

Company: ENCANA OIL & GAS (USA) INC

Well: SGU 8505C-25 (F25-496)

Field: STORY GULCH

County: GARFIELD

State: COLORADO

County: GARFIELD

Field: STORY GULCH

Location: SHL:2321 FNL 1859 FWL

Well: SGU 8505C-25 (F25-496)

Company: ENCANA OIL & GAS (USA) INC

RESERVOIR SATURATION TOOL

SIGMA MODE

GAMMA RAY - CCL

LOCATION

SHL:2321 FNL 1859 FWL

BHL: 2211 FNL 684 FWL

Elev.: K.B. 8320.00 ft

G.L. 8298.00 ft

D.F. 8319.00 ft

Permanent Datum: GROUND LEVEL

Log Measured From: KELLY BUSHING

Drilling Measured From: KELLY BUSHING

Elev.: 22.00 ft

above Perm. Datum

API Serial No. 05-045-19087-0000

Section 25

Township 4S

Range 96W

Logging Date	25-Jun-2010				
Run Number	ONE				
Depth Driller	12230 ft				
Schlumberger Depth	12202 ft				
Bottom Log Interval	12194 ft				
Top Log Interval	3000 ft				
Casing Fluid Type	FRESH WATER				
Salinity					
Density	8.4 lbm/gal				
Fluid Level	22 ft				
BIT/CASING/TUBING STRING					
Bit Size	8.750 in				
From	22 ft				
To	13656 ft				
Casing/Tubing Size	4.500 in				
Weight	11.6 lbm/ft				
Grade	P-110				
From	22 ft				
To	13656 ft				
Maximum Recorded Temperatures	287 degF				
Logger On Bottom	25-Jun-2010			21:00	
Unit Number	Location				
Recorded By	STEPHEN CHAN				
Witnessed By	UNATTENDED				

PVT DATA		Run 1	Run 2	Run
Oil Density				
Water Salinity				
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze		Primary		
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Fluid Type				
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size				
Weight				
Grade				
From				
To				
Maximum Recorded Temperatures				
Logger On Bottom	Time			
Unit Number	Location			
Recorded By				
Witnessed By				

DEPTH SUMMARY LISTING

Date Created: 25-JUN-2010 21:55:48

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46ZV XS
Serial Number:	6322	Serial Number:	2537	Serial Number:	2105
Calibration Date:	2-FEB-2010	Calibration Date:	9-JUN-2010	Length:	13500 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	1159	Conveyance Method: Wireline Rig Type: LAND	
Calibration Cable Type:	7-46P	Number of Calibration Points:	10		
Wheel Correction 1:	-9	Calibration RMS:	48		
Wheel Correction 2:	-8	Calibration Peak Error:	25		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	295.00 FT
Rig Up Length At Bottom:	294.00 FT
Rig Up Length Correction:	1.00 FT
Stretch Correction:	6.00 FT
Tool Zero Check At Surface:	0.00 FT

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES FOLLOWED.
2. IDW USED AS PRIMARY DEPTH CONTROL.
3. Z-CHART USED AS SECONDARY DEPTH CONTROL.
- 4.
- 5.
- 6.

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1 OS1: NONE OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1 THIS WAS THE FIRST RUN IN HOLE.	REMARKS: RUN NUMBER 2
TOOL RAN AS PER TOOL SKETCH.	
TD TAGGED AT 12202FT	
MAXIMUM TEMPERATURE 287DEGE RECORDED AT TD	

RST-ATNG — 15.7

AH-BNS Tension HV 0.0 0.3
 TOOL ZERO
 MAXIMUM STRING DIAMETER 3.38 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN FEET



MAIN PASS SIGMA

MAXIS Field Log

Input DLIS Files

DEFAULT Splice_RST_PSP_038CUP FN:1 PRODUCER 26-Jun-2010 00:11 12226.5 FT 2981.6 FT

Output DLIS Files

DEFAULT RST_PSP_039PUP FN:33 PRODUCER 26-Jun-2010 00:12 12226.5 FT 2964.0 FT

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3

PIP SUMMARY

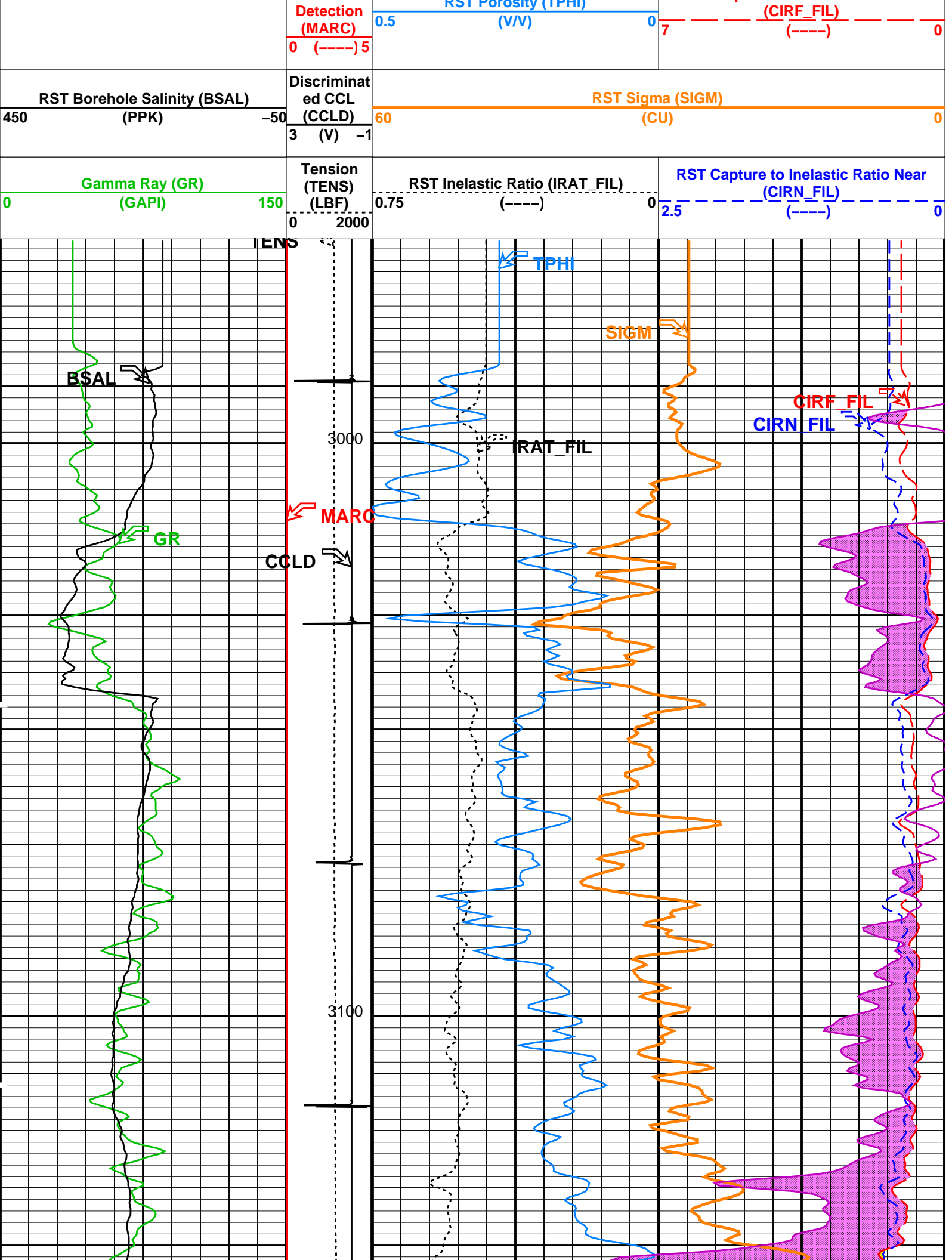
Time Mark Every 60 S

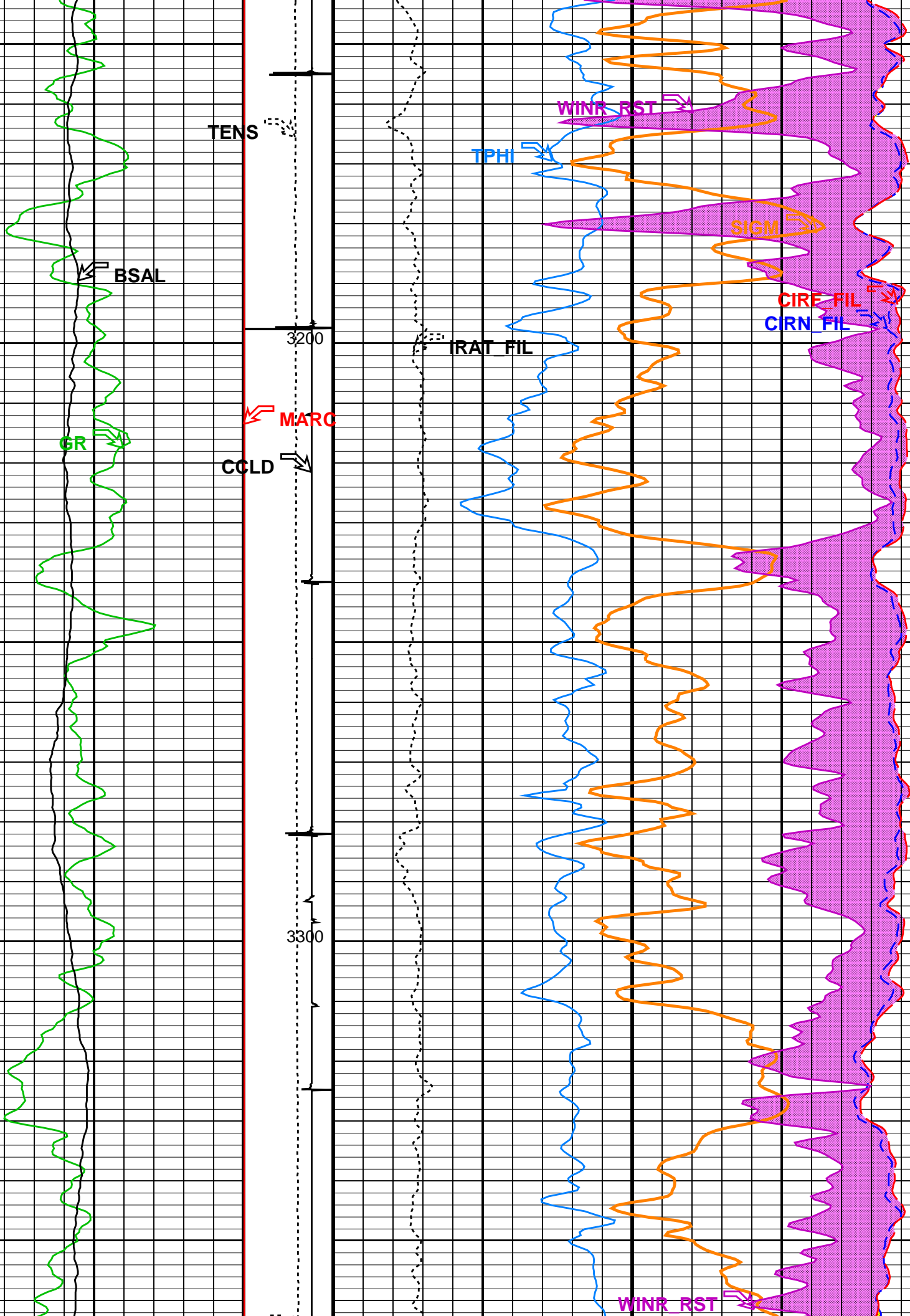
Crossover in sand
 From RST_CIRF_FIL to RST_CIRN_FIL

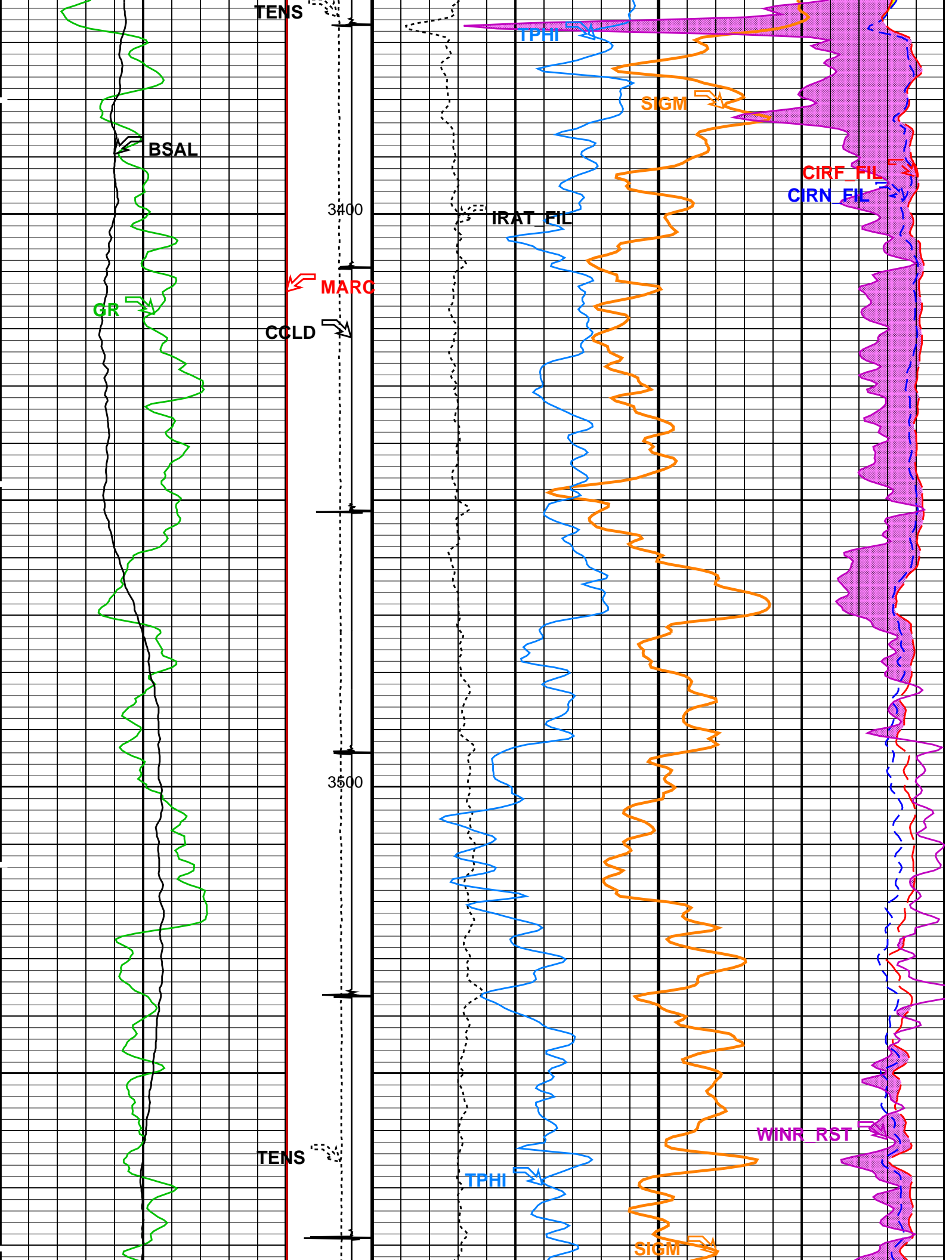
WINR Gas Flag
 From WINR to RST_CIRF_FIL

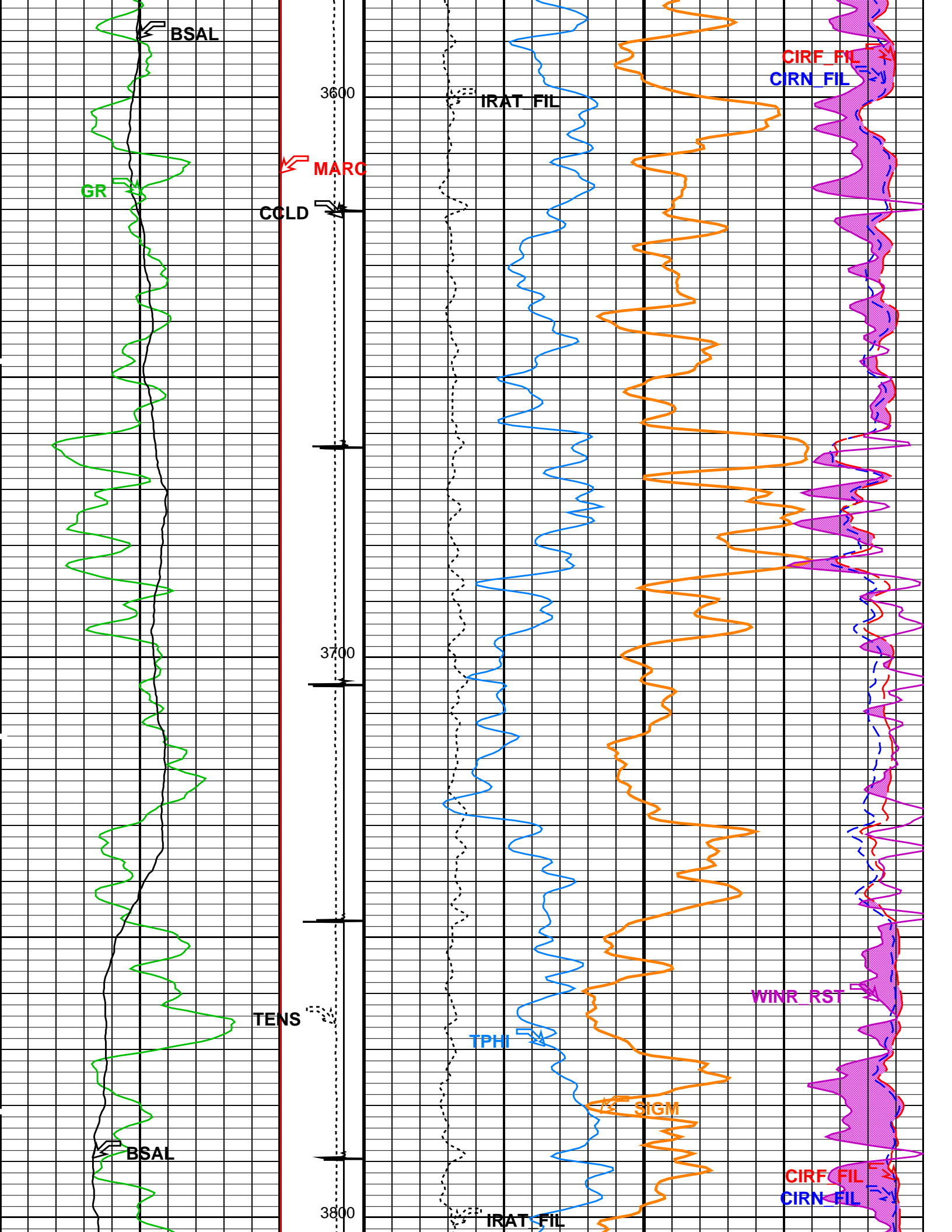
RST Weighted Inelastic Ratio (WINR_RST)
 0.4 (----) 0

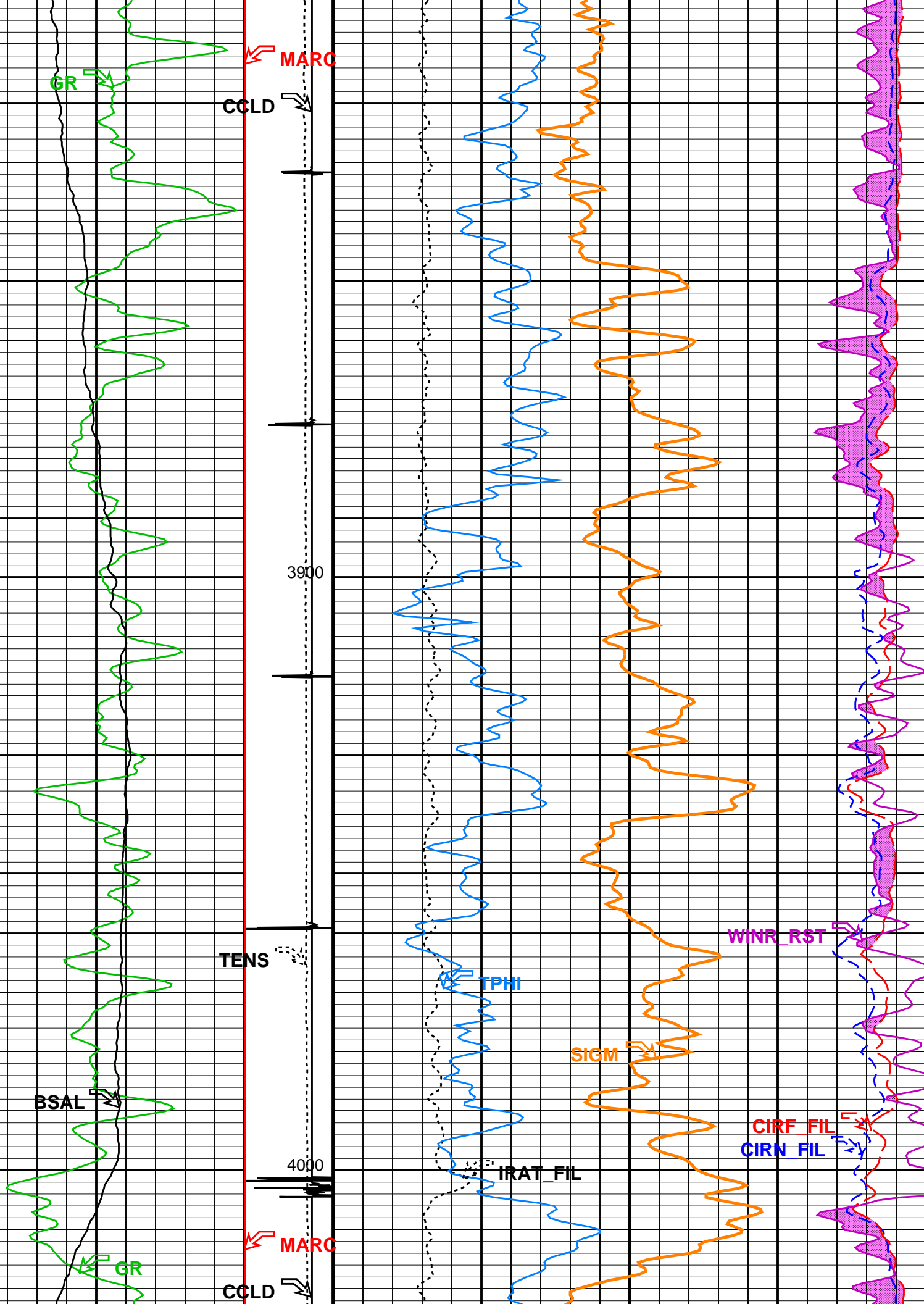
Minitron Arc RST Density (TDU) RST Capture to Inelastic Ratio Far

