

Company: Petroleum Resource Management Corp.

Well: Sheehan 2 #4-2

Field: Wildcat

County: Moffat State: Colorado

*** PLATFORM EXPRESS ***

ARRAY INDUCTION

SONIC POROSITY - FORMATION SLOWNESS

County: Moffat
Field: Wildcat
Location: FNL: 2082' FEL: 350'
Well: Sheehan 2 #4-2
Company: Petroleum Resource Management Corp.

Location:		
FNL: 2082' FEL: 350'	Elev.:	K.B. 8280.00 ft
Lat: 40.852625, Lon: -107.336557		G.L. 8266.00 ft
Meridian 6		D.F. 8279.00 ft

Permanent Datum:	Ground Level	Elev.:	8266.00 f
Log Measured From:	Kelly Bushing	14.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

API Serial No.	Max.Hole Deviation	Longitude:	Latitude:
05-081-07750-00	0 deg	-107.33655 degrees	40.852623 degrees

Logging Date 03-Jul-2013

Run Number TWO

Depth Driller 9100.00 ft

Schlumberger Depth 9100.00 ft

Bottom Log Interval 9092.00 ft

Top Log Interval 14.00 ft

Casing Driller Size @ Depth 7 in @ 5940.00 ft

Casing Schlumberger 5927 ft

Bit Size 6.125 in

Type Fluid In Hole KCL Polymer

Density	Viscosity	36 s
Fluid Loss	PH	10.1

MUD

Source of Sample Active Tank

RM @ Meas Temp 0.16 ohm.m @ 75 degF

RMF @ Meas Temp 0.12 ohm.m @ 75 degF

RMC @ Meas Temp 0.2 ohm.m @ 75 degF

Source RMF RMC Calculated

RM @ BHT RMC @ BHT 0.08 @ 163 0.06 @ 163

Max Recorded Temperatures 190 degF

Circulation Stopped 03-Jul-2013 02:30:00

Logger on Bottom 03-Jul-2013 18:45:00

Unit Number 3188 Location: Vernal

Recorded By Kevin Crow

Witnessed By Duncan Shepherd

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 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.

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Operational Run Summary

Parameter (unit)	TWO					
Date Log Started	03-Jul-2013					
Time Log Started	17:20:12					
Date Log Finished	03-Jul-2013					
Time Log Finished	21:35:25					
Top Log Interval (ft)	14.00					
Bottom Log Interval (ft)	9092.00					
Total Depth (ft)	9100.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	6.125					
Logging Unit Number	3188					
Logging Unit Location	Vernal					
Recorded By	Kevin Crow					
Witnessed By	Duncan Shepherd					
Service Order Number	CAU6-00048					

Borehole Fluids

Parameter(unit)	TWO					
Fluid Type	Water					
Fluid Name	KCL Polymer					
Max Recorded Temperatures (degF)	190					
Source of Sample	Active Tank					
Salinity (ppm)	40652.34					
Density (lbm/gal)	8.8					
Funnel Viscosity (s)	36					
Fluid Loss (cm3)	8.8					
PH	10.1					
Date/Time Circulation Stopped	03-Jul-2013 02:30:00					
Date Logger on Bottom	03-Jul-2013					
Time Logger on Bottom	18:45:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.16 @ 75					
RMF @ Meas Temp (ohm.m@degF)	0.12 @ 75					

RMC @ Meas Temp (ohm.m@degF)	0.2 @ 75				
RM @ BHT (ohm.m@degF)	0.08 @ 163				
RMF @ BHT (ohm.m@degF)	0.06 @ 163				
RMC @ BHT (ohm.m@degF)	0.1 @ 163				
Total Solid (%)					
High Gravity Solids (%)					

Remarks and Equipment Summary

TWO: Toolstring				TWO: Remarks
Equip name LEH-QT LEH-QT	Length 72.72	MP name	Offset	THANK YOU FOR CHOOSING SCHLUMBERGER
				TOOLS RAN AS PER TOOL SKETCH
				SUBSEQUENT TRIP TO WELL.
DTC-H:9354 ECH-KC DTC-H:9354	69.81	CTEM HV	68.91 0.00	MATRIX = SANDSTONE, MATRIX SLOWNESS = 56
		TelStatus ToolStatus Temperature	66.81 66.81 66.78	WASHOUTS AND LOW MUD RESISTIVITY ADVERSELY AFFECT LOG QUALITY
HGNS-H:3799 HGNH:2795 NPV-N NSR-F:5138 HMCA-H HACCZ-H:1614 HGNS-H:3799	66.81	GR	66.06	REPEAT PASS NOT DONE AT CLIENTS REQUEST
		CNL Porosit y HGNS HMCA Accelerome ter	59.73 57.4 57.4 0.00	SONIC TOOL CENTRALIZED WITH 3 CME- Z'S AND A PPC CALIPER
HDRS-H:3867 ECH-MEB:3704 HRCC-H:3889 HRMS-H:3867 GSR-J:5415 GPV-Q Long Spacing:28 706 Short Spacing:27 692 HRGD-H:3912 Backscatter	57.4	HRCC	53.4	
		MCFL Caliper TLD Density	47.96 47.48 47.09	
AH-107	45.15			
DSLT-H:8317 ECH-KH DSLCH:8317 SLS-E:8033	43.15			



CBL 3ft 30.68
Upper-Near 30.68

VDL 5ft 29.68
Upper-Far 29.68

Delta-T 28.31

Lower-Far 26.93

Lower-Near 25.93

SLS-E 22.52

PPC-B:8007 22.52
PPC-B:8007

PPC-B Calipers 21.37

AIT-M:266 16.00
AMIS:266
AMRM:266

Power Supply 7.91
Induction 7.91
Temperature 7.91

SP 0.08
Mud Resistivity 0.00
Head Tension
TOOL_ZERO

Lengths are in ft
Maximum Depth 9,999.99

Maximum Outer Diameter = 9.000 in		
Line: Sensor Location, Value: Gating Offset		
All measurements are relative to TOOL_ZERO		

Depth Summary

Depth Control Parameters	TWO		
Conveyance Type	Wireline		
Log Sequence	SUBSEQUENT TRIP		
Depth Remark Parameters	TWO		
Depth Remark 1	ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES FOLLOWED.		
Depth Remark 2	IDW USED AS PRIMARY DEPTH CONTROL DEVICE.		
Depth Remark 3	Z-CHART USED AS SECONDARY DEPTH CONTROL		
Depth Measuring Device	TWO		
Type	IDW-JA		
Serial Number	6702		
Calibration Date	20-JUN-2013		
Calibration Cable Type	7-39 PLXS		
Wheel Correction 1	-4		
Wheel Correction 2	-3		
Tension Device	TWO		
Type	CMTD-B/A		
Serial Number	2930		
Calibration Date	02-JUL-2013		
Calibrator Serial Number	100518A		
Calibration Points	10		
Calibration RMS	6		
Calibration Peak Error	13		
Logging Cable	TWO		
Type	7-39P-LXS		
Logging Cable Length (ft)	24000.00		

TWO

MAIN PASS 5" = 100'

[illegible]

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
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Pass Summary	
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Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
TWO	Log[2]:Up	Up	33.27 ft	9131.98 ft	03-Jul-2013 6:54:24 PM	03-Jul-2013 9:35:25 PM	22.00 ft	

All depths are referenced to toolstring zero

Log

TWO: Log[2]:Up

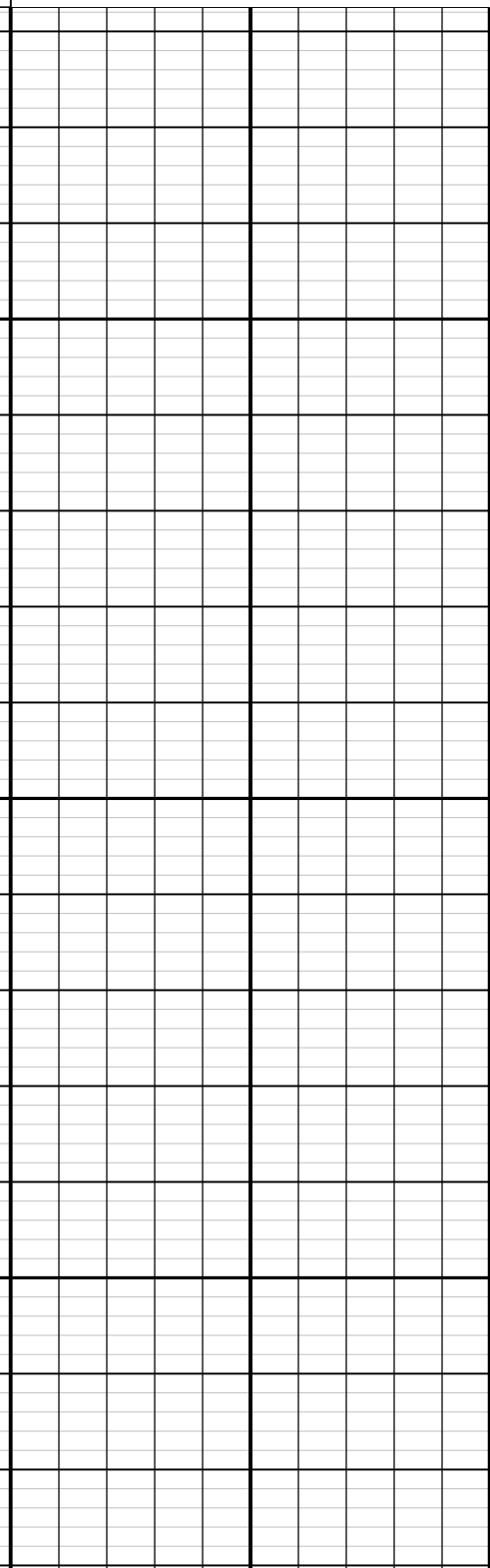
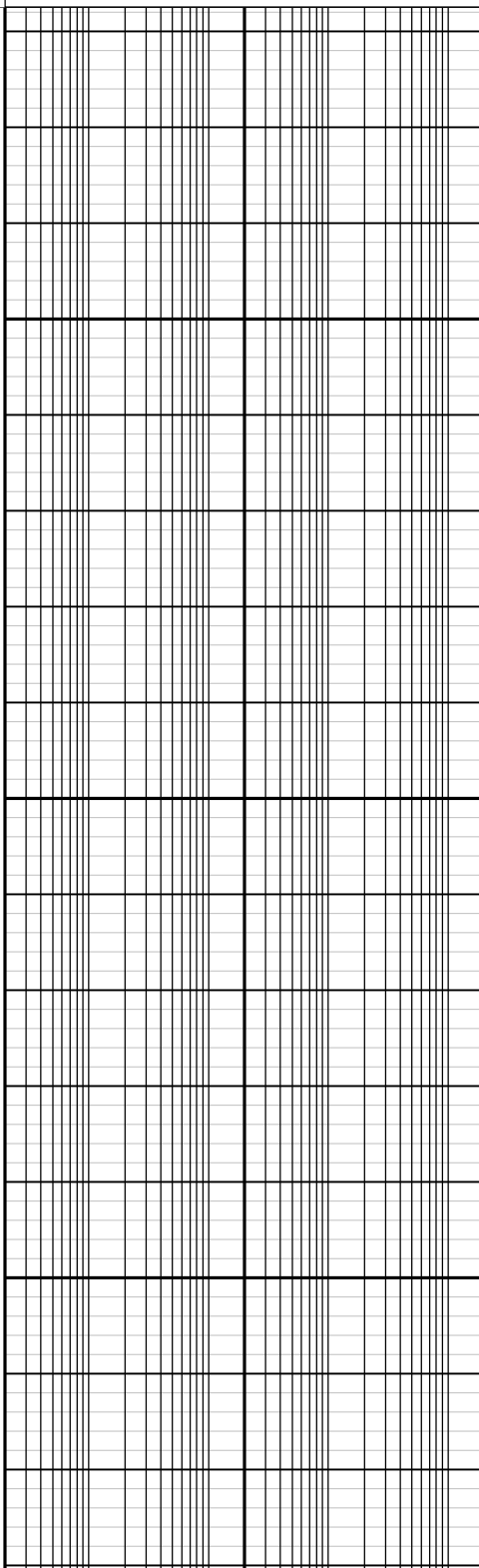
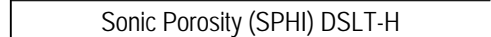
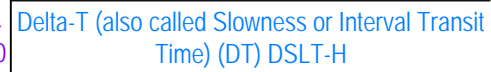
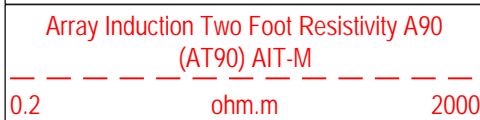
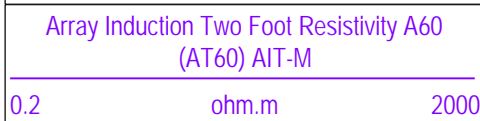
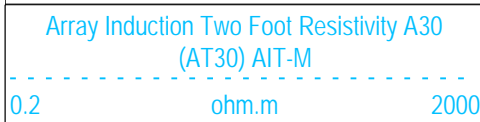
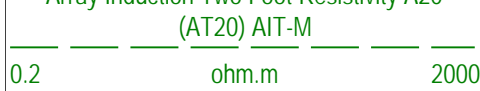
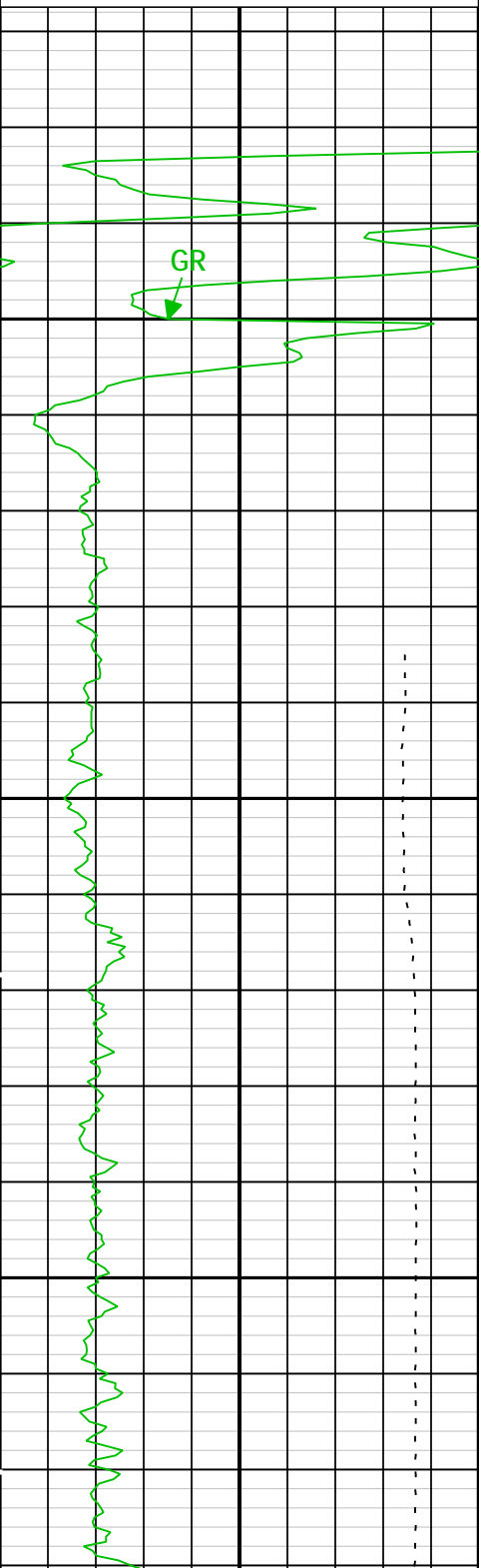
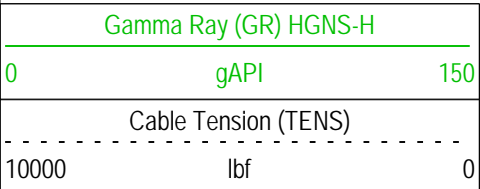
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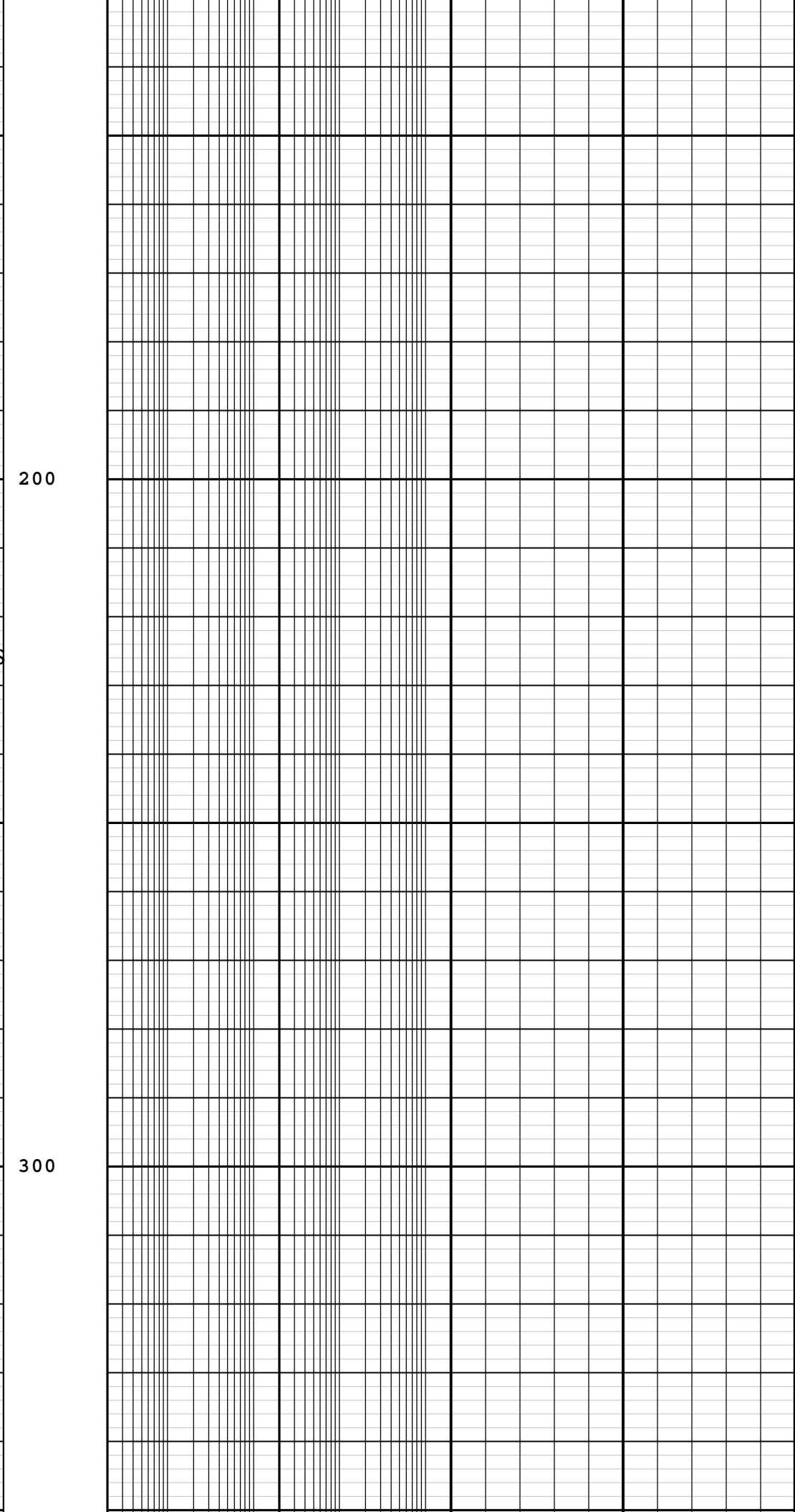
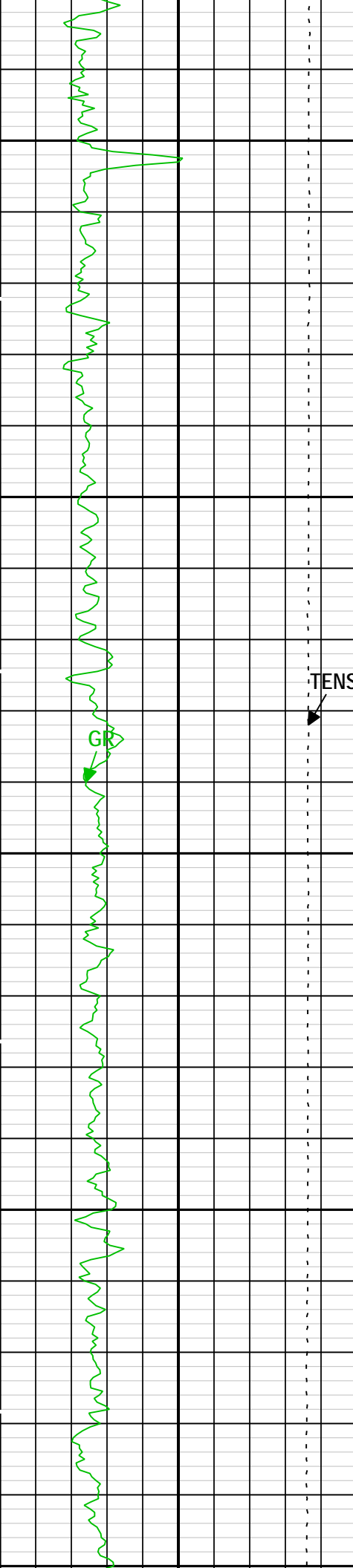
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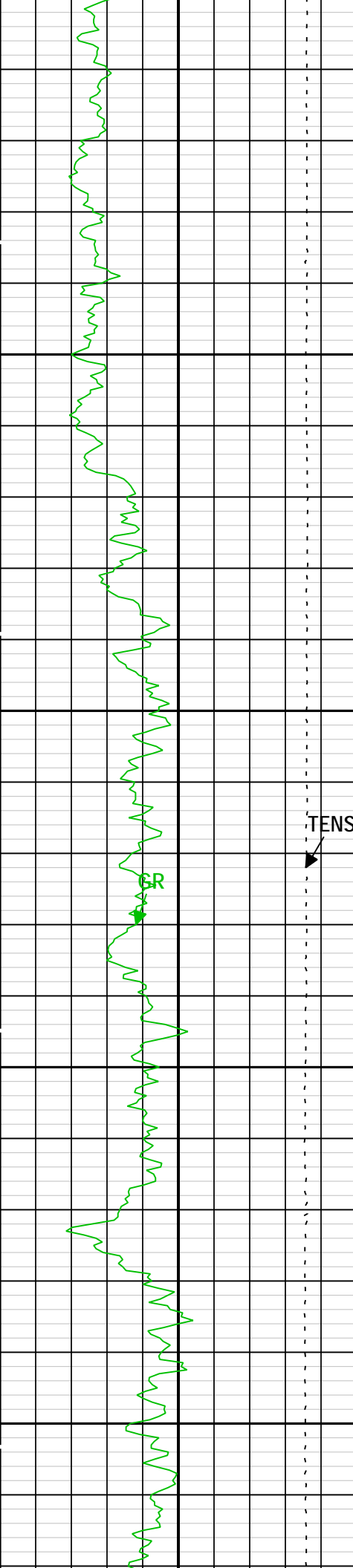
Description: Format: Log (Blank 3 Track Depth) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Jul-2013 16:51:18

TIME_1900 - Time Marked every 60.00 (s)

Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A20		



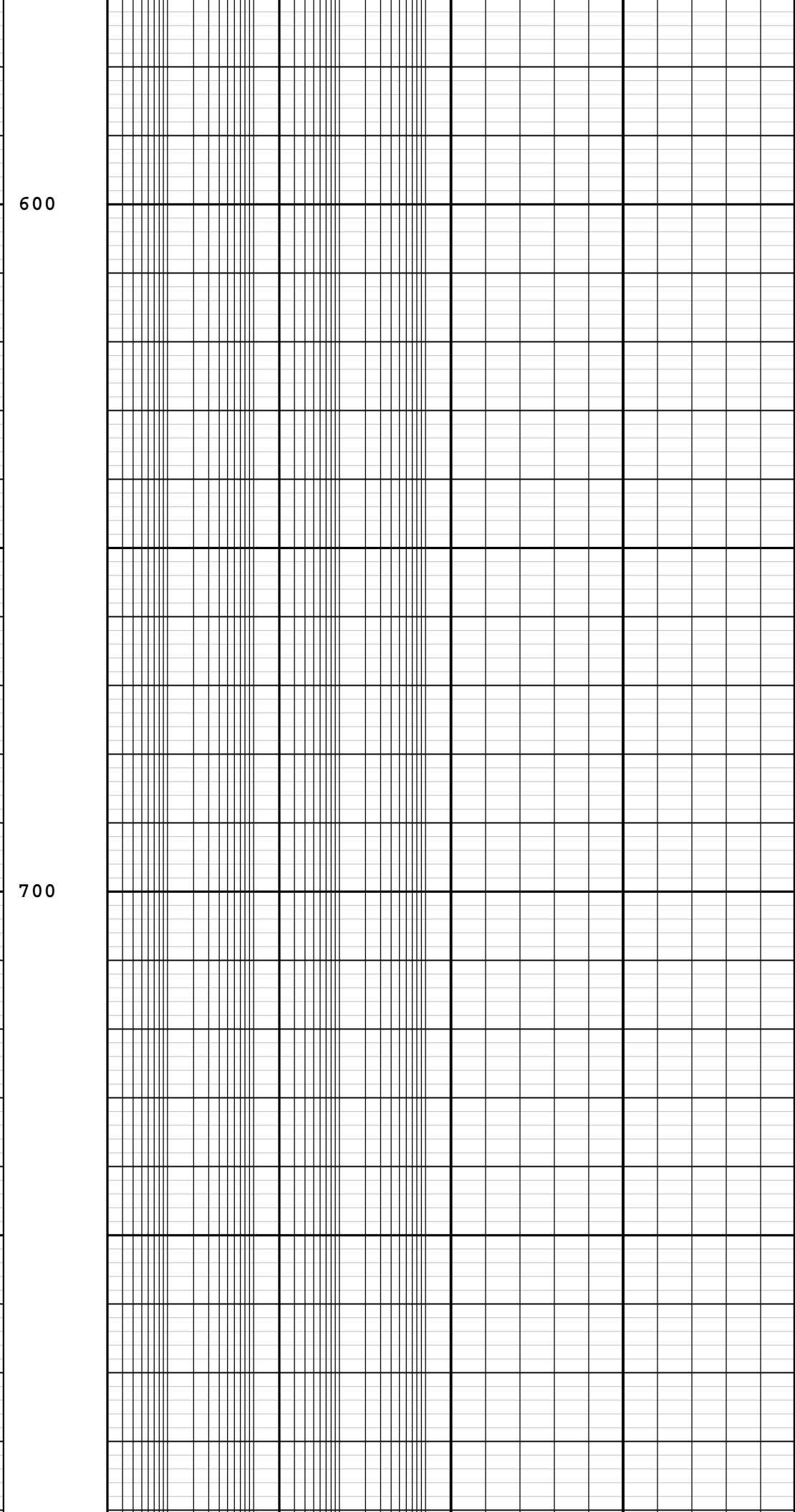
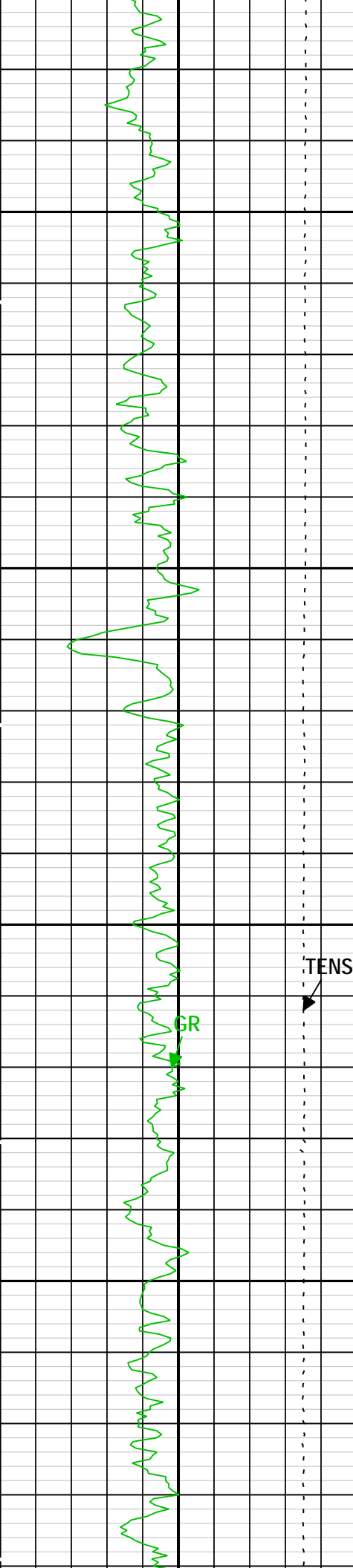


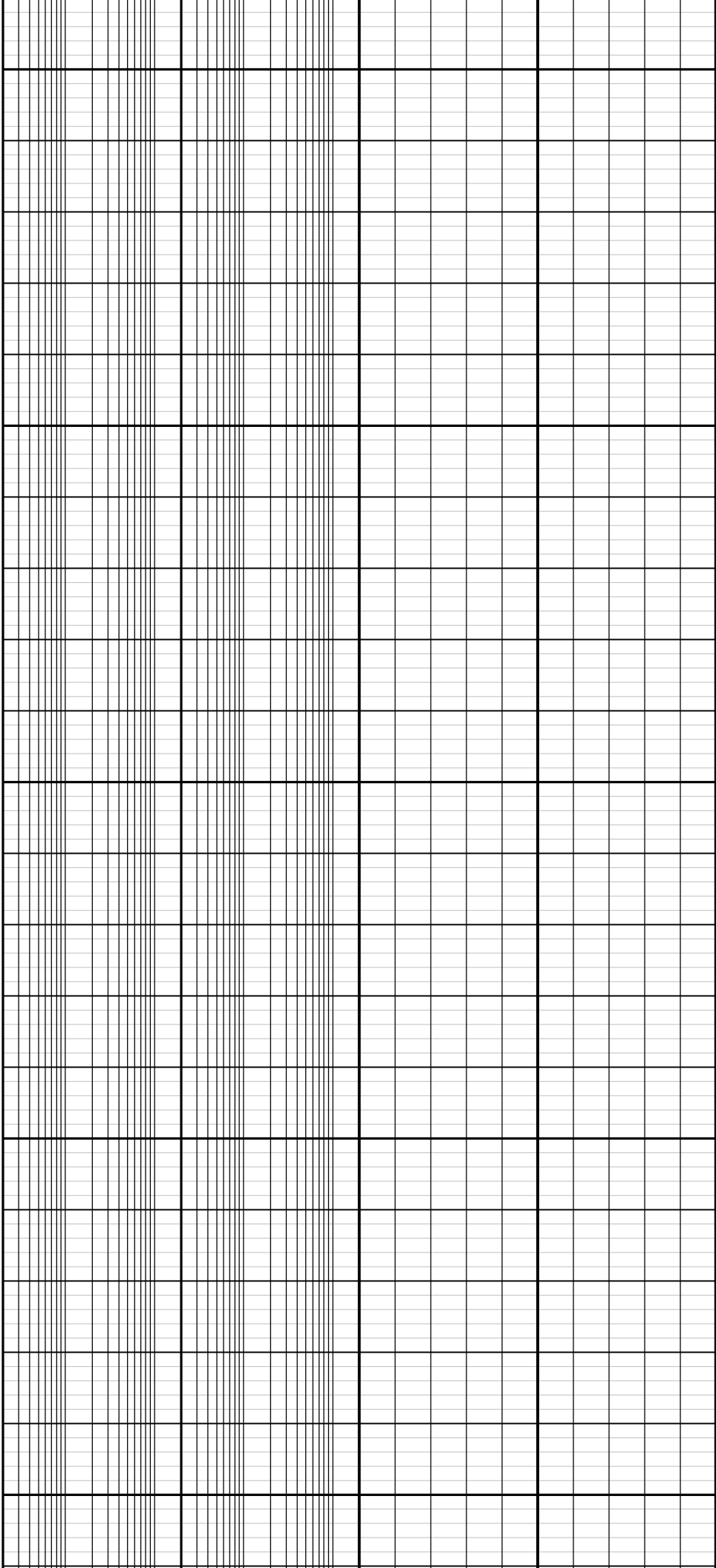
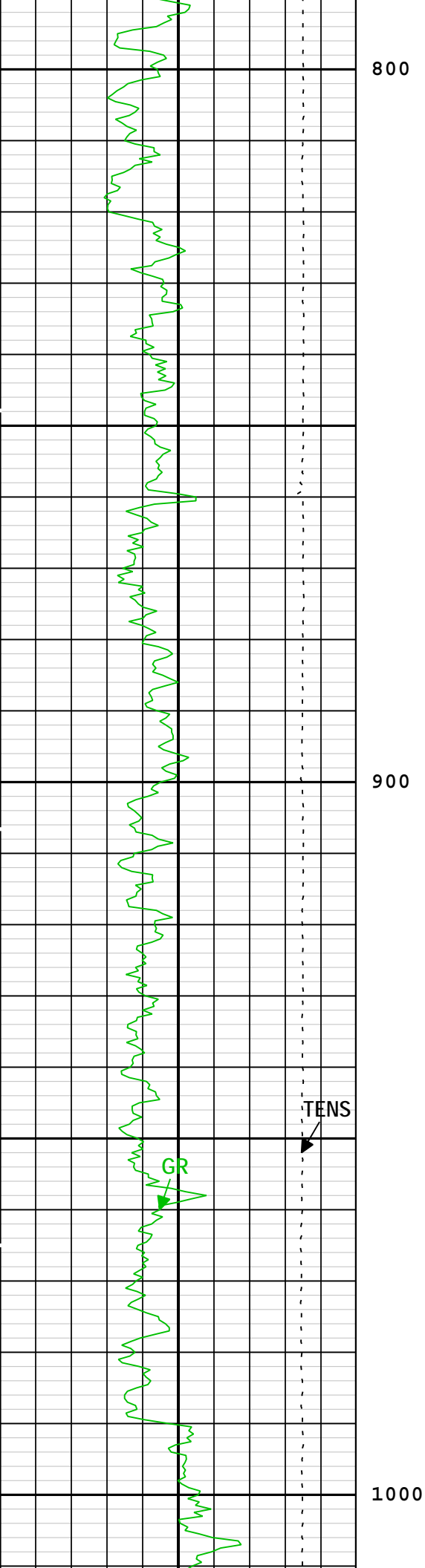


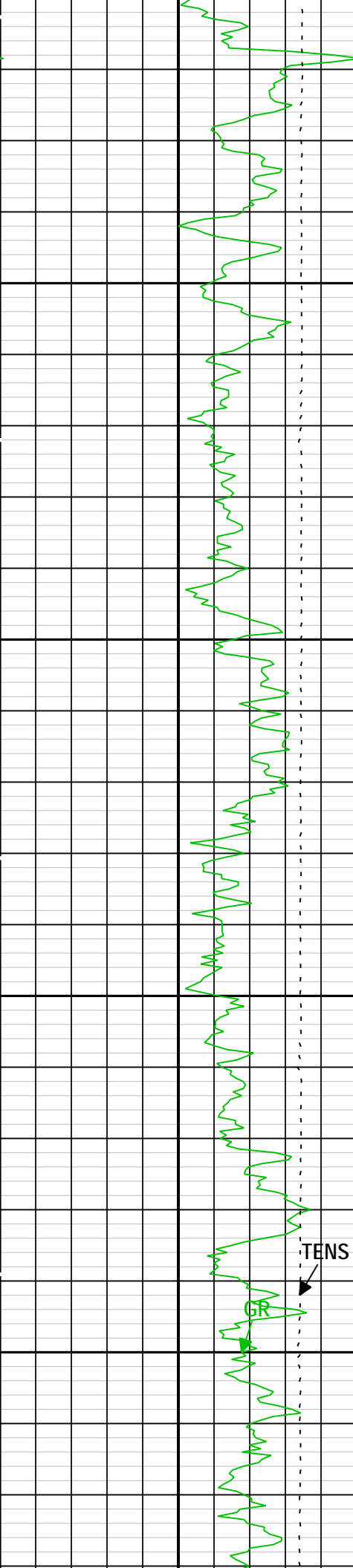
400

TENS

500



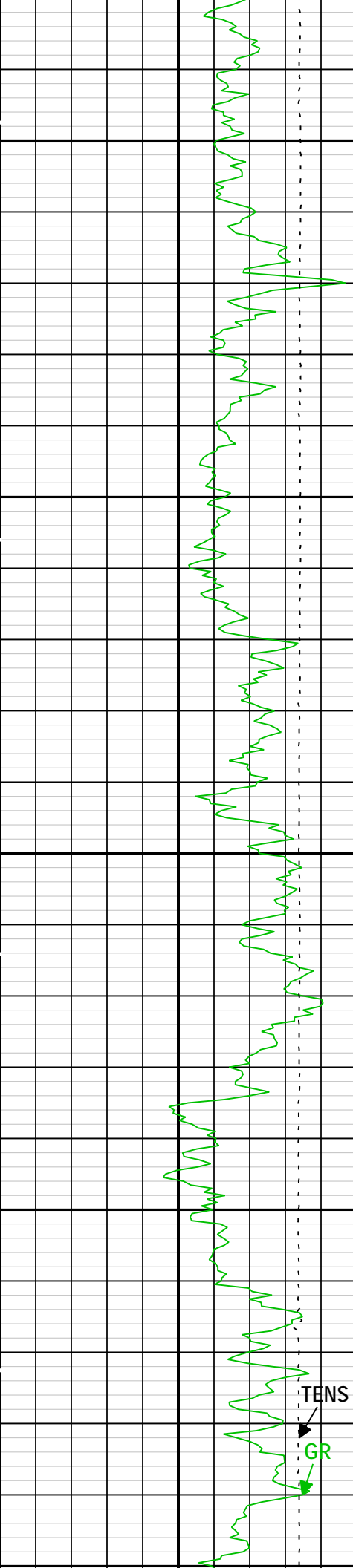




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TENS

1200

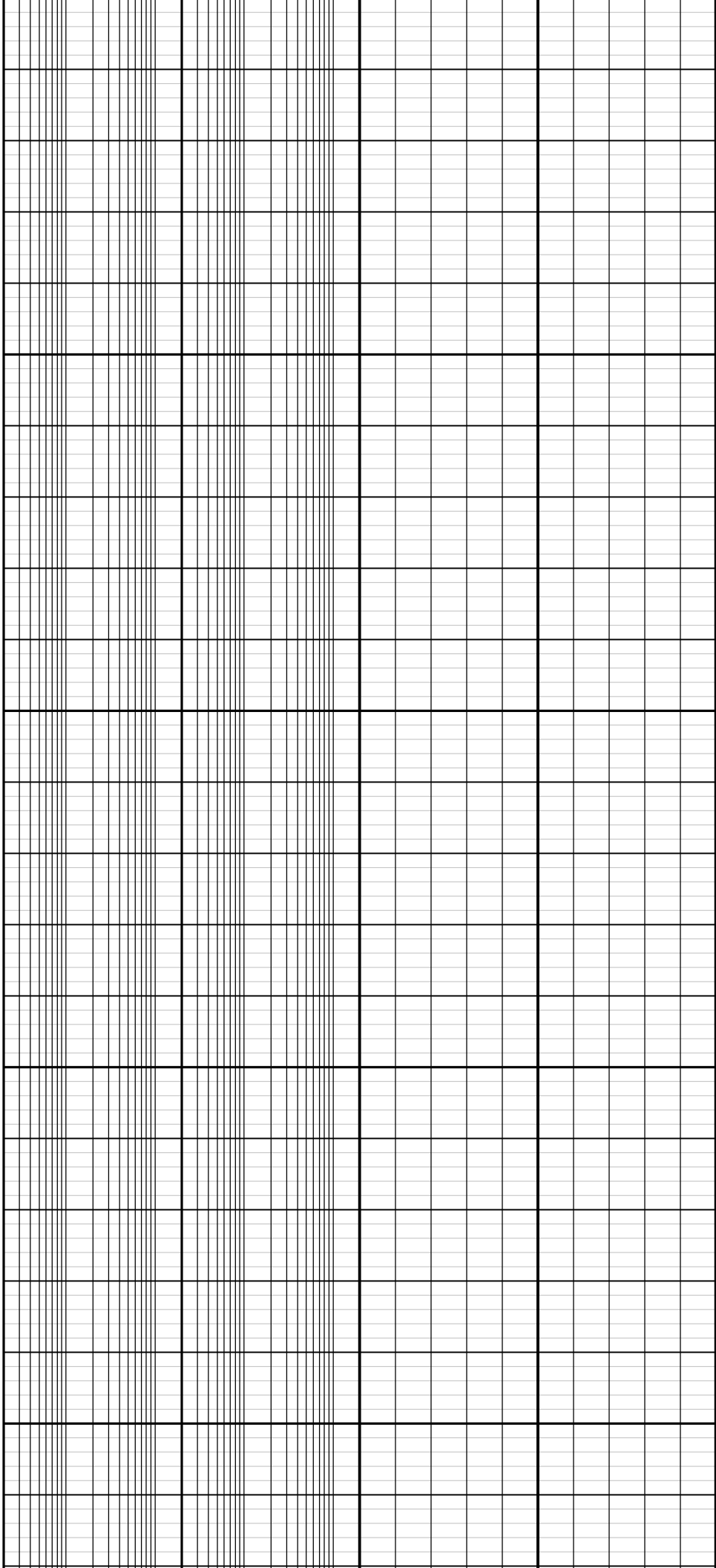
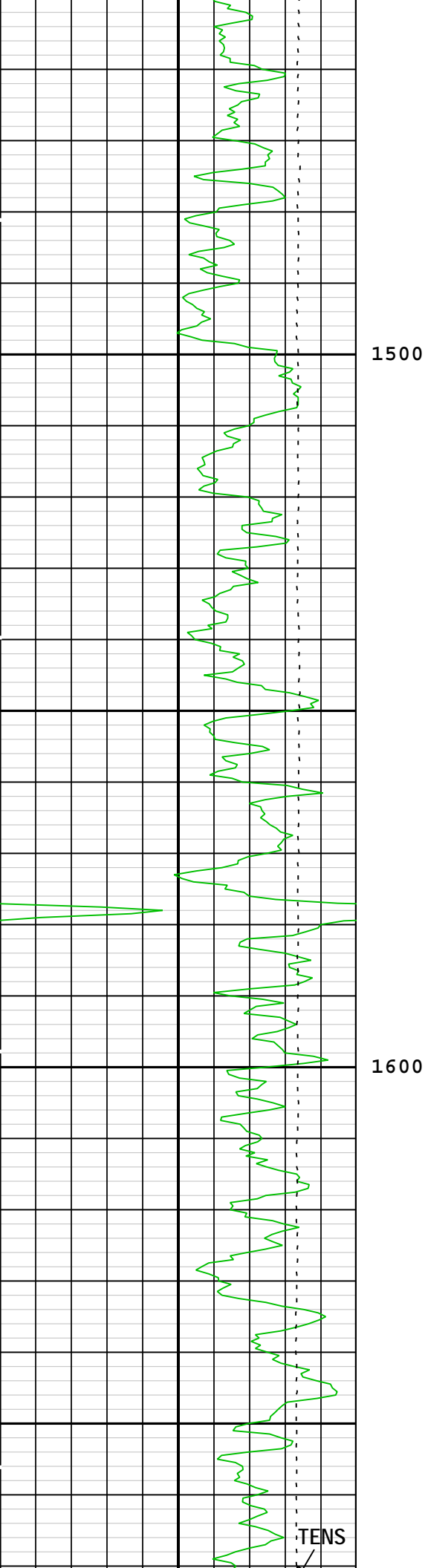


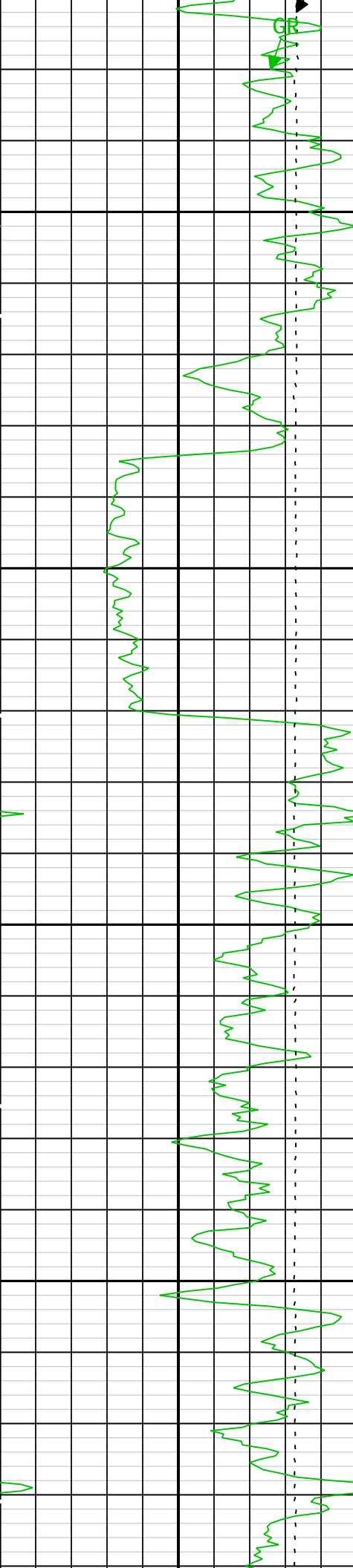
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1400

TENS

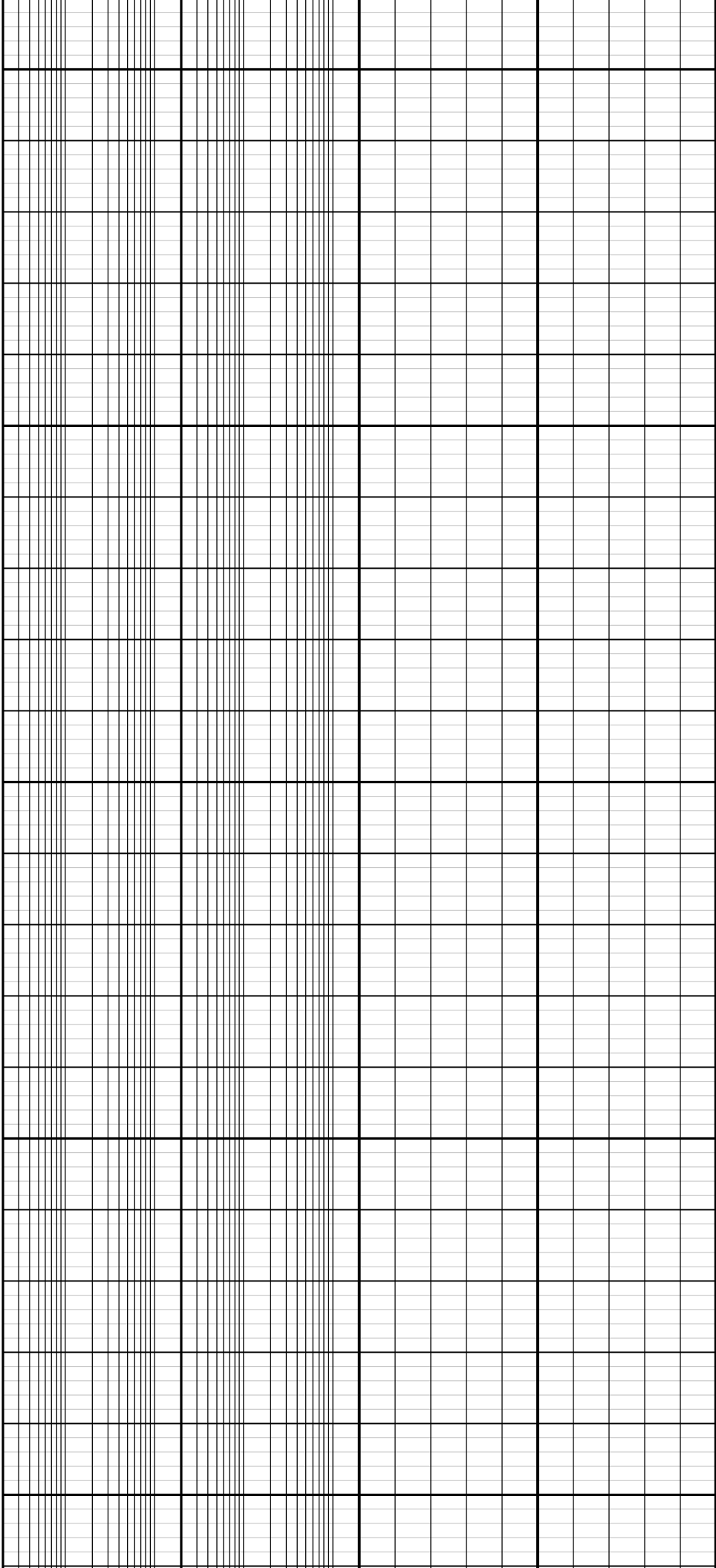
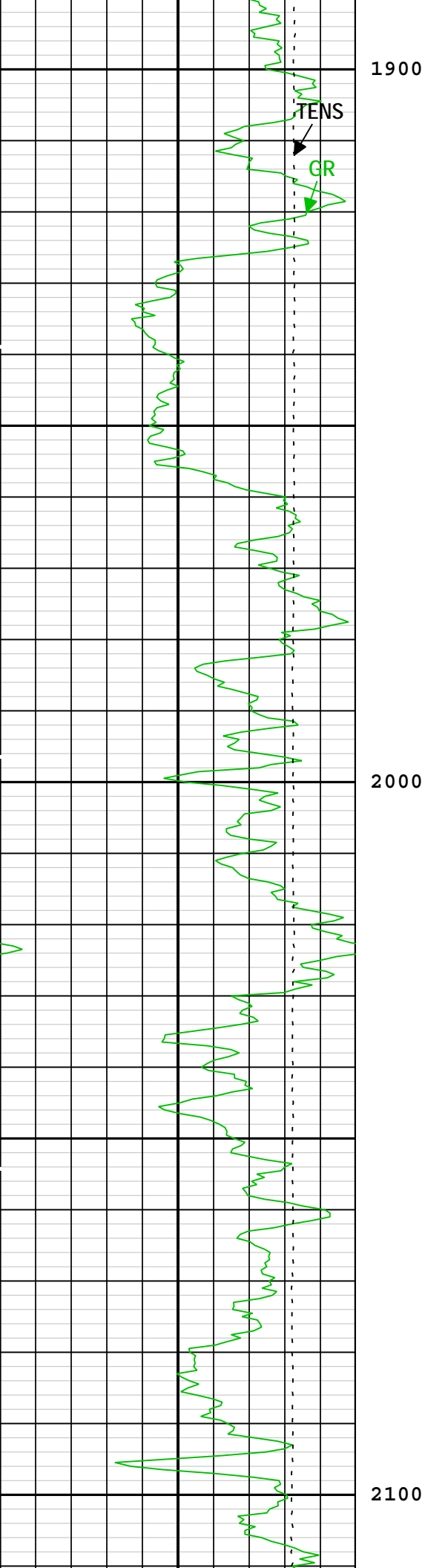
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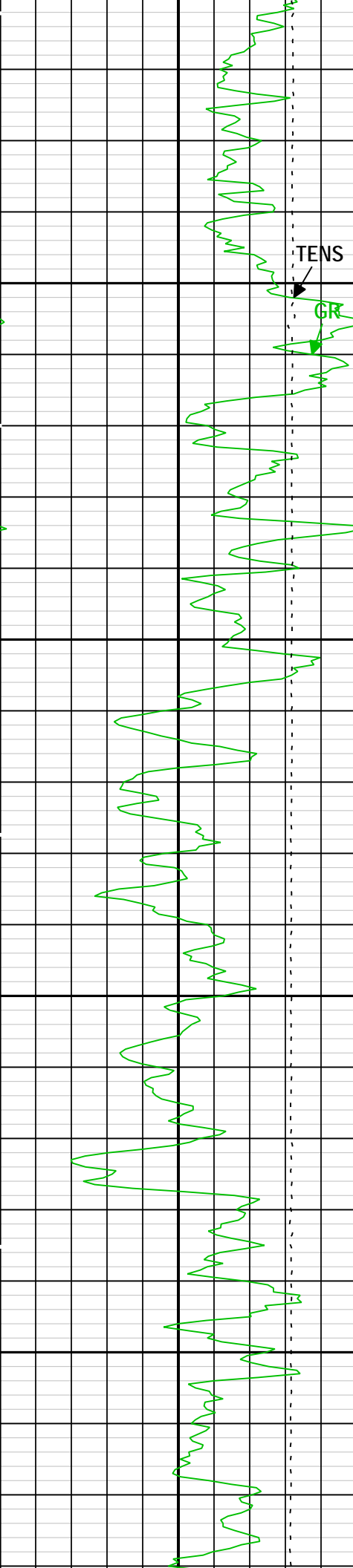




