

Company: ENCANA OIL & GAS (USA) INC

Well: HAGEN FEDERAL 22-4C (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD State: COLORADO

RESERVOIR SATURATION LOG
SIGMA MODE
GAMMA RAY-CCL

County: GARFIELD

Field: SOUTH PARACHUTE

Location: SHL: 596 FNL & 1751 FWL

Well: HAGEN FEDERAL 22-4C (PC22)

Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 596 FNL & 1751 FWL	Elev.: K.B.	6543.00 ft	
BHL: 796 FNL & 331 FWL	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.	Section	Township	Range
05-045-22006-0C	22	7S	95W

Logging Date	14-Sep-2013								
Run Number	1								
Depth Driller	7907 ft								
Schlumberger Depth	7825 ft								
Bottom Log Interval	7791 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	7907 ft								
Casing/Tubing Size	4.500 in								
Weight	11.6 lbm/ft								
Grade	S-80								
From	22 ft								
To	7886 ft								
Maximum Recorded Temperatures	216 degF								
Logger On Bottom	14-Sep-2013			15:30					
Unit Number	Location								
Recorded By	KIRSTIE BUNTING								
Witnessed By	JIM DYKEMAN								

PVT DATA				Run 1	Run 2	Run
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						
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.

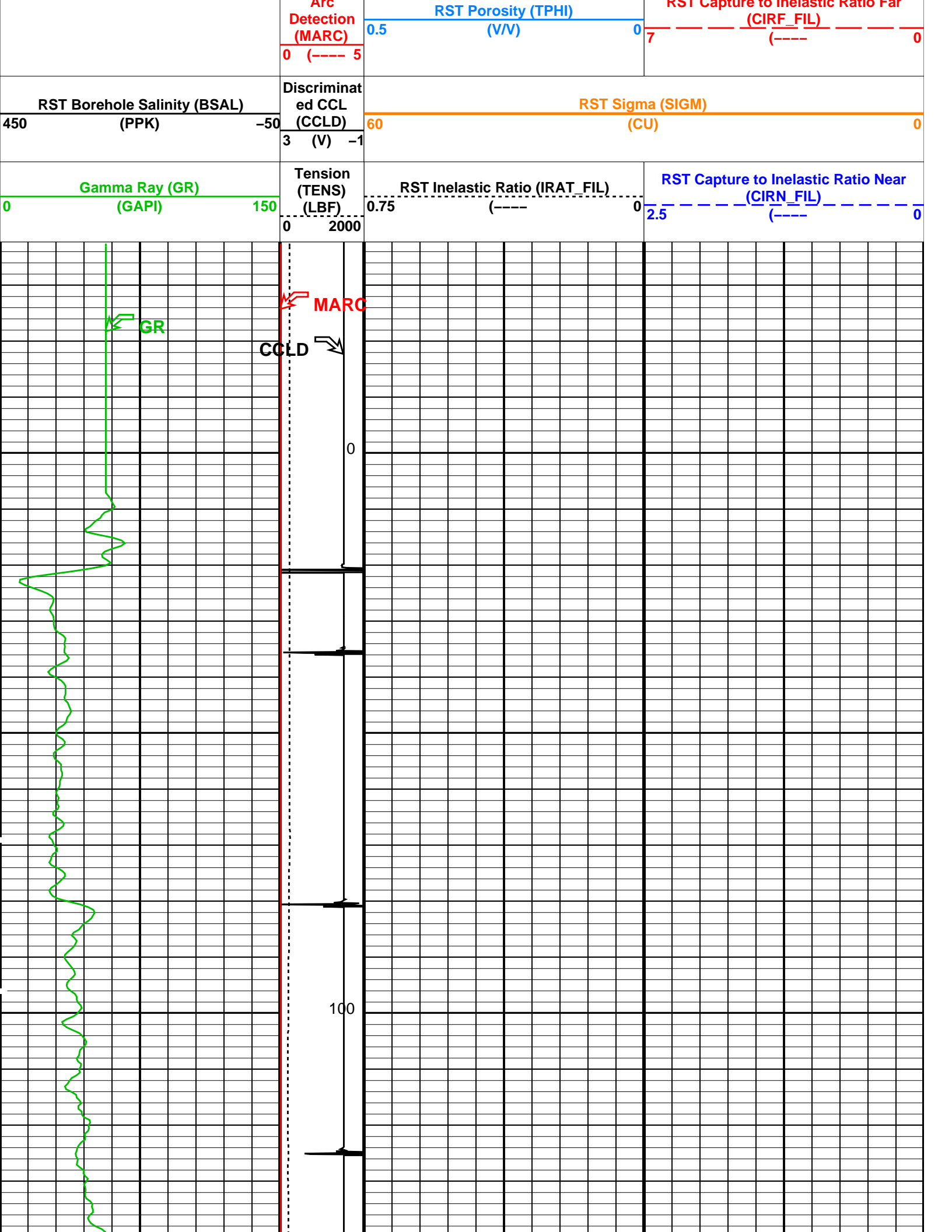
OTHER SERVICES1	OTHER SERVICES2
OS1: SLIM CEMENT MAPPING	OS1:
OS2: LOG	OS2:
OS3: CBL-VDL	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRELATED TO PEX RUN ON JULY 25	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE: 15:00	
TIME ON BOTTOM: 15:30	
EXIT: 17:45	

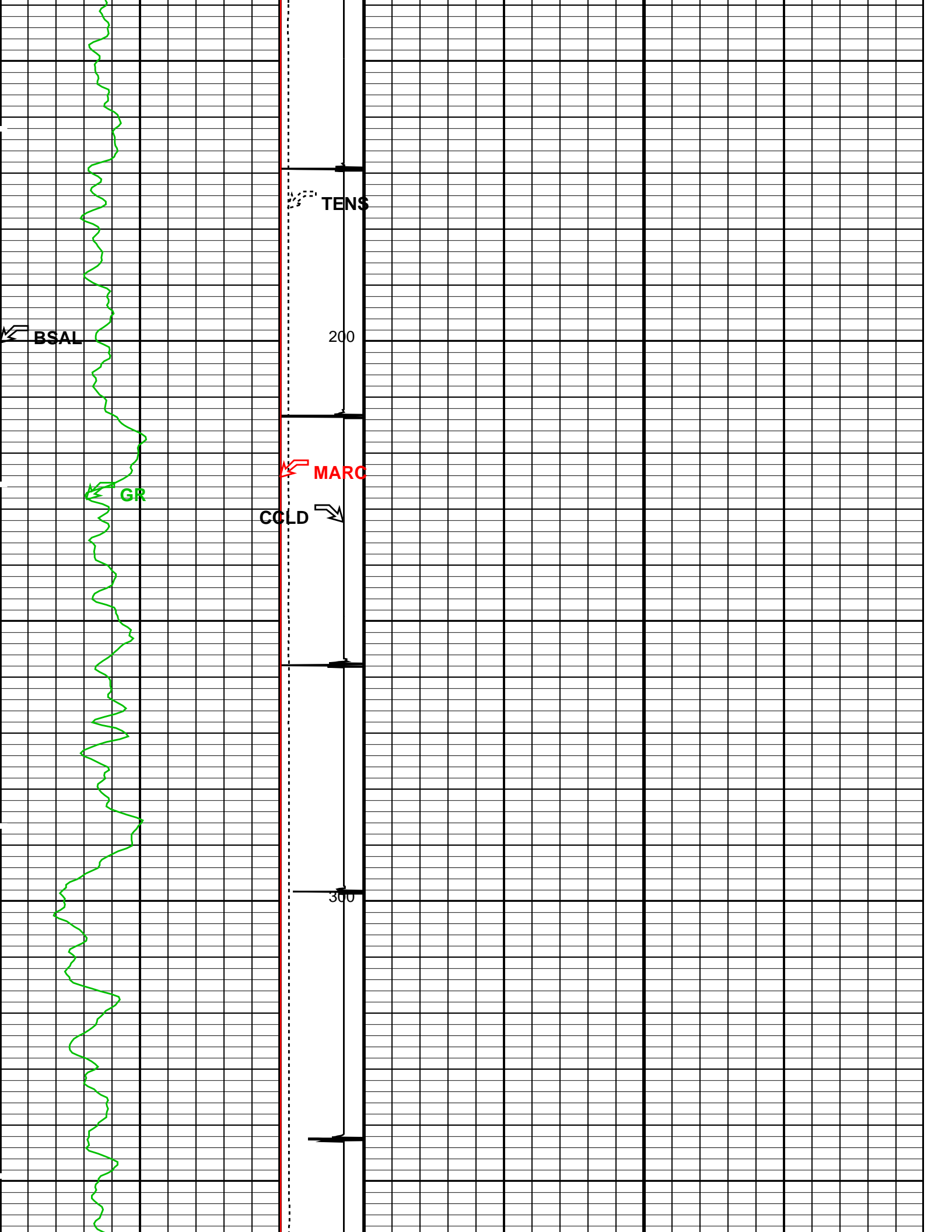
MAXIMUM RECORDED TEMPERATURE: 216 DEGF					
MAXIMUM RECORDED PRESSURE: 3238 PSIA					
SHORT JOINTS: 5448 FT & 6484 FT					
SANDSTONE MATRIX USED					
CREW: KBUNTING, KJOHNS, JMANN					
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY					
RUN 1			RUN 2		
SERVICE ORDER #:		CGF9-00140	SERVICE ORDER #:		
PROGRAM VERSION:		19C0-187	PROGRAM VERSION:		
FLUID LEVEL:		50 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

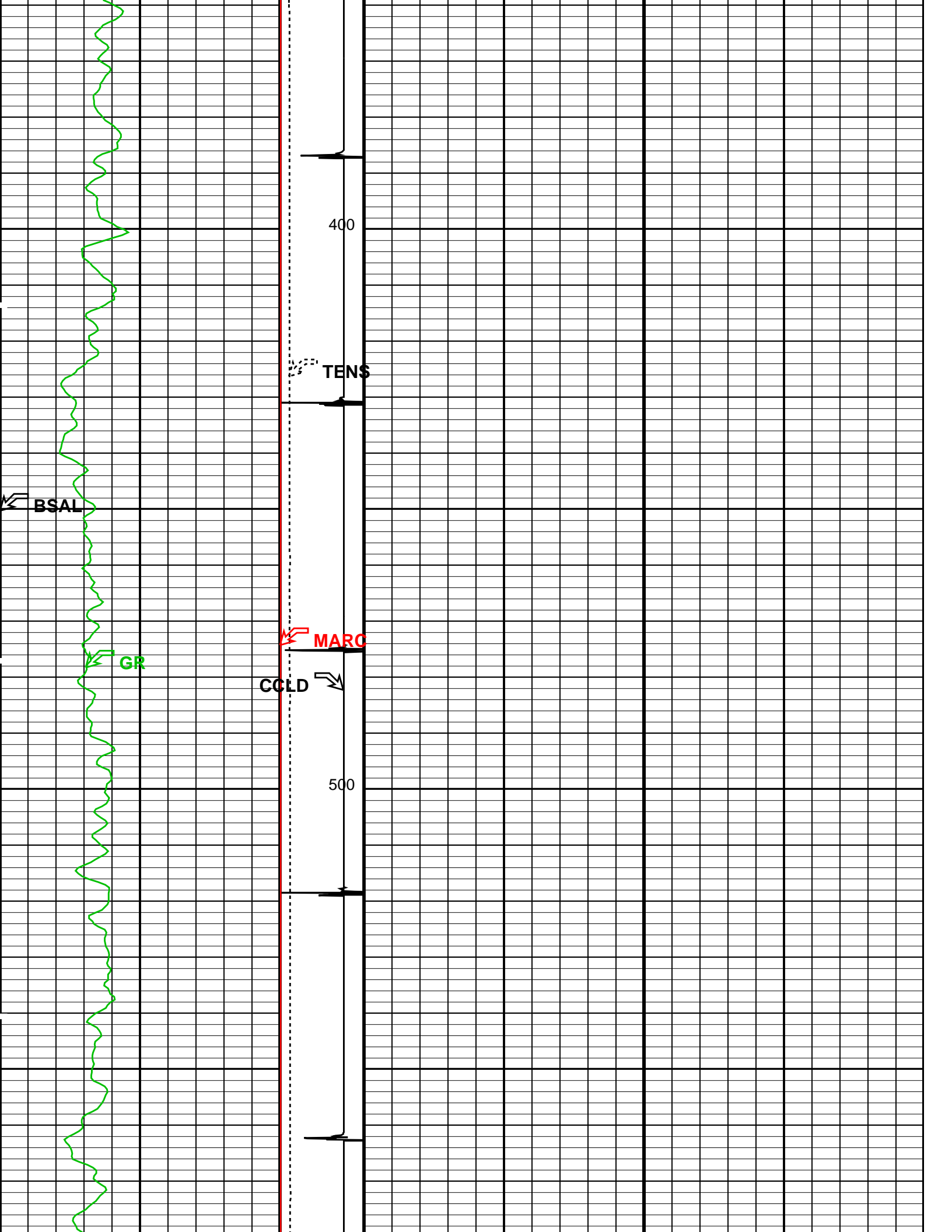
EQUIPMENT DESCRIPTION	
RUN 1	RUN 2
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
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99	99
100	100

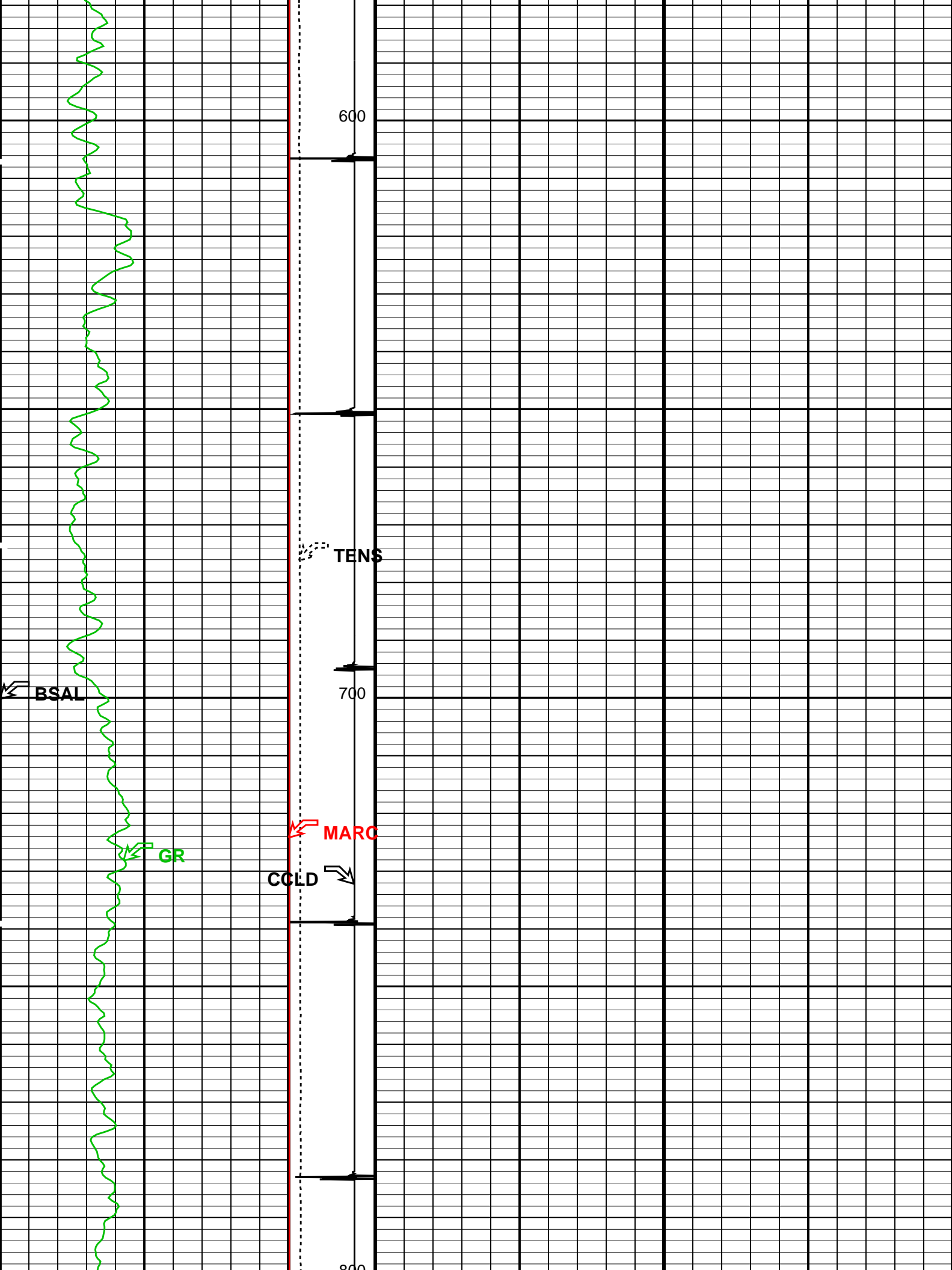
SURFACE EQUIPMENT	
WITM-A	
PSC_16MHZ	

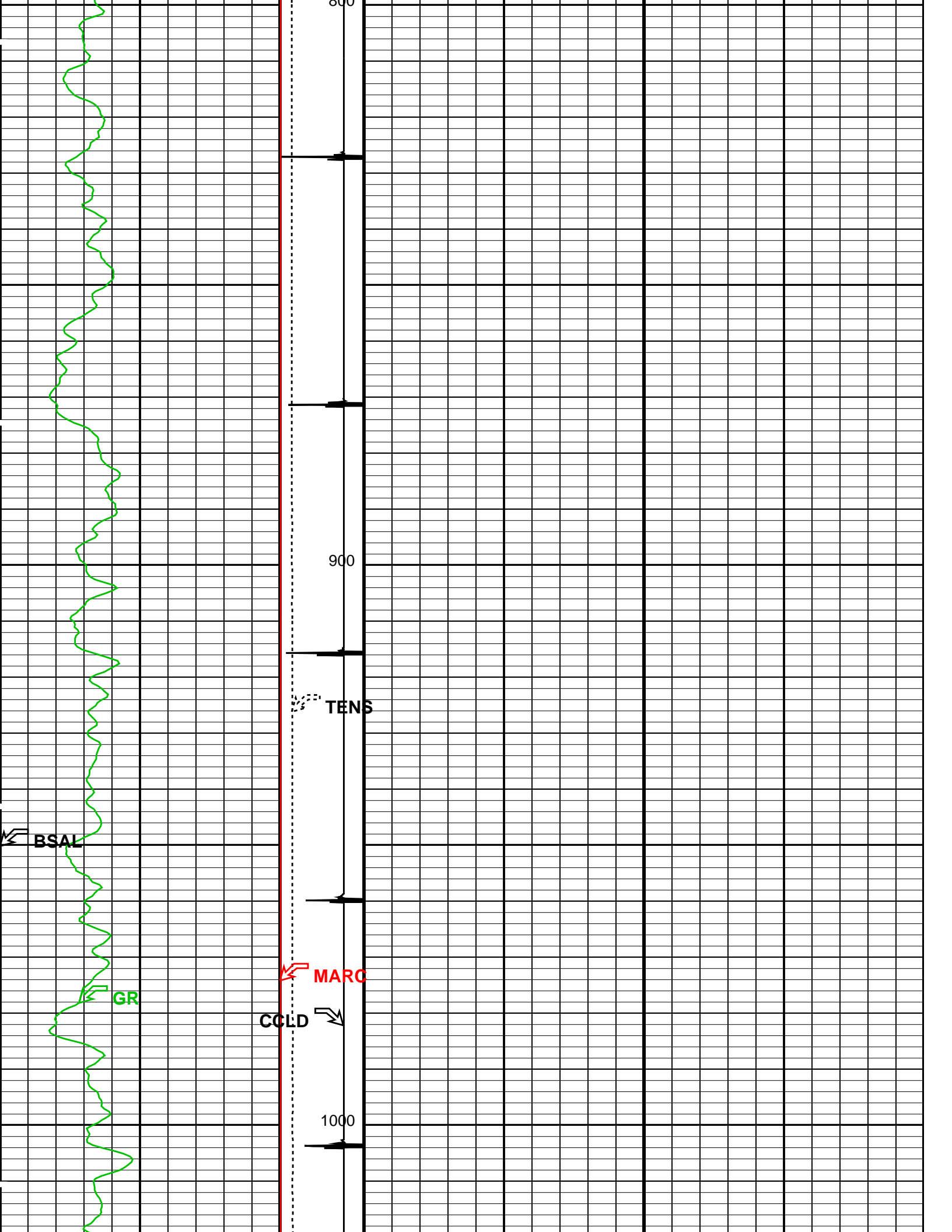
DOWNHOLE EQUIPMENT			
MH-22			53.3
MH-22			
Detail MT			
AH-38	TelStatus		51.7
PSPT	CTEM	51.5	51.5
PSC-A			
PSPT-B 928			
PSTC-A			
PBMS-B	GR	47.8	
CQG_F_Mano			
RTD_Thermometer			
GR	Well_Temp	44.7	
CCL	CQG Manom	44.4	
PBMS	CCL	44.0	
	PBMS PSTC	43.2	
RST-C			43.2
RSCH-A 197			
RSC-E			
RSS-A 255			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

