Company	CMX, INC.
Well	BARTENDER #4
Field	SRANATHAN
County	BARBER
State	KANSAS

RECON

COMPENSATED NEUTRON
LITHOLOGY DENSITY
GAMMA RAY XY-CALIPER
MICROLOG

	SEC	TWP	RGE	
	18	35S	11W	

OTHER SERVICES:
DIL

Location. 430' FSL & 450' FWL — SW SW SW
SURF. SAME — APH#. 15-007-24271-00-00

Permanent Datum . Ground Level — Elev 1362
Log Measured From . Kelly Bushing
Drilling Measured From Kelly Bushing

ELEVATIONS K.B. 1375
G.L. 1362
D.F. 1374

Date		13-MAR-2015					
Run No.		ONE					
TD Driller		5115	ft.			ft.	
TD RECON		5115	ft.			ft.	
Bot Logged Interval		5114	ft.			ft.	
Top Logged Interval		3700	ft.			ft.	
Casing Depth Driller		8 5/8	in.	@ 1025		in.	@
Casing Depth RECON		8 5/8	in.	@ 1026		in.	@
Bit Size		7 7/8	in.			in.	
Drilling Fluid Type		CARBONOX					
Density	Viscosity	9.05 ppg		110 sec/qt			
Fluid Loss	PH	5.0 ml/30min		9.6 strip			
Source Of Sample		Flowline					
RM @ Measured Temp		2.273	Ohmm	@ 75		Ohmm	@
RMF @ Measured Temp		1.705	Ohmm	@ 75		Ohmm	@
RMC @ Measured Temp		2.841	Ohmm	@ 75		Ohmm	@
RM @ MRT		1.539	Ohmm	@ 114		Ohmm	@
Max Recorded Temp		114	DegF			DegF	
Time Drilling Stopped		12-MAR-2015		11:15			
Time Circulation Stopped		13-MAR-2015		00:45			
Time Logger On Bottom		13-MAR-2015		04:27			
Unit Num	Location	S408		OKLAHOMA CITY, OK			
Recorded By		H. GARCIA					
Witnessed By		MRS. L. KASTEN					

All interpretations are based on inferences from electrical or other readings, and therefore, RECON cannot and will not guarantee the accuracy of any interpretations of log data. RECON shall not be liable for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from interpretations made by any of our officers, agents or employees, except in the case of provable Gross Neglegence or willfull damage. Interpretations are also subject to the terms and conditions of our Price Schedule and General Service Agreement.

RIG INFORMATION

Drill Contr/Rig# DUKE DRLG. #7

GENERAL REMARKS SECTION

FIRST RUN IN THE HOLE
CNL AND LDT LOGGED IN A LIMESTONE MATRIX
TOP MARK - 1066.5, BOTTOM MARK - 5071.3
CNL/LDT LOGGED MATRIX: 2.71 g/cc.

CHLORIDES: 3000 mg/l
LCM: 16 lbm/bbl

AHV CALCULATED ON 5.5" PROD. CASING

THANK YOU FOR USING RECON PETROTECHNOLOGIES LTD.

CREW: M. CALLENTINE, B. THOMAS

CEMENT VOLUME CALCULATIONS SUMMARY

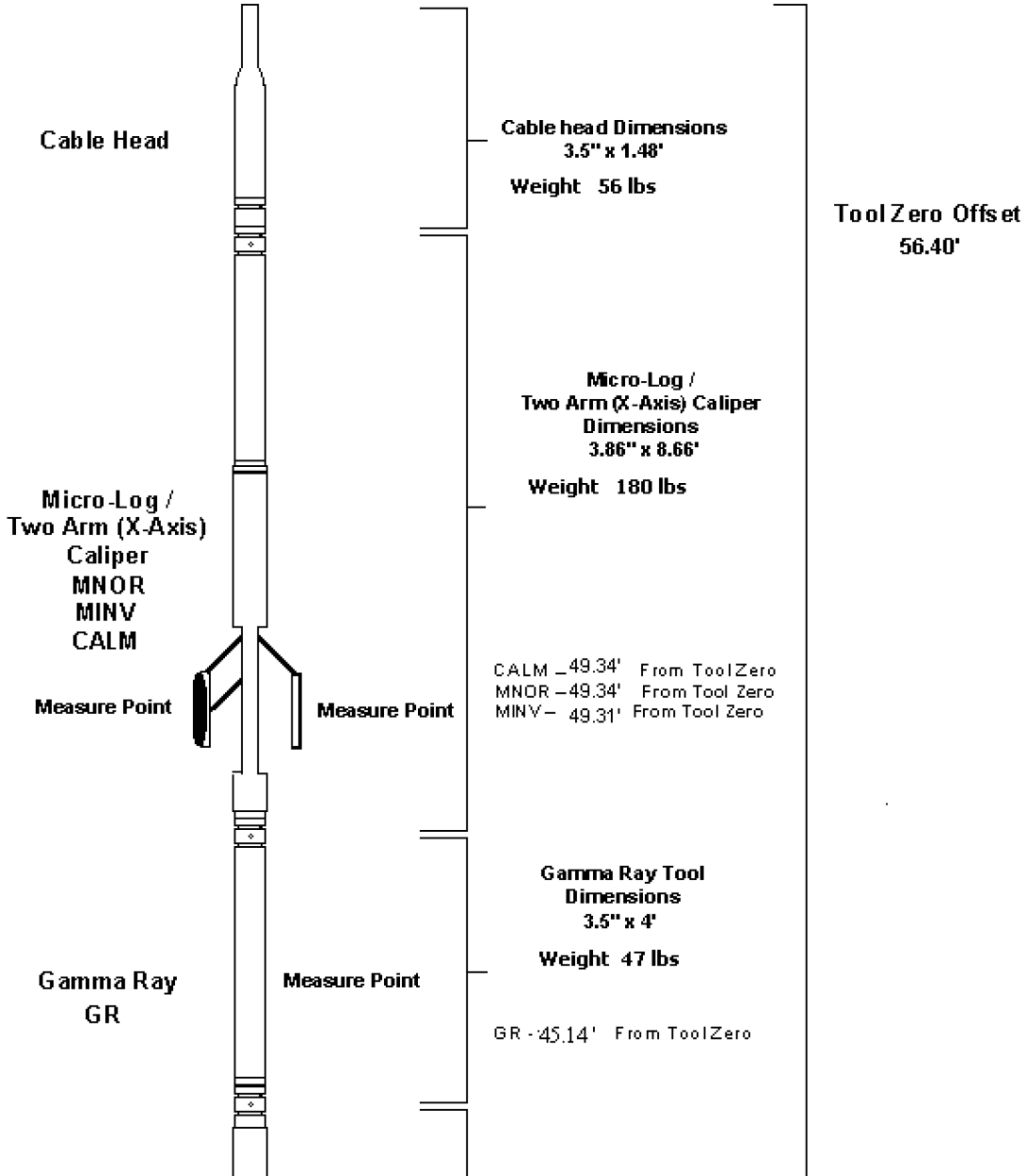
Tool Type	LDT-CNT	Caliper Type	X-Y CALIPERS
Tool Serial #	RN2004 / RL4108		

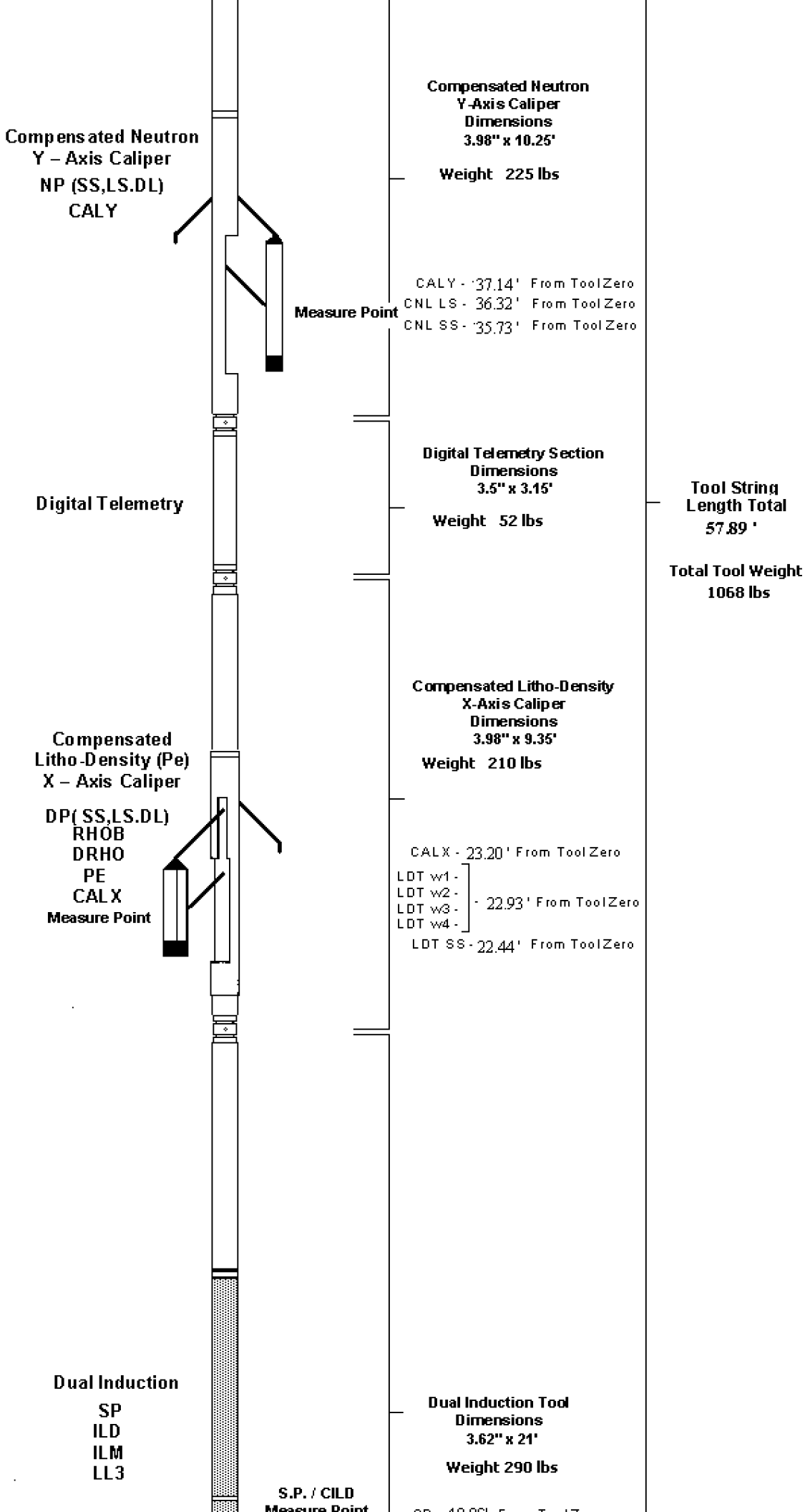
	Borehole Total	Annular Volume with Casing	From Depth (MKb)	To Depth (MKb)
VOLUMES	1897.237 Cubic Feet	1219.086 Cubic Feet	SCG 1026	TD 5115

