



## ARRAY INDUCTION

COMPANY **PARAMOUNT RESOURCES LTD.**  
WELL **PARAMOUNT ET AL CAMERON J-04**  
FIELD **CAMERON HILLS**  
PROVINCE/COUNTY **NORTH WEST TERRITORIES**  
COUNTRY/STATE **CANADA**  
LOCATION **300/J-04-60-10-117-30**

**FIELD PRINT**

LSD SEC TWP RGE Other Services

API Number **1159** MICROLOG  
Permit Number **1159** COMPENSTATED SONIC  
PHOTO DENSITY  
DUAL SPACED NEUTRON

Permanent Datum GROUND LEVEL, Elevation 765.20 metres  
Log Measured From 4.00 M above Permanent Datum  
Drilling Measured From KB  
Elevations: KB 769.20 metres  
DF 765.20 metres  
GL

Date **15-FEB-2007**

Run Number **1**

Depth Driller **1449.00** metres

Depth Logger **1449.50** metres

First Reading **1448.70** metre

Last Reading **420.00** metre

Casing Driller **430.00** metres

Casing Logger **429.80** metres

Bit Size **200.00** mm

Hole Fluid Type **GELCHEM**

Density / Viscosity **1060.0 kg/M3** **93.00** CP

PH / Fluid Loss **11.00** **11.00** ml/30Min

Sample Source **FLOWLINE**

Rm @ Measured Temp **1.18 @ 25.0** ohm-m

Rmf @ Measured Temp **1.04 @ 25.0** ohm-m

Rmc @ Measured Temp **1.32 @ 25.0** ohm-m

Source Rmf / Rmc **PRESS** **FILTER**

Rm @ BHT **0.78 @ 48.0** ohm-m

Time Since Circulation **6 HRS**

Max Recorded Temp **48.00** deg C

Equipment Name **COMPACT**

Equipment / Base **13124** **GPR**

Recorded By **G. SINGER**

Witnessed By **A. AHMED**

CIRC. STOP TIME **01:30-FEB-15**

Last Line

### BOREHOLE RECORD

Last Edited: 15-FEB-2007 05:01

| Bit Size<br>millimetres | Depth From<br>metres | Depth To<br>metres |
|-------------------------|----------------------|--------------------|
| 311.000                 | 0.00                 | 430.00             |
| 200.000                 | 430.00               | 1449.00            |

### CASING RECORD

| Type    | Size<br>millimetres | Depth From<br>metres | Shoe Depth<br>metres | Weight<br>Kg/metre |
|---------|---------------------|----------------------|----------------------|--------------------|
| SURFACE | 219.100             | 0.00                 | 430.00               | 35.72              |

### REMARKS

- 1) SOFTWARE ISSUE: WLS 7.01.0195.
- 2) CUSTOMER SCALES AND LOGGED INTERVALS USED
- 3) TOOLS RUN: MAI, MSS, MPD, MDN, MML, ISC, MGS, MTC, MFE, MCG RUN IN COMBINATION
- 4) HARDWARE: MAI: TWO 25.4 MM STANDOFFS  
MSS: THREE 25.4 MM STANDOFFS  
MDN: DUAL BOWSPRING AND INTERSONIC CRANK  
MTC: SIX LEAF CENTRALIZER

5) SERVICE ORDER #: 30073028 SAP #: 4147101 # FIELD PRINTS = 3

6) RIG: PD 129

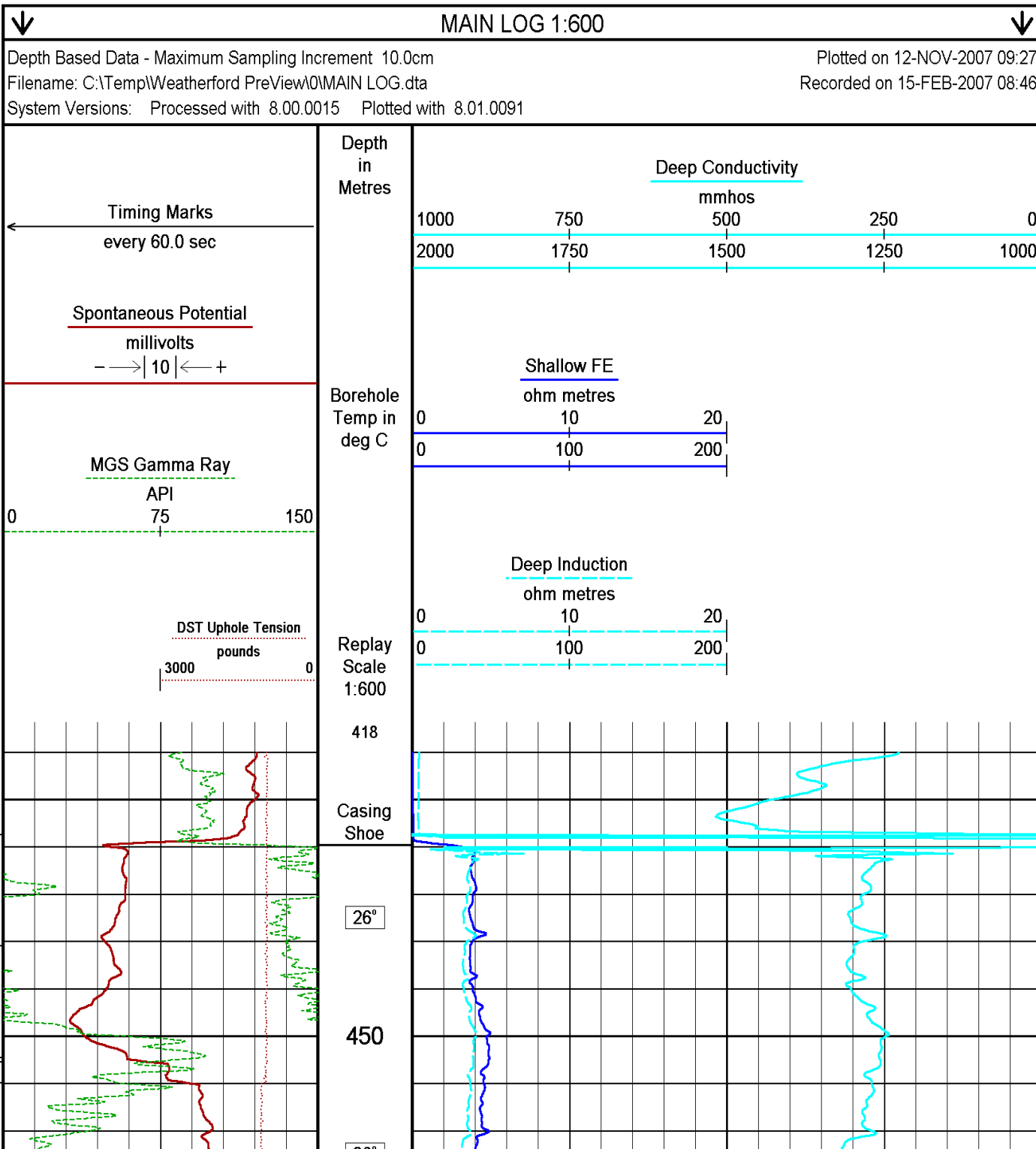
7) HOLE AND CEMENT VOLUMES CALCULATED USING DENSITY AND 2-ARM CALIPERS :

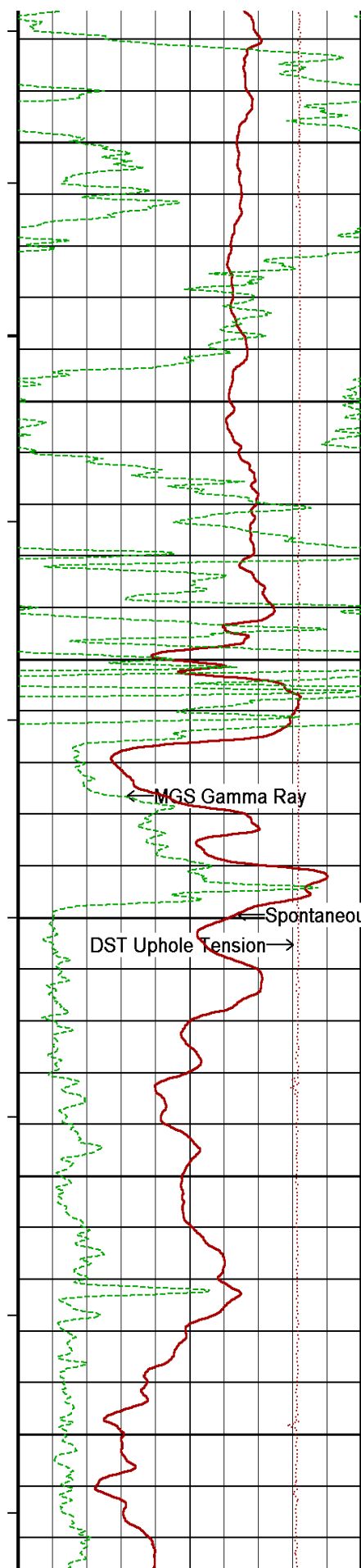
HOLE VOLUME = 37.4 CU.M.

ANNULAR VOLUME USING 139.7 MM PRODUCTION CASING = 21.8 CU.M

8) SONIC FREE PIPE FOUND FROM 352M - 357M

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.