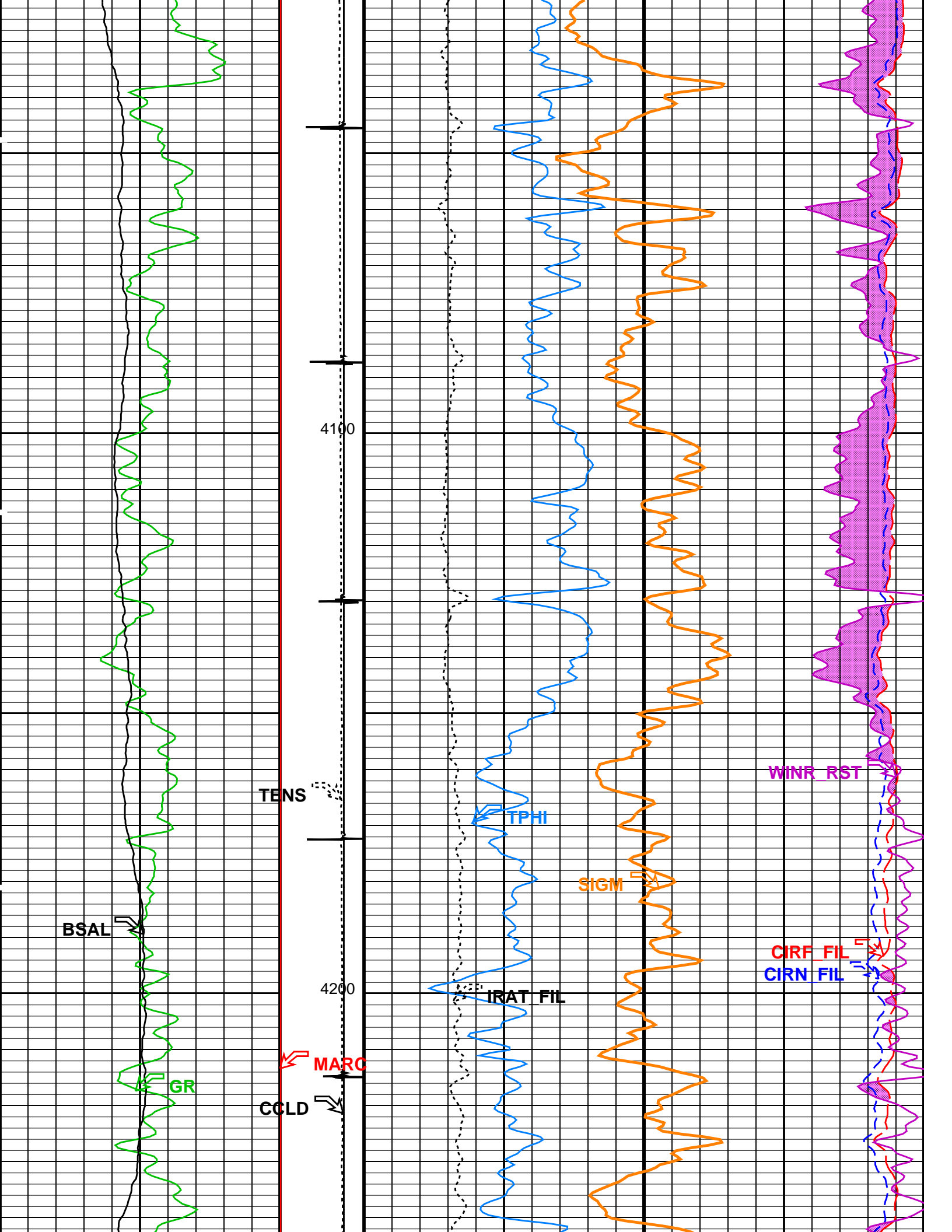


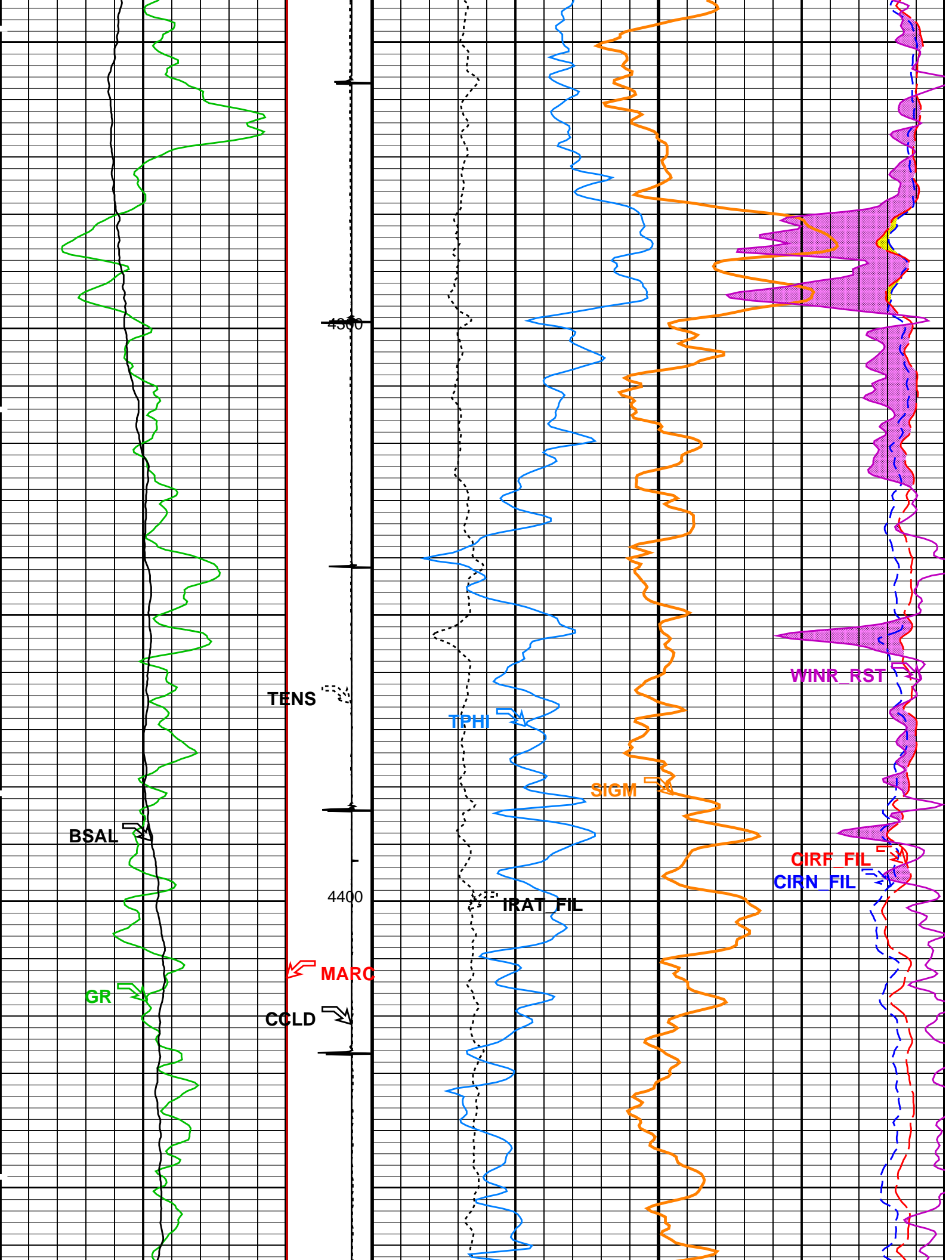


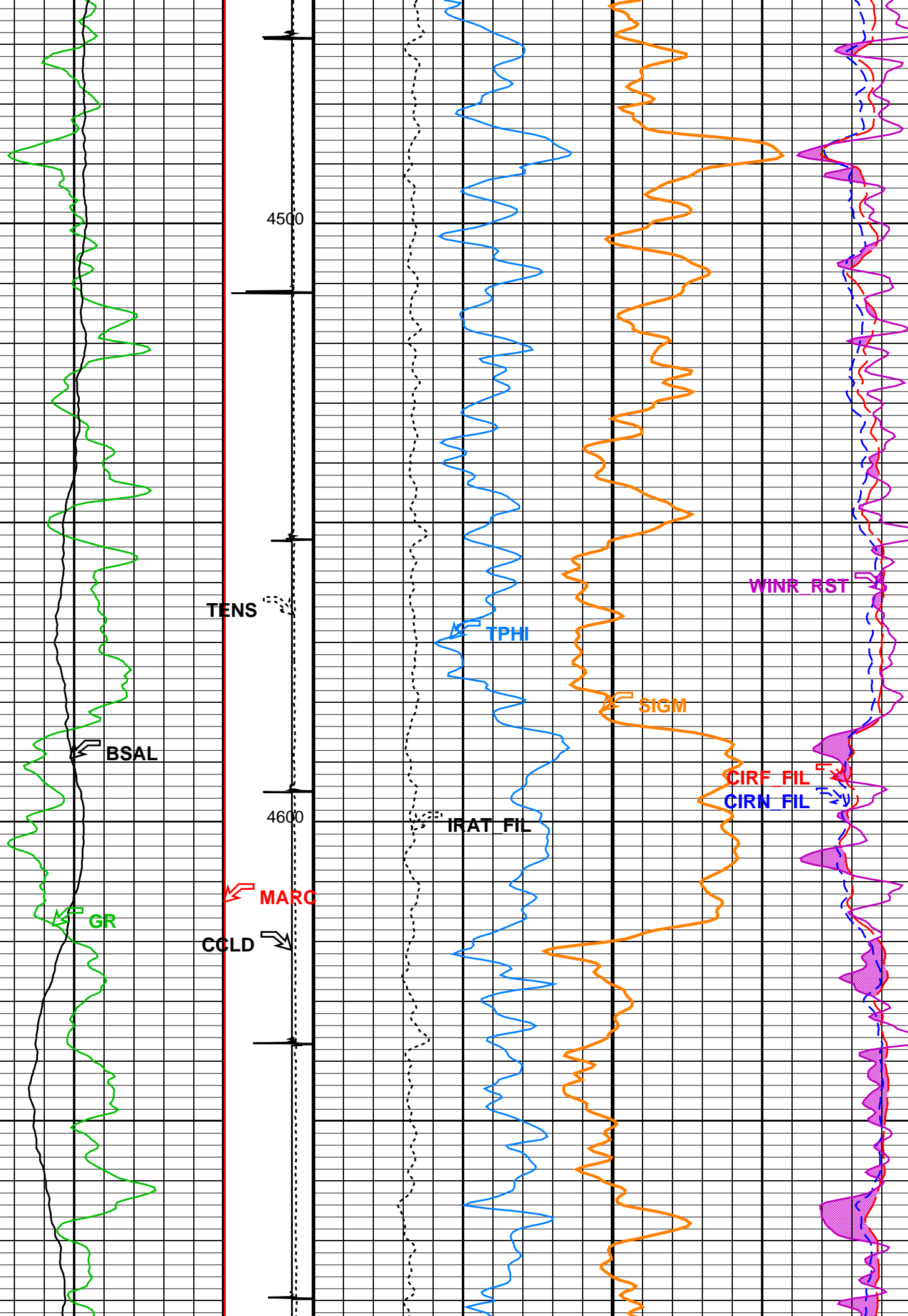


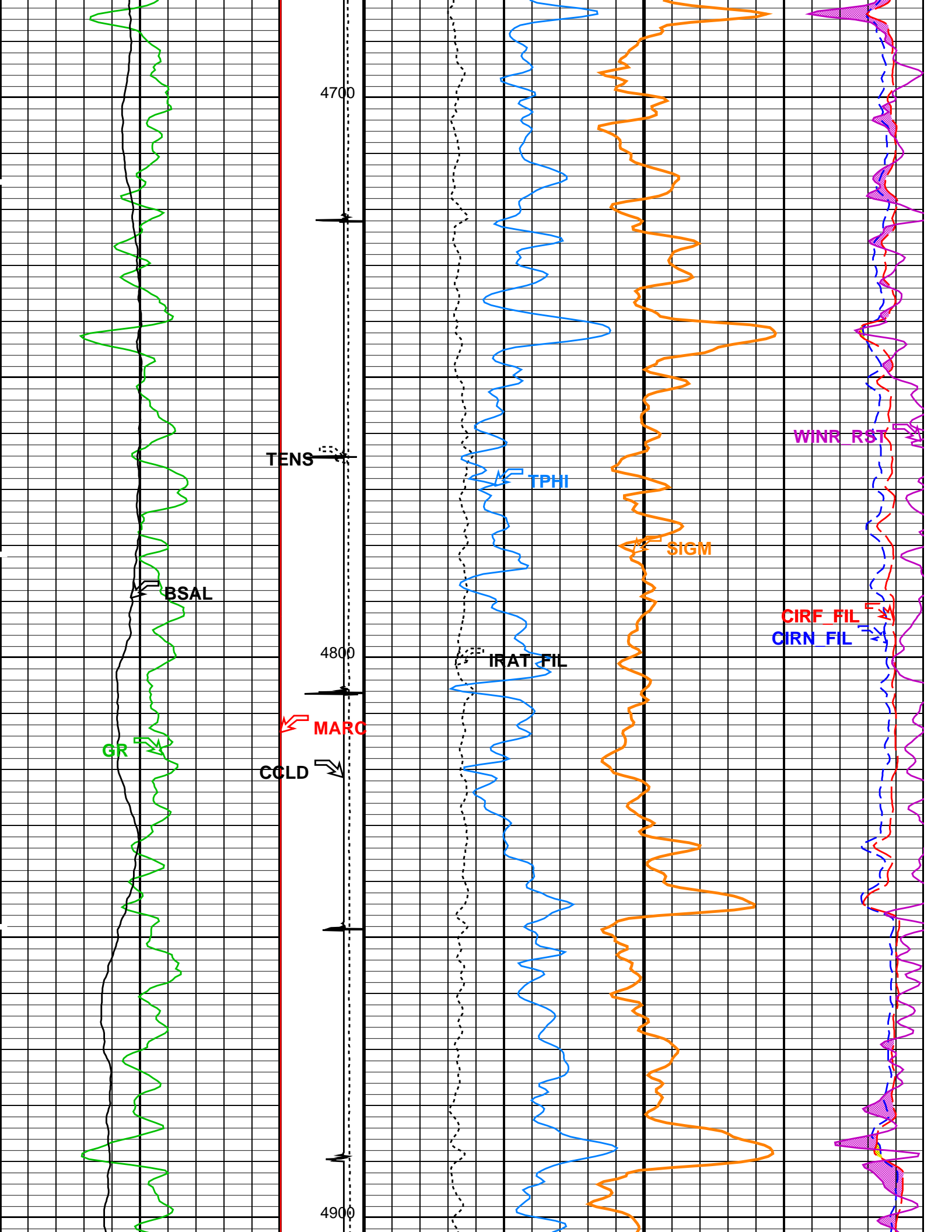


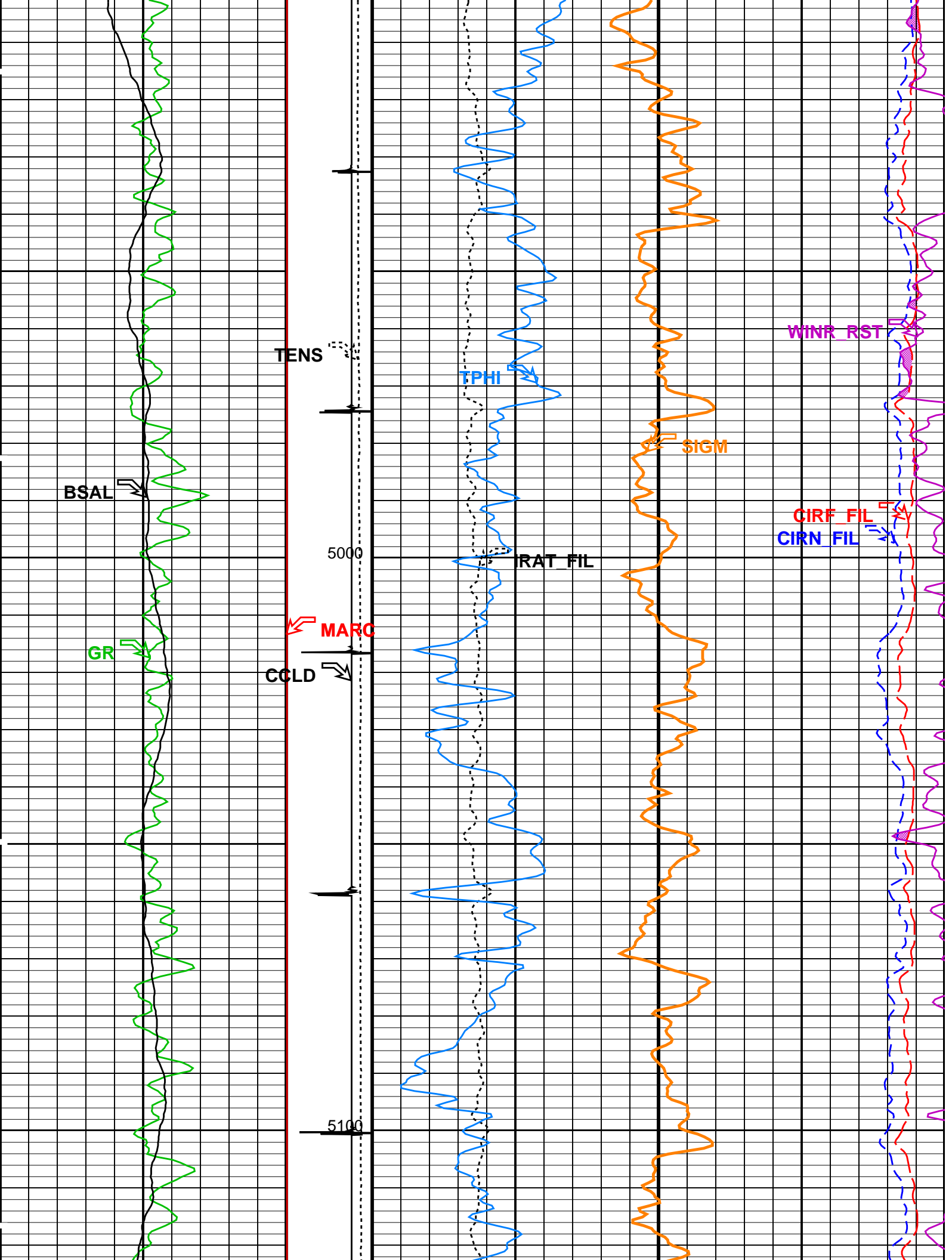


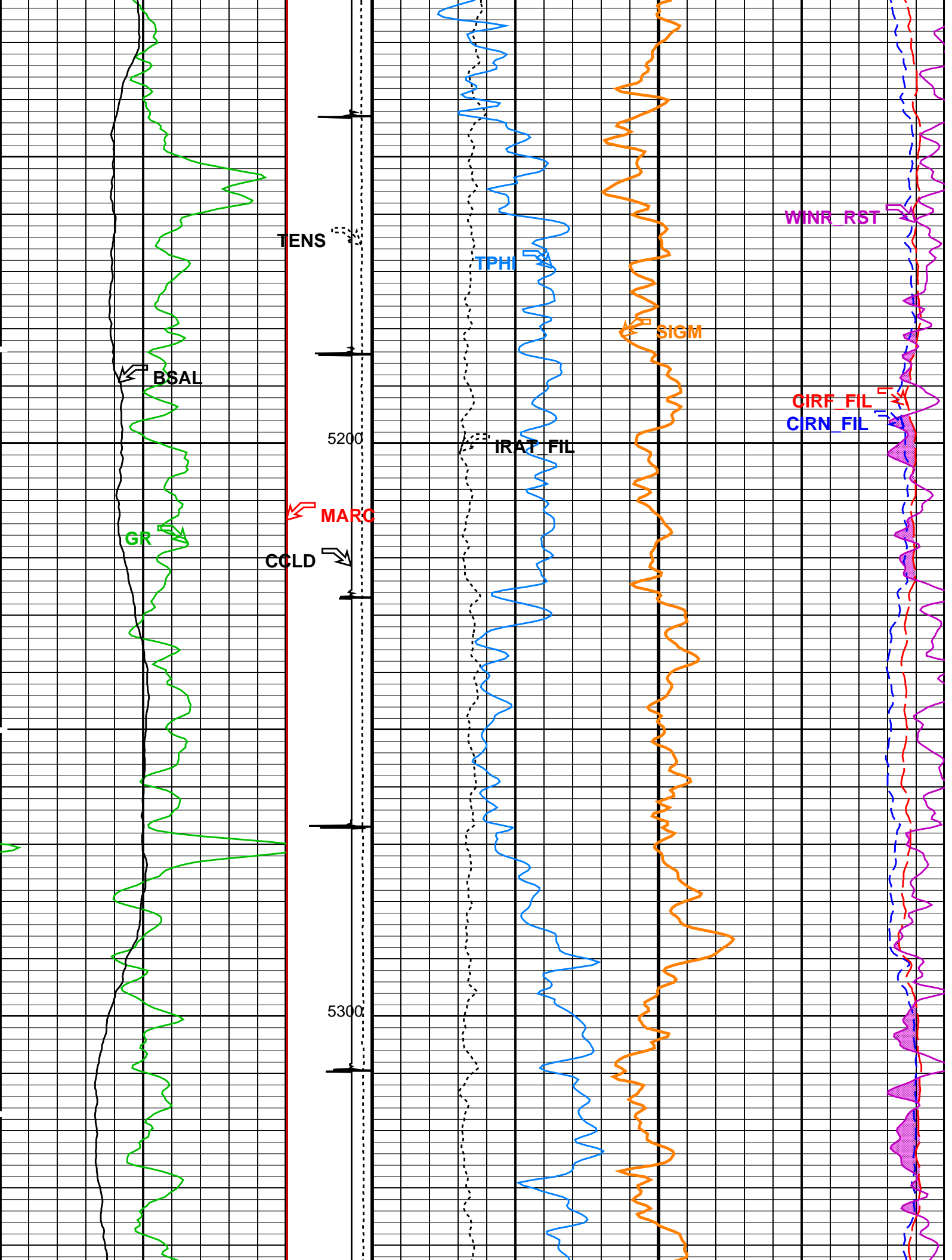


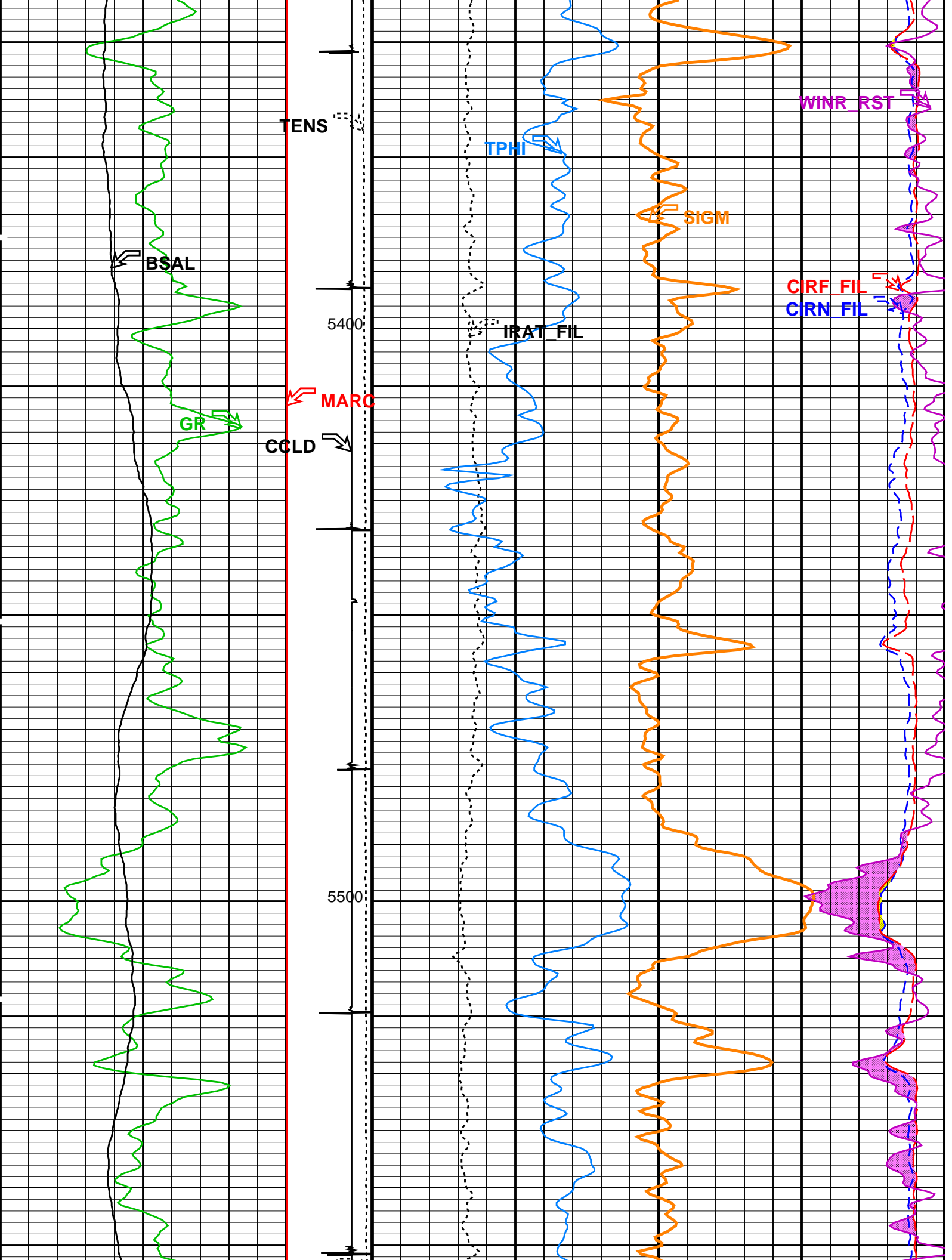


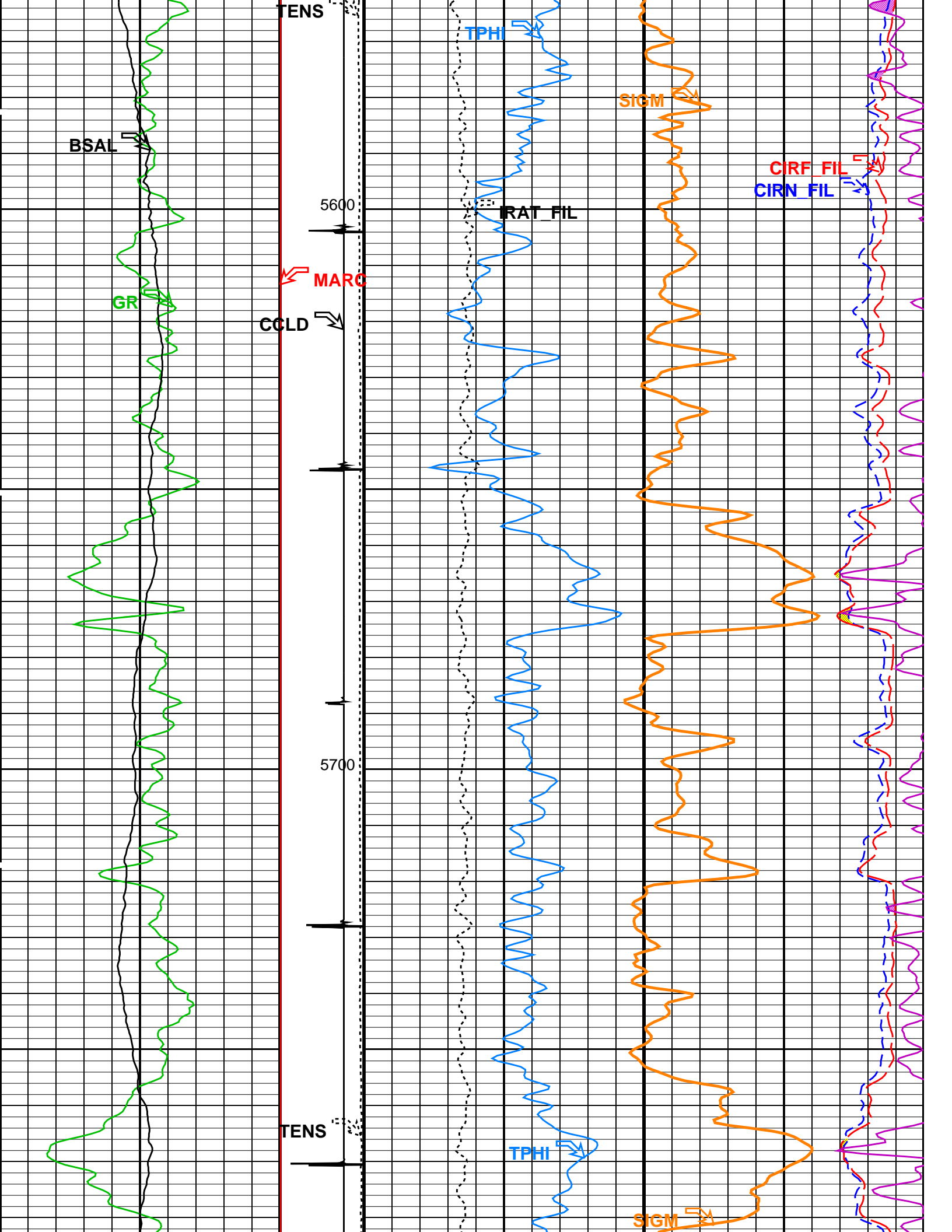


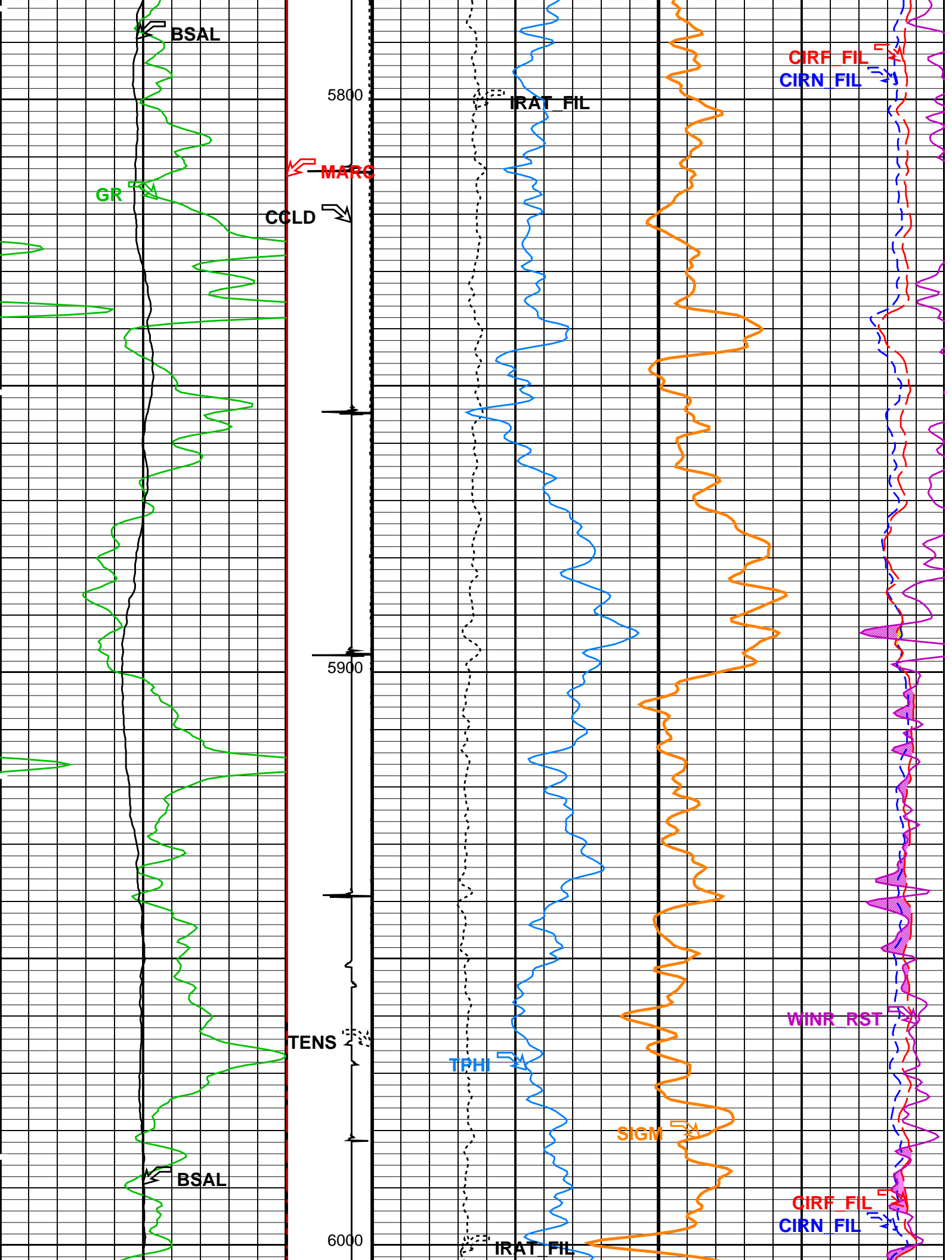


