Schlumberger

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

Well: **SHIDELER FEE 31−13CC (031E)**
Field: **MAMM CREEK**
County: **GARFIELD** State: **COLORADO**

RESERVOIR SATURATION LOG
SIGMA MODE
GR−CCL

County: GARFIELD
Field: MAMM CREEK
Location: SHL: 192 FSL & 2046 FEL
Well: SHIDELER FEE 31−13CC (031E)
Company: ENCANA OIL & GAS (USA) INC

LOCATION

SHL: 192 FSL & 2046 FEL
BHL: 251 FSL & 99 FWL

Elev.: K.B. 7129.00 ft
G.L. 7107.00 ft
D.F. 7128.00 ft

Permanent Datum: GROUND LEVEL Elev.: 7107.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−21737−0(	31	7S	92W

Logging Date		10−Feb−2013				
Run Number		1				
Depth Driller		9020 ft				
Schlumberger Depth		8936 ft				
Bottom Log Interval		8902 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		7429 ft				
To		9020 ft				
Casing/Tubing Size		4.500 in				
Weight		11.6 lbm/ft				
Grade		S−80				
From		22 ft				
To		9002 ft				
Maximum Recorded Temperatures		244 degF				
Logger On Bottom	Time	10−Feb−2013	6:15			
Unit Number	Location	391	GRAND JUNCTION			
Recorded By		JASON BARRY				
Witnessed By		SHANE				

		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						

Run 3

Run 4

DEPTH SUMMARY LISTING

Date Created: 29−JAN−2013 10:07:01

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:	29−JAN−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:	13	Rig Type:	LAND
Wheel Correction 2:	−4	Calibration Peak Error:	23		

Depth Control Parameters

Log Sequence: First Log In the Well

Rig Up Length At Surface:
Rig Up Length At Bottom:
Rig Up Length Correction:
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: 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: 5:30	
TIME AT TD: 6:15	
EXIT TIME: 9:45	

MAXIMUM RECORDED TEMEPRATURE: 244 DEGF

MAXIMUM RECORDED PRESSURE: 3658 PSIA

SHORT JOINTS: 6848 FT & 7861 FT

SANDSTONE MATRIX USED

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

CREW: K BUNTING J BARRY W AZIZ B RANSBOTTOM K JOHNS

RUN 1		RUN 2	
SERVICE ORDER #:	C920−00031	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

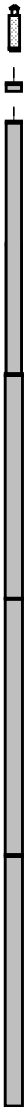
DOWNHOLE EQUIPMENT

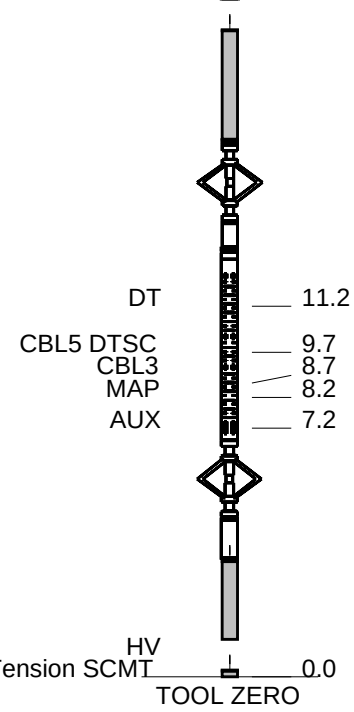
MH−22
MH−22 53.4

Detail MT
TelStatus
AH−38 51.8
CTEM 51.5
PSPT 51.5
PSC−A
PSPT−A 1772
PSTC−A
PBMS−A
10k_Sapphire_Mano
RTD_Thermometer
GR 47.8
GR
CCL
PBMS 928
Well_Temp 44.8
Manometer 44.6
CCL 44.0
PBMS PSTC 43.3

RST−C 43.3
RSCH−A 469
RSC−E
RSS−A 461
RSXH−A 493
RSX−E

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	Splice_SCMT_RST_PSP_045CUP	FN:1	PRODUCER	10−Feb−2013 09:43	8951.0 FT	10.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_046PUP	FN:44	PRODUCER	10−Feb−2013 09:45	8955.0 FT	−38.0 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

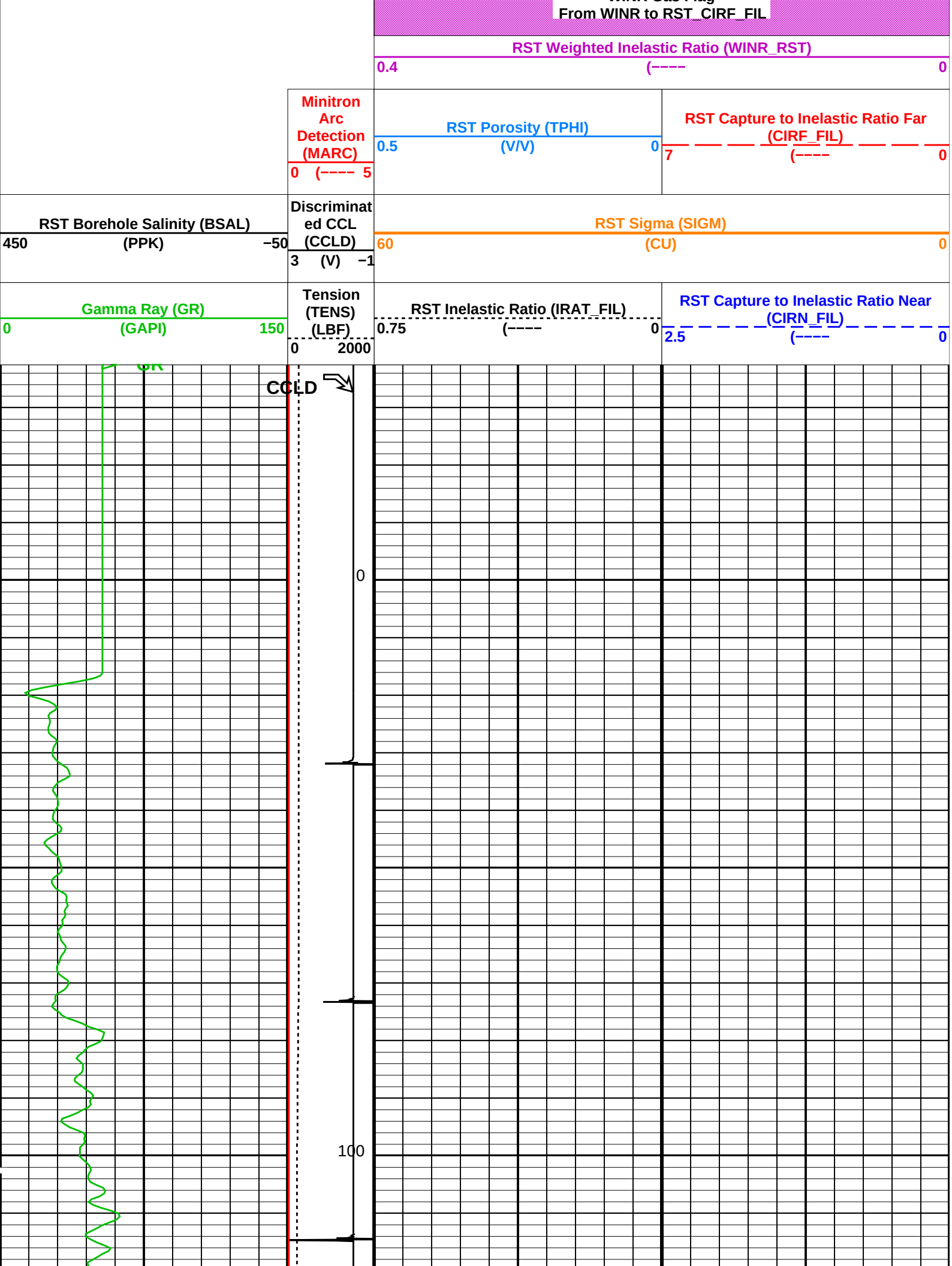
DLIS Name	New Value	Previous Value	Depth & Time
BS	7.875 IN	7.875 IN	8955.0 09:46:00
	8.750 IN	7.875 IN	7429.0 09:48:20

