



| | |
|----------------|---------------------------|
| FILE NO: | COMPANY |
| CH108534 | TERRA ENERGY PARTNERS LLC |
| API NO: | WELL |
| 05045225290000 | FEDERAL GM 421-9 |
| | FIELD |
| | GRAND VALLEY |
| | COUNTY |
| | GARFIELD |
| | STATE |
| | COLORADO |

| | | |
|----------------|----------------------------|----------------|
| Ver. 4.06 | LOCATION: | OTHER SERVICES |
| S.9 T.7S R.96W | SHL: 644' FNL & 578' FWL | CBL |
| PAD: MV 16-9 | BHL: 1166' FNL & 1379' FWL | |
| RIG: H&P 318 | SEC 9 | TWP 7S |
| | | RGE 96W |

| | | | |
|-------------------|----|-------------|------------|
| PERMANENT DATUM | GL | ELEVATION | 6087 FT |
| LOG MEASURED FROM | KB | 24 FT | ABOVE P.D. |
| DRILL. MEAS. FROM | KB | | |
| | | ELEVATIONS: | |
| | | KB | 6111 FT |
| | | DF | |
| | | GL | 6087 FT |

| | | |
|------------------------|-----------------------|---|
| DATE | 27-Jul-2016 | |
| RUN | TRIP | 1 |
| SERVICE ORDER | US108534 | |
| DEPTH DRILLER | 6667 FT | |
| DEPTH LOGGER | 6586 FT | |
| BOTTOM LOGGED INTERVAL | 6584 FT | |
| TOP LOGGED INTERVAL | 24 FT | |
| TIME STARTED | 13:00 | |
| TIME FINISHED | 17:30 | |
| OPERATOR RIG TIME | 4.5 HOURS | |
| TYPE OF FLUID IN HOLE | WATER | |
| FLUID DENSITY | NA | |
| FLUID SALINITY | NA | |
| FLUID LEVEL | 39 FT | |
| LOGGED CEMENT TOP | NA | |
| WELLHEAD PRESSURE | 0 PSI | |
| MAXIMUM HOLE DEVIATION | NA | |
| NOMINAL LOGGING SPEED | 10 F/MIN | |
| MAX. RECORDED TEMP. | 203 DEGF | |
| REFERENCE LOG | BAKER HUGHES BOND LOG | |
| REFERENCE LOG DATE | 27-Jul-2016 | |
| EQUIP. NO. | LOCATION | |
| RECORDED BY | T. NEWELL | |
| WITNESSED BY | D. WELSH | |

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 |
| 13.5 IN | 24 FT | 1303 FT |
| 8.75 IN | 1303 FT | 6654 FT |

| CASING RECORD | | | | |
|---------------|-----------|-------|-------|---------|
| SIZE | WEIGHT | GRADE | FROM | TO |
| 9.625 IN | | | 24 FT | 1303 FT |
| 4.5 IN | 11.6 LB/F | | 24 FT | 6654 FT |

REMARKS

RUN 1 TRIP 1: ALL DATA ON THIS LOG HAS BEEN DEPTH MATCHED WITH THE GAMMA RAY CURVE ON THE BAKER HUGHES BOND LOG DATED 26-JUL-2016. DEPTH MATCHING MAY ALTER COLLAR LENGTHS.

AMOUNT OF LINEAR SHIFT = +2 FEET

LOGGED WITH 0 PSI AT SURFACE

LOGGED IN PNC-3D MODE

BHT = 203 DEGF
SJ = 3422' - 3444'

THANKS FOR CHOOSING BAKER HUGHES WIRELINE
CREW: SPENCER / FAVORITE

EQUIPMENT DATA

| RUN | TRIP | TOOL | SERIES NO. | SERIAL NO. | POSITION |
|-----|------|------------|------------|------------|----------|
| 1 | 1 | PCM | 8250EA | 11745584 | FREE |
| 1 | 1 | TEL / CCL | 8248ED | 11908681 | FREE |
| 1 | 1 | GR | 8262XA | 10317216 | FREE |
| 1 | 1 | RPM ELEC. | 8281EA | 10294755 | FREE |
| 1 | 1 | RPM SOURCE | 8283PA | 10160383 | FREE |
| 1 | 1 | RPM TMTR. | 8281FA | 10401926 | FREE |
| 1 | 1 | TEMP | 8255XA | Z166341 | FREE |

MAIN SECTION PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1,36 Patches: 9

Plotted: Wed Jul 27 17:17:01 2016

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH108534/n353hx02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 3467.000 ft BOTTOM DEPTH: 6596.250 ft

SYMMETRIC FILTER

| MEASUREMENT TYPE | PARAMETER | VALUE | UNITS | INTERVAL (ft) | |
|------------------|-----------|------------|-------|---------------|--------|
| GR | FILTER () | medium (1) | | TOP | BOTTOM |

RPM PROCESSING

| MEASUREMENT TYPE | PARAMETER | VALUE | UNITS | INTERVAL (ft) | |
|------------------|-------------------|------------|-------|---------------|--------|
| PNC Parameters | BOREHOLE CONTENTS | FLUID | | TOP | BOTTOM |
| | OPEN/CASED HOLE | CASED HOLE | | " | " |
| | BOREHOLE SIZE | 8.75 | in | " | " |
| | CASING SIZE | 4.50 | in | " | " |
| | MATRIX | SANDSTONE | | " | " |
| | CORRECTION BUFFER | 11 | | " | " |

CURVE DESCRIPTION REPORT

| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|----------------------|---|
| F1:CCL | Jul 27 14:01:50 2016 | CASING COLLAR LOCATOR |
| F1:GR | Jul 27 14:01:50 2016 | GAMMA RAY |
| F1:ISS | Jul 27 14:01:50 2016 | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | Jul 27 14:01:50 2016 | LONG SPACE COUNT RATE |
| F1:RATO | Jul 27 14:01:50 2016 | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | Jul 27 14:01:50 2016 | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | Jul 27 14:01:50 2016 | CORRECTED FORMATION SIGMA |
| F1:SS | Jul 27 14:01:50 2016 | SHORT SPACE COUNT RATE |

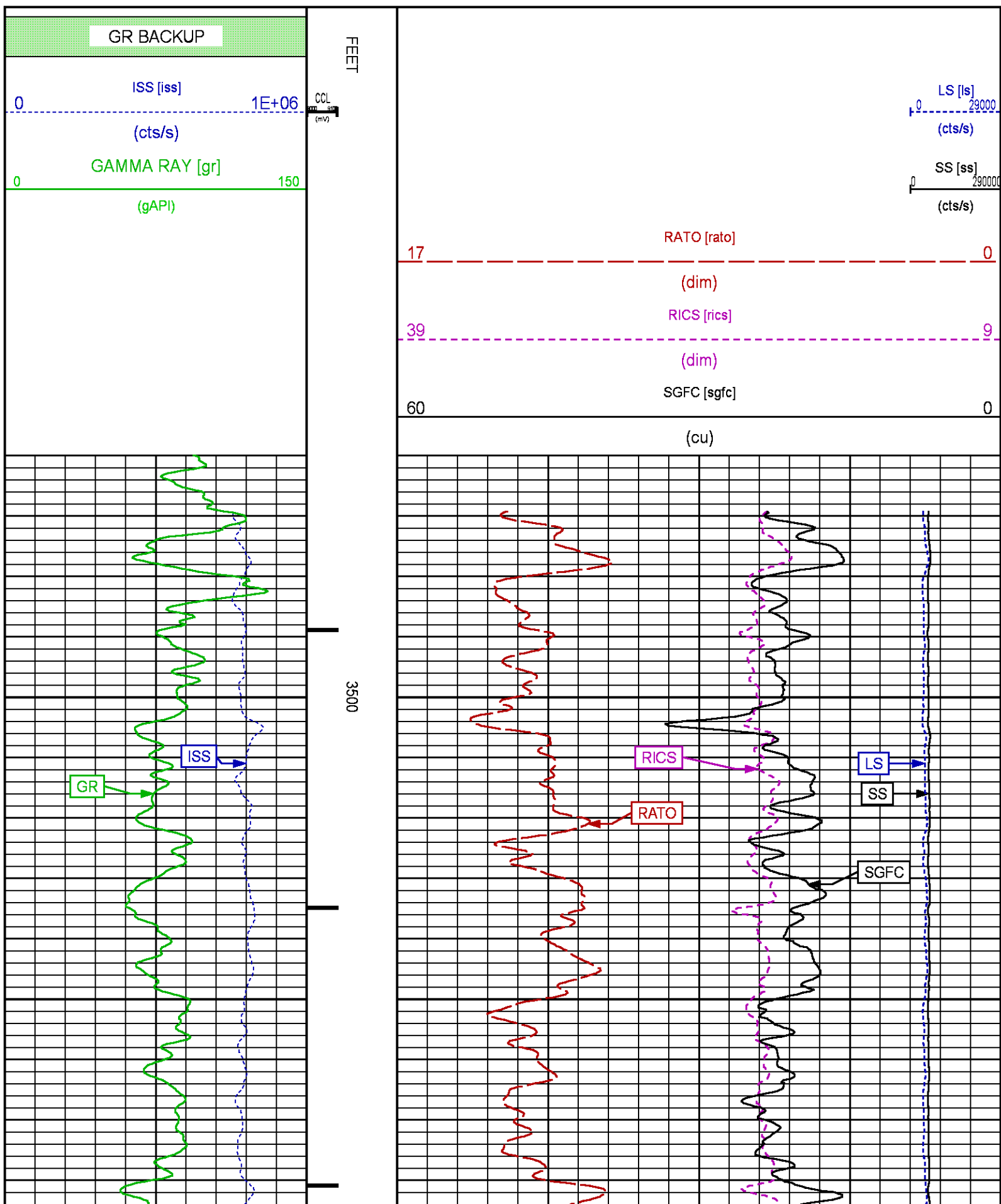
CURVE MEASURE POINT OFFSET

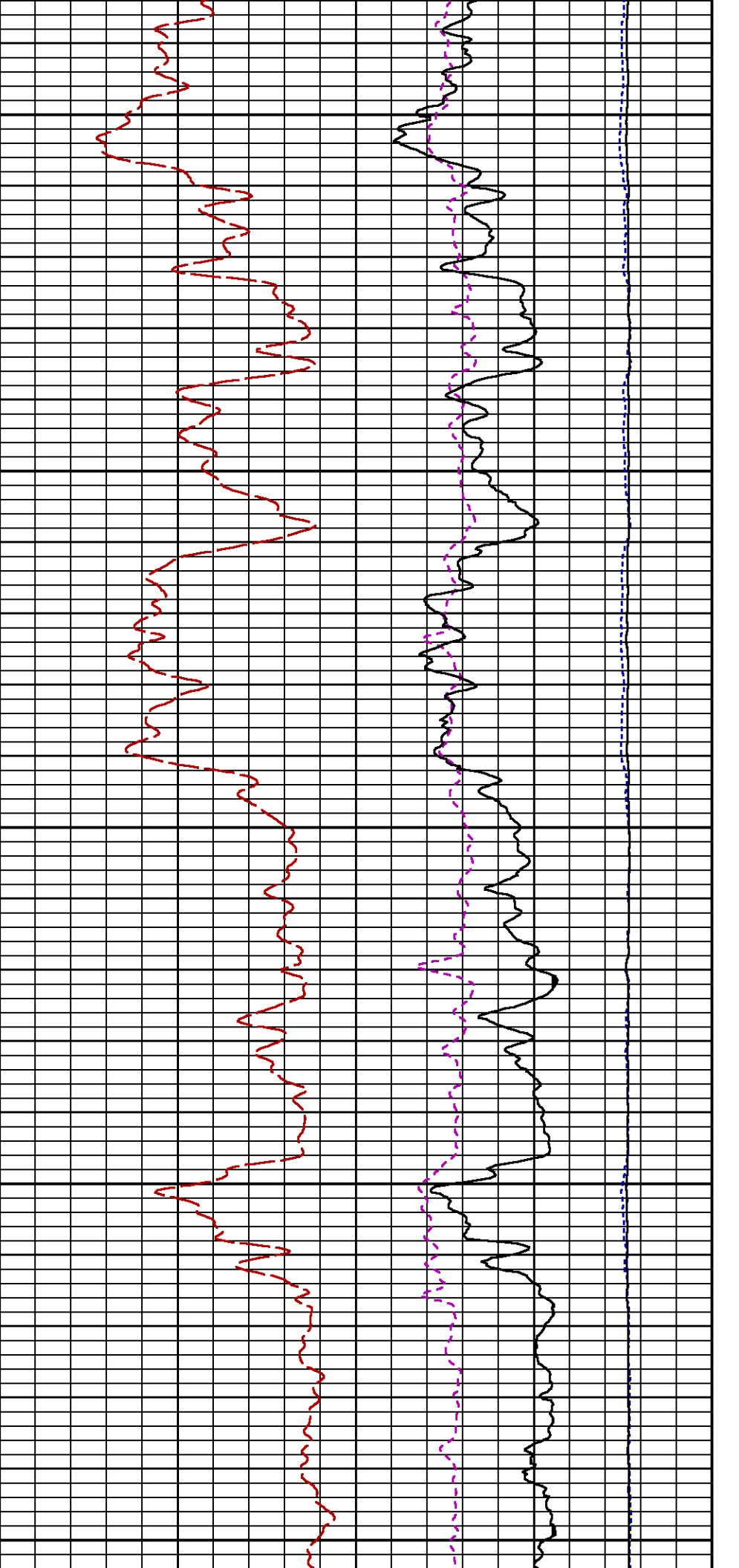
| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| CCL | 26.00 | ISS | 12.75 | RATO | 12.75 | SGFC | 12.75 |
| GR | 23.00 | LS | 12.75 | RICS | 12.75 | SS | 12.75 |

Presentation : cas6685:/dat1a/CH108534/421RPM_MAIN.fvpdf [5"/100' Scale]
Plot Interval : 3460 - 6596 Feet

Data File 1 : F1 : cas6685:/dat1a/CH108534/421RPM_MAIN.vtf

Data File : F:\cas0065\data\CH106554\421RFM_MAIN.xtl
Created On : Jul 27 14:01:50 2016
Company : TERRA ENERGY PARTNERS LLC
Well : FEDERAL GM 421-9
Field : GRAND VALLEY
File Interval : 18.25 - 6597.25 Feet
OCT : n353hx