20

26°

500

26°

25°

25°

25°

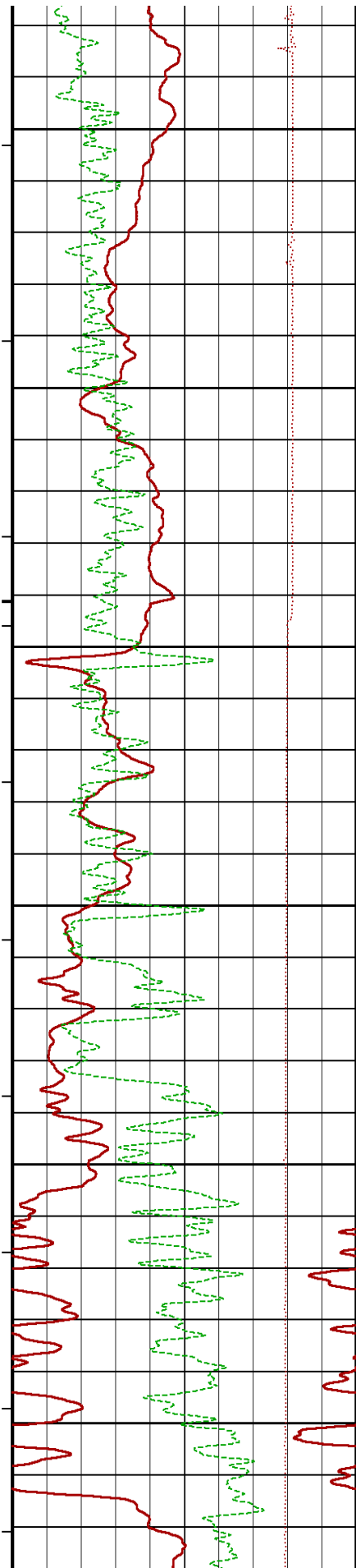
600

27°

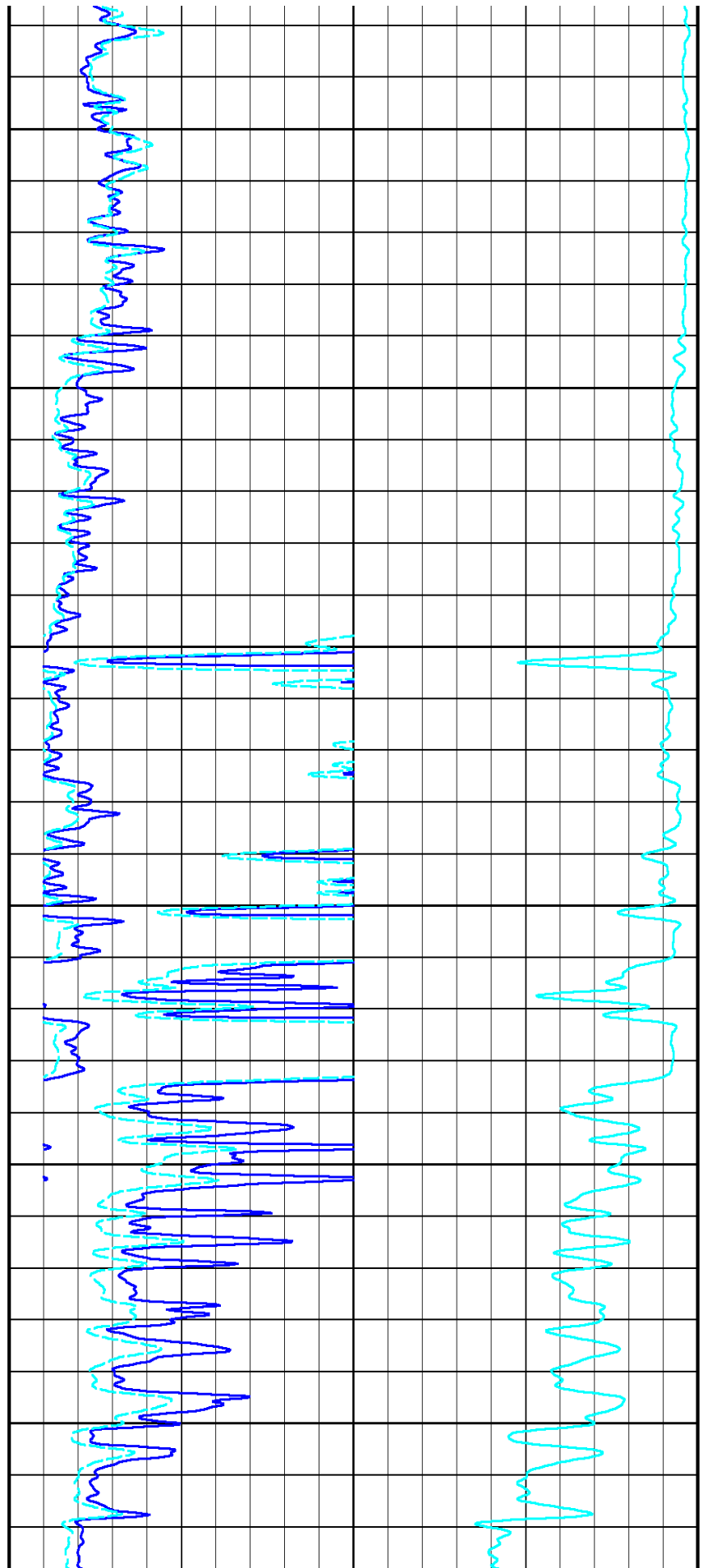
Deep Induction →

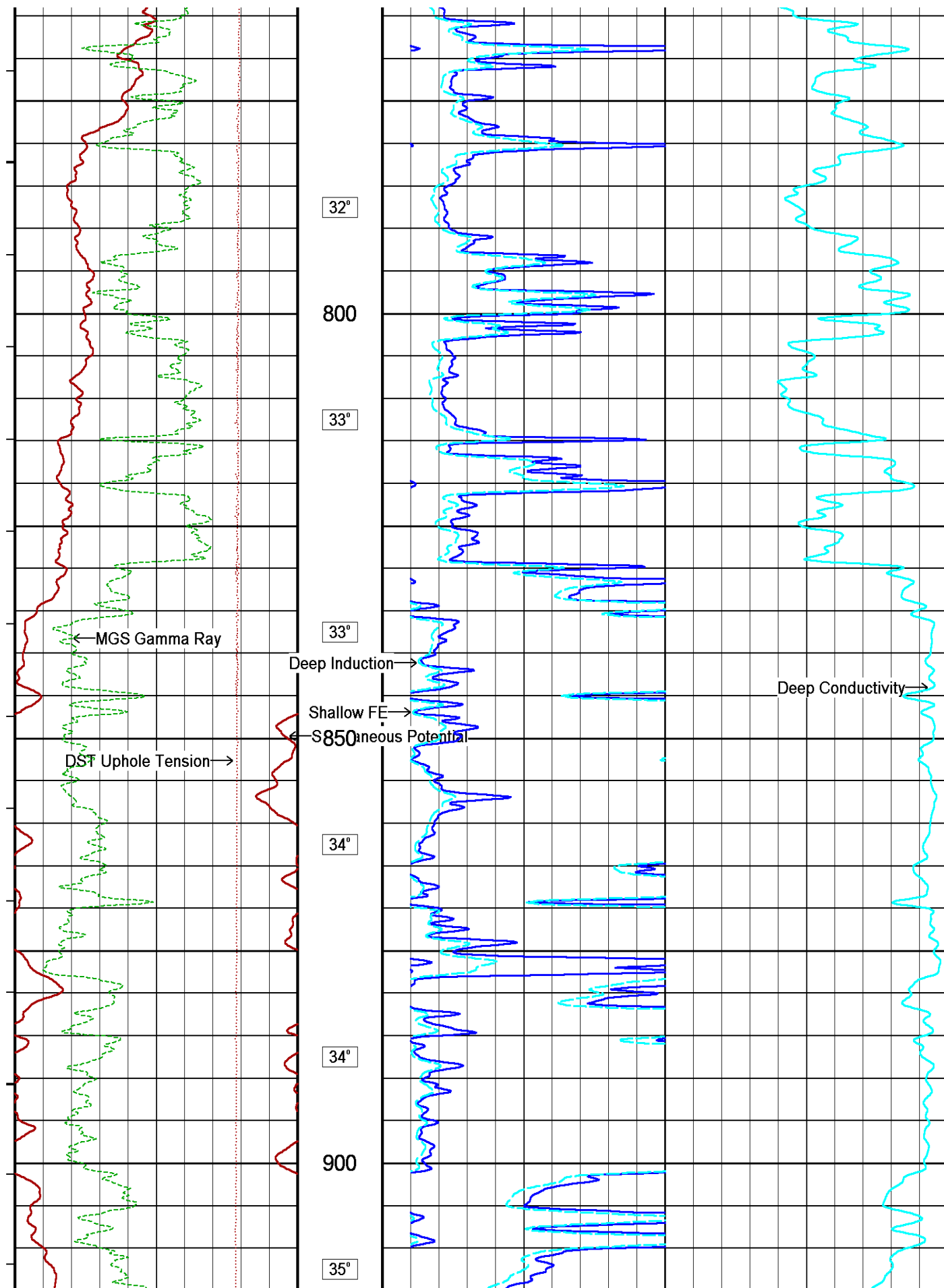
Shallow FI →

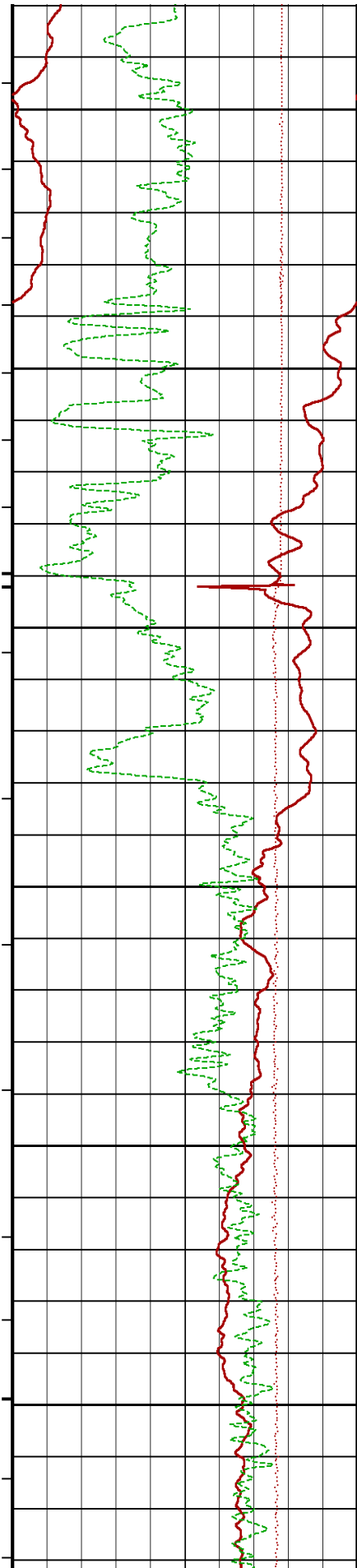
Deep Conductivity →



28° 650 29° 29° 700 30° 30° 750 31°







35°

950

36°

36°

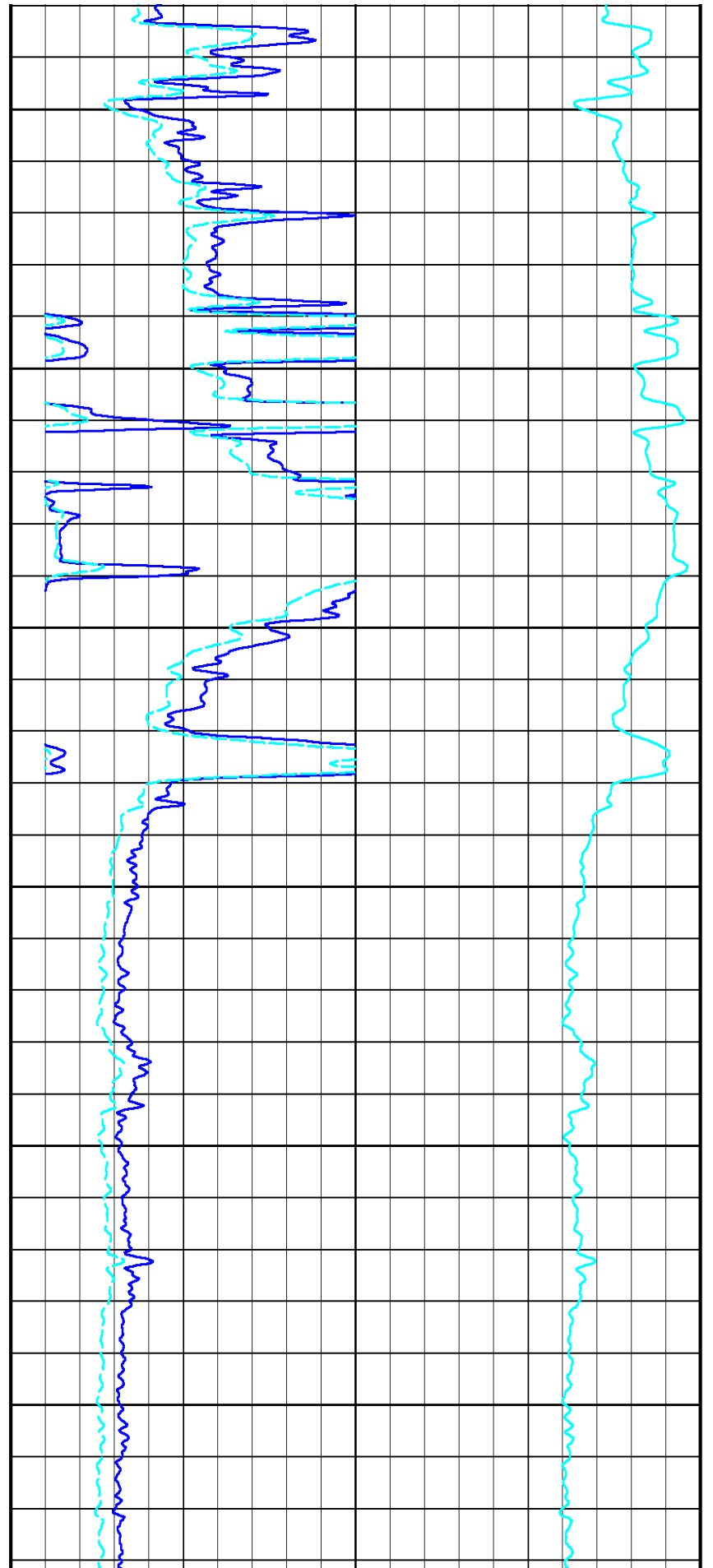
1000

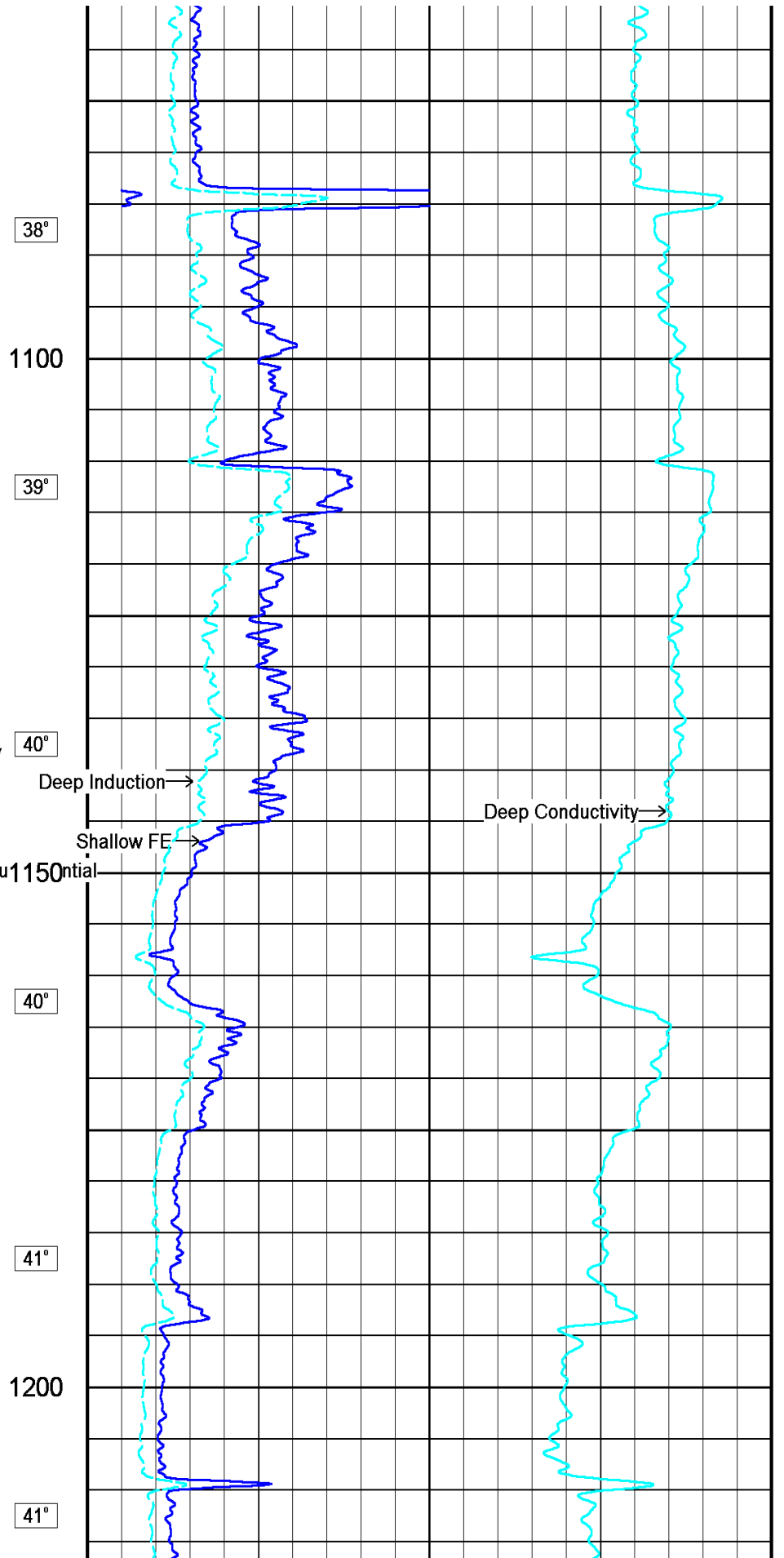
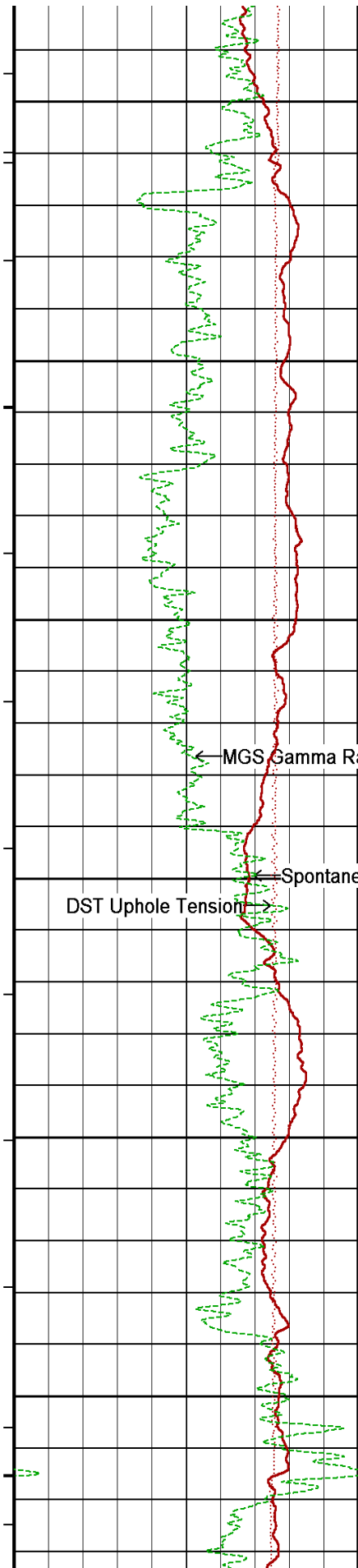
37°

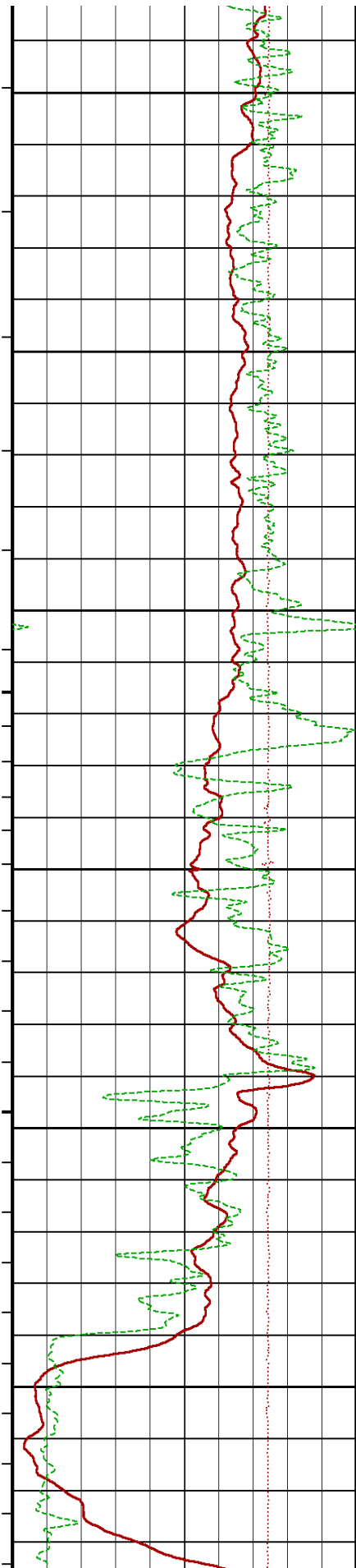
37°

1050

38°







42°

1250

43°

43°

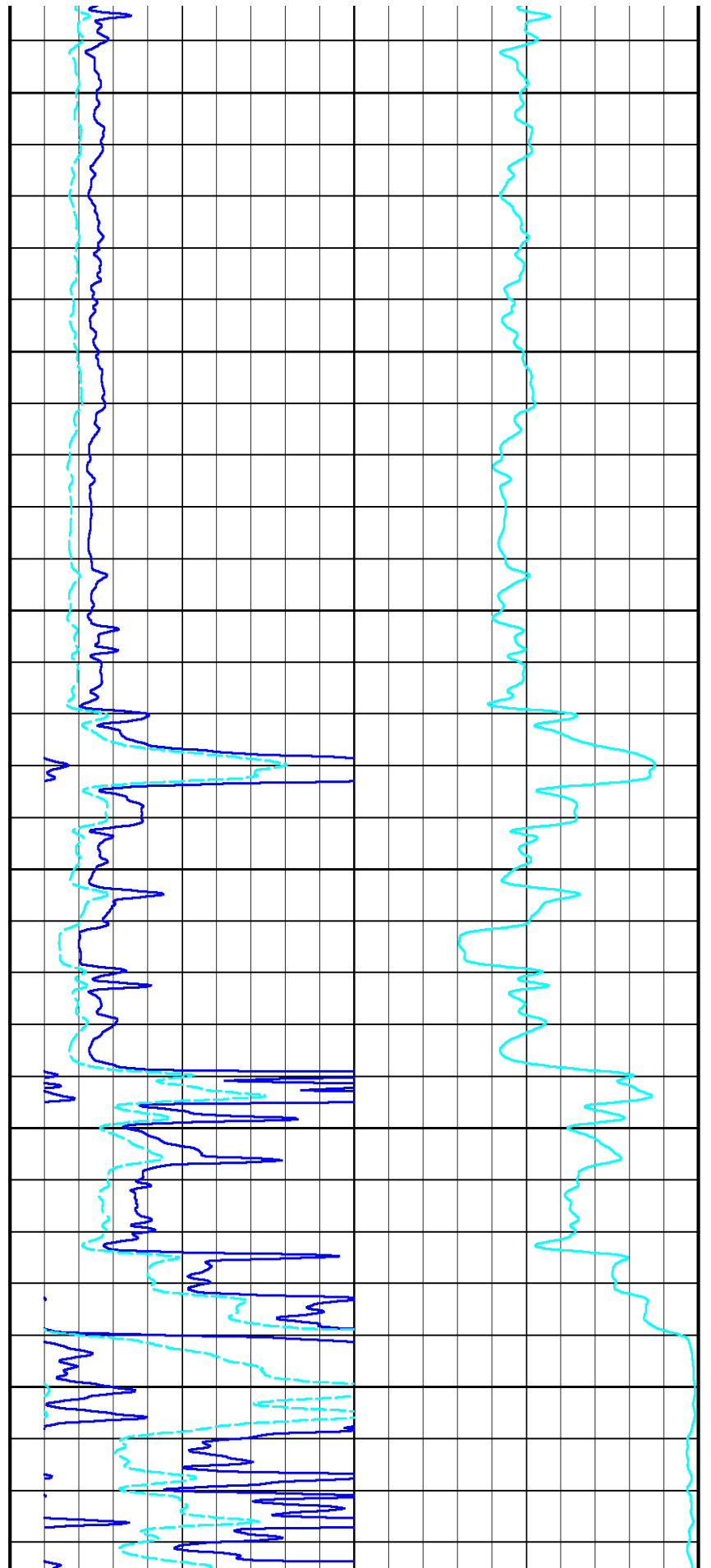
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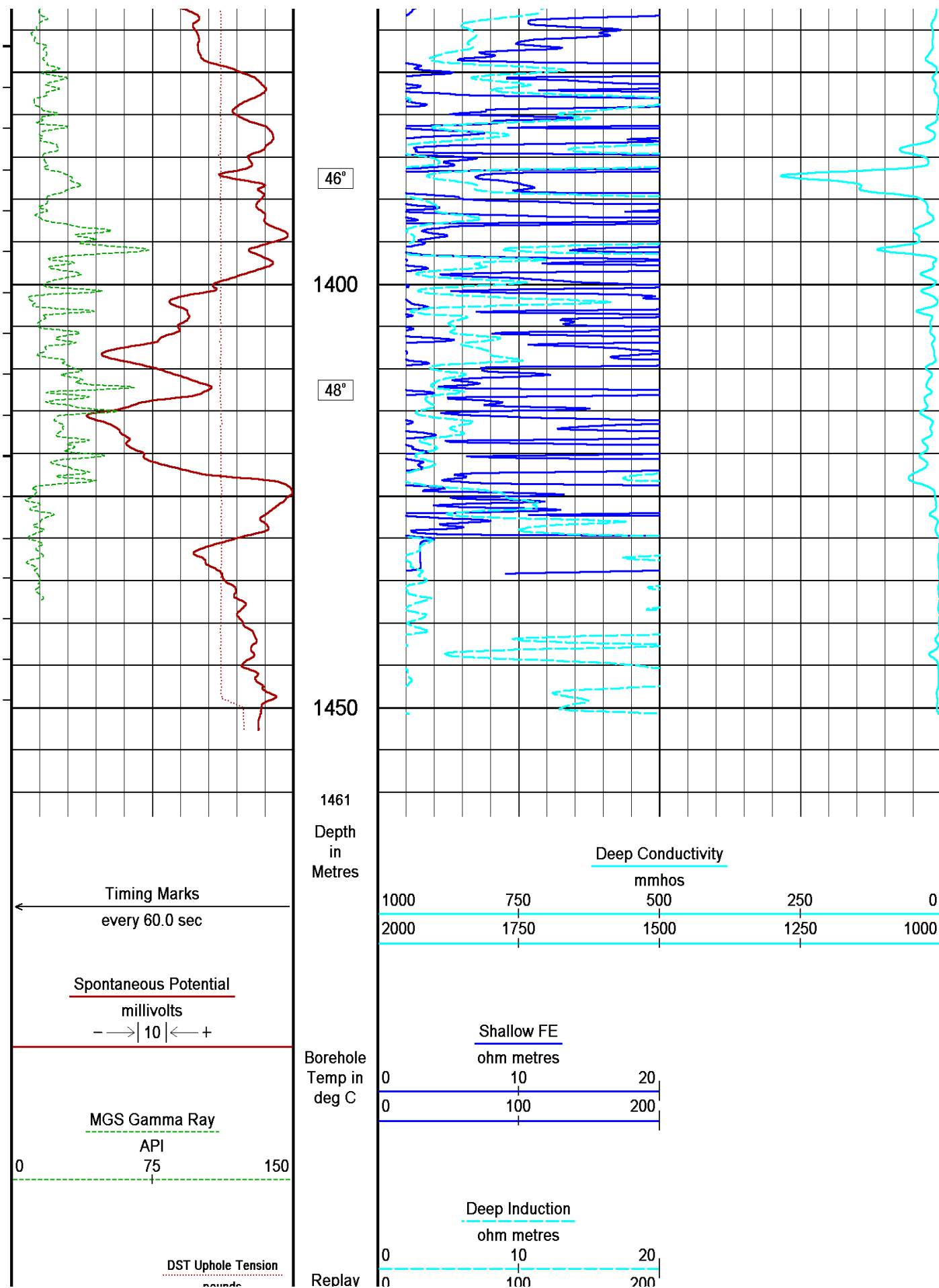
44°