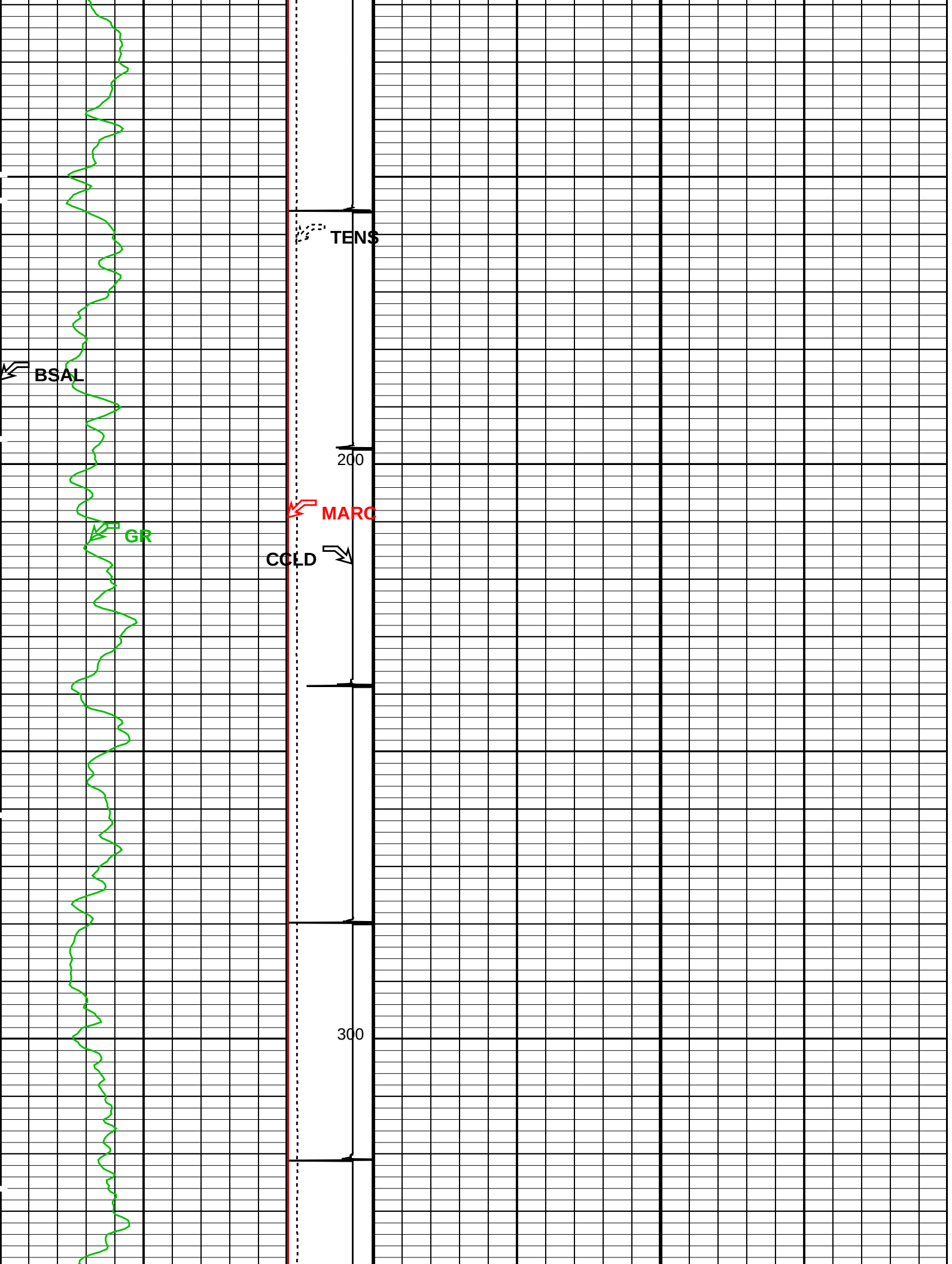
PIP SUMMARY

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
GR
CCLD
0
100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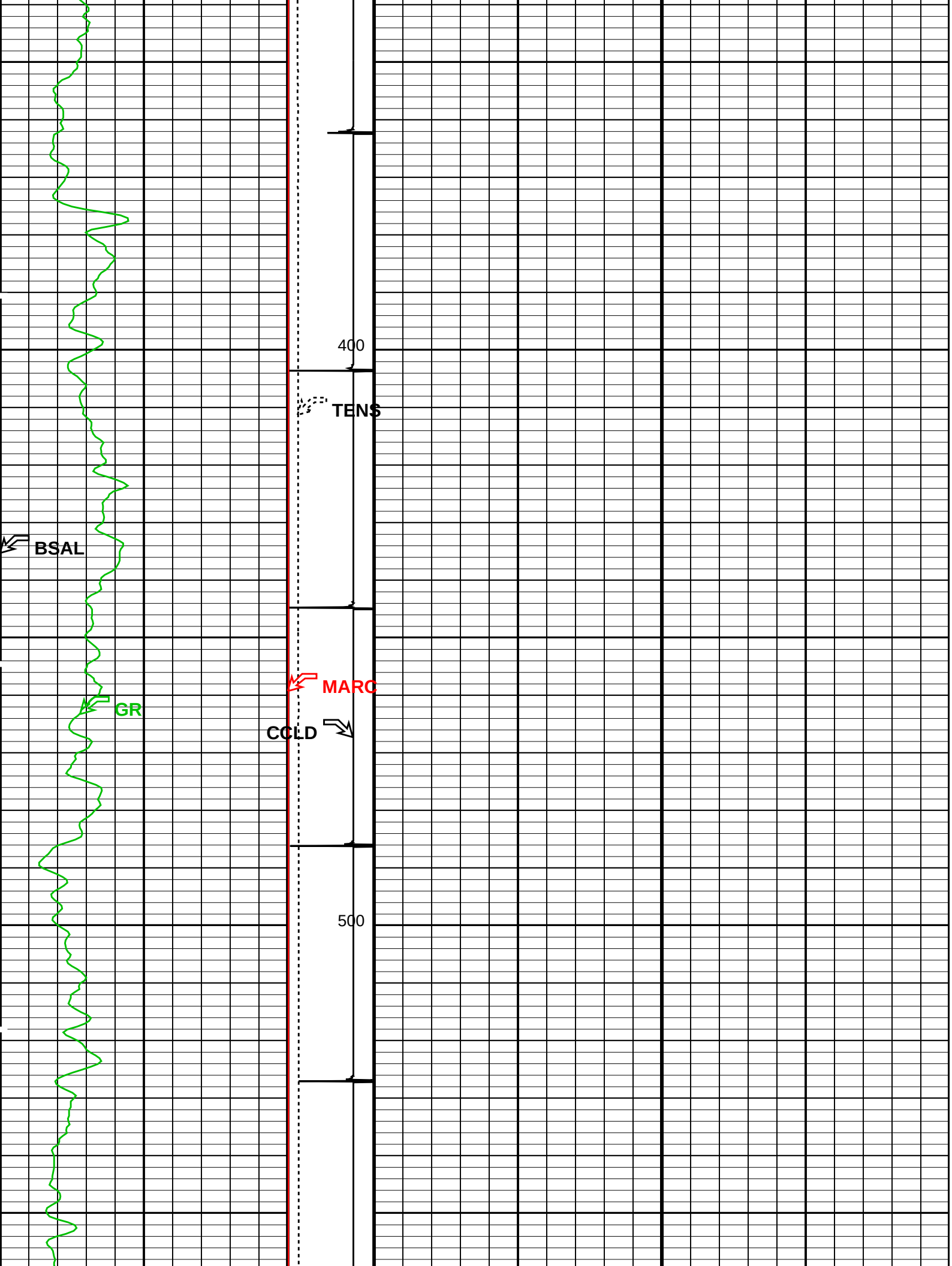
BSAL
200
MARC
GR
CCLD
300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MARC
GR
CCLD
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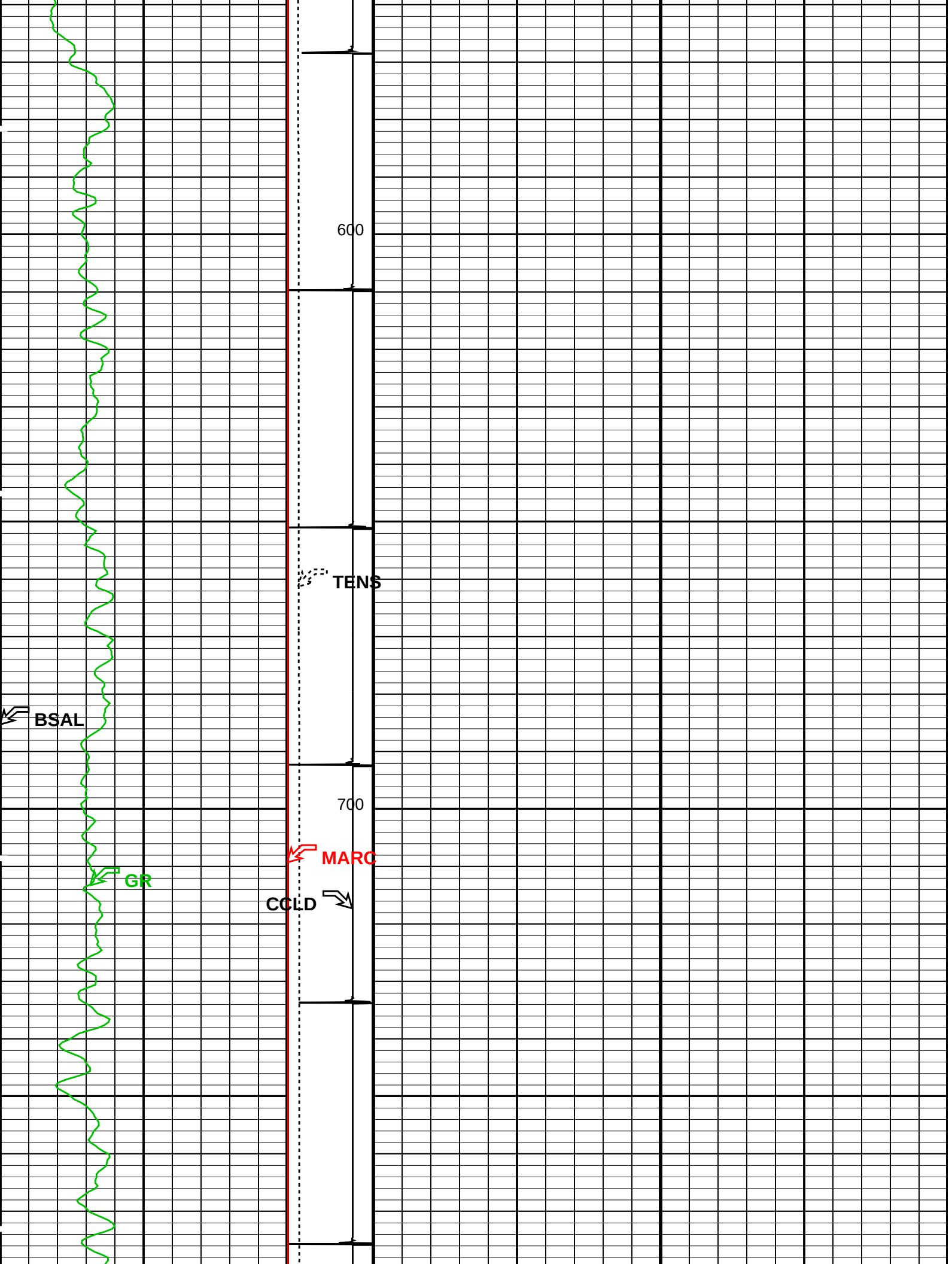
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BSAL
700
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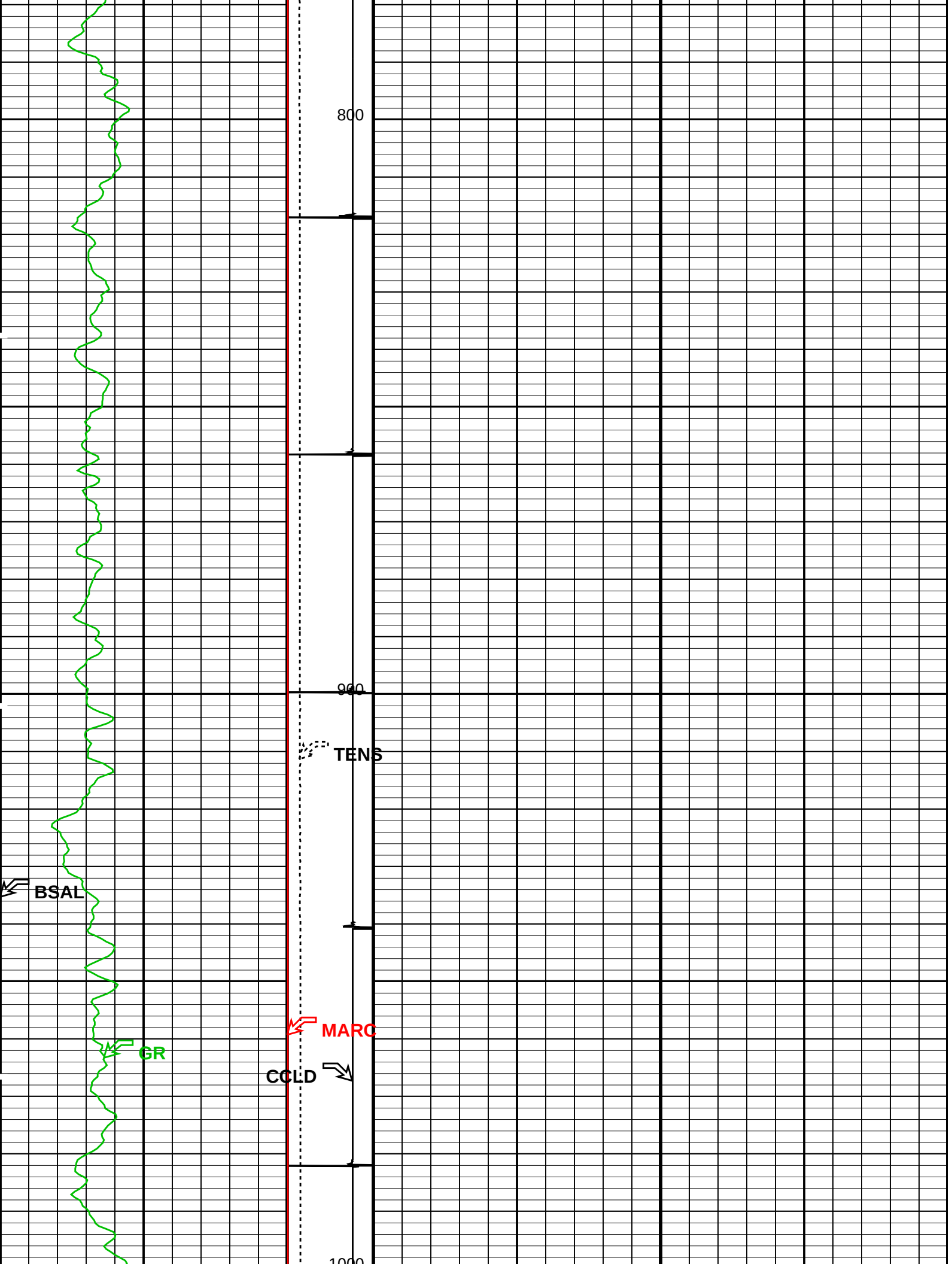
GR
CCLD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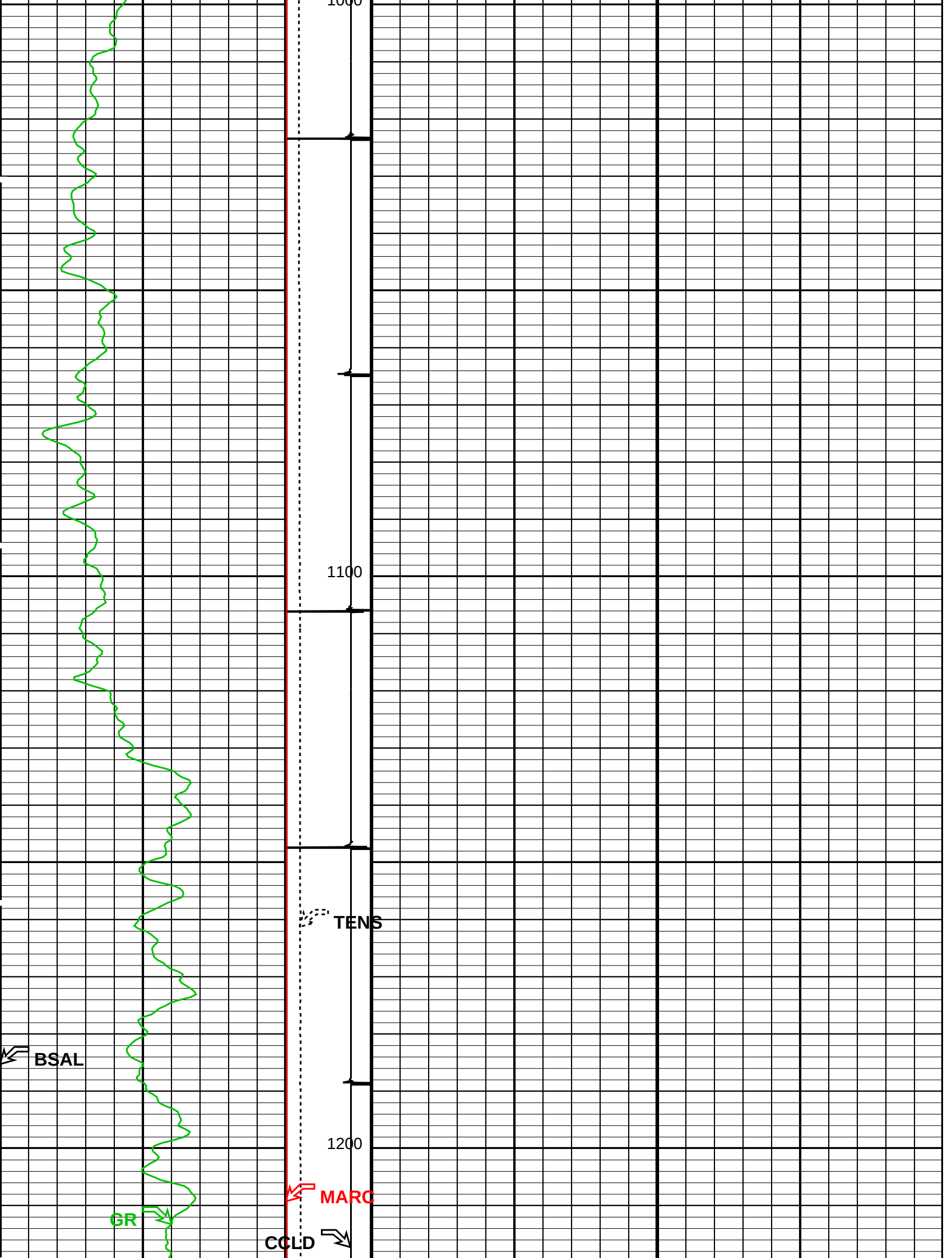
BSAL
MARC
GR
CCLD