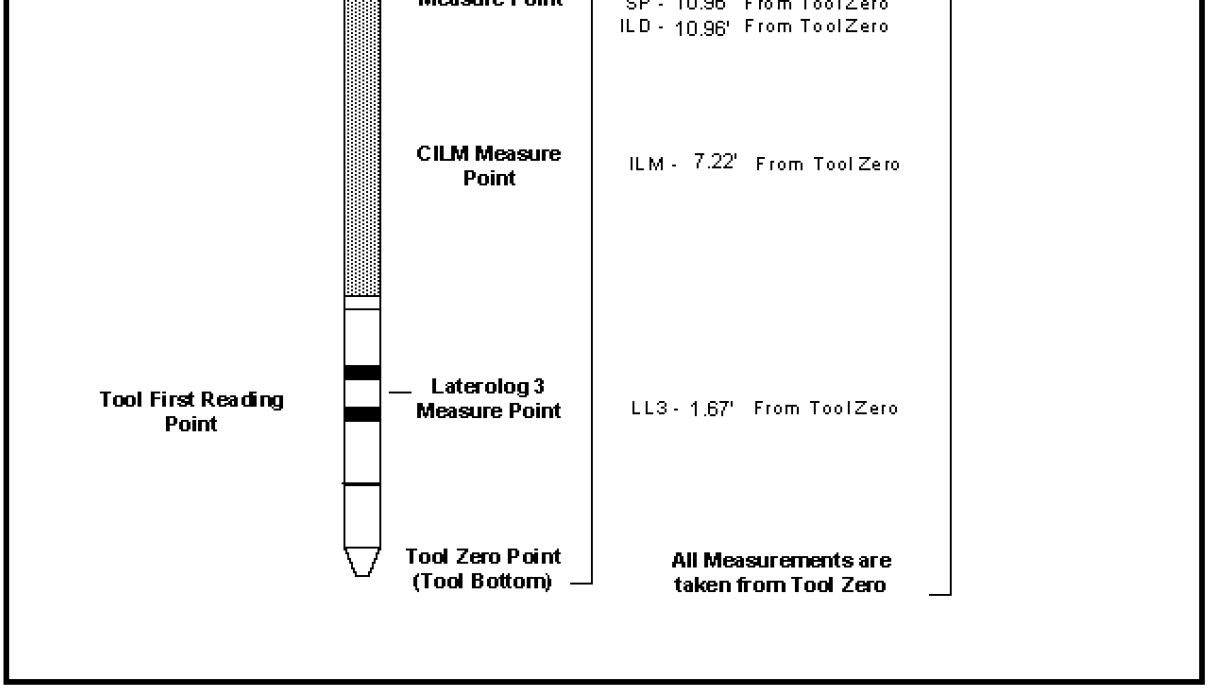
CASING INFORMATION

	SIZE (in)	GRADE	WEIGHT (lbs/ft)	ID (in)	TOP DEPTH	BOT DEPTH
SURFACE CASING	8 5/8	J-55	24	8.097	Surface	1026
INTERMEDIATE CASING	N/A	N/A	N/A	N/A	N/A	N/A
PRODUCTION CASING	5 1/2	J-55	15.5	4.950	Surface	TD

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



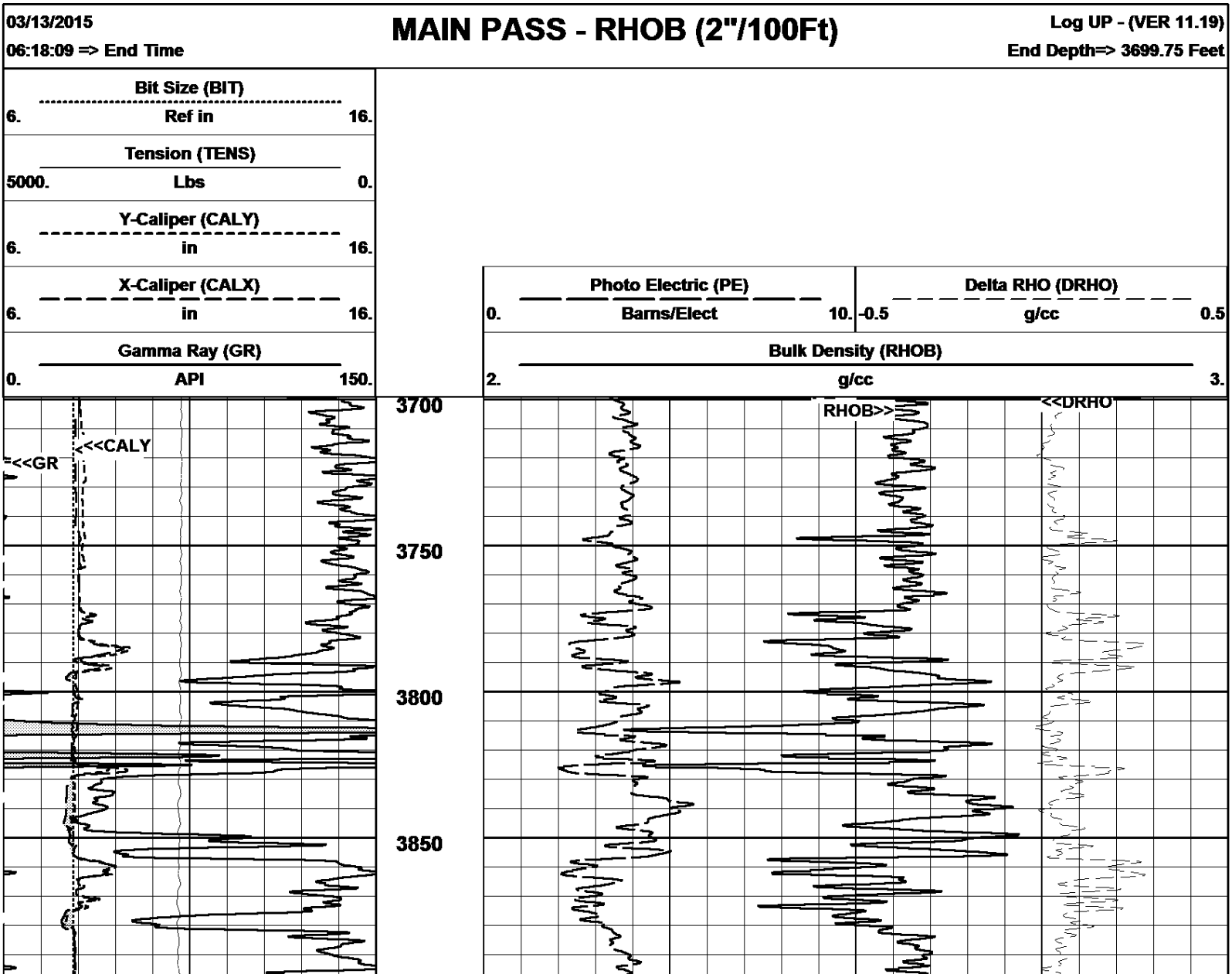

Compensated Neutron
Y – Axis Caliper
NP (SS,LS.DL)
CALY
Measure Point
Compensated Neutron
Y-Axis Caliper
Dimensions
3.98" x 10.25'
Weight 225 lbs
CALY - 37.14' From Tool Zero
CNL LS - 36.32' From Tool Zero
CNL SS - 35.73' From Tool Zero
Digital Telemetry
Digital Telemetry Section
Dimensions
3.5" x 3.15'
Weight 52 lbs
Tool String
Length Total
57.89 '
Total Tool Weight
1068 lbs
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'
Weight 210 lbs
CALX - 23.20' From Tool Zero
LDT w1 -
LDT w2 -
LDT w3 -
LDT w4 -
- 22.93' From Tool Zero
LDT SS - 22.44' From Tool Zero
Dual Induction
SP
ILD
ILM
LL3
S.P. / CILD
Measure Point
Dual Induction Tool
Dimensions
3.62" x 21'
Weight 290 lbs

