

Company: ENCANA OIL & GAS (USA) INC

Well: HAGEN FEDERAL 22-1AA (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD State: COLORADO

RESERVOIR SATURATION LOG  
SIGMA MODE  
GR-CCL

County: GARFIELD  
Field: SOUTH PARACHUTE  
Location: SHL: 643 FNL & 1808 FWL  
Well: HAGEN FEDERAL 22-1AA (PC22)  
Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 643 FNL & 1808 FWL BHL: 450 FNL & 522 FEL	Elev.: K.B. 6543.00 ft G.L. 6521.00 ft D.F. 6542.00 ft		
Permanent Datum: _____ Log Measured From: KELLY BUSHING Drilling Measured From: KELLY BUSHING	GROUND LEVEL _____ Elev.: 6521.00 ft	22.00 ft above Perm. Datum	
API Serial No. 05-045-21945-0C	Section 22	Township 7S	Range 95W

PVT DATA			
Oil Density	Run 1	Run 2	Run 3
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 22-Oct-2013

Run Number 1

Depth Driller 8735 ft

Schlumberger Depth 8655 ft

Bottom Log Interval 8621 ft

Top Log Interval 2000 ft

Casing Fluid Type FRESH WATER

Salinity

Density 8.4 lbm/gal

Fluid Level 60 ft

BIT/CASING/TUBING STRING

Bit Size 8.750 in

From 22 ft

To 8735 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade S-80

From 22 ft

To 8716 ft

Maximum Recorded Temperatures 223 degF

Logger On Bottom 22-Oct-2013 2:45

Unit Number 391 Location GRAND JUNCTION

Recorded By KIRSTIE BUNTING

Witnessed By SHANE

## 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
<b>Stretch Correction:</b>	
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.

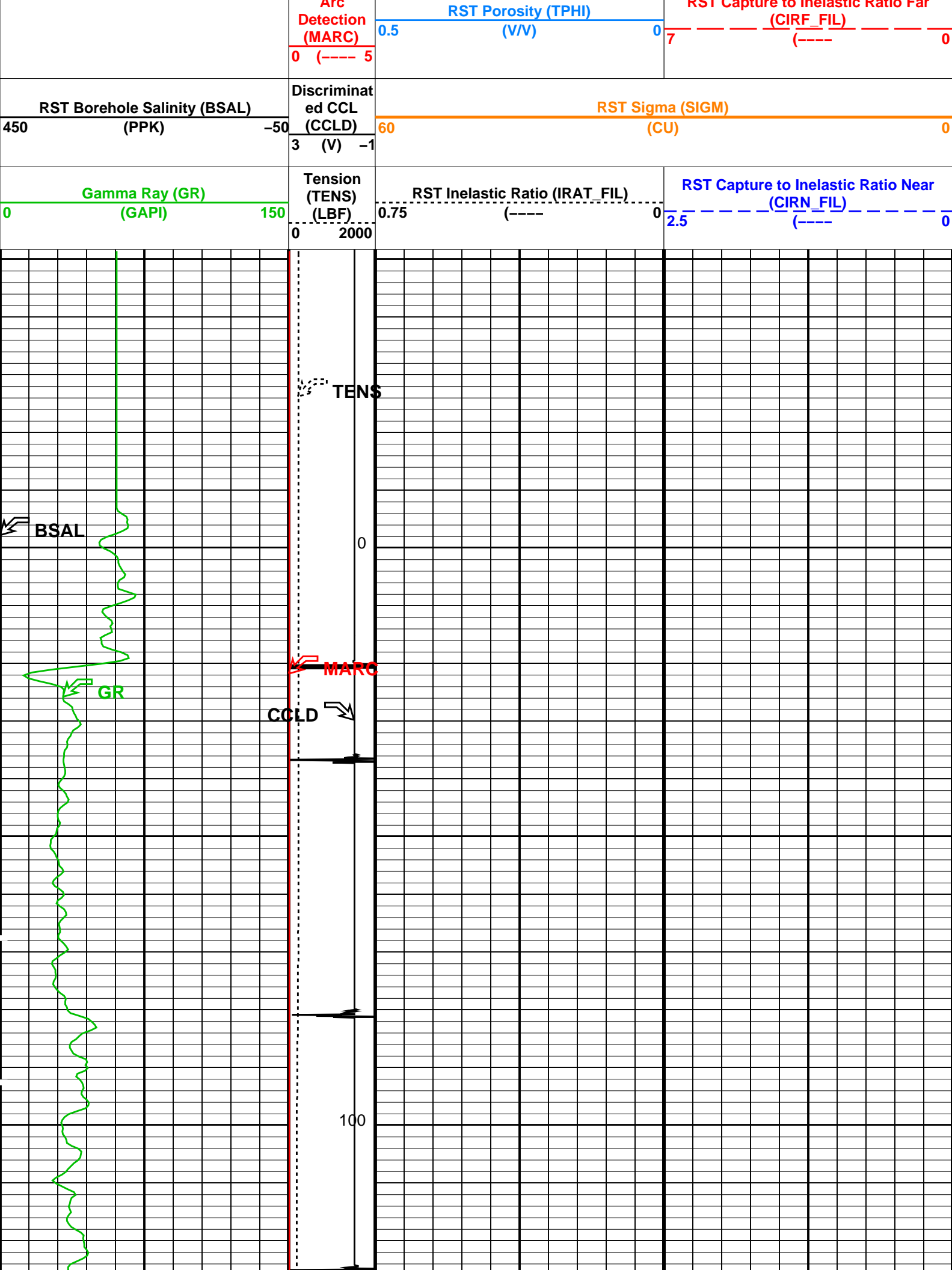
## DISCLAIMER

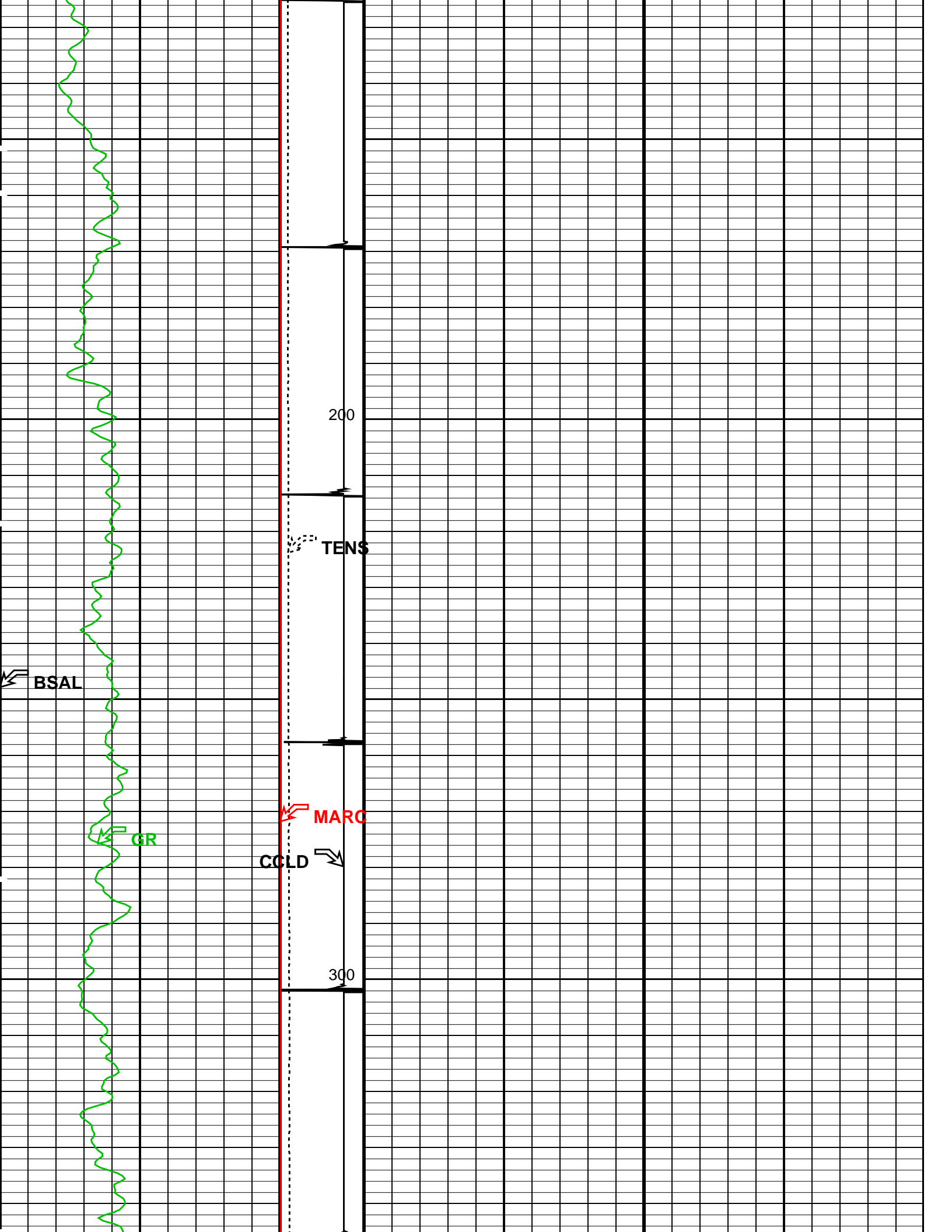
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (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.

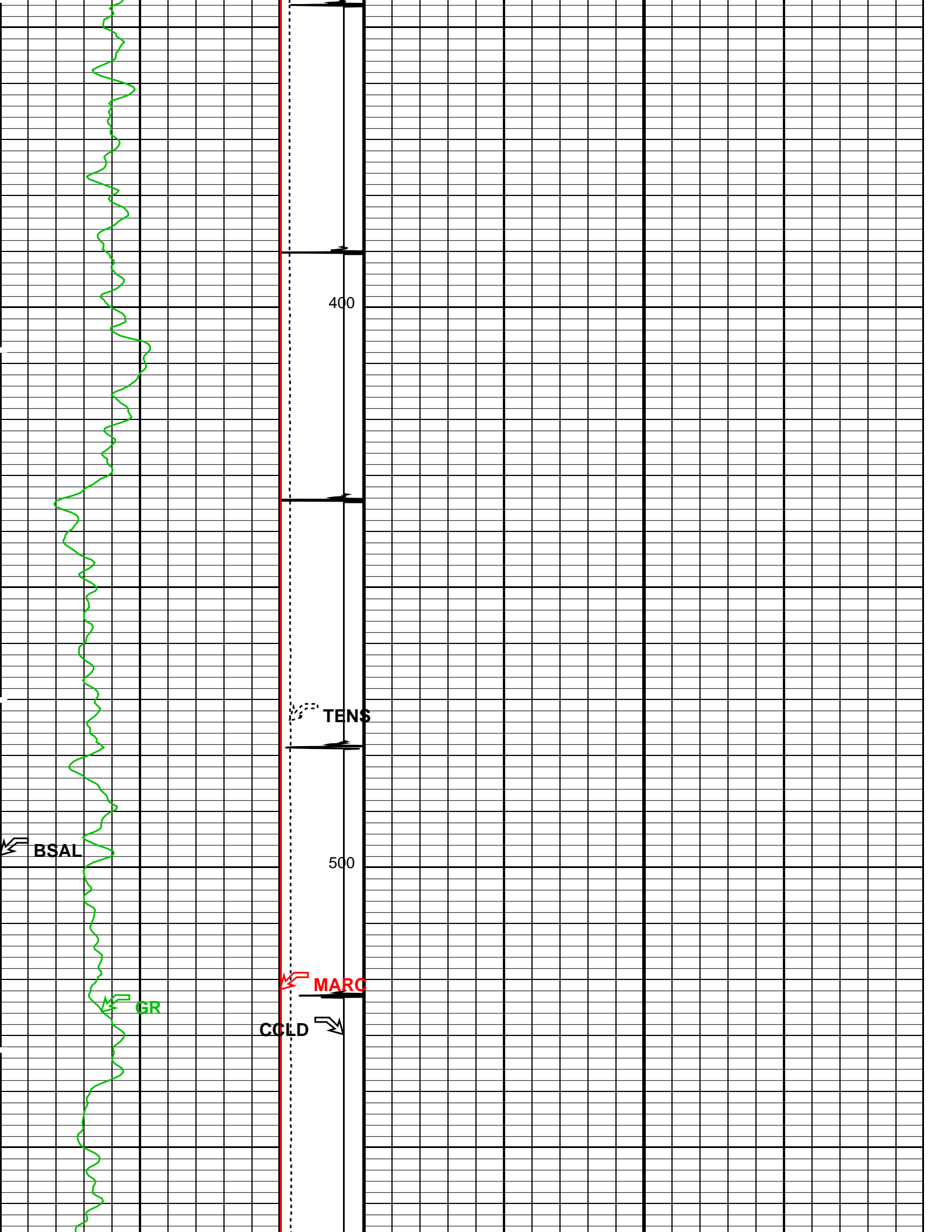
OTHER SERVICES1	OTHER SERVICES2
OS1: SLIM CEMENT MAPPING	OS1:
OS2: LOG	OS2:
OS3: CBL-VDL	OS3:
OS4: GR-CCL	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRELATED TO DOWN LOG	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE TIME: 2:15	
TIME ON BOTTOM: 2:45	
EXIT TIME: 5:00	

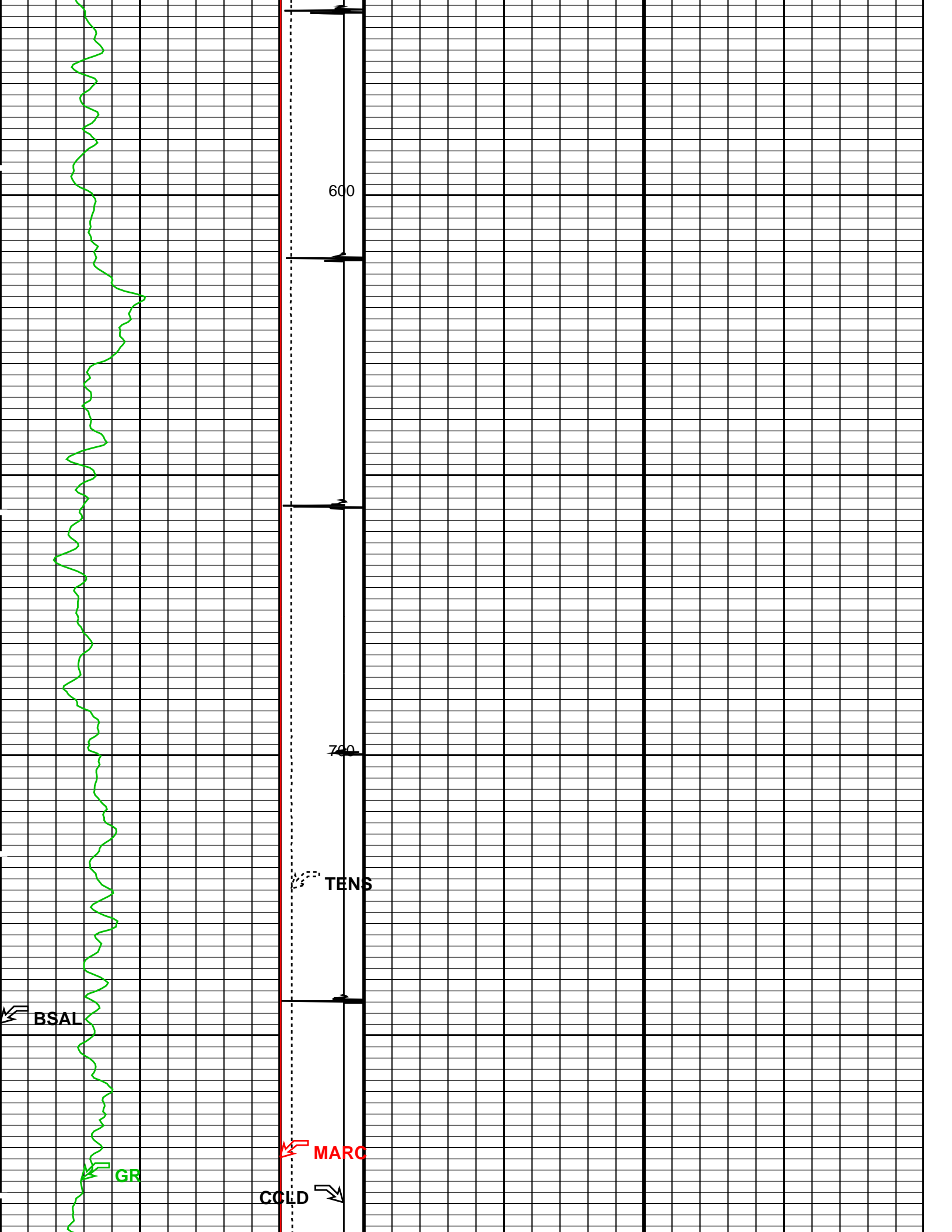
MAXIMUM RECORDED TEMPERATURE: 223 DEGF					
MAXIMUM RECORDED PRESSURE: 3324 PSIA					
SANDSTONE MATRIX					
SHORT JOINTS : 6255 FT & 7290 FT					
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY					
CREW: KBUNTING, KIRWIN, WAZIZ, KJOHNS					
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
CGF9-00158			19C0-187		
60 ft					
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
SURFACE EQUIPMENT					
WITM-A PSC_16MHZ					
DOWNHOLE EQUIPMENT					
MH-22					
MH-22					
Detail MT					
AH-38	TelStatus		51.5		51.8
PSPT	CTEM				51.5
PSC-A					
PSPT-B 928					
PSTC-A					
PBMS-B	GR		47.8		
CQG_F_Mano					
RTD_Thermometer					
GR	Well_Temp		44.8		
CCL	CQG Manom		44.5		
PBMS	CCL		44.0		
	PBMS PSTC		43.3		
RST-C					43.3
RSCH-A 197					
RSC-E					
RSS-A 378					
RSXH-A 425					
RSX-E					

