HALLIBURTON | Sperry Drilling

BAT Bi-Modal Acoustic
DGR Dual Gamma Ray
EWR-Phase 4
ALD Azimuthal Lithodensity
CTN Compensated Thermal Neutron

1 : 600 / 1 : 240

Company : **Great Bear Petroleum, LLC**
Rig : **Nabors 105E**
Well : **Alcor 1**
Field : **Alcor**
Country : **USA**
API Number : **50-223-20026-00**

Country : **USA**
Field : **Alcor**
Location : **Lat: 69° 59' 26.11" North Long: 148° 40' 40.99" West**
Well : **Alcor 1**
Company : **Great Bear Petroleum, LLC**
Rig : **Nabors 105E**

LOCATION
Latitude : **69° 59' 26.11" North**
Longitude : **148° 40' 40.99" West**
ASP Zn 4: Y = 5,847,838.30 ft
ASP Zn 4: X = 665,672.48 ft

Other Services
DDSr PWD

Permanent Datum : **Mean Sea Level** Elevation : **0.00 ft**
Log Measured From : **Drill Floor** **186.00 ft** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB
DF **186.00 ft**
GL **163.70 ft**
WD

Depth Logged : **102.00 ft** To **10,812.00 ft**
Date Logged : **16-Jun-12** To **09-Aug-12**
Total Depth MD : **10,812.00 ft** TVD : **10,802.05 ft**
Spud Date : **16-Jun-12**

Unit No. : **117**
Plot Type : **Final**
Plot Date : **31-Oct-12**
Job No. : **AK-XX-0009285348**

Run No.	Borehole Record (MD) Size	From	To
1	12.250 in	102.00 ft	2,510.00 ft
2	8.500 in	2,510.00 ft	6,364.00 ft
3	8.500 in	6,364.00 ft	8,320.00 ft
4	6.125 in	8,320.00 ft	8,348.00 ft
5	6.125 in	8,348.00 ft	8,640.00 ft
6	6.125 in	8,640.00 ft	8,676.00 ft
8	6.125 in	8,676.00 ft	10,015.00 ft
9	6.125 in	10,015.00 ft	10,103.00 ft
10	6.125 in	10,103.00 ft	10,574.00 ft
11	6.125 in	10,574.00 ft	10,603.00 ft
12	6.125 in	10,603.00 ft	10,662.00 ft

Run No.	Borehole Record (MD) Size	From	To
13	6.125 in	10,662.00 ft	10,812.00 ft

Casing Record (MD)

Size	Weight	From	To
16.000 in	52.40 lbpf	SURFACE	80.00 ft
9.562 in	46.20 lbpf	SURFACE	2,491.00 ft
7.000 in	28.70 lbpf	SURFACE	8,311.00 ft

WELL INFORMATION

MWD Run Number	1400																							
Date run completed	09-Aug-12																							
Rig Bit Number	14																							
Bit Size (in)	6.125																							
Tool Nominal OD (in)	4.750																							
Log Start Depth (MD, ft)	8,311.00																							
Log End Depth (MD, ft)	10,812.00																							
Drill or Wipe	Wipe																							
Drill/Wipe Start Date and Time	07-Aug-12 23:29																							
Drill/Wipe End Date and Time	08-Aug-12 19:10																							
Min Inc (deg) @ Depth (MD, ft)	0.52 @ 10,731.00																							
Max Inc (deg) @ Depth (MD, ft)	0.57 @ 10,812.00																							
Bit TFA(in2) / Bit Type	0.46 / PDC																							
Flow Rate (gpm)	150.00																							
Max AV (fpm) / CV (fpm) @ MWD	823.0 / 439.0																							
Fluid Type	Polymer																							
Density (ppg) / Viscosity (spqt)	11.20 / 48.00																							
Filtrate CL (ppm)	36,000.00																							
pH / Fluid Loss (mptm)	10.40 / 10																							
PV (cP) / YP (lhf2)	14 / 19.00																							
% Solids / % Sand	11.30 / 0.00																							
% Oil / Oil:Water Ratio	0.0 / 0.0:86																							
Rm @ Measured Temp (degF)	1.800 @ 74.00																							
Rmf @ Measured Temp (degF)	1.000 @ 74.00																							
Rmc @ Measured Temp (degF)	2.000 @ 74.00																							
Max Tool Temp (degF) / Source	211.00 / DDSr-DGR																							

Rm @ Max Tool Temp (degF)	0.6676 @ 211.00				
Lead MWD Engineer	William Cartwright				
Customer Representative	Mike Grubb				

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM				
Software Version	88.47				
Sub Serial Number	10486771				
Insert Serial Number	10911837				
Date and Time Initialized	07-Aug-12 12:09				
Date and Time Read	09-Aug-12 03:26				
ECMB SW Version	N/A				

Directional Sensor Information

Tool Type	PCDC				
Distance From Bit (ft)	30.86				
Software Version	6.21				
Sub Serial Number	11837503				
Sonde Serial Number	10809536				
Sensor ID Number	N/A				
Toolface Offset (deg)	N/A				

Gamma Ray Sensor Information

Tool Type	DGR				
Distance From Bit (ft)	19.46				
Recorded Sample Period (sec)	10				
Software Version	N/A				
Sub Serial Number	10506926				
Insert/Sonde Serial Number	10436096				

Resistivity Sensor Information

Tool Type	Slim P4				
Distance From Bit (ft)	12.54				
Recorded Sample Period (sec)	10				
Software Version	5.55				
Sub Serial Number	10486771				
Receiver Insert Serial Number	10911837				
Transmitter Insert Serial Number	10452017				
Receiver Orientation	Up				

Neutron Sensor Information

Tool Type	CTN				
Distance From Bit (ft)	55.75				
Recorded Sample Period (sec)	10				
Sub Serial Number	10837382				
Insert Serial Number	10907163				
Source Serial Number	5931NN/5932NN				
Source Factor	N/A				
Pin Orientation	Down				

Density Sensor Information

Tool Type	ALD				
Distance From Bit (ft)	41.06				
Recorded Sample Period (sec)	10				

Software Version	3.04				
Sub Serial Number	249341				
Insert Serial Number	239217				
Sensor ID Number	32767				
Source Serial Number	31779B				
Pin Orientation	Down				
Stabilizer Blade O.D. (in)	5.75				
DPA Offset	200.00				

Sonic Sensor Information

Tool Type	BAT				
Distance From Bit (ft)	93.78				
Recorded Sample Period (sec)	10				
Sub Serial Number	90335108				
Receiver Insert Serial Number	10499545				
Transmitter Insert Serial Number	10442003				
MIT File	R5Max_Run_f6.mi				
Config File	N/A				
Real-Time Window (uspf)	80 - 140				
Battery Insert Serial Number	11751304				
MCM Software Version	20.08				
DAQ1/DAQ2 Software Version	20.01 / 20.01				
DSM Software Version	36.65				

REMARKS

1. ALL DEPTHS ARE MEASURED DEPTHS (MD), UNLESS OTHERWISE NOTED. THESE DEPTHS ARE BIT DEPTHS.

2. ALL VERTICAL DEPTHS ARE TRUE VERTICAL DEPTH (TVD).

3. MWD RUN 100 WAS DIRECTIONAL ONLY AND IS NOT PRESENTED.

4. MWD RUNS 200 AND 300 COMPRISED DIRECTIONAL WITH DUAL GAMMA RAY (DGR), PRESSURE WHILE DRILLING (PWD) AND DRILLSTRING DYNAMICS SENSOR (DDSr).

5. MWD RUN 400 COMPRISED DIRECTIONAL AND GAMMA MODULE (GM).

6. MWD RUN 500 COMPRISED DIRECTIONAL, DGR, PWD, AND DDSr.

7. MWD RUNS 600,900,1100,1200 WERE CORING RUNS - NO MWD TOOLS WERE INCLUDED IN THE BHA'S.

8. NO PROGRESS WAS MADE ON MWD RUN 700 DUE TO A TOOL FAILURE.

9. MWD RUN 800 COMPRISED DIRECTIONAL, DGR, PWD, AND DDSr. DGR MAD PASS DATA WERE ACQUIRED OVER THE RUN 6 CORED INTERVAL WHILE RIH.

10. MWD RUN 1000 COMPRISED DIRECTIONAL, DGR, ELECTROMAGNETIC WAVE RESISTIVITY PHASE-4 (EWR-P4), COMPENSATED THERMAL NEUTRON (CTN), AZIMUTHAL LITHODENSITY (ALD), BI-MODAL ACOUSTIC TOOL (BAT), PWD, AND DDSr. MAD PASS DATA WERE ACQUIRED FROM CASING SHOE AT 8,311'MD - 10,103'MD WHILE RIH. BAT MAD DATA WERE DEEMED UNRELIABLE DUE TO A PARTIAL TOOL FAILURE.

11. MWD RUN 1300 COMPRISED DIRECTIONAL, DGR, EWR-P4, CTN, ALD, PWD, AND DDSr. THE PULSER FAILED - NO MWD DATA WERE ACQUIRED. HOWEVER, DRILLING CONTINUED TO FINAL TD.

12. MWD RUN 1400 WAS A MAD PASS TO FILL IN GAPS OVER CORED INTERVALS AND OVER THE RUN 13 INTERVAL. DATA WERE ACQUIRED WHILE POOH FROM FINAL TD TO THE CASING SHOE. IT COMPRISED DIRECTIONAL, DGR, EWR-P4, CTN, ALD, BAT, PWD, AND DDSr.

13. MWD RUNS 100-1400 REPRESENT WELL ALCOR 1 WITH API # 50-223-20026-00. THIS WELL REACHED A TOTAL DEPTH OF 10,812'MD/10,802'TVD.

REMARKS

MNEMONICS	CURVE DESCRIPTION
ROPA	AVERAGE RATE OF PENETRATION
RSPD	TOOL RUNNING SPEED DURING MAD PASS
DGRC	DGR COMBINED GAMMA RAY
R09P	9 INCH PHASE RESISTIVITY
R15P	15 INCH PHASE RESISTIVITY
R27P	27 INCH PHASE RESISTIVITY
R39P	39 INCH PHASE RESISTIVITY
EWXT	EWR FORMATION EXPOSURE TIME
TNPS	CTN POROSITY - SANDSTONE
TNFA	CTN FAR AVERAGE COUNT RATE
TNNA	CTN NEAR AVERAGE COUNT RATE
ACDL/ALCDLC	ALD LCRB COMPENSATED DENSITY
ADCL/ALDCLC	ALD LCRB DENSITY CORRECTION
APEL/ALPELC	ALD LCRB Pe FACTOR
ALRP/ALRPM	ALD RPM (SLIDE INDICATOR)
AHSI/ALHSI	ALD HOLE SIZE INDICATOR
BTCS	BAT COMPRESSIONAL SLOWNESS
BCSS/BTCSS	BAT COMBINED SHEAR SLOWNESS
BVPS/BTVPVS	BAT VP/VS RATIO
BSFG/BTSFLAG	BAT SHEAR FLAG

