

Company: ENCANA OIL & GAS (USA) INC

Well: HAGEN 22-3A (PC22)

Field: SOUTH PARACHUTE

County: GARFIELD State: COLORADO

RESERVOIR SATURATION LOG
SIGMA MODE
GR-CCL

County: GARFIELD

Field: SOUTH PARACHUTE

Location: SHL: 619 FNL & 1785 FWL

Well: HAGEN 22-3A (PC22)

Company: ENCANA OIL & GAS (USA) INC

LOCATION		Elev.:	
SHL: 619 FNL & 1785 FWL		K.B.	6543.00 ft
BHL: 268 FNL & 2289 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 _____

05-045-22023-0C227S95W

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						
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						

Logging Date	22-Oct-2013
Run Number	1
Depth Driller	7822 ft
Schlumberger Depth	7748 ft
Bottom Log Interval	7714 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	7822 ft
Casing/Tubing Size	4.500 in
Weight	11.6 lbm/ft
Grade	S-80
From	22 ft
To	7800 ft
Maximum Recorded Temperatures	217 degF
Logger On Bottom	22-Oct-2013
Unit Number	391
Recorded By	KIRSTIE BUNTING
Witnessed By	SHANE

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: 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: 15:30	
TIME ON BOTTOM: 16:00	
EXIT TIME: 18:30	

MAXIMUM RECORDED TEMPERATURE: 217 DEGF	
MAXIMUM RECORDED PRESSURE: 3285 PSIA	
SANDSTONE MATRIX USED	
SHORT JOINTS : 5506 FT & 6500 FT	
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY	
CREW: KBUNTING, KIRWIN, WAZIZ, KJOHNS	

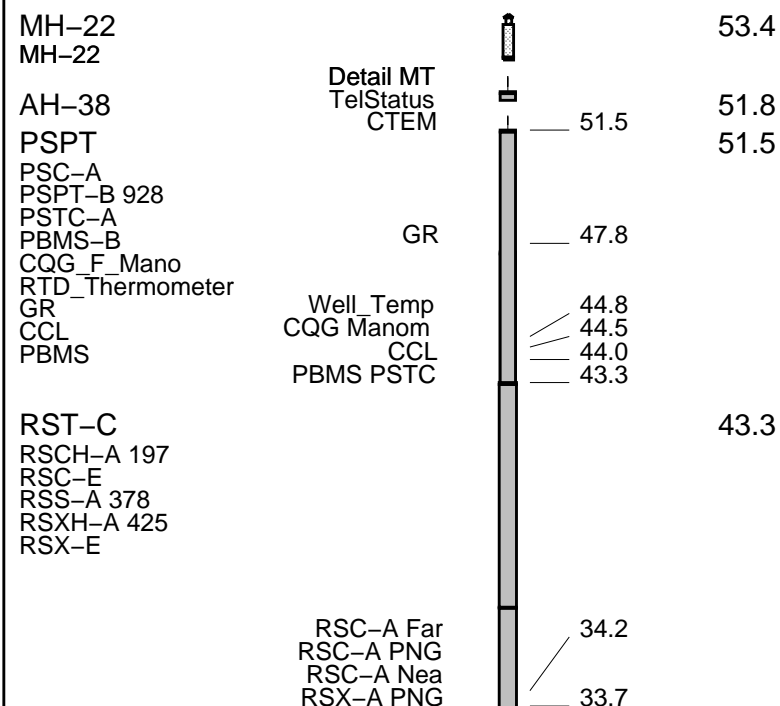
RUN 1 SERVICE ORDER #: CGF9-00162 PROGRAM VERSION: 19C0-187 FLUID LEVEL: 60 ft			RUN 2 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

[illegible]

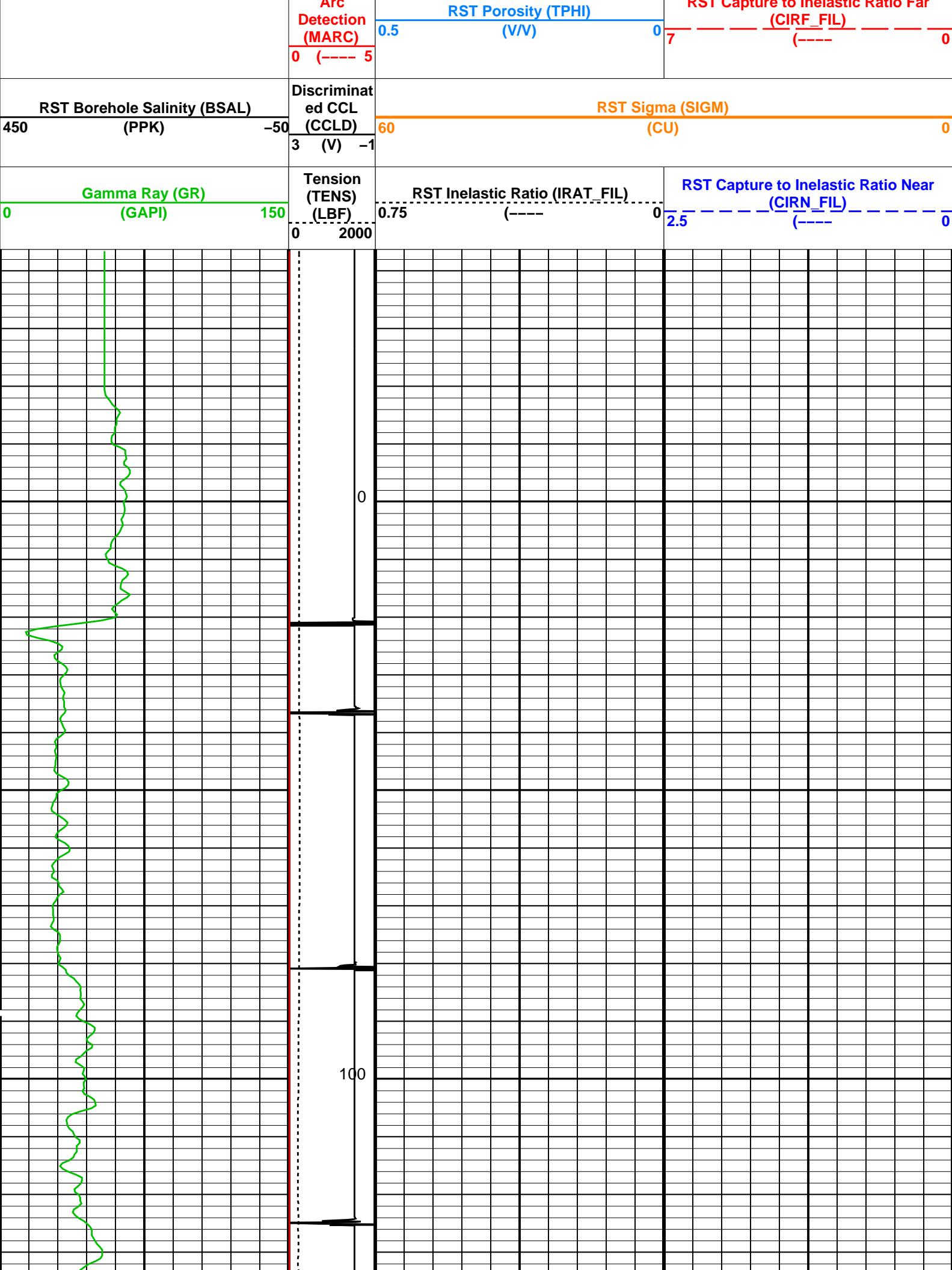
	RUN 1	RUN 2
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11	1	1
12	1	1
13	1	1
14	1	1
15	1	1
16	1	1
17	1	1
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99	1	1
100	1	1

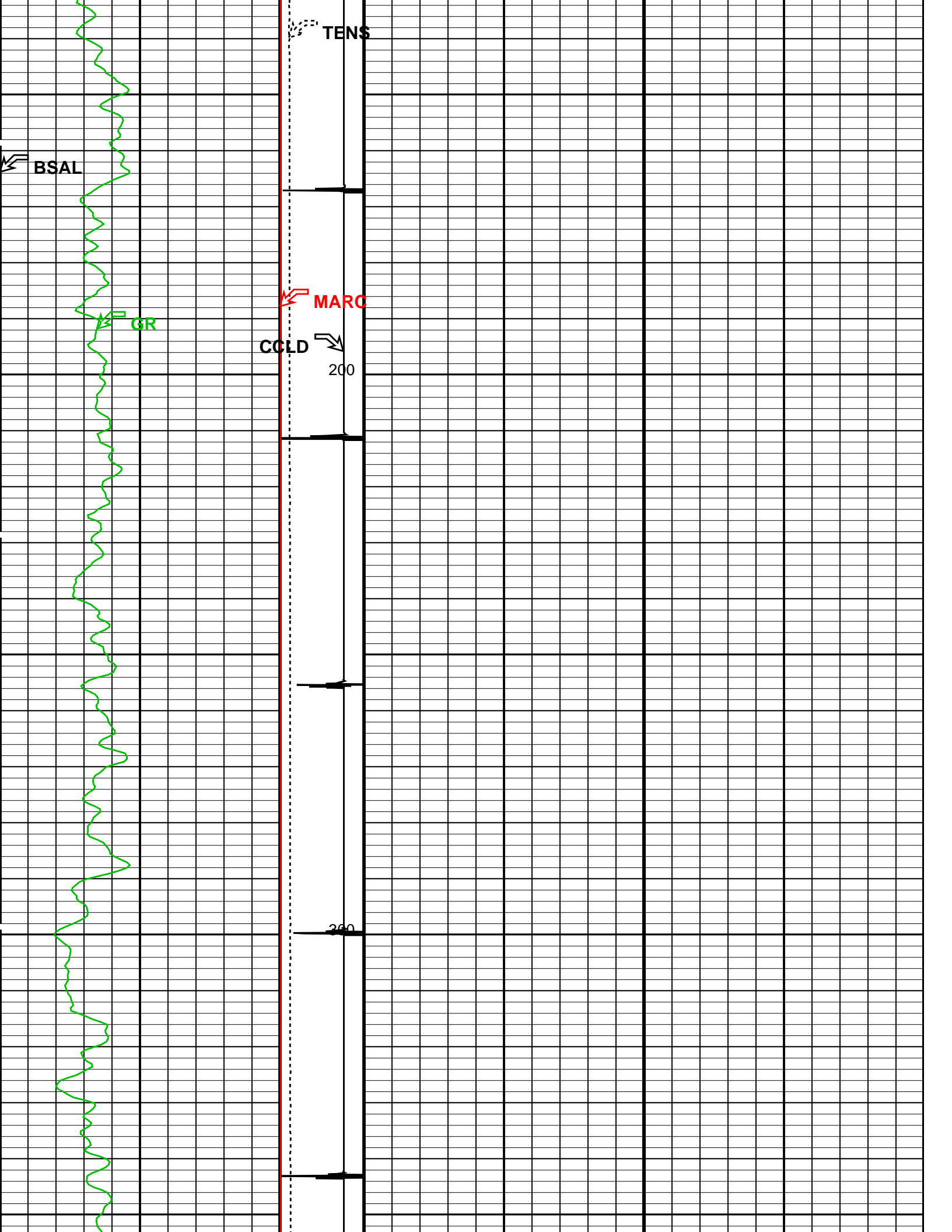
WITM-A PSC_16MHZ	SURFACE EQUIPMENT	
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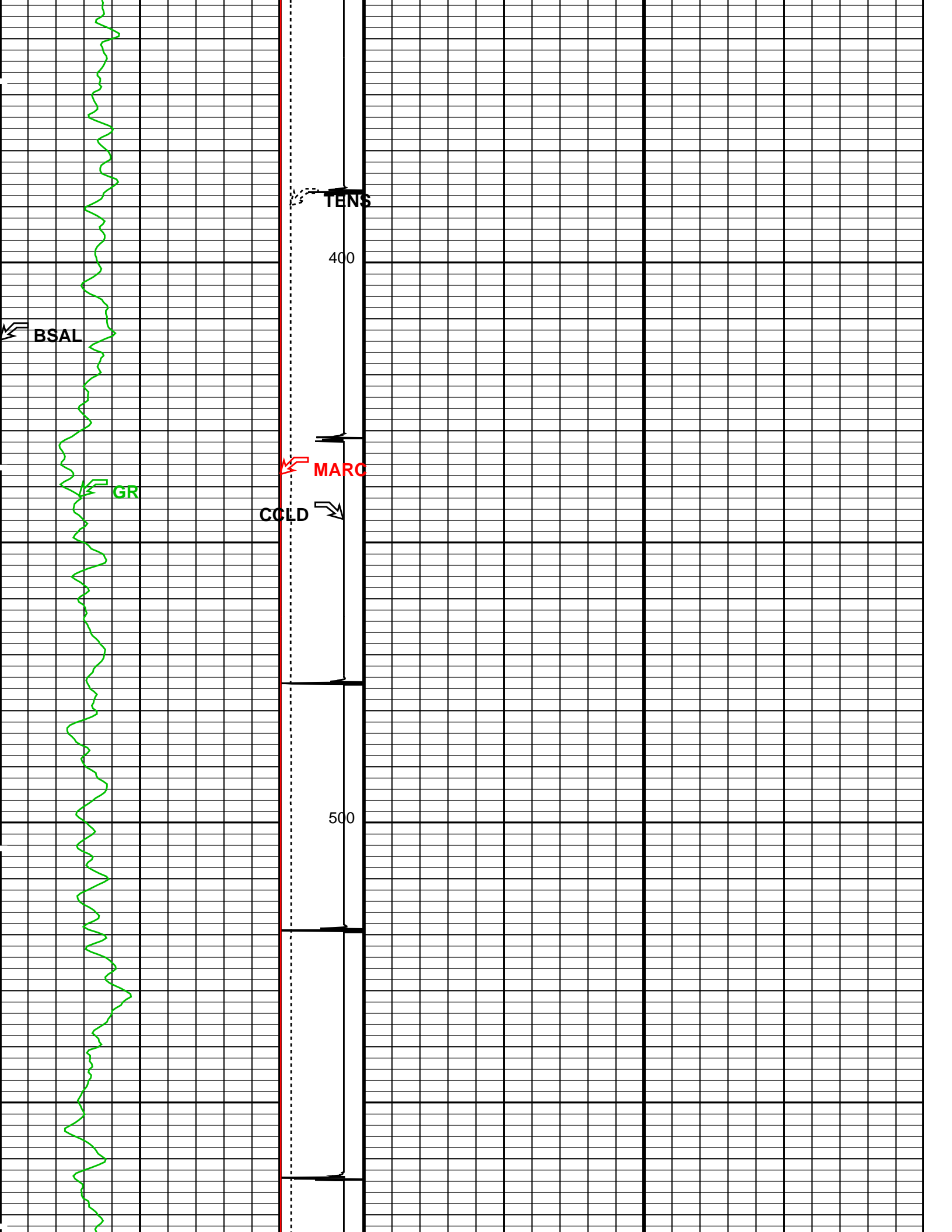
DOWNHOLE EQUIPMENT

