



| | |
|---------------------------|---|
| FILE NO: CH137655 | COMPANY LARAMIE ENERGY LLC |
| API NO: 05077103980000 | WELL NICHOLS 0994-24-19W |
| | FIELD VEGA |
| | COUNTY MESA STATE COLORADO |

| | | |
|-----------|--|-----------------------|
| Ver. 4.10 | LOCATION: SHL: 2315' FNL & 2781' FWL BHL: 670' FSL & 1550' FWL SEC <u>24</u> TWP <u>9S</u> RGE <u>94W</u> | OTHER SERVICES RAL |
|-----------|--|-----------------------|

| | | | |
|---|----------------|----------------------------------|---|
| PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM | GL KB KB | ELEVATION 24 FT ABOVE P.D. | ELEVATIONS: KB 7236 FT DF GL 7212 FT |
|---|----------------|----------------------------------|---|

| | |
|------------------------|------------------|
| DATE | 03-Jul-2018 |
| RUN | 1 |
| TRIP | 1 |
| SERVICE ORDER | US137655 |
| DEPTH DRILLER | 7856 FT |
| DEPTH LOGGER | 7810 FT |
| BOTTOM LOGGED INTERVAL | 7810 FT |
| TOP LOGGED INTERVAL | 2219 FT |
| TIME STARTED | 16:00 |
| TIME FINISHED | 21:30 |
| OPERATOR RIG TIME | 5.5 HOURS |
| TYPE OF FLUID IN HOLE | WATER |
| FLUID DENSITY | NA |
| FLUID SALINITY | NA |
| FLUID LEVEL | 65 FT |
| LOGGED CEMENT TOP | 995 FT |
| WELLHEAD PRESSURE | 0 PSI |
| MAXIMUM HOLE DEVIATION | NA |
| NOMINAL LOGGING SPEED | 10 FMIN |
| MAX. RECORDED TEMP. | 226 DEGF |
| REFERENCE LOG | BAKER HUGHES RAL |
| REFERENCE LOG DATE | 23-JUN-2018 |
| EQUIP. NO. | ML-4268 |
| LOCATION | GRAND JCT. |
| RECORDED BY | T. NEWELL |
| WITNESSED BY | NA |

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 1 TRIP 1: 2 OPERATIONS RUN IN THE WELL

OPERATION 1: RAL/GR/CCL RUN CENTRALIZED

OPERATION 2: RPM/GR/CCL RUN IN PNC-3D MODE

SJ: 6040' - 6060'

SJ: 6948' - 6970'

EQUIPMENT DATA

| RUN | TRIP | TOOL | SERIES NO. | SERIAL NO. | POSITION |
|-----|------|---------|------------|------------|----------|
| 1 | 1 | PCM | 8250EA | 11908682 | FREE |
| 1 | 1 | TEL/CCL | 8248ED | 10460602 | FREE |
| 1 | 1 | GR | 2812LB | 11621284 | FREE |
| 1 | 1 | RPM | 8281EA | 10190985 | FREE |
| 1 | 1 | RPM | 8283PA | 10068031 | FREE |
| 1 | 1 | RPM | 8281FA | 10076673 | FREE |
| 1 | 1 | TEMP | 8255XXA | 166341 | FREE |

RPM MAIN PASS G-SAND

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Patches: 4

Plotted: Tue Jul 3 22:22:13 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-19W/p354h03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 2187.846 ft BOTTOM DEPTH: 2839.531 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 | " | " |
| | LARGEST CASING OD | 4.50 | in | " | " |
| | MATRIX | SANDSTONE | | " | " |

CURVE DESCRIPTION REPORT

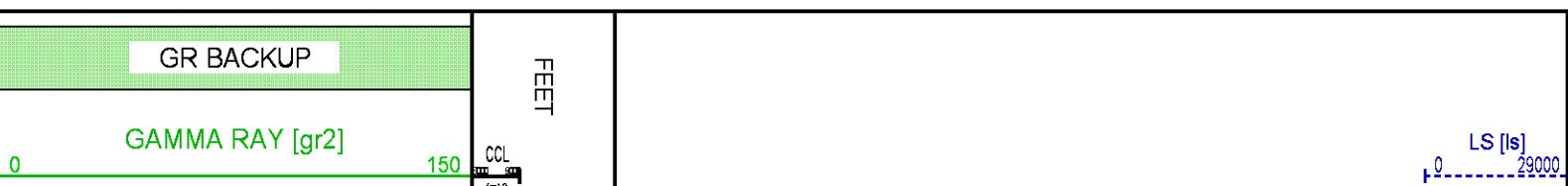
| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|---------------|---|
| F1:CCL | N/A | CASING COLLAR LOCATOR |
| F1:GR2 | N/A | GAMMA RAY 2 |
| F1:ISS | N/A | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | N/A | LONG SPACE COUNT RATE |
| F1:RATO | N/A | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | N/A | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | N/A | BOREHOLE AND DIFFUSION CORRECTED SIGMA |
| F1:SS | N/A | SHORT SPACE COUNT RATE |

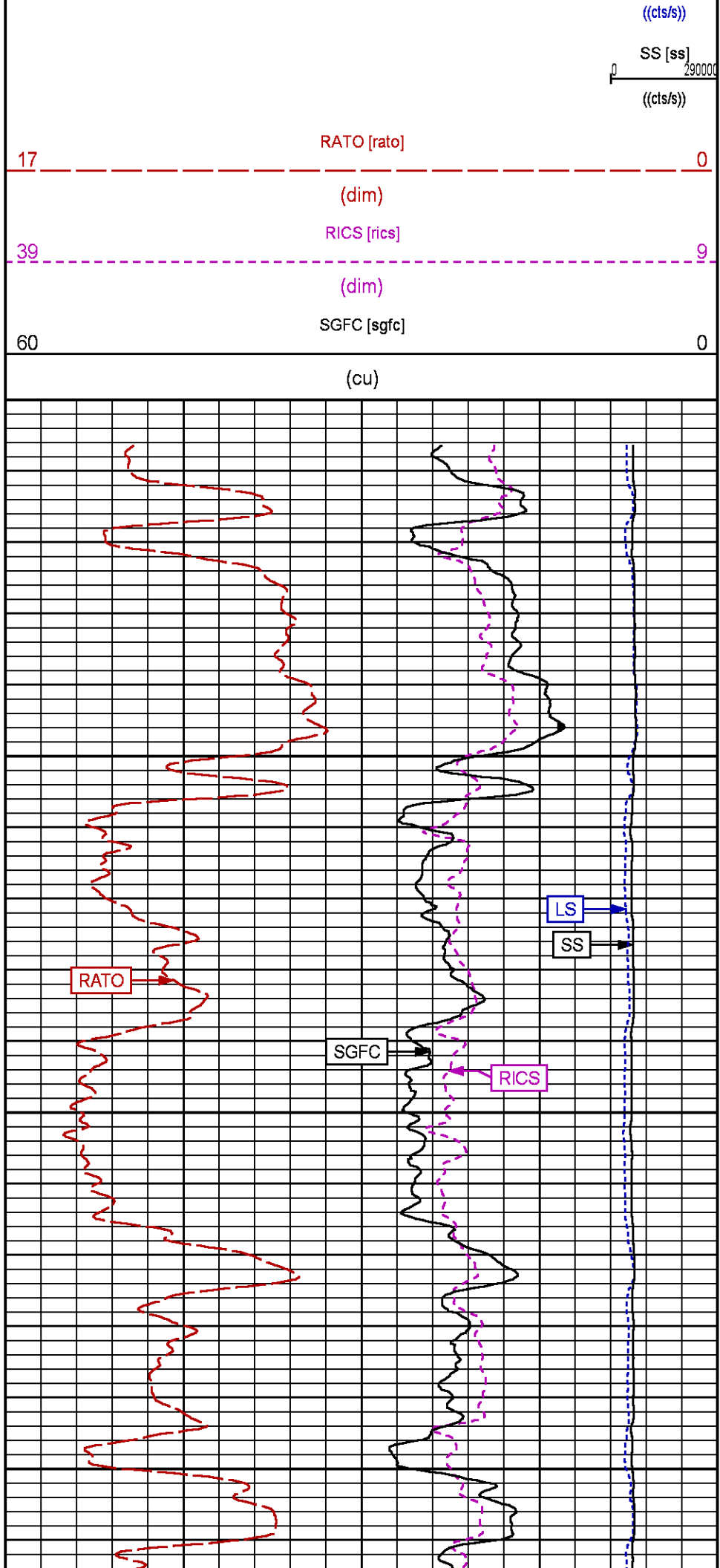
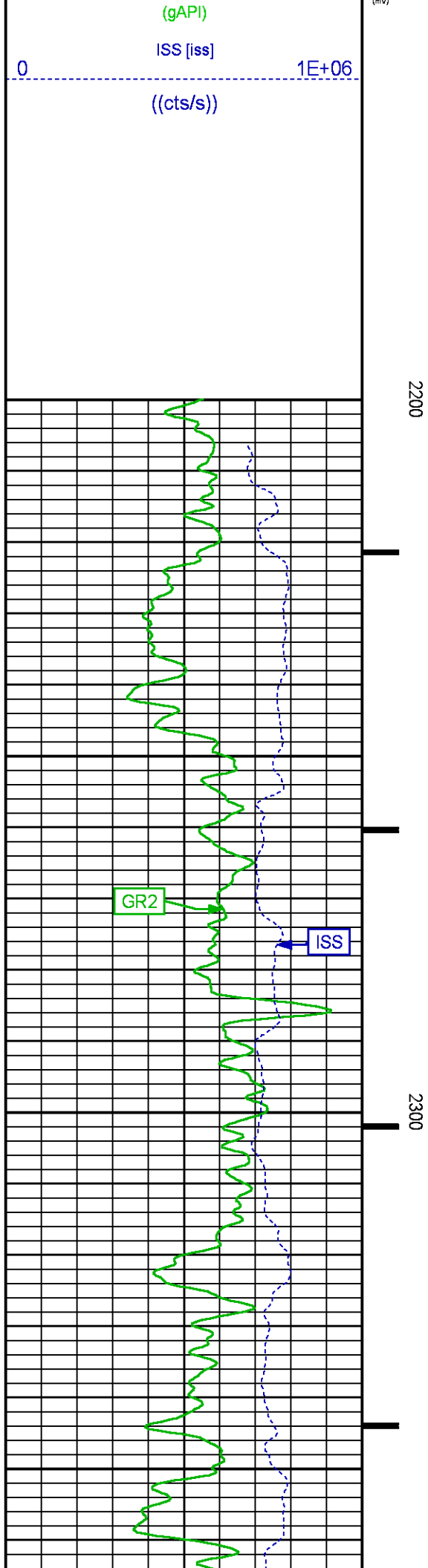
CURVE MEASURE POINT OFFSET

