

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

1 : 600 / 1 : 240

Country : USA		Company : Great Bear Petroleum, LLC		
Field : Alcor		Rig : Nabors 105E		
Location : Lat: 69° 59' 26.11" North Long: 148° 40' 40.99" West		Well : Alcor 1		
Well : Alcor 1		Field : Alcor		
Company : Great Bear Petroleum, LLC		Country : USA		
Rig : Nabors 105E		API Number : 50-223-20026-00		
LOCATION		Other Services		
Latitude : 69° 59' 26.11" North Longitude : 148° 40' 40.99" West		DDSr PWD		
ASP Zn 4: Y = 5,847,838.30 ft ASP Zn 4: X = 665,672.48 ft				
Permanent Datum : Mean Sea Level	Elevation : 0.00 ft	Elev.	KB	
Log Measured From : Drill Floor	186.00 ft Above Permanent Datum	DF	186.00 ft	
Drilling Measured From : Drill Floor		GL	163.70 ft	
		WD		
Depth Logged : 102.00 ft To 10,812.00 ft	Unit No. : 117	Job No. : AK-XX-0009285348		
Date Logged : 16-Jun-12 To 09-Aug-12	Plot Type : Final			
Total Depth MD : 10,812.00 ft TVD : 10,802.05 ft	Plot Date : 31-Oct-12			
Spud Date : 16-Jun-12				
Run No.	Borehole Record (MD)		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	

MD LOG

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 (Ihf2)	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
RO9P	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
BTCSS	BAT COMPRESSIONAL SLOWNESS
BCSS/BTCSS	BAT COMBINED SHEAR SLOWNESS
BVPS/BTVPVS	BAT VP/VS RATIO
BSFG/BTSFLAG	BAT SHEAR FLAG

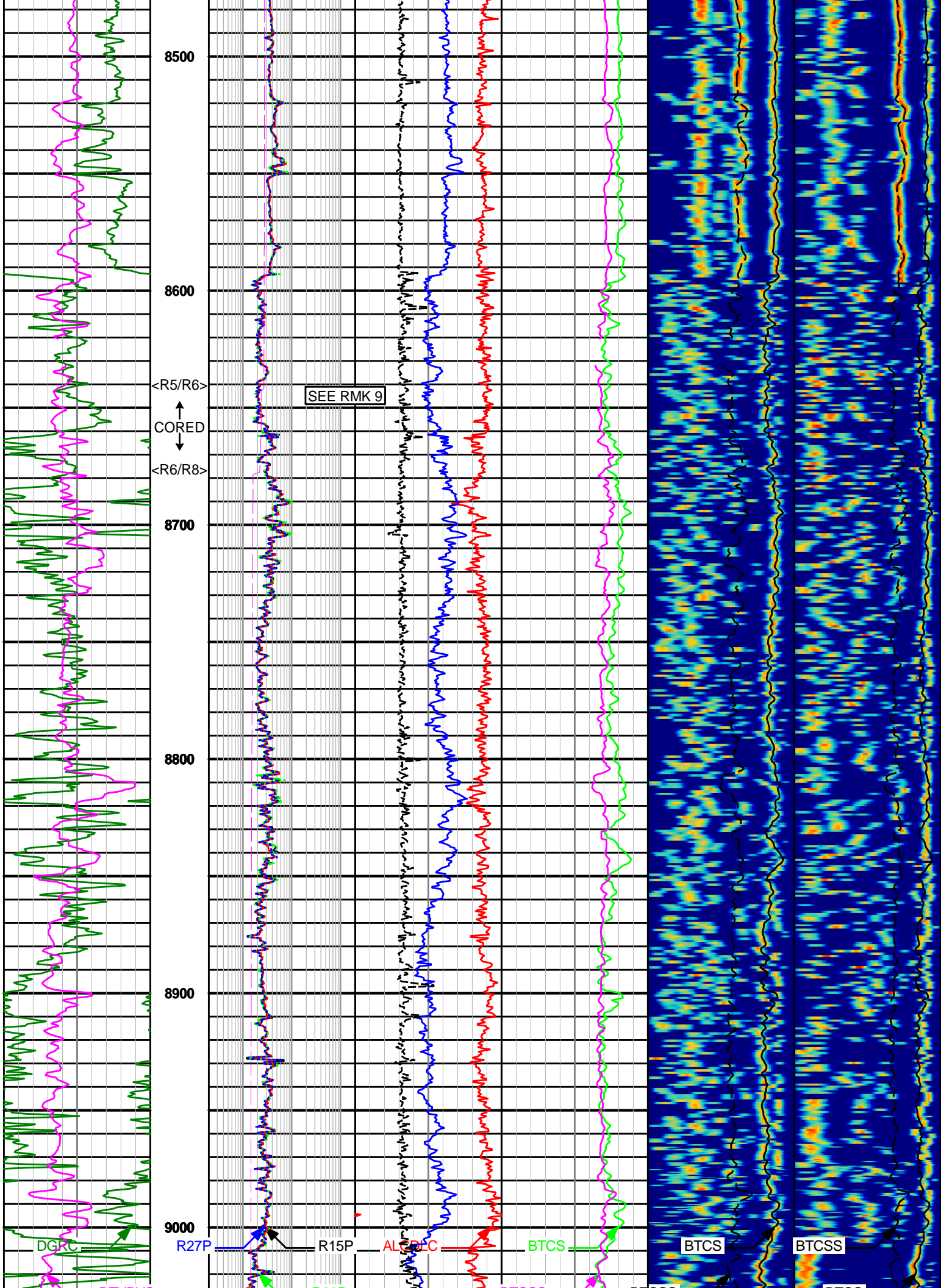
PARAMETERS USED IN NUCLEAR LOG PROCESSING:

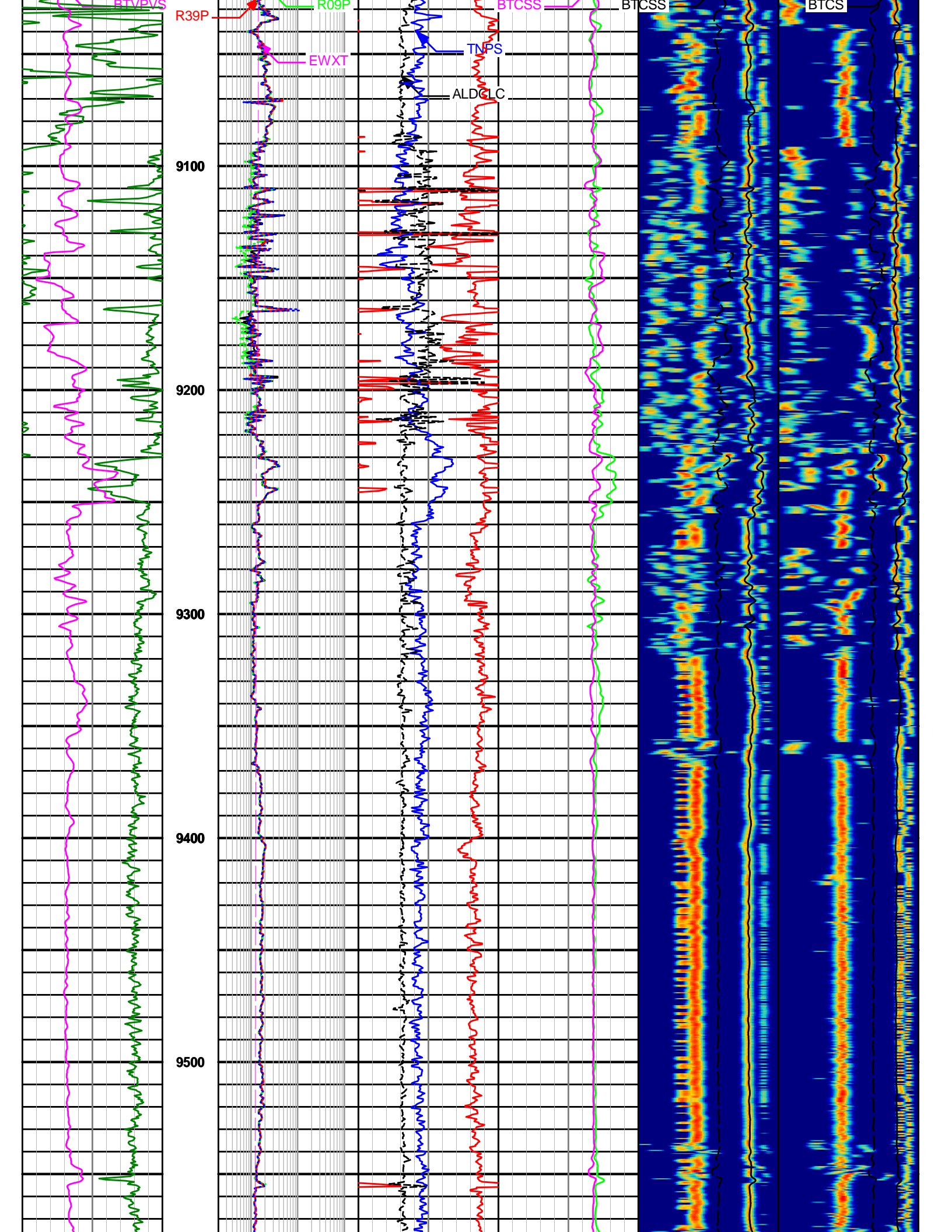
HOLE SIZE: 6.125" FIXED
MUD WEIGHT: 10.5 - 11.2 PPG
WHOLE MUD CHLORIDES: 24,000 - 38,000 PPM CL
FORMATION WATER SALINITY: 37,000 PPM CL
FLUID DENSITY: 1.0 G/CC
MATRIX DENSITY 2.65 G/CC
LITHOLOGY: SANDSTONE
TEMPERATURE: DYNAMIC FROM EWR-P4, 133.5°F @ TD

