



| | | |
|----------------|---------|----------------------|
| FILE NO: | COMPANY | LARAMIE ENERGY |
| API NO: | WELL | GUNDERSON BCU 20-10E |
| 05077103530000 | FIELD | VEGA |
| | COUNTY | MESA |
| | STATE | COLORADO |

| | | |
|-----------|---------------------------------------|----------------|
| Ver. 4.06 | LOCATION: | OTHER SERVICES |
| | SHL: LAT:39.266672N; LONG:107.795281W | RAL |
| | BHL: LAT:39.263096N; LONG:107.788397W | |
| | SEC 20 TWP 9S RGE 93W | |

| | | | |
|-------------------|----|-------------|------------|
| PERMANENT DATUM | GL | ELEVATION | 7144 FT |
| LOG MEASURED FROM | KB | 30 FT | ABOVE P.D. |
| DRILL. MEAS. FROM | KB | | |
| | | ELEVATIONS: | |
| | | KB | 7176 FT |
| | | DF | 7176 FT |
| | | GL | 7146 FT |

| | |
|------------------------|-------------------|
| DATE | 26-AUG-2017 |
| RUN | 2 |
| TRIP | 1 |
| SERVICE ORDER | US126647 |
| DEPTH DRILLER | 8012 FT |
| DEPTH LOGGER | 7936 FT |
| BOTTOM LOGGED INTERVAL | 7936 FT |
| TOP LOGGED INTERVAL | 2358 FT |
| TIME STARTED | 20:30 |
| TIME FINISHED | 2:30 |
| OPERATOR RIG TIME | 6 HOURS |
| TYPE OF FLUID IN HOLE | WATER |
| FLUID DENSITY | NA |
| FLUID SALINITY | NA |
| FLUID LEVEL | 55 FT |
| LOGGED CEMENT TOP | 1526 FT |
| WELLHEAD PRESSURE | 0 PSI |
| MAXIMUM HOLE DEVIATION | NA |
| NOMINAL LOGGING SPEED | 15 FMIN |
| MAX. RECORDED TEMP. | 245 DEGF |
| REFERENCE LOG | BAKER HUGHES RAL |
| REFERENCE LOG DATE | 25-AUG-2017 |
| EQUIP. NO. | HL-6670 |
| LOCATION | WOODWARD |
| RECORDED BY | LSINICKI |
| WITNESSED BY | MR. CHUCK MALLARY |

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.

REMARKS

RUN 2 TRIP 1: *2 OPERATIONS IN WELL*

OPERATION 2: RPM/GR/CCL RUN IN COMBINATION

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 6133' - 6156'

SJ: 7138' - 7160

CREW: D.HUTCHINSON, G.SUAREZ

EQUIPMENT DATA

| RUN | TRIP | TOOL | SERIES NO. | SERIAL NO. | POSITION |
|-----|------|-----------|---------------|-------------------|----------|
| 2 | 1 | TELEMETRY | 8250EA/8248EA | 10185091/10323398 | FREE |
| 2 | 1 | GAMMA RAY | 8262XA | 10485470 | FREE |
| 2 | 1 | RPM | 8281EA | 10387162 | FREE |
| 2 | 1 | RPM | 8283PA | 10184883 | FREE |
| 2 | 1 | RPM | 8281FA | 10315572 | FREE |
| 2 | 1 | TEMP | 8255XA | 120516 | FREE |

G-SAND PNC-3D MODE

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

Updates: 1 Patches: 9

Plotted: Sat Aug 26 03:21:04 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2297.250 ft BOTTOM DEPTH: 3044.500 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 | 7.88 | in | " | " |
| | CASING SIZE | 4.50 | in | " | " |
| | MATRIX | SANDSTONE | | " | " |
| | CORRECTION BUFFER | 11 | | " | " |

CURVE DESCRIPTION REPORT

| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|----------------------|---|
| F1:CCL | Aug 26 02:30:25 2017 | CASING COLLAR LOCATOR |
| F1:GR | Aug 26 02:30:25 2017 | GAMMA RAY |
| F1:ISS | Aug 26 02:30:25 2017 | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | Aug 26 02:30:25 2017 | LONG SPACE COUNT RATE |
| F1:RATO | Aug 26 02:30:25 2017 | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | Aug 26 02:30:25 2017 | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | Aug 26 02:30:25 2017 | CORRECTED FORMATION SIGMA |
| F1:SS | Aug 26 02:30:25 2017 | SHORT SPACE COUNT RATE |

CURVE MEASURE POINT OFFSET

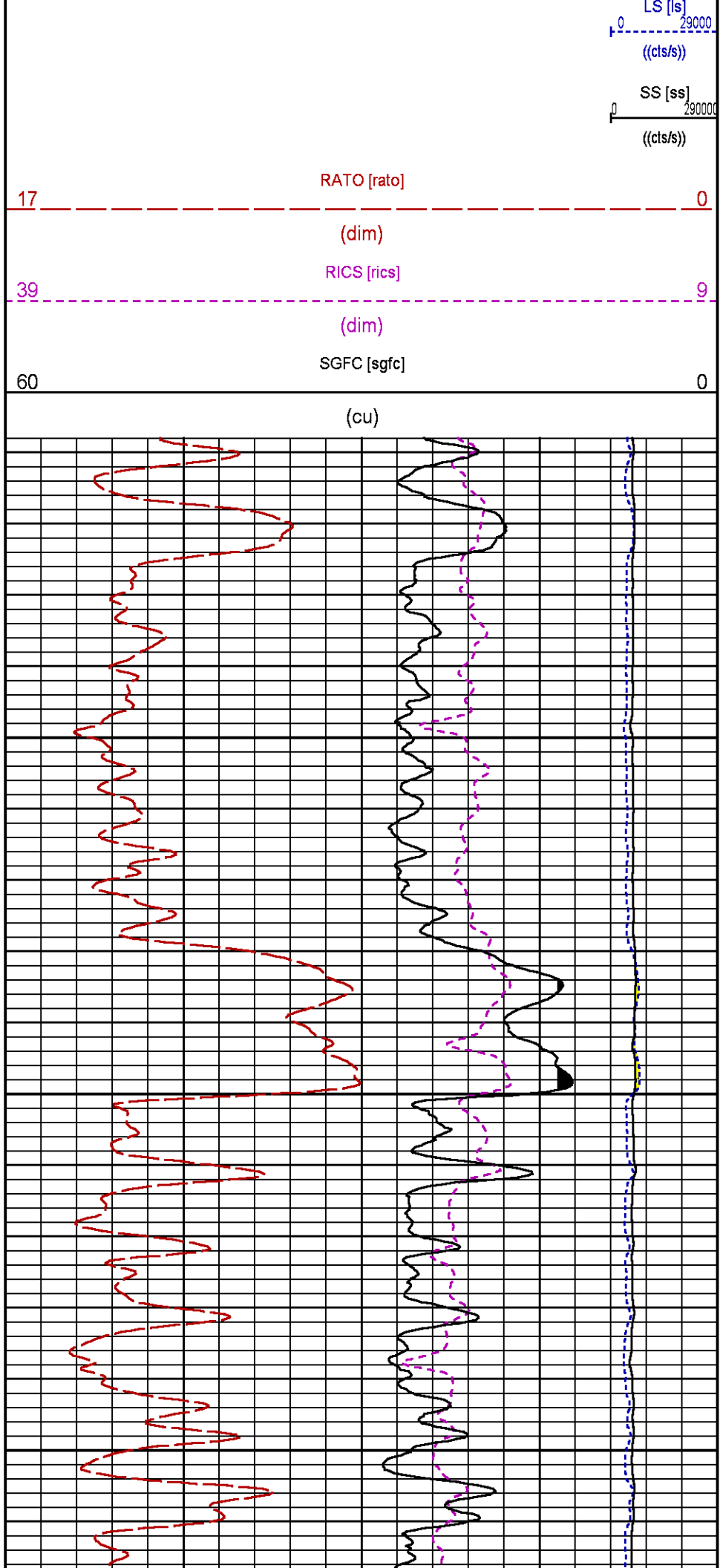
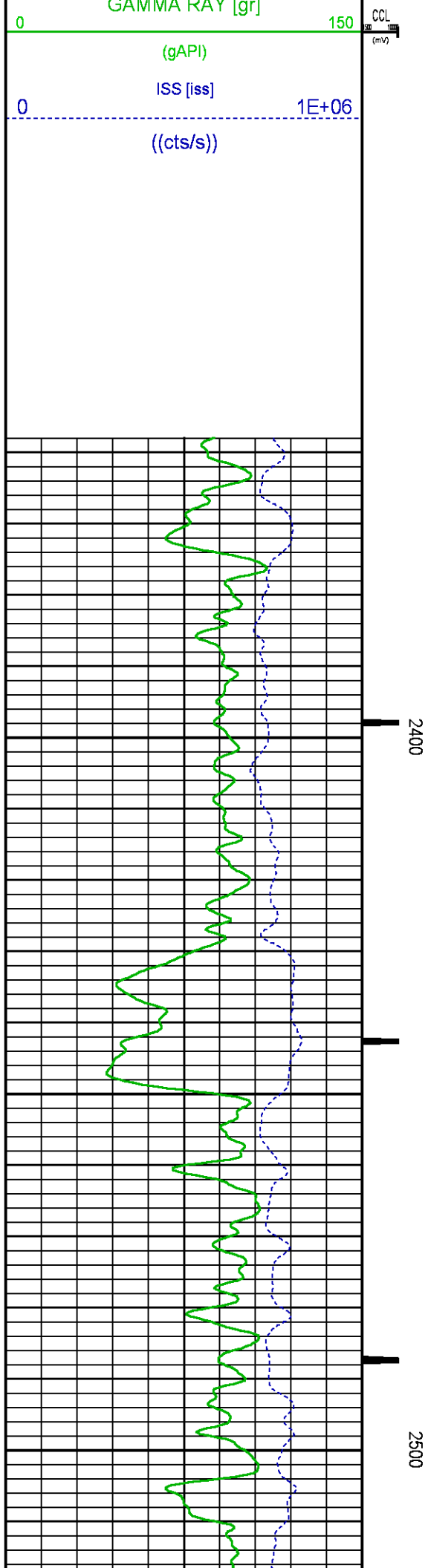
| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| CCL | 26.00 | ISS | 12.75 | RATO | 12.75 | SGFC | 12.75 |
| GR | 23.00 | LS | 12.75 | RICS | 12.75 | SS | 12.75 |

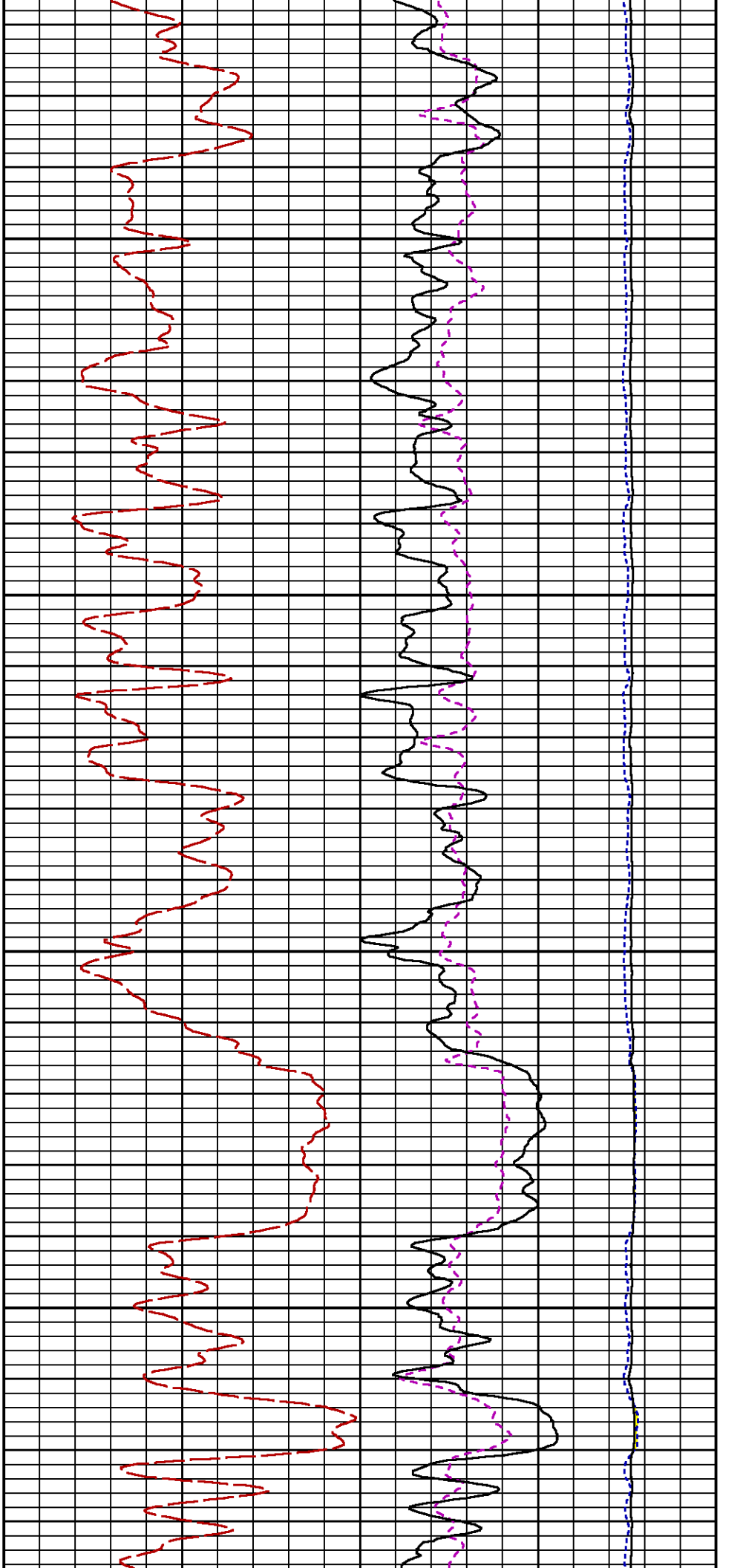
Presentation : cpu100:/dat1a/LARAMIE_GUNDERSON_20_10E/RPM_GSAND.fvpdf [5"/100' Scale]
Plot Interval : 2358 - 2958 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D03_GSAND.xtf
Created On : Aug 26 02:30:25 2017
Company : LARAMIE ENERGY
Well : GUNDERSON 20-10E
Field : VEGA
File Interval : 2291.75 - 3064.75 Feet
OCT : RPM3D