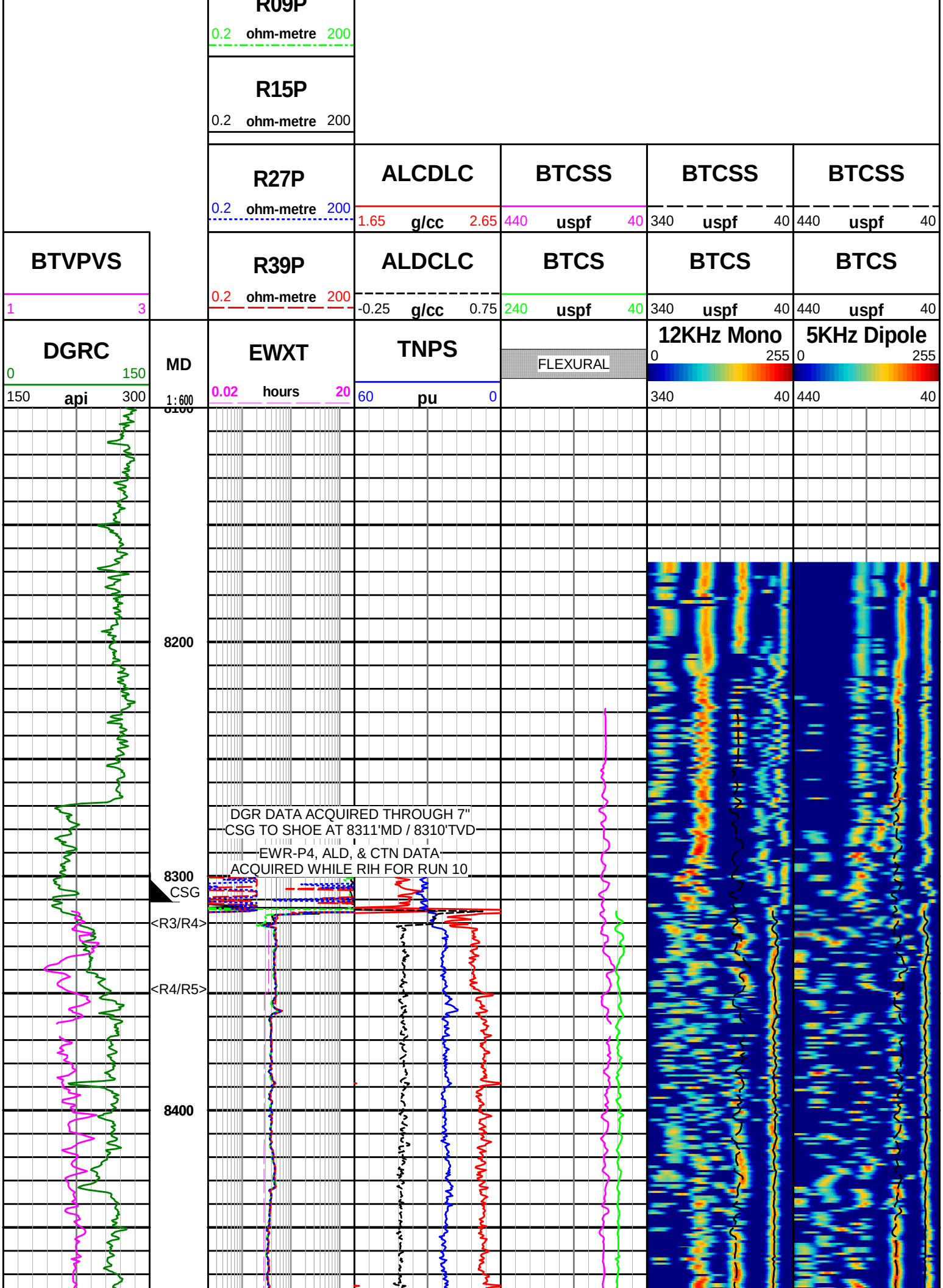
PARAMETERS USED IN NUCLEAR LOG PROCESSING:

HOLE SIZE: 6.125" FIXED
MUD WEIGHT: 10.5 - 11.2 PPG
WHOLE MUD CHLORIDES: 24,000 - 38,000 PPM CL
FORMATION WATER SALINITY: 37,000 PPM CL
FLUID DENSITY: 1.0 G/CC
MATRIX DENSITY 2.65 G/CC
LITHOLOGY: SANDSTONE
TEMPERATURE: DYNAMIC FROM EWR-P4, 133.5ºF @ TD

ALL DATA CURVES ARE SMOOTHED TO A STEP OF 0.5 FT, WITH A WINDOW OF 0.6 FT, EXCEPT FOR ROP AND GAMMA RAY. THESE CURVES ARE SMOOTHED WITH A 1.1 FT WINDOW. GAP FILL IS SET TO 5 FT FOR ALL CURVES.

