

Company: ENCANA OIL & GAS (USA) INC

Well: HAGEN FEDERAL 22-4D (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD State: COLORADO

RESERVOIR SATURATION LOG  
SIGMA MODE  
GAMMA RAY-CCL

County: GARFIELD  
Field: SOUTH PARACHUTE  
Location: SHL: 607 FNL & 1762 FWL  
Well: HAGEN FEDERAL 22-4D (PC22)  
Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 607 FNL & 1762 FWL BHL: 1187 FNL & 1123 FWL	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. 05-04522013-00	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 7822 ft

Schlumberger Depth 7725 ft

Bottom Log Interval 7691 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 7822 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade S-80

From 22 ft

To 7790 ft

Maximum Recorded Temperatures 218 degF

Logger On Bottom 13-Sep-2013 18:00

Unit Number 338 Location GRAND JUNCTION

Recorded By KIRSTIE BUNTING

Witnessed By JIM DYKEMAN

## 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	Conveyance Method:	Wireline
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-5	Calibration RMS:	3		
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: 17:00	
TIME ON BOTTOM: 18:00	
EXIT: 20:00	

MAXIMUM RECORDED TEMPERATURE: 218 DEG F	
MAXIMUM RECORDED PRESSURE: 3254 PSIA	
SHORT JOINTS: 5412 FT & 6398 FT	
SANDSTONE MATRIX USED	
CREW: KBUNTING, KJOHNS, JMANN	
THANK YOU FOR CHOOSING E&P WIRELINE. A SCHLUMBERGER COMPANY	

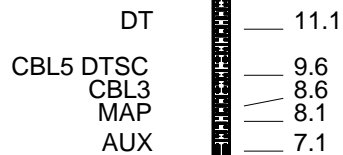
RUN 1 SERVICE ORDER #: CGF9-00137 PROGRAM VERSION: 19C0-187 FLUID LEVEL: 50 ft			RUN 2 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

[illegible]

SURFACE EQUIPMENT		
WITM-A		
PSC_16MHZ		

DOWNHOLE EQUIPMENT			
MH-22			53.3
MH-22			
Detail MT			
AH-38	TelStatus		51.7
PSPT	CTEM		51.5
PSC-A			51.5
PSPT-B 928			
PSTC-A			
PBMS-B	GR		47.8
CQG_F_Mano			
RTD_Thermometer			
GR	Well_Temp		44.7
CCL	CQG Manom		44.4
PBMS	CCL		44.0
	PBMS PSTC		43.2
RST-C			43.2
RSCH-A 197			
RSC-E			
RSS-A 255			
RSXH-A 425			
RSX-E			
	RSC-A Far		34.1
	RSC-A PNG		
	RSC-A Nea		
	RSX-A PNG		33.6

20.2



AH-BNS

Tension SCMT

HV

TOOL ZERO

0.0

0.2

# Schlumberger

## MAIN PASS RST SIGMA

MAXIS Field Log

## Input DLIS Files

DEFAULT	Splice_SCMT_RST_PSP_031CUP	FN:1	PRODUCER	13-Sep-2013 20:14	7731.5 FT	-36.4 FT
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## Output DLIS Files

DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	13-Sep-2013 20:16	7733.5 FT	-85.5 FT
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**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

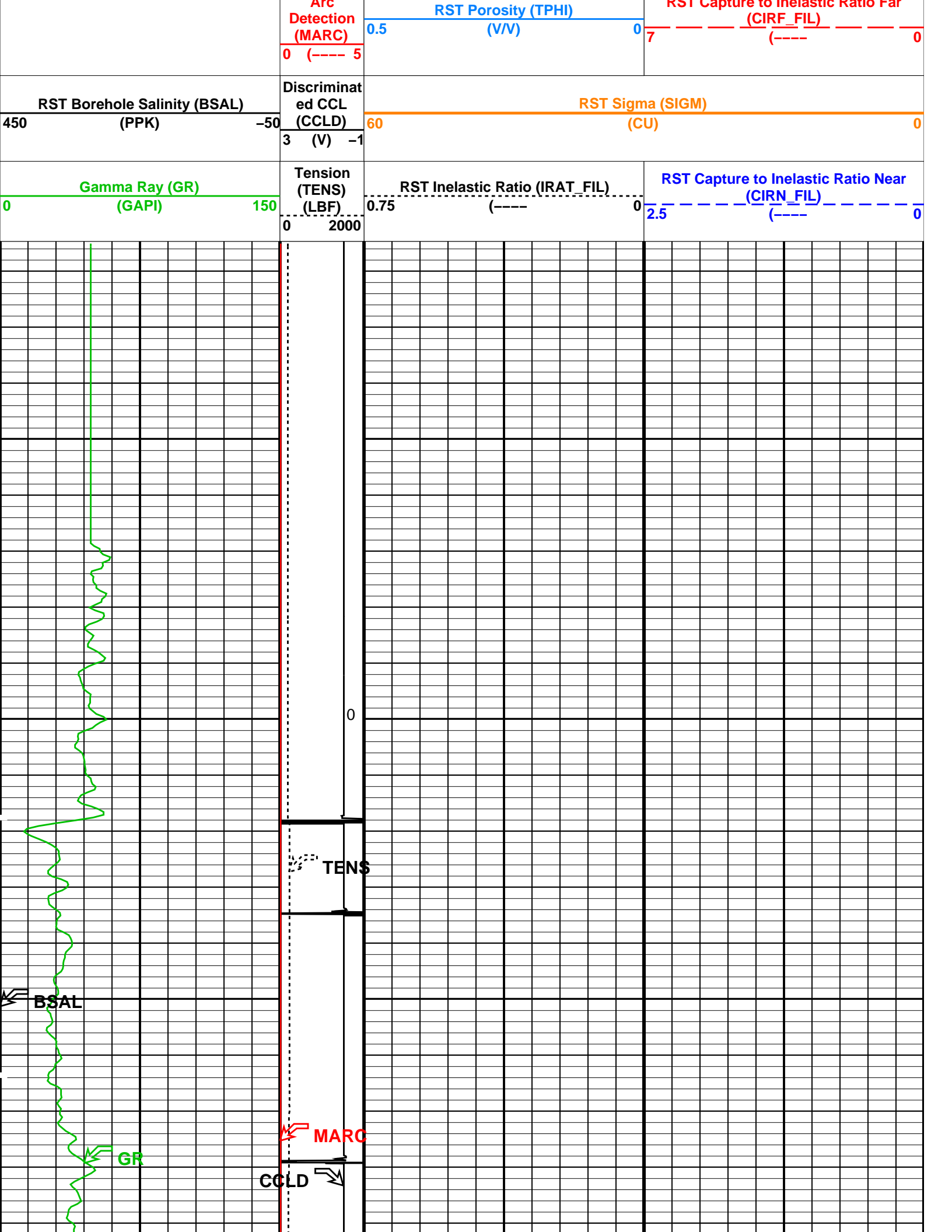
### From WINR to RST CIRF FIL

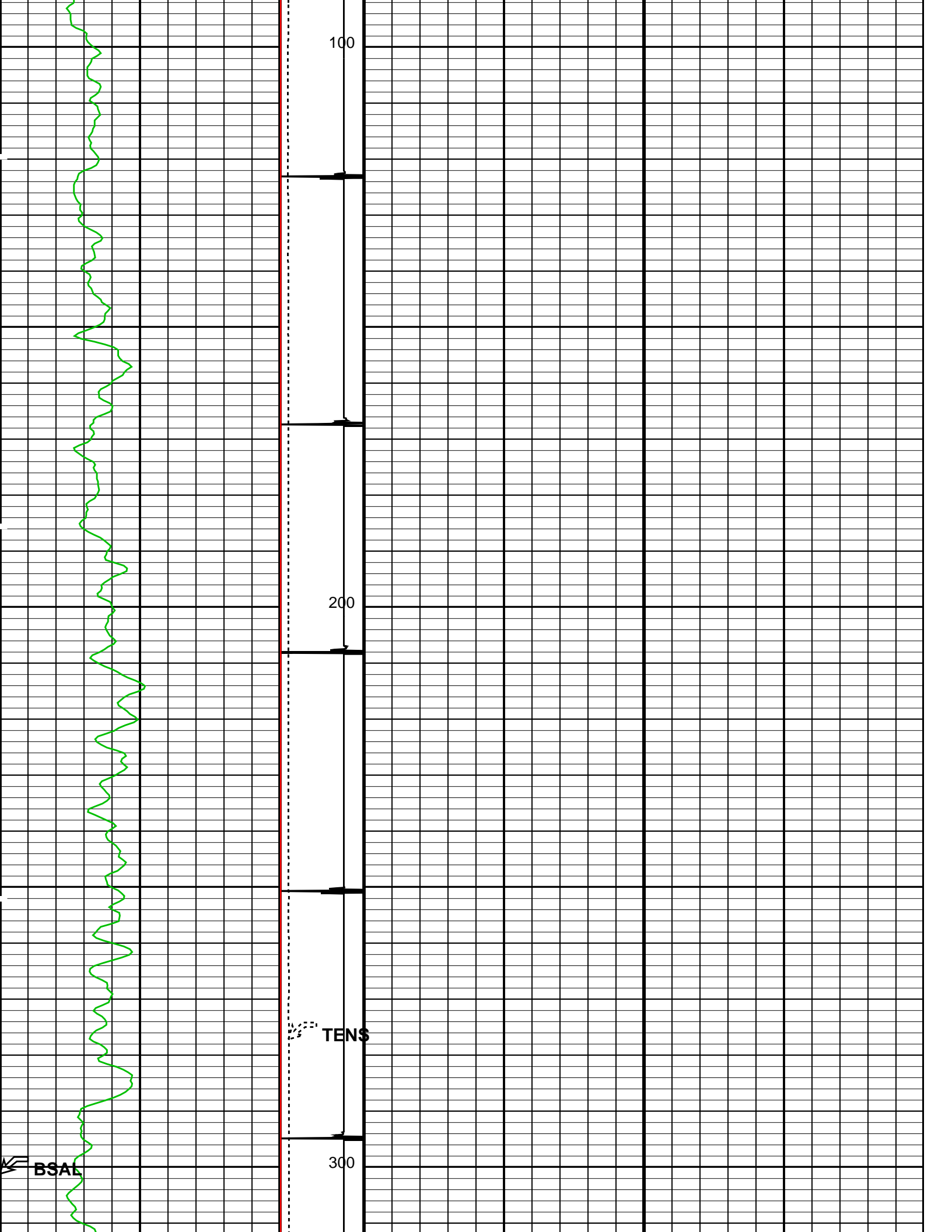
### RST Weighted Inelastic Ratio (WINR\_RST)

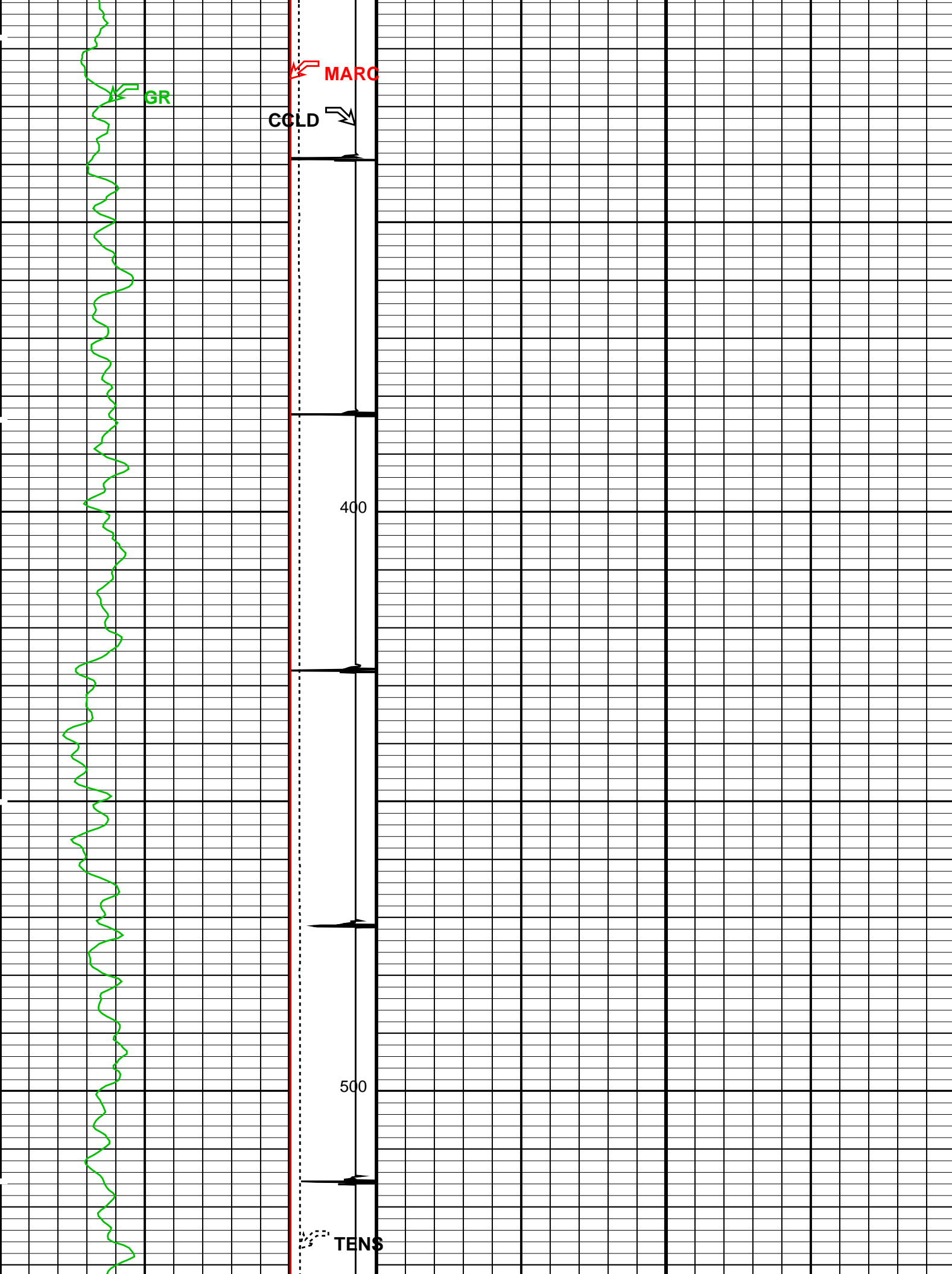
0.4	(----	0
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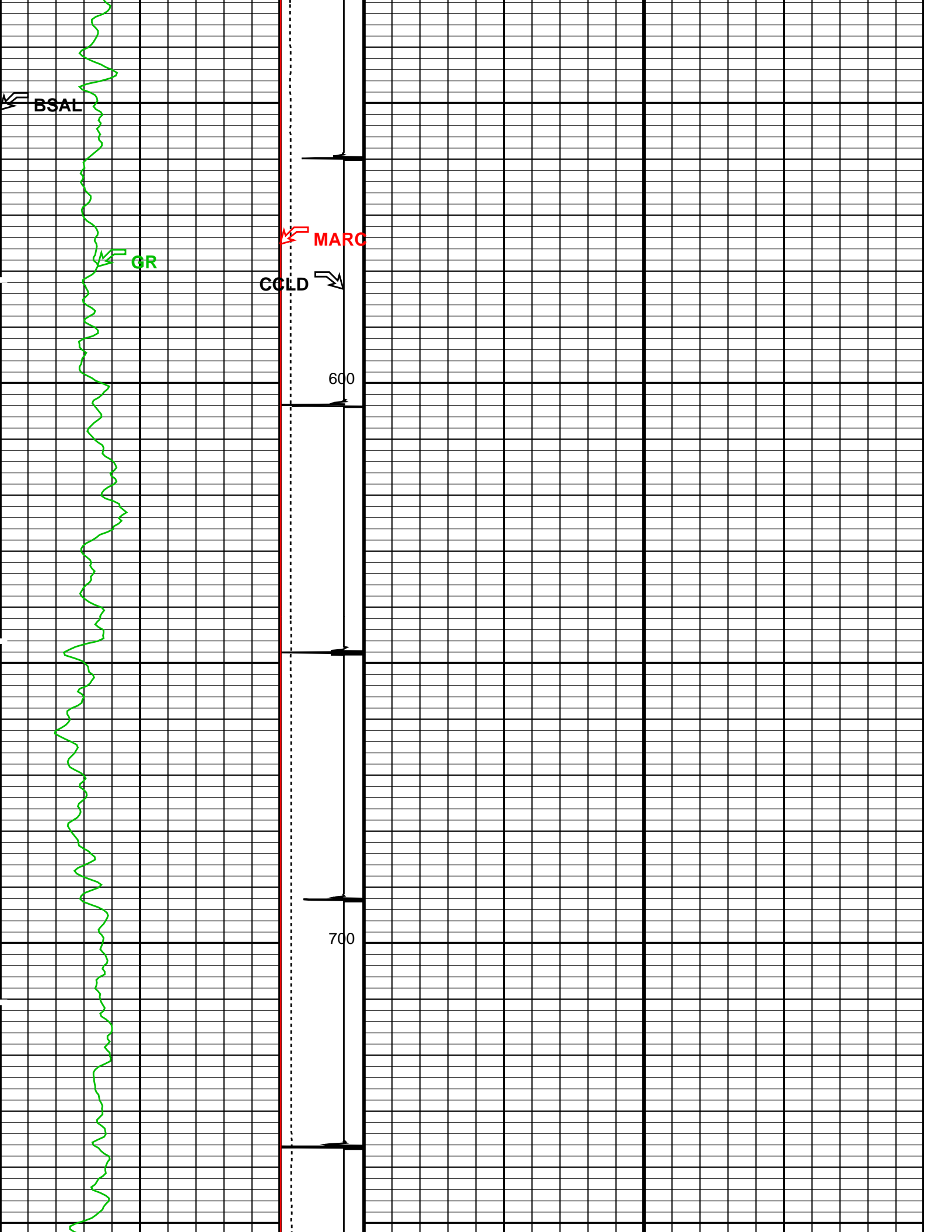
## Minitron