### BST Capture to Inelastic Ratio For

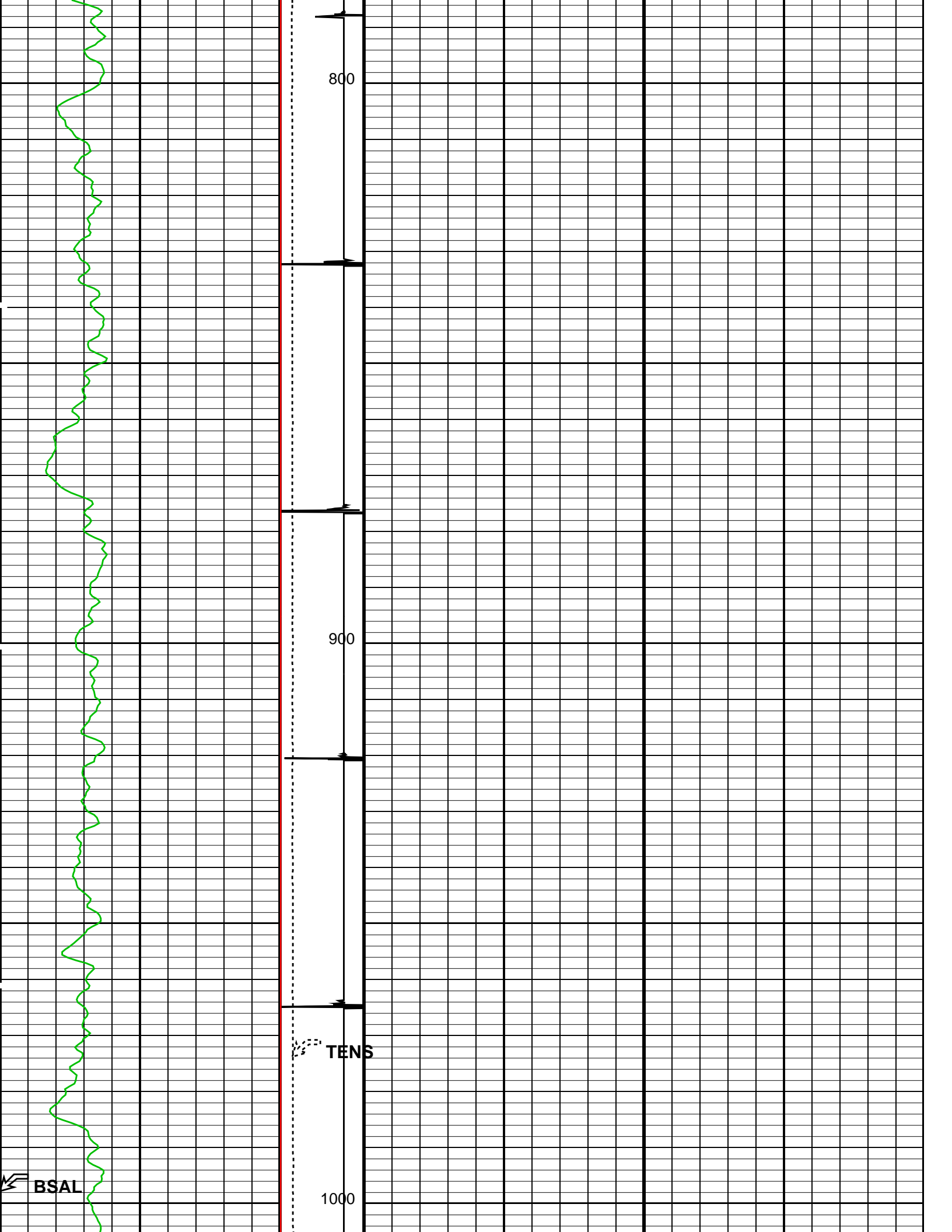


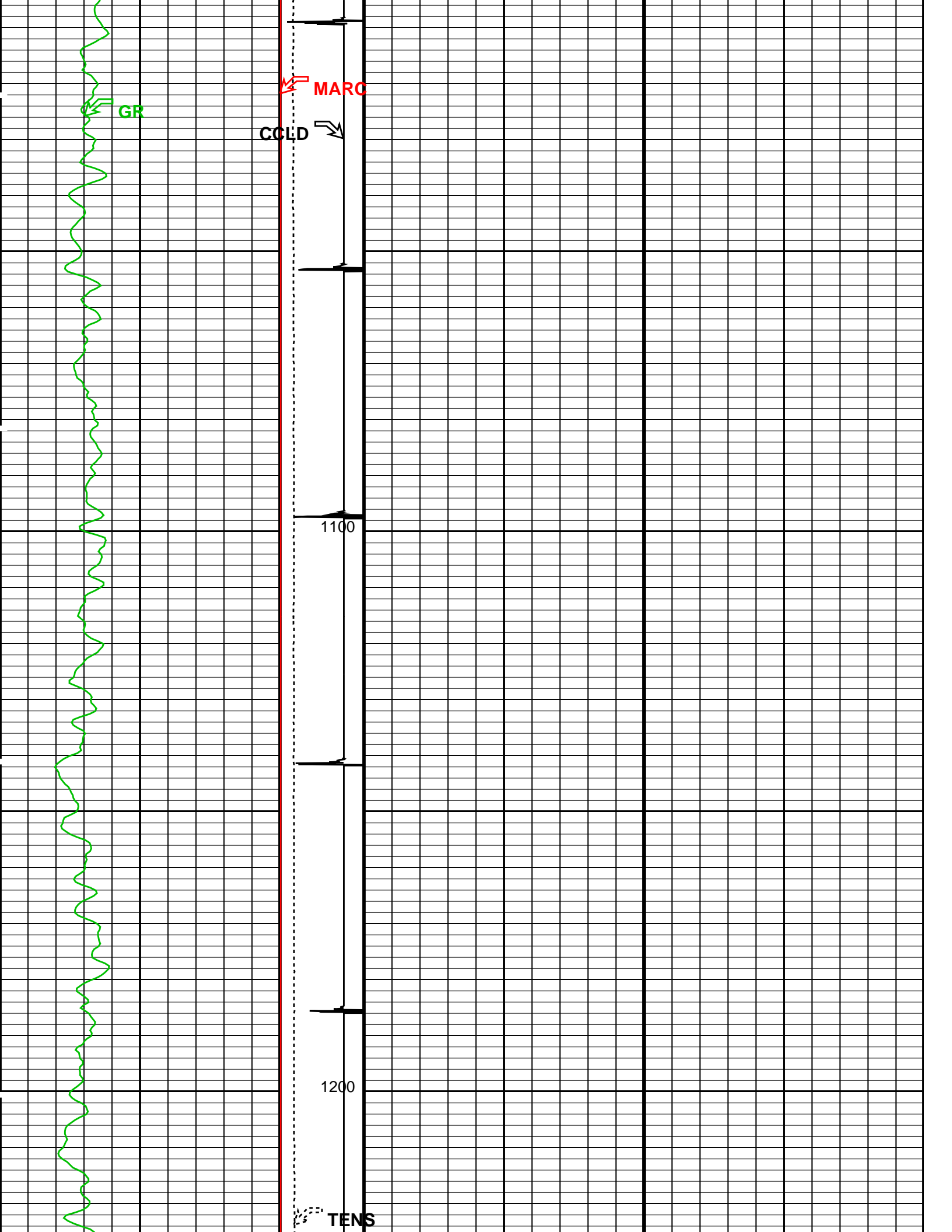


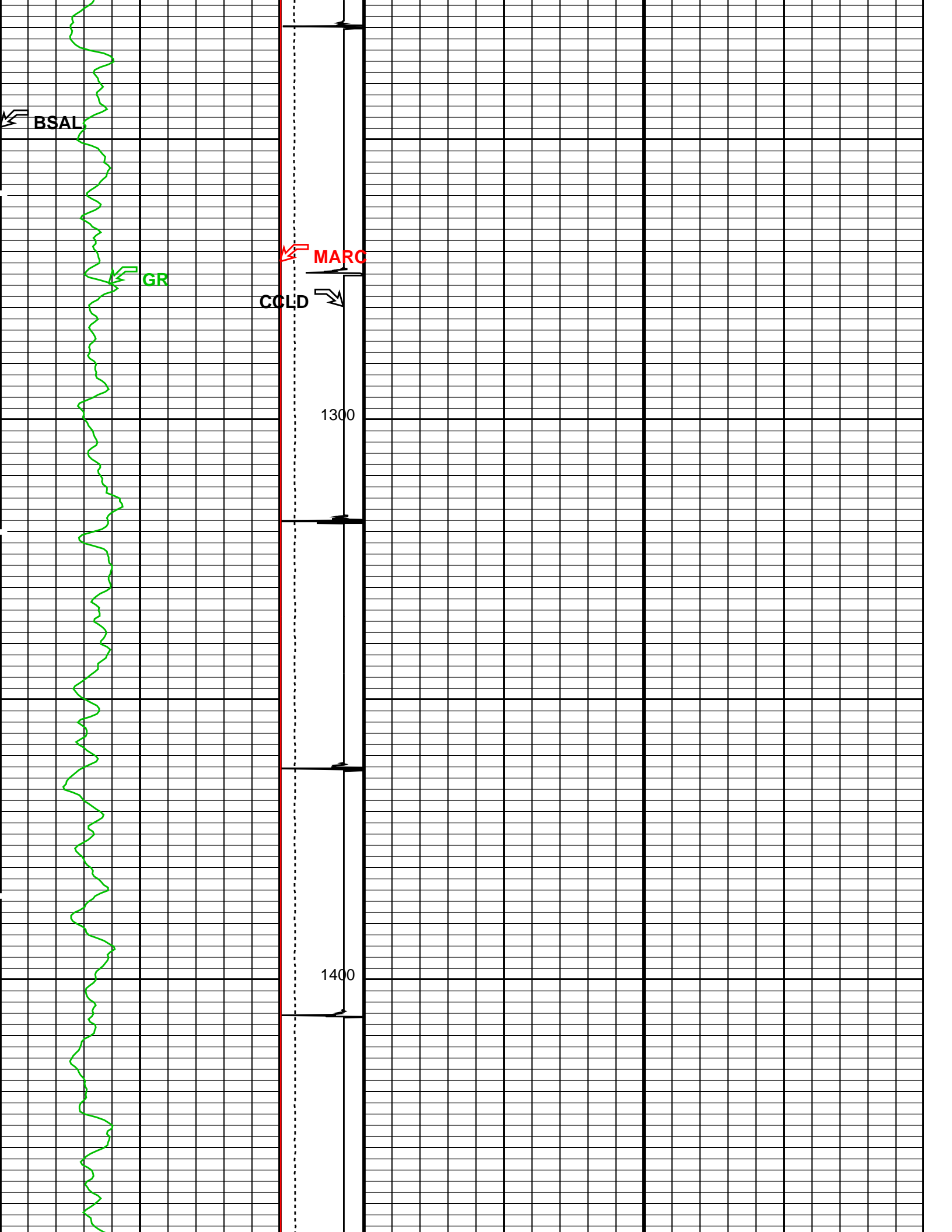


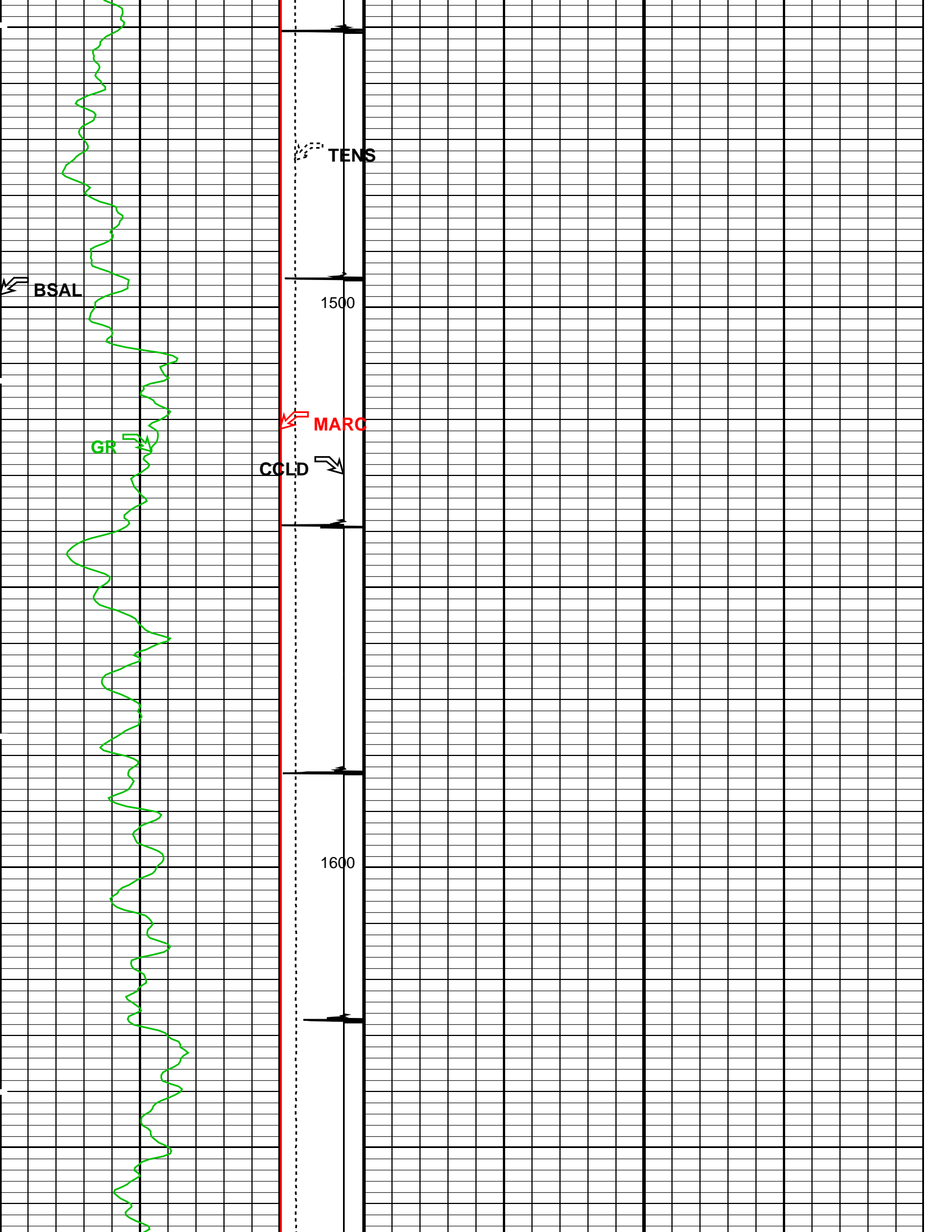


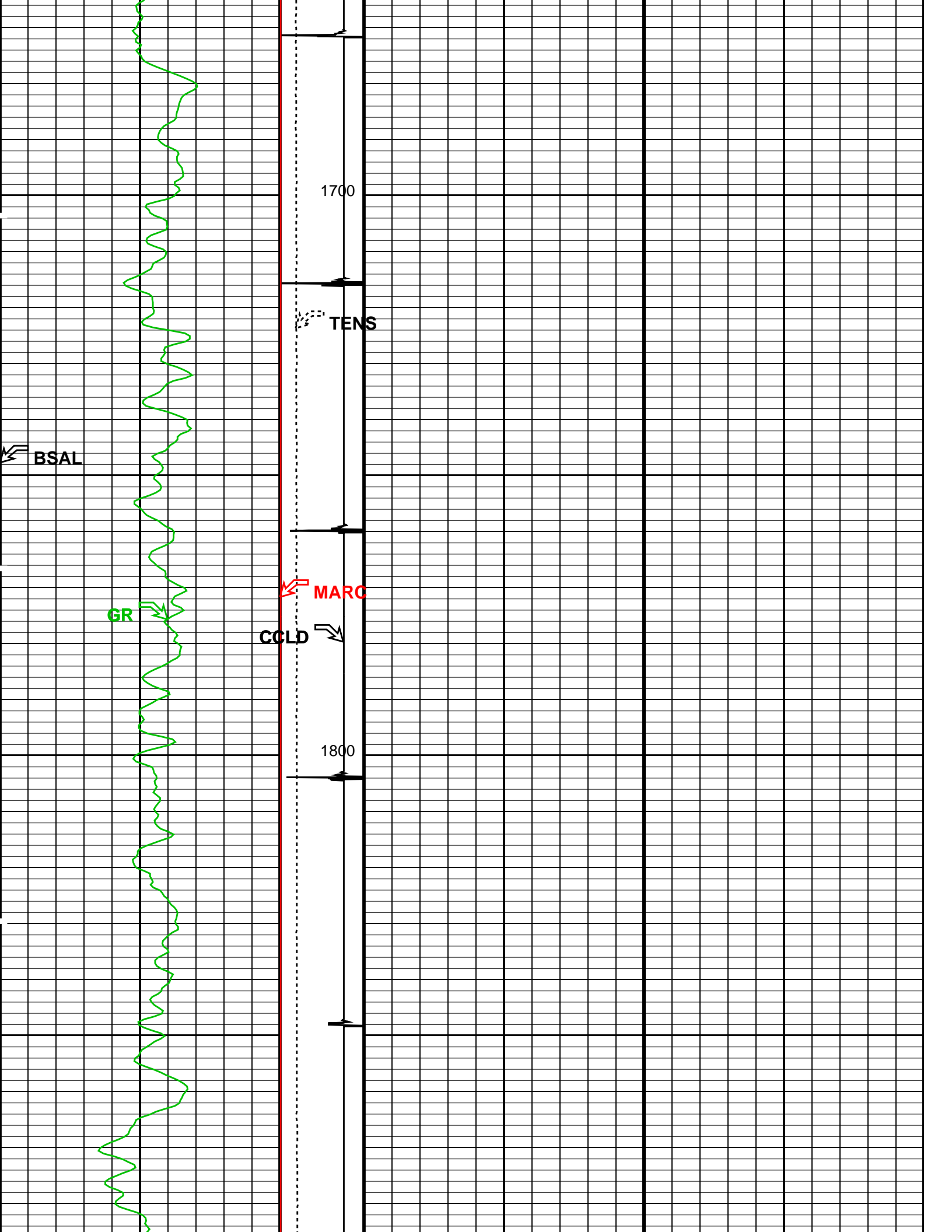


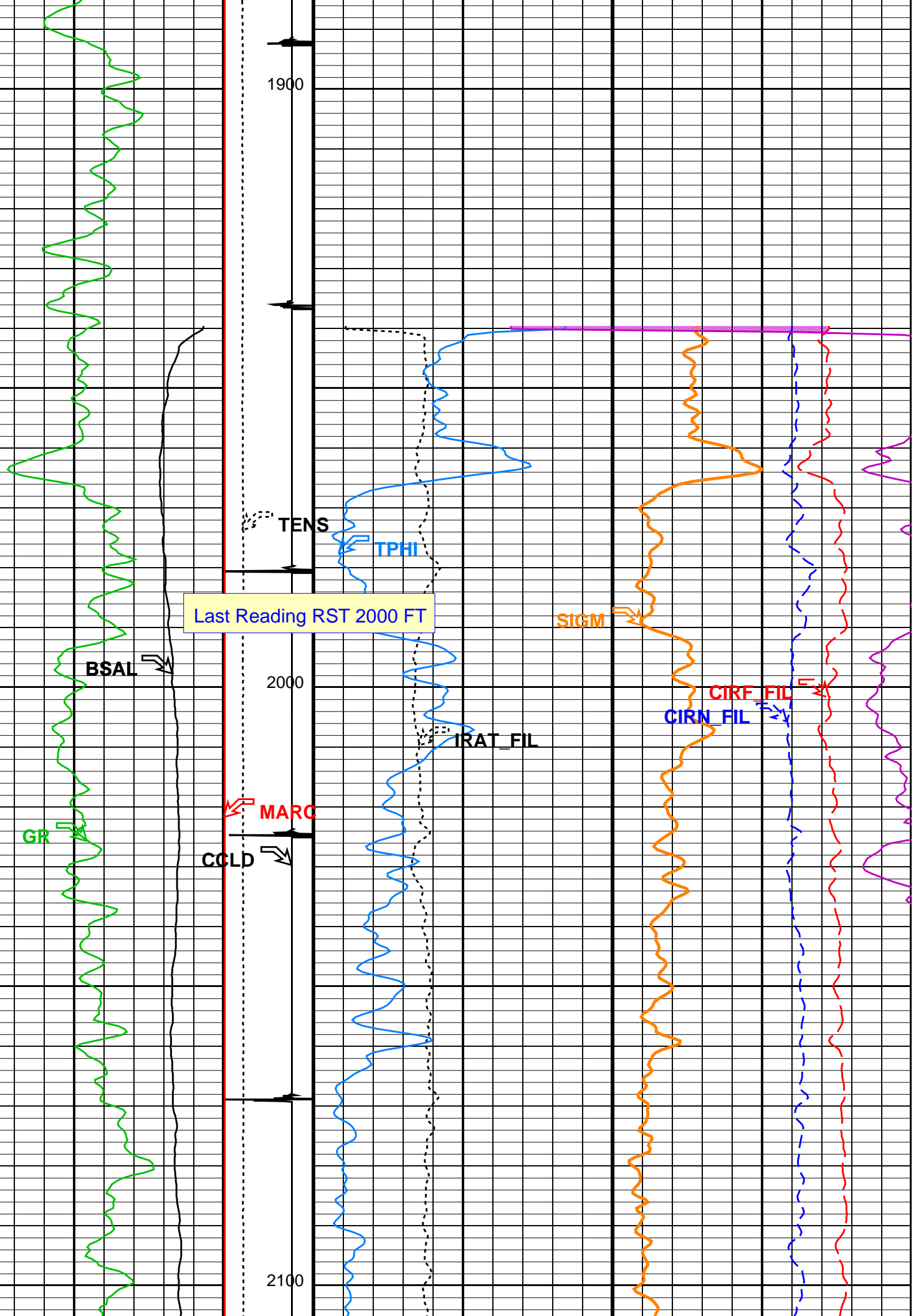