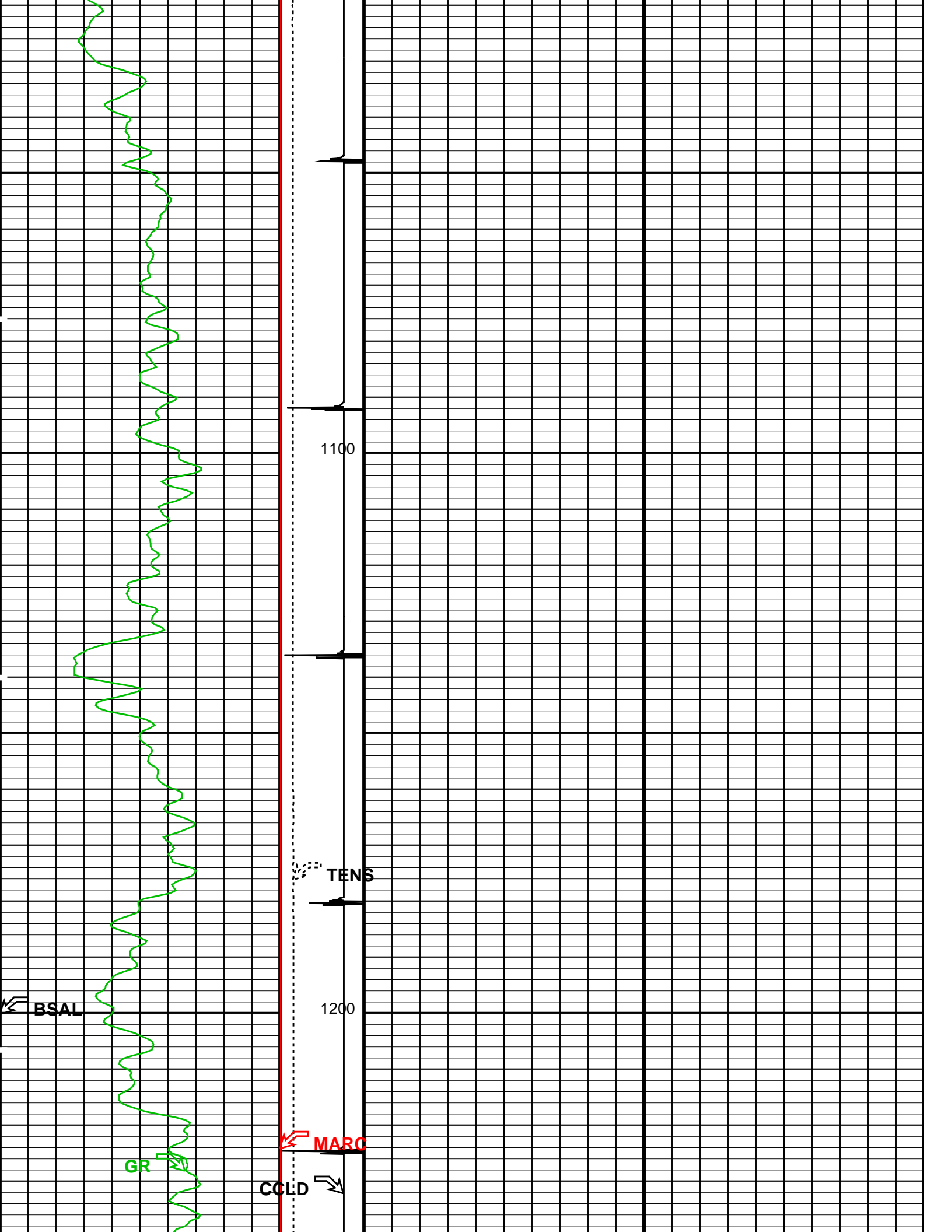


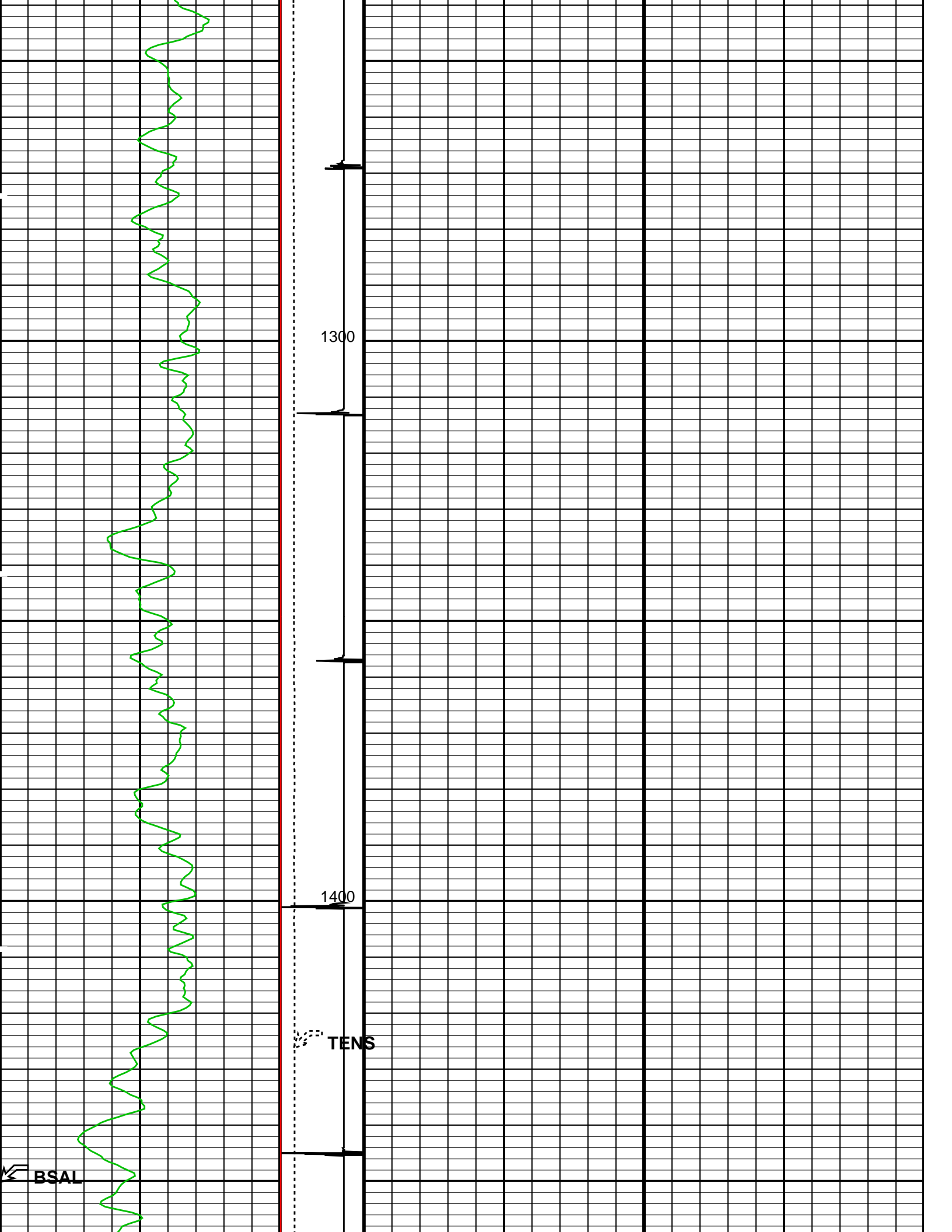


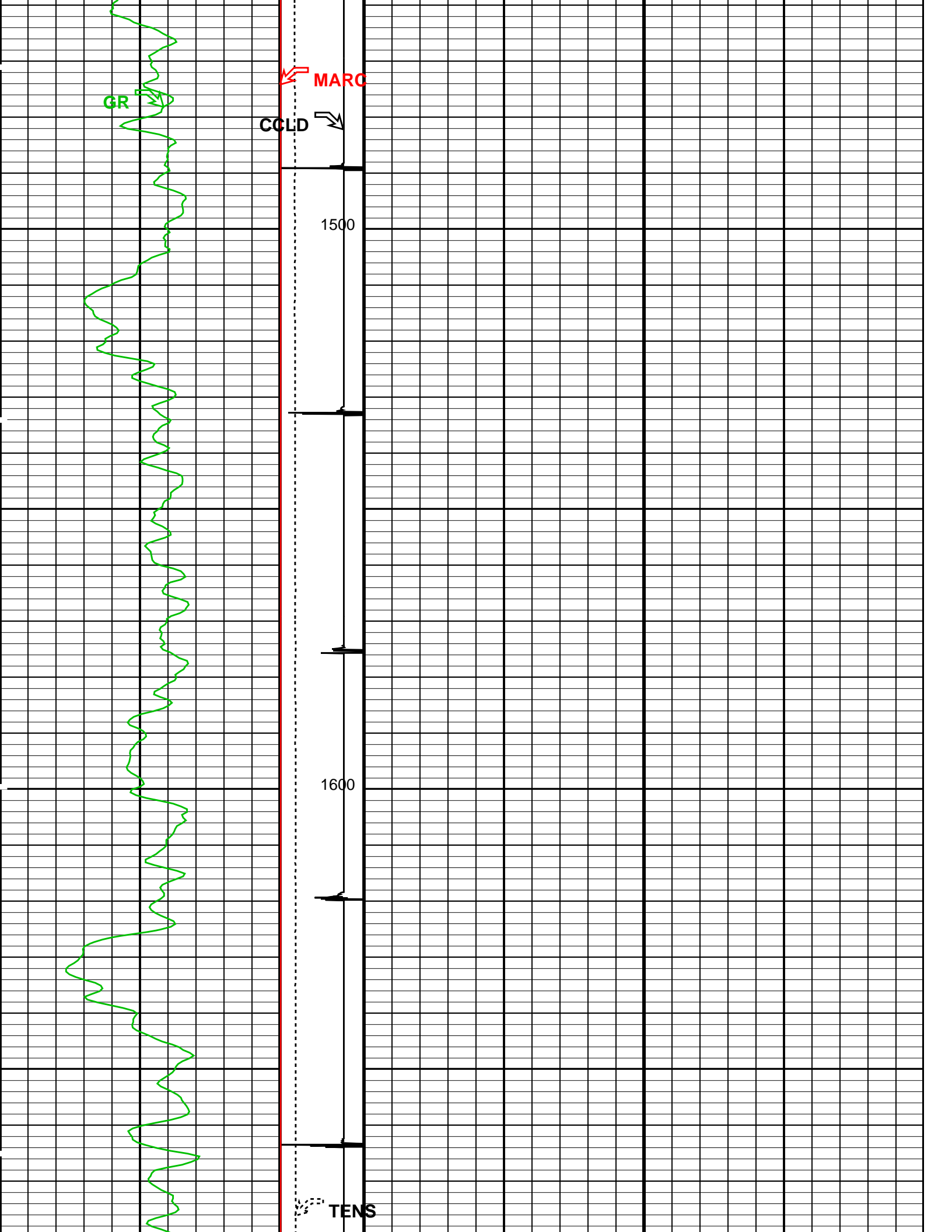


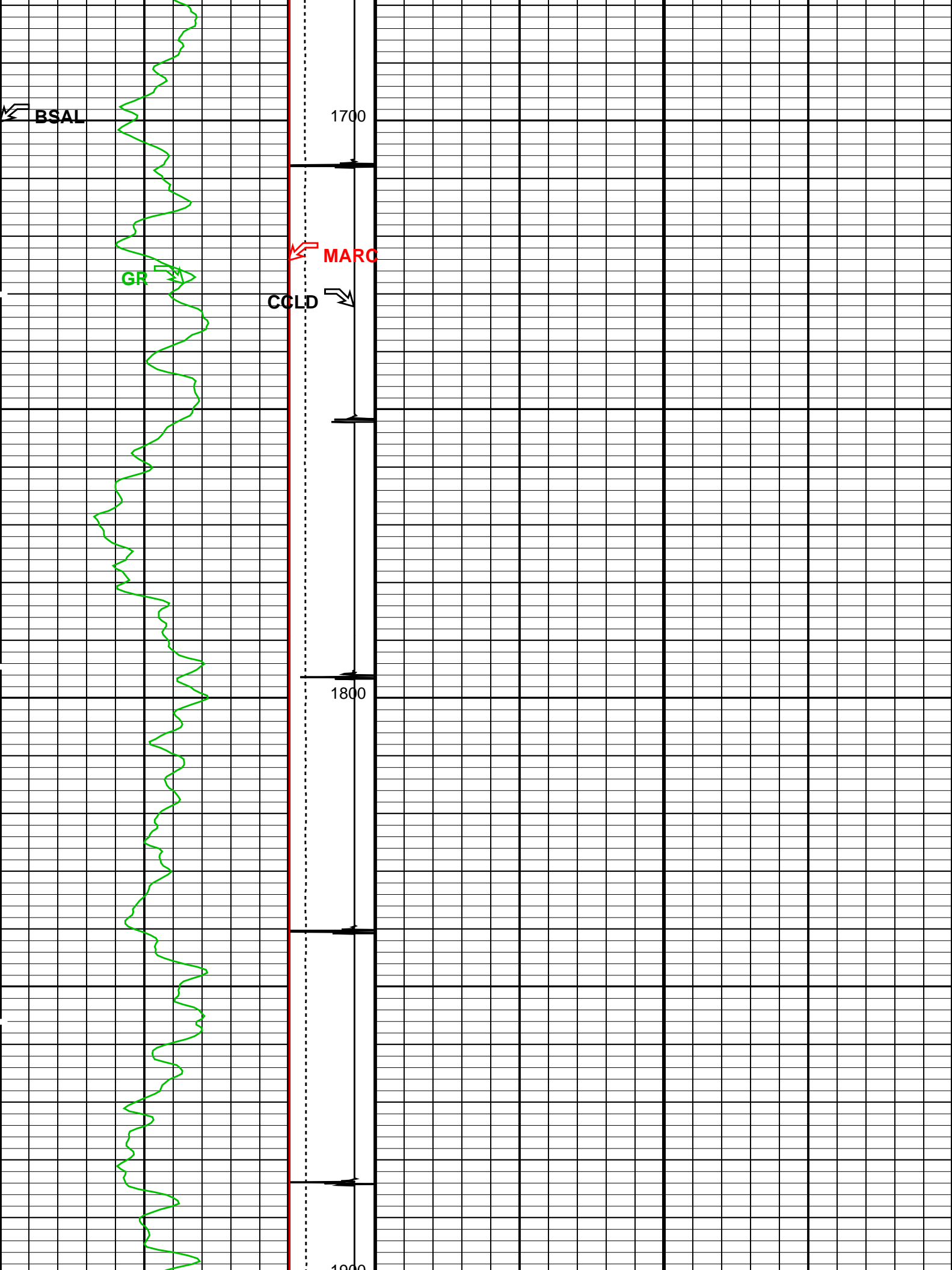


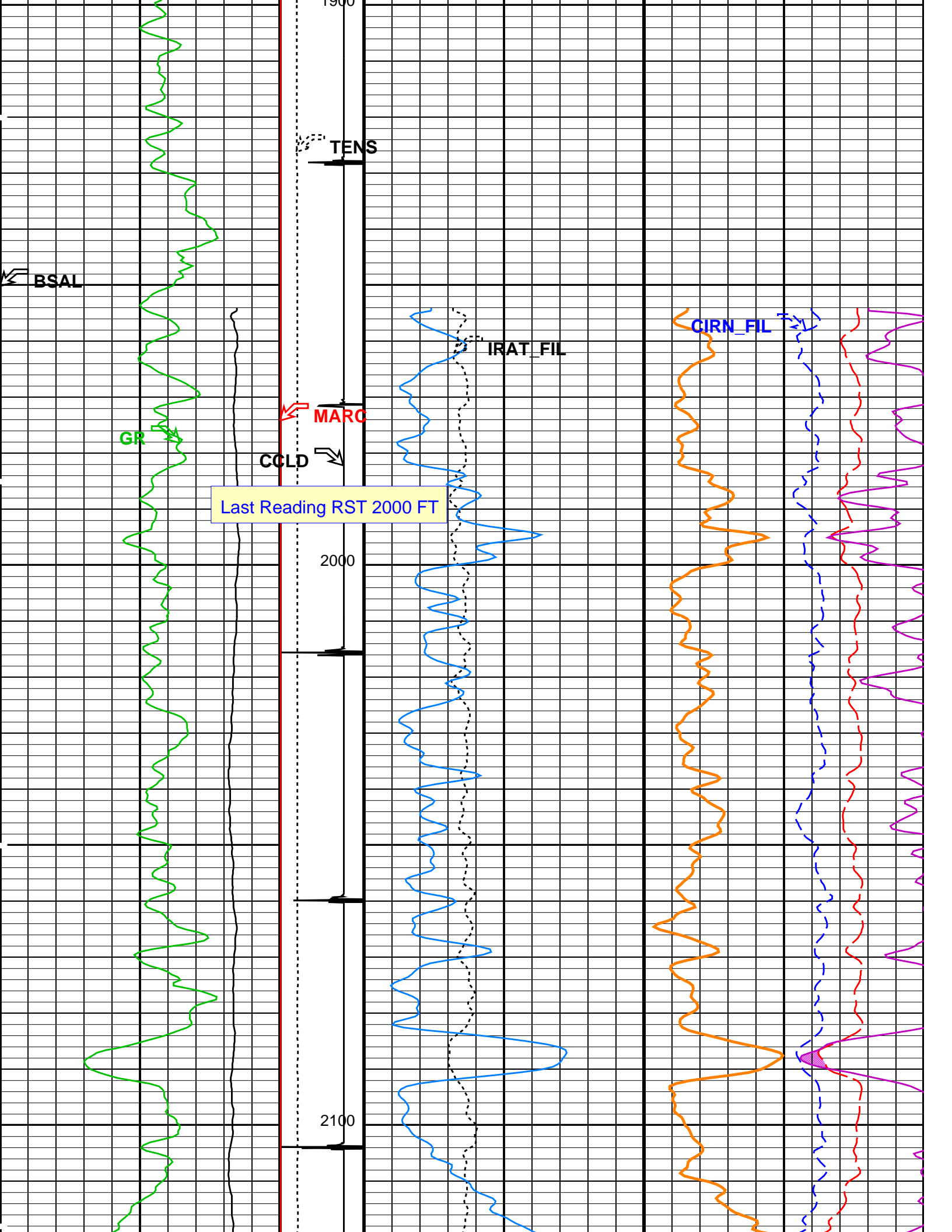


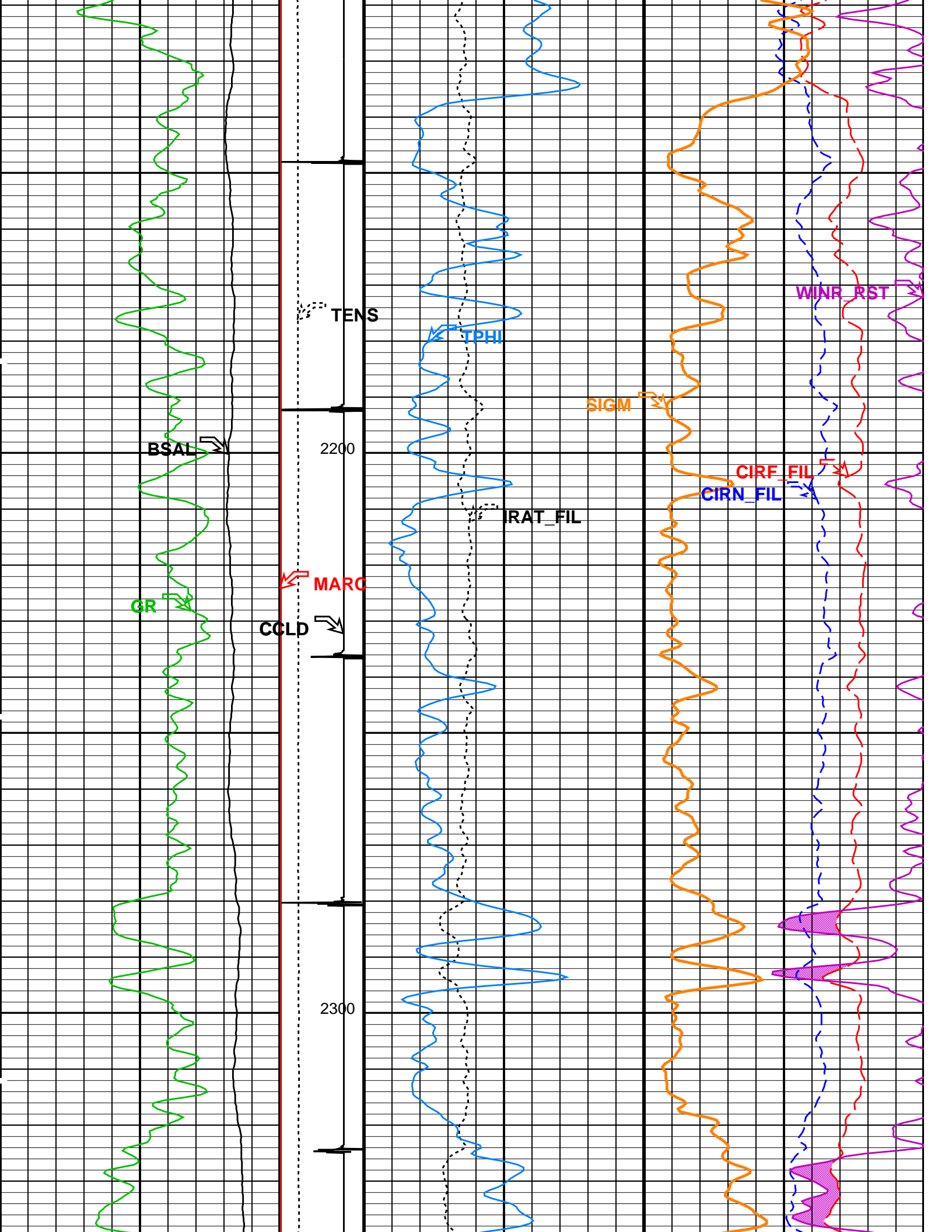


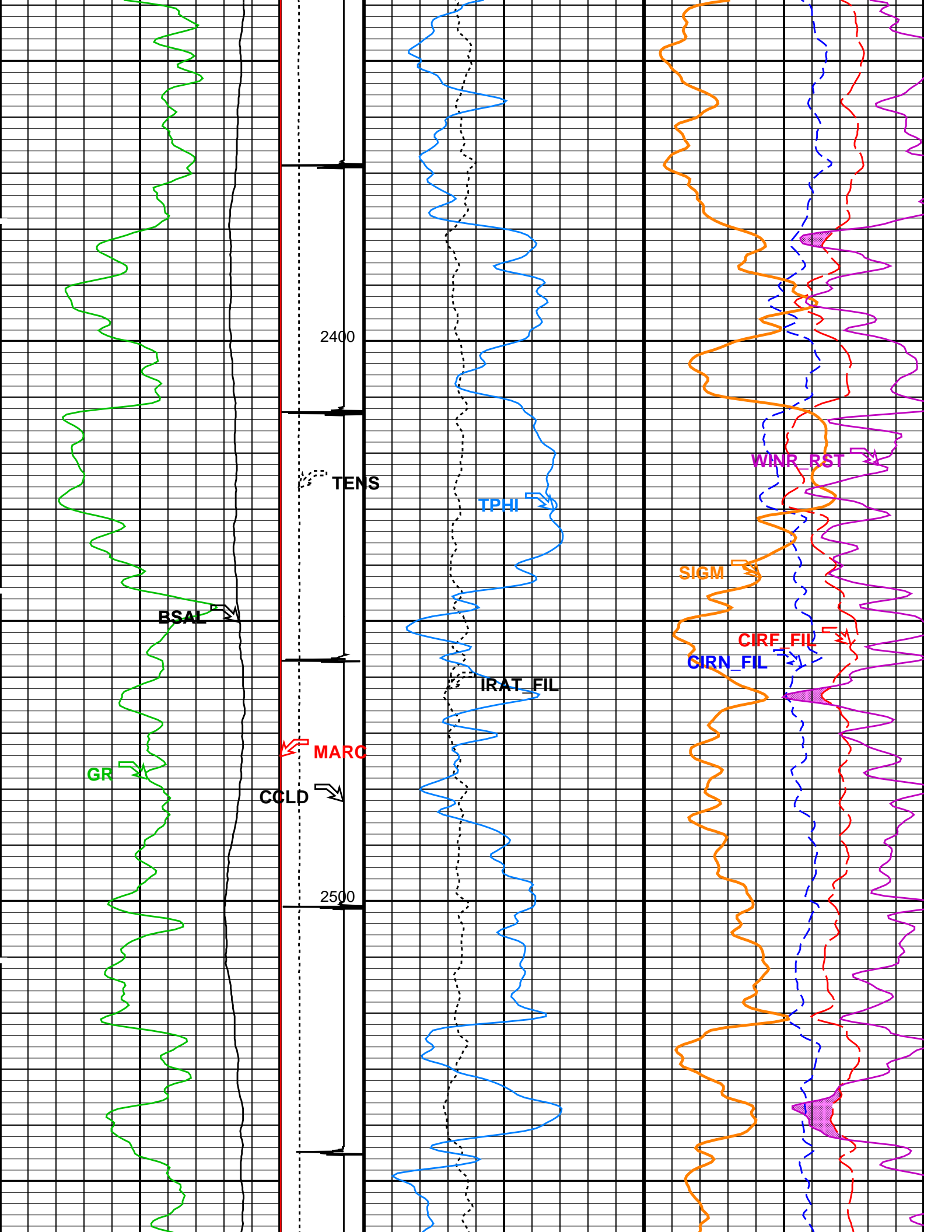