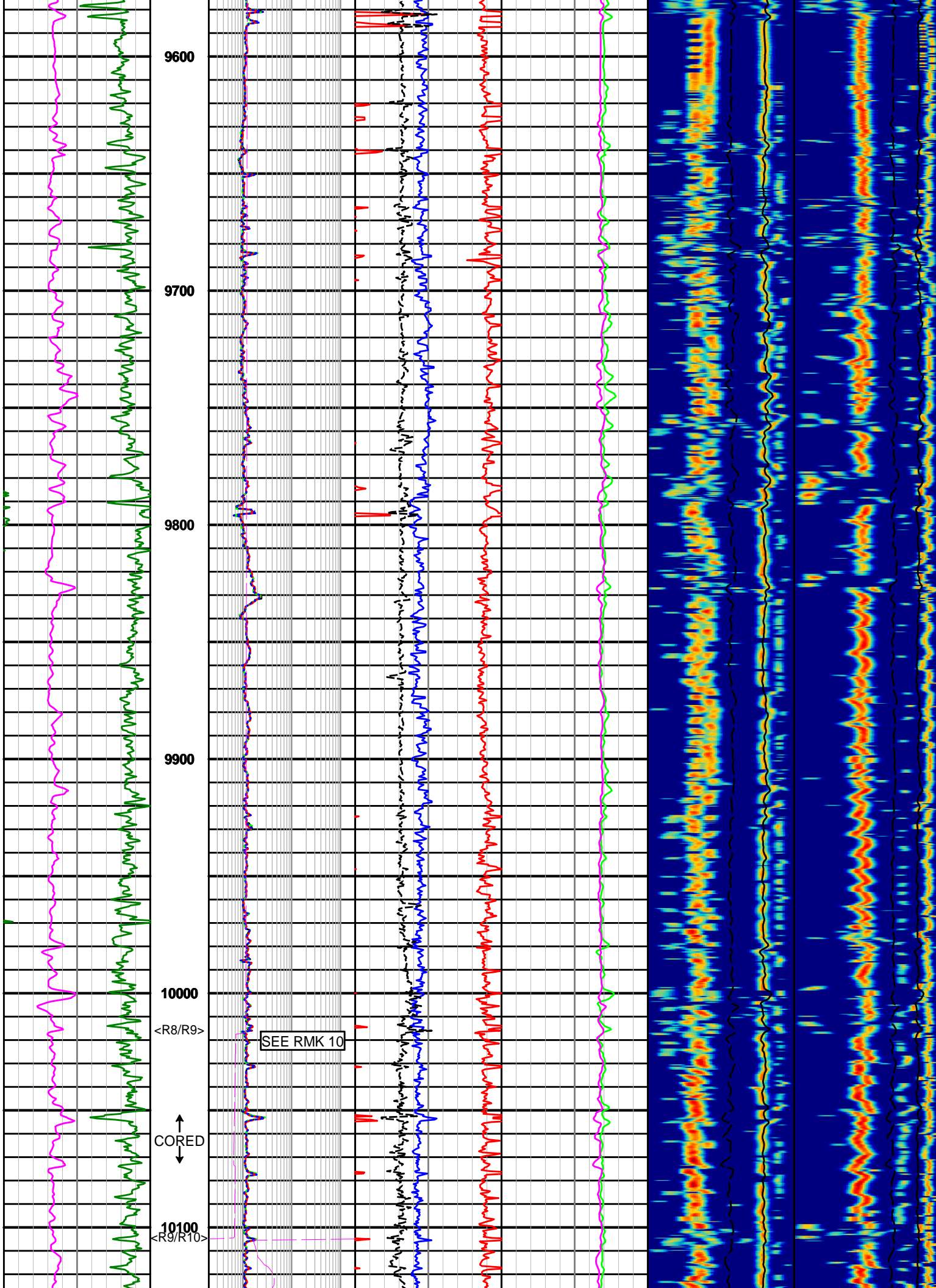
ALL DATA CURVES ARE SMOOTHED TO A STEP OF 0.5 FT, WITH A WINDOW OF 0.6 FT, EXCEPT FOR ROP AND GAMMA RAY. THESE CURVES ARE SMOOTHED WITH A 1.1 FT WINDOW. GAP FILL IS SET TO 5 FT FOR ALL CURVES.