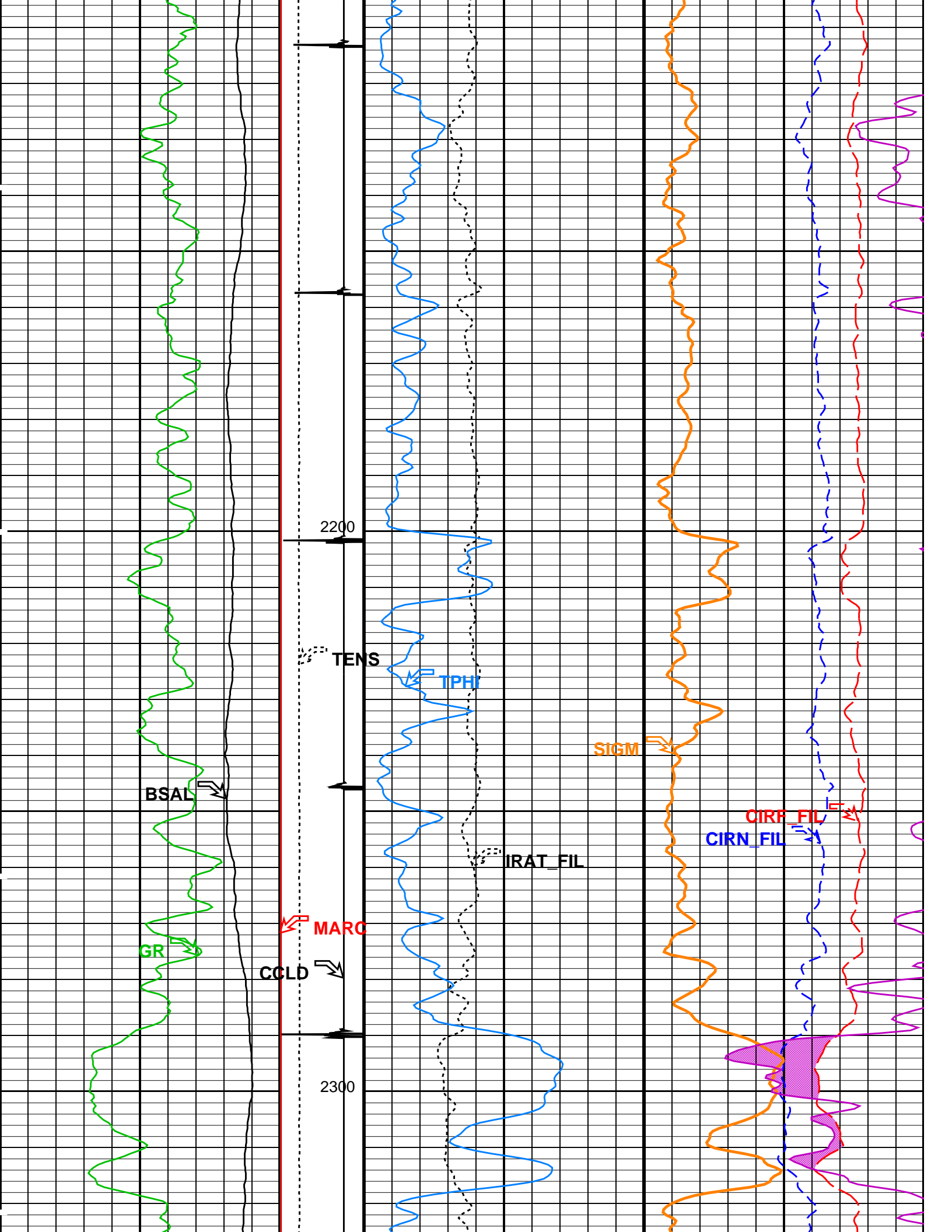


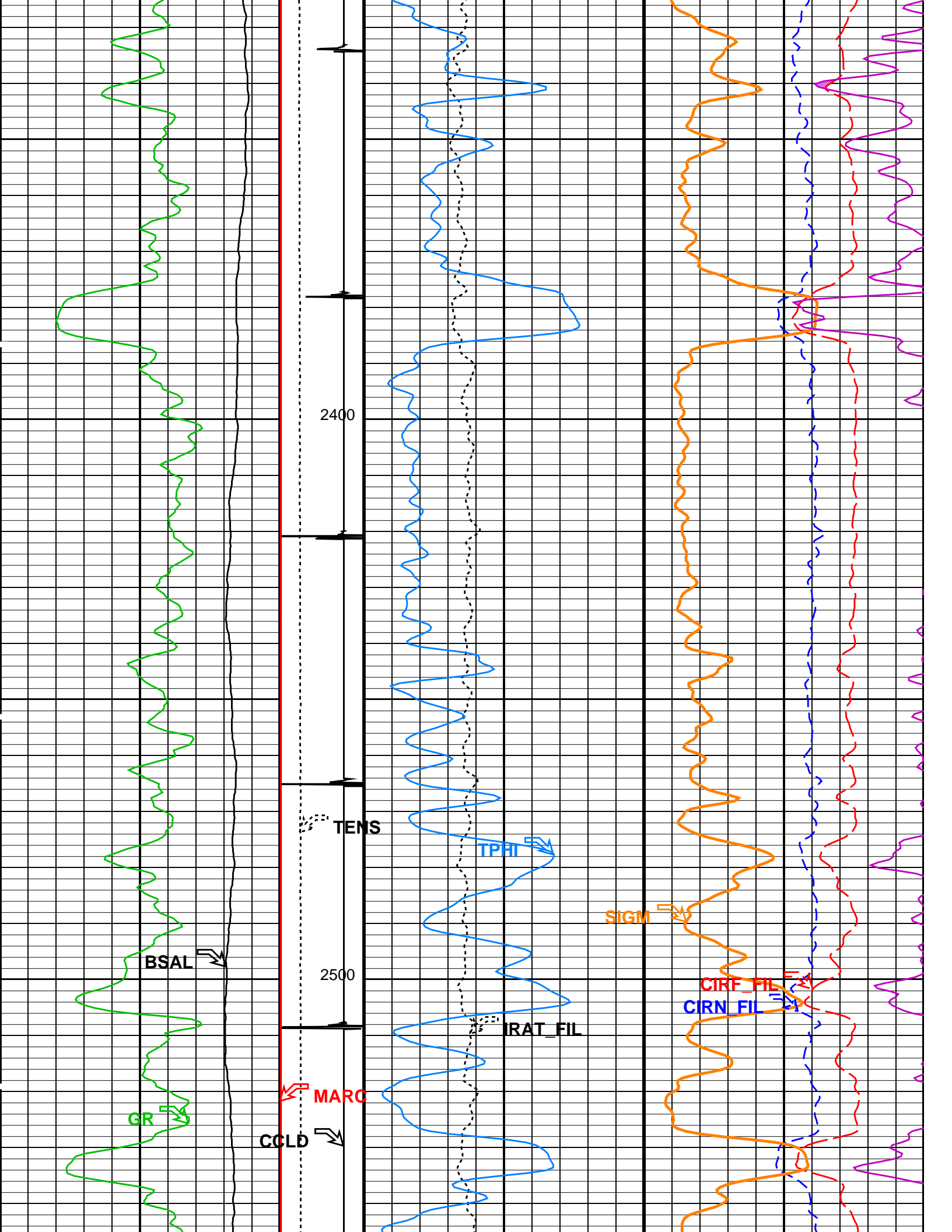




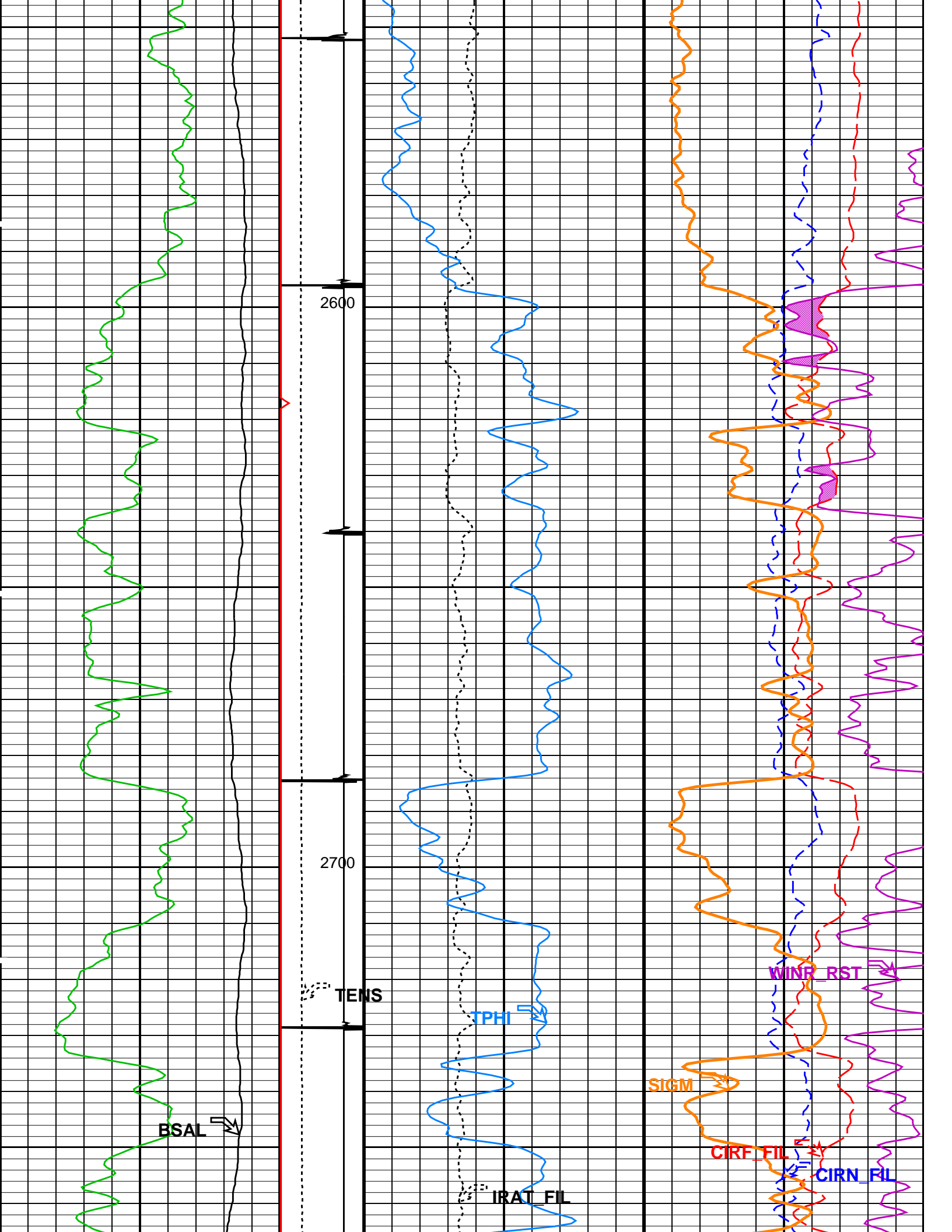


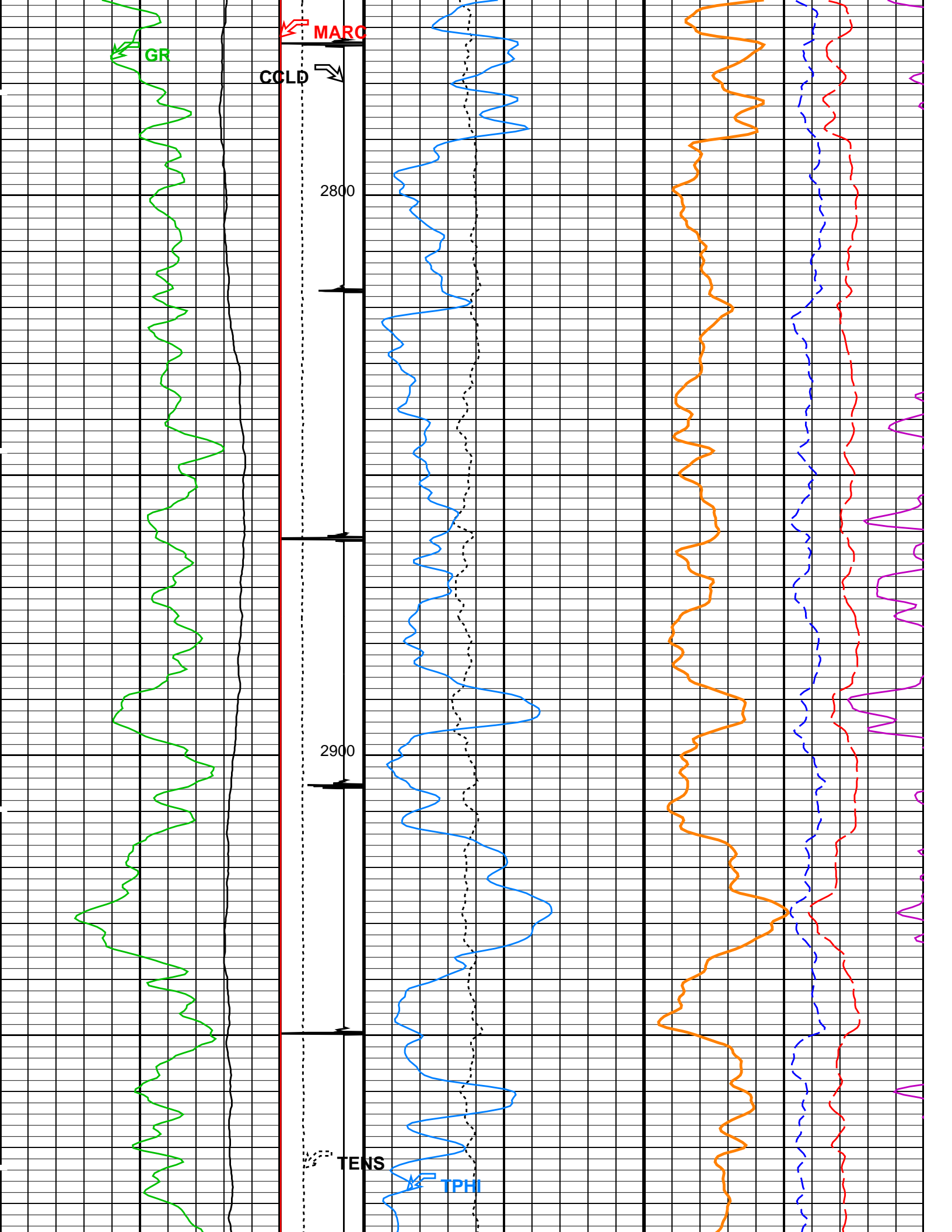


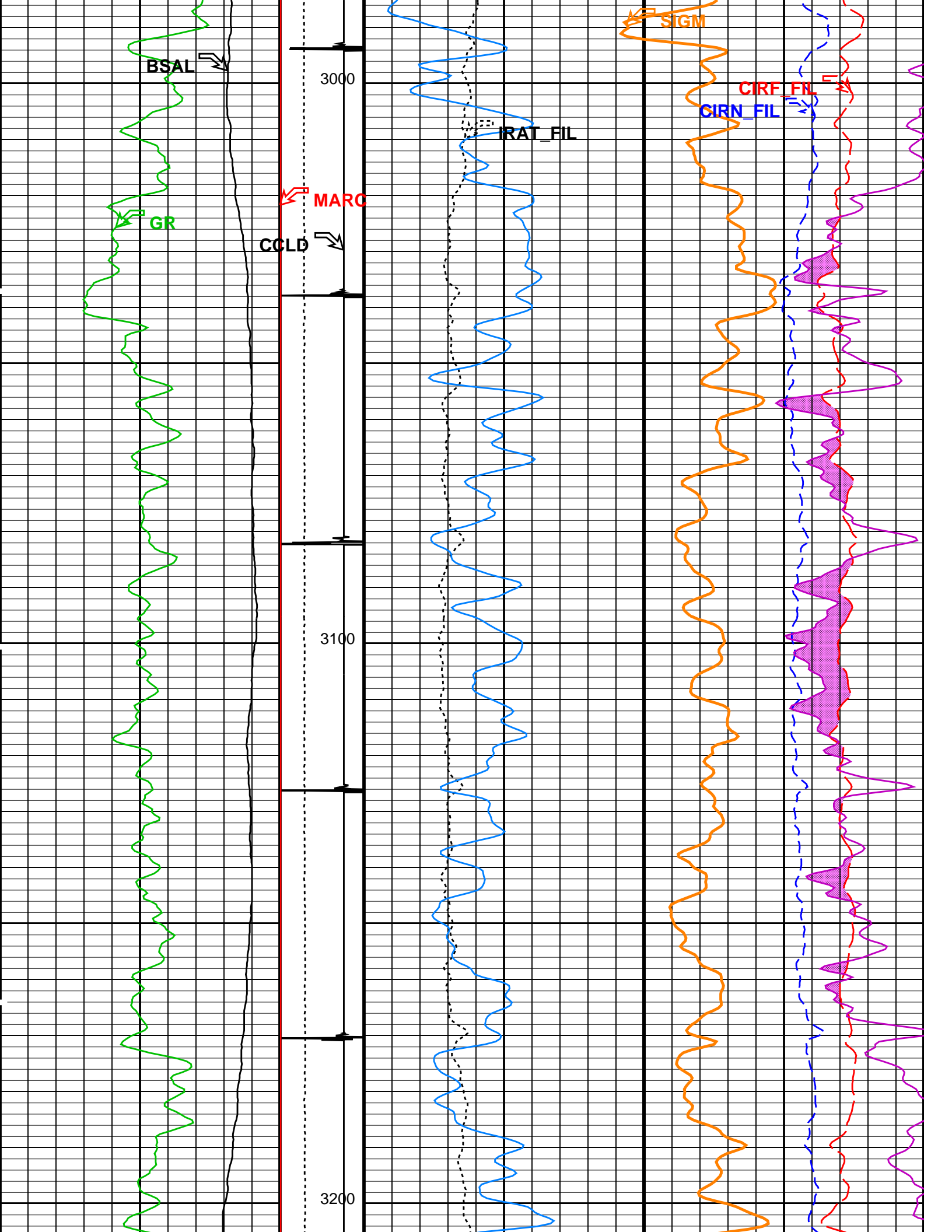


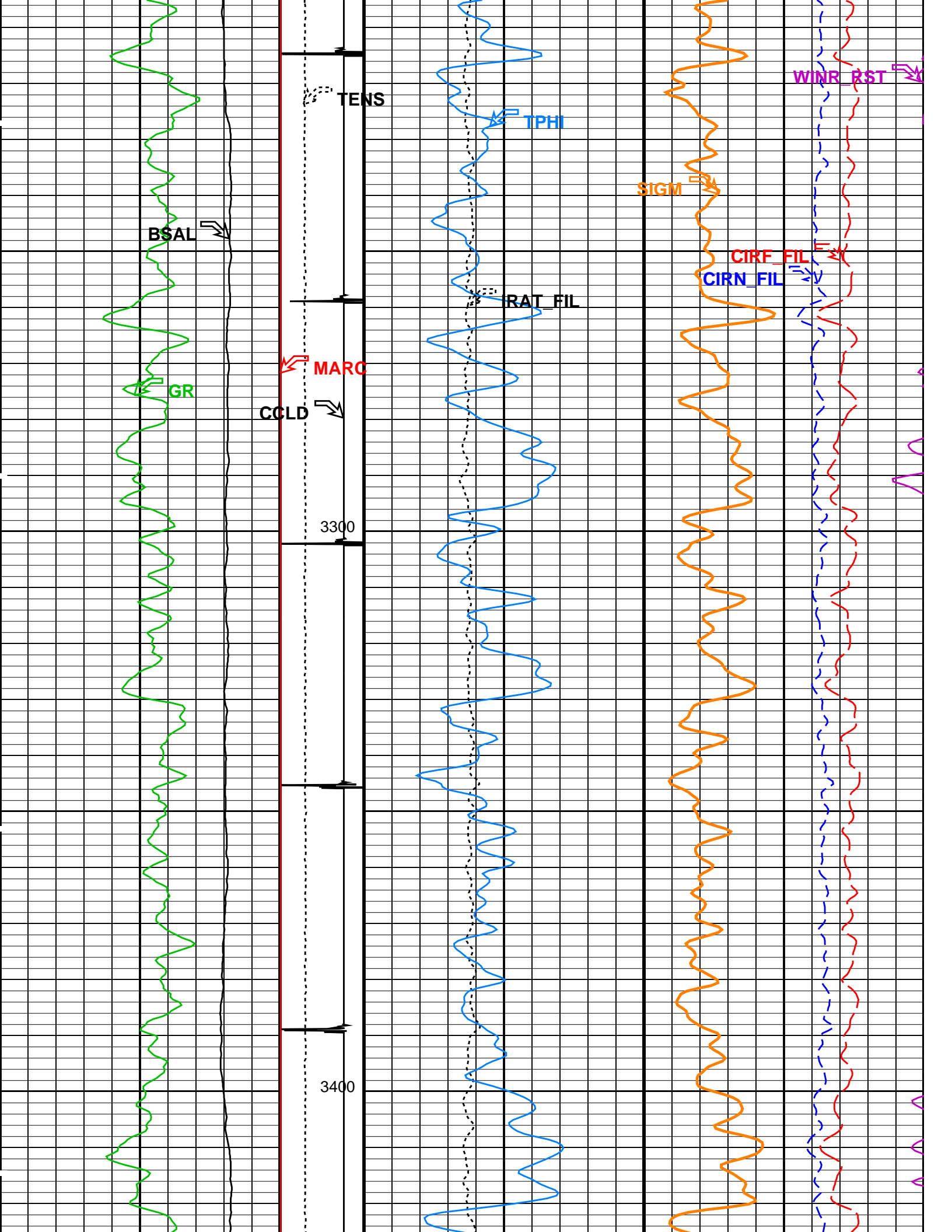


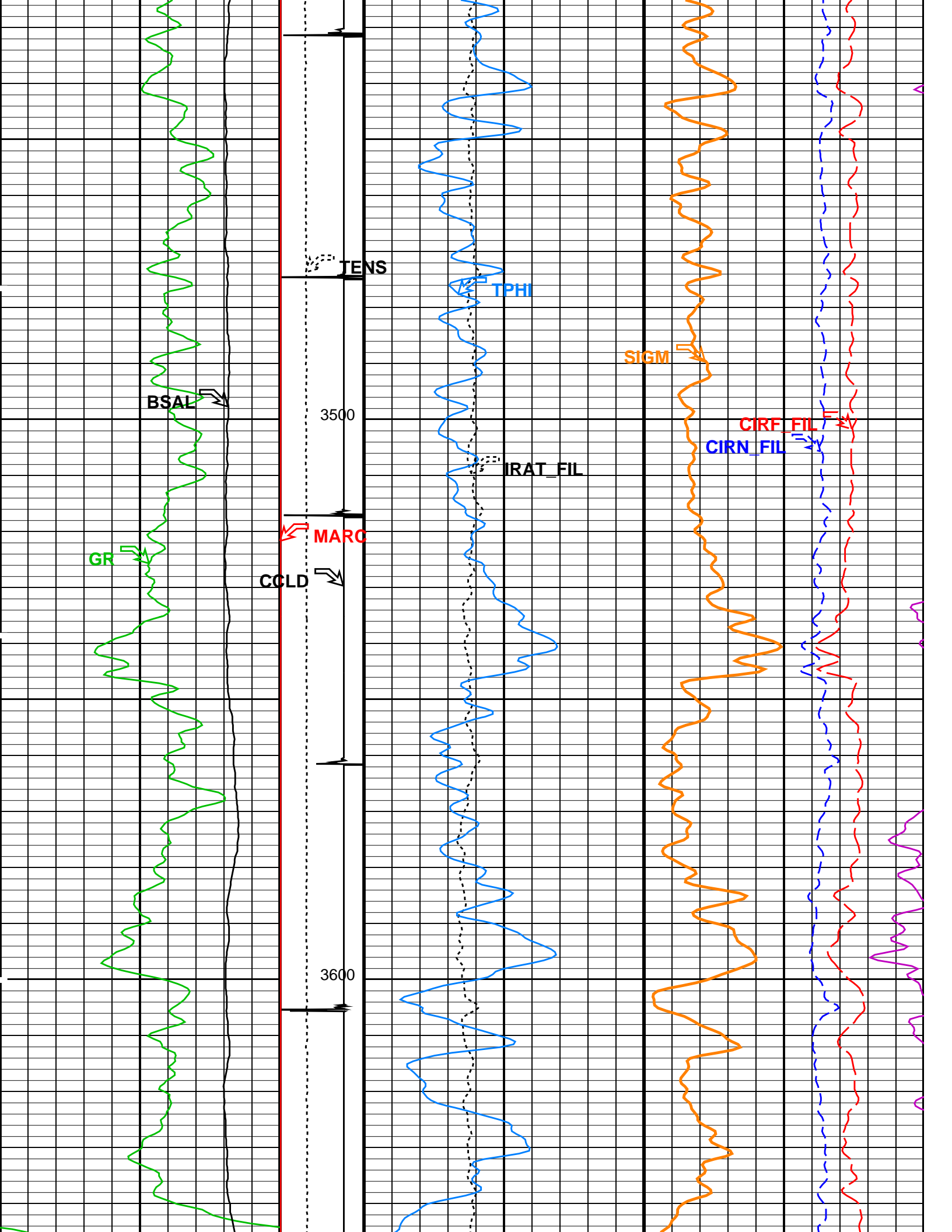