45°

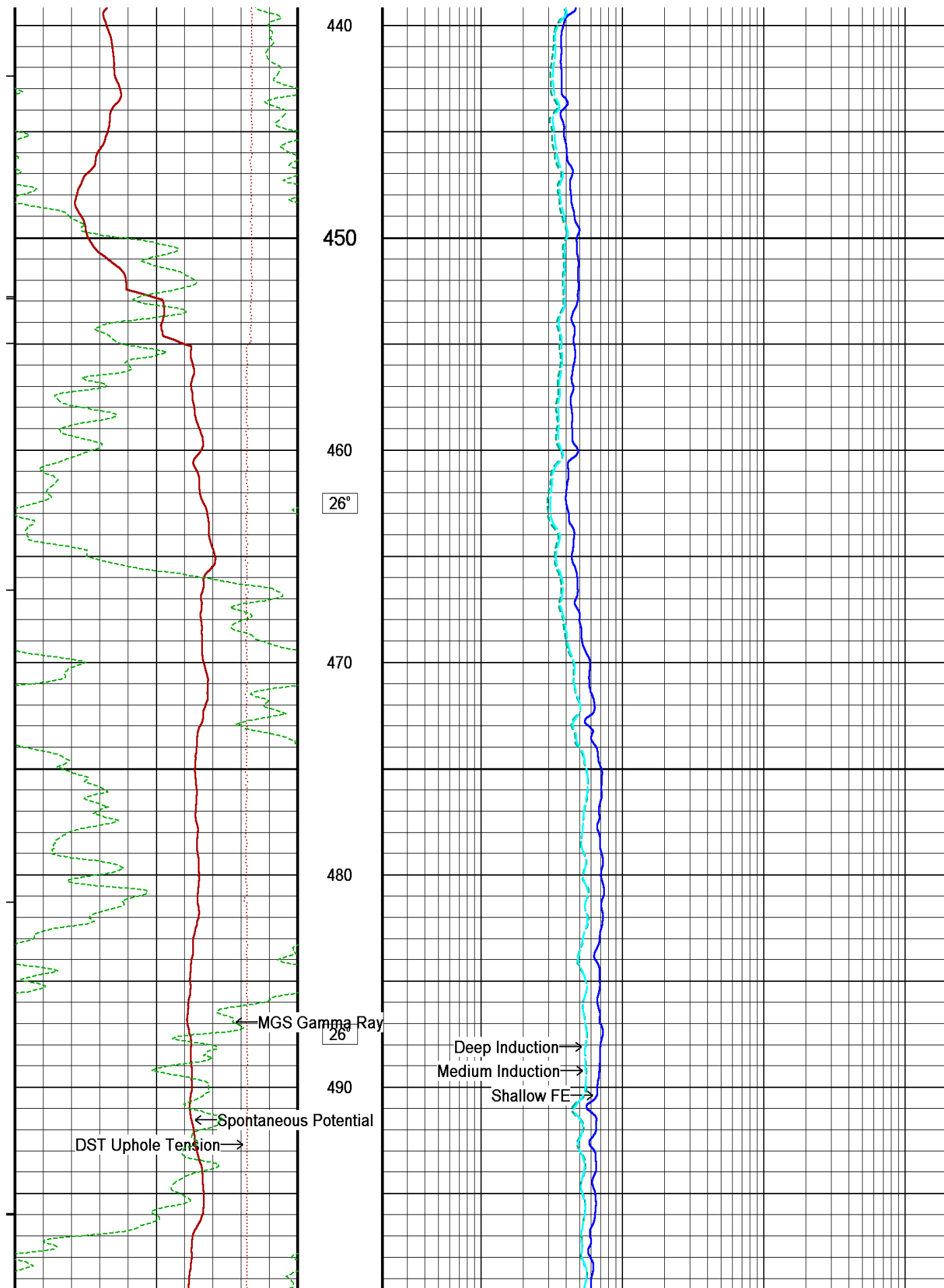
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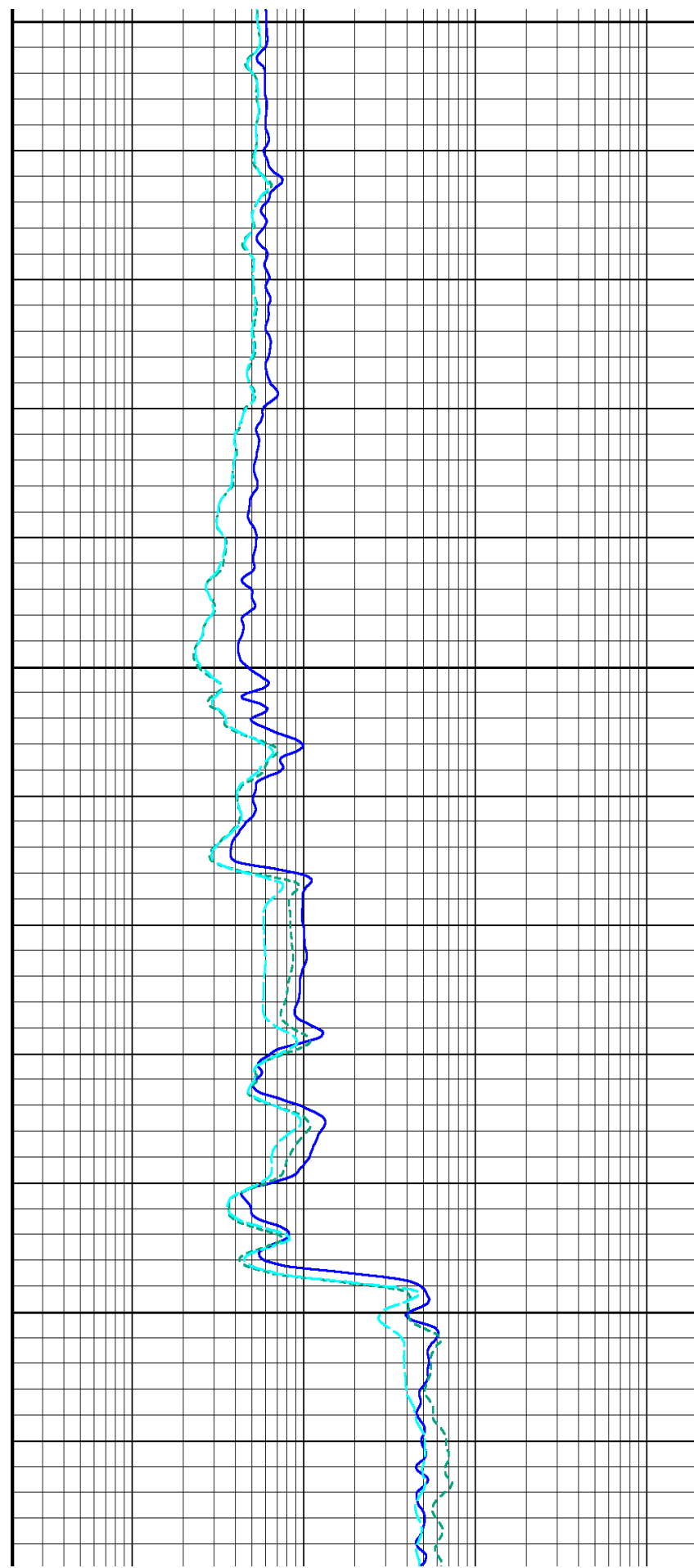
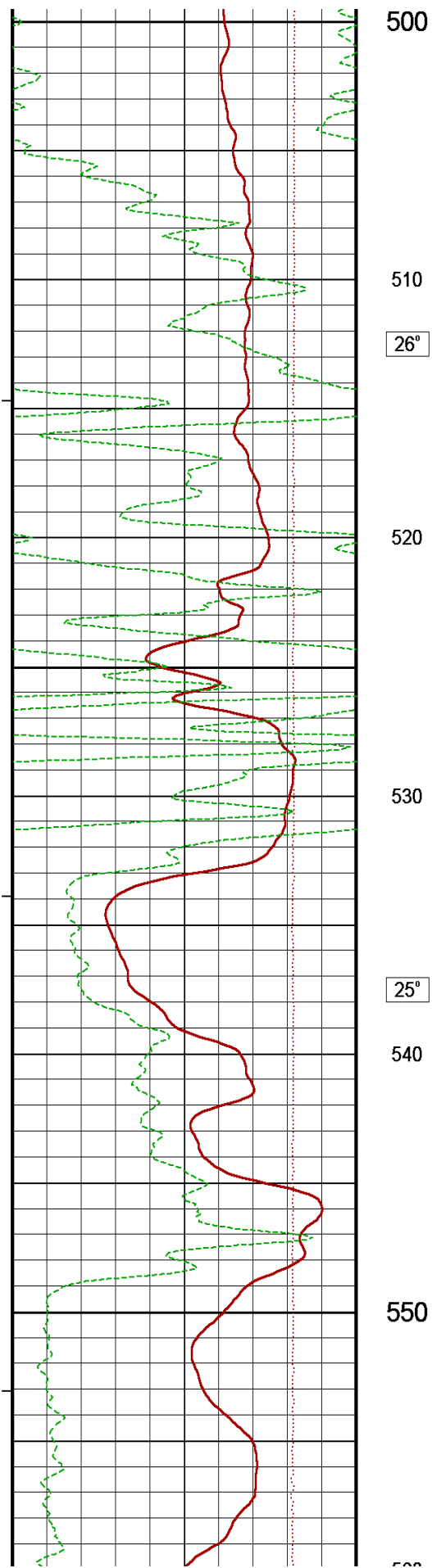
45°

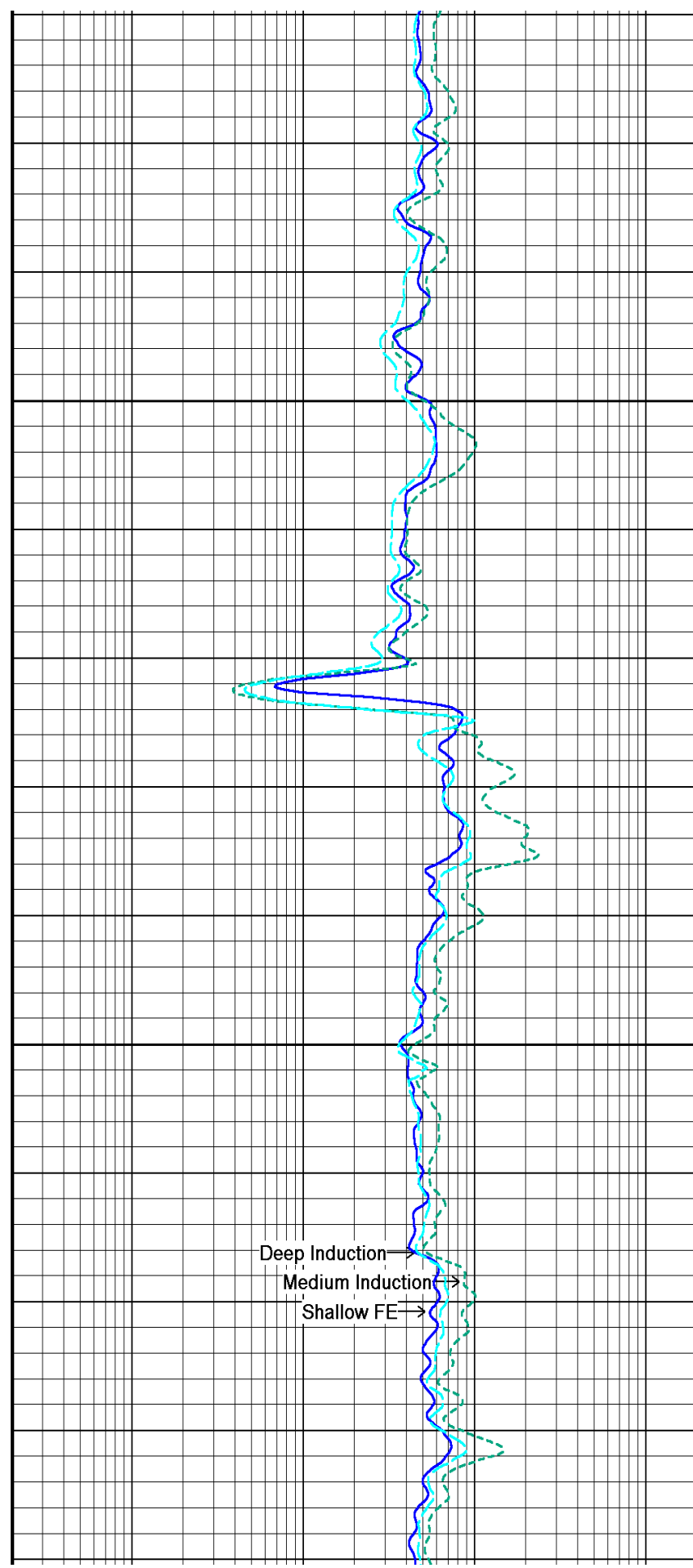
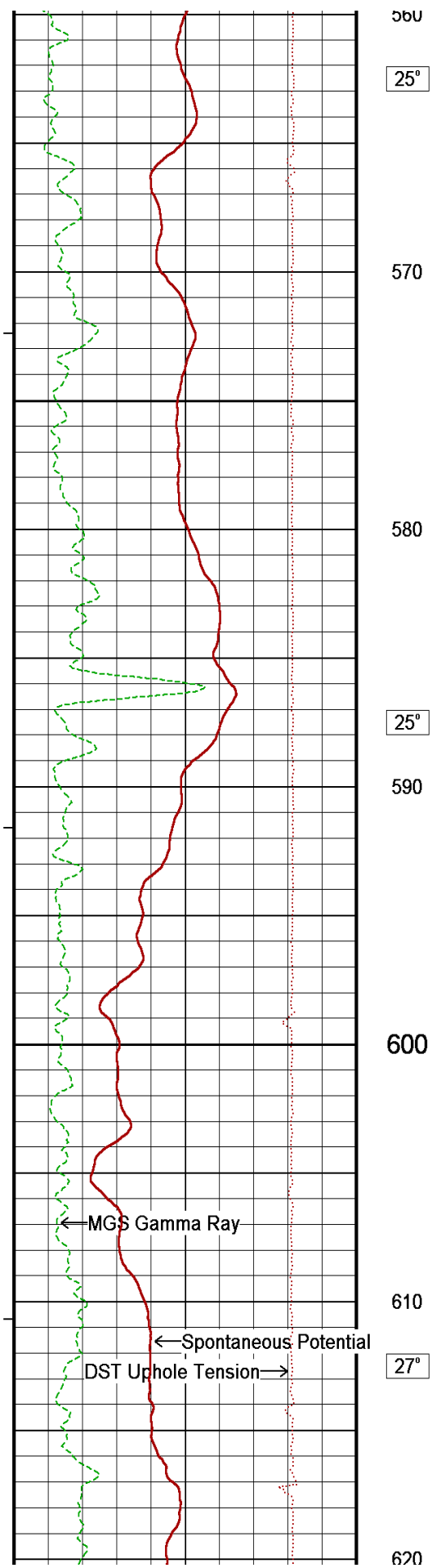


