Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1081395

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 31885
Name: M & M Exploration, Inc.
Address 1: 4257 MAIN ST., #230
Address 2:
City: WESTMINSTER State: CO Zip: 80031 + __ __ __ __
Contact Person: Michael Austin
Phone: (303) 438-1991
CONTRACTOR: License # 33350
Name: Southwind Drilling, Inc.
Wellsite Geologist: Mike Pollok
Purchaser:

Designate Type of Completion:

☑ New Well ☐ Re-Entry ☐ Workover

☐ Oil ☐ WSW ☑ SWD ☐ SIOW
☐ Gas ☐ D&A ☐ ENHR ☐ SIGW
☐ OG ☐ GSW ☐ Temp. Abd.
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☐ Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:

Operator:
Well Name:
Original Comp. Date: Original Total Depth:

☐ Deepening ☐ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD
☐ Plug Back ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ ENHR Permit #:
☐ GSW Permit #:

3/23/2012	5/7/2012	5/24/2012
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-007-23843-00-00
Spot Description:
SE - NW - NW - NW Sec. 16 Twp. 34 S. R. 14 ☐ East ☑ West
400 Feet from ☑ North / ☐ South Line of Section
530 Feet from ☐ East / ☑ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☐ NE ☑ NW ☐ SE ☐ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Barber
Lease Name: Z Bar Well #: 16-4 SWD
Field Name: Aetna Gas Area
Producing Formation: Arbuckle
Elevation: Ground: 1559 Kelly Bushing: 1571
Total Vertical Depth: 5526 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 916 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 0 ppm Fluid volume: 0 bbls
Dewatering method used: Evaporated

Location of fluid disposal if hauled offsite:

Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

☑ **Confidentiality Requested**
Date: 05/30/2012
☑ **Confidential Release Date:** 05/30/2014
☑ **Wireline Log Received**
☐ **Geologist Report Received**
☑ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 05/31/2012

[redacted] 1081395

Operator Name: M & M Exploration, Inc. Lease Name: Z Bar Well #: 16-4 SWD

Sec. 16 Twp. 34 S. R. 14 ☐ East ☑ West County: Barber

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Induction
Density-Neutron/Microlog

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Penn	2966	-1395
Heebner	3870	-2299
Cherokee	4652	-3081
Mississippian	4673	-3102
Viola	5057	-3486
Arbuckle	5306	-3735

CASING RECORD ☑ New ☐ Used
Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Conductor	30	20	64	70	60/40 & Class A	150	4% gel, 3% cc
Surface	12.25	8.625	24	916	65/35 & Class A	400	6% gel, 3% cc
Production	7.875	5.5	15.5	5333	Class AA-2	250	10% salt, 10% calset, .8% FLA 322

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ Plug Off Zone	-			
	-			

Did you perform a hydraulic fracturing treatment on this well? ☐ Yes ☐ No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☐ No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth
		Open Hole	5333-5526'
		4500 gal 20% FE acid	

TUBING RECORD: Size: 2 7/8 Set At: 5289 Packer At: 5290 Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR.

Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford®

COMPANY	M&M EXPLORATION, INC
WELL	Z BAR 16-4 SWD
FIELD	AETNA NE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	400' FNL & 530' FWL NW/4

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
16	34S	14W	MPD/MDN MML

API Number 15-007-23843
Permit Number

Permanent Datum G.L., Elevation 1559 feet
Log Measured From KB
Drilling Measured From K.B.

Elevations:	feet
KB	1571.00
DF	1569.00
GL	1559.00

Date	06-MAY-2012			
Run Number	ONE			
Depth Driller	5330.00	feet		
Depth Logger	5327.00	feet		
First Reading	5324.00	feet		
Last Reading	917.00	feet		
Casing Driller	916.00	feet		
Casing Logger	917.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	8.80 lb/USg	48.00 CP		
PH / Fluid Loss	9.00	10.80 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.02 @ 73.0	ohm-m		
Rmf @ Measured Temp	0.82 @ 73.0	ohm-m		
Rmc @ Measured Temp	1.22 @ 73.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.61 @125.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	125.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	F. MARTINS			
Witnessed By	B. BROCK			
S.O. / JOB #	3534534		LB12-114	

BOREHOLE RECORD

Last Edited: 06-MAY-2012 14:02

Bit Size inches	Depth From feet	Depth To feet
7.875	917.00	5327.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	917.00	24.00

REMARKS

Tools Used: MPD, MCG, MDN, MFE, MAI, MML.
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borehole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 280 cu. ft
Service Order #3534534
Rig: Southwind # 70
Engineer: F.Martins
Operator(s): K. Rinehart

2 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta
Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:600

Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

Shallow FE
ohm metres
0 25 50
0 250 500

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

Casing Shoe 910

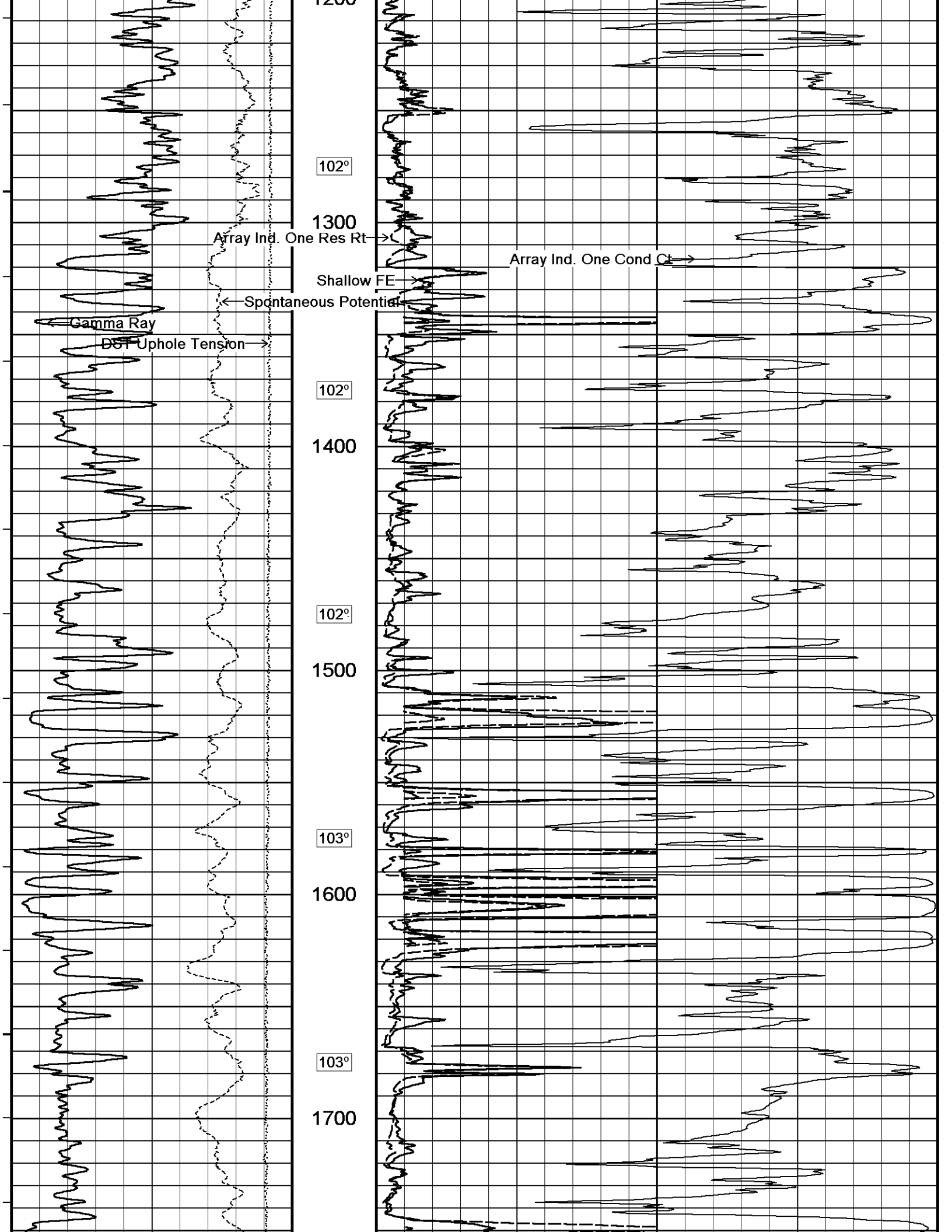
1000

101°

1100

101°

1200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Spontaneous Potential
Gamma Ray
DST Uphole Tension
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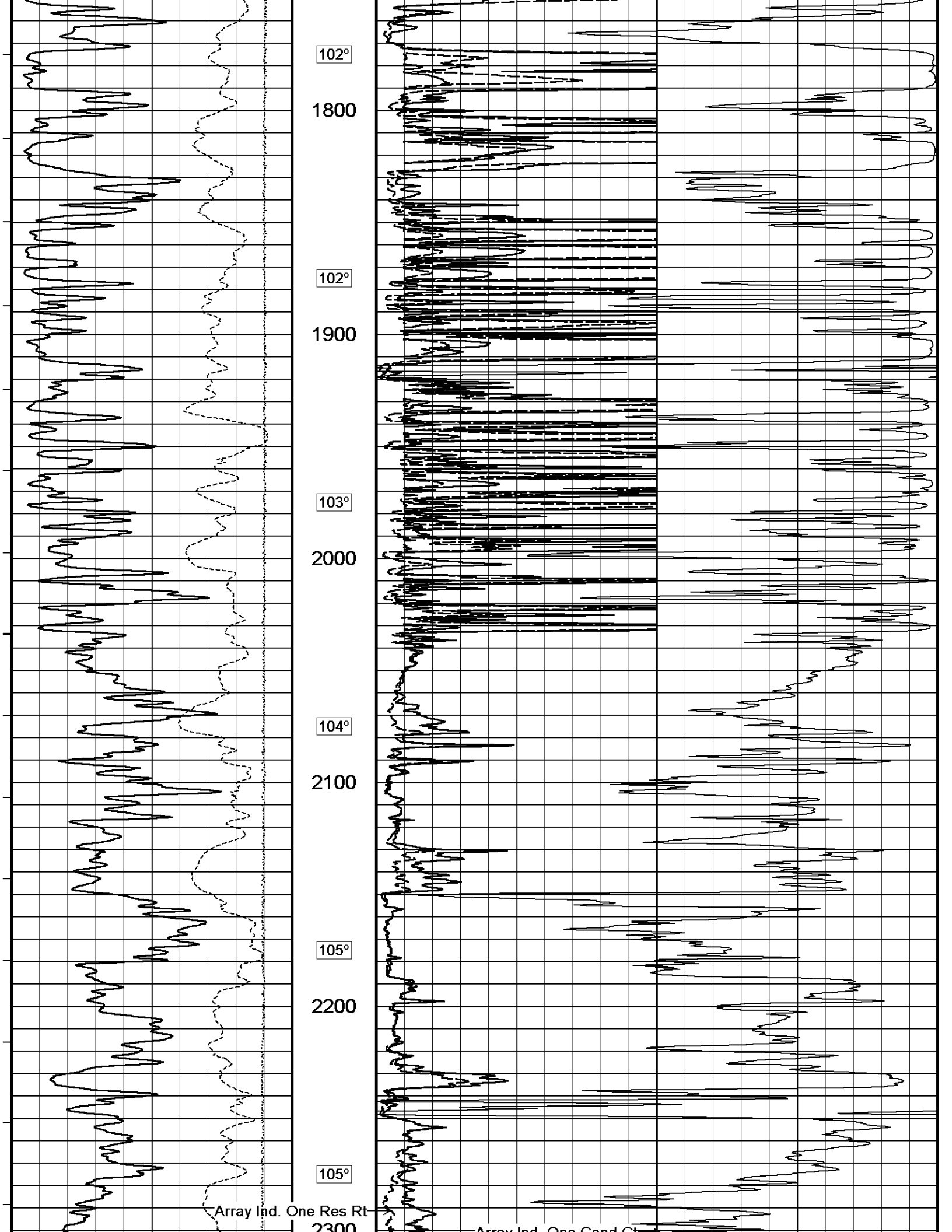
1500
103°
1600
103°
1700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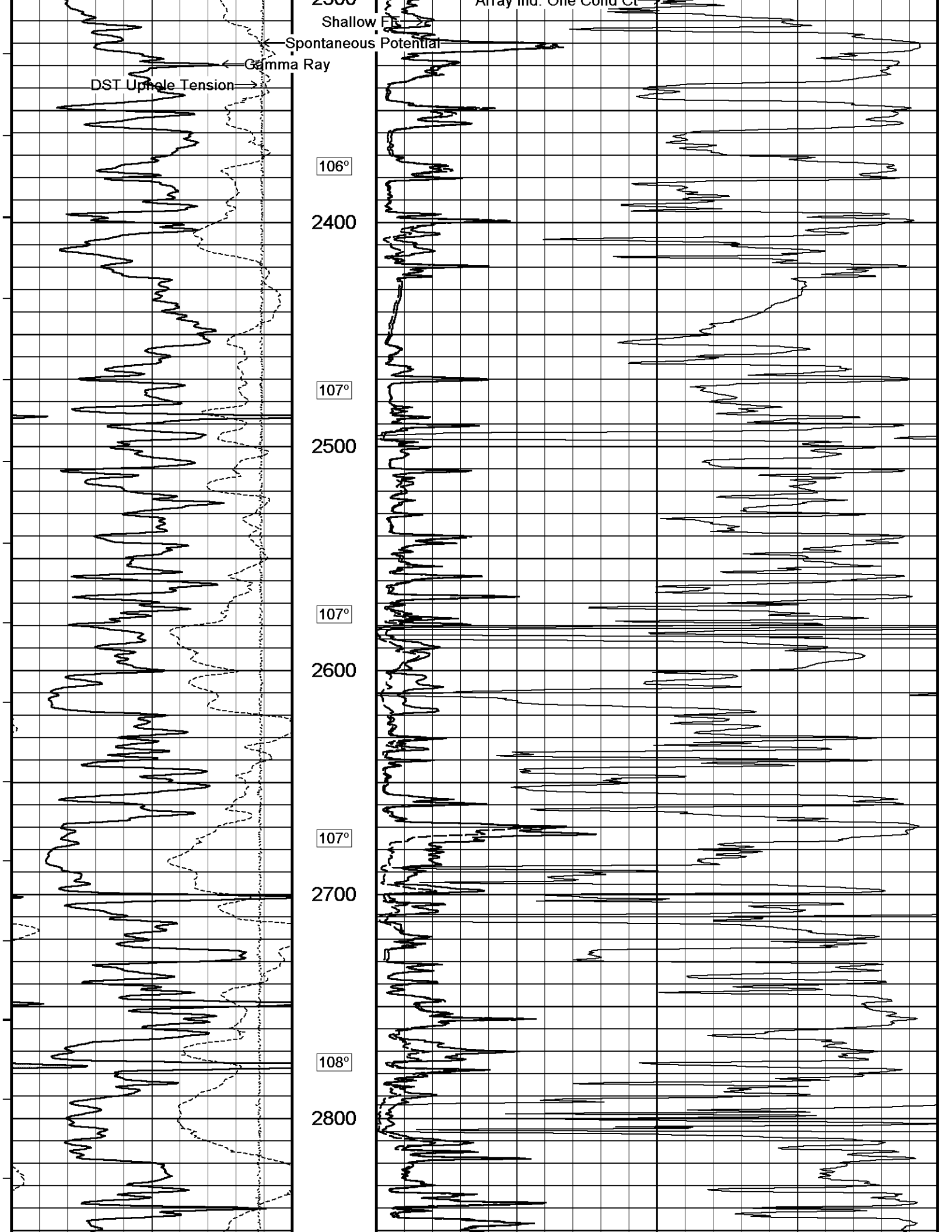
Array Ind. One Cond Ct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Shallow Ft
Spontaneous Potential
Gamma Ray
DST Uphole Tension
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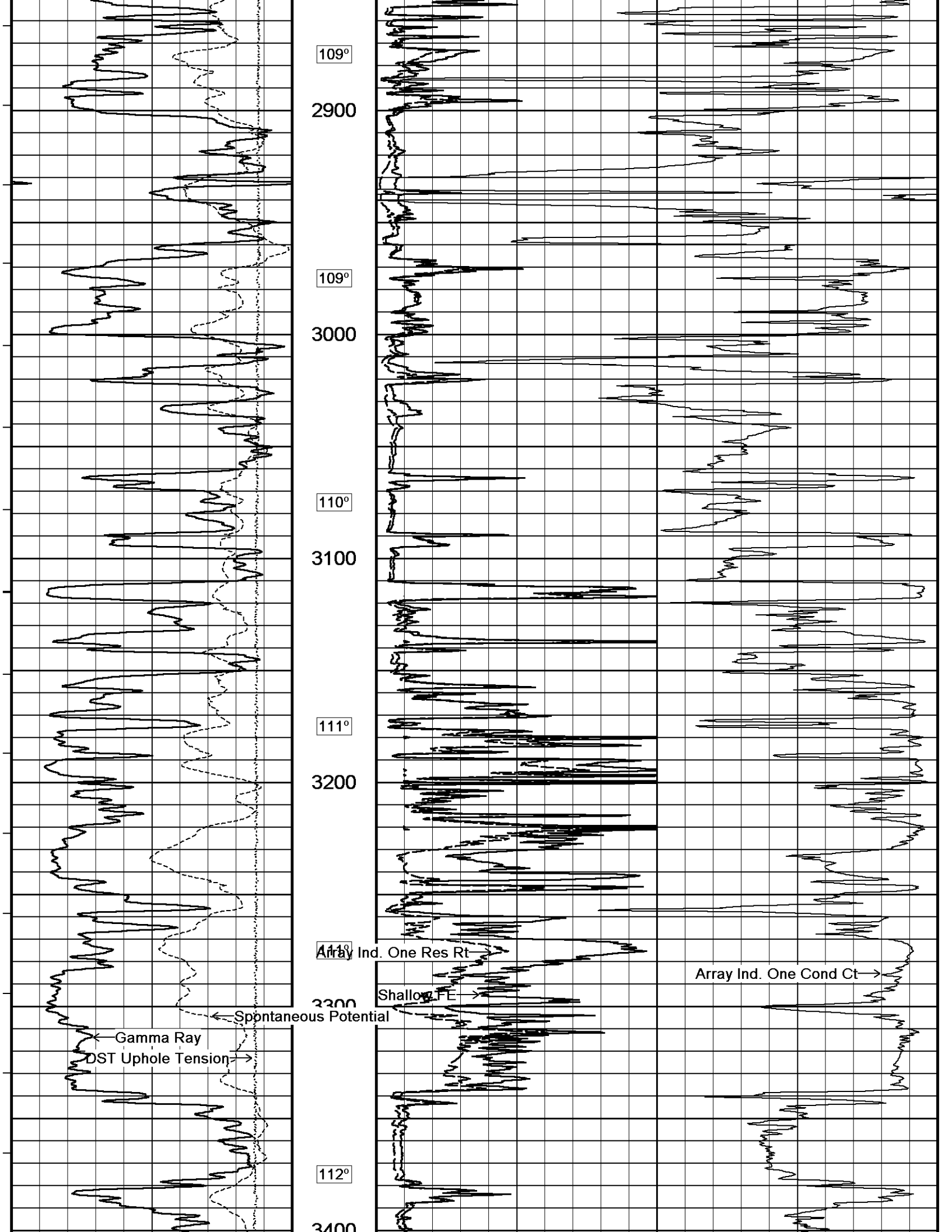
108°
2800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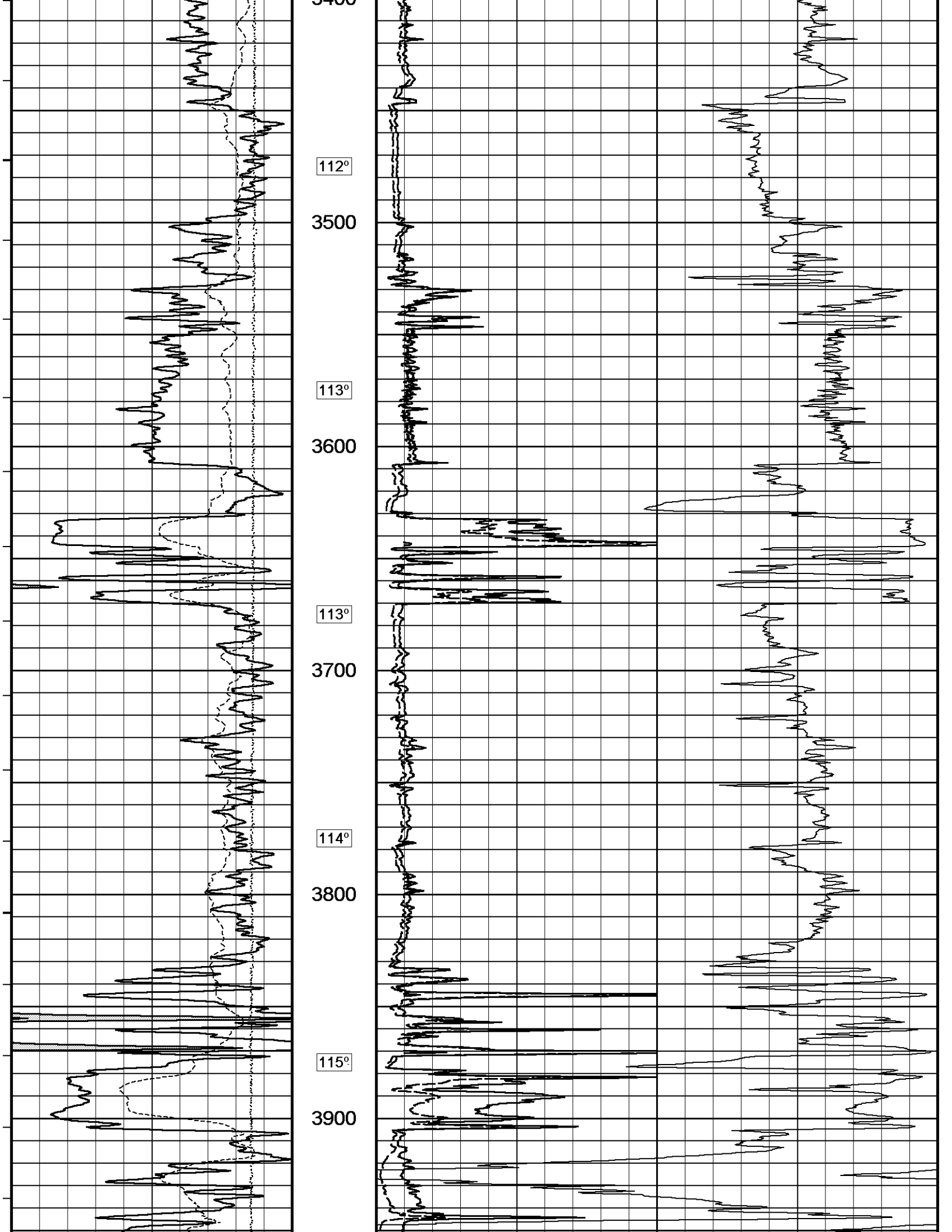
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Cond Ct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115°
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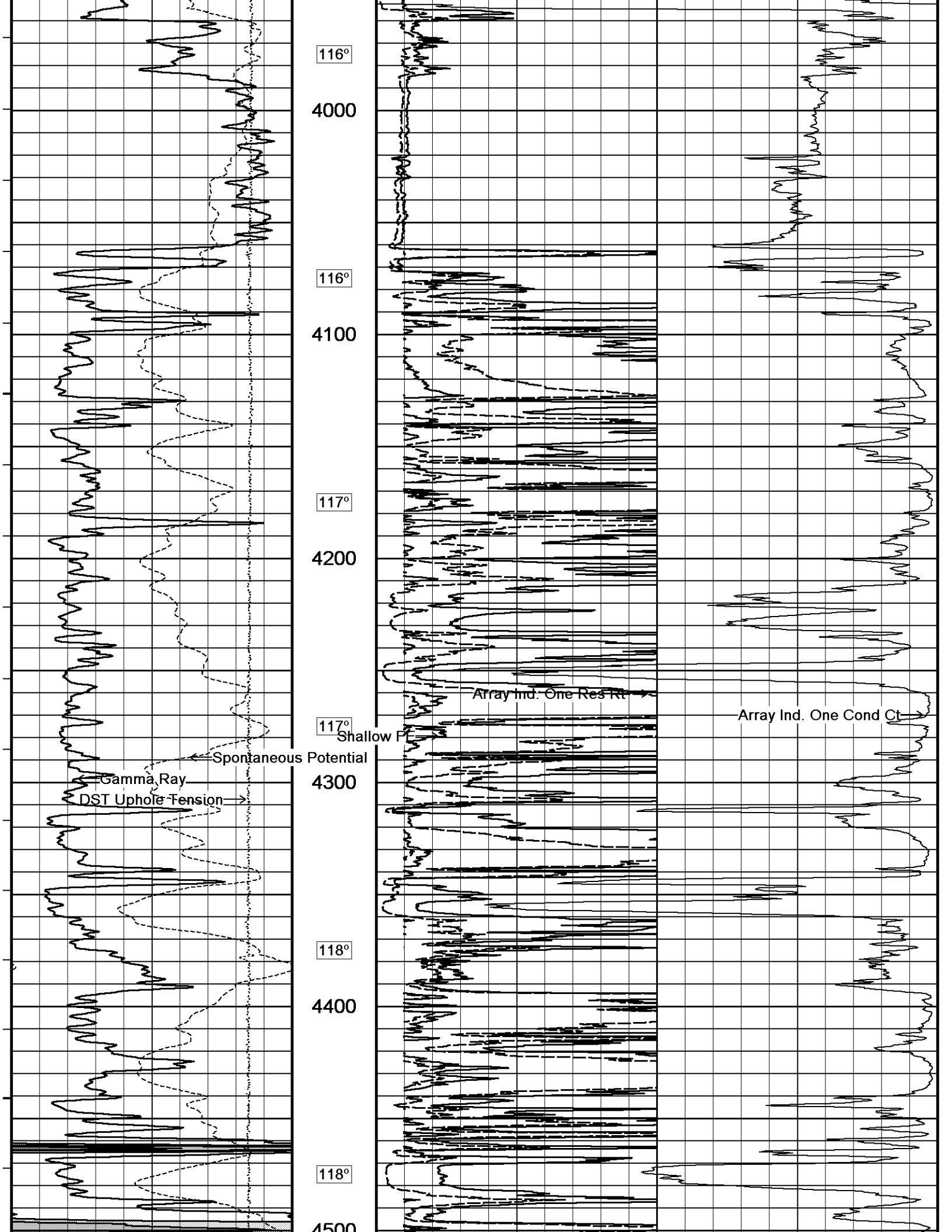
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117°
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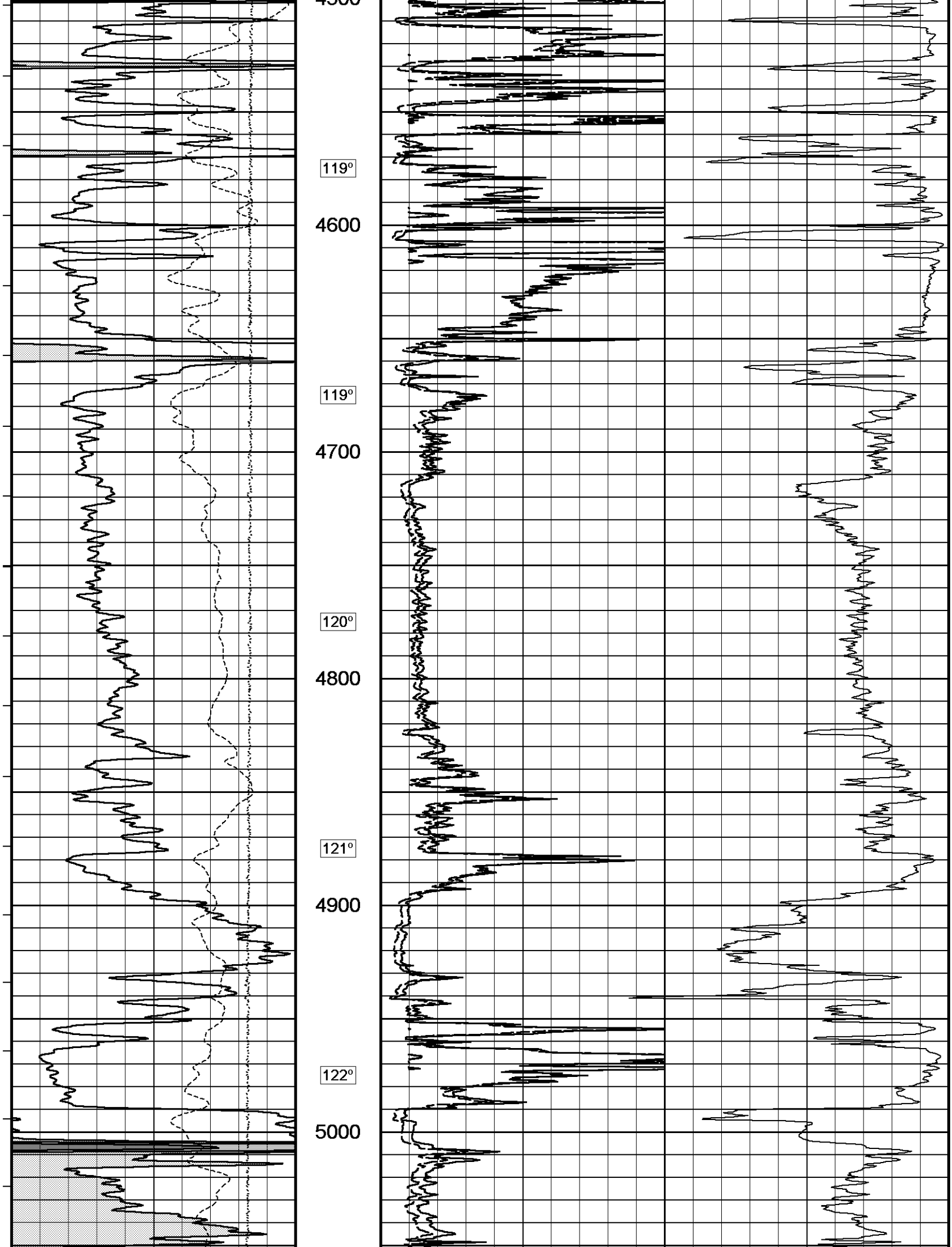
Array Ind. One Cond Ct
Shallow Ft
Spontaneous Potential
Gamma Ray
DST Uphole Tension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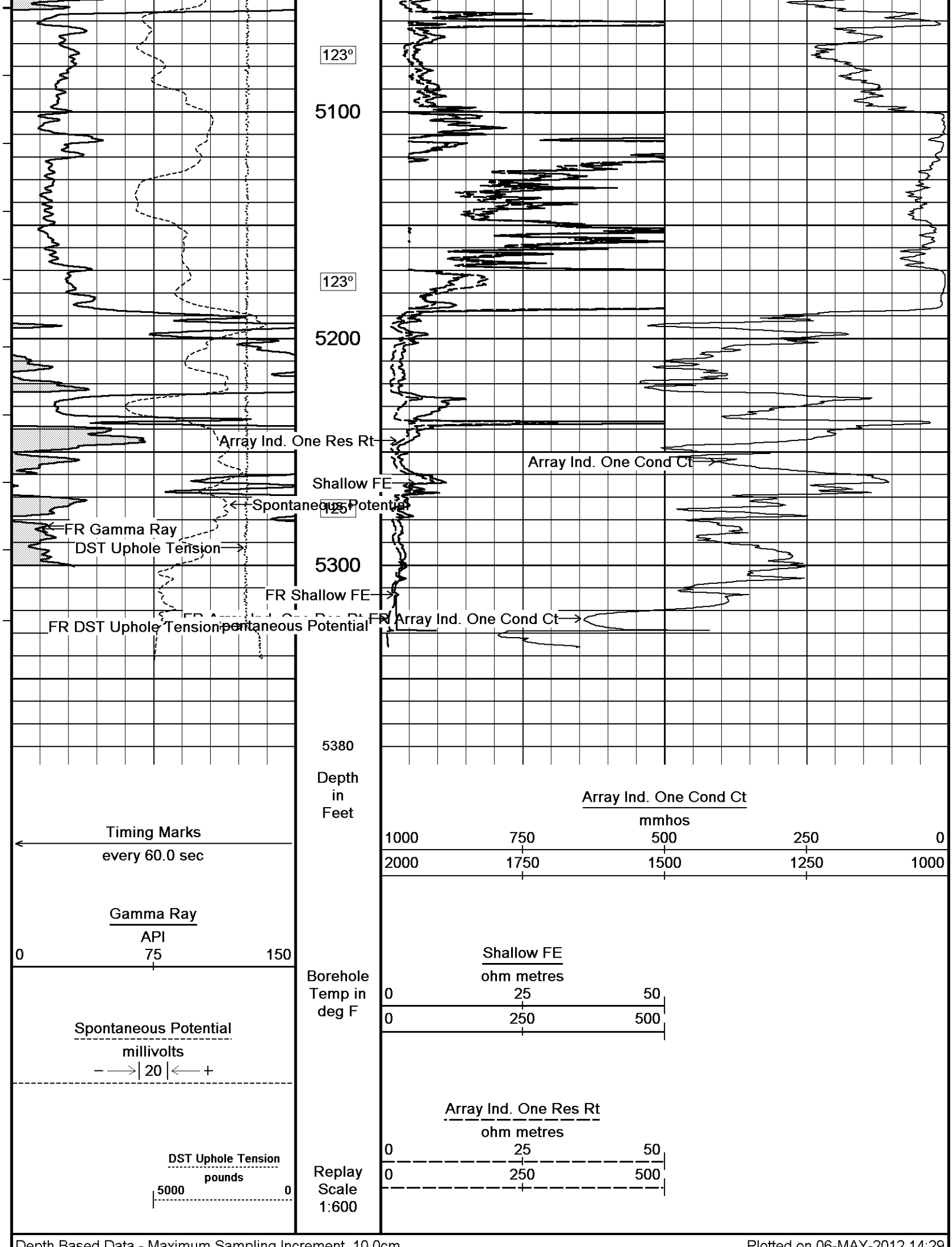
119°
4700
120°
4800
121°
4900
122°
5000



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 06-MAY-2012 14:29

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta — Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

2 INCH MAIN

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta — Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Gamma Ray
API
0 — 75 — 150

Spontaneous Potential
millivolts
– → | 20 | ← +

DST Uphole Tension
pounds
5000 — 0

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:240

Shallow FE
ohm metres
0.20 — 1 — 10 — 100 — 1000 — 2000

Array Ind. One Res 40
ohm metres
0.20 — 1 — 10 — 100 — 1000 — 2000

Array Ind. One Res 60
ohm metres
0.20 — 1 — 10 — 100 — 1000 — 2000

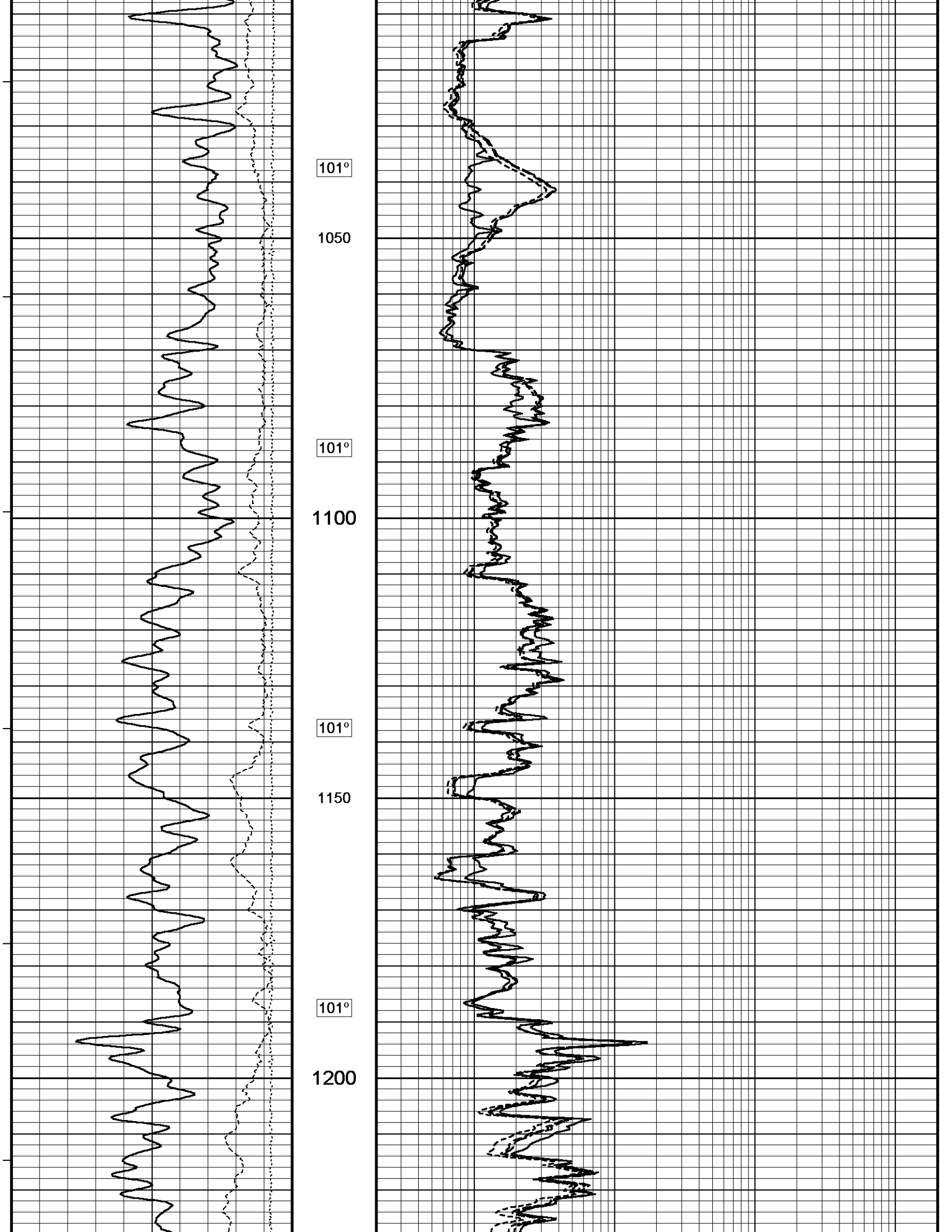
Array Ind. One Res Rt
ohm metres
0.20 — 1 — 10 — 100 — 1000 — 2000

