

# Tucker

ENERGY SERVICES

PHASED INDUCTION  
SHALLOW FOCUS SP LOG

|                                                                                                                                                                                         |                       |                                                                                                                                                                                                                                    |           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Company</b> LASSO ENERGY LLC<br><b>Well</b> RENICK #1<br><b>Field</b> INGALLS<br><b>County</b> GRAY<br><b>State</b> KANSAS<br><b>Country</b> USA<br><b>API No.</b> 15-069-20446-0000 |                       | <b>File No</b> : TUL-57210<br><b>Company</b> : LASSO ENERGY LLC<br><b>Well</b> : RENICK #1<br><b>Field</b> : INGALLS<br><b>County</b> : GRAY<br><b>State</b> : KANSAS<br><b>Country</b> : USA<br><b>API No</b> : 15-069-20446-0000 |           |
| <b>Location</b> :<br>1650' FNL & 330' FEL<br>C NE SE NE                                                                                                                                 |                       | <b>LSD</b> : <b>Sect</b> : 29 <b>Twp</b> : 25S <b>Rge</b> : 29W                                                                                                                                                                    |           |
| <b>Permanent Datum:</b>                                                                                                                                                                 | GL                    | <b>Elevations:</b>                                                                                                                                                                                                                 | Services: |
| <b>Drilling Measured From:</b>                                                                                                                                                          | KB                    | KB 2694.00                                                                                                                                                                                                                         | CNT       |
| <b>Log Measured From:</b>                                                                                                                                                               | KB                    | DF 2693.00                                                                                                                                                                                                                         | LDT       |
| <b>Above Permanent Datum:</b>                                                                                                                                                           | 1200 Ft               | GL 2682.00                                                                                                                                                                                                                         | MLT       |
| <b>Date</b>                                                                                                                                                                             | 11-26-2013            |                                                                                                                                                                                                                                    |           |
| <b>Run Number</b>                                                                                                                                                                       | 1                     |                                                                                                                                                                                                                                    |           |
| <b>Depth--Driller</b>                                                                                                                                                                   | 5870.0 Ft             |                                                                                                                                                                                                                                    |           |
| <b>Depth--Logger</b>                                                                                                                                                                    | 5866.0 Ft             |                                                                                                                                                                                                                                    |           |
| <b>First Reading</b>                                                                                                                                                                    | 5865.0 Ft             |                                                                                                                                                                                                                                    |           |
| <b>Last Reading</b>                                                                                                                                                                     | 1670.0 Ft             |                                                                                                                                                                                                                                    |           |
| <b>Casing--Driller</b>                                                                                                                                                                  | 1670.0 Ft             |                                                                                                                                                                                                                                    |           |
| <b>Casing--Logger</b>                                                                                                                                                                   | 1670.0 Ft             |                                                                                                                                                                                                                                    |           |
| <b>Bit Size</b>                                                                                                                                                                         | 7.875 In              |                                                                                                                                                                                                                                    |           |
| <b>Casing Size</b>                                                                                                                                                                      | 8.625 In              |                                                                                                                                                                                                                                    |           |
| <b>Hole Fluid Type</b>                                                                                                                                                                  | CHEM-GEL              |                                                                                                                                                                                                                                    |           |
| <b>Density</b>                                                                                                                                                                          | 9.5 lb/gal            |                                                                                                                                                                                                                                    |           |
| <b>Fluid Loss</b>                                                                                                                                                                       | 8.8 ml/30min          |                                                                                                                                                                                                                                    |           |
| <b>PH/Viscosity</b>                                                                                                                                                                     | 9.5      57.0 sec/qt  |                                                                                                                                                                                                                                    |           |
| <b>Sample Source</b>                                                                                                                                                                    | MEASURED              |                                                                                                                                                                                                                                    |           |
| <b>RMF@Measured Temp.</b>                                                                                                                                                               | 2.200 @ 45 F          |                                                                                                                                                                                                                                    |           |
| <b>RMF@Measured Temp</b>                                                                                                                                                                | 1.760 @ 45 F          |                                                                                                                                                                                                                                    |           |
| <b>RMF@Measured Temp.</b>                                                                                                                                                               | 2.640 @ 45 F          |                                                                                                                                                                                                                                    |           |
| <b>Source RMF/RMC</b>                                                                                                                                                                   | CALCULATED/CALCULATED |                                                                                                                                                                                                                                    |           |
| <b>RM@BHT</b>                                                                                                                                                                           | 0.790 @ 137 F         |                                                                                                                                                                                                                                    |           |
| <b>Time Circulation Stopped</b>                                                                                                                                                         | 11-26-2013 9:00 pm    |                                                                                                                                                                                                                                    |           |
| <b>Max Recorded Temp.</b>                                                                                                                                                               | 137 F                 |                                                                                                                                                                                                                                    |           |
| <b>Equipment/Base</b>                                                                                                                                                                   | TULSA                 |                                                                                                                                                                                                                                    |           |
| <b>Recorded By</b>                                                                                                                                                                      | J. ADAMS R. KING      |                                                                                                                                                                                                                                    |           |
| <b>Witnessed By</b>                                                                                                                                                                     | M. BURTON             |                                                                                                                                                                                                                                    |           |

The customer is hereby warned that by providing the log data herein, T. E. S. does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. E. S. does not guarantee or warrant either expressly or impliedly, the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by T. E. S. personnel. Any interpretation, conversion or recommendation is not part of the consideration for the agreement between the parties and is not part of any part of the charge by T. E. S. for its services. Any user of the log data is warned that said user is not entitled to rely on interpretations, conversions or recommendations as aforesaid.

| Bitsize Intervals |             | Casing Strings |              |             |          |
|-------------------|-------------|----------------|--------------|-------------|----------|
| Size (In)         | Bottom (Ft) | Size (In)      | Weight (Lbs) | Bottom (Ft) | Top (Ft) |
| 7.875             | 5866.00     | 8.625          | 24.00        | 1670.00     | 0.00     |
|                   |             |                |              |             |          |
|                   |             |                |              |             |          |
|                   |             |                |              |             |          |
|                   |             |                |              |             |          |

|                     |               |  |
|---------------------|---------------|--|
| Run Number          | 1             |  |
| Date                | 11-26-2013    |  |
| Date/Time On Bottom |               |  |
| Depth to Fluid      | 0.0 Ft        |  |
| Salinity            | 3800.000      |  |
| RMF@BHT             | 0.630 @ 137 F |  |
| RMC@BHT             | 0.950 @ 137 F |  |

Run Number 1

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST  
 GRT, CNT, LDT, MLT AND PIT RUN IN COMBINATION.  
 CALIPERS ORIENTED ON X-Y AXIS.  
 2.71 G/CC USED TO CALCULATED POROSITY.  
 ANNULAR HOLE VOLUME CALCULATED UISING 5.5" PRODUCTION CASING.  
 PHIN IS CALIPER CORRECTED.

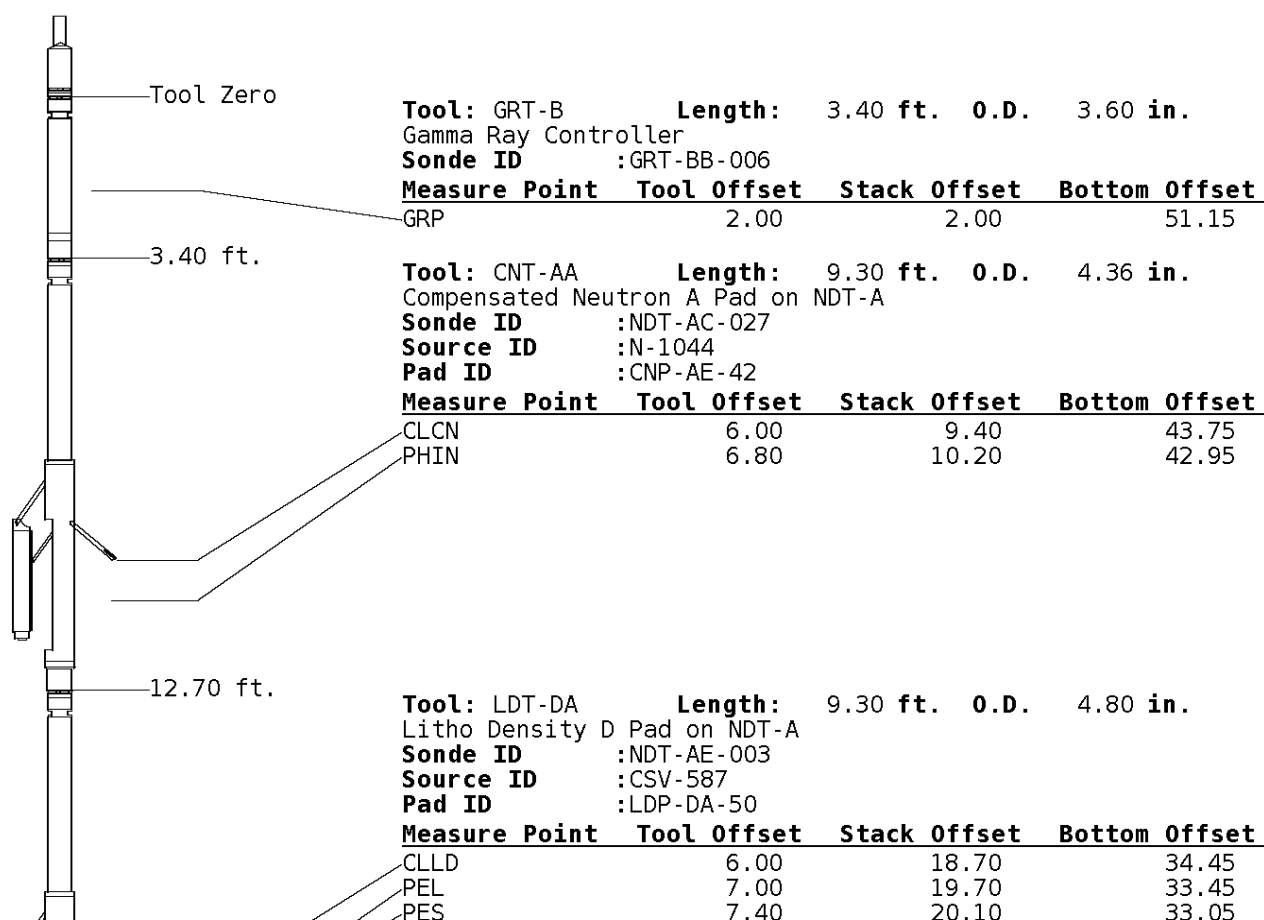
CUSTOMER REQUEST DETAIL PULLED FROM TD-3950'  
 CUSTOMER REQUEST HIRES PULLED FROM TD-4700'

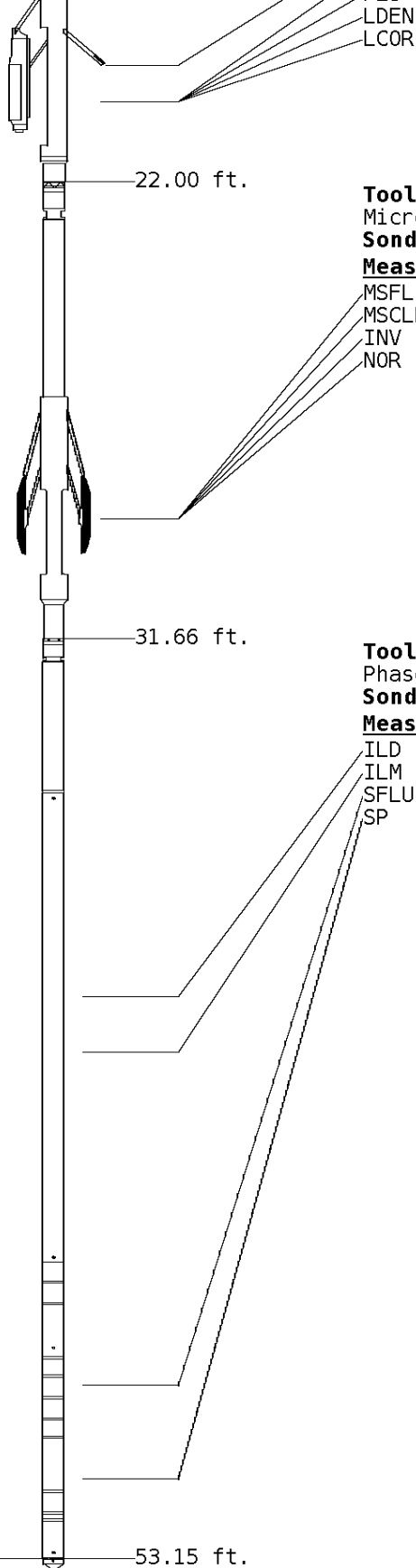
GRT: GRP, GRX  
 CNT: PHIN, CLCNIN, PHXN  
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN, PRXL, PECLX, LDENNX, LCORX  
 MLT: NOR\_RF, INV\_RF, MSCLPIN.  
 PIT: ILD, ILM, SPU, SFLAEC, CIRD.

OPERATORS:  
 D. HOPPER  
 A.DJAH

## Tool String Schematic

**Total Tool Length** - 53.15 ft.  
**Maximum Outside diameter** - 6.00 in.  
**Net Weight in Air** - 943.00 lbs.





Tool: MST-DA Length: 9.66 ft. O.D. 6.00 in.  
 Micro Spherically Focused (IC)  
 Sonde ID :MST-DA-32

| Measure Point | Tool Offset | Stack Offset | Bottom Offset |
|---------------|-------------|--------------|---------------|
| MSFL          | 7.60        | 29.60        | 23.55         |
| MSCLP         | 7.60        | 29.60        | 23.55         |
| INV           | 7.60        | 29.60        | 23.55         |
| NOR           | 7.60        | 29.60        | 23.55         |

Tool: PIT-CA Length: 21.49 ft. O.D. 3.62 in.  
 Phased Dual Induction w/ RM & D  
 Sonde ID :PIT-BA-20

| Measure Point | Tool Offset | Stack Offset | Bottom Offset |
|---------------|-------------|--------------|---------------|
| ILD           | 8.92        | 40.58        | 12.56         |
| ILM           | 10.10       | 41.76        | 11.39         |
| SFLU          | 17.49       | 49.15        | 4.00          |
| SP            | 20.60       | 52.26        | 0.88          |

Well File: LASSO RENICK\_1 NOV26 MSTK

Scale: 1:600 Format: DIL-600

Segment: V1.D1.S14 AS FINAL MAIN

Acquired: Not Available

Reference: 0

Processed: 2013-11/27 03:29 3.3.0-12261

TENSION  
LBS

10000

0

DEEP INDUCTION  
OHMM

0.0

500.0

0.0

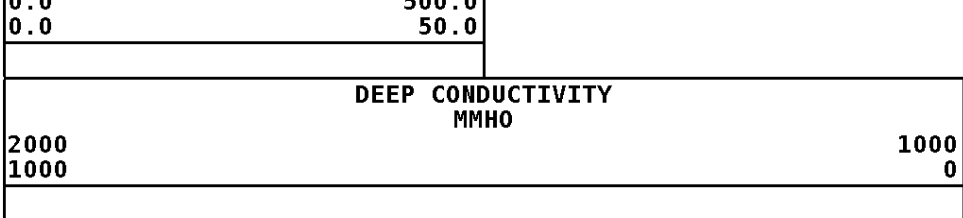
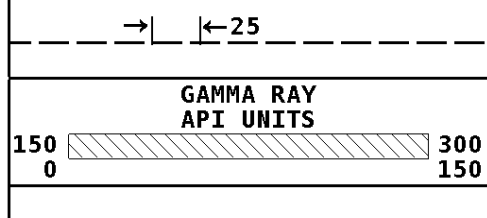
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SPONTANEOUS POTENTIAL  
mV

