



FILE NO: **CH083650**  
API NO: **05017077820000**  
COMPANY: **PRONGHORN OPERATING, LLC**  
WELL: **PEPPER #1**  
FIELD: **CHEYENNE WELLS**  
COUNTY: **CHEYENNE** STATE: **COLORADO**

Ver. 3.87  
LOCATION: **SHL: 1691' FNL & 2034' FEL**  
SEC **5** TWP **14S** RGE **44W**  
OTHER SERVICES:  
SL  
ZDUCN/GR  
HDILZDUCN/GR  
DAL/GR

PERMANENT DATUM **GL** ELEVATION **4264 FT**  
LOG MEASURED FROM **KB** **17 FT** ABOVE P.D.  
DRILL. MEAS. FROM **KELLY BUSHING**  
ELEVATIONS:  
KB **4281 FT**  
DF **4280 FT**  
GL **4264 FT**

|                        |                       |
|------------------------|-----------------------|
| DATE                   | 22 MAR 2014           |
| RUN                    | 1                     |
| TRIP                   | 1                     |
| SERVICE ORDER          | 617654                |
| DEPTH DRILLER          | 5465 FT               |
| DEPTH LOGGER           | 4698 FT               |
| BOTTOM LOGGED INTERVAL | 4670 FT               |
| TOP LOGGED INTERVAL    | 438 FT                |
| CASING DRILLER         | 13.375 IN @ 438 FT    |
| CASING LOGGER          | 438 FT                |
| BIT SIZE               | 7.875 IN              |
| TYPE OF FLUID IN HOLE  | WB/M                  |
| DENSITY                | 8.8 LB/G              |
| VISCOSITY              | 50 S                  |
| PH                     | 11                    |
| FLUID LOSS             | 8 CC                  |
| SOURCE OF SAMPLE       | MUD TANK              |
| RM AT MEAS. TEMP.      | 1.43 OHMM @ 52.3 DEGF |
| RMF AT MEAS. TEMP.     | 1.06 OHMM @ 51.5 DEGF |
| RMC AT MEAS. TEMP.     | 1.74 OHMM @ 50.2 DEGF |
| SOURCE OF RMF          | MEASURED              |
| RM AT BHT              | 0.73 OHMM @ 109 DEGF  |
| TIME SINCE CIRCULATION | 5.5 HOURS             |
| MAX. RECORDED TEMP.    | 109 DEGF              |
| EQUIP. NO.             | HL 6690               |
| LOCATION               | CASPER                |
| RECORDED BY            | J. OSTLER             |
| WITNESSED BY           | FRANK RABBITO         |

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

#### BOREHOLE RECORD

| BIT SIZE | FROM    | TO      |
|----------|---------|---------|
| 12.25 IN | 0 FT    | 1500 FT |
| 7.875 IN | 1500 FT | 5465 FT |

#### CASING RECORD

| SIZE      | WEIGHT  | GRADE | FROM | TO     |
|-----------|---------|-------|------|--------|
| 13.375 IN | 48 LB/F | NA    | 0 FT | 438 FT |

#### REMARKS

RUN 1 TRIP 1: RUN 1: HDIL/DAL/GR

THANK YOU FOR CHOOSING BAKER HUGHES WIRELINE!  
CREW: NATHAN OSTLER, ANTHONY FERRIS  
RIG: WILDCAT RIG #1

#### EQUIPMENT DATA

| RUN | TRIP | TOOL | SERIES NO. | SERIAL NO. | POSITION |
|-----|------|------|------------|------------|----------|
| 1   | 1    | TTRM | 3981XB     | 10217216   | FREE     |
| 1   | 1    | COMR | 3514XB     | 10184847   | FREE     |

|   |   |             |        |          |      |
|---|---|-------------|--------|----------|------|
| 1 | 1 | GR          | 1329XB | 370718   | FREE |
| 1 | 1 | DAL ELEC    | 1677EA | 10337911 | FREE |
| 1 | 1 | DAL         | 1680MA | 172759   | FREE |
| 1 | 1 | HDIL ELEC   | 1515EA | 10040866 | FREE |
| 1 | 1 | HDIL MANDRL | 1515MA | 10200533 | FREE |

## MAIN LOG 5"/100FT SCALE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013

Patches: 5

Plotted: Sat Mar 22 03:24:47 2014

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/617654/MSLAM\_DAL~04.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 337.750 ft BOTTOM DEPTH: 4705.500 ft

#### SYMMETRIC FILTER

| MEASUREMENT TYPE | PARAMETER   | VALUE      | UNITS | INTERVAL (ft) |        |
|------------------|-------------|------------|-------|---------------|--------|
| TENSION          | FILTER ( )  | medium (1) |       | TOP           | BOTTOM |
| GR               | FILTER ( )  | medium (1) |       | "             | "      |
|                  | FILTER (.h) | medium (1) |       | "             | "      |
|                  | FILTER (.i) | medium (1) |       | "             | "      |
| SP-SPDH          | FILTER ( )  | medium (1) |       | "             | "      |
|                  | FILTER (.i) | medium (1) |       | "             | "      |

#### BOREHOLE & CEMENT

| MEASUREMENT TYPE              | PARAMETER                 | VALUE            | UNITS        | INTERVAL (ft) |        |
|-------------------------------|---------------------------|------------------|--------------|---------------|--------|
| BIT SIZE                      | BIT SIZE                  | 7.875            | in           | TOP           | BOTTOM |
| MUD SAMPLE RESISTIVITY        | MUD SAMPLE TEMP           | 52.3             | degF         | "             | "      |
|                               | MUD SAMPLE RES            | 1.430            | ohm.m        | "             | "      |
| BOREHOLE TEMP from GRADIENT   | Known BH REF TEMP         | 120.0            | degF         | "             | "      |
|                               | at BH REF DEPTH           | 5465.0           | ft           | "             | "      |
|                               | with TEMP GRADIENT        | 1.200            | 0.01 degF/ft | "             | "      |
| BOREHOLE CORR DIAMETER SOURCE | CALIPER/FIXED DIA. (mbh*) | USE CALIPER      |              | "             | "      |
| BOREHOLE CORR DIAMETER        | FIXED DIAMETER (mbh*)     | 7.875            | in           | "             | "      |
| BH MUD RESISTIVITY SOURCE     | RMUD SOURCE (HDIL)        | MUD SAMP DERIVED |              | "             | "      |

#### HDIL PROCESSING

| MEASUREMENT TYPE             | PARAMETER        | VALUE      | UNITS | INTERVAL (ft) |        |
|------------------------------|------------------|------------|-------|---------------|--------|
| HDIL TEMPERATURE CORRECTION  | TEMP CORR SOURCE | USE RXTEMP |       | TOP           | BOTTOM |
| ADAPTIVE BOREHOLE CORRECTION | ABC PROCESSING   | ON         |       | "             | "      |
|                              | ABC to CALCULATE | STANDOFF   |       | "             | "      |
|                              | STANDOFF         | 1.50       | in    | "             | "      |
|                              | TOOL POSITION    | ECCENTERED |       | "             | "      |
|                              | Rmud MULTIPLIER  | 1.000      |       | "             | "      |

### CURVE DESCRIPTION REPORT

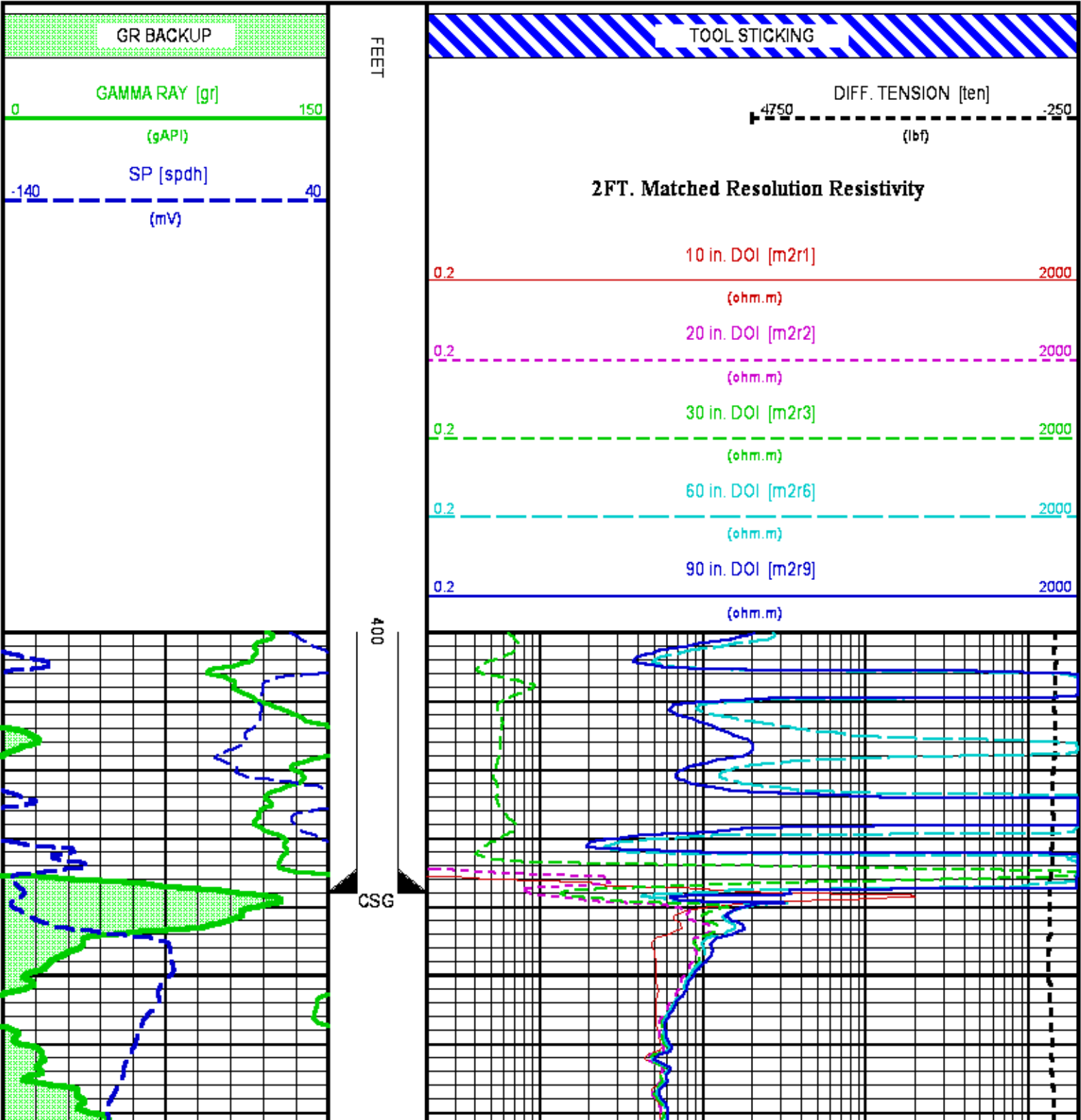
| CURVE NAME | CREATION DATE        | CURVE DESCRIPTION   |
|------------|----------------------|---|
| F1:GR      | Mar 21 23:52:28 2014 | GAMMA RAY   |
| F1:M2R1    | Mar 21 23:52:28 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 10-INCH DOI |
| F1:M2R2    | Mar 21 23:52:28 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 20-INCH DOI |
| F1:M2R3    | Mar 21 23:52:28 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 30-INCH DOI |
| F1:M2R6    | Mar 21 23:52:28 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 60-INCH DOI |
| F1:M2R9    | Mar 21 23:52:28 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 90-INCH DOI |
| F1:SPDH    | Mar 21 23:52:28 2014 | SPONTANEOUS POTENTIAL PROCESSED IN COMMON REMOTE            |
| F1:TEN     | Mar 21 23:52:28 2014 | DIFFERENTIAL TENSION  |

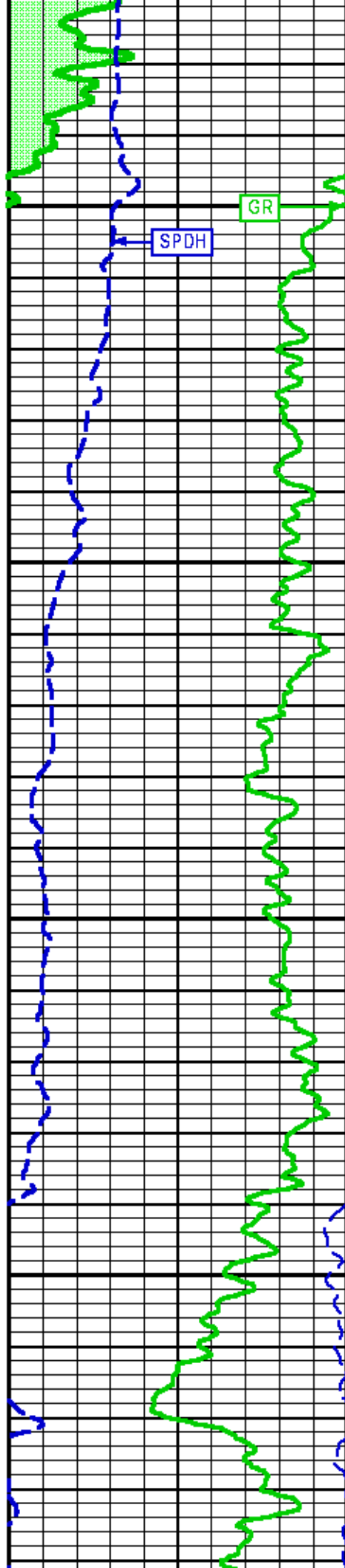
# CURVE MEASURE POINT OFFSET

| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| GR    | 49.25       | M2R2  | 28.50       | M2R6  | 28.50       | SPDH  | 34.50       |
| M2R1  | 28.50       | M2R3  | 28.50       | M2R9  | 28.50       | TEN   | 0.00        |

Presentation : cpu6690:/dat1a/617654/hdil\_main.fvpdf [5"/100' Scale]  
 Plot Interval : 400 - 4705.5 Feet

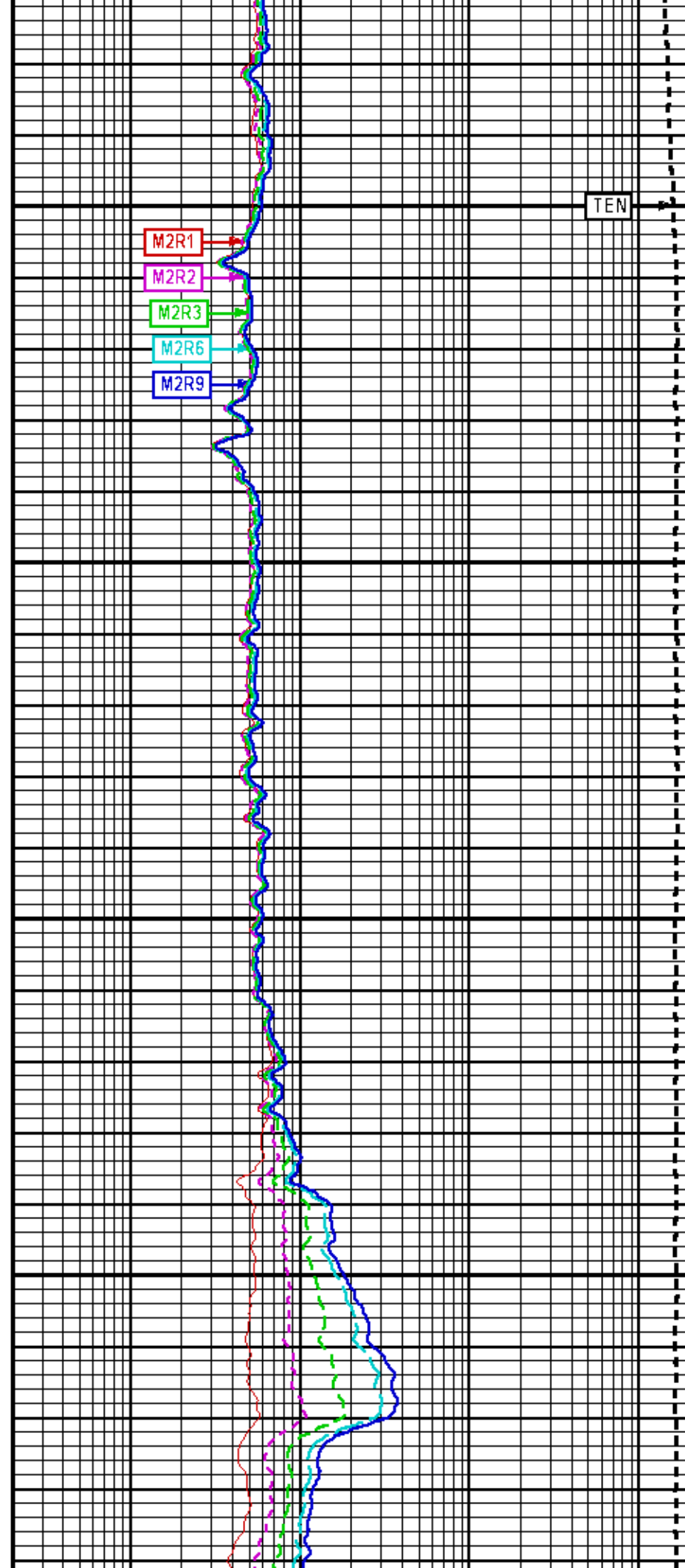
Data File 1 : F1 : cpu6690:/dat1a/617654/MAIN\_LS.xtf  
 Created On : Mar 21 23:52:28 2014  
 Company : PRONGHORN OPERATING, LLC  
 Well : PEPPER #1  
 Field : CHEYENNE WELLS  
 File Interval : 4.5 - 4705.5 Feet  
 OCT : MSLAM\_DA