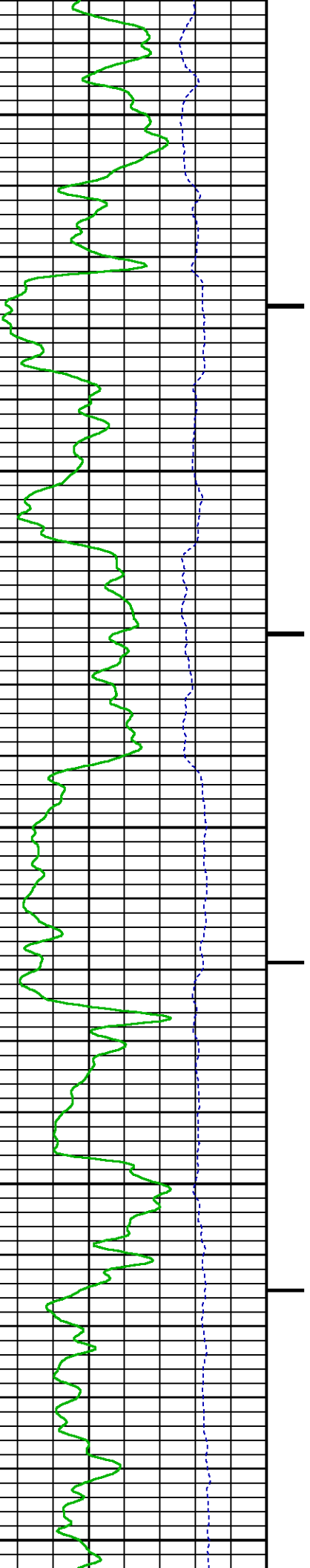


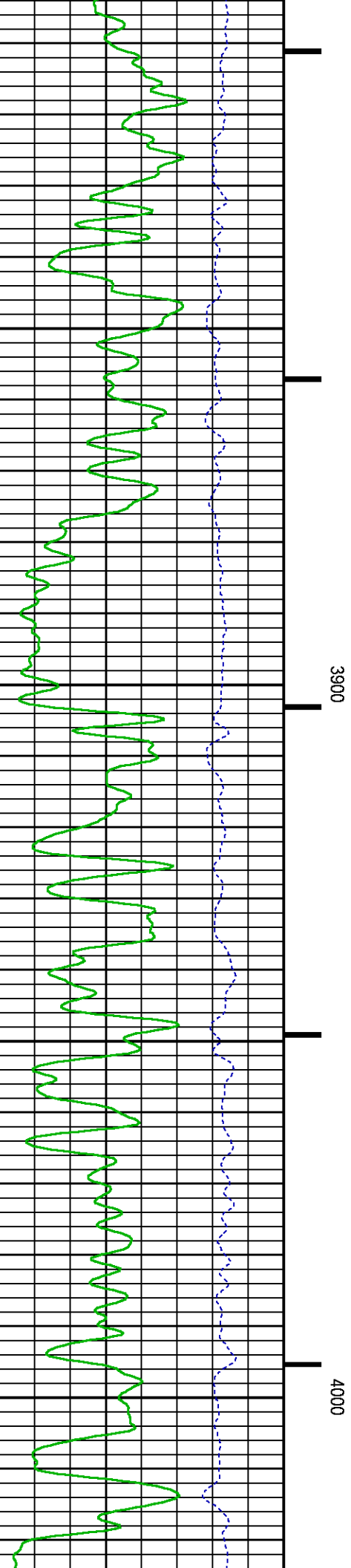
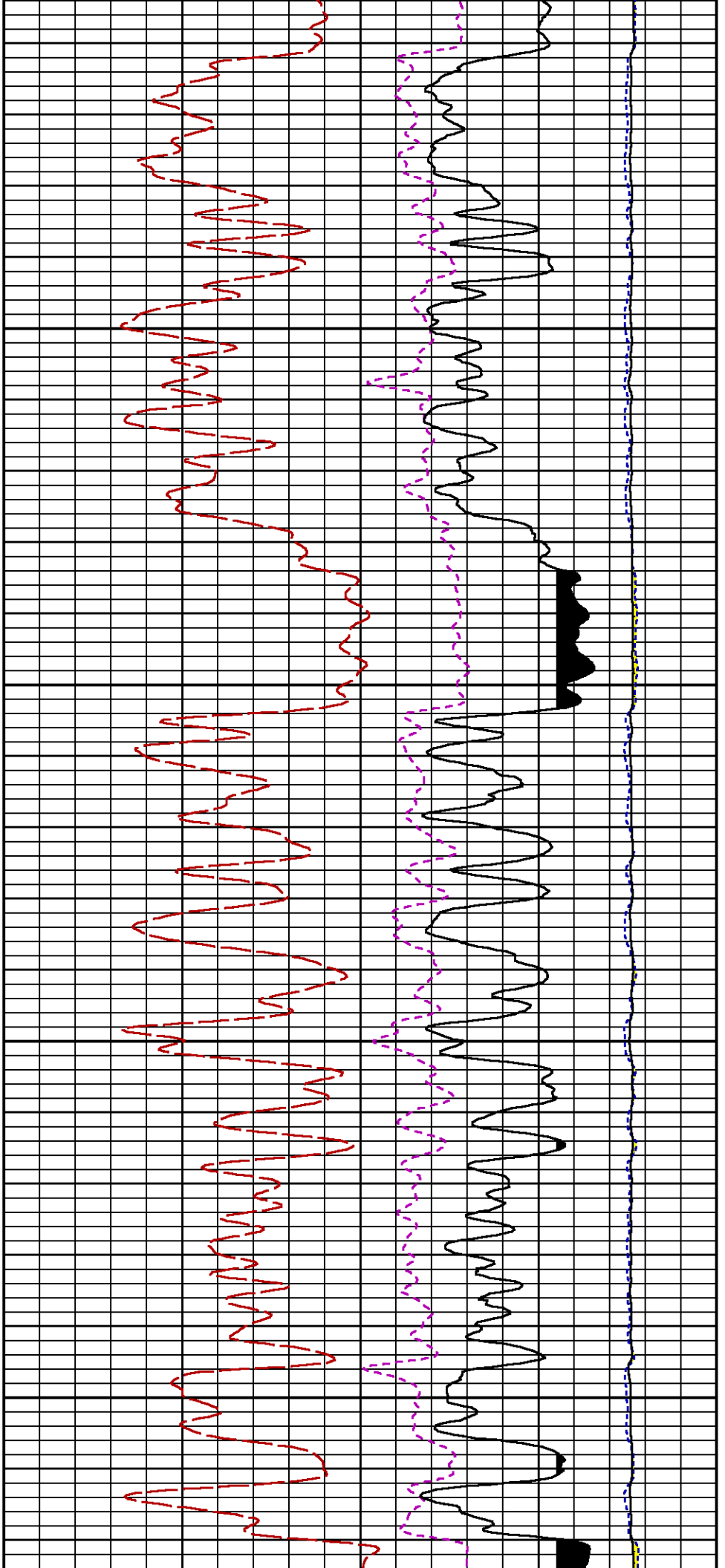


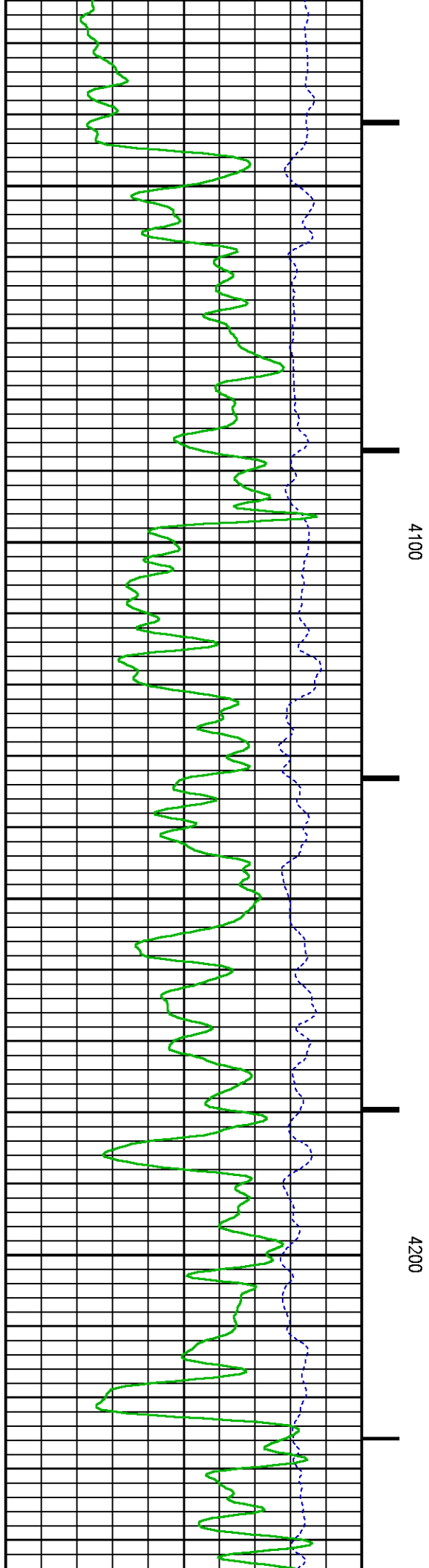
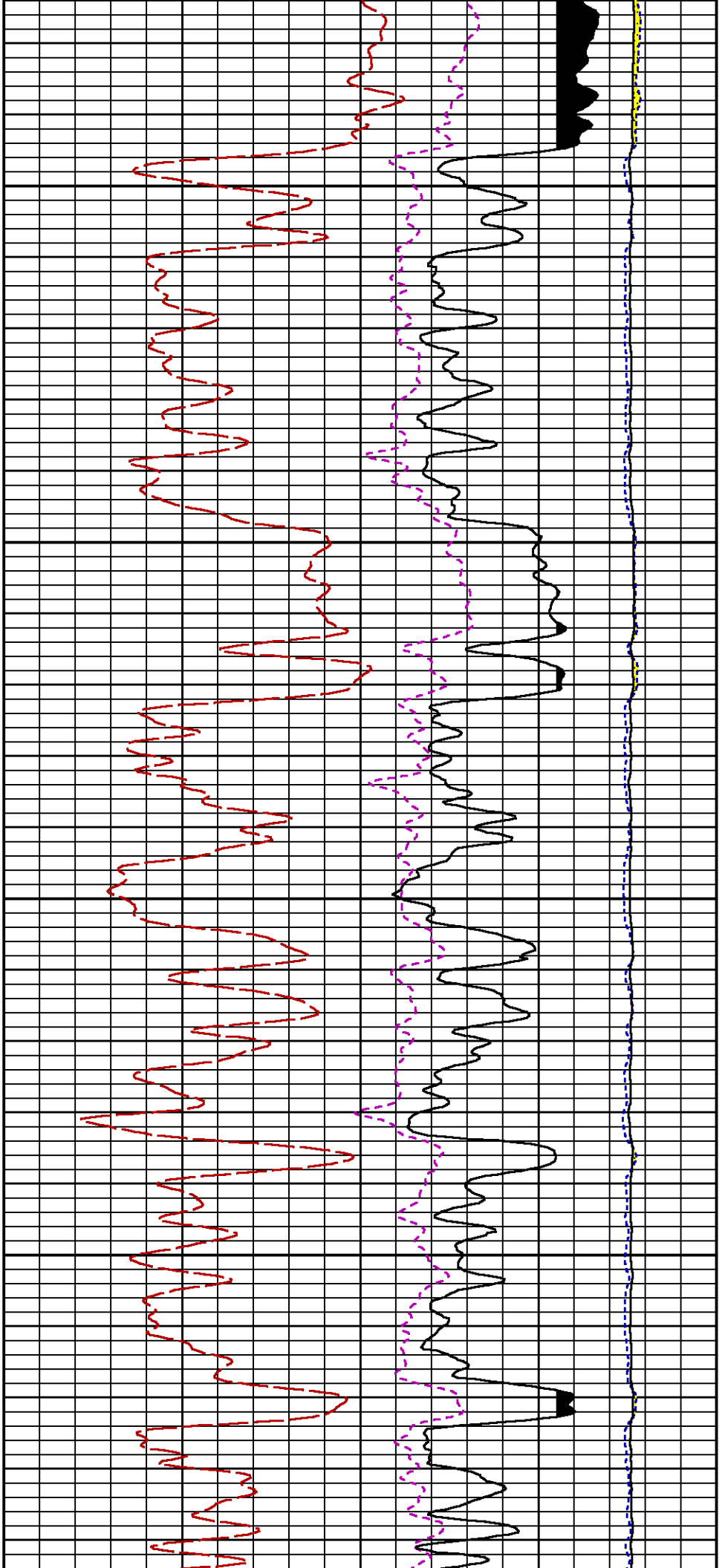
3600

