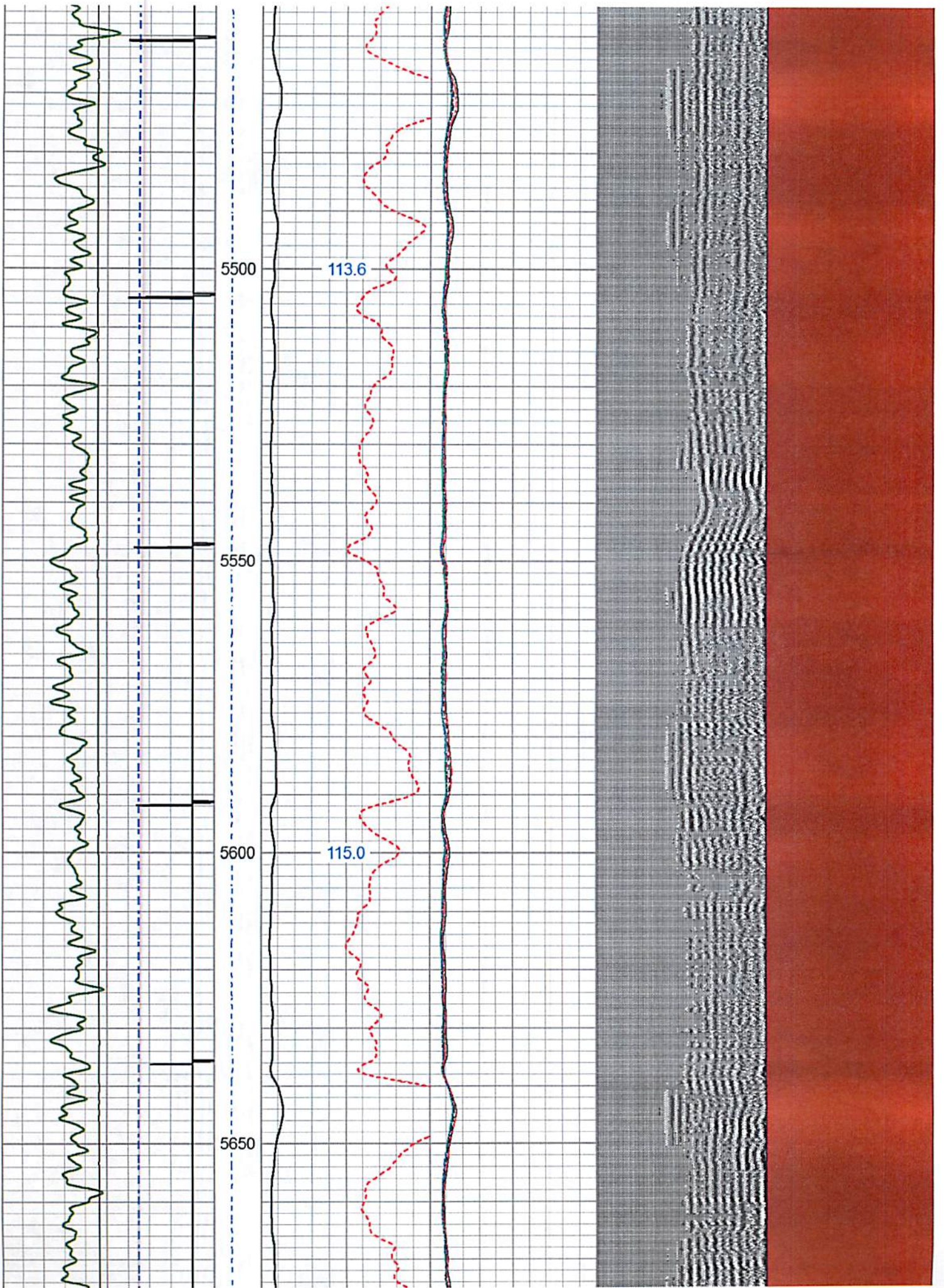


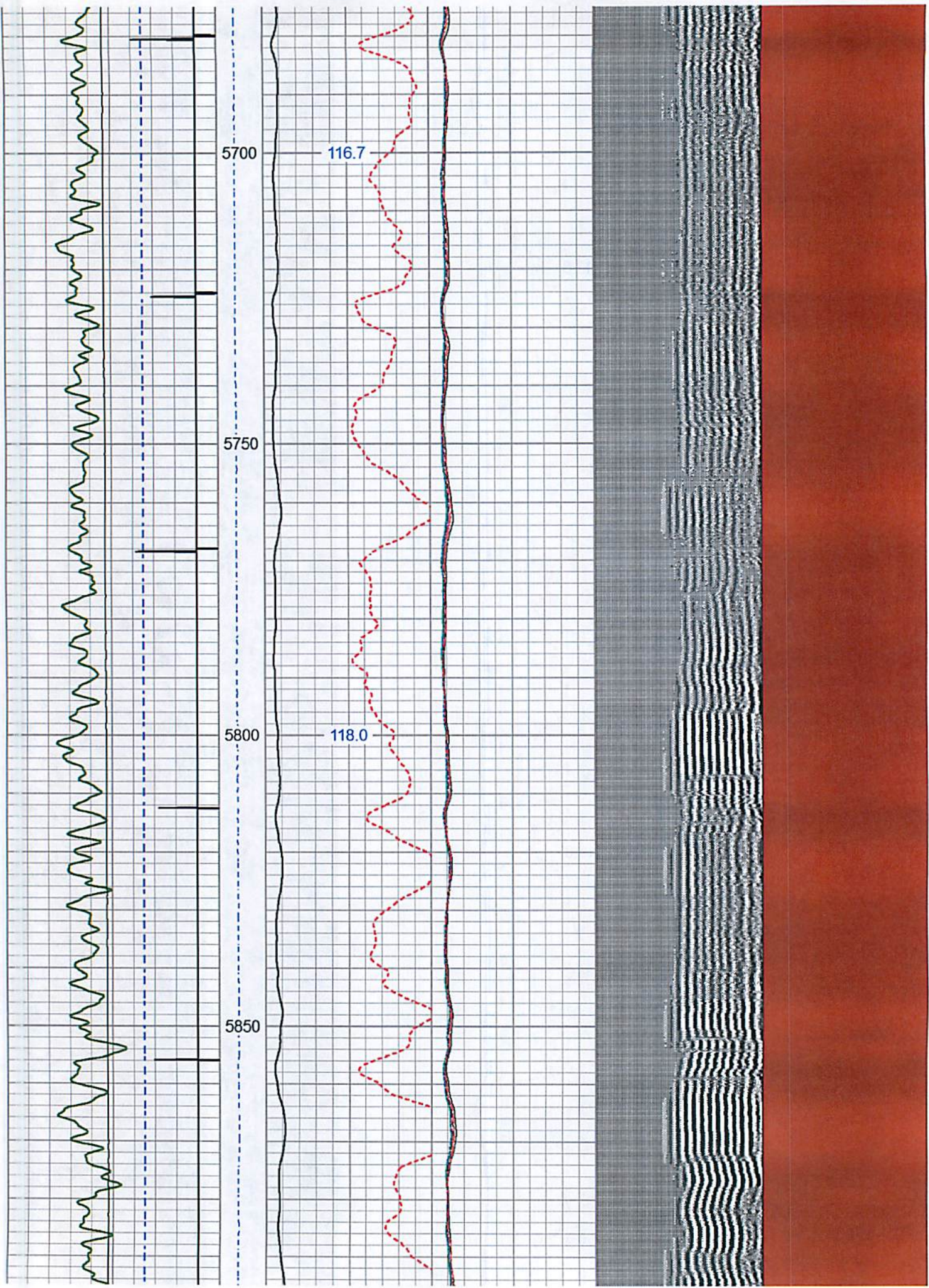


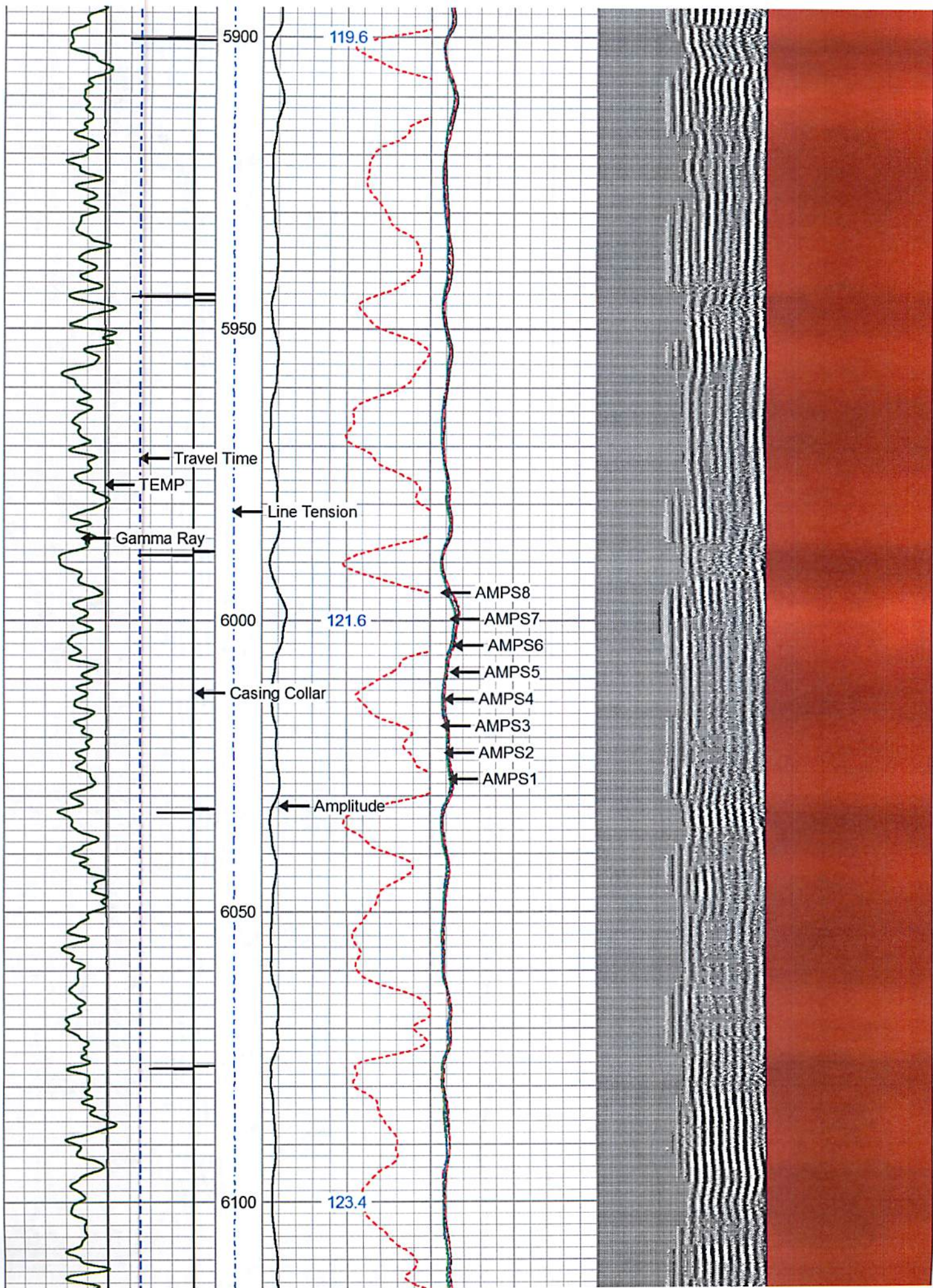