WARRANTY

	R09P	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0.2 ohm-metre 200
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0.2 ohm-metre 200
ALCDLC
1.65 g/cc 2.65
BTCSS
440 uspf 40
BTCSS
340 uspf 40
BTCSS
440 uspf 40
BTVPVS
1 3
R39P
0.2 ohm-metre 200
ALDCLC
-0.25 g/cc 0.75
BTCS
240 uspf 40
BTCS
340 uspf 40
BTCS
440 uspf 40
DGRC
0 150
150 api 300
MD
1:600
EWXT
0.02 hours 20
TNPS
60 pu 0
FLEXURAL
12KHz Mono
0 255
340 40
5KHz Dipole
0 255
440 40
8200
8300
CSG
8400
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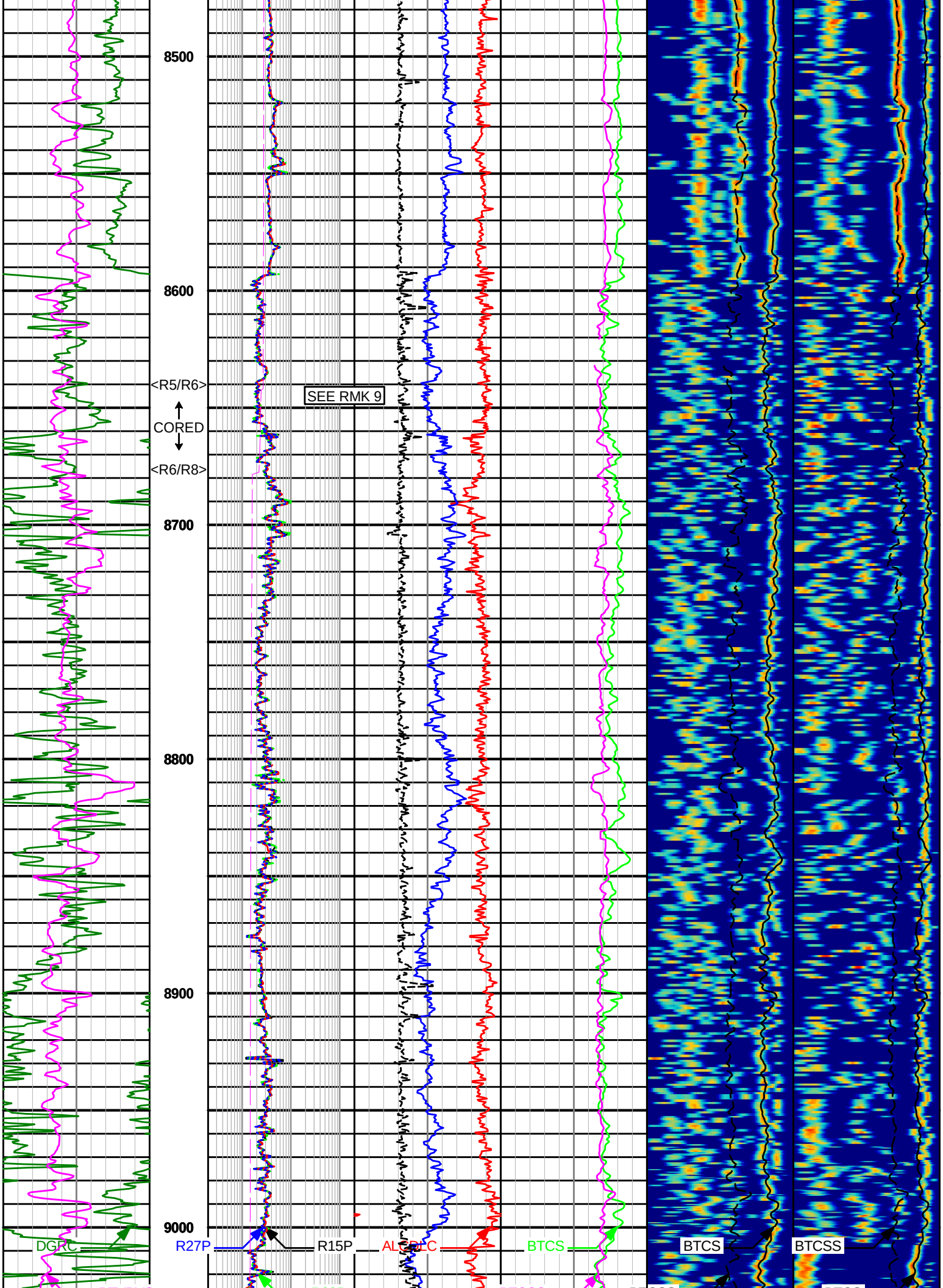
DGR DATA ACQUIRED THROUGH 7"
CSG TO SHOE AT 8311'MD / 8310'TVD
EWR-P4, ALD, & CTN DATA
ACQUIRED WHILE RIH FOR RUN 10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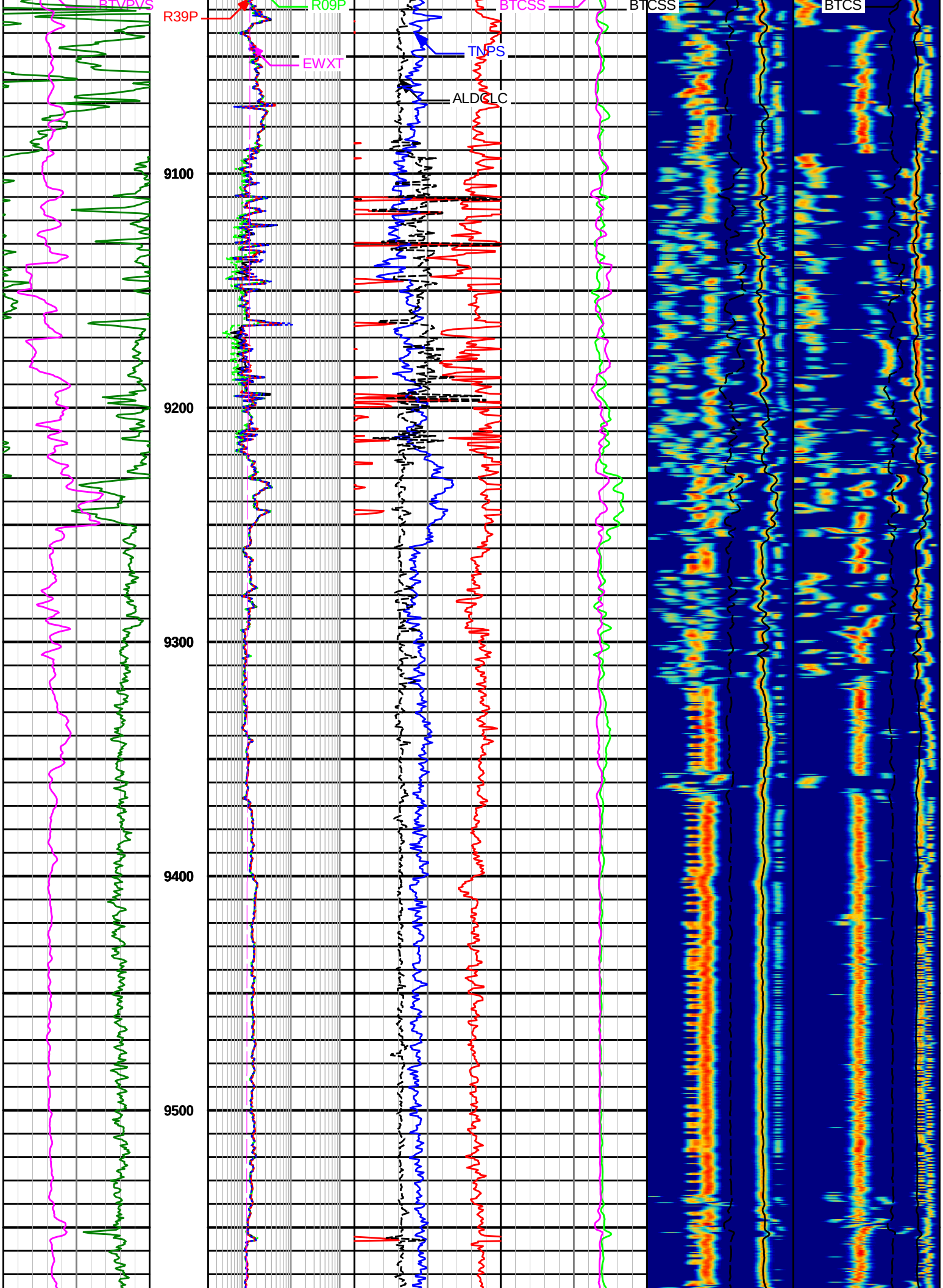
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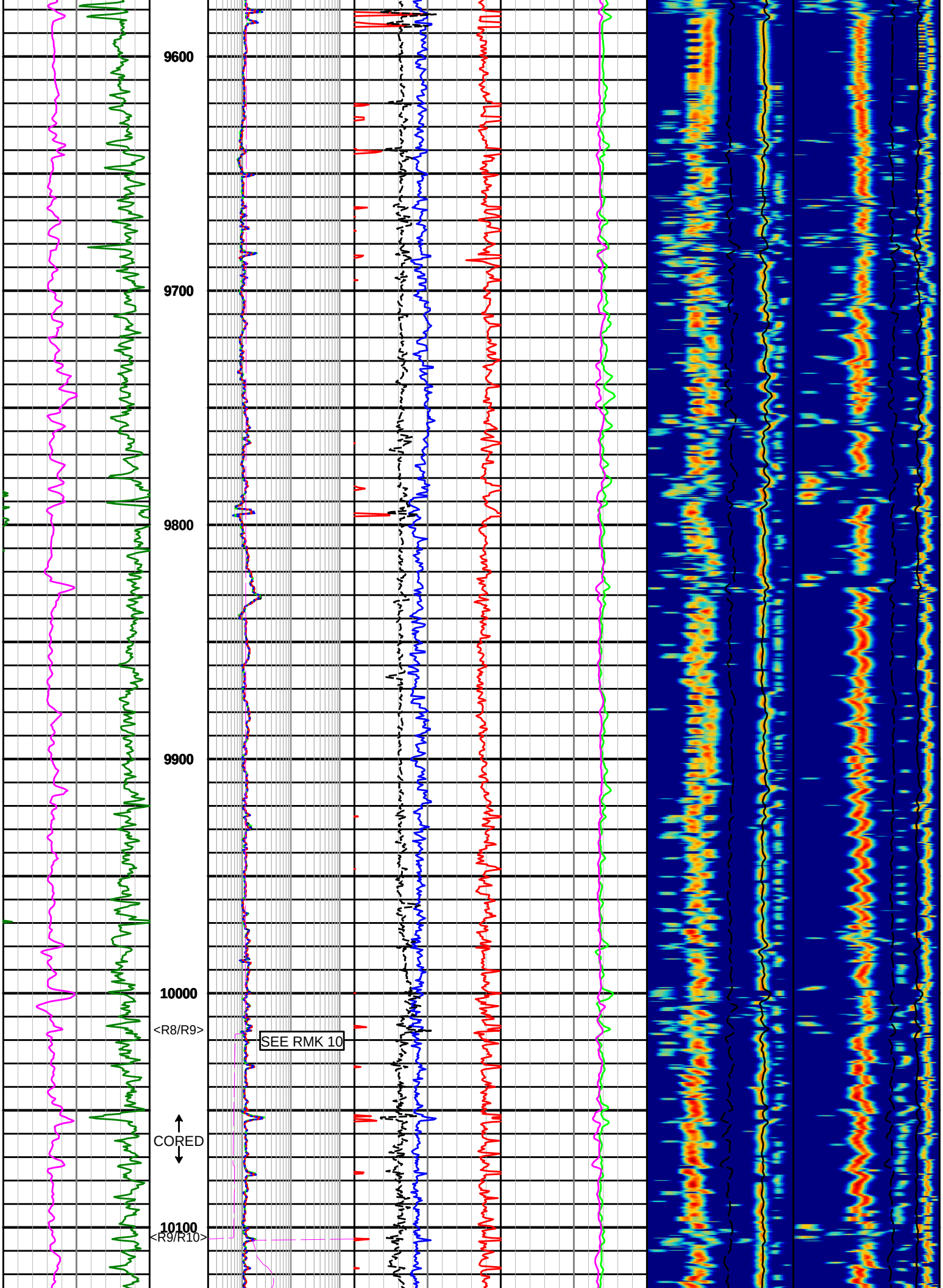
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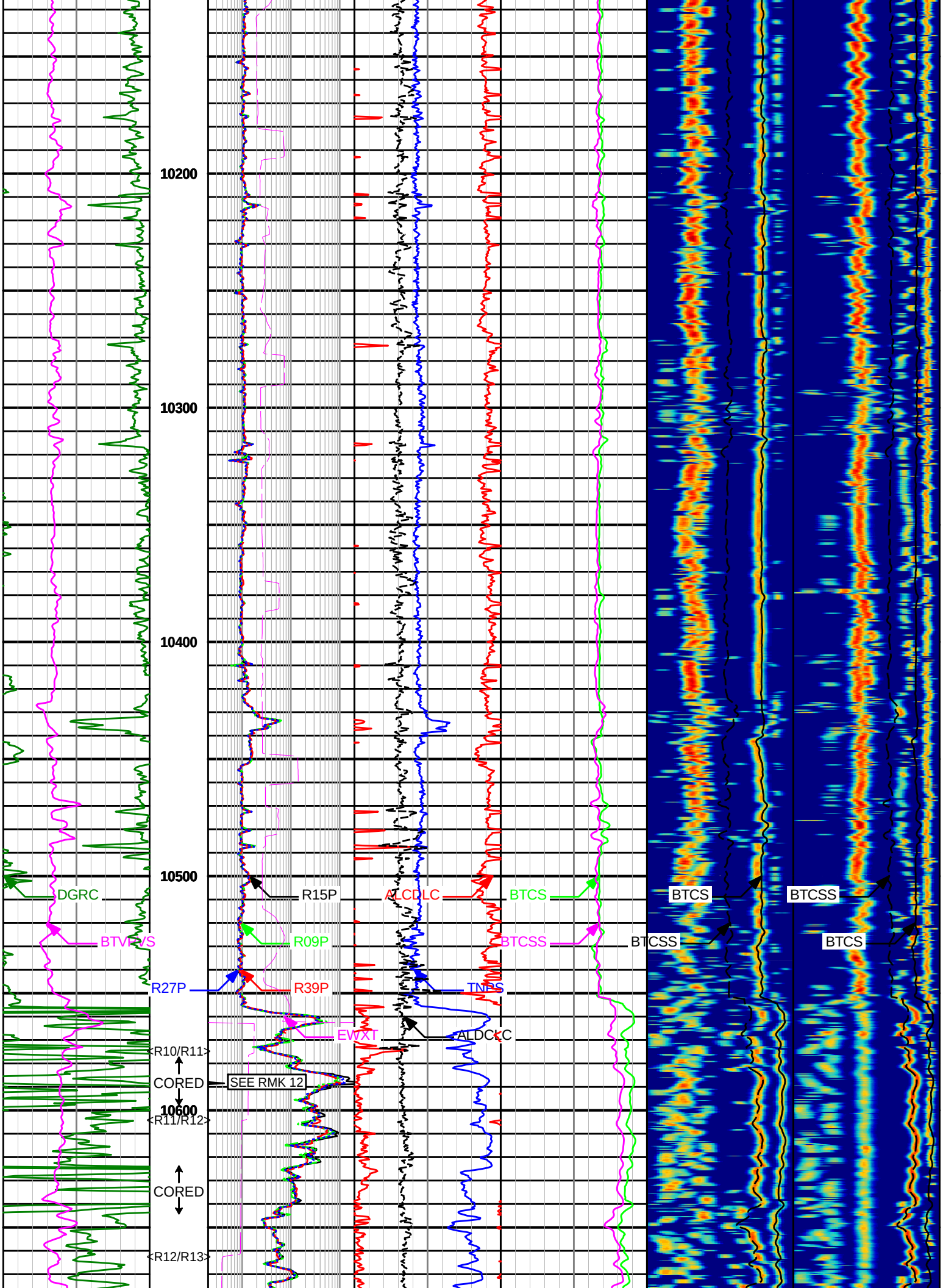
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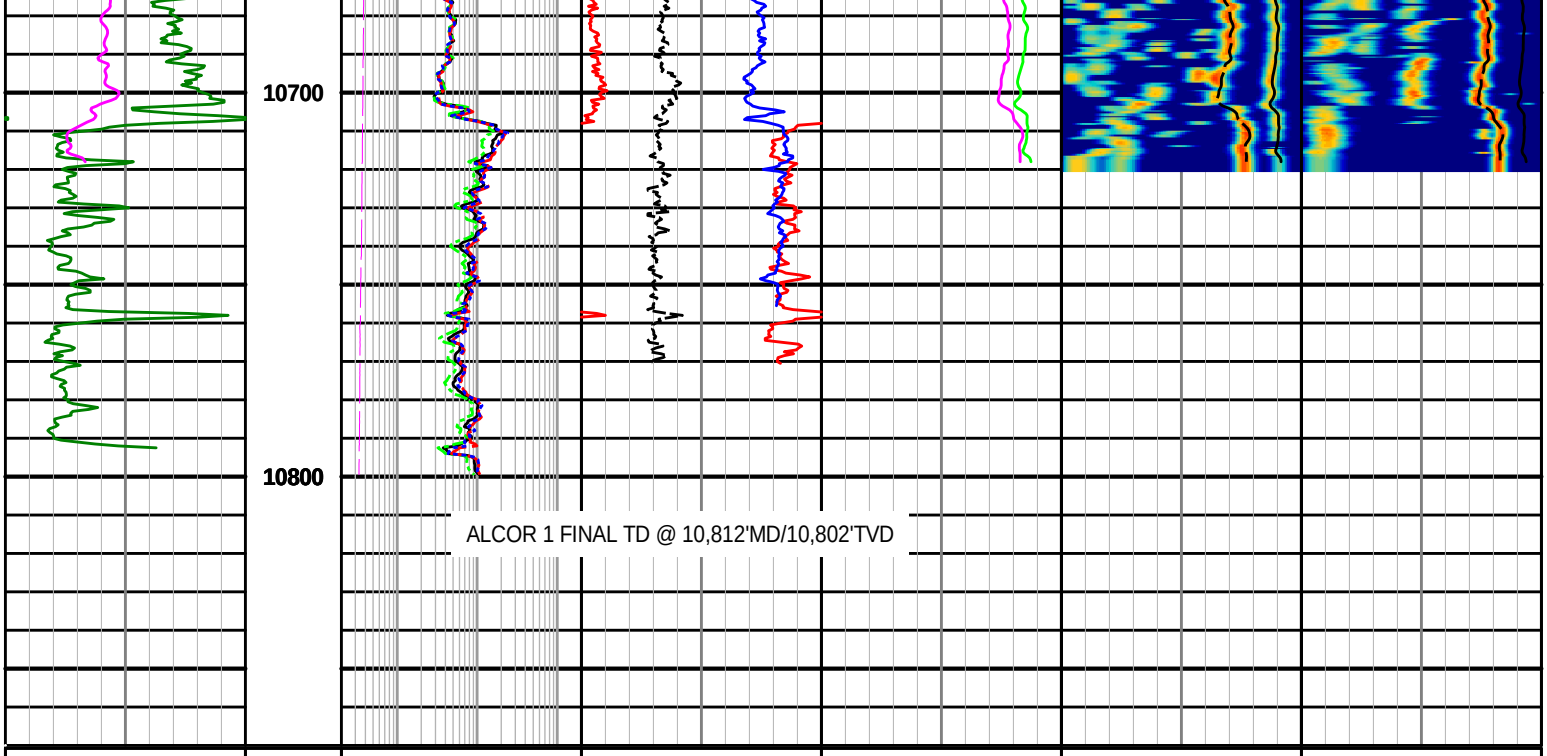