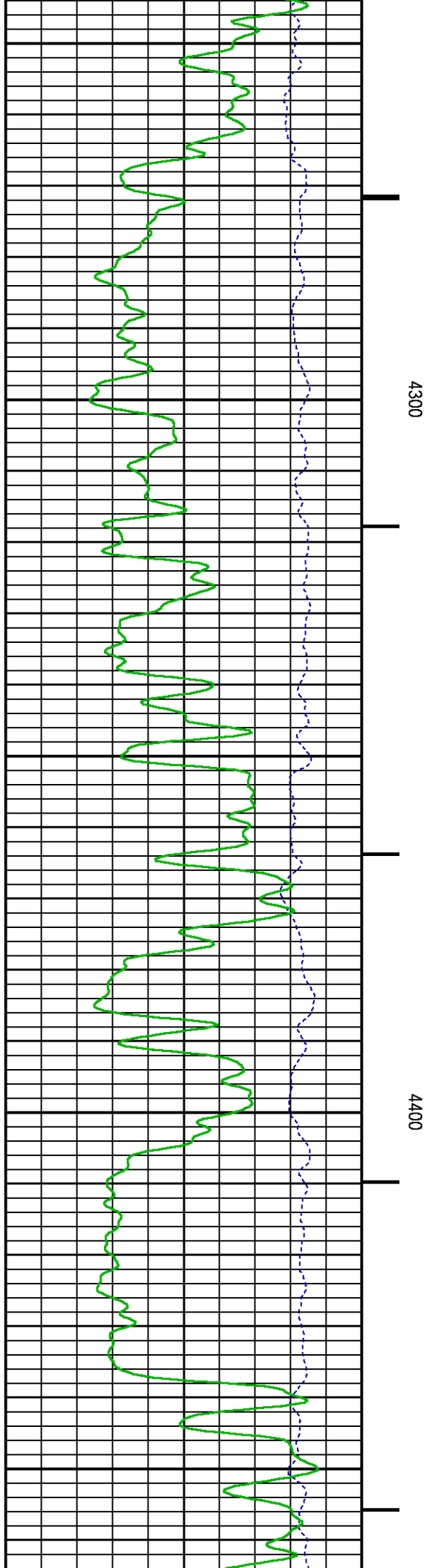
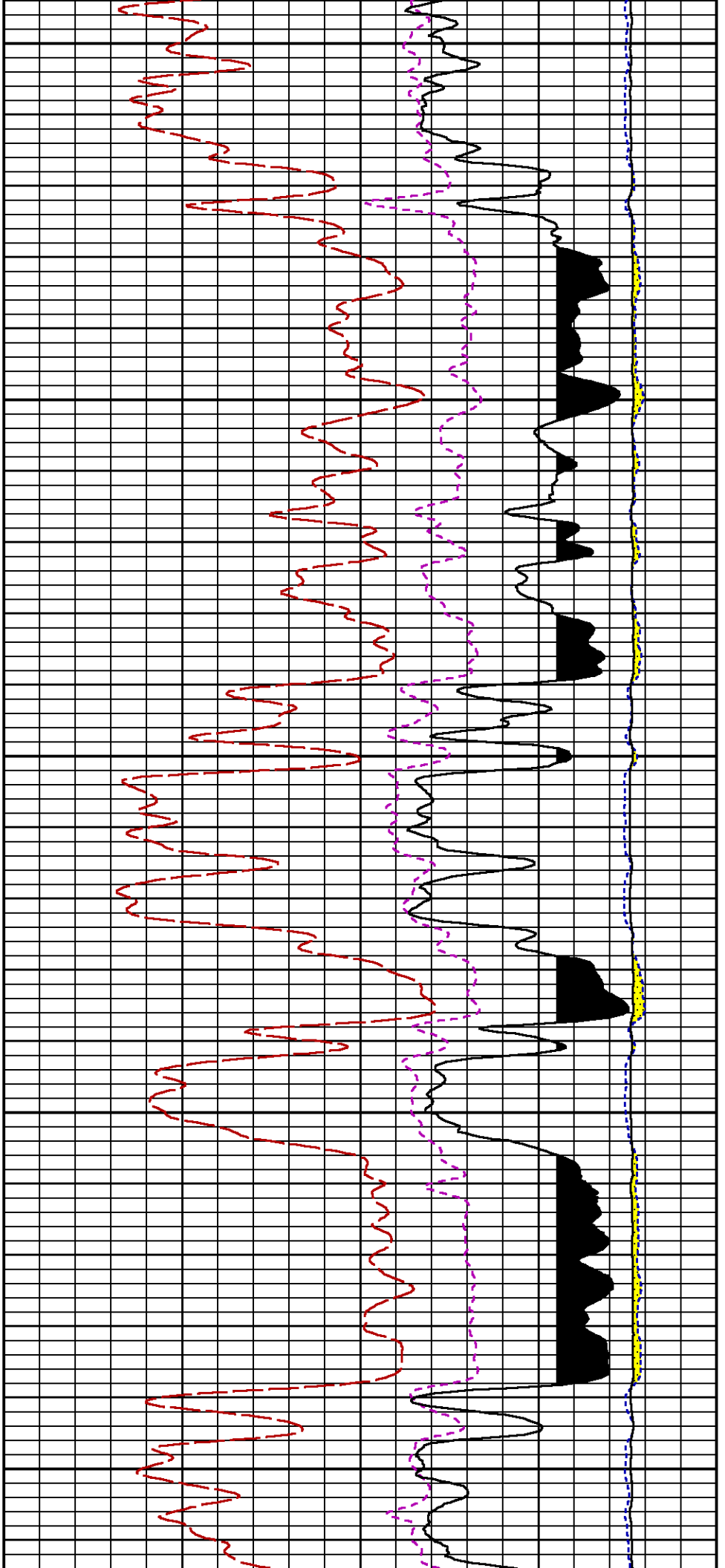
3700

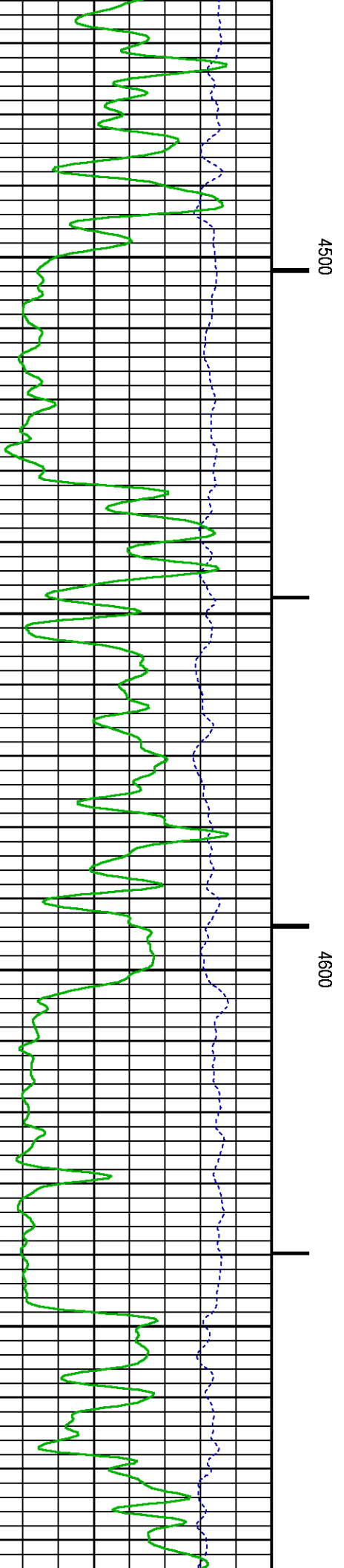
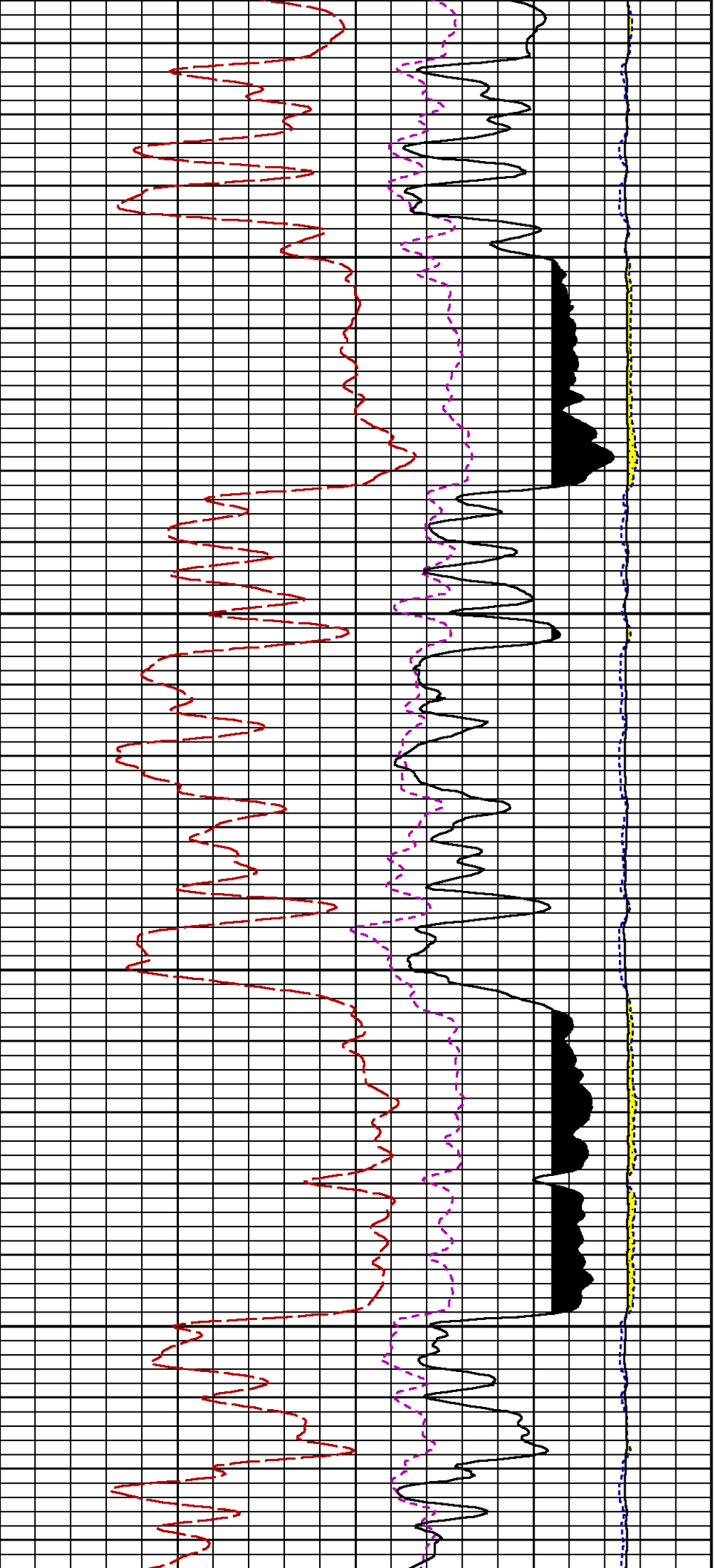
3800

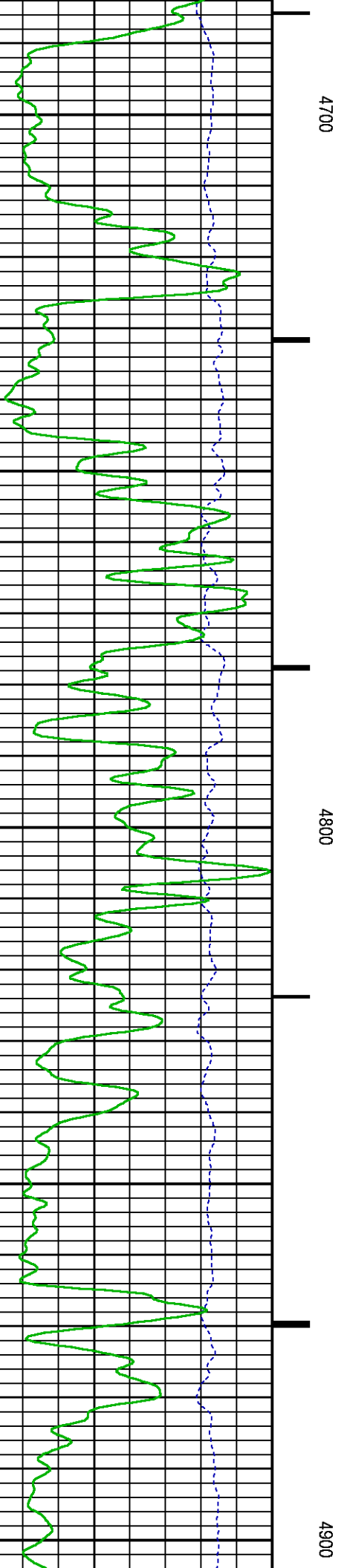
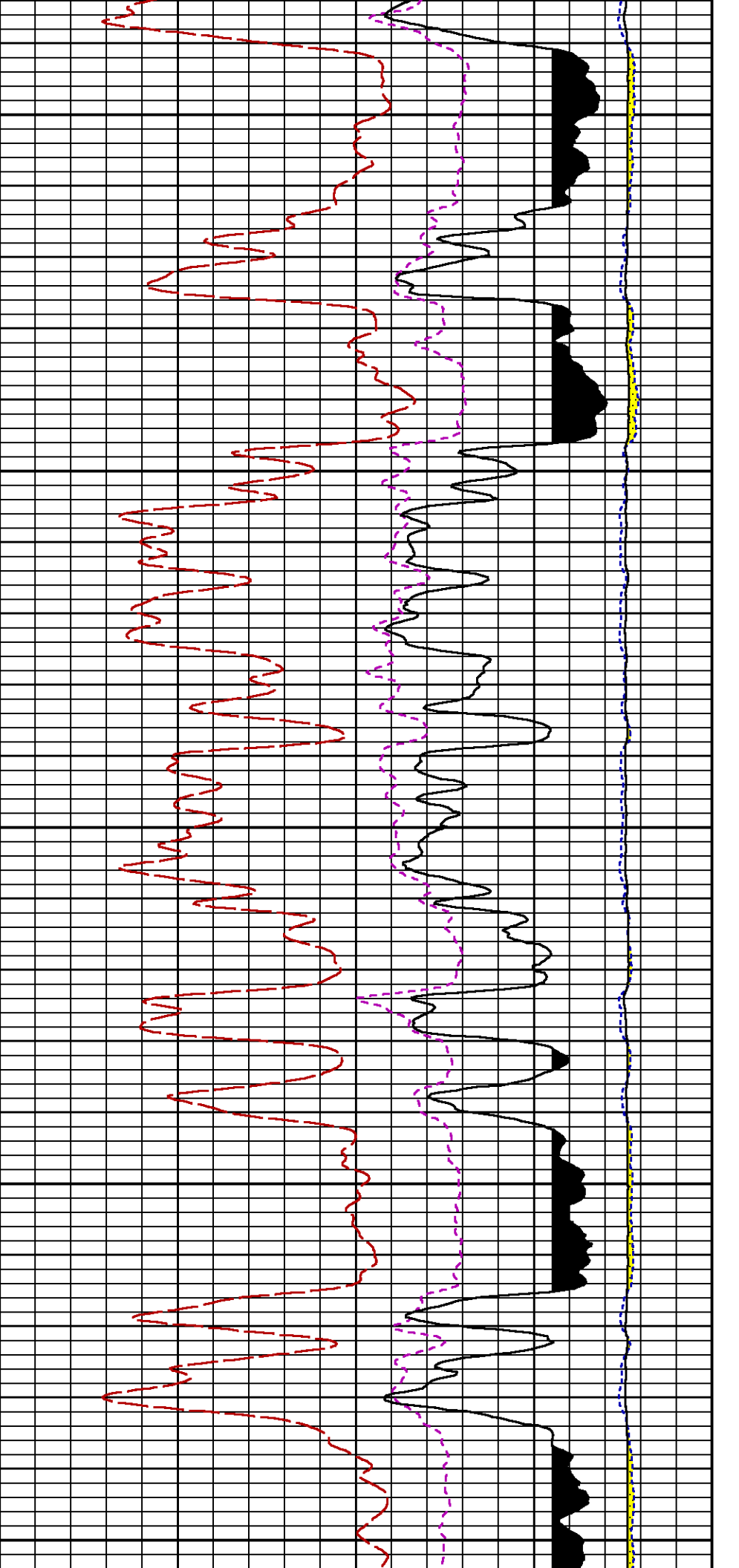