1000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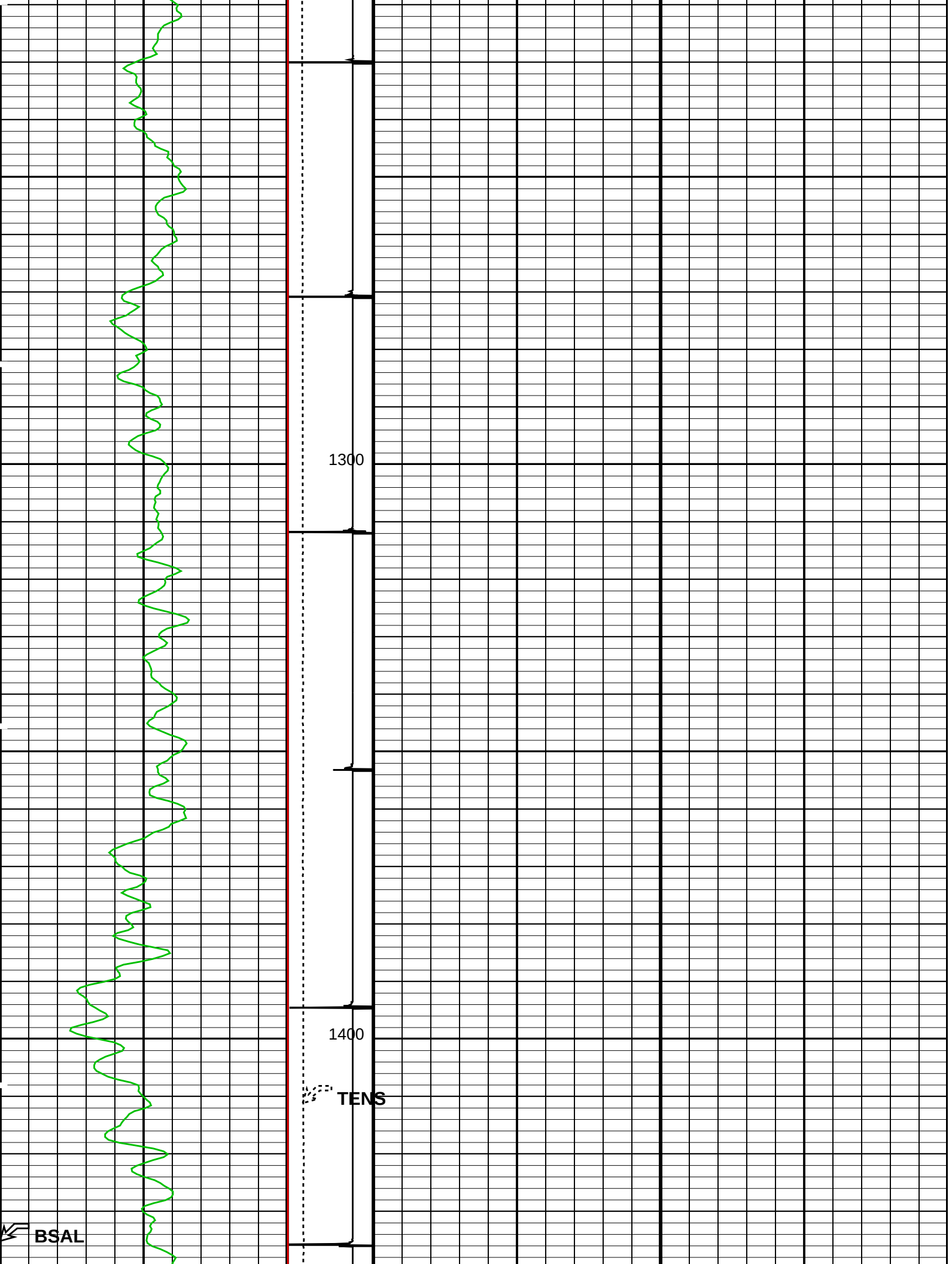
GR
CCLD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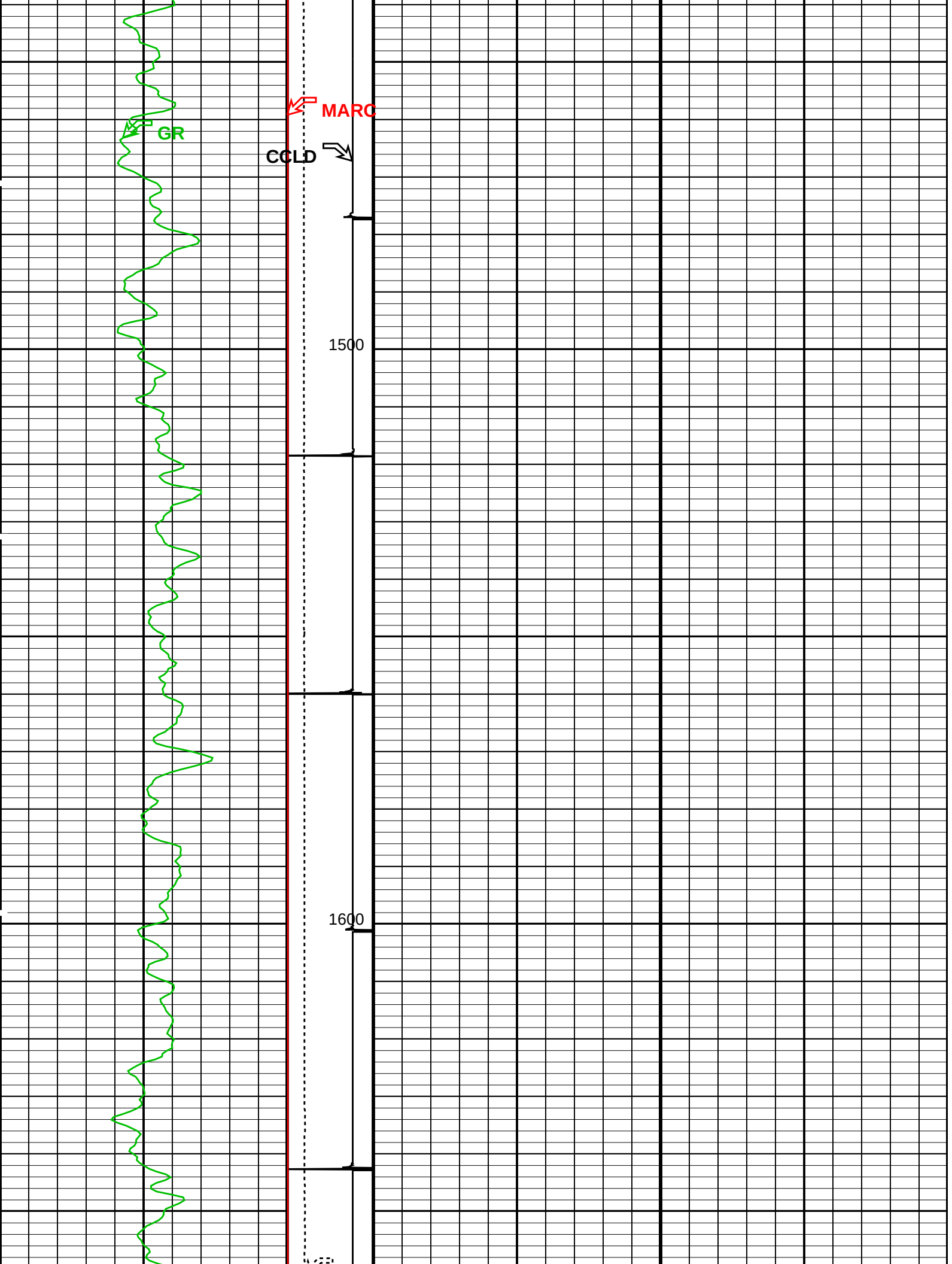
1400
TENS
BSAL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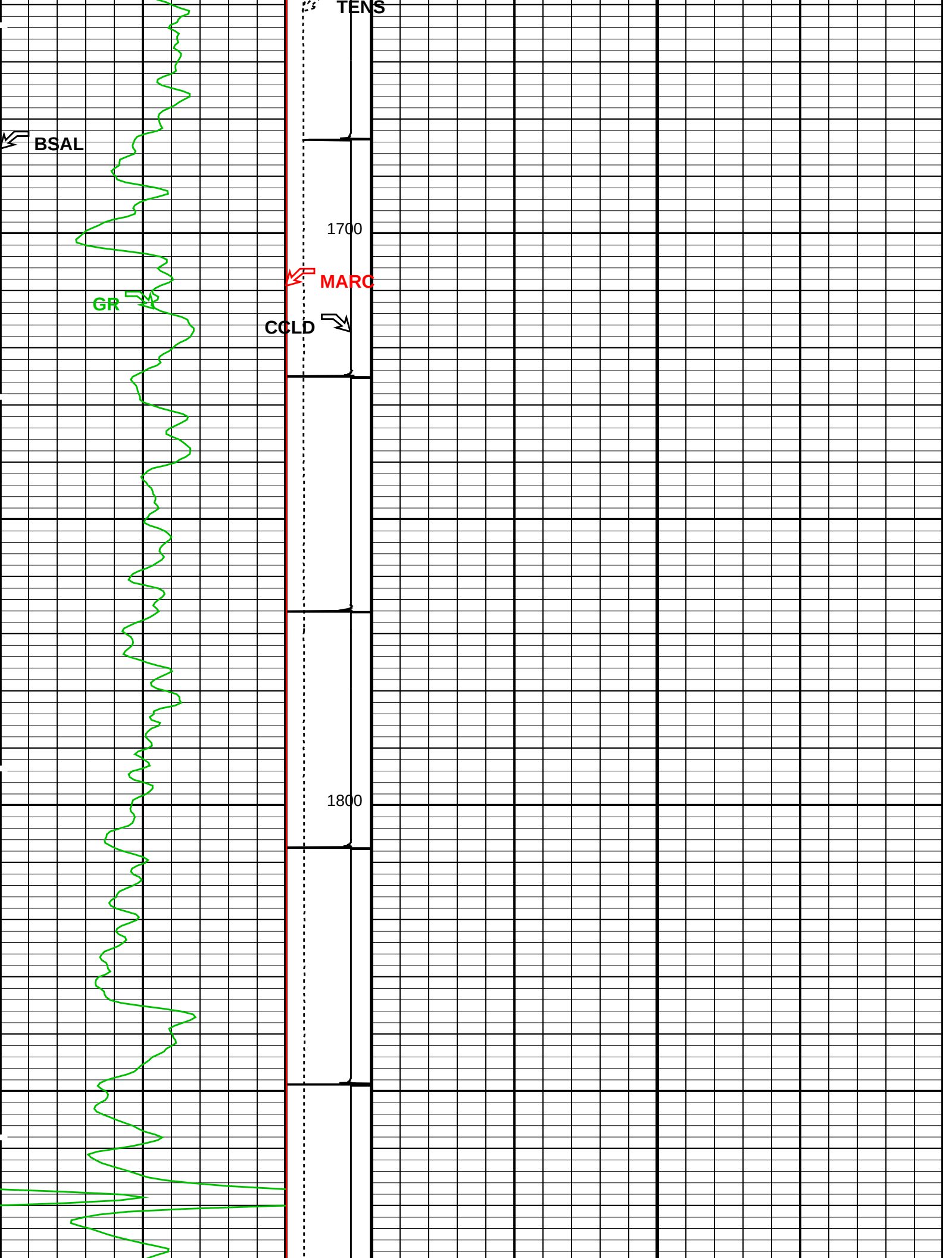
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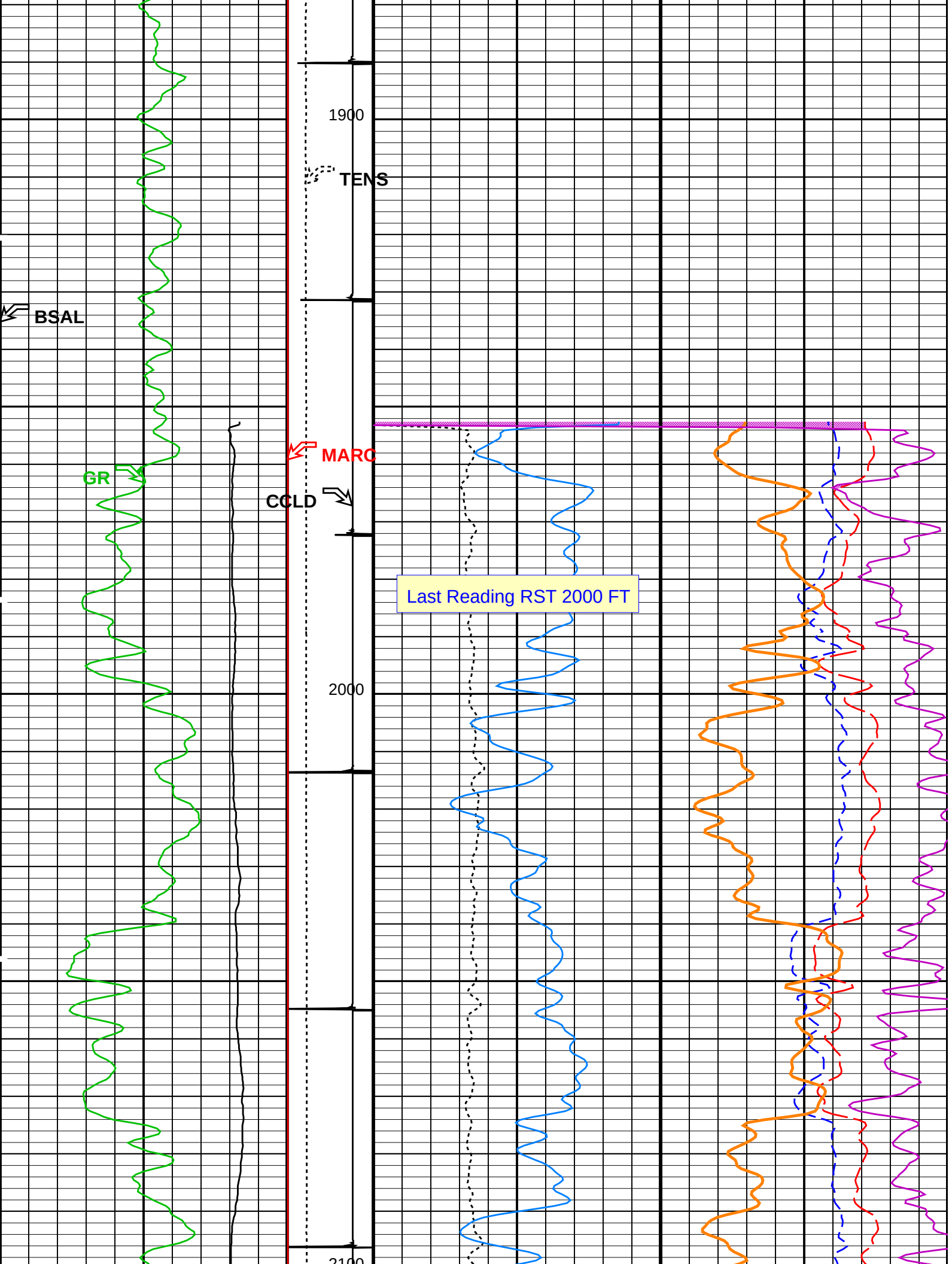
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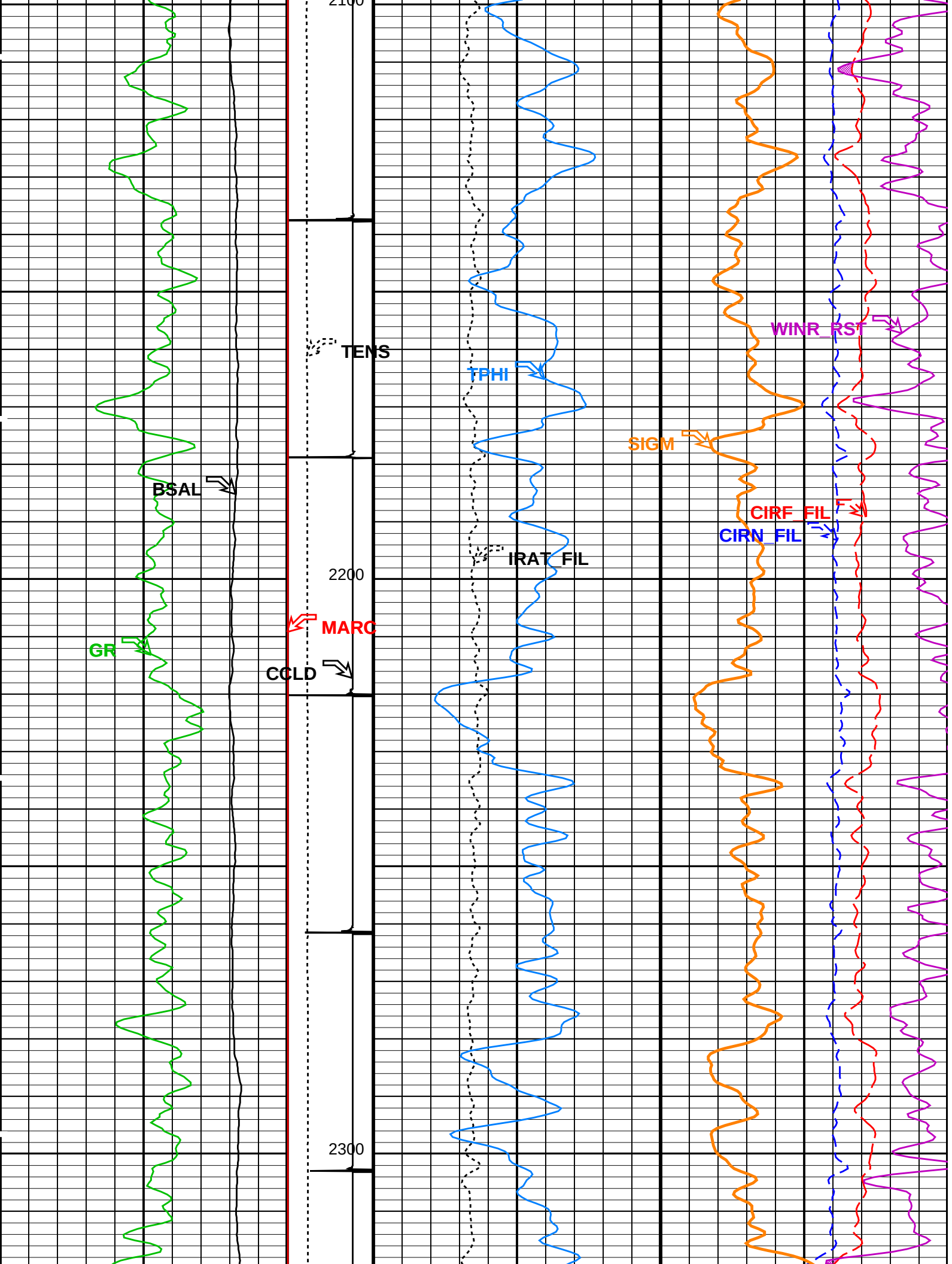
CCLD
Last Reading RST 2000 FT
2000
2100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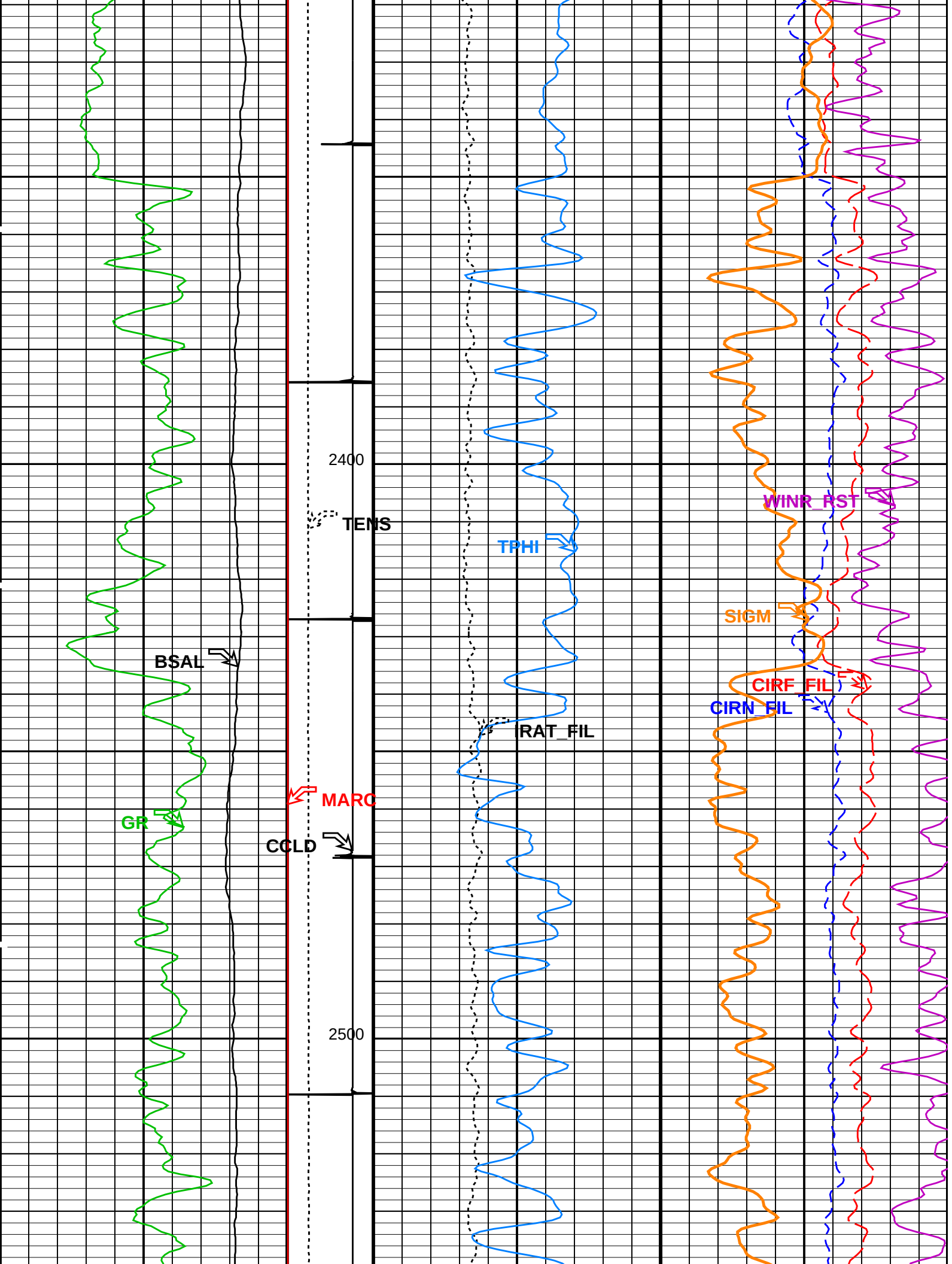
2300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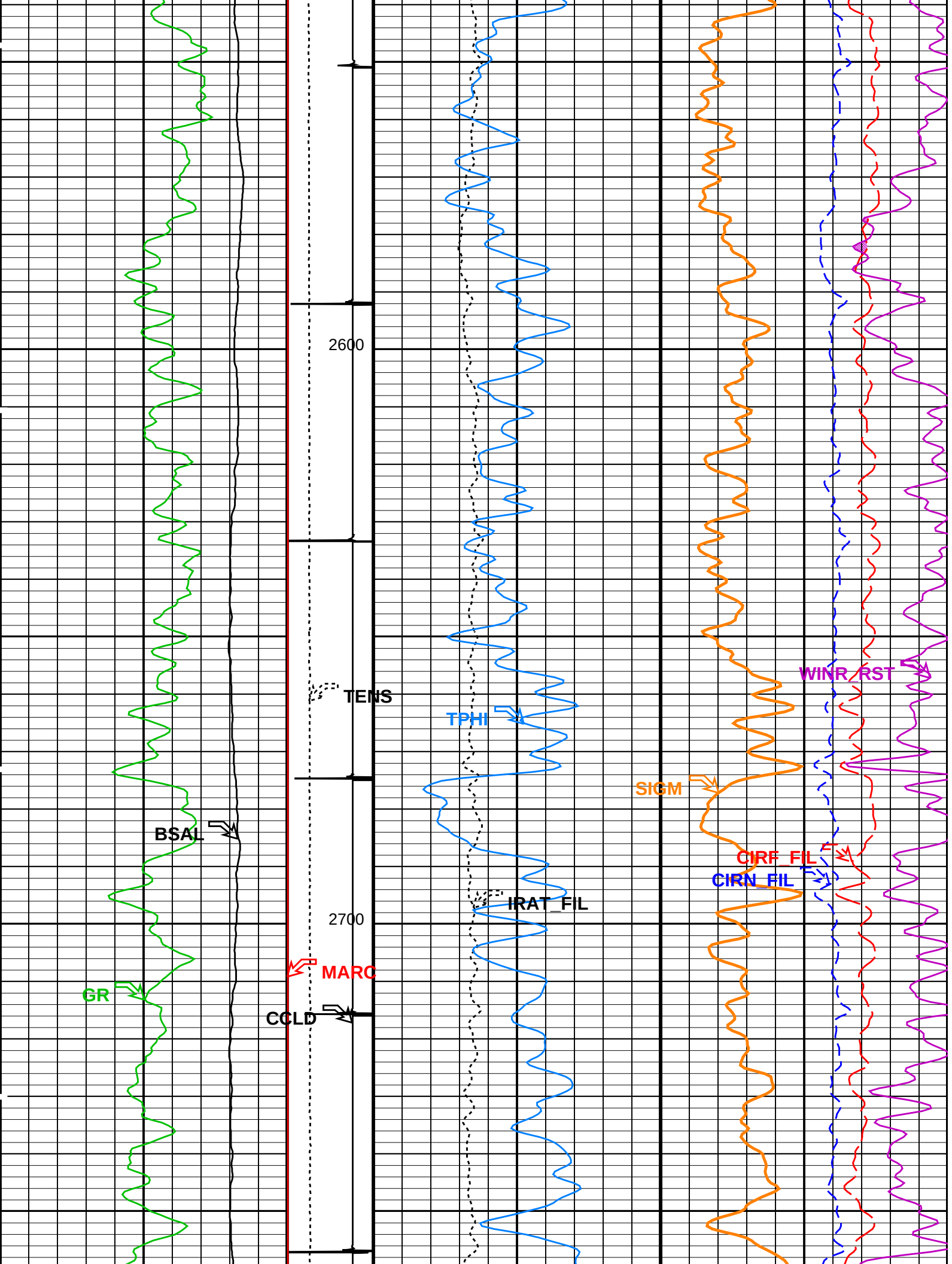