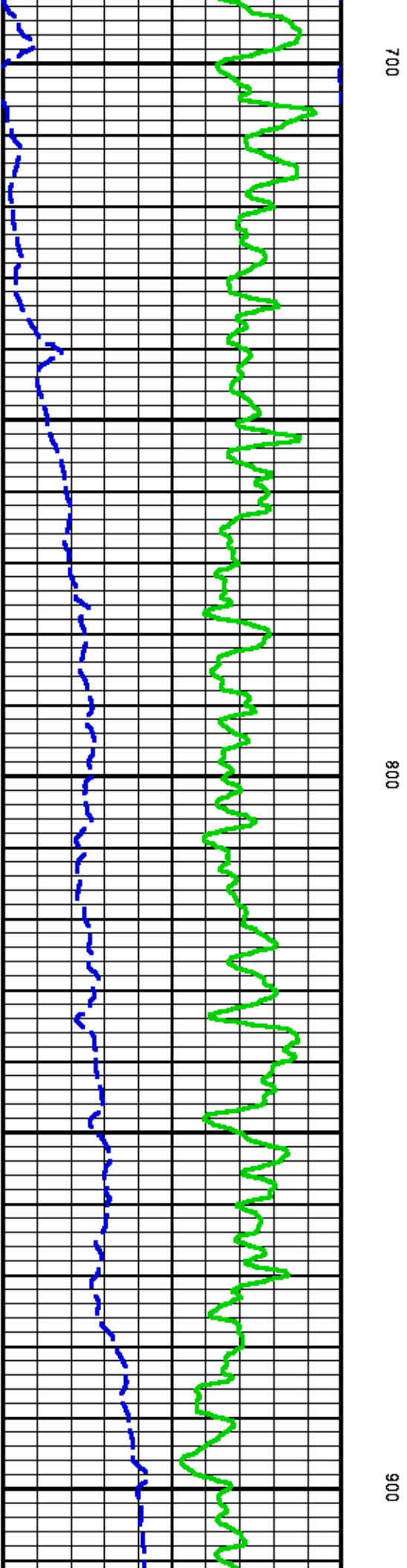
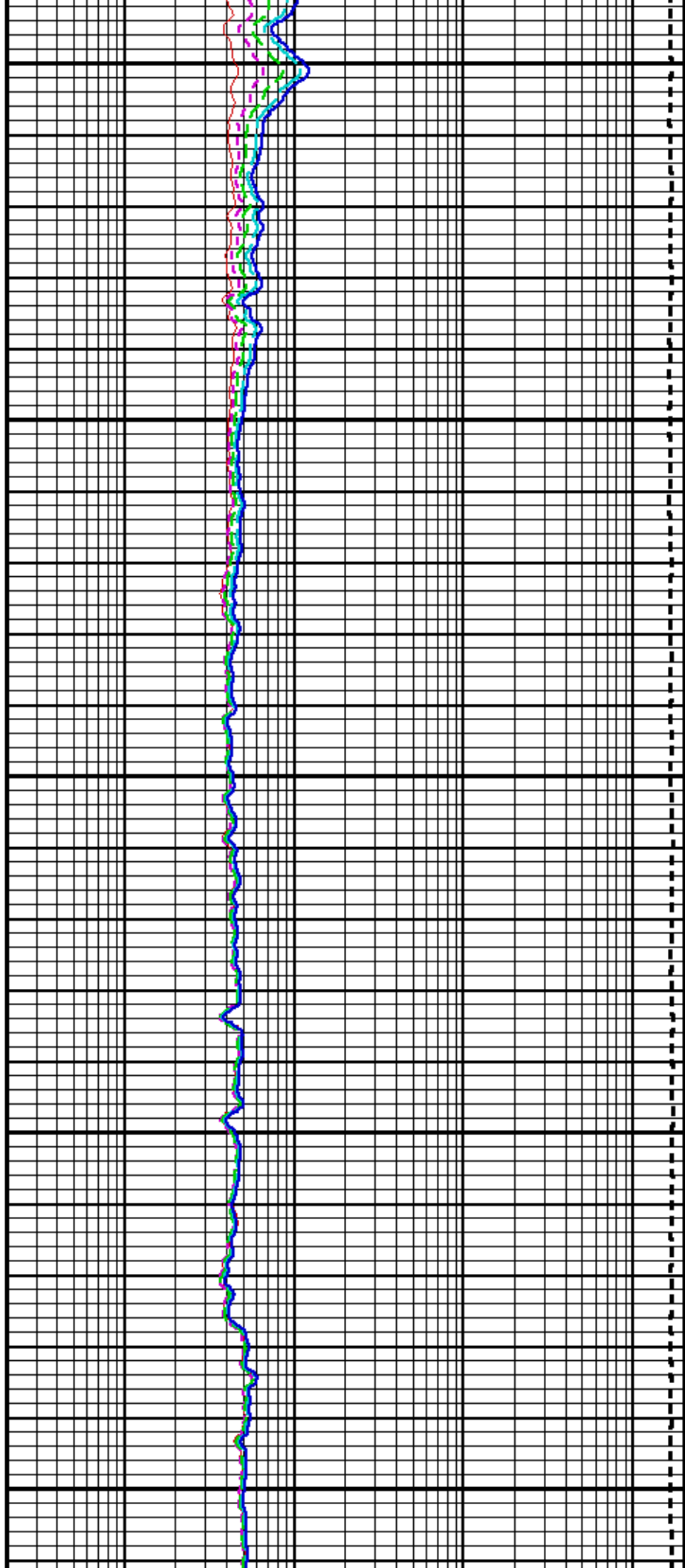


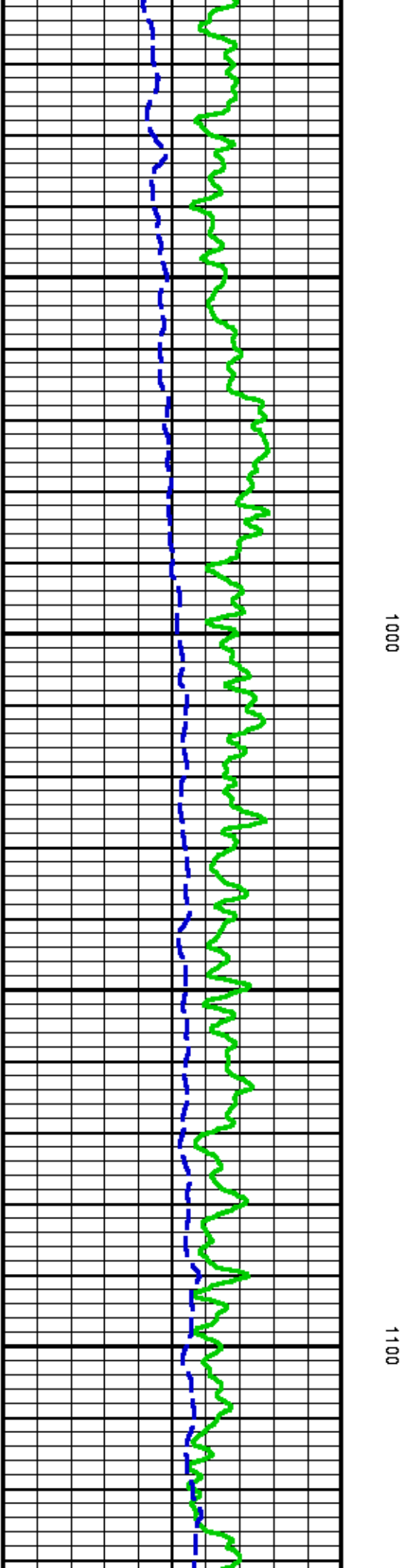
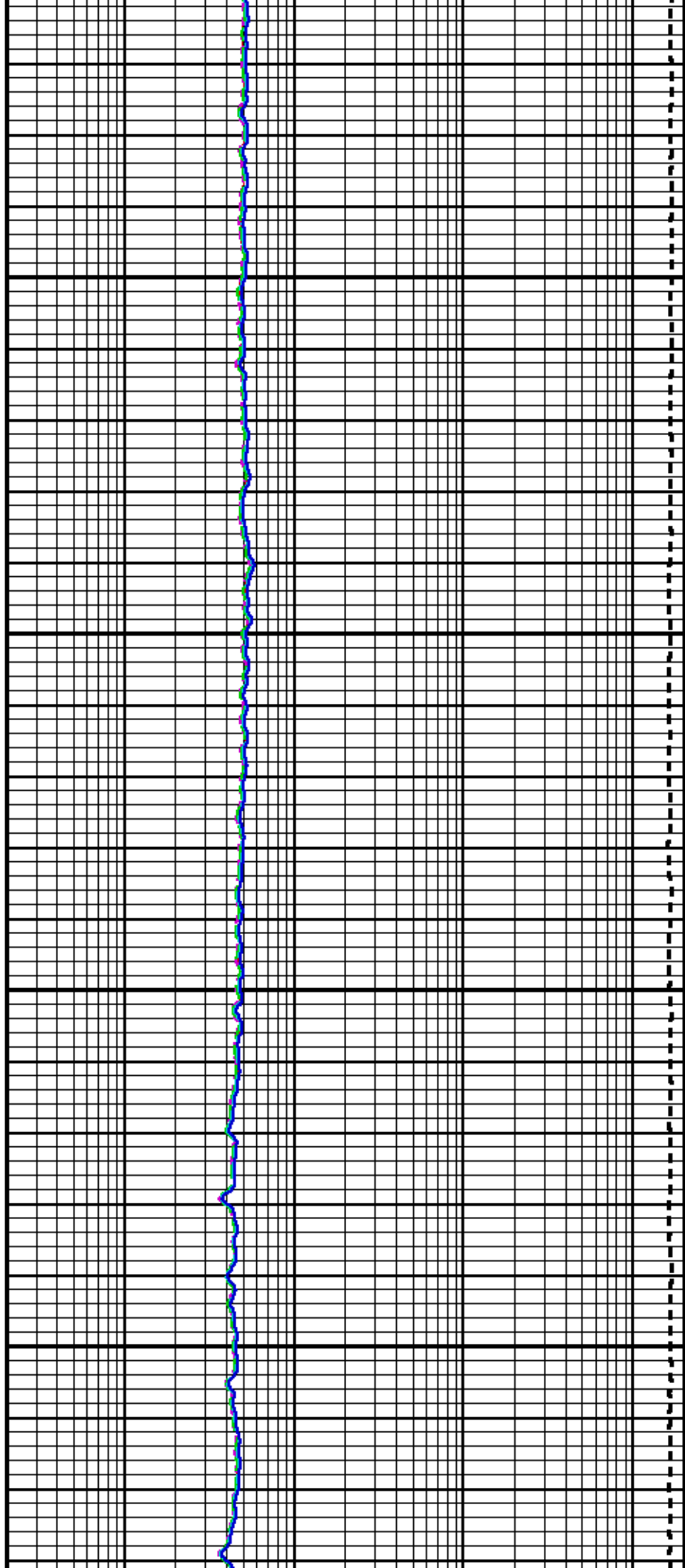