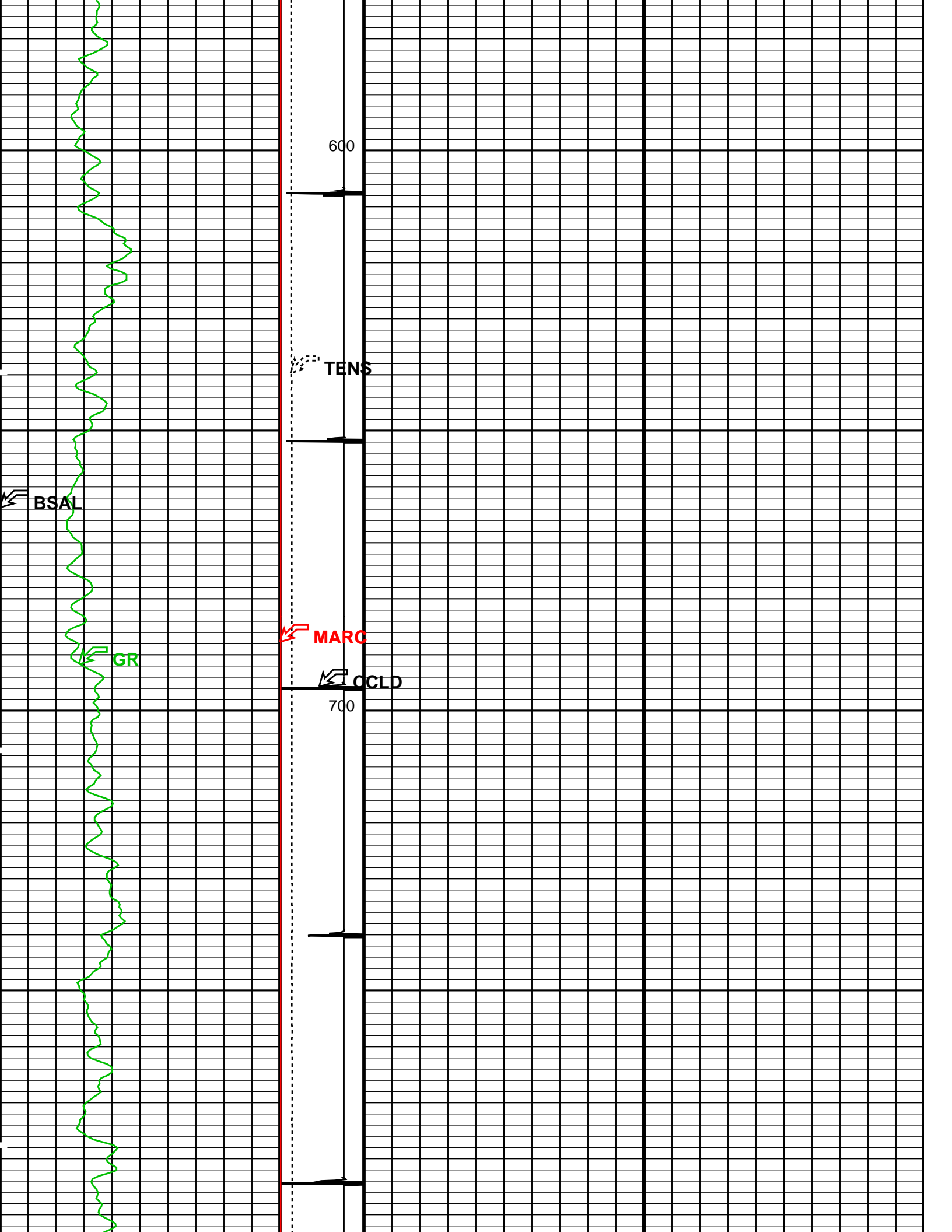


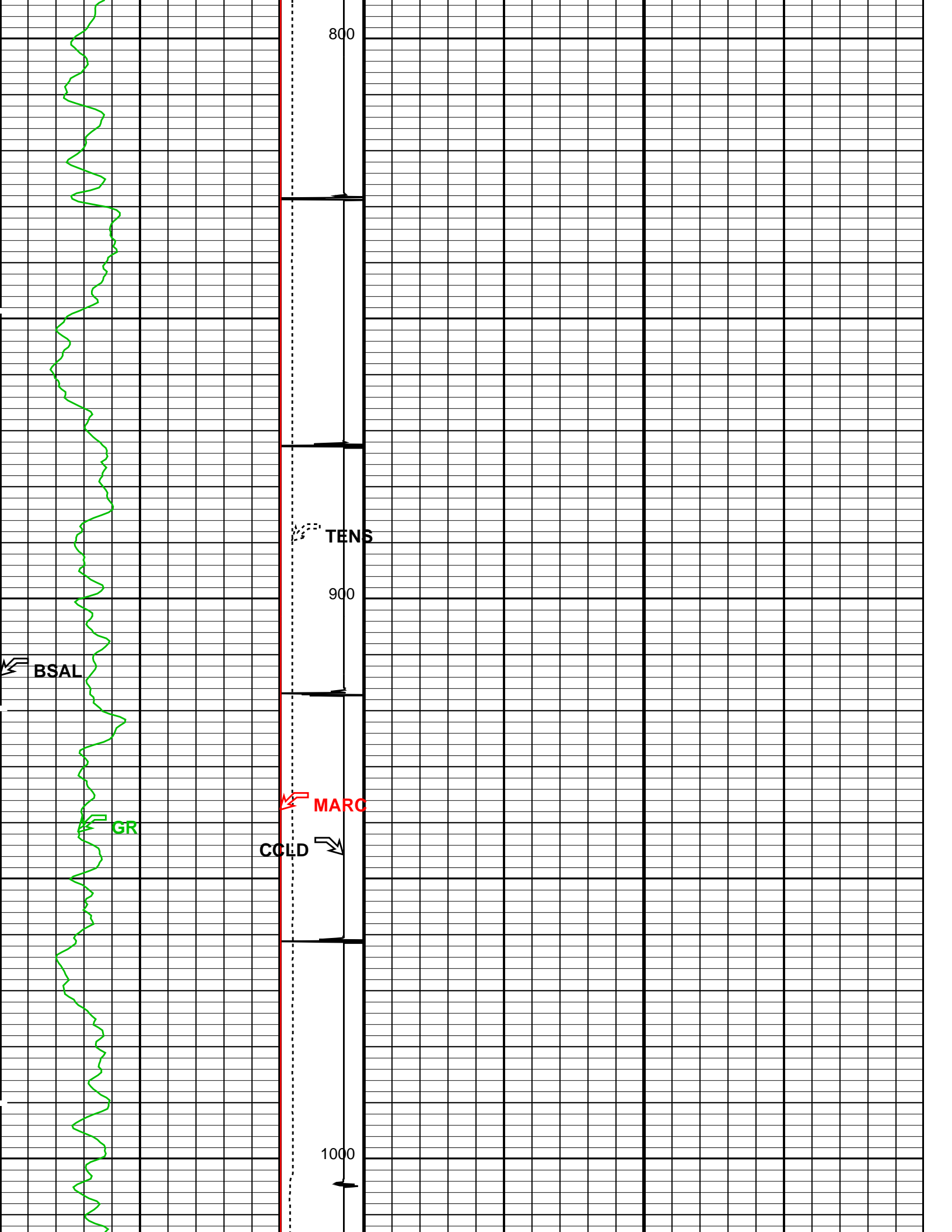
BST Capture to Inelastic Ratio For

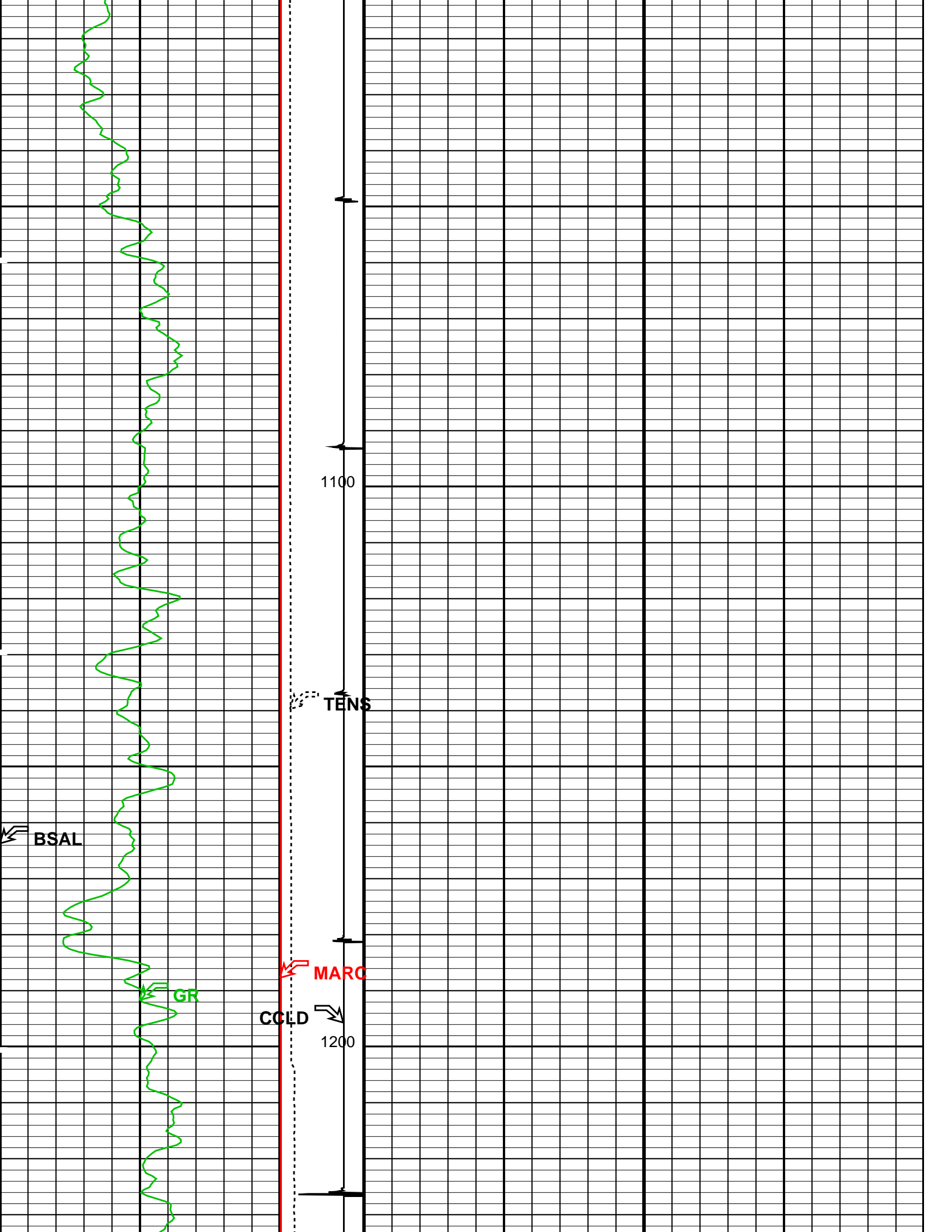


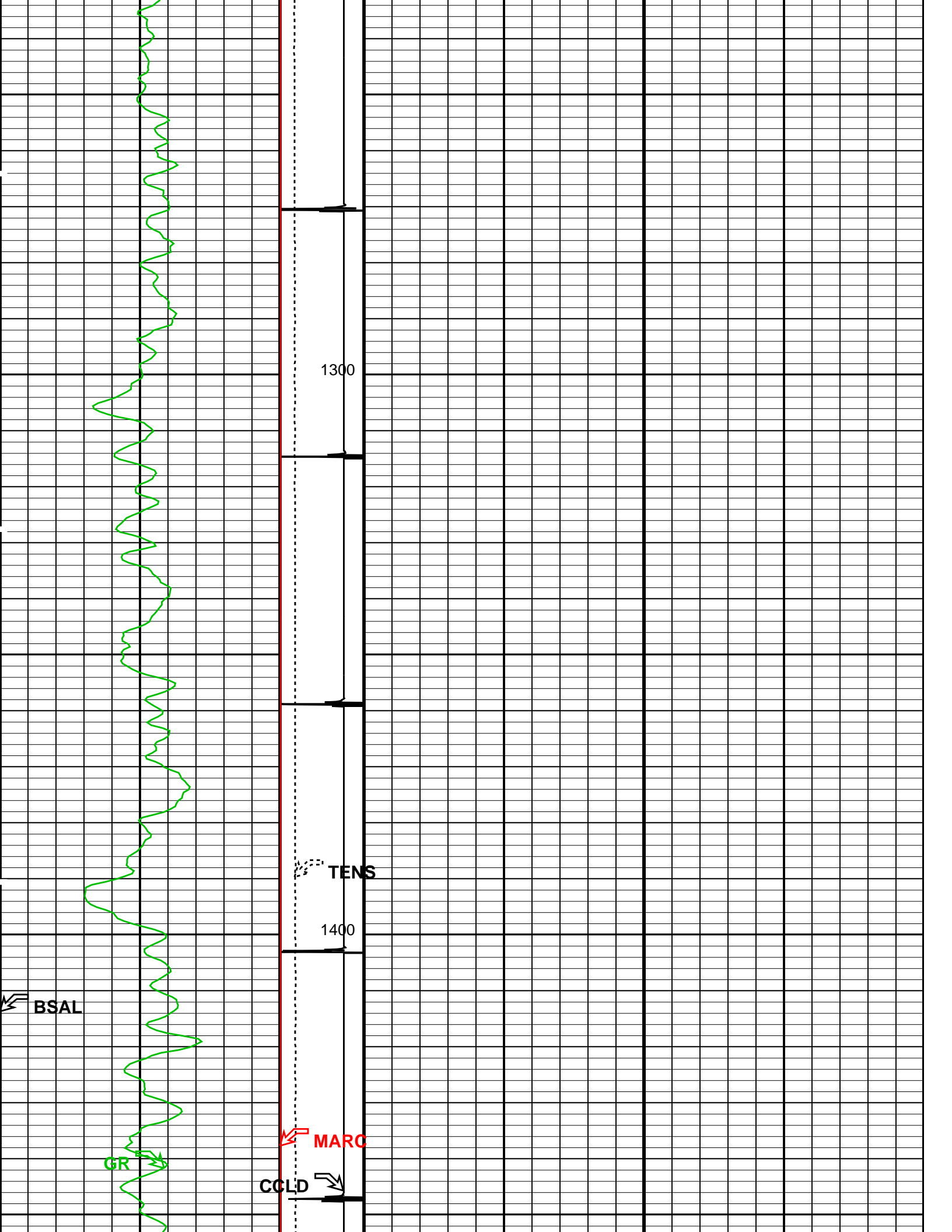


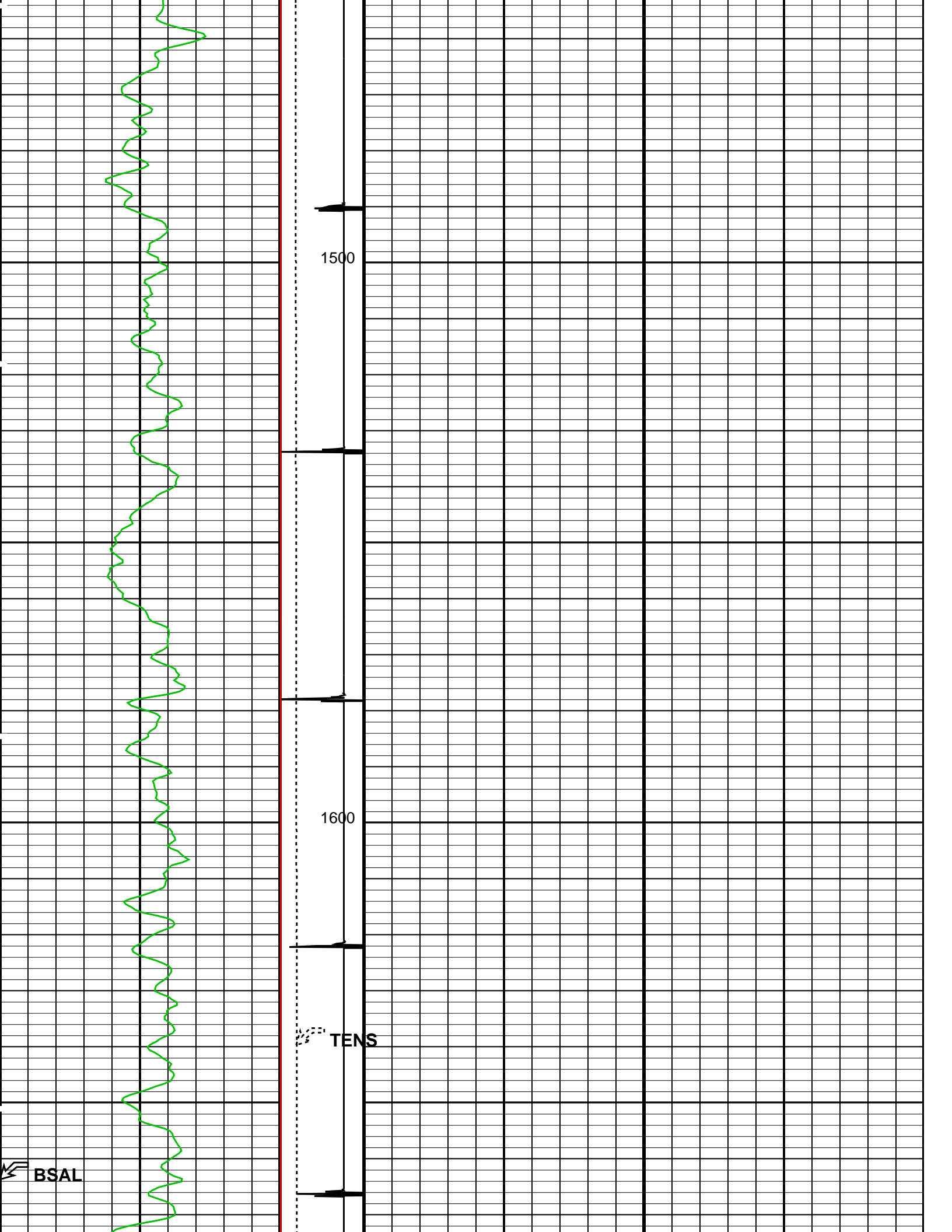


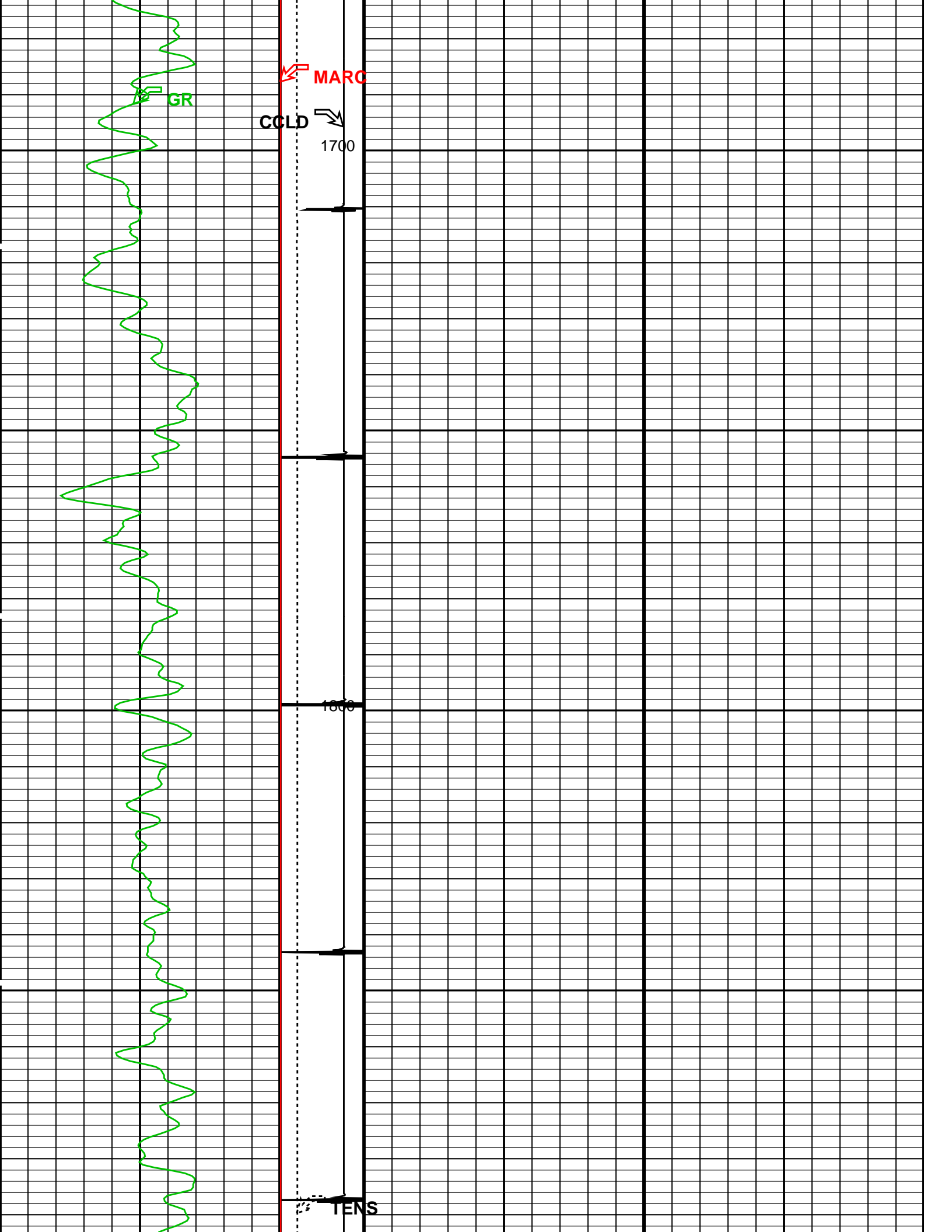


