Schlumberger

Company: **ENCANA OIL & GAS (USA) INC**

Well: **SHIDELER 19−16CC (O19EB)**
Field: **MAMM CREEK**
County: **GARFIELD** State: **COLORADO**

RESERVOIR SATURATION LOG
SIGMA MODE
GR−CCL

County: GARFIELD
Field: MAMM CREEK
Location: SHL: 624 FSL & 1607 FEL
Well: SHIDELER 19−16CC (O19EB)
Company: ENCANA OIL & GAS (USA) INC

LOCATION

SHL: 624 FSL & 1607 FEL
BHL: 69 FSL & 652 FEL

Elev.: K.B. 6531.00 ft
G.L. 6509.00 ft
D.F. 6530.00 ft

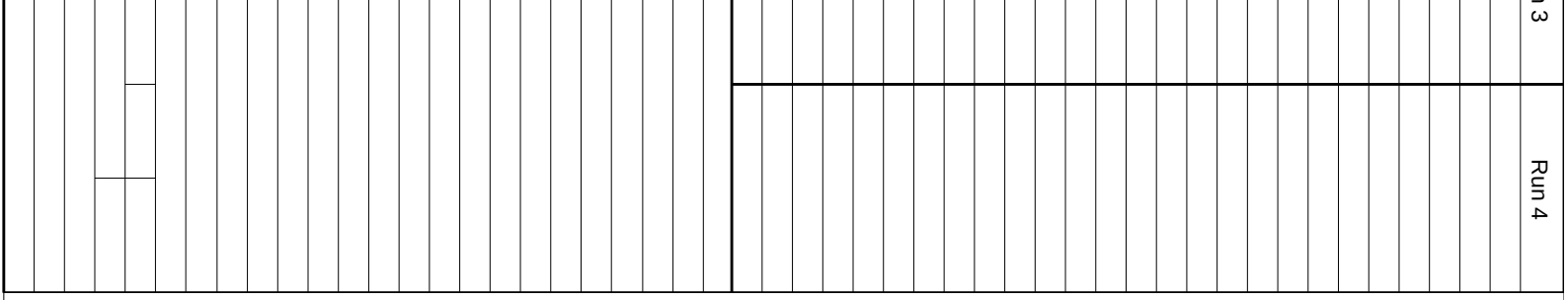
Permanent Datum: GROUND LEVEL Elev.: 6509.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−21842−0000	19	7S	92W

Logging Date		27−Apr−2013					
Run Number		1					
Depth Driller		7634 ft					
Schlumberger Depth		7545 ft					
Bottom Log Interval		7511 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		7.875 in					
From		6525 ft					
To		7634 ft					
Casing/Tubing Size		4.500 in					
Weight		11.6 lbm/ft					
Grade							
From		22 ft					
To		7615 ft					
Maximum Recorded Temperatures		222 degF					
Logger On Bottom	Time	27−Apr−2013	18:30				
Unit Number	Location	391	GRAND JUNCTION				
Recorded By		KIRSTIE BUNTING					
Witnessed By		BILLY MYERS					

		Run 1	Run 2	Run
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							
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	Time						
Unit Number	Location						
Recorded By							
Witnessed By							



DEPTH SUMMARY LISTING

Date Created: 14−MAR−2013 10:41:08

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	1−25ZT
Serial Number:	6214	Serial Number:	3421	Serial Number:	112136
Calibration Date:	24−APR−2012	Calibration Date:	20−FEB−201	Length:	19500 FT
Calibrator Serial Number:		Calibrator Serial Number:	174878		
Calibration Cable Type:	1−25ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−3	Calibration RMS:	4	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 POLICIES APPLIED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. SWPT DRUM COUNTER USED AS SECONDARY DEPTH REFERENCE
4.
5.
6.

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	
MAXIMUM RECORDED TEMPERATURE= 222 DEGF	
MAXIMUM RECORDED PRESSURE= 3153 PSIA	
ENTRANCE TIME= 18:00	

TIME ON BOTTOM= 18:30

EXIT TIME= 20:30

SHORT JOINTS: 5101 FT & 6093 FT

SANDSTONE MATRIX USED

THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGR COMPANY

CREW: KBUNTING JBARRY KJOHNS JMANN

RUN 1		RUN 2	
SERVICE ORDER #:	CGF9−00056	SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:	60 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

WITM−A
PSC_16MHZ

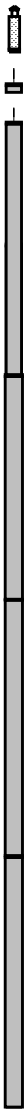
DOWNHOLE EQUIPMENT

MH−22
MH−22

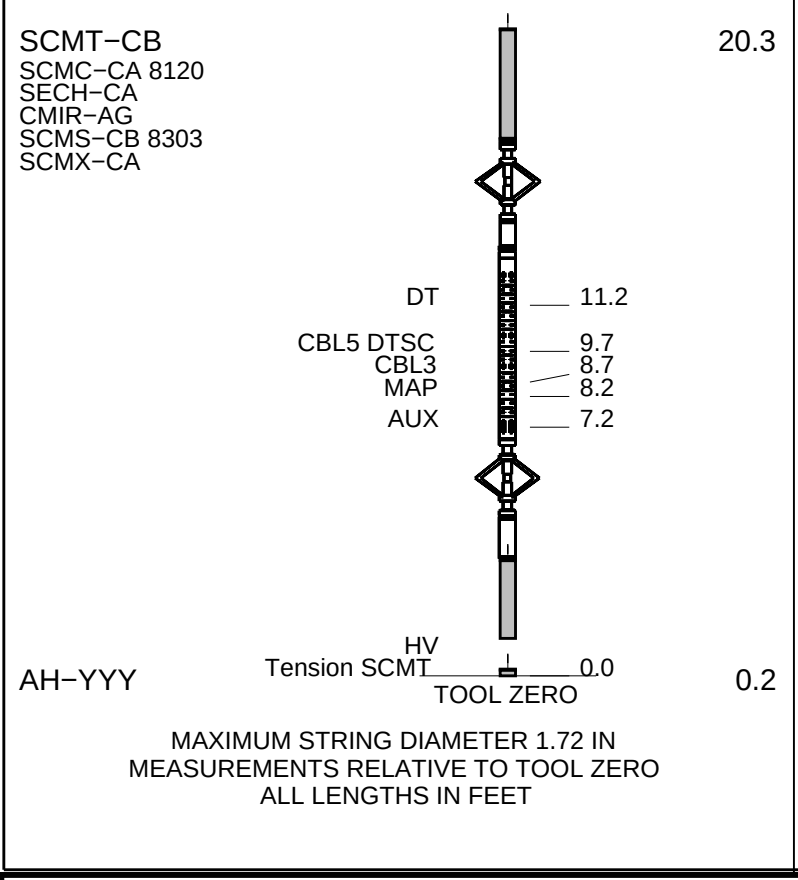
AH−38

PSPT
PSC−A
PSPT−B
PSTC−A
PBMS−B 928
CQG_F_Mano
RTD_Thermometer
GR
CCL
PBMS

RST−C
RSCH−A 469
RSC−E
RSS−A 461
RSXH−A 493
RSX−E



		53.4
Detail MT		
TelStatus		
CTEM	51.5	51.8
		51.5
GR	47.8	
Well_Temp	44.8	
CQG Manom	44.5	
CCL	44.0	
PBMS PSTC	43.3	
		43.3
RSC−A Far	34.2	
RSC−A PNG		
RSC−A Nea		
RSX−A PNG	33.7	



MAXIMUM STRING DIAMETER 1.72 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS RST SIGMA

MAXIS Field Log

Input DLIS Files

DEFAULT	SCMT_RST_PSP_026LUP	FN:24	PRODUCER	27−Apr−2013 18:32	7551.5 FT	−29.8 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_030PUP	FN:28	PRODUCER	27−Apr−2013 20:40	7554.5 FT	−71.0 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		

Changed Parameter Summary

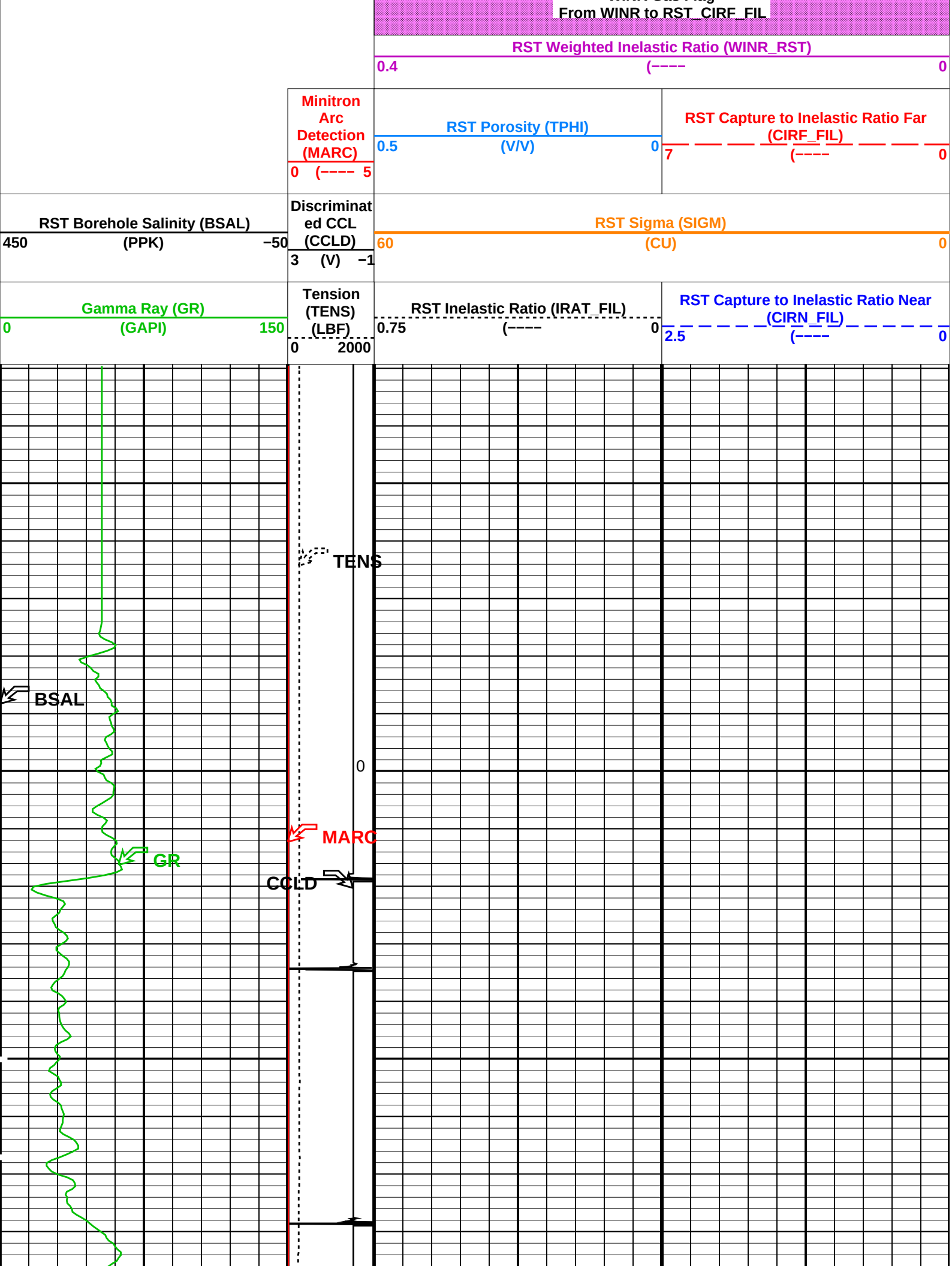
DLIS Name	New Value	Previous Value	Depth & Time
BS	7.875 IN	7.875 IN	7554.5 20:40:14
	8.750 IN	7.875 IN	6525.0 20:42:43