GR BACKUP

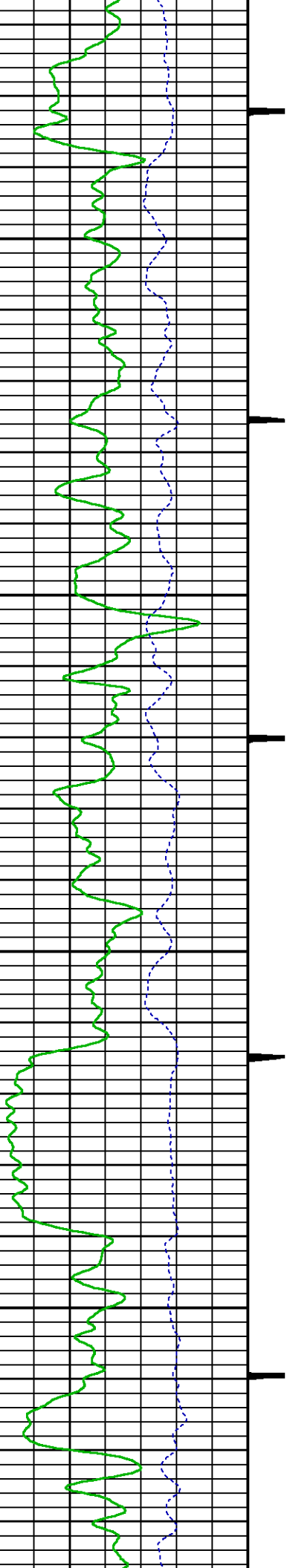
FEET

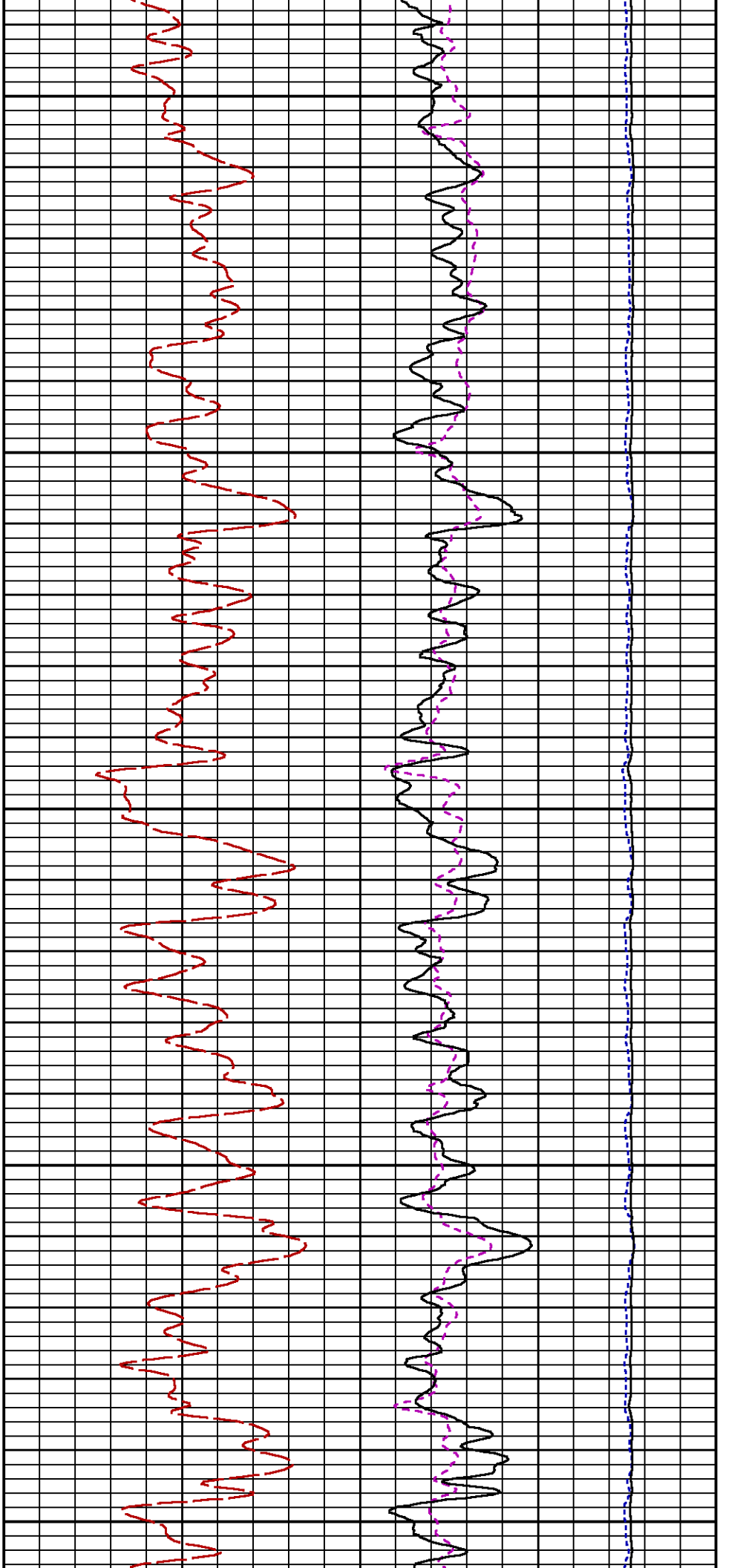




2600

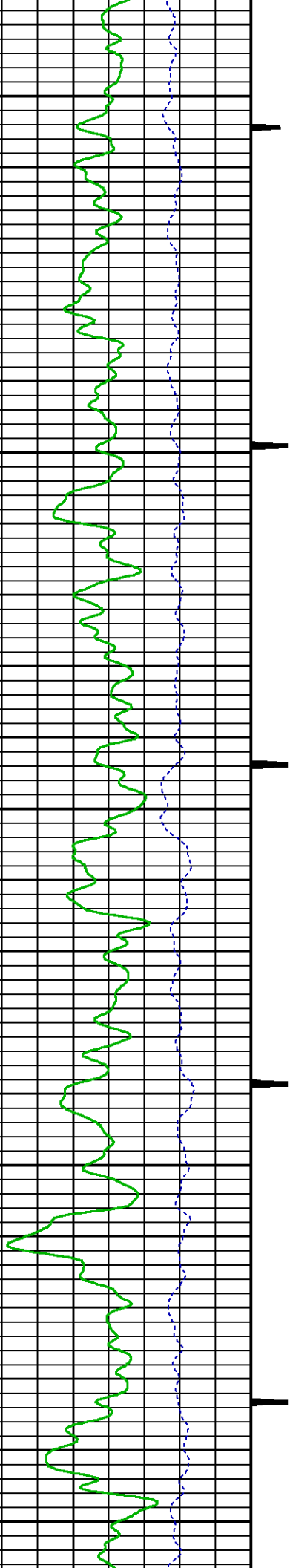
2700

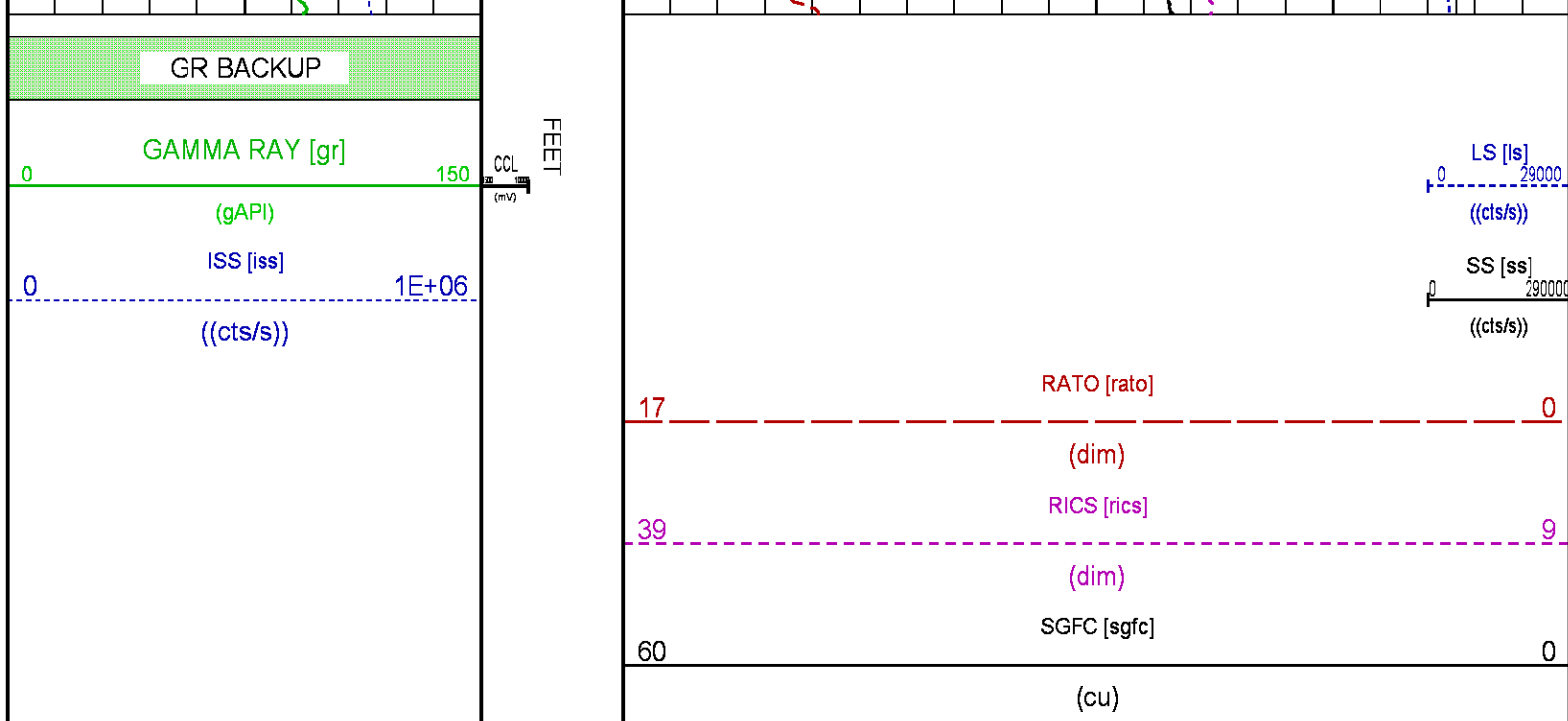




2800

2900





MAIN PASS PNC-3D MODE

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

Plotted: Sat Aug 26 02:29:44 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4244.000 ft BOTTOM DEPTH: 7933.000 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 | 7.88 | in | " | " |
| | CASING SIZE | 4.50 | in | " | " |
| | MATRIX | SANDSTONE | | " | " |
| | CORRECTION BUFFER | 11 | | " | " |

CURVE DESCRIPTION REPORT

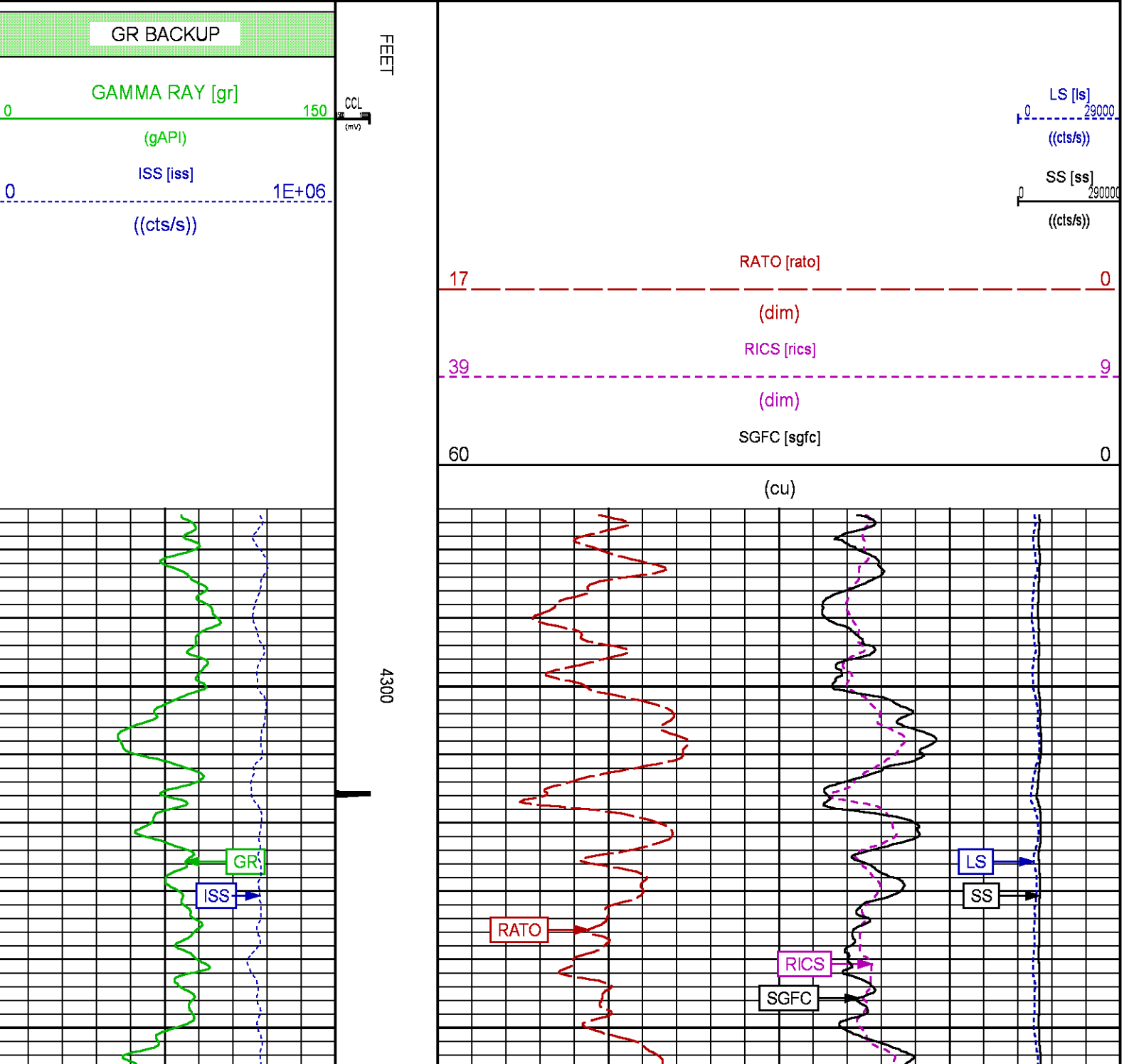
| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|----------------------|-----------------------------------|
| F1:CCL | Aug 26 02:25:14 2017 | CASING COLLAR LOCATOR |
| F1:GR | Aug 26 02:25:52 2017 | GAMMA RAY |
| F1:ISS | Aug 26 02:25:52 2017 | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | Aug 26 02:25:52 2017 | LONG SPACE COUNT RATE |
| F1:RATO | Aug 26 02:25:59 2017 | SHORT/LONG SPACE COUNT RATE RATIO |

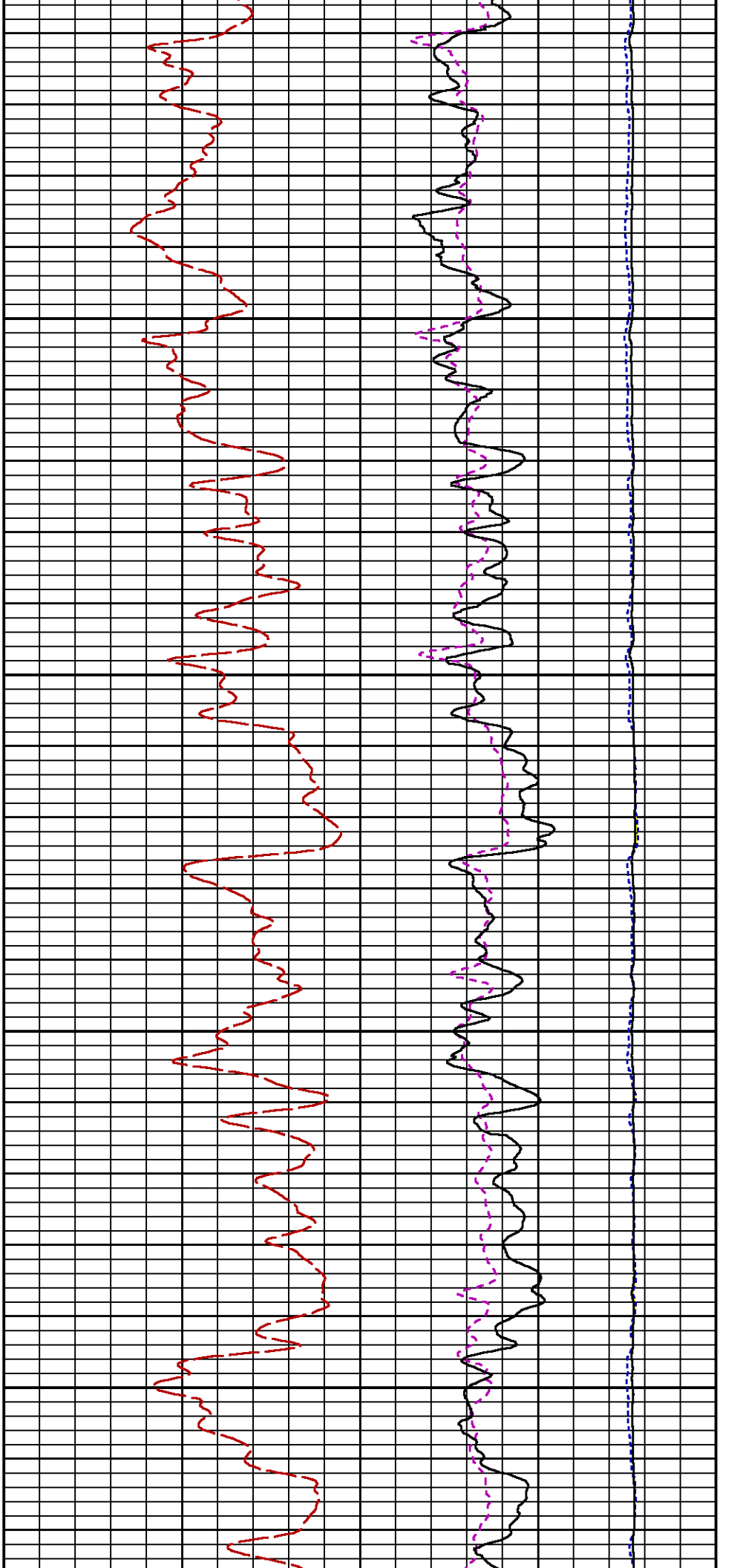
CURVE MEASURE POINT OFFSET

| 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 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_10E/RPM_MAIN.fvpdf [5"/100' Scale]
Plot Interval : 4275 - 7939.5 Feet