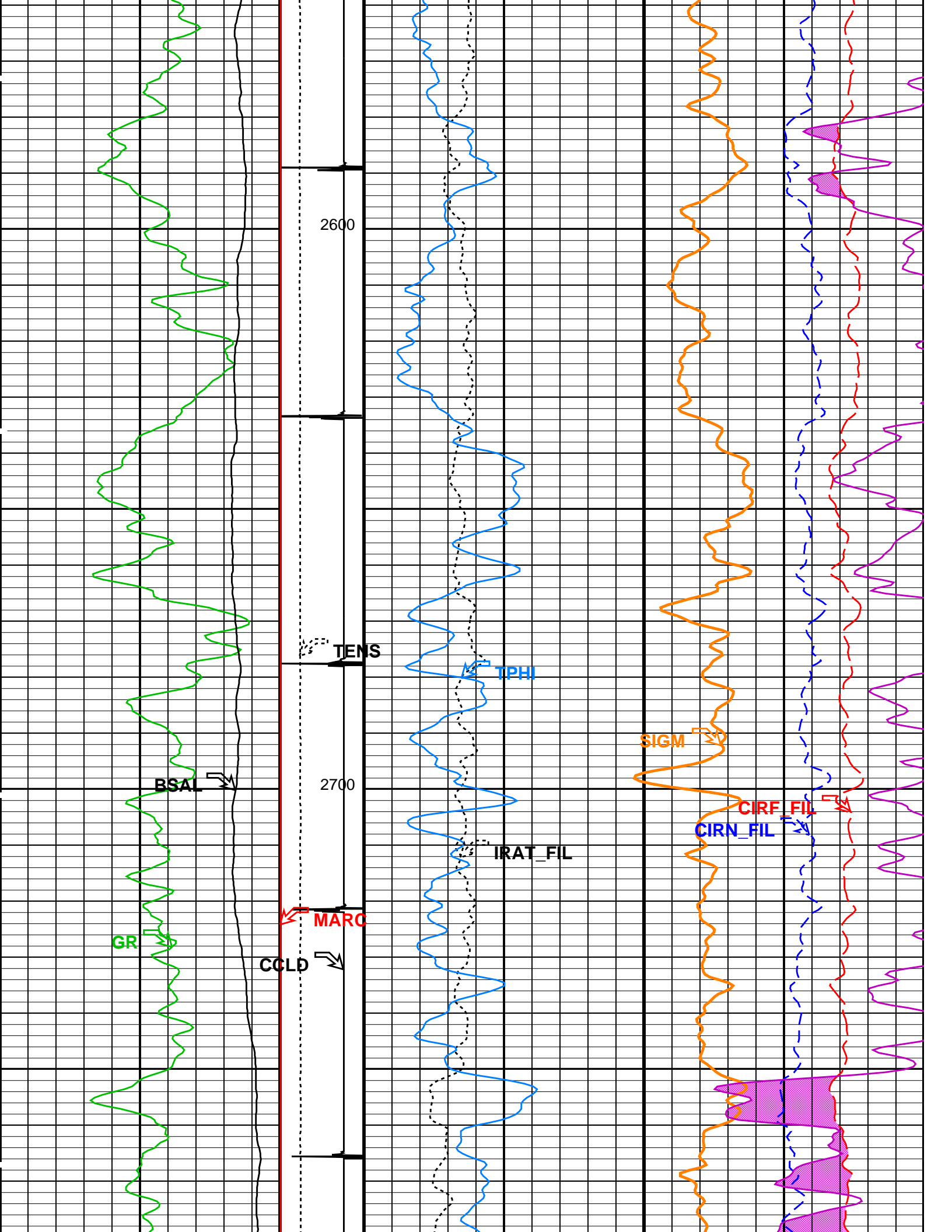


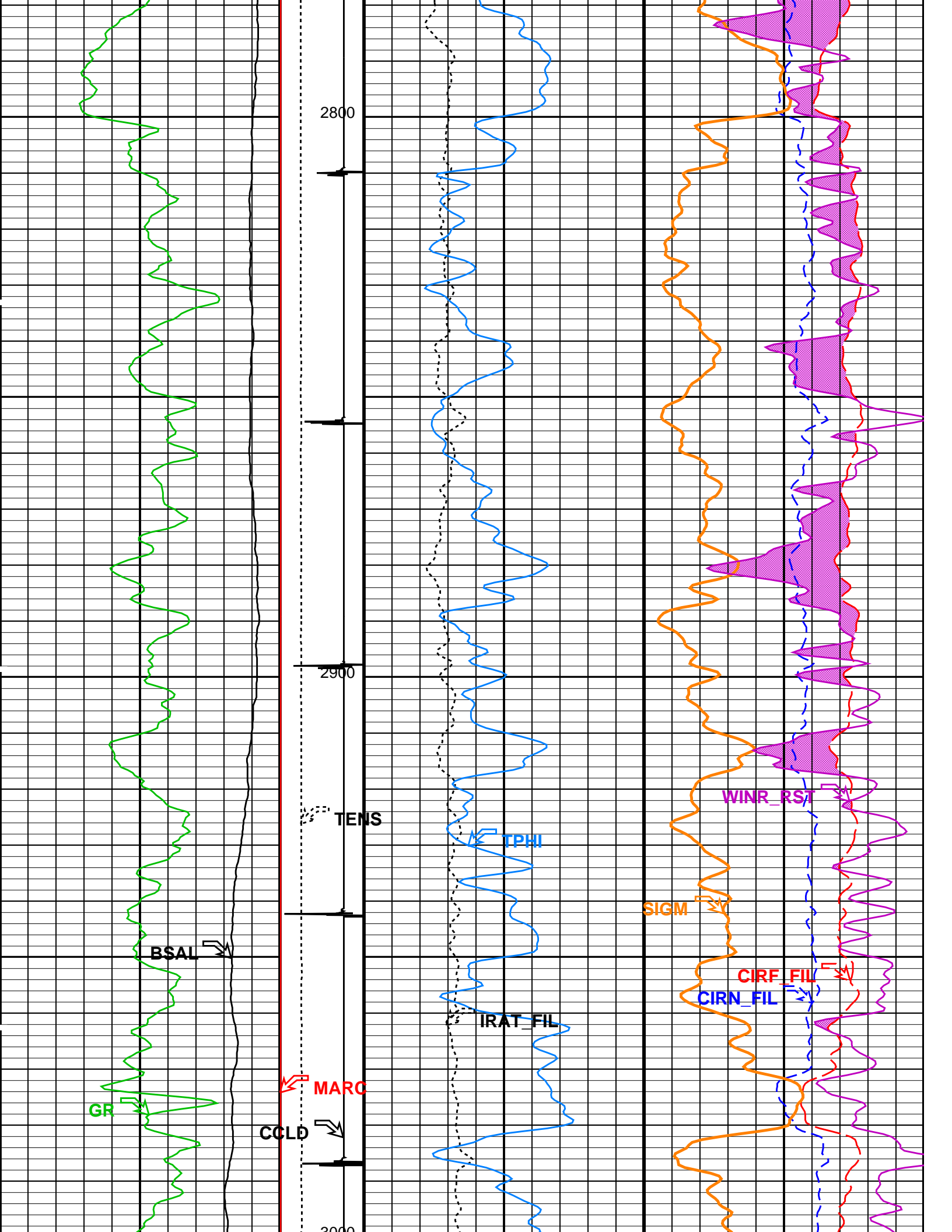


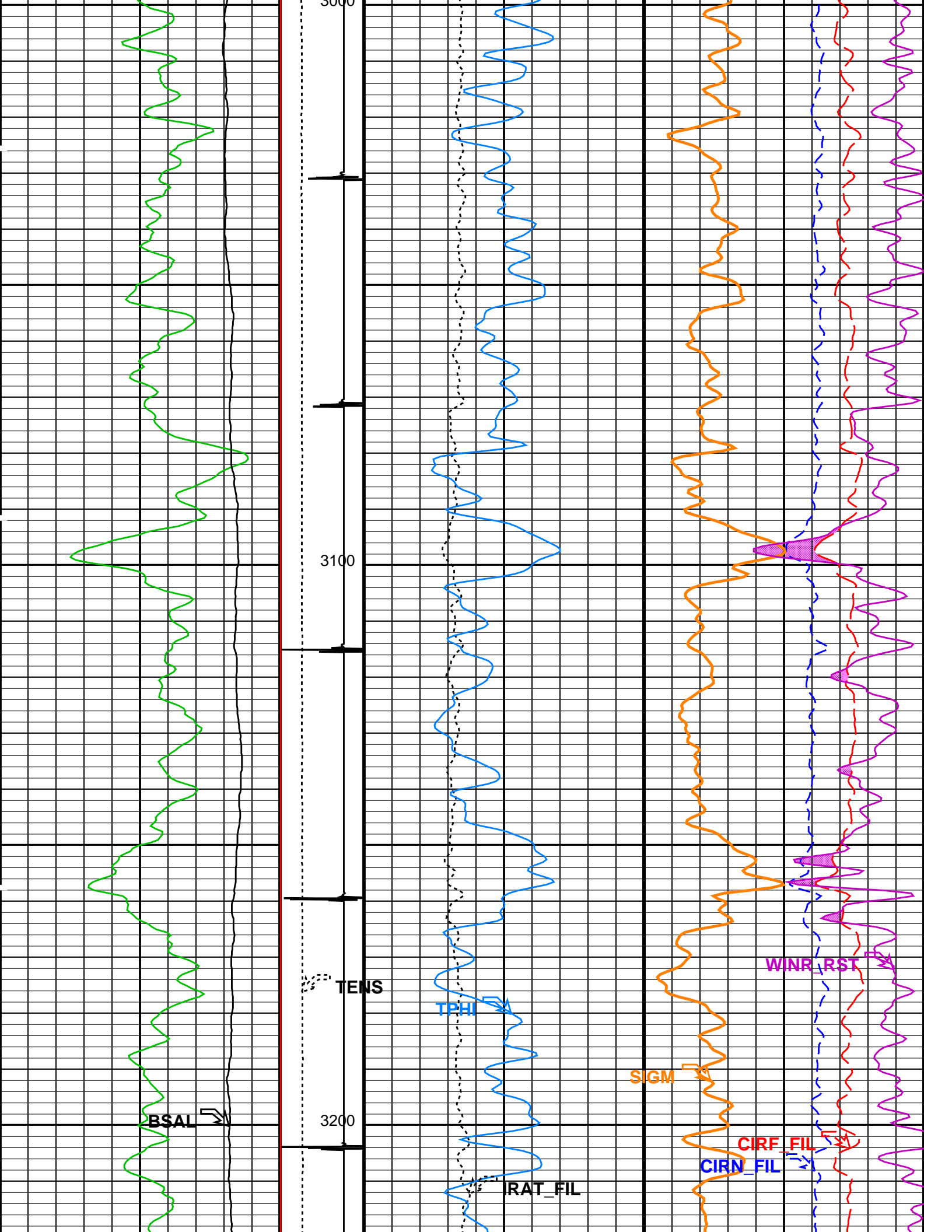


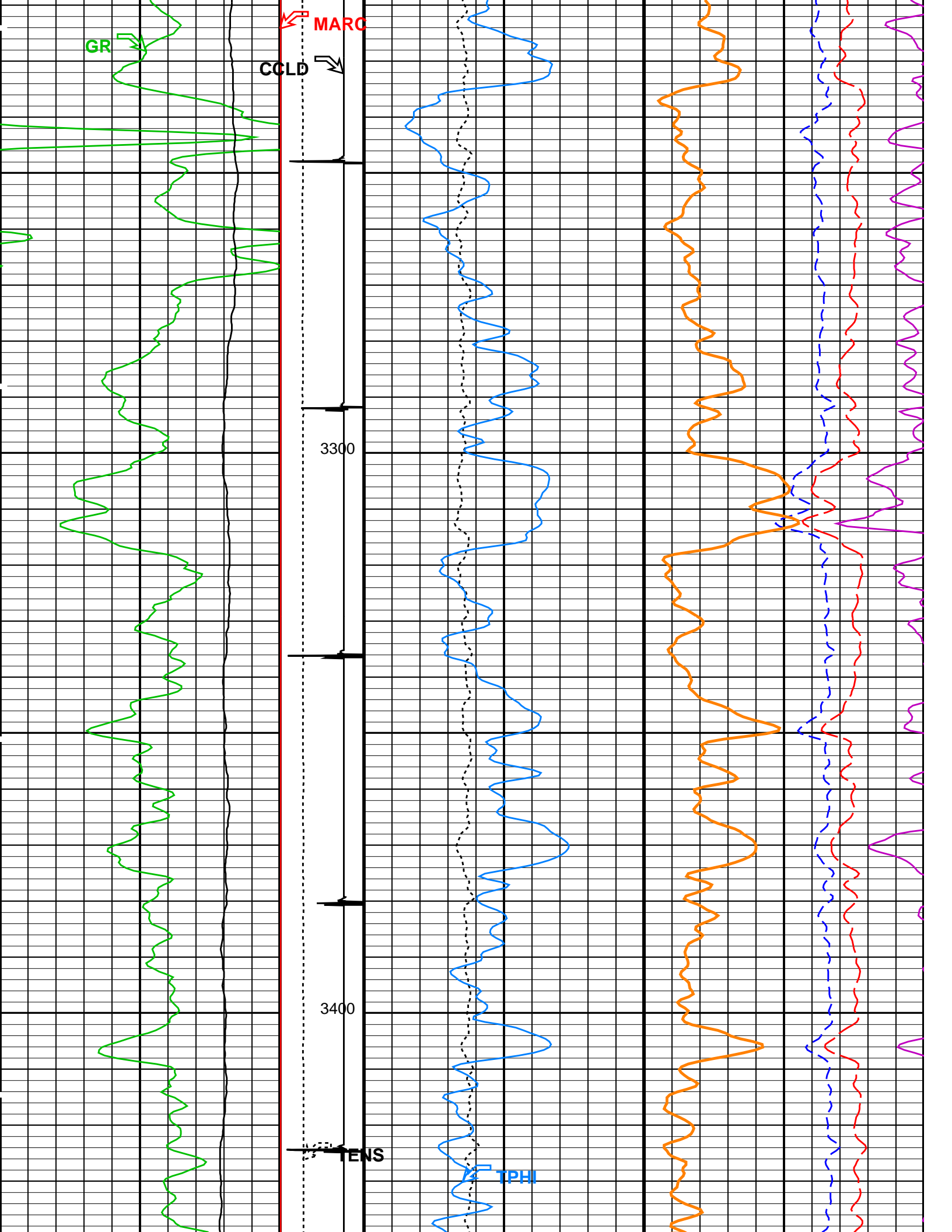


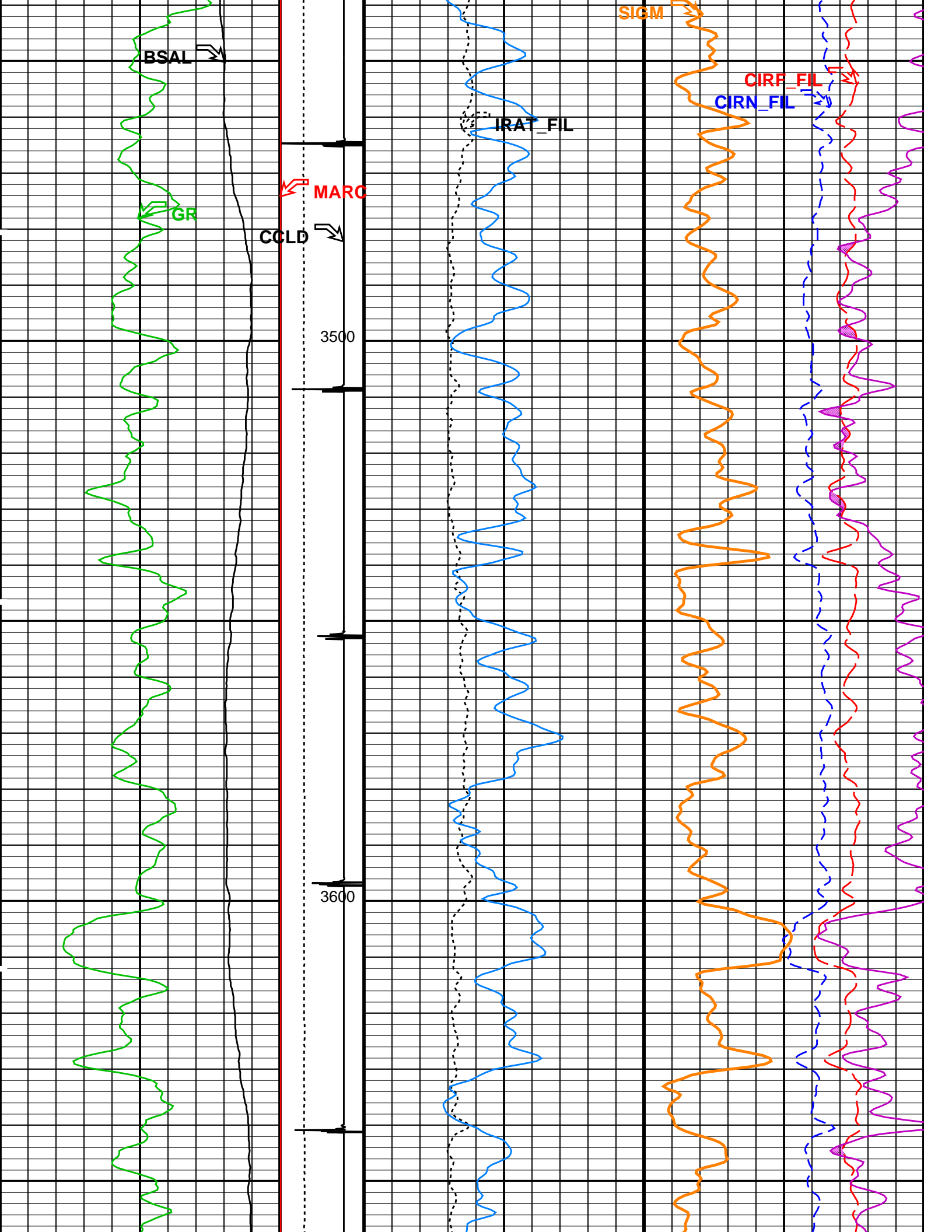


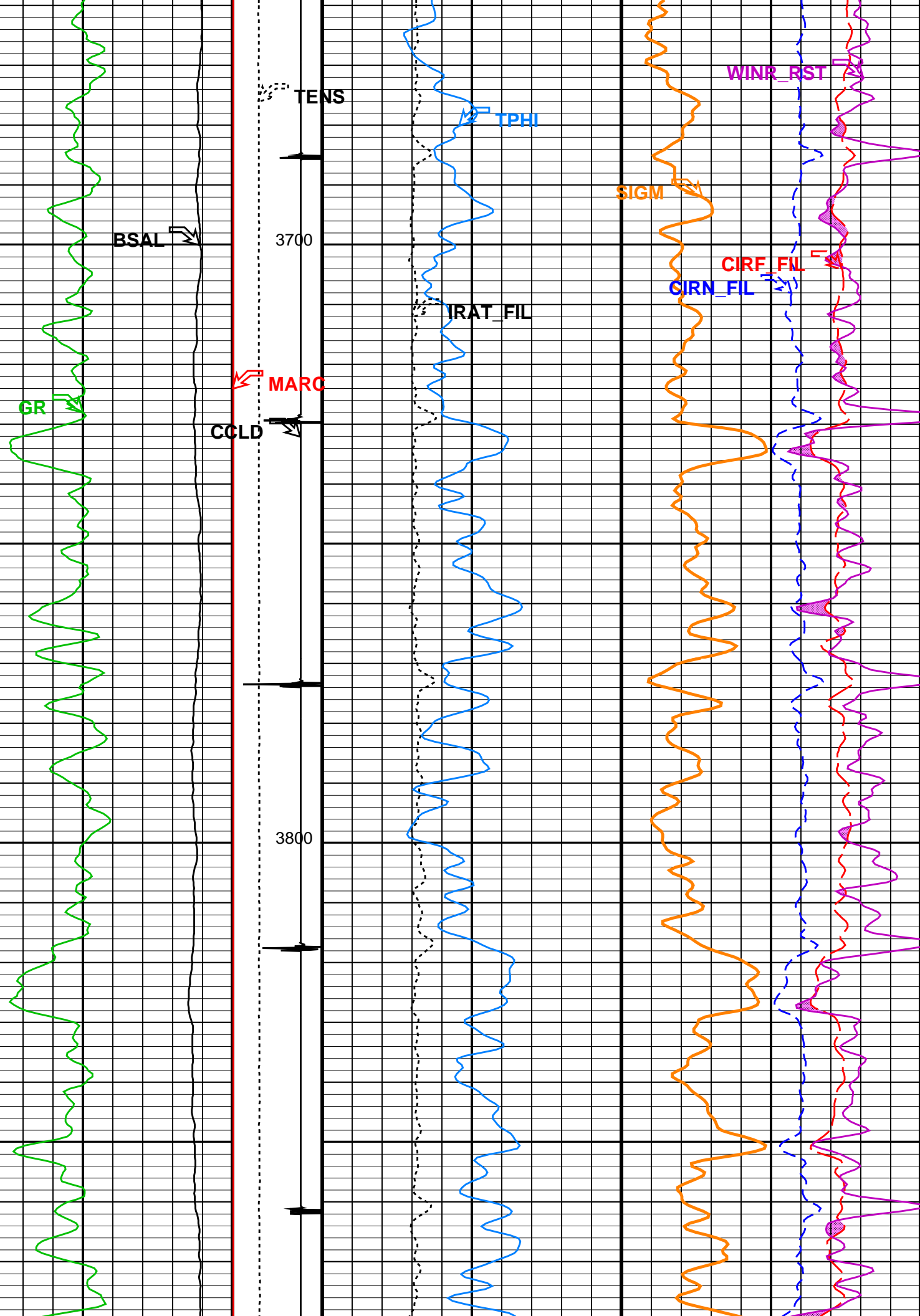


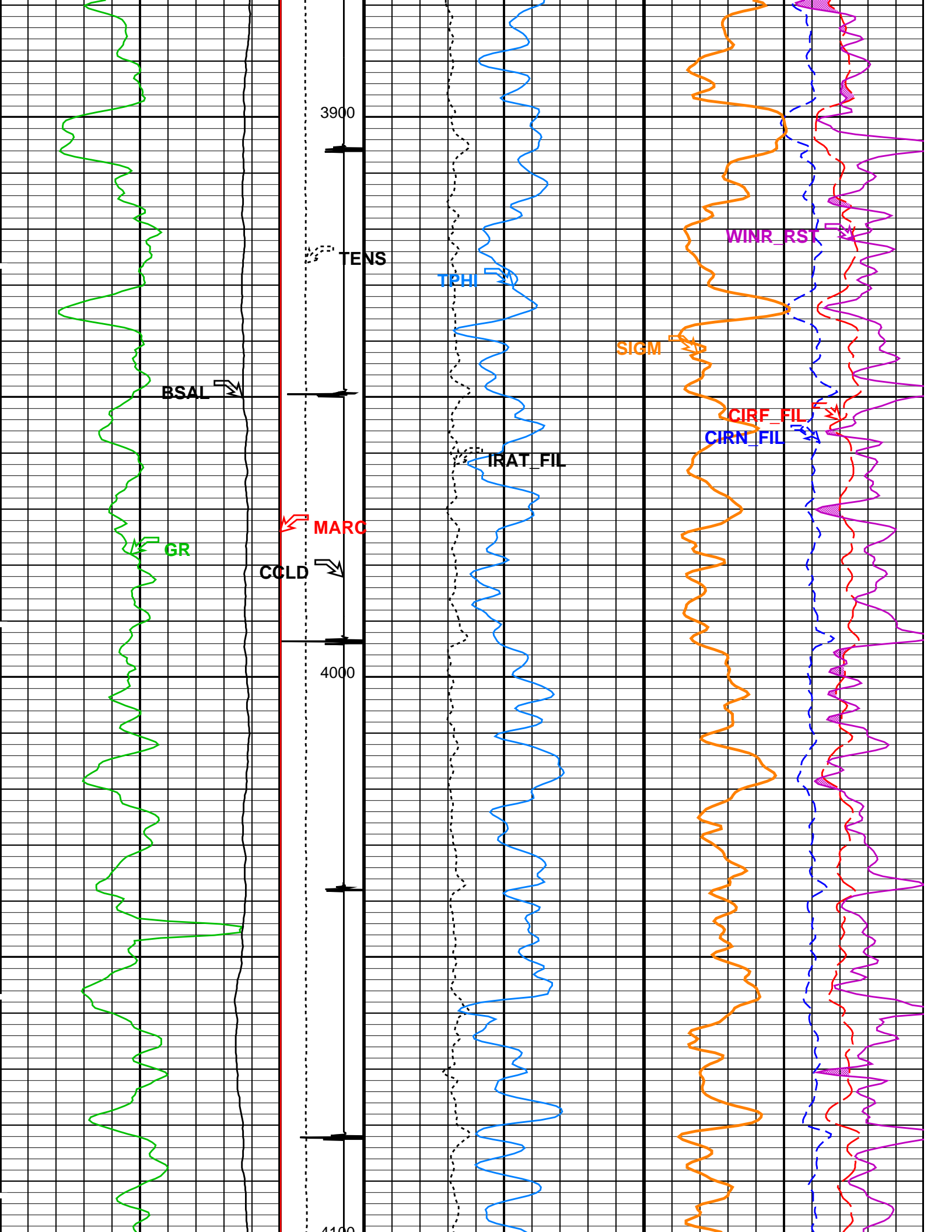