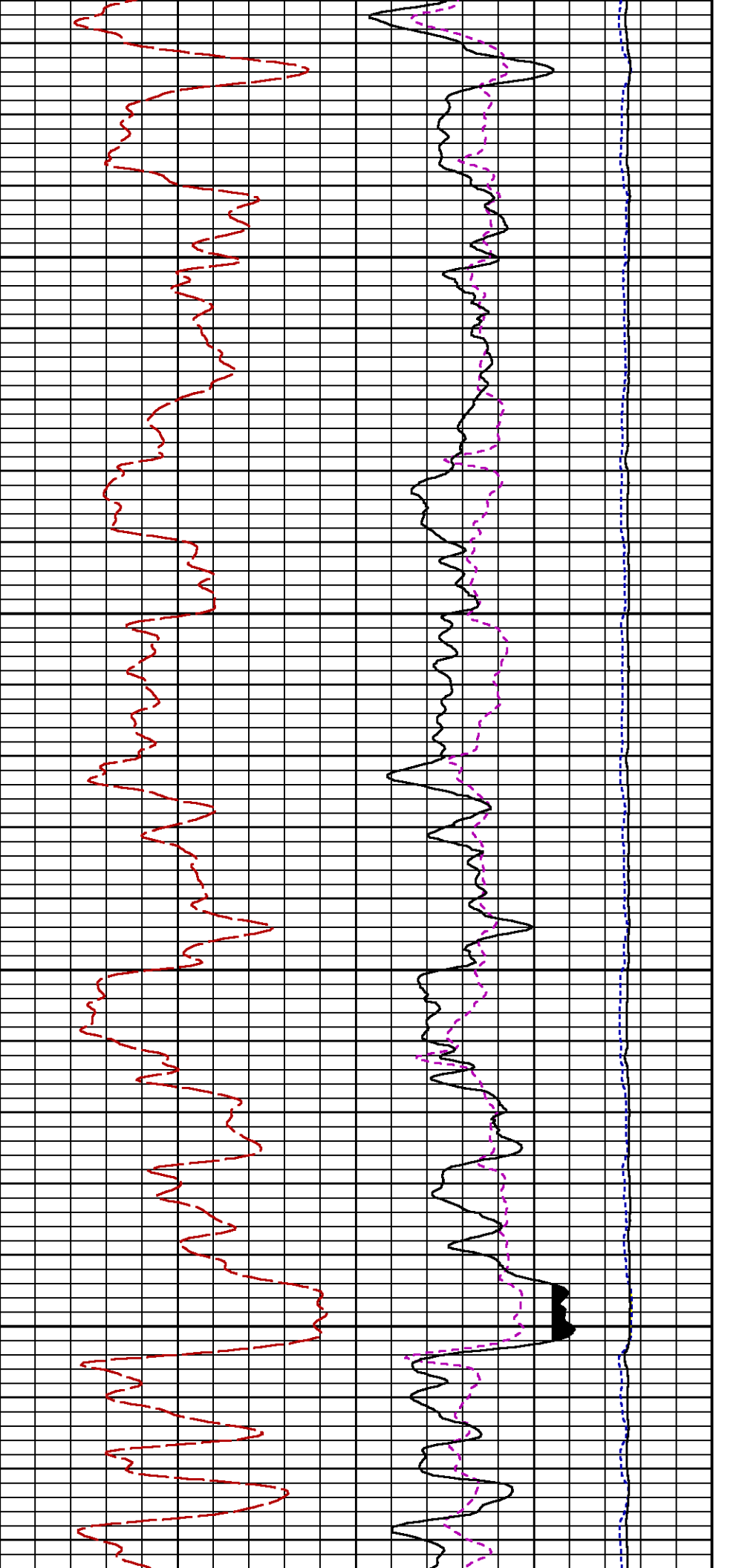
| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| CCL | -21.75 | ISS | -9.50 | RATO | -9.50 | SGFC | -9.50 |
| GR2 | -19.25 | LS | -9.50 | RICS | -9.50 | SS | -9.50 |

Presentation : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_GS.fvpdf [5"/100' Scale]
 Plot Interval : 2200 - 2830 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_GS.xtf
 Created On : N/A
 Company : LARAMIE ENERGY LLC
 Well : NICHOLS 0994-24-19W
 Field : VEGA
 File Interval : 2180.75 - 2852 Feet
 OCT : p354h

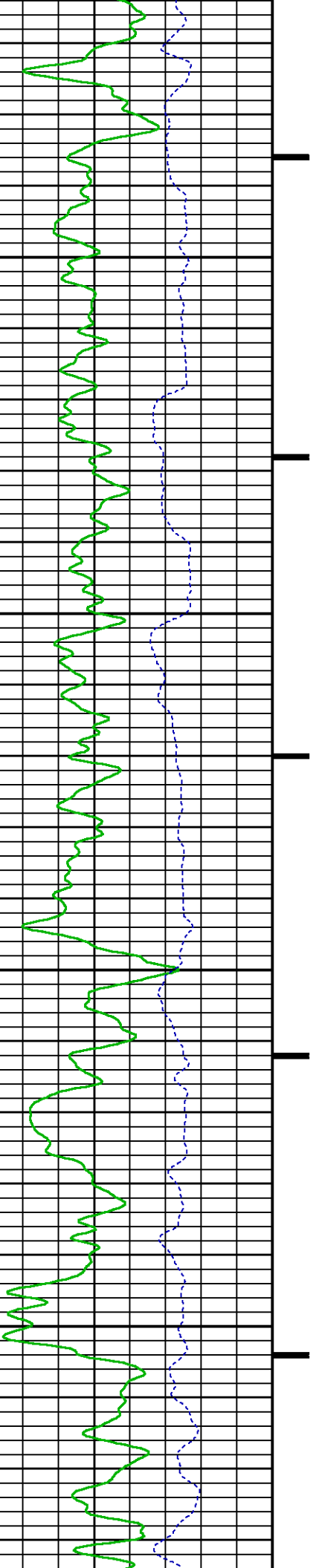


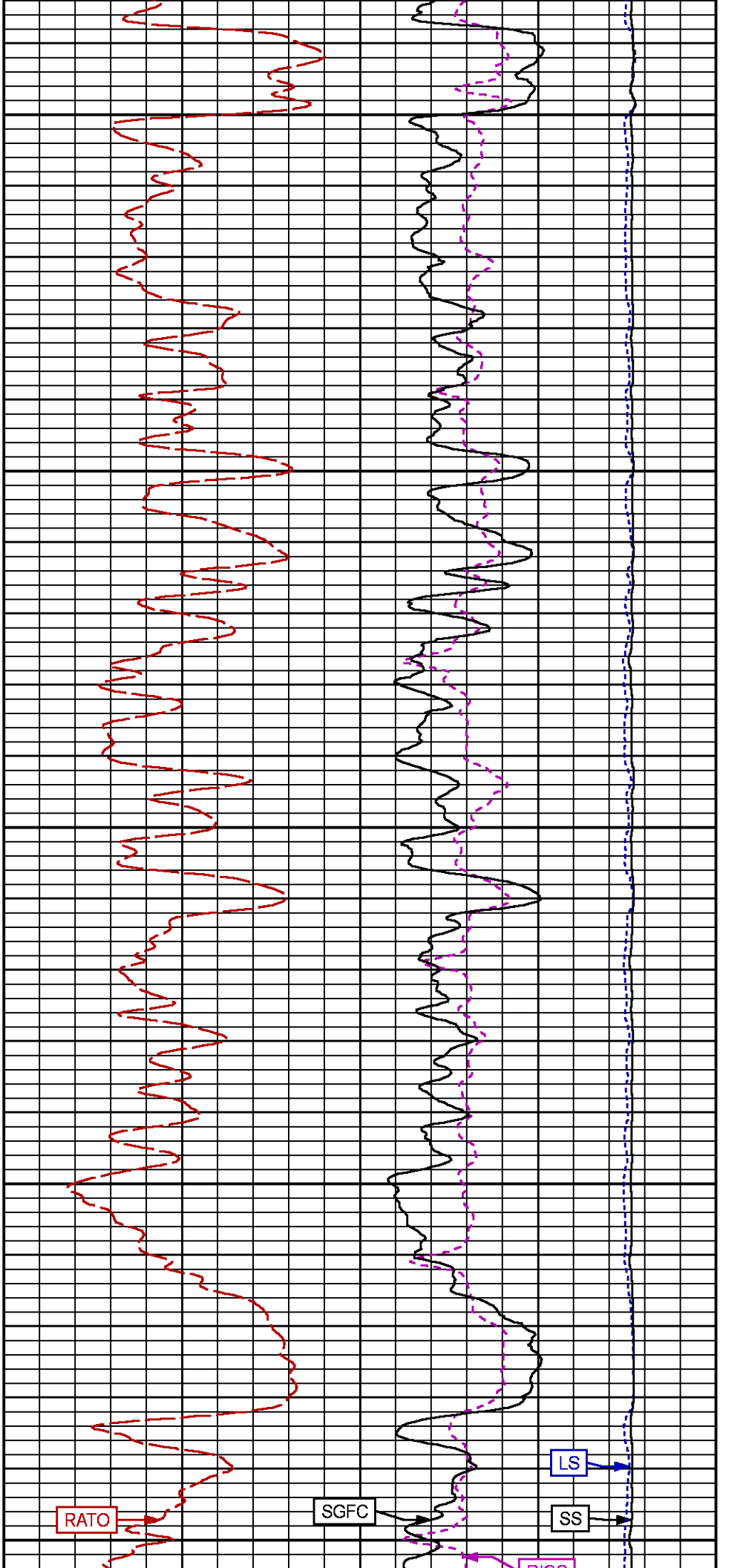




2400

2500





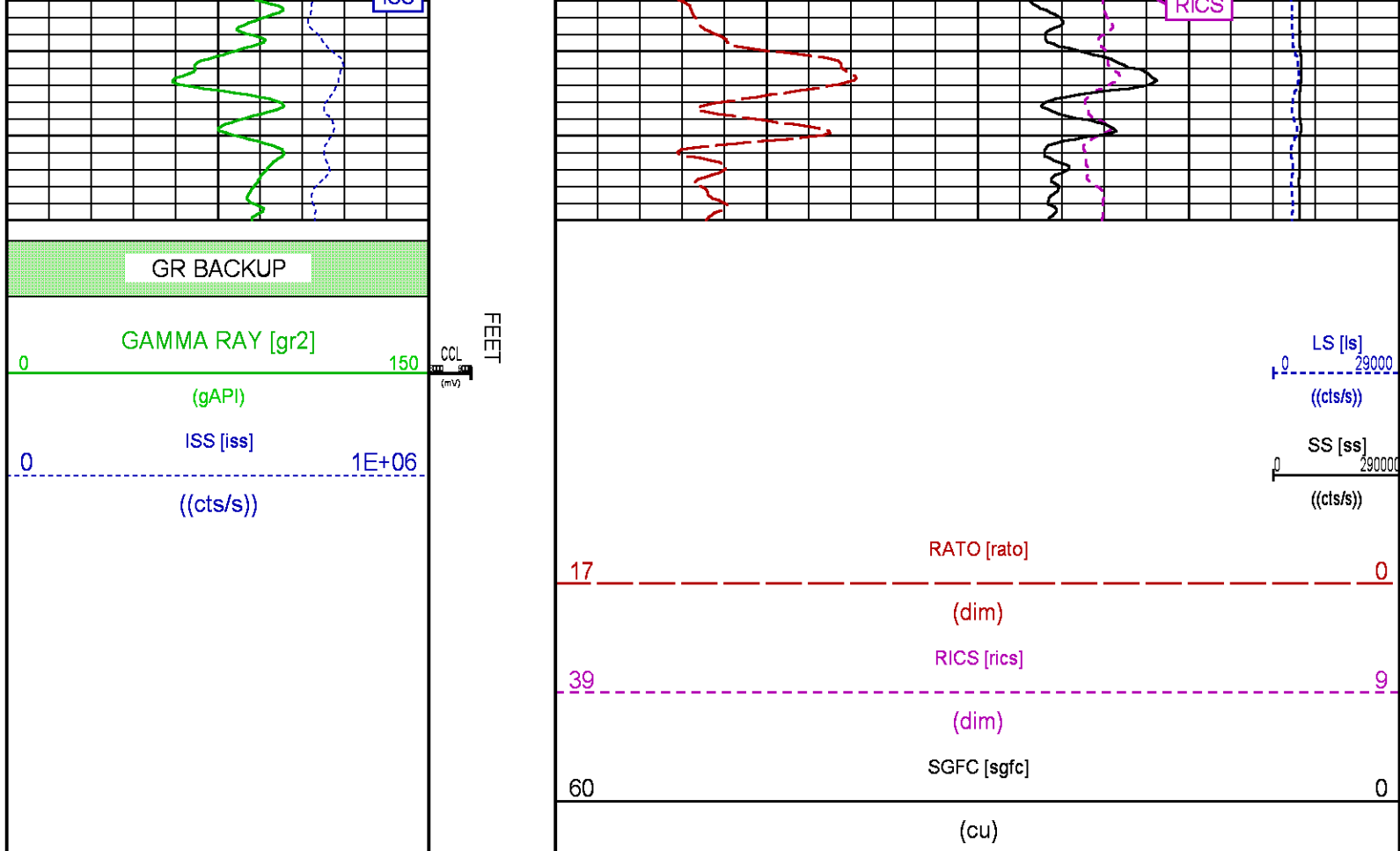
RATO

GR2

2600

2700

2800



RPM MAIN PASS WILLIAMS FORK

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Patches: 4

Plotted: Tue Jul 3 22:17:38 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-19W/p354h02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4488.000 ft BOTTOM DEPTH: 7808.063 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 | " " |
| | LARGEST CASING OD | 4.50 | in | " " |
| | MATRIX | SANDSTONE | | " " |