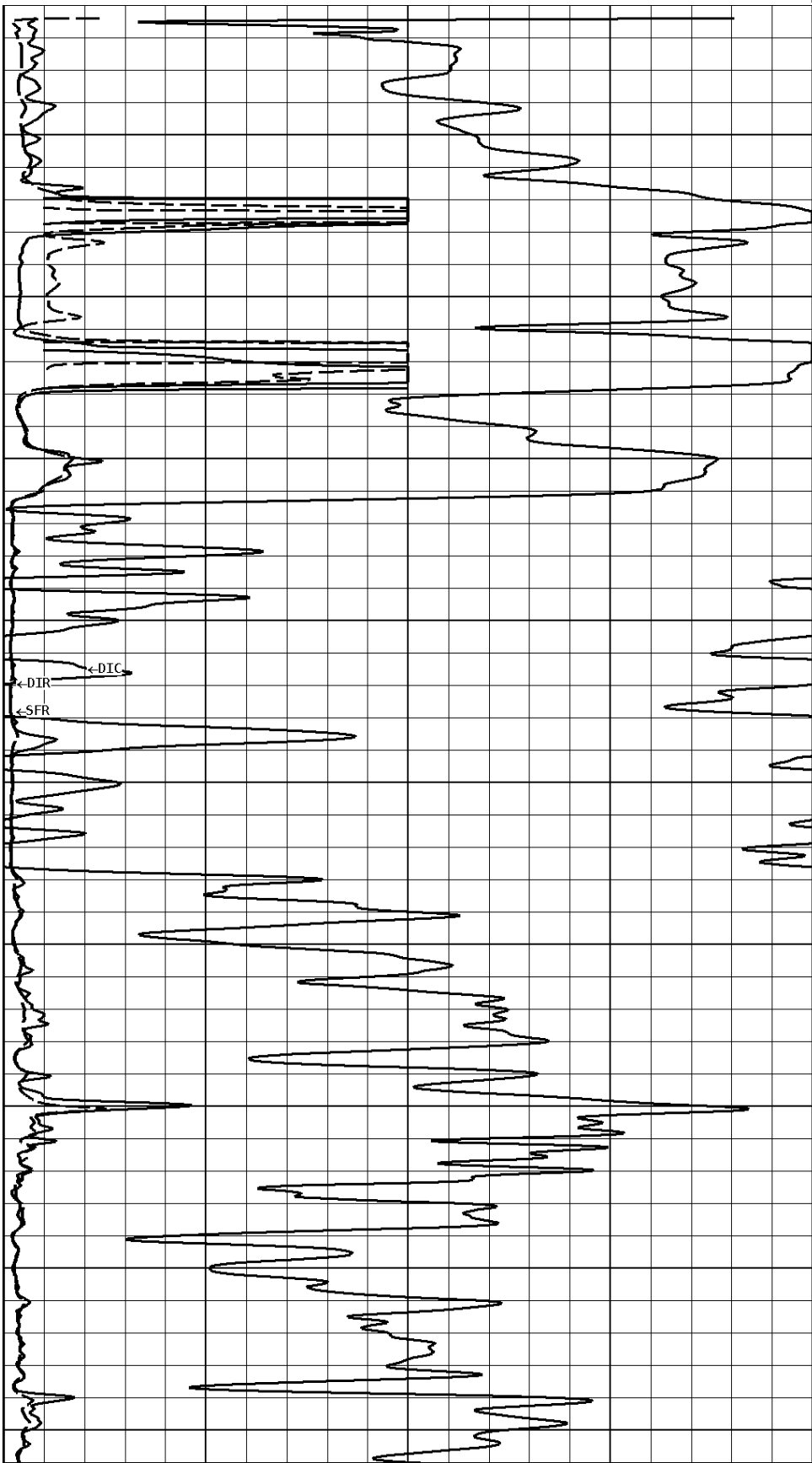
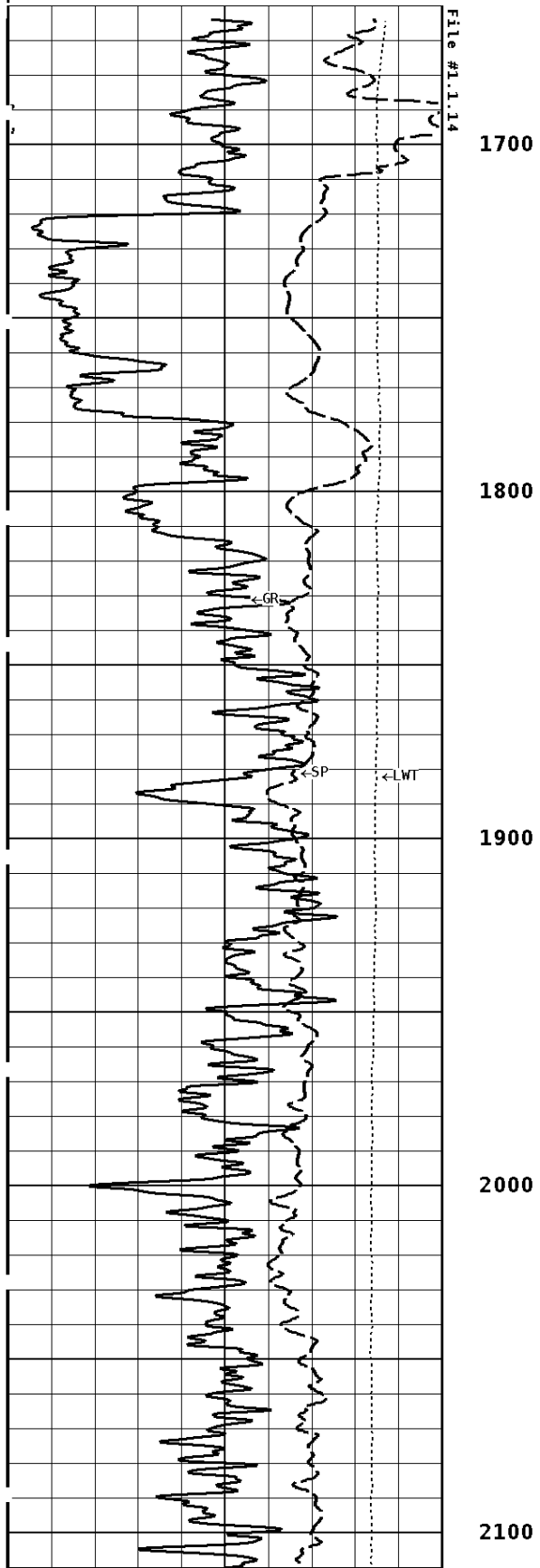
SHALLOW FOCUSED RESISTIVITY  
OHMM

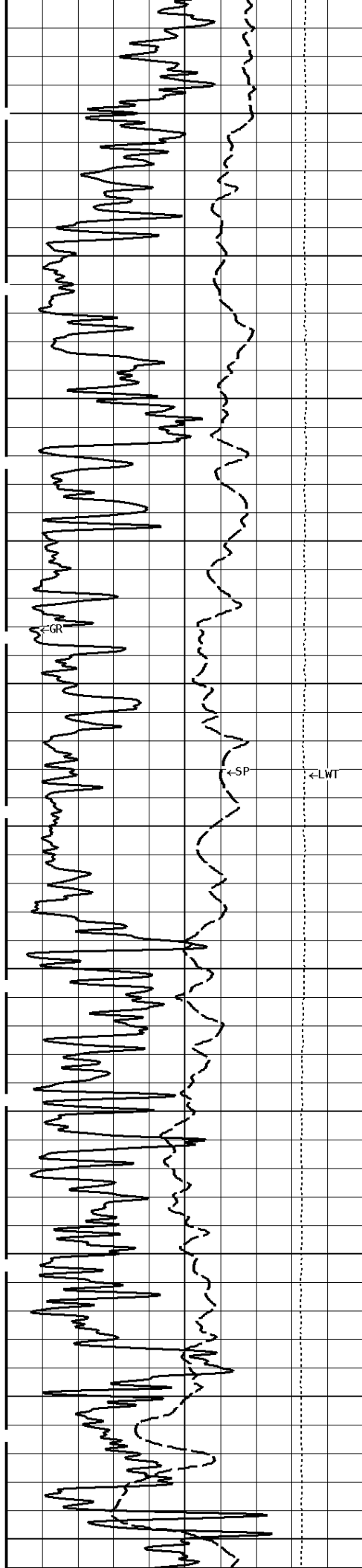
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500.0



1:600 MAIN SECTION





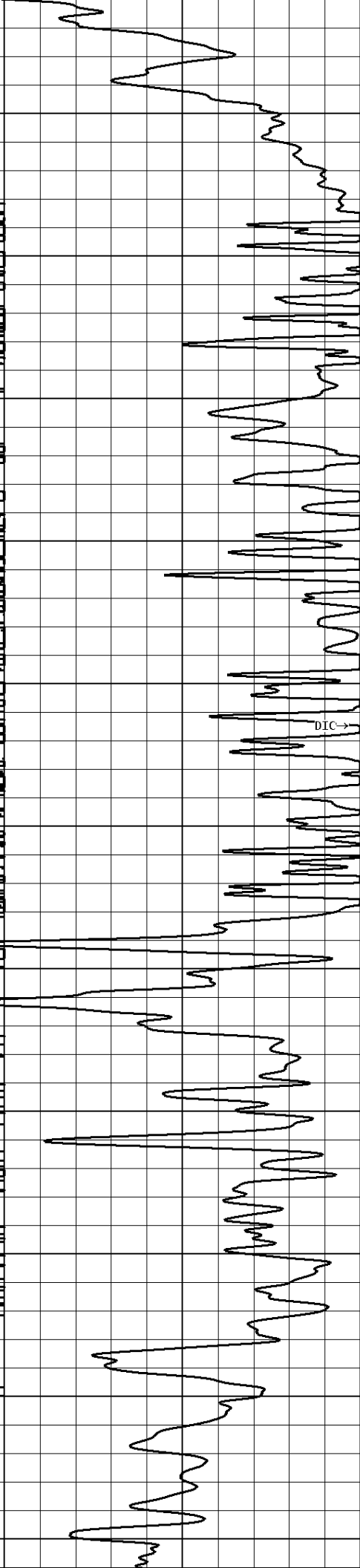
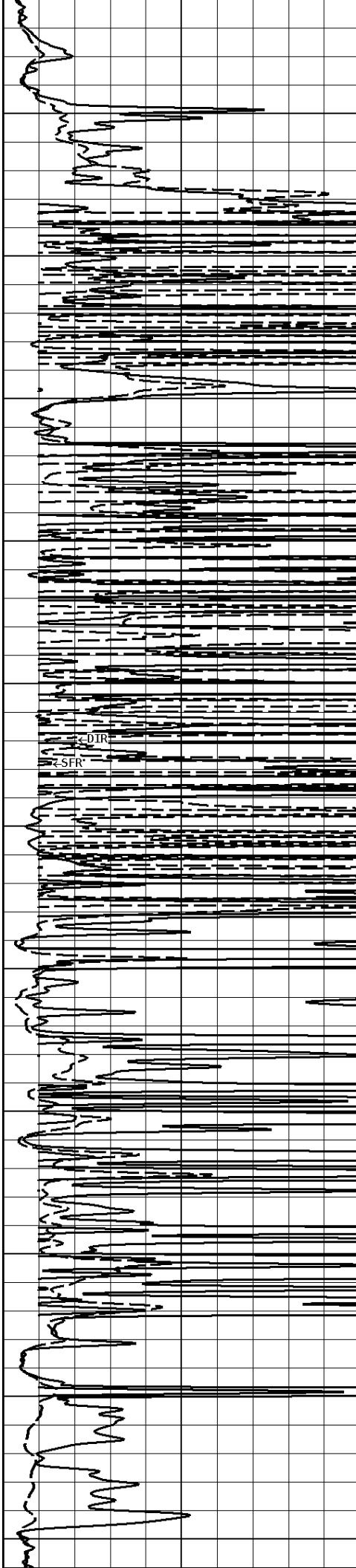
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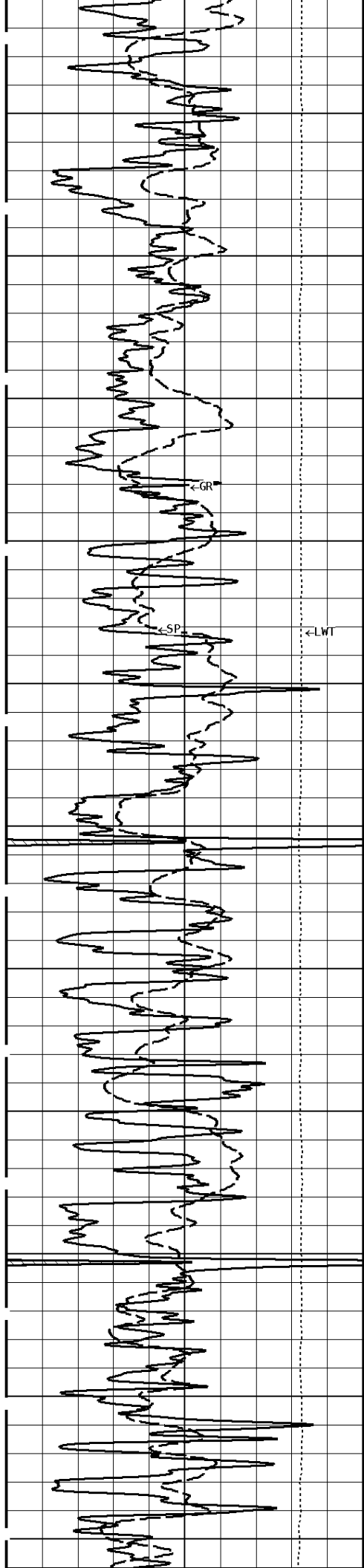
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2400

2500

2600





2700

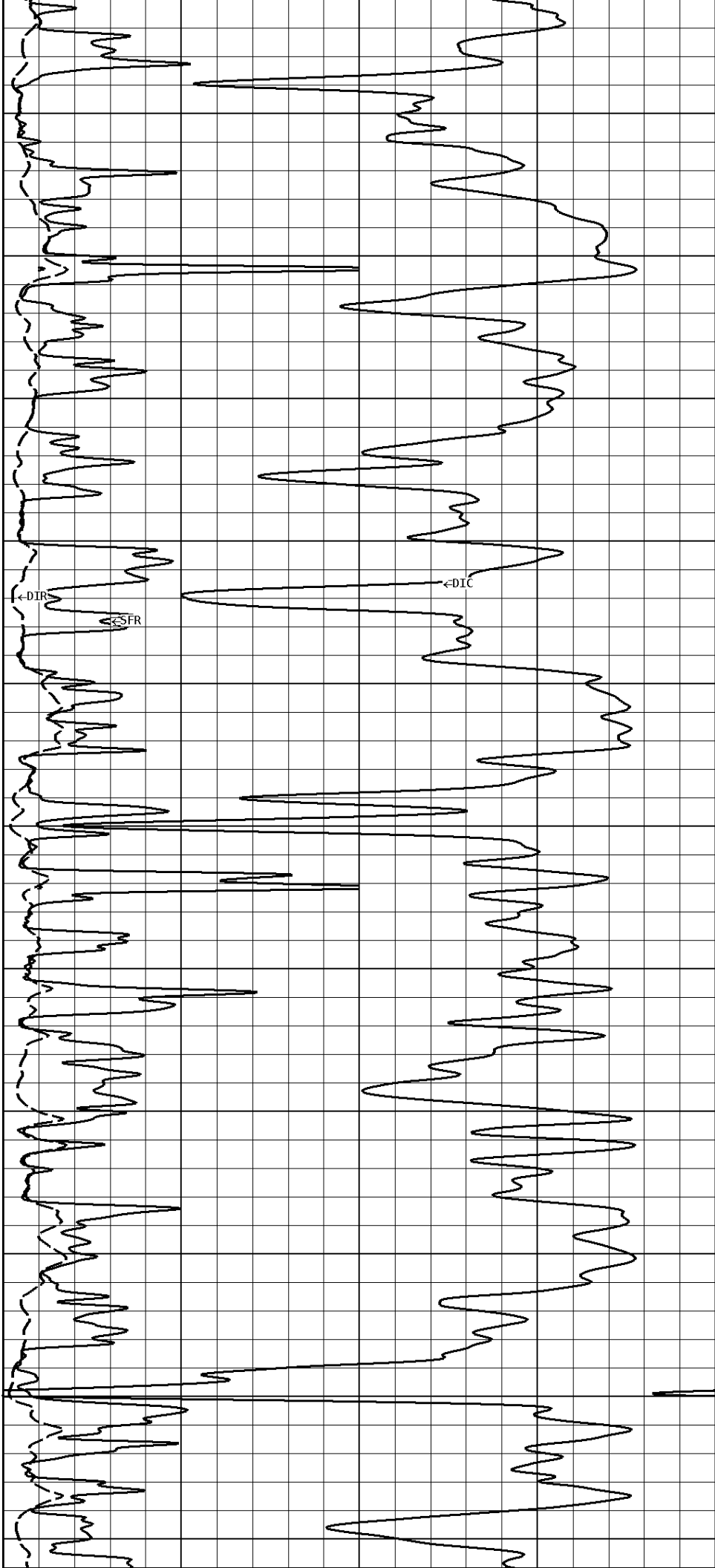
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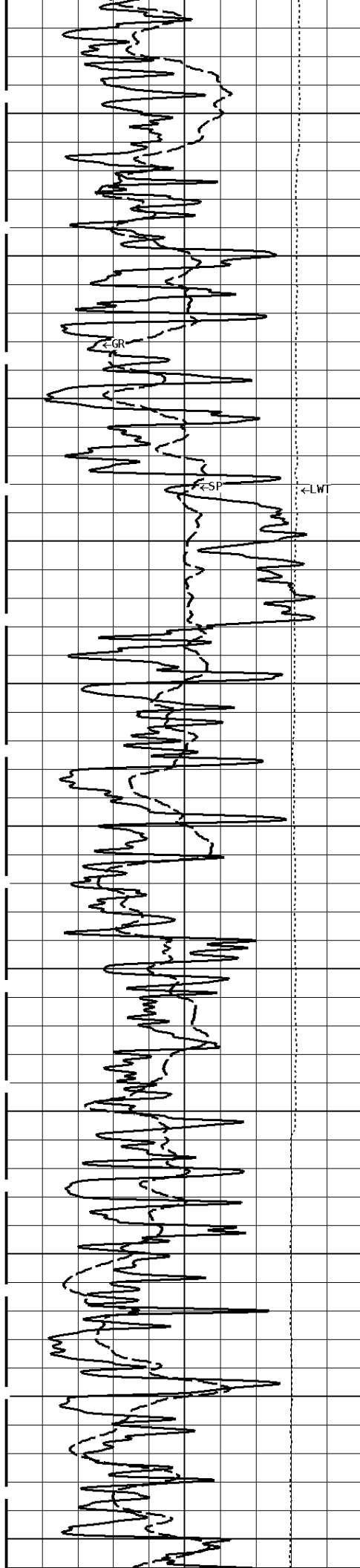
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3000

3100

3200





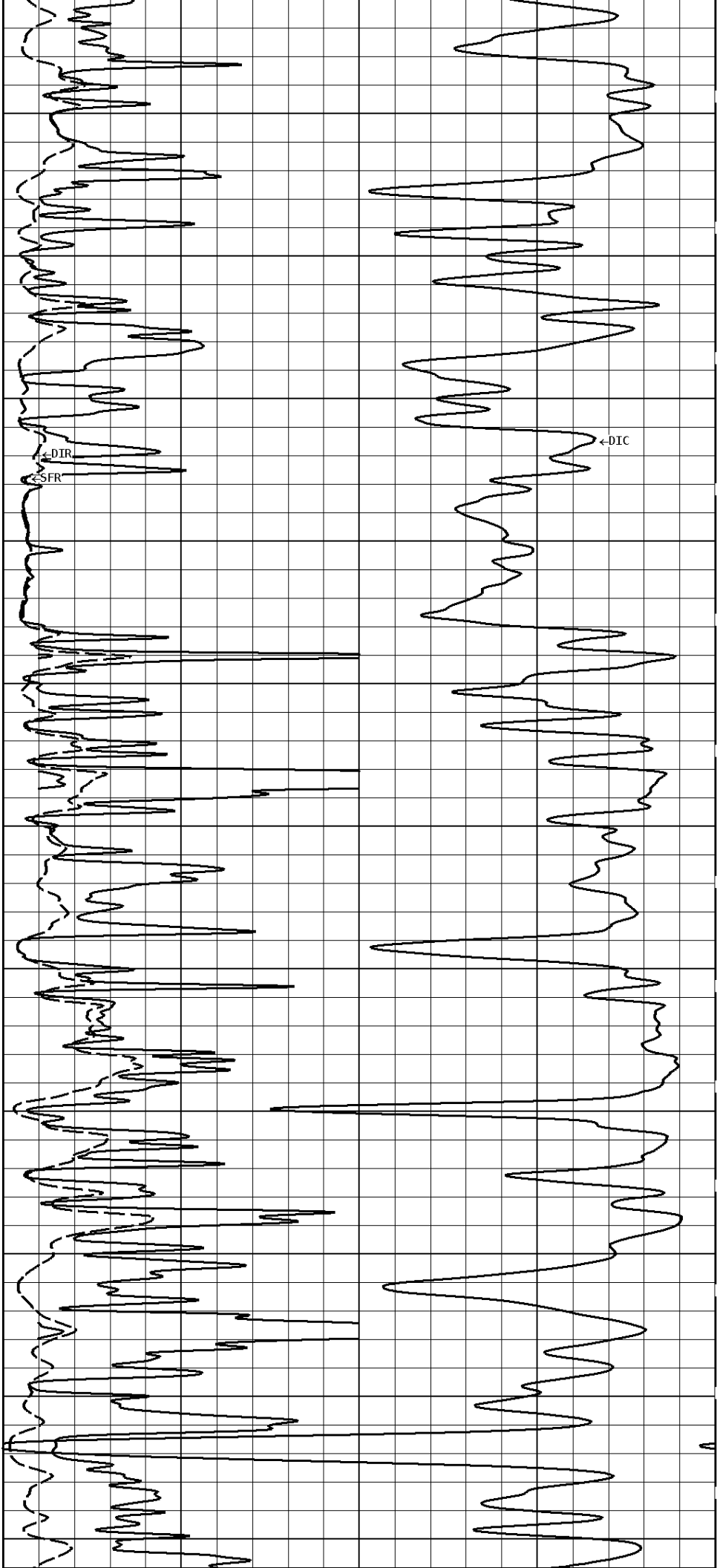
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3400

