

Company: ENCANA OIL & GAS (USA) INC

Well: ROSE 22-1C (K22W)

Field: MAMM CREEK

County: GARFIELD State: COLORADO

RESERVOIR SATURATION LOG  
SIGMA MODE  
GAMMA RAY-CCL

County: GARFIELD

Field: MAMM CREEK

Location: SHL: 2319 FSL & 2226 FWL

Well: ROSE 22-1C (K22W)

Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 2319 FSL & 2226 FWL	Elev.: K.B.	6973.00 ft	
BHL: 1165 FNL & 657 FEL	G.L.	6951.00 ft	
	D.F.	6972.00 ft	
Permanent Datum:	GROUND LEVEL	Elev.: 6951.00 ft	
Log Measured From:	KELLY BUSHING	22.00 ft above Perm. Datum	
Drilling Measured From:	KELLY BUSHING		
API Serial No.	Section	Township	Range
05-045-22118-0C	22	7S	93W

Logging Date	4-Jan-2014								
Run Number	1								
Depth Driller	9668 ft								
Schlumberger Depth	9590 ft								
Bottom Log Interval	9556 ft								
Top Log Interval	2000 ft								
Casing Fluid Type	FRESH WATER								
Salinity									
Density	8.4 lbm/gal								
Fluid Level	100 ft								
BIT/CASING/TUBING STRING									
Bit Size	7.875 in								
From	7295 ft								
To	9668 ft								
Casing/Tubing Size	4.500 in								
Weight	11.6 lbm/ft								
Grade	S-80								
From	22 ft								
To	9650 ft								
Maximum Recorded Temperatures	244 degF								
Logger On Bottom	4-Jan-2014	Time	22:15						
Unit Number	Location								
Recorded By	KIRSTIE BUNTING								
Witnessed By	UNWITNESSED								

PVT DATA				Run 1	Run 2	Run
Oil Density						
Water Salinity						
Gas Gravity						
Bo						
Bw						
1/Bq						
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						
Unit Number						
Recorded By						
Witnessed By						

## DEPTH SUMMARY LISTING

Date Created: 14-AUG-2013 11:54:57

## Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-JB	Type:	CMTD-B/A	Type:	1-25ZT
Serial Number:	6349	Serial Number:	3421	Serial Number:	112136
Calibration Date:	7-31-2013	Calibration Date:	14-AUG-201	Length:	19000 FT
Calibrator Serial Number:		Calibrator Serial Number:	174878		
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	-5	Calibration RMS:	3	Rig Type:	LAND
Wheel Correction 2:	-4	Calibration Peak Error:	8		

## Depth Control Parameters

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

### Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES USED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. SPWT DRUM COUNTER USED AS SECONDARY DEPTH REFERENCE
- 4.
- 5.
- 6.

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OTHER SERVICES1	OTHER SERVICES2
OS1: SLIM CEMENT MAPPING	OS1:
OS2: LOG	OS2:
OS3: CBL-VDL	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRELATED TO DOWN LOG	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE: 21:30	
TIME ON BOTTOM: 22:15	
EXIT: 01:00	

MAXIMUM RECORDED TEMPERATURE: 244 DEGF	
MAXIMUM RECORDED PRESSURE: 3800 PSIA	
SHORT JOINTS: 7315 FT & 8345 FT	
SANDSTONE MATRIX	
CREW: KBUNTING, KJOHNS, JMANN, SKRAMER	
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY	

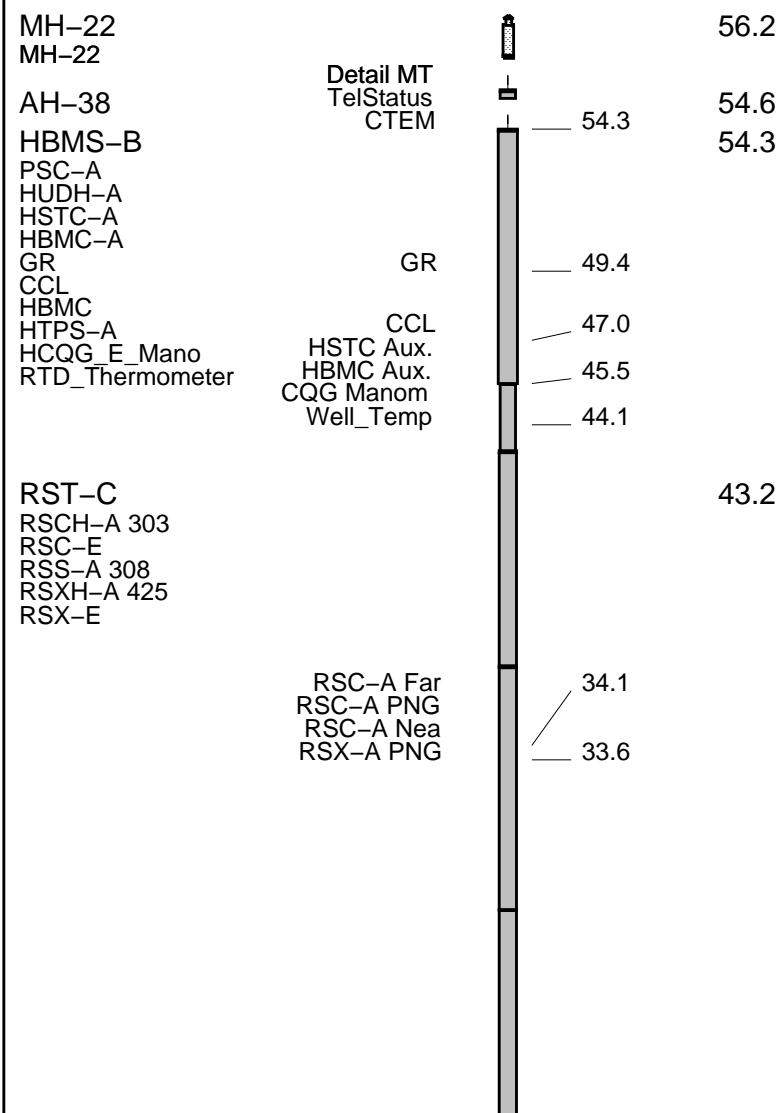
RUN 1 SERVICE ORDER #: CGF9-00195 PROGRAM VERSION: 19C0-187 FLUID LEVEL: 100 ft			RUN 2 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT	DESCRIPTION
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	RUN 1	RUN 2
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11	1	1
12	1	1
13	1	1
14	1	1
15	1	1
16	1	1
17	1	1
18	1	1
19	1	1
20	1	1
21	1	1
22	1	1
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41	1	1
42	1	1
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88	1	1
89	1	1
90	1	1
91	1	1
92	1	1
93	1	1
94	1	1
95	1	1
96	1	1
97	1	1
98	1	1
99	1	1
100	1	1

WITM-A PSC_16MHZ	SURFACE EQUIPMENT	
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## DOWNHOLE EQUIPMENT



SCMT-CB  
SCMC-CA 8120  
SECH-CA  
CMIR-AG  
SCMS-CB 8303  
SCMX-CA

20.2

DT 11.1  
CBL5 DTSC 9.6  
CBL3 8.6  
MAP 8.1  
AUX 7.1

AH-BNS  
Tension SCMT HV 0.0  
TOOL ZERO 0.2

MAXIMUM STRING DIAMETER 2.07 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS RST SIGMA

MAXIS Field Log

Input DLIS Files

DEFAULT SCMT\_RST\_HBMS\_030LUP FN:29 PRODUCER 04-Jan-2014 22:17 9597.0 FT 3.0 FT

Output DLIS Files

DEFAULT SCMT\_RST\_HBMS\_033PUP FN:32 PRODUCER 05-Jan-2014 00:58 9601.0 FT -40.5 FT

OP System Version: 19C0-187

SCMT-CB 19C0-187 RST-C 19C0-187  
HBMS-B 19C0-187

Changed Parameter Summary

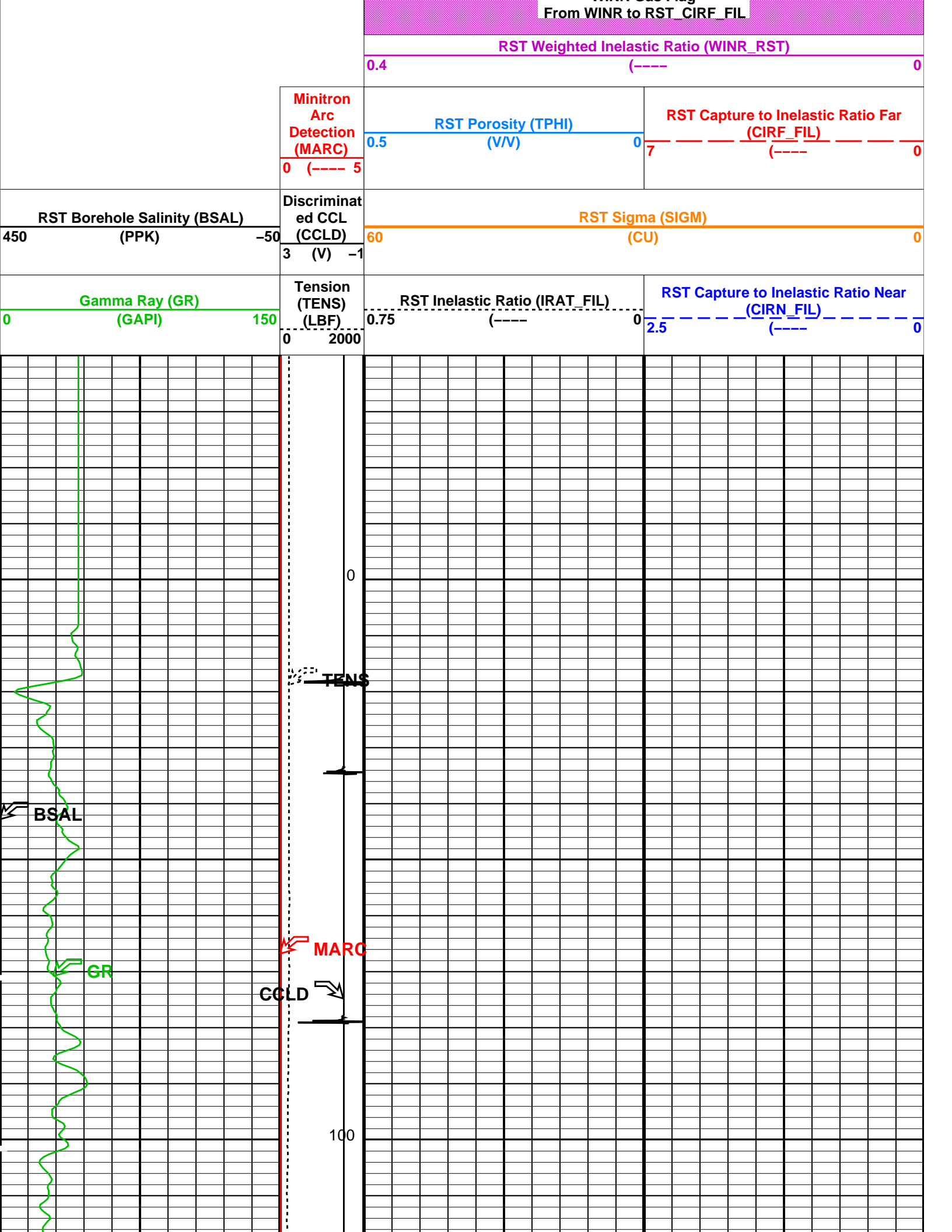
DLIS Name	New Value	Previous Value	Depth & Time
BS	7.875 IN	7.875 IN	9601.0 00:58:09
	8.750 IN	7.875 IN	7295.0 00:59:21

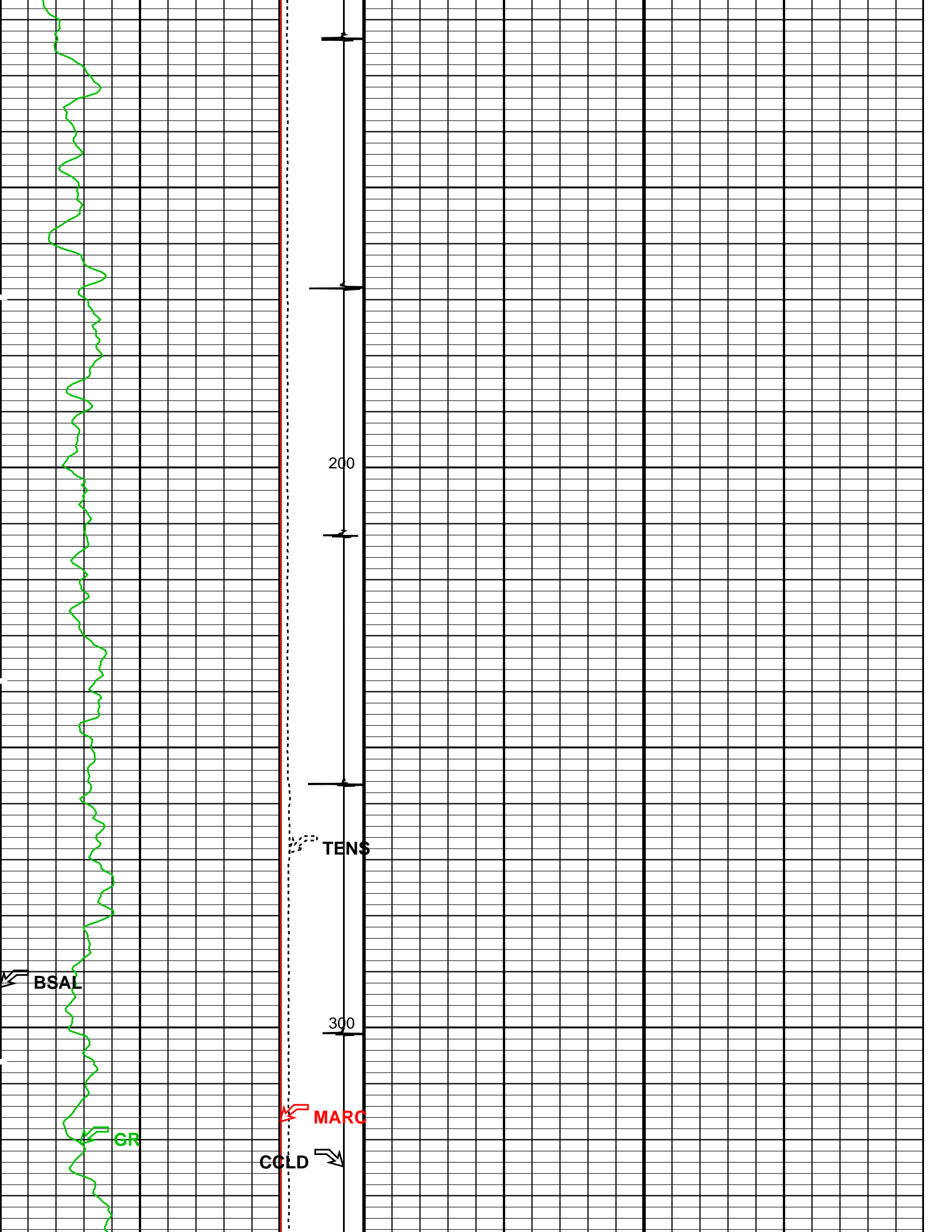
PIP SUMMARY

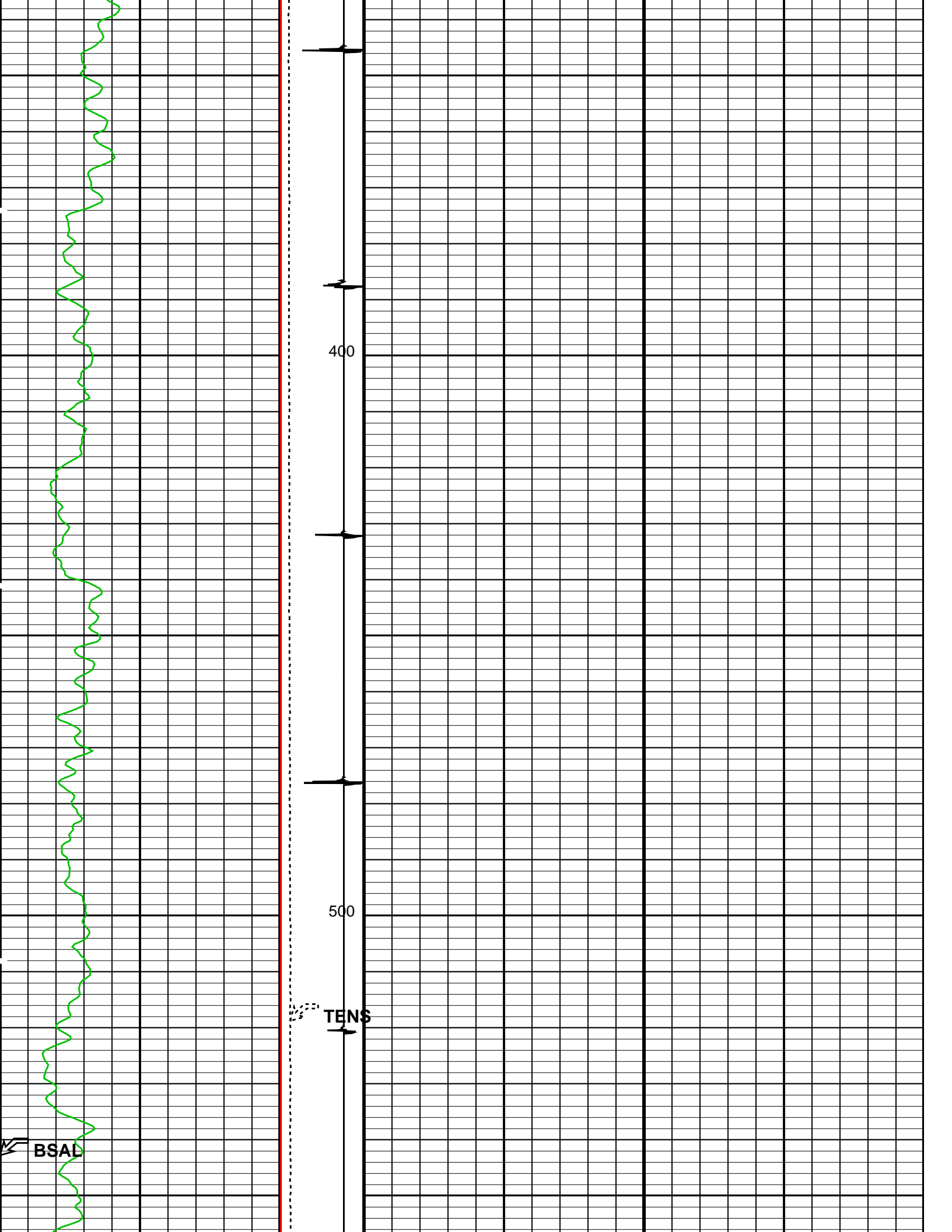
Time Mark Every 60 S

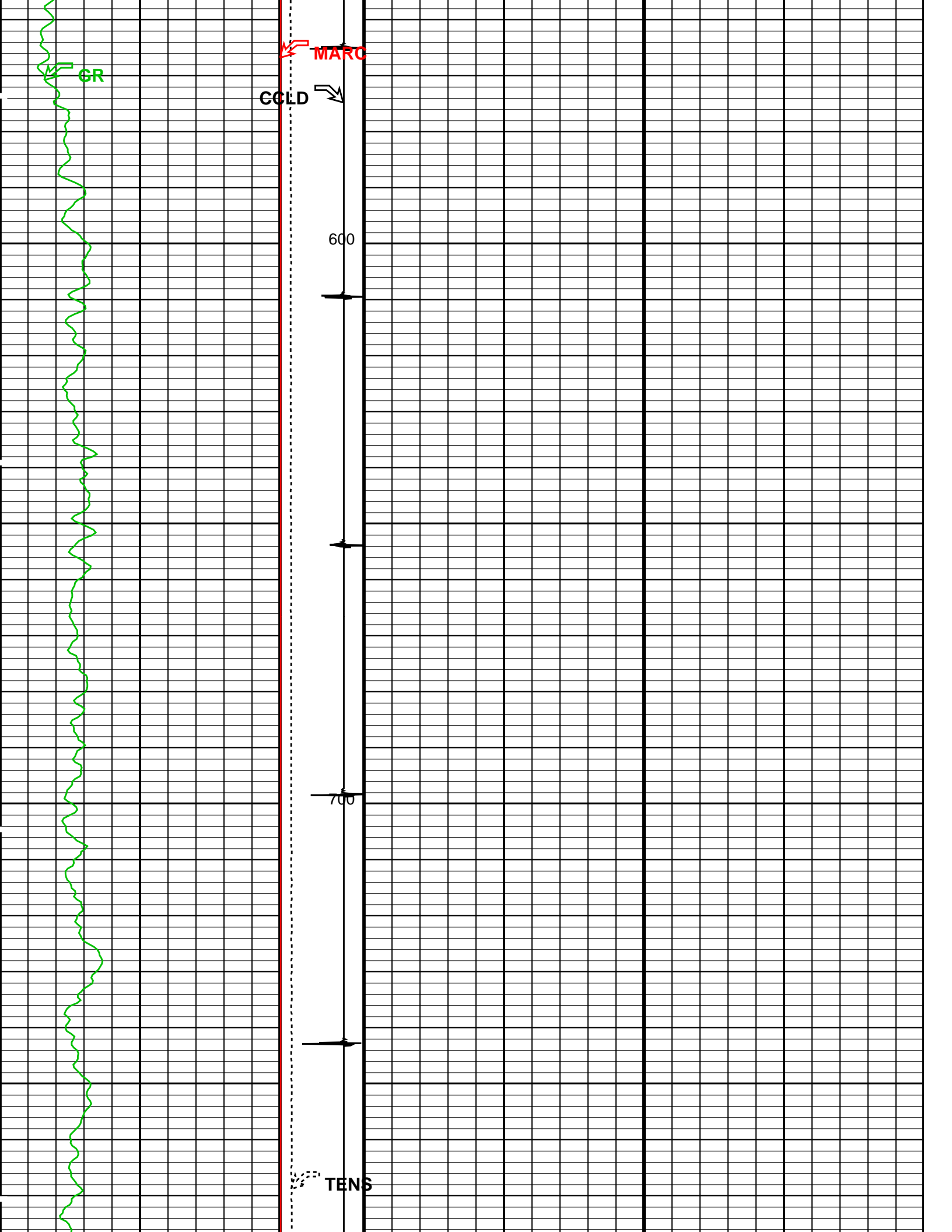
Crossover in sand  
From RST\_CIRF\_FIL to RST\_CIRN\_FIL