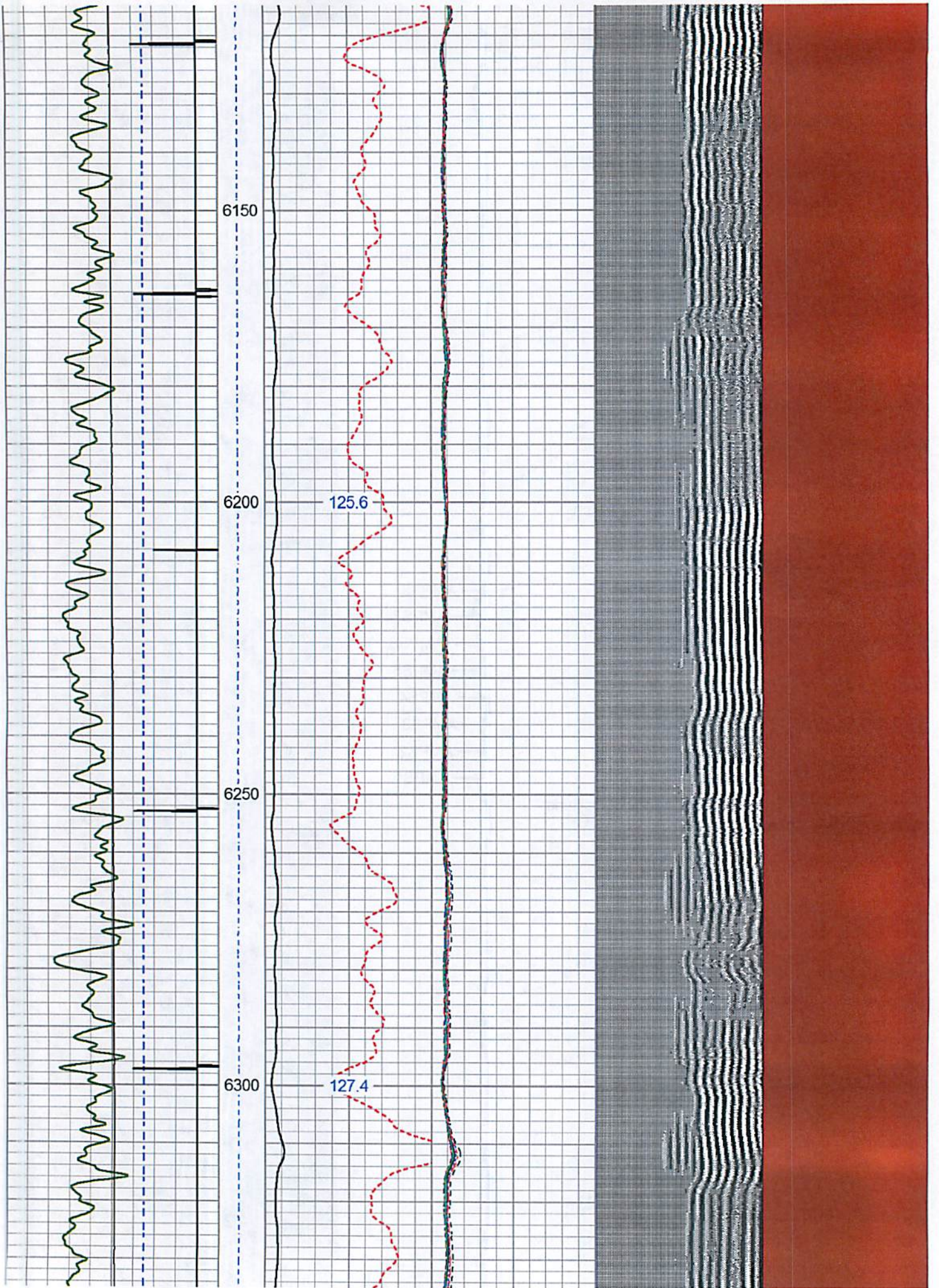


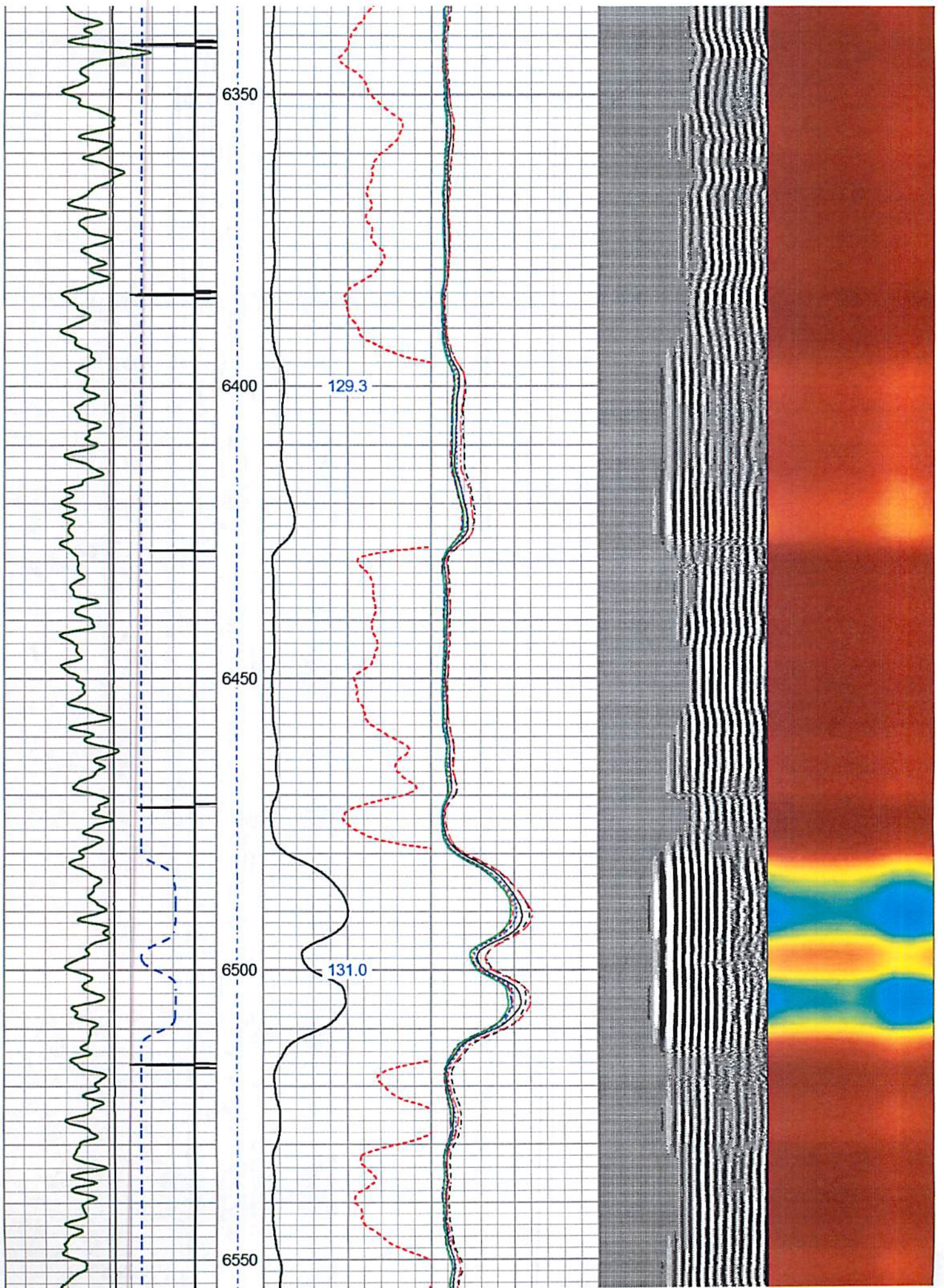


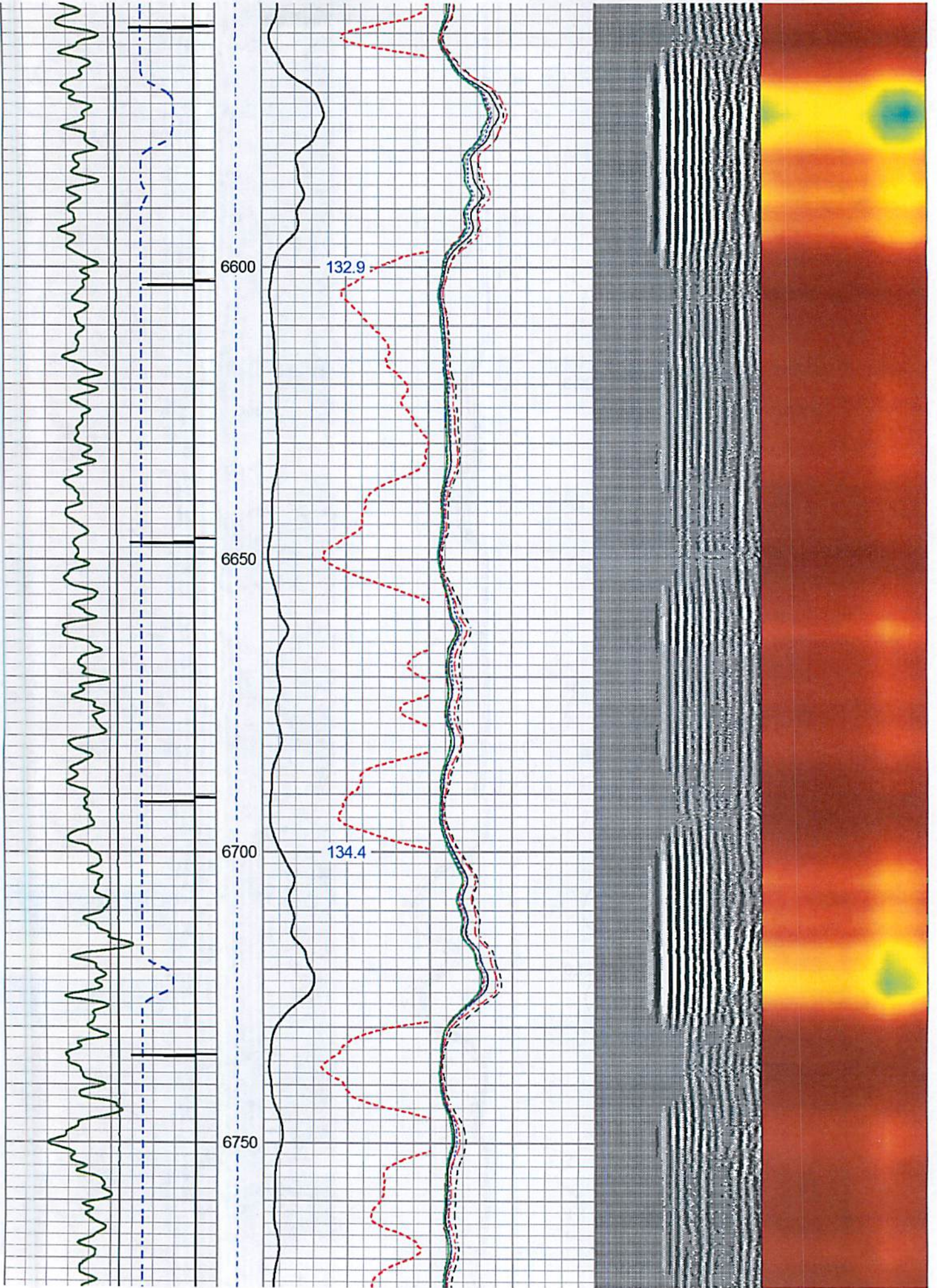