3500

3600

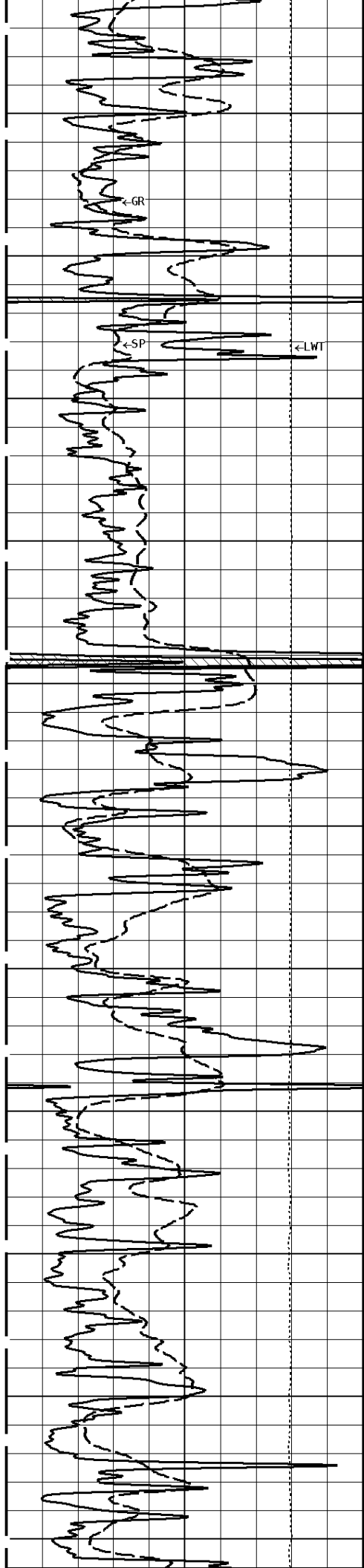
3700



←DIC

←DIR

←SFR



3800

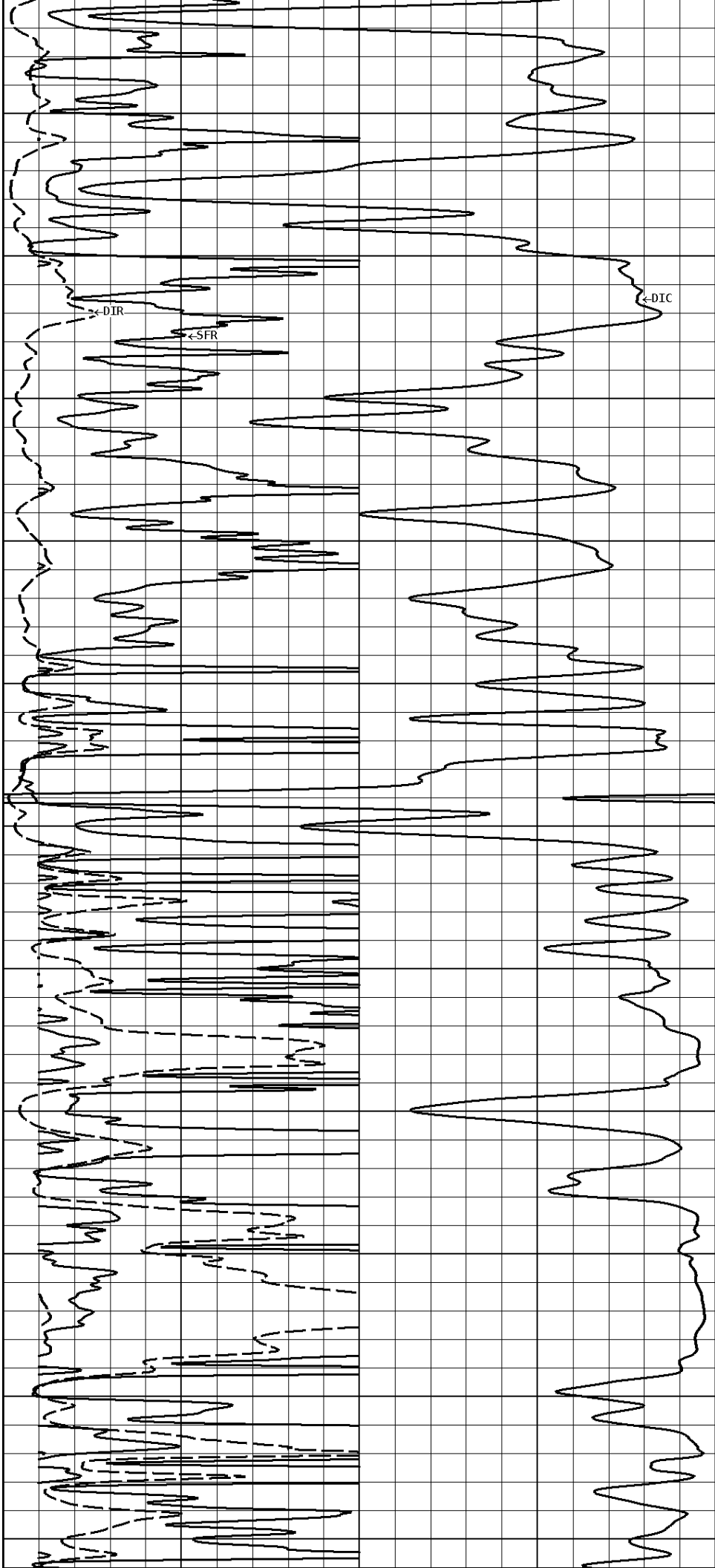
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4000

4100

4200

4300

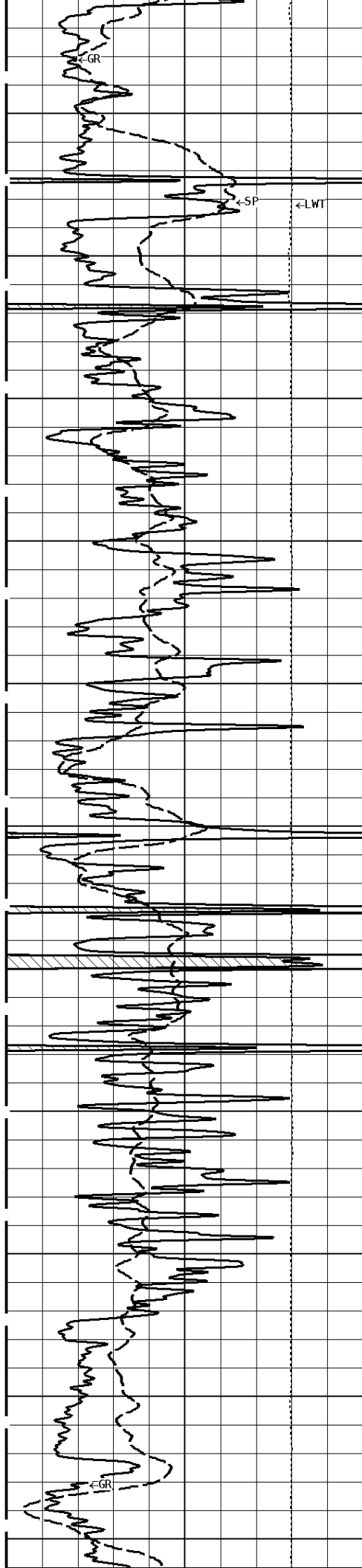


← DTR

← SFR

← DIC





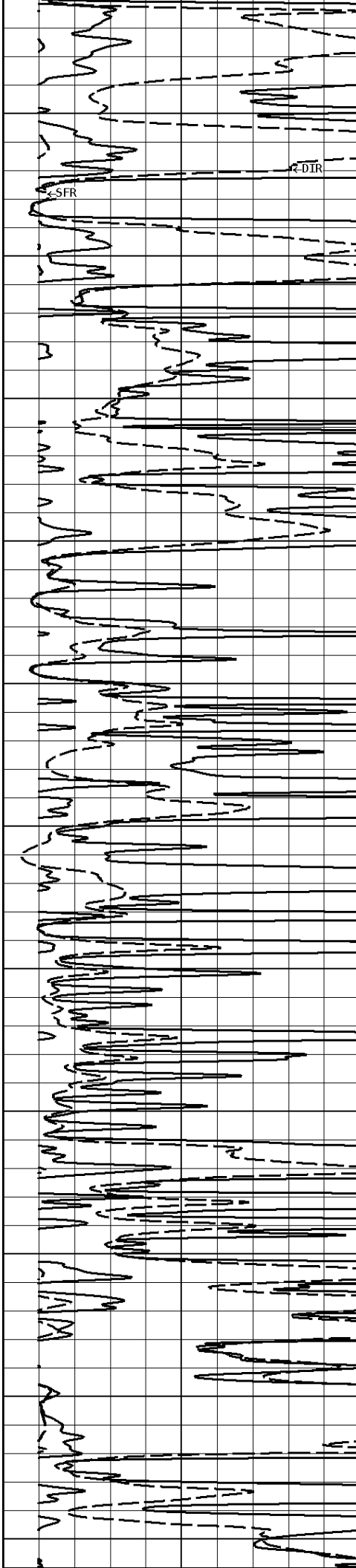
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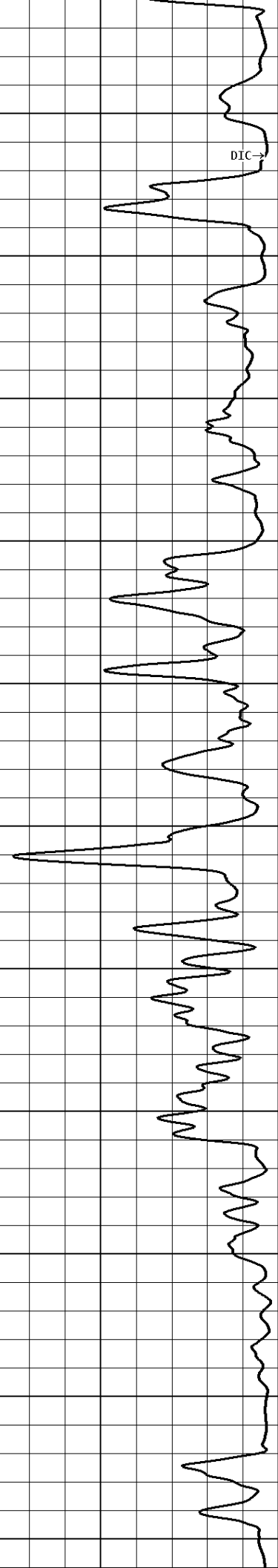
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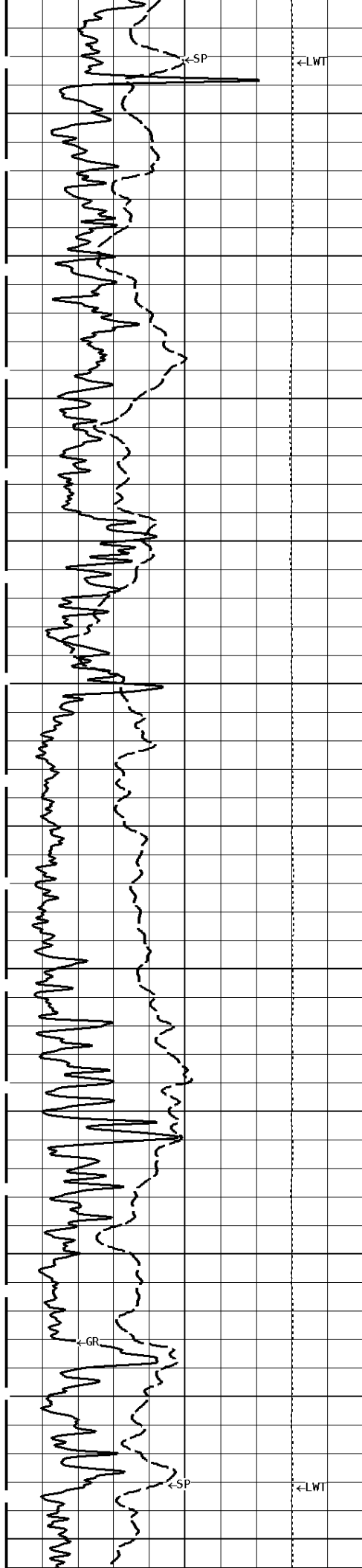


DIR

SFR



DIC



4900

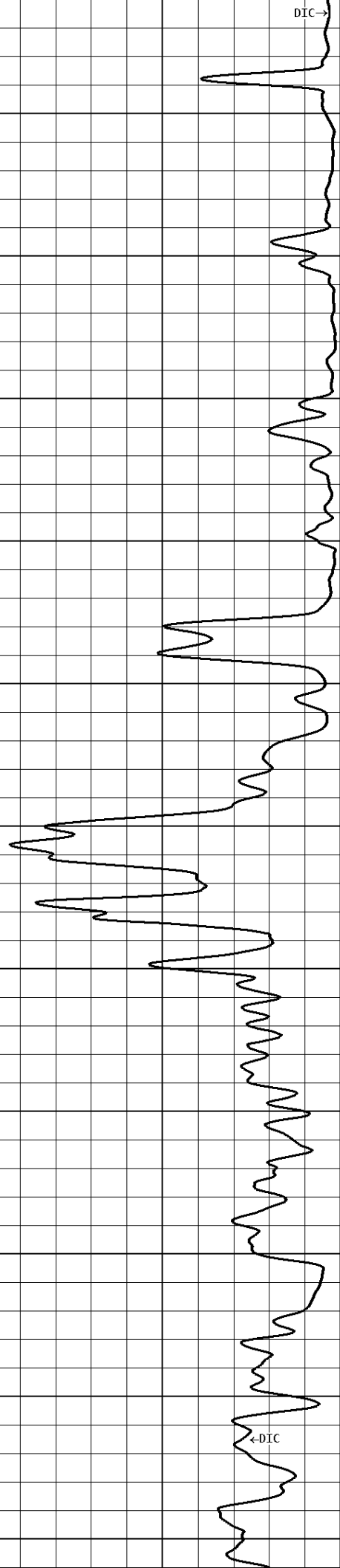
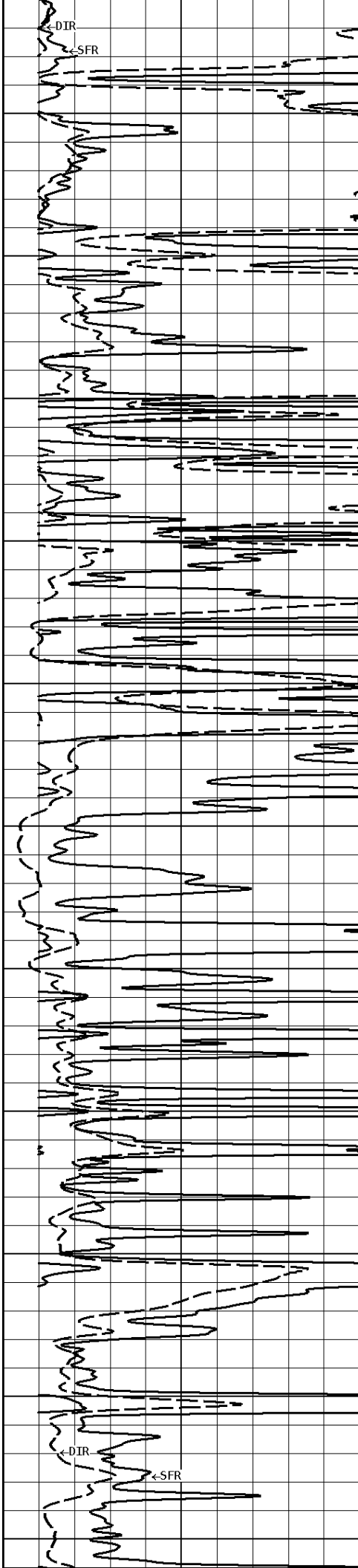
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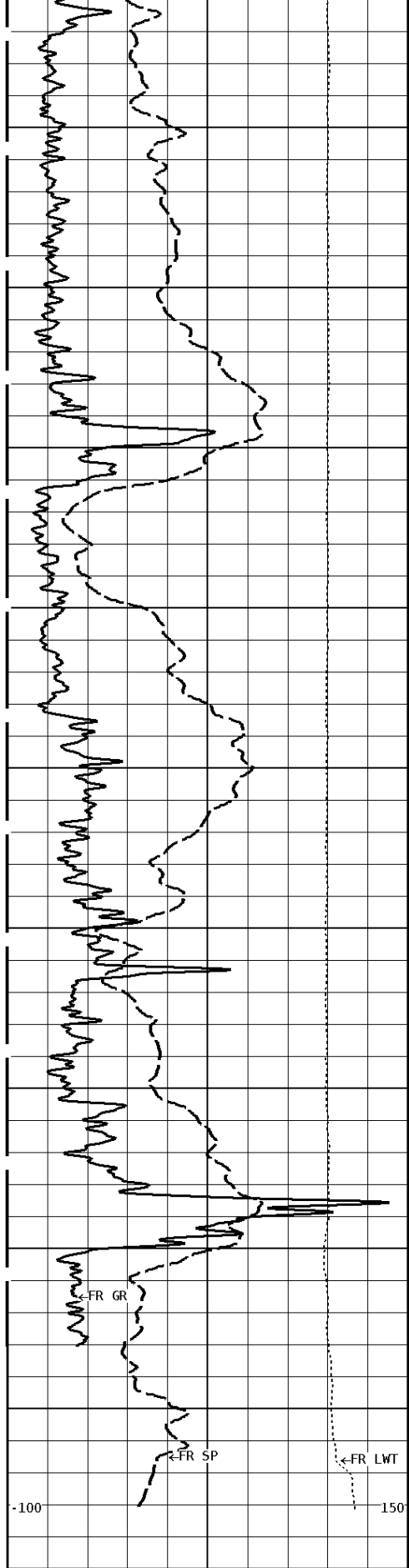
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5400