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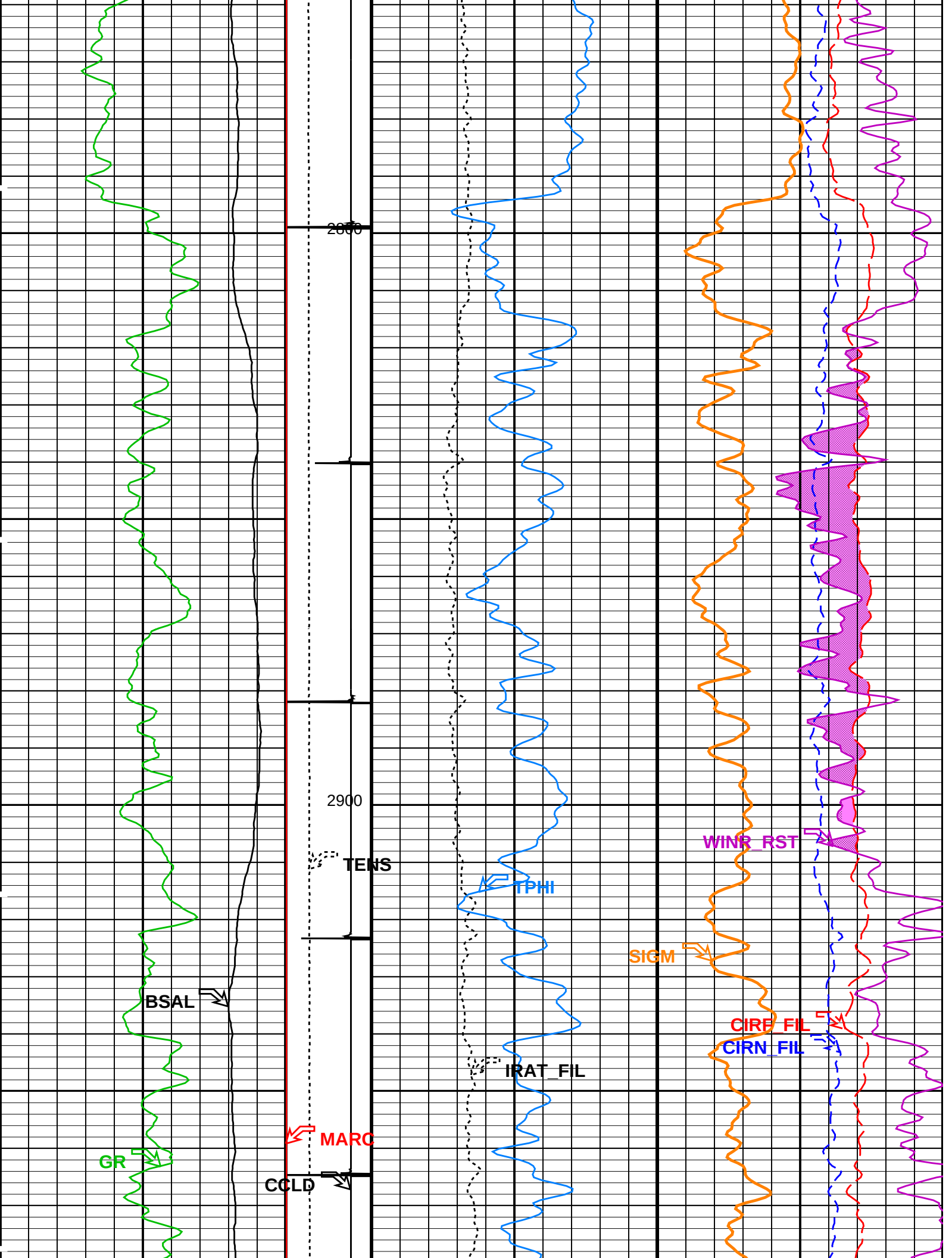
GR
CCLD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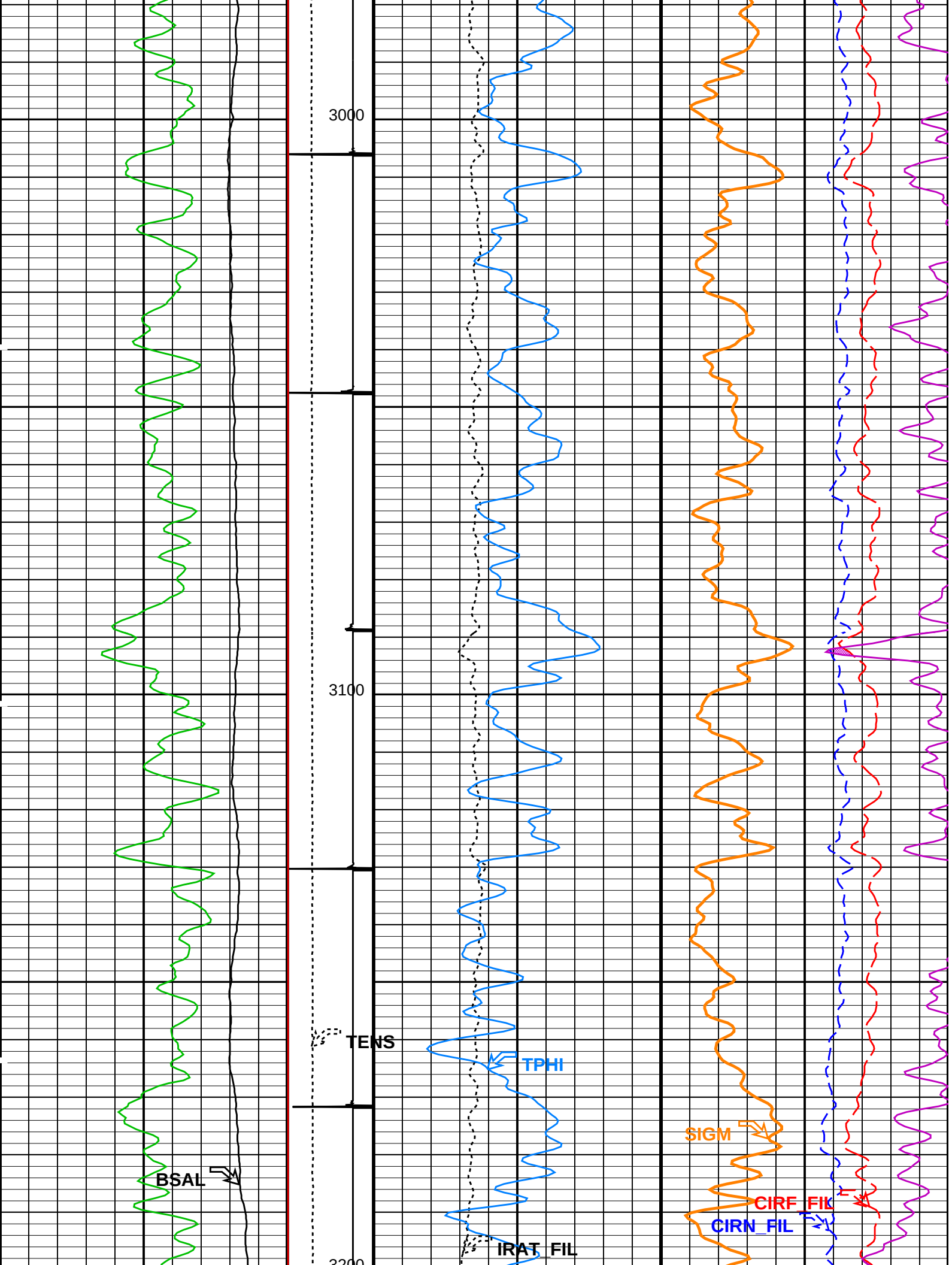
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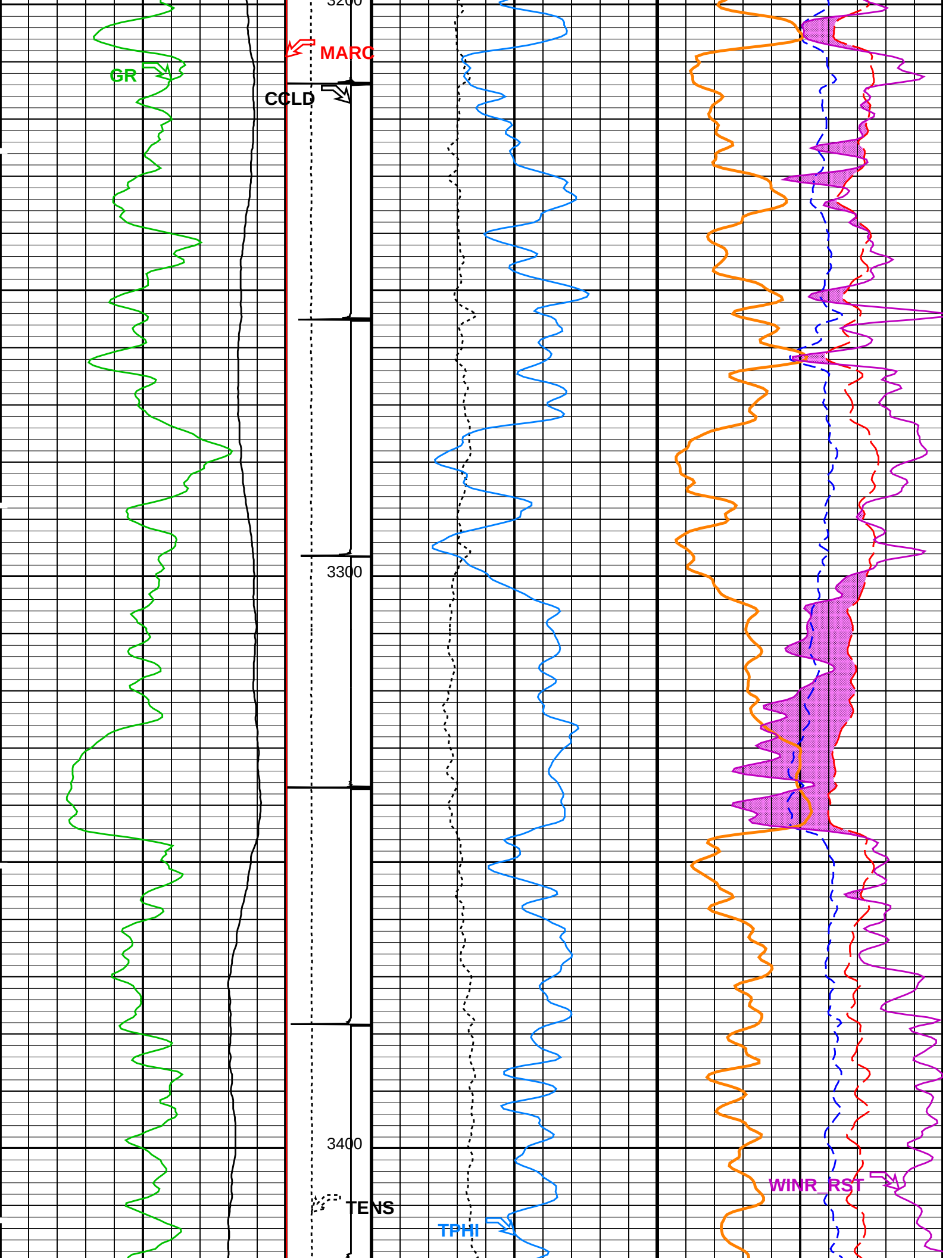
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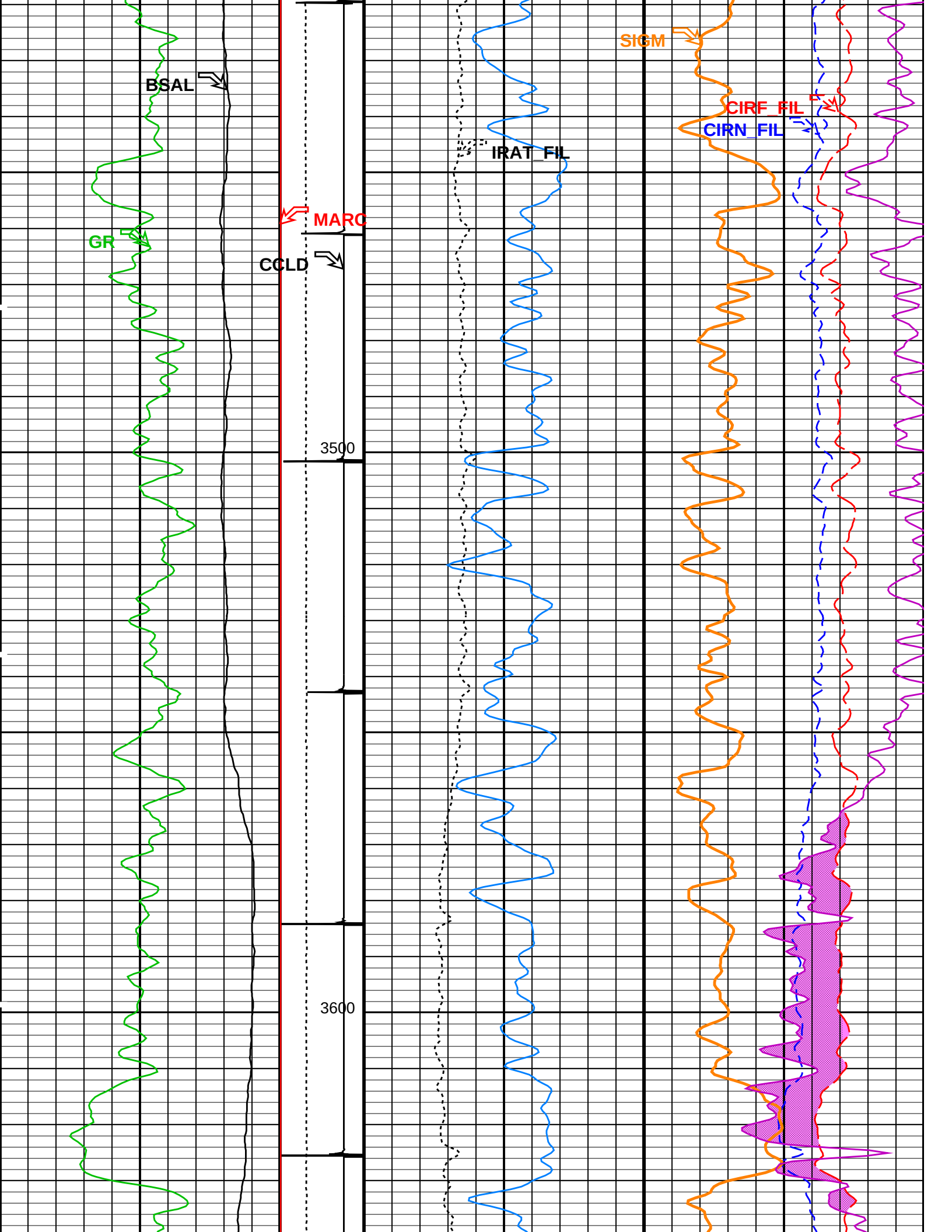
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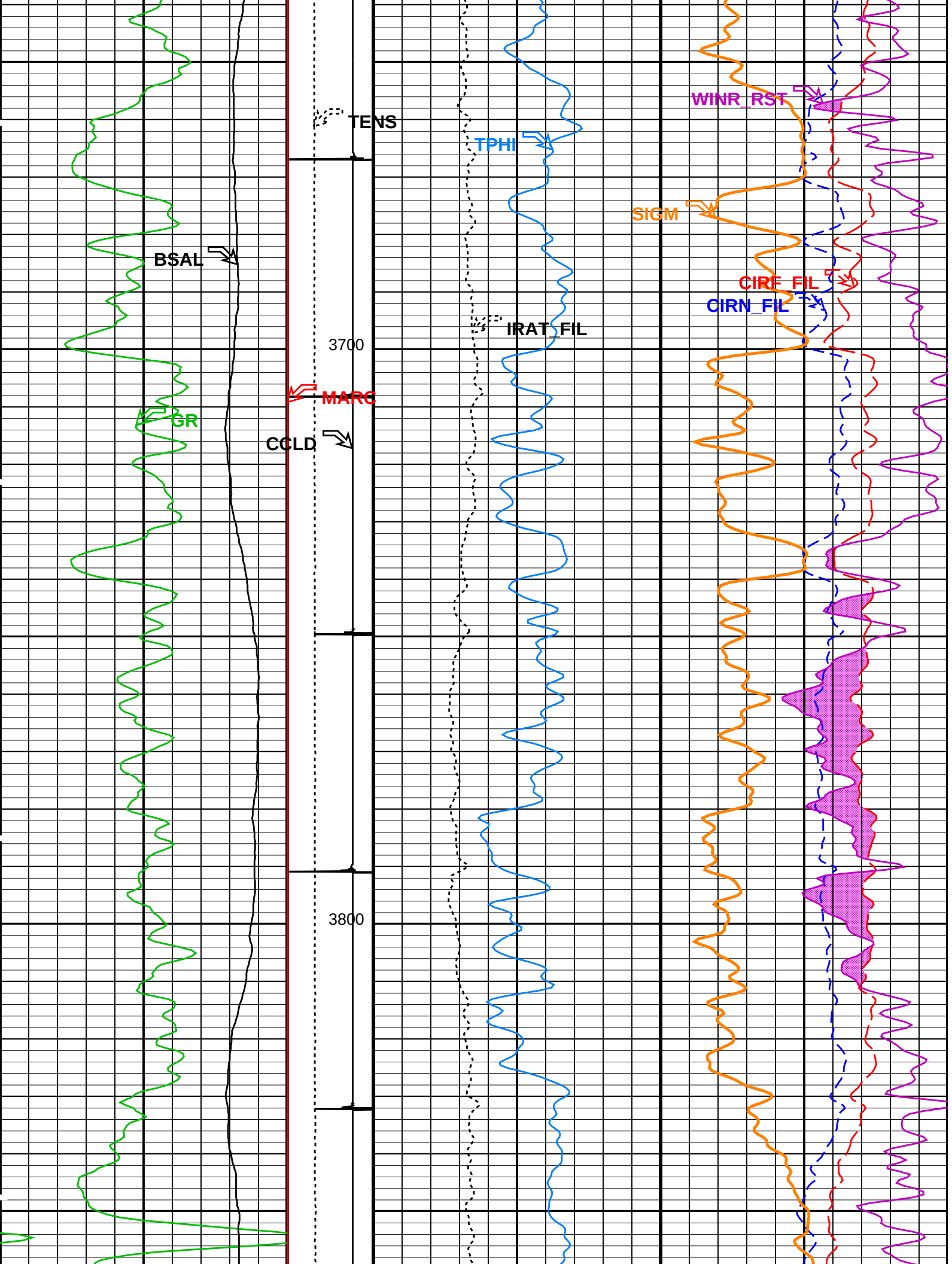
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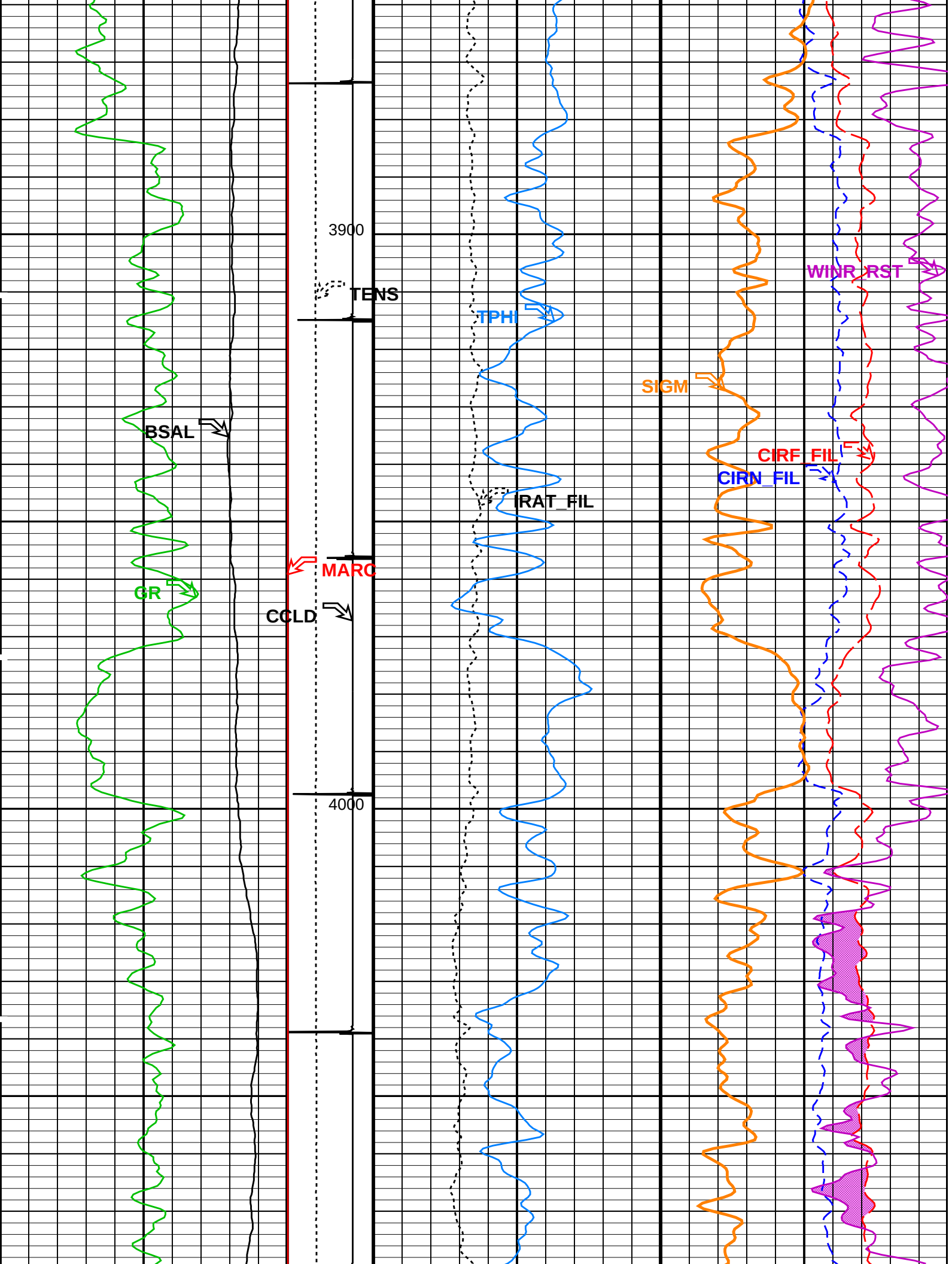
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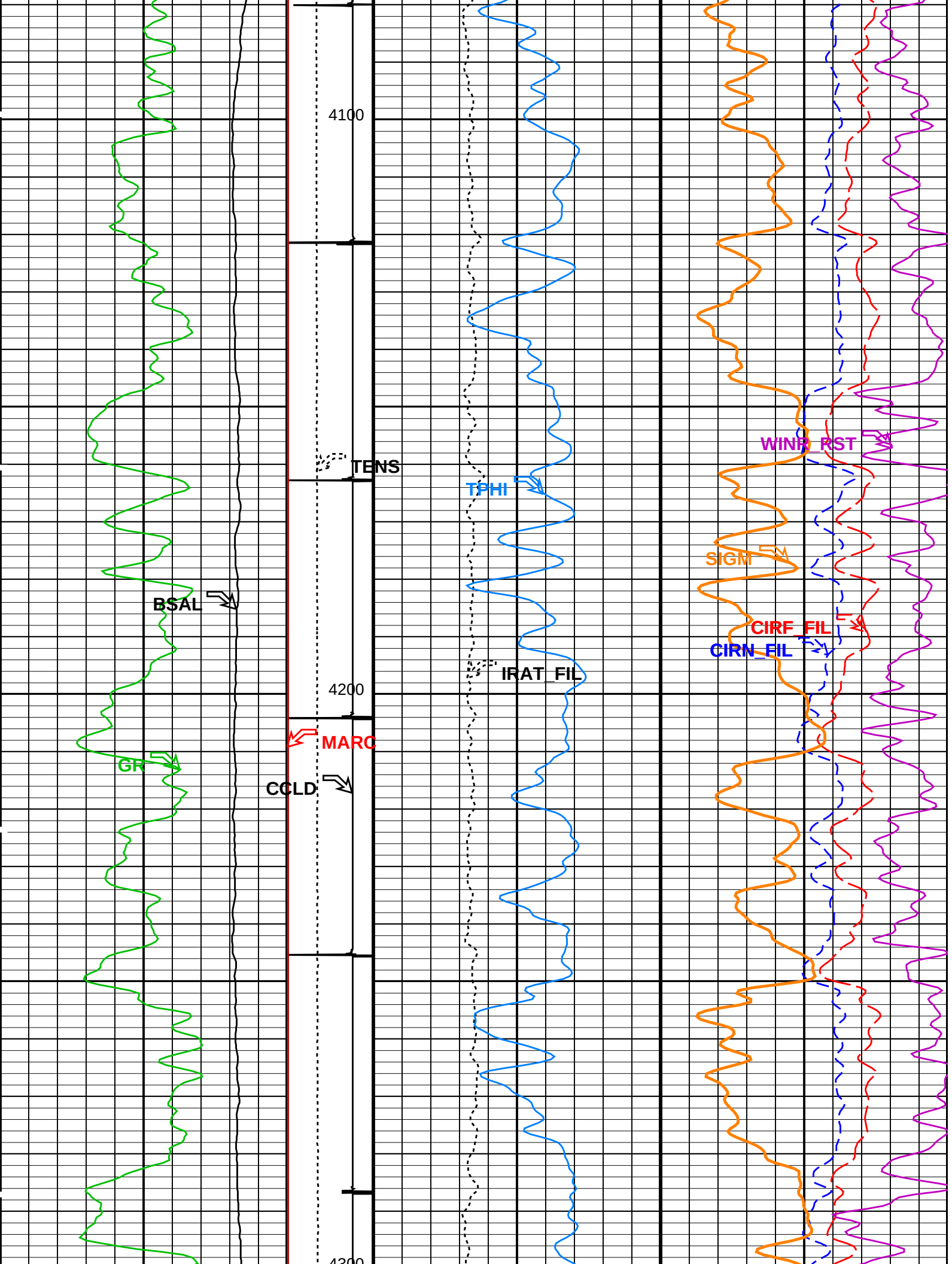
