Company	MIDWESTERN EXPLORATION COMPANY
Well	GARMAN #2-18
Field	GOOCH
County	STEVENS
State	KANSAS

RECON

COMPENSATED NEUTRON
LITHOLOGY DENSITY
GAMMA RAY X-Y CALIPER
MICROLOG

	SEC	TWP	RGE	
	18	35S	35W	

OTHER SERVICES:
DIL BHC

Location. 1980' FWL & 660' FNL NE NW
SURF. SAME API#. 015-189-22829

Permanent Datum . Ground Level Elev 3018
Log Measured From . Kelly Bushing
Drilling Measured From Kelly Bushing

ELEVATIONS K.B. 3030
G.L. 3018
D.F. 3028

Date		14-FEB-2014					
Run No.		ONE					
TD Driller		6768	ft.			ft.	
TD RECON		6767	ft.			ft.	
Bot Logged Interval		6766	ft.			ft.	
Top Logged Interval		3400	ft.			ft.	
Casing Depth Driller		8 5/8	in.	@ 1673		in.	@
Casing Depth RECON		8 5/8	in.	@ 1684		in.	@
Bit Size		7 7/8	in.			in.	
Drilling Fluid Type		Chemical					
Density	Viscosity	9.1 ppg		68 sec/qt			
Fluid Loss	PH	6.0 cm/30min		9.0 strip			
Source Of Sample		Flowline					
RM @ Measured Temp		1.520	Ohmm	@ 75		Ohmm	@
RMF @ Measured Temp		1.140	Ohmm	@ 75		Ohmm	@
RMC @ Measured Temp		1.900	Ohmm	@ 75		Ohmm	@
RM @ MRT		0.841	Ohmm	@ 141		Ohmm	@
Max Recorded Temp		141	DegF			DegF	
Time Drilling Stopped		13-FEB-2014		18:20			
Time Circulation Stopped		14-FEB-2014		05:15			
Time Logger On Bottom		14-FEB-2014		10:53			
Unit Num	Location	S409		OKLAHOMA CITY, OK			
Recorded By		H. GARCIA					
Witnessed By		MR. B. DAUGHERTY			MR. T. WILLIAMS		

RIG INFORMATION

Drill Contr/Rig# H2 DRLG. #2

GENERAL REMARKS SECTION

FIRST RUN IN THE HOLE
CNL AND LDT LOGGED IN A LIMESTONE MATRIX
TOP MARK - 222.7, BOTTOM MARK - 6631.6
CNL/LDT LOGGED MATRIX: 2.71 g/cc.

CHLORIDES: 1000 mg/l
LCM: 8 lb/bbl

AHV CALCULATED ON 5.5" PROD. CASING

CREW: M. CALLENTINE

THANK YOU FOR USING RECON PETROTECHNOLOGIES LTD.

CEMENT VOLUME CALCULATIONS SUMMARY

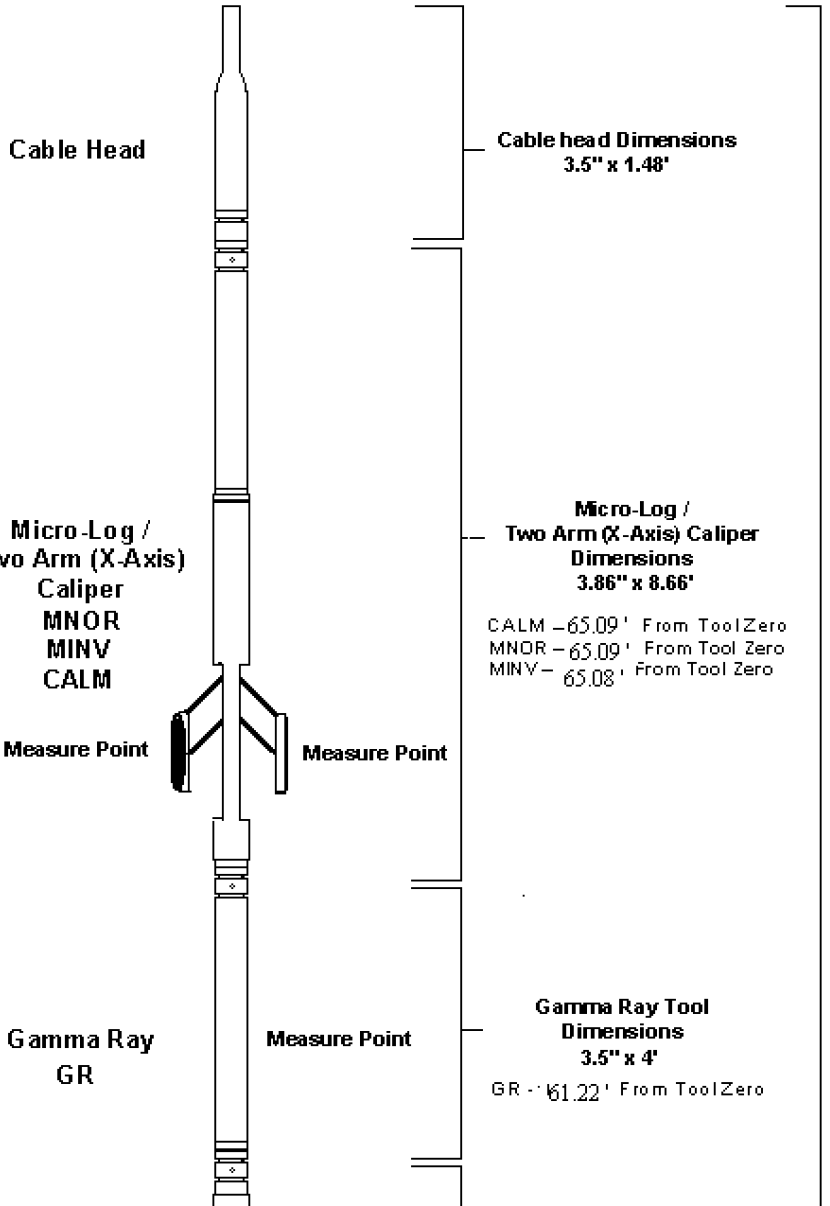
Tool Type	**LDT-CNT**		
Tool Serial #	**RN2002 / RL4102**	**Caliper Type**	**X-Y CALIPERS**

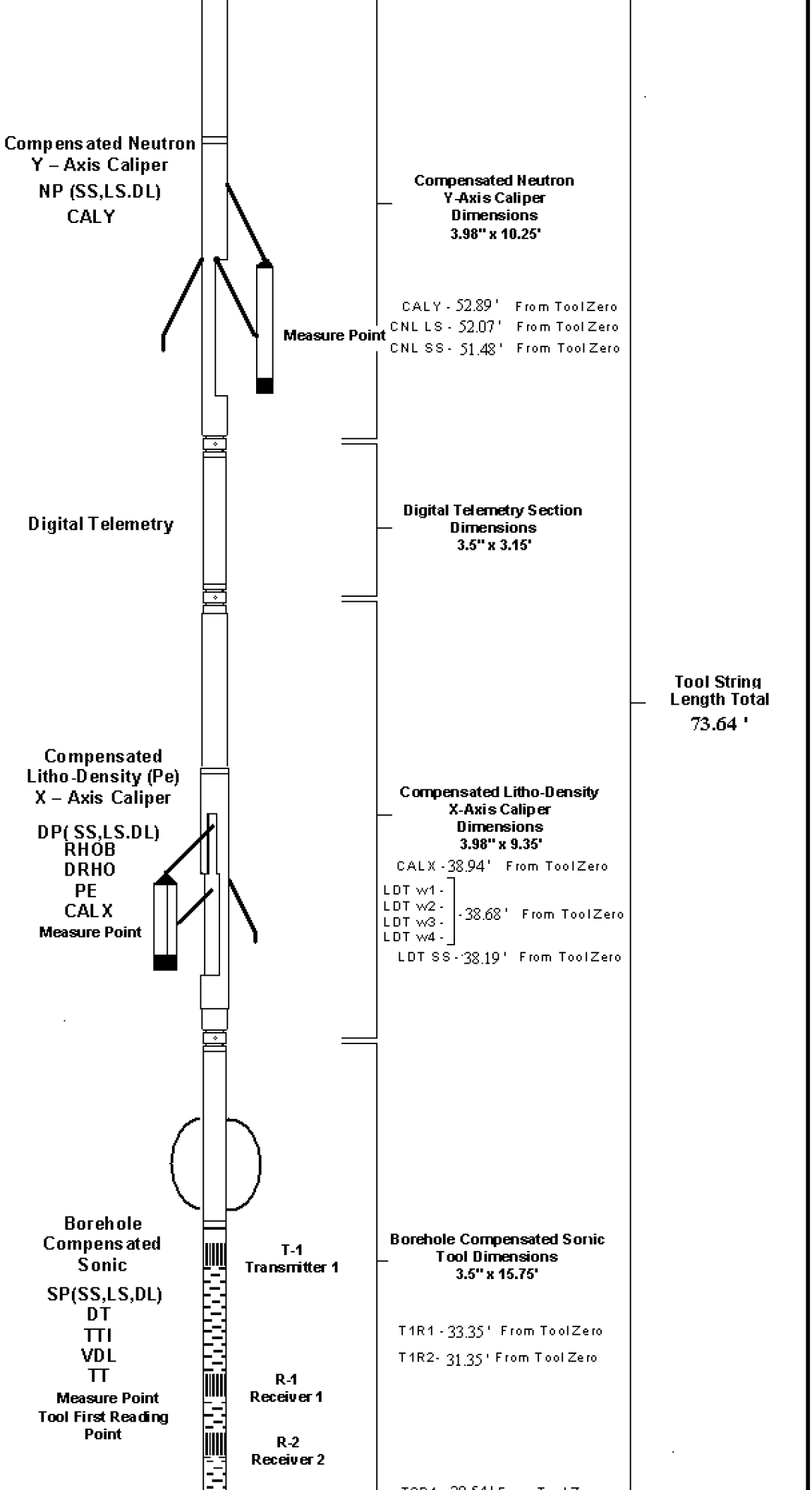
	Borehole Total	Annular Volume with Casing	From Depth (MKb)	To Depth (MKb)
VOLUMES	**1864.477 Cubic Feet**	**1023.037 Cubic Feet**	**SCG 1684**	**TD 6767**

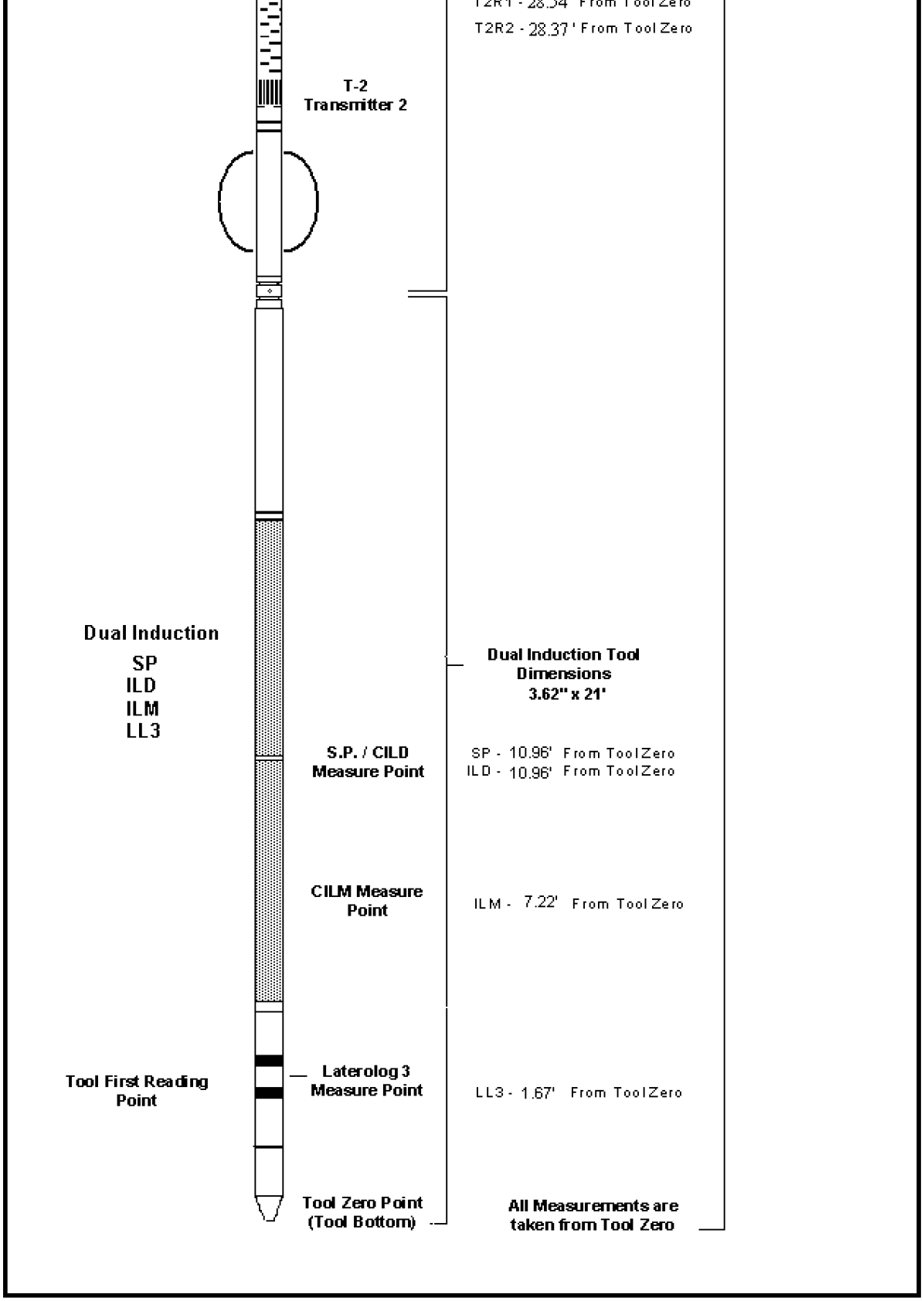
CASING INFORMATION

	SIZE (in)	GRADE	WEIGHT (lbs/ft)	ID (in)	TOP DEPTH	BOT DEPTH
SURFACE CASING	**8 5/8**	**J-55**	**24**	**8.097**	**Surface**	**1684**
INTERMEDIATE CASING	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
PRODUCION CASING	**5 1/2**	**J-55**	**15.5**	**4.950**	**Surface**	**TD**

DUAL INDUCTION – SP / BHC SONIC /
GAMMA RAY / LITHO-DENSITY / X CALIPER
COMPENSATED NEUTRON / Y-CALIPER
MICRO - LOG / M-CALIPER