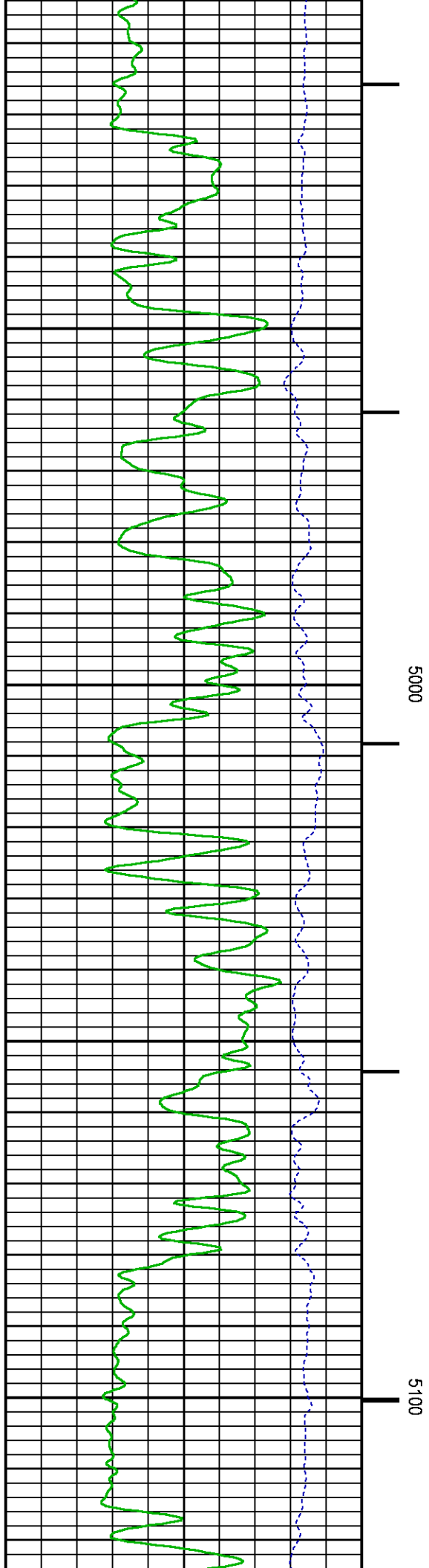
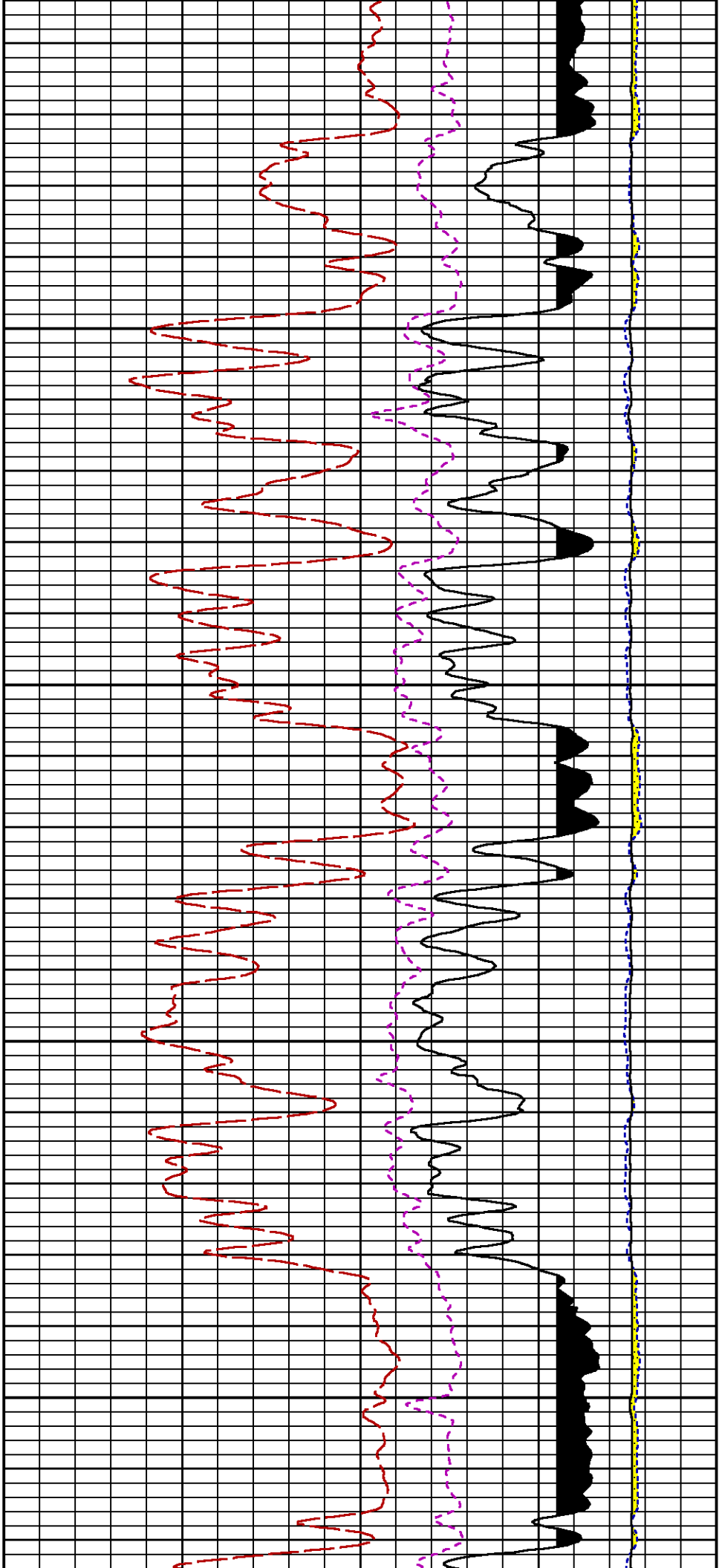


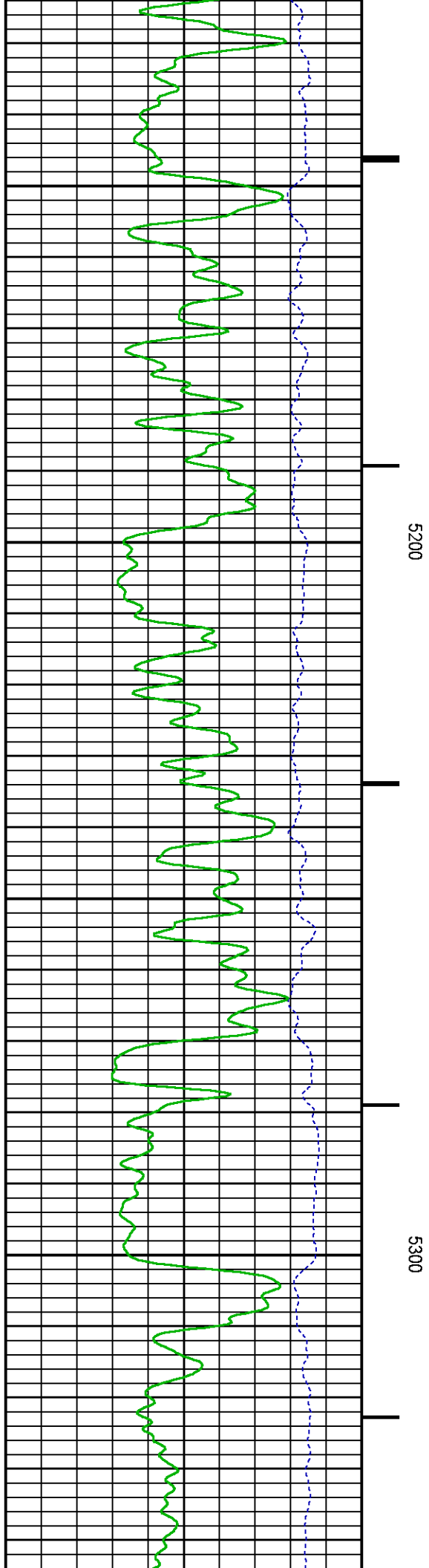
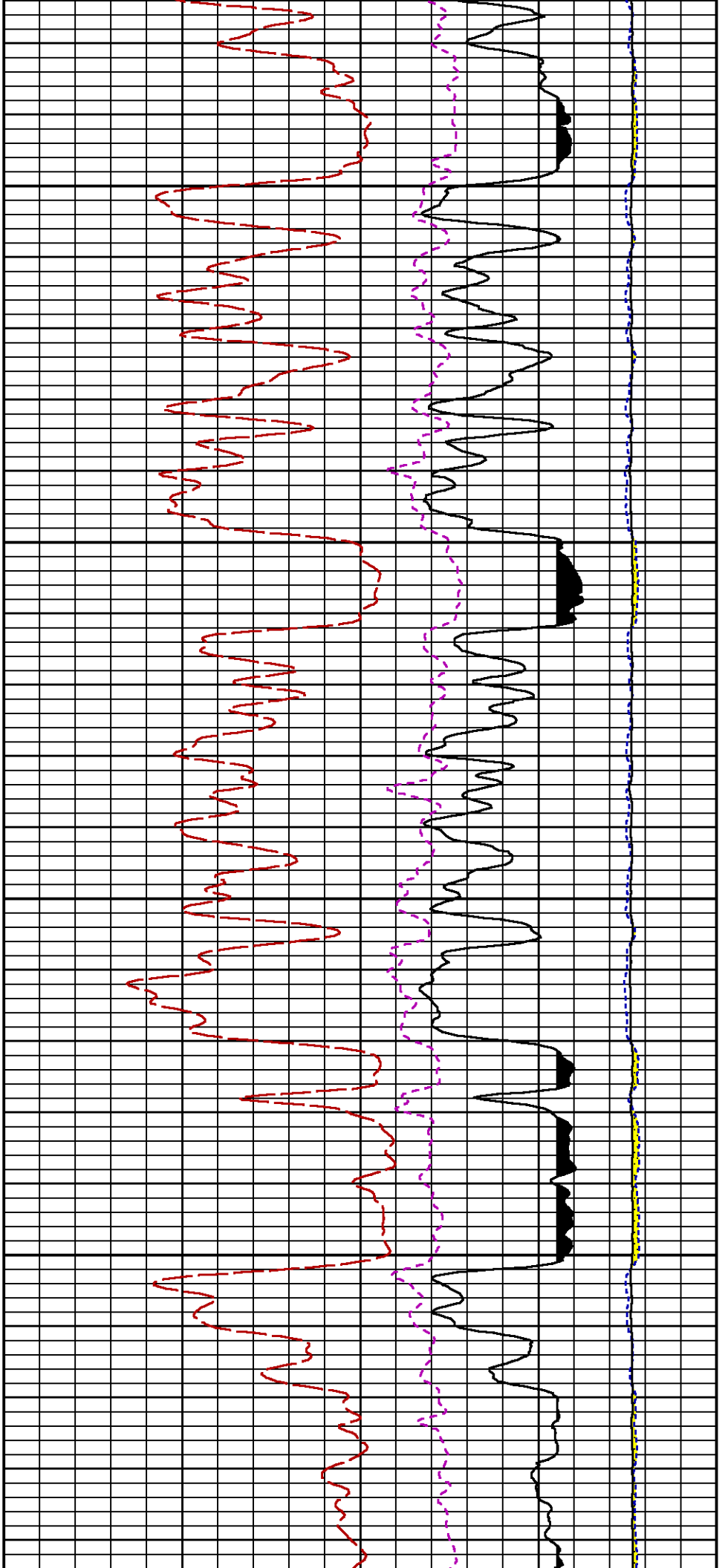