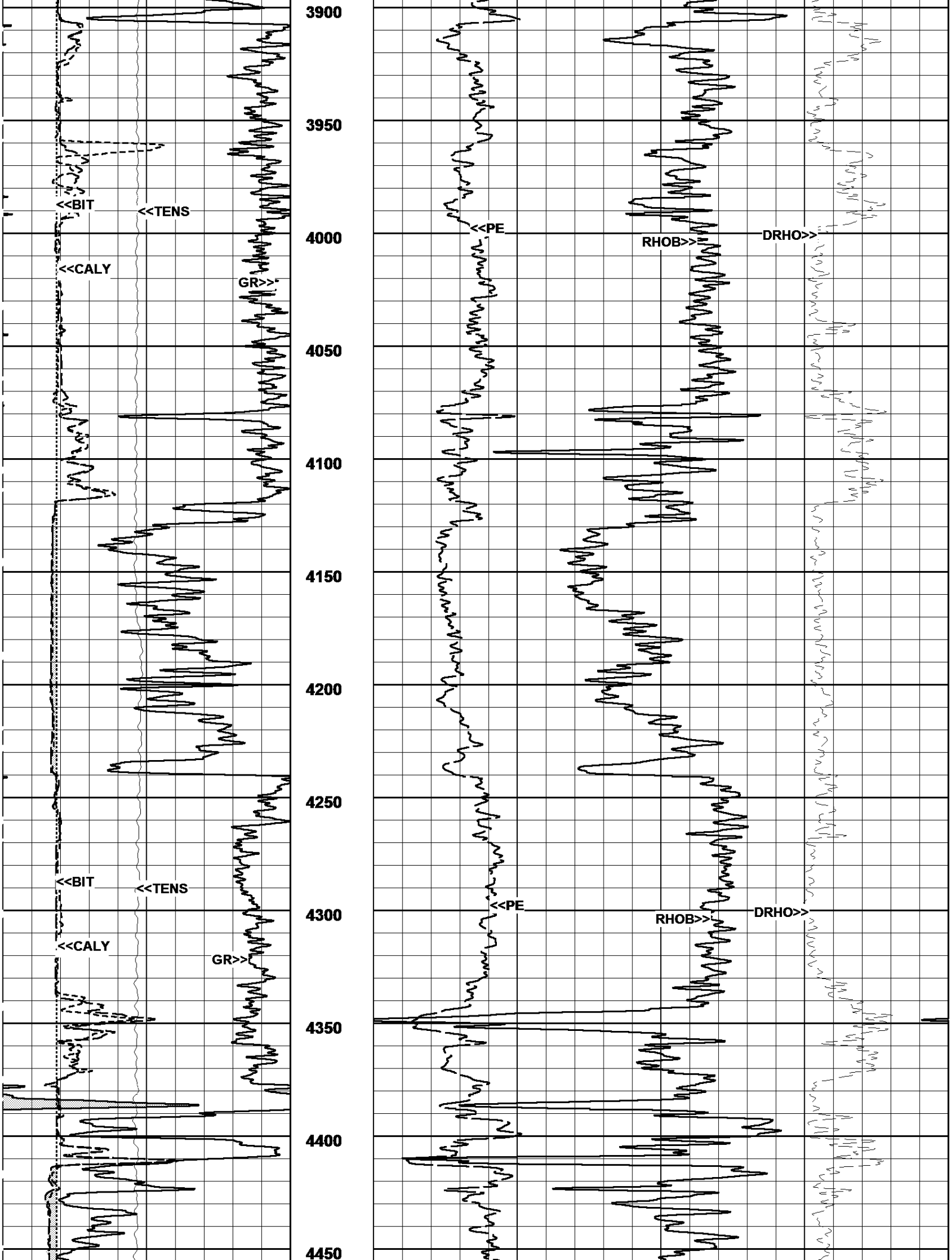


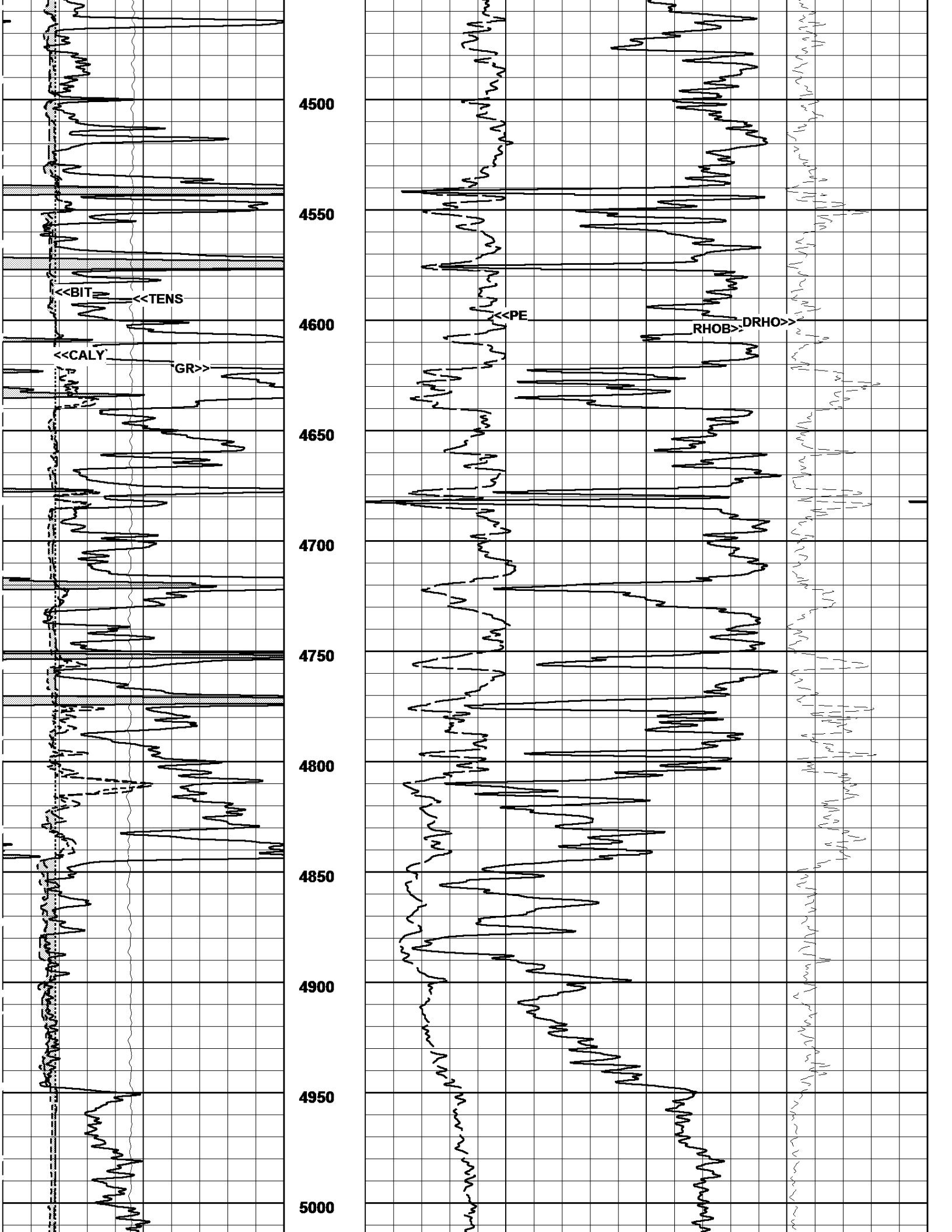
03/13/2015
06:18:09 => End Time

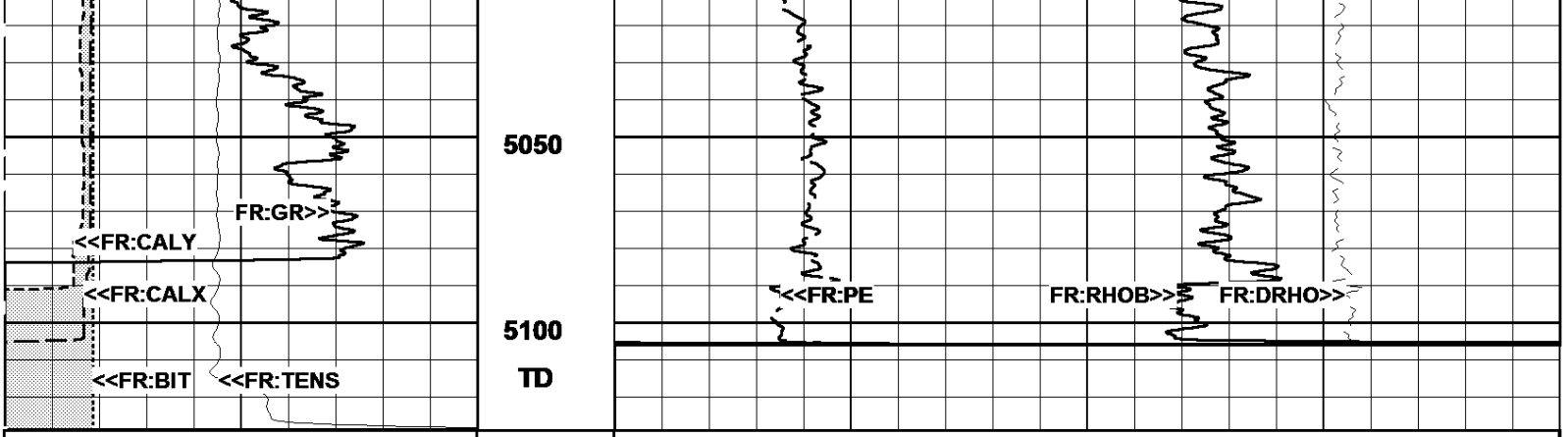
MAIN PASS - RHOB (2"/100Ft)

Log UP - (VER 11.19)
End Depth=> 3699.75 Feet




3900
3950
4000
4050
4100
4150
4200
4250
4300
4350
4400
4450
<<BIT
<<TENS
<<CALY
GR>>
<<PE
RHOB>>
DRHO>>
<<BIT
<<TENS
<<CALY
GR>>
<<PE
RHOB>>
DRHO>>


<<BIT
<<TENS
<<CALY
GR>>
<<PE
RHOB>>
DRHO>>
4500
4550
4600
4650
4700
4750
4800
4850
4900
4950
5000



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)	0. Barns/Elect 10.	
Delta RHO (DRHO)	-0.5 g/cc 0.5	

03/13/2015
04:50:14 => Start Time

MAIN PASS - RHOB (2"/100Ft)

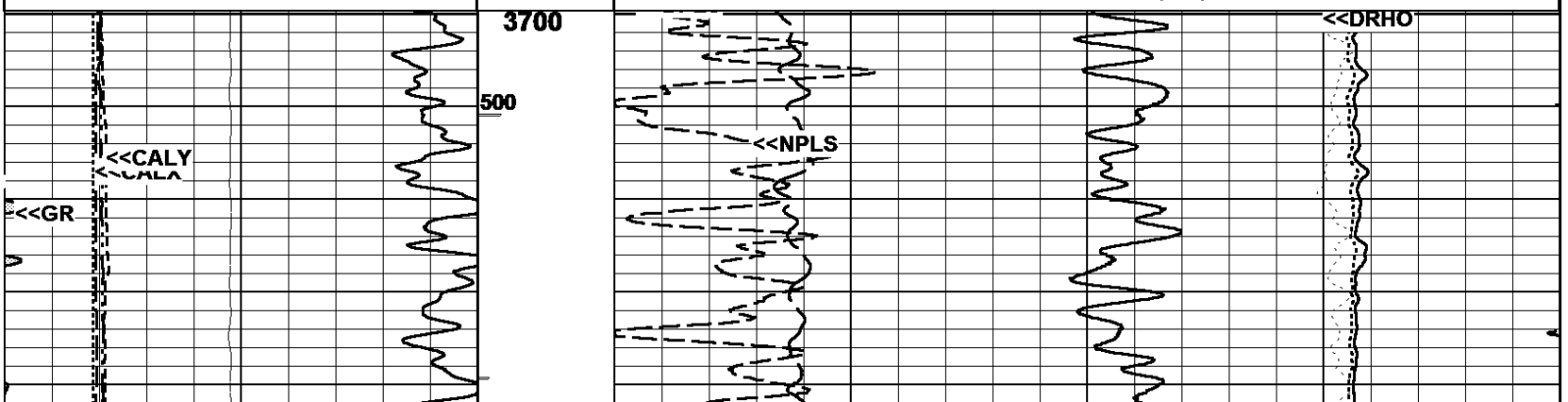
Log UP - (VER 11.19)
Start Depth=> 5128.50 Feet

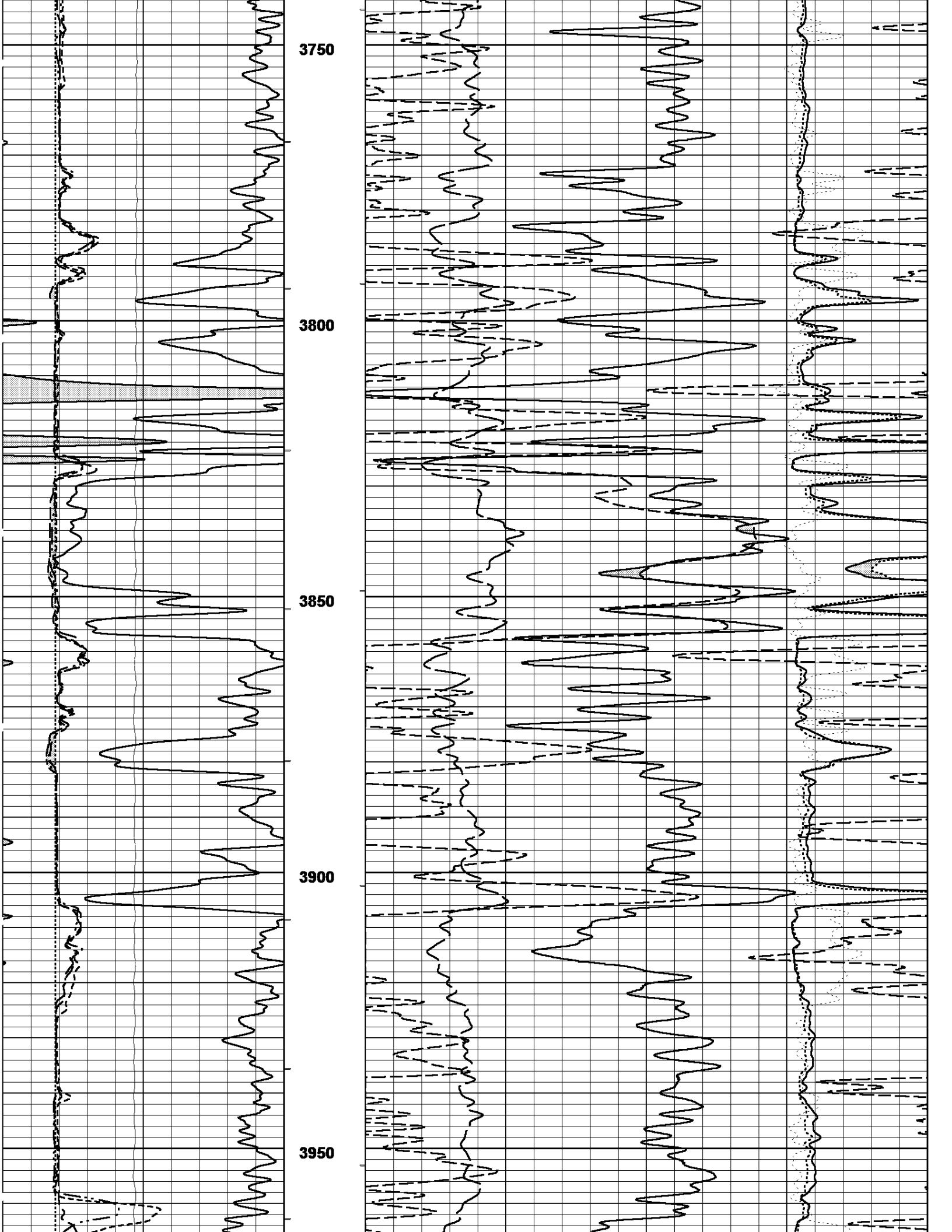
03/13/2015
06:18:09 => End Time

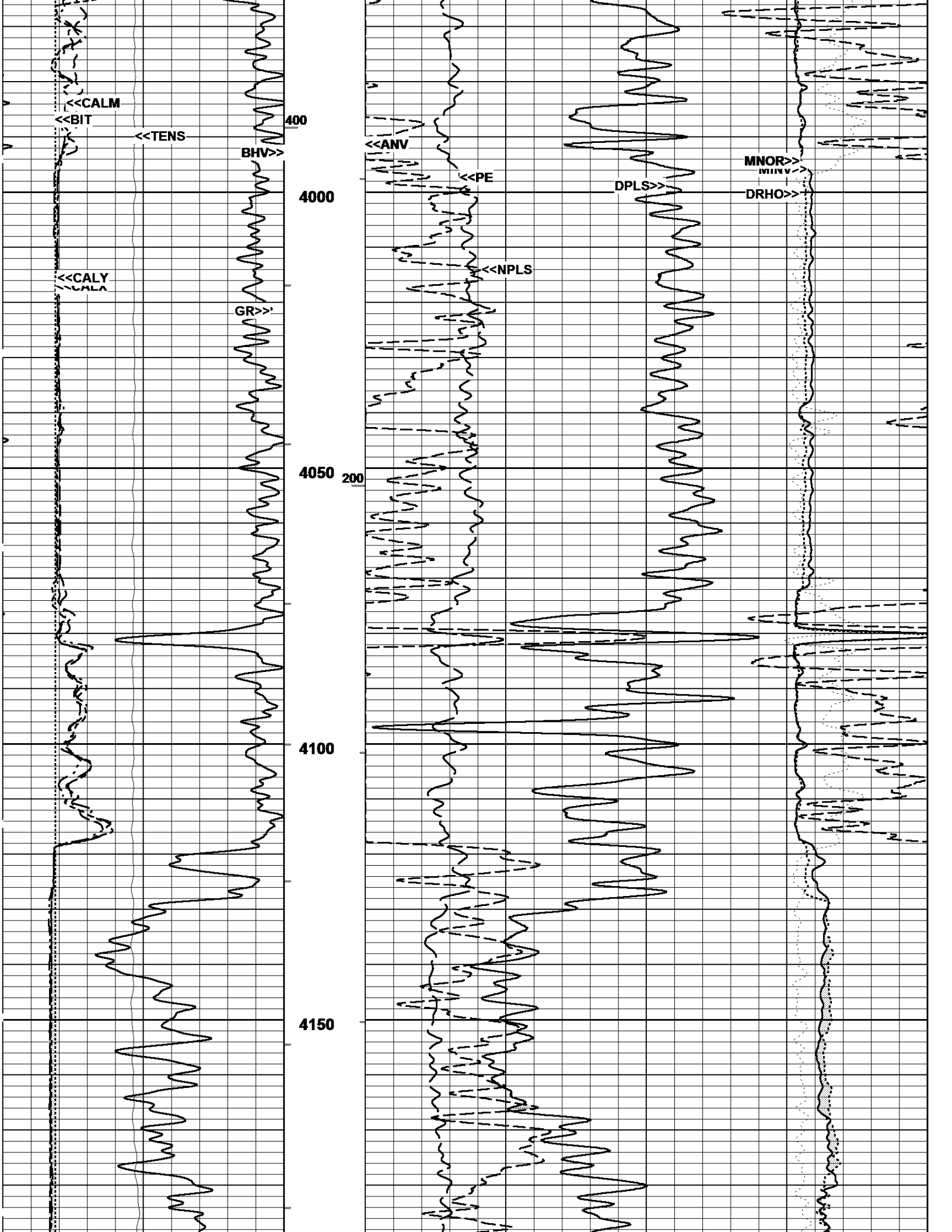
MAIN PASS - LIMESTONE (5"/100Ft)