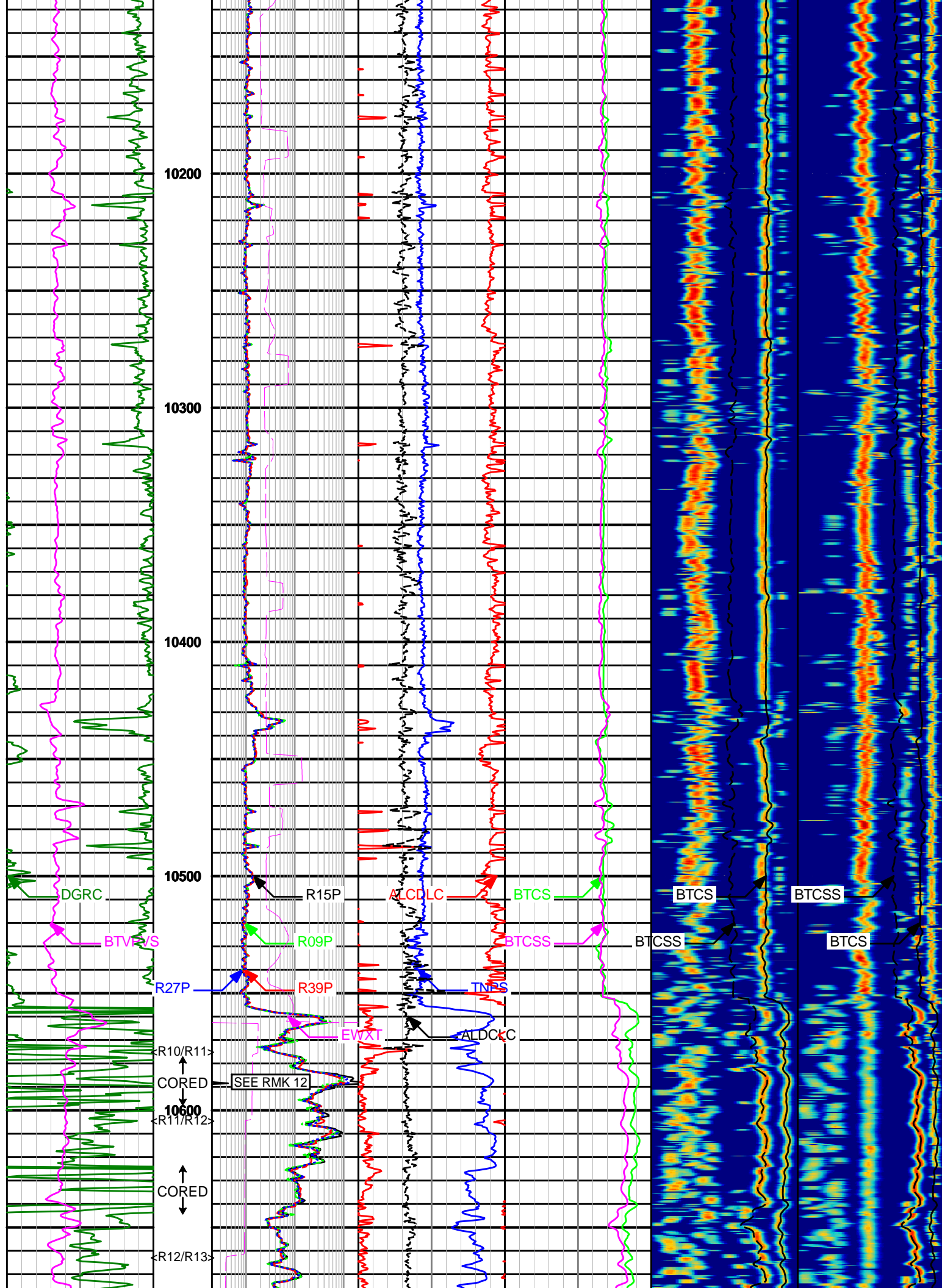
WARRANTY

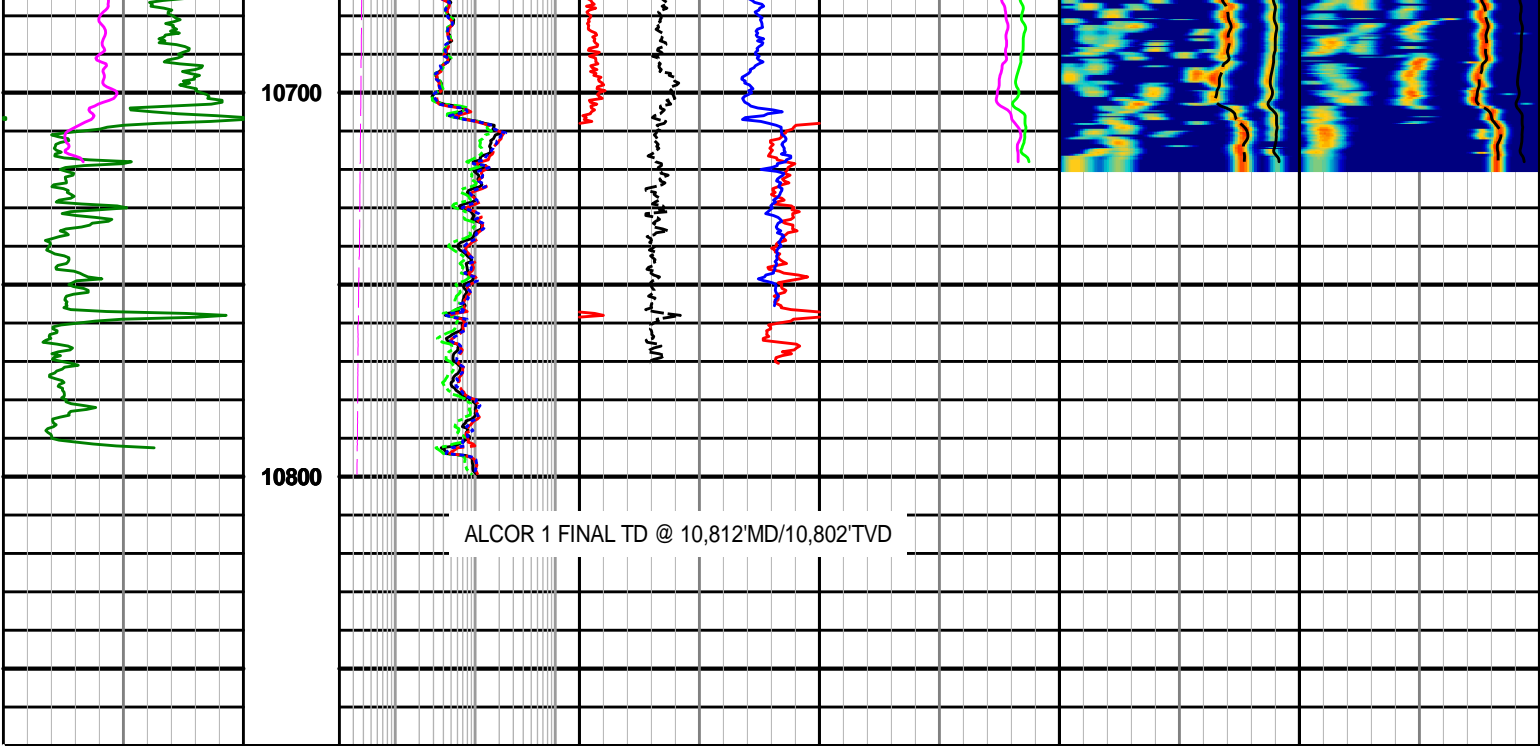
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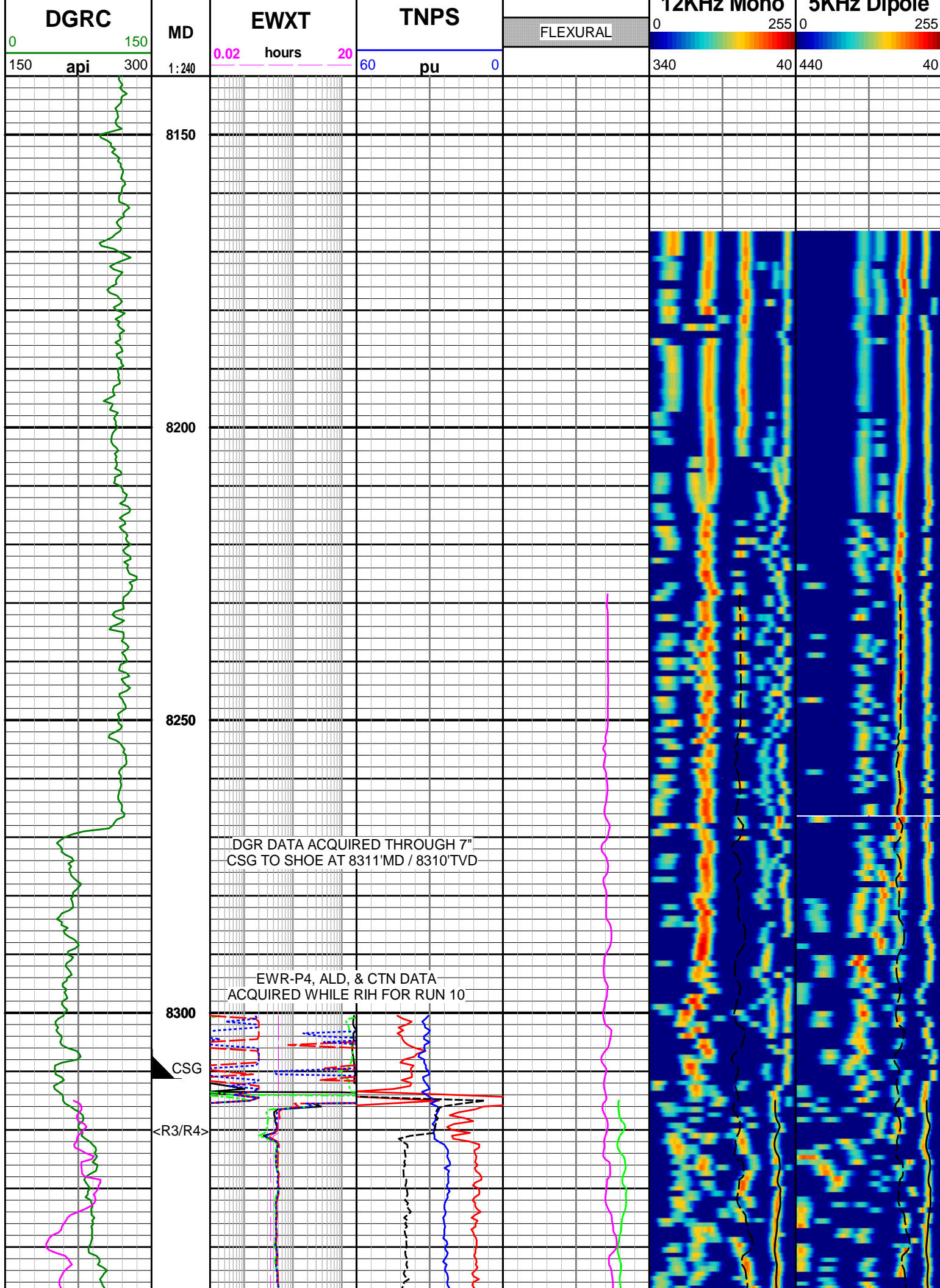






<div>DGRC</div> <div><div>0150</div><div>150api300</div></div>	MD	<div>EWXT</div> <div><div>0.02hours20</div><div>60pu0</div></div>	<div>TNPS</div> <div><div>FLEXURAL</div></div>	<div>12KHz Mono</div> <div><div>0255</div><div>34040</div></div>	<div>5KHz Dipole</div> <div><div>0255</div><div>44040</div></div>
<div>BTVPVS</div> <div><div>13</div></div>		<div>R39P</div> <div><div>0.2ohm-metre200</div><div>-0.25g/cc0.75</div></div>	<div>BTCS</div> <div><div>240uspf40</div><div>340uspf40</div></div>	<div>BTCS</div> <div><div>340uspf40</div><div>440uspf40</div></div>	<div>BTCS</div> <div><div>440uspf40</div></div>
		<div>R27P</div> <div><div>0.2ohm-metre200</div><div>1.65g/cc2.65</div></div>	<div>BTCSS</div> <div><div>440uspf40</div><div>340uspf40</div></div>	<div>BTCSS</div> <div><div>340uspf40</div><div>440uspf40</div></div>	<div>BTCSS</div> <div><div>440uspf40</div></div>
		<div>R15P</div> <div><div>0.2ohm-metre200</div></div>			
		<div>R09P</div> <div><div>0.2ohm-metre200</div></div>			

	<div>R09P</div> <div>0.2 ohm-metre 200</div>						
	<div>R15P</div> <div>0.2 ohm-metre 200</div>						
	<div>R27P</div> <div>0.2 ohm-metre 200</div>	<div>ALCDLC</div> <div>1.65 g/cc 2.65</div>	<div>BTCSS</div> <div>440 uspf 40</div>	<div>BTCSS</div> <div>340 uspf 40</div>	<div>BTCSS</div> <div>440 uspf 40</div>		
	<div>R39P</div> <div>0.2 ohm-metre 200</div>	<div>ALDCLC</div> <div>-0.25 g/cc 0.75</div>	<div>BTCS</div> <div>240 uspf 40</div>	<div>BTCS</div> <div>340 uspf 40</div>	<div>BTCS</div> <div>440 uspf 40</div>		
<div>BTVPVS</div> <div>1 3</div>				<div>12KHz Mono</div>	<div>5KHz Dipole</div>		