Compensated Neutron
Y – Axis Caliper
NP (SS,LS.DL)
CALY
Measure Point
Compensated Neutron
Y-Axis Caliper
Dimensions
3.98" x 10.25'
CALY - 52.89 ' From ToolZero
CNL LS - 52.07 ' From ToolZero
CNL SS - 51.48 ' From ToolZero
Digital Telemetry
Digital Telemetry Section
Dimensions
3.5" x 3.15'
Tool String
Length Total
73.64 '
Compensated
Litho-Density (Pe)
X – Axis Caliper
DP(SS,LS.DL)
RHOB
DRHO
PE
CALX
Measure Point
Compensated Litho-Density
X-Axis Caliper
Dimensions
3.98" x 9.35'
CALX - 38.94 ' From ToolZero
LDT w1 -
LDT w2 -
LDT w3 -
LDT w4 -
- 38.68 ' From ToolZero
LDT SS - 38.19 ' From ToolZero
Borehole
Compensated
Sonic
SP(SS,LS,DL)
DT
TTI
VDL
TT
Measure Point
Tool First Reading
Point
T-1
Transmitter 1
R-1
Receiver 1
R-2
Receiver 2
Borehole Compensated Sonic
Tool Dimensions
3.5" x 15.75'
T1R1 - 33.35 ' From ToolZero
T1R2- 31.35 ' From ToolZero



02/14/2014
13:23:48 => End Time

MAIN PASS - RHOB (2"/100Ft)

Log UP - (VER 11.17)
End Depth=> 3399.75 Feet

	Bit Size (BIT)	
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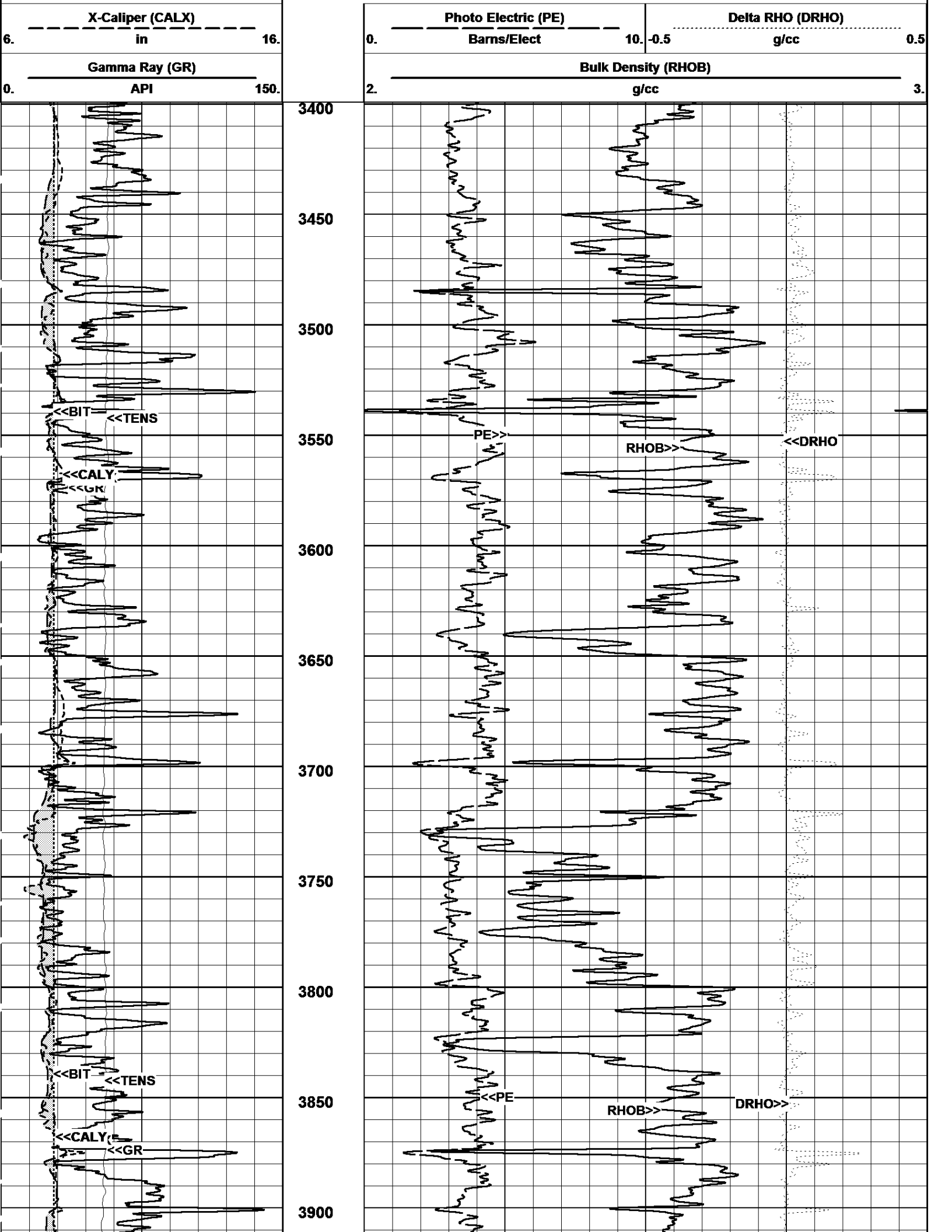
	Tension (TENS)	
5000.	Lbs	0.
	Y-Caliper (CALY)	
6.	in	16.