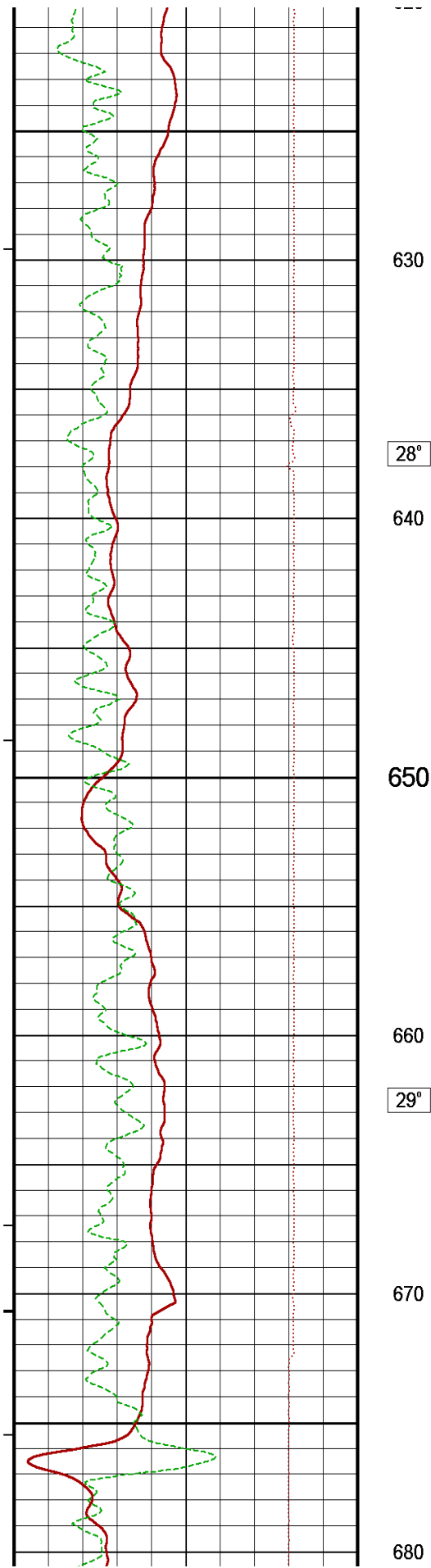












630

28°

640

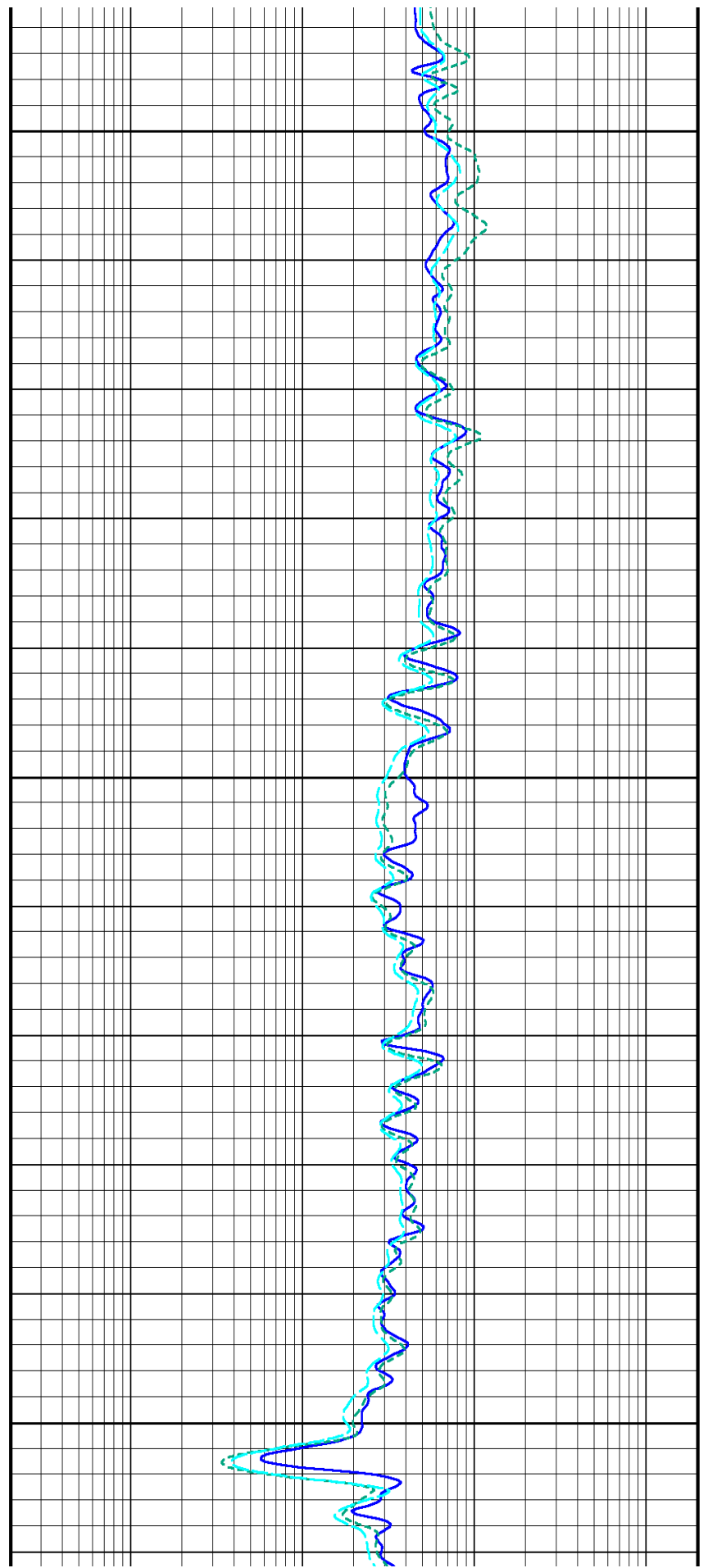
650

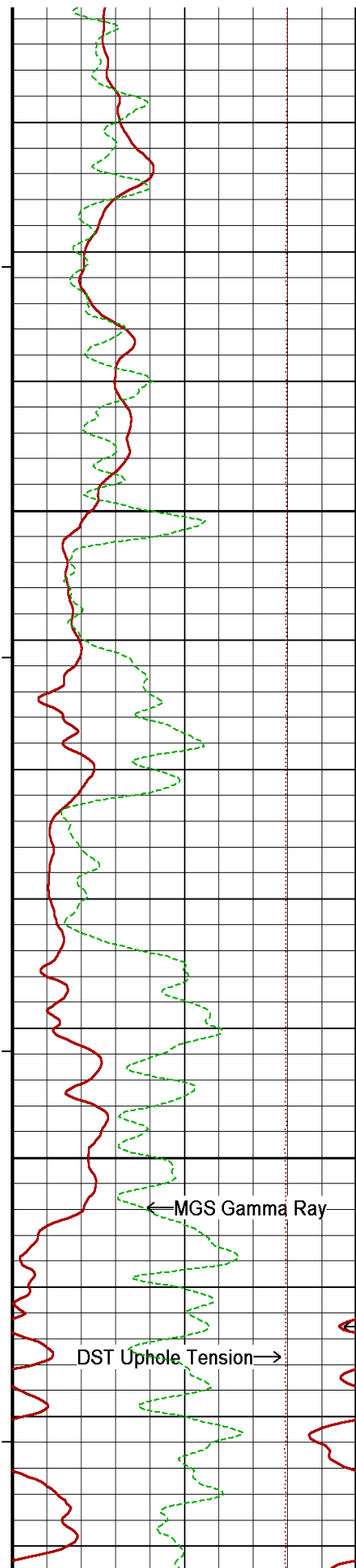
660

29°

670

680





29°

690

700

710

30°

720

730

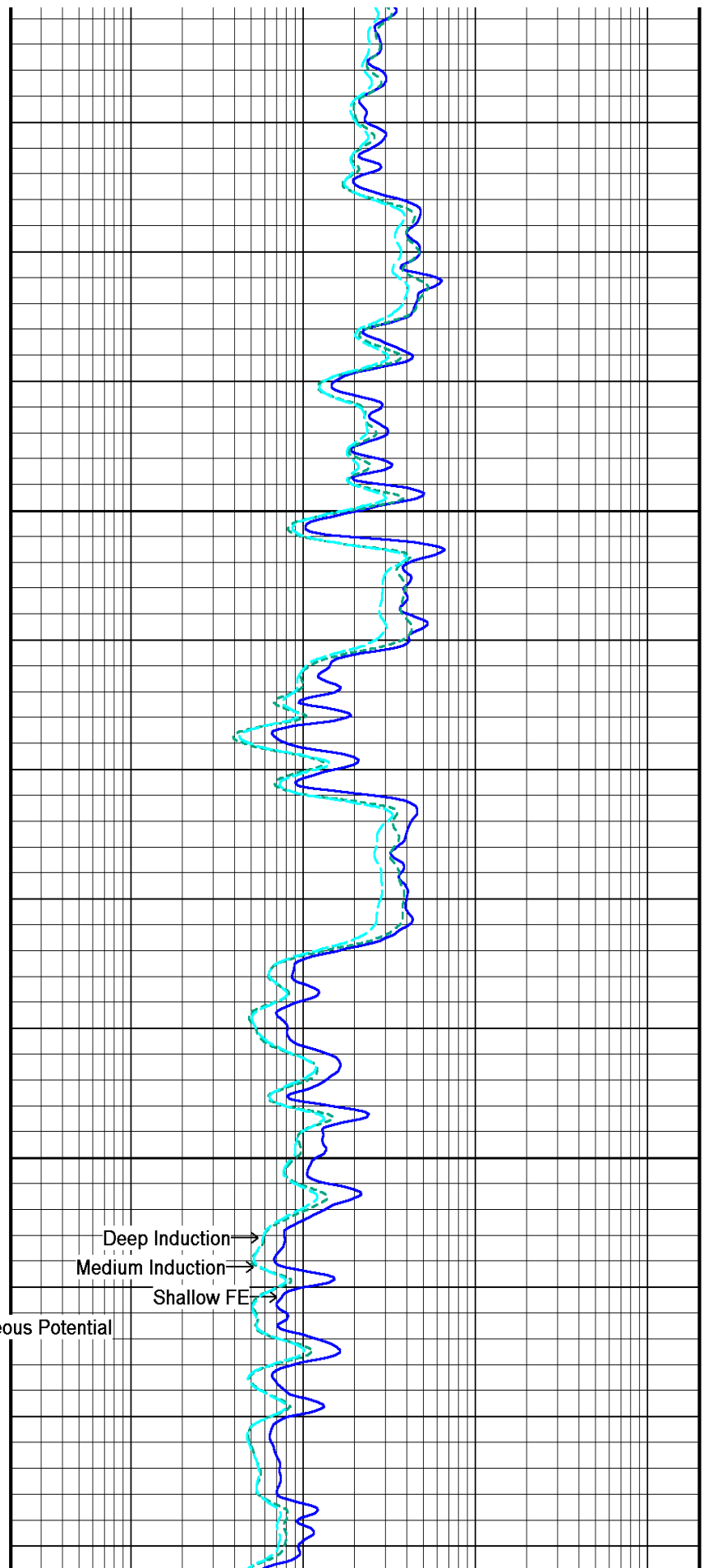
30°

740

← MGS Gamma Ray

DST Uphole Tension →

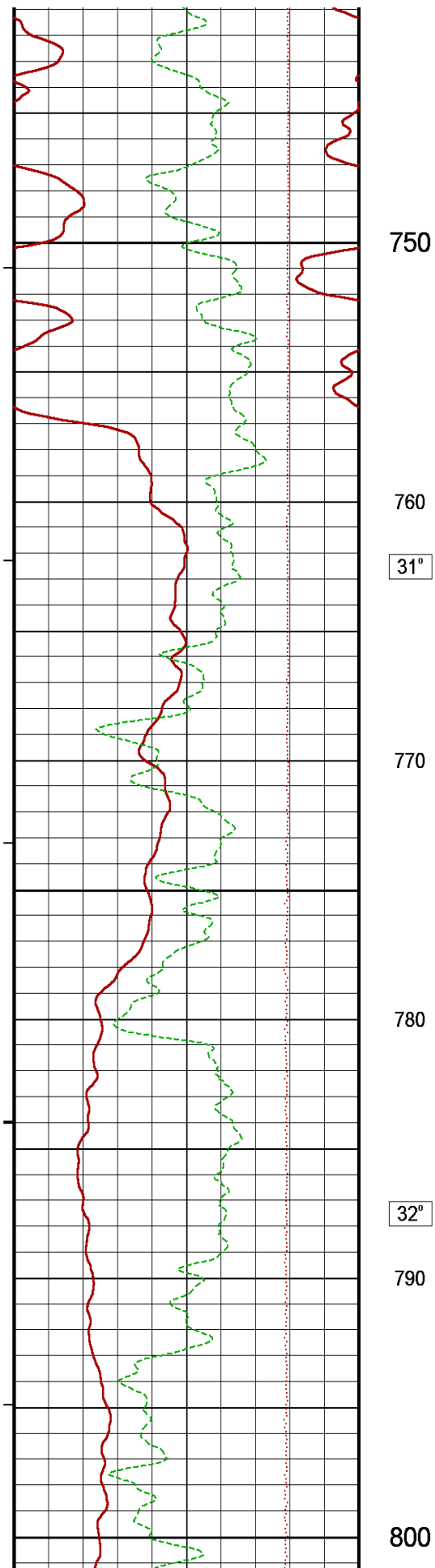
← Spontaneous Potential



Deep Induction →

Medium Induction →

Shallow FE →



750

760

31°

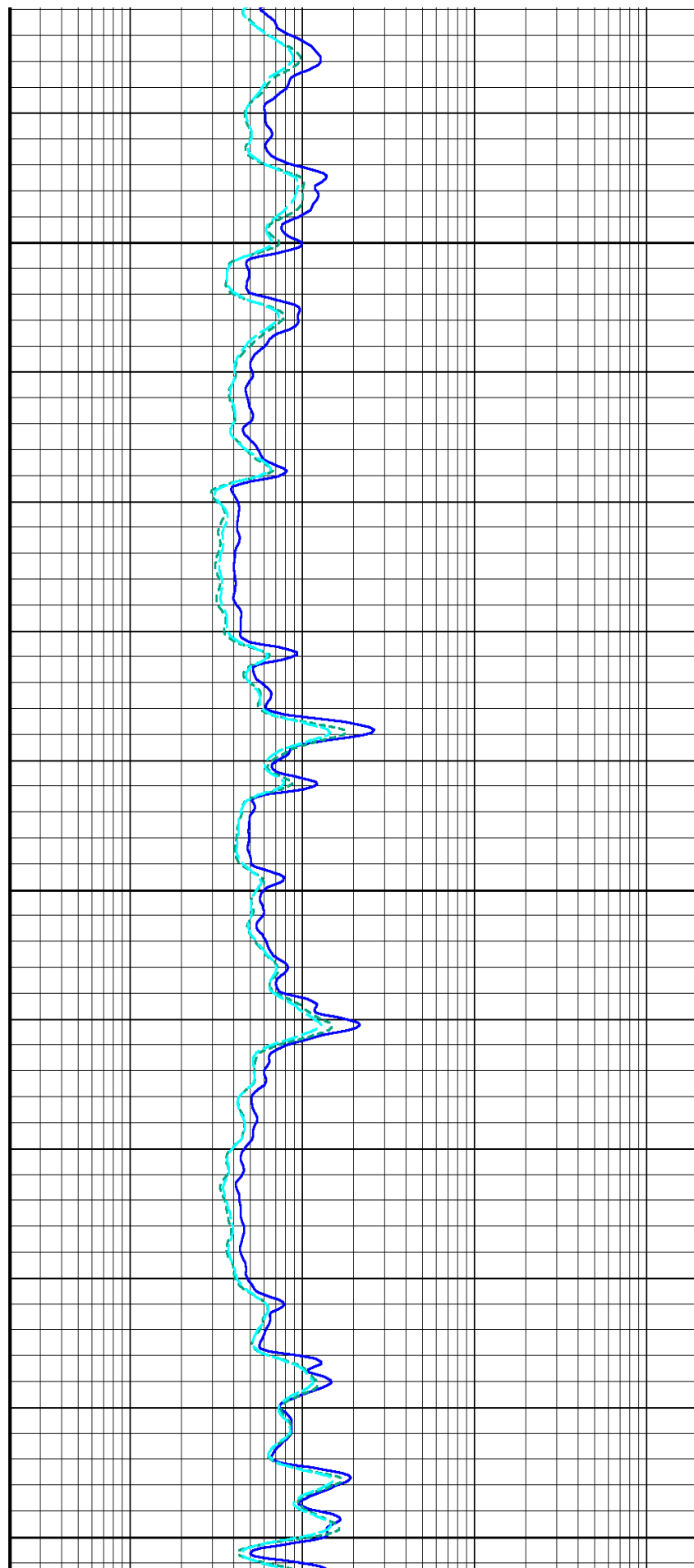