GR
CCLD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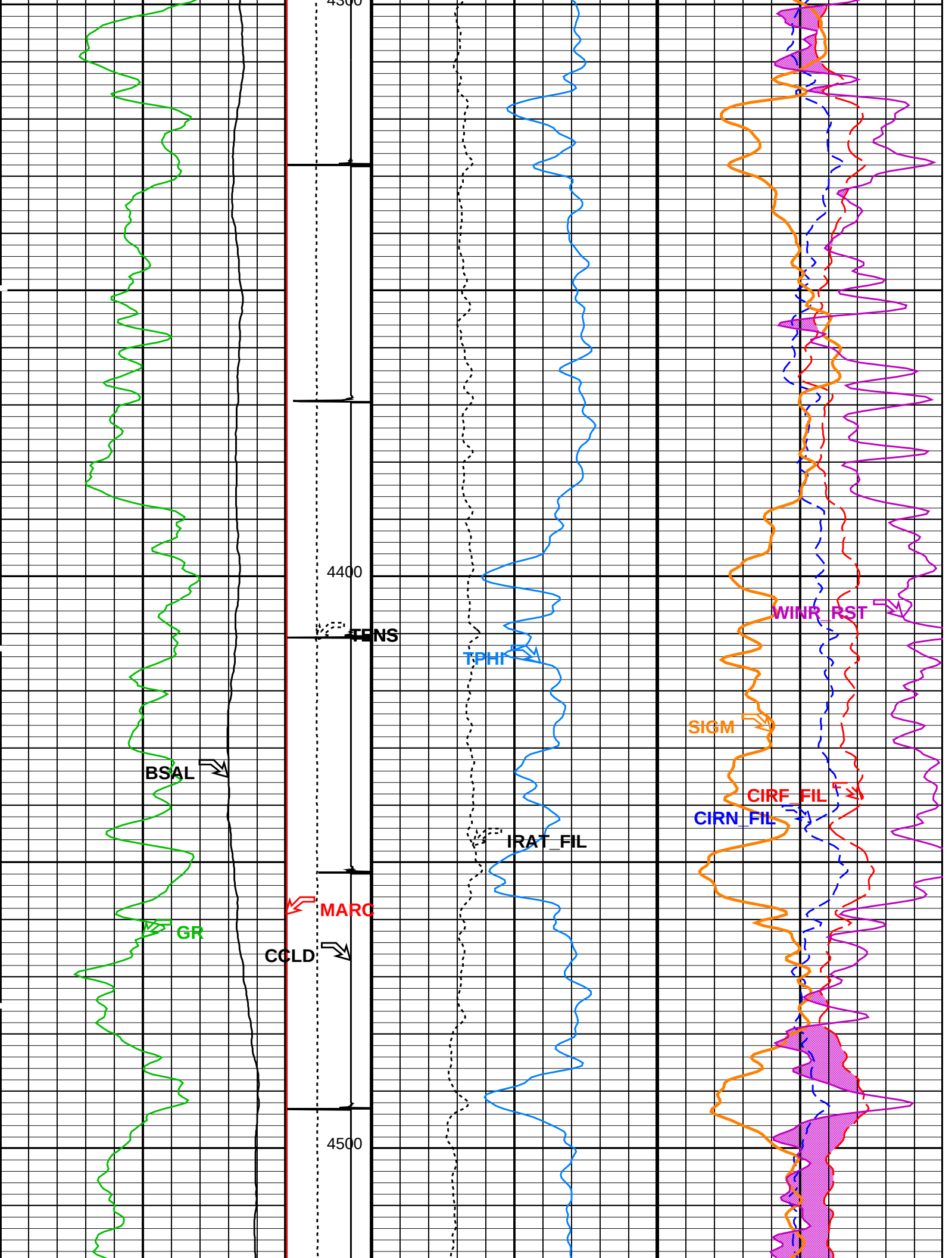
4300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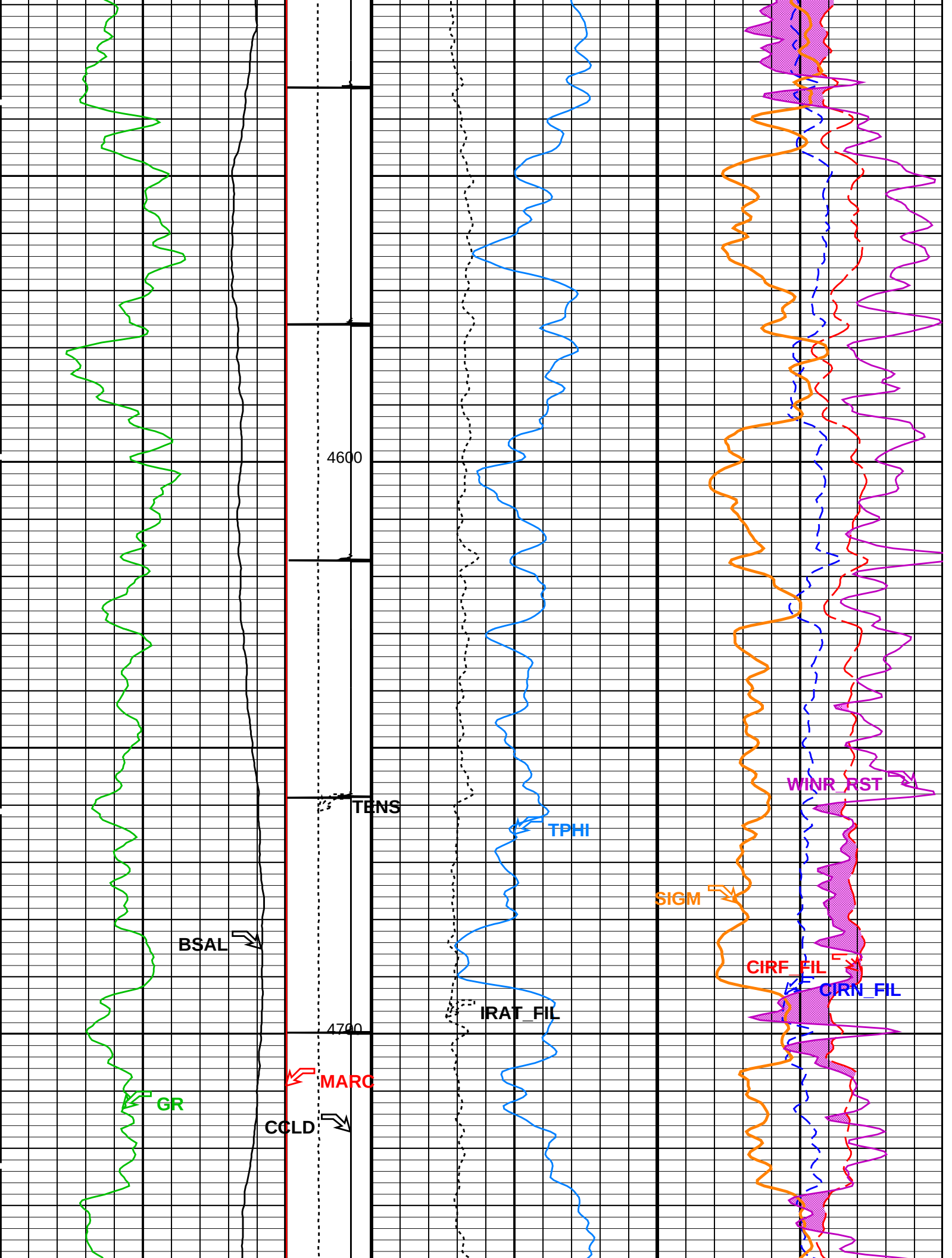
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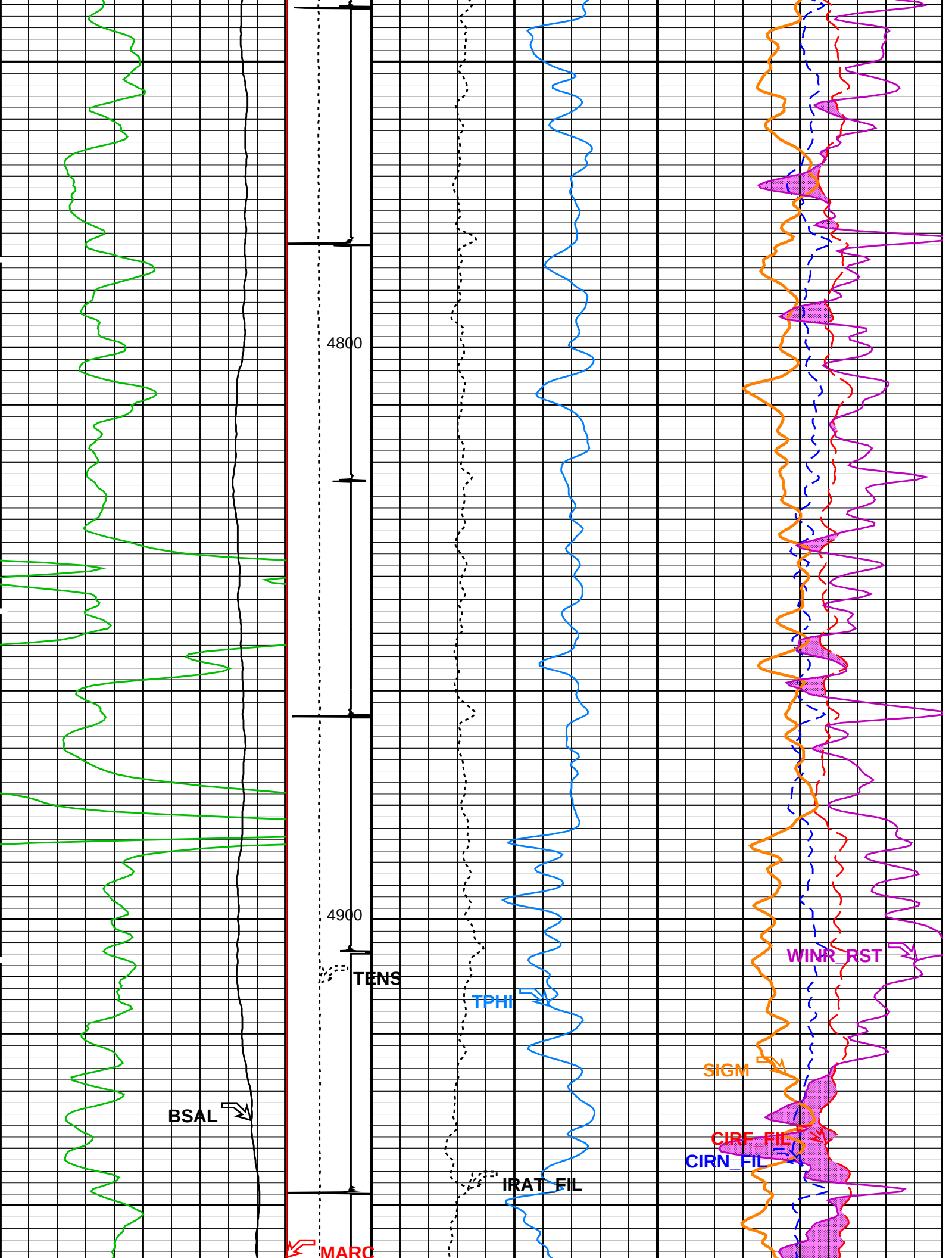
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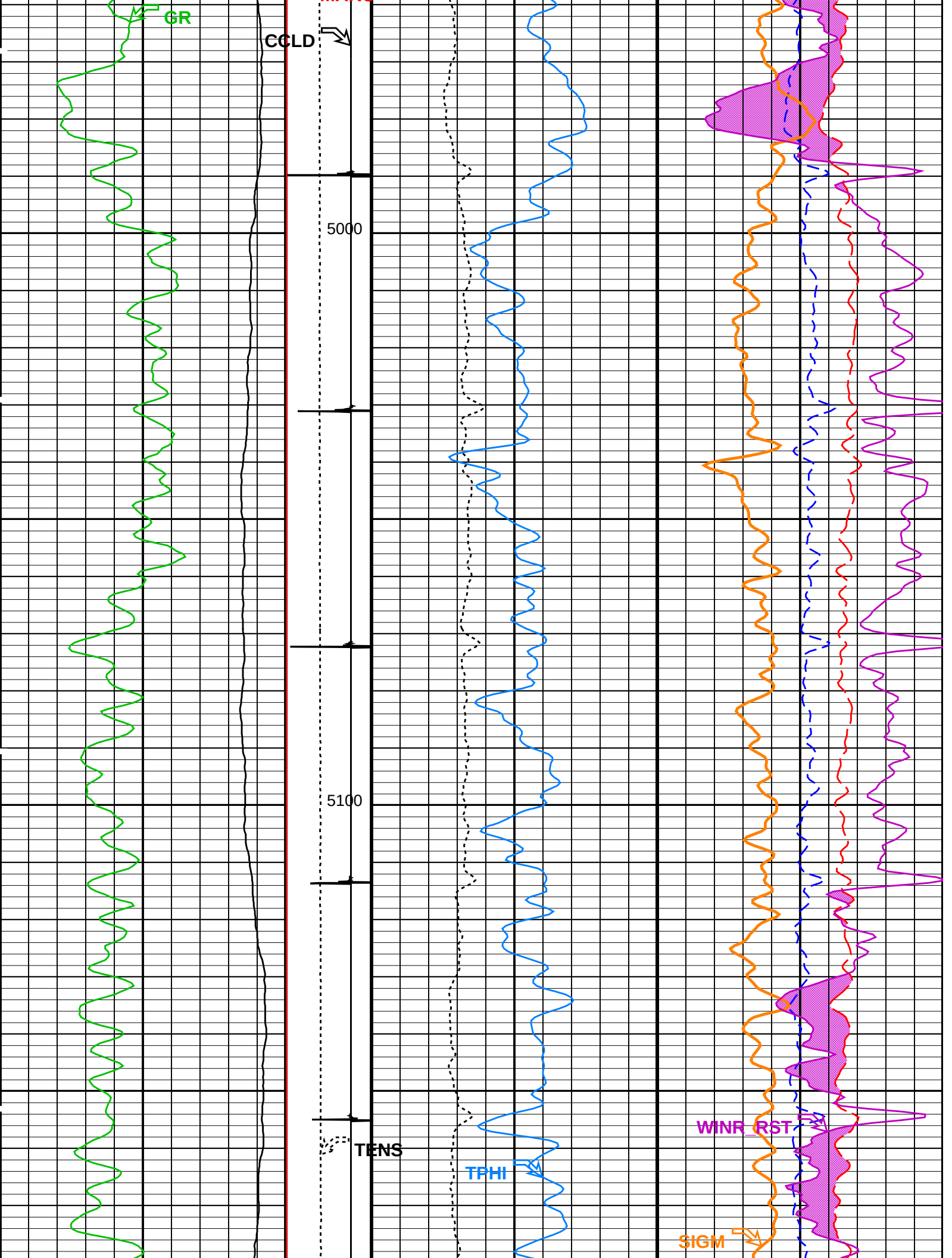
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CCLD
5000
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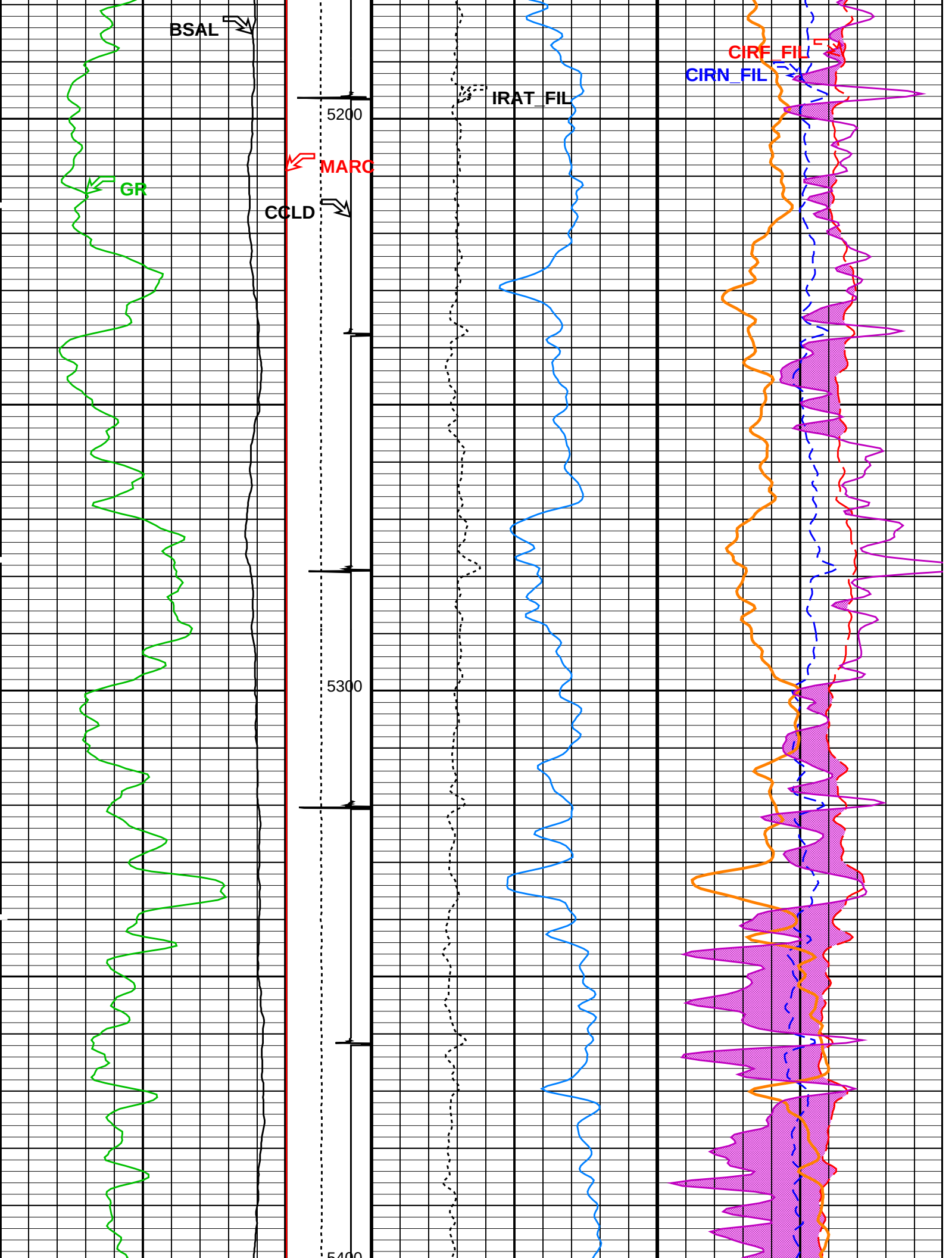
SIGM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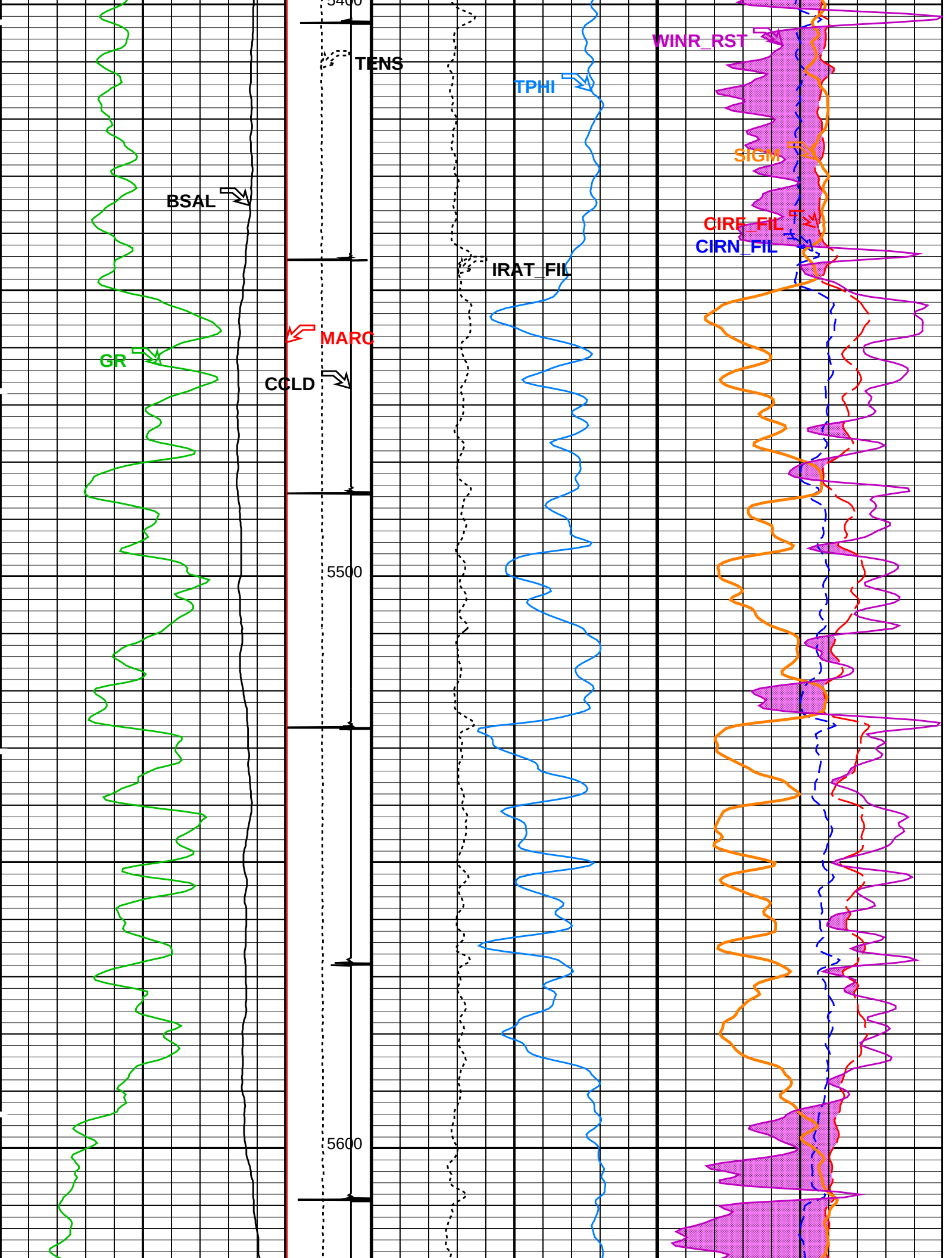