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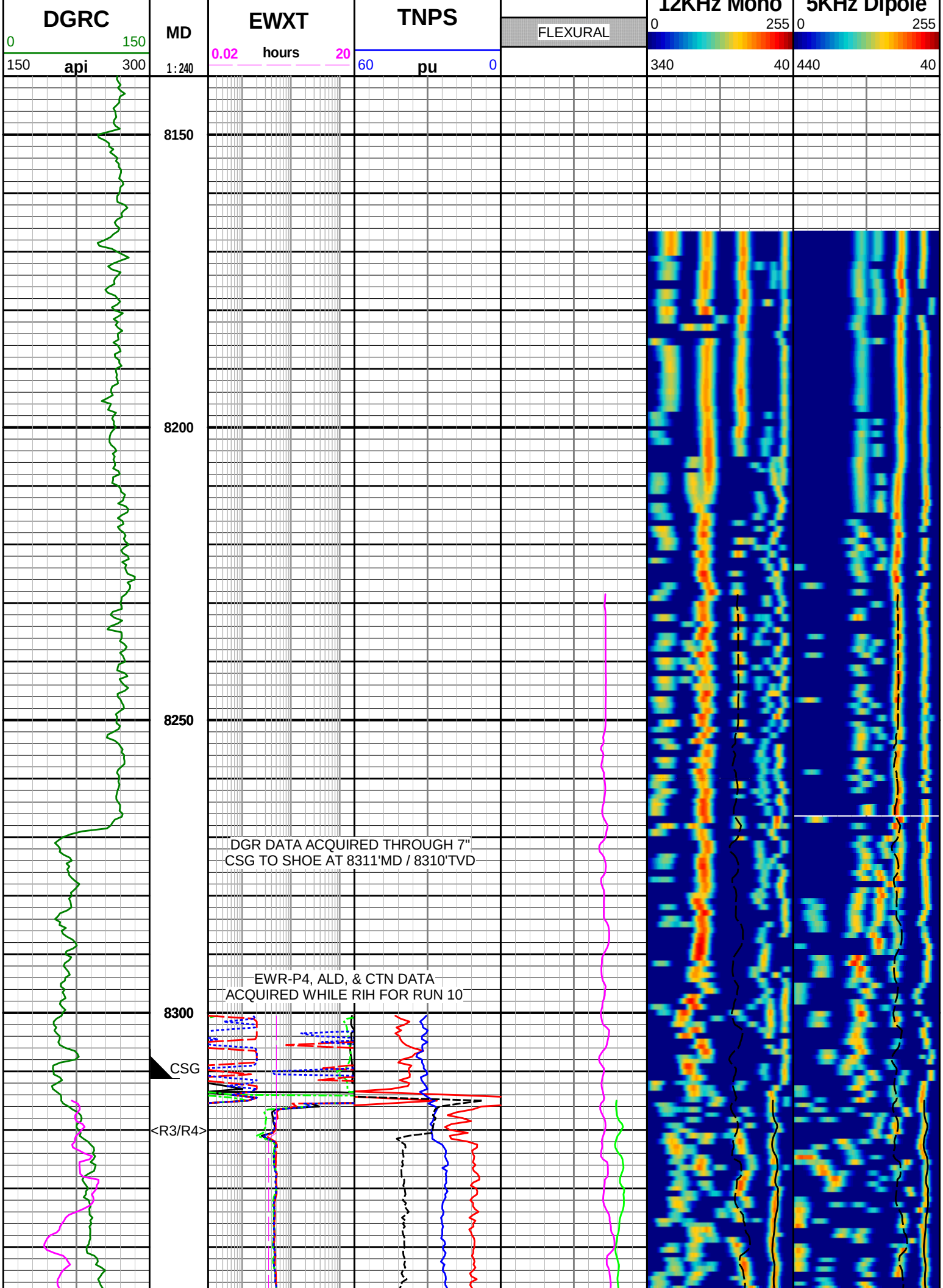
150 api 300	1:600	0.02 hours 20	60 pu 0		340 40	440 40
BTVPVS		R39P	ALDCLC	BTCS	BTCS	BTCS
1 3		0.2 ohm-metre 200	-0.25 g/cc 0.75	240 uspf 40	340 uspf 40	440 uspf 40
		R27P	ALCDLC	BTCSS	BTCSS	BTCSS
		0.2 ohm-metre 200	1.65 g/cc 2.65	440 uspf 40	340 uspf 40	440 uspf 40
		R15P				
		0.2 ohm-metre 200				
		R09P				
		0.2 ohm-metre 200				