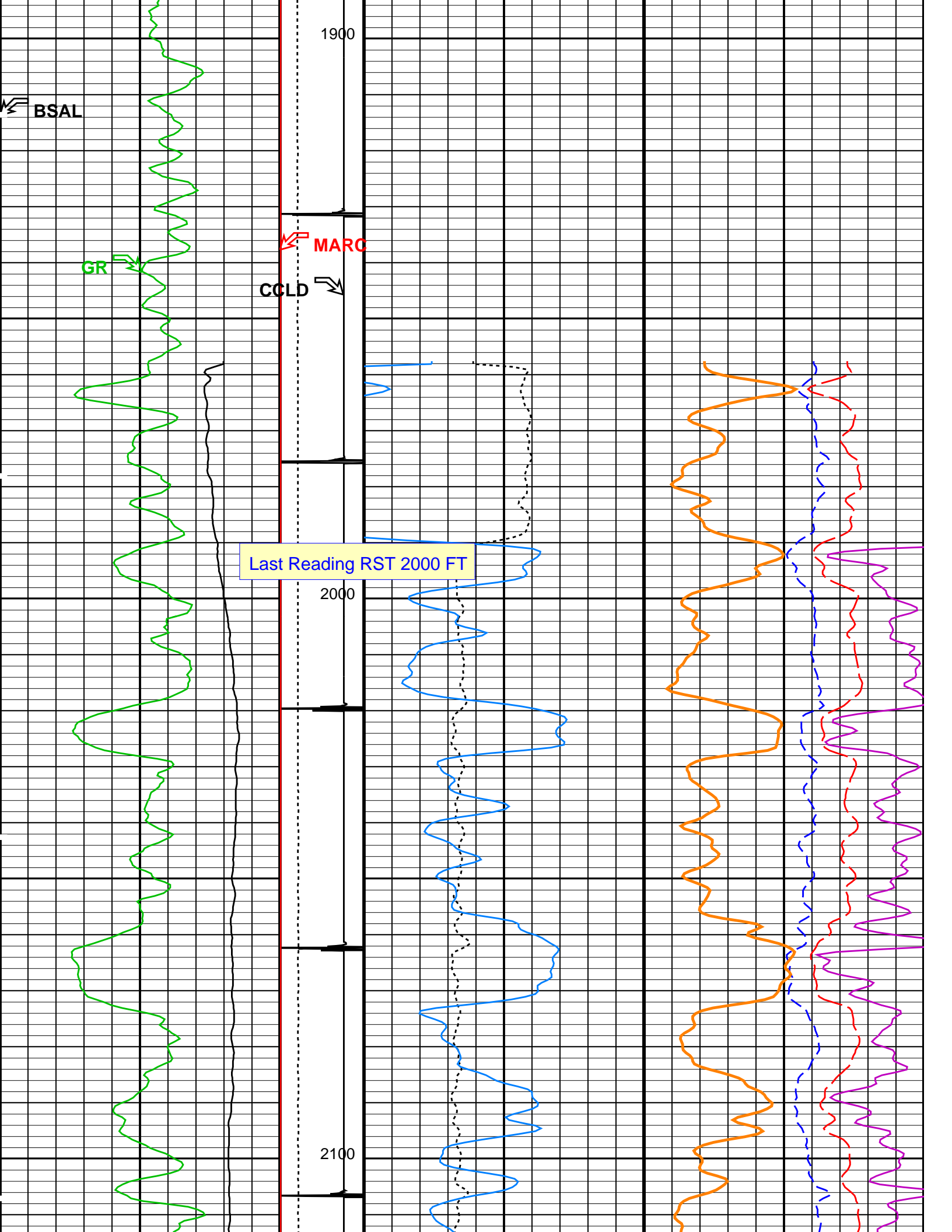


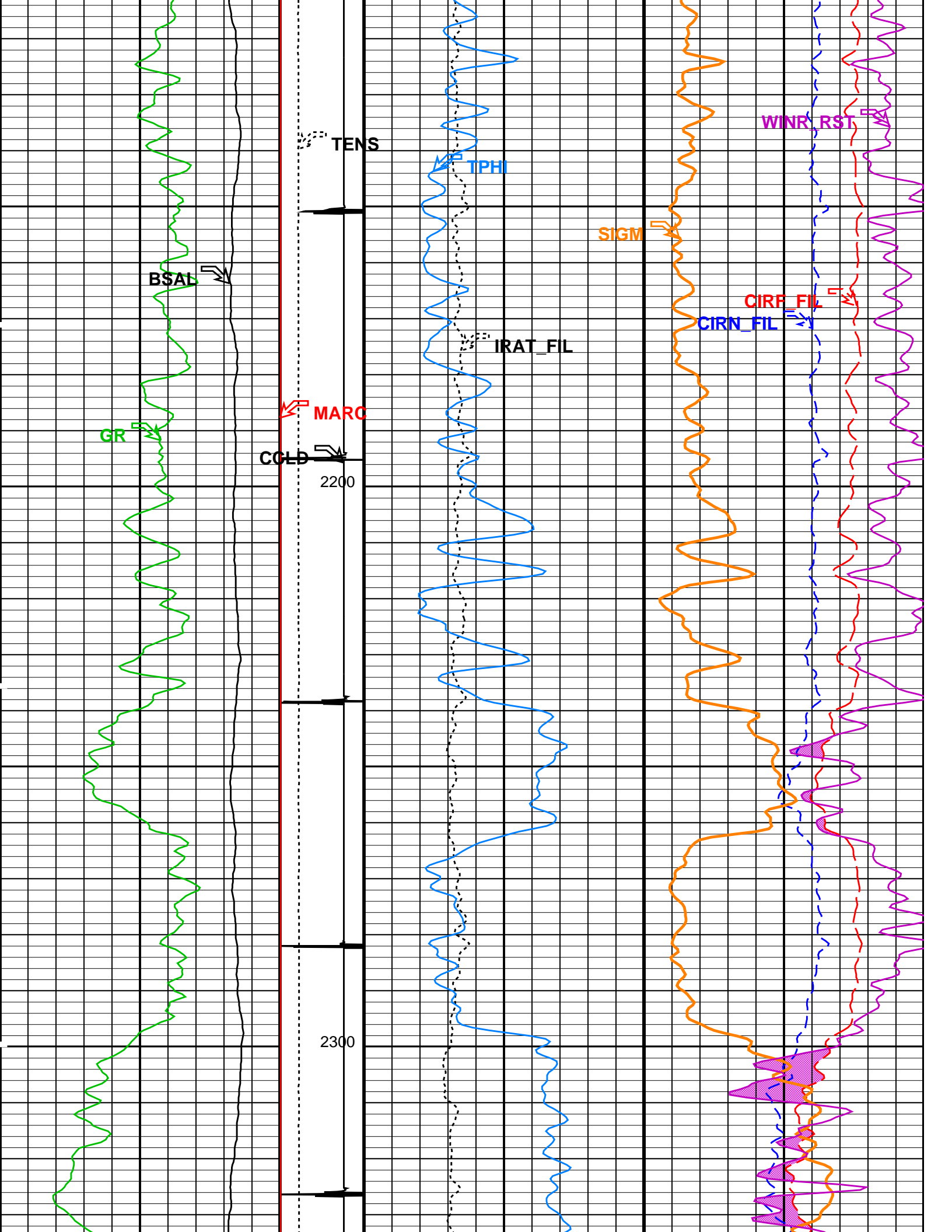


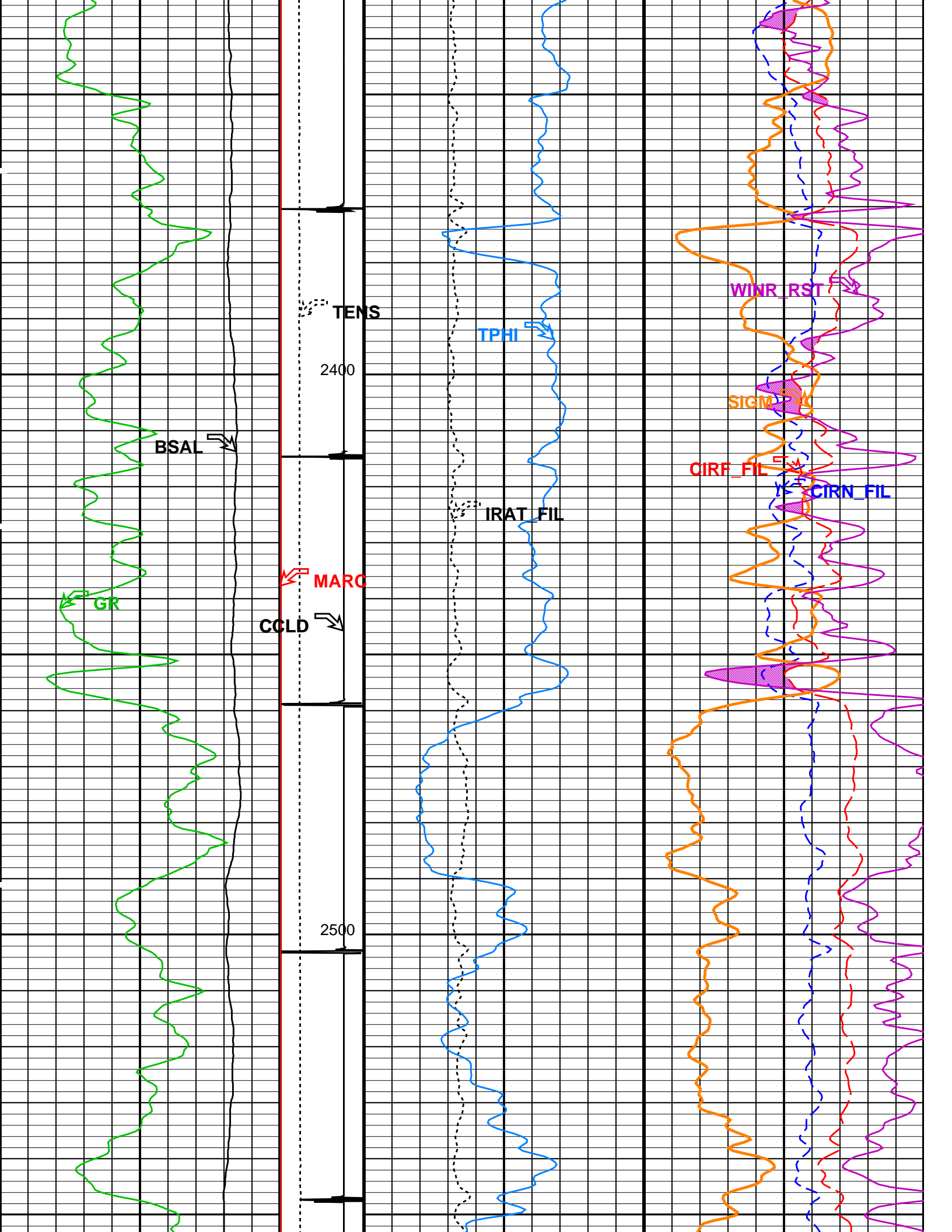


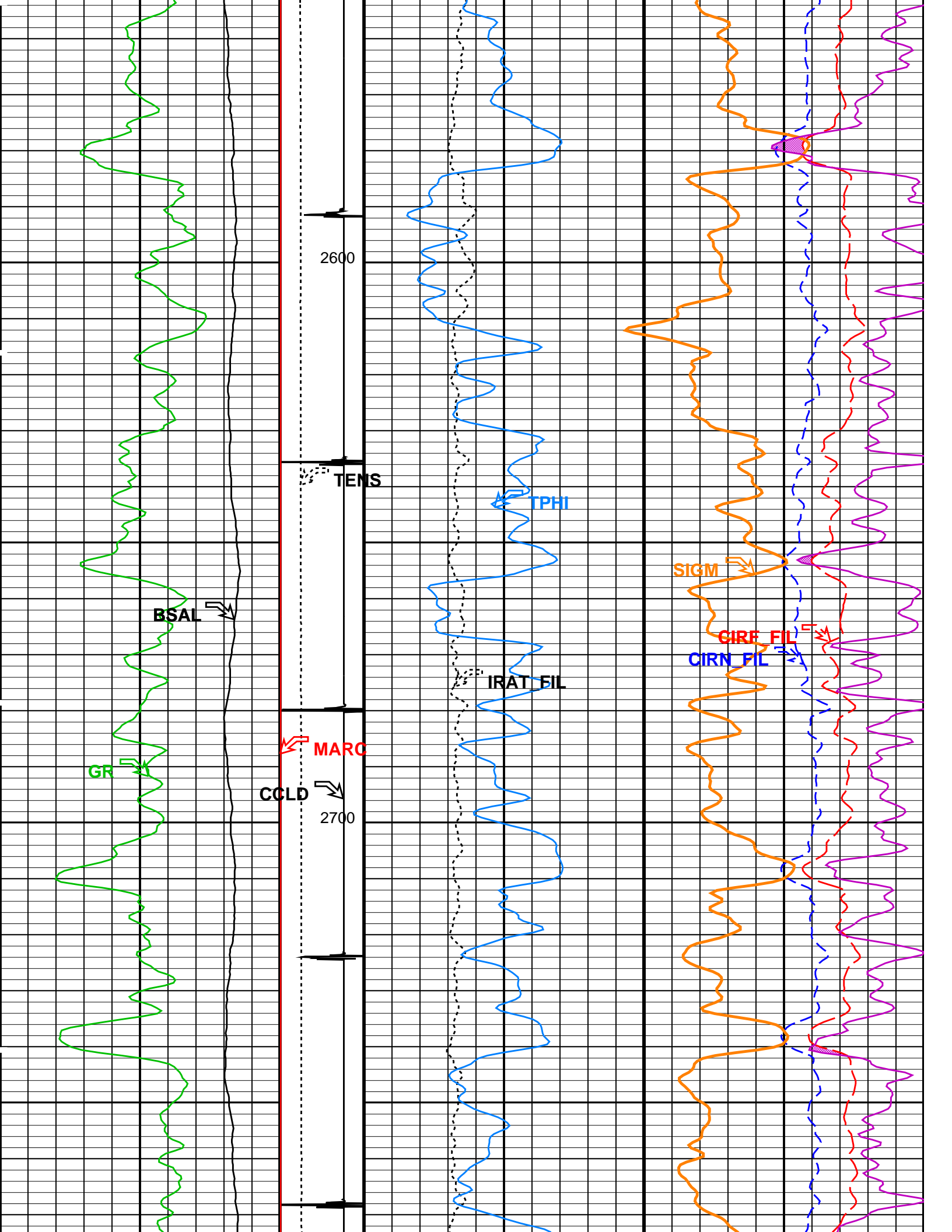


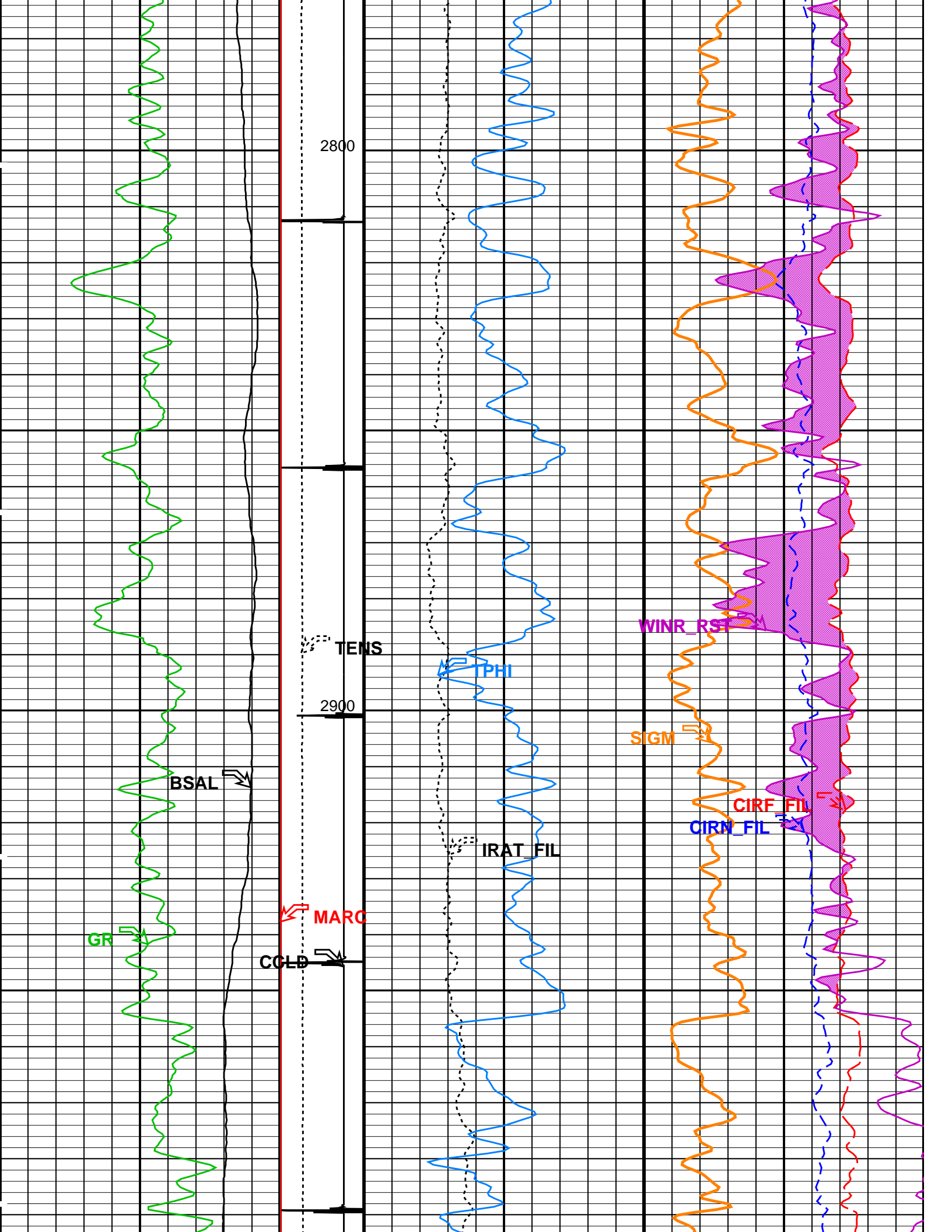


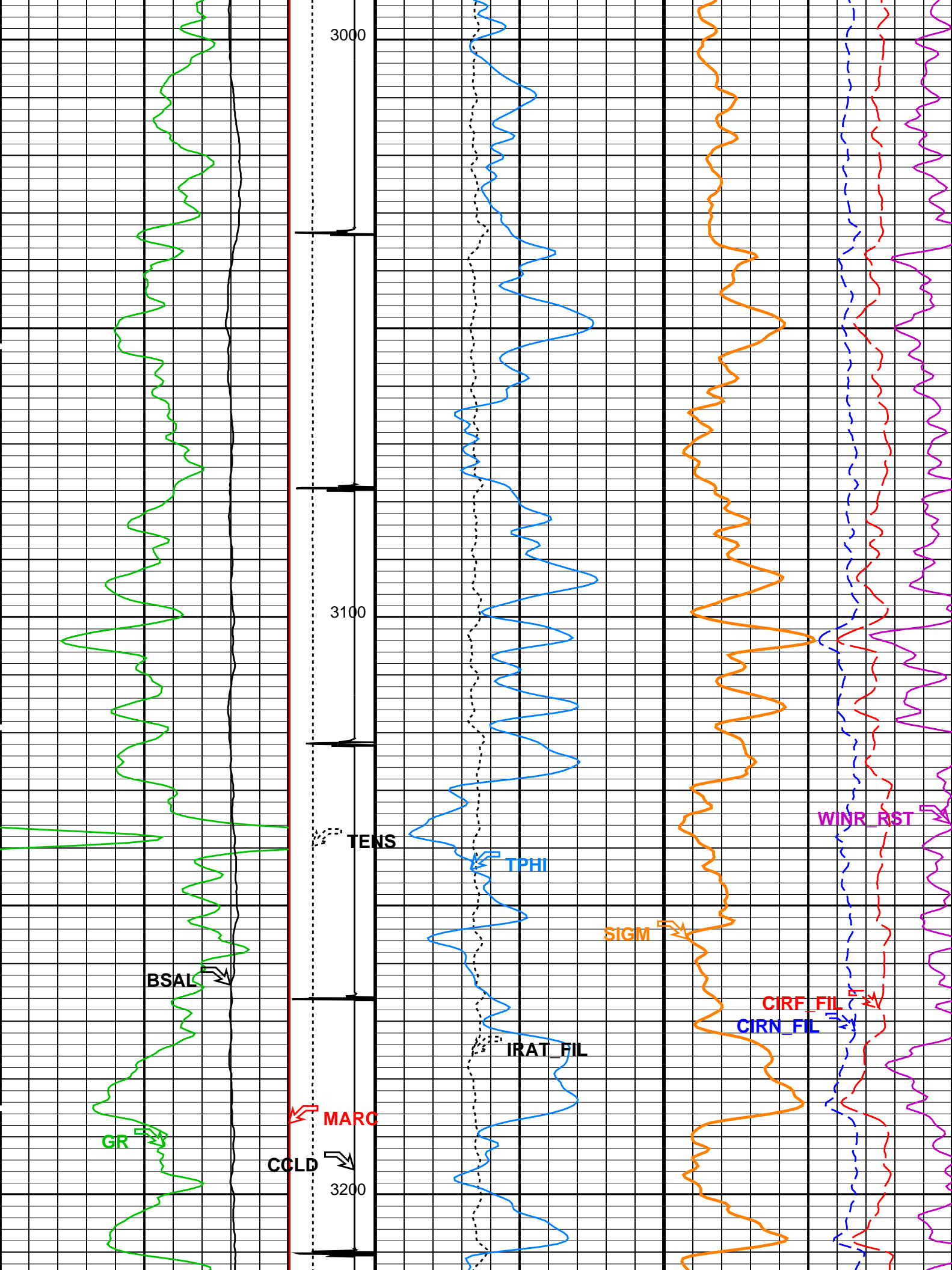


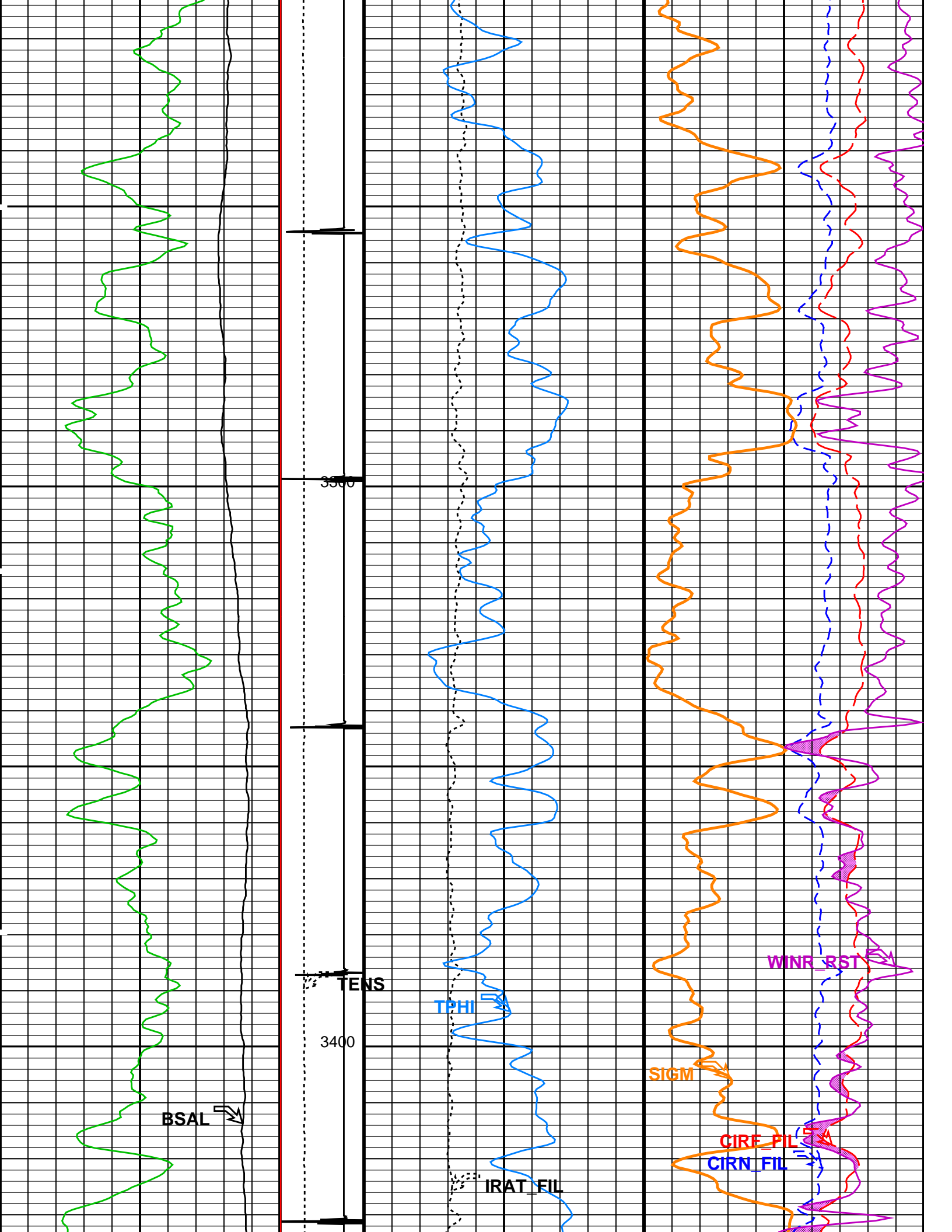


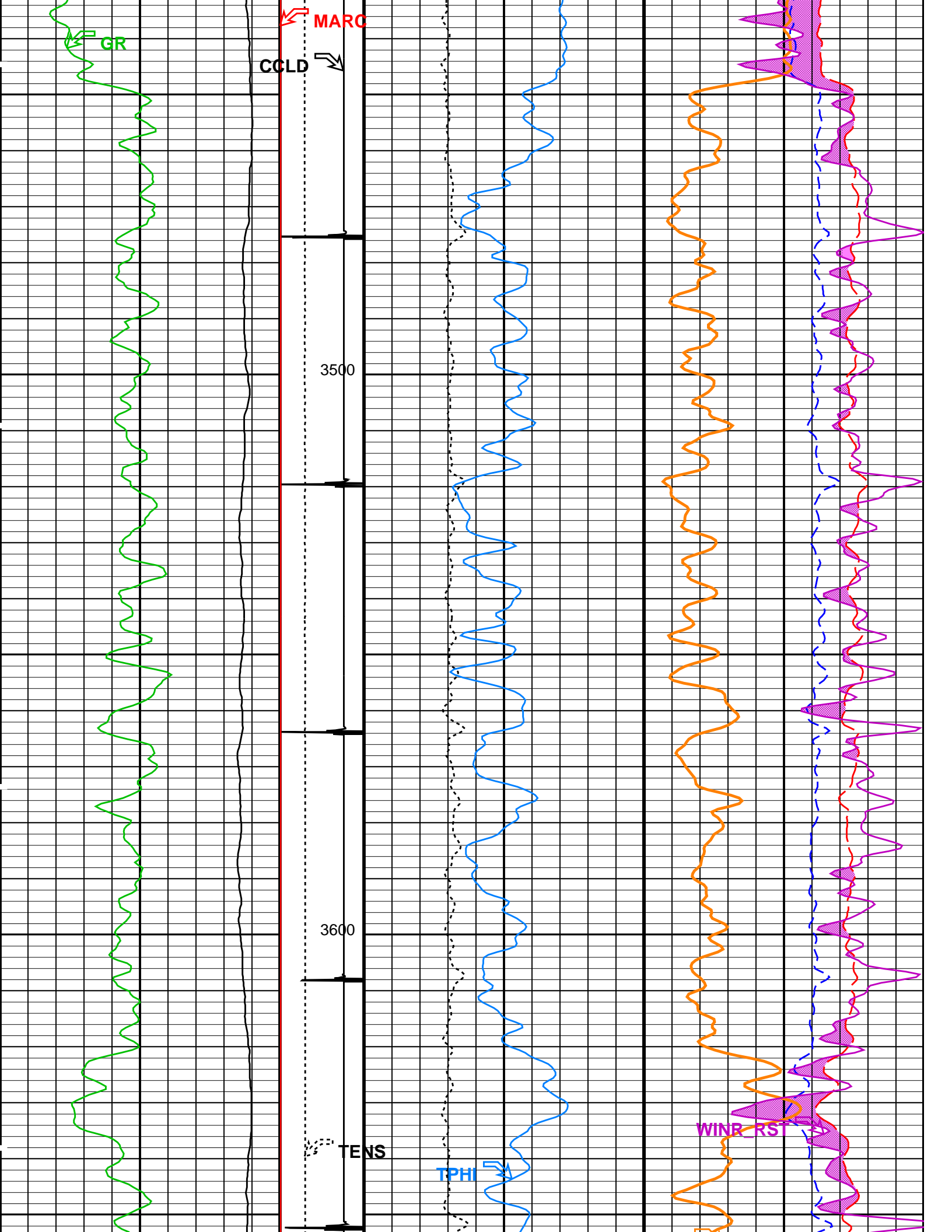