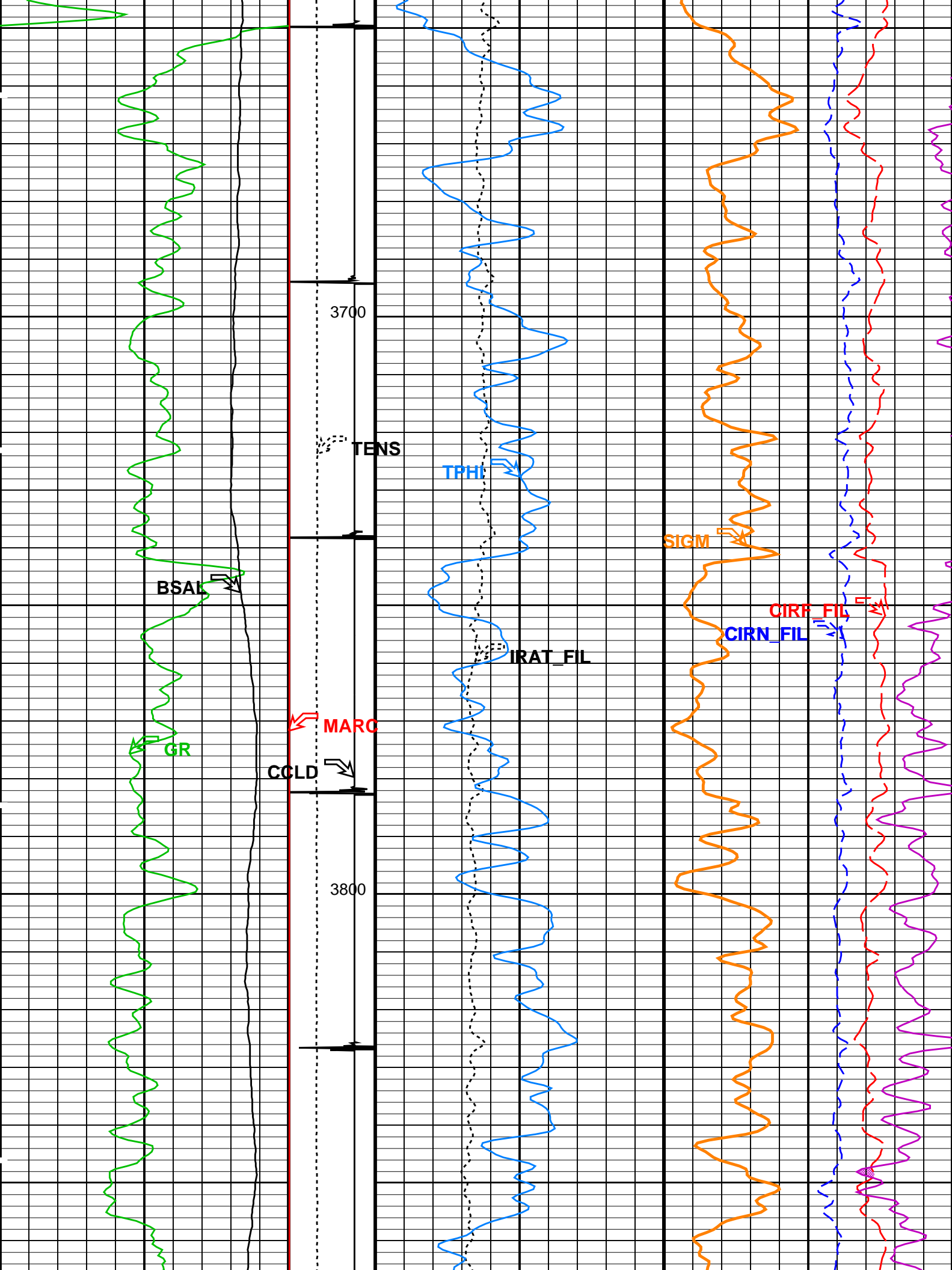


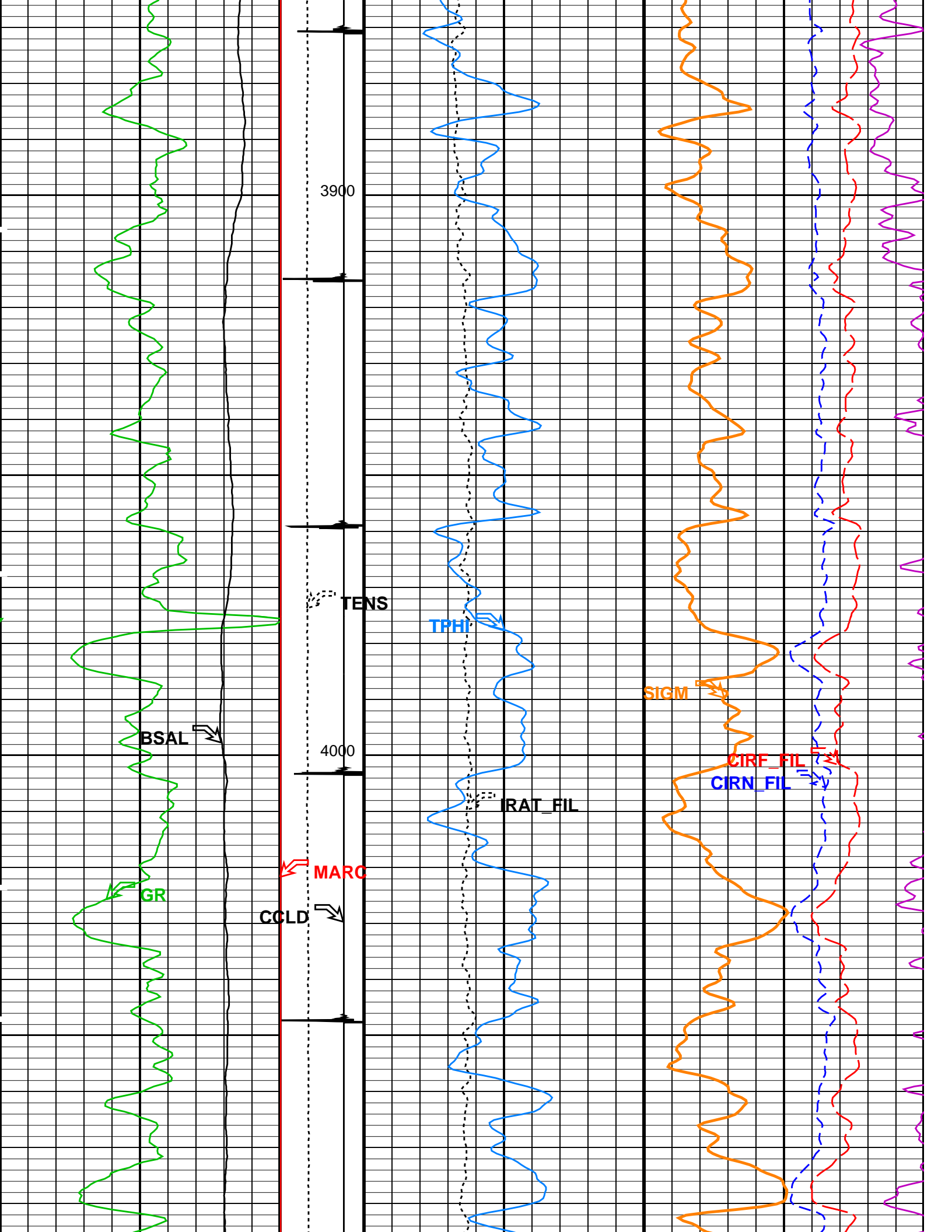


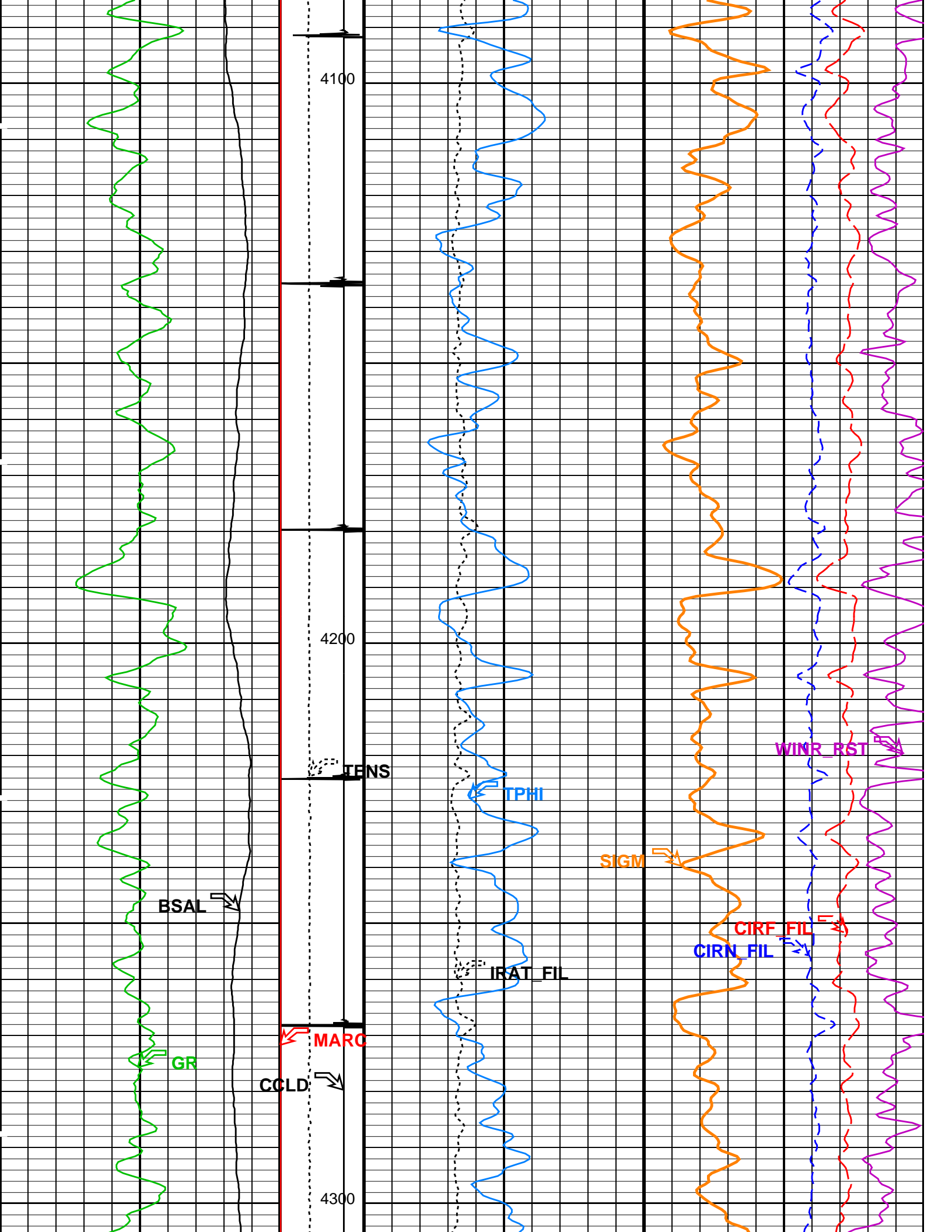




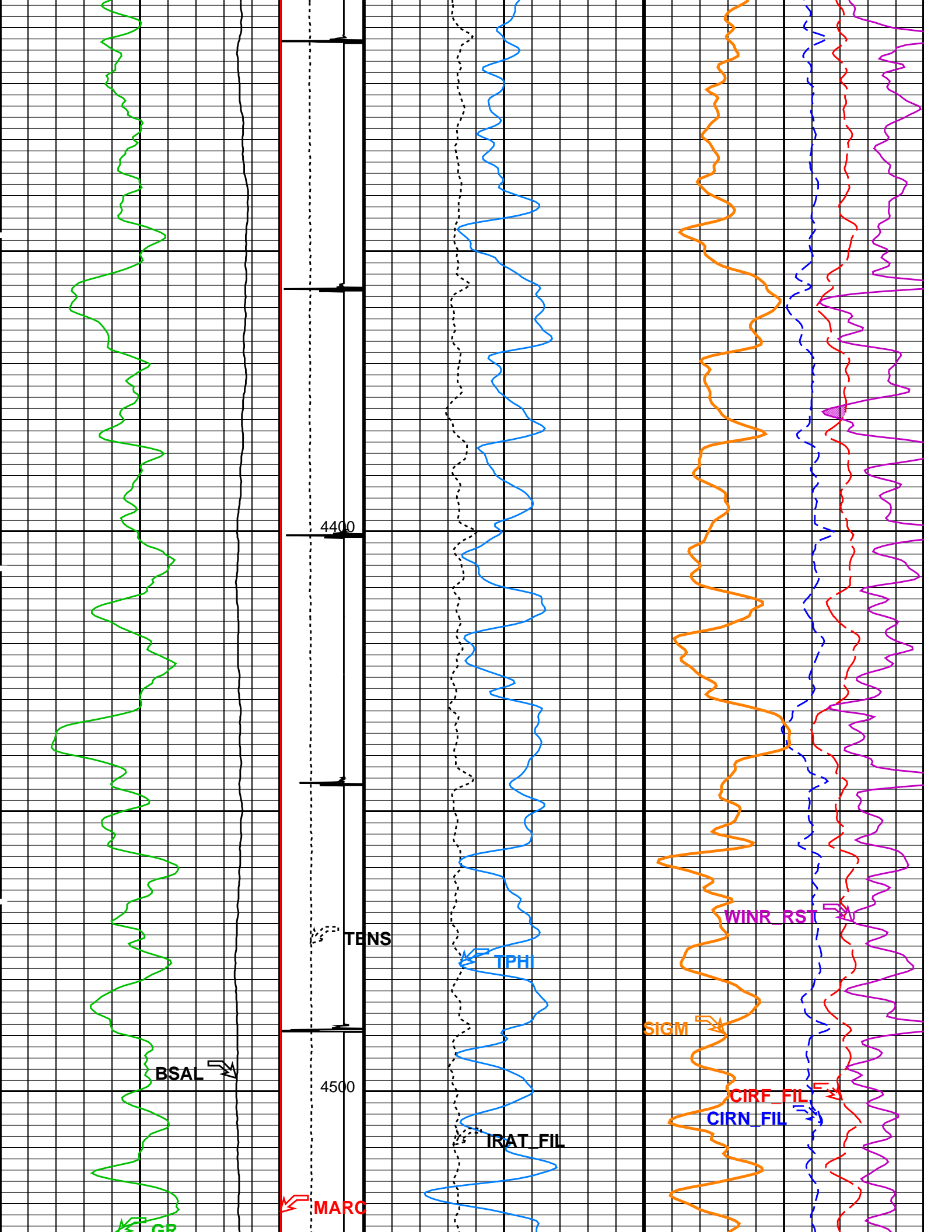


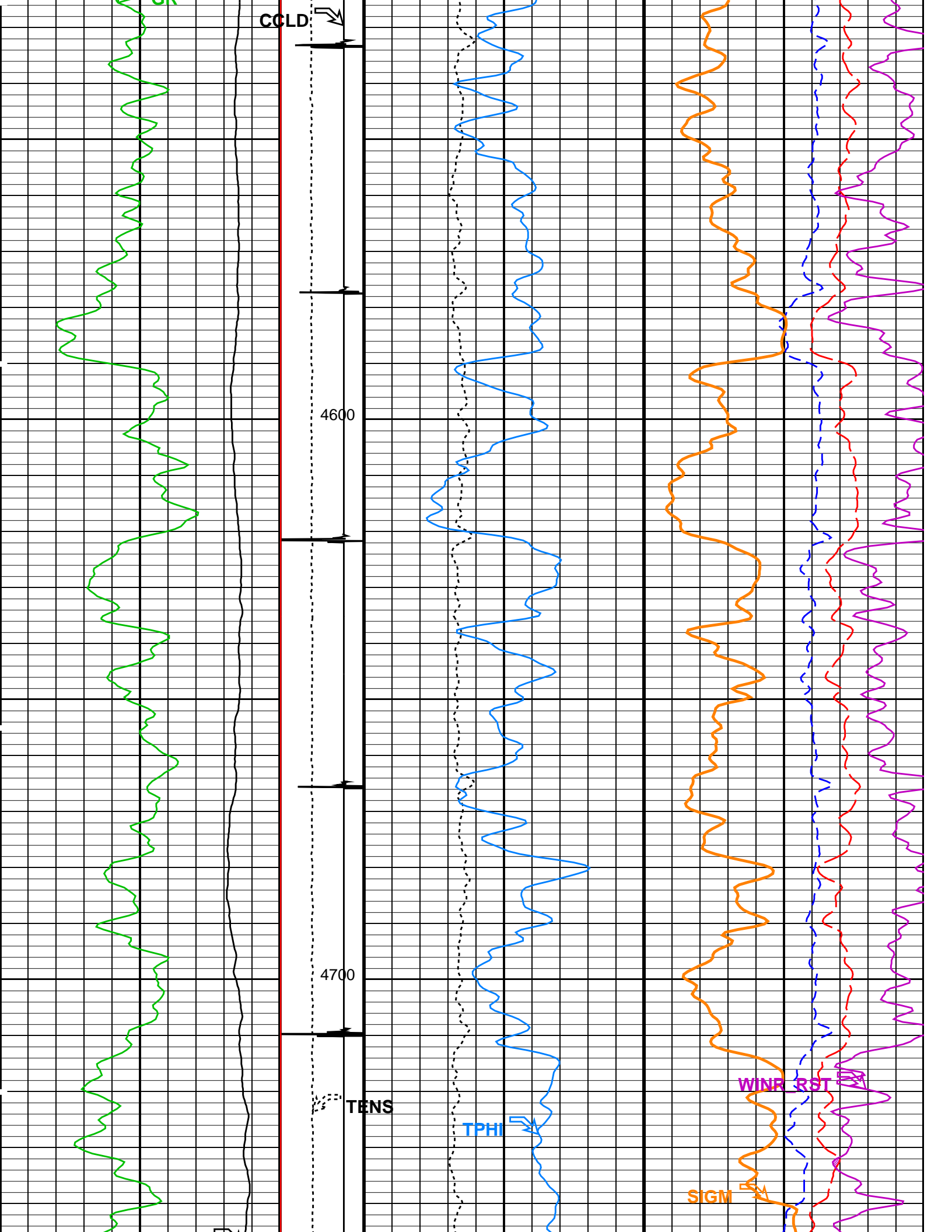


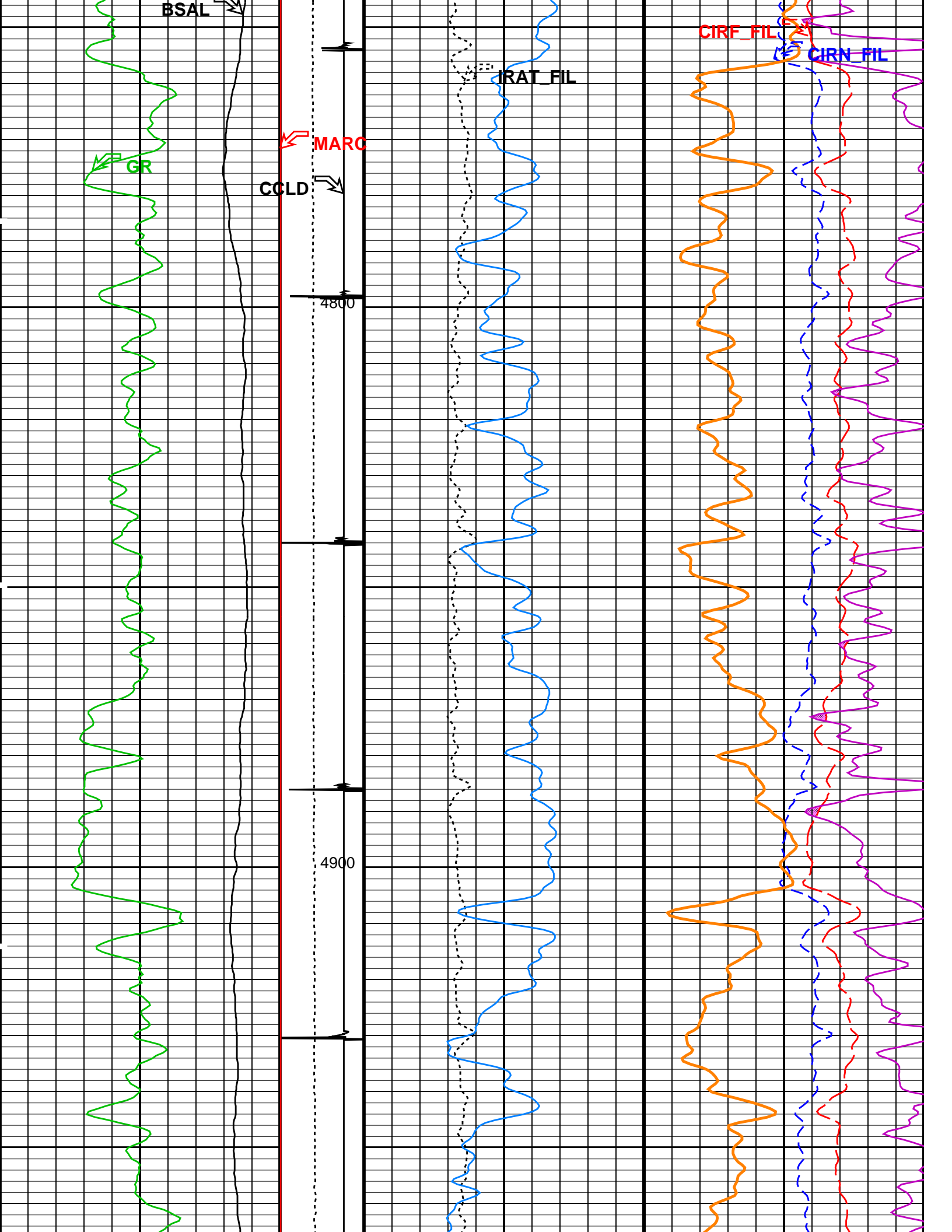


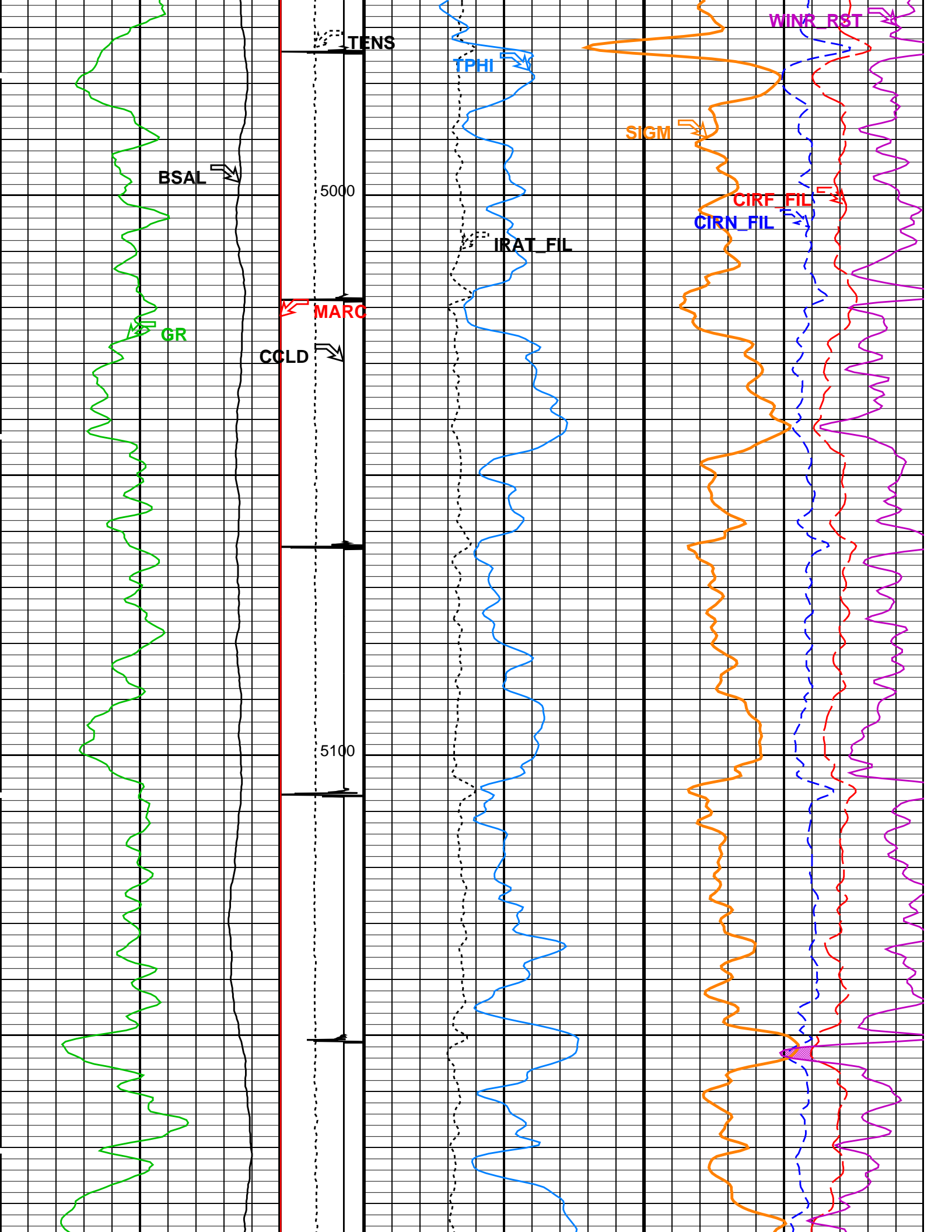


