

Company: ENCANA OIL & GAS (USA) INC

Well: HAGEN FEDERAL 15-16B (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD State: COLORADO

RESERVOIR SATURATION LOG
SIGMA MODE
GAMMA RAY-CCL

County: GARFIELD
Field: SOUTH PARACHUTE
Location: SHL: 608 FNL & 1774 FWL
Well: HAGEN FEDERAL 15-16B (PC22)
Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 608 FNL & 1774 FWL BHL: 1190 FSL & 1067 FEL		Elev.: K.B. 6543.00 ft G.L. 6521.00 ft D.F. 6542.00 ft	
Permanent Datum:	GROUND LEVEL	Elev.: 6521.00 ft	
Log Measured From:	KELLY BUSHING	22.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		
API Serial No. 05-045-22009-0C	Section 22	Township 7S	Range 95W

PVT DATA				Run 1	Run 2	Run 3
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 13-Sep-2013

Run Number 1

Depth Driller 8693 ft

Schlumberger Depth 8599 ft

Bottom Log Interval 8565 ft

Top Log Interval 2000 ft

Casing Fluid Type FRESH WATER

Salinity

Density 8.4 lbm/gal

Fluid Level 50 ft

BIT/CASING/TUBING STRING

Bit Size 8.750 in

From 22 ft

To 8693 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade S-80

From 22 ft

To 8671 ft

Maximum Recorded Temperatures 220 degF

Logger On Bottom 13-Sep-2013 15:00

Unit Number 338 Location GRAND JUNCTION

Recorded By KIRSTIE BUNTING

Witnessed By JIM DYKEMAN

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.

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	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: 13:00	
TIME ON BOTTOM: 15:00	
EXIT: 17:00	

SCMT-CB
SCMC-CA 8120
SECH-CA
CMIR-AG
SCMS-CB 8179
SCMX-CA

20.2

DT 11.1
CBL5 DTSC 9.6
CBL3 8.6
MAP 8.1
AUX 7.1

20.2
0.2
AH-BNS
Tension SCMT
HV
TOOL ZERO

MAXIMUM STRING DIAMETER 1.72 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS RST SIGMA

MAXIS Field Log

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_018LUP	FN:17	PRODUCER	13-Sep-2013 15:06	8609.5 FT	13.7 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_021PUP	FN:20	PRODUCER	13-Sep-2013 17:24	8614.5 FT	-25.5 FT
OP System Version: 19C0-187						
SCMT-CB	19C0-187	RST-C		19C0-187		
PSPT	19C0-187					

PIP SUMMARY

Time Mark Every 60 S

Crossover in sand
From RST_CIRF_FIL to RST_CIRN_FIL

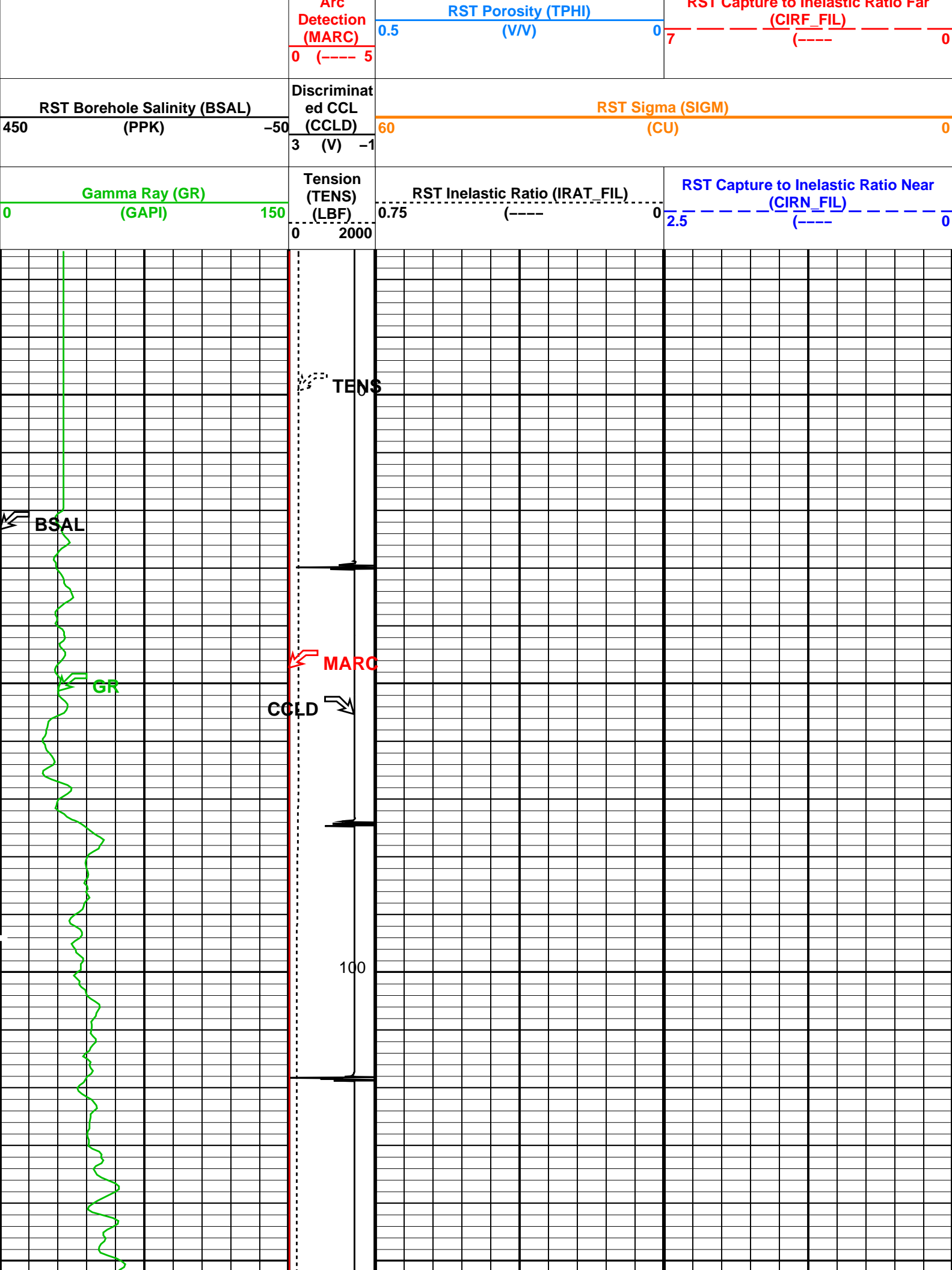
WINR Gas Flag
From WINR to RST_CIRF_FIL

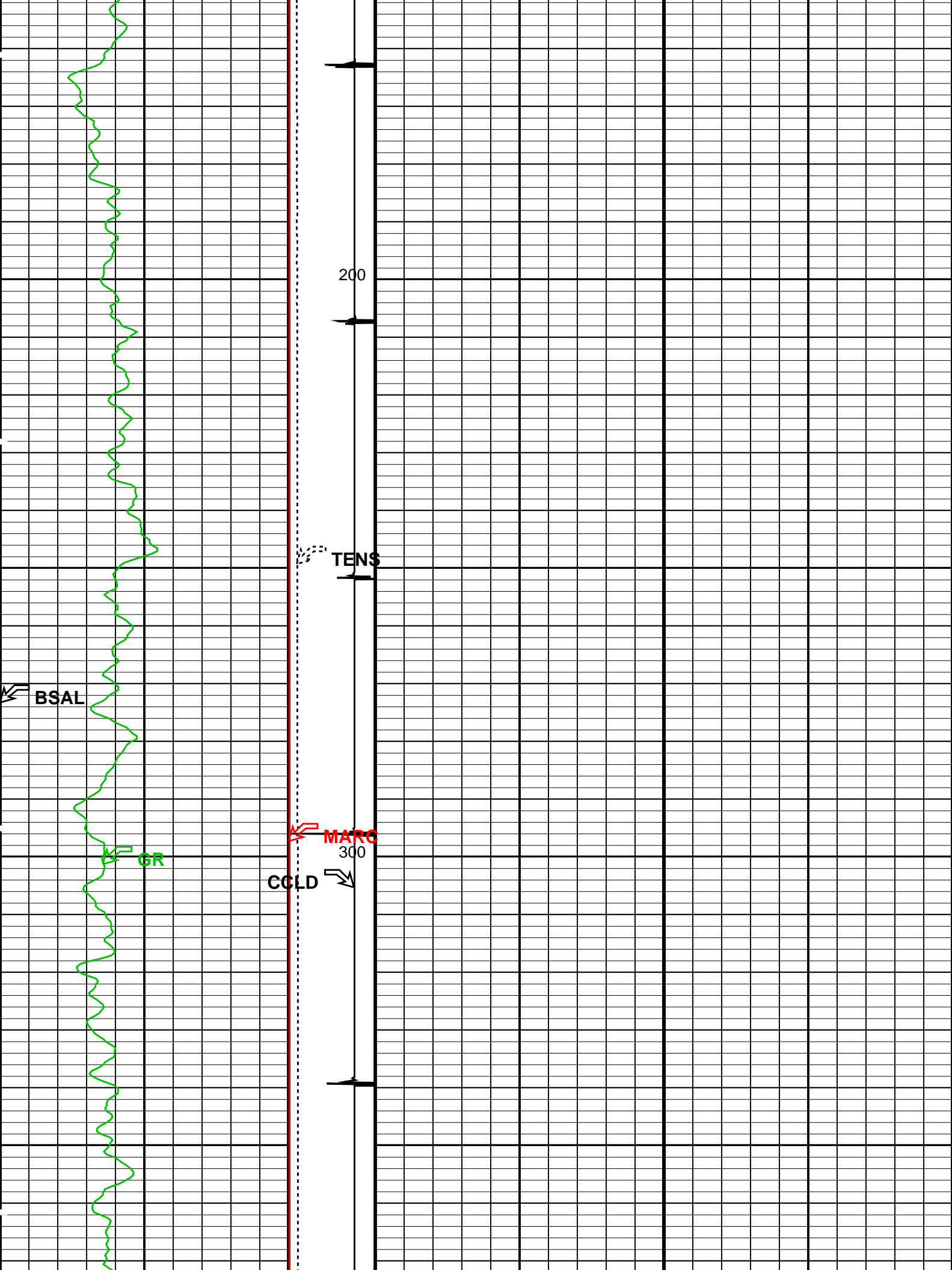
RST Weighted Inelastic Ratio (WINR_RST)

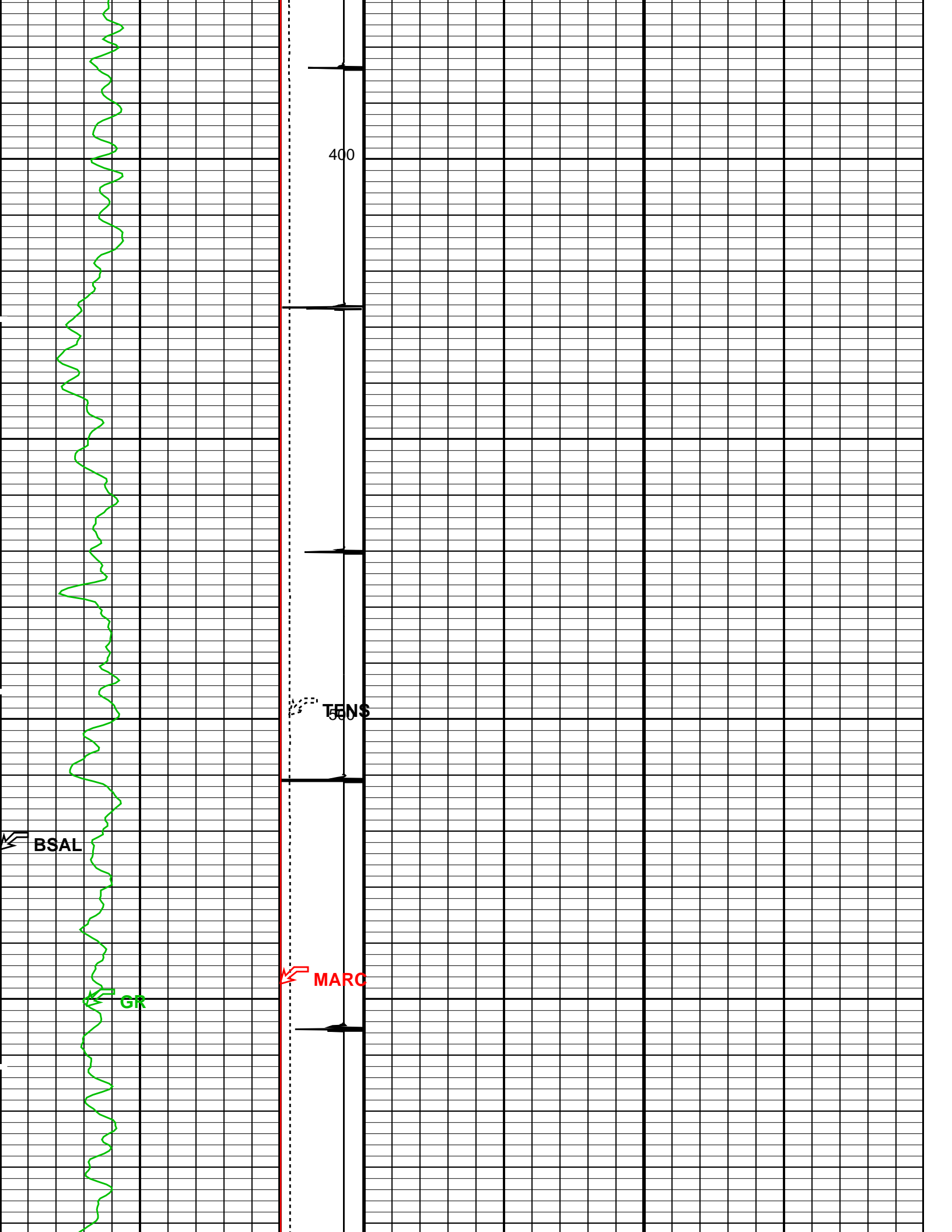
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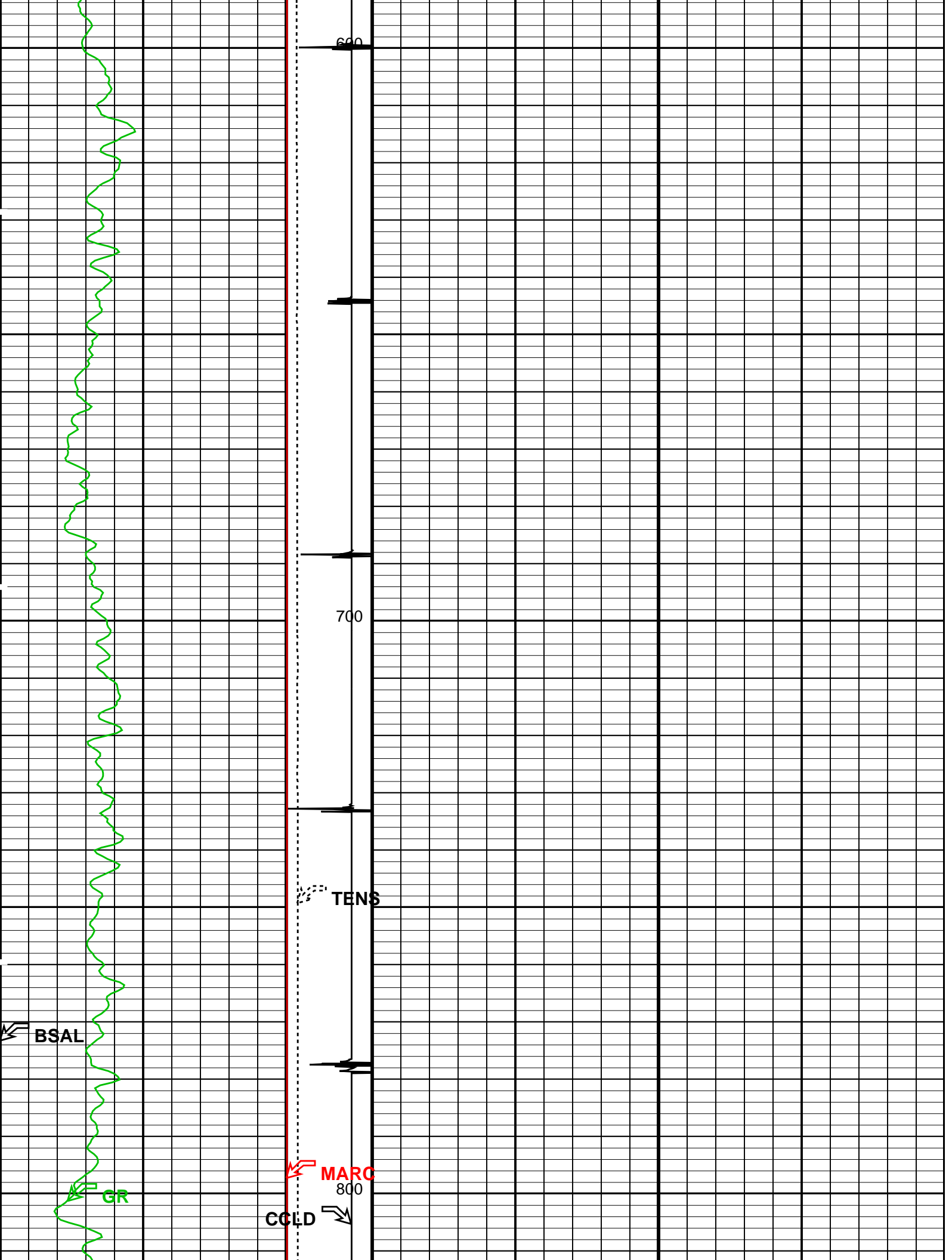
Minitron
Are