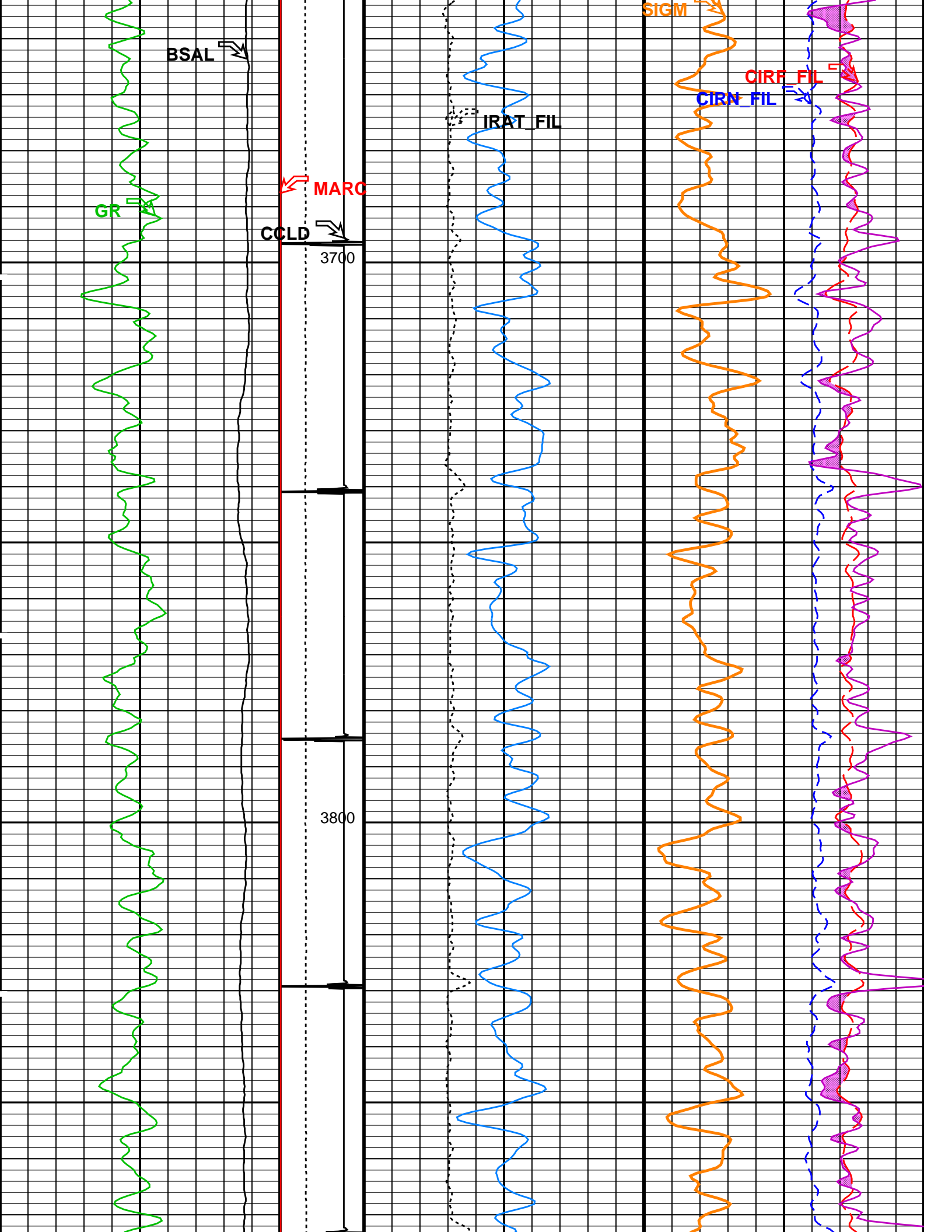


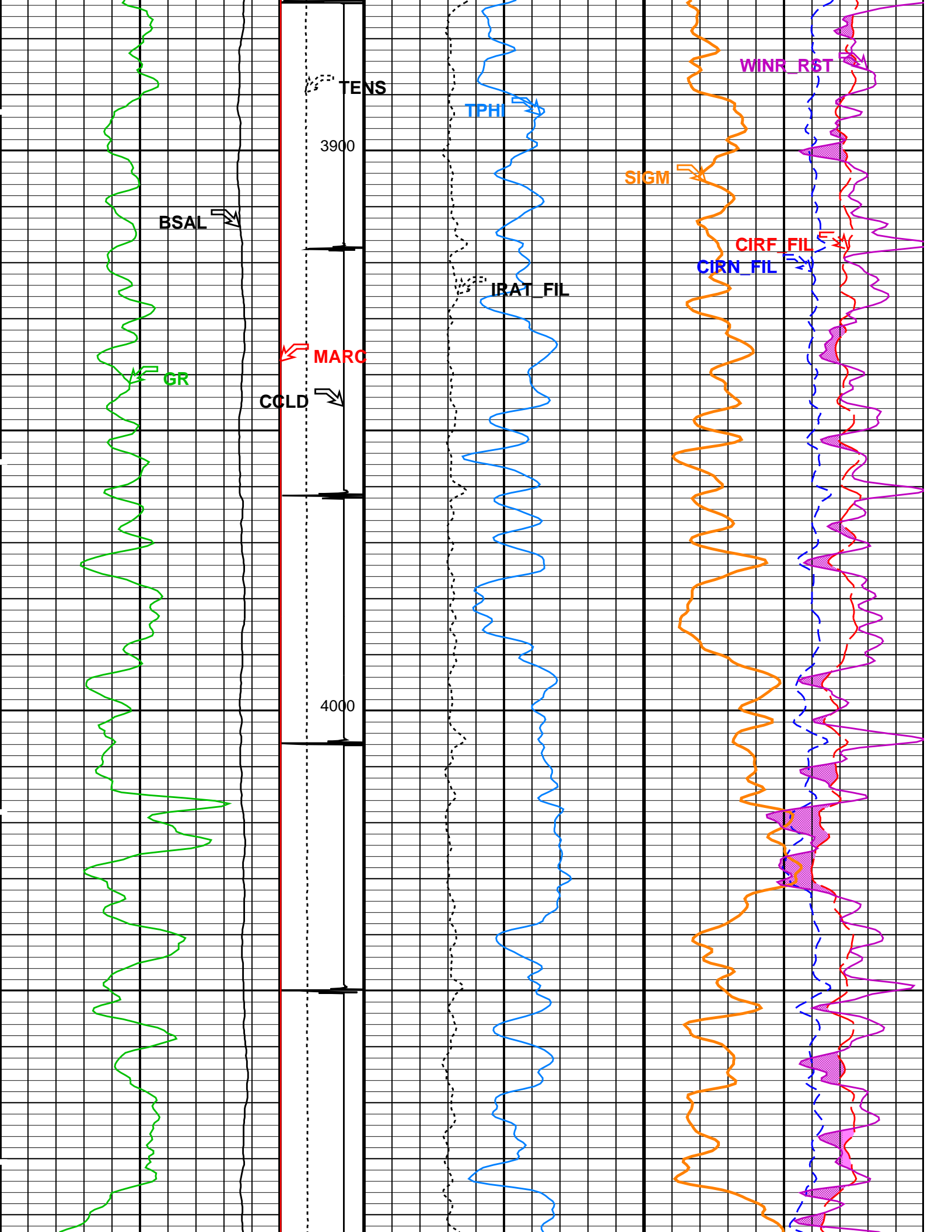


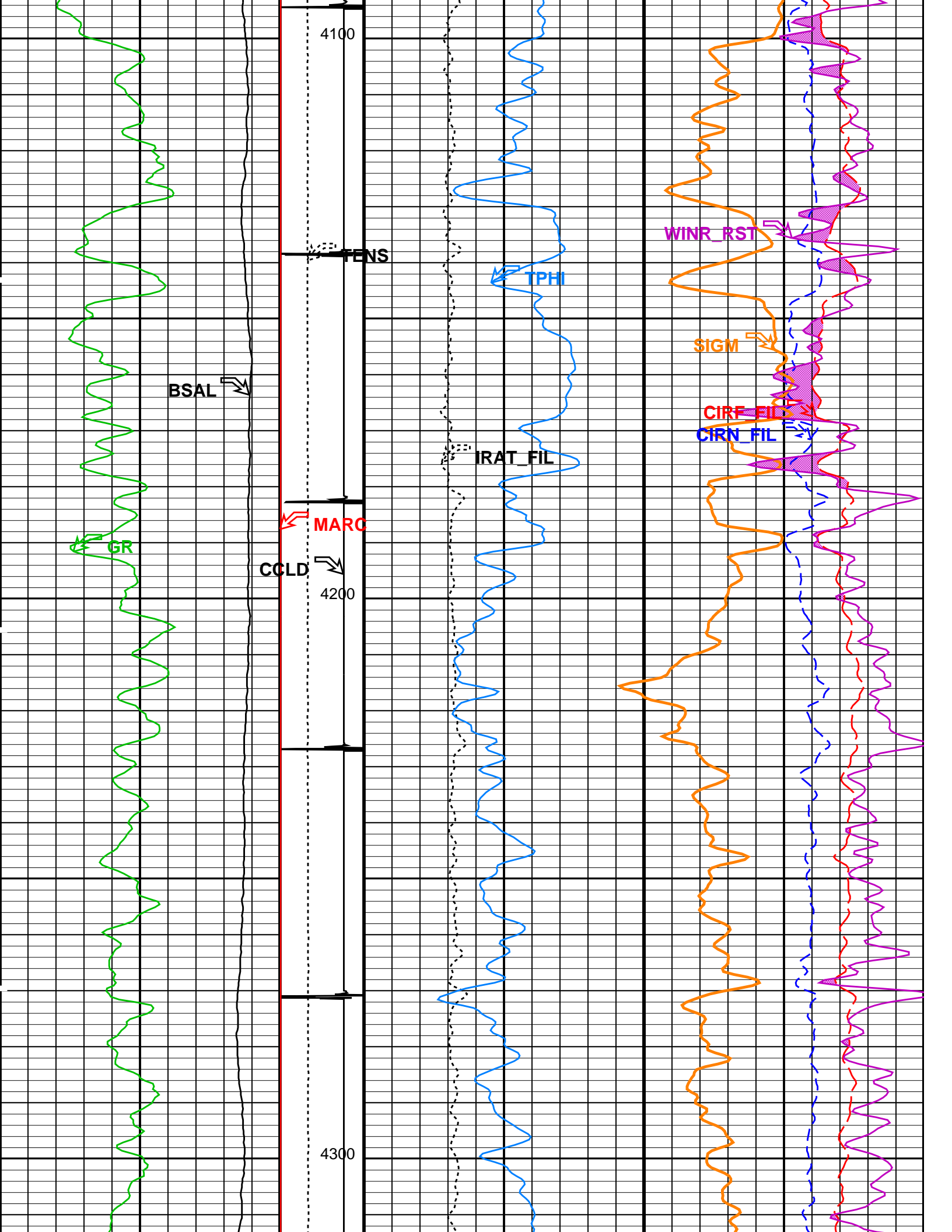


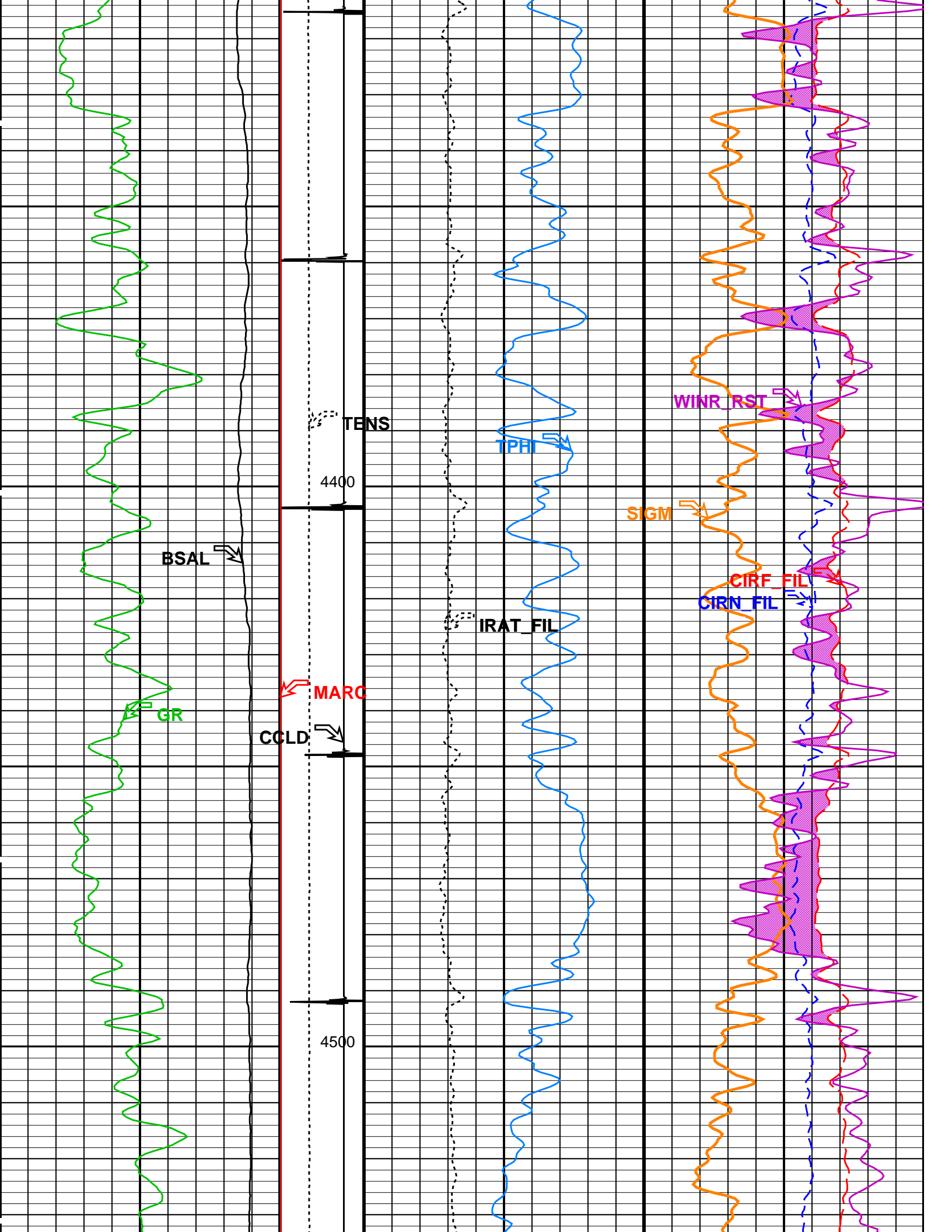


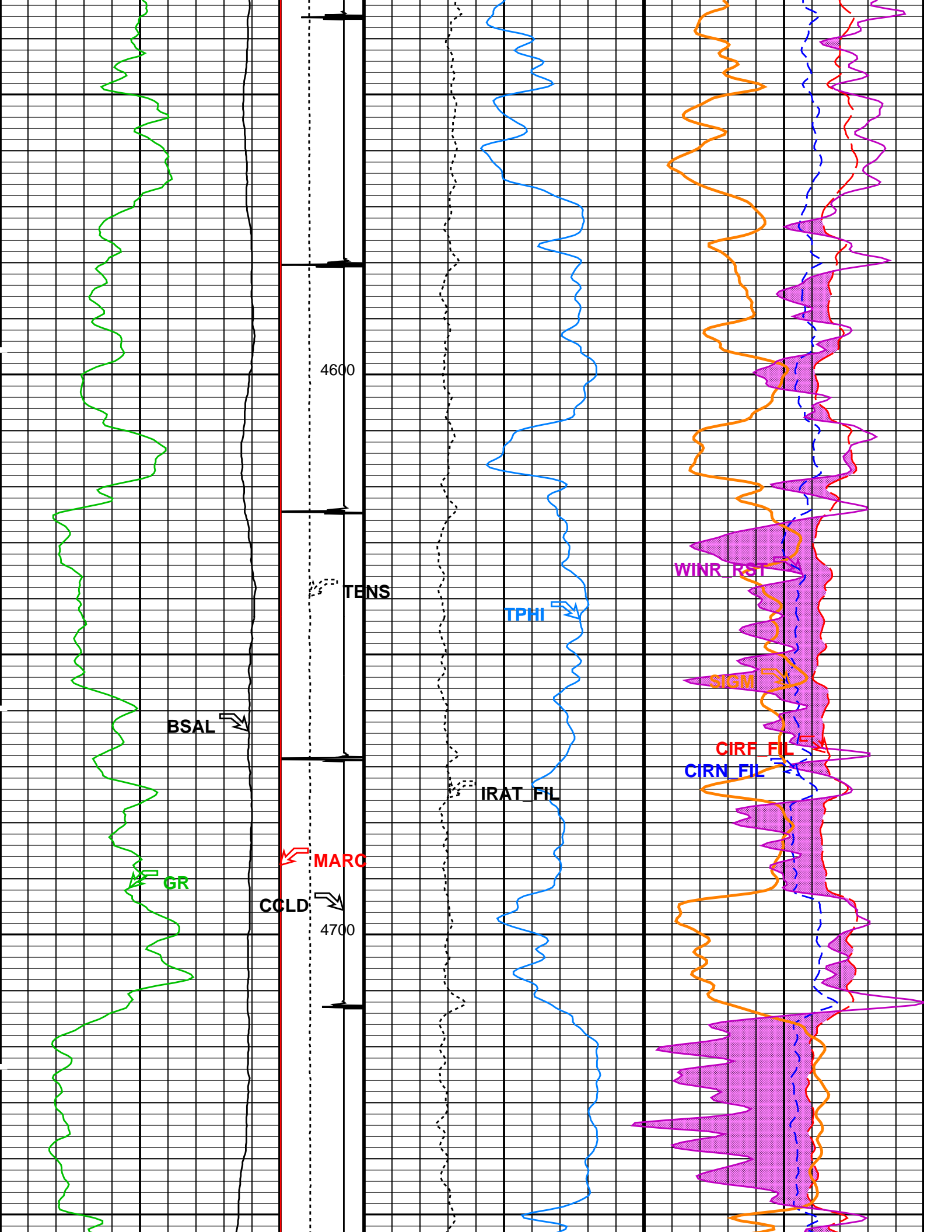


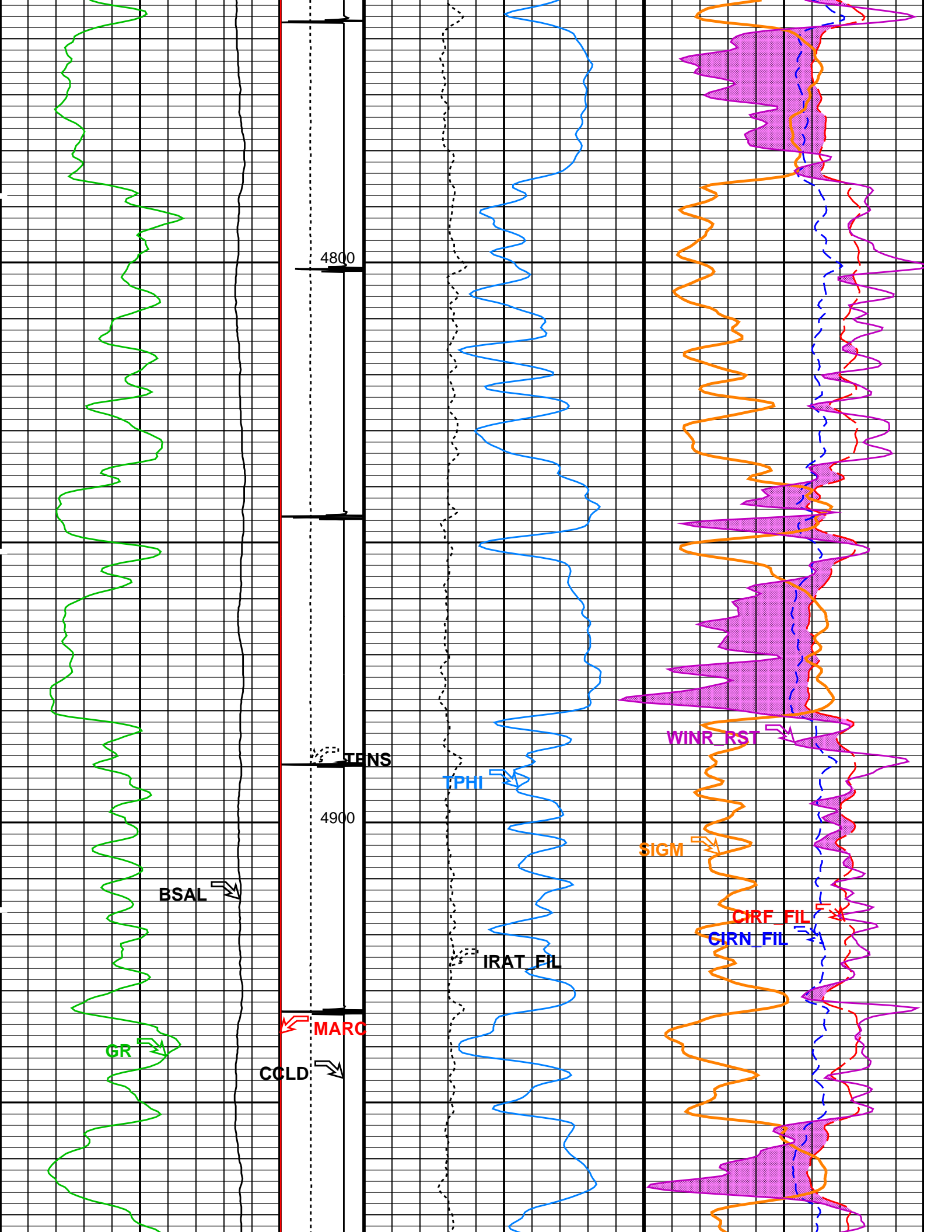


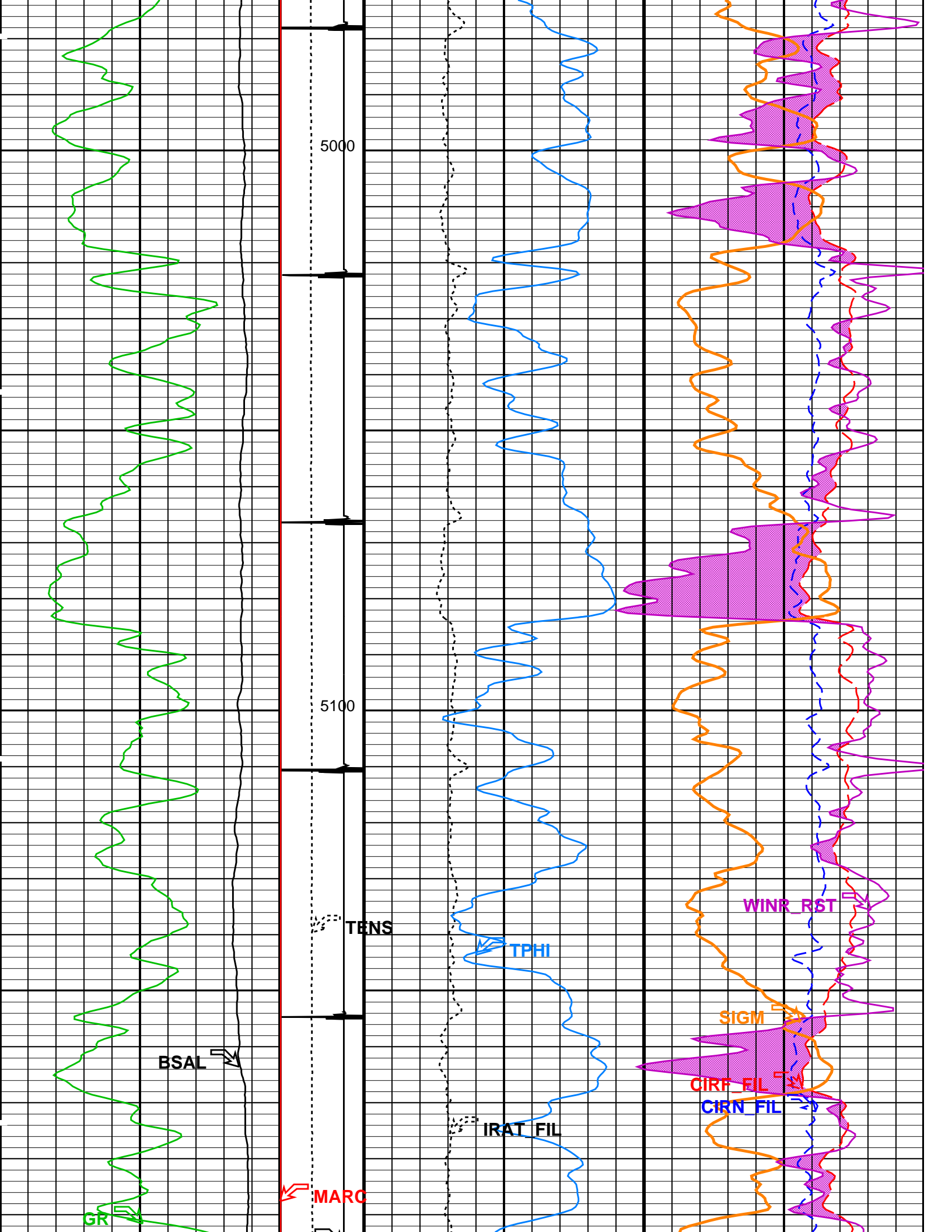