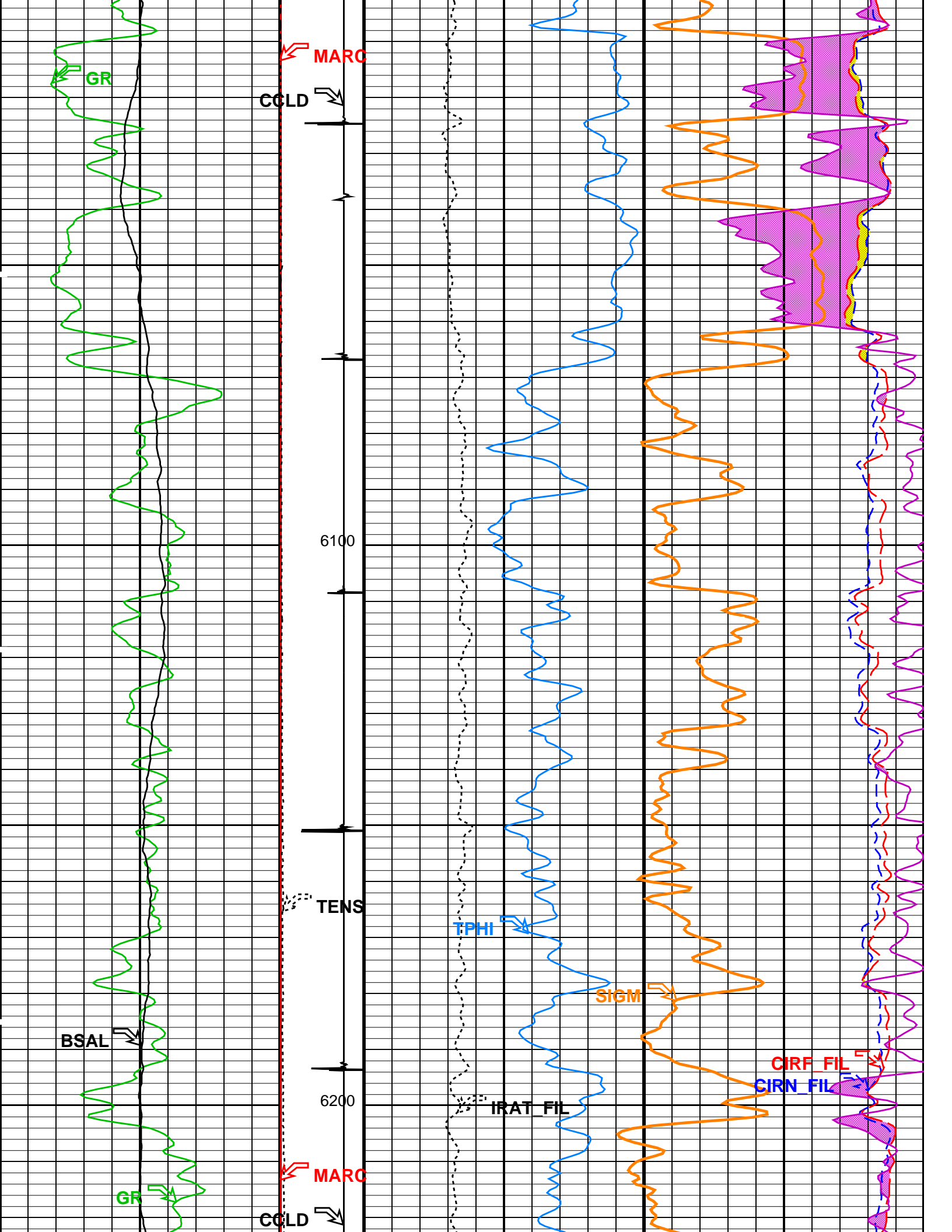


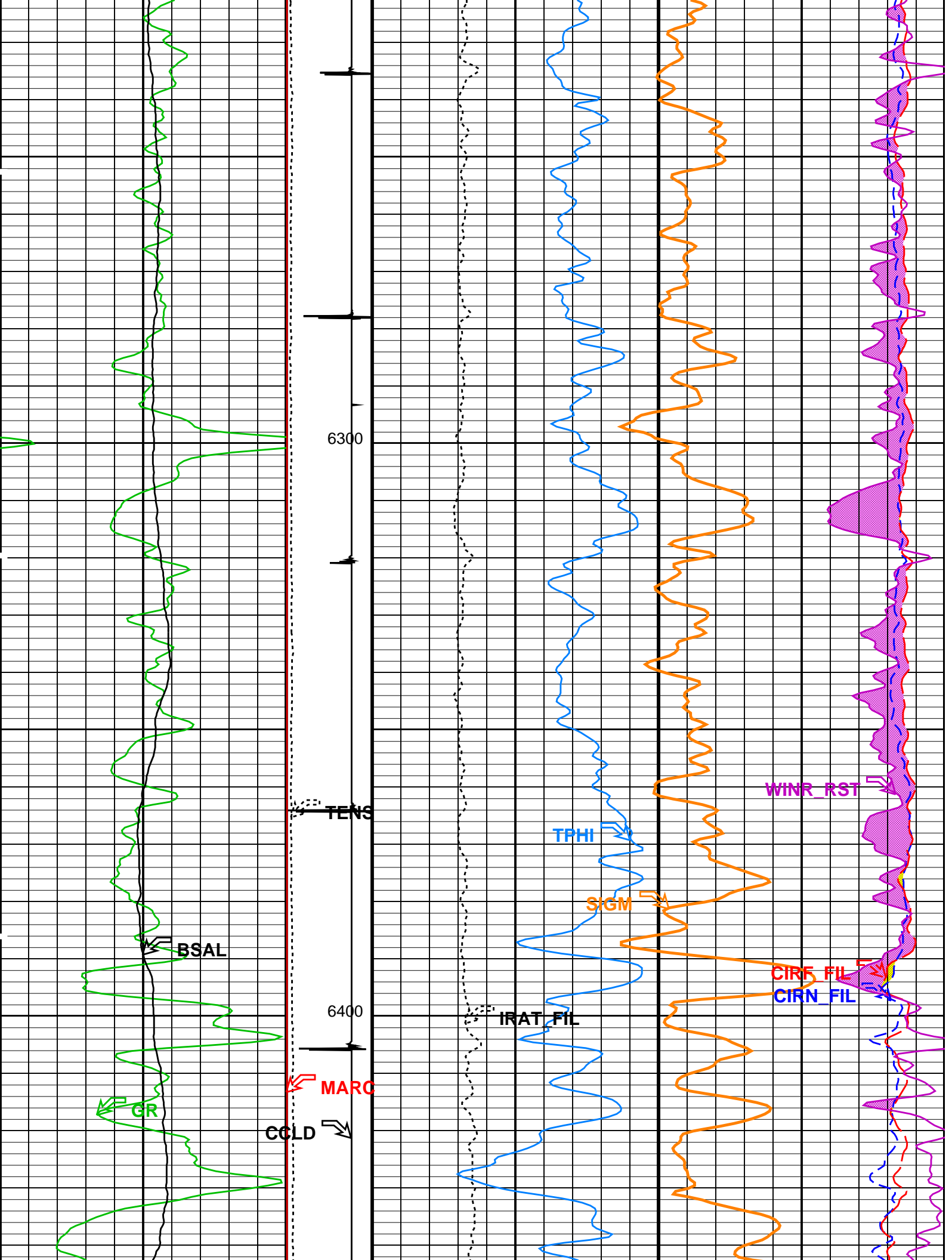


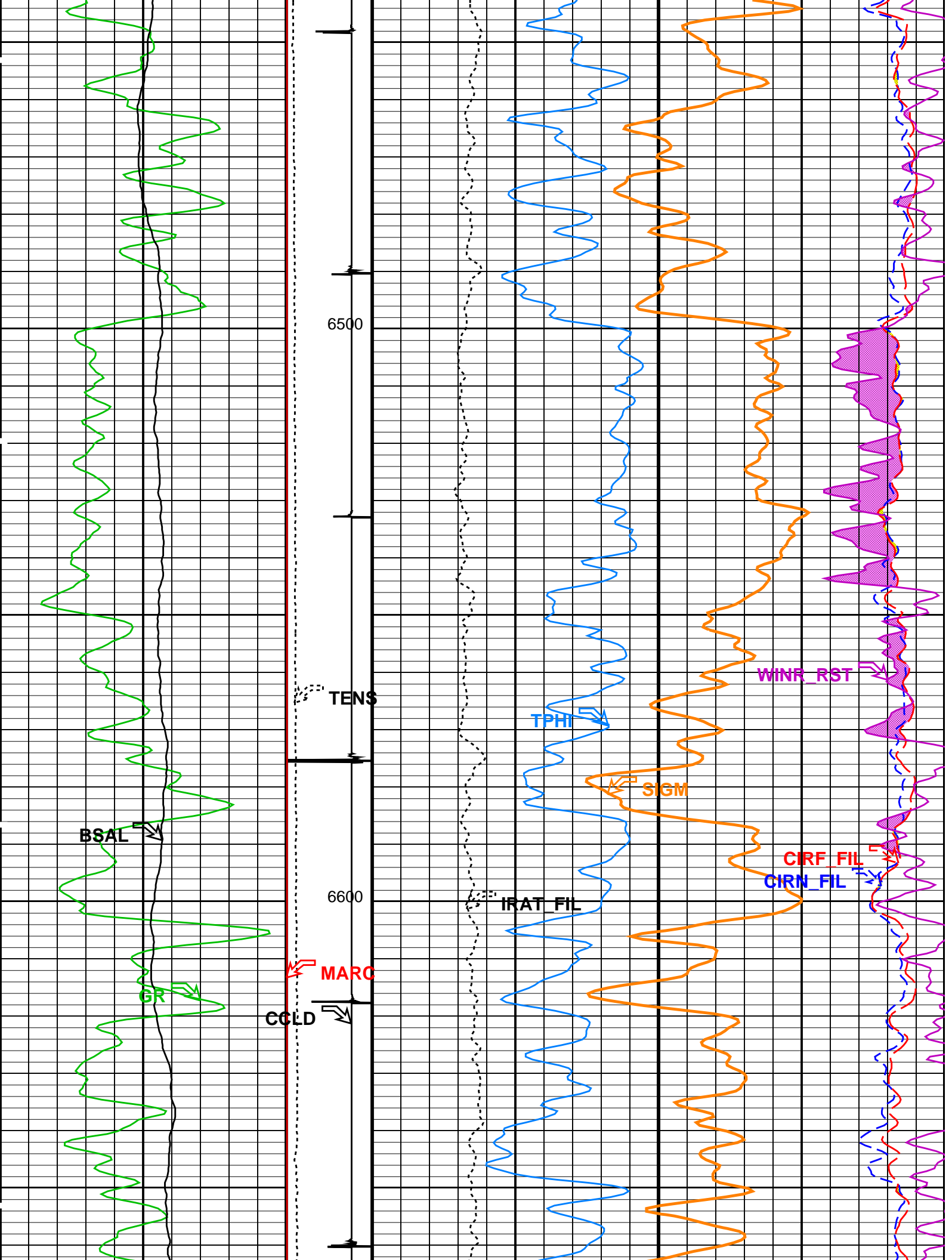


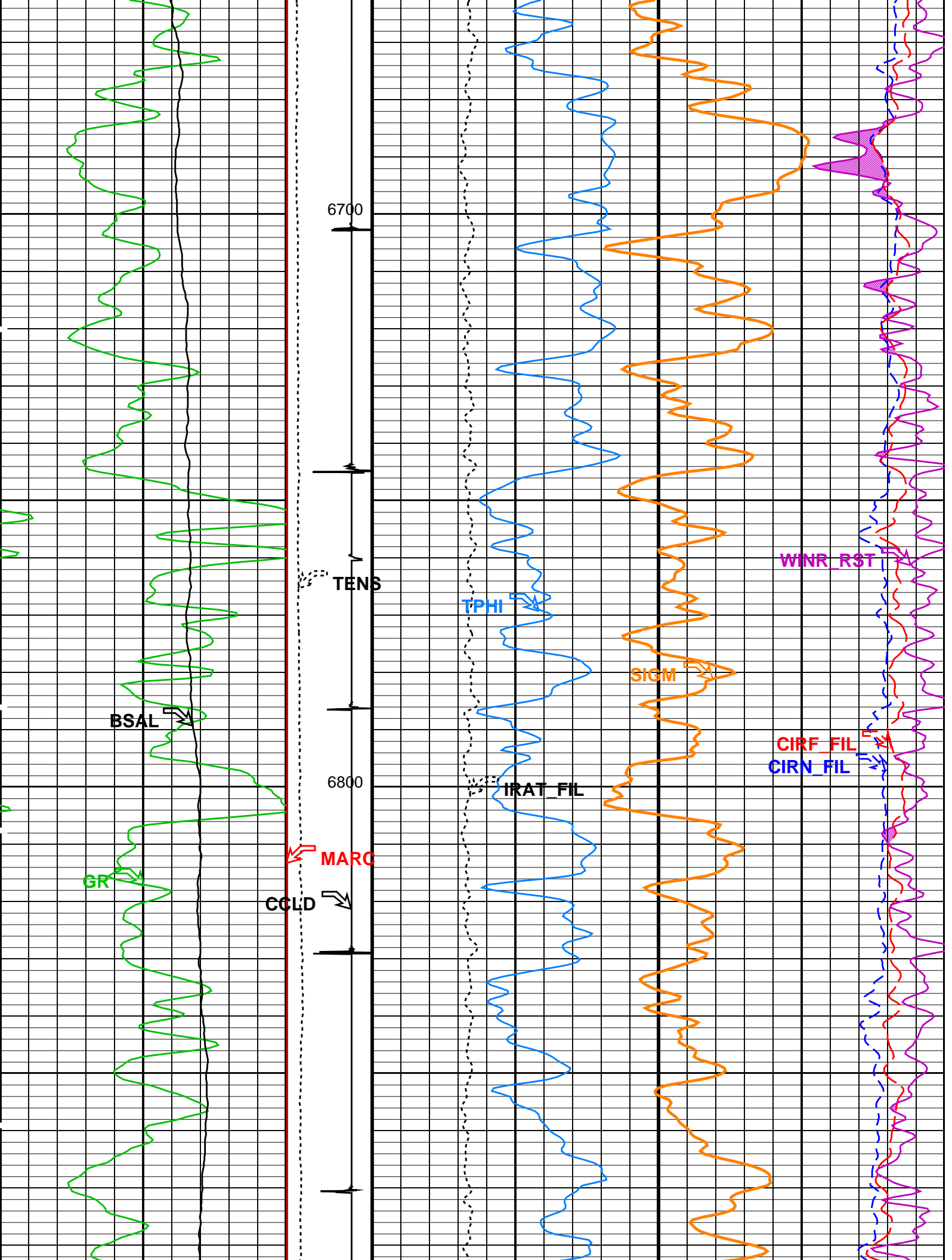


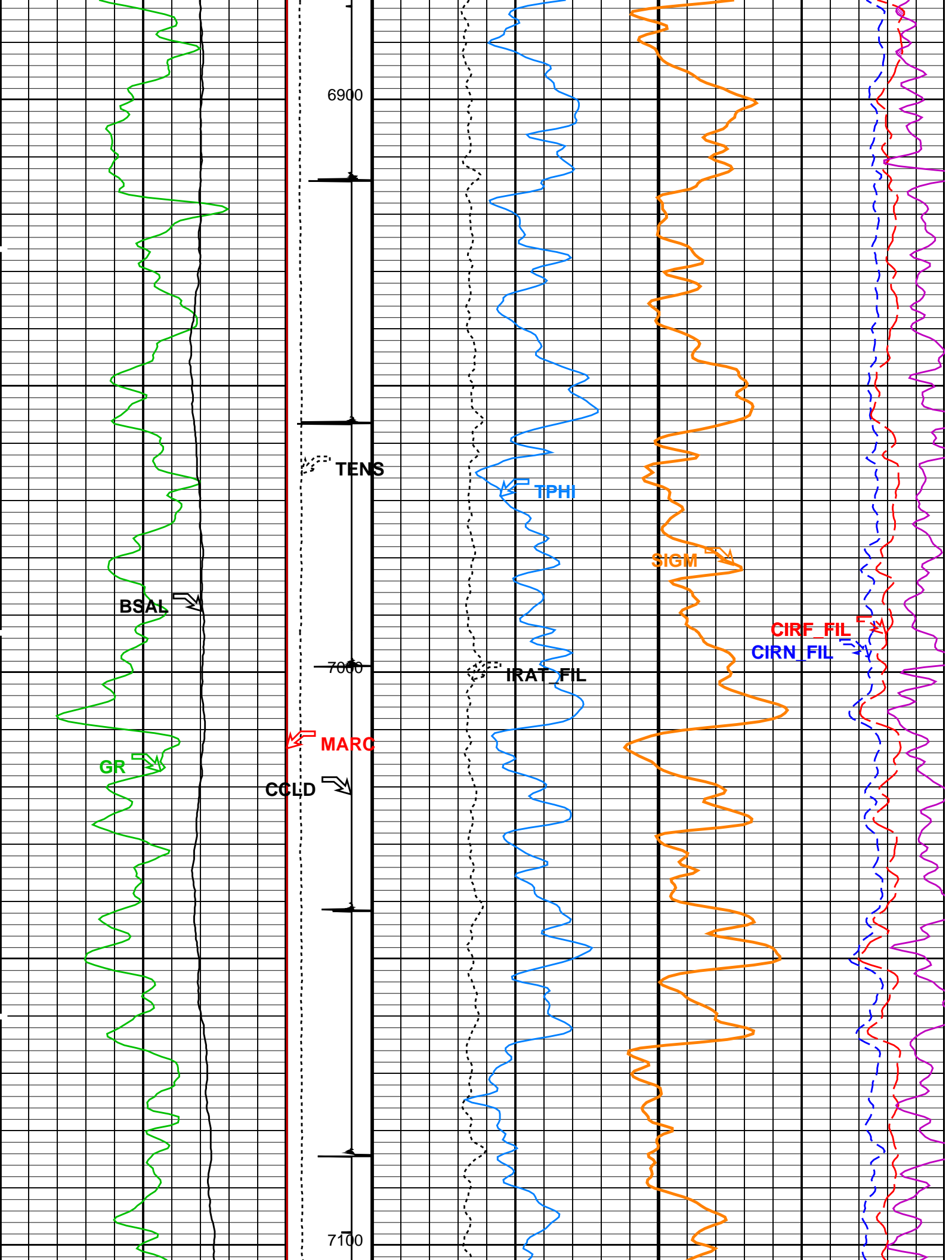


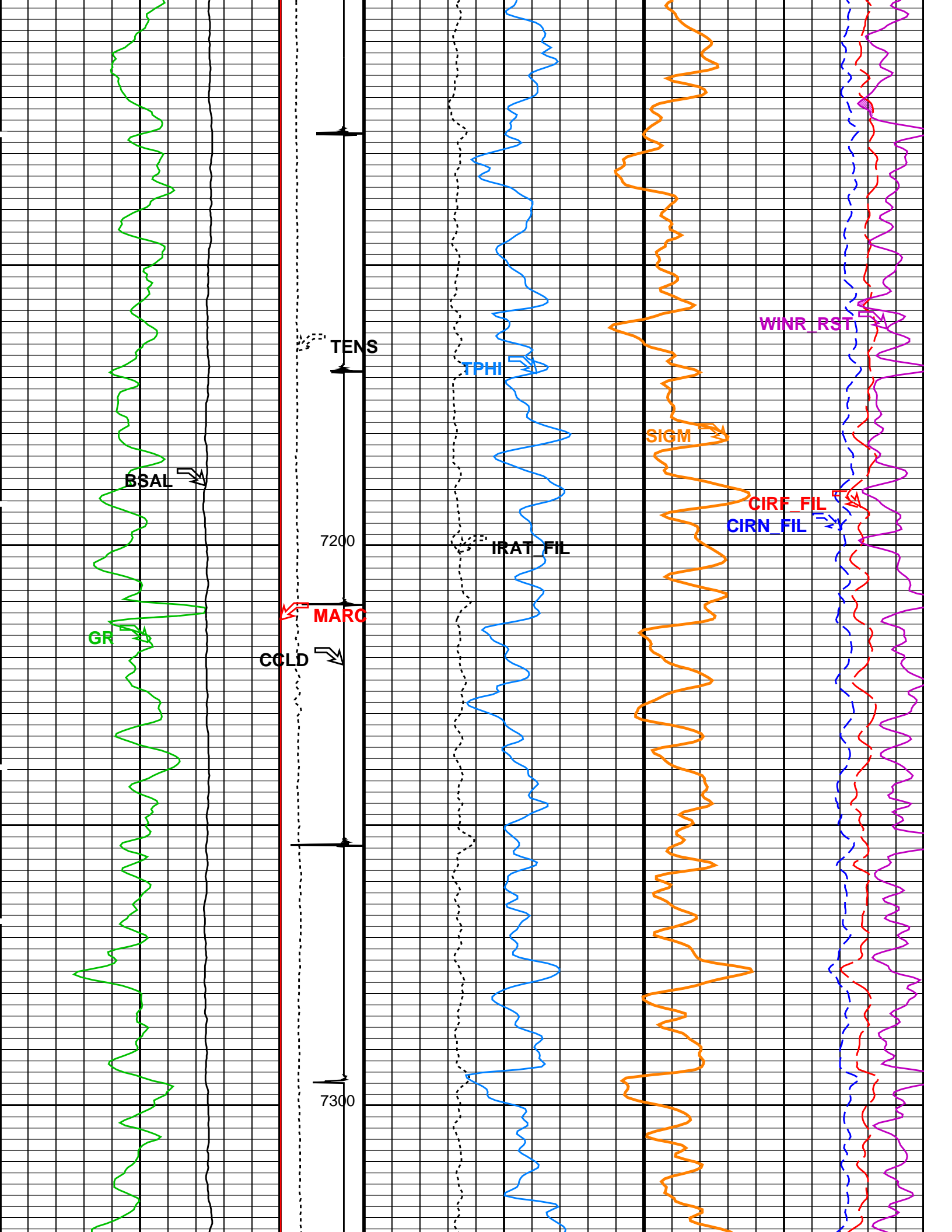


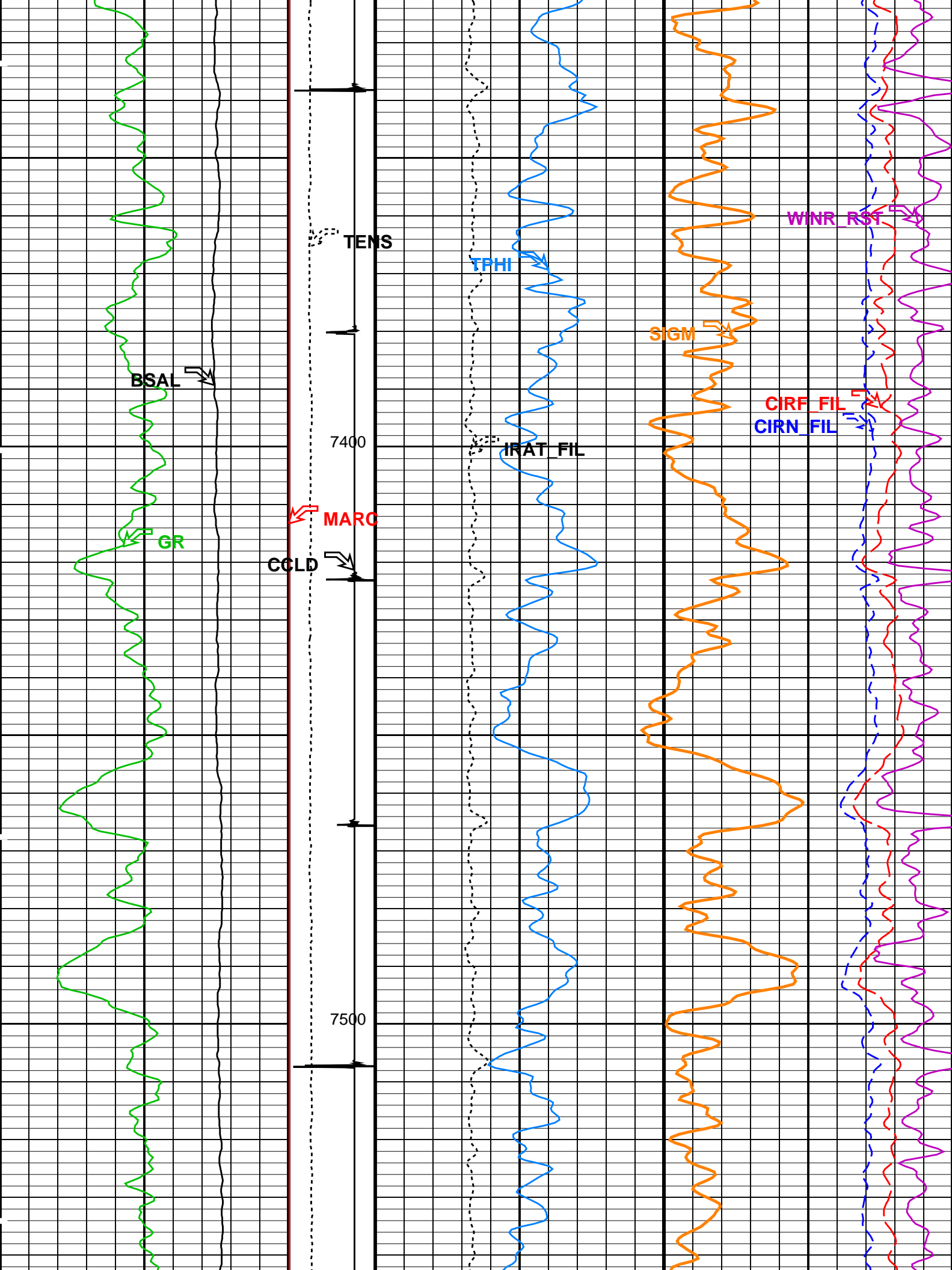


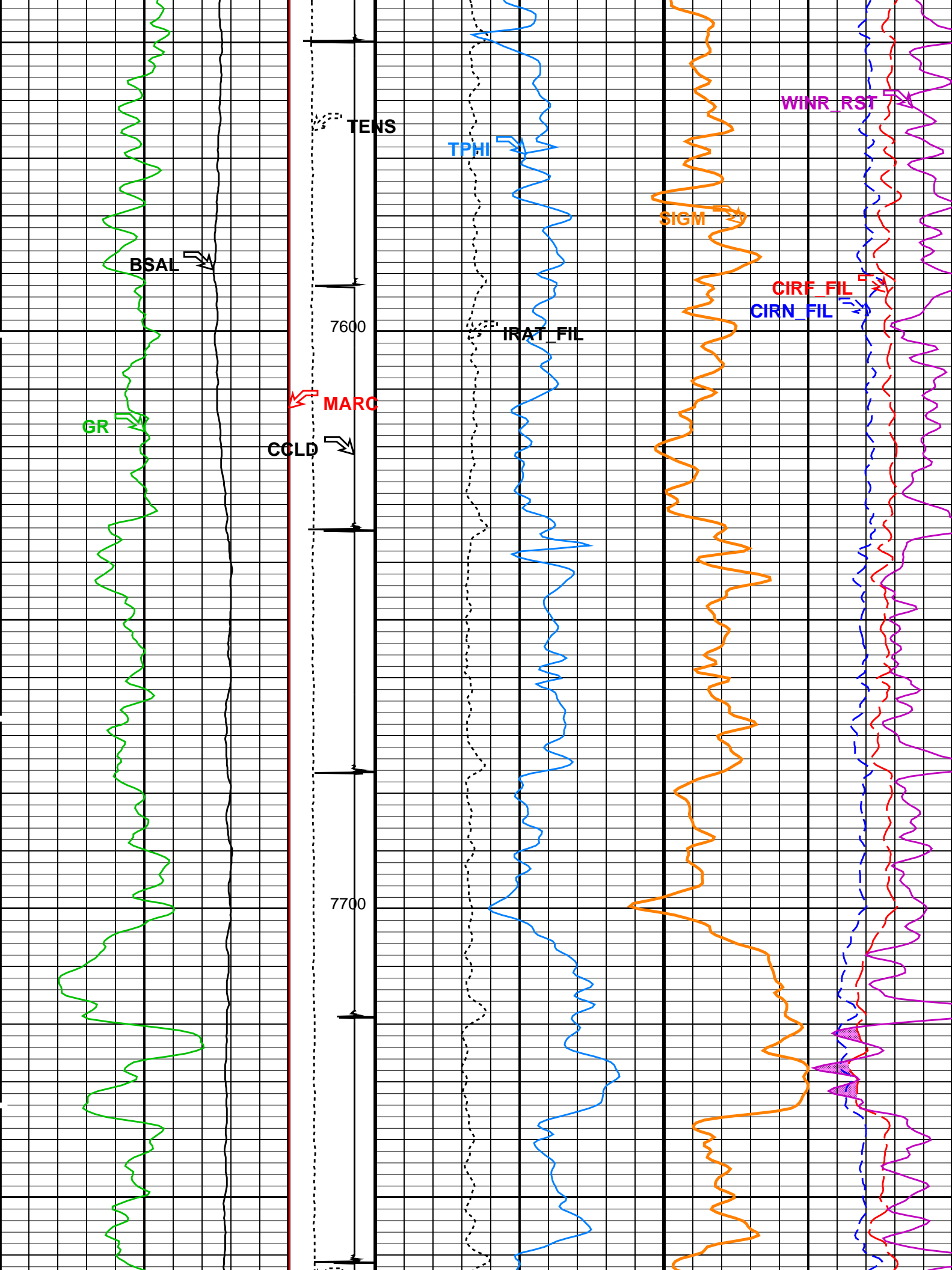


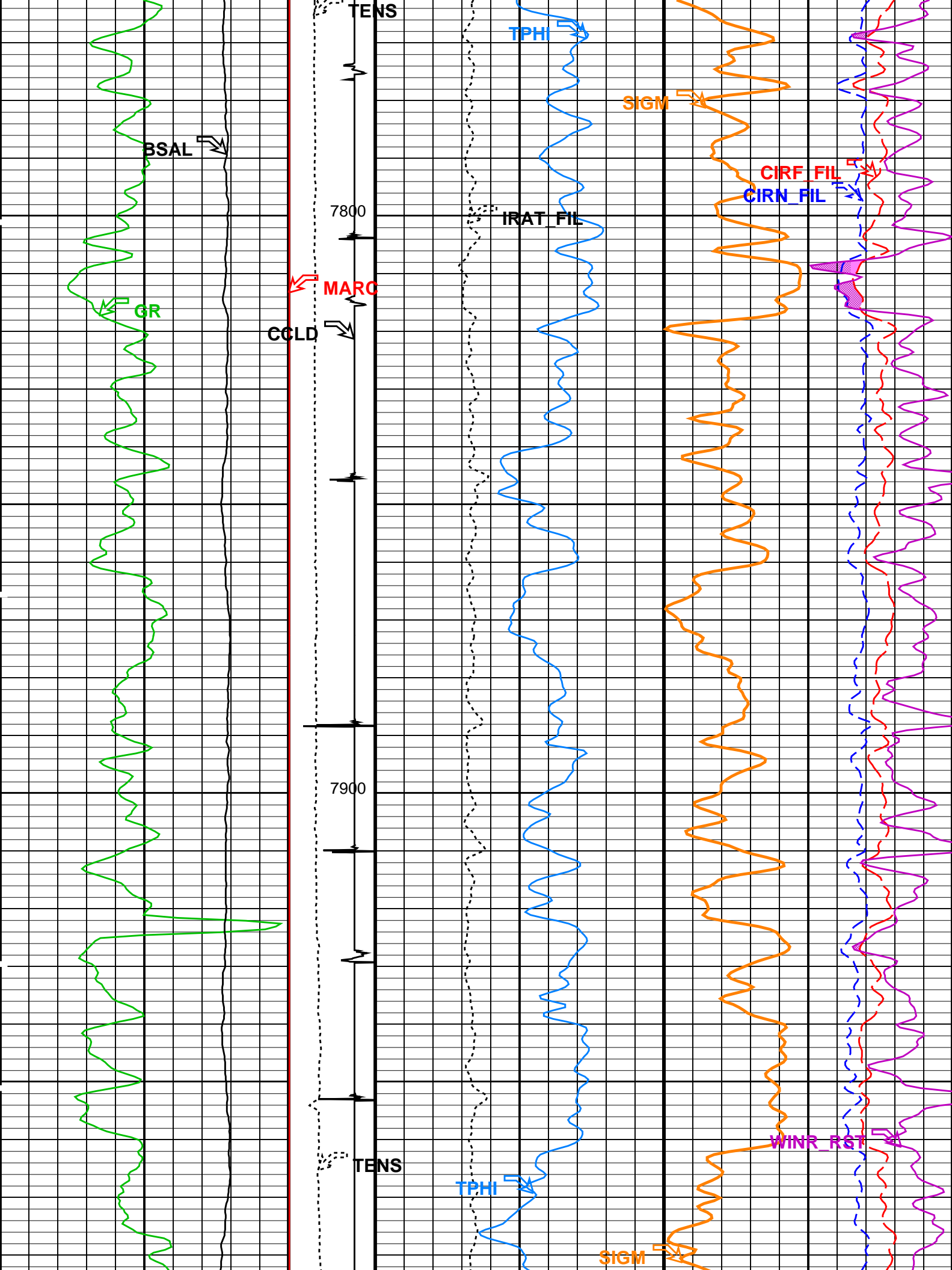