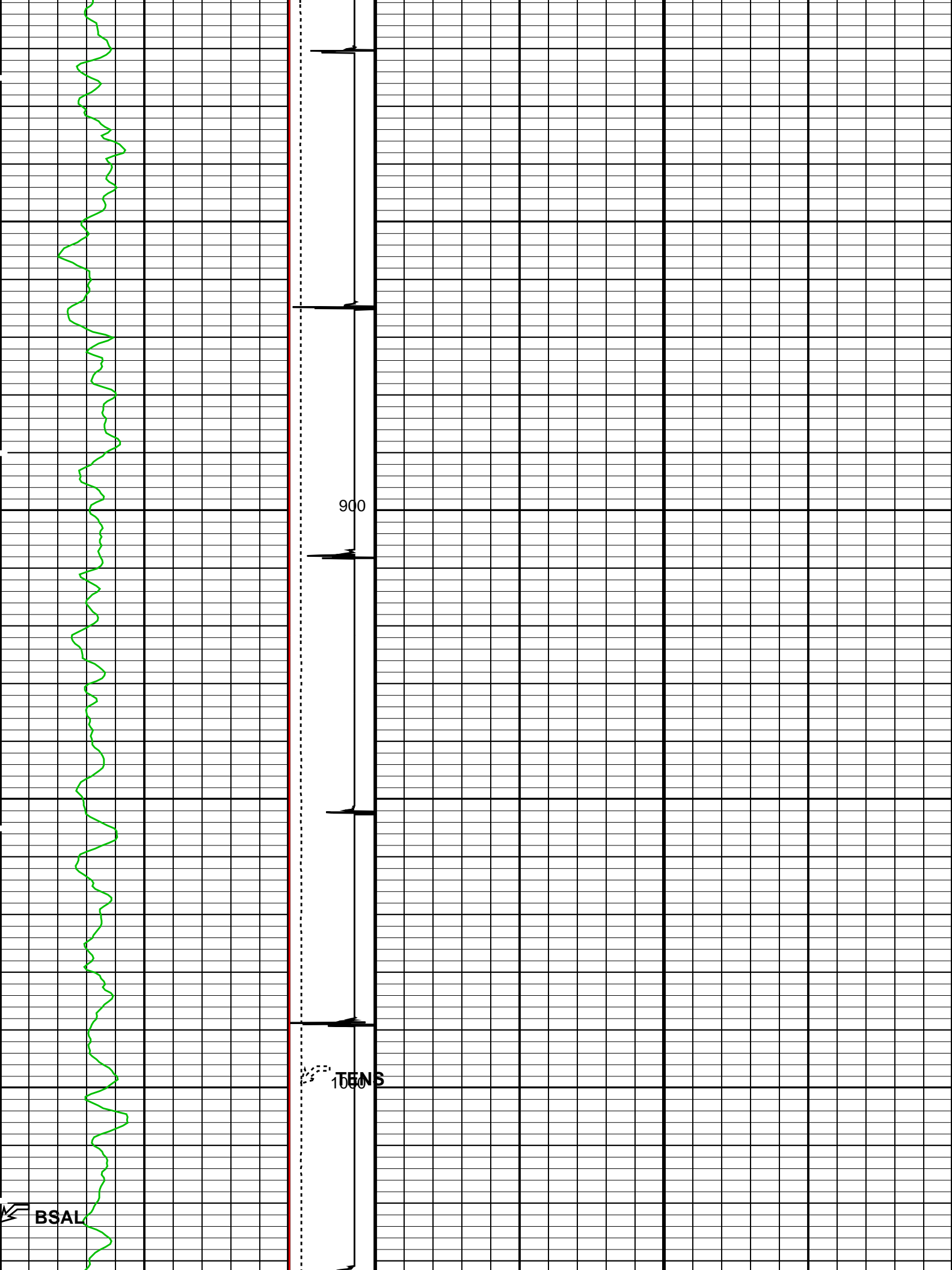
RST Capture to Inelastic Ratio For

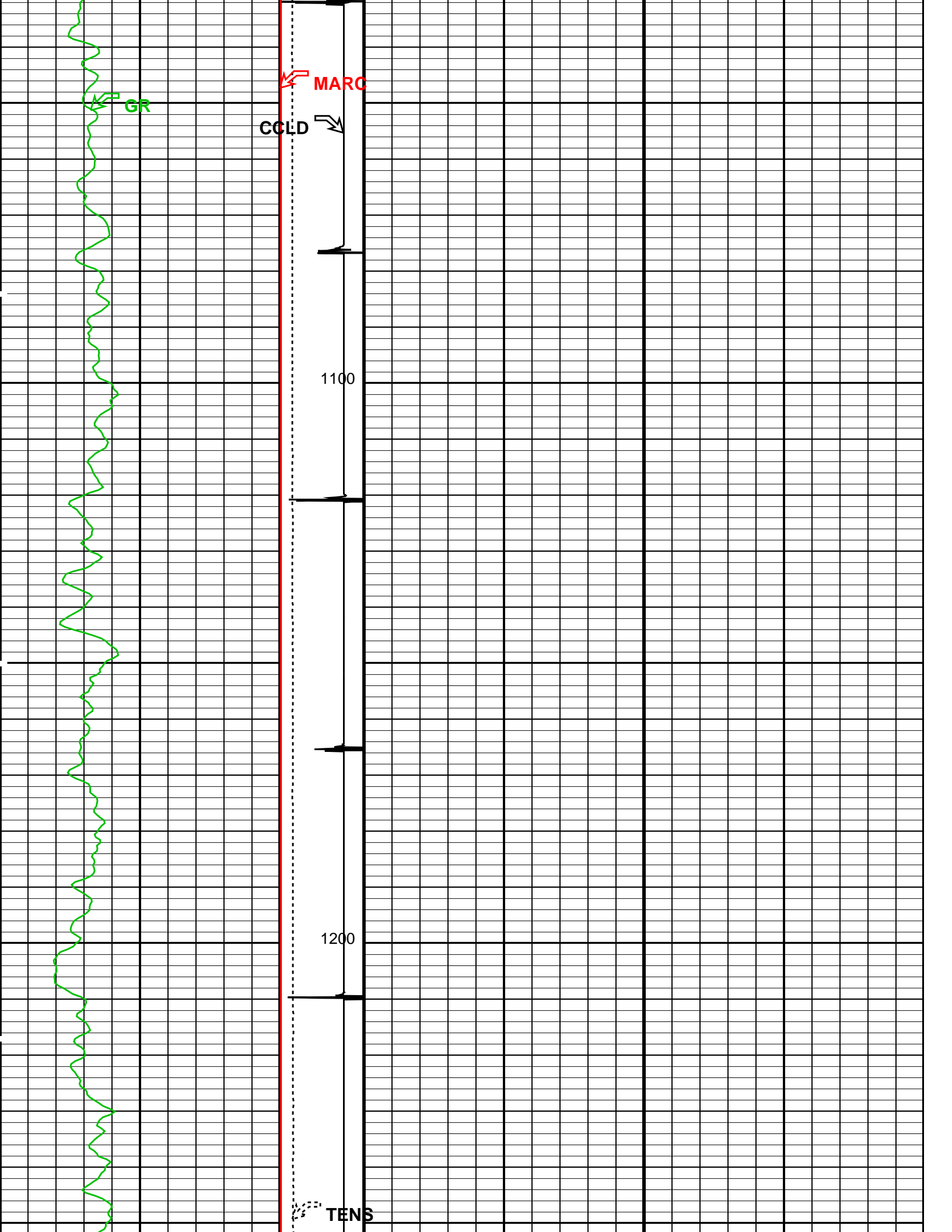


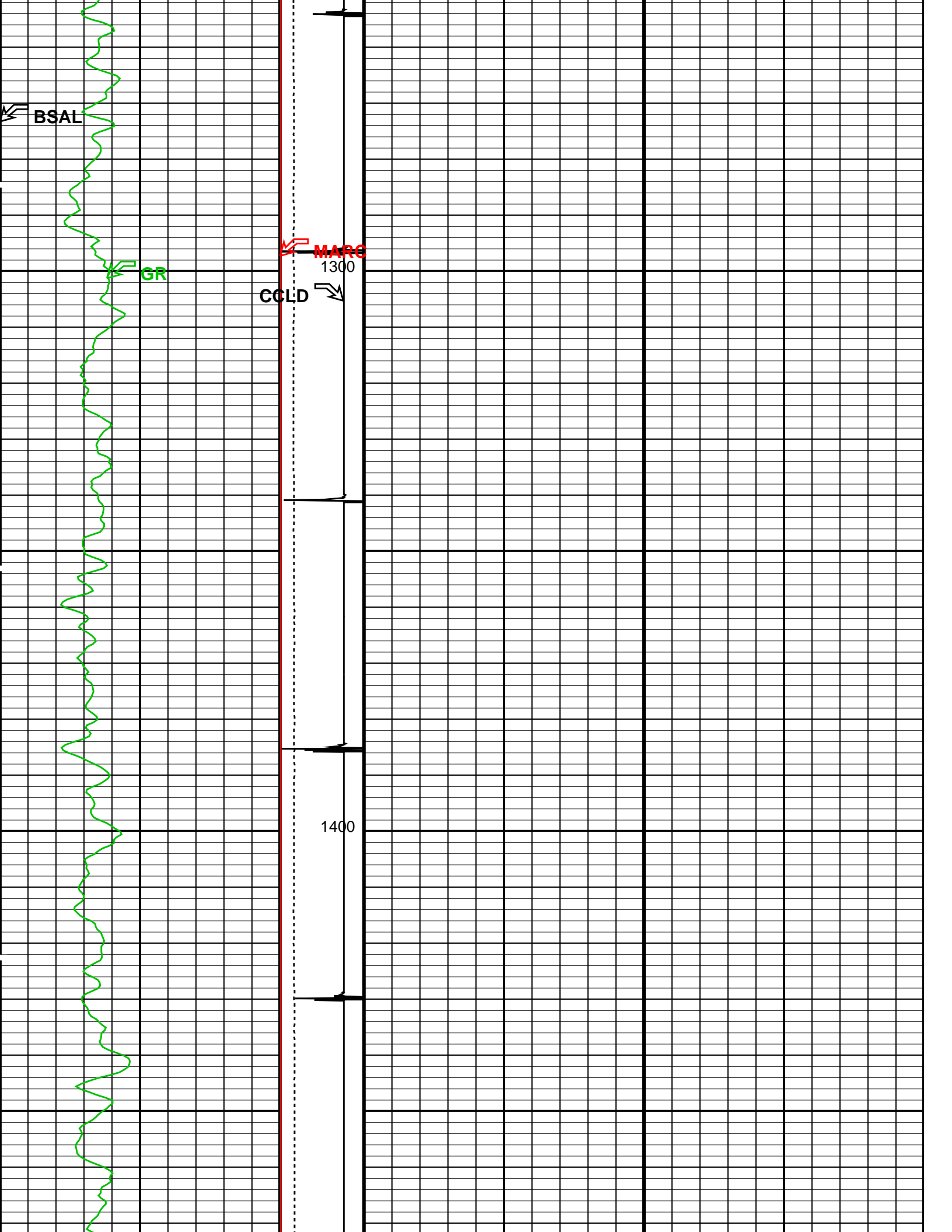


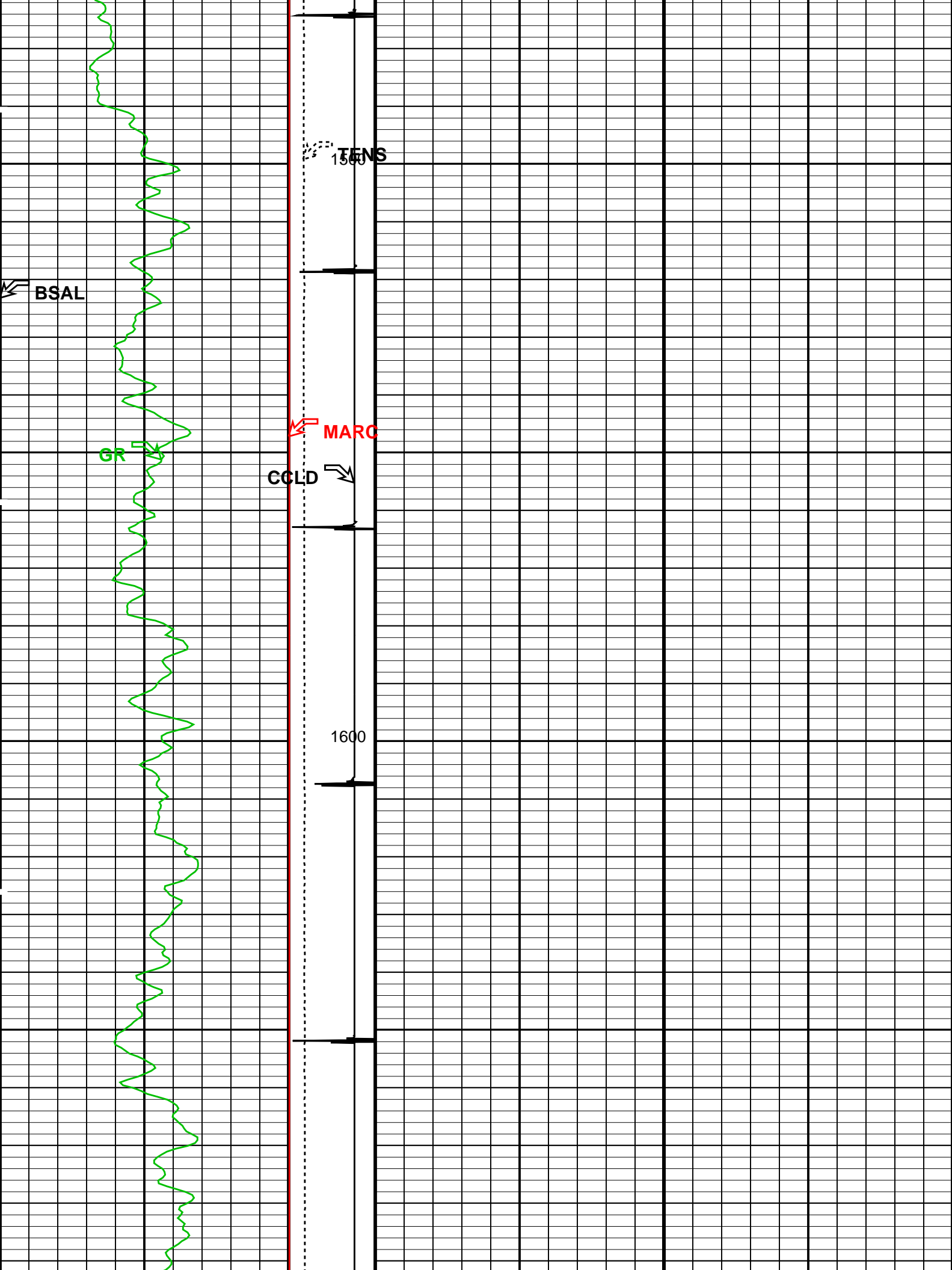


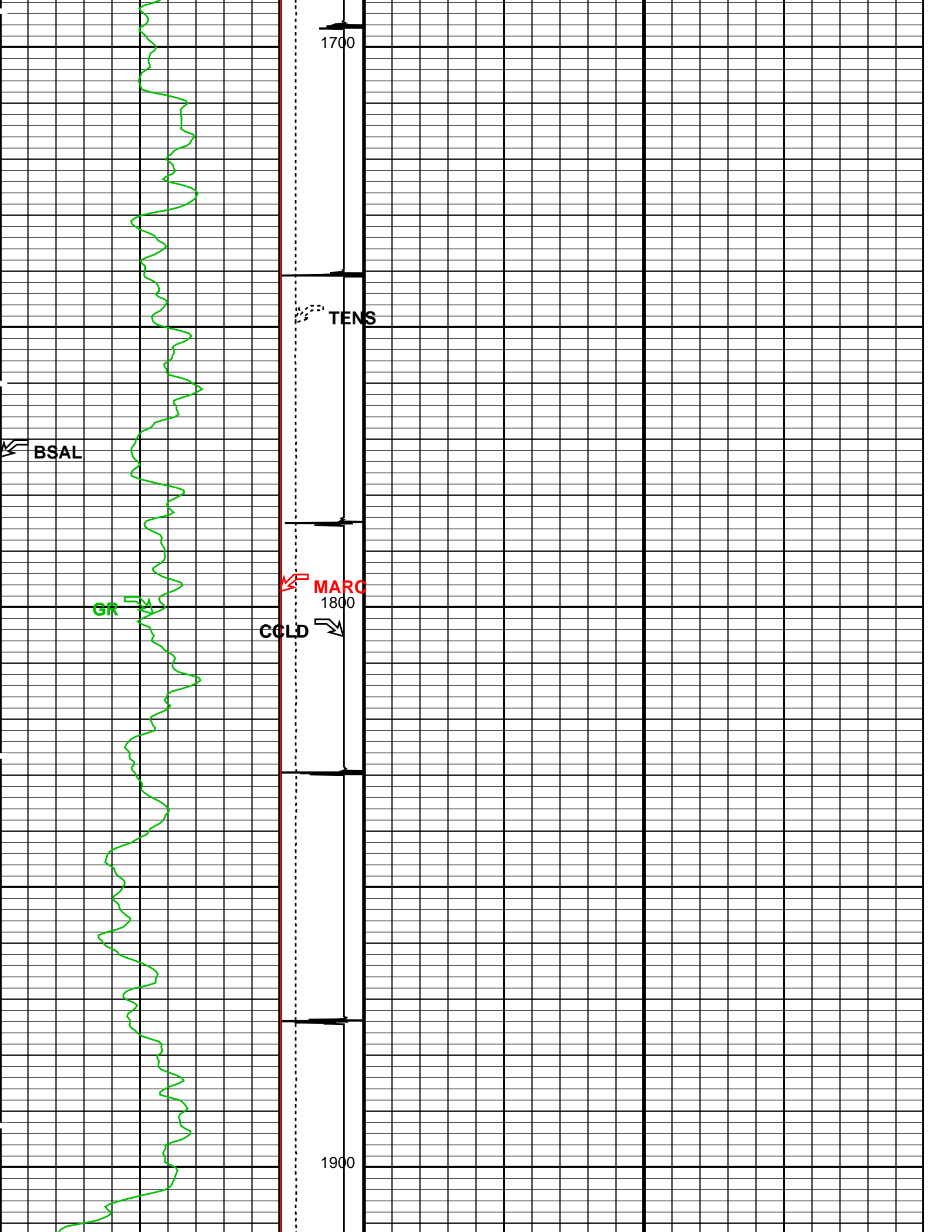


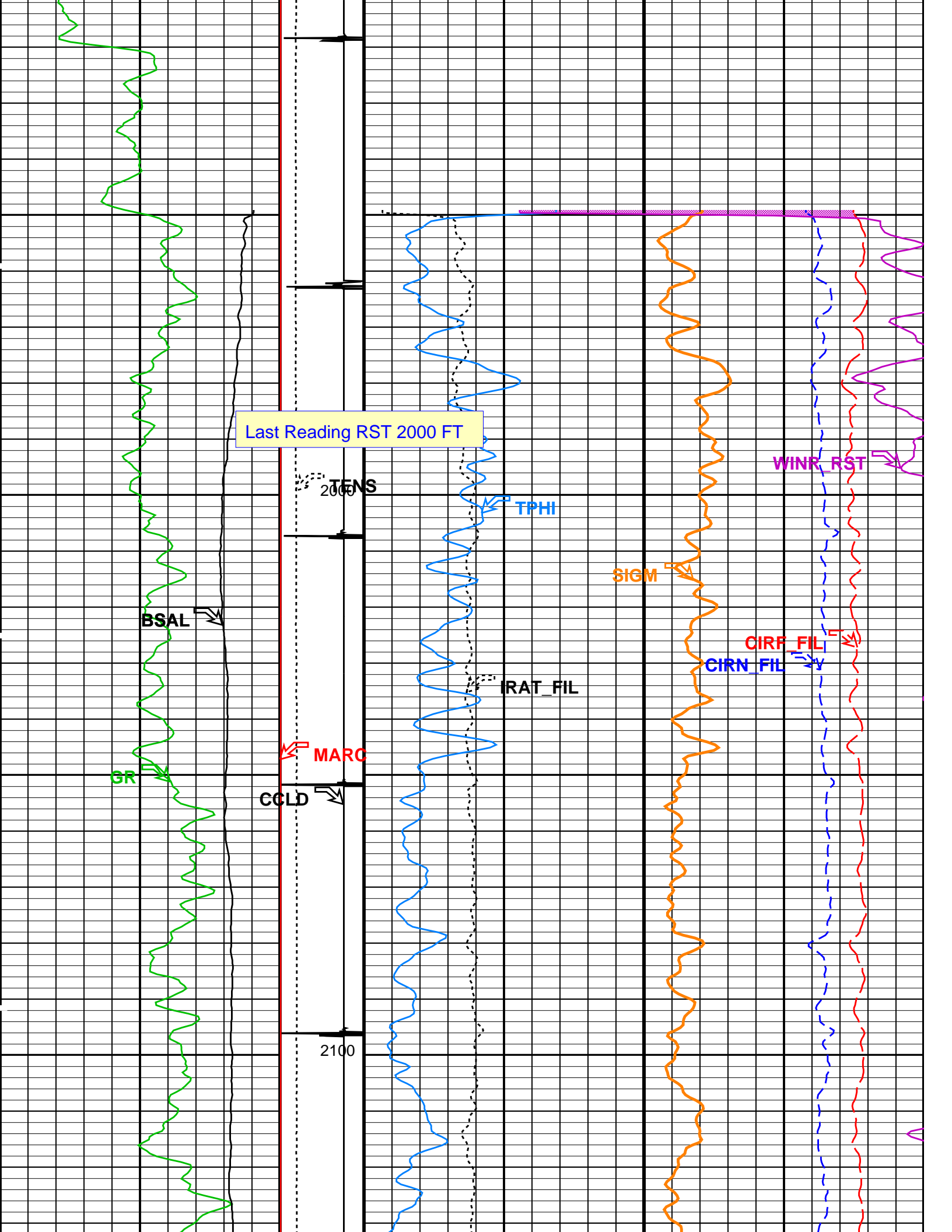


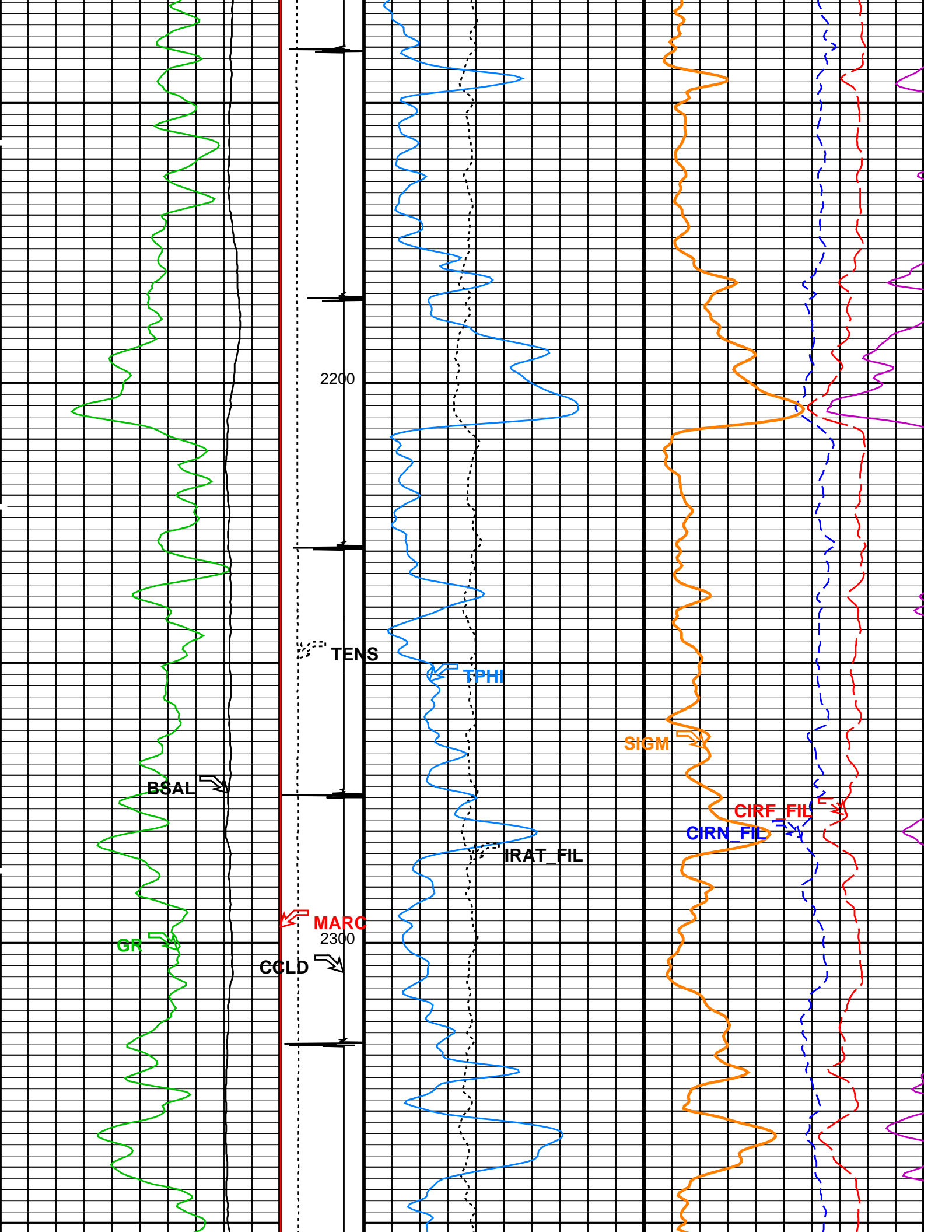


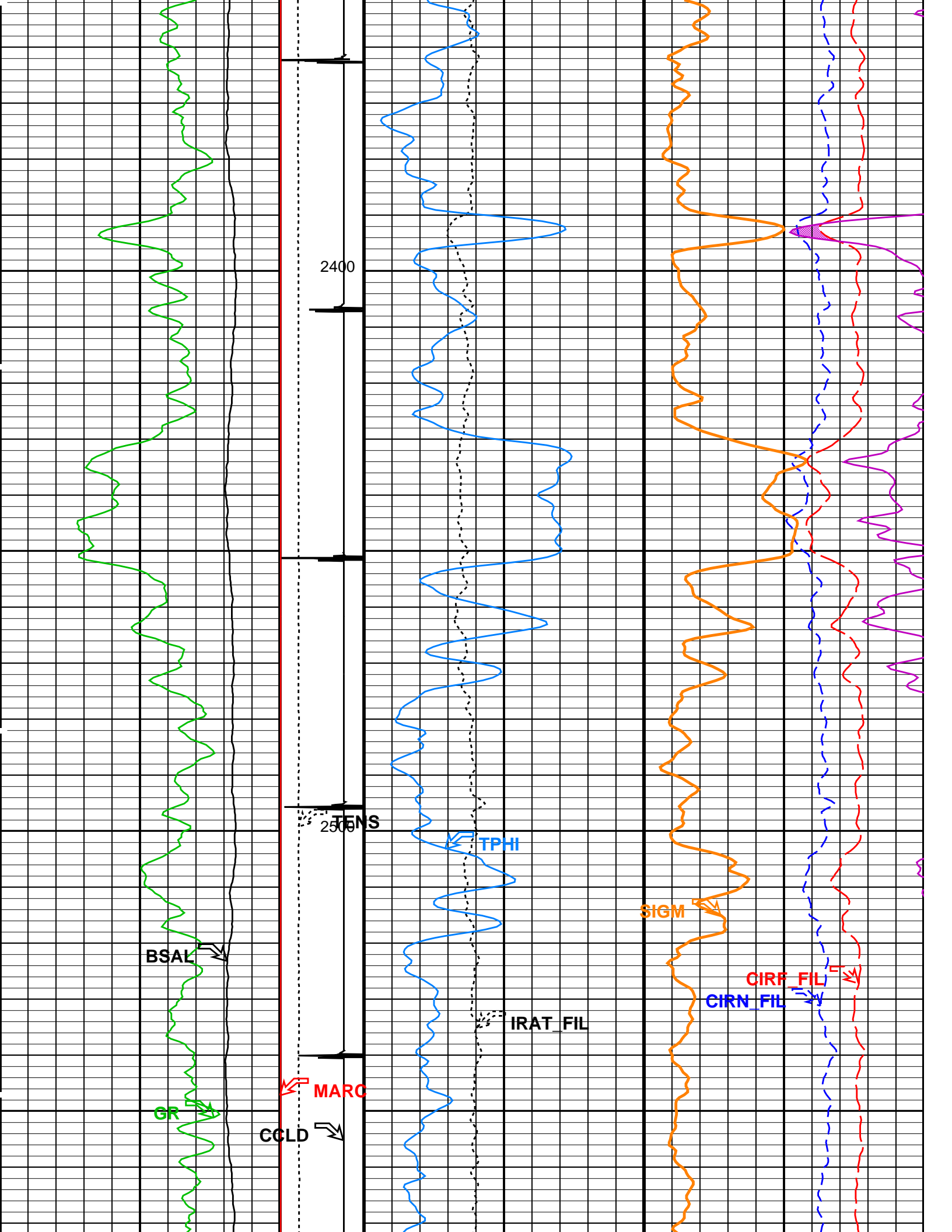


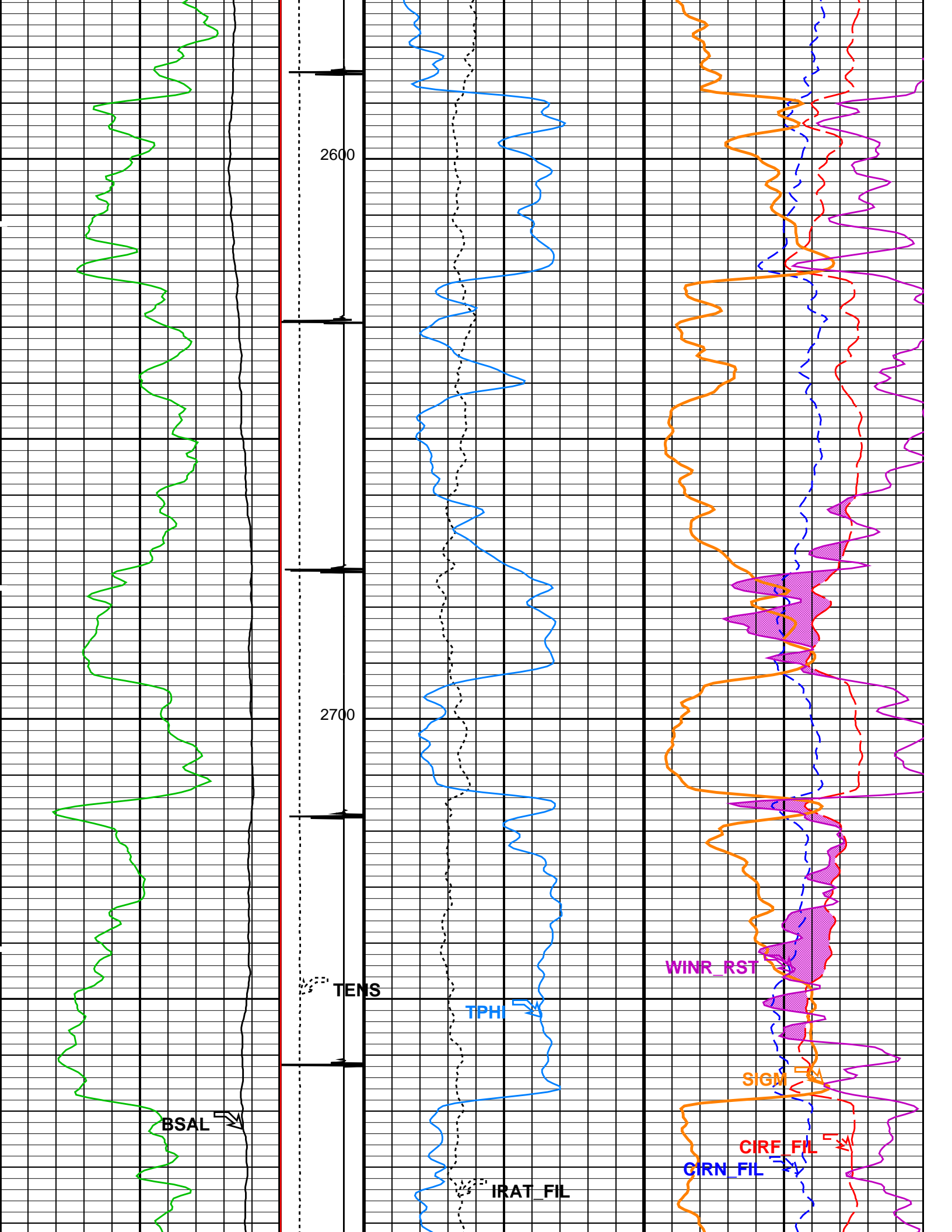


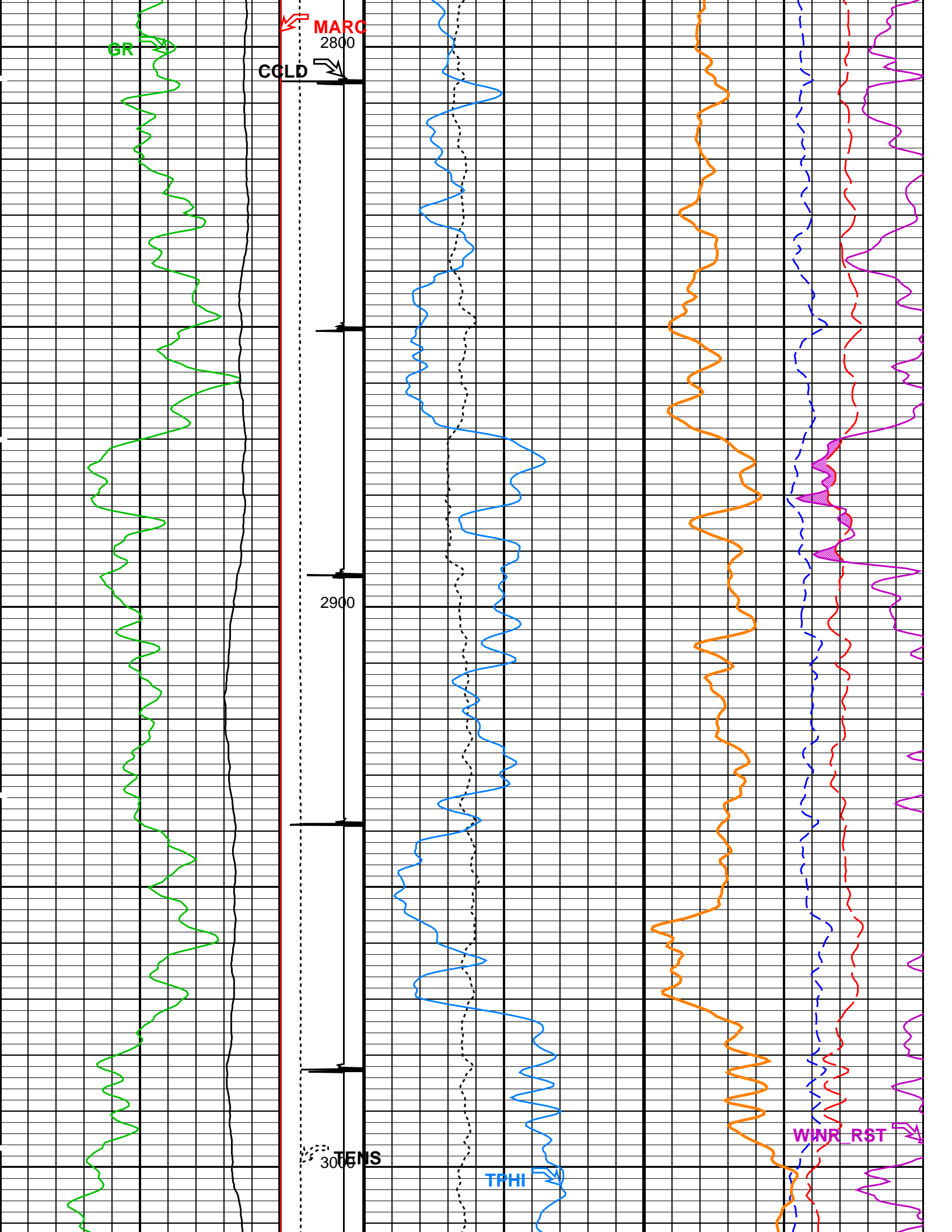