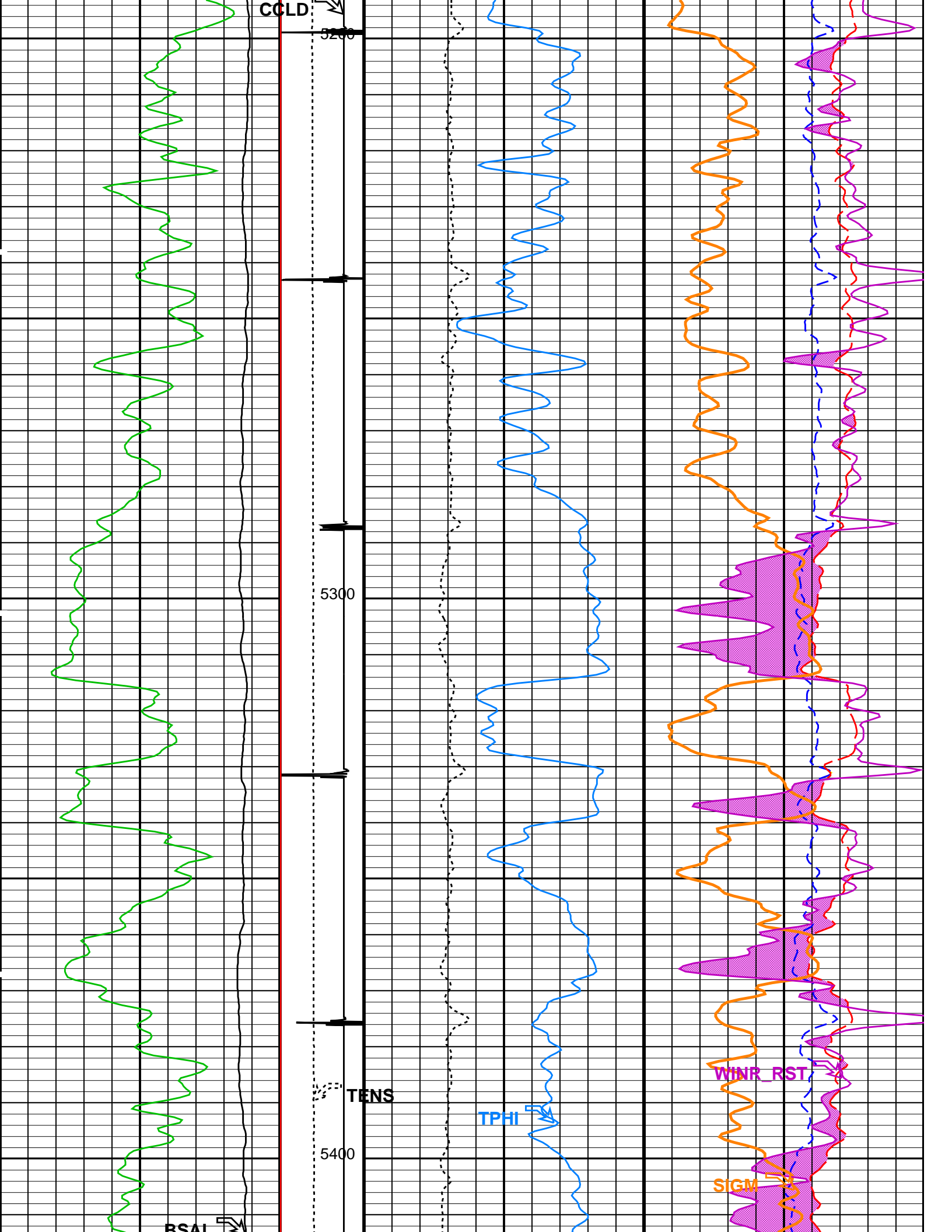


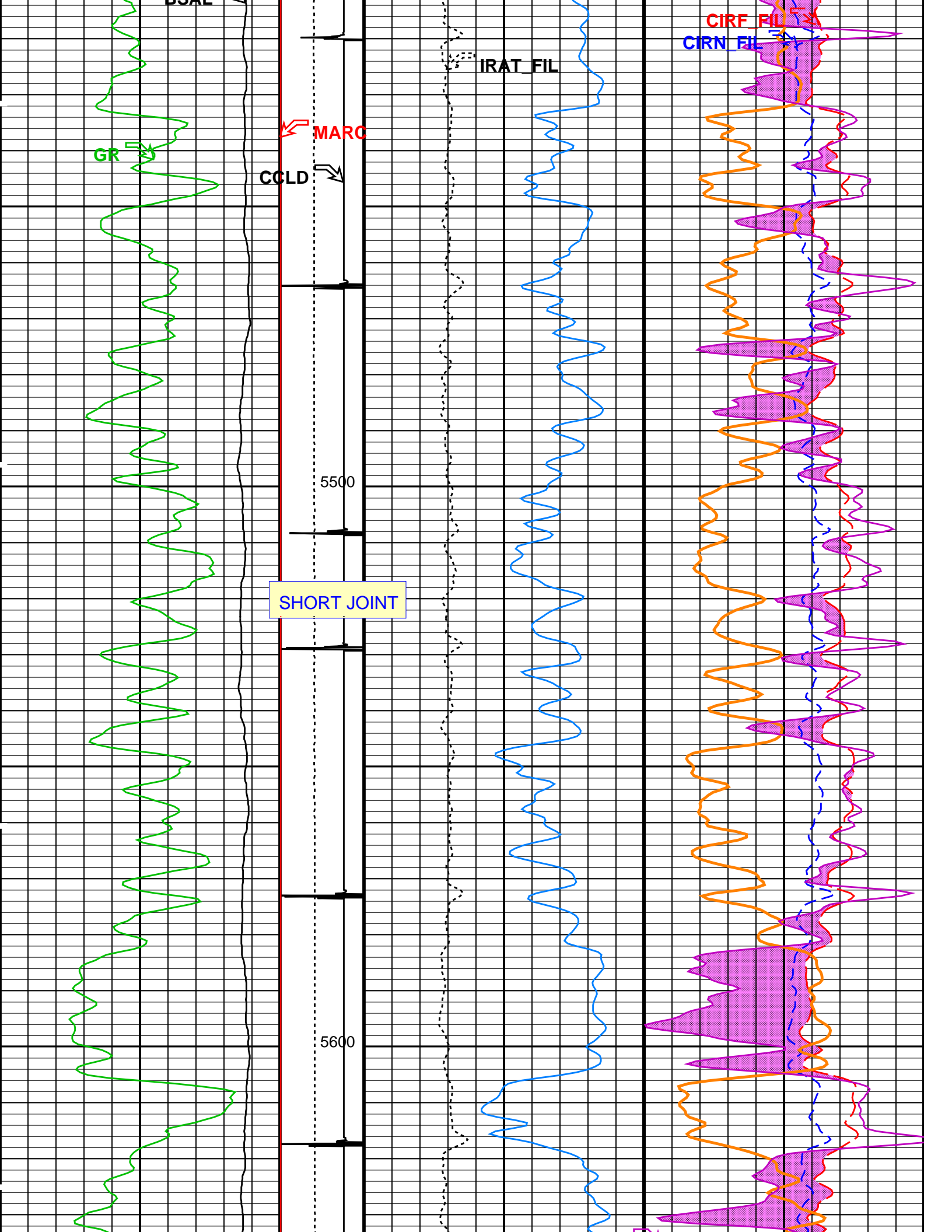


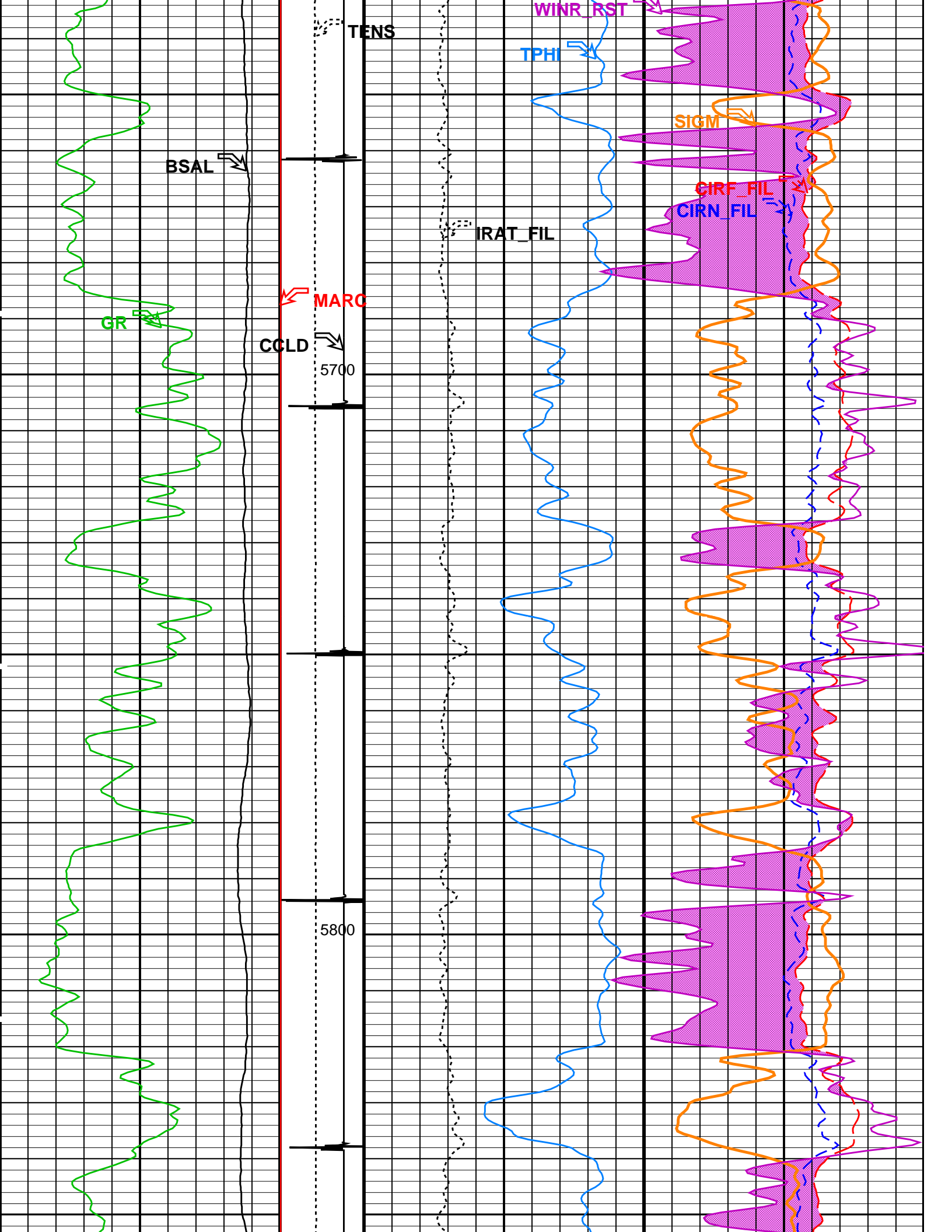


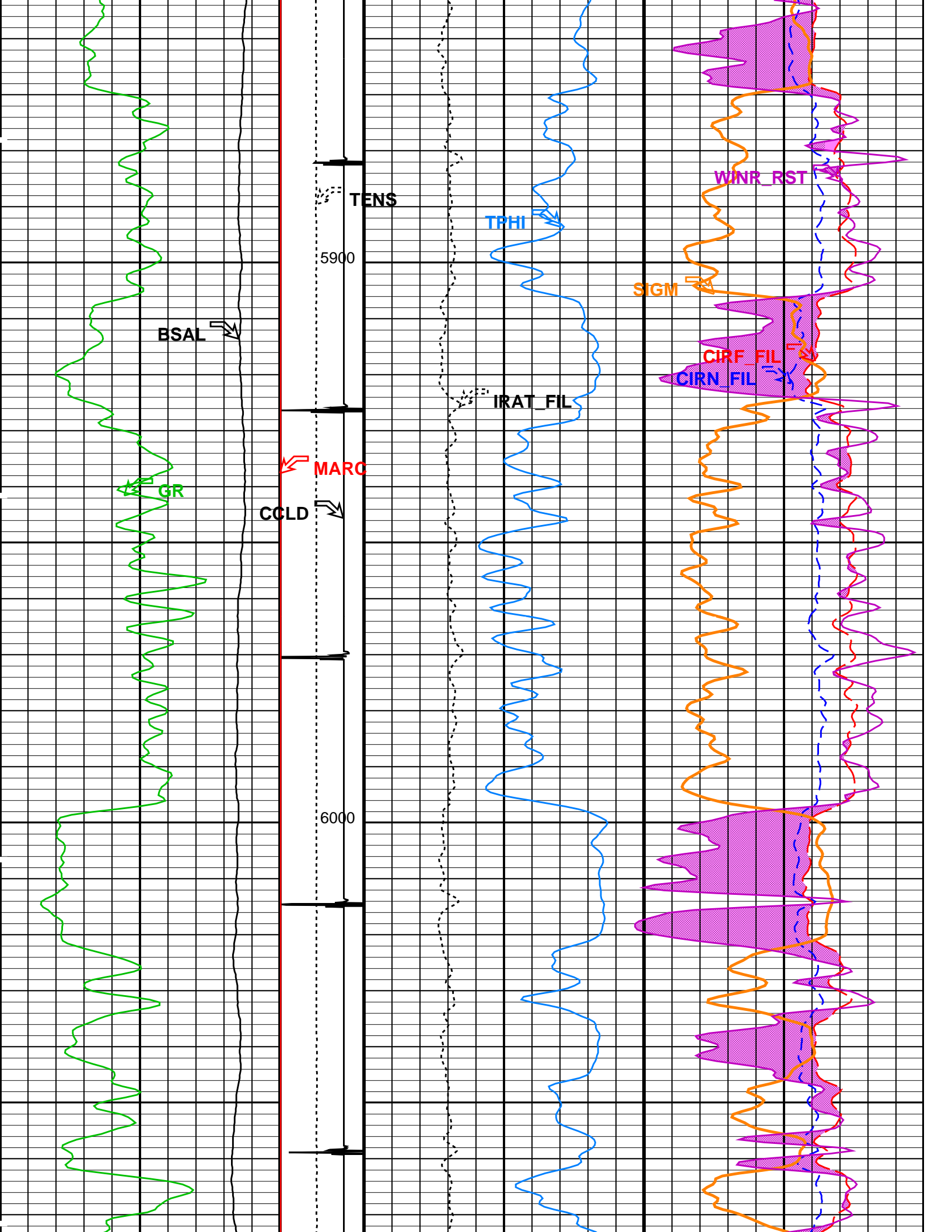


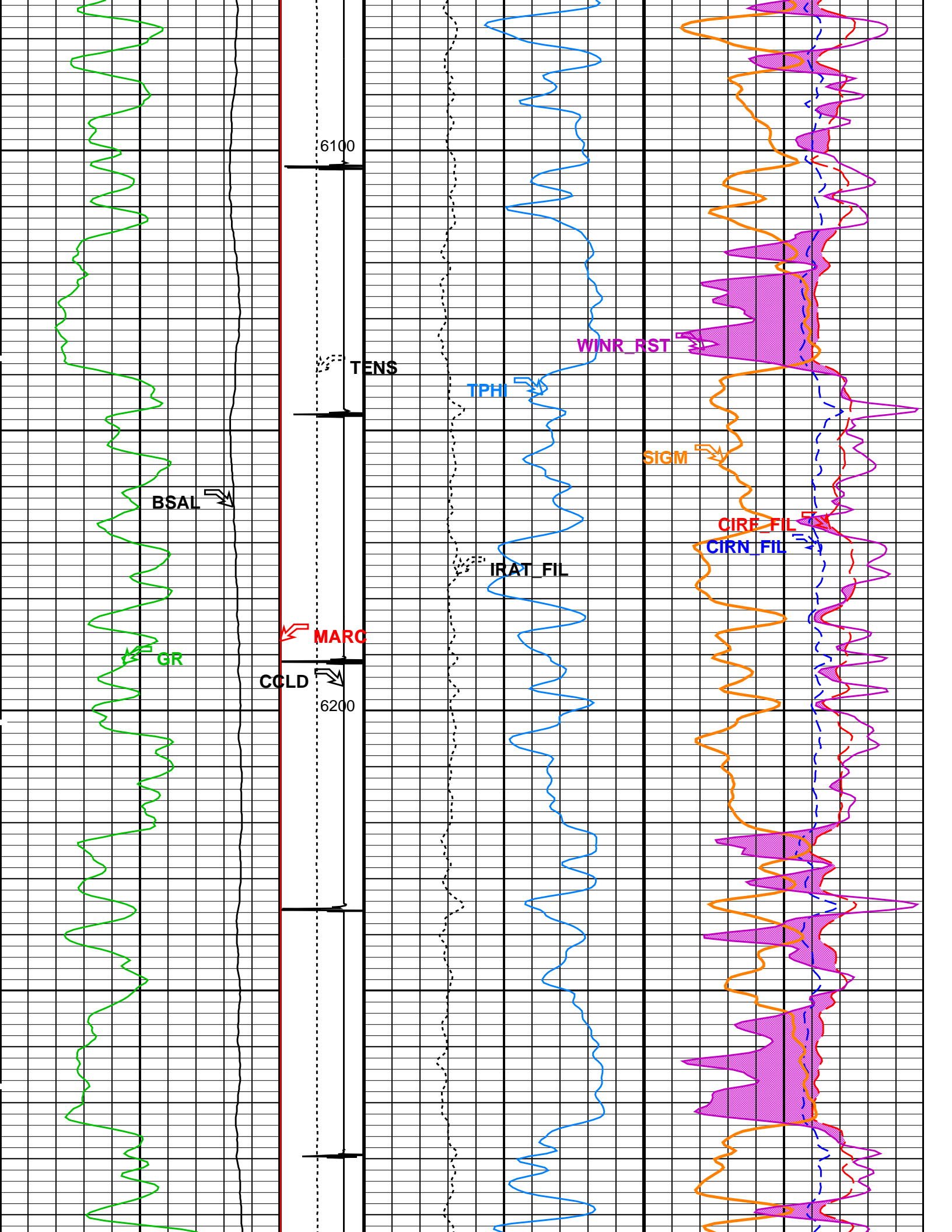


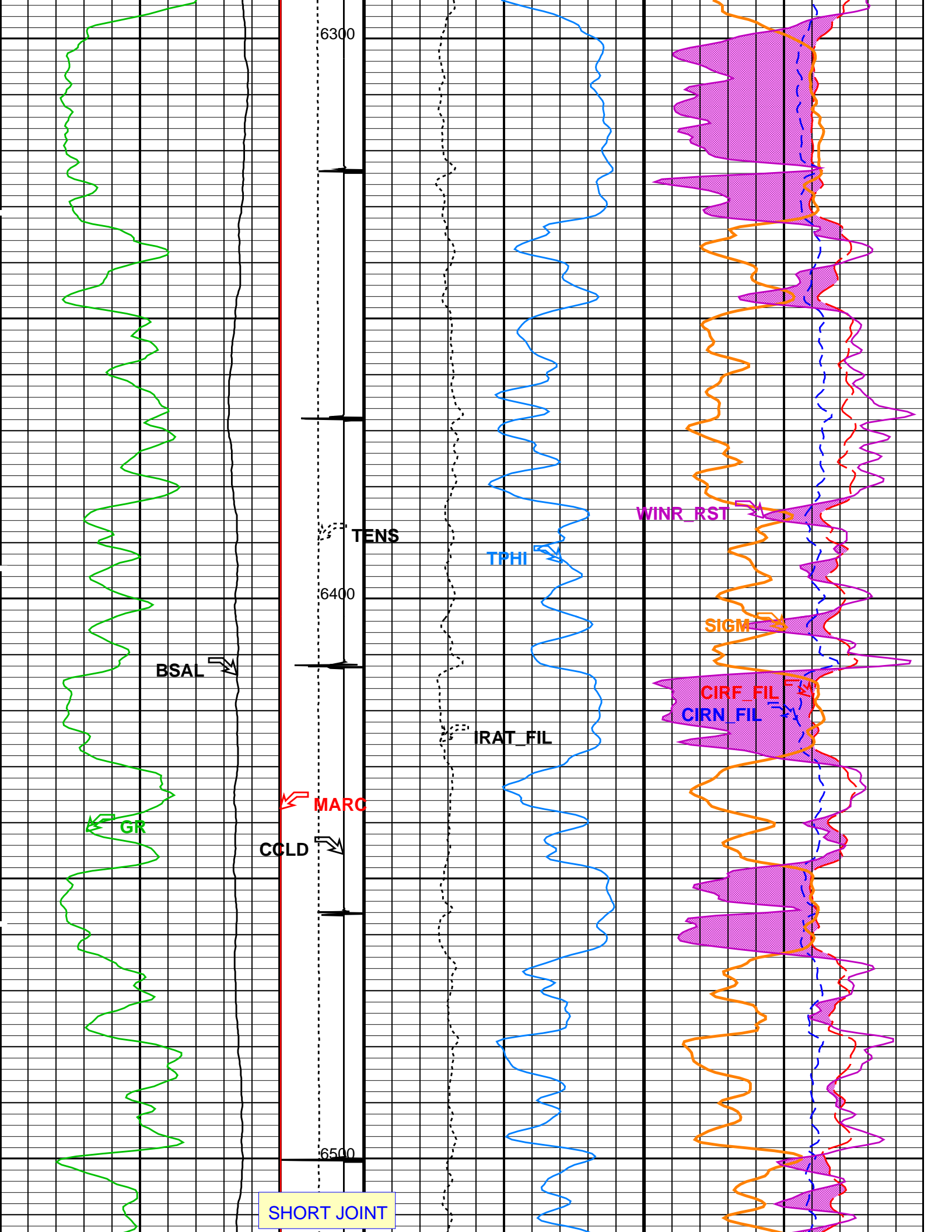


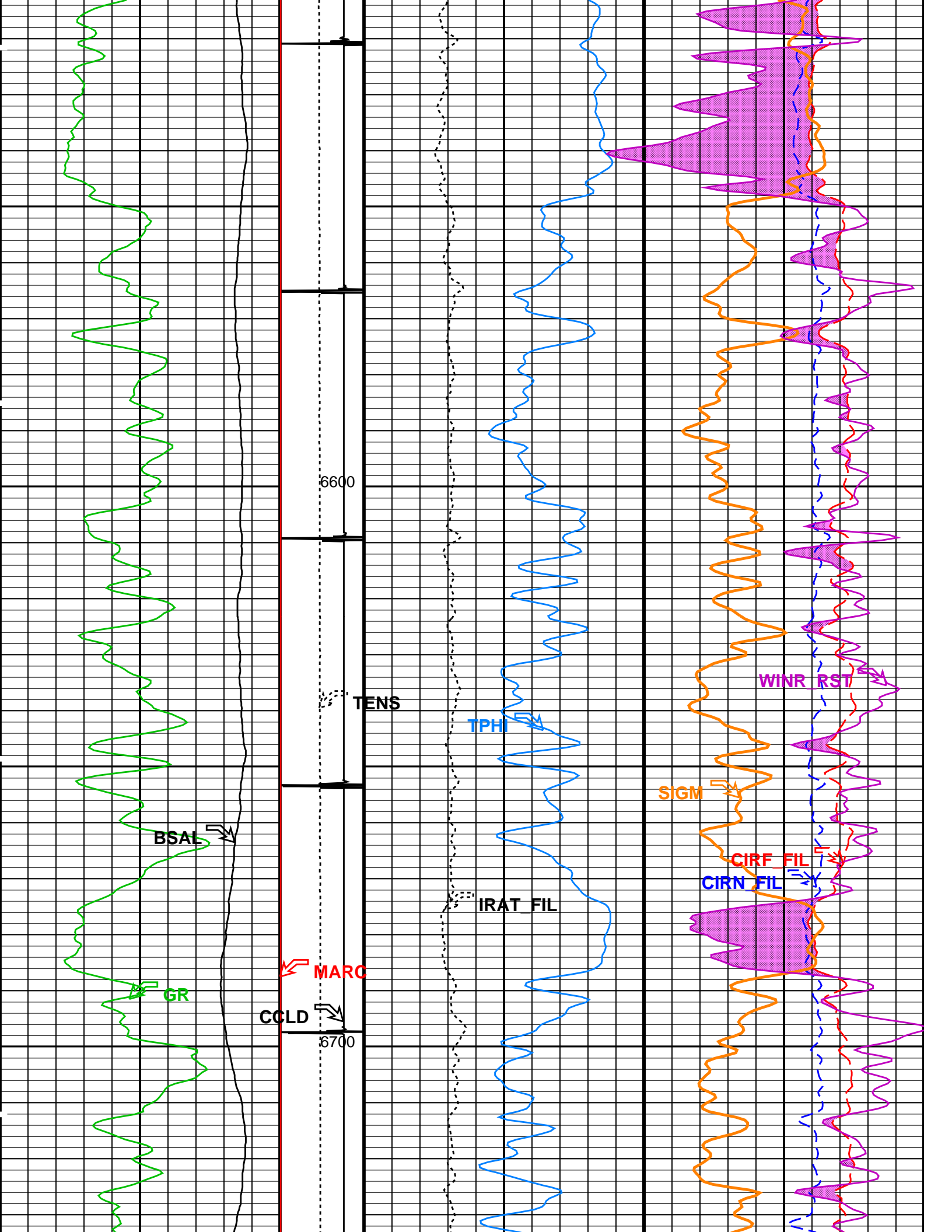