770

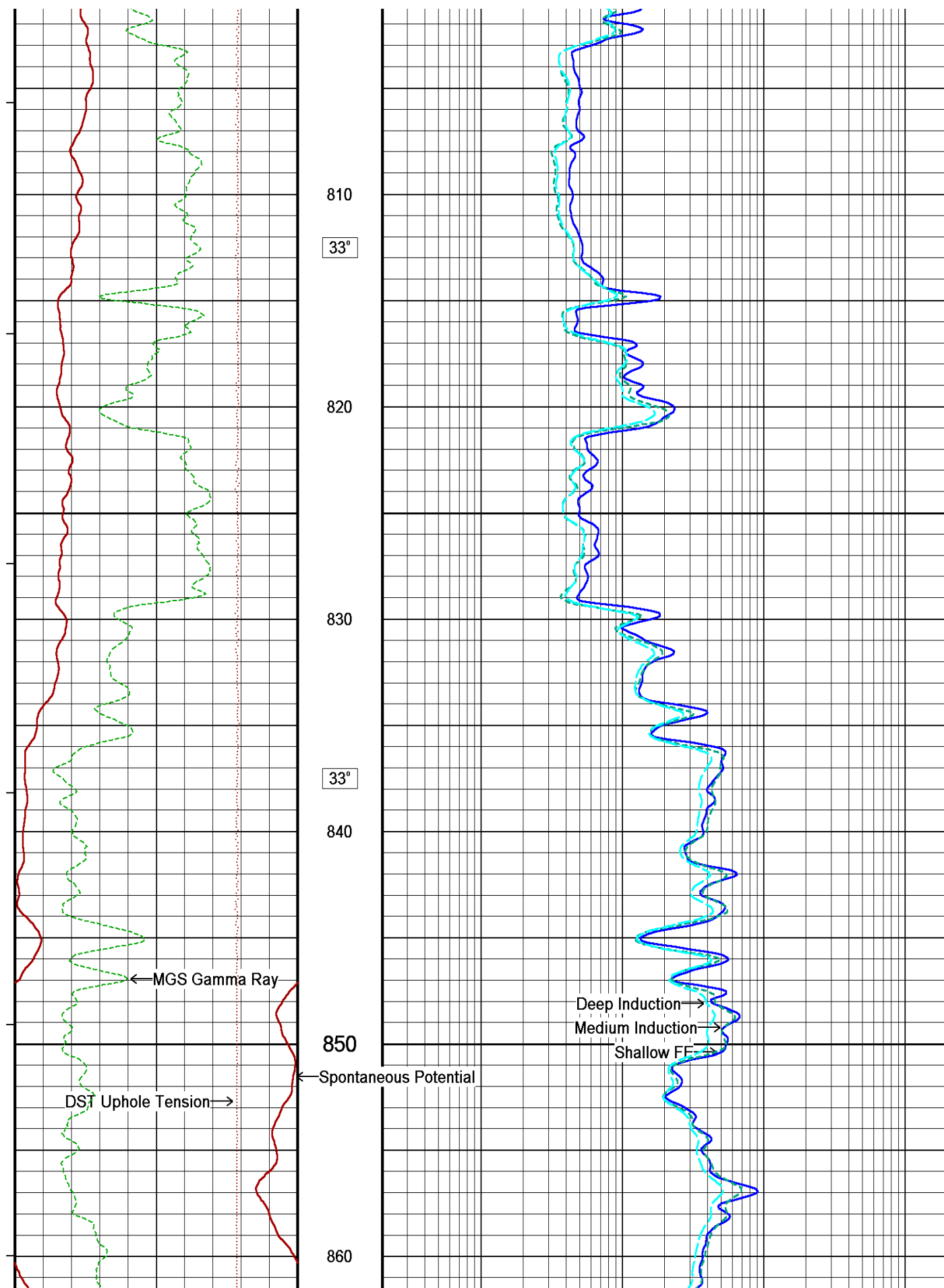
780

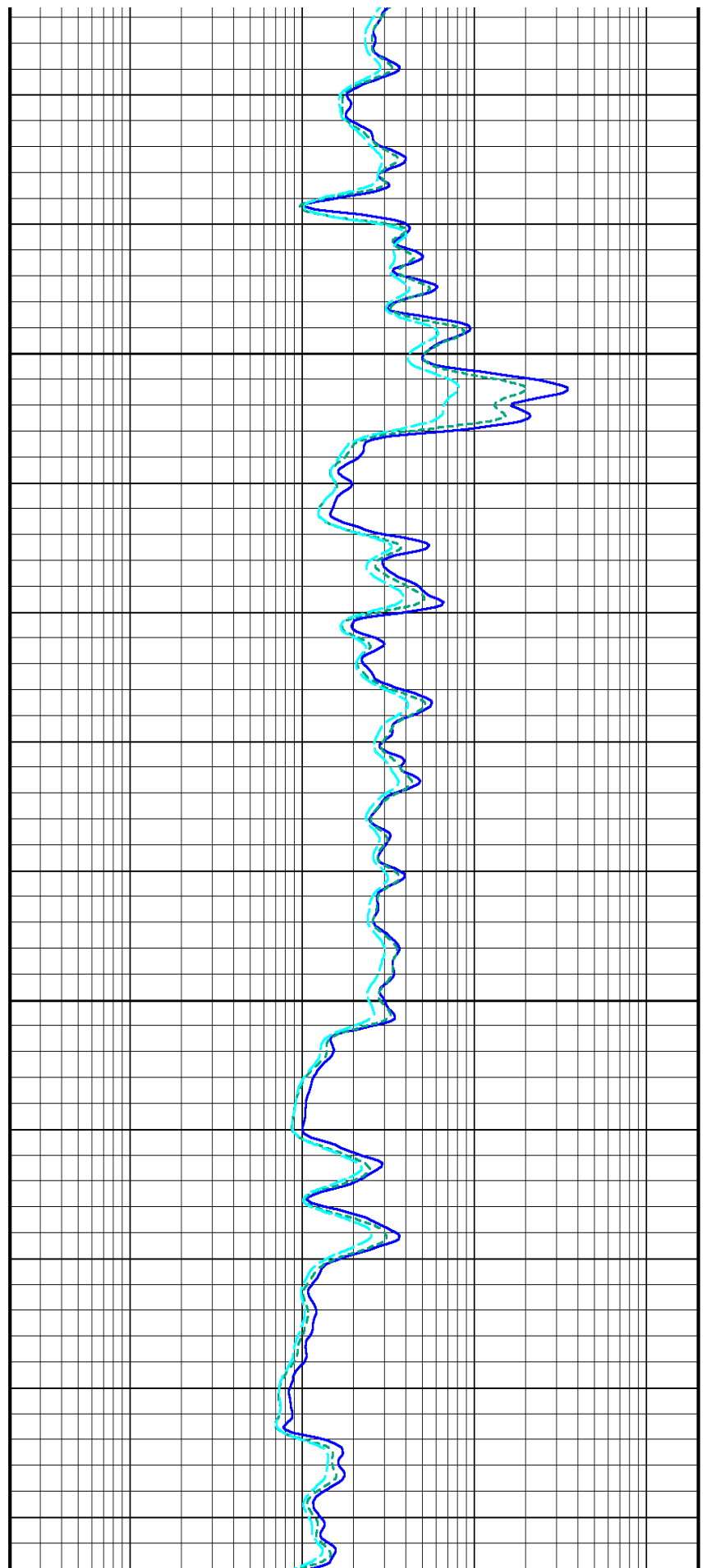
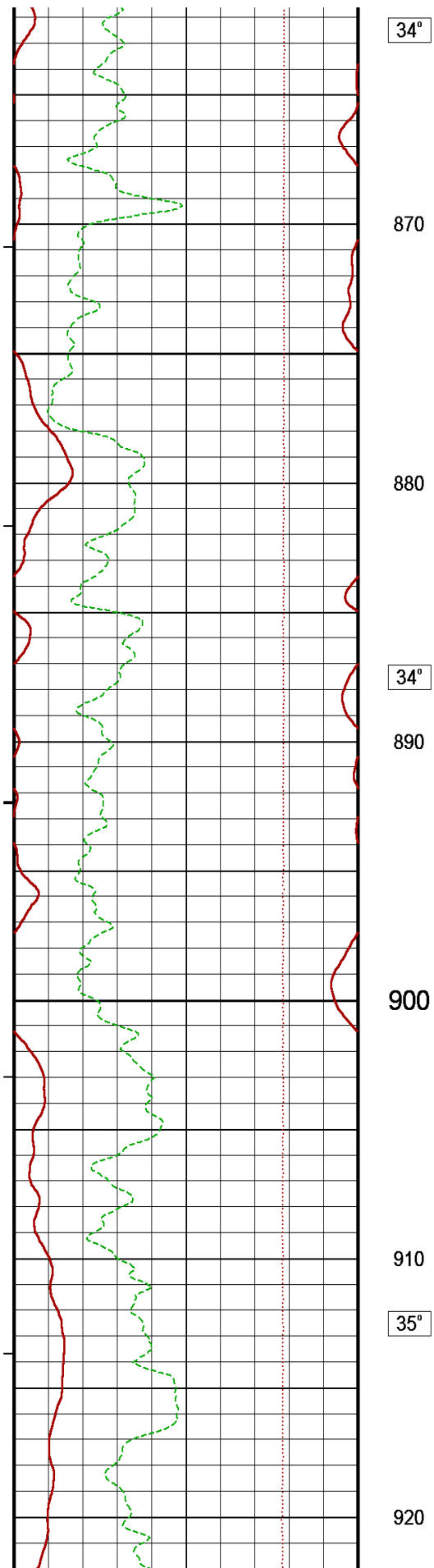
32°

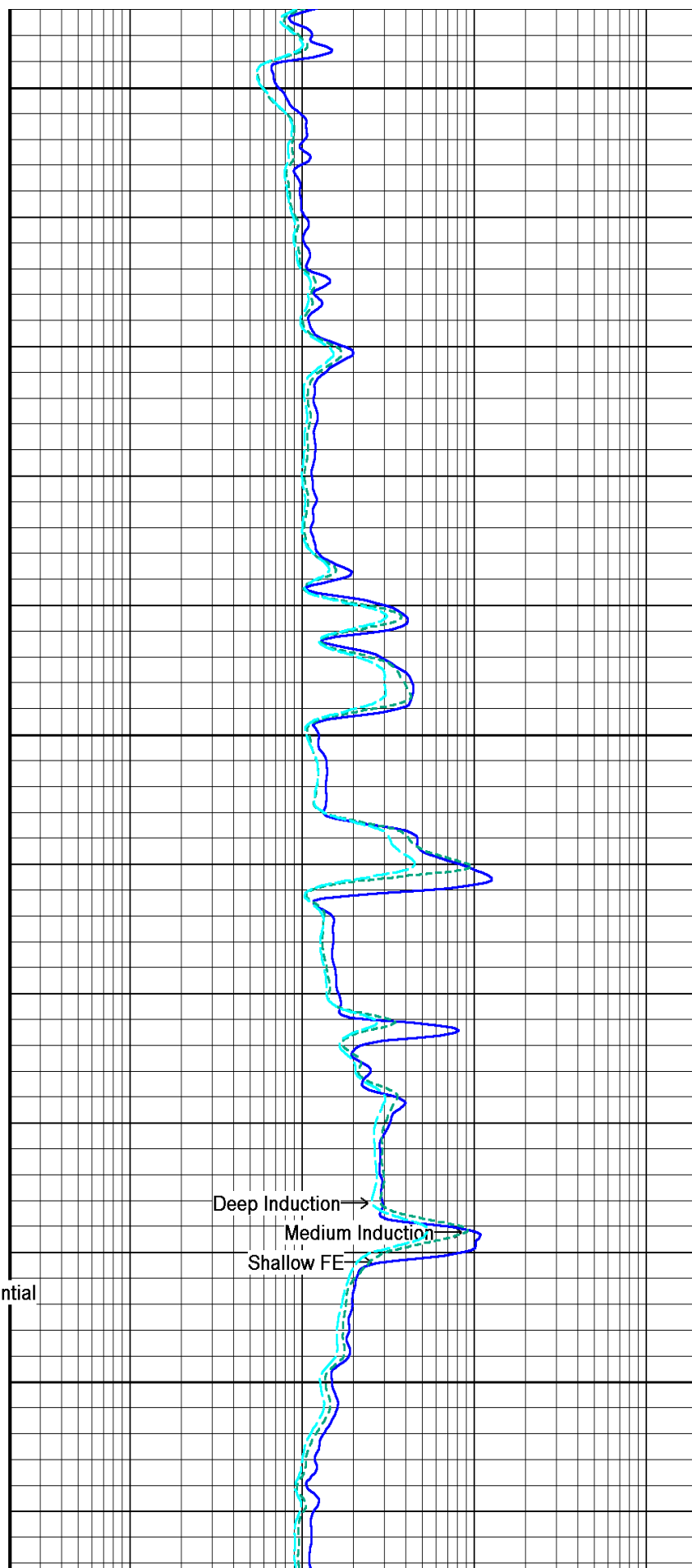
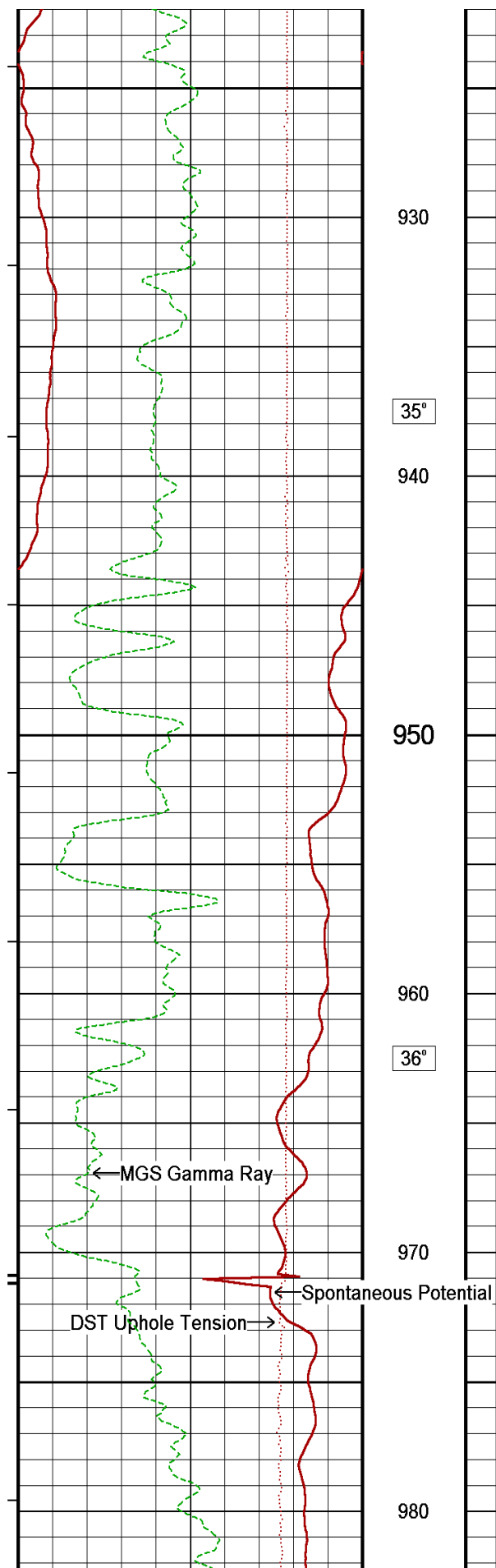
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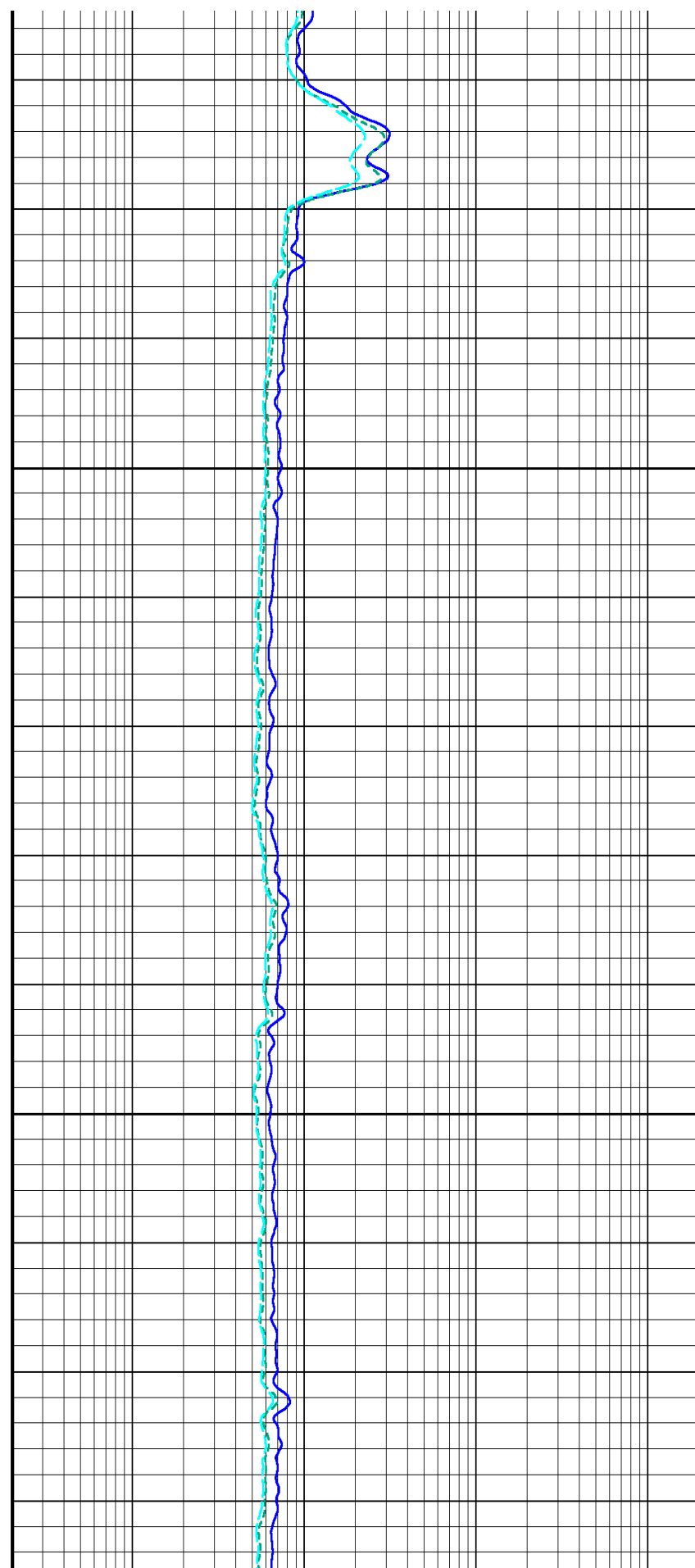
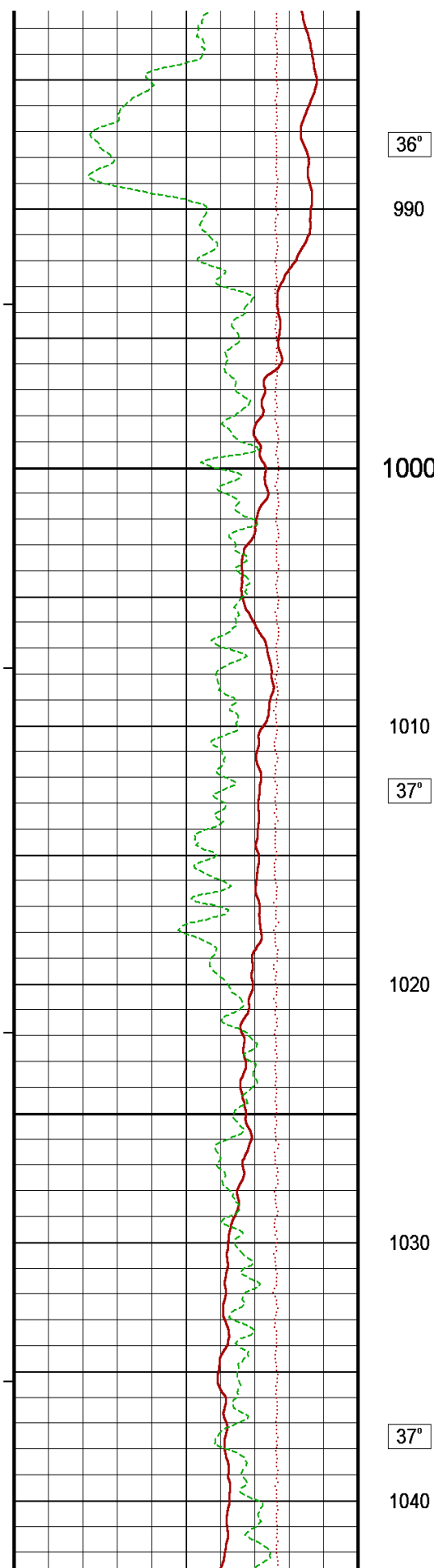
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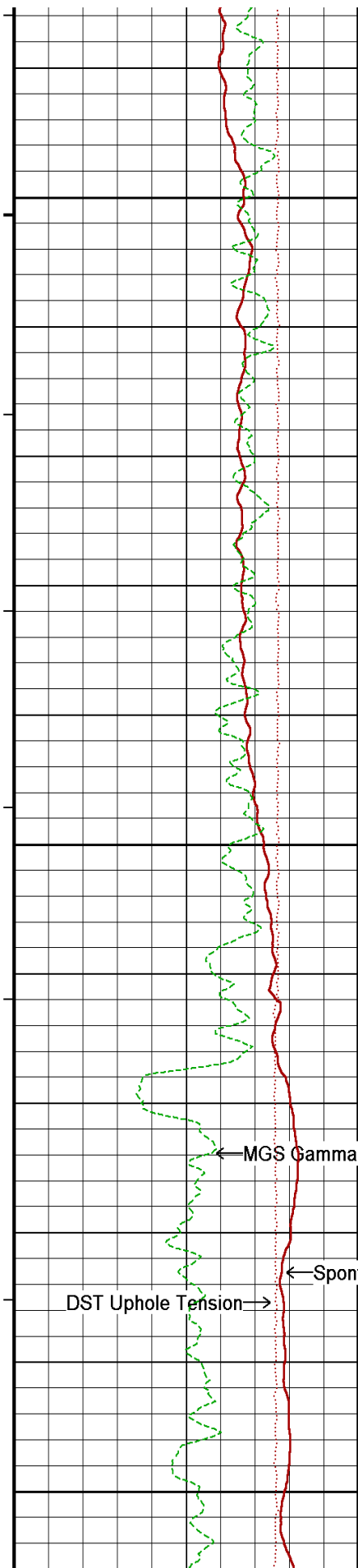