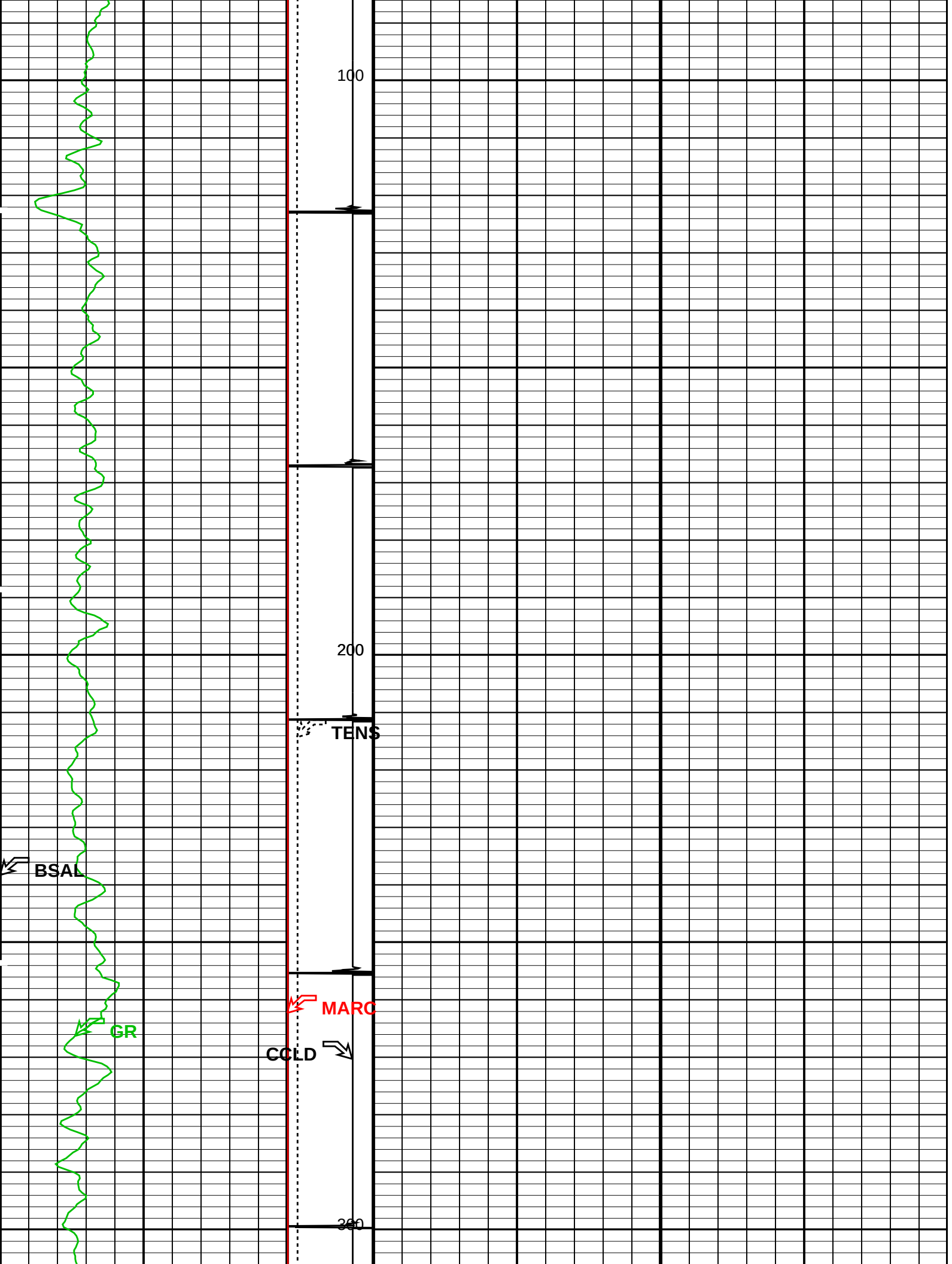
PIP SUMMARY

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
Minitron Arc Detection (MARC)
0 (---- 5
RST Porosity (TPHI)
0.5
(V/V)
0
RST Capture to Inelastic Ratio Far (CIRF_FIL)
7
(----
0
RST Borehole Salinity (BSAL)
450
(PPK)
-50
Discriminated CCL (CCLD)
3 (V) -1
RST Sigma (SIGM)
60
(CU)
0
Gamma Ray (GR)
0
(GAPI)
150
Tension (TENS) (LBF)
0
2000
RST Inelastic Ratio (IRAT_FIL)
0.75
(----
0
RST Capture to Inelastic Ratio Near (CIRN_FIL)
2.5
(----
0
TENS
BSAL
0
MARC
GR
CCLD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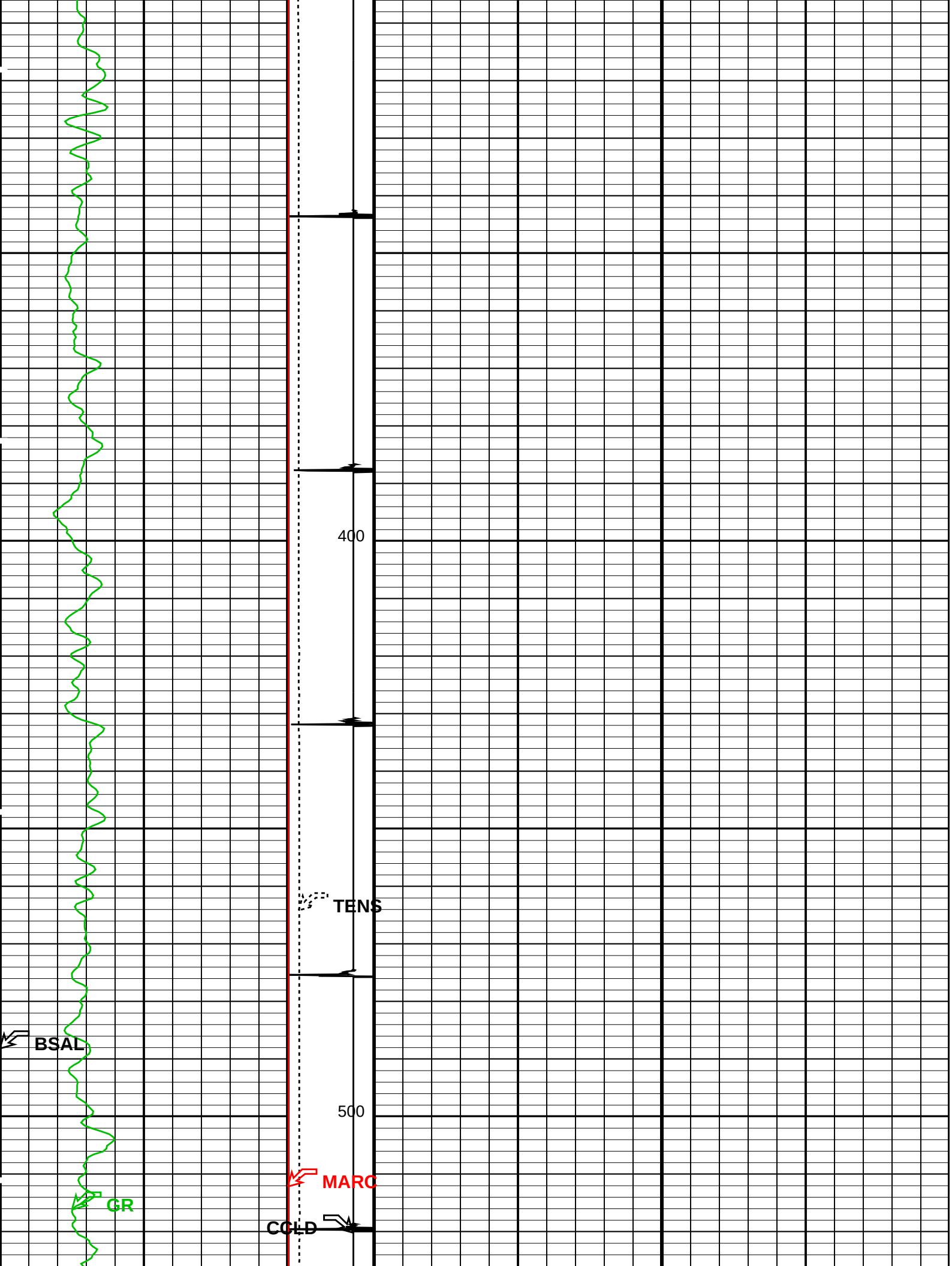
200
TENS
BSAL
MARC
GR
CCLD
300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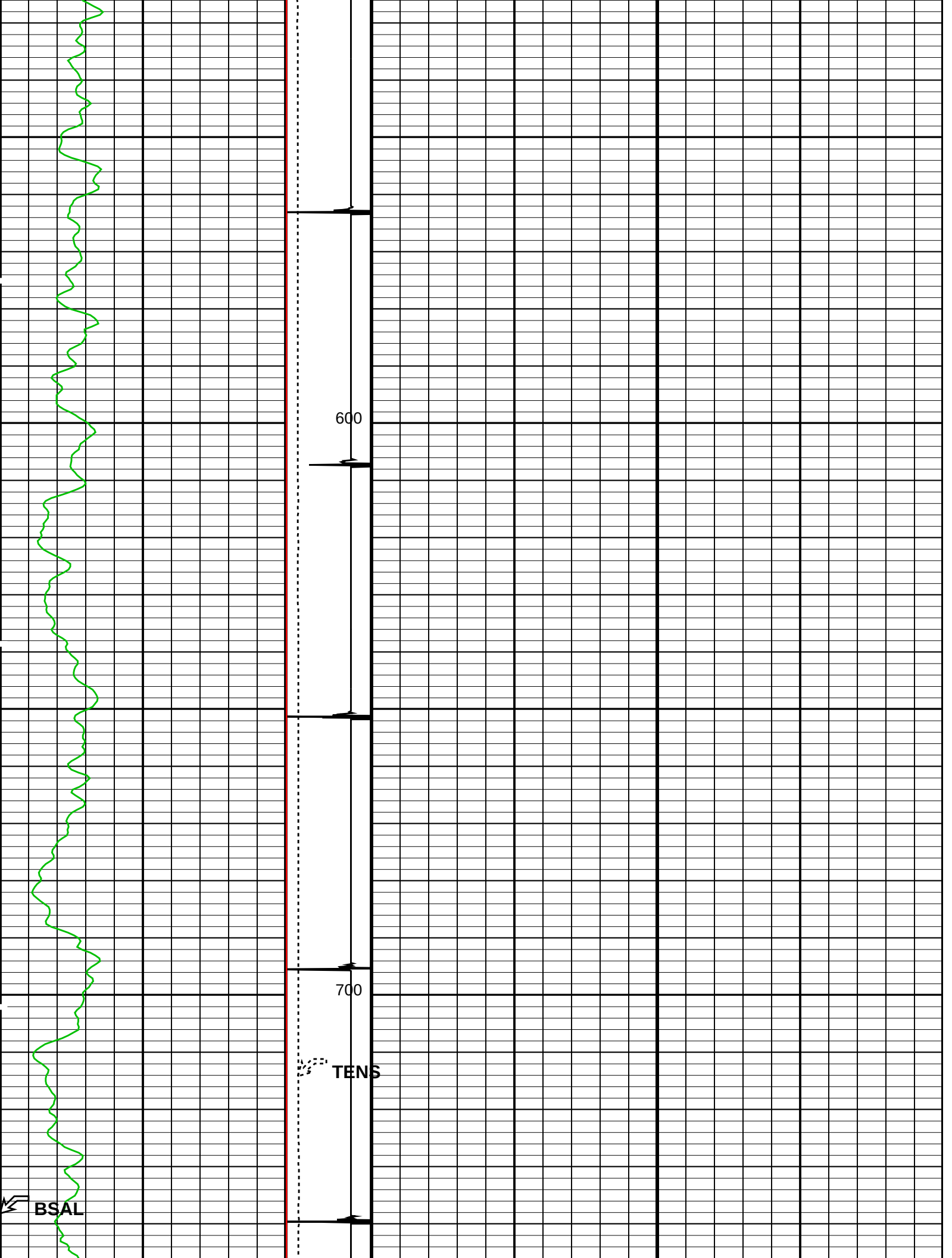
BSAL
500
MARC
GR
CCLD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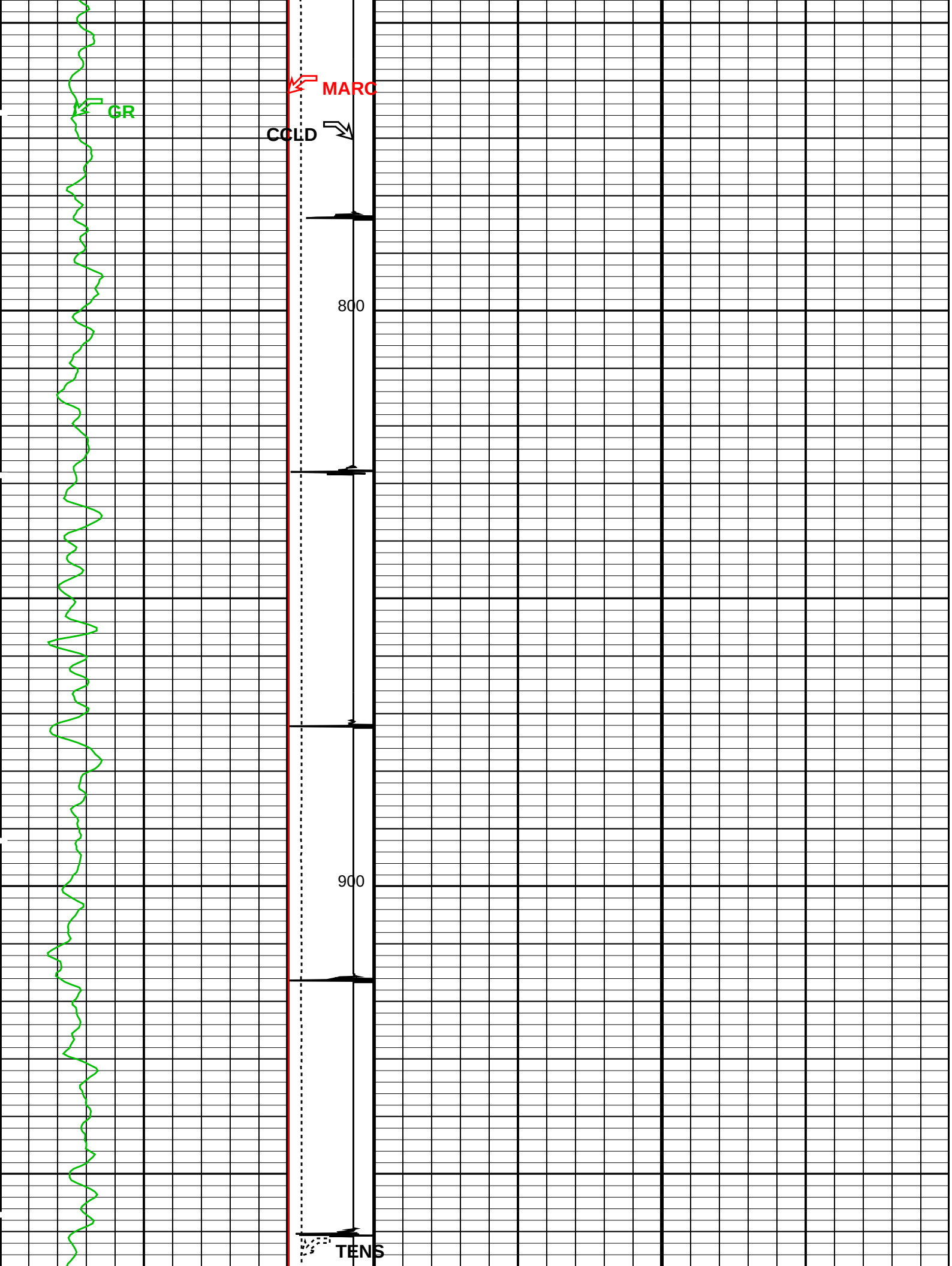
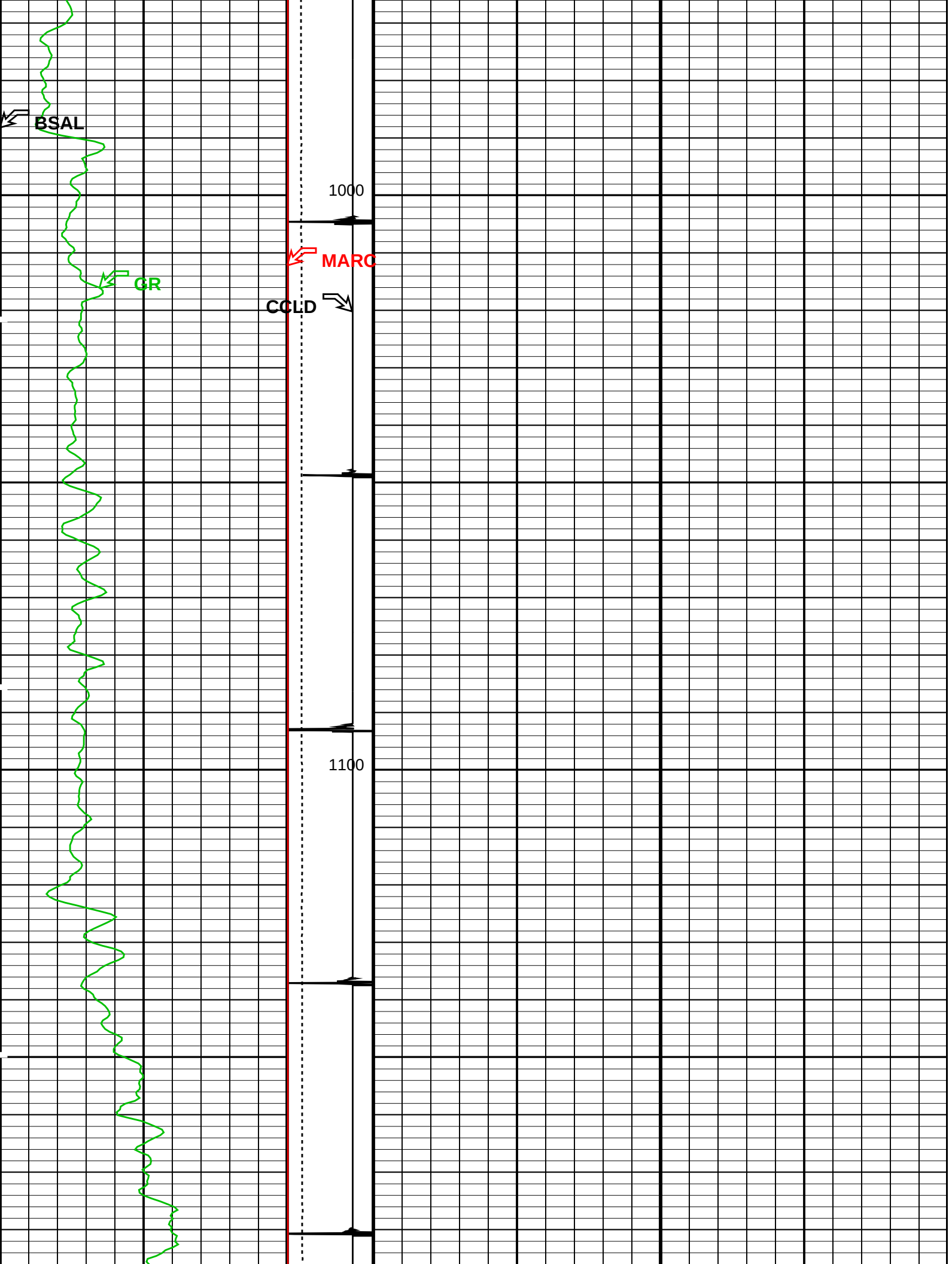
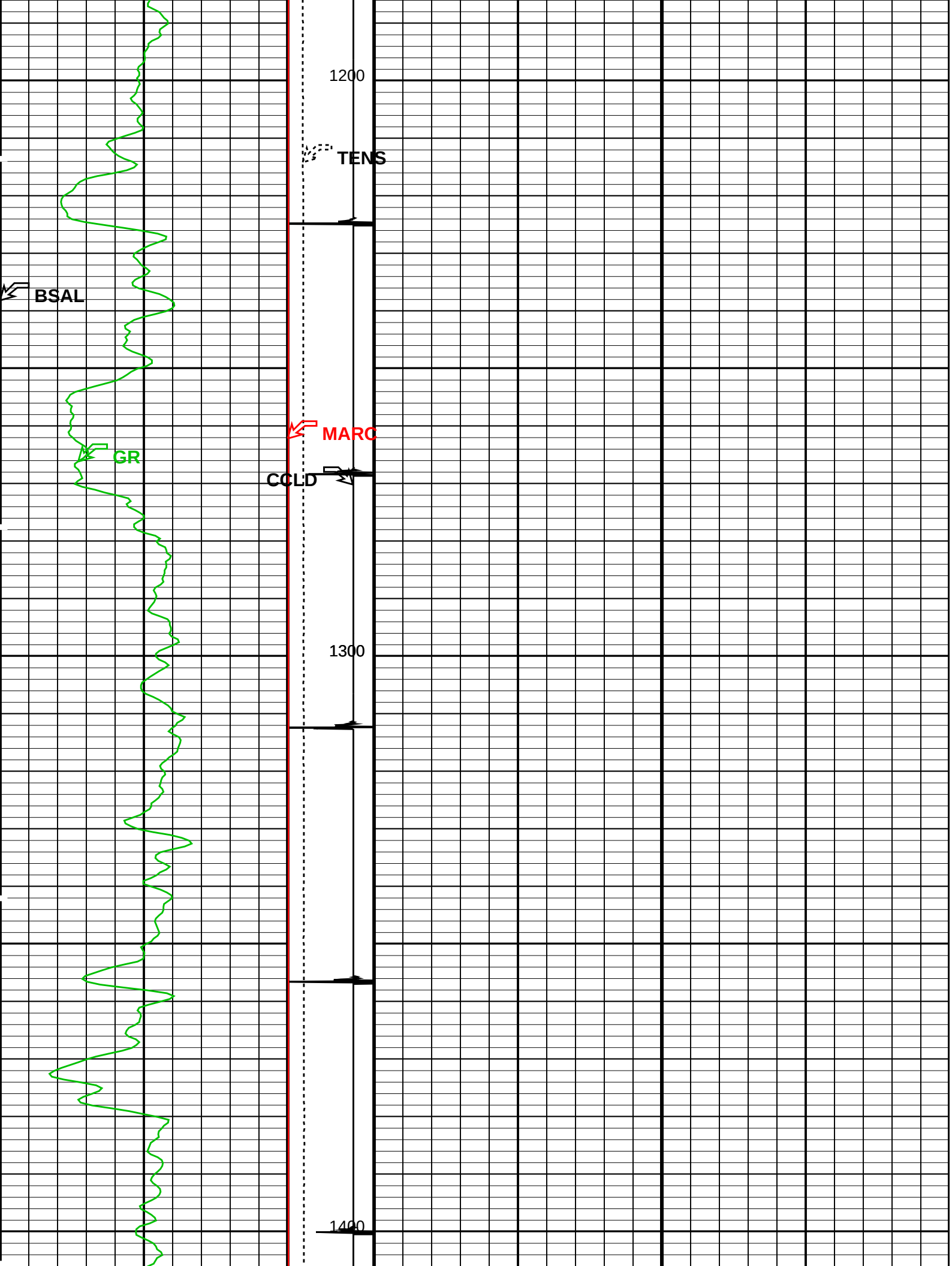
700
TENS
BSAL