908
Casing Shoe

950

1000

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
100°
DST Uphole Tension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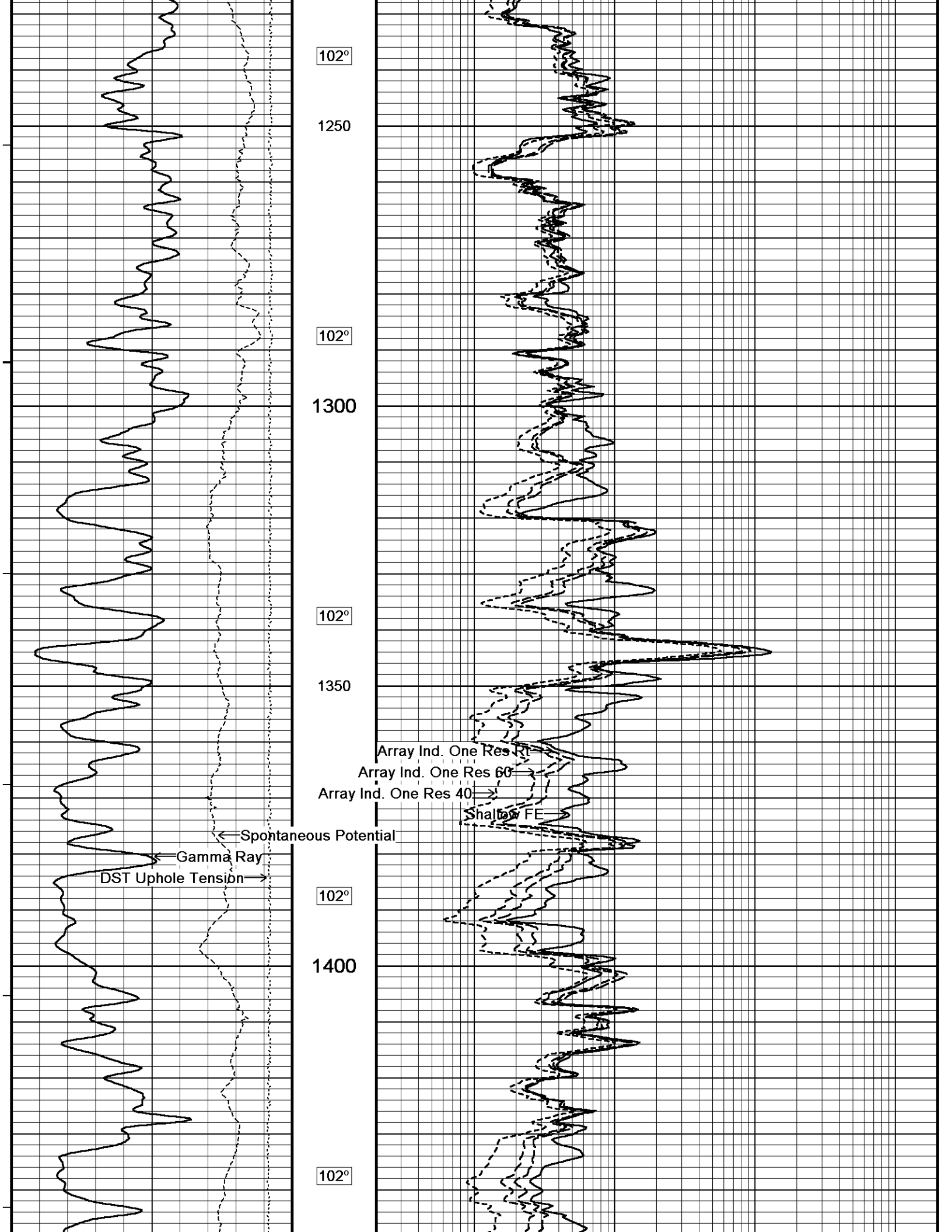
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102°
1350
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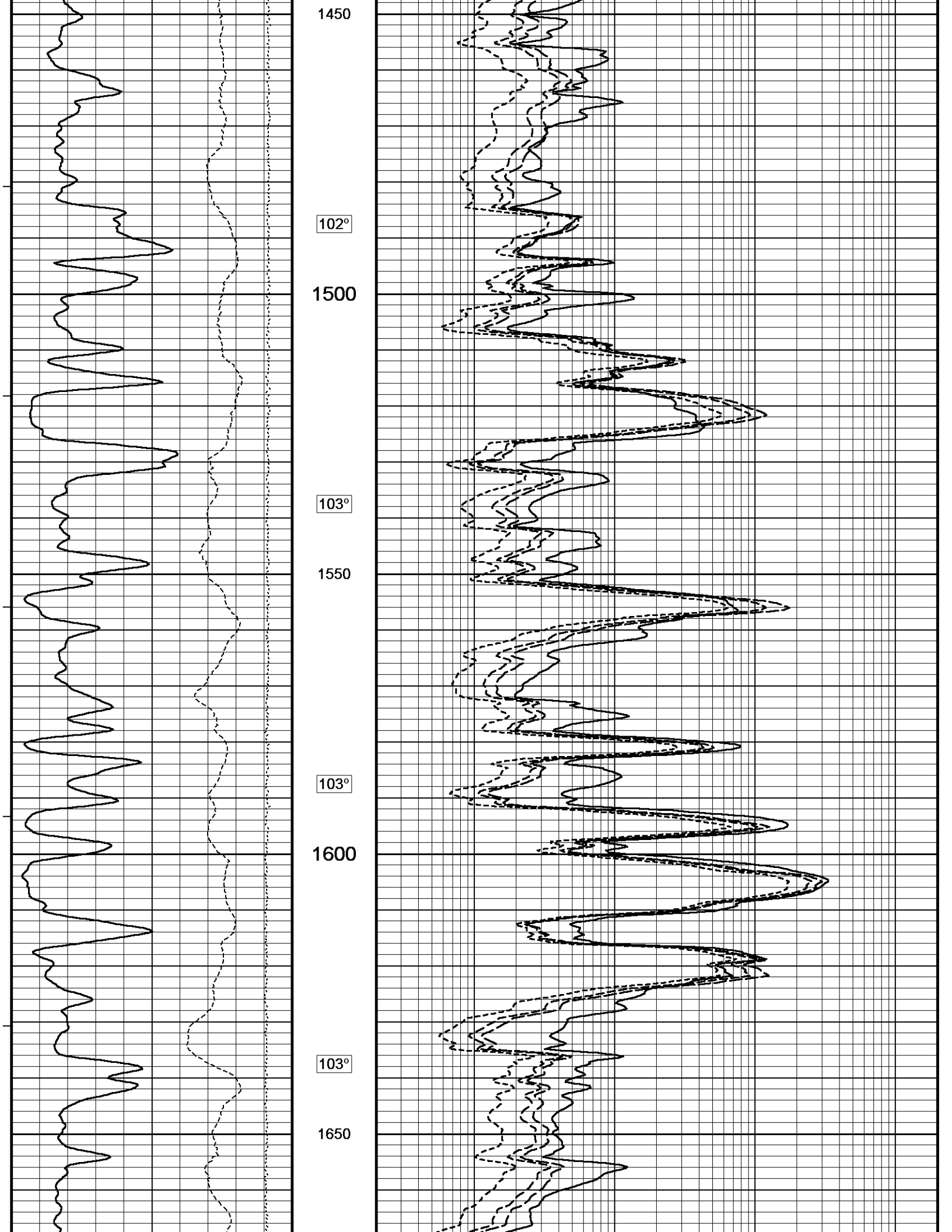
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
102°
1400
102°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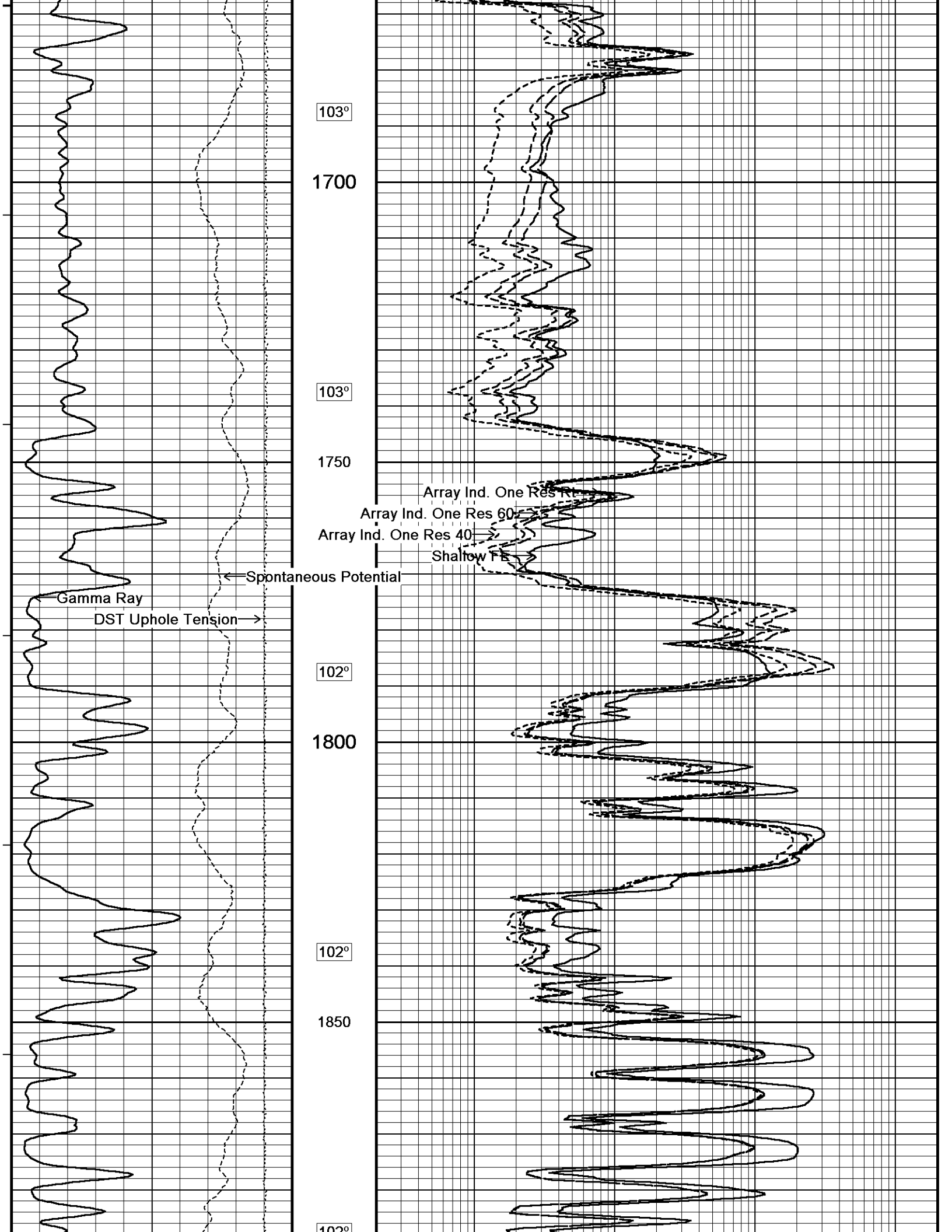
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Shallow Fl
Spontaneous Potential
Gamma Ray
DST Uphole Tension
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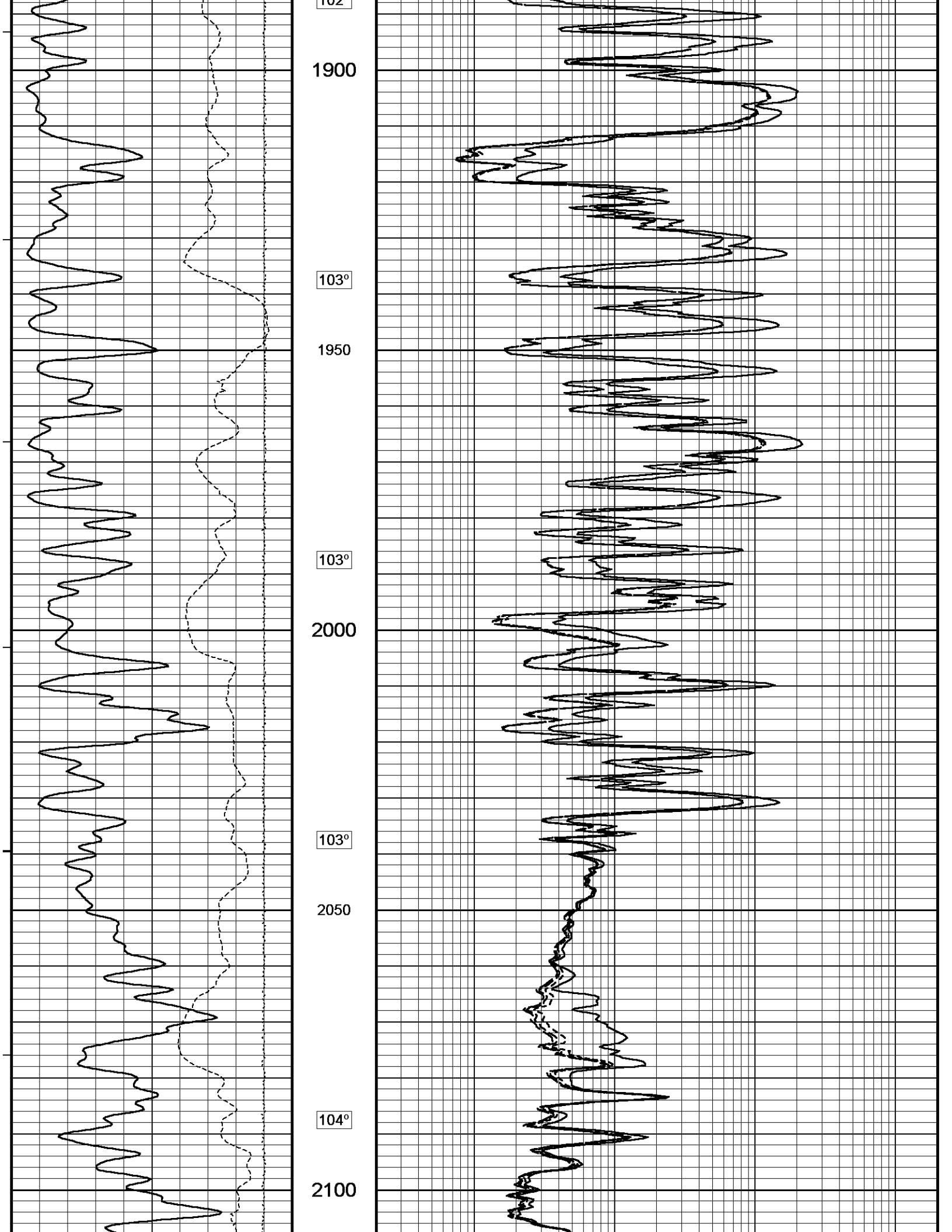
102°
1850
102°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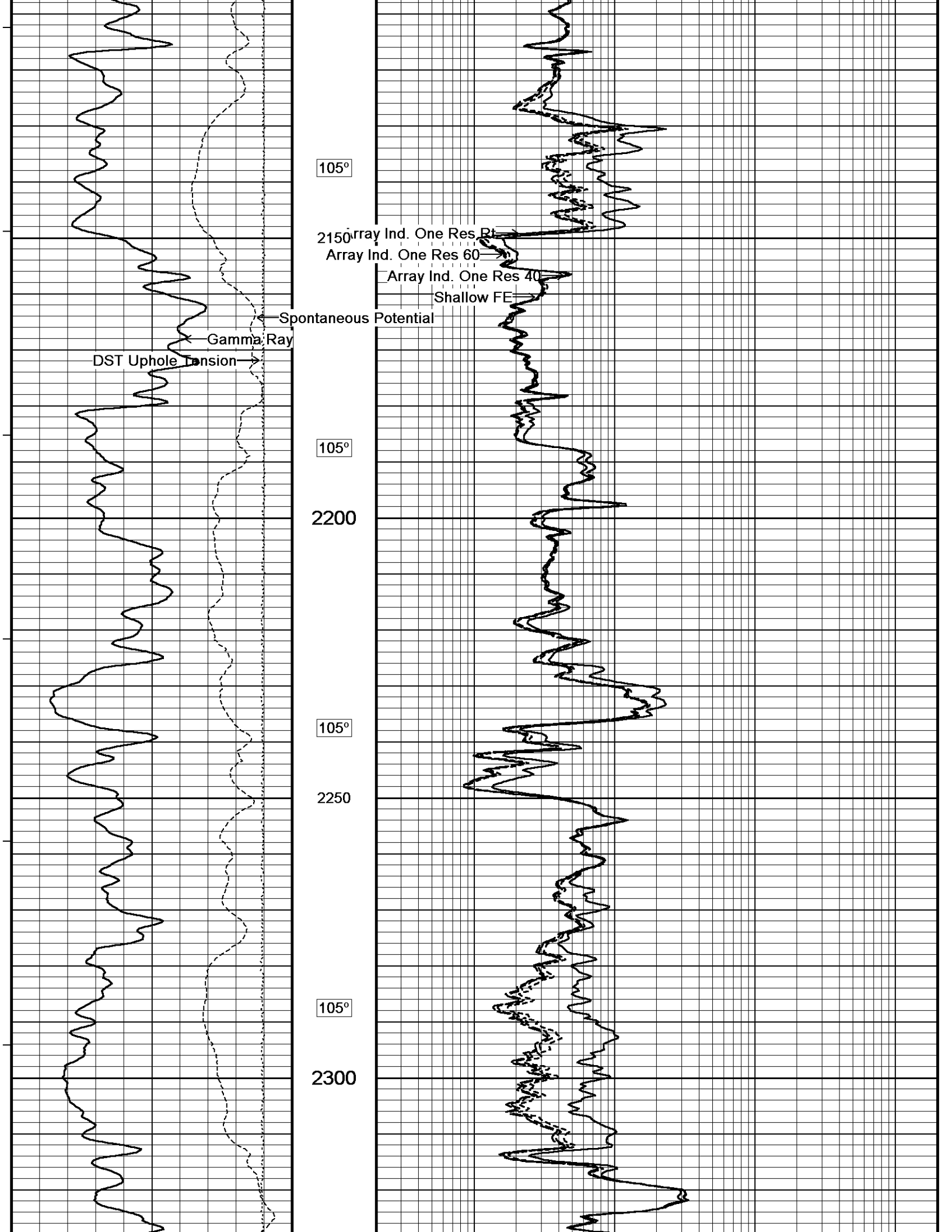
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Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
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105°
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105°
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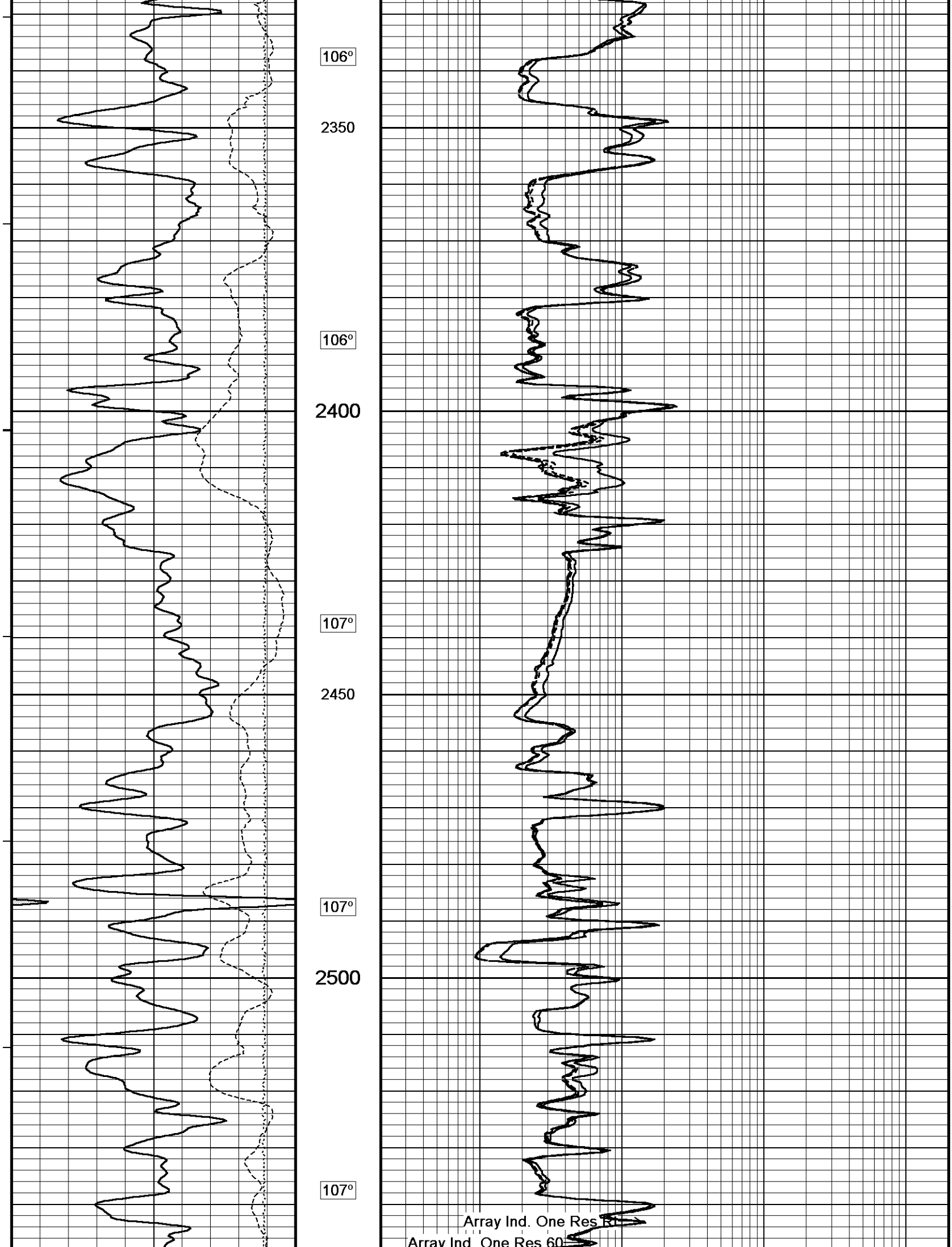
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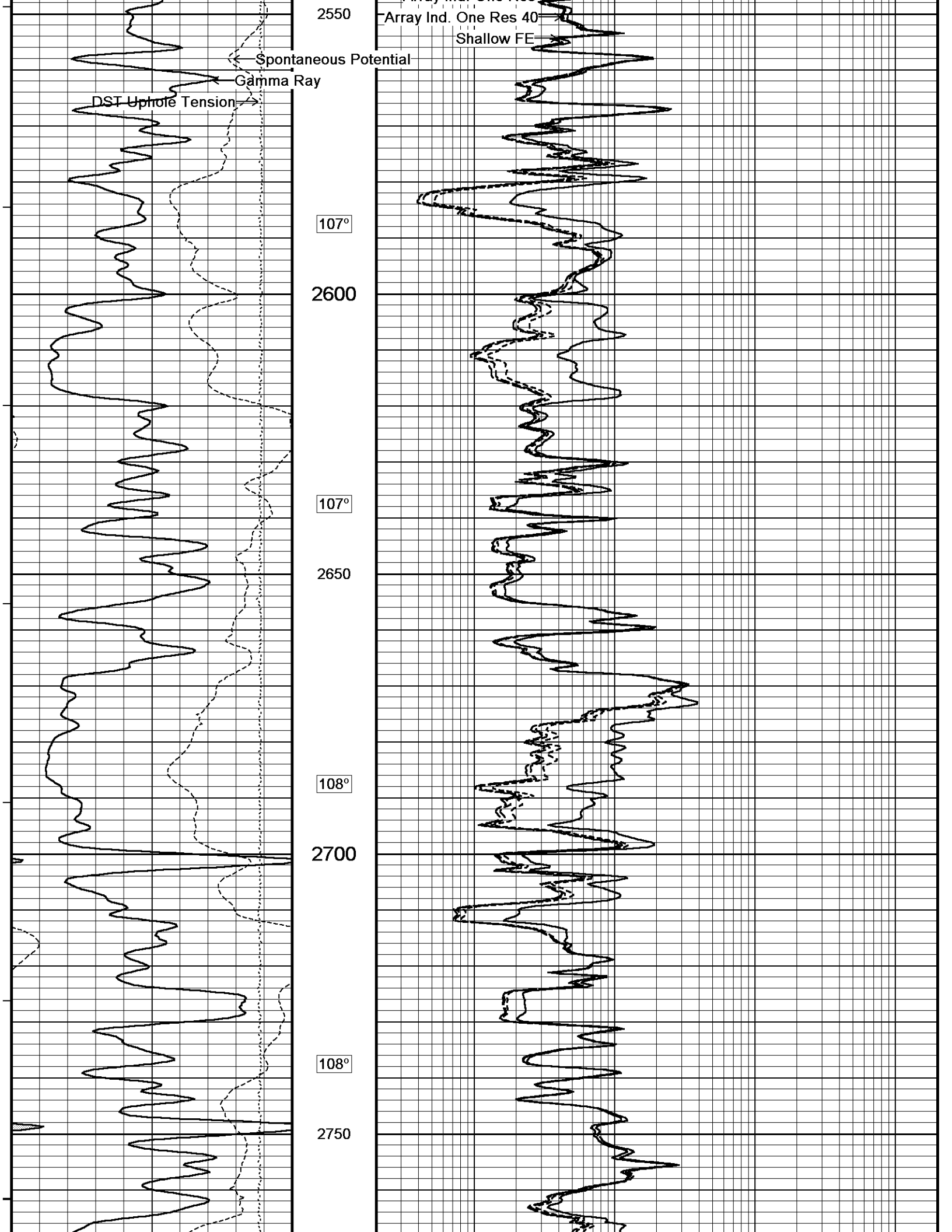
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Spontaneous Potential
Gamma Ray
DST Uphole Tension
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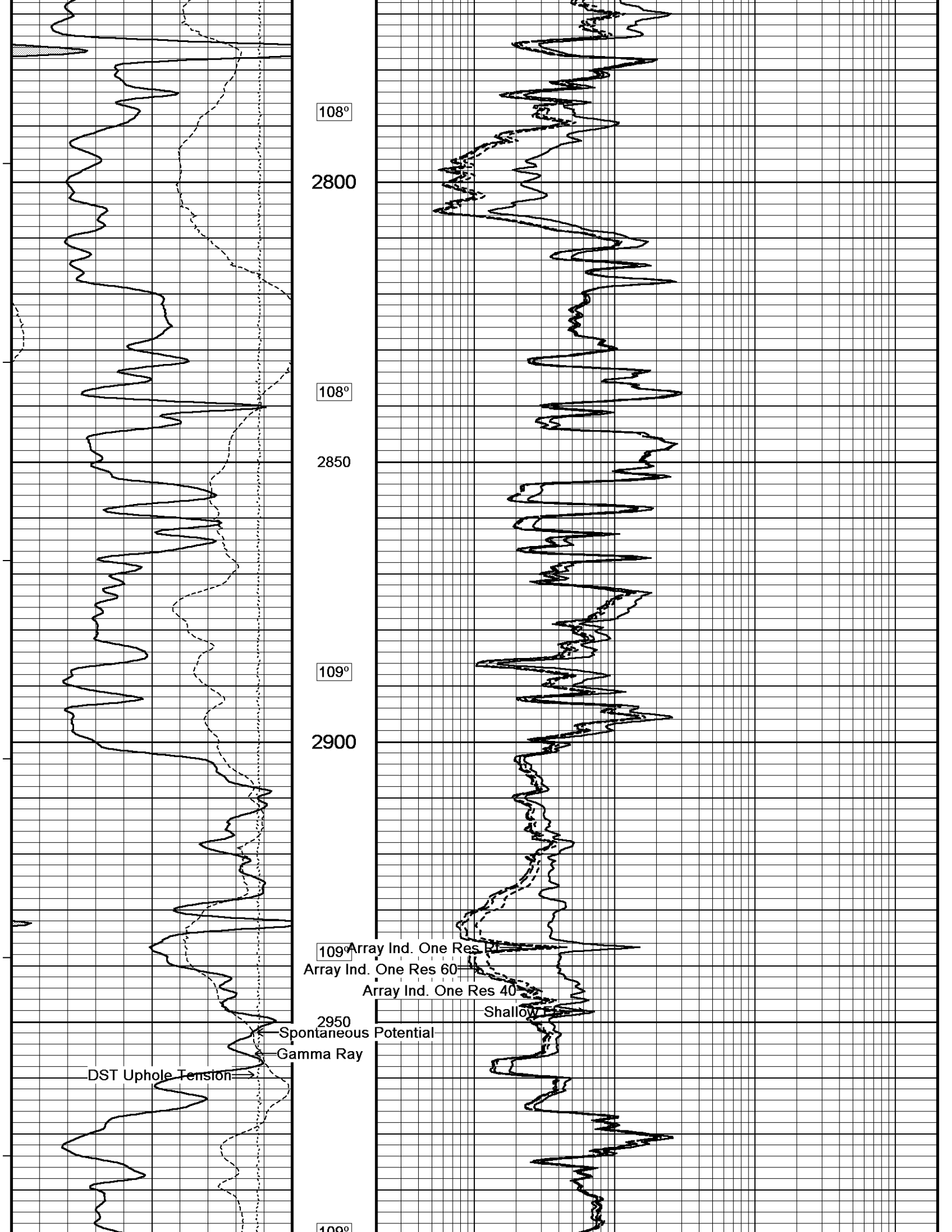
2750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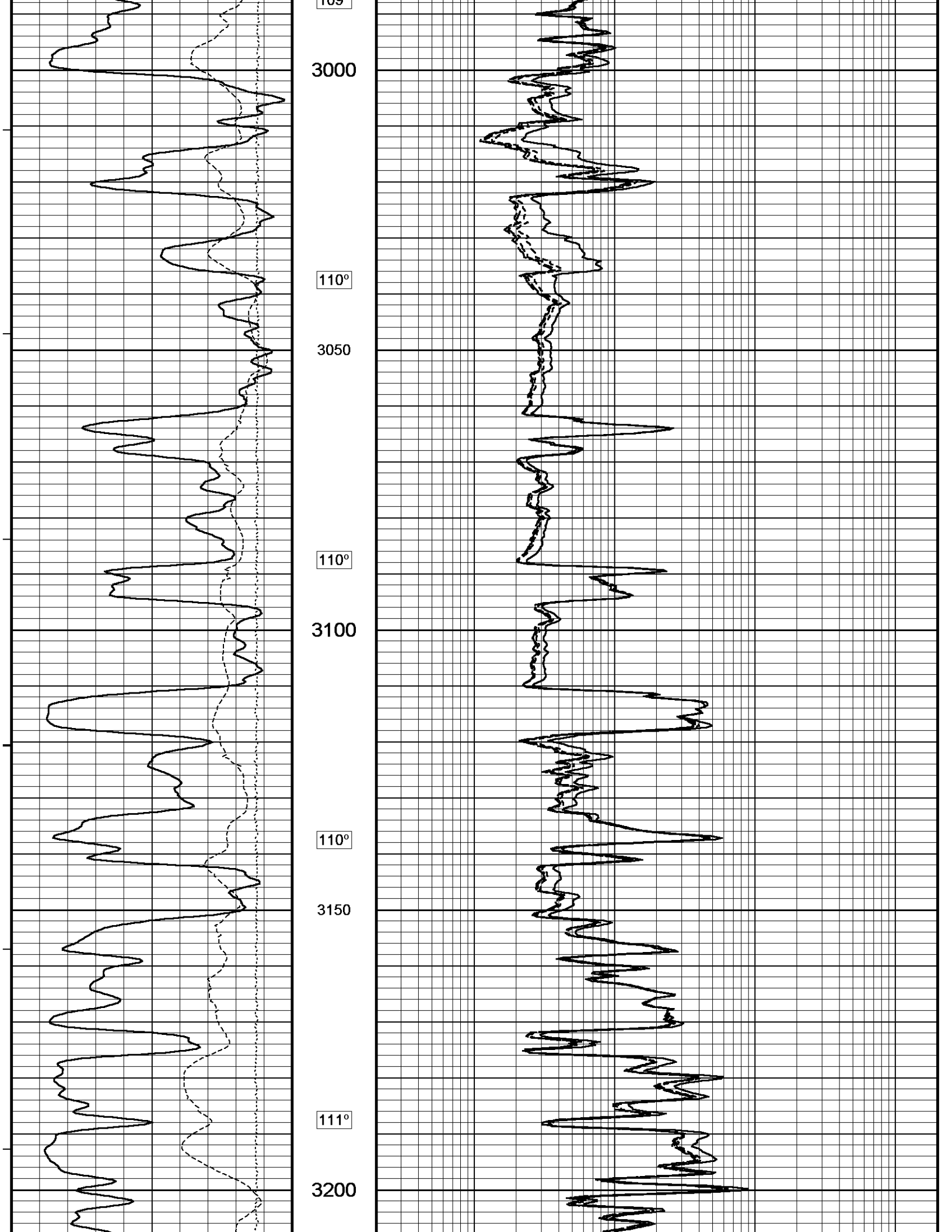
Shallow
Spontaneous Potential
Gamma Ray
DST Uphole Tension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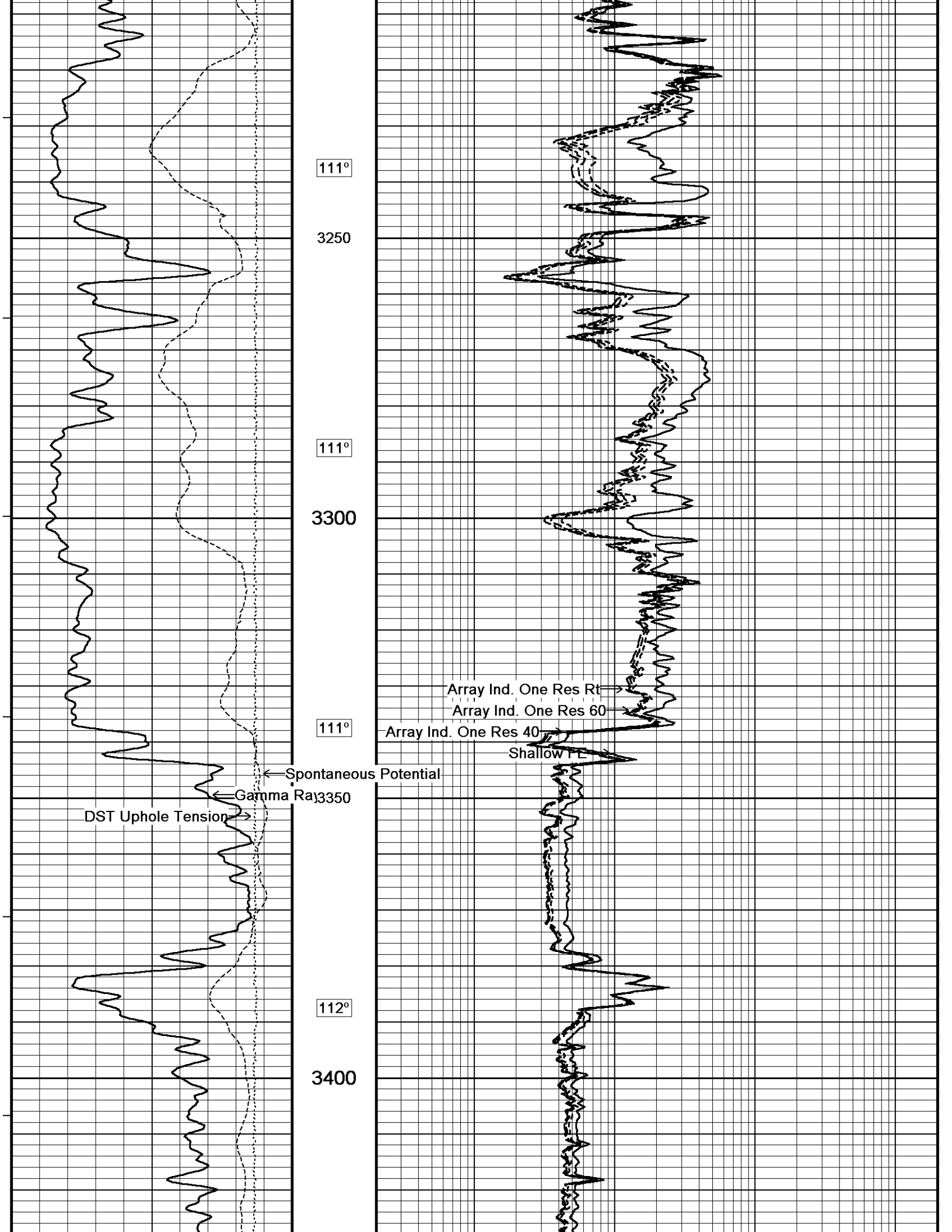
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Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
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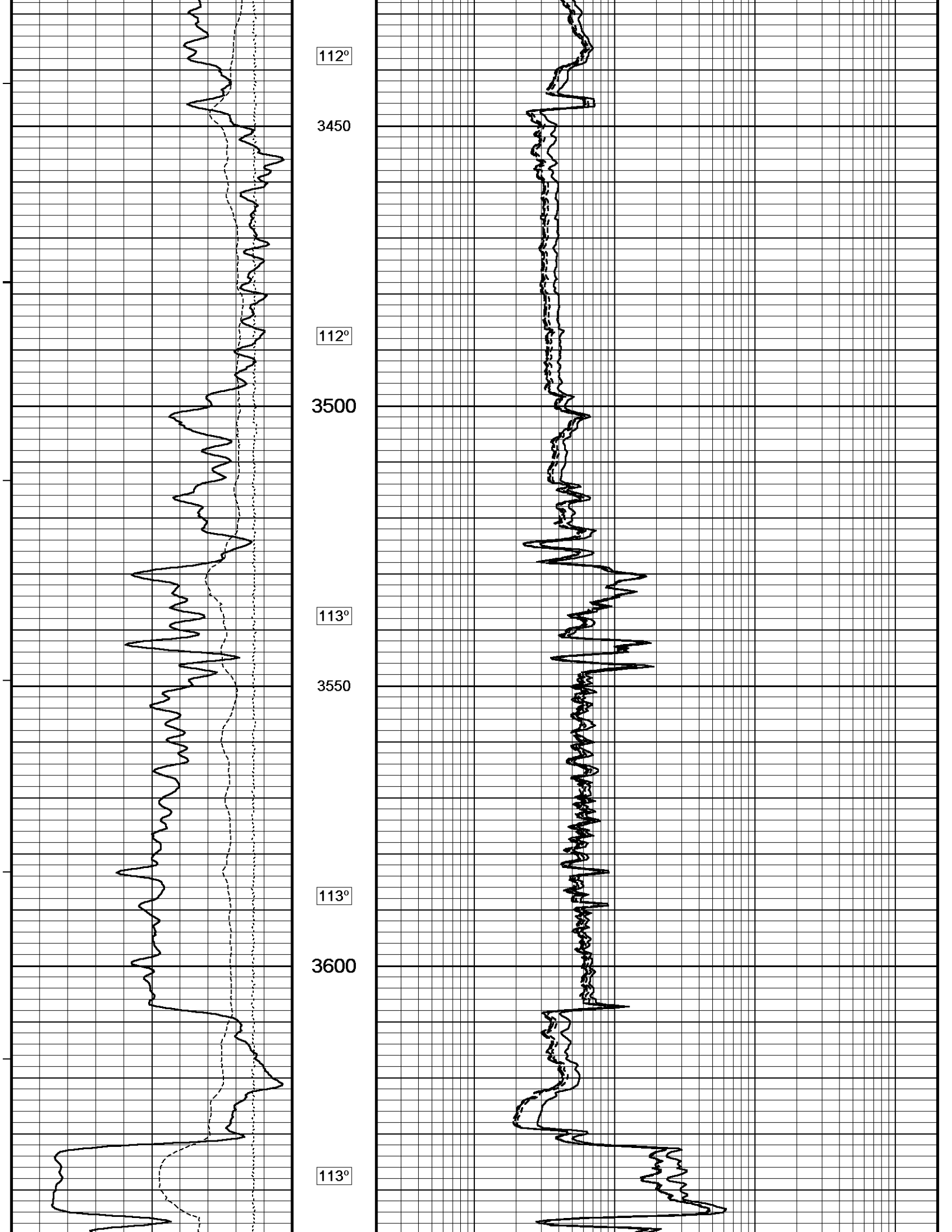
DST Uphole Tension
112°
3400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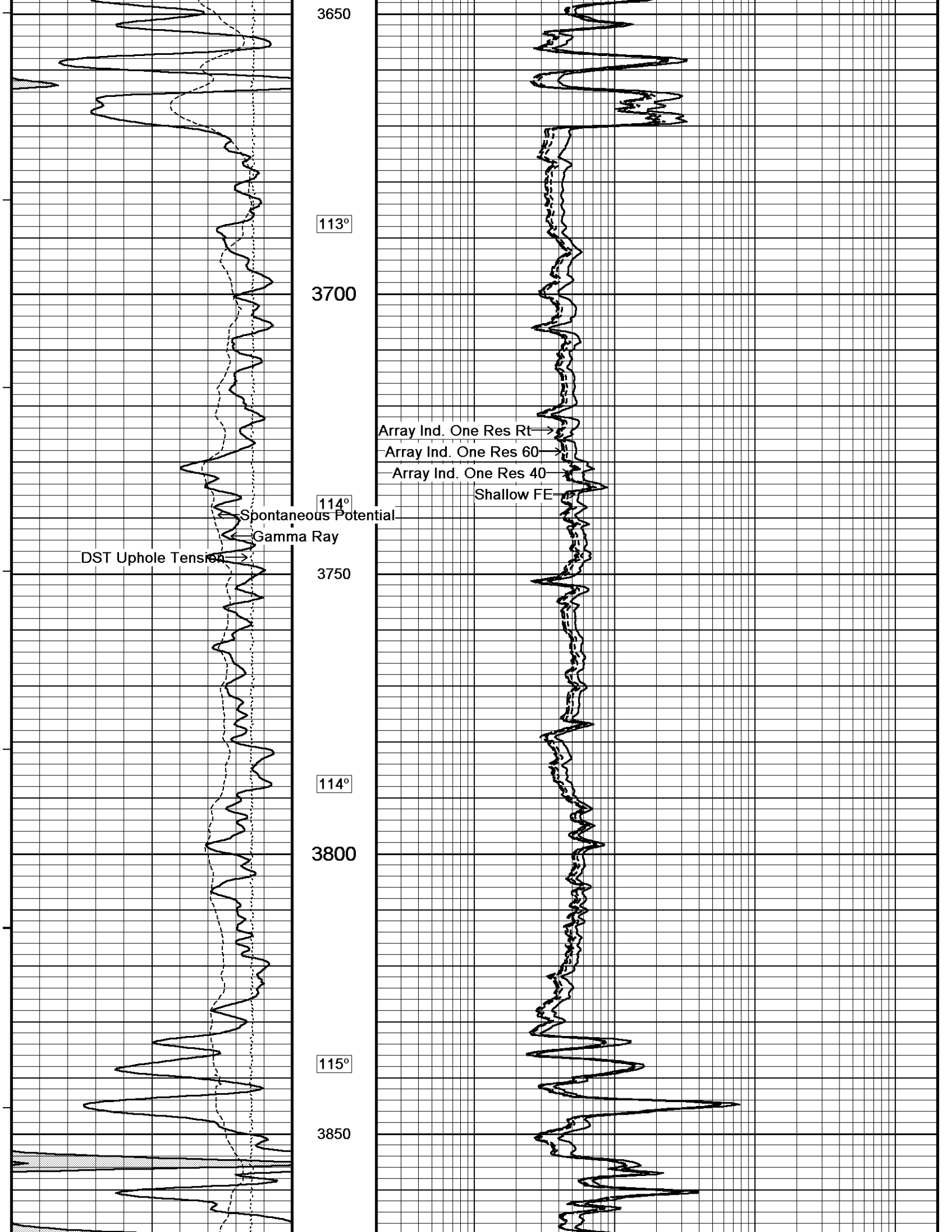
3450
112°
3500
113°
3550
113°
3600
113°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113°
3700
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Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
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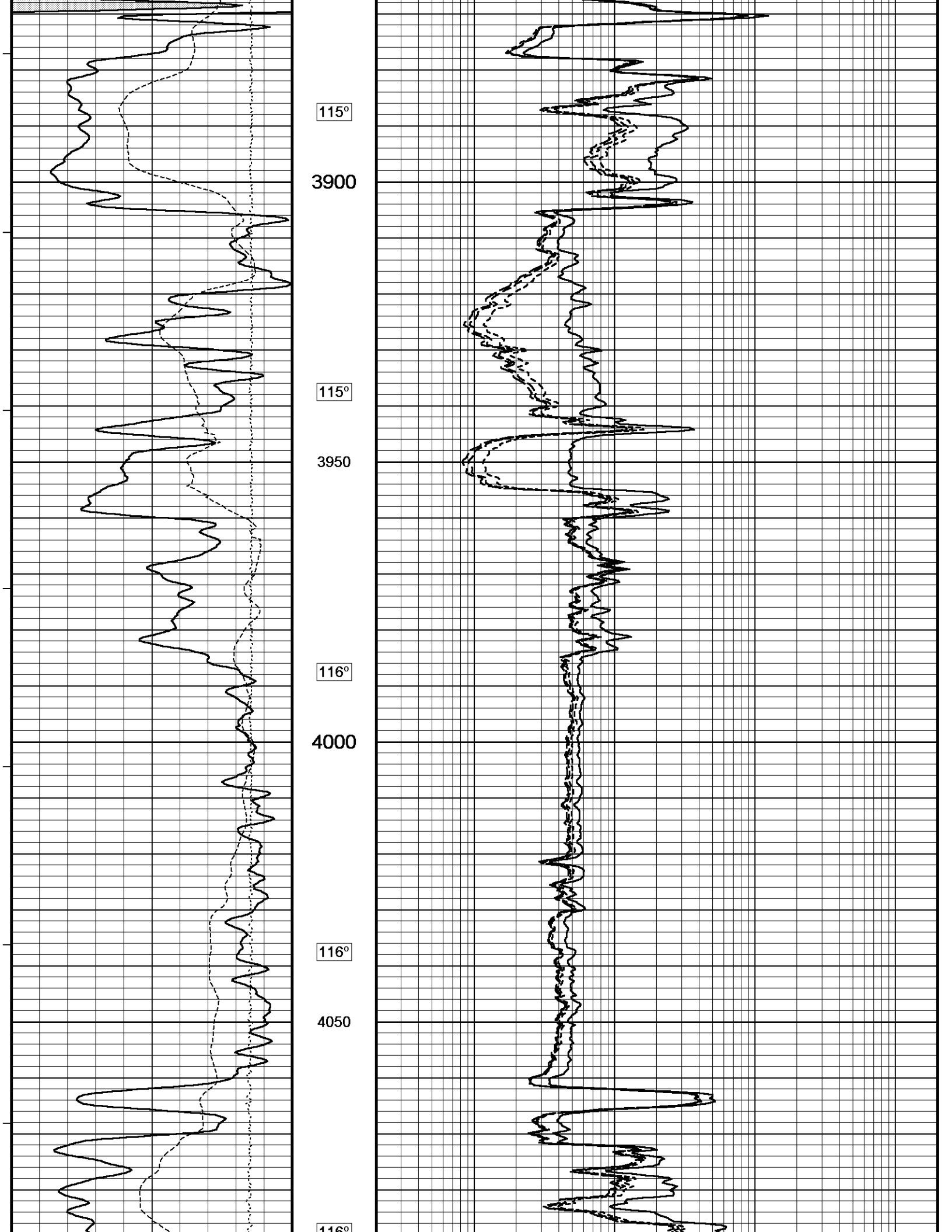
Spontaneous Potential
Gamma Ray
DST Uphole Tension
3750
114°
3800
115°
3850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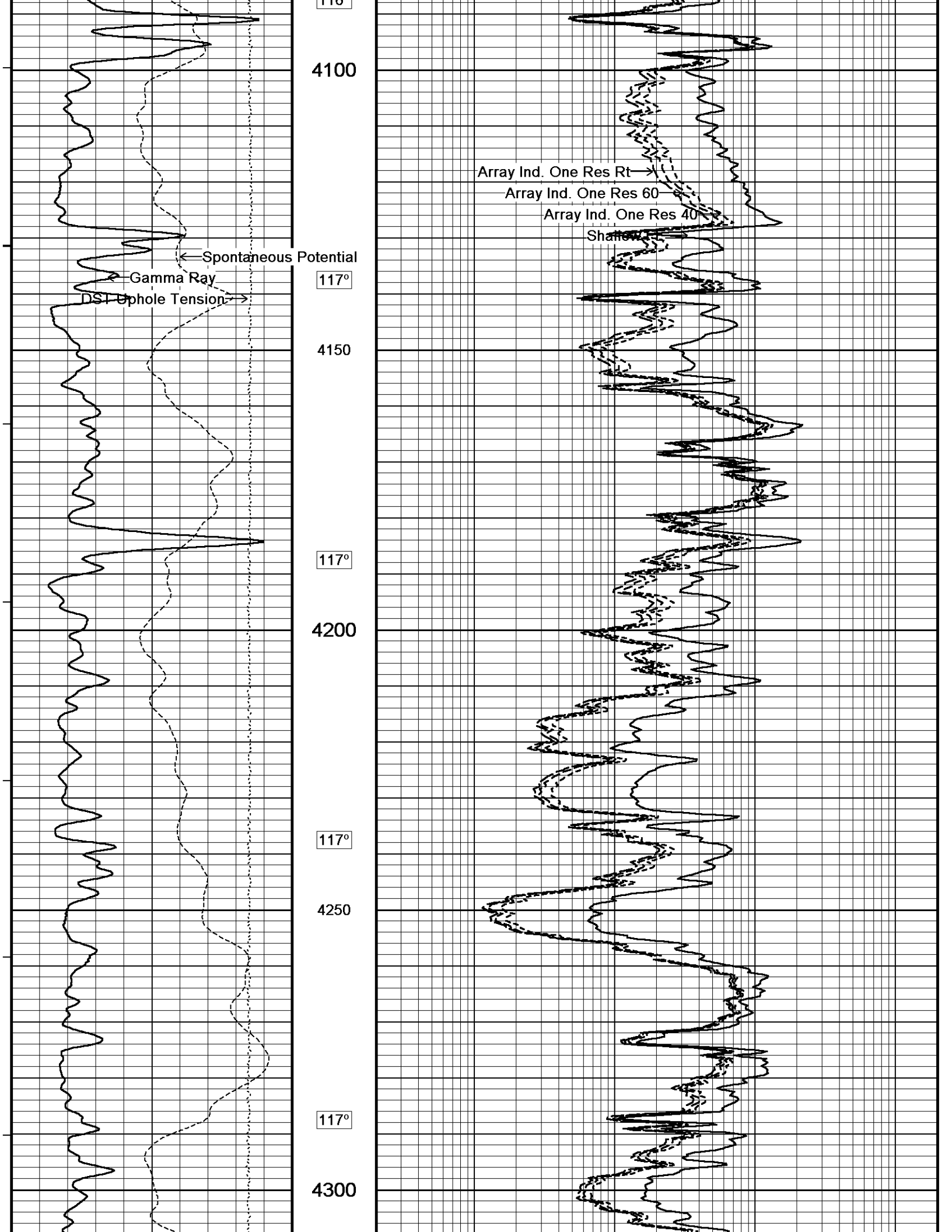
3950
116°
4000
116°
4050
116°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Spontaneous Potential
Gamma Ray
DSI Uphole Tension
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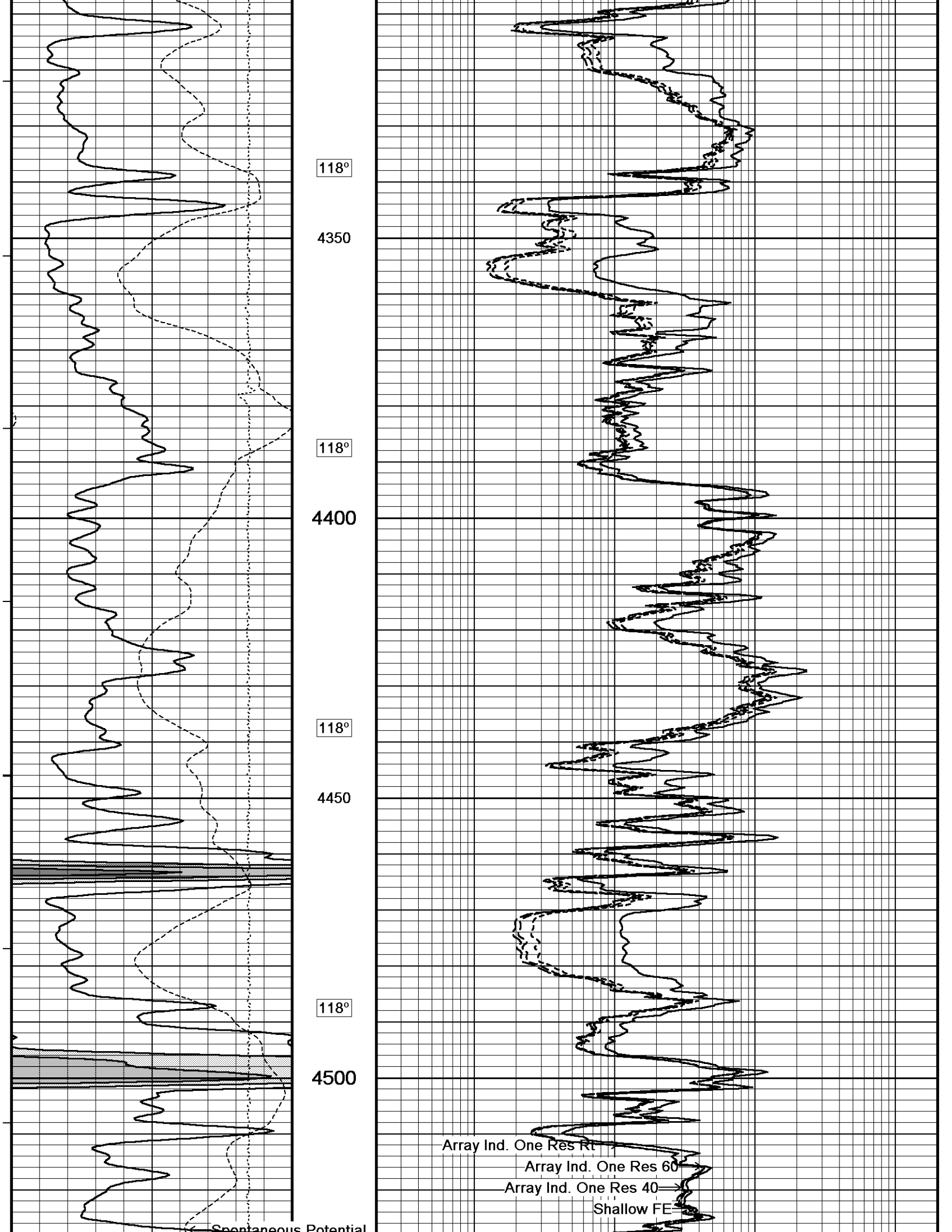
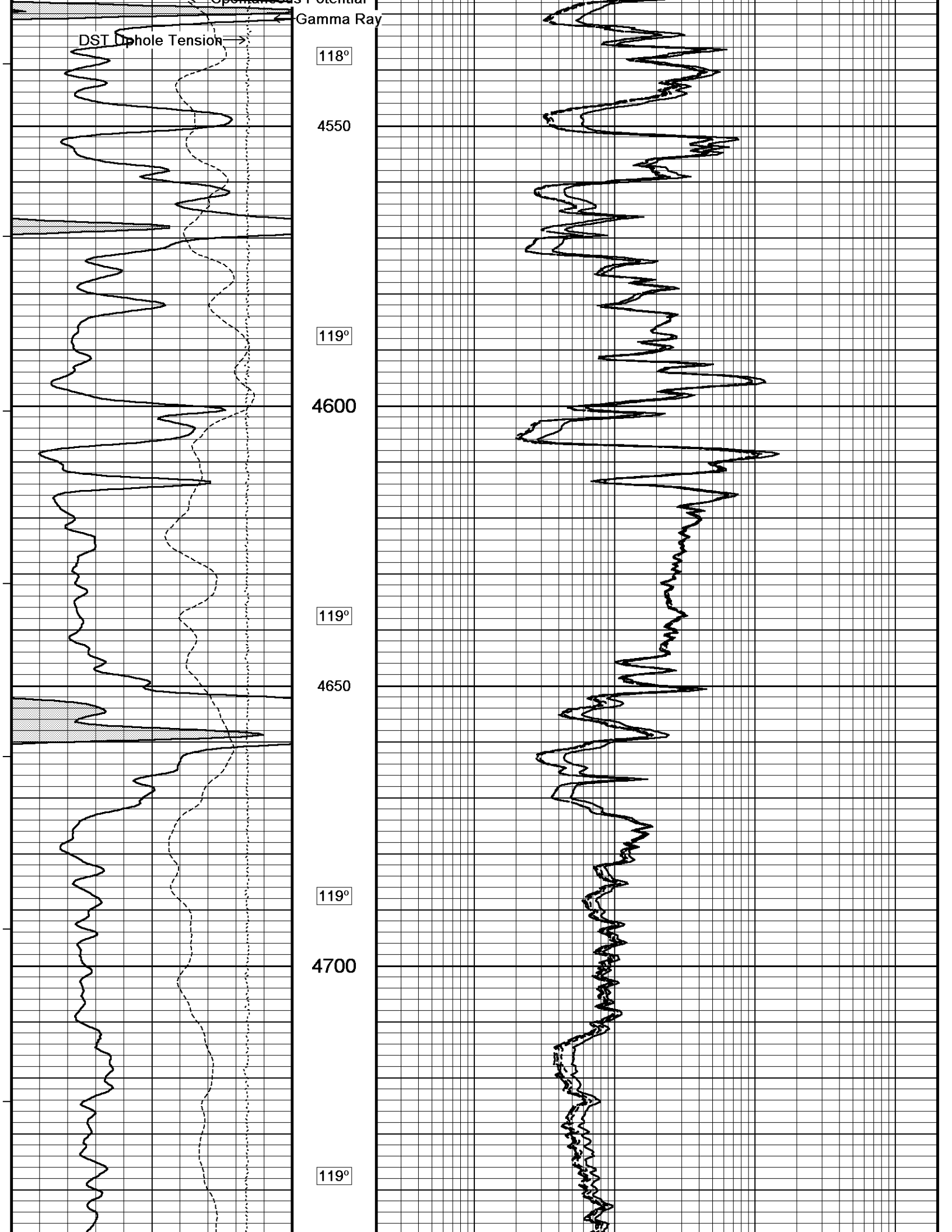
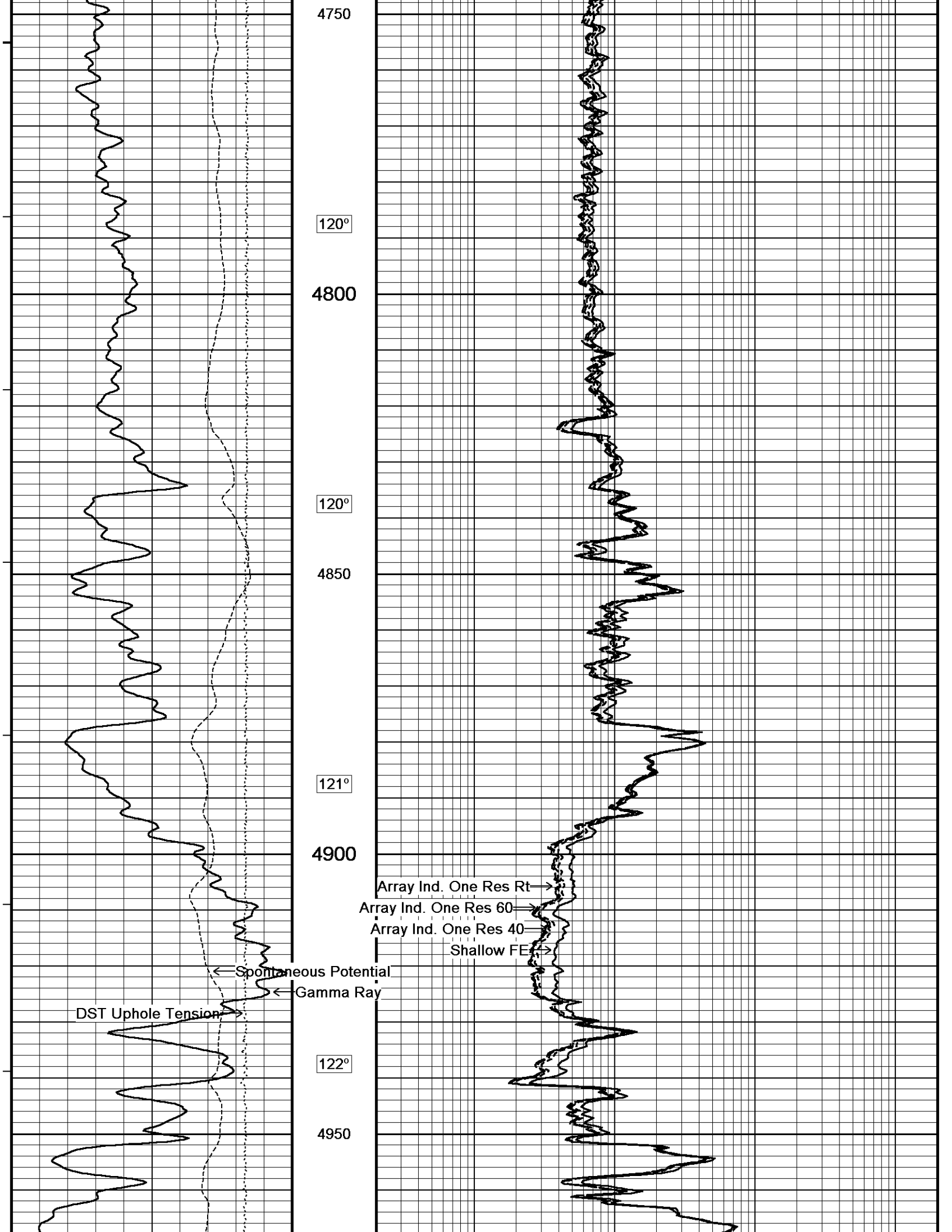
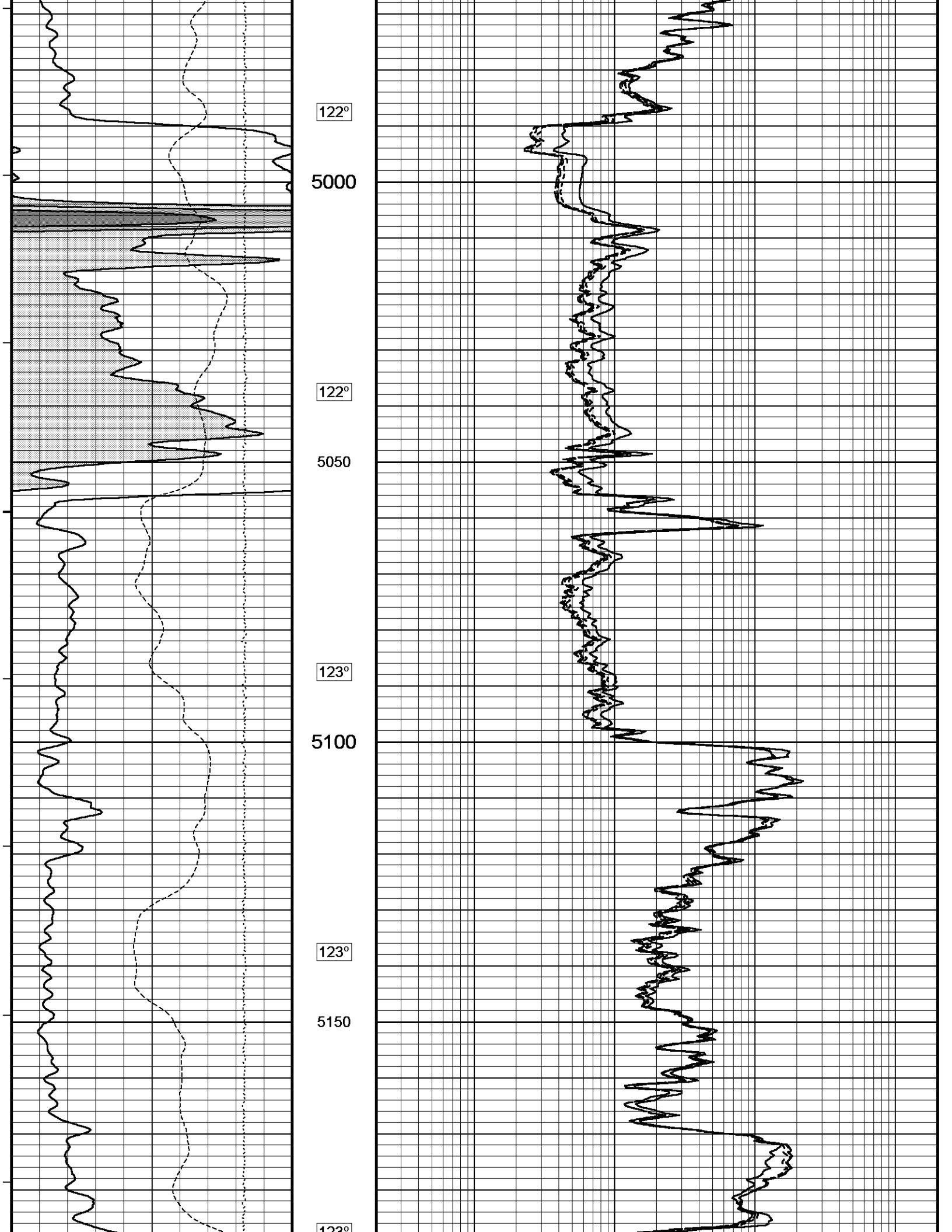
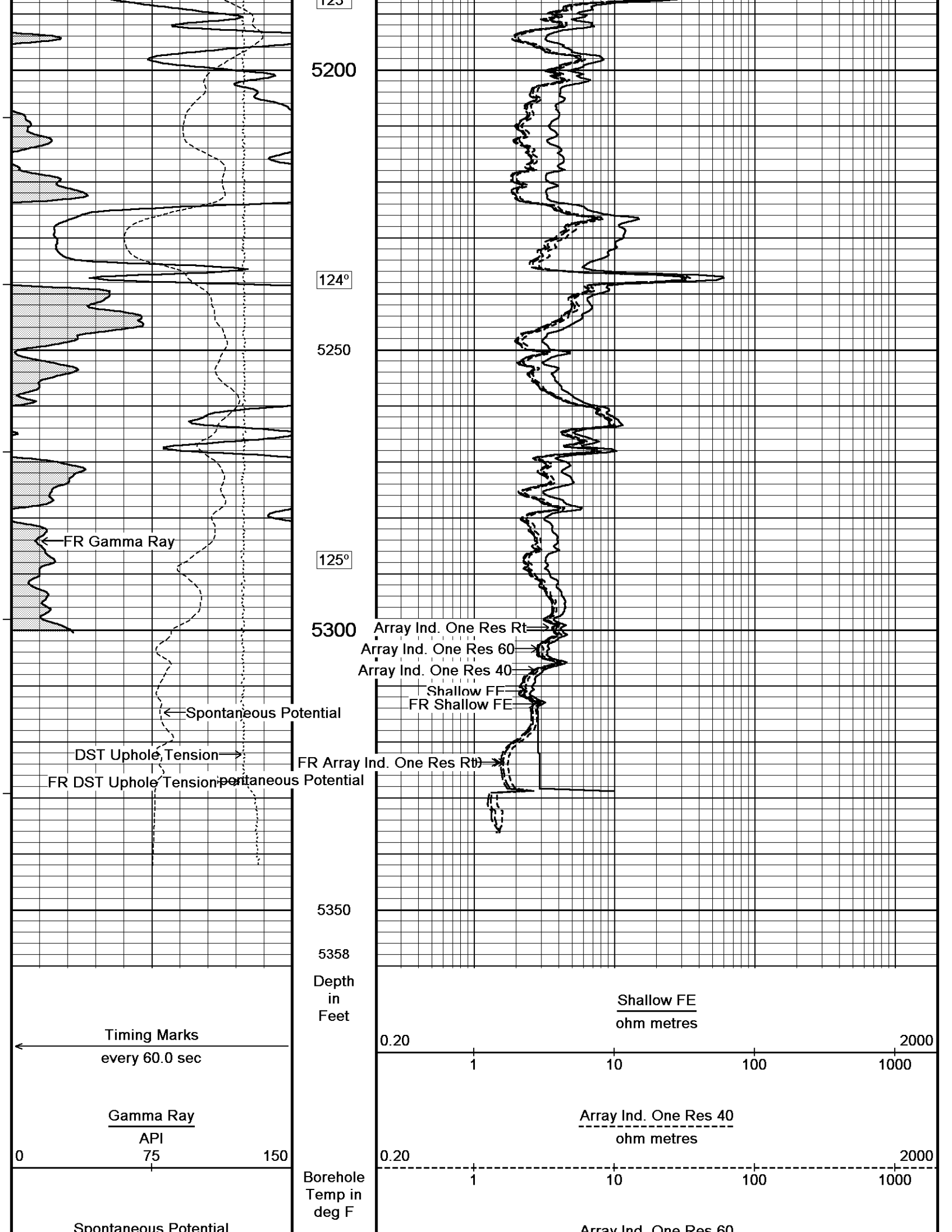
4150
117°
4200
117°
4250
117°
4300
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow