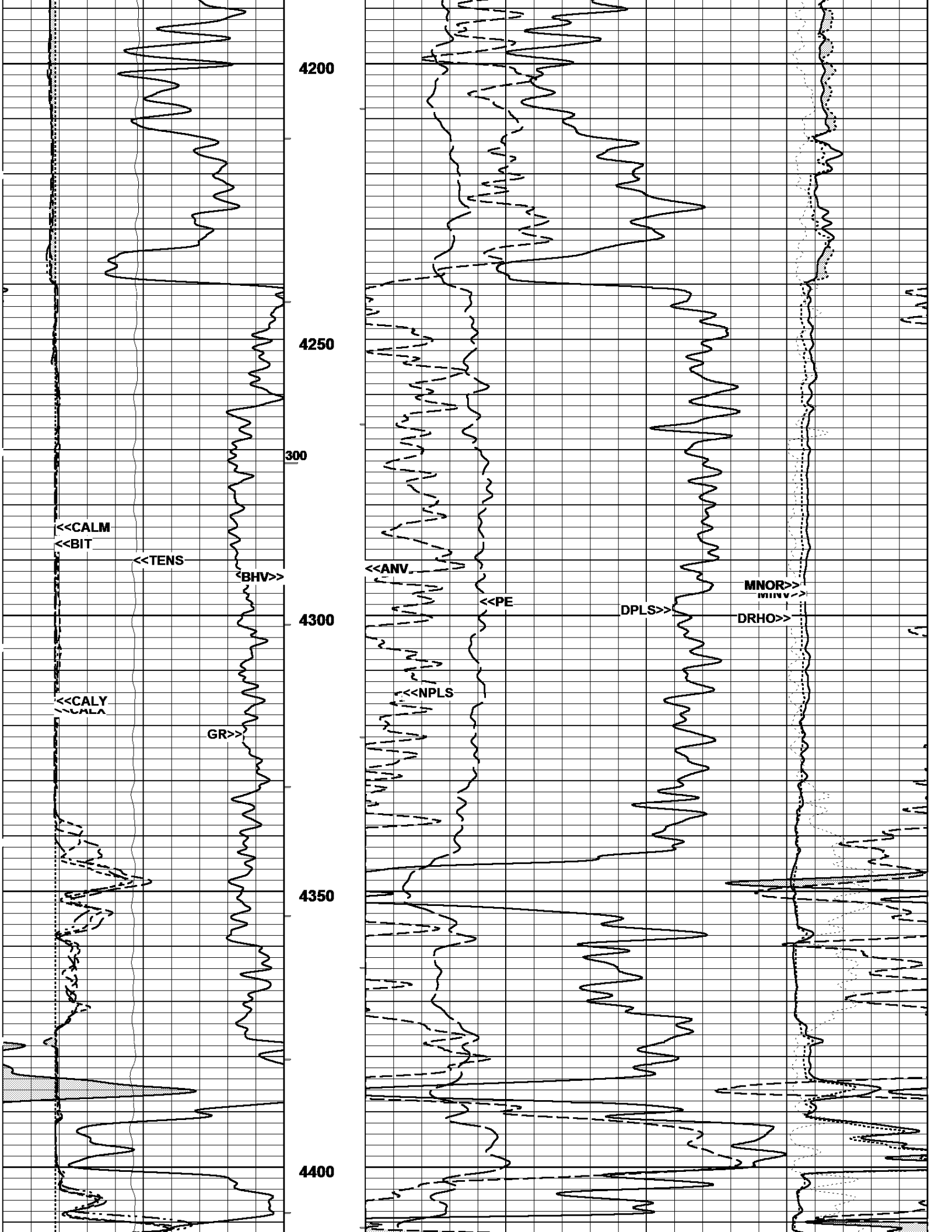
Log UP - (VER 11.19)
End Depth=> 3699.90 Feet

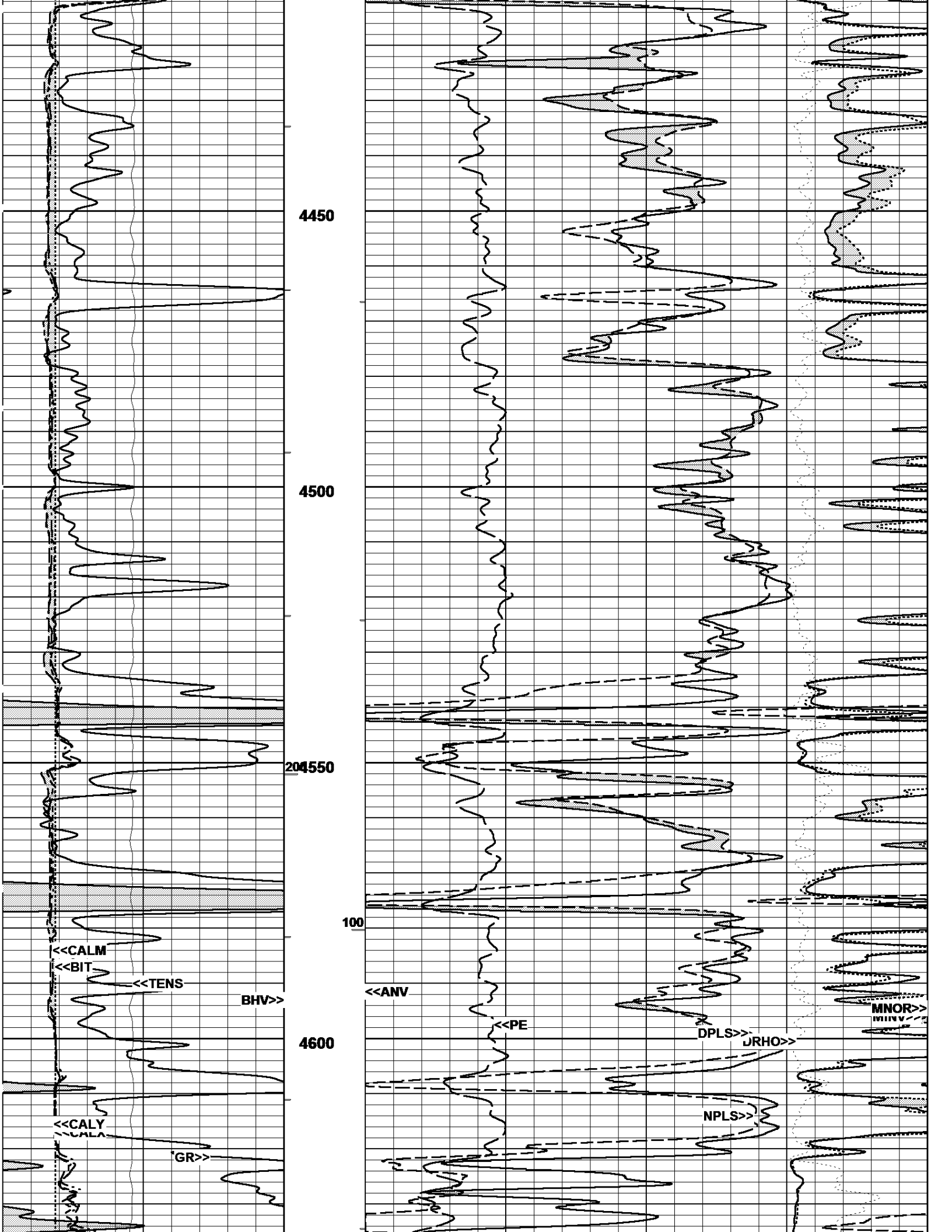
Microlog-Caliper	6. in 16.	
Bit Size (BIT)	6. Ref in 16.	
Tension (TENS)	5000. Lbs 0.	
Y-Caliper (CALY)	6. in 16.	
X-Caliper (CALX)	6. in 16.	
Gamma Ray (GR)	0. API 150.	
Micro-Normal{2"} (MNOR)	-40. ohms 40.	
Micro-Inverse{1"} (MINV)	-40. ohms 40.	
Photo Electric (PE)	0. Barns/Elect 10.	
Delta RHO (DRHO)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