CURVE DESCRIPTION REPORT

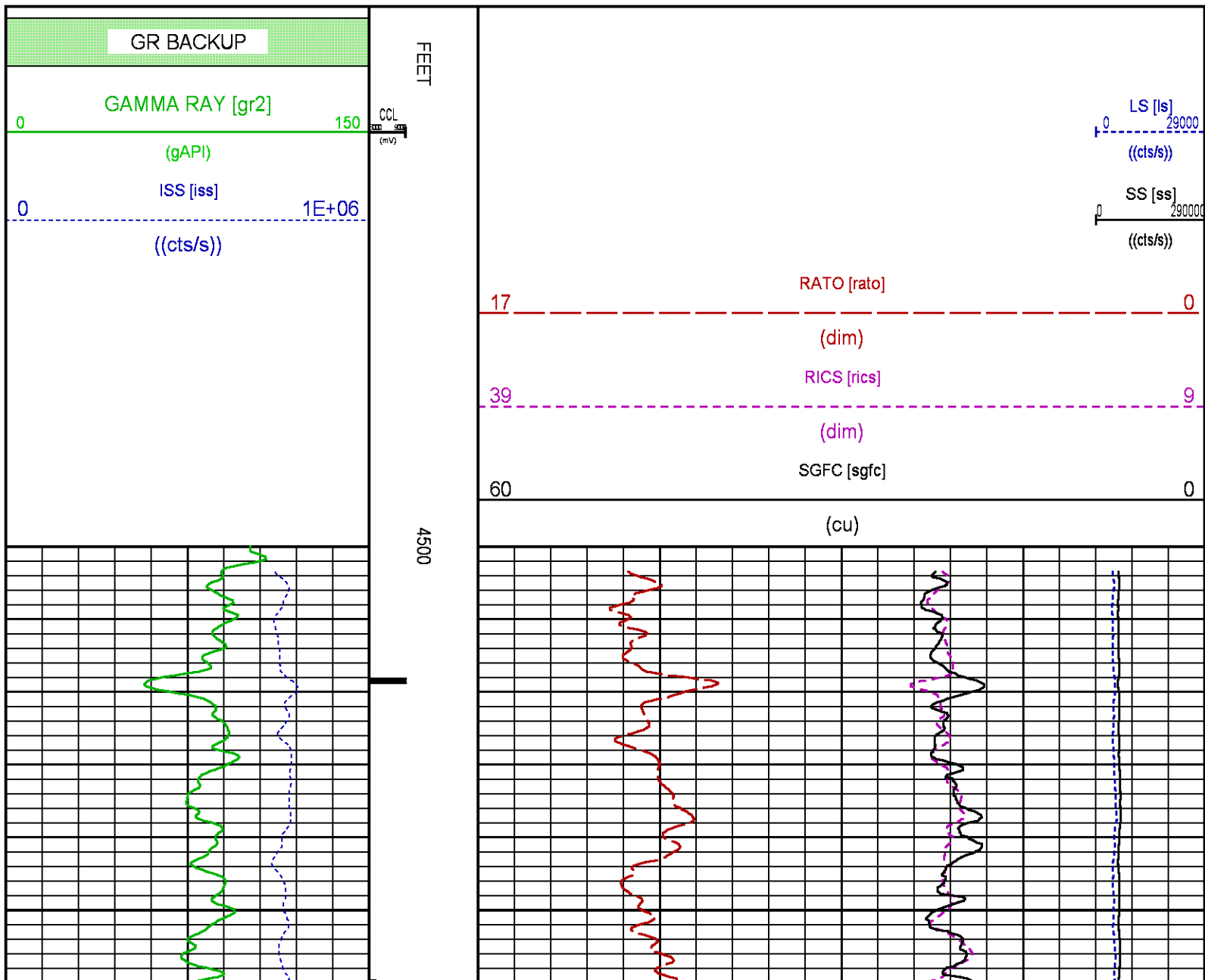
| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|---------------|---|
| F1:CCL | N/A | CASING COLLAR LOCATOR |
| F1:GR2 | N/A | GAMMA RAY 2 |
| F1:ISS | N/A | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | N/A | LONG SPACE COUNT RATE |
| F1:RATO | N/A | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | N/A | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | N/A | BOREHOLE AND DIFFUSION CORRECTED SIGMA |
| F1:SS | N/A | SHORT SPACE COUNT RATE |

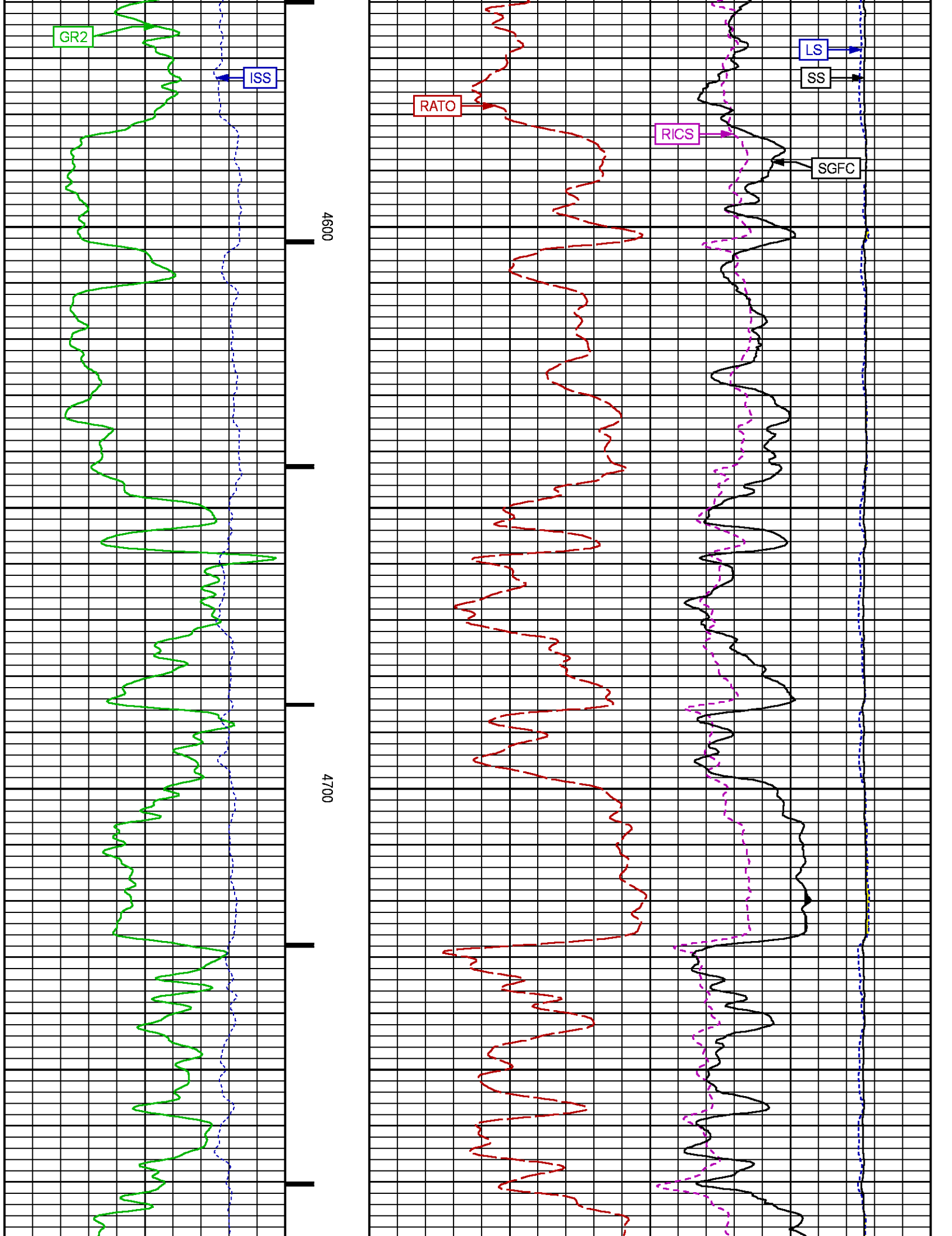
CURVE MEASURE POINT OFFSET

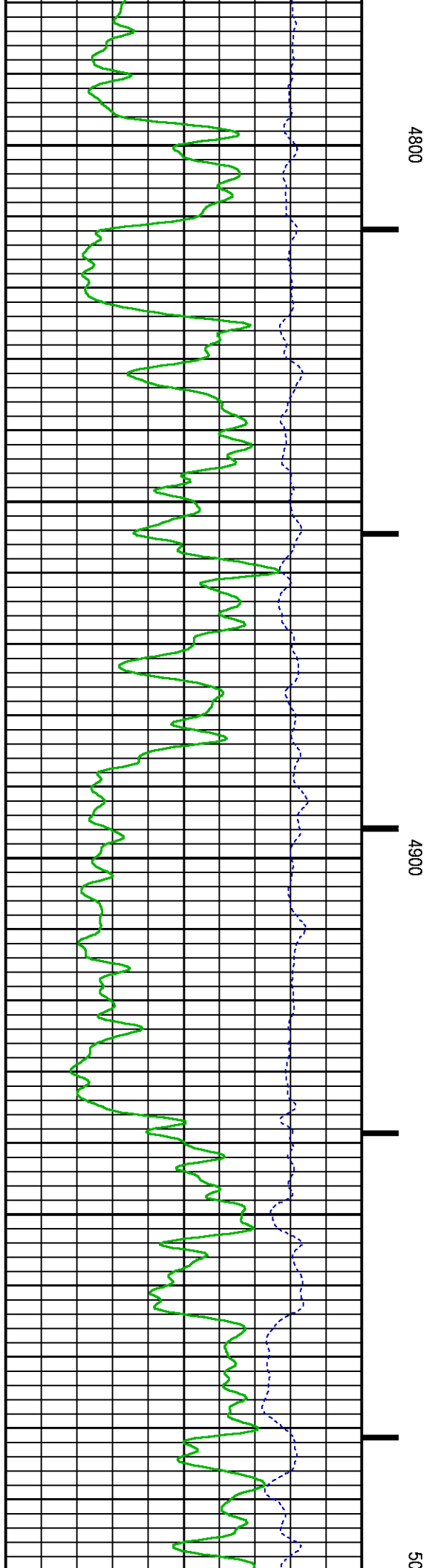
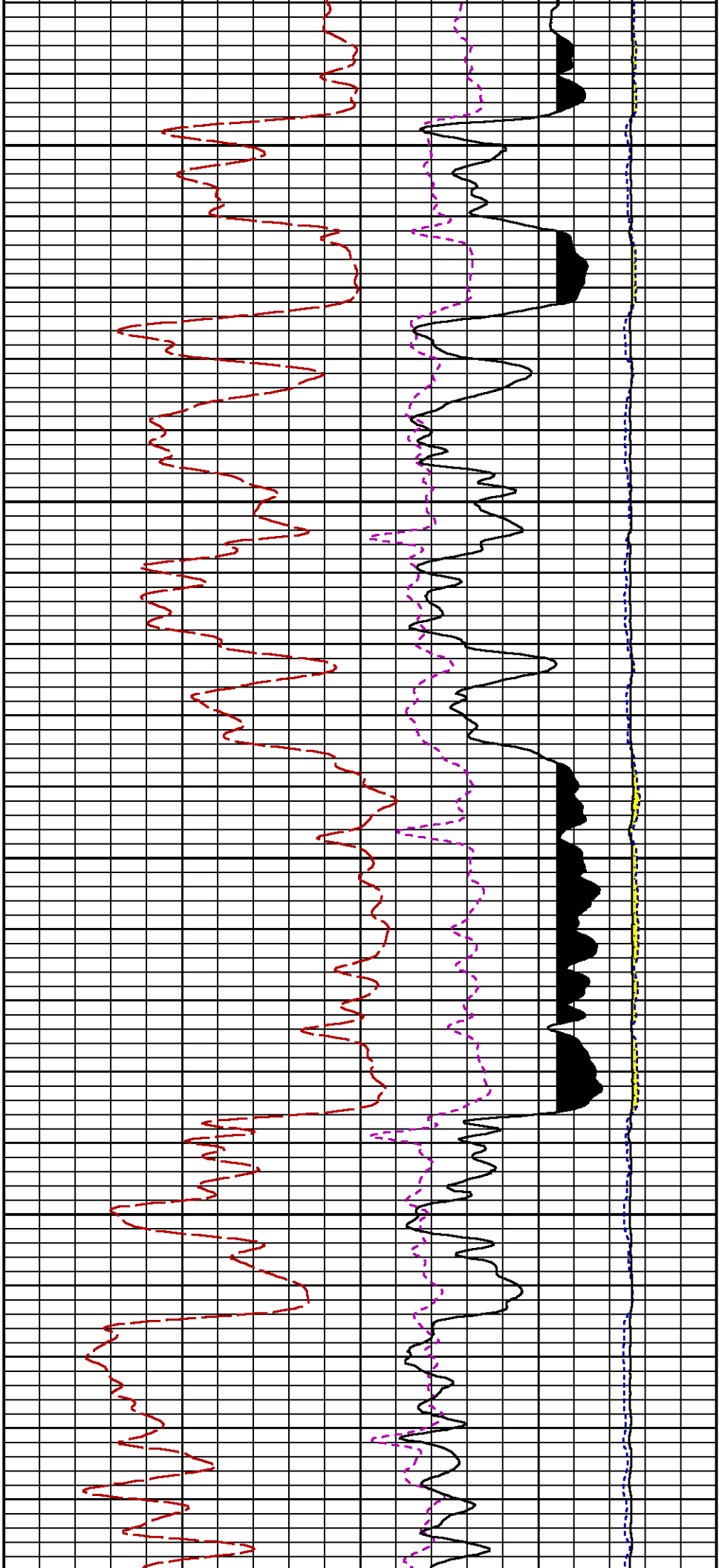
| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| CCL | -21.75 | ISS | -9.50 | RATO | -9.50 | SGFC | -9.50 |
| GR2 | -19.25 | LS | -9.50 | RICS | -9.50 | SS | -9.50 |