WINR Gas Flag

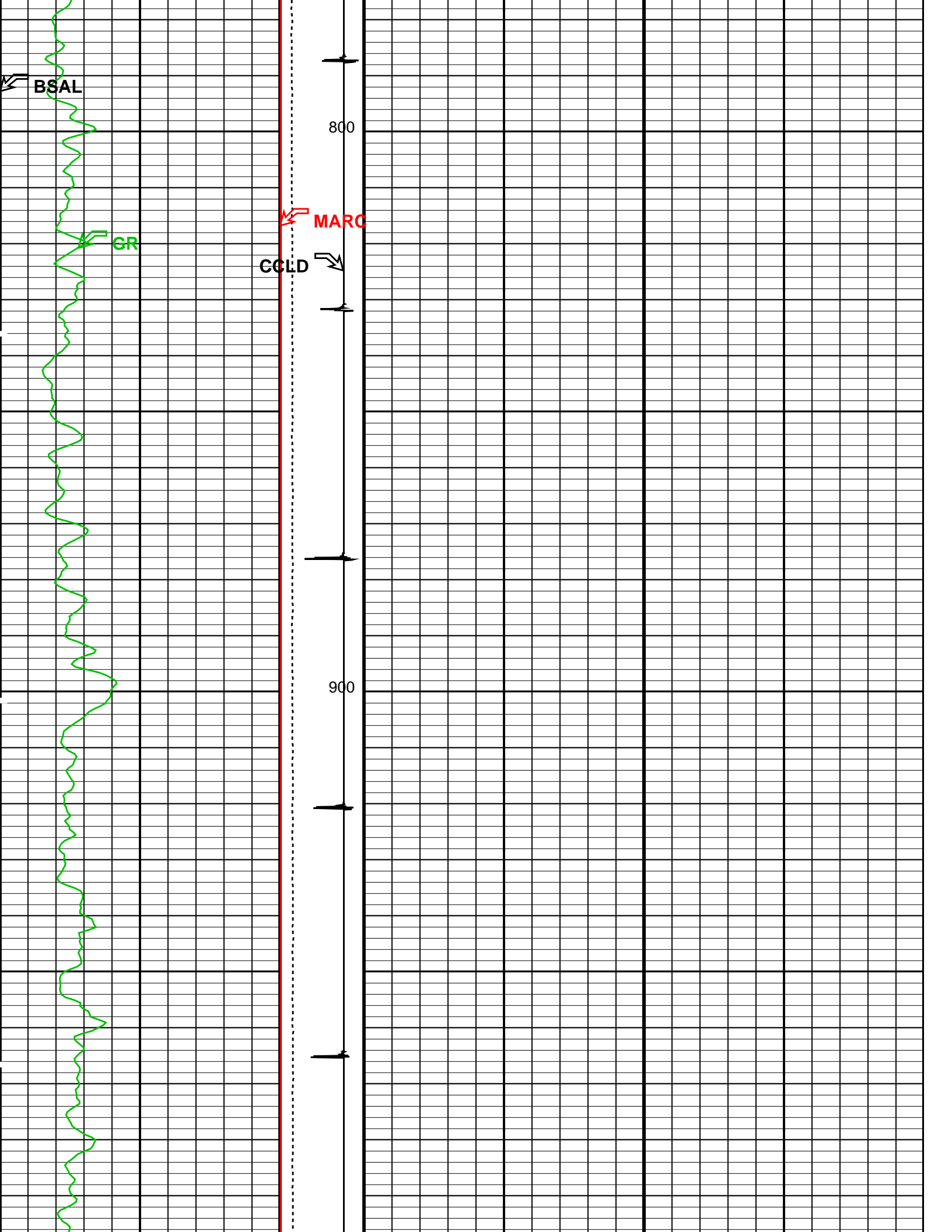


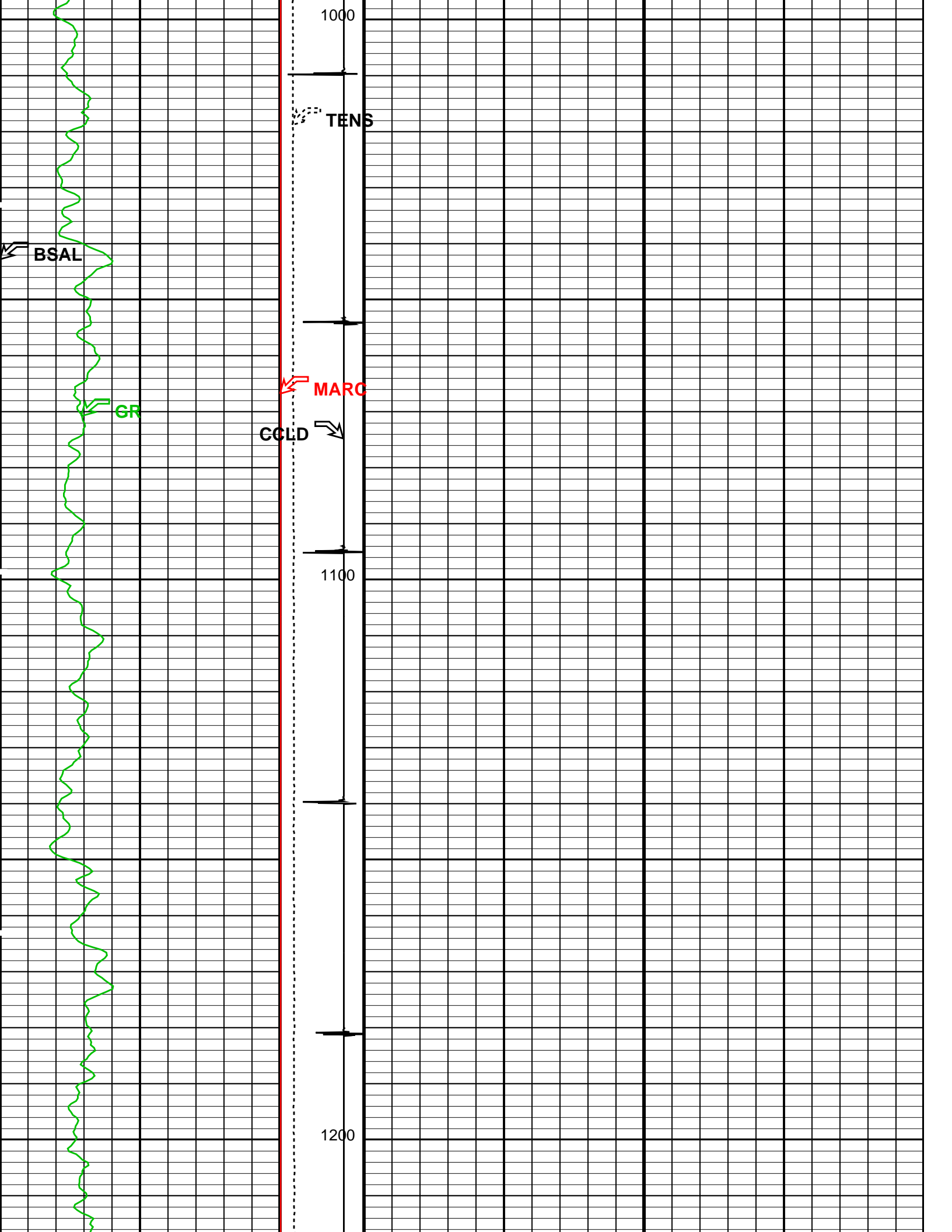


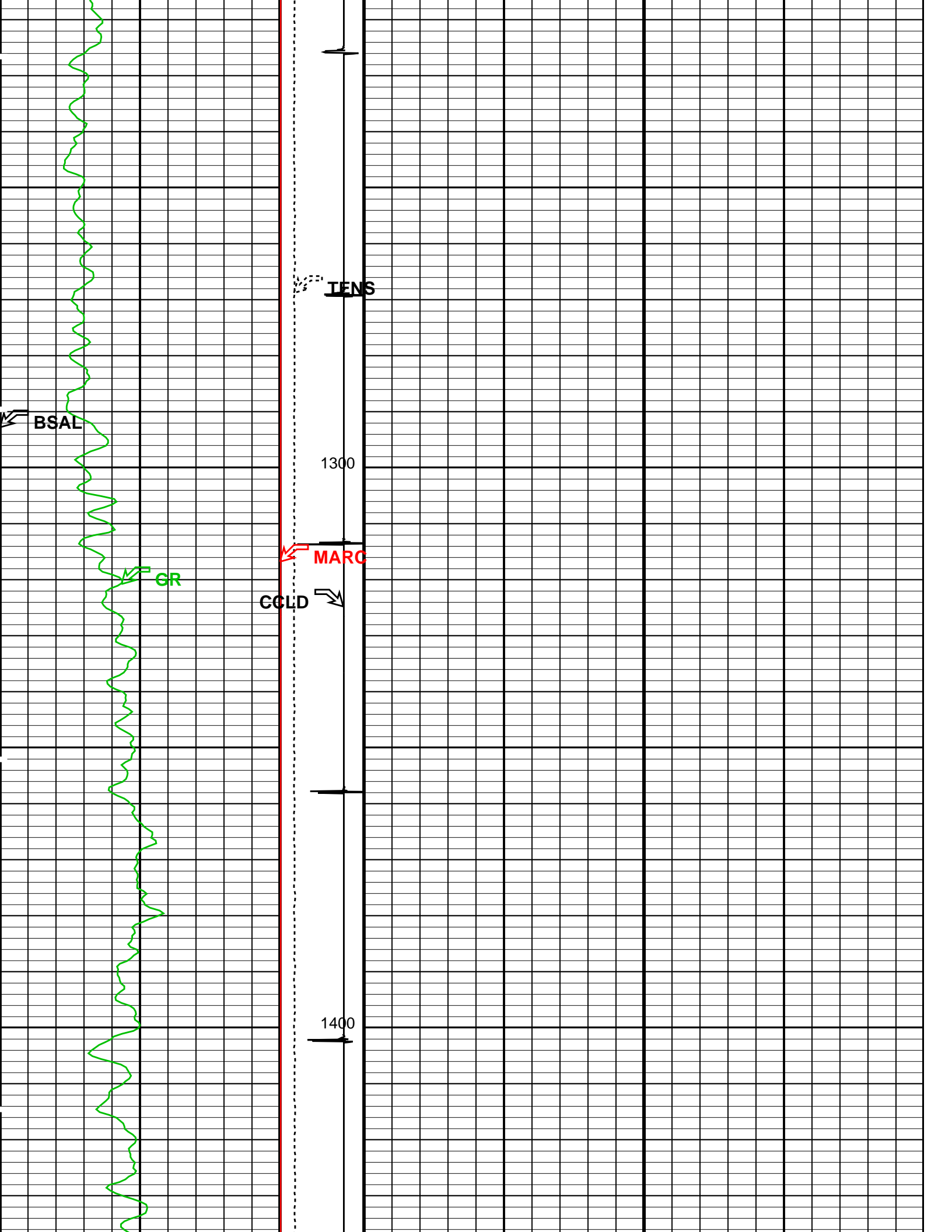


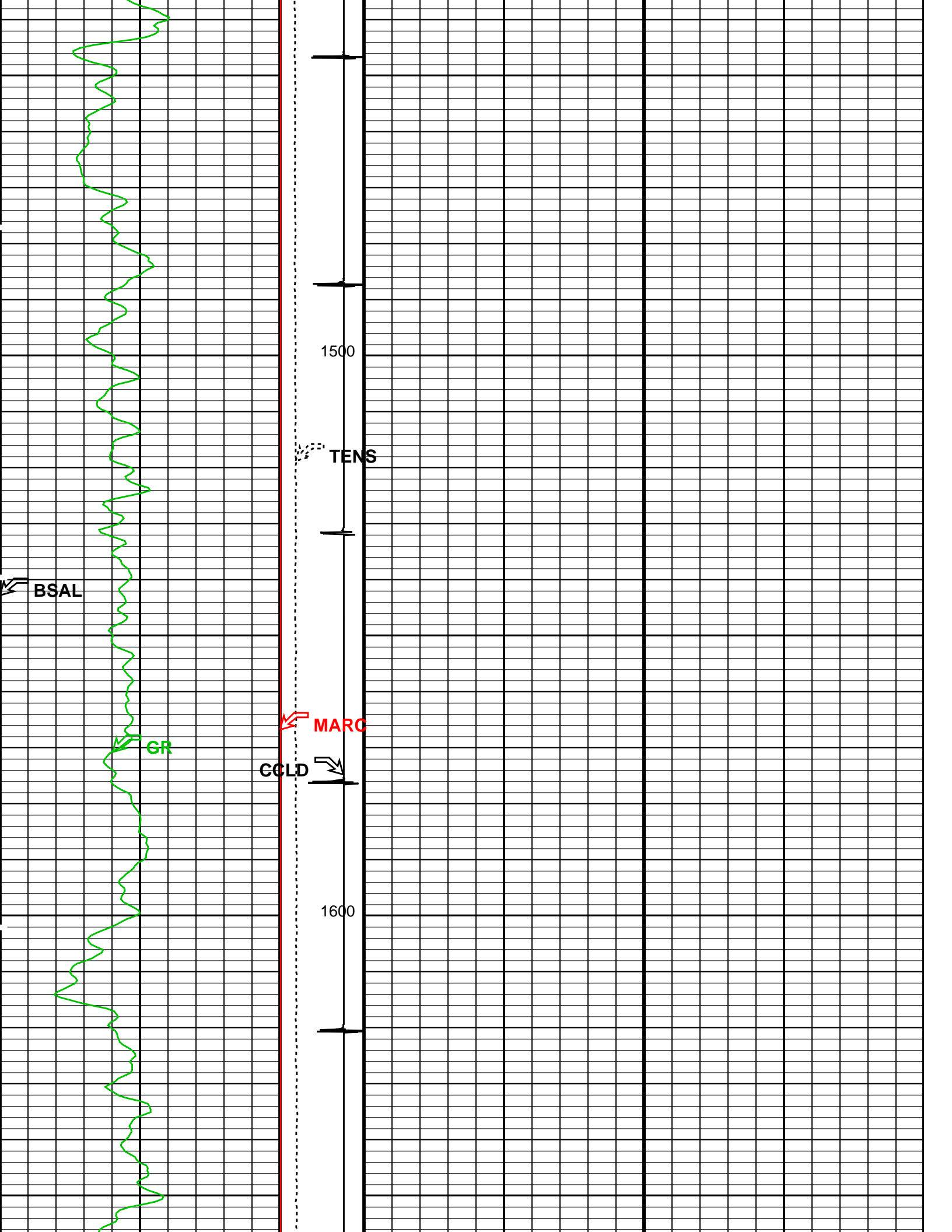


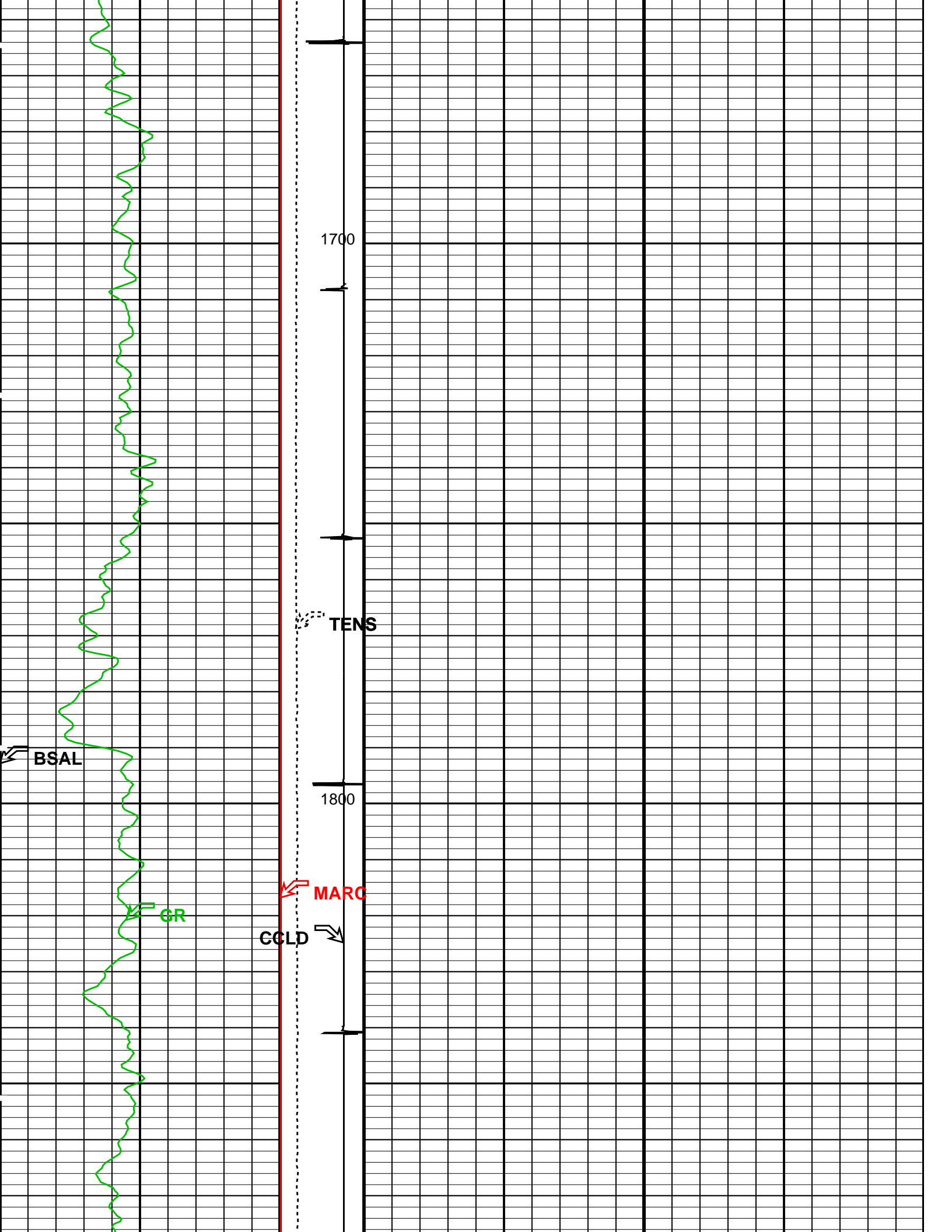


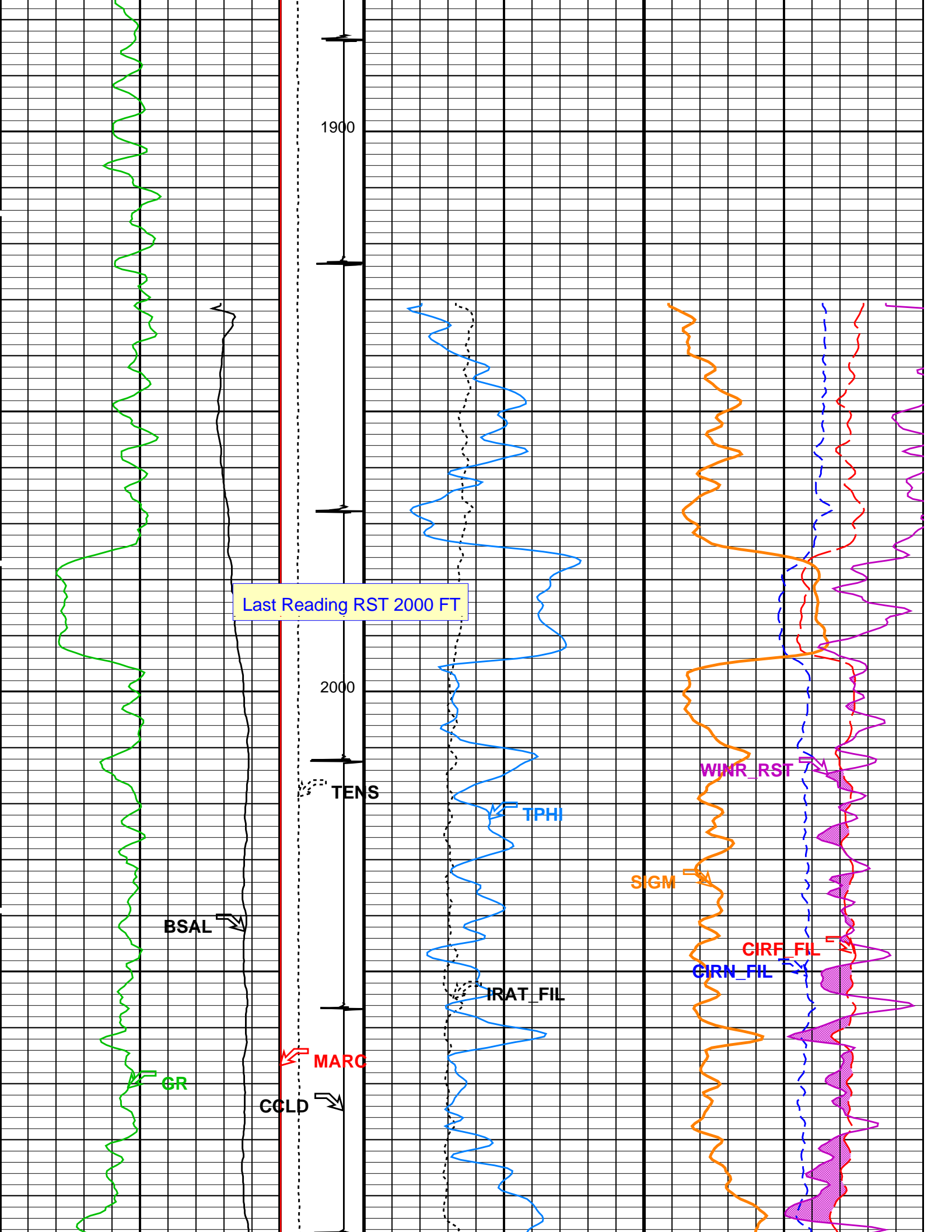


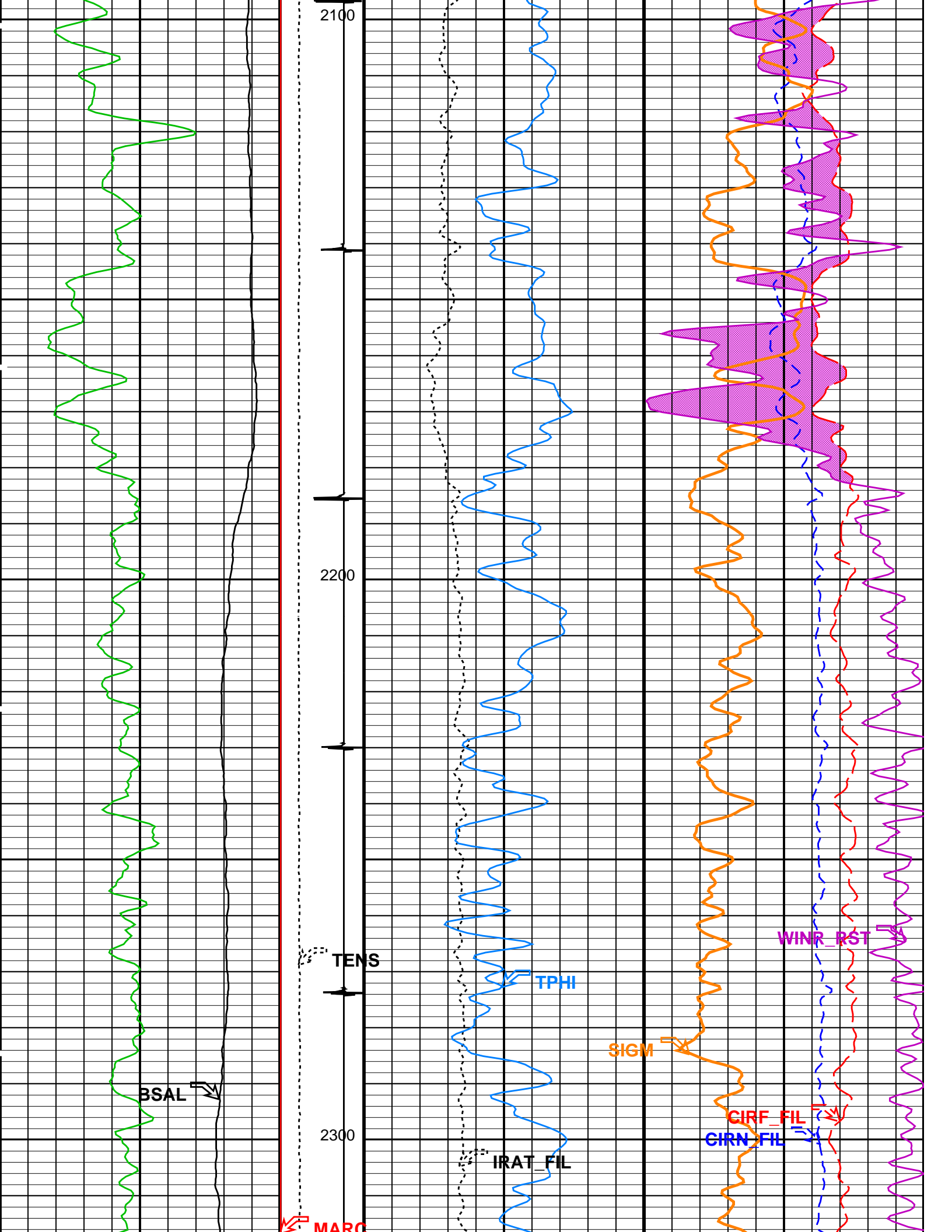


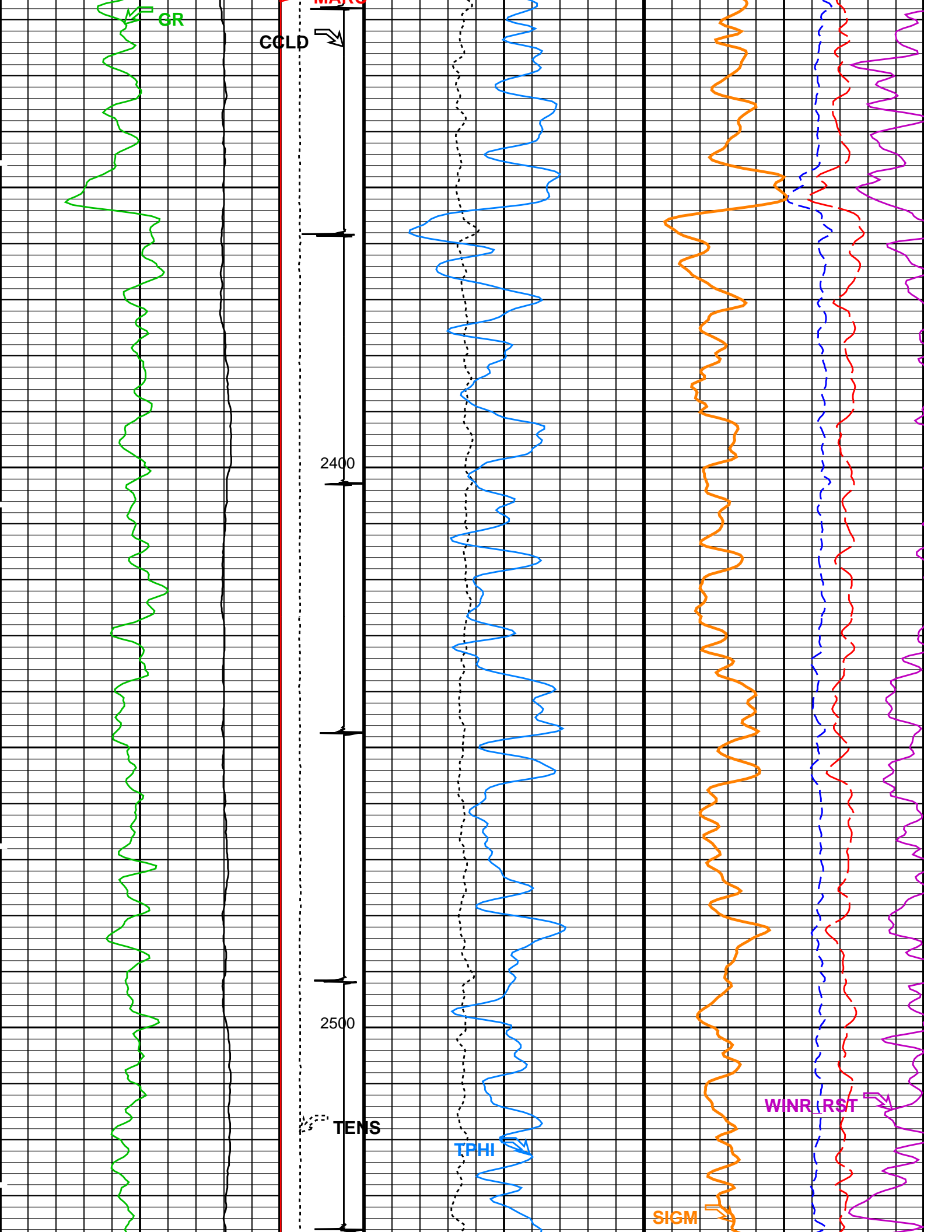




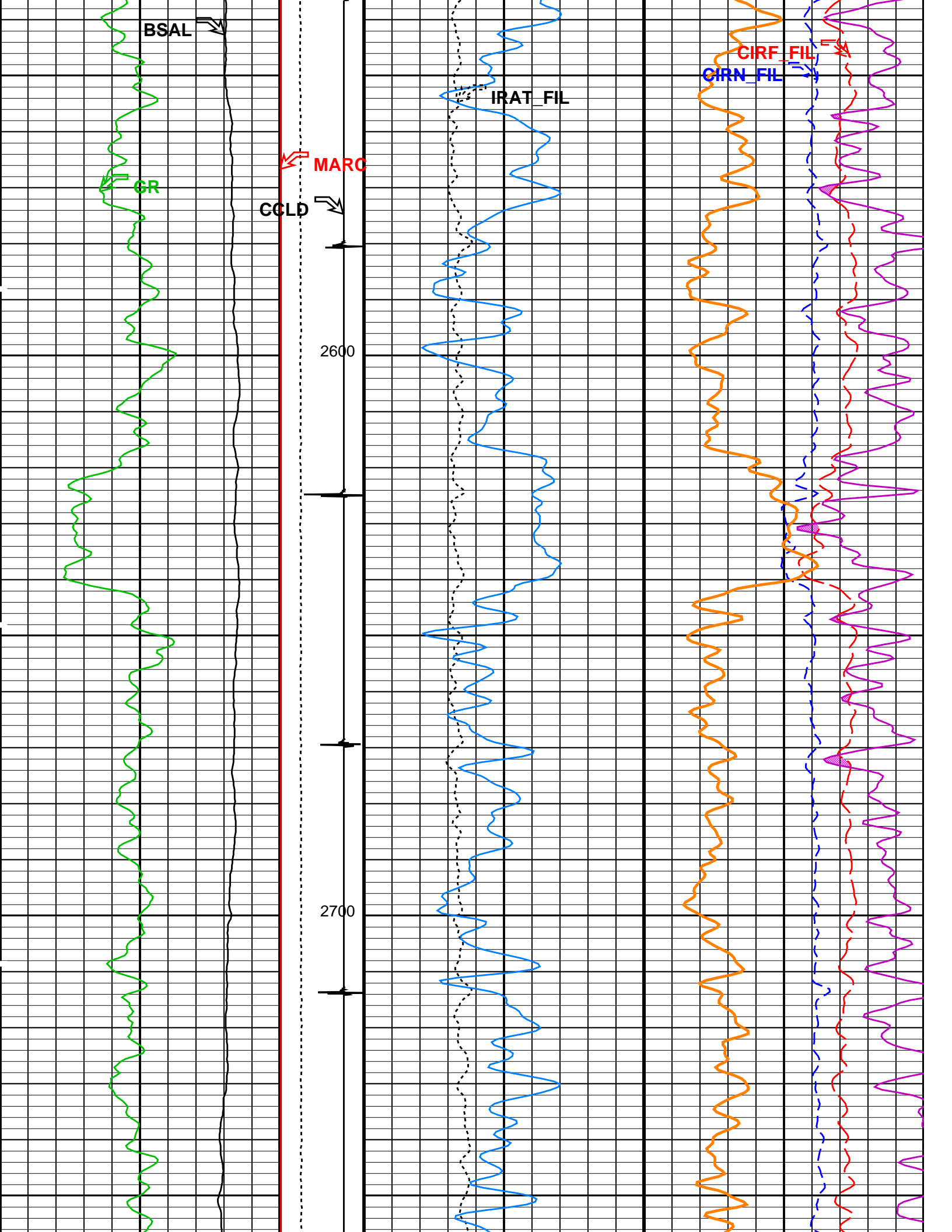


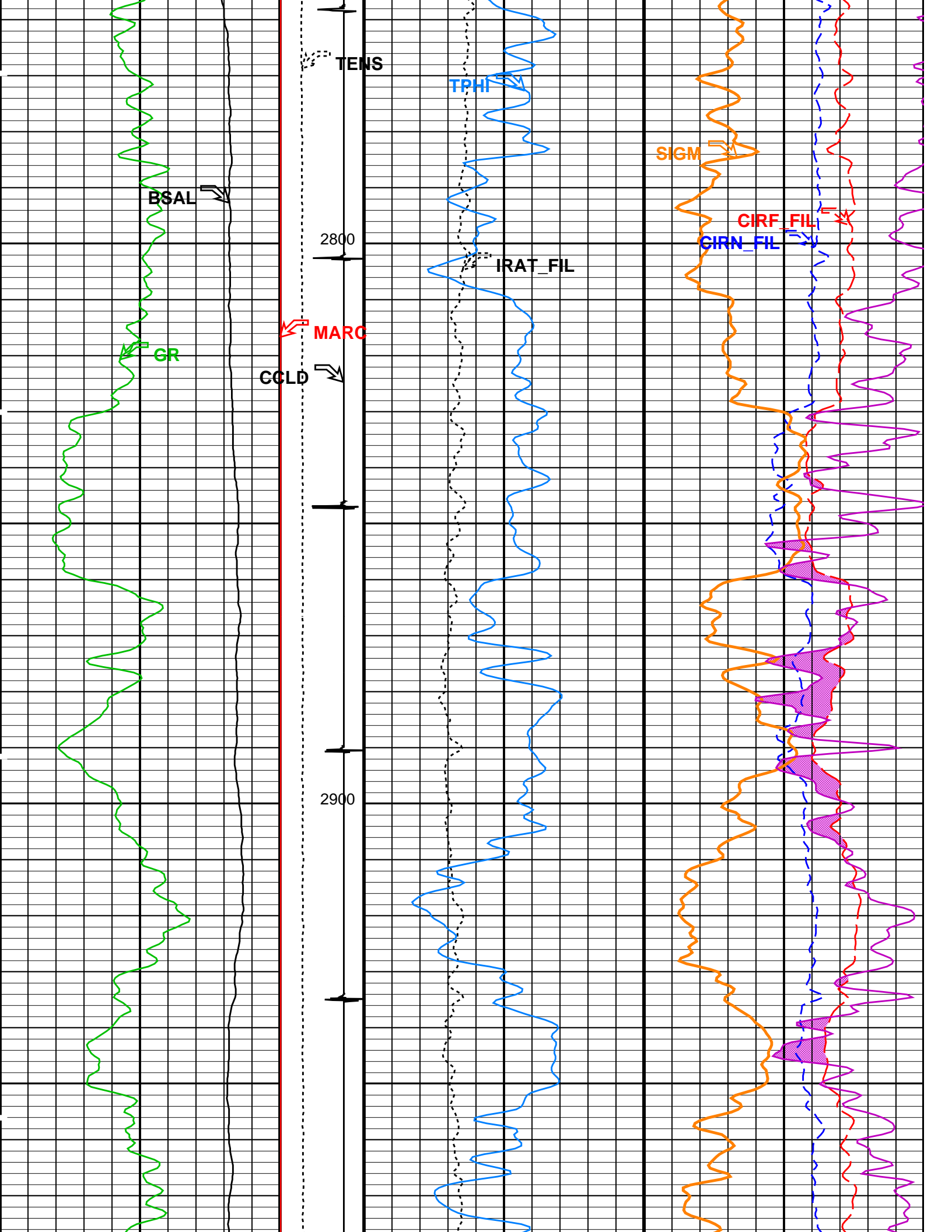


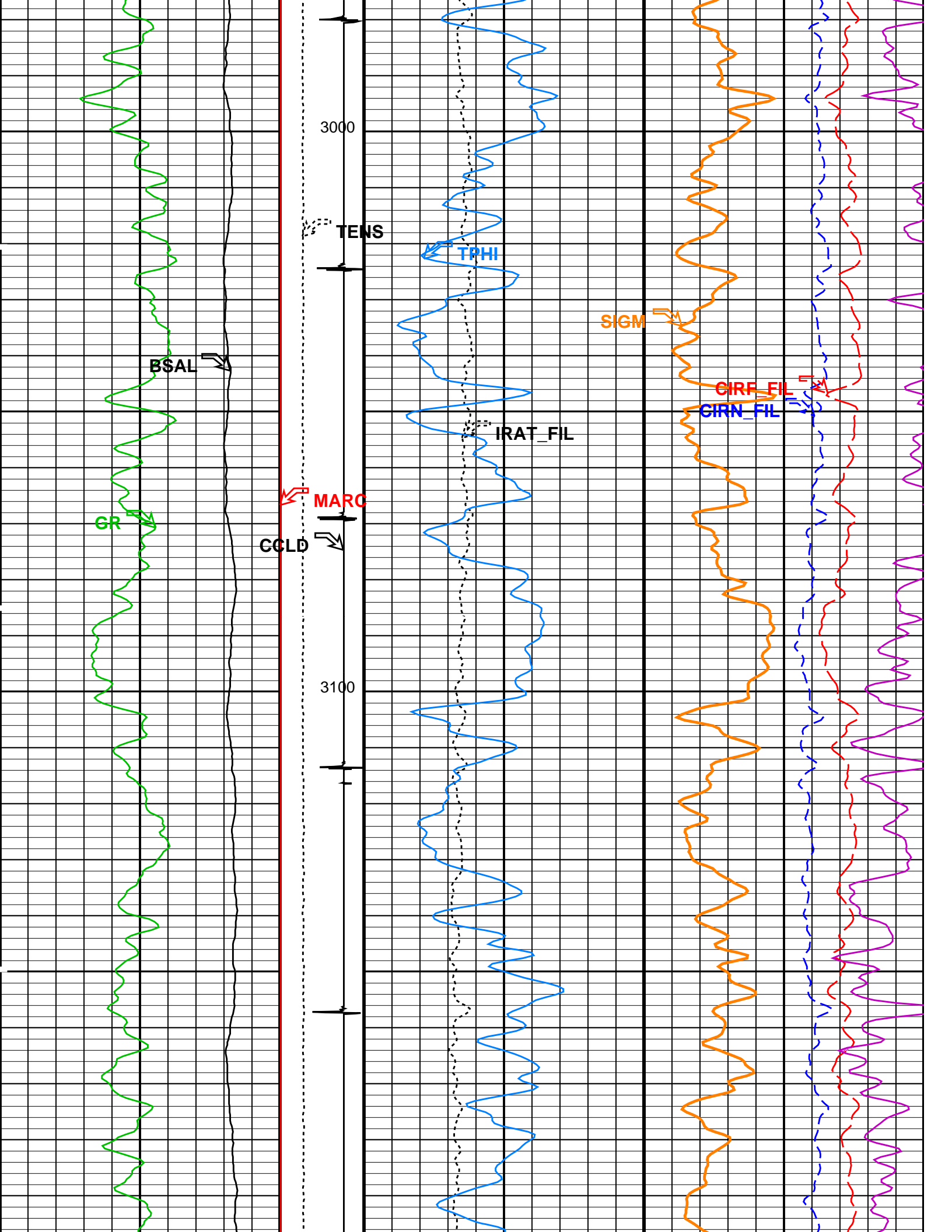


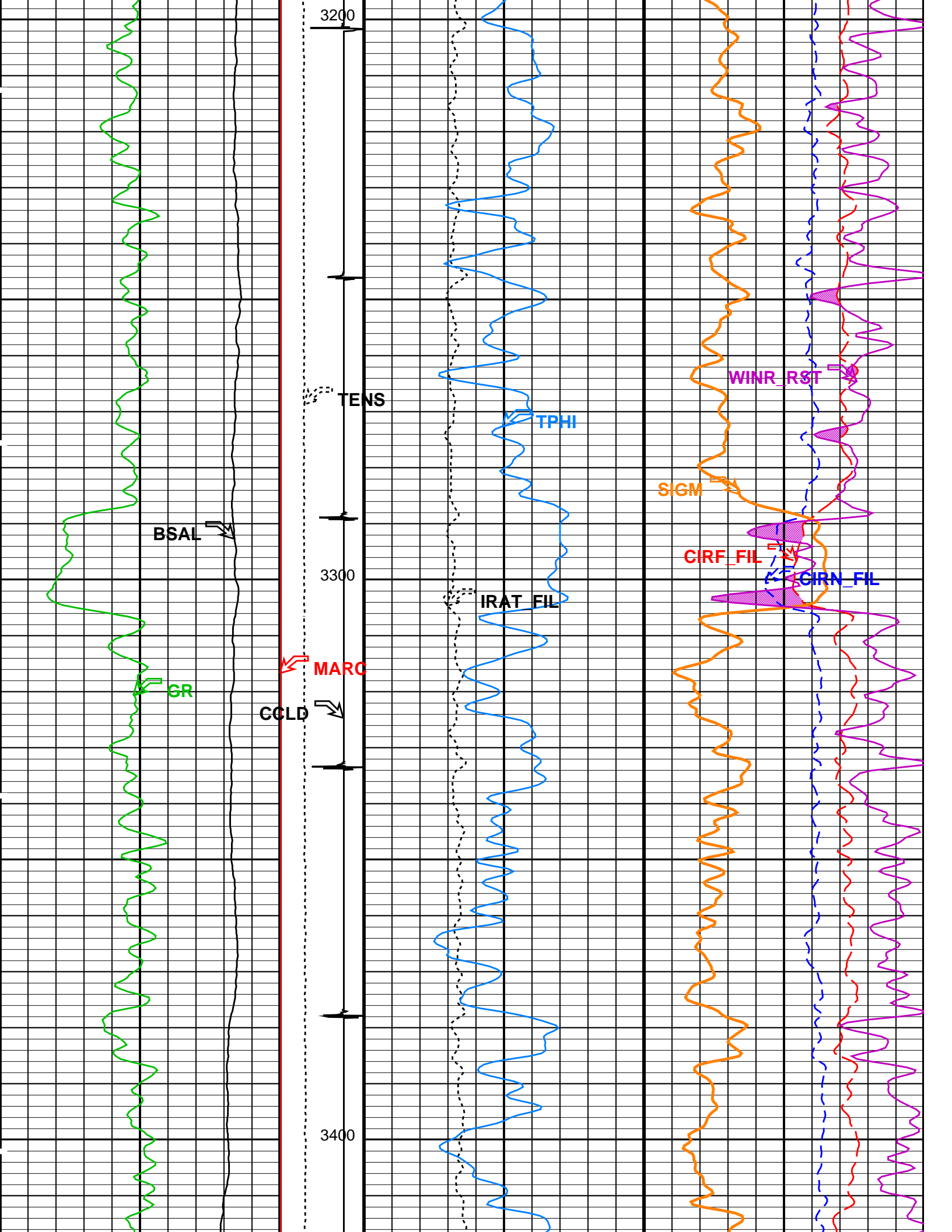


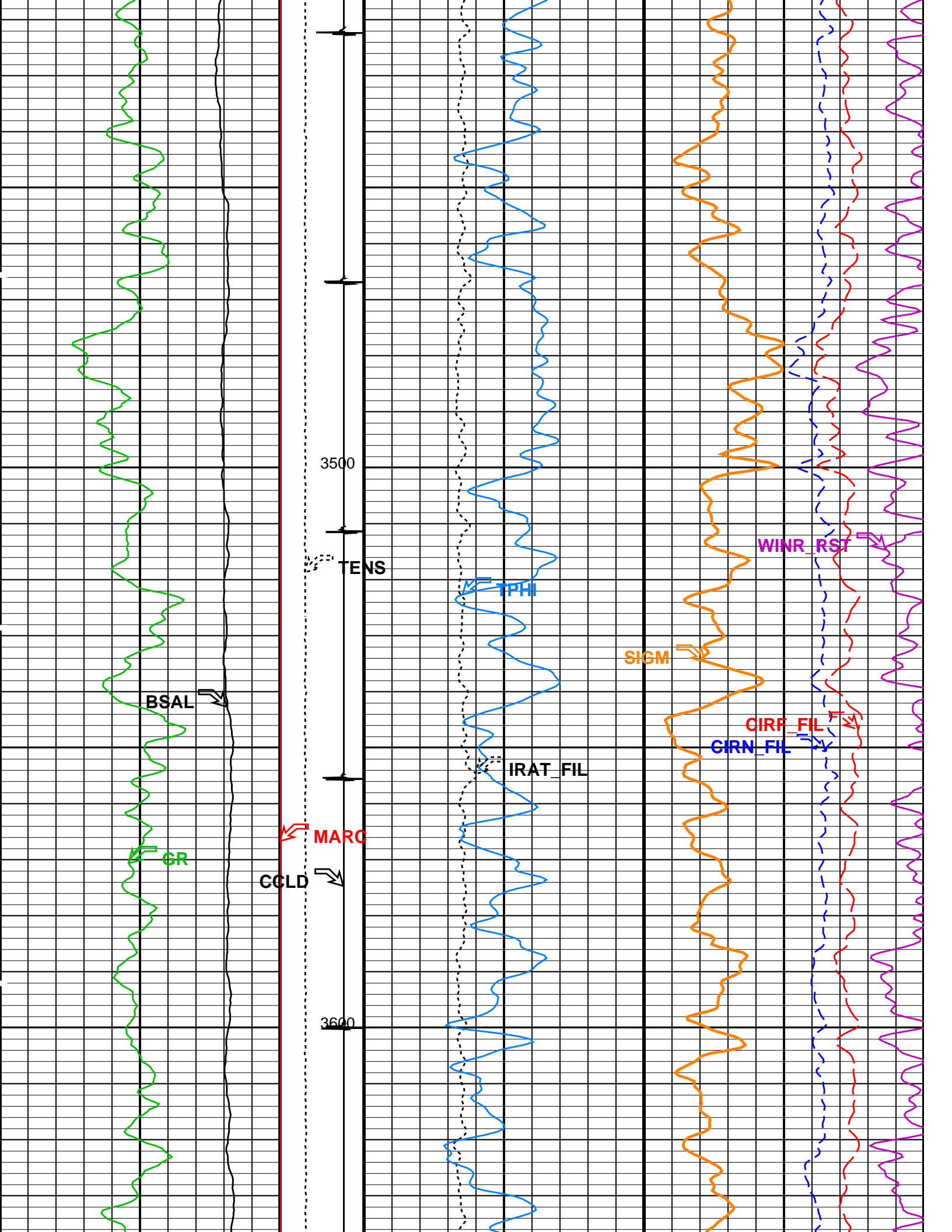


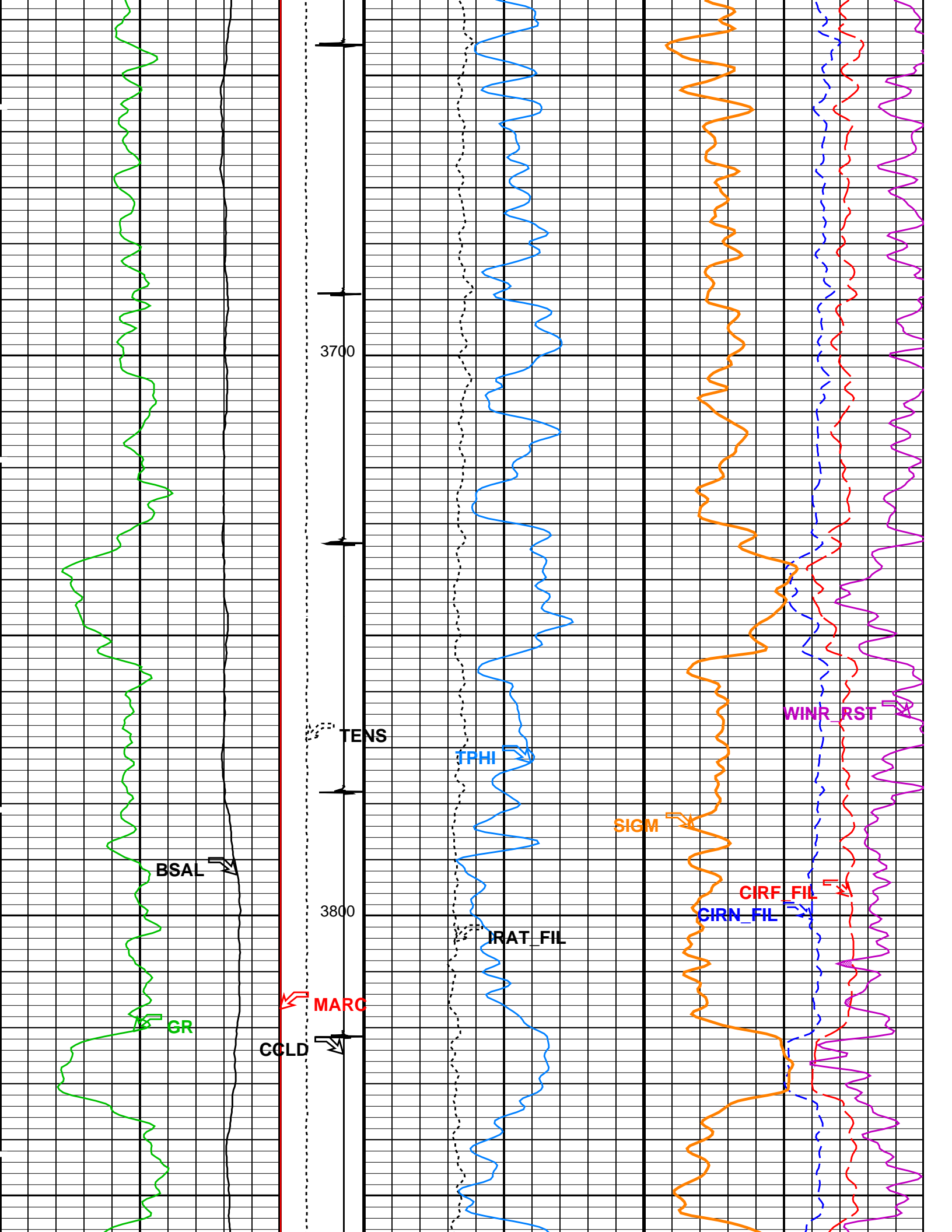


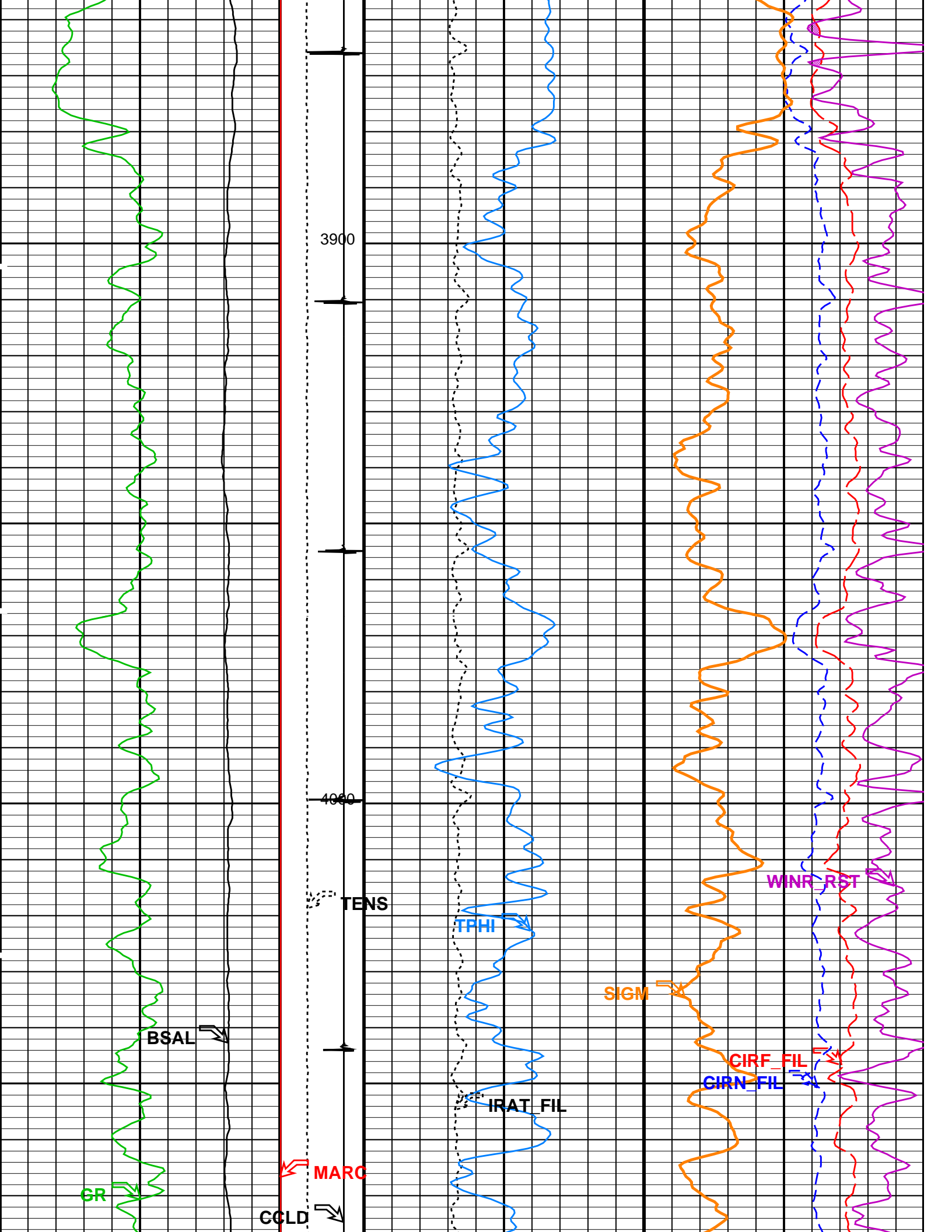


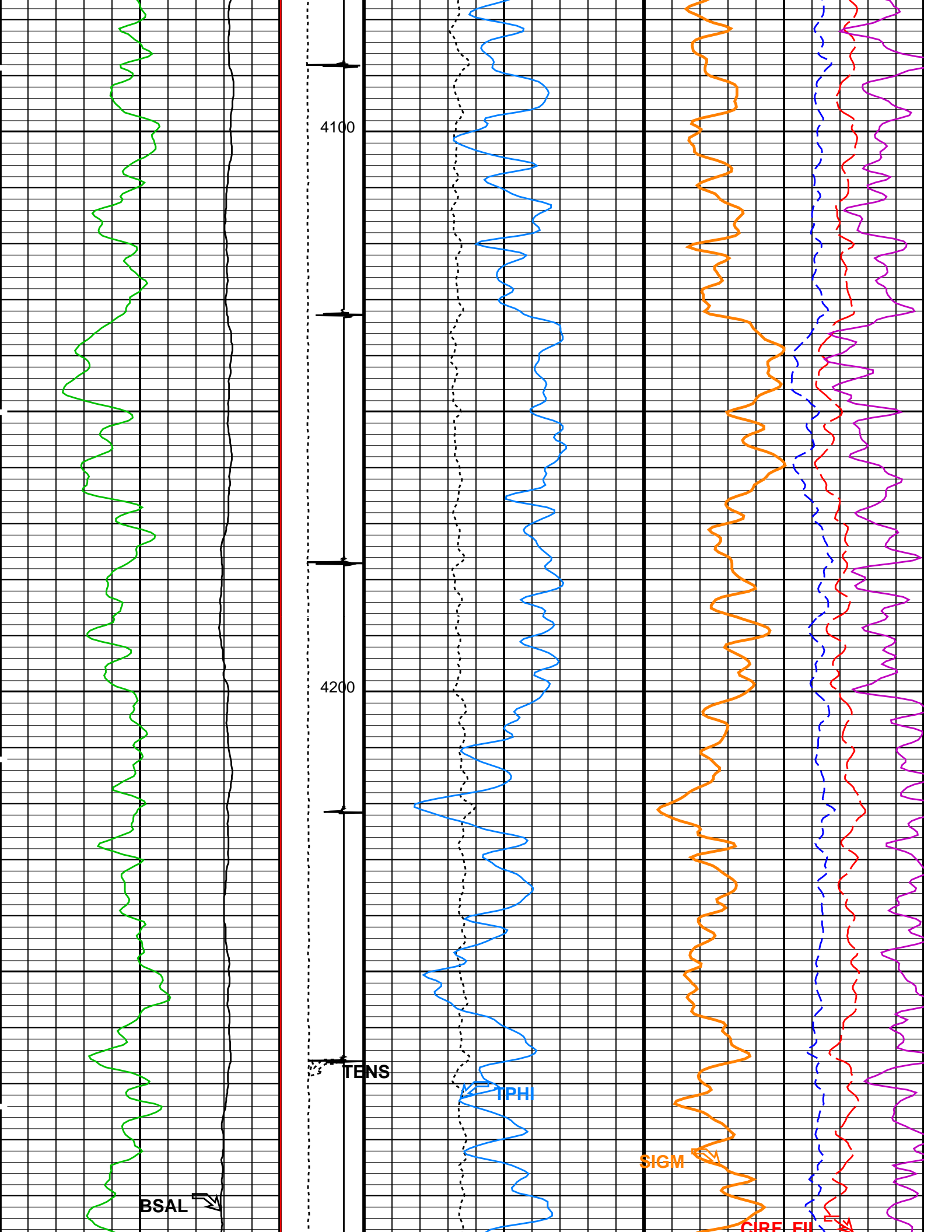




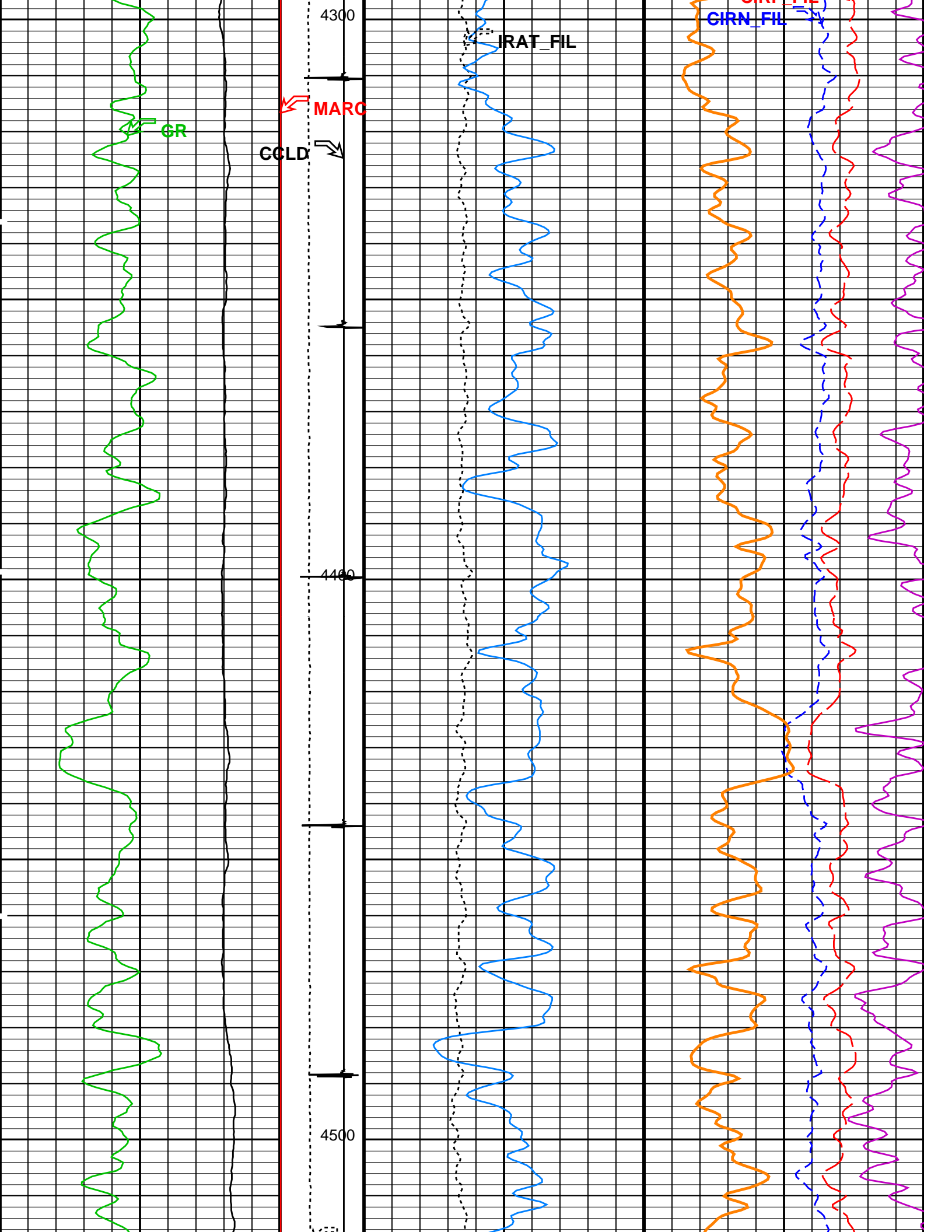


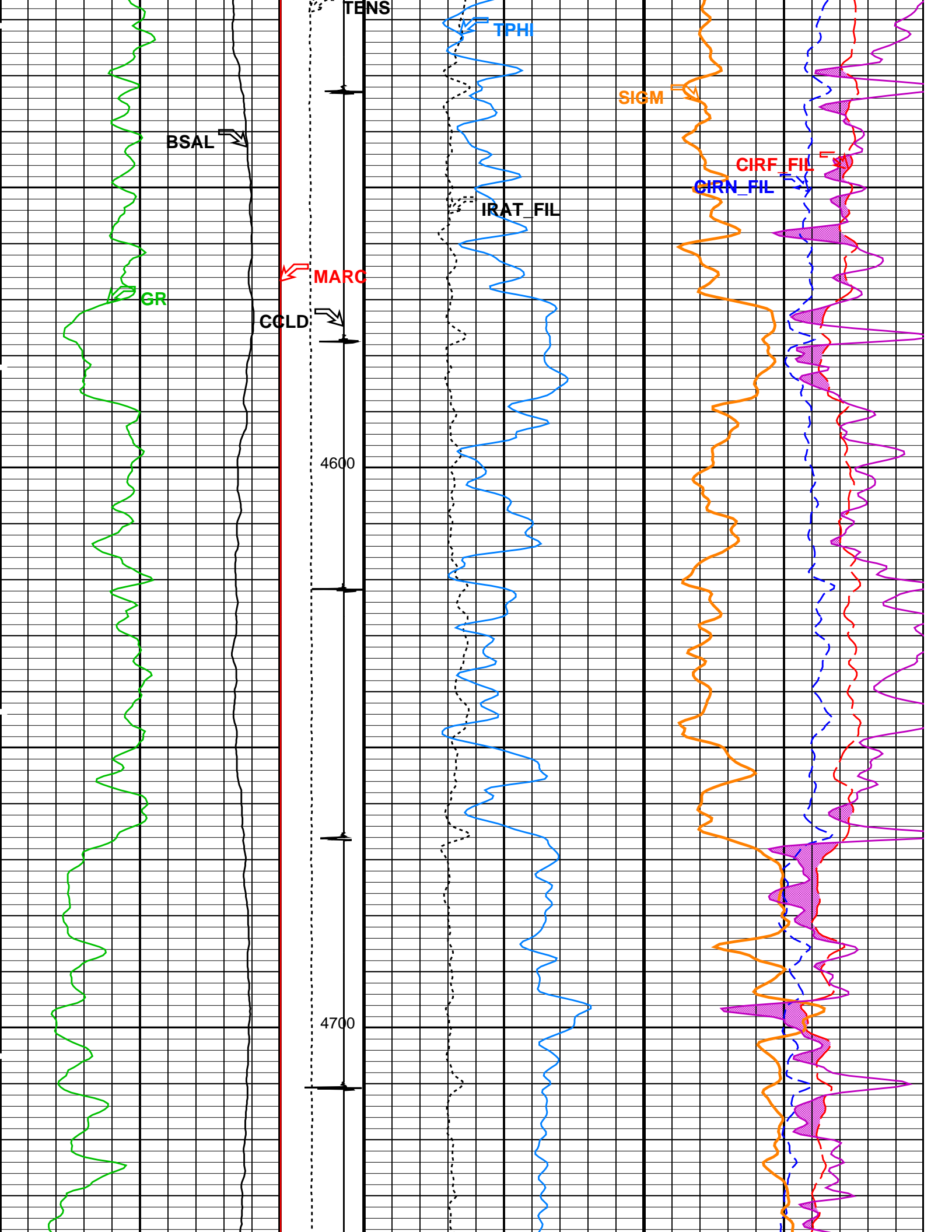


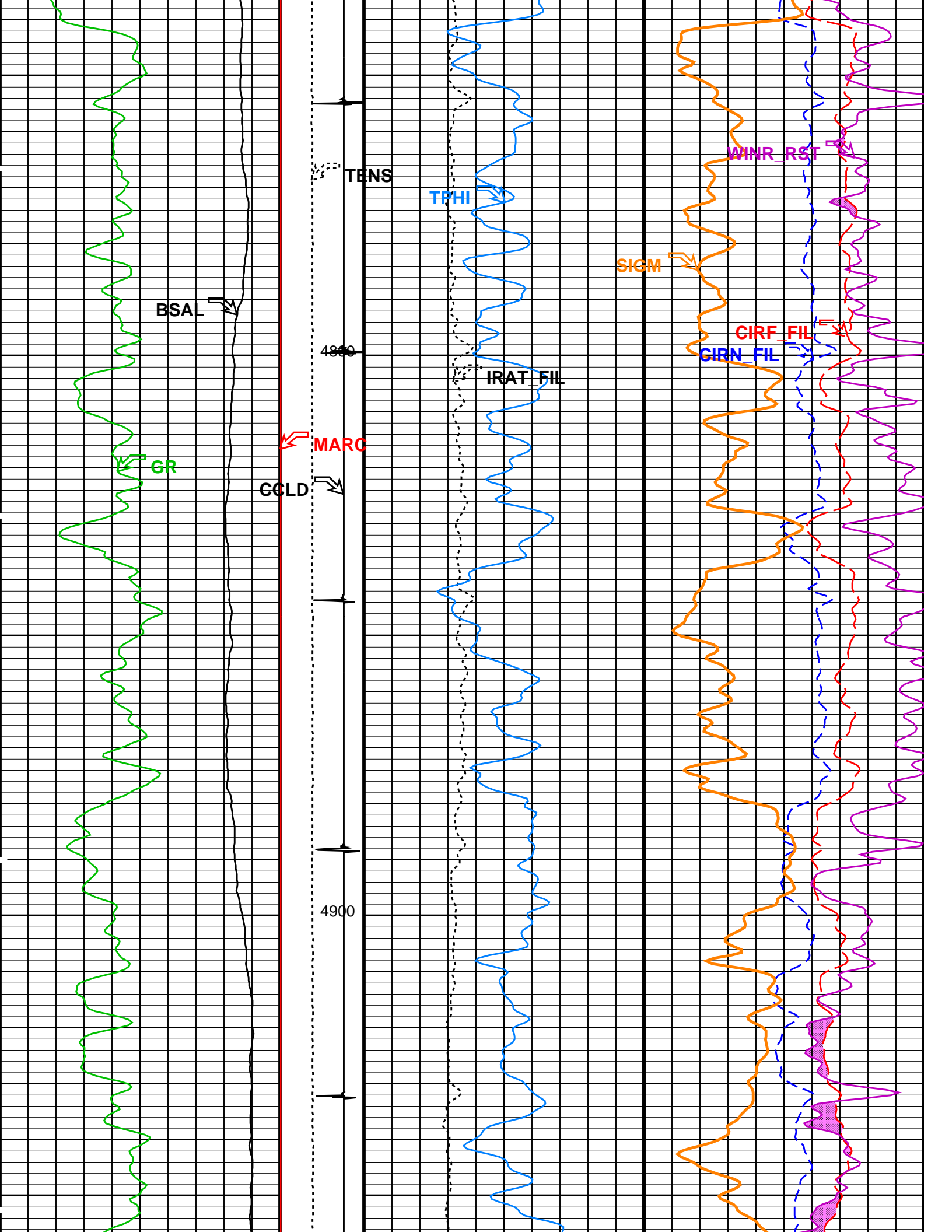


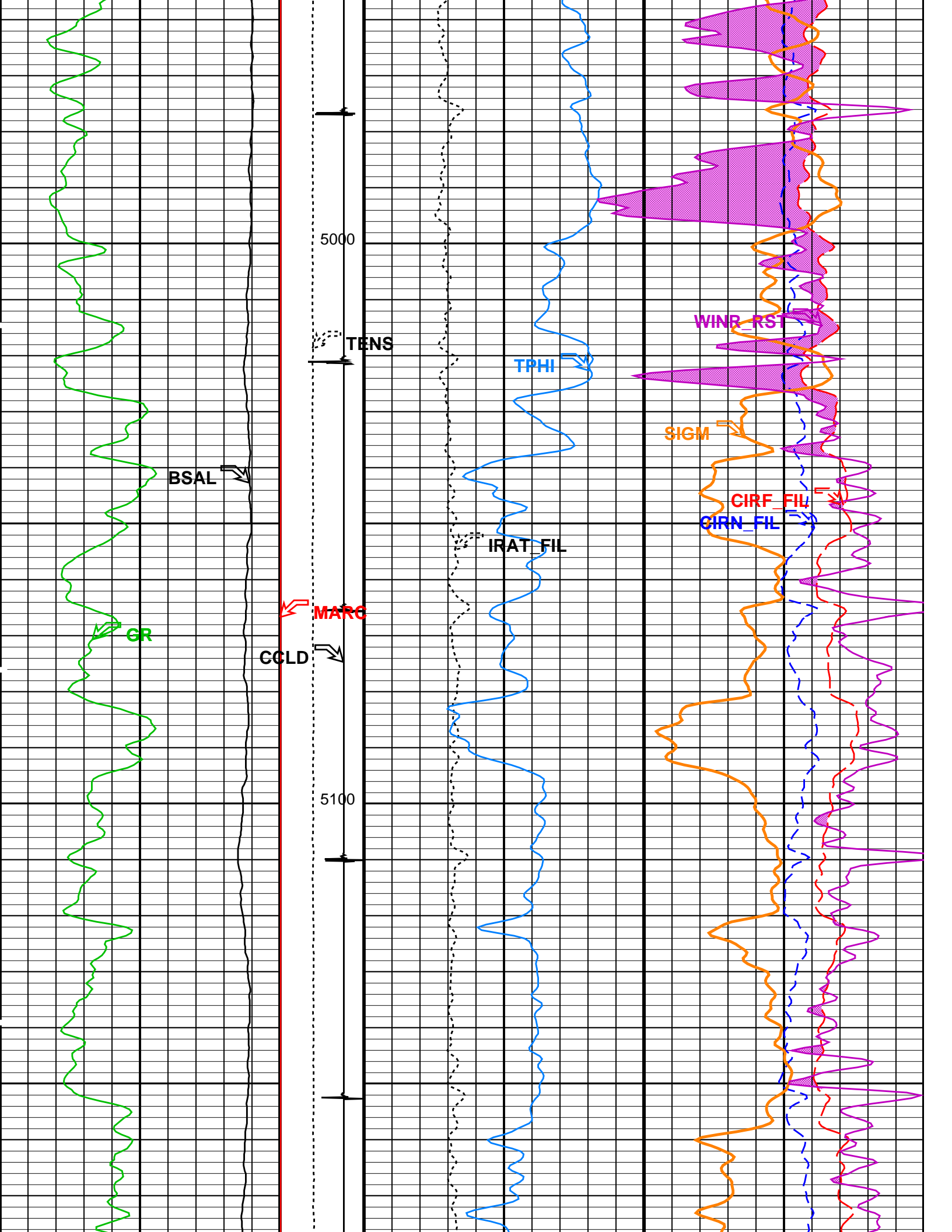


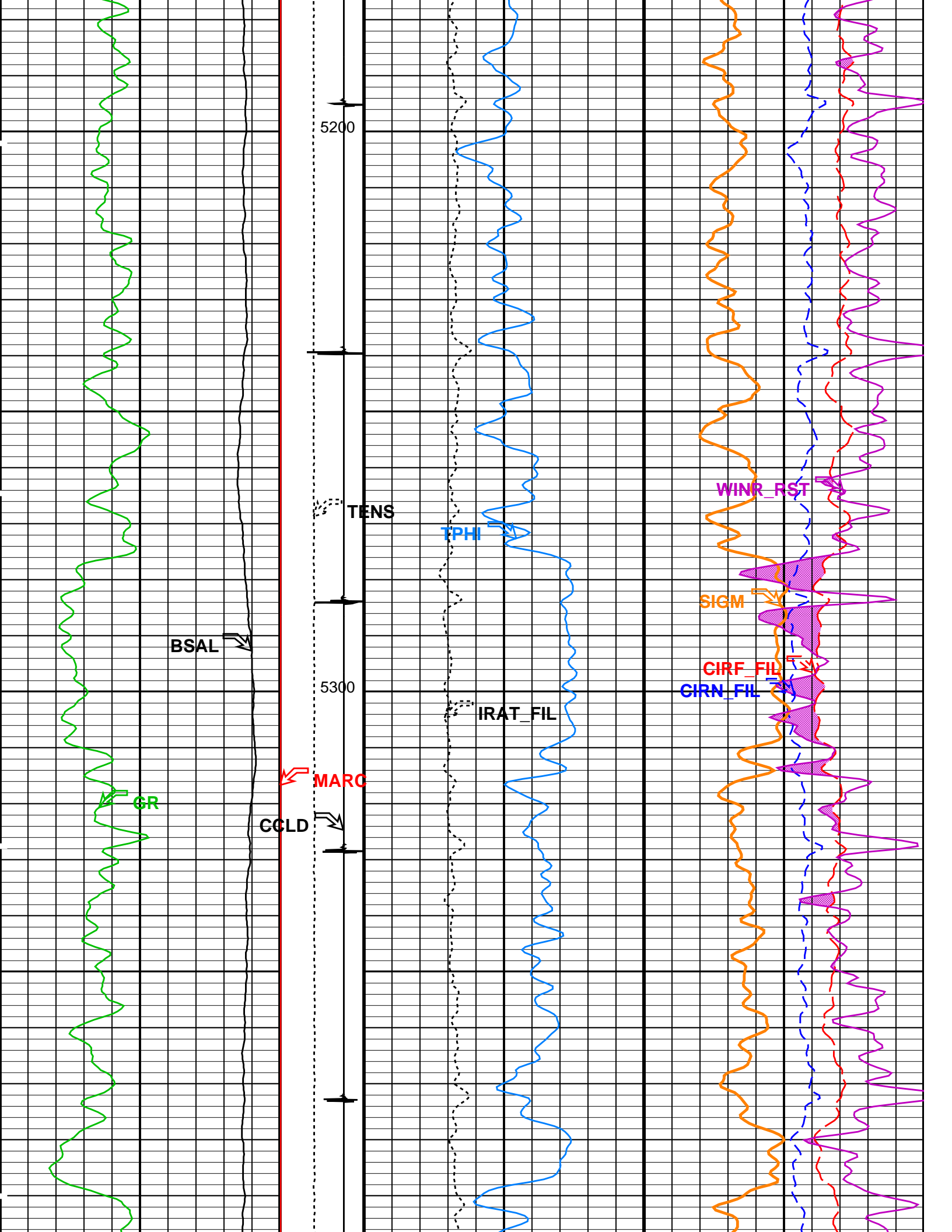


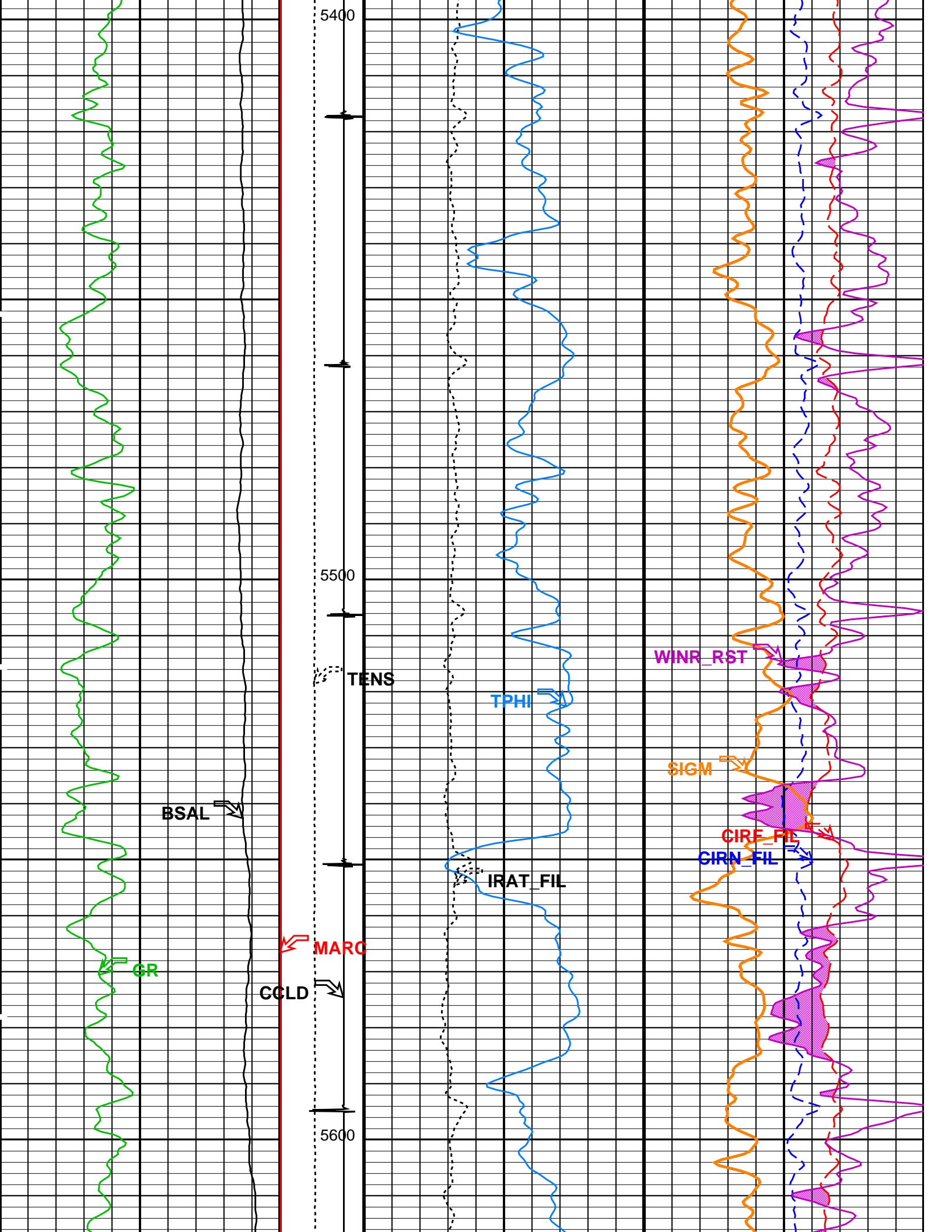


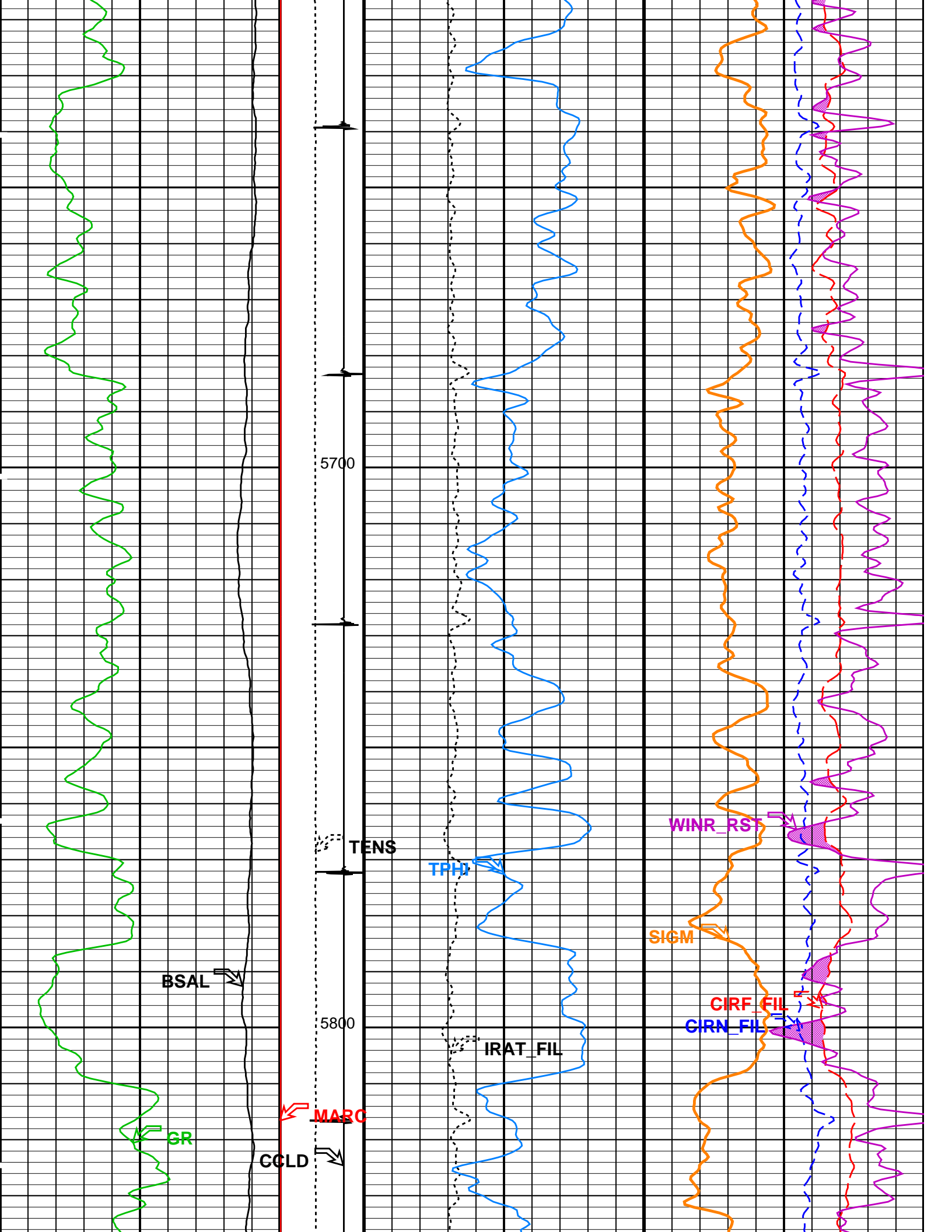


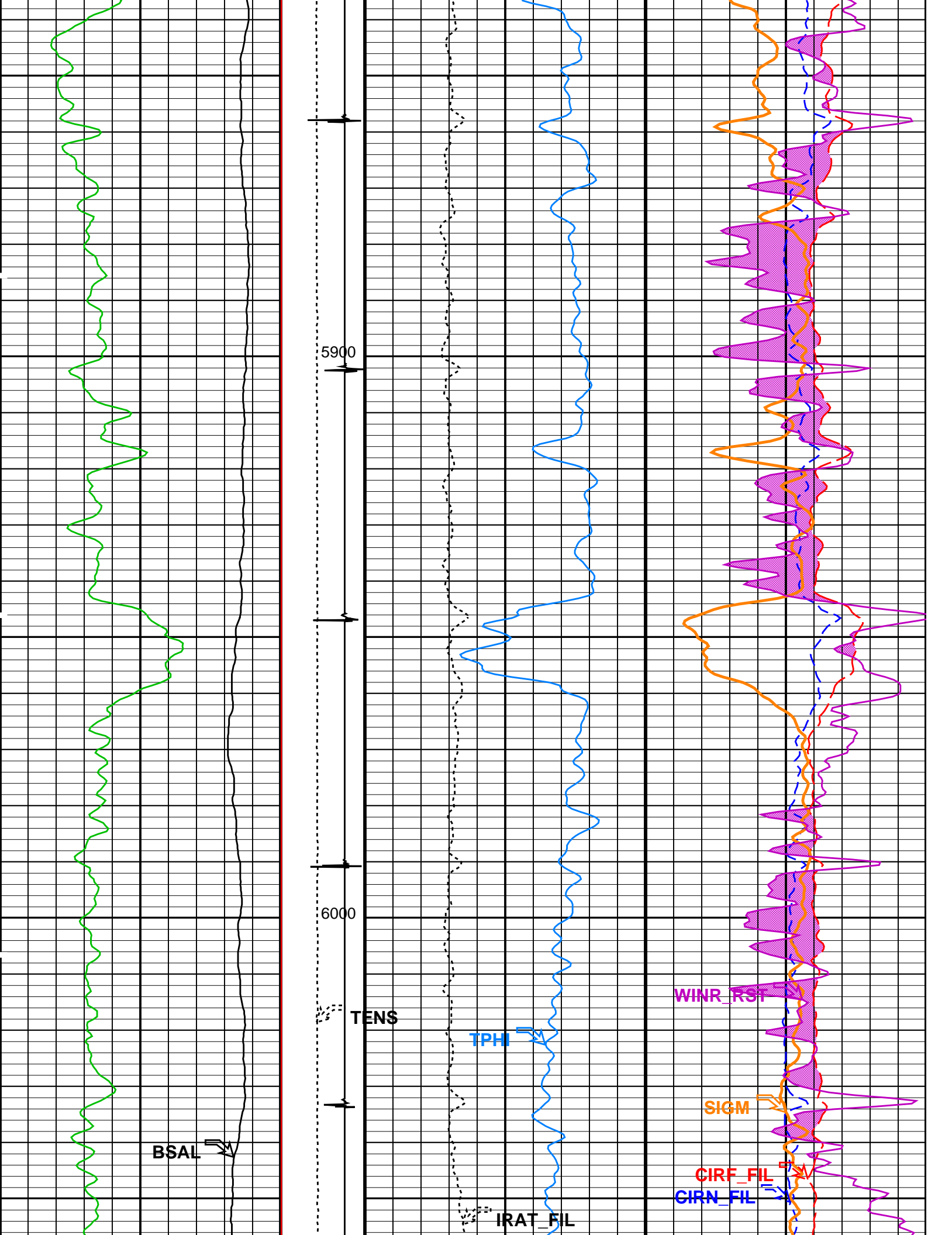




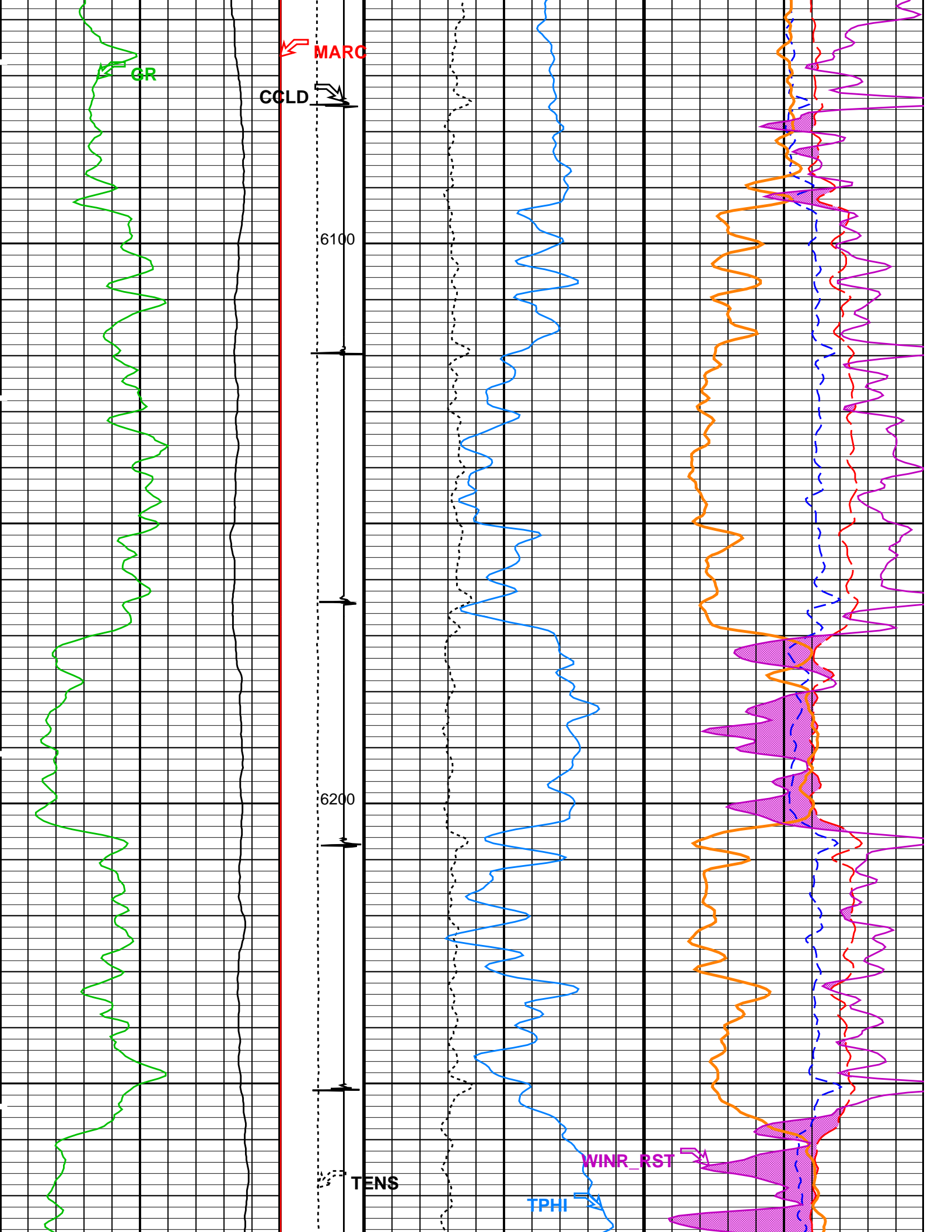


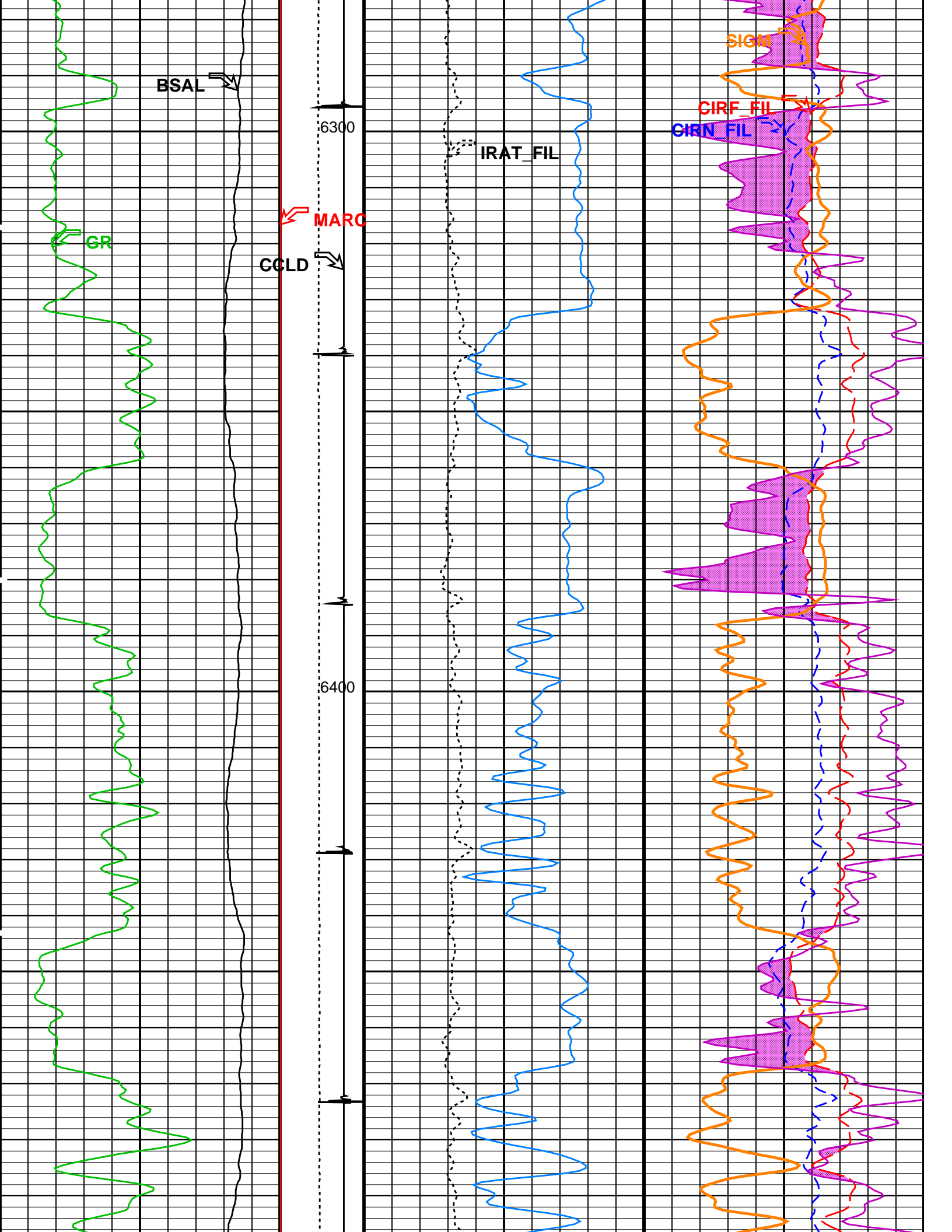


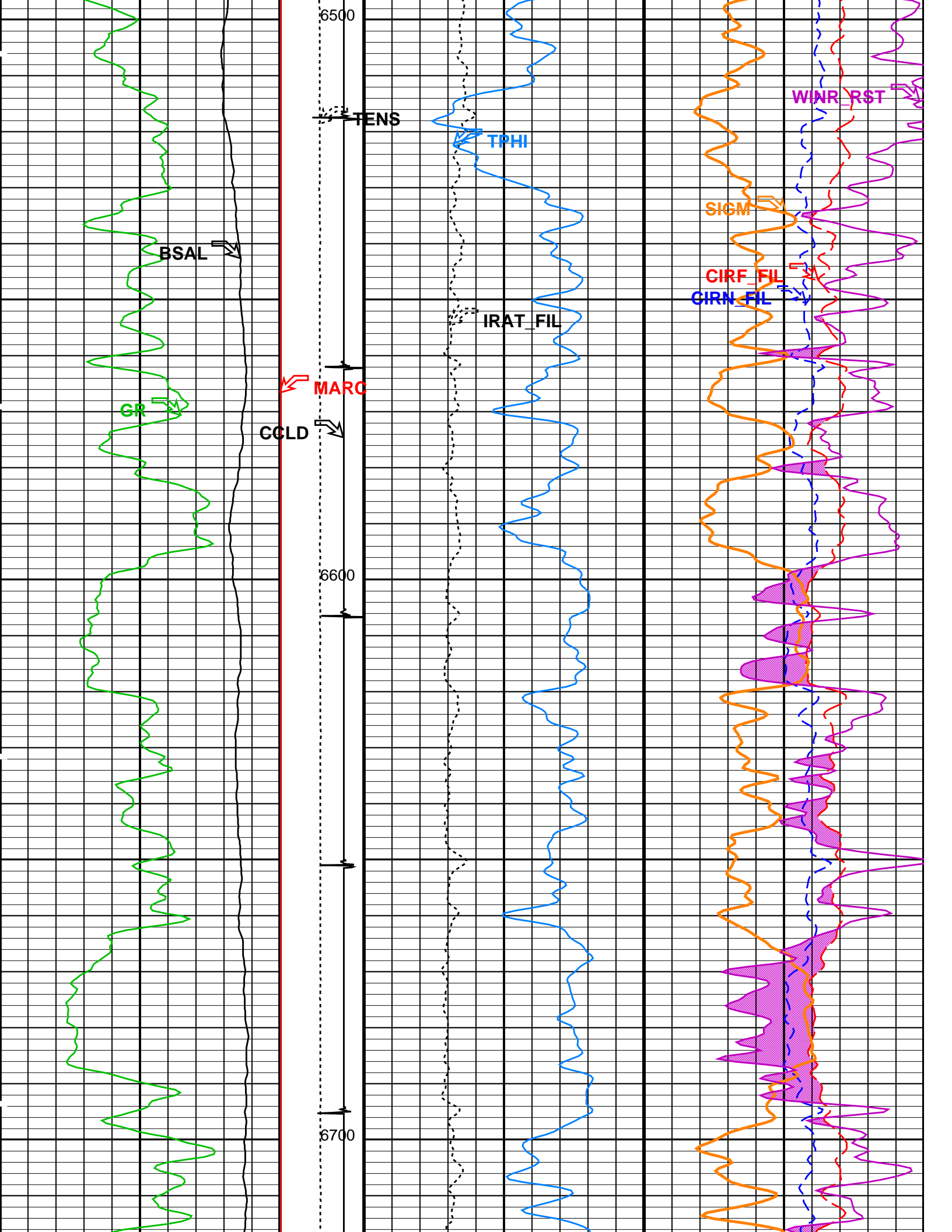


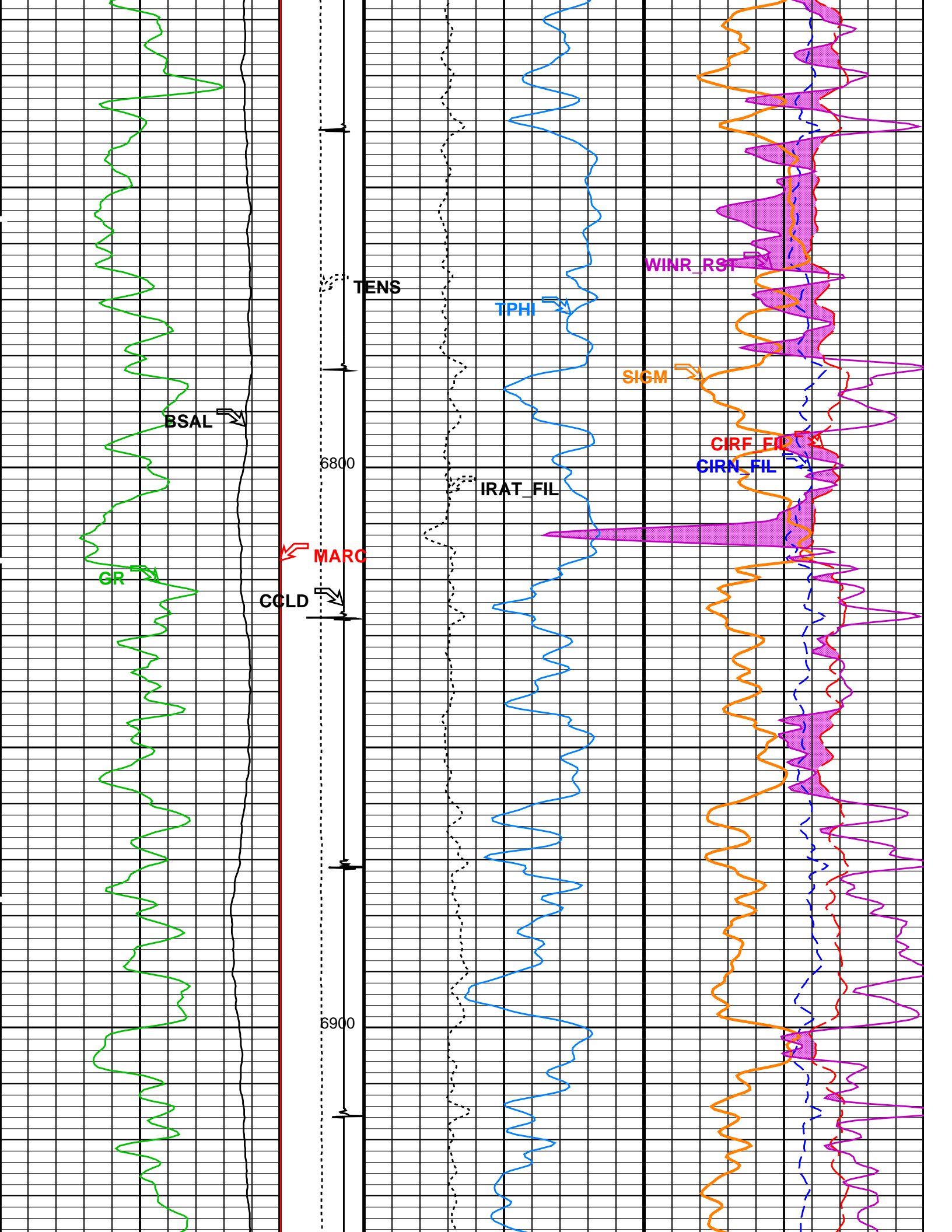


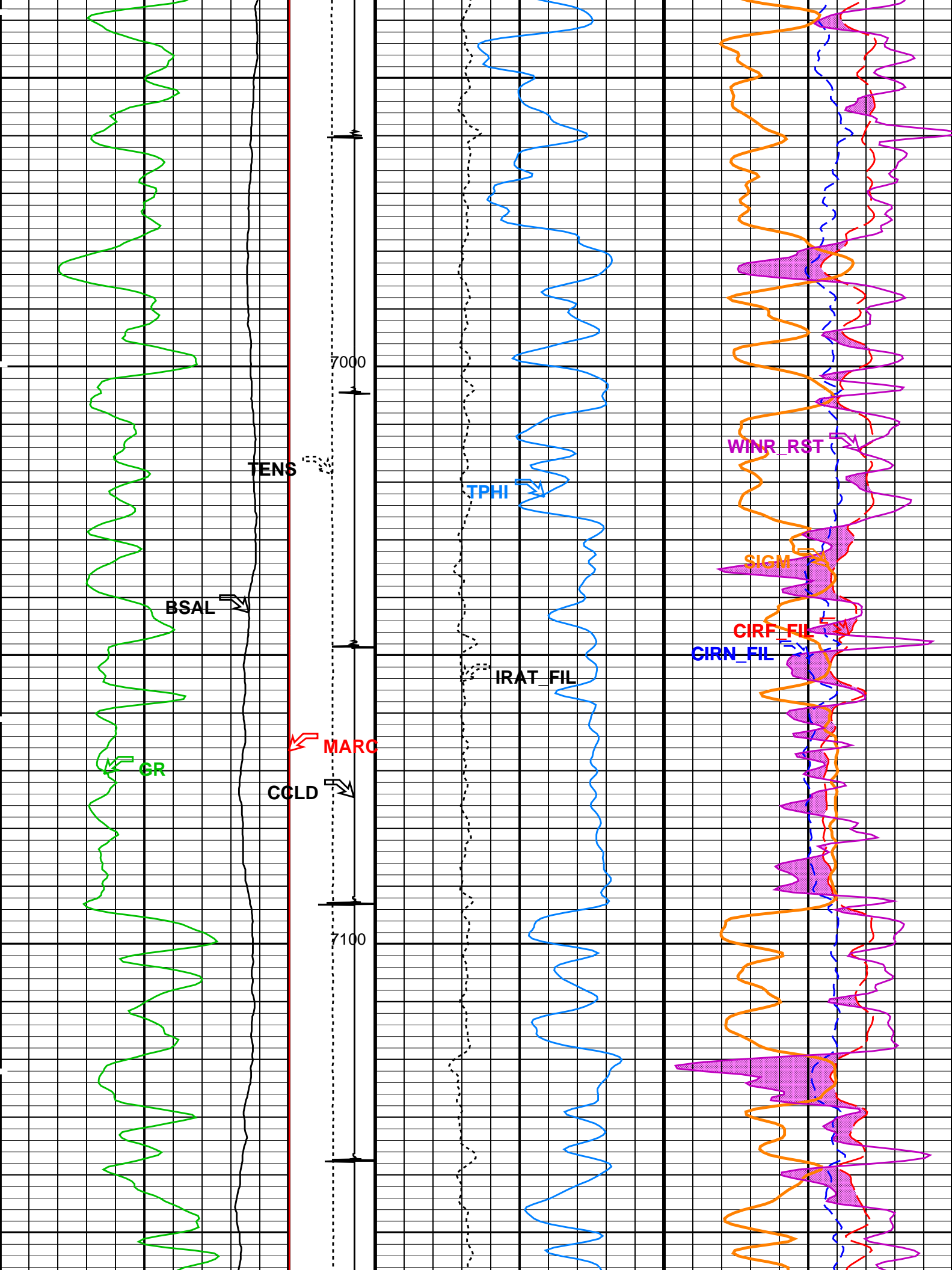


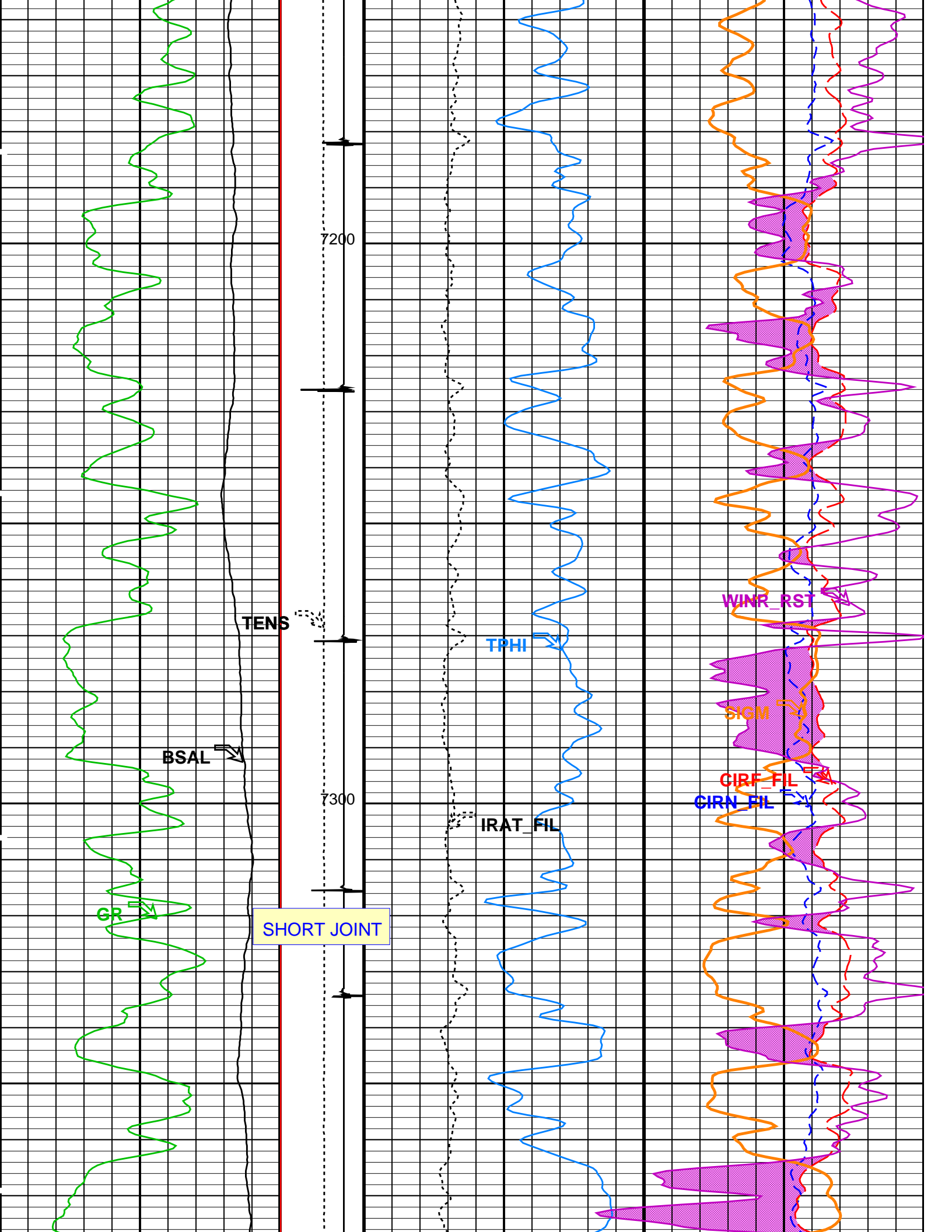


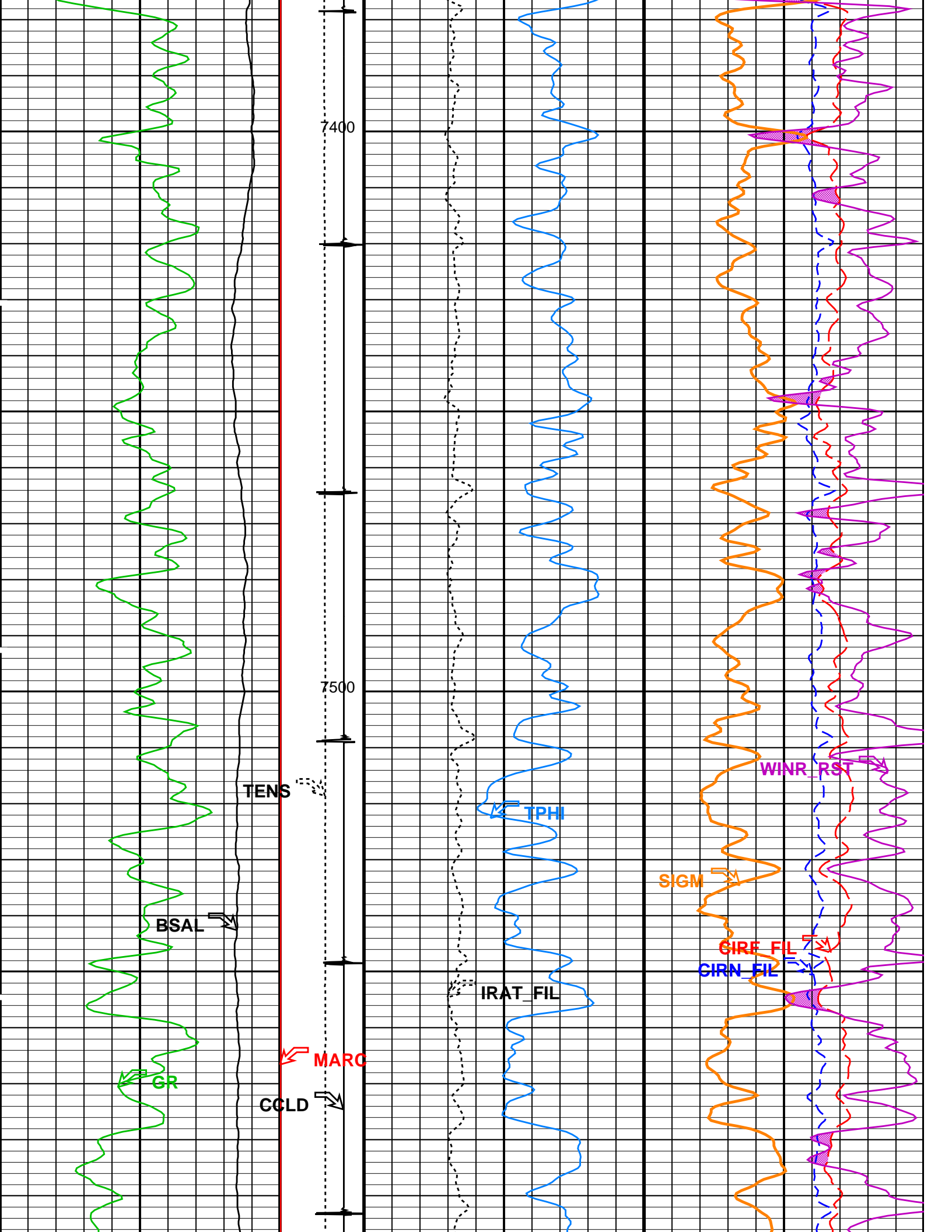




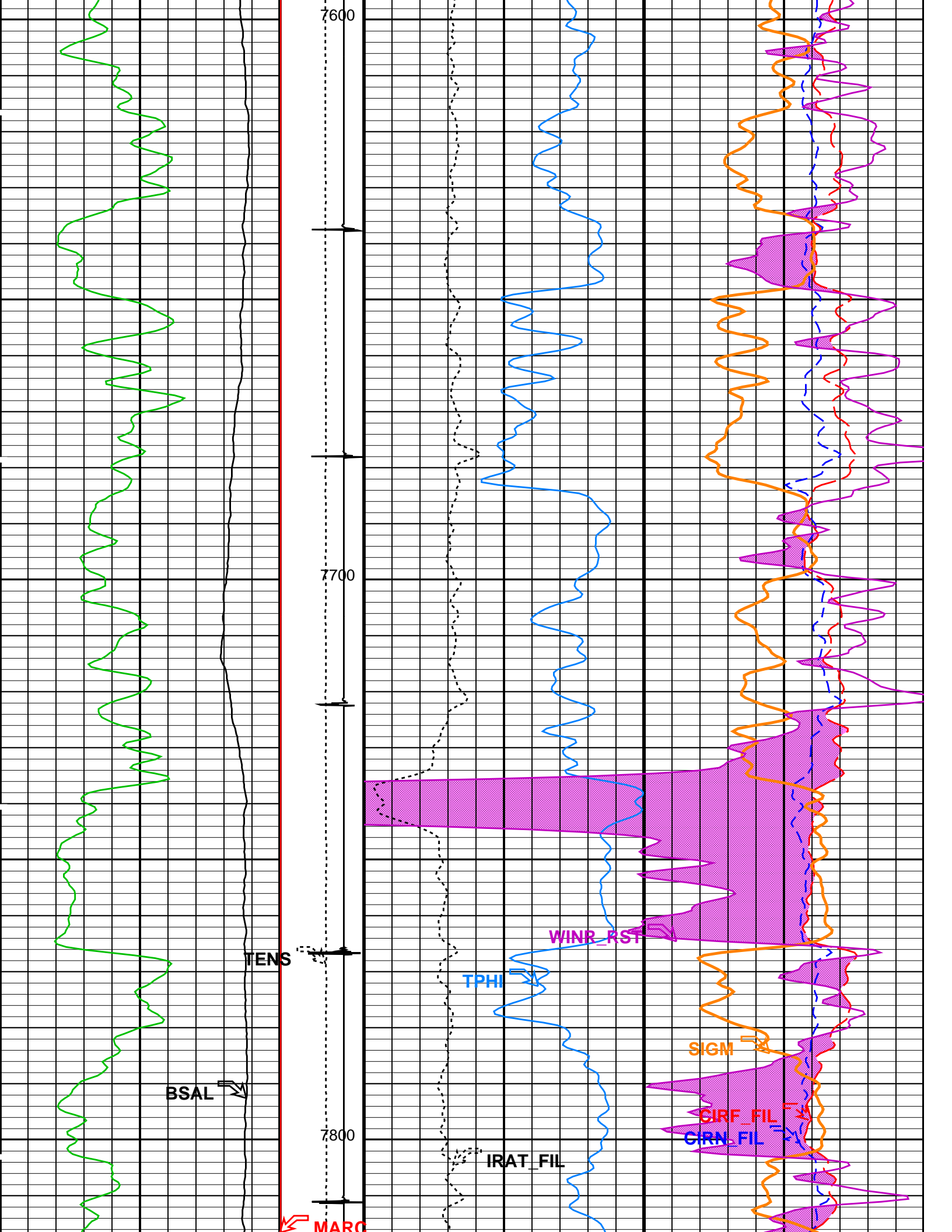




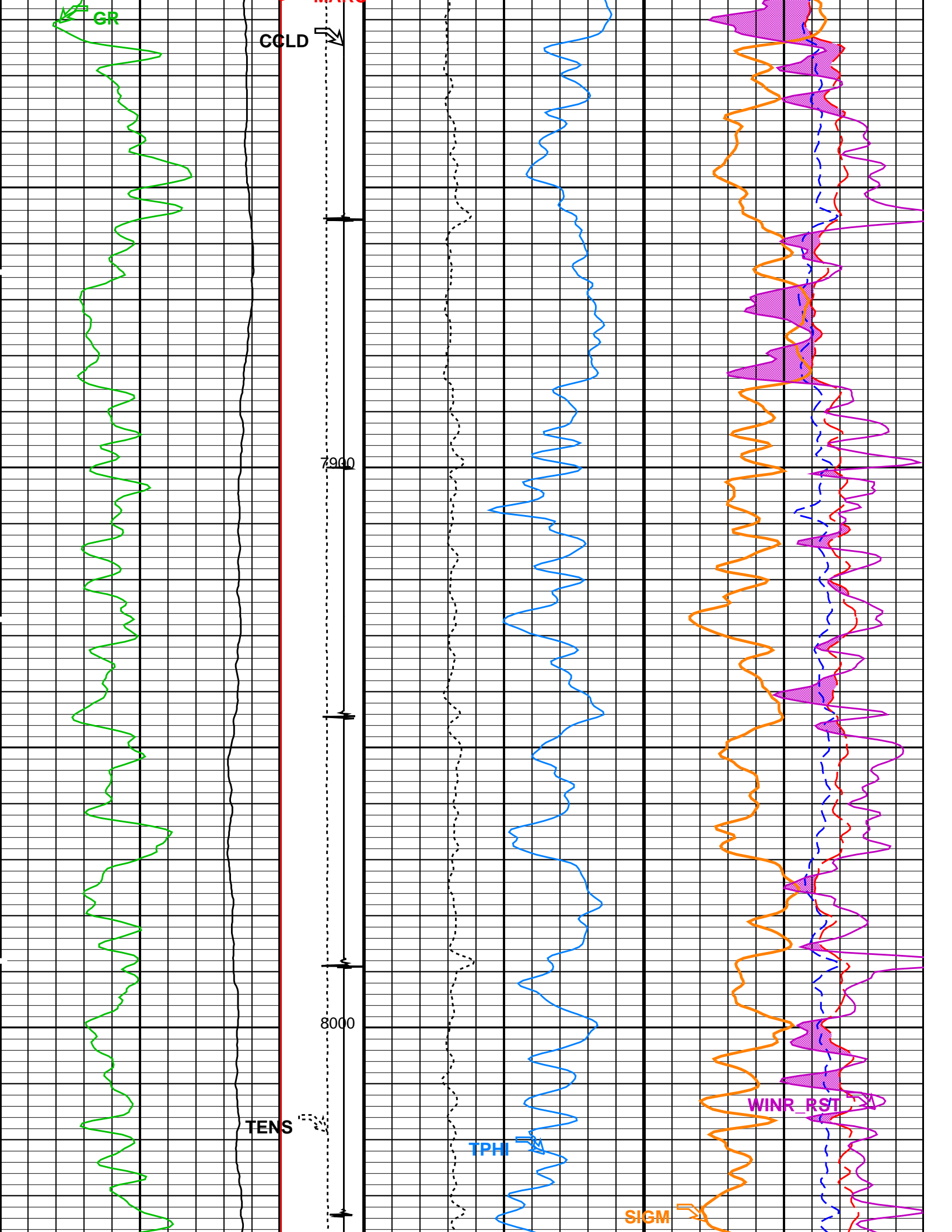


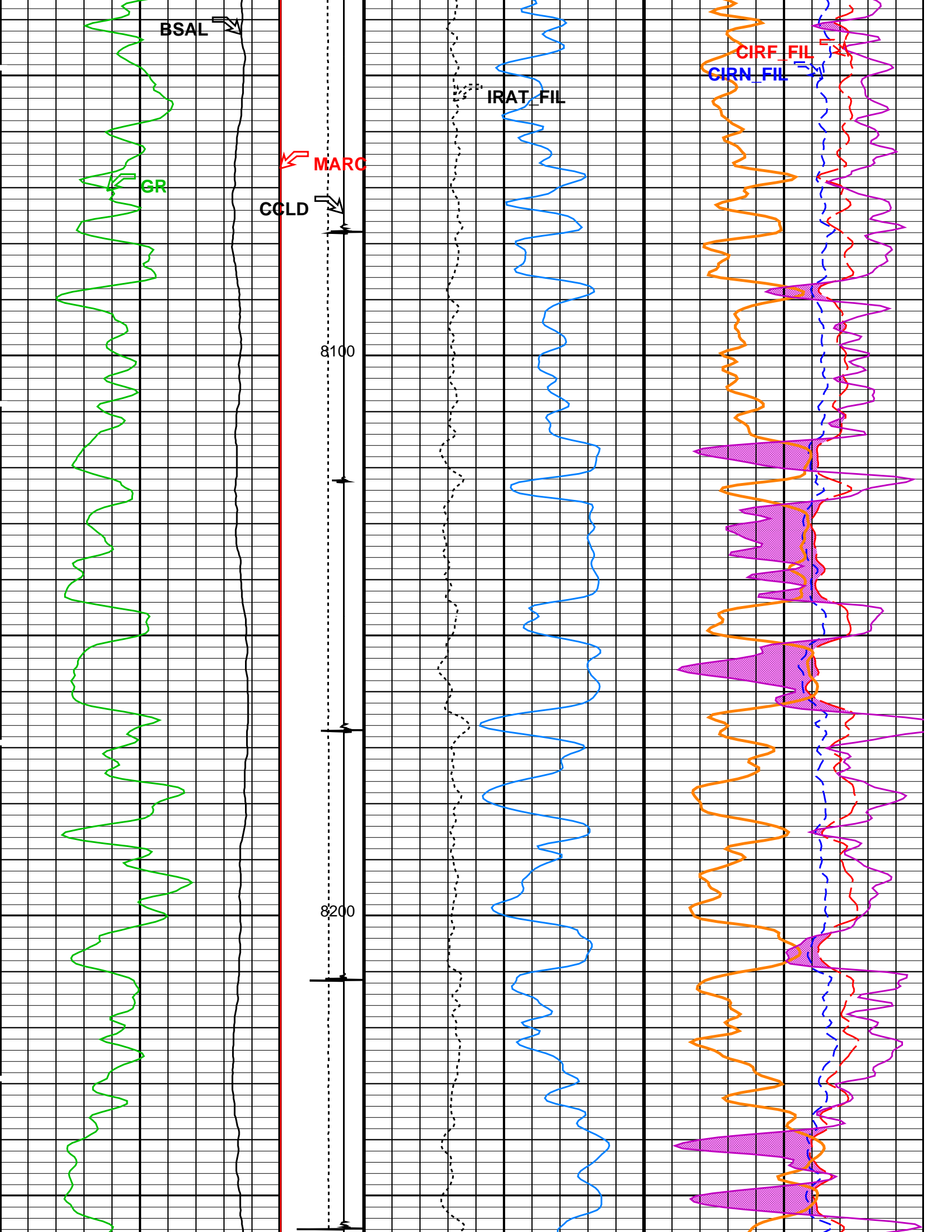


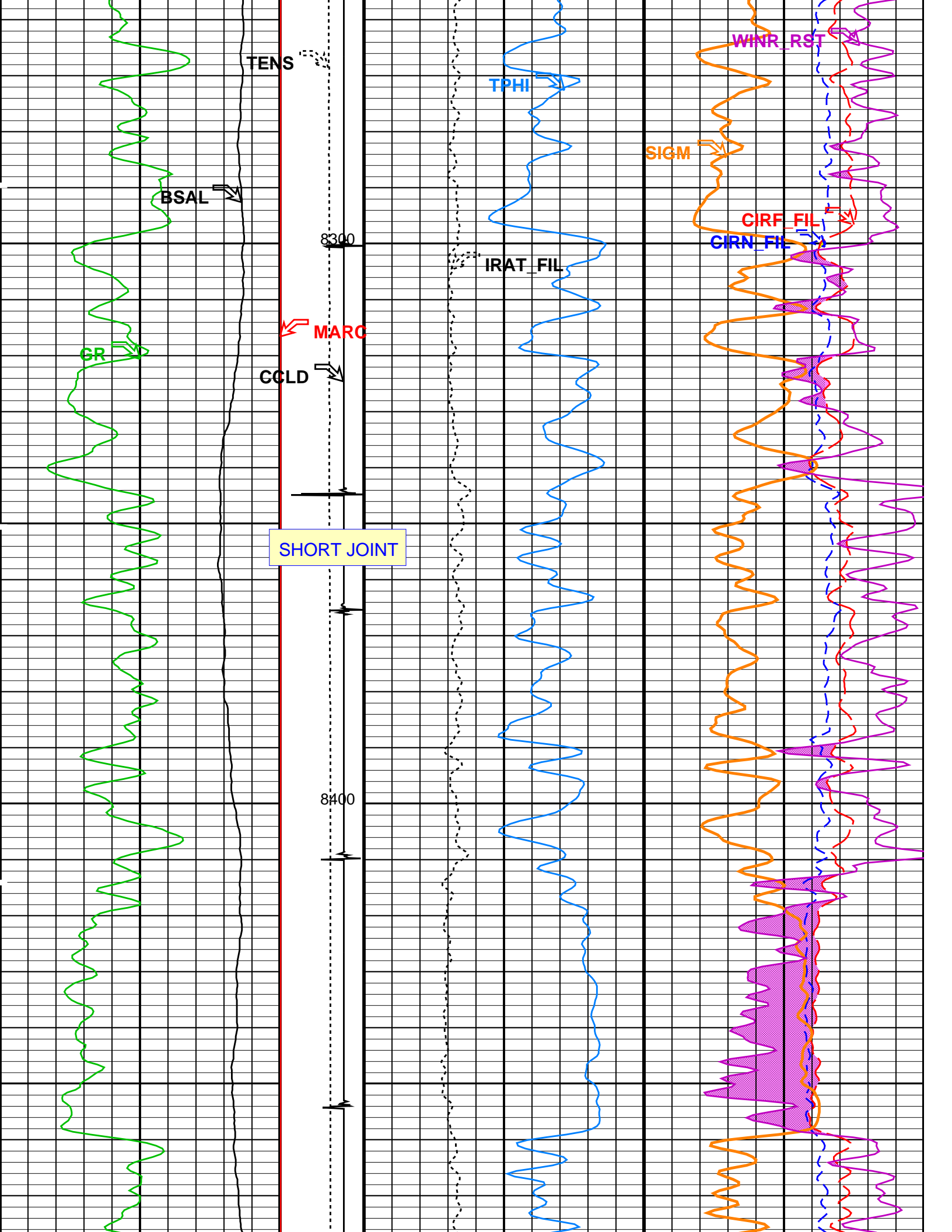


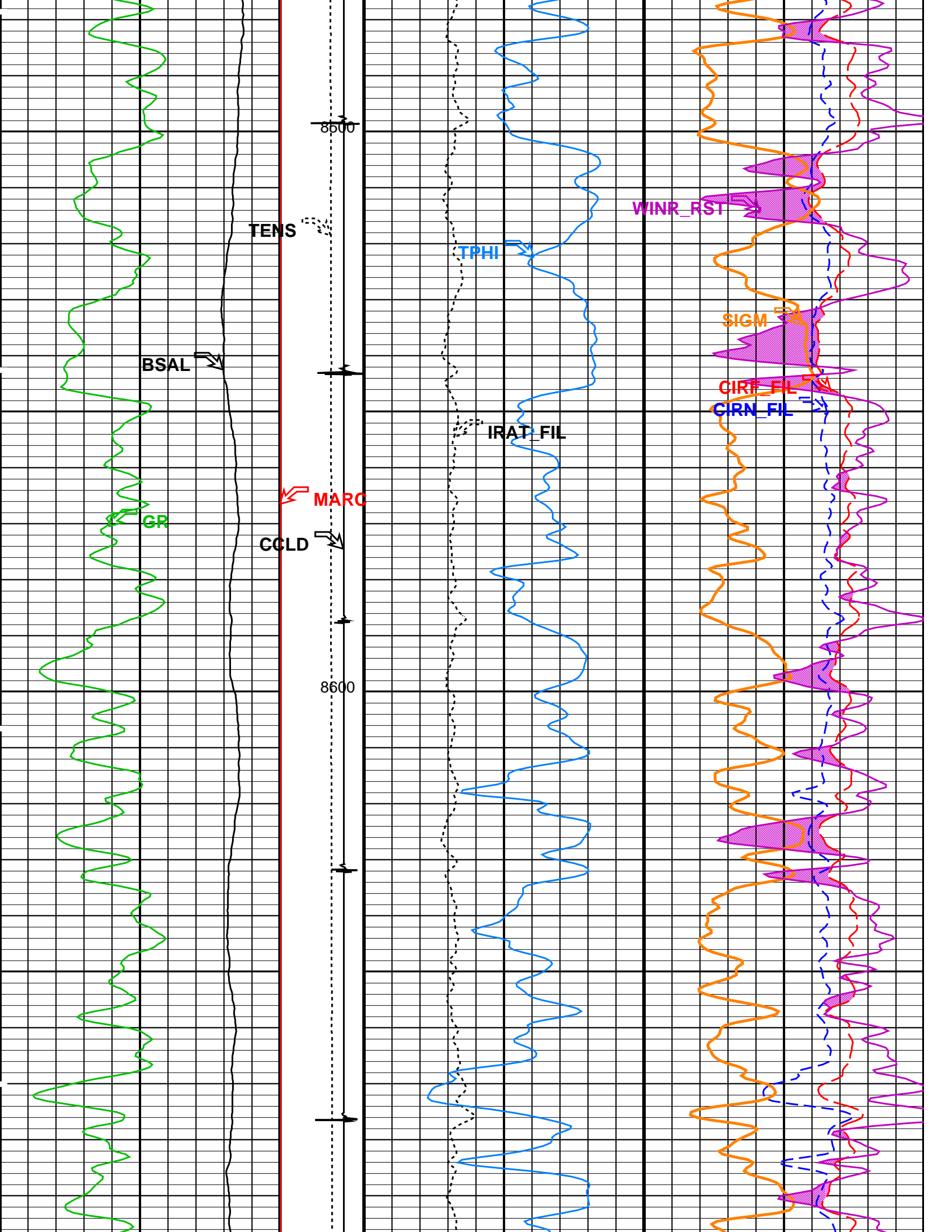


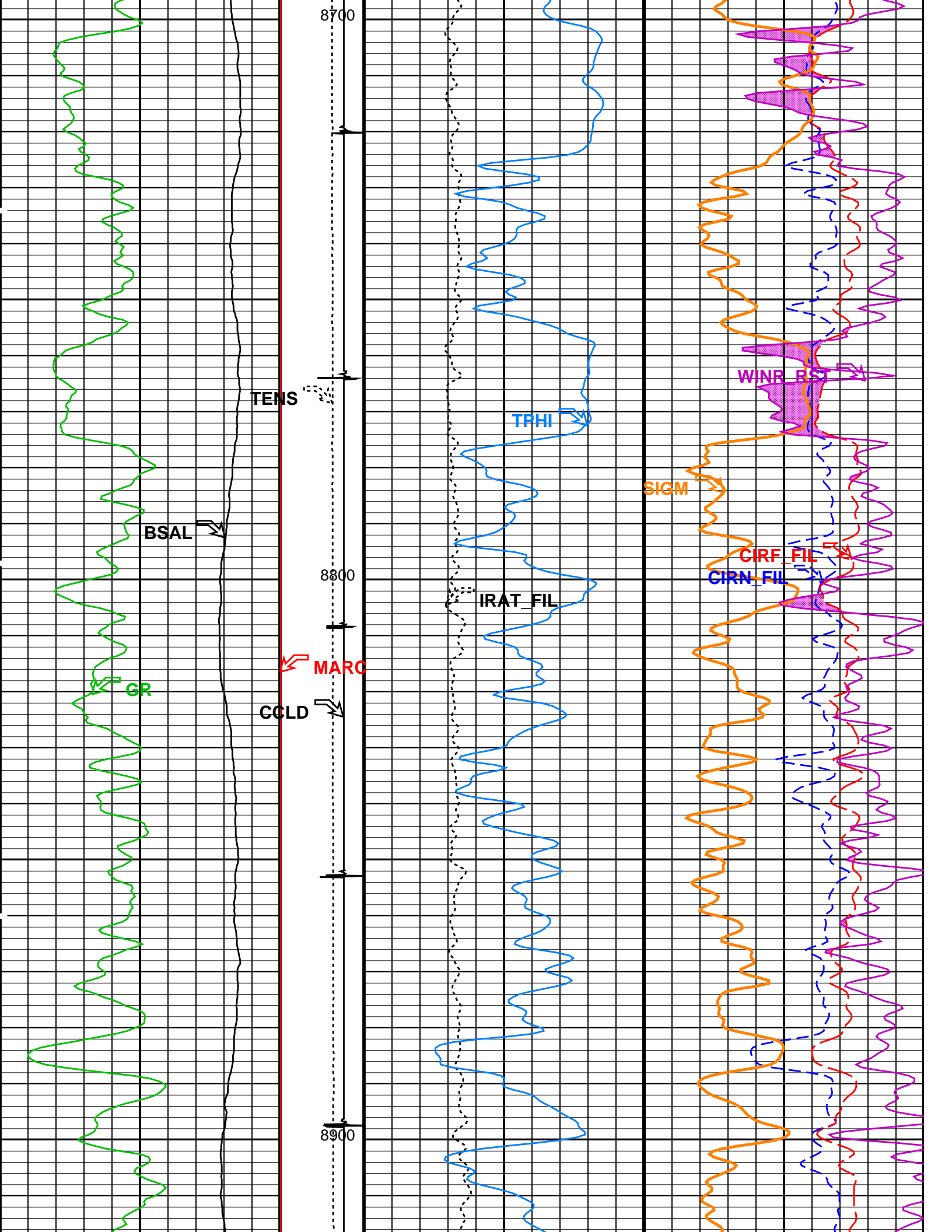