118°
4350
118°
4400
118°
4450
118°
4500
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential


Gamma Ray
DST Uphole Tension
118°
4550
119°
4600
119°
4650
119°
4700
119°


4750
120°
4800
120°
4850
121°
4900
122°
4950
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension


122°
5000
122°
5050
123°
5100
123°
5150
123°


123
5200
124°
5250
125°
5300
5350
5358
FR Gamma Ray
Spontaneous Potential
DST Uphole Tension
FR DST Uphole Tension
FR Array Ind. One Res Rt
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FF
FR Shallow FE
Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
Spontaneous Potential
Borehole Temp in deg F
Shallow FE
ohm metres
0.20
1
10
100
1000
2000
Array Ind. One Res 40
ohm metres
0.20
1
10
100
1000
2000
Array Ind. One Res 60

millivolts
– ⟶| 20 |⟵ +

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta
Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_002.dta
Recorded on 06-MAY-2012 11:24
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Spontaneous Potential
millivolts
– ⟶| 20 |⟵ +

DST Uphole Tension
pounds
5000 0

Depth
in
Feet

Borehole
Temp in
deg F

Replay
Scale
1:240

4950

121°

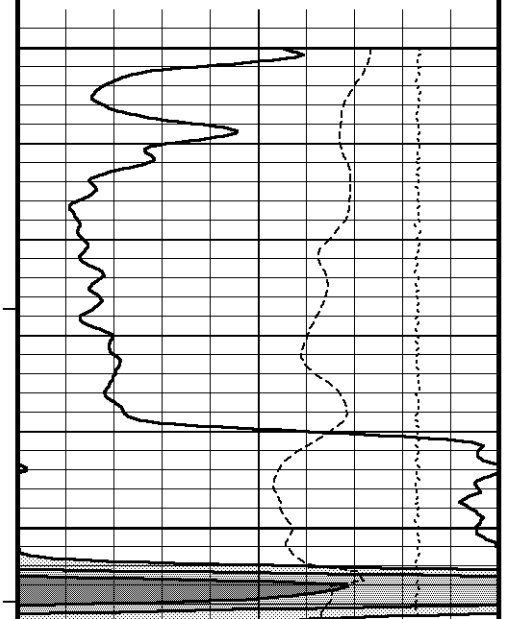
5000

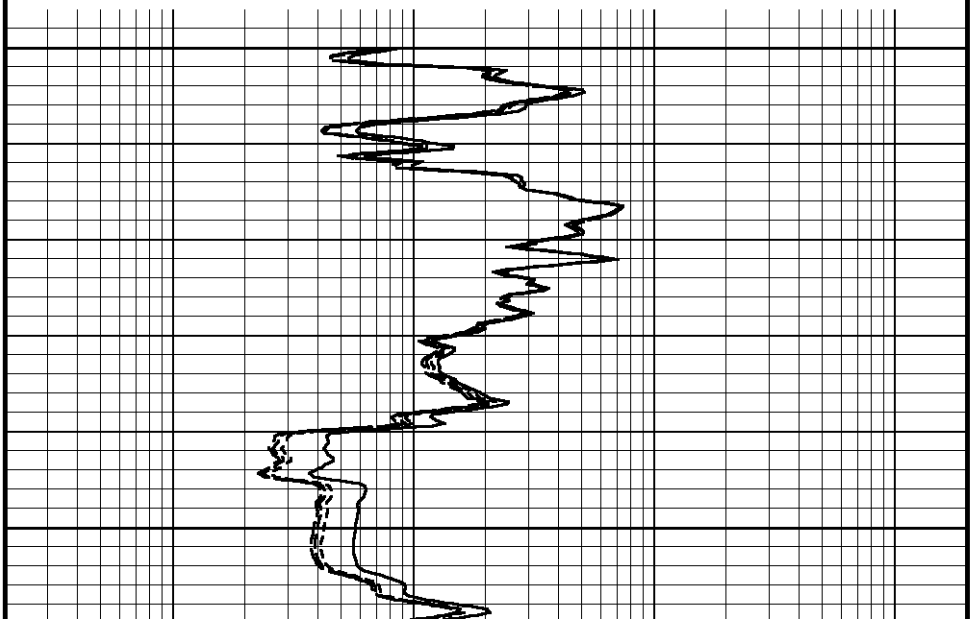
Shallow FE
ohm metres
0.20 2000
1 10 100 1000

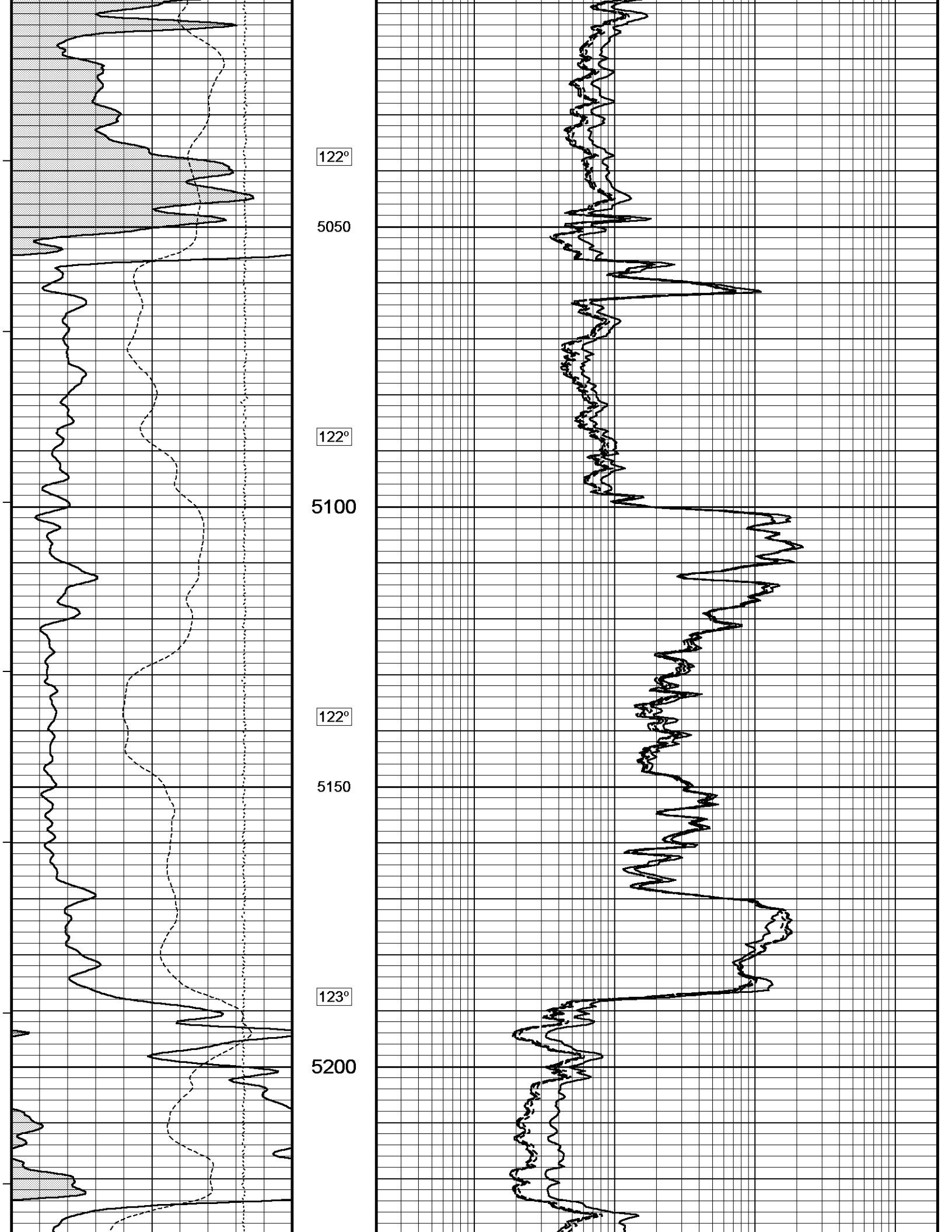
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