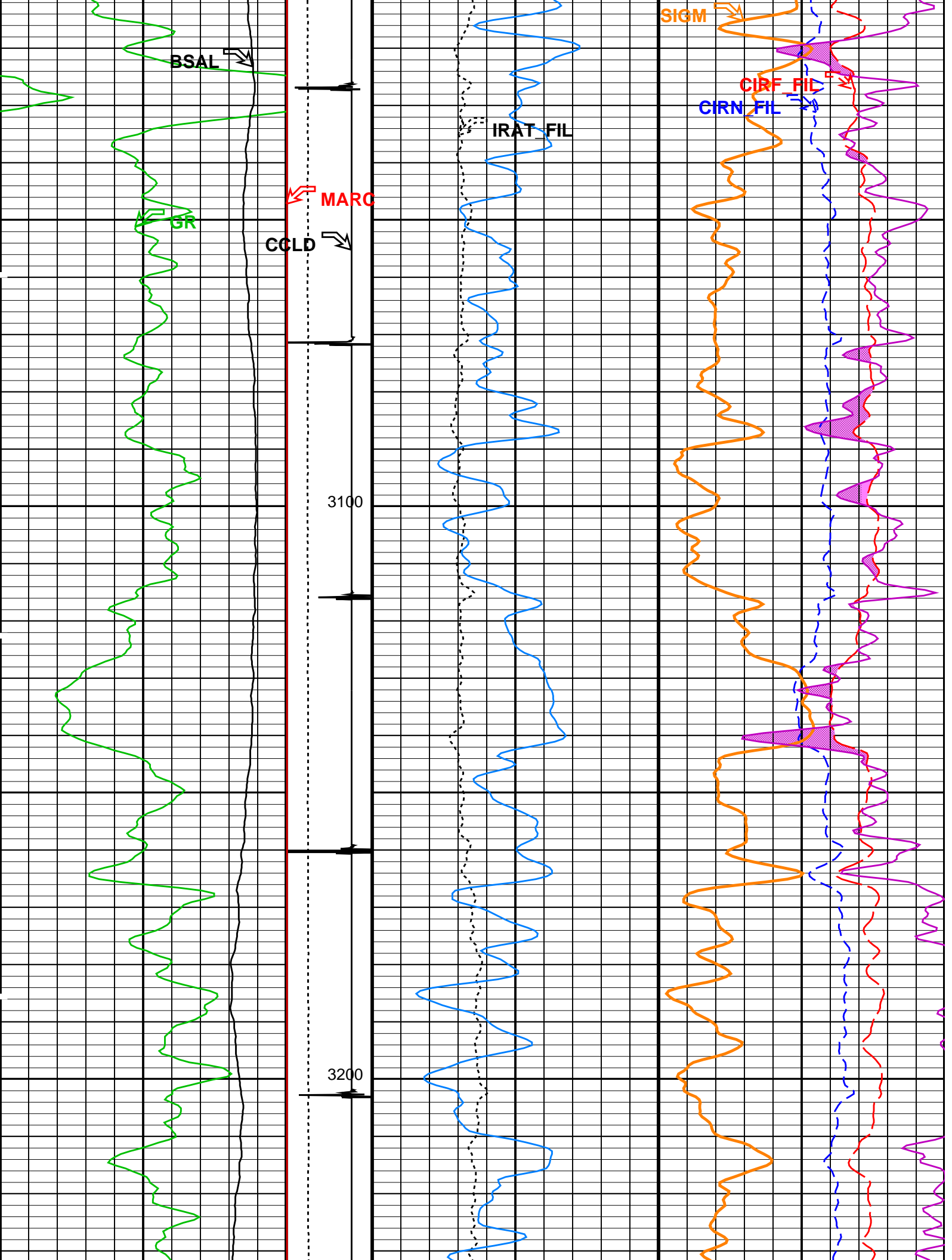


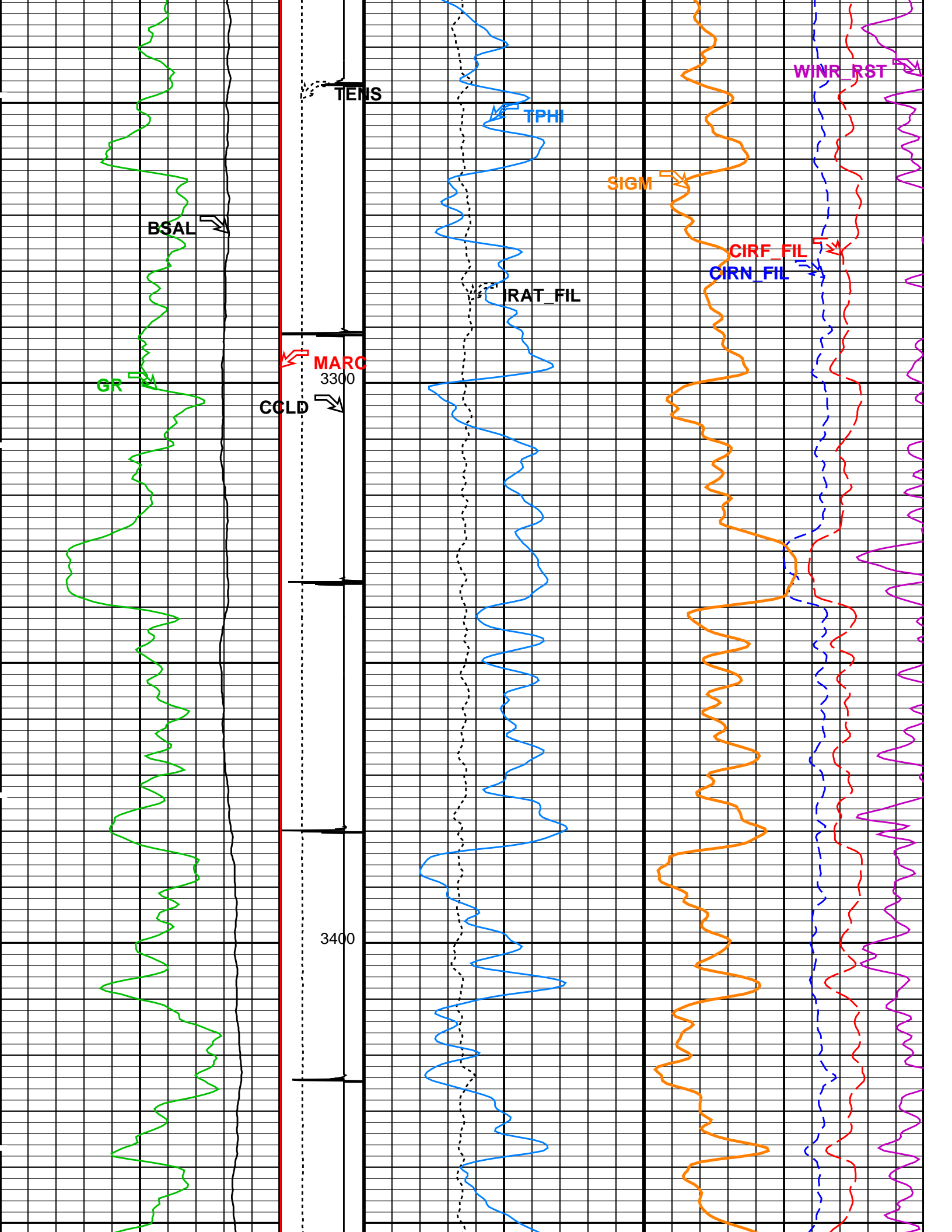


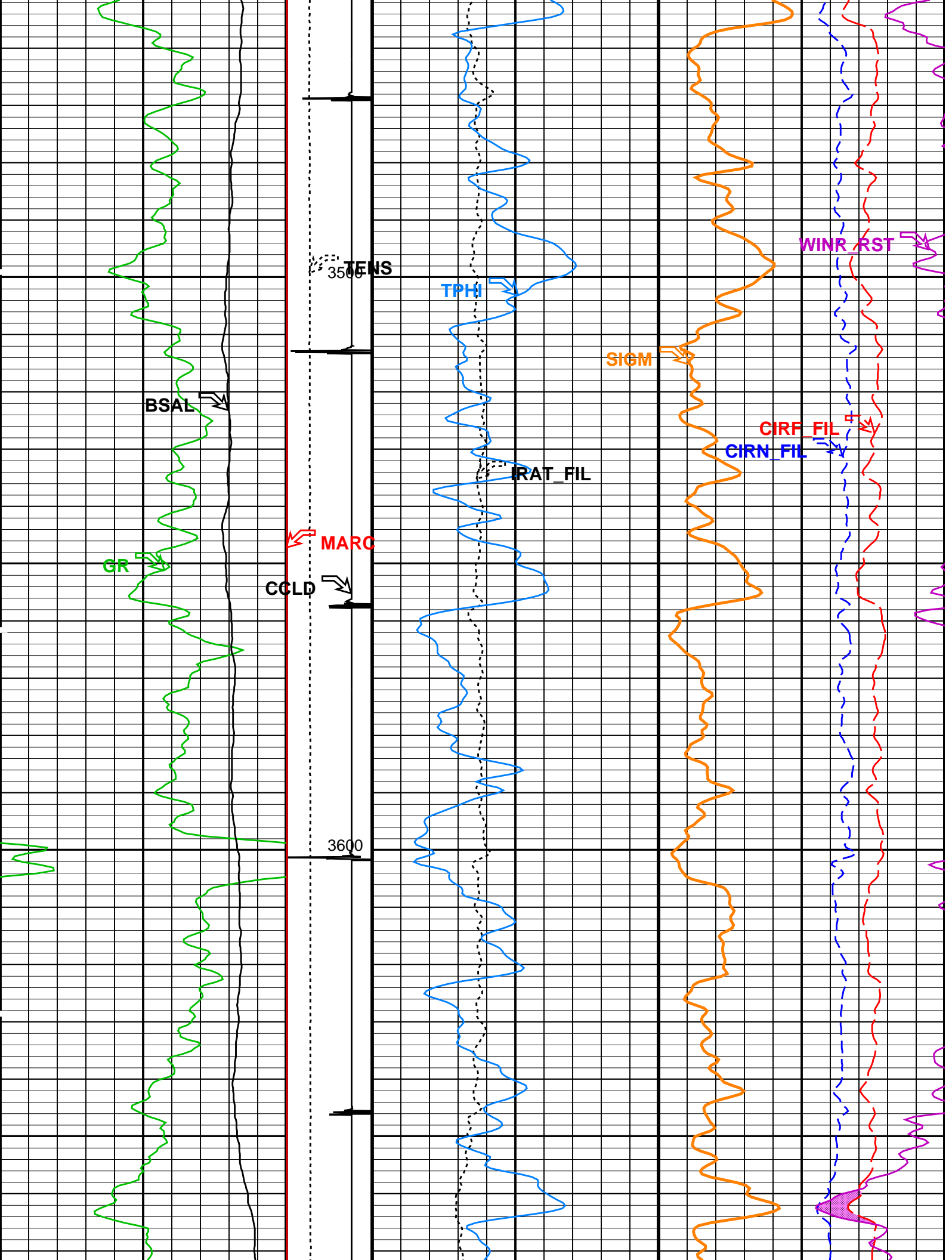


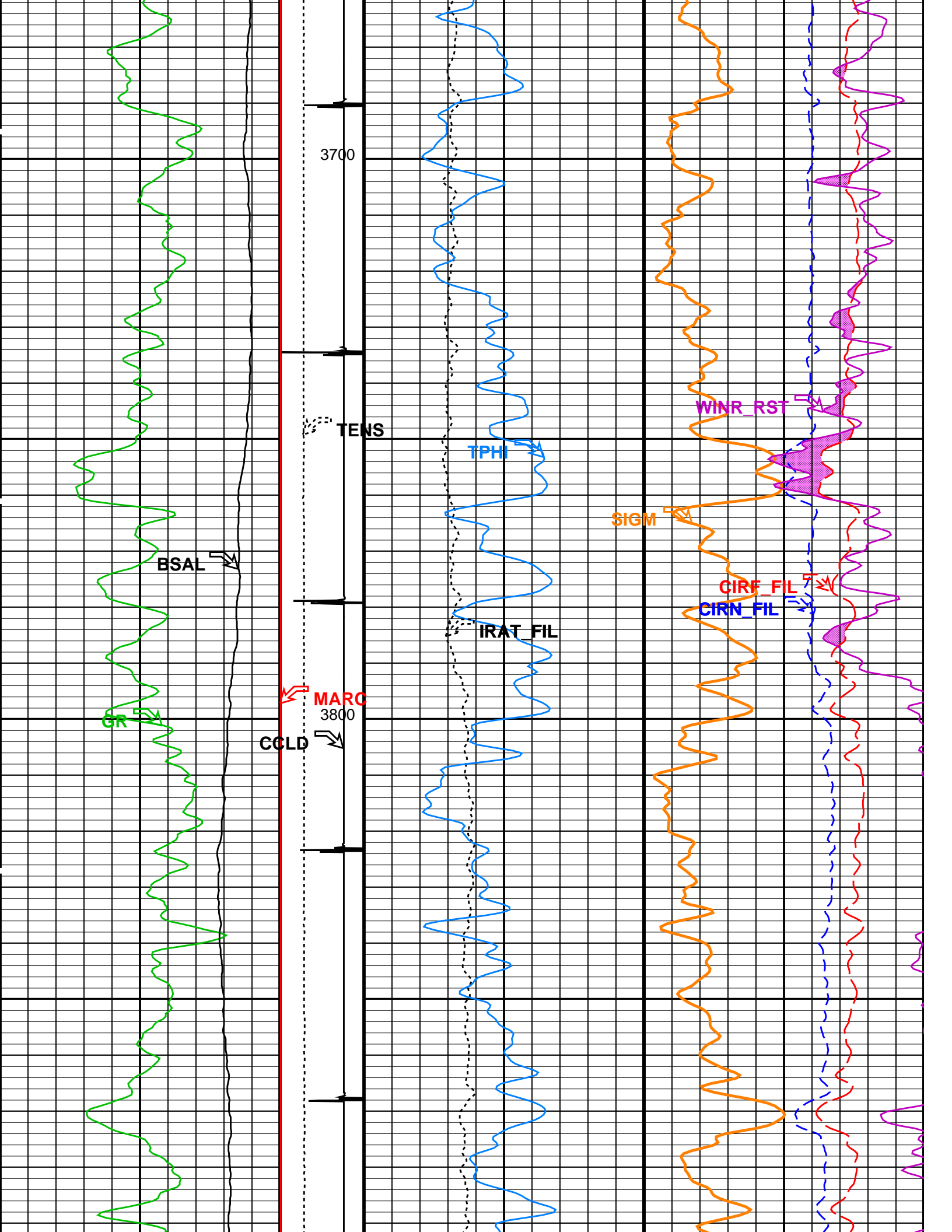


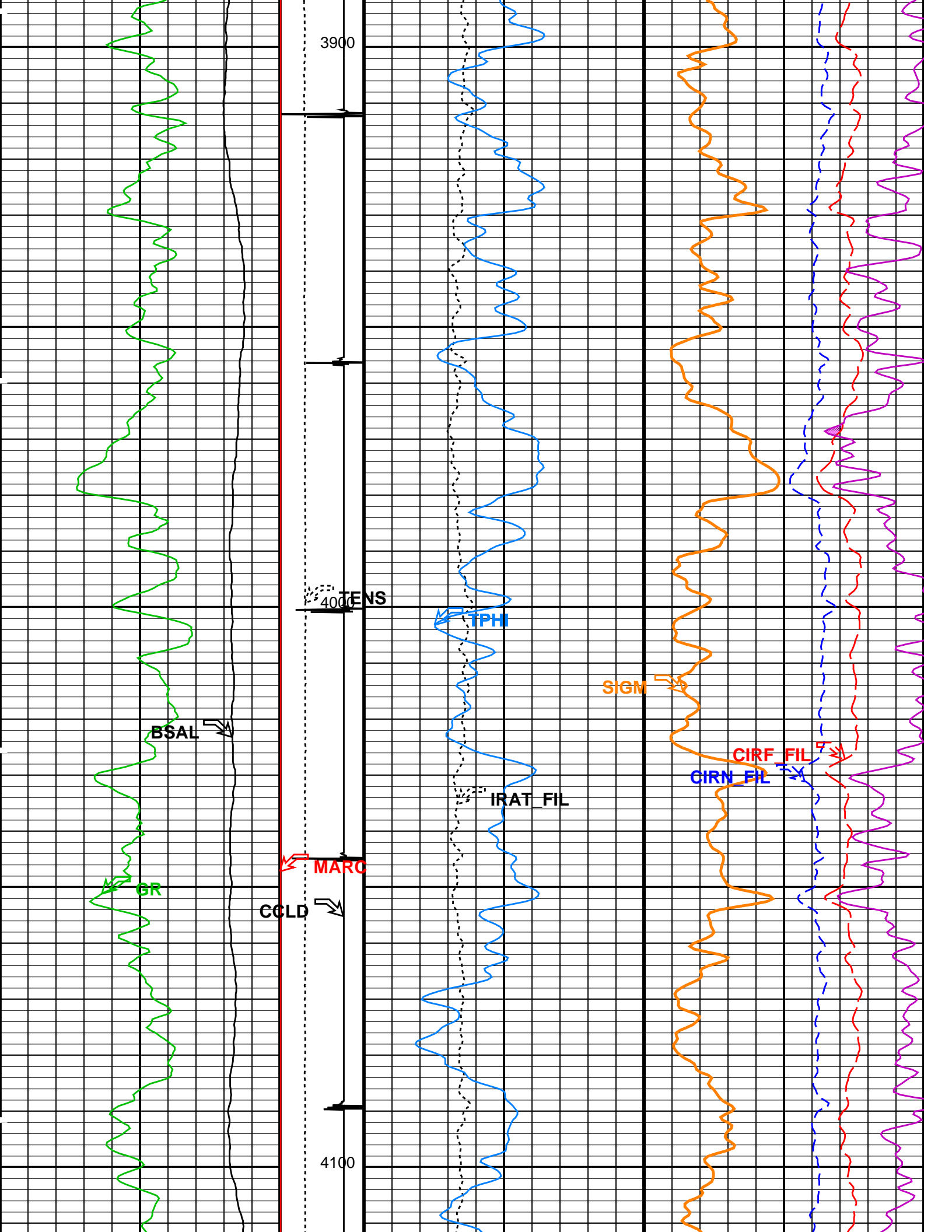


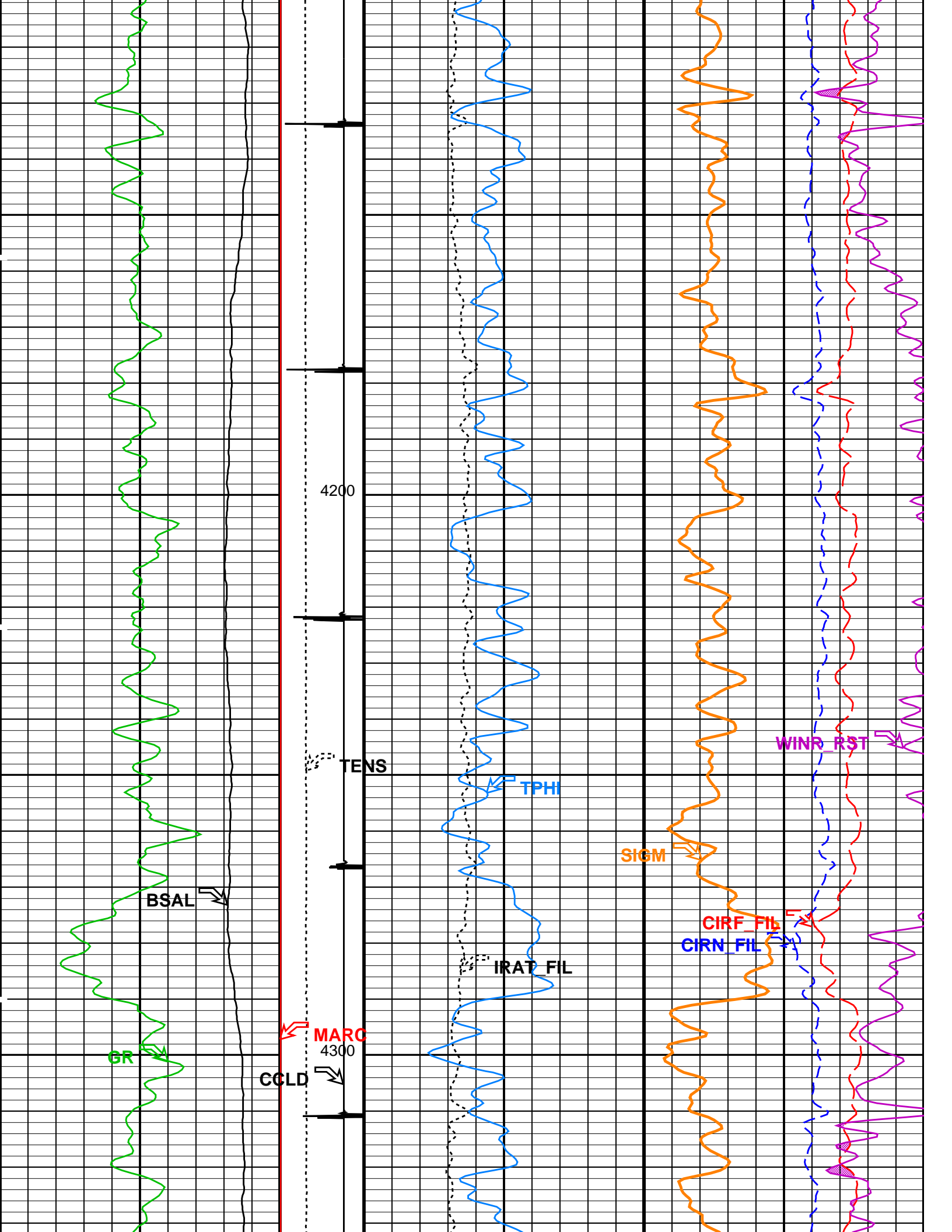


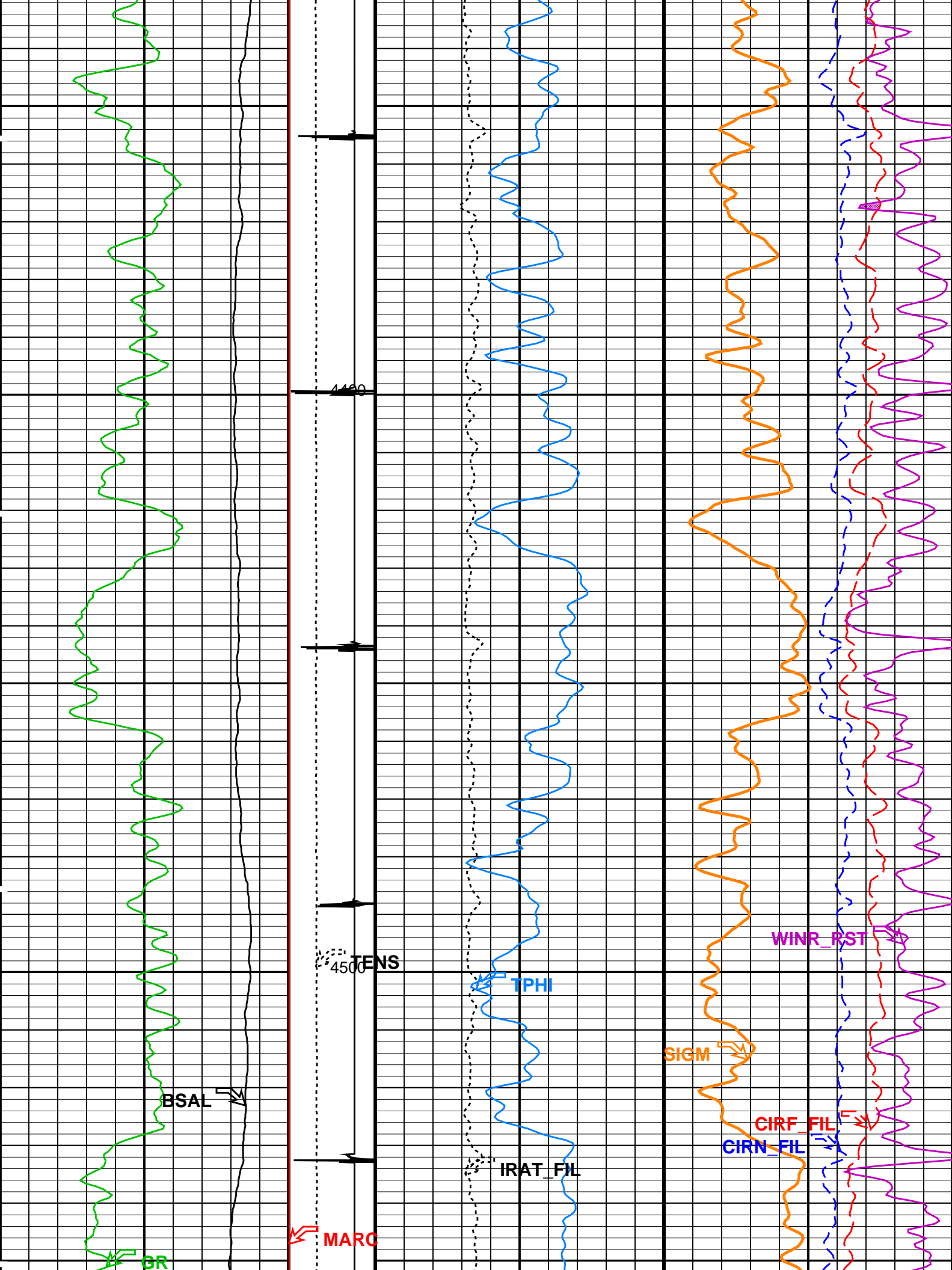


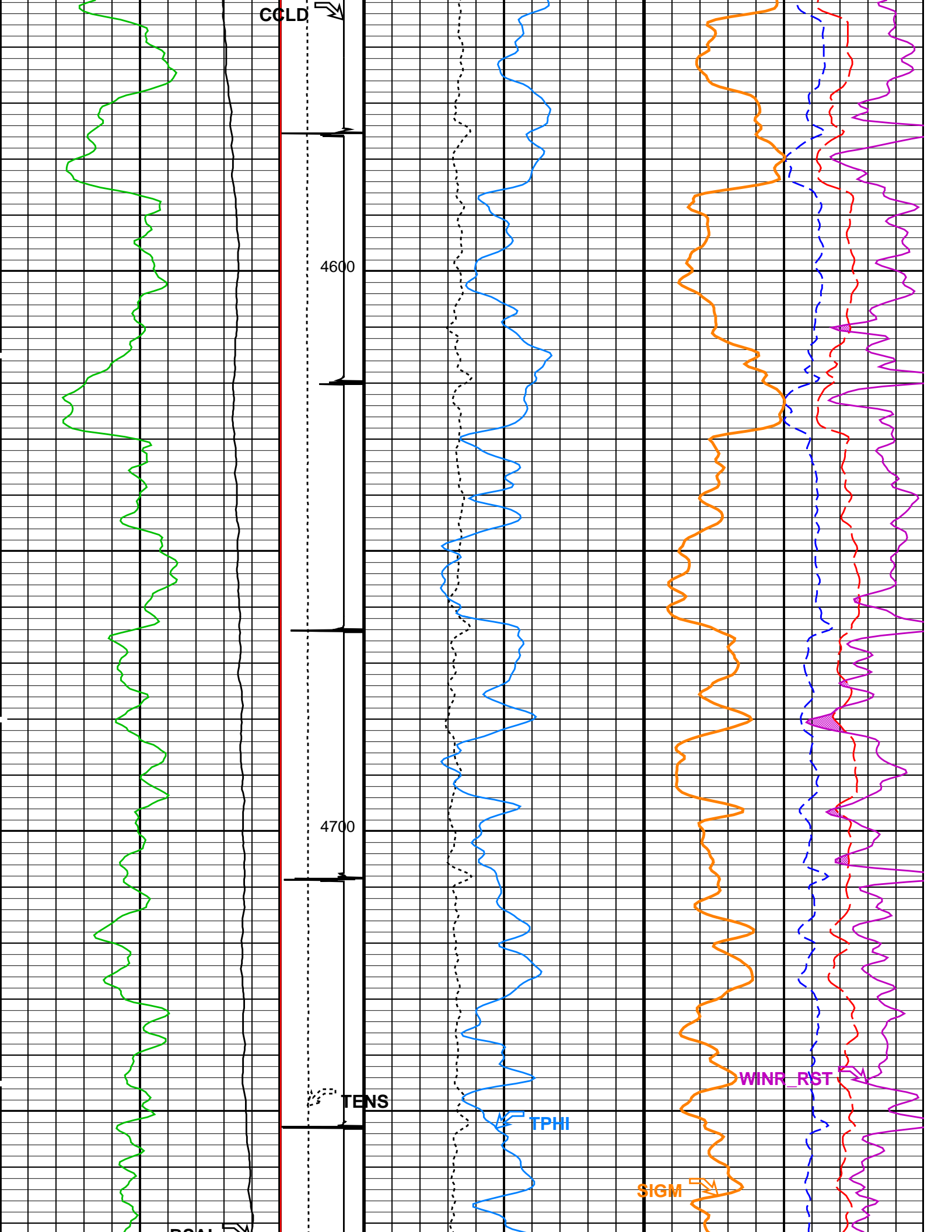


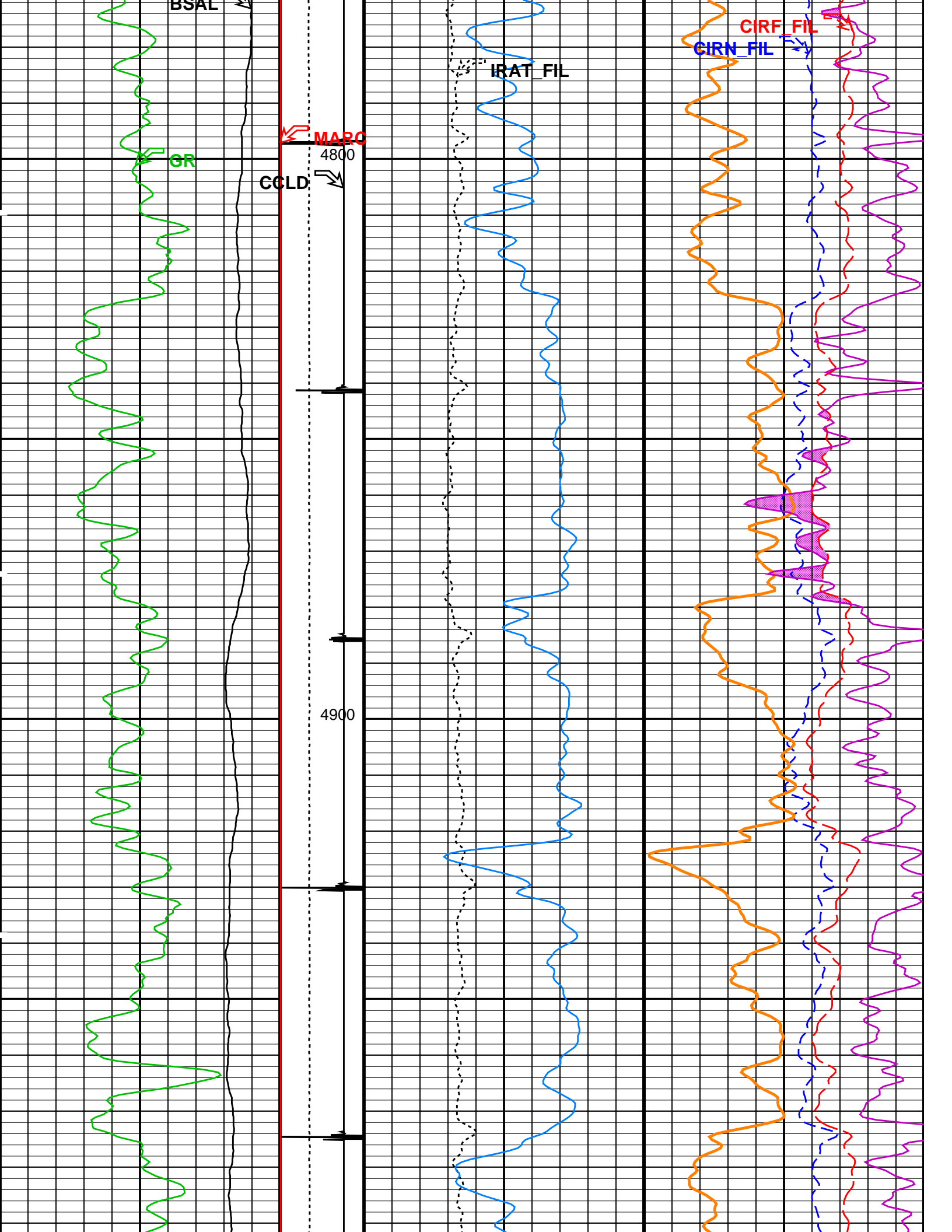


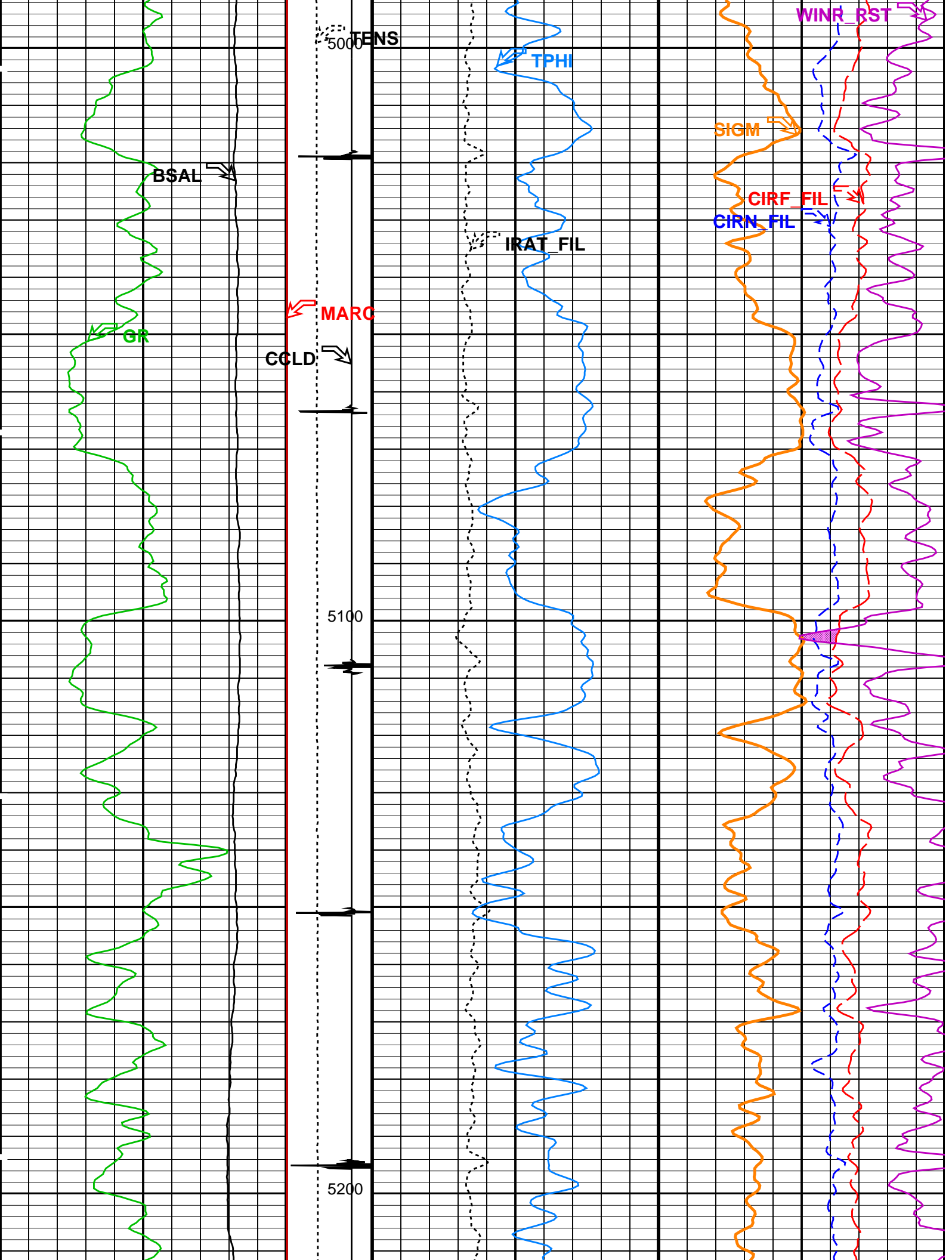


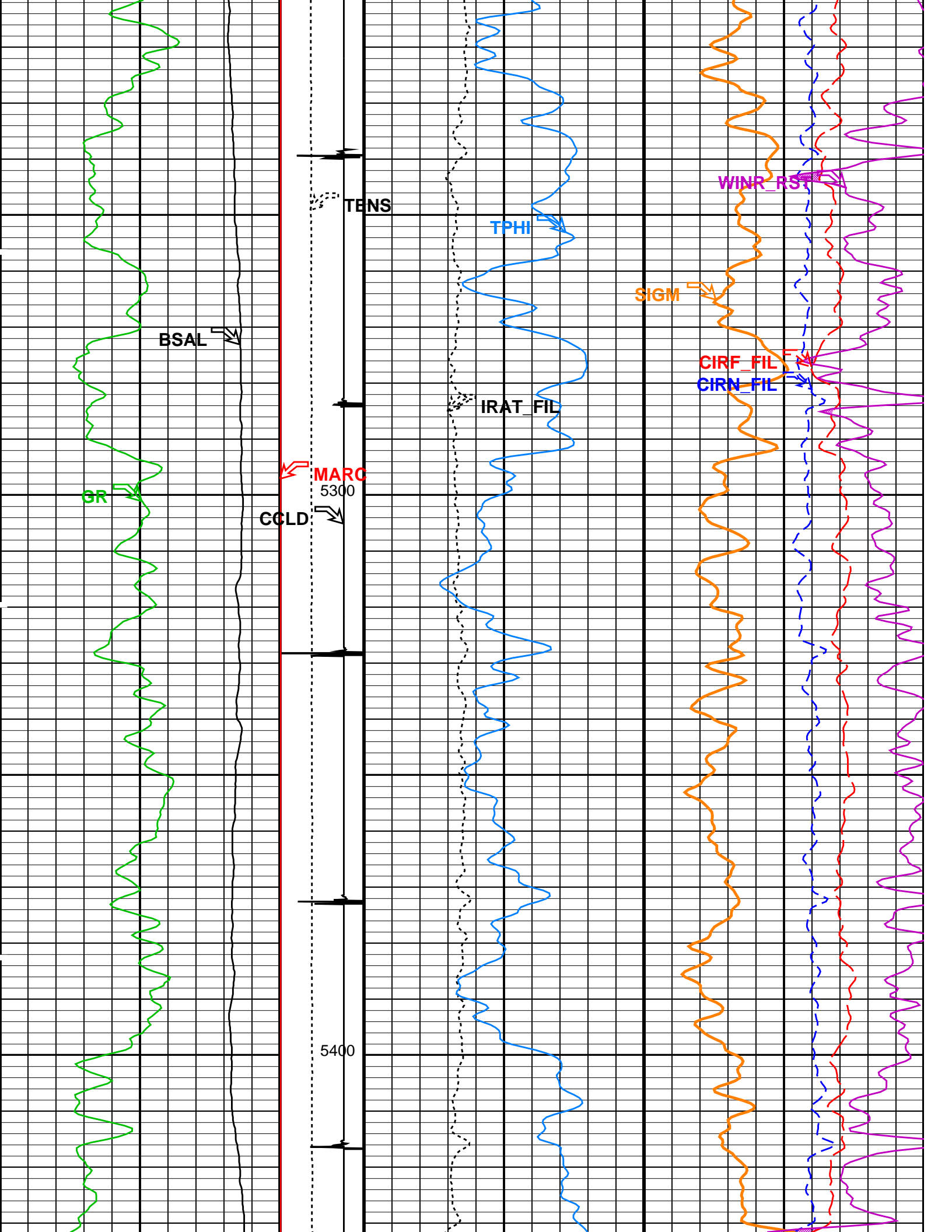