$\langle R4/R5 \rangle$

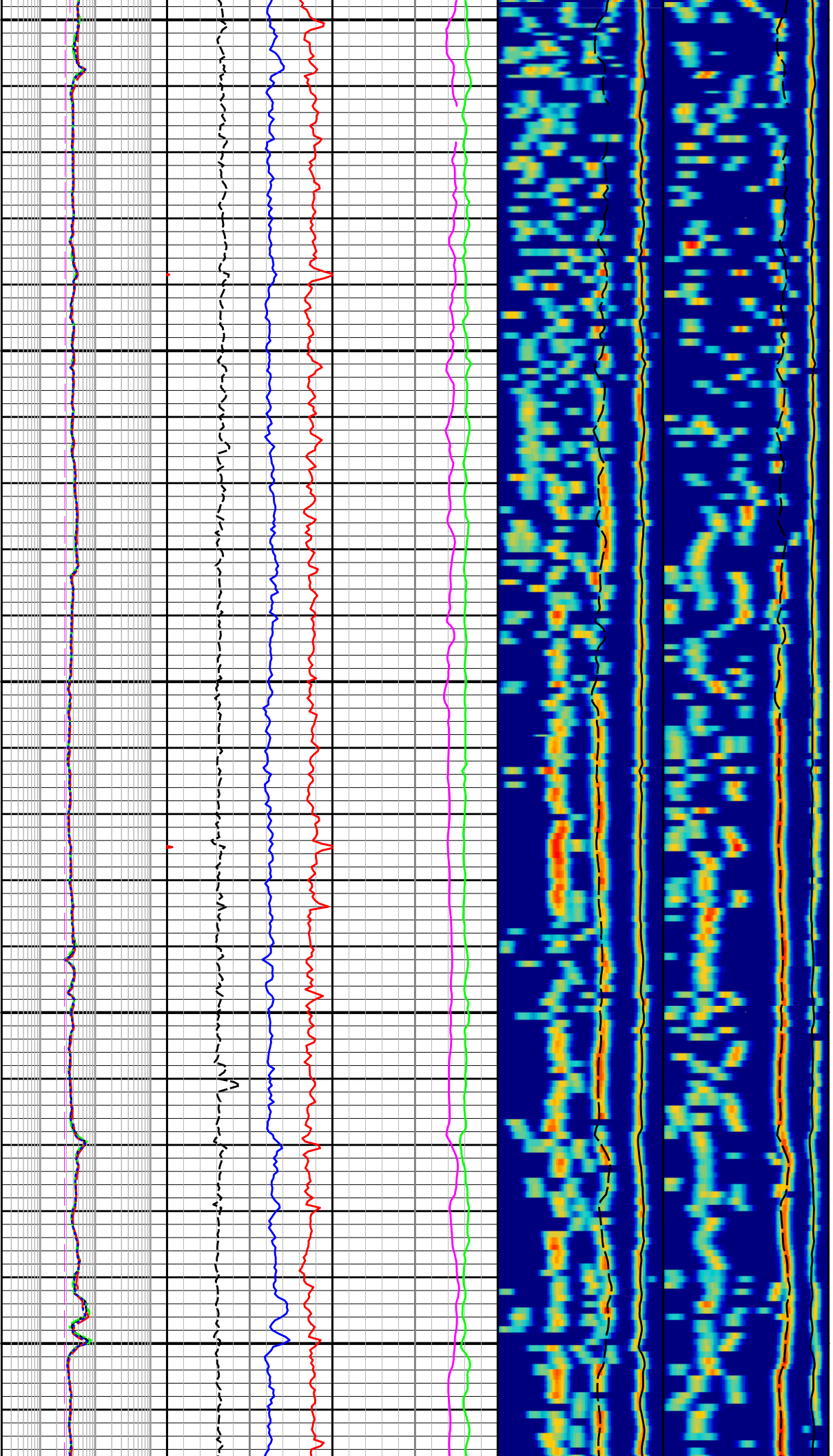
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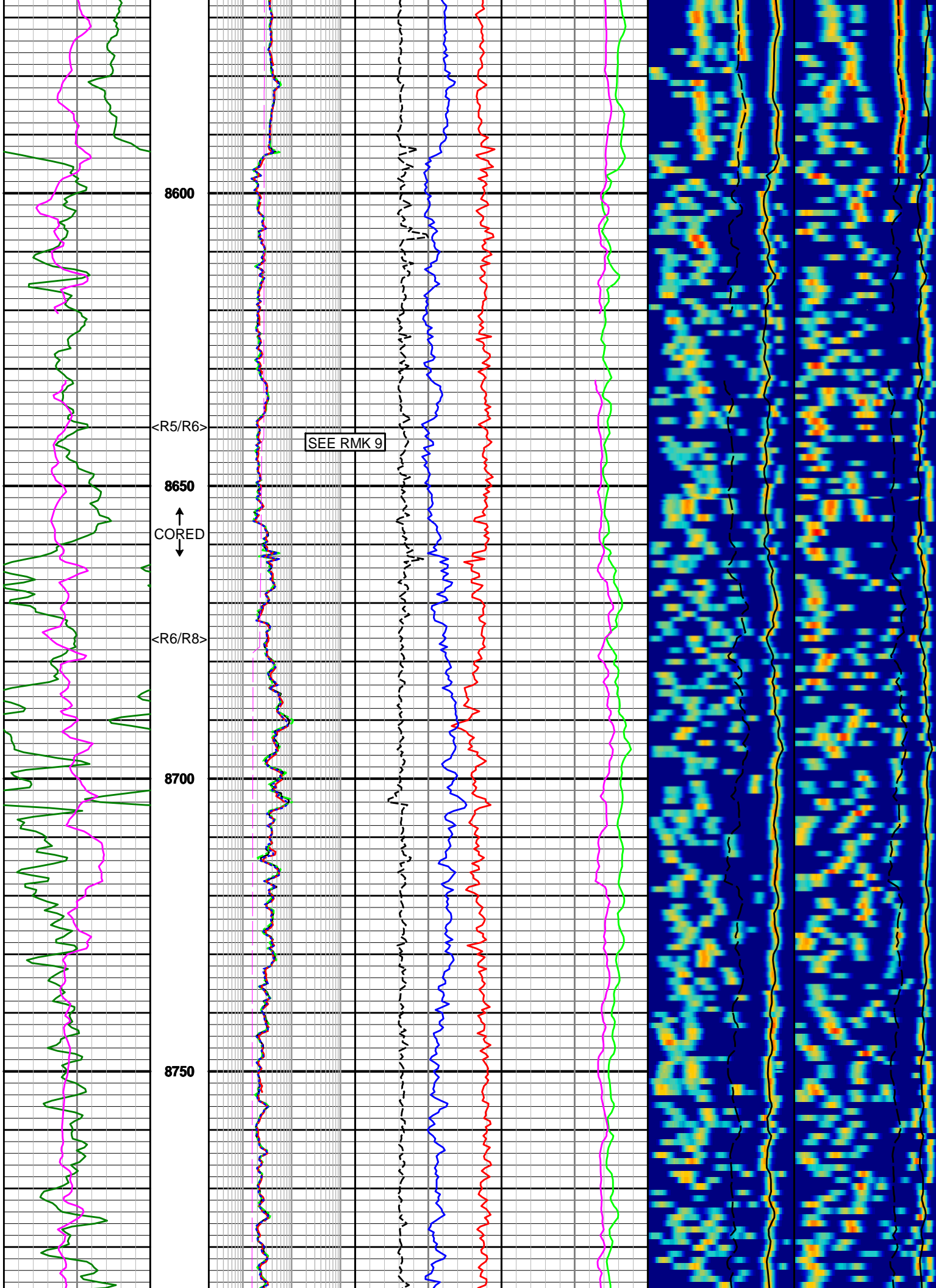