MARC
GR
CCLD
800
900
TENS


BSAL
1000
MARC
GR
CCLD
1100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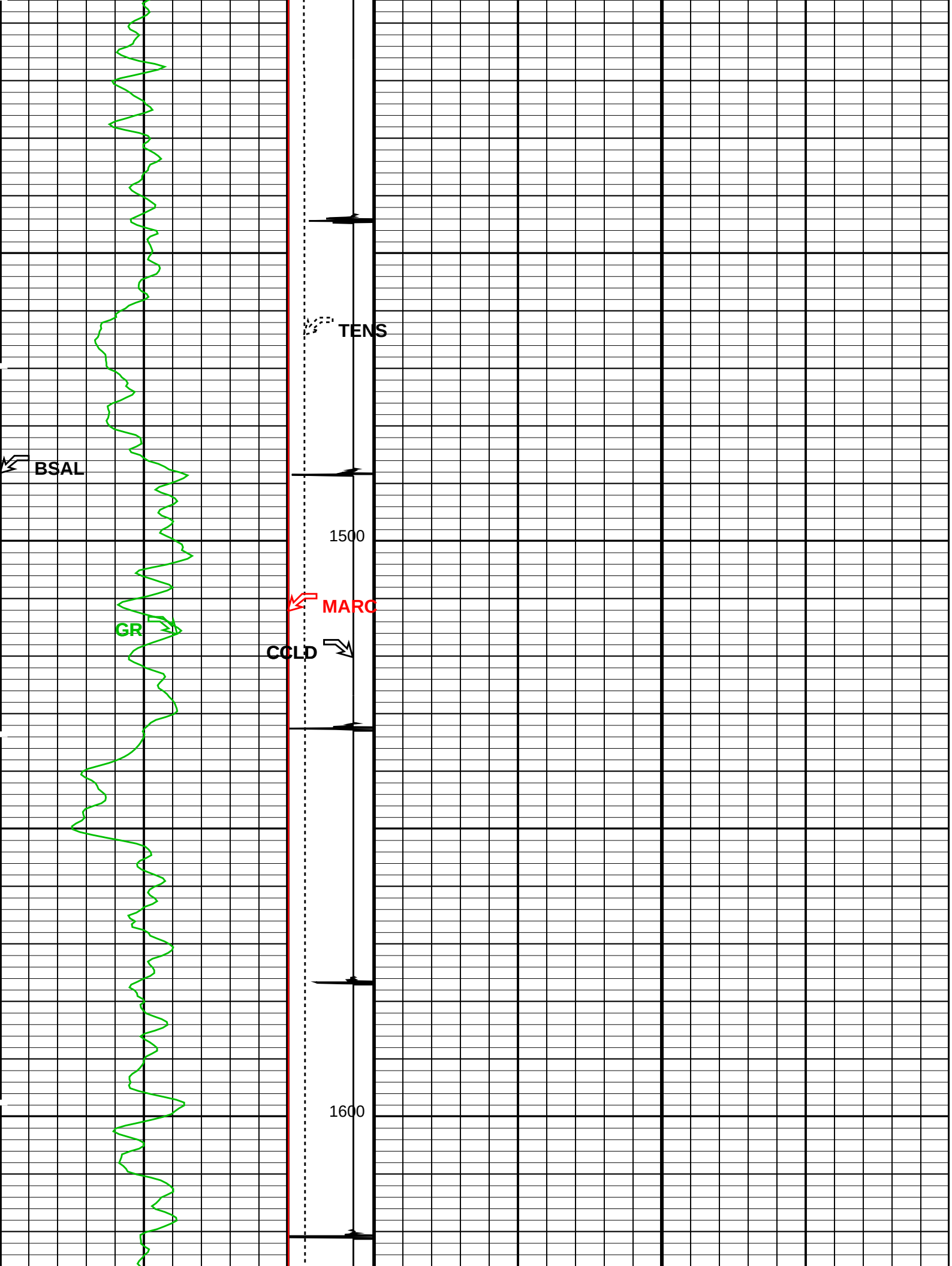
TENS
BSAL
MARC
GR
CCLD
1300
1400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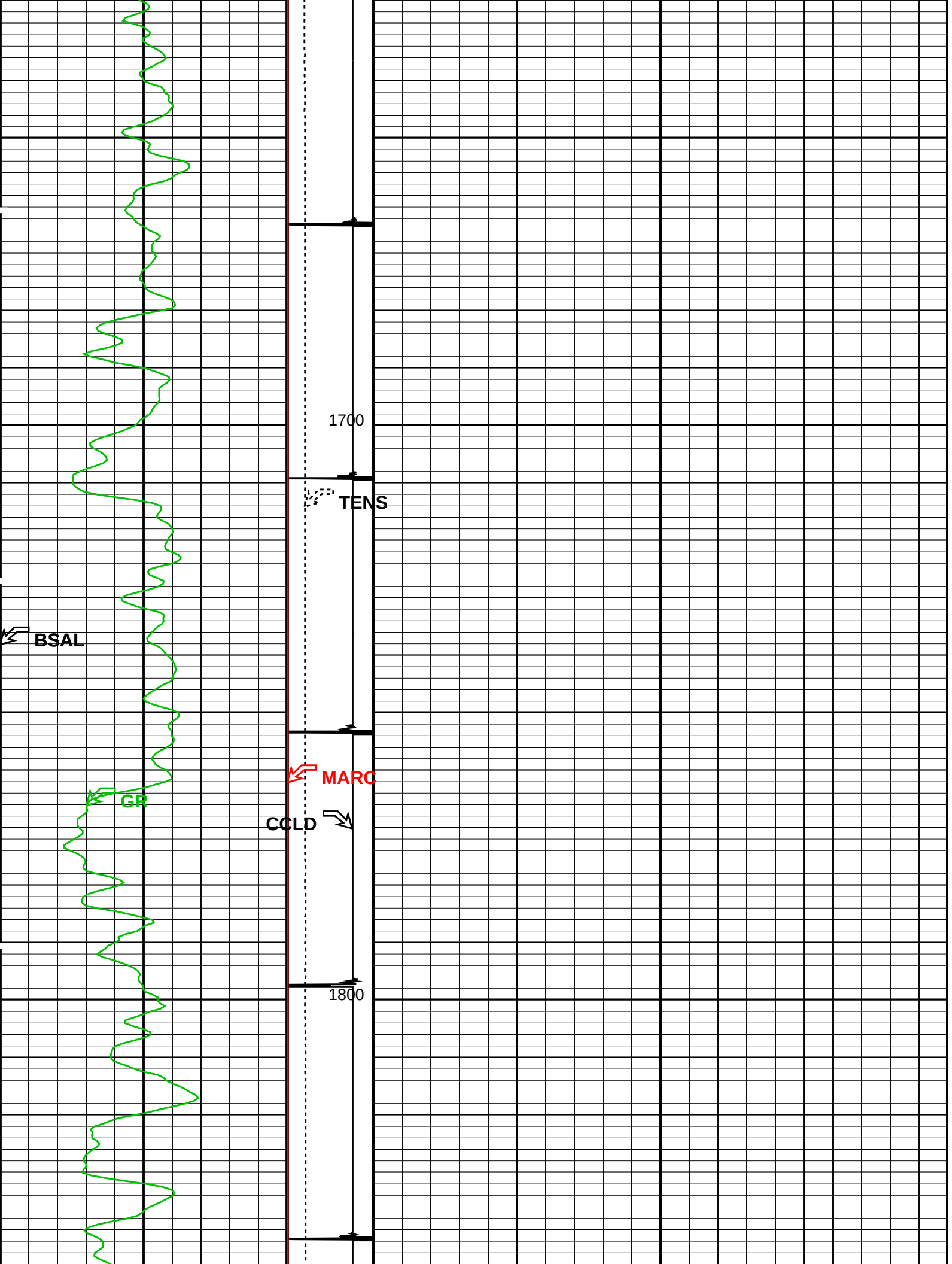
BSAL
1500
MARC
GR
CCLD
1600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TENS
BSAL
MARC
GR
CCLD
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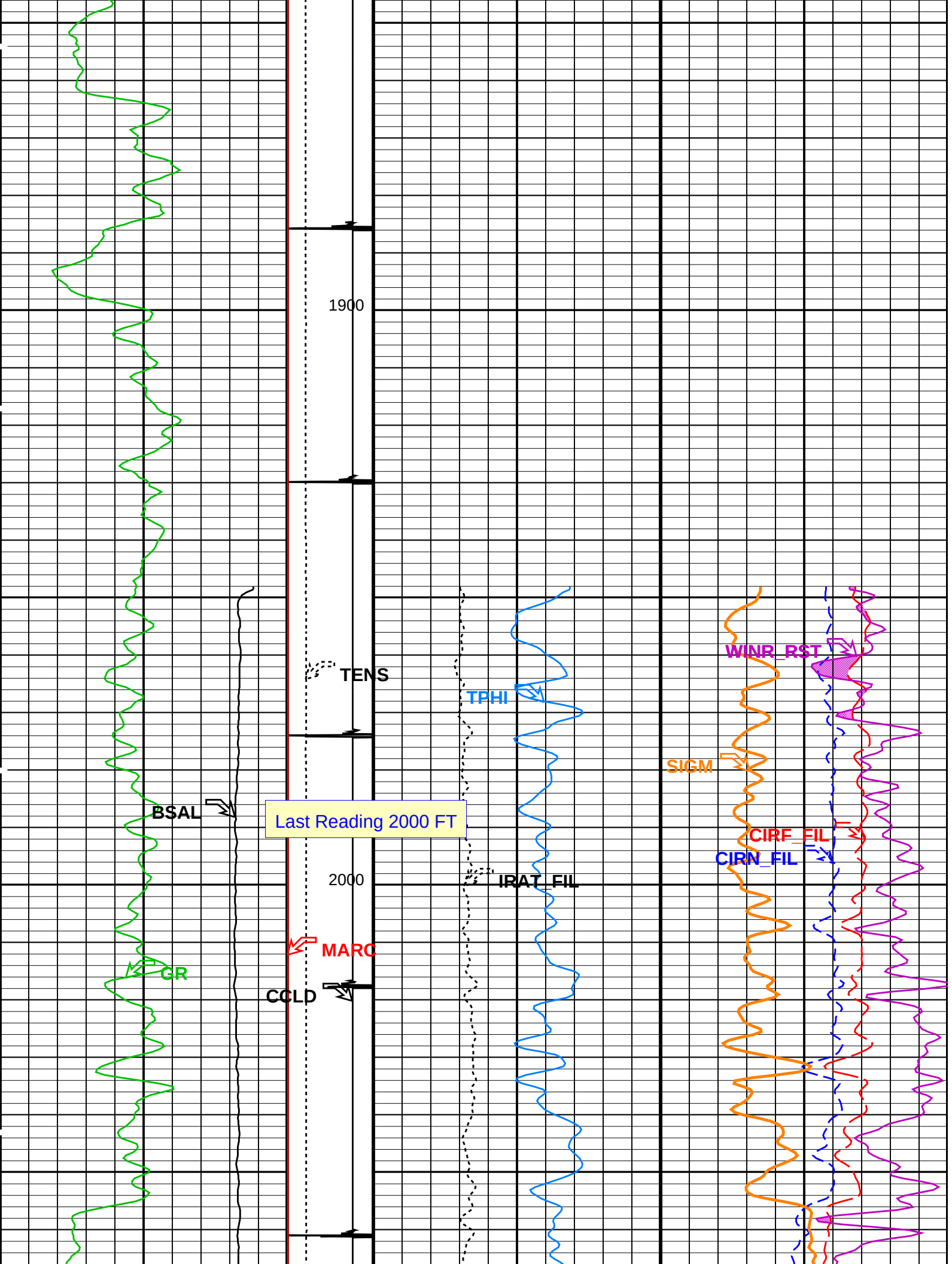
1900
TENS
TPHI
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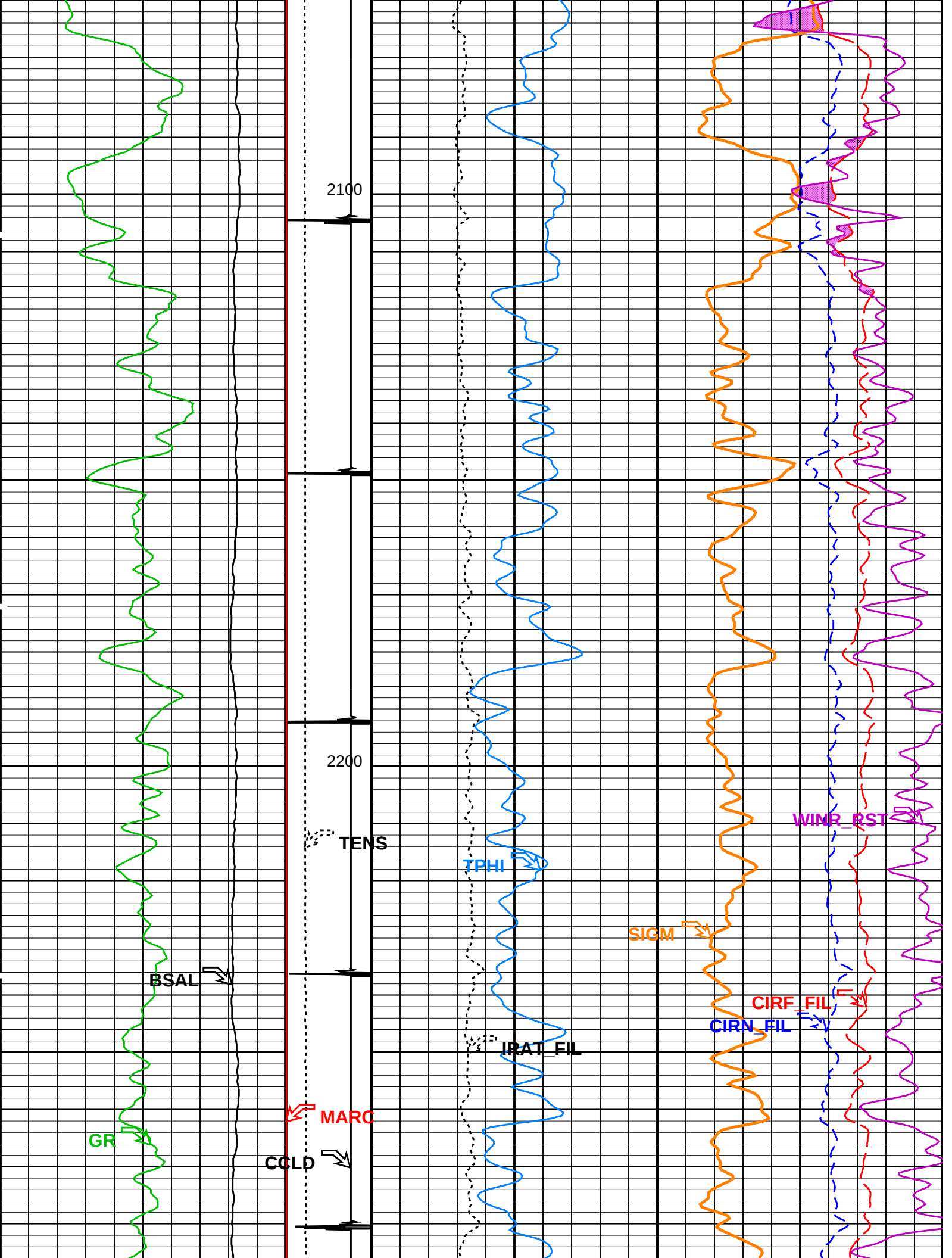
SIGM
BSAL
Last Reading 2000 FT
CIRF_FIL
CIRN_FIL
2000
IRAT_FIL
MARC
GR
CCLD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2200
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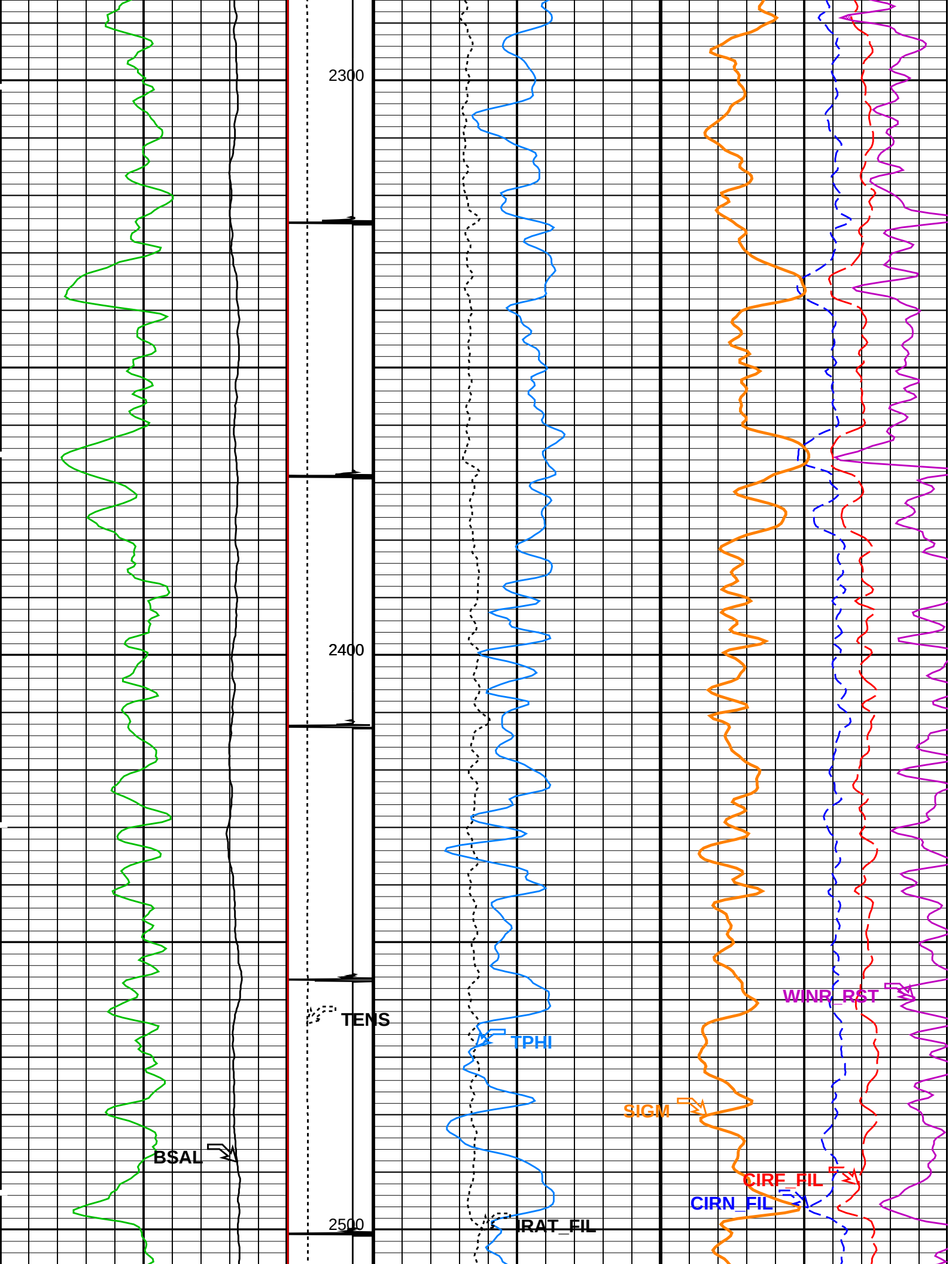
SIGM
BSAL
CIRF_FIL
CIRN_FIL
IRAT_FIL
MARC
GR
CCLD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2400
2500
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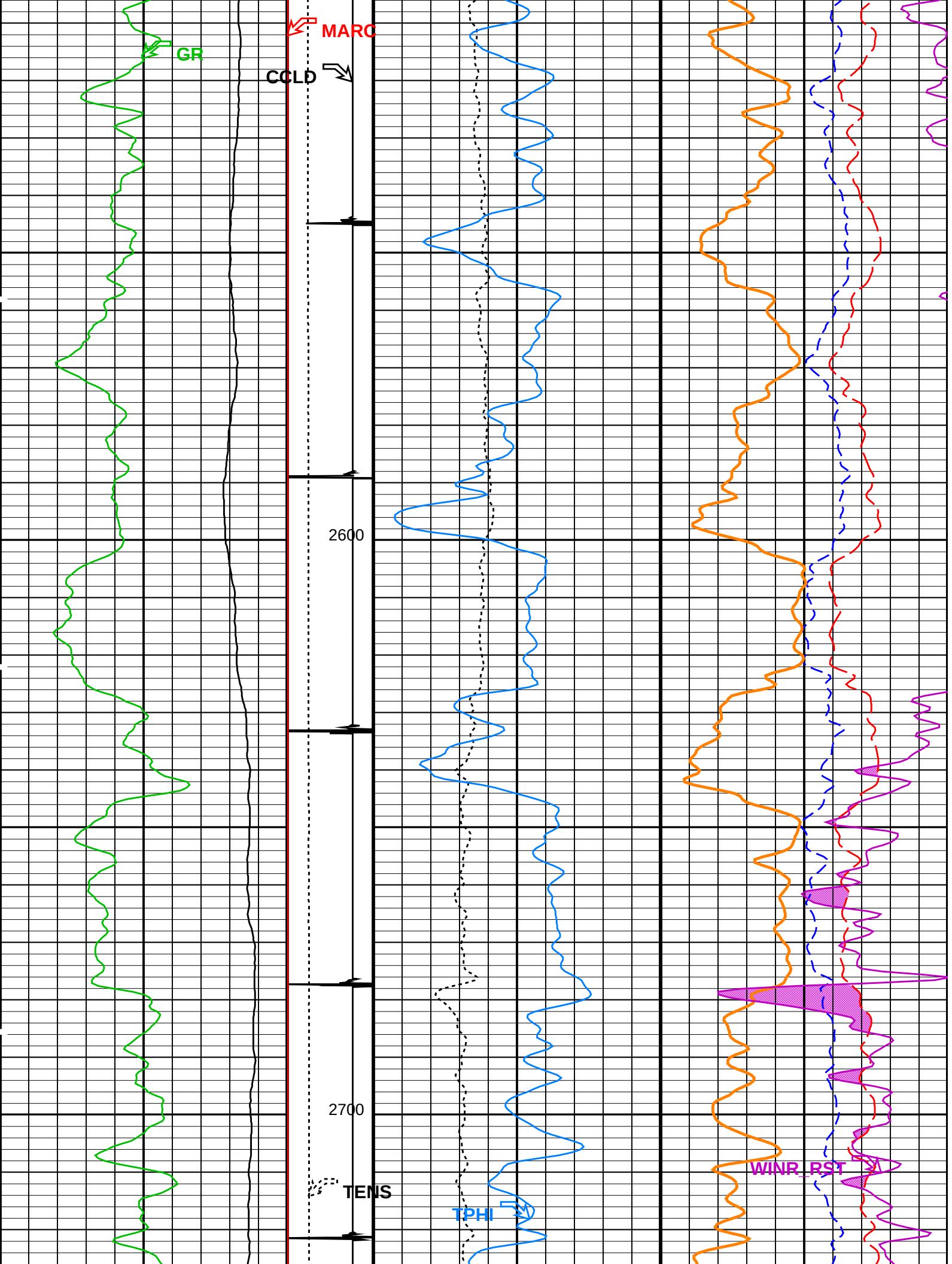
TPHI
IRAT_FIL
WINR_RST
SIGM
CIRF_FIL
CIRN_FIL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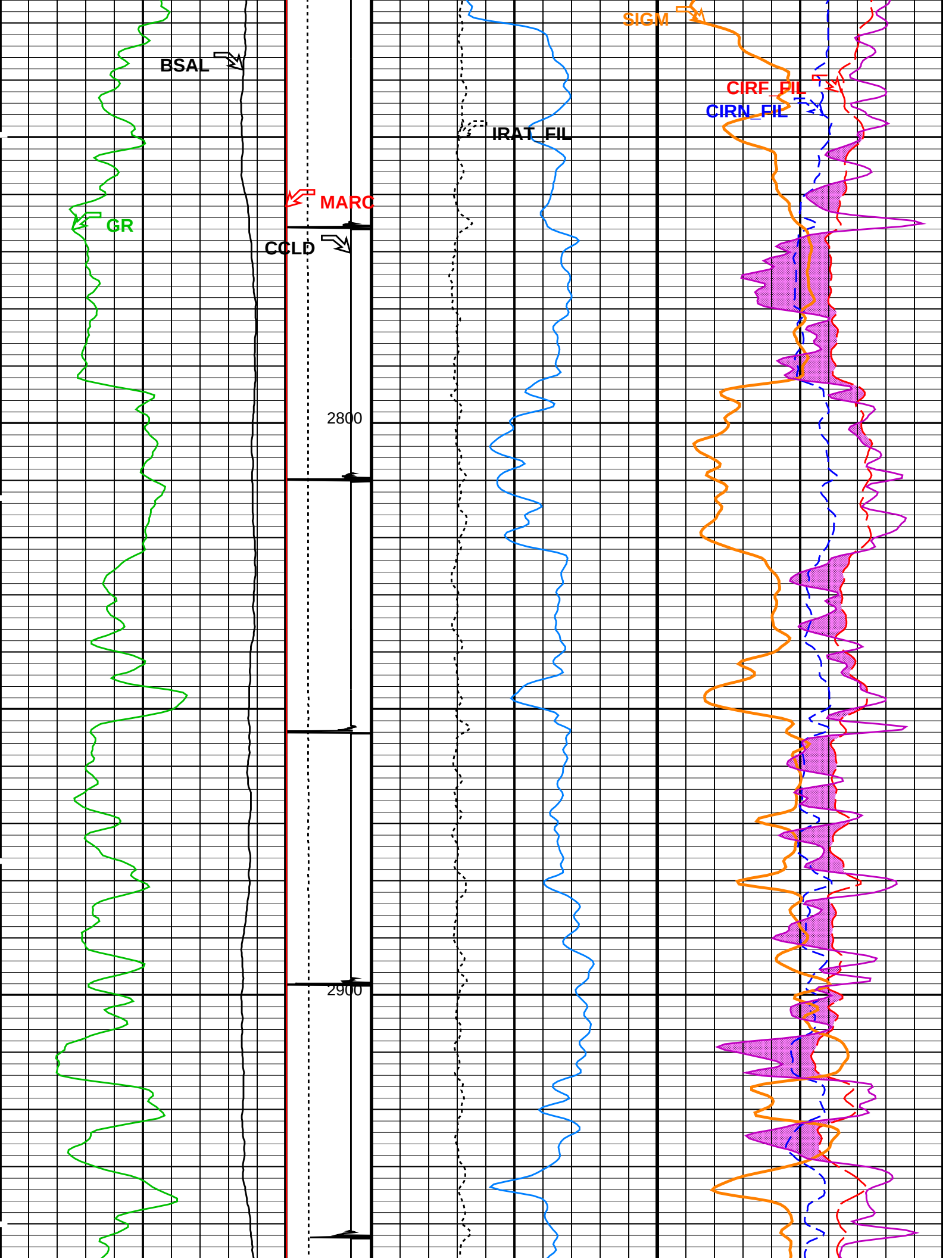