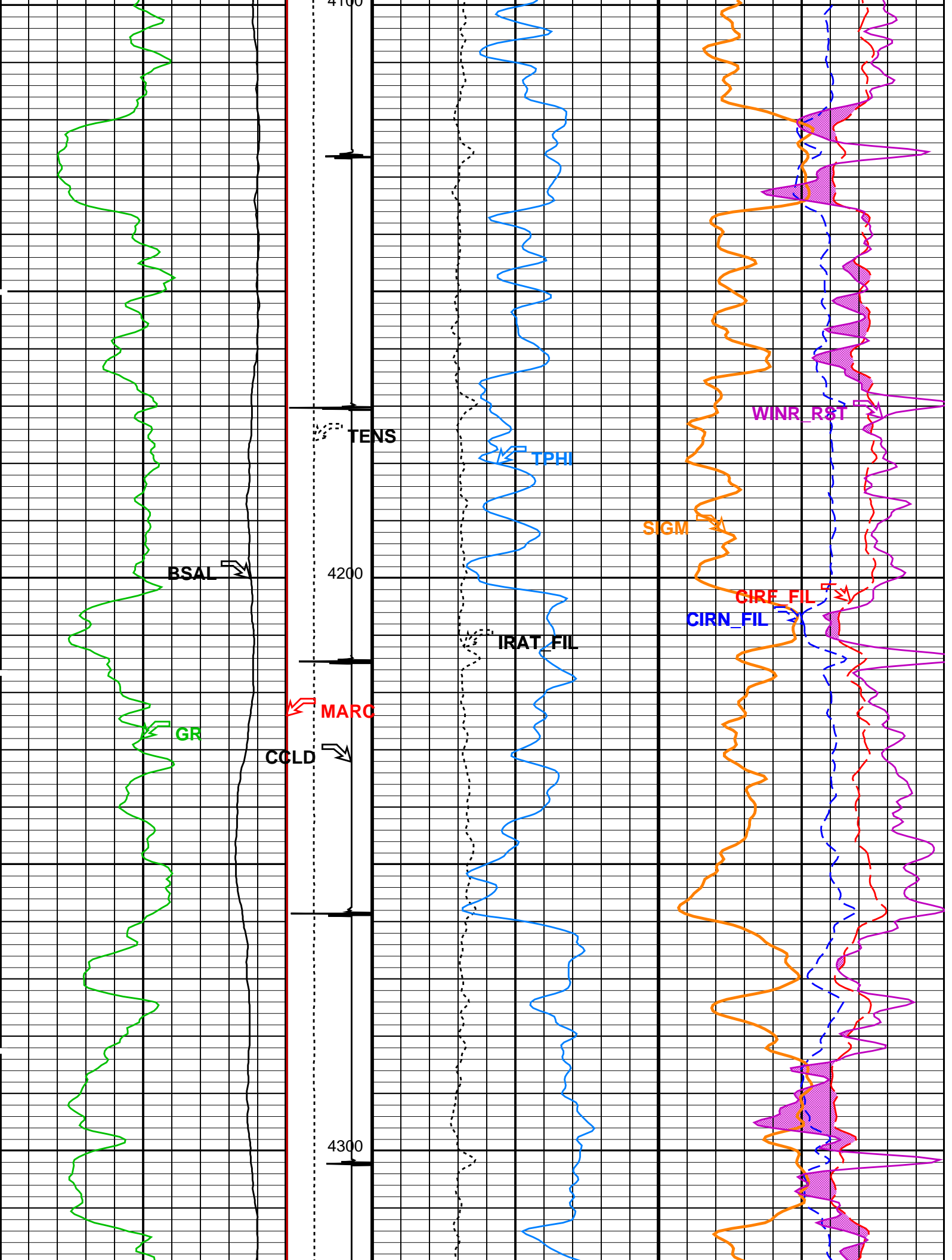


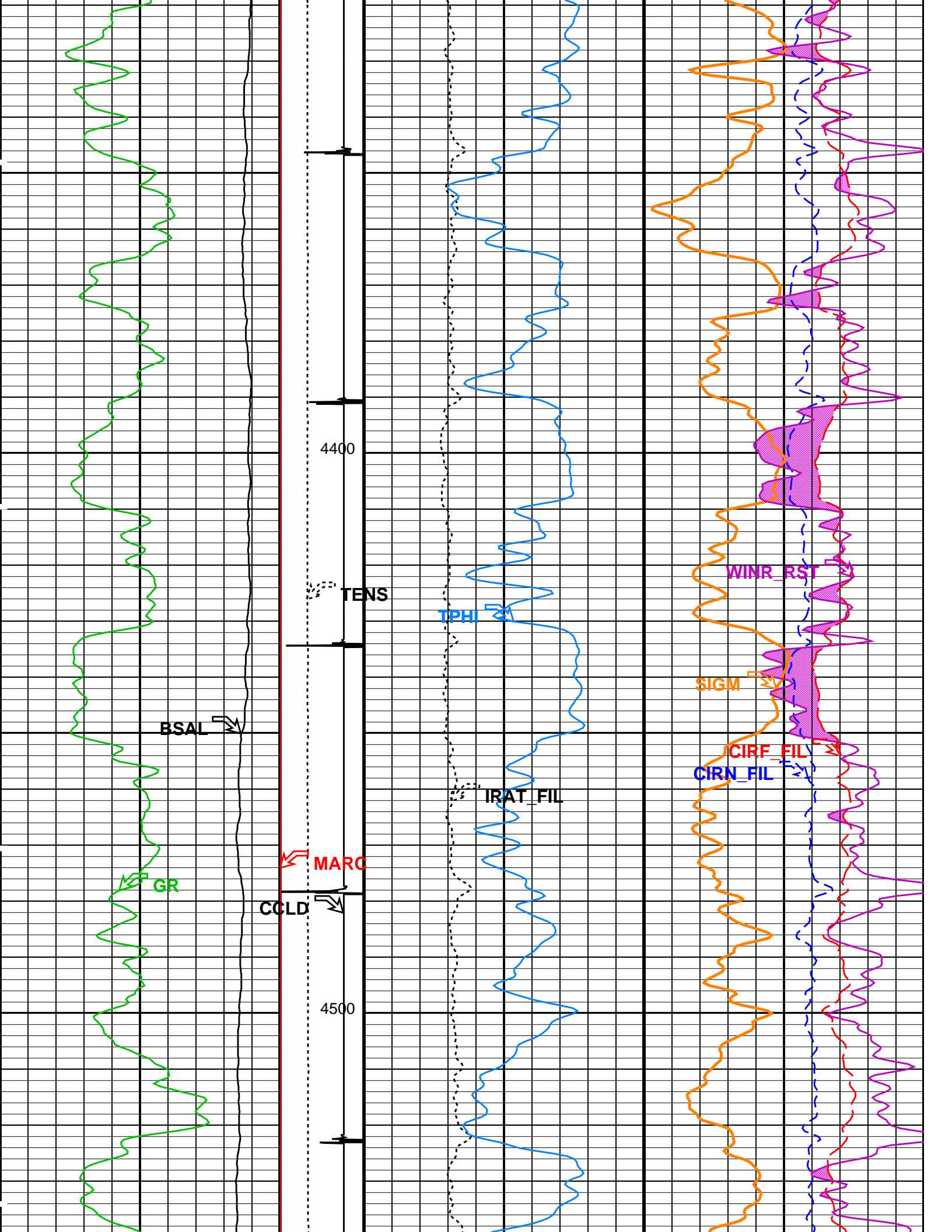


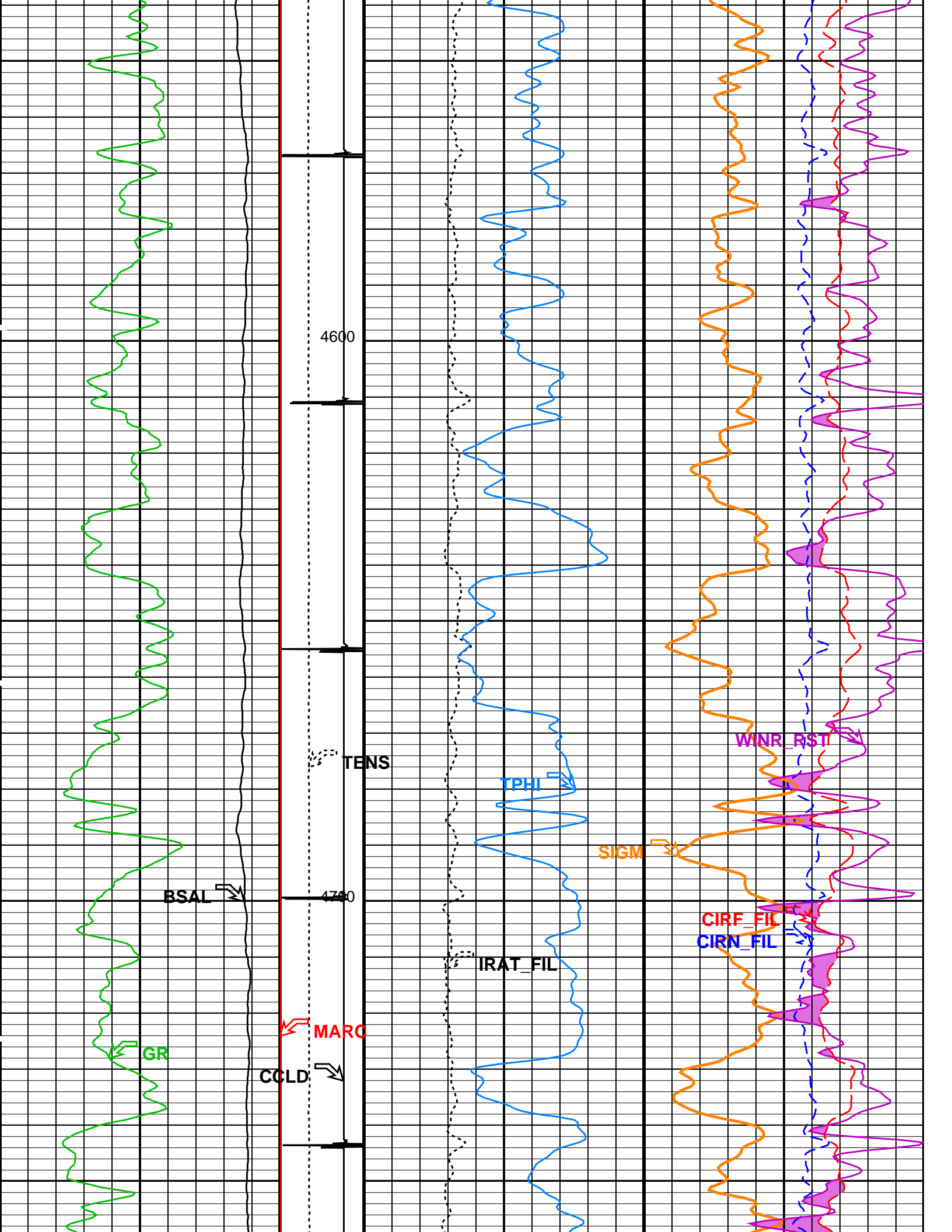


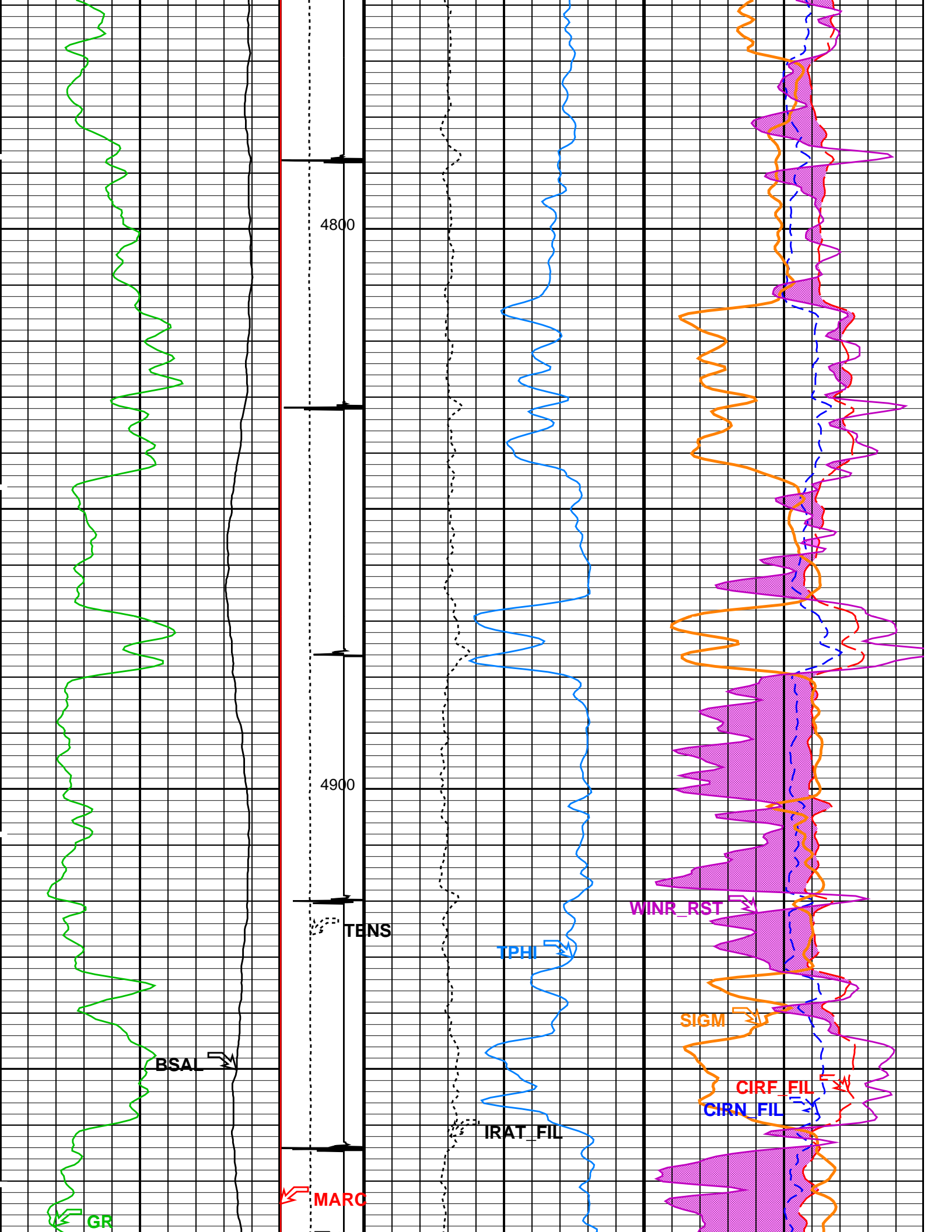


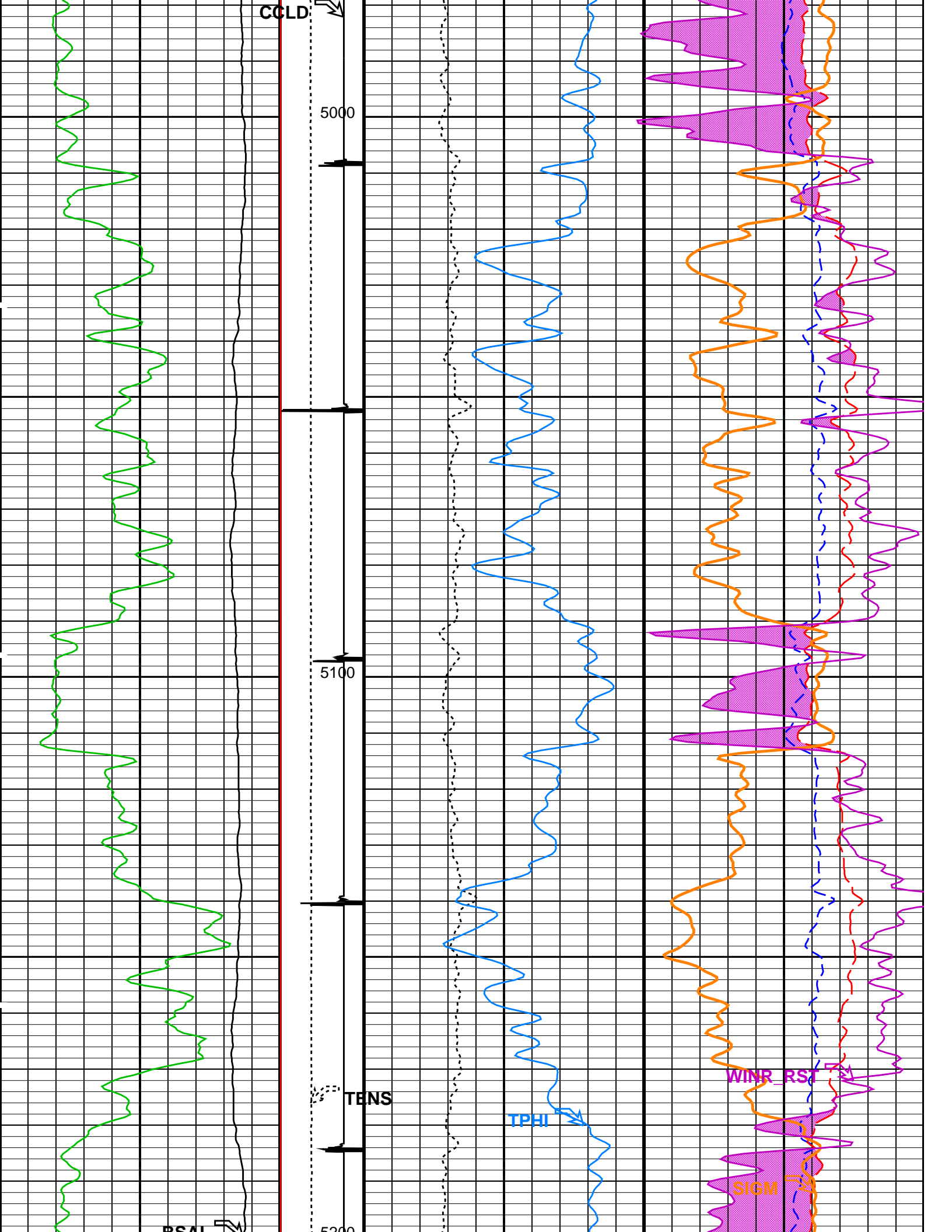


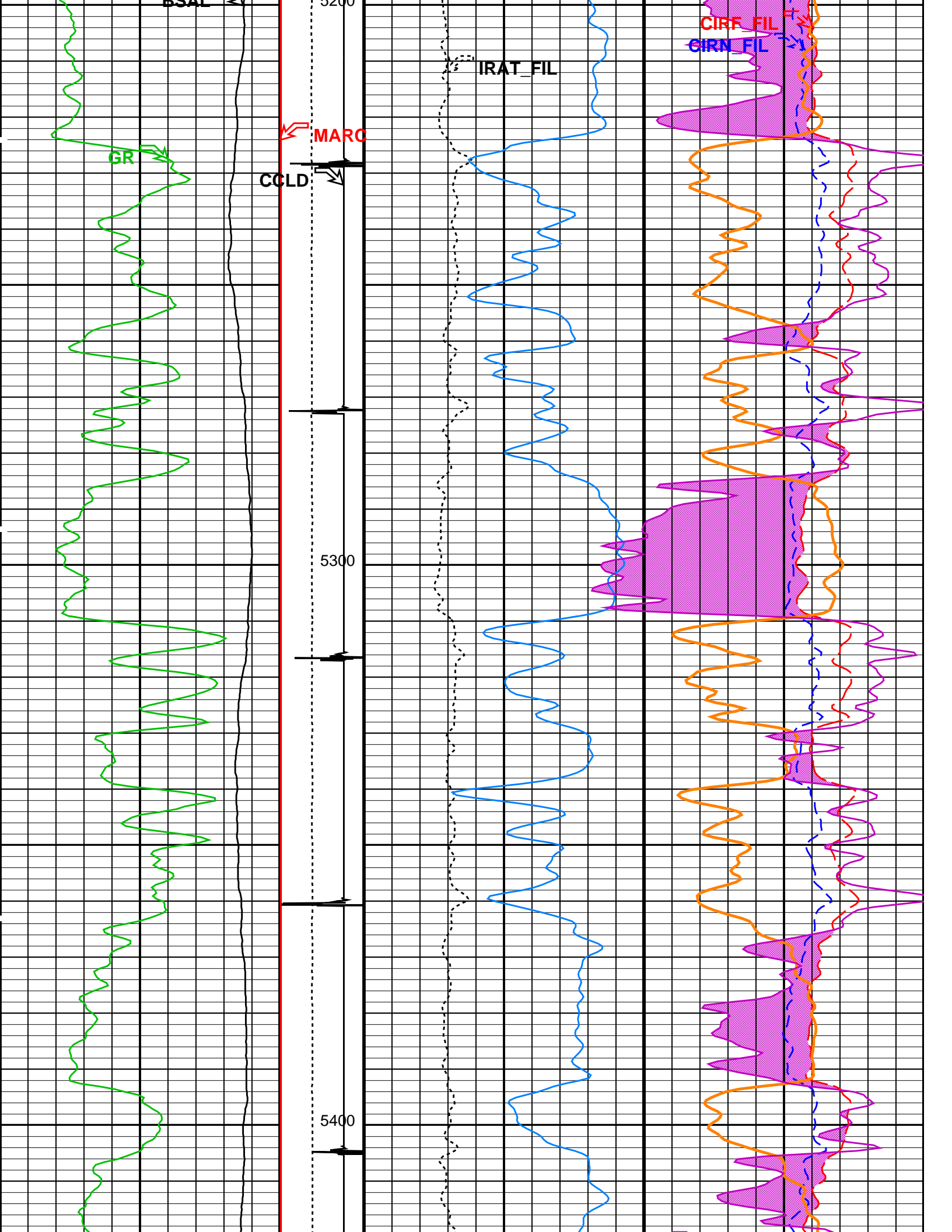


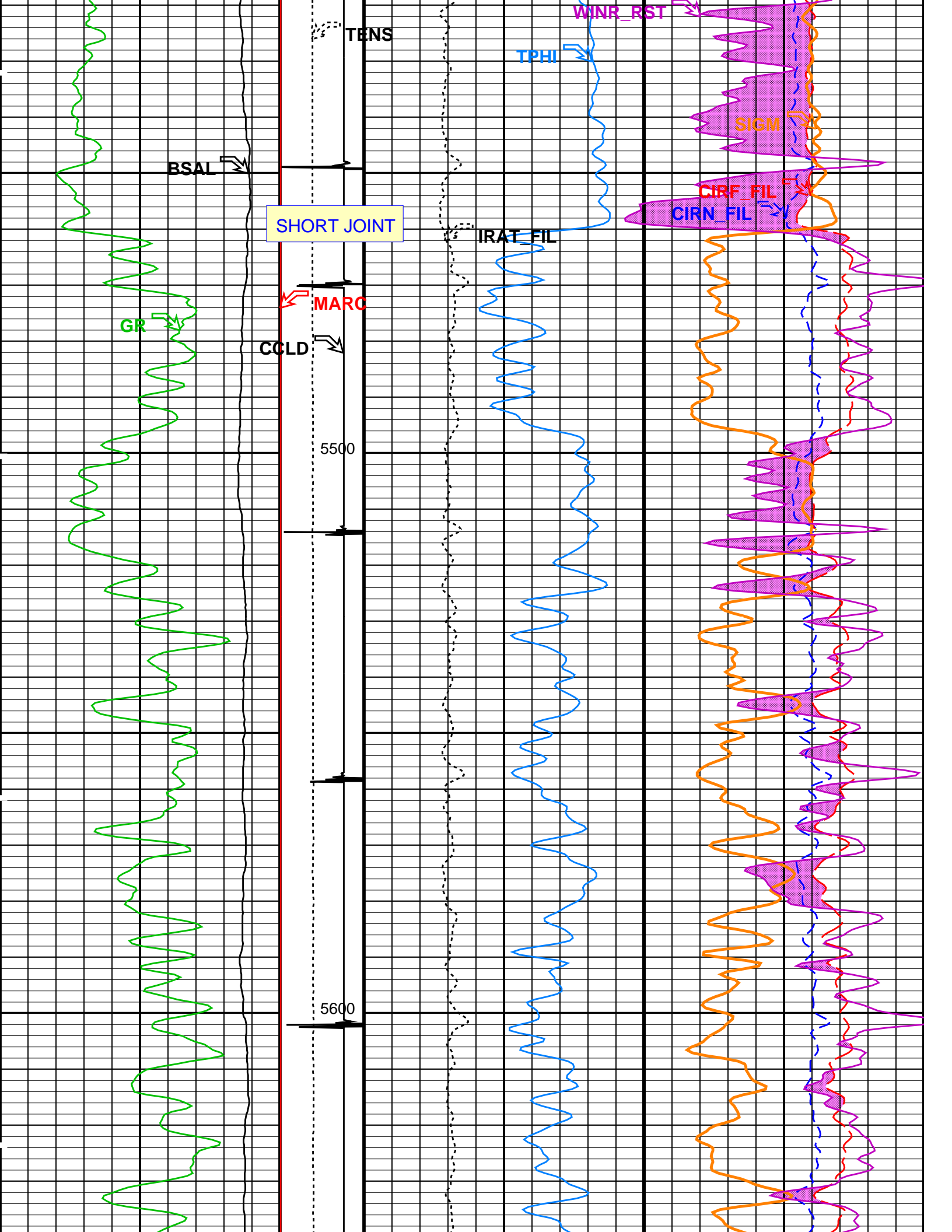