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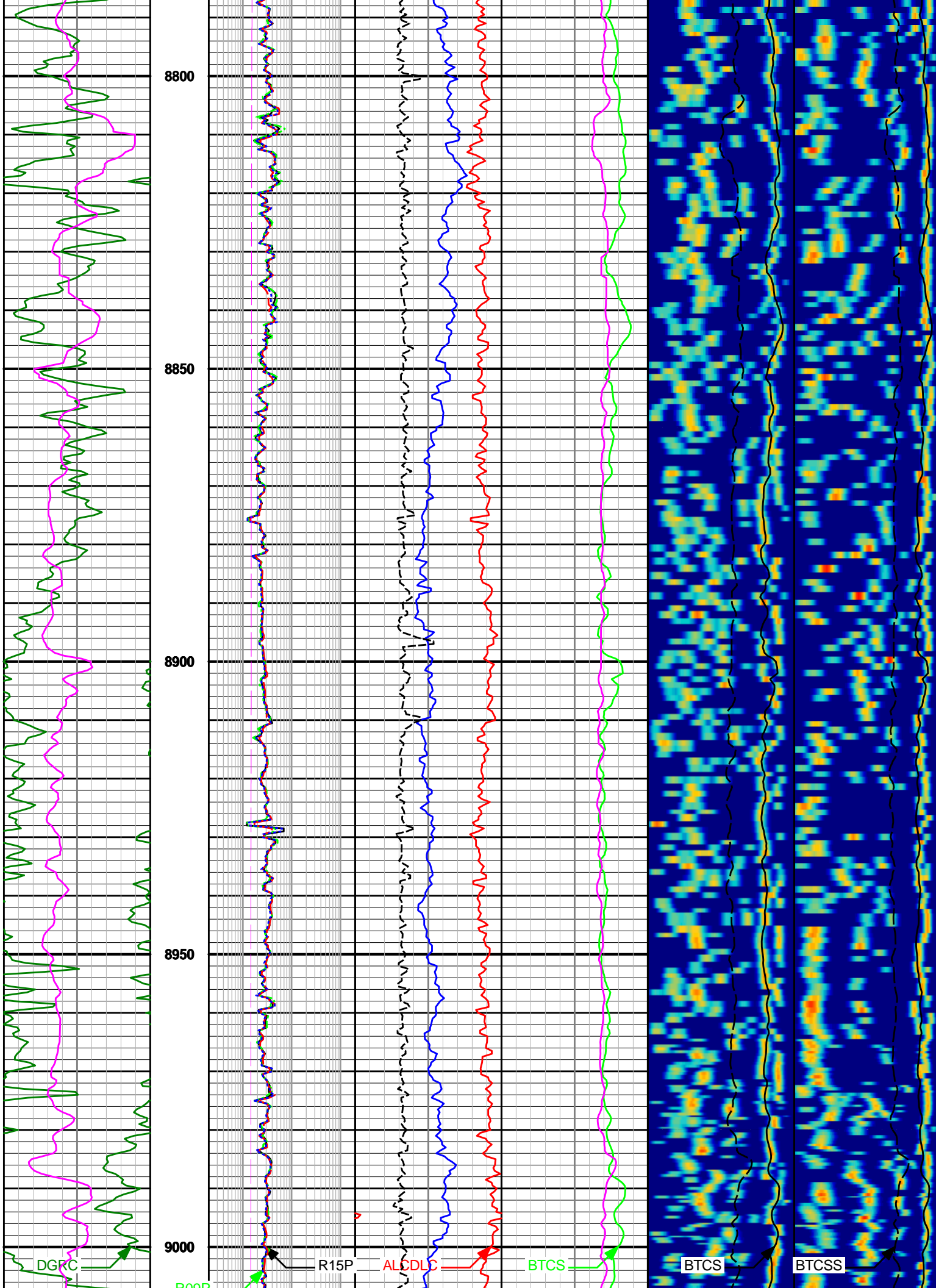
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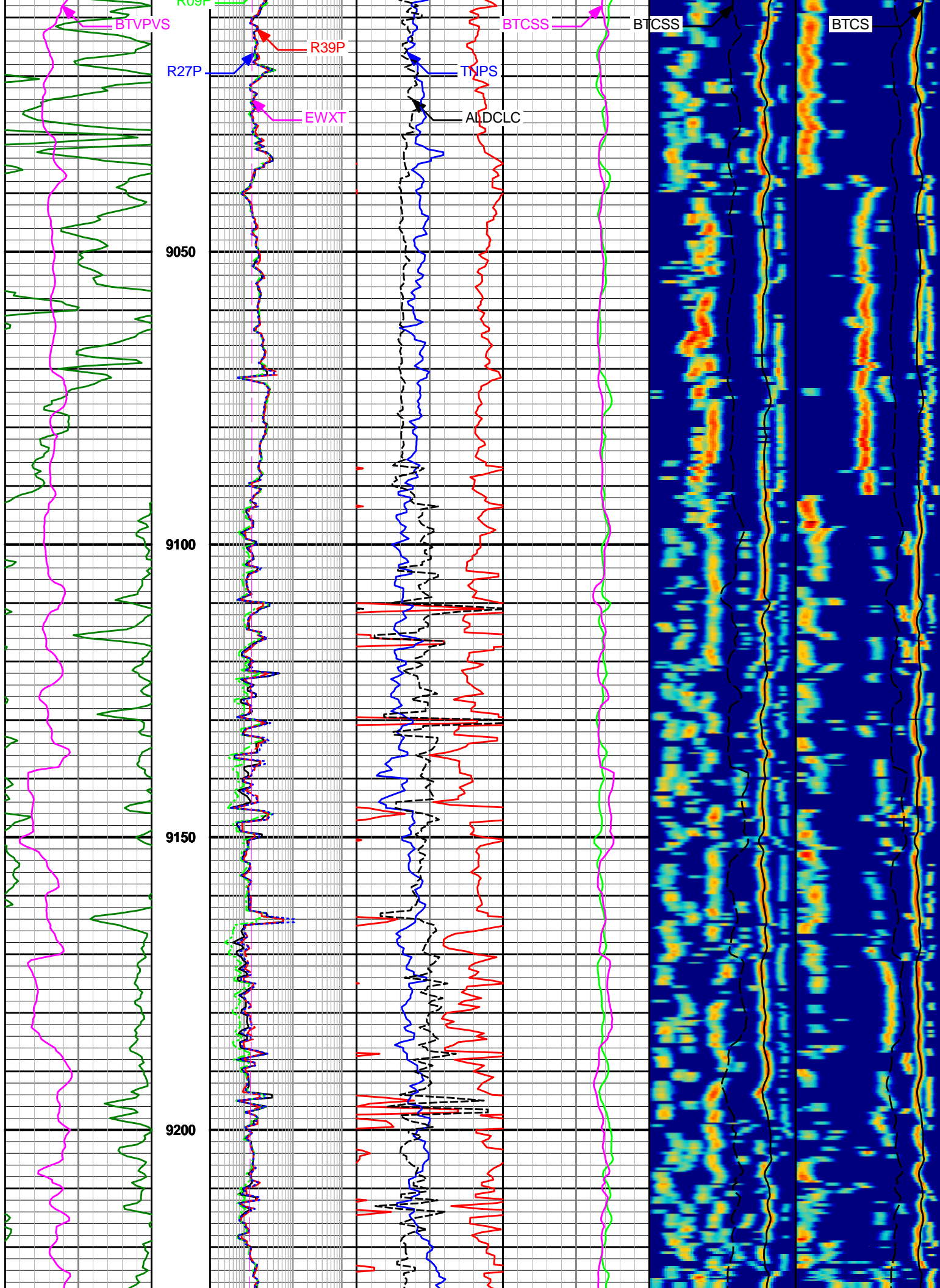