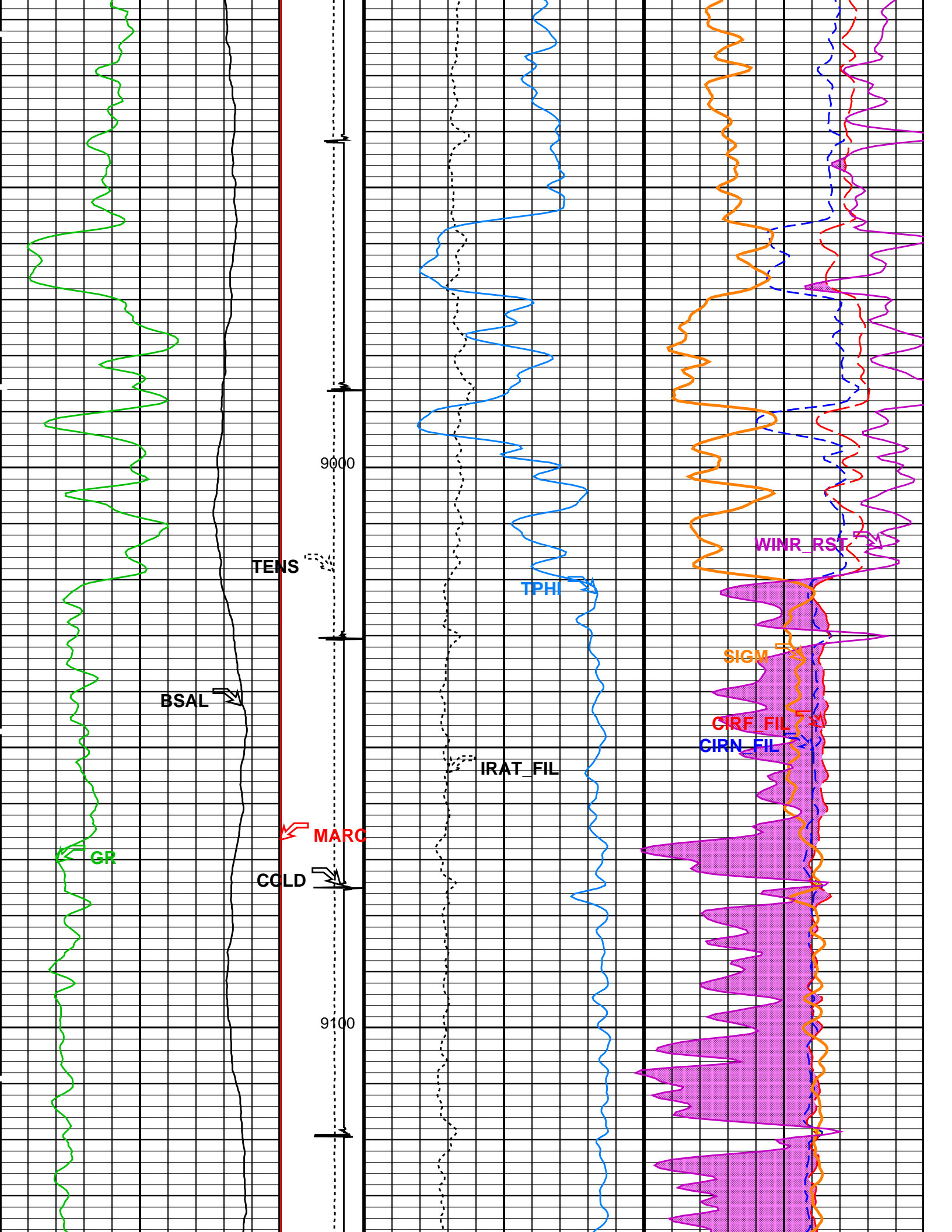


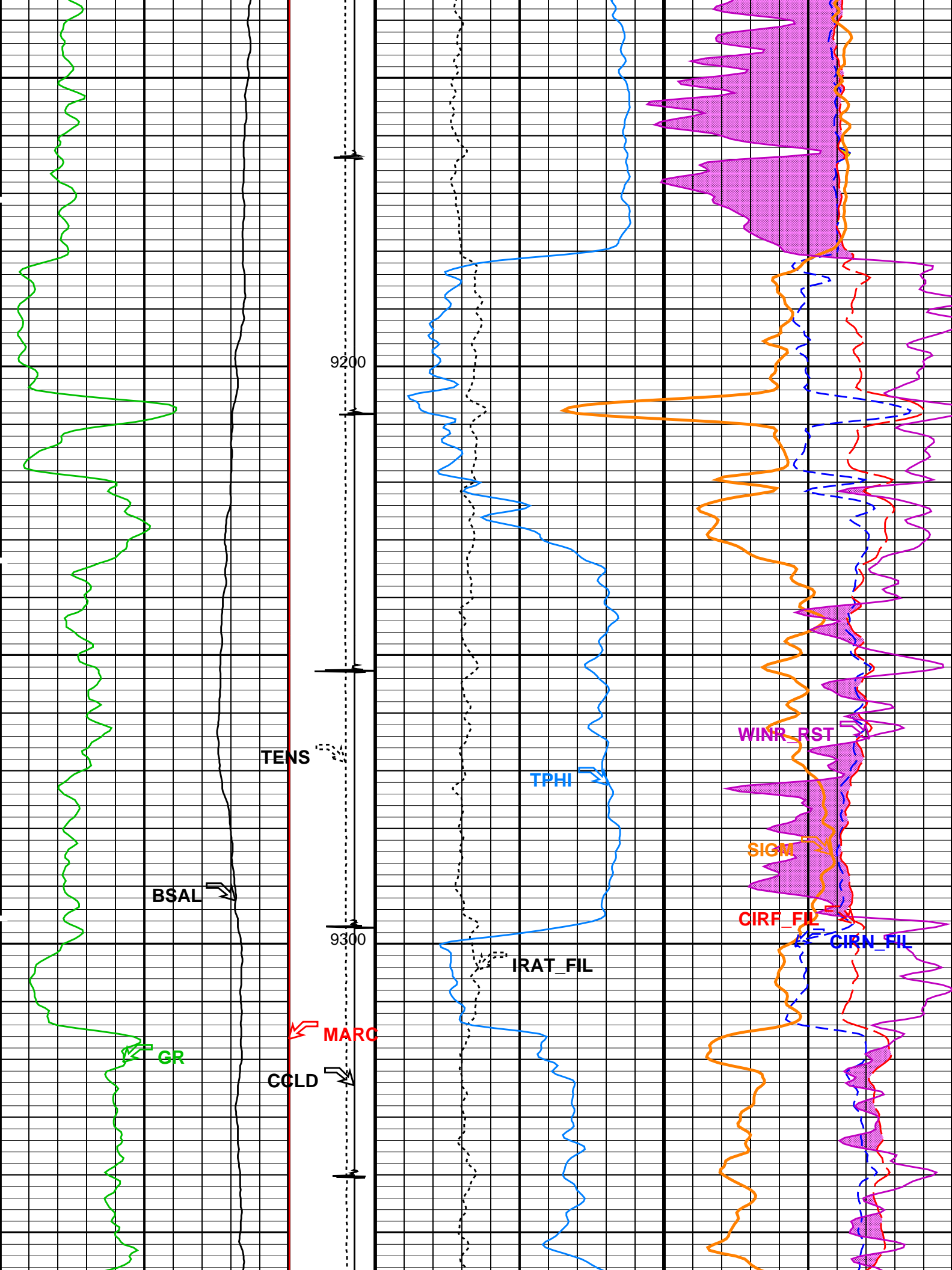




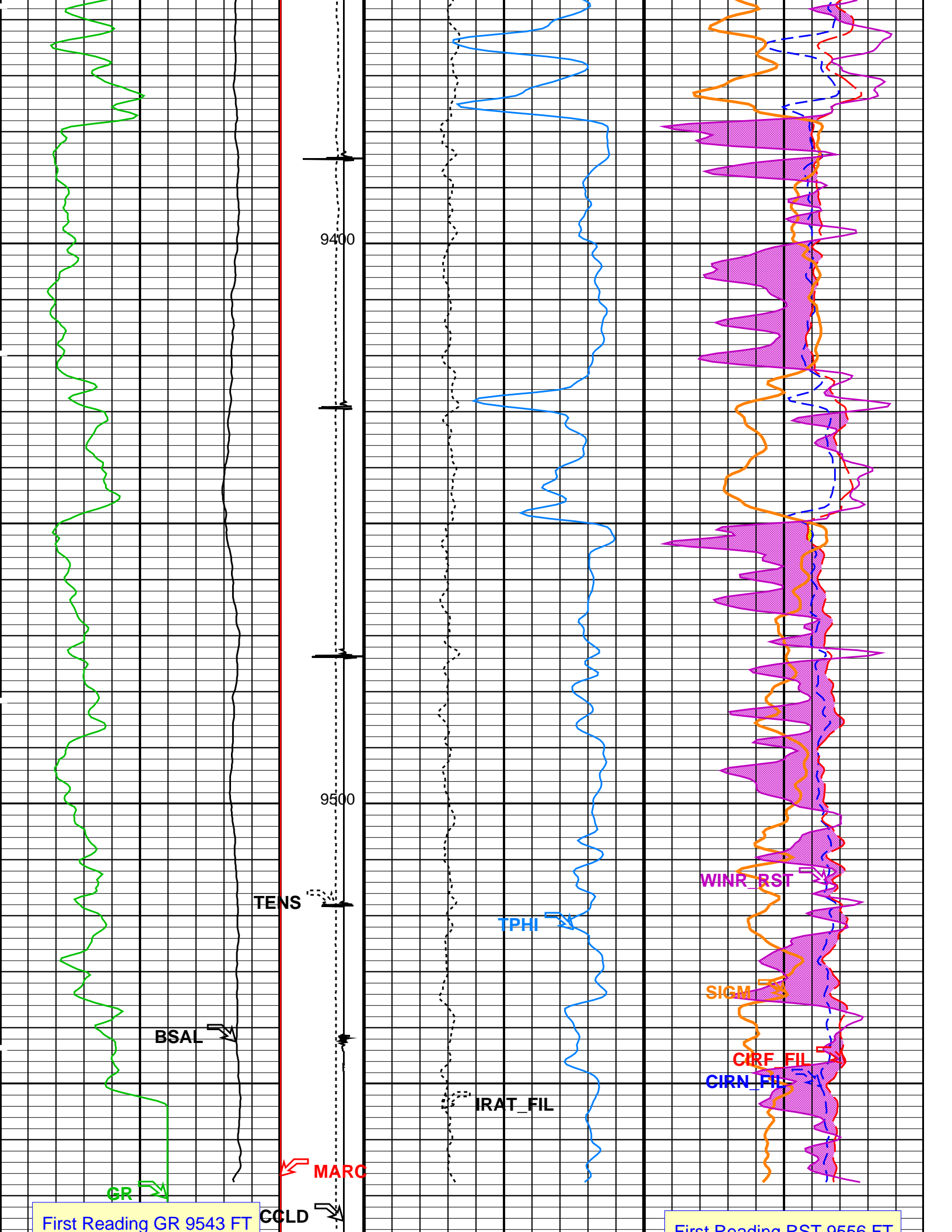




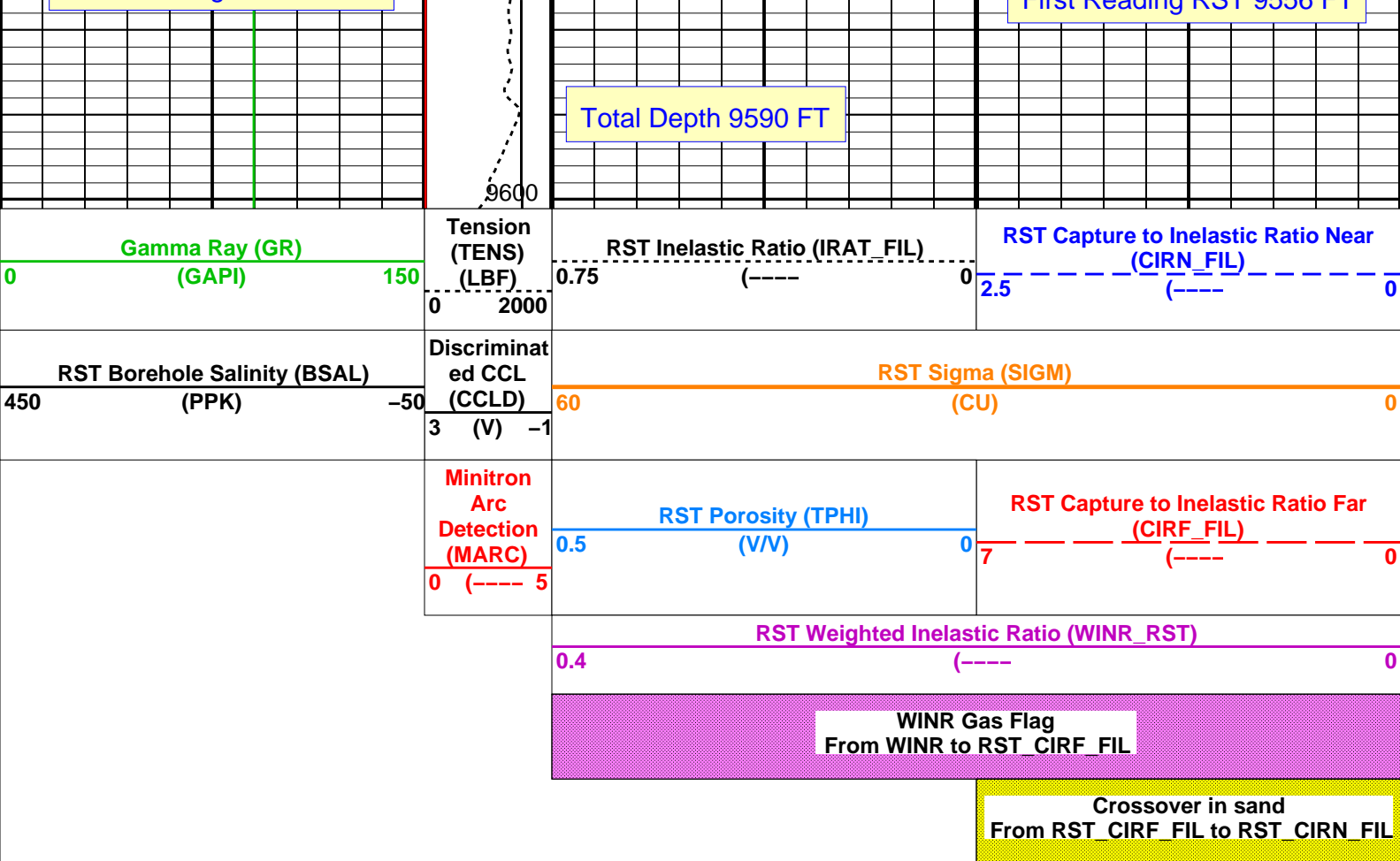












PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
BISS	Bond Index Source Selection for BIQL	BI	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	224.559	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	338.559	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	45	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	80	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CMTF	SCMT Tool position on CAN	5	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.255617	IN
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	1.55185	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	167.559	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	16.5449	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	1.25	FT
MMSA	MAP Minimum Sonic Amplitude	4.32284	MV
MSA	Minimum Sonic Amplitude	0.579149	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
RBC	Relative Bearing Correction Allow/Disallow	ALLOW	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
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)	212	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	
RGAI	Near/Far Gain Calibration Ratio	1	
SHT	Surface Hole Temperature	68	DEGF
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		
HBMS-B: High Temperature PSP Basic Measurement Sonde			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	212	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	PSP Basic Sub Position	2	
PCCG	PSP Basic Sub CCL Gain	DB12	