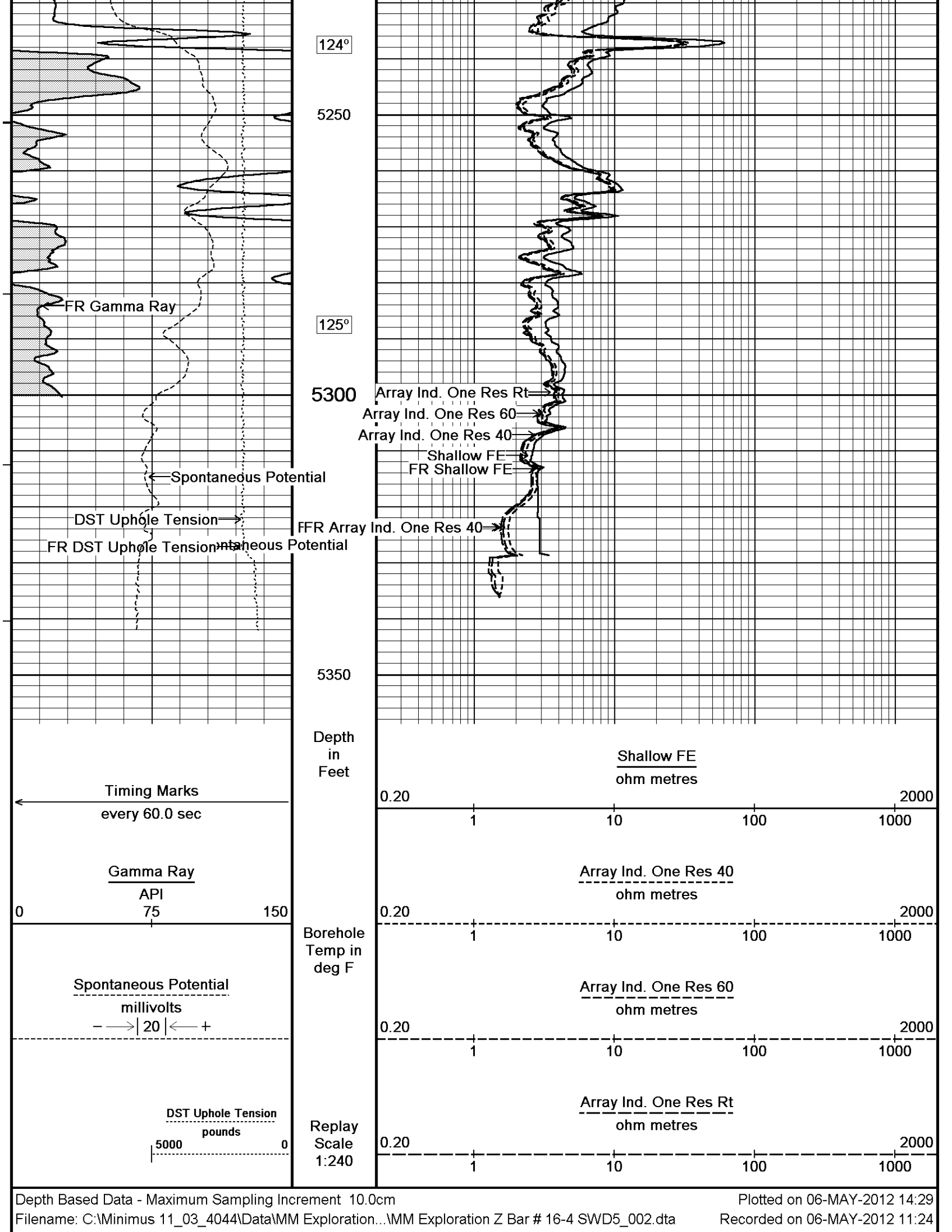
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000






122°
5050
122°
5100
122°
5150
123°
5200



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 06-MAY-2012 14:29

Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_002.dta

Recorded on 06-MAY-2012 11:24

System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 11_03_4044\Data\MM Exploration Z Bar # 16-4 SWD\MM Exploration Z Bar # 16-4 SWD5_003.dta

General Constants All 000

Last Edited on 0C4060A13004,

General Parameters		
Mud Resistivity	1.020	ohm-metres
Mud Resistivity Temperature	73.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 23-FEB-2012 23:25

Reading No	Measured	Calibrated (lbs)
1	13693.36	0.00
2	14387.39	407.90

Gamma Calibration MCG-B 39

Field Calibration on 0C4060532000

	Measured	Calibrated (API)
Background	45	30
Calibrator (Gross)	726	486
Calibrator (Net)	681	456

Gamma Constants MCG-B 39

Last Edited on 0C4060A13004,

Gamma Calibrator Number	GRC141	
Mud Density	1.05	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-B 39

Field Calibration on 0C30B0F0100C

	Measured	Calibrated (mV)
Reference 1	101.0	100.0
Reference 2	-99.7	-100.0

High Resolution Temperature Calibration MCG-B 39

Field Calibration on 0C317000C008,

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-B 39

Last Edited on

Pre-filter Length	11

Caliper Calibration MML-A 4

Base Calibration on 0C3170021008,
Field Calibration on 0C4060524000

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15017	5.98
2	18447	7.97
3	21786	9.86
4	25801	11.92

4	25801	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.08	5.98

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 0C3170023008,
Field Check on 0C4060525000

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.3	48.3

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 0C4060A13004,

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	1.0000	
Micro Inverse K Factor	1.0000	
Standoff Offset	N/A	inches

Neutron Calibration MDN-B.J 387

Base Calibration on 0C31C0938008
Field Check on 0C4060537000

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2956	91	3714	110
Ratio	32.635		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2214	3169
Ratio	0.699	

Field Check

	Calibrated (cps)	
	2202	3182
Ratio	0.692	

Neutron Constants MDN-B.J 387

Last Edited on 06-MAY-2012,10:54

Neutron Source Id	P0204NN	
Neutron Jig Number	NEDC117	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 0C31B0831004
Field Check on 0C4060523000

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.7	126.8
Base Check		281.5
Field Check		281.5

FE Constants MFE-B.J 352

Last Edited on 0C4060A09004,

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Induction Calibration MAI-A.A 178

Base Calibration on 0C31B0B06000,
Field Check on 0C4060521000

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.6	484.7	9.3	966.2
2	6.2	391.4	7.6	821.4
3	4.0	264.5	5.2	566.0
4	2.3	135.1	2.6	279.2

Array Temperature 77.0 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	0.0	0.0	12.3	3762.6
2	0.0	0.0	29.6	3466.9
3	0.0	0.0	27.3	3014.1
4	0.0	0.0	18.8	2064.7
Deep	0.0	0.0	15.9	1995.3
Medium	0.0	0.0	40.3	3955.3
Shallow	0.0	0.0	45.3	5081.7

Array Temperature 0.0 72.7 Deg F

Induction Constants MAI-A.A 178

Last Edited on 0C4060A08004,

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Constant Value	
Temp. for Rm Corr.	N/A	
Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m

Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

High Resolution Temperature Calibration MAI-A.A 178

Field Calibration on 0C4030110004,

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	68.00	68.00

High Resolution Temperature Constants MAI-A.A 178

Last Edited on 0C4060522000,

Pre-filter Length	11

Photo Density Calibration MPD-B 35

Base Calibration on 0C31C0B00008
Field Check on 0C406052B000

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	62298	31871	59556	30836
Reference 2	26887	2863	24941	2541
Field Check at Base	1142.9	1359.1		
Field Check	1145.7	1361.2		

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	204	1008		
Reference 1	23049	62096	0.374	0.371
Reference 2	7079	26739	0.267	0.272
Field Check at Base	204.4	1008.1		
Field Check	206.4	1011.8		

Density Constants MPD-B 35

Last Edited on 0C4060A0A004,

Density Source Id	18235B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.05	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-B 35

Base Calibration on 0C31C0A2C008
Field Calibration on 0C4060527000

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	20688	3.99
2	30944	5.98

3	41312	7.97
4	50976	9.86
5	61184	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.98

DOWNHOLE EQUIPMENT

C:\Minimus 11_03_4044\Data\MM Exploration Z Bar # 16-4 SWD\MM Exploration Z Bar # 16-4 SWD5_003.dta

Compact Comms Gamma
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

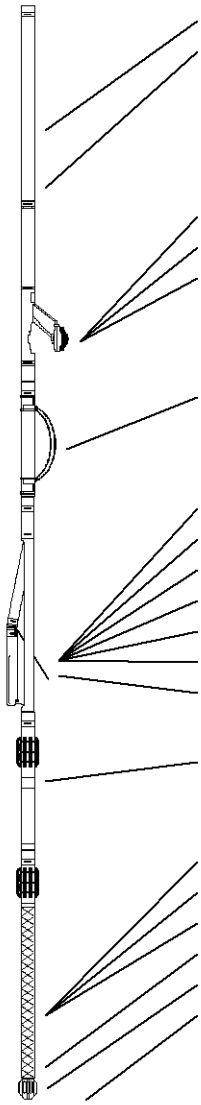
Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 48.16 ft Weight: 383.6 lb



42.87 ft	GRGC - Gamma Ray
39.96 ft	CGXT - MCG External Temperature
33.24 ft	MINV - Micro-inverse
33.24 ft	MNRL - Micro-normal
34.24 ft	MLTC - MML Caliper
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.28 ft	DPRL - Limestone Density Por.
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	M&M EXPLORATION, INC
WELL	Z BAR 16-4 SWD
FIELD	AETNA NE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1571.00	feet	First Reading	5324.00	feet
Elevation Drill Floor	1569.00	feet	Depth Driller	5330.00	feet
Elevation Ground Level	1559.00	feet	Depth Logger	5327.00	feet

ARRAY INDUCTION
SHALLOW FOCUSED

40 Years of Wireline

Weatherford® ELECTRIC LOG

Weatherford — ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	M&M EXPLORATION, INC
WELL	Z BAR 16-4 SWD
FIELD	AETNA NE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	400' FNL & 530' FWL NW/4

40 Wireline

SEC	TWP	RGE	Other Services
16	34S	14W	MPD/MDN MML

API Number 15-007-23843
Permit Number

Permanent Datum G.L., Elevation 1559 feet
Log Measured From KB
Drilling Measured From K.B.

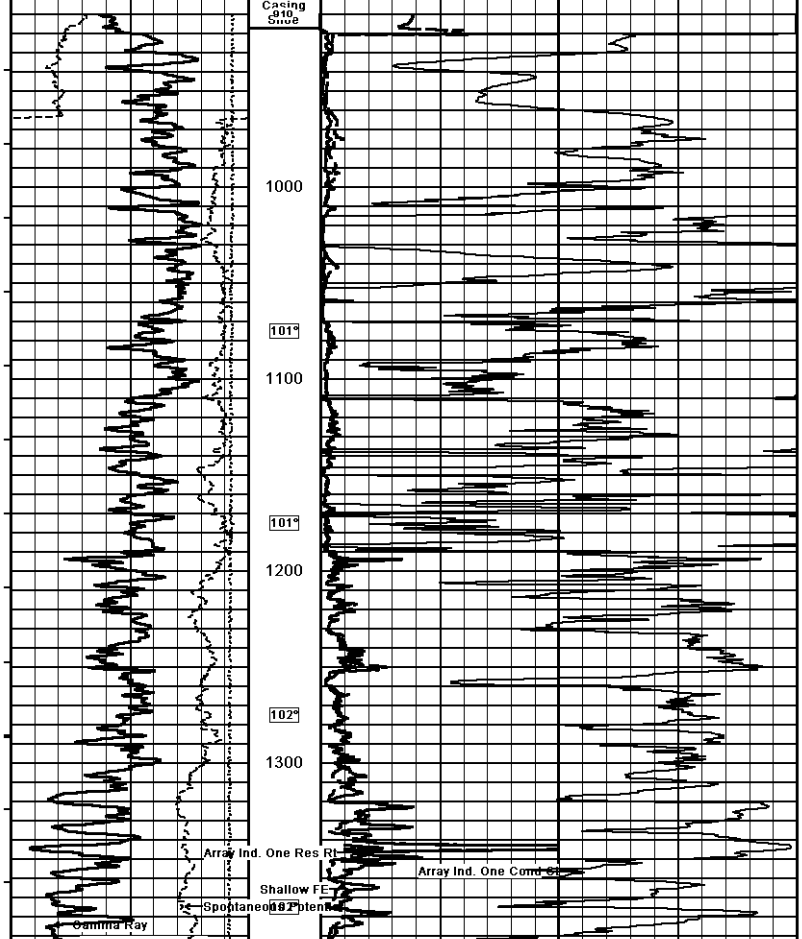
Elevations:	feet
KB	1571.00
DF	1569.00
GL	1559.00

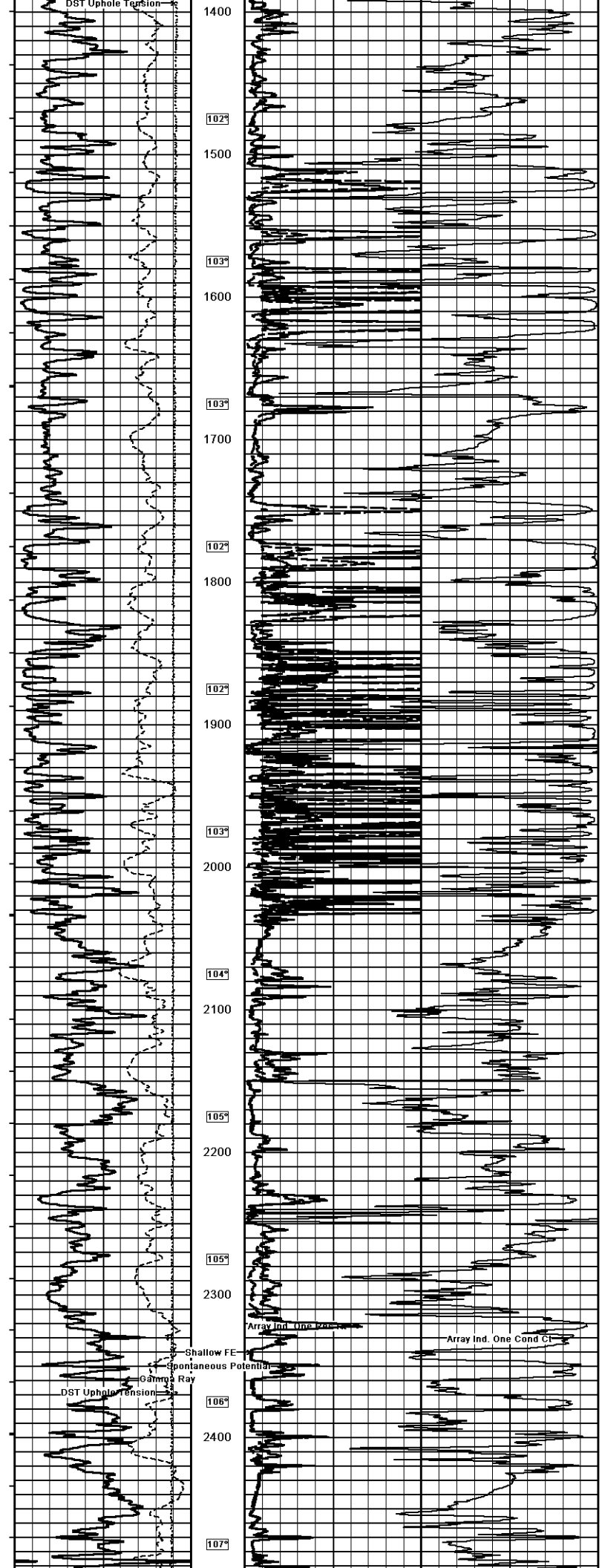
Date	06-MAY-2012		
Run Number	ONE		
Depth Driller	5330.00 feet		
Depth Logger	5327.00 feet		
First Reading	5324.00 feet		
Last Reading	917.00 feet		
Casing Driller	916.00 feet		
Casing Logger	917.00 feet		
Bit Size	7.875 inches		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	8.80 lb/USg	48.00 CP	
PH / Fluid Loss	9.00	10.80 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.02 @ 73.0 ohm-m		
Rmf @ Measured Temp	0.82 @ 73.0 ohm-m		
Rmc @ Measured Temp	1.22 @ 73.0 ohm-m		
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.61 @ 125.0 ohm-m		
Time Since Circulation	4 HOURS		
Max Recorded Temp	125.00 deg F		
Equipment Name	COMPACT		
Equipment / Base	13096	LIB	
Recorded By	F. MARTINS		
Witnessed By	B. BROCK		
S.O. / JOB #	3534534		LB12-114

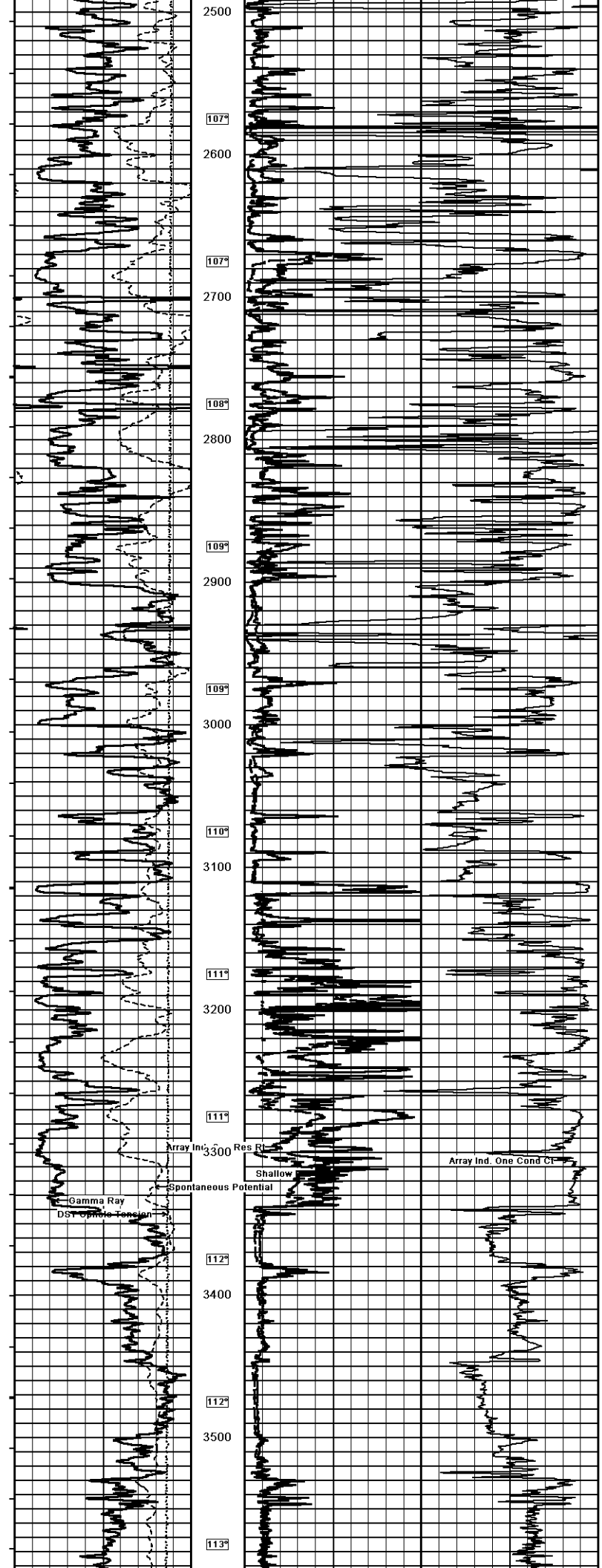
1 INCH MAIN

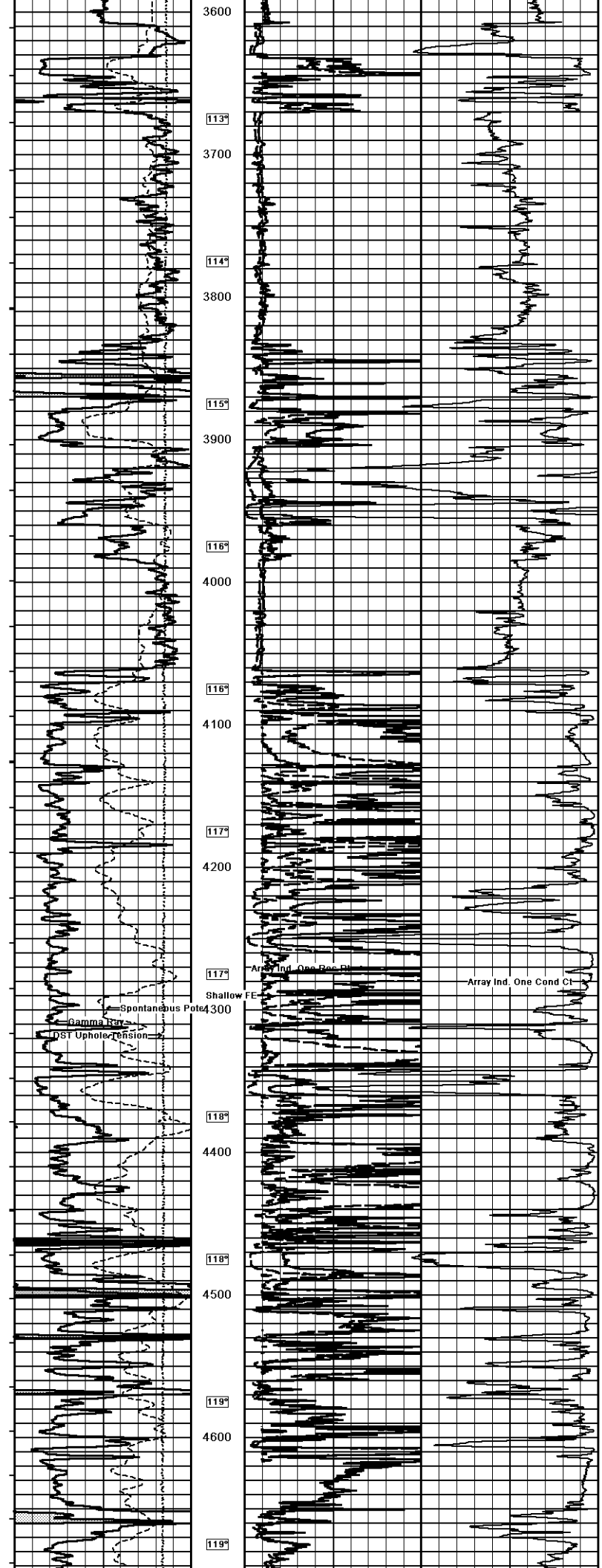
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration Z B...\MM Exploration Z Bar # 16-4 SWD5_003.dta — Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

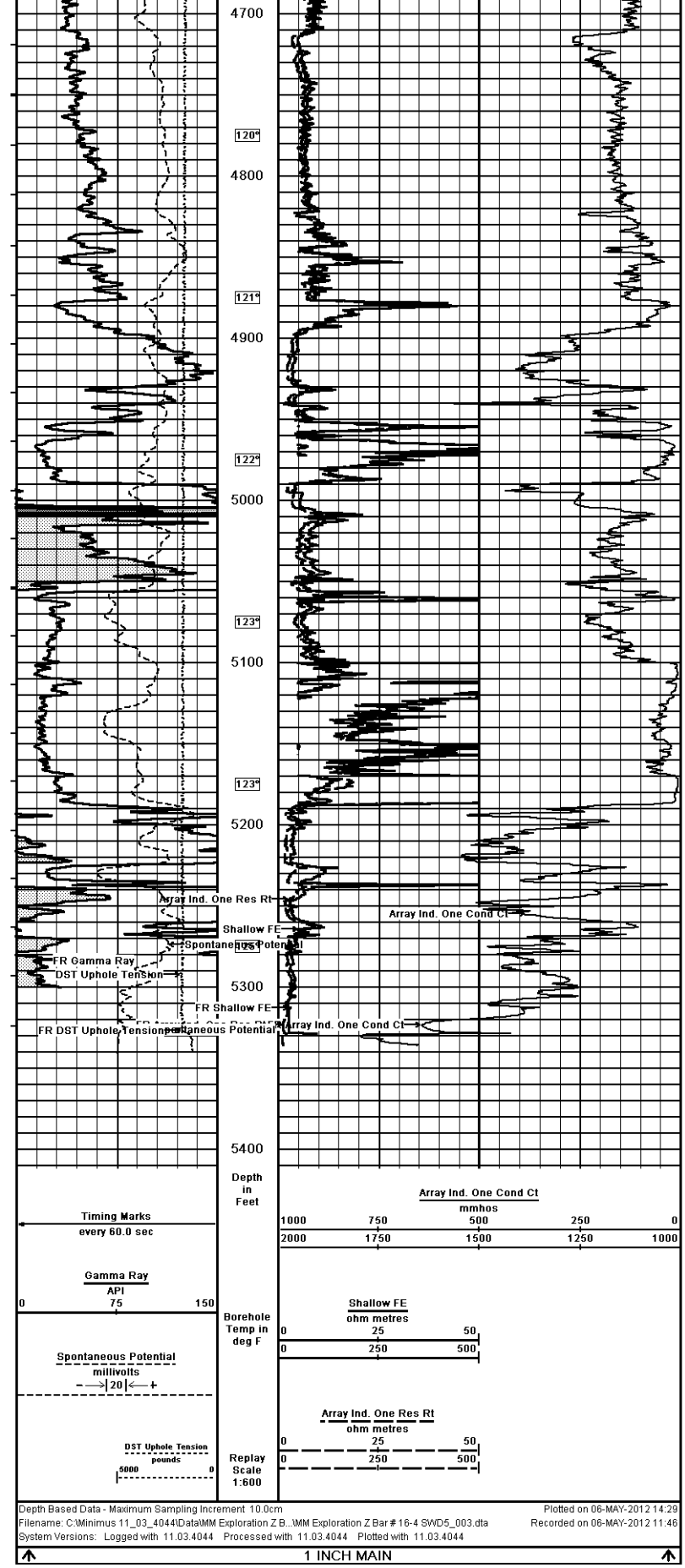
Left track	Depth track	Right track
Timing Marks every 60.0 sec	Depth in Feet	Array Ind. One Cond Ct mmhos 1000 – 750 – 500 – 250 – 0; 2000 – 1750 – 1500 – 1250 – 1000
Gamma Ray API 0 – 75 – 150	Borehole Temp in deg F	Shallow FE ohm metres 0 – 25 – 50; 0 – 250 – 500
Spontaneous Potential millivolts – —›| 20 |‹— +		
DST Uphole Tension pounds 5000 – 0	Replay Scale 1:600	Array Ind. One Res Rt ohm metres 0 – 25 – 50; 0 – 250 – 500




DST Uphole Tension
1400
102°
1500
103°
1600
103°
1700
102°
1800
102°
1900
103°
2000
104°
2100
105°
2200
105°
2300
Array Ind. One Cond Cl
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
106°
2400
107°


2500
107°
2600
107°
2700
108°
2800
109°
2900
109°
3000
110°
3100
111°
3200
111°
3300
112°
3400
112°
3500
113°
Array Ind
Res RI
Shallow
Spontaneous Potential
Gamma Ray
DST Cable Tension
Array Ind. One Cond CI


3600
113"
3700
114"
3800
115"
3900
116"
4000
116"
4100
117"
4200
117"
Shallow FE
Spontaneous Pote
4300
Gamma Ray
DST Uphole Tension
118"
4400
118"
4500
119"
4600
119"
Array Ind. One Cond Ct



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:29
Filename: C:\Minimus 11_03_4044\Data\MM Exploration Z B...\MM Exploration Z Bar # 16-4 SWD5_003.dta — Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

1 INCH MAIN

COMPANY	M&M EXPLORATION, INC
WELL	Z BAR 16-4 SWD
FIELD	AETNA NE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1571.00	feet	First Reading	5324.00	feet
Elevation Drill Floor	1569.00	feet	Depth Driller	5330.00	feet
Elevation Ground Level	1559.00	feet	Depth Logger	5327.00	feet

ARRAY INDUCTION
SHALLOW FOCUSED

Weatherford ELECTRIC LOG

COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRORESISTIVITY LOG

Weatherford®

COMPANY	M&M EXPLORATION, INC
WELL	Z BAR 16-4 SWD
FIELD	AETNA NE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	400' FNL & 530' FWL
	NW/4

40 Years of Wireline 1970 2010

SEC	TWP	RGE
16	34S	14W

API Number 15-007-23843
Permit Number

Other Services
MAI/MFE
MML

Permanent Datum G.L., Elevation 1559 feet
Log Measured From KB
Drilling Measured From K.B.

Elevations:	feet
KB	1571.00
DF	1569.00
GL	1559.00

Date	06-MAY-2012			
Run Number	ONE			
Depth Driller	5330.00	feet		
Depth Logger	5327.00	feet		
First Reading	5308.00	feet		
Last Reading	3800.00	feet		
Casing Driller	916.00	feet		
Casing Logger	917.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	8.80 lb/USg	48.00 CP		
PH / Fluid Loss	9.00	10.80 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.02 @ 73.0	ohm-m		
Rmf @ Measured Temp	0.82 @ 73.0	ohm-m		
Rmc @ Measured Temp	1.22 @ 73.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.61 @125.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	125.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	F. MARTINS			
Witnessed By	B. BROCK			
S.O. / JOB #	3534534		LB12-114	

BOREHOLE RECORD

Last Edited: 06-MAY-2012 14:02

Bit Size inches	Depth From feet	Depth To feet
7.875	917.00	5327.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	917.00	24.00

REMARKS

Tools Used: MPD, MCG, MDN, MFE, MAI, MML.
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borehole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 280 cu. ft
Service Order #3534534
Rig: Southwind # 70
Engineer: F.Martins
Operator(s): K. Rinehart

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta
Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Depth in Feet