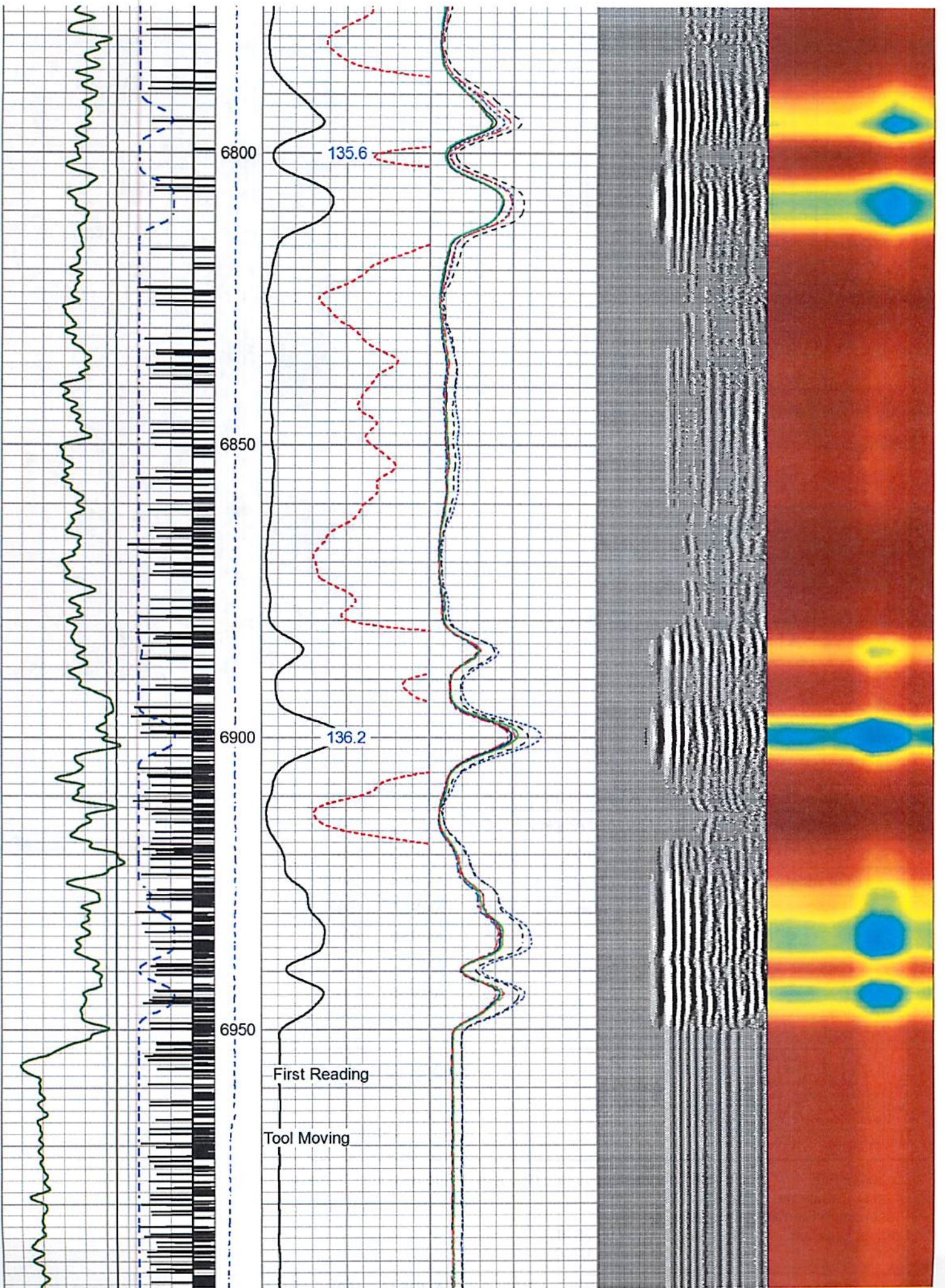


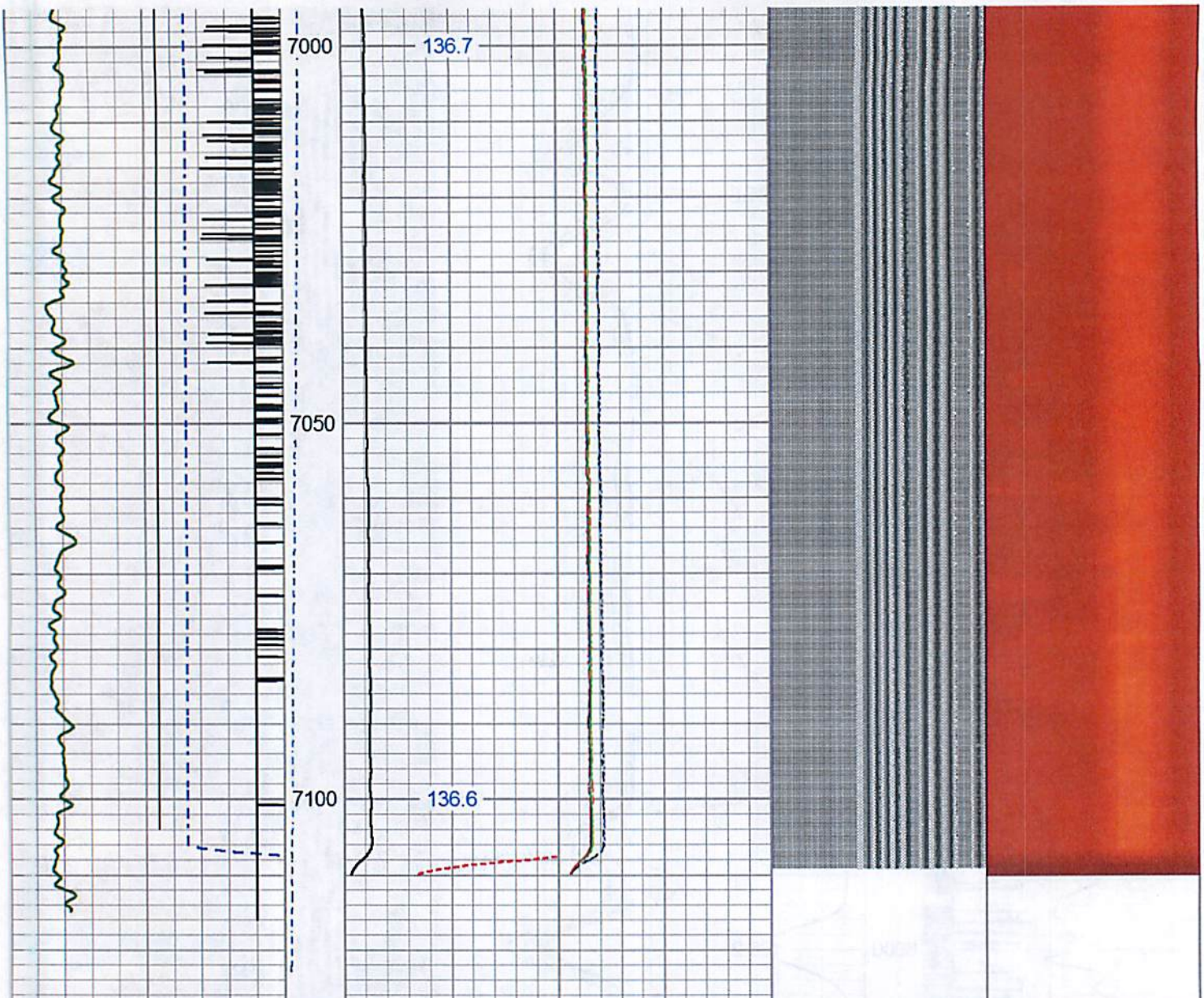












420	Travel Time (usec)	220	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	(lb)	Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	300	(2500)	(mV)	10	-5	AMPS3	150				
0	TEMP (degF)	250		TEMP		-5	AMPS4	150				
				(degF)		-5	AMPS5	150				
						-5	AMPS6	150				
						-5	AMPS7	150				
						-5	AMPS8	150				