X-Caliper (CALX)
6.
in
16.
Gamma Ray (GR)
0.
API
150.
Photo Electric (PE)
0.
Barns/Elect
10.
Delta RHO (DRHO)
-0.5
g/cc
0.5
Bulk Density (RHOB)
2.
g/cc
3.
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3450
3500
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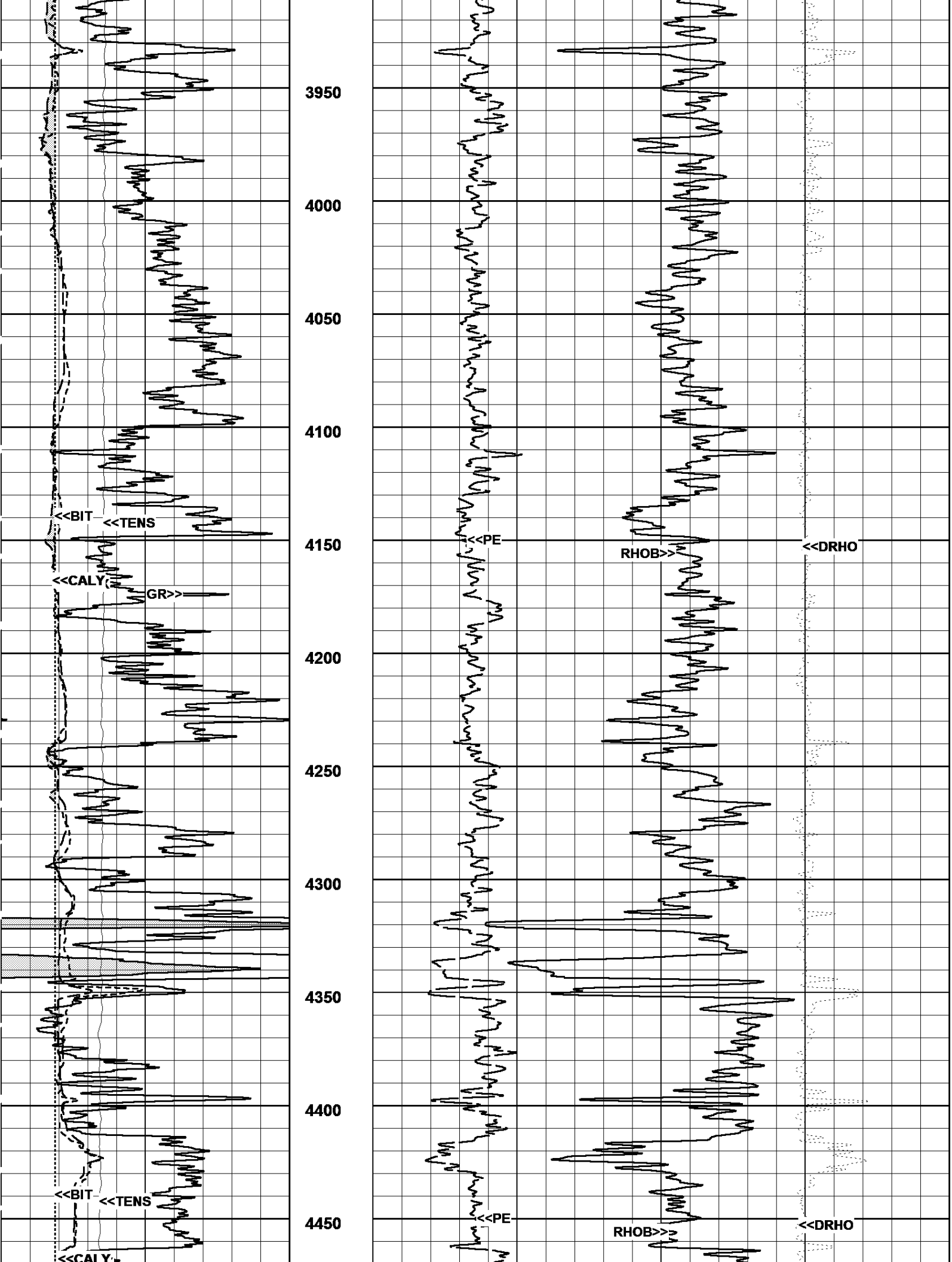
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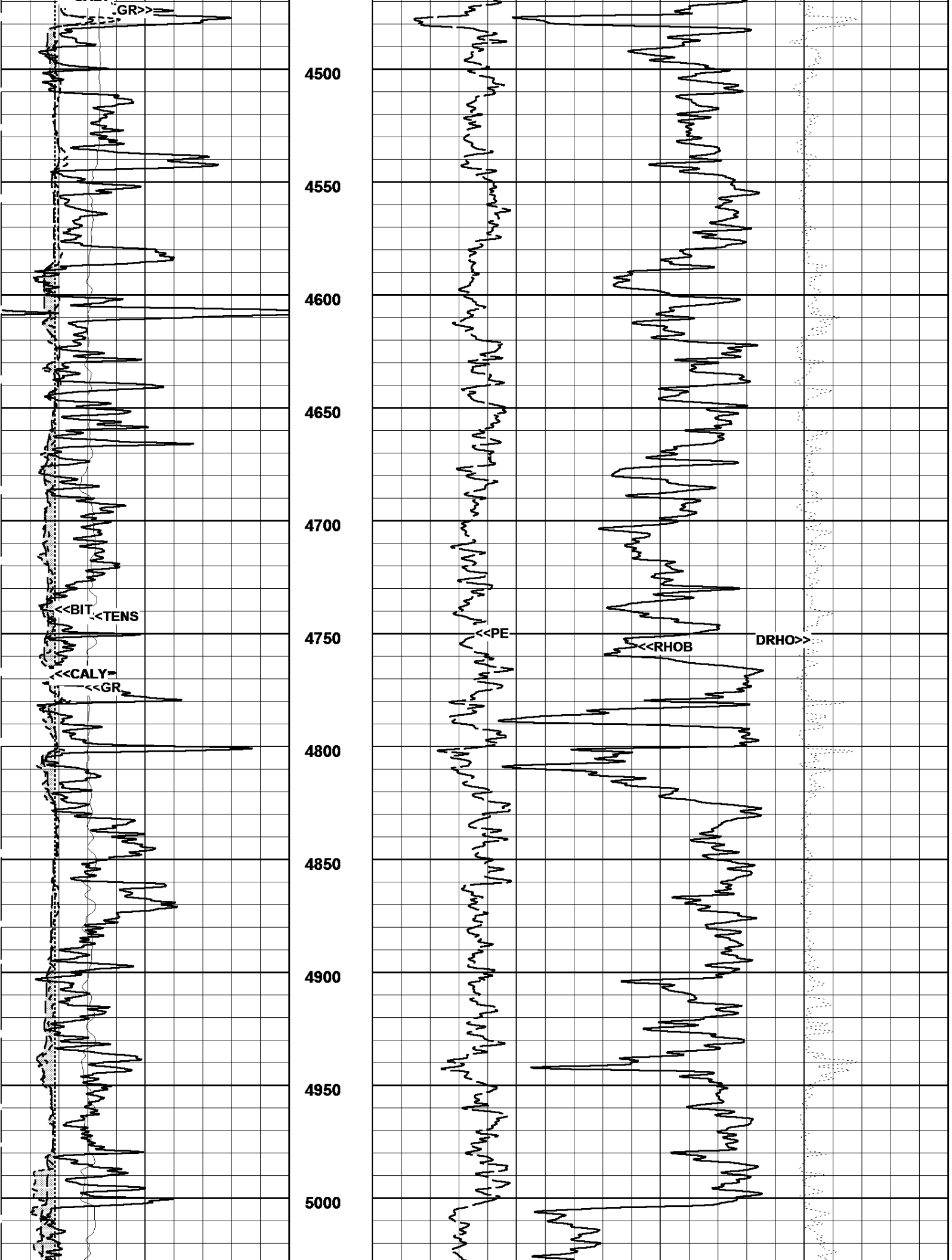
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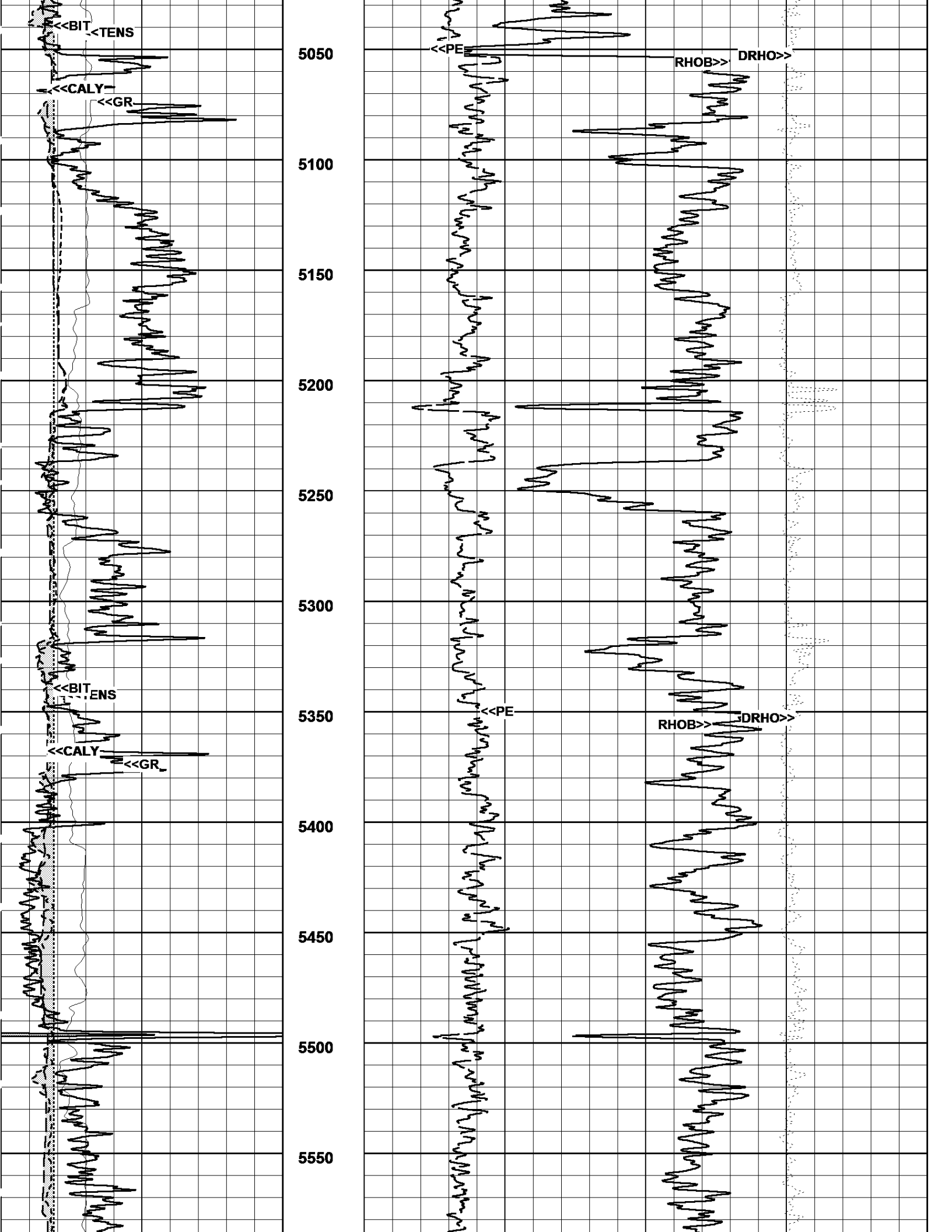
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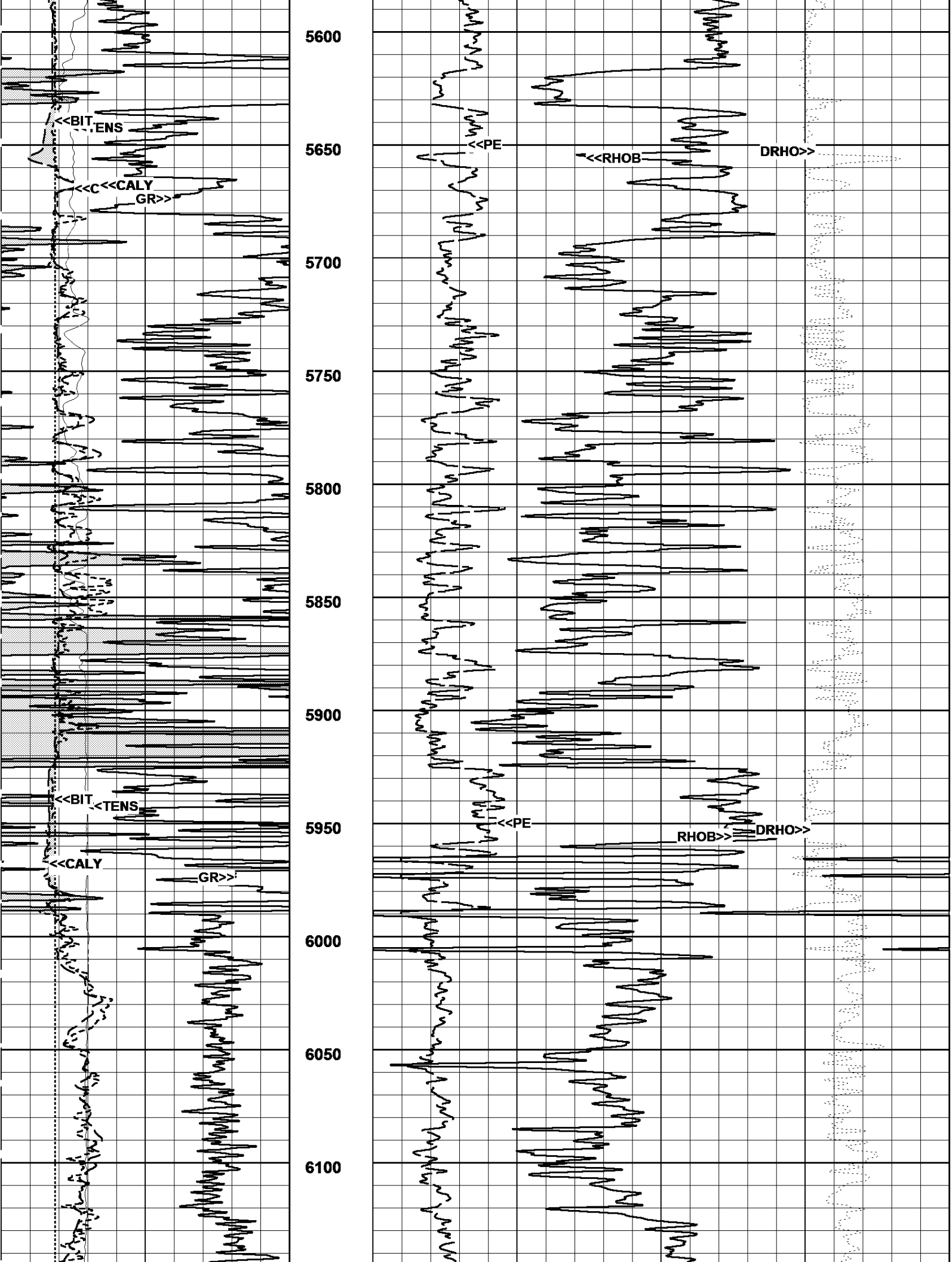
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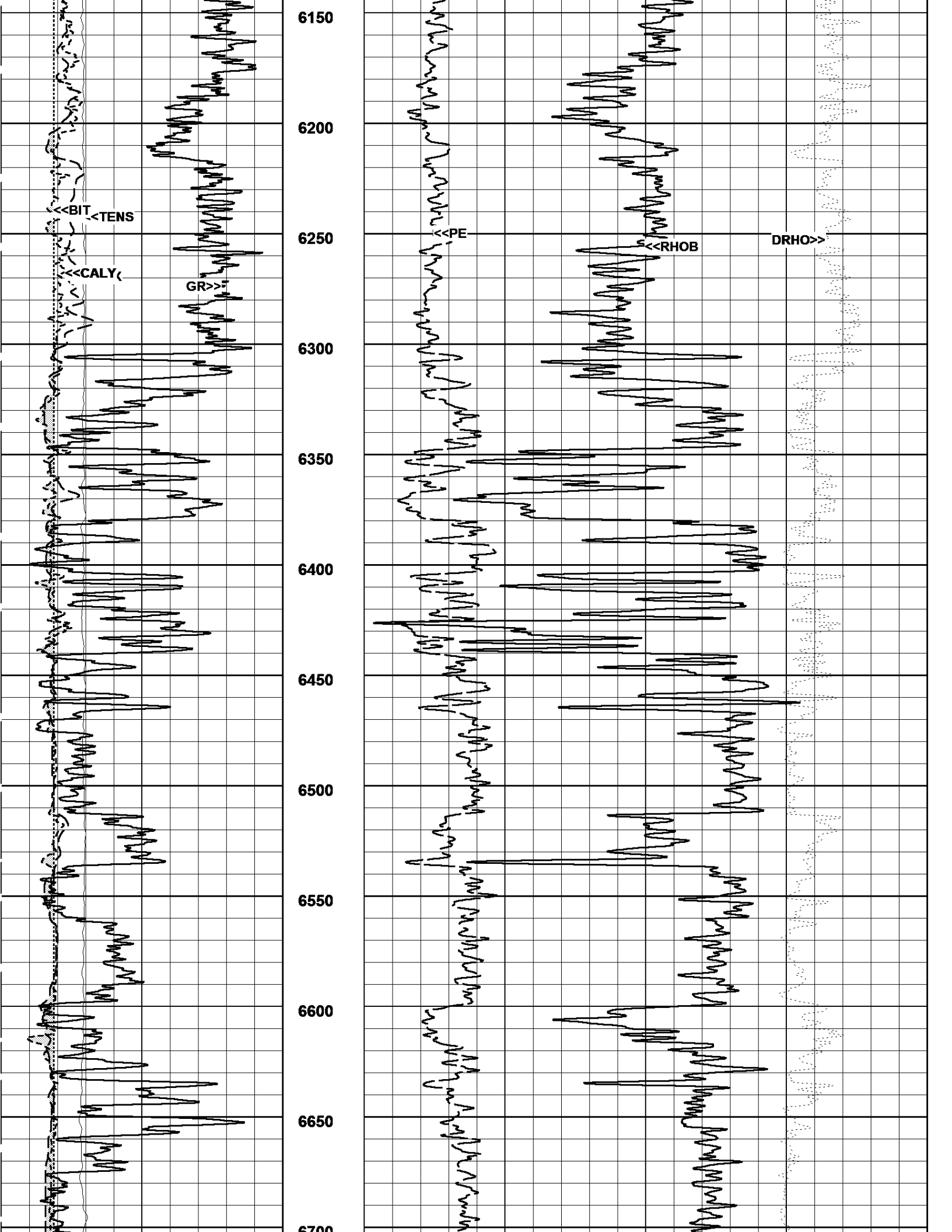
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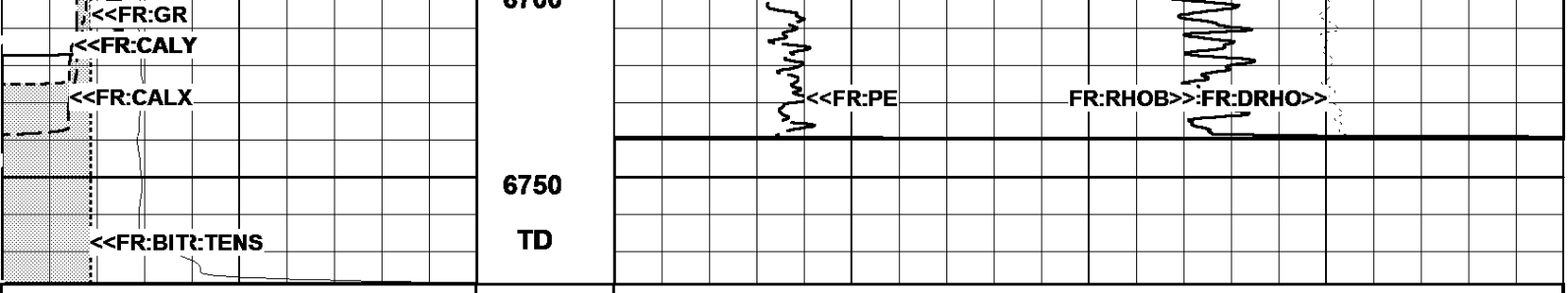


Gamma Ray (GR)		
0. API 150.		
X-Caliper (CALX)		
6. in 16.		
Y-Caliper (CALY)		
6. in 16.		
Tension (TENS)		
5000. Lbs 0.		
Bit Size (BIT)		
6. Ref in 16.		

Bulk Density (RHOB)	
2. g/cc 3.	
Photo Electric (PE)	Delta RHO (DRHO)
0. Barns/Elect 10.	-0.5 g/cc 0.5

02/14/2014
11:18:00 => Start Time

MAIN PASS - RHOB (2"/100Ft)

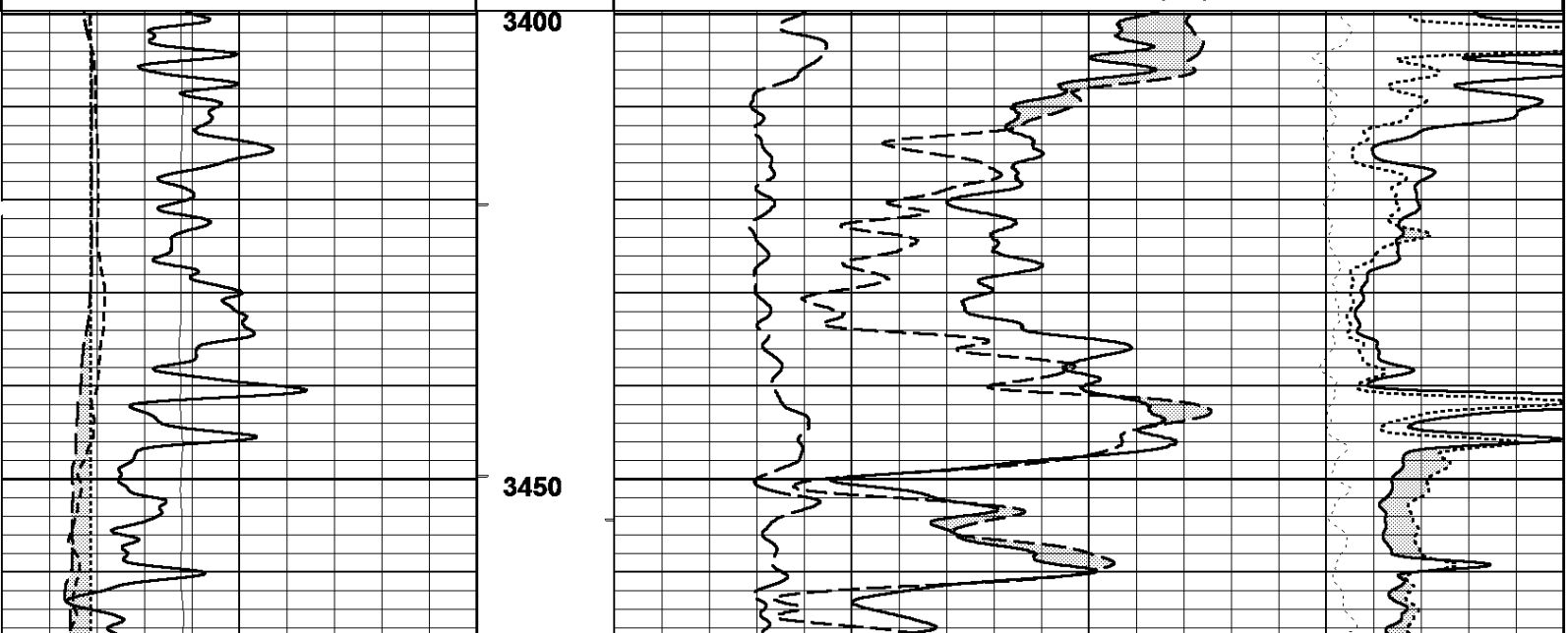
Log UP - (VER 11.17)
Start Depth=> 6778.25 Feet