		R09P				
		0.2 ohm-metre 200				
		R15P				
		0.2 ohm-metre 200				
		R27P	ALCDLC	BTCSS	BTCSS	BTCSS
		0.2 ohm-metre 200	1.65 g/cc 2.65	440 uspf 40	340 uspf 40	440 uspf 40
BTVPVS		R39P	ALDCLC	BTCS	BTCS	BTCS
1 3		0.2 ohm-metre 200	-0.25 g/cc 0.75	240 uspf 40	340 uspf 40	440 uspf 40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12KHz Mono
0
255
340
40
5KHz Dipole
0
255
440
40
8150
8200
8250
8300
DGR DATA ACQUIRED THROUGH 7"
CSG TO SHOE AT 8311'MD / 8310'TVD
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ACQUIRED WHILE RIH FOR RUN 10
CSG
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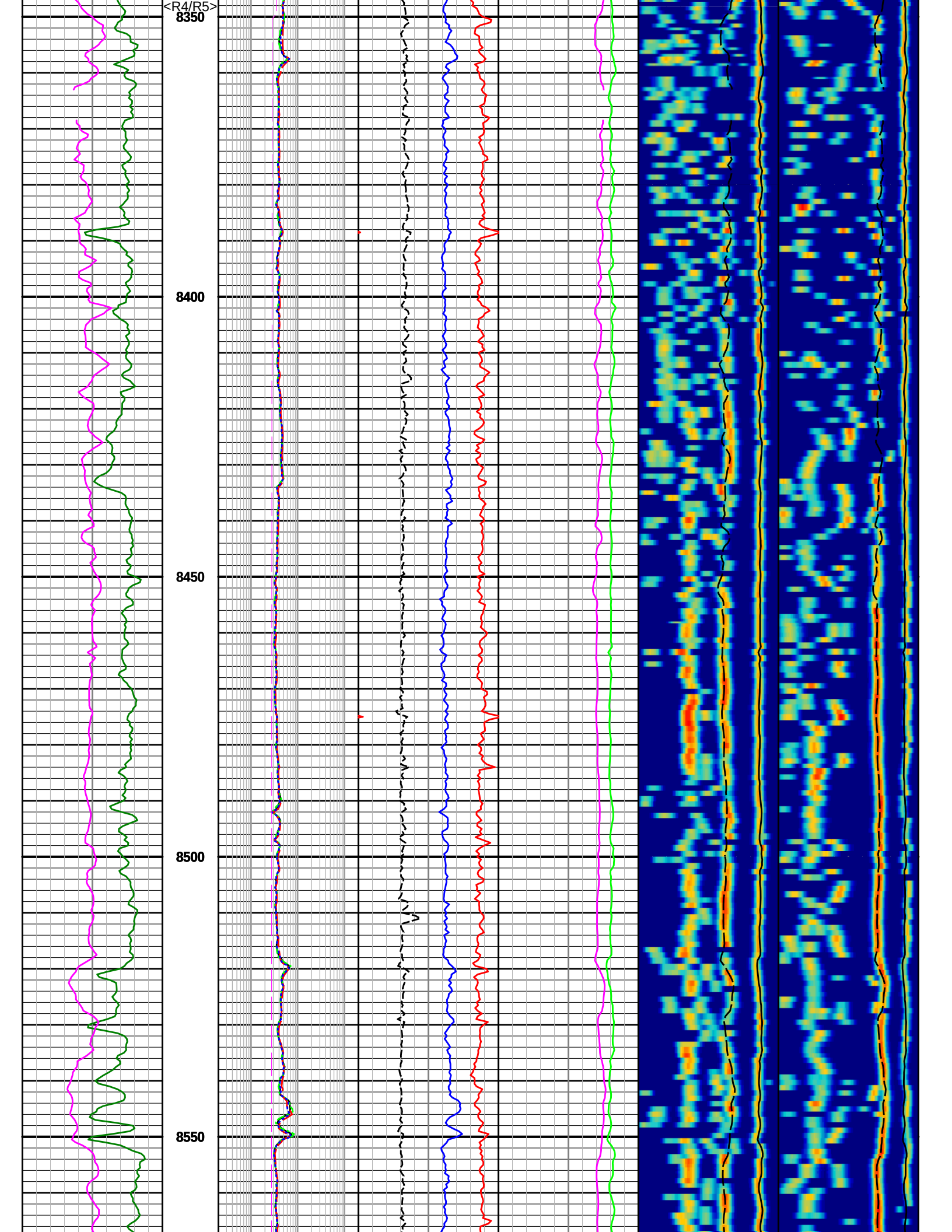
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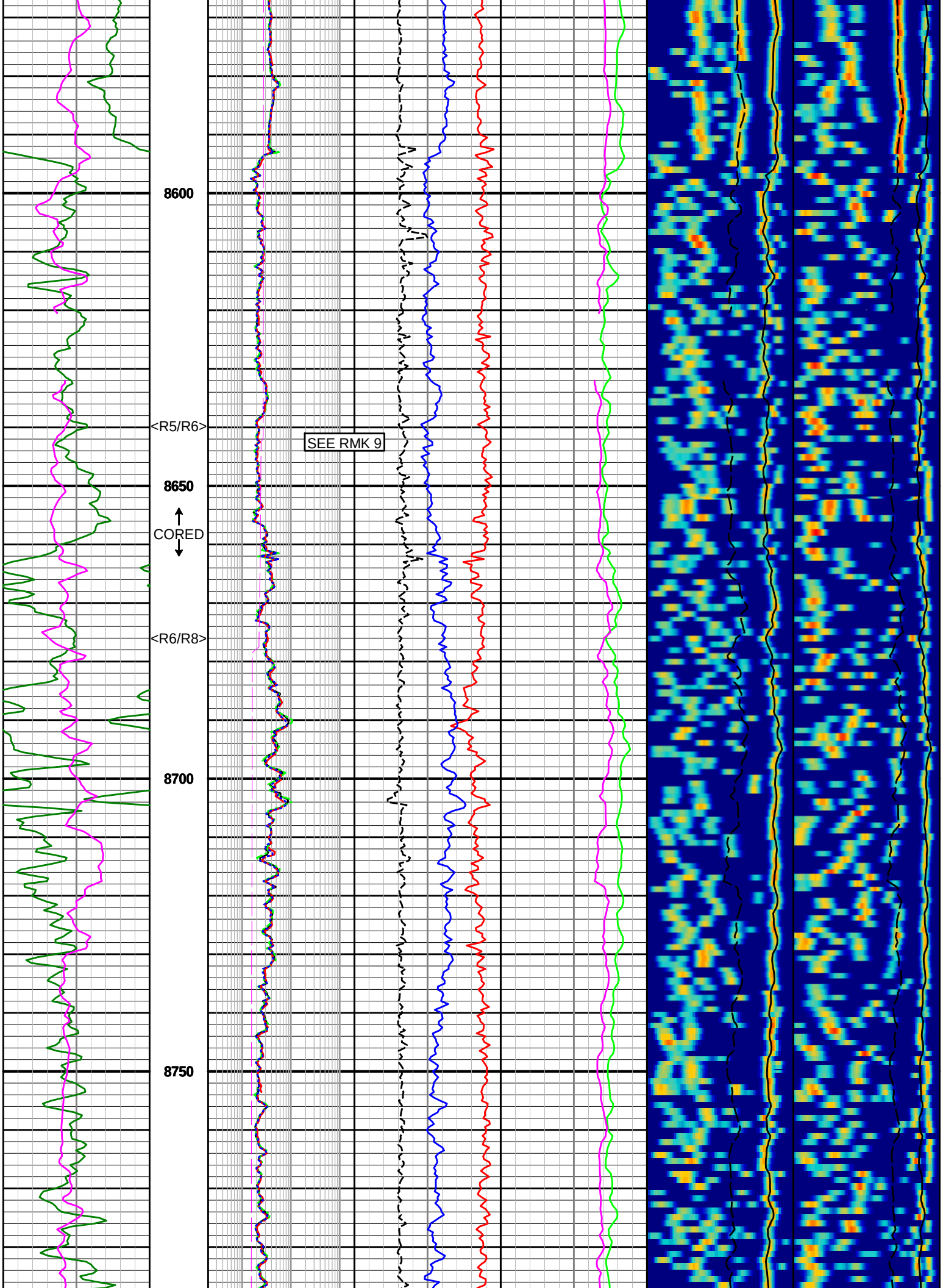
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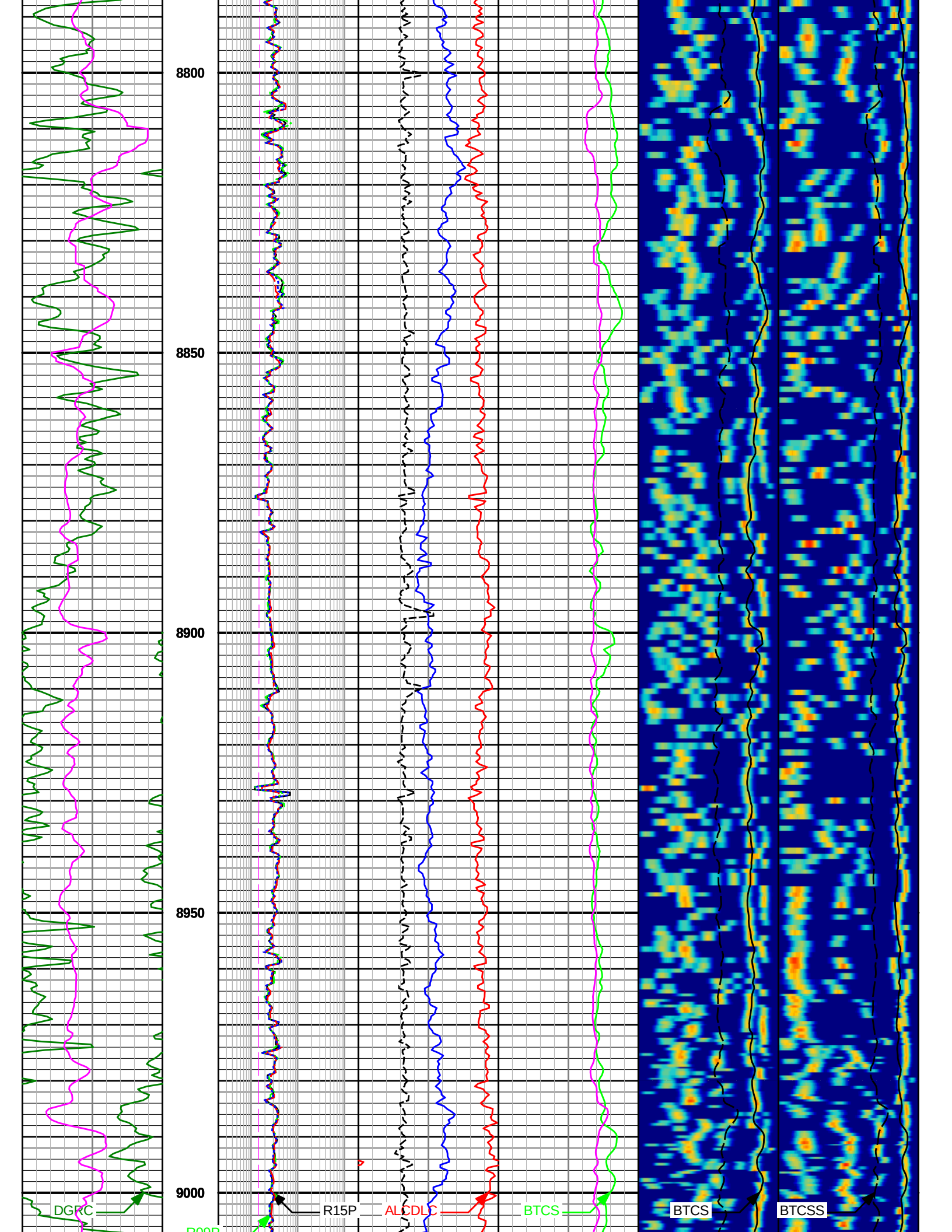
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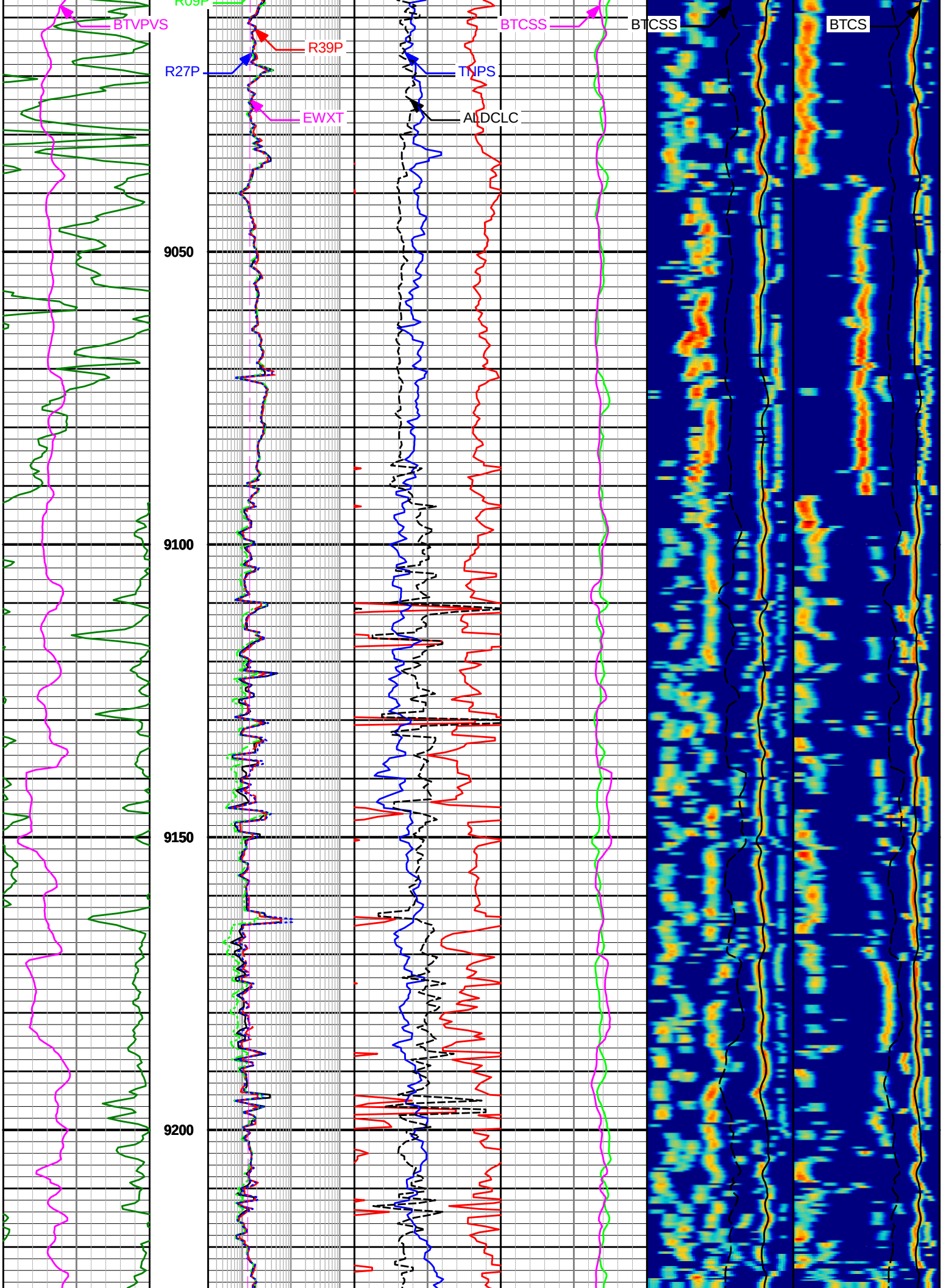
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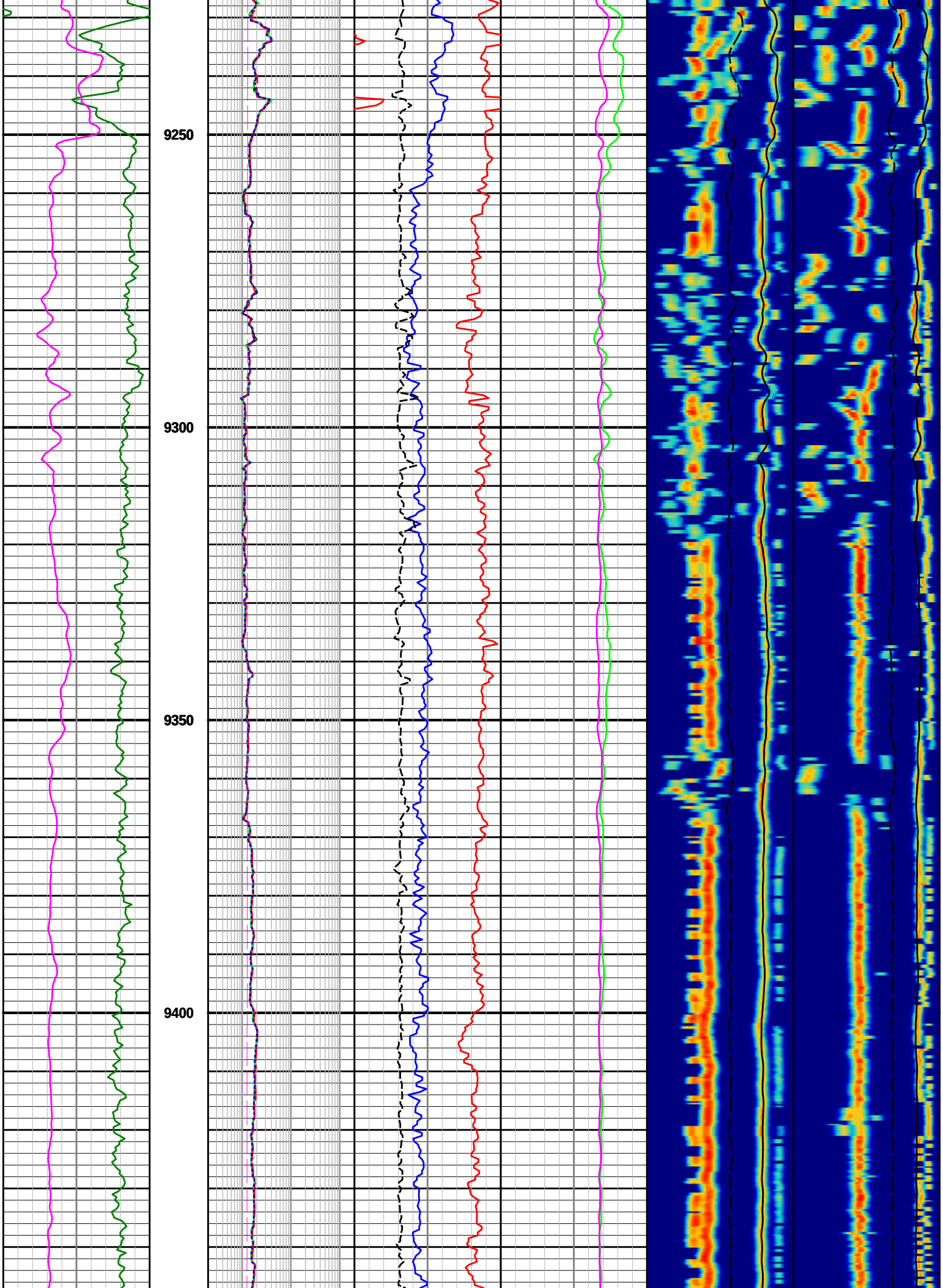
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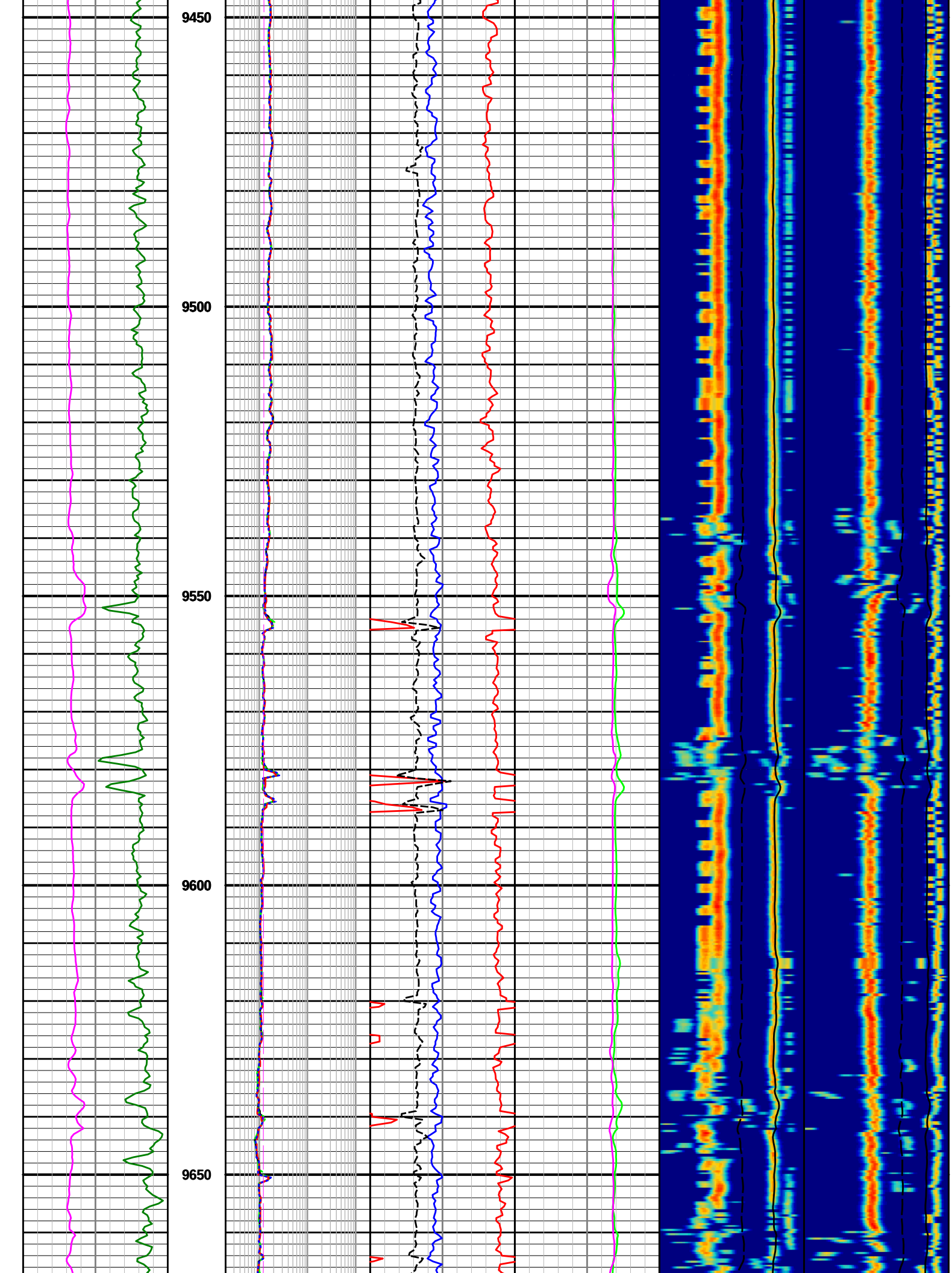