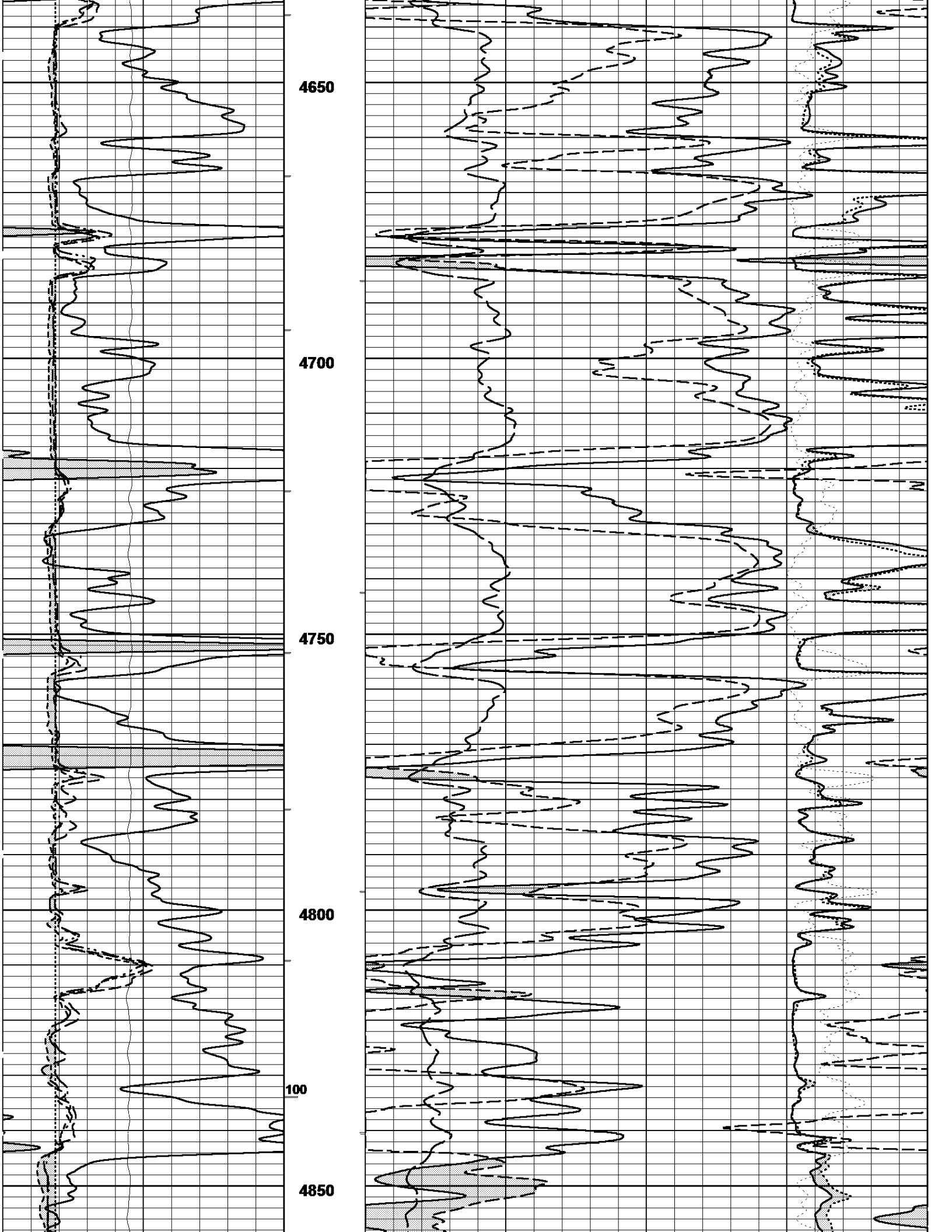


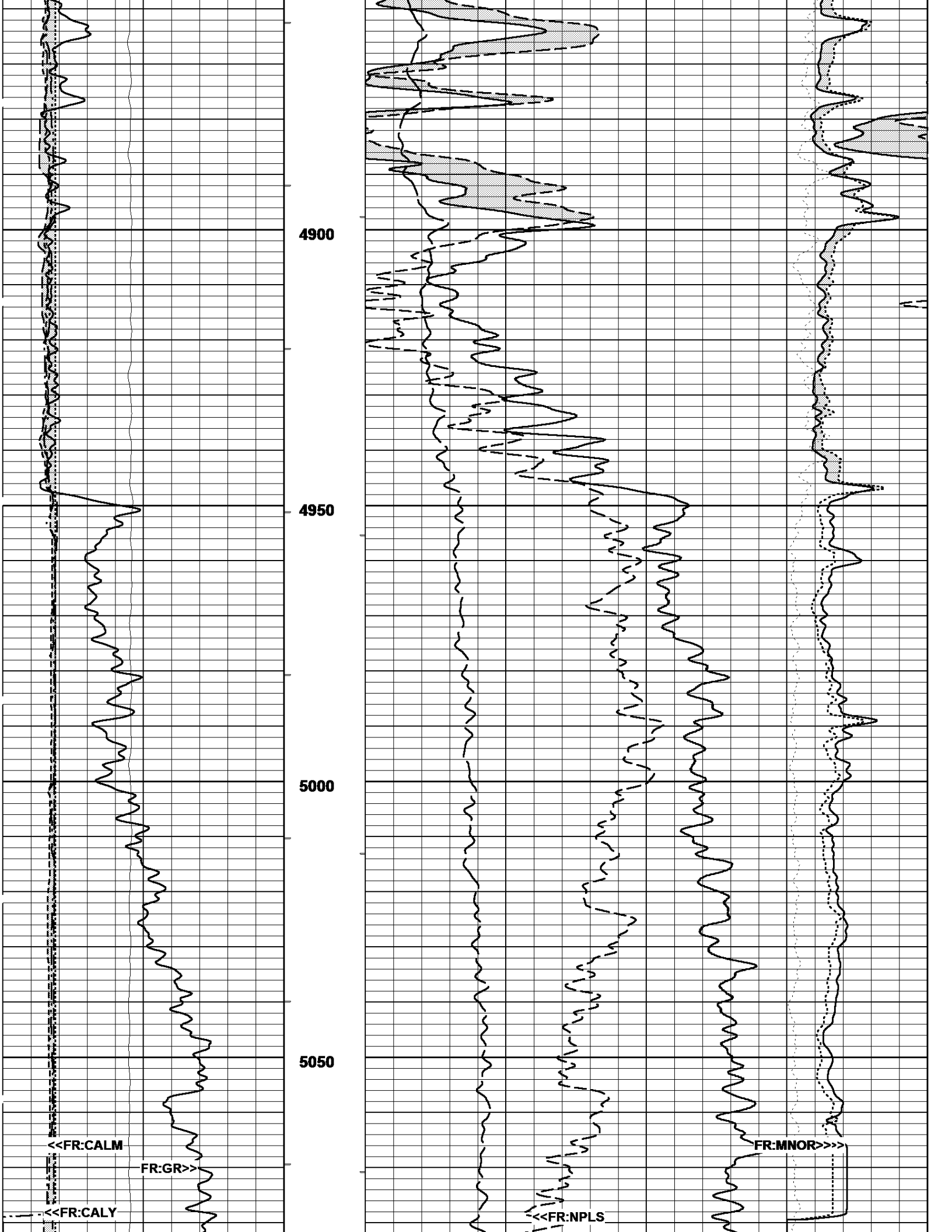

3750
3800
3850
3900
3950

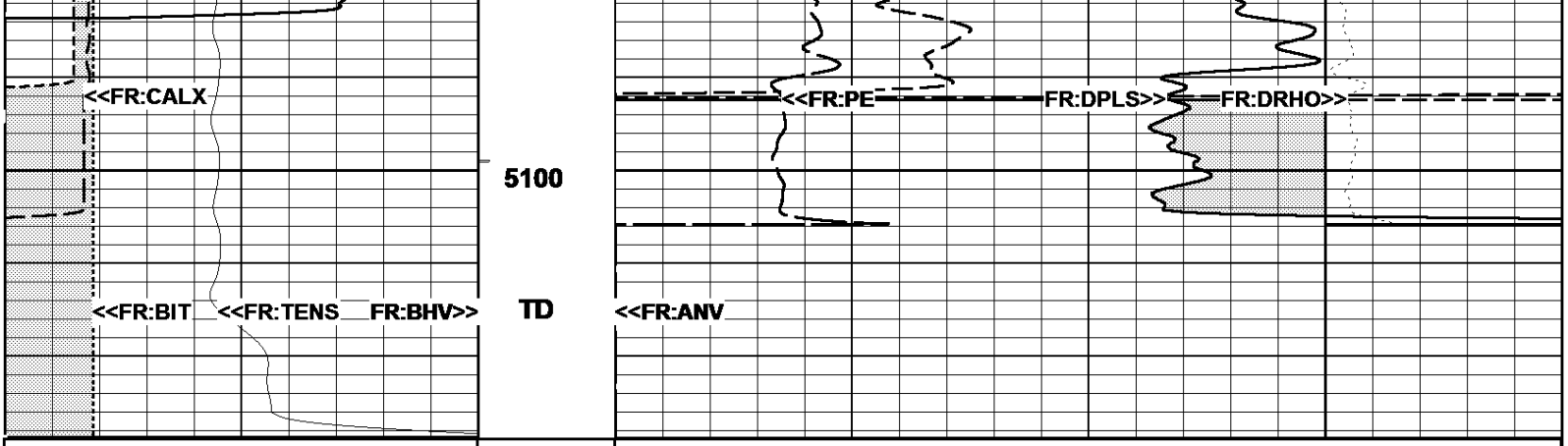

<<CALM
<<BIT
<<TENS
BHV>>
400
<<ANV
<<PE
MNOR>>
MINV>>
DPLS>>
DRHO>>
4000
<<NPLS
<<CALY
GR>>
4050
200
4100
4150


4200
4250
300
4300
4350
4400
<<CALM
<<BIT
<<TENS
<BHV>>
<<CALY
GR>>
<<ANV
<<PE
<<NPLS
DPLS>>
MNOR>>
DRHO>>


4450
4500
4550
4600
20
100
<<CALM
<<BIT
<<TENS
BHV>>
<<CALY
GR>>
<<ANV
<<PE
DPLS>>
DRHO>>
NPLS>>
MNOR>>


4650
4700
4750
4800
100
4850


4900
4950
5000
5050
<<FR:CALM
FR:GR>>
<<FR:CALY
<<FR:NPLS
FR:MNOR>>>>



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.	
Microlog-Caliper	6. in 16.	
Neutron-Porosity (NPLS)	30. Limestone-Matrix (V/V) -10.	
Density-Porosity (DPLS)	30. Limestone-Matrix (V/V) -10.	
Photo Electric (PE)	0. Barns/Elect 10.	
Delta RHO (DRHO)	-0.5 g/cc 0.5	
Micro-Inverse{1"} (MINV)	-40. ohms 40.	
Micro-Normal{2"} (MNOR)	-40. ohms 40.	

03/13/2015
04:50:14 => Start Time

MAIN PASS - LIMESTONE (5"/100Ft)

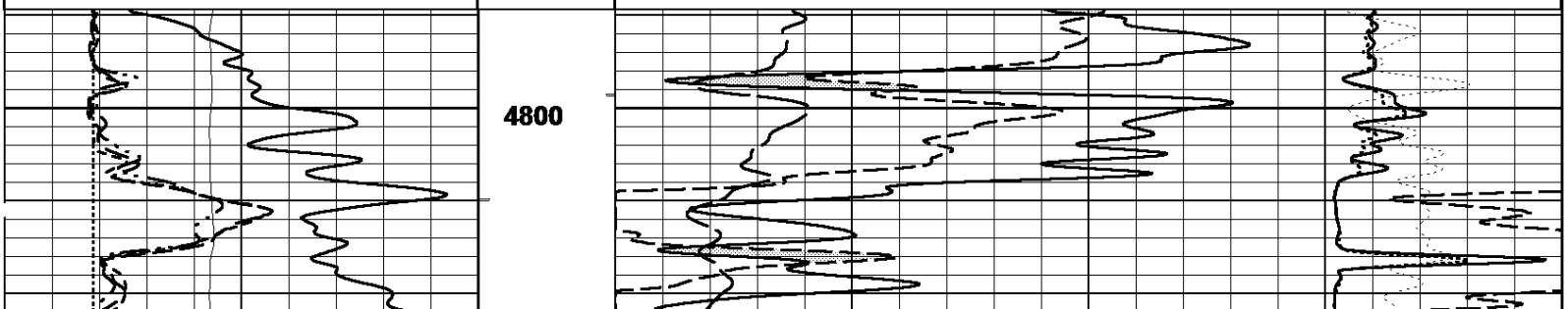
Log UP - (VER 11.19)
Start Depth=> 5128.70 Feet