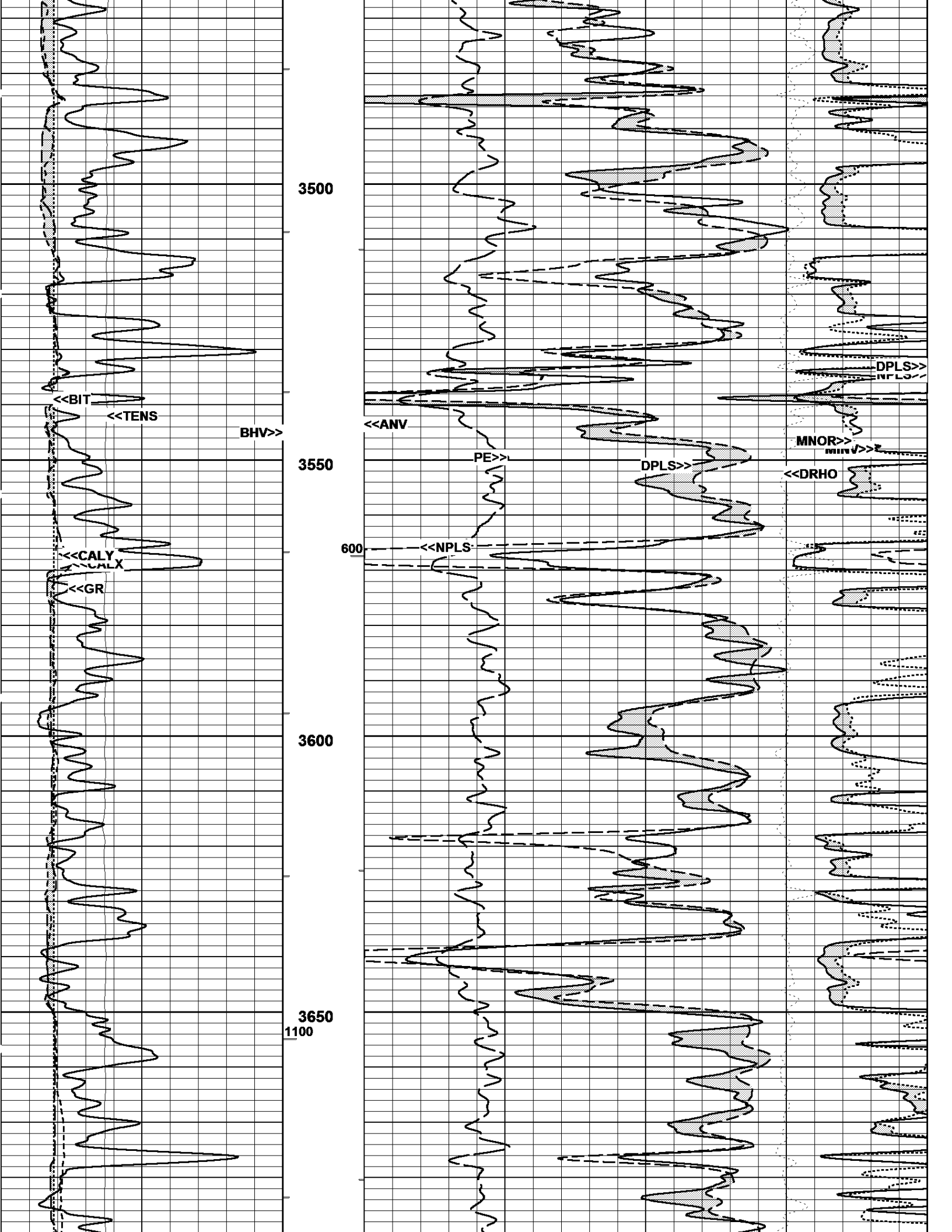
02/14/2014
13:23:48 => End Time

MAIN PASS - LIMESTONE (5"/100Ft)

Log UP - (VER 11.17)
End Depth=> 3399.90 Feet

Bit Size (BIT)		Micro-Normal{2"} (MNOR)
6. Ref in 16.		-40. ohms 40.
Tension (TENS)		Micro-Inverse{1"} (MINV)
5000. Lbs 0.		-40. ohms 40.
Y-Caliper (CALY)	Photo Electric (PE)	Delta RHO (DRHO)
6. in 16.	0. Barns/Elect 10.	-0.5 g/cc 0.5
X-Caliper (CALX)	Density-Porosity (DPLS)	
6. in 16.	30. Limestone-Matrix (V/V) -10.	
Gamma Ray (GR)	Neutron-Porosity (NPLS)	
0. API 150.	30. Limestone-Matrix (V/V) -10.	