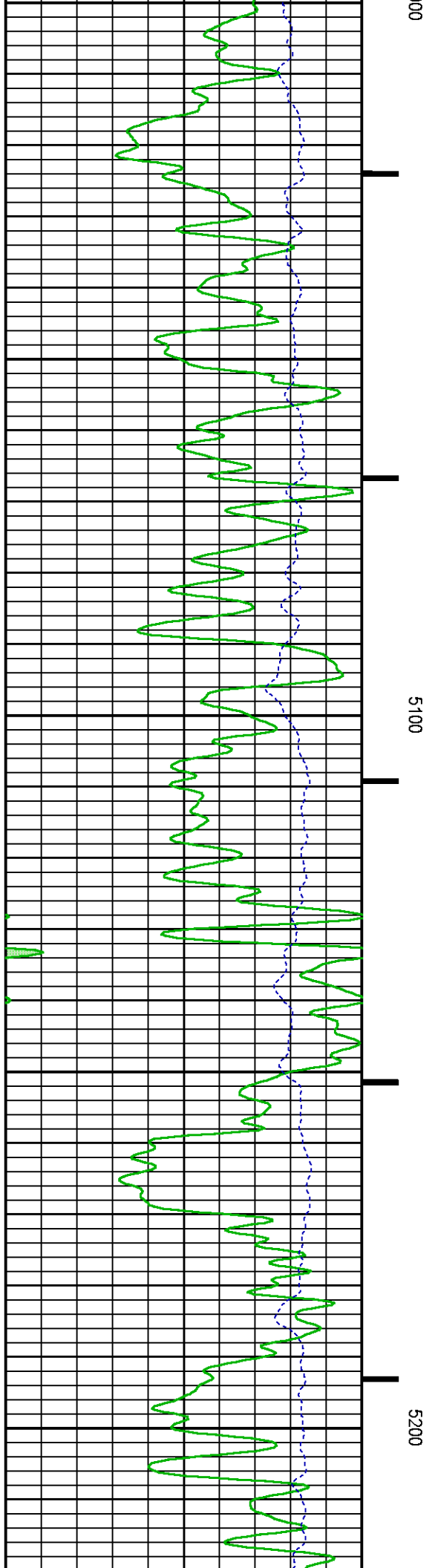
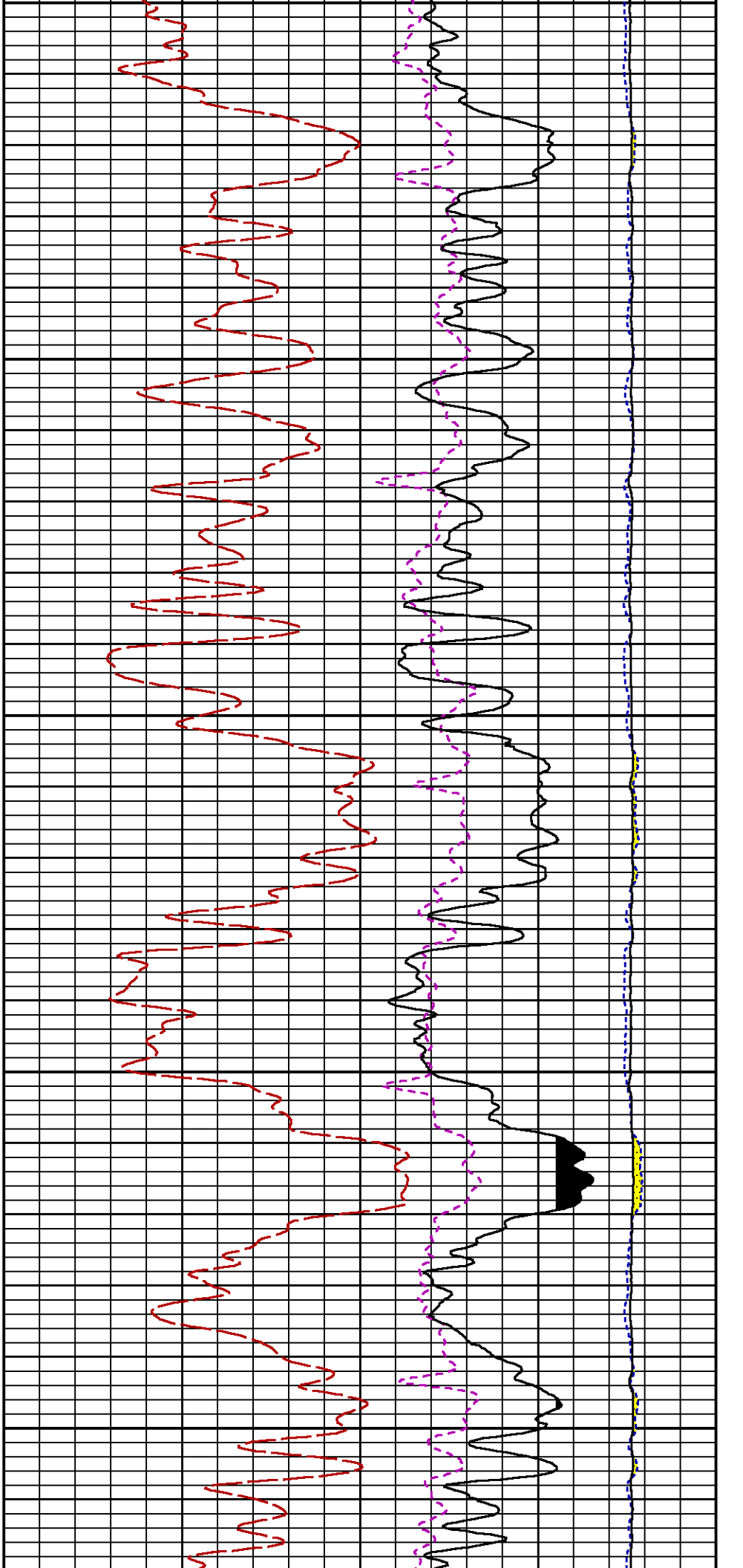
Presentation : SysA:\dat1a\LARAMIE_NICHOLS_0994-24-19W\19W_RPM_WF.fvpdf [5"/100' Scale]
Plot Interval : 4500 - 7815.75 Feet

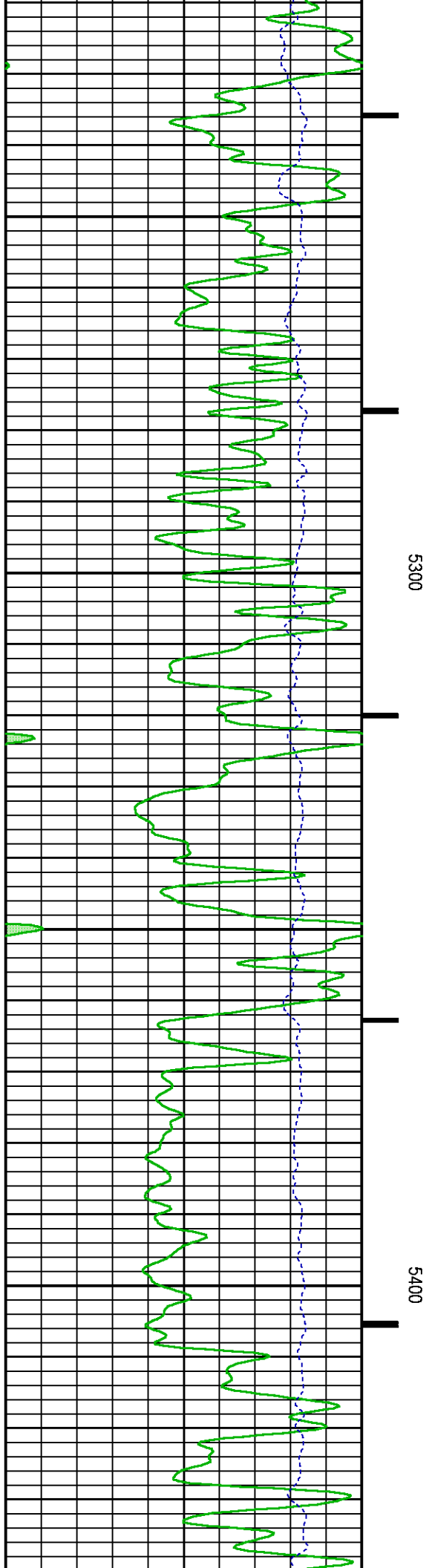
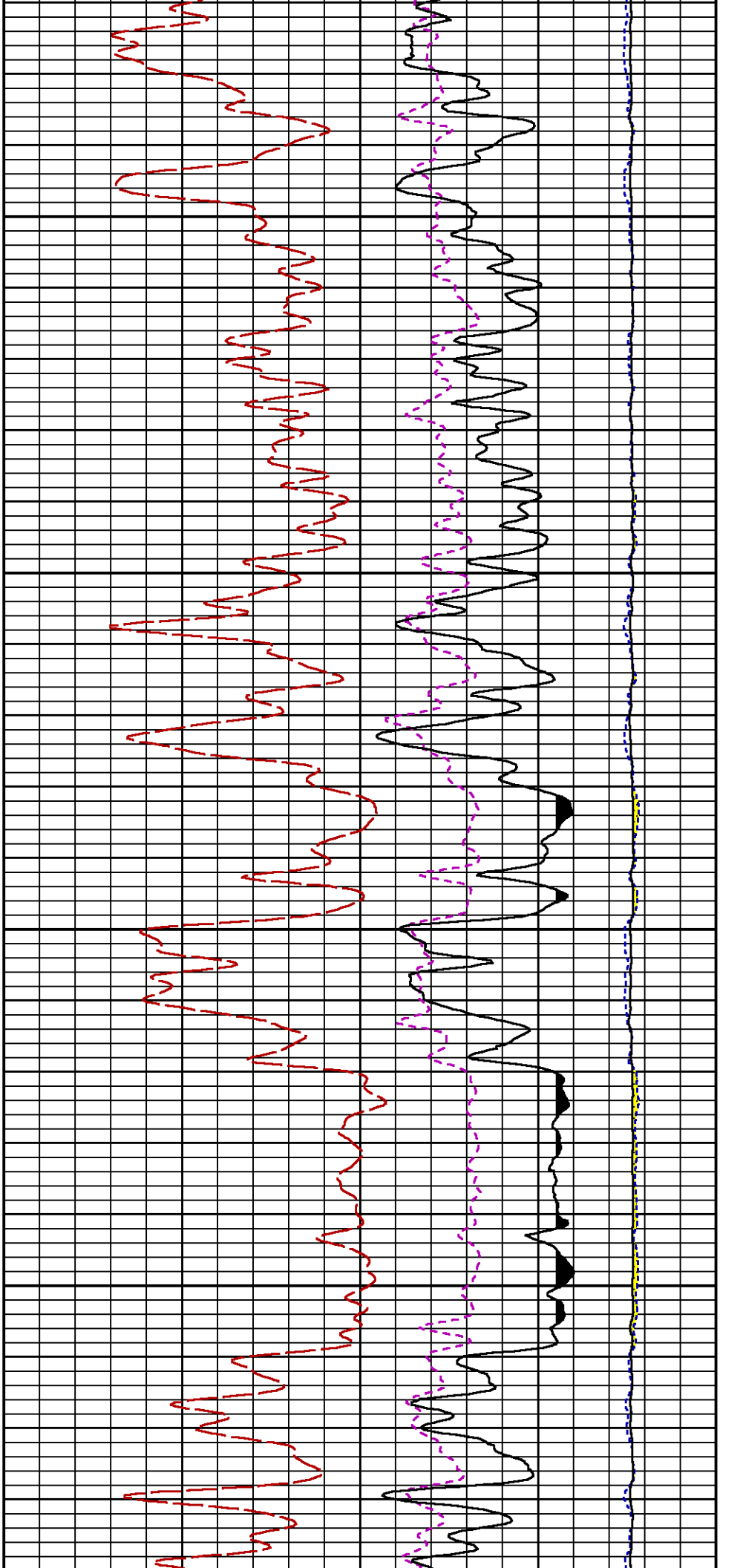
Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_WF.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : NICHOLS 0994-24-19W
Field : VEGA
File Interval : 4477.75 - 7816 Feet
OCT : p354h