1050

1060

$38^\circ$

1070

1080

1090

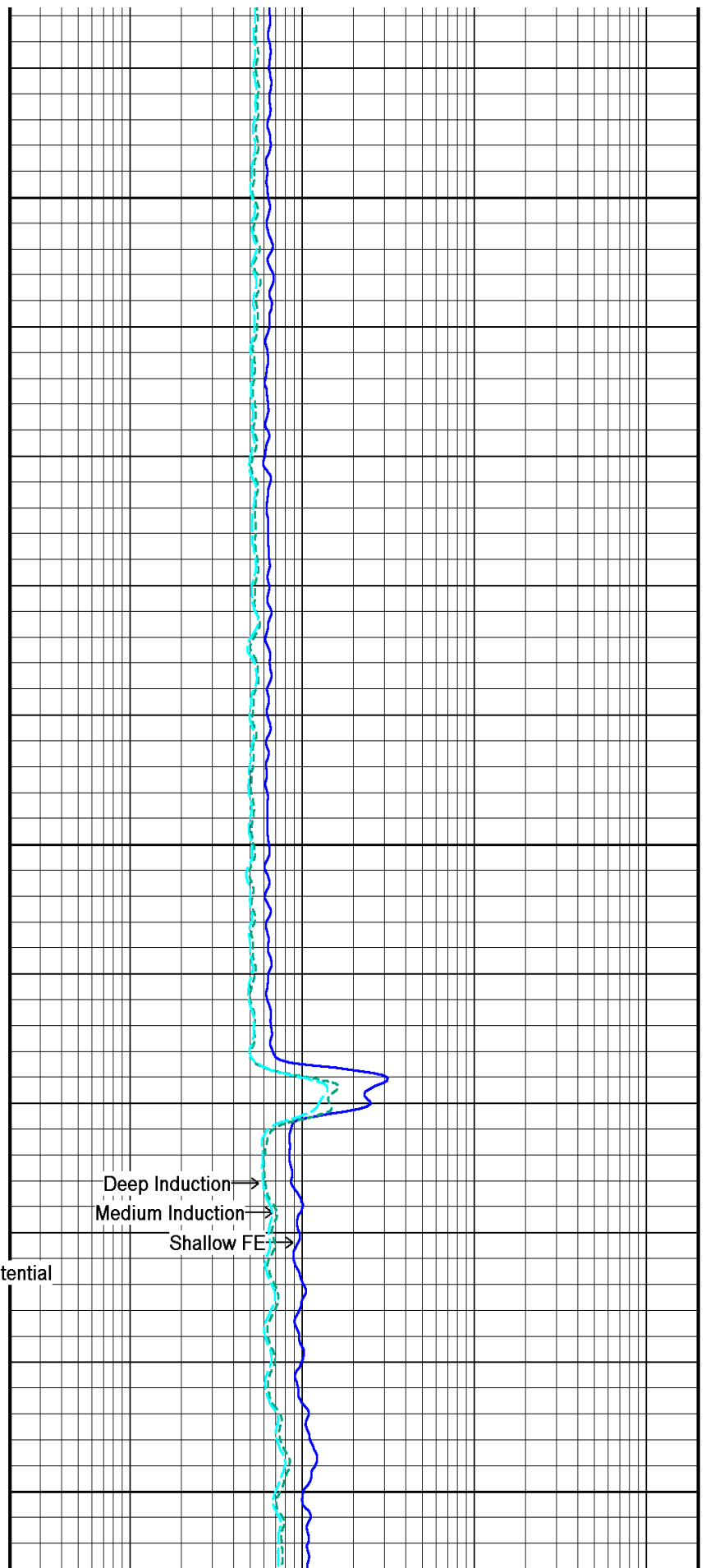
1100

← MGS Gamma Ray

← Spontaneous Potential

DST Uphole Tension →

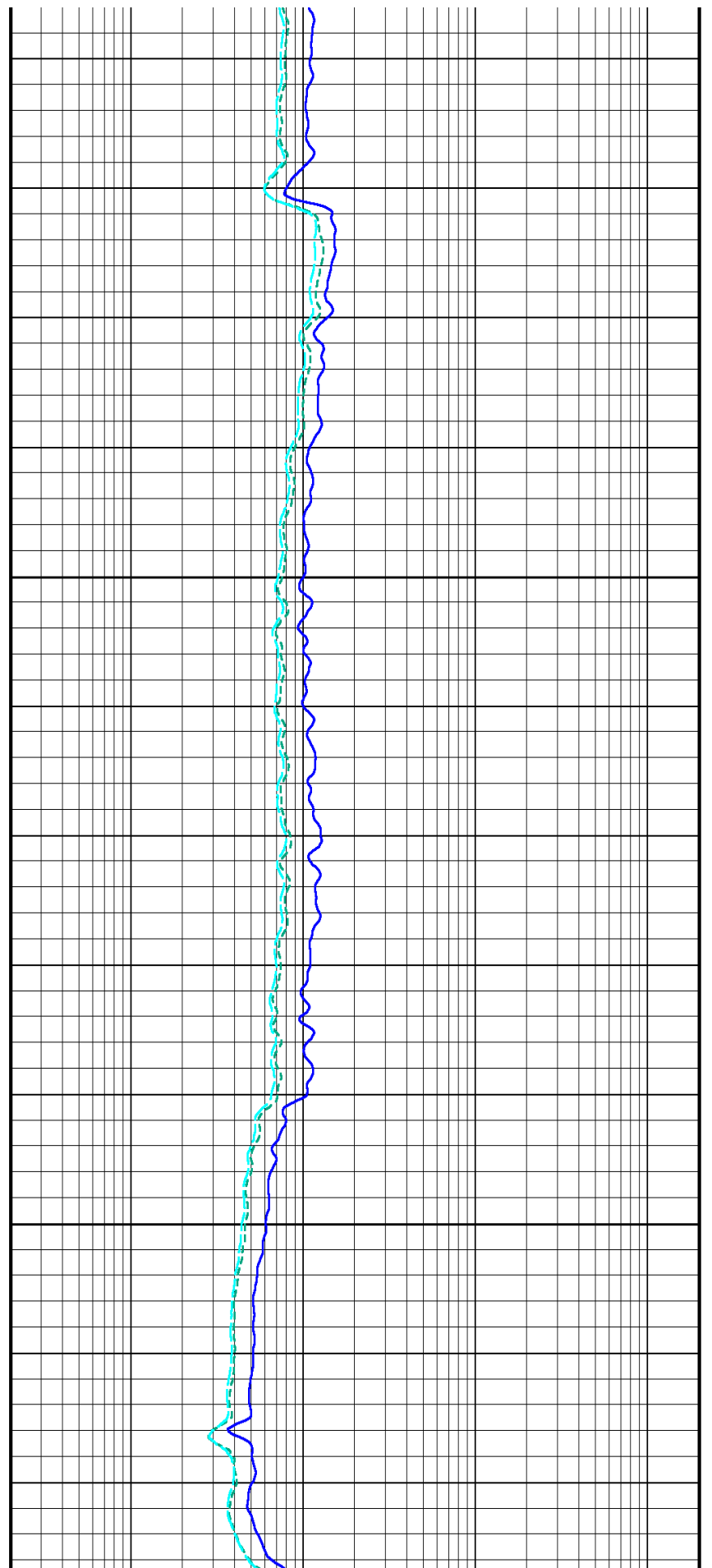
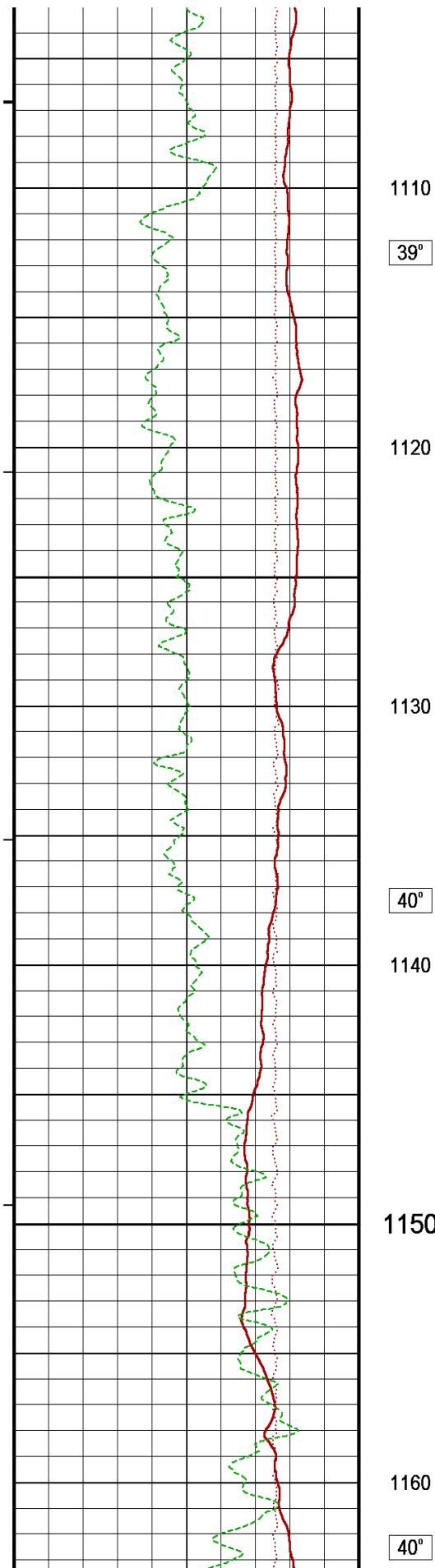
$38^\circ$