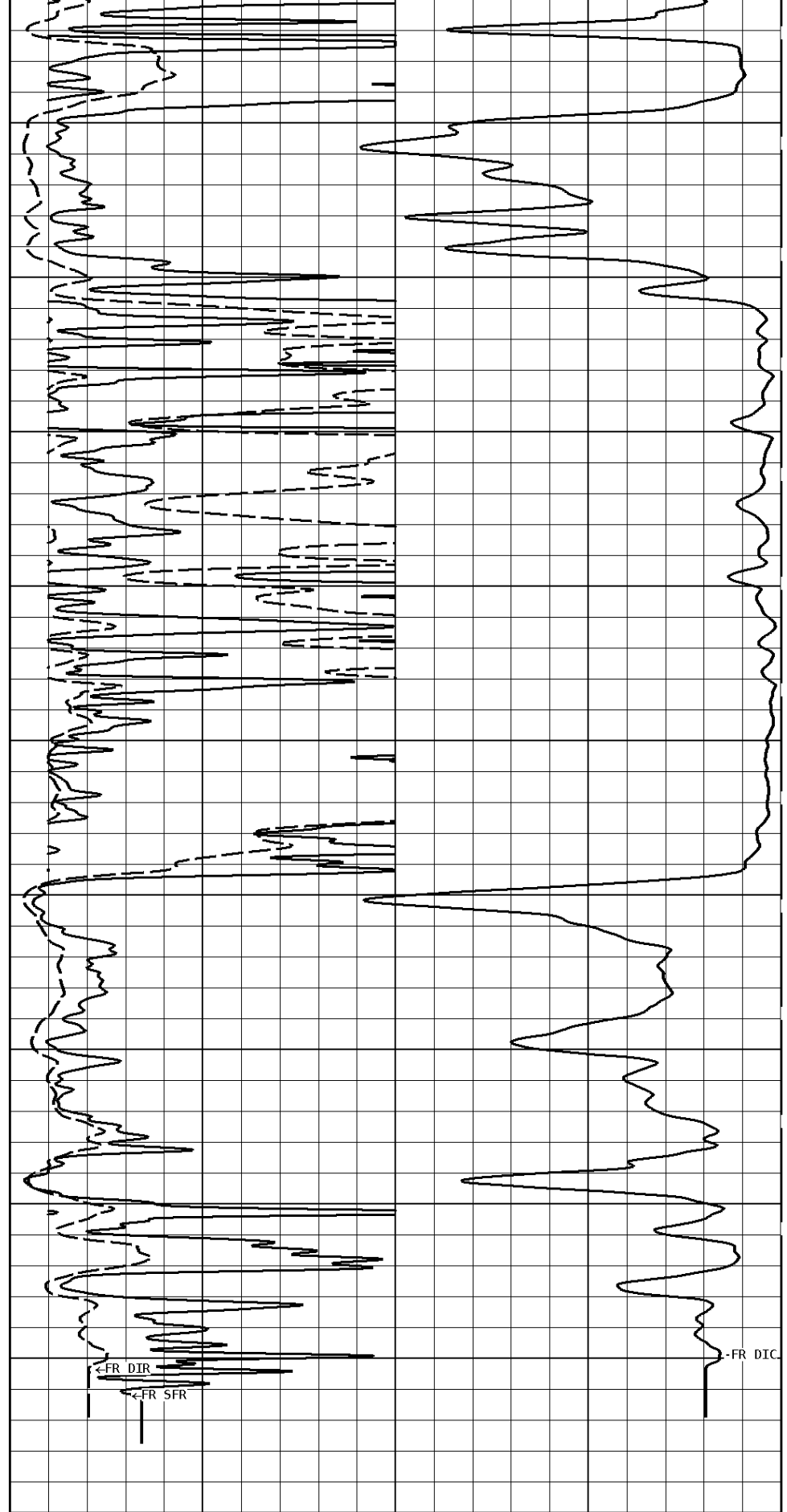
DIC→

←DIC



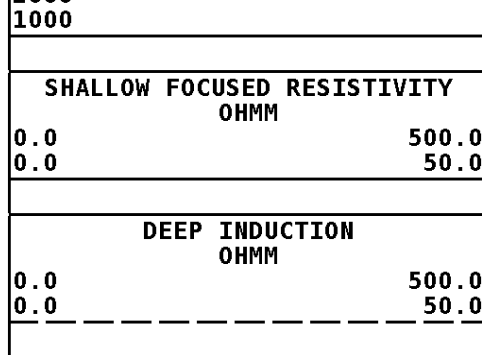
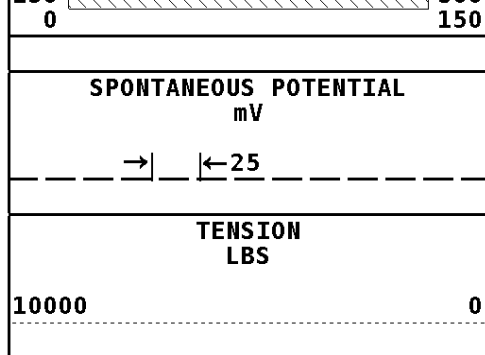
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5500  
5600  
5700  
5800  
5866



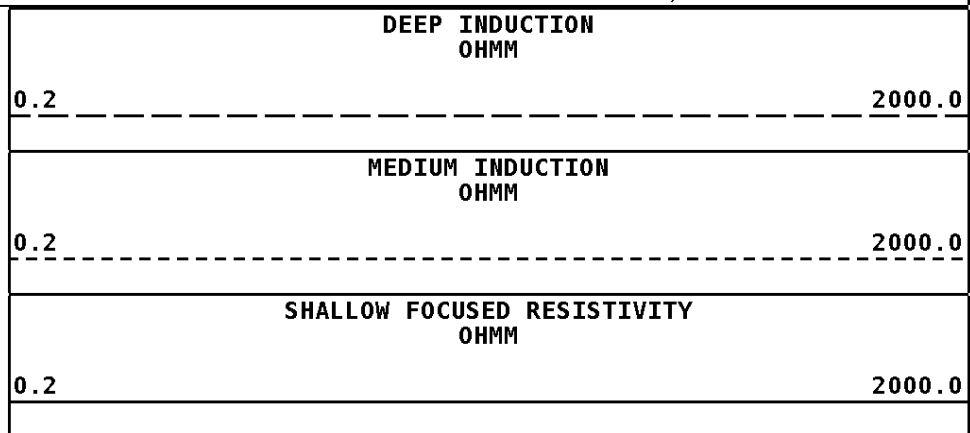
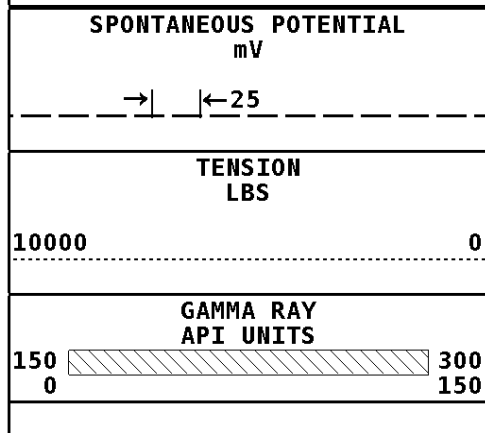
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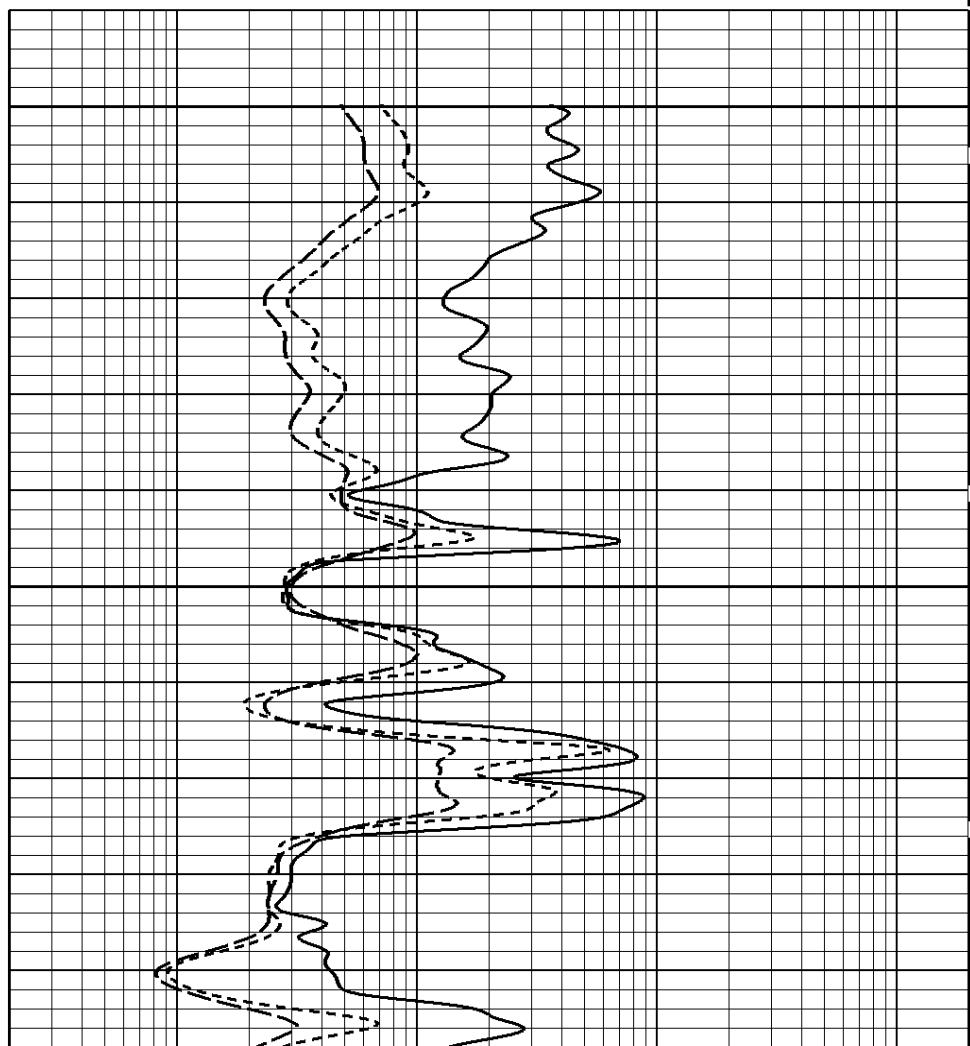
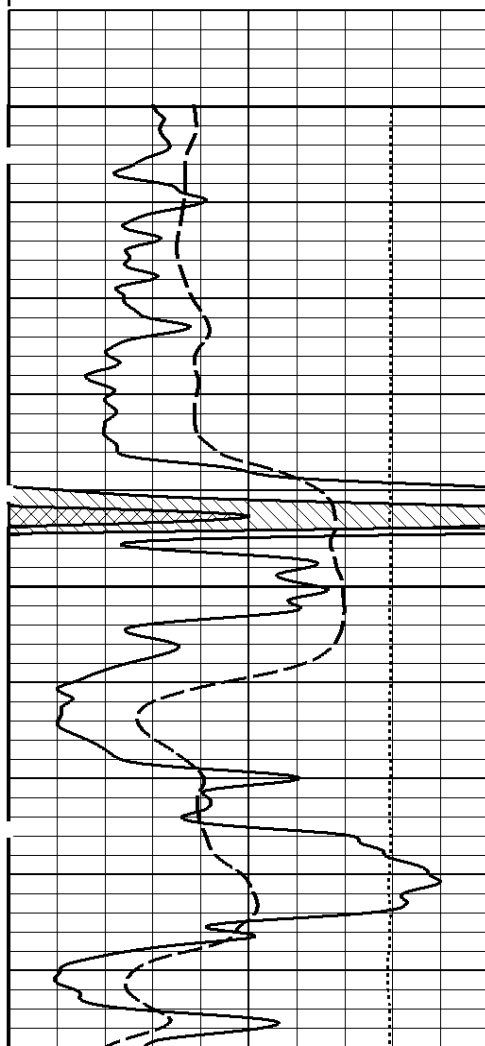


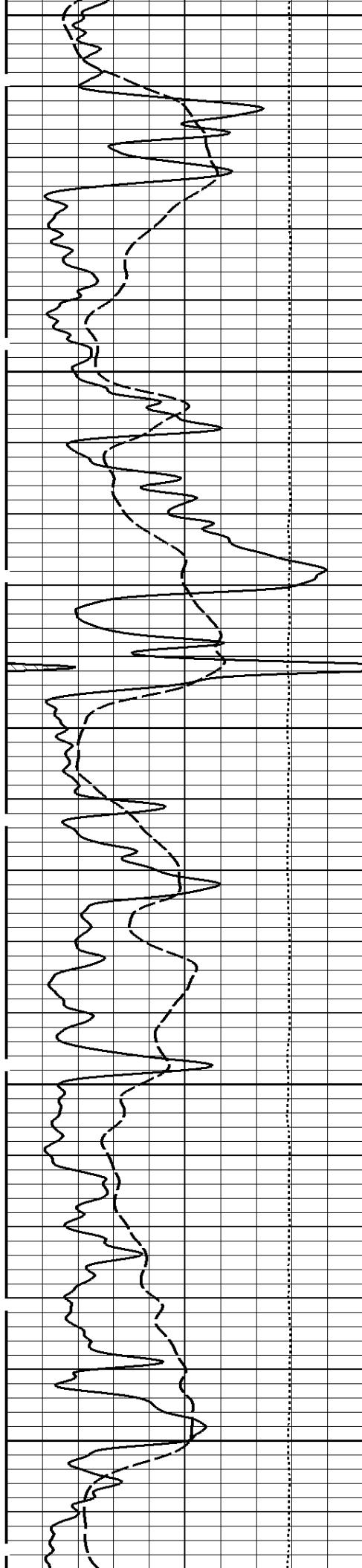
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 Reference: 0

Scale: 1:240      Format: DIL-240  
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 Processed: 2013-11/27 03:29 3.3.0-12261



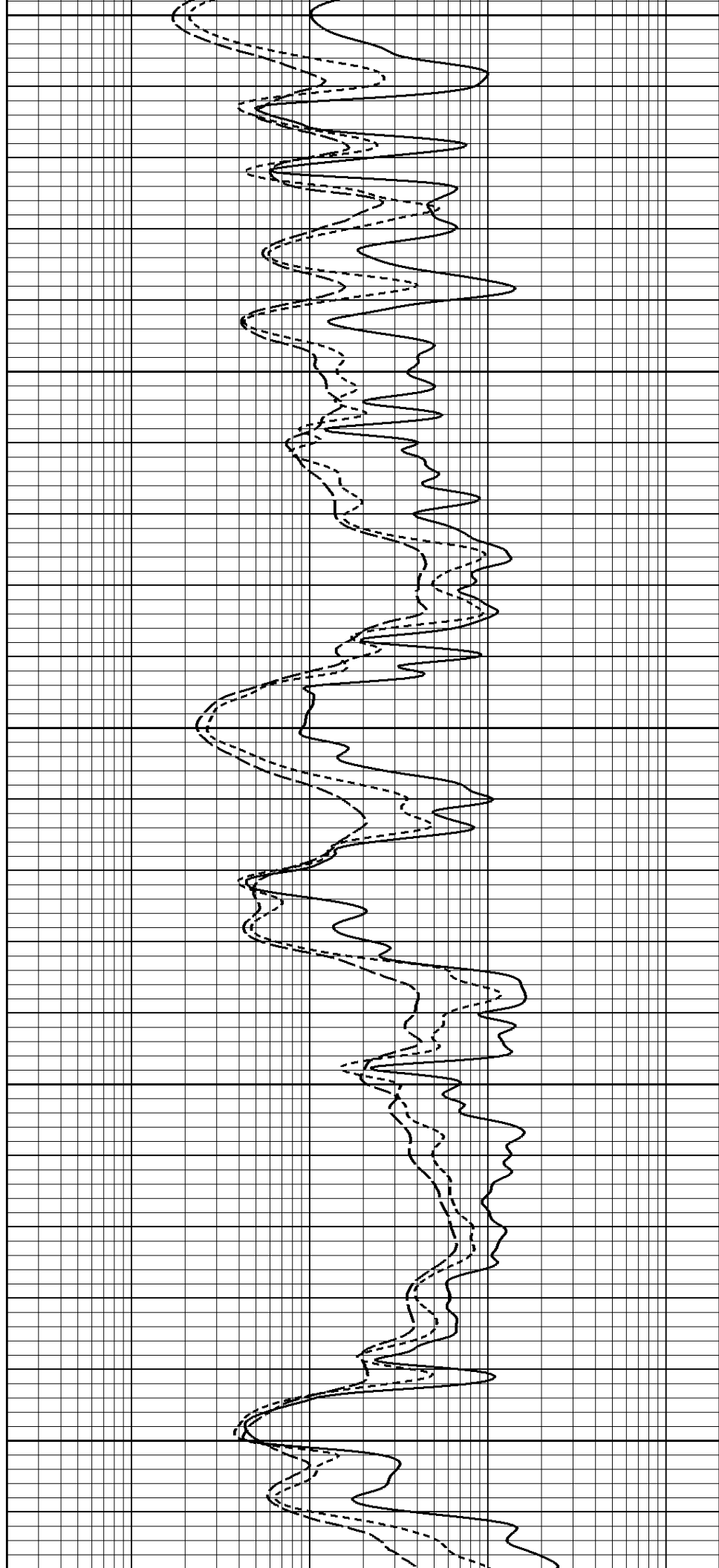
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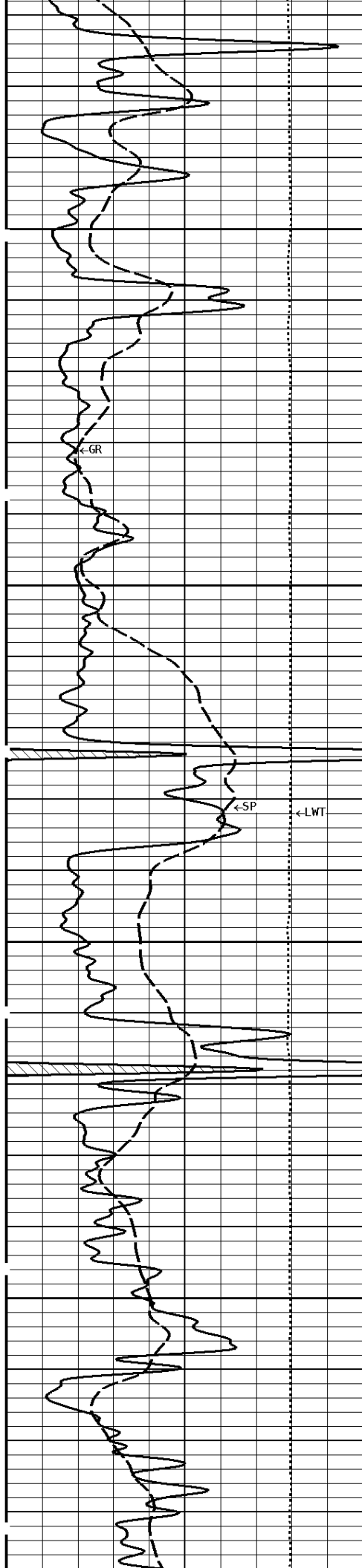