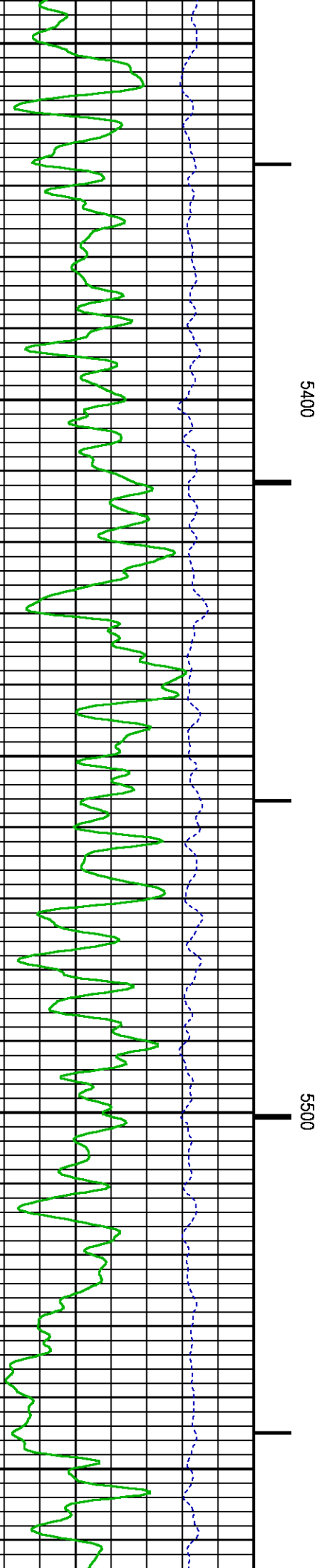
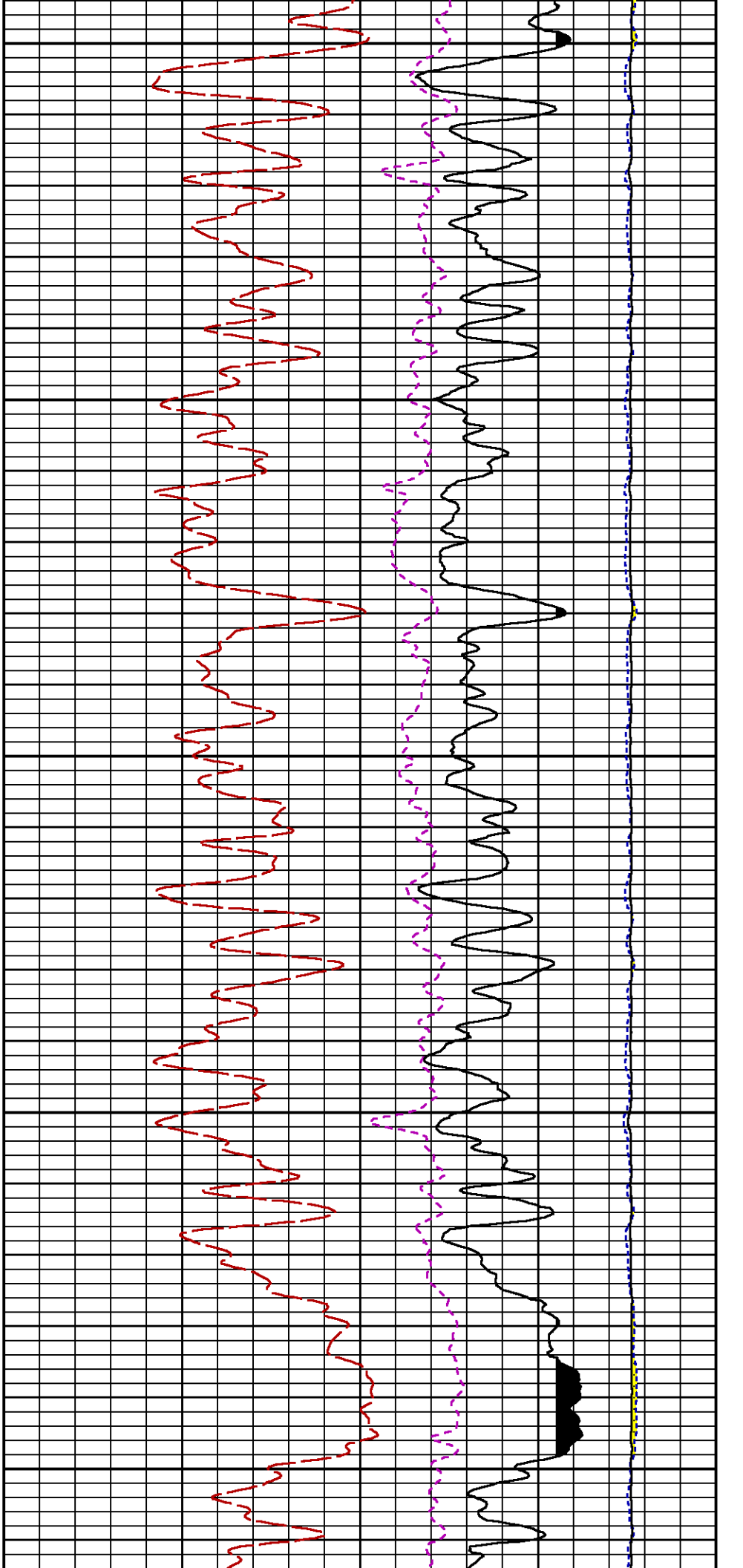


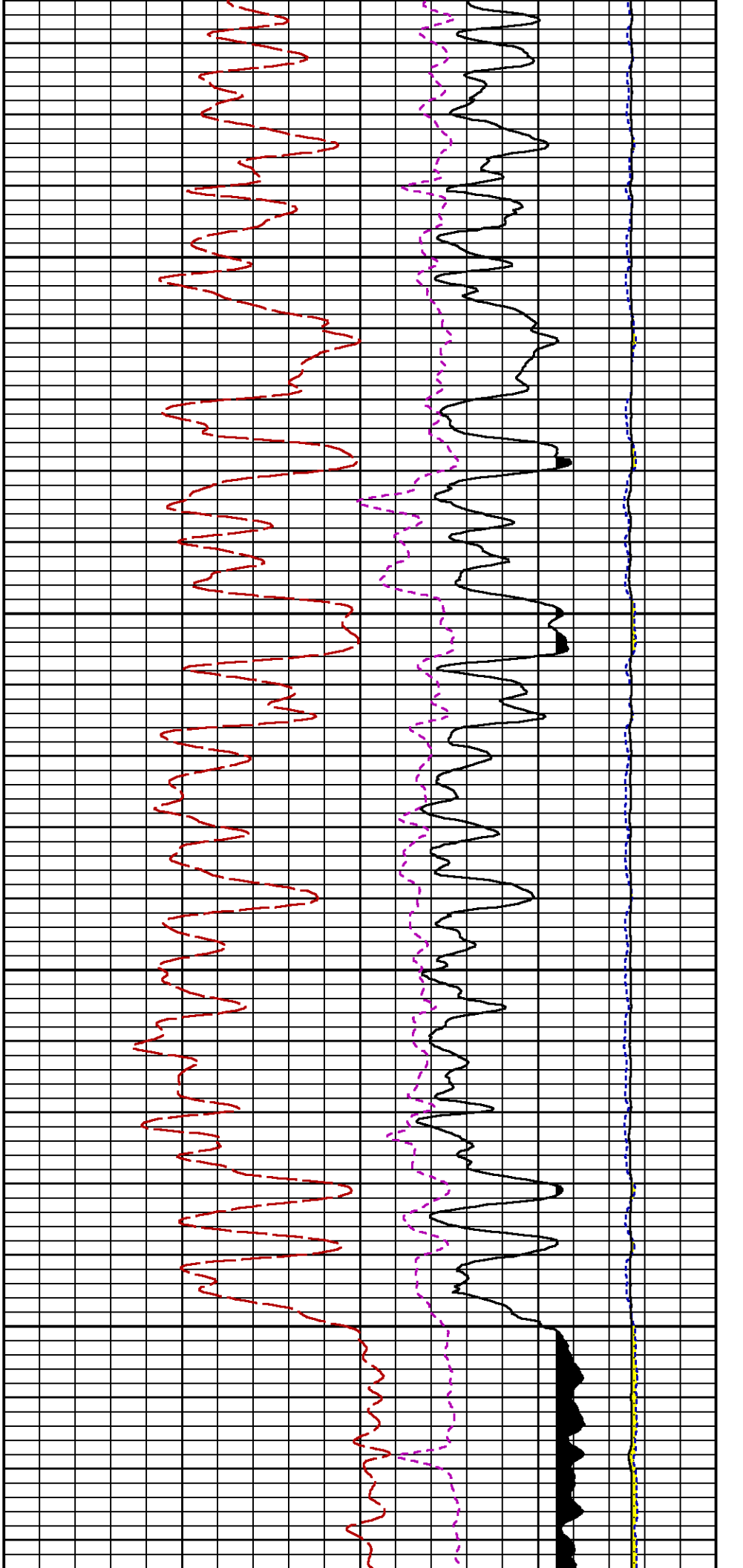






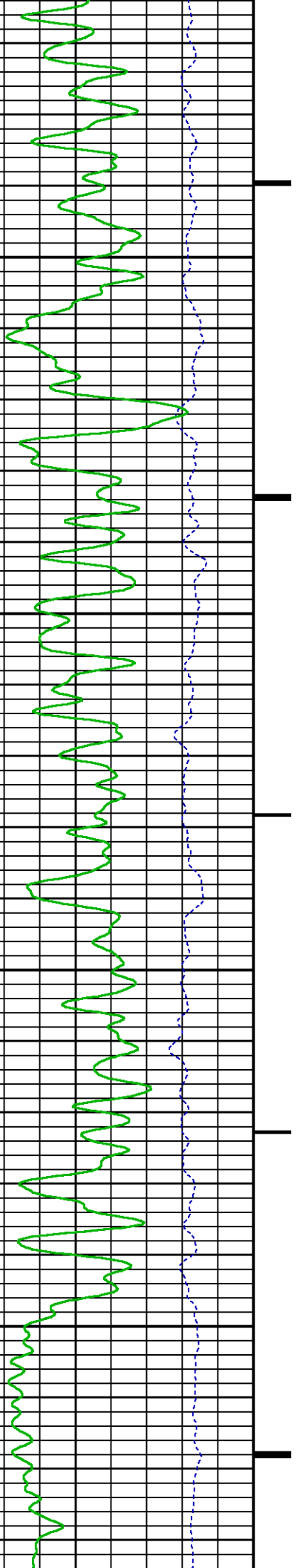


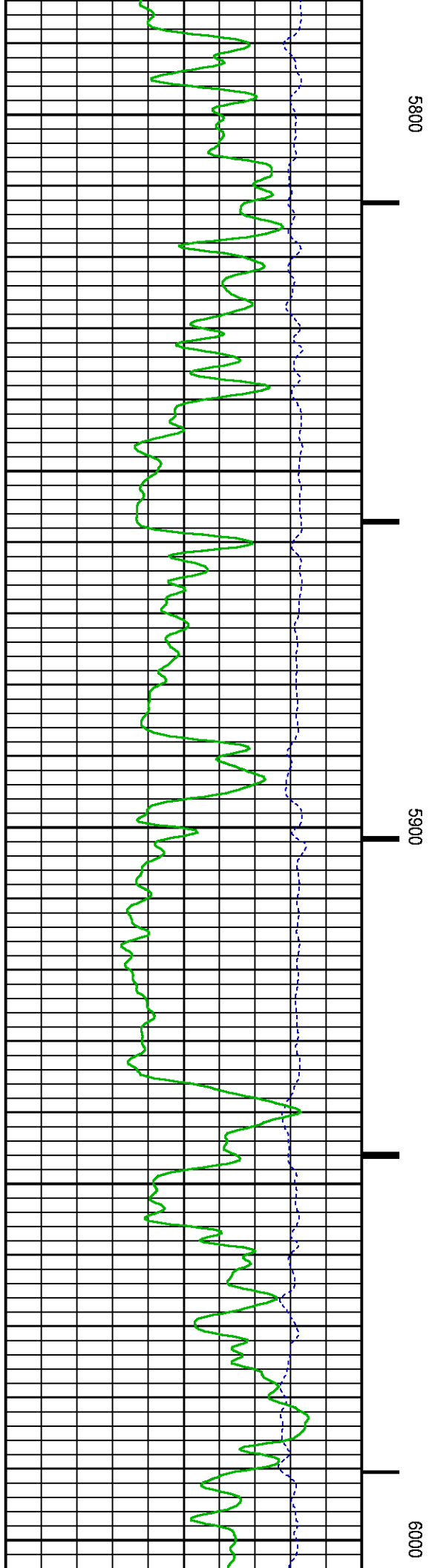
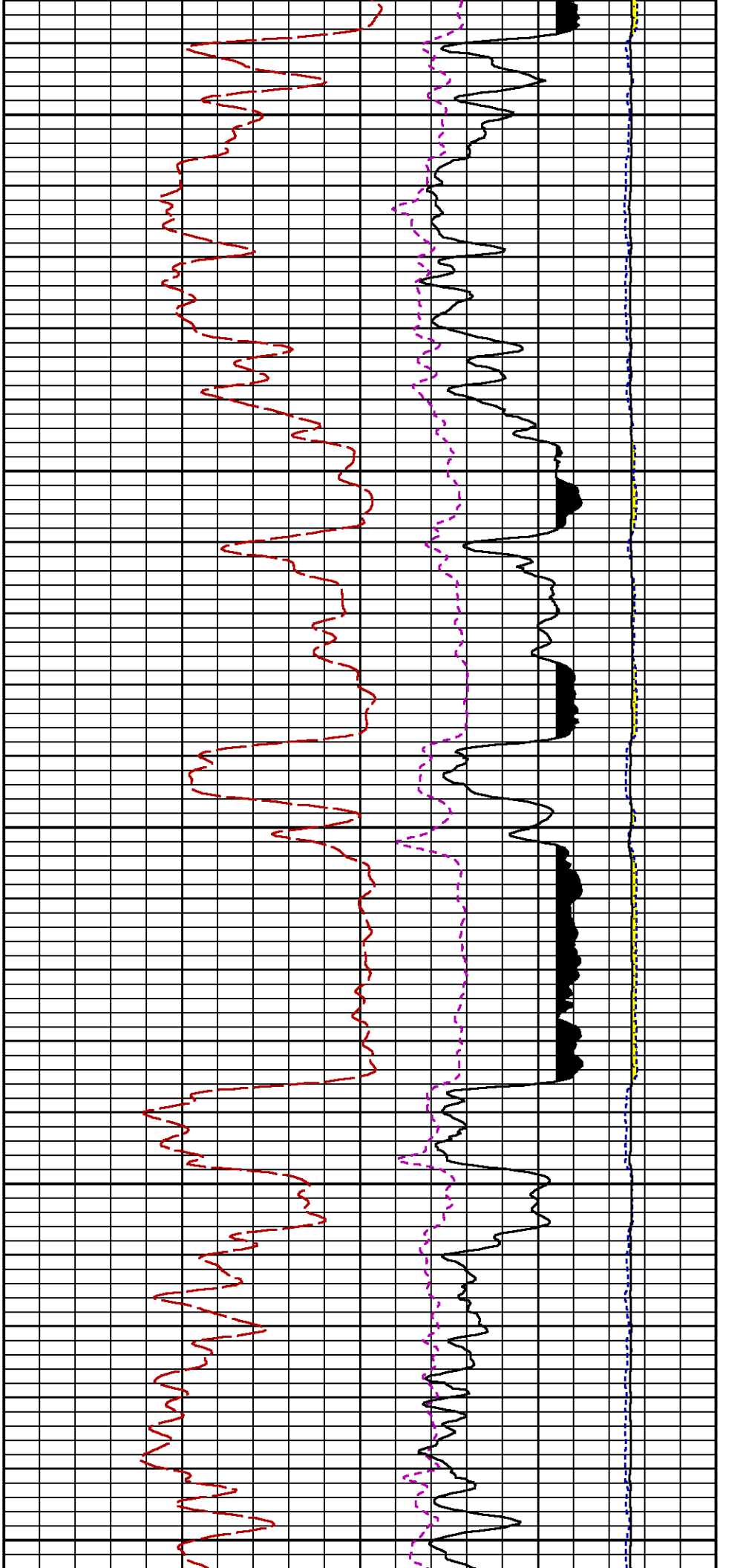