GR
CCLD
2600
2700
TENS
TPHI
WINR_RST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SIGM
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CIRN_FIL
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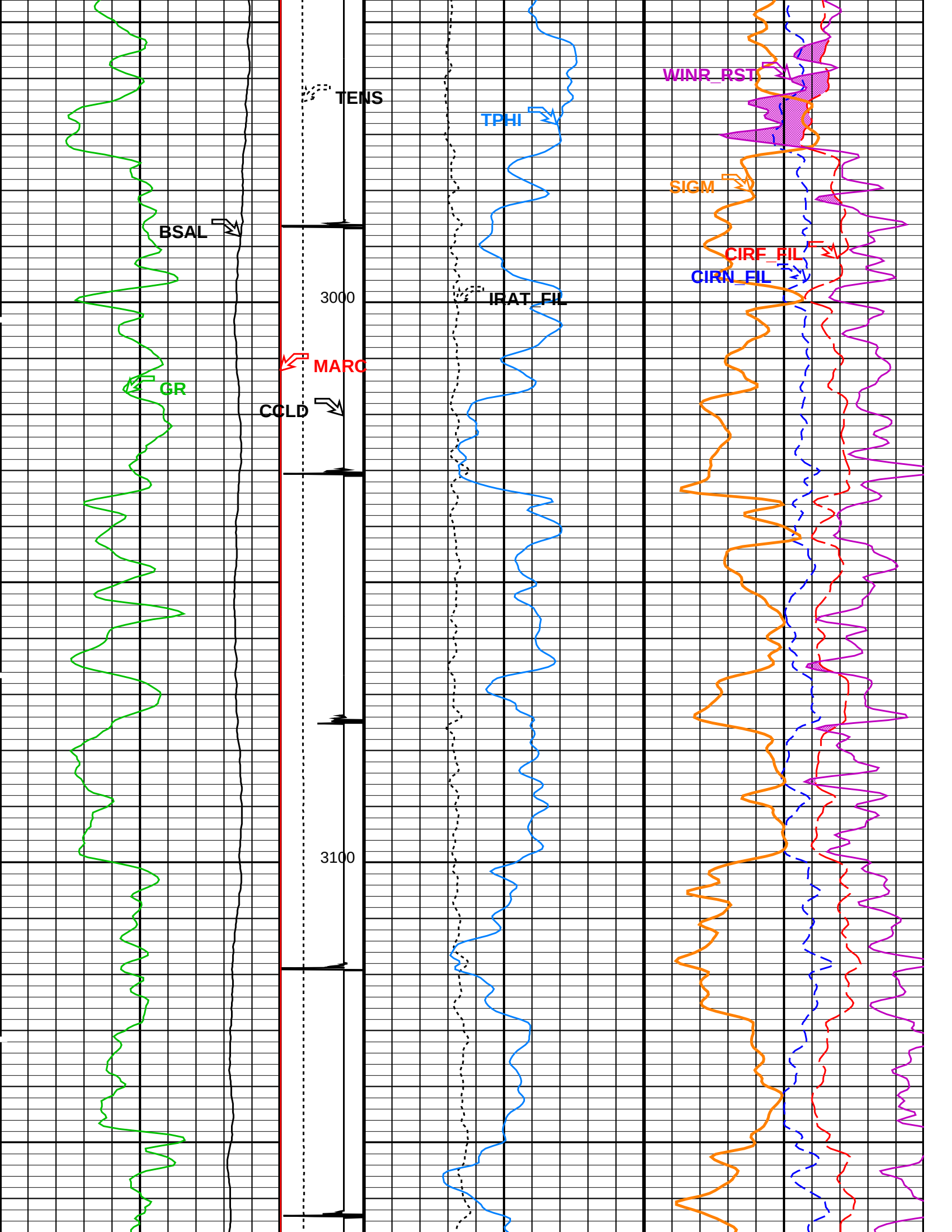
2900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CIRN_FIL
IRAT_FIL
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GR
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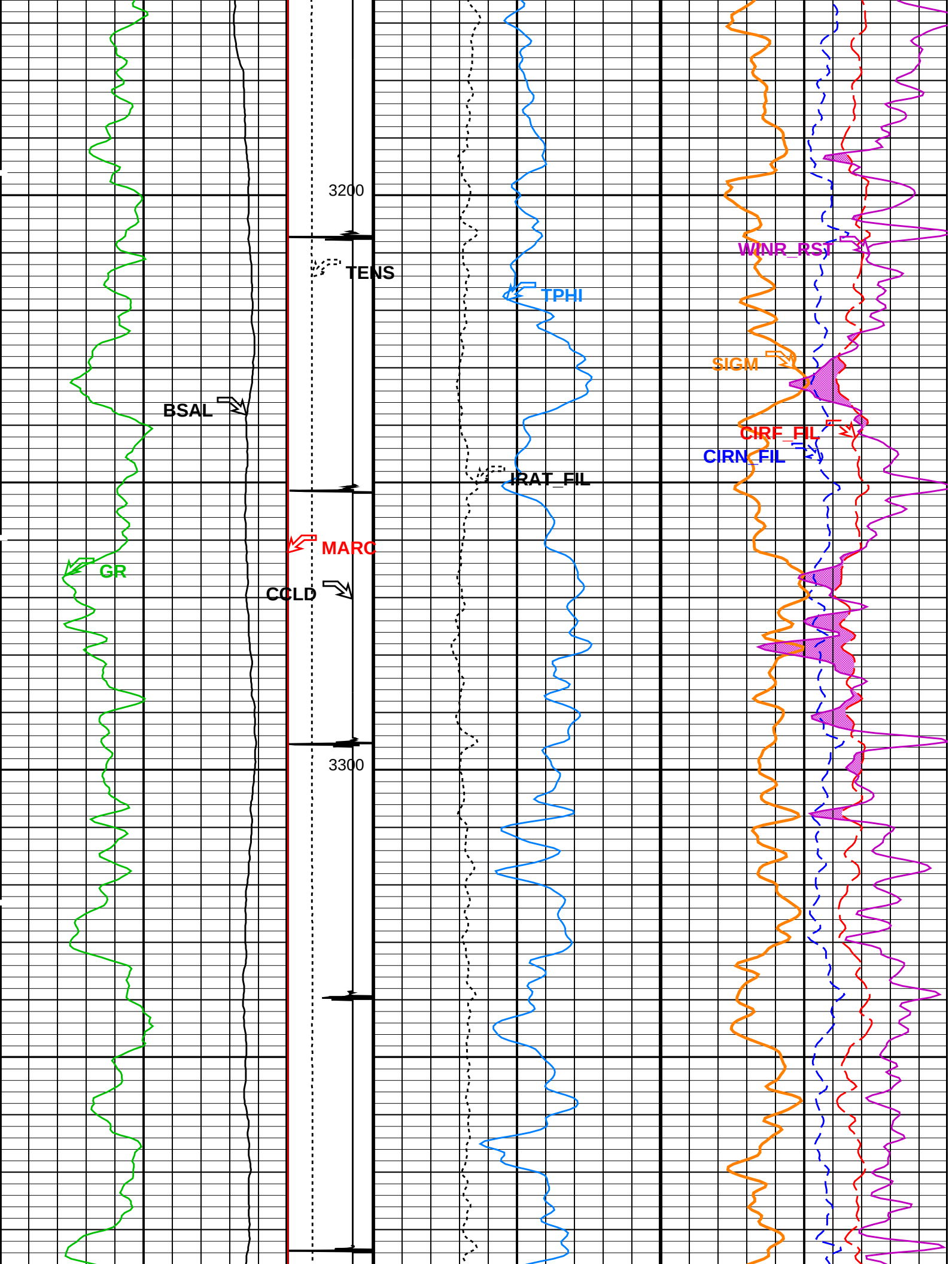
3100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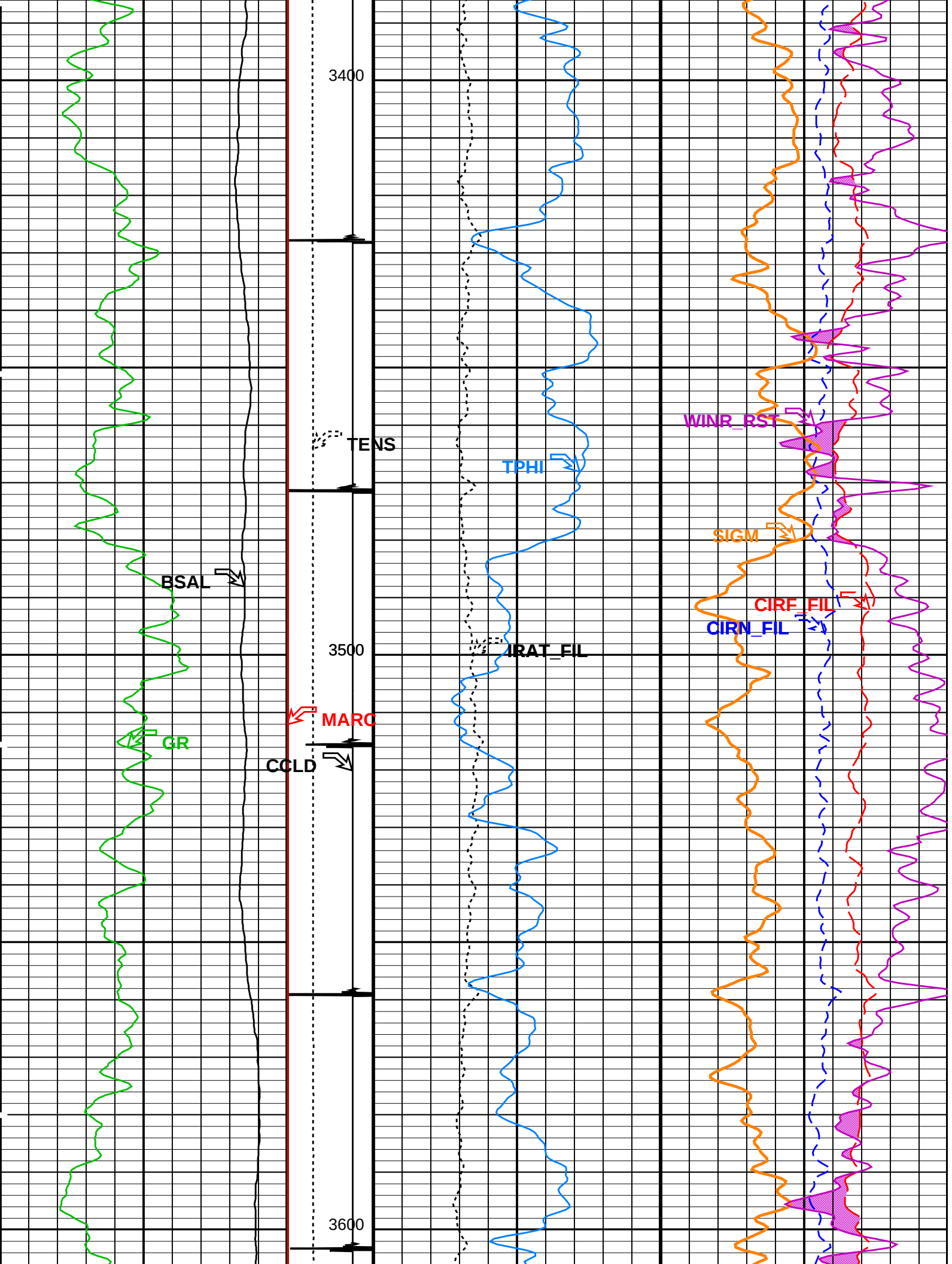
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SIGM
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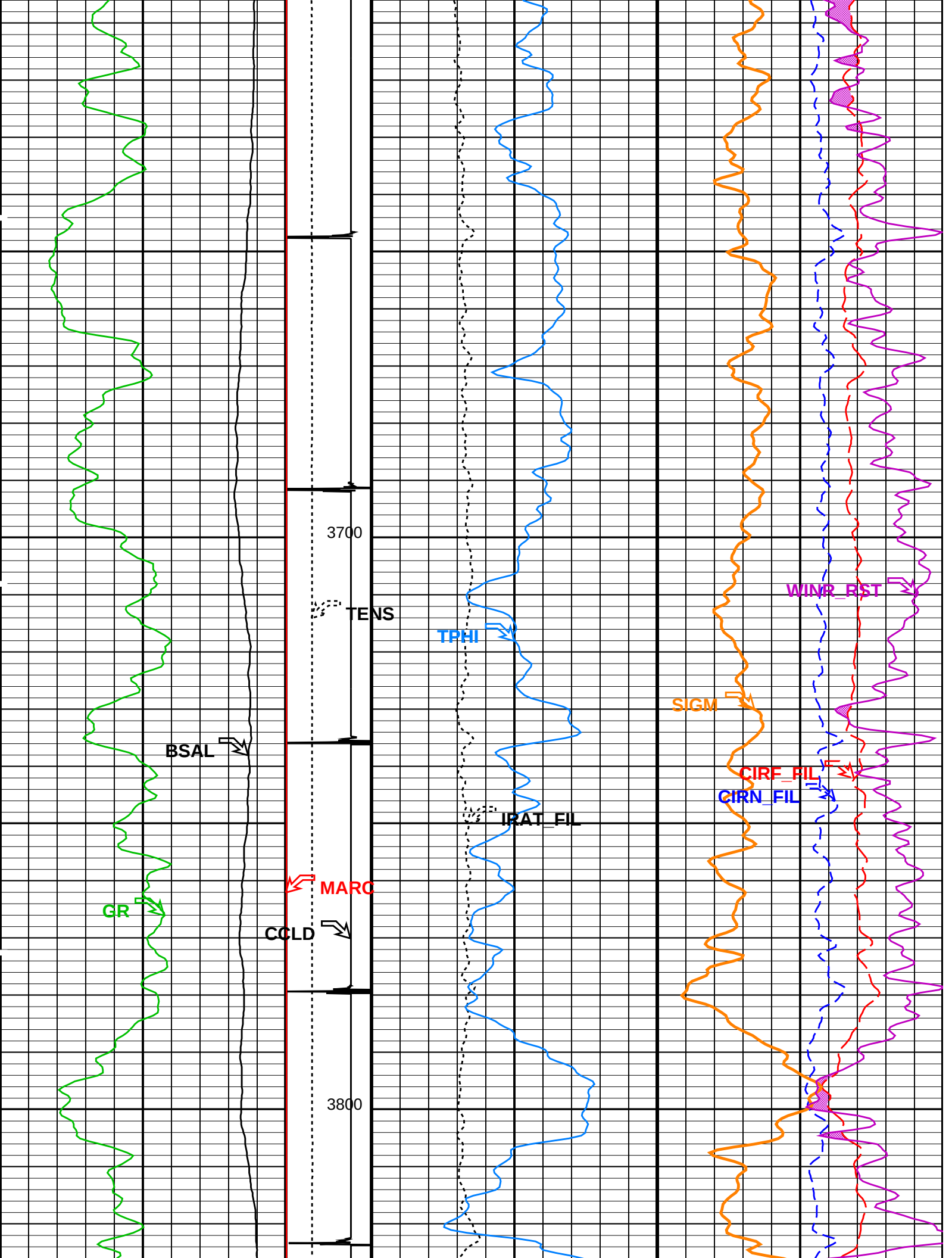
CIRN_FIL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GR
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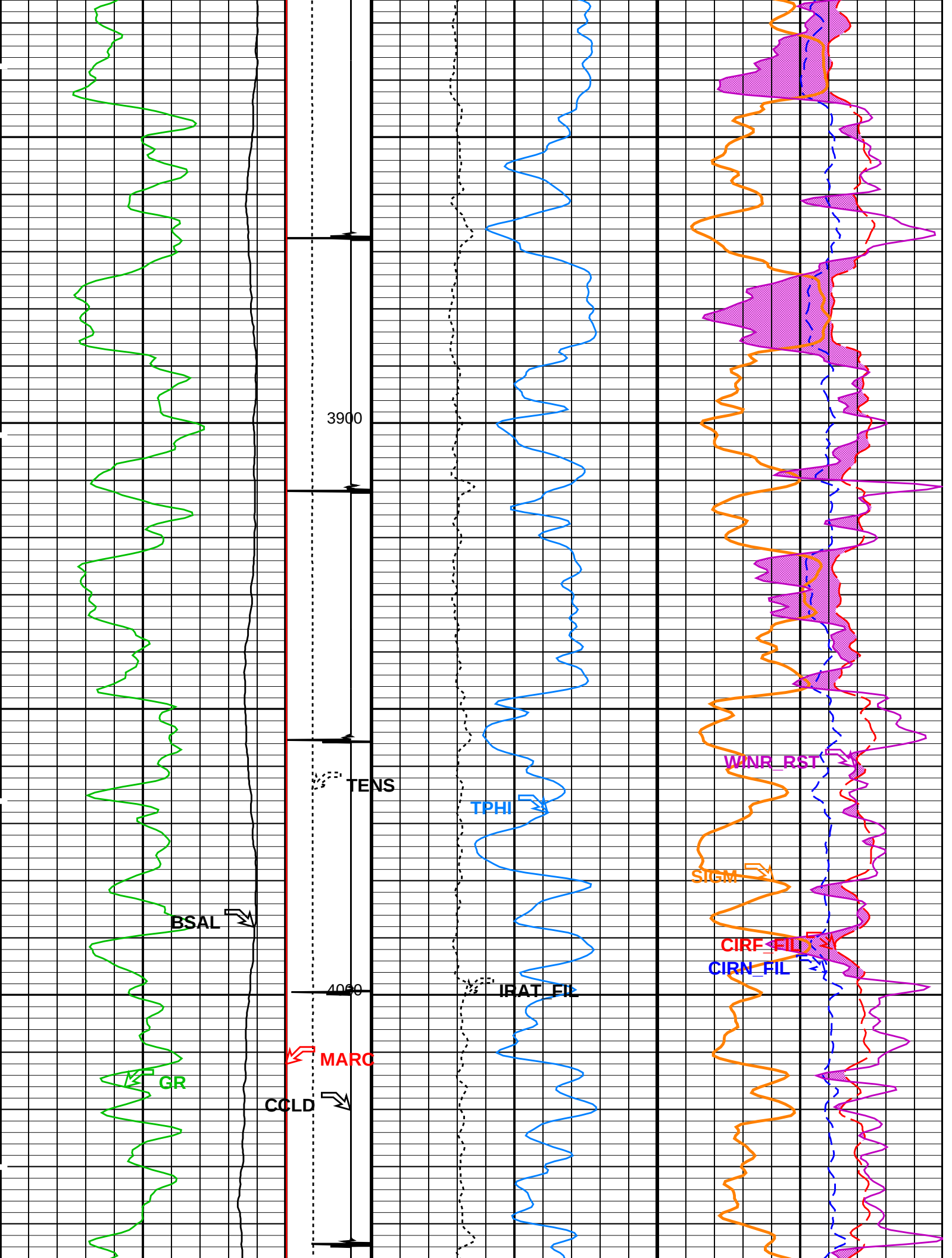
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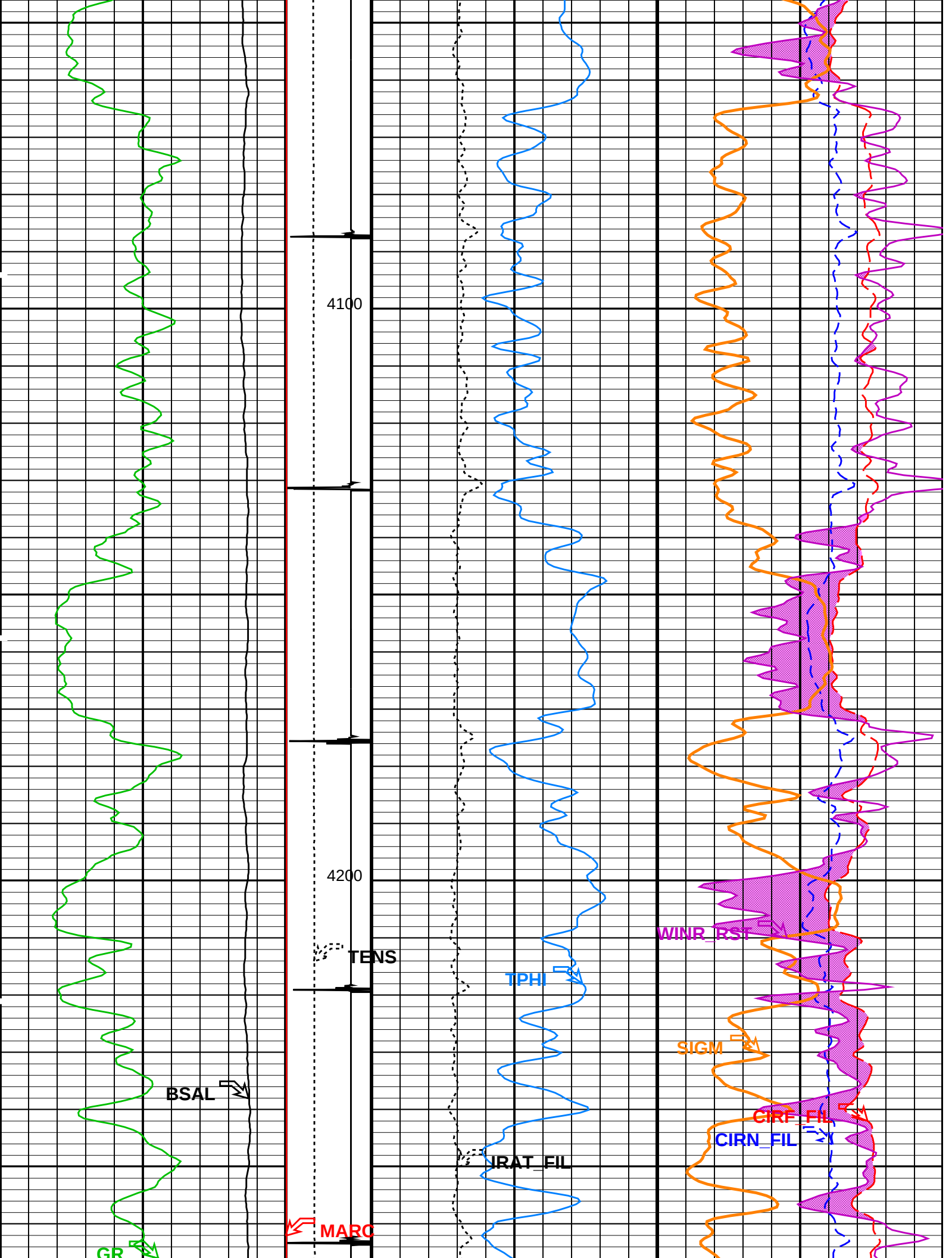
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SIGM
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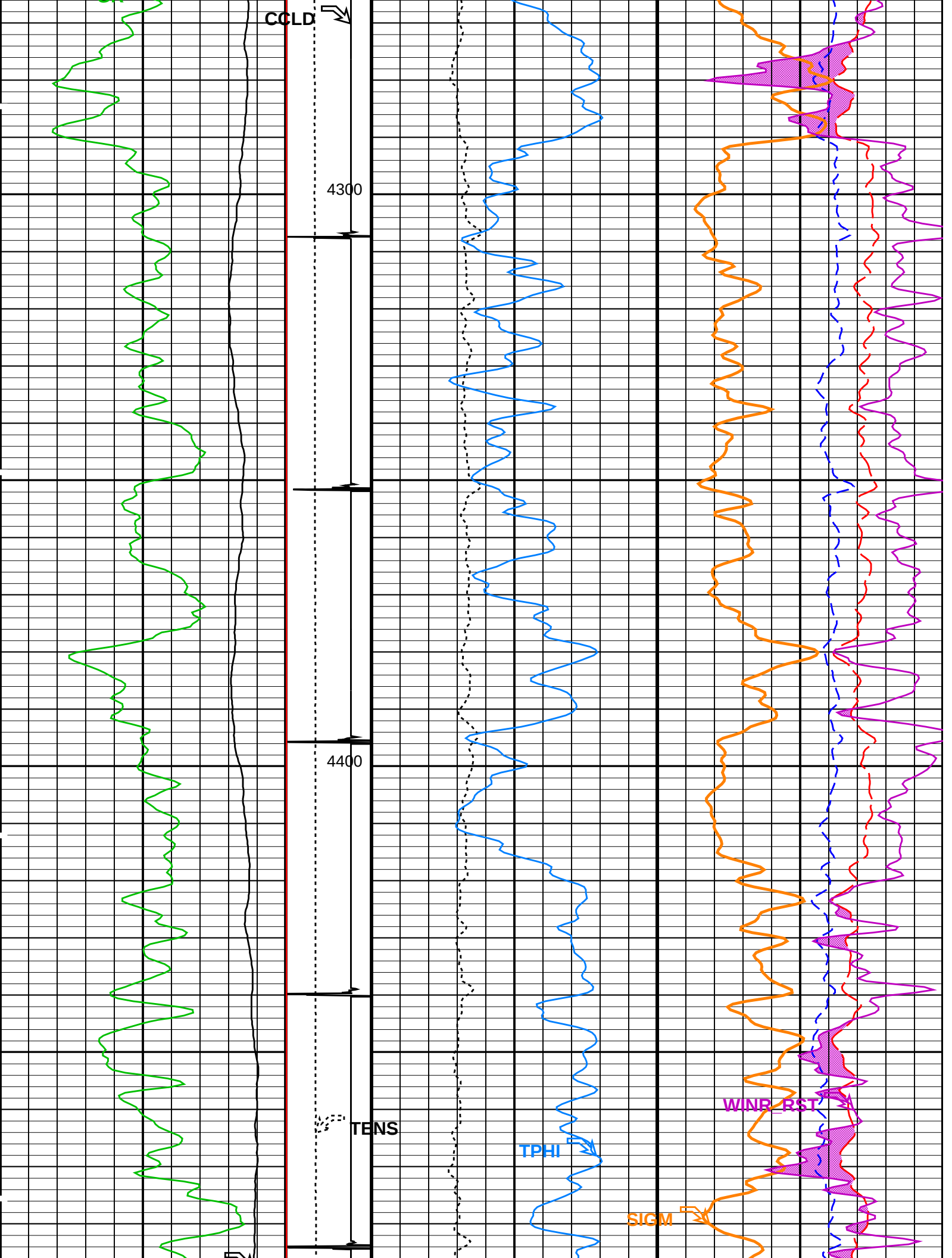