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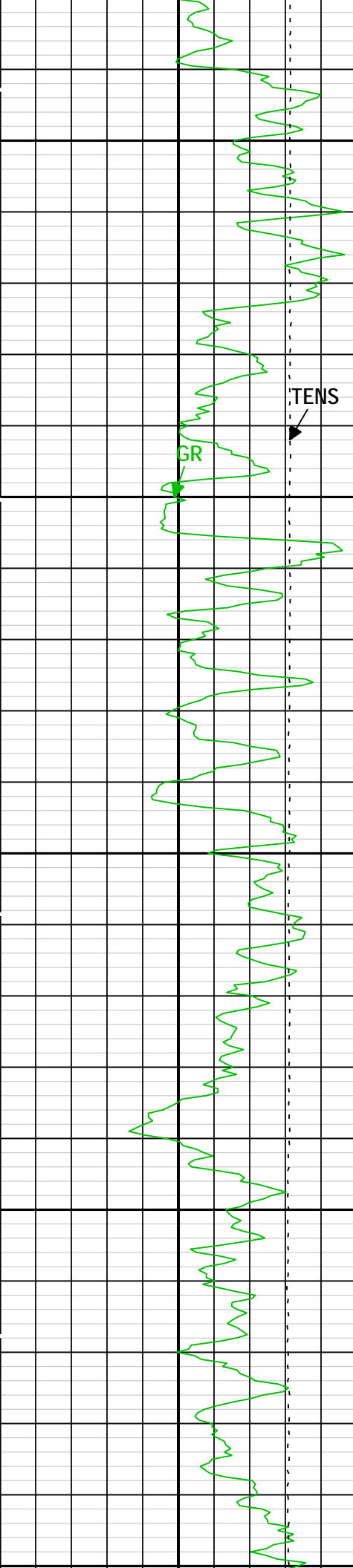


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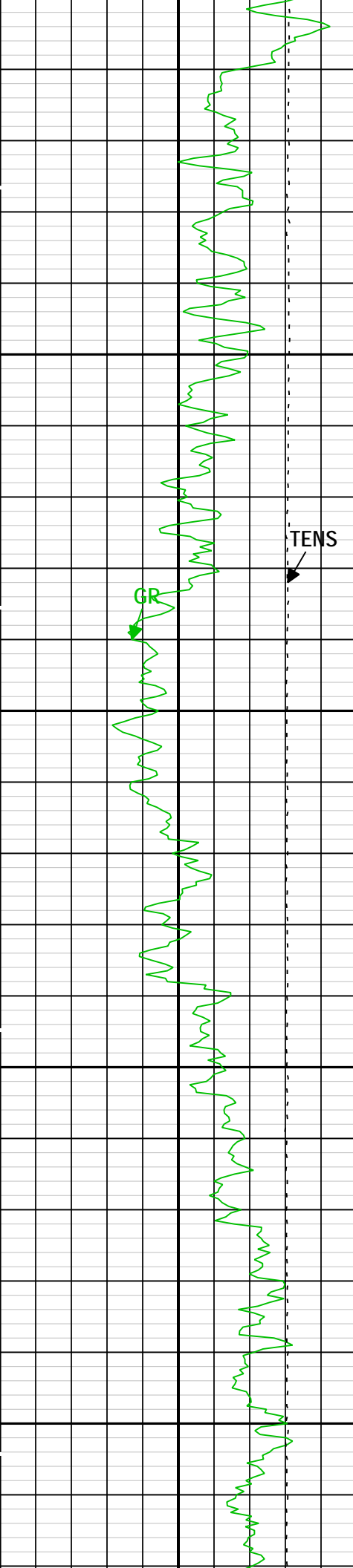
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2300



2400

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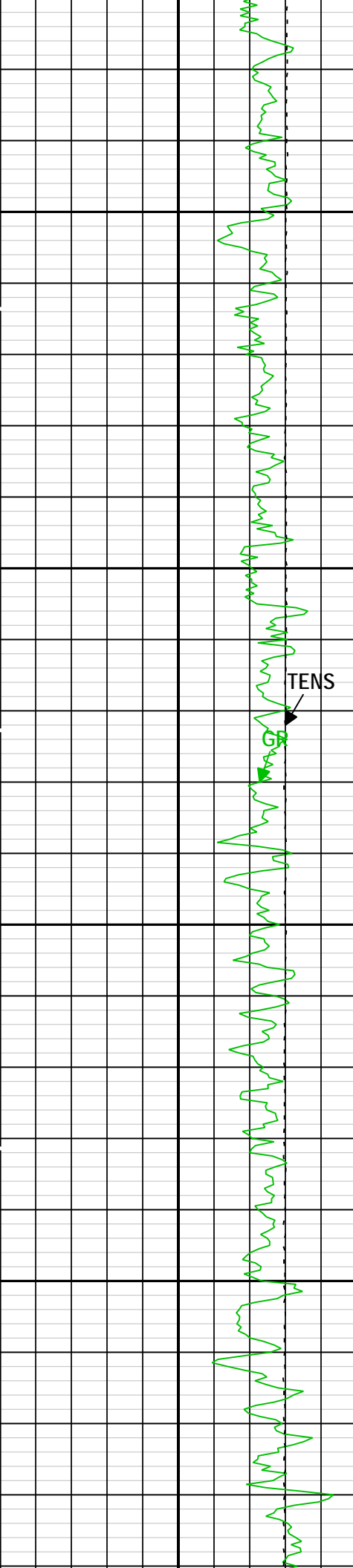


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TENS

GP

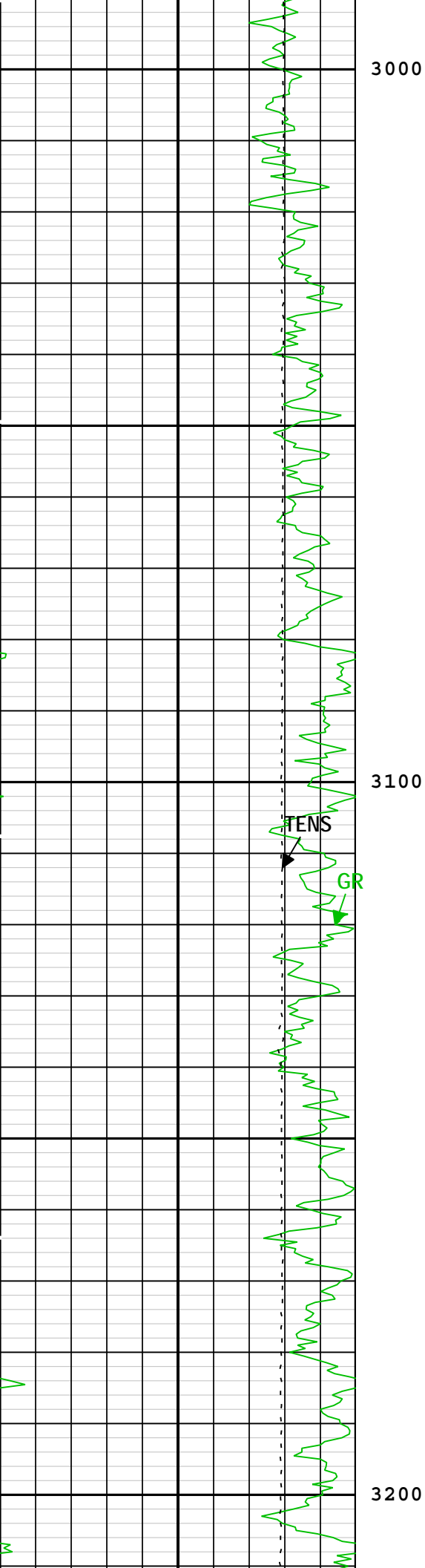
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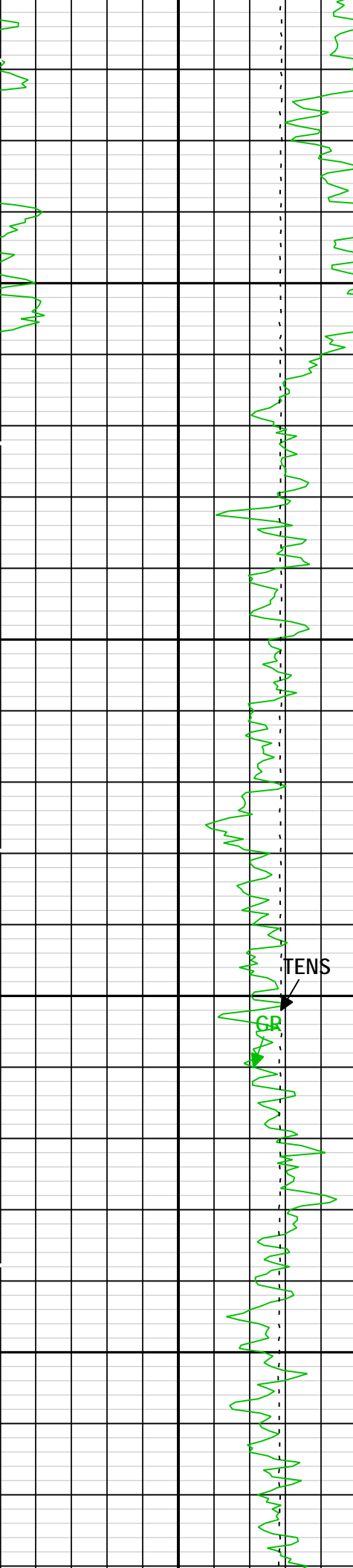


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TENS

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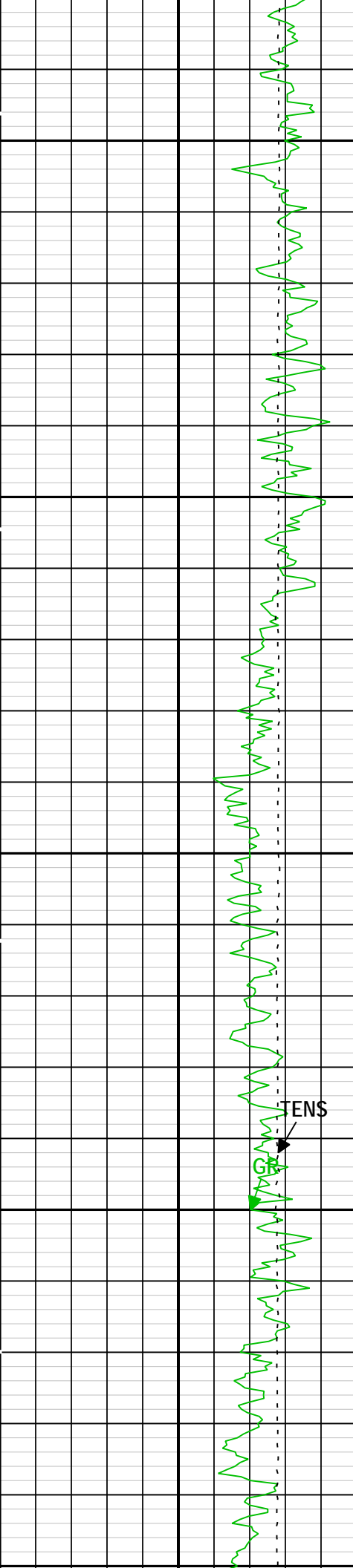




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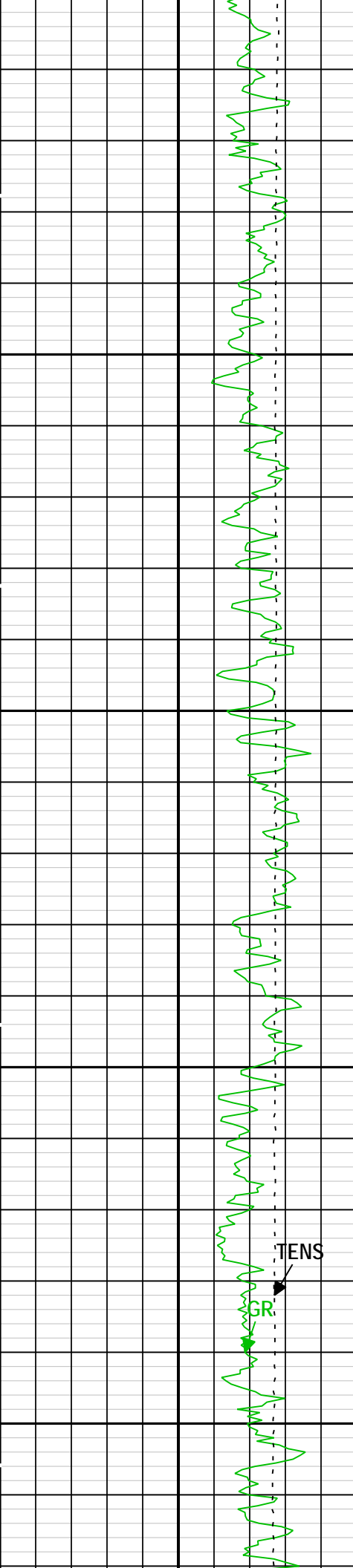
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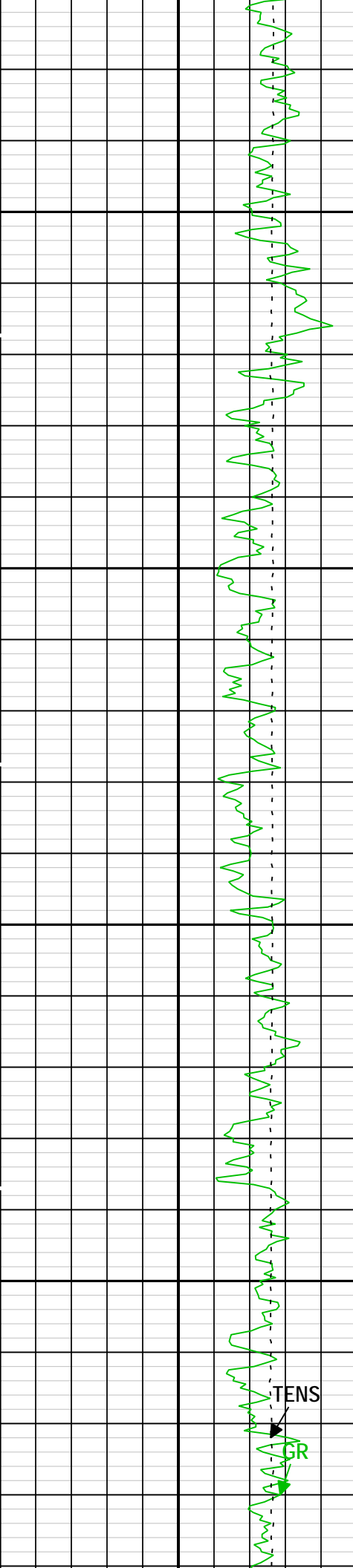
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3600



3700

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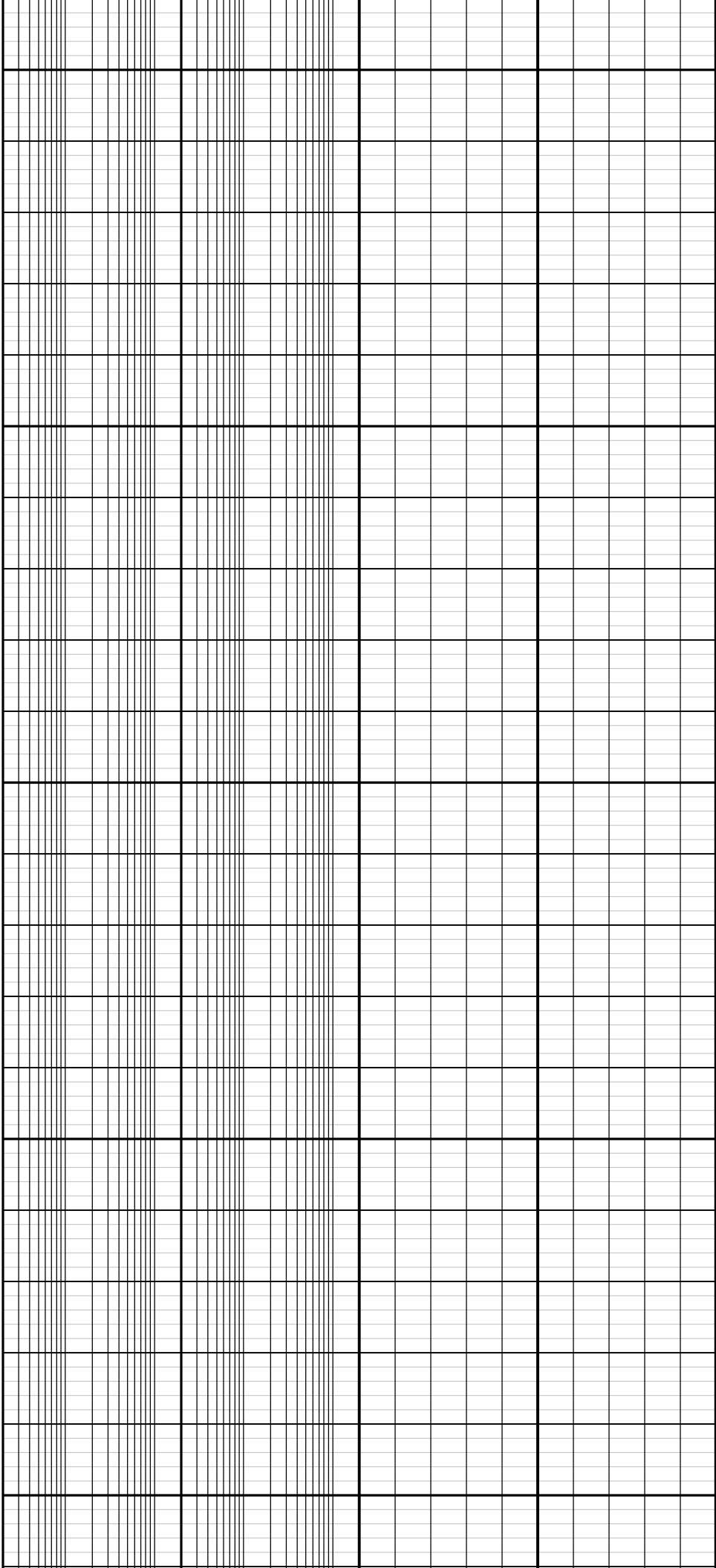
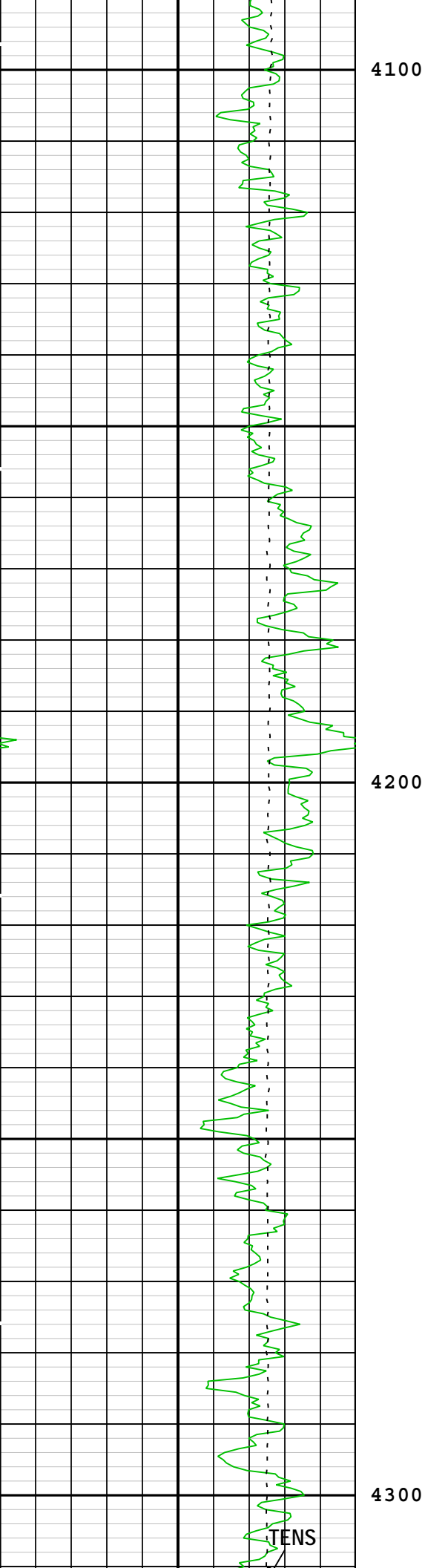


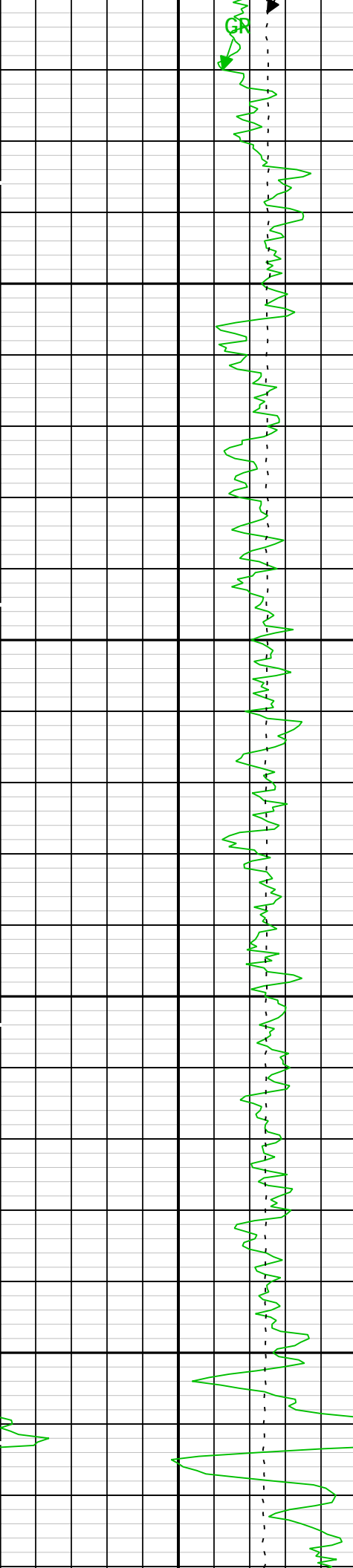
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TENS