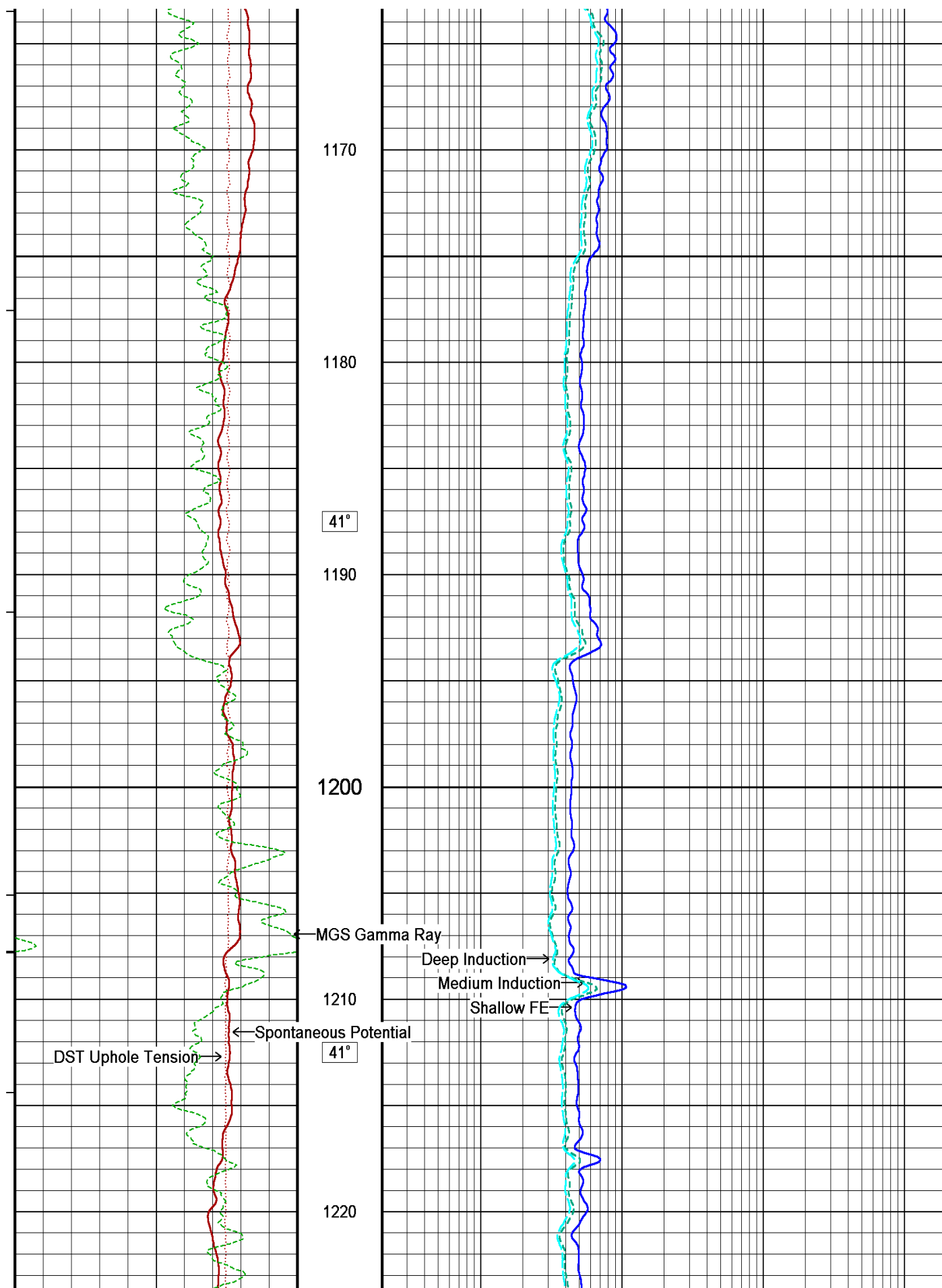


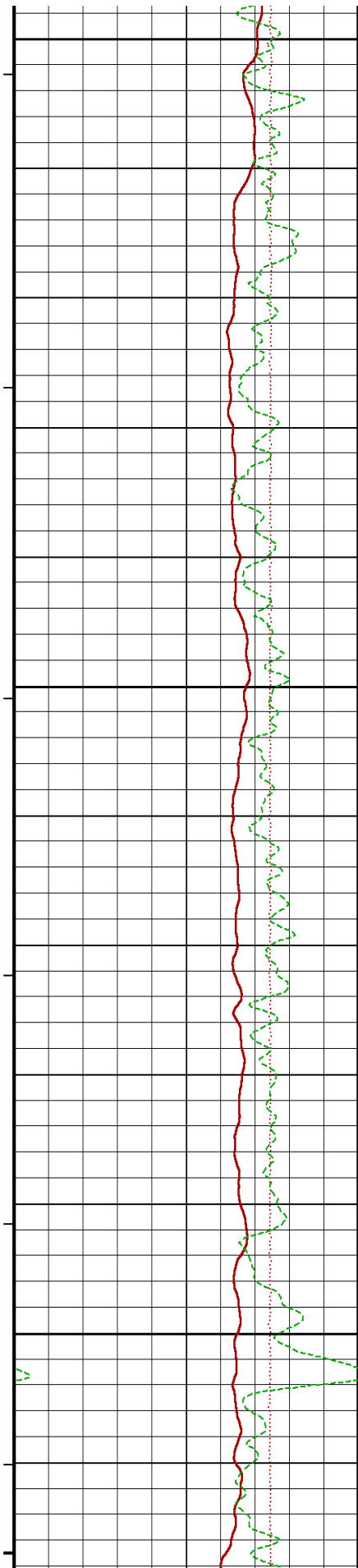
Deep Induction →

Medium Induction →

Shallow FE →







1230

42°

1240

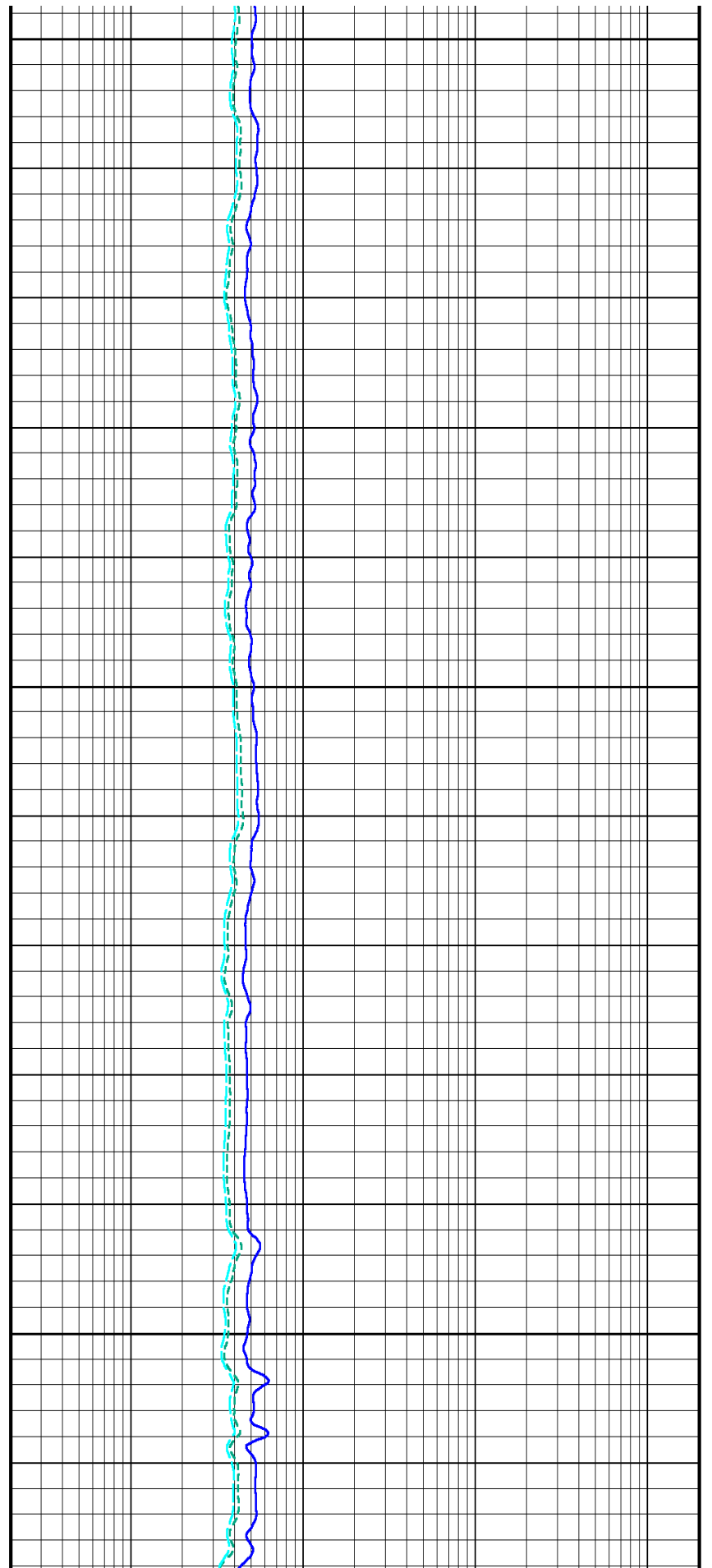
1250

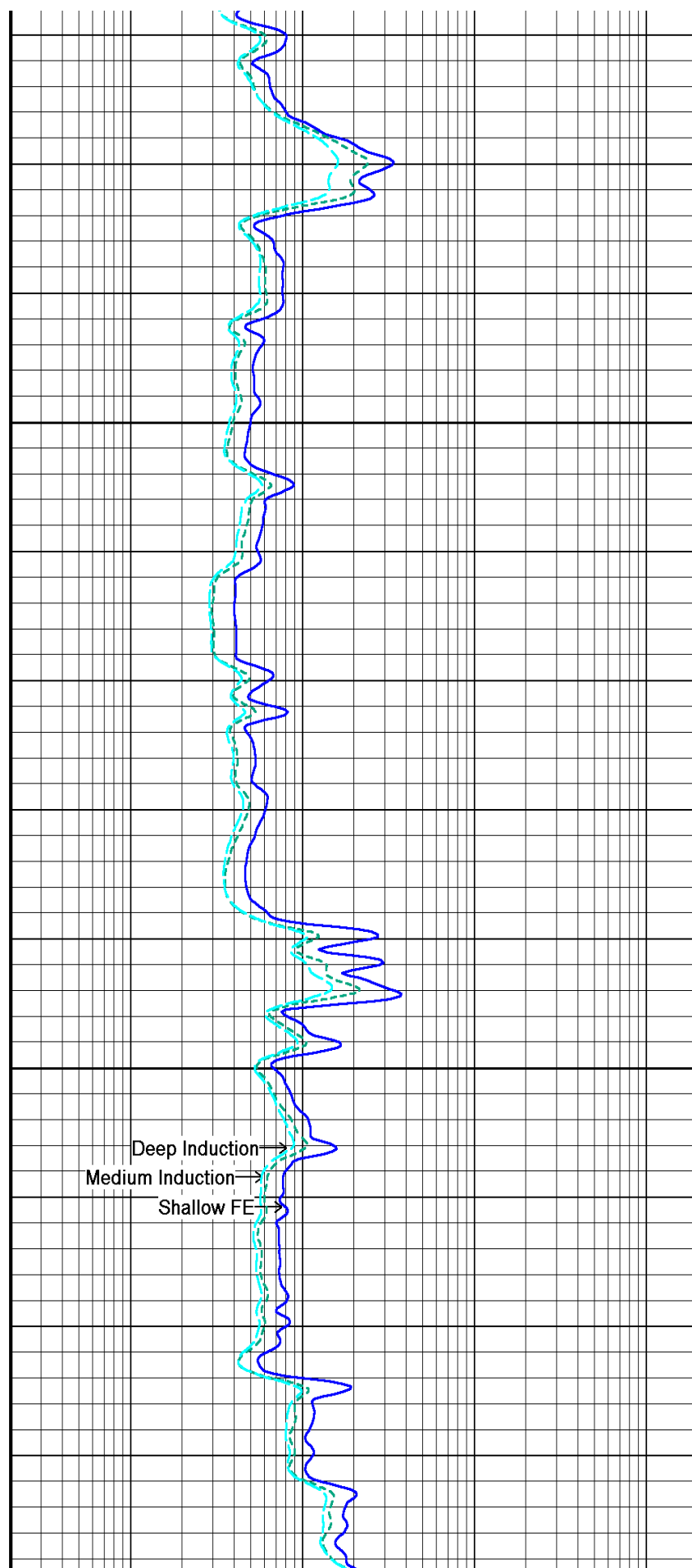
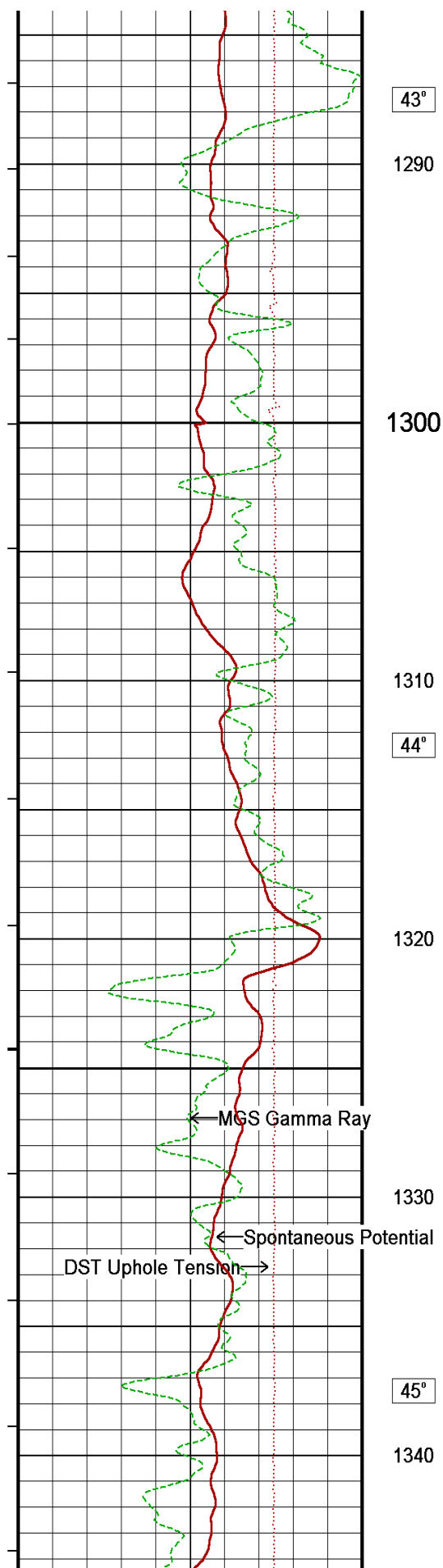
1260

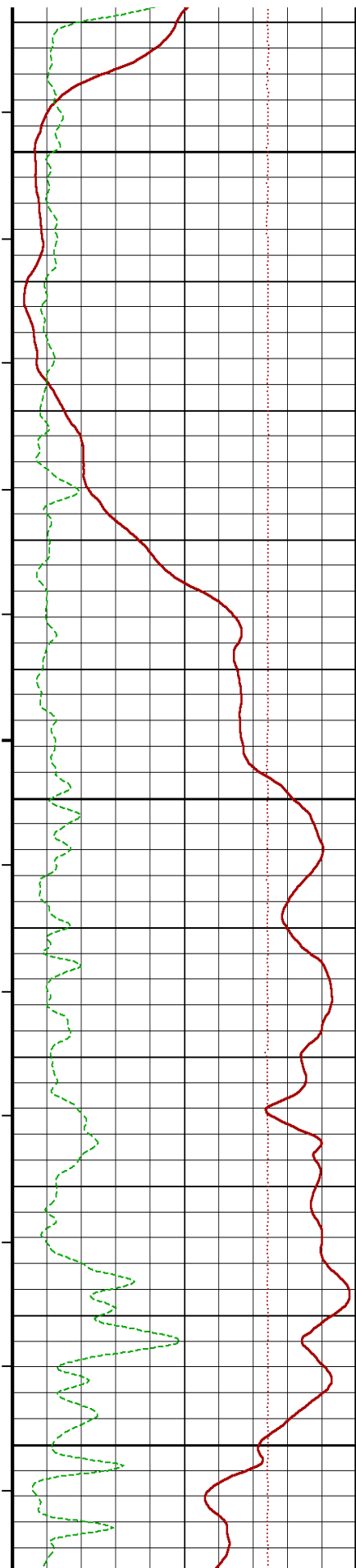
43°

1270

1280







1350

1360

45°

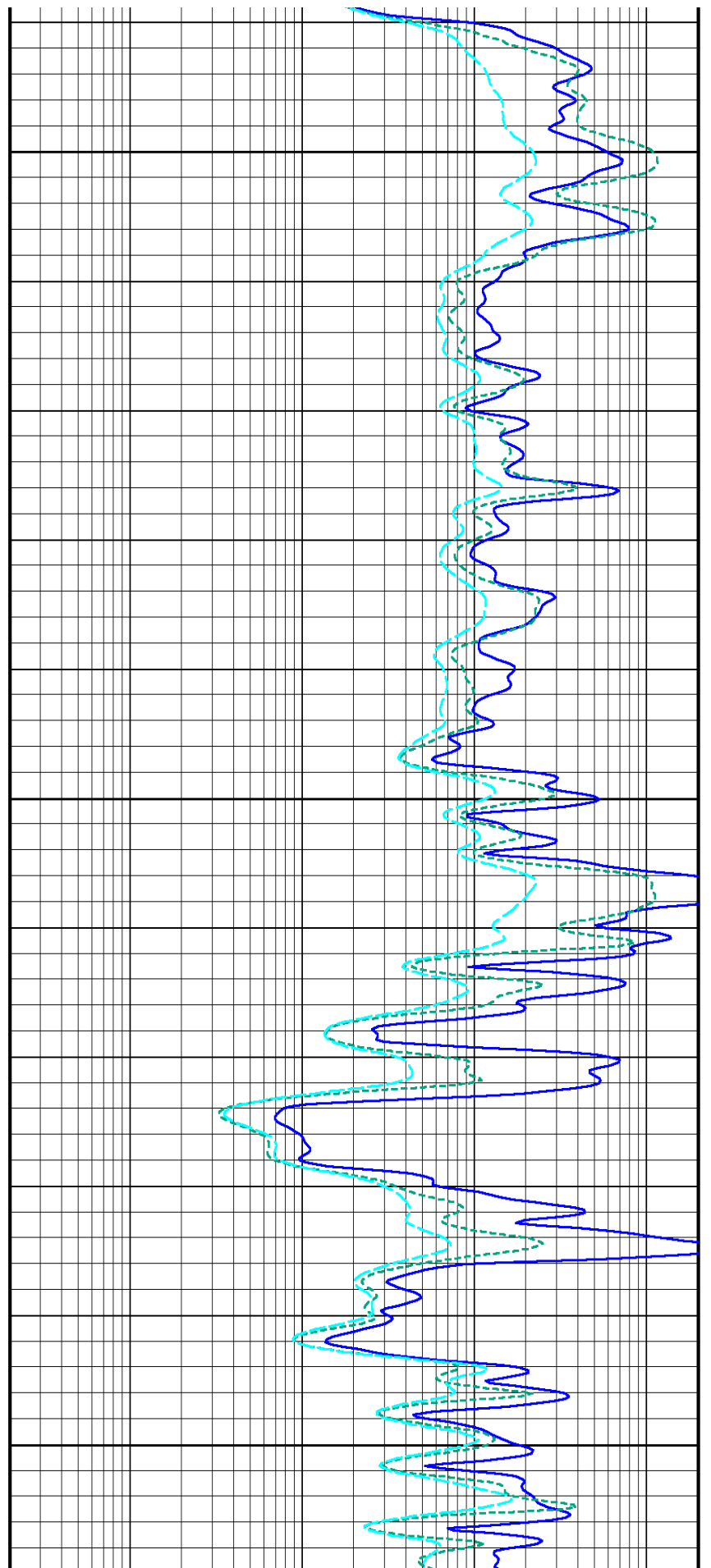
1370

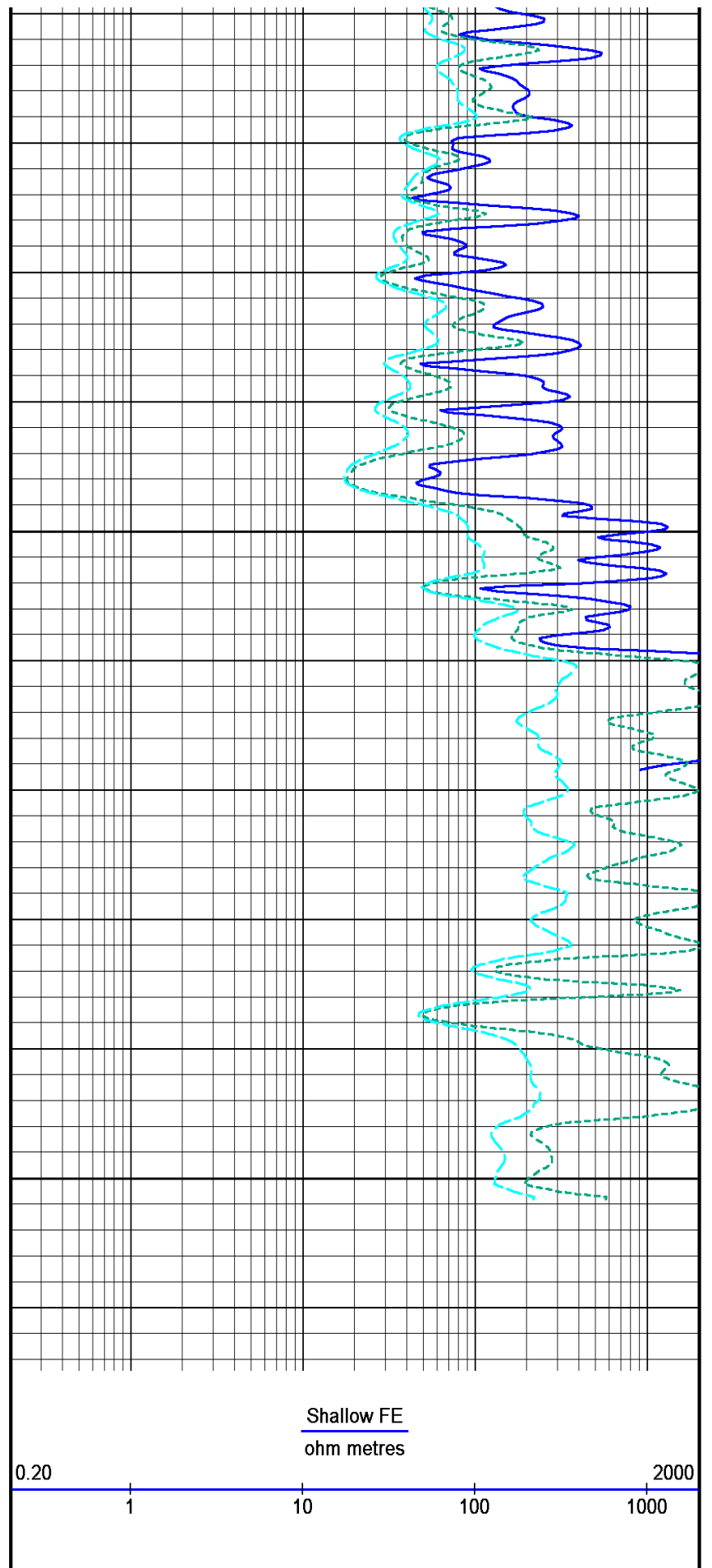
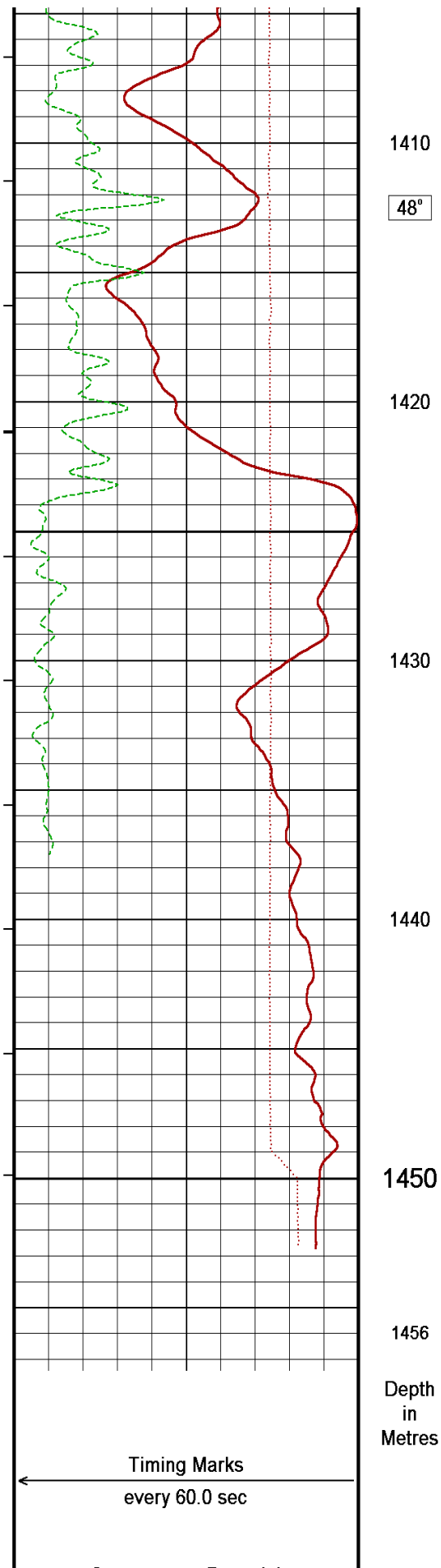
1380