Limestone Neutron Por.
percent
30 20 10 0 -10

Gamma Ray
API
0 75 150

Borehole Temp in deg F

Limestone Density Por.
percent
30 20 10 0 -10

HVI every 10 cu ft

Density Caliper
inches
6 11 16

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

Annular Integral every 10 cu ft

Bit Size
inches
6 11 16

Micro-normal
ohm metres
0 10

DST Uphole Tension
pounds
5000 0

Micro-inverse
ohm metres
0 10

Replay Scale 1:240

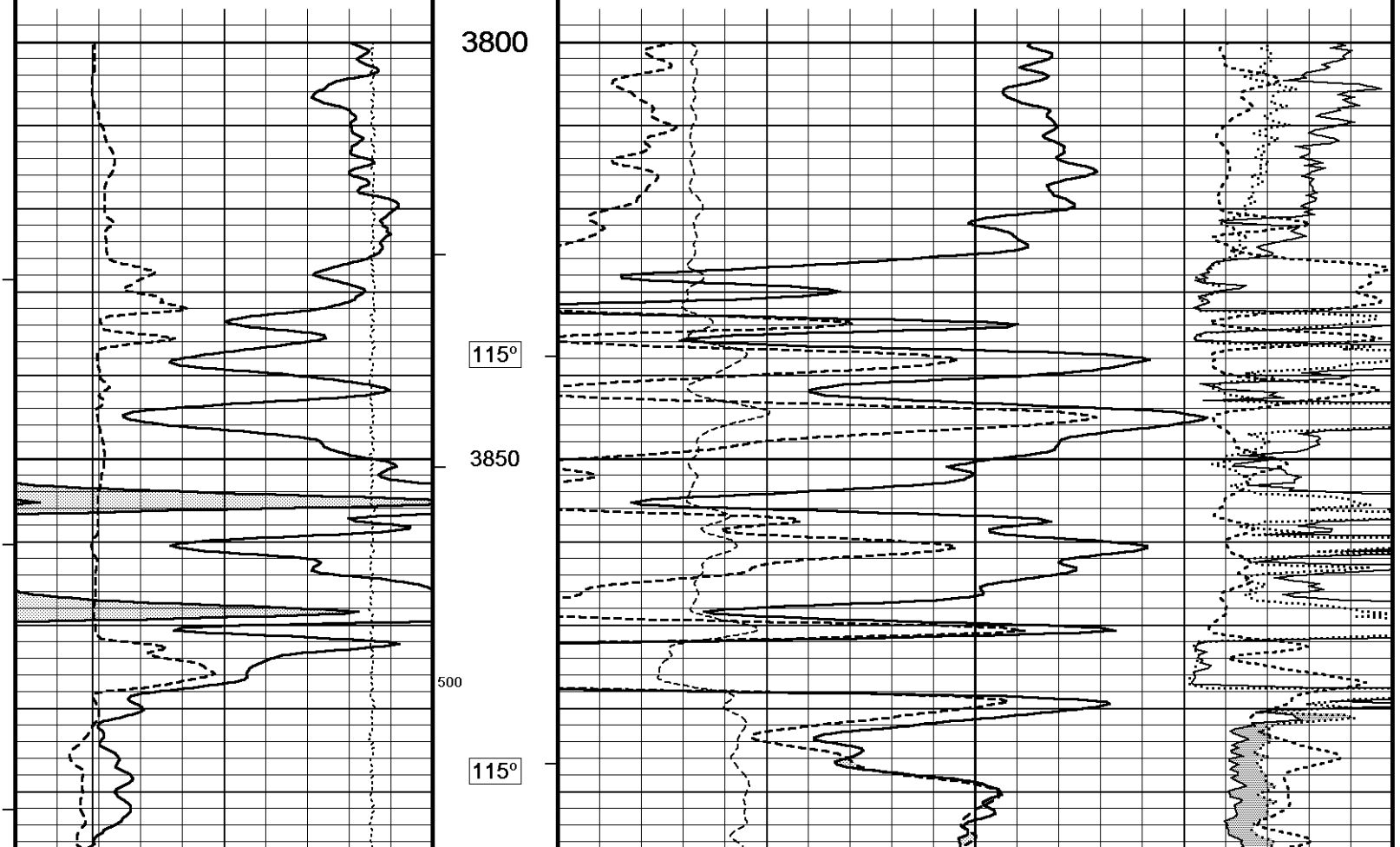
3800

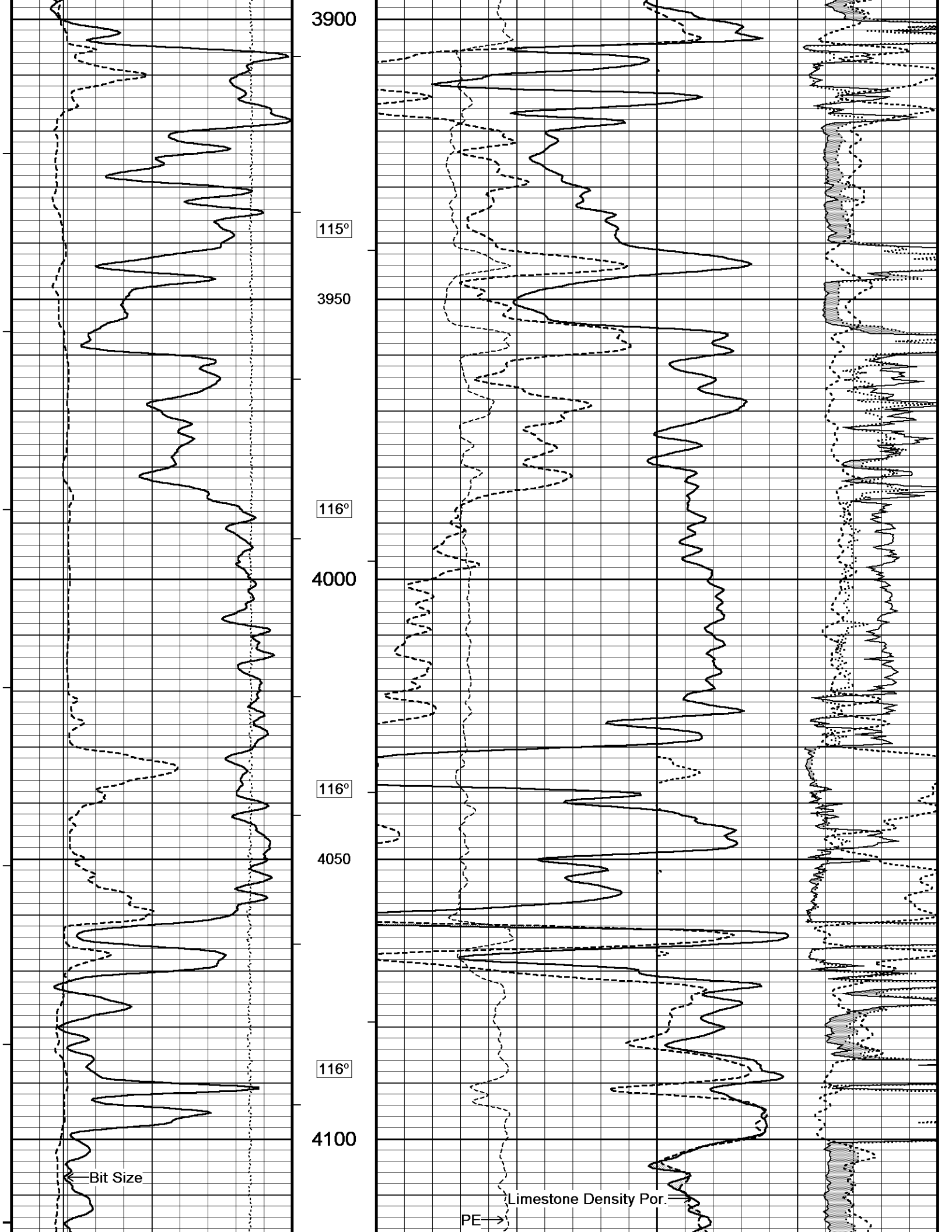
115°

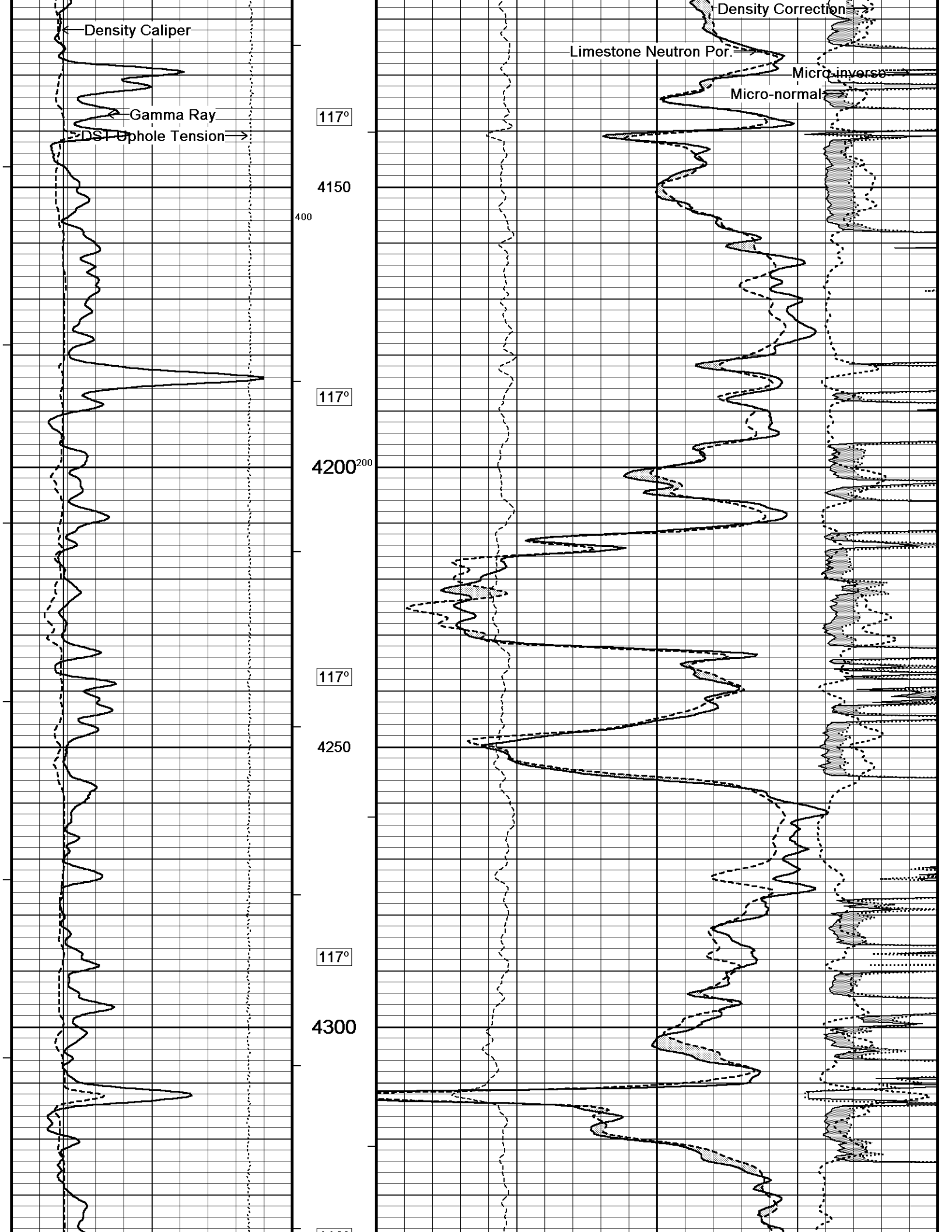
3850

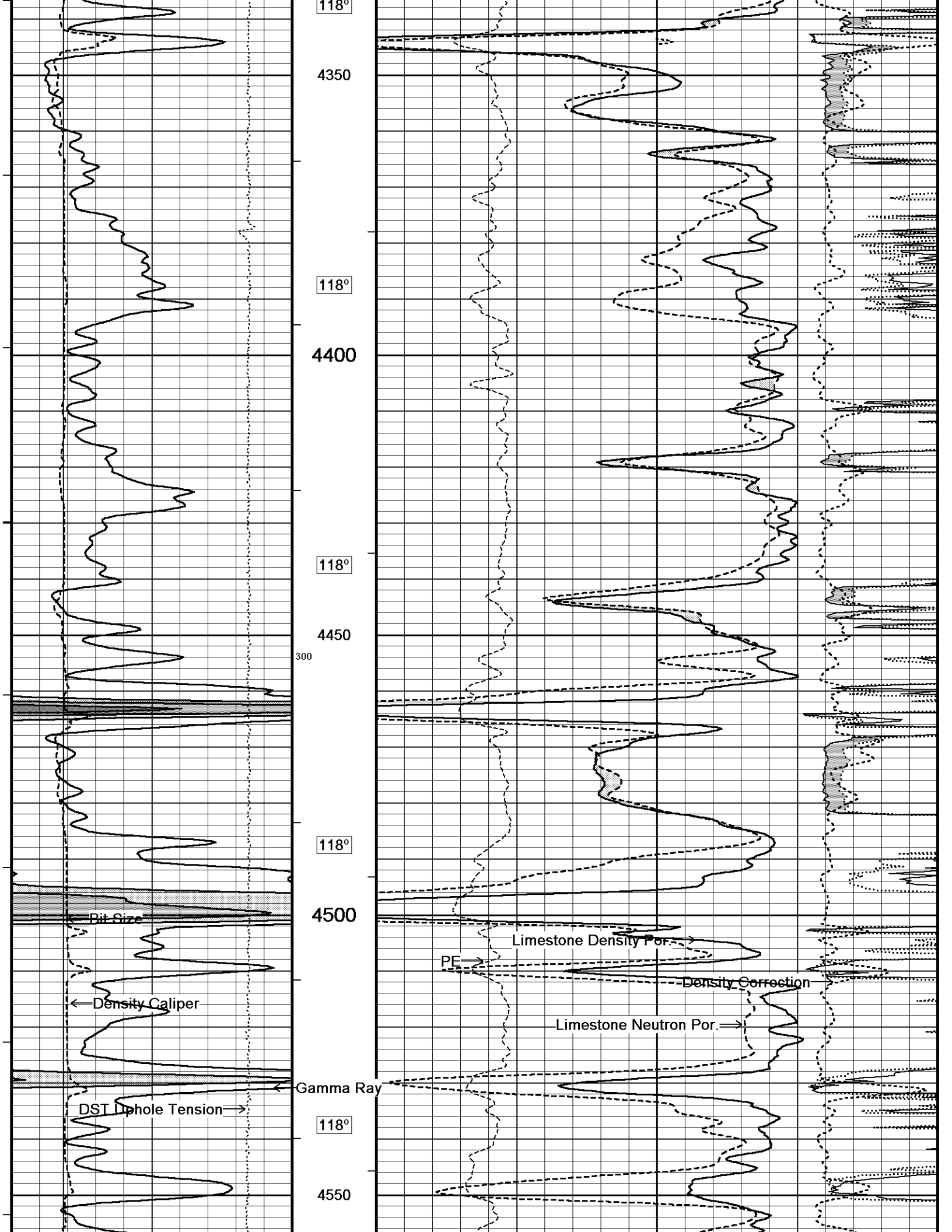
500

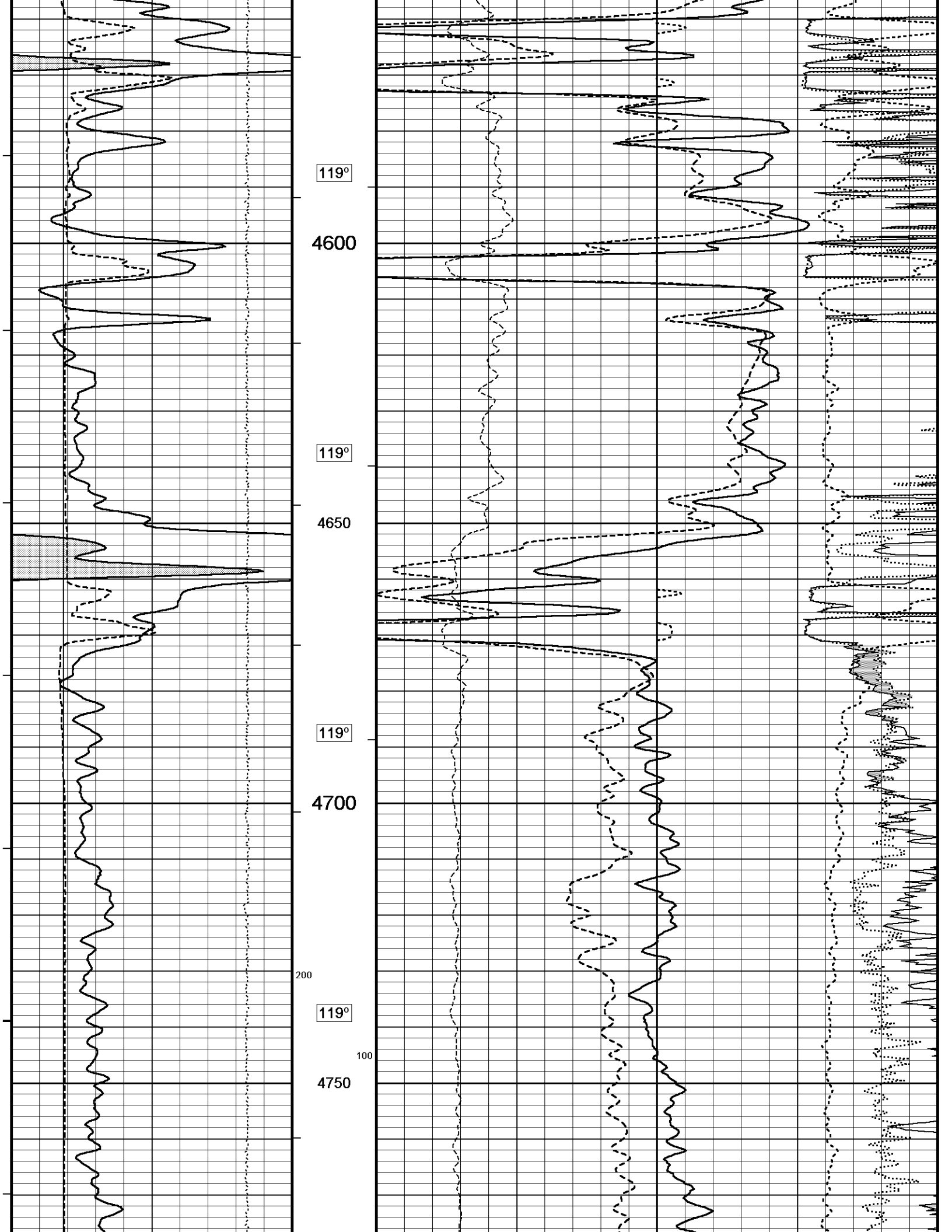
115°

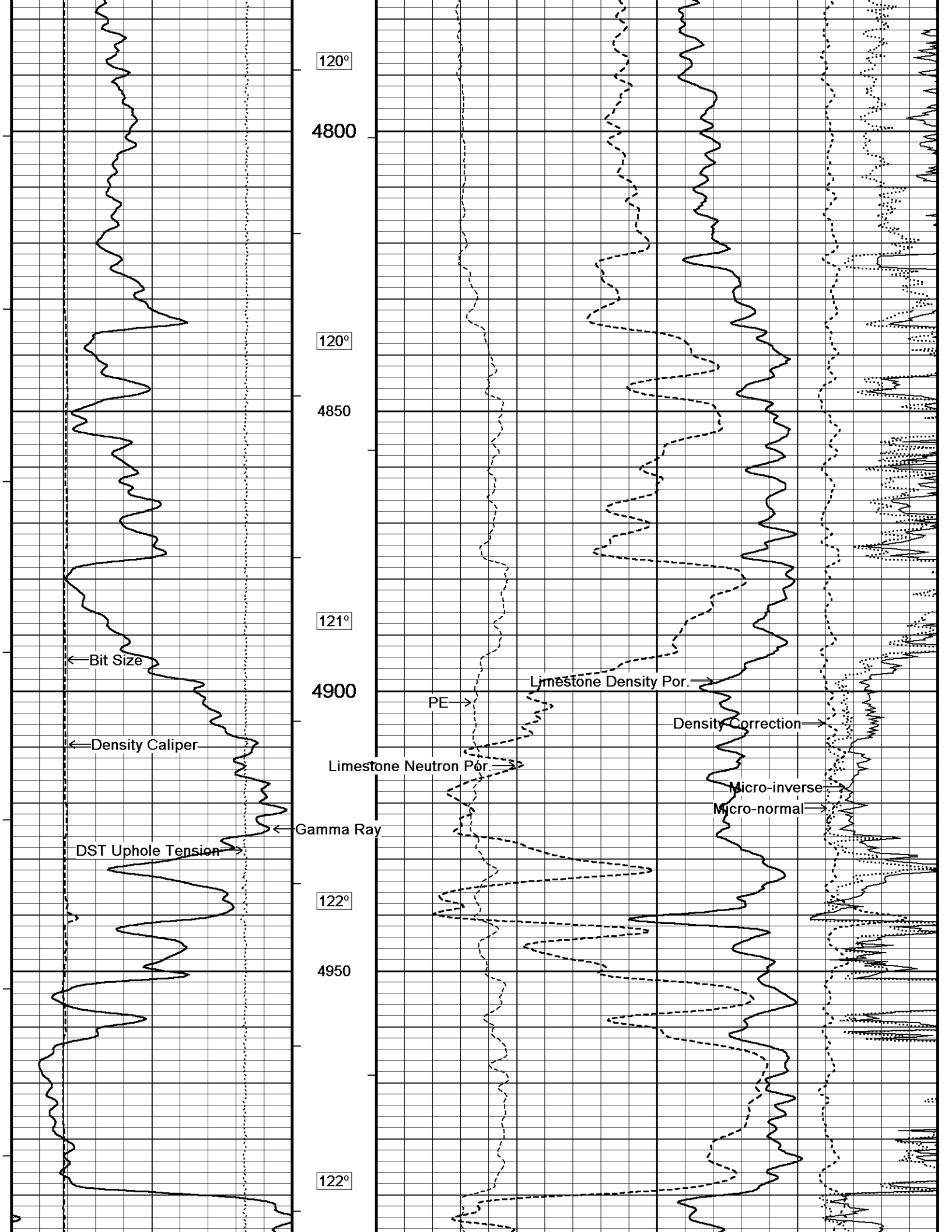


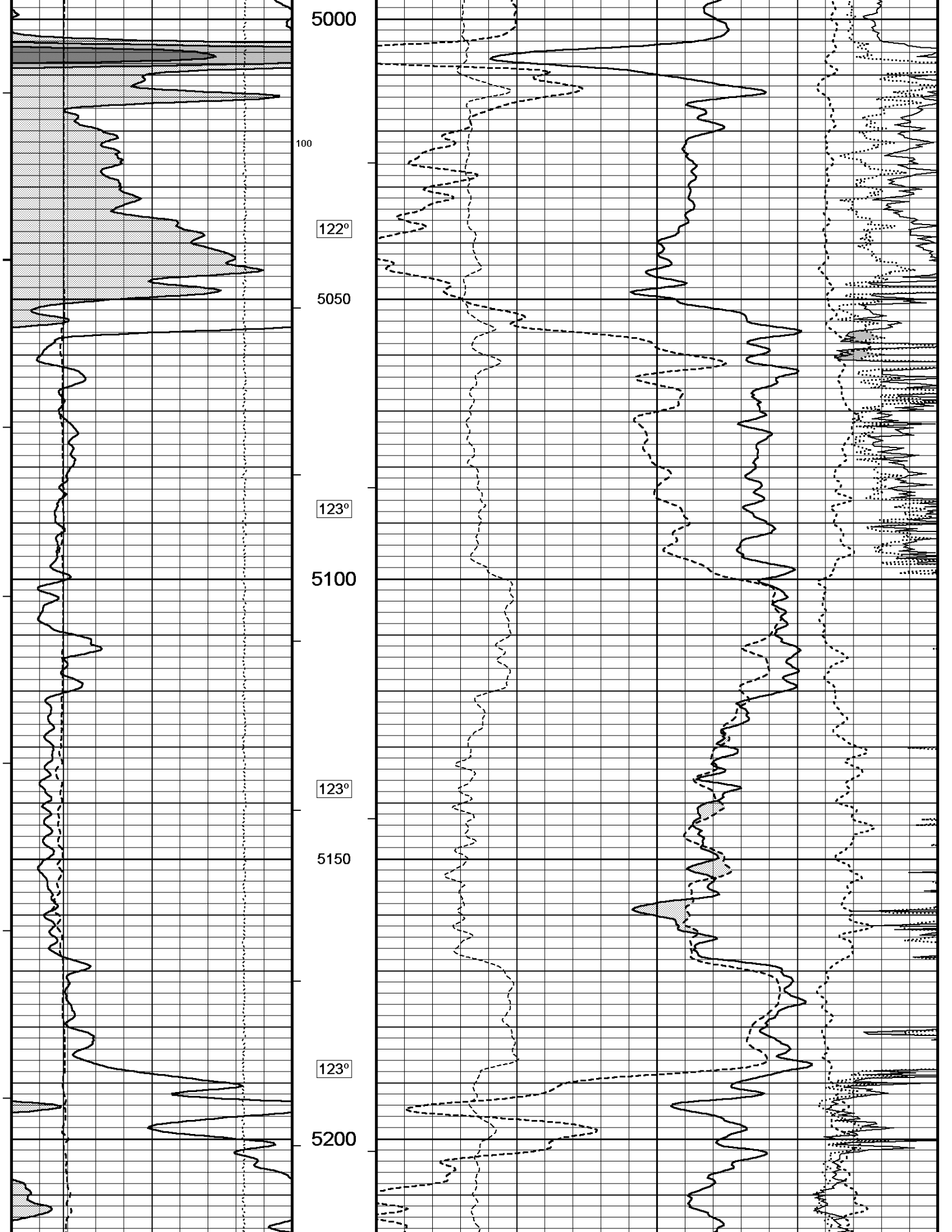

3900
115°
3950
116°
4000
116°
4050
116°
4100
Bit Size
Limestone Density Por.
PE

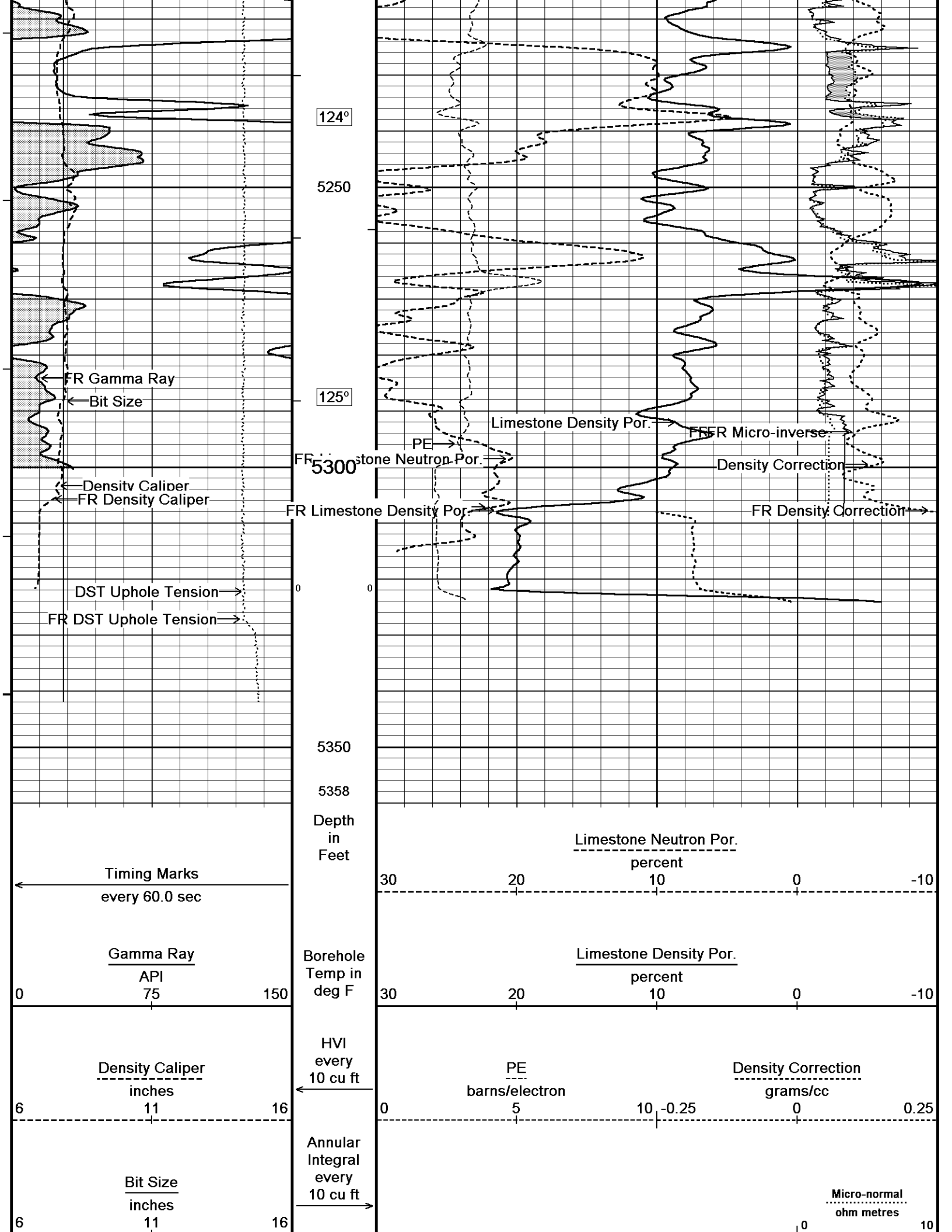

Density Caliper
Gamma Ray
DST Uphole Tension
Density Correction
Limestone Neutron Por.
Micro-inverse
Micro-normal
117°
4150
400
117°
4200
200
117°
4250
117°
4300


118°
4350
118°
4400
118°
4450
300
118°
4500
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
118°
4550
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.


119°
4600
119°
4650
119°
4700
200
119°
100
4750


120°
4800
120°
4850
121°
Bit Size
4900
PE
Limestone Density Por.
Density Correction
Density Caliper
Limestone Neutron Por.
Micro-inverse
Micro-normal
Gamma Ray
DST Uphole Tension
122°
4950
122°


5000
100
122°
5050
123°
5100
123°
5150
123°
5200


124°
5250
125°
5300
5350
5358
FR Gamma Ray
Bit Size
Density Caliper
FR Density Caliper
DST Uphole Tension
FR DST Uphole Tension
0
0
Limestone Density Por.
FFER Micro-inverse
PE
FR Limestone Neutron Por.
Density Correction
FR Limestone Density Por.
FR Density Correction
Depth in Feet
Timing Marks
every 60.0 sec
Limestone Neutron Por.
percent
30 20 10 0 -10
Gamma Ray
API
0 75 150
Borehole Temp in deg F
Limestone Density Por.
percent
30 20 10 0 -10
HVI every 10 cu ft
Density Caliper
inches
6 11 16
PE
barns/electron
0 5 10
Density Correction
grams/cc
-0.25 0 0.25
Annular Integral every 10 cu ft
Bit Size
inches
6 11 16
Micro-normal
ohm metres
0 10

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Micro-inverse
ohm metres
0 10

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta
Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_002.dta
Recorded on 06-MAY-2012 11:24
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Depth
in
Feet

Limestone Neutron Por.
percent
30 20 10 0 -10

Gamma Ray
API
0 75 150

Borehole
Temp in
deg F

Limestone Density Por.
percent
30 20 10 0 -10

HVI
every
10 cu ft

Density Caliper
inches
6 11 16

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

Annular
Integral
every
10 cu ft

Bit Size
inches
6 11 16

Micro-normal
ohm metres
0 10

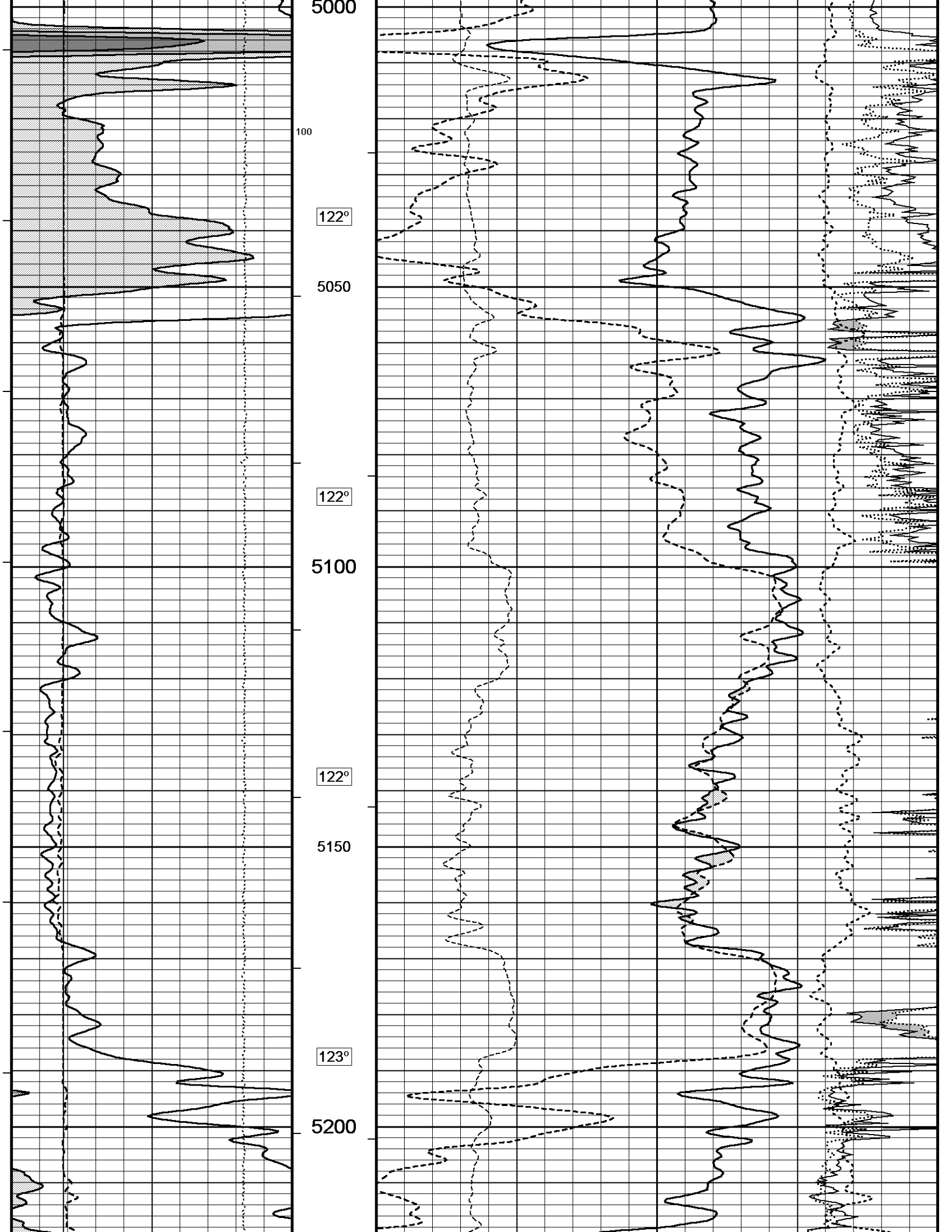
DST Uphole Tension
pounds
5000 0

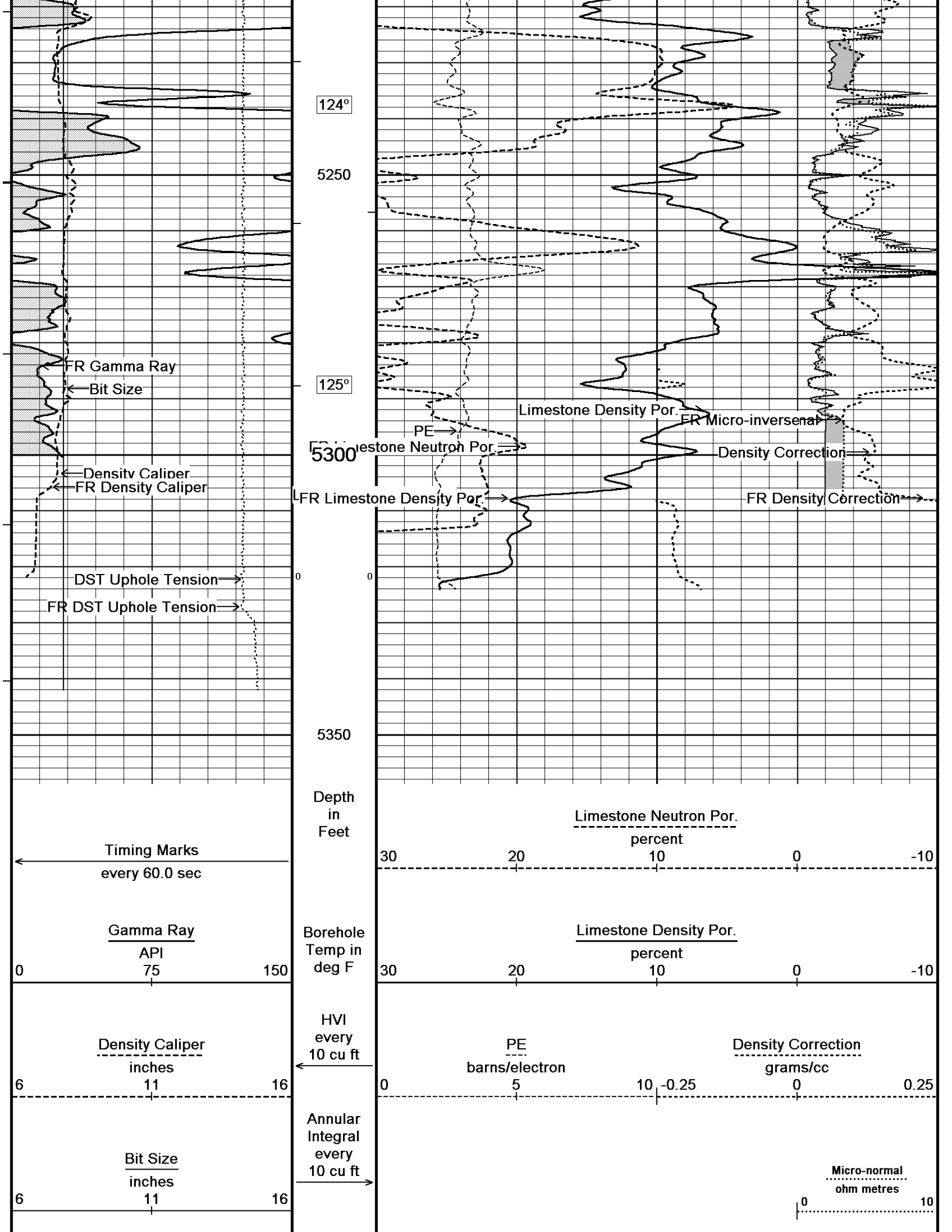
Replay
Scale
1:240

Micro-inverse
ohm metres
0 10

4950

121°


5000
100
122°
5050
122°
5100
122°
5150
123°
5200


124°
5250
125°
5300
5350
FR Gamma Ray
Bit Size
Density Caliper
FR Density Caliper
DST Uphole Tension
FR DST Uphole Tension
PE
Limestone Neutron Por.
FR Limestone Density Por.
Limestone Density Por.
FR Micro-inverse
Density Correction
FR Density Correction
0
0
Depth in Feet
Timing Marks
every 60.0 sec
Limestone Neutron Por.
percent
30 20 10 0 -10
Gamma Ray
API
0 75 150
Borehole Temp in deg F
Limestone Density Por.
percent
30 20 10 0 -10
Density Caliper
inches
6 11 16
HVI every 10 cu ft
PE
barns/electron
0 5 10
Density Correction
grams/cc
-0.25 0 0.25
Bit Size
inches
6 11 16
Annular Integral every 10 cu ft
Micro-normal
ohm metres
0 10

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Micro-inverse
ohm metres
0 10

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_002.dta
Recorded on 06-MAY-2012 11:24
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

REPEAT SECTION

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta
Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Timing Marks
every 60.0 sec