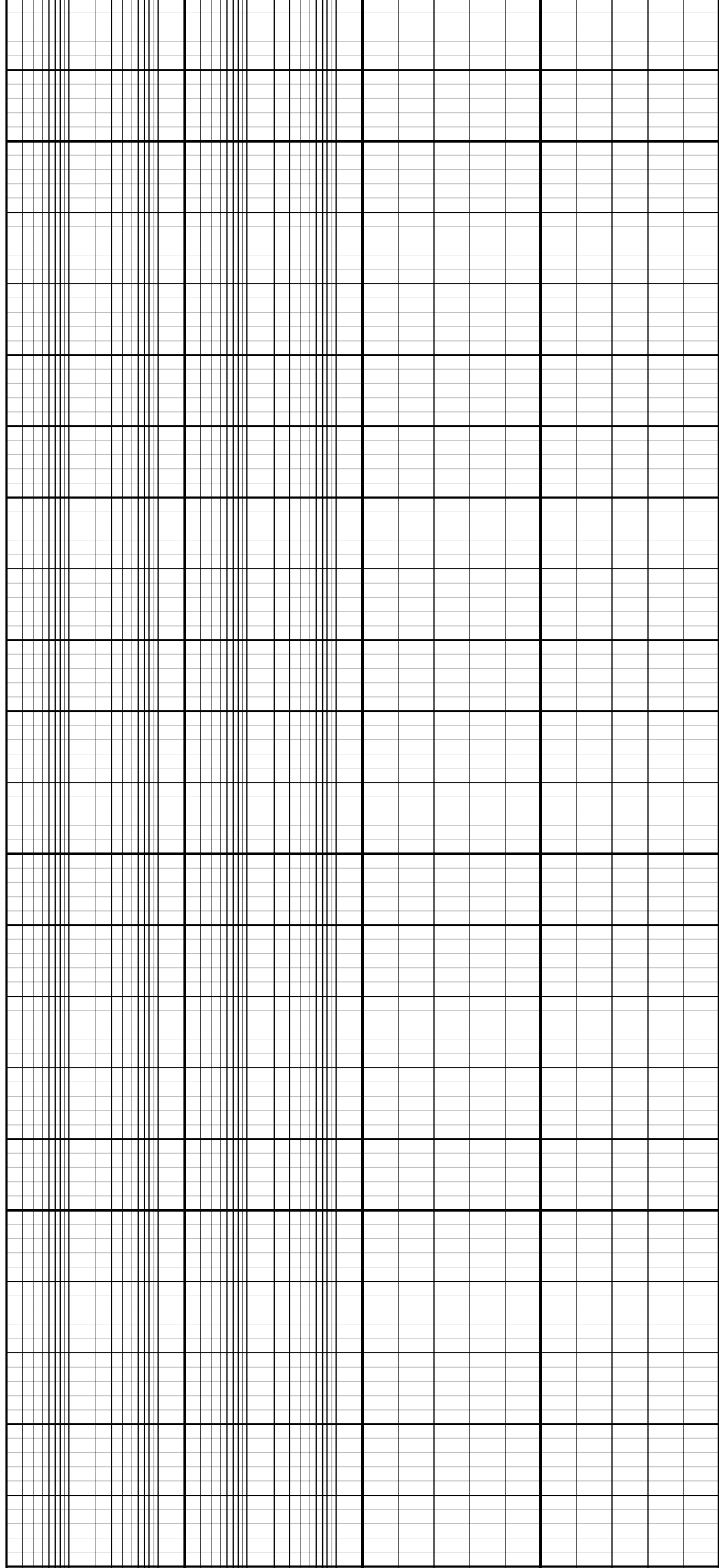
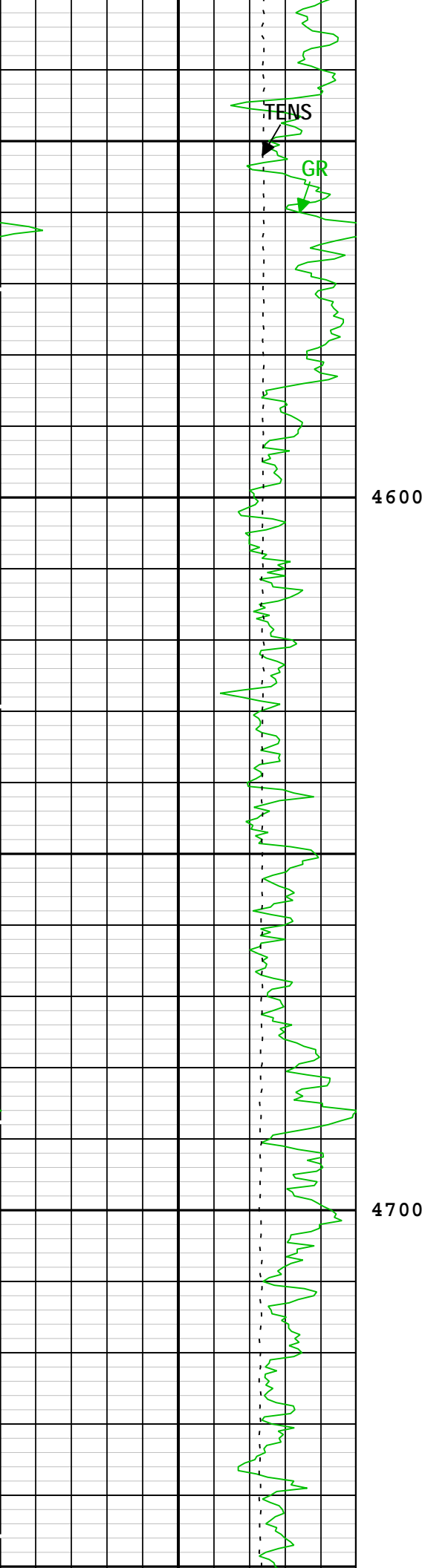
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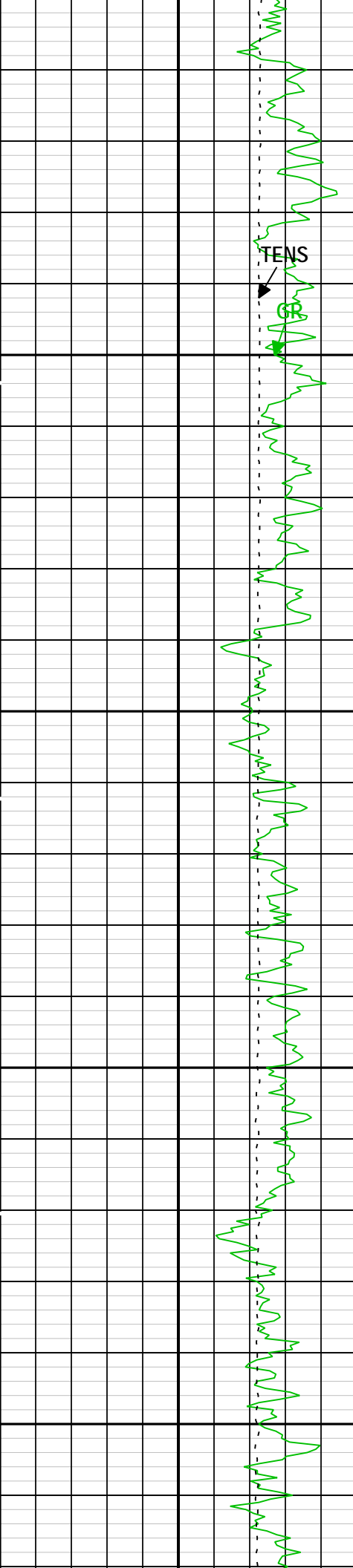




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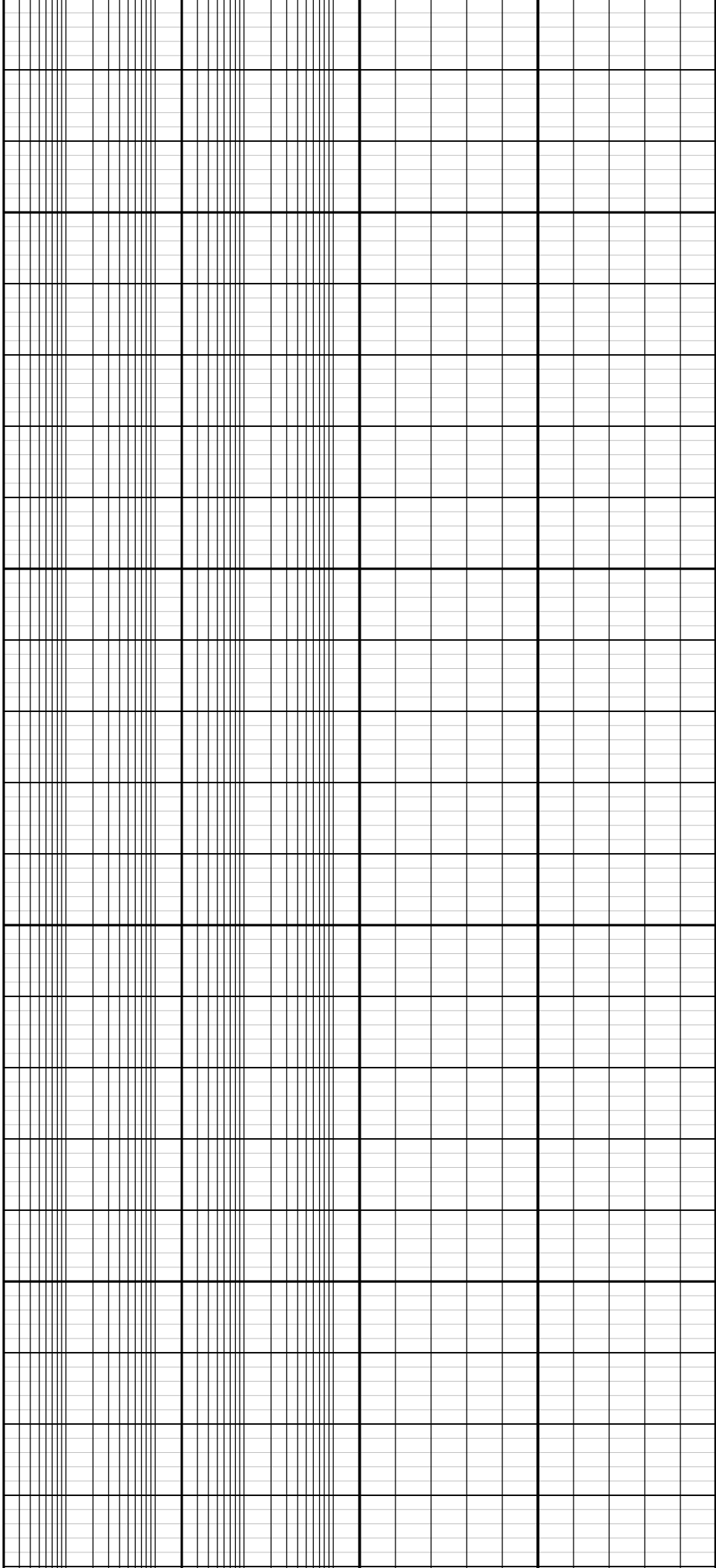
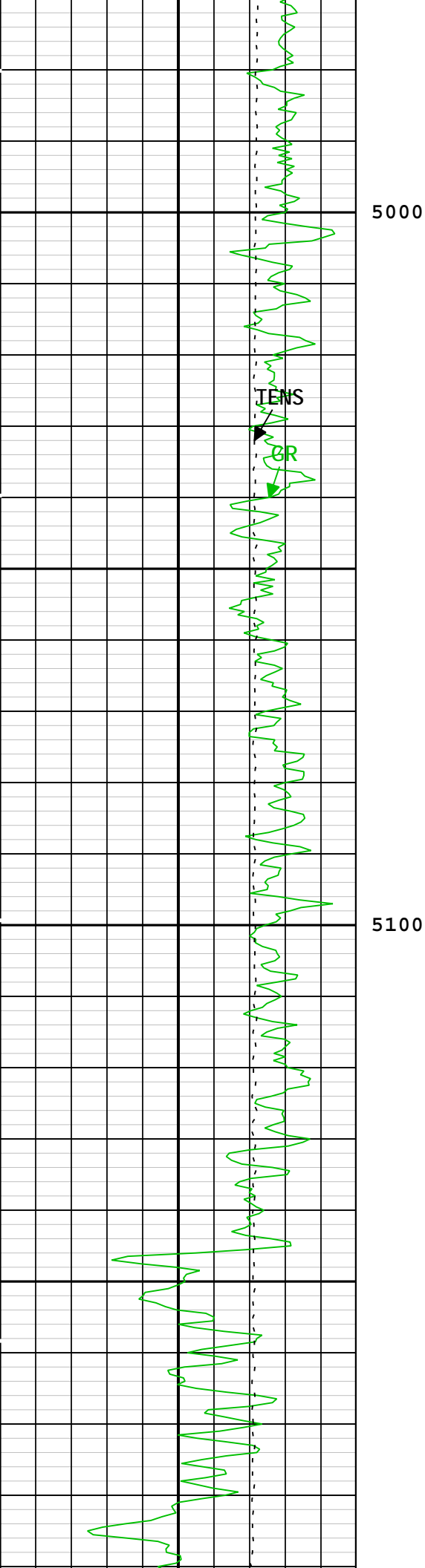
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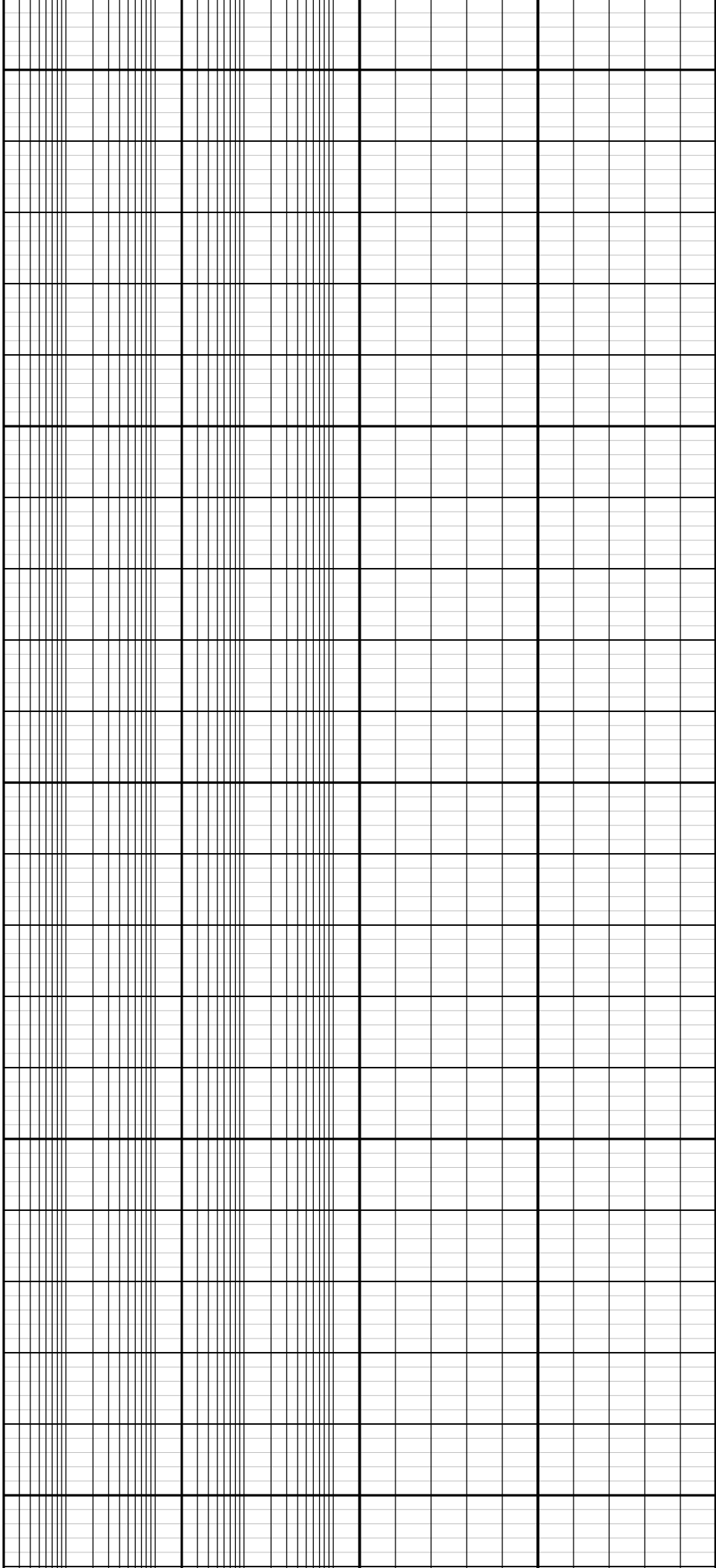
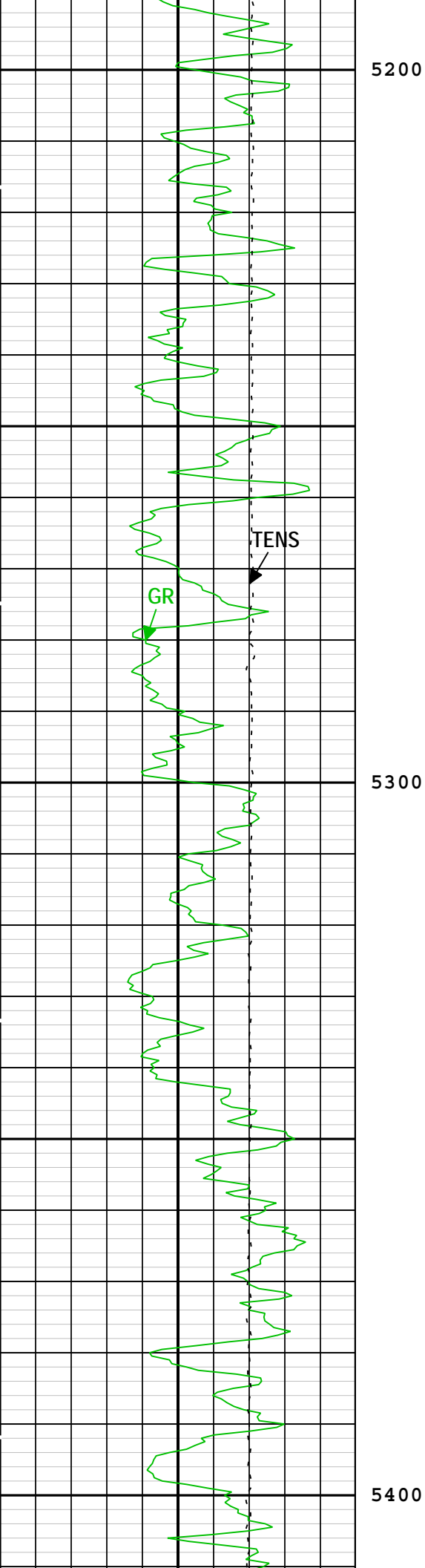


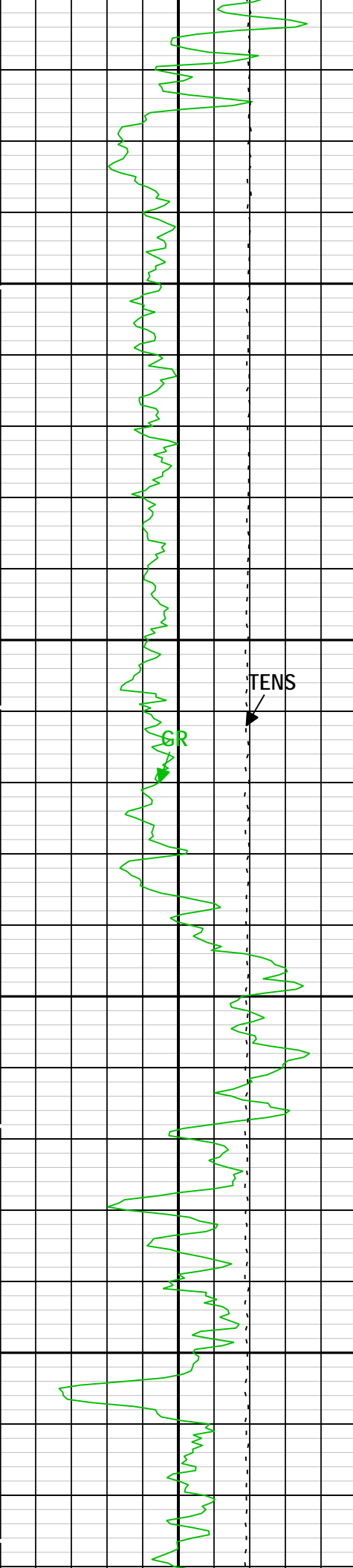


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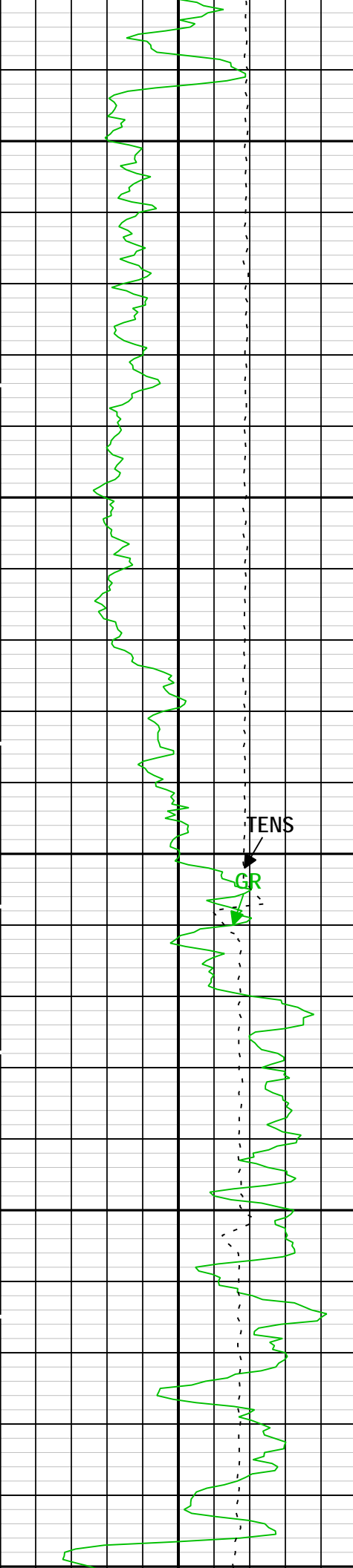




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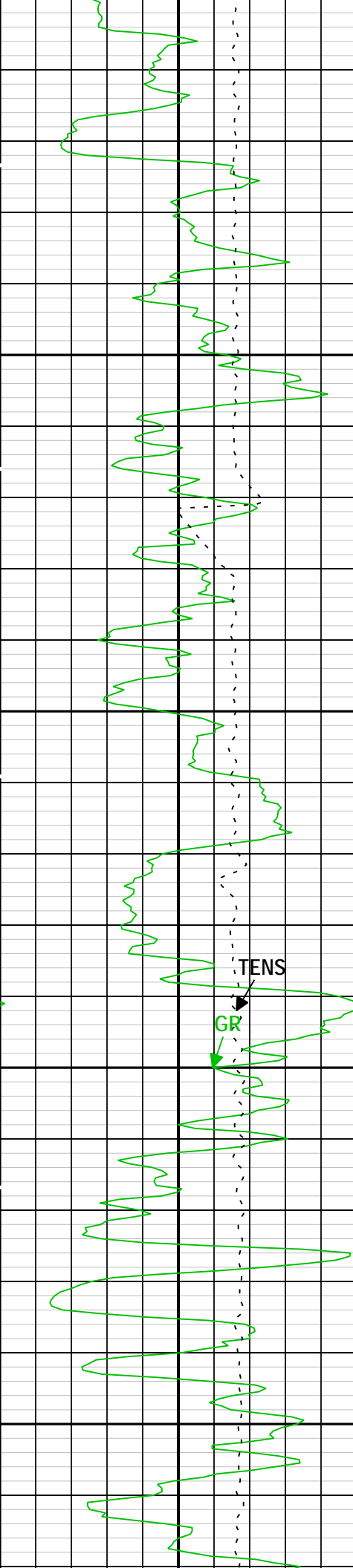