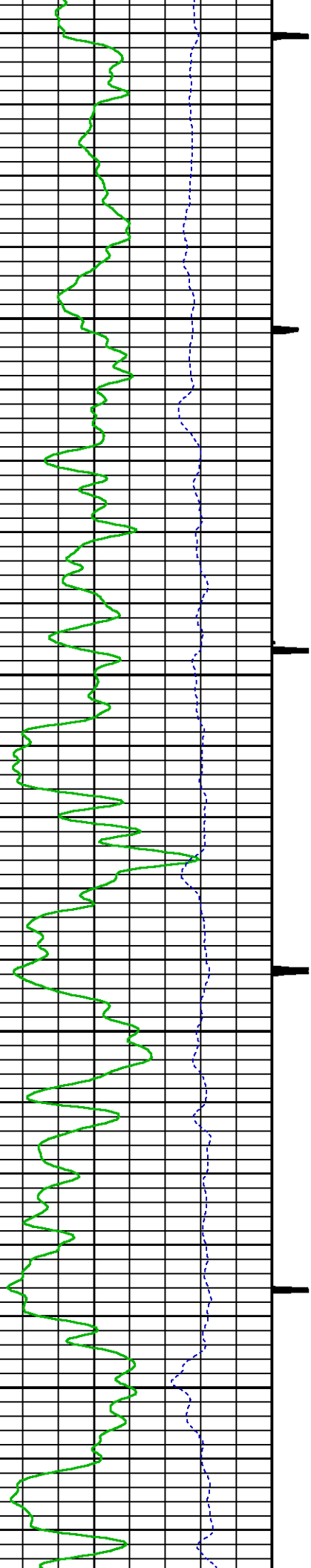
Data File 1 : F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D02_MAIN.xtf
Created On : Aug 26 02:25:01 2017
Company : LARAMIE ENERGY
Well : GUNDERSON 20-10E
Field : VEGA
File Interval : 4235 - 7948.25 Feet
OCT : RPM3D

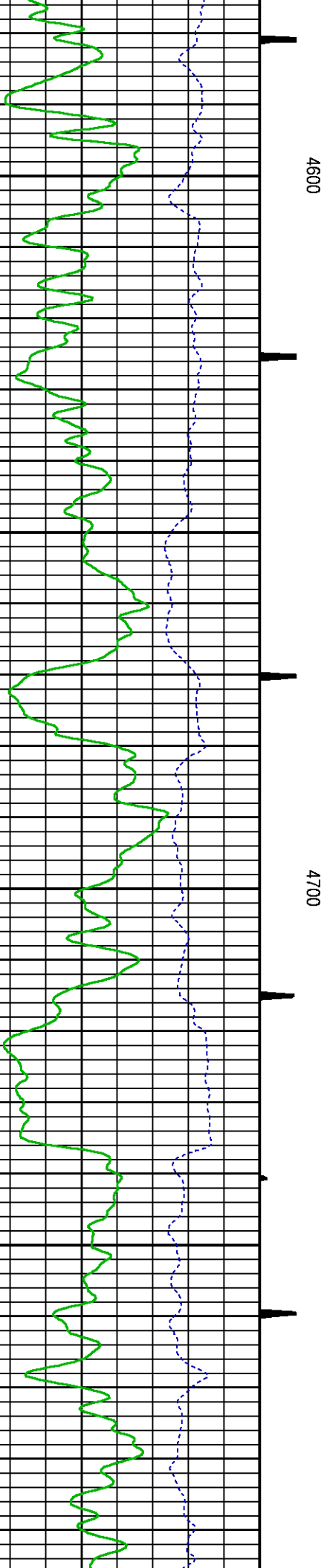
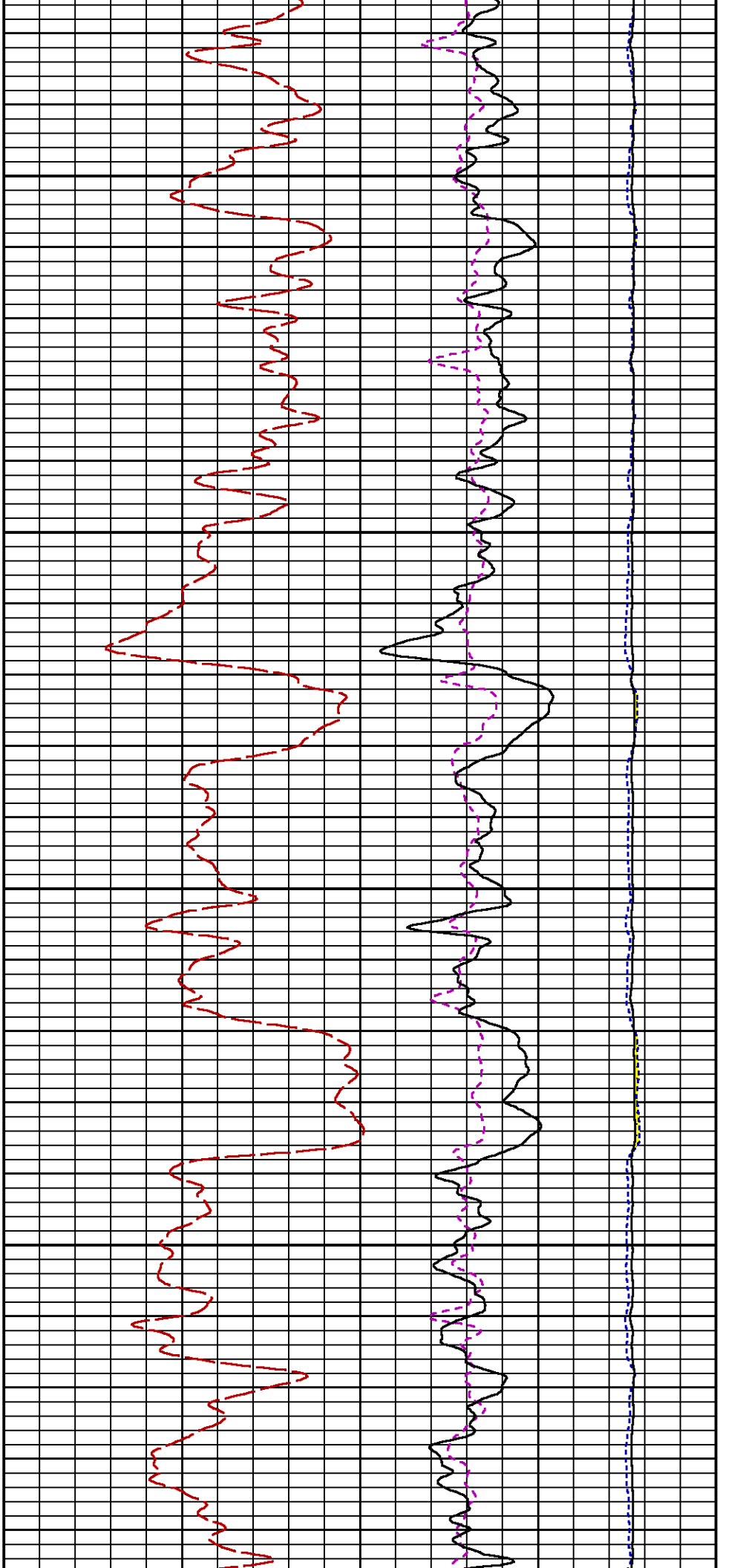


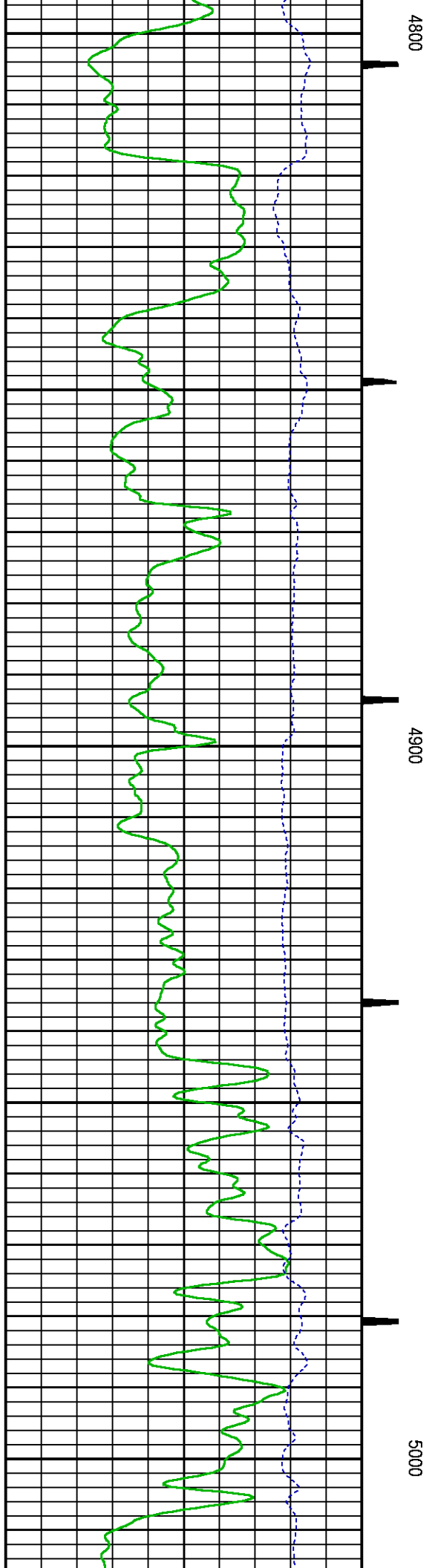
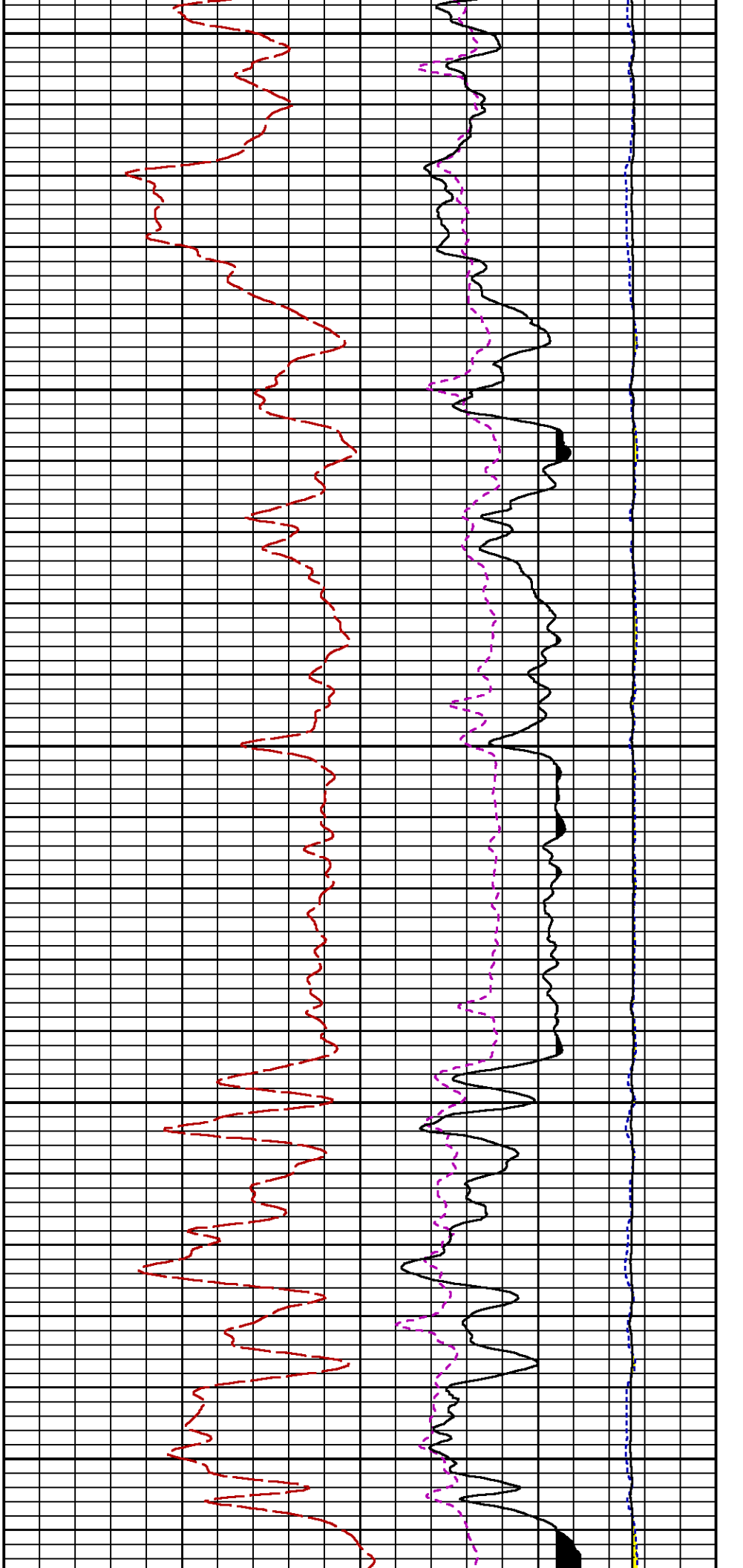