Depth
in
Feet

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Gamma Ray
API
0 75 150

Borehole
Temp in
deg F

Limestone Density Por.
percent
30 20 10 0 -10

HVI
every
10 cu ft

Density Caliper
inches
6 11 16

Annular
Integral
every
10 cu ft

Bit Size
inches
6 11 16

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

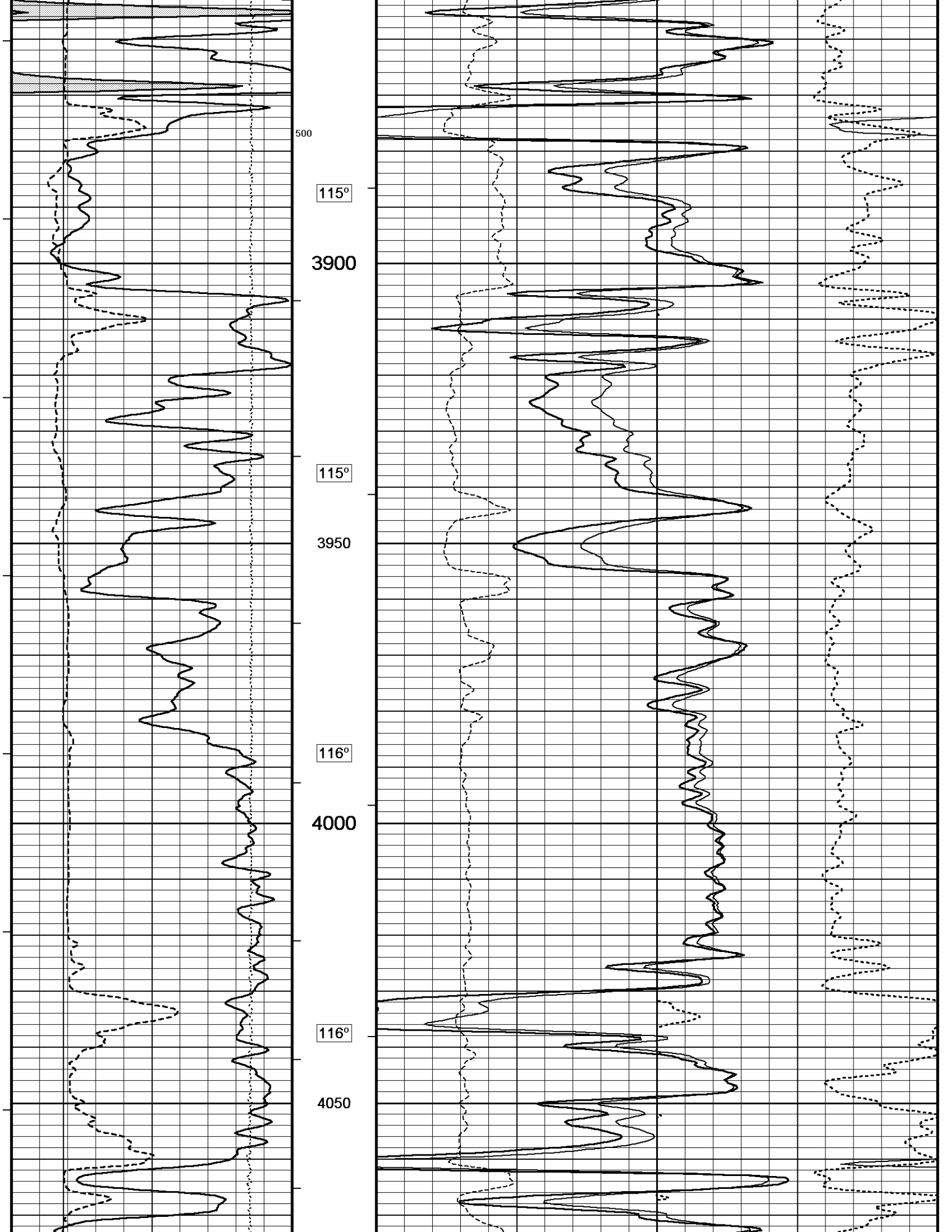
DST Uphole Tension
pounds
5000 0

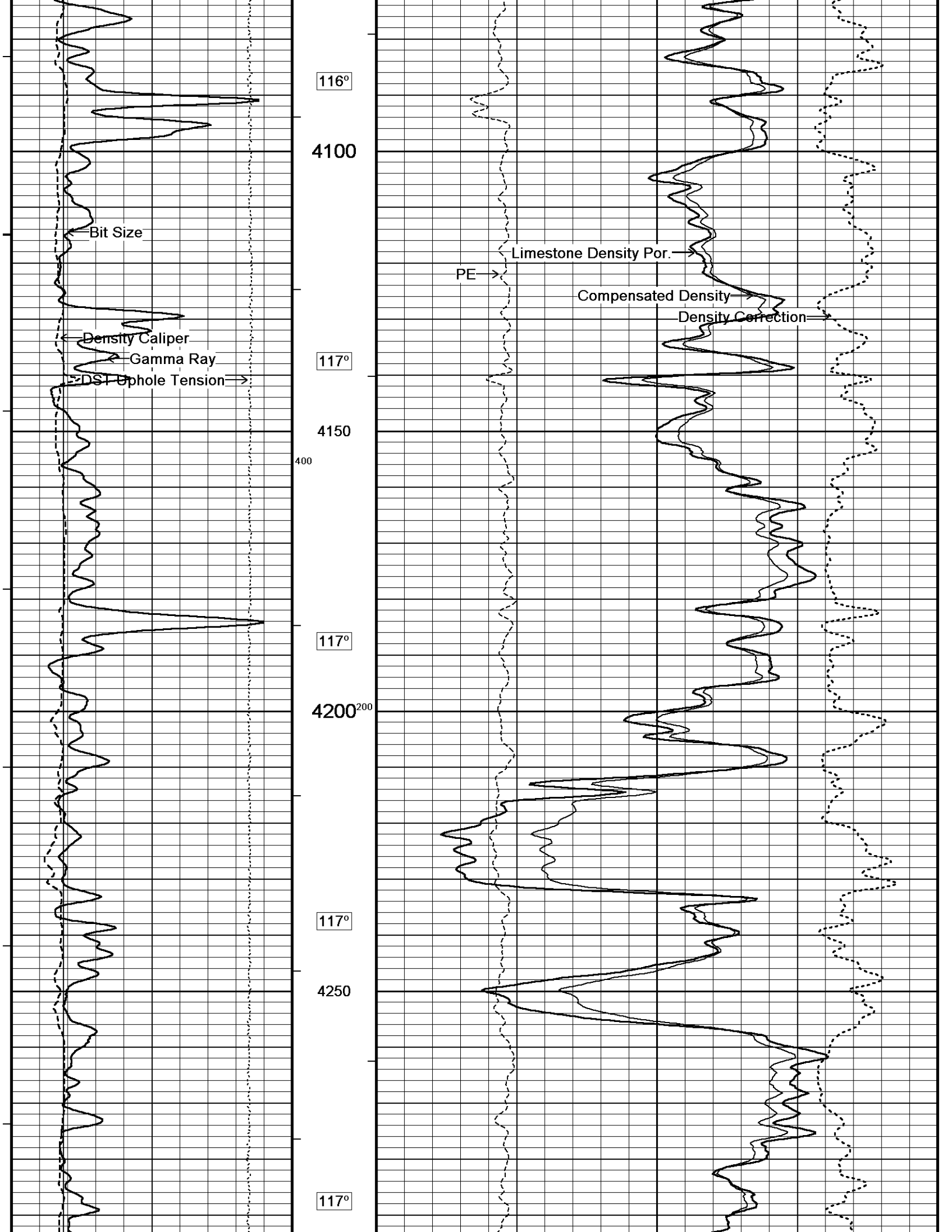
Replay
Scale
1:240

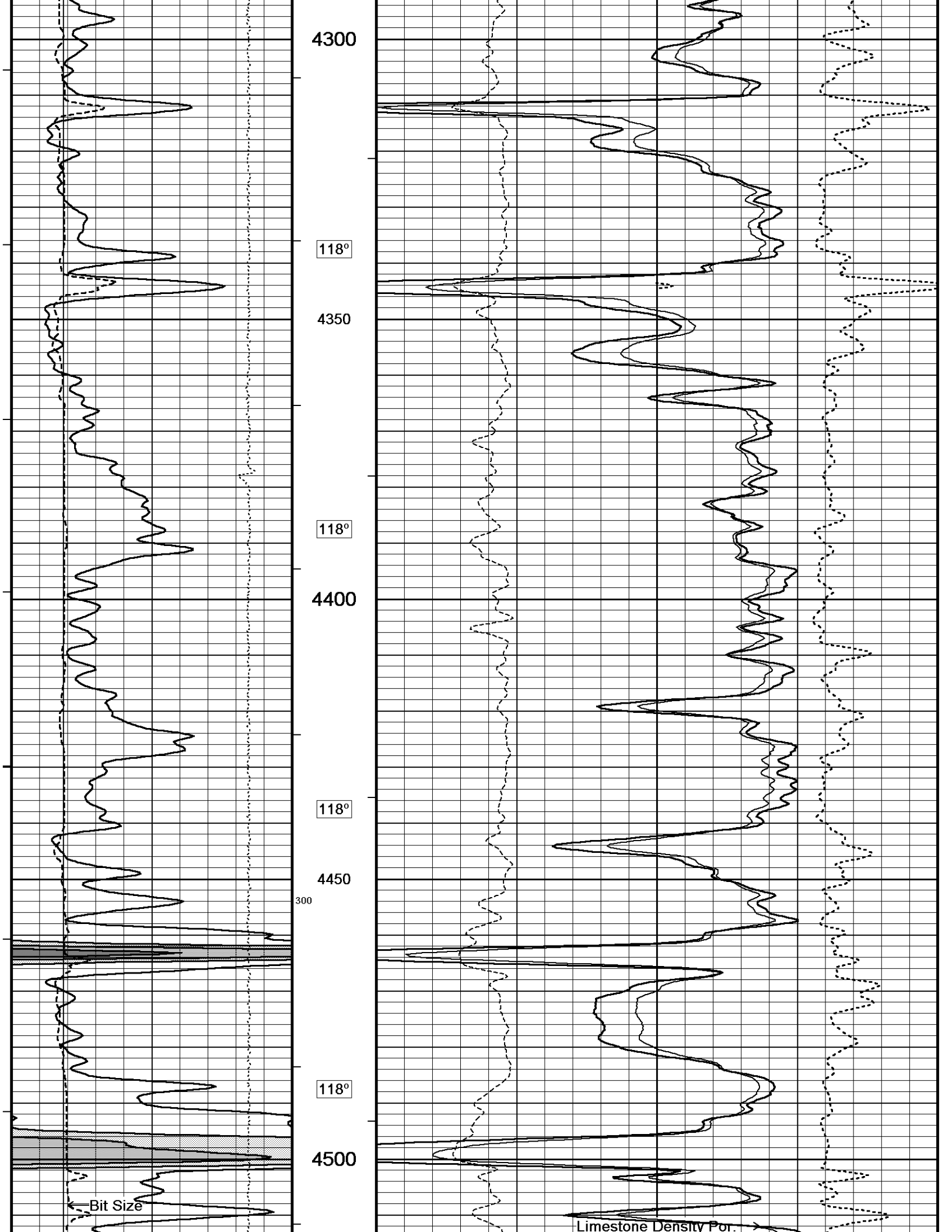
3800

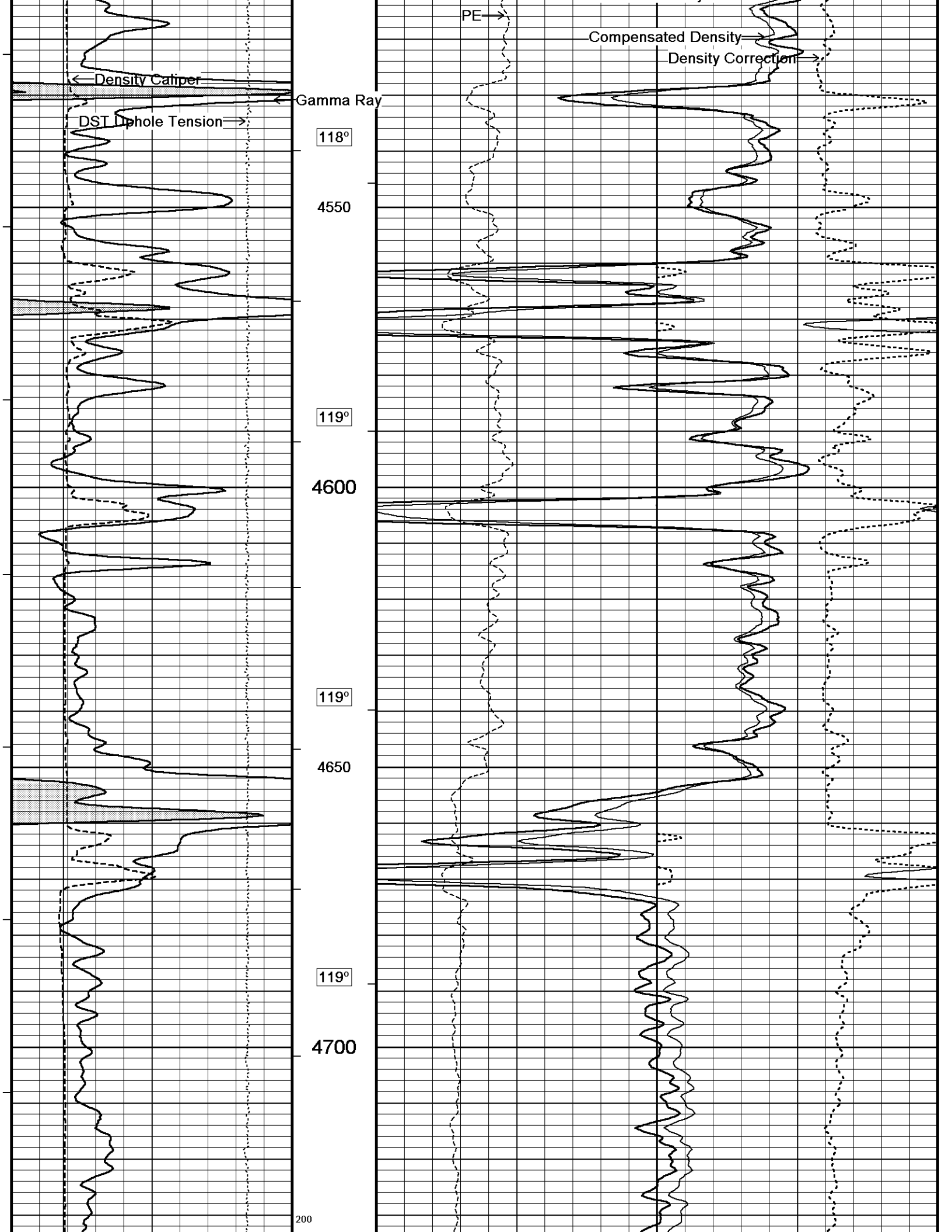
115°

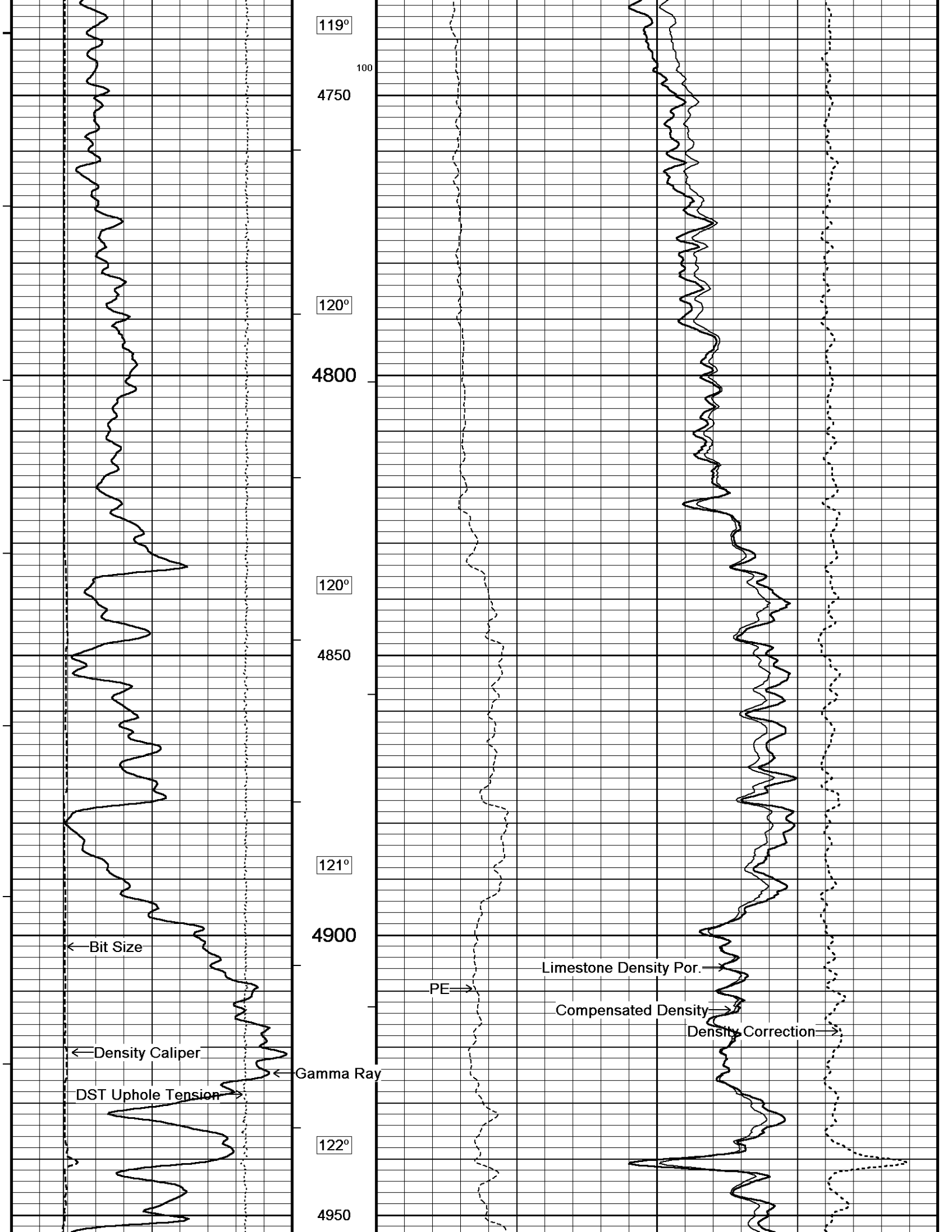
3850

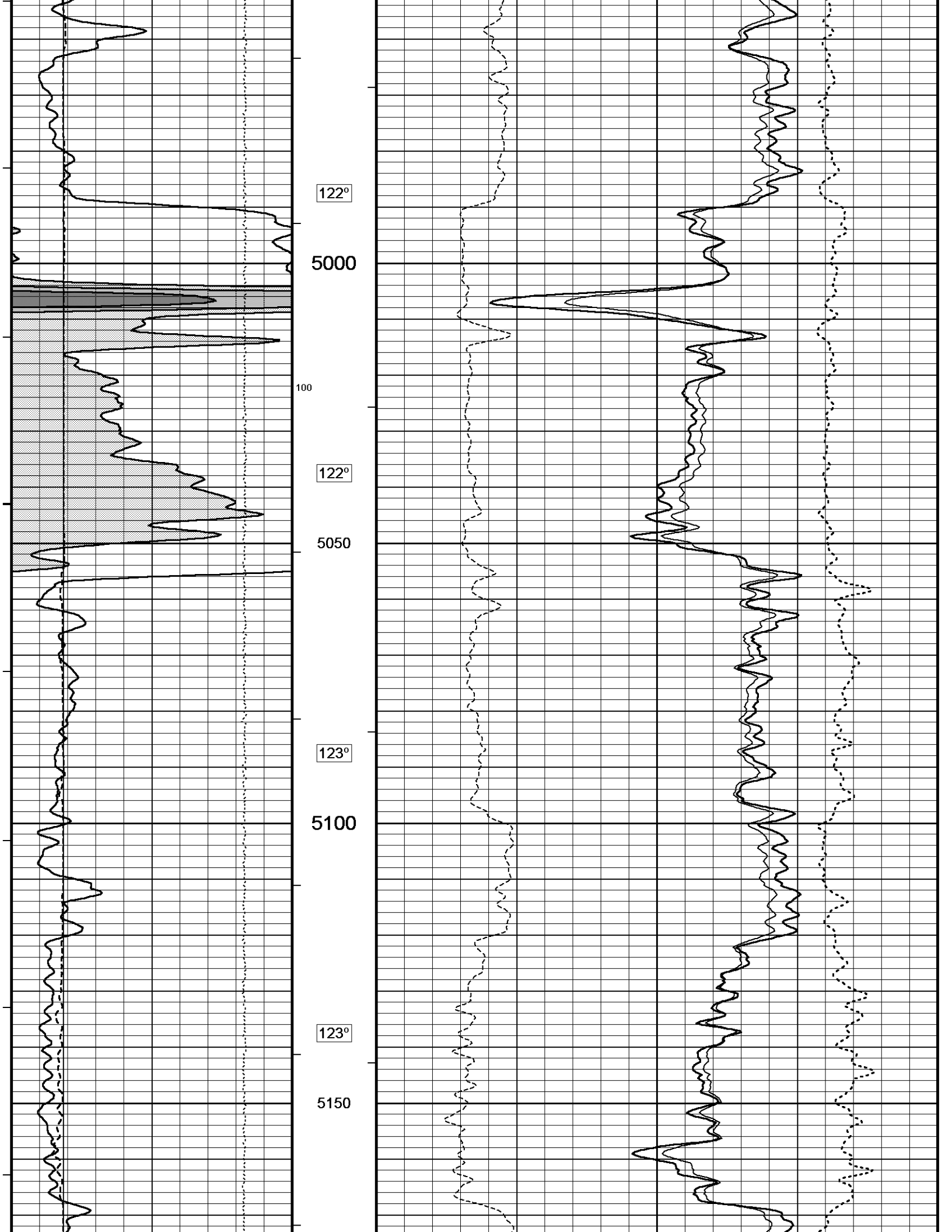

500
115°
3900
115°
3950
116°
4000
116°
4050

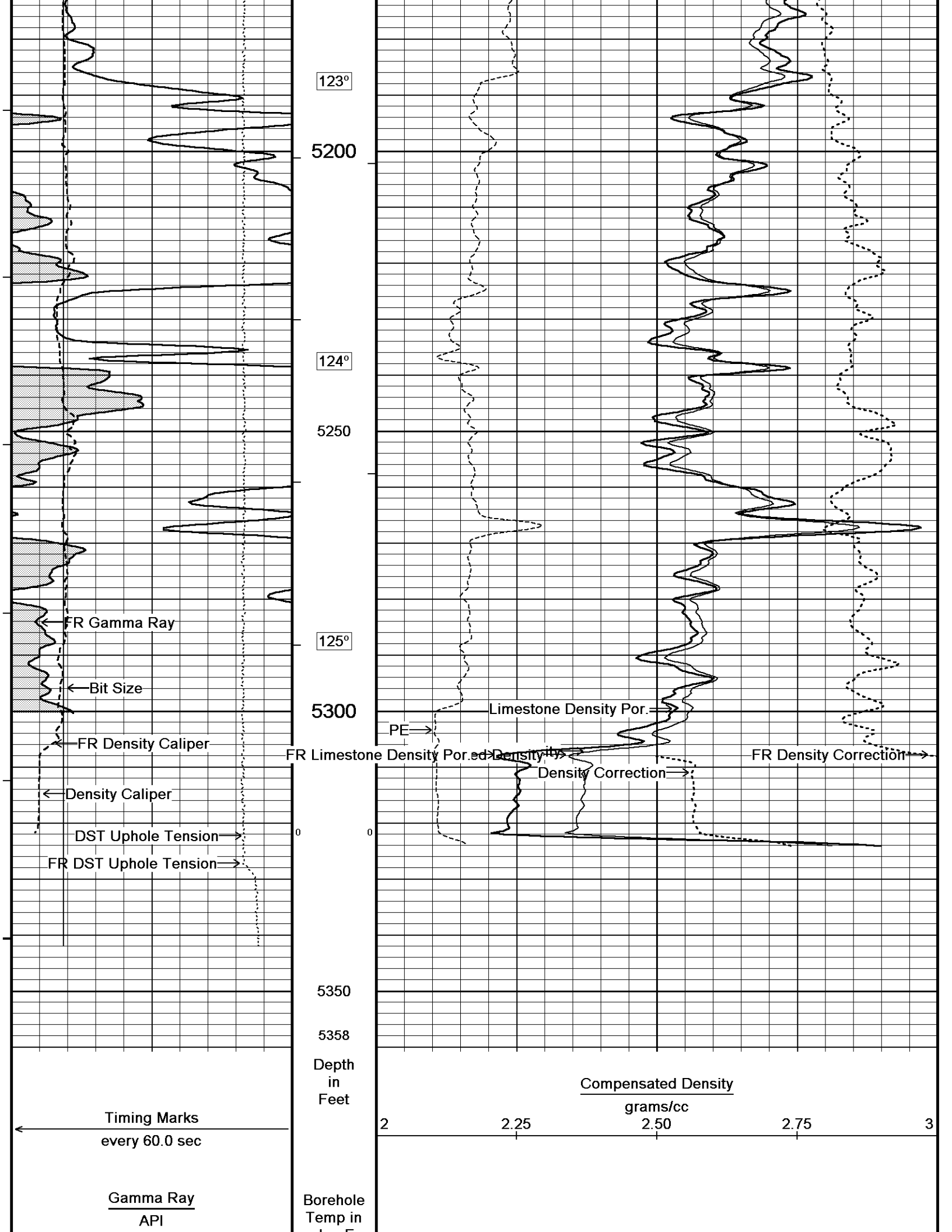

116°
4100
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
117°
4150
400
117°
4200
200
117°
4250
117°

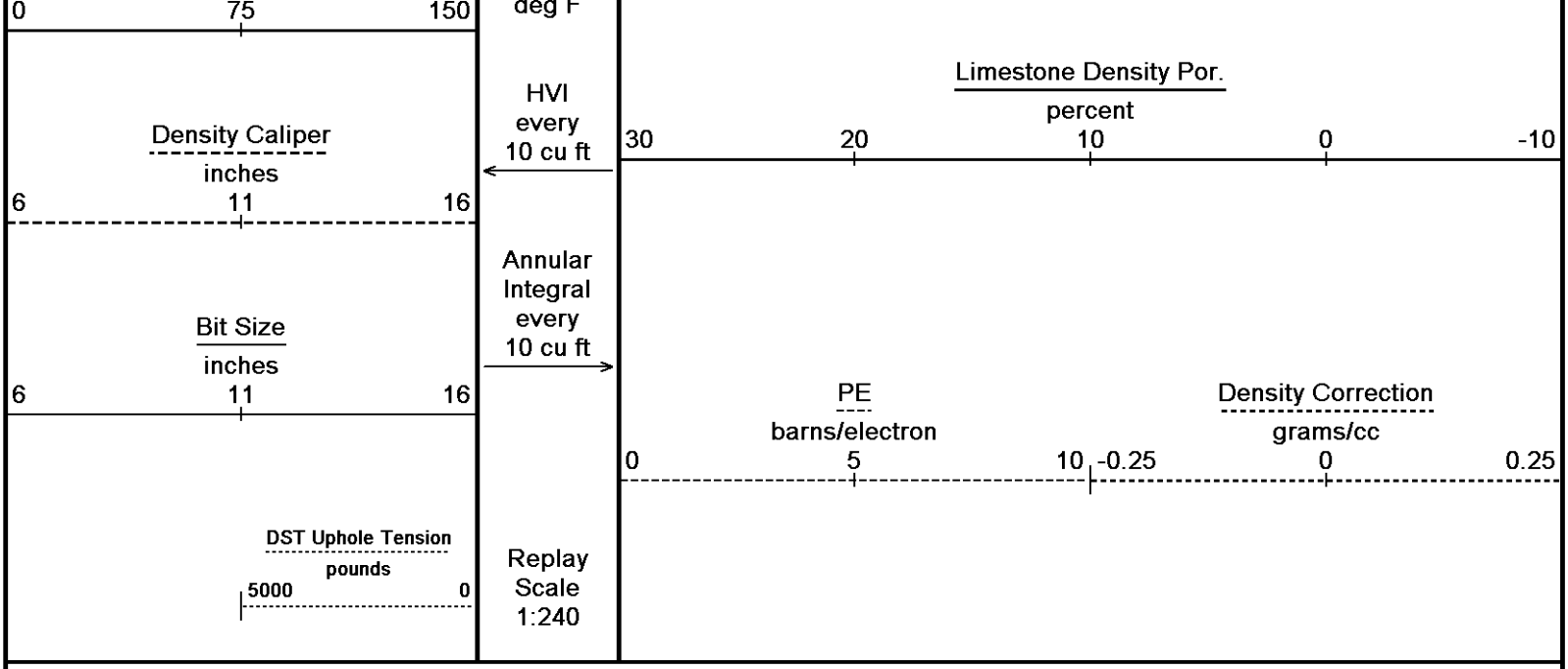

4300
118°
4350
118°
4400
118°
4450
300
118°
4500
Bit Size
Limestone Density Por.


PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
118°
4550
119°
4600
119°
4650
119°
4700
200


119°
100
4750
120°
4800
120°
4850
121°
4900
122°
4950
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
PE
Limestone Density Por.
Compensated Density
Density Correction


122°
5000
100
122°
5050
123°
5100
123°
5150


123°
5200
124°
5250
125°
5300
5350
5358
FR Gamma Ray
Bit Size
FR Density Caliper
Density Caliper
DST Uphole Tension
FR DST Uphole Tension
0
0
Limestone Density Por.
PE
FR Limestone Density Por.
Density
FR Density Correction
Density Correction
Depth
in
Feet
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Gamma Ray
API
Borehole
Temp in

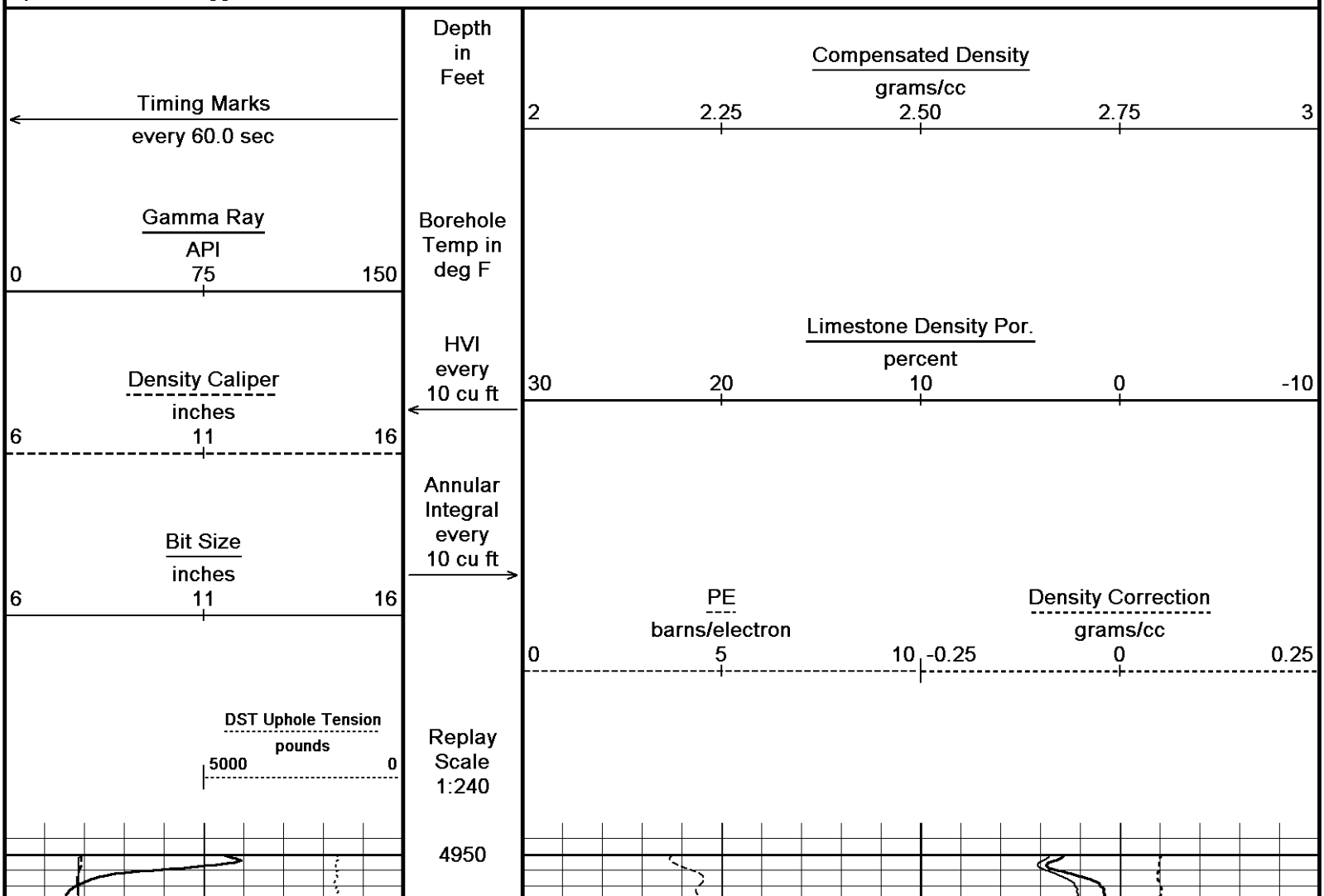


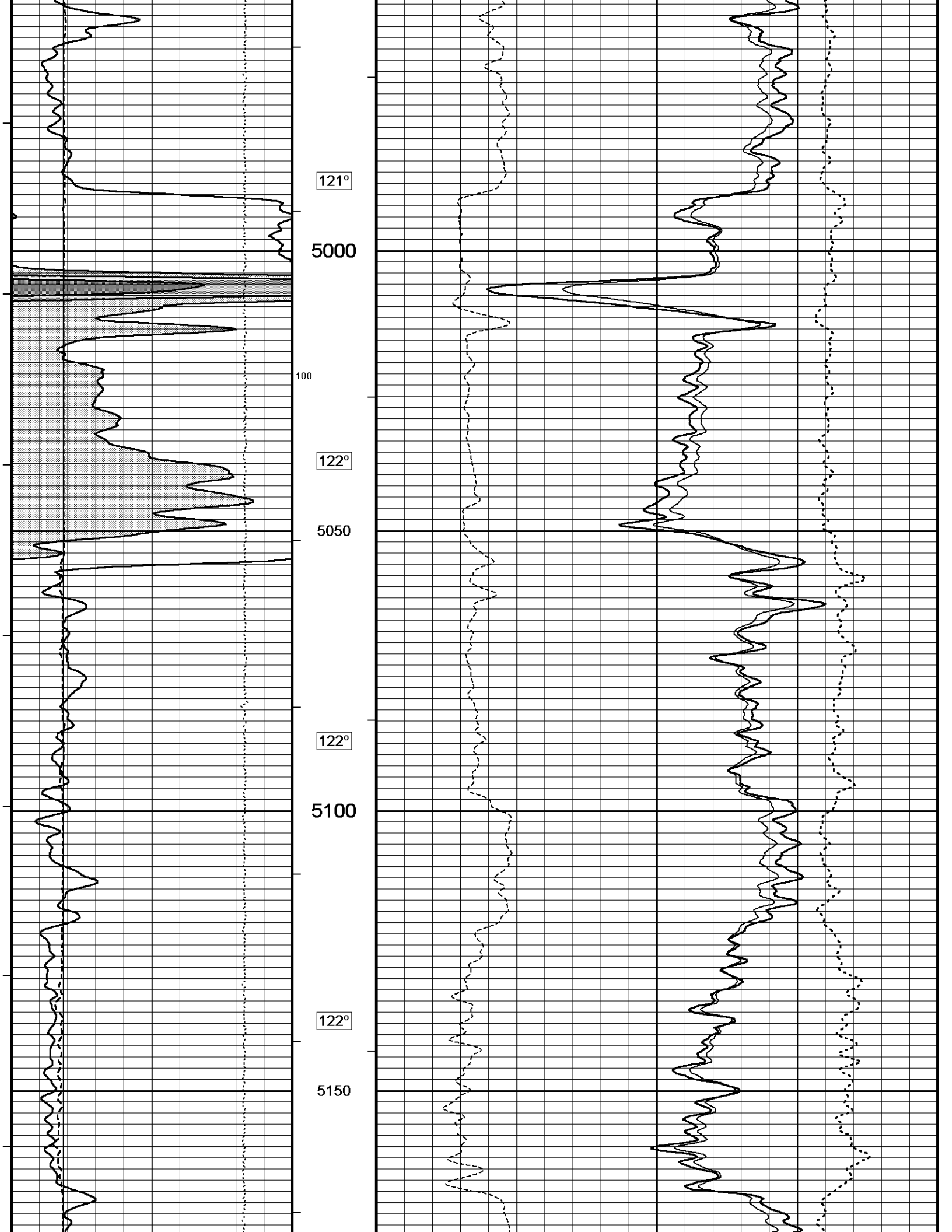
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_003.dta — Recorded on 06-MAY-2012 11:46
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

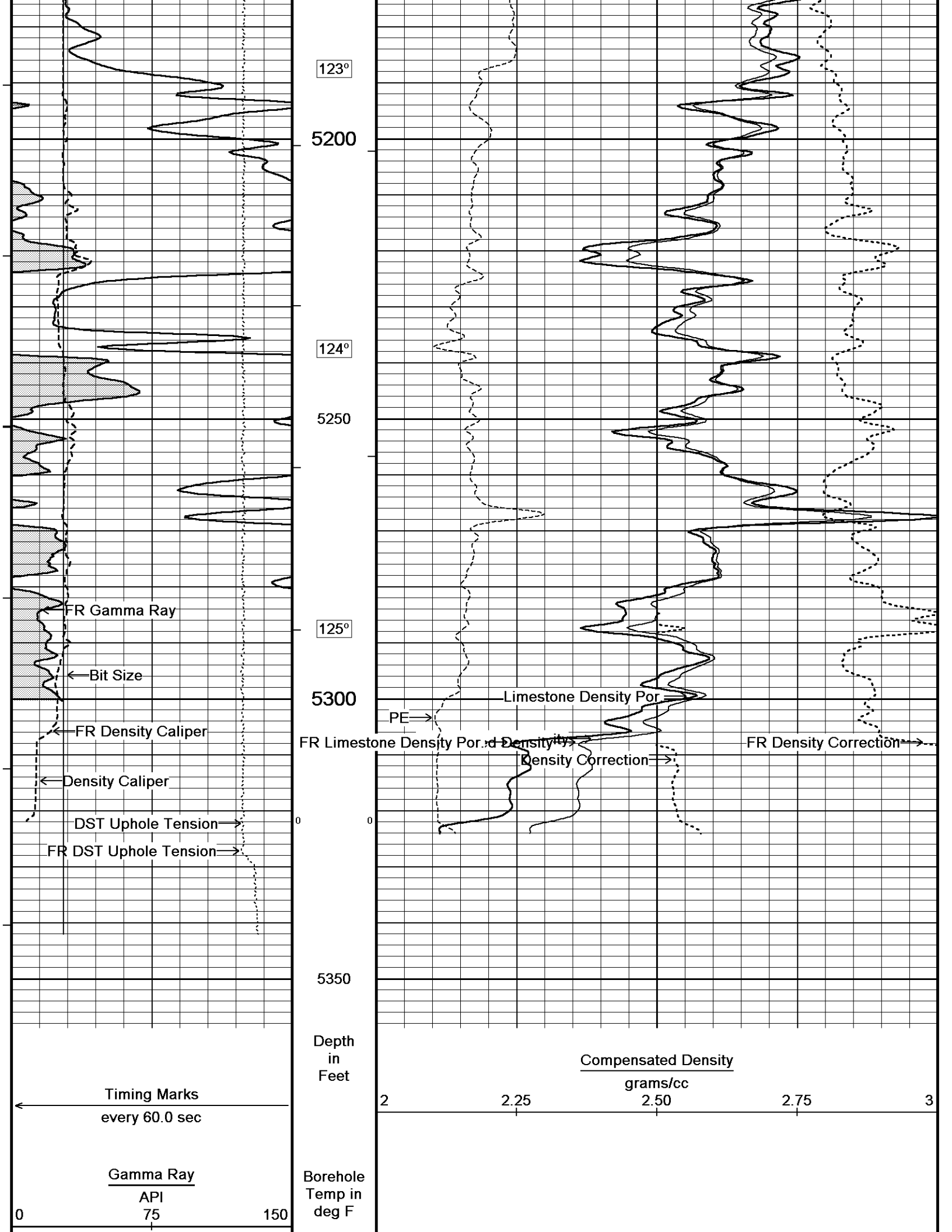
5 INCH MAIN

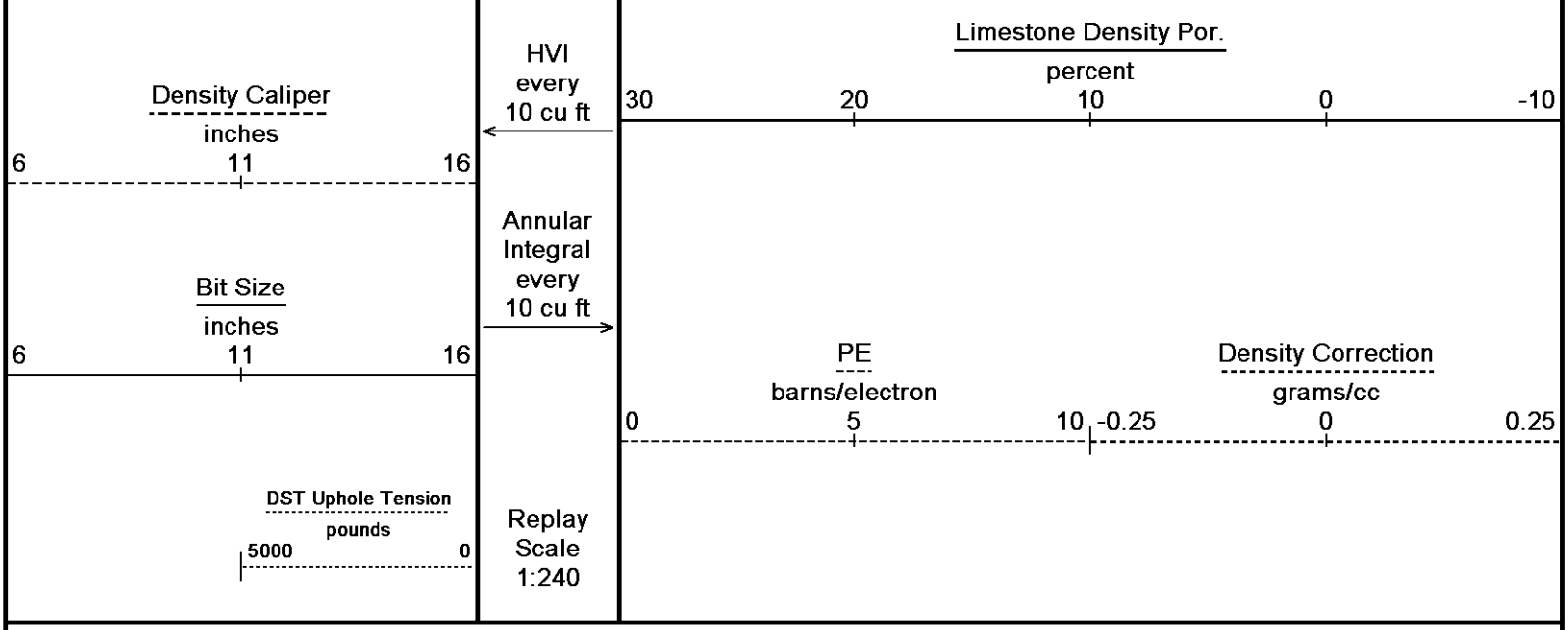
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:03
Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_002.dta — Recorded on 06-MAY-2012 11:24
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044




121°
5000
100
122°
5050
122°
5100
122°
5150


123°
5200
124°
5250
125°
5300
5350
FR Gamma Ray
Bit Size
FR Density Caliper
Density Caliper
DST Uphole Tension
FR DST Uphole Tension
0
0
Limestone Density Por
PE
FR Limestone Density Por
Density
Density Correction
FR Density Correction
Depth
in
Feet
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Gamma Ray
API
0
75
150
Borehole
Temp in
deg F



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-MAY-2012 14:03

Filename: C:\Minimus 11_03_4044\Data\MM Exploration...\MM Exploration Z Bar # 16-4 SWD5_002.dta — Recorded on 06-MAY-2012 11:24

System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 11_03_4044\Data\MM Exploration Z Bar # 16-4 SWD\MM Exploration Z Bar # 16-4 SWD5_003.dta

General Constants All 000

Last Edited on 0C4060A13004,

General Parameters		
Mud Resistivity	1.020	ohm-metres
Mud Resistivity Temperature	73.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 23-FEB-2012 23:25

Reading No	Measured	Calibrated (lbs)
1	13693.36	0.00
2	14387.39	407.90

Gamma Calibration MCG-B 39

Field Calibration on 0C4060532000

	Measured	Calibrated (API)
Background	45	30
Calibrator (Gross)	726	486
Calibrator (Net)	681	456

Gamma Constants MCG-B 39

Last Edited on 0C4060A13004,

Gamma Calibrator Number	GRC141	
Mud Density	1.05	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	

Concentration of KCl	0.00	kppm

SP Calibration MCG-B 39

Field Calibration on 0C30B0F0100C

	Measured	Calibrated (mV)
Reference 1	101.0	100.0
Reference 2	-99.7	-100.0

High Resolution Temperature Calibration MCG-B 39

Field Calibration on 0C317000C008,

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-B 39

Last Edited on

Pre-filter Length	11

Caliper Calibration MML-A 4

Base Calibration on 0C3170021008,
Field Calibration on 0C4060524000

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15017	5.98
2	18447	7.97
3	21786	9.86
4	25801	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.08	5.98

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 0C3170023008,
Field Check on 0C4060525000

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.3	48.3

Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 0C4060A13004,

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	1.0000	
Micro Inverse K Factor	1.0000	
Standoff Offset	N/A	inches

Neutron Calibration MDN-B.J 387

Base Calibration on 0C31C0938008
Field Check on 0C4060537000

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2956	91	3714	110
Ratio	32.635		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2214	3169
Ratio	0.699	

Field Check

	Calibrated (cps)	
	2202	3182
Ratio	0.692	

Neutron Constants MDN-B.J 387

Last Edited on 06-MAY-2012,10:54

Neutron Source Id	P0204NN
Neutron Jig Number	NEDC117
Epithermal Neutron	No
Caliper Source for Processing	Density Caliper

Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 0C31B0831004
Field Check on 0C4060523000

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.7	126.8
Base Check		281.5
Field Check		281.5

FE Constants MFE-B.J 352

Last Edited on 0C4060A09004,

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Induction Calibration MAI-A.A 178

Base Calibration on 0C31B0B06000,
Field Check on 0C4060521000

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.6	484.7	9.3	966.2
2	6.2	391.4	7.6	821.4
3	4.0	264.5	5.2	566.0
4	2.3	135.1	2.6	279.2

Array Temperature 77.0 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	0.0	0.0	12.3	3762.6
2	0.0	0.0	29.6	3466.9
3	0.0	0.0	27.3	3014.1
4	0.0	0.0	18.8	2064.7
Deep	0.0	0.0	15.9	1995.3
Medium	0.0	0.0	40.3	3955.3
Shallow	0.0	0.0	45.3	5081.7
Array Temperature		0.0		72.7 Deg F

Induction Constants MAI-A.A 178

Last Edited on 0C4060A08004,

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Constant Value	
Temp. for Rm Corr.	N/A	

Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

High Resolution Temperature Calibration MAI-A.A 178

Field Calibration on 0C4030110004,

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	68.00	68.00

High Resolution Temperature Constants MAI-A.A 178

Last Edited on 0C4060522000,

Pre-filter Length	11

Photo Density Calibration MPD-B 35

Base Calibration on 0C31C0B00008
Field Check on 0C406052B000

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	62298	31871	59556	30836
Reference 2	26887	2863	24941	2541
Field Check at Base	1142.9	1359.1		
Field Check	1145.7	1361.2		

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	204	1008		
Reference 1	23049	62096	0.374	0.371
Reference 2	7079	26739	0.267	0.272
Field Check at Base	204.4	1008.1		
Field Check	206.4	1011.8		

Density Constants MPD-B 35

Last Edited on 0C4060A0A004,

Density Source Id	18235B
Nylon Calibrator Number	DNCE695
Aluminium Calibrator Number	DACD698
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied

Mud Density	1.05	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.71	
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	

Caliper Calibration MPD-B 35

Base Calibration on 0C31C0A2C008
Field Calibration on 0C4060527000

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	20688	3.99
2	30944	5.98
3	41312	7.97
4	50976	9.86
5	61184	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.98

DOWNHOLE EQUIPMENT

C:\Minimus 11_03_4044\Data\MM Exploration Z Bar # 16-4 SWD\MM Exploration Z Bar # 16-4 SWD5_003.dta

Compact Comms Gamma
MCG-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

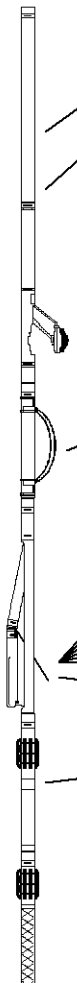
Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 48.16 ft Weight: 383.6 lb



42.87 ft	GRGC - Gamma Ray
39.96 ft	CGXT - MCG External Temperature
33.24 ft	MINV - Micro-inverse
33.24 ft	MNRL - Micro-normal
34.24 ft	MLTC - MML Caliper
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.28 ft	DPRL - Limestone Density Por.
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.12ft from bottom)

Tool Zero (0.13ft from bottom)
-0.13 ft SMTU - DST Uphole Tension
All measurements relative to tool zero.