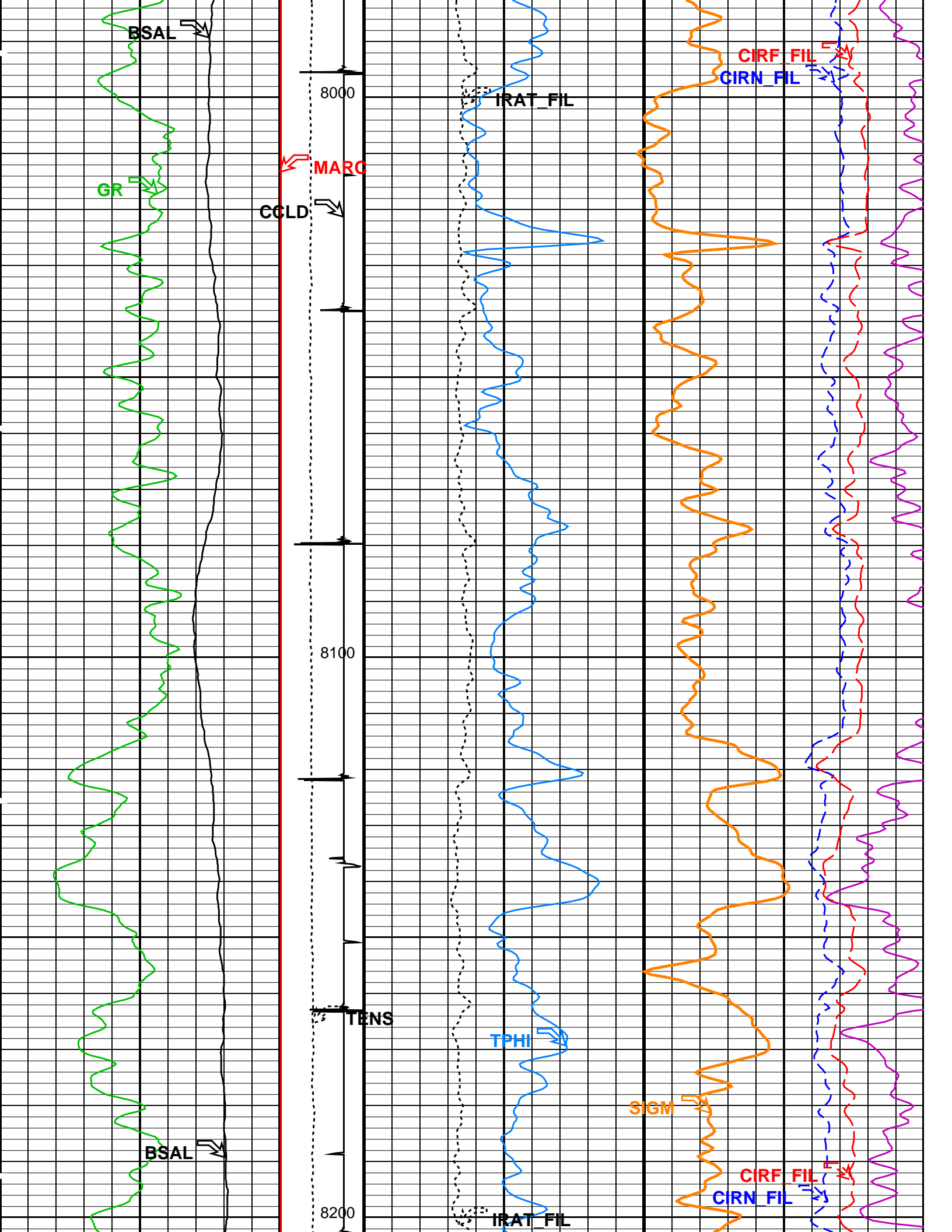


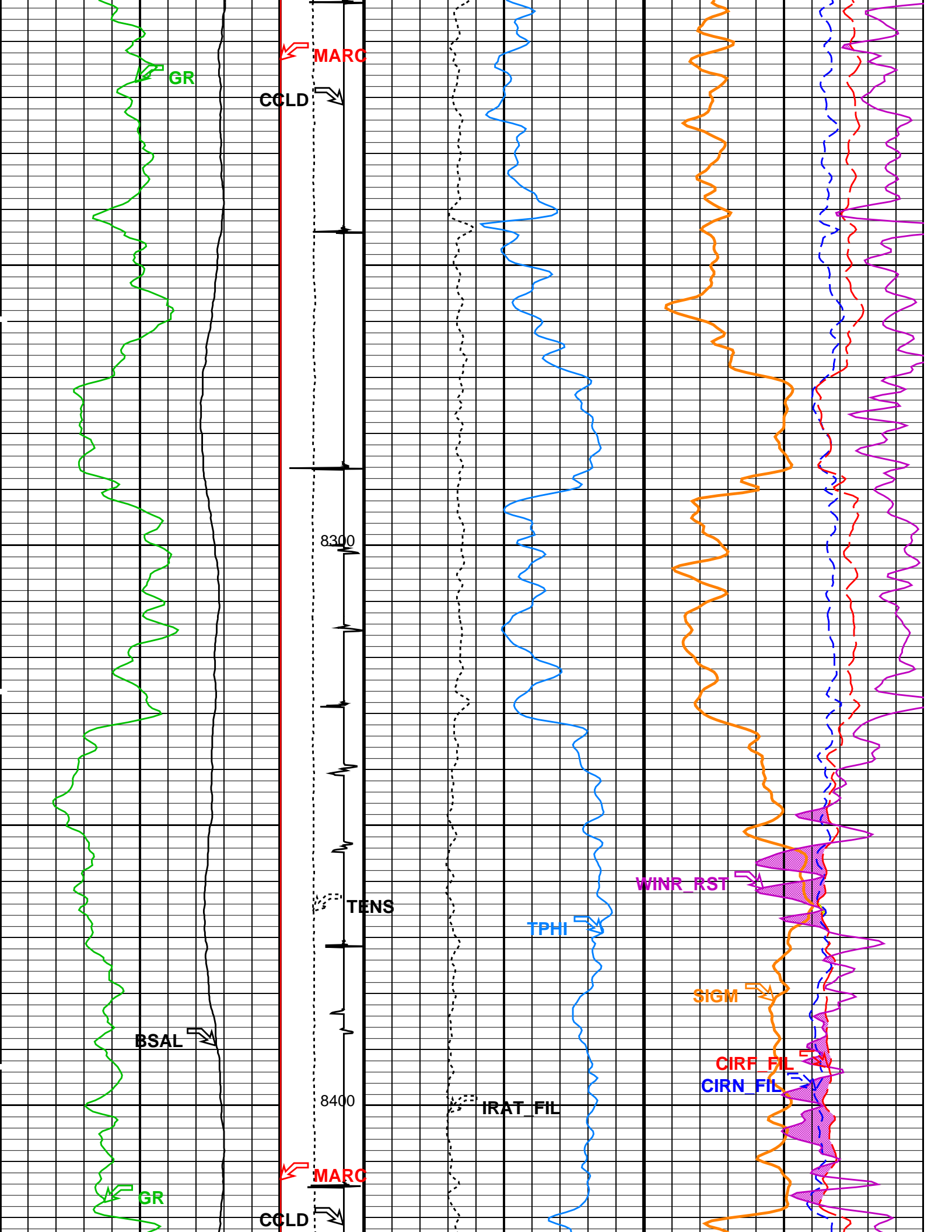


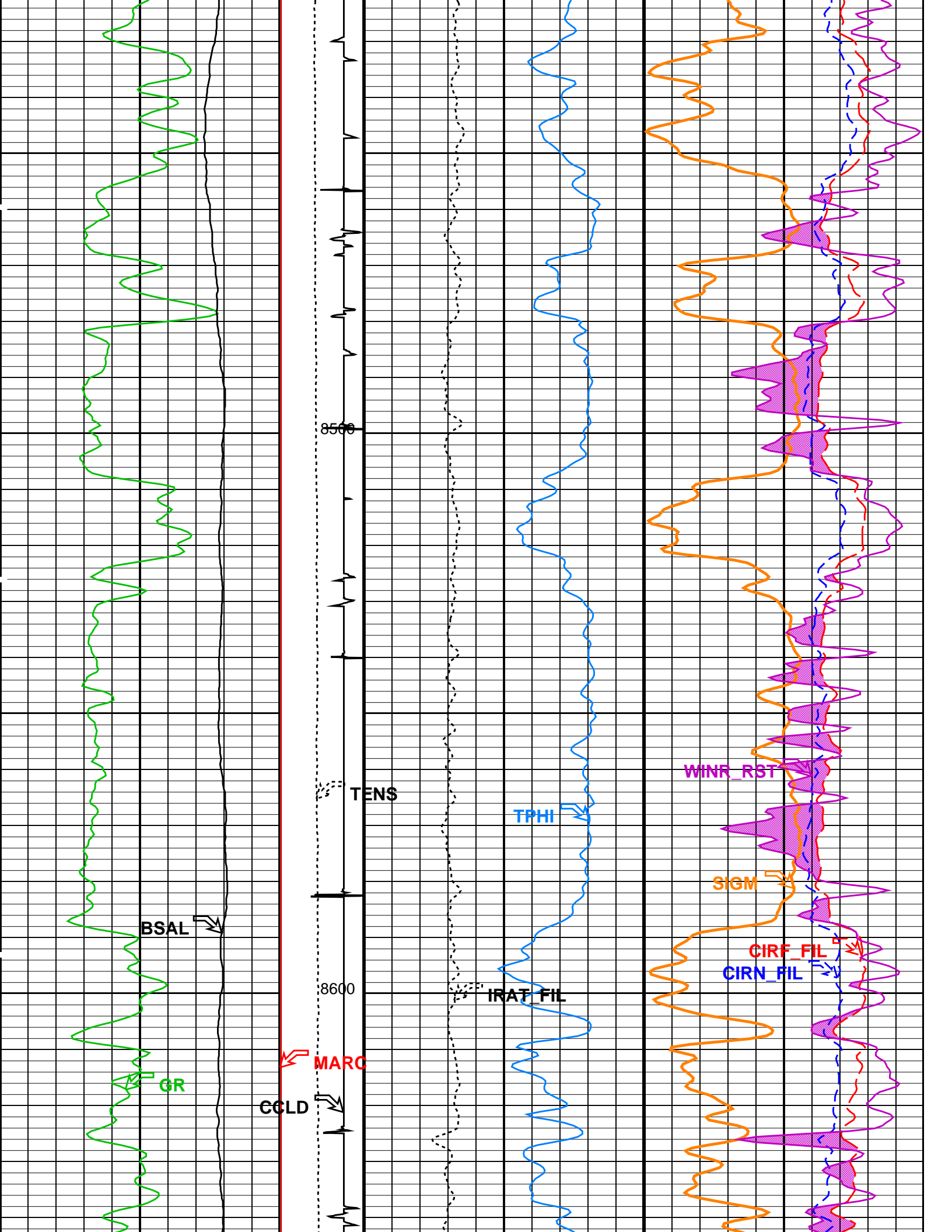


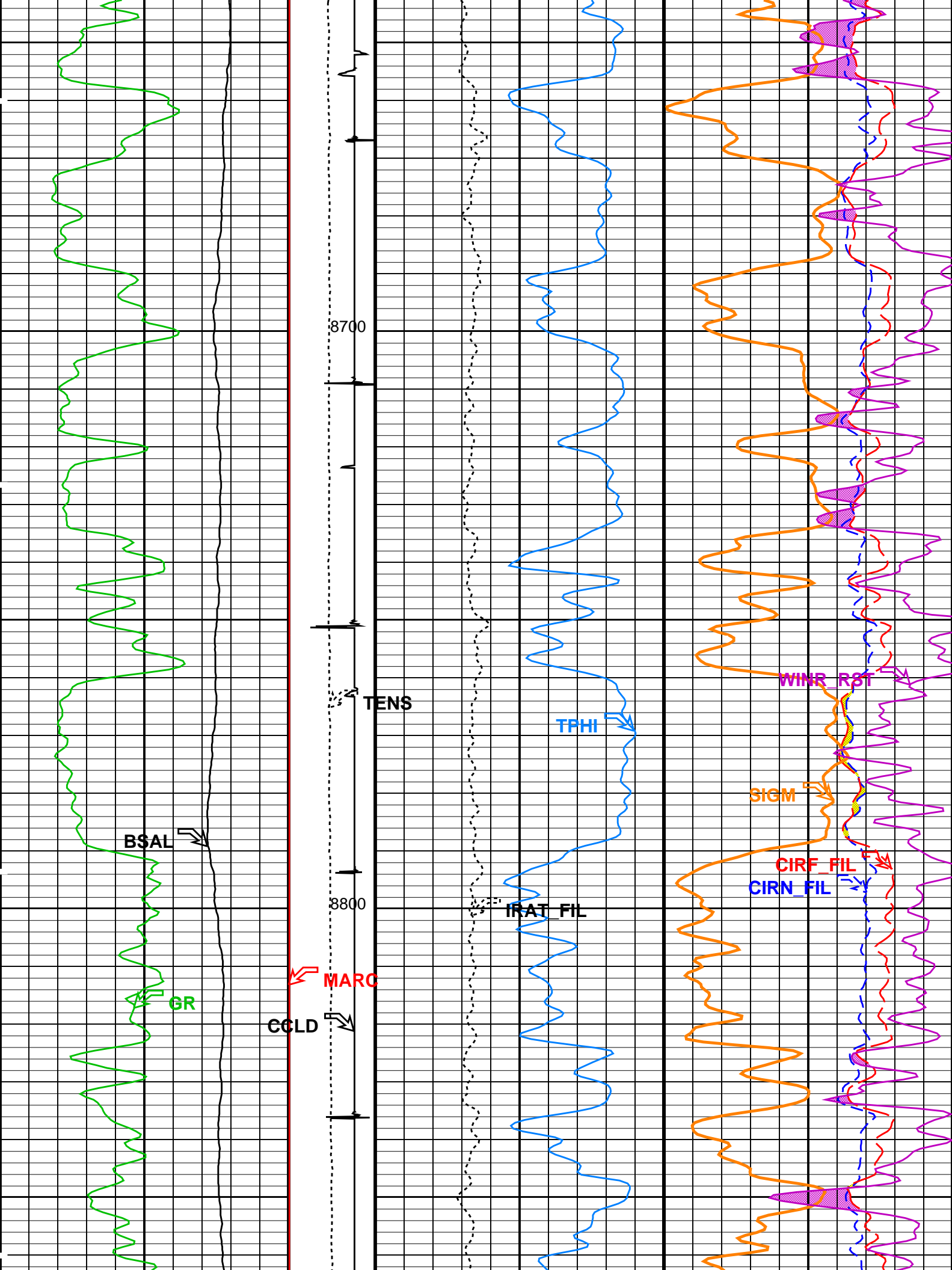


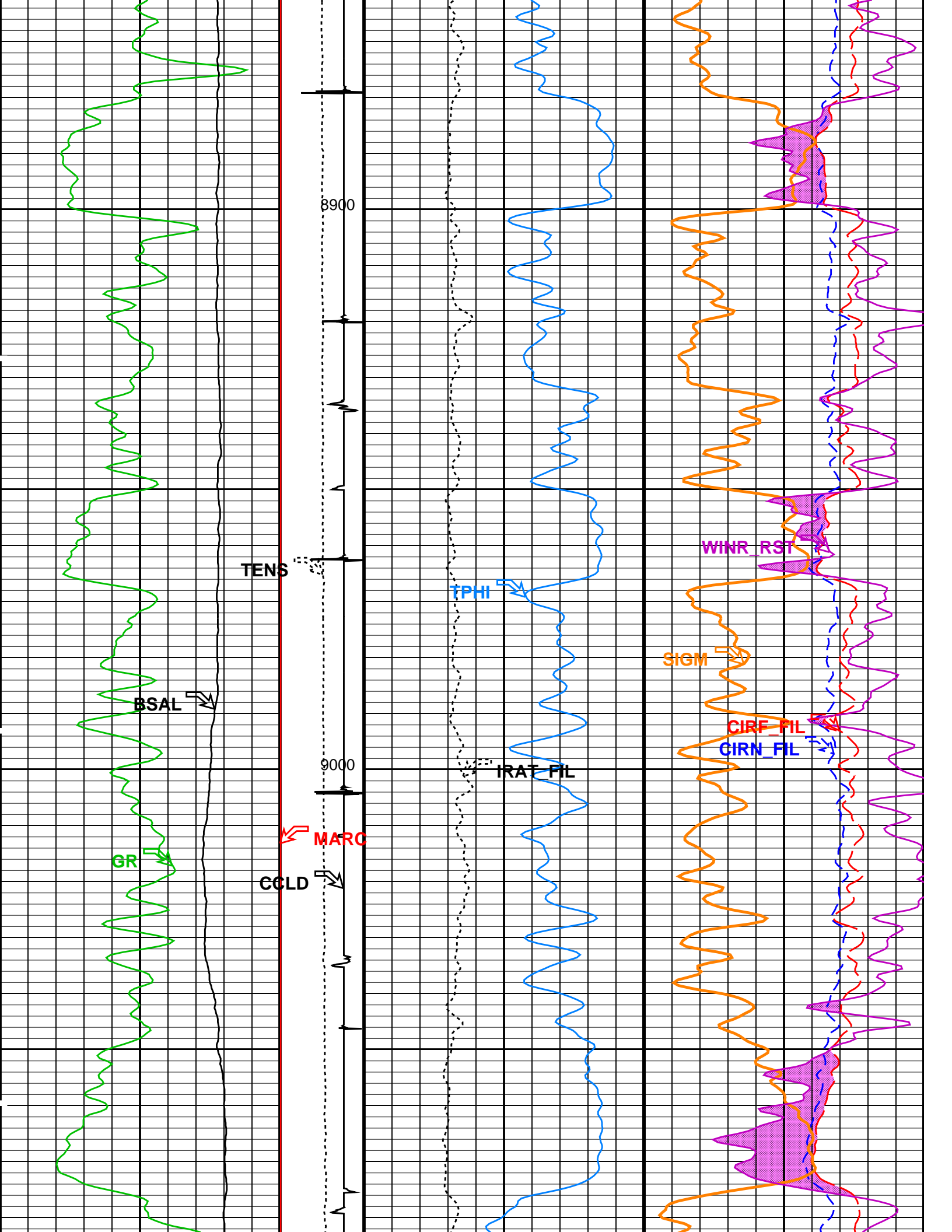


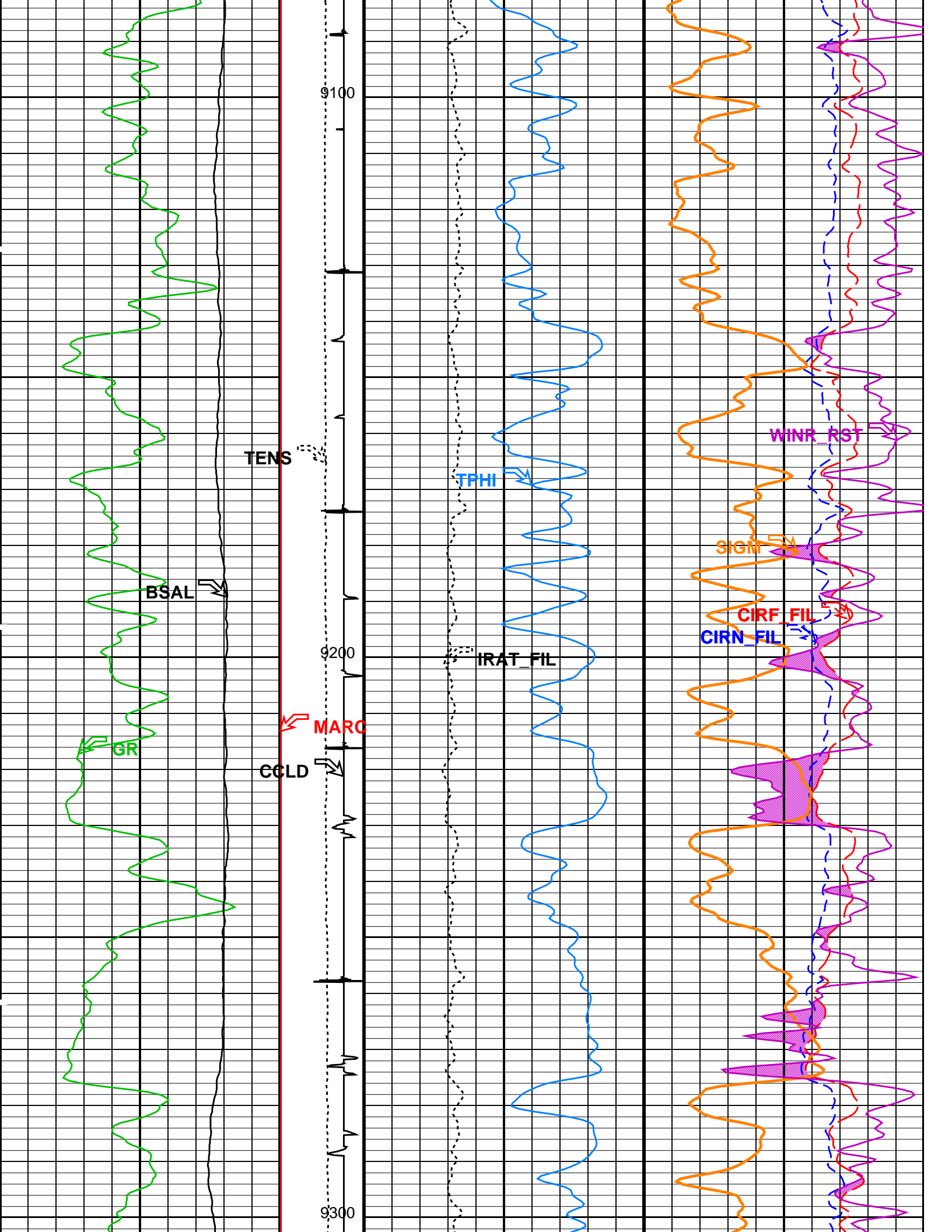


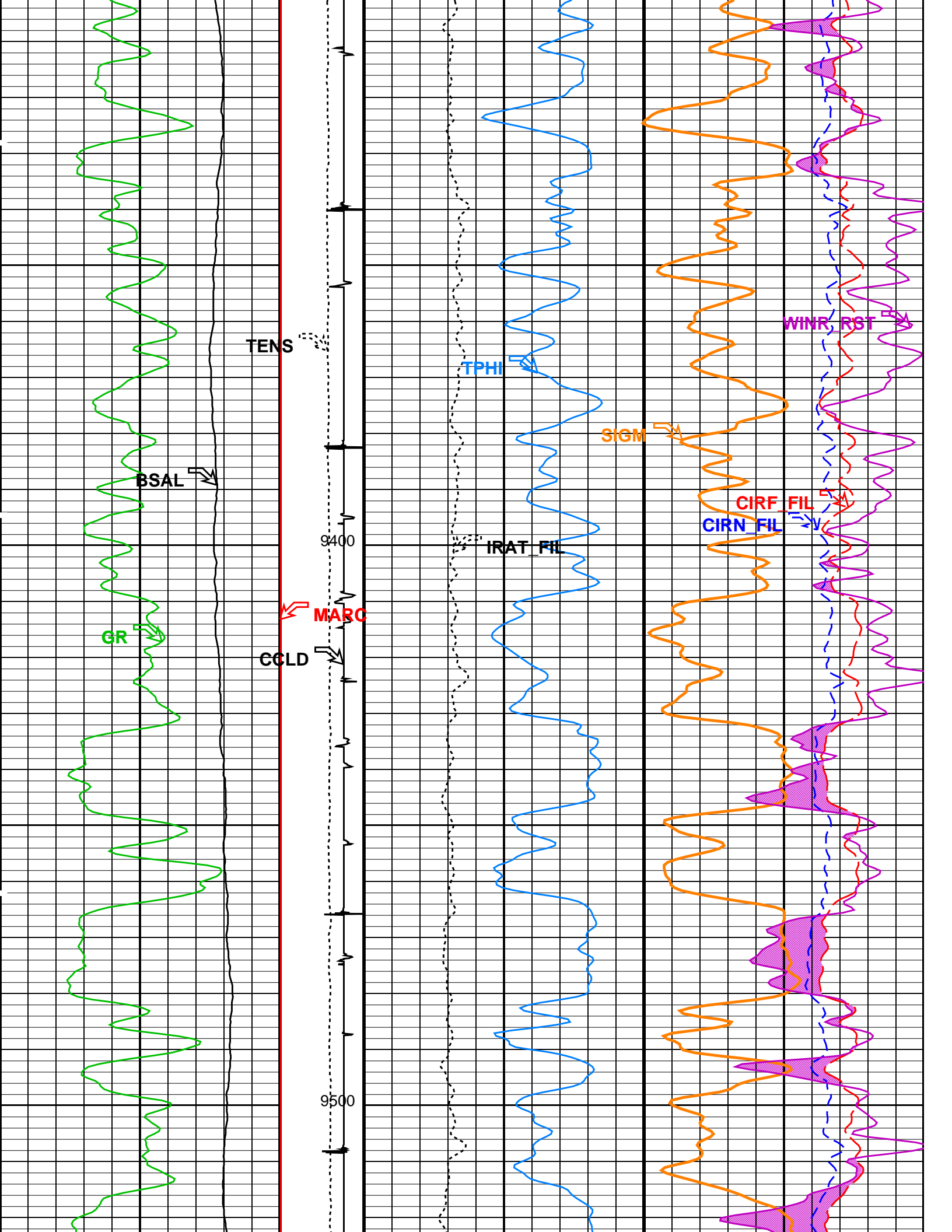


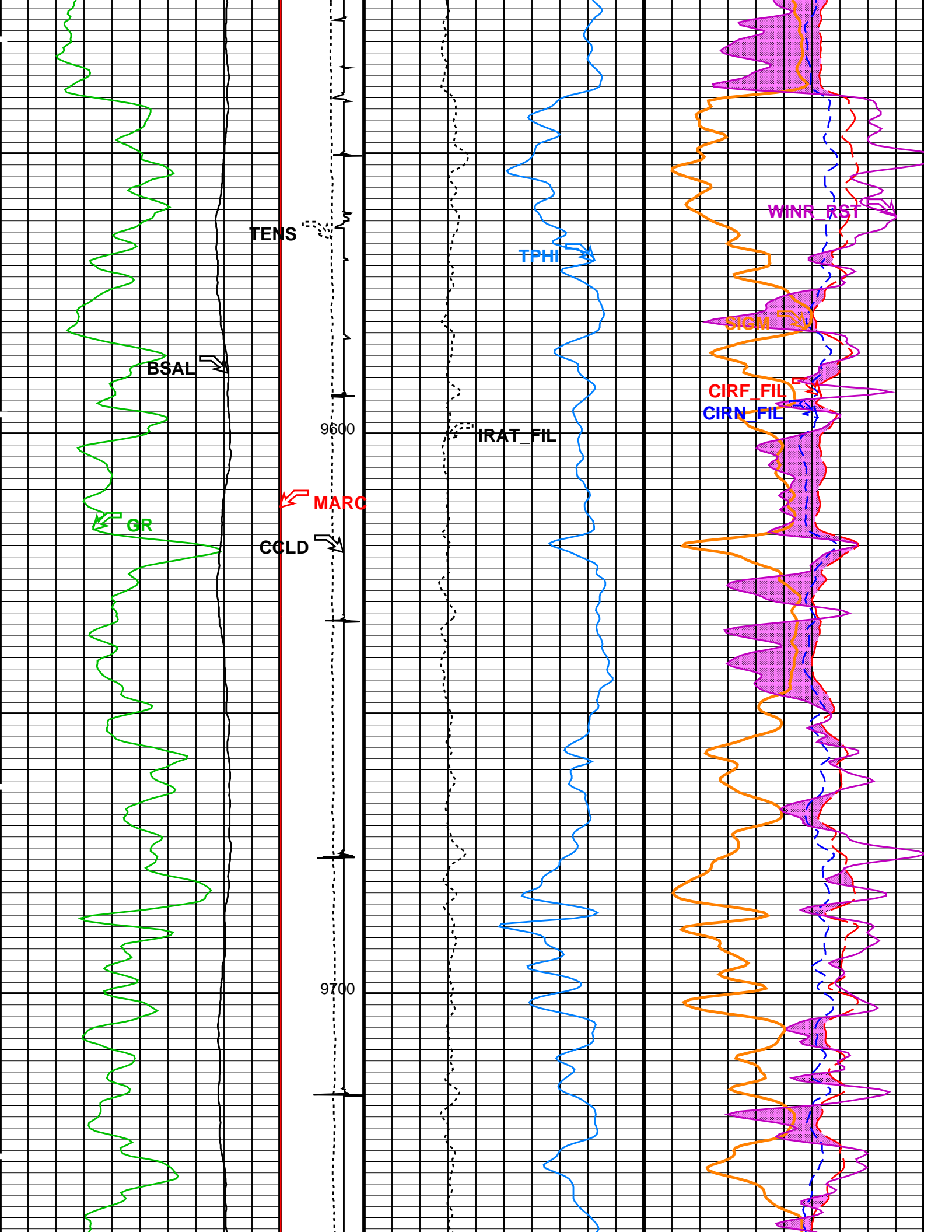


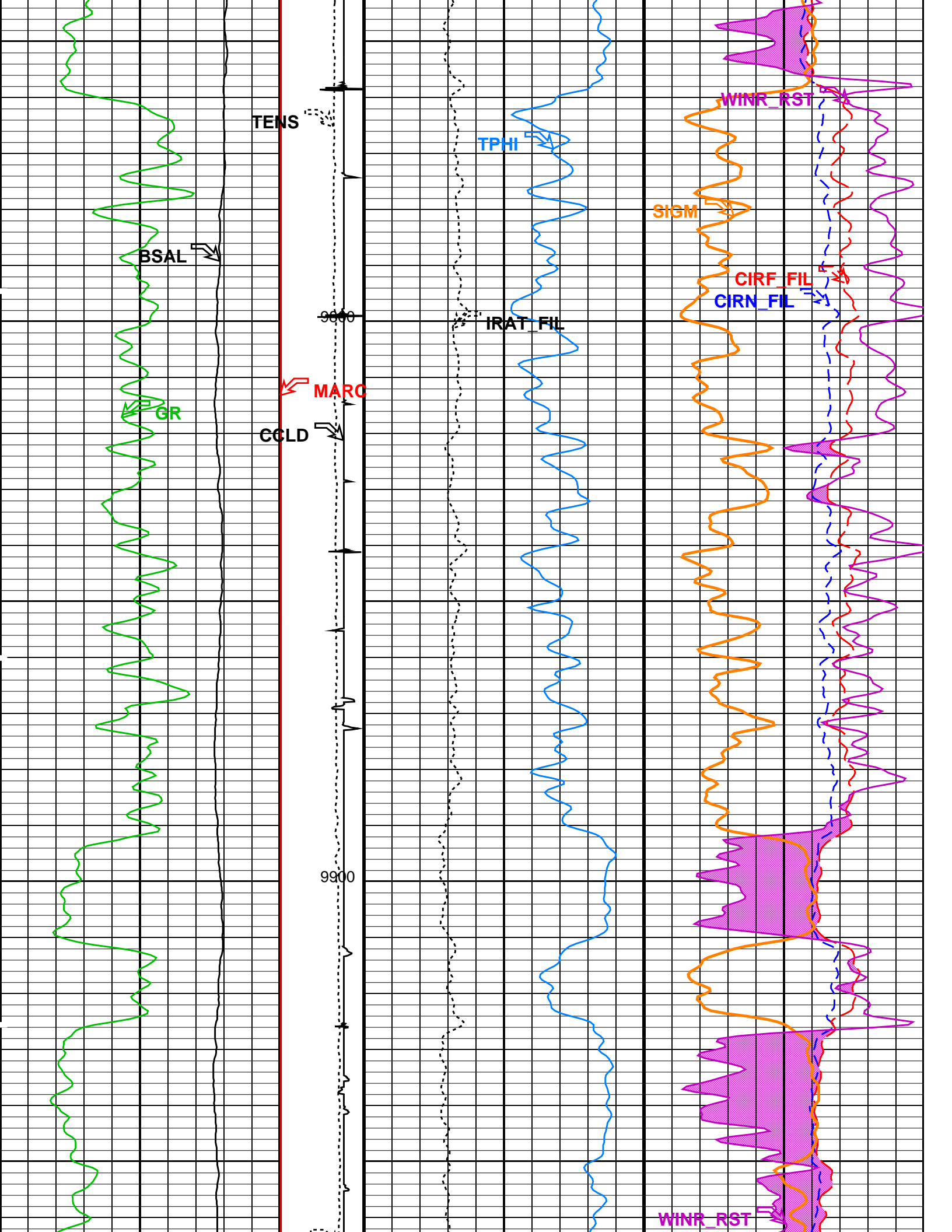