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TENS

GR

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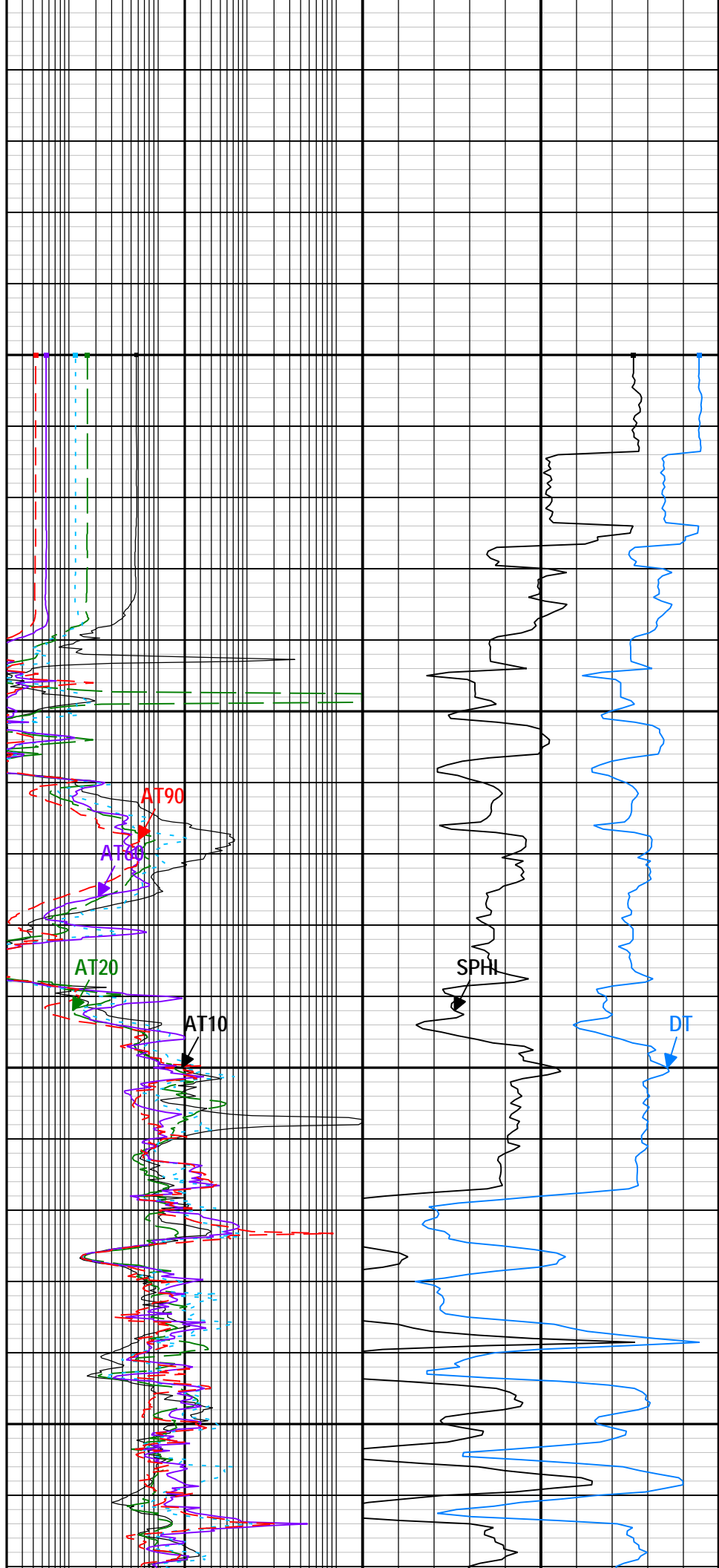


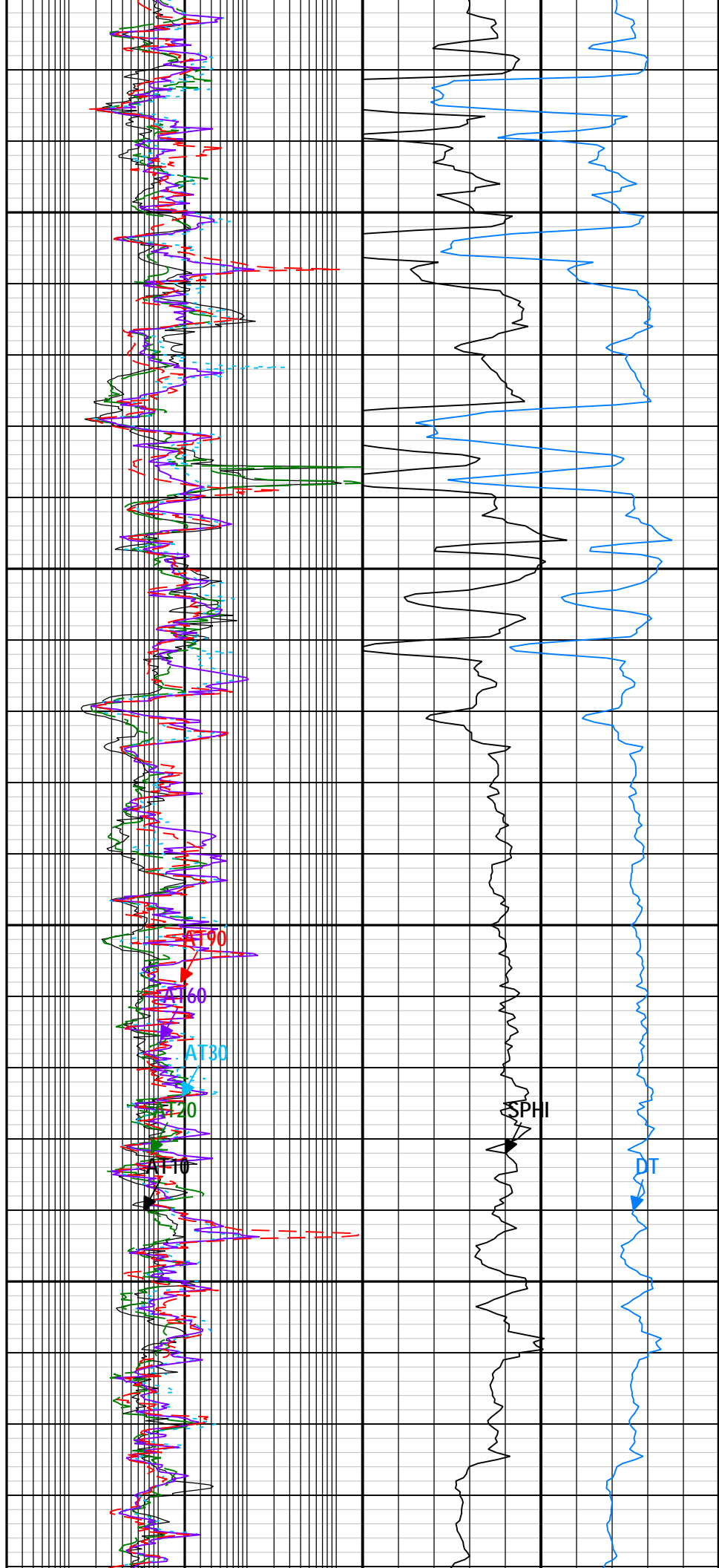
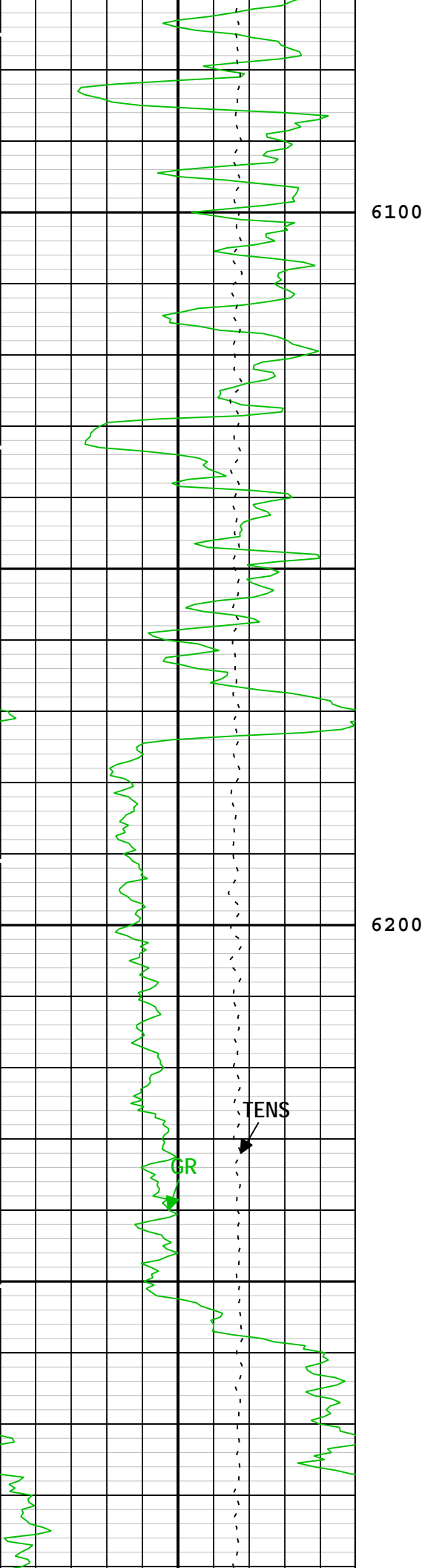
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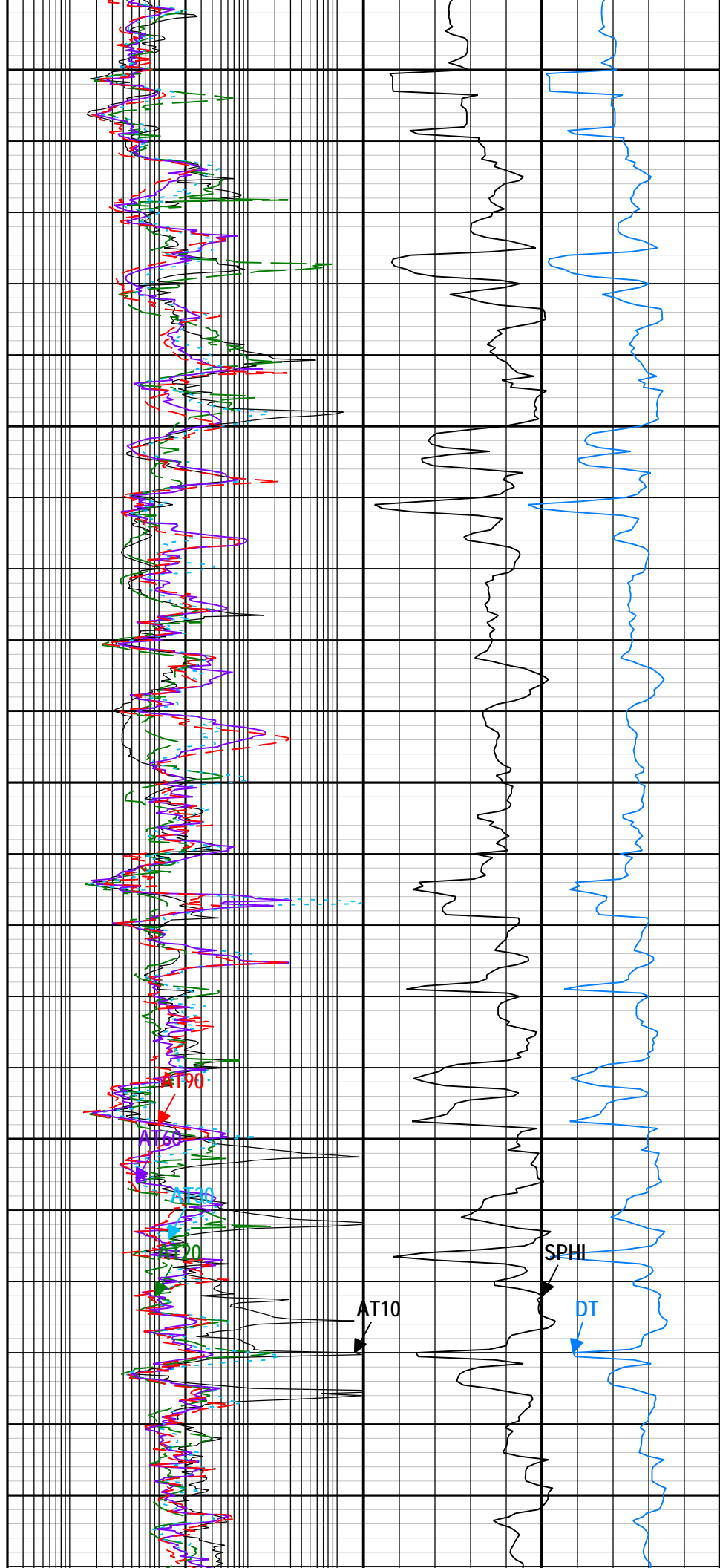
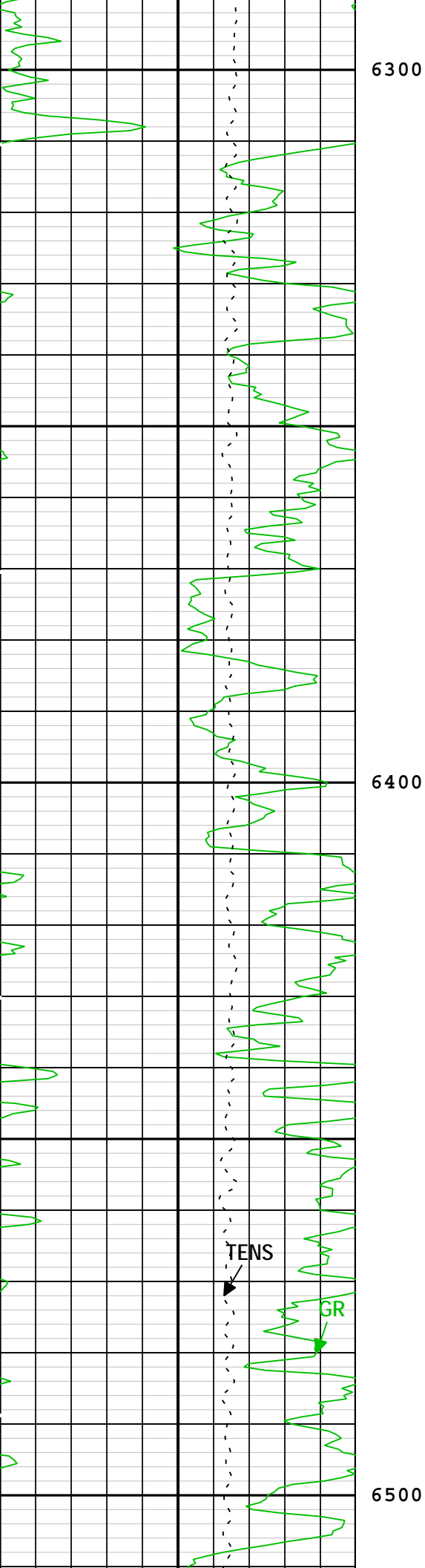
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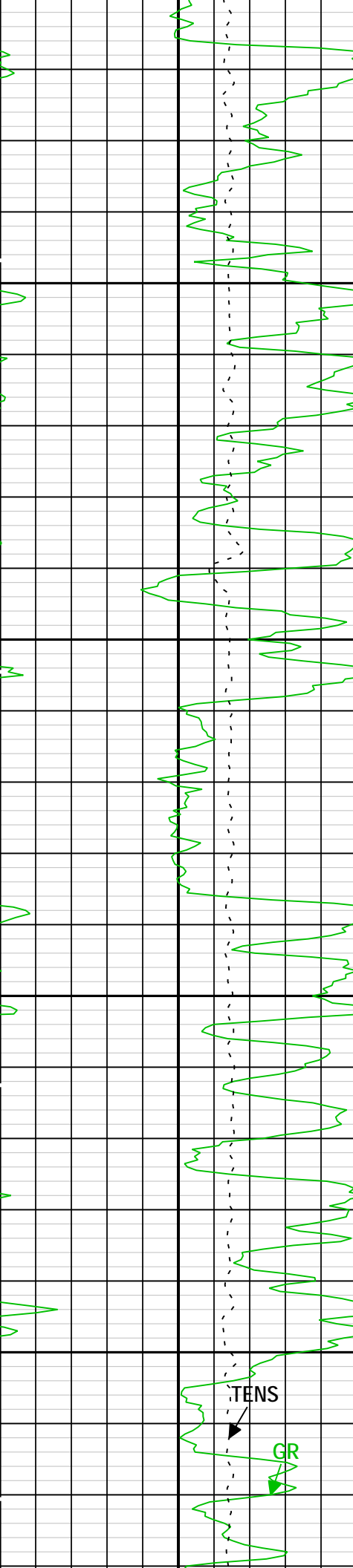
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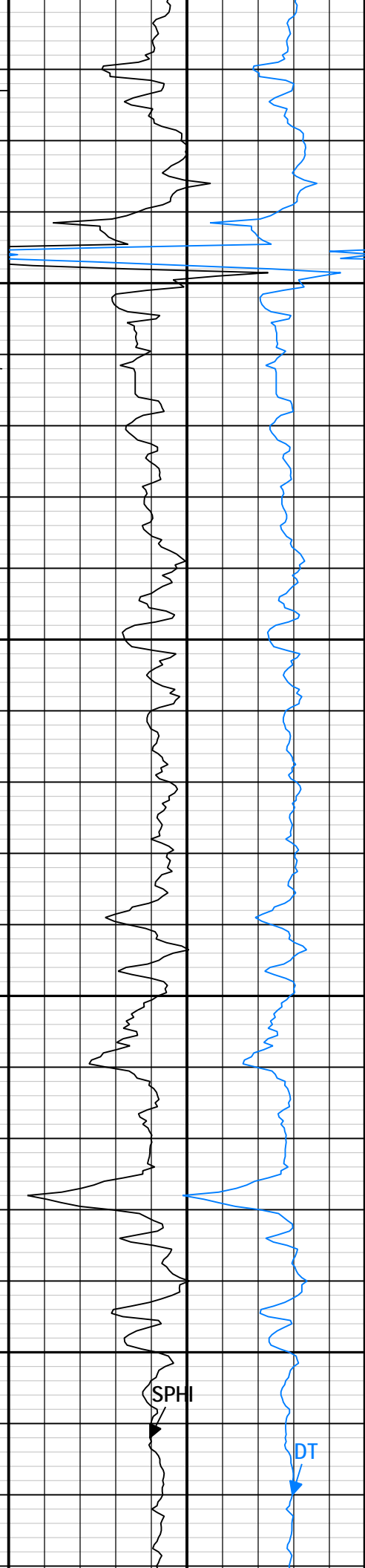
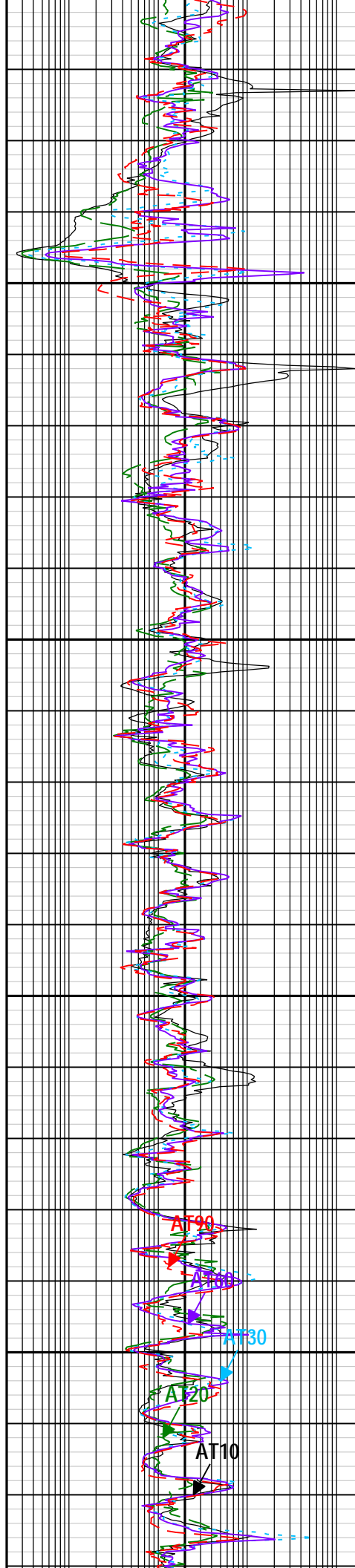






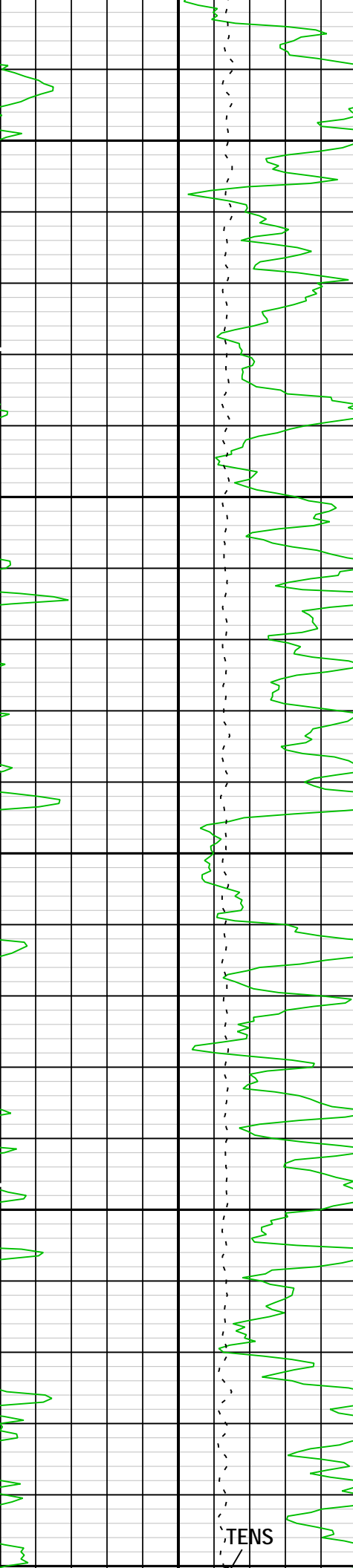
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6700



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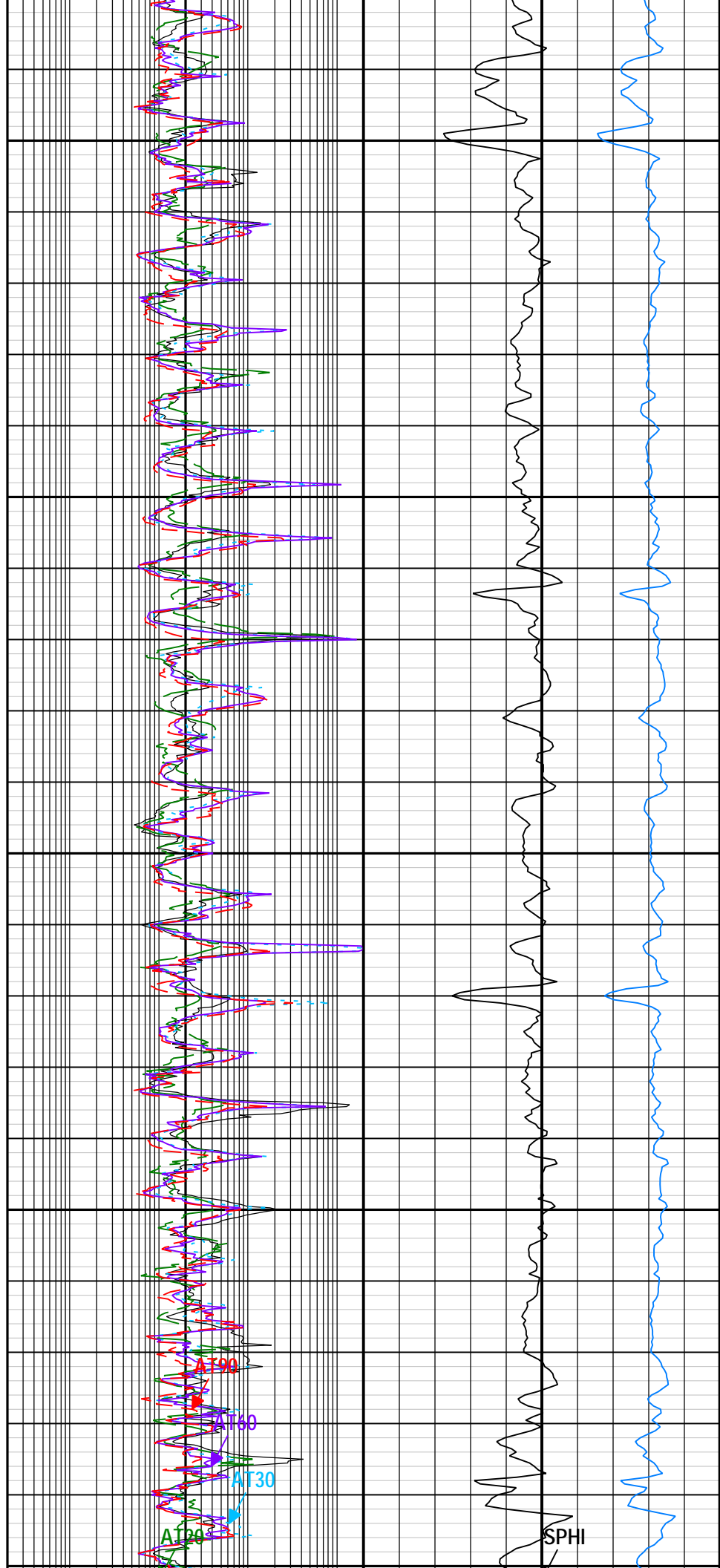
DT