CIRN_FIL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4300
4400
TENS
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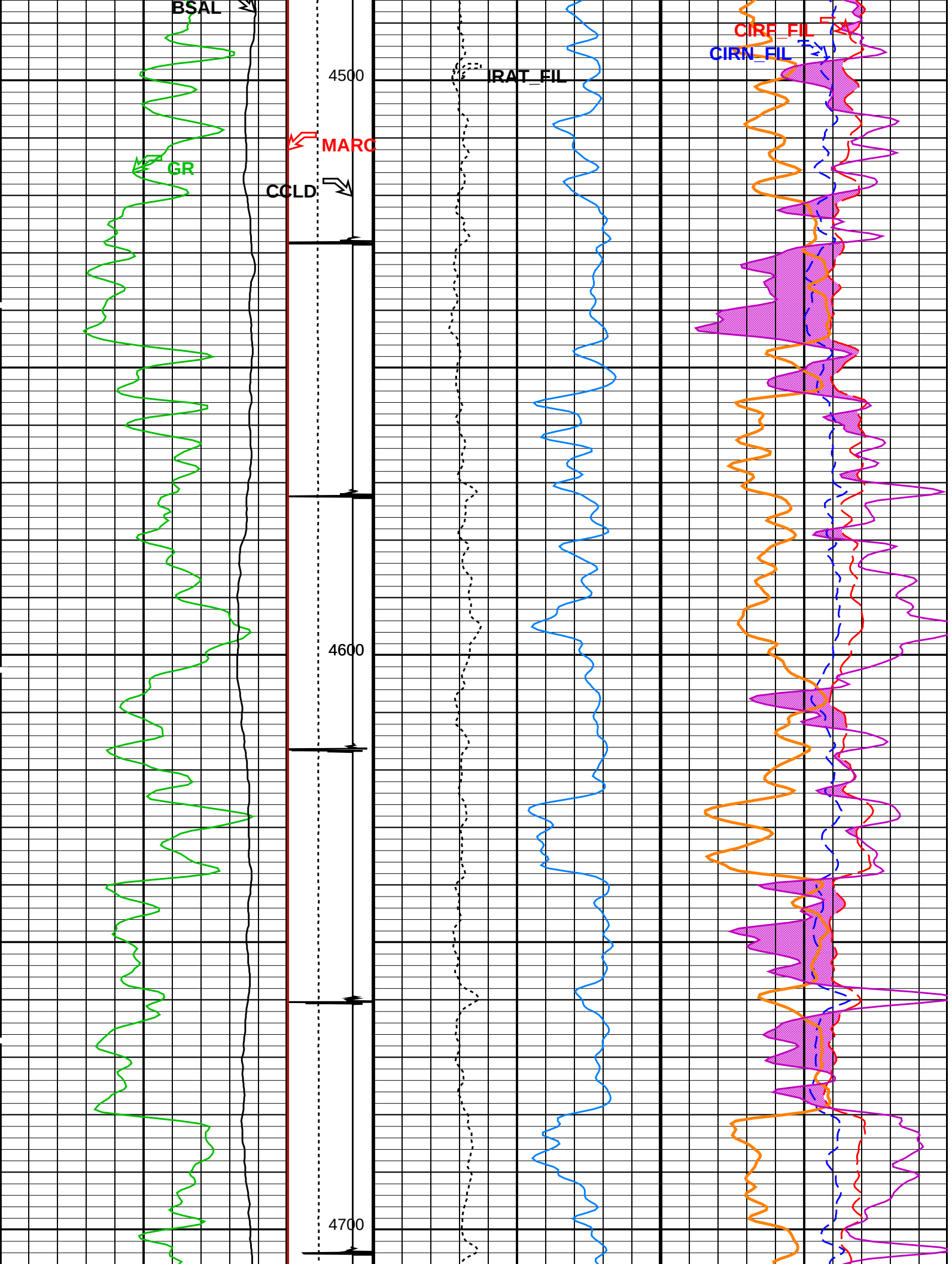
WINR_RST
SIGM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MARC
CCLD
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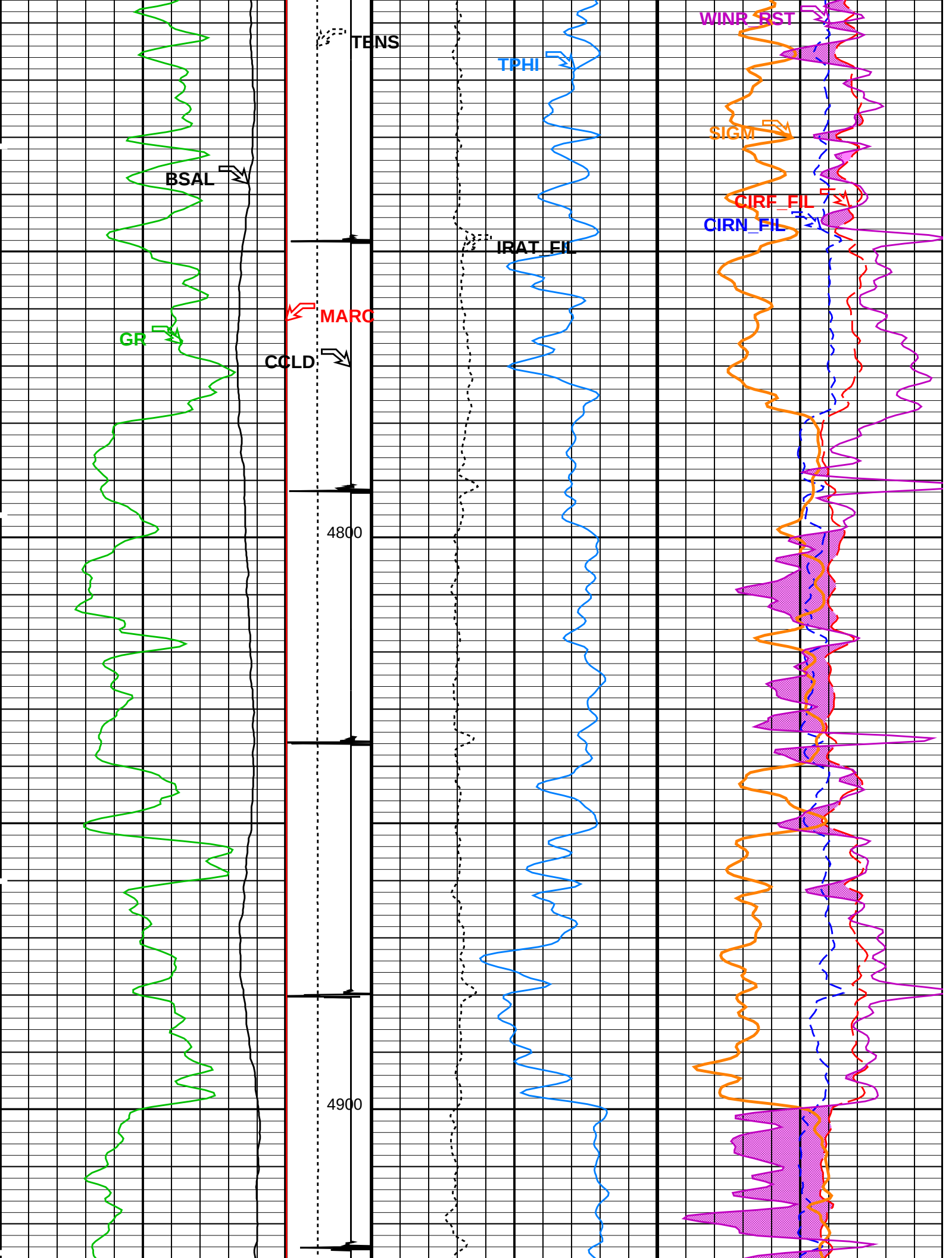
CIRF_FIL
CIRN_FIL
4600
4700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BSAL
MARC
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CCLD
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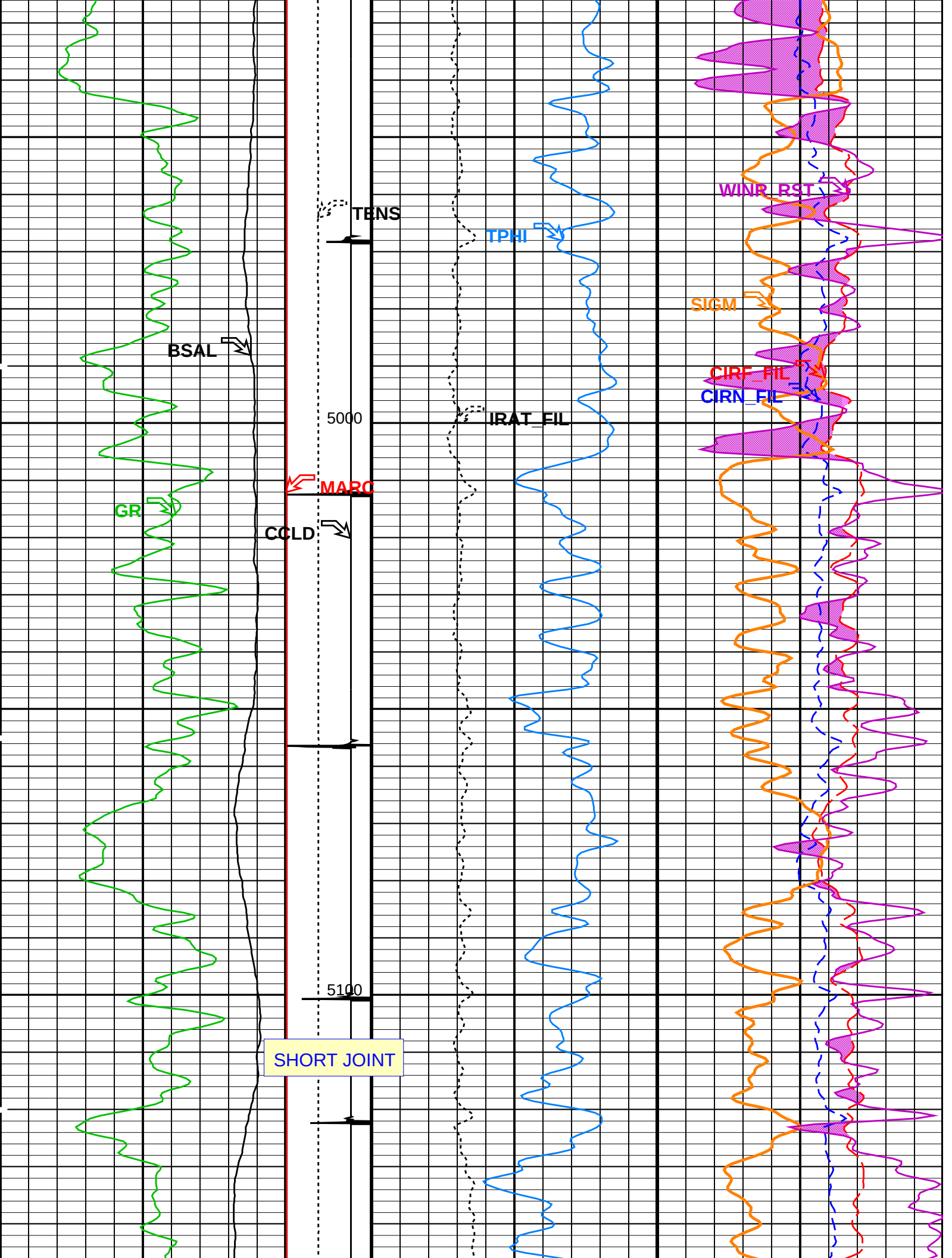
4900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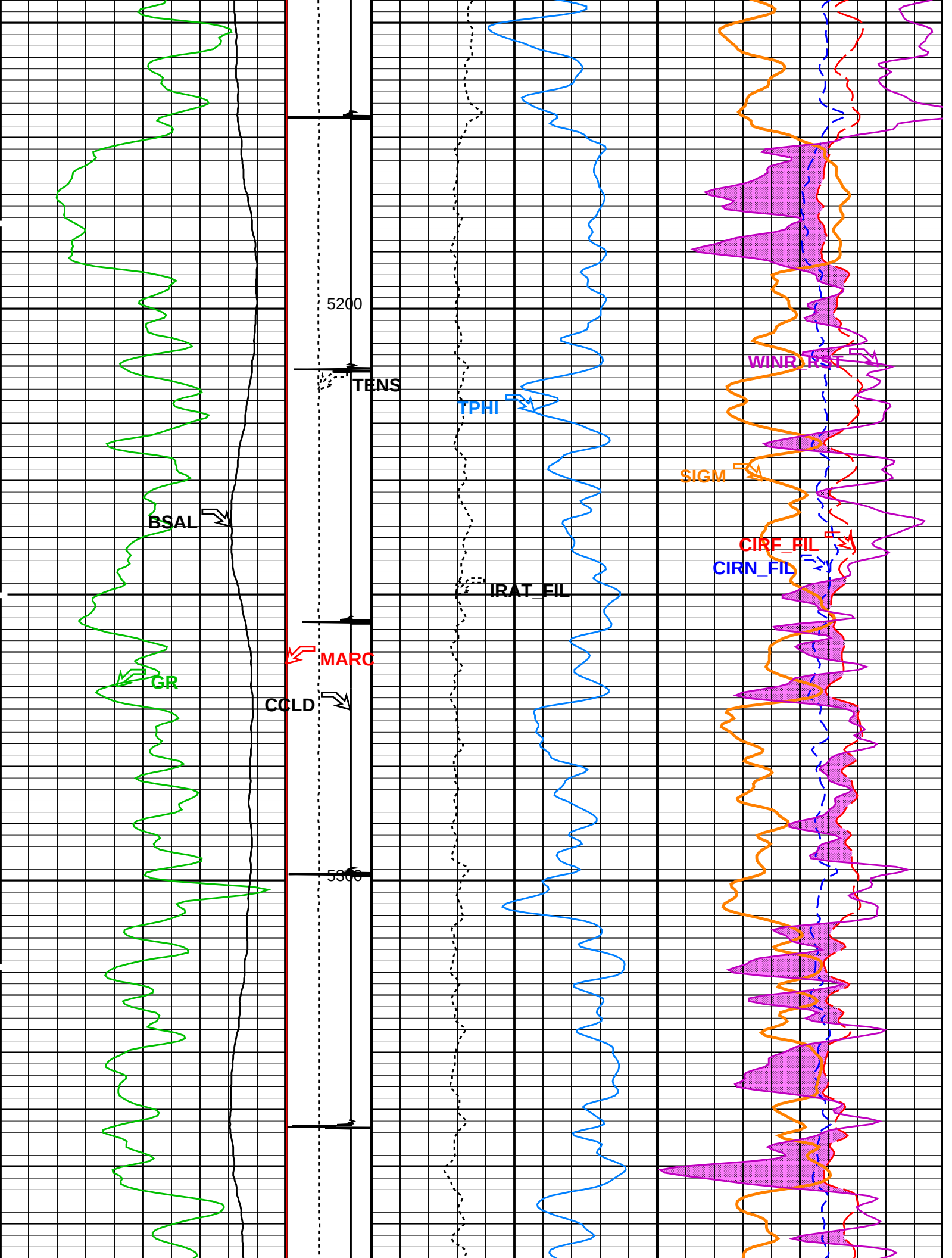
BSAL
CIRF_FIL
CIRN_FIL
5000
IRAT_FIL
MARC
GR
CCLD
5100
SHORT JOINT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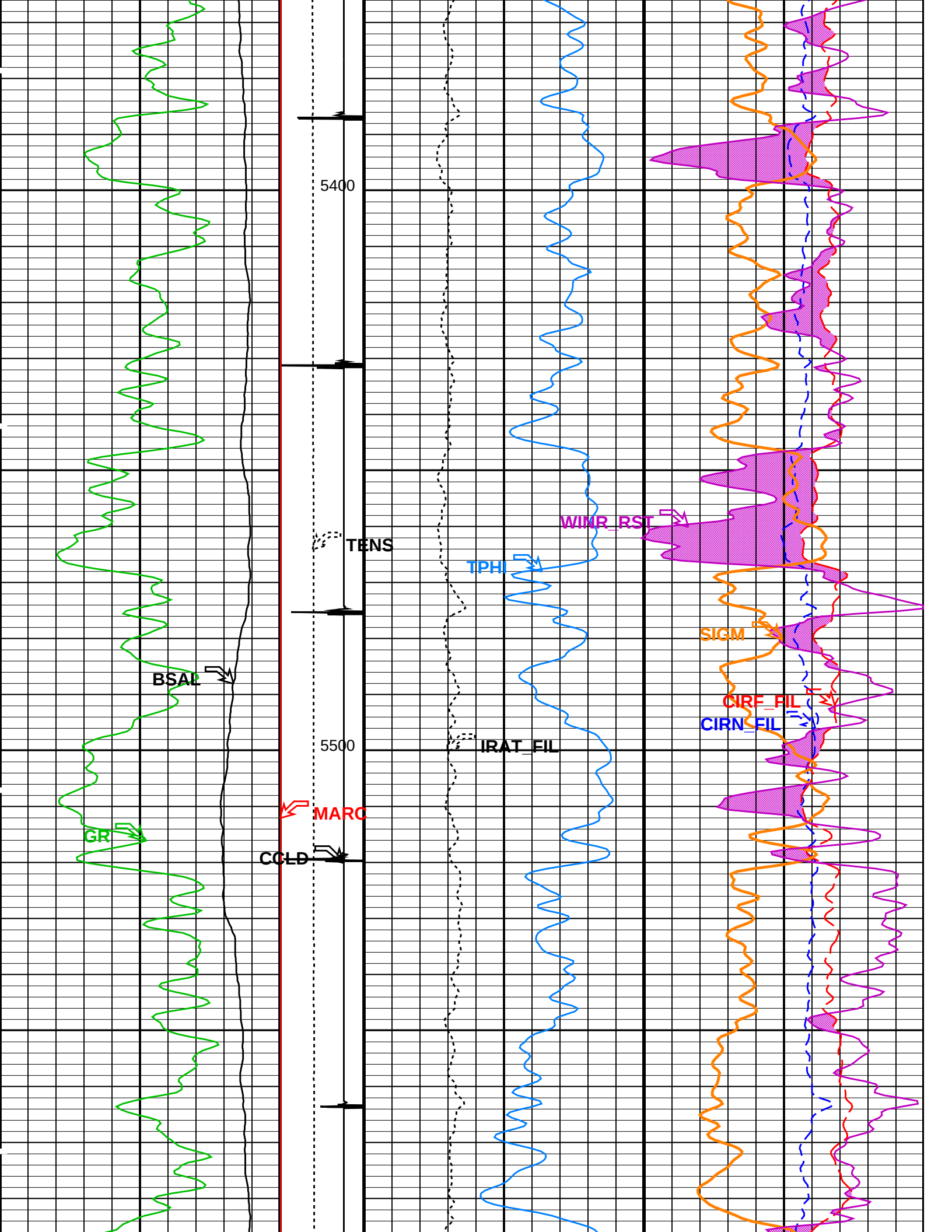
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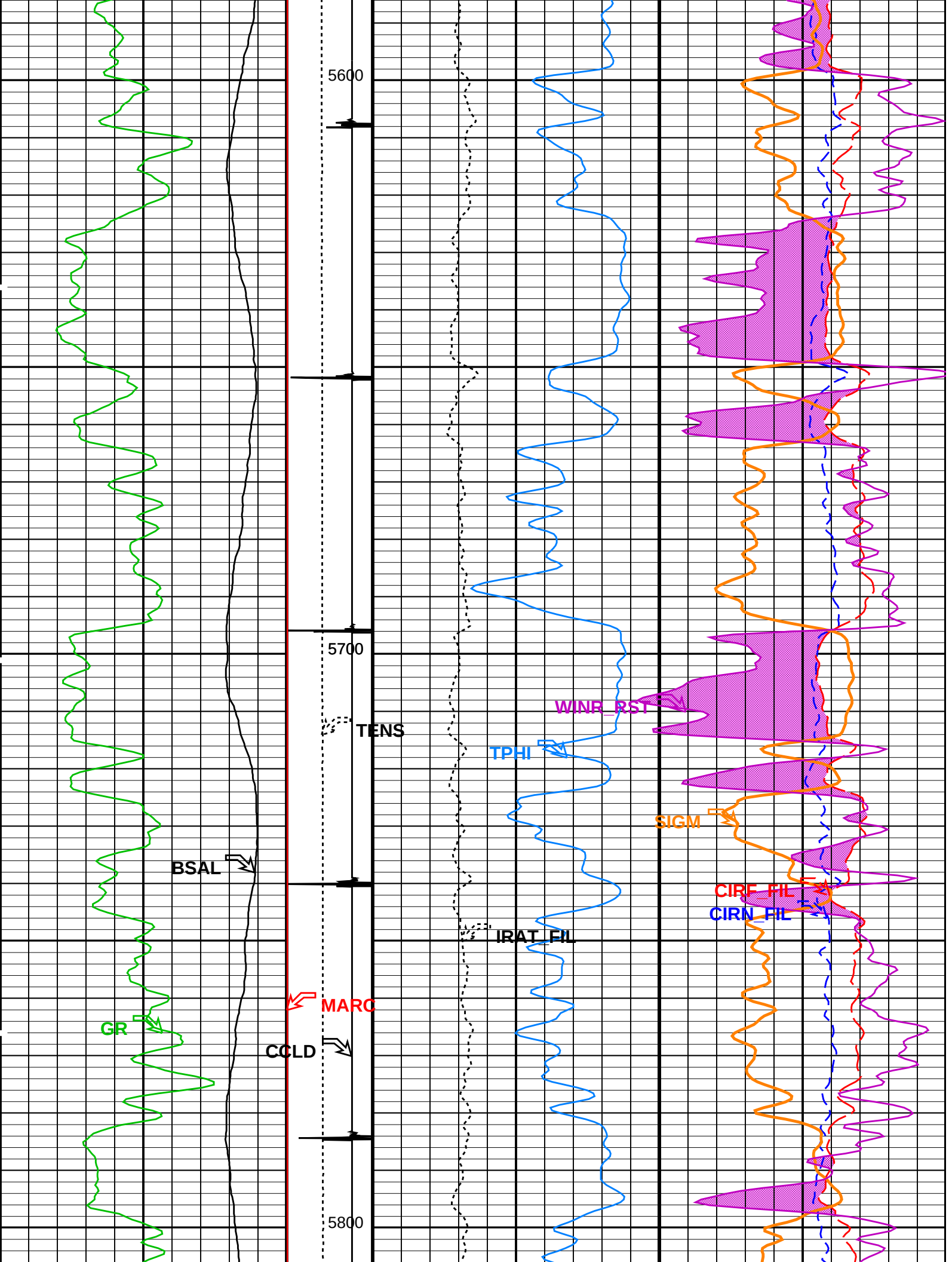
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5700
5800
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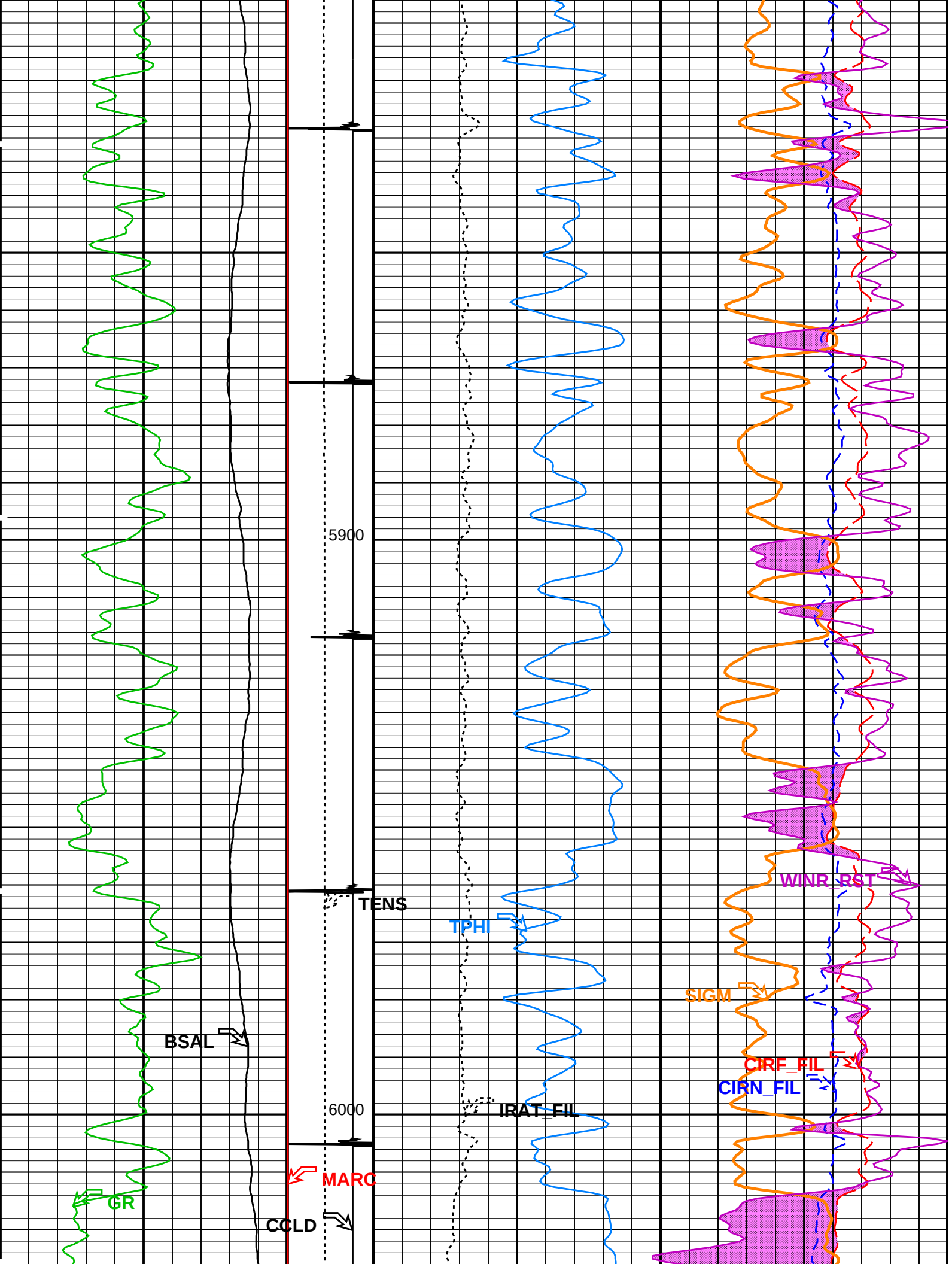
BSAL
GR
MARC
CCLD
WINR_RST
TPHI
SIGM
IRAT_FIL
CIRF_FIL
CIRN_FIL