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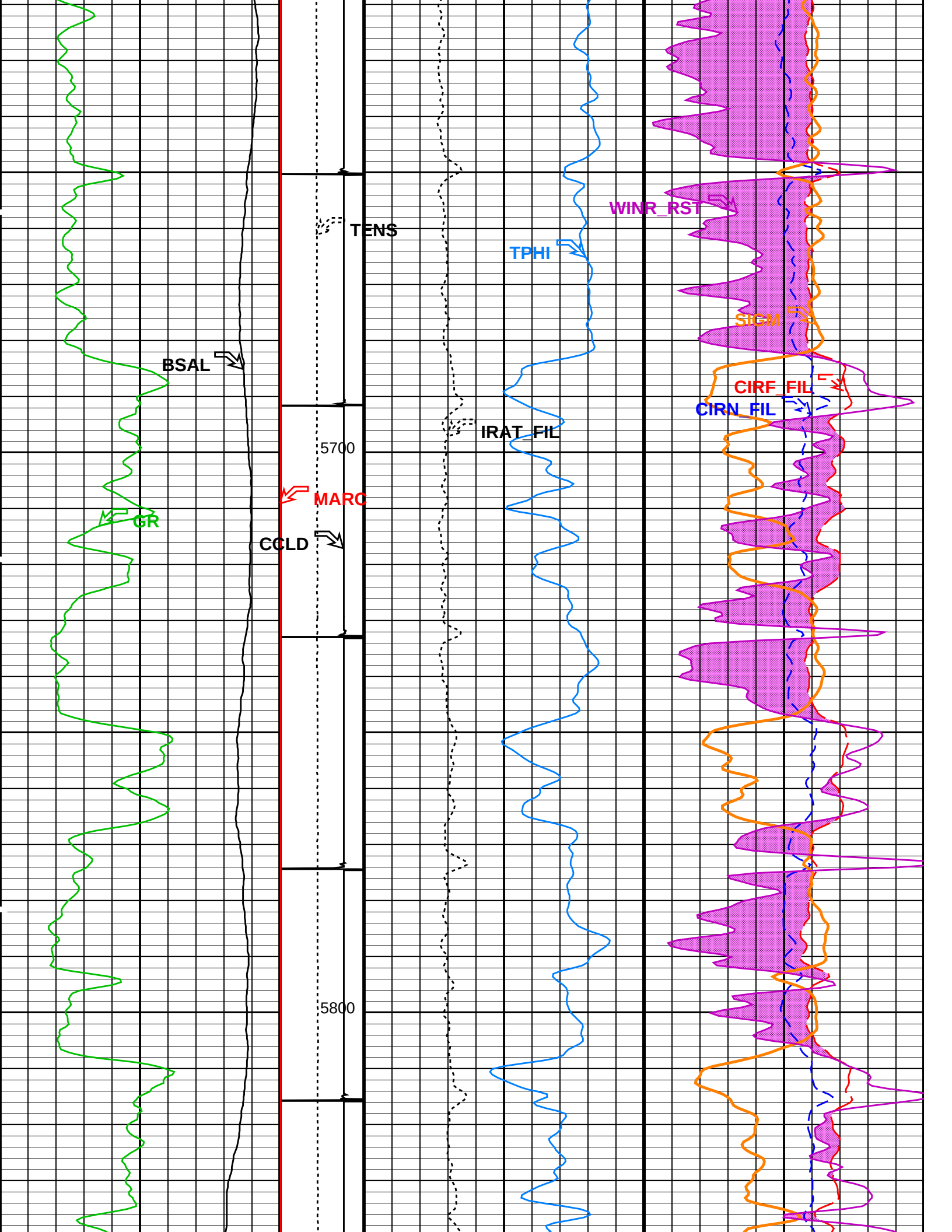
5600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WINR_RST
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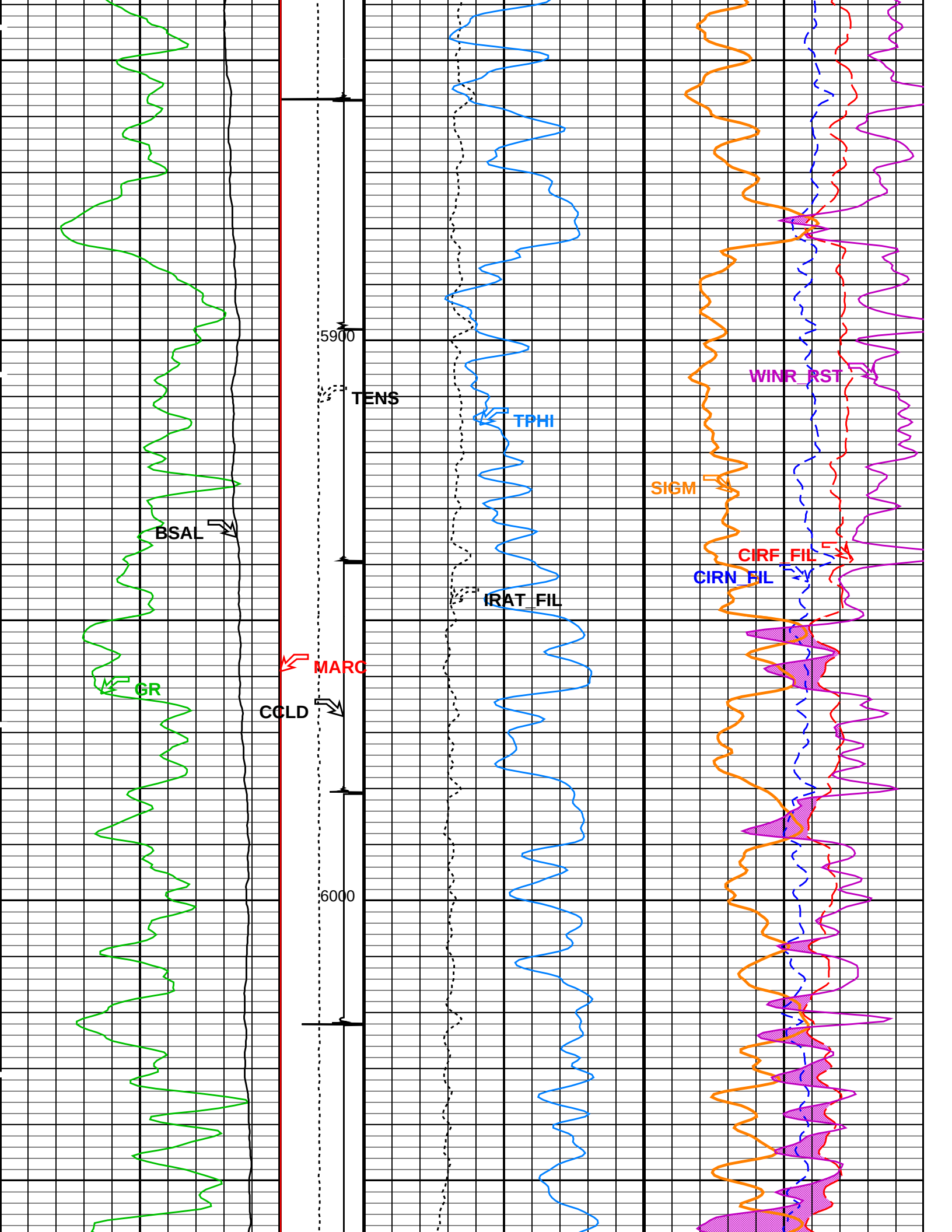
CIRN_FIL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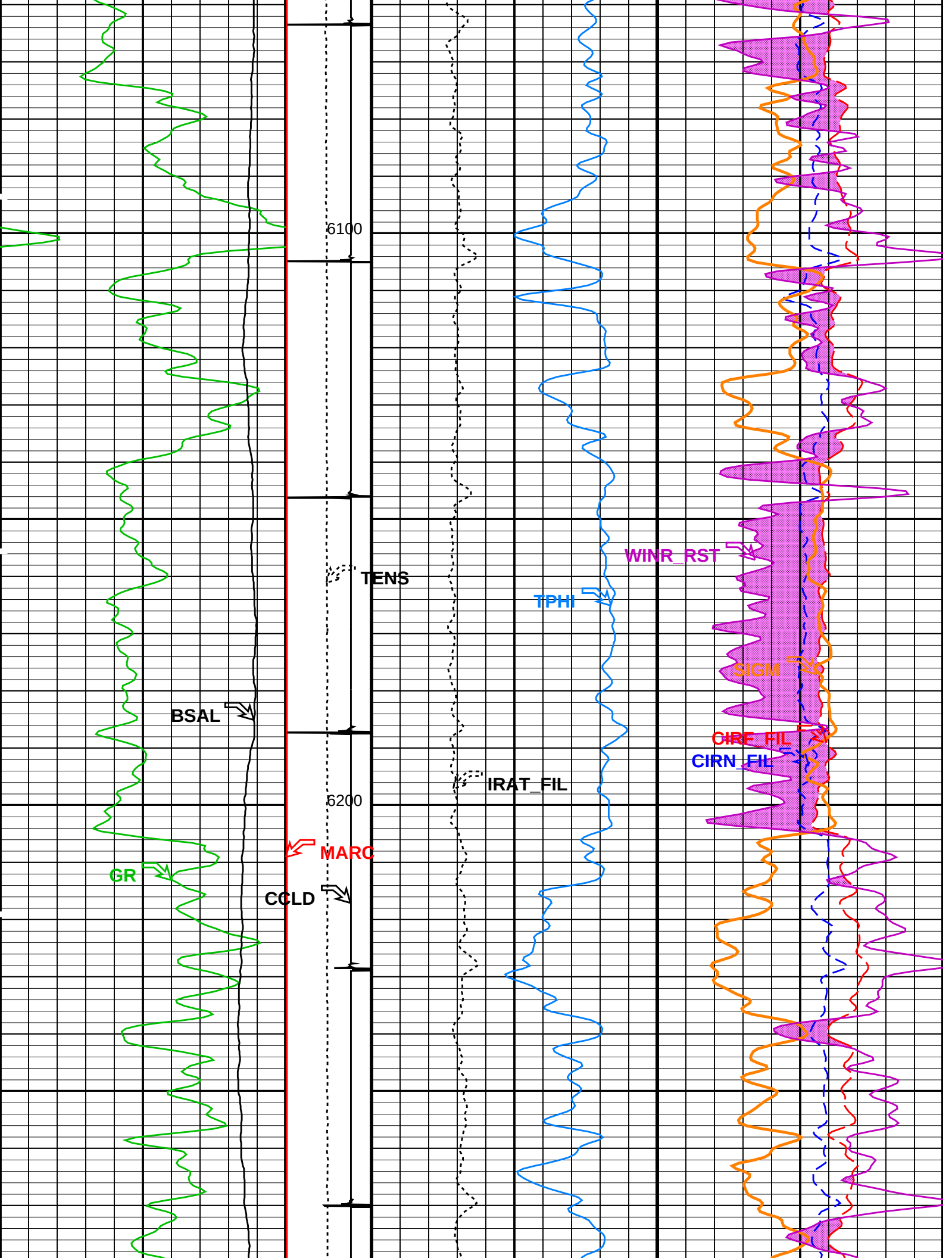
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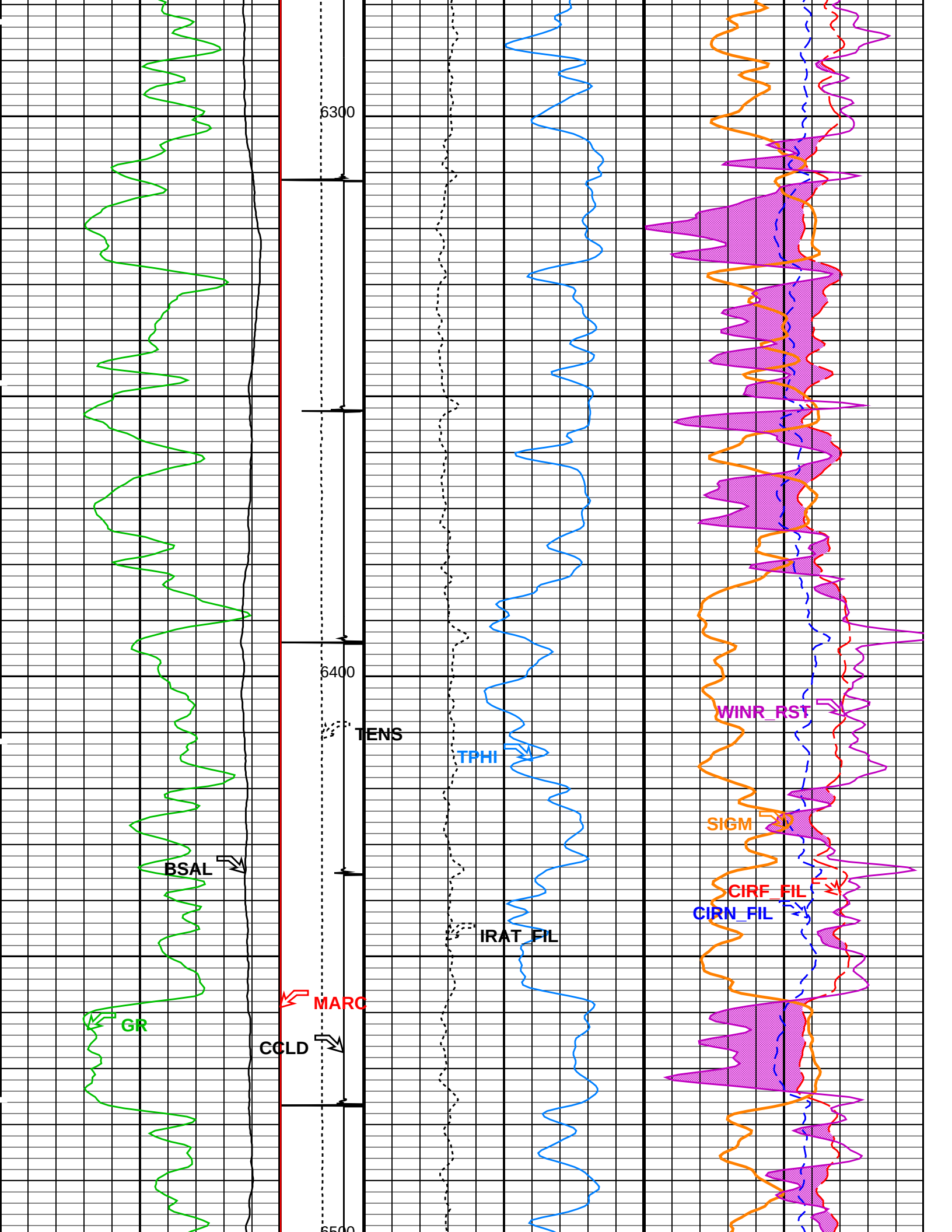
6300
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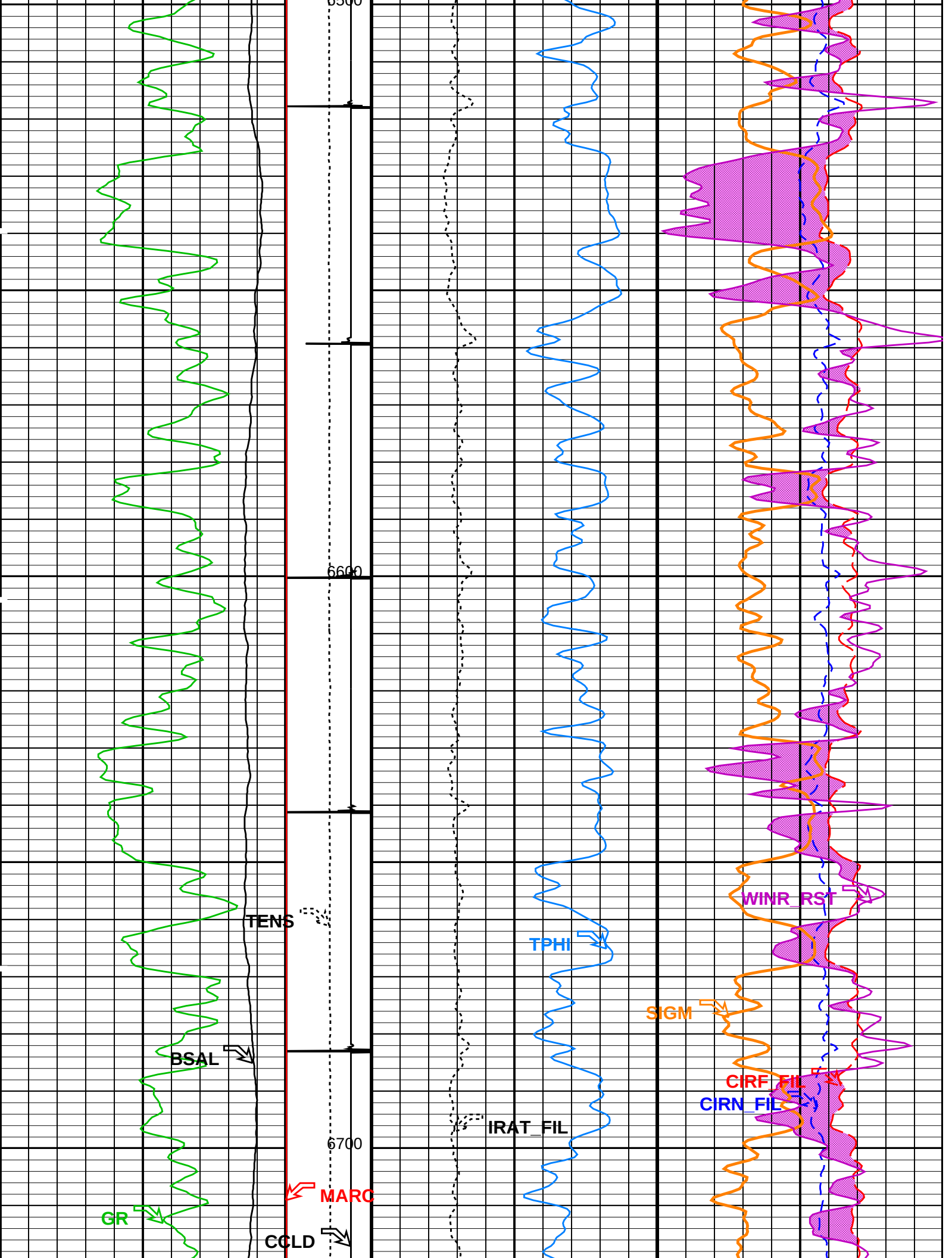
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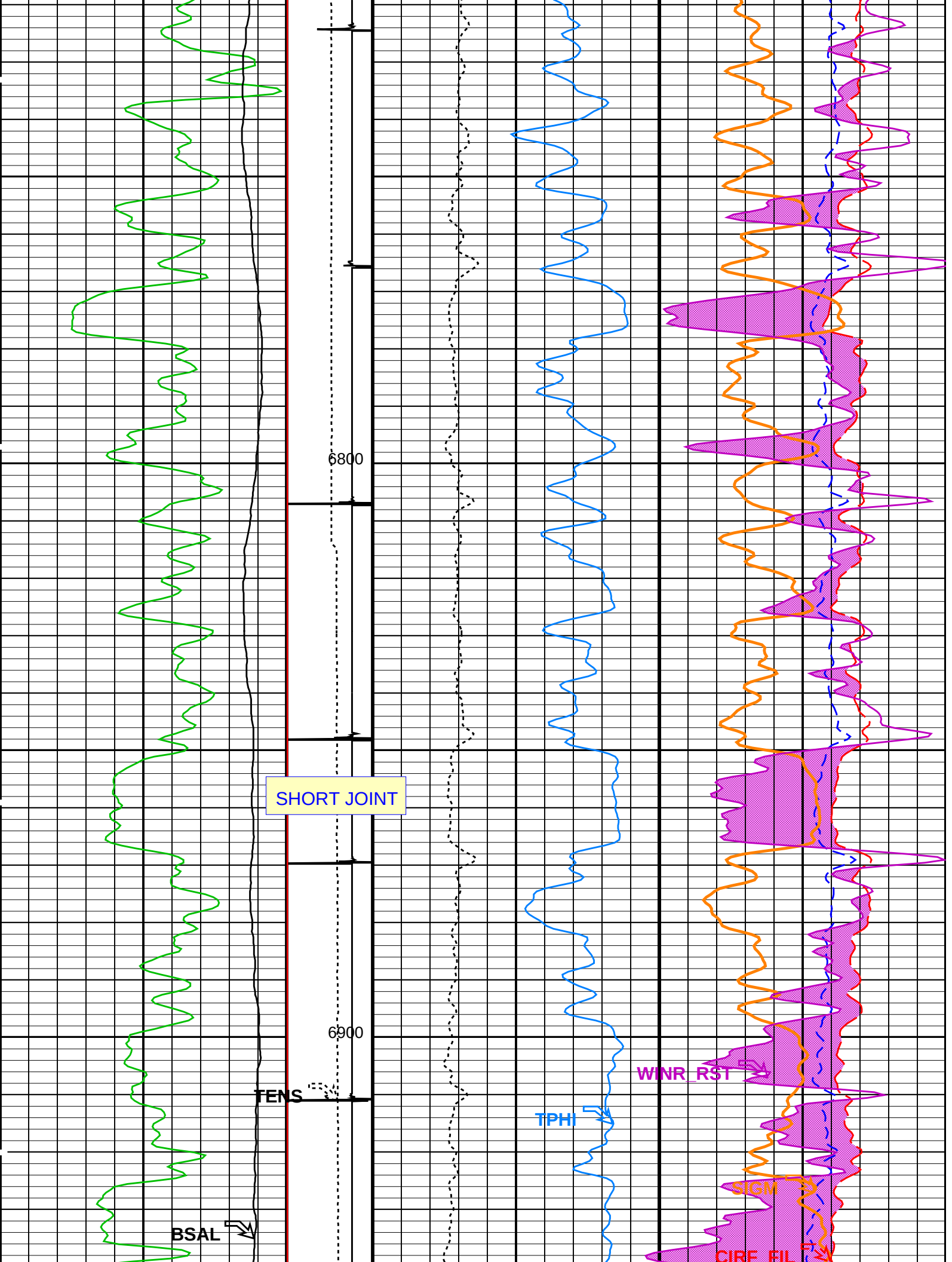
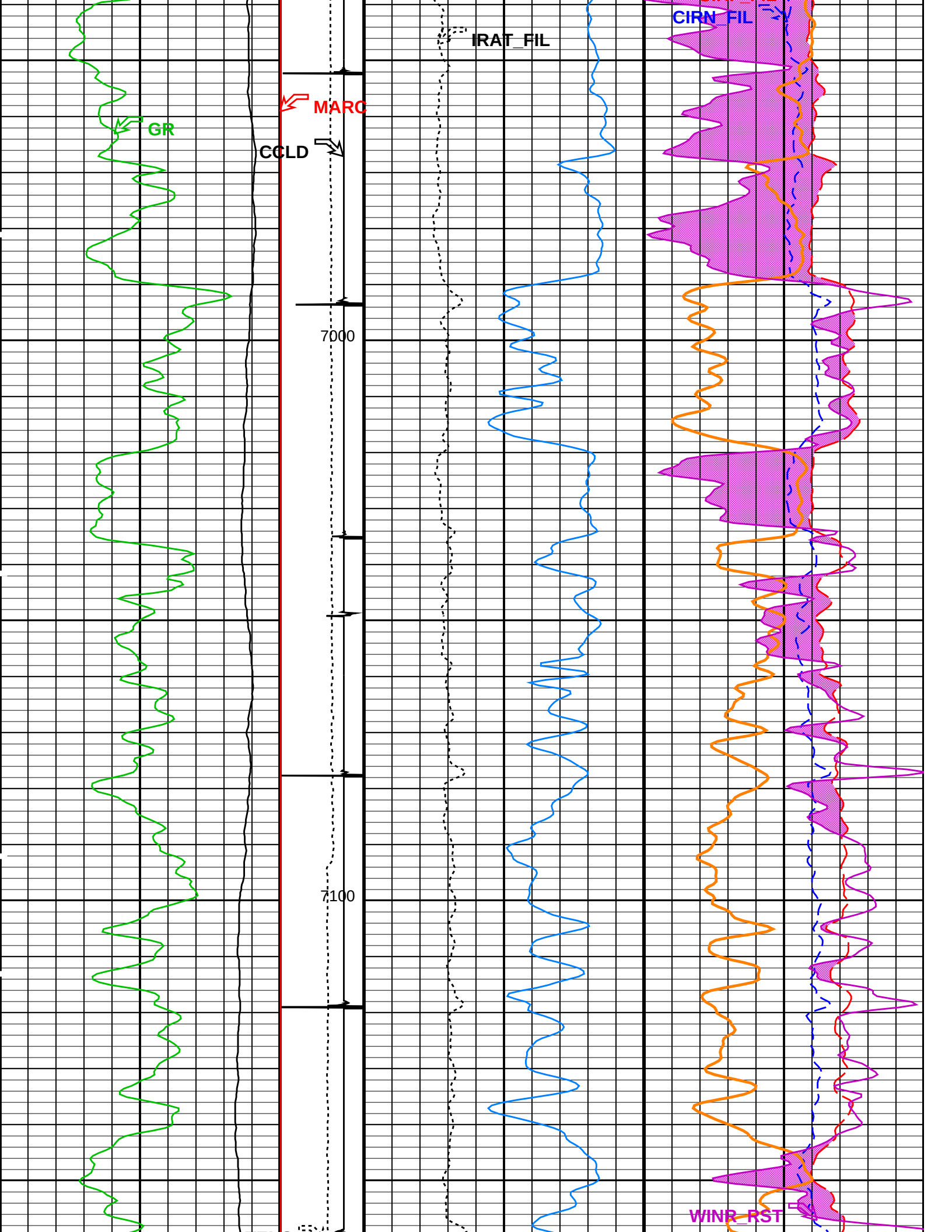
TPHI
IRAT_FIL
WINR_RST
SIGM
CIRF_FIL
CIRN_FIL