### BST Capture to Inelastic Ratio For

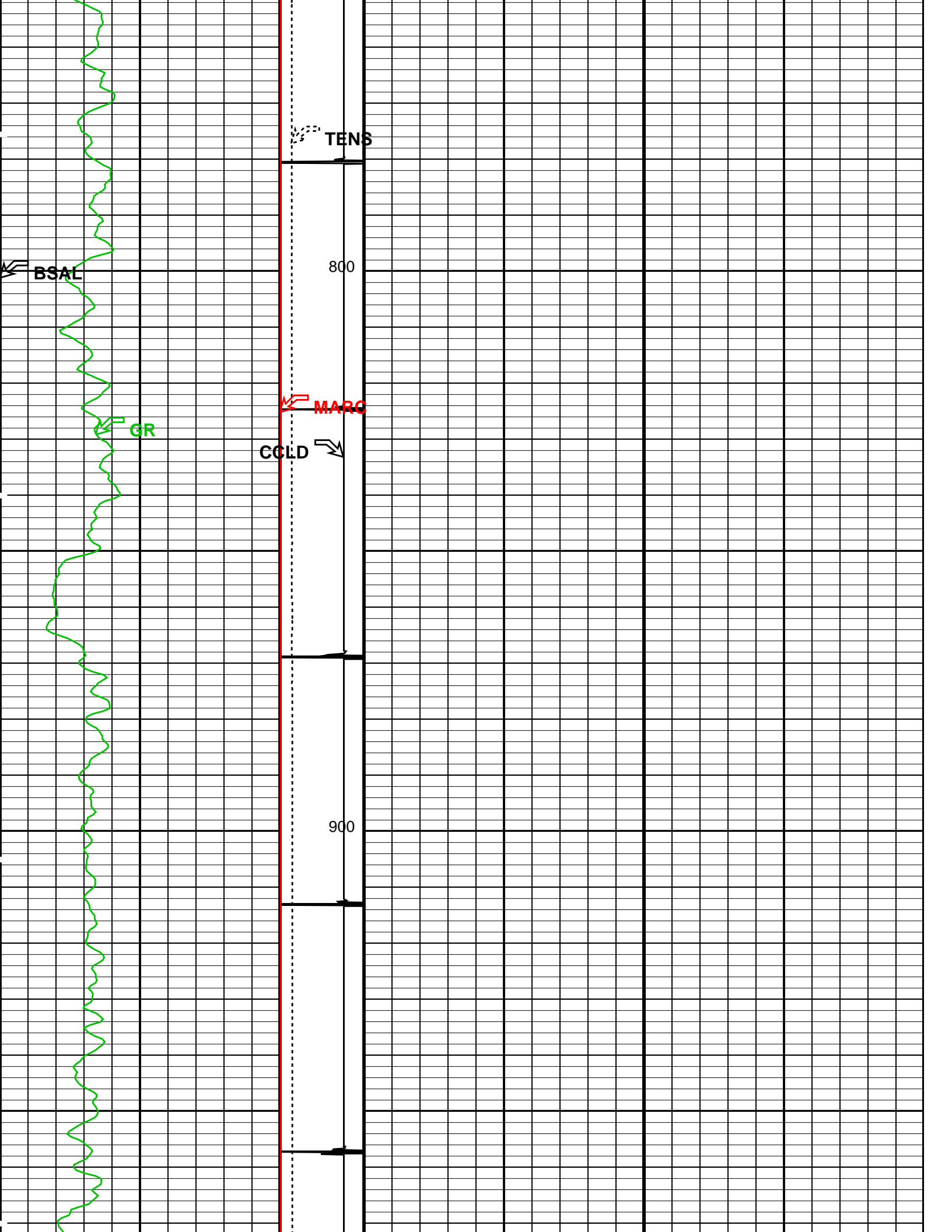


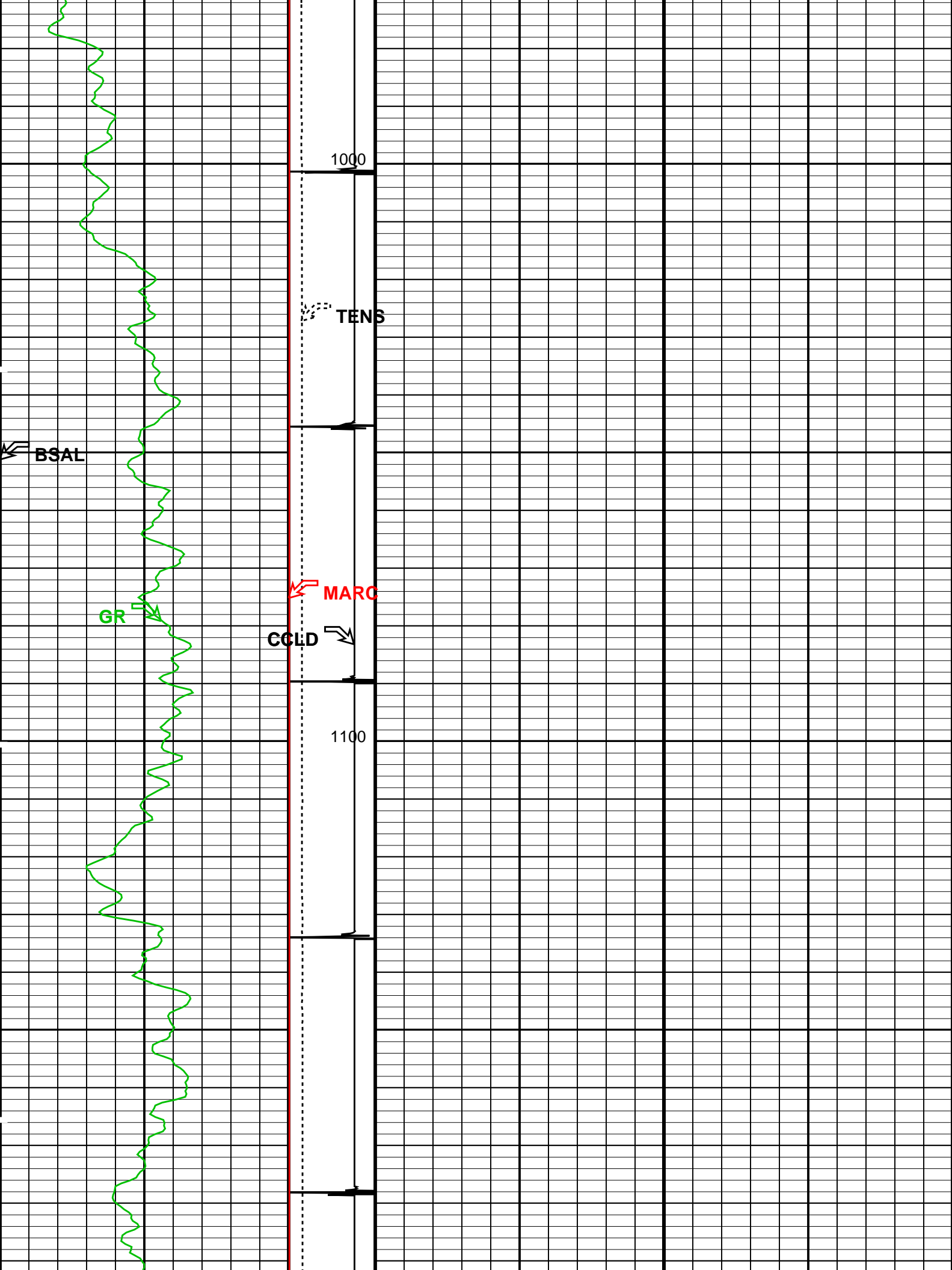


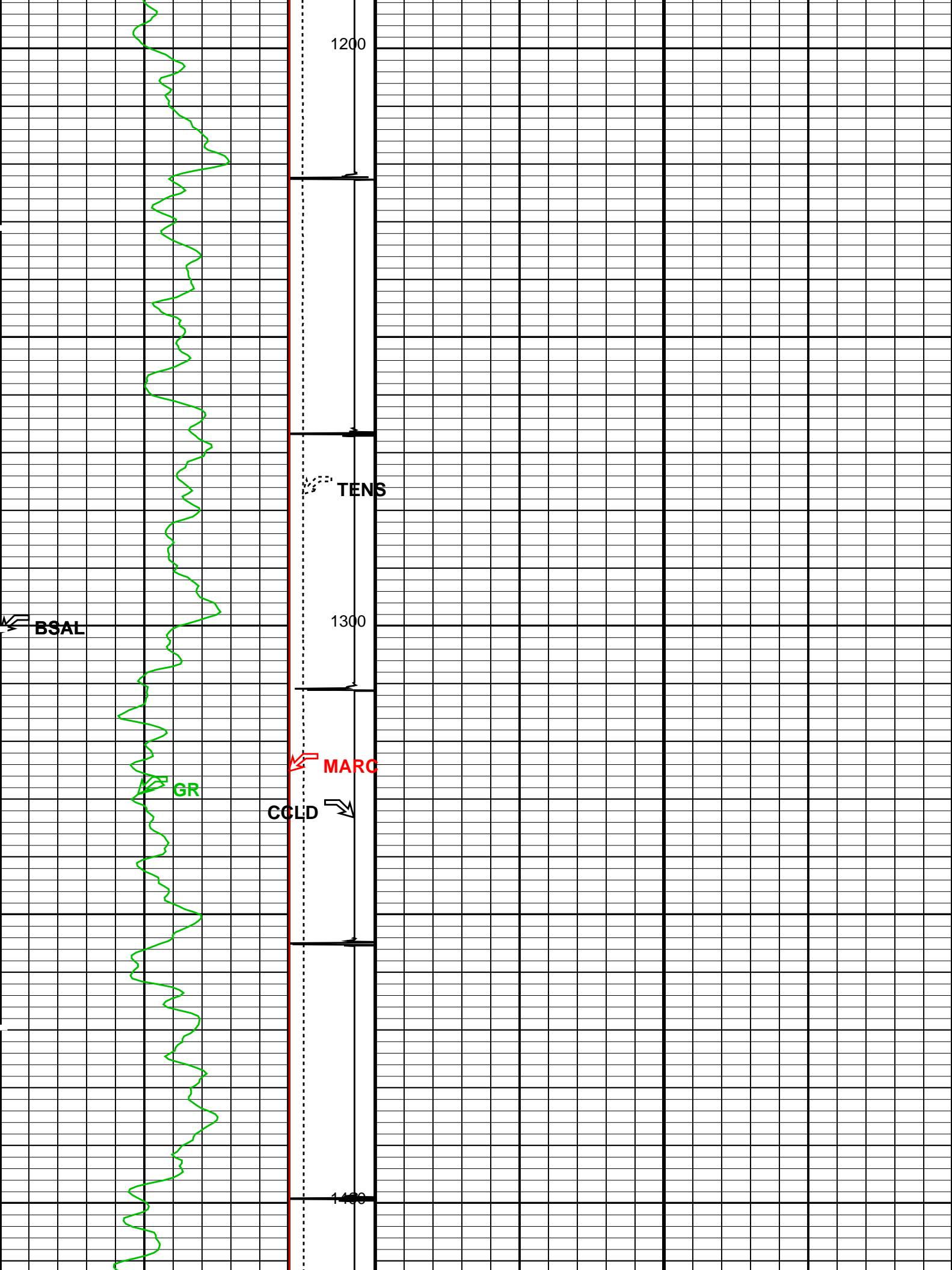


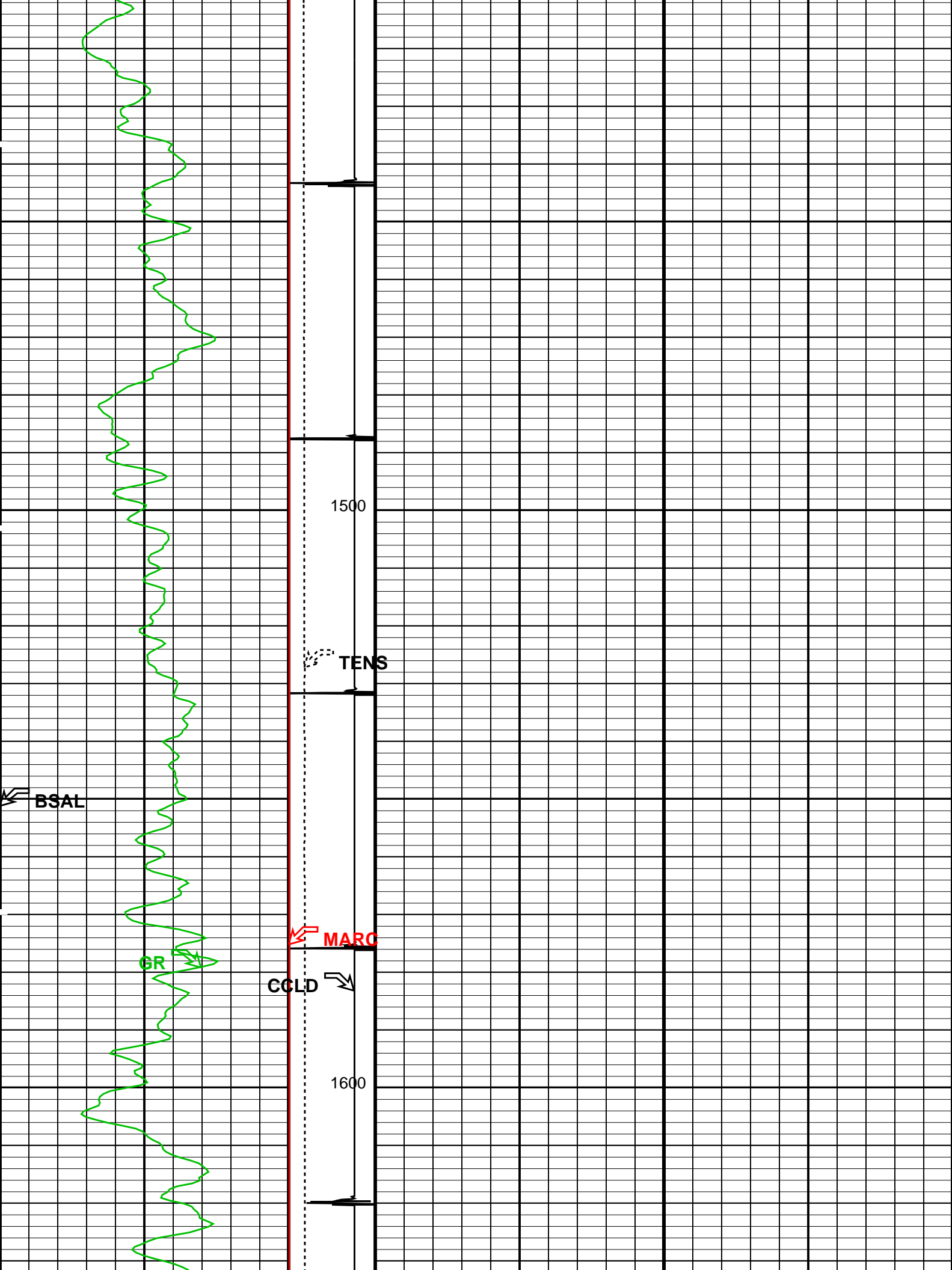


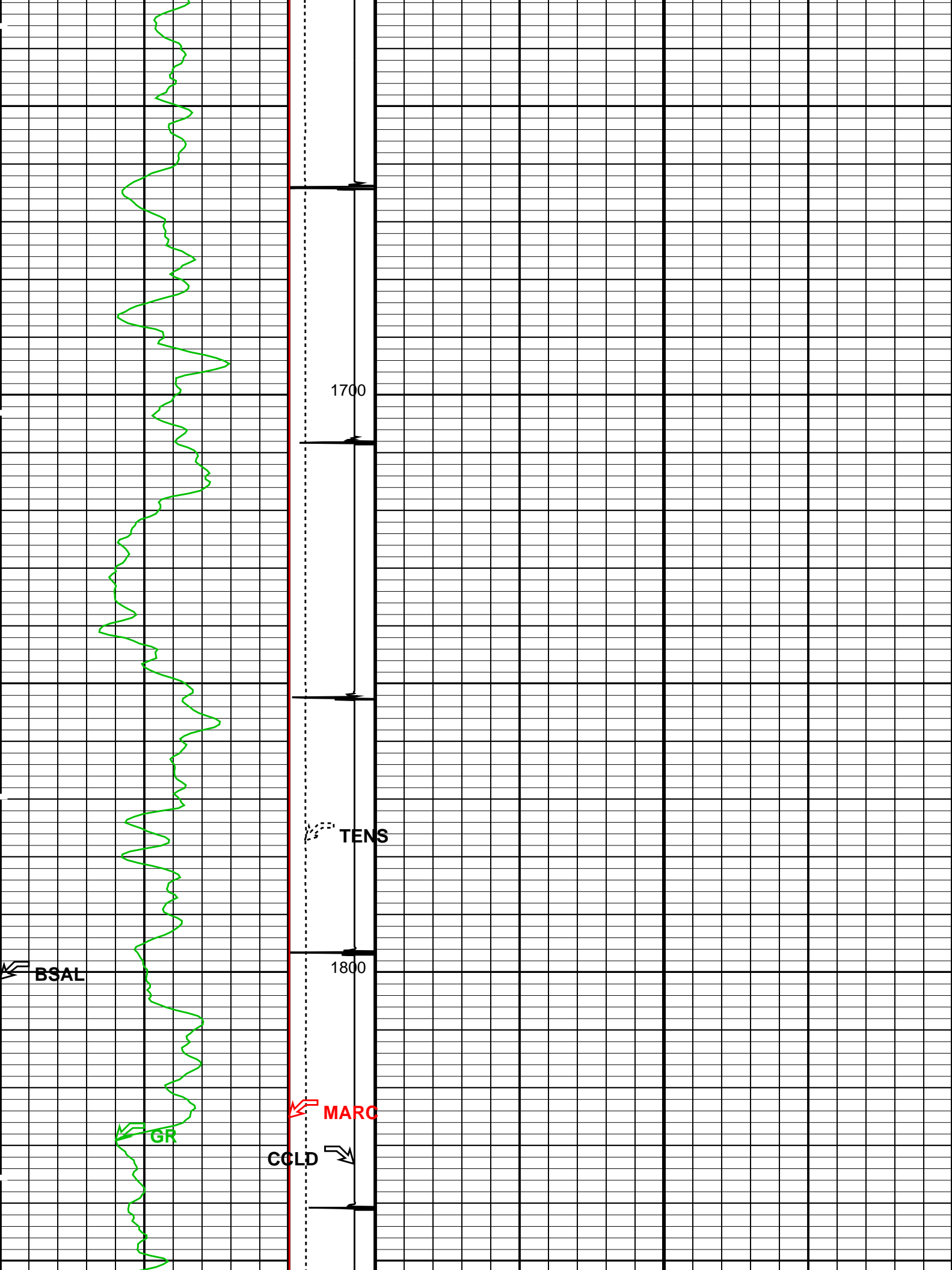


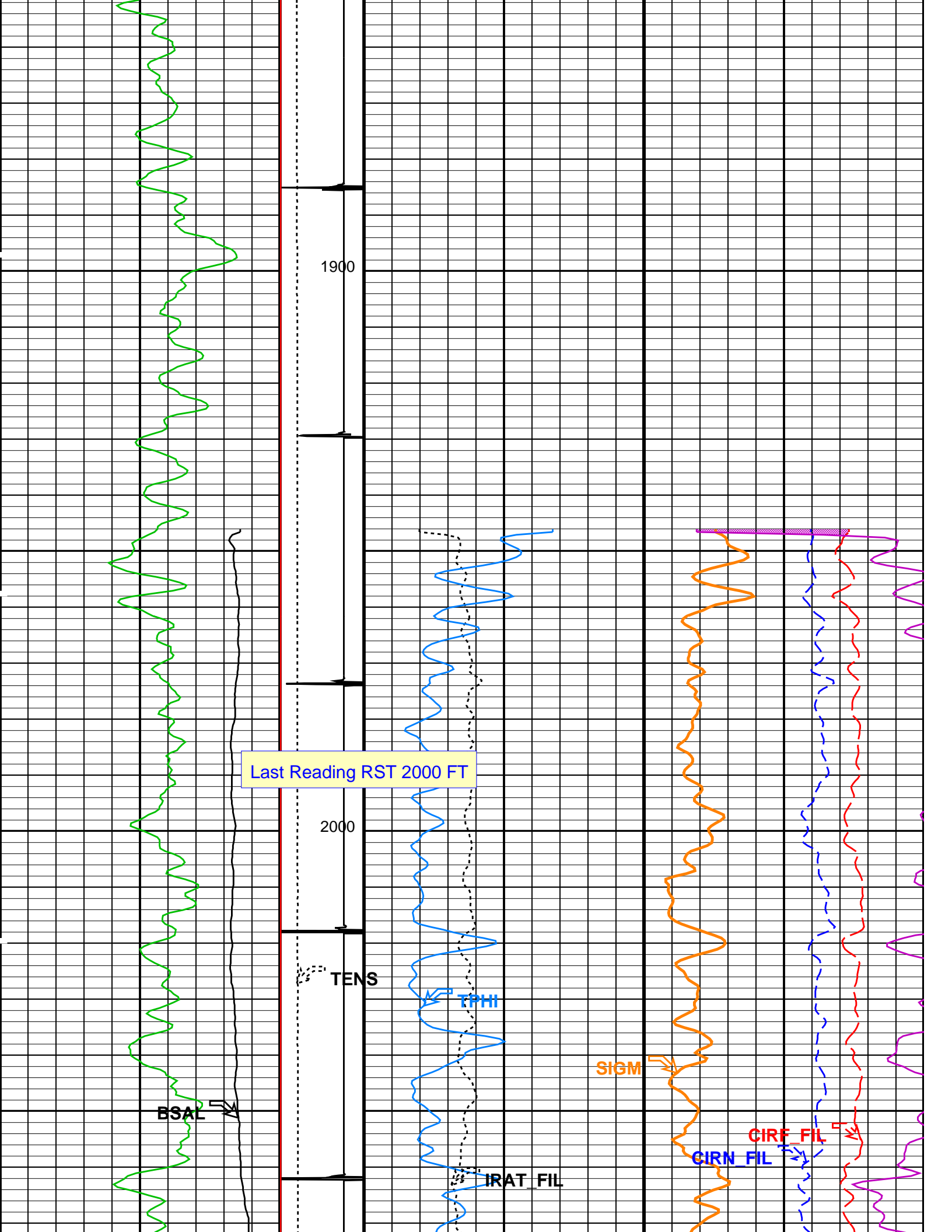


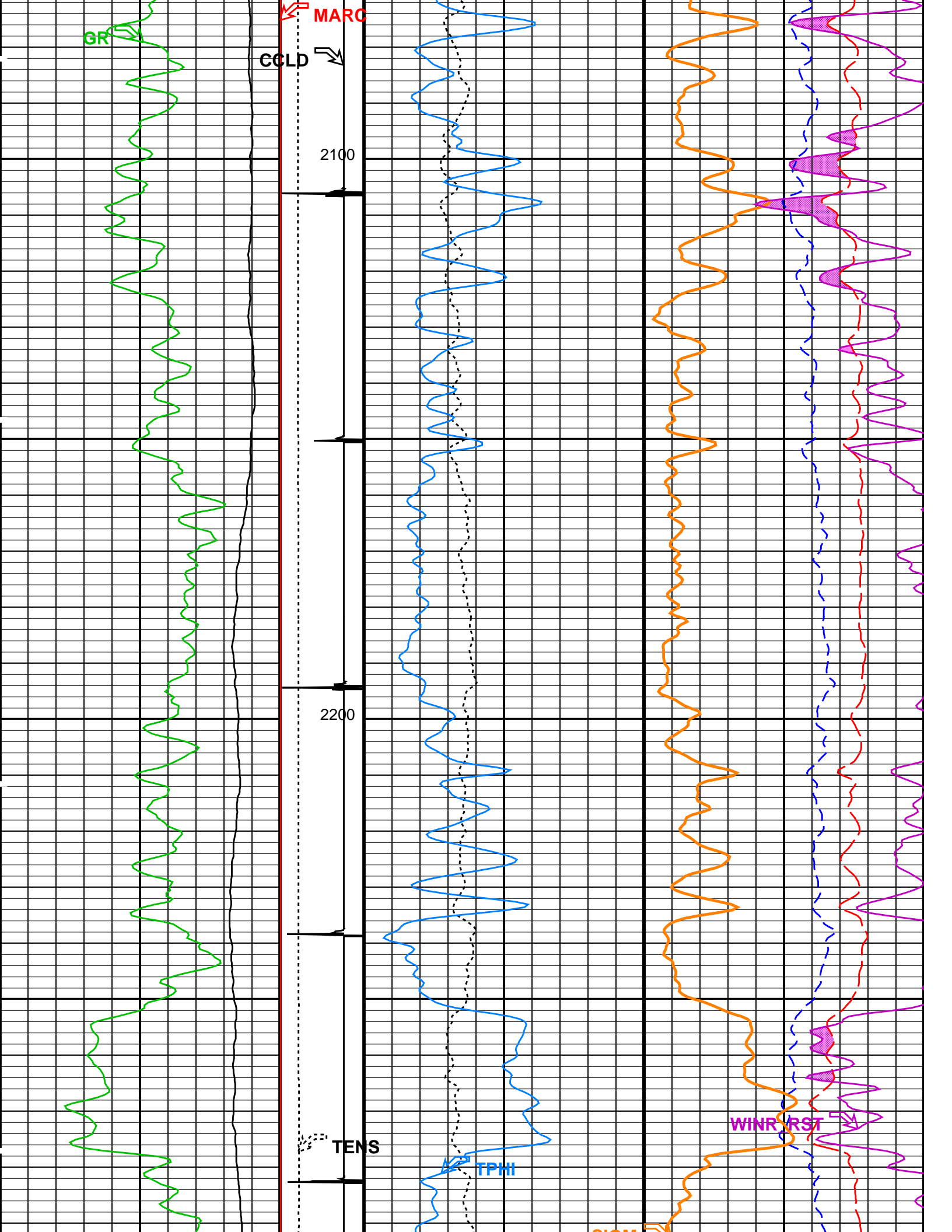


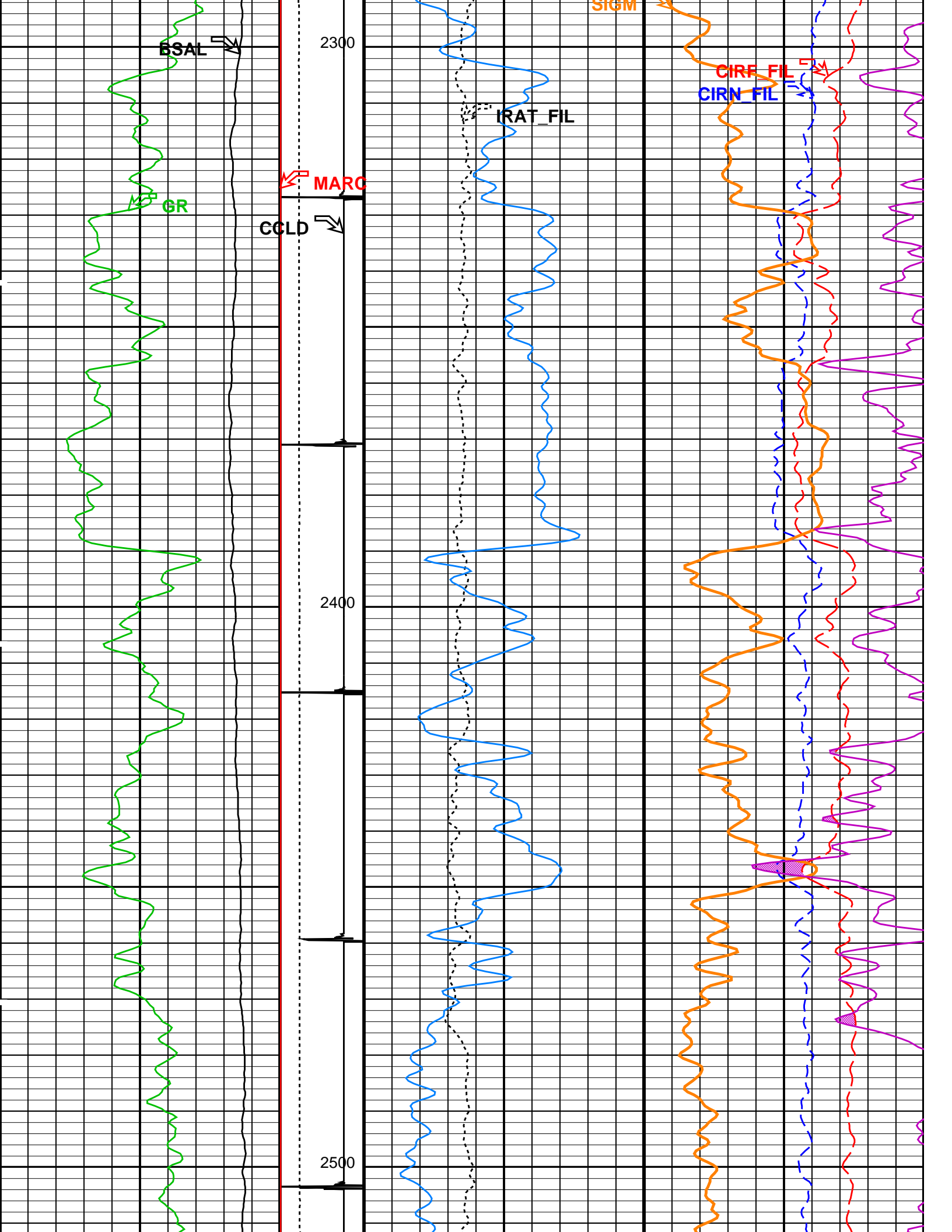




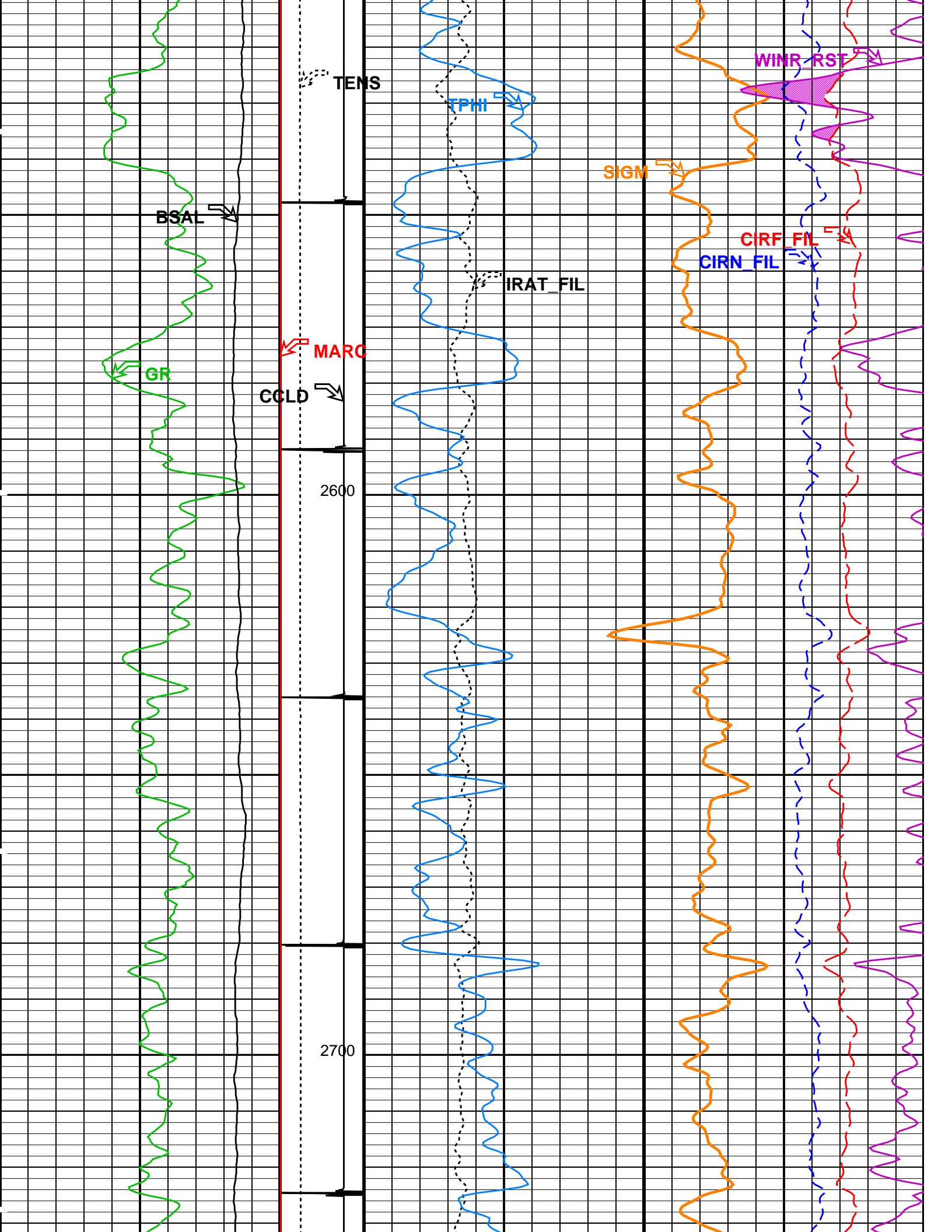


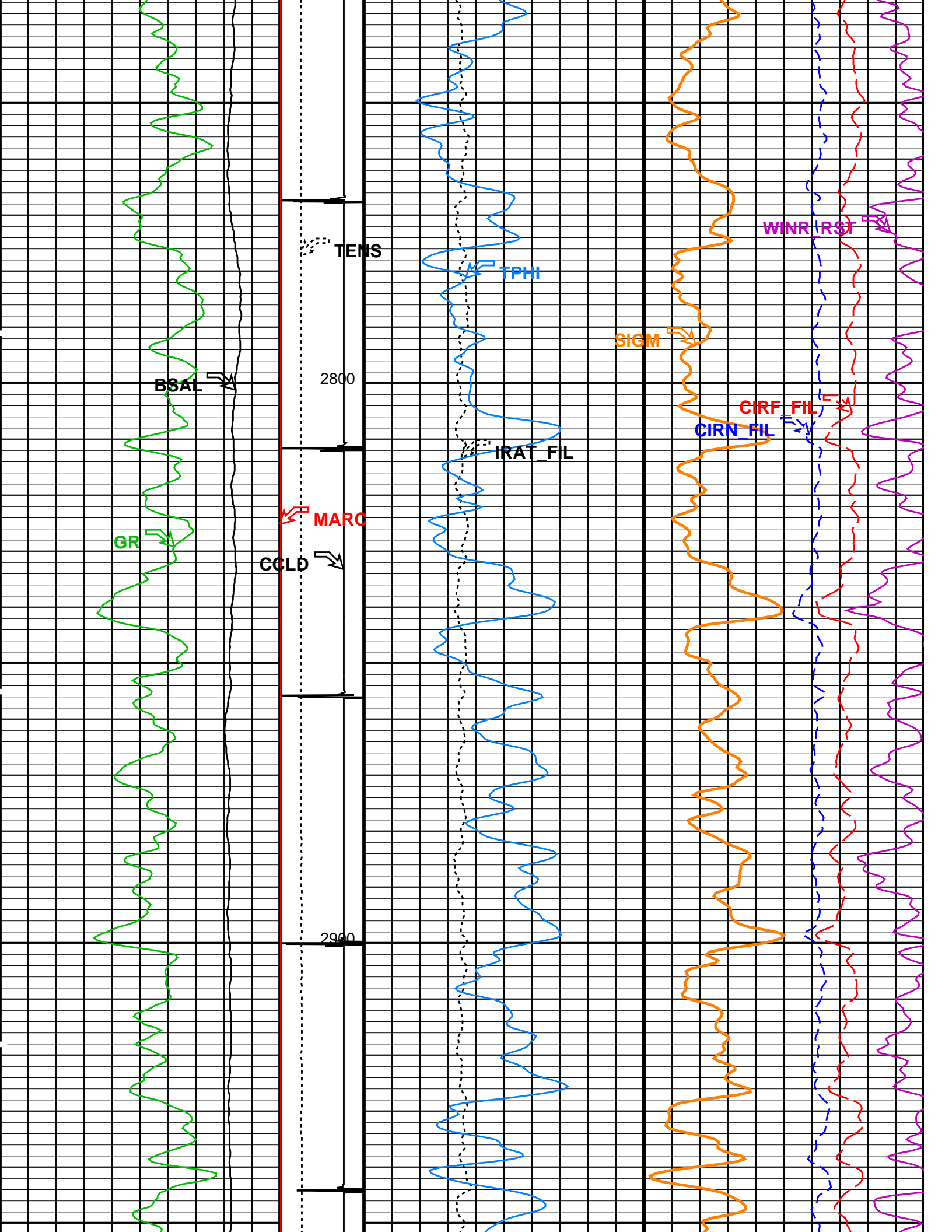


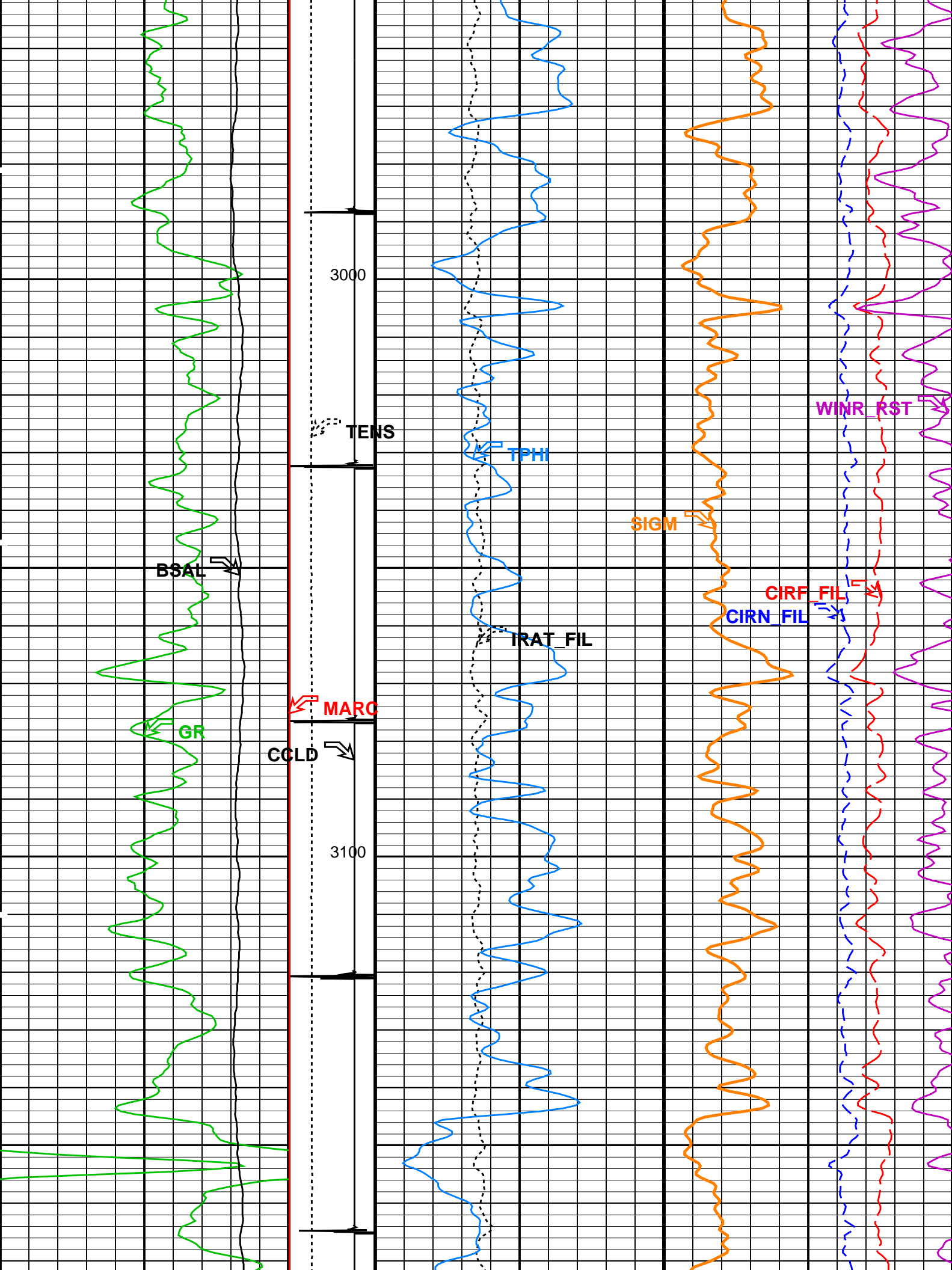


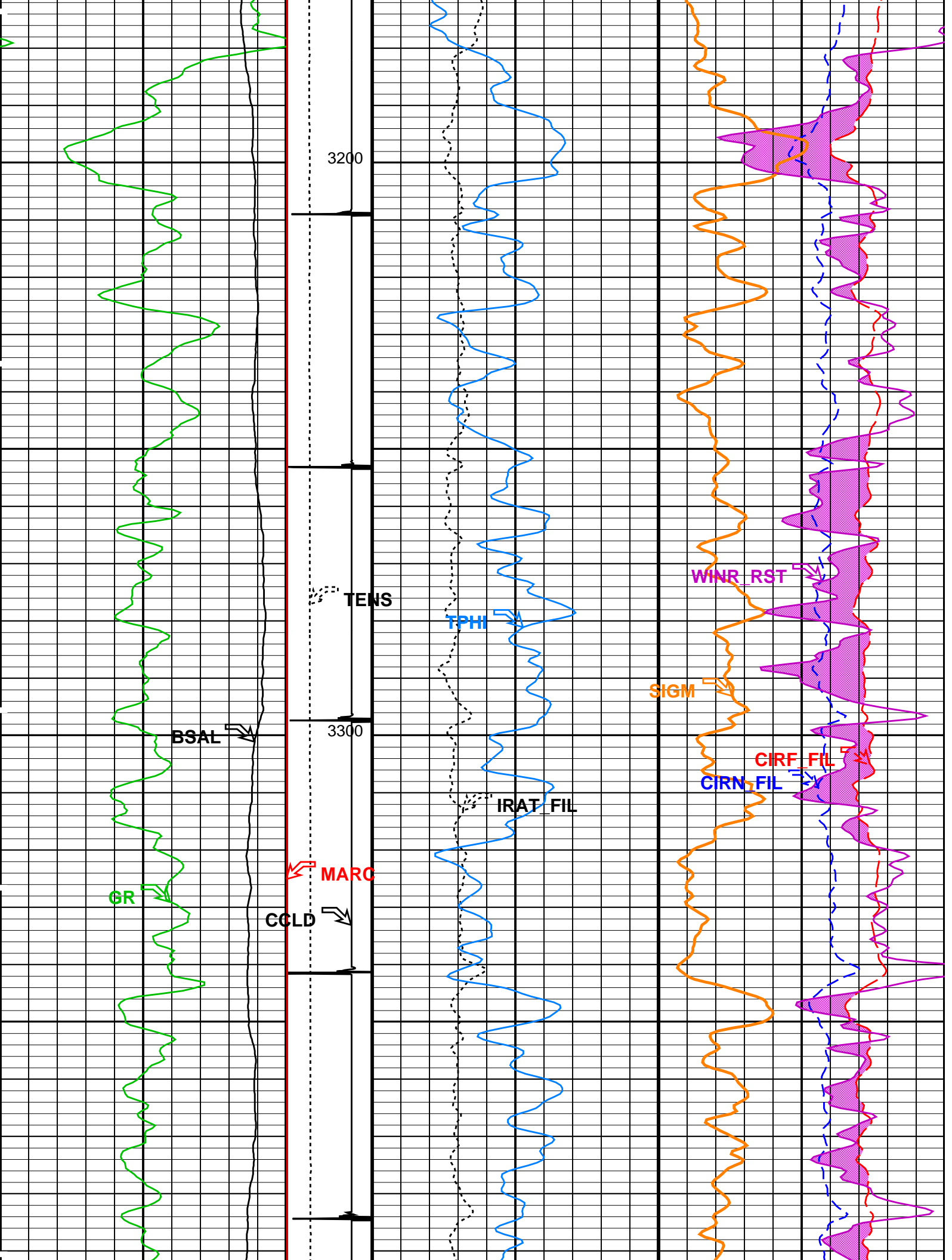


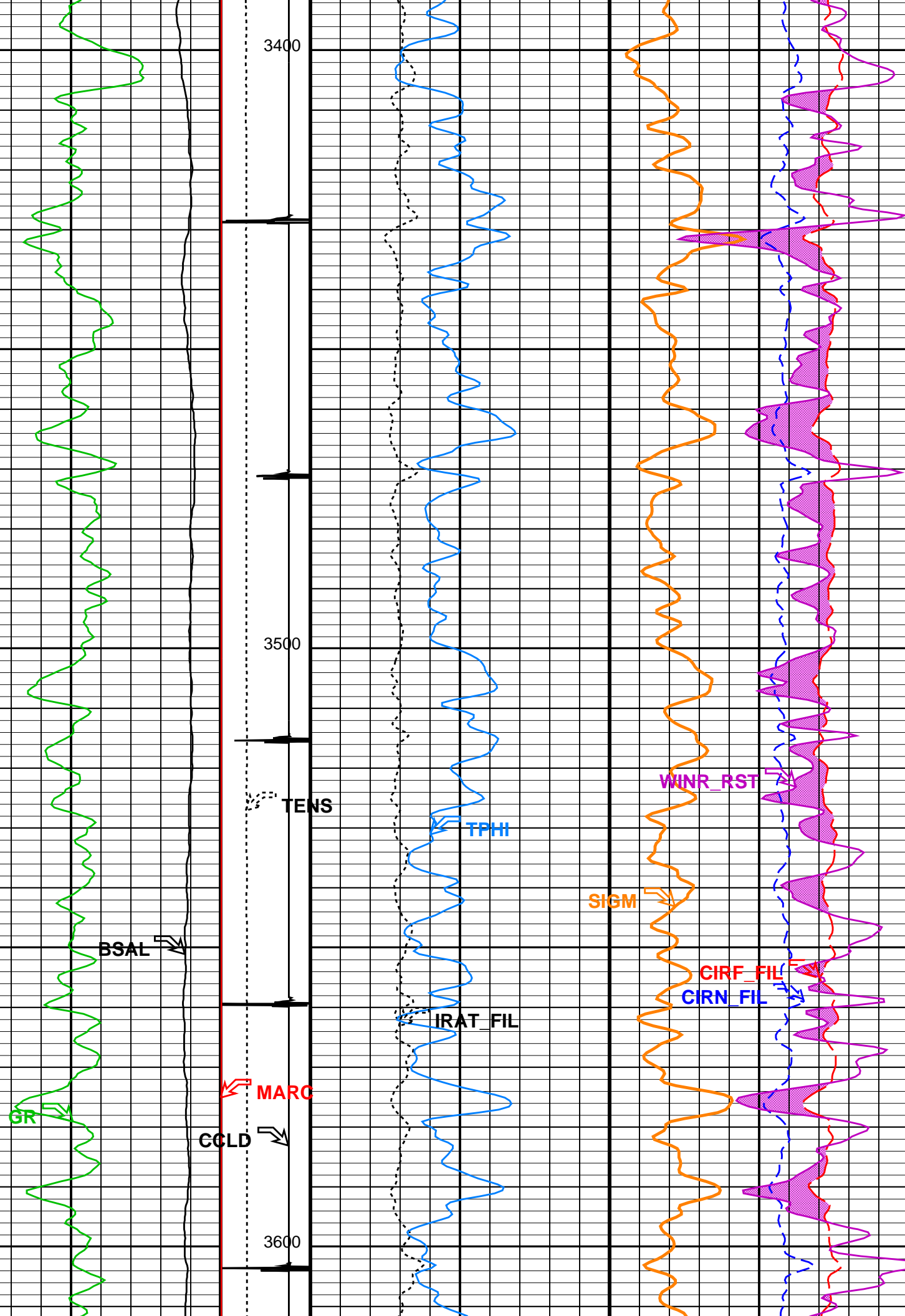


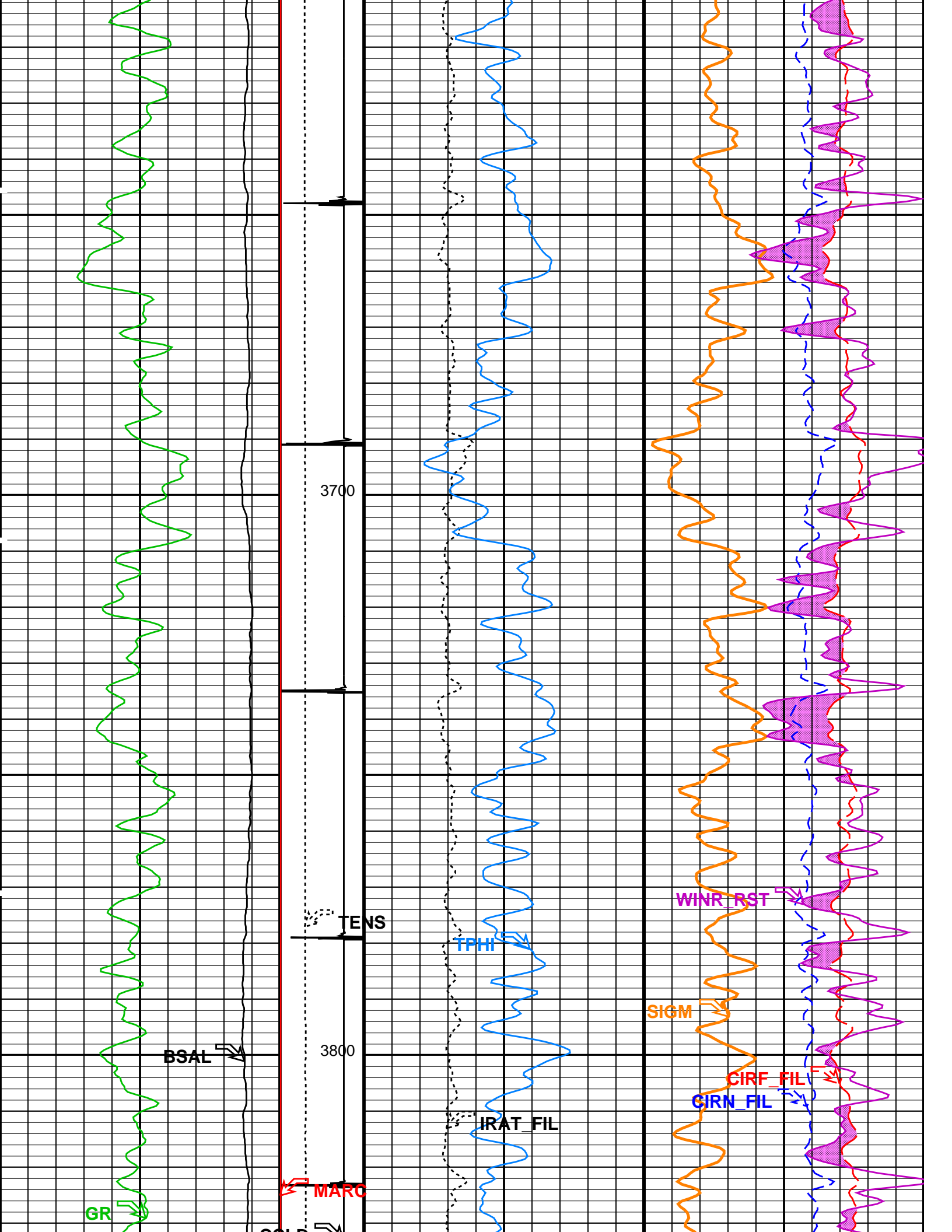


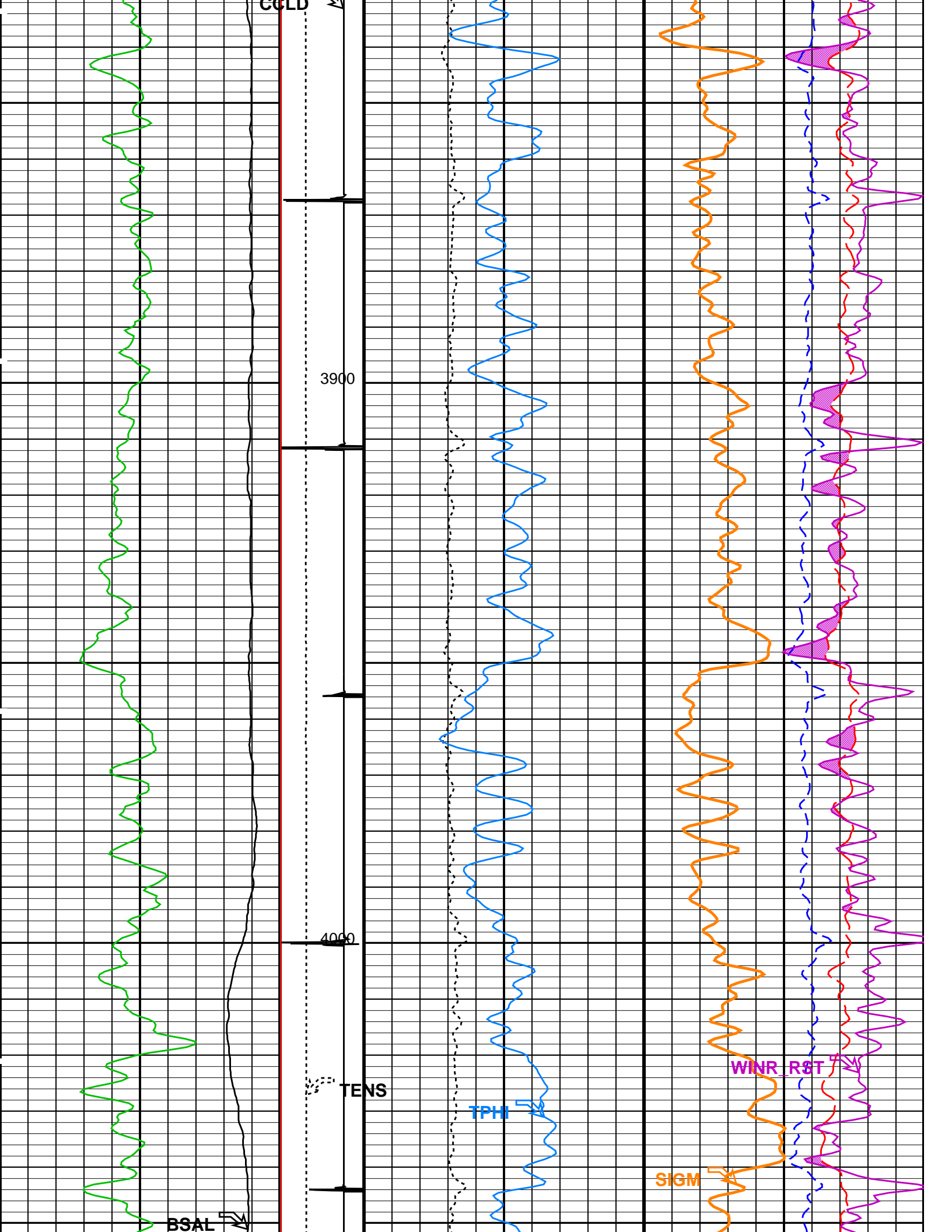


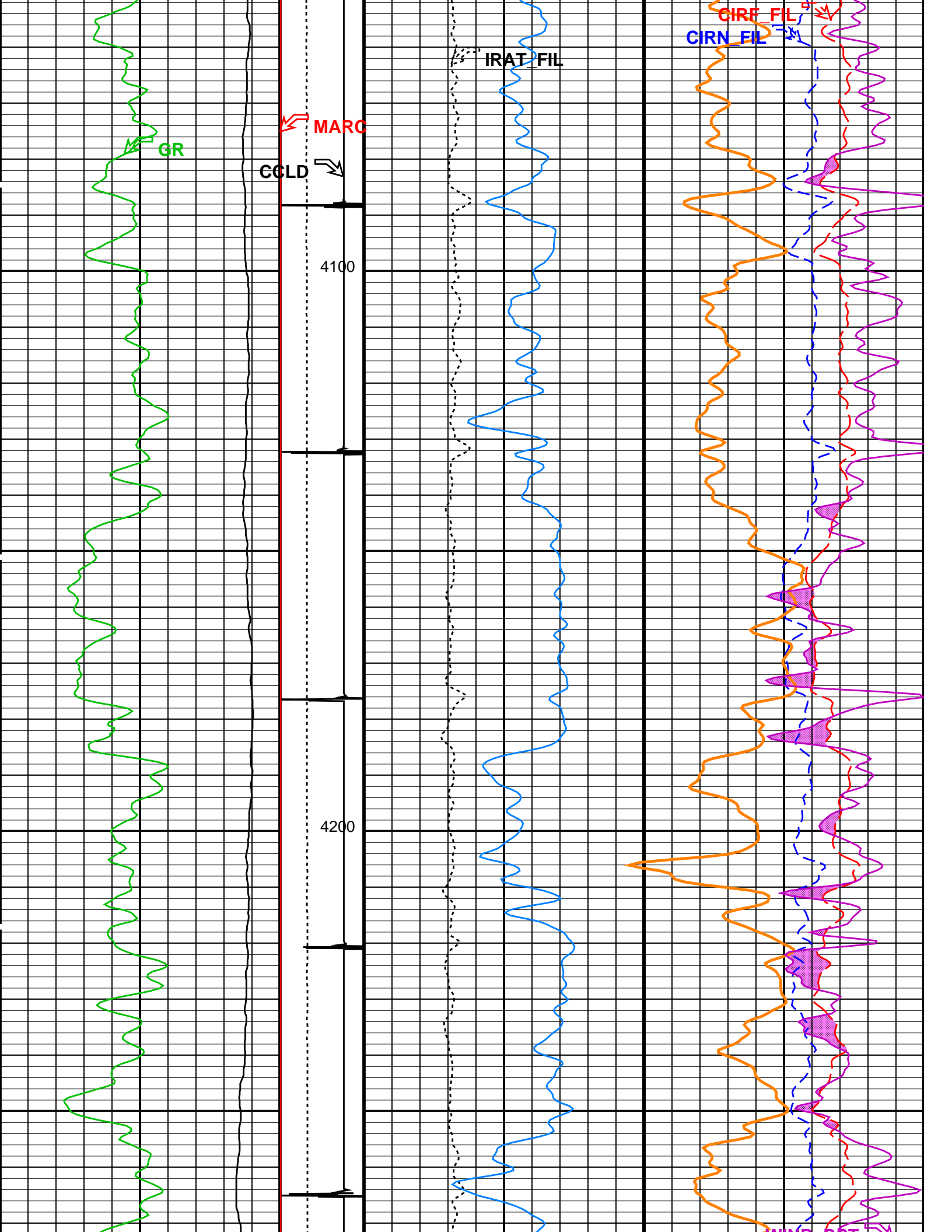




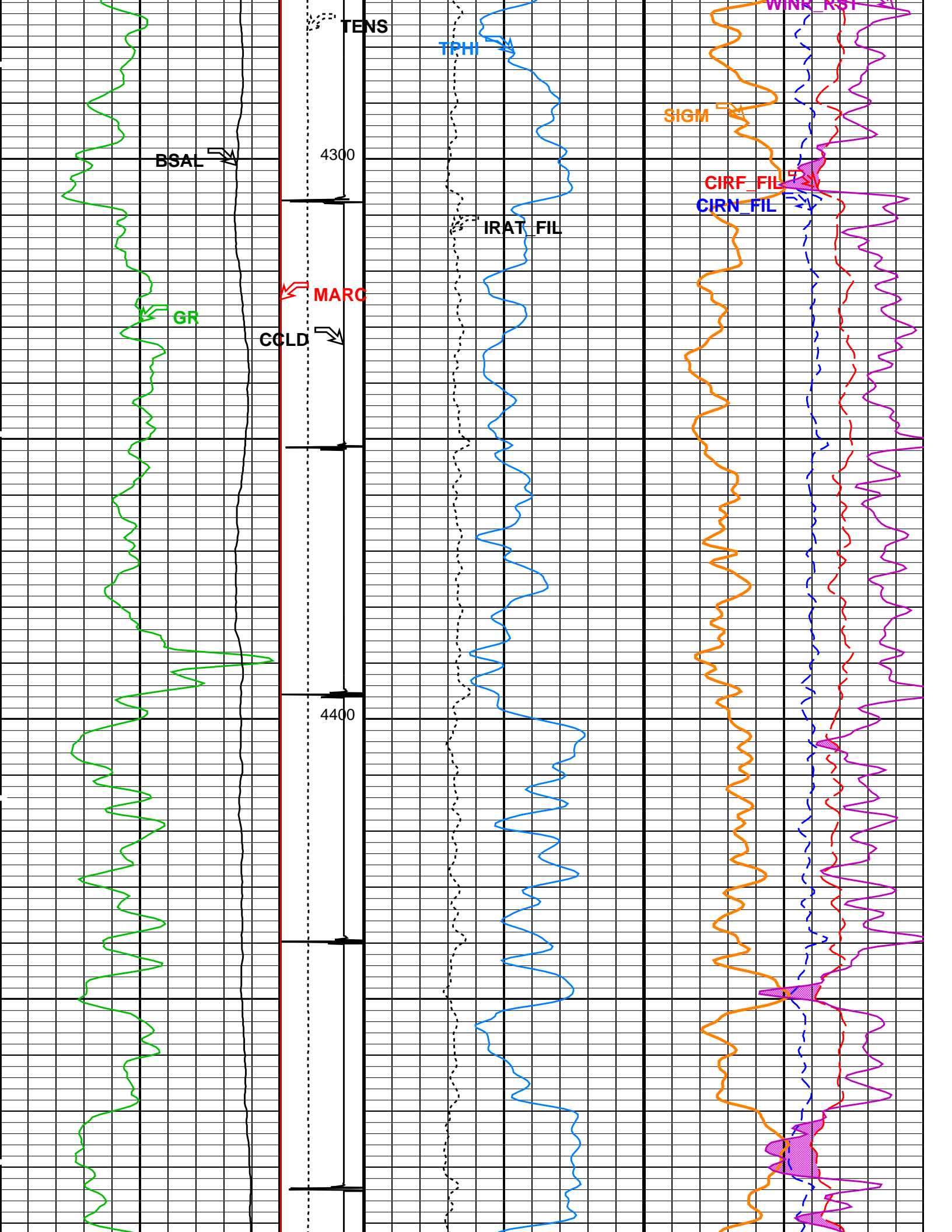


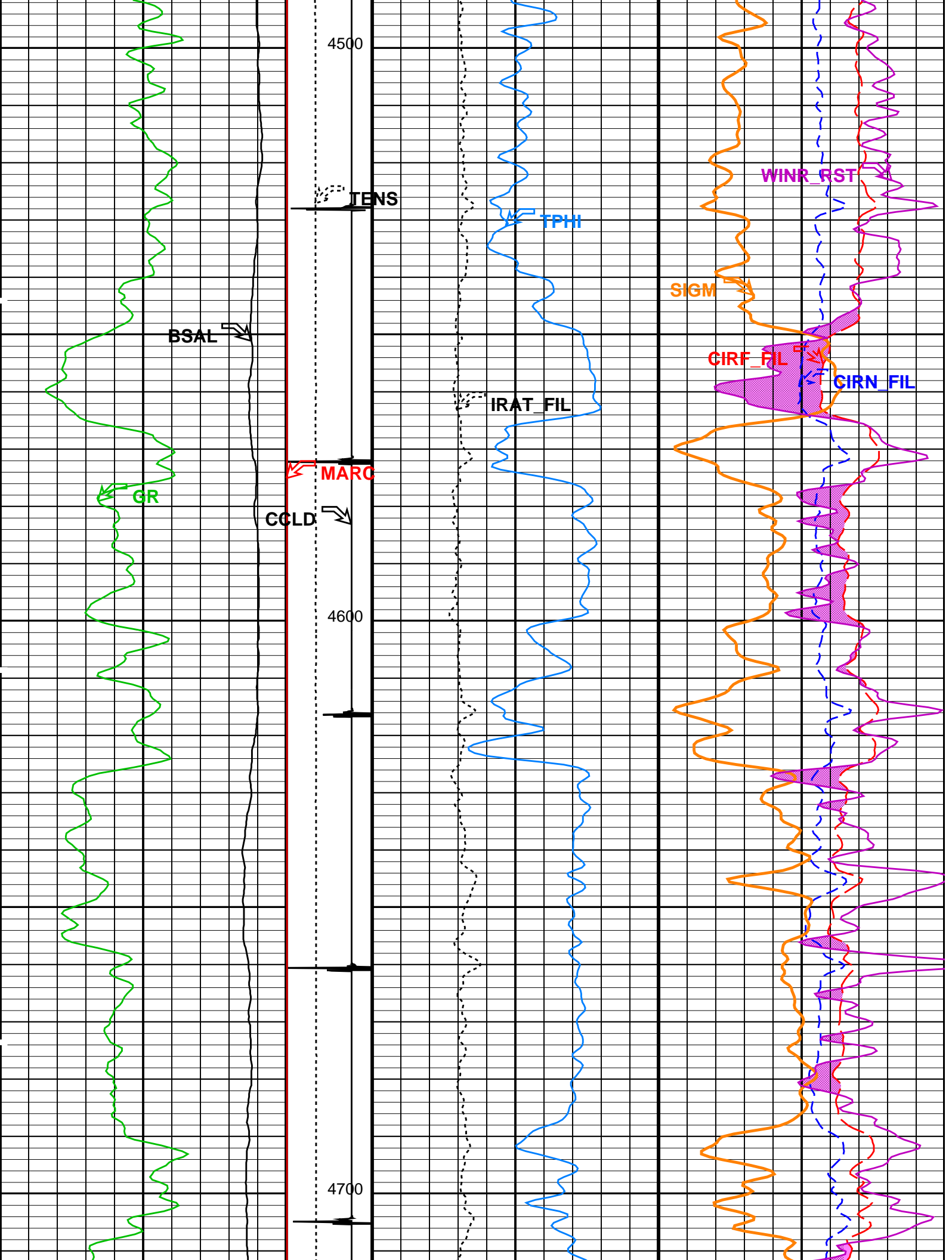


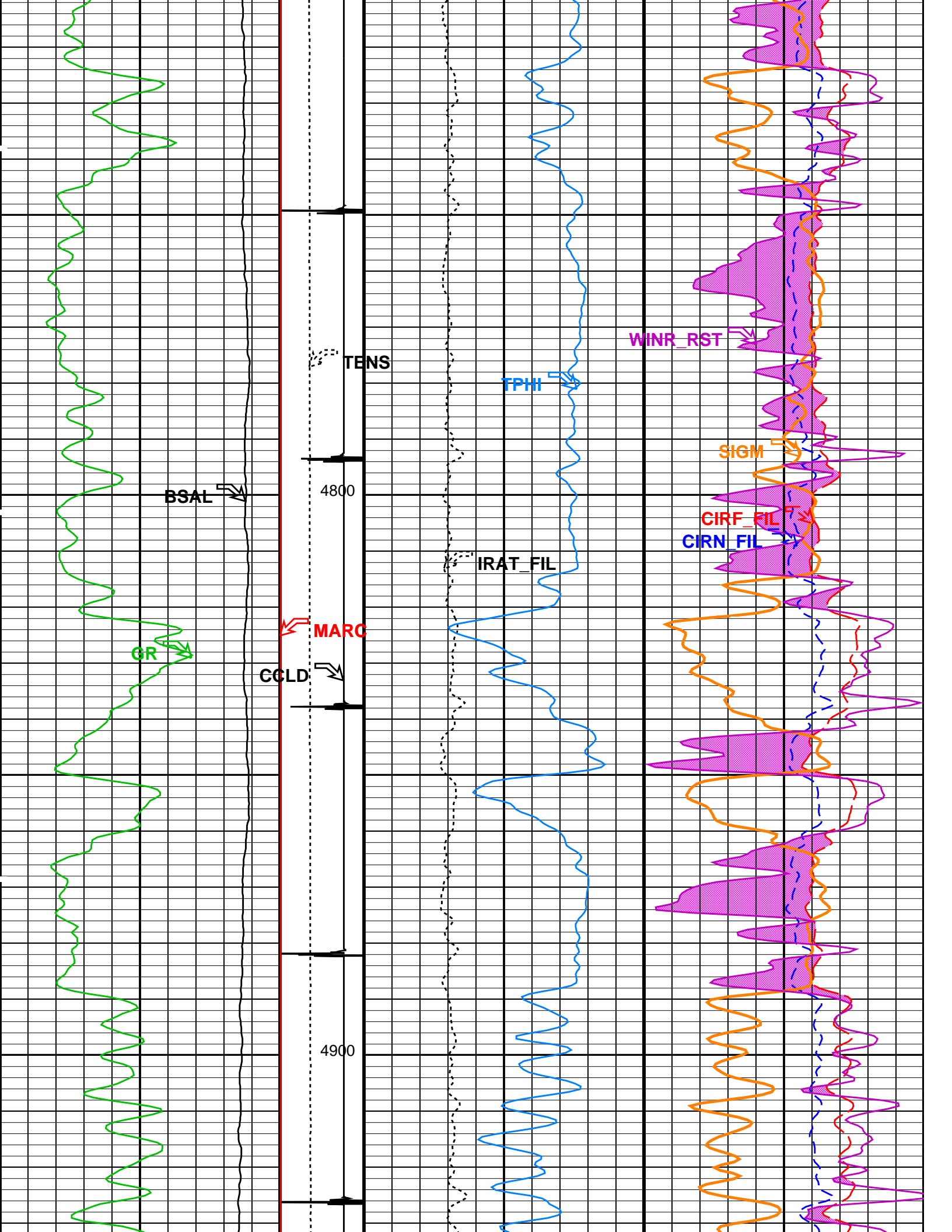


