

Company: ENCANA OIL & GAS (USA) INC

Well: HAGEN FEDERAL 22-5A (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD

State: COLORADO

County: GARFIELD

Field: SOUTH PARACHUTE

Location: SHL: 619 FNL & 1774 FWL

Well: HAGEN FEDERAL 22-5A (PC22)

Company: ENCANA OIL & GAS (USA) INC

RESERVOIR SATURATION LOG

SIGMA MODE

GAMMA RAY-CCL

SHL: 619 FNL & 1774 FWL

BHL: 1463 FNL & 885 FWL

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. 05-045-22011-0C

Section 22

Township 7S

Range 95W

			Run 1	Run 2	Run 3
PVT DATA					
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 7852 ft

Schlumberger Depth 7767 ft

Bottom Log Interval 7733 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 7852 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade S-80

From 22 ft

To 7820 ft

Maximum Recorded Temperatures 217 degF

Logger On Bottom 13-Sep-2013 10:30

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					
Location					
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	<div>Conveyance Method: Wireline</div> <div>Rig Type: LAND</div>	
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10		
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: 10:00	
TIME ON BOTTOM: 10:30	
EXIT: 13:00	

MAXIMUM RECORDED TEMPERATURE: 217 DEGF	
MAXIMUM RECORDED PRESSURE: 3242 PSIA	
SHORT JOINTS: 5453 FT & 6436 FT	
SANDSTONE MATRIX USED	
CREW: KBUNTING, KJOHNS, JMANN	
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY	

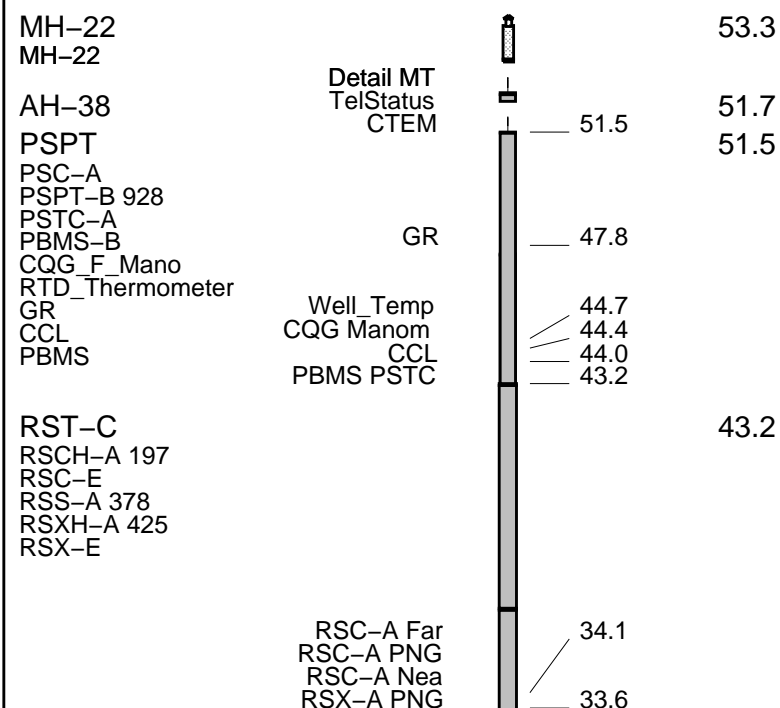
RUN 1 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			RUN 2 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

[illegible]

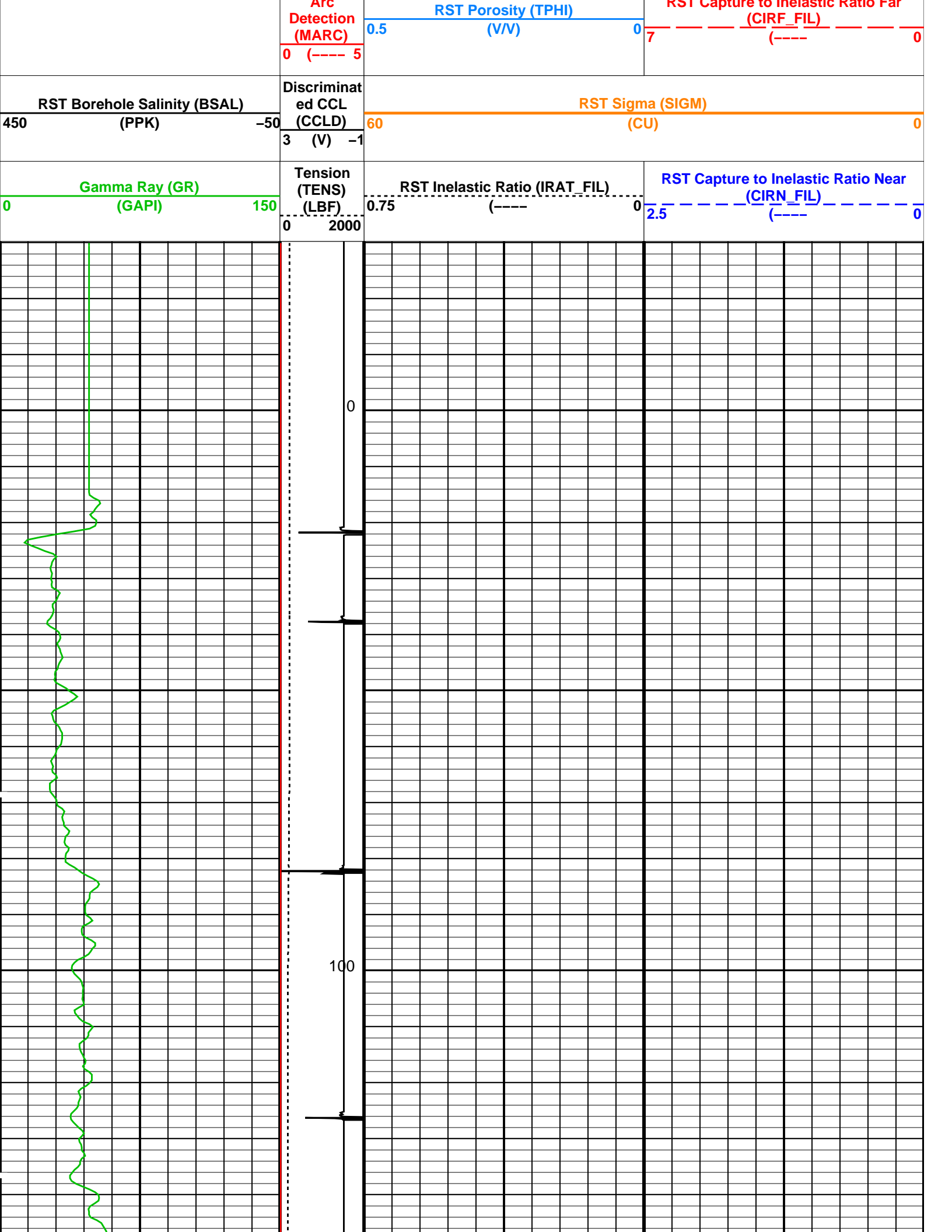
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2	1	1
3	1	1
4	1	1
5	1	1
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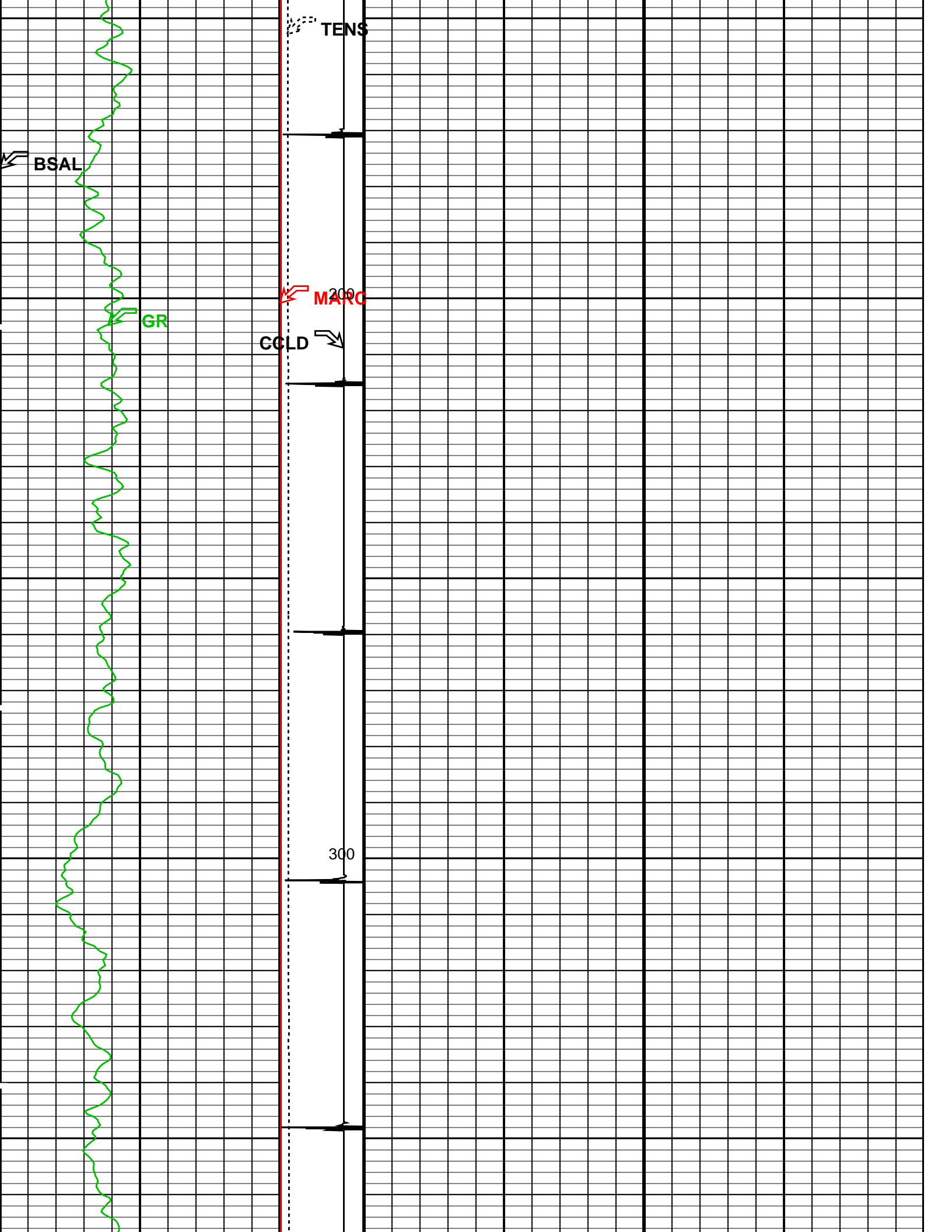
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WITM-A PSC_16MHZ	