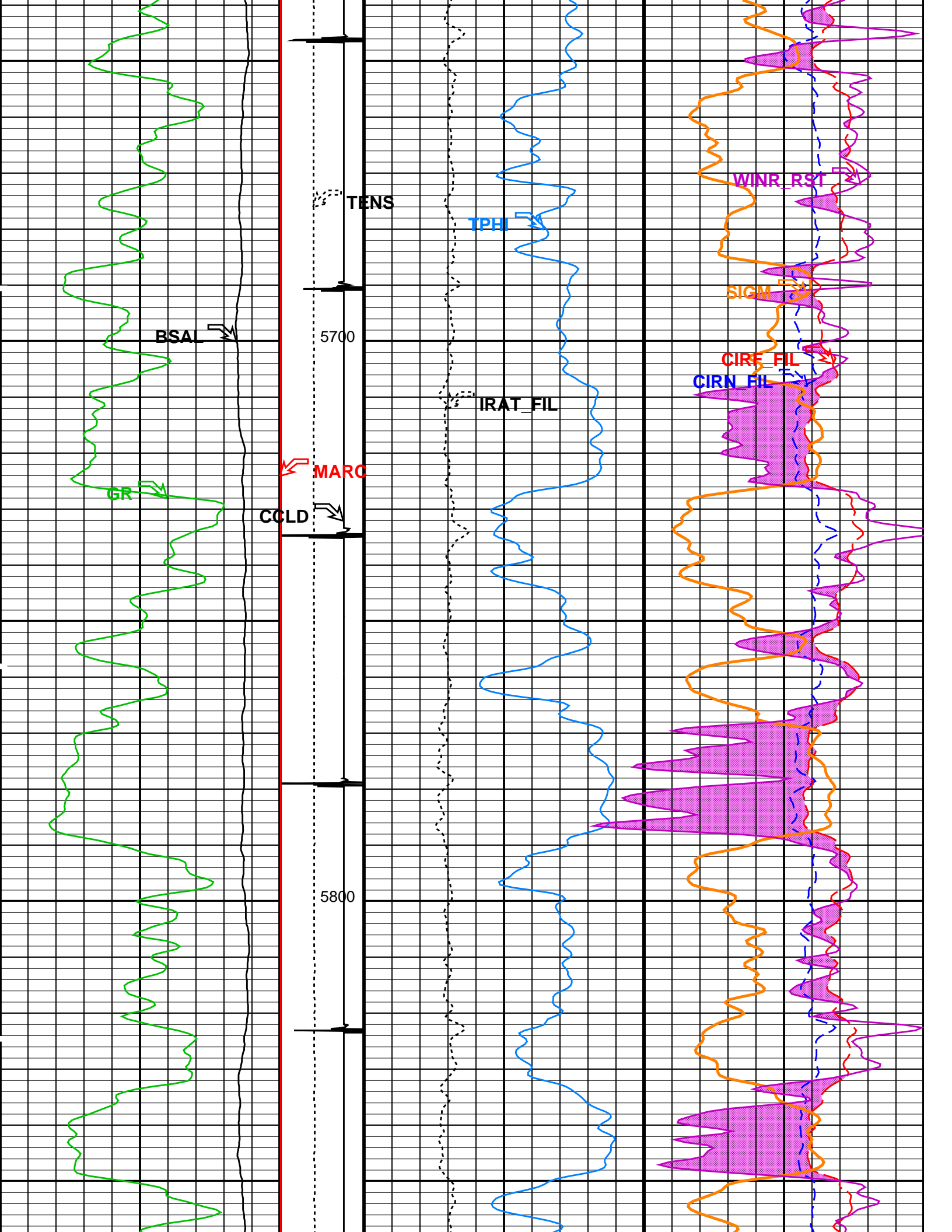


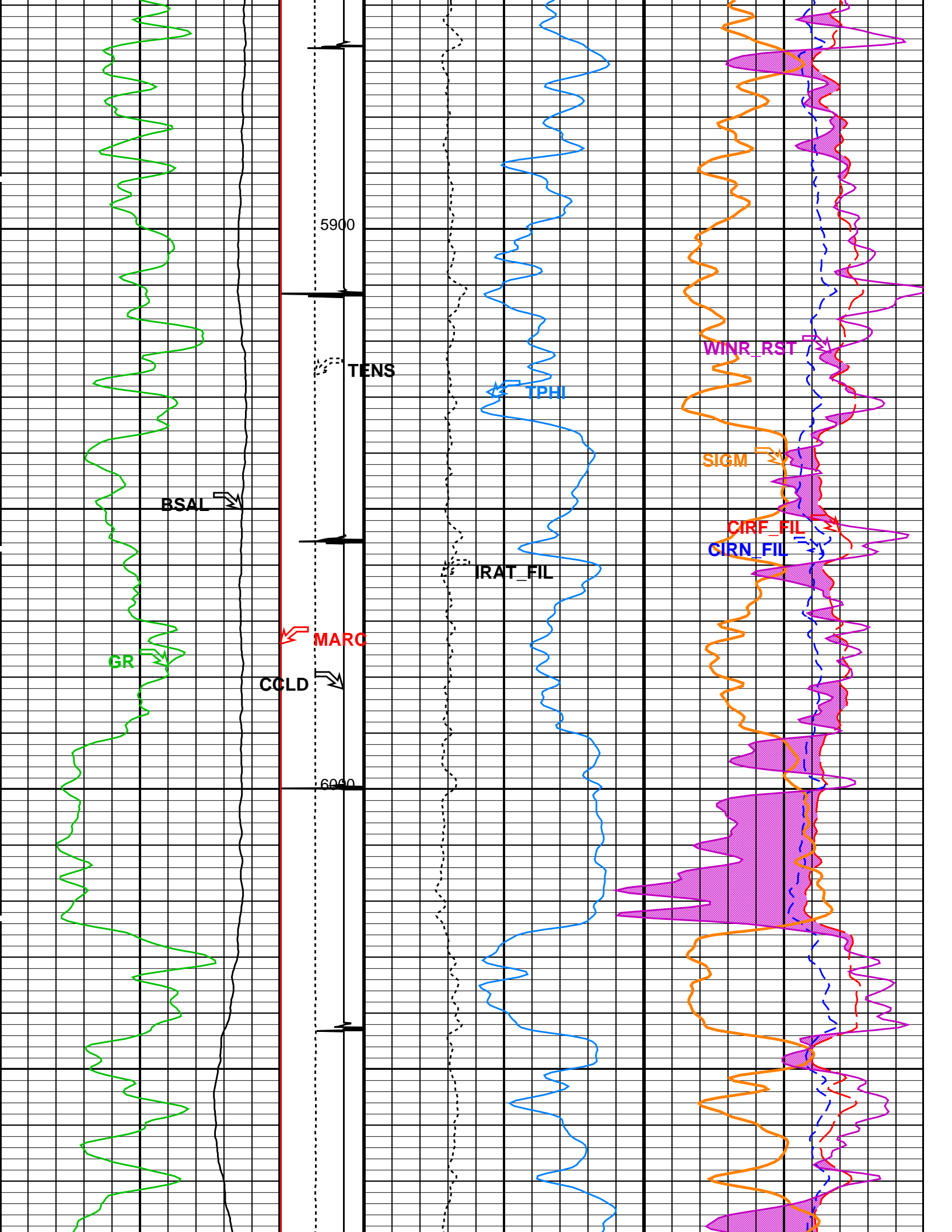


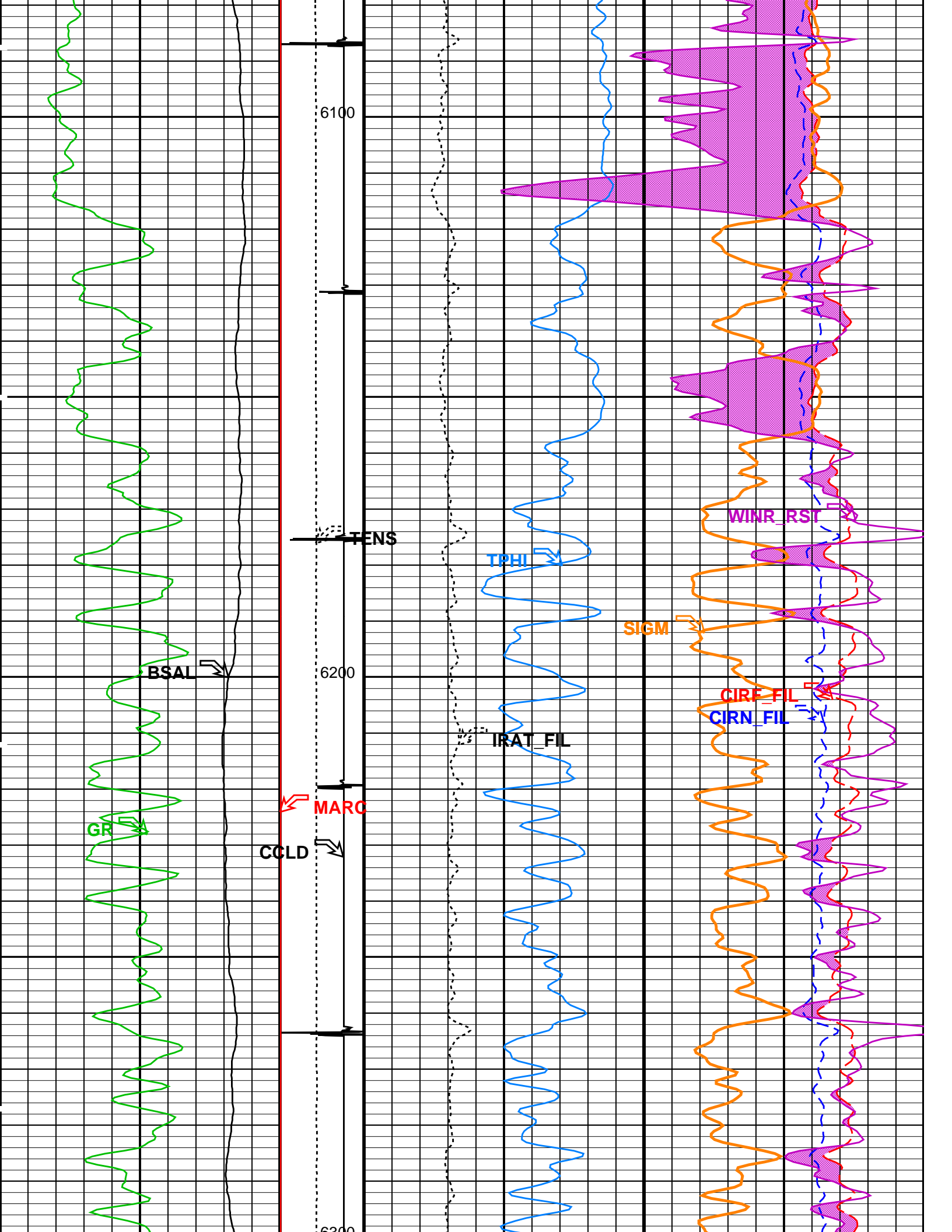


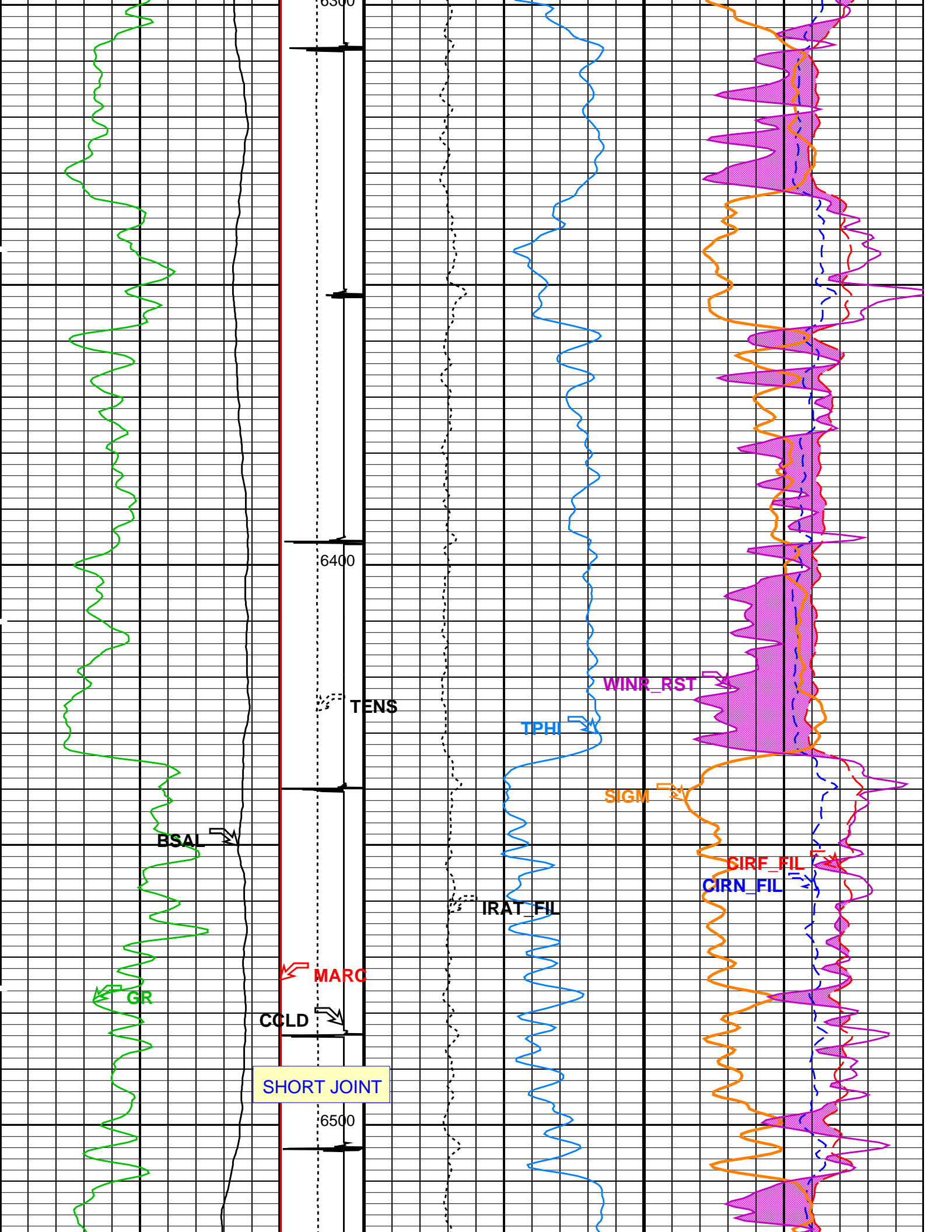


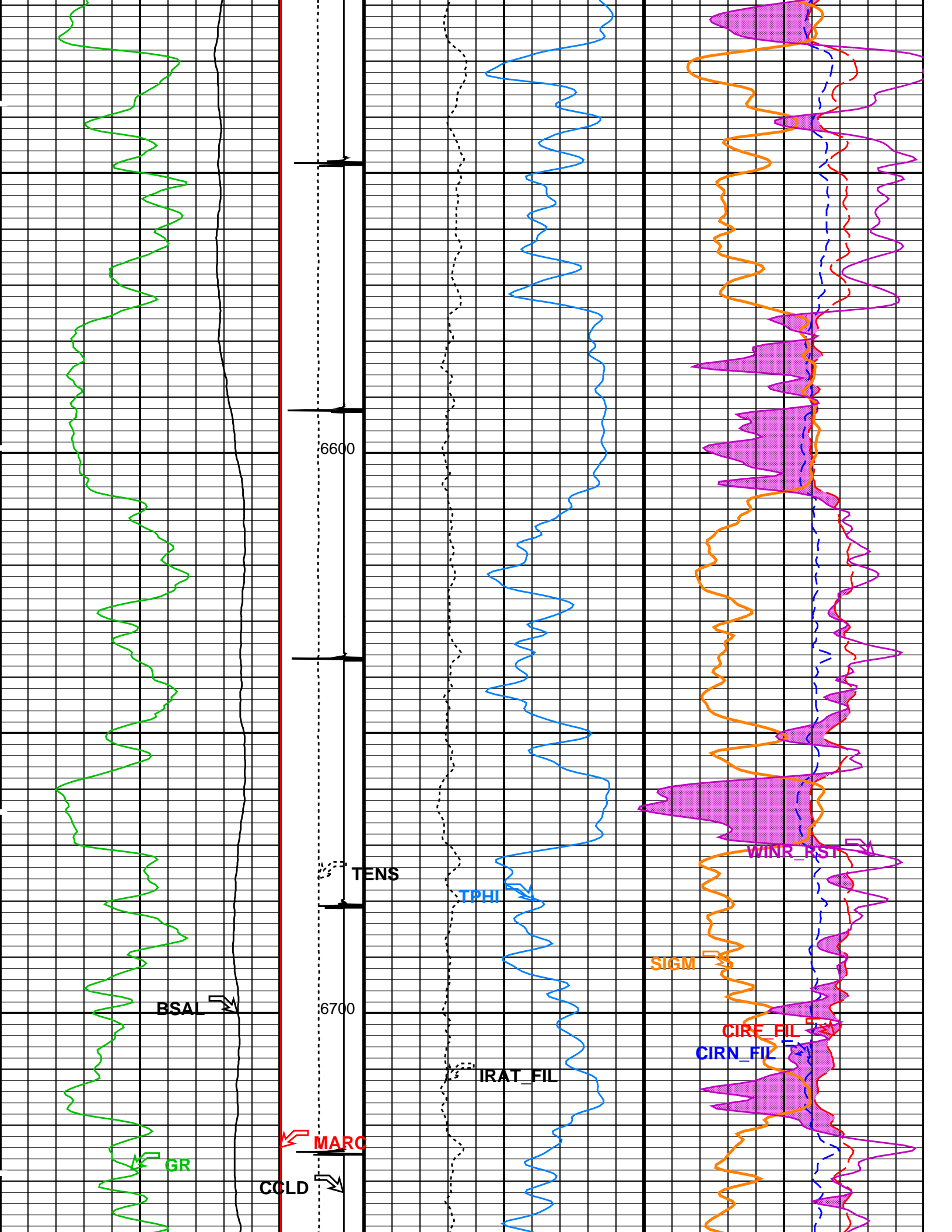


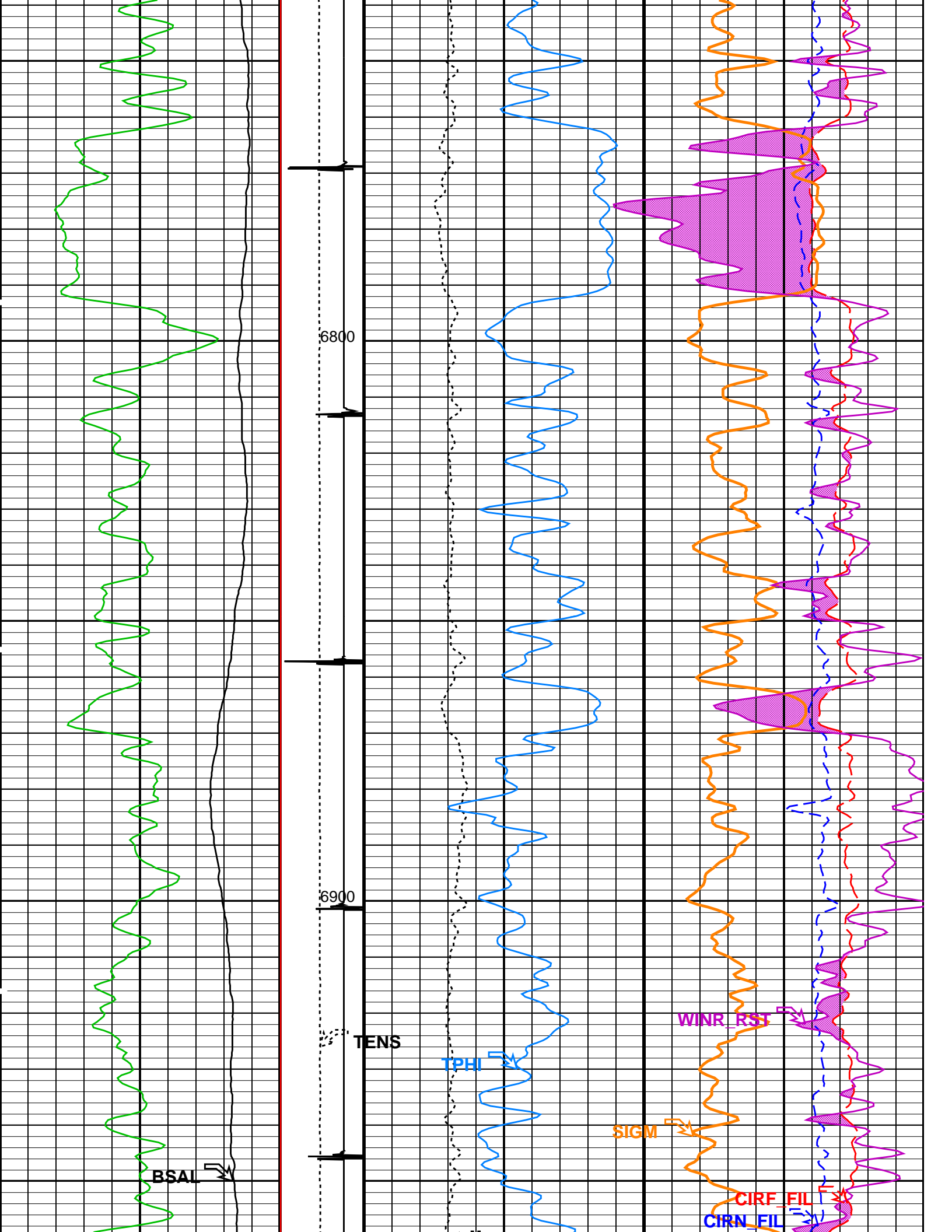


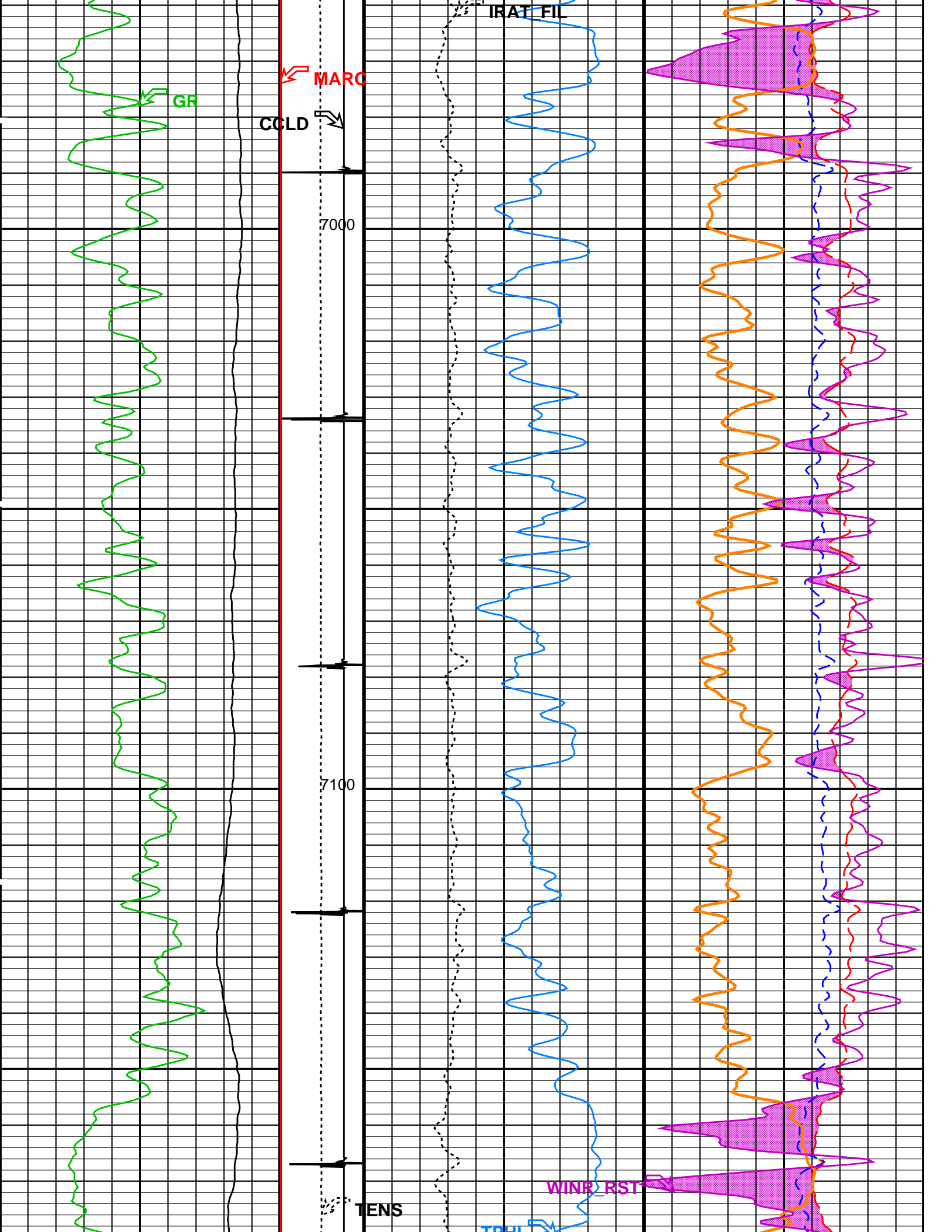