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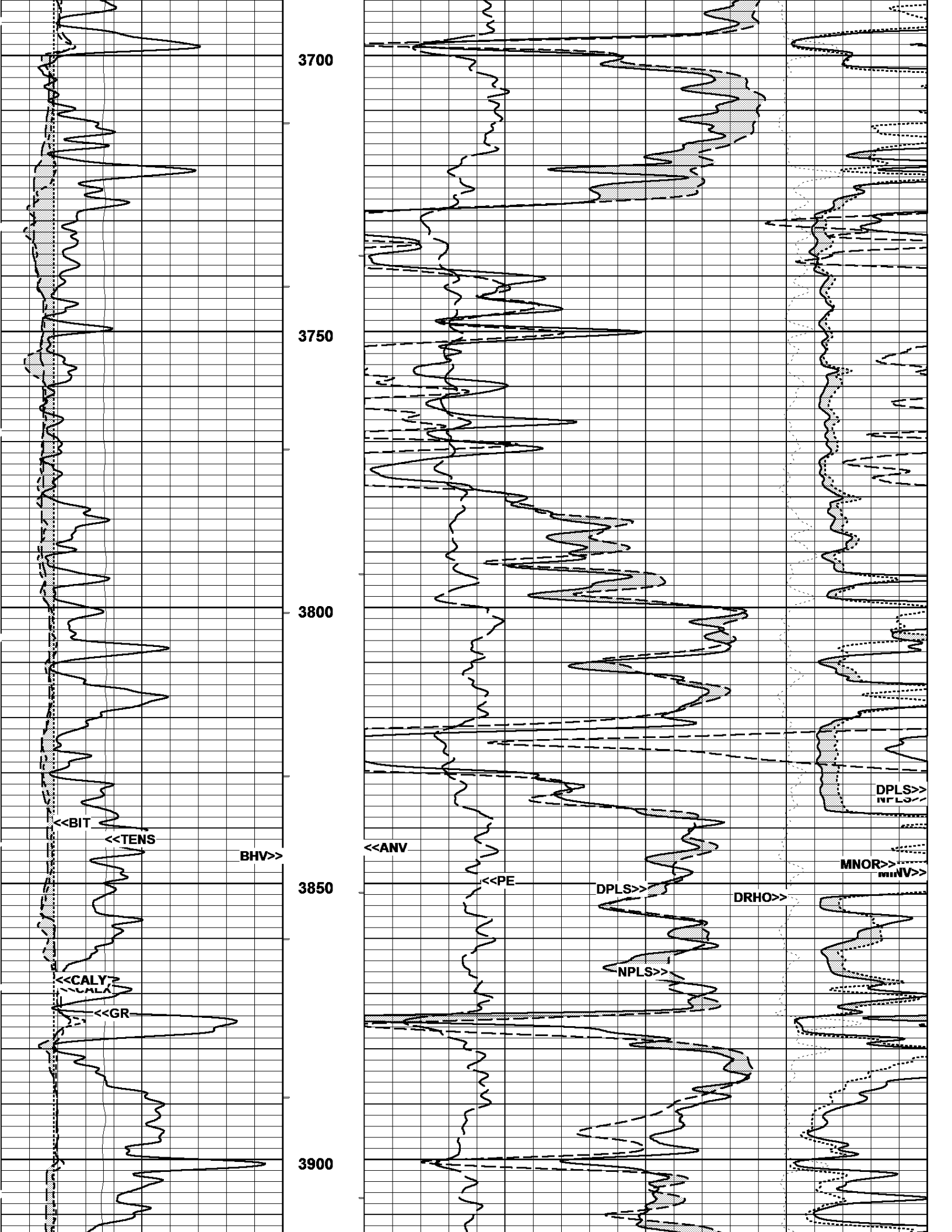
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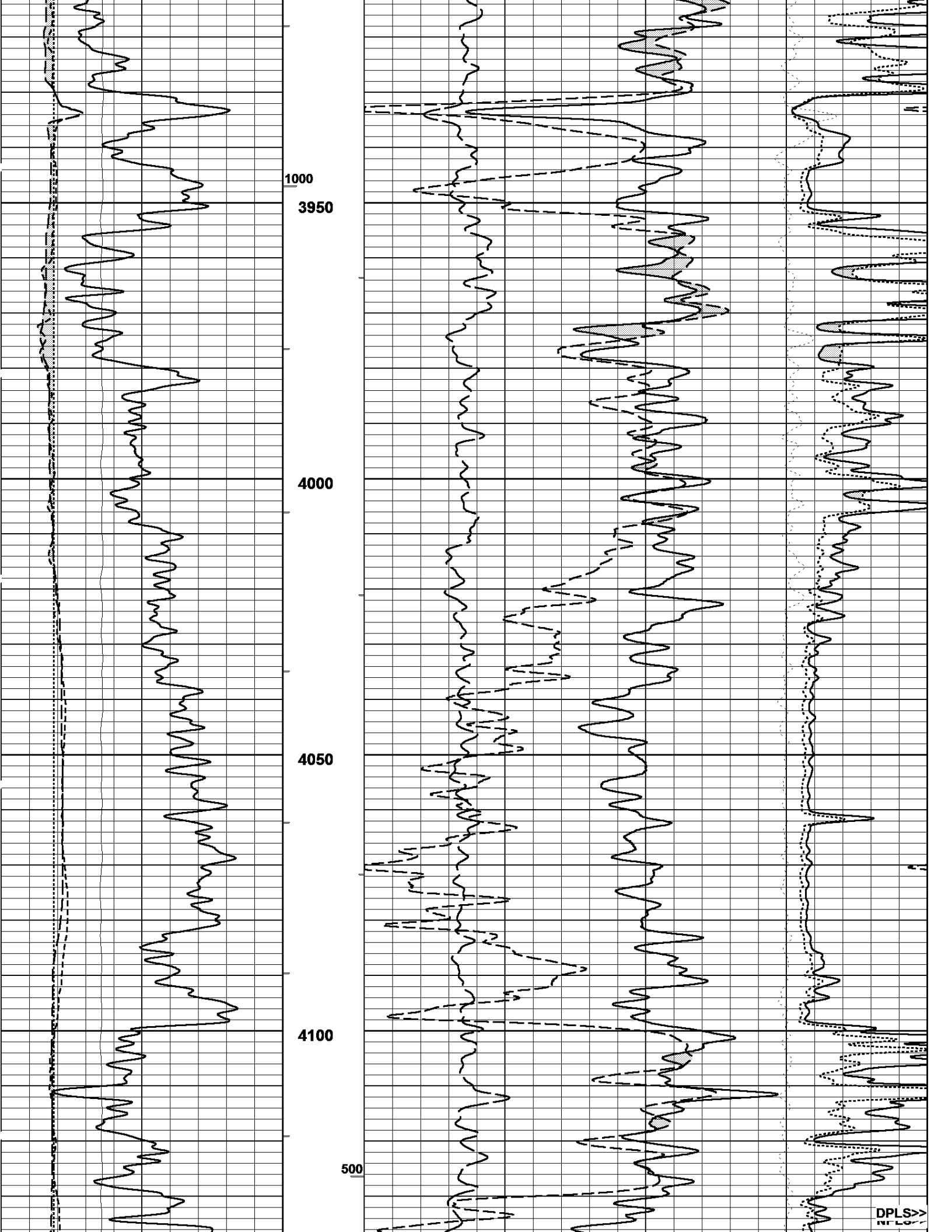
MNOR>>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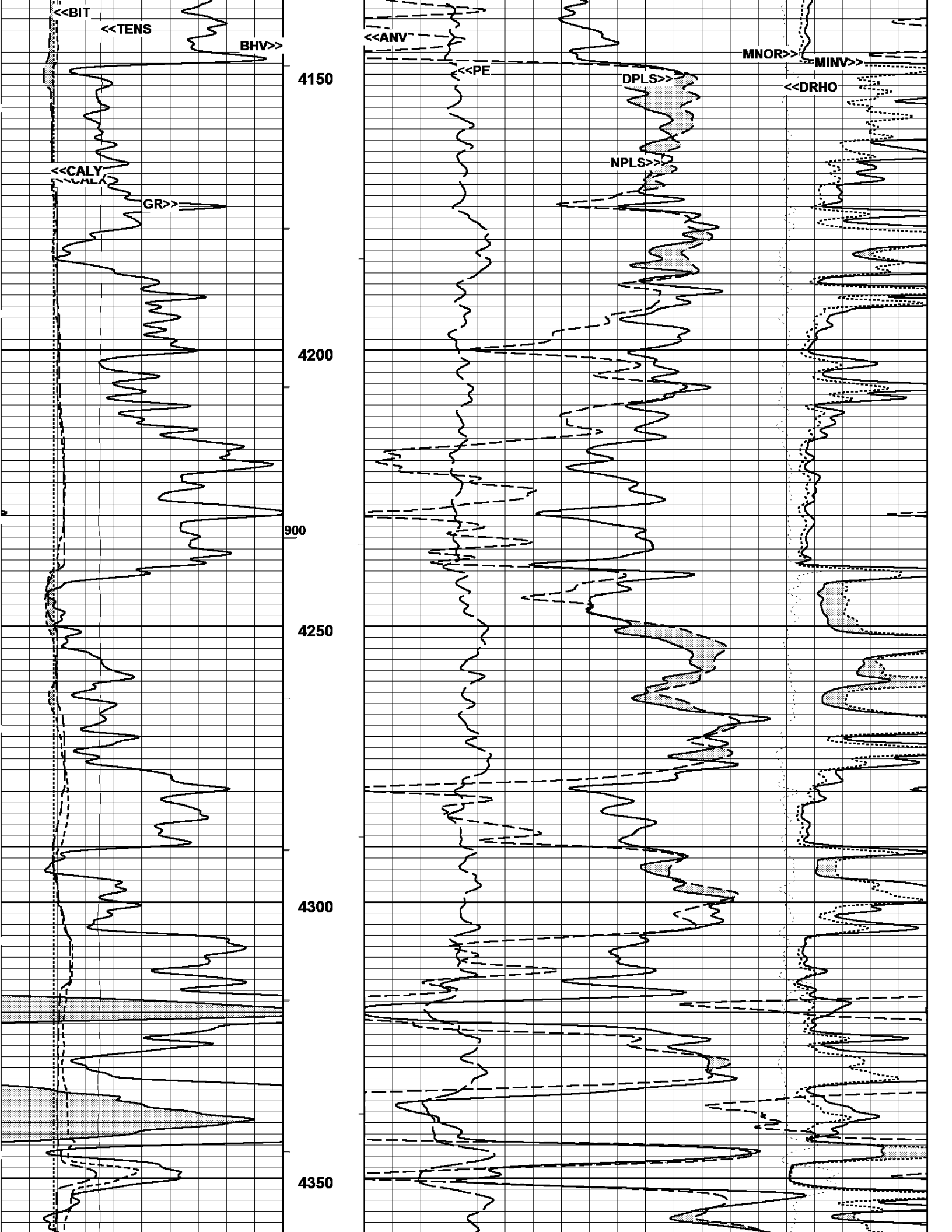
DPLS>>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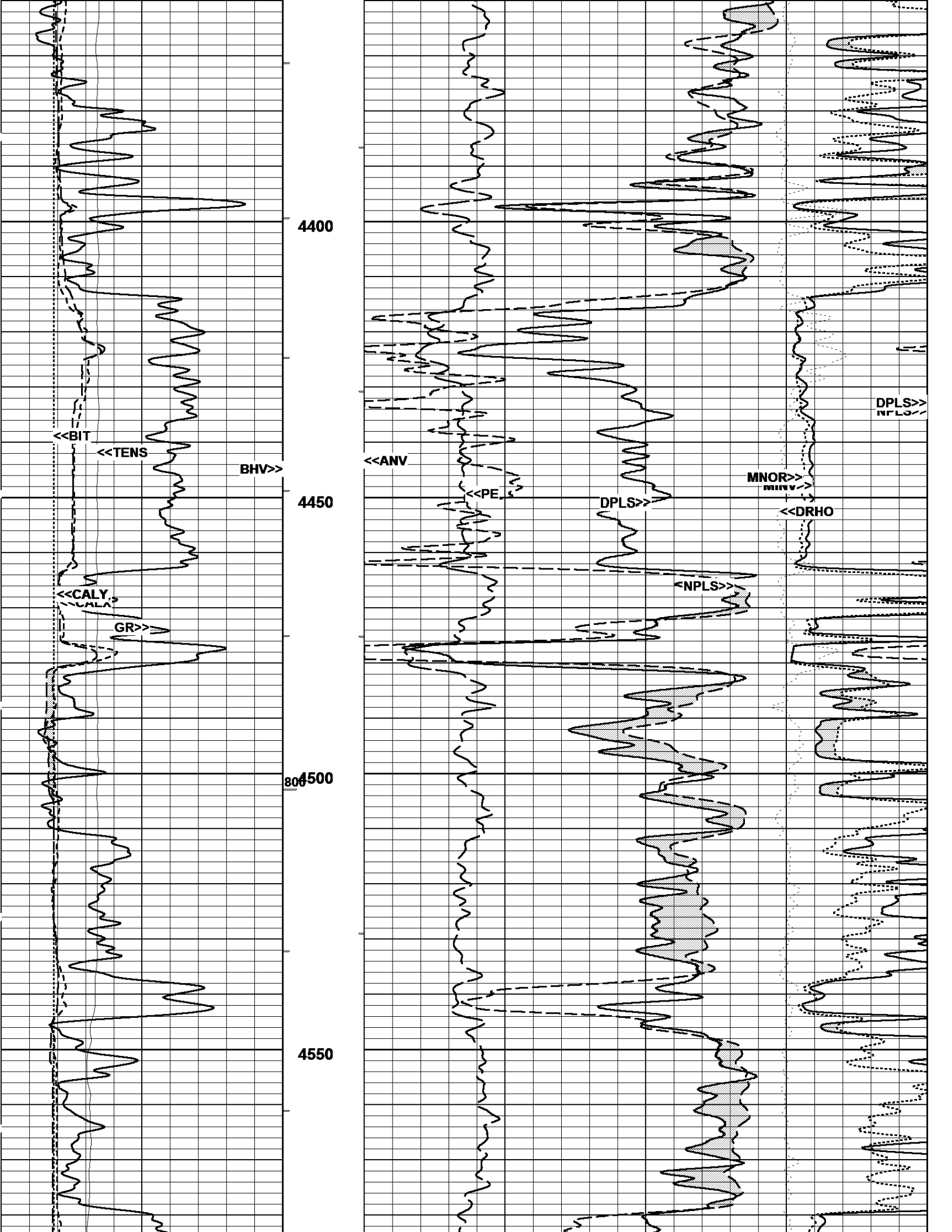
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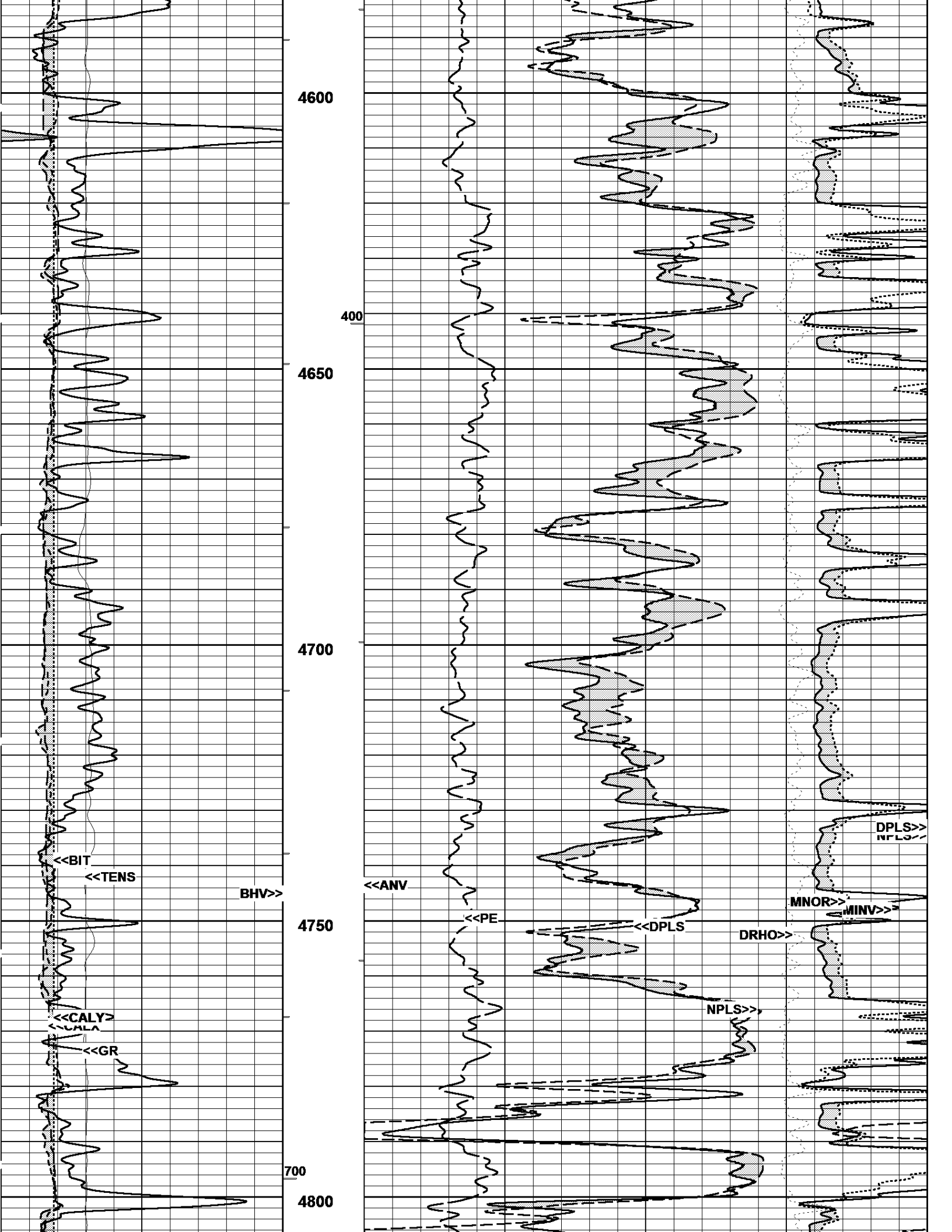
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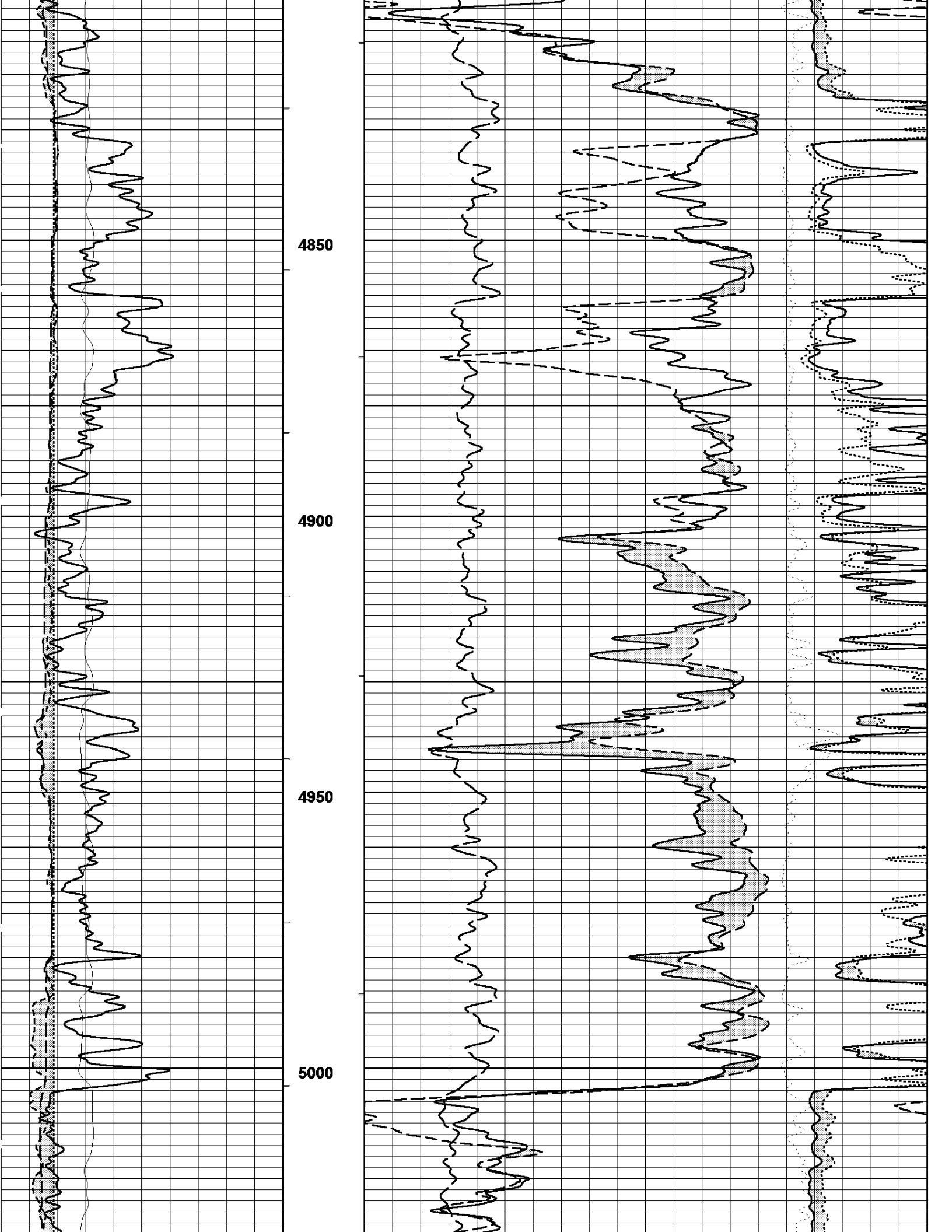
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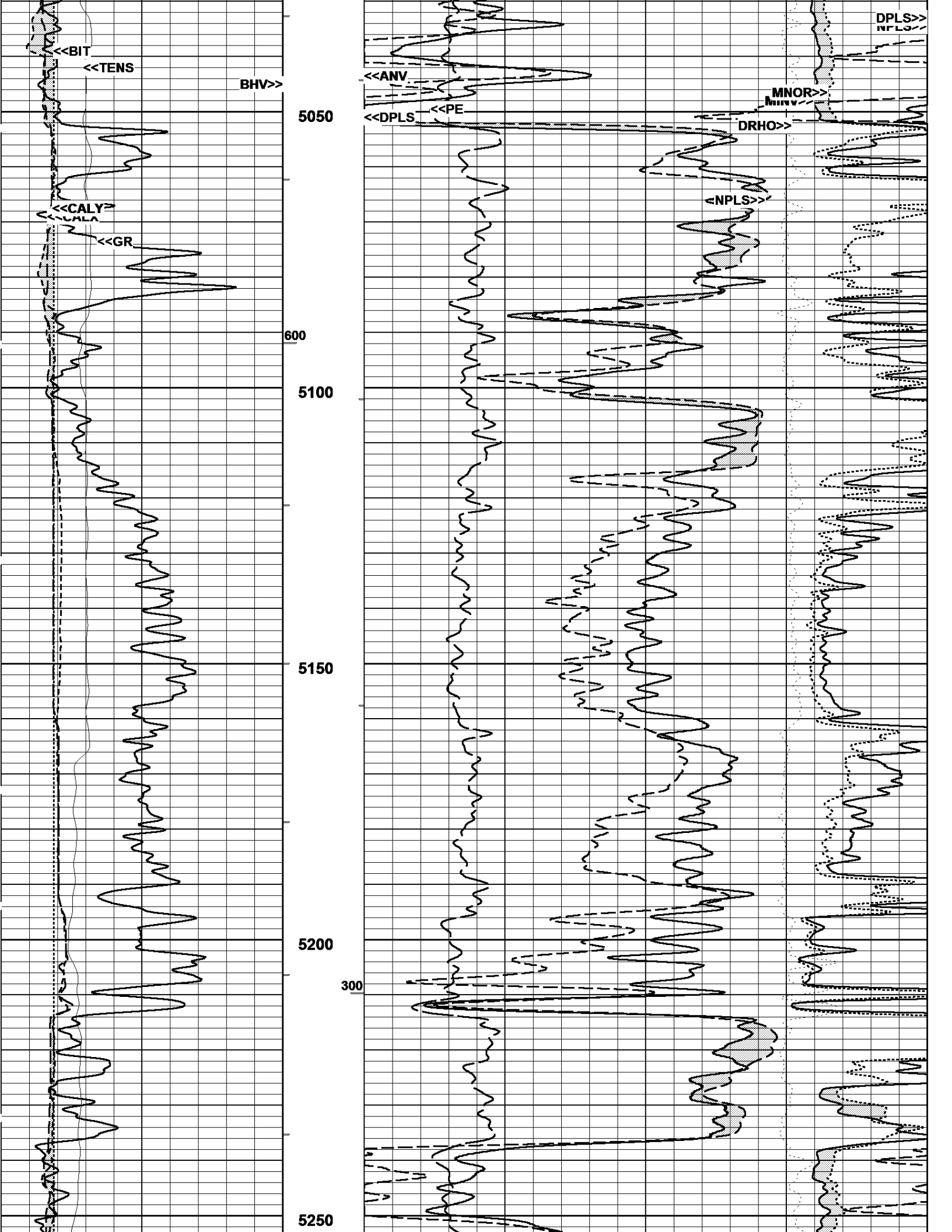