6800
SHORT JOINT
6900
TENS
BSAL
TPHI
WINR_RST
SIGM
CIRF_FIL_F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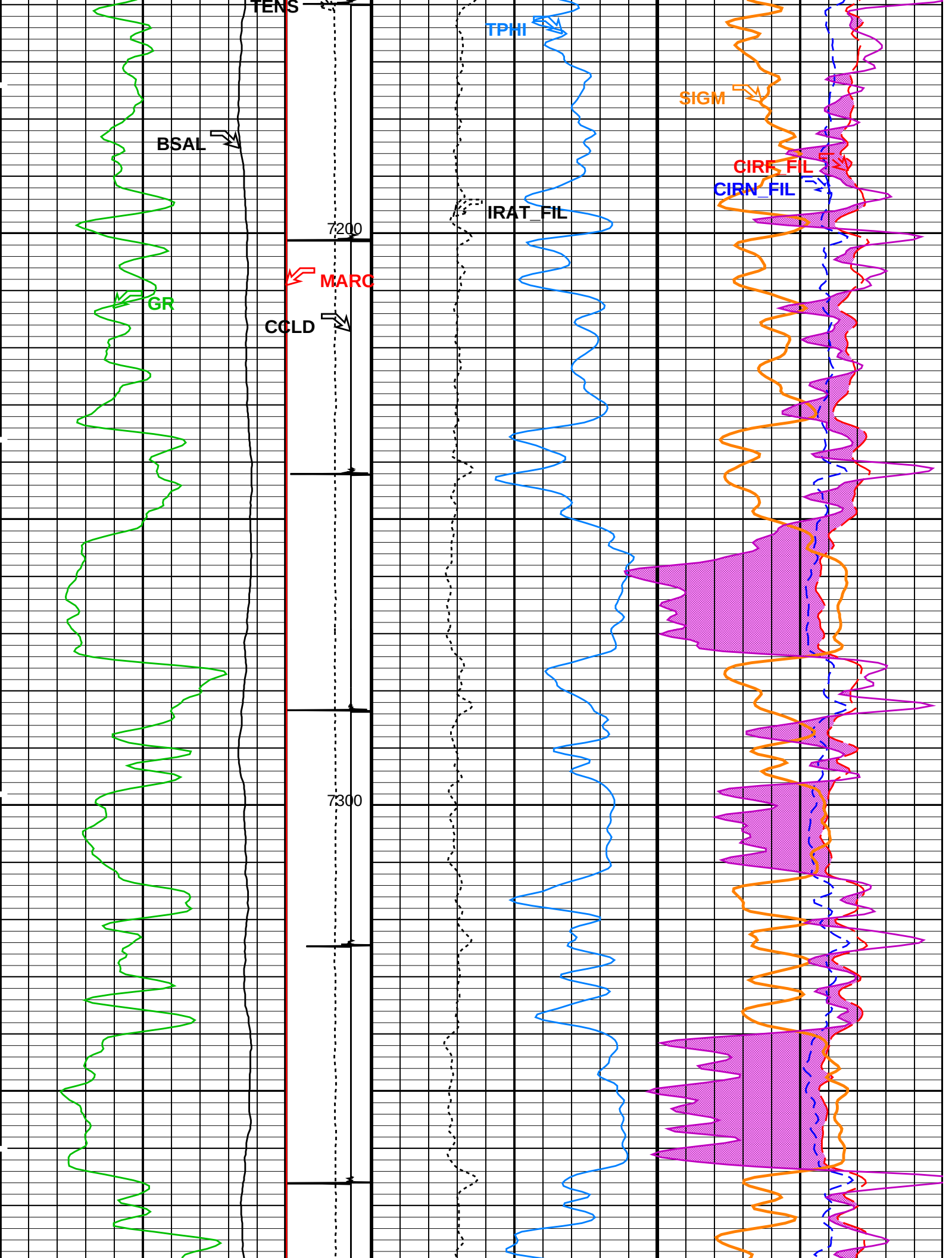
MARC
CCLD
IRAT_FIL
CIRN_FIL
WINR_RST
7000
7100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GR
MARC
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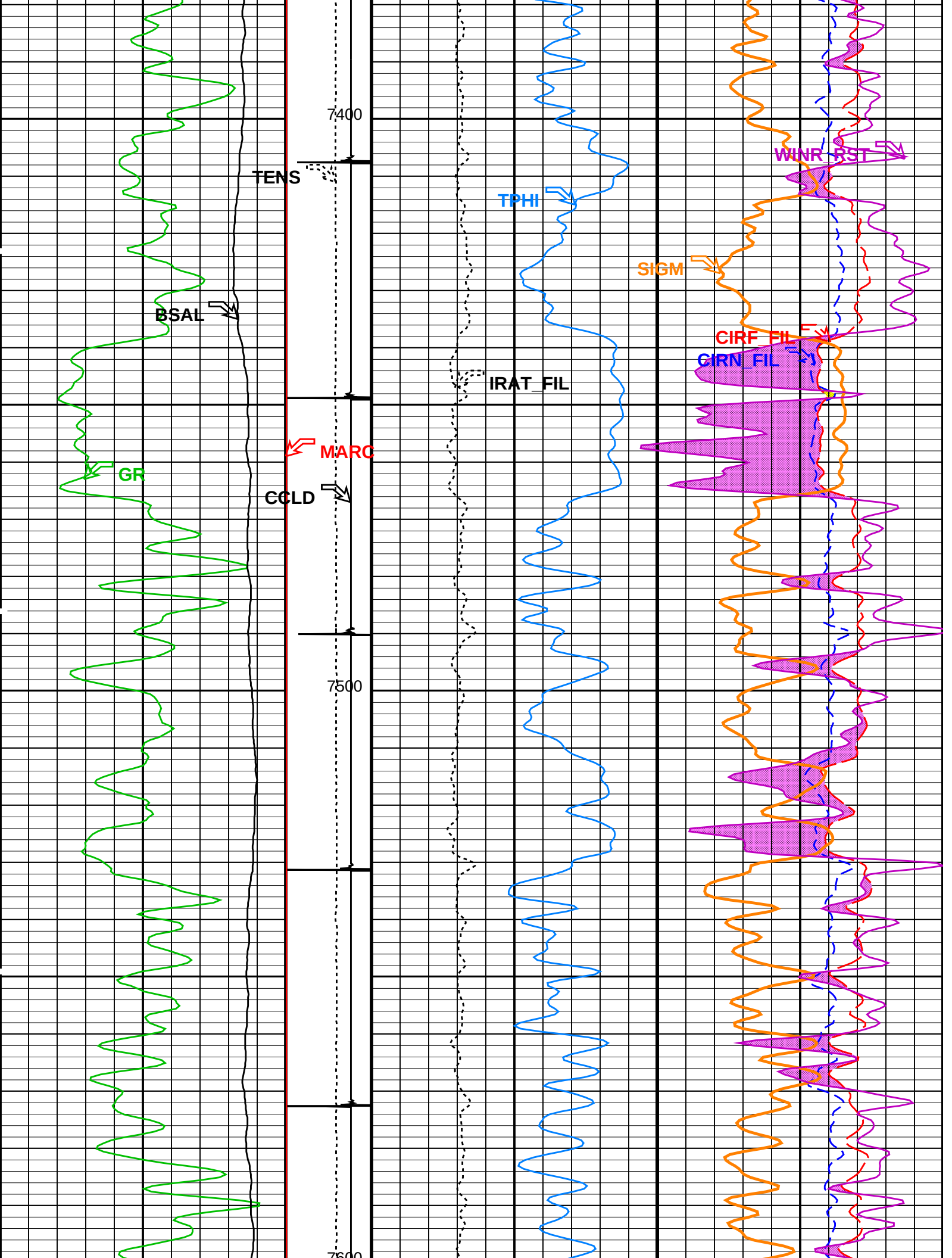
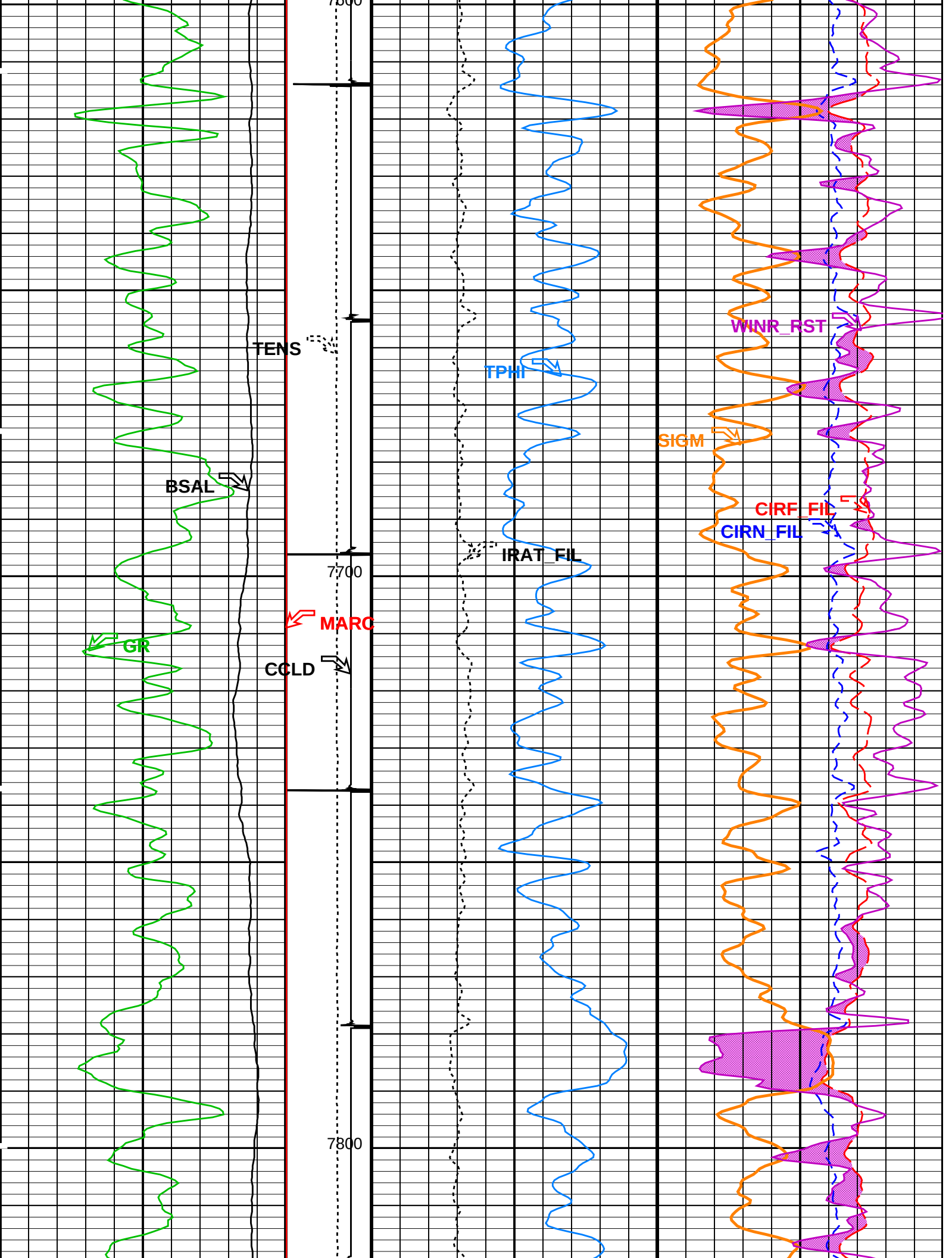
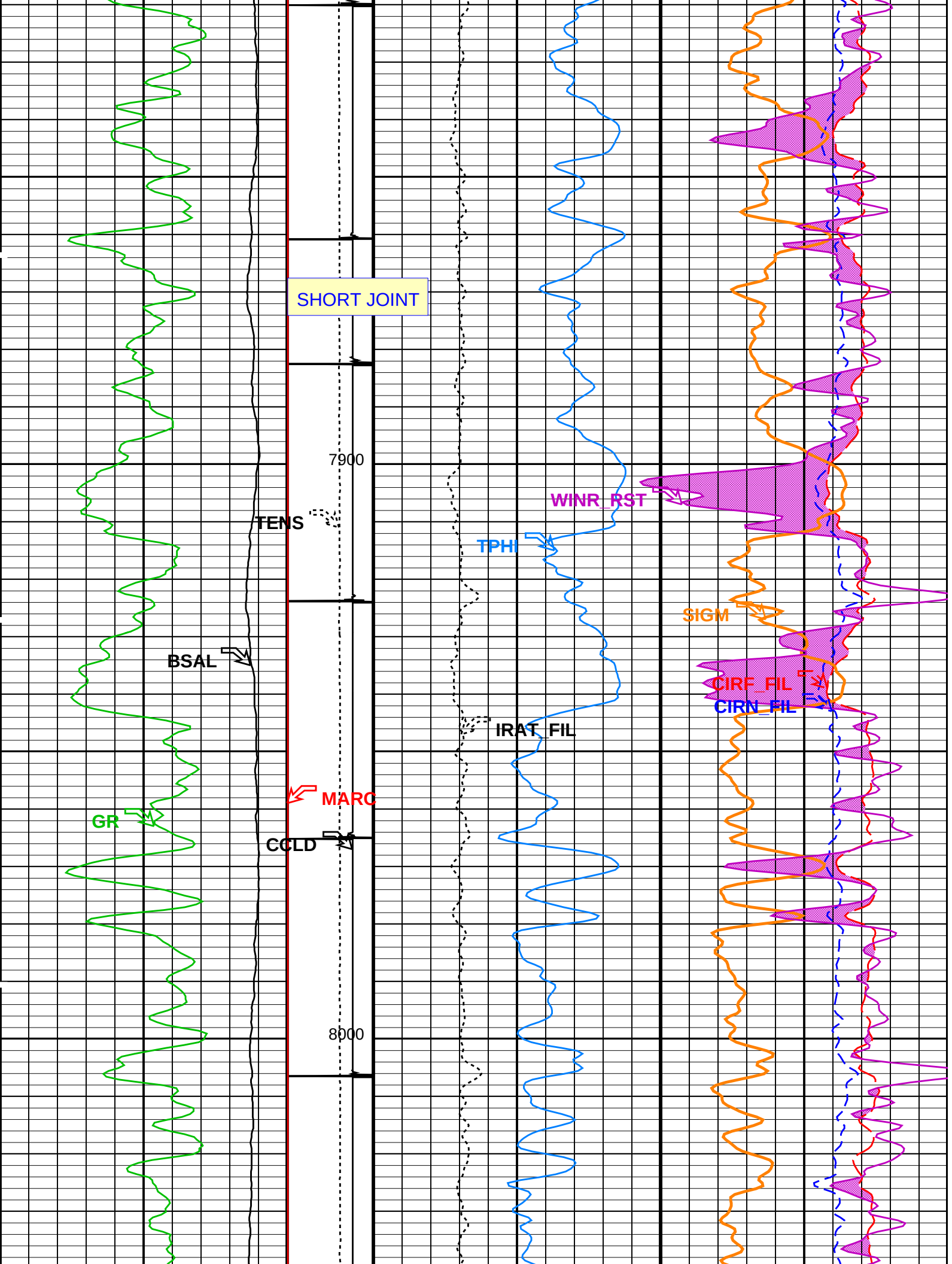
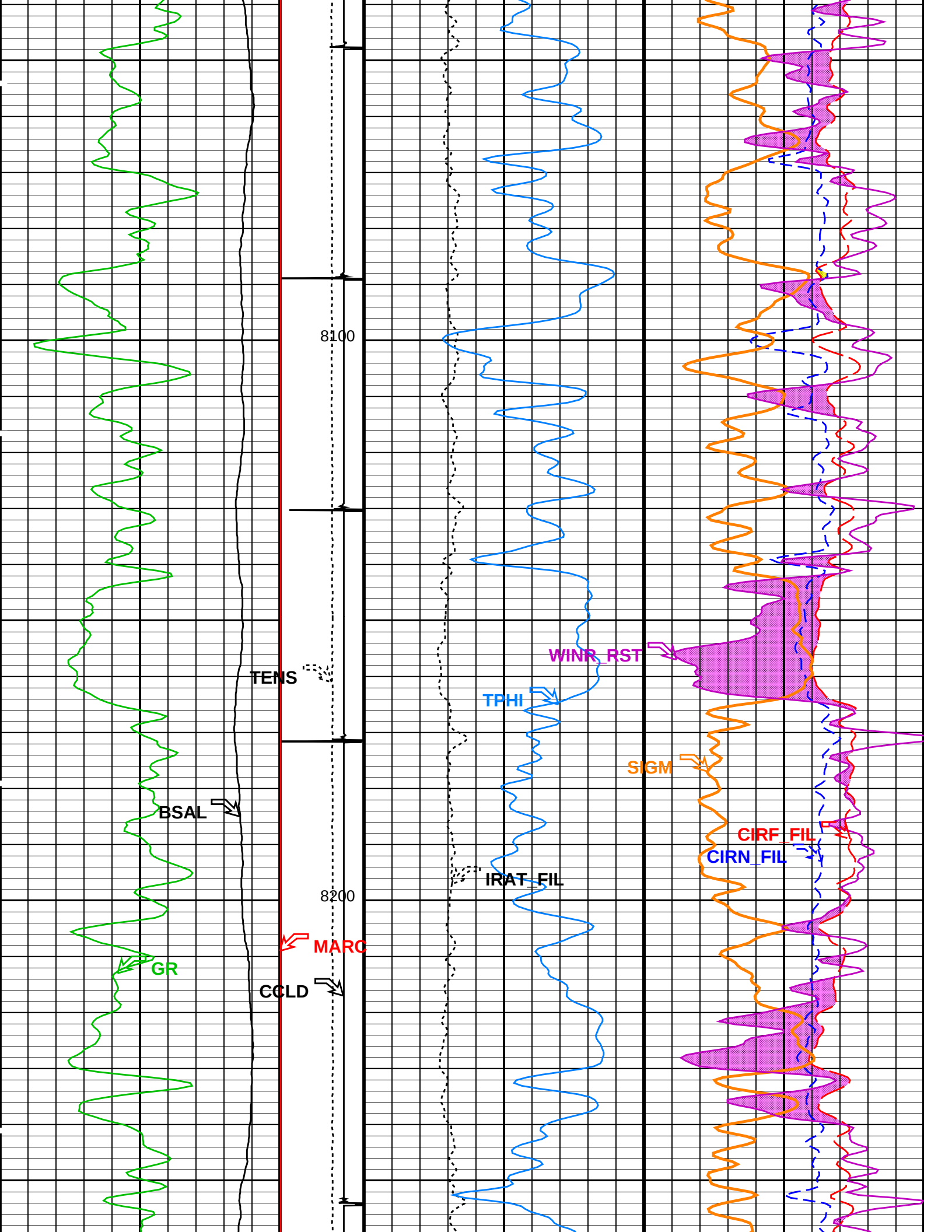
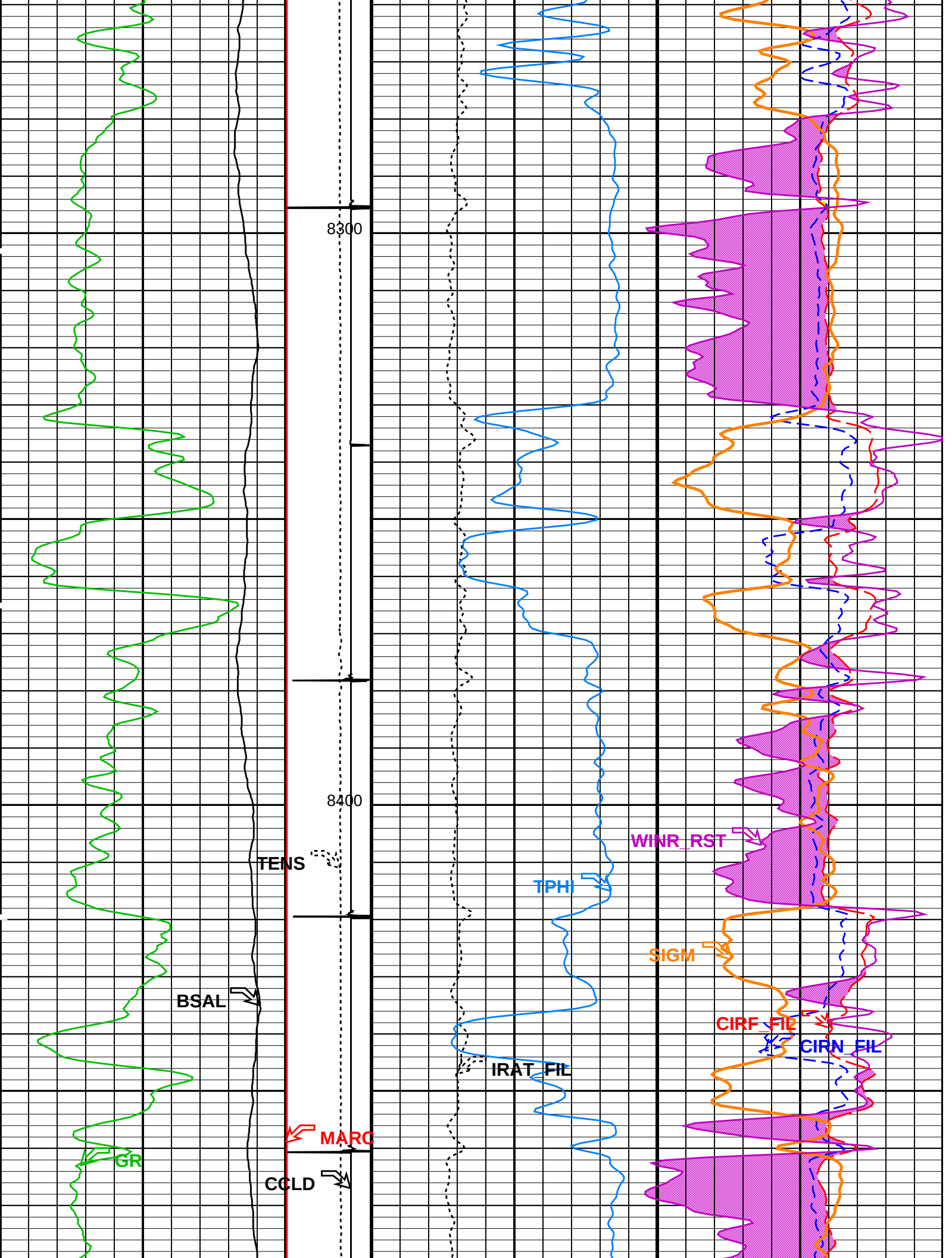
TPHI
IRAT_FIL
SIGM
CIRF_FIL
CIRN_FIL
7200
7300