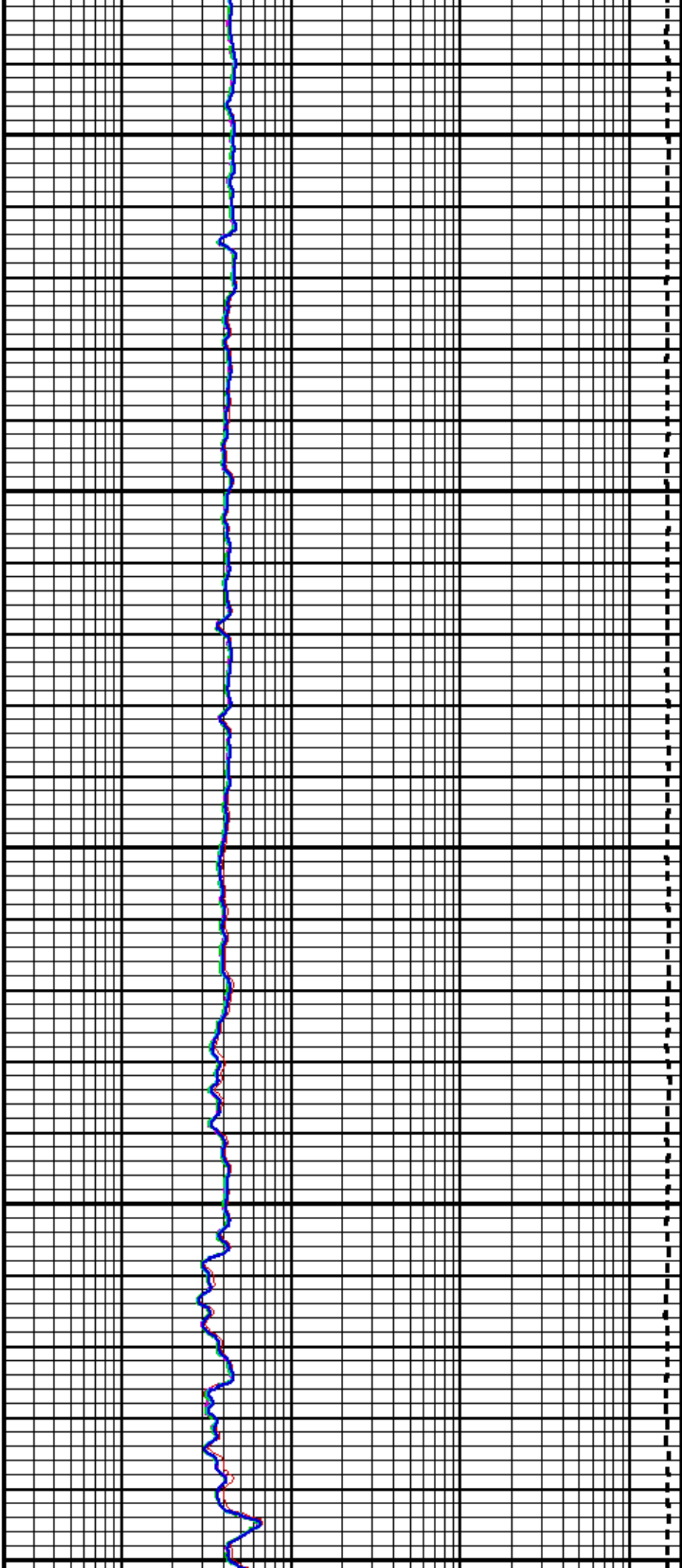
500

600



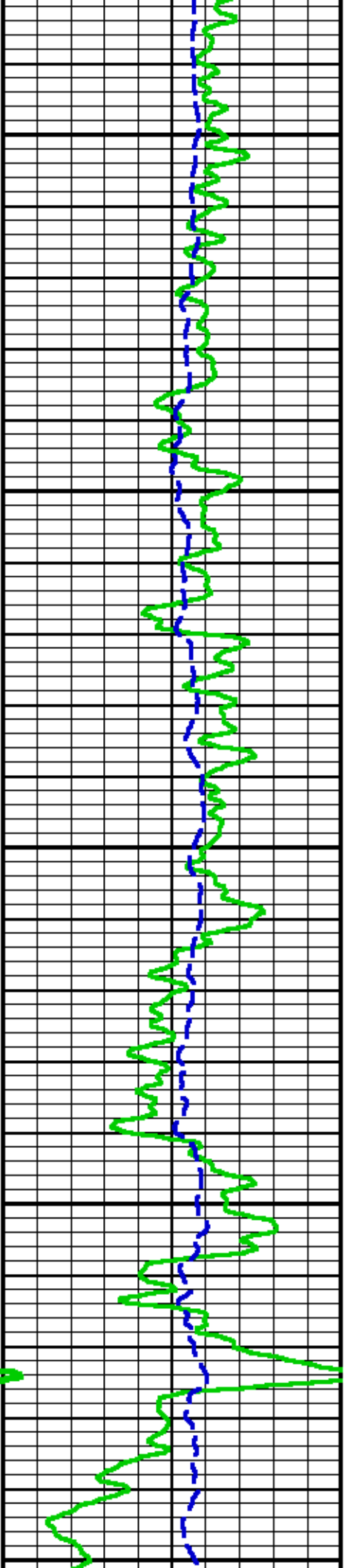


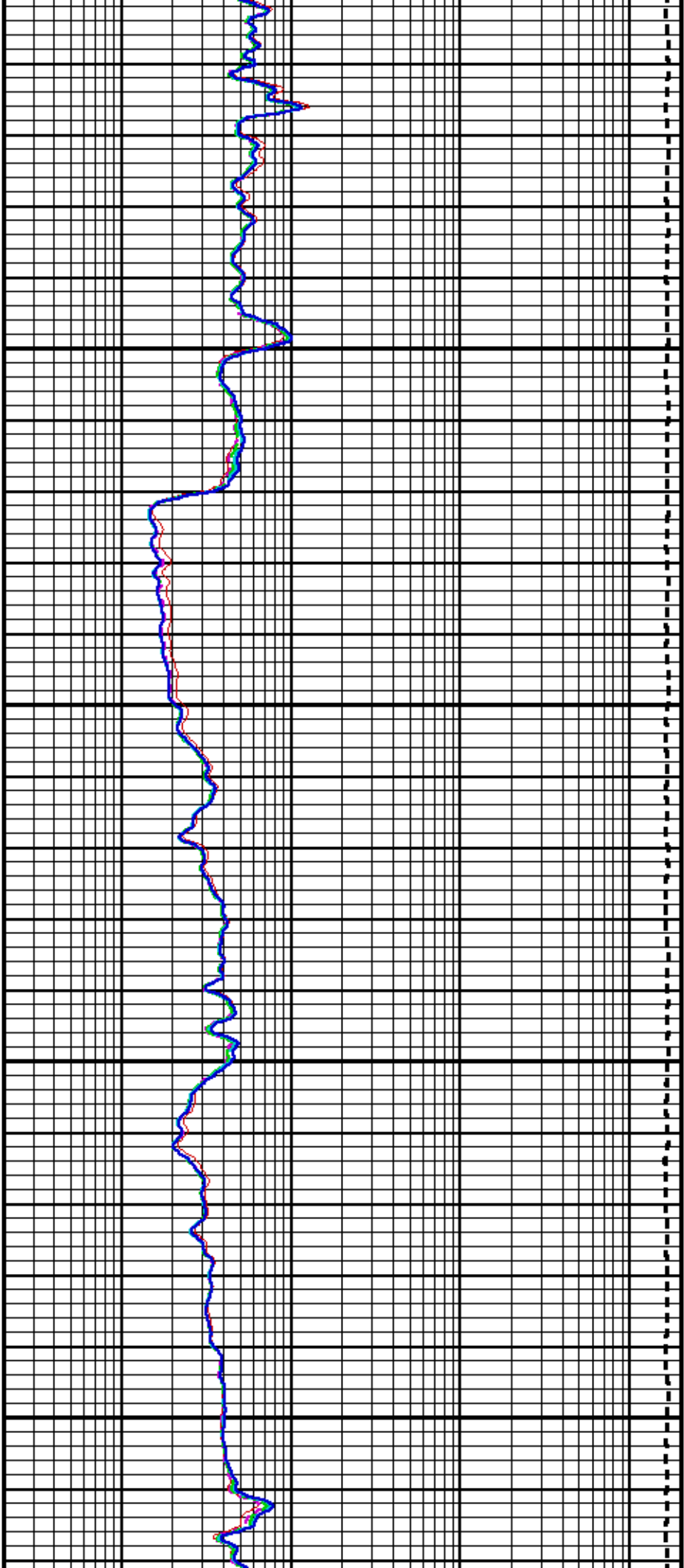




1 200

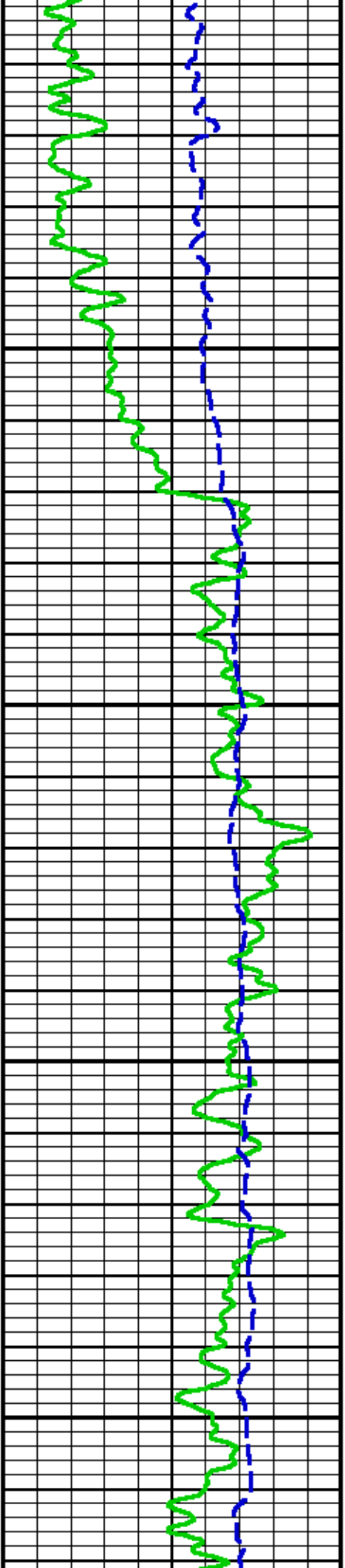
1 300

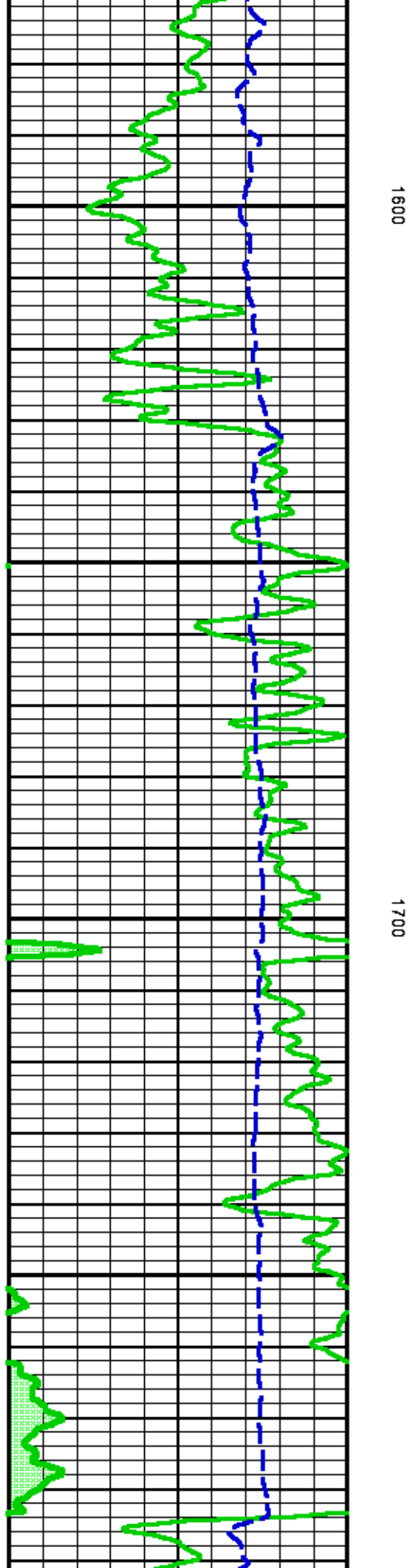
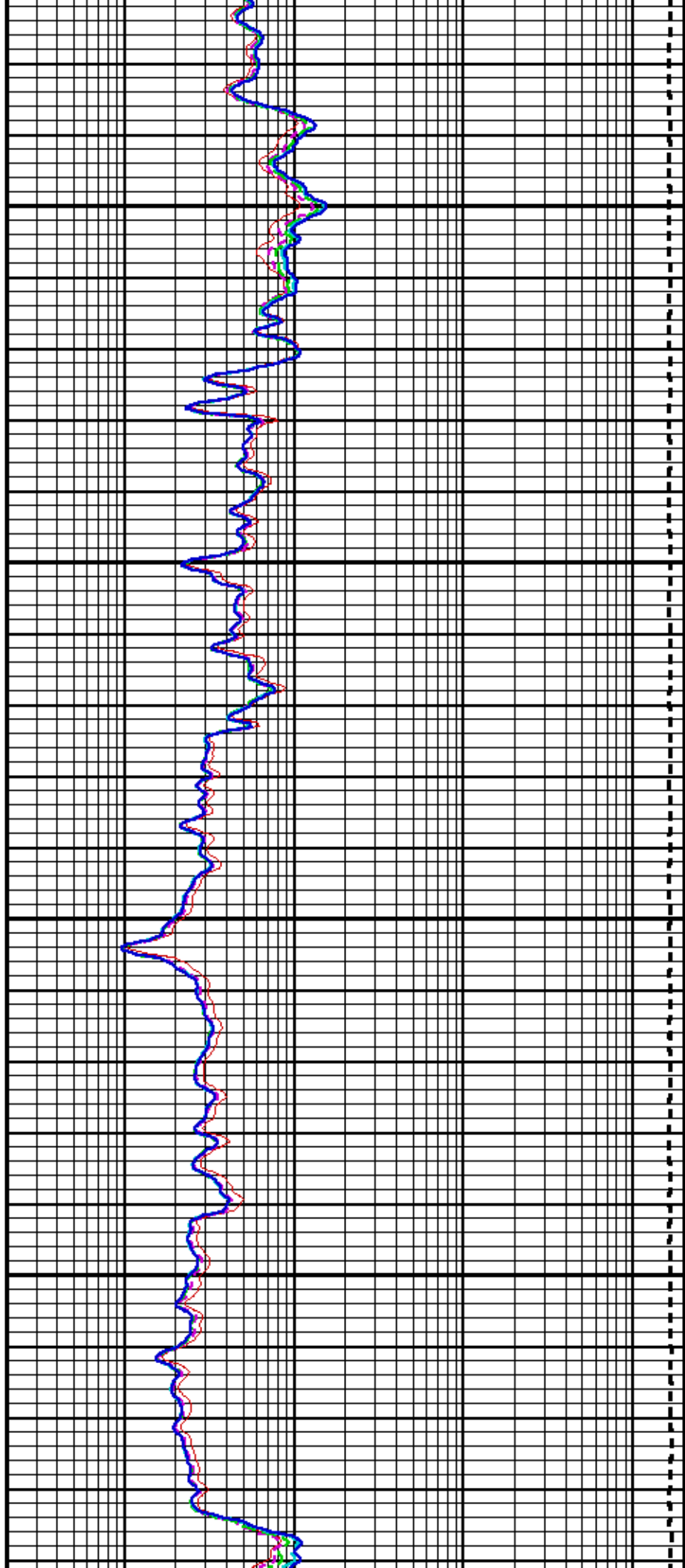


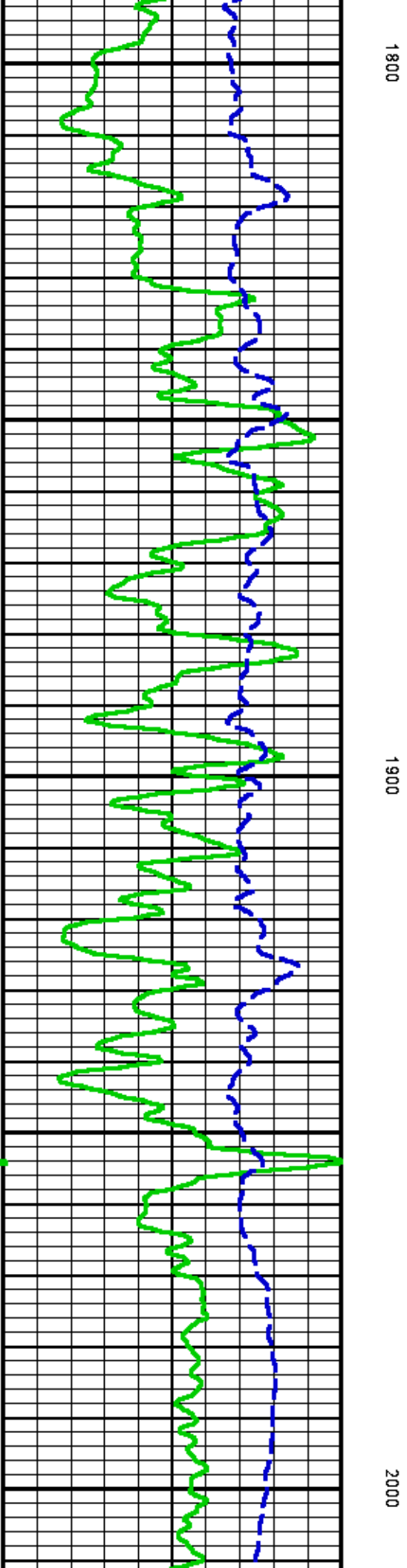
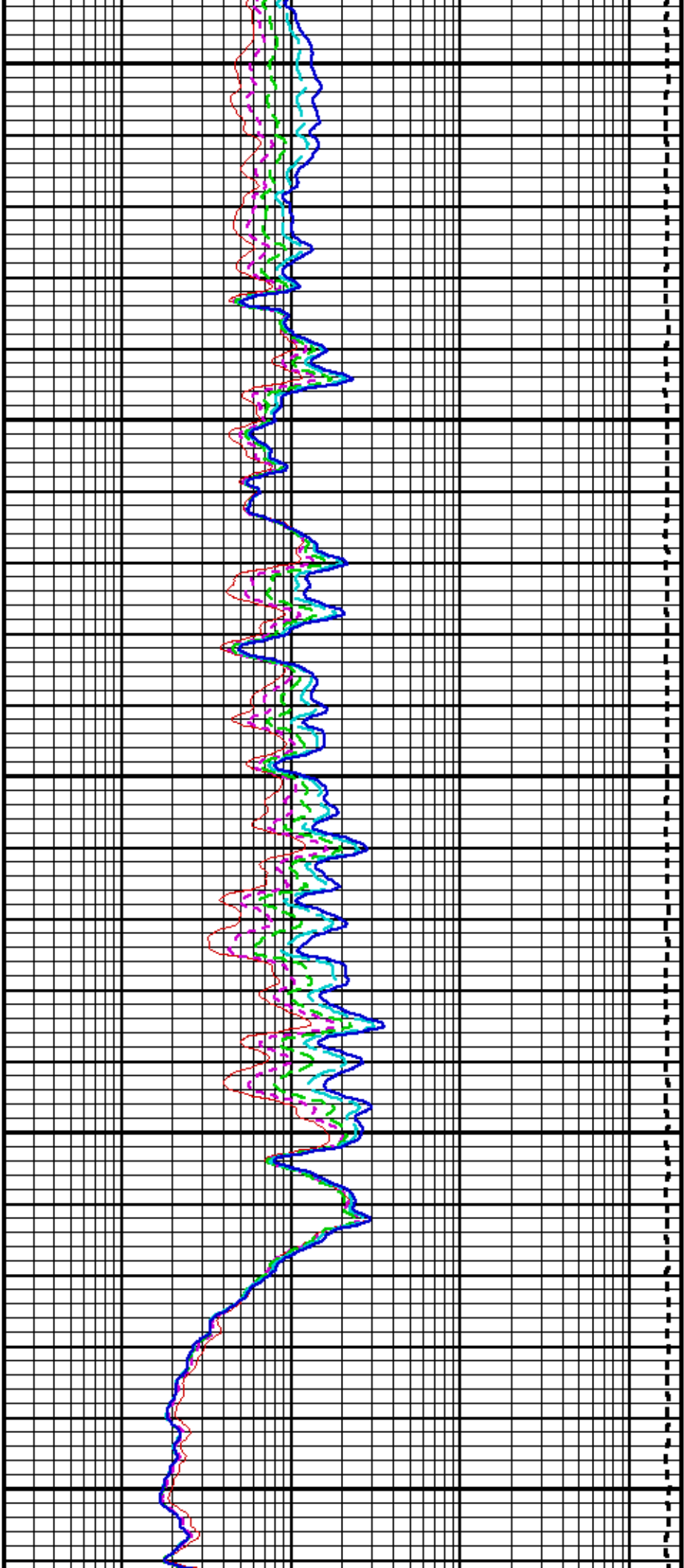