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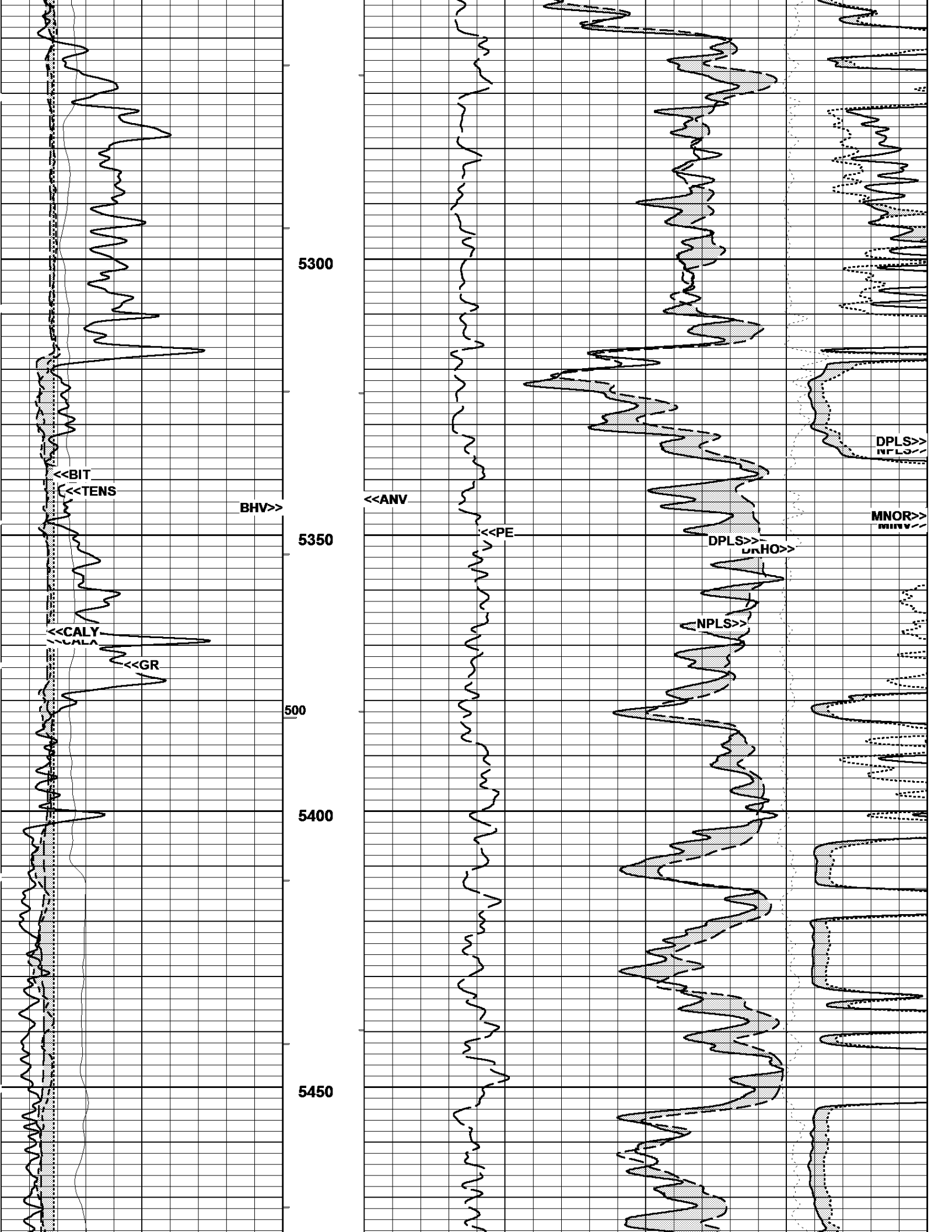
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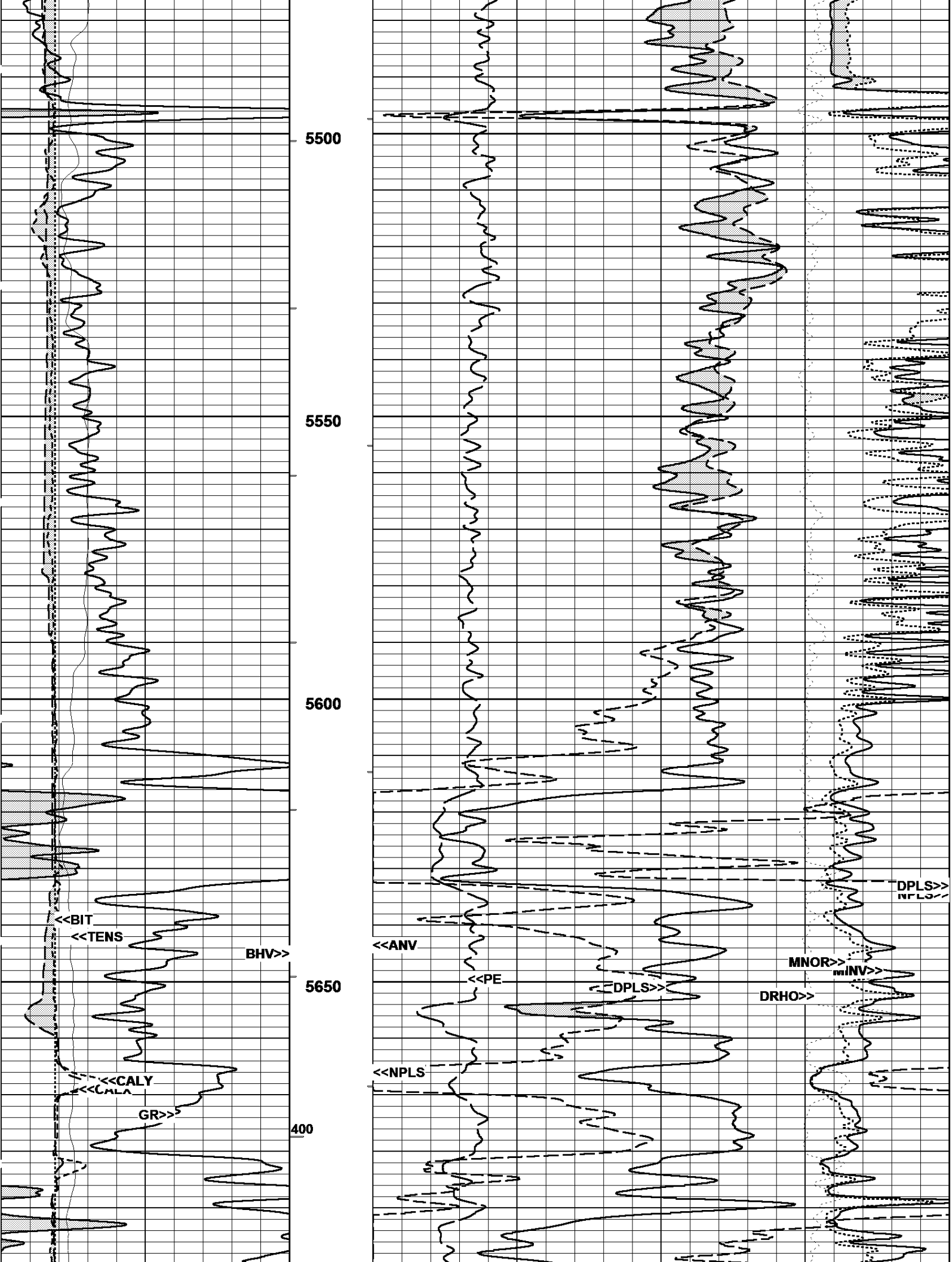
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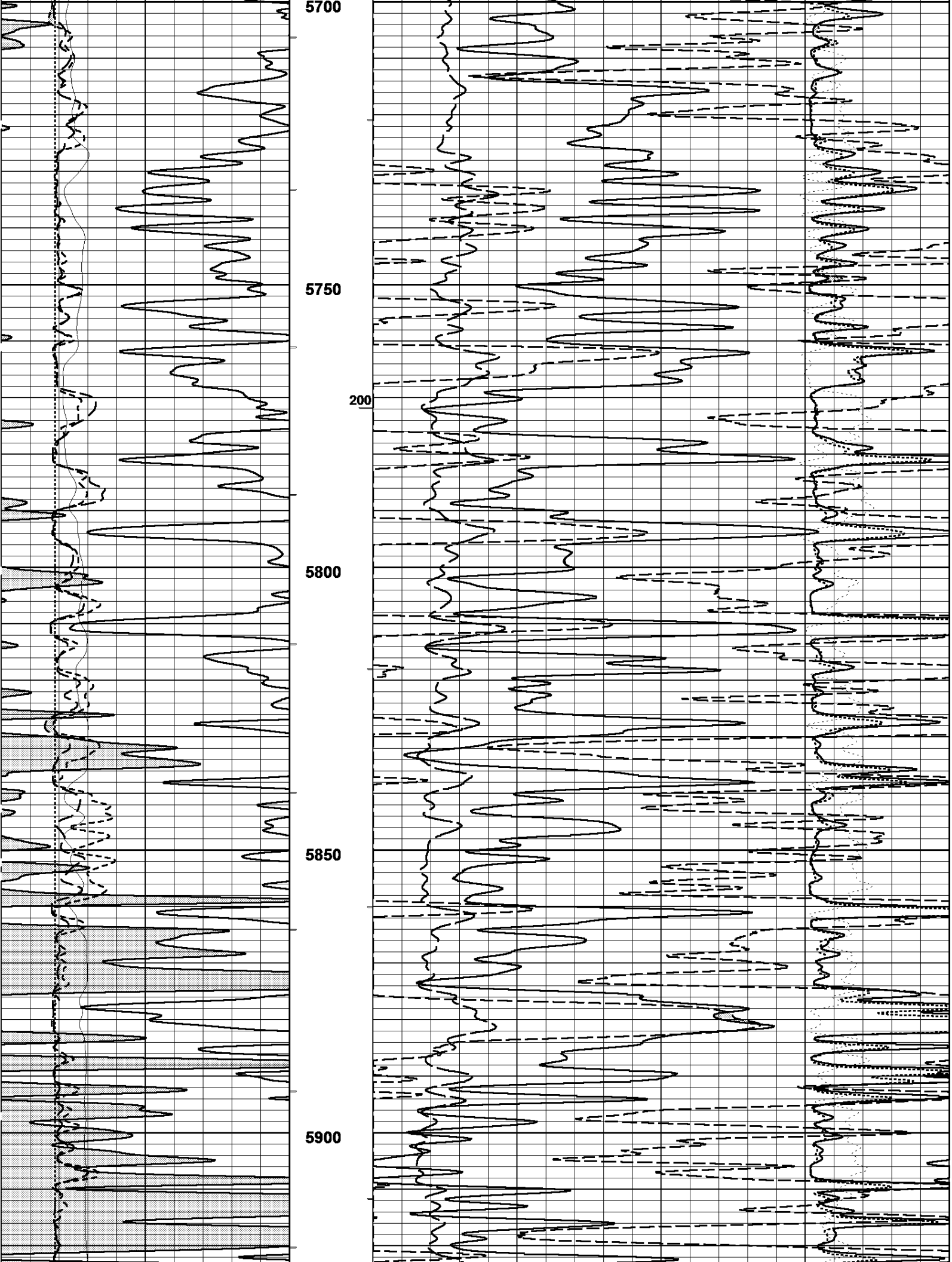
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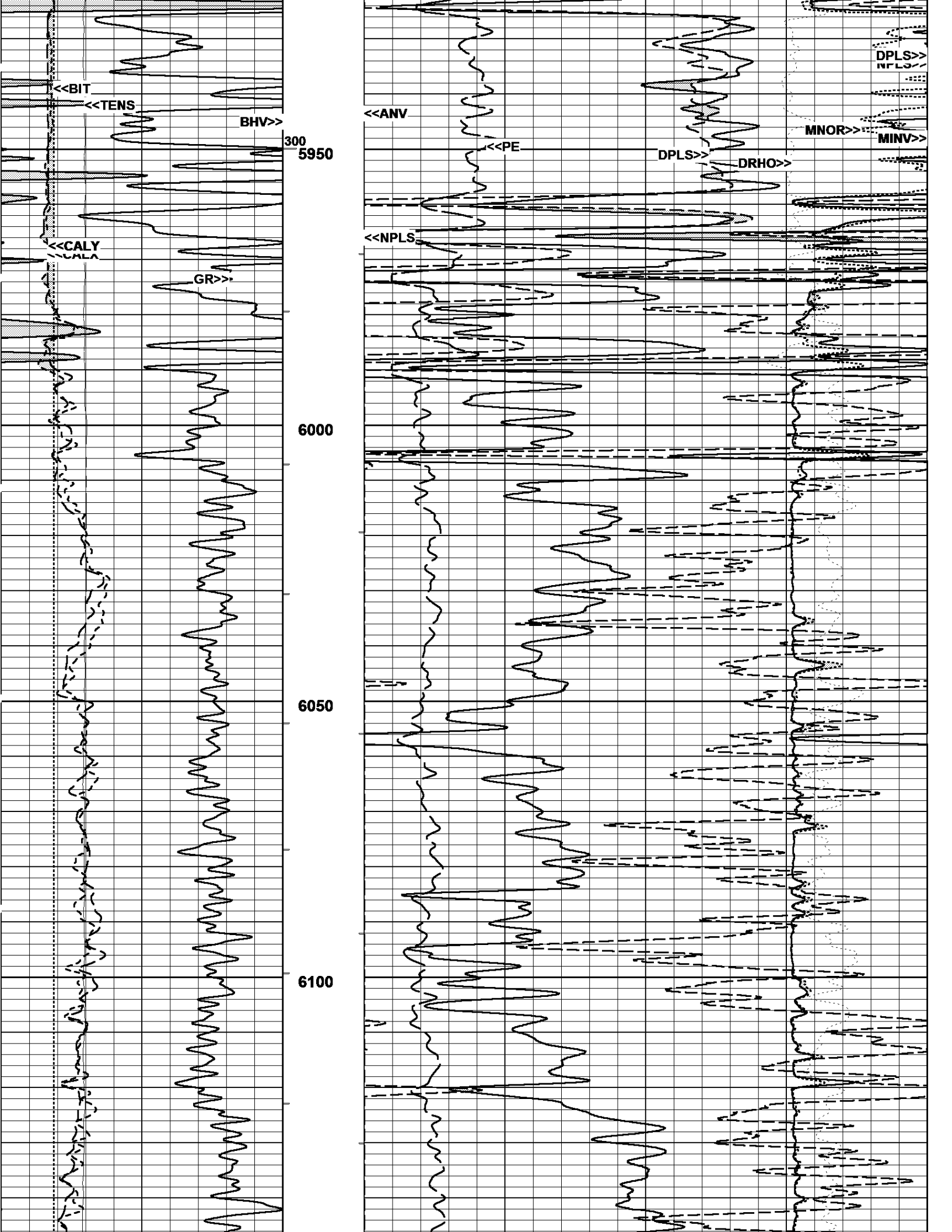
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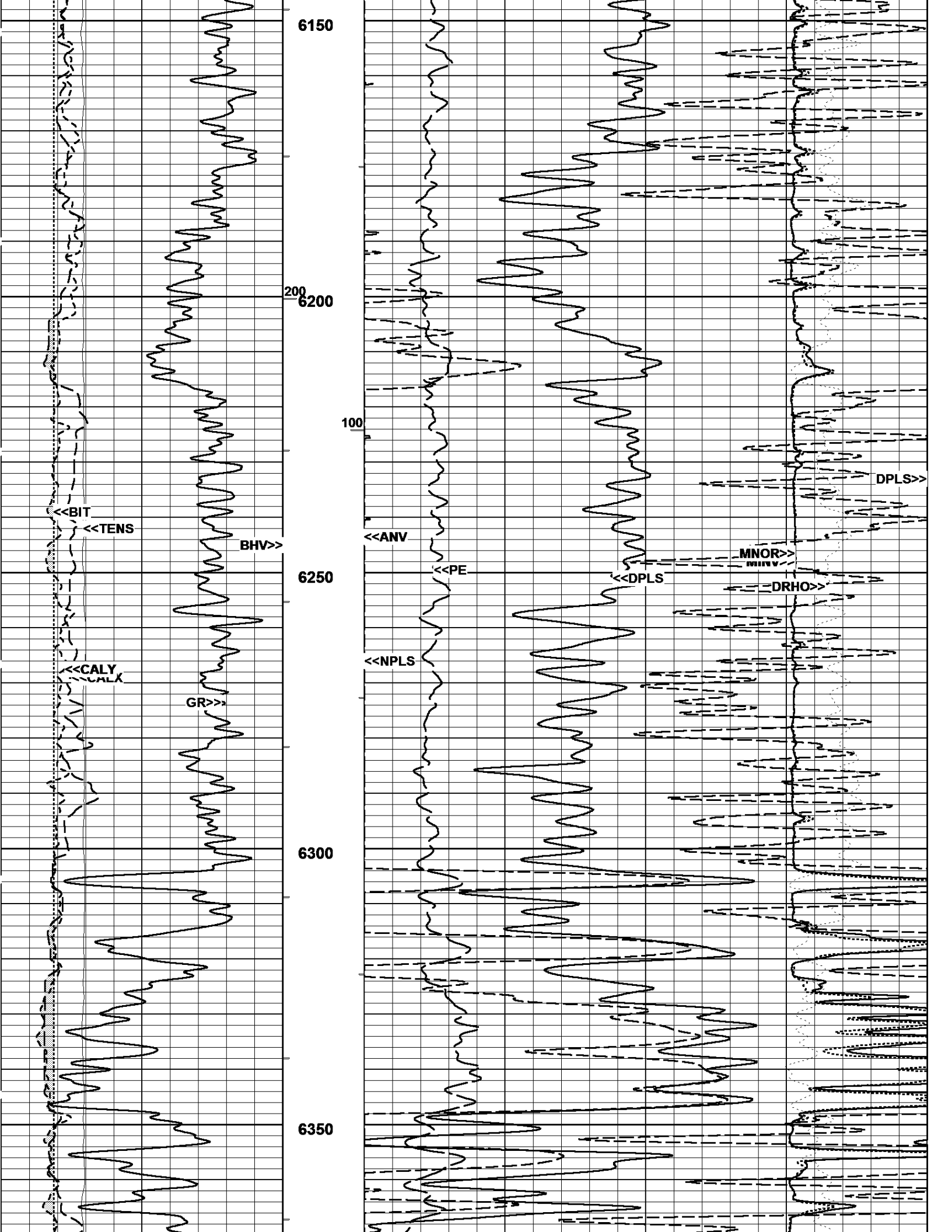
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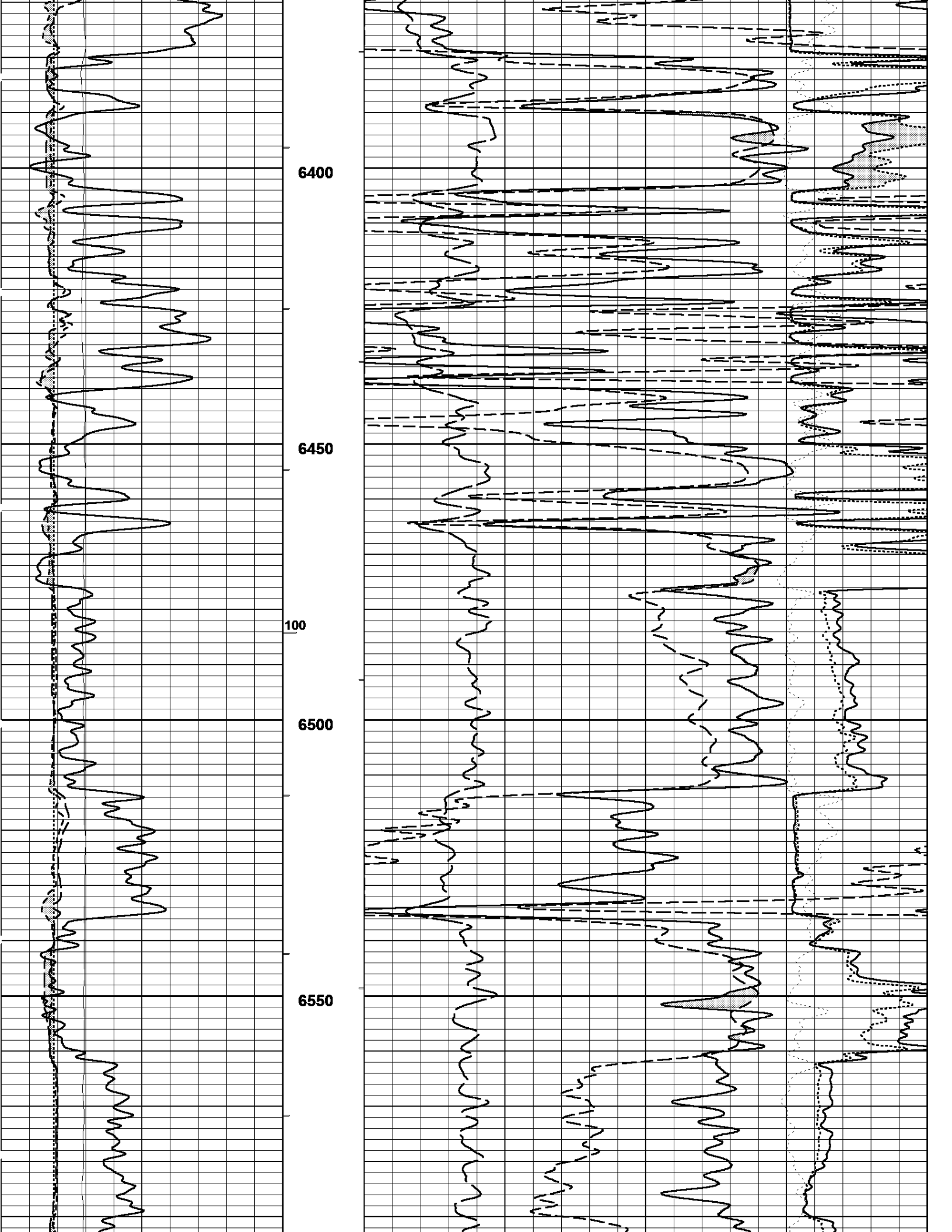
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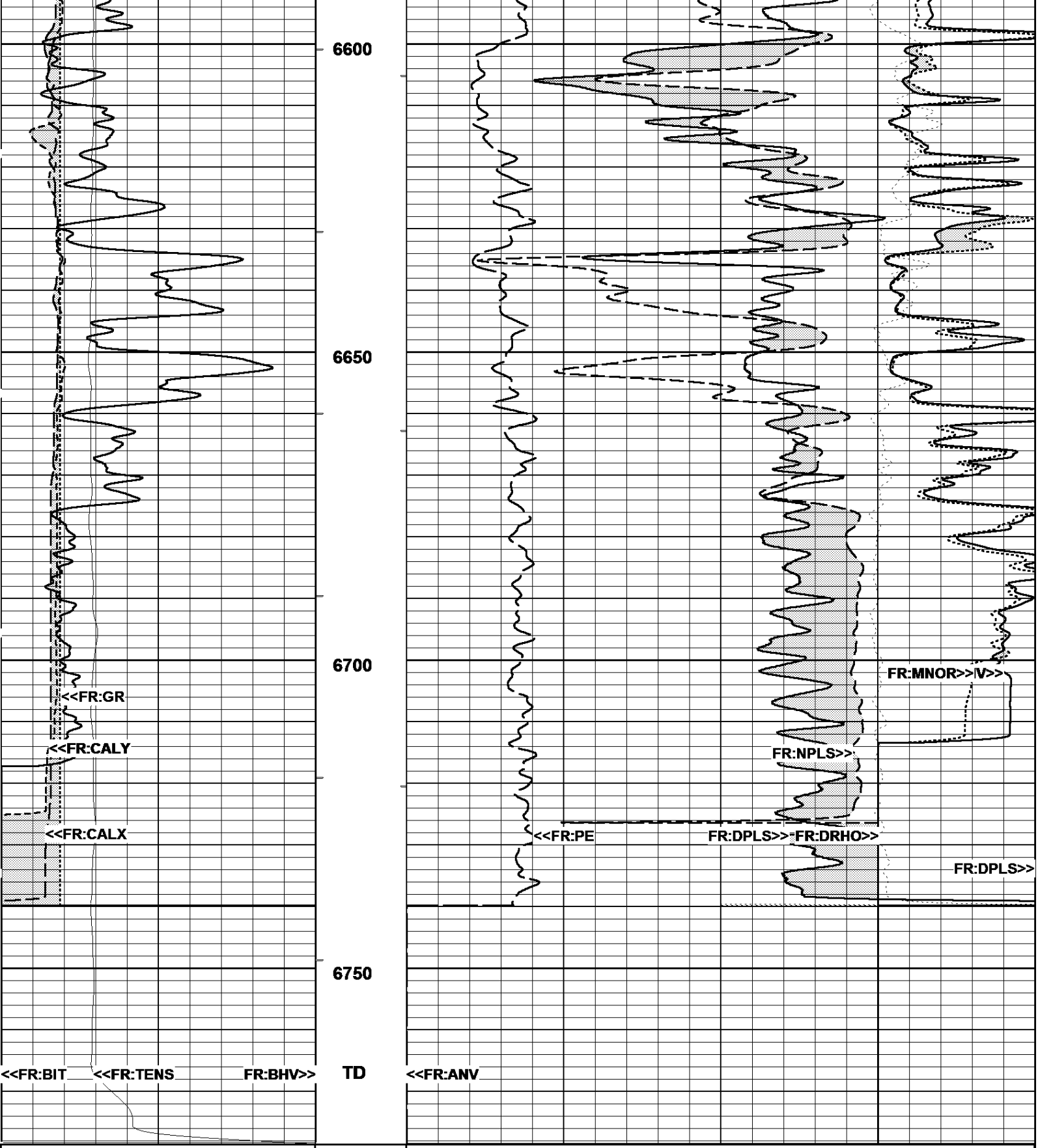