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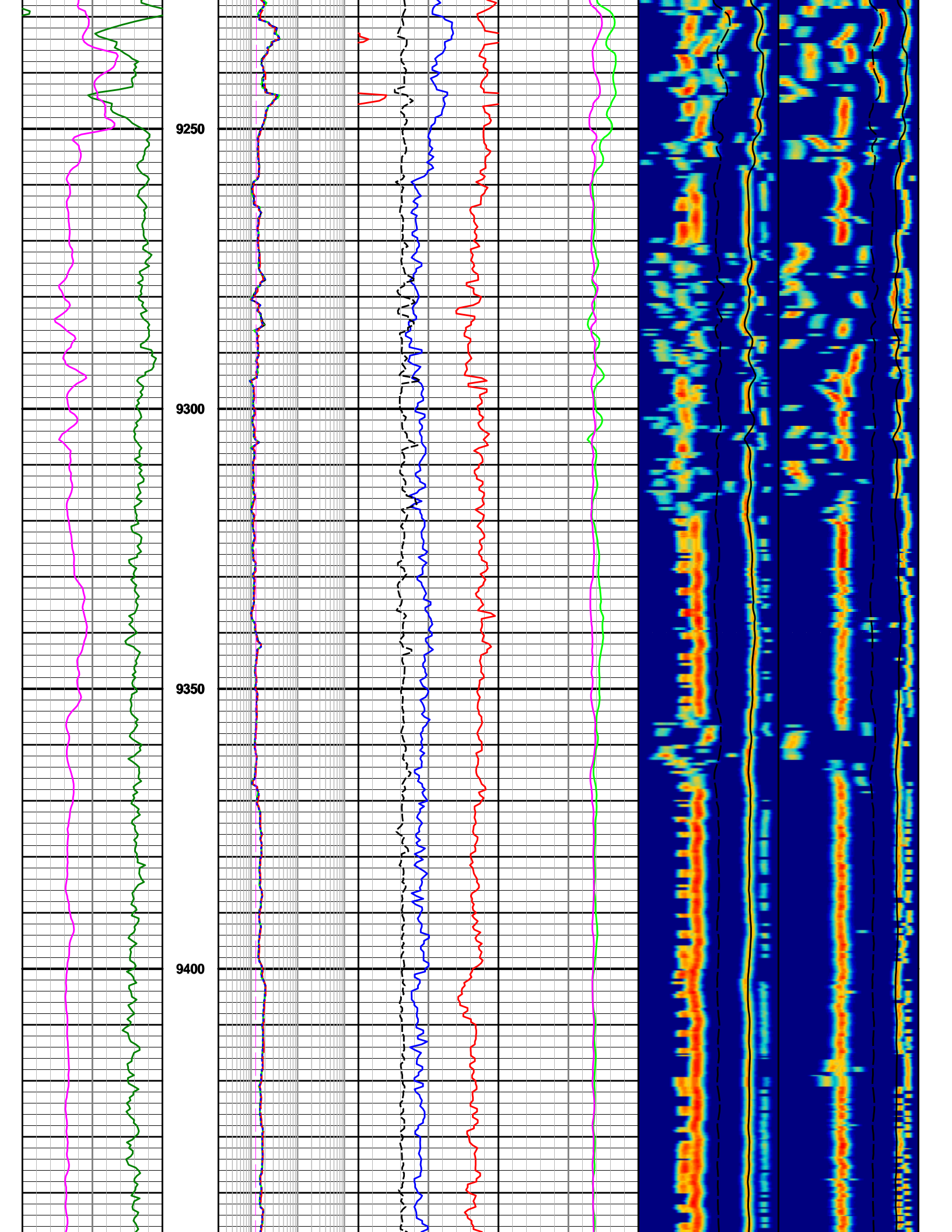
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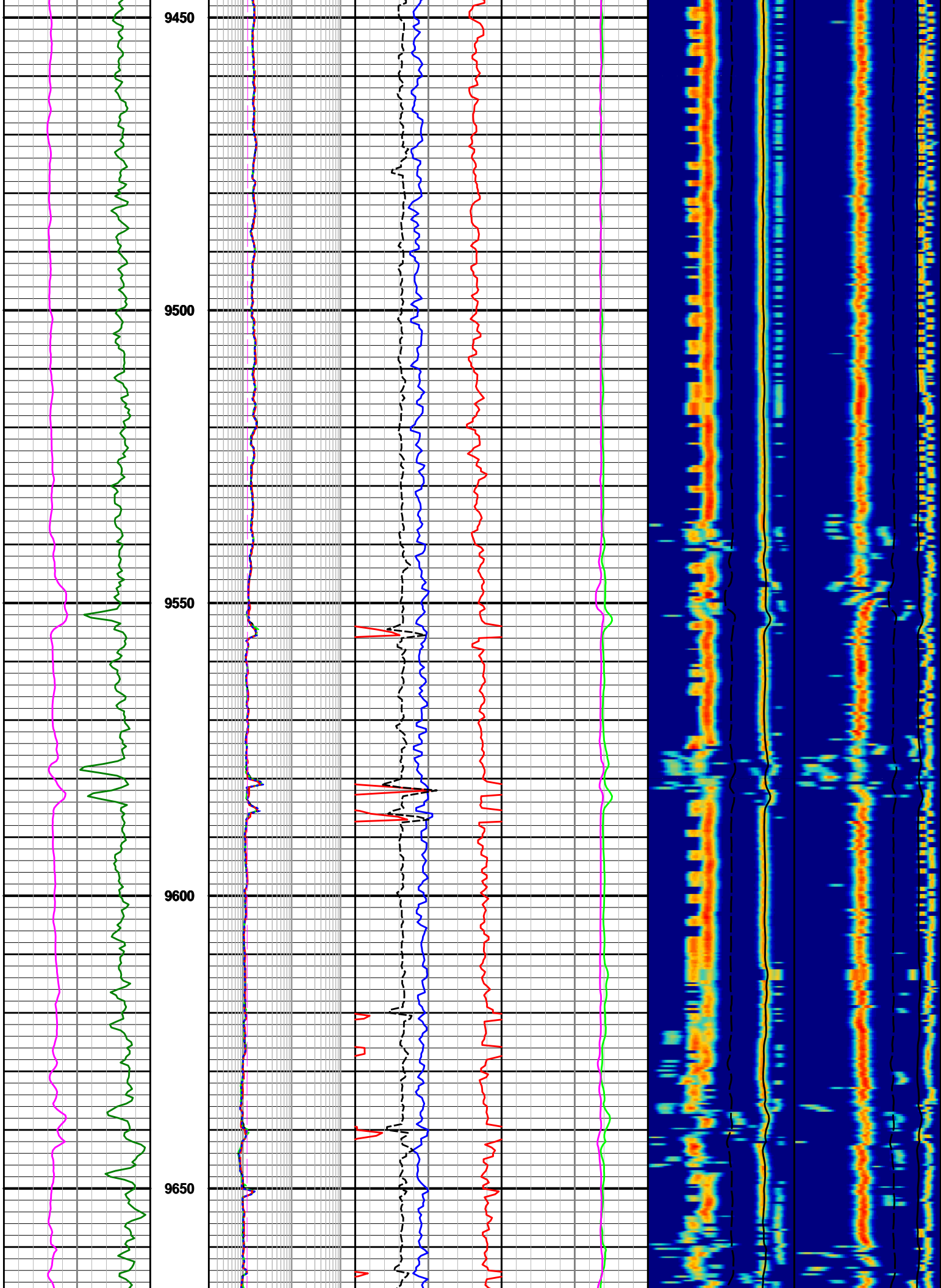