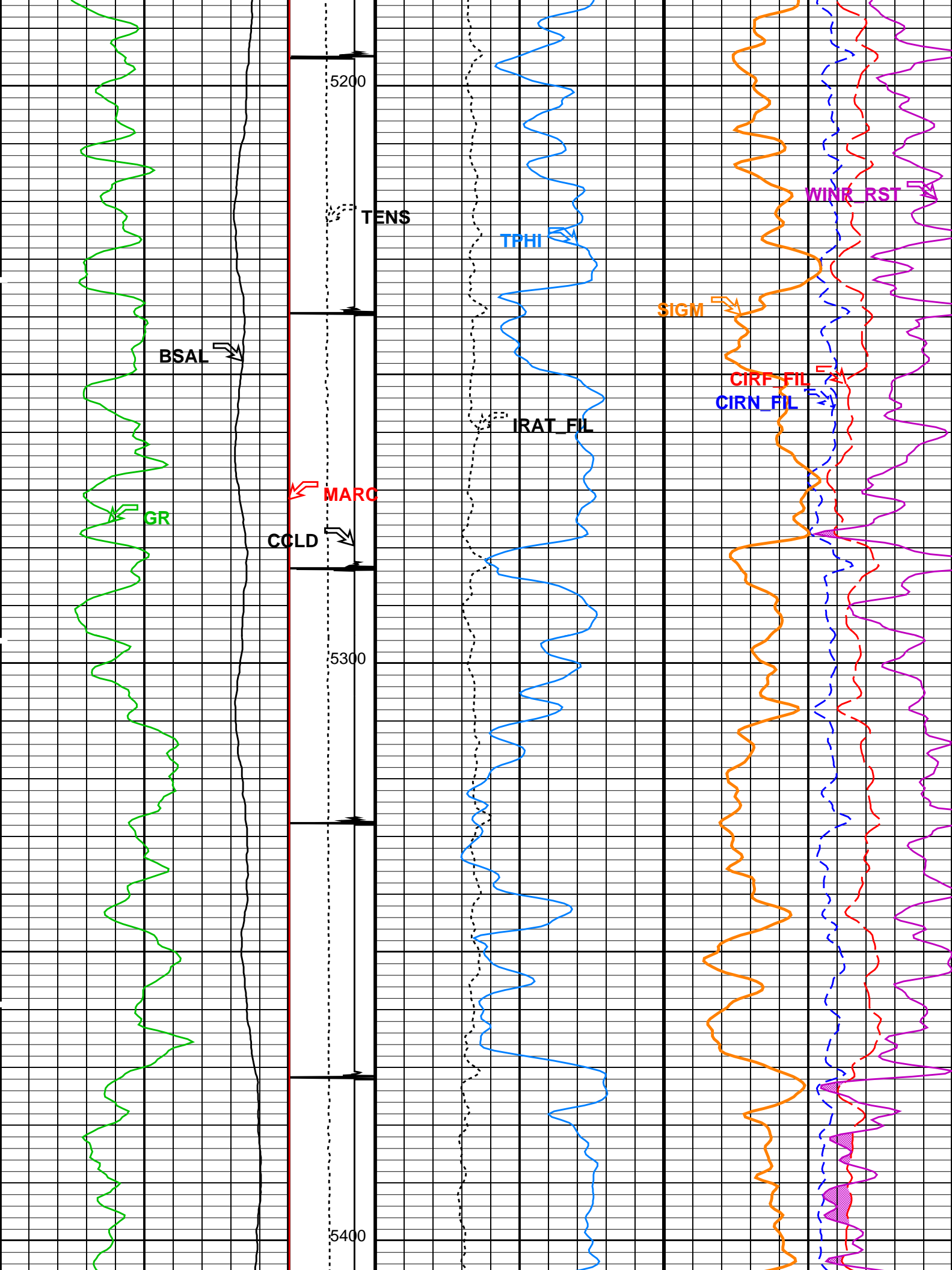


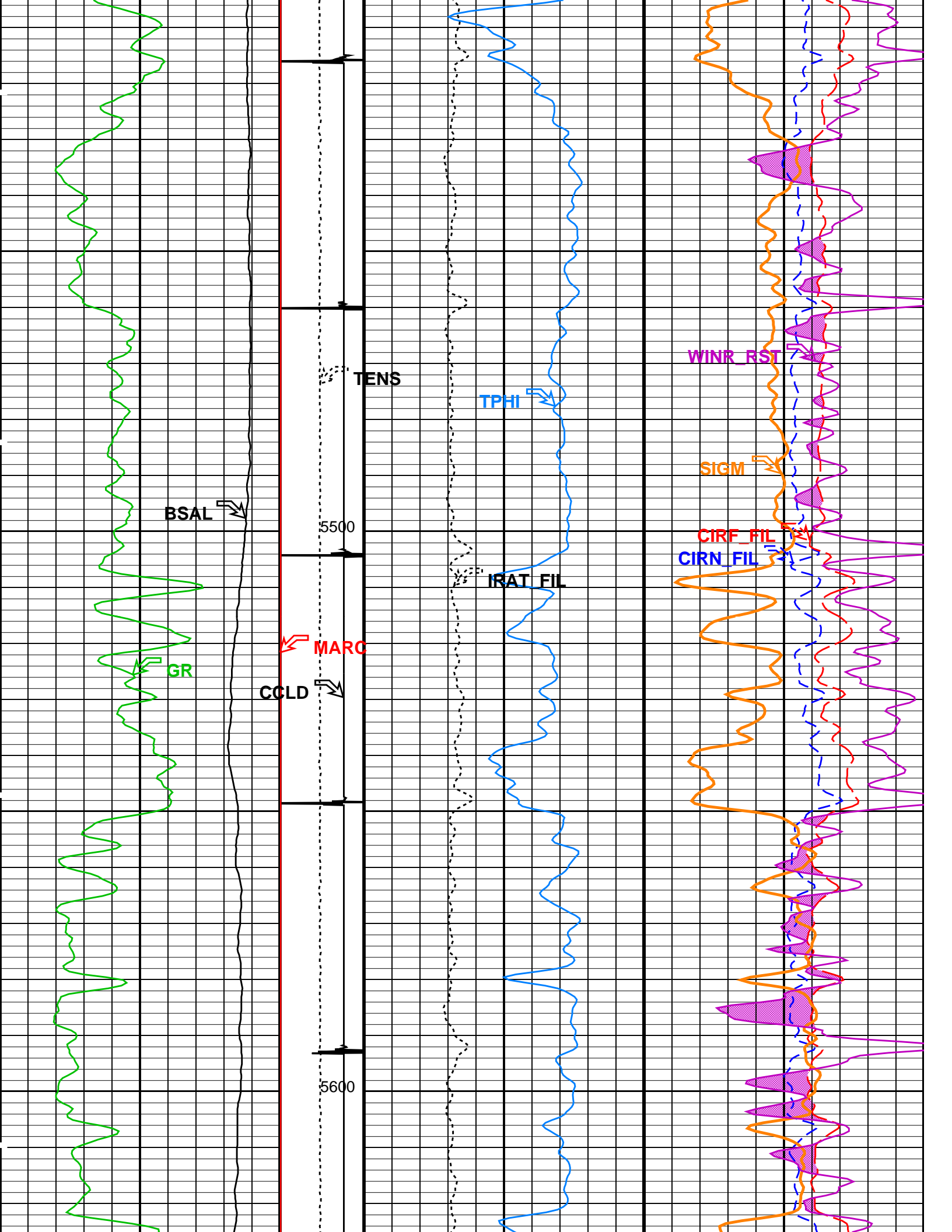


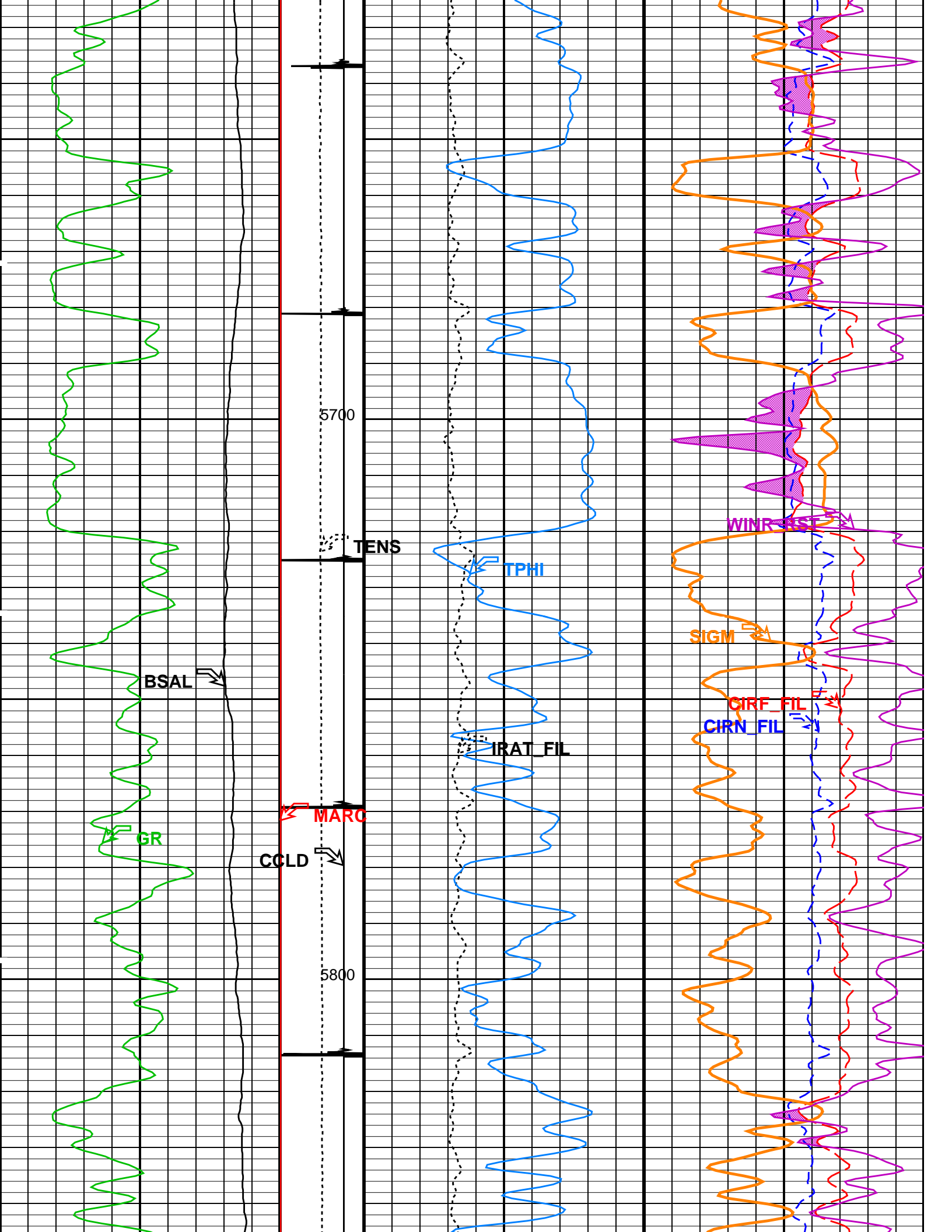


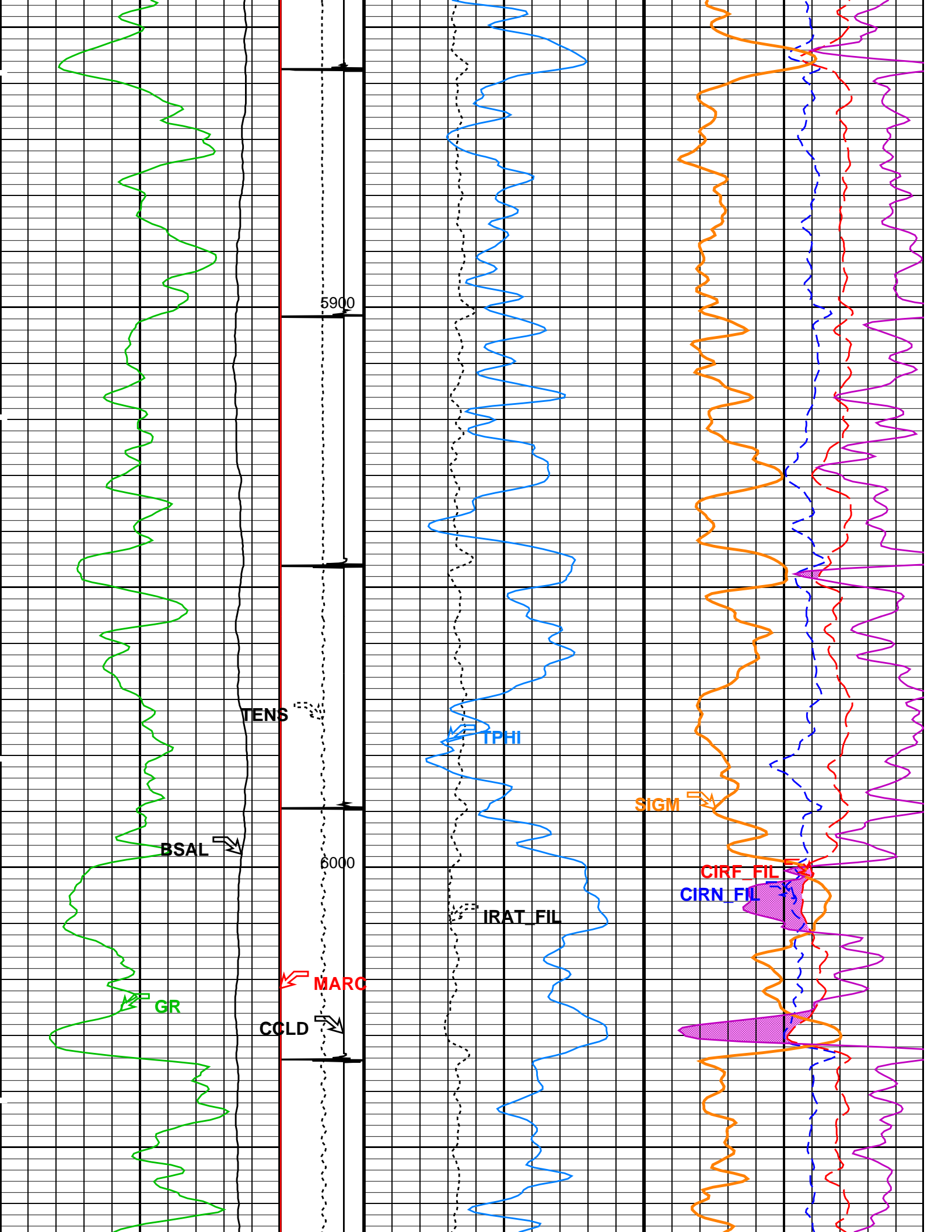




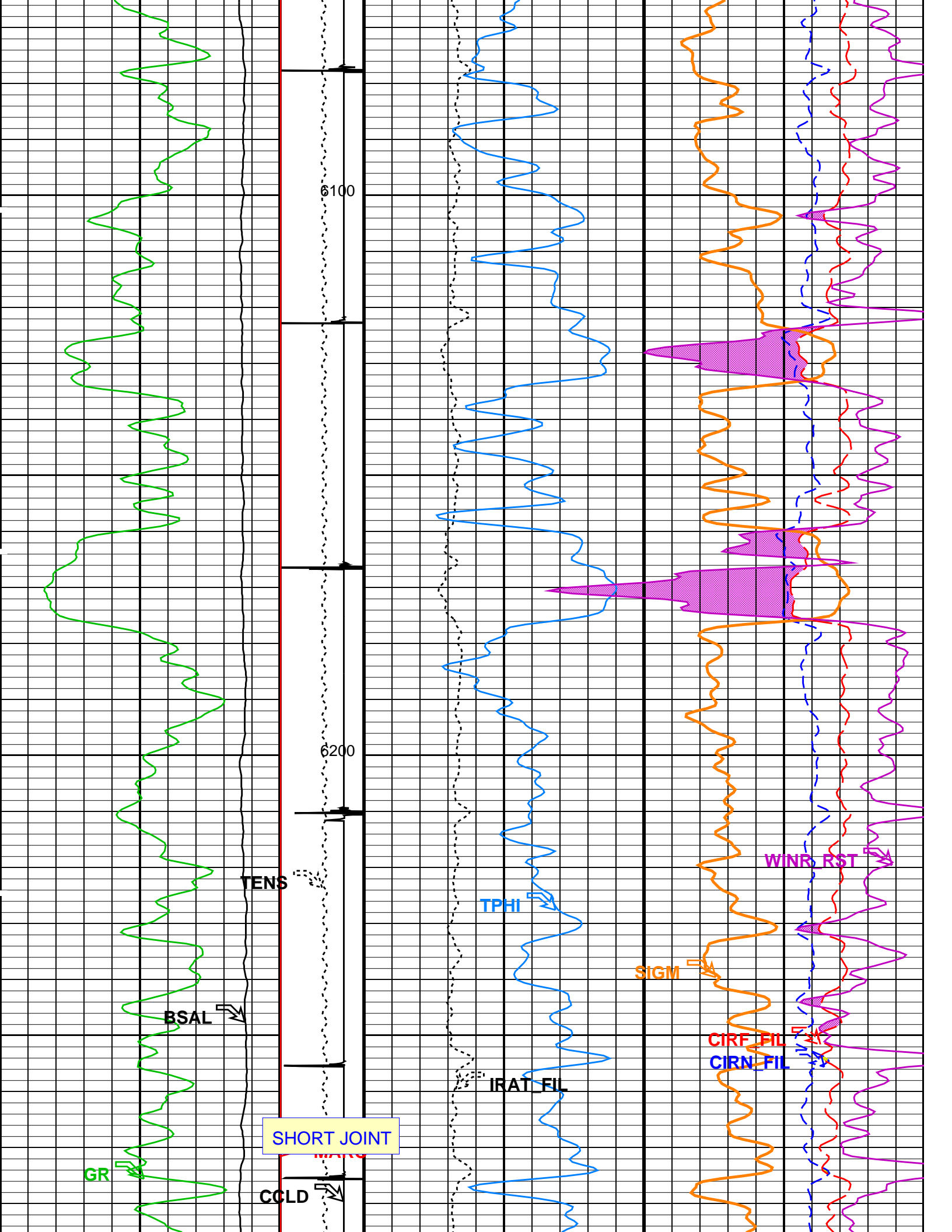


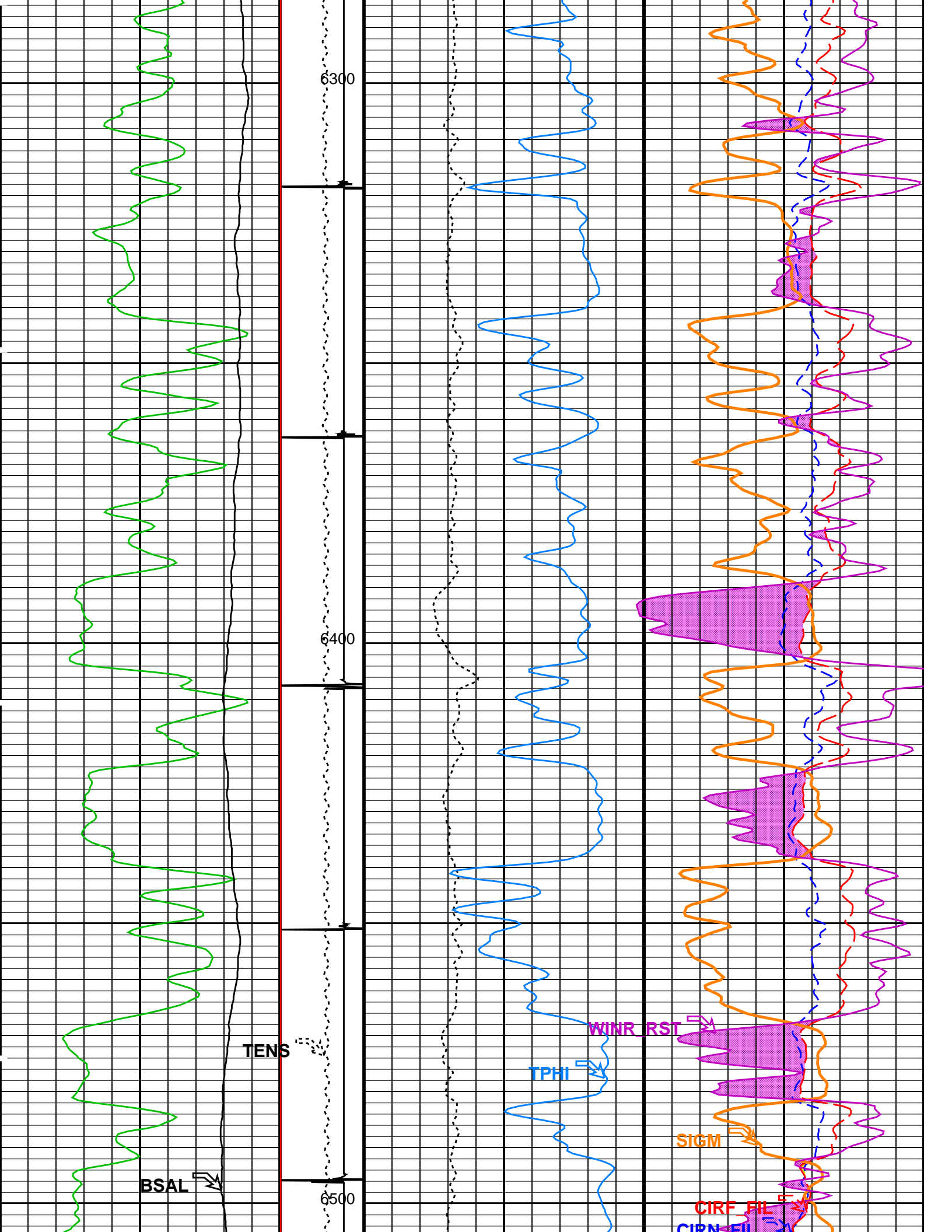