COMPANY	M&M EXPLORATION, INC
WELL	Z BAR 16-4 SWD
FIELD	AETNA NE
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1571.00	feet	First Reading	5308.00	feet
Elevation Drill Floor	1569.00	feet	Depth Driller	5330.00	feet
Elevation Ground Level	1559.00	feet	Depth Logger	5327.00	feet

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

40 Years of Wireline 1970 2010

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	M & M Exploration, Inc.	Z-Bar 16-4 SWD	
Location:	Section 16-34S-14W	Barber County, KS	
License Number:	15-007-23843	Region:	Aetna NE
Spud Date:	04/23/12	Drilling Completed:	5/07/12
Surface Coordinates:	400' FNL & 530' FWL NW/4		
Bottom Hole Coordinates:	As Above		
Ground Elevation (ft):	1,559'	K.B. Elevation (ft):	1,571'
Logged Interval (ft):	3,800' To: 5,526'	Total Depth (ft):	5,526'
Formation:	Pennsylvanian, Mississippian, & Ordivician		
Type of Drilling Fluid:	Fresh Water		

OPERATOR

Company: M & M Exploration, Inc.
Address: 4257 Main Street, Suite 230
Westminster, CO 80031

GEOLOGIST

Name: Mike Pollok
Company: M.A.P. Exploration, Inc.
Address: PO Box 106
Purcell, OK 73080

Comments

Southwind Rig #70 Samples
Mudlogging Unit # 8
Mudlogger: Chase Thomas and Beth Brock
Cell: (405)742-0665

ROCK TYPES

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- sdy sh
- calc sh
- shale
- carb sh

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOWS

- Even
- Spotted
- Ques
- Dead

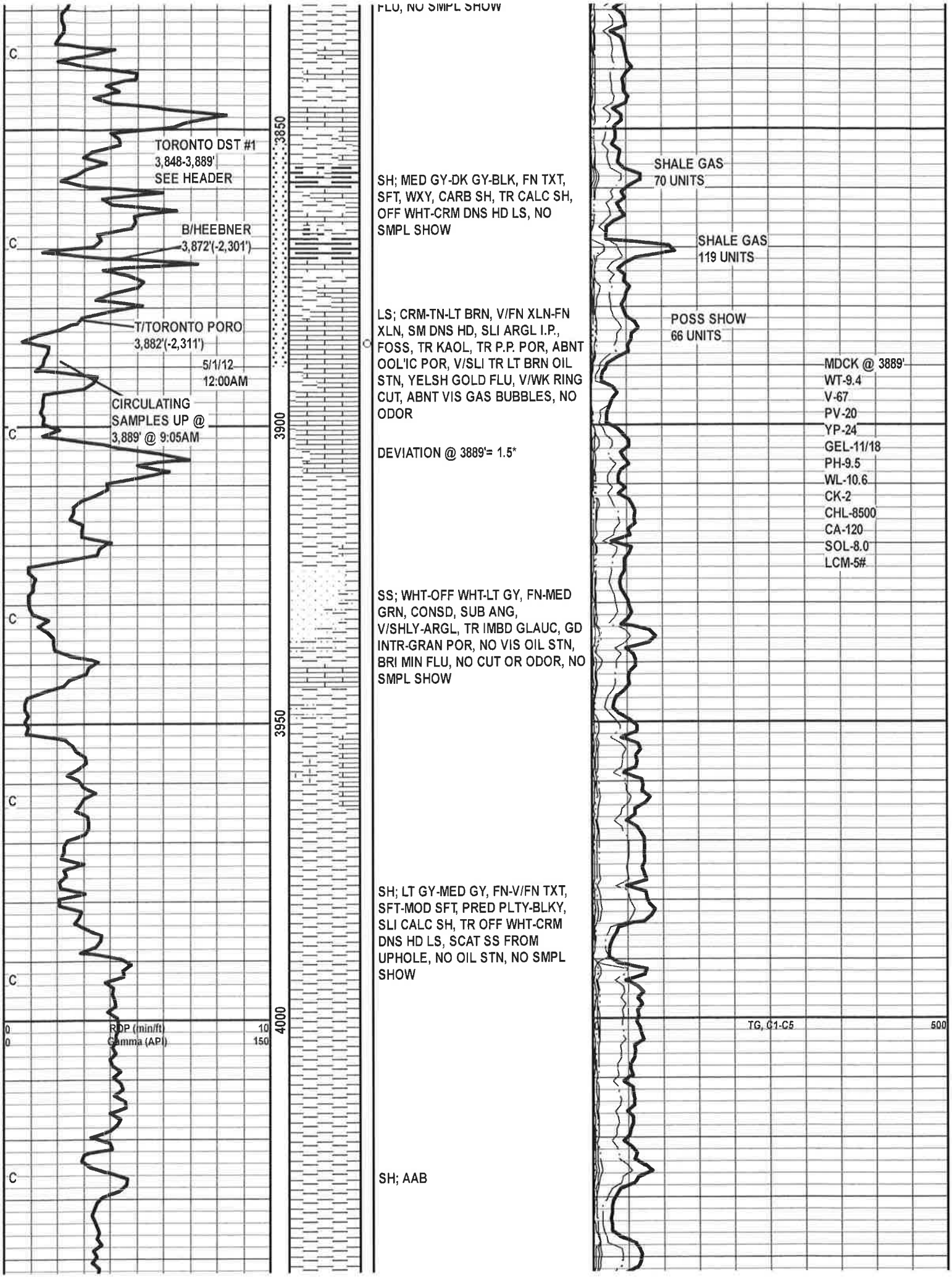
INTERVALS

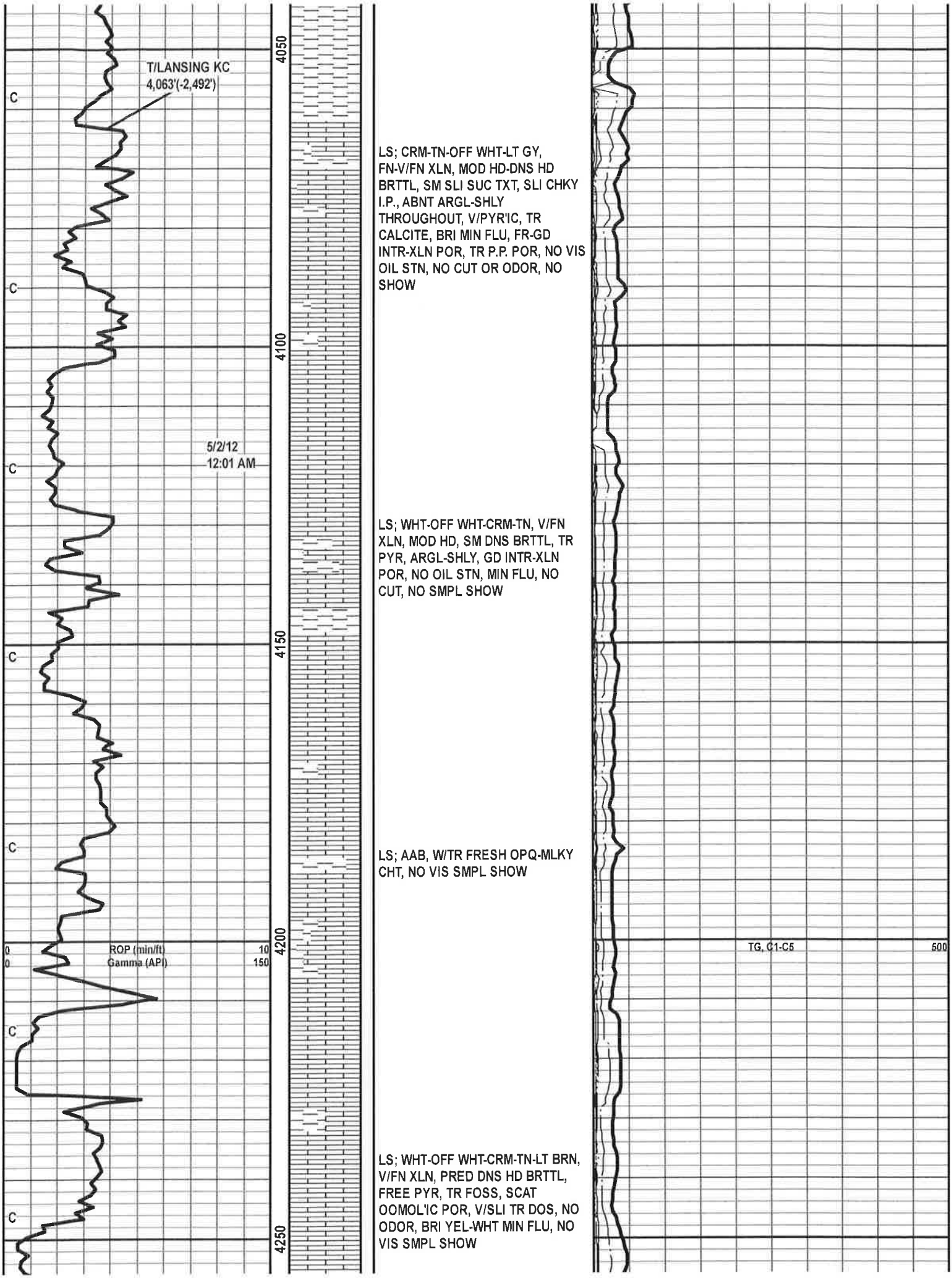
- Core
- Dst

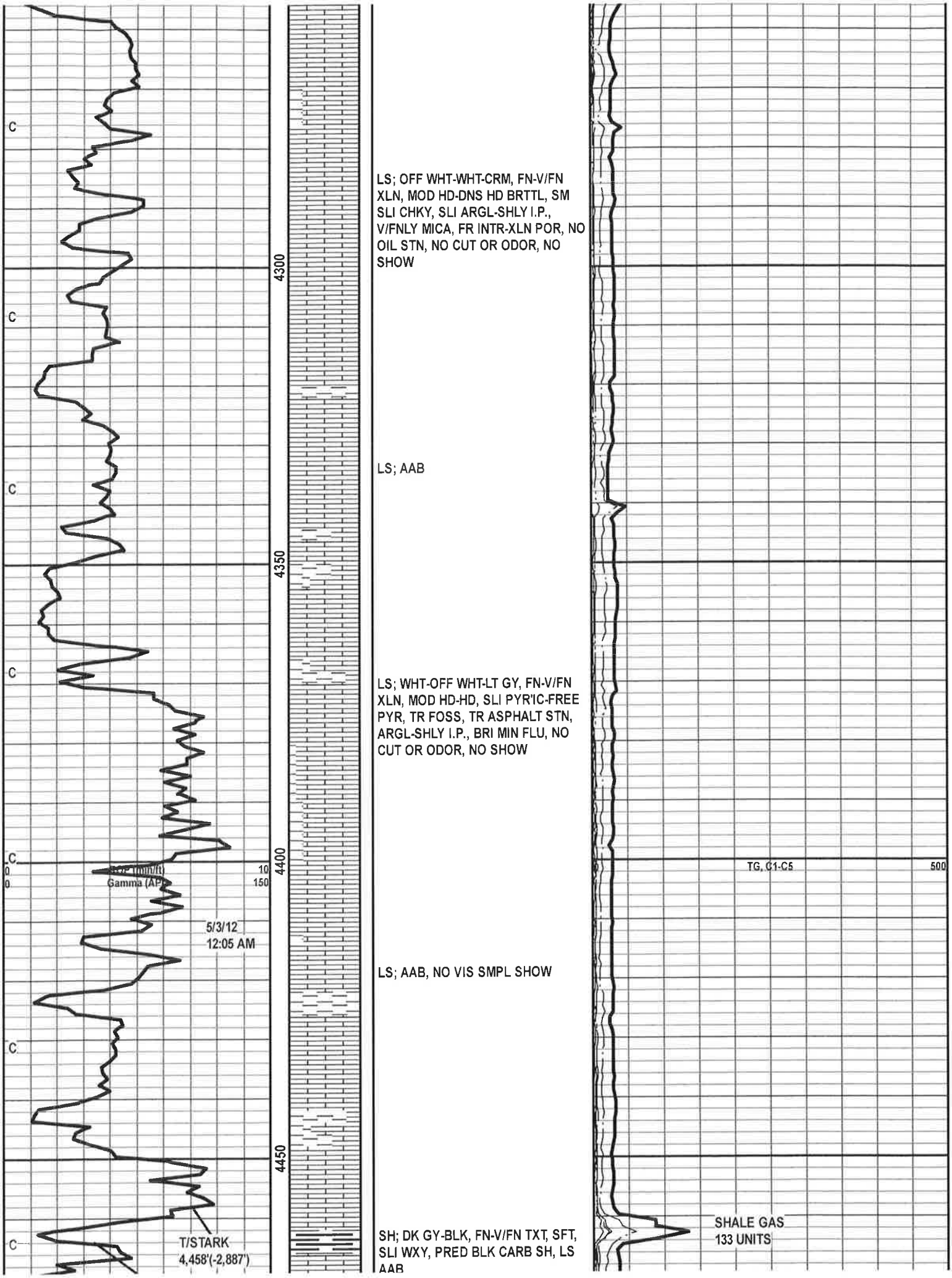
EVENTS

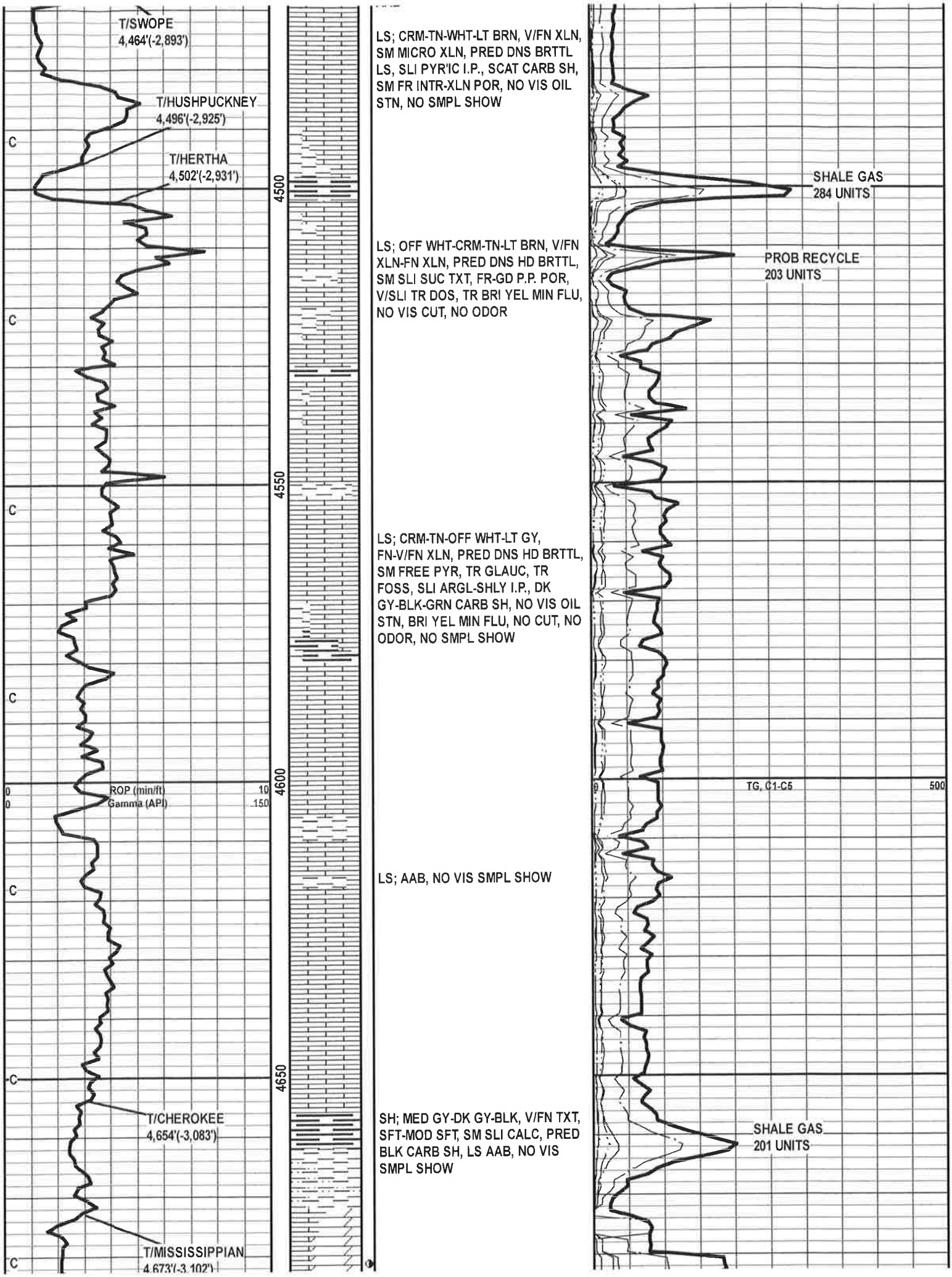
- Rft
- Sidewall

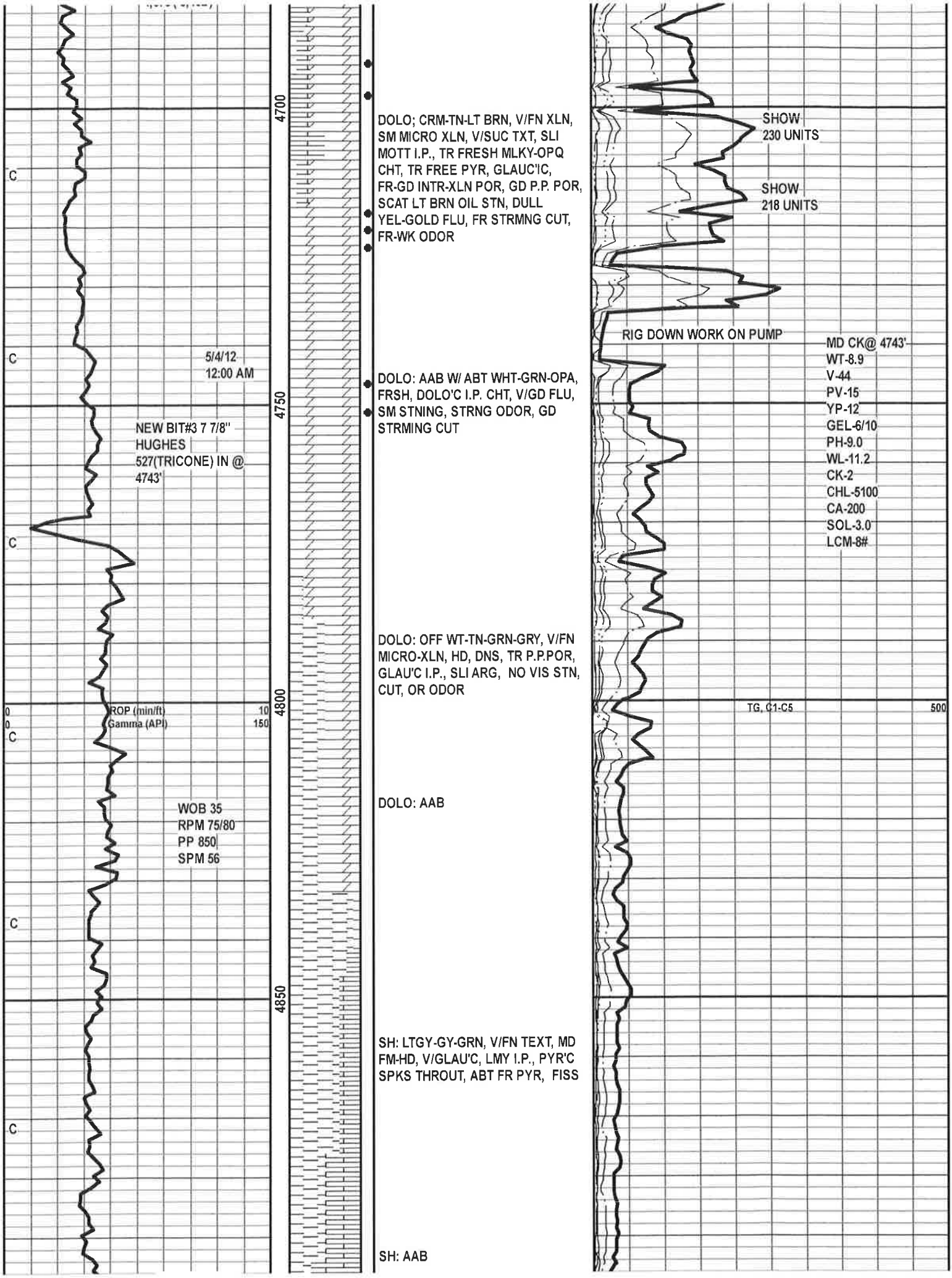
Curve Track 1	Depth	% Lithology	Oil Shows	Geological Descriptions	TG, C1-C5
ROP (min/ft) Gamma (API)					TG (units) C1 (units) C2 (units) C3 (units) C4 (units) C5 (units)
0 ROP (min/ft) 10 °C 150 BIT#2 7 7/8" HUGHES 527 (TRICONE) IN @ 916"	38			BEGAN MUDLOGGING @ 3,800' ON 04/30/12 @ 3:02AM SH; LT GY-MED GY, FN TXT, MOD SFT-SFT, SLI WXY, TR CALCITE, SLI SNDY SH -LT GY FN GRN CONSD SS, NO VIS OIL STN, NO ODOR, NO	0 TG, C1-C5 500 SURF CASING 8 5/8' SAT @ 916'

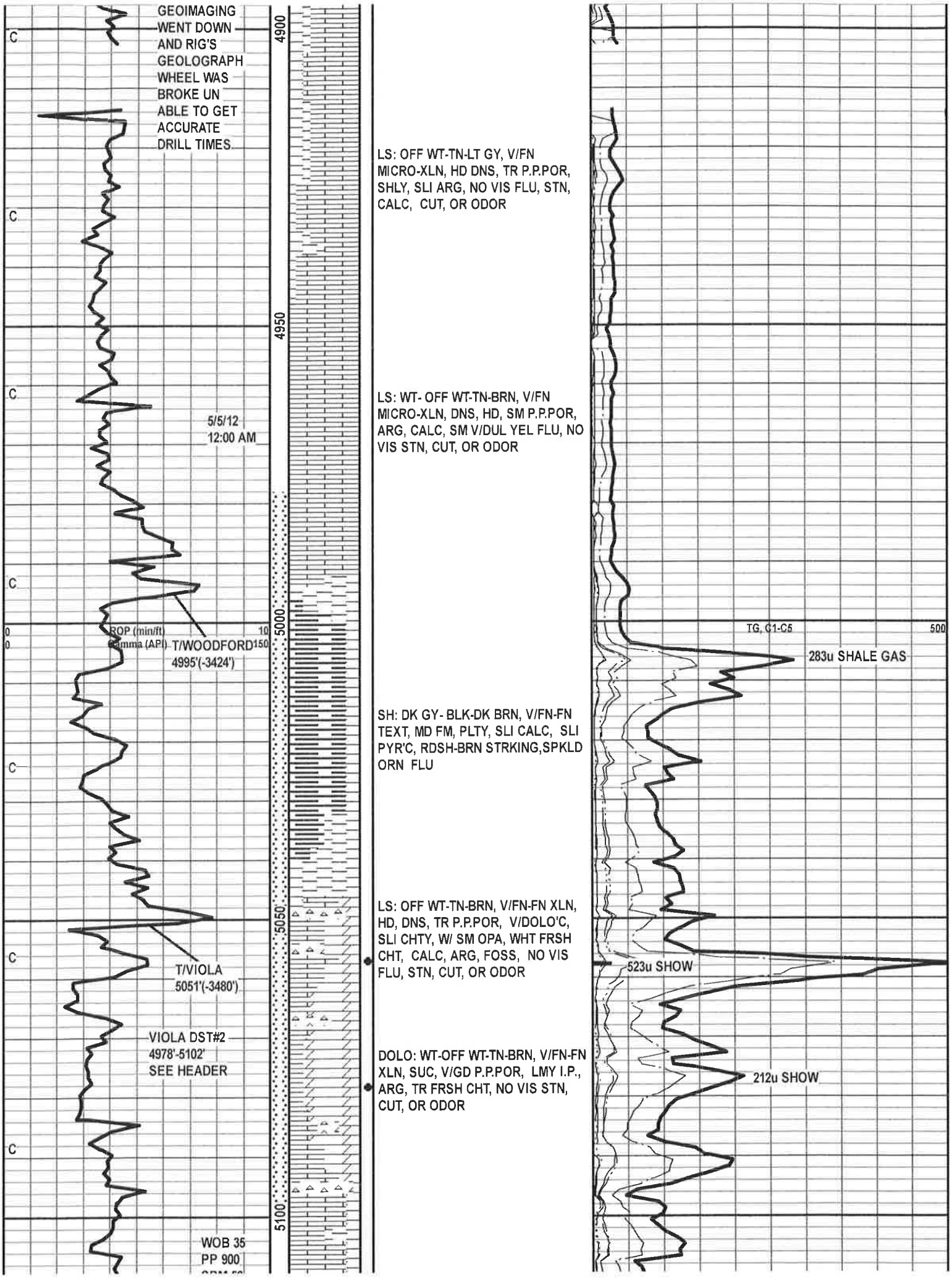

FLU, NO SMPL SHOW
TORONTO DST #1
3,848-3,889'
SEE HEADER
B/HEEBNER
3,872'(-2,301')
T/TORONTO PORO
3,882'(-2,311')
5/1/12
12:00AM
CIRCULATING
SAMPLES UP @
3,889' @ 9:05AM
3850
3900
3950
4000
SH; MED GY-DK GY-BLK, FN TXT, SFT, WXY, CARB SH, TR CALC SH, OFF WHT-CRM DNS HD LS, NO SMPL SHOW
LS; CRM-TN-LT BRN, V/FN XLN-FN XLN, SM DNS HD, SLI ARGL I.P., FOSS, TR KAOL, TR P.P. POR, ABNT OOL'IC POR, V/SLI TR LT BRN OIL STN, YELSH GOLD FLU, V/WK RING CUT, ABNT VIS GAS BUBBLES, NO ODOR
DEVIATION @ 3889'= 1.5*
SS; WHT-OFF WHT-LT GY, FN-MED GRN, CONSD, SUB ANG, V/SHLY-ARGL, TR IMBD GLAUC, GD INTR-GRAN POR, NO VIS OIL STN, BRI MIN FLU, NO CUT OR ODOR, NO SMPL SHOW
SH; LT GY-MED GY, FN-V/FN TXT, SFT-MOD SFT, PRED PLTY-BLKY, SLI CALC SH, TR OFF WHT-CRM DNS HD LS, SCAT SS FROM UPHOLE, NO OIL STN, NO SMPL SHOW
SH; AAB
SHALE GAS
70 UNITS
SHALE GAS
119 UNITS
POSS SHOW
66 UNITS
MDCK @ 3889'
WT-9.4
V-67
PV-20
YP-24
GEL-11/18
PH-9.5
WL-10.6
CK-2
CHL-8500
CA-120
SOL-8.0
LCM-5#
0 ROP (min/ft) 10
0 Gamma (API) 150
TG, C1-C5 500

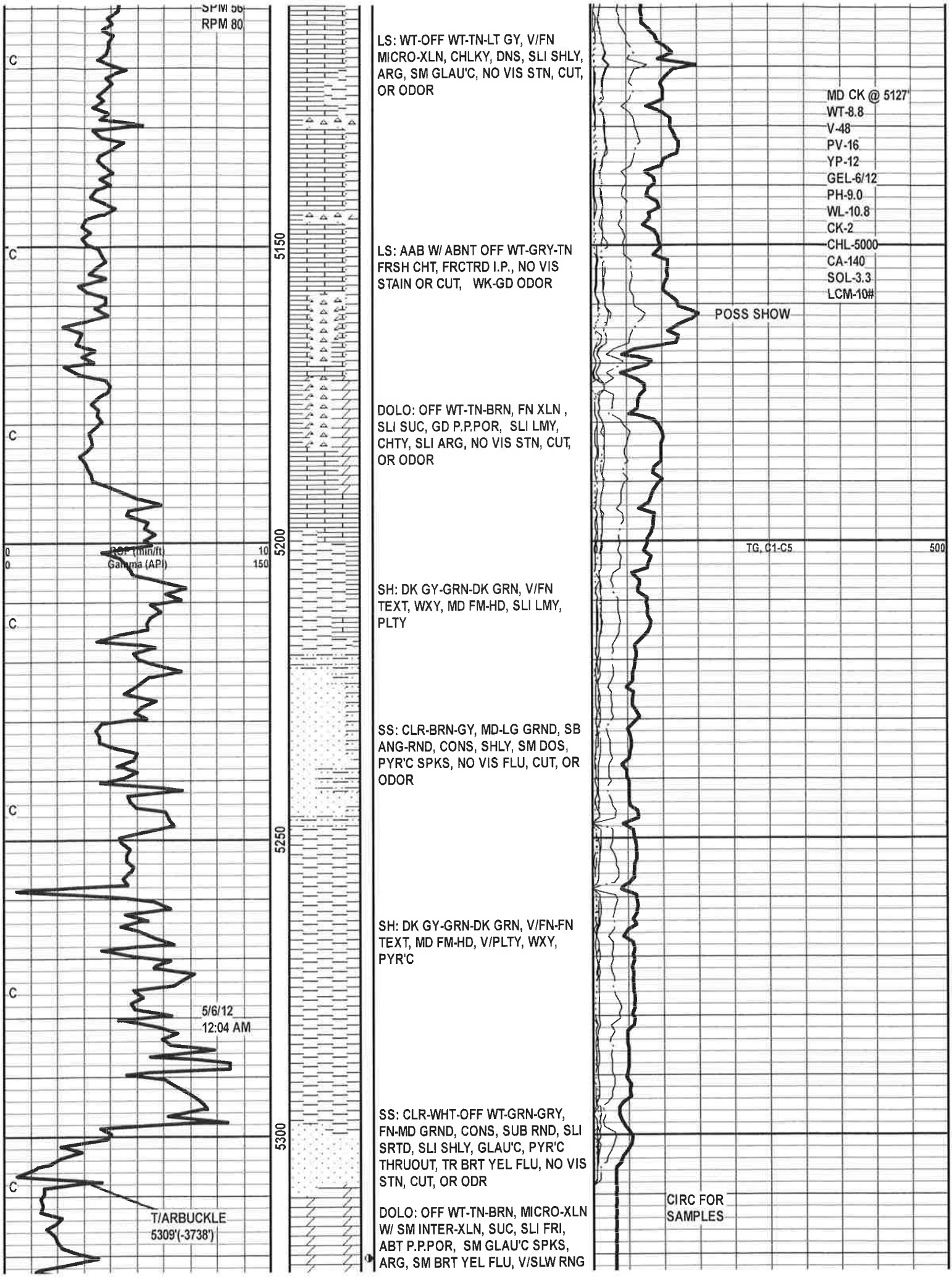

T/LANSING KC
4,063'(-2,492')
C
C
C
C
C
C
C
5/2/12
12:01 AM
4050
4100
4150
4200
4250
0
ROP (min/ft)
10
0
Gamma (API)
150
0
TG, C1-C5
500
LS; CRM-TN-OFF WHT-LT GY, FN-V/FN XLN, MOD HD-DNS HD BRTTL, SM SLI SUC TXT, SLI CHKY I.P., ABNT ARGL-SHLY THROUGHOUT, V/PYR'IC, TR CALCITE, BRI MIN FLU, FR-GD INTR-XLN POR, TR P.P. POR, NO VIS OIL STN, NO CUT OR ODOR, NO SHOW
LS; WHT-OFF WHT-CRM-TN, V/FN XLN, MOD HD, SM DNS BRTTL, TR PYR, ARGL-SHLY, GD INTR-XLN POR, NO OIL STN, MIN FLU, NO CUT, NO SMPL SHOW
LS; AAB, W/TR FRESH OPQ-MLKY CHT, NO VIS SMPL SHOW
LS; WHT-OFF WHT-CRM-TN-LT BRN, V/FN XLN, PRED DNS HD BRTTL, FREE PYR, TR FOSS, SCAT OOMOL'IC POR, V/SLI TR DOS, NO ODOR, BRI YEL-WHT MIN FLU, NO VIS SMPL SHOW

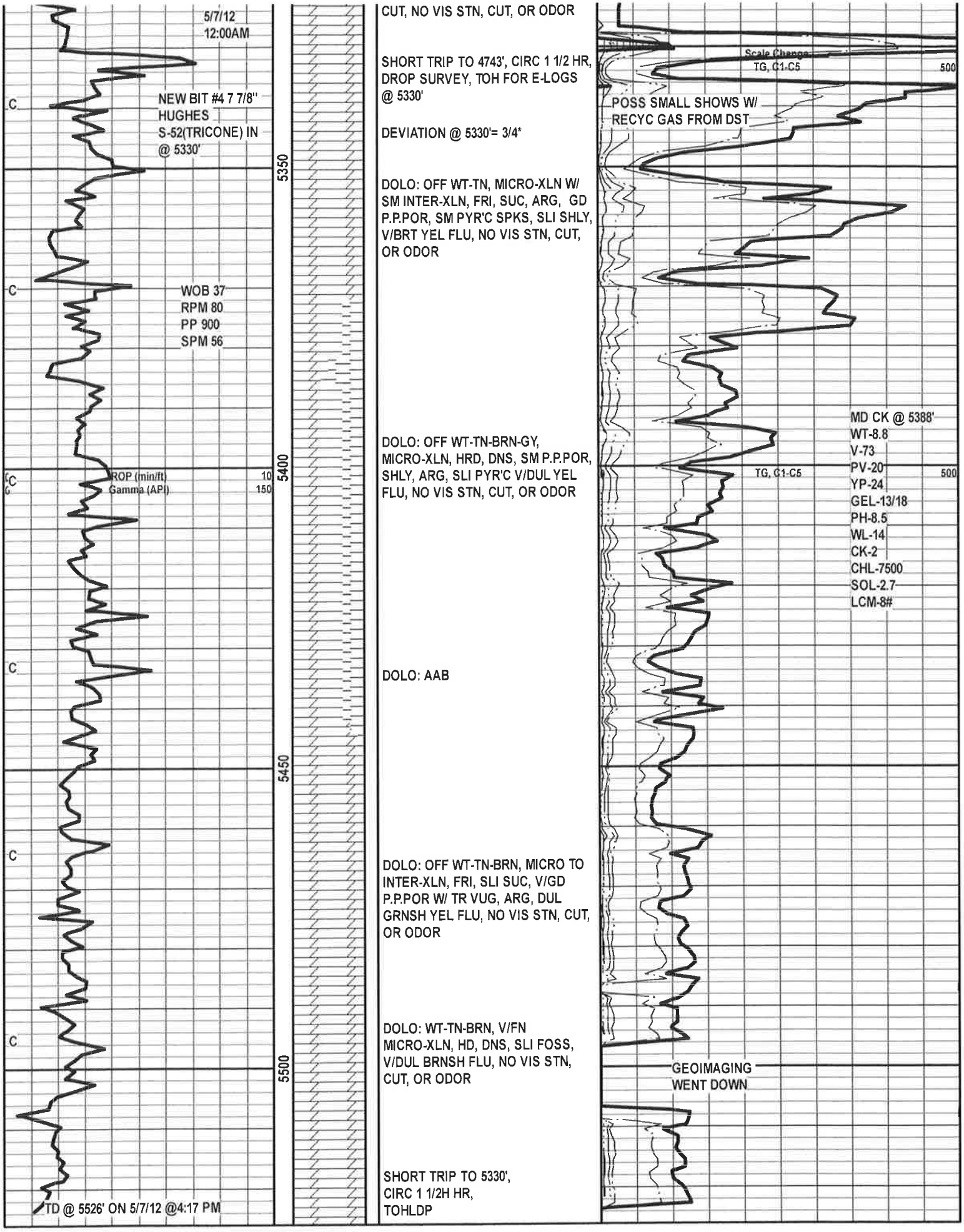

C
C
C
C
C
C
C
4300
4350
4400
4450
0
0
10
150
Gamma (API)
5/3/12
12:05 AM
T/STARK
4,458'(-2,887')
LS; OFF WHT-WHT-CRM, FN-V/FN XLN, MOD HD-DNS HD BRTTL, SM SLI CHKY, SLI ARGL-SHLY I.P., V/FNLY MICA, FR INTR-XLN POR, NO OIL STN, NO CUT OR ODOR, NO SHOW
LS; AAB
LS; WHT-OFF WHT-LT GY, FN-V/FN XLN, MOD HD-HD, SLI PYR'IC-FREE PYR, TR FOSS, TR ASPHALT STN, ARGL-SHLY I.P., BRI MIN FLU, NO CUT OR ODOR, NO SHOW
LS; AAB, NO VIS SMPL SHOW
SH; DK GY-BLK, FN-V/FN TXT, SFT, SLI WXY, PRED BLK CARB SH, LS AAB
TG, C1-C5
500
SHALE GAS
133 UNITS


T/SWOPE
4,464'(-2,893')
T/HUSHPUCKNEY
4,496'(-2,925')
T/HERTHA
4,502'(-2,931')
T/CHEROKEE
4,654'(-3,083')
T/MISSISSIPPIAN
4,673'(-3,102')
C
4500
4550
4600
4650
0
ROP (min/ft)
10
0
Gamma (API)
150
LS; CRM-TN-WHT-LT BRN, V/FN XLN, SM MICRO XLN, PRED DNS BRTTL LS, SLI PYR'IC I.P., SCAT CARB SH, SM FR INTR-XLN POR, NO VIS OIL STN, NO SMPL SHOW
LS; OFF WHT-CRM-TN-LT BRN, V/FN XLN-FN XLN, PRED DNS HD BRTTL, SM SLI SUC TXT, FR-GD P.P. POR, V/SLI TR DOS, TR BRI YEL MIN FLU, NO VIS CUT, NO ODOR
LS; CRM-TN-OFF WHT-LT GY, FN-V/FN XLN, PRED DNS HD BRTTL, SM FREE PYR, TR GLAUC, TR FOSS, SLI ARGL-SHLY I.P., DK GY-BLK-GRN CARB SH, NO VIS OIL STN, BRI YEL MIN FLU, NO CUT, NO ODOR, NO SMPL SHOW
LS; AAB, NO VIS SMPL SHOW
SH; MED GY-DK GY-BLK, V/FN TXT, SFT-MOD SFT, SM SLI CALC, PRED BLK CARB SH, LS AAB, NO VIS SMPL SHOW
SHALE GAS
284 UNITS
PROB RECYCLE
203 UNITS
SHALE GAS
201 UNITS
0
TG, C1-C5
500