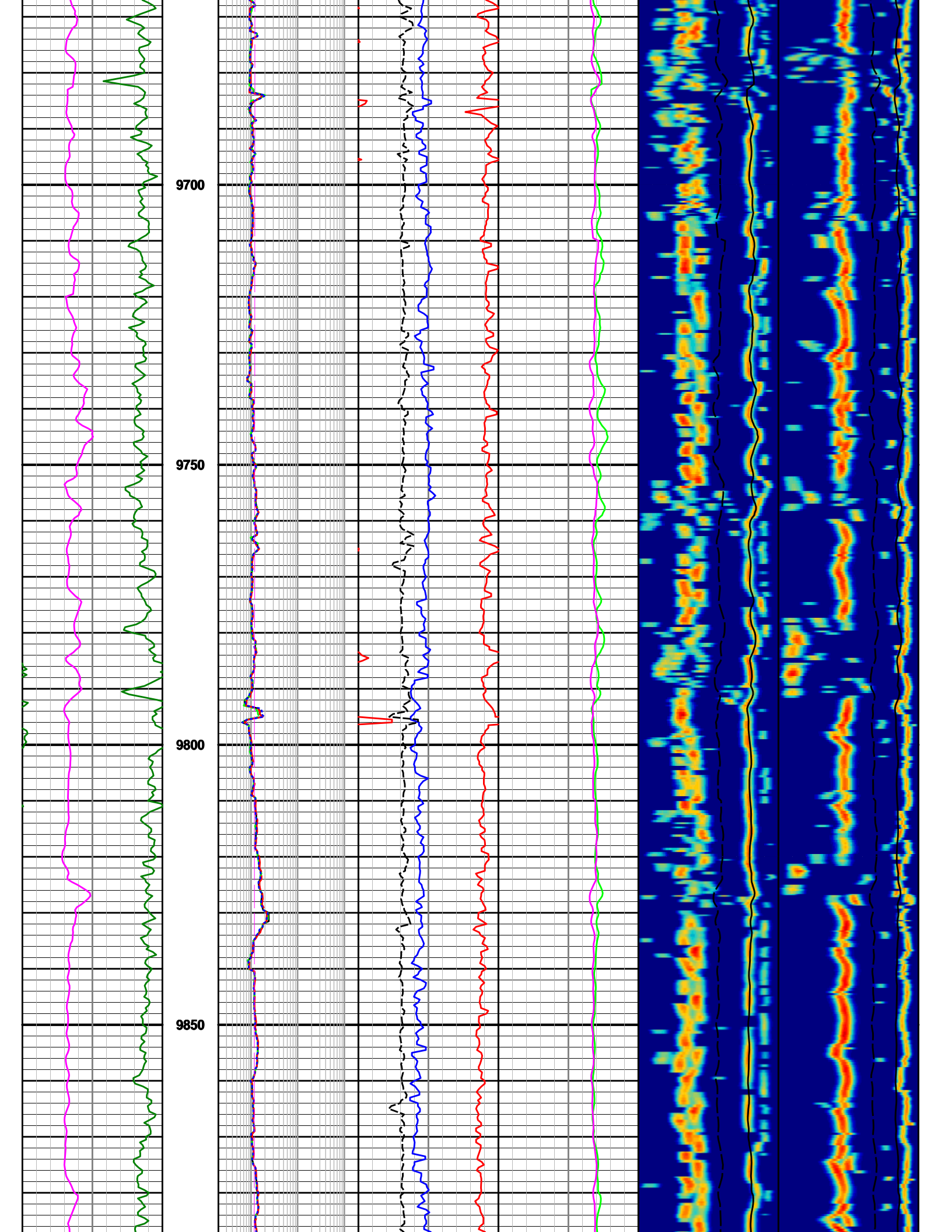


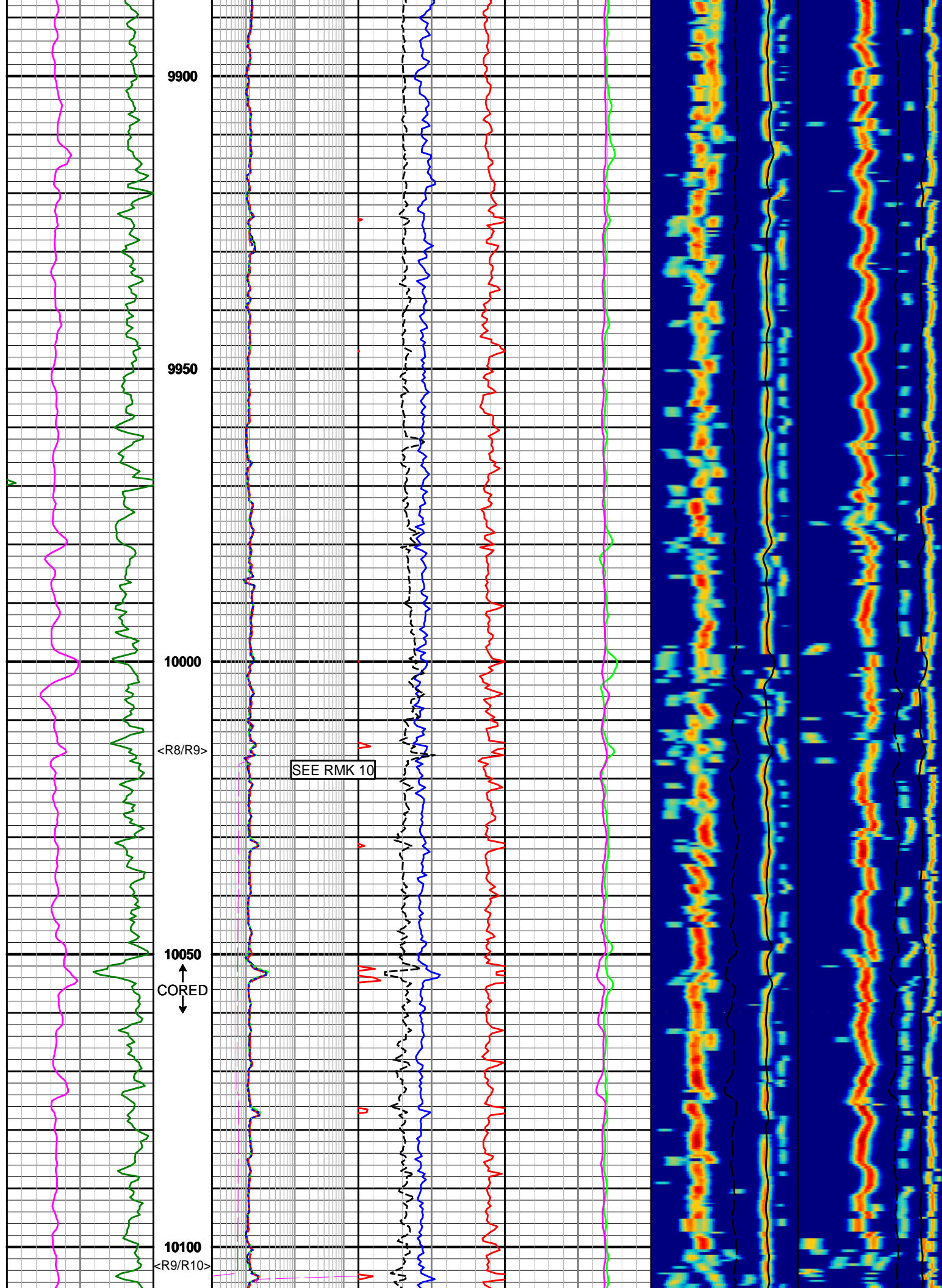


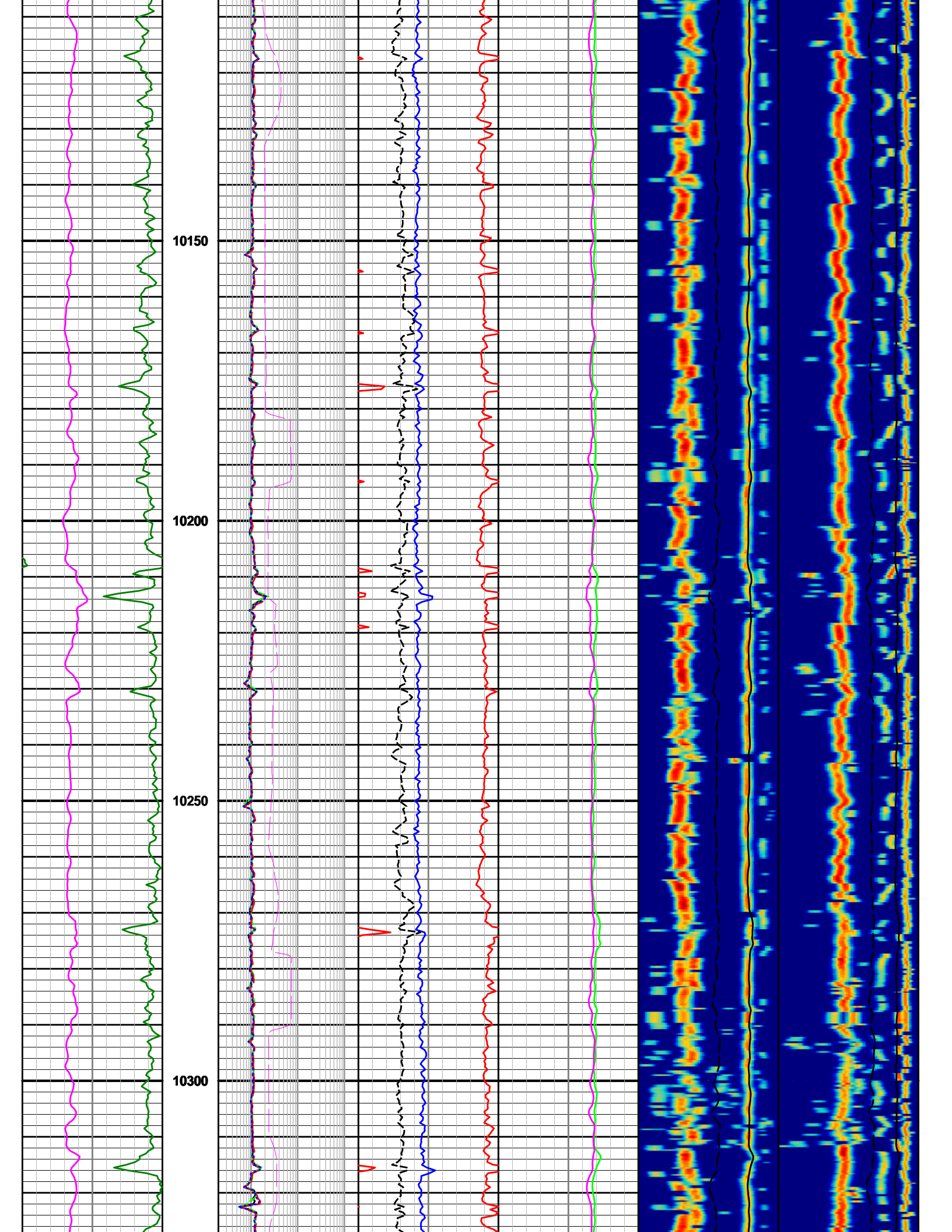


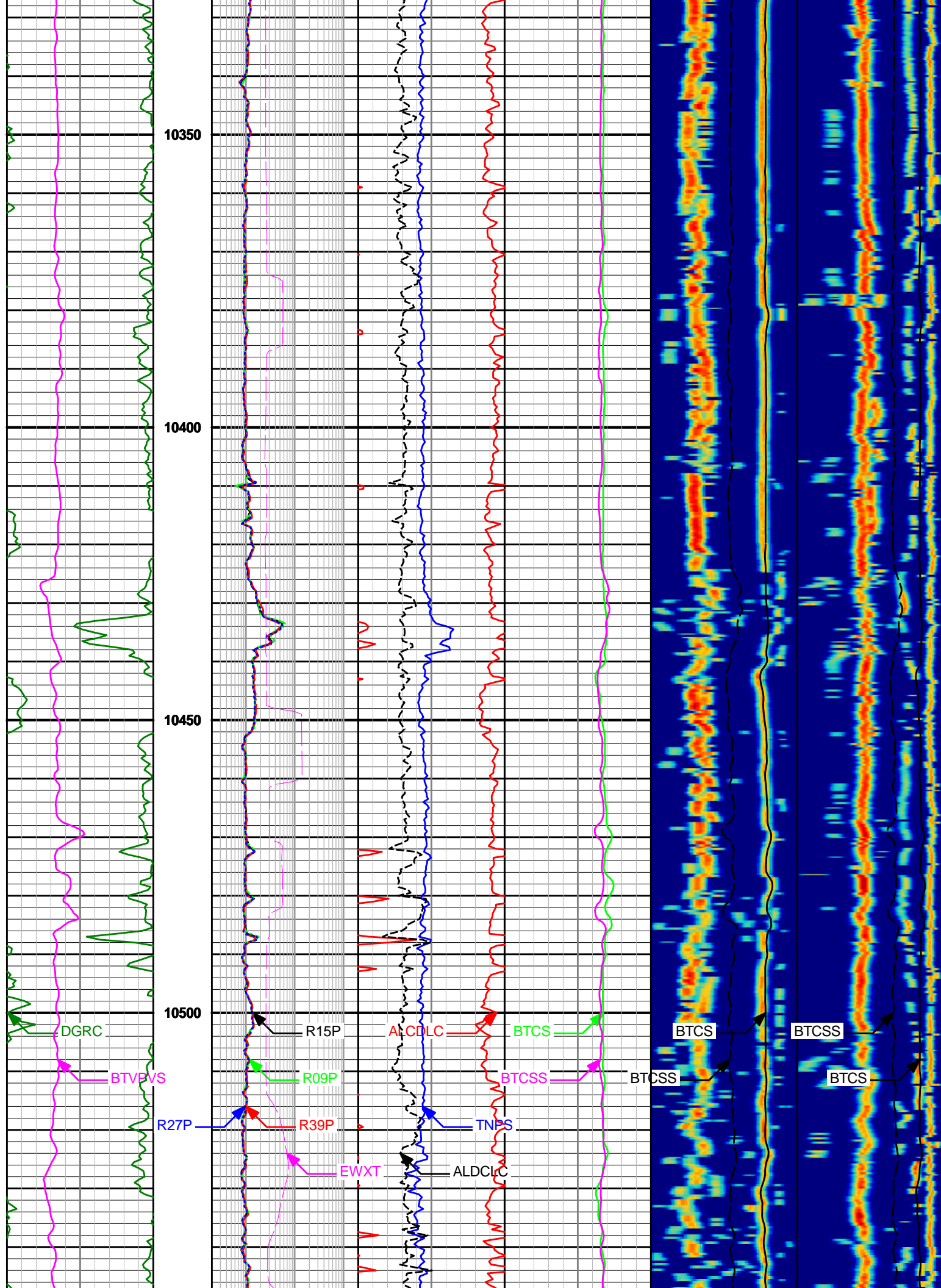