46°

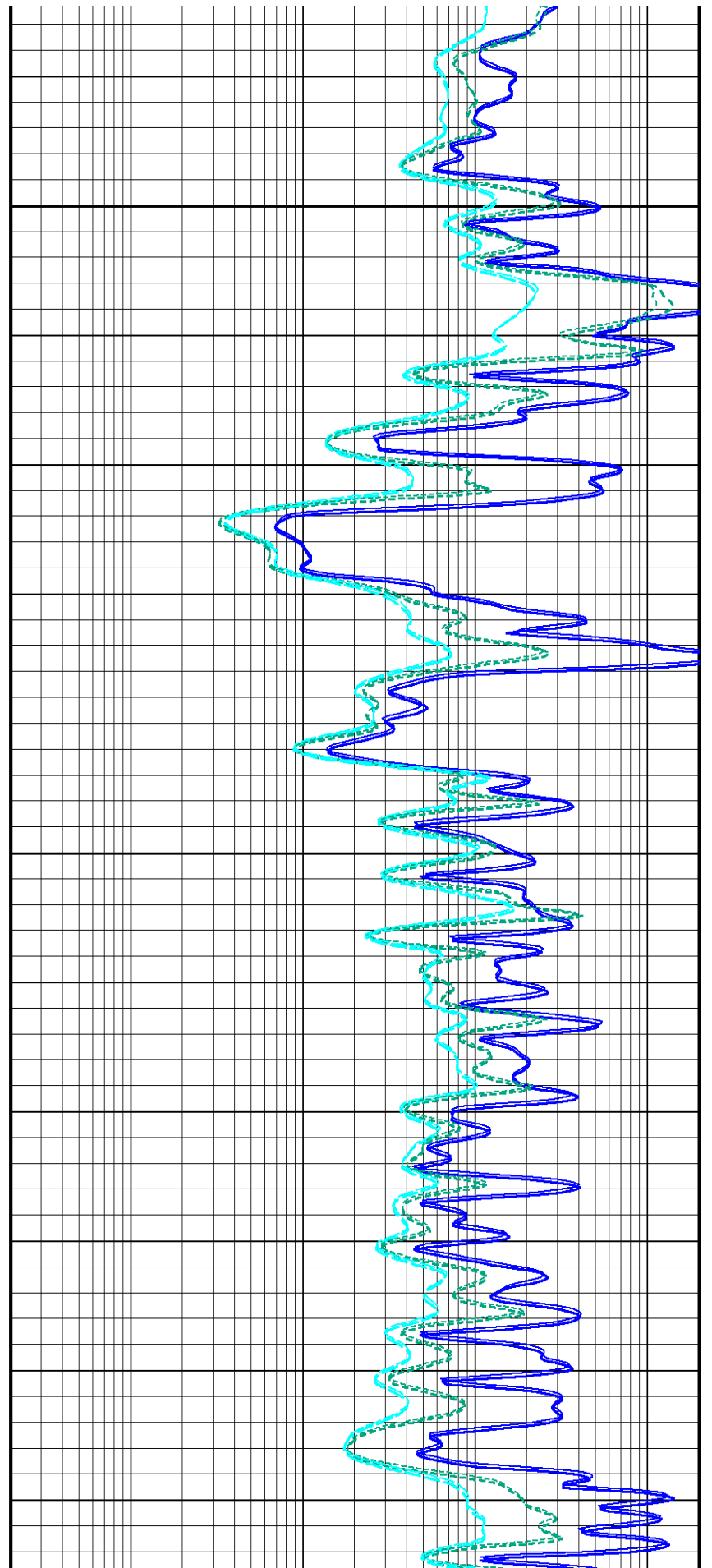
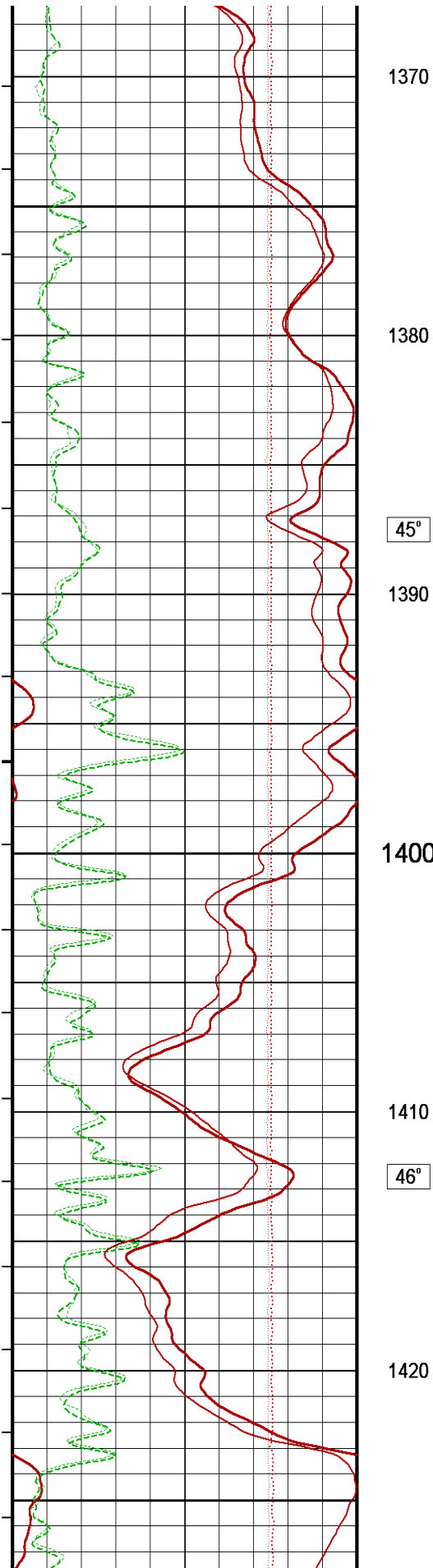
1390

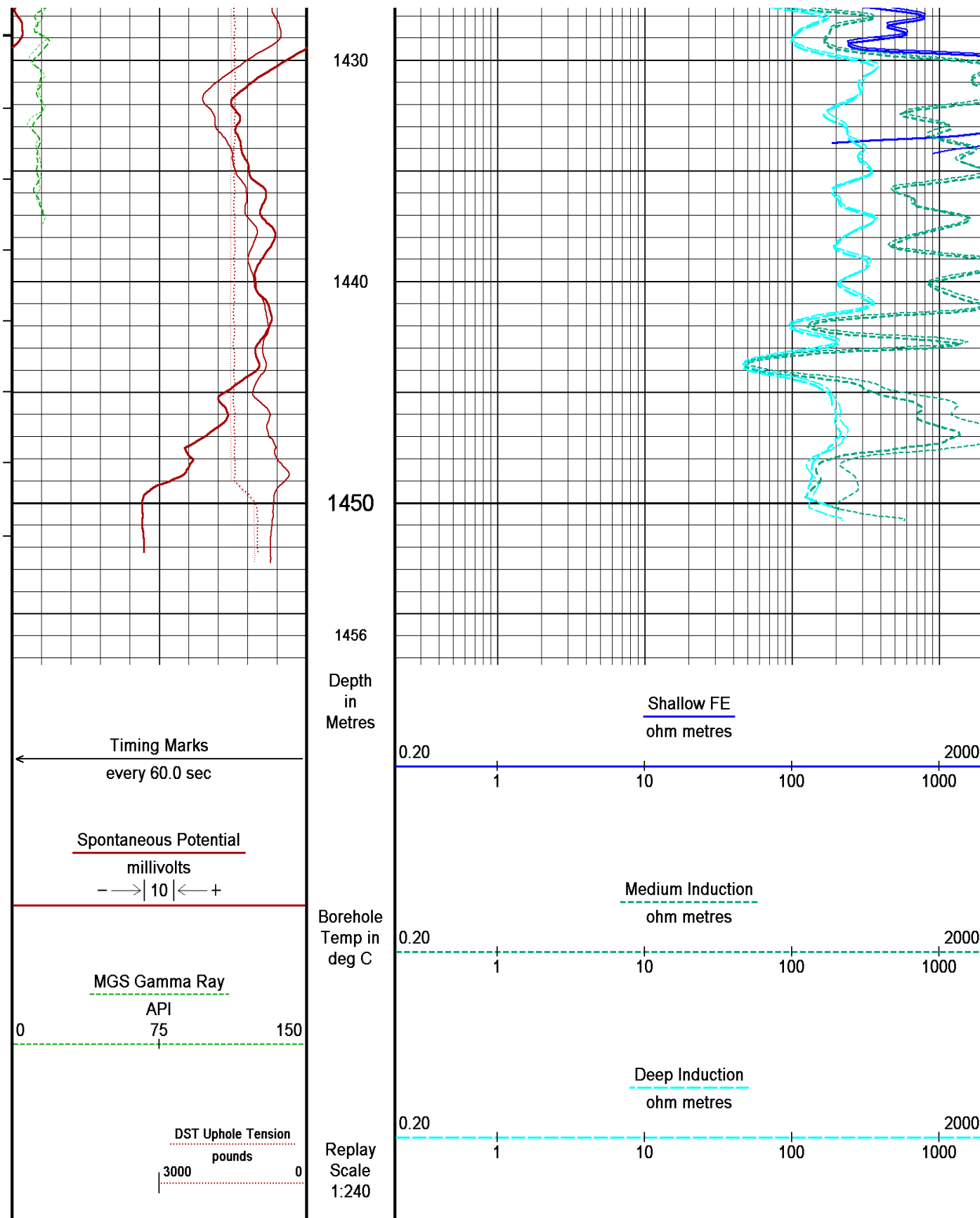
1400











Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: C:\Temp\Weatherford PreView\0\REPEAT.dta

Filename: C:\Temp\Weatherford PreView\0\MAIN LOG.dta

System Versions: Logged with 7.01.0195 Processed with 8.00.0015 Plotted with 8.01.0091

Plotted on 12-NOV-2007 09:27

Recorded on 15-FEB-2007 07:26

Recorded on 15-FEB-2007 08:46

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Temp\Weatherford PreView\0\REPEAT.dta

General Constants All 000

Last Edited on 15-FEB-2007,06:48

General Parameters

|                             |          |            |
|-----------------------------|----------|------------|
| Mud Resistivity             | 1.180    | ohm-metres |
| Mud Resistivity Temperature | 25.000   | degrees C  |
| Water Level                 | 0.000    | metres     |
| Density/Neutron Processing  | Wet Hole |            |

Hole/Annular Volume and Differential Caliper Parameters

|                                  |                   |    |
|----------------------------------|-------------------|----|
| HVOL Caliper 1                   | Density Caliper   |    |
| HVOL Caliper 2                   | Y Two Arm Caliper |    |
| Annular Volume Diameter          | 139.700           | mm |
| Caliper for Differential Caliper | Density Caliper   |    |

Rwa Parameters

|                  |                       |
|------------------|-----------------------|
| Porosity used    | Base Density Porosity |
| Resistivity used | Deep Induction        |
| RWA Constant A   | 0.610                 |
| RWA Constant M   | 2.150                 |

High Resolution Temperature Calibration MCG 159

Field Calibration on 28-NOV-2006,15:40

|       | Measured | Calibrated(Deg C) |
|-------|----------|-------------------|
| Lower | 10.00    | 10.00             |
| Upper | 50.00    | 50.00             |

High Resolution Temperature Constants MCG 159

Last Edited on 28-NOV-2006,15:40

|                   |    |
|-------------------|----|
| Pre-filter Length | 11 |
|-------------------|----|

FE Calibration MFE 017

Base Calibration on 14-FEB-2007 07:09

Field Check on

Base Calibration

|             | Measured | Calibrated (ohm-m) |
|-------------|----------|--------------------|
| Reference 1 | 0.0      | 0.0                |
| Reference 2 | 971.4    | 126.8              |
| Base Check  |          | 279.4              |
| Field Check |          | 0.0                |

FE Constants MFE 017

Last Edited on 15-FEB-2007,04:52

|                                  |                          |
|----------------------------------|--------------------------|
| Caliper Source for FE correction | Density Caliper          |
| Rm Source for FE correction      | Temperature Corr         |
| Temp. for Rm Corr.               | MCG External Temperature |
| Stand-off                        | Centred                  |
|                                  | millimetres              |

Gamma Calibration MGS 010

Field Calibration on 7-FEB-2007,09:09

|                    | Measured | Calibrated (API) |
|--------------------|----------|------------------|
| Background         | 48       | 31               |
| Calibrator (Gross) | 1256     | 825              |
| Calibrator (Net)   | 1208     | 794              |

Gamma Constants MGS 010

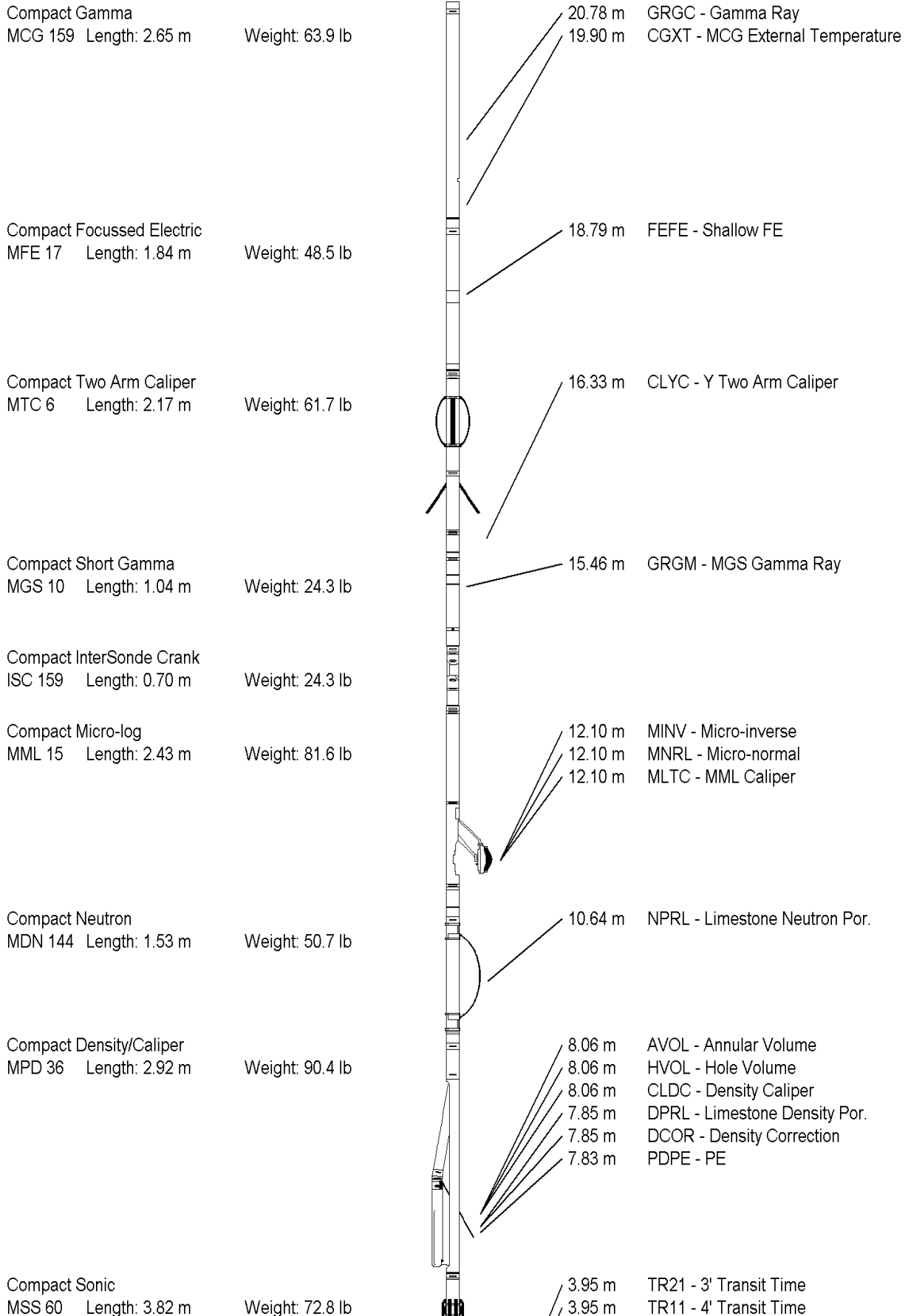
Last Edited on 15-FEB-2007,06:48

|                         |         |
|-------------------------|---------|
| Gamma Calibrator Number | grcc075 |
|-------------------------|---------|

|                                                  |                          |                                                                           |
|--------------------------------------------------|--------------------------|---------------------------------------------------------------------------|
| Mud Density                                      | 1060.00                  | kg/m3                                                                     |
| Caliper Source for Processing                    | Density Caliper          |                                                                           |
| Tool Position                                    | Centred                  |                                                                           |
| Concentration of KCl                             | 0.00                     | kppm                                                                      |
| Induction Calibration MAI 072                    |                          | Base Calibration on 25-JAN-2007,18:16<br>Field Check on 12-FEB-2007 04:15 |
| Base Calibration                                 |                          |                                                                           |
| Test Loop Calibration                            |                          | Measured                                                                  |
| Channel                                          | Low High                 | Calibrated (mmho/m)<br>Low High                                           |
| 1                                                | 13.9 459.6               | 9.3 966.2                                                                 |
| 2                                                | 5.3 373.2                | 7.6 821.4                                                                 |
| 3                                                | 2.9 254.1                | 5.2 566.0                                                                 |
| 4                                                | 1.3 130.4                | 2.6 279.2                                                                 |
| Array Temperature                                | 18.5                     | Deg C                                                                     |
| Channel                                          |                          | Base Check (mmho/m)                                                       |
|                                                  | Low High                 | Field Check (mmho/m)<br>Low High                                          |
| 1                                                | 18.0 3925.2              | 20.2 3926.2                                                               |
| 2                                                | 31.0 3598.6              | 32.7 3599.2                                                               |
| 3                                                | 29.0 3101.3              | 30.3 3102.2                                                               |
| 4                                                | 20.3 2105.9              | 21.3 2106.6                                                               |
| Deep                                             | 18.4 2019.9              | 19.4 2021.1                                                               |
| Medium                                           | 40.9 4089.6              | 42.6 4090.6                                                               |
| Shallow                                          | 45.6 5324.4              | 48.1 5324.5                                                               |
| Array Temperature                                | 18.5                     | 22.2 Deg C                                                                |
| Induction Constants MAI 072                      |                          | Last Edited on 7-FEB-2007,09:11                                           |
| Induction Model                                  | VECTAR                   |                                                                           |
| Caliper for Borehole Corr.                       | Y Two Arm Caliper        |                                                                           |
| Hole Size for Borehole Correction                | N/A                      | millimetres                                                               |
| Stand-off                                        | 25.40                    | millimetres                                                               |
| Number of Fins on Stand-off                      | 5.0000                   |                                                                           |
| Stand-off Fin Width                              | 25.4000                  | millimetres                                                               |
| Borehole Corr. Rm Source                         | Temperature Corr         |                                                                           |
| Temp. for Rm Corr.                               | MCG External Temperature |                                                                           |
| Squasher Start                                   | 0.0020                   | 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                                                                     |

# DOWNHOLE EQUIPMENT

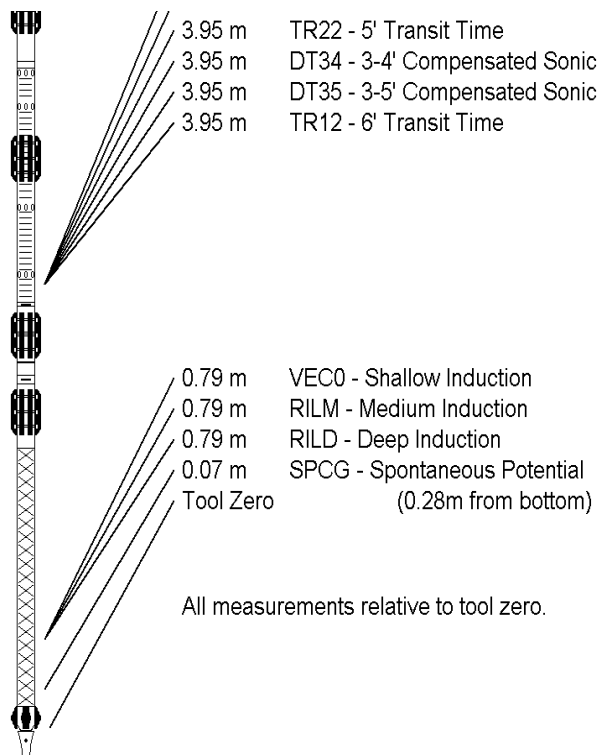
C:\Temp\Weatherford PreView\0\REPEAT.dta



Compact Induction  
MAI 72    Length: 3.29 m    Weight: 48.5 lb

Compact Hole Finder  
HFS 1    Length: 0.24 m    Weight: 2.2 lb

Total    Length: 22.63 m    Weight: 568.8 lb



|                 |                              |
|-----------------|------------------------------|
| COMPANY         | PARAMOUNT RESOURCES LTD.     |
| WELL            | PARAMOUNT ET AL CAMERON J-04 |
| FIELD           | CAMERON HILLS                |
| PROVINCE/COUNTY | NORTH WEST TERRITORIES       |
| COUNTRY/STATE   | CANADA                       |

|                         |        |        |               |         |        |
|-------------------------|--------|--------|---------------|---------|--------|
| Elevation Kelly Bushing | 769.20 | metres | First Reading | 1448.70 | metre  |
| Elevation Drill Floor   |        | metres | Depth Driller | 1449.00 | metres |
| Elevation Ground Level  | 765.20 | metres | Depth Logger  | 1449.50 | metres |



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