6800

6900

TENS



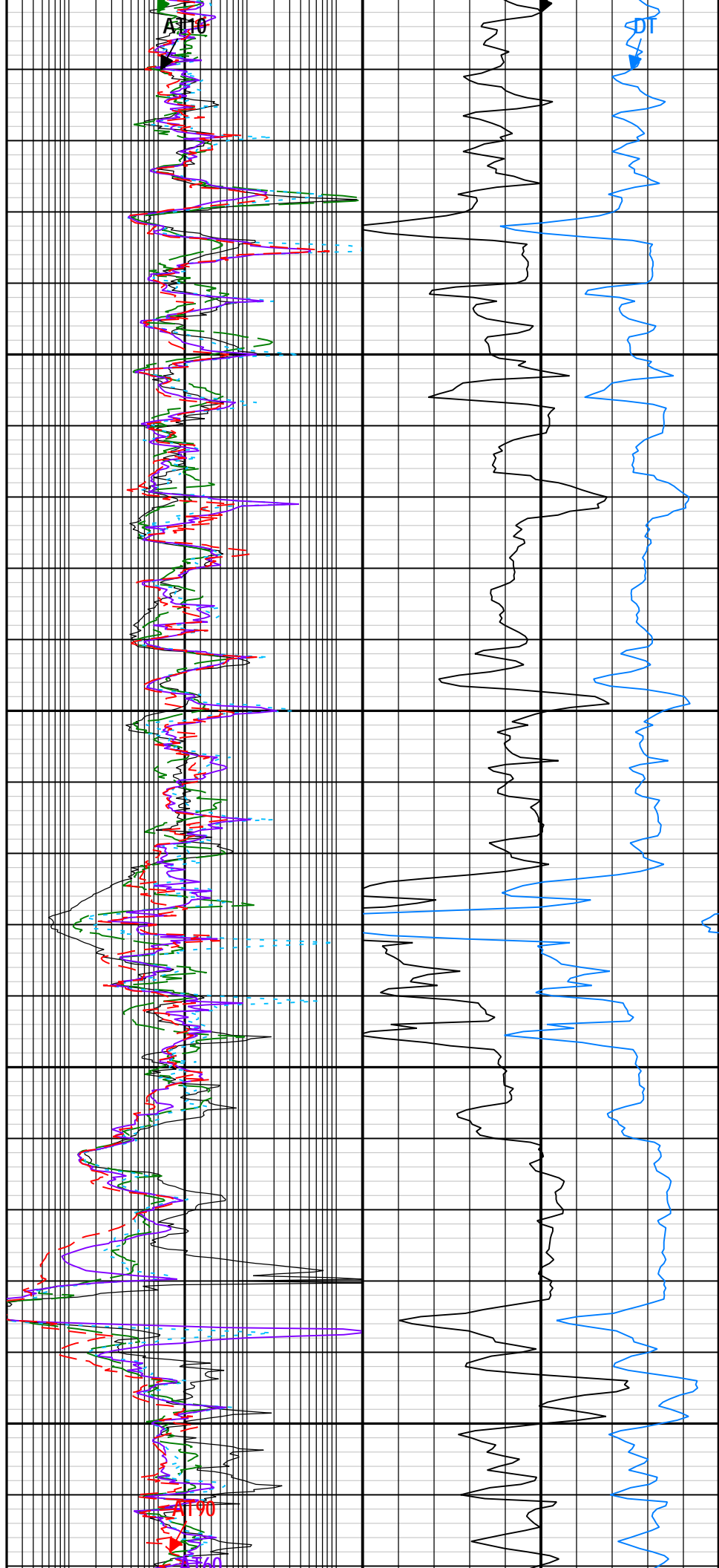
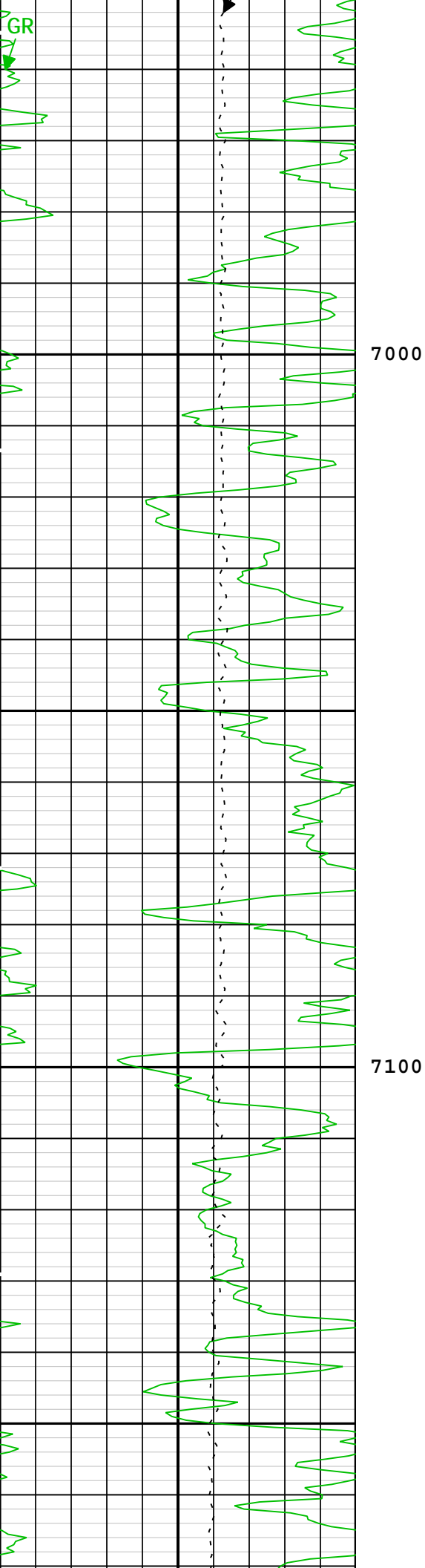
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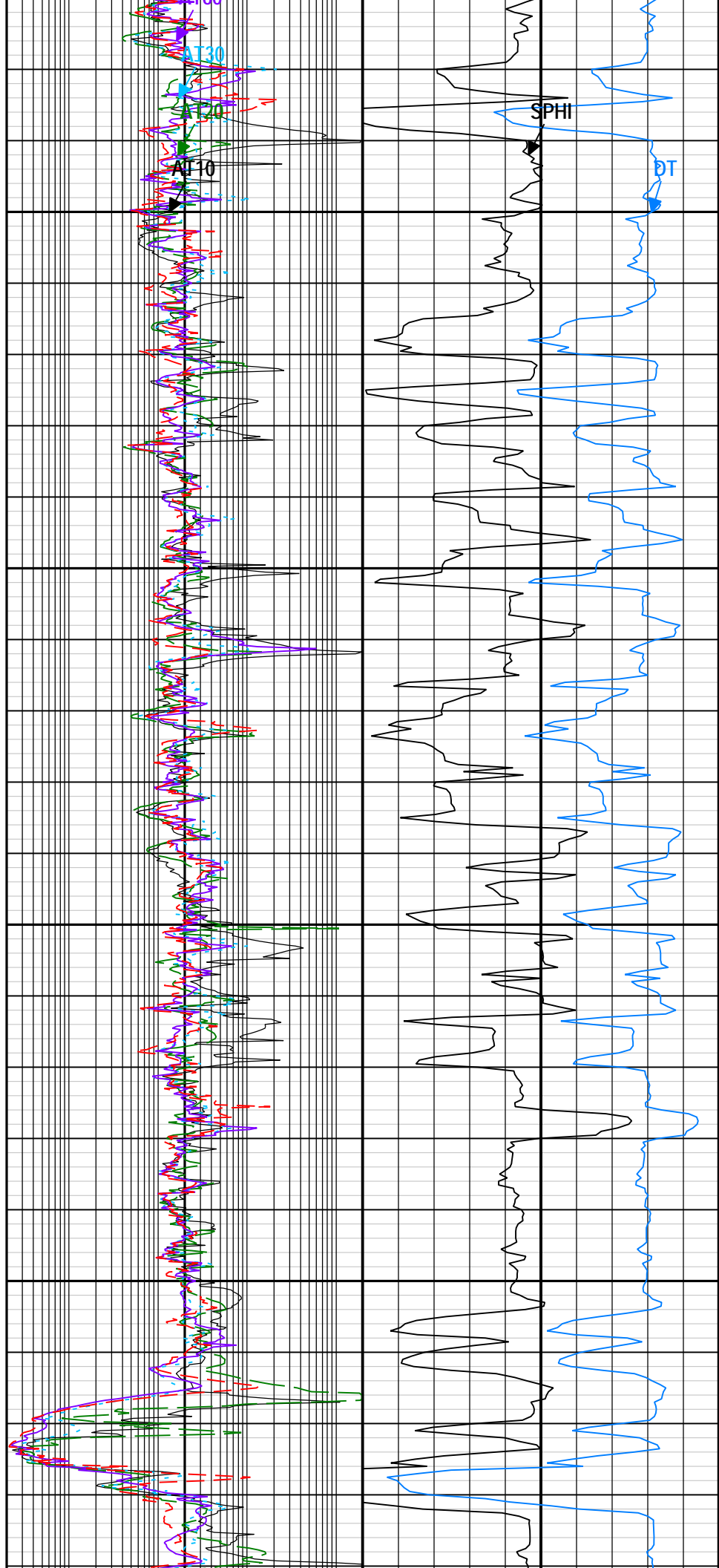
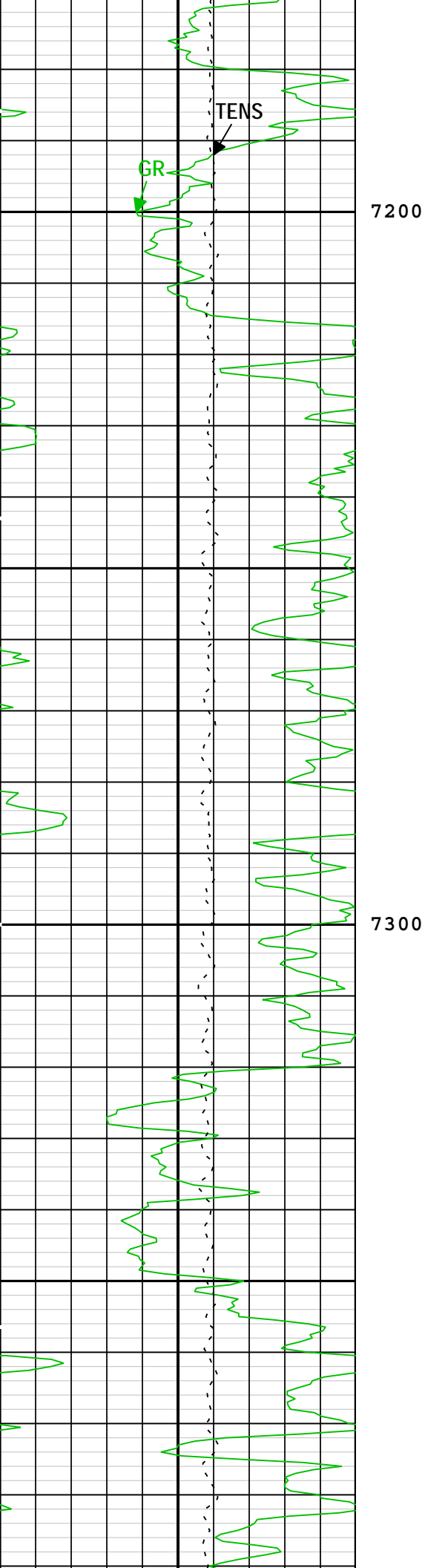
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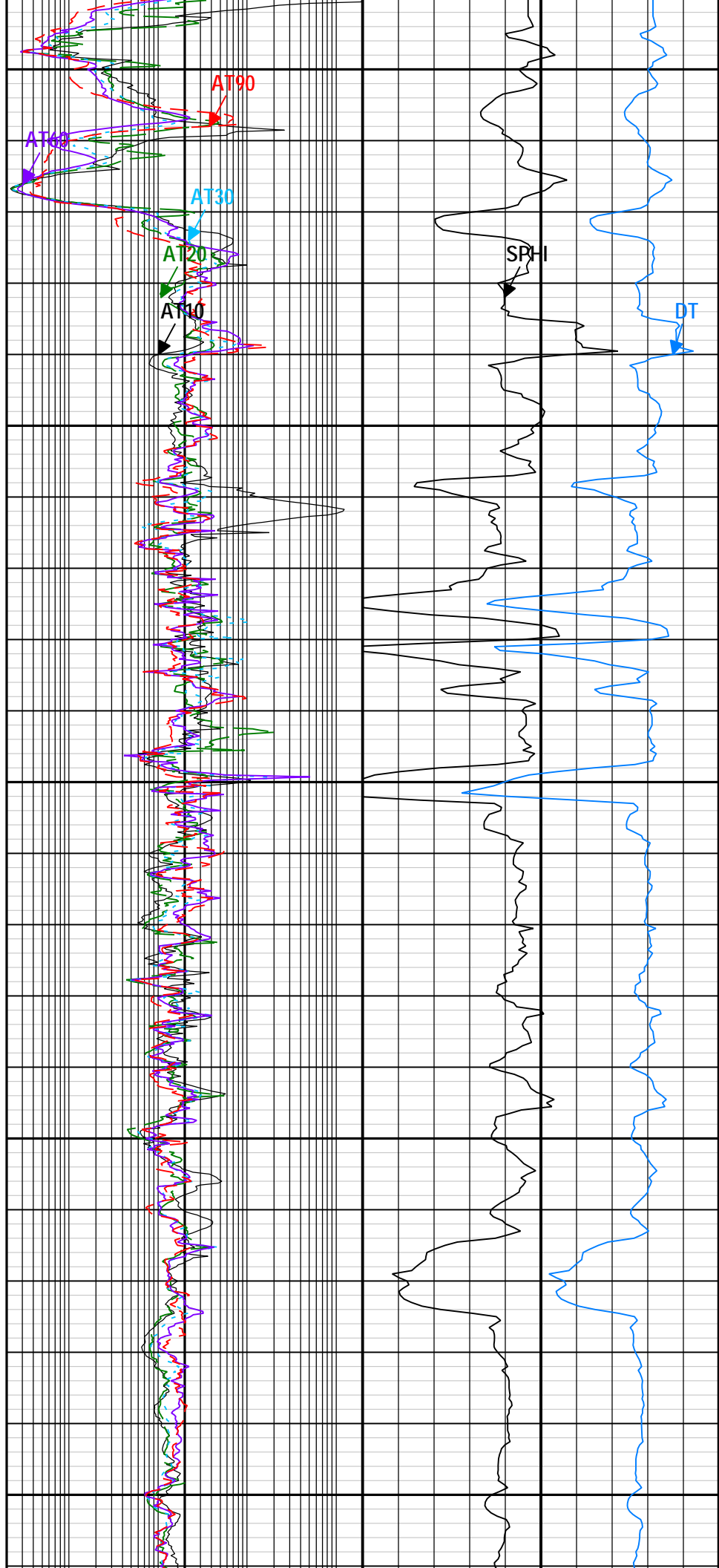
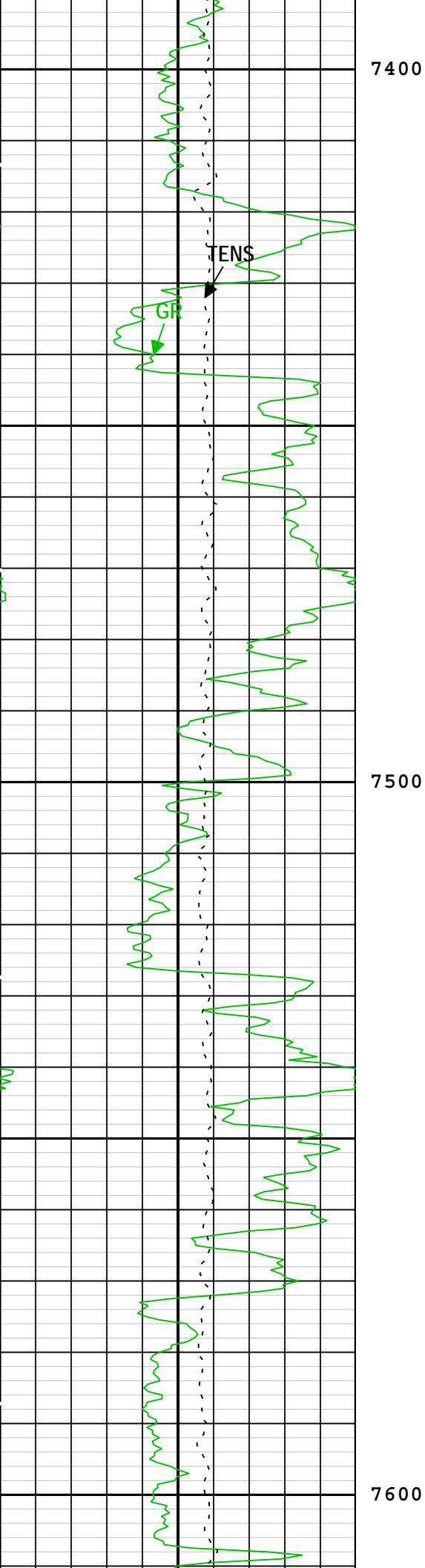
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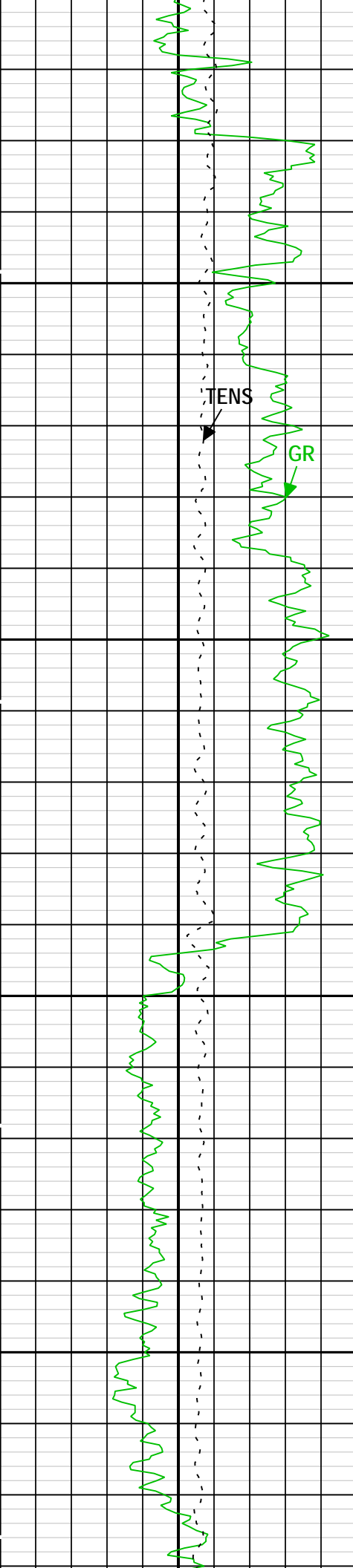
AT20

SPHI



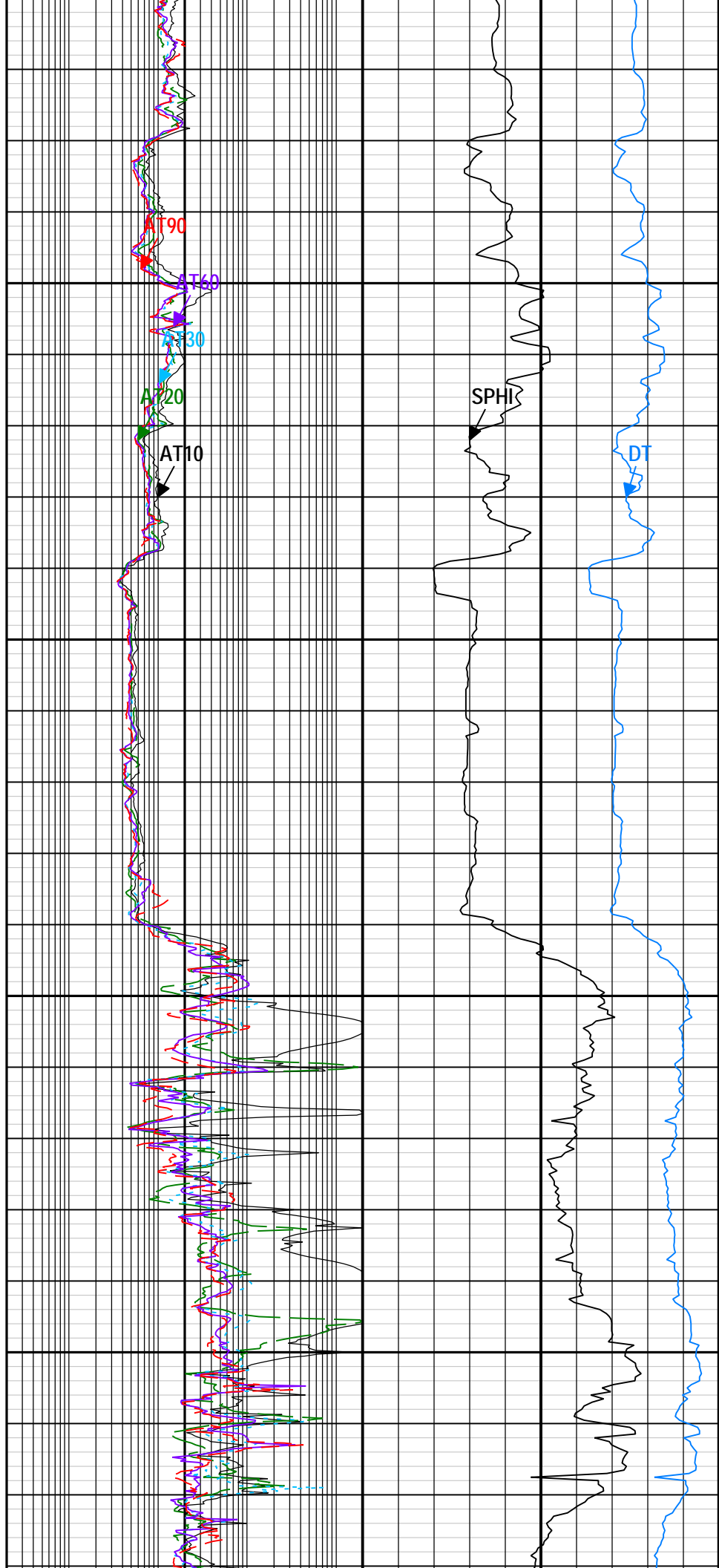


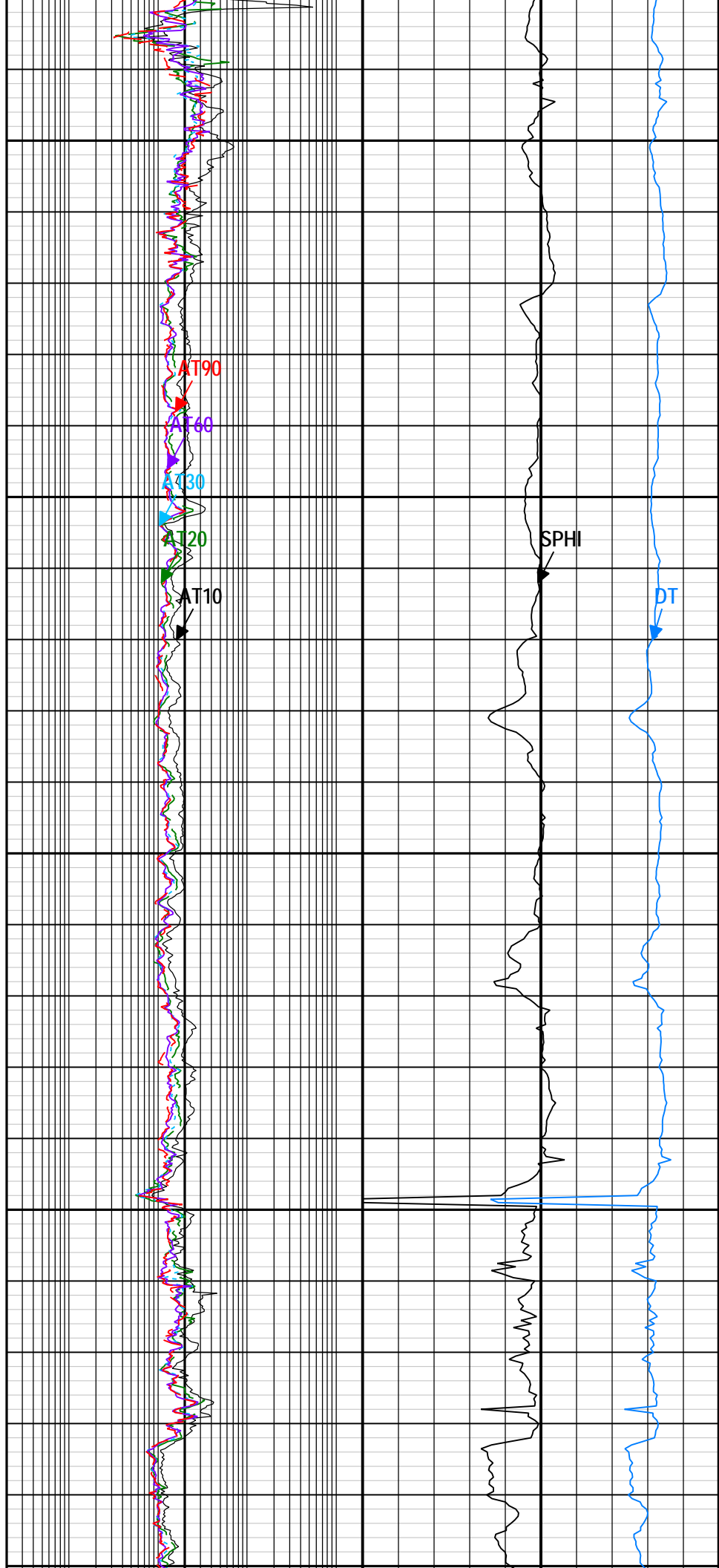
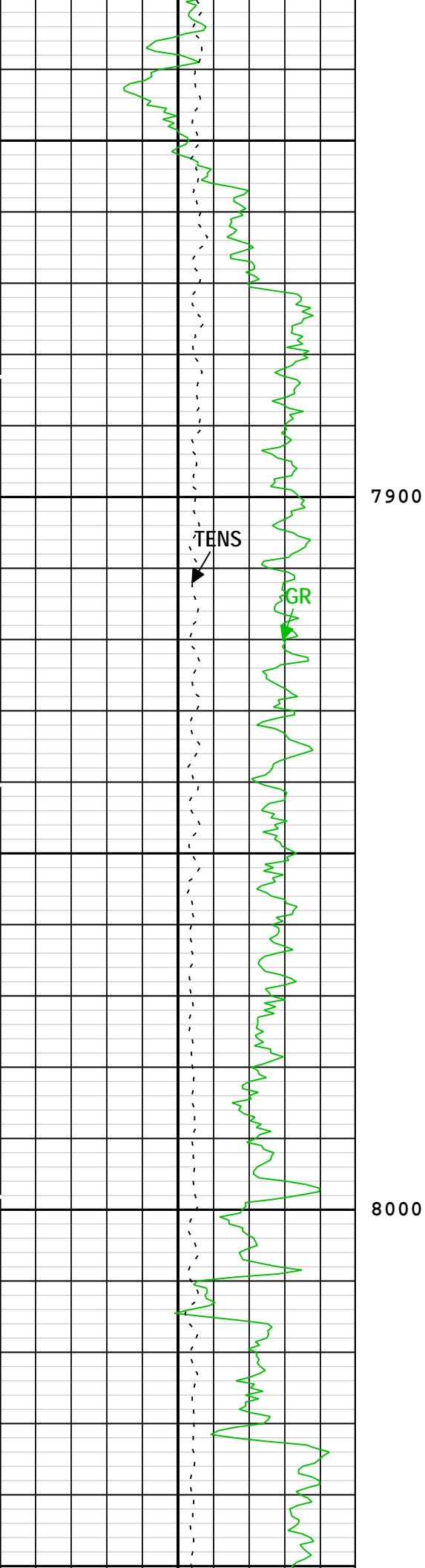