PSTP	PSP Telemetry Cartridge position on CAN Bus	1	
SHT	Surface Hole Temperature	68	DEGF
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	7.875	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	4.0	FT
FLEV	Fluid Level	100.00	FT
MST	Mud Sample Temperature	-50000.00	DEGF
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	9590	FT
TDD	Total Depth - Driller	9668.00	FT
TDL	Total Depth - Logger	9590.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST\_SIGMA\_S5    Vertical Scale: 5" per 100'    Graphics File Created: 05-Jan-2014 00:58

## OP System Version: 19C0-187

SCMT-CB	19C0-187	RST-C	19C0-187
HBMS-B	19C0-187		

### Input DLIS Files

DEFAULT	SCMT_RST_HBMS_030LUP	FN:29	PRODUCER	04-Jan-2014 22:17	9597.0 FT	3.0 FT
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### Output DLIS Files

DEFAULT	SCMT_RST_HBMS_033PUP	FN:32	PRODUCER	05-Jan-2014 00:58
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Input DLIS Files

DEFAULT	SCMT_RST_HBMS_028LUP	FN:27	PRODUCER	04-Jan-2014 22:01	7440.5 FT	7137.0 FT
DEFAULT	SCMT_RST_HBMS_033PUP	FN:32	PRODUCER	05-Jan-2014 00:58	9601.0 FT	-40.5 FT

Output DLIS Files

DEFAULT	SCMT_RST_HBMS_034PUP	FN:33	PRODUCER	05-Jan-2014 01:03	7440.5 FT	7089.5 FT
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OP System Version: 19C0-187

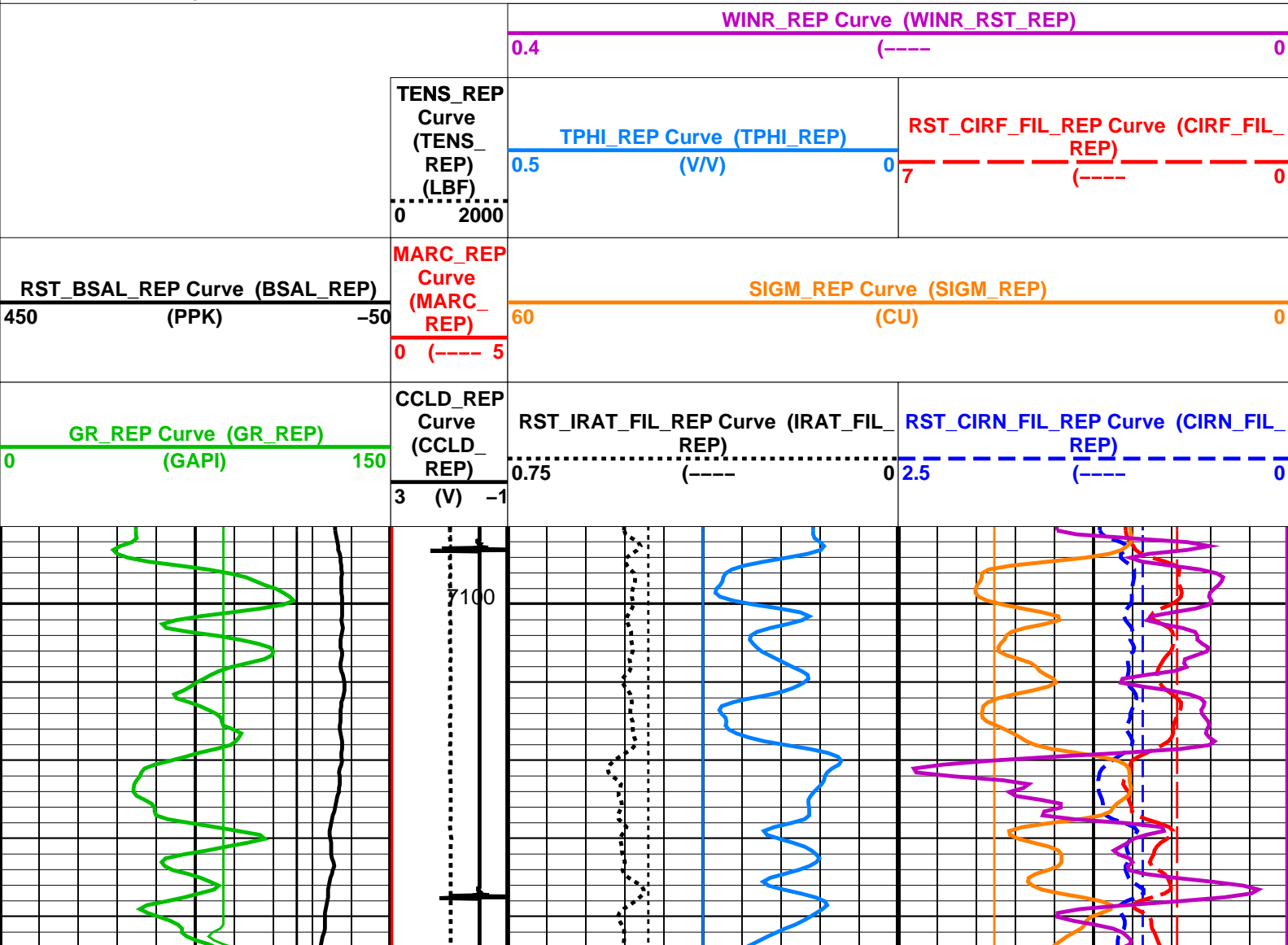
SCMT-CB	19C0-187	RST-C	19C0-187
HBMS-B	19C0-187		

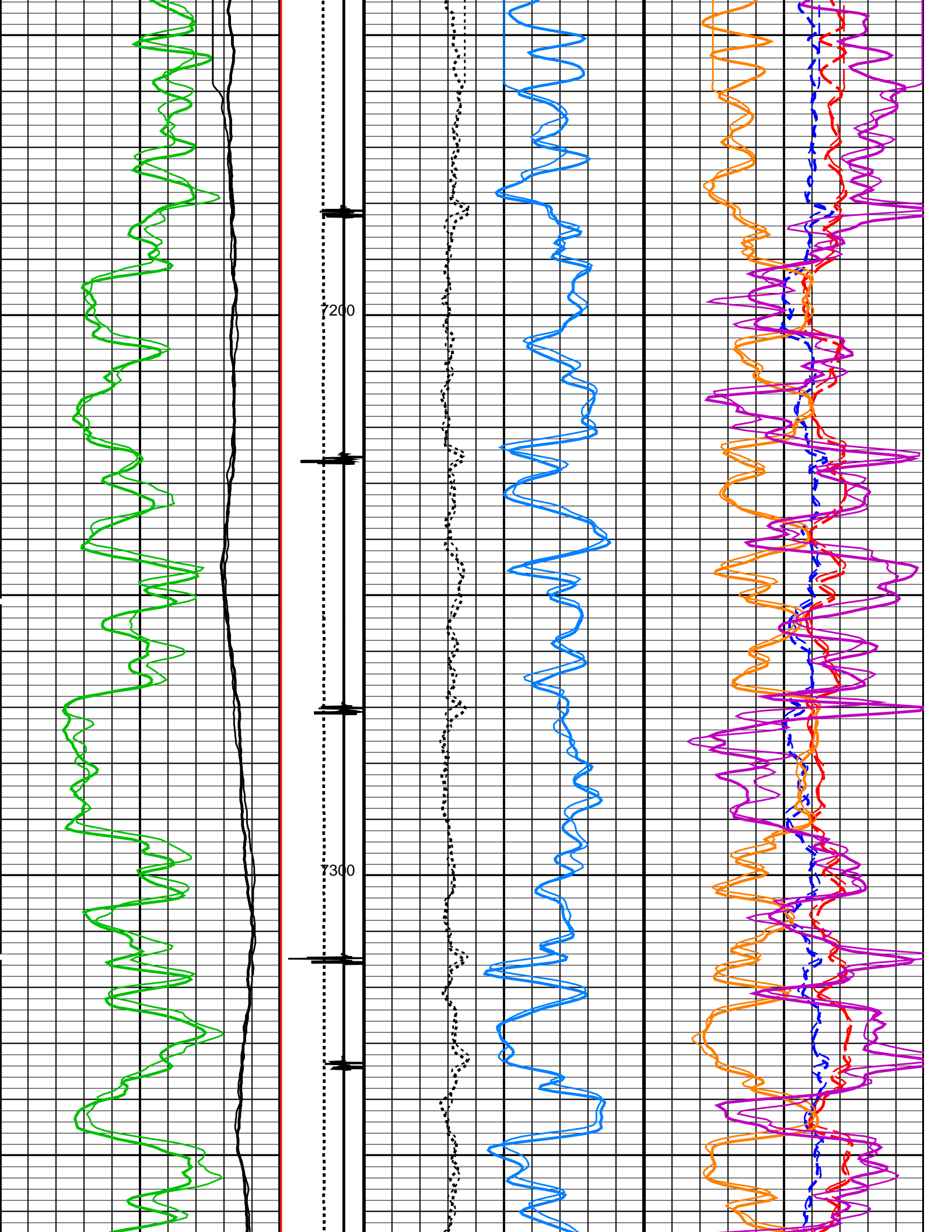
Changed Parameter Summary

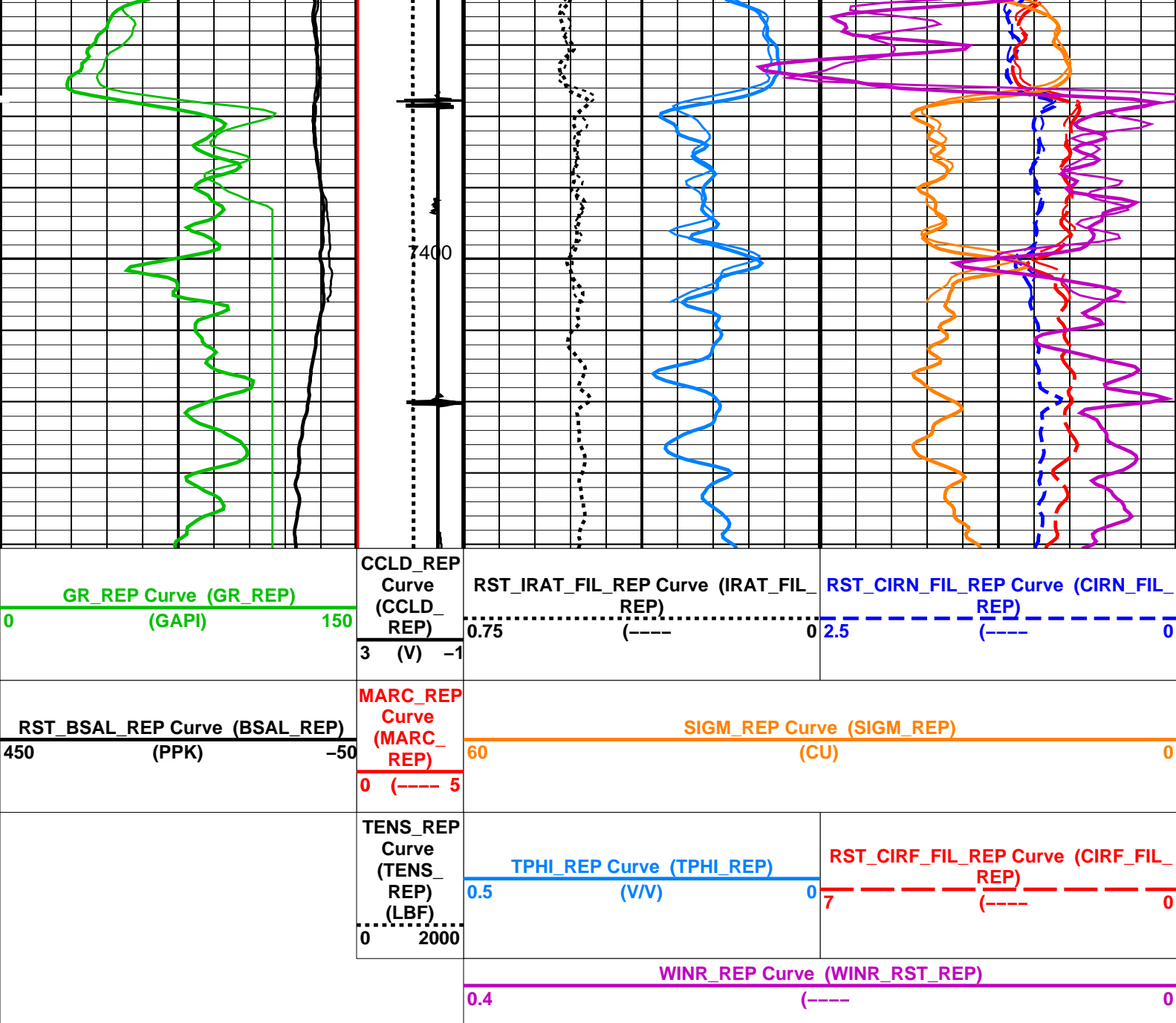
DLIS Name	New Value	Previous Value	Depth & Time
BS	7.875 IN	8.750 IN	7440.5 01:03:59
	8.750 IN	7.875 IN	7295.0 01:04:04