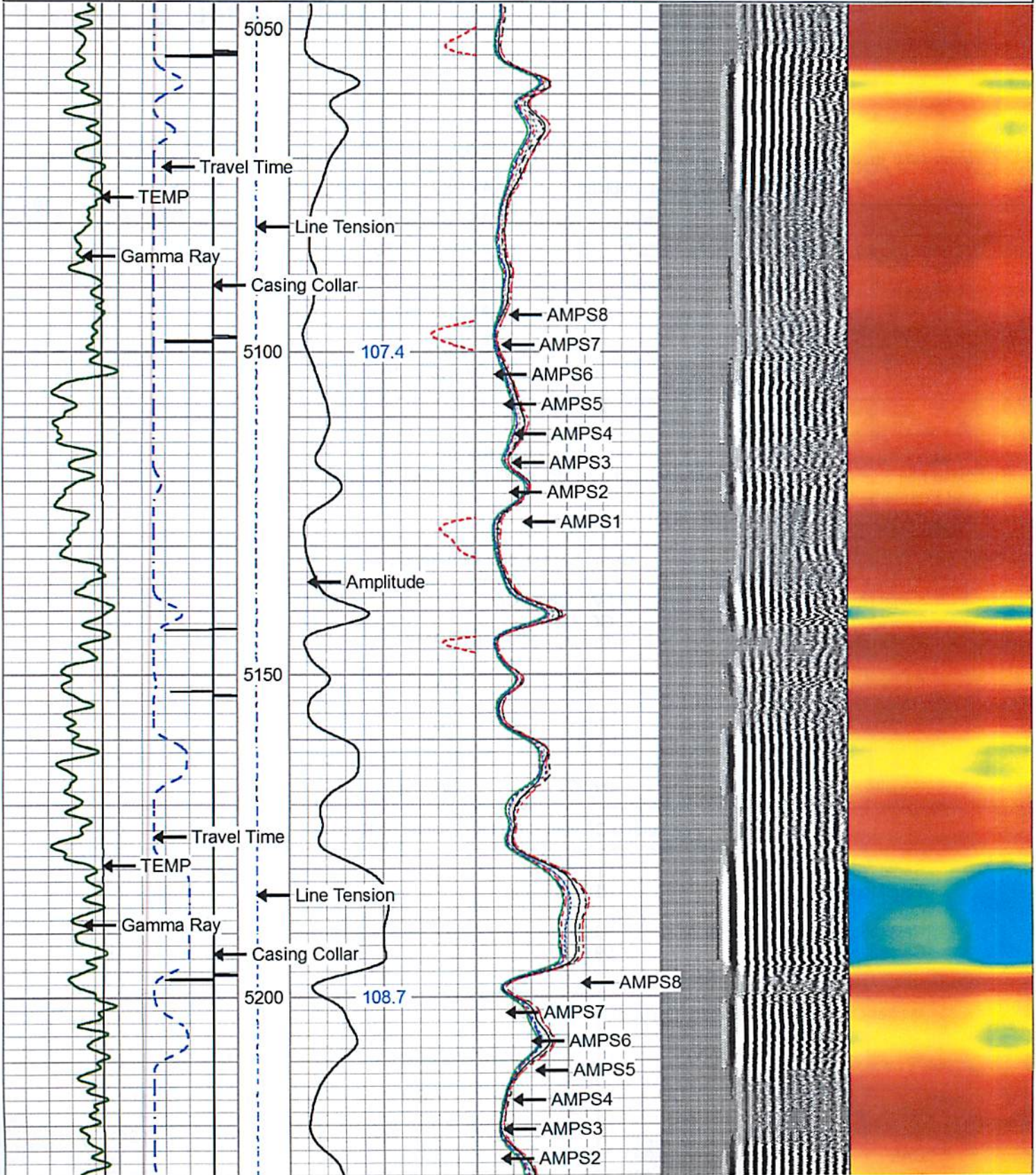
0 PSI REPEAT PASS

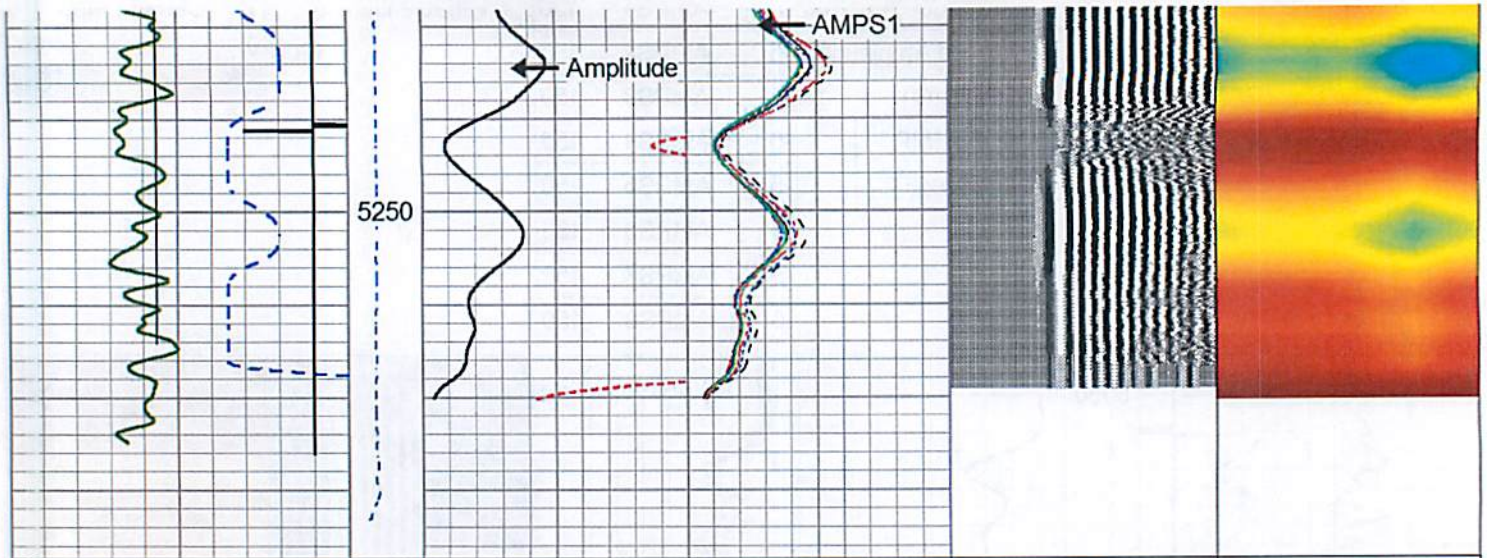
Scale 1:240

Database File c:\users\user\desktop\antero neat logs\antero resources_jameson_unit1h_rcbl.db
 Dataset Pathname pass2
 Presentation Format ahws_rcbl_jc
 Dataset Creation Thu Dec 13 11:54:09 2018
 Charted by Depth in Feet scaled 1:240