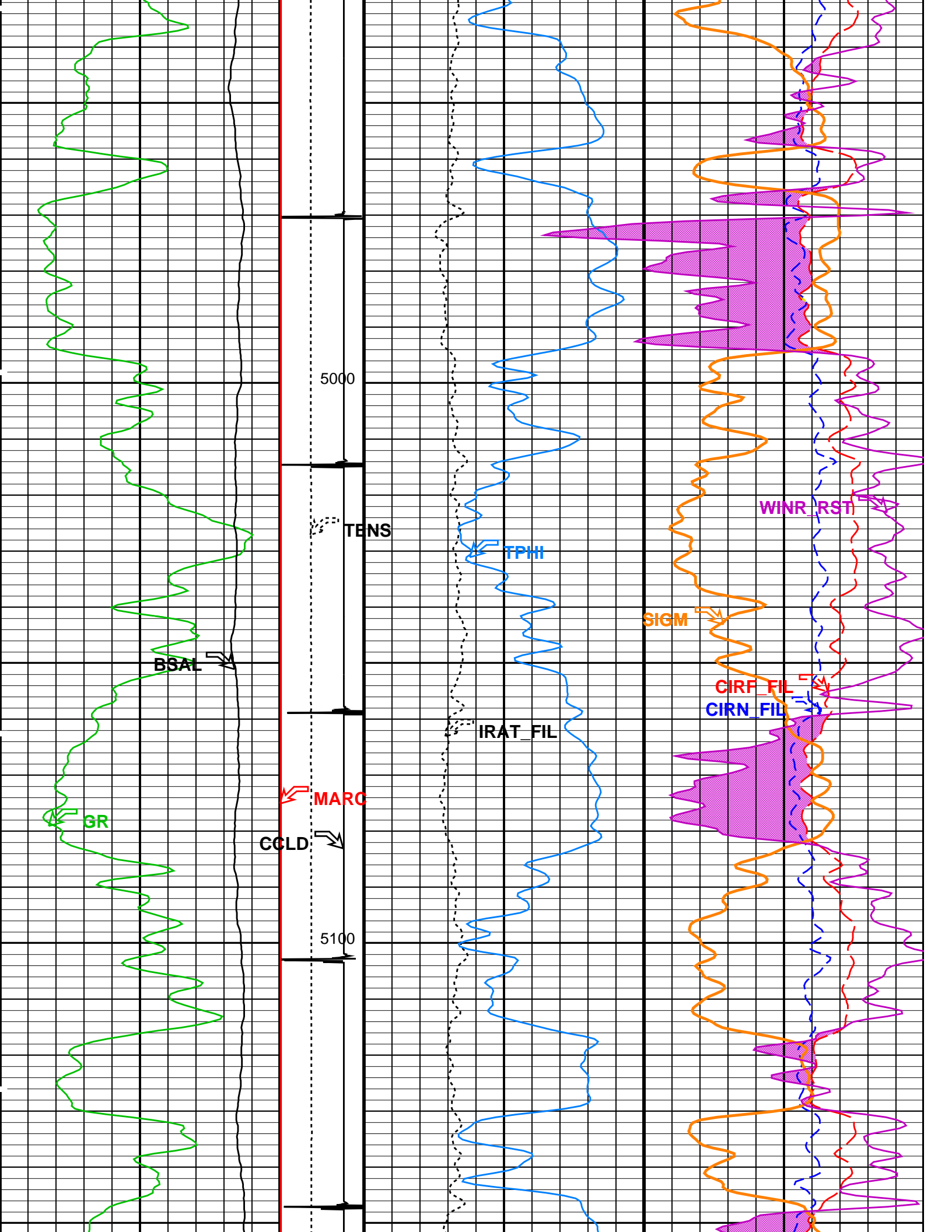


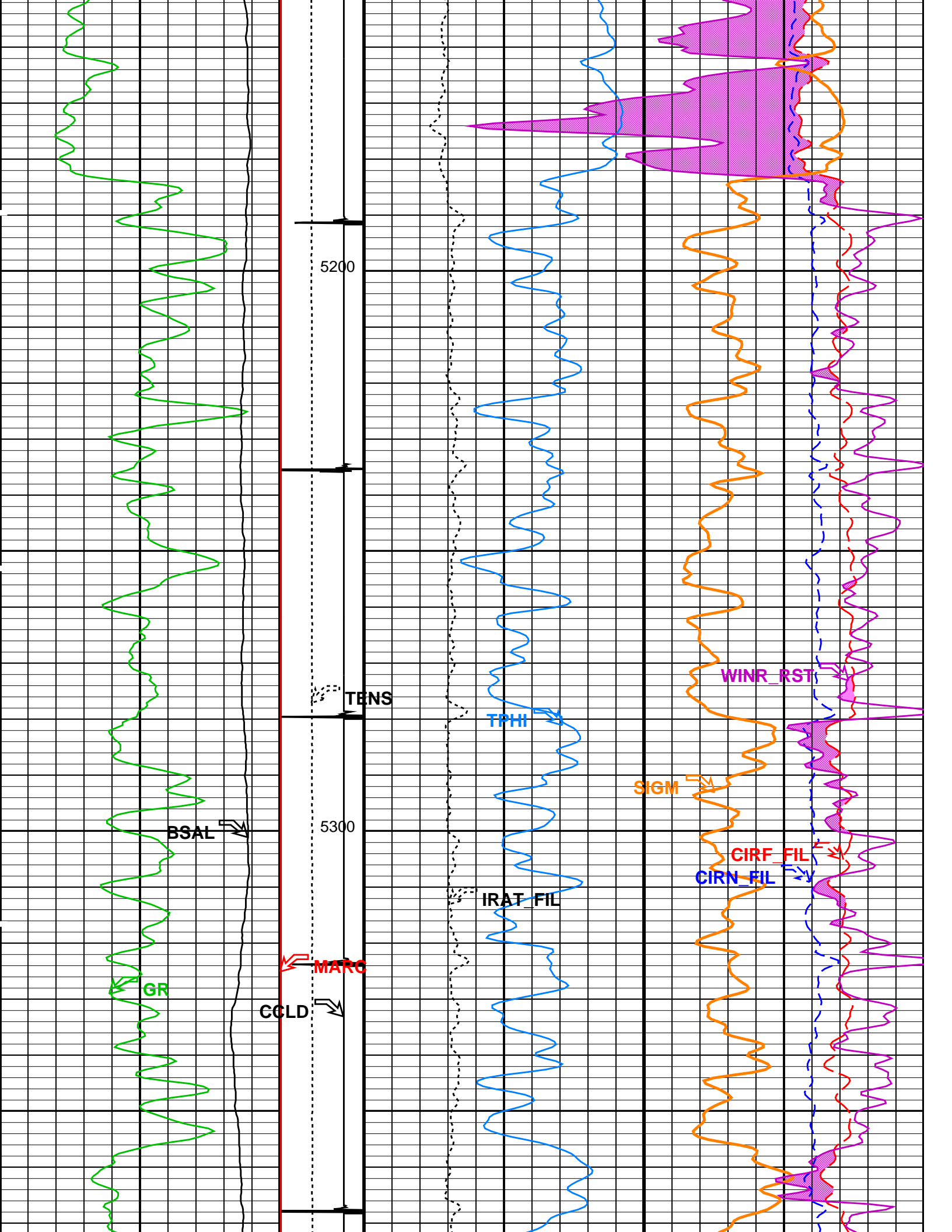


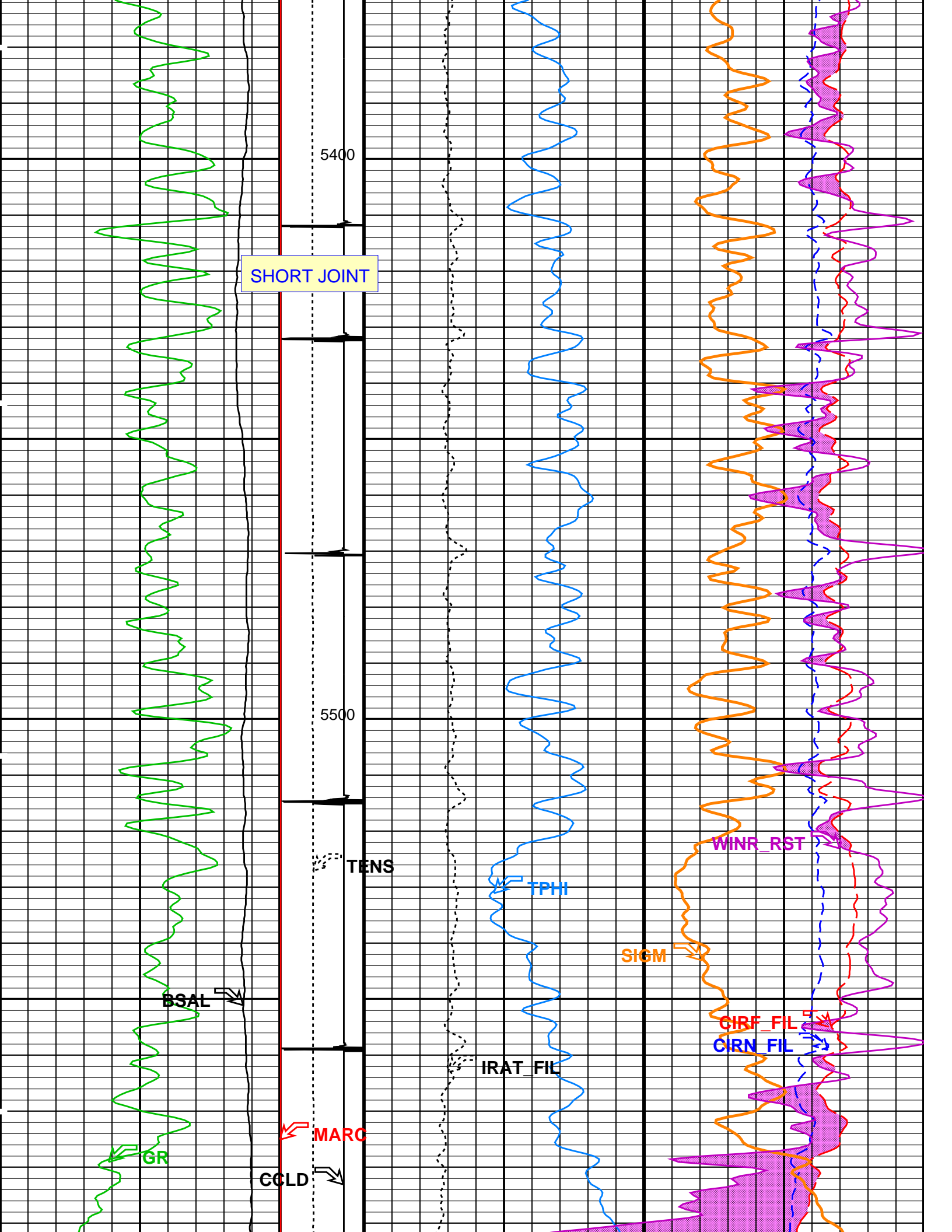


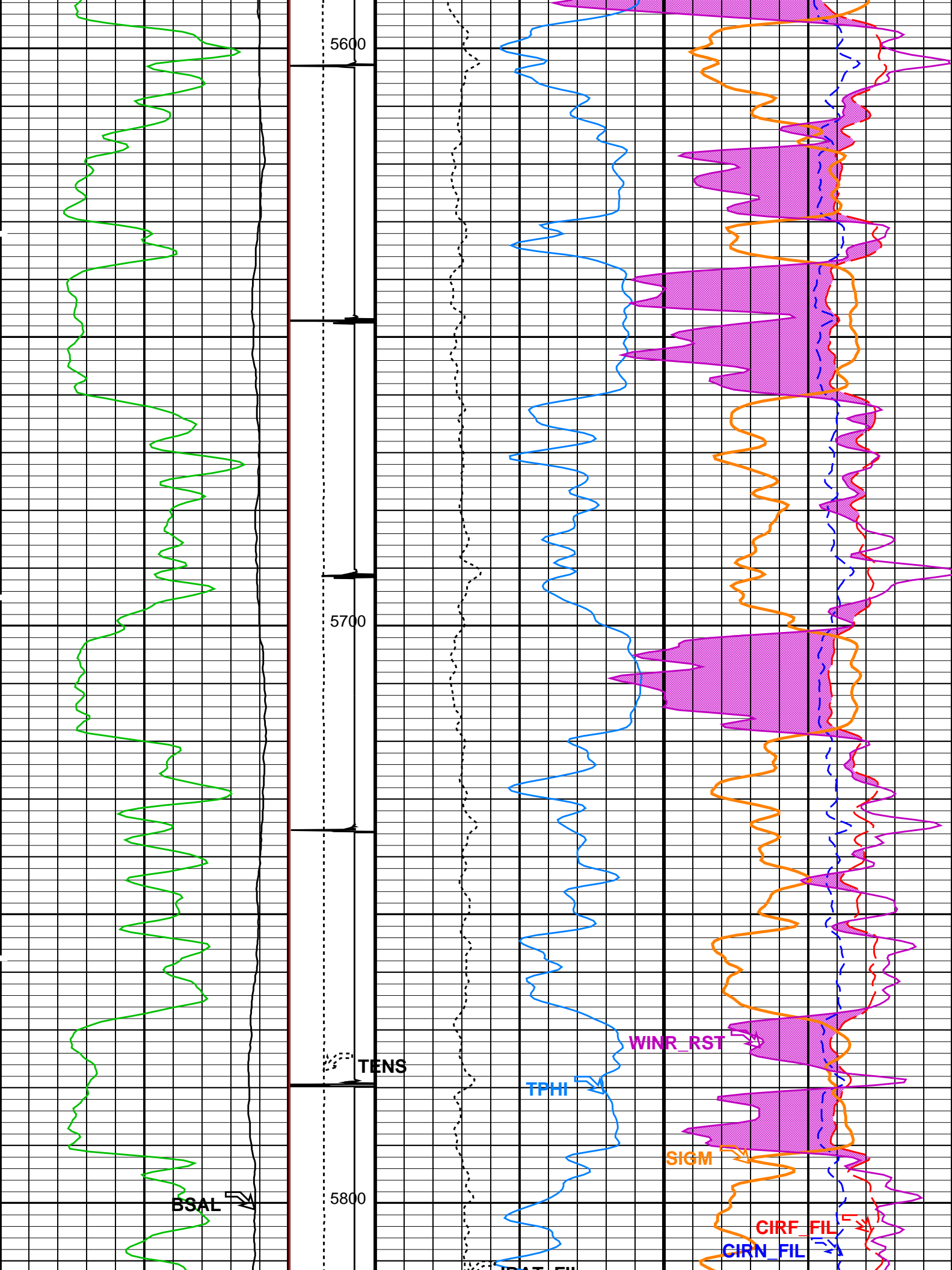




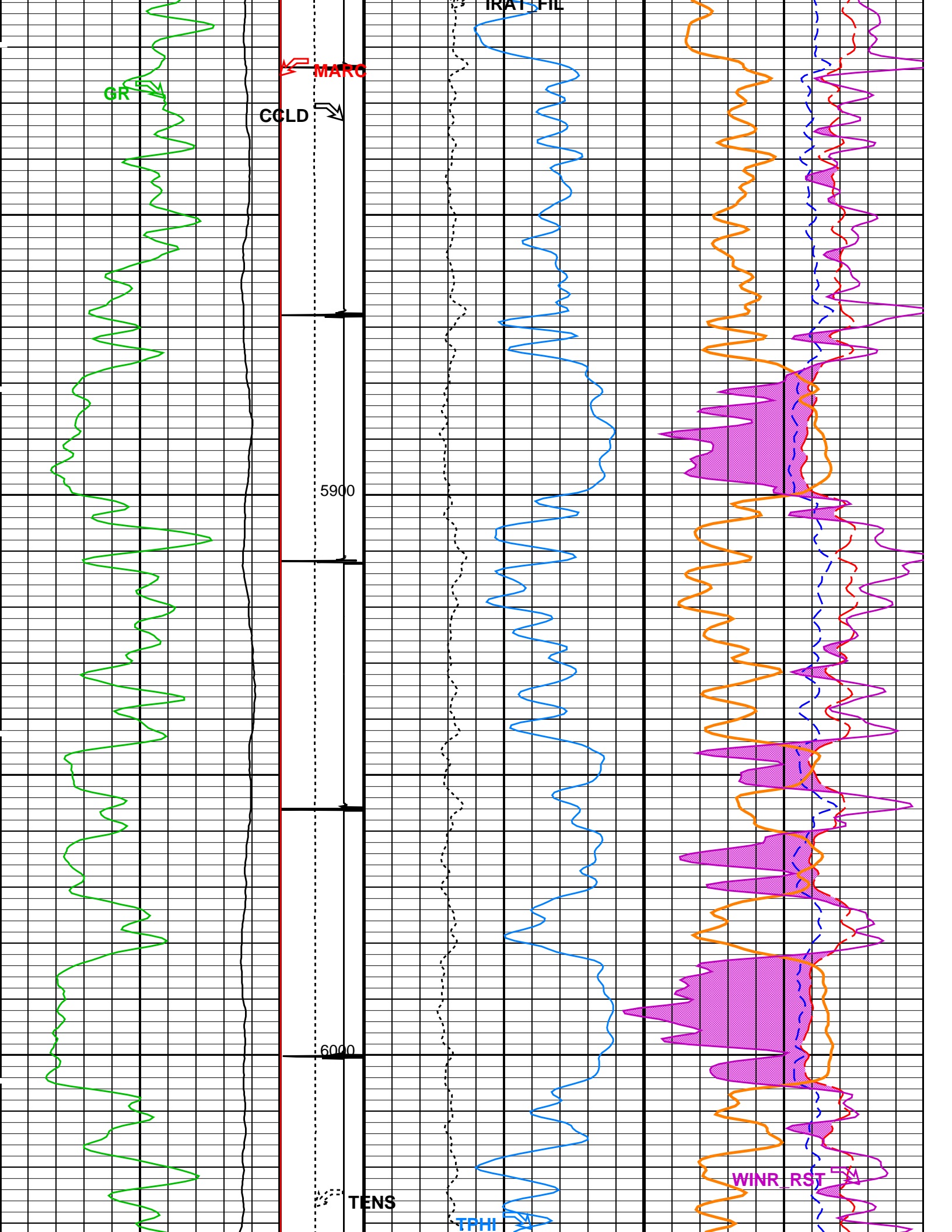




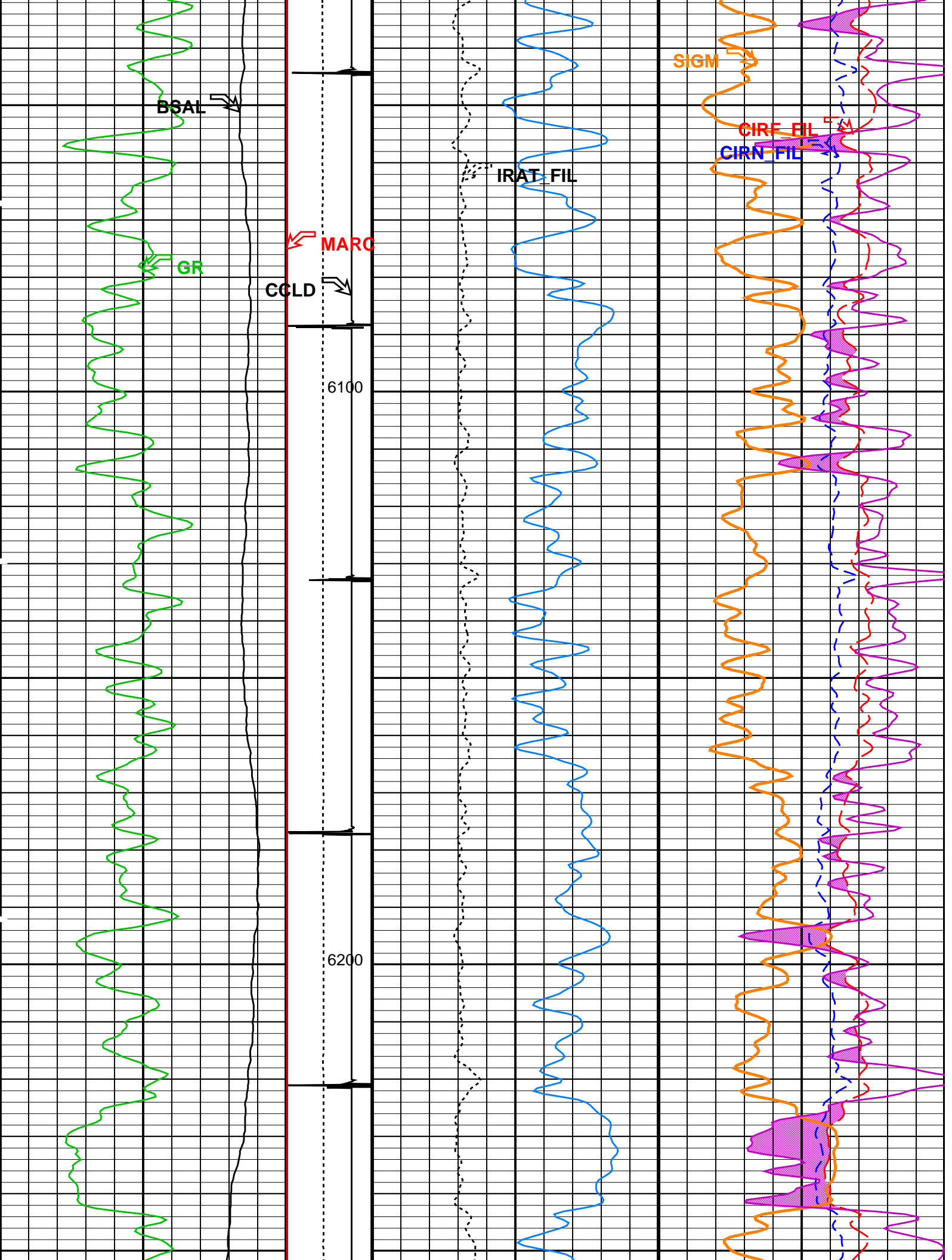


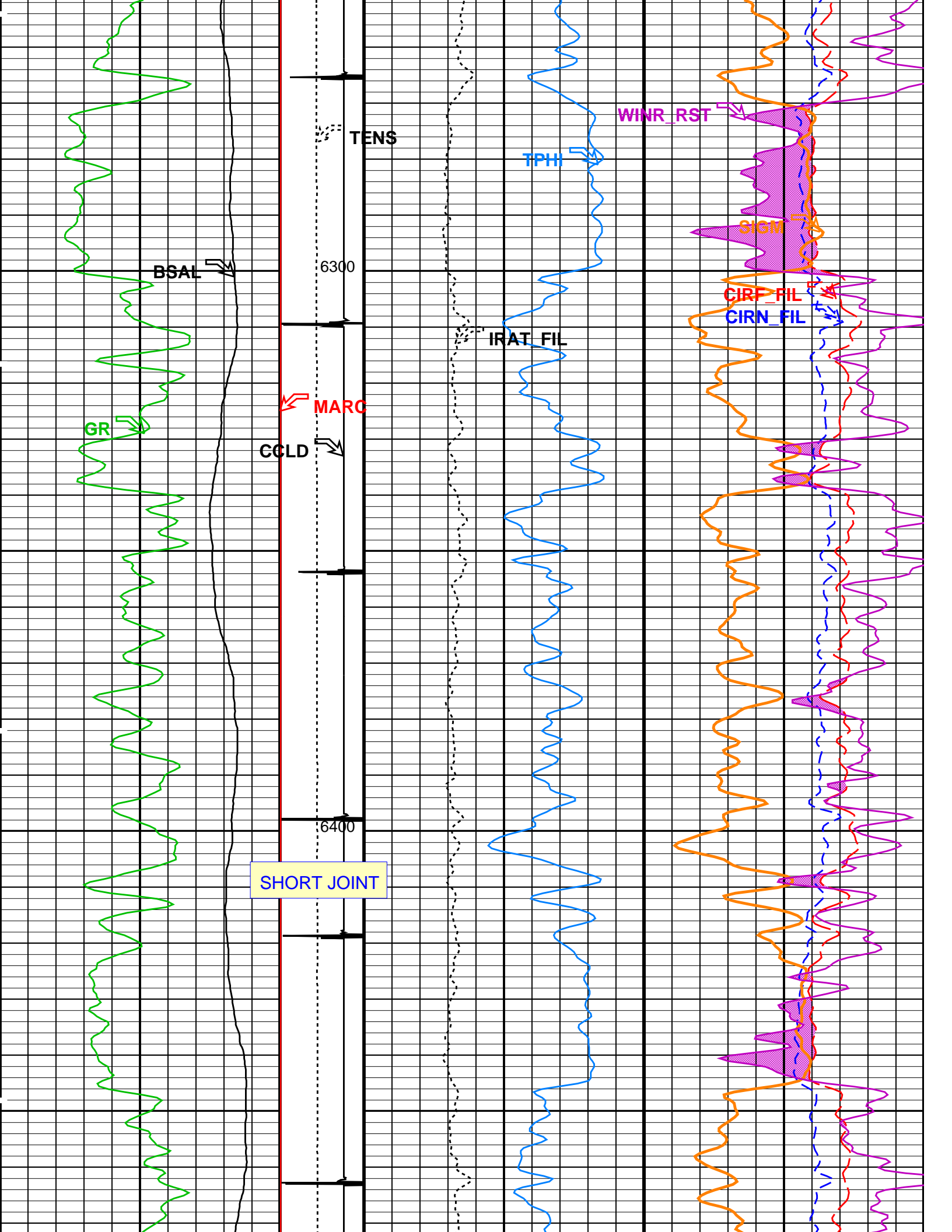


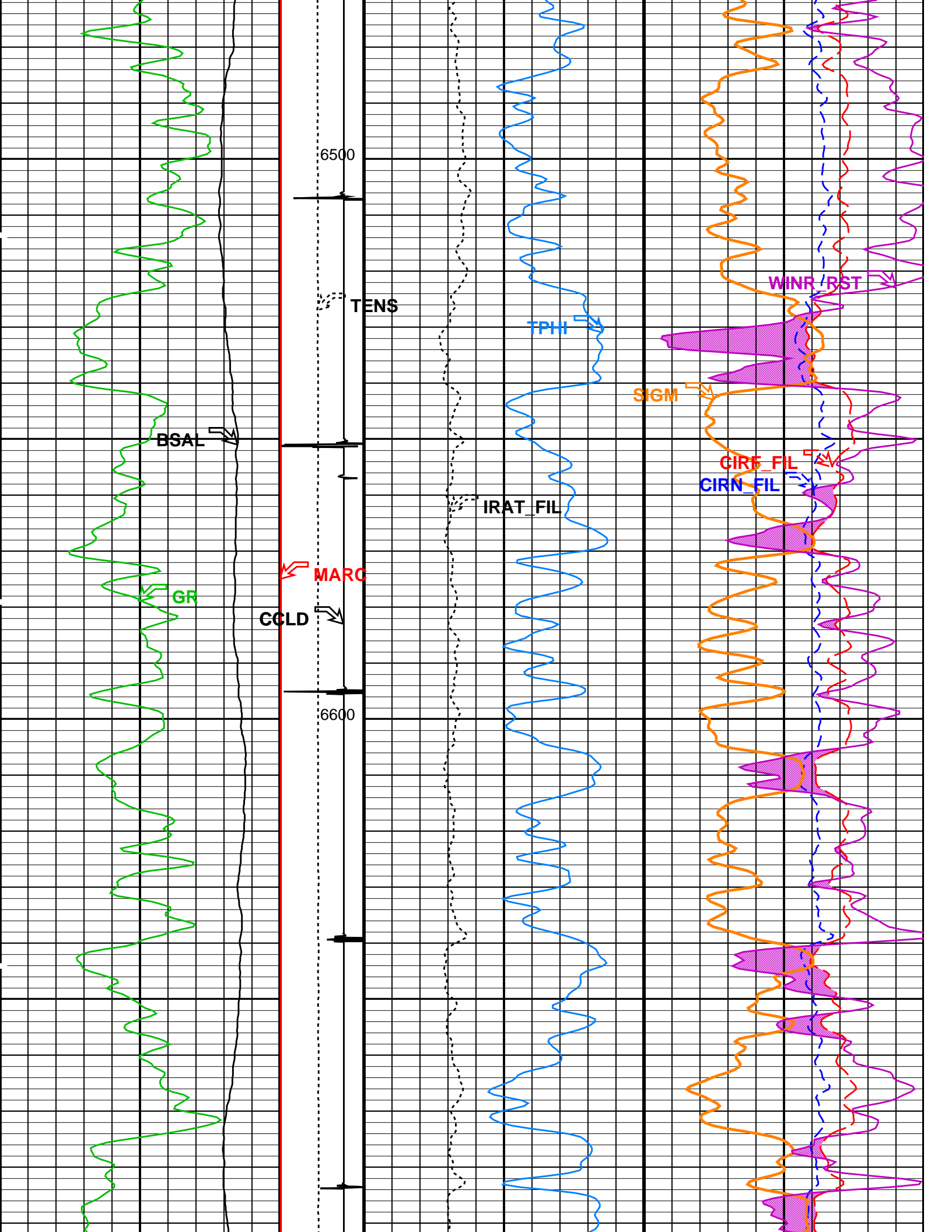


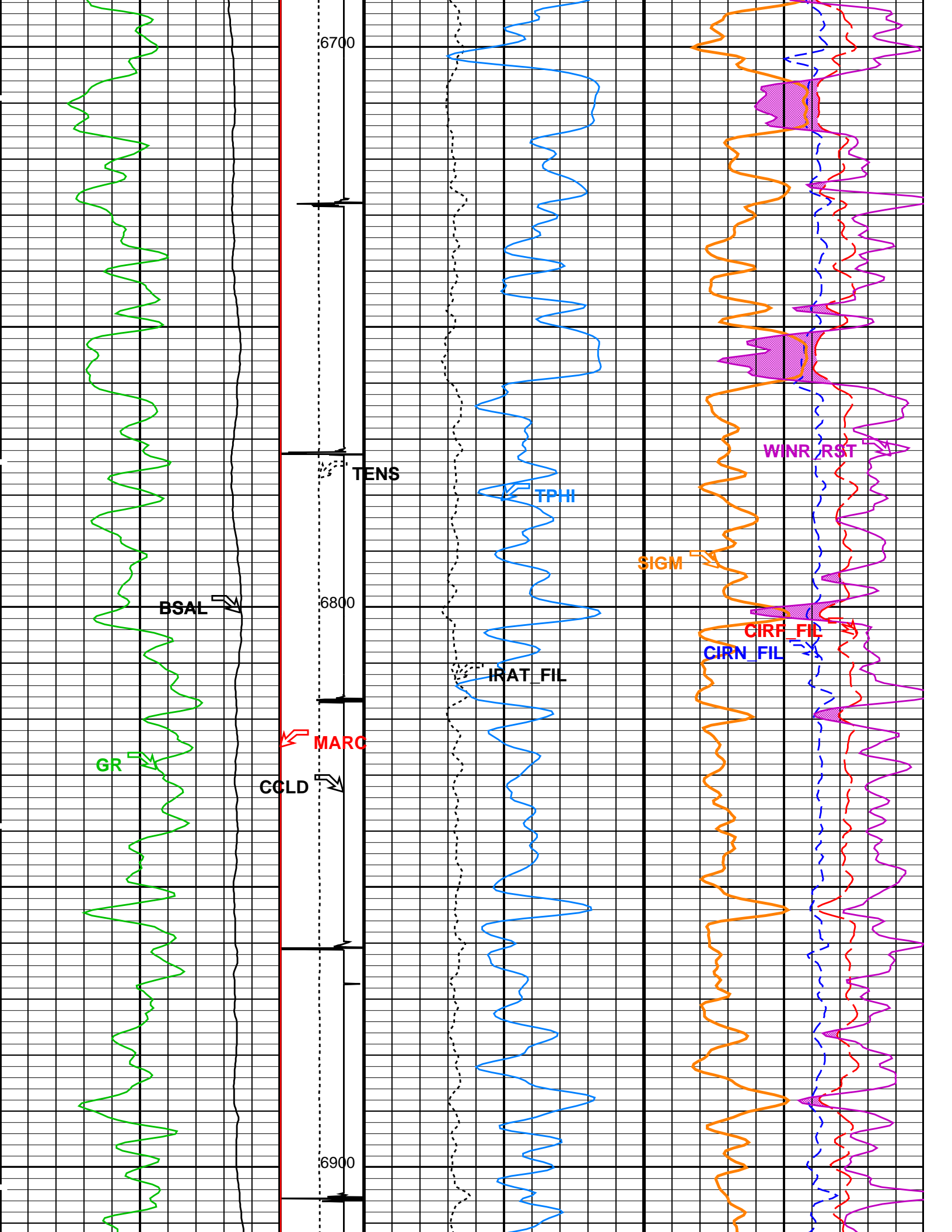


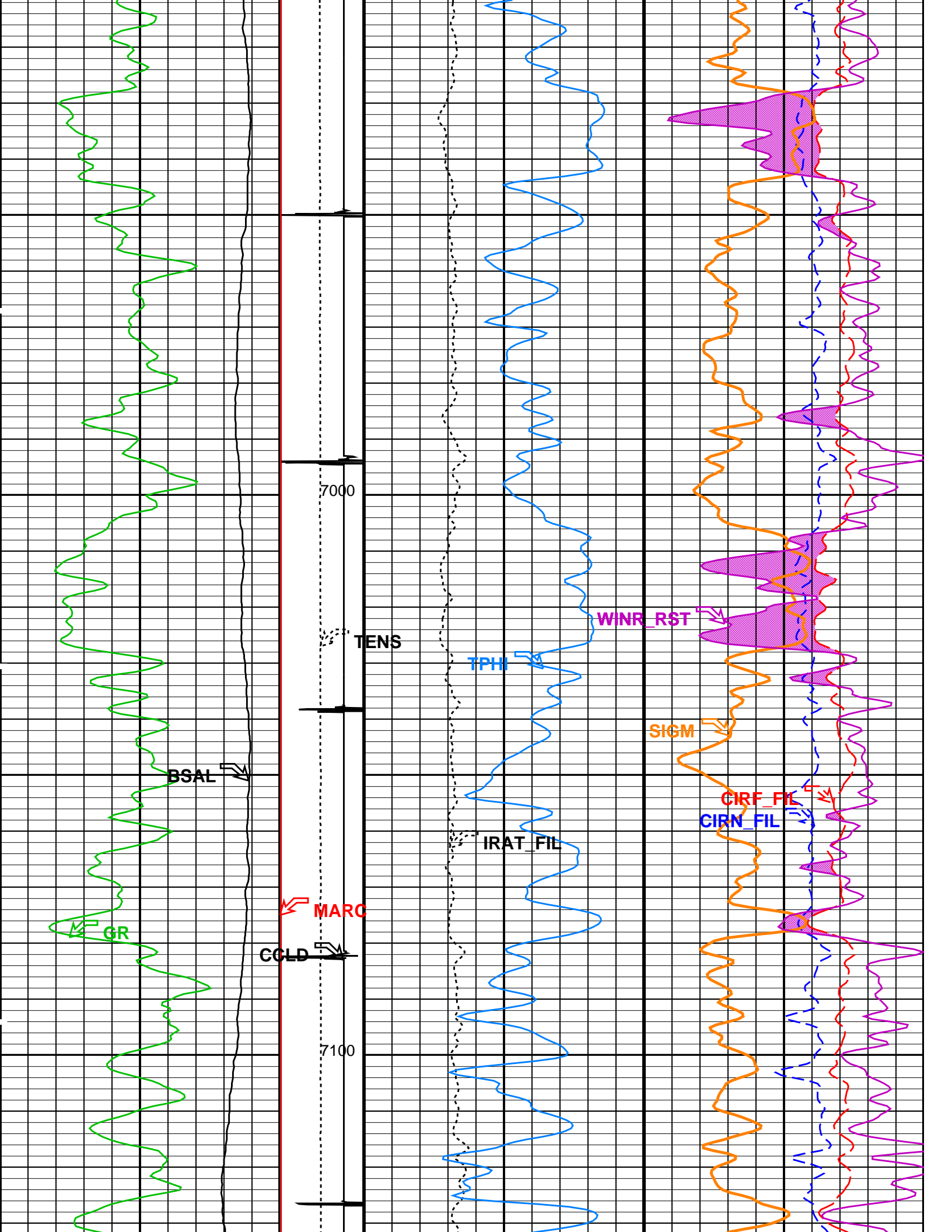


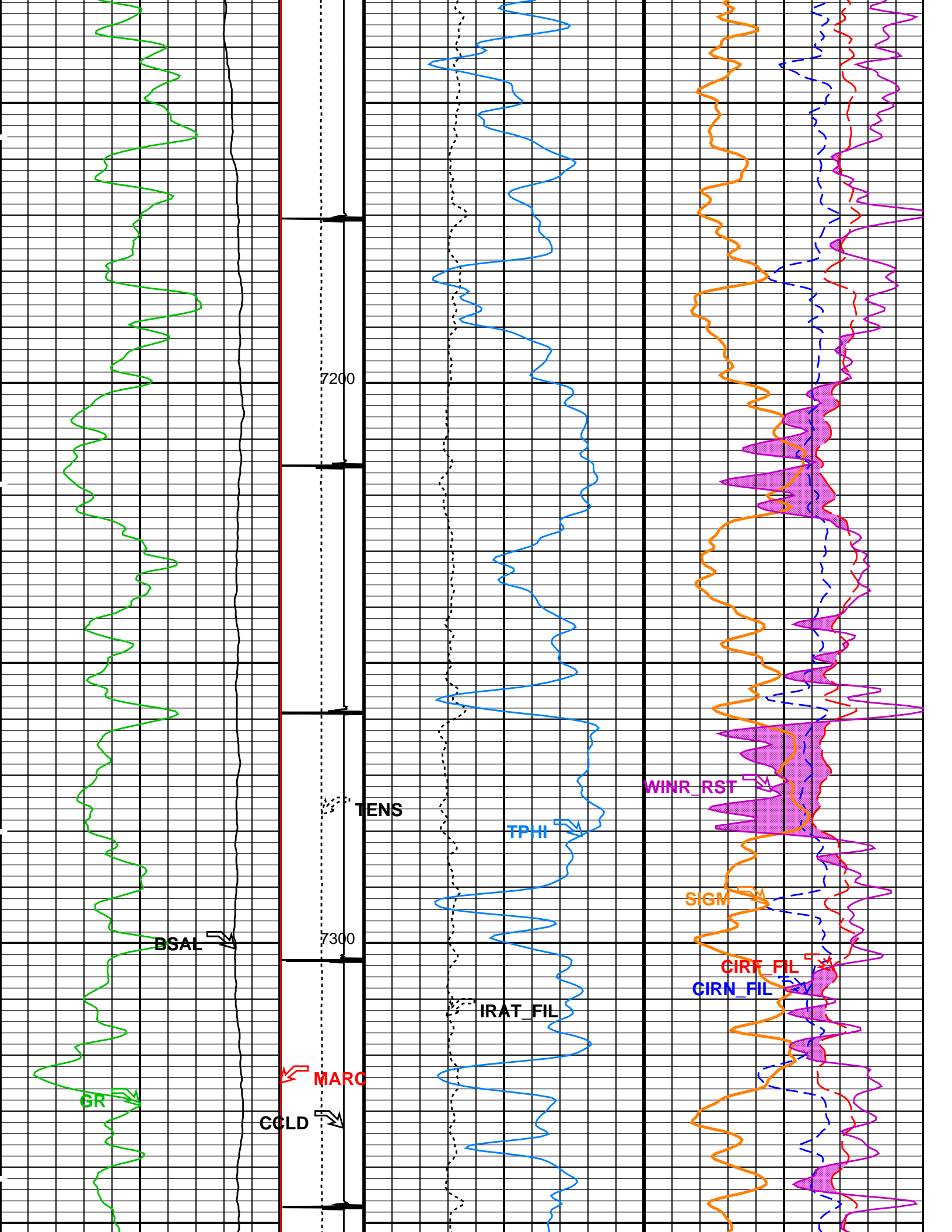


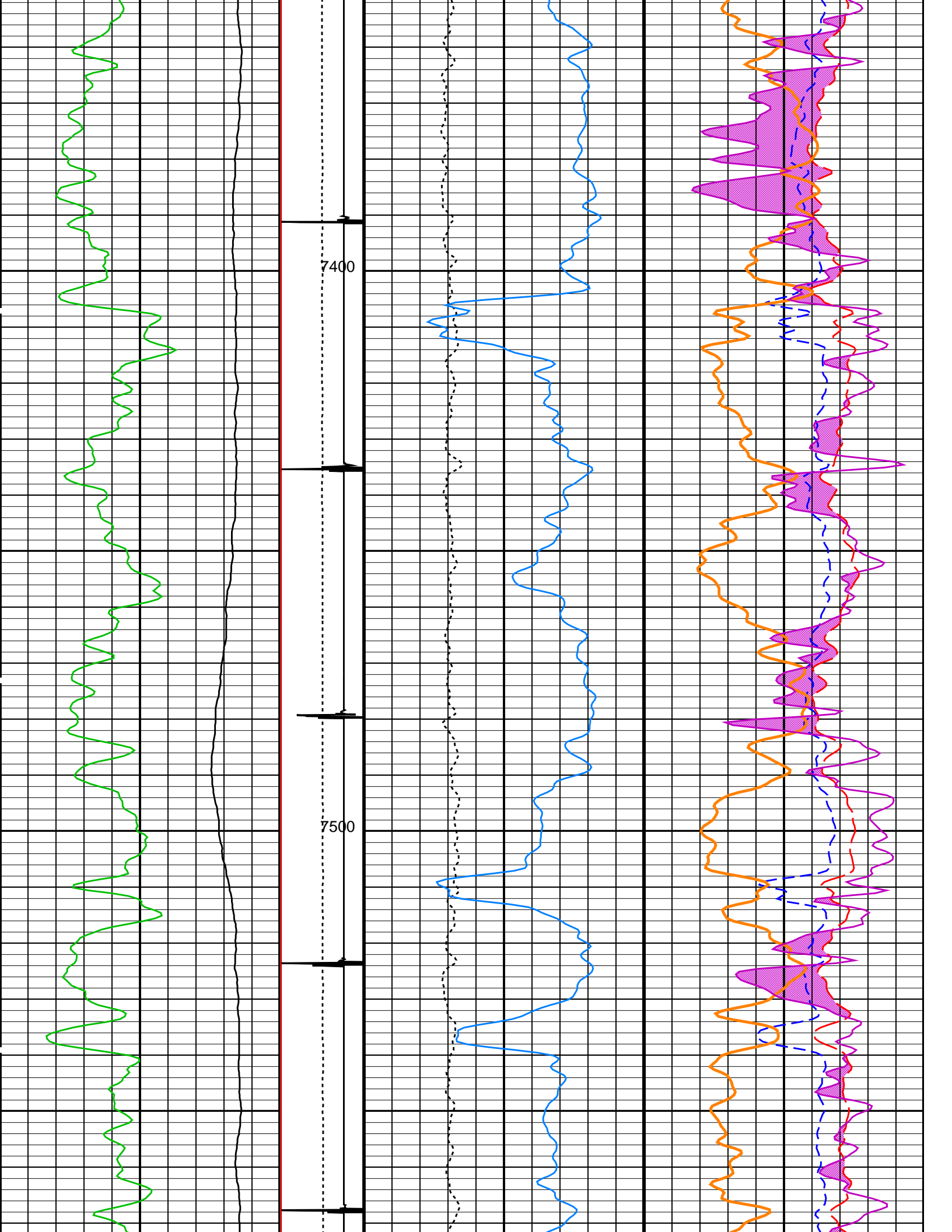


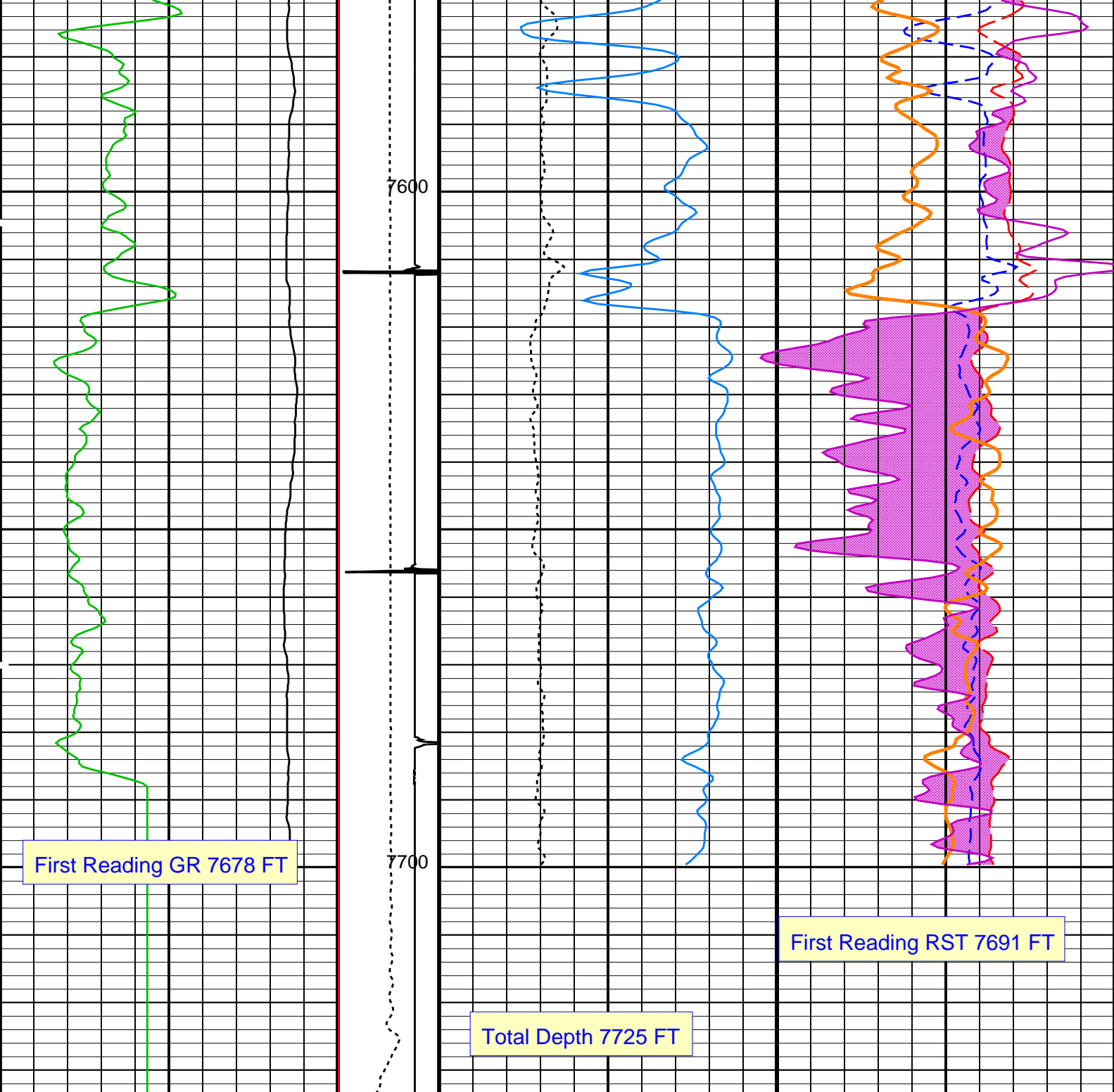












Gamma Ray (GR) (GAPI)		0	150
RST Borehole Salinity (BSAL) (PPK)		450	-50
Tension (TENS) (LBF)		0	2000
Discriminated CCL (CCLD) (V)		3	-1
RST Inelastic Ratio (IRAT_FIL) (----		0.75	0
RST Capture to Inelastic Ratio Near (CIRN_FIL) (----		2.5	0
RST Sigma (SIGM) (CU)		60	0