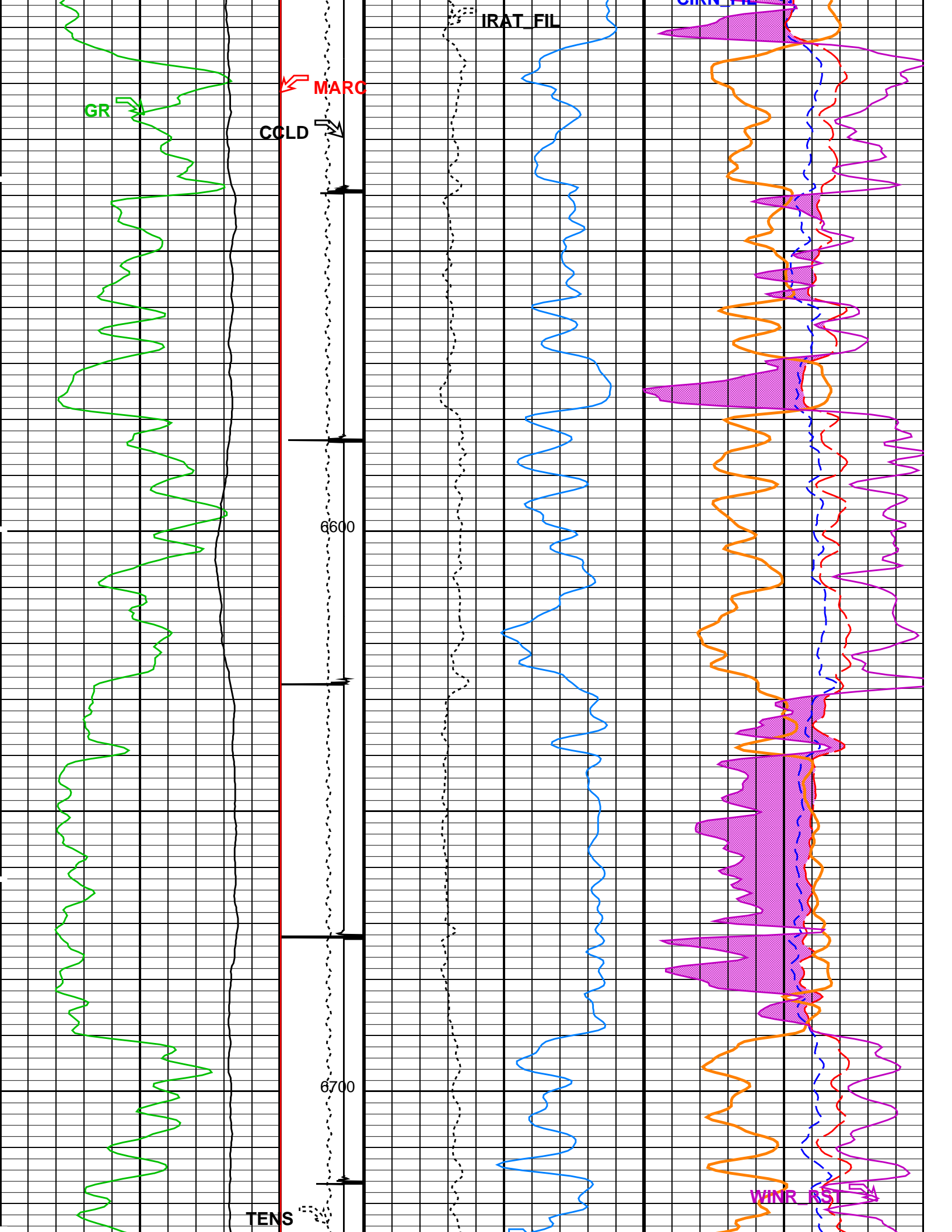


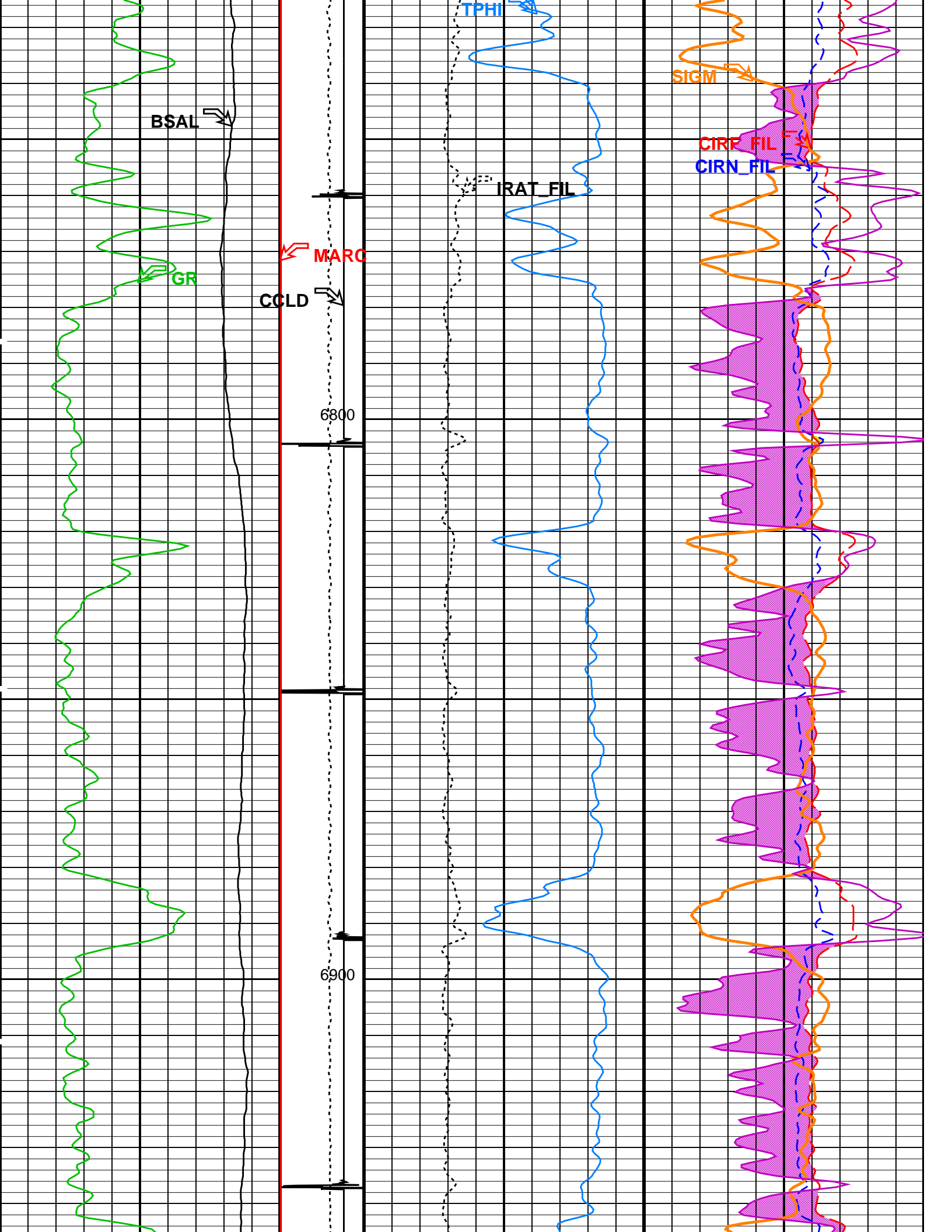


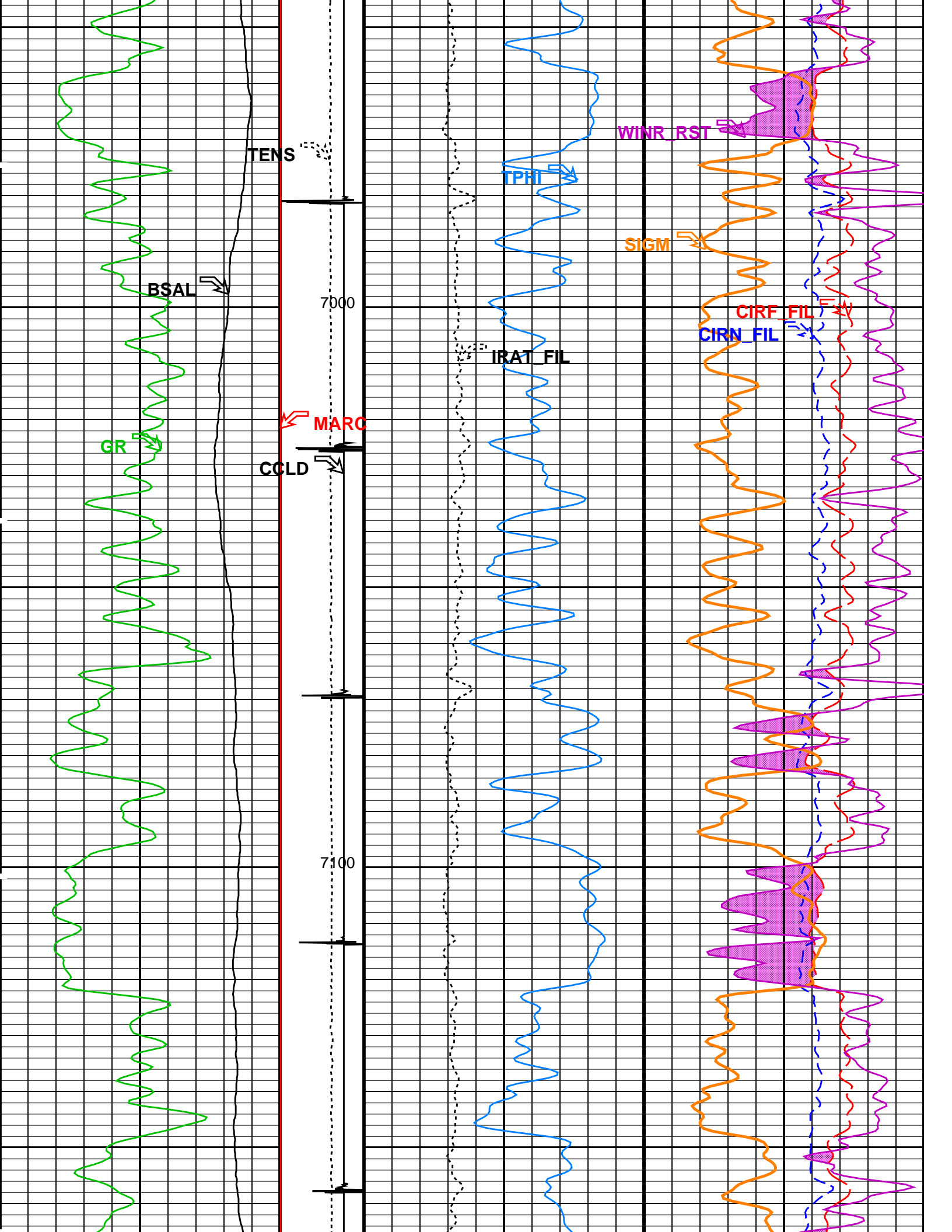


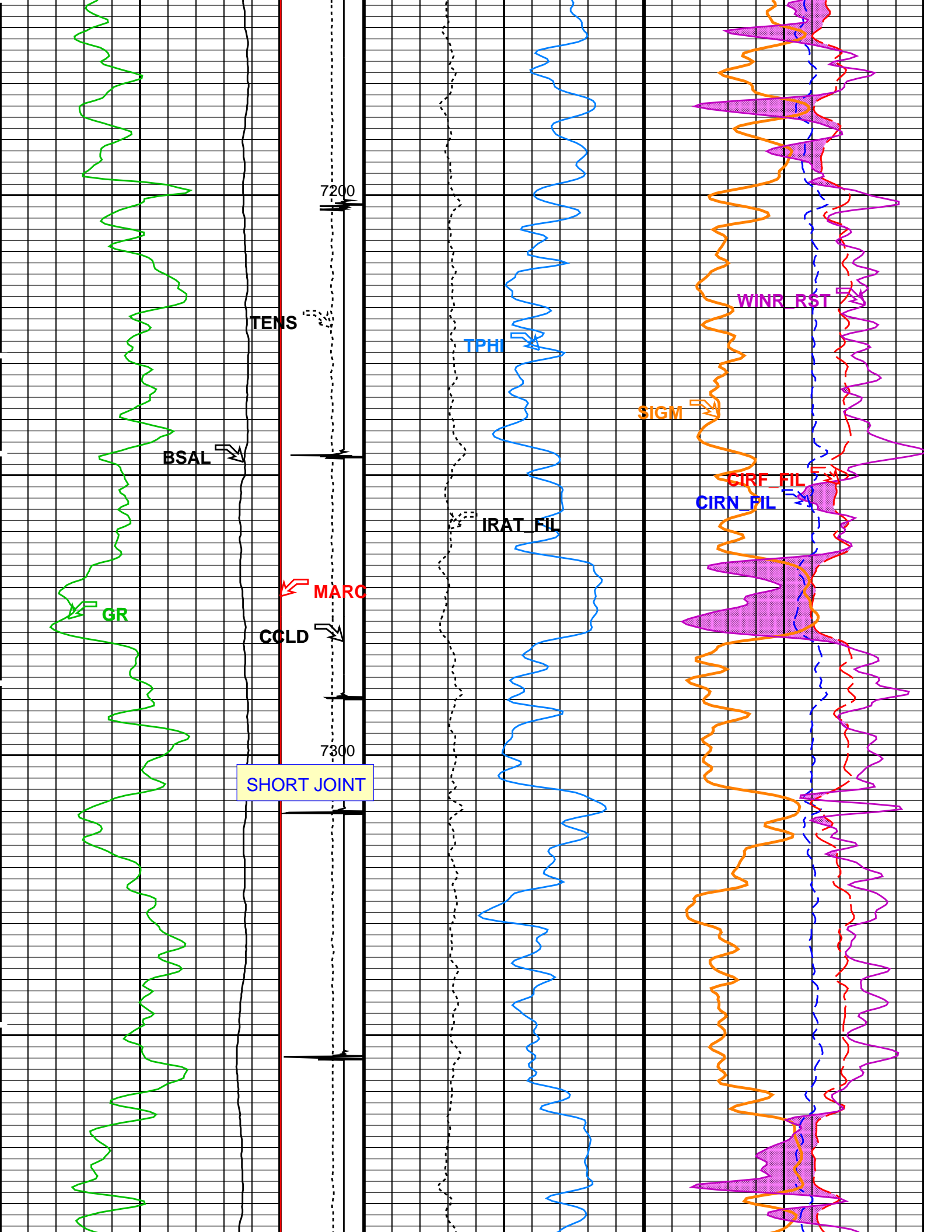


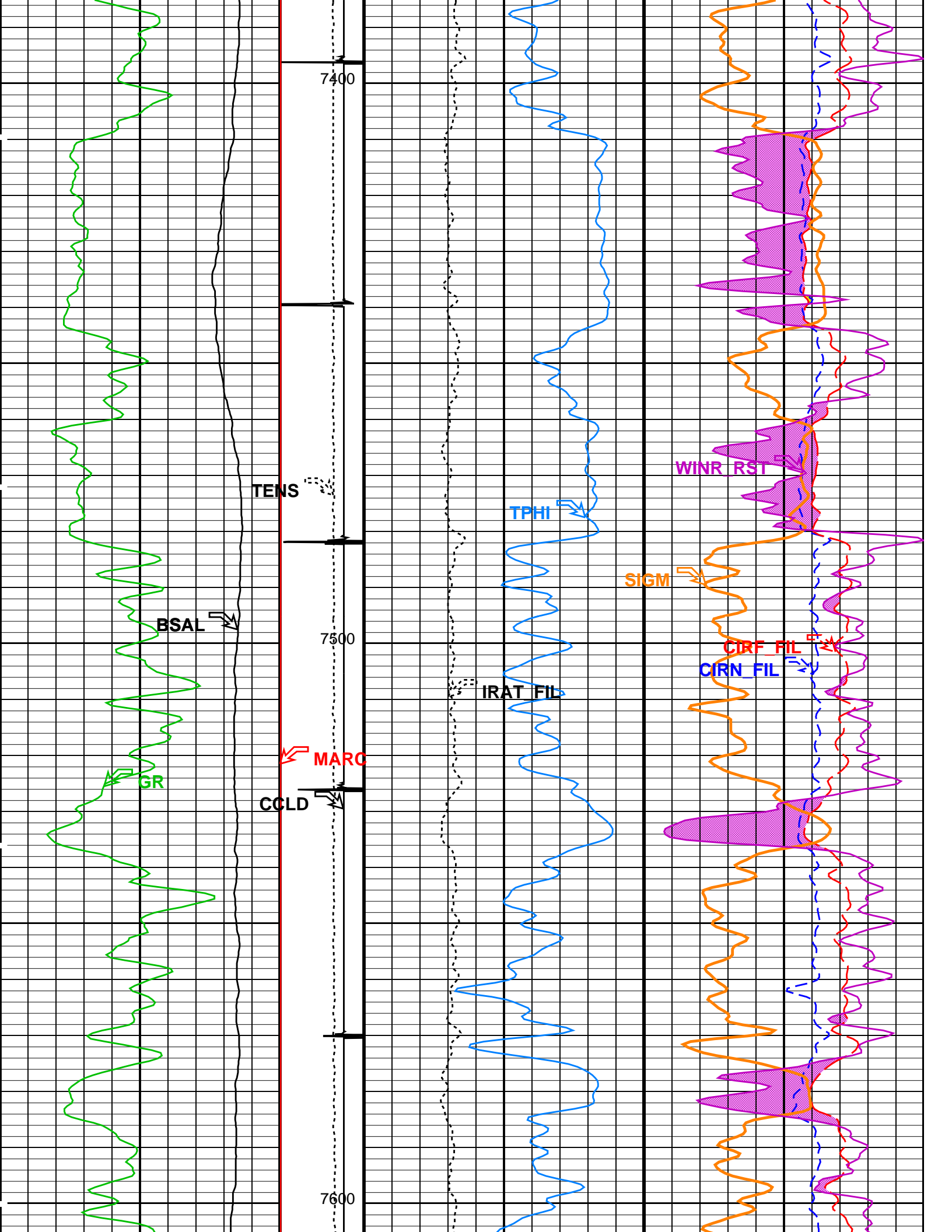




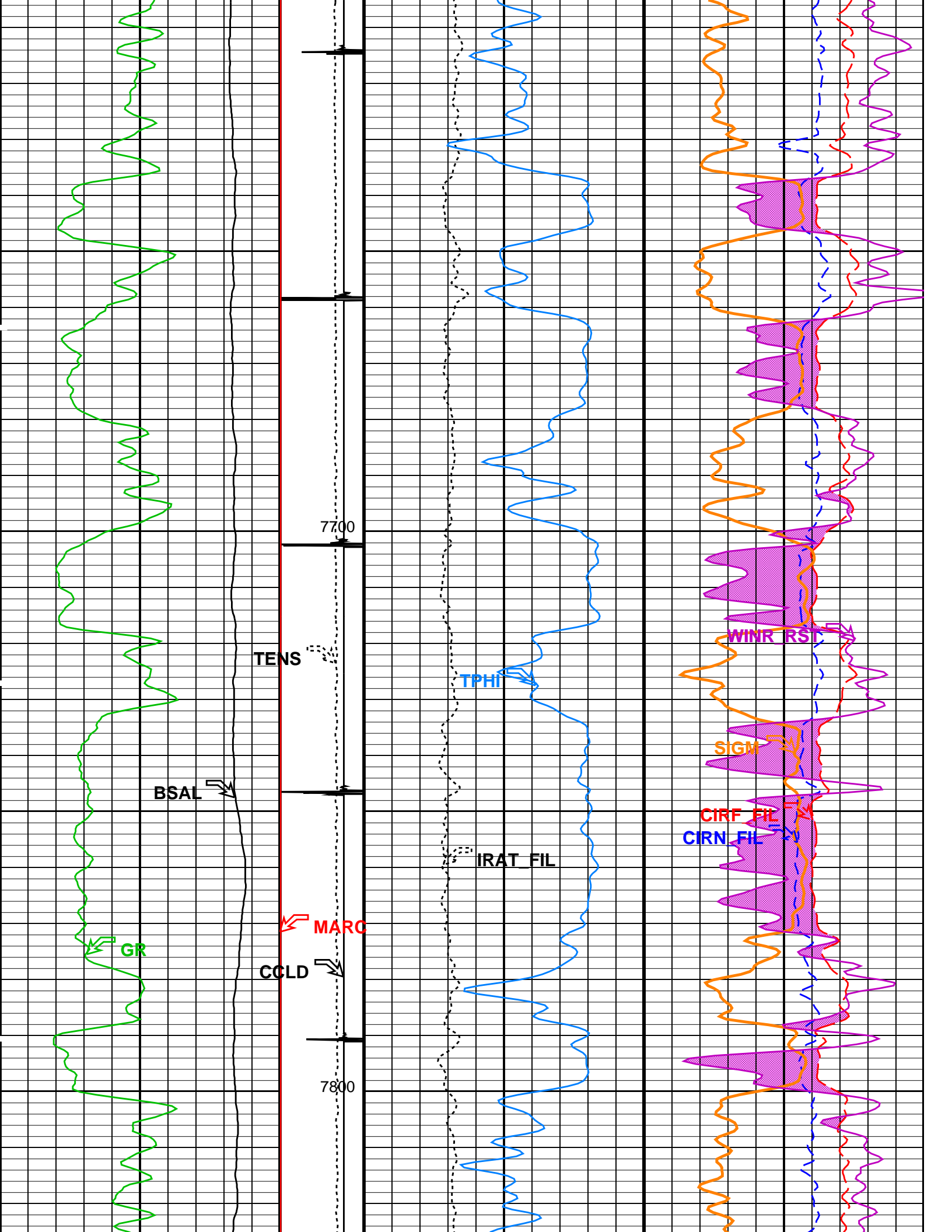




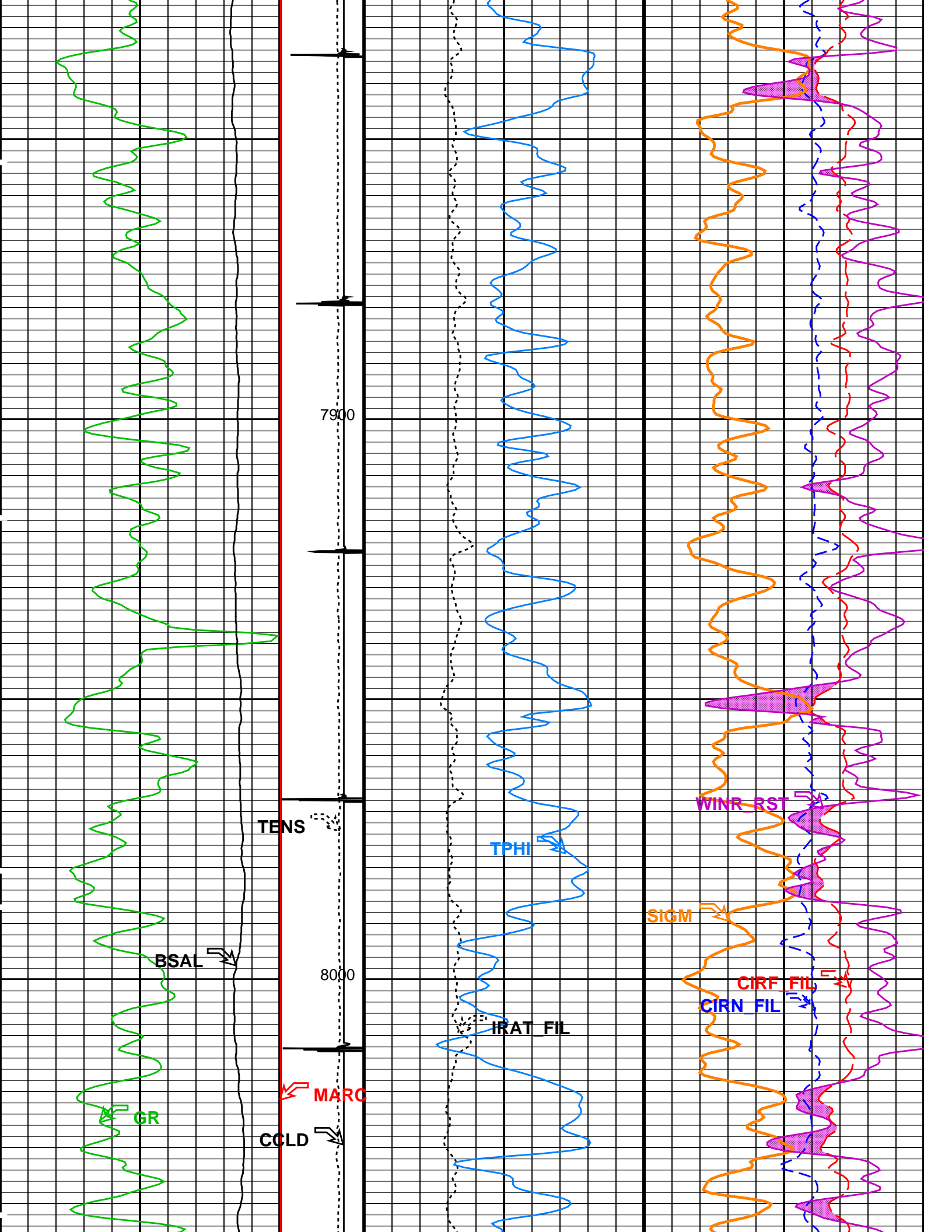