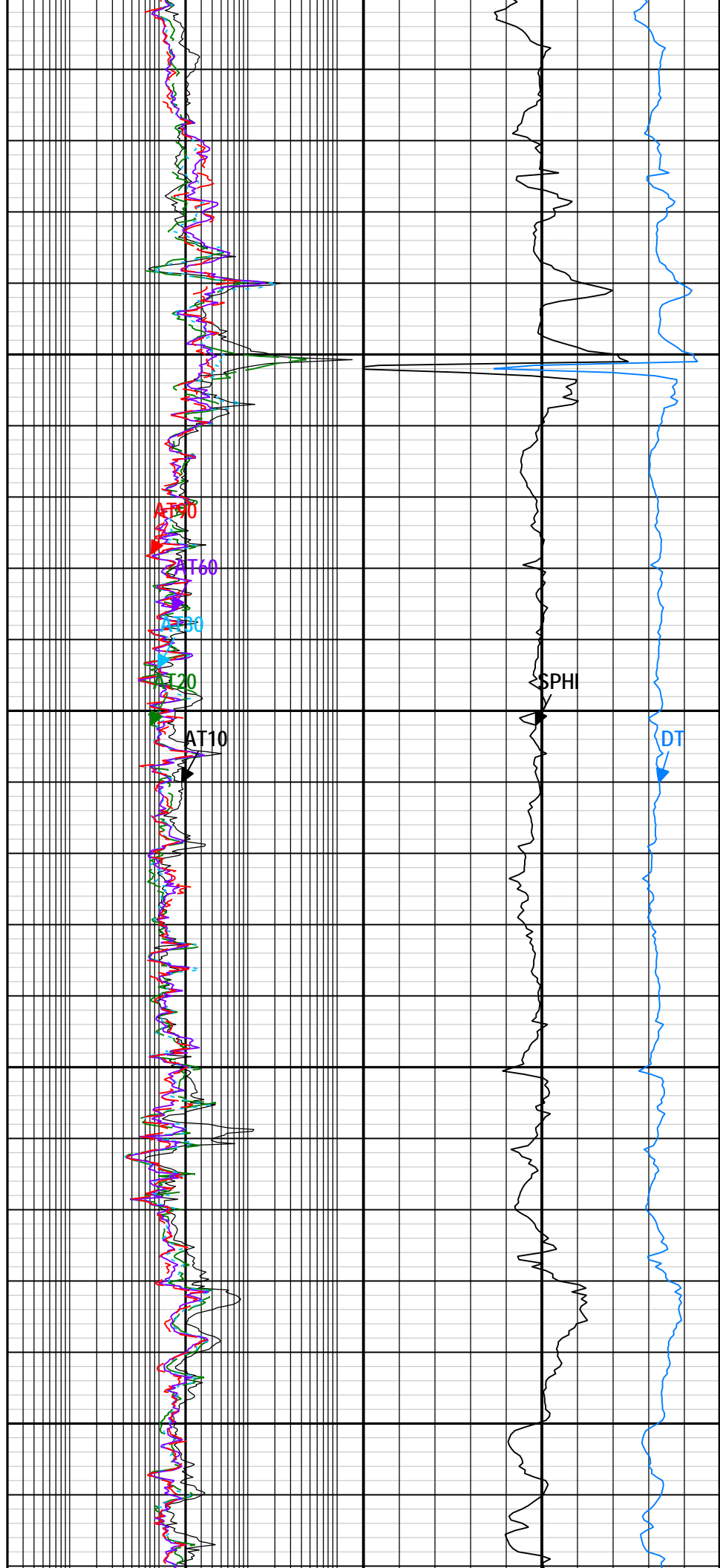
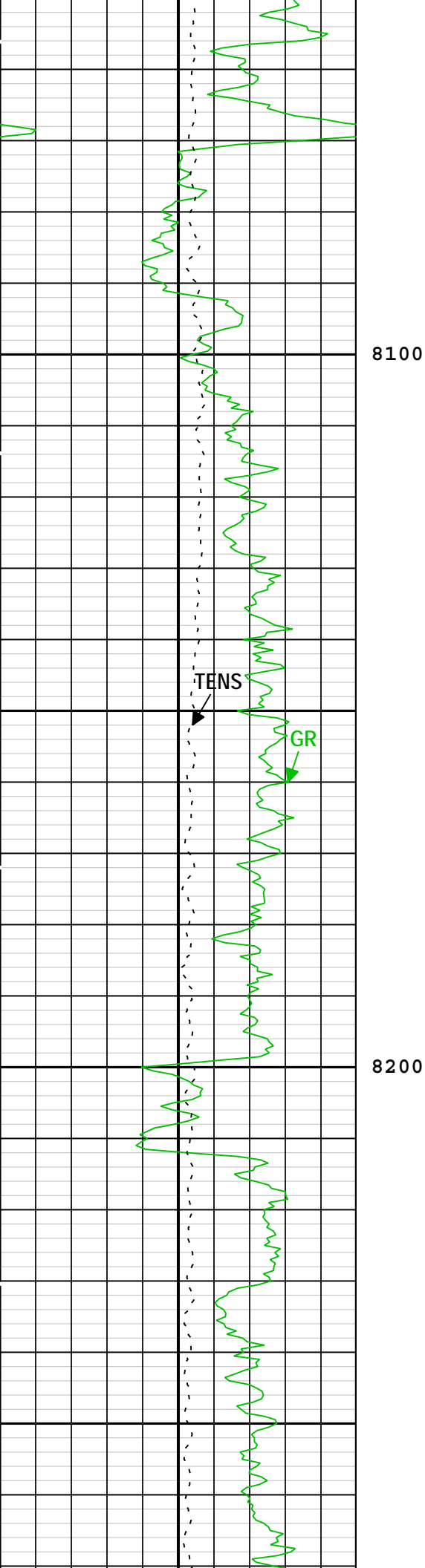


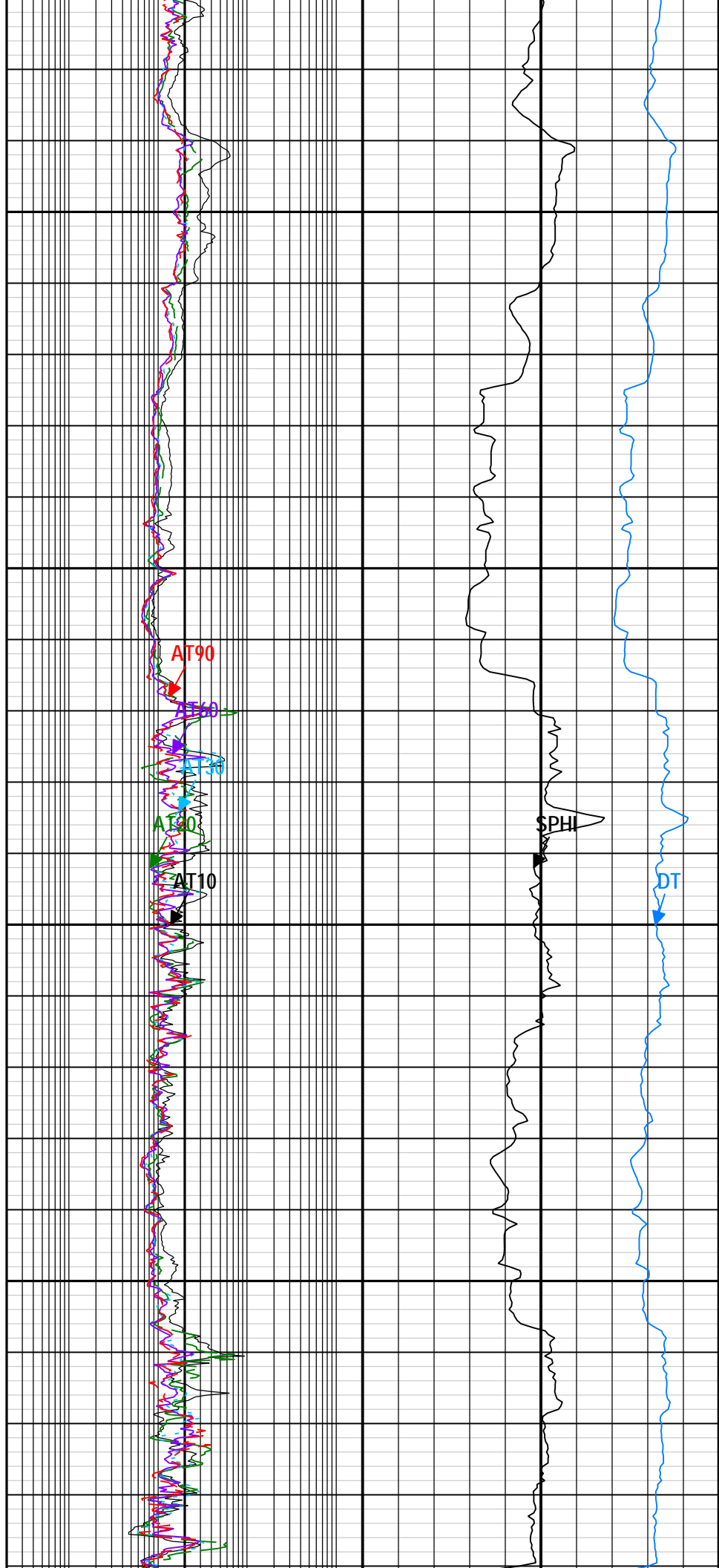
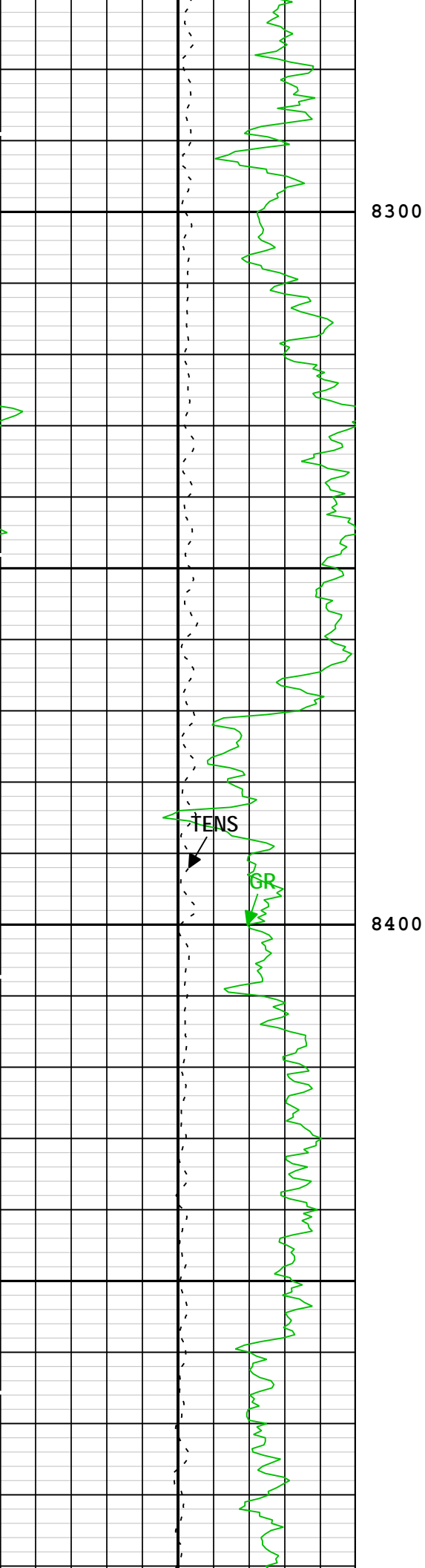
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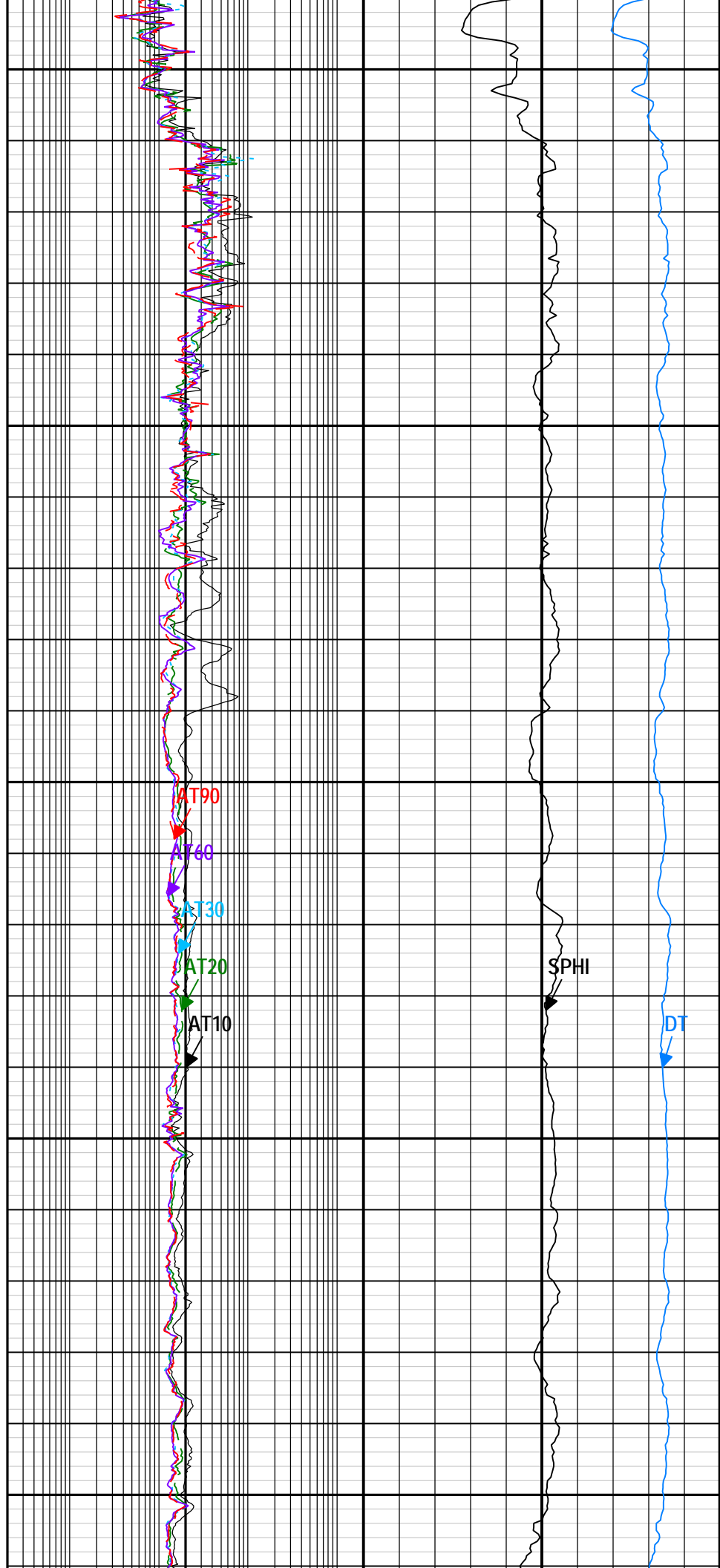
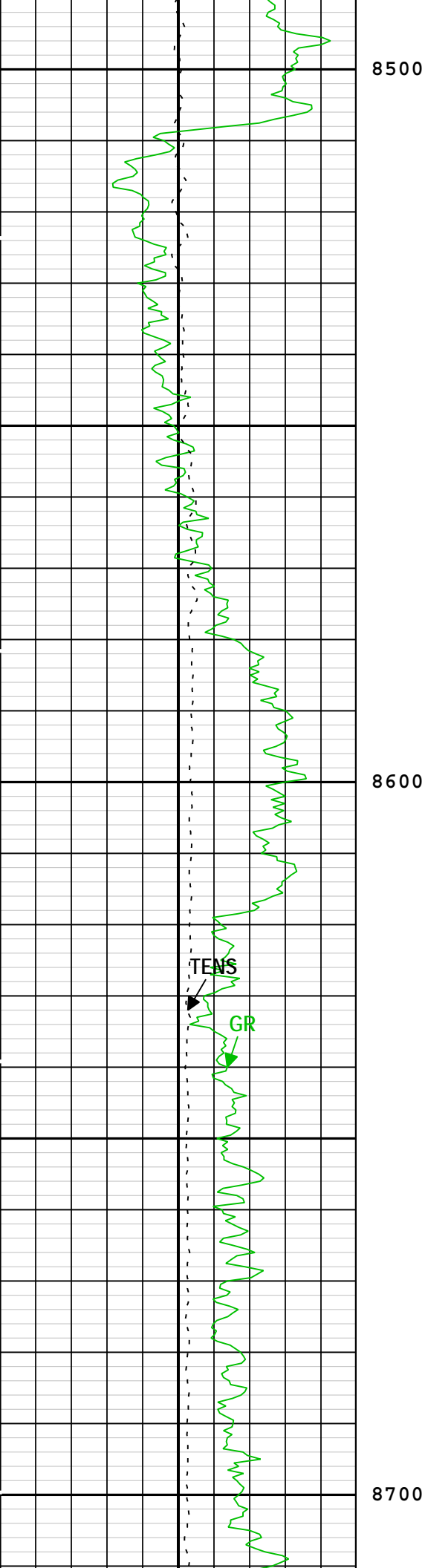
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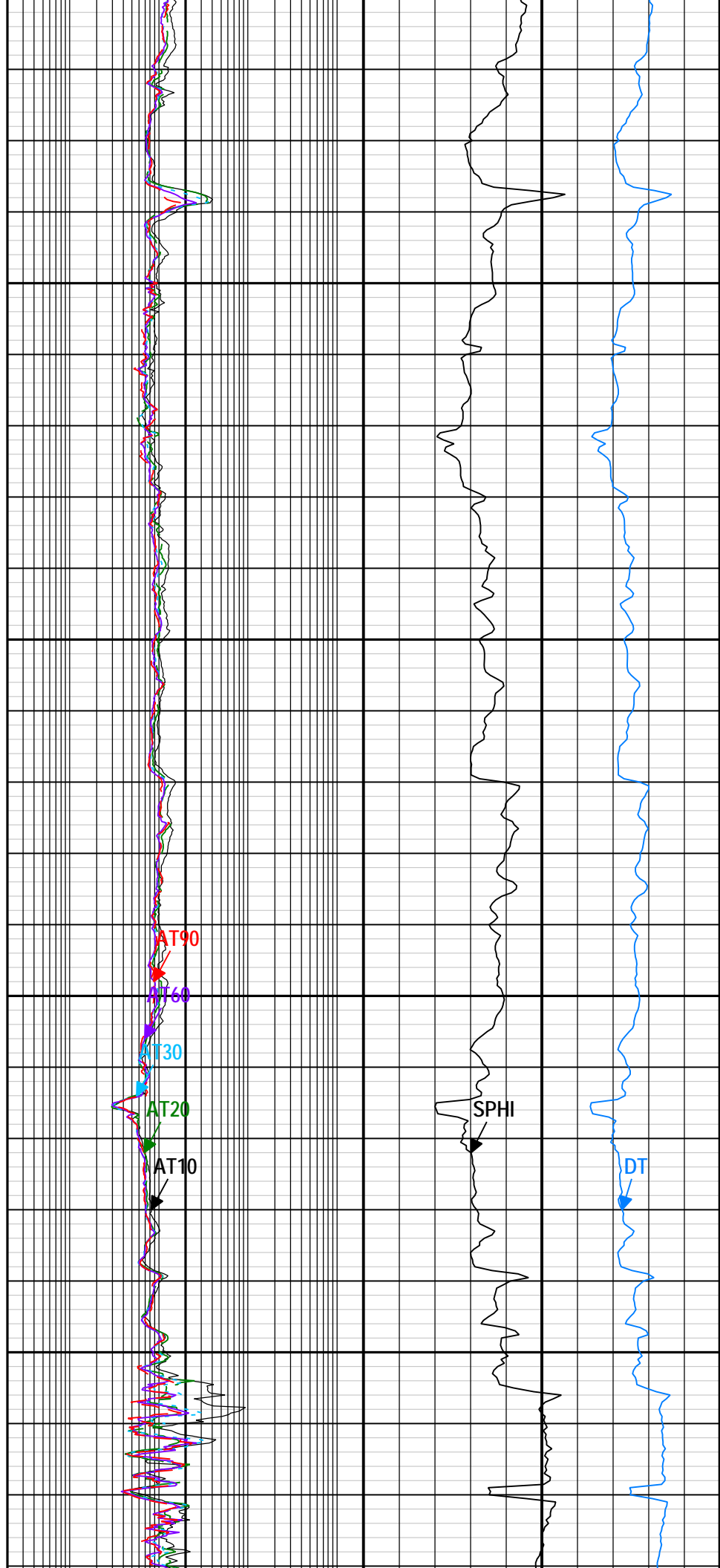
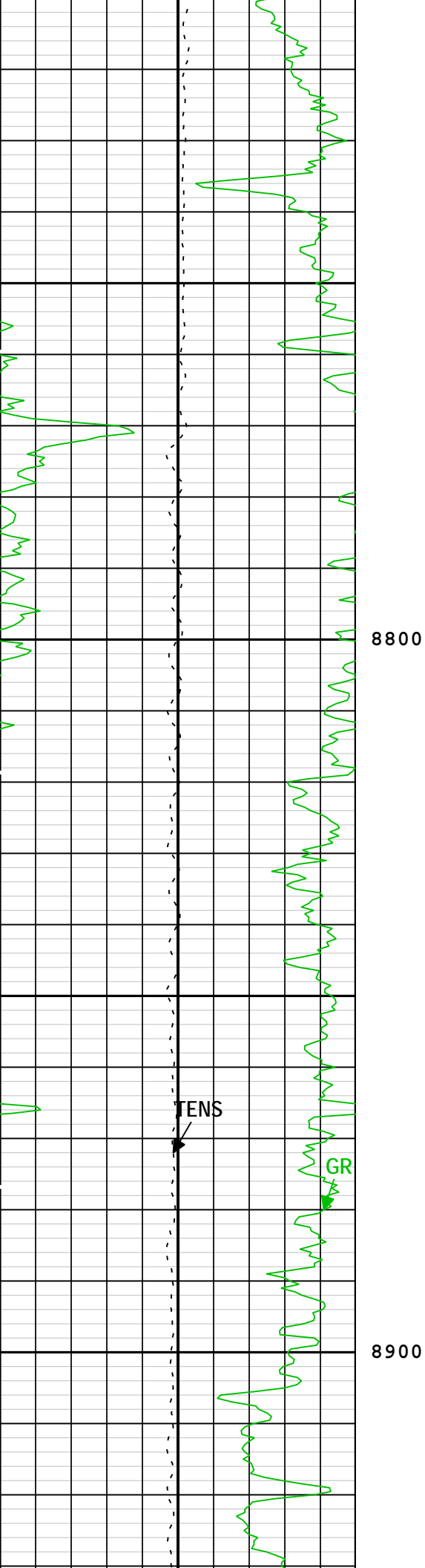