Minitron Arc Detection (MARC) (----		0	5
RST Porosity (TPHI) (V/V)		0.5	0
RST Capture to Inelastic Ratio Far (CIRF_FIL) (----		7	0
RST Weighted Inelastic Ratio (WINR_RST) (----		0.4	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		
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
WOFSL_PRST	RST Sigma Acquisition Mode	0_RST_Sigma
WONSL_PRST	RST WFL-Off Subcycle Length	0
WSCOM_PRST	RST WFL-On Subcycle Length	0
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

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
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	7725	FT
TDD	Total Depth - Driller	7822.00	FT
TDL	Total Depth - Logger	7725.00	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 20:16

### OP System Version: 19C0-187

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

#### Input DLIS Files

DEFAULT	Splice_SCMT_RST_PSP_031CUP	FN:1	PRODUCER	13-Sep-2013 20:14	7731.5 FT	-36.4 FT
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#### Output DLIS Files

DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	13-Sep-2013 20:16
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**Schlumberger**

## REPEAT ANALYSIS RST SIGMA

MAXIS Field Log

#### Input DLIS Files

DEFAULT	SCMT_RST_PSP_025LUP	FN:24	PRODUCER	13-Sep-2013 17:40	5766.5 FT	5357.0 FT
DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	13-Sep-2013 20:16	7733.5 FT	-85.5 FT

#### Output DLIS Files

DEFAULT	SCMT_RST_PSP_033PUP	FN:31	PRODUCER	13-Sep-2013 20:21	5766.5 FT	5305.5 FT
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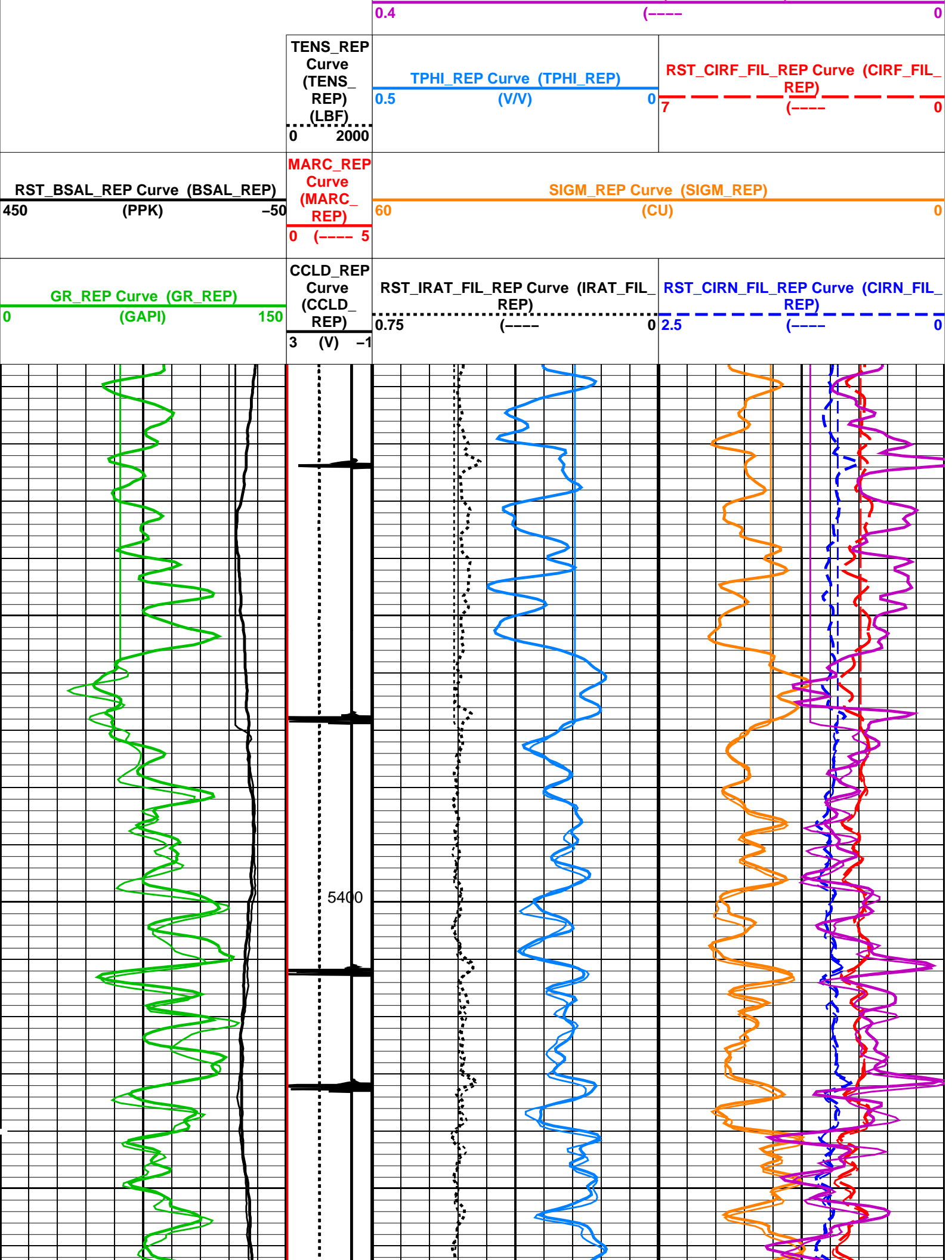
### OP System Version: 19C0-187

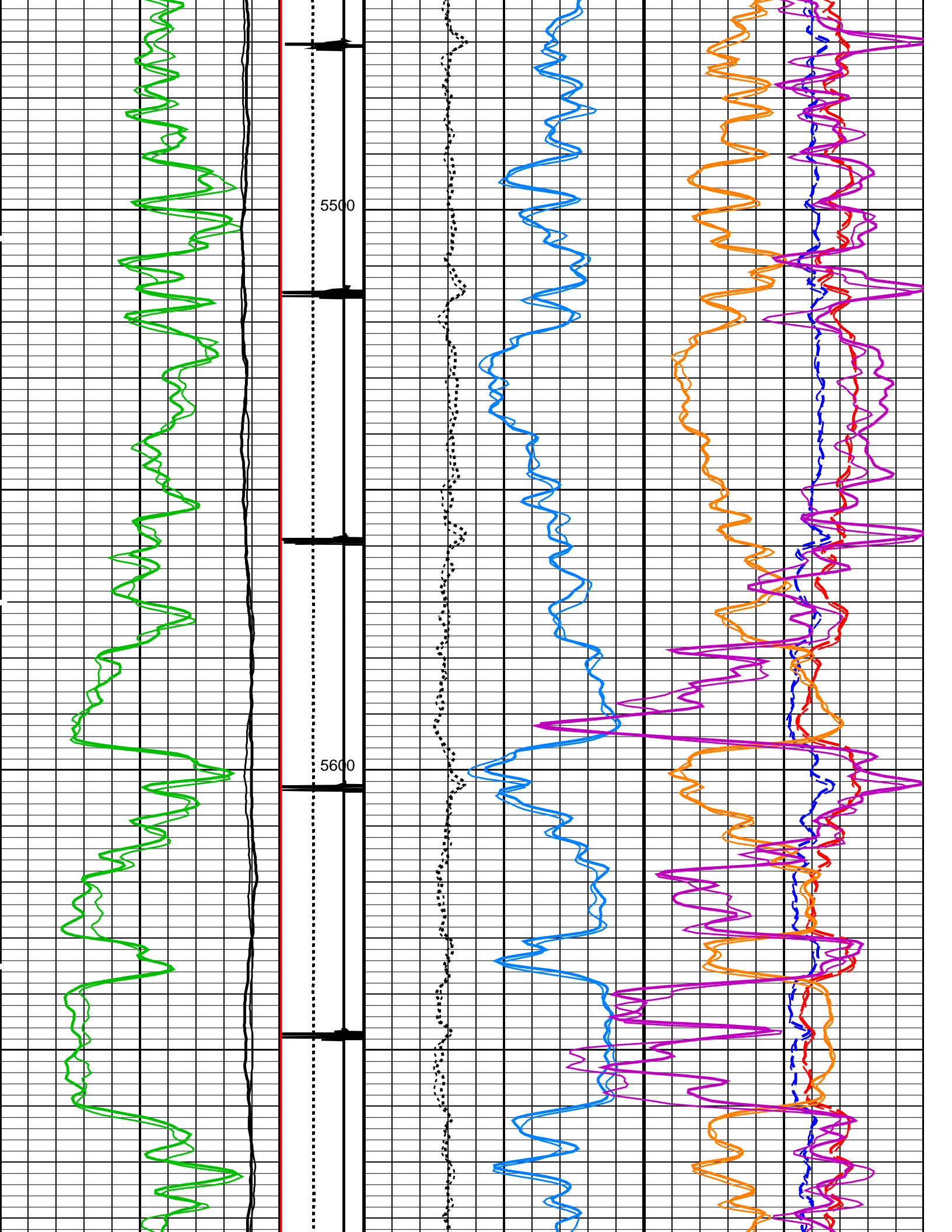
SCMT-CB	19C0-187	RST-C	19C0-187
PSPT	19C0-187		