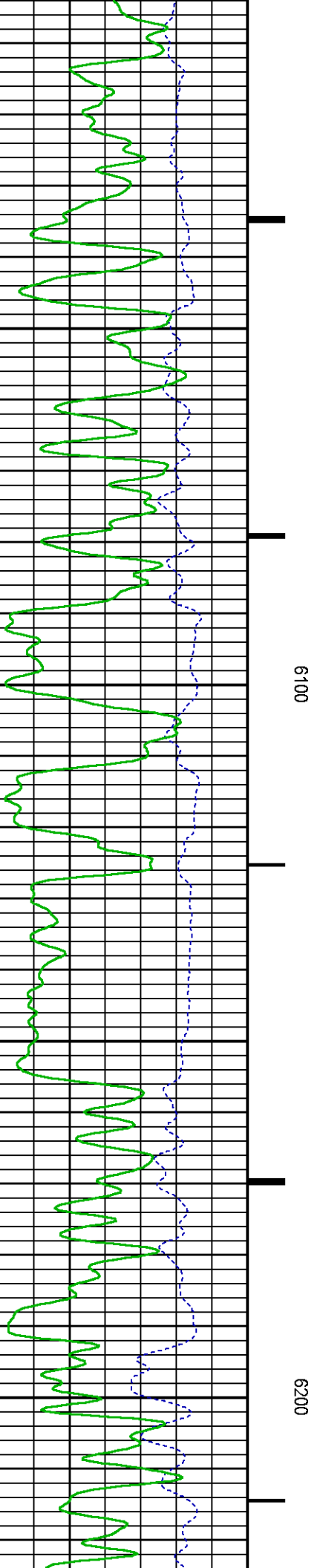
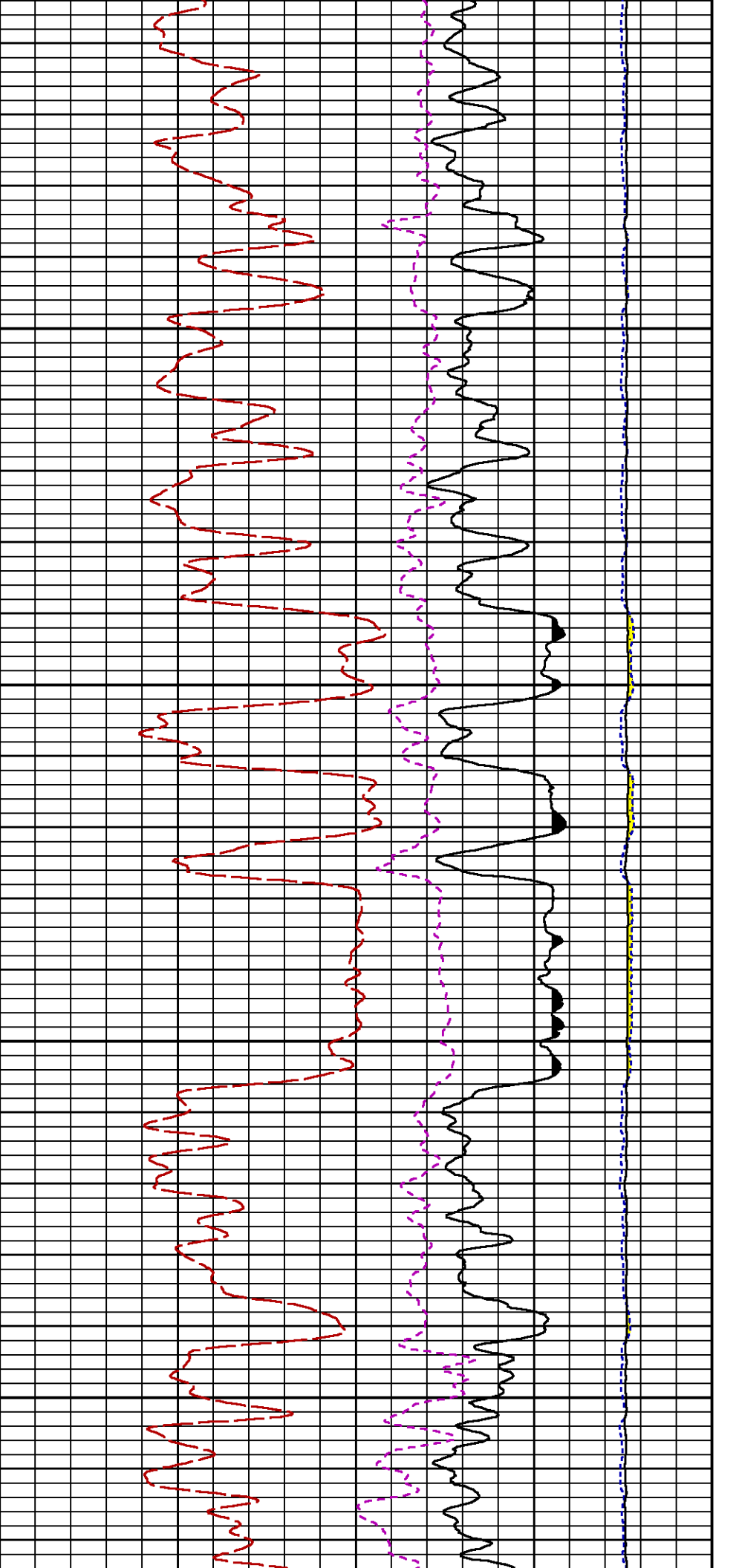


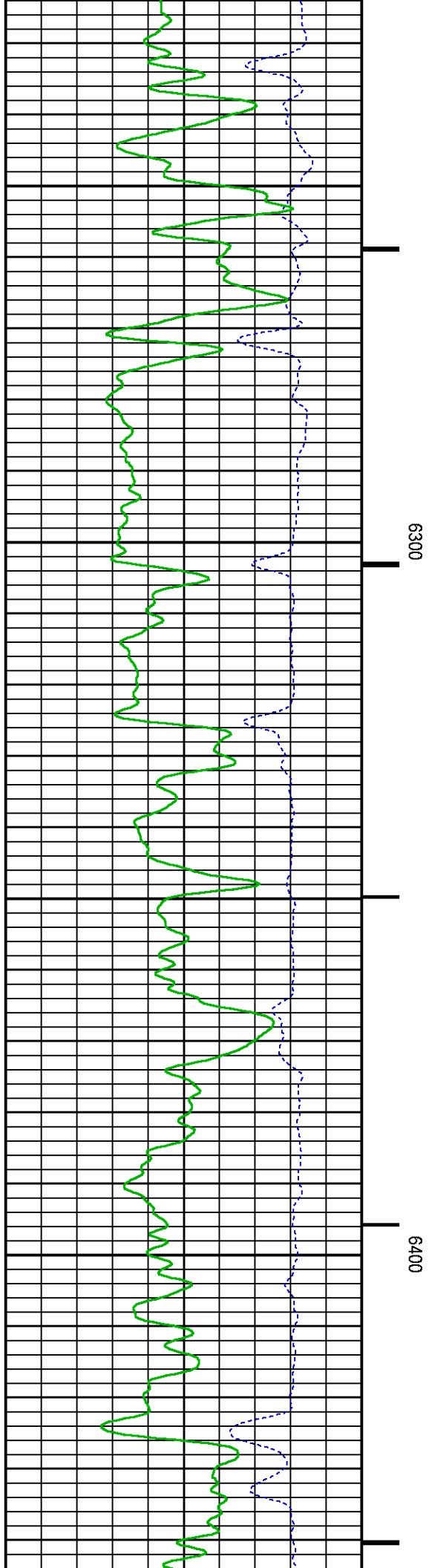
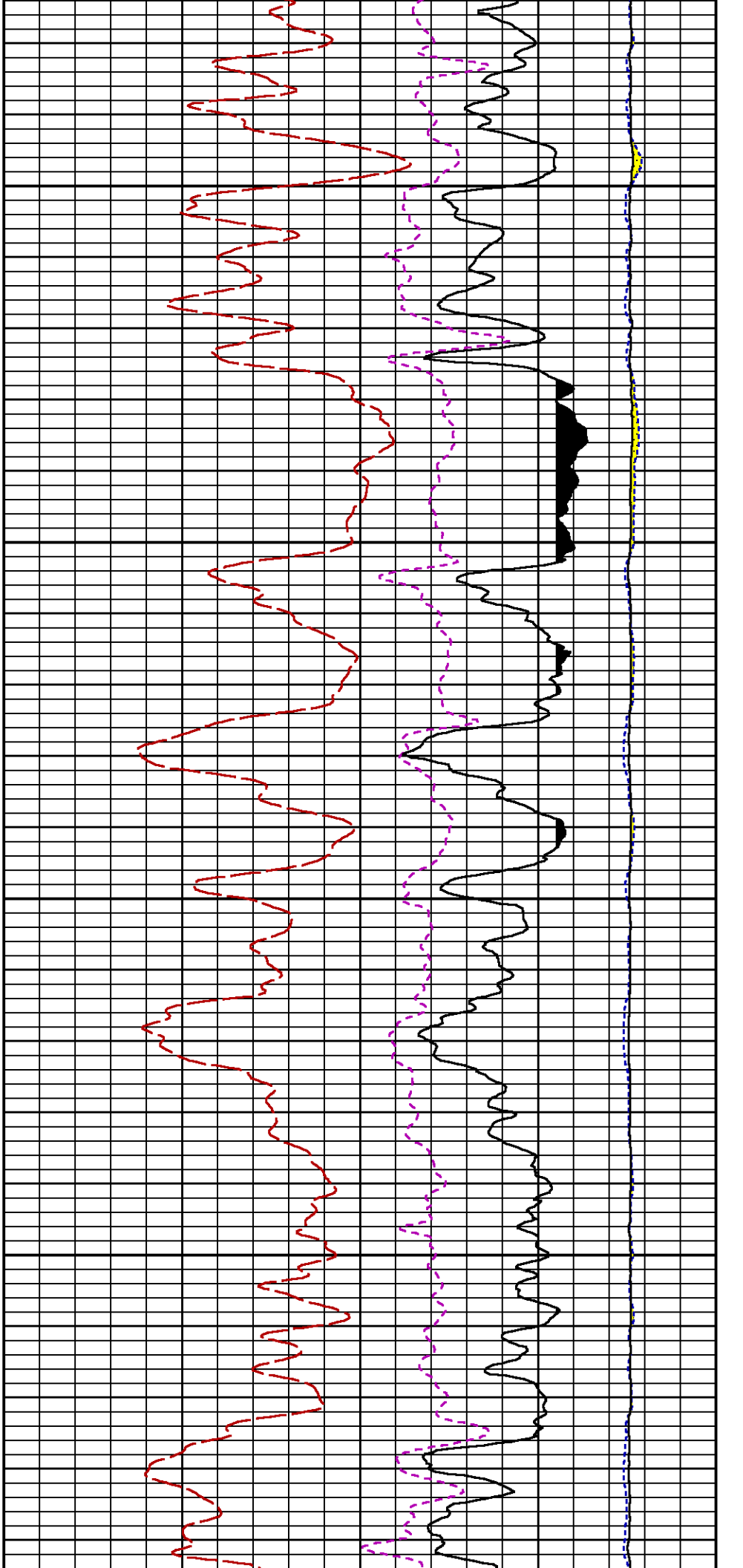
5600