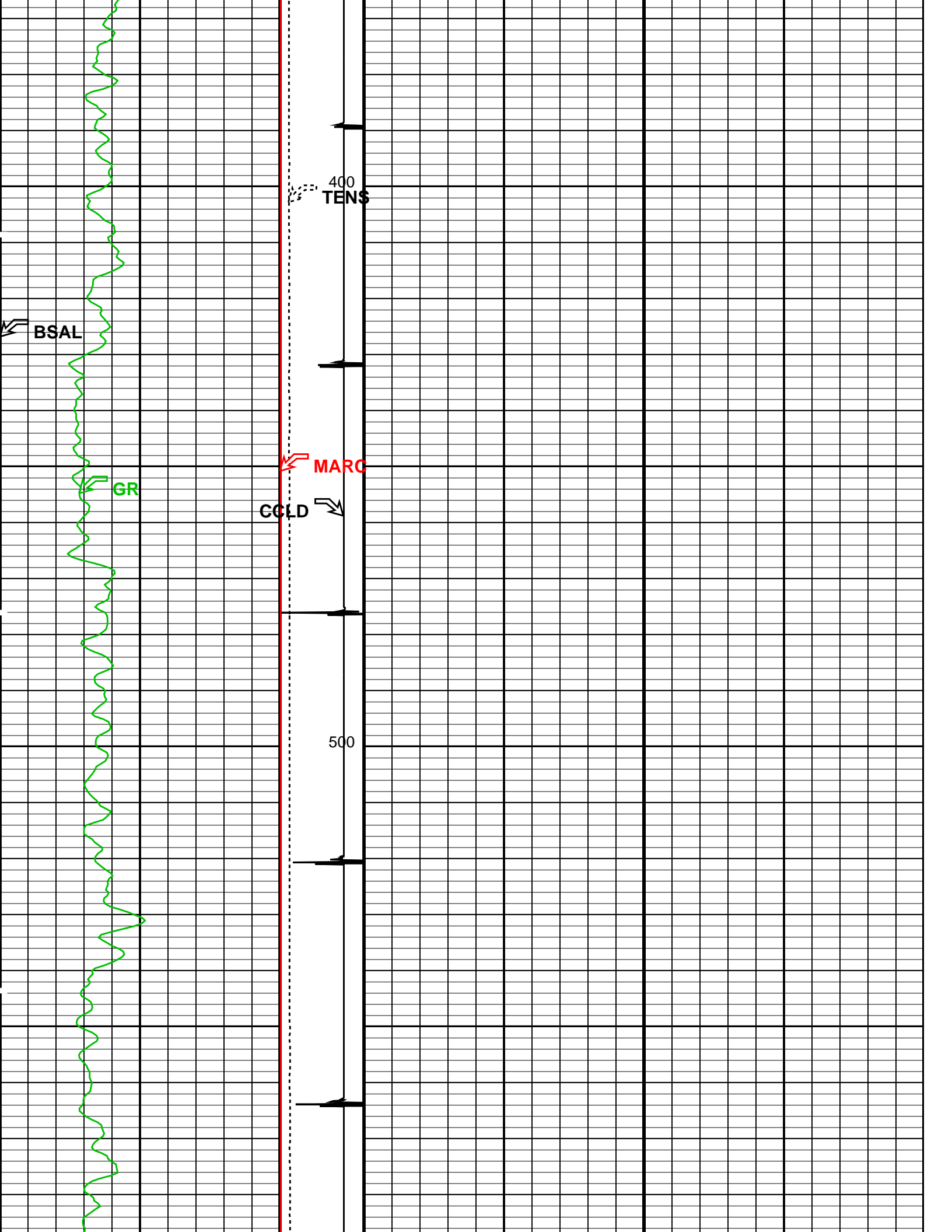
## DOWNHOLE EQUIPMENT

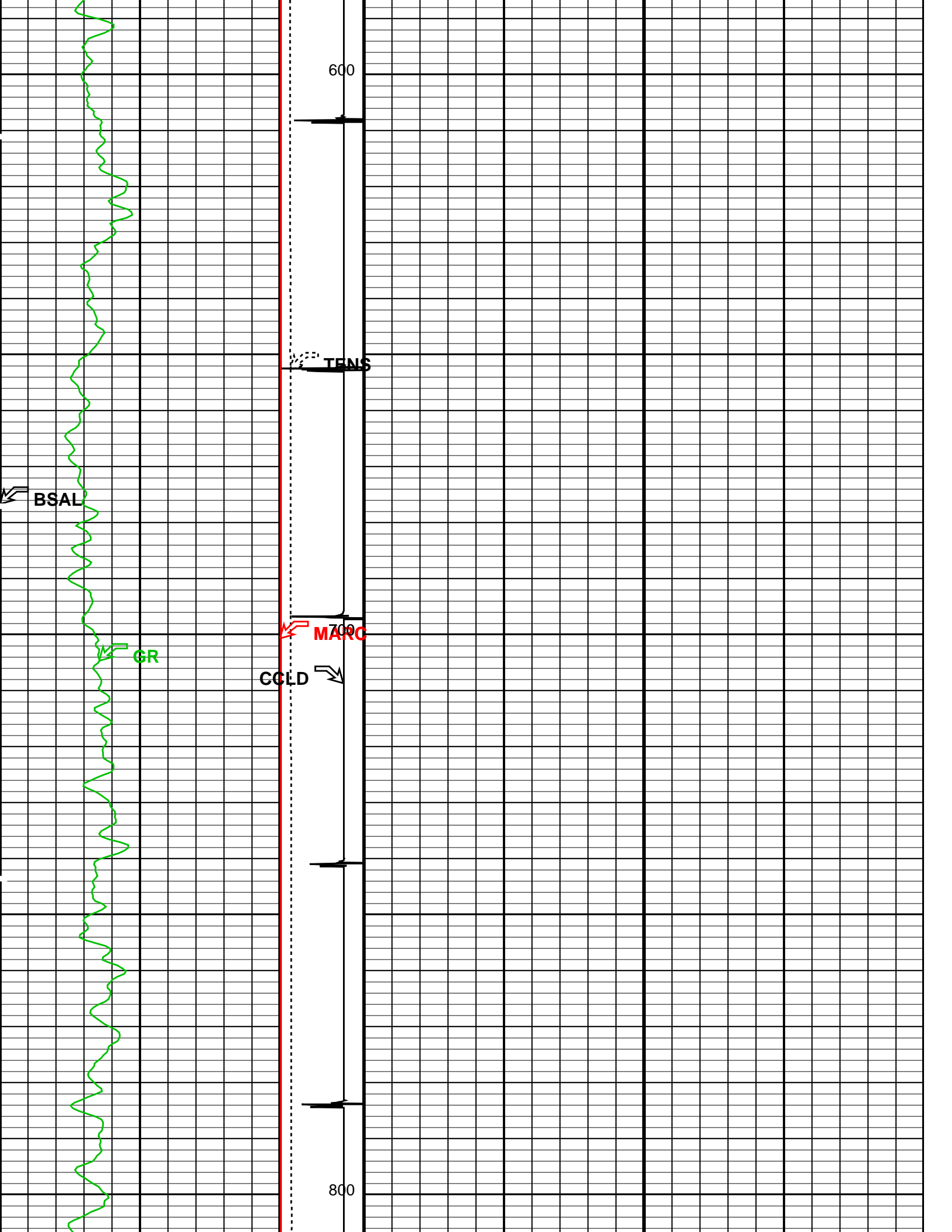


### BST Capture to Inelastic Ratio For

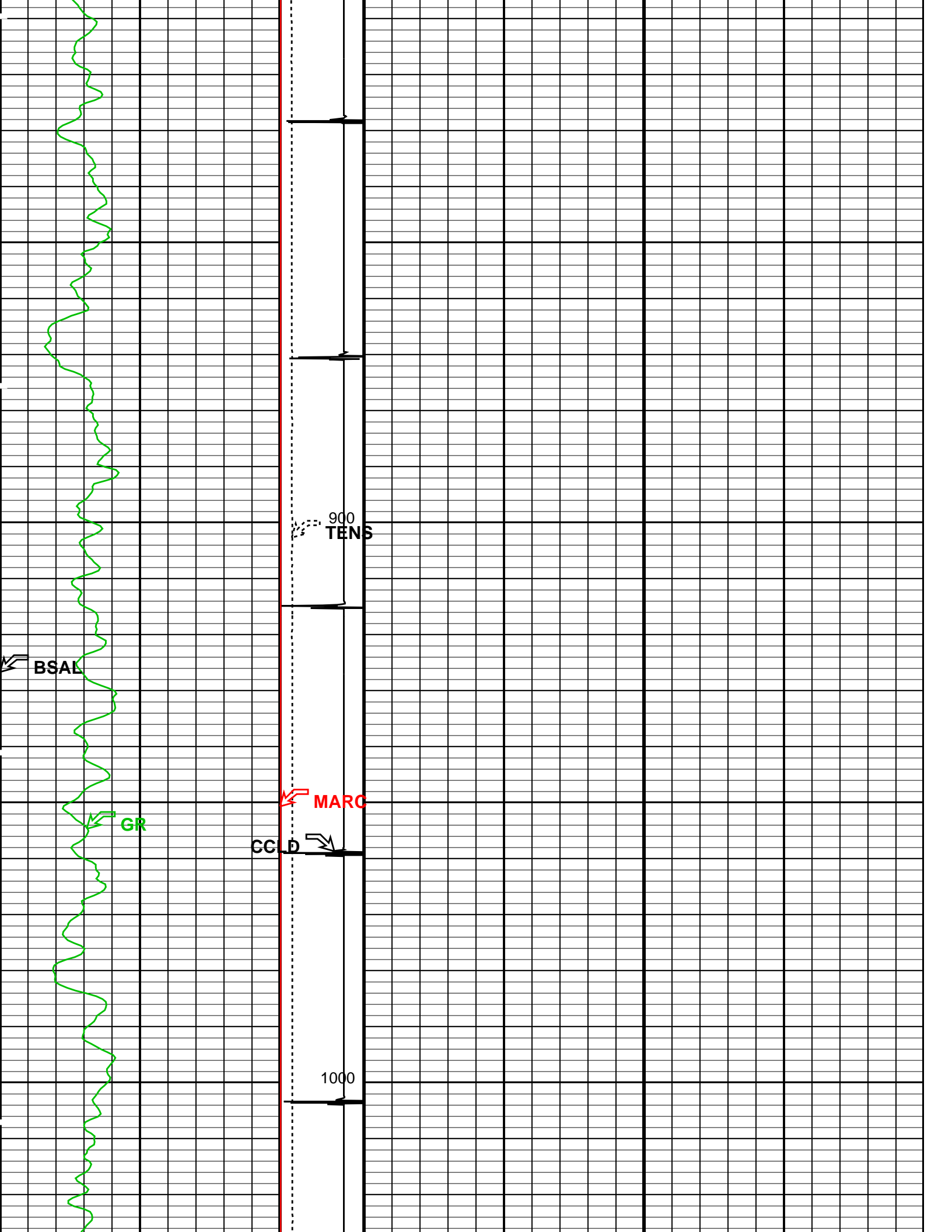


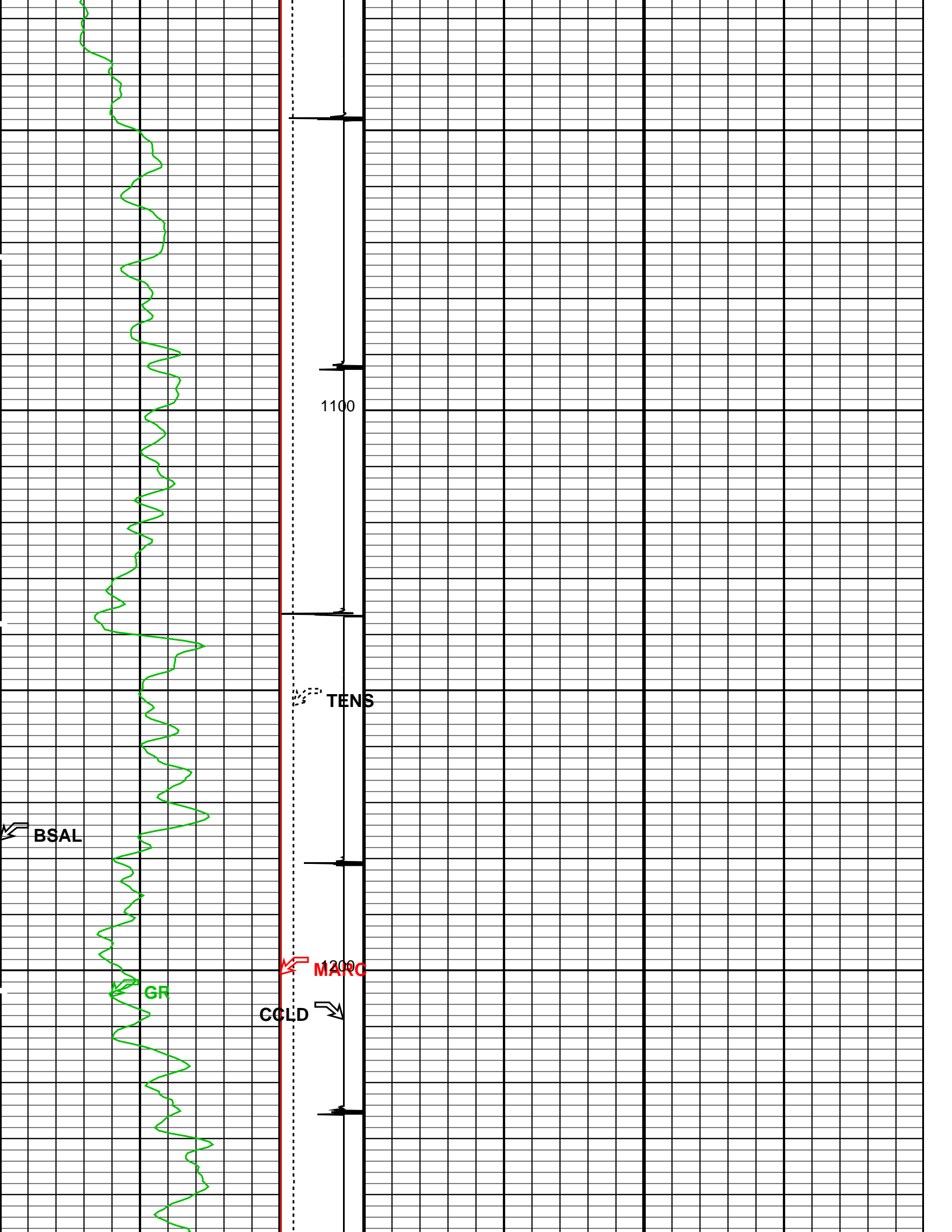


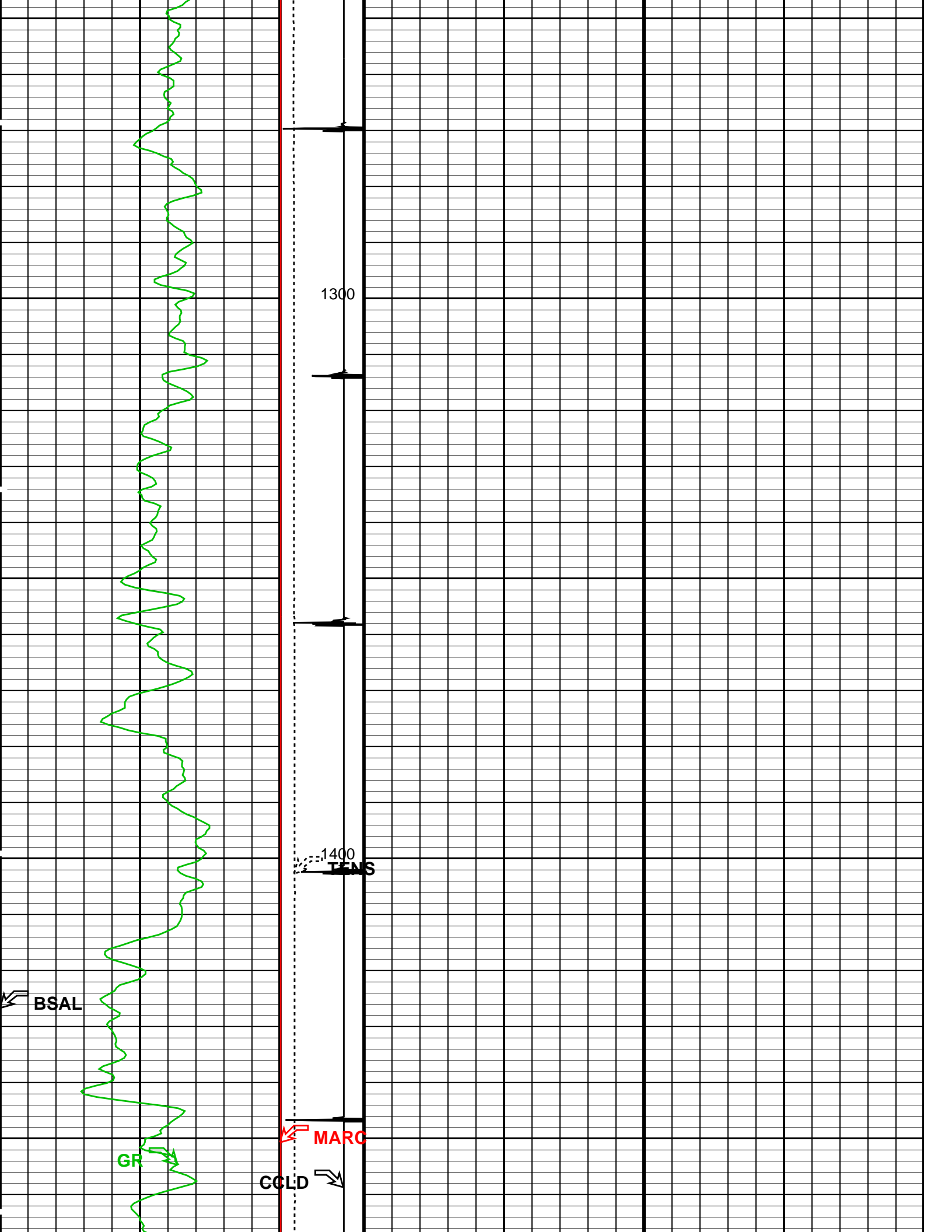


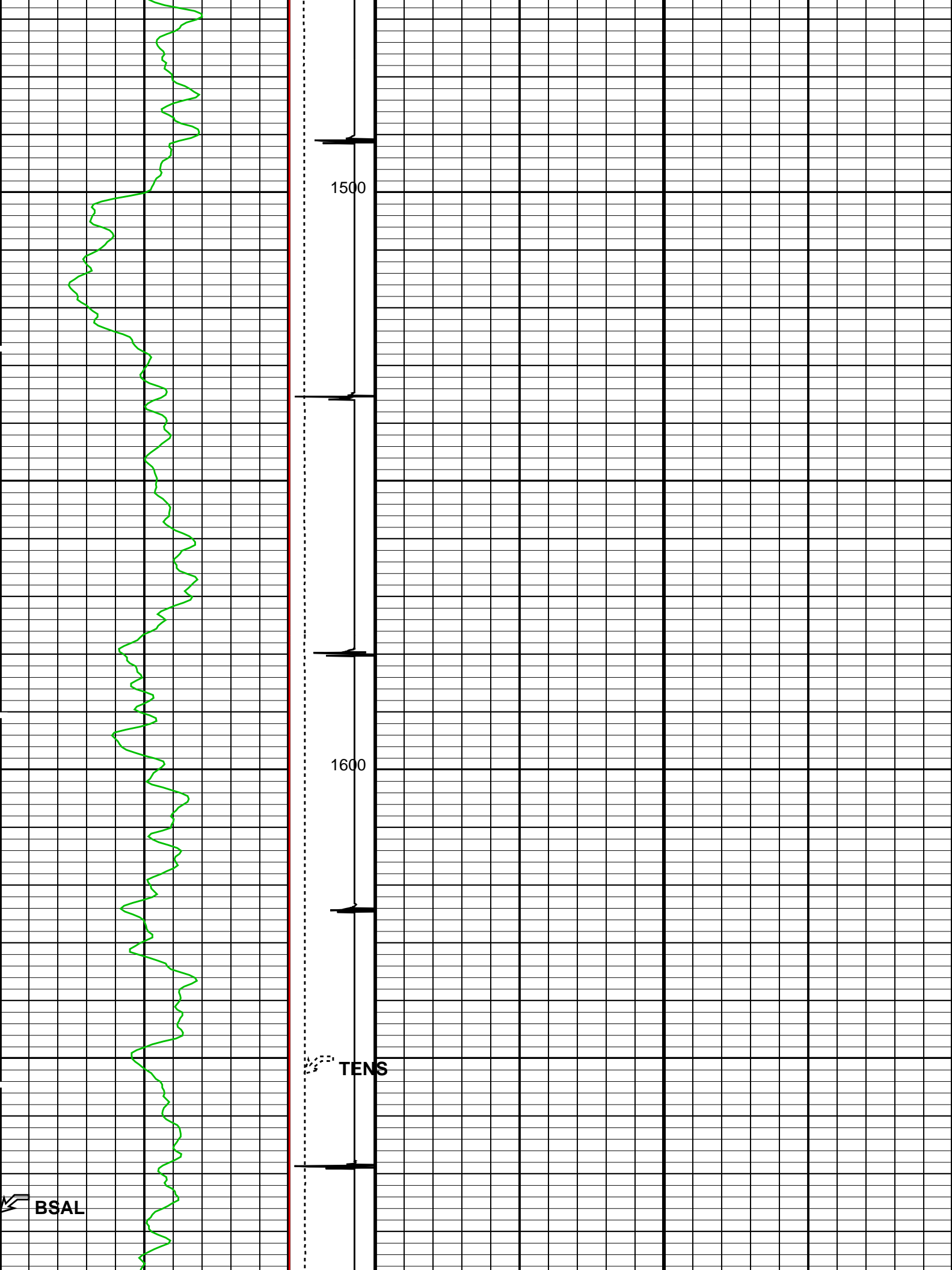


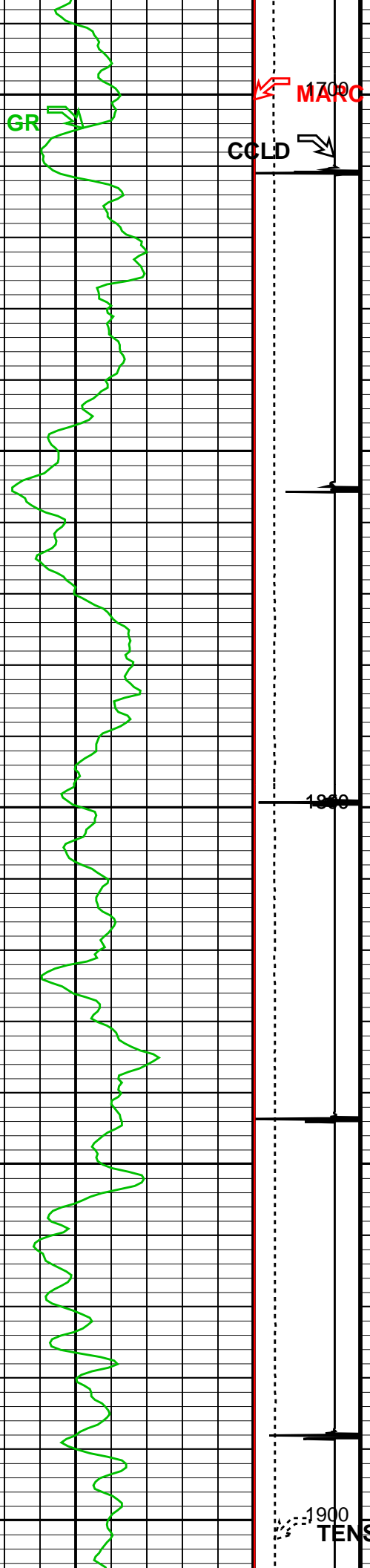


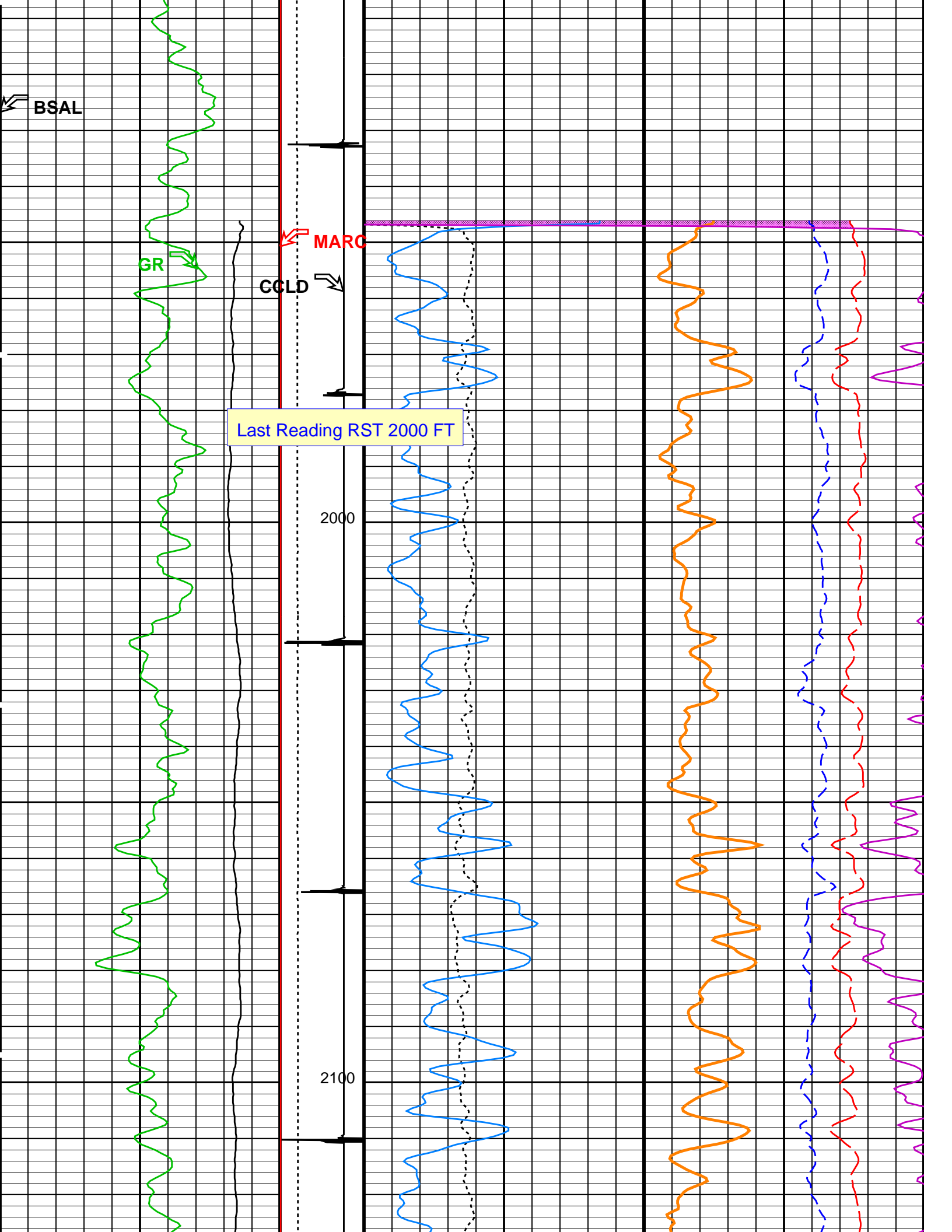


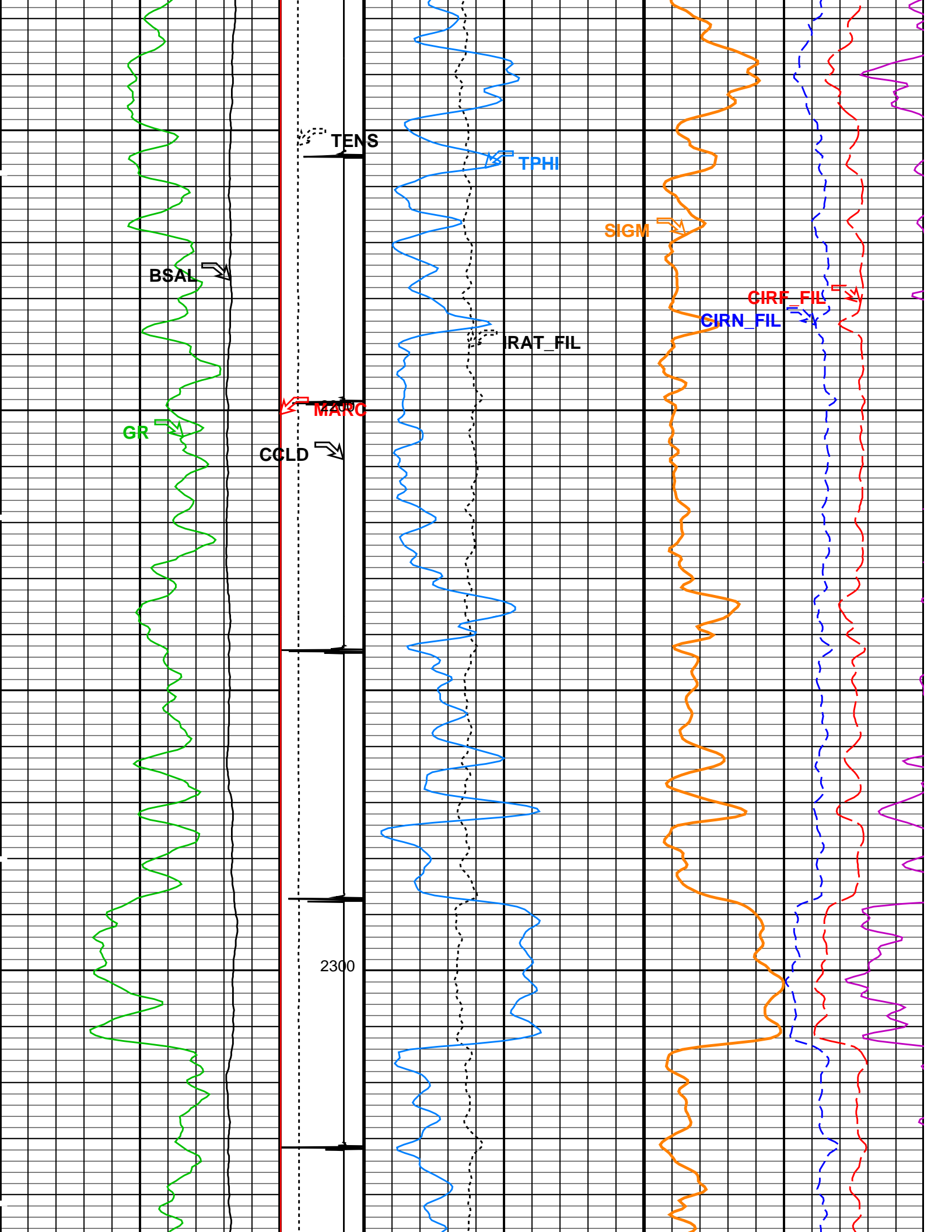


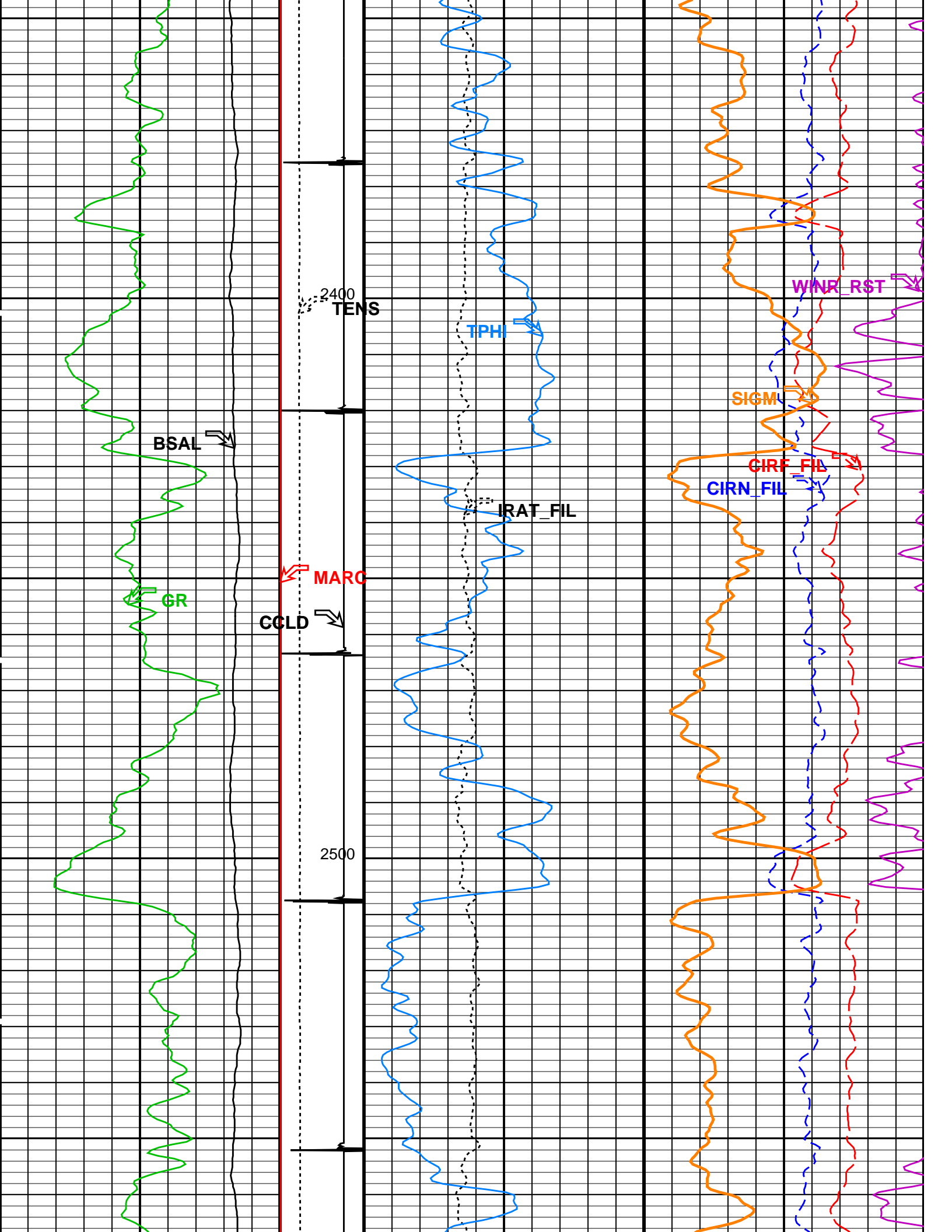




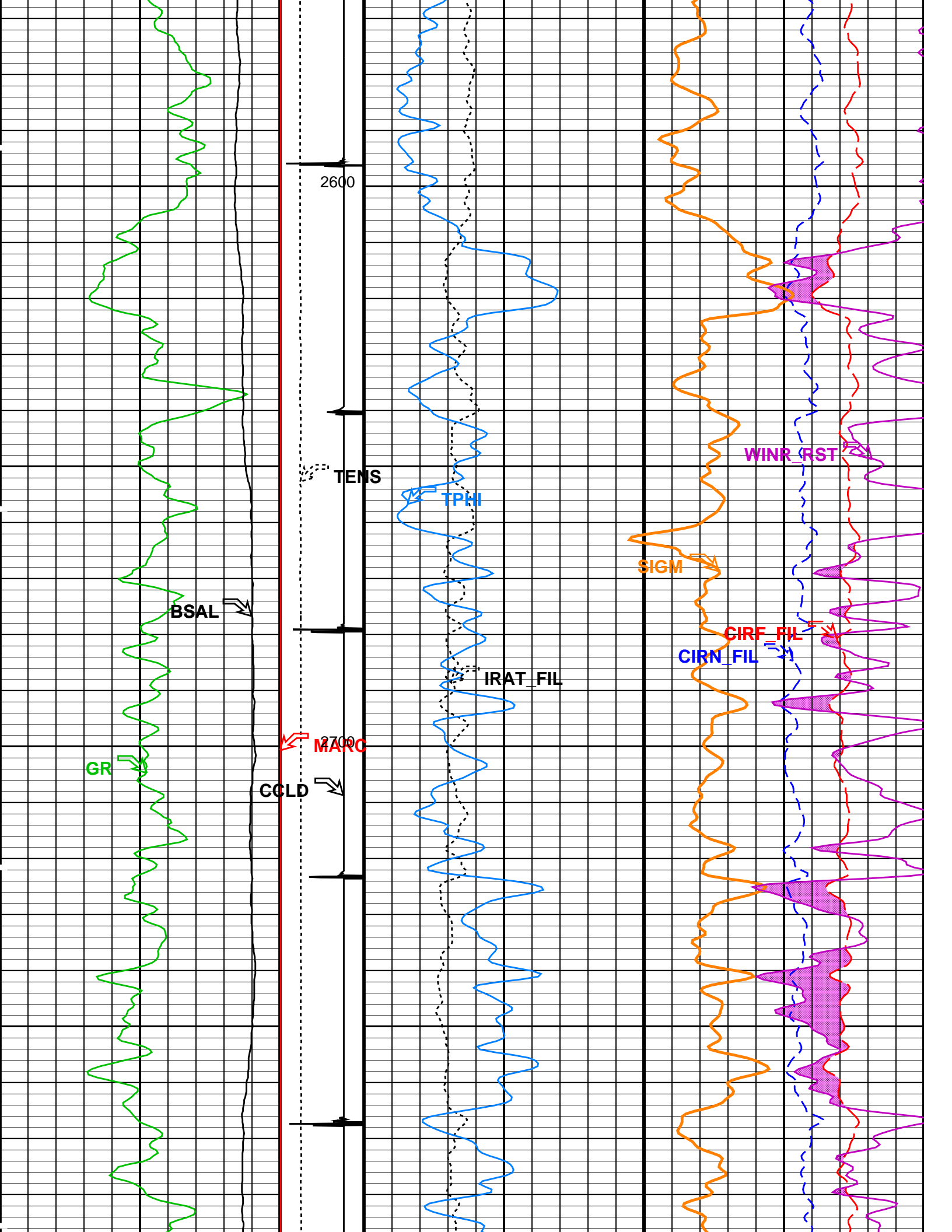


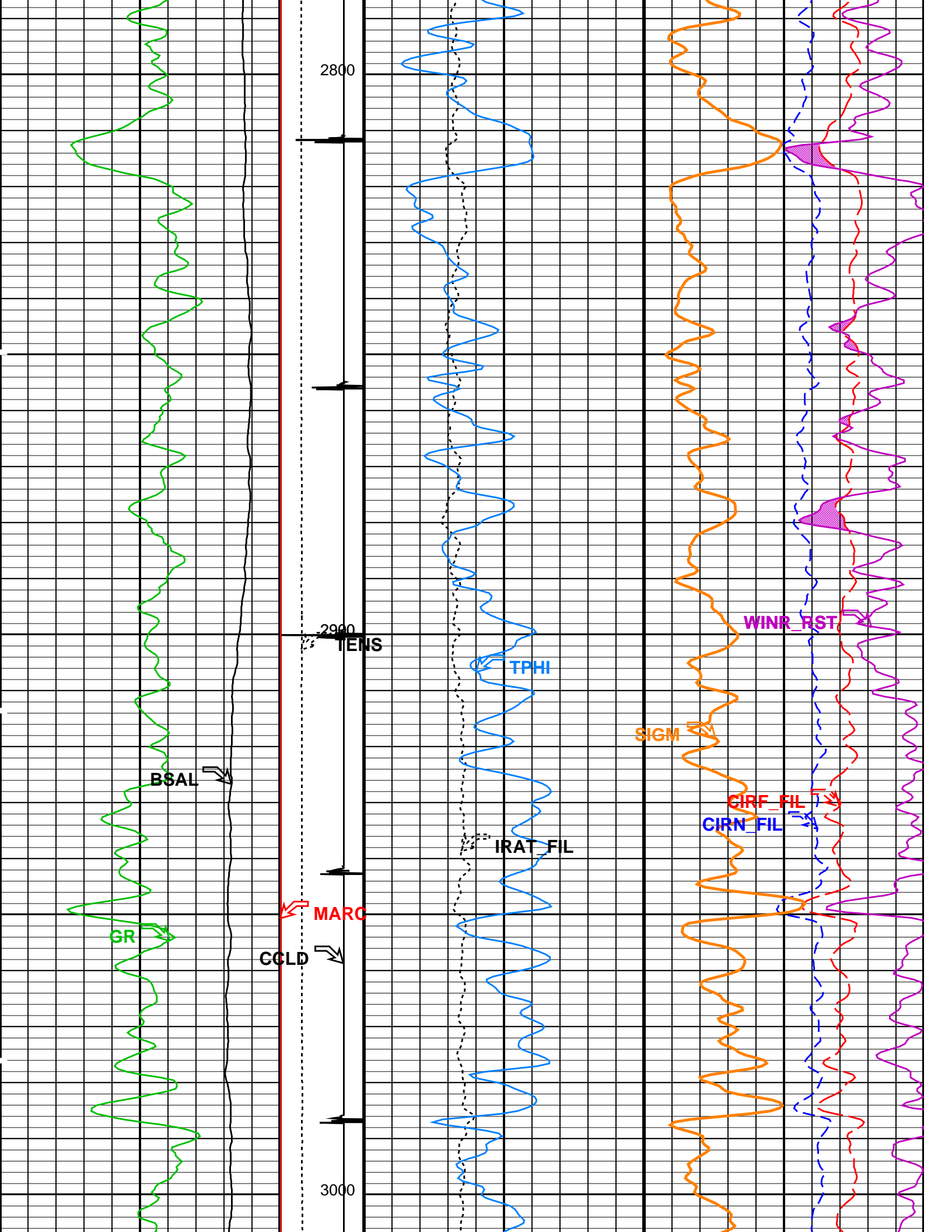


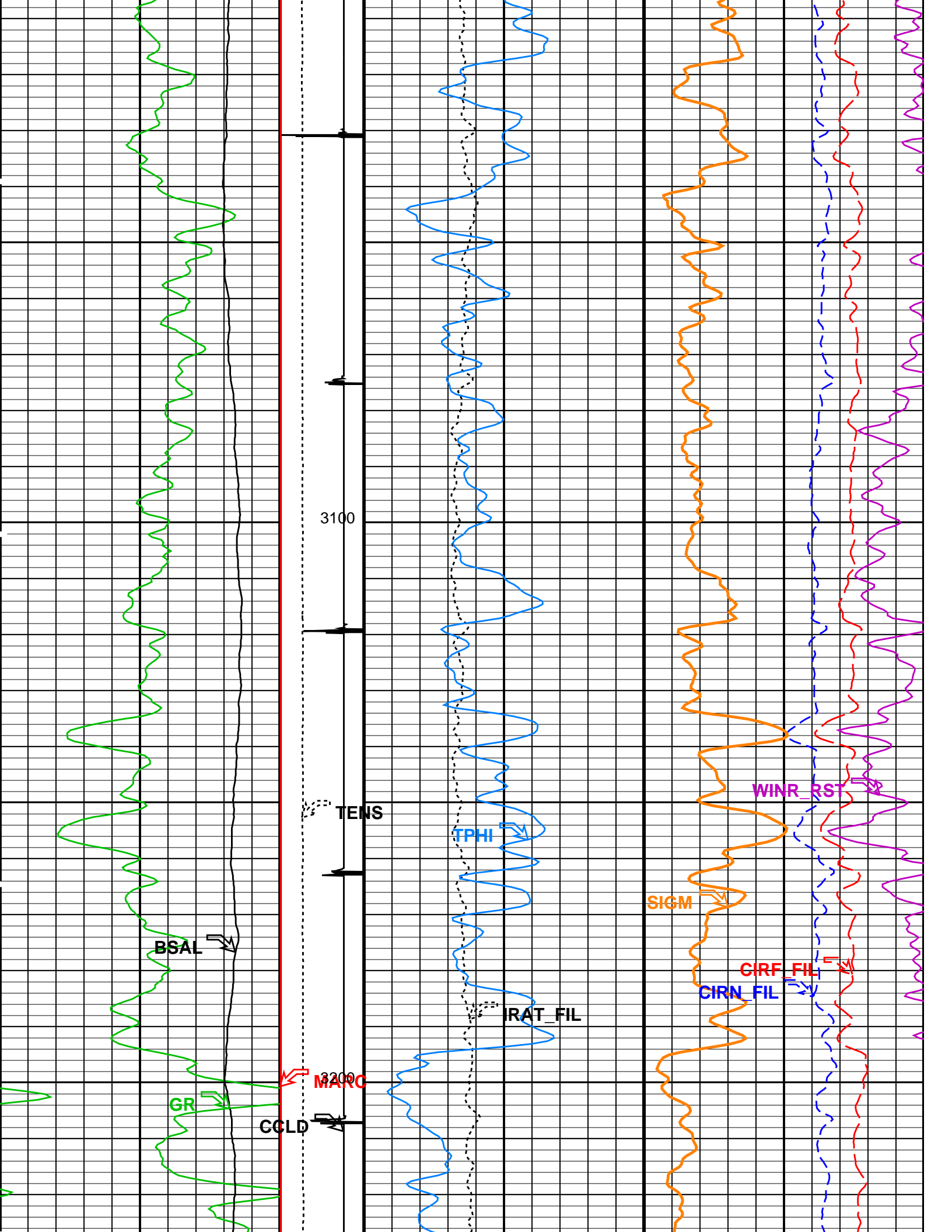


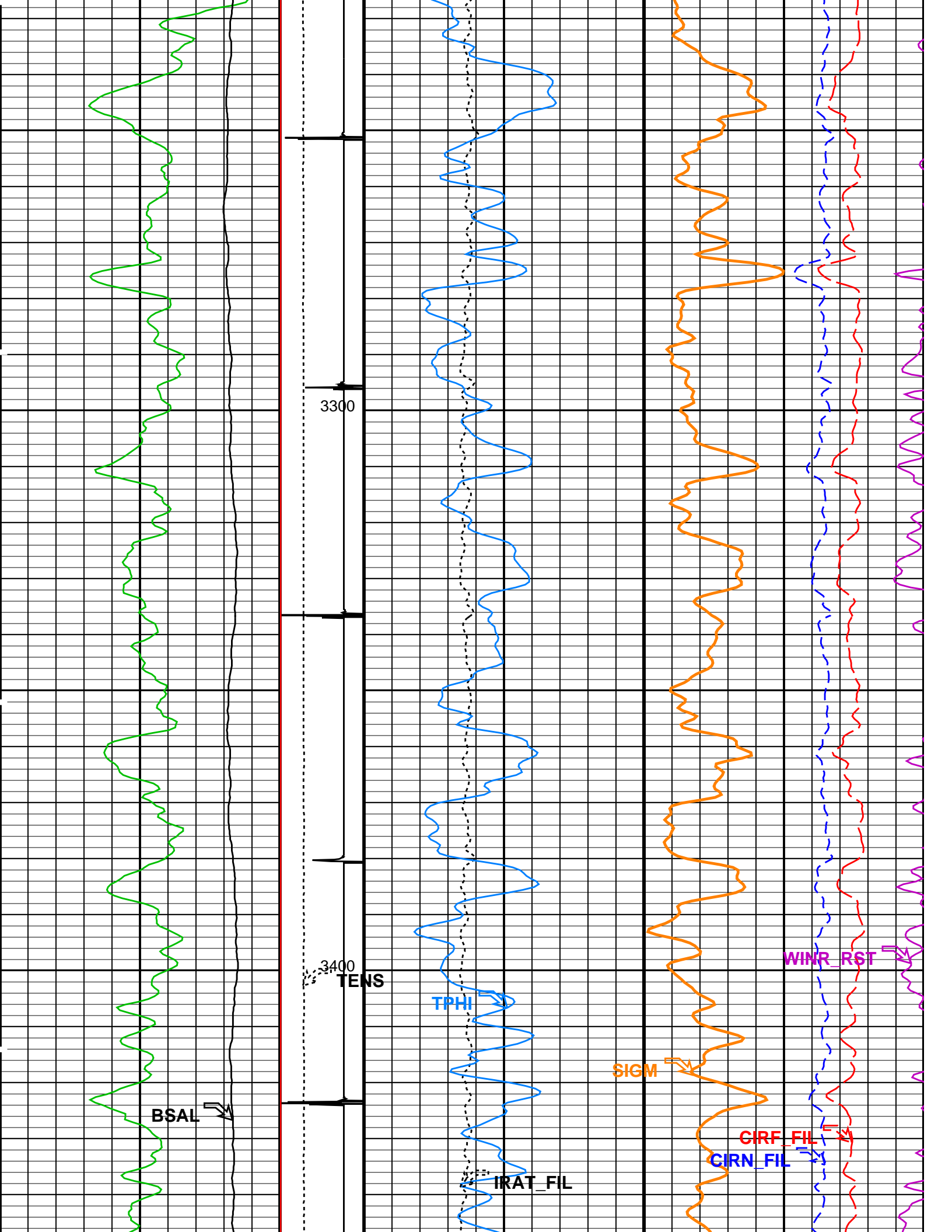


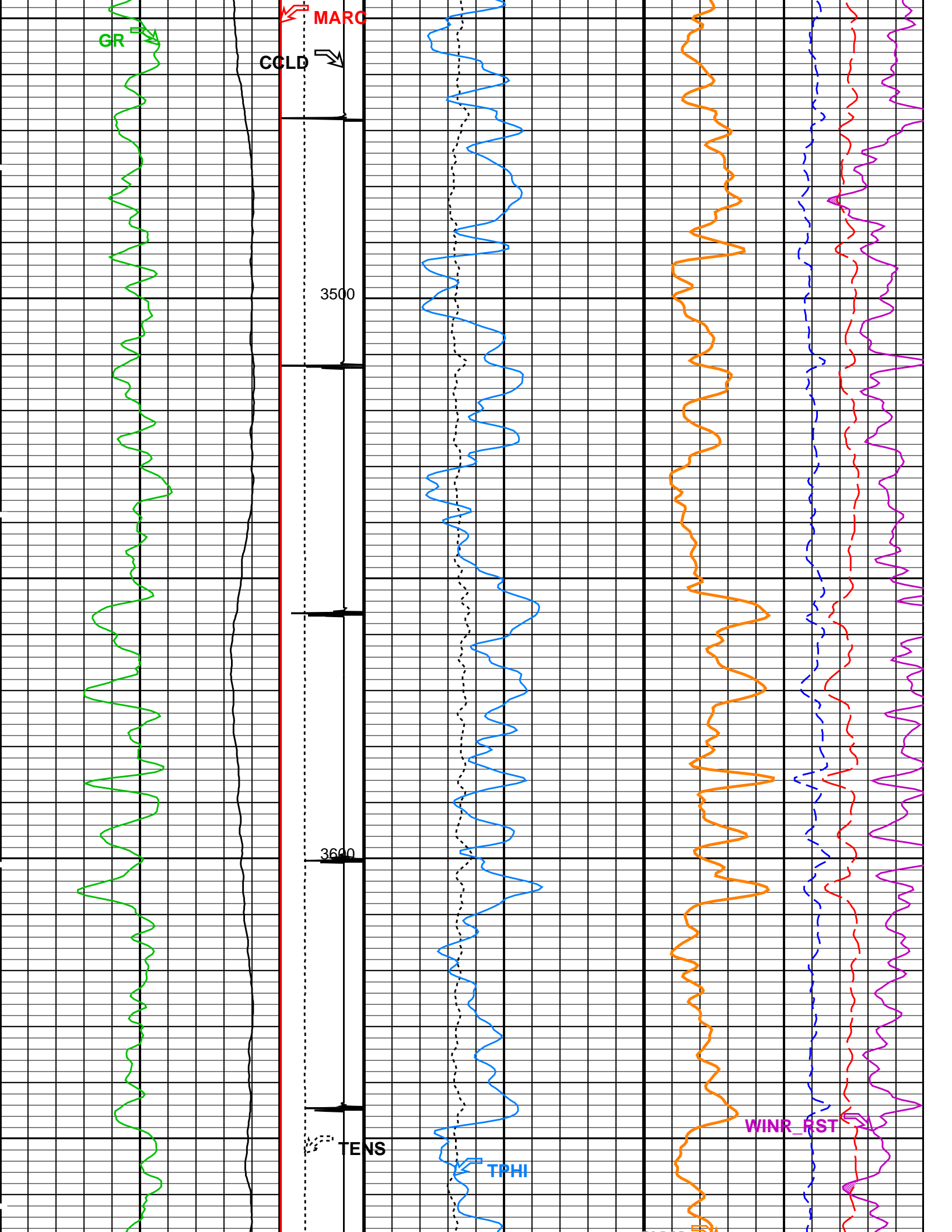


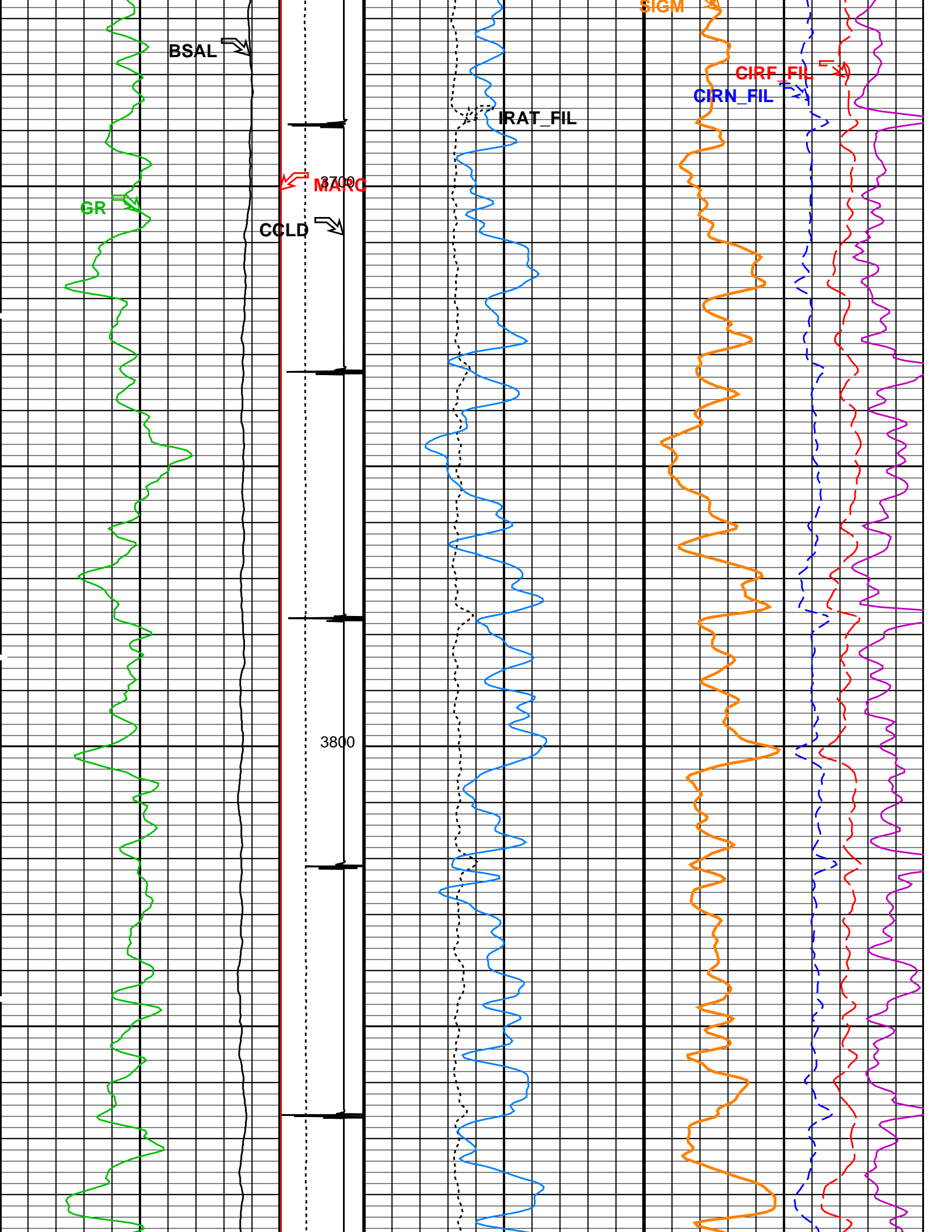


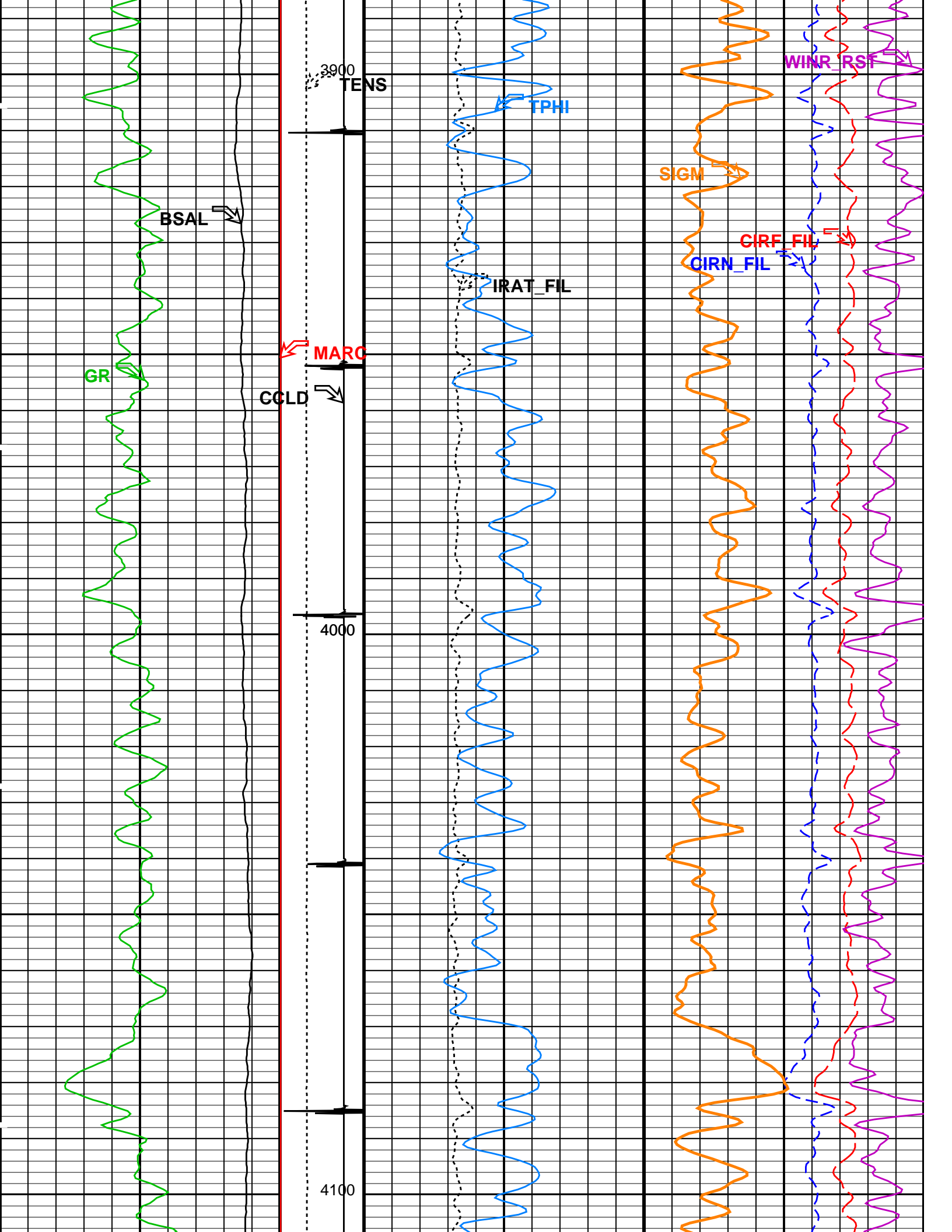


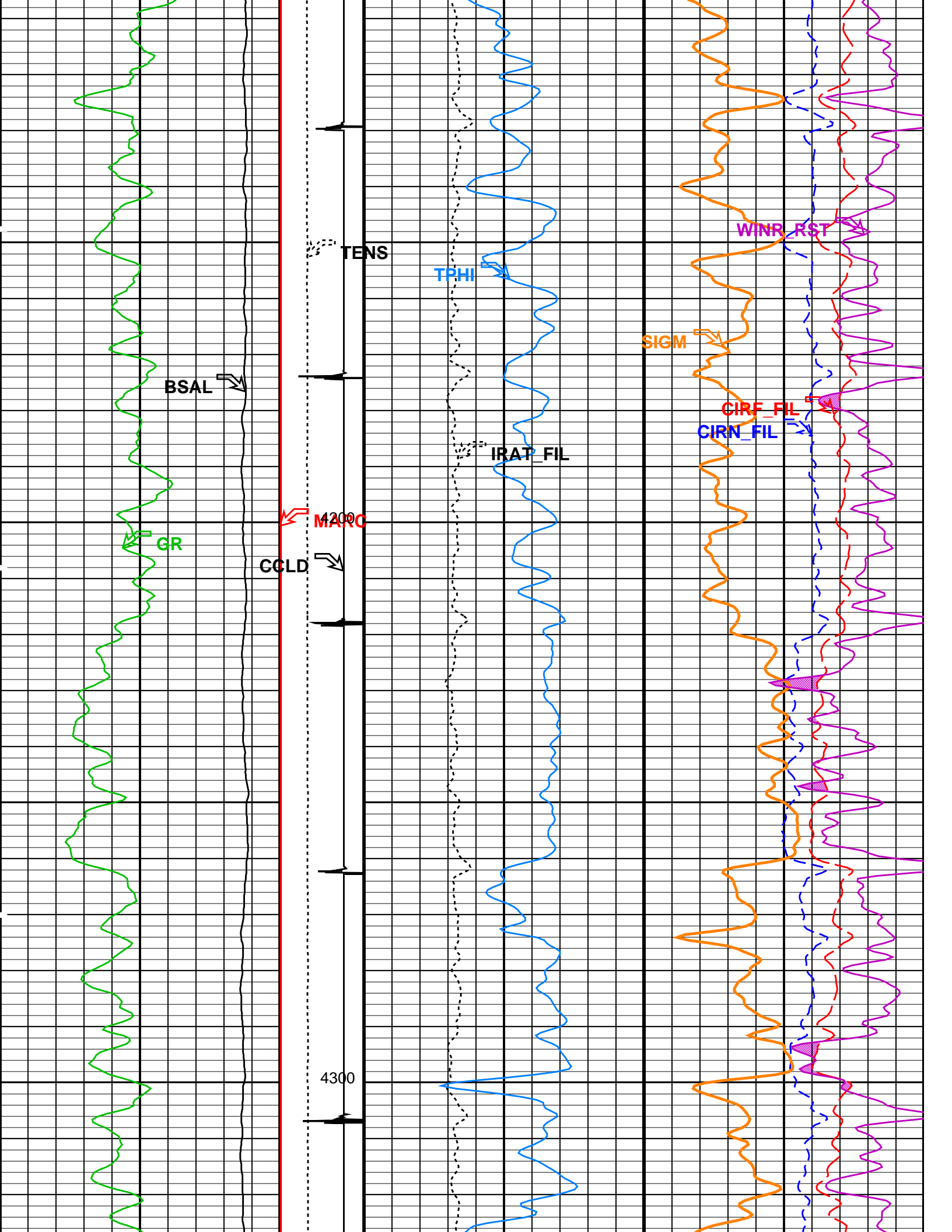




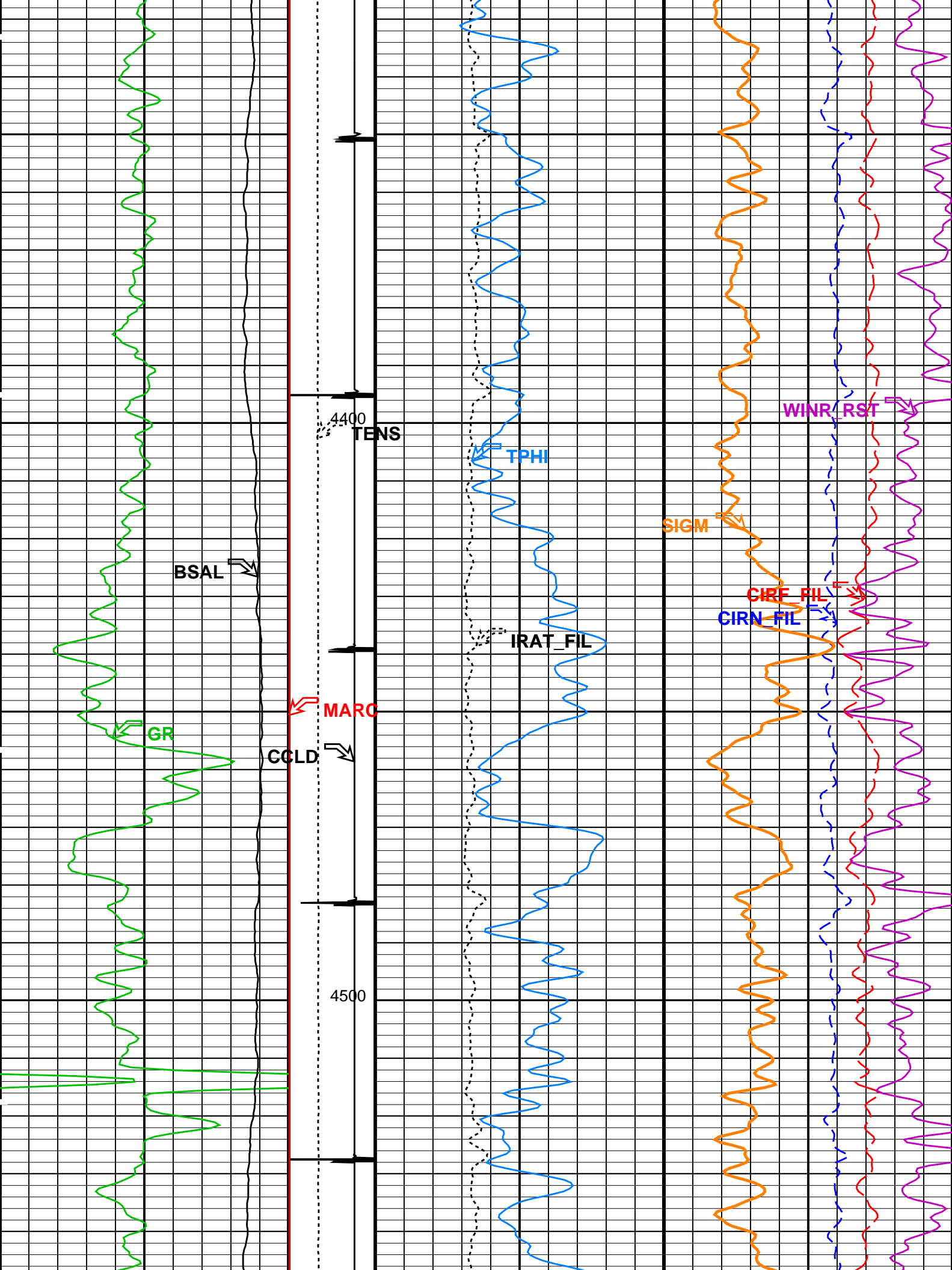


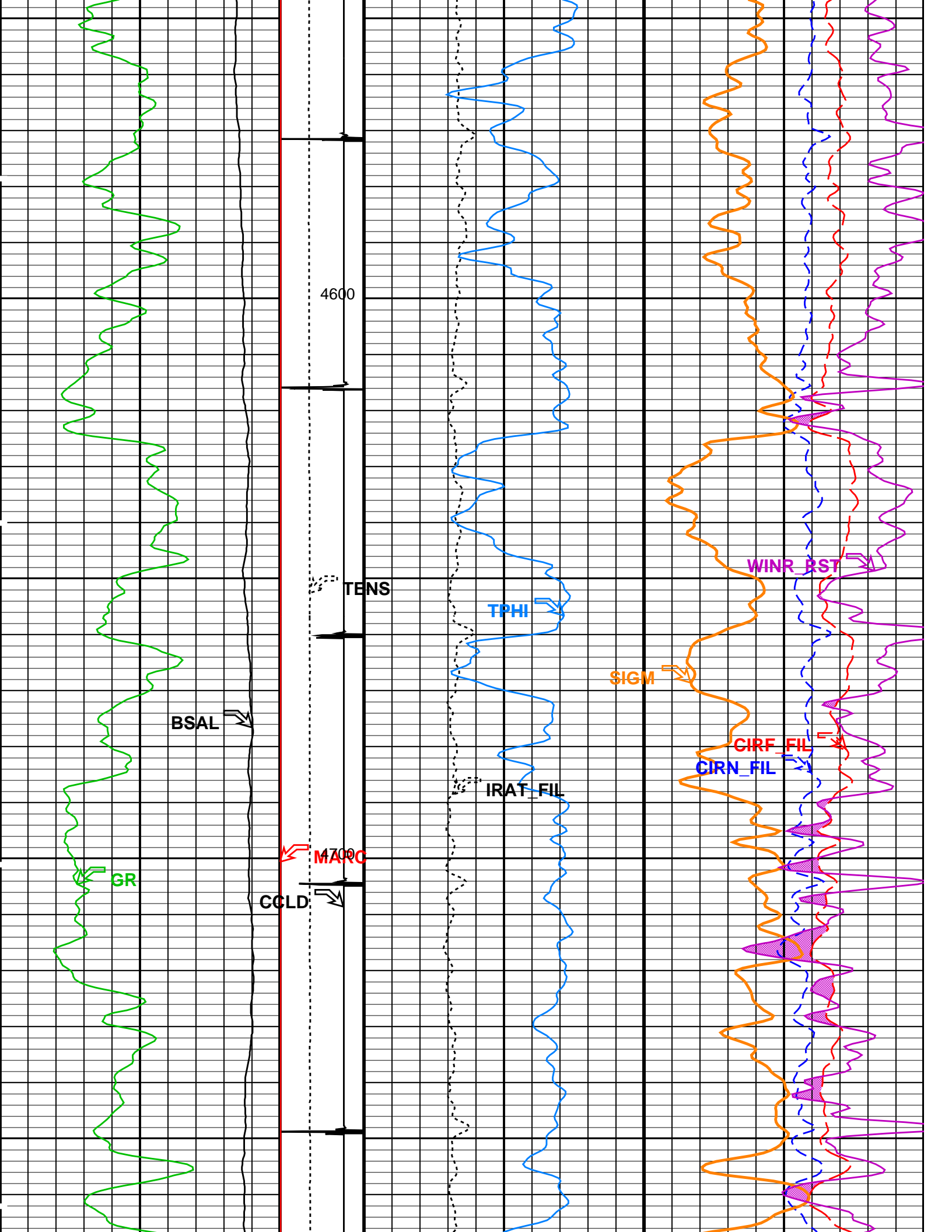