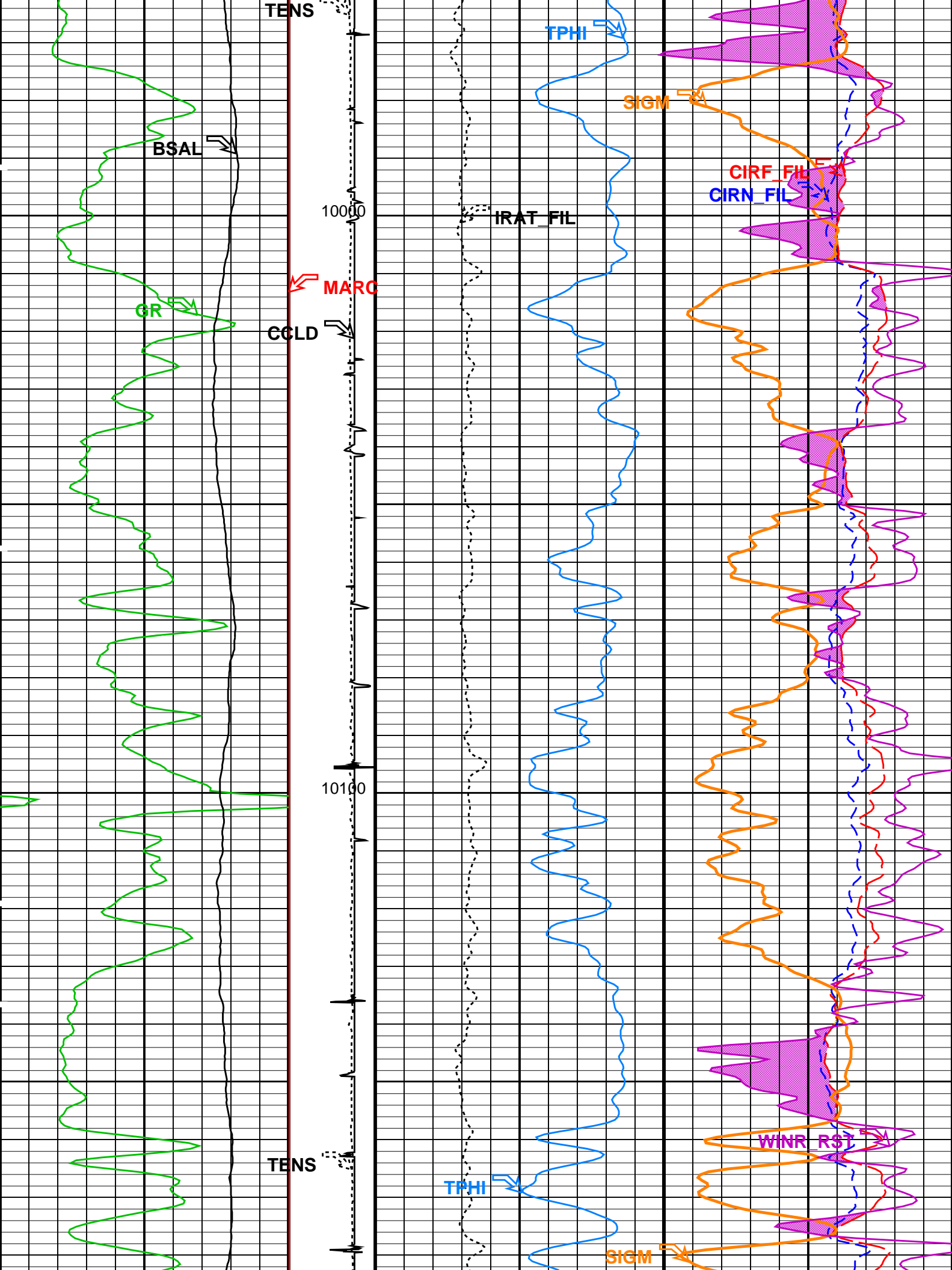


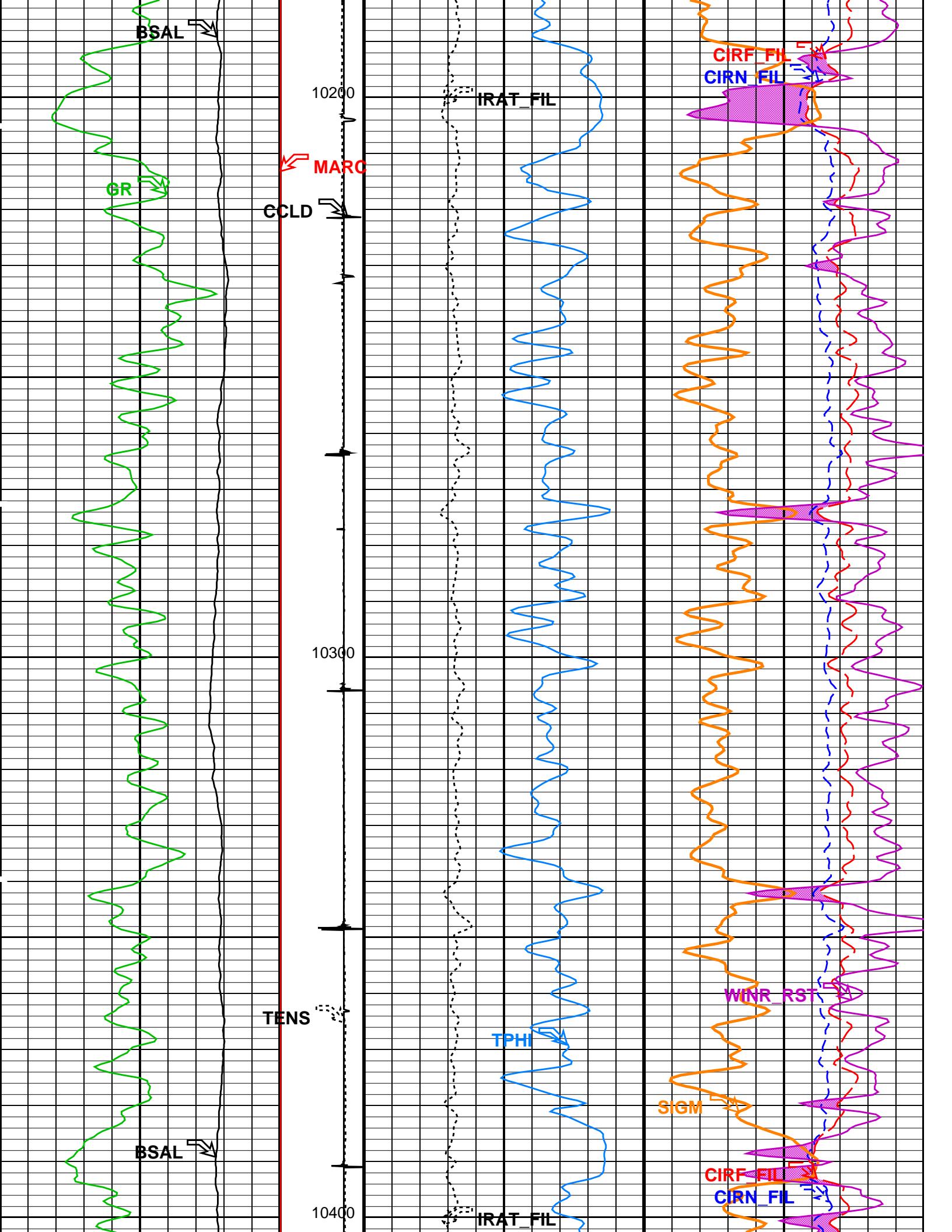


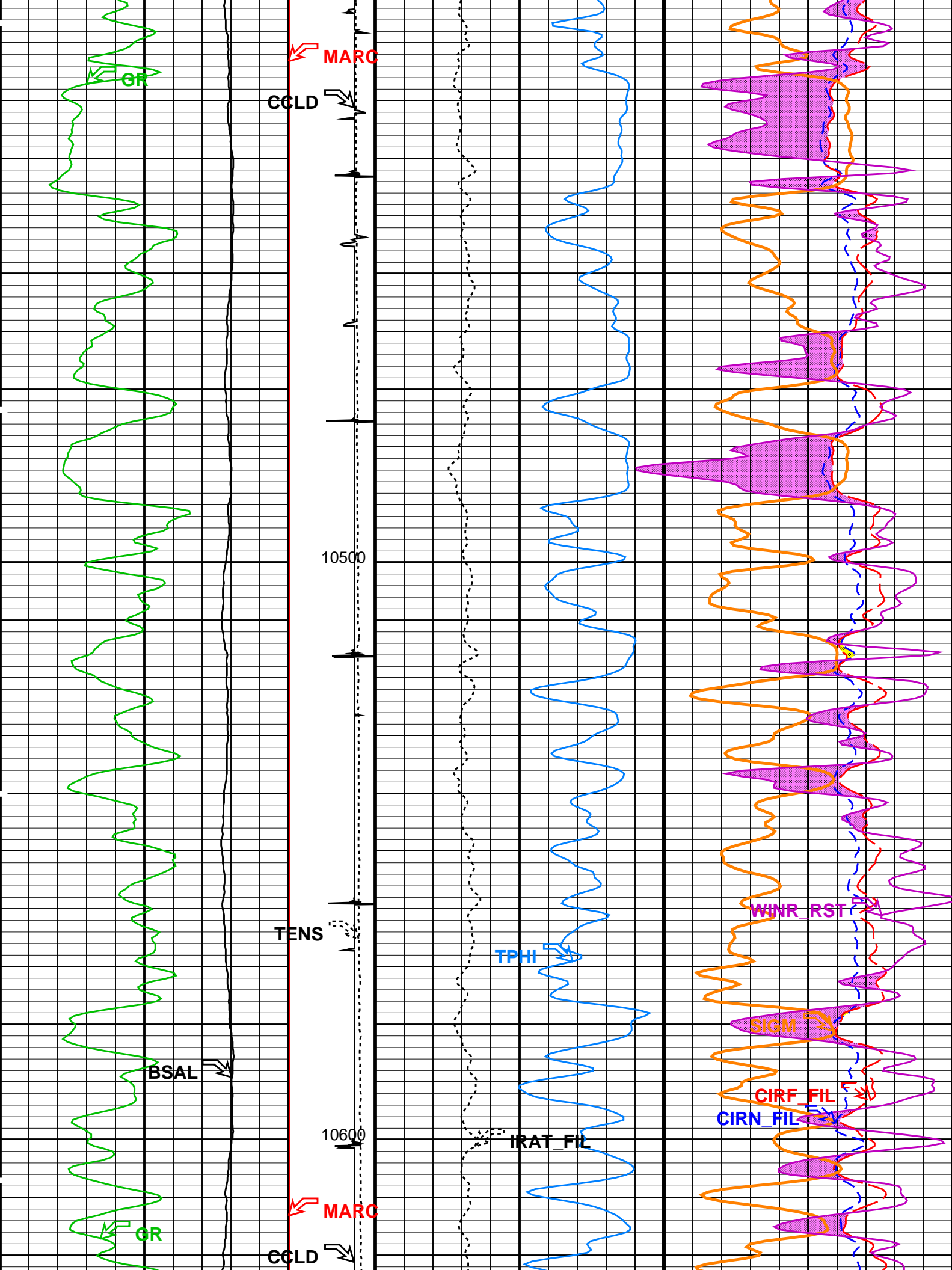


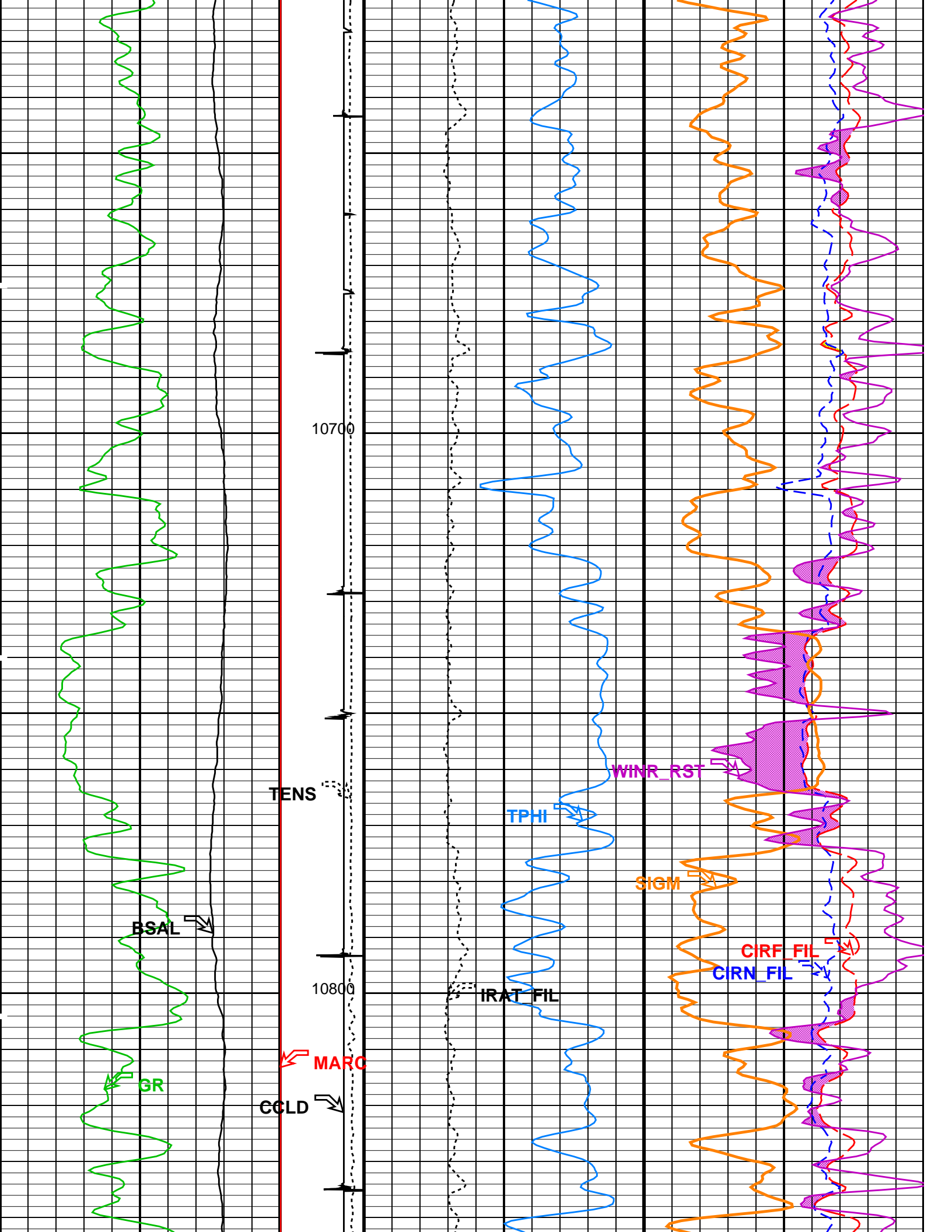


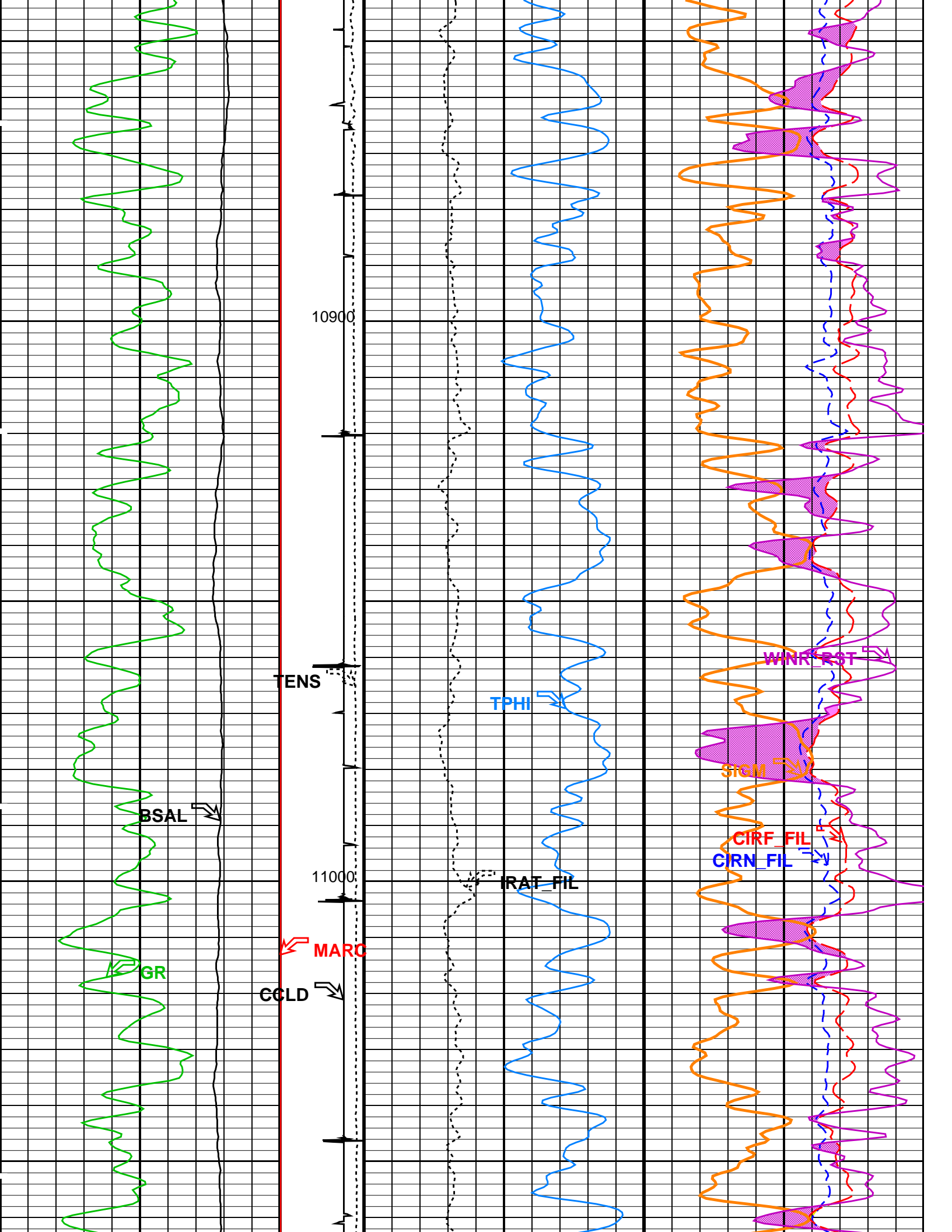


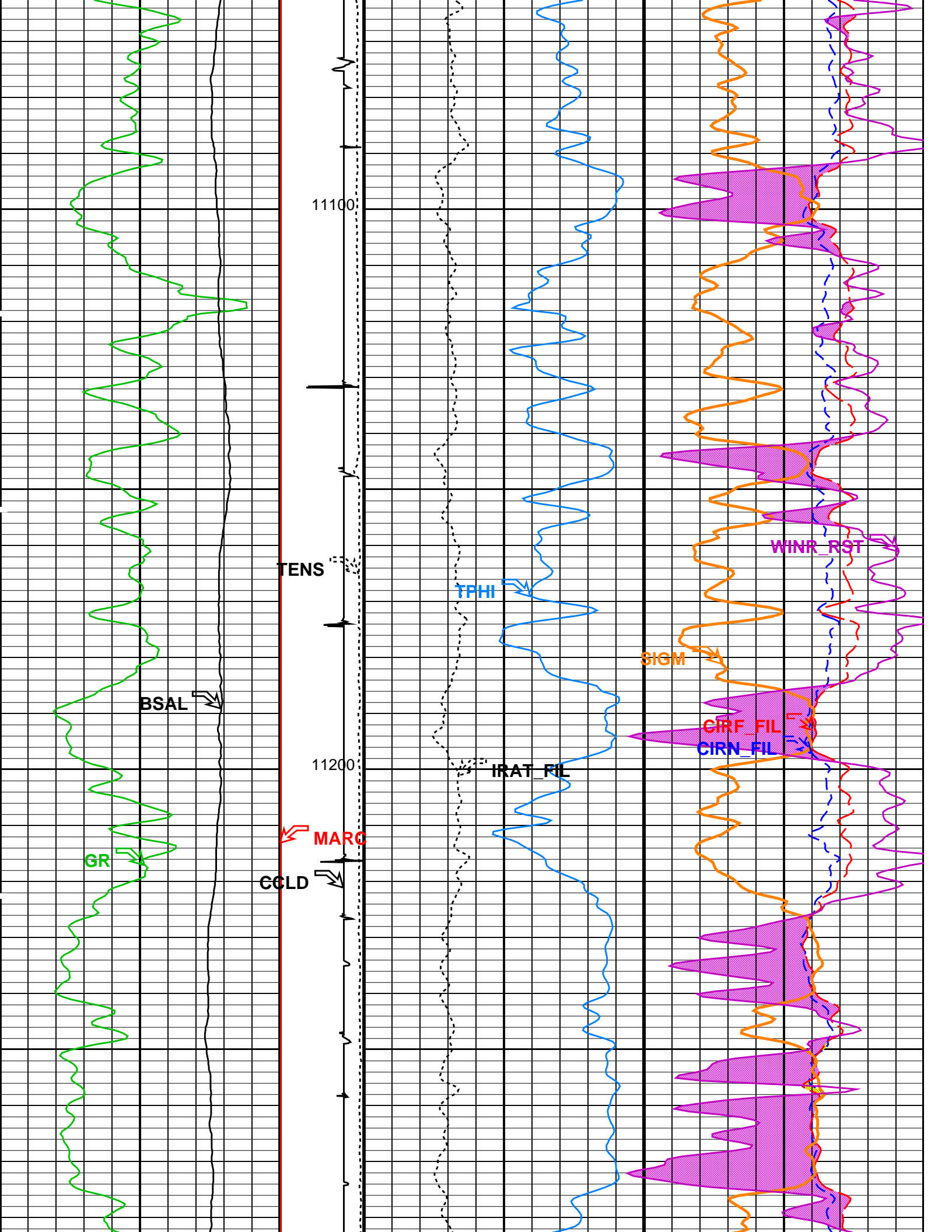


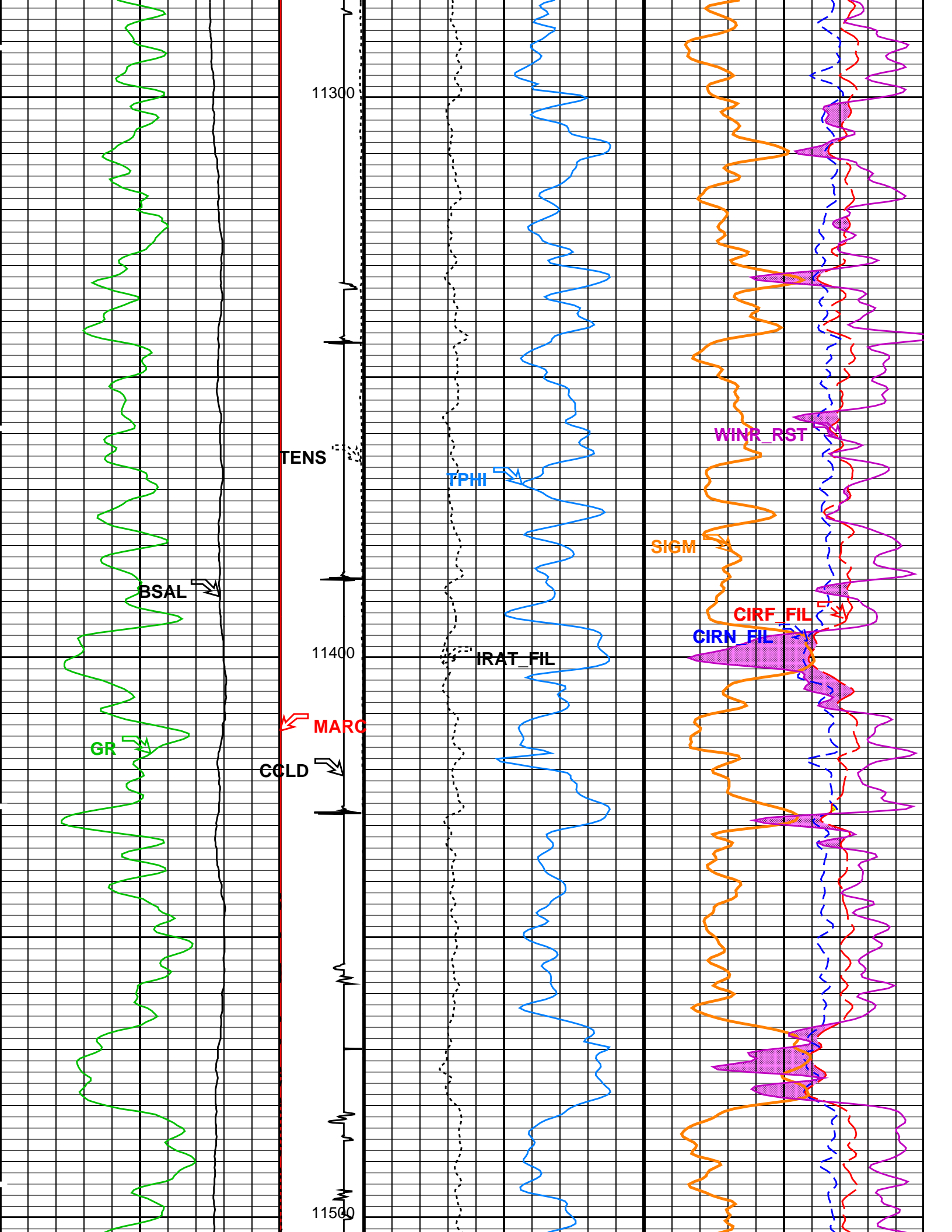


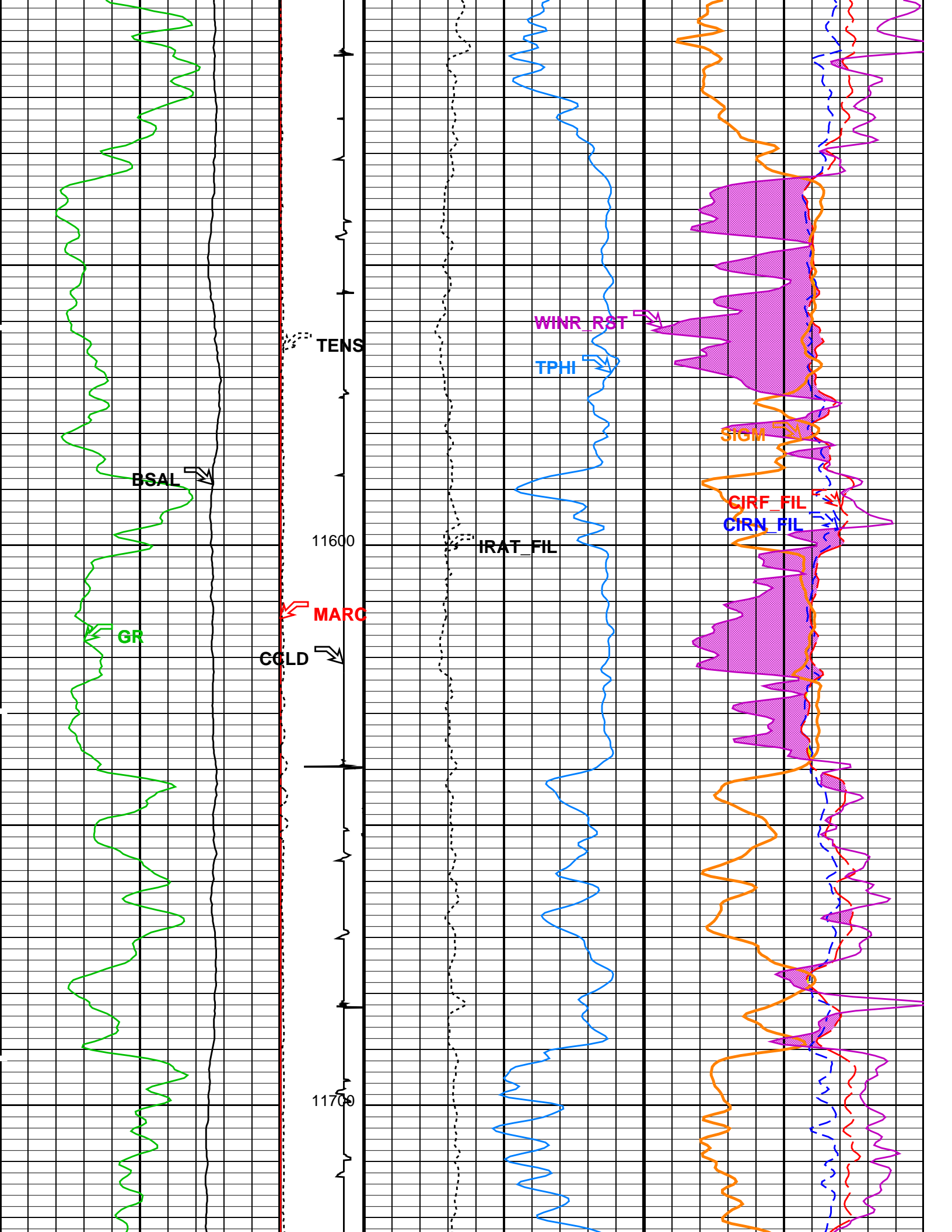


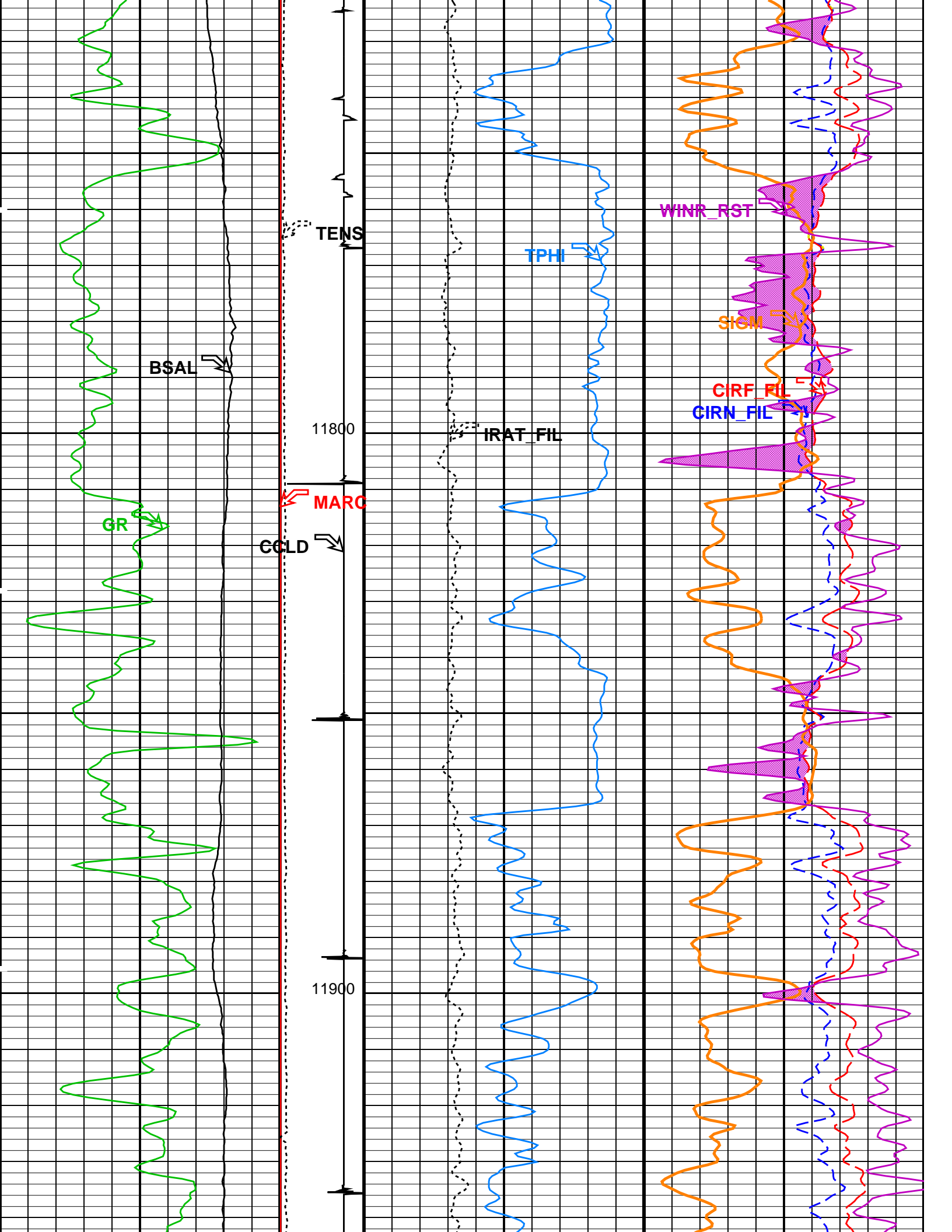