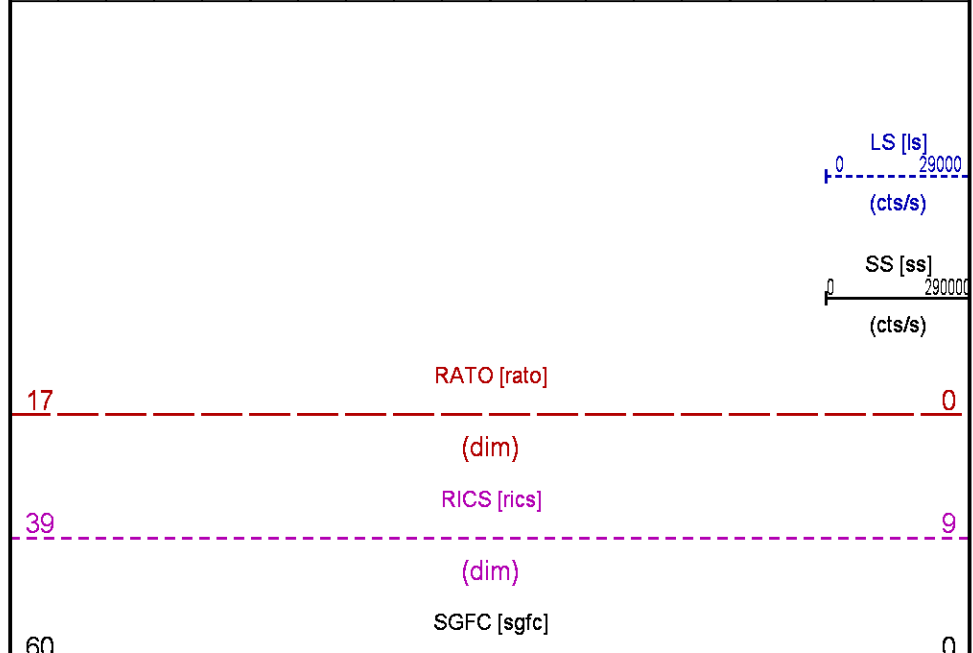
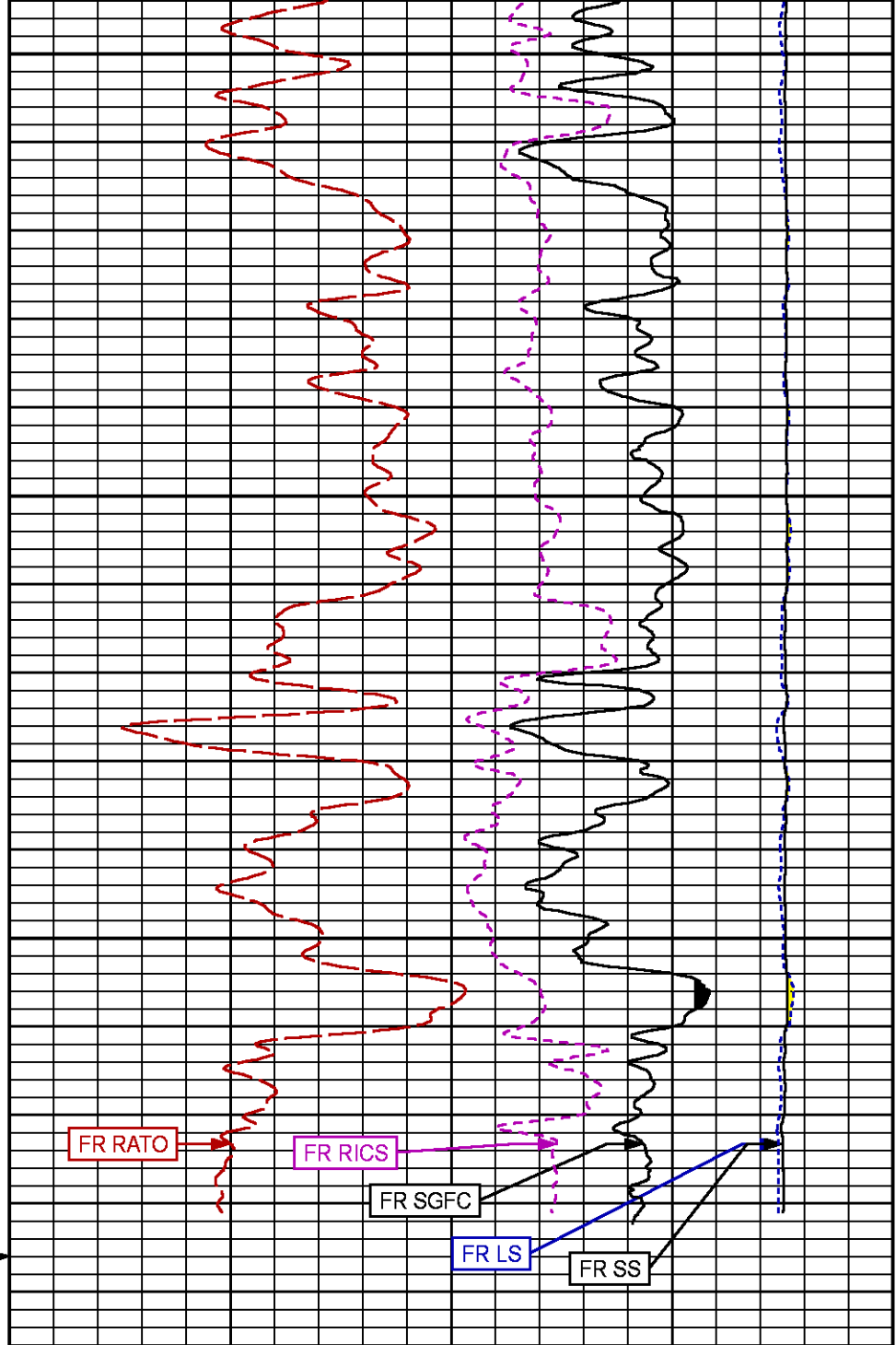
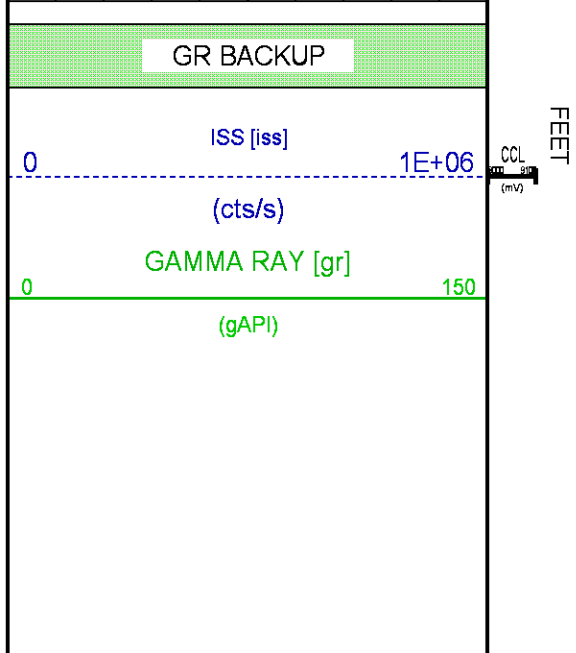
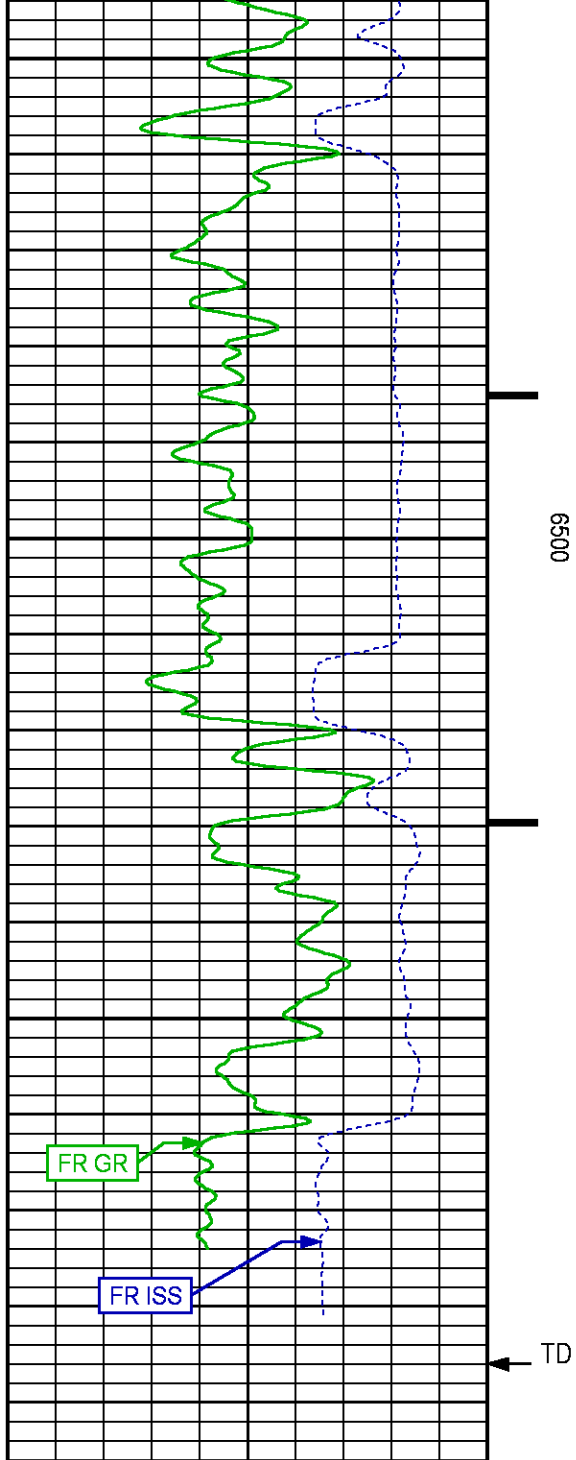
5700











REPEAT SECTION PNC-3D MODE

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

Updates: 1,36 Patches: 9

Plotted: Wed Jul 27 15:24:40 2016

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH108534/n353hx01.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 5779.000 ft BOTTOM DEPTH: 6100.250 ft

SYMMETRIC FILTER

| MEASUREMENT TYPE | PARAMETER | VALUE | UNITS | INTERVAL (ft) | |
|------------------|-----------|------------|-------|---------------|--------|
| GR | FILTER () | medium (1) | | TOP | BOTTOM |

RPM PROCESSING

| MEASUREMENT TYPE | PARAMETER | VALUE | UNITS | INTERVAL (ft) | |
|------------------|-------------------|------------|-------|---------------|--------|
| PNC Parameters | BOREHOLE CONTENTS | FLUID | | TOP | BOTTOM |
| | OPEN/CASED HOLE | CASED HOLE | | " | " |
| | BOREHOLE SIZE | 8.75 | in | " | " |
| | CASING SIZE | 4.50 | in | " | " |
| | MATRIX | SANDSTONE | | " | " |
| | CORRECTION BUFFER | 11 | | " | " |

CURVE DESCRIPTION REPORT

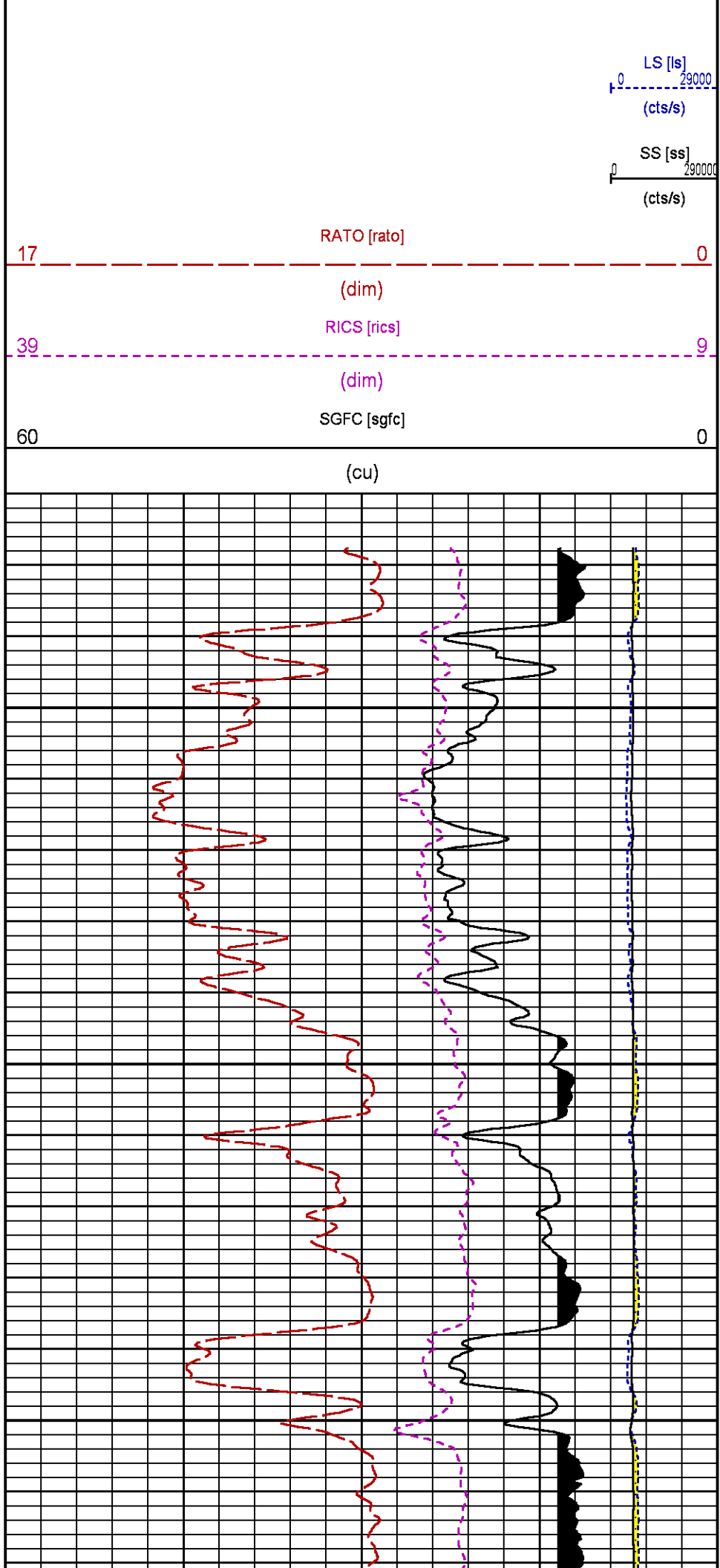
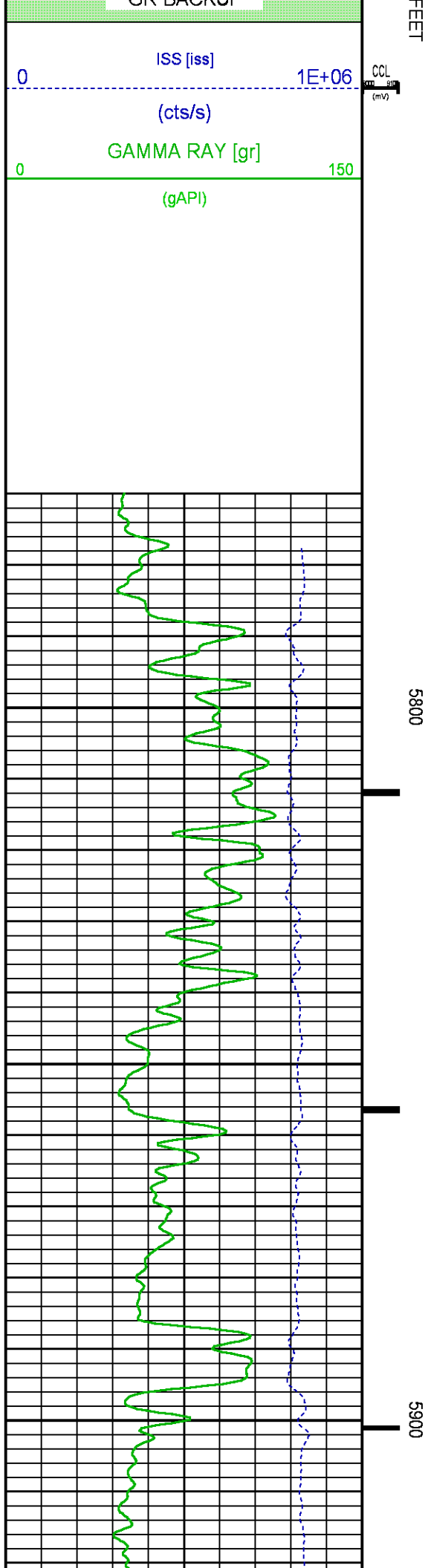
| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|----------------------|---|
| F1:CCL | Jul 27 13:36:43 2016 | CASING COLLAR LOCATOR |
| F1:GR | Jul 27 13:36:43 2016 | GAMMA RAY |
| F1:ISS | Jul 27 13:36:43 2016 | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | Jul 27 13:36:43 2016 | LONG SPACE COUNT RATE |
| F1:RATO | Jul 27 13:36:43 2016 | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | Jul 27 13:36:43 2016 | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | Jul 27 13:36:43 2016 | CORRECTED FORMATION SIGMA |
| F1:SS | Jul 27 13:36:43 2016 | SHORT SPACE COUNT RATE |