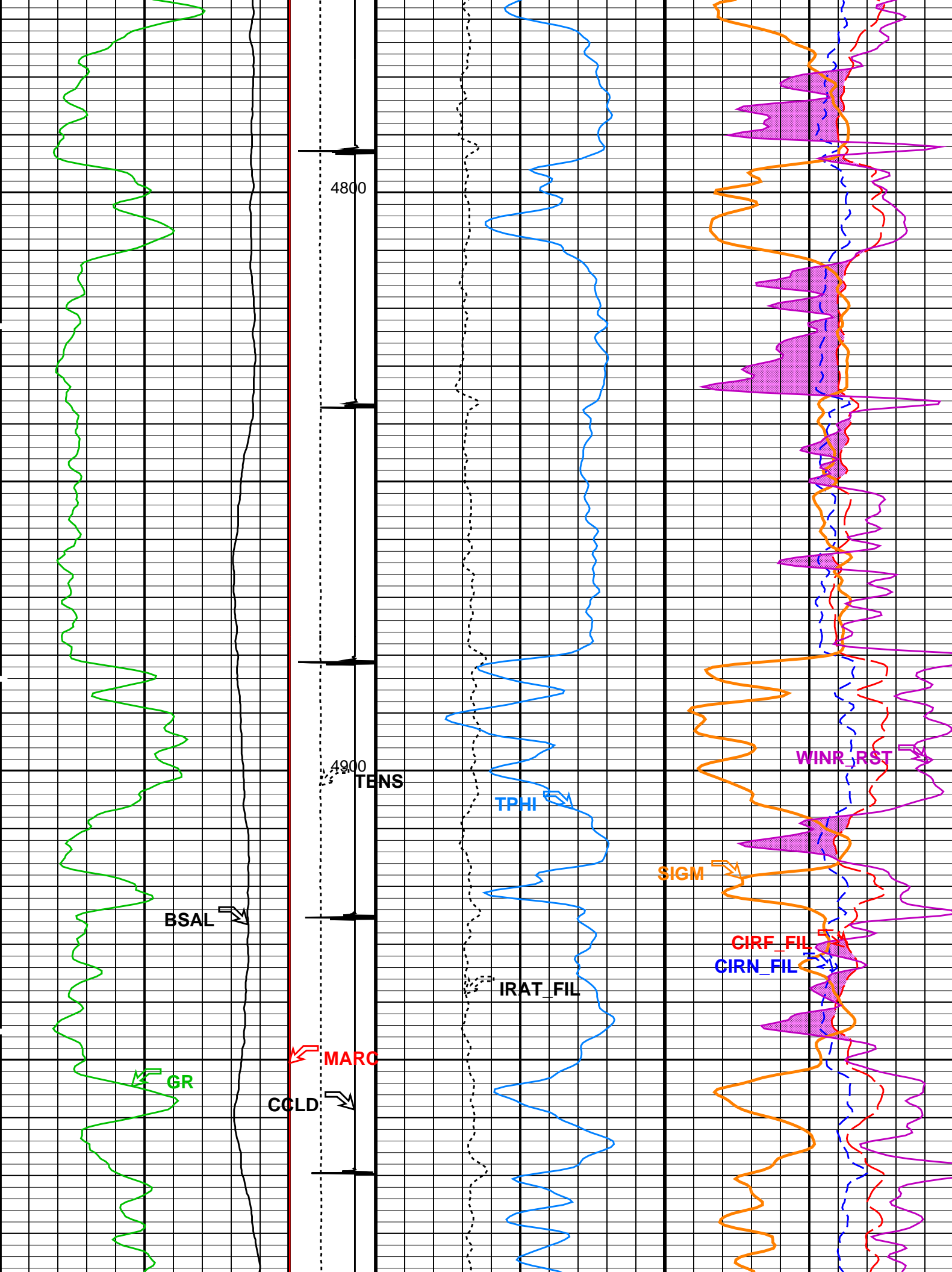


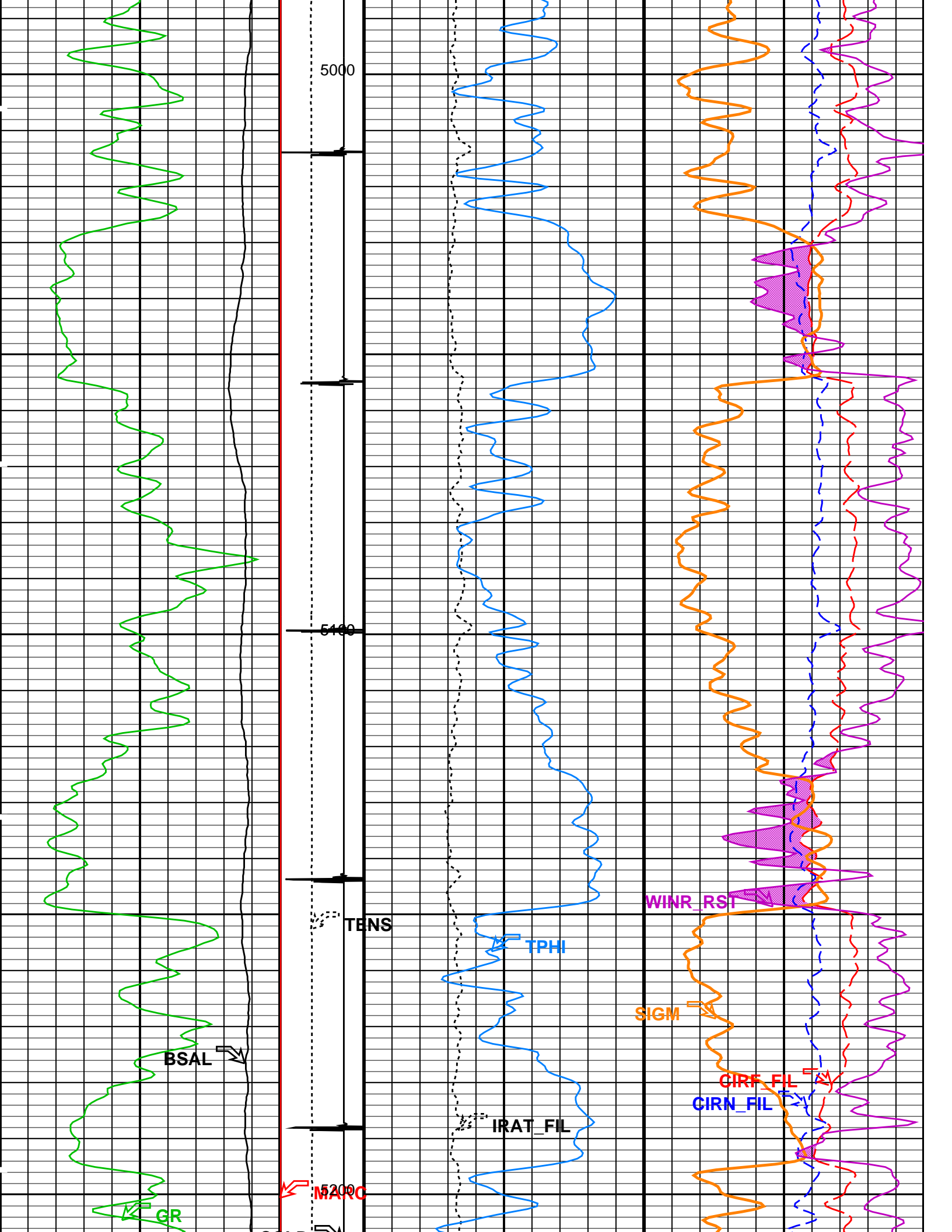


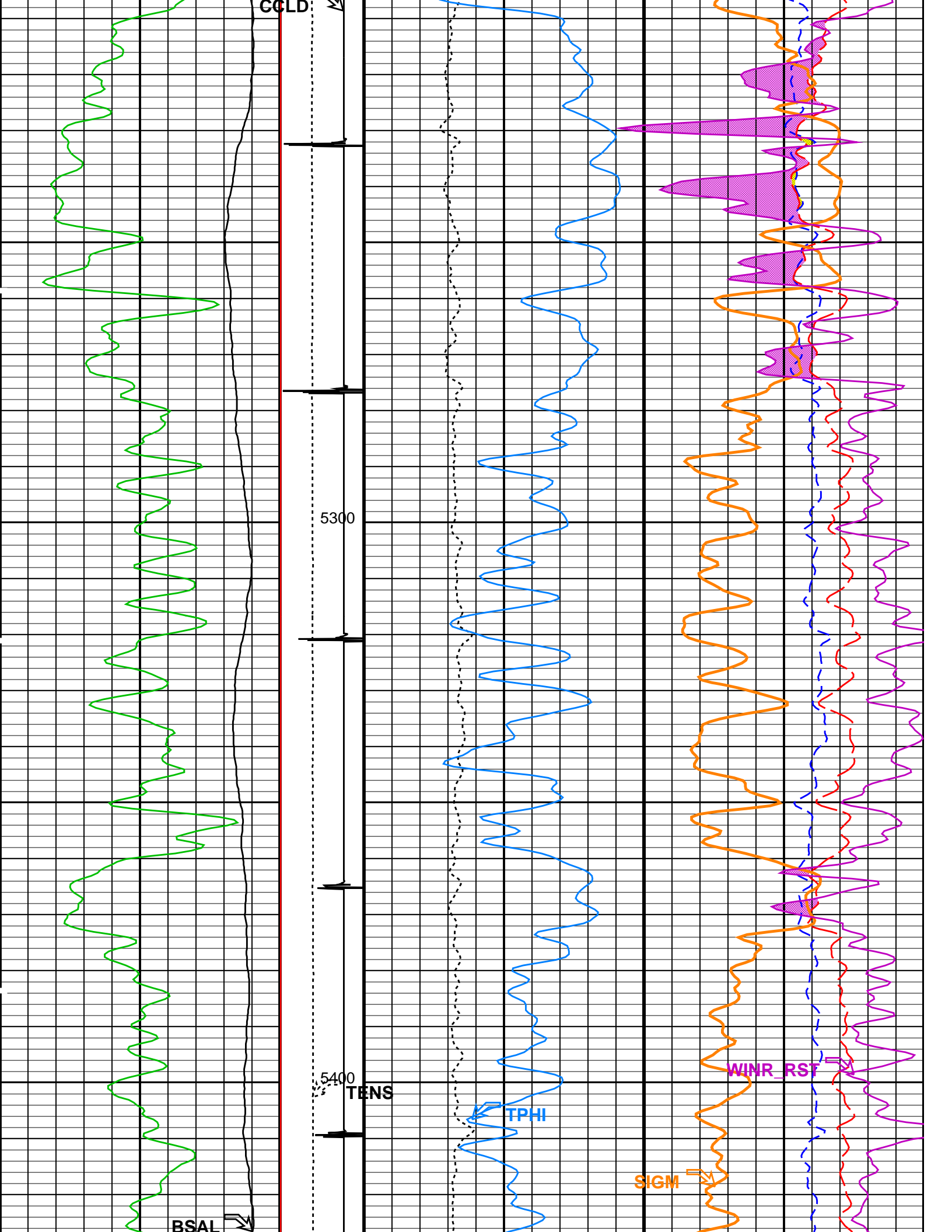


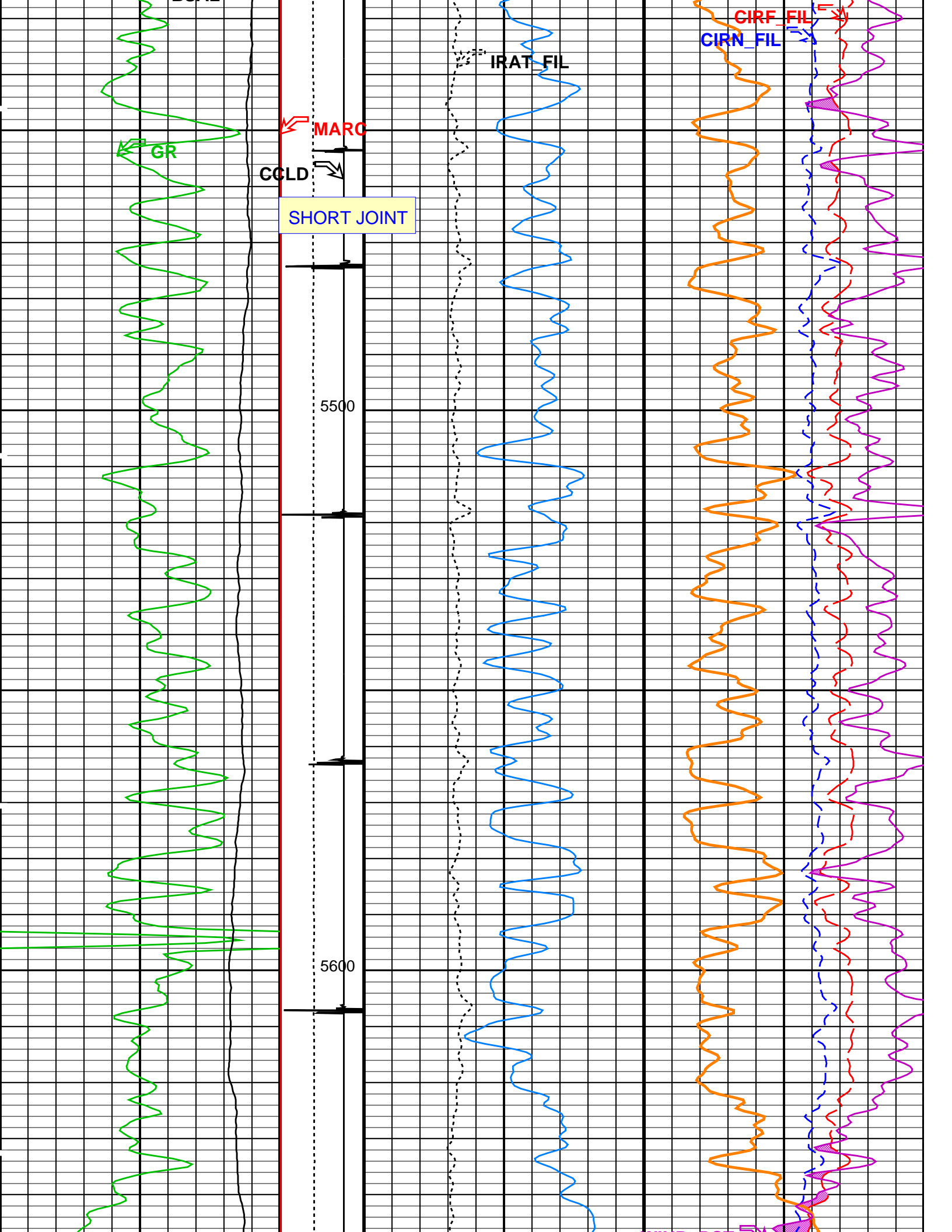


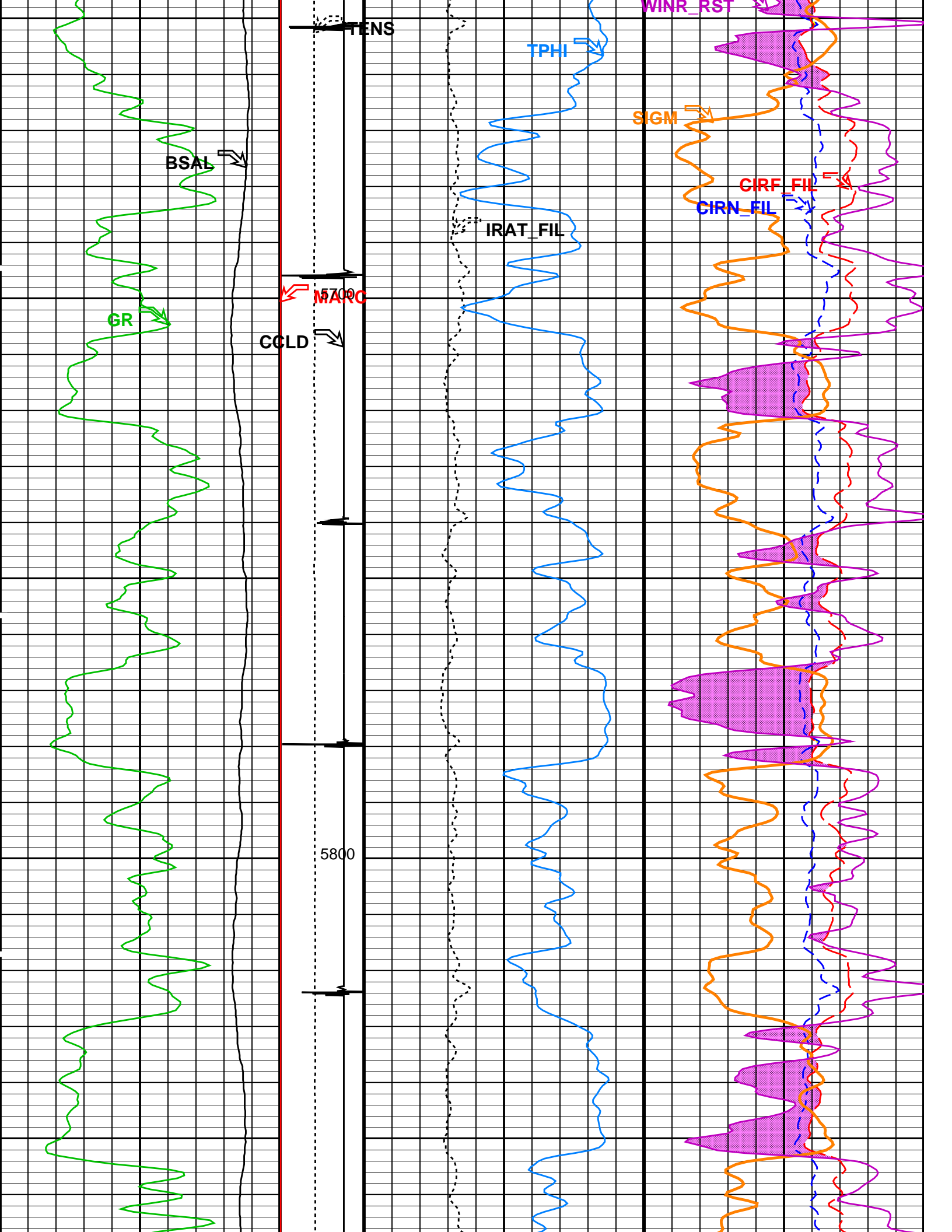


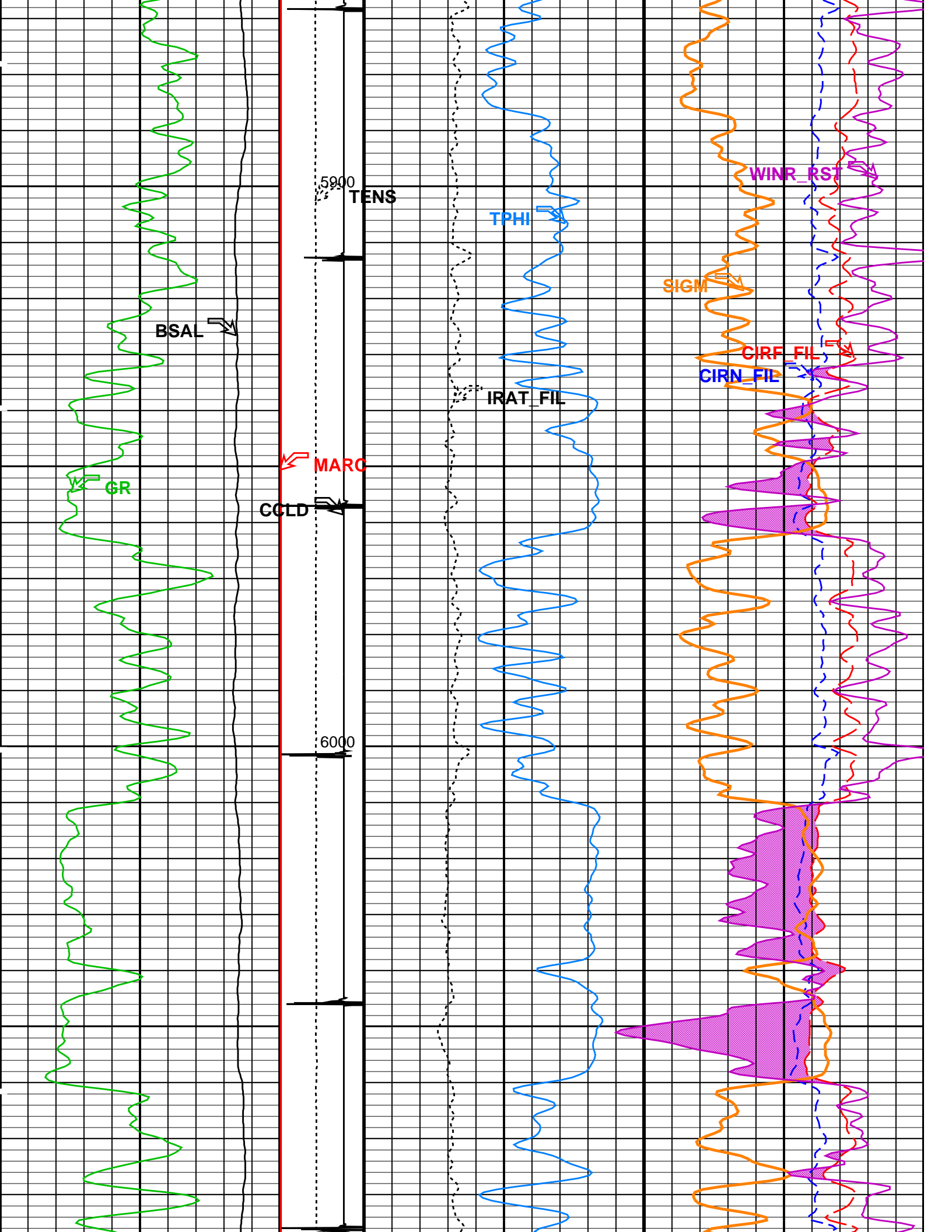




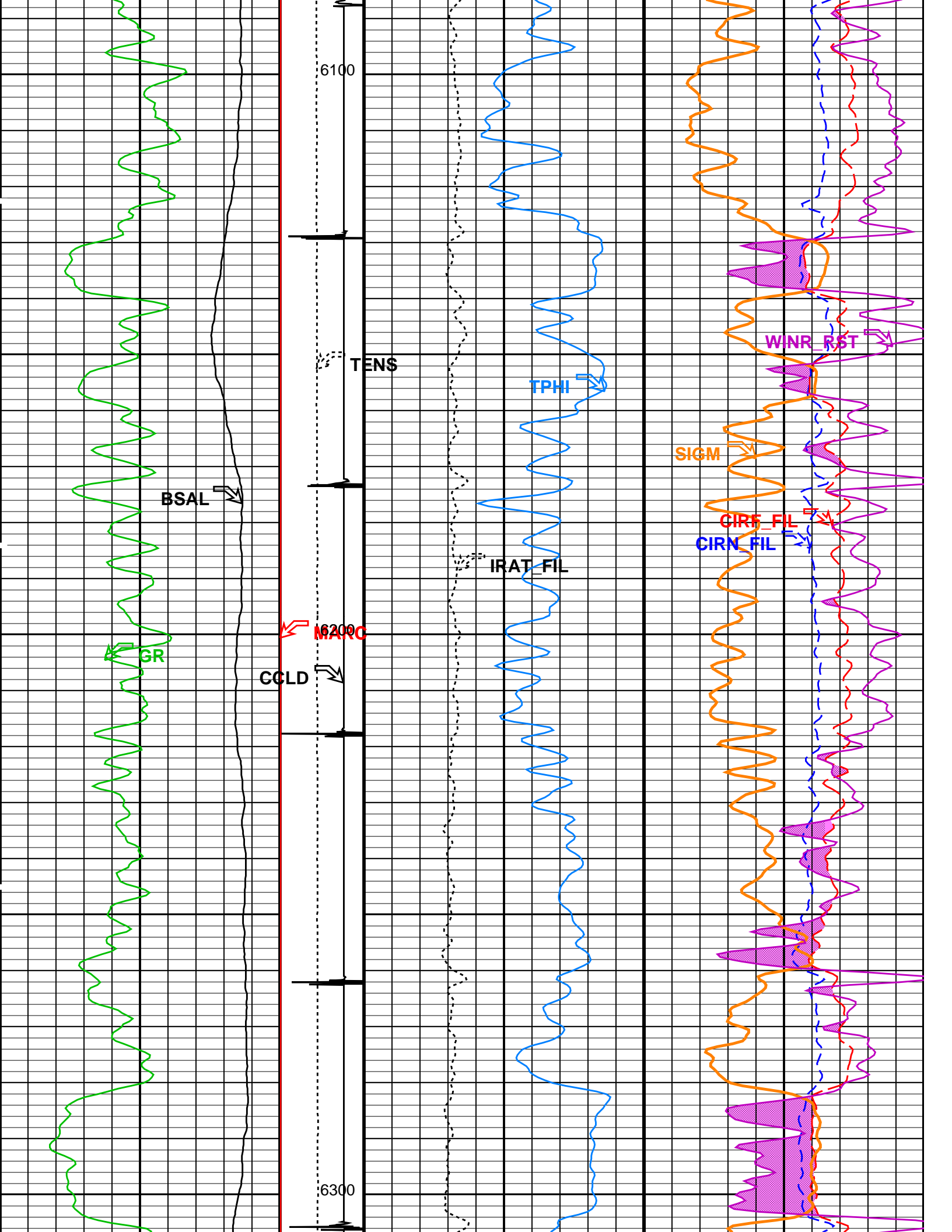


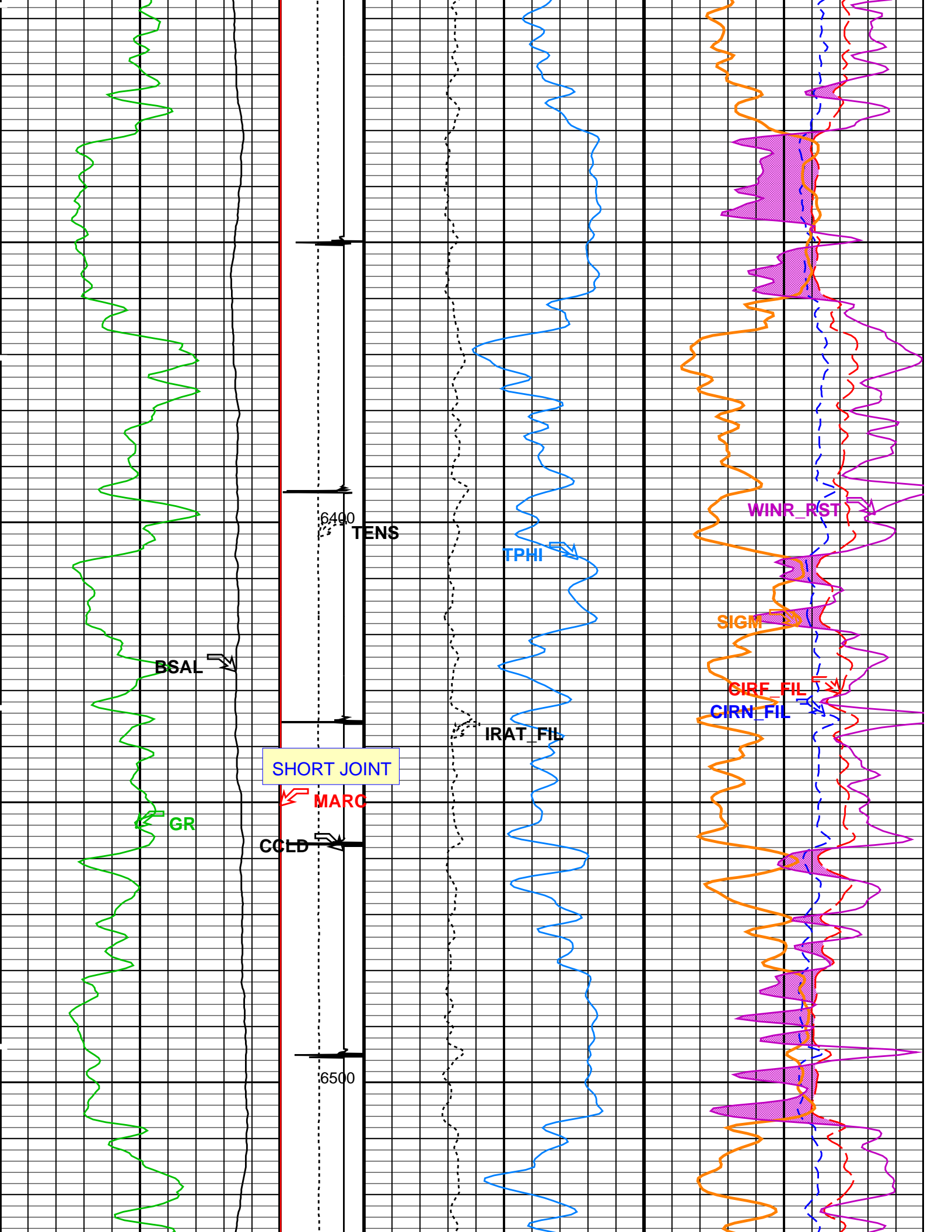


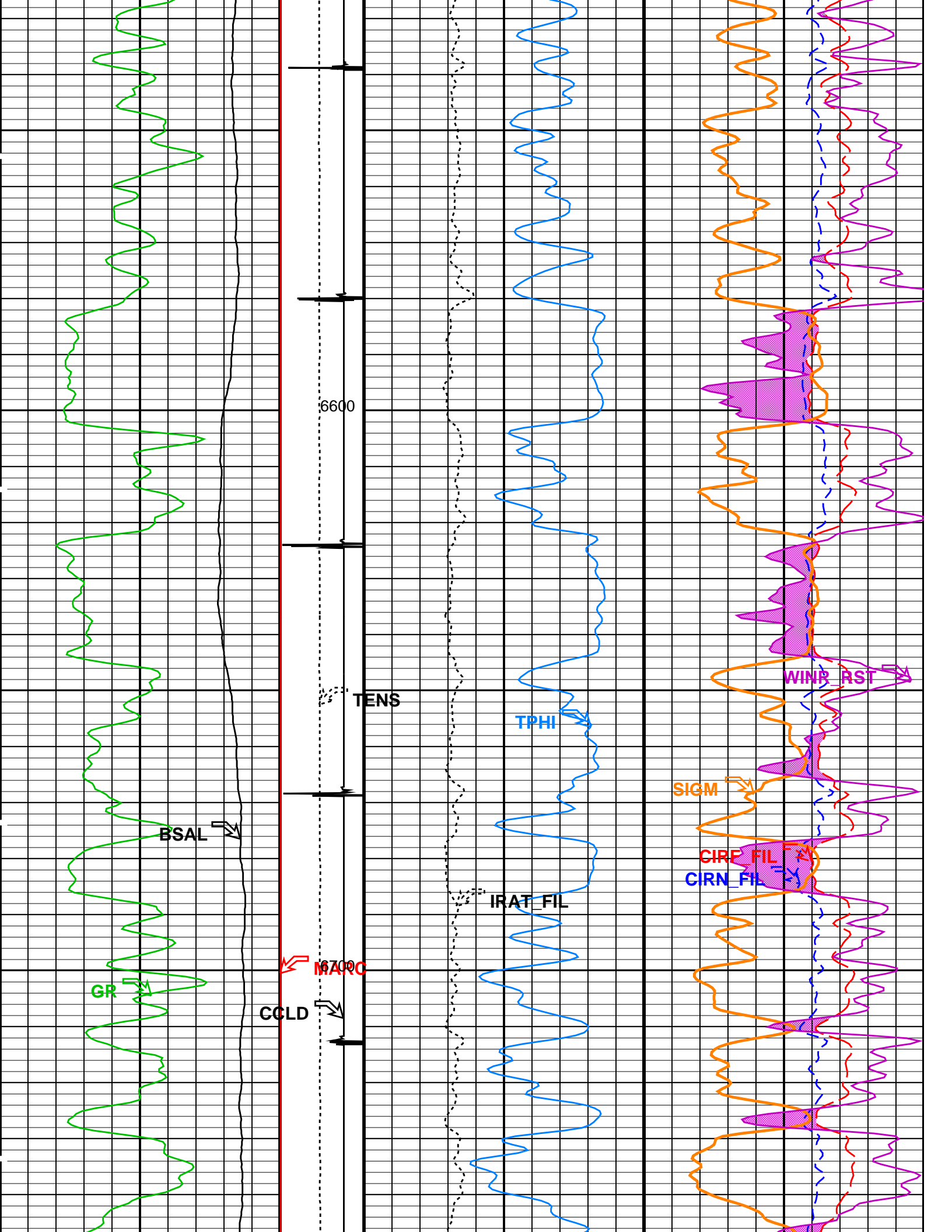


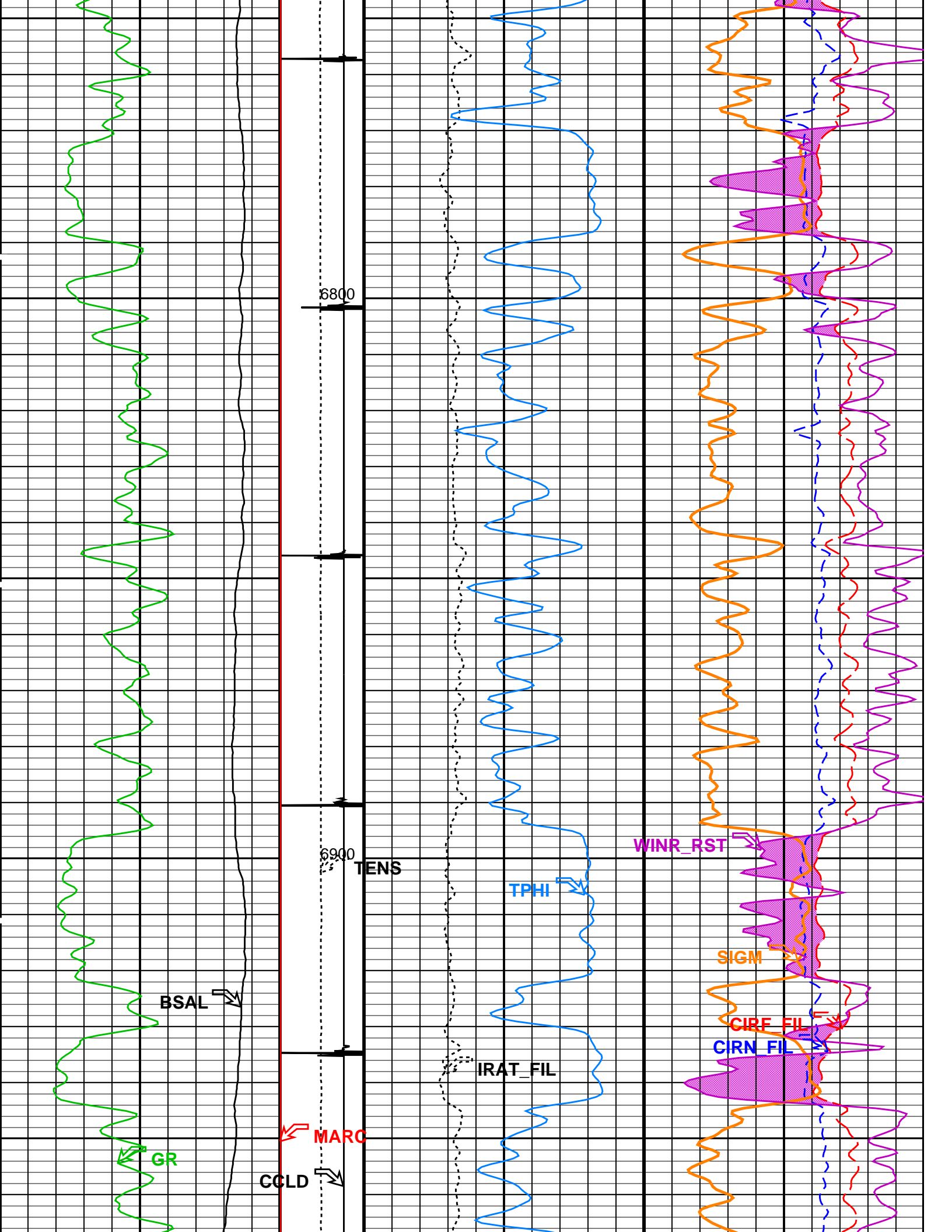


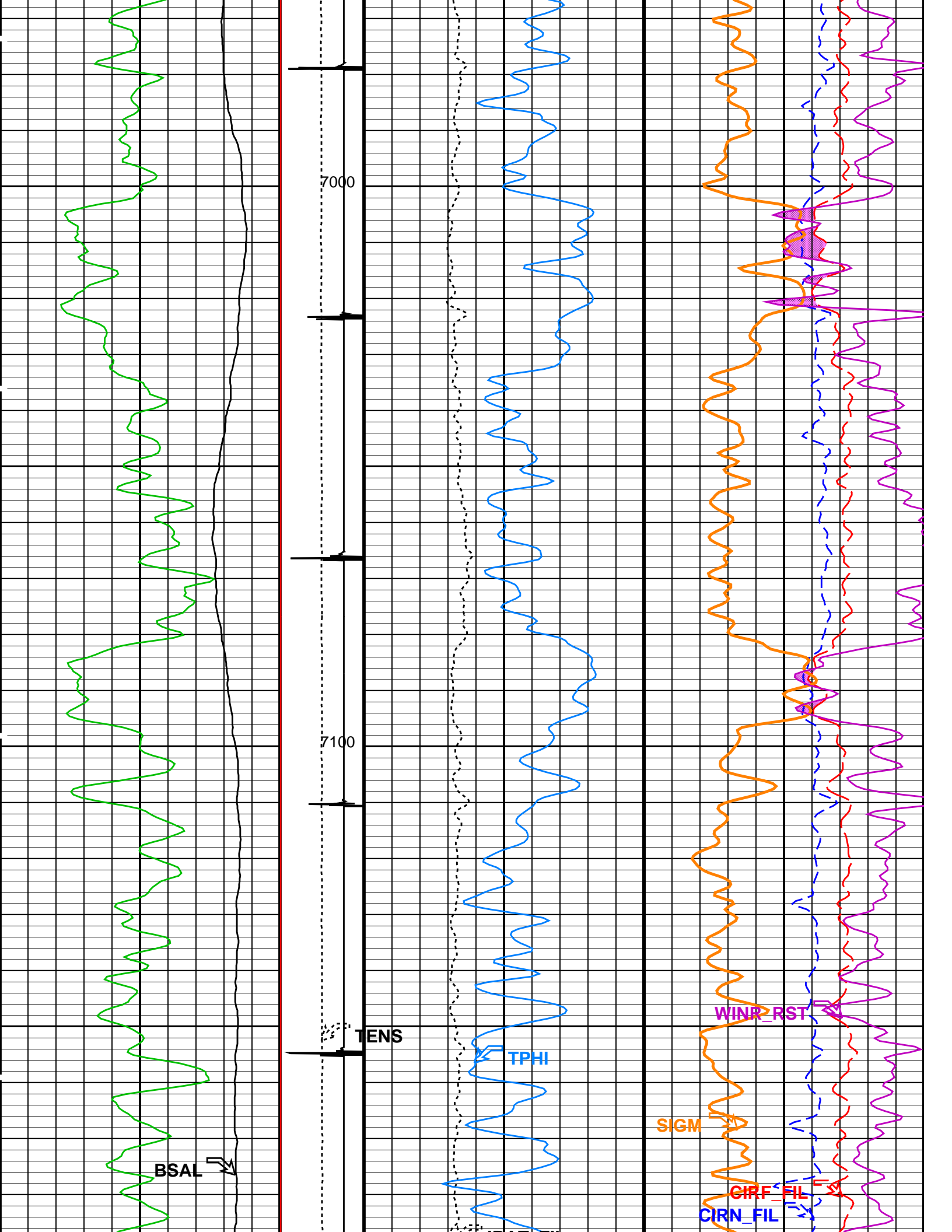


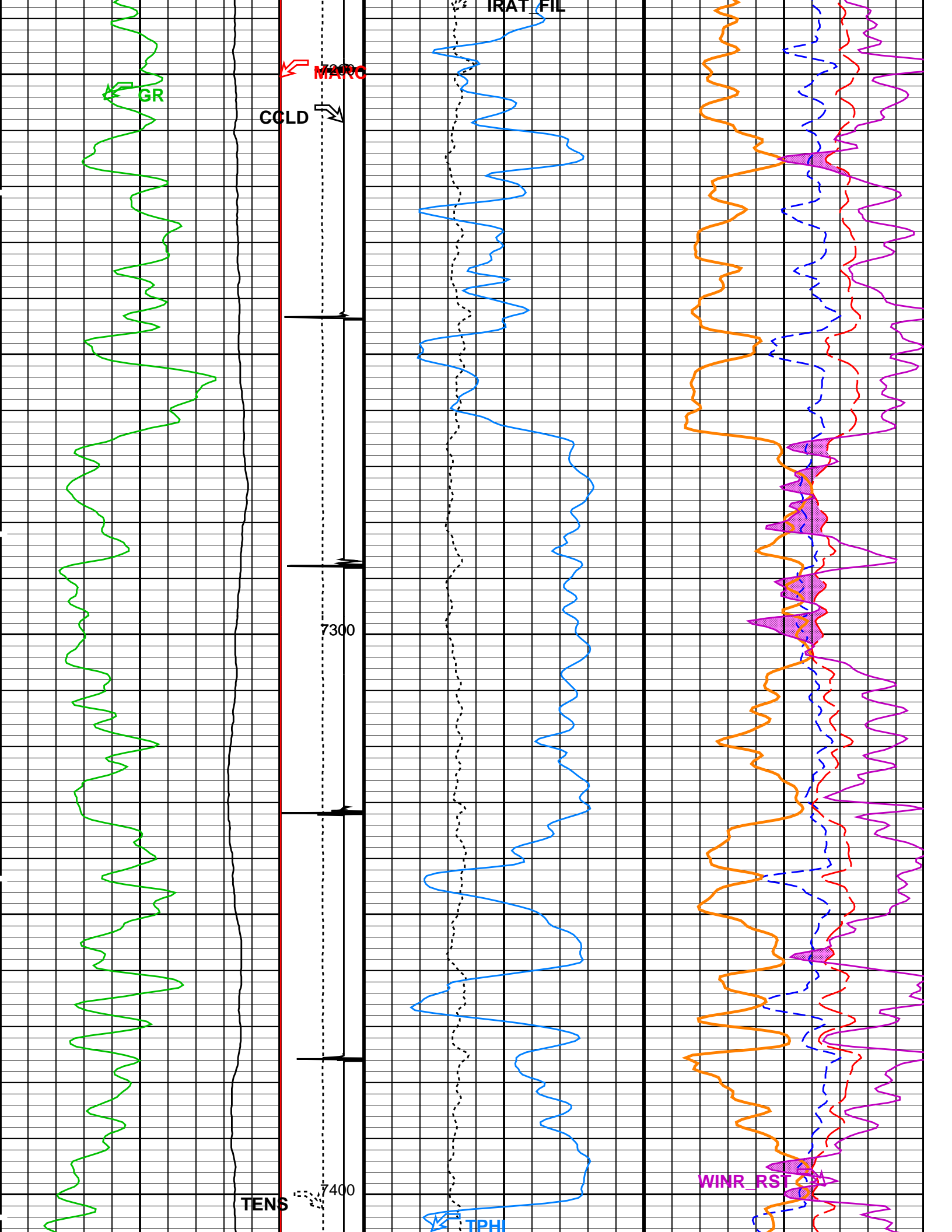


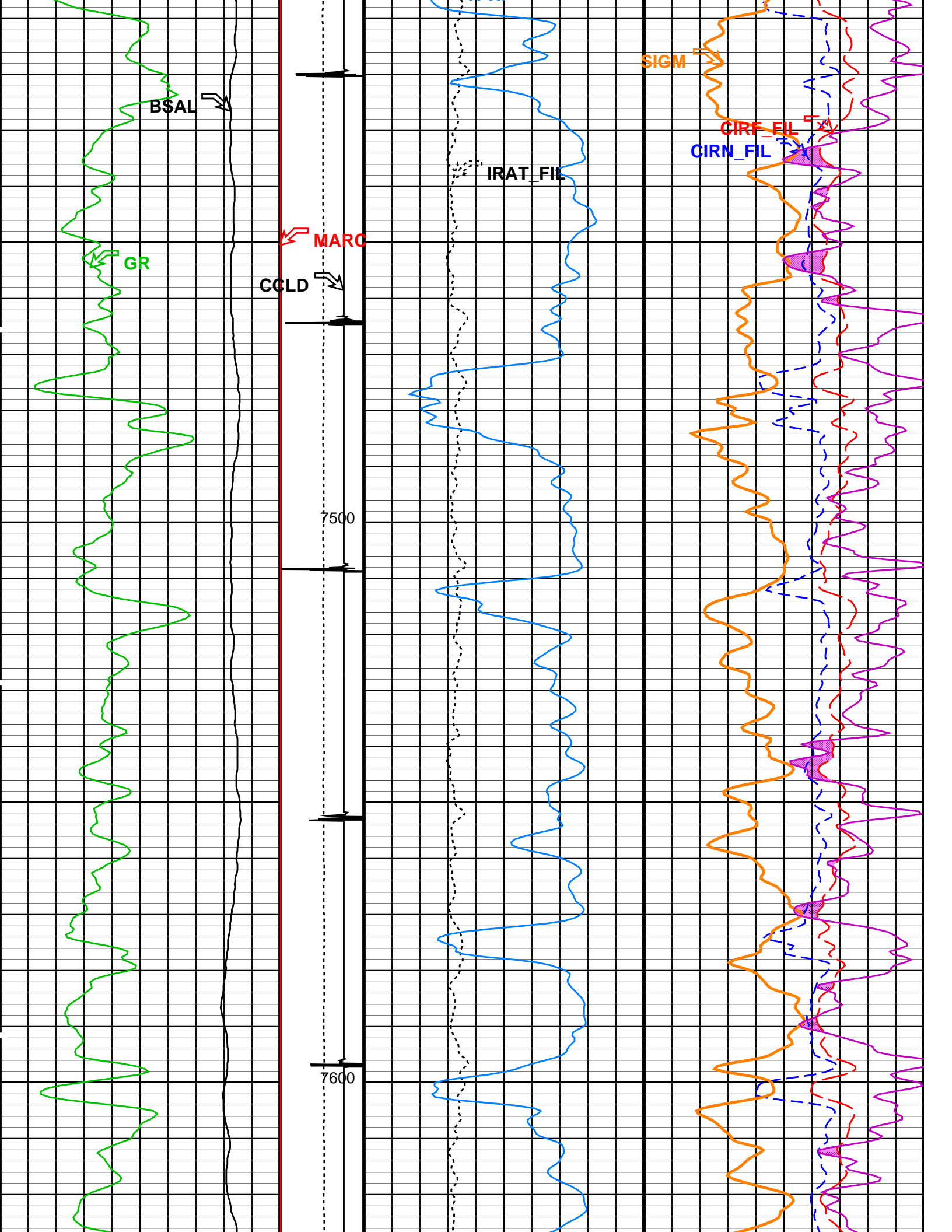


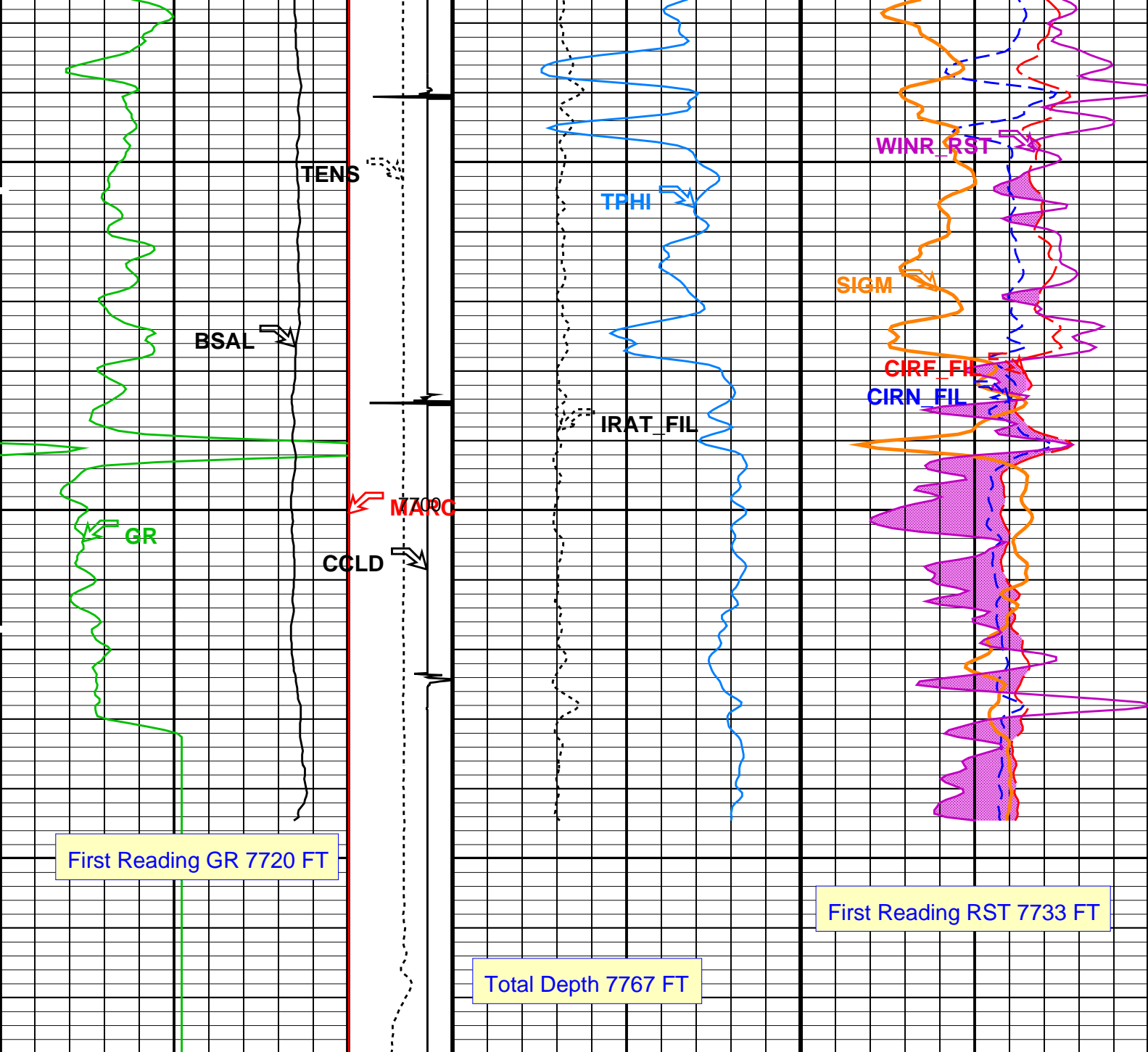












<div>Gamma Ray (GR) (GAPI)</div> <div>0150</div>	<div>Tension (TENS) (LBF)</div> <div>02000</div>	<div>RST Inelastic Ratio (IRAT_FIL)</div> <div>0.75-----0</div>	<div>RST Capture to Inelastic Ratio Near (CIRN_FIL)</div> <div>2.5-----0</div>