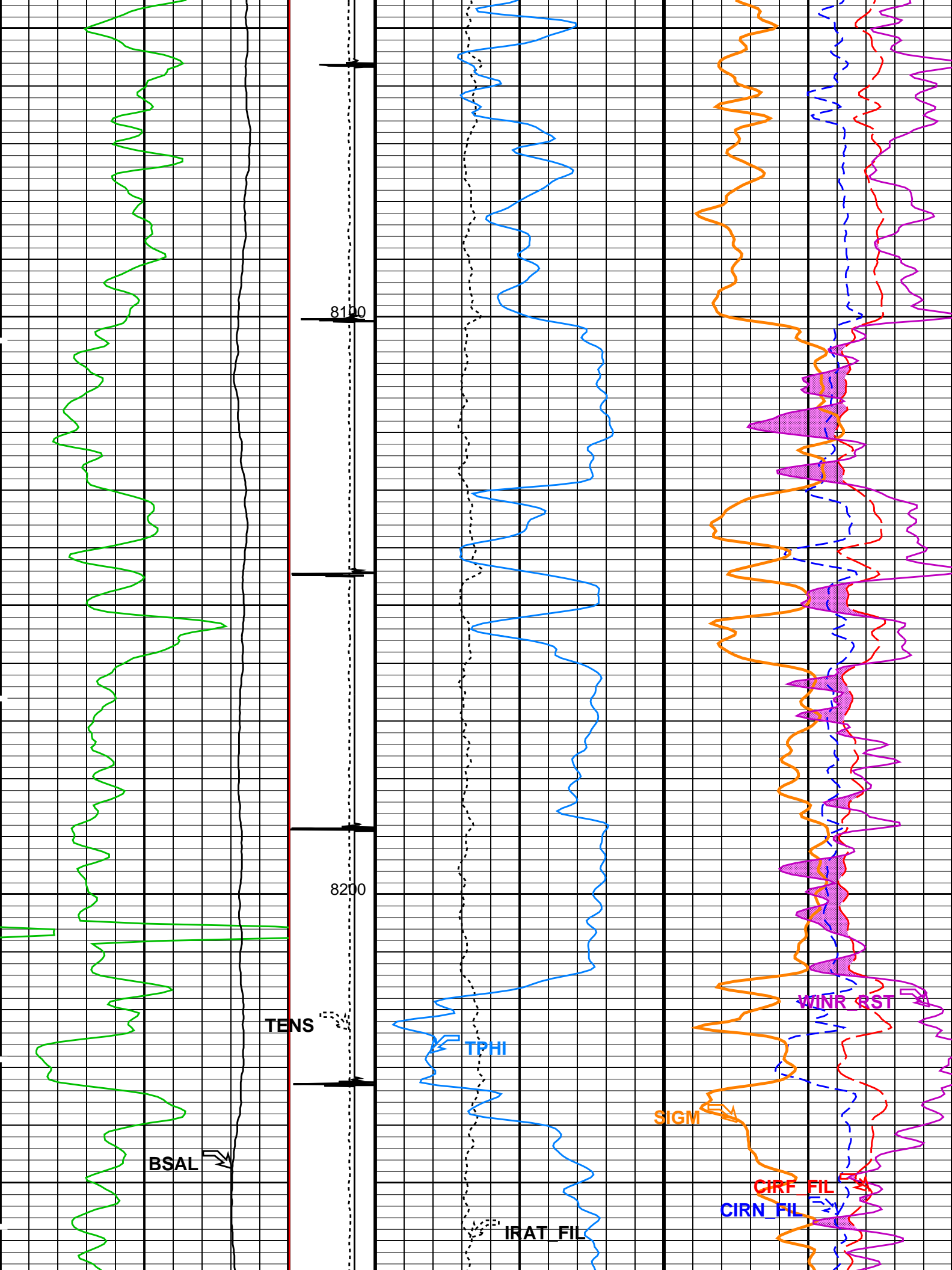


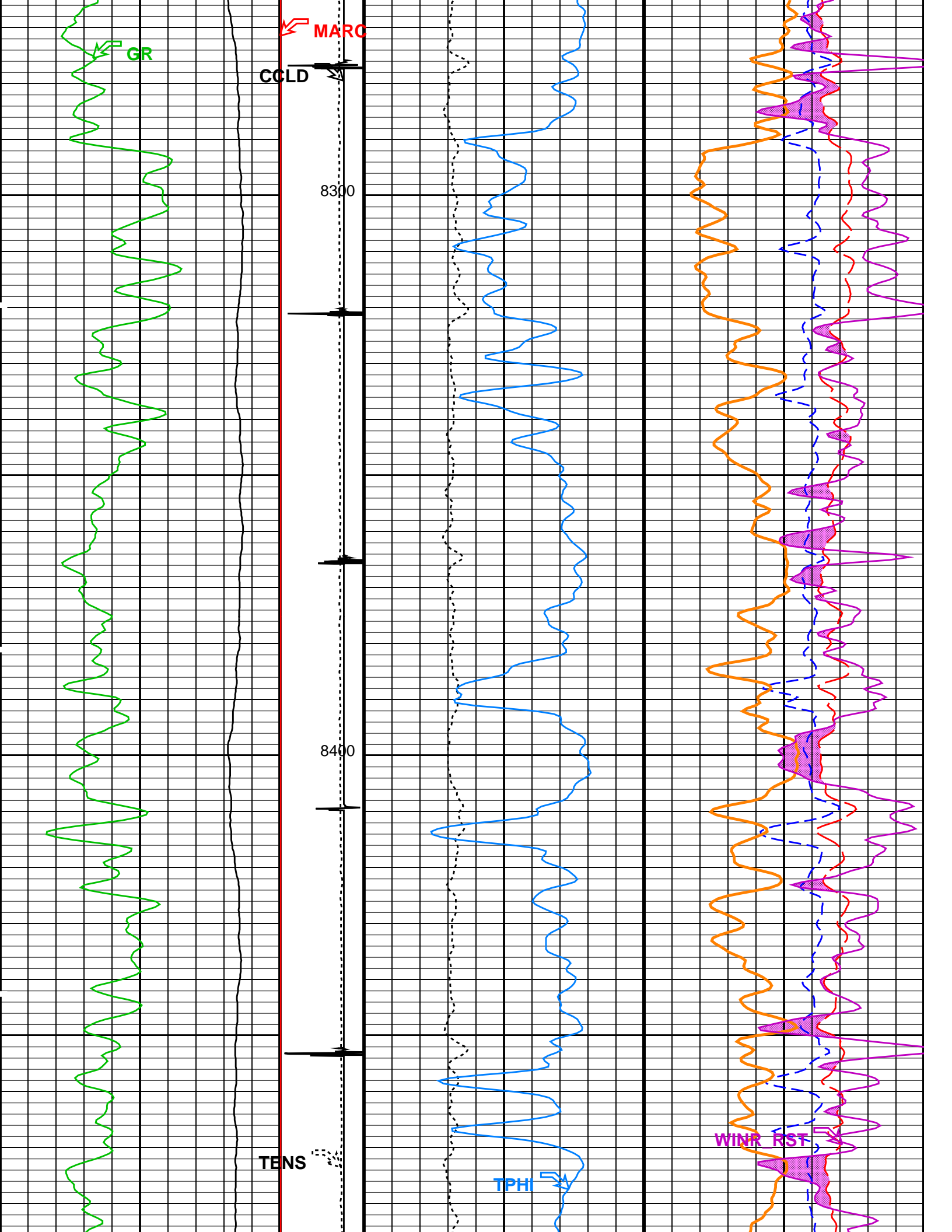


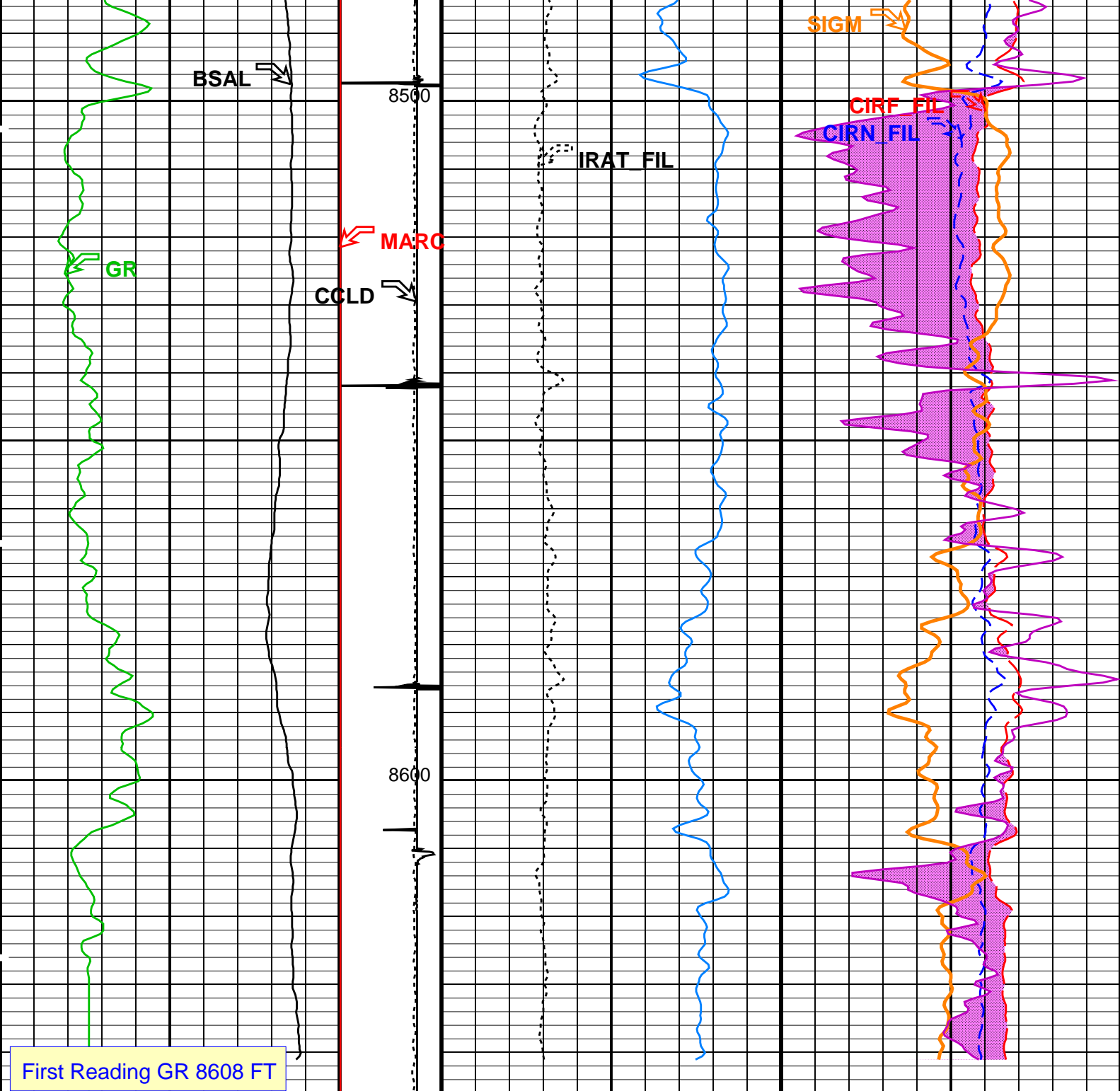


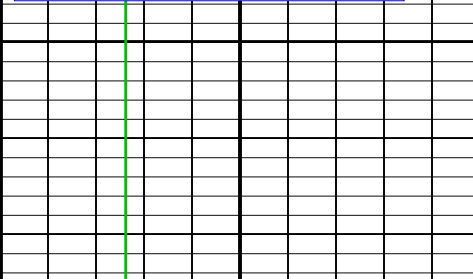
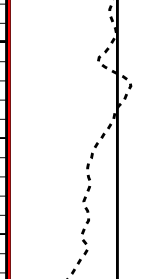
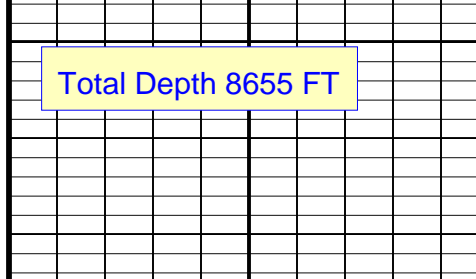
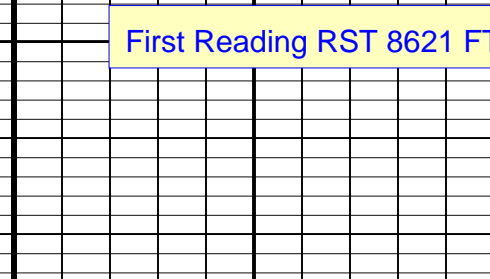