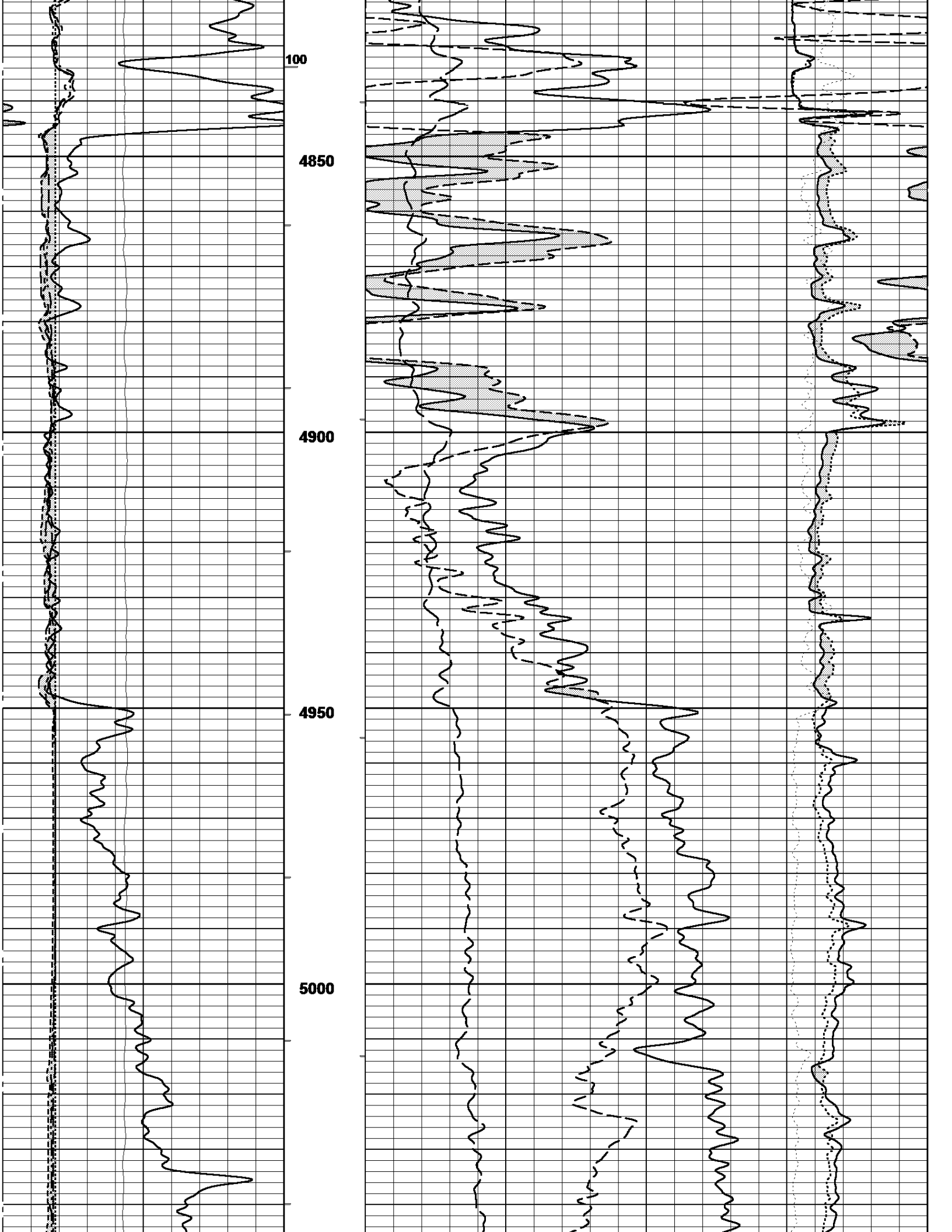
03/13/2015
04:44:31 => End Time

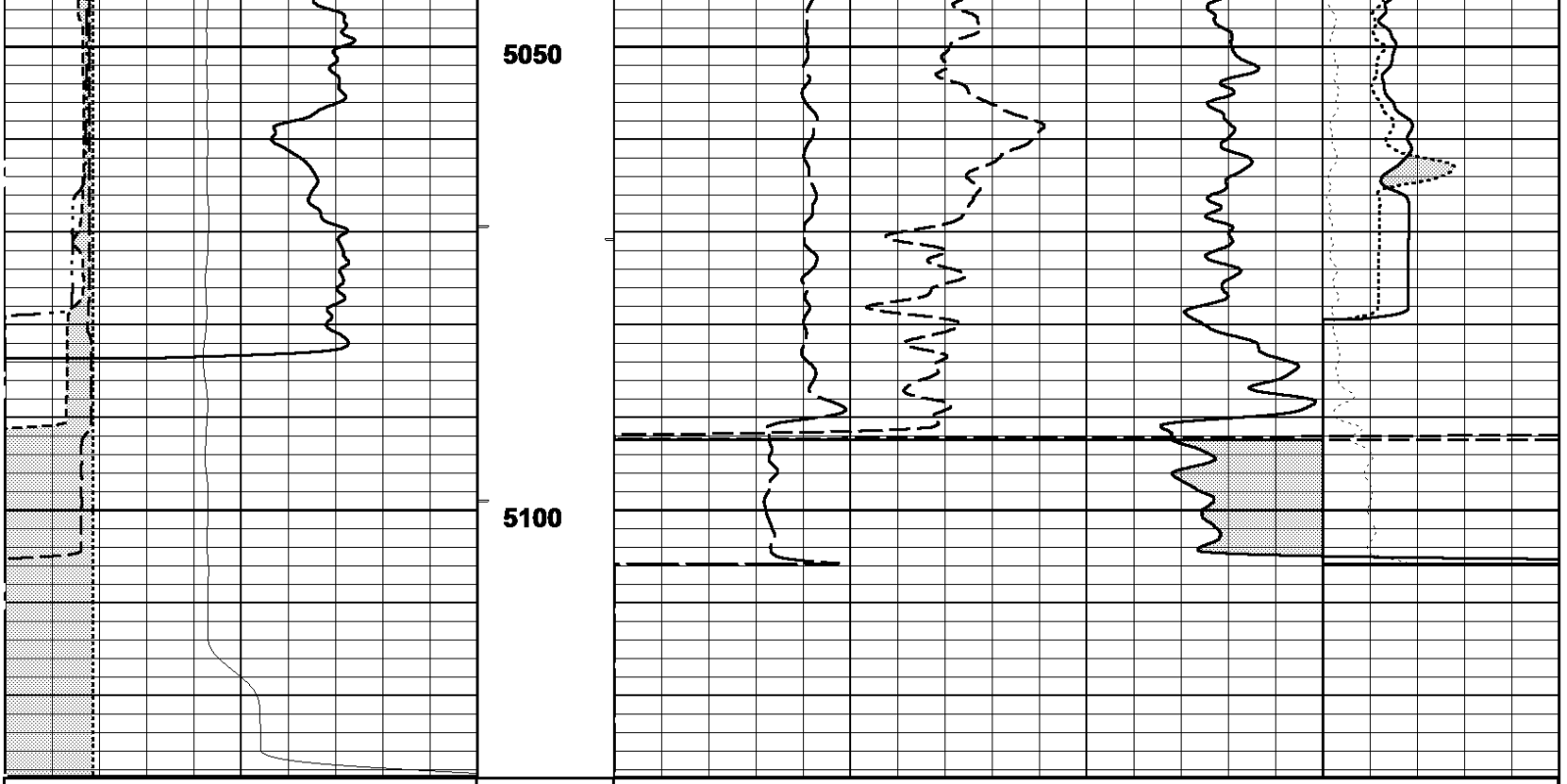
REPEAT PASS - LIMESTONE (5"/100Ft)

Log UP - (VER 11.19)
End Depth=> 4789.60 Feet

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




100
4850
4900
4950
5000



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.	
Microlog-Caliper	6. in 16.	
Neutron-Porosity (NPLS)	30. Limestone-Matrix (V/V) -10.	
Density-Porosity (DPLS)	30. Limestone-Matrix (V/V) -10.	
Photo Electric (PE)	0. Barns/Elect 10.	
Delta RHO (DRHO)	-0.5 g/cc 0.5	
Micro-Inverse{1"} (MINV)	-40. ohms 40.	
Micro-Normal{2"} (MNOR)	-40. ohms 40.	

03/13/2015
04:29:28 => Start Time

REPEAT PASS - LIMESTONE (5"/100Ft)

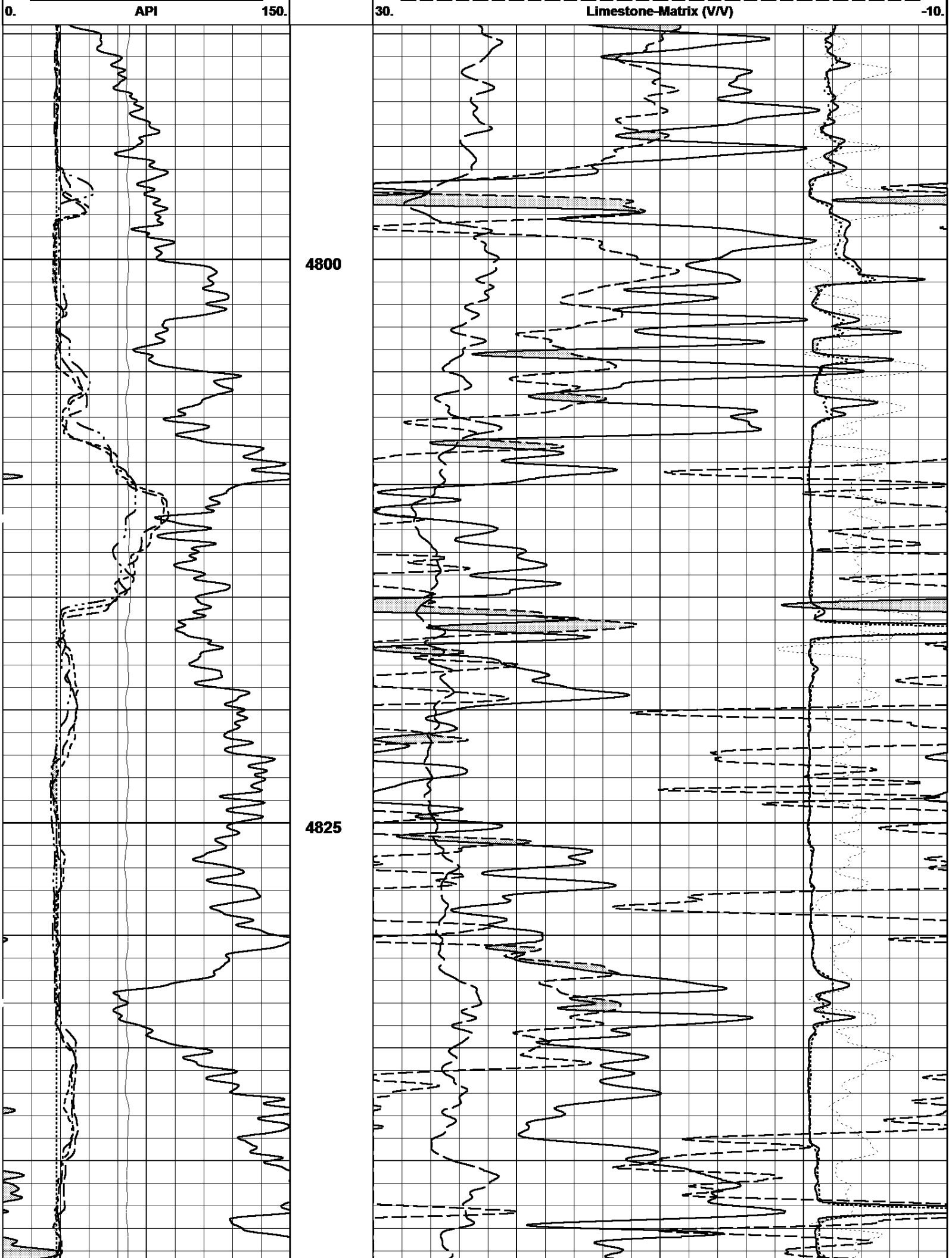
Log UP - (VER 11.19)
Start Depth=> 5128.70 Feet