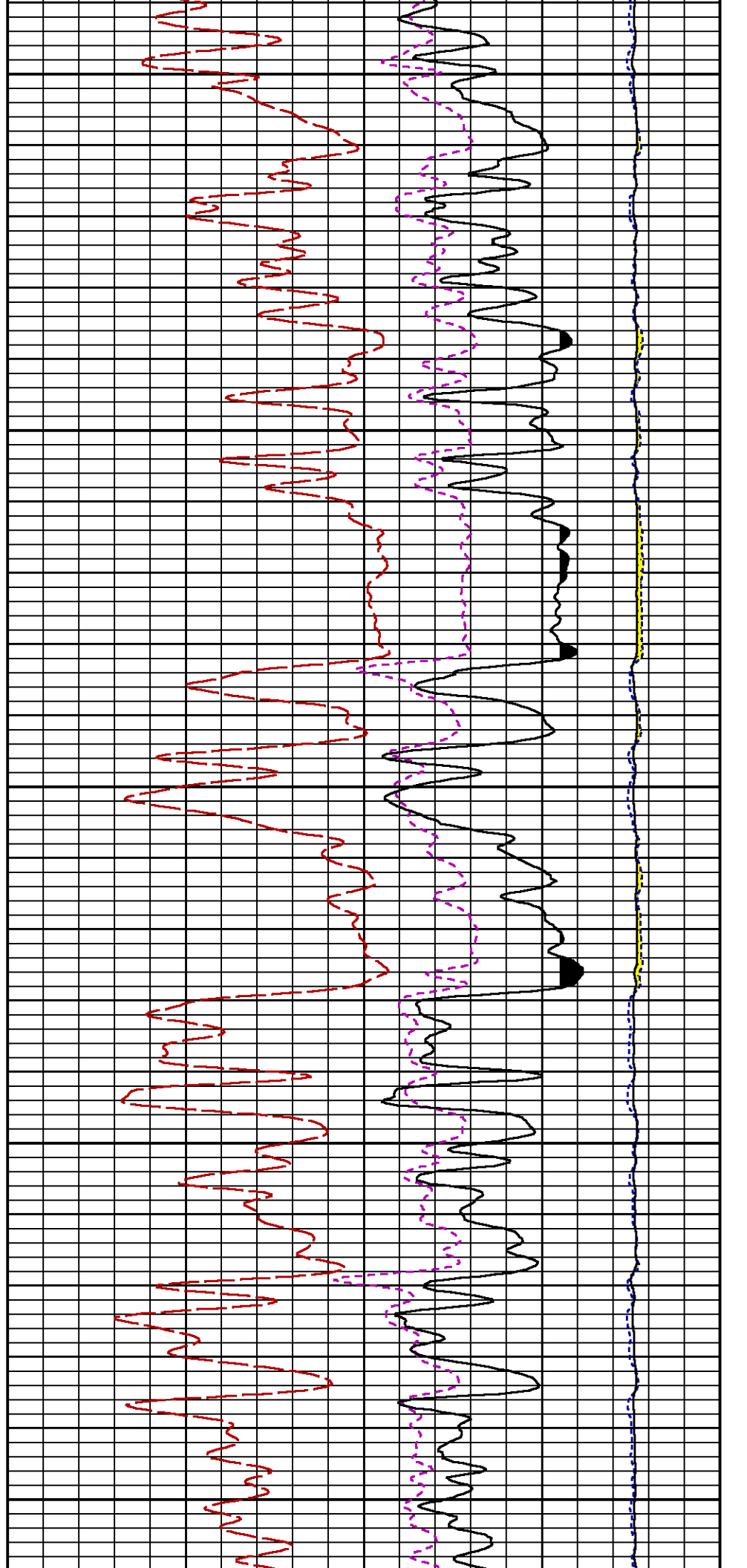
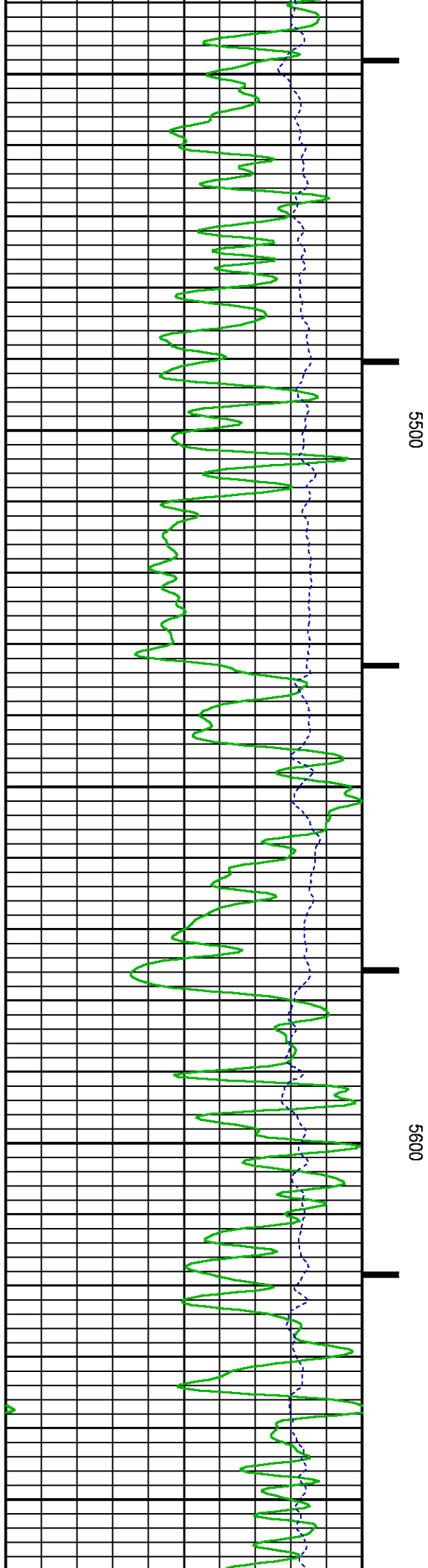


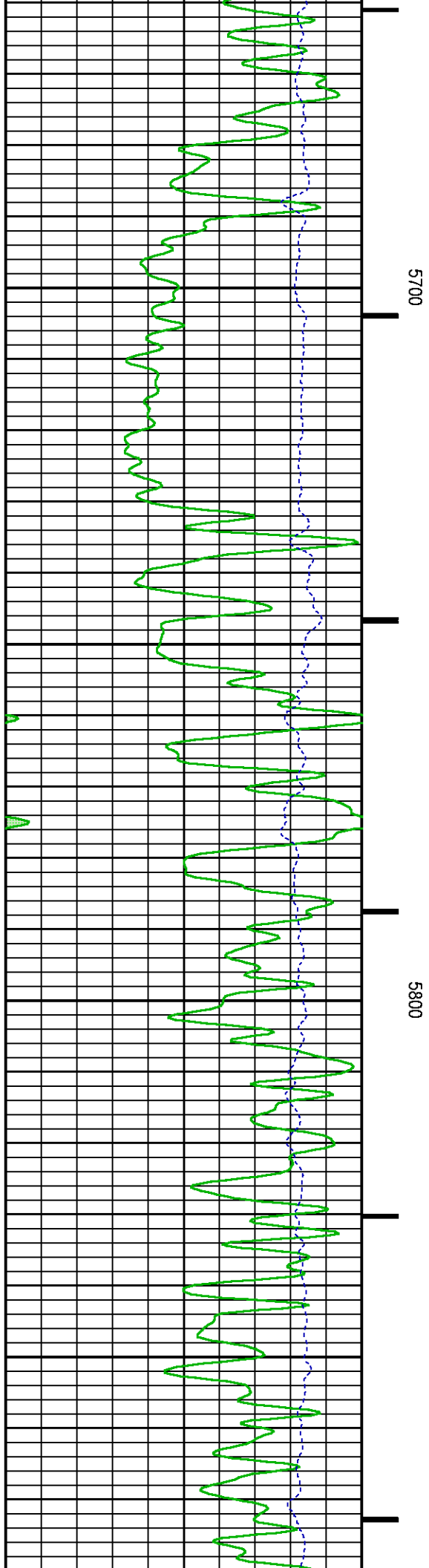
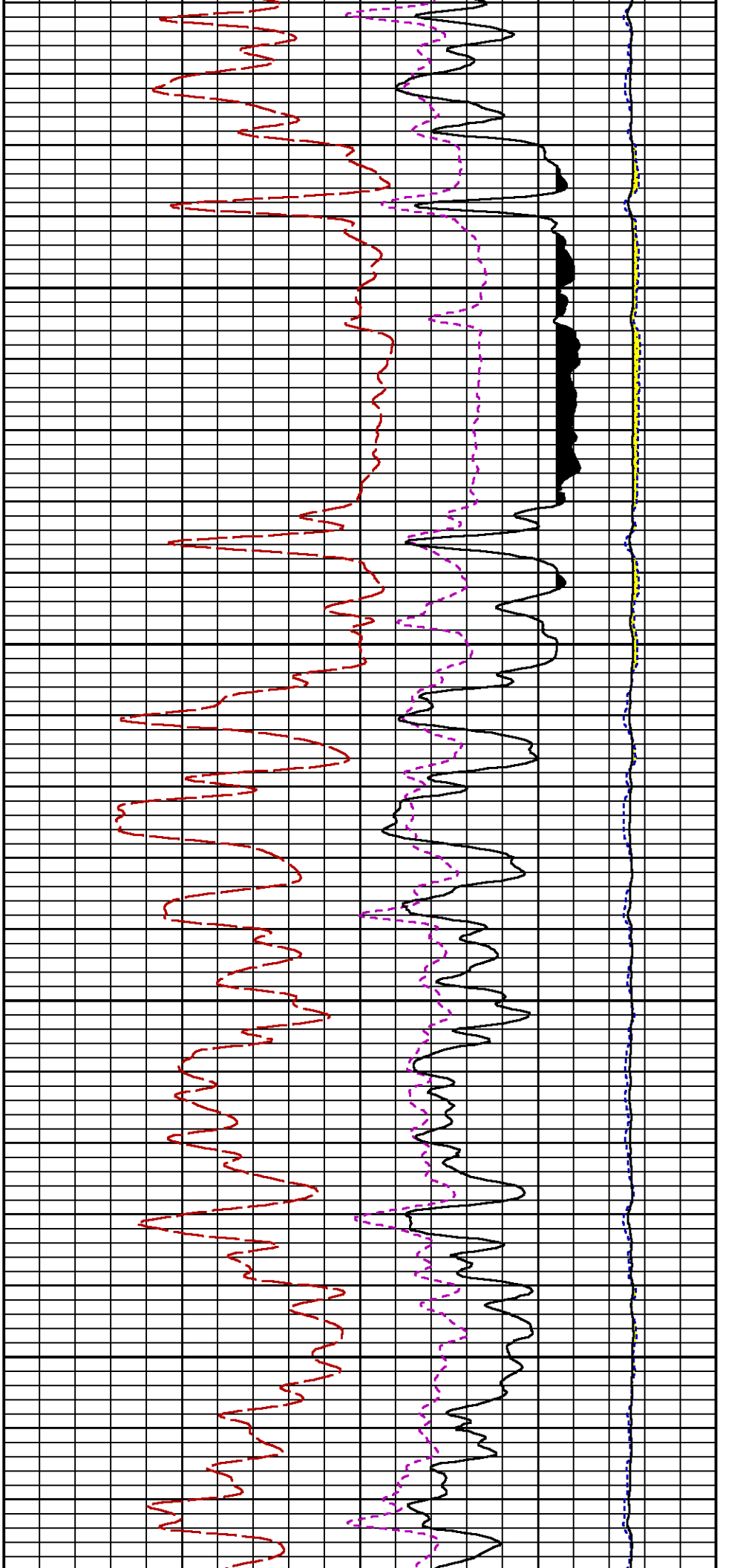