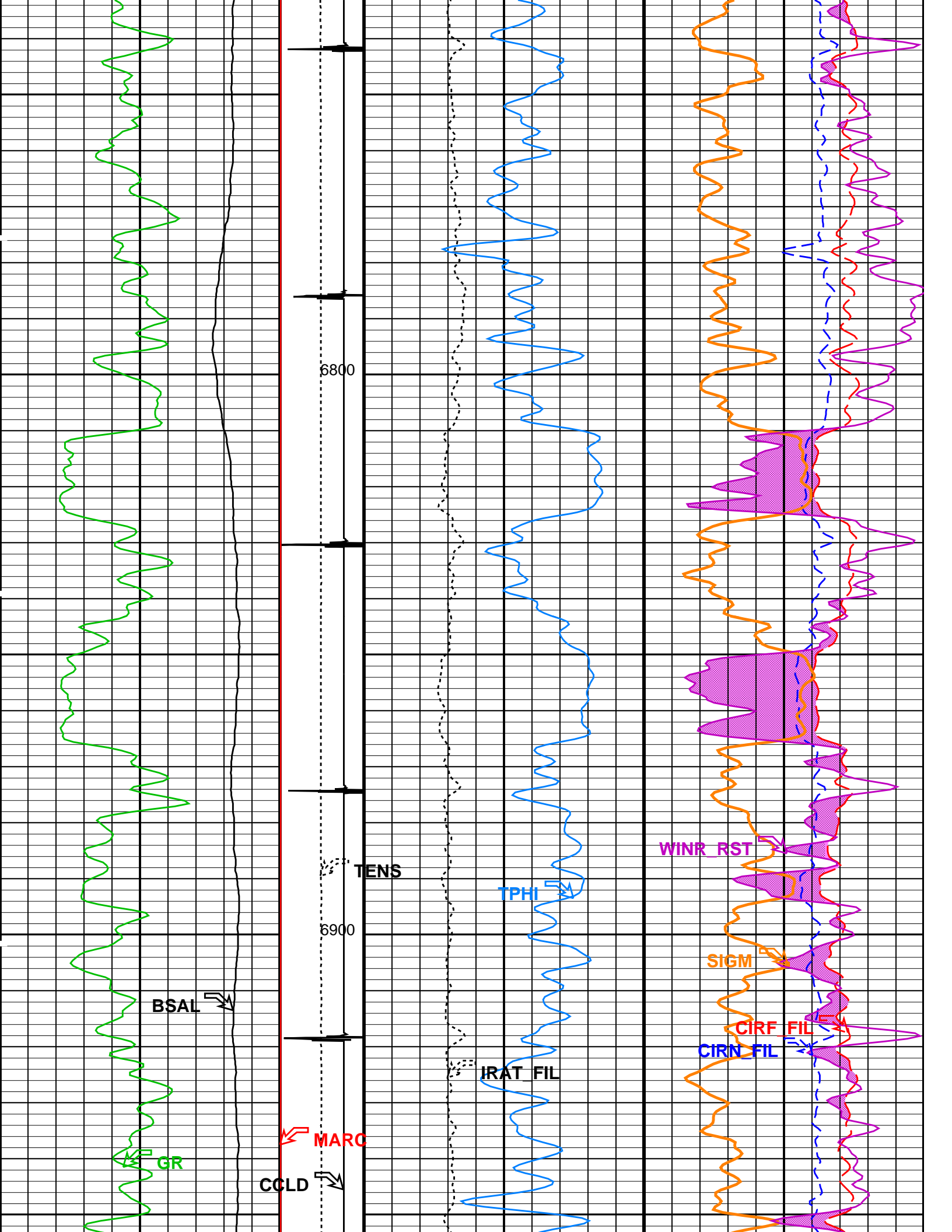


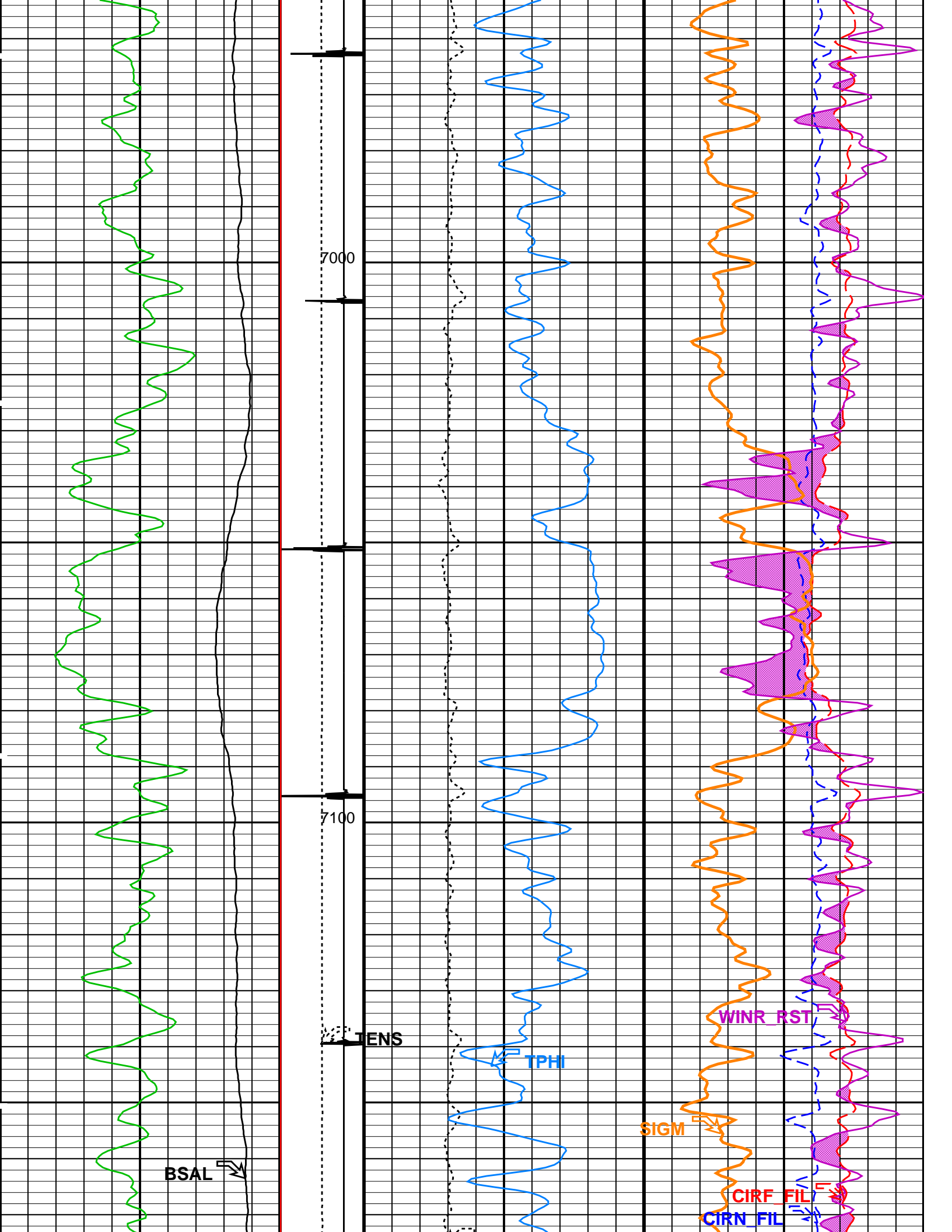


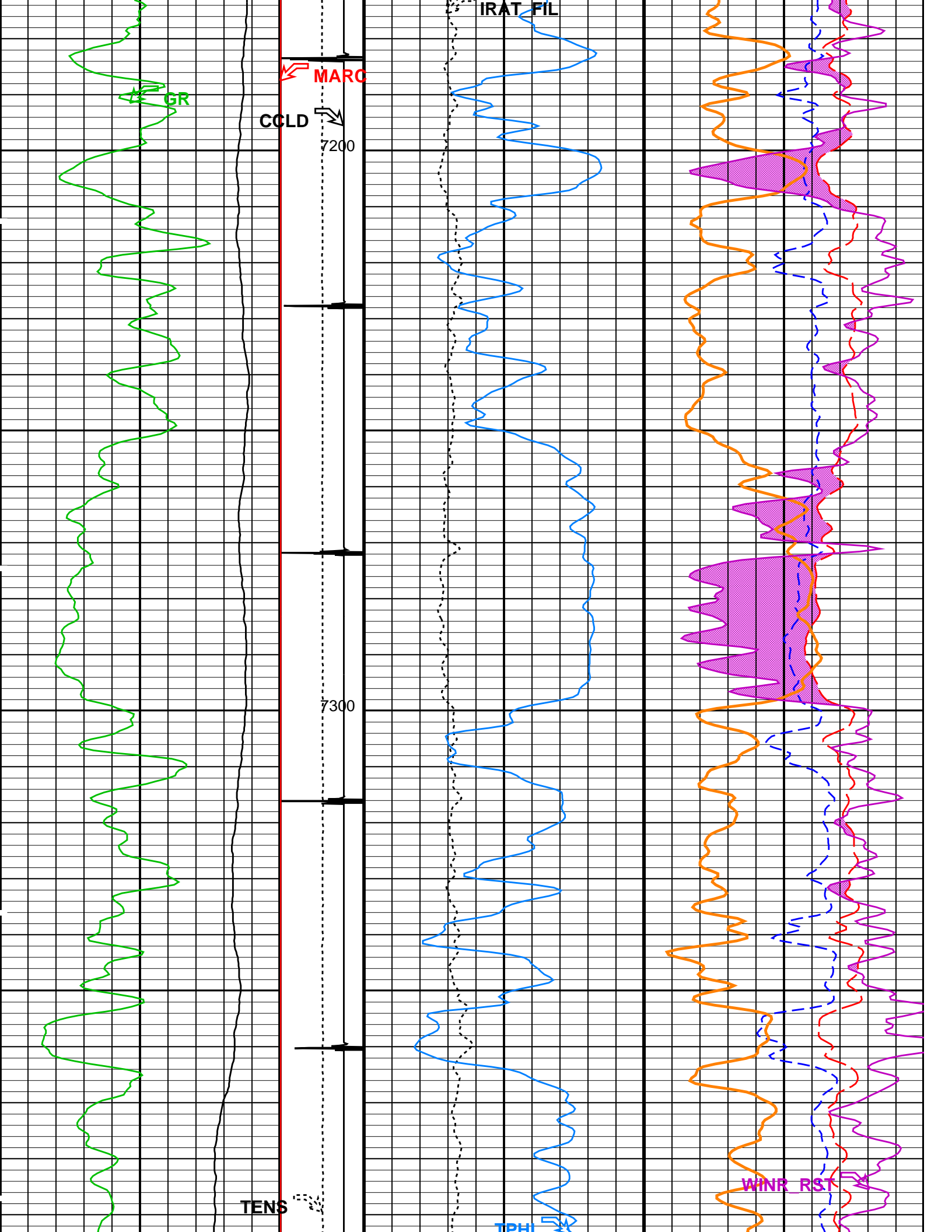


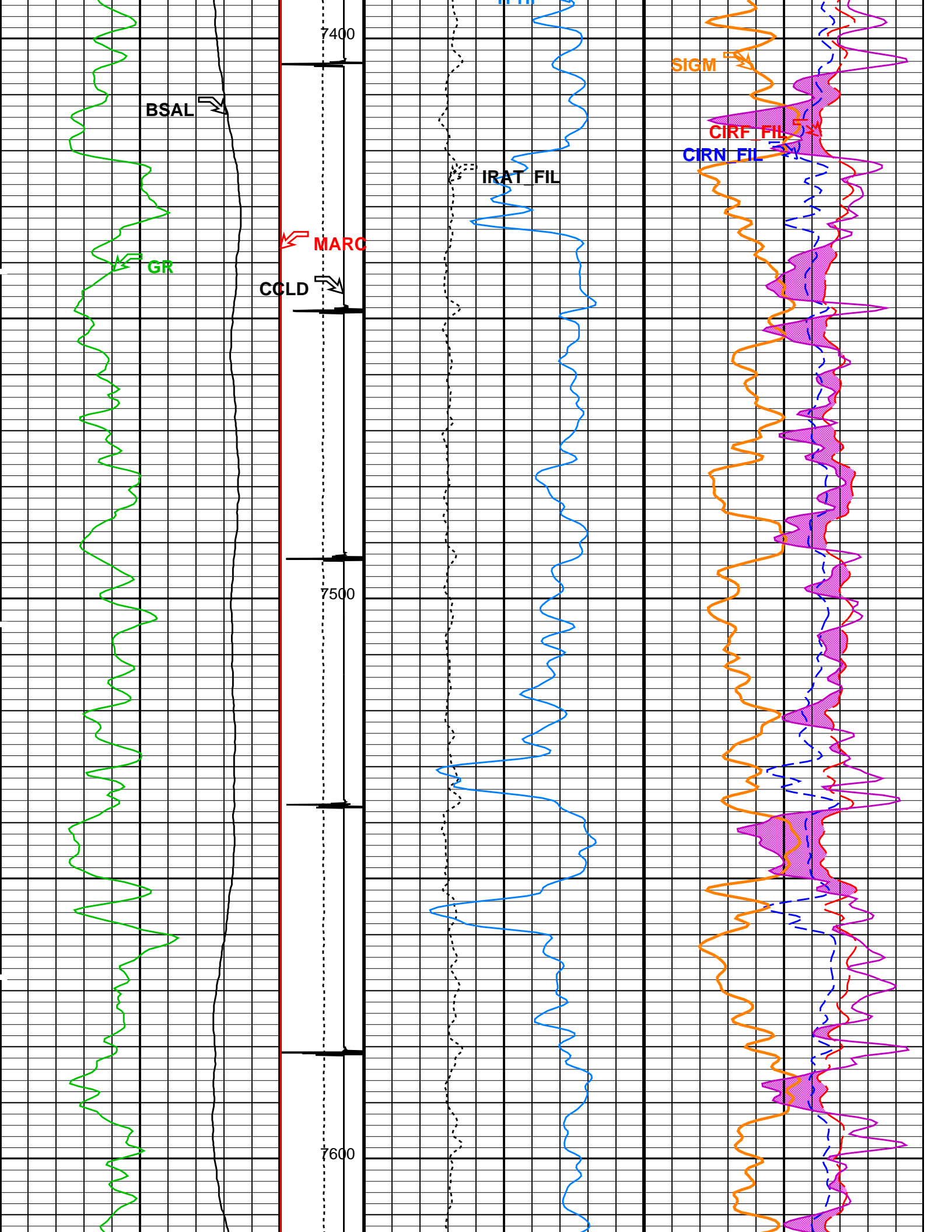


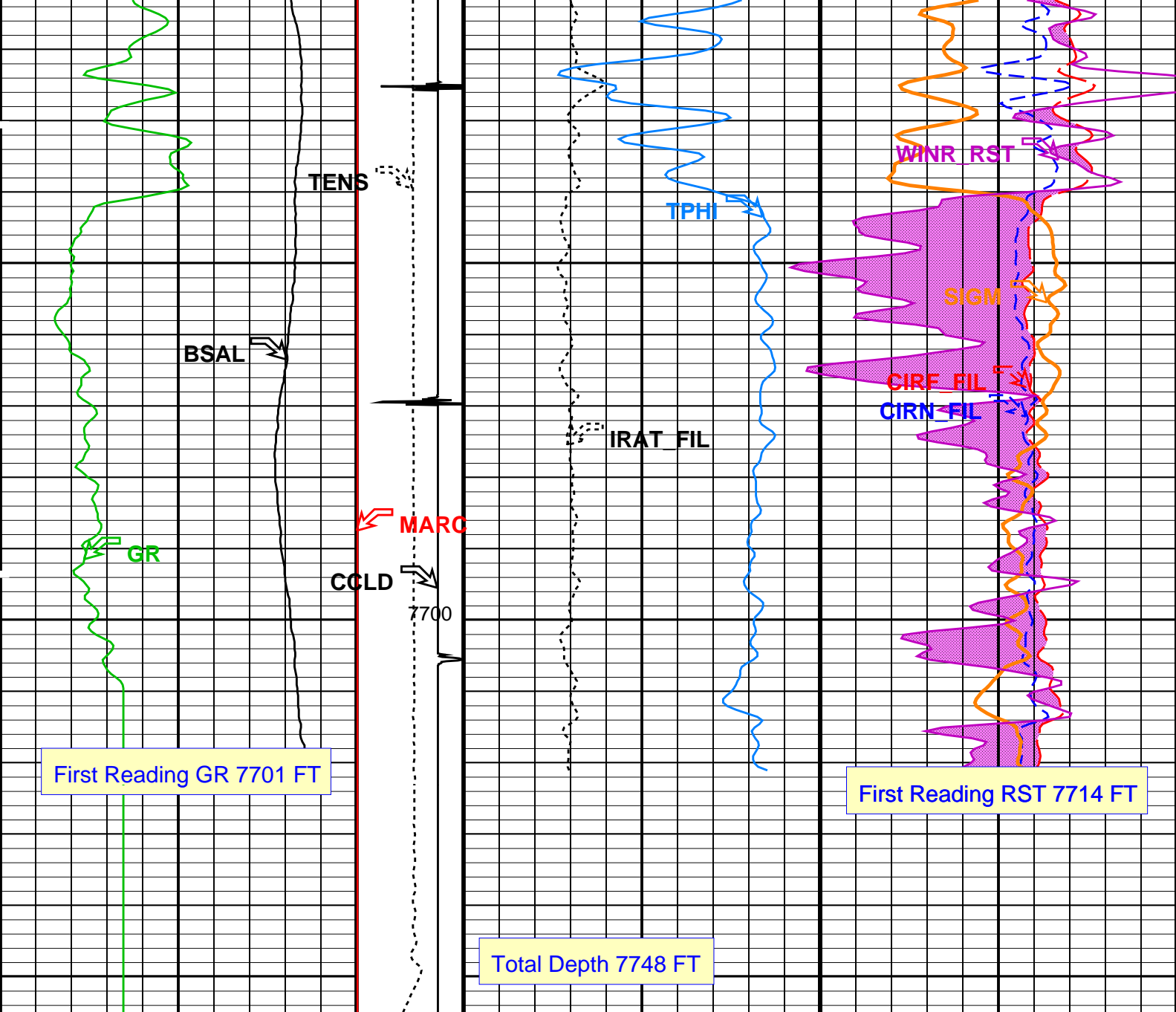












Gamma Ray (GR) (GAPI)	Tension (TENS) (LBF)	RST Inelastic Ratio (IRAT_FIL) (----	RST Capture to Inelastic Ratio Near (CIRC_FIL) (----
0 150	0 2000	0.75 (----	2.5 0
RST Borehole Salinity (BSAL) (PPK)	Discriminat ed CCL (CCLD) (V)	RST Sigma (SIGM) (CU)	
450 -50	3 -1	60 0	
Minitron Arc Detection (MARC)	RST Porosity (TPHI) (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_CIRC_FIL		