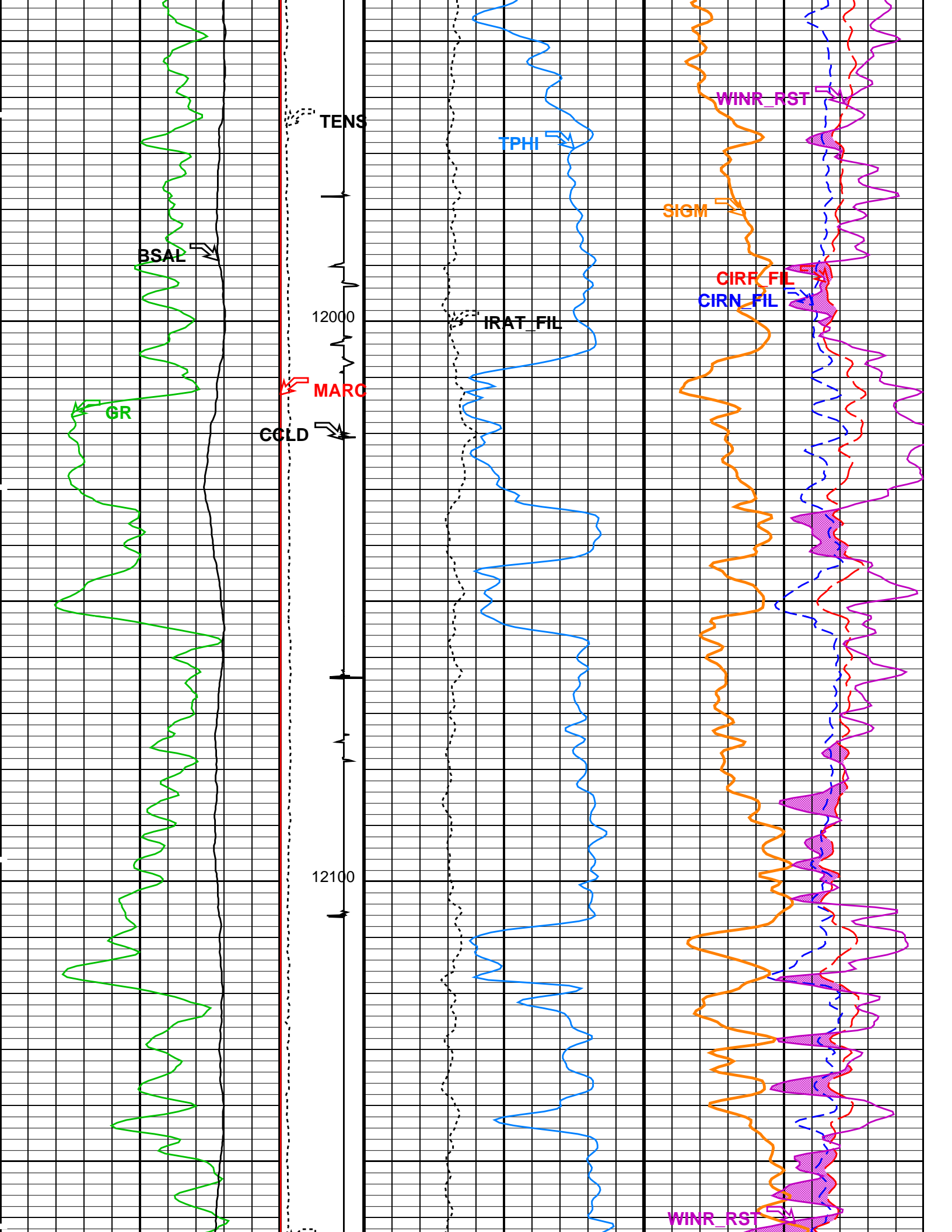


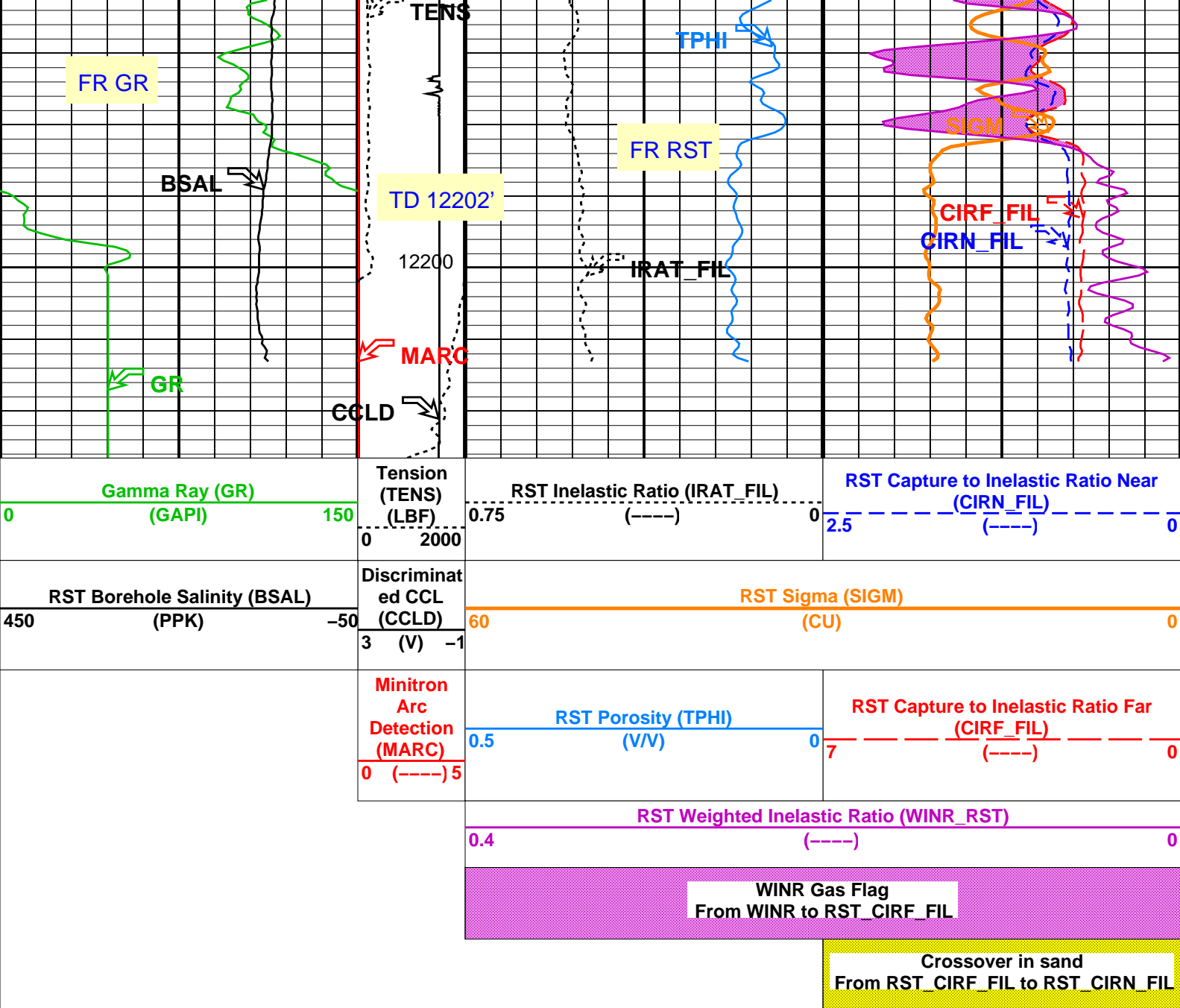












PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
RST-C: Reservoir Saturation Pro Tool C			
	Tractor Available in Tool String	NO	
AIRB	RST Air Borehole	No	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	287	DEGF
BSALOPT	RST Borehole Salinity Option	Unknown	
BSFL	RST Borehole Salinity Filter Length	51	
CSID	Casing Size I.D.	4	IN
DFPC	RST Depth Filter Processing Constant	One	
DFPC_TDTL	RST Depth Filter Processing Constant (TDT-like)	Two	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
PTIER	RST Tiered Presentation Selection	0_Customer	
PVL_PSNT_PRST	PVL Peak Signal/Noise Threshold	3	
PCAL	Near/Far Gain Calibration Ratio	1	