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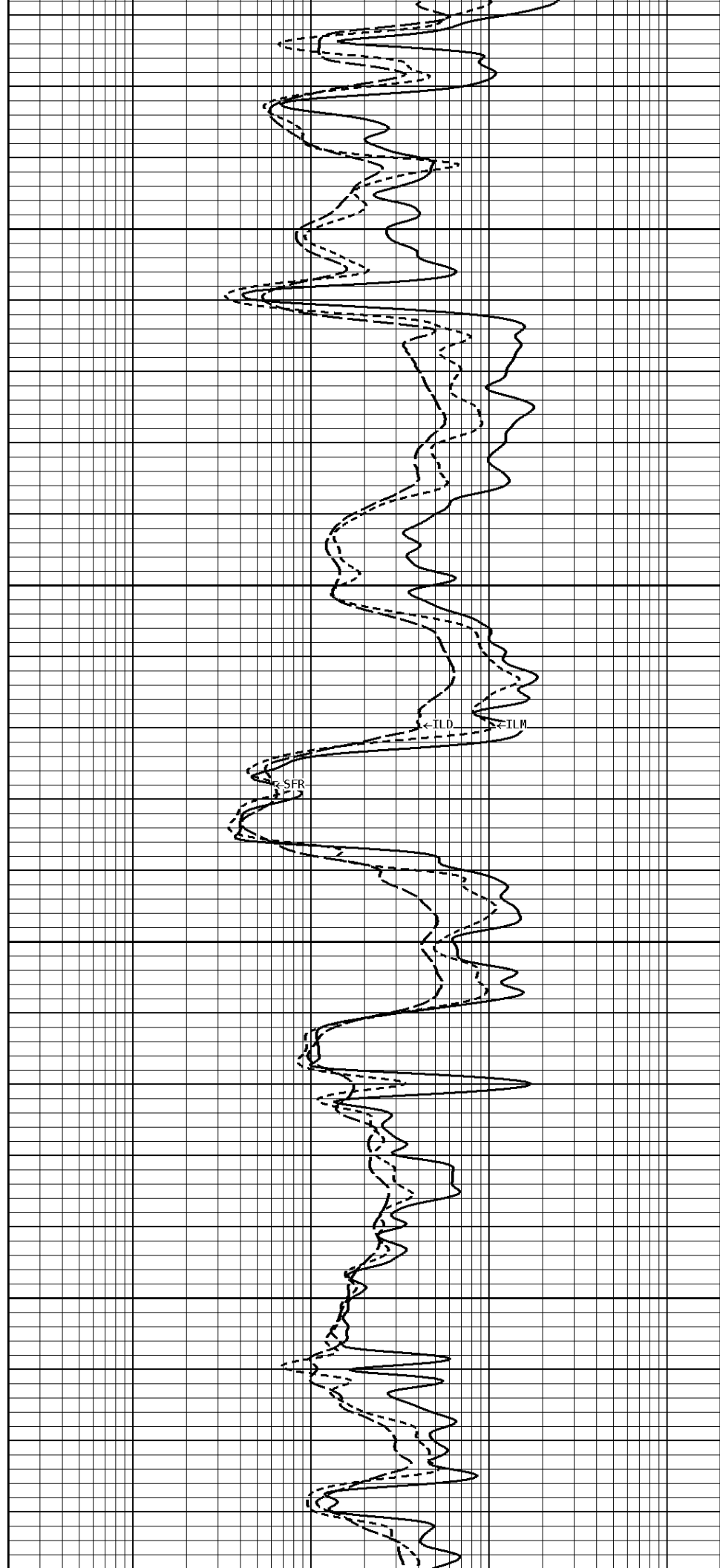
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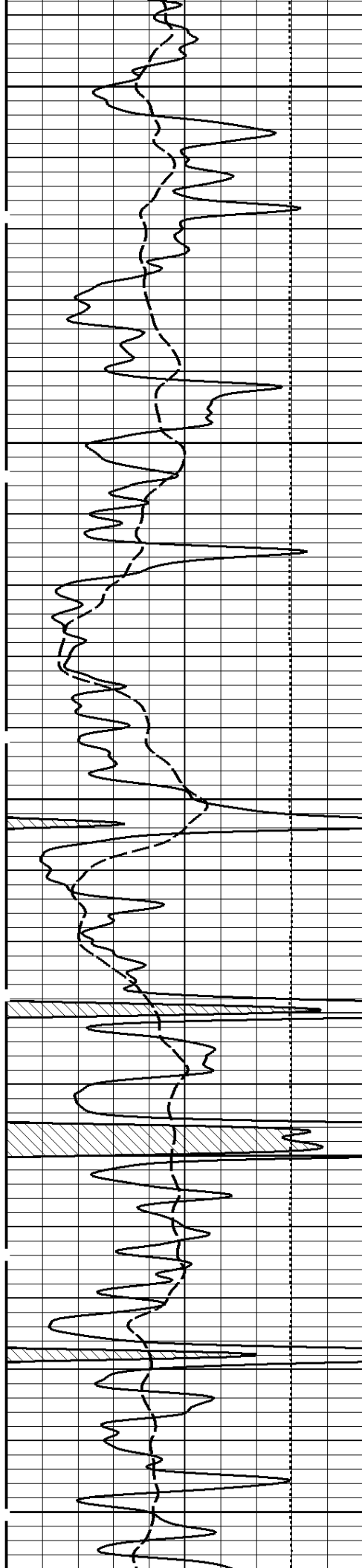




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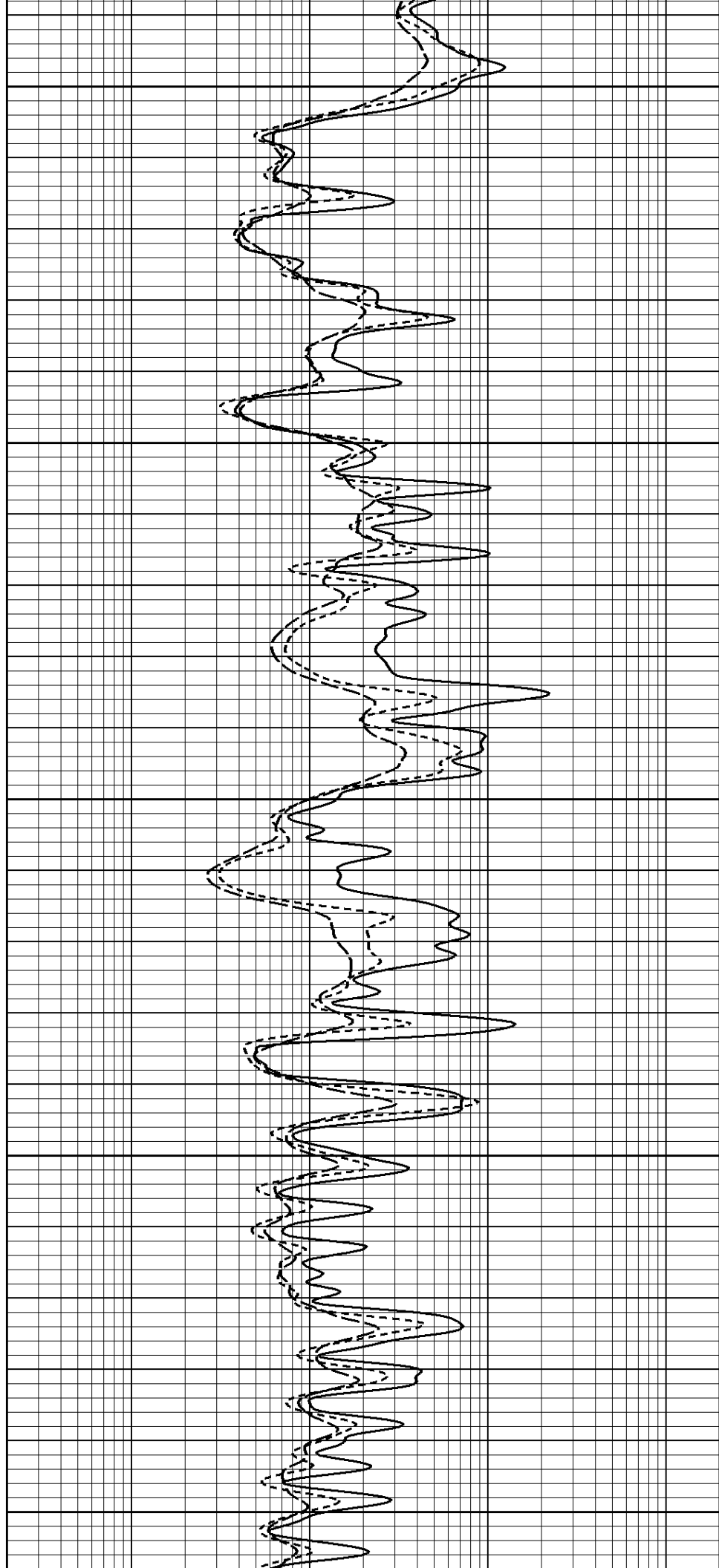


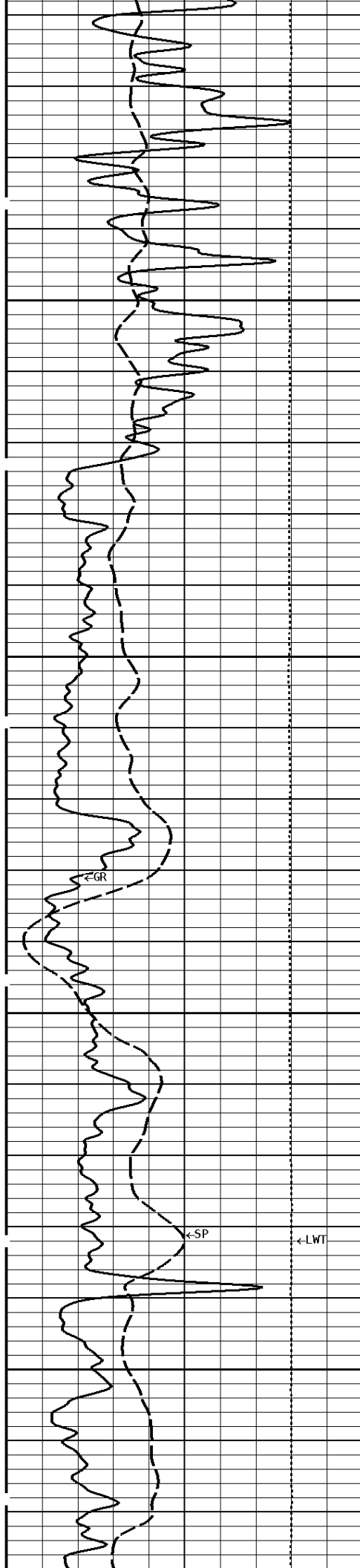


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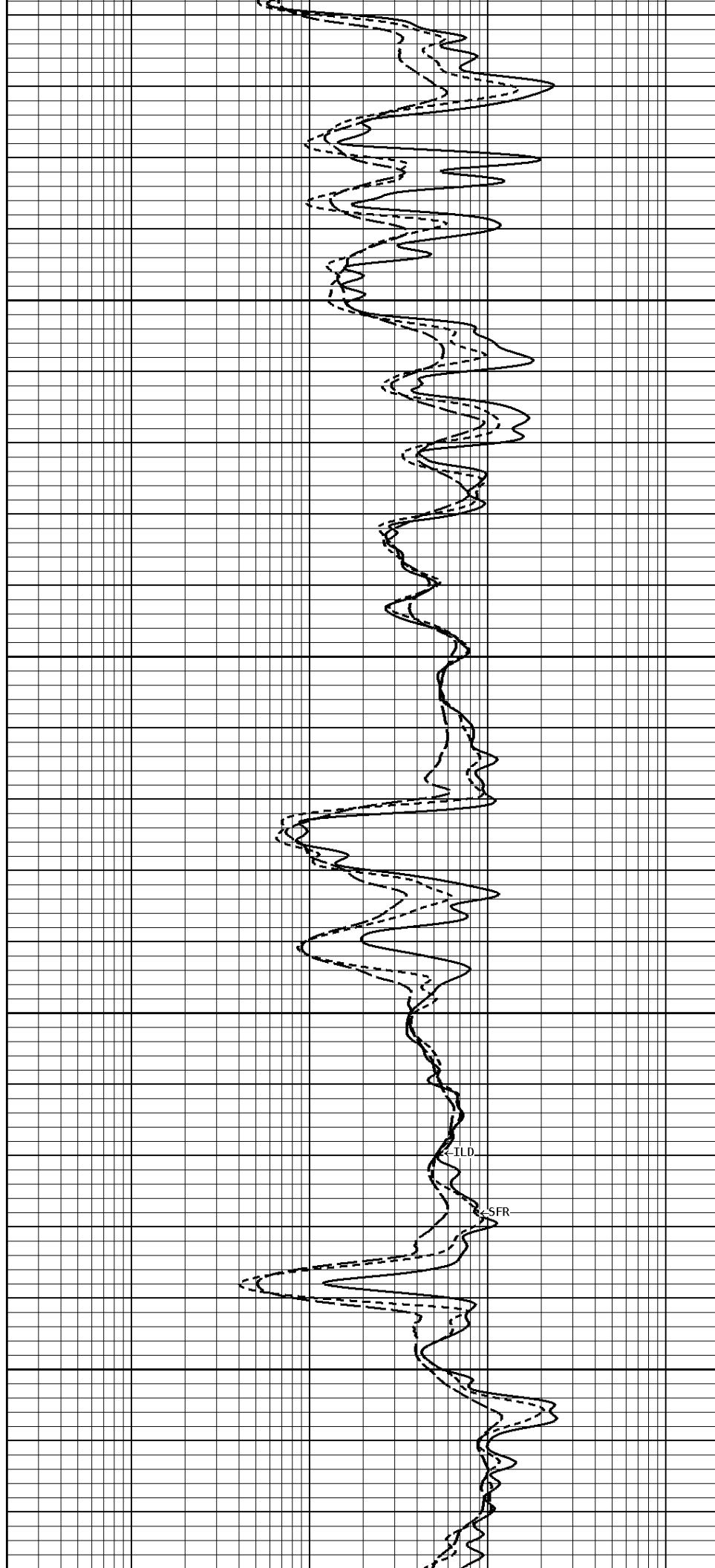
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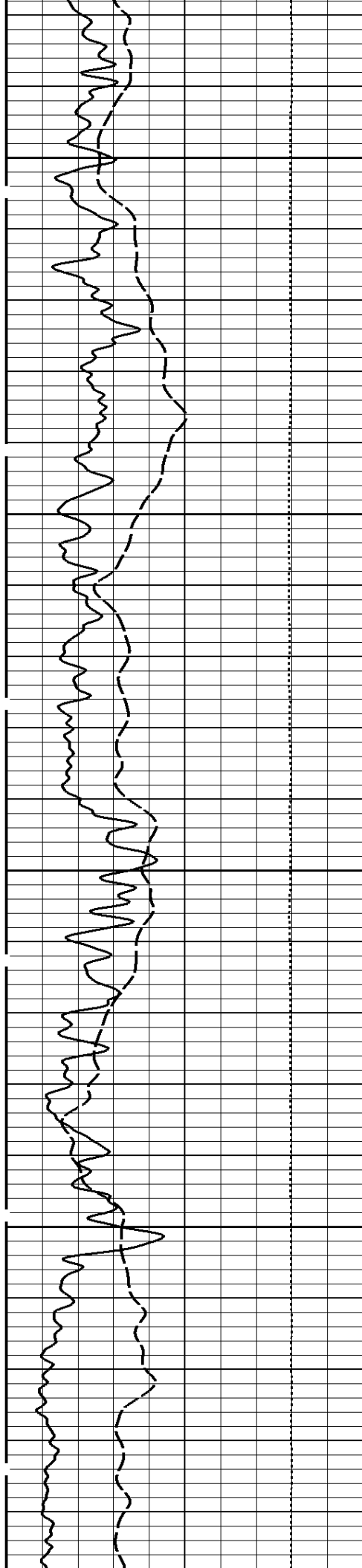


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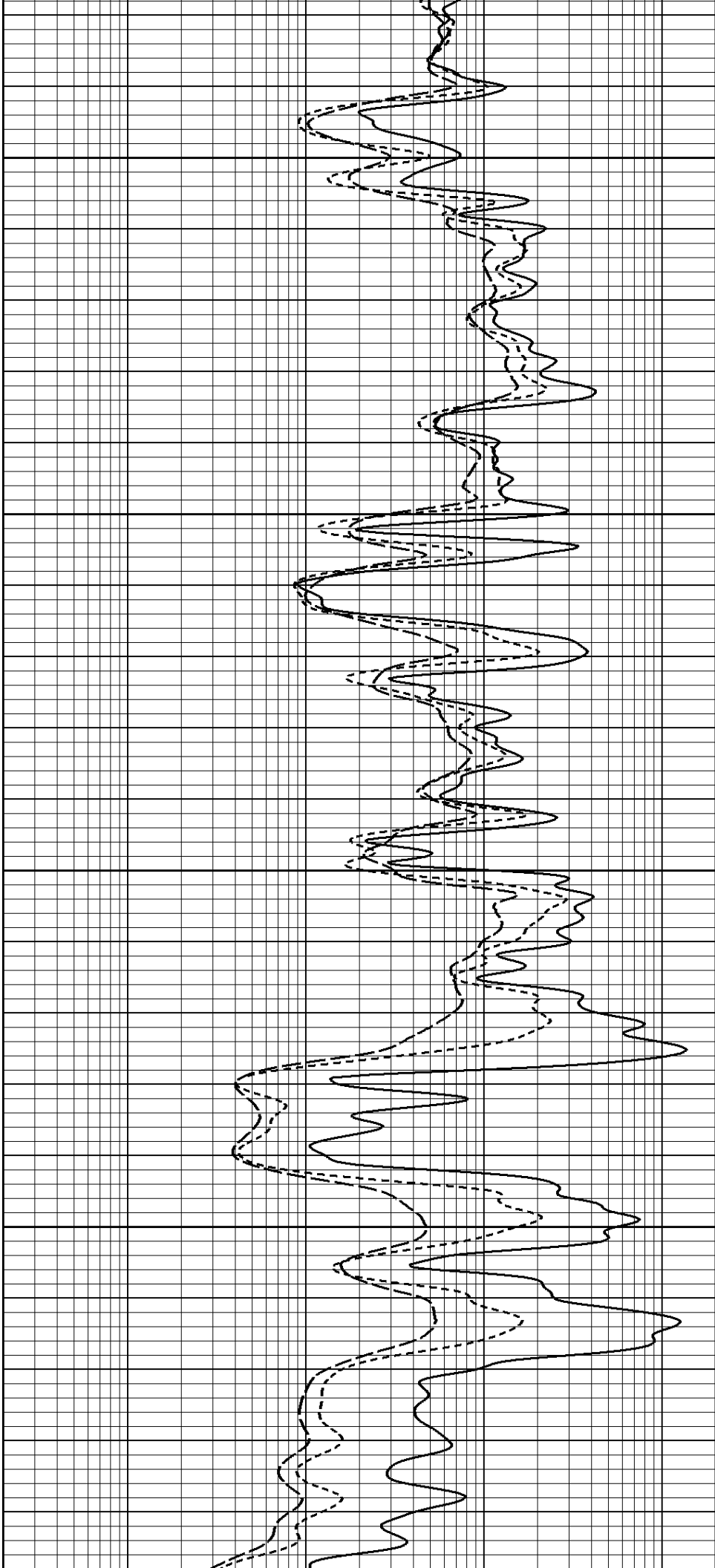