5900
6000
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TPHI
WINR_RST
SIGM
BSAL
CIRF_FIL
CIRN_FIL
IRAT_FIL
MARC
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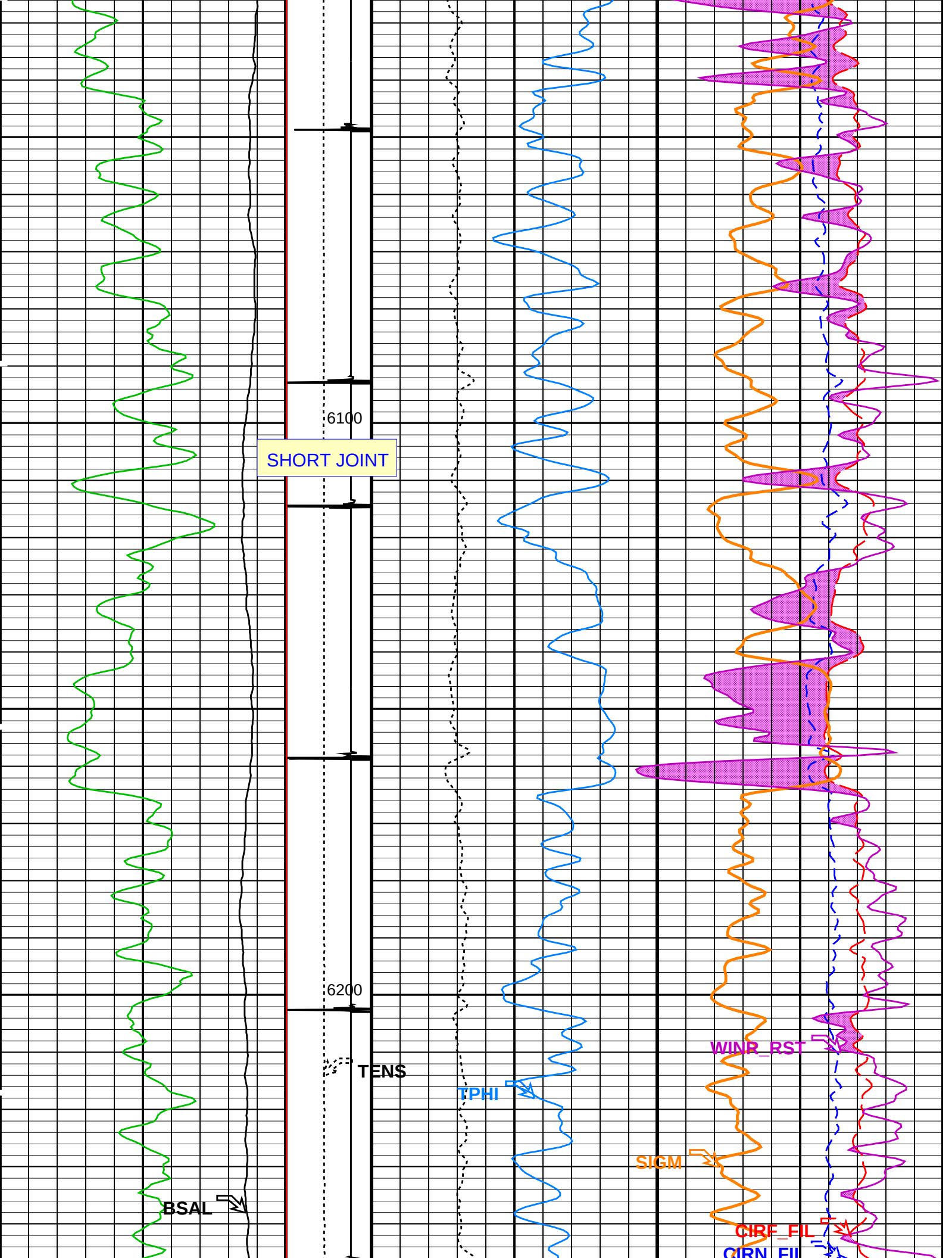
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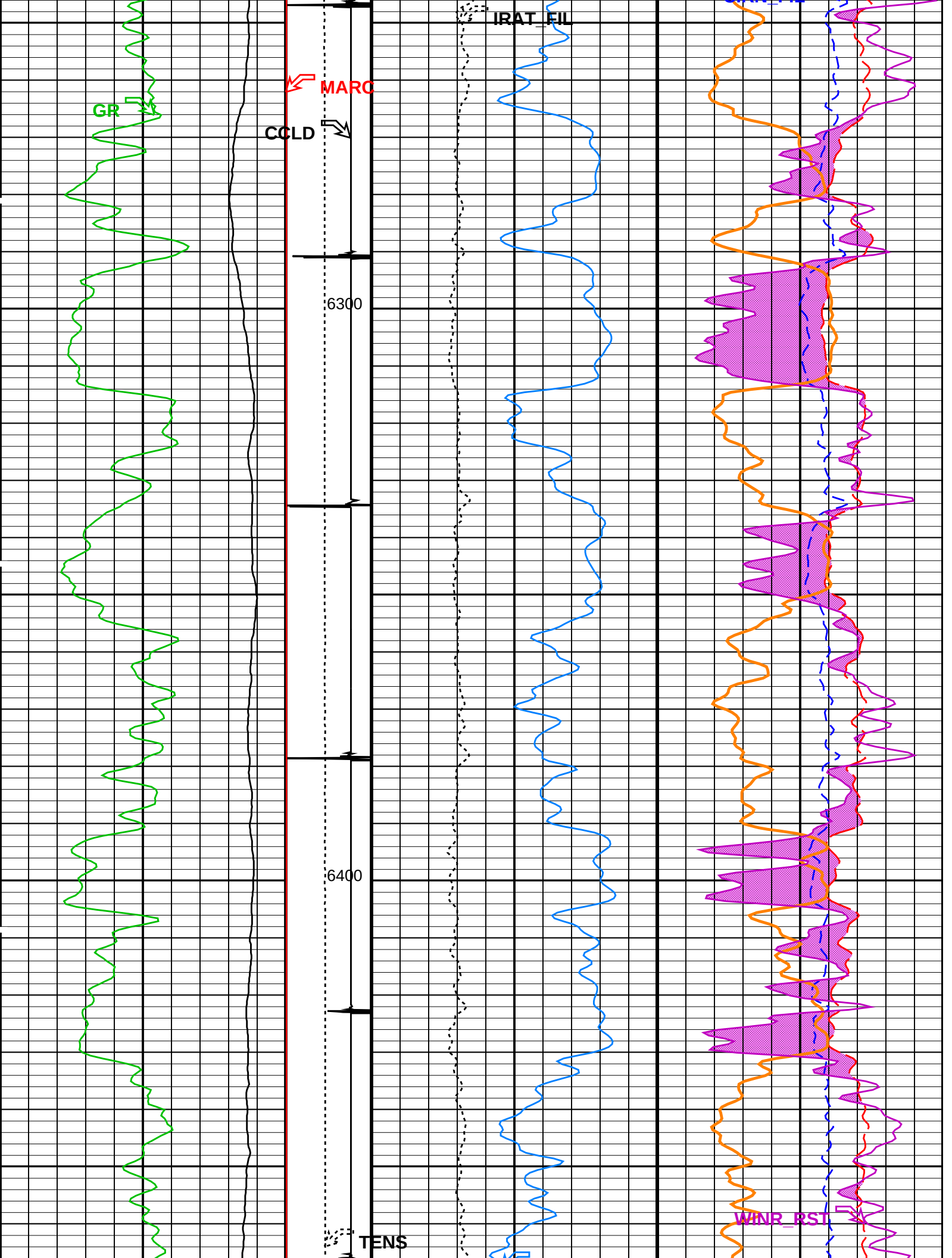
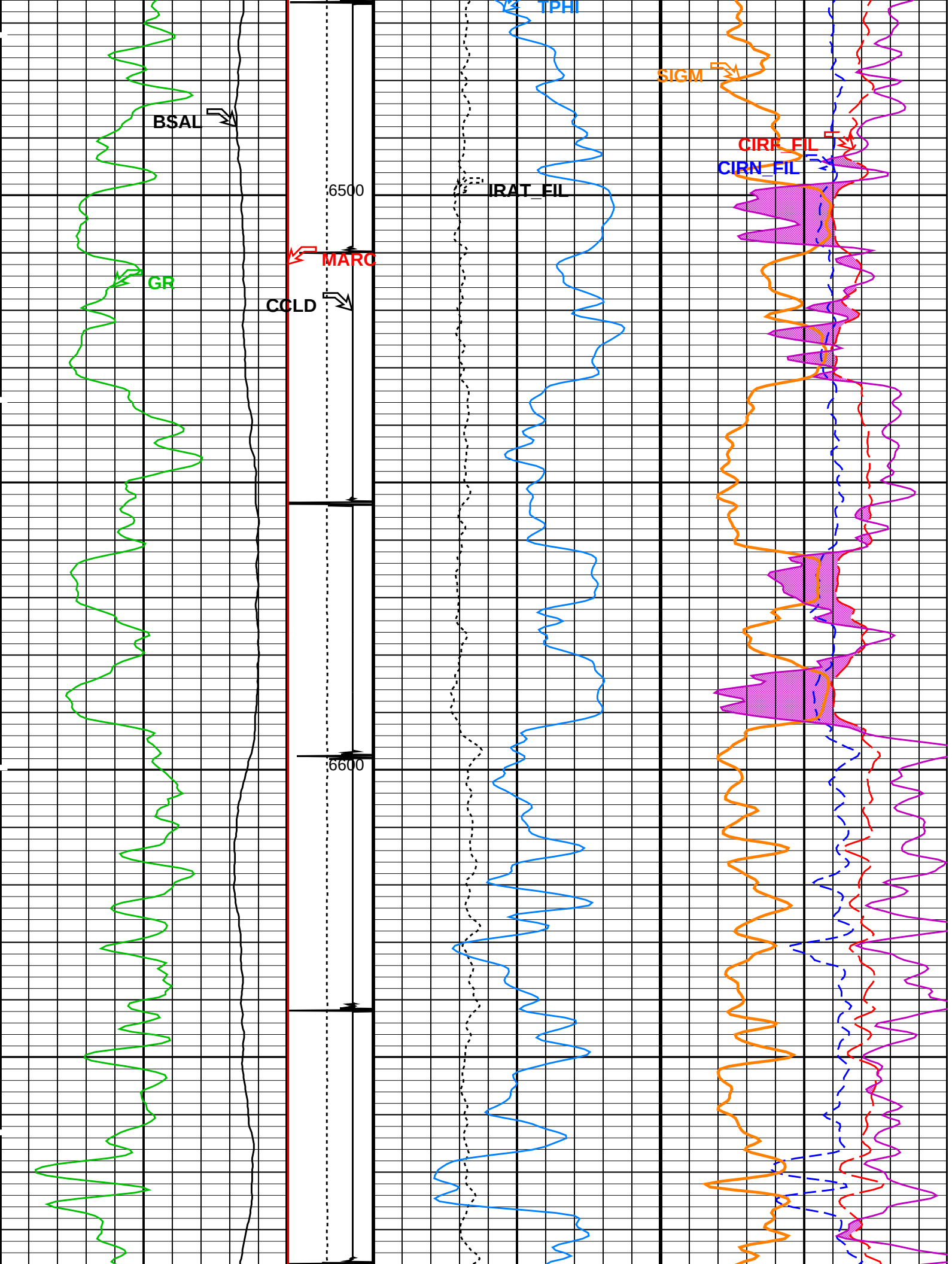
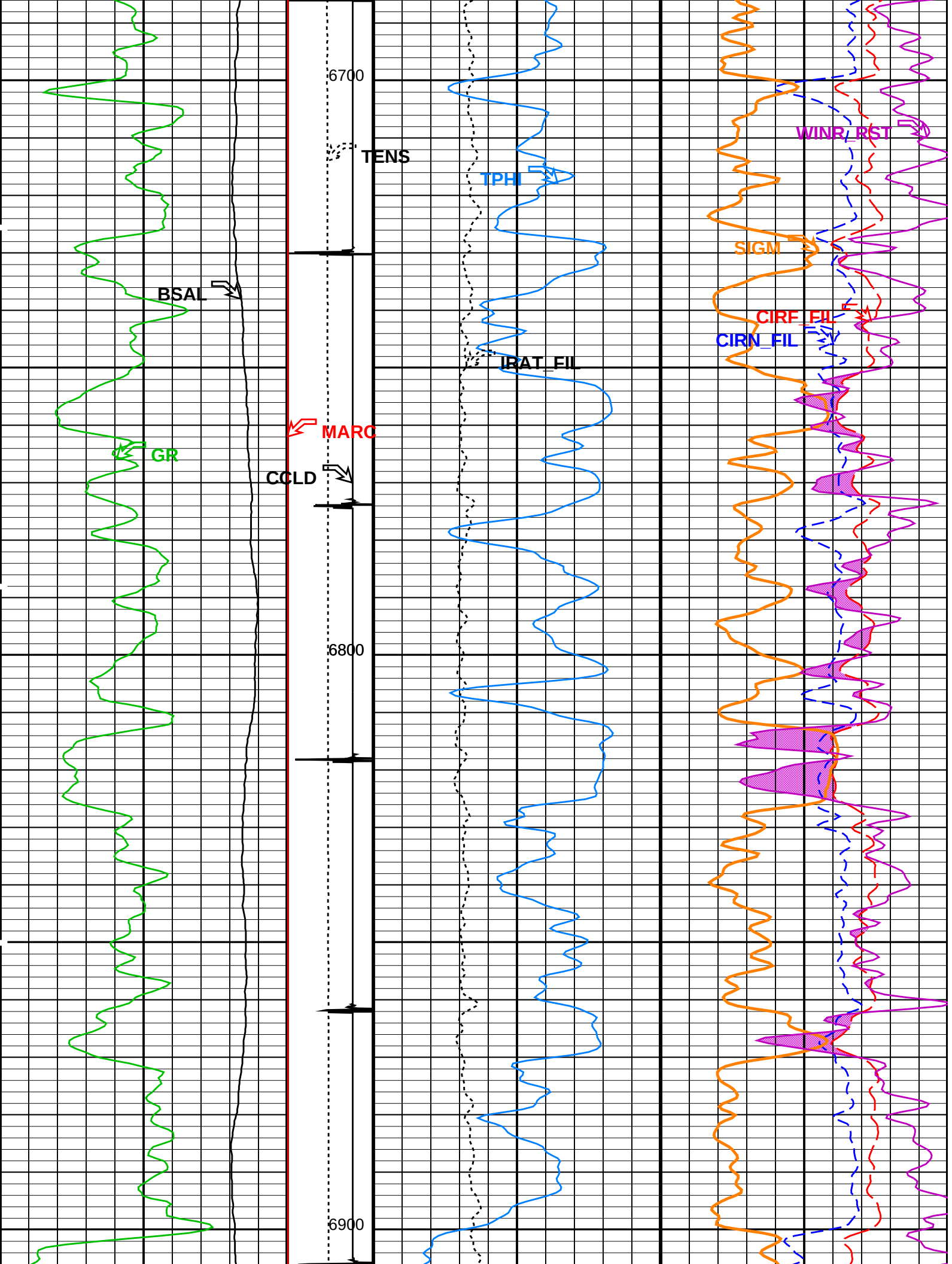
WINR_RST
CIRF_FIL
CIRN_FIL