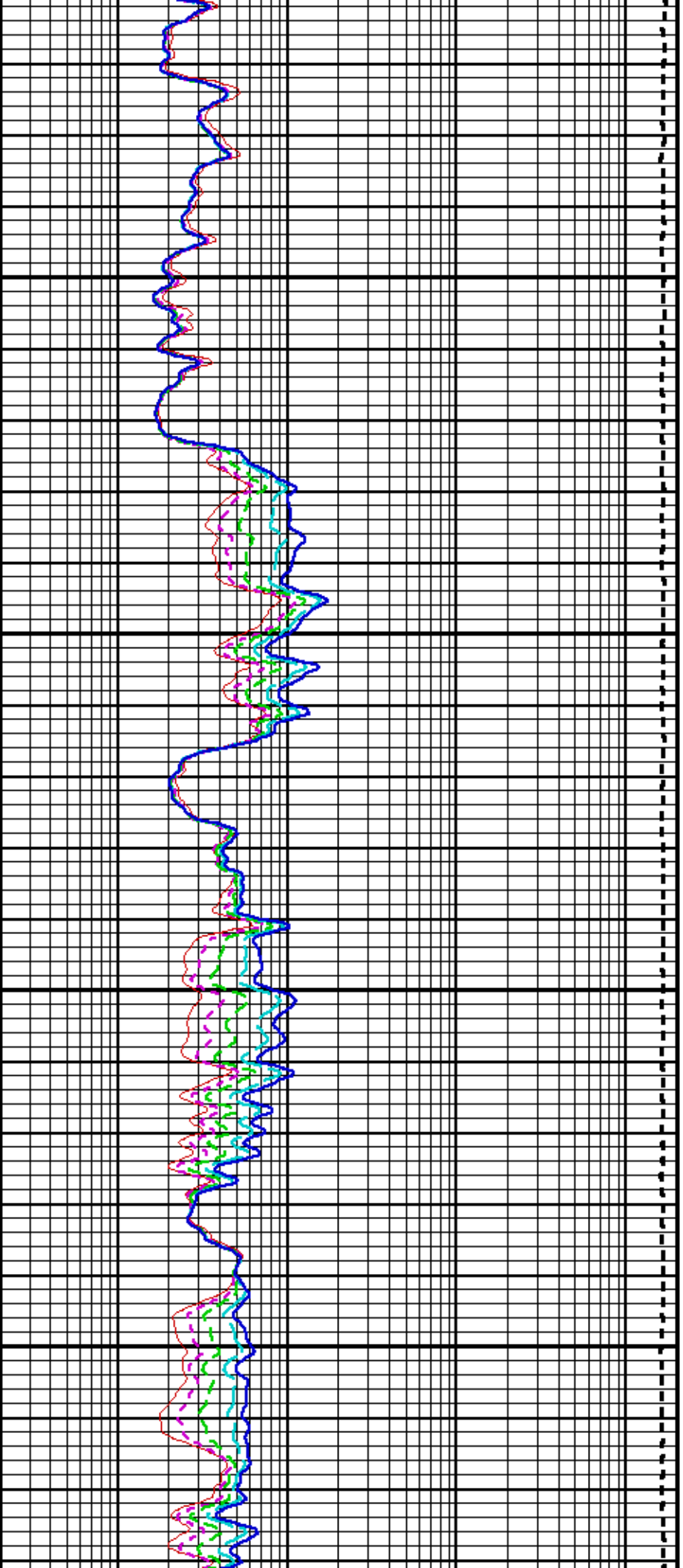
1400

1500



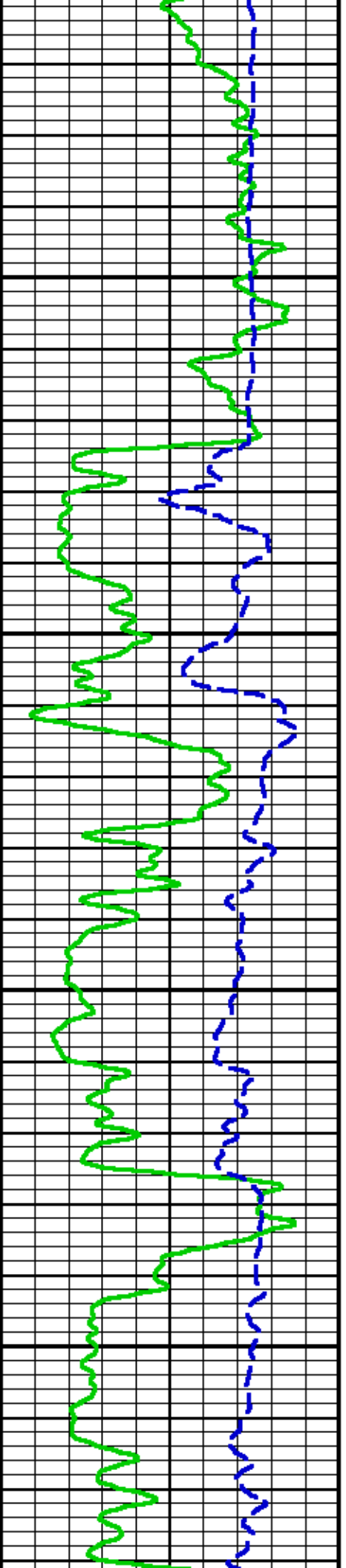


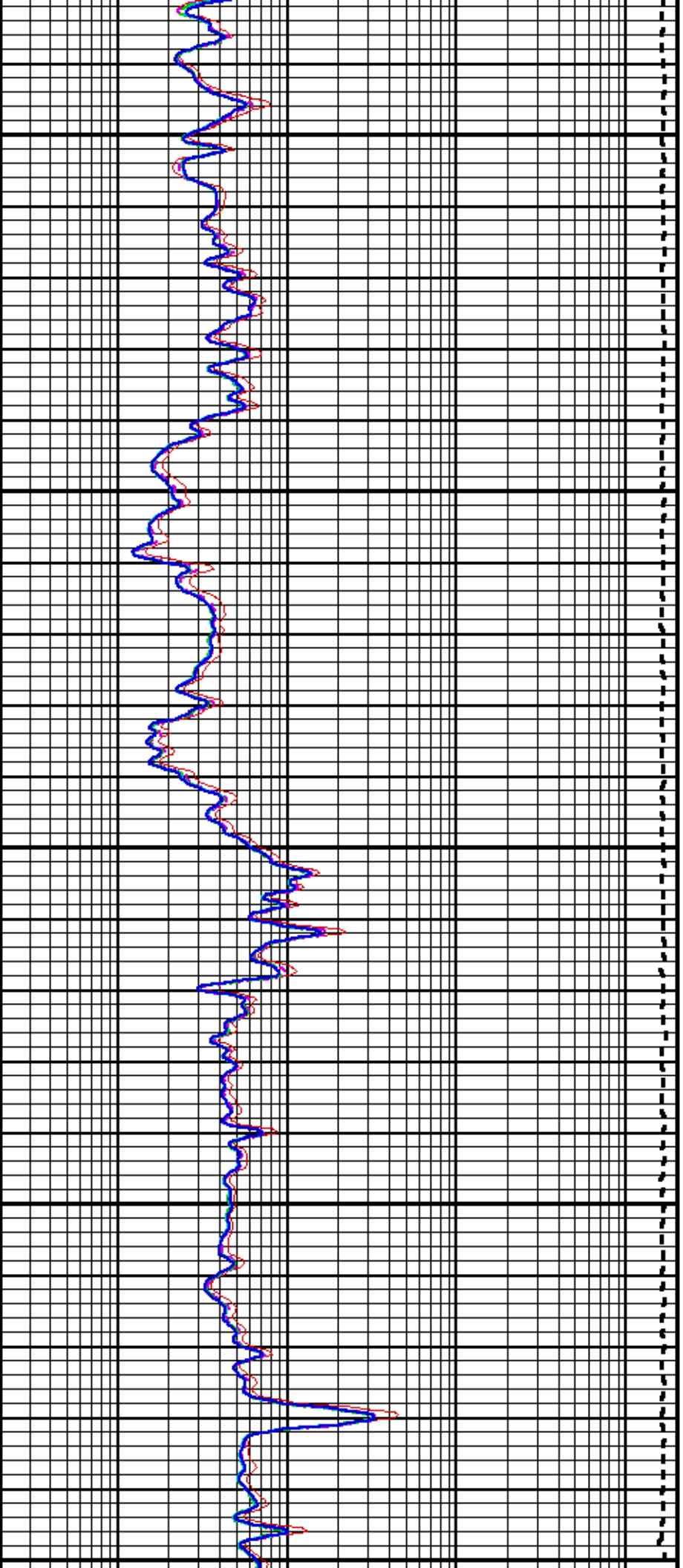




2100

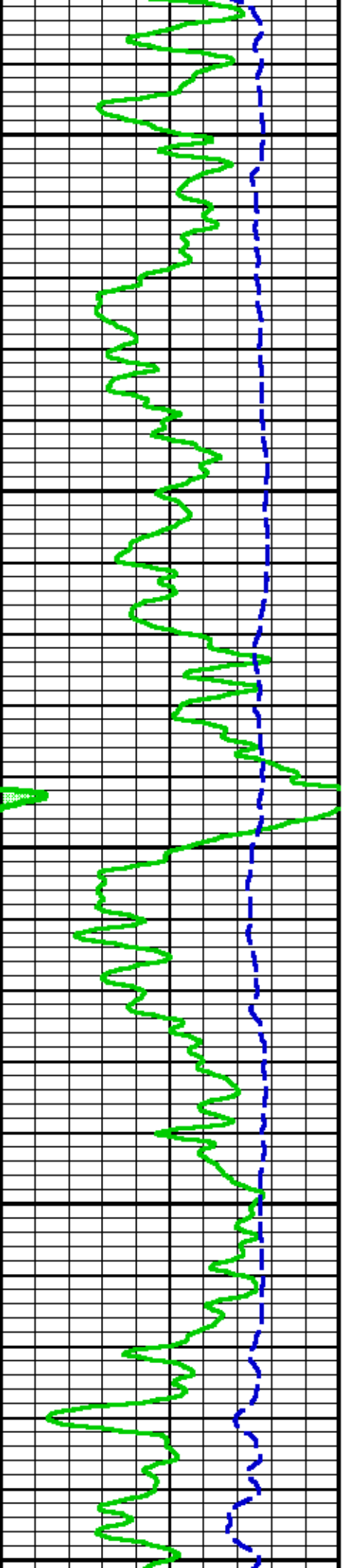
2200

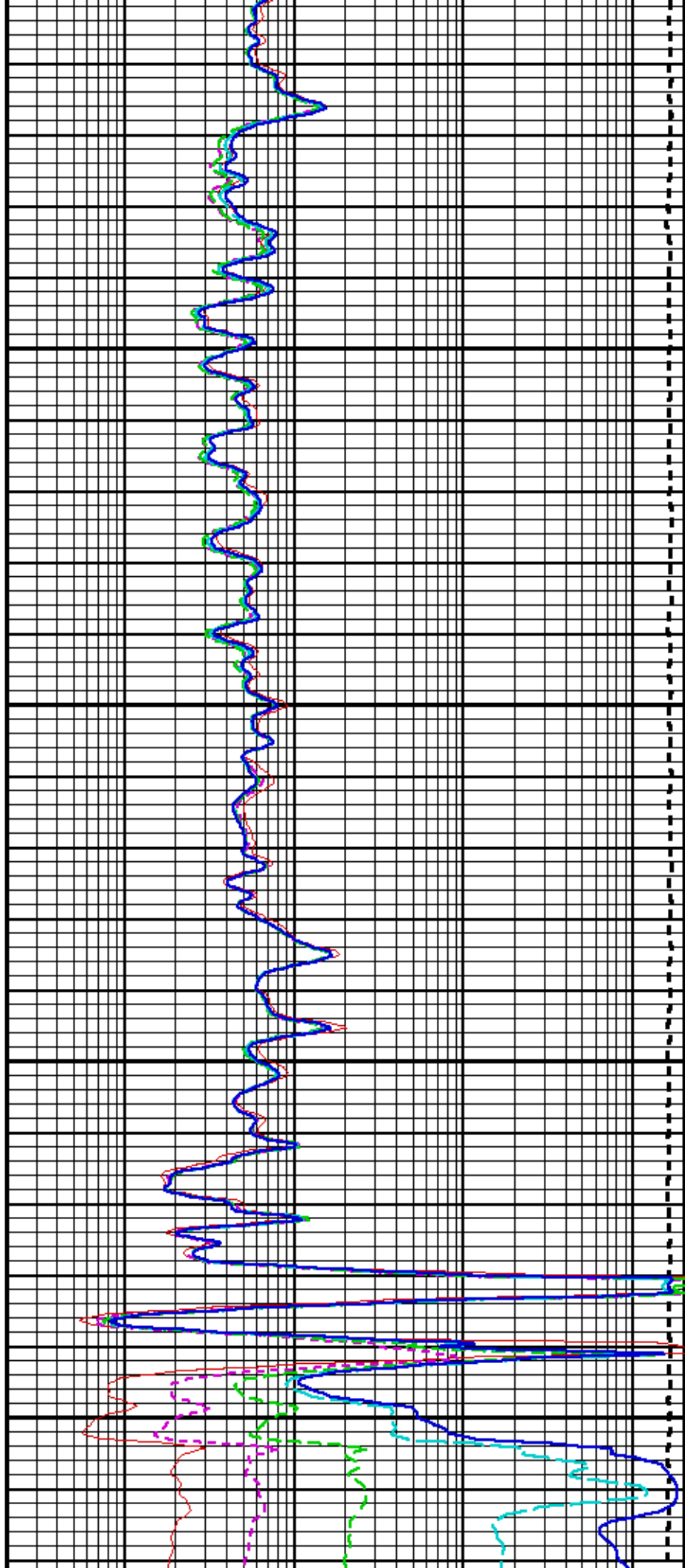




2300

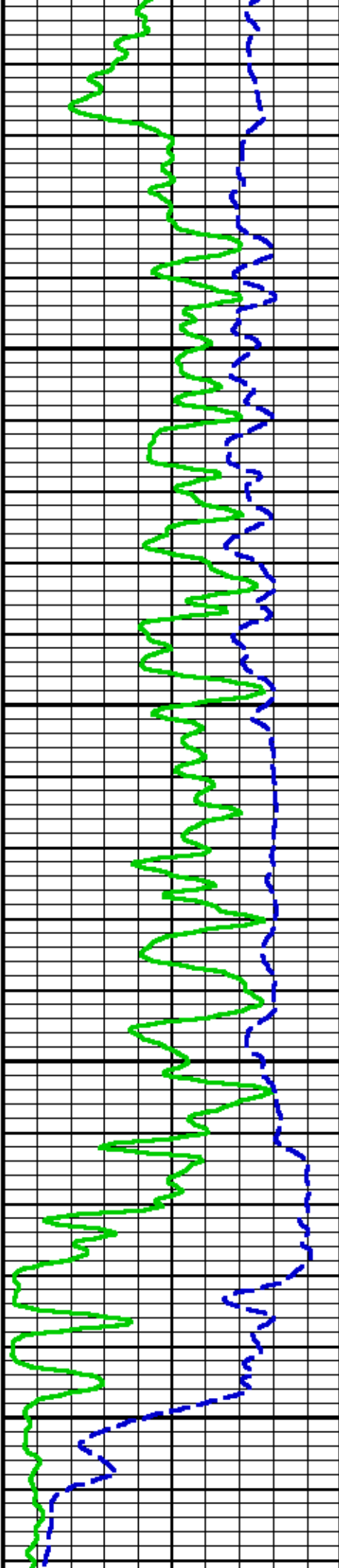
2400

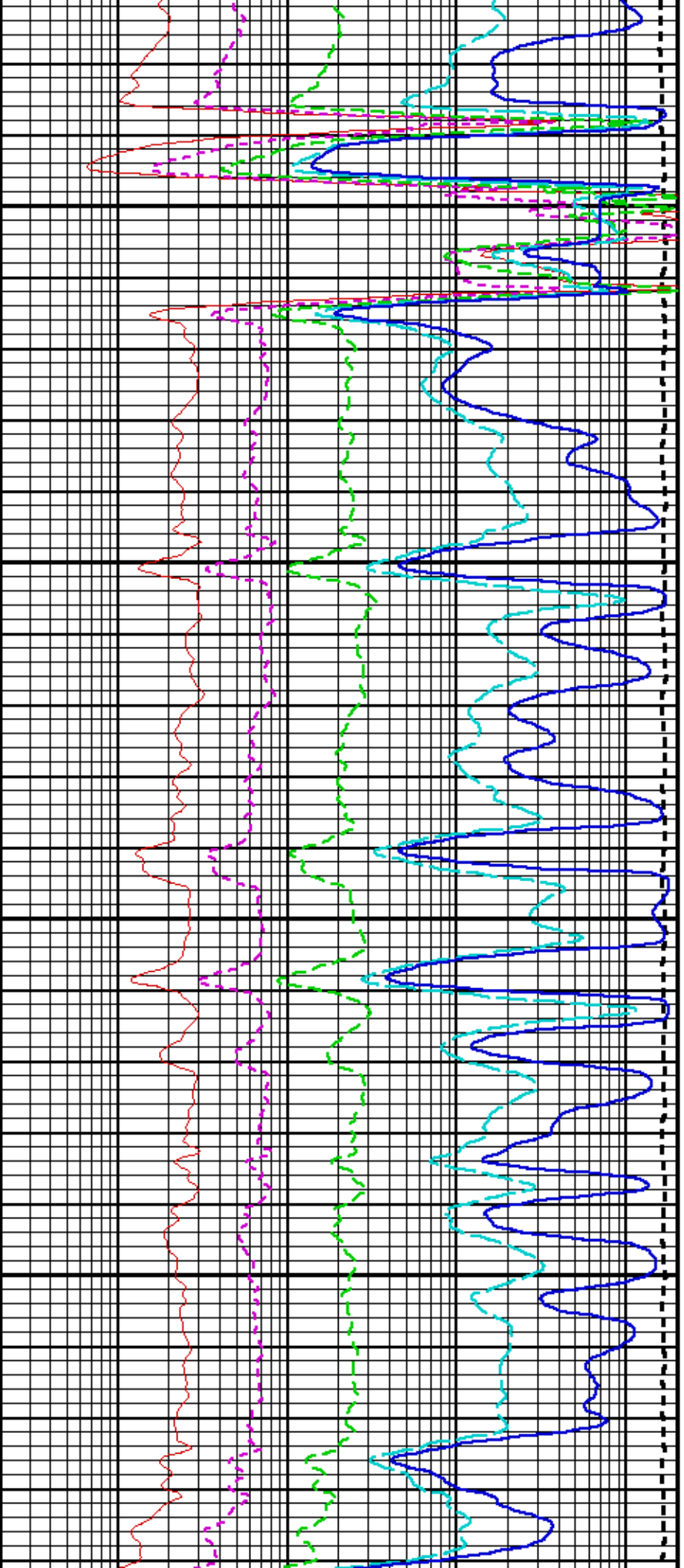