PIP SUMMARY

Time Mark Every 60 S







### PIP SUMMARY

Time Mark Every 60 S

### Parameters

DLIS Name	Description	Value
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD		
BILI	Bond Index Level for Zone Isolation	0.8
BISS	Bond Index Source Selection for BIQL	BI
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	224.559 US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20 MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	338.559 US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20 MV
CBLG	CBL Gate Width	45 US
CBRA	CBL LQC Reference Amplitude in Free Pipe	80 MV
CMCF	CBL Cement Type Compensation Factor	1
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN
CMTM	SCMT Operating Mode	LOG
CMTF	SCMT Tool position on CAN	5
CSCS	SCMT Slow Channel Index	VCC
CTHI	Casing Thickness	0.255617 IN
DTF	Delta-T Fluid	189 US/F
FATT	Acoustic Attenuation due to Fluid	0 DB/F
FCF	CBL Fluid Compensation Factor	0.924277
GORO	Good Bond	1.55185 MV

GOBO	Good Bore	1.35183	PEAK	MV
MAPD	SCMT MAP Peak Detection Mode			
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	167.559	US	
MAPT	SCMT MAP Fixed Threshold Level	30	MV	
MATT	Maximum Attenuation	16.5449	DB/F	
MCCF	MAP Cement Type Compensation Factor	1		
MCI	Minimum Cemented Interval for Isolation	1.25	FT	
MMSA	MAP Minimum Sonic Amplitude	4.32284	MV	
MSA	Minimum Sonic Amplitude	0.579149	MV	
PEDE	Peak Detection On/Off Switch in Playback	OFF		
RBC	Relative Bearing Correction Allow/Disallow	ALLOW		
VDLG	VDL Manual Gain	5		
ZCMT	Acoustic Impedance of Cement	6.8	MRAY	
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)	212	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		