GR
MARC
CCLD
IRAT_FIL
6300
6400
TENS
WINR_RST


TPHI
SIGM
BSAL
CIRF_FIL
CIRN_FIL
6500
IRAT_FIL
MARC
GR
CCLD
6600


6700
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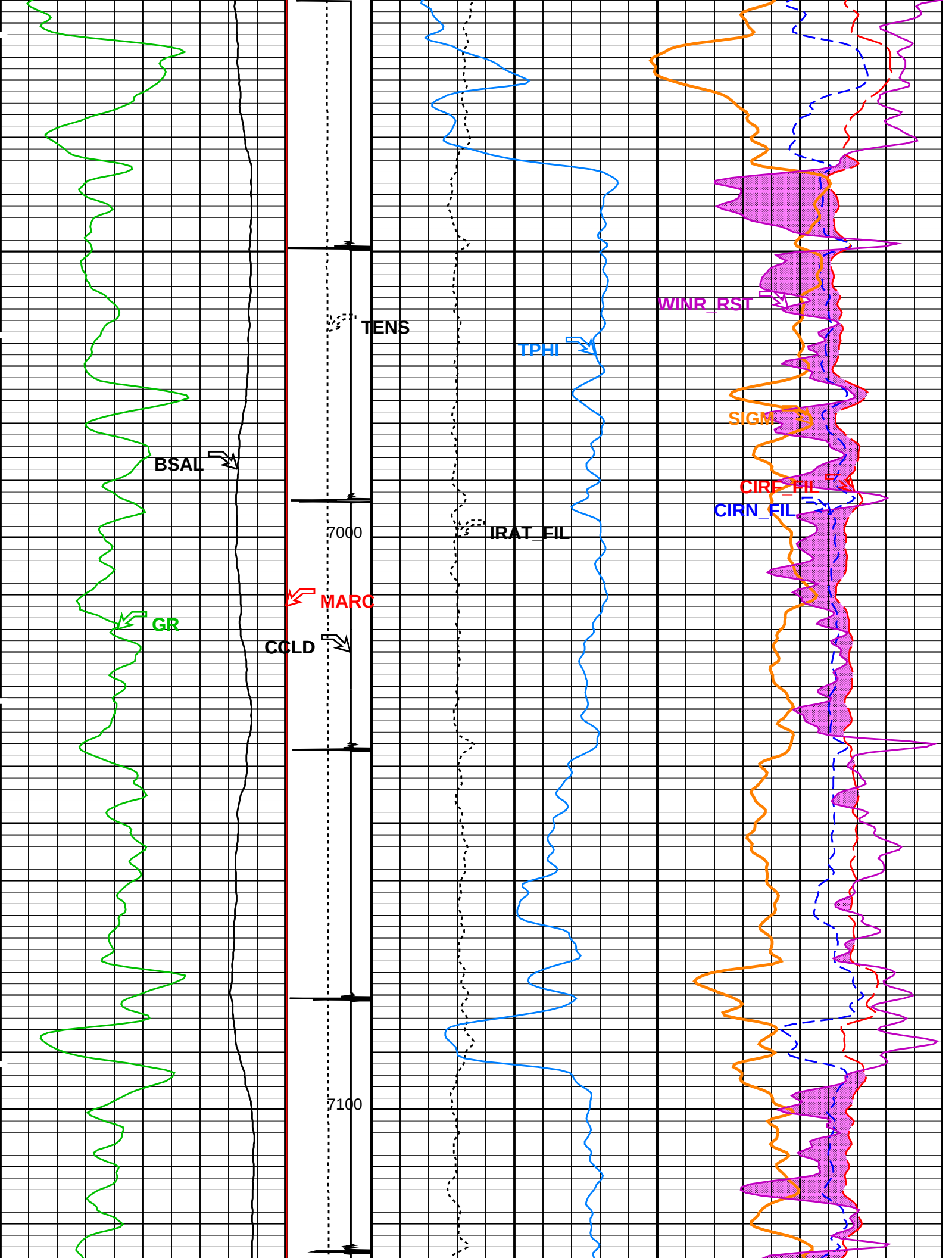
SIGM
BSAL
CIRF_FIL
CIRN_FIL
IRAT_FIL
MARC
GR
CCLD
6800
6900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GR
7000
MARC
CCLD
IRAT_FIL
TPHI
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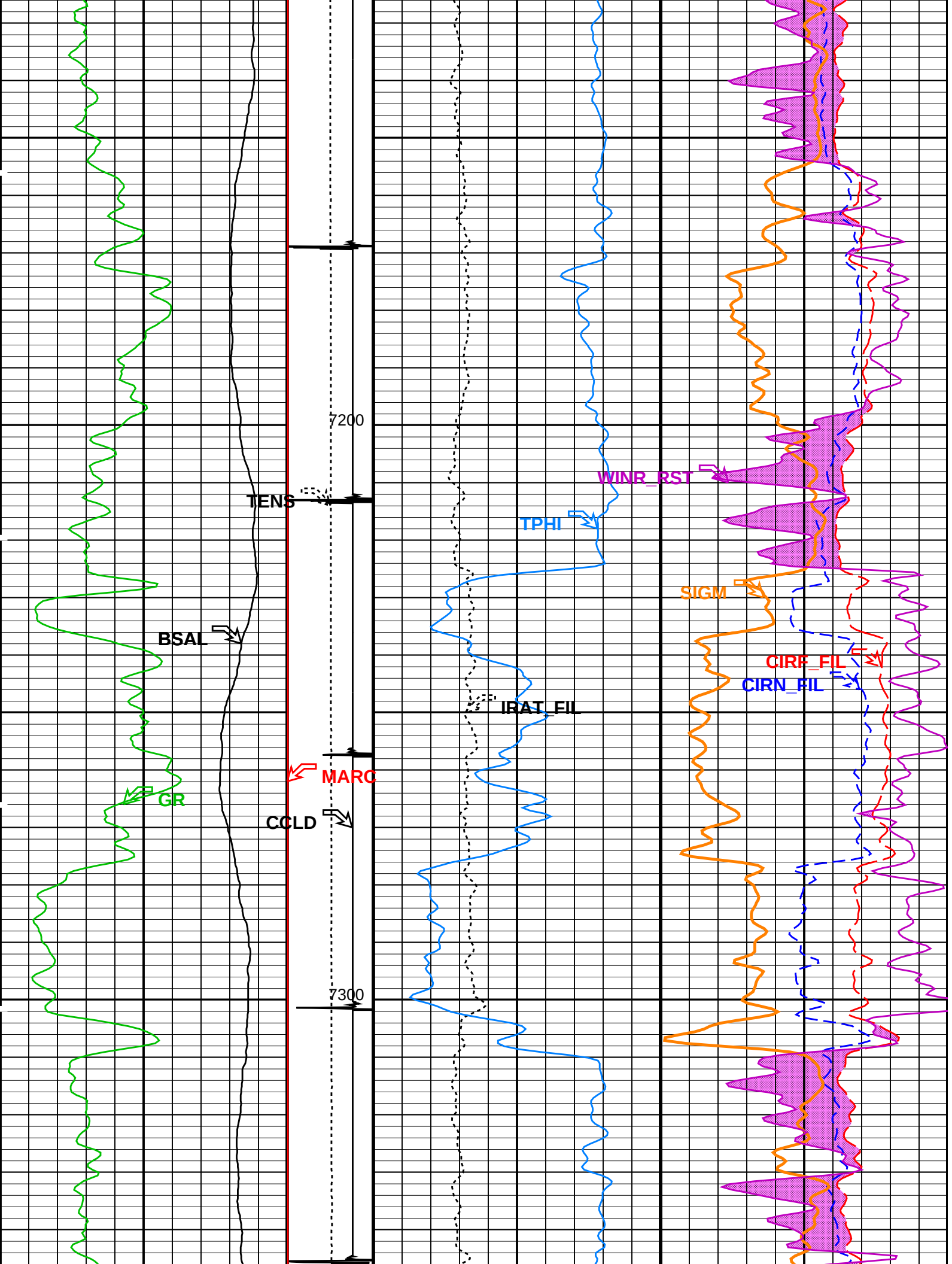
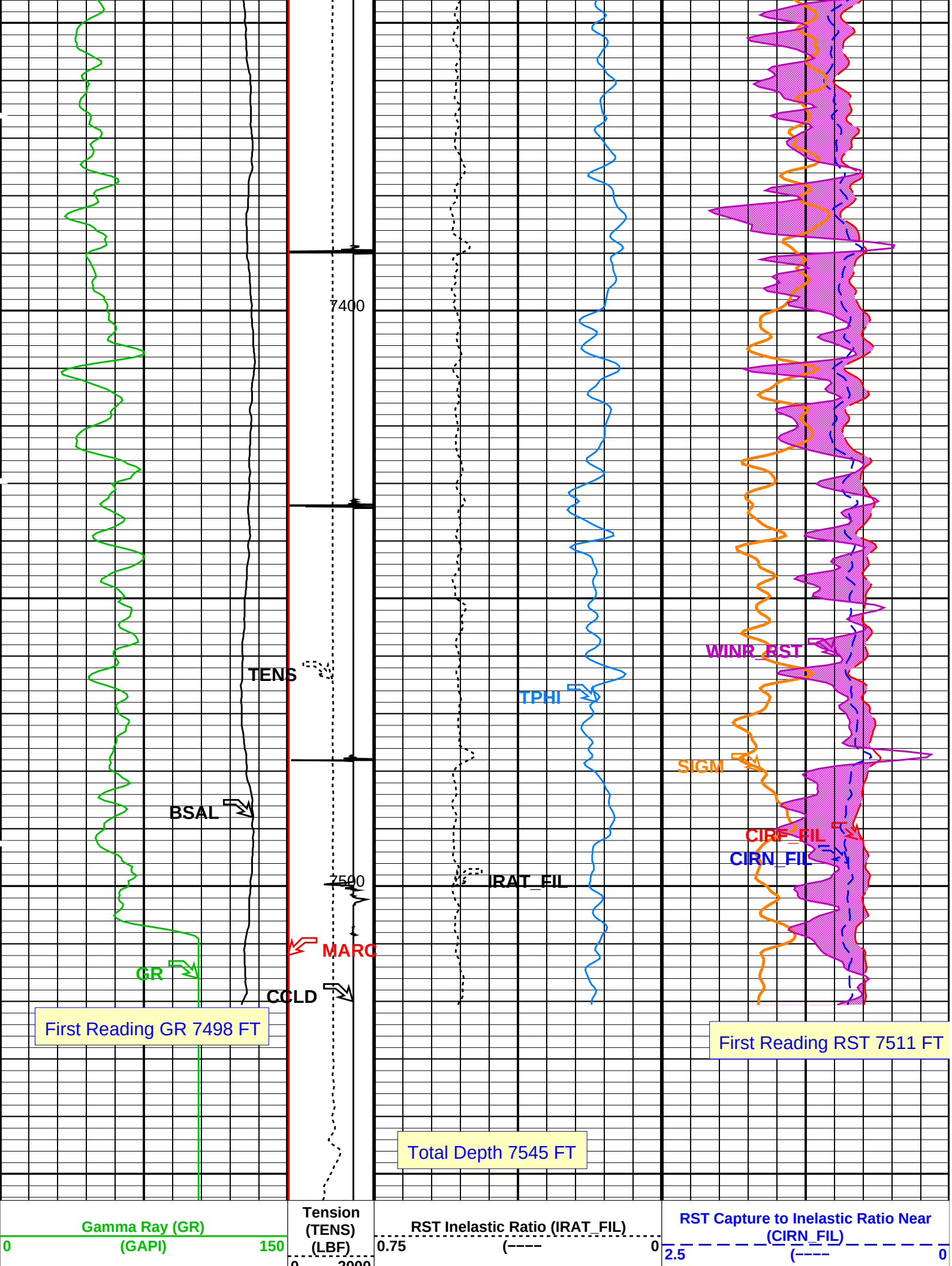
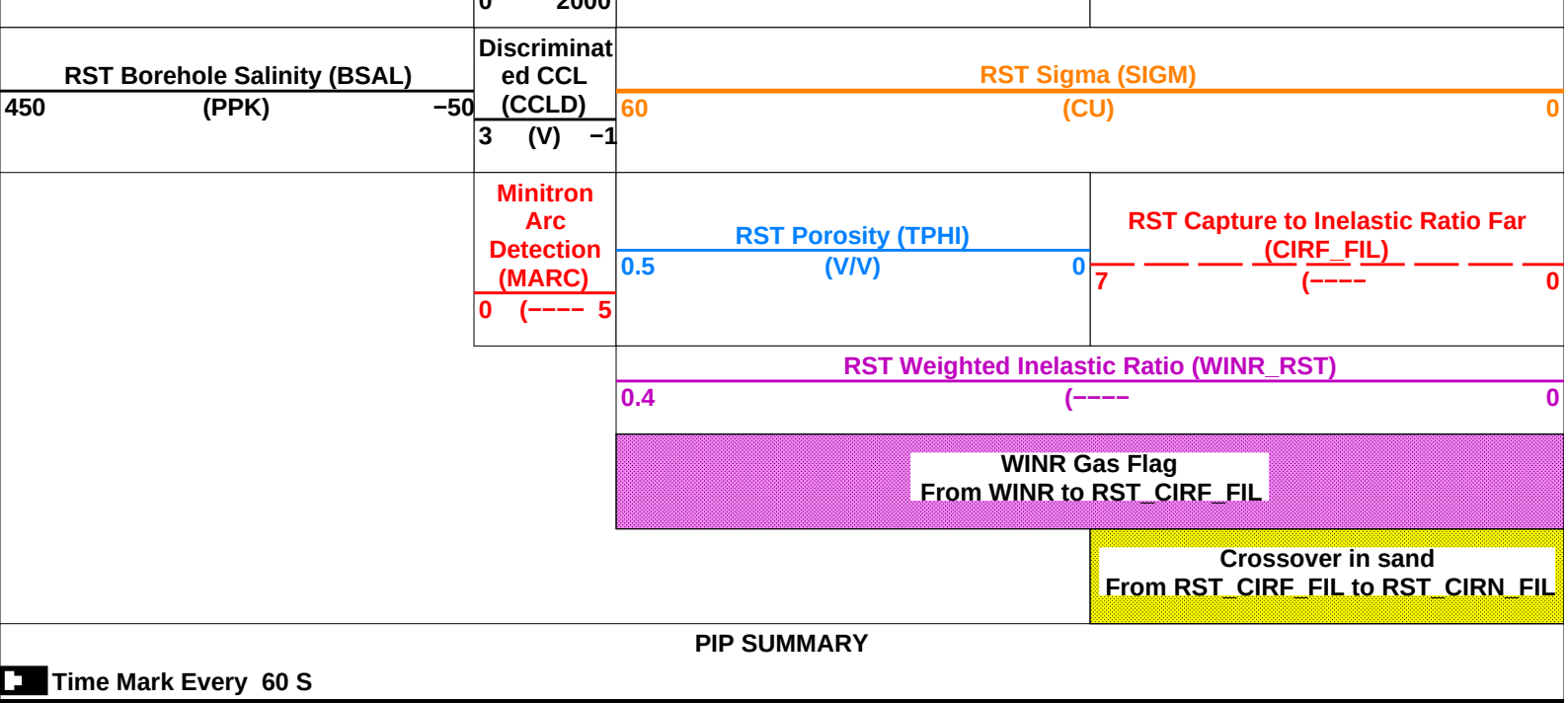
SIGM
CIRF_FIL
CIRN_FIL
7100