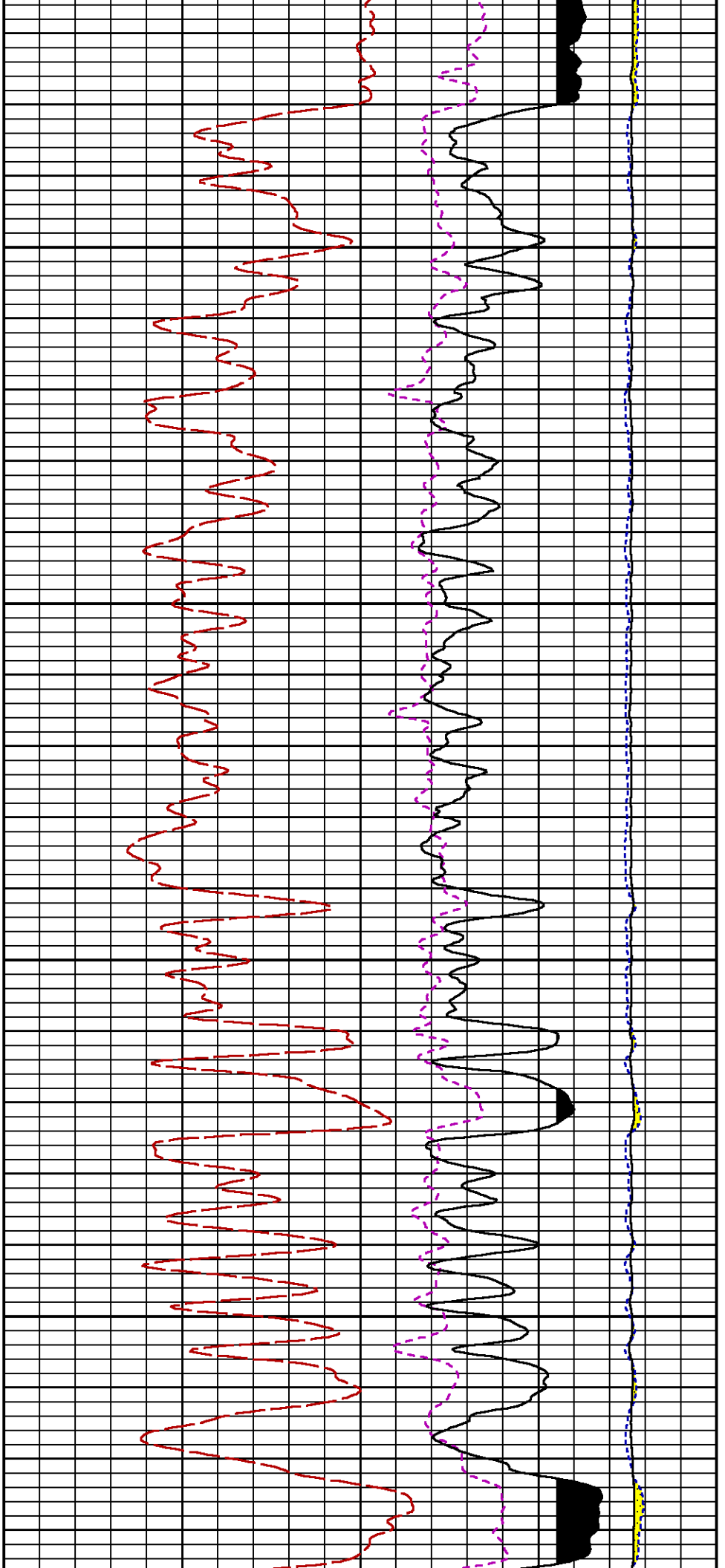
4400

4500



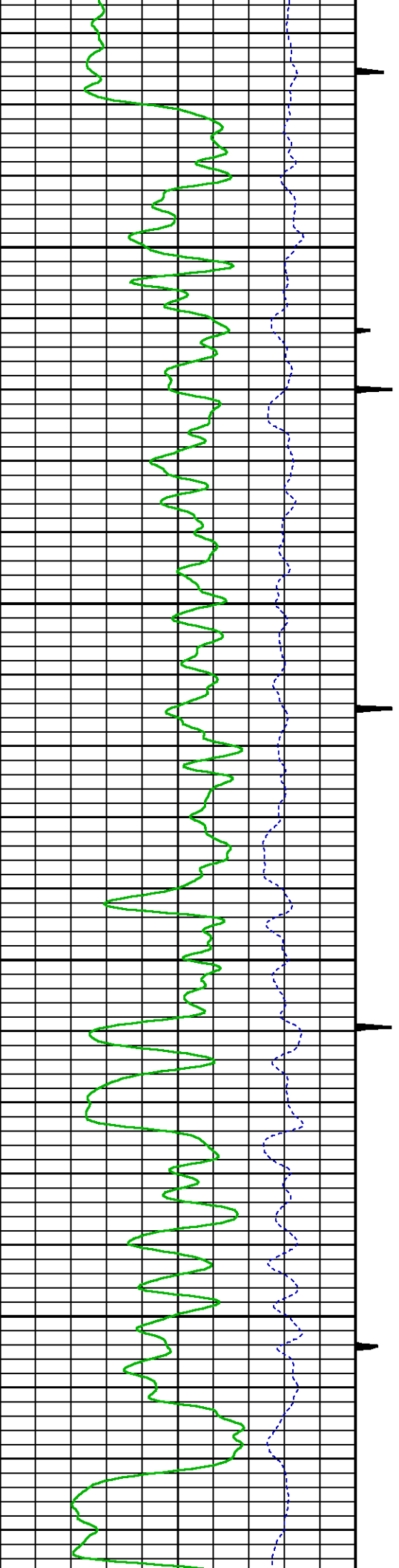


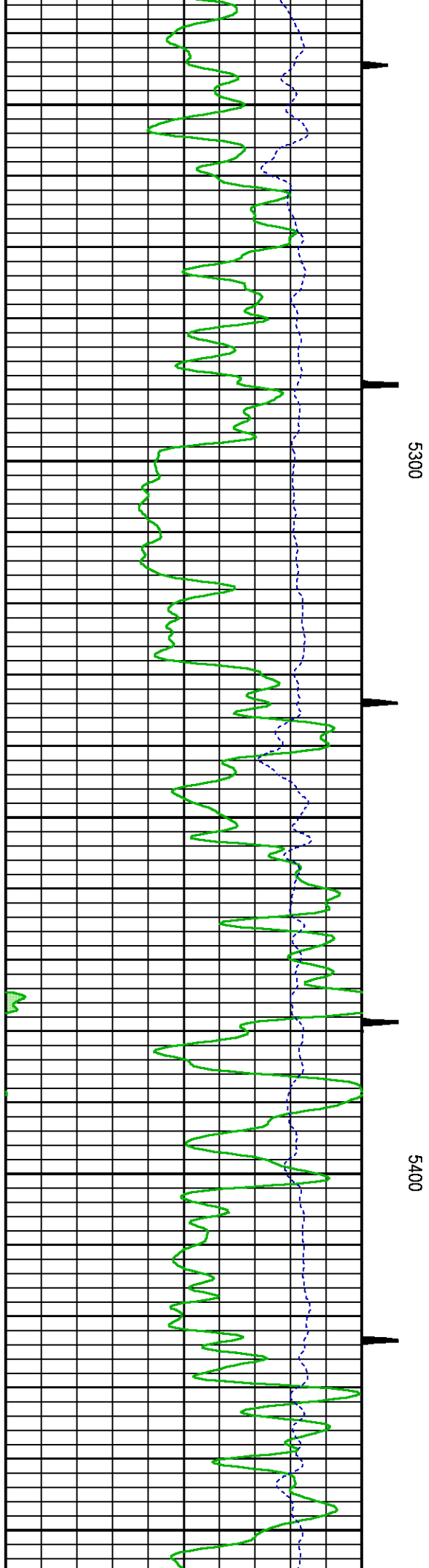
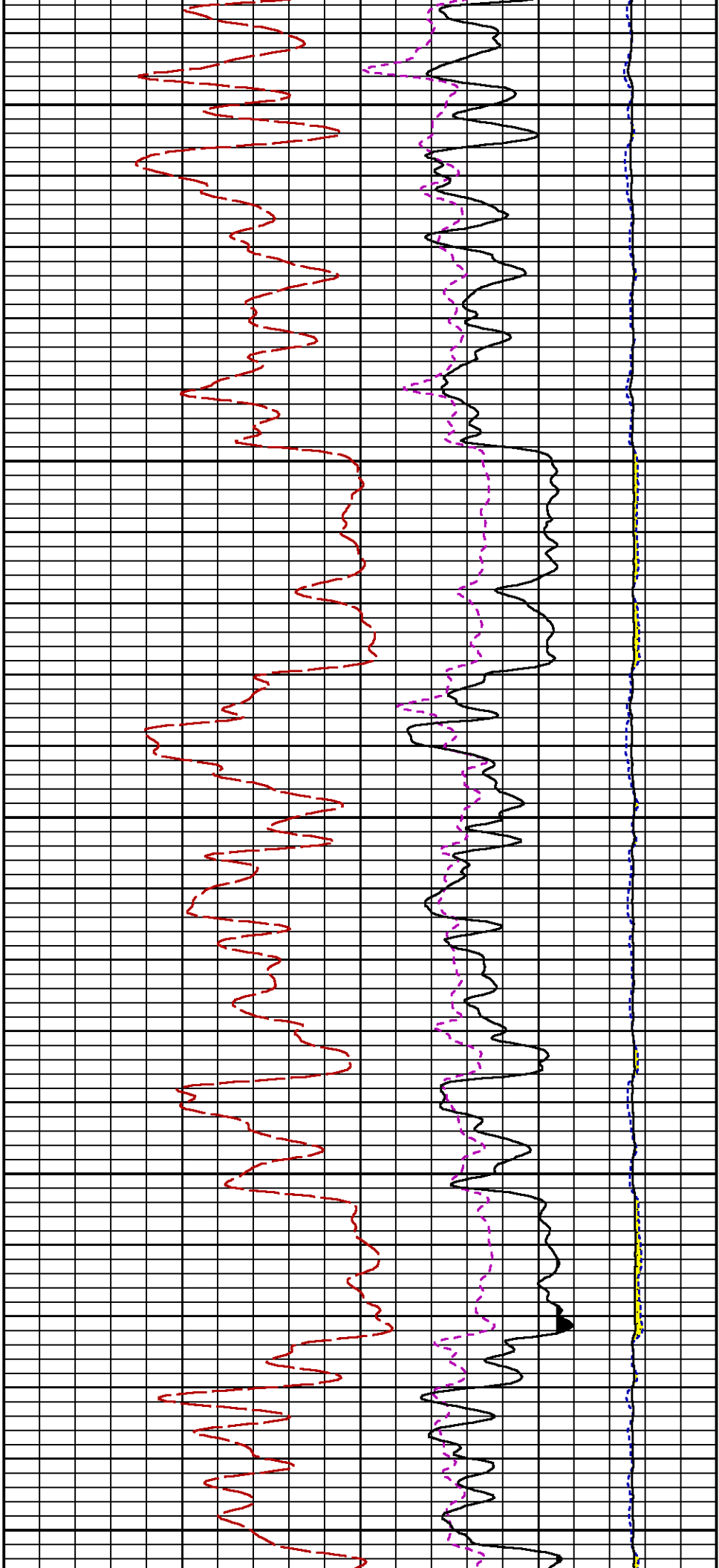


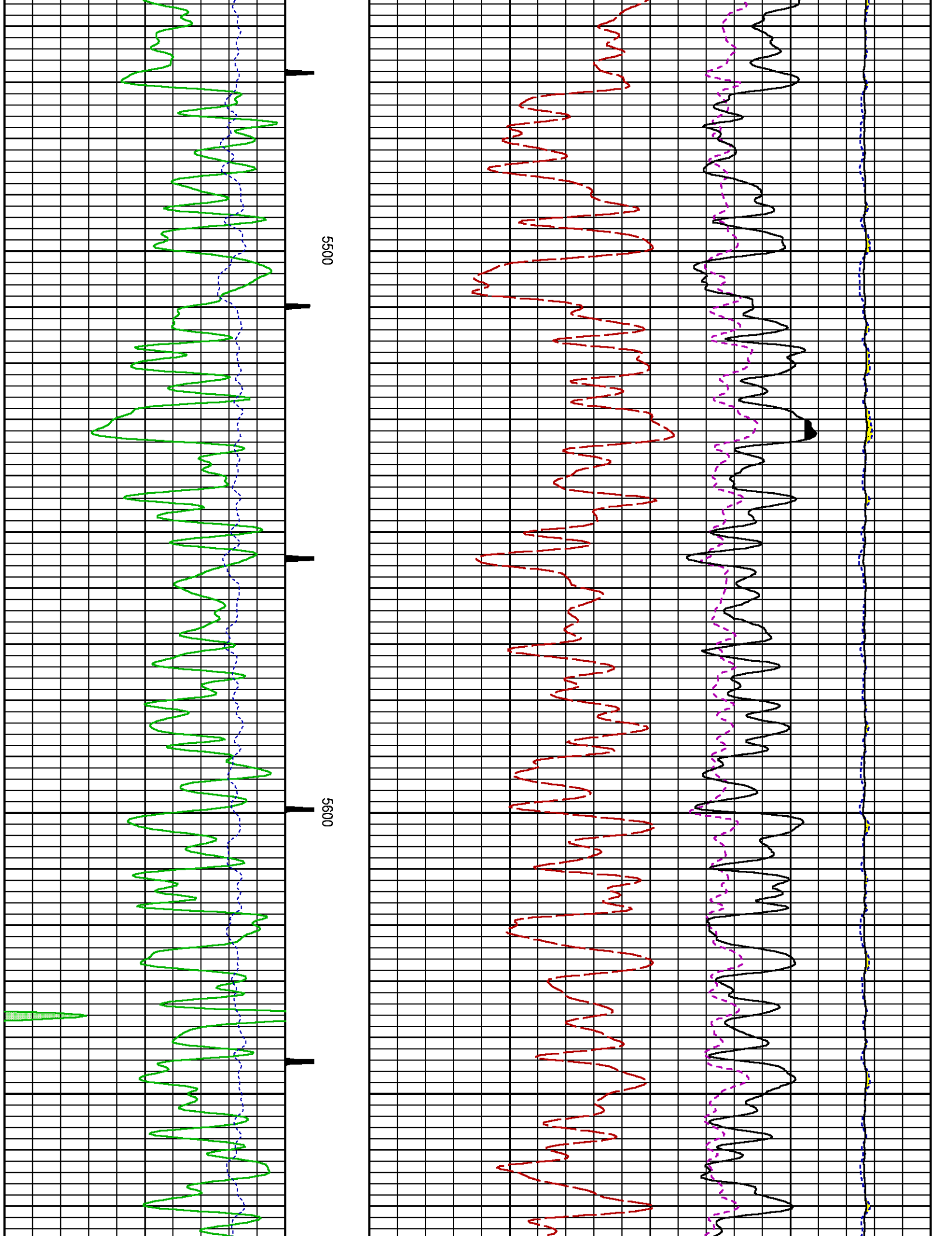


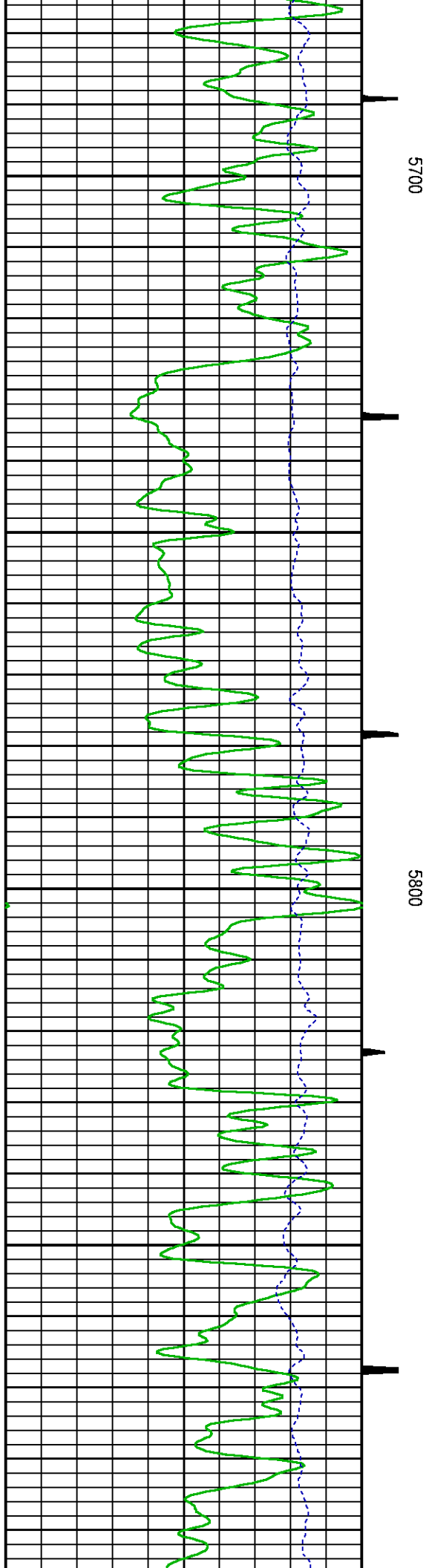
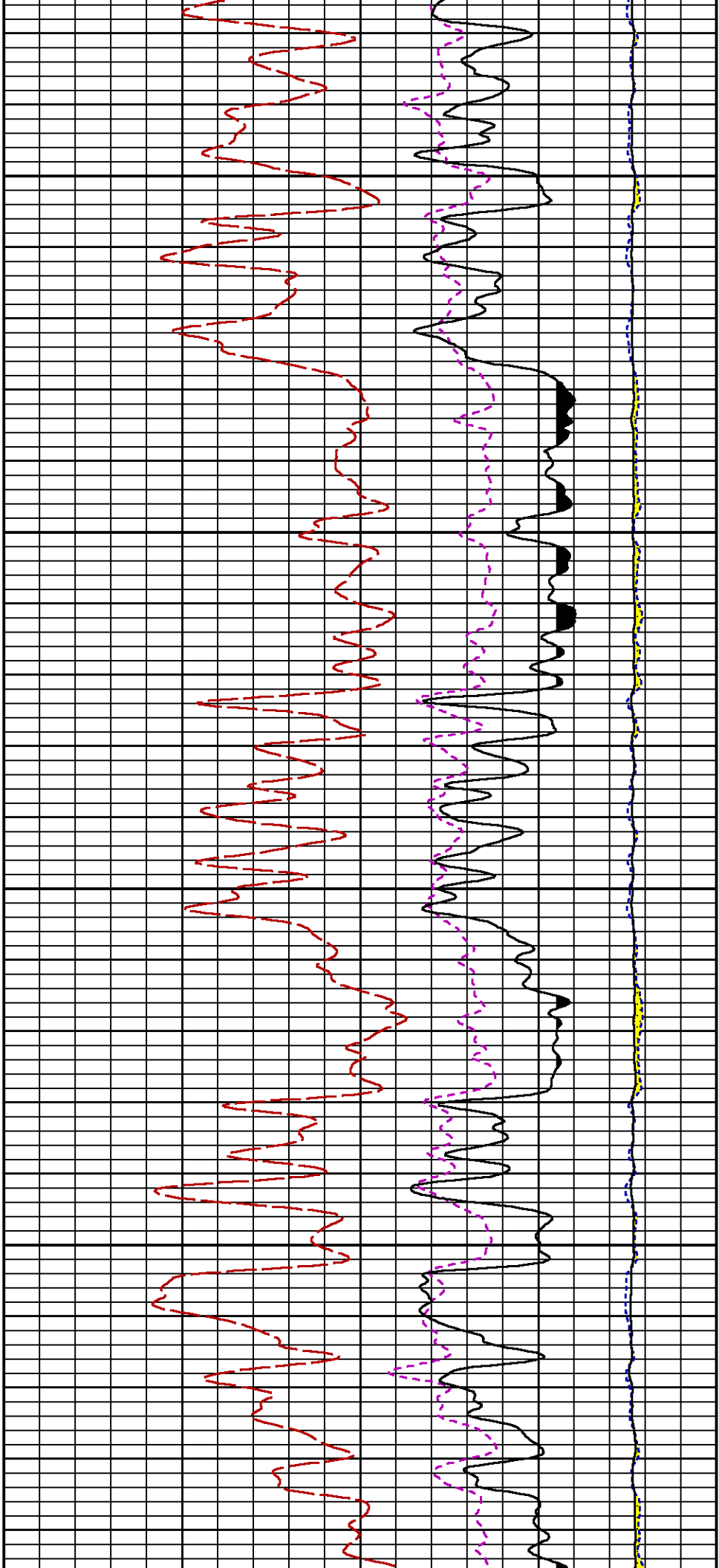
5100