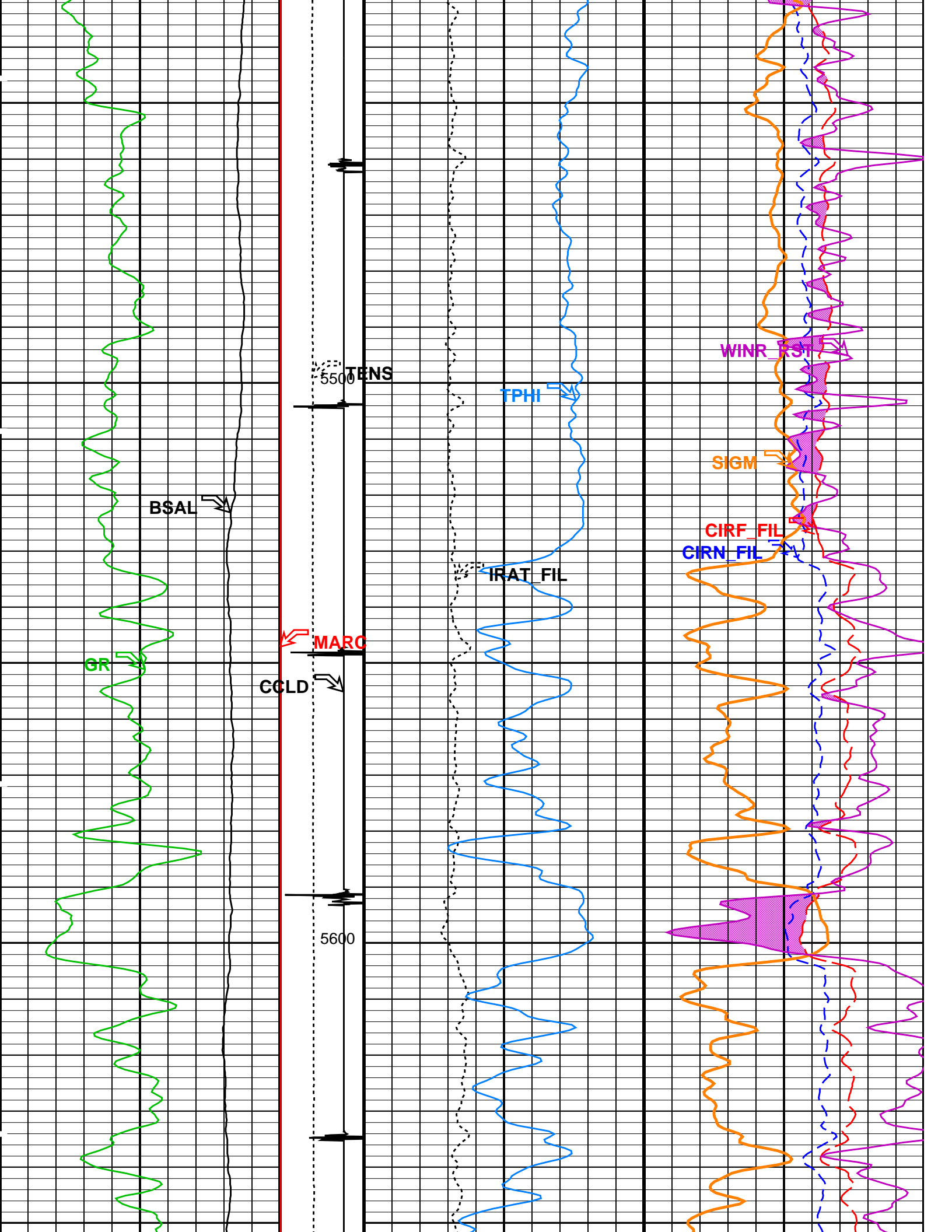


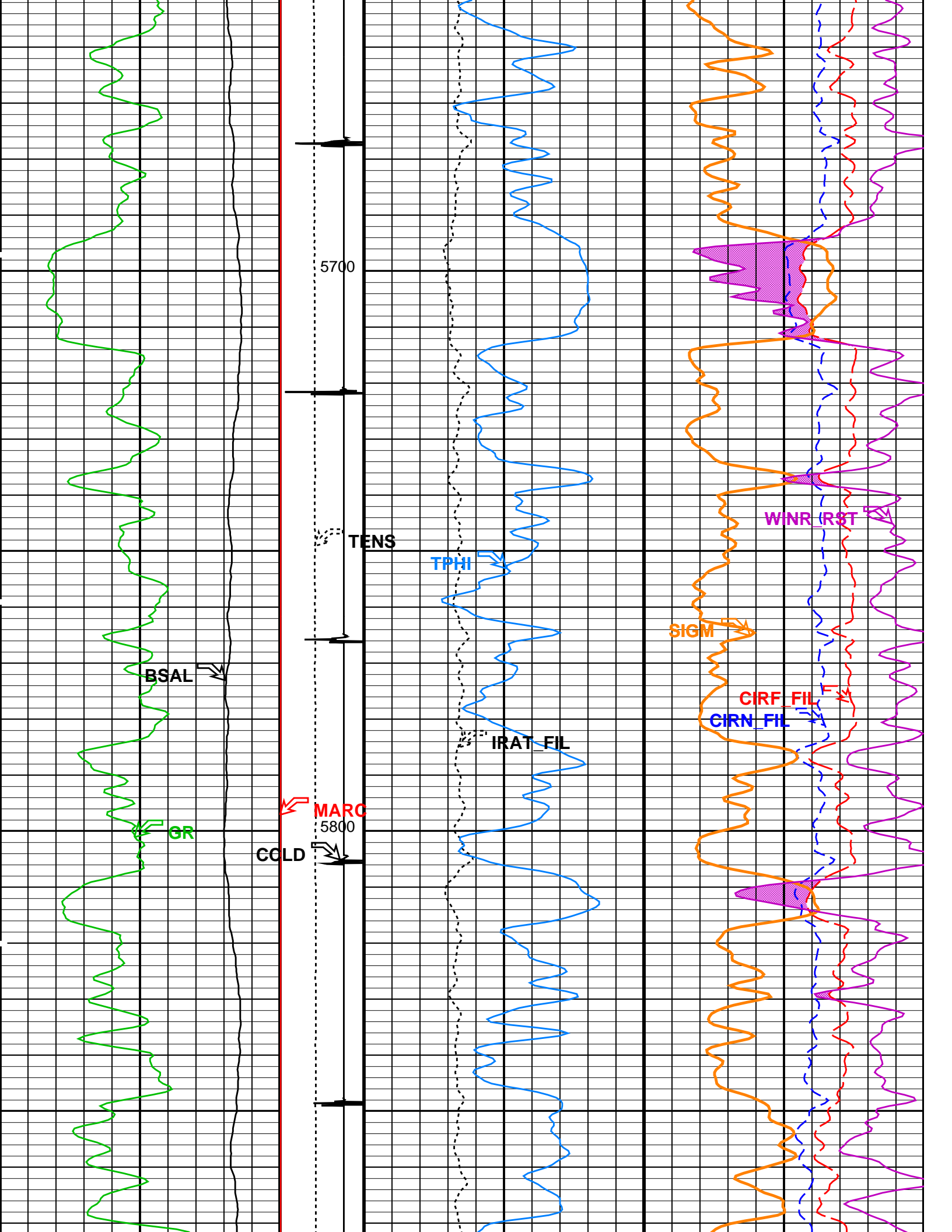


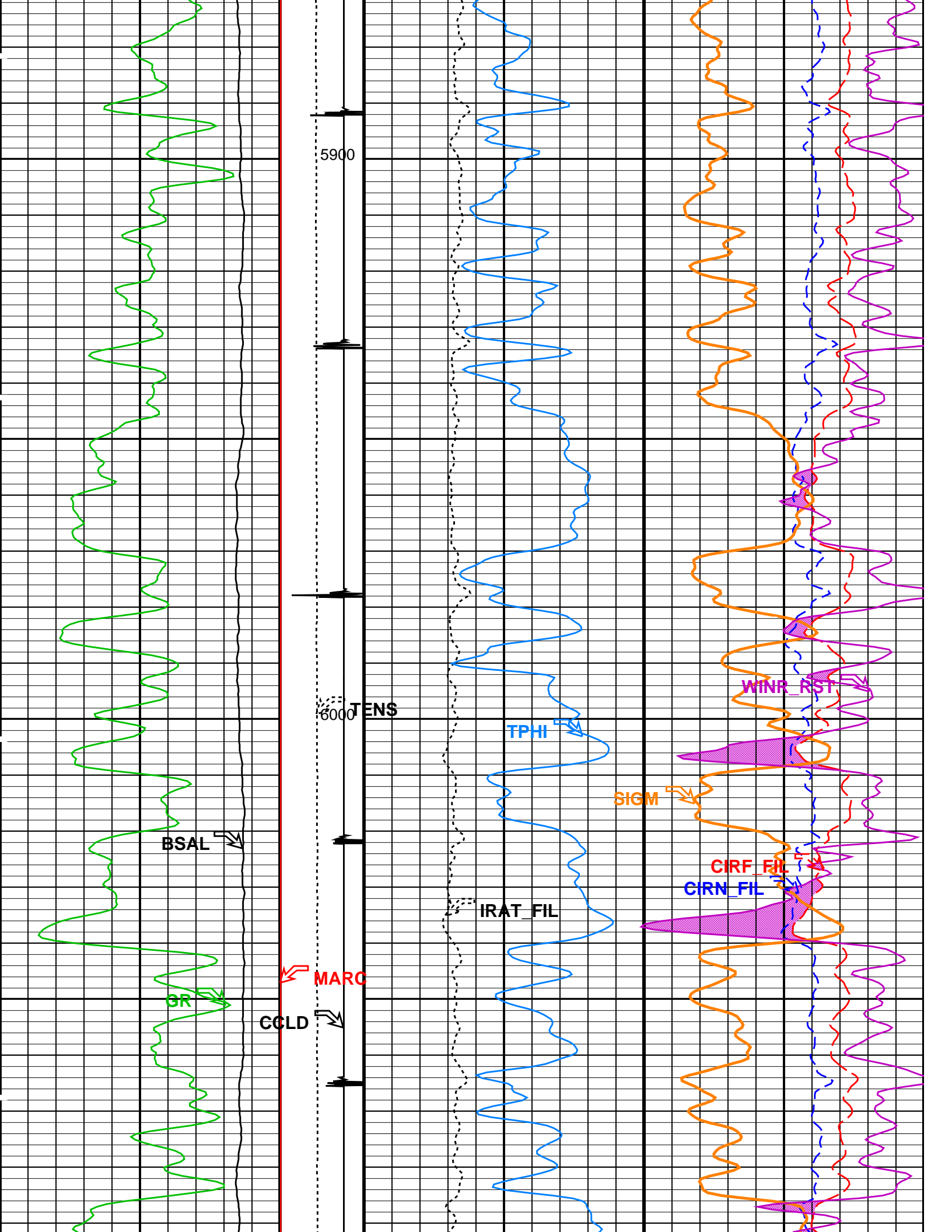


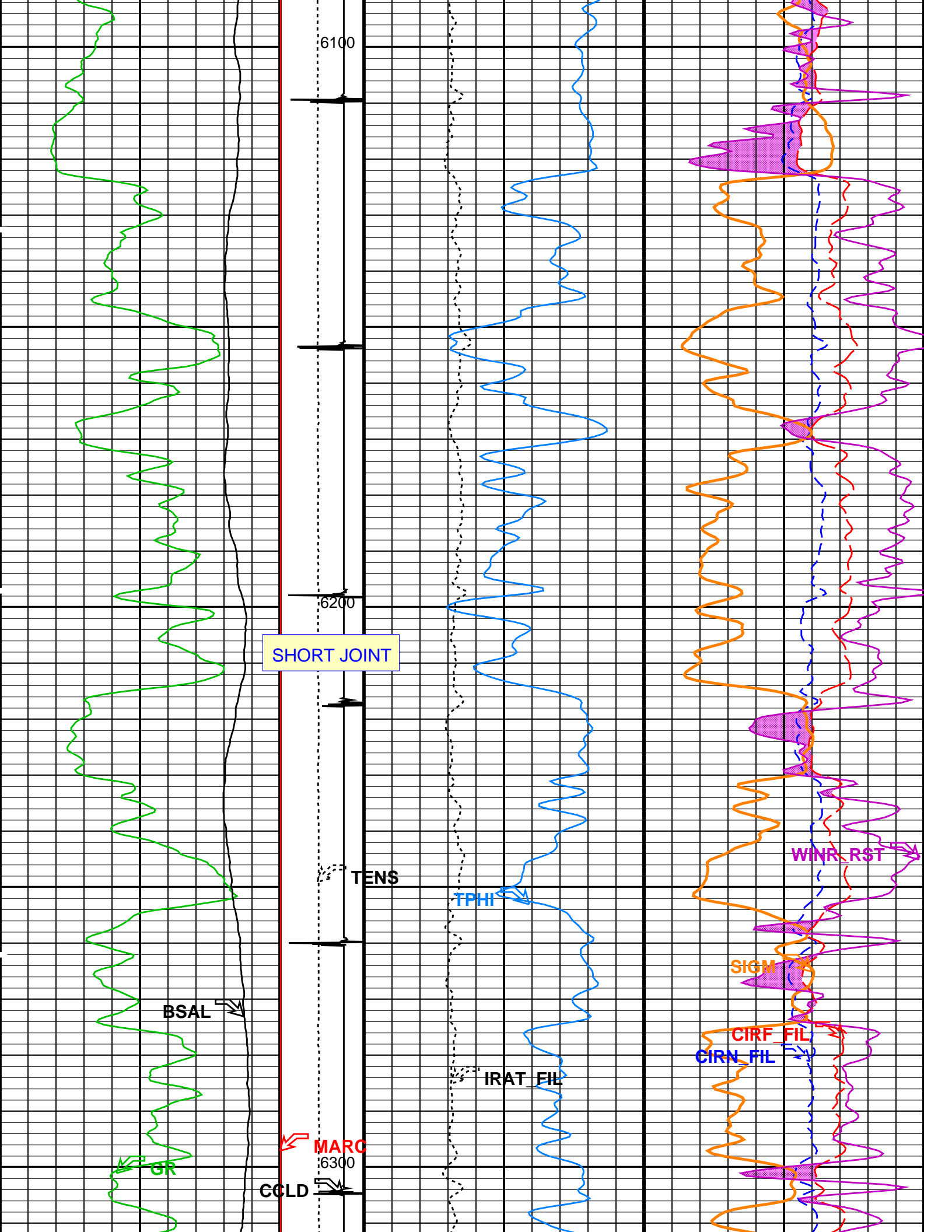


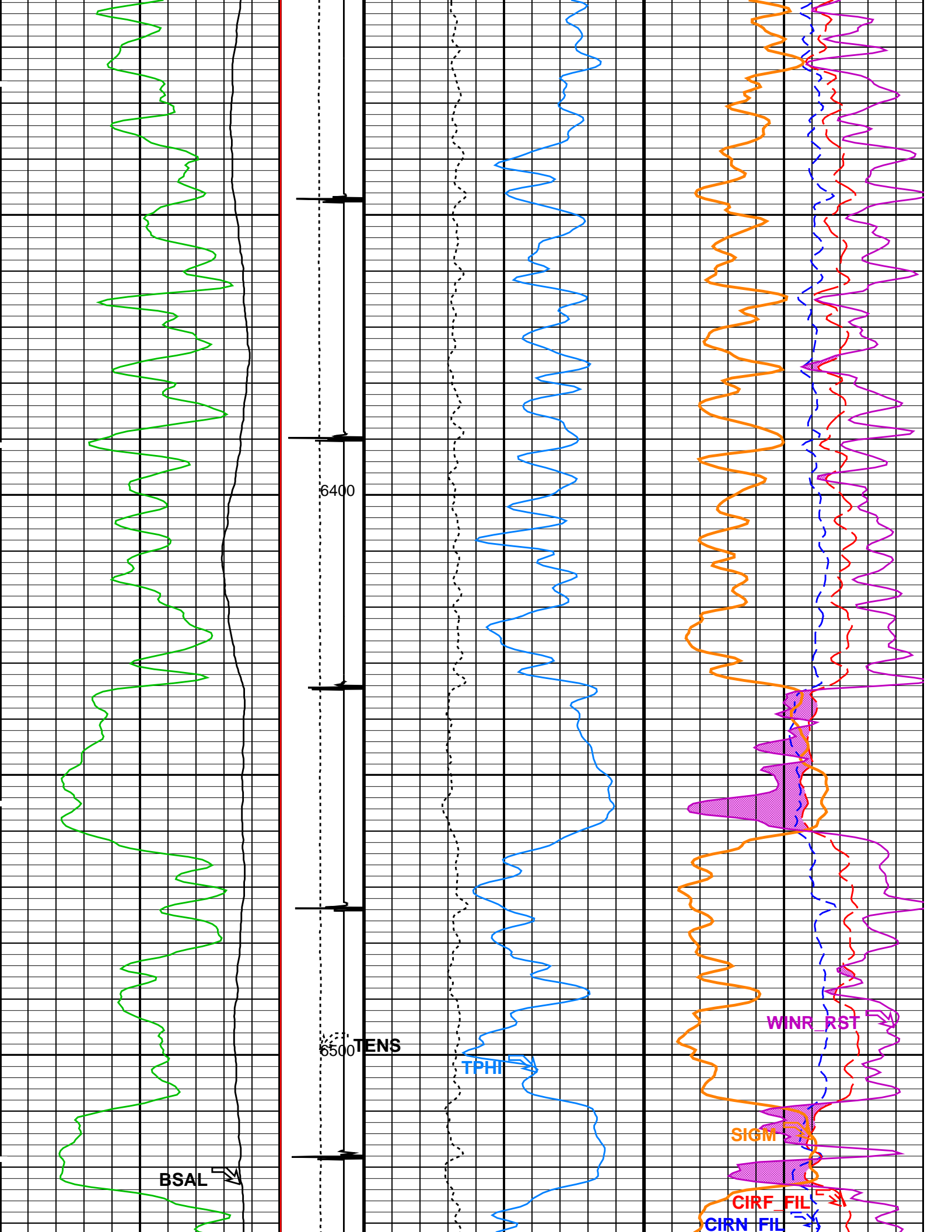


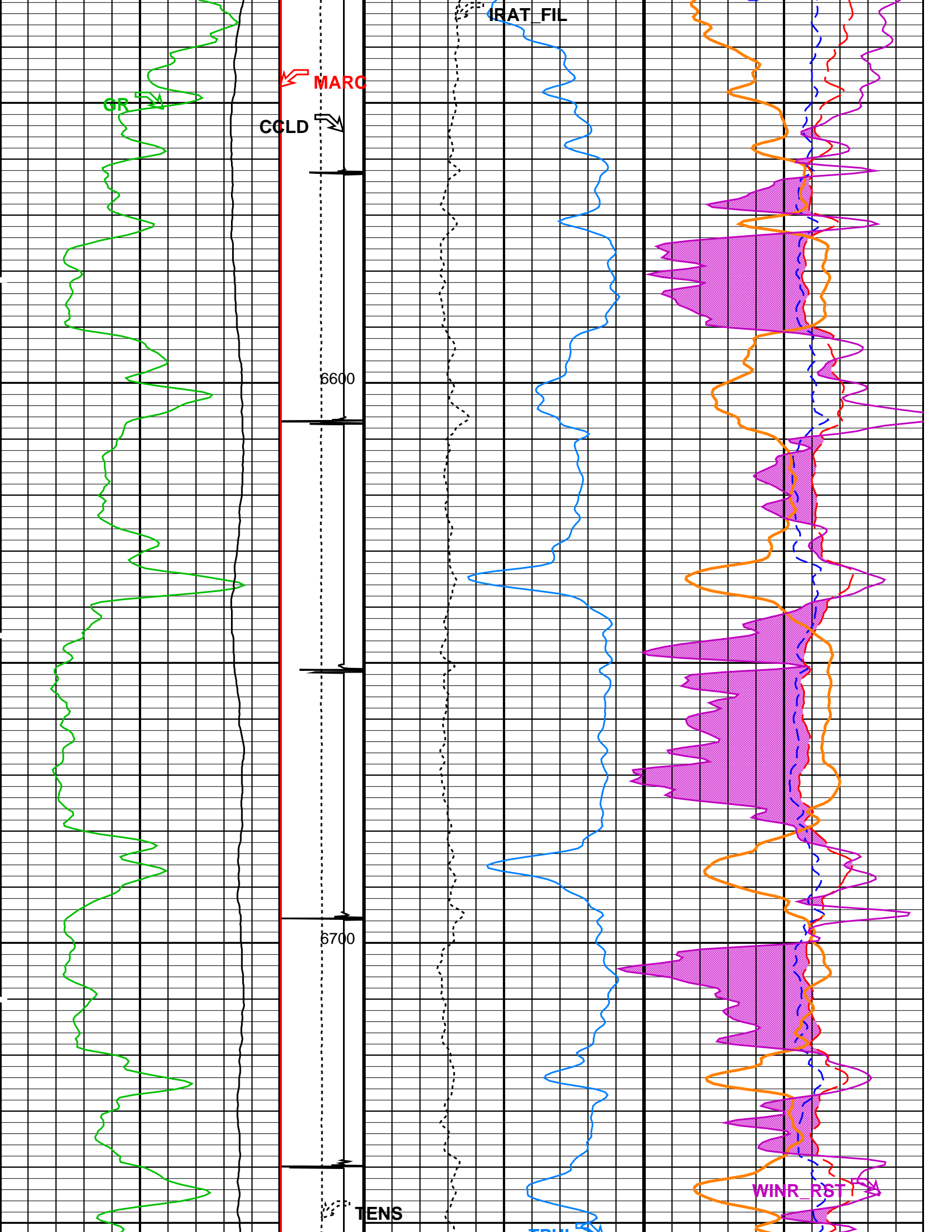


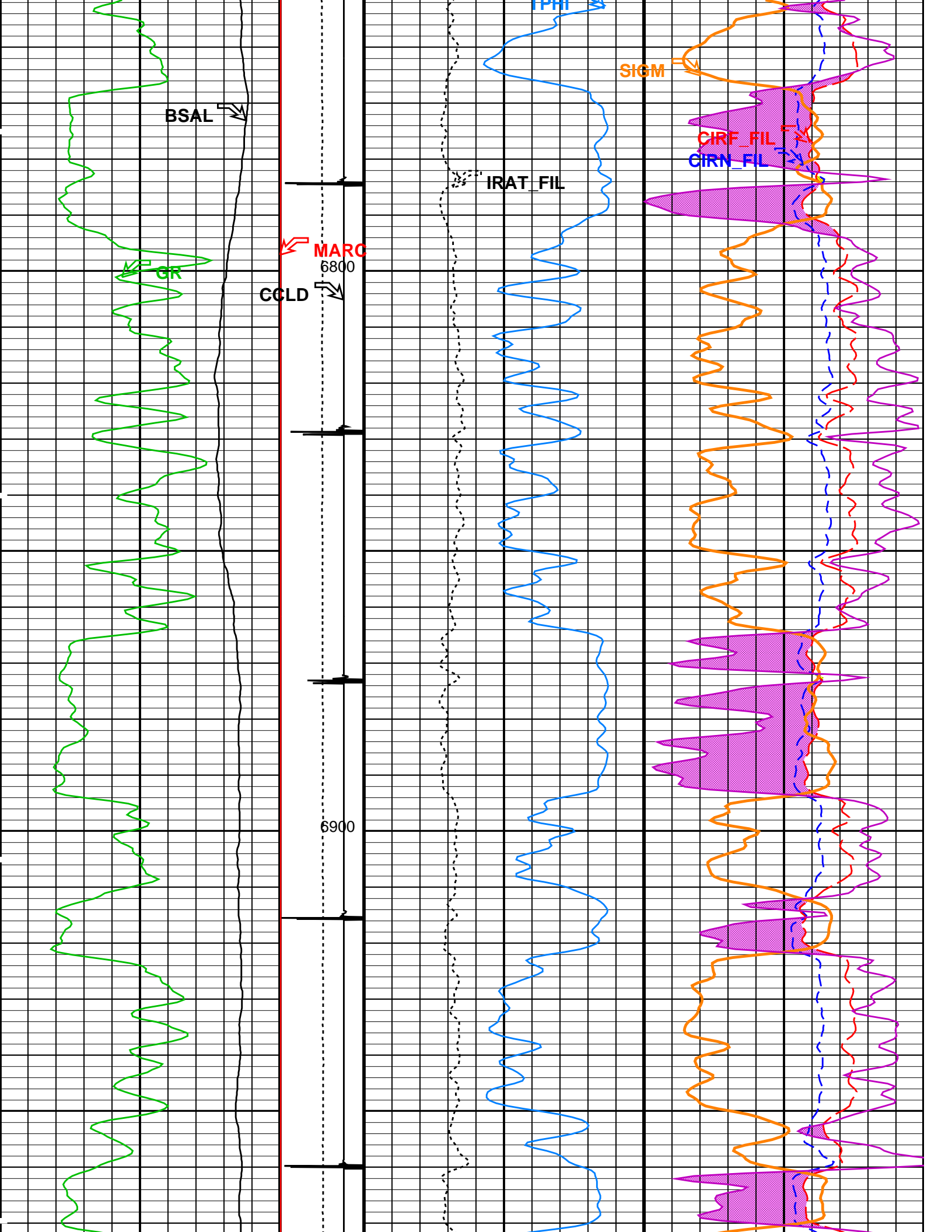


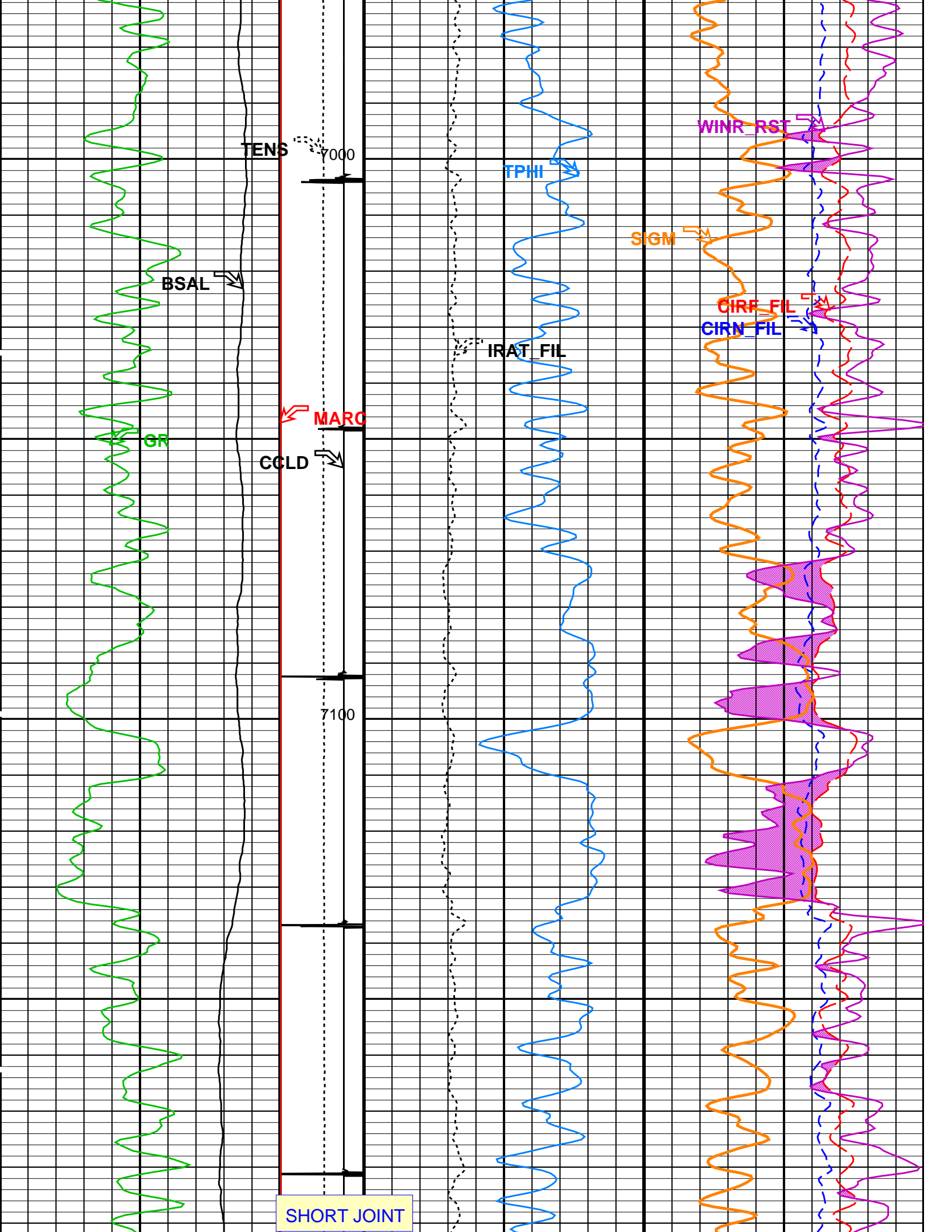


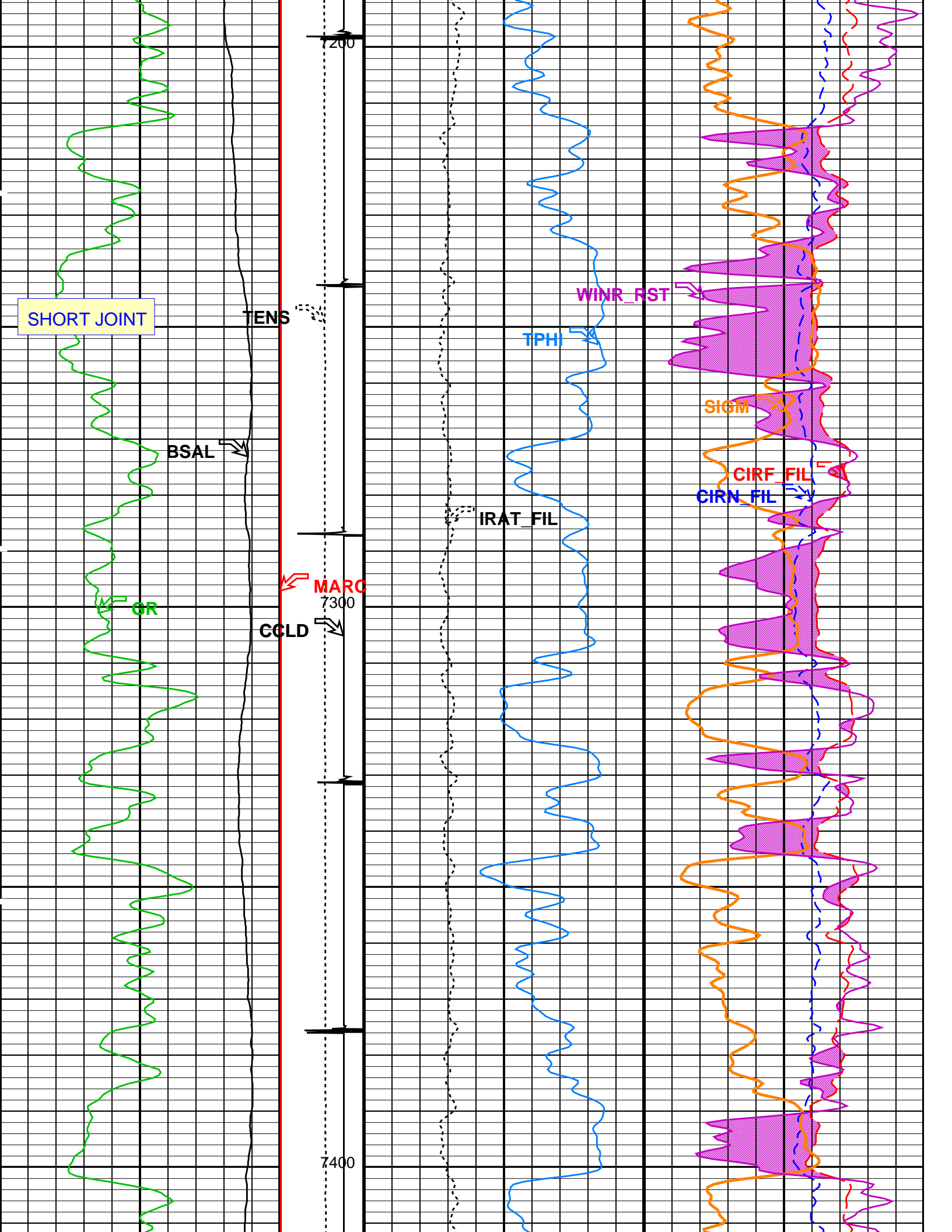


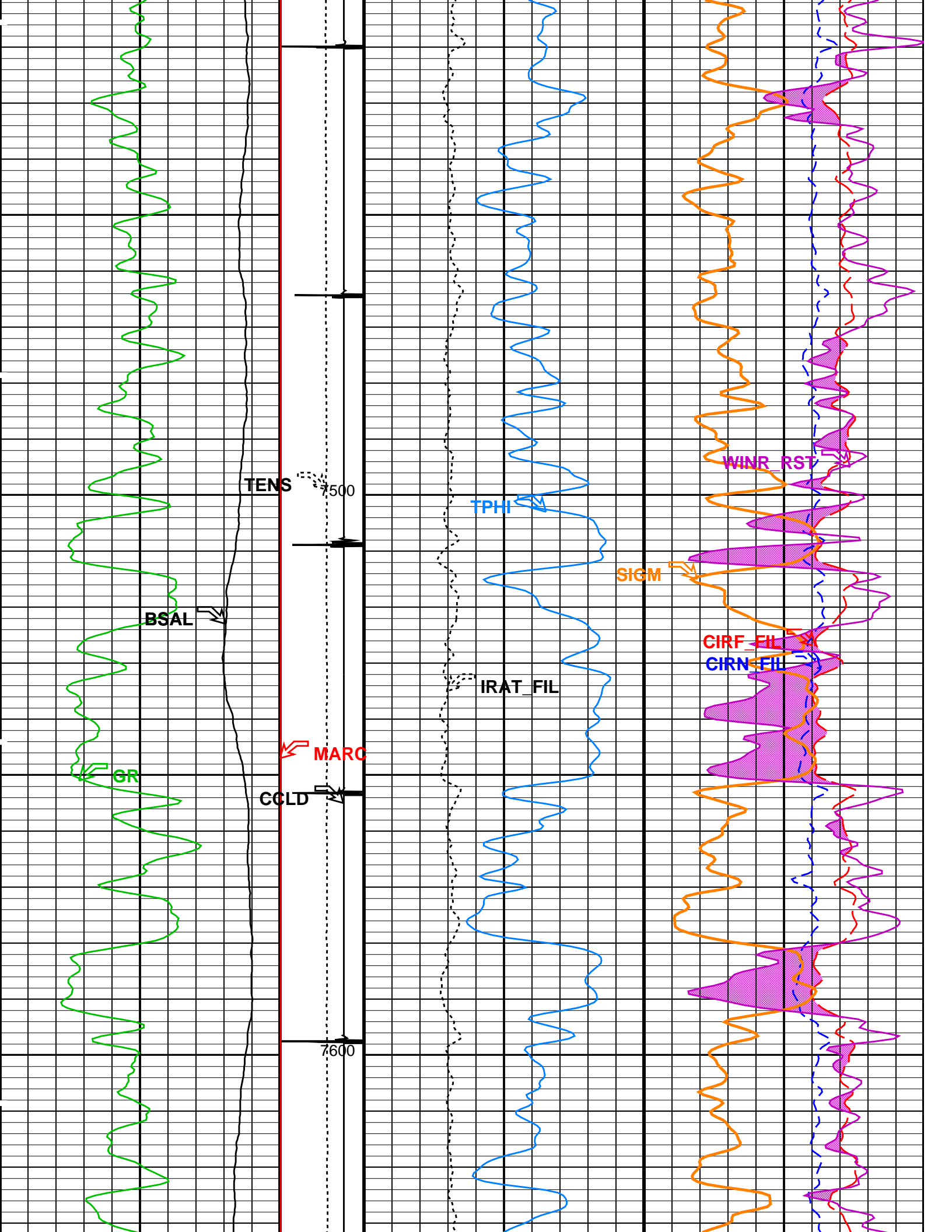


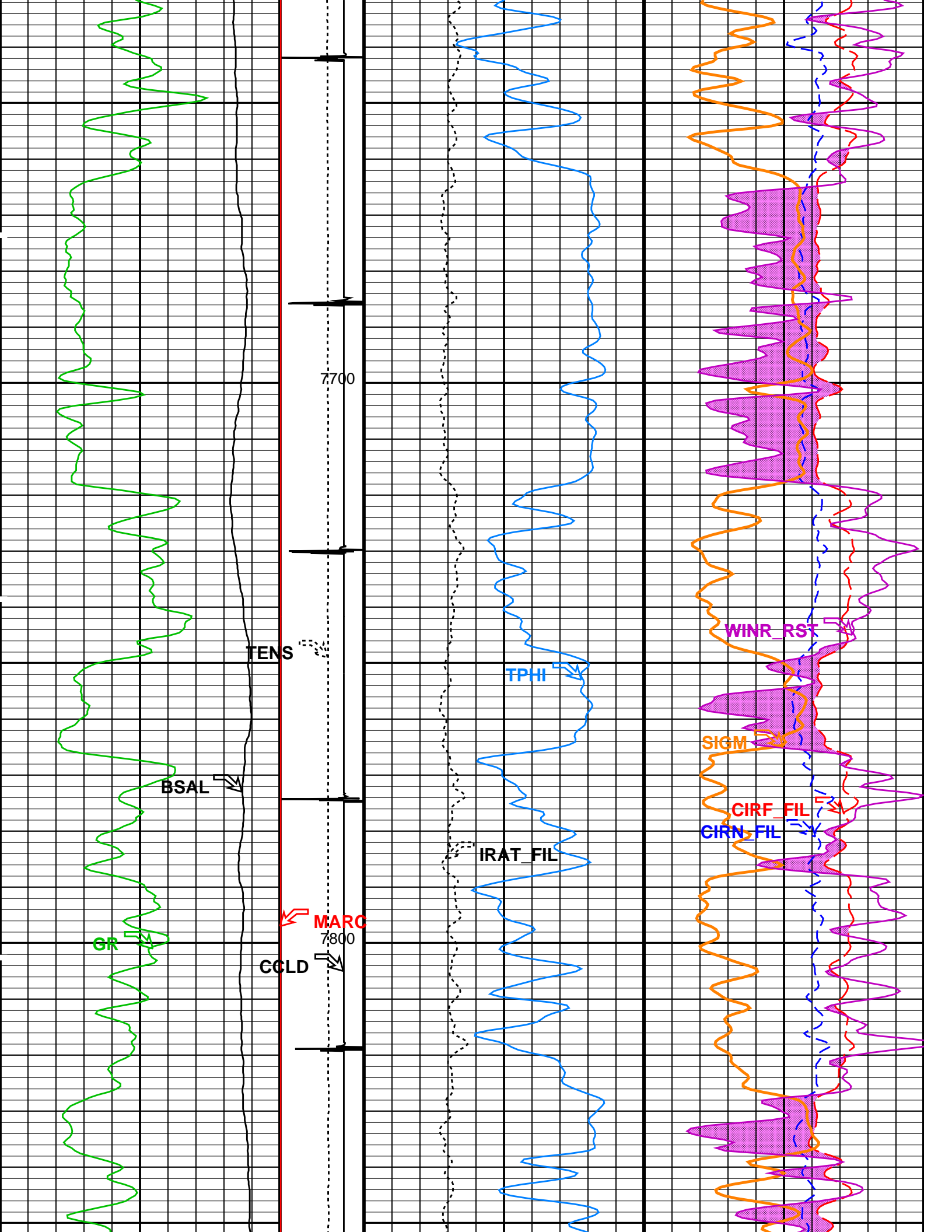