2500

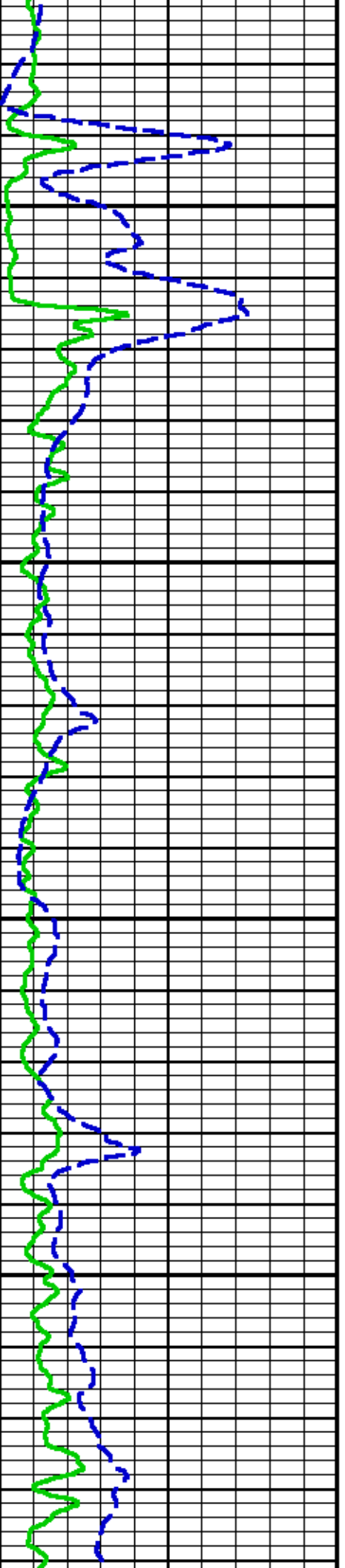
2600

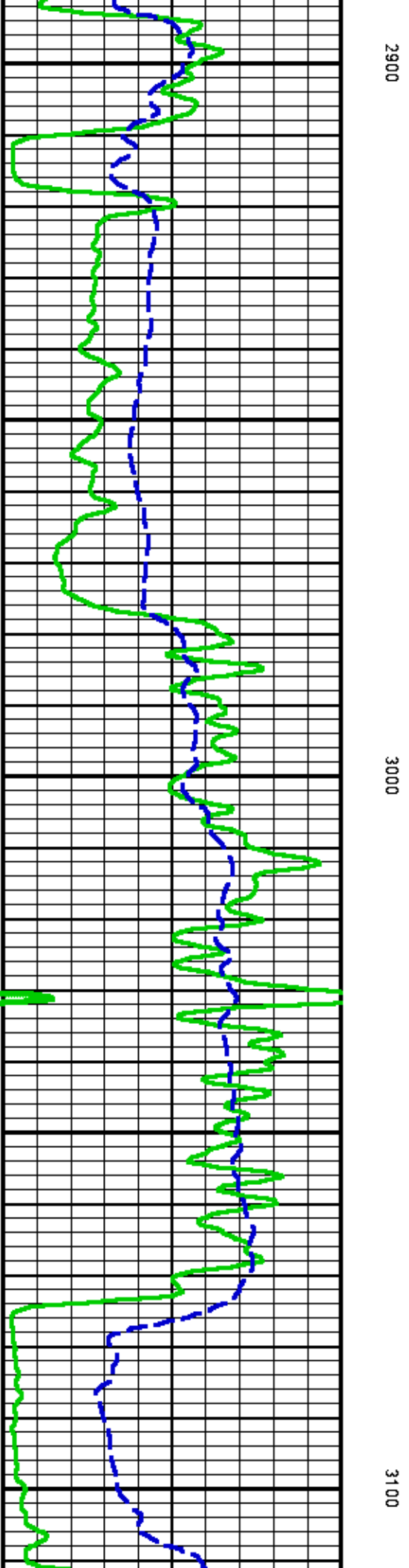
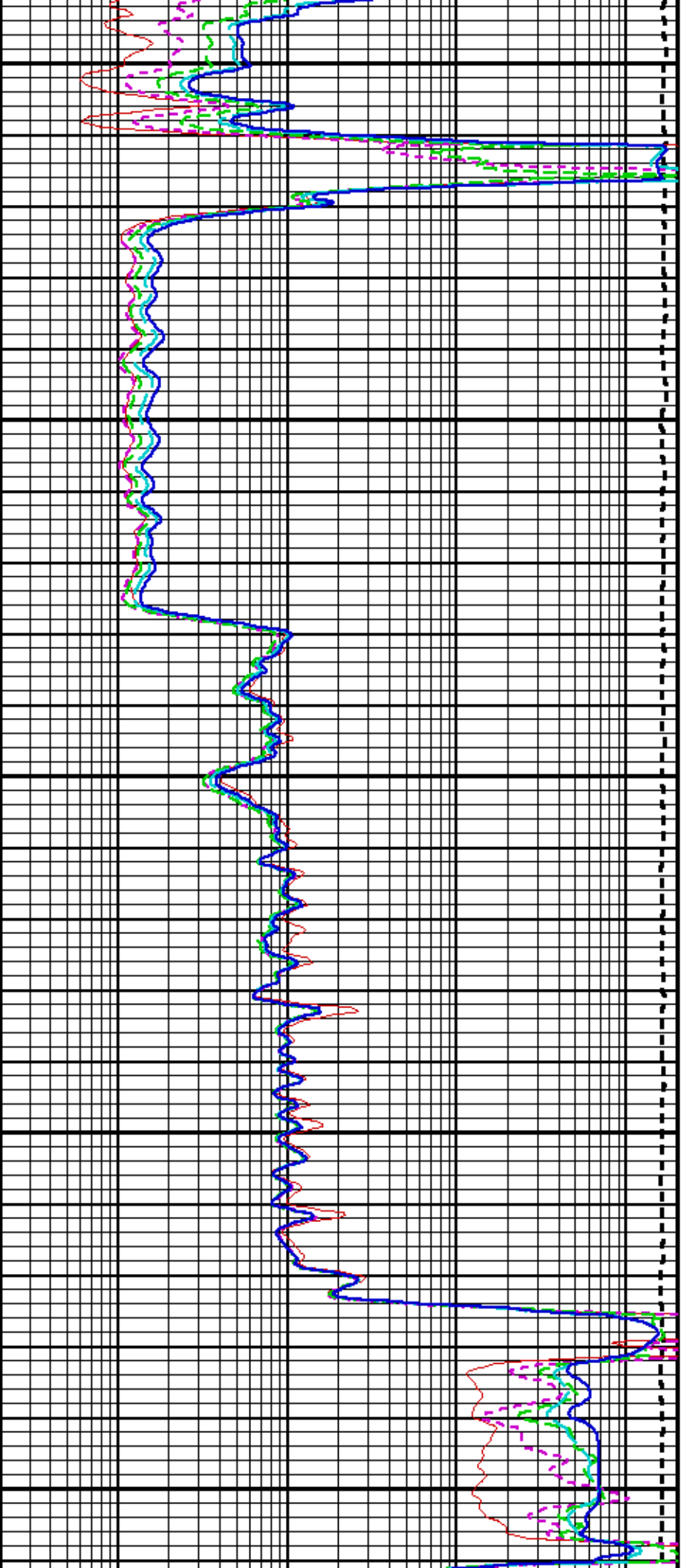


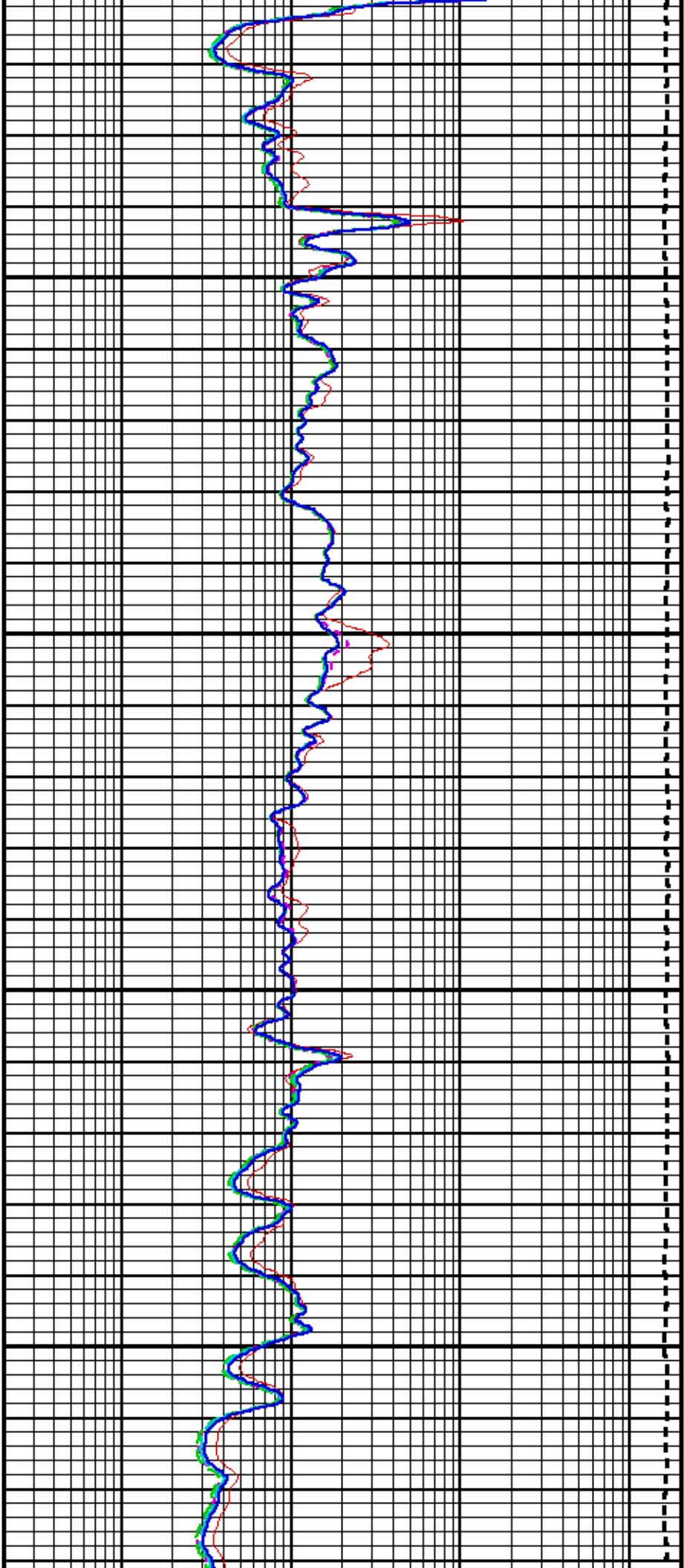


2700

2800

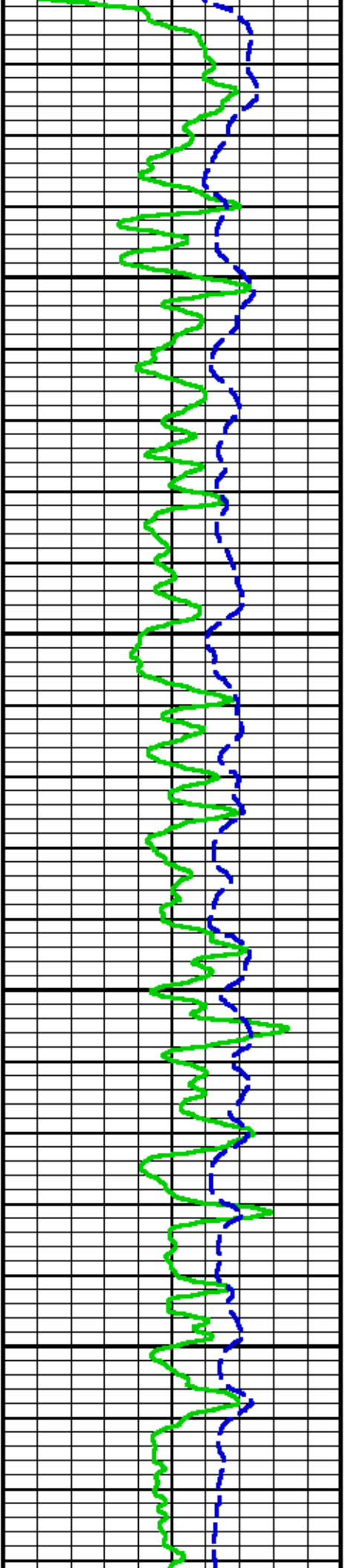


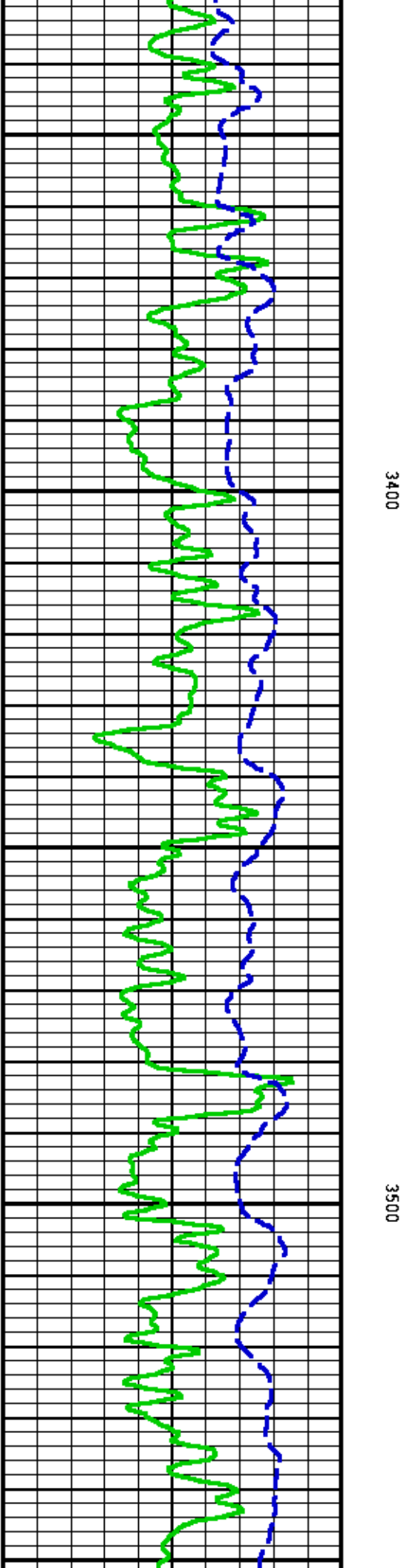
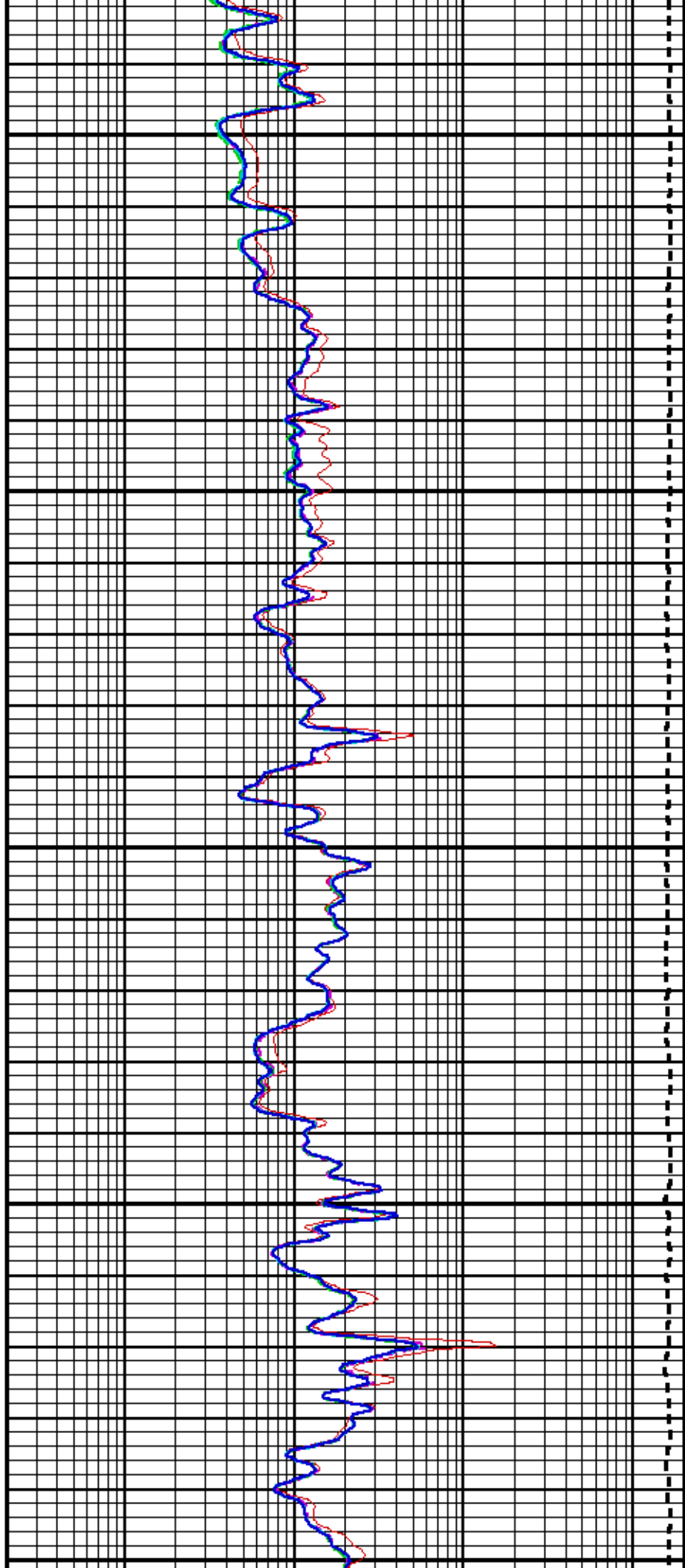