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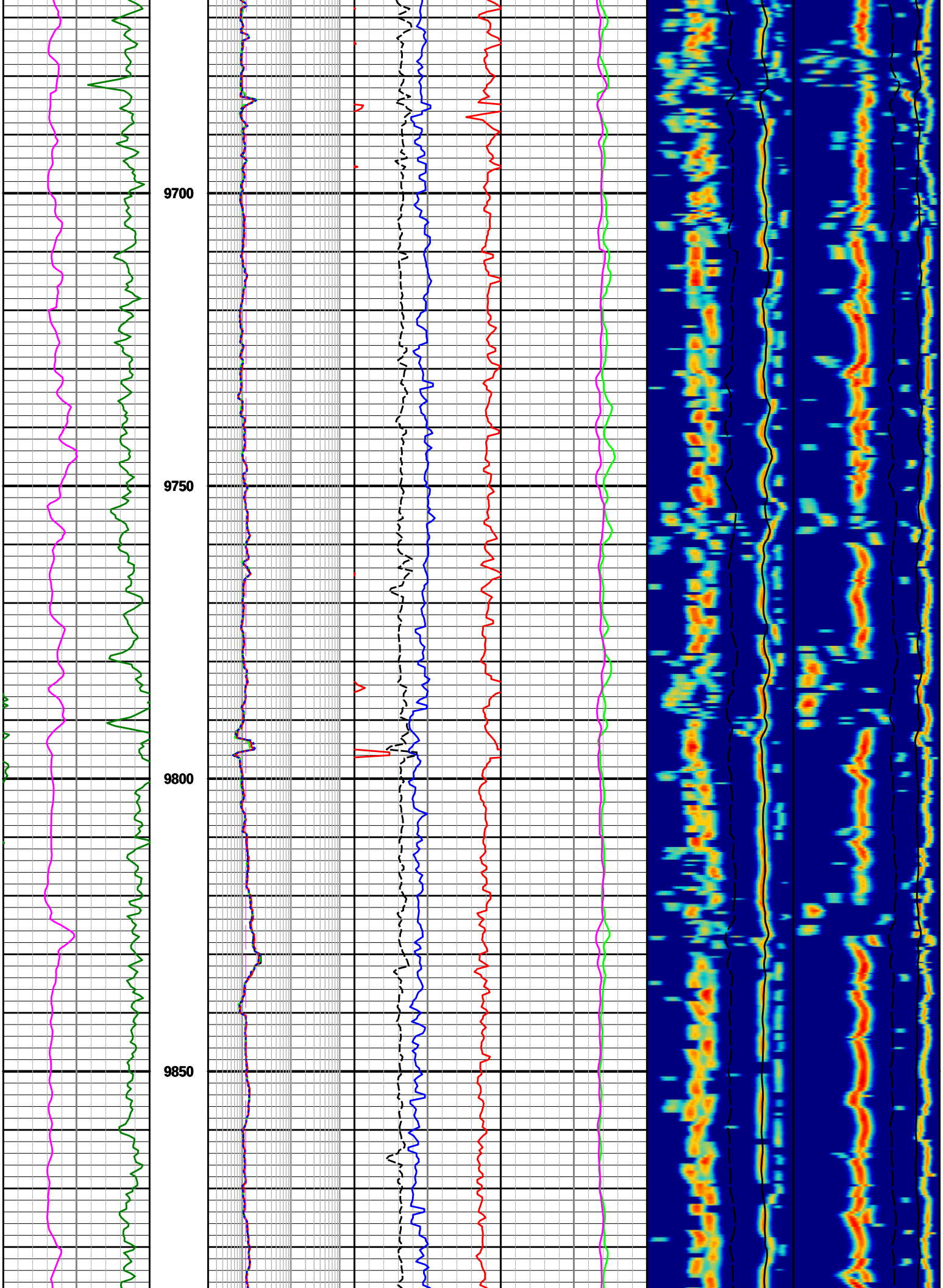
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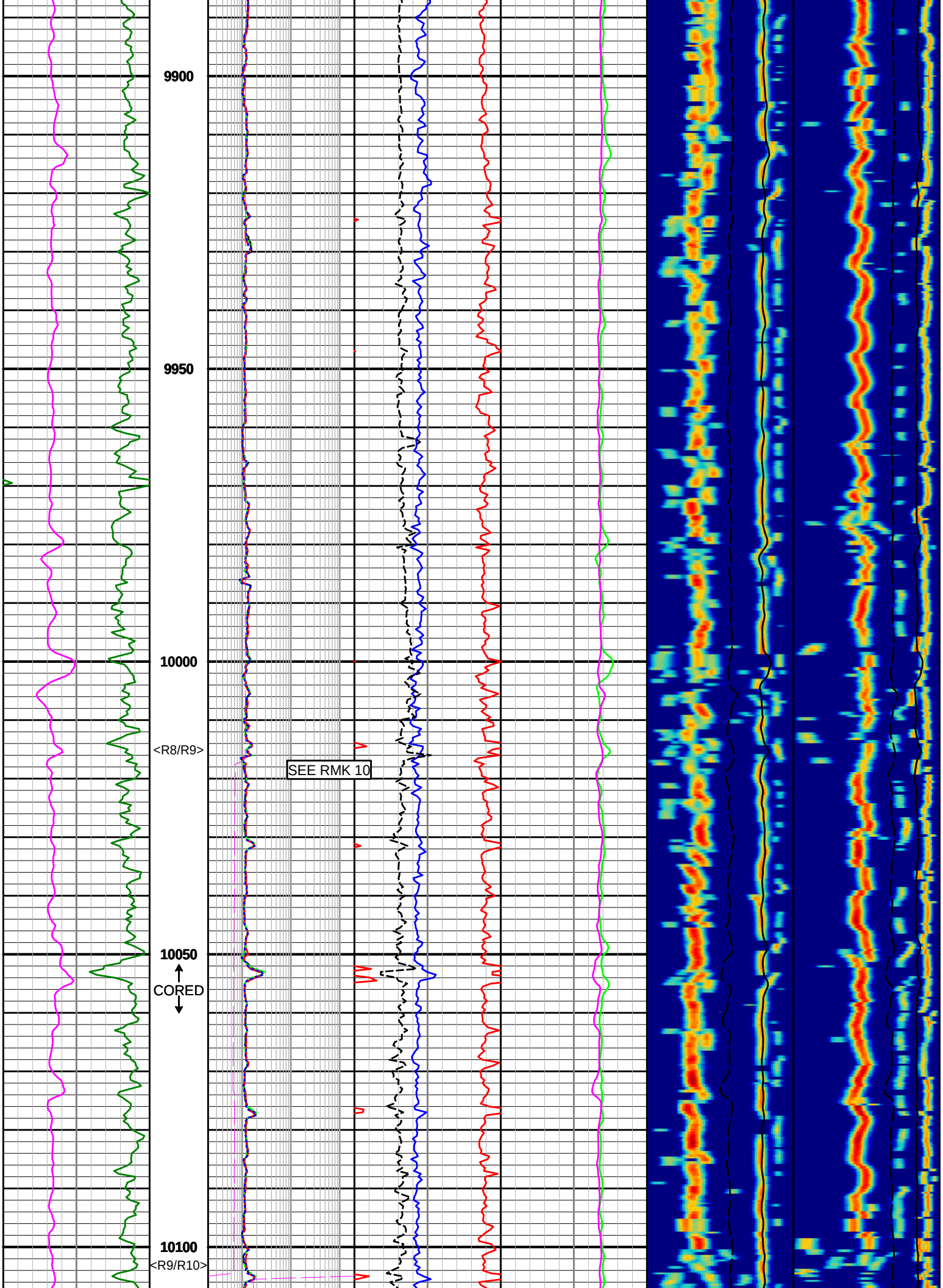
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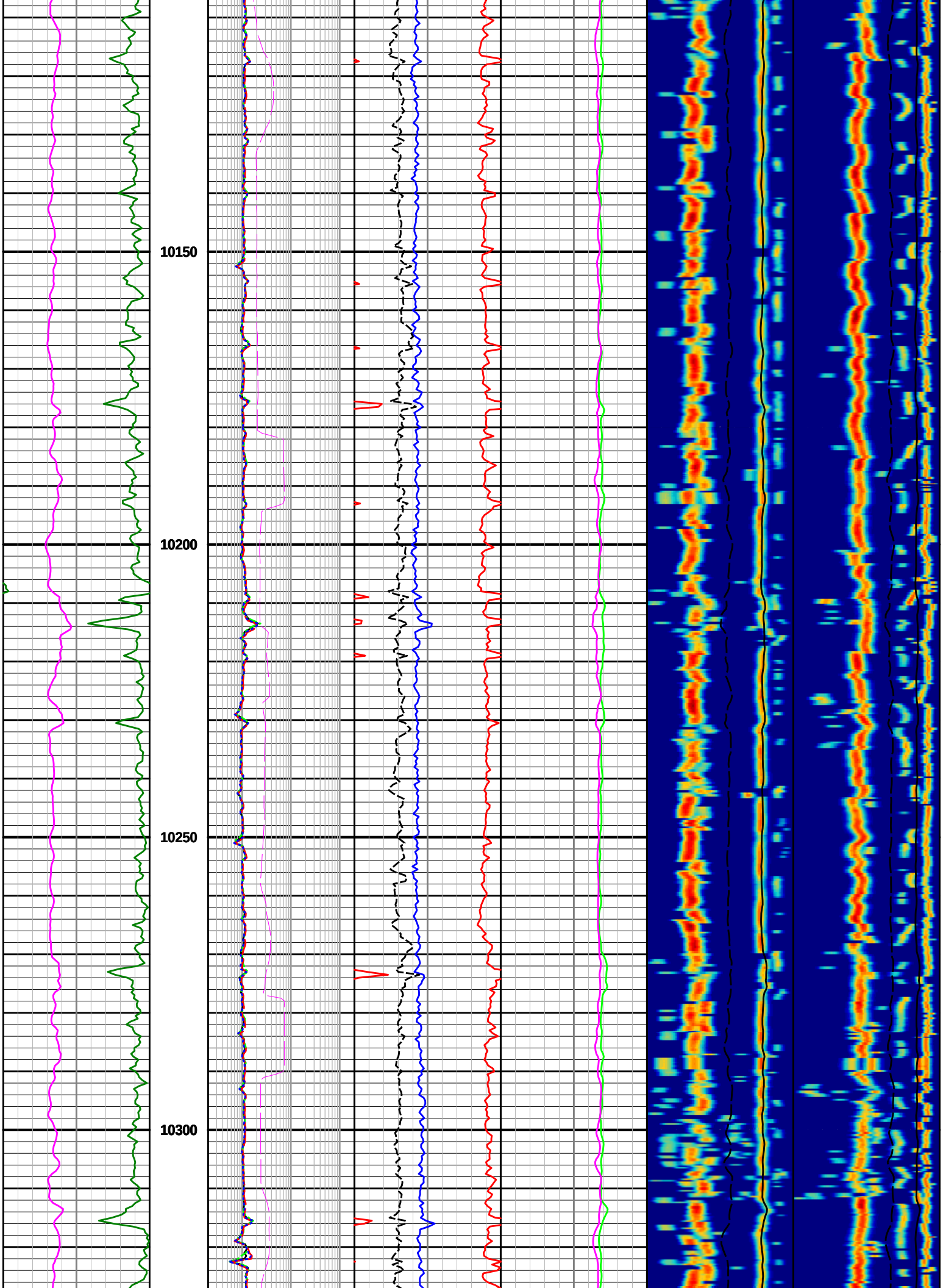
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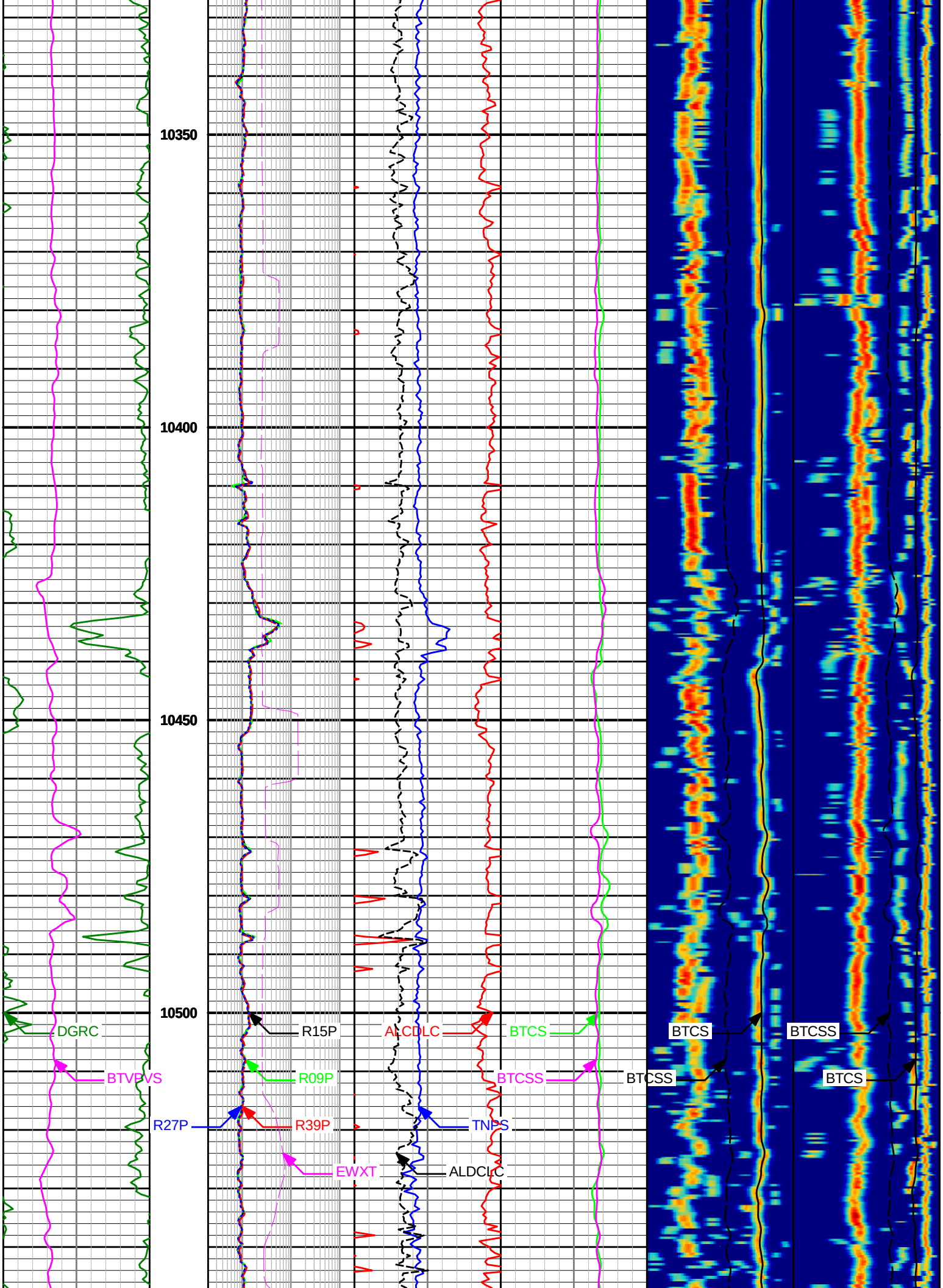
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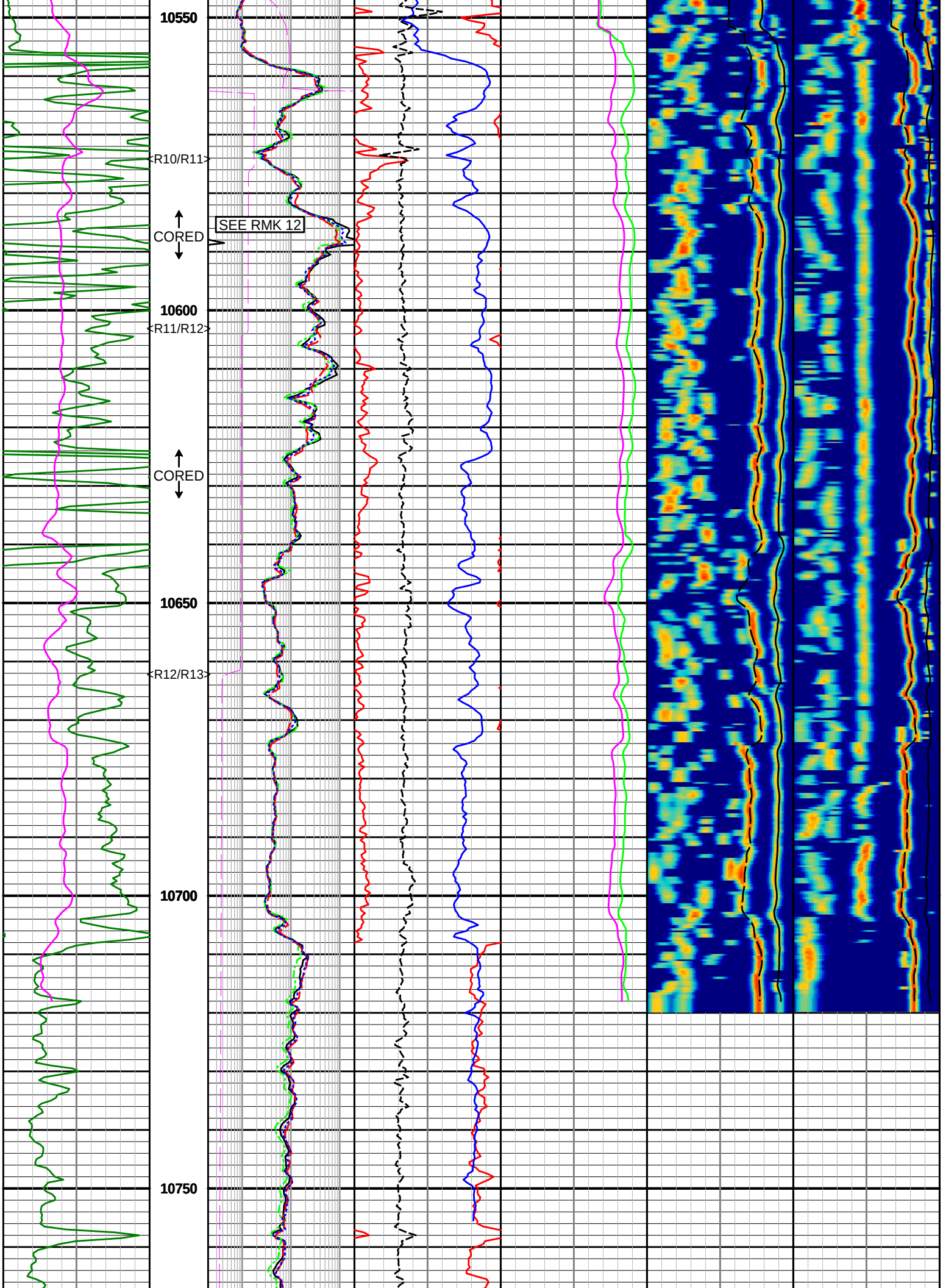
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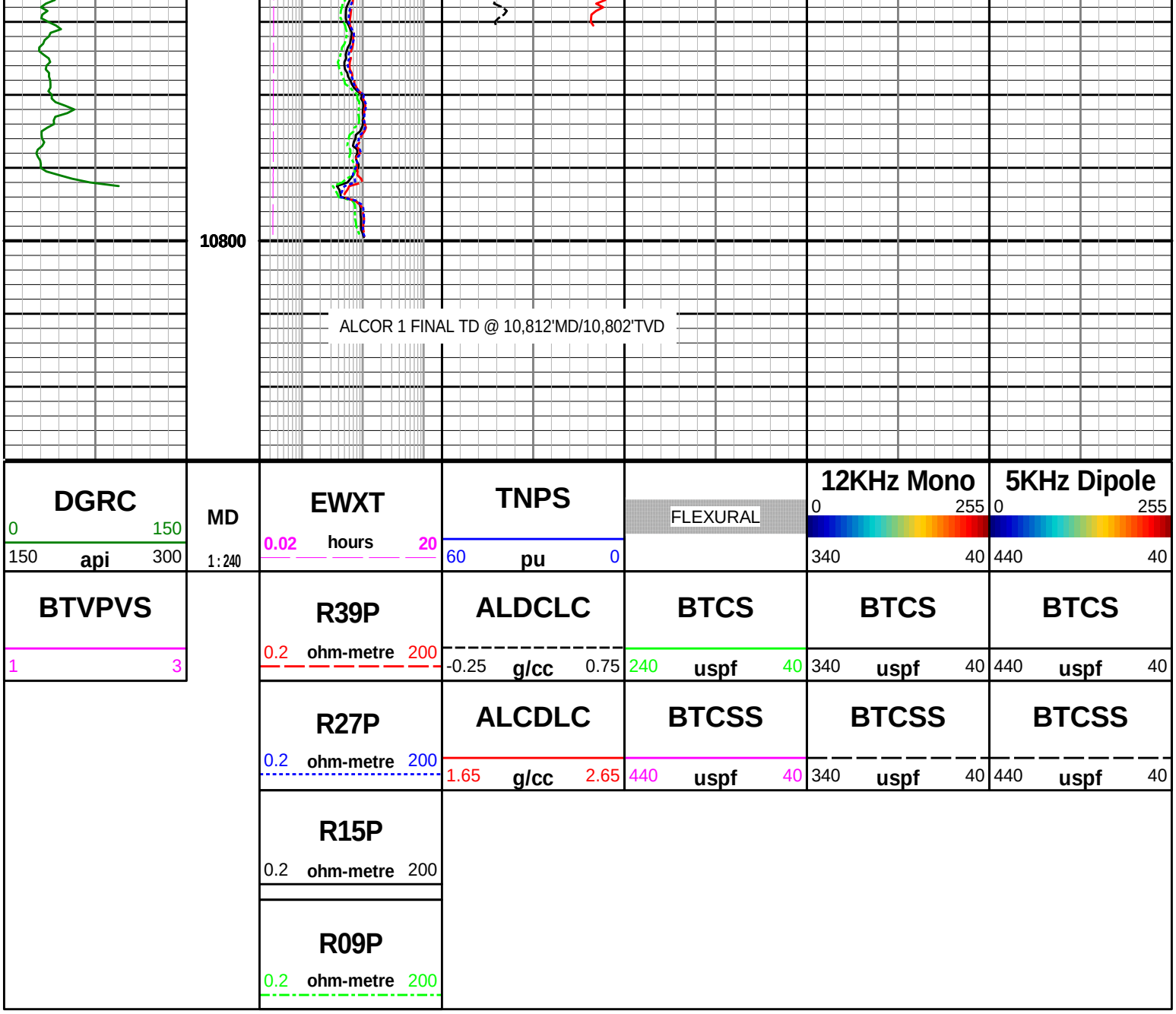