Gamma Ray (GR)	Neutron-Porosity (NPLS)	
0. API 150.	30. Limestone-Matrix (V/V) -10.	
X-Caliper (CALX)	Density-Porosity (DPLS)	
6. in 16.	30. Limestone-Matrix (V/V) -10.	
Y-Caliper (CALY)	Photo Electric (PE)	Delta RHO (DRHO)
6. in 16.	0. Barns/Elect 10.	-0.5 g/cc 0.5
Tension (TENS)		Micro-Inverse{1"} (MINV)
5000. Lbs 0.		-40. ohms 40.

Bit Size (BIT)
6. Ref in 16.

Micro-Normal{2"} (MNOR)
-40. ohms 40.

02/14/2014
11:18:00 => Start Time

MAIN PASS - LIMESTONE (5"/100Ft)

Log UP - (VER 11.17)
Start Depth=> 6778.40 Feet

02/14/2014
11:11:32 => End Time

REPEAT PASS - LIMESTONE (5"/100Ft)

Log UP - (VER 11.17)
End Depth=> 6179.60 Feet

Bit Size (BIT)
6. Ref in 16.

Micro-Normal{2"} (MNOR)
-40. ohms 40.

Tension (TENS)
5000. Lbs 0.

Micro-Inverse{1"} (MINV)
-40. ohms 40.

Y-Caliper (CALY)
6. in 16.

Photo Electric (PE)
0. Barns/Elect 10.