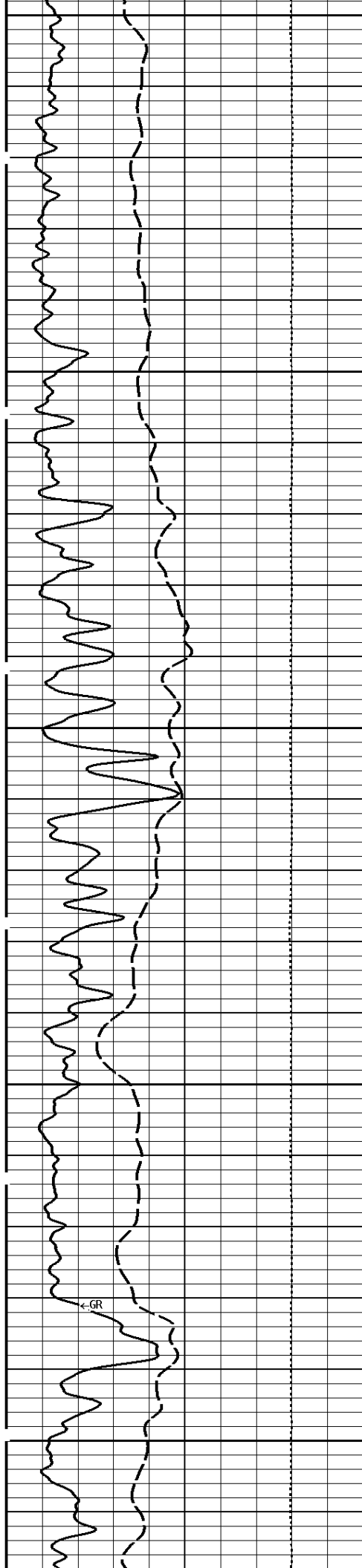




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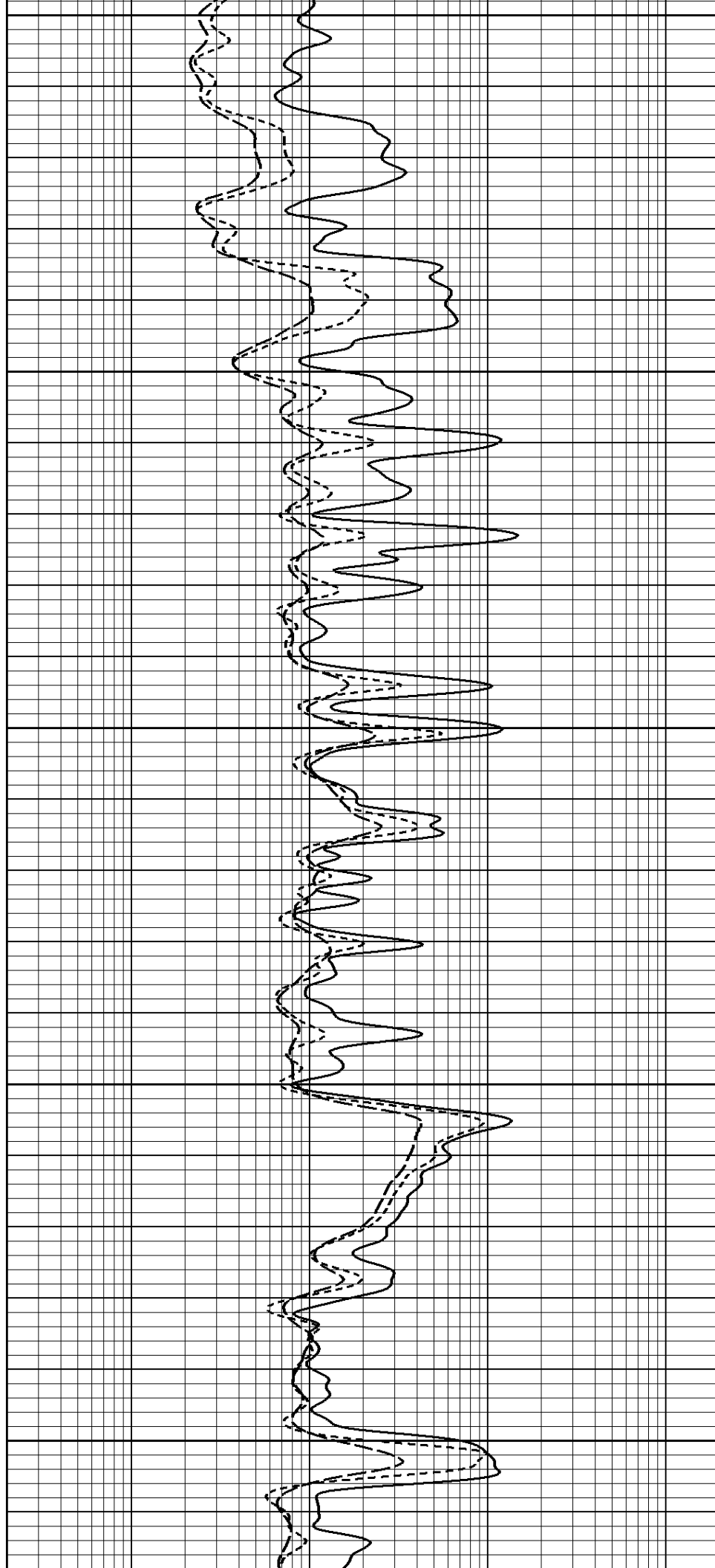
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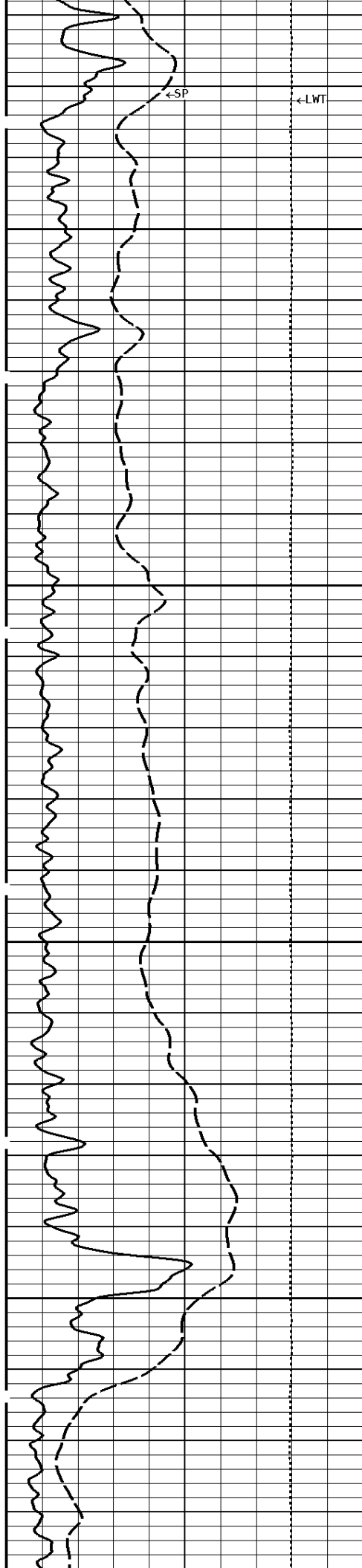




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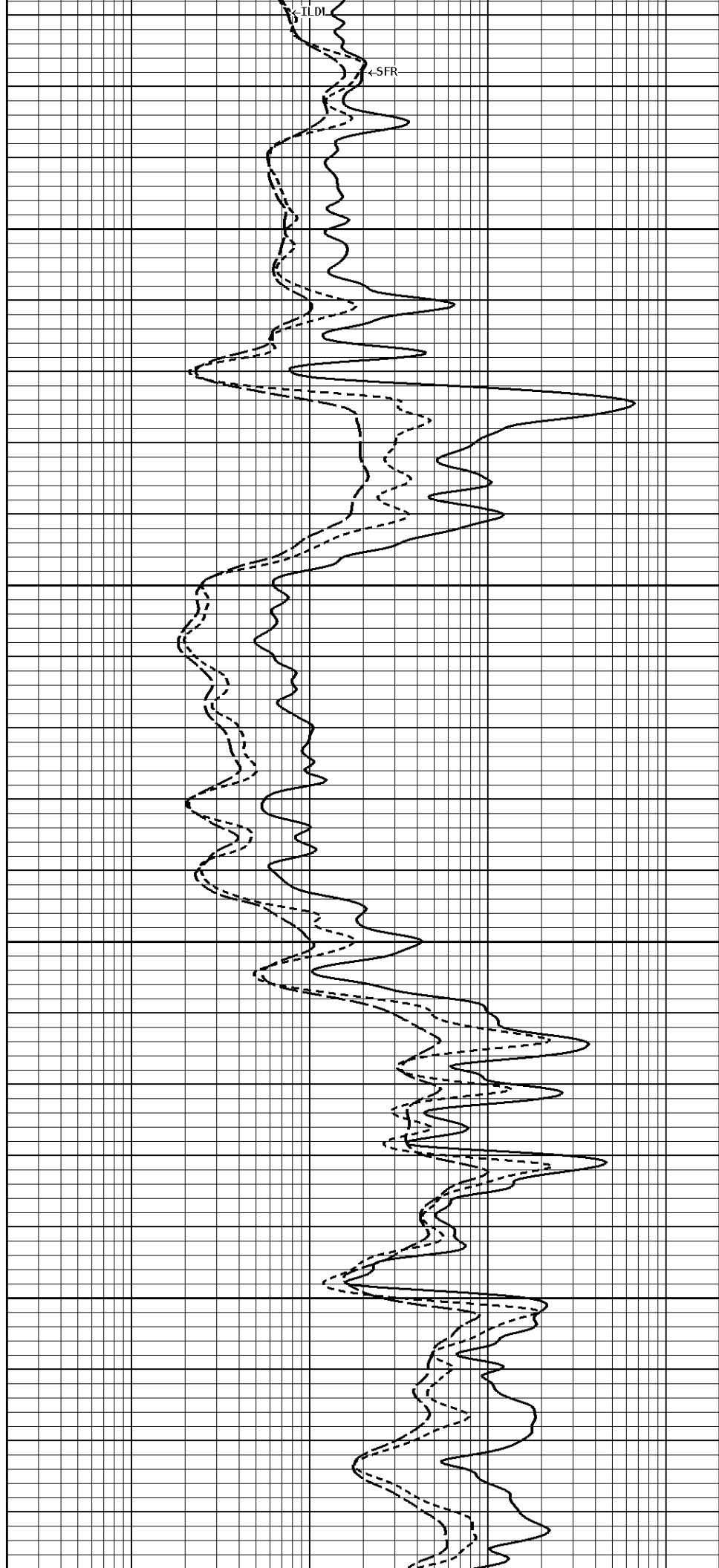
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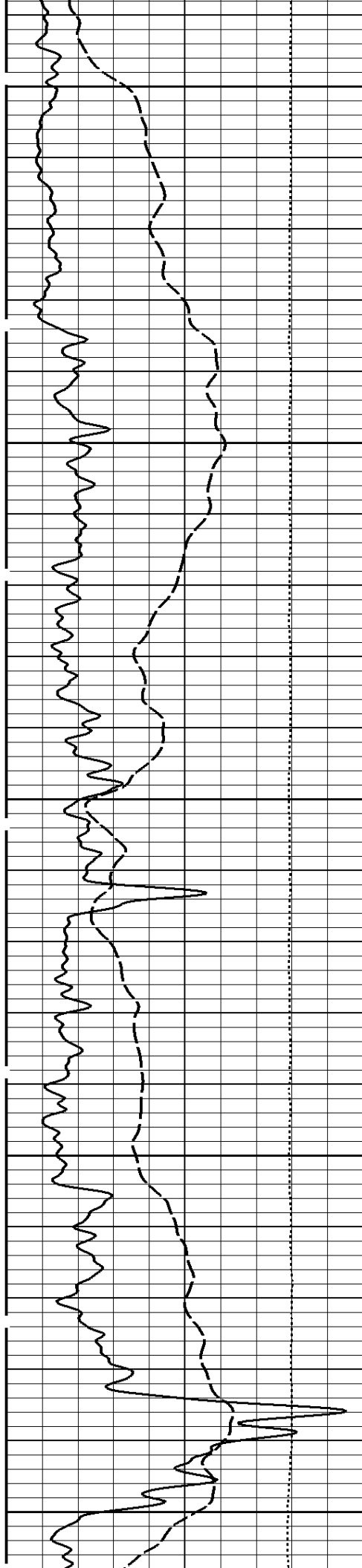




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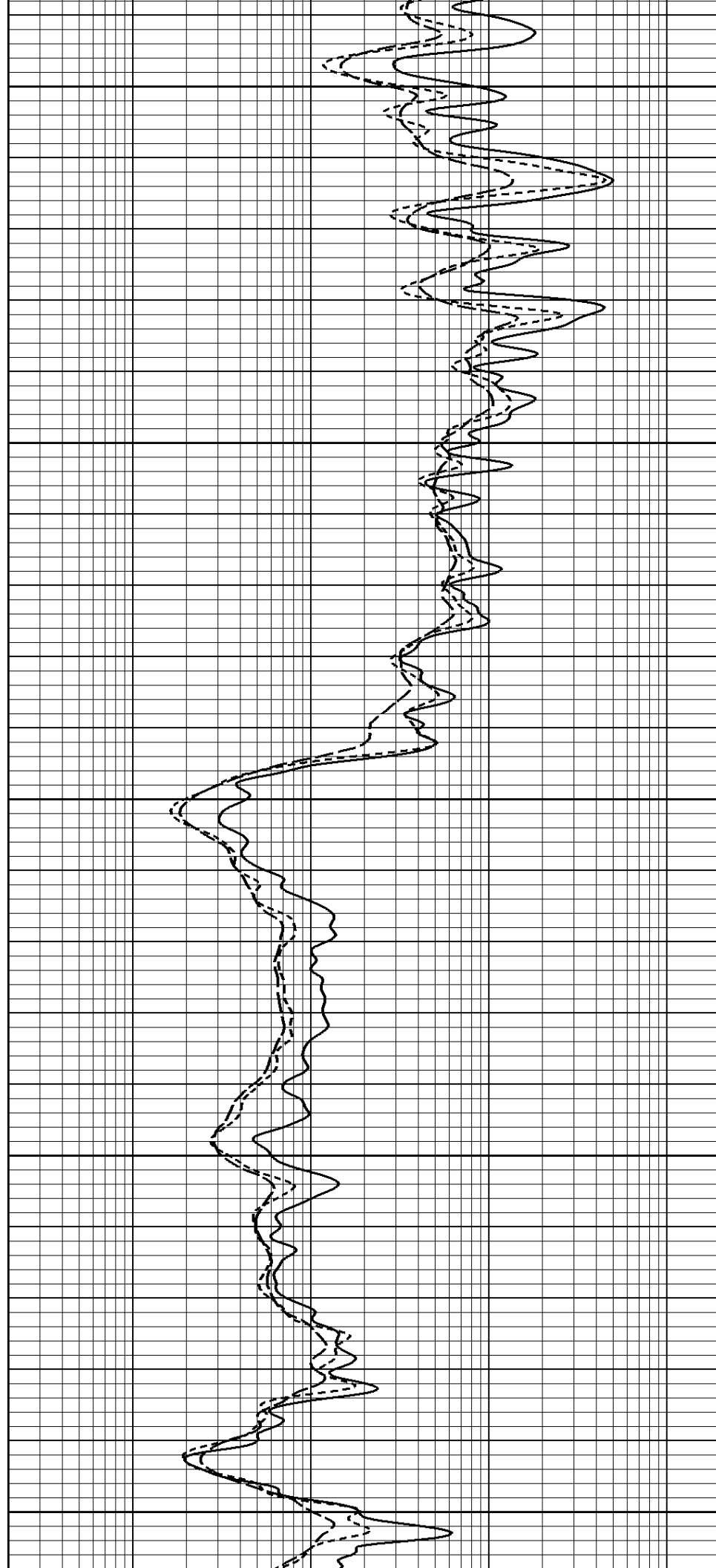