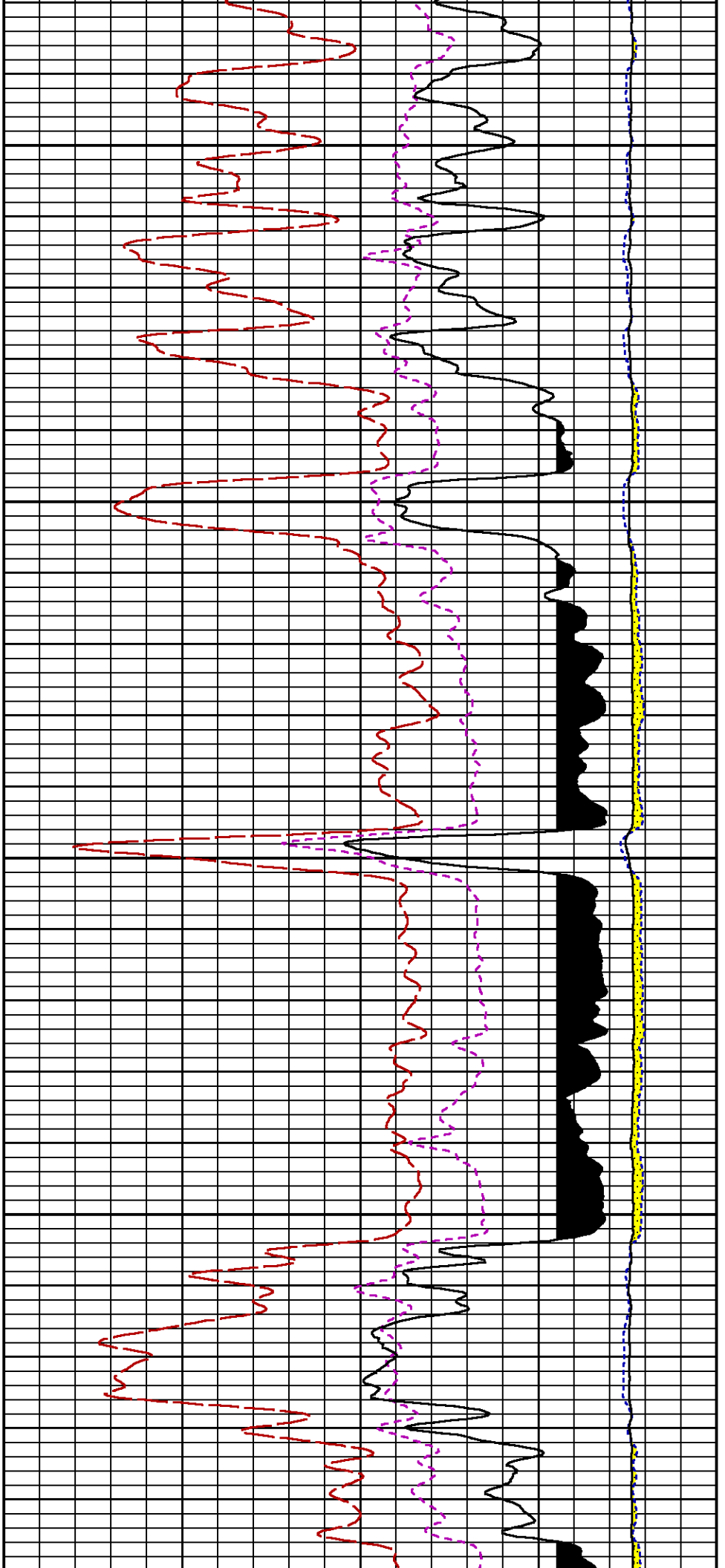








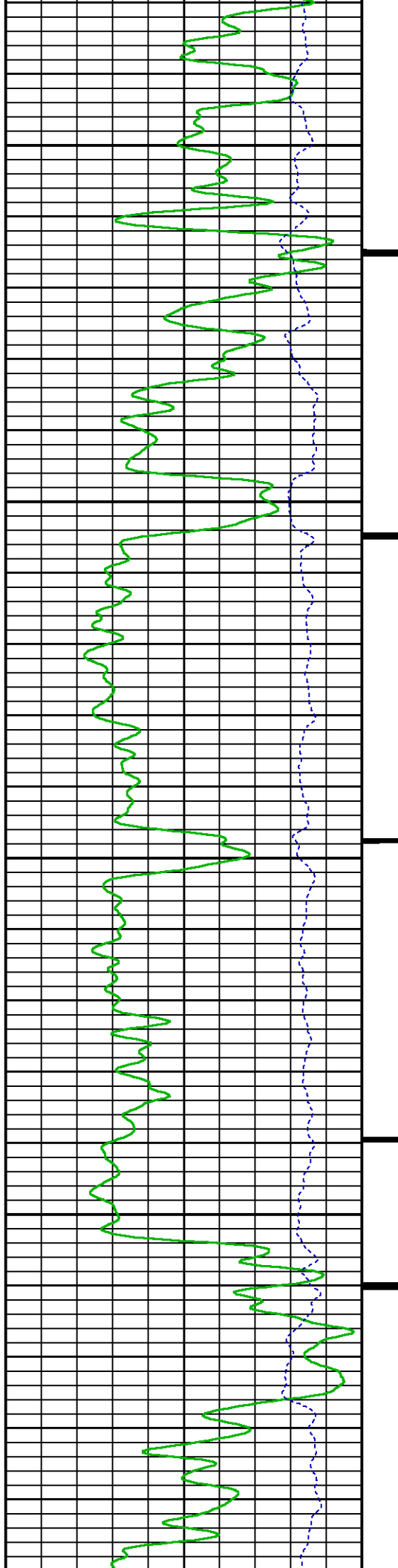


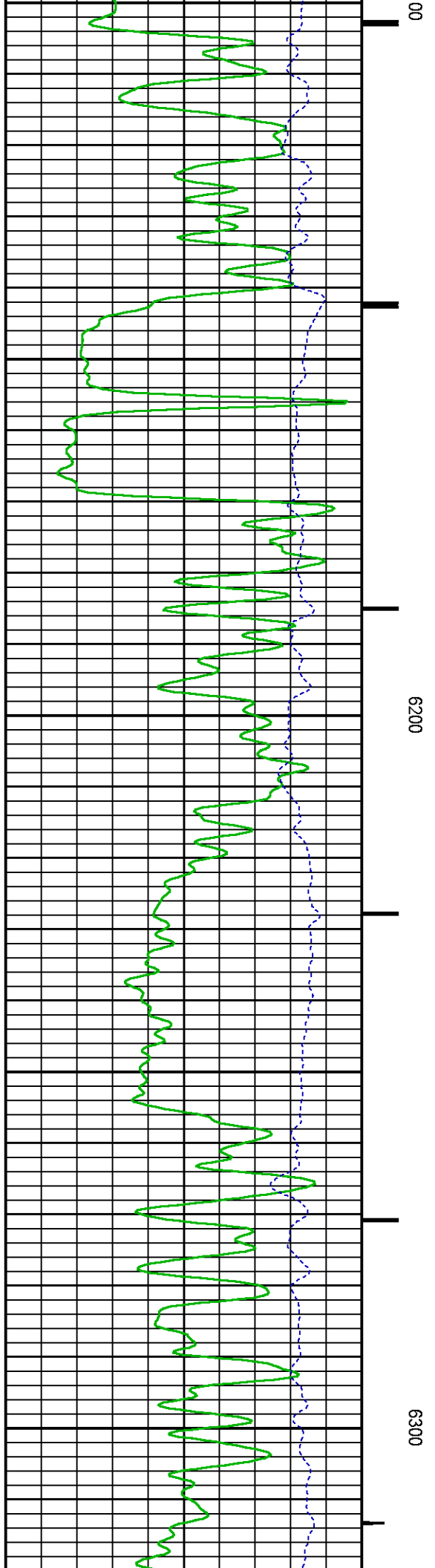
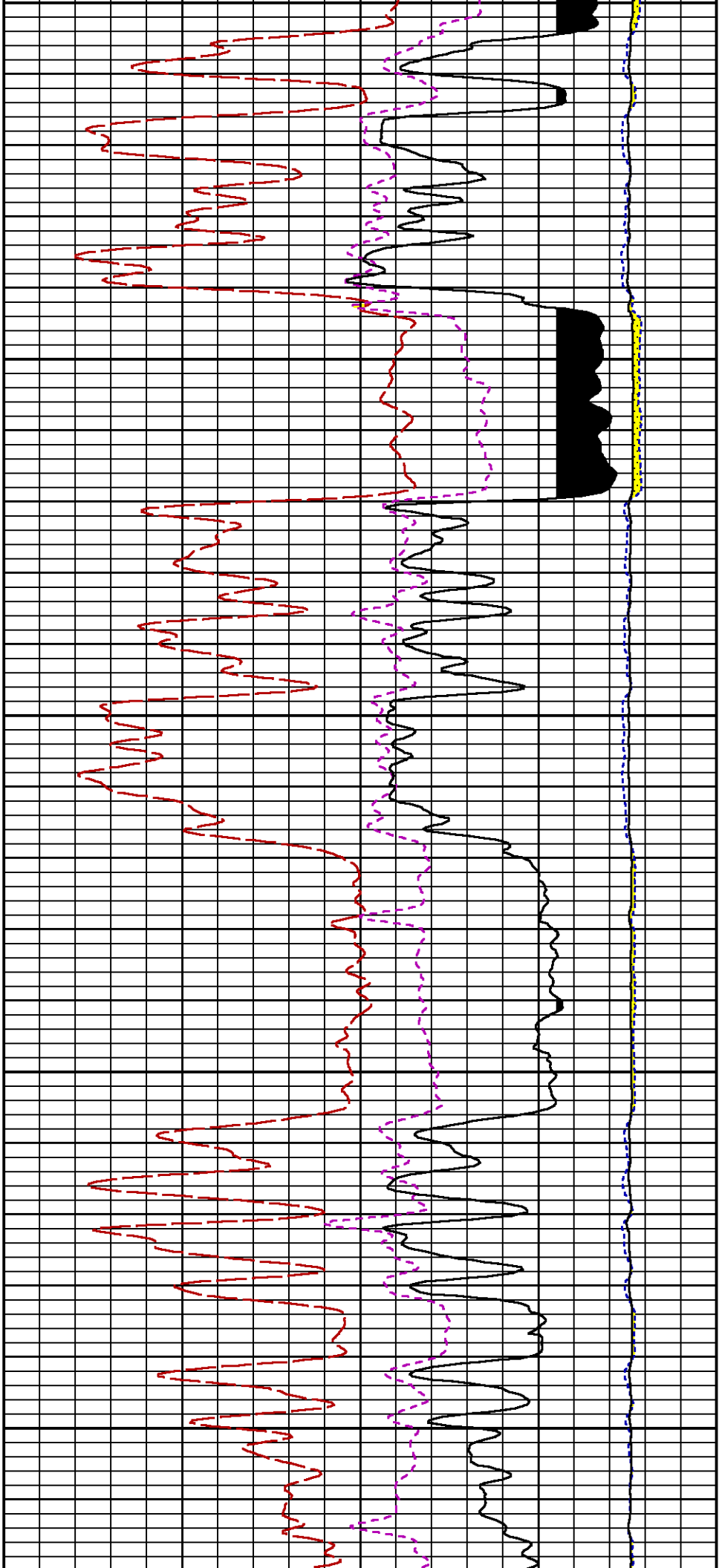