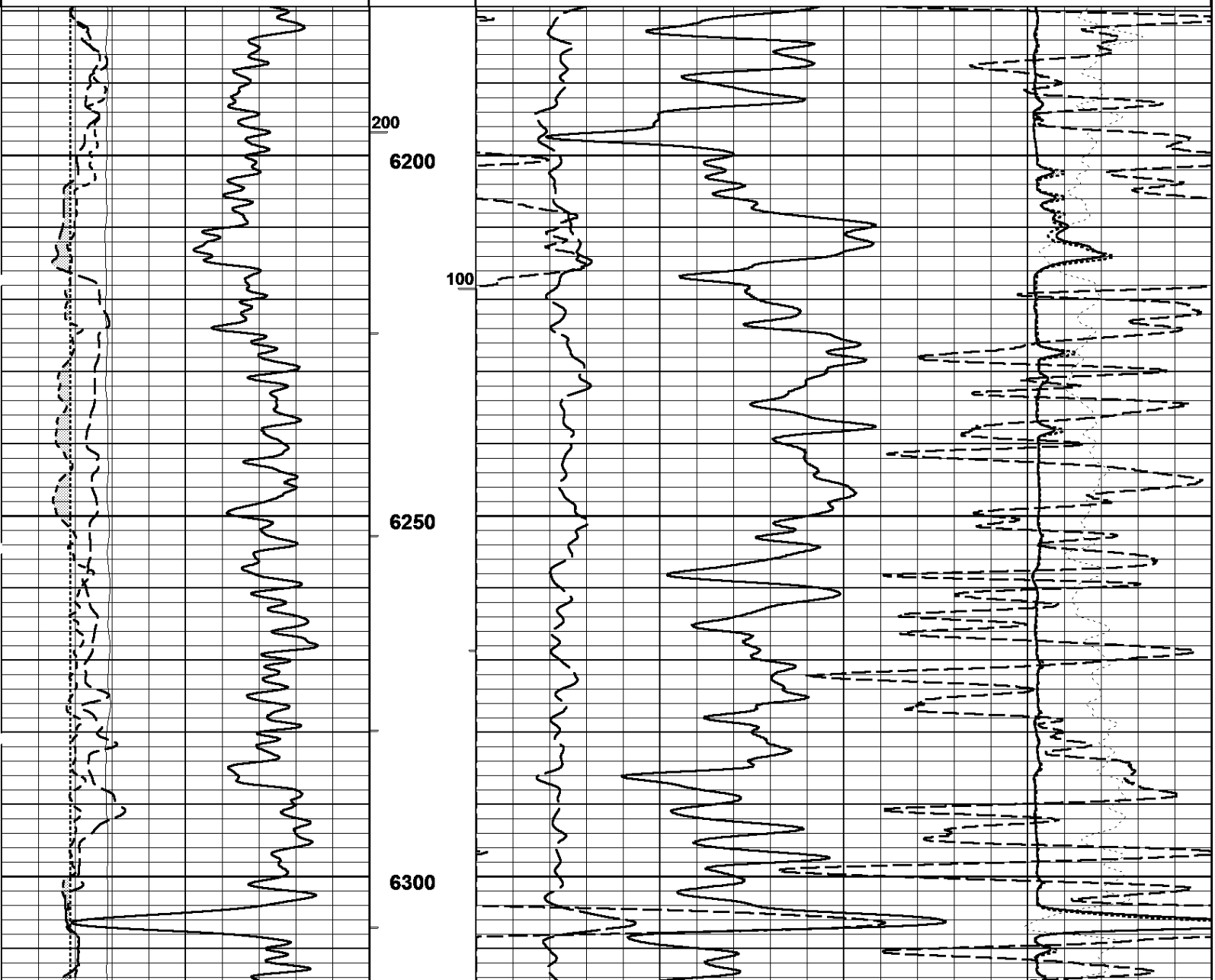
Delta RHO (DRHO)
-0.5 g/cc 0.5

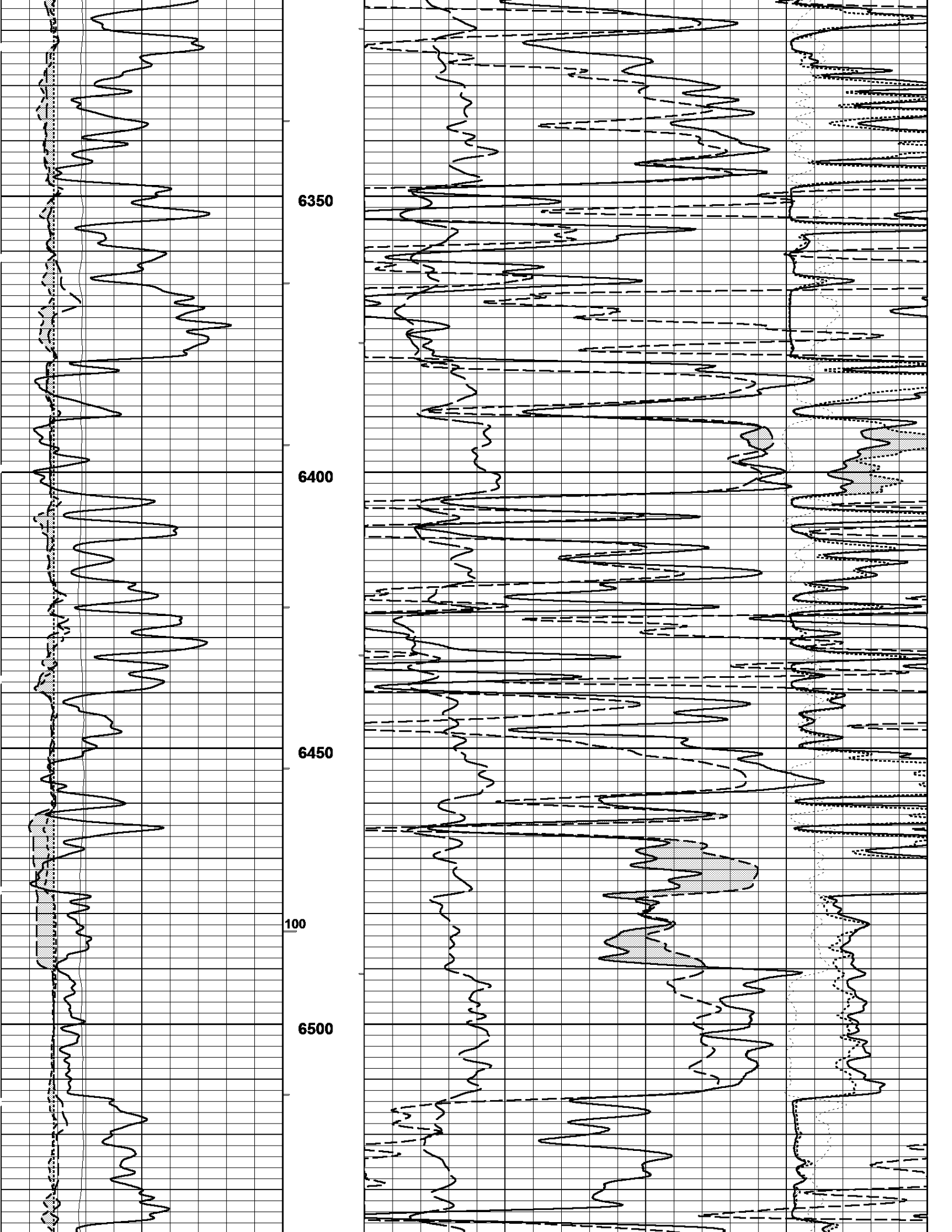
X-Caliper (CALX)
6. in 16.

Density-Porosity (DPLS)
30. Limestone-Matrix (V/V) -10.

Gamma Ray (GR)
0. API 150.

Neutron-Porosity (NPLS)
30. Limestone-Matrix (V/V) -10.

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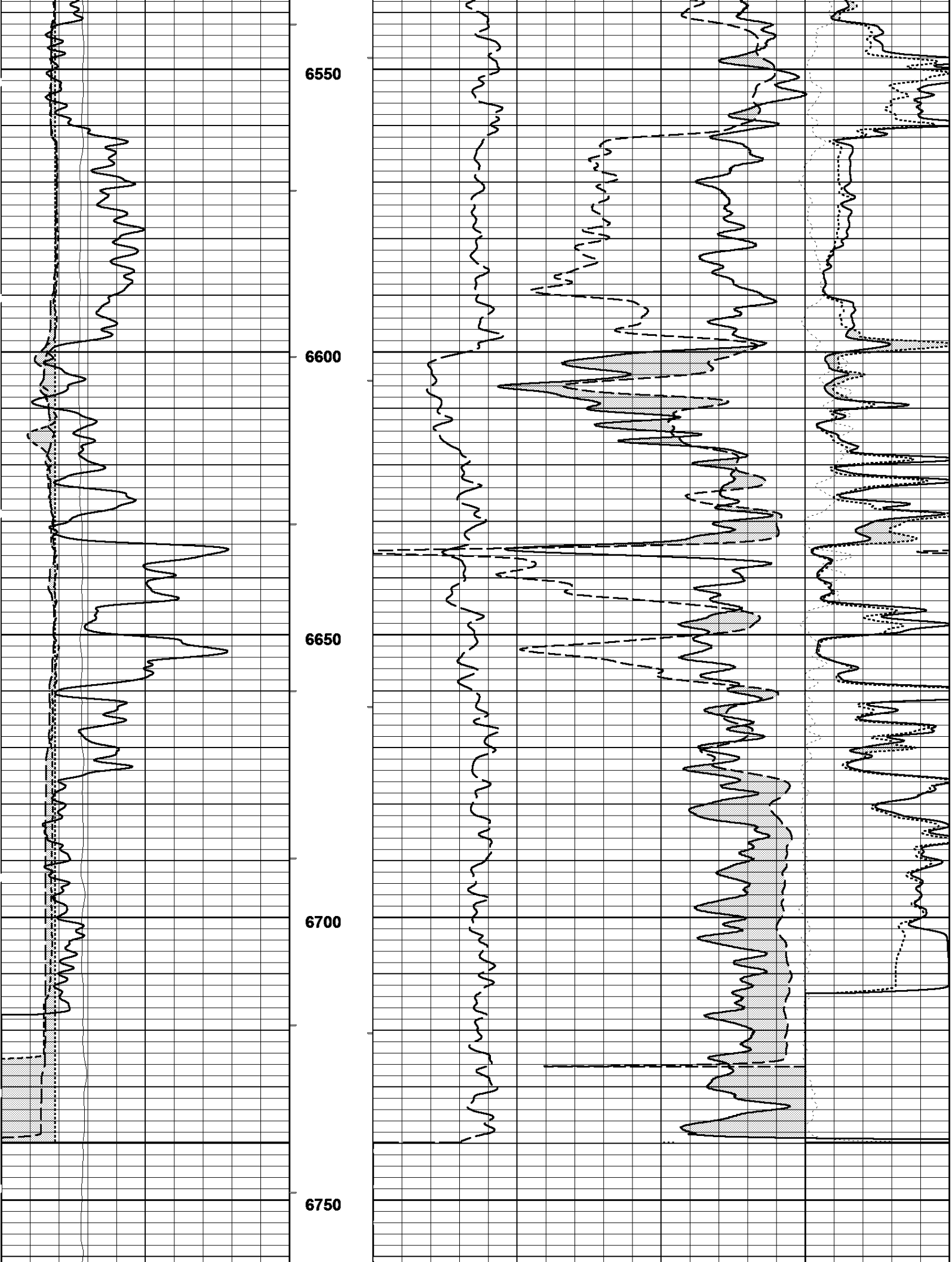
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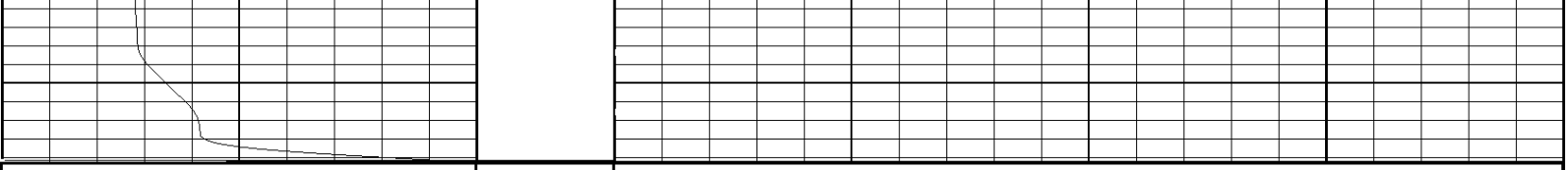
6700
6750



Gamma Ray (GR)		Neutron-Porosity (NPLS)
0. API 150.		30. Limestone-Matrix (V/V) -10.
X-Caliper (CALX)		Density-Porosity (DPLS)
6. in 16.		30. Limestone-Matrix (V/V) -10.
Y-Caliper (CALY)		Photo Electric (PE) / Delta RHO (DRHO)
6. in 16.		0. Barns/Elect 10. / -0.5 g/cc 0.5
Tension (TENS)		Micro-Inverse{1"} (MINV)
5000. Lbs 0.		-40. ohms 40.
Bit Size (BIT)		Micro-Normal{2"} (MNOR)
6. Ref in 16.		-40. ohms 40.

02/14/2014
10:55:49 => Start Time

REPEAT PASS - LIMESTONE (5"/100Ft)

Log UP - (VER 11.17)
Start Depth=> 6778.40 Feet

Litho-Density/PE Calibrations

TOOL TYPE	LFDC/Pe	SOURCE TYPE	CESIUM 137	SOURCE STRGTH	2 CURIE
SERIAL NUM	RL4102	SOURCE NUM			

MASTER BLOCK CALIBRATIONS

	W1(cps)	W2(cps)	W3(cps)	W4(cps)	SS	UNITS	CALIBRATION DATE	CALIBRATION TIME
ALUMINUM	5877.267	5008.867	2728.413	6.993	4407.0400	2.523(g/cc)	M/D/Y> 2/12/2014	H:M:S> 9:27:38
MAGNESIUM	14982.200	12339.467	5737.707	6.820	6383.3600	1.679(g/cc)		
BACKGROUND	2749.533	2429.080	1677.960	6.253	6.7733			
SAND	13268.547	11142.600	5326.413	6.980		1.739(PE)		
IRON	5393.960	4648.160	2602.320	6.507		4.529(PE)		
FIELD VERIFIER(cps)	1887.440	1658.720	1078.600	5.280	3.8400			
VER NUM LDP-4102								

WELL SITE CALIBRATIONS

VER NUM	LDP-4102	W1(cps)	W2(cps)	W3(cps)	W4(cps)	SS		CALIBRATION DATE	CALIBRATION TIME

Compensated Neutron Calibrations

TOOL TYPE	CNT-B	SOURCE TYPE	AM241BE	SOURCE STRGTH	20 CURIE
SERIAL NUM	RN2002	SOURCE NUM			

MASTER TANK CALIBRATIONS

		NEAR(cps)	FAR(cps)	RATIO	K VALUE	CALIBRATION DATE	CALIBRATION TIME
LOW PHI	3.150			0.5943	0.9045	M/D/Y> 2/12/2014	H:M:S> 15:50:52

MED PHI	19.130			1.0181	0.9045		
HIGH PHI	31.300			1.2205	0.9046		
FIELD VERIFIER(cps)		294.161	282.345	1.0418			
VER NUM	7430						

WELL SITE CALIBRATIONS

VER NUM	7430	NEAR(cps)	FAR(cps)	RATIO	CALIBRATION DATE	CALIBRATION TIME

GAMMA RAY CALIBBRATIONS

SERIAL NUM	RG3007
BLANKET NUM	1A

MASTER CALIBRATIONS

	BackGrnd	CalVal: 135.000 API	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	33.583 - raw	217.987 - raw	0.732 - gain 0.000 - off	M/D/Y> 2/12/2014	H:M:S> 16:16:1

WELL SITE CALIBRATIONS

	BackGrnd	CalVal: 100.000 Mknuts	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
PRE CAL	-0.059 - raw	26.967 - raw	3.700 - gain	M/D/Y> 11/12/2004	H:M:S> 12:40:27

X CALIPER

SERIAL NUM	RL4102

MASTER CALIBRATIONS

	ZeroVal: 6.000 in	CalVal: 10.000 in	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	2670.674 - raw	4680.506 - raw	0.002 - gain 0.685 - off	M/D/Y> 2/12/2014	H:M:S> 9:44:45

Y CALIPER CALIBRATIONS

SERIAL NUM	RN2002

MASTER CALIBRATIONS

	ZeroVal: 6.000 mm	CalVal: 10.000 mm	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	1237.107 - raw	1865.787 - raw	0.006 - gain -1.871 - off	M/D/Y> 2/12/2014	H:M:S> 16:4:47

Company	MIDWESTERN EXPLORATION COMPANY
Well	GARMAN #2-18
Field	GOOCH
County	STEVENS
State	KANSAS

COMPENSATED NEUTRON

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LITHOLOGY DENSITY
GAMMA RAY X-Y CALIPER
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