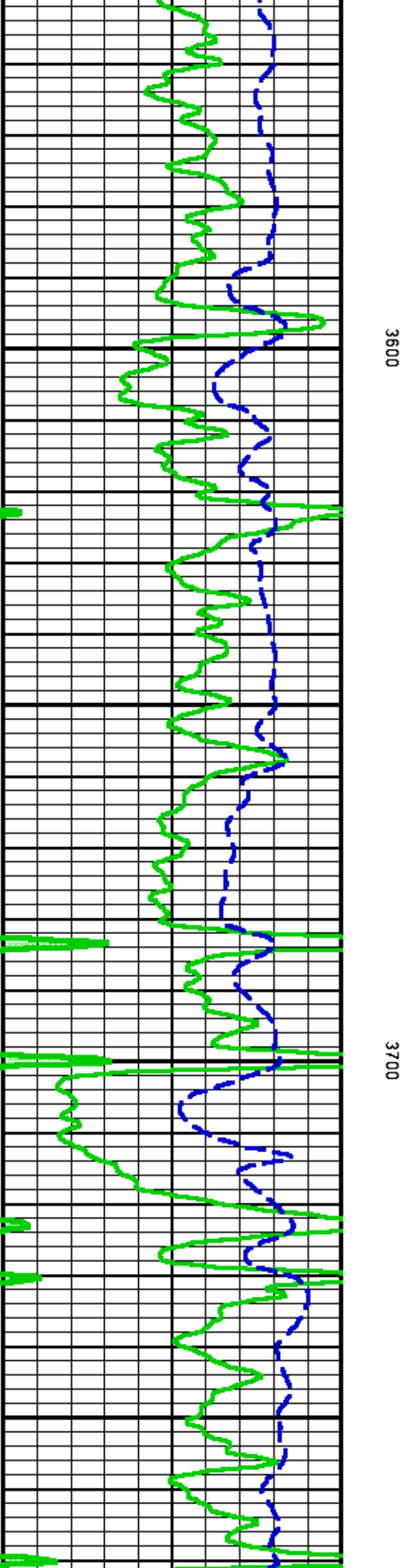
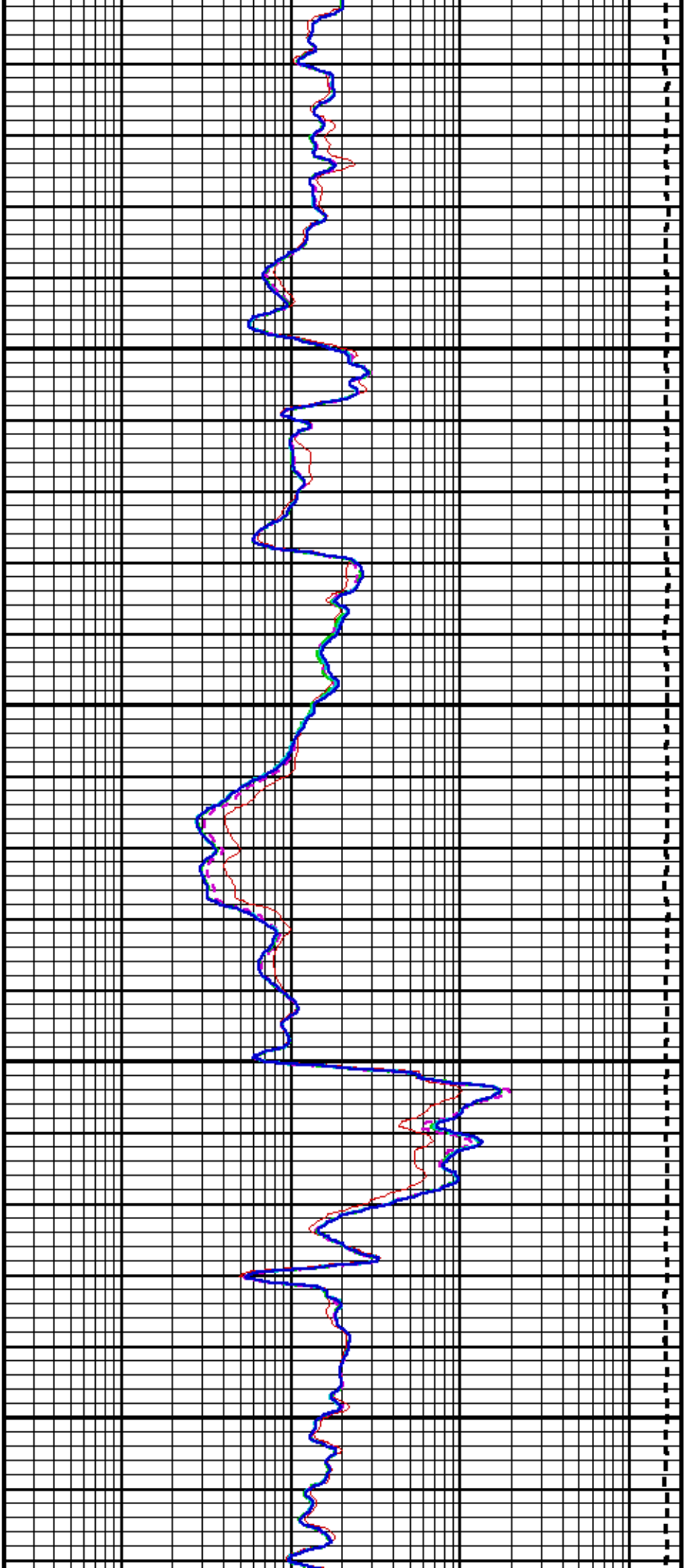


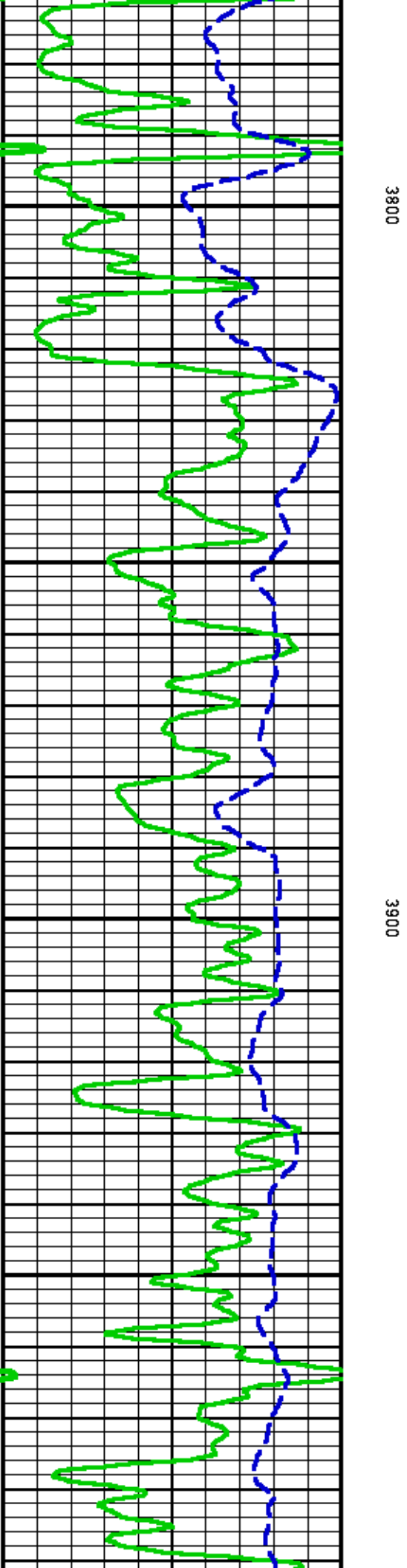
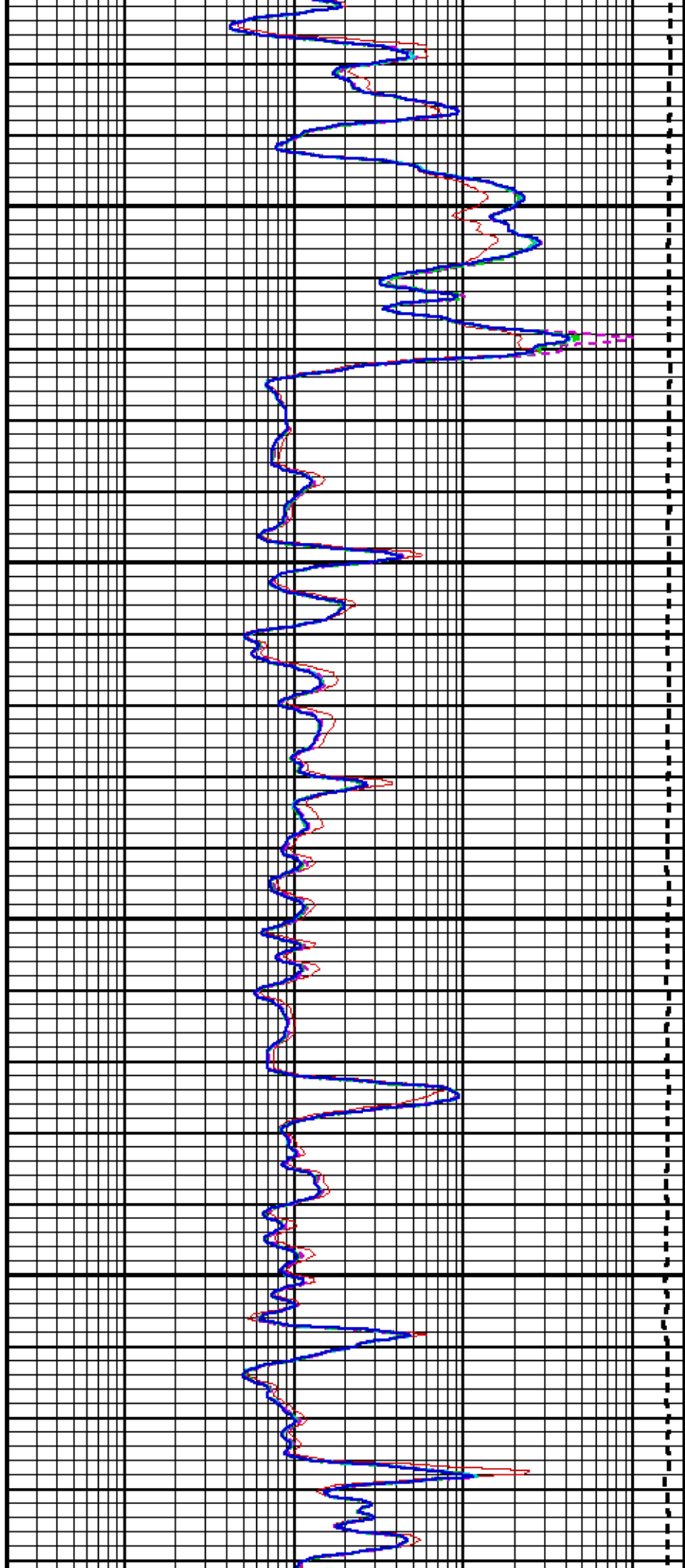
3200

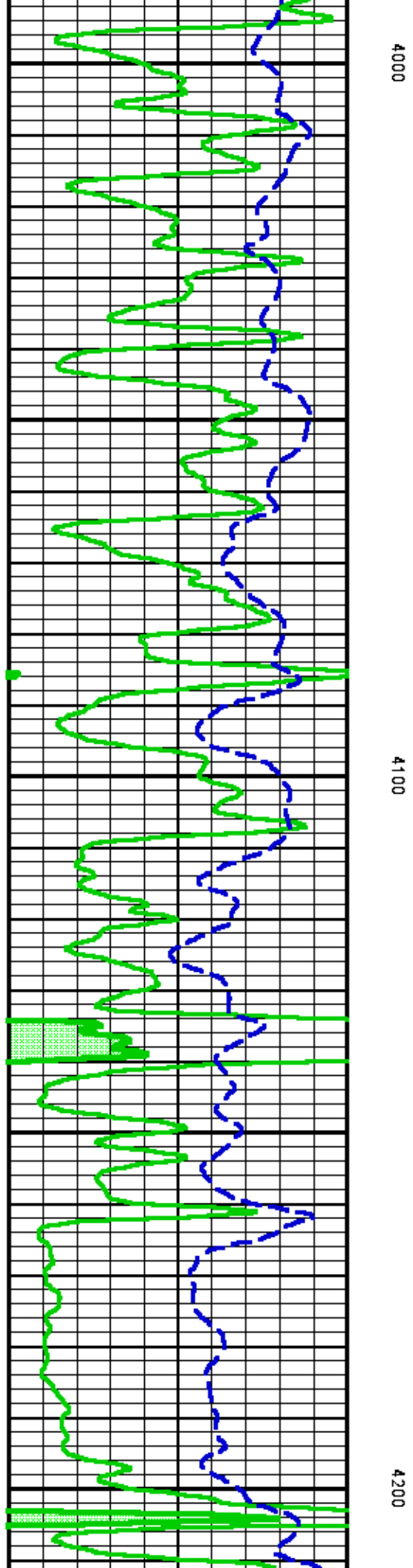
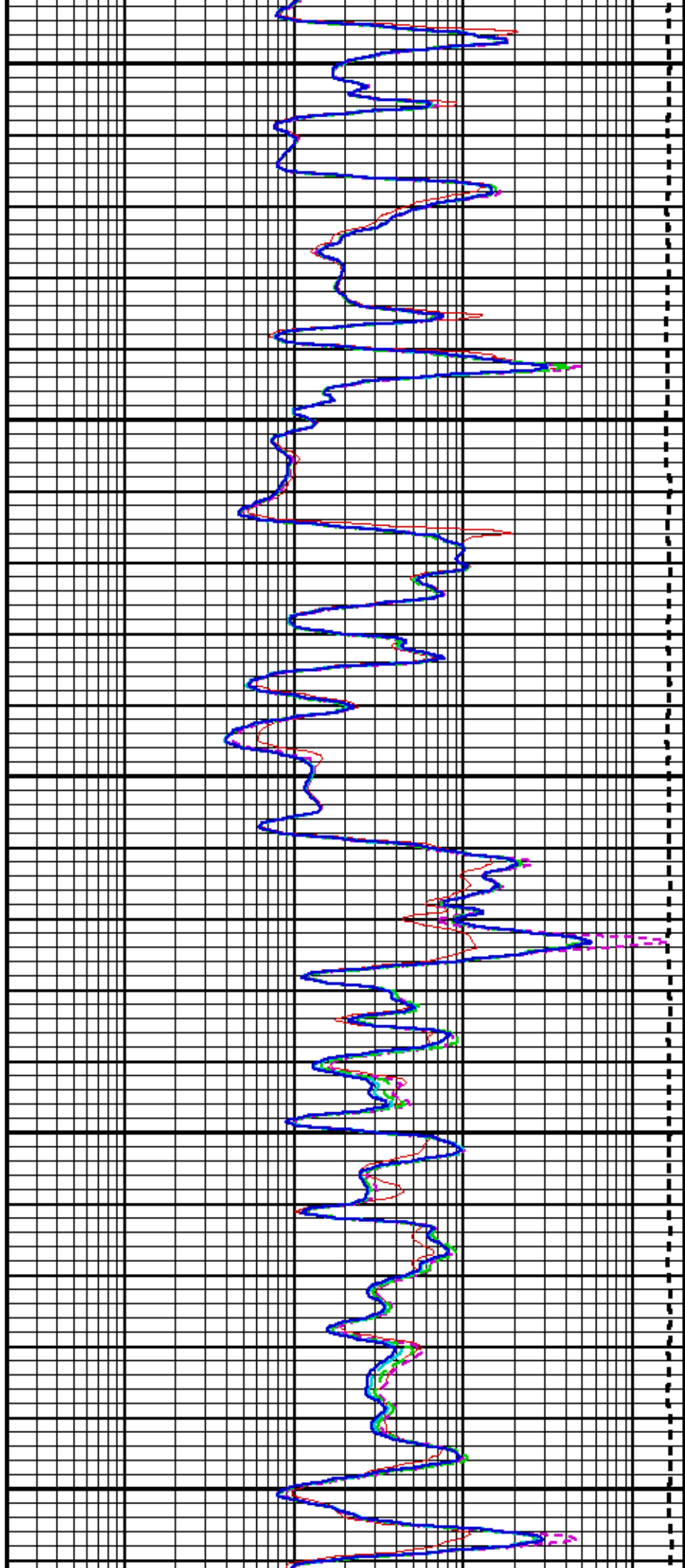
3300