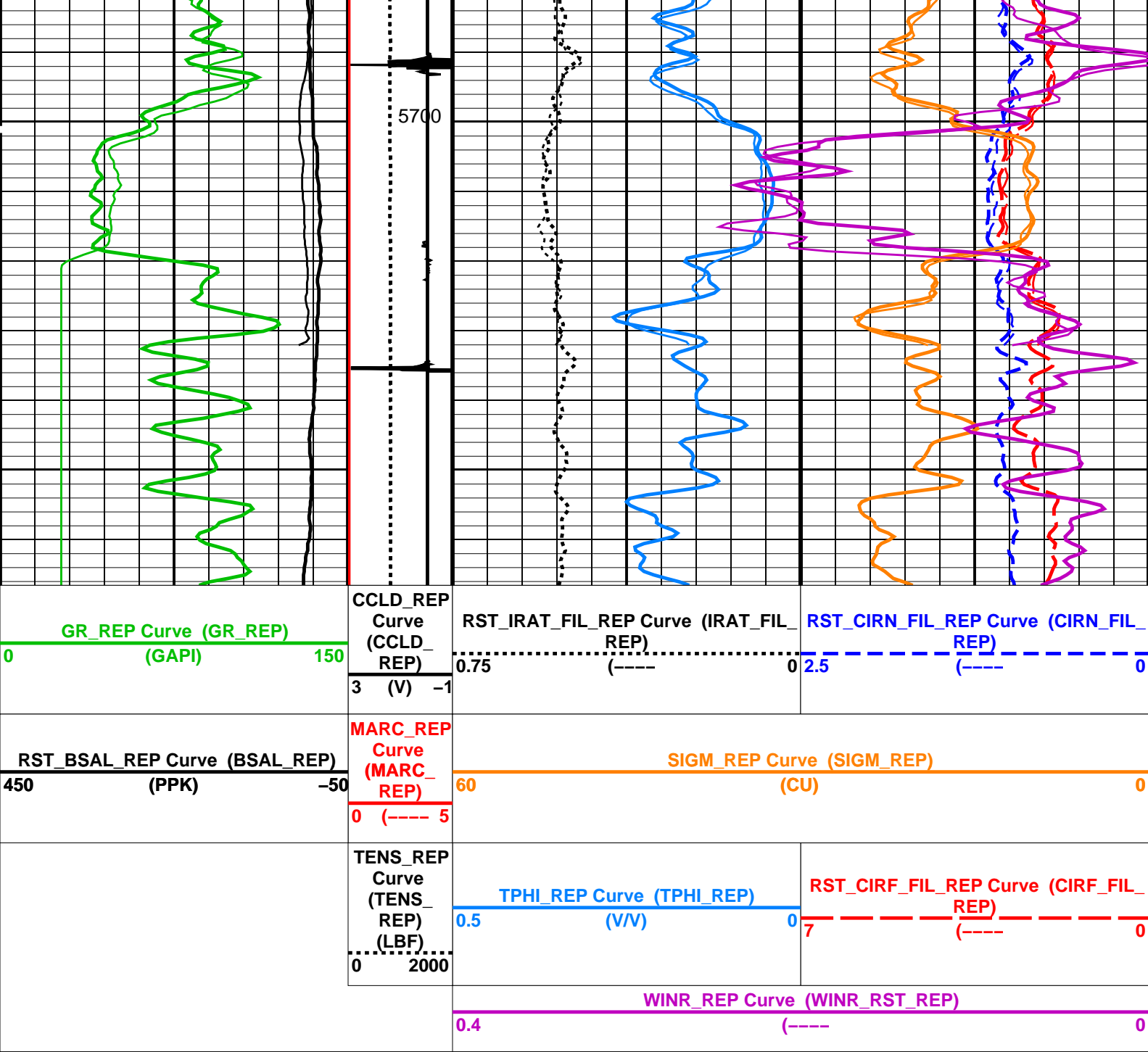
#### PIP SUMMARY

☐ Time Mark Every 60 S

WINR\_REP Curve (WINR\_RST\_REP)







### 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
DTE	Delta-T Fluid	189	US/F

FATT	Acoustic Attenuation due to Fluid	10	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			
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	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	7725	FT
TDD	Total Depth - Driller	7822.00	FT
TDL	Total Depth - Logger	7725.00	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 20:21

## OP System Version: 19C0-187

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_025LUP	FN:24	PRODUCER	13-Sep-2013 17:40	5766.5 FT	5357.0 FT
DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	13-Sep-2013 20:16	7733.5 FT	-85.5 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_033PUP	FN:31	PRODUCER	13-Sep-2013 20:21		