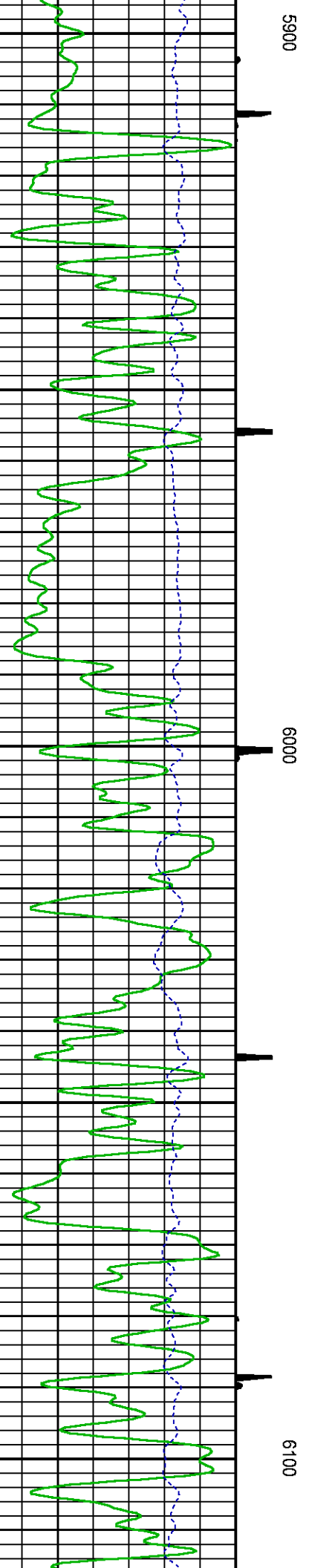
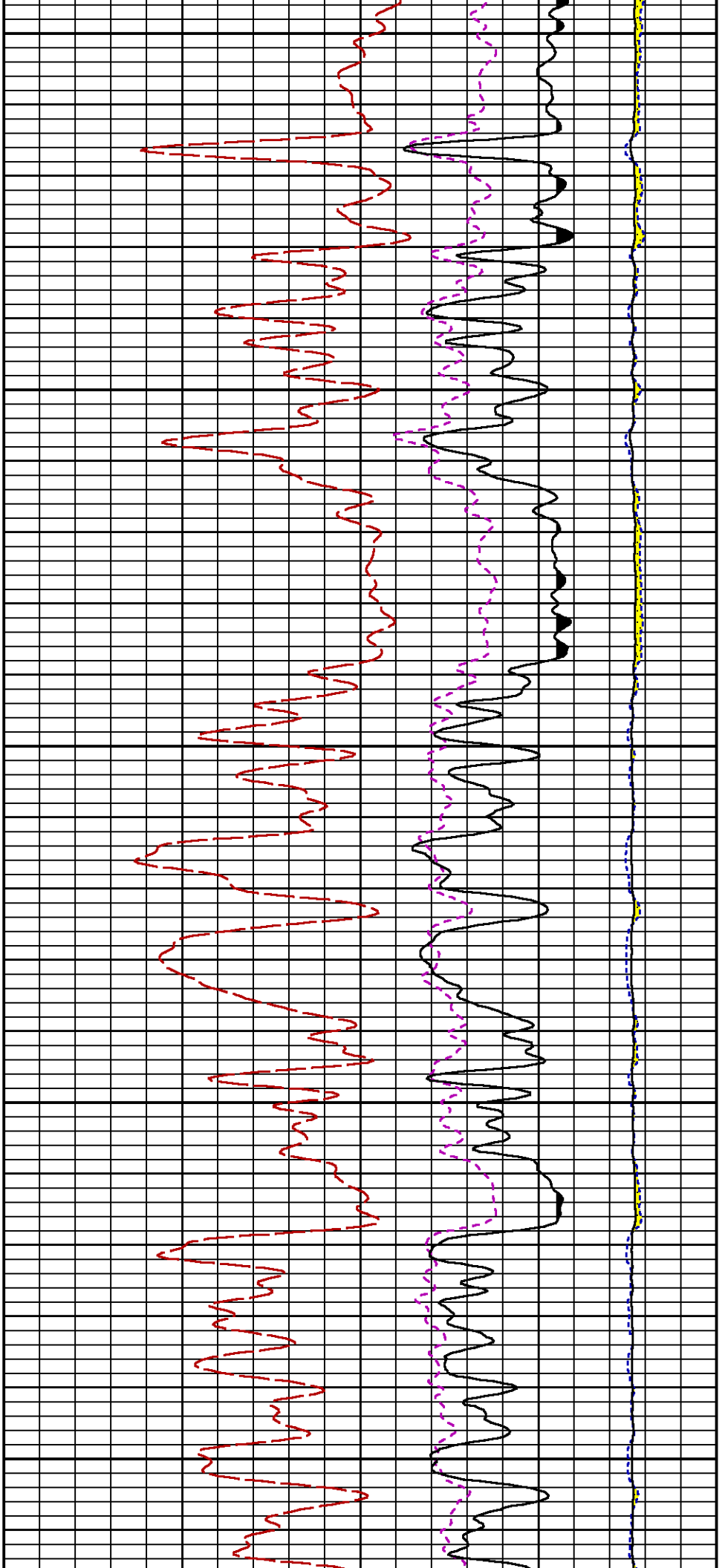
5200