							
Total Depth 8655 FT		First Reading RST 8621 FT					
Gamma Ray (GR) (GAPI)		Tension (TENS) (LBF)		RST Inelastic Ratio (IRAT_FIL) (----		RST Capture to Inelastic Ratio Near (CIRN_FIL) (----	
0 150		0 2000		0.75 0		2.5 0	
RST Borehole Salinity (BSAL) (PPK)		Discriminat ed CCL (CCLD) (V)		RST Sigma (SIGM) (CU)			
450 -50		3 -1		60 0			

Minitron Arc Detection (MARC)	RST Porosity (TPHI)		RST Capture to Inelastic Ratio Far	
	0.5	(V/V)	0	(CIRF_FIL)
0 (---- 5			7	(---- 0
RST Weighted Inelastic Ratio (WINR_RST)				
	0.4	(----		0
WINR Gas Flag From WINR to RST CIRF_FIL				
			Crossover in sand From RST CIRF_FIL to RST CIRN_FIL	

## 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	
CMTPT	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			
AIRB	Tractor Available in Tool String	NO	
BHS	RST Air Borehole	No	
BHT	Borehole Status	CASED	
BSALOPT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSFL	RST Borehole Salinity Option	Unknown	
CSID	RST Borehole Salinity Filter Length	51	
DFPC	Casing Size I.D.	4	IN
DFPC_TDTL	RST Depth Filter Processing Constant	One	
GCSE	RST Depth Filter Processing Constant (TDT-like)	Two	
GDEV	Generalized Caliper Selection	BS	
GGRD	Average Angular Deviation of Borehole from Normal	0	DEG
GRSE	Geothermal Gradient	0.01	DF/F
GTSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
ISSBAR	Generalized Temperature Selection	LINEAR_ESTIMATE	
MATR	Barite Mud Switch	NOBARITE	
NORM_IRAT_RST	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_SIGM_RST	RST Normalized Inelastic Ratio	0.48	
PTIER	RST Normalized Sigma	30	CU
PVL_PSNT_PRST	RST Tiered Presentation Selection	0_Customer	
RGAI	PVL Peak Signal/Noise Threshold	3	
SHT	Near/Far Gain Calibration Ratio	1	
TIER_IC	Surface Hole Temperature	68	DEGF
TIER_SIGM	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith	
	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	7.0	FT
FLEV	Fluid Level	60.00	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	8655	FT
TDD	Total Depth - Driller	8735.00	FT
TDL	Total Depth - Logger	8655.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST\_SIGMA\_S5      Vertical Scale: 5" per 100'      Graphics File Created: 22-Oct-2013 05:28

## OP System Version: 19C0-187

SCMT-CB	SRPC-5214-H2-2012-OP1!	RST-C	SRPC-5214-H2-2012-OP1!
PSPT	SRPC-5214-H2-2012-OP1!		

### Input DLIS Files

DEFAULT	SCMT_RST_PSP_057LUP	FN:53	PRODUCER	22-Oct-2013 02:47	8668.0 FT	-14.5 FT
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### Output DLIS Files

DEFAULT	SCMT_RST_PSP_060PUP	FN:56	PRODUCER	22-Oct-2013 05:28
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**Schlumberger**

**REPEAT ANALYSIS RST SIGMA**

MAXIS Field Log

### Input DLIS Files

DEFAULT	SCMT_RST_PSP_055LUP	FN:51	PRODUCER	22-Oct-2013 02:30	6440.0 FT	6113.5 FT
DEFAULT	SCMT_RST_PSP_060PUP	FN:56	PRODUCER	22-Oct-2013 05:28	8675.0 FT	-52.0 FT

### Output DLIS Files

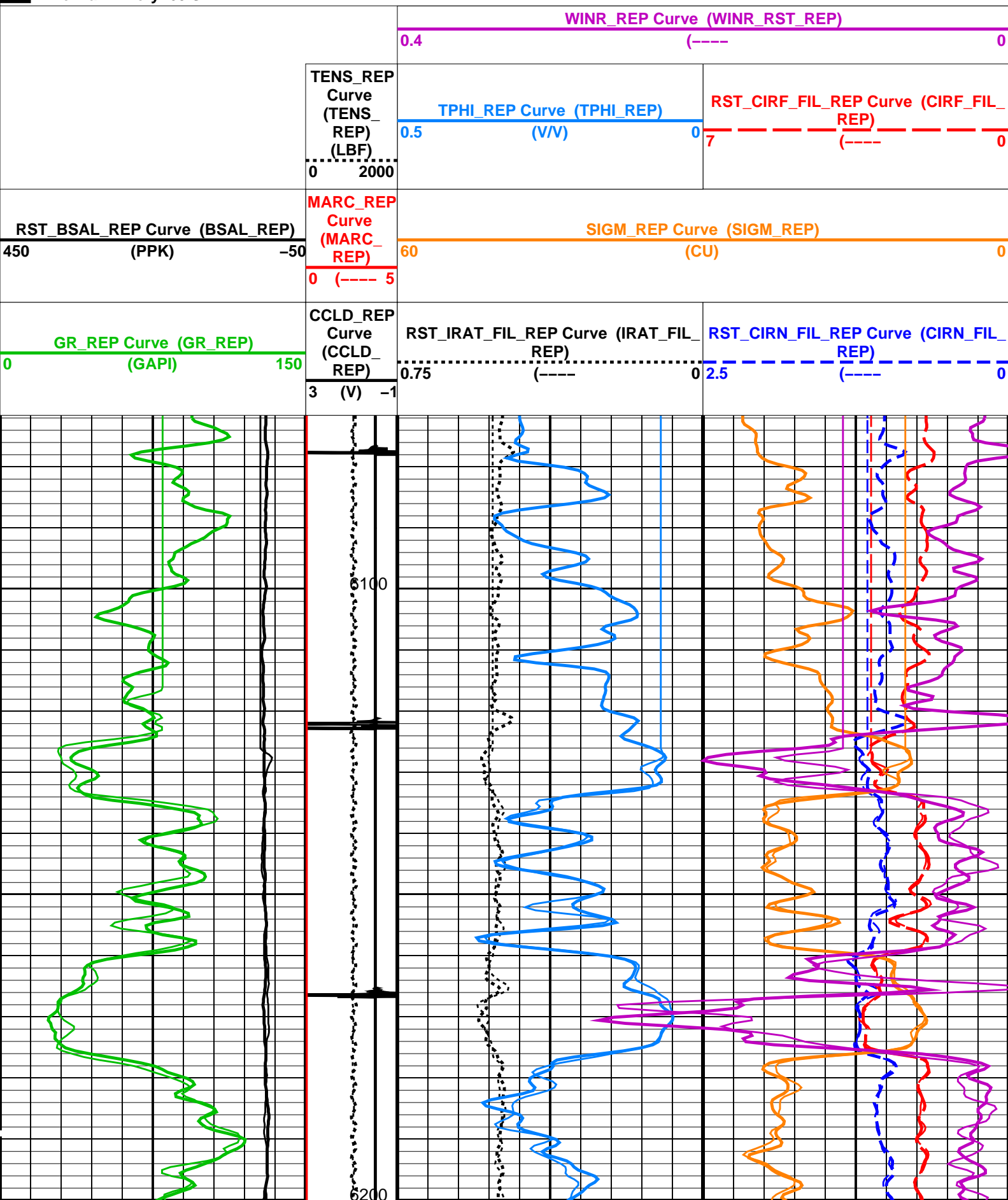
DEFAULT	SCMT_RST_PSP_061PUP	FN:57	PRODUCER	22-Oct-2013 05:35	6442.0 FT	6071.0 FT
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# OP System Version: 19C0-187

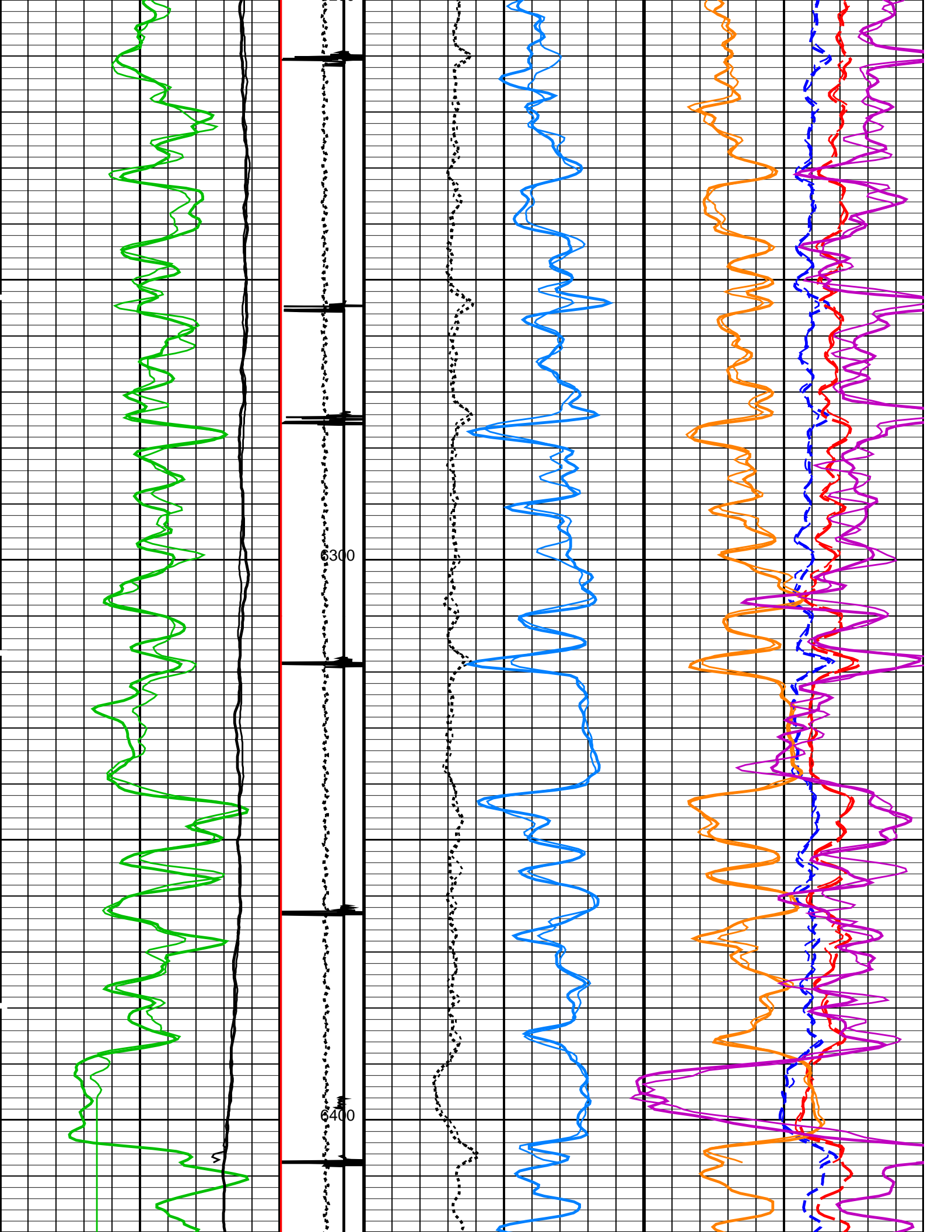
SCMT-CB SRPC-5214-H2-2012-OP1 RST-C SRPC-5214-H2-2012-OP1  
 PSPT SRPC-5214-H2-2012-OP1

## PIP SUMMARY

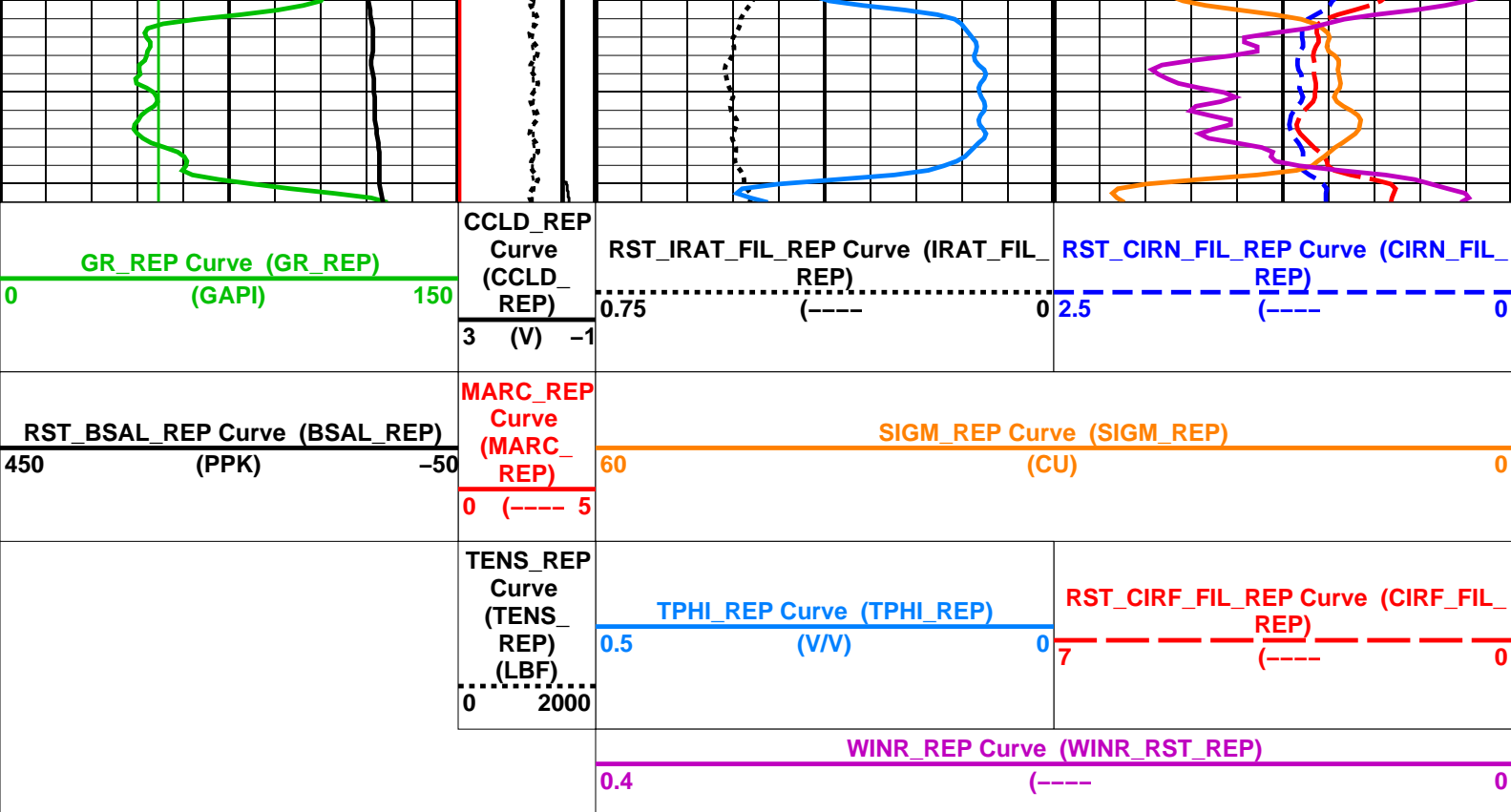
Time Mark Every 60 S











#### 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	
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			
AIRB	Tractor Available in Tool String	NO	
BHS	RST Air Borehole	No	
BHT	Borehole Status	CASED	
BSALOPT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSFL	RST Borehole Salinity Option	Unknown	
CSID	RST Borehole Salinity Filter Length	51	
CSID	Casing Size I.D.	4	IN
DEPC	RST Depth Filter Processing Constant	One	

DTFC	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	2.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	60.00	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	8655	FT
TDD	Total Depth - Driller	8735.00	FT
TDL	Total Depth - Logger	8655.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST\_SIGMA\_S5\_REP    Vertical Scale: 5" per 100'    Graphics File Created: 22-Oct-2013 05:35

## OP System Version: 19C0-187

SCMT-CB      SRPC-5214-H2-2012-OP1:      RST-C      SRPC-5214-H2-2012-OP1:  
PSPT      SRPC-5214-H2-2012-OP1:

### Input DLIS Files

DEFAULT	SCMT_RST_PSP_055LUP	FN:51	PRODUCER	22-Oct-2013 02:30	6440.0 FT	6113.5 FT
DEFAULT	SCMT_RST_PSP_060PUP	FN:56	PRODUCER	22-Oct-2013 05:28	8675.0 FT	-52.0 FT

### Output DLIS Files

DEFAULT	SCMT_RST_PSP_061PUP	FN:57	PRODUCER	22-Oct-2013 05:35
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Client: ENCANA OIL & GAS (USA) INC

Field: SOUTH PARACHUTE

Well: HAGEN FEDERAL 22-1AA (PC22)

Run date: 22-Oct-2013

Tool: PSP

Sub Type: PBMS

Sensor: GR

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 HV Rt		
	Rt**0	Rt**1
Rt**0	<div>+.182000000000e+04</div>	<div>+.332000000000e+04</div>

Client: ENCANA OIL & GAS (USA) INC

Field: SOUTH PARACHUTE

Well: HAGEN FEDERAL 22-1AA (PC22)

Run date: 22-Oct-2013

Tool: PSP

Sub Type: PBMS

Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

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

928

280612

16

A24E

WTemp Coeff			
	Tt**0	Tt**1	Tt**2
Tt**0	<div>-.391987973189E+03</div>	<div>+.191346892512E+03</div>	<div>-.440920753451E+02</div>

	Tt**3	Tt**4	Tt**5
Tt**0	+.957191300908E+01	-.711421725686E+00	0.0

Client: ENCANA OIL & GAS (USA) INC  
 Field: SOUTH PARACHUTE  
 Well: HAGEN FEDERAL 22-1AA (PC22)  
 Run date: 22-Oct-2013

Tool: PSP  
 Sub Type: PBMS  
 Sensor: CQG

**PBMS Quartz Gauge type F**

Sonde Serial NB  
 Sensor Serial NB  
 Calib Date ddmmyy  
 Matrix Size  
 Coeff CRC  
 Pres Coeff

COEFFICIENTS FOR CQG PBMS-B.928 S/N:  
 928  
 280612  
 66  
 9DC3

	Fb**0	Fb**1	Fb**2
Fc**0	+.714463802232E+04	+.183434658655E-01	-.156620073569E-06
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
Fb**0	+.114322792679E-12	+.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	+.310874009898E+05	+.288920923041E-02	+.697940727038E-06

	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.657432344763E-10	-.412920638782E-15	+.213369826099E-20

PBMS Quartz Gauge type F

Sonde Serial NB	:
Sensor Serial NB	928
Calib Date ddmmyy	280612

Matrix Size16

Coeff CRC8419

Clock Temp Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+.115369519827E+03	-.565338877075E-02	-.333717531829E-07
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.124387135327E-12	+.713102327208E-16	-.316084316842E-20

Company: ENCANA OIL & GAS (USA) INC

Schlumberger

Well: HAGEN FEDERAL 22-1AA (PC22)  
Field: SOUTH PARACHUTE  
County: GARFIELD  
State: COLORADO

RESERVOIR SATURATION LOG  
SIGMA MODE  
GR-CCL