7200
TENS
WINR_RST
TPHI
SIGM
BSAL
CIRF_FIL
CIRN_FIL
IRAT_FIL
MARC
GR
CCLD
7300


7400
7500
TENS
BSAL
GR
MARC
CCLD
TPHI
IRAT_FIL
WINR_RST
SIGM
CIRF_FIL
CIRN_FIL
First Reading GR 7498 FT
First Reading RST 7511 FT
Total Depth 7545 FT
Gamma Ray (GR)
0
(GAPI)
150
Tension
(TENS)
(LBF)
0
2000
RST Inelastic Ratio (IRAT_FIL)
0.75
(----
0
RST Capture to Inelastic Ratio Near
(CIRN_FIL)
2.5
(----
0



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	
CMTP	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_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	7.875	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	7545	FT
TDD	Total Depth − Driller	7634.00	FT
TDL	Total Depth − Logger	7545.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5 Vertical Scale: 5" per 100' Graphics File Created: 27−Apr−2013 20:40

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_026LUP	FN:24	PRODUCER	27−Apr−2013 18:32	7551.5 FT	−29.8 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_030PUP	FN:28	PRODUCER	27−Apr−2013 20:40

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REPEAT ANALYSIS RST SIGMA

MAXIS Field Log

Input DLIS Files

DEFAULT	SCMT_RST_PSP_024LUP	FN:22	PRODUCER	27−Apr−2013 18:19	5335.5 FT	5031.5 FT

DEFAULT	SCMT_RST_PSP_030PUP	FN:28	PRODUCER	27-Apr-2013 20:40	7554.5 FT	-71.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	27-Apr-2013 20:47	5335.5 FT	4987.0 FT

OP System Version: 19C0-187

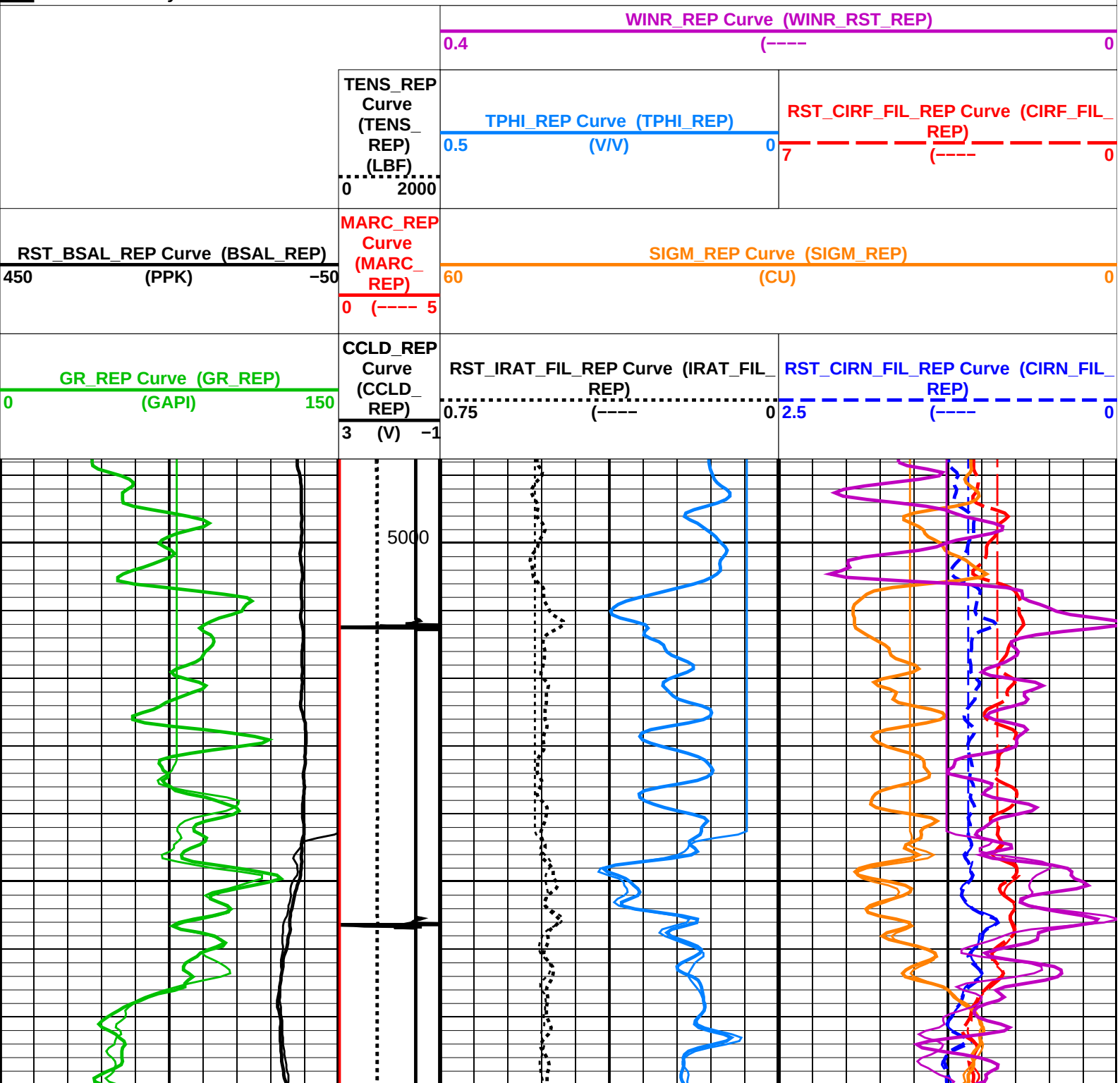
SCMT-CB	SRPC-5214-H2-2012-OP1	RST-C	SRPC-5214-H2-2012-OP1
PSPT	SRPC-5214-H2-2012-OP1		

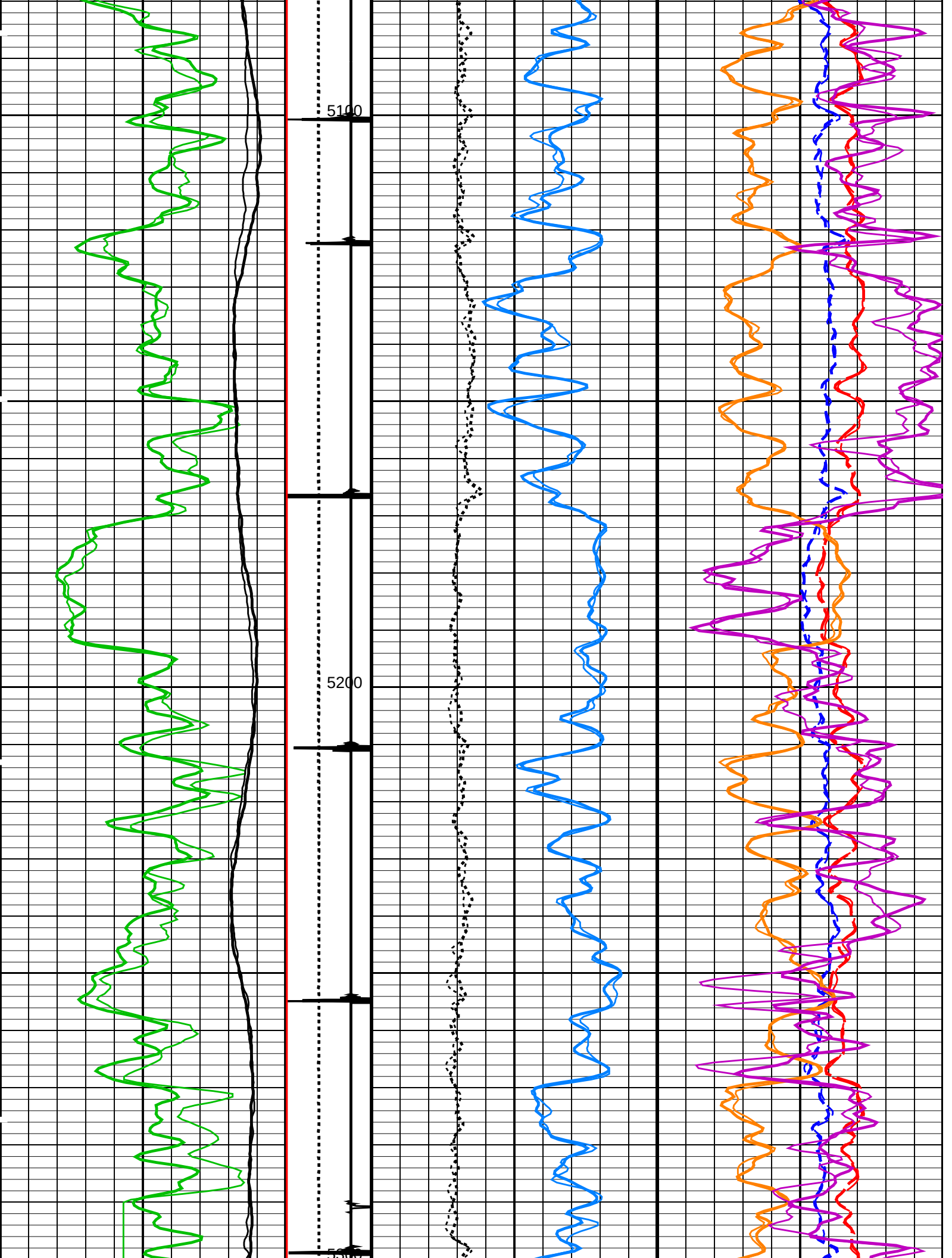
Changed Parameter Summary

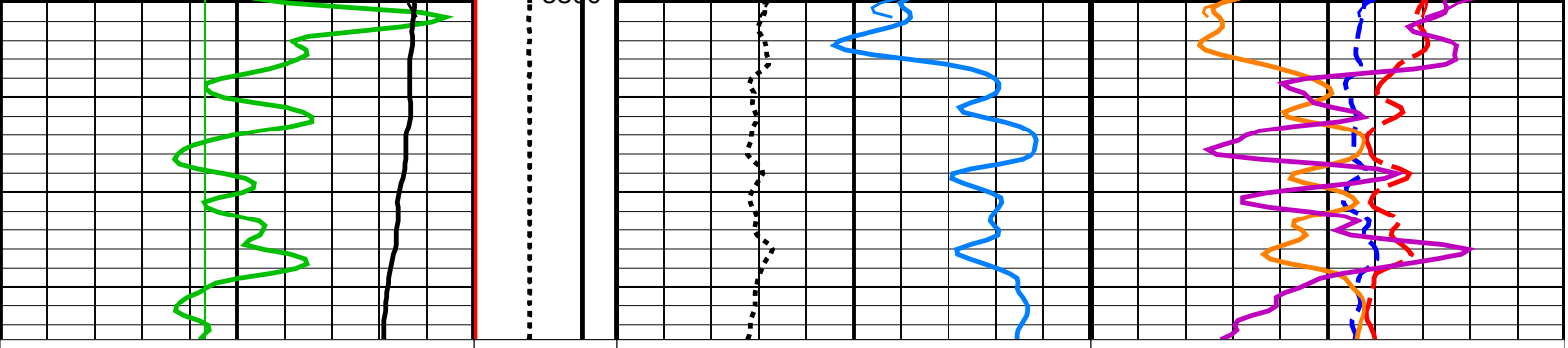
DLIS Name	New Value	Previous Value	Depth & Time
BS	8.750 IN	8.750 IN	5335.5 20:47:16

PIP SUMMARY

Time Mark Every 60 S




5100
5200



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	
CMTP	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			
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	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	7545	FT
TDD	Total Depth − Driller	7634.00	FT
TDL	Total Depth − Logger	7545.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5_REP Vertical Scale: 5" per 100’ Graphics File Created: 27−Apr−2013 20:47

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_024LUP	FN:22	PRODUCER	27−Apr−2013 18:19	5335.5 FT	5031.5 FT
DEFAULT	SCMT_RST_PSP_030PUP	FN:28	PRODUCER	27−Apr−2013 20:40	7554.5 FT	−71.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	27−Apr−2013 20:47

Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**SHIDELER 19−16CC (O19EB)**	**Sensor:**	**GR**
Run date:	**27−Apr−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

	Rt0**	**Rt**1**
Rt0**	**+.182000000000e+04**	**+.332000000000e+04**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**SHIDELER 19−16CC (O19EB)**	**Sensor:**	**WellTemp RTD**
Run date:	**27−Apr−2013**		

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:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**SHIDELER 19−16CC (O19EB)**	**Sensor:**	**CQG**
Run date:	**27−Apr−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

	Fc0**	**Fc**1**	**Fc**2**
Fb0**	+.117016867873E+03	−.284359629614E−03	+.604391180345E−08
Fb1**	−.598309140812E−02	+.182731130848E−07	+.160166486172E−12
Fb2**	−.307621454576E−07	+.300601550309E−12	+.311233548560E−17
Fb3**	−.419658736767E−12	+.117473708647E−16	0.0
Fb4**	0.0	0.0	0.0
Fb5**	0.0	0.0	0.0

	Fc3**	**Fc**4**	**Fc**5**
Fb0**	+.114322792679E−12	+.153807711176E−17	−.736714260866E−21
Fb1**	−.528037875456E−18	−.220337637519E−21	0.0
Fb2**	0.0	0.0	0.0
Fb3**	0.0	0.0	0.0
Fb4**	0.0	0.0	0.0
Fb5**	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB	**:**
Sensor Serial NB	**928**
Calib Date ddmmyy	**280612**
Matrix Size	**16**
Coeff CRC	**093F**

Clock Freq Coeff

	(Fb'−Fc')0**	**(Fb'−Fc')**1**	**(Fb'−Fc')**2**
(Fb'−Fc')0**	+.310874009898E+05	+.288920923041E−02	+.697940727038E−06

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

PBMS Quartz Gauge type F

Sonde Serial NB	**:**
Sensor Serial NB	**928**
Calib Date ddmmyy	**280612**
Matrix 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: **SHIDELER 19−16CC (O19EB)**
Field: **MAMM CREEK**
County: **GARFIELD**
State: **COLORADO**

RESERVOIR SATURATION LOG
SIGMA MODE
GR−CCL