4700
4750
4800
4850
C
5/4/12
12:00 AM
NEW BIT#3 7 7/8"
HUGHES
527(TRICONE) IN @
4743'
0
ROP (min/ft)
10
0
Gamma (API)
150
WOB 35
RPM 75/80
PP 850
SPM 56
DOLO; CRM-TN-LT BRN, V/FN XLN, SM MICRO XLN, V/SUC TXT, SLI MOTT I.P., TR FRESH MLKY-OPQ CHT, TR FREE PYR, GLAUC'IC, FR-GD INTR-XLN POR, GD P.P. POR, SCAT LT BRN OIL STN, DULL YEL-GOLD FLU, FR STRMNG CUT, FR-WK ODOR
DOLO: AAB W/ ABT WHT-GRN-OPA, FRSH, DOLO'C I.P. CHT, V/GD FLU, SM STNING, STRNG ODOR, GD STRMING CUT
DOLO: OFF WT-TN-GRN-GRY, V/FN MICRO-XLN, HD, DNS, TR P.P.POR, GLAU'C I.P., SLI ARG, NO VIS STN, CUT, OR ODOR
DOLO: AAB
SH: LTGY-GY-GRN, V/FN TEXT, MD FM-HD, V/GLAU'C, LMY I.P., PYR'C SPKS THROUT, ABT FR PYR, FISS
SH: AAB
SHOW
230 UNITS
SHOW
218 UNITS
RIG DOWN WORK ON PUMP
MD CK@ 4743'
WT-8.9
V-44
PV-15
YP-12
GEL-6/10
PH-9.0
WL-11.2
CK-2
CHL-5100
CA-200
SOL-3.0
LCM-8#
TG, C1-C5
500


GEOIMAGING WENT DOWN AND RIG'S GEOLOGRAPH WHEEL WAS BROKE UN ABLE TO GET ACCURATE DRILL TIMES
5/5/12 12:00 AM
ROP (min/ft) 0 10
Gamma (API) 0 150
T/WOODFORD 4995'(-3424')
T/VIOLA 5051'(-3480')
VIOLA DST#2 4978'-5102' SEE HEADER
WOB 35
PP 900
4900
4950
5000
5050
5100
LS: OFF WT-TN-LT GY, V/FN MICRO-XLN, HD DNS, TR P.P.POR, SHLY, SLI ARG, NO VIS FLU, STN, CALC, CUT, OR ODOR
LS: WT- OFF WT-TN-BRN, V/FN MICRO-XLN, DNS, HD, SM P.P.POR, ARG, CALC, SM V/DUL YEL FLU, NO VIS STN, CUT, OR ODOR
SH: DK GY- BLK-DK BRN, V/FN-FN TEXT, MD FM, PLTY, SLI CALC, SLI PYR'C, RDSH-BRN STRKING,SPKLD ORN FLU
LS: OFF WT-TN-BRN, V/FN-FN XLN, HD, DNS, TR P.P.POR, V/DOLO'C, SLI CHTY, W/ SM OPA, WHT FRSH CHT, CALC, ARG, FOSS, NO VIS FLU, STN, CUT, OR ODOR
DOLO: WT-OFF WT-TN-BRN, V/FN-FN XLN, SUC, V/GD P.P.POR, LMY I.P., ARG, TR FRSH CHT, NO VIS STN, CUT, OR ODOR
TG, C1-C5 500
283u SHALE GAS
523u SHOW
212u SHOW


SPM 56
RPM 80
C
C
C
C
C
C
C
0
0
ROP (min/ft)
Gamma (API)
10
150
5150
5200
5250
5300
5/6/12
12:04 AM
T/ARBUCKLE
5309'(-3738')
LS: WT-OFF WT-TN-LT GY, V/FN MICRO-XLN, CHLKY, DNS, SLI SHLY, ARG, SM GLAU'C, NO VIS STN, CUT, OR ODOR
LS: AAB W/ ABNT OFF WT-GRY-TN FRSH CHT, FRCTRD I.P., NO VIS STAIN OR CUT, WK-GD ODOR
DOLO: OFF WT-TN-BRN, FN XLN , SLI SUC, GD P.P.POR, SLI LMY, CHTY, SLI ARG, NO VIS STN, CUT, OR ODOR
SH: DK GY-GRN-DK GRN, V/FN TEXT, WXY, MD FM-HD, SLI LMY, PLTY
SS: CLR-BRN-GY, MD-LG GRND, SB ANG-RND, CONS, SHLY, SM DOS, PYR'C SPKS, NO VIS FLU, CUT, OR ODOR
SH: DK GY-GRN-DK GRN, V/FN-FN TEXT, MD FM-HD, V/PLTY, WXY, PYR'C
SS: CLR-WHT-OFF WT-GRN-GRY, FN-MD GRND, CONS, SUB RND, SLI SRTD, SLI SHLY, GLAU'C, PYR'C THRUOUT, TR BRT YEL FLU, NO VIS STN, CUT, OR ODR
DOLO: OFF WT-TN-BRN, MICRO-XLN W/ SM INTER-XLN, SUC, SLI FRI, ABT P.P.POR, SM GLAU'C SPKS, ARG, SM BRT YEL FLU, V/SLW RNG
MD CK @ 5127'
WT-8.8
V-48
PV-16
YP-12
GEL-6/12
PH-9.0
WL-10.8
CK-2
CHL-5000
CA-140
SOL-3.3
LCM-10#
POSS SHOW
0
TG, C1-C5
500
CIRC FOR SAMPLES


5/7/12
12:00AM
NEW BIT #4 7 7/8" HUGHES S-52(TRICONE) IN @ 5330'
WOB 37
RPM 80
PP 900
SPM 56
ROP (min/ft)
Gamma (API)
10
150
5350
5400
5450
5500
TD @ 5526' ON 5/7/12 @4:17 PM
CUT, NO VIS STN, CUT, OR ODOR
SHORT TRIP TO 4743', CIRC 1 1/2 HR, DROP SURVEY, TOH FOR E-LOGS @ 5330'
DEVIATION @ 5330'= 3/4*
DOLO: OFF WT-TN, MICRO-XLN W/ SM INTER-XLN, FRI, SUC, ARG, GD P.P.POR, SM PYR'C SPKS, SLI SHLY, V/BRT YEL FLU, NO VIS STN, CUT, OR ODOR
DOLO: OFF WT-TN-BRN-GY, MICRO-XLN, HRD, DNS, SM P.P.POR, SHLY, ARG, SLI PYR'C V/DUL YEL FLU, NO VIS STN, CUT, OR ODOR
DOLO: AAB
DOLO: OFF WT-TN-BRN, MICRO TO INTER-XLN, FRI, SLI SUC, V/GD P.P.POR W/ TR VUG, ARG, DUL GRNSH YEL FLU, NO VIS STN, CUT, OR ODOR
DOLO: WT-TN-BRN, V/FN MICRO-XLN, HD, DNS, SLI FOSS, V/DUL BRNSH FLU, NO VIS STN, CUT, OR ODOR
SHORT TRIP TO 5330', CIRC 1 1/2H HR, TOHLDP
Scale Change
TG, C1-C5
500
POSS SMALL SHOWS W/ RECYC GAS FROM DST
TG, C1-C5
500
MD CK @ 5388'
WT-8.8
V-73
PV-20
YP-24
GEL-13/18
PH-8.5
WL-14
CK-2
CHL-7500
SOL-2.7
LCM-8#
GEOIMAGING WENT DOWN

DRILL STEM TEST REPORT

M & M Exploration

4257 Main ST.#230
Westminster CO 80031

ATTN: Chase Thomas

16/34s/14w Barber KS

Z Bar 16-4 SWD

Job Ticket: 47489 **DST#: 1**

Test Start: 2012.04.30 @ 16:23:35

GENERAL INFORMATION:

Formation: **Toronto**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:59:35
Time Test Ended: 02:39:20

Test Type: Conventional Bottom Hole (Initial)
Tester: Kevin Taylor
Unit No: 45

Interval: 3848.00 ft (KB) To 3849.00 ft (KB) (TVD)
Total Depth: 3889.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

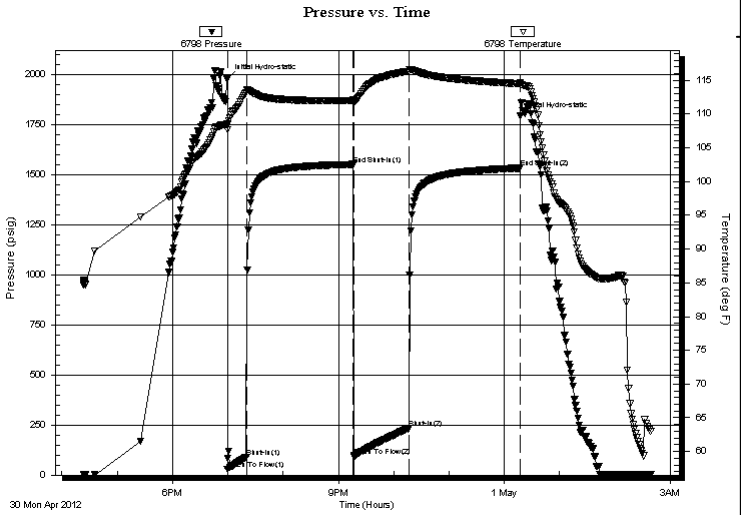
Reference Elevations: 1571.00 ft (KB)
1559.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 6798 **Inside**

Press@RunDepth: 233.47 psig @ 3849.00 ft (KB)
Start Date: 2012.04.30 End Date: 2012.05.01
Start Time: 16:23:36 End Time: 02:39:20

Capacity: 8000.00 psig
Last Calib.: 2012.05.01
Time On Btm: 2012.04.30 @ 18:59:20
Time Off Btm: 2012.05.01 @ 00:17:20

TEST COMMENT: I.F. Strong Blow B.O.B. 18 Min
I.S.I. No Blow
F.F. Strong Blow B.O.B. 30 Min
F.S.I. No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1976.98	108.61	Initial Hydro-static
1	28.95	107.69	Open To Flow (1)
21	89.58	113.20	Shut-In(1)
137	1550.01	112.06	End Shut-In(1)
138	94.52	111.57	Open To Flow (2)
197	233.47	116.36	Shut-In(2)
318	1531.60	114.51	End Shut-In(2)
318	1790.16	114.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
78.00	Wtr Cut Mud 5%W 95%M	1.14
420.00	Cln Wtr 99%W 1%M	6.14
62.00	Wtr Cut Mud 8%W 92%M	0.91

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

DRILL STEM TEST REPORT

FLUID SUMMARY

M & M Exploration

4257 Main ST.#230
Westminster CO 80031

ATTN: Chase Thomas

16/34s/14w Barber KS

Z Bar 16-4 SWD

Job Ticket: 47489 **DST#: 1**

Test Start: 2012.04.30 @ 16:23:35

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	90000 ppm
Viscosity:	52.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.78 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4000.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

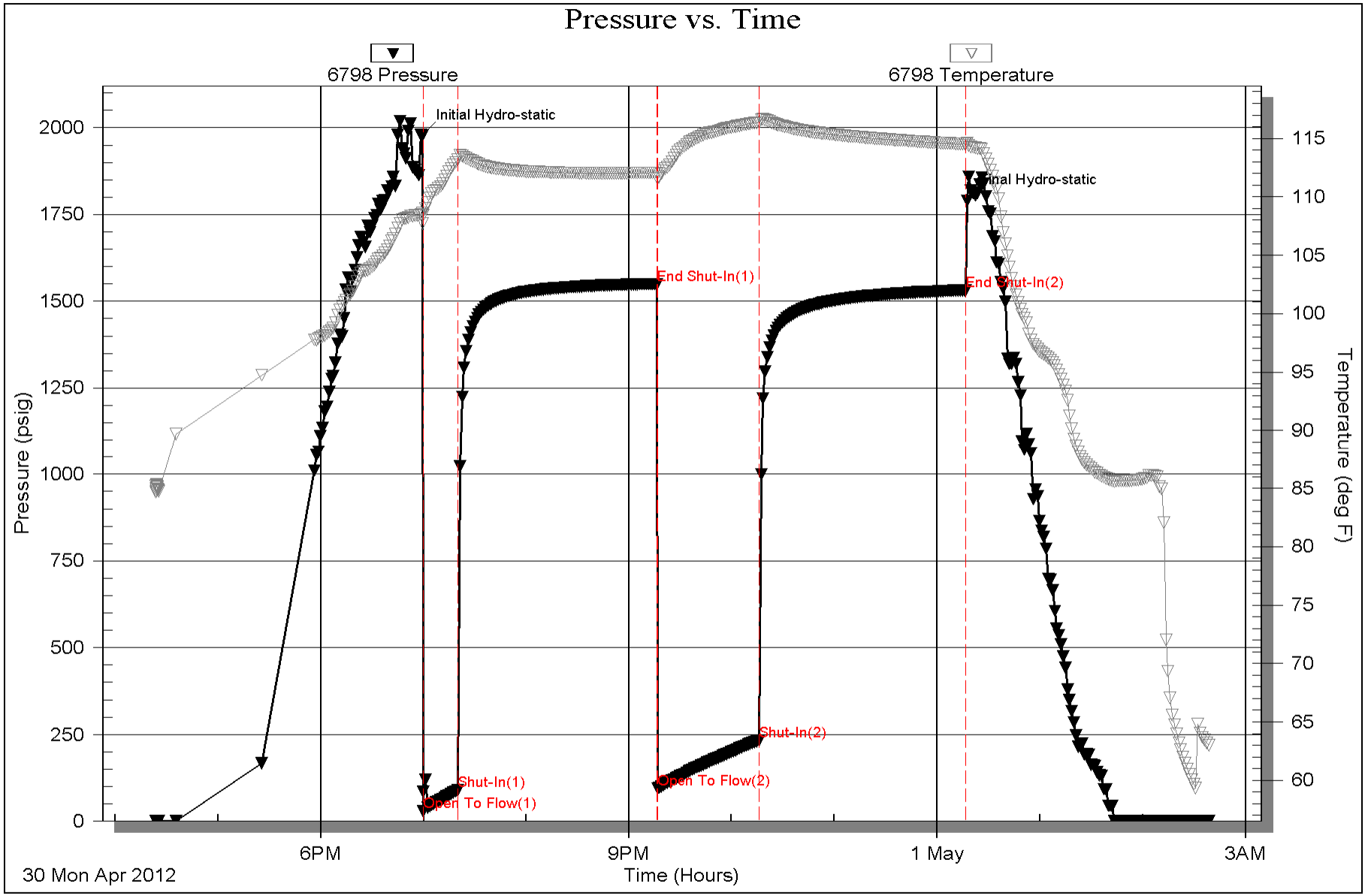
Recovery Table

Length ft	Description	Volume bbl
78.00	Wtr Cut Mud 5%W 95%M	1.141
420.00	Cln Wtr 99%W 1%M	6.142
62.00	Wtr Cut Mud 8%W 92%M	0.907

Total Length: 560.00 ft Total Volume: 8.190 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 6798 **Inside** M & M Exploration Z Bar 16-4 SWD DST Test Number: 1



Trilobite Testing, Inc Ref. No: 47489 Printed: 2012.05.01 @ 08:50:28

DRILL STEM TEST REPORT

M & M Exploration

4257 Main ST.#230
Westminster CO 80031

ATTN: Chase Thomas

16-34s-14w Barber KS

Z Bar #16-4 SWD

Job Ticket: 46953 **DST#: 2**

Test Start: 2012.05.06 @ 17:56:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:17:30
Time Test Ended: 03:18:00

Test Type: Conventional Straddle (Reset)
Tester: Leal Cason
Unit No: Rickets 04

Interval: 4978.00 ft (KB) To 5102.00 ft (KB) (TVD)
Total Depth: 5330.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

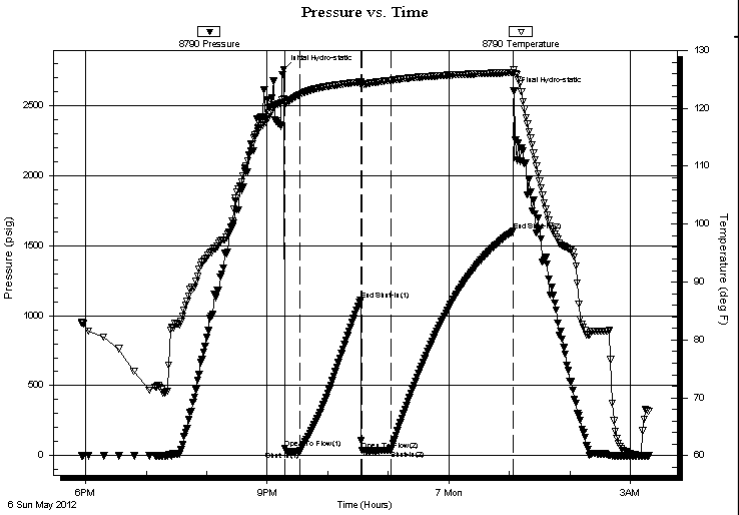
Reference Elevations: 1571.00 ft (KB)
1559.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8790 **Inside**

Press@RunDepth: 38.73 psig @ 4990.00 ft (KB)
Start Date: 2012.05.06 End Date: 2012.05.07
Start Time: 17:56:05 End Time: 03:18:00

Capacity: 8000.00 psig
Last Calib.: 2012.05.07
Time On Btm: 2012.05.06 @ 21:16:30
Time Off Btm: 2012.05.07 @ 01:04:30

TEST COMMENT: IF: Strong Blow , BOB in 3 1/2 minutes
ISI: No Blow Back
FF: Strong Blow , BOB in 10 seconds
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2760.16	121.60	Initial Hydro-static
1	51.56	120.75	Open To Flow (1)
16	32.02	122.38	Shut-In(1)
76	1111.73	124.54	End Shut-In(1)
78	37.00	124.19	Open To Flow (2)
106	38.73	124.84	Shut-In(2)
227	1604.09	126.20	End Shut-In(2)
228	2604.02	126.73	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP 1000 feet	0.00
50.00	Mud	0.73

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

DRILL STEM TEST REPORT

M & M Exploration

4257 Main ST.#230
Westminster CO 80031

ATTN: Chase Thomas

16-34s-14w Barber KS

Z Bar #16-4 SWD

Job Ticket: 46953 **DST#: 2**

Test Start: 2012.05.06 @ 17:56:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:17:30
Time Test Ended: 03:18:00

Test Type: Conventional Straddle (Reset)
Tester: Leal Cason
Unit No: Rickets 04

Interval: 4978.00 ft (KB) To 5102.00 ft (KB) (TVD)
Total Depth: 5330.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

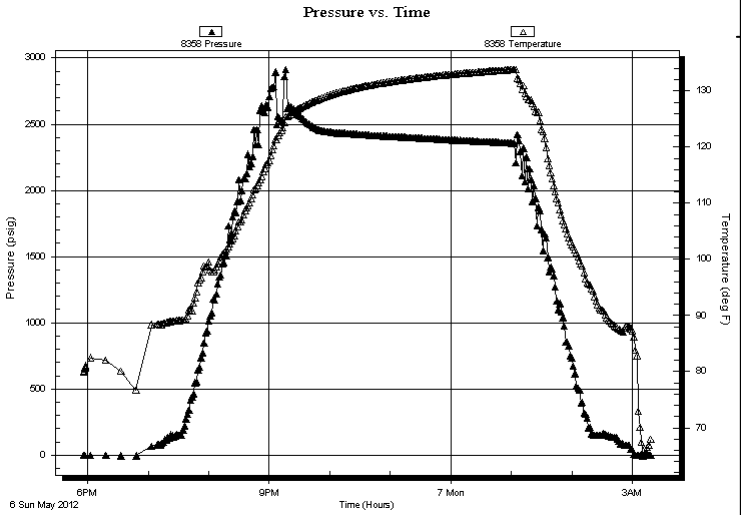
Reference Elevations: 1571.00 ft (KB)
1559.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8358 **Below (Straddle)**

Press@RunDepth: psig @ 5106.00 ft (KB)
Start Date: 2012.05.06 End Date: 2012.05.07
Start Time: 17:56:05 End Time: 03:18:00

Capacity: 8000.00 psig
Last Calib.: 2012.05.07
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow , BOB in 3 1/2 minutes
ISI: No Blow Back
FF: Strong Blow , BOB in 10 seconds
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP 1000 feet	0.00
50.00	Mud	0.73

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

DRILL STEM TEST REPORT

FLUID SUMMARY

M & M Exploration

4257 Main ST.#230
Westminster CO 80031

ATTN: Chase Thomas

16-34s-14w Barber KS

Z Bar #16-4 SWD

Job Ticket: 46953 **DST#: 2**

Test Start: 2012.05.06 @ 17:56:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	64.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.18 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5100.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

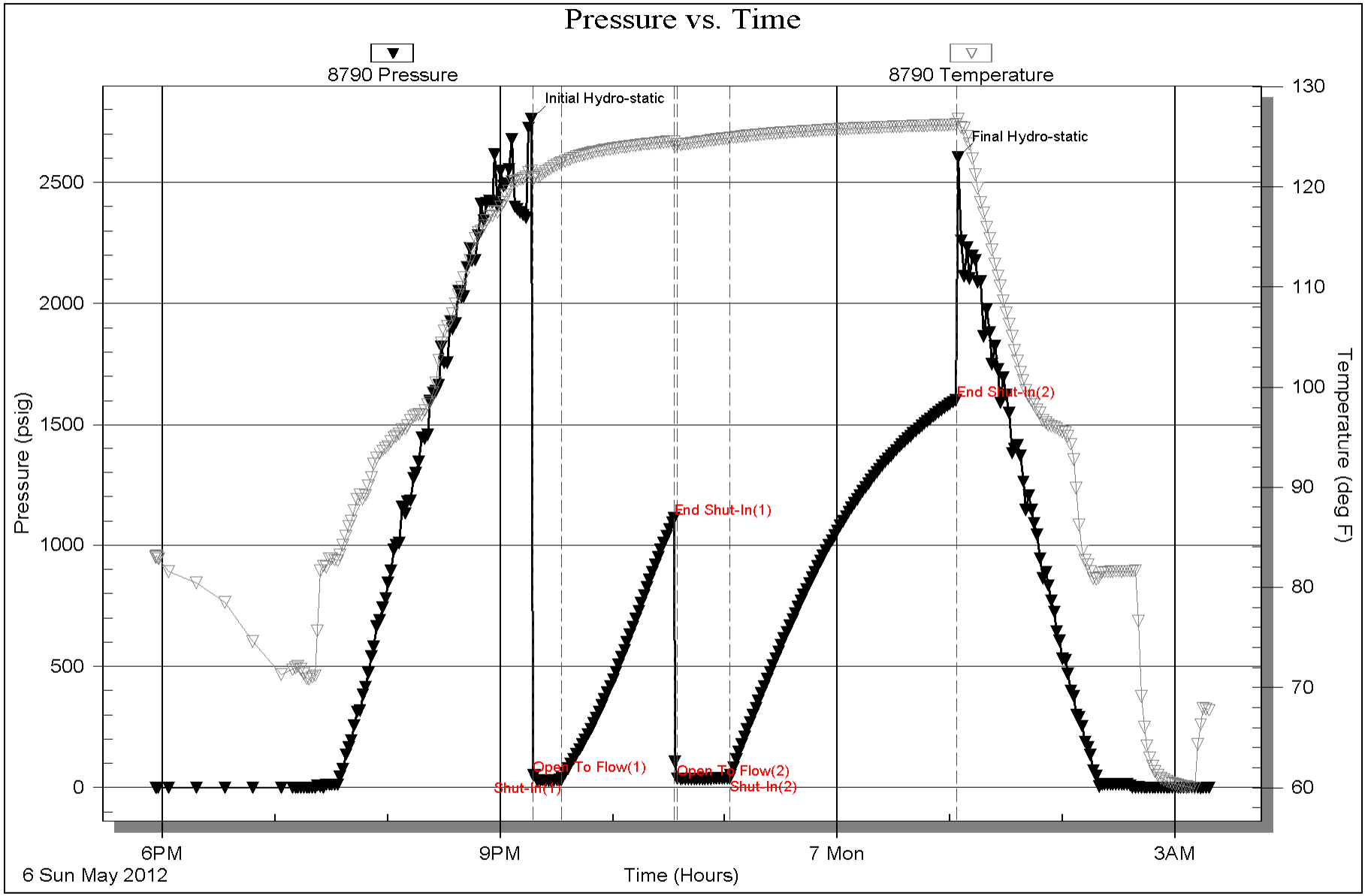
Recovery Table

Length ft	Description	Volume bbl
0.00	GIP 1000 feet	0.000
50.00	Mud	0.731

Total Length: 50.00 ft Total Volume: 0.731 bbl

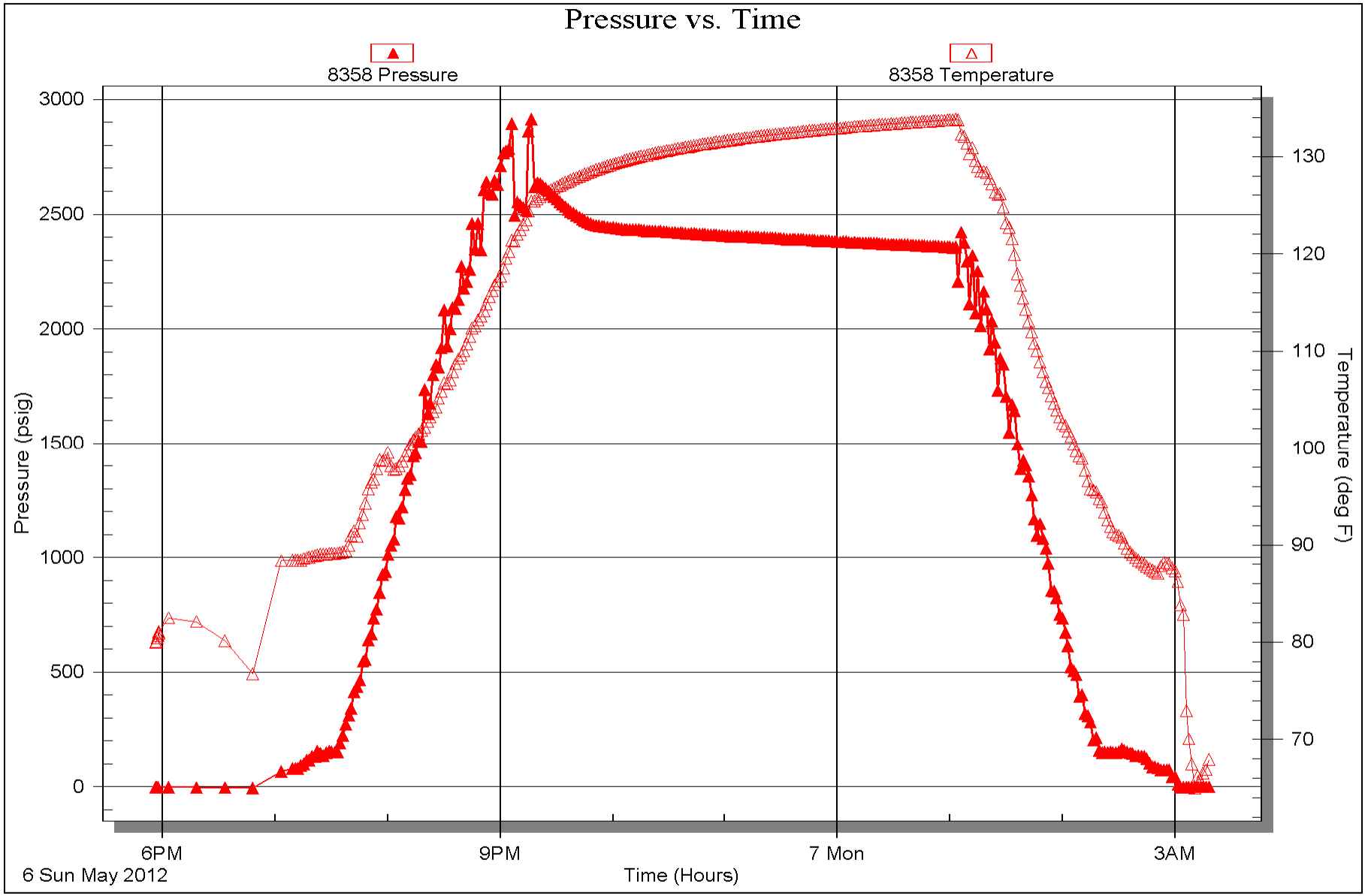
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8790 **Inside** M & M Exploration Z Bar #16-4 SWD DST Test Number: 2



Trilobite Testing, Inc Ref. No: 46953 Printed: 2012.05.07 @ 07:50:41

Serial #: 8358 Below (Straddle) Mississippian Exploration Z Bar #16-4 SWD DST Test Number: 2



Trilobite Testing, Inc Ref. No: 46953 Printed: 2012.05.07 @ 07:50:42

ALLIED OIL & GAS SERVICES, LLC 054011

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT: Medicine Lodge

DATE 3-28-12	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START 3:30pm	JOB FINISH 4:00pm
LEASE Z-Bar	WELL # 16-4 SWD		LOCATION Astra Rd & 281, South to			COUNTY Barber	STATE KS
OLD OR (NEW) (Circle one)			College Creek Rd. E to Tin Rd. N then E in to				

CONTRACTOR

TYPE OF JOB Conductor

HOLE SIZE 30" T.D. 70'

CASING SIZE 20" DEPTH 70'

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX 150psi MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 15'

PERFS.

DISPLACEMENT 19 1/2 bbls H2O

OWNER M&M Exploration

CEMENT

AMOUNT ORDERED 100 sx 60:40:4% gel +3% cc
50 sx A+3% cc

EQUIPMENT

PUMP TRUCK CEMENTER Matt Thimesch
360/265 HELPER Adam Miller

BULK TRUCK
381/250 DRIVER Troy Lonz

BULK TRUCK
DRIVER

COMMON	110	@ 16.25	1787.50
POZMIX	40	@ 8.50	340.00
GEL	4	@ 21.25	85.00
CHLORIDE	5	@ 58.20	291.00
ASC		@	
		@	
		@	
		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	159	@ 2.25	357.75
MILEAGE	40/.11/159		699.60
		TOTAL	3560.85

REMARKS:

mixed pump 100 sx lead and 50 sx tail cement disp 19 1/2 bbls H2O shut in cement did circ.

SERVICE

DEPTH OF JOB 70'

PUMP TRUCK CHARGE			1125.00
EXTRA FOOTAGE		@	
MILEAGE	40	@ 7	280
MANIFOLD		@	
Light vehicle	40	@ 4	160.00
		@	
		TOTAL	1565.00

CHARGE TO: M&M Exploration

STREET

CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	
	TOTAL	

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

SALES TAX (If Any)

TOTAL CHARGES 5125.85

DISCOUNT IF PAID IN 30 DAYS

PRINTED NAME Adam Vratil

SIGNATURE

ALLIED CEMENTING CO., LLC. 038054

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT: Medicine Lodge, KS

DATE 04-24-12	SEC. 16	TWP. 34s	RANGE 14w	CALLED OUT	ON LOCATION	JOB START	JOB FINISH 3:30Pm
LEASE Z-Bar	WELL # 16-4SWD	LOCATION US 160 & Deerhead Rd, South to Cottage Creek, 4.3E, 3/4N, E into				COUNTY Barber	STATE KS
OLD OR (NEW) (Circle one)							

CONTRACTOR Southwind
TYPE OF JOB Surface
HOLE SIZE 12 1/4 T.D. 920
CASING SIZE 8 5/8 DEPTH 916
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX 900 MINIMUM —
MEAS. LINE SHOE JOINT 41
CEMENT LEFT IN CSG. 41'
PERFS.
DISPLACEMENT 55 Bbls Fresh H2O

OWNER M&M Explo.

EQUIPMENT

PUMP TRUCK # 471-302 CEMENTER D. Felio
HELPER D. Gibbons
BULK TRUCK # 381-250 DRIVER T. Lenz
BULK TRUCK # DRIVER

CEMENT

AMOUNT ORDERED 250 sx 65:35:6% gel + 3% cc + 1/4 # Flo seal & 150 sx class A + 3% cc + 2% gel

COMMON Class A	150 sx	@ 16.25	2437.50
POZMIX		@	
GEL	3 sx	@ 21.25	63.75
CHLORIDE	14 sx	@ 58.00	814.00
ASC		@	
		@	
Lite Weight	250 sx	@ 15.00	3750.00
		@	
Flo	63 #	@ 2.70	170.10
		@	
		@	
		@	
		@	
HANDLING	433	@ 2.25	974.25
MILEAGE .11 · 40 · 433			1905.20
		TOTAL	10115.60

REMARKS:

Pipe on Bttm, Break Circ., Pump Spacer, Mix 250 sx Lite weight, Mix 150 sx tail Cement, Stop, Release Plug, Start Disp. w/ Fresh H2O, Wash up on Plug, See Steady increase in PSI, Slow Rate, Bump Plug at 55 Bbls total Disp. Release PSI, Float Did Hold Cement, Did Circ.

SERVICE

DEPTH OF JOB 916
PUMP TRUCK CHARGE 1125.00
EXTRA FOOTAGE 616 @ .95 585.20
MILEAGE 40 @ 290.00
MANIFOLD Headrental @ 200.00
Light Vehicle 40 @ 160.00
@
TOTAL 2350.20 ~~10115.60~~

CHARGE TO: M&M Explo.
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

1- TRP	@ 112	112.00
1- AFU insert	@	382.00
1- cement Basket	@	478.00
	@	
	@	
	TOTAL	972.00

8 5/8

To Allied Cementing Co., LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

SALES TAX (If Any)
TOTAL CHARGES 13437.80
DISCOUNT IF PAID IN 30 DAYS

PRINTED NAME Nathan Schmitz
SIGNATURE

BASIC ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

FIELD SERVICE TICKET

1718 05882 A

DATE TICKET NO.

DATE OF JOB 5-8-12 DISTRICT Kansas	NEW WELL ☒ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER M+M Exploration INC.	LEASE Z-Bar SWD #16-4 WELL NO.
ADDRESS	COUNTY Barber 16-34-14 STATE Ks.
CITY STATE	SERVICE CREW Allen, Mike, Jessie
AUTHORIZED BY	JOB TYPE: 5 1/2" L.S. CNW

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
#28443 P.U.	3				
19903-19905	3				
19831-19862	3				

	DATE	AM/PM	TIME
TRUCK CALLED	4-7-12	AM PM	100
ARRIVED AT JOB	4-8-12	AM PM	1215
START OPERATION	4-8-12	AM PM	700
FINISH OPERATION	4-8-12	AM PM	1000
RELEASED	4-8-12	AM PM	1045
MILES FROM STATION TO WELL	65 miles		

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).
The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED:
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
CP105	AA2 Cement	SK	250		$ 4250.00
CP105	AA2 Cement	SK	50		$ 850.00
CC102	Cell FLAKE	lb	75		$ 277.50
CC111	SALT	lb	1631		$ 815.50
CC113	Gypsum	lb	1410		$ 1057.50
CC129	FLA-322	lb	225		$ 1695.00
CC201	Gilsonite	lb	1400		$ 1260.00
CF607	Latch down Plug & Baffle, 5 1/2" Blue	EA	1		$ 400.00
CF1001	Cementing Shoe Packer Type, 5 1/2" Red	EA	1		$ 3700.00
CF1651	Turbolizer, 5 1/2" Blue	EA	8		$ 880.00
CF1901	5 1/2" Basket Blue	EA	1		$ 290.00
E100	Unit mileage Chg. Pickup	mi	65		$ 276.25
E101	Heavy Equip Mileage	mi	130		$ 910.00
E113	Bulk Delivery Chg	Tm	917		$ 1466.40
CE206	Depth Chg. 5001-6000'	4-hr	1		$ 2880.00
CE240	Blending & mixing service chg	SK	300		$ 420.00
CE504	Plug Container Utilization Chg	Job	1		$ 250.00
S003	Service Supervisor first 8hrs	EA	1		$ 175.00

SUB TOTAL DLS $ 17,439.32

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON $	
MATERIALS	%TAX ON $	
	TOTAL	

SERVICE REPRESENTATIVE Allen Ferrell

THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY:
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

CLOUD LITHO - Abilene, TX

BASIC energy services, L.P.

TREATMENT REPORT

Customer: M+M Explor. INC	Lease No.: [redacted]	Date: 5-8-12	
Lease: Z-BAR SWD	Well #: 16-4 5333'		
Field Order #: 25882A	Station: Pratt KS	Casing: 5 1/2"	Depth: [redacted]
County: Barber	State: KS		
Type Job: 5 1/2" L.S. CNW	Formation: 5500' TD	Legal Description: 16-34-14	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size: 5 1/2"	Tubing Size:	Shots/Ft:	250 sks AA2 @ 14.8#	Acid	RATE	PRESS	ISIP
Depth: 5338'	Depth	From	To	Pre Pad	Max		5 Min.
Volume: 126.	Volume	From	To	Pad: 50 sks AA2 - Plug R.H + M.H	Min		10 Min.
Max Press: 1500#	Max Press	From	To	Frac	Avg		15 Min.
Well Connection: F.C.	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth: 5310	Packer Depth	From	To	Flush: DISP W 20	Gas Volume		Total Load

Customer Representative: Allan Vatel				Station Manager: Scotty			Treater: Allen					
Service Units	28443	19923	19905	19831	15862							
Driver Names	Allen	mike	mathol	Jessie	Pierce							

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
1215 AM					On Loc. Discuss Safety Setup Plan Job
					Rig Riggy up to Run 5 1/2" csg. 15.5#
254					start 5 1/2" csg Shoe Jt. 20'
					w/ PKR Shoe, L.D. Insert in collar
					Cent - 5-7-9-11-14-16-18-20
					Basket on #3
700					casing @ 5333 cir w/ Rig
800					Drop Ball To set PKR Shoe.
					PKR Shoe set @ 800# while cir
					cir w/ Rig. good cir.
			7		Plug Rat Hole 30 sks AA-2
850			5		Plug Mouse Hole w/ 20 sks AA-2
900				5	mix 250 sks AA2 @ 14.8#
			68 1/2		Finish mix, wash out Pump & line
923				6 1/2	Drop L.D. Plug + start @ disp.
				5	caught 467 PSI w/ 66 out
1000	2000#		126	2	Plug Down
					Release PSI. comes back
	2000#				Bump Plug again + shut in
	1000#				w/ 1000# PSI - "4 hrs"
					wash up Equip. Allen Jessie
1045					Job complete thanks mike.

Taylor Printing, Inc. 620-672-3656

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802

Kansas
Corporation Commission

Phone: 316-337-6200
Fax: 316-337-6211
http://kcc.ks.gov/

May 29, 2012

Michael Austin
M & M Exploration, Inc.
4257 MAIN ST., #230
WESTMINSTER, CO 80031

Re: ACO1
API 15-007-23843-00-00
Z Bar 16-4 SWD
NW/4 Sec.16-34S-14W
Barber County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Michael Austin