RGAI	Near/Far Gain Calibration Ratio	1		
SHT	Surface Hole Temperature	68	DEGF	
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			
HBMS-B: High Temperature PSP Basic Measurement Sonde				
BHS	Borehole Status	CASED		
BHT	Bottom Hole Temperature (used in calculations)	212	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	PSP Basic Sub Position	2		
PCCG	PSP Basic Sub CCL Gain	DB12		
PSTP	PSP Telemetry Cartridge position on CAN Bus	1		
SHT	Surface Hole Temperature	68	DEGF	
System and Miscellaneous				
ALTDPCHAN	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	100.00	FT	
MST	Mud Sample Temperature	-50000.00	DEGF	
PBVSADP	Use alternate depth channel for playback	NO		
PP	Playback Processing	RECOMPUTE		
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM	
RW	Resistivity of Connate Water	1.0000	OHMM	
TD	Total Depth	9590	FT	
TDD	Total Depth - Driller	9668.00	FT	
TDL	Total Depth - Logger	9590.00	FT	
TWS	Temperature of Connate Water Sample	100.00	DEGF	

Format: RST\_SIGMA\_S5\_REP      Vertical Scale: 5" per 100'      Graphics File Created: 05-Jan-2014 01:03

## OP System Version: 19C0-187

SCMT-CB	19C0-187	RST-C	19C0-187
HBMS-B	19C0-187		

# Input DLIS Files

DEFAULT	SCMT_RST_HBMS_028LUP	FN:27	PRODUCER	04-Jan-2014 22:01	7440.5 FT	7137.0 FT
DEFAULT	SCMT_RST_HBMS_033PUP	FN:32	PRODUCER	05-Jan-2014 00:58	9601.0 FT	-40.5 FT

## Output DLIS Files

DEFAULT	SCMT_RST_HBMS_034PUP	FN:33	PRODUCER	05-Jan-2014 01:03
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Schlumberger

## HBMS COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	ROSE 22-1C (K22W)	Sensor:	GR
Run date:	4-Jan-2014		