<div>RST Borehole Salinity (BSAL) (PPK)</div> <div>450-50</div>	<div>Discriminat ed CCL (CCLD)</div> <div>3 (V) -1</div>	<div>RST Sigma (SIGM) (CU)</div> <div>60-----0</div>	
<div>Minitron Arc Detection (MARC)</div> <div>0 (----) 5</div>	<div>RST Porosity (TPHI) (V/V)</div> <div>0.5-----0</div>	<div>RST Capture to Inelastic Ratio Far (CIRF_FIL)</div> <div>7 (----) 0</div>	
		<div>RST Weighted Inelastic Ratio (WINR_RST)</div> <div>0.4 (----) 0</div>	<div>WINR Gas Flag From WINR to RST_CIRF_FIL</div>



## 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
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
PRST	PRMS Tool position on CAN	2

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			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	3.0	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	7767	FT
TDD	Total Depth - Driller	7852.00	FT
TDL	Total Depth - Logger	7767.00	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 12:36

## OP System Version: 19C0-187

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

### Input DLIS Files

DEFAULT    SCMT\_RST\_PSP\_008LUP    FN:7    PRODUCER    13-Sep-2013 10:30    7775.0 FT    11.0 FT

### Output DLIS Files

DEFAULT    SCMT\_RST\_PSP\_011PUP    FN:10    PRODUCER    13-Sep-2013 12:35

**Schlumberger**

## REPEAT ANALYSIS RST SIGMA

MAXIS Field Log

### Input DLIS Files

DEFAULT    SCMT\_RST\_PSP\_011PUP    FN:10    PRODUCER    13-Sep-2013 12:35    7778.0 FT    -30.5 FT

### Output DLIS Files

DEFAULT    SCMT\_RST\_PSP\_012PUP    FN:11    PRODUCER    13-Sep-2013 12:41    5627.5 FT    5241.0 FT

## OP System Version: 19C0-187

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

### PIP SUMMARY

Time Mark Every 60 S

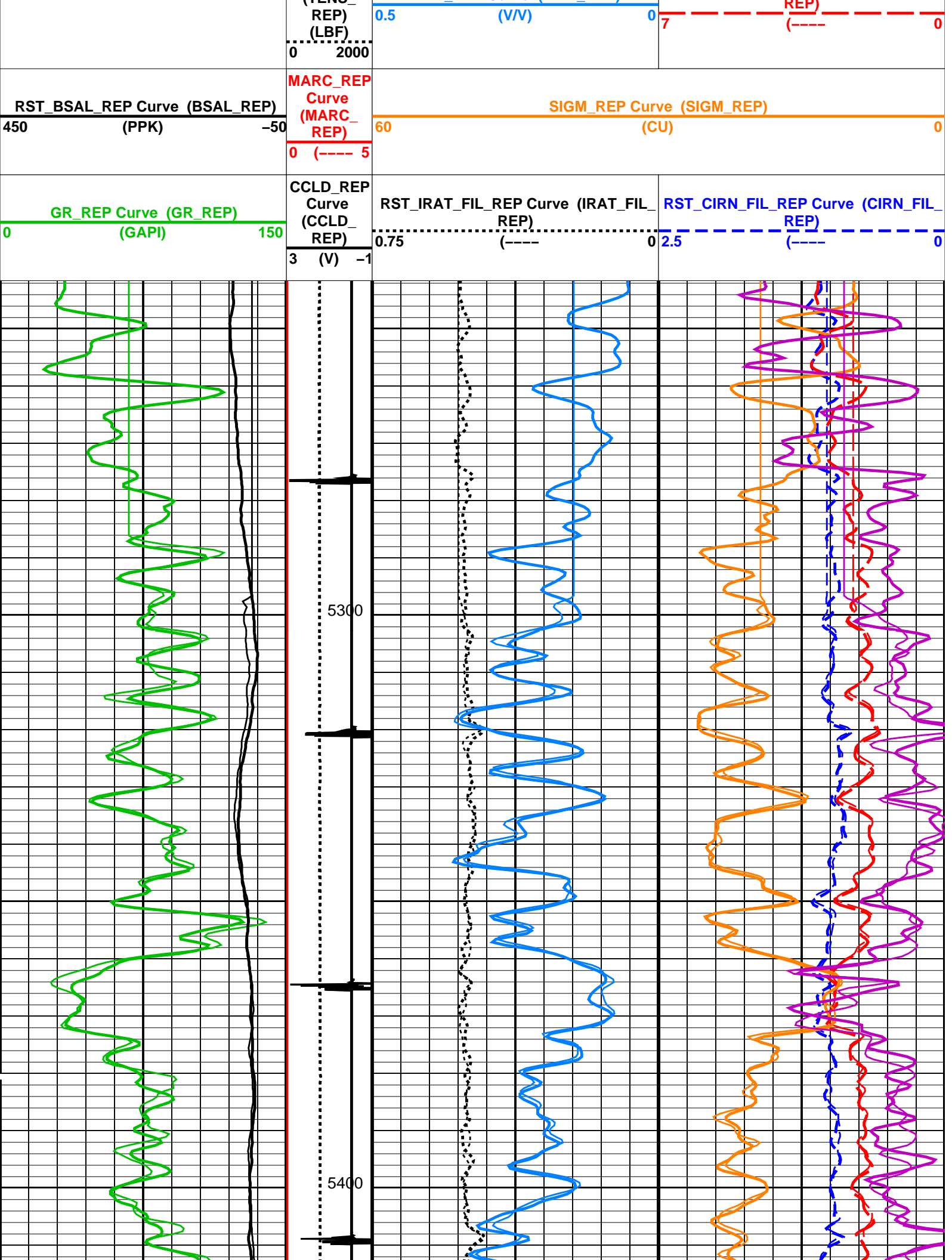
WINR\_REP Curve (WINR\_RST\_REP)

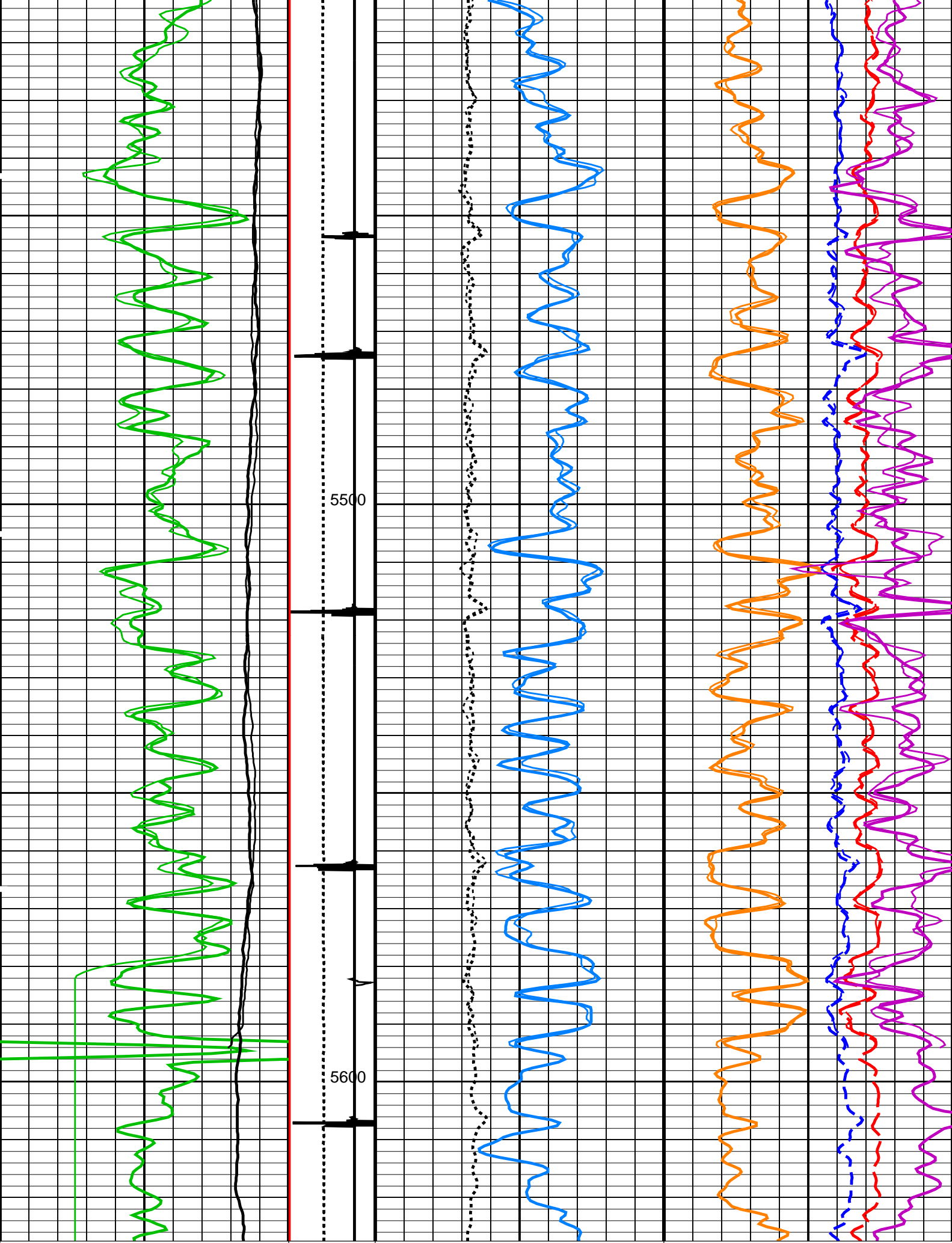
0.4    (-----)    0

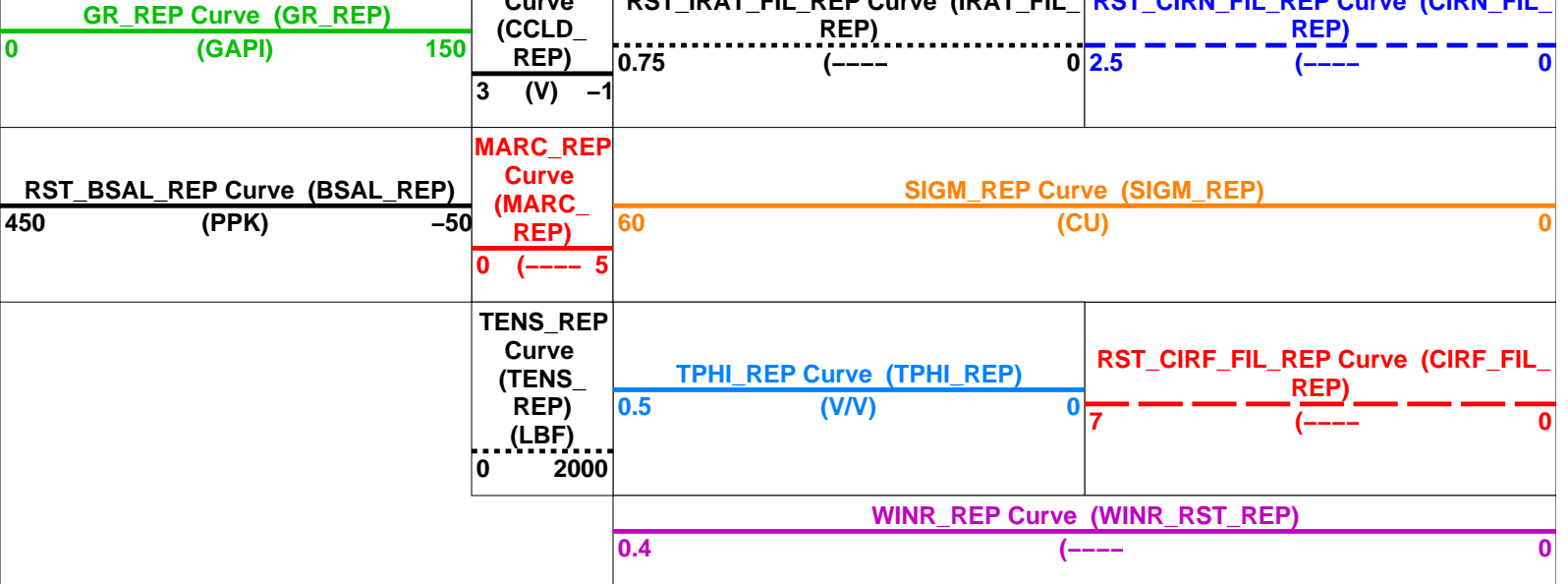