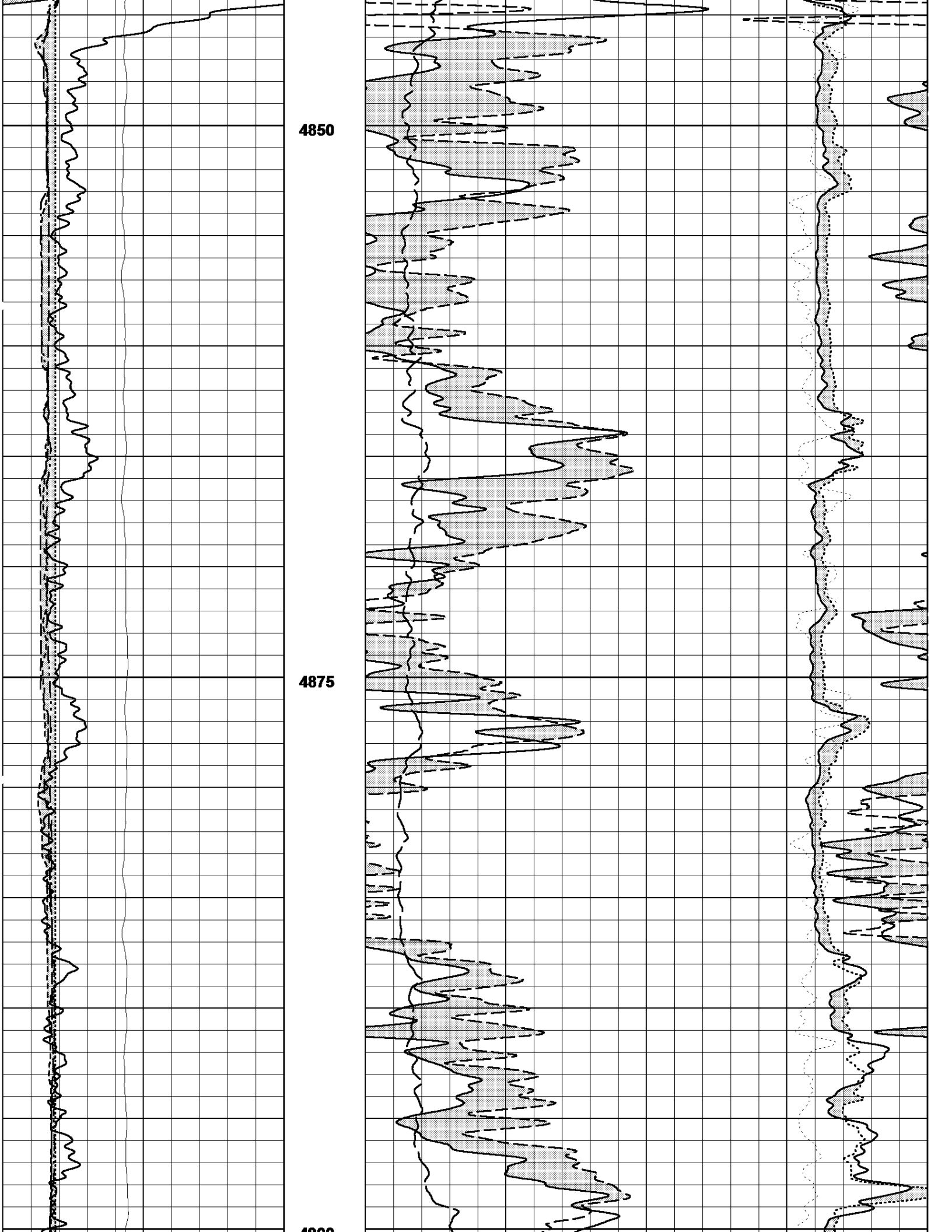
03/13/2015
04:44:31 => End Time

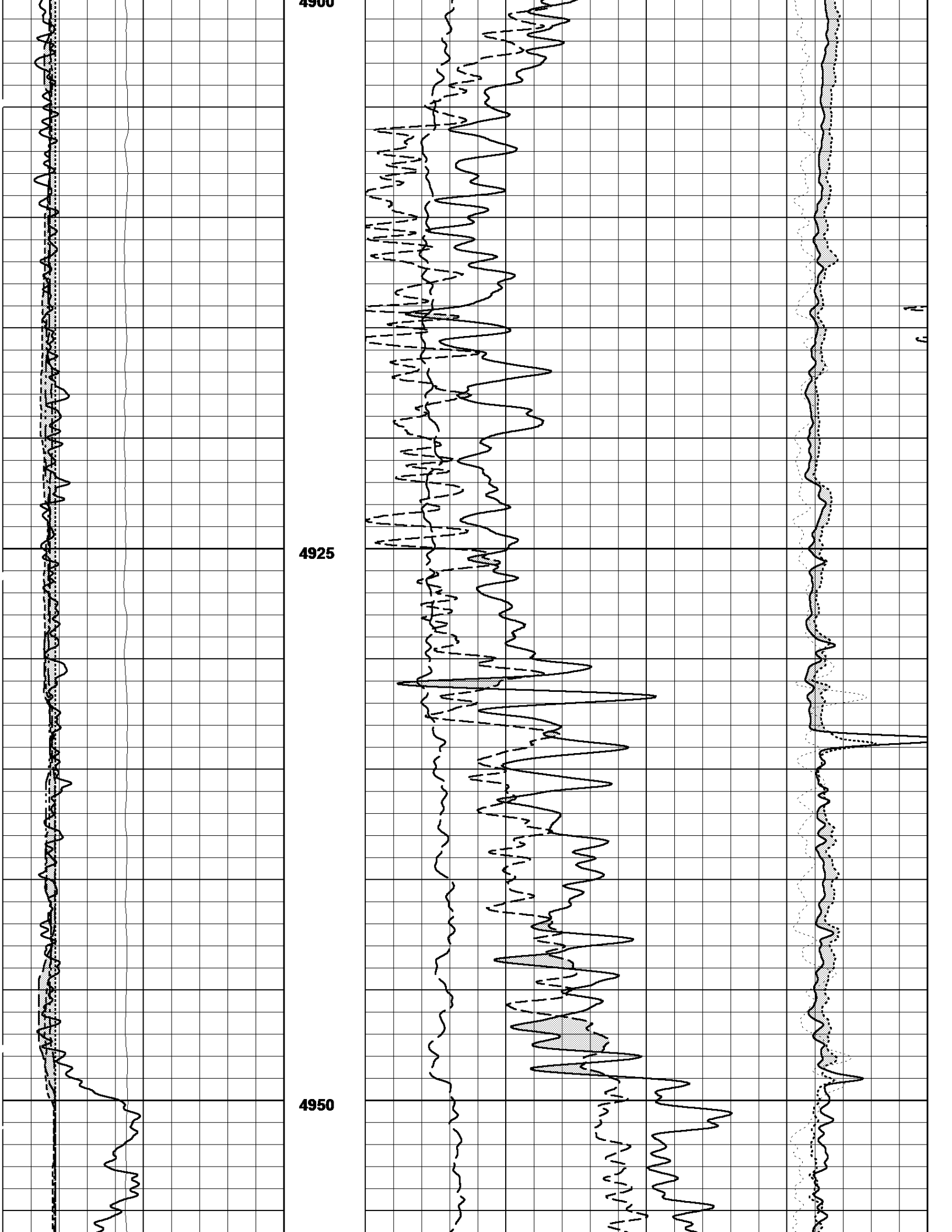
HIGH DEFINITION PASS - LIMESTONE (20"/100Ft)

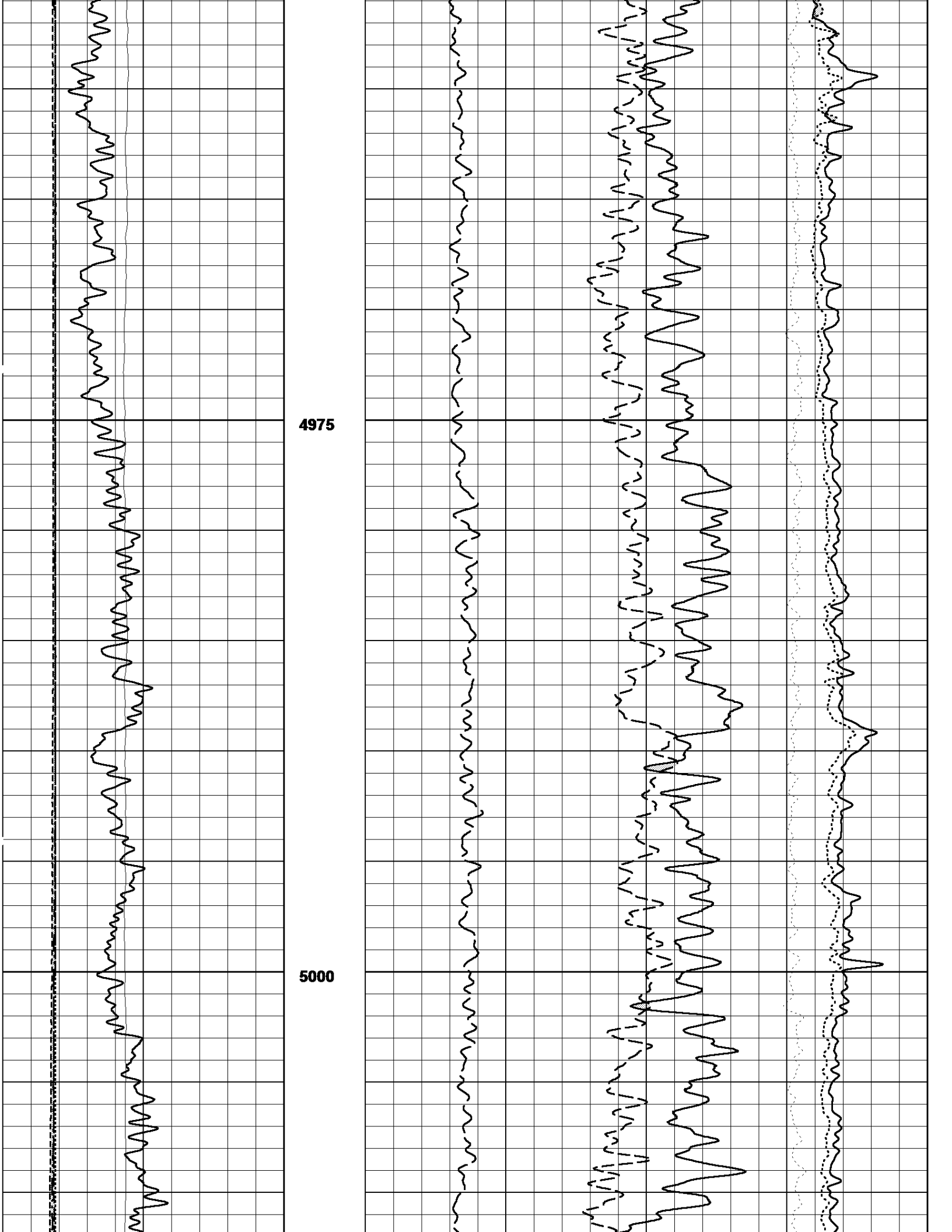
Log UP - (VER 11.19)
End Depth=> 4789.65 Feet

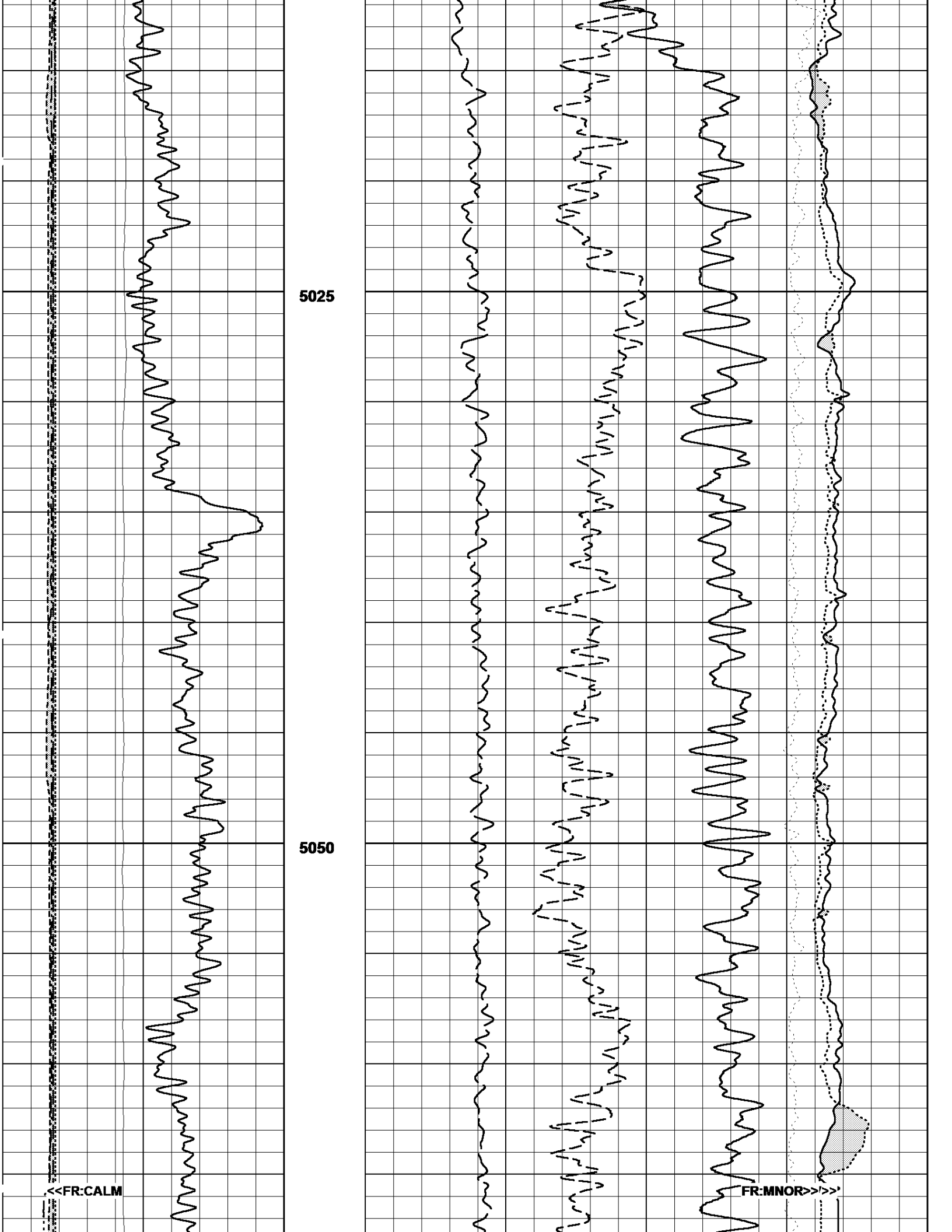
Microlog-Caliper	6. in 16.	
Bit Size (BIT)	6. Ref in 16.	
Tension (TENS)	5000. Lbs 0.	
Y-Caliper (CALY)	6. in 16.	
X-Caliper (CALX)	6. in 16.	
Gamma Ray (GR)		
Micro-Normal{2"} (MNOR)	-40. ohms 40.	
Micro-Inverse{1"} (MINV)	-40. ohms 40.	
Photo Electric (PE)	0. Barns/Elect 10.	
Delta RHO (DRHO)	-0.5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