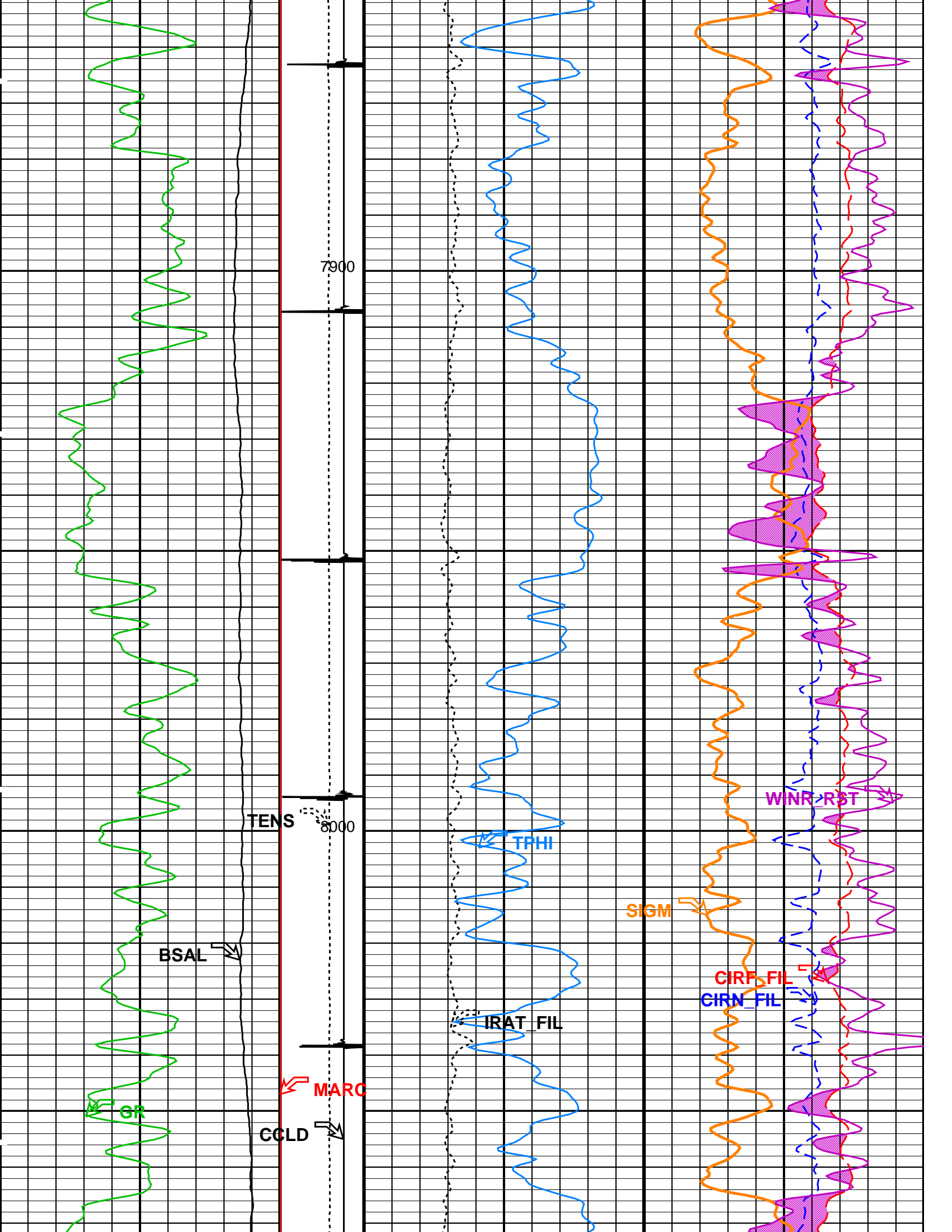


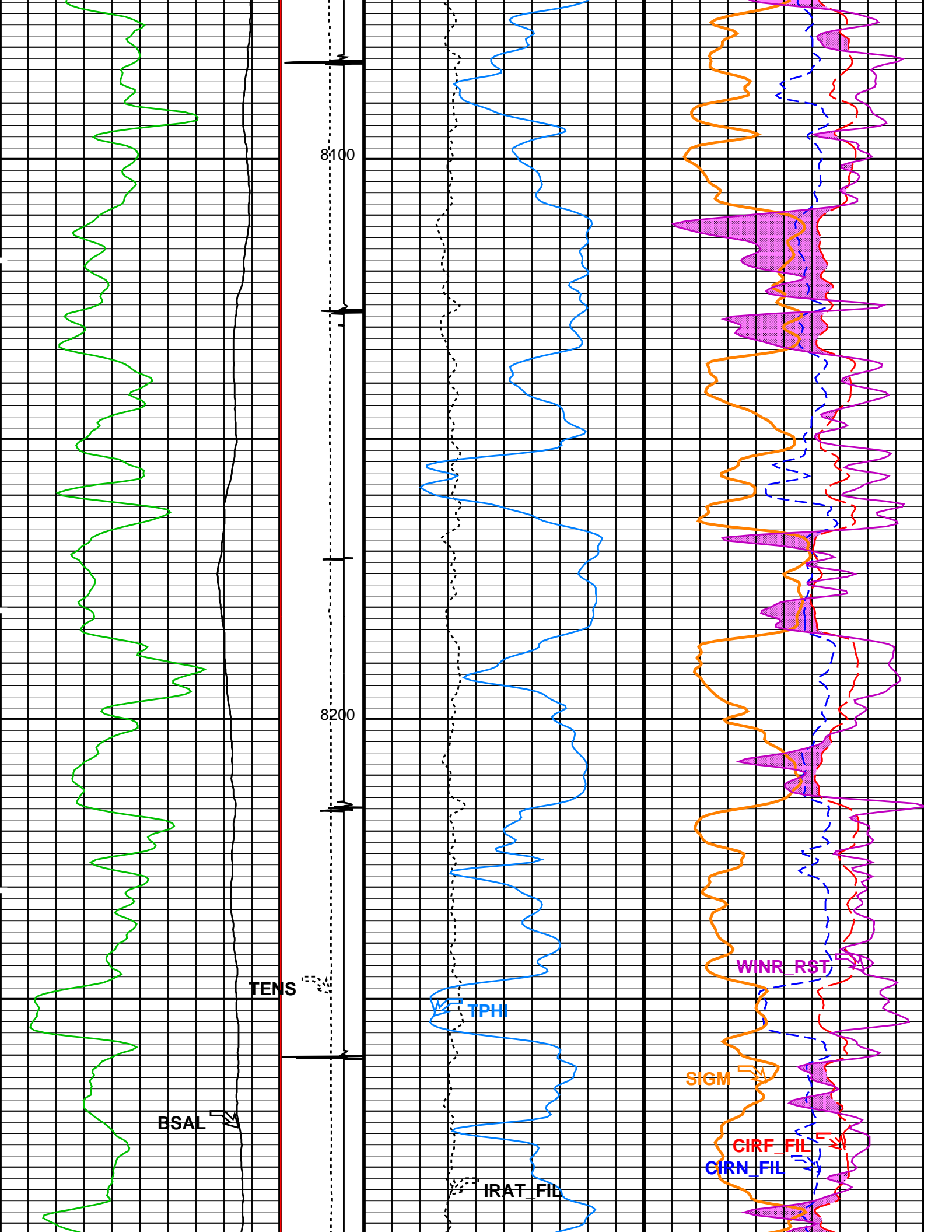


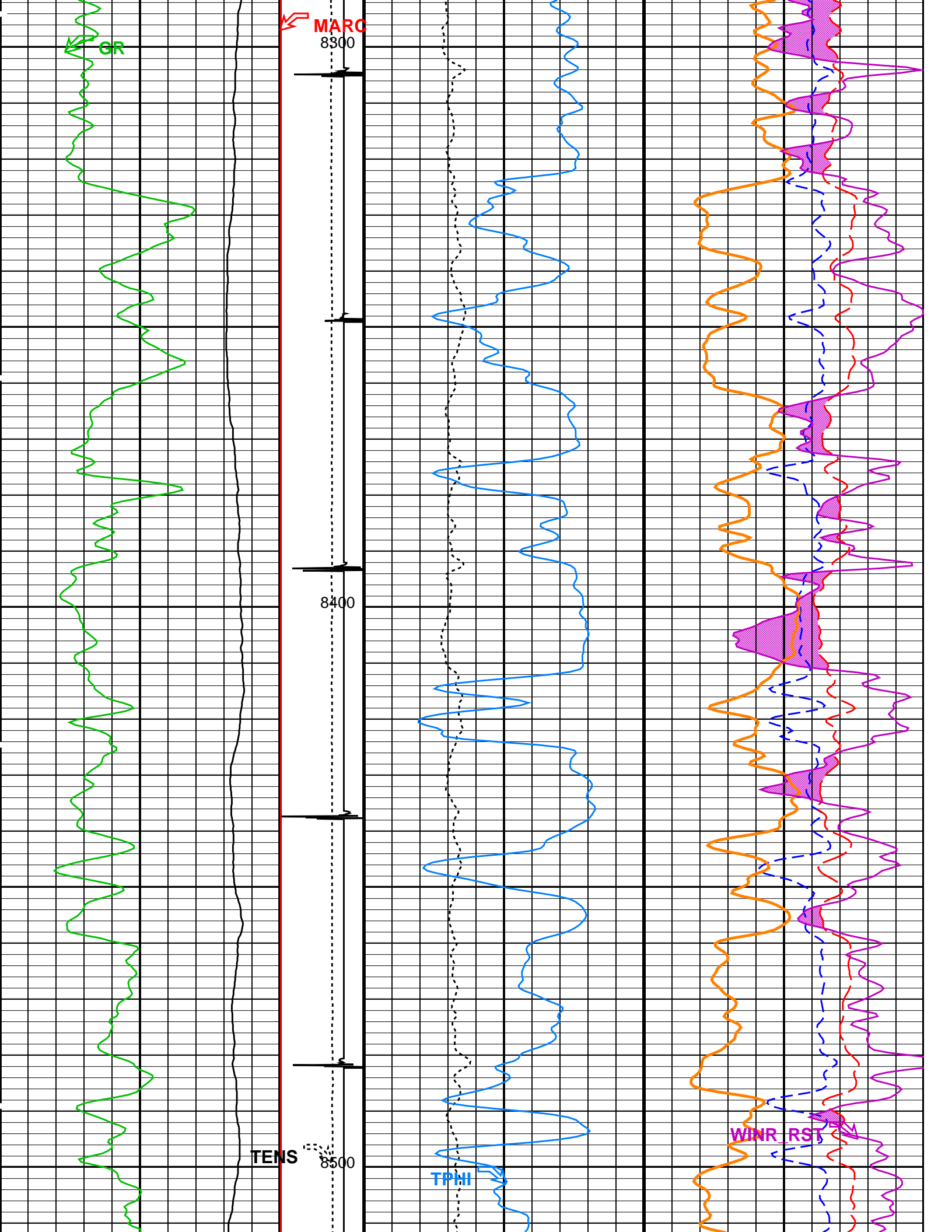


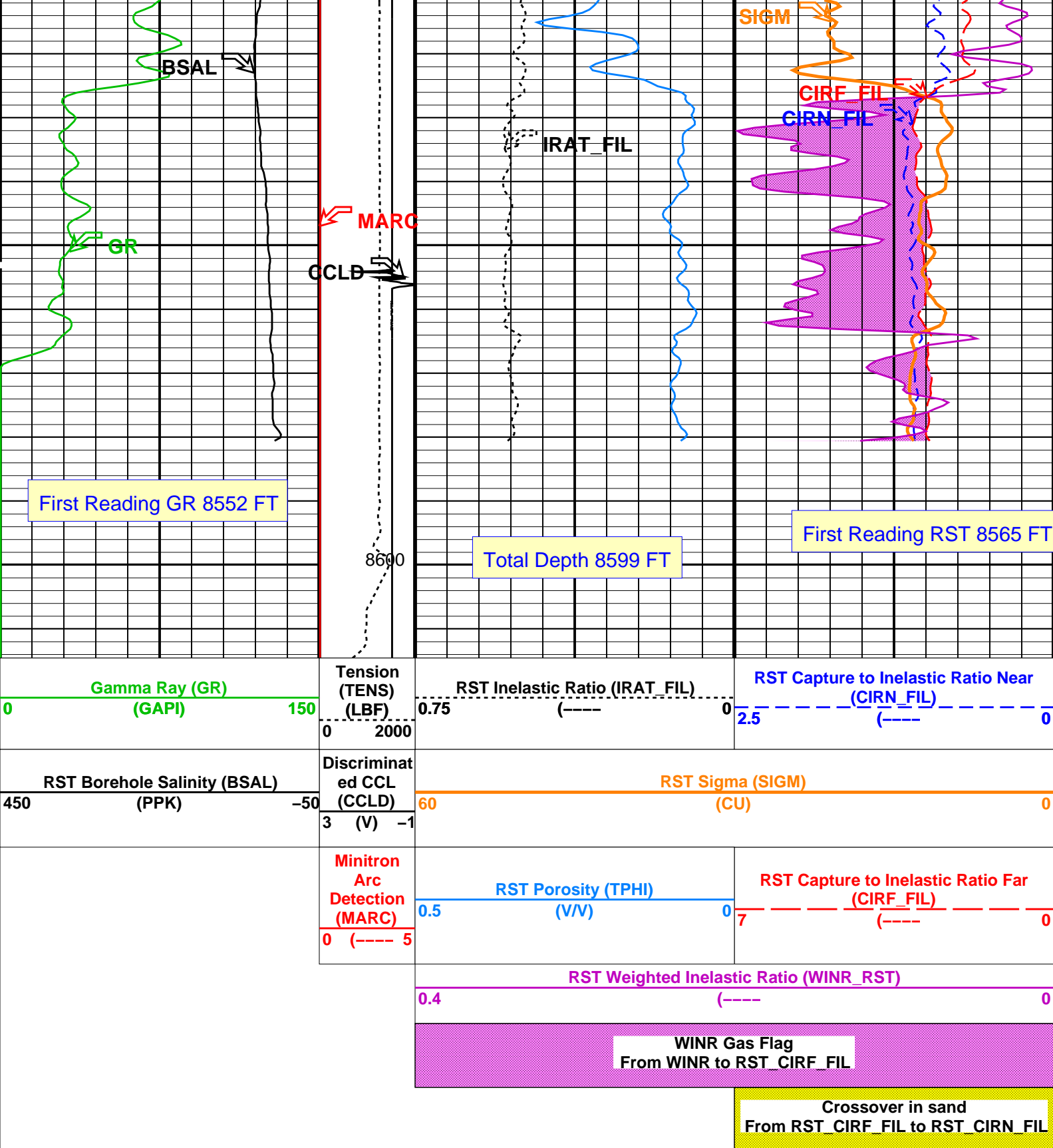












PIP SUMMARY

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

CB5D	SCMT CBL 5 ft Peak Detection Mode	338.559	PEAK	US
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	20		MV
CB5T	SCMT CBL 5 ft Fixed Threshold Level	45		US
CBLG	CBL Gate Width	80		MV
CBRA	CBL LQC Reference Amplitude in Free Pipe	1		