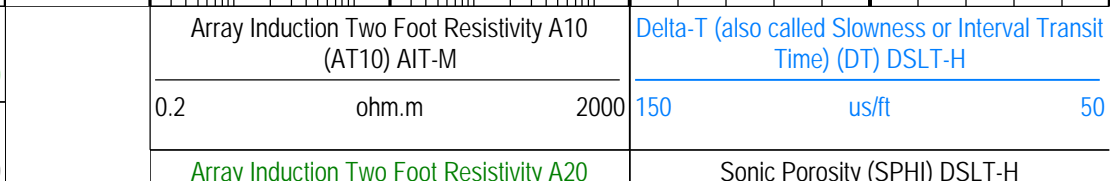
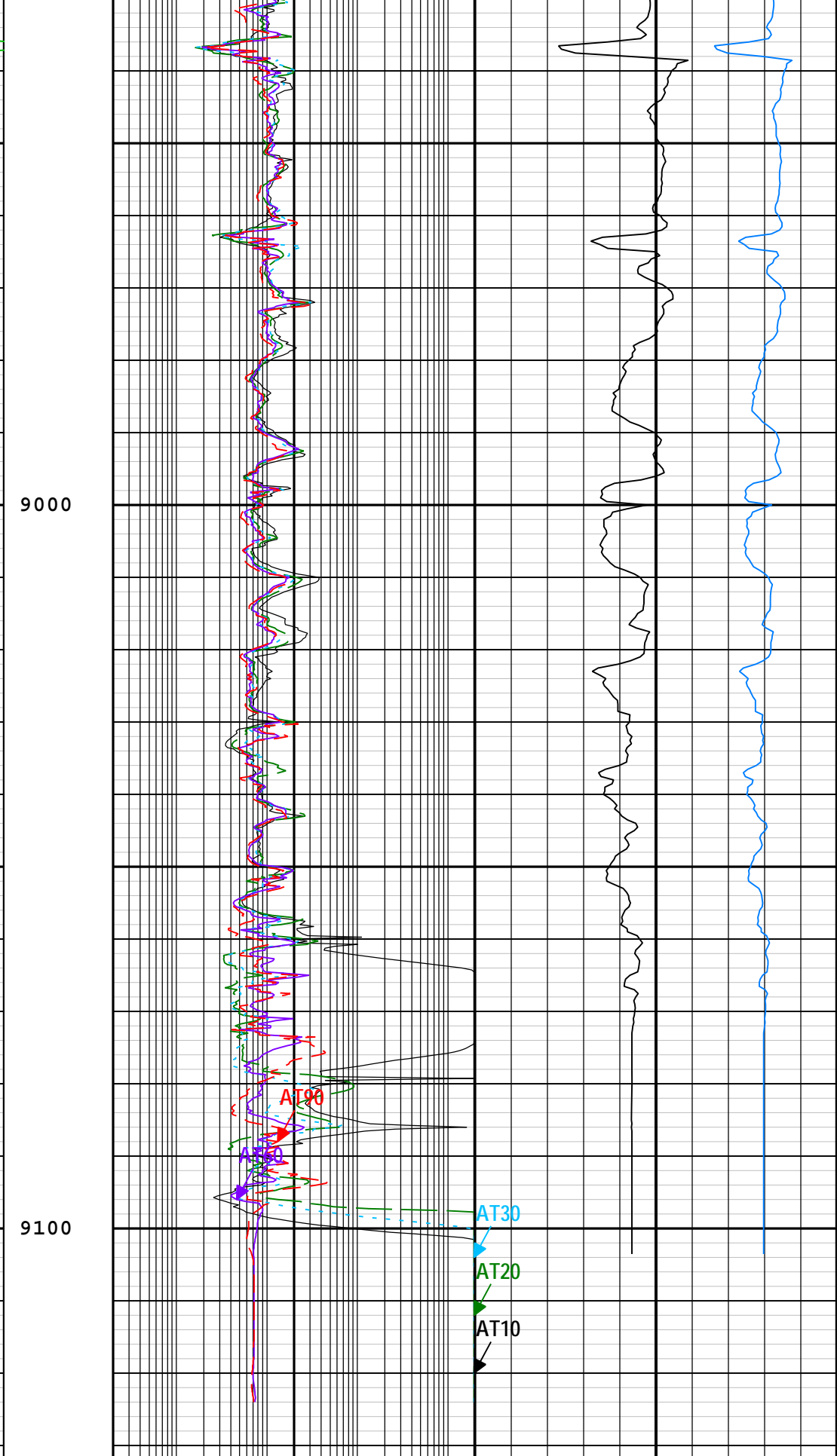
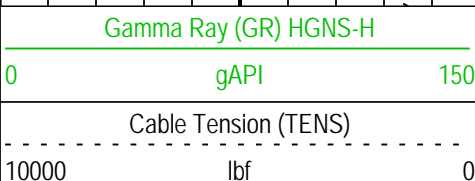
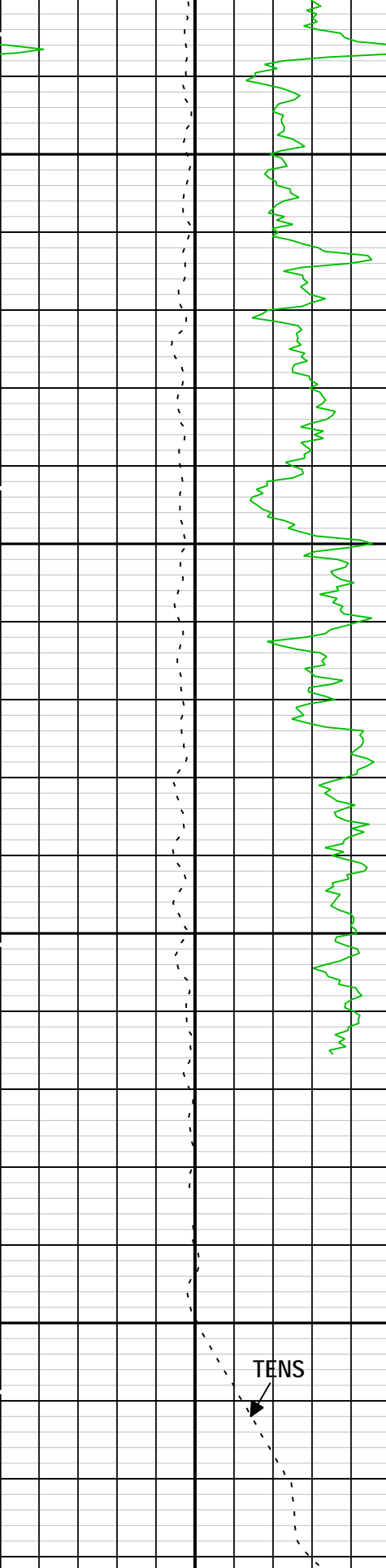












	Array Induction Two Foot Resistivity A20 (AT20) AIT-M	0.2	ohm.m	2000	0.3	ft3/ft3	-0.1
	Array Induction Two Foot Resistivity A30 (AT30) AIT-M	0.2	ohm.m	2000			
	Array Induction Two Foot Resistivity A60 (AT60) AIT-M	0.2	ohm.m	2000			
	Array Induction Two Foot Resistivity A90 (AT90) AIT-M	0.2	ohm.m	2000			

TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (Blank 3 Track Depth) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Jul-2013 16:51:18

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ABLM	Array Induction Basic Logs Mode	AIT-M	Normal	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
ASTA	Array Induction Tool Standoff	AIT-M	0.5	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.415	in
CBLO	Casing Bottom (Logger)	WLSESSION	5927	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CDTS	Correction for Delta-T Shale, Empirical	Borehole	100	us/ft
DETE	Delta-T Detection	DSLTH-H	E2	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
DTCM	Delta-T Computation Mode	DSLTH-H	Full	
DTF	Delta-T Fluid	Borehole	189	us/ft
DTM	Delta-T Matrix	Borehole	56	us/ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLTH-H	120	
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLTH-H	100	
NMSG	Near Minimum Sliding Gate	DSLTH-H	140	us
SGAD	Sliding Gate Status	DSLTH-H	On	
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPFS	Sonic Porosity Formula	Borehole	Raymer-Hunt	
SPSO	Sonic Porosity Source	DSLTH-H	DT	

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BHS	Cased	-32.5	5935
BHS	Open	5935	9132
BS	10	-32.5	5927

	8.75	5927	7100
BS	6.125	7100	9132

All depth are actual.

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
DSLT_MODE	DSLT Acquisition Mode	DSLT-H	BHC	
DSLT_RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Calibration Report				
AIT-M (Array Induction Tool - M) Calibration - Run TWO				
Primary Equipment :				
Array Induction Sonde - M		AMIS	266	
Auxiliary Equipment :				
AITM Rm/SP Bottom Nose		AMRM	266	

AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		12:00:45 21-Jun-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.015	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 0	deg	Master	0	-3.000	-0.163	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 1		Master	1.000	0.950	1.016	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 1	deg	Master	0	-3.000	0.807	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 2		Master	1.000	0.950	1.019	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 2	deg	Master	0	-3.000	0.032	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 3		Master	1.000	0.950	1.012	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 3	deg	Master	0	-3.000	0.357	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 4		Master	1.000	0.950	0.996	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 4	deg	Master	0	-3.000	0.035	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 5		Master	1.000	0.950	0.991	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 5	deg	Master	0	-3.000	-0.069	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 6		Master	1.000	0.950	1.003	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 6	deg	Master	0	-3.000	0.213	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 7		Master	1.000	0.950	1.013	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 7	deg	Master	0	-3.000	-0.116	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>

AIT Sonde Calibration - Sonde Error Correction							
Master (EEPROM):		12:00:45 21-Jun-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-129.767	119.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-0.015	2250.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	161.809	204.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 1		Master	-----	-625.000	-248.413	625.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	101.233	156.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 2		Master	-----	-350.000	-221.180	350.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	61.006	89.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 3		Master	-----	-250.000	-34.324	250.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	24.530	35.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 4		Master	-----	-63.000	-21.104	63.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	13.525	24.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 5		Master	-----	-50.000	9.034	50.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.248	15.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 6		Master	-----	-30.000	7.223	30.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.917	5.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 7		Master	-----	-30.000	5.995	30.000	<div><div></div><div></div><div></div><div></div><div></div></div>

AIT Mud Calibration - Mud Calibration Gain							
Master (EEPROM):		12:00:45 21-Jun-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	1.010	1.200	<div><div></div><div></div><div></div><div></div><div></div></div>
Fine Gain		Master	1.000	0.800	1.010	1.200	<div><div></div><div></div><div></div><div></div><div></div></div>

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 12:00:45 21-Jun-2013		Before (Measured): 02:17:48 31-Aug-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	----	0.366	0.619	0.854	
		Before	----	0.366	0.616	0.854	
		After	----	----	----	----	
		Before-Master	----	----	-0.003	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 0	deg	Master	----	137.000	176.817	-103.000	
		Before	----	137.000	-168.076	-103.000	
		After	----	----	----	----	
		Before-Master	----	----	-344.893	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 1	V	Master	----	0.762	1.269	1.778	
		Before	----	0.762	1.262	1.778	
		After	----	----	----	----	
		Before-Master	----	----	-0.007	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 1	deg	Master	----	136.000	175.737	-104.000	
		Before	----	136.000	-169.173	-104.000	
		After	----	----	----	----	
		Before-Master	----	----	-344.910	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 2	V	Master	----	0.372	0.629	0.868	
		Before	----	0.372	0.625	0.868	
		After	----	----	----	----	
		Before-Master	----	----	-0.004	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 2	deg	Master	----	132.000	172.256	-108.000	
		Before	----	132.000	-172.795	-108.000	
		After	----	----	----	----	
		Before-Master	----	----	-345.051	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 3	V	Master	----	0.420	0.711	0.980	
		Before	----	0.420	0.706	0.980	
		After	----	----	----	----	
		Before-Master	----	----	-0.005	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 3	deg	Master	----	131.000	171.497	-109.000	
		Before	----	131.000	-173.583	-109.000	
		After	----	----	----	----	
		Before-Master	----	----	-345.080	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 4	V	Master	----	0.804	1.338	1.876	
		Before	----	0.804	1.321	1.876	
		After	----	----	----	----	
		Before-Master	----	----	-0.017	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 4	deg	Master	----	125.000	165.381	-115.000	
		Before	----	125.000	-179.855	-115.000	
		After	----	----	----	----	
		Before-Master	----	----	-345.236	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 5	V	Master	----	1.176	1.952	2.744	
		Before	----	1.176	1.925	2.744	
		After	----	----	----	----	
		Before-Master	----	----	-0.027	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 5	deg	Master	----	122.000	163.738	-118.000	
		Before	----	122.000	178.472	-118.000	
		After	----	----	----	----	
		Before-Master	----	----	14.734	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 6	V	Master	----	1.176	1.948	2.744	
		Before	----	1.176	1.924	2.744	
		After	----	----	----	----	
		Before-Master	----	----	-0.024	----	

		After-Before	----	----	----	----	
Thru Cal Phase - 6	deg	Master	----	121.000	163.786	-119.000	
		Before	----	121.000	178.492	-119.000	
		After	----	----	----	----	
		Before-Master	----	----	14.706	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 7	V	Master	----	0.846	1.429	1.974	
		Before	----	0.846	1.378	1.974	
		After	----	----	----	----	
		Before-Master	----	----	-0.051	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 7	deg	Master	----	115.000	162.855	-125.000	
		Before	----	115.000	177.798	-125.000	
		After	----	----	----	----	
		Before-Master	----	----	14.943	----	
		After-Before	----	----	----	----	
SPA Zero	mV	Master		-50.000	0.345	50.000	
		Before		-50.000	-0.117	50.000	
		After	----	----	----	----	
		Before-Master	----	----	-0.462	----	
		After-Before	----	----	----	----	
SPA Plus	mV	Master		941.000	991.130	1040.000	
		Before		941.000	991.651	1040.000	
		After	----	----	----	----	
		Before-Master	----	----	0.521	----	
		After-Before	----	----	----	----	
Temperature Zero	V	Master		-0.050	0.000	0.050	
		Before		-0.050	0.000	0.050	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Temperature Plus	V	Master		0.870	0.918	0.960	
		Before		0.870	0.919	0.960	
		After	----	----	----	----	
		Before-Master	----	----	0.001	----	
		After-Before	----	----	----	----	

PPC-B (Powered Positioning device and Caliper.) Calibration - Run TWO

Primary Equipment :			
PPC-B Element is used for usual logging at wellsite and check/diagnostics.		PPC-B	8007
Calibration Parameter :			
ZERO_REF			
PLUS_REF			
Equipment Properties :			
Caliper Arm Equipment Type for PPC		PPC_CAL_STD	

PPC Check - Downhole Electronics Test

Before (Measured): 21:51:12 02-Jul-2013							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Positive Analog Voltage	V	Before		7	8.70264	9	
Minus Analog Voltage	V	Before		-9	-8.74541	-7	
Digital Voltage	V	Before		3.15	3.37755	3.45	
Digital Voltage for Analog Digital Converter	V	Before		4.5	5.03027	5.5	
Status Word of Analog Digital Converter Offset		Before		-8	0.833333	8	

PPC Check - Cartridge Temperature Test

Before (Measured): 21:51:12 02-Jul-2013							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Cartridge Temperature	degF	Before		-58	75.5839	482	

PPC Check - Power Control LVDT Test

Before (Measured): 21:51:12 02-Jul-2013							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
LVDT5 Caliper Open Position	in	Before			-1.18494		
LVDT5 Full Power Position	in	Before			-0.471191		

PPC Diagnostics - Arm Close Position Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
Caliper-arm 1, radius raw - 0	in	Master	----	----	----	----	<div></div>
Caliper-arm 2, radius raw - 0	in	Master	----	----	----	----	<div></div>
Caliper-arm 3, radius raw - 0	in	Master	----	----	----	----	<div></div>
Caliper-arm 4, radius raw - 0	in	Master	----	----	----	----	<div></div>
Power Control LVDT - 0	in	Master	----	----	----	----	<div></div>
LVDT excitation - 0	V	Master	----	----	----	----	<div></div>

PPC Diagnostics - Downhole Electronics Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
Positive Analog Voltage - 0	V	Master	----	----	----	----	<div></div>
Minus Analog Voltage - 0	V	Master	----	----	----	----	<div></div>
Digital Voltage - 0	V	Master	----	----	----	----	<div></div>
Digital Voltage for Analog Digital Converter - 0	V	Master	----	----	----	----	<div></div>
Status Word of Analog Digital Converter Offset - 0		Master	----	----	----	----	<div></div>

PPC Diagnostics - RBS Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
Relative Bearing - 0	deg	Master	----	----	----	----	<div></div>
Potentiometer Excitation - 0	V	Master	----	----	----	----	<div></div>

PPC Diagnostics - Cartridge Temperature Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
Cartridge Temperature - 0	degF	Master	----	----	----	----	<div></div>

PPC Diagnostics - Power Control LVDT Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
LVDT5 Caliper Open Position - 0	in	Master	----	----	----	----	<div></div>
LVDT5 Full Power Position - 0	in	Master	----	----	----	----	<div></div>

PPC LVDT5 Master Calibration - PPC CaliCoefficients

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
CCS	in	Master	-1.51		NOT DONE		<div></div>
COP	in	Master	-1.31		NOT DONE		<div></div>
CPW	in	Master	1.41		NOT DONE		<div></div>

PPC Caliper Calibration - PPC CaliCoefficients

Before:				After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
RD1_GAIN		Before	1	0.85	NOT DONE	1.15	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>
RD2_GAIN		Before	1	0.85	NOT DONE	1.15	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>
RD3_GAIN		Before	1	0.85	NOT DONE	1.15	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>
RD4_GAIN		Before	1	0.85	NOT DONE	1.15	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>
RD1_OFFSET	in	Before	0	-2.2	NOT DONE	2.6	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>
RD2_OFFSET	in	Before	0	-2.2	NOT DONE	2.6	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>
RD3_OFFSET	in	Before	0	-2.2	NOT DONE	2.6	<div></div>
		After	----	----	----	----	<div></div>
		After-Before	----	----	----	----	<div></div>

RD4_OFFSET	in	Before After After-Before	0 ----- -----	-2.2 ----- -----	NOT DONE ----- -----	2.6 ----- -----	
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PPC Caliper Calibration - PPC Accumulations

Before:		After:					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Caliper 1 Zero Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 2 Zero Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 3 Zero Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 4 Zero Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 1 Plus Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 2 Plus Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 3 Plus Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 4 Plus Radius - 0	in	Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run TWO

Primary Equipment :			
Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL		SLS-E	8033

CBL Normalization - CBL Accumulations

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude - 0		Master	-----	-----	-----	-----	
Upper Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	
Lower Far Amplitude - 0		Master	-----	-----	-----	-----	
Lower Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	

CBL Normalization - CBL/VDL Coefficients

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT		Master	3.500	2.700	NOT DONE	4.300	
CBL Correction Factor for LT		Master	2.500	1.700	NOT DONE	4.300	
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		NOT DONE		

CBL Free Pipe Adjustment - Free Pipe Measurement

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Amplitude - 0	mV	Before	-----	-----	-----	-----	
CBL Reference Amplitude (CBRA) - 0	mV	Before	-----	-----	-----	-----	
Measurement Depth - 0	ft	Before	-----	-----	-----	-----	

CBL Free Pipe Adjustment - CBL Amplitude Coefficient

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor		Before	1.000	0.200	NOT DONE	5.000	
Depth of Before Calibration	ft	Before			NOT DONE		

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run TWO

Primary Equipment :			
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Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3889
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3912

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	28706
HRDD Short Spacing Detector	Short Spacing	27692
Cesium 137 Gamma-Ray Logging Source	GSR-J	5415
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3889
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	3867

Calibration Parameter :

Small Ring Size (Caliper Calibration Small Ring)	8.00
Large Ring Size (Caliper Calibration Large Ring)	12.00

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured): 21:56:48 02-Jul-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.51	10.00	
Large Ring	in	Before	12.00	9.00	12.69	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 19:37:48 17-Jun-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.599	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.686	1.696	
Pe Aluminum		Master	2.570	2.470	2.606	2.670	
Pe Magnesium		Master	2.650	2.550	2.602	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 19:37:48 17-Jun-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2098	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.5068	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.2935	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.7657	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.6586	1.5000	
LS Max Deviation	%	Master	0	-3.5000	2.3560	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 19:37:48 17-Jun-2013 Before (Measured): 21:56:28 02-Jul-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7520		
		Before	0.7520	0.7144	0.7505	0.7896	
		Before-Master	-----	-----	-0.0015	-----	
BS Window Sum	1/s	Master	1		24373		
		Before	24373	23154	24325	25592	
		Before-Master	-----	-----	-48	-----	
SS Window Ratio		Master	1.0000		0.4794		
		Before	0.4794	0.4554	0.4802	0.5033	
		Before-Master	-----	-----	0.0008	-----	
SS Window Sum	1/s	Master	1		11282		
		Before	11282	10718	11262	11846	
		Before-Master	-----	-----	-20	-----	
LS Window Ratio		Master	1.0000		0.2974		
		Before	0.2974	0.2826	0.3019	0.3123	
		Before-Master	-----	-----	0.0045	-----	
LS Window Sum	1/s	Master	1		1220		
		Before	1220	1159	1219	1281	
		Before-Master	-----	-----	-1	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 19:37:48 17-Jun-2013 Before (Measured): 21:56:28 02-Jul-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1964	2400	
		Before		1000	1955	2400	

		Before-Master	-----	-100	-9	100	
SS PM High Voltage	V	Master		1000	1871	2400	
		Before		1000	1848	2400	
		Before-Master	-----	-100	-23	100	
LS PM High Voltage	V	Master		1000	1587	2400	
		Before		1000	1593	2400	
		Before-Master	-----	-100	6	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 19:37:48 17-Jun-2013		Before (Measured): 21:56:28 02-Jul-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	11.20	25.00	
		Before		5.00	11.31	25.00	
		Before-Master	-----	-1.00	0.11	1.00	
SS Crystal Resolution	%	Master		5.00	9.95	20.00	
		Before		5.00	9.74	20.00	
		Before-Master	-----	-1.00	-0.21	1.00	
LS Crystal Resolution	%	Master		5.00	9.16	20.00	
		Before		5.00	8.78	20.00	
		Before-Master	-----	-1.00	-0.38	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 21:52:57 02-Jul-2013							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3867	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3792	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3808	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run TWO

Primary Equipment :			
	HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	3799
Auxiliary Equipment :			
	HGNS Accelerometer, 150 degC	HACCZ-H	1614
	AmBe Neutron Logging Source	NSR-F	5138
Calibration Parameter :			
	Water Temperature		
	Housing Size		
	JIG-BKG (Jig minus background reference)	165	

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 17:34:12 03-Jul-2013							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.2	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-May-2002							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	-3195.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	3.177	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.012	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.708	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	298.500	-----	
Accelerometer Coefficients - 9		Master	-----	-----	1.005	-----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 16:10:40 30-May-2013		Before (Measured): 21:53:27 02-Jul-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	29.3	40.0	
		Before	0	5.0	27.6	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.4	-1.7	4.4	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	27.7	40.0	
		Before	0	5.0	30.3	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.2	2.6	4.2	
		After-Before	----	----	----	----	
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	5553.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2281.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	5539.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2261.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):		22:05:16 02-Jul-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	76.9	120.0	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	166.4	206.3	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
GR Calibration Gain		Before	0.89	0.80	0.99	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

LEH-QT (Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor) Calibration - Run TWO

Primary Equipment :				LEH-QT			
Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor							

HTEN Master Calibration - HTEN Master Calibration

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HTEN Shop Gain		Master	1.000	0.800	NOT DONE	4.500	
HTEN Shop Offset	lbf	Master	0	-1000.000	NOT DONE	1000.000	

HTEN Before Calibration - HTEN Before Calibration

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RHTE Zero Measurement - 0	lbf	Before	----	----	----	----	
RHTE Plus Measurement - 0	lbf	Before	----	----	----	----	
HTEN Gain - 0		Before	----	----	----	----	
HTEN Offset - 0	lbf	Before	----	----	----	----	

Well: Sheehan 2 #4-2
Field: Wildcat
County: Moffat
State: Colorado

*** PLATFORM EXPRESS ***

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SONIC POROSITY - FORMATION SLOWNESS