Parameters				
DLIS Name	Description	Value		
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD				
BILI	Bond Index Level for Zone Isolation	0.8		
BISS	Bond Index Source Selection for BIQL	BI		
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK		
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	224.559	US	
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV	
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK		
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	338.559	US	
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV	
CBLG	CBL Gate Width	45	US	
CBRA	CBL LQC Reference Amplitude in Free Pipe	80	MV	
CMCF	CBL Cement Type Compensation Factor	1		
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN		
CMTM	SCMT Operating Mode	LOG		
CMTF	SCMT Tool position on CAN	5		
CSCS	SCMT Slow Channel Index	VCC		
CTHI	Casing Thickness	0.255617	IN	
DTF	Delta-T Fluid	189	US/F	
FATT	Acoustic Attenuation due to Fluid	0	DB/F	
FCF	CBL Fluid Compensation Factor	0.924277		
GOBO	Good Bond	1.55185	MV	
MAPD	SCMT MAP Peak Detection Mode	PEAK		
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	167.559	US	
MAPT	SCMT MAP Fixed Threshold Level	30	MV	
MATT	Maximum Attenuation	16.5449	DB/F	
MCCF	MAP Cement Type Compensation Factor	1		
MCi	Minimum Cemented Interval for Isolation	1.25	FT	
MMSA	MAP Minimum Sonic Amplitude	4.32284	MV	
MSA	Minimum Sonic Amplitude	0.579149	MV	
PEDE	Peak Detection On/Off Switch in Playback	OFF		
RBC	Relative Bearing Correction Allow/Disallow	ALLOW		
VDLG	VDL Manual Gain	5		
ZCMT	Acoustic Impedance of Cement	6.8	MRAY	
RST-C: Reservoir Saturation Pro Tool C				
	Tractor Available in Tool String	NO		
AIRB	RST Air Borehole	No		
BHS	Borehole Status	CASED		
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF	
BSALOPT	RST Borehole Salinity Option	Unknown		
BSFL	RST Borehole Salinity Filter Length	51		
CSID	Casing Size I.D.	4	IN	
DFPC	RST Depth Filter Processing Constant	One		
DFPC_TDTL	RST Depth Filter Processing Constant (TDT-like)	Two		
GCSE	Generalized Caliper Selection	BS		
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG	
GGRD	Geothermal Gradient	0.01	DF/F	
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9		
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE		
ISSBAR	Barite Mud Switch	NOBARITE		
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE		
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48		
NORM_SIGM_RST	RST Normalized Sigma	30	CU	
PTIER	RST Tiered Presentation Selection	0_Customer		
PVL_PSNT_PRST	PVL Peak Signal/Noise Threshold	3		
RGAI	Near/Far Gain Calibration Ratio	1		
SHT	Surface Hole Temperature	68	DEGF	
TIER_IC	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith		
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma		
WOFSL_PRST	RST WFL-Off Subcycle Length	0		
WONSL_PRST	RST WFL-On Subcycle Length	0		
WSCOM_PRST	RST Station Log Comment			
PSPT: Production Services Logging Platform				
BHS	Borehole Status	CASED		
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF	
CSID	Casing Size I.D.	4	IN	
GCSE	Generalized Caliper Selection	BS		
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG	
GGRD	Geothermal Gradient	0.01	DF/F	
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9		
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE		
ISSBAR	Barite Mud Switch	NOBARITE		
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE		
PBPO	PBMS Tool position on CAN	2		
PCCG	PBMS CCL Gain	DB0		
PSTP	PSTC Tool Position on CAN Bus	1		
SHT	Surface Hole Temperature	68	DEGF	

System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	3.0	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	7748	FT
TDD	Total Depth – Driller	7822.00	FT
TDL	Total Depth – Logger	7748.00	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 19:34

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	Splice_SCMT_RST_PSP_121CUP	FN:1	PRODUCER	22-Oct-2013 19:30	7760.0 FT	-25.5 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_123PUP	FN:114	PRODUCER	22-Oct-2013 19:34		




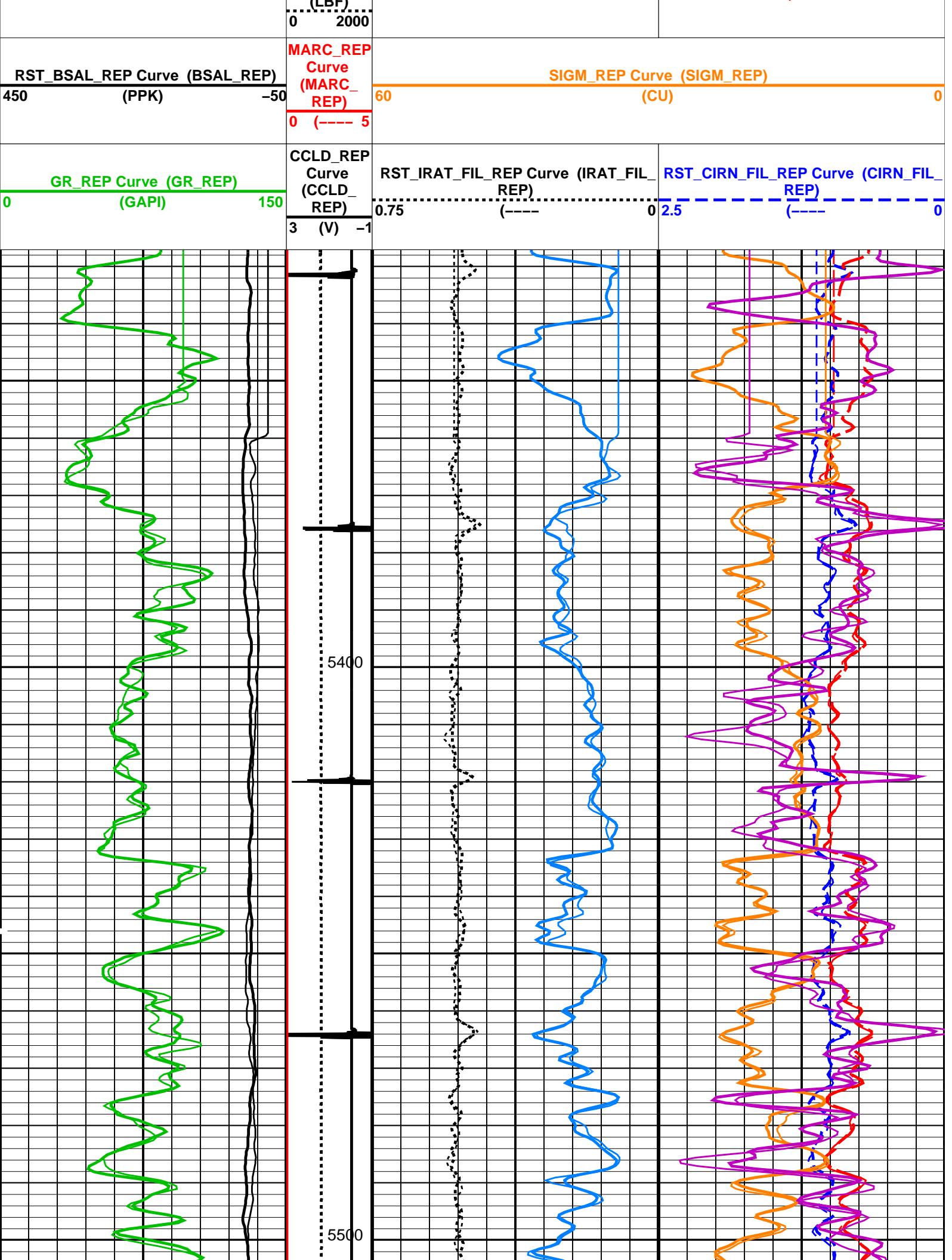
REPEAT ANALYSIS RST SIGMA

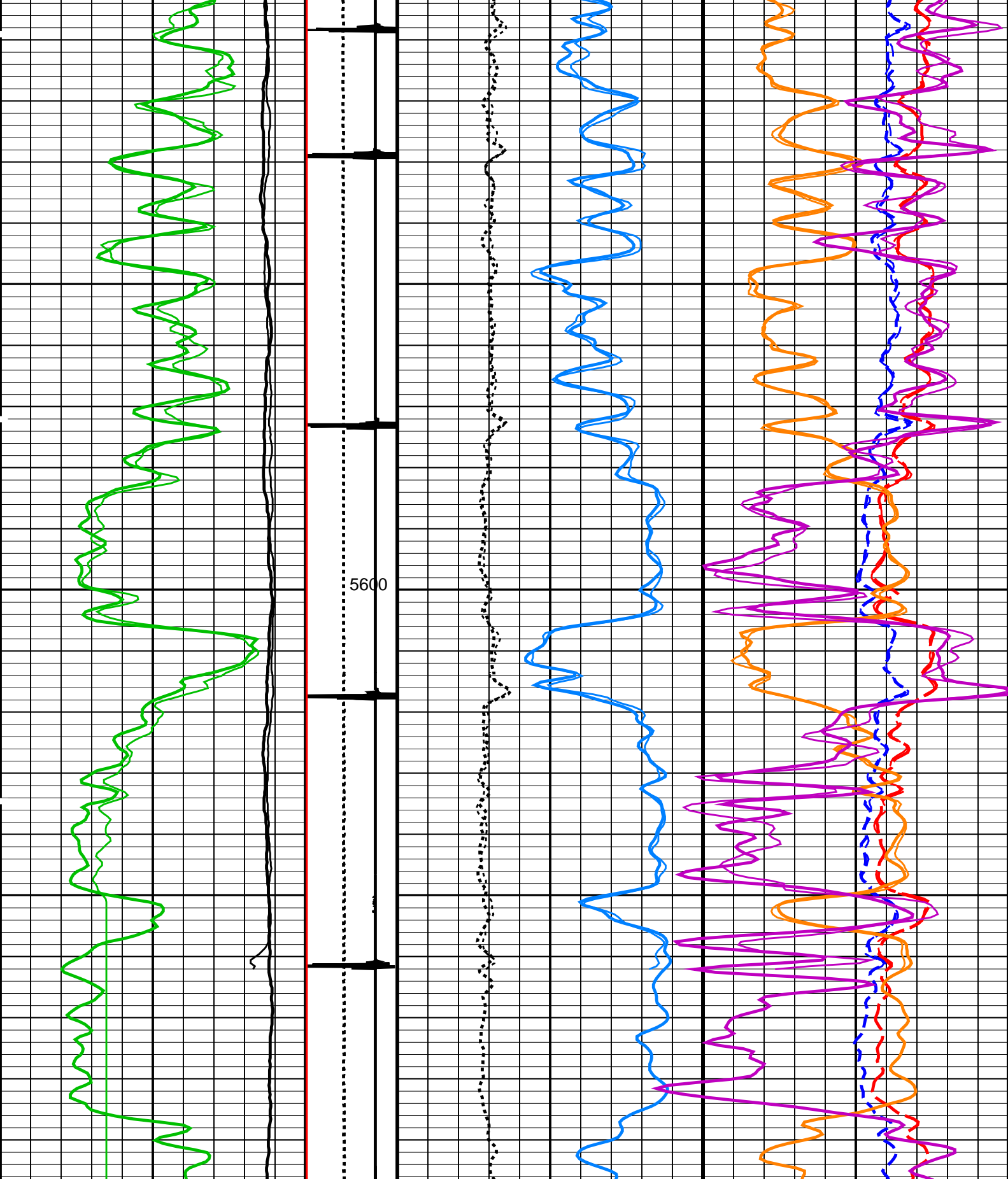
MAXIS Field Log

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_101LUP	FN:97	PRODUCER	22-Oct-2013 15:44	5694.5 FT	5346.0 FT
DEFAULT	SCMT_RST_PSP_123PUP	FN:114	PRODUCER	22-Oct-2013 19:34	7755.0 FT	-44.0 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_124PUP	FN:115	PRODUCER	22-Oct-2013 19:43	5696.5 FT	5326.5 FT

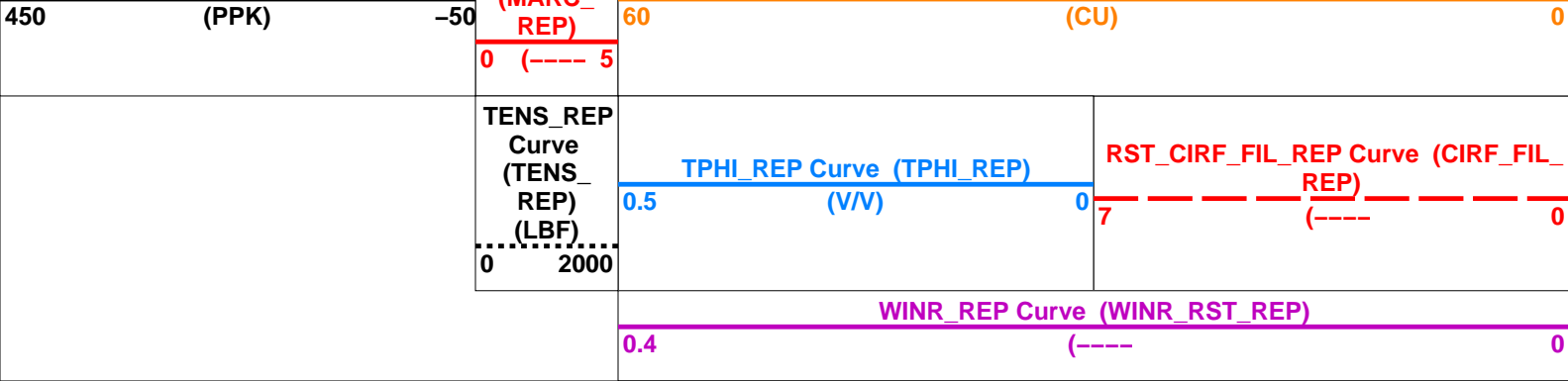
OP System Version: 19C0-187			
SCMT-CB	SRPC-5214-H2-2012-OP1!	RST-C	SRPC-5214-H2-2012-OP1!
PSPT	SRPC-5214-H2-2012-OP1!		

PIP SUMMARY			
<div> <div>  Time Mark Every 60 S </div> </div>			
		WINR_REP Curve (WINR_RST_REP)	
		0.4	0
TENS_REP Curve (TENS_REP) (REP)	TPHI_REP Curve (TPHI_REP)		RST_CIRF_FIL_REP Curve (CIRF_FIL_REP)
	0.5	0	0





GR_REP Curve (GR_REP) (GAPI)	CCLD_REP Curve (CCLD_REP) (V)	RST_IRAT_FIL_REP Curve (IRAT_FIL_REP) (-----)	RST_CIRN_FIL_REP Curve (CIRN_FIL_REP) (-----)
0 150	3 -1	0.75 0	2.5 0
RST_BSAL_REP Curve (BSAL_REP)	MARC_REP Curve (MARC)	SIGM_REP Curve (SIGM_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
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
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	

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	7748	FT
TDD	Total Depth - Driller	7822.00	FT
TDL	Total Depth - Logger	7748.00	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 19:43

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_101LUP	FN:97	PRODUCER	22-Oct-2013 15:44	5694.5 FT	5346.0 FT
DEFAULT	SCMT_RST_PSP_123PUP	FN:114	PRODUCER	22-Oct-2013 19:34	7755.0 FT	-44.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_124PUP	FN:115	PRODUCER	22-Oct-2013 19:43
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Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC
Field: SOUTH PARACHUTE
Well: HAGEN 22-3A (PC22)
Run date: 22-Oct-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 22–3A (PC22)
Run date: 22–Oct–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

	Tt**0	Tt**1	Tt**2
Tt**0	–.391987973189E+03	+.191346892512E+03	–.440920753451E+02
	Tt**3	Tt**4	Tt**5
Tt**0	+.957191300908E+01	–.711421725686E+00	0.0

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	SOUTH PARACHUTE	Sub Type:	PBMS
Well:	HAGEN 22-3A (PC22)	Sensor:	CQG
Run date:	22-Oct-2013		

PBMS Quartz Gauge type F

Sonde Serial NB	COEFFICIENTS FOR CQG PBMS-B.928 S/N:
Sensor Serial NB	928
Calib Date ddmmyy	280612
Matrix Size	66
Coeff CRC	9DC3

Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+714463802232E+04	+183434658655E-01	-156620073569E-06
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	+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 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	+7.13102327208E−16	−.316084316842E−20

Company:

Well:

Field:

County:

State:

ENCANA OIL & GAS (USA) INC

HAGEN 22-3A (PC22)

SOUTH PARACHUTE

GARFIELD

COLORADO

Schlumberger

RESERVOIR SATURATION LOG

SIGMA MODE

GR-CCL