CMCF	CBL Cement Type Compensation Factor	SCAN		
CMTC	SCMT Slow Channel Multiplexer Mode	LOG		
CMTM	SCMT Operating Mode	5		
CMTF	SCMT Tool position on CAN	VCC		
CSCS	SCMT Slow Channel Index	0.255617		IN
CTHI	Casing Thickness	189		US/F
DTF	Delta-T Fluid	0		DB/F
FATT	Acoustic Attenuation due to Fluid	0.924277		
FCF	CBL Fluid Compensation Factor	1.55185		MV
GOBO	Good Bond	PEAK		
MAPD	SCMT MAP Peak Detection Mode	167.559		US
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	30		MV
MAPT	SCMT MAP Fixed Threshold Level	16.5449		DB/F
MATT	Maximum Attenuation	1		
MCCF	MAP Cement Type Compensation Factor	1.25		FT
MCi	Minimum Cemented Interval for Isolation	4.32284		MV
MMSA	MAP Minimum Sonic Amplitude	0.579149		MV
MSA	Minimum Sonic Amplitude	OFF		
PEDE	Peak Detection On/Off Switch in Playback	ALLOW		
RBC	Relative Bearing Correction Allow/Disallow	5		
VDLG	VDL Manual Gain	6.8		MRAY
ZCMT	Acoustic Impedance of Cement			