PBMS Gamma Ray

Sonde Serial NB	RESISTORS FOR GR SENSOR N.37166,TOOL HBMS-BA2955. SENSOR S/N:
Sensor Serial NB	37166
Calib Date ddmmyy	280912
Matrix Size	12
Coeff CRC	6646

GR HV Rt

	Rt**0	Rt**1
Rt**0	+.200000000000e+04	+.193000000000e+04

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	ROSE 22-1C (K22W)	Sensor:	WellTemp RTD
Run date:	4 Jan 2014		

## PBMS RTD Well Thermometer

Sonde Serial NB

COEFFICIENTS FOR RTD THERMOMETER PBMS-B.2955 S/N:

Sensor Serial NB

2955

Calib Date ddmmyy

140513

Matrix Size

16

Coeff CRC

9ABB

## WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	-.579466850375E+03	+.321000211776E+03	-.769493413393E+02
	Tt**3	Tt**4	Tt**5
Tt**0	+.118371810108E+02	-.654027317127E+00	0.0

Client: ENCANA OIL &amp; GAS (USA) INC

Tool:

PSP

Field: MAMM CREEK

Sub Type:

PBMS

Well: ROSE 22-1C (K22W)

Sensor:

CQG

Run date: 4-Jan-2014

## PBMS Quartz Gauge type F

Sonde Serial NB

COEFFICIENTS FOR CQG PBMS-B.2955 S/N:

Sensor Serial NB

2955

Calib Date ddmmyy

140513

Matrix Size

66

Coeff CRC

AD6E

## Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+.805218055799E+04	+.230687803777E-01	+.120020876821E-07
Fc**1	-.107970514637E+01	-.131245085272E-04	-.102678735701E-09
Fc**2	+.111466223414E-05	+.524200534425E-10	+.949904926223E-15
Fc**3	+.255809900188E-11	+.160726360322E-15	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0



	Fb**3	Fb**4	Fb**5
Fc**0	−.772560939667E−10	−.145379238115E−14	−.218737246914E−19
Fc**1	+.968642492374E−16	+.223810216552E−19	0.0
Fc**2	0.0	0.0	0.0
Fc**3	0.0	0.0	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :  