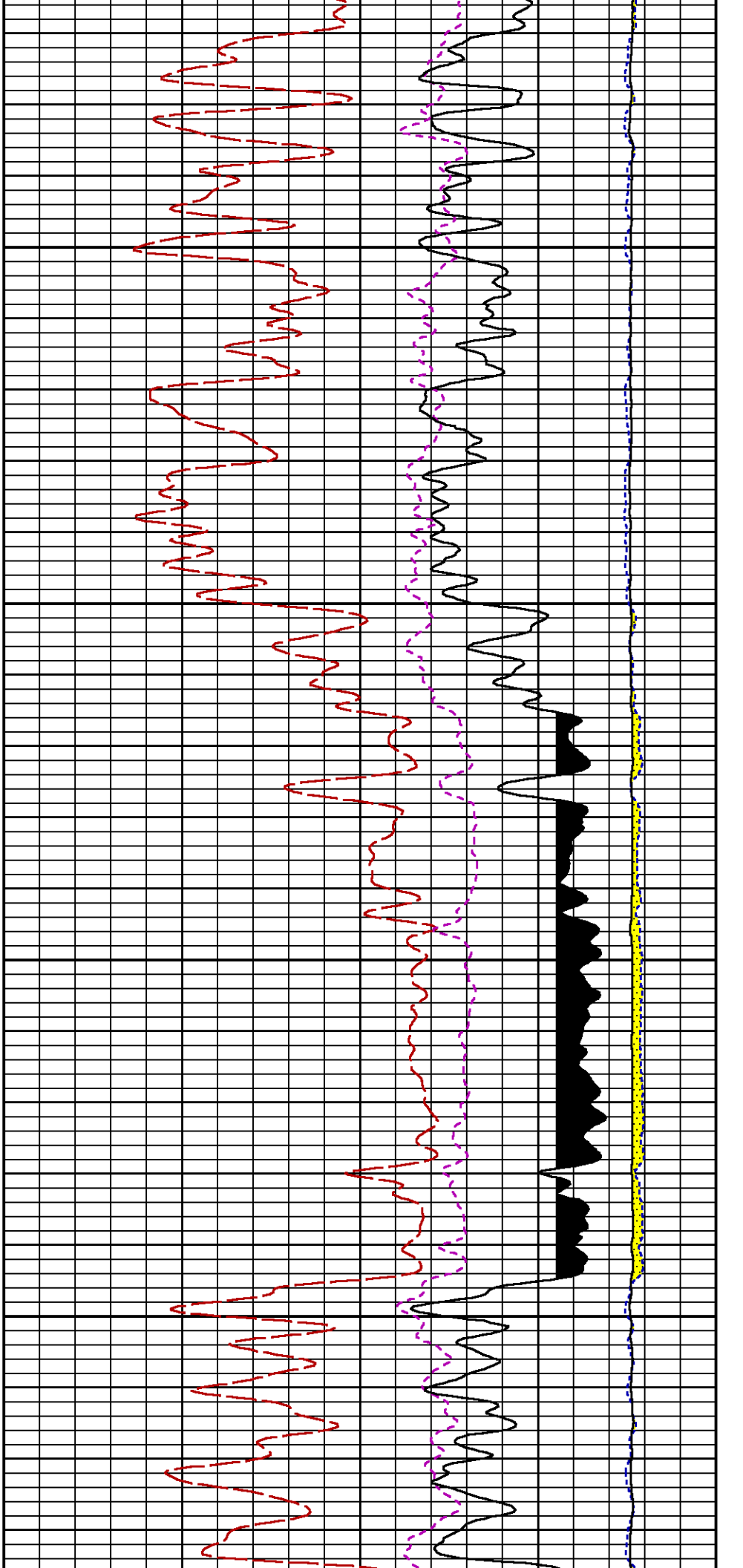






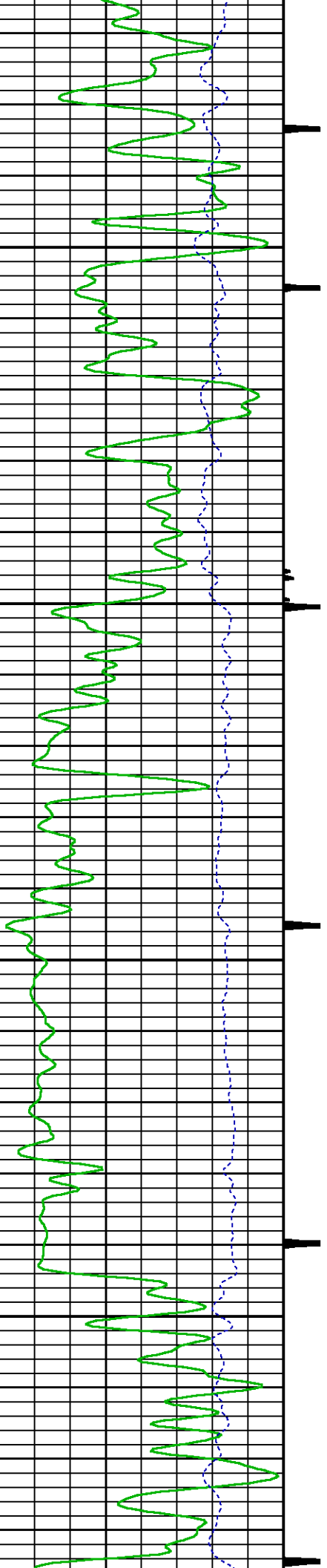


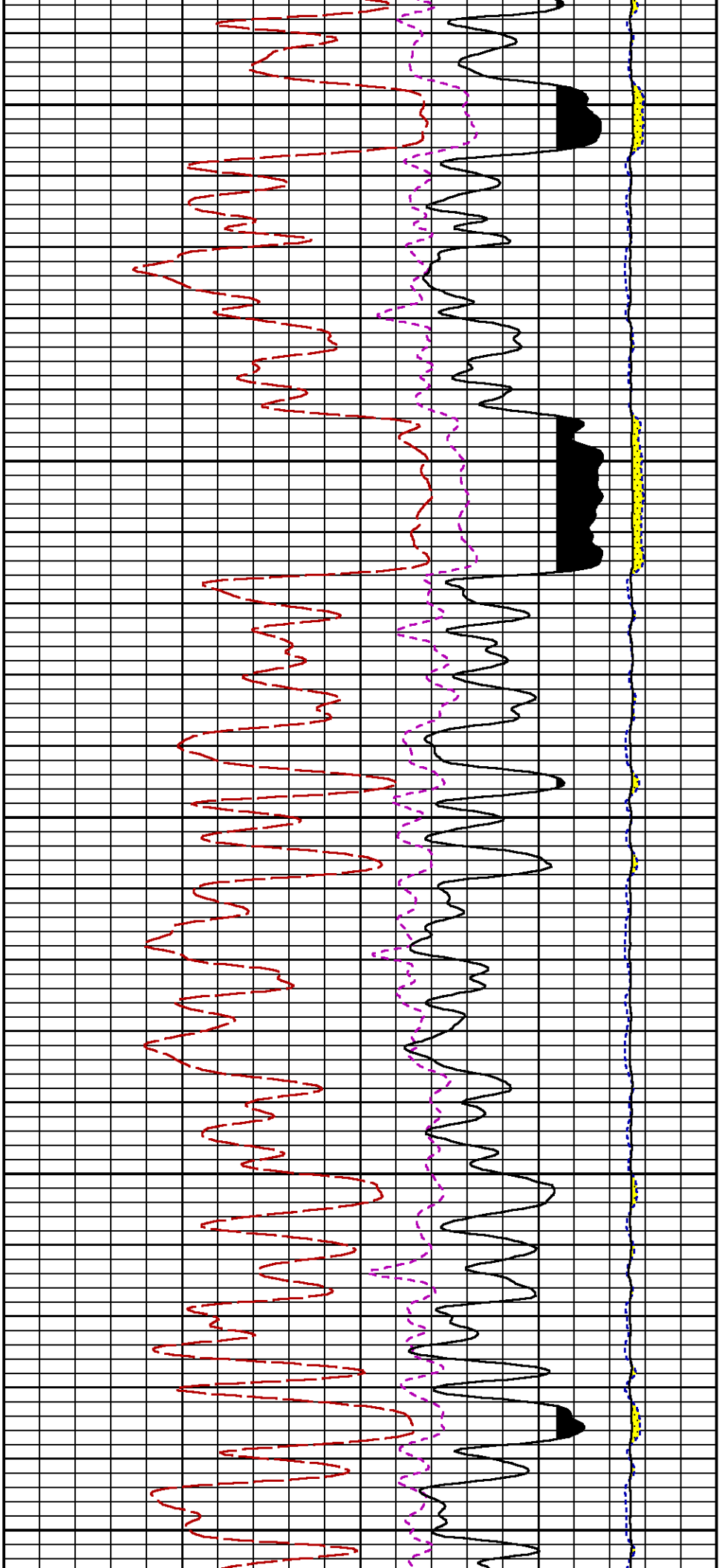




6200

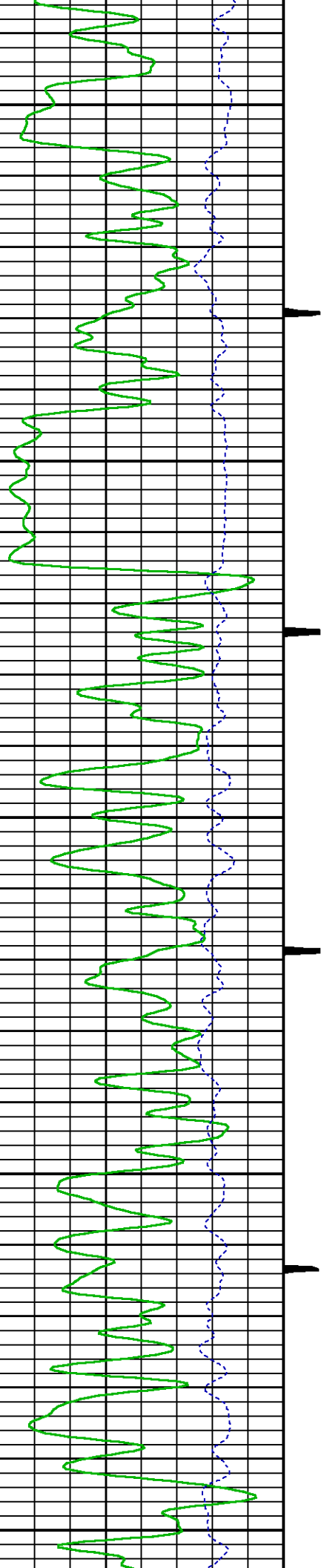
6300

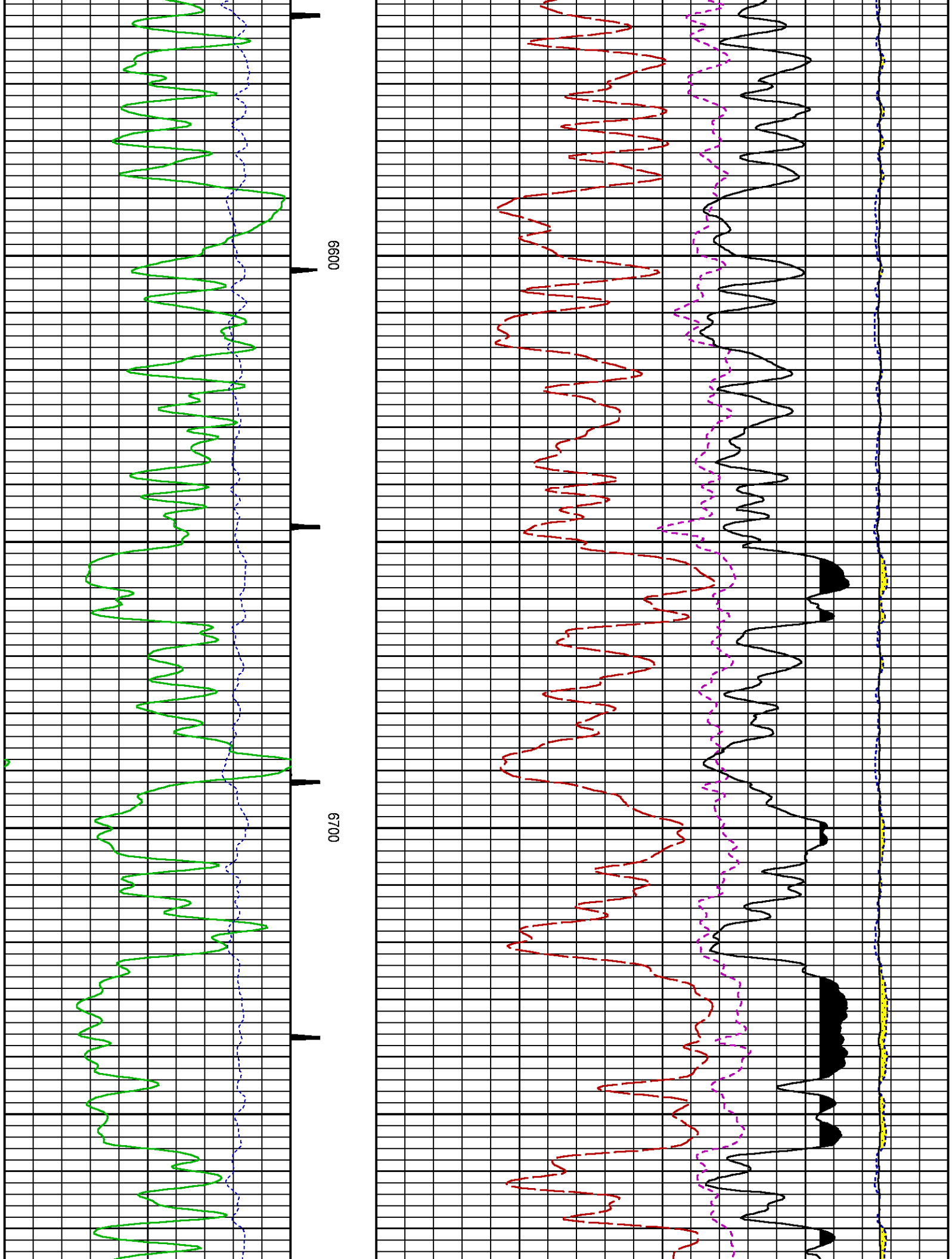


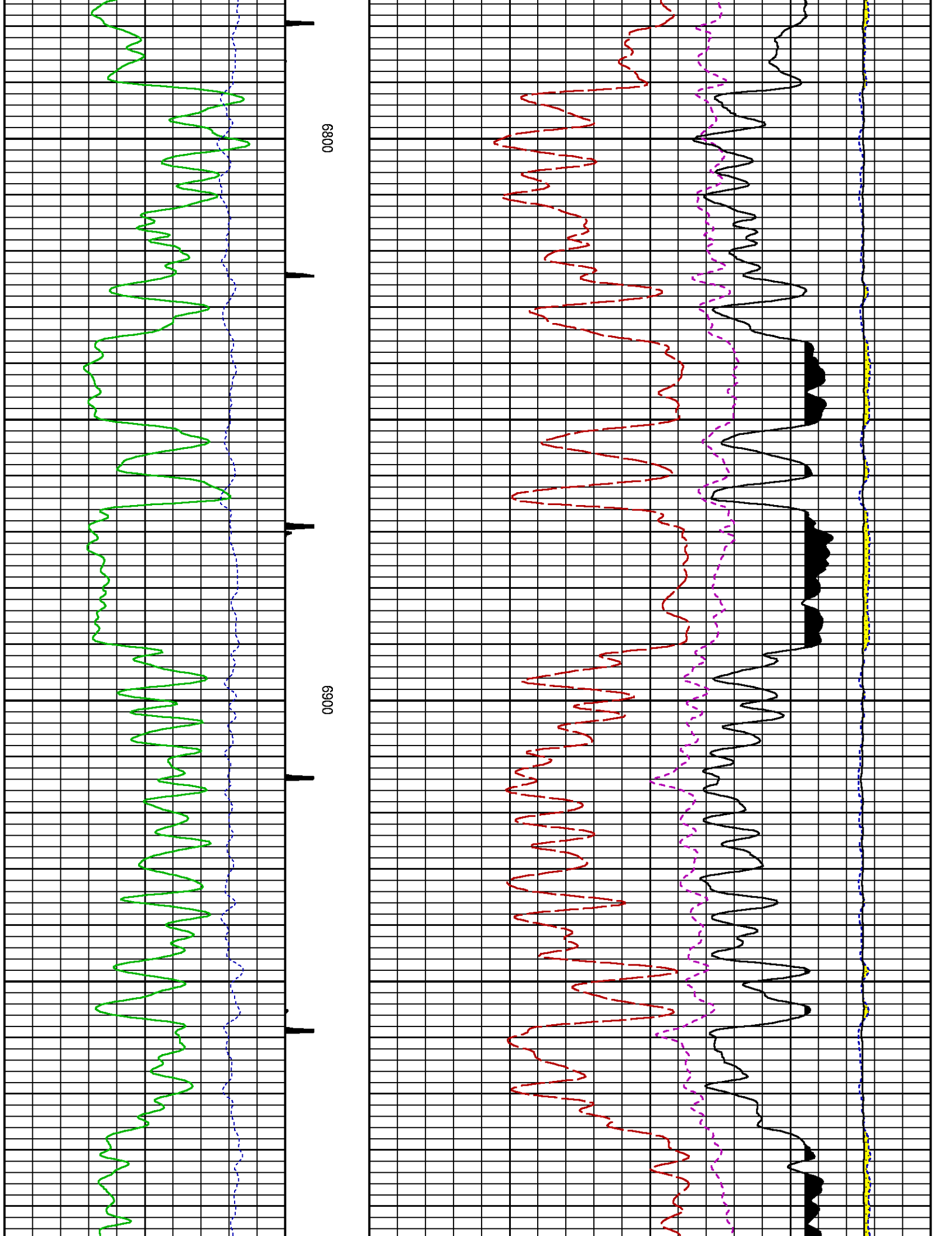


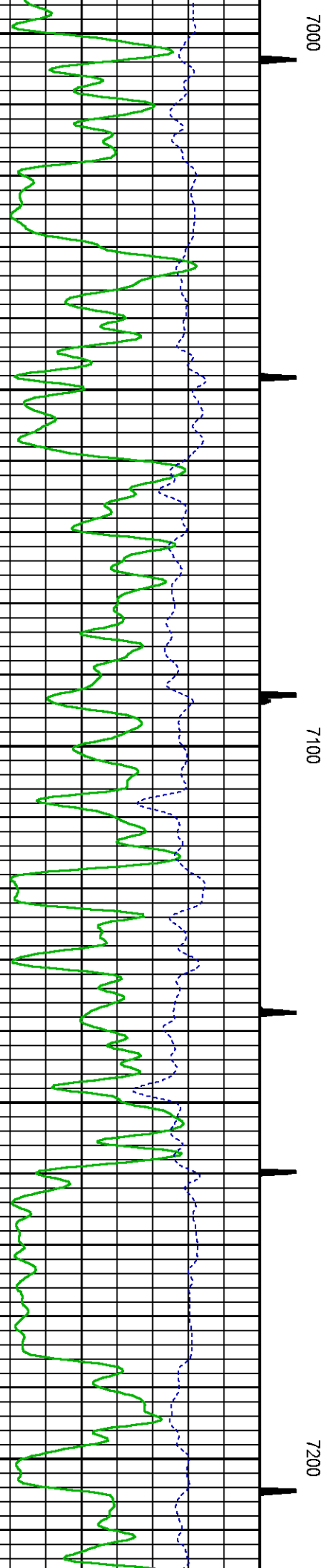
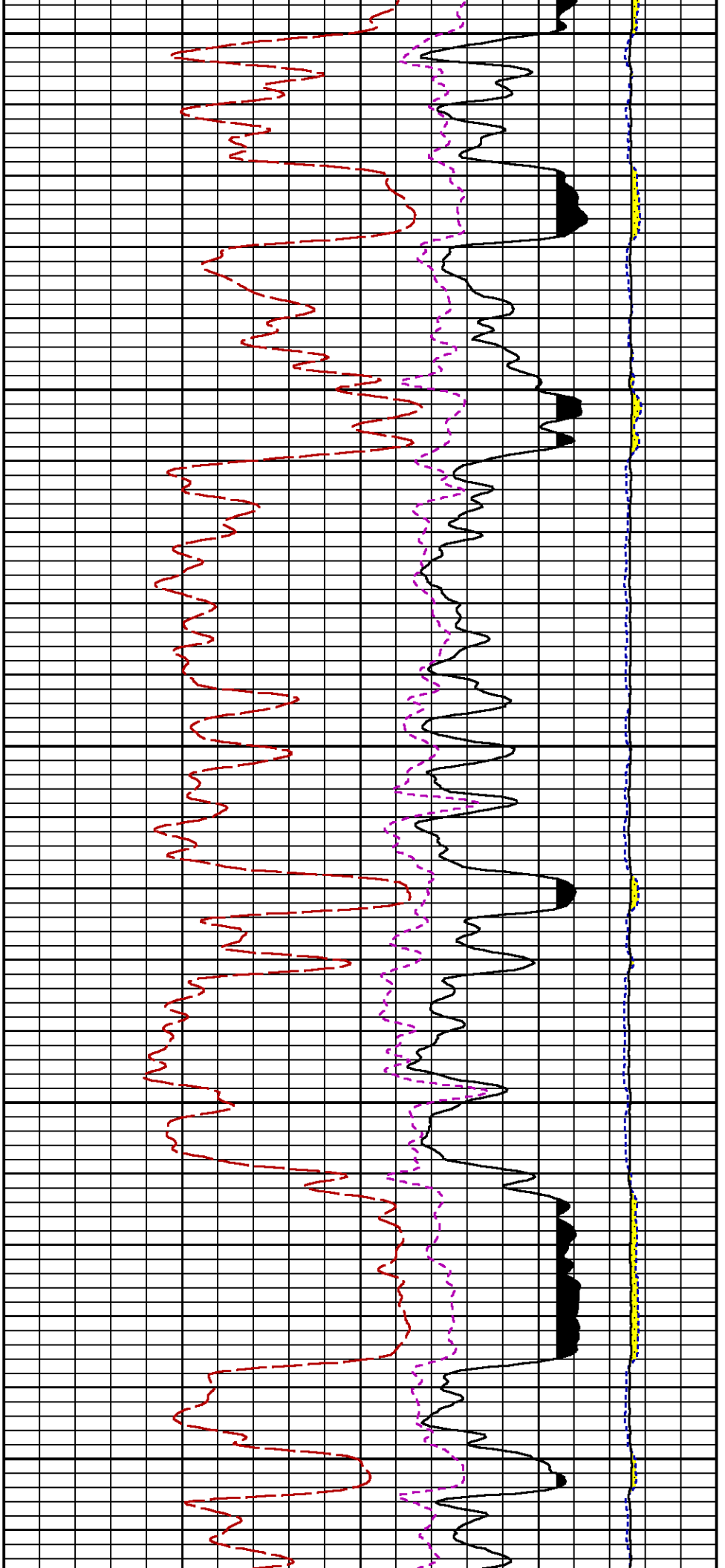
6400

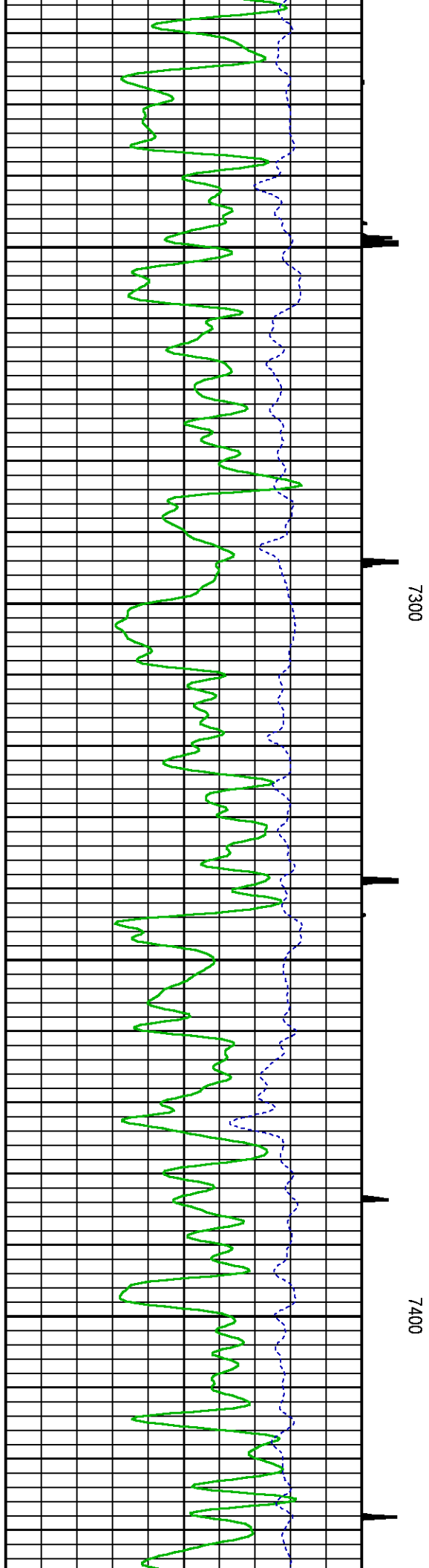
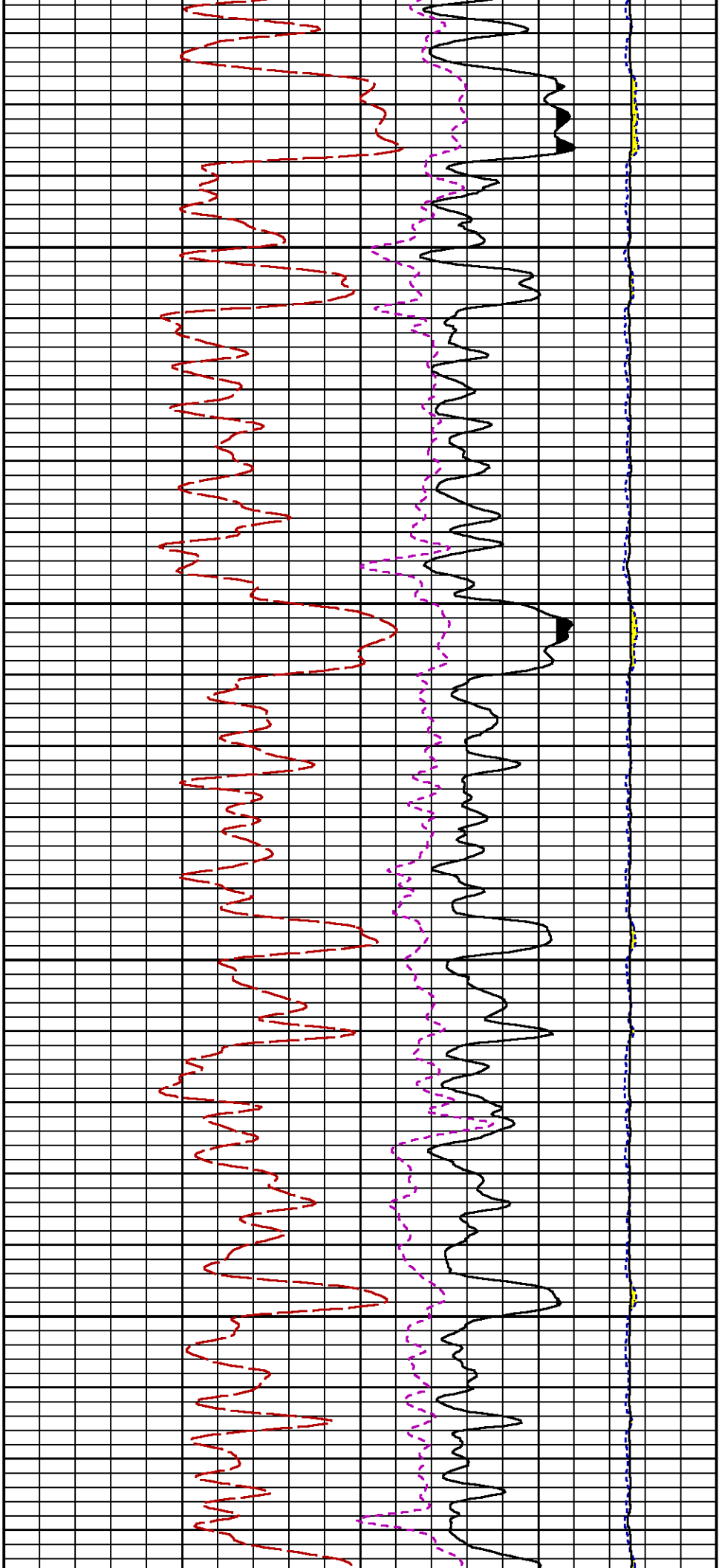
6500