RST-C: Reservoir Saturation Pro Tool C

AIRB	Tractor Available in Tool String	NO		
BHS	RST Air Borehole	No		
BHT	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			

PSPT: Production Services Logging Platform

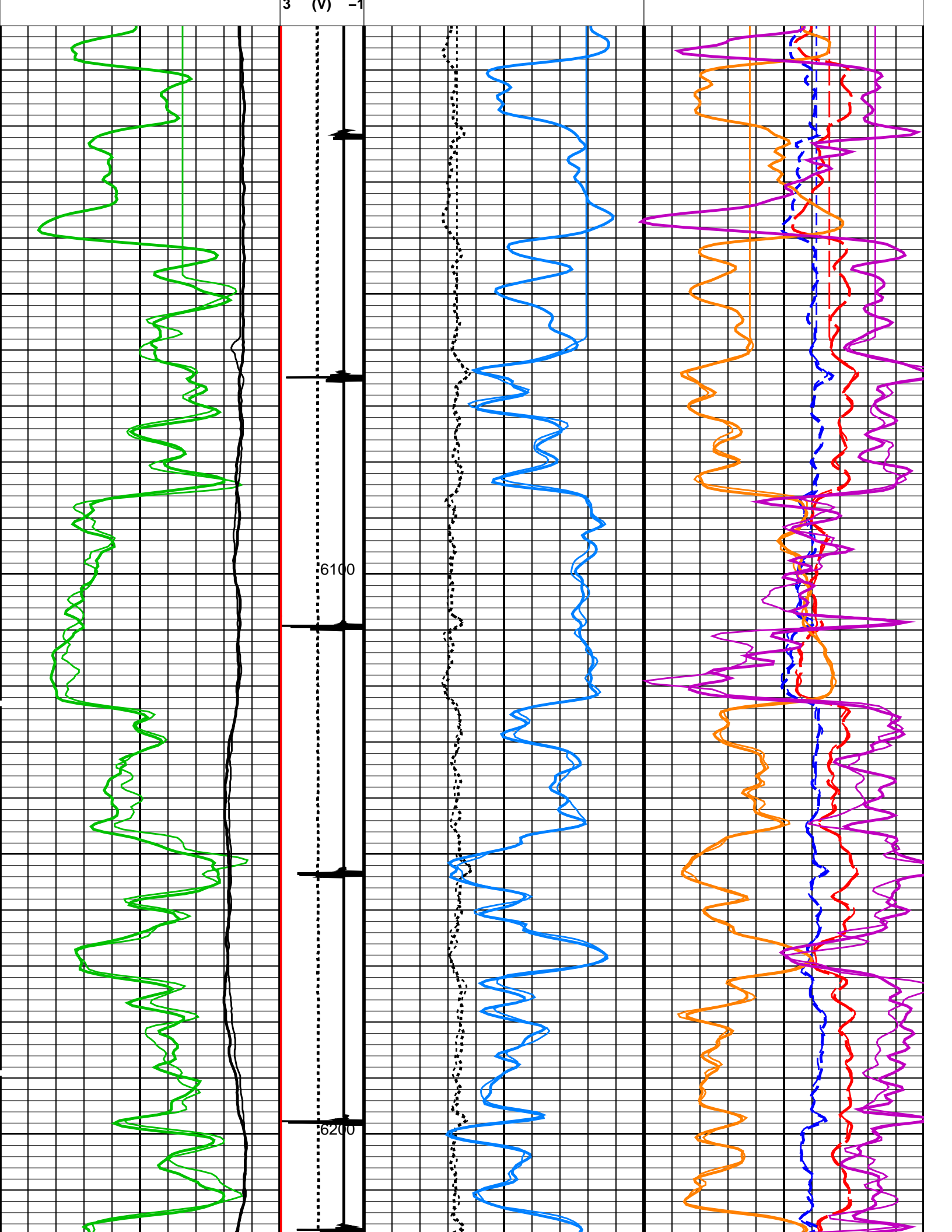
BHS	Borehole Status	CASED		
BHT	Bottom Hole Temperature (used in calculations)	212		DEGF
CSID	Casing Size I.D.	4		IN
GCSE	Generalized Caliper Selection	BS		
GDEV	Average Angular Deviation of Borehole from Normal	0		DEG
GGRD	Geothermal Gradient	0.01		DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9		
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE		
ISSBAR	Barite Mud Switch	NOBARITE		
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE		
PBPO	PBMS Tool position on CAN	2		
PCCG	PBMS CCL Gain	DB0		
PSTP	PSTC Tool Position on CAN Bus	1		
SHT	Surface Hole Temperature	68		DEGF

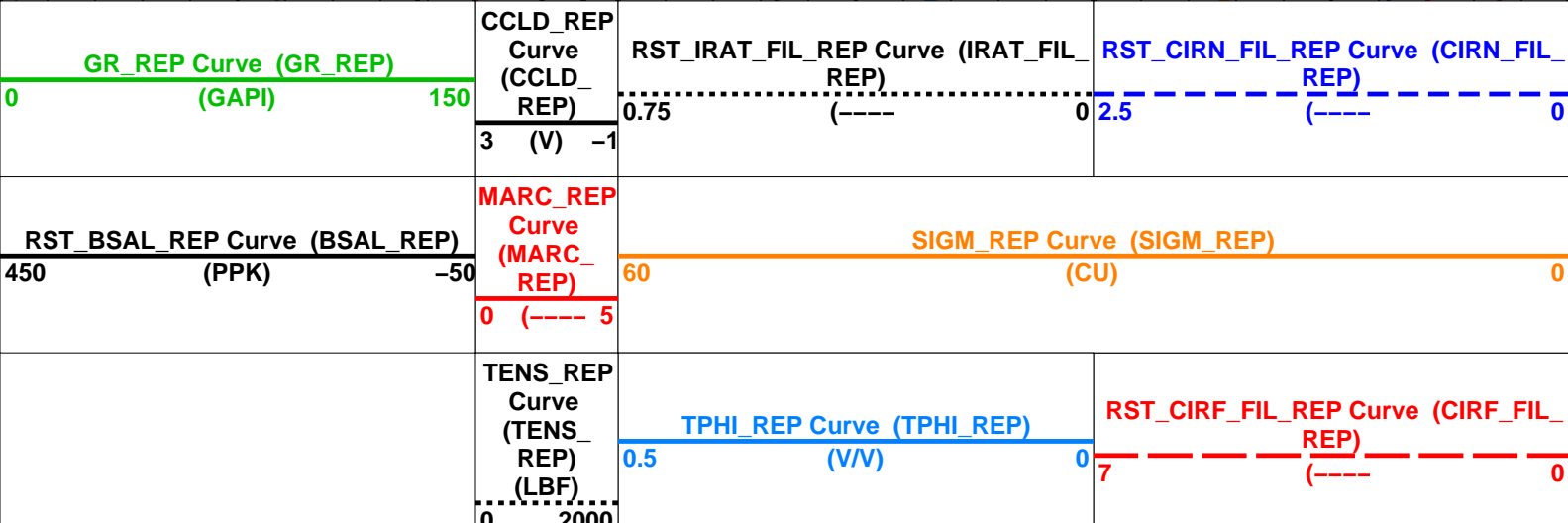
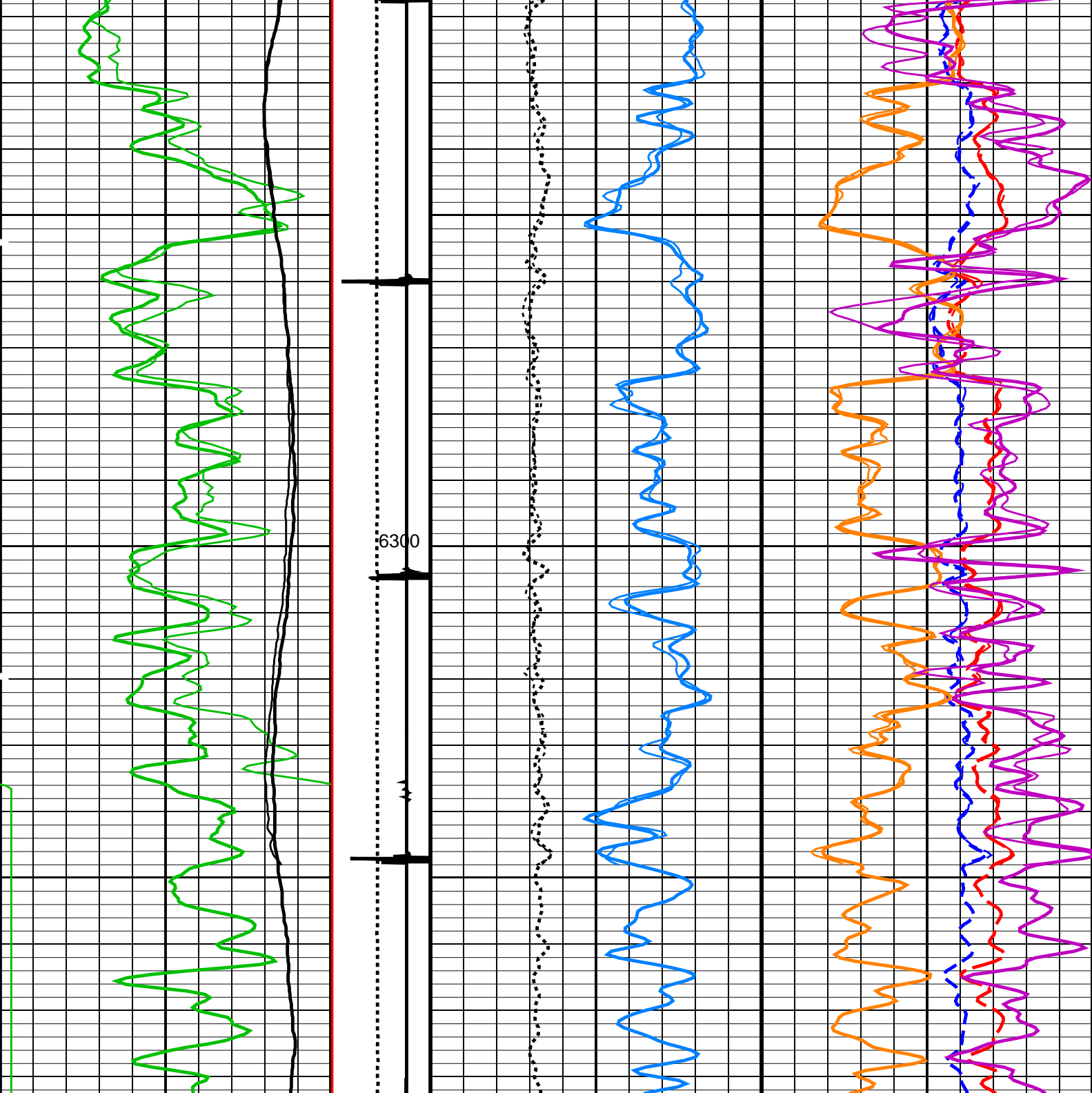
System and Miscellaneous

ALTDPCCHAN	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	5.0		FT
FLEV	Fluid Level	50.00		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	8599		FT

TDD	Total Depth – Driller	8693.00	FT
TDL	Total Depth – Logger	8599.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF
Format: RST_SIGMA_S5		Vertical Scale: 5" per 100'	
Graphics File Created: 13-Sep-2013 17:24			
OP System Version: 19C0-187			
SCMT-CB	19C0-187	RST-C	19C0-187
PSPT	19C0-187		
Input DLIS Files			
DEFAULT	SCMT_RST_PSP_018LUP	FN:17	PRODUCER 13-Sep-2013 15:06 8609.5 FT 13.7 FT
Output DLIS Files			
DEFAULT	SCMT_RST_PSP_021PUP	FN:20	PRODUCER 13-Sep-2013 17:24
Schlumberger			
REPEAT ANALYSIS RST SIGMA			
MAXIS Field Log			

Input DLIS Files			
DEFAULT	SCMT_RST_PSP_016LUP	FN:15	PRODUCER 13-Sep-2013 14:54 6381.5 FT 6045.0 FT
DEFAULT	SCMT_RST_PSP_021PUP	FN:20	PRODUCER 13-Sep-2013 17:24 8614.5 FT -25.5 FT
Output DLIS Files			
DEFAULT	SCMT_RST_PSP_023PUP	FN:22	PRODUCER 13-Sep-2013 17:30 6382.5 FT 6001.5 FT
OP System Version: 19C0-187			
SCMT-CB	19C0-187	RST-C	19C0-187
PSPT	19C0-187		
PIP SUMMARY			
Time Mark Every 60 S			
		WINR_REP Curve (WINR_RST_REP)	
		0.4	(----) 0
		<div> <div>TENS_REP Curve (TENS_REP) (LBF)</div> <div>TPHI_REP Curve (TPHI_REP) (V/V)</div> <div>RST_CIRF_FIL_REP Curve (CIRF_FIL_REP)</div> </div>	
		0.5	0 7 (----) 0
		0 2000	
RST_BSAL_REP Curve (BSAL_REP)		SIGM_REP Curve (SIGM_REP)	
450 (PPK)	-50	60	(CU) 0
		0	(----) 5
GR_REP Curve (GR_REP) (GAPI)		<div> <div>CCLD_REP Curve (CCLD_REP)</div> <div>RST_IRAT_FIL_REP Curve (IRAT_FIL_REP)</div> <div>RST_CIRN_FIL_REP Curve (CIRN_FIL_REP)</div> </div>	
0	150	0.75	0 2.5 (----) 0





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		
PSPT: Production Services Logging Platform			
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	PBMS Tool position on CAN	2	
PCCG	PBMS CCL Gain	DB0	
PSTP	PSTC Tool Position on CAN Bus	1	
SHT	Surface Hole Temperature	68	DEGF
System and Miscellaneous			
ALTDPCCHAN	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	1.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	50.00	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	8599	FT
TDD	Total Depth - Driller	8693.00	FT
TDL	Total Depth - Logger	8599.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5_REP Vertical Scale: 5" per 100' Graphics File Created: 13-Sep-2013 17:30

OP System Version: 19C0-187

SCMT-CB	19C0-187	RST-C	19C0-187
PSPT	19C0-187		

Input DLIS Files

DEFAULT	SCMT_RST_PSP_016LUP	FN:15	PRODUCER	13-Sep-2013 14:54	6381.5 FT	6045.0 FT
DEFAULT	SCMT_RST_PSP_021PUP	FN:20	PRODUCER	13-Sep-2013 17:24	8614.5 FT	-25.5 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_023PUP	FN:22	PRODUCER	13-Sep-2013 17:30
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Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	SOUTH PARACHUTE	Sub Type:	PBMS
Well:	HAGEN FEDERAL 15-16B (PC22)	Sensor:	GR
Run date:	13-Sep-2013		

PBMS Gamma Ray

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

RESISTORS FOR GR SENSOR N.33223, TOOL PBMS-BA0928. SENSOR S/N:

33223

090800

12

CFE2

GR UV Data

Rt**0

Rt**1

Rt**0

+.182000000000e+04

+.332000000000e+04

PBMS RTD Well Thermometer

Sonde Serial NB

COEFFICIENTS FOR RTD THERMOMETER PBMS-B.928 S/N:

Sensor Serial NB

928

Calib Date ddmmyy

280612

Matrix Size

16

Coeff CRC

A24E

WTemp Coeff

Tt**0

Tt**1

Tt**2

Tt**0

-.391987973189E+03

+.191346892512E+03

-.440920753451E+02

Tt**3

Tt**4

Tt**5

Tt**0

+.957191300908E+01

-.711421725686E+00

0.0

Client: ENCANA OIL & GAS (USA) INC

Tool:

PSP

Field: SOUTH PARACHUTE

Sub Type:

PBMS

Well: HAGEN FEDERAL 15-16B (PC22)

Sensor:

CQG

Run date: 13-Sep-2013

PBMS Quartz Gauge type F

Sonde Serial NB

COEFFICIENTS FOR CQG PBMS-B.928 S/N:

Sensor Serial NB

928

Calib Date ddmmyy

280612

Matrix Size

66

Coeff CRC

9DC3

Pres Coeff

Fb**0

Fb**1

Fb**2

Fc**0	+714463802232E+04	+183434658655E-01	-156620073569E-06
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Fc**1	-100638308957E+01	-119899563644E-04	-912155899025E-10
-------	-------------------	-------------------	-------------------

Fc**2	+936268101283E-06	+423898071451E-10	+958076371919E-15
-------	-------------------	-------------------	-------------------

Fc**3	+185123362373E-11	+203107925433E-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	-746577997611E-10	-588773826860E-15	-622250441458E-19
-------	-------------------	-------------------	-------------------

Fc**1	-120636521092E-15	+400325894750E-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

928

Calib Date ddmmyy

280612

Matrix Size

66

Coeff CRC

283B

Temp Coeff

Fc**0

Fc**1

Fc**2

Fb**0	+117016867873E+03	-284359629614E-03	+604391180345E-08
-------	-------------------	-------------------	-------------------

Fb**1	-598309140812E-02	+182731130848E-07	+160166486172E-12
-------	-------------------	-------------------	-------------------

Fb**2	-307621454576E-07	+300601550309E-12	+311233548560E-17
-------	-------------------	-------------------	-------------------

Fb**3	-419658736767E-12	+117473708647E-16	0.0
-------	-------------------	-------------------	-----

Fb**4	0.0	0.0	0.0
-------	-----	-----	-----

Fb**5	0.0	0.0	0.0
-------	-----	-----	-----

Fc**3

Fc**4

Fc**5

Fc**3

Fc**4

Fc**5

Fb**0	+1.14322792679E-12	+1.153807711176E-17	-.736714260866E-21
Fb**1	-.528037875456E-18	-.220337637519E-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 928
 Calib Date ddmmyy 280612
 Matrix Size 16
 Coeff CRC 093F

Clock Freq Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+3.10874009898E+05	+2.88920923041E-02	+6.97940727038E-06
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.657432344763E-10	-.412920638782E-15	+2.13369826099E-20

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 928
 Calib Date ddmmyy 280612
 Matrix Size 16
 Coeff CRC 8419

Clock Temp Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+1.15369519827E+03	-.565338877075E-02	-.333717531829E-07
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.124387135327E-12	+7.13102327208E-16	-.316084316842E-20

Company: ENCANA OIL & GAS (USA) INC

Schlumberger

Well: HAGEN FEDERAL 15-16B (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD

State:	COLORADO
	RESERVOIR SATURATION LOG SIGMA MODE GAMMA RAY-CCL