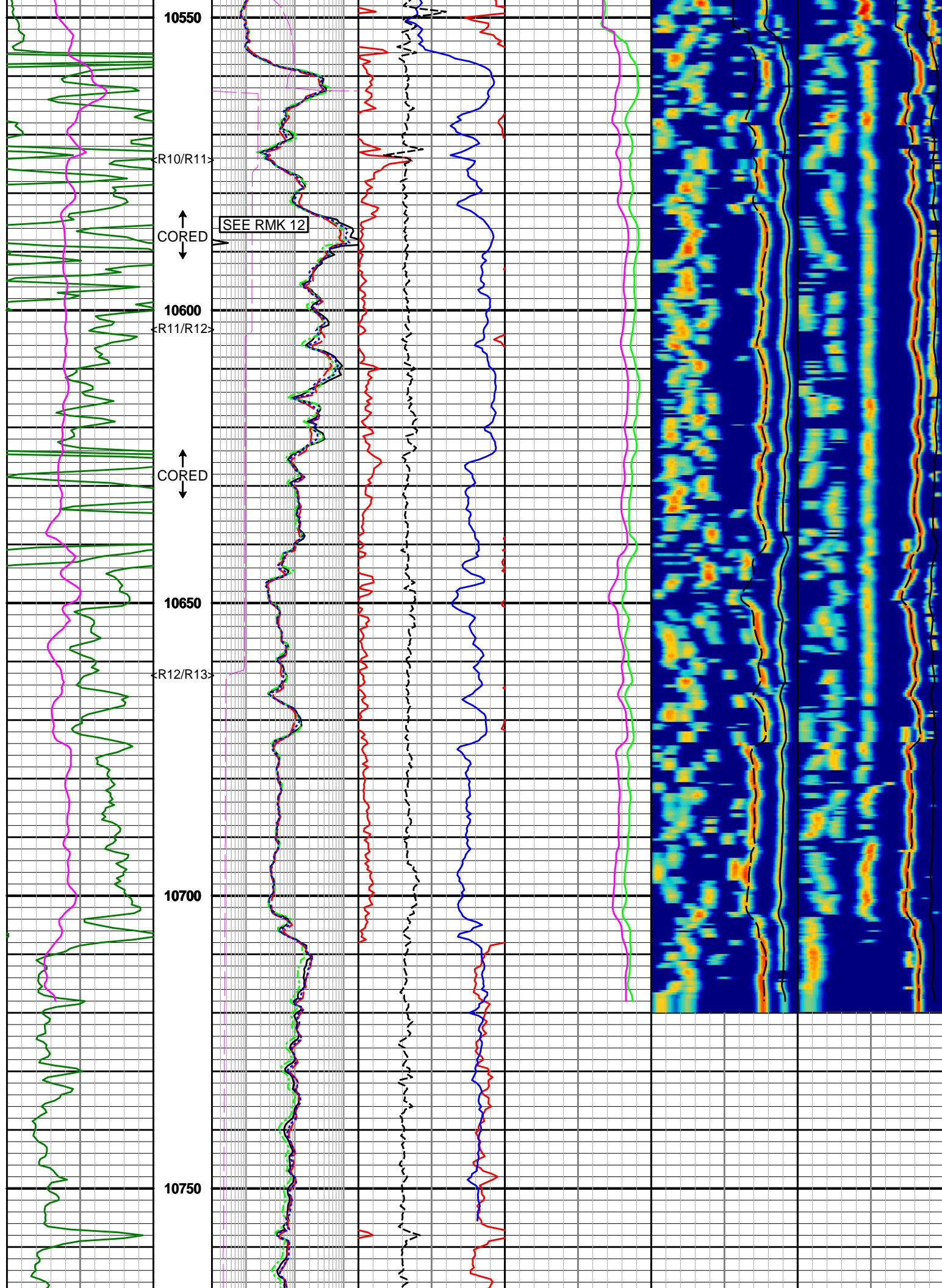


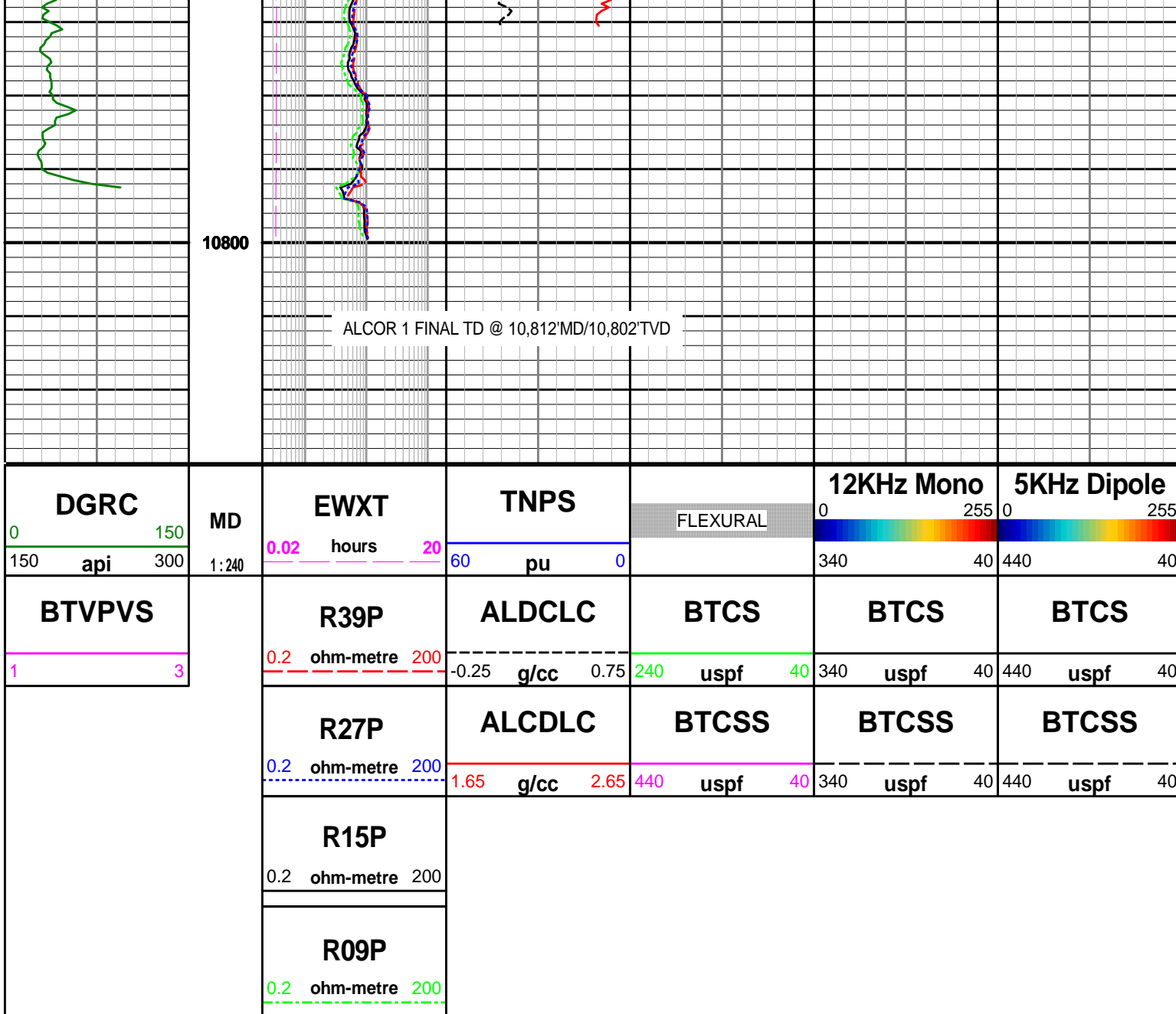












HALLIBURTON

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**