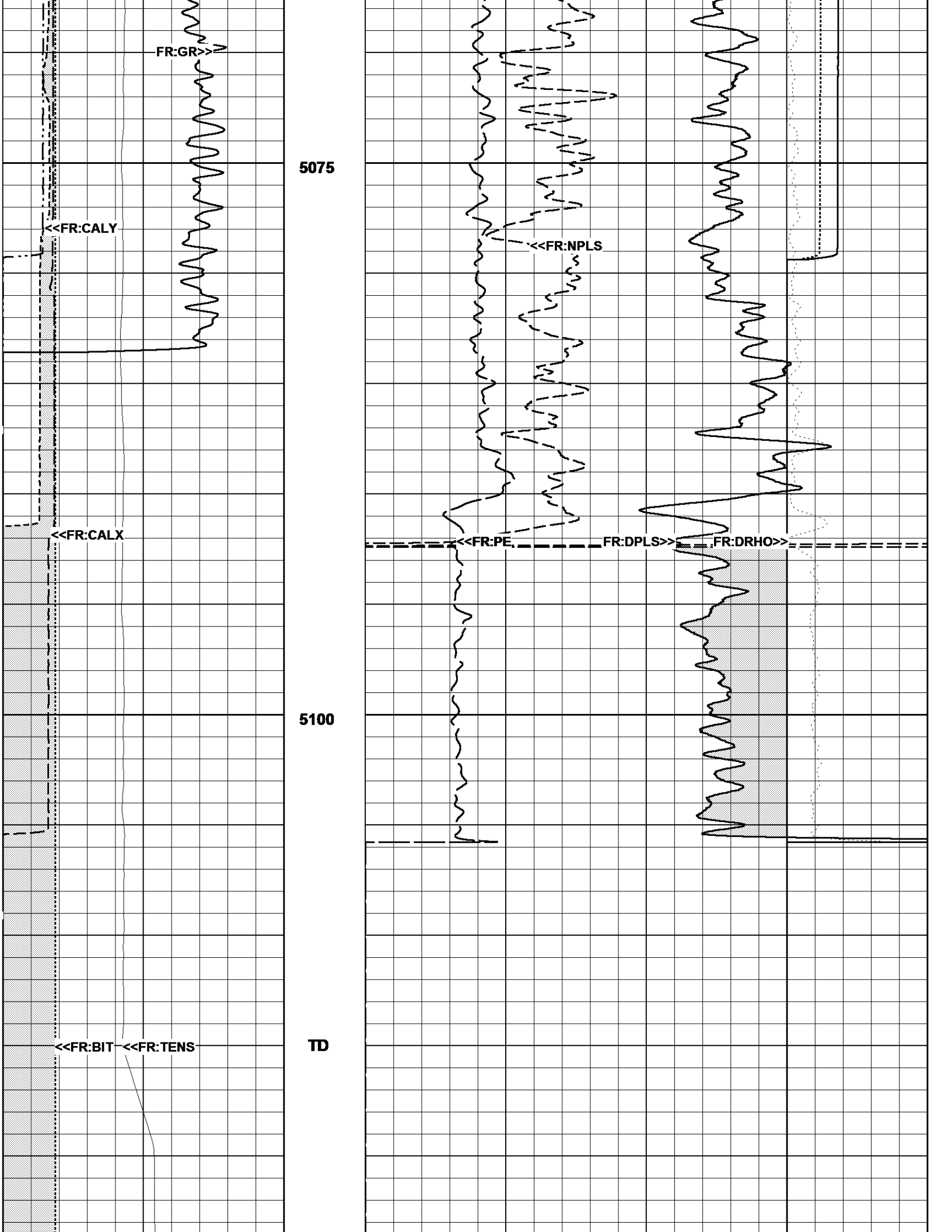

0.
API
150.
4800
4825
30.
Limestone-Matrix (V/V)
-10.

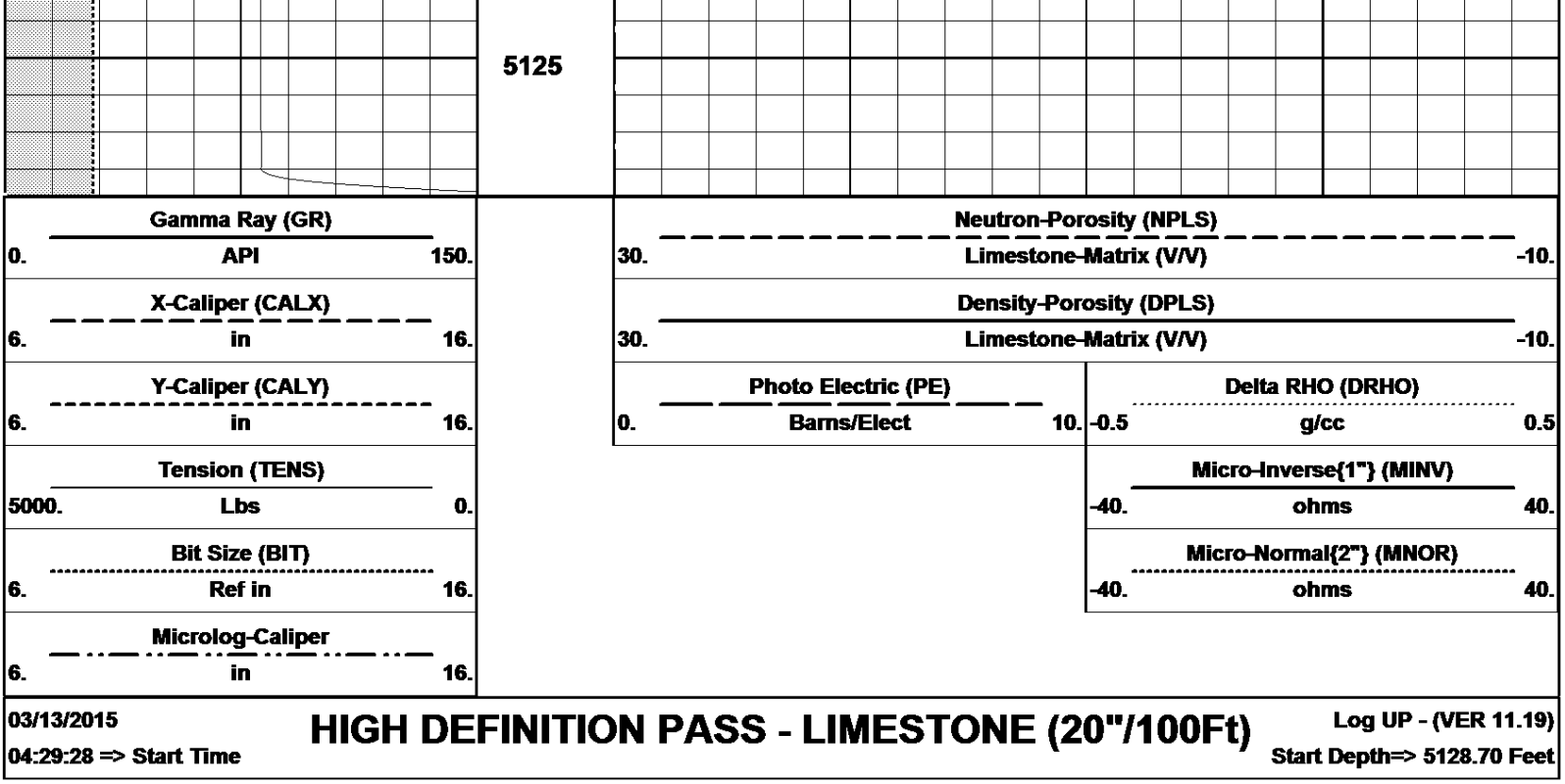

4850
4875


4900
4925
4950


4975
5000


5025
5050
<<FR:CALM
FR:MNOR>>/>>


FR:GR>>
5075
<<FR:CALY
<<FR:NPLS
<<FR:CALX
<<FR:PE
FR:DPLS>>
FR:DRHO>>
5100
<<FR:BIT
<<FR:TENS
TD



Litho-Density/PE Calibrations

TOOL TYPE	LFDC/Pe	SOURCE TYPE	CESIUM 137	SOURCE STRGTH	2 CURIE
SERIAL NUM	RL4108	SOURCE NUM			

MASTER BLOCK CALIBRATIONS

	W1(cps)	W2(cps)	W3(cps)	W4(cps)	SS	UNITS	CALIBRATION DATE	CALIBRATION TIME
ALUMINUM	7531.349	6046.778	2675.603	3.914	7478.3337	2.523(g/cc)	M/D/Y> 3/12/2015	H:M:S> 11:13:2
MAGNESIUM	23302.241	18108.627	7407.705	5.217	10731.0179	1.679(g/cc)		
BACKGROUND	1399.737	1233.549	839.267	3.832	4.2613			
SAND	20020.595	16113.430	6747.894	4.982		1.739(PE)		
IRON	6410.891	5302.181	2445.363	4.119		4.529(PE)		
FIELD VERIFIER(cps) VER NUM LDP-4102	1614.960	1433.200	973.680	4.560	5.1200			

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	RN2004	SOURCE NUM			

MASTER TANK CALIBRATIONS

		NEAR(cps)	FAR(cps)	RATIO	K VALUE	CALIBRATION DATE	CALIBRATION TIME
LOW PHI	3.150			0.6368	0.9693	M/D/Y> 1/29/2015	H:M:S> 14:6:22
MED PHI	19.130			1.0910	0.9693		
HIGH PHI	31.300			1.3078	0.9694		
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 CALIBRATION

SERIAL NUM	RG3010
BLANKET NUM	1A

MASTER CALIBRATIONS

	BackGrnd	CalVal: 158.000 API	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	127.405 - raw	727.746 - raw	0.263 - gain 0.000 - off	M/D/Y> 1/29/2015	H:M:S> 14:25:10

X CALIPER

SERIAL NUM	RL4108

MASTER CALIBRATIONS

	ZeroVal: 6.000 In	CalVal: 10.000 In	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	1560.071 - raw	3294.511 - raw	0.002 - gain 2.402 - off	M/D/Y> 3/12/2015	H:M:S> 9:55:40

Y CALIPER CALIBRATIONS

SERIAL NUM	RN2004

MASTER CALIBRATIONS

	ZeroVal: 6.000 In	CalVal: 11.950 In	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	971.973 - raw	2077.223 - raw	0.005 - gain 0.767 - off	M/D/Y> 1/29/2015	H:M:S> 14:1:49

MICRO NORMAL CALIBRATIONS

SERIAL NUM	RM8001

MASTER CALIBRATIONS

	ZeroVal: 0.200 ohmm	CalVal: 10.000 ohmm	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	27.912 - raw	349.813 - raw	0.030 - gain 0.650 - off	M/D/Y> 2/26/2015	H:M:S> 11:25:39

MICRO INVERSE CALIBRATIONS

SERIAL NUM	RM8001

MASTER CALIBRATIONS					
	ZeroVal: 0.200 ohmm	CalVal: 10.000 ohmm	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	14.891 - raw	297.348 - raw	0.035 - gain -0.317 - off	M/D/Y> 2/26/2015	H:M:S> 11:21:8

MICRO CALIPER CALIBRATIONS

SERIAL NUM	RM8001

MASTER CALIBRATIONS					
	ZeroVal: 6.000 Inch	CalVal: 11.950 Inch	Gain/Offset	CALIBRATION DATE	CALIBRATION TIME
BASE CALS	2424.809 - raw	5642.670 - raw	0.002 - gain 1.516 - off	M/D/Y> 2/26/2015	H:M:S> 11:28:31

Company	CMX, INC.
Well	BARTENDER #4
Field	SRANATHAN
County	BARBER
State	KANSAS

RECON

COMPENSATED NEUTRON
LITHOLOGY DENSITY
GAMMA RAY XY-CALIPER
MICROLOG