RGAI	Near/Far Gain Calibration Ratio	1	DEGF
SHT	Surface Hole Temperature	68	
TIER_IC	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
WOFSL_PRST	RST WFL-Off Subcycle Length	0	
WONSL_PRST	RST WFL-On Subcycle Length	0	
WSCOM_PRST	RST Station Log Comment		
PSPT: Production Services Logging Platform			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	287	DEGF
CSID	Casing Size I.D.	4	IN
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
PBPO	PBMS Tool position on CAN	2	
PCCG	PBMS CCL Gain	DB12	
PSTP	PSTC Tool Position on CAN Bus	1	
SHT	Surface Hole Temperature	68	DEGF
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	22.00	FT
MST	Mud Sample Temperature	-50000.00	DEGF
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	12196	FT
TDD	Total Depth - Driller	12230.00	FT
TDL	Total Depth - Logger	12202.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5 Vertical Scale: 5" per 100' Graphics File Created: 26-Jun-2010 00:12

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3

Input DLIS Files

DEFAULT Splice_RST_PSP_038CUP FN:1 PRODUCER 26-Jun-2010 00:11 12226.5 FT 2981.6 FT

Output DLIS Files

DEFAULT RST_PSP_039PUP FN:33 PRODUCER 26-Jun-2010 00:12

Input DLIS Files

DEFAULT Splice_RST_PSP_038CUP FN:1 PRODUCER 26-Jun-2010 00:11 12226.5 FT 2981.6 FT

DEFAULT RST_PSP_026PUP FN:23 PRODUCER 25-Jun-2010 20:57 12270.5 FT 11834.0 FT

Output DLIS Files

DEFAULT RST_PSP_039PUP FN:33 PRODUCER 26-Jun-2010 00:12

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3

PIP SUMMARY

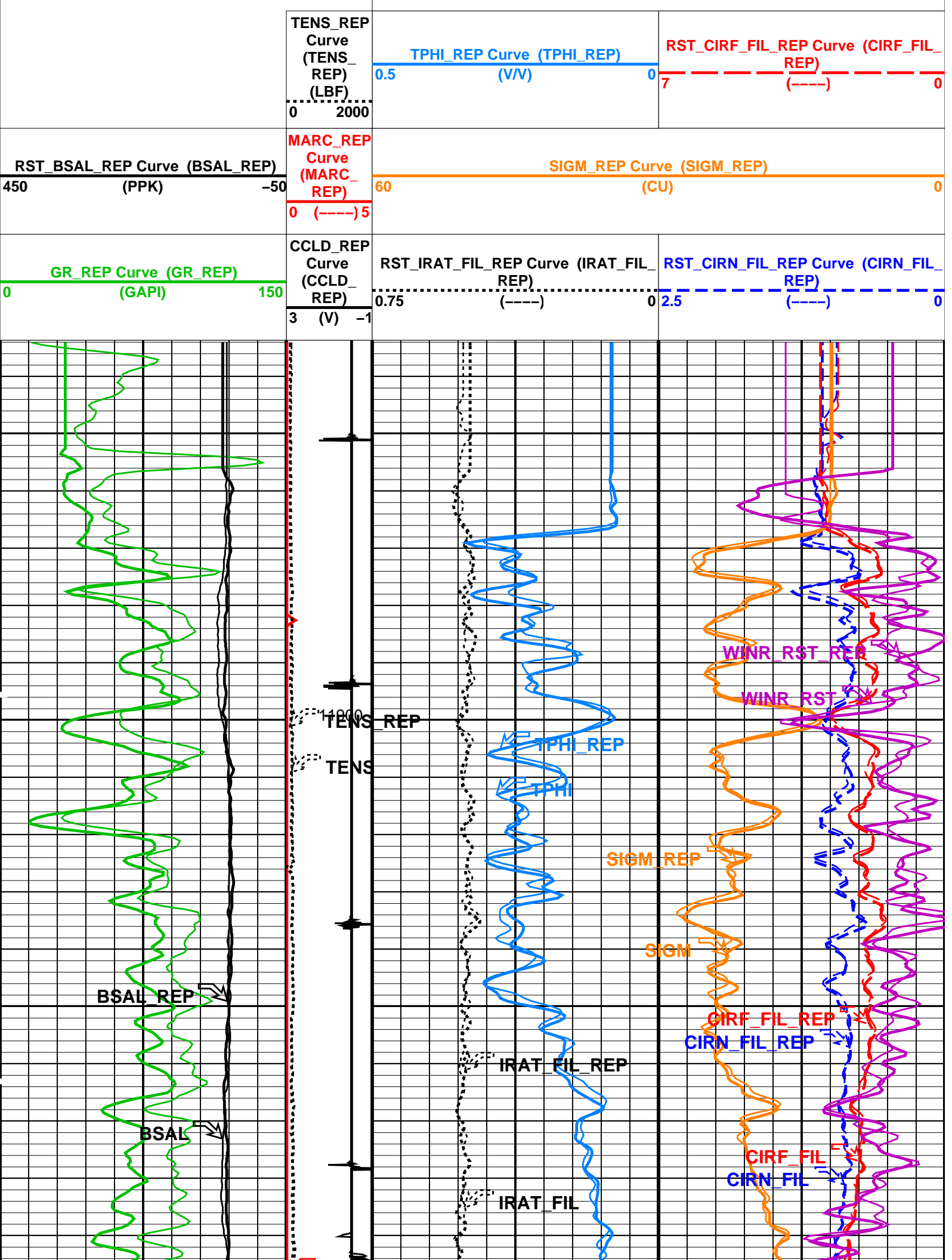
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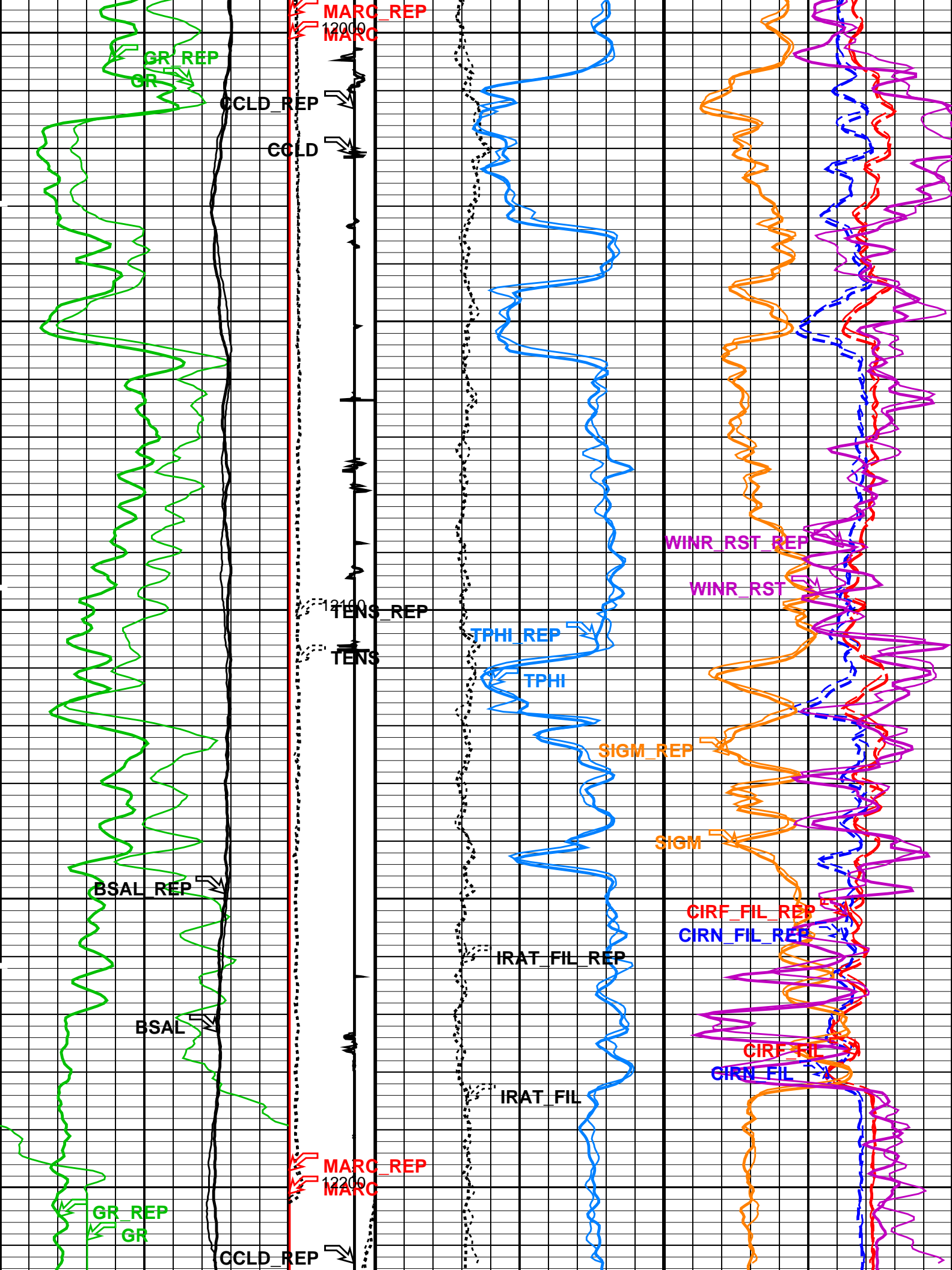
WINR_REP Curve (WINR_RST_REP)

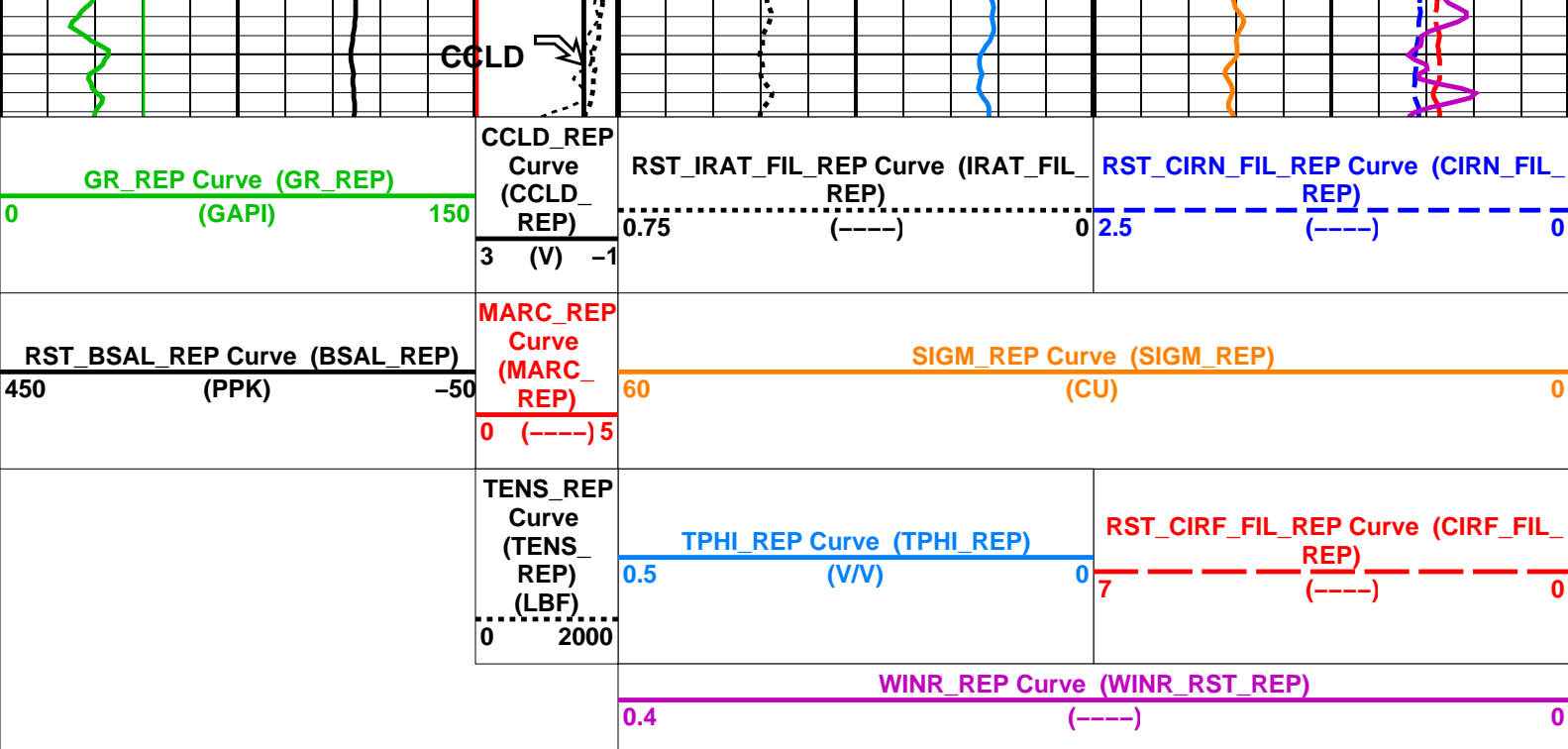
0.4

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PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
RST-C: Reservoir Saturation Pro Tool C		
AIRB	Tractor Available in Tool String	NO
BHS	RST Air Borehole	No
BHT	Borehole Status	CASED
BSALOPT	Bottom Hole Temperature (used in calculations)	287
BSFL	RST Borehole Salinity Option	DEGF
CSID	RST Borehole Salinity Filter Length	Unknown
DFPC	Casing Size I.D.	51
DFPC_TDTL	RST Depth Filter Processing Constant	4
GCSE	RST Depth Filter Processing Constant (TDT-like)	IN
GDEV	Generalized Caliper Selection	One
GGRD	Average Angular Deviation of Borehole from Normal	Two
GRSE	Geothermal Gradient	BS
GTSE	Generalized Mud Resistivity Selection	0
ISSBAR	Generalized Temperature Selection	DEG
MATR	Barite Mud Switch	DF/F
NORM_IRAT_RST	Rock Matrix for Neutron Porosity Corrections	CHART_GEN 9
NORM_SIGM_RST	RST Normalized Inelastic Ratio	LINEAR_ESTIMATE
PTIER	RST Normalized Sigma	NOBARITE
PVL_PSNT_PRST	RST Tiered Presentation Selection	SANDSTONE
RGAI	PVL Peak Signal/Noise Threshold	0.48
SHT	Near/Far Gain Calibration Ratio	30
TIER_IC	Surface Hole Temperature	CU
TIER_SIGM	RST IC Acquisition Mode	0_Customer
WOFSL_PRST	RST Sigma Acquisition Mode	3
WONSL_PRST	RST WFL-Off Subcycle Length	1
WSCOM_PRST	RST WFL-On Subcycle Length	68
PSPT: Production Services Logging Platform		
BHS	Borehole Status	DEGF
BHT	Bottom Hole Temperature (used in calculations)	IN
CSID	Casing Size I.D.	4
GCSE	Generalized Caliper Selection	BS
GDEV	Average Angular Deviation of Borehole from Normal	0
GGRD	Geothermal Gradient	DEG
GRSE	Generalized Mud Resistivity Selection	DF/F
GTSE	Generalized Temperature Selection	CHART_GEN 9
ISSBAR	Barite Mud Switch	LINEAR_ESTIMATE
MATR	Rock Matrix for Neutron Porosity Corrections	NOBARITE
PBPO	PBMS Tool position on CAN	SANDSTONE
PCCG	PBMS CCL Gain	2
PSTP	PSTC Tool Position on CAN Bus	DB12
SHT	Surface Hole Temperature	1
System and Miscellaneous		
ALTDPCCHAN	Name of alternate depth channel	68
PS	SpeedCorrectedDepth	DEGF

BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	22.00	FT
MST	Mud Sample Temperature	-50000.00	DEGF
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	12196	FT
TDD	Total Depth – Driller	12230.00	FT
TDL	Total Depth – Logger	12202.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF
Format: RST_SIGMA_S5_REP		Vertical Scale: 5" per 100'	
Graphics File Created: 26-Jun-2010 00:12			

OP System Version: 17C0-154

RST-C	SRPC-3870_Q3_2009_OP17_V3	PSPT	SRPC-3870_Q3_2009_OP17_V3
Input DLIS Files			
DEFAULT	Splice_RST_PSP_038CUP	FN:1	PRODUCER 26-Jun-2010 00:11 12226.5 FT 2981.6 FT
DEFAULT	RST_PSP_026PUP	FN:23	PRODUCER 25-Jun-2010 20:57 12270.5 FT 11834.0 FT
Output DLIS Files			
DEFAULT	RST_PSP_039PUP	FN:33	PRODUCER 26-Jun-2010 00:12



REPEAT ANALYSIS

MAXIS Field Log



COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	STORY GULCH	Sub Type:	PBMS
Well:	8505D-25 (F25-496)	Sensor:	Sapphire
Run date:			

Sensor Serial NB2782

Calib Date ddmmyy240605

Matrix Size66

Coeff CRC5016

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	−.292008348200E+05	+.190700008535E+05	−.552607792066E+04
Tp**1	+.191735506444E+05	−.122664241030E+05	+.370487321348E+04
Tp**2	−.158767828189E+03	+.564425247711E+02	−.524780331245E+01
Tp**3	+.318153963394E+01	−.690393229720E+00	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0
	Tt**3	Tt**4	Tt**5
Tp**0	+.767758857725E+03	−.417614140741E+02	0.0
Tp**1	−.531769713259E+03	+.297277375298E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**3	0.0	0.0	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB:

Sensor Serial NB2782

Calib Date ddmmyy240605

Matrix Size66

Coeff CRC68BA

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	+.212115813835E+04	−.792348397899E+00	−.133380624629E+01
Tt**1	−.118264134380E+04	+.147782832041E+01	+.337767349271E+00
Tt**2	+.231778903261E+03	−.469460605114E+00	−.215145812317E−01
Tt**3	−.160255480049E+02	+.430100208050E−01	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0
	Tp**3	Tp**4	Tp**5
Tt**0	+.277164183976E+00	−.282120115468E−01	0.0
Tt**1	−.476794038309E−01	+.504303761798E−02	0.0
Tt**2	0.0	0.0	0.0
Tt**3	0.0	0.0	0.0

Tt**3	0.0	0.0	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	STORY GULCH	Sub Type:	PBMS
Well:	8505D-25 (F25-496)	Sensor:	GR
Run date:			

PBMS Gamma Ray
Sonde Serial NB RESISTORS FOR GR SENSOR N.33987,TOOL PBMS-AA2782. SENSOR S/N:
Sensor Serial NB 33987
Calib Date ddmmyy 211004
Matrix Size 12
Coeff CRC 8EB5

GR HV Rt		
	Rt**0	Rt**1
Rt**0	+200000000000e+04	+248000000000e+04

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	STORY GULCH	Sub Type:	PBMS
Well:	8505D-25 (F25-496)	Sensor:	WellTemp RTD
Run date:			

PBMS RTD Well Thermometer
Sonde Serial NB COEFFICIENTS FOR RTD THERMOMETER PBMS-A.2782 S/N:
Sensor Serial NB 2782
Calib Date ddmmyy 240605
Matrix Size 16
Coeff CRC C2EB

Coefn CRC

CZEB

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	-.336377203490E+03	+.100503331561E+03	-.168939222789E+01
	Tt**3	Tt**4	Tt**5
Tt**0	+.615701359053E+00	-.339551184977E-01	0.0

Company: **ENCANA OIL & GAS (USA) INC**

Schlumberger

Well: **SGU 8505C-25 (F25-496)**

Field: **STORY GULCH**

County: **GARFIELD**

State: **COLORADO**

RESERVOIR SATURATION TOOL
SIGMA MODE
GAMMA RAY - CCL