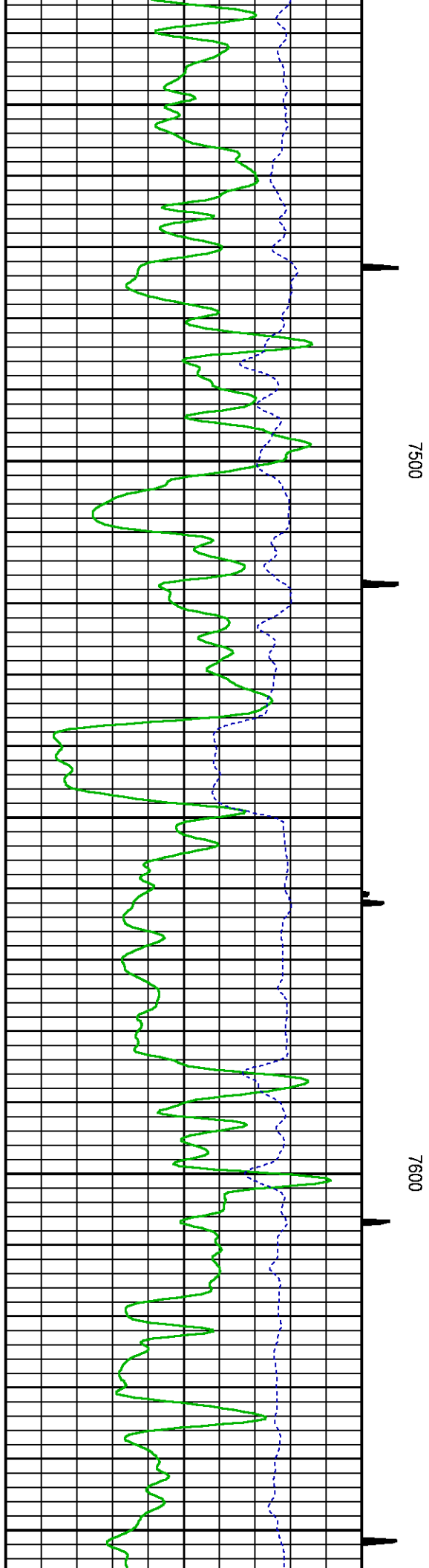
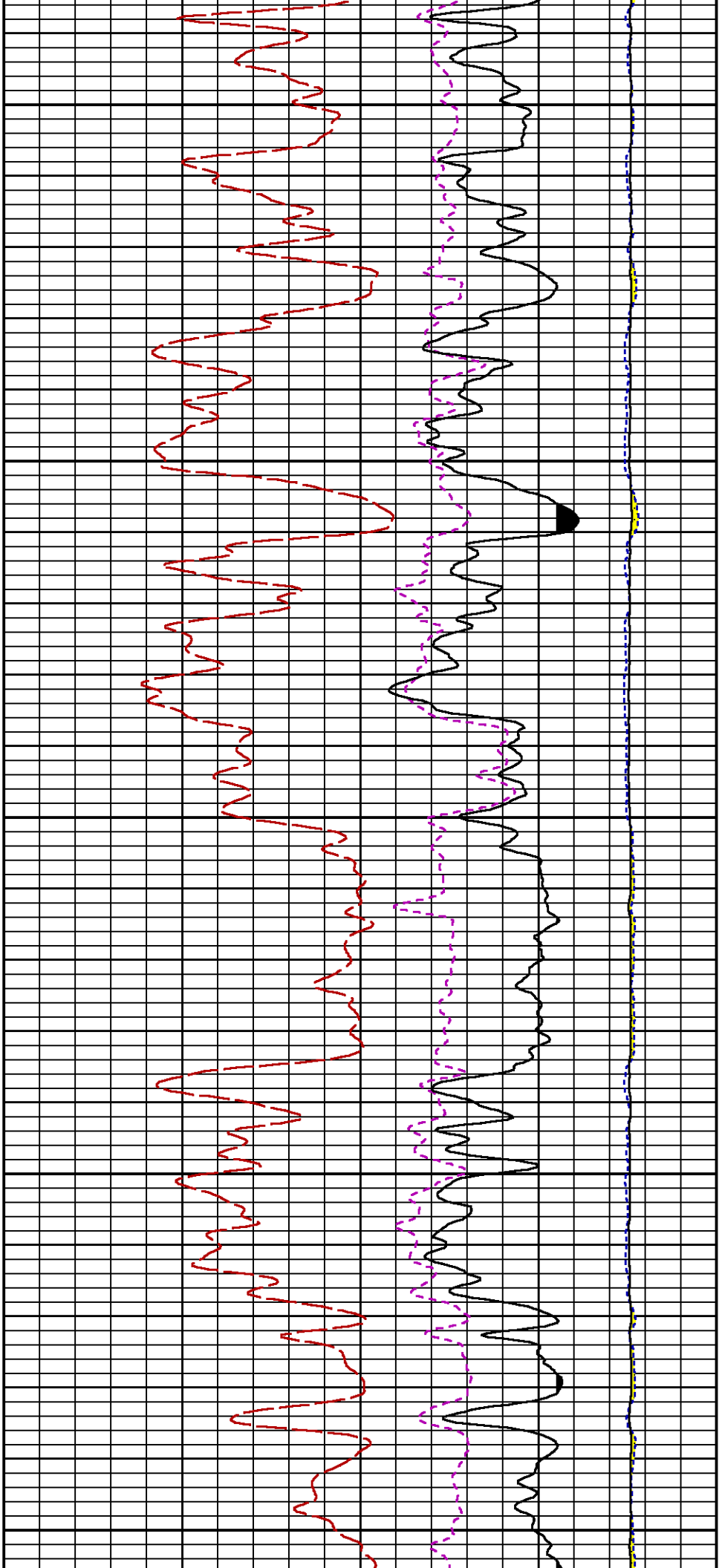


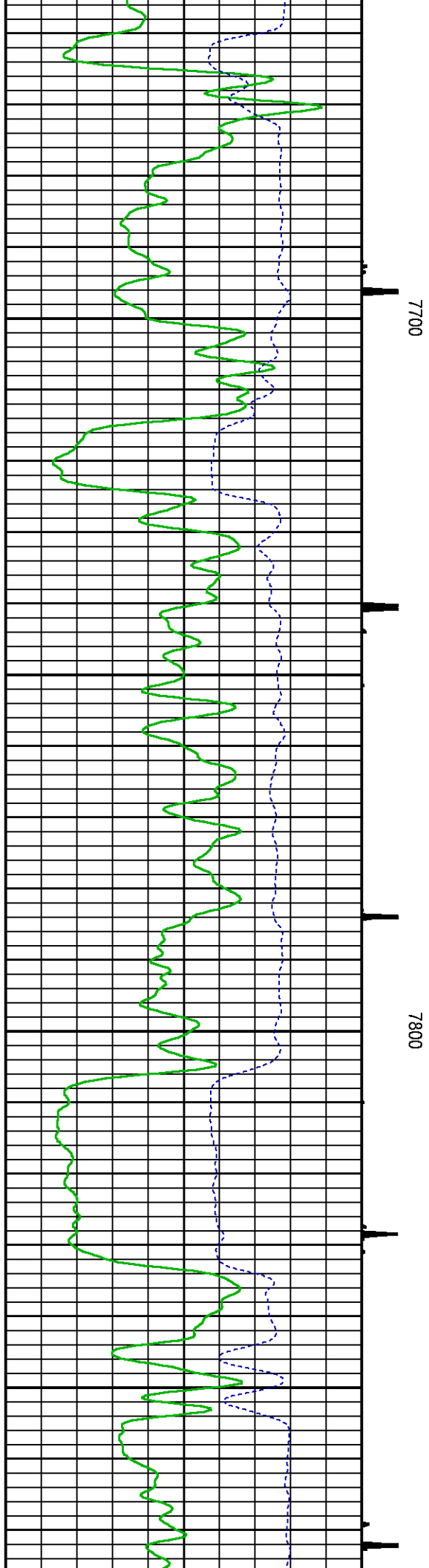
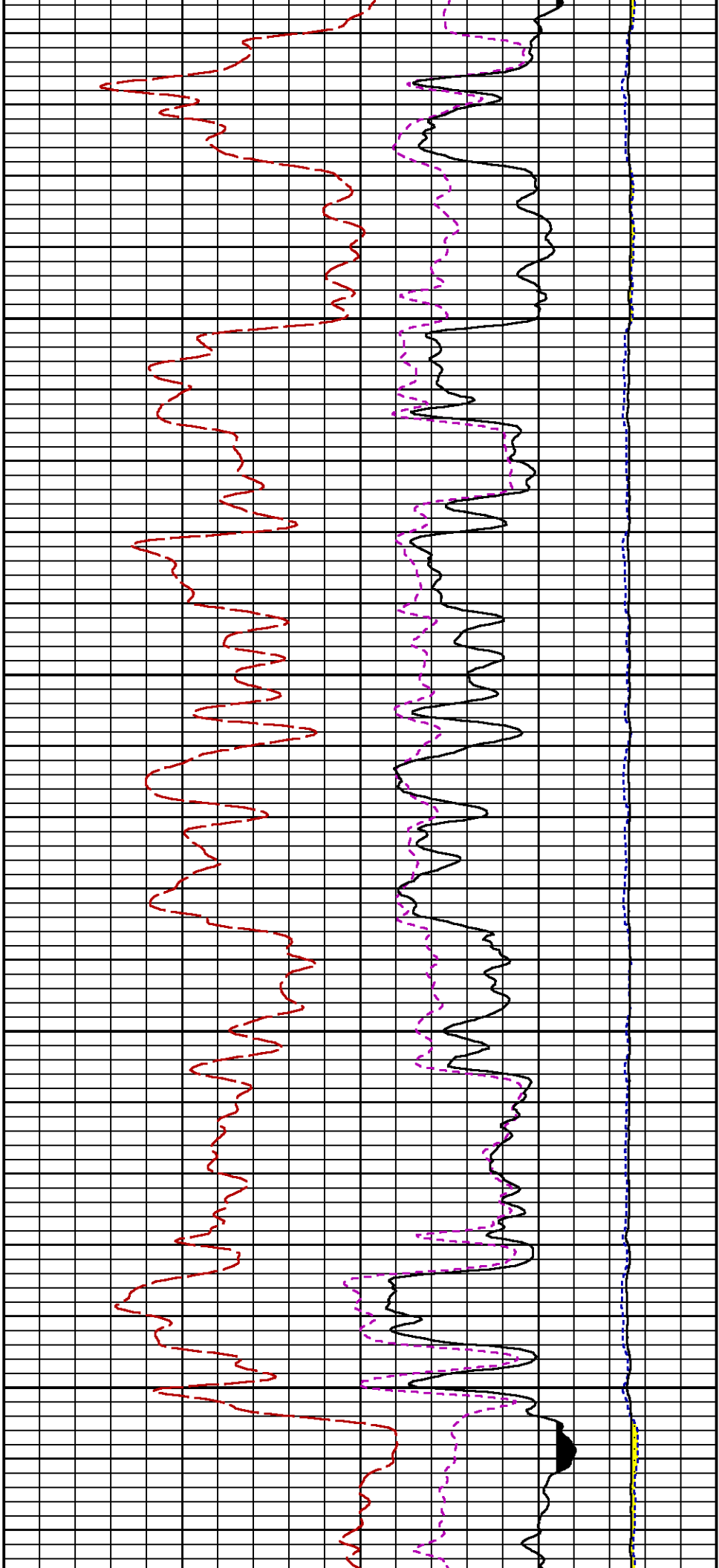


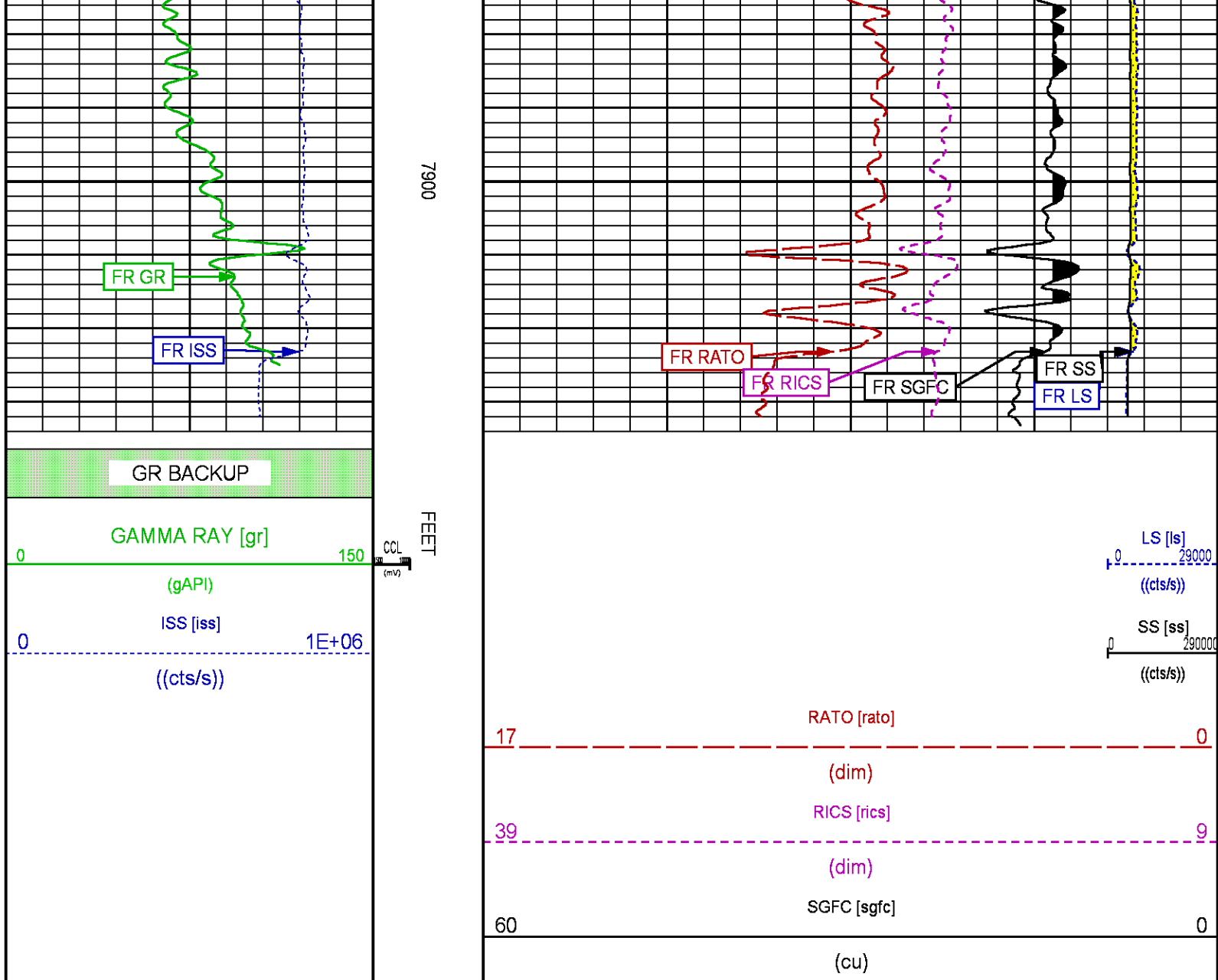












REPEAT PASS PNC-3D MODE

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

Plotted: Sat Aug 26 02:28:10 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4722.250 ft BOTTOM DEPTH: 5006.500 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 | 7.88 | in | " | " |
| | CASING SIZE | 4.50 | in | " | " |
| | MATRIX | SANDSTONE | | " | " |
| | CORRECTION BUFFER | 11 | | " | " |