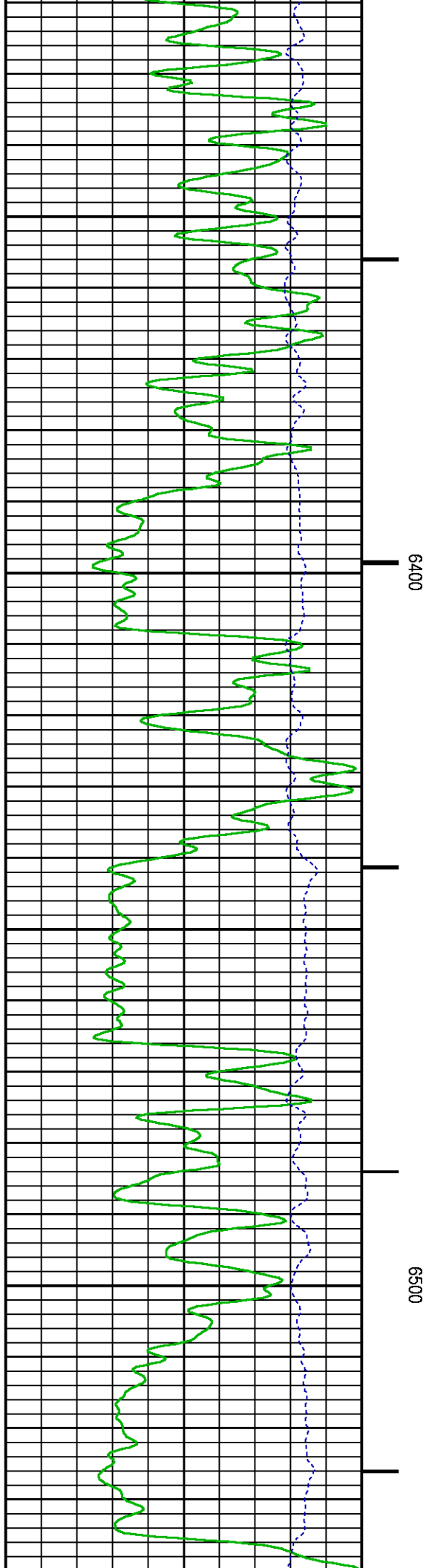
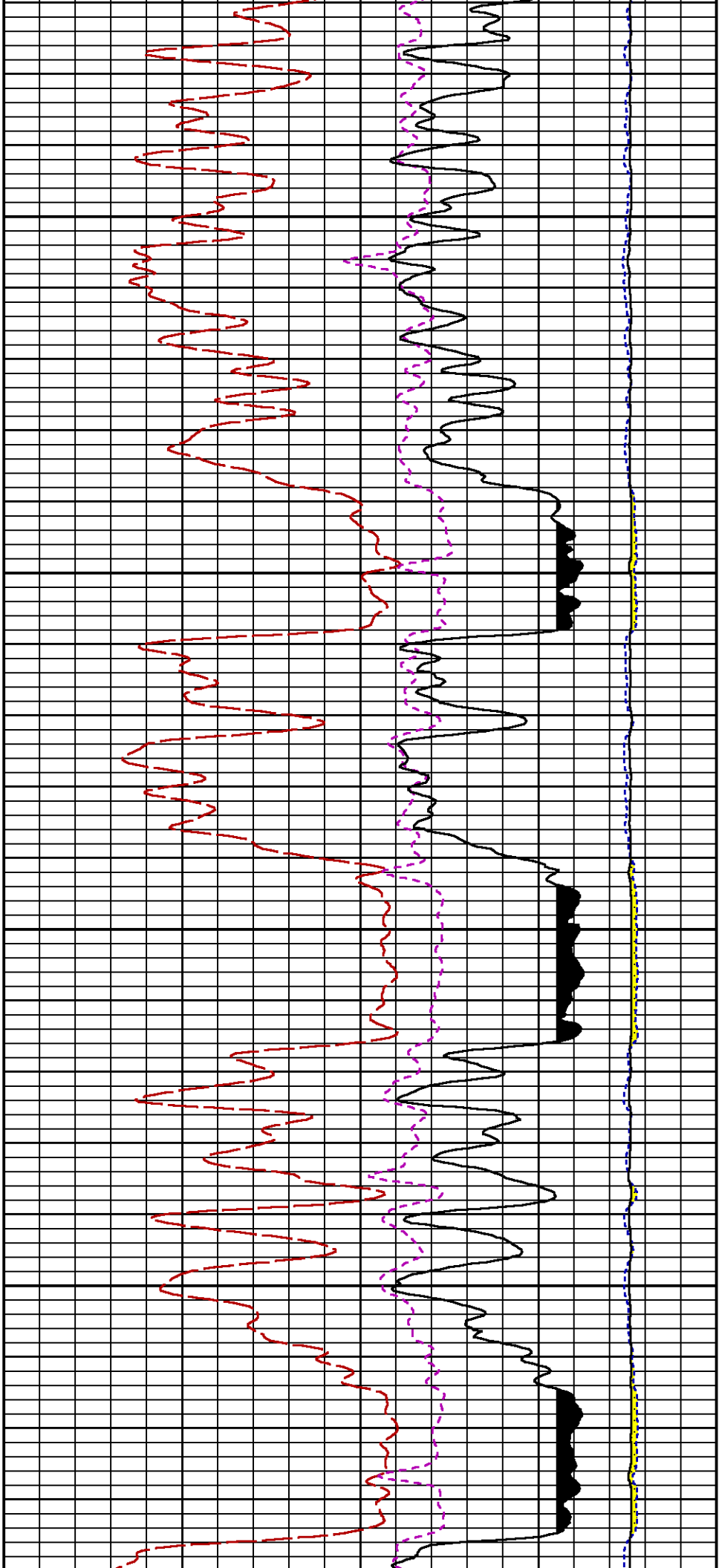
5900

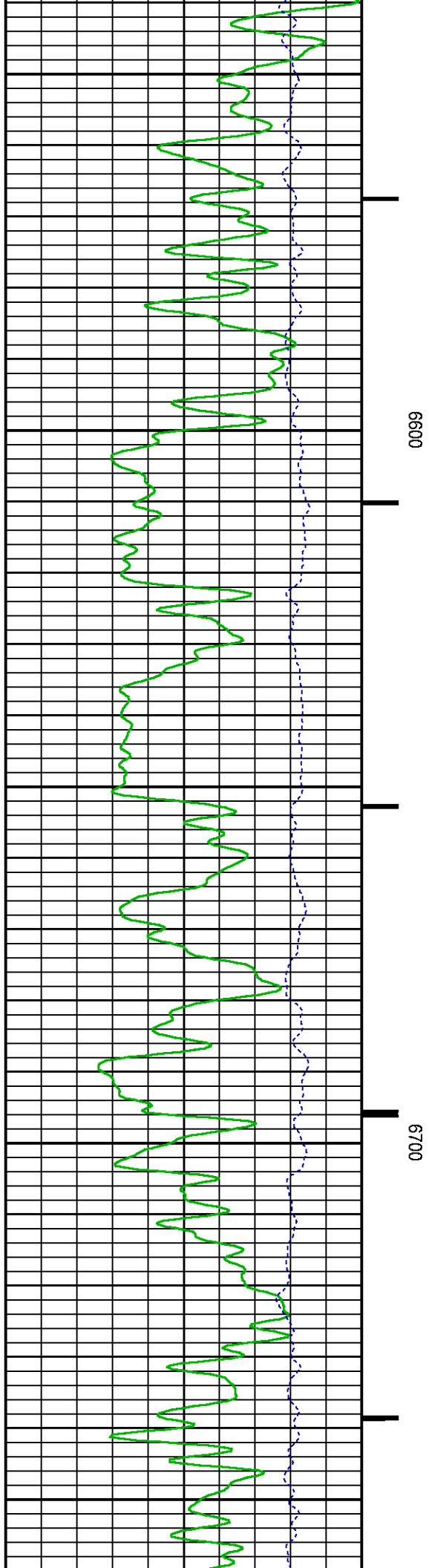
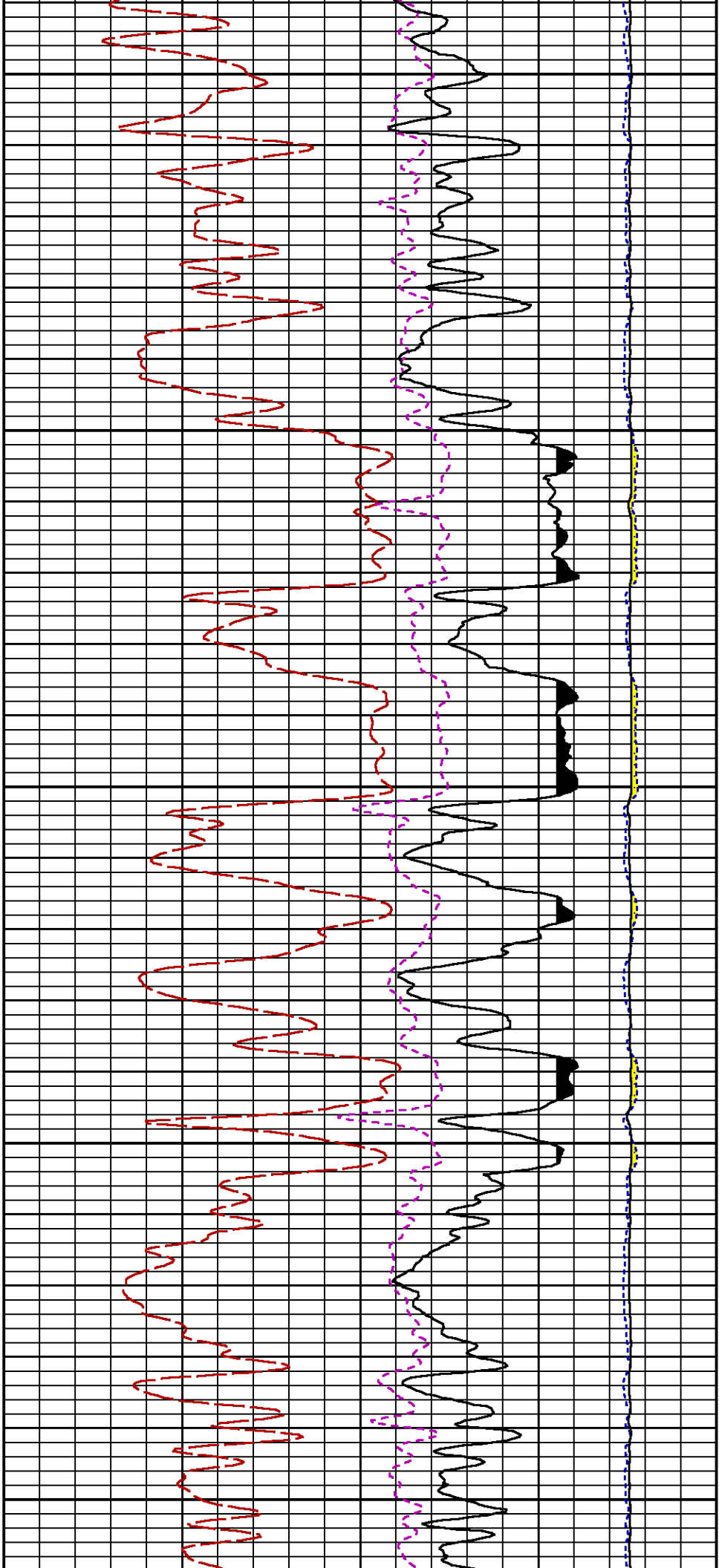
6000