420	Travel Time (usec)	220	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
-----	--------------------	-----	---	----------------	-----	----	-------	-----	------------------	---	------------	---

420	Travel Time (usec)	220	Amplitude (mV)	100	AMPS1	150	Variable Density	0	Cement Map	100
9	Casing Collar	-1	Amplified Amplitude	-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	300	(mV)	10	-5	AMPS3	150			
0	TEMP (degF)	250	TEMP	-5	AMPS4	150				
			(degF)	-5	AMPS5	150				
				-5	AMPS6	150				
				-5	AMPS7	150				
				-5	AMPS8	150				





420	Travel Time (usec)	220	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	(lb)	Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	300	(2500)	(mV)	10	-5	AMPS3	150				
0	TEMP (degF)	250		TEMP		-5	AMPS4	150				
				(degF)		-5	AMPS5	150				
						-5	AMPS6	150				
						-5	AMPS7	150				
						-5	AMPS8	150				

Calibration Report

Database File c:\users\user\desktop\antero neat logs\antero resources_jameson_unit1h_rcbl.db
 Dataset Pathname Main Pass
 Dataset Creation Thu Dec 13 13:54:44 2018

Gamma Ray Calibration Report

Serial Number: FW1408-38 Corr
 Tool Model: GC_C3
 Performed: Thu May 25 15:00:07 2017

Calibrator Value: 1636.0 GAPI

Background Reading: 40.1 cps
 Calibrator Reading: 1964.2 cps

Sensitivity: 0.8503 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1406-126
 Tool Model: RBTC3 Temp

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 593.242 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.007	0.216	1.000	72.000	318.622	3.241
CAL	-0.010	0.383				
5'	0.006	0.105	1.000	70.000	351.053	3.040

3' SUM	-0.000	0.193	1.000	12.000	334.033	3.010
S1	-0.007	0.223	0.000	100.000	433.799	3.073
S2	-0.007	0.222	0.000	100.000	436.573	3.082
S3	-0.007	0.219	0.000	100.000	441.020	3.207
S4	-0.007	0.214	0.000	100.000	451.268	3.270
S5	-0.007	0.209	0.000	100.000	462.916	3.185
S6	-0.007	0.207	0.000	100.000	467.543	3.256
S7	-0.007	0.213	0.000	100.000	454.442	3.308
S8	-0.007	0.216	0.000	100.000	446.894	3.285

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.010	0.383	1.000	0.000

Air Zero Calibration, performed Thu Feb 15 08:40:59 2018:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.000		0.000		0.000	
5'	0.000		0.000		0.000	
SUM						
S1	0.000		0.000		0.000	
S2	0.000		0.000		0.000	
S3	0.000		0.000		0.000	
S4	0.000		0.000		0.000	
S5	0.000		0.000		0.000	
S6	0.000		0.000		0.000	
S7	0.000		0.000		0.000	
S8	0.000		0.000		0.000	

Log Variables

Database: users\user\desktop\antero neat logs\antero resources_jameson_unit1h_rcbl.db
 Dataset field/well/run1/Main Pass/_vars_


Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in 8.625	degF 136	in 5.5	in 0.415	lb/ft 23	mV 72	mV 1
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft 0.8	0	usec 260	degF 40	ft 0			

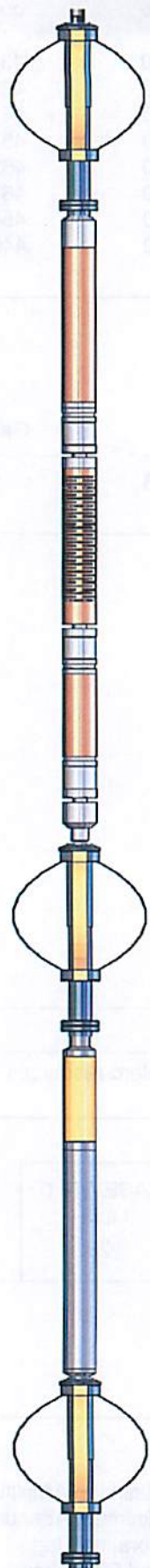
Variable Description

BHTEMP_Src : BHTEMP Input Source Selector
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.
 CASETHCK : Casing Thickness
 CASEWGHT : Casing Weight
 MAXAMPL : Maximum Amplitude

MINAMPL : Minimum Amplitude
 MINATTN : Minimum Attenuation
 PERFS : Perforation Flag
 PPT : Predicted Pipe Time
 SRFTEMP : Surface Temperature
 TDEPTH : Total Depth

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CHD-STNDRD (GOI)	1.00	1.69	10.00

Standard Cable Head



CENT-Probe275
Probe 2.75\"/>

2.88 1.69 36.00

Temp 17.35

RBT-RBTC3 Temp (FW1406-126)
Probe 2.75\"/>

9.39 2.75 90.00

WVFS8 15.12
WVFS7 15.12
WVFS6 15.12
WVFS5 15.12
WVFS4 15.12
WVFS3 15.12
WVFS2 15.12
WVFS1 15.12
WVFCAL 15.12
WV3FT 15.12
WV5FT 14.12

CENT-Probe275
Probe 2.75\"/>

2.88 1.69 36.00

CCL 7.09

GR 6.01

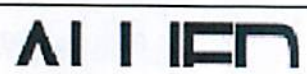
GR-GC_C3 (FW1408-38 Corr)
Probe 2.75\"/>

5.10 2.75 55.00

CENT-Probe275
Probe 2.75\"/>

2.88 1.69 36.00

Dataset: antero_resources_jameson_unit1h_rcbl.db: field/well/run1/Main Pass
Total length: 24.15 ft
Total weight: 263.00 lb
O.D.: 2.75 in



Company Antero Resources



Well	Jameson 1H
Field	Marcellus
County	Tyler
State	West Virginia

Country

LATITUDE 39°27'30"

5,974'