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Great Bear Petroleum, LLC
Alcor 1
Alcor
North Slope Borough Alaska
USA
AK-XX-0009285348
Surveys from 139.03' to 416.62' are MWD with interpolated azimuth.
Surveys from 416.62' to 10778.66' are MWD+ SAG
Final Survey Projected to TD

Measured Depth (feet)	*Inclination (degrees)*	*Direction (degrees)*	*Vertical Depth (feet)*	*Latitude (feet)*	*Departure (feet)*	*Vertical Section (feet)*	*Dogleg (deg/100ft)*
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
22.30	0.00	0.00	22.30	0.00 N	0.00 E	0.00	0.00
139.03	0.37	207.79	139.03	0.33 S	0.18 W	0.38	0.32
231.15	0.19	271.35	231.15	0.59 S	0.47 W	0.74	0.36
322.39	0.46	261.45	322.39	0.64 S	0.98 W	1.03	0.30

416.62	0.80	219.77	416.61	1.21 S	1.78 W	1.90	0.58
503.87	1.11	201.58	503.85	2.46 S	2.48 W	3.34	0.49
592.94	1.04	196.68	592.90	4.04 S	3.03 W	4.99	0.13
685.39	0.95	186.77	685.34	5.60 S	3.36 W	6.52	0.21
780.20	0.94	208.49	780.14	7.07 S	3.82 W	8.03	0.38
877.37	0.65	225.85	877.30	8.15 S	4.60 W	9.35	0.38
976.87	0.55	217.66	976.79	8.92 S	5.29 W	10.36	0.13
1070.52	0.84	233.02	1070.44	9.69 S	6.12 W	11.43	0.37
1161.77	0.84	184.97	1161.68	10.76 S	6.71 W	12.65	0.75
1259.04	0.65	208.98	1258.94	11.95 S	7.04 W	13.86	0.37
1355.56	0.78	205.42	1355.45	13.02 S	7.58 W	15.06	0.14
1451.70	0.70	209.13	1451.58	14.13 S	8.15 W	16.30	0.10
1547.61	0.87	214.97	1547.48	15.24 S	8.85 W	17.61	0.20
1642.98	0.86	205.66	1642.84	16.47 S	9.58 W	19.05	0.15
1739.38	0.64	193.71	1739.23	17.65 S	10.02 W	20.29	0.28
1836.78	0.69	209.38	1836.63	18.69 S	10.44 W	21.40	0.19
1931.60	0.71	175.26	1931.44	19.77 S	10.67 W	22.47	0.43
2028.33	0.48	183.94	2028.17	20.77 S	10.65 W	23.34	0.25
2123.91	0.46	205.20	2123.74	21.52 S	10.84 W	24.08	0.18
2217.21	0.50	180.79	2217.04	22.27 S	11.00 W	24.82	0.22
2312.62	0.53	181.16	2312.45	23.12 S	11.02 W	25.58	0.03
2409.08	0.22	169.25	2408.90	23.75 S	10.99 W	26.12	0.33
2463.32	0.57	179.55	2463.14	24.12 S	10.97 W	26.44	0.66
2510.66	0.67	119.99	2510.48	24.50 S	10.73 W	26.65	1.31
2606.45	1.05	112.70	2606.26	25.12 S	9.43 W	26.58	0.41
2700.00	0.12	96.30	2699.80	25.46 S	8.54 W	26.46	1.00
2799.23	0.18	69.63	2799.03	25.41 S	8.30 W	26.30	0.09
2894.32	0.50	111.12	2894.12	25.51 S	7.77 W	26.14	0.40
2990.67	0.53	133.19	2990.47	25.97 S	7.05 W	26.20	0.21
3084.68	0.88	117.17	3084.47	26.60 S	6.09 W	26.29	0.42
3180.11	0.85	116.51	3179.89	27.25 S	4.81 W	26.25	0.03
3275.33	0.61	141.14	3275.10	27.96 S	3.86 W	26.43	0.41
3372.36	0.83	141.77	3372.12	28.91 S	3.10 W	26.91	0.23
3468.66	0.65	129.82	3468.42	29.81 S	2.25 W	27.29	0.25
3560.34	1.00	128.73	3560.09	30.64 S	1.22 W	27.54	0.38
3656.27	0.94	157.86	3656.00	31.89 S	0.27 W	28.19	0.51
3755.14	0.94	121.17	3754.86	33.07 S	0.73 E	28.74	0.60
3851.82	0.94	107.39	3851.53	33.71 S	2.16 E	28.63	0.23
3948.95	0.63	109.99	3948.65	34.13 S	3.42 E	28.40	0.32
4043.92	0.19	103.09	4043.62	34.35 S	4.07 E	28.28	0.47
4140.04	0.15	126.06	4139.74	34.46 S	4.32 E	28.26	0.08
4236.56	0.32	102.08	4236.26	34.59 S	4.69 E	28.20	0.20
4331.54	0.29	159.75	4331.23	34.87 S	5.03 E	28.28	0.31
4425.85	0.62	116.22	4425.54	35.32 S	5.57 E	28.42	0.48
4523.07	0.27	149.90	4522.76	35.75 S	6.16 E	28.52	0.43
4618.45	0.53	131.14	4618.14	36.23 S	6.61 E	28.74	0.30
4710.67	0.31	184.86	4710.35	36.76 S	6.91 E	29.06	0.46
4808.64	0.68	180.96	4808.32	37.61 S	6.87 E	29.82	0.38
4903.55	0.33	180.86	4903.23	38.45 S	6.86 E	30.56	0.37
4999.95	0.55	168.26	4999.62	39.18 S	6.95 E	31.16	0.25
5095.22	0.47	204.56	5094.89	39.98 S	6.88 E	31.90	0.34
5190.87	0.69	179.59	5190.53	40.91 S	6.72 E	32.80	0.35
5286.20	0.26	183.07	5285.86	41.70 S	6.71 E	33.49	0.45
5382.80	0.32	212.82	5382.46	42.15 S	6.56 E	33.96	0.17
5476.87	0.51	208.96	5476.53	42.73 S	6.21 E	34.64	0.20
5573.78	0.60	174.46	5573.43	43.62 S	6.05 E	35.49	0.35
5669.61	0.39	169.03	5669.26	44.44 S	6.16 E	36.16	0.22
5764.88	0.46	176.14	5764.53	45.14 S	6.25 E	36.74	0.09
5860.77	0.50	196.81	5860.41	45.92 S	6.15 E	37.47	0.18
5956.68	0.61	212.35	5956.32	46.75 S	5.76 E	38.39	0.19
6054.74	0.58	217.79	6054.37	47.59 S	5.18 E	39.40	0.07
6149.17	0.43	229.35	6148.80	48.19 S	4.61 E	40.20	0.19
6241.53	0.53	187.93	6241.16	48.84 S	4.29 E	40.93	0.38
6336.73	0.44	156.77	6336.35	49.62 S	4.38 E	41.57	0.29
6388.96	0.51	174.23	6388.58	50.03 S	4.48 E	41.88	0.31
6437.33	0.65	159.50	6436.95	50.50 S	4.60 E	42.24	0.42
6534.86	0.49	172.94	6534.48	51.43 S	4.84 E	42.95	0.21
6630.89	0.45	184.45	6630.50	52.22 S	4.86 E	43.63	0.11
6726.83	0.44	180.68	6726.44	52.96 S	4.83 E	44.30	0.03
6822.44	0.40	162.88	6822.05	53.65 S	4.92 E	44.85	0.14
6918.13	0.56	174.04	6917.73	54.43 S	5.07 E	45.48	0.19
7011.46	0.32	185.63	7011.06	55.14 S	5.09 E	46.09	0.27
7109.41	0.54	204.95	7109.01	55.84 S	4.87 E	46.80	0.27
7205.30	0.45	211.55	7204.89	56.57 S	4.48 E	47.63	0.11
7301.43	0.57	216.27	7301.02	57.27 S	4.00 E	48.48	0.13

7394.03	0.88	237.89	7393.61	58.02 S	3.13 E	49.56	0.44
7492.35	1.06	248.06	7491.92	58.76 S	1.64 E	50.91	0.25
7589.06	0.64	283.13	7588.62	58.98 S	0.29 E	51.75	0.67
7684.78	0.72	280.36	7684.33	58.75 S	0.82 W	52.07	0.09
7779.85	0.64	297.13	7779.40	58.40 S	1.88 W	52.27	0.22
7877.15	0.79	282.23	7876.69	58.01 S	3.02 W	52.47	0.24
7973.13	0.91	268.39	7972.66	57.89 S	4.43 W	53.03	0.25
8066.71	1.07	262.34	8066.22	58.02 S	6.04 W	53.92	0.20
8163.21	1.06	183.52	8162.71	59.04 S	6.99 W	55.26	1.40
8256.61	2.03	187.48	8256.08	61.54 S	7.26 W	57.59	1.04
8276.71	2.22	188.14	8276.16	62.28 S	7.36 W	58.29	0.95
8360.29	3.67	182.39	8359.63	66.55 S	7.70 W	62.21	1.77
8396.65	4.99	183.01	8395.88	69.29 S	7.83 W	64.68	3.63
8428.91	5.96	184.13	8428.00	72.37 S	8.03 W	67.48	3.02
8457.38	6.62	184.77	8456.30	75.48 S	8.27 W	70.33	2.33
8491.89	7.22	186.53	8490.55	79.61 S	8.68 W	74.16	1.84
8525.32	8.06	186.68	8523.69	84.03 S	9.19 W	78.29	2.51
8554.46	8.67	185.91	8552.52	88.24 S	9.66 W	82.22	2.13
8598.25	9.50	184.77	8595.76	95.13 S	10.30 W	88.58	1.94
8659.65	10.12	183.80	8656.26	105.56 S	11.07 W	98.13	1.04
8693.51	9.83	182.61	8689.61	111.41 S	11.40 W	103.44	1.05
8723.57	9.80	181.00	8719.23	116.53 S	11.57 W	108.02	0.92
8756.25	9.65	180.09	8751.44	122.05 S	11.62 W	112.90	0.66
8790.22	8.91	178.99	8784.96	127.53 S	11.58 W	117.70	2.24
8825.57	8.56	177.37	8819.90	132.90 S	11.41 W	122.34	1.21
8850.66	8.67	176.28	8844.71	136.65 S	11.20 W	125.54	0.78
8950.92	7.22	181.35	8944.01	150.49 S	10.86 W	137.55	1.60
9046.40	6.24	171.45	9038.83	161.62 S	10.23 W	147.04	1.59
9143.03	4.89	174.66	9135.00	170.91 S	9.06 W	154.67	1.43
9240.11	4.61	172.51	9231.75	178.90 S	8.17 W	161.27	0.34
9335.90	4.22	173.94	9327.26	186.22 S	7.29 W	167.29	0.42
9431.91	3.88	174.51	9423.03	192.97 S	6.61 W	172.90	0.36
9527.21	3.48	174.68	9518.13	199.06 S	6.03 W	177.99	0.42
9622.34	3.07	176.04	9613.10	204.47 S	5.59 W	182.54	0.44
9719.33	3.05	174.83	9709.96	209.64 S	5.18 W	186.89	0.07
9815.52	2.76	177.03	9806.02	214.50 S	4.83 W	191.00	0.32
9912.28	2.50	181.36	9902.68	218.93 S	4.76 W	194.86	0.34
10064.19	2.23	194.12	10054.46	225.11 S	5.56 W	200.68	0.39
10157.05	1.66	203.99	10147.27	228.09 S	6.55 W	203.77	0.71
10254.18	1.66	200.62	10244.36	230.69 S	7.61 W	206.57	0.10
10349.19	1.60	196.87	10339.33	233.25 S	8.48 W	209.23	0.13
10447.17	1.59	196.11	10437.27	235.87 S	9.26 W	211.90	0.02
10539.87	1.20	196.93	10529.94	238.03 S	9.90 W	214.11	0.42
10731.66	0.57	144.06	10721.71	240.72 S	9.92 W	216.49	0.51
10778.66	0.52	224.28	10768.71	241.07 S	9.93 W	216.80	1.50
10812.00	0.52	224.28	10802.05	241.28 S	10.14 W	217.09	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 208.39 DEGREES (TRUE)
A TOTAL CORRECTION OF 20.87 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 10812.00 FEET
IS 241.50 FEET ALONG 182.41 DEGREES (TRUE)

Map System: US State Plane 1927 (Exact Solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: Alaska Zone 04

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