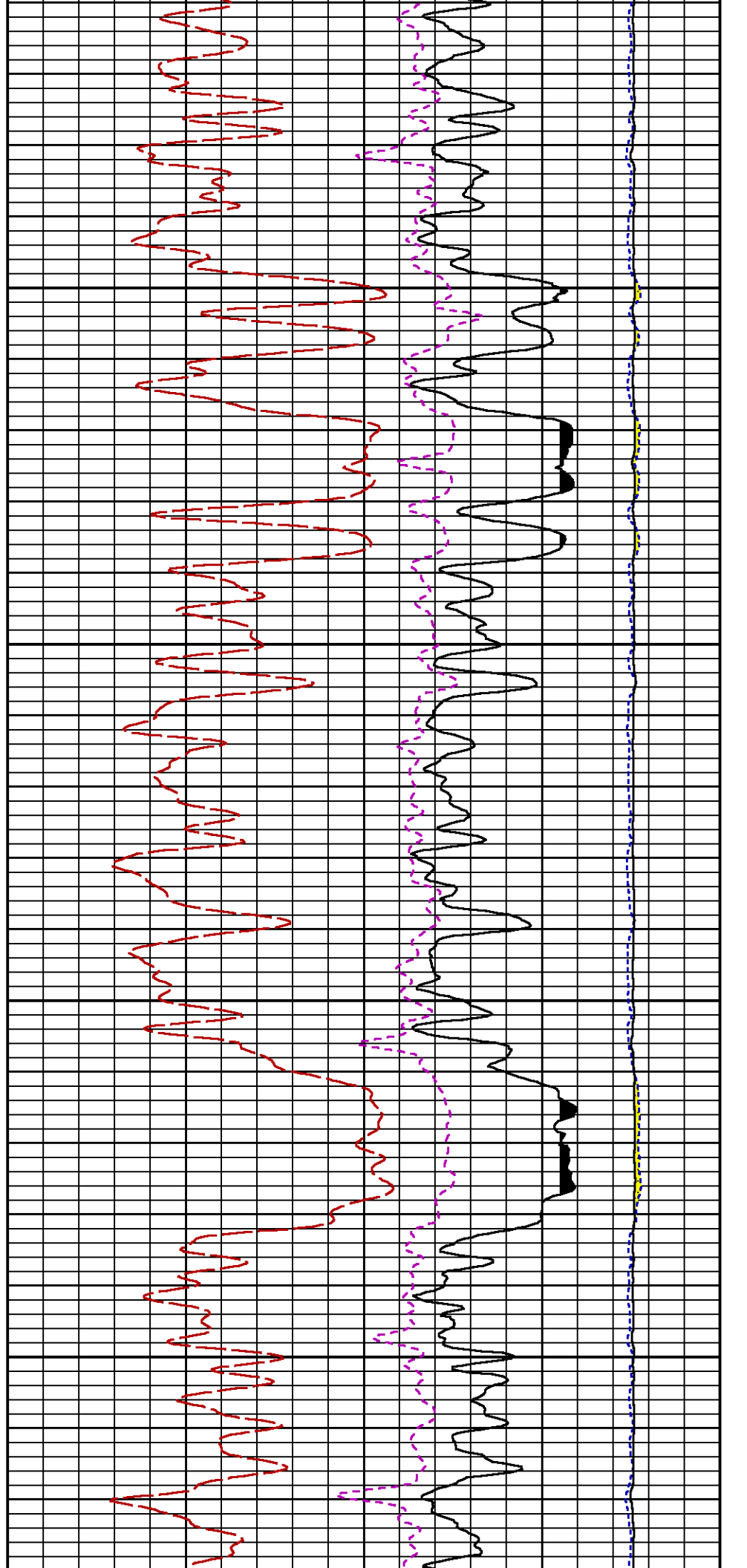
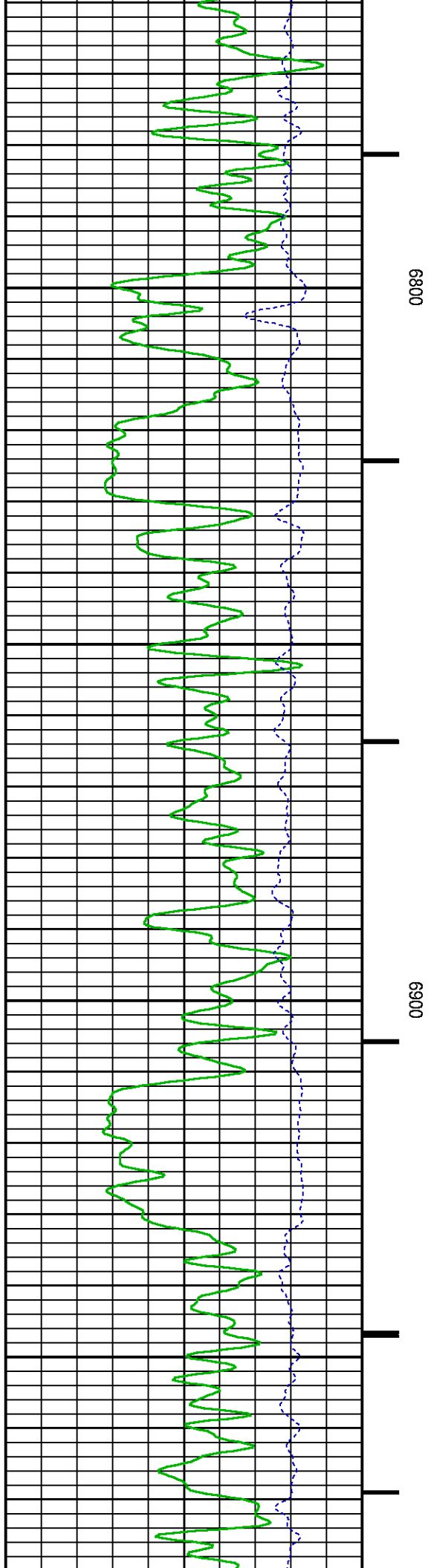
61

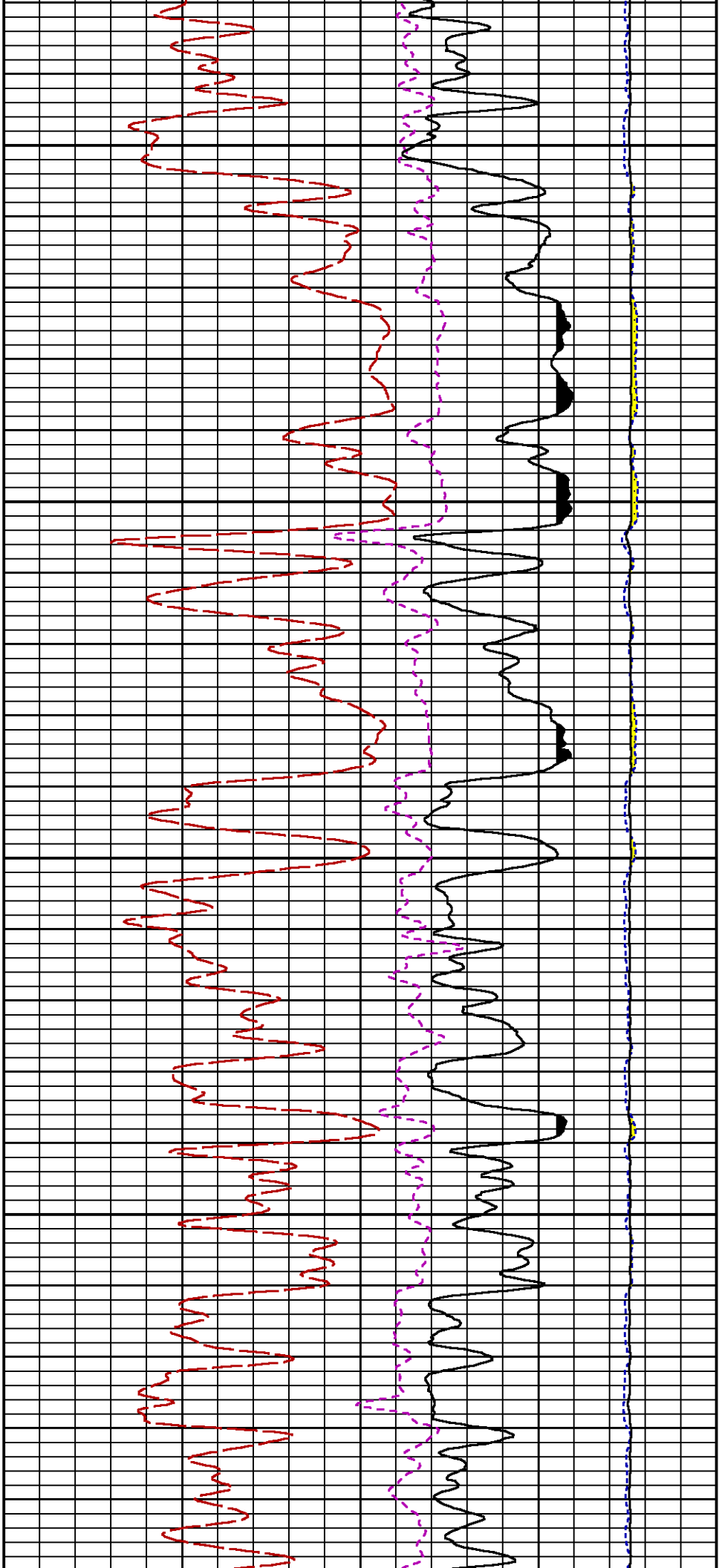








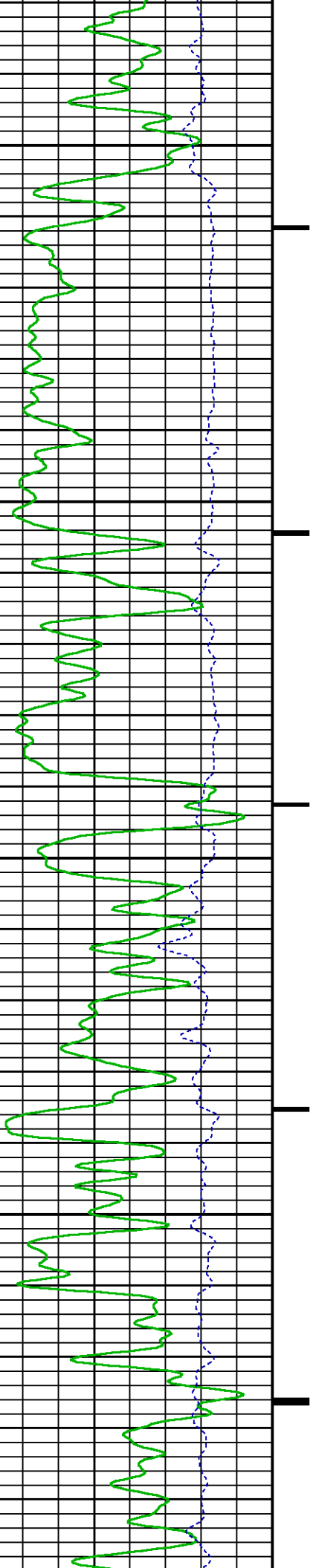