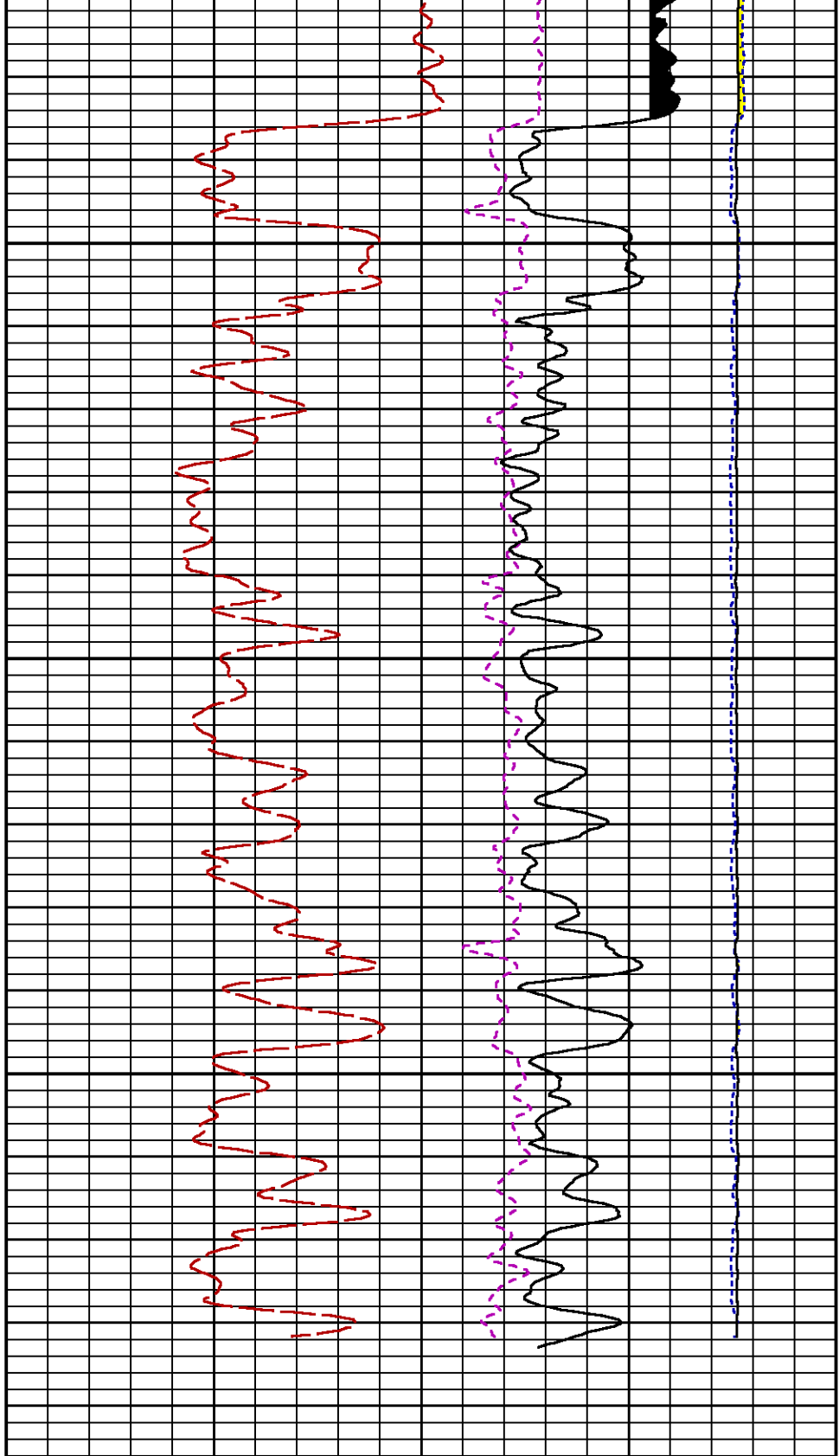
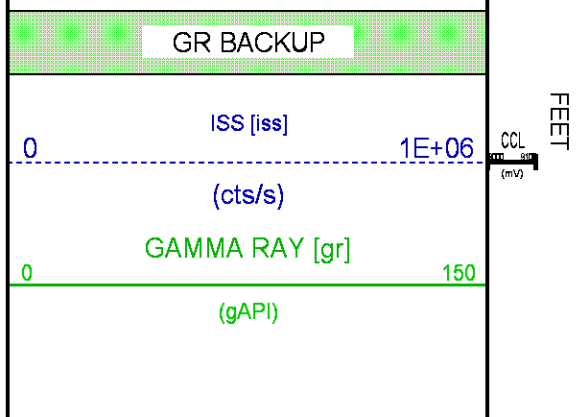
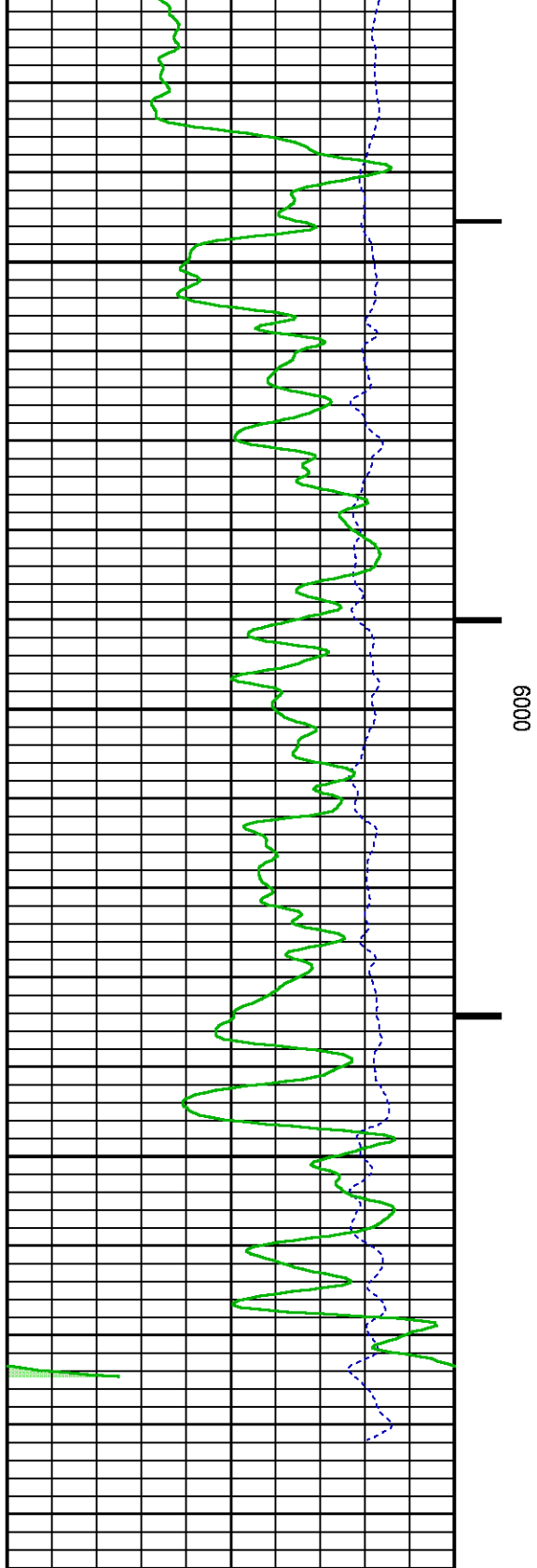
CURVE MEASURE POINT OFFSET

| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| CCL | 26.00 | ISS | 12.75 | RATO | 12.75 | SGFC | 12.75 |
| GR | 23.00 | LS | 12.75 | RICS | 12.75 | SS | 12.75 |

Presentation : cas6685:/dat1a/CH108534/421RPM_REPEAT.fvpdf [5"/100" Scale]
 Plot Interval : 5770 - 6095 Feet

Data File 1 : F1 : cas6685:/dat1a/CH108534/421RPM_REPEAT.xtf
 Created On : Jul 27 13:36:43 2016
 Company : TERRA ENERGY PARTNERS LLC
 Well : FEDERAL GM 421-9
 Field : GRAND VALLEY
 File Interval : 5751 - 6098 Feet
 OCT : n353hx





| | | |
|----|-------------|-------|
| | | (dim) |
| | RICS [rics] | 9 |
| 39 | (dim) | |
| | SGFC [sgfc] | 0 |
| 60 | (cu) | |

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/CH108534/n353hx.tp1

GR PRIMARY CALIBRATION SUMMARY

| | | | | | | | |
|---------|-----------------------|-----------------------|--------------------|----------------------|----------------------|--------------------------|-------------------|
| TOOL #: | | 8262XA 10317216 | | DATE/TIME PERFORMED: | | Mon Jul 25 09:52:18 2016 | |
| UNIT #: | | 3885TC 6685 | | CALB JIG #: | | 4702NK BA-905 | |
| | BACKGROUND (cts/s) | CALBRTR ON (cts/s) | CR DIFF (cts/s) | MULT | BACKGROUND (gAPI) | CALBRTR ON (gAPI) | CALBRTR (gAPI) |
| GR | 111.69 | 457.64 | 346.0 | 0.520 | 58.11 | 238.11 | 180 |

GR PRIMARY VERIFICATION SUMMARY

| | | | | | | | |
|---------|-----------------------|-----------------------|-------|----------------------|----------------------|--------------------------|--------|
| TOOL #: | | 8262XA 10317216 | | DATE/TIME PERFORMED: | | Mon Jul 25 09:54:51 2016 | |
| UNIT #: | | 3885TC 6685 | | VERI JIG #: | | 4702NK BA-905 | |
| | BACKGROUND (cts/s) | CALBRTR ON (cts/s) | MULT | BACKGROUND (gAPI) | CALBRTR ON (gAPI) | DIFF. (gAPI) | |
| GR | 114.13 | 462.96 | 0.520 | 59.38 | 240.87 | 181.49 | |
| | | | | | | 170.00 | 190.00 |

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL:

8283PA 10160383

DATE/TIME PERFORMED:

Fri Jun 17 12:45:25 2016

UNIT:

3885TC 6685

CALIBRATOR:

2437XB GJ_SHOP

SOURCE:

8281AA 10148476

HOURS:

8281AA 586

ISS

Mtr Vits (V)

SS Gain

LS Gain

XLS Gain

EA Temp (degF)

Sync Delay (usec)

RCAL

Raw Data

794956

122

2314

2246

2197

124

7.0

0.9852

Interpolated

1300000

142

2297

2240

2195

ISS

BKS

BKL

BKX

SGA1

SDA1

SGA2

SDA2

Raw Data

794956

6080

963

132

25.94

0.15

24.12

0.33

25.35

26.40

0.00

0.20

23.60

24.80

0.00

0.40

ISS

ILS

IXS

SS

SS2

LS

CSS

CLS

Raw Data

794956

163446

25264

84936

30293

7960

51434

12703

Fit Quality %

0.408

0.339

0.327

0.295

0.417

0.280

0.403

ISS

RBOR

RIN

RIN13

RICS

RATO

RTWO

RONE

ISS/ILS

ISS/IXS

ISS/CSS

SS/LS

SS2/LS

CSS/CLS

Raw Data

794956

1.43

4.86

31.48

15.46

10.67

3.81

4.05

1.42

1.45

3.55

5.52

22.20

32.70

10.99

16.34

10.06

11.10

3.57

3.95

3.76

4.22

Fit Quality %

0.016

0.325

0.292

0.322

0.069

0.094

0.097

Reduced

1401134

1.43

1.42

1.45

4.87

4.33

5.52

31.50

27.60

32.70

15.45

13.70

16.34

10.68

10.06

11.10

3.81

3.57

3.95

4.06

3.76

4.22

TPSETEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 8255XA Z166341

DATE/TIME PERFORMED: Wed Oct 21 14:25:56 2015

UNIT #: 3885TC 6685

T(0)

T(1)

T(2)

T(3)

Corr Coeff for Temp

-1.828341E+01

9.988427E-02

8.122243E-07

-3.138442E-11

INSTRUMENT CONFIGURATION

Source File: /dat1a/CH108534/RPM-tdg

A3 CABLEHEAD

PCM POWER SUPPLY

Diameter : 1.70"
Length : 3.86'
Weight : 18 lbs
Series : 8250EA
Mnemonic : PCM

TELEMETRY / CCL

Diameter : 1.70"
Length : 4.46'
Weight : 20 lbs
Series : 8248ED
Mnemonic : PCM
Measure Point: 1.00': CCL MP

GAMMA RAY

Diameter : 1.70"
Length : 3.02'
Weight : 15 lbs
Series : 8262XA
Mnemonic : GR
Measure Point: 0.89': GR MP

RPM ELECTRONICS

Diameter : 1.70"
Length : 4.48'
Weight : 16 lbs
Series : 8281EA
Mnemonic : RPM

34.08'

CCL MP 26.03'

GR MP 22.90'

RPM C DETECTOR SECTION

Diameter : 1.70"
Length : 9.40'
Weight : 41 lbs
Series : 8283PA
Mnemonic : RPM
Measure Point: 5.45': XLS DETECTOR
Measure Point: 5.04': LS DETECTOR
Measure Point: 4.79': SS DETECTOR

XLS DETECTOR 13.58'
LS DETECTOR 13.16'
SS DETECTOR 12.91'

RPM SOURCE SECTION

Diameter : 1.70"
Length : 4.70'
Weight : 18 lbs
Series : 8281FA
Mnemonic : RPM

TEMPERATURE / PRESSURE


Diameter : 1.70"
Length : 3.30'
Weight : 13 lbs
Series : 8255XA
Mnemonic : SRPL
Measure Point: 1.52': TEMP MP

TEMP MP 1.65'
PRES MP

BULL PLUG 1 11/16

TOTAL LENGTH: 34.08'
TOTAL WEIGHT: 144 lbs
MAX DIAMETER: 0'1.70"

0.00'

| | | | | | |
|--|----------------|----------------------------------|--------------------|-----------------|-----------------------|
|  | COMPANY | TERRA ENERGY PARTNERS LLC | | FILE NO: | |
| | WELL | FEDERAL GM 421-9 | | | CH108534 |
| | FIELD | GRAND VALLEY | | API NO: | |
| | COUNTY | GARFIELD | STATE | COLORADO | 05045225290000 |
| LOCATION: | | | ELEVATIONS: | | |
| SHL: 644' FNL & 578' FWL | | | KB 6111 FT | S.9 T.7S R.96W | |
| BHL: 1166' FNL & 1379' FWL | | | DF | PAD: MV 16-9 | |
| SEC <u>9</u> TWP <u>7S</u> RGE <u>96W</u> | | | GL 6087 FT | RIG: H&P 318 | |
| | | | DATE | 27-Jul-2016 | |