TENS\_REP  
Curve  
(TENS

TPHI\_REP Curve (TPHI\_REP)

RST\_CIRF\_FIL\_REP Curve (CIRF\_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	
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	
BHALOPT	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	
	RST Normalized Sigma	30	CU

PTIER	RST Tiered Presentation Selection	0_Customer	3	
PVL_PSNT_PRST	PVL Peak Signal/Noise Threshold		1	
RGAI	Near/Far Gain Calibration Ratio		68	DEGF
SHT	Surface Hole Temperature			
TIER_IC	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith		
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	0	
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				
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth		
BS	Bit Size	8.750		IN
BSAL	Borehole Salinity	-50000.00		PPM
CSIZ	Current Casing Size	4.500		IN
CWEI	Casing Weight	11.60		LB/F
DFD	Drilling Fluid Density	8.40		LB/G
DO	Depth Offset for Playback	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	7767		FT
TDD	Total Depth - Driller	7852.00		FT
TDL	Total Depth - Logger	7767.00		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 12:41

## OP System Version: 19C0-187

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

### Input DLIS Files

DEFAULT	SCMT_RST_PSP_011PUP	FN:10	PRODUCER	13-Sep-2013 12:35	7778.0 FT	-30.5 FT
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### Output DLIS Files

DEFAULT	SCMT_RST_PSP_012PUP	FN:11	PRODUCER	13-Sep-2013 12:41
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**Schlumberger**

## PBMS COEFFICIENTS

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC  
Field: SOUTH PARACHUTE  
Well: HAGEN FEDERAL 22-5A (PC22)

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	+.182000000000e+04	+.332000000000e+04

Client: ENCANA OIL & GAS (USA) INC

Field: SOUTH PARACHUTE

Well: HAGEN FEDERAL 22-5A (PC22)

Run date: 13-Sep-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	-.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

Field: SOUTH PARACHUTE

Well: HAGEN FEDERAL 22-5A (PC22)

Run date: 13-Sep-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

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



Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+1.117016867873E+03	-.284359629614E-03	+6.04391180345E-08
Fb**1	-.598309140812E-02	+1.182731130848E-07	+1.160166486172E-12
Fb**2	-.307621454576E-07	+3.300601550309E-12	+3.311233548560E-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 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	+1.115369519827E+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**

**Schlumberger**

Well: **HAGEN FEDERAL 22-5A (PC22)**  
Field: **SOUTH PARACHUTE**  
County: **GARFIELD**  
State: **COLORADO**

RESERVOIR SATURATION LOG  
SIGMA MODE  
GAMMA RAY-CCL