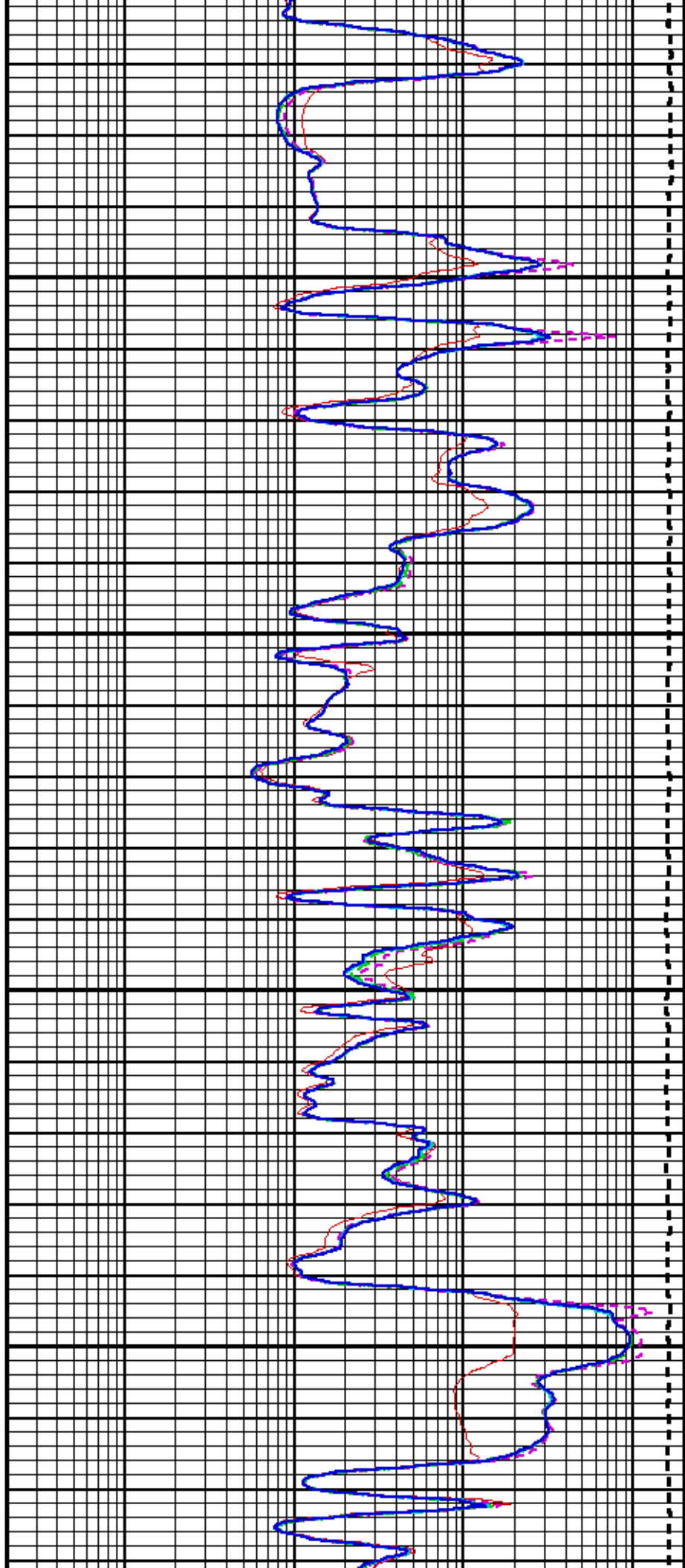






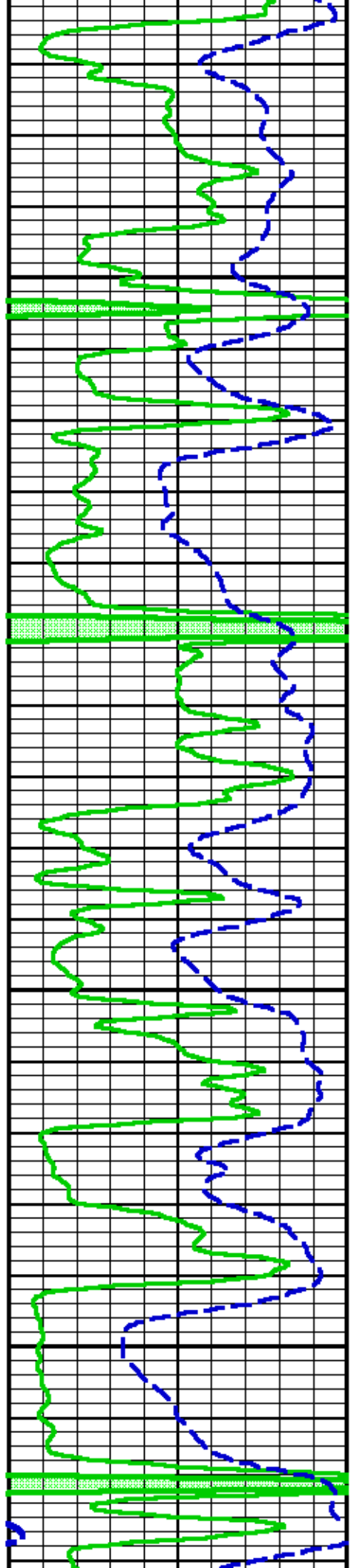


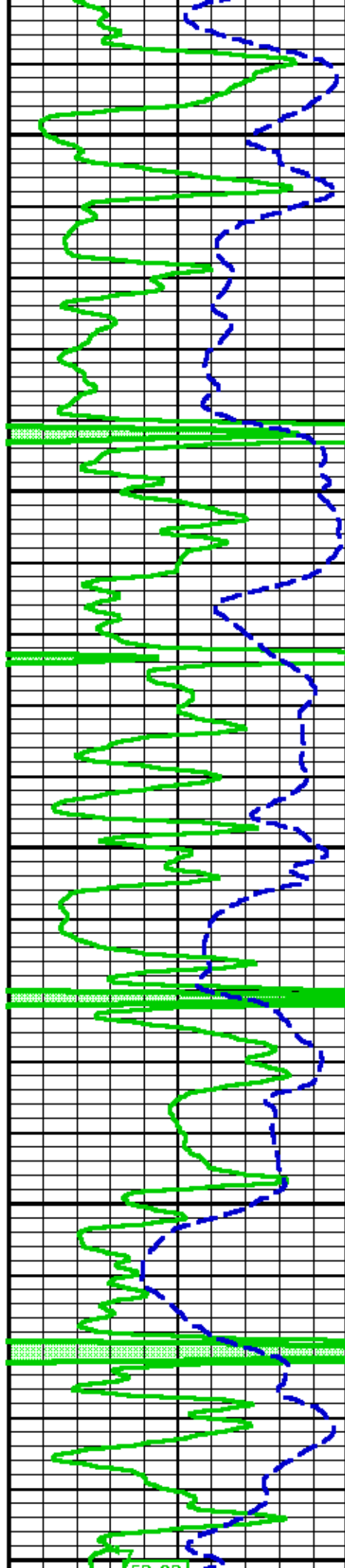




4300

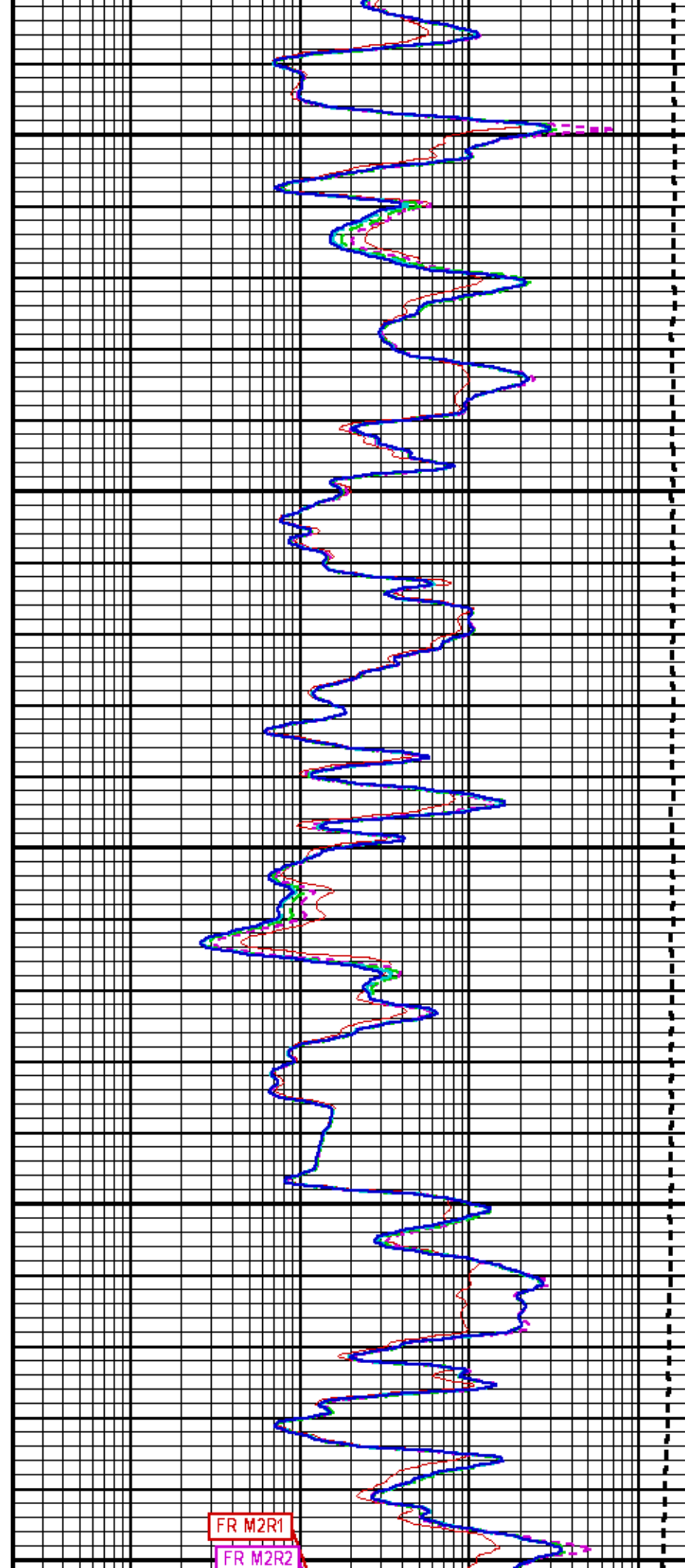
4400





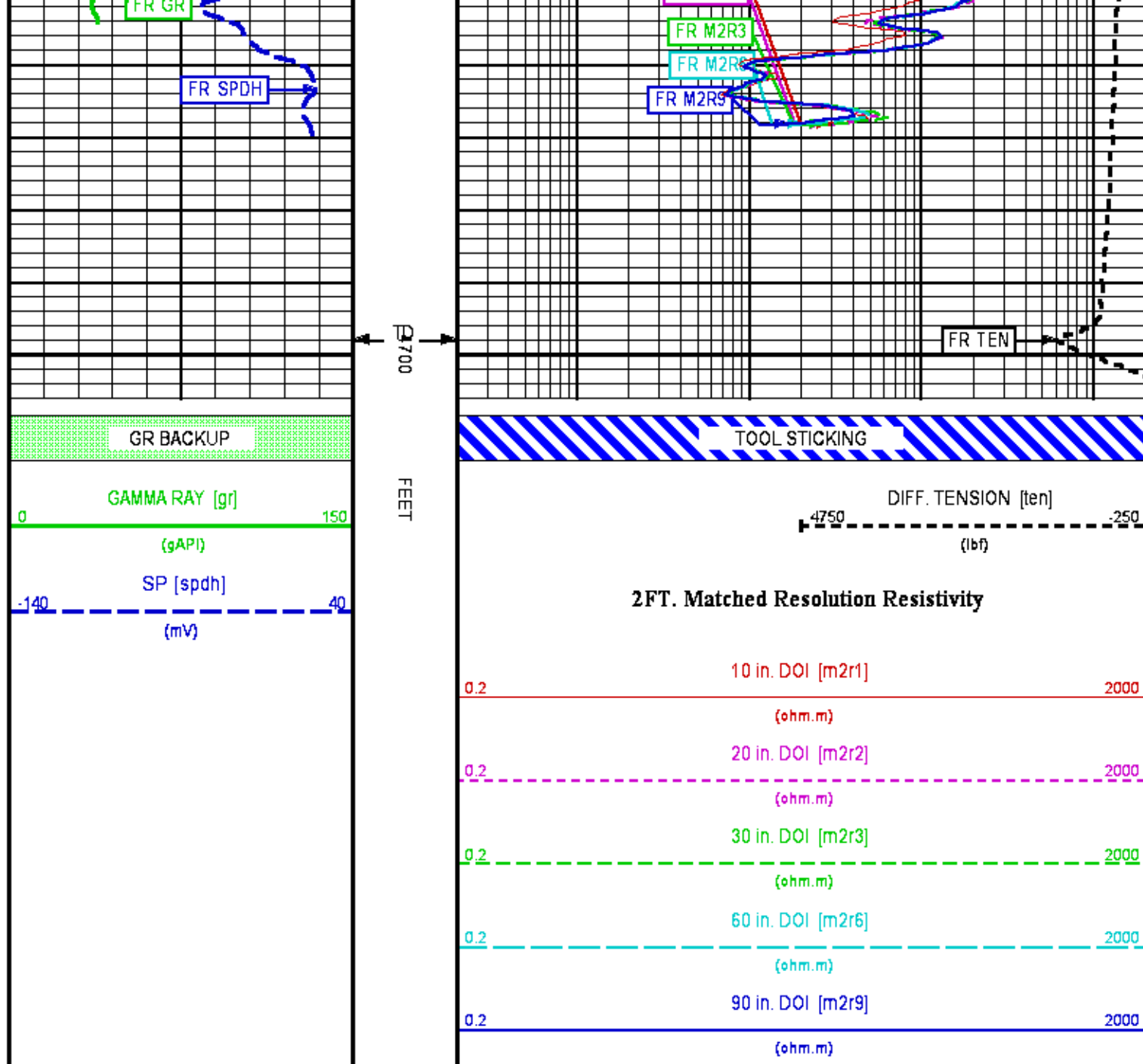
4500

4600



FR M2R1

FR M2R2



REPEAT LOG 5"/100FT SCALE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013  
Patches: 5

Plotted: Sat Mar 22 03:26:49 2014

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/617654/MSLAM\_DAL~05.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 3992.750 ft BOTTOM DEPTH: 4299.500 ft

SYMMETRIC FILTER

| MEASUREMENT TYPE | PARAMETER   | VALUE      | UNITS | INTERVAL (ft) |        |
|------------------|-------------|------------|-------|---------------|--------|
| TENSION          | FILTER Q    | medium (1) |       | TOP           | BOTTOM |
| GR               | FILTER Q    | medium (1) |       | "             | "      |
|                  | FILTER (.h) | medium (1) |       | "             | "      |
|                  | FILTER (.i) | medium (1) |       | "             | "      |
| SP-SPDH          | FILTER Q    | medium (1) |       | "             | "      |
|                  | FILTER (.i) | medium (1) |       | "             | "      |

### BOREHOLE & CEMENT

| MEASUREMENT TYPE              | PARAMETER                 | VALUE            | UNITS        | INTERVAL (ft) |        |
|-------------------------------|---------------------------|------------------|--------------|---------------|--------|
| BIT SIZE                      | BIT SIZE                  | 7.875            | in           | TOP           | BOTTOM |
| MUD SAMPLE RESISTIVITY        | MUD SAMPLE TEMP           | 52.3             | degF         | "             | "      |
|                               | MUD SAMPLE RES            | 1.430            | ohm.m        | "             | "      |
| BOREHOLE TEMP from GRADIENT   | Known BH REF TEMP         | 120.0            | degF         | "             | "      |
|                               | at BH REF DEPTH           | 5465.0           | ft           | "             | "      |
|                               | with TEMP GRADIENT        | 1.200            | 0.01 degF/ft | "             | "      |
| BOREHOLE CORR DIAMETER SOURCE | CALIPER/FIXED DIA. (mbh*) | USE CALIPER      |              | "             | "      |
| BOREHOLE CORR DIAMETER        | FIXED DIAMETER (mbh*)     | 7.875            | in           | "             | "      |
| BH MUD RESISTIVITY SOURCE     | RMUD SOURCE (HDIL)        | MUD SAMP DERIVED |              | "             | "      |

### HDIL PROCESSING

| MEASUREMENT TYPE             | PARAMETER        | VALUE      | UNITS | INTERVAL (ft) |        |
|------------------------------|------------------|------------|-------|---------------|--------|
| HDIL TEMPERATURE CORRECTION  | TEMP CORR SOURCE | USE RXTEMP |       | TOP           | BOTTOM |
| ADAPTIVE BOREHOLE CORRECTION | ABC PROCESSING   | ON         |       | "             | "      |
|                              | ABC to CALCULATE | STANDOFF   |       | "             | "      |
|                              | STANDOFF         | 1.50       | in    | "             | "      |
|                              | TOOL POSITION    | ECCENTERED |       | "             | "      |
|                              | Rmud MULTIPLIER  | 1.000      |       | "             | "      |