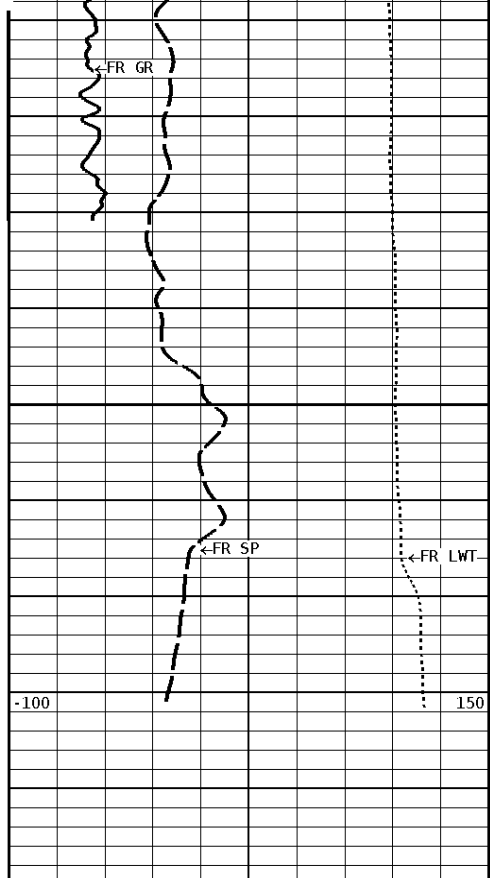


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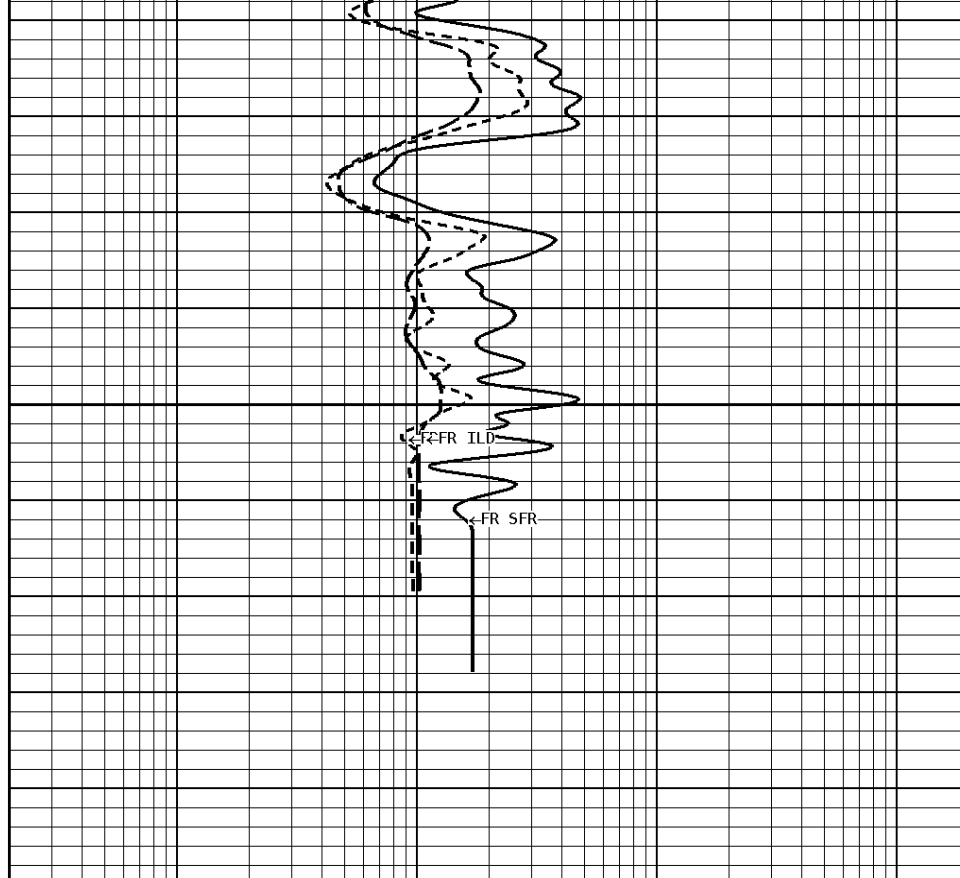
5800





5866

File #1.1.14



## 1:240 MAIN SECTION

| GAMMA RAY<br>API UNITS      |     |
|-----------------------------|-----|
| 150                         | 300 |
| 0                           | 150 |
| TENSION<br>LBS              |     |
| 10000                       | 0   |
| SPONTANEOUS POTENTIAL<br>mV |     |
| →                           | ←25 |

| SHALLOW FOCUSED RESISTIVITY<br>OHMM |        |
|-------------------------------------|--------|
| 0.2                                 | 2000.0 |
| MEDIUM INDUCTION<br>OHMM            |        |
| 0.2                                 | 2000.0 |
| DEEP INDUCTION<br>OHMM              |        |
| 0.2                                 | 2000.0 |

### \* Borehole Zone Factors \*

| Zone 1 99999.0 to 1662.1 Feet  |          |       |
|--------------------------------|----------|-------|
| Drill Bit Size                 | 7.875    | in    |
| Casing Diameter                | 5.500    | in    |
| BHT Depth                      | 5870.000 | ft    |
| Borehole Temperature           | 137.0    | degF  |
| Temperature Gradient           | 1.00     | DFHF  |
| Resistivity Of Mud             | 0.200    | ohm/m |
| Standoff                       | 1.5      |       |
| Resistivity Of Mud Temperature | 60.00    | degF  |

|                                       |                                         |                 |
|---------------------------------------|-----------------------------------------|-----------------|
| Well File: LASSO RENICK 1 NOV26 MSTK  | Scale: 1:240                            | Format: DIL-240 |
| Segment: V1.D1.S3 Reprocess of REPEAT | Acquired: 2013-11/26 23:53 3.3.0-12261  |                 |
| Reference: 0                          | Processed: 2013-11/27 00:03 3.3.0-12261 |                 |

| SPONTANEOUS POTENTIAL<br>mV |     | DEEP INDUCTION<br>OHMM |        |
|-----------------------------|-----|------------------------|--------|
| →                           | ←25 | 0.2                    | 2000.0 |
| TENSION                     |     | MEDIUM INDUCTION       |        |

TENSION  
LBS

10000 0

GAMMA RAY  
API UNITS

150 0 300 150

MEDIUM INDUCTION  
OHMM

0.2 2000.0

SHALLOW FOCUSED RESISTIVITY  
OHMM

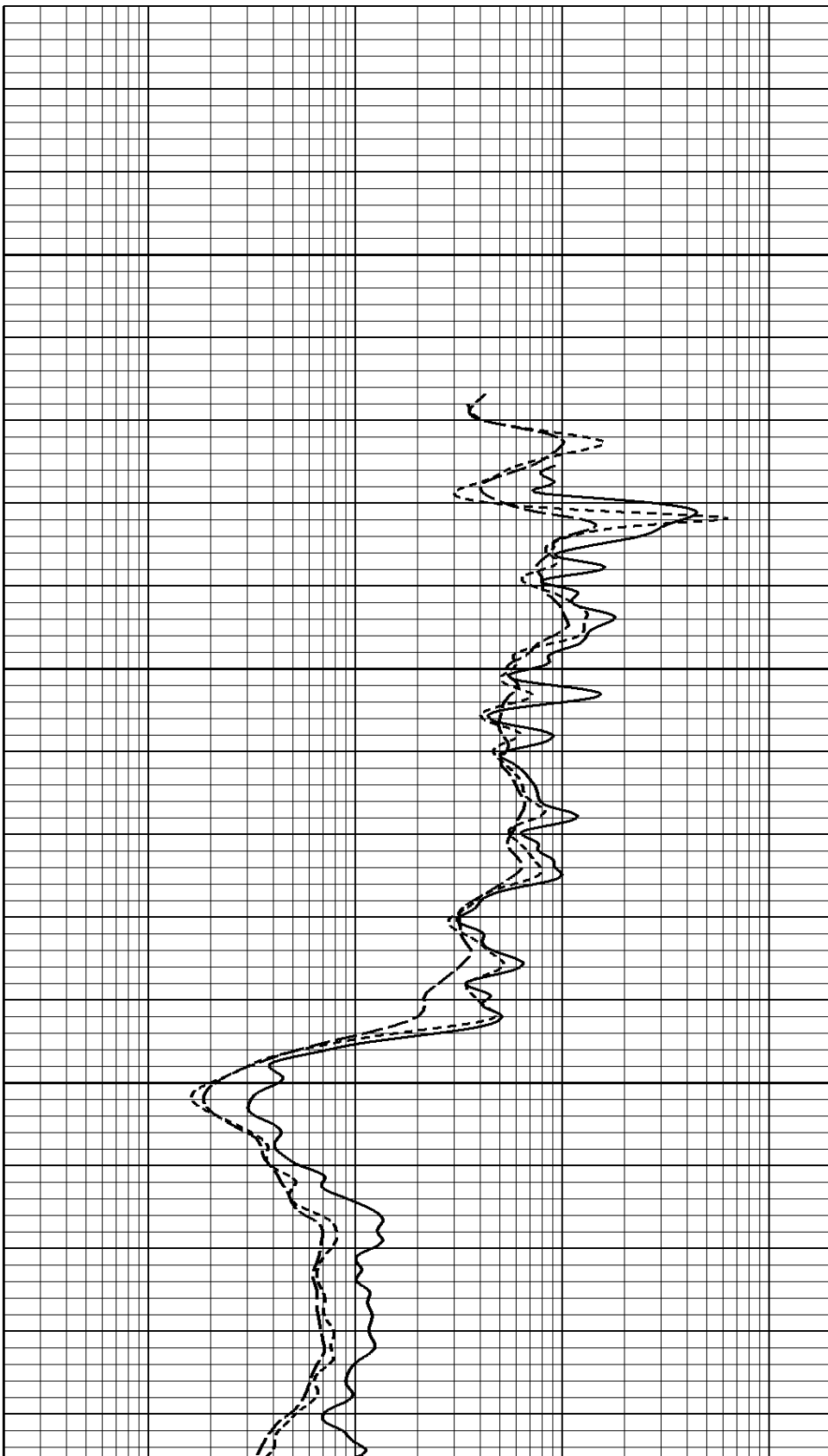
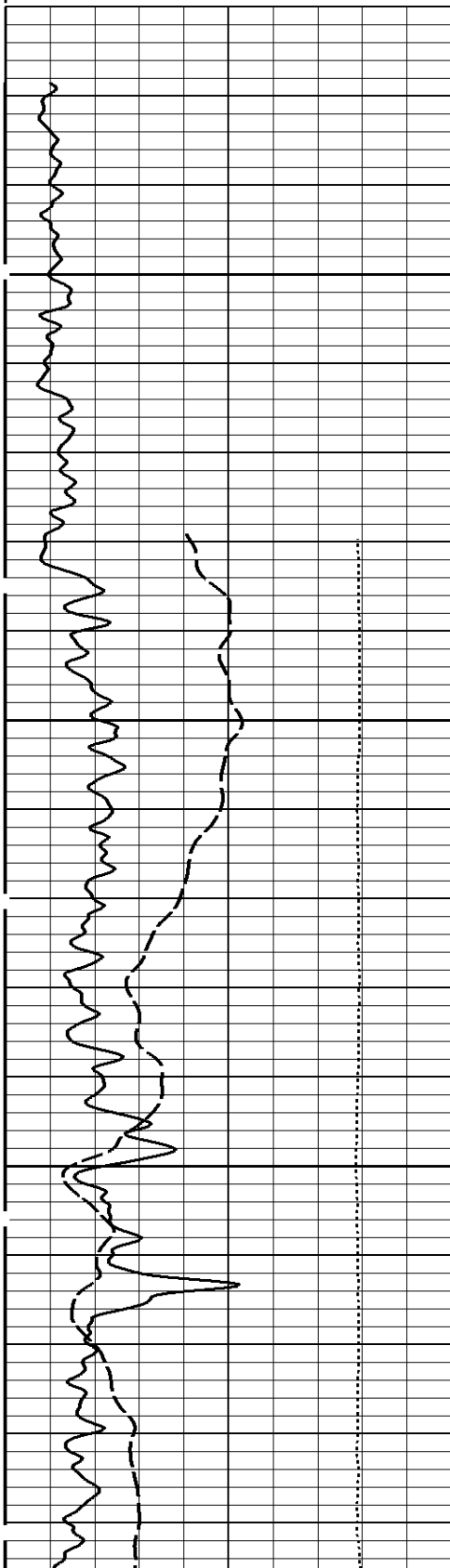
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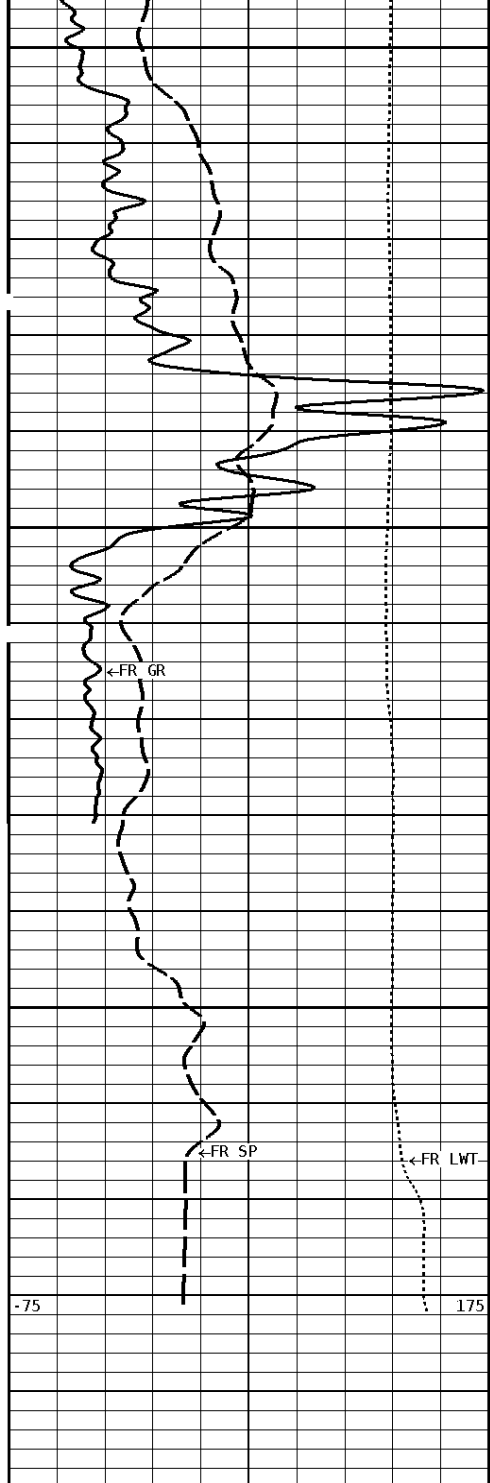
1:240 REPEAT SECTION

File #1.1.3

5600

5700

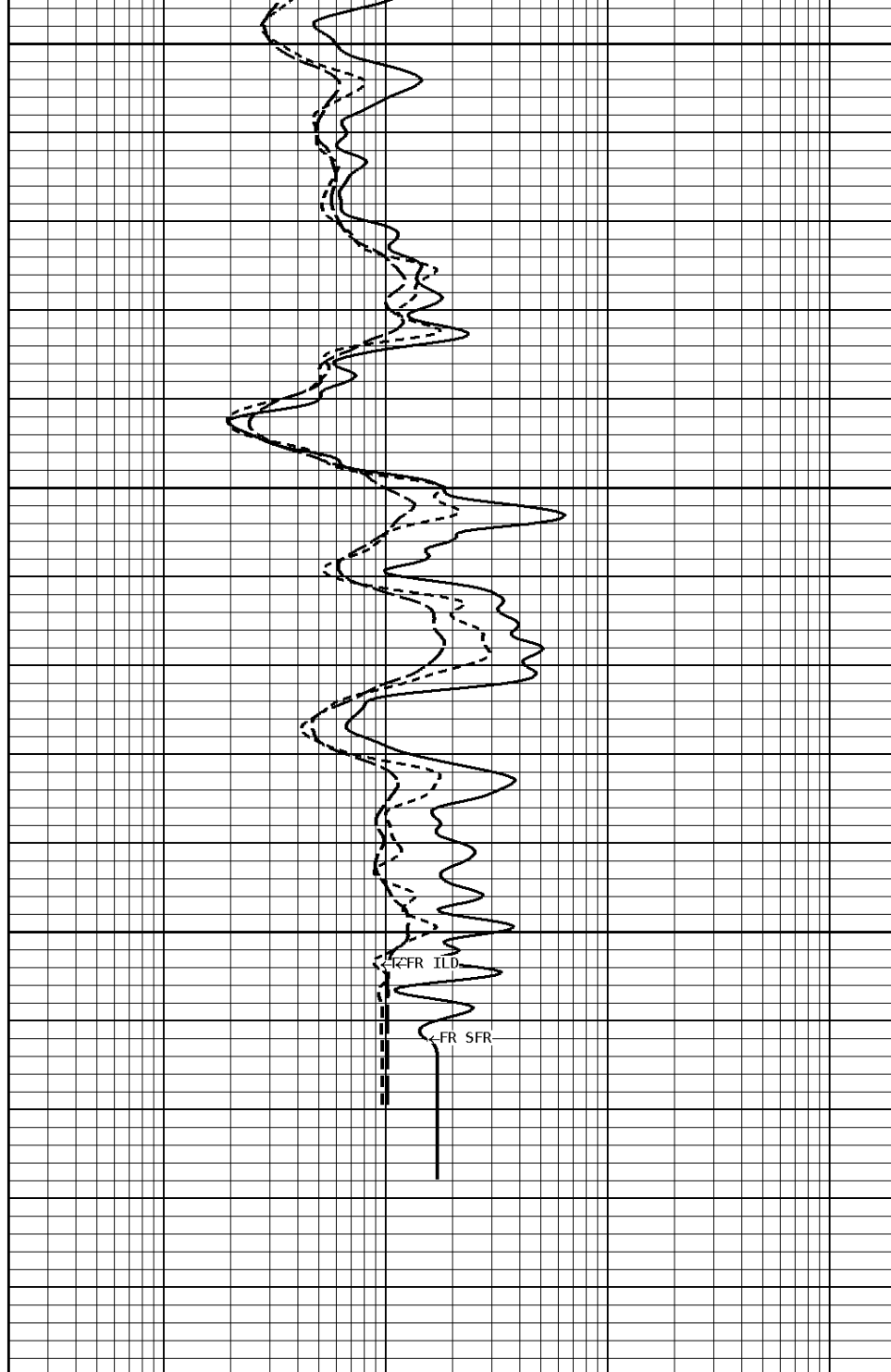




5800

5866

## 1:240 REPEAT SECTION



GAMMA RAY  
API UNITS

150 0 300 150

TENSION  
LBS

10000 0

SPONTANEOUS POTENTIAL  
mV

→ | ← 25

SHALLOW FOCUSED RESISTIVITY  
OHMM

0.2 2000.0

MEDIUM INDUCTION  
OHMM

0.2 2000.0

DEEP INDUCTION  
OHMM

0.2 2000.0

**\* Borehole Zone Factors \***

| Zone 1                         | 99999.0 | to | 0.0      | Feet  |
|--------------------------------|---------|----|----------|-------|
| Drill Bit Size                 |         |    | 7.875    | in    |
| Casing Diameter                |         |    | 5.500    | in    |
| BHT Depth                      |         |    | 5870.000 | ft    |
| Borehole Temperature           |         |    | 137.0    | degF  |
| Temperature Gradient           |         |    | 1.00     | DFHF  |
| Resistivity Of Mud             |         |    | 0.200    | ohm/m |
| Standoff                       |         |    | 1.5      |       |
| Resistivity Of Mud Temperature |         |    | 60.00    | degF  |