CURVE DESCRIPTION REPORT

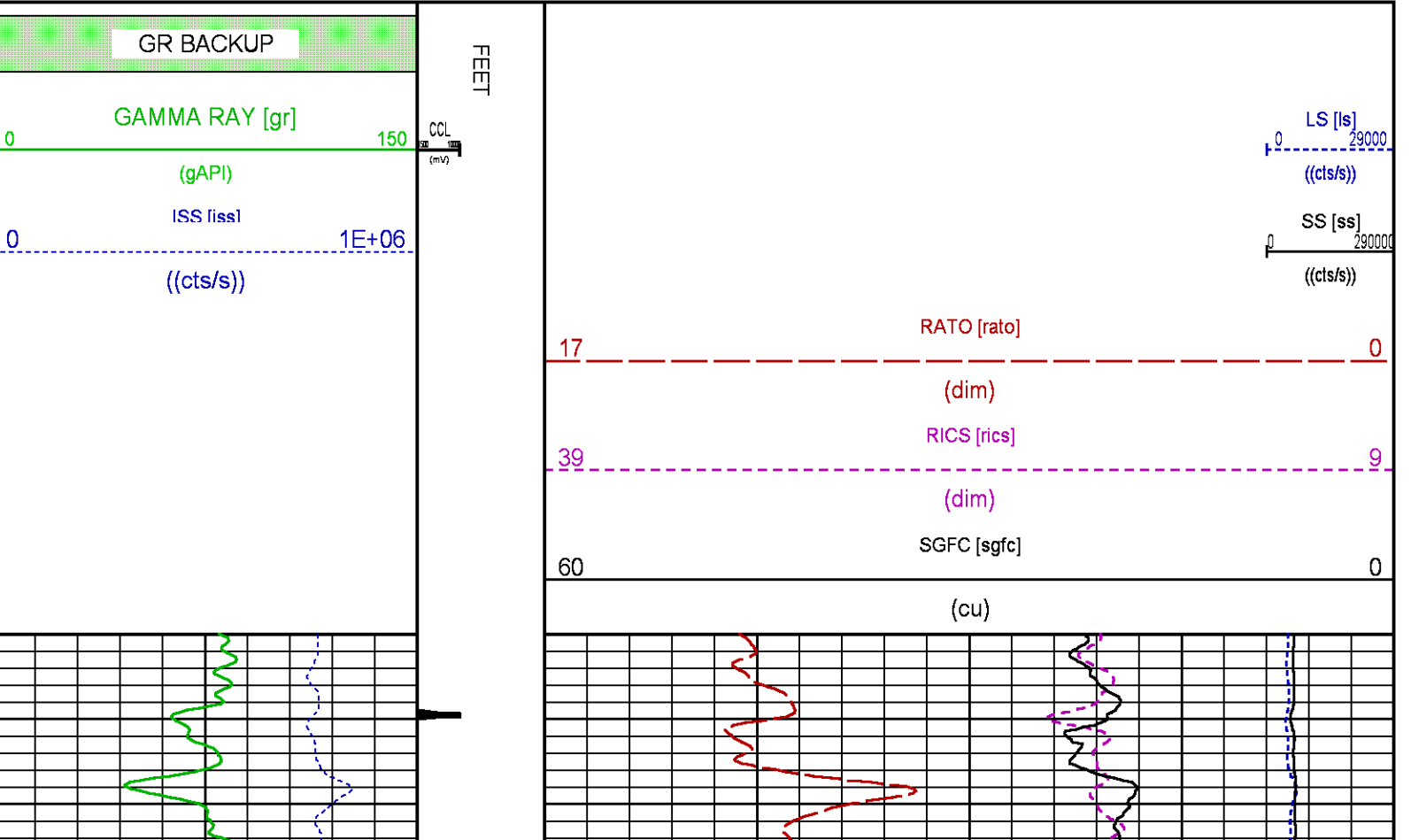
| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|----------------------|---|
| F1:CCL | Aug 25 21:57:26 2017 | CASING COLLAR LOCATOR |
| F1:GR | Aug 25 21:57:26 2017 | GAMMA RAY |
| F1:ISS | Aug 25 21:57:26 2017 | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | Aug 25 21:57:26 2017 | LONG SPACE COUNT RATE |
| F1:RATO | Aug 25 21:57:26 2017 | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | Aug 25 21:57:26 2017 | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | Aug 25 21:57:26 2017 | CORRECTED FORMATION SIGMA |
| F1:SS | Aug 25 21:57:26 2017 | SHORT SPACE COUNT RATE |

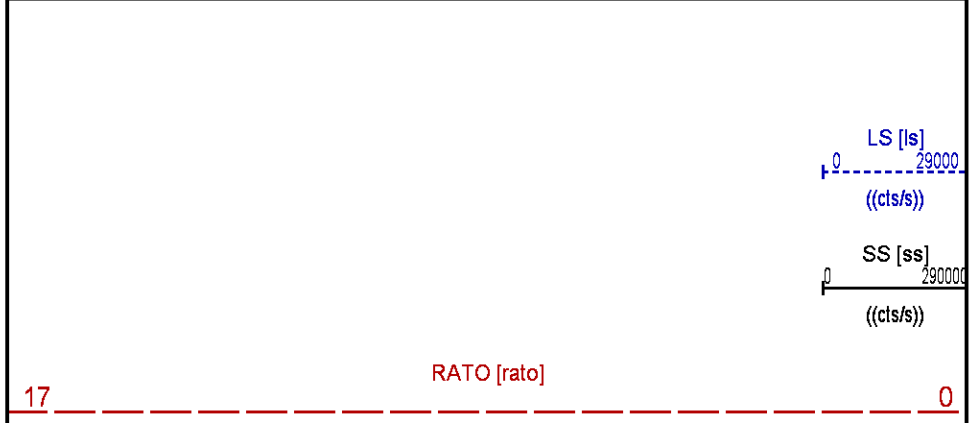
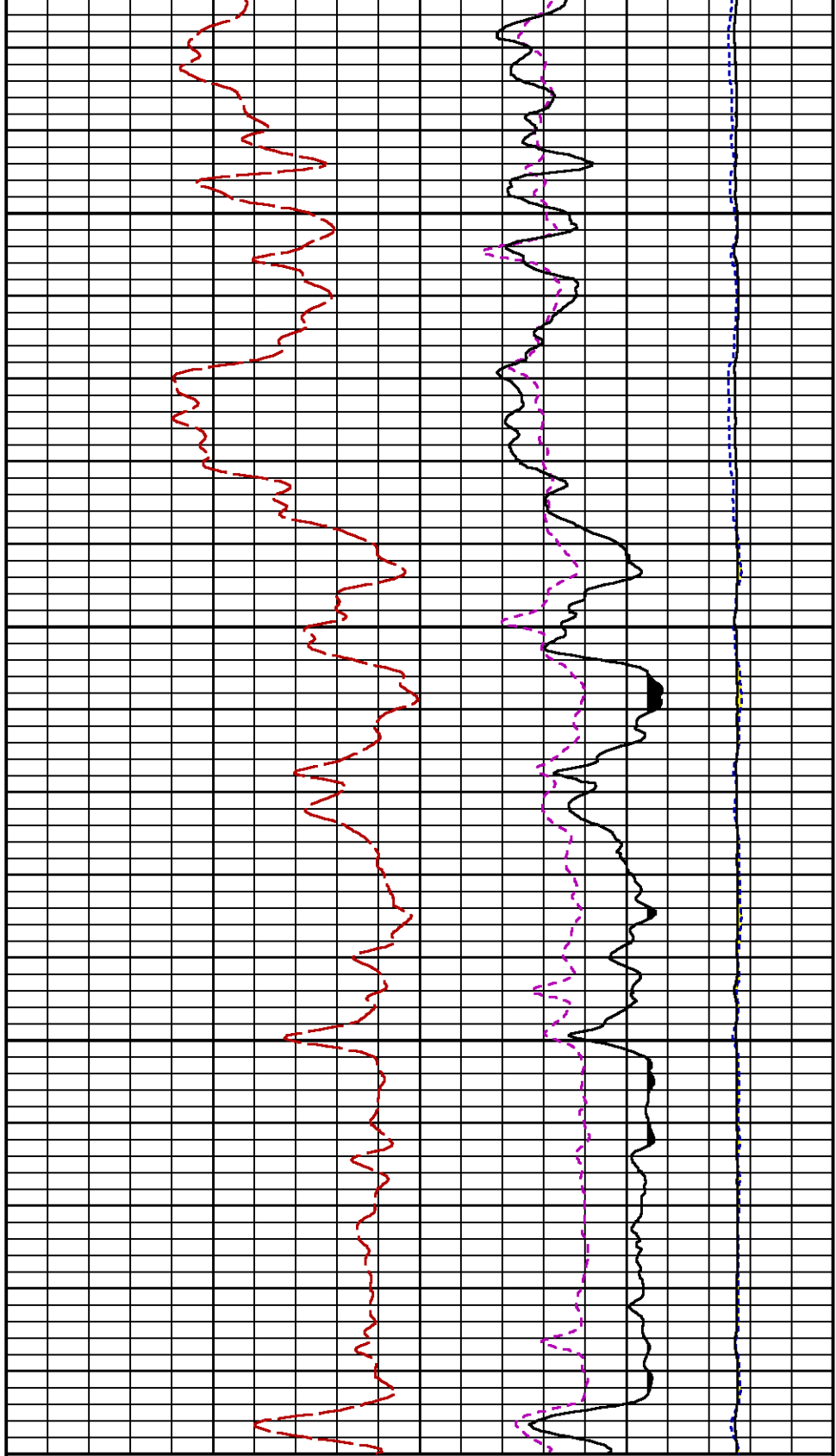
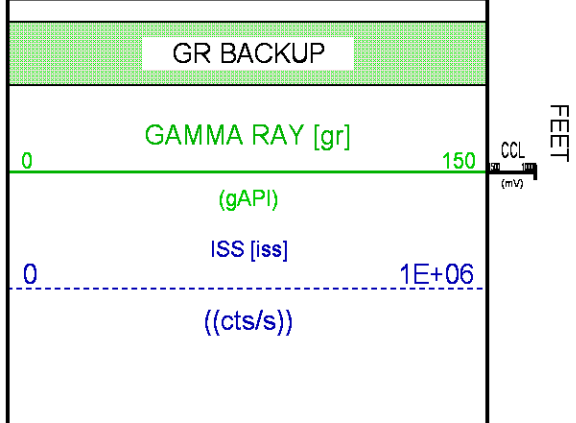
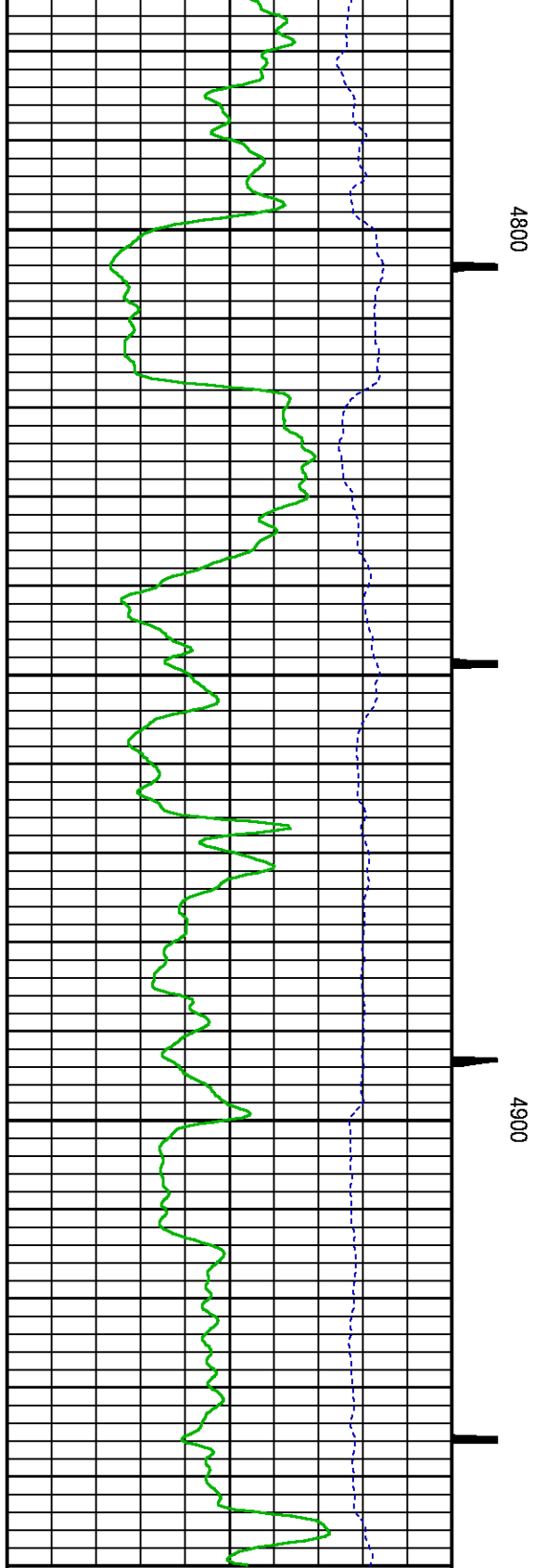
CURVE MEASURE POINT OFFSET

| 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 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_10E/RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 4750 - 4950 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D01_REPEAT.xtf
Created On : Aug 25 21:57:26 2017
Company : LARAMIE ENERGY
Well : GUNDERSON 20-10E
Field : VEGA
File Interval : 4704.25 - 5014.25 Feet
OCT : RPM3D





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

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_GUNDERSON_20_10E/RPM3D.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 8262XA 10485470 DATE/TIME PERFORMED: Tue Jan 17 13:32:11 2017

UNIT #: 3882ML ML4352 CALB JIG #: 4702NK DA_228

| | BACKGROUND (cts/s) | CALBRTR ON (cts/s) | CR DIFF (cts/s) | MULT | BACKGROUND (gAPI) | CALBRTR ON (gAPI) | CALBRTR (gAPI) |
|----|-----------------------|-----------------------|--------------------|-------|----------------------|----------------------|-------------------|
| GR | 63.76 | 399.13 | 335.4 | 0.552 | 35.17 | 220.17 | 185 |

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 8262XA 10485470 DATE/TIME PERFORMED: Tue Jan 17 13:34:45 2017

UNIT #: 3882ML ML4352 VERI JIG #: 4702NK DA_228

| | BACKGROUND (cts/s) | CALBRTR ON (cts/s) | MULT | BACKGROUND (gAPI) | CALBRTR ON (gAPI) | DIFF. (gAPI) |
|----|-----------------------|-----------------------|-------|----------------------|----------------------|-----------------|
| GR | 63.44 | 394.18 | 0.552 | 35.00 | 217.44 | 182.44 |
| | | | | | | 175.00 195.00 |

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10184883 DATE/TIME PERFORMED: Thu Jul 13 15:06:49 2017

UNIT: 3882TD HL6728 CALIBRATOR: 2437XB 120057 SOURCE: 8281AA 10160595 HOURS: 8281AA 228

| | ISS | Mtr Vits (V) | SS Gain | LS Gain | XLS Gain | EA Temp (degF) | Sync Delay (usec) | RCAL |
|--------------|---------|-----------------|---------|---------|----------|-------------------|----------------------|--------|
| Raw Data | 807240 | 123 | 2232 | 2259 | 2285 | 137 | 9.0 | 0.9874 |
| Interpolated | 1300000 | 146 | 2216 | 2251 | 2283 | | | |

| | ISS | BKS | BKL | BKX | SGA1 | SDA1 | SGA2 | SDA2 |
|----------|--------|------|------|-----|-------------|-----------|-------------|-----------|
| Raw Data | 807240 | 6543 | 1352 | 236 | 25.88 | 0.15 | 24.03 | 0.34 |
| | | | | | 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 | 807240 | 164687 | 25336 | 86104 | 30690 | 8086 | 52299 | 12945 |
| Fit Quality % | | 0.492 | 0.443 | 0.487 | 0.490 | 0.506 | 0.462 | 0.494 |

| | ISS | RBOR | RIN ISS/ILS | RIN13 ISS/IXS | RICS ISS/CSS | RATO SS/LS | RTWO SS2/LS | RONE CSS/CLS |
|----------|--------|-----------|----------------|------------------|-----------------|---------------|----------------|-----------------|
| Raw Data | 807240 | 1.44 | 4.90 | 31.88 | 15.44 | 10.65 | 3.80 | 4.04 |
| | | 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 %

0.052

0.128

0.117

0.144

0.021

0.011

0.031

Reduced

1232260

1.44

4.91

31.91

15.45

10.65

3.80

4.04

1.42

1.45

4.33

5.52

27.60

32.70

13.70

16.34

10.06

11.10

3.57

3.95

3.76

4.22

TPSETEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 8255XA 120516

DATE/TIME PERFORMED: Mon Jul 11 10:30:57 2016

UNIT #: 3880TA HL6670

T(0)

T(1)

T(2)

T(3)

Corr Coeff for Temp

-1.840167E+01

1.009373E-01

3.960064E-06

-4.985002E-10

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_GUNDERSON_20_10E/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

RPM C DETECTOR SECTION

Diameter : 1.70"
Length : 9.40'

34.08'

CCL MP 26.03'

GR MP 22.90'

XLS DETECTOR 13.58'

LS DETECTOR 13.16'

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

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 | <u>LARAMIE ENERGY</u> | | FILE NO: | |
| | WELL | <u>GUNDERSON BCU 20-10E</u> | | | |
| | FIELD | <u>VEGA</u> | | API NO: | |
| | COUNTY | <u>MESA</u> | STATE | <u>COLORADO</u> | <u>05077103530000</u> |
| LOCATION: | | ELEVATIONS: | | | |
| SHL: LAT:39.266672N;LONG:107.795281W | | KB 7176 FT | | | |
| BHL: LAT:39.263096N;LONG:107.788397W | | DF 7176 FT | | | |
| SEC <u>20</u> TWP <u>9S</u> RGE <u>93W</u> | | GL 7146 FT | | | |
| | | DATE | | <u>26-AUG-2017</u> | |