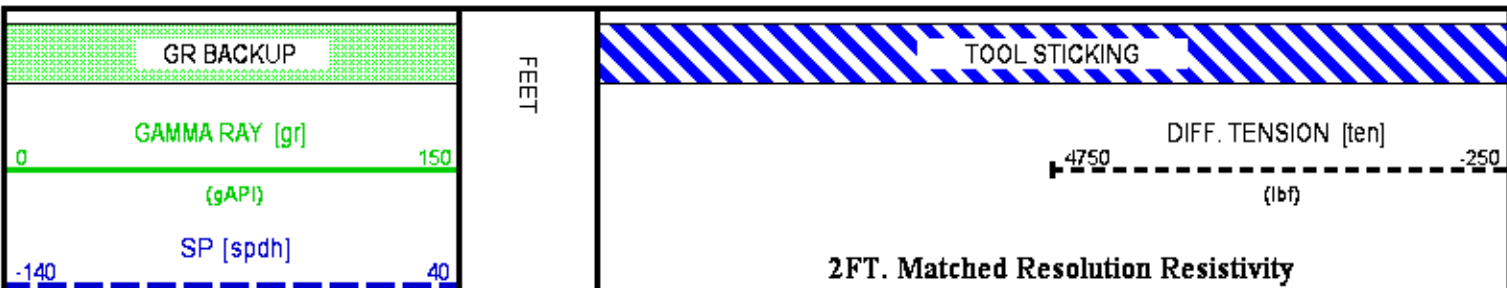
### CURVE DESCRIPTION REPORT

| CURVE NAME | CREATION DATE        | CURVE DESCRIPTION   |
|------------|----------------------|---|
| F1:GR      | Mar 22 01:24:20 2014 | GAMMA RAY   |
| F1:M2R1    | Mar 22 01:24:20 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 10-INCH DOI |
| F1:M2R2    | Mar 22 01:24:20 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 20-INCH DOI |
| F1:M2R3    | Mar 22 01:24:20 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 30-INCH DOI |
| F1:M2R6    | Mar 22 01:24:20 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 60-INCH DOI |
| F1:M2R9    | Mar 22 01:24:20 2014 | VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 90-INCH DOI |
| F1:SPDH    | Mar 22 01:24:20 2014 | SPONTANEOUS POTENTIAL PROCESSED IN COMMON REMOTE            |
| F1:TEN     | Mar 22 01:24:20 2014 | DIFFERENTIAL TENSION  |

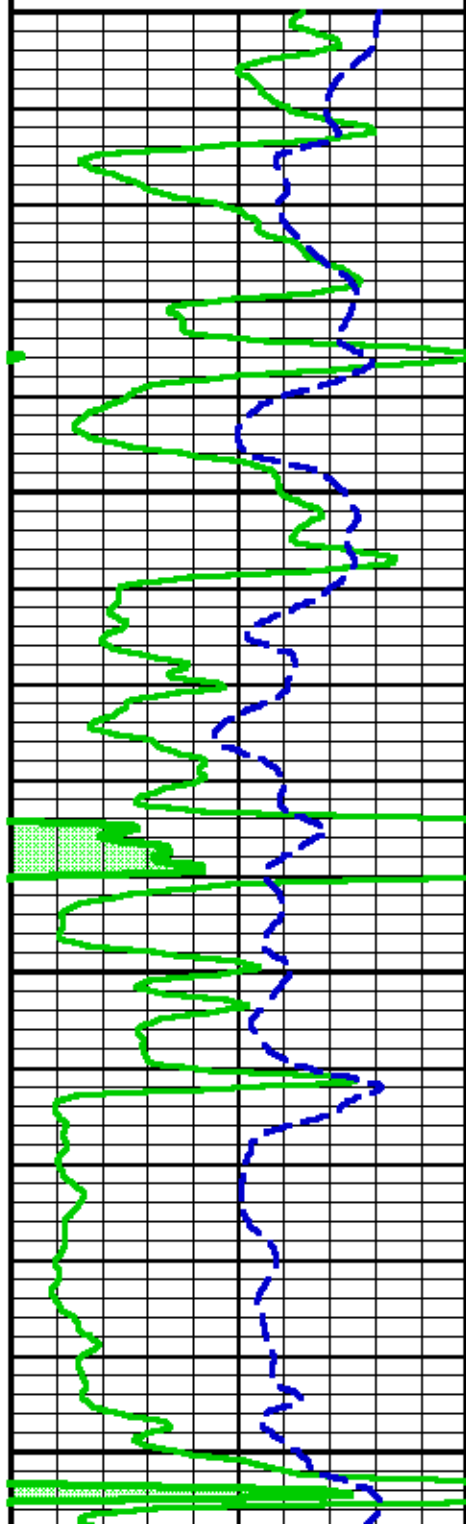
### CURVE MEASURE POINT OFFSET

| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| GR    | 49.25       | M2R2  | 28.50       | M2R6  | 28.50       | SPDH  | 34.50       |
| M2R1  | 28.50       | M2R3  | 28.50       | M2R9  | 28.50       | TEN   | 0.00        |

|                      |   |
|----------------------|---|
| <b>Presentation</b>  | : cpu6690:/dat1a/617654/hdil_REPEAT.fvpdf [5"/100' Scale] |
| <b>Plot Interval</b> | : 4050 - 4250 Feet  |
| <b>Data File 1</b>   | : F1 : cpu6690:/dat1a/617654/dal_sl_repeat_ls.xdf         |
| <b>Created On</b>    | : Mar 22 01:24:20 2014                                    |
| <b>Company</b>       | : PRONGHORN OPERATING, LLC                                |
| <b>Well</b>          | : PEPPER #1   |
| <b>Field</b>         | : CHEYENNE WELLS  |
| <b>File Interval</b> | : 3930 - 4299.5 Feet                                      |
| <b>OCT</b>           | : MSLAM_DA  |

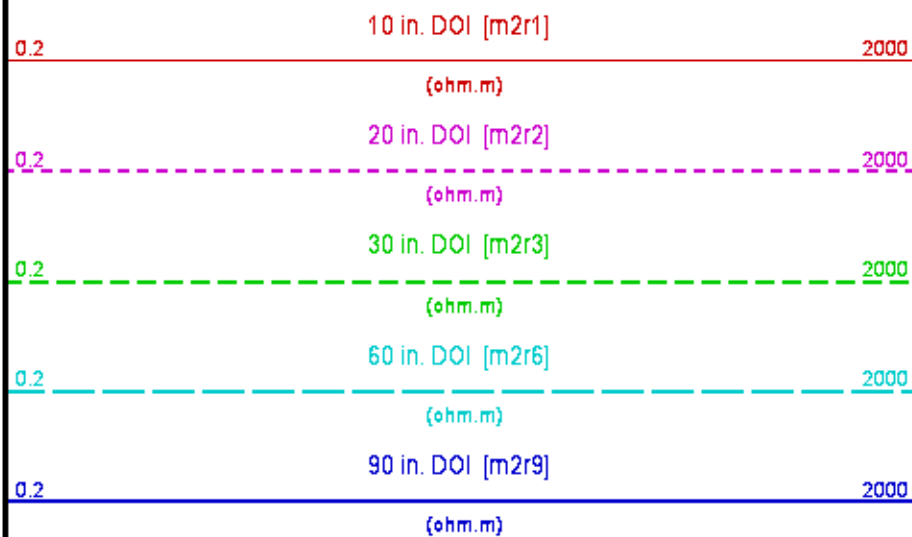


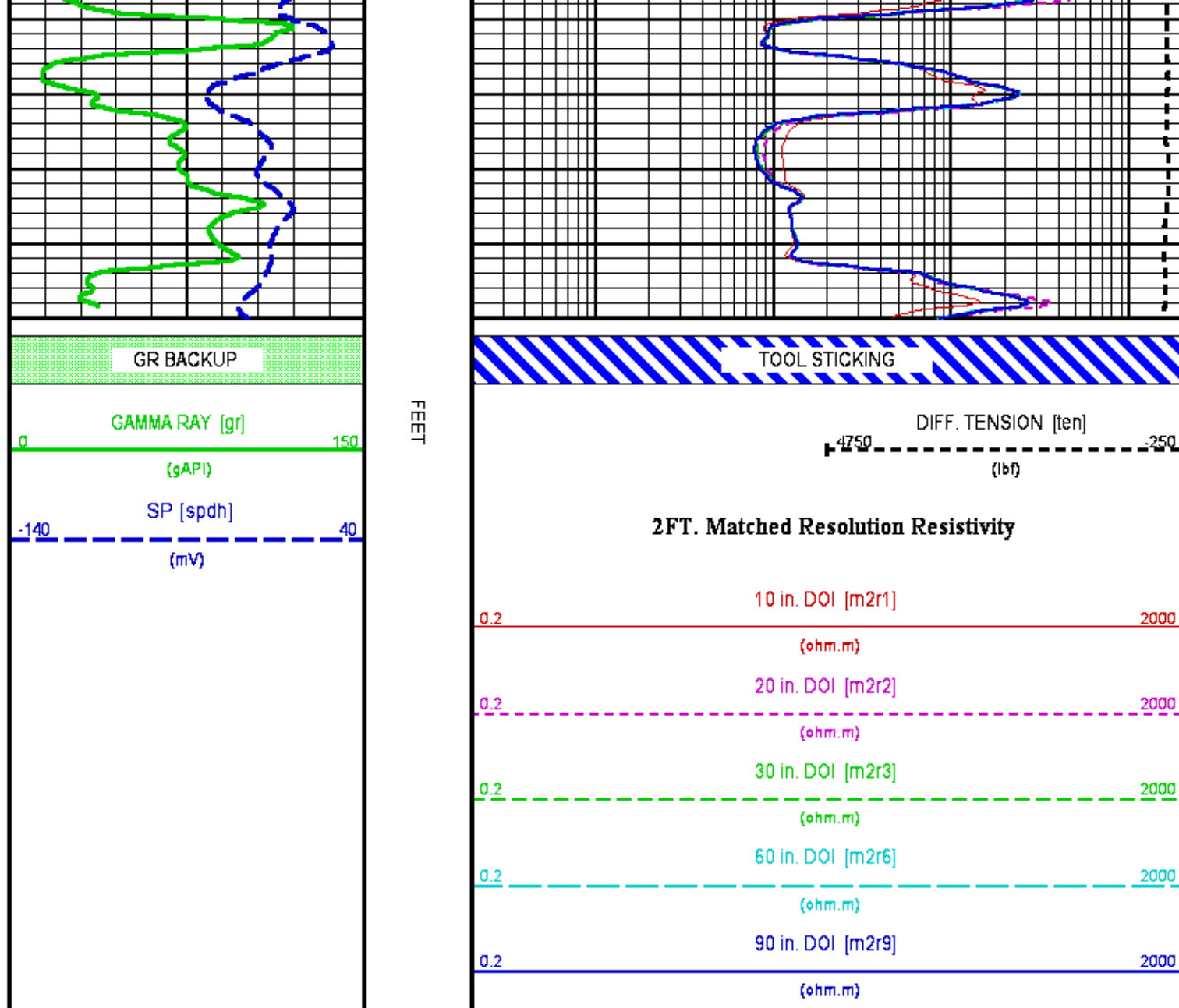
(mV)



4100

4200





## CALIBRATION / VERIFICATION SUMMARY

Source File: /data/617654/MSLAM.tp1

### GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 370718

DATE/TIME PERFORMED: Wed Mar 19 11:26:46 2014

UNIT #: 3882TD HL669D

CALB JIG #: 47D2NK BA-857

|    | BACKGROUND<br>(cts/s) | CALBRTR ON<br>(cts/s) | GR DIFF<br>(cts/s) | MULT  | BACKGROUND<br>(gAPI) | CALBRTR ON<br>(gAPI) | CALBRTR<br>(gAPI) |
|----|-----------------------|-----------------------|--------------------|-------|----------------------|----------------------|-------------------|
| GR | 183.33                | 1131.18               | 947.8              | 0.158 | 29.01                | 179.01               | 150               |

### GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 370718

DATE/TIME PERFORMED: Wed Mar 19 11:34:17 2014

UNIT #: 3882TD HL669D

VERI JIG #: 47D2NK BA-857

|    | BACKGROUND<br>(cts/s) | CALBRTR ON<br>(cts/s) | MULT  | BACKGROUND<br>(gAPI) | CALBRTR ON<br>(gAPI) | DIFF.<br>(gAPI) |
|----|-----------------------|-----------------------|-------|----------------------|----------------------|-----------------|
| GR | 187.98                | 1132.84               | 0.158 | 29.75                | 179.28               | 149.53          |
|    |                       |                       |       |                      |                      | 140.00 180.00   |

## GR BEFORE LOG VERIFICATION SUMMARY

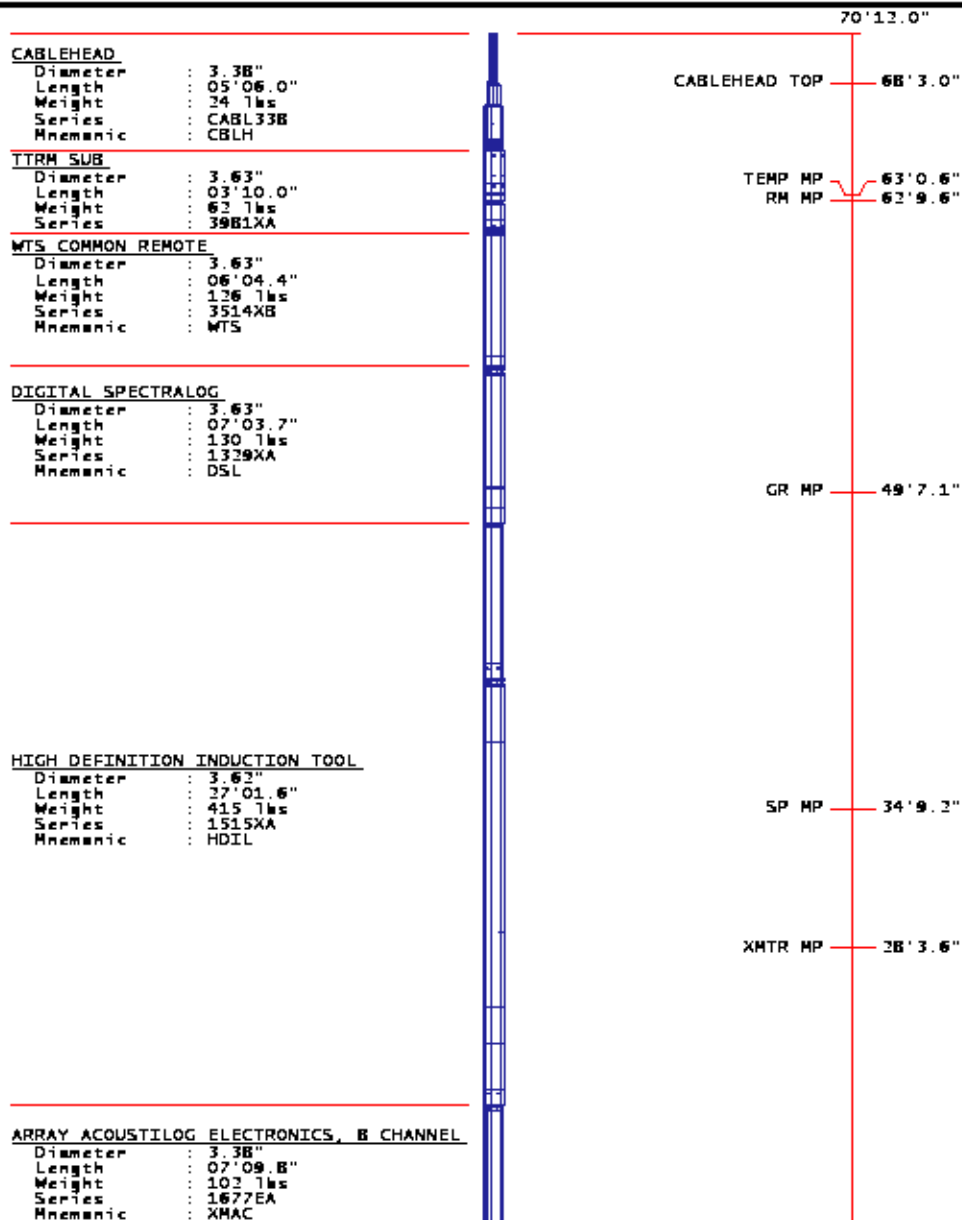
TOOL #: 1329XA 370718 DATE/TIME PERFORMED: Wed Mar 19 11:38:23 2014 DAYS SINCE CAL: 0

UNIT #: 3882TD HL6690 VERI JIG #: 4702NK BA-857

|    | BACKGROUND<br>(cts/s) | CALBRTR ON<br>(cts/s) | MULT  | BACKGROUND<br>(gAPI) | CALBRTR ON<br>(gAPI) | DIFF.<br>(gAPI) |
|----|-----------------------|-----------------------|-------|----------------------|----------------------|-----------------|
| GR | 188.80                | 1137.91               | 0.158 | 29.56                | 180.08               | 150.52          |
|    |                       |                       |       |                      |                      | 139.53 199.53   |

## INSTRUMENT CONFIGURATION

Source File: /dat1a/617654/MSLAM\_DALum-tdg



## DIGITAL ACOUSTILOG

Diameter : 3.38"  
 Length : 12'09.1"  
 Weight : 145 lbs  
 Series : 16B0MA  
 Mnemonic : DAL

T1 MP 8'2.8"

T2 MP 6'2.8"

R1 MP 3'2.8"

BULL PLUG 3 3/8

0'0.0"

TOTAL LENGTH: 70'13.0"  
 TOTAL WEIGHT: 1006 lbs  
 MAX DIAMETER: 0'3.63"

COMPANY PRONGHORN OPERATING, LLCWELL PEPPER #1FIELD CHEYENNE WELLSCOUNTY CHEYENNE STATE COLORADO

FILE NO:

OH083650

API NO:

05017077820000

LOCATION:

SHL: 1691' FNL & 2034' FEL

ELEVATIONS:

KB 4281 FTDF 4280 FTGL 4264 FTSEC 5 TWP 14S RGE 44WDATE 22 MAR 2014