**\* Calibration Summary \***

| Shop Calibration<br>GRT-B |            |       |                 |       |       |
|---------------------------|------------|-------|-----------------|-------|-------|
| Performed : 30-OCT-2013   |            |       | Time : 14:06    |       |       |
| Sensor Suite : GR-GR5     |            |       | ID : GRT-BB-006 |       |       |
|                           | Measured   | Units | Calibrated      | Units |       |
|                           | Background | Jig   | Jig             |       |       |
| GR                        | 60         | 375   | 175             |       | GRAPI |
|                           |            | CPS   |                 |       |       |

| Shop Calibration<br>PIT-CA |          |         |                |        |       |
|----------------------------|----------|---------|----------------|--------|-------|
| Performed : 08-NOV-2013    |          |         | Time : 09:27   |        |       |
| Sensor Suite : P-IND-T     |          |         | ID : PIT-BA-20 |        |       |
| Medium                     |          |         |                |        |       |
|                            | Measured |         | Calibrated     |        |       |
|                            | R        | X       | R              | X      | Units |
| Air                        | 131860   | 129614  | -5.1           | -5.1   | MMHOS |
| Zero                       | 131066   | 131069  | -40.6          | 60.3   | MMHOS |
| Reference                  | 244057   | 243603  | 4959.4         | 5060.3 | MMHOS |
| Loop                       | 129868   | 210406  | 3496.4         | 3672.8 | MMHOS |
| Sonde Error                |          |         | 0.2            | 1.1    | MMHOS |
| Cond                       |          |         | 4959.4         | 5060.3 | MMHOS |
| Deep                       |          |         |                |        |       |
|                            | Measured |         | Calibrated     |        |       |
|                            | R        | X       | R              | X      | Units |
| Air                        | 129157   | 131568  | -0.1           | 0.0    | MMHOS |
| Zero                       | 131081   | 131069  | 43.1           | -14.4  | MMHOS |
| Reference                  | 226048   | 227321  | 2043.1         | 1985.6 | MMHOS |
| Loop                       | 126361   | 212922  | 1631.5         | 1749.4 | MMHOS |
| Sonde Error                |          |         | -1.5           | -6.6   | MMHOS |
| Cond                       |          |         | 2043.1         | 1985.6 | MMHOS |
| Temperature                |          |         |                |        |       |
|                            | Measured |         | Calibrated     |        |       |
|                            | Low      | High    | Low            | High   | Units |
|                            | 16980.0  | 56920.0 | 70.0           | 350.0  | DEGF  |

|                         |          |           |                |           |       |
|-------------------------|----------|-----------|----------------|-----------|-------|
| Performed : 08-Nov-2013 |          |           | Time : 09:15   |           |       |
| Sensor Suite : SFL      |          |           | ID : PIT-BA-20 |           |       |
| Internal                |          |           |                |           |       |
|                         | Measured |           | Calibrated     |           |       |
|                         | Zero     | Reference | Zero           | Reference | Units |
| Im                      | 32774.8  | 48759.8   | 0.0            | 7028.0    | uA    |
| Ib                      | 32766.0  | 48362.0   | 0.0            | 1750.0    | mA    |
| MOM1                    | 32803.6  | 55891.6   | 0.0            | 175.0     | mV    |
| Equivalent SFL          |          |           |                | 43.97     | OHMM  |

|                         |          |           |                |           |       |
|-------------------------|----------|-----------|----------------|-----------|-------|
| Performed : 08-Nov-2013 |          |           | Time : 09:12   |           |       |
| Sensor Suite : P-SP     |          |           | ID : PIT-BA-20 |           |       |
| Internal                |          |           |                |           |       |
|                         | Measured |           | Calibrated     |           |       |
|                         | Zero     | Reference | Zero           | Reference | Units |
|                         | 32795.0  | 58951.6   | 0.0            | 1000.0    | mV    |

**Well File:** LASSO RENICK\_1 NOV26 MSTK

**Scale:** 1:1200

**Format:** DIL1200

**Segment:** V1.D1.S14 AS FINAL MAIN

**Acquired:** Not Available

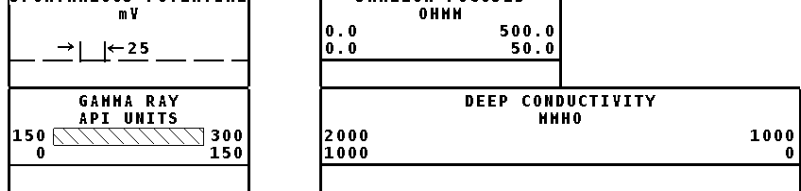
**Reference:** 0

**Processed:** 2013-11/27 03:29 3.3.0-12261

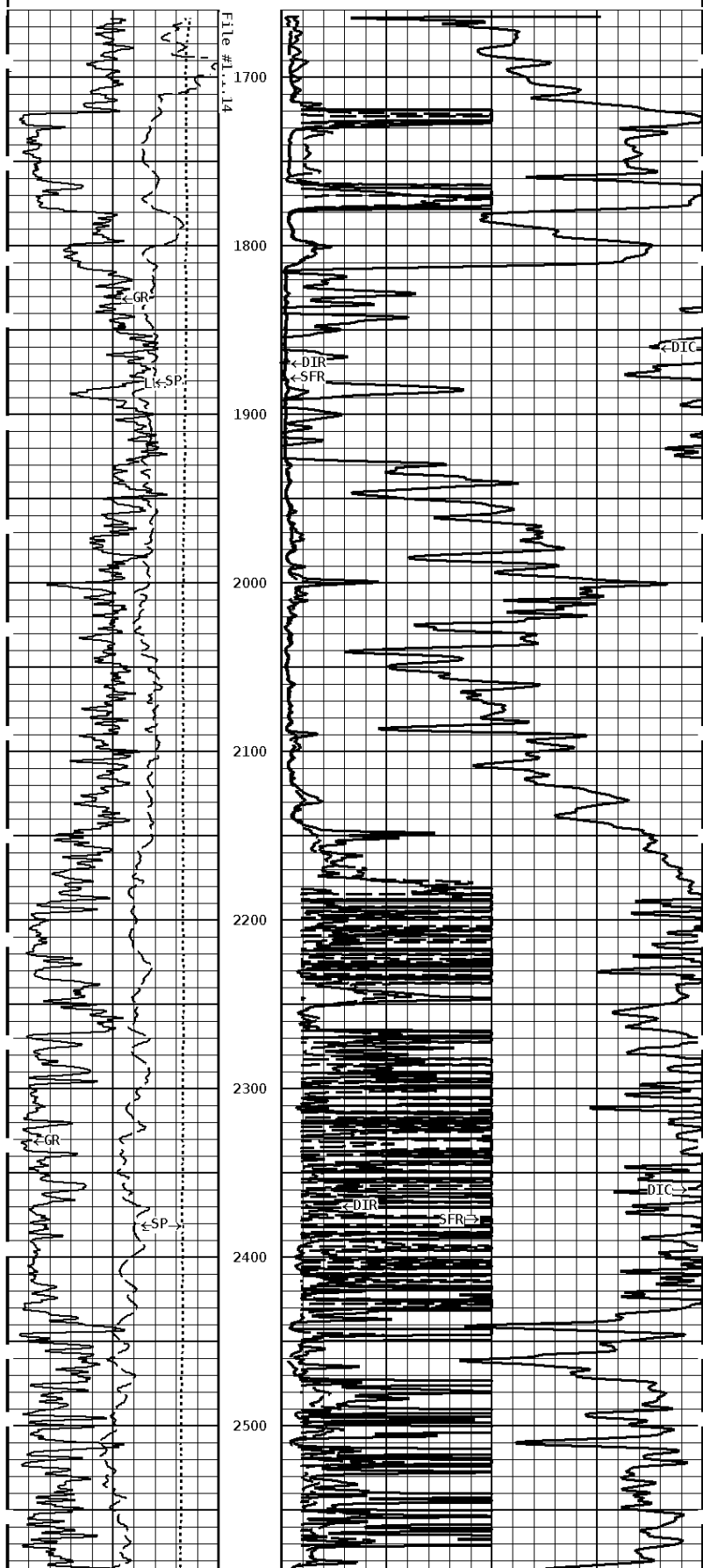
| TENSION<br>LBS        |
|-----------------------|
| 10000                 |
| 0                     |
| SPONTANEOUS POTENTIAL |

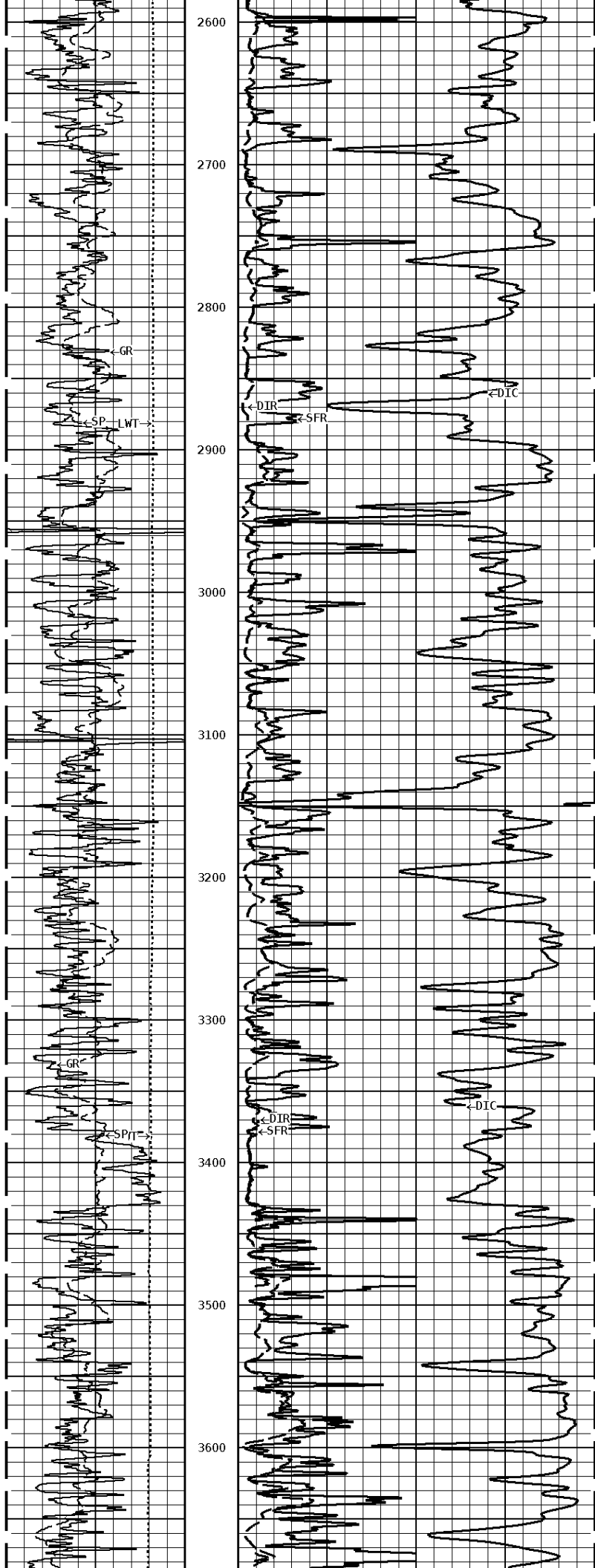
| DEEP INDUCTION<br>OHMM |
|------------------------|
| 0.0                    |
| 500.0                  |
| 0.0                    |
| 50.0                   |
| SHALLOW FOCUSED        |

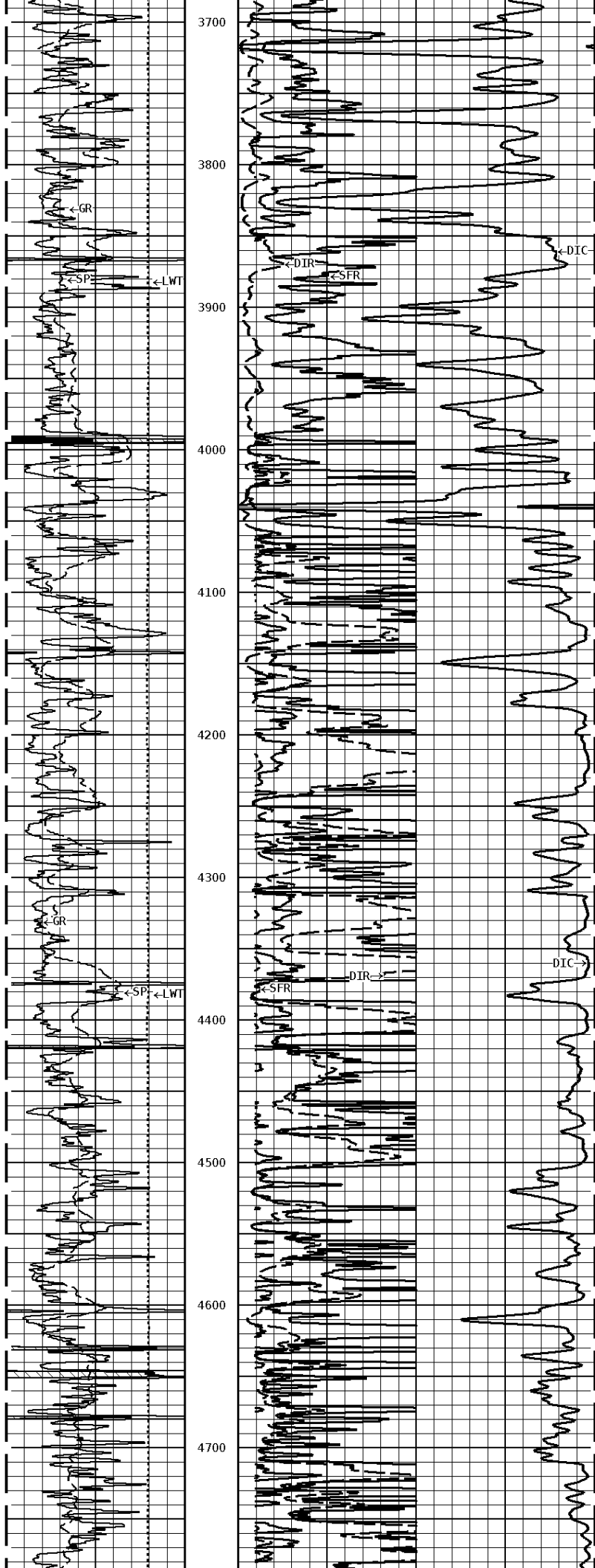


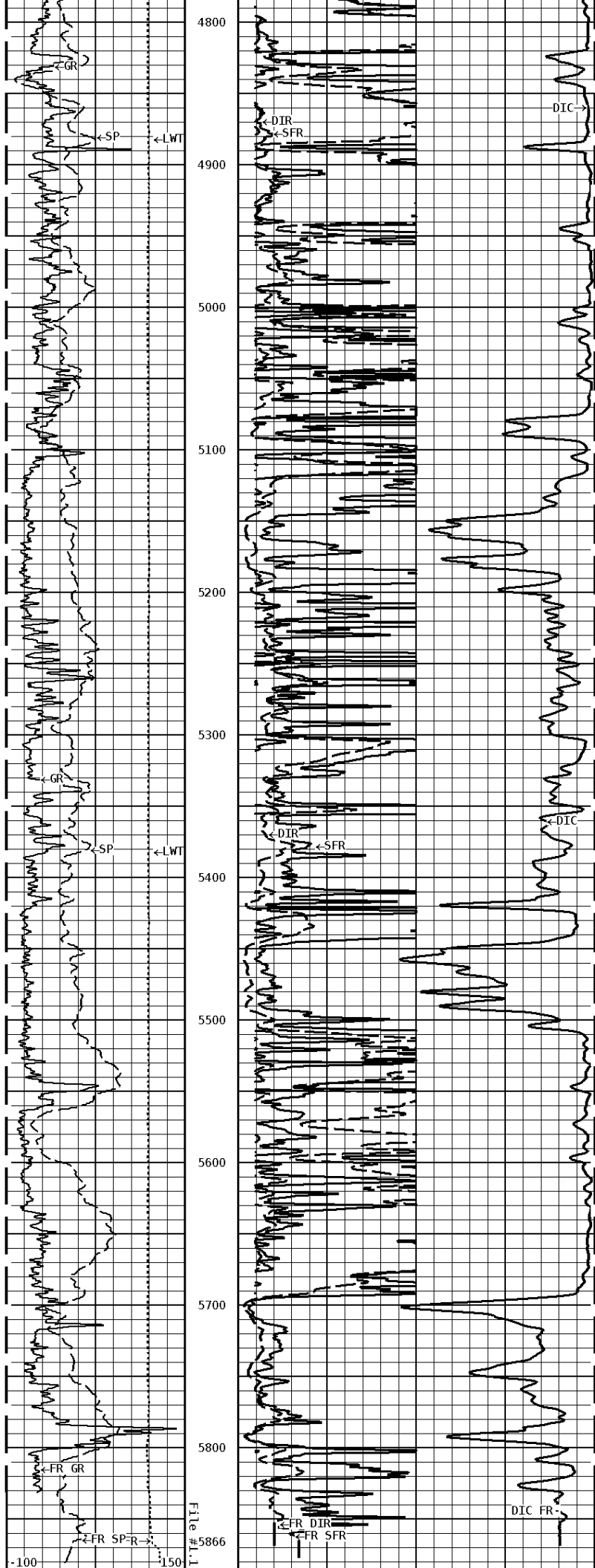


1:1200 MAIN SECTION

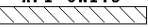








1:1200 MAIN SECTION

|                                                                                                                                           |  |                                                                |  |
|-------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------|--|
| <b>GAMMA RAY</b><br><b>API UNITS</b><br>150  300<br>0 150 |  | <b>DEEP CONDUCTIVITY</b><br><b>MMHO</b><br>2000 1000 1000 0    |  |
| <b>SPONTANEOUS POTENTIAL</b><br><b>mV</b><br>→   ← 25                                                                                     |  | <b>SHALLOW FOCUSED</b><br><b>OHMM</b><br>0.0 500.0<br>0.0 50.0 |  |
| <b>TENSION</b><br><b>LBS</b><br>10000 0                                                                                                   |  | <b>DEEP INDUCTION</b><br><b>OHMM</b><br>0.0 500.0<br>0.0 50.0  |  |



***Tucker***  
**ENERGY SERVICES**

Company: LASSO ENERGY LLC  
 Well: RENICK #1  
 Location: 1650' FNL & 330' FEL  
 Logged: 11-26-2013  
 K.B. Elev: 2694.0 Ft