Sensor Serial NB 2955  
Calib Date ddmmyy 140513  
Matrix Size 66  
Coeff CRC EC8A

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+.120725065588E+03	−.313379211795E−03	+.708634488020E−08
Fb**1	−.596235012256E−02	+.182626448637E−07	+.104369551702E−12
Fb**2	−.295513003186E−07	+.341136223414E−12	−.998721617444E−18
Fb**3	−.375208992867E−12	+.712560466778E−17	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

	Fc**3	Fc**4	Fc**5
Fb**0	+.136541410168E−12	−.403343086990E−17	−.830542374631E−21
Fb**1	−.618398112617E−18	+.429129395353E−21	0.0
Fb**2	0.0	0.0	0.0
Fb**3	0.0	0.0	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :  
Sensor Serial NB 2955  
Calib Date ddmmyy 140513  
Matrix Size 16  
Coeff CRC 6C01

Clock Freq Coeff

(Fb', Fc')**0	(Fb', Fc')**1	(Fb', Fc')**2
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	(Fb'-Fc') **0	(Fb'-Fc') **1	(Fb'-Fc') **2
(Fb'-Fc')**0	+.310812532328E+05	+.224728840165E-02	+.742962292518E-06
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.673865003325E-10	-.911707425039E-16	-.961889742081E-20

PBMS Quartz Gauge type F

Sonde Serial NB :  
 Sensor Serial NB 2955  
 Calib Date ddmmyy 140513  
 Matrix Size 16  
 Coeff CRC D6FA

Clock Temp Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+.122085335110E+03	-.602096613375E-02	-.167139647989E-07
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.105604526136E-11	-.109719083283E-15	+.100037226713E-19

Company: ENCANA OIL & GAS (USA) INC



Well: ROSE 22-1C (K22W)  
 Field: MAMM CREEK  
 County: GARFIELD  
 State: COLORADO

RESERVOIR SATURATION LOG  
 SIGMA MODE  
 GAMMA RAY-CCL