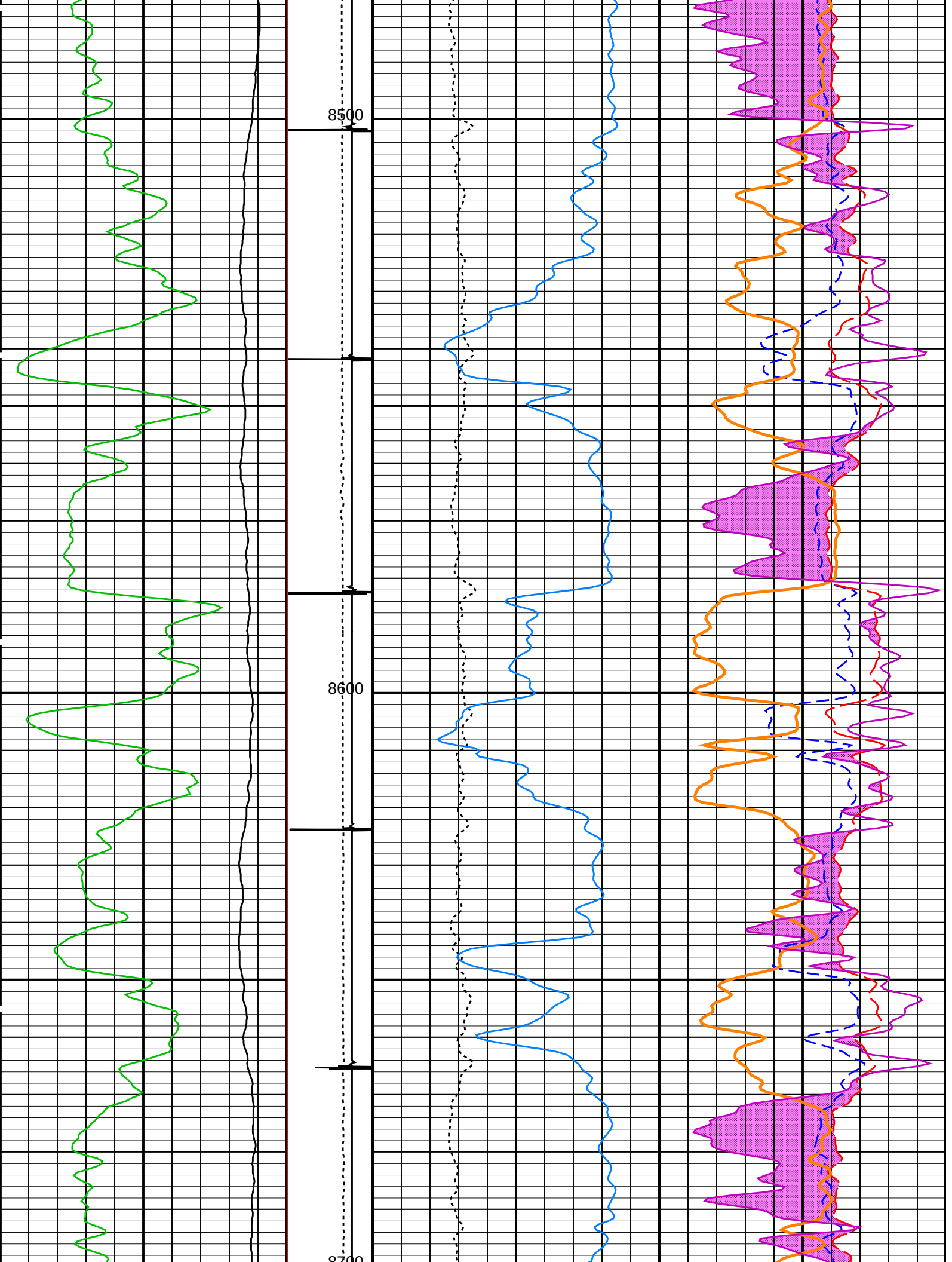

7400
TENS
TPHI
WINR_RST
SIGM
BSAL
CIRF_FIL
CIRN_FIL
IRAT_FIL
MARC
GR
CCLD
7500
7600

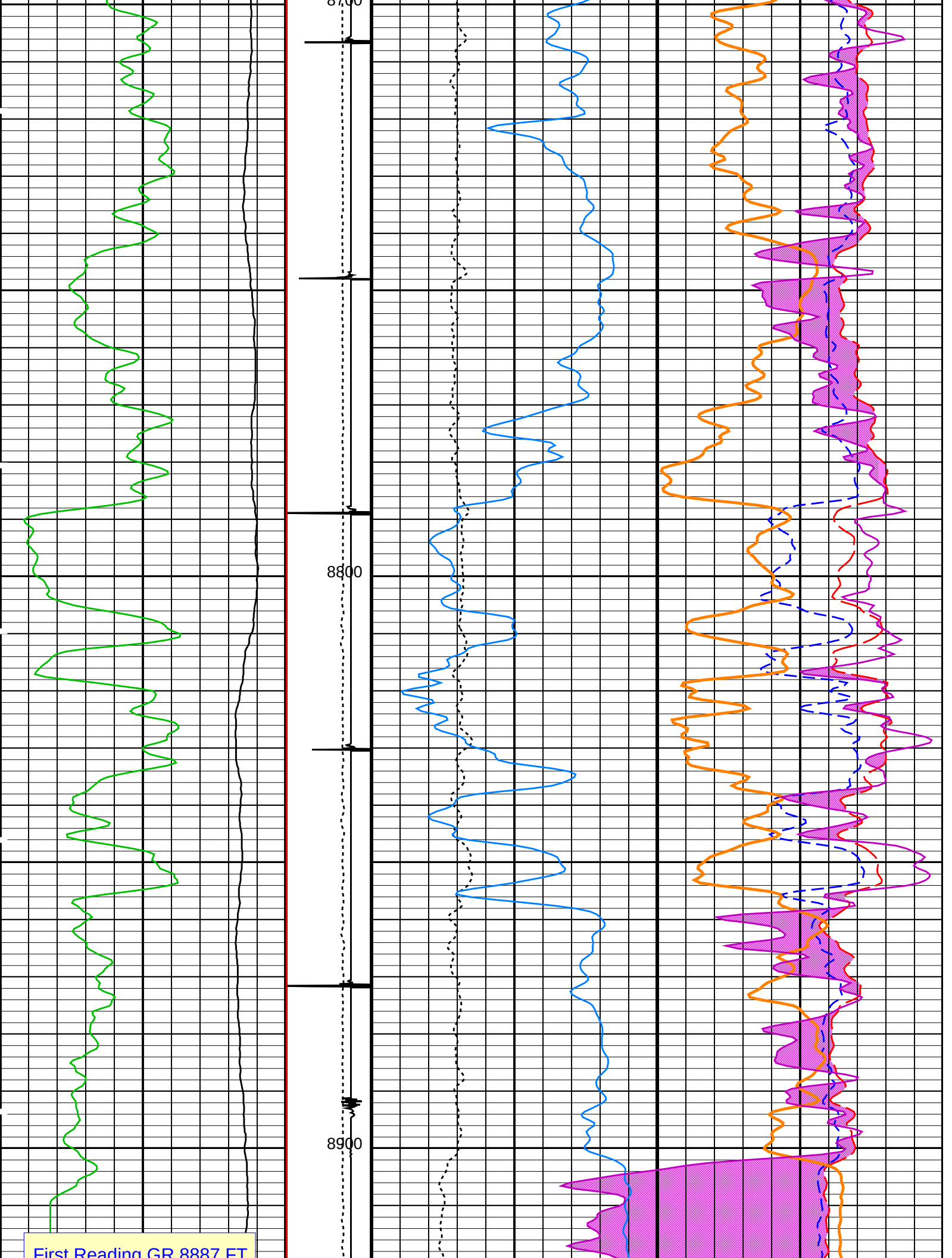

7600
TENS
TPHI
WINR_RST
SIGM
BSAL
CIRF_FIL
CIRN_FIL
IRAT_FIL
7700
MARC
GR
CCLD
7800

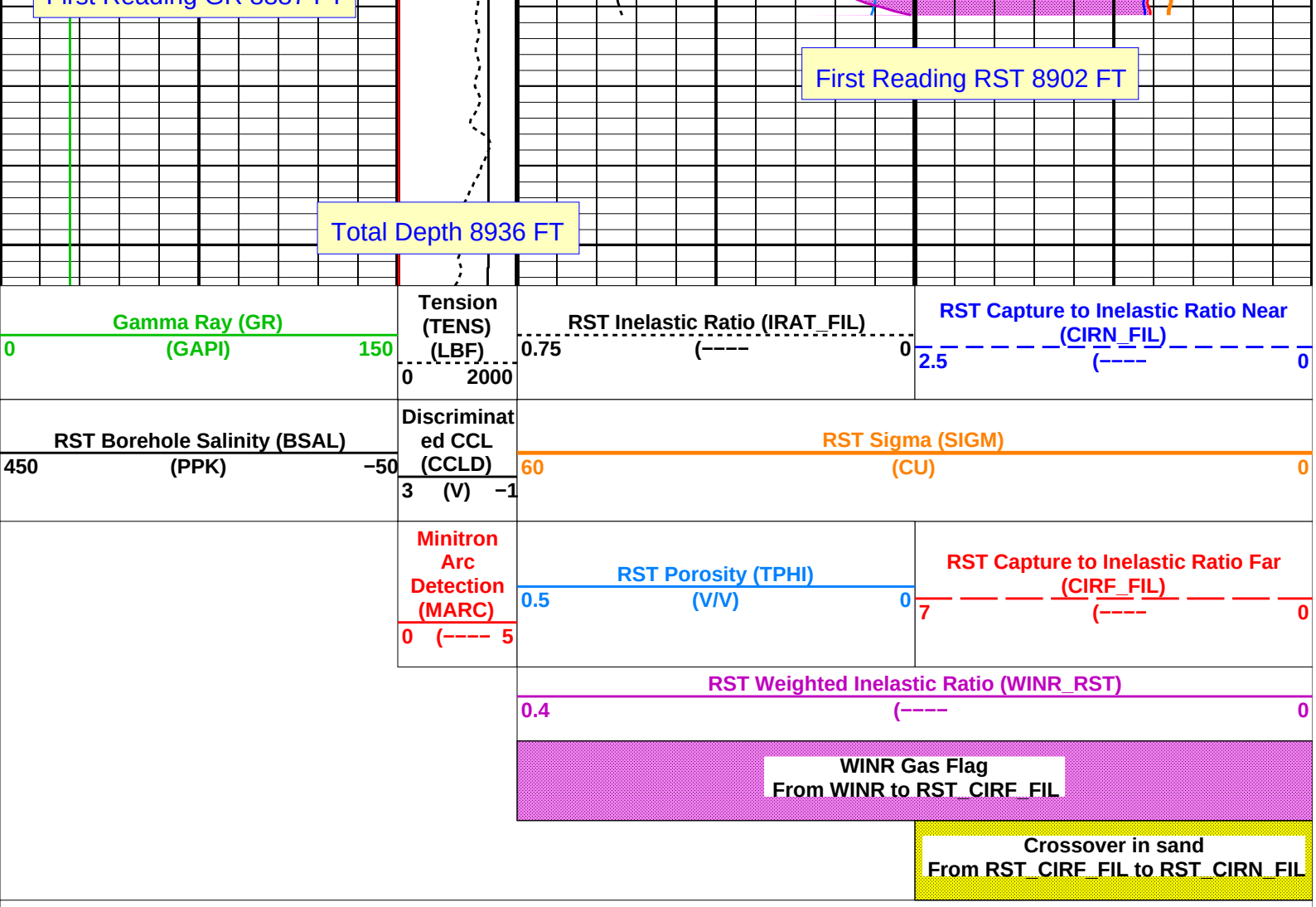

SHORT JOINT
7900
8000
TENS
BSAL
GR
MARC
CCLD
TPHI
WINR_RST
IRAT_FIL
SIGM
CIRF_FIL
CIRN_FIL


8100
8200
TENS
BSAL
GR
MARC
CCLD
WINR_RST
TPHI
IRAT_FIL
SIGM
CIRF_FIL
CIRN_FIL


8300
8400
TENS
BSAL
MARC
GR
CCLD
TPHI
IRAT_FIL
WINR_RST
SIGM
CIRF_FIL
CIRN_FIL


8500
8600


8800
8900
First Reading GR 8887 FT



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

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.	3.998	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.	3.998	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	DB12	
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	4.0	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	8936	FT
TDD	Total Depth − Driller	9020.00	FT
TDL	Total Depth − Logger	8936.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5 **Vertical Scale: 5" per 100'** **Graphics File Created: 10−Feb−2013 09:46**

OP System Version: 19C0−187

SCMT−CB	SRPC−5214−H2−2012−OP1S	RST−C	SRPC−5214−H2−2012−OP1S
PSPT	SRPC−5214−H2−2012−OP1S		

Input DLIS Files

DEFAULT	Splice_SCMT_RST_PSP_045CUP	FN:1	PRODUCER	10−Feb−2013 09:43	8951.0 FT	10.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_046PUP	FN:44	PRODUCER	10−Feb−2013 09:45

Schlumberger

REPEAT ANALYSIS RST SIGMA

MAXIS Field Log

Input DLIS Files

DEFAULT	SCMT_RST_PSP_039LUP	FN:38	PRODUCER	10−Feb−2013 05:54	6973.0 FT	6623.5 FT
DEFAULT	SCMT_RST_PSP_046PUP	FN:44	PRODUCER	10−Feb−2013 09:45	8955.0 FT	−38.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_047PUP	FN:45	PRODUCER	10−Feb−2013 09:53	6973.0 FT	6571.5 FT

OP System Version: 19C0−187

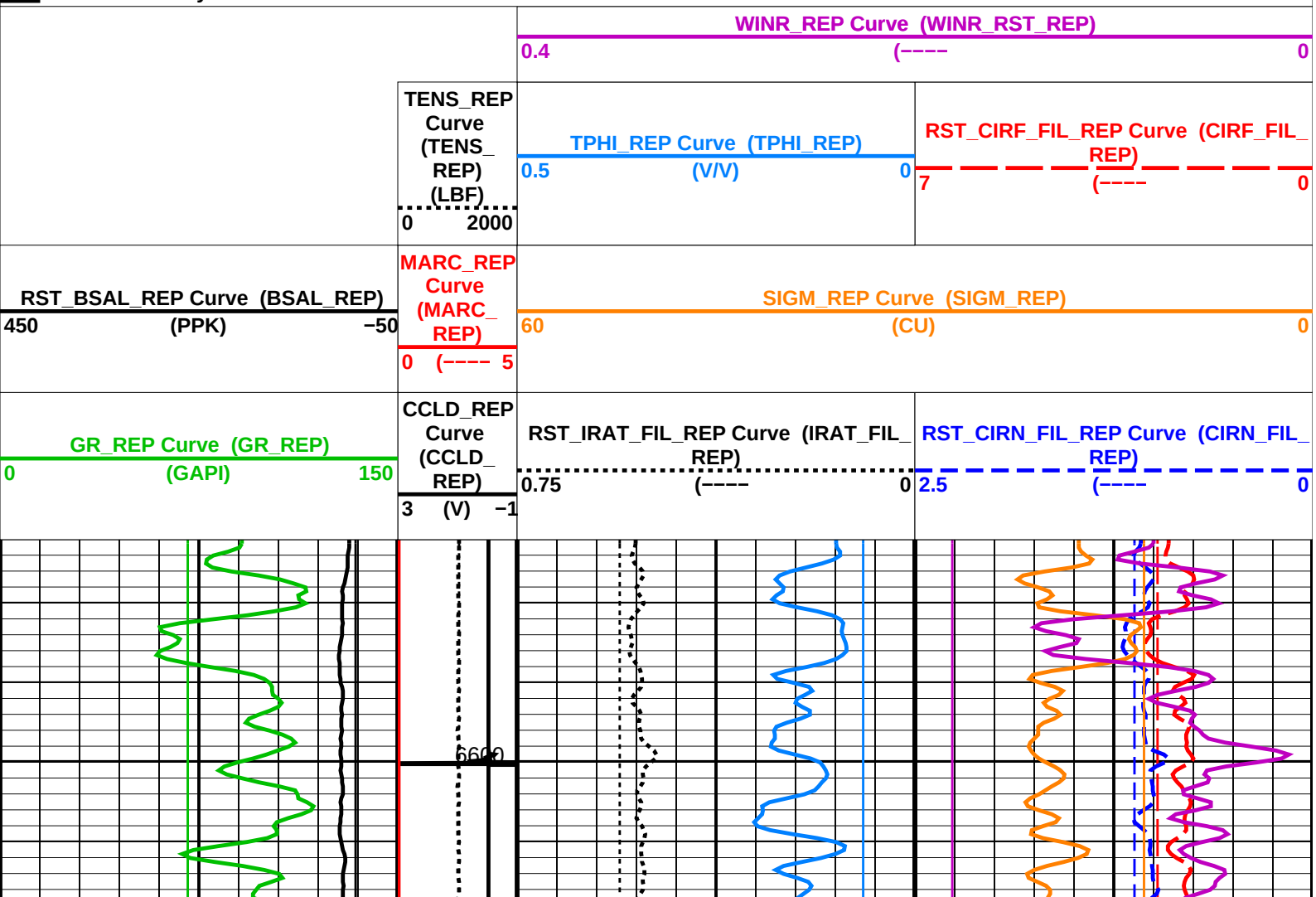
SCMT−CB	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

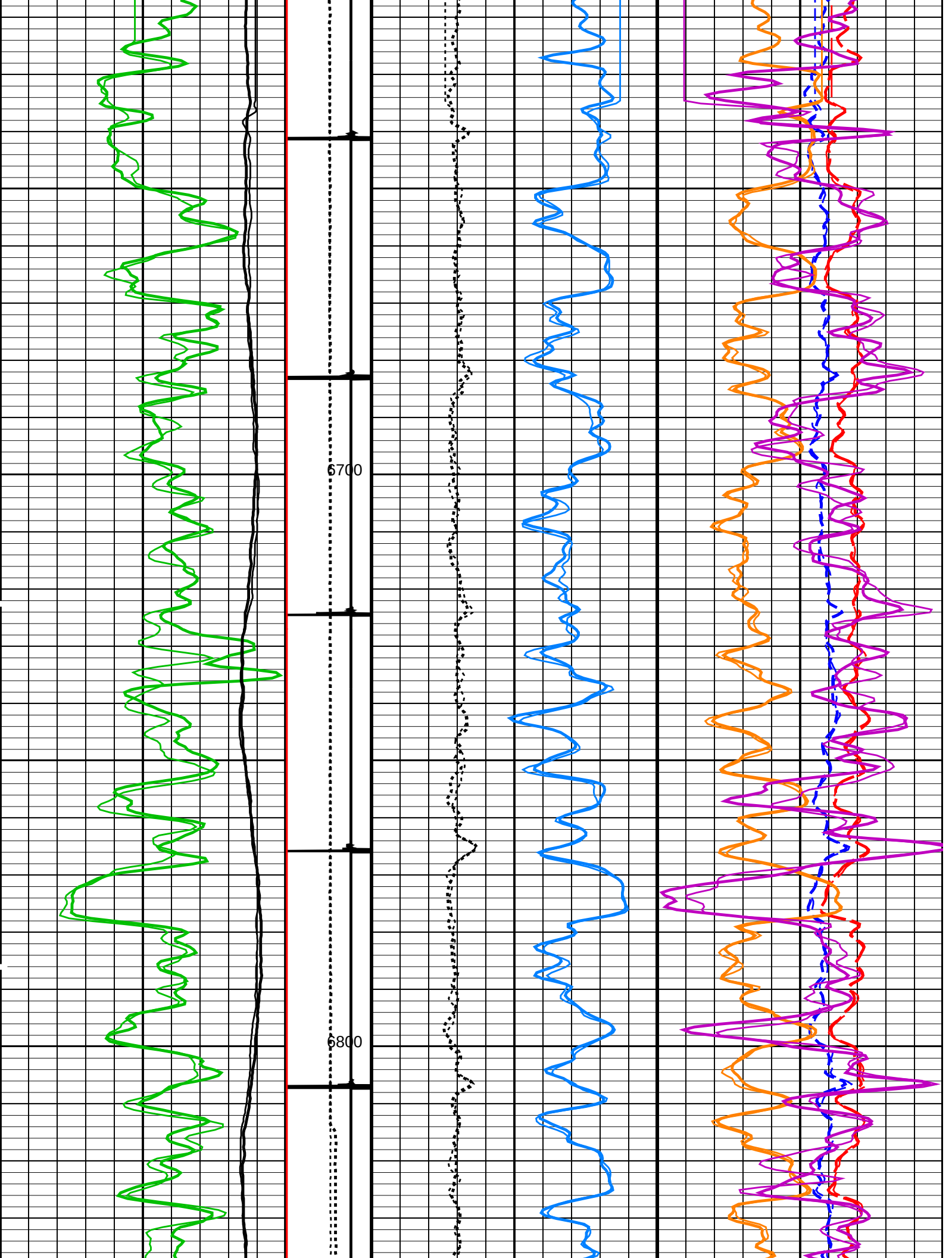
Changed Parameter Summary

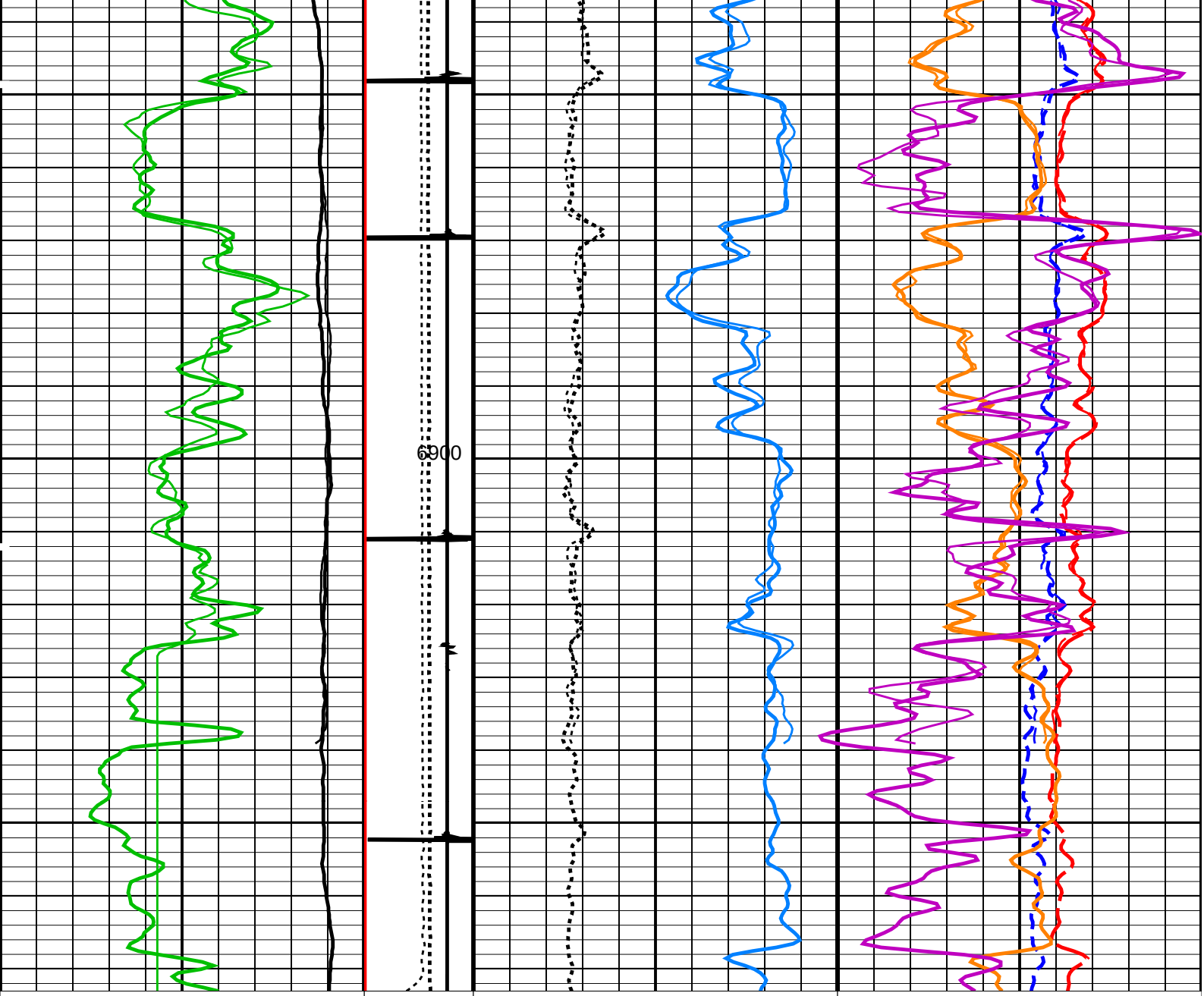
DLIS Name	New Value	Previous Value	Depth & Time
BS	8.750 IN	8.750 IN	6973.0 09:53:15

PIP SUMMARY

Time Mark Every 60 S




6700
6800



GR_REP Curve (GR_REP)
0 (GAPI) 150

CCLD_REP Curve (CCLD_REP)
3 (V) −1

RST_IRAT_FIL_REP Curve (IRAT_FIL_REP)
0.75 (---- 0

RST_CIRN_FIL_REP Curve (CIRN_FIL_REP)
2.5 (---- 0

RST_BSAL_REP Curve (BSAL_REP)
450 (PPK) −50

MARC_REP Curve (MARC_REP)
0 (---- 5

SIGM_REP Curve (SIGM_REP)
60 (CU) 0

TENS_REP Curve (TENS_REP) (LBF)
0 2000

TPHI_REP Curve (TPHI_REP)
0.5 (V/V) 0

RST_CIRF_FIL_REP Curve (CIRF_FIL_REP)
7 (---- 0

WINR_REP Curve (WINR_RST_REP)
0.4 (---- 0

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	SCMT−CB: Slim Cement Mapping Tool, 1−11/16 OD		
BILI	Bond Index Level for Zone Isolation	0.8	
BISS	Bond Index Source Selection for BIQL	BI	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	224.559	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	338.559	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	45	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	80	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
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.	3.998	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.	3.998	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	DB12	
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

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	8936	FT
TDD	Total Depth − Driller	9020.00	FT
TDL	Total Depth − Logger	8936.00	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: RST_SIGMA_S5_REP Vertical Scale: 5" per 100' Graphics File Created: 10−Feb−2013 09:53

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_039LUP	FN:38	PRODUCER	10−Feb−2013 05:54	6973.0 FT	6623.5 FT
DEFAULT	SCMT_RST_PSP_046PUP	FN:44	PRODUCER	10−Feb−2013 09:45	8955.0 FT	−38.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_047PUP	FN:45	PRODUCER	10−Feb−2013 09:53

Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	SHIDELER FEE 31−13CC (031E)	Sensor:	Clock Model
Run date:	10−Feb−2013		

PBMS Digitalization Clock	
Sonde Serial NB	
Sensor Serial NB	1772
Calib Date ddmmyy	250102
Matrix Size	16
Coeff CRC	279D

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	−.161517143435E+03	−.455833634022E+01	−.104938566503E+00

	Temp**3	Temp**4	Temp**5
Temp**0	+.665806803953E−03	+.215816423936E−05	0.0

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**SHIDELER FEE 31−13CC (031E)**	**Sensor:**	**Sapphire**
Run date:	**10−Feb−2013**		

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB	**COEFFICIENTS FOR SAPPHIRE PBMS−A.1772 S/N:**
Sensor Serial NB	**1772**
Calib Date ddmmyy	**250102**
Matrix Size	**66**
Coeff CRC	**7015**

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	−.301728254764E+05	+.213698779657E+05	−.667784145806E+04
Tp**1	+.222783691269E+05	−.154949942910E+05	+.506915258152E+04
Tp**2	−.219998557234E+03	+.903672682639E+02	−.973284421881E+01
Tp**3	+.373083861809E+01	−.914930924512E+00	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

	Tt**3	Tt**4	Tt**5
Tp**0	+.999867705458E+03	−.587093588268E+02	0.0
Tp**1	−.790152285056E+03	+.481404114544E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**3	0.0	0.0	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB	**:**
Sensor Serial NB	**1772**
Calib Date ddmmyy	**250102**

Matrix Size	**66**
Coeff CRC	**8D09**

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt0**	**+.232726172867E+04**	**+.748146006300E+01**	**−.308596169368E+01**
Tt1**	**−.145543937674E+04**	**−.382344629538E+01**	**+.886665691754E+00**
Tt2**	**+.319573055861E+03**	**+.722043926946E+00**	**−.543588515298E−01**
Tt3**	**−.247026874426E+02**	**−.512988254724E−01**	**0.0**
Tt4**	**0.0**	**0.0**	**0.0**
Tt5**	**0.0**	**0.0**	**0.0**

	Tp**3	Tp**4	Tp**5
Tt0**	**+.711608702827E+00**	**−.763411838100E−01**	**0.0**
Tt1**	**−.147911019947E+00**	**+.159378916834E−01**	**0.0**
Tt2**	**0.0**	**0.0**	**0.0**
Tt3**	**0.0**	**0.0**	**0.0**
Tt4**	**0.0**	**0.0**	**0.0**
Tt5**	**0.0**	**0.0**	**0.0**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**SHIDELER FEE 31−13CC (031E)**	**Sensor:**	**GR**
Run date:	**10−Feb−2013**		

PBMS Gamma Ray

Sonde Serial NB	**RESISTORS FOR GR SENSOR N.33401,TOOL PBMS−AA1772. SENSOR S/N:**
Sensor Serial NB	**33401**
Calib Date ddmmyy	**021101**
Matrix Size	**12**
Coeff CRC	**1F7D**

GR HV Rt

	Rt**0	Rt**1
Rt0**	**+.150000000000e+04**	**+.236000000000e+04**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**SHIDELER FEE 31−13CC (031E)**	**Sensor:**	**WellTemp RTD**
Run date:	**10−Feb−2013**		

PBMS RTD Well Thermometer

Sonde Serial NB	
Sensor Serial NB	**1772**
Calib Date ddmmyy	**250102**
Matrix Size	**16**
Coeff CRC	**0B6D**

WTemp Coeff

	Tt0**	**Tt**1**	**Tt**2**
Tt0**	**−.578338733285E+03**	**+.354557410577E+03**	**−.963404561888E+02**

	Tt3**	**Tt**4**	**Tt**5**
Tt0**	**+.167992041034E+02**	**−.106406976994E+01**	**0.0**

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

Schlumberger

Well: **SHIDELER FEE 31−13CC (031E)**
Field: **MAMM CREEK**
County: **GARFIELD**
State: **COLORADO**

RESERVOIR SATURATION LOG
SIGMA MODE
GR−CCL