PBMS COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	SOUTH PARACHUTE	Sub Type:	PBMS
Well:	HAGEN FEDERAL 22-4D (PC22)	Sensor:	GR
Run date:	13-Sep-2013		

PBMS Gamma Ray

Sonde Serial NB	RESISTORS FOR GR SENSOR N.33223,TOOL PBMS-BA0928. SENSOR S/N:
Sensor Serial NB	33223
Calib Date ddmmyy	090800
Matrix Size	12
Coeff CRC	CFE2

GR HV Rt		
	Rt**0	Rt**1
Rt**0	+.182000000000e+04	+.332000000000e+04

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	-.391987973189E+03	+.191346892512E+03	-.440920753451E+02
	Tt**3	Tt**4	Tt**5
Tt**0	+.957191300908E+01	-.711421725686E+00	0.0

PBMS Quartz Gauge type F

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

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

928

280612

66

9DC3

Pres Coeff

	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
Calib Date ddmmyy
Matrix Size
Coeff CRC

:
928
280612
66
283B

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+1.117016867873E+03	−.284359629614E−03	+604391180345E−08
Fb**1	−.598309140812E−02	+1.182731130848E−07	+1.160166486172E−12
Fb**2	−.307621454576E−07	+3.00601550309E−12	+3.11233548560E−17
Fb**3	−.419658736767E−12	+1.117473708647E−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	+1.114322792679E−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
Calib Date ddmmyy
Matrix Size
Coeff CRC

:
928
280612
16
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

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

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Company: ENCANA OIL & GAS (USA) INC



Well: HAGEN FEDERAL 22–4D (PC22)  
Field: SOUTH PARACHUTE  
County: GARFIELD  
State: COLORADO

RESERVOIR SATURATION LOG  
SIGMA MODE  
GAMMA RAY–CCL