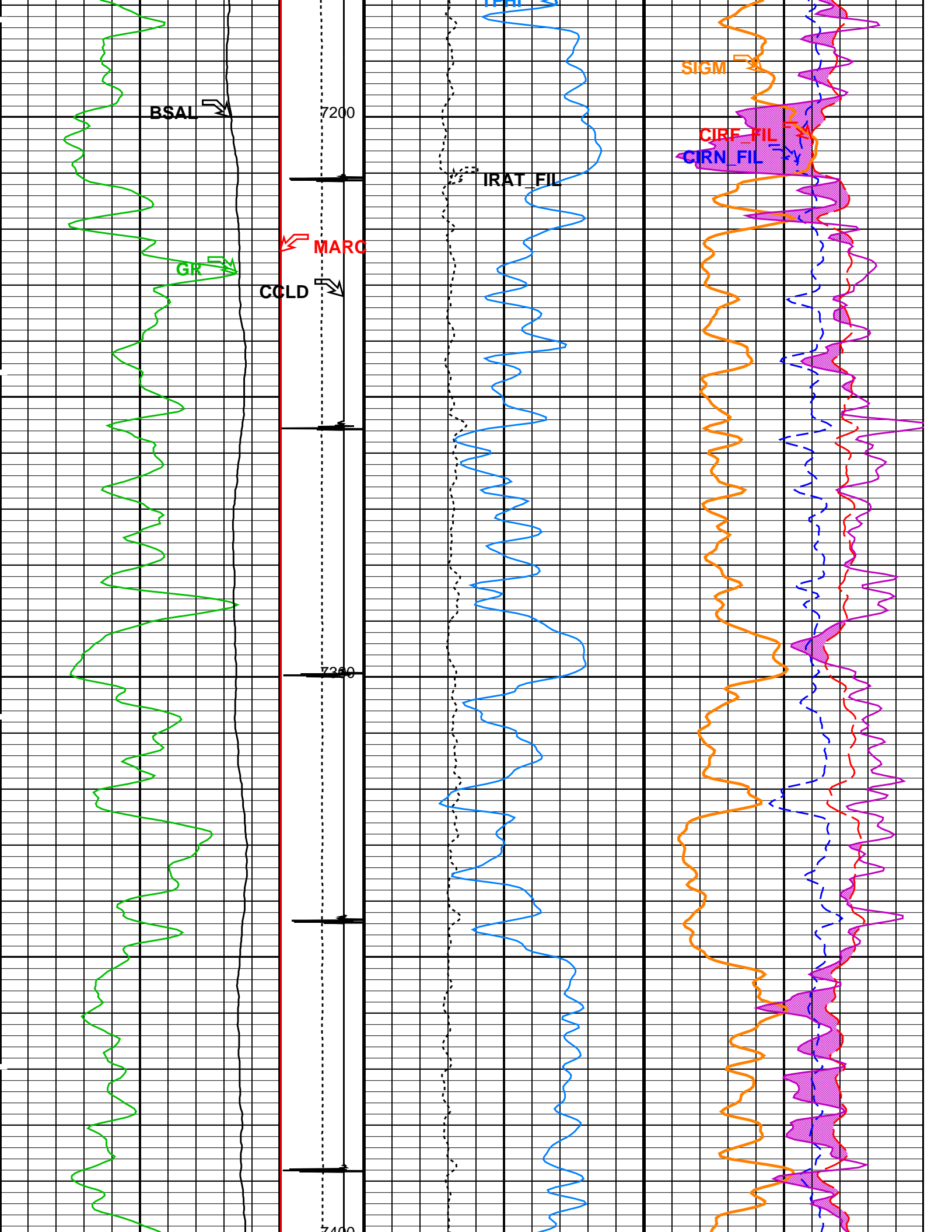


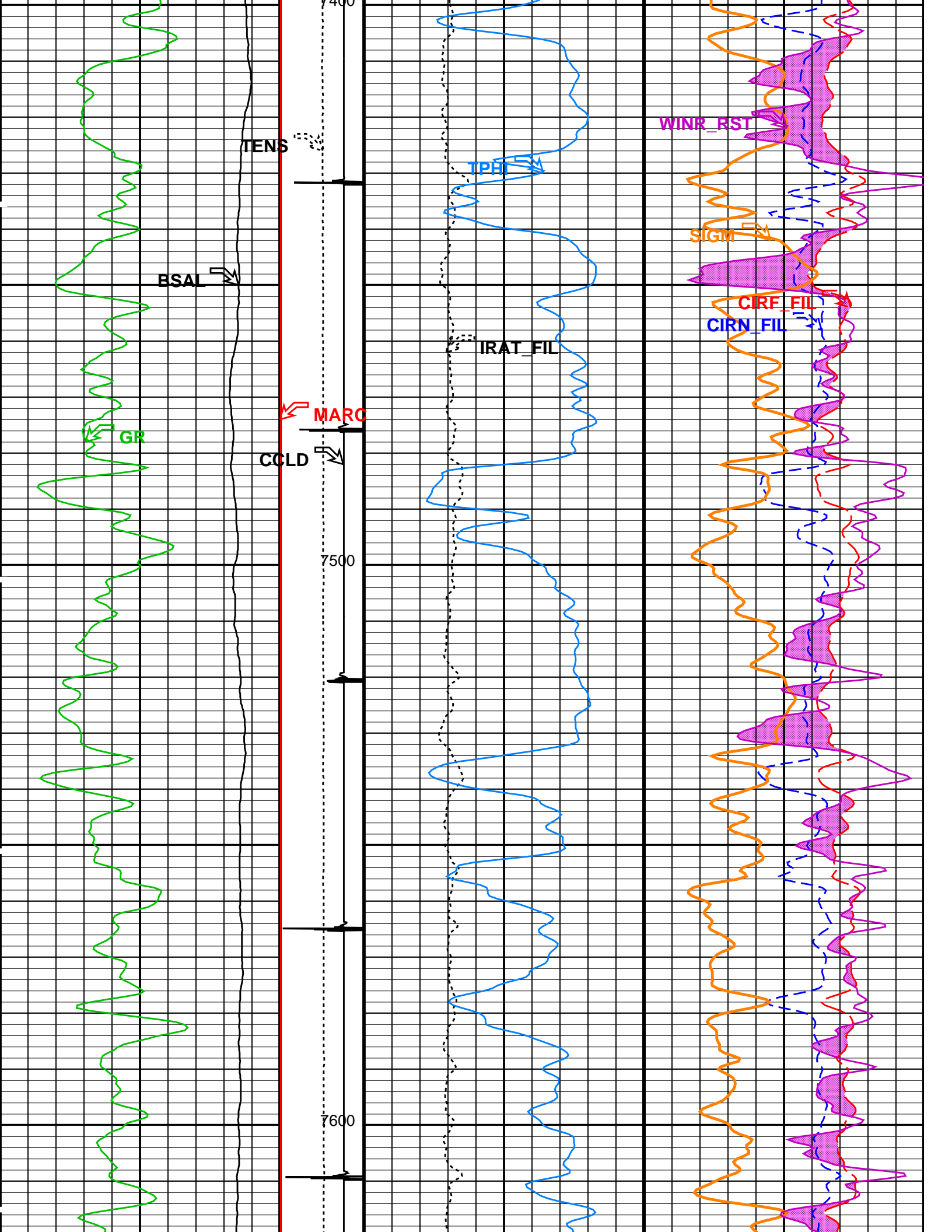


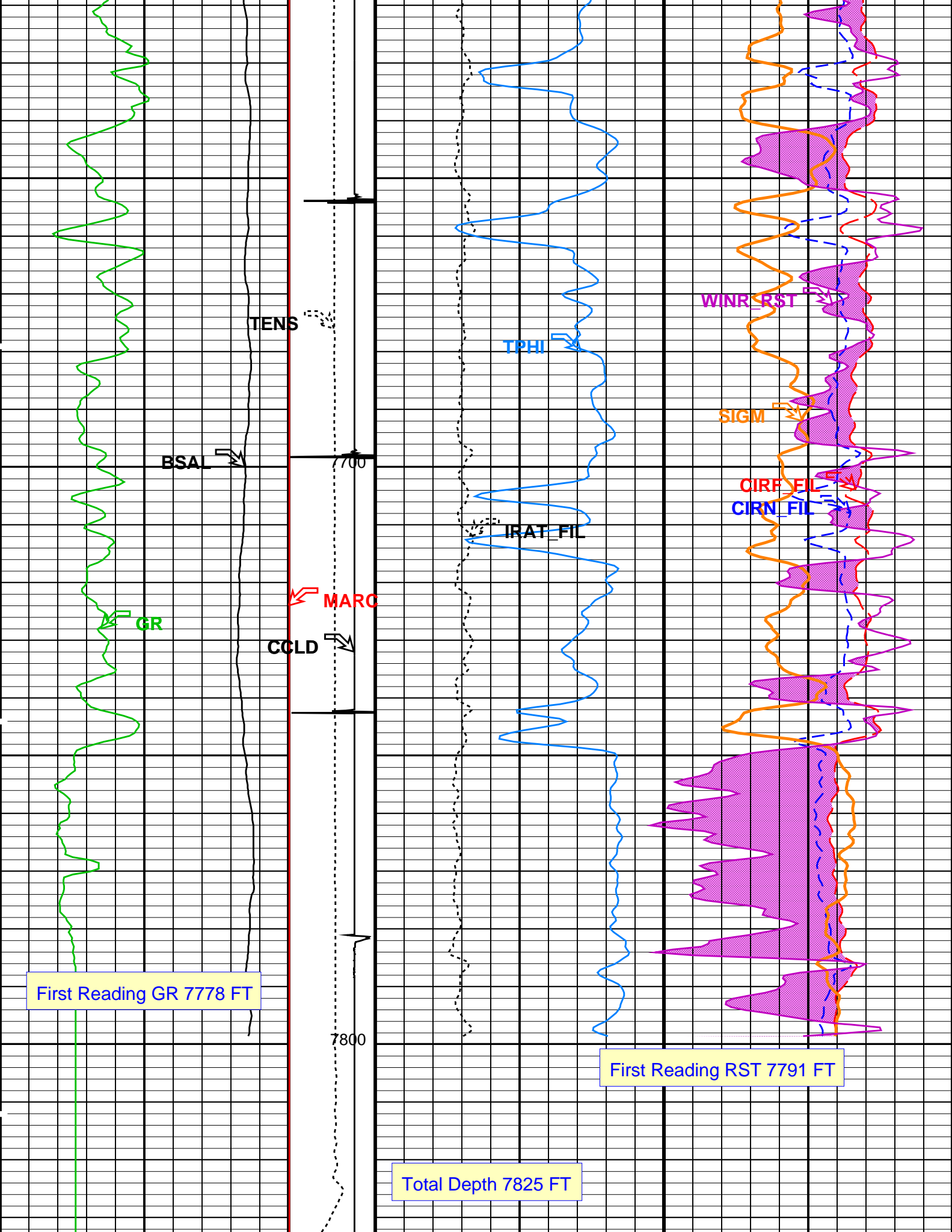












First Reading GR 7778 FT

First Reading RST 7791 FT

Total Depth 7825 FT

0 (GAPI)	150 (LBF)	0.75 (----)	0 2.5 (----)	0
RST Borehole Salinity (BSAL) (PPK)	Discriminat ed CCL (CCLD)	RST Sigma (SIGM) (CU)		
450 -50	3 (V) -1	60	0	0
	Minitron Arc Detection (MARC)	RST Porosity (TPHI) (V/V)	RST Capture to Inelastic Ratio Far (CIRF_FIL)	
	0 (---- 5)	0.5 0	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				
	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		

ROBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	0.48
NORM_IRAT_RST	RST Normalized Inelastic Ratio		30
NORM_SIGM_RST	RST Normalized Sigma		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
SHT	Surface Hole Temperature		DEGF
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			
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	4.0	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	7825	FT
TDD	Total Depth - Driller	7907.00	FT
TDL	Total Depth - Logger	7825.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5 Vertical Scale: 5" per 100' Graphics File Created: 14-Sep-2013 17:44

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	SCMT_RST_PSP_065LUP	FN:61	PRODUCER	14-Sep-2013 15:38	7828.5 FT	2.5 FT
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Output DLIS Files

DEFAULT	SCMT_RST_PSP_068PUP	FN:64	PRODUCER	14-Sep-2013 17:44
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Schlumberger

REPEAT ANALYSIS RST SIGMA

MAXIS Field Log

Input DLIS Files

DEFAULT	SCMT_RST_PSP_063LUP	FN:59	PRODUCER	14-Sep-2013 15:26	5649.5 FT	5335.5 FT
DEFAULT	SCMT_RST_PSP_068PUP	FN:64	PRODUCER	14-Sep-2013 17:44	7832.5 FT	-38.0 FT

Output DLIS Files

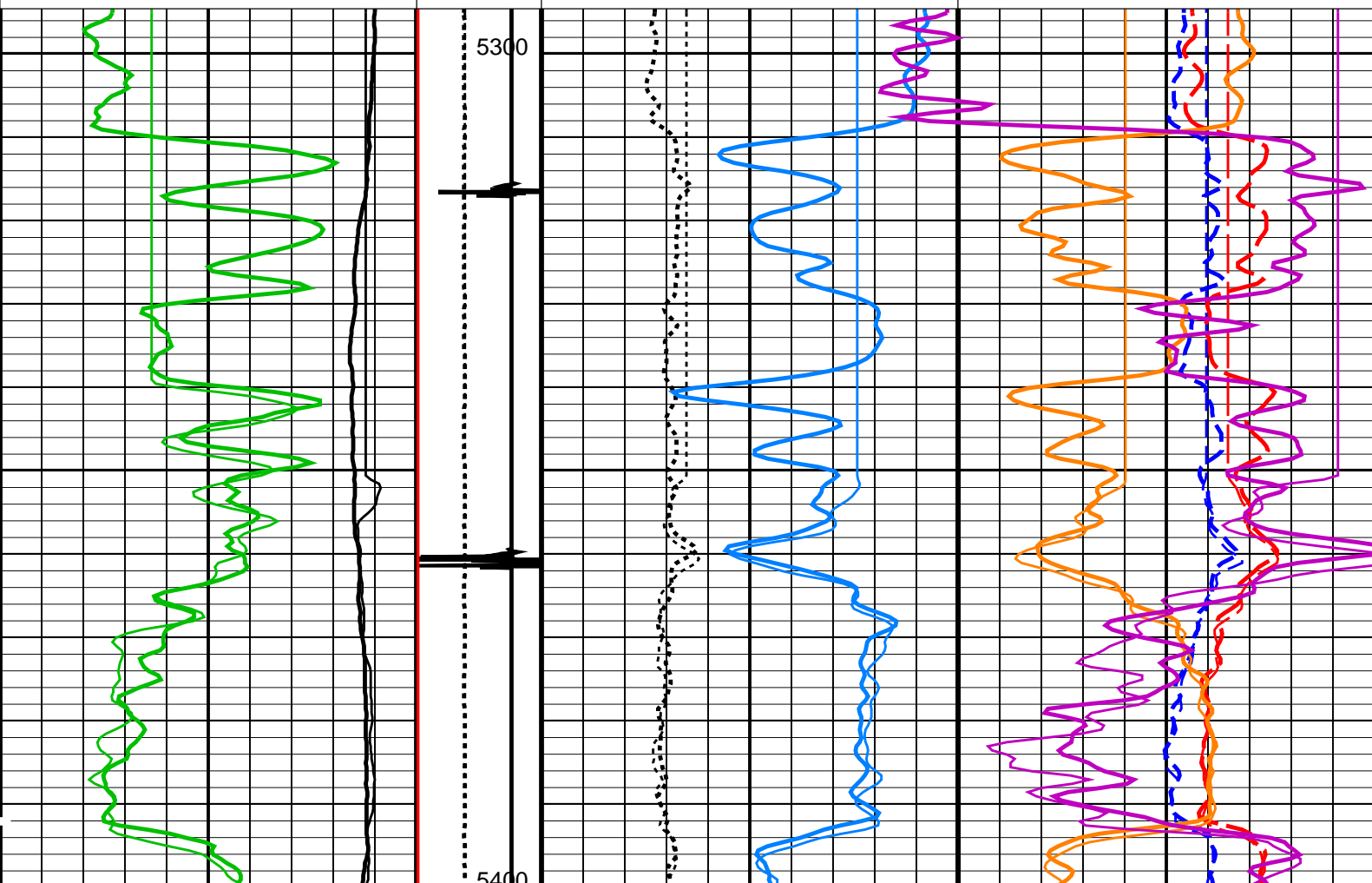
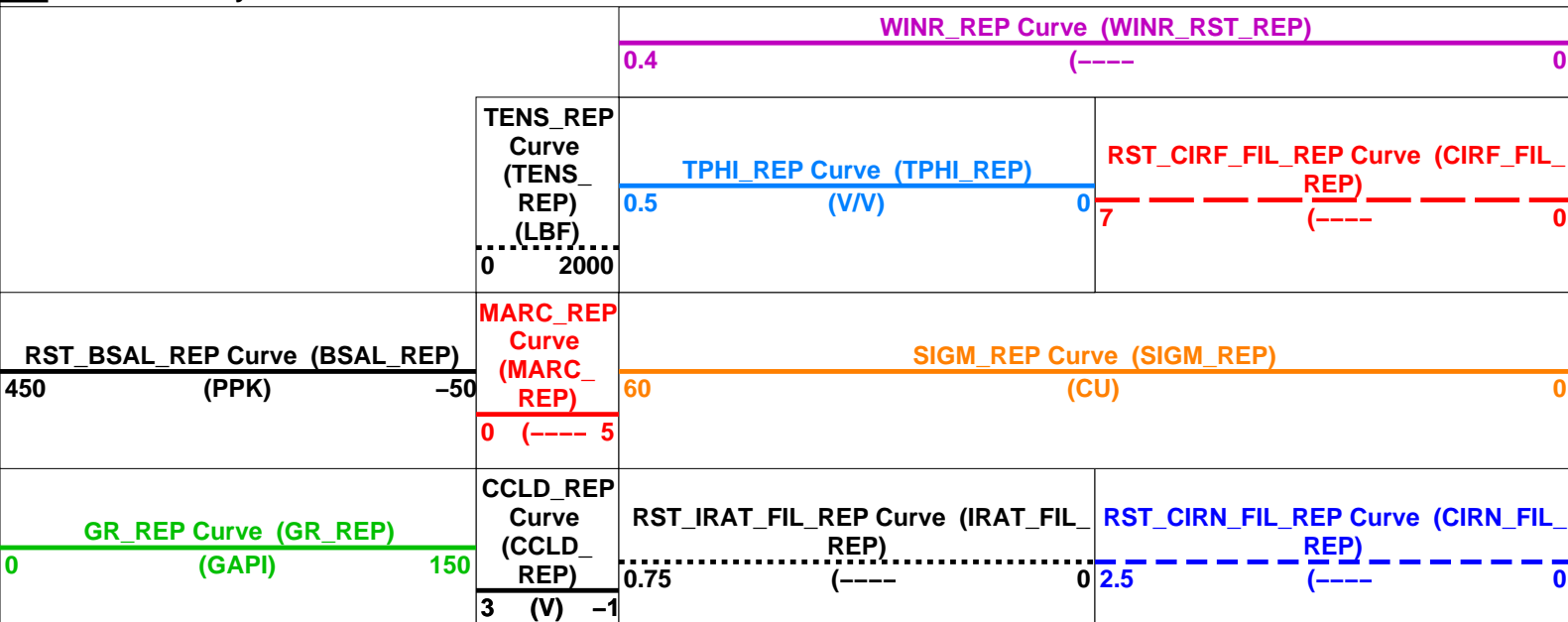
DEFAULT	SCMT_RST_PSP_069PUP	FN:65	PRODUCER	14-Sep-2013 17:50	5652.5 FT	5294.0 FT
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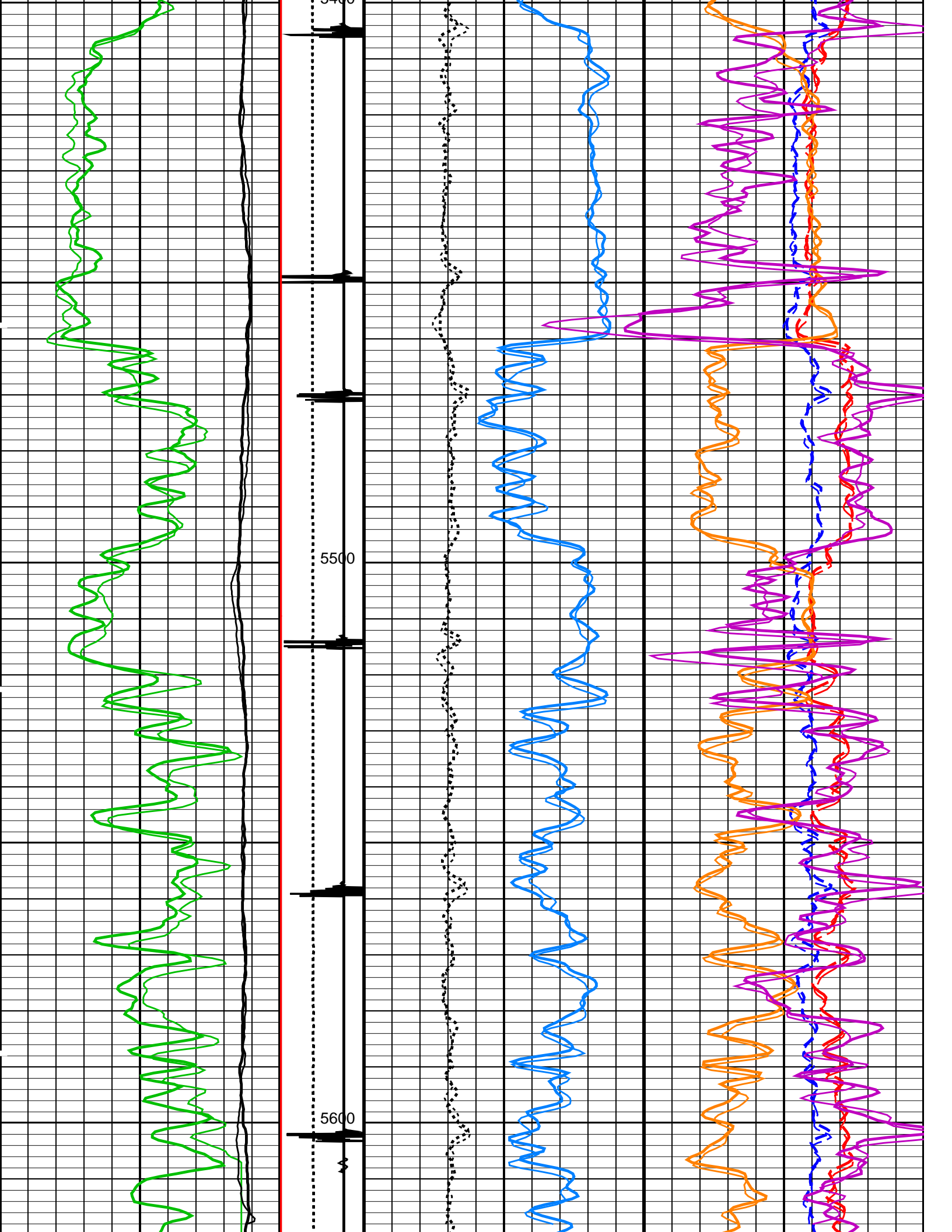
OP System Version: 19C0-187

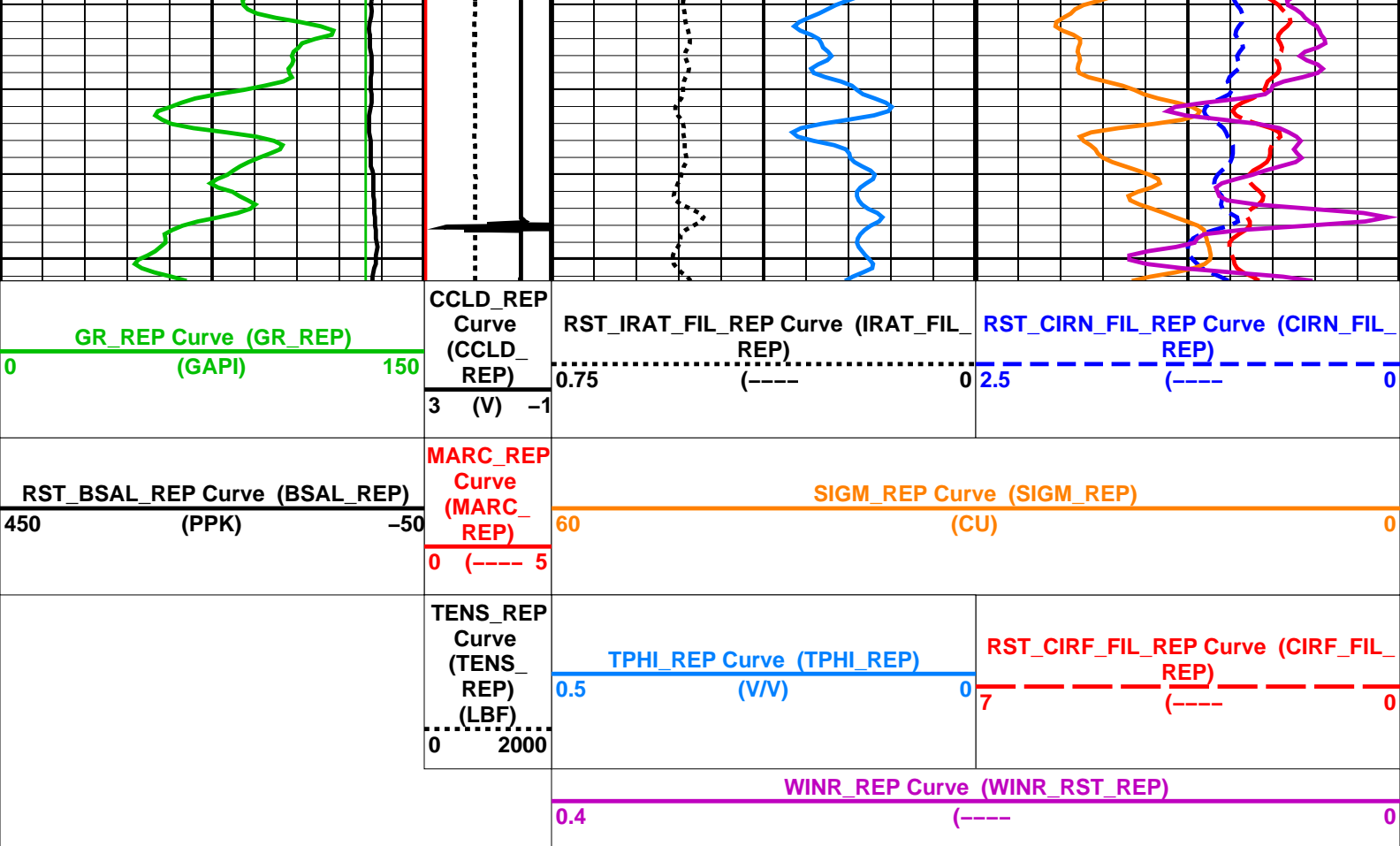
SCMT-CB	19C0-187	RST-C	19C0-187
PSPT	19C0-187		

PIP SUMMARY

Time Mark Every 60 S







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	
BUT	Bottom Hole Temperature (used in calculations)	212	DEG F

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	3.0	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	7825	FT
TDD	Total Depth - Driller	7907.00	FT
TDL	Total Depth - Logger	7825.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5_REP Vertical Scale: 5" per 100' Graphics File Created: 14-Sep-2013 17:50

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

Input DLIS Files

DEFAULT	SCMT_RST_PSP_063LUP	FN:59	PRODUCER	14-Sep-2013 15:26	5649.5 FT	5335.5 FT
DEFAULT	SCMT_RST_PSP_068PUP	FN:64	PRODUCER	14-Sep-2013 17:44	7832.5 FT	-38.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_069PUP	FN:65	PRODUCER	14-Sep-2013 17:50
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MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC
Field: SOUTH PARACHUTE
Well: HAGEN FEDERAL 22-4C (PC22)
Run date: 14-Sep-2013

Tool: PSP
Sub Type: PBMS
Sensor: GR

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

Client: ENCANA OIL & GAS (USA) INC
Field: SOUTH PARACHUTE
Well: HAGEN FEDERAL 22-4C (PC22)
Run date: 14-Sep-2013

Tool: PSP
Sub Type: PBMS
Sensor: WellTemp RTD

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

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 22-4C (PC22)
 Run date: 14-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	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	:
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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

Company: ENCANA OIL & GAS (USA) INC

Schlumberger

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

RESERVOIR SATURATION LOG
SIGMA MODE
GAMMA RAY-CCL