495' TO BOTTOM HOLE

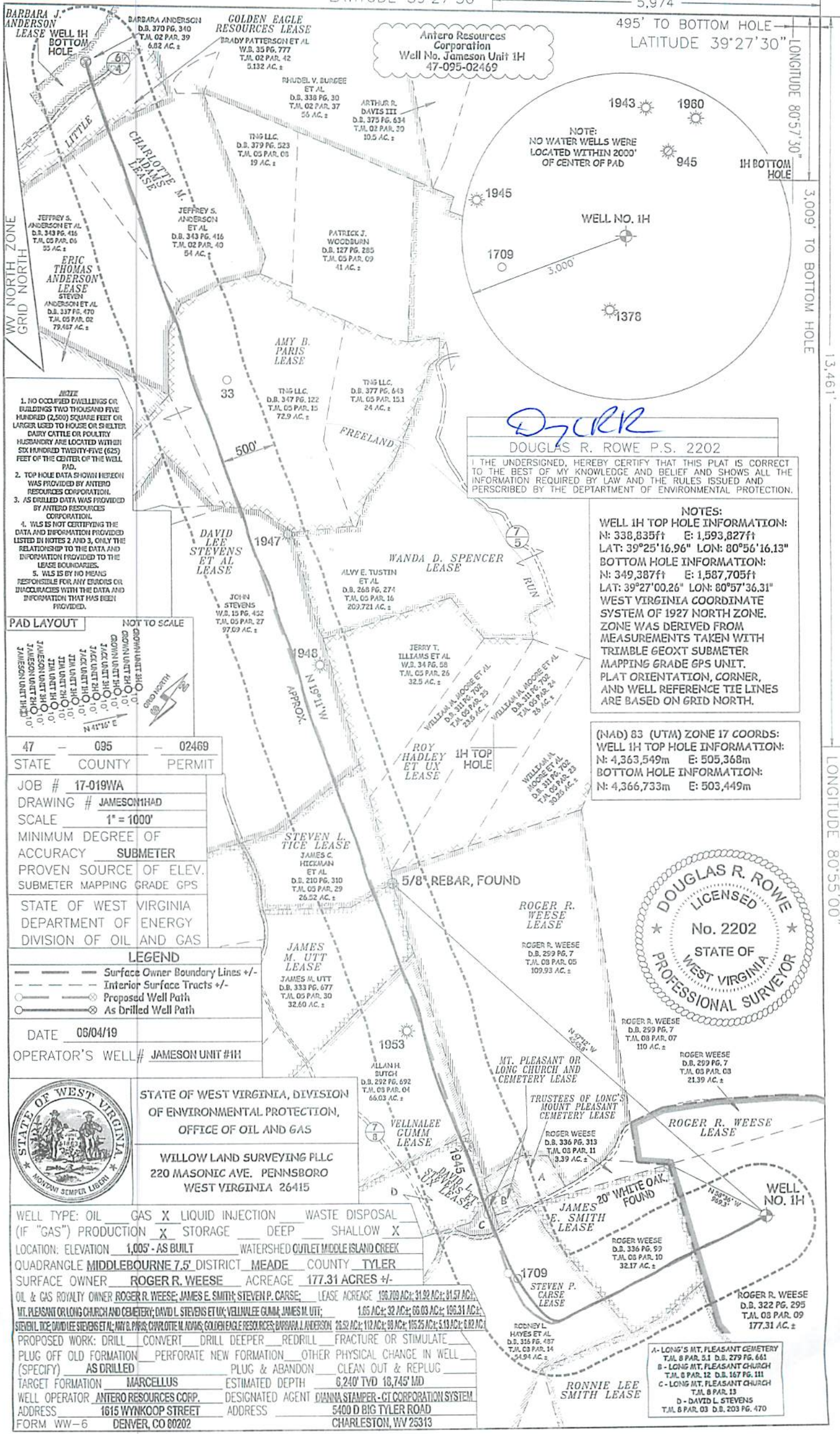
LATITUDE 39°27'30"

LONGITUDE 80°57'30"

3,009' TO BOTTOM HOLE

13,461'

LONGITUDE 80°55'00"



Antero Resources Corporation
Well No. Jameson Unit 1H
47-095-02469

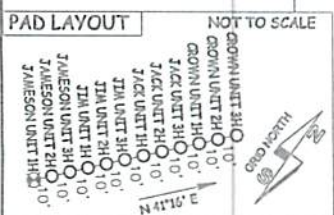
D. Rowe
DOUGLAS R. ROWE P.S. 2202
I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

NOTES:
WELL 1H TOP HOLE INFORMATION:
N: 338,835ft E: 1,593,827ft
LAT: 39°25'16.96" LON: 80°56'16.13"
BOTTOM HOLE INFORMATION:
N: 349,387ft E: 1,587,705ft
LAT: 39°27'00.26" LON: 80°57'36.31"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 4,363,549m E: 505,368m
BOTTOM HOLE INFORMATION:
N: 4,366,733m E: 503,449m



- NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER, USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 5. WLS IS BY HIS MFG RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



47	095	02469
STATE	COUNTY	PERMIT

JOB #	17-019WA
DRAWING #	JAMESON1HAD
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	SUBMETER
PROVEN SOURCE OF ELEV.	SUBMETER
SUBMETER MAPPING GRADE GPS	
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS	

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Proposed Well Path
- As Drilled Well Path

DATE 06/04/19
OPERATOR'S WELL# JAMESON UNIT #1H



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
LOCATION: ELEVATION 1,005' - AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE MIDDLEBOURNE 7.5' DISTRICT MEADE COUNTY TYLER
SURFACE OWNER ROGER R. WEESE ACREAGE 177.31 ACRES +/-
OIL & GAS ROYALTY OWNER ROGER R. WEESE; JAMES E. SMITH; STEVEN P. CARSE; LEASE ACREAGE 126.709 AC.; 31.92 AC.; 81.57 AC.;
MT. PLEASANT OR LONG CHURCH AND CEMETERY; DAVID L. STEVENS ET UX; VELLNALEE CUMM; JAMES M. UTT; 1.65 AC.; 32 AC.; 66.03 AC.; 100.31 AC.;
STEVEN L. TICE; DAVID L. STEVENS ET UX; AMY B. PARIS; CHARLOTTE M. ADAMS; GOLDEN EAGLE RESOURCES; BARBARA J. ANDERSON; 26.52 AC.; 112 AC.; 99 AC.; 105.25 AC.; 5.13 AC.; 6.82 AC.;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,240' TVD 18,745' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

- A - LONG'S MT. PLEASANT CEMETERY T.M. 8 PAR. 5.1 D.B. 279 PG. 661
- B - LONG MT. PLEASANT CHURCH T.M. 8 PAR. 12 D.B. 167 PG. 111
- C - LONG MT. PLEASANT CHURCH T.M. 8 PAR. 13
- D - DAVID L. STEVENS T.M. 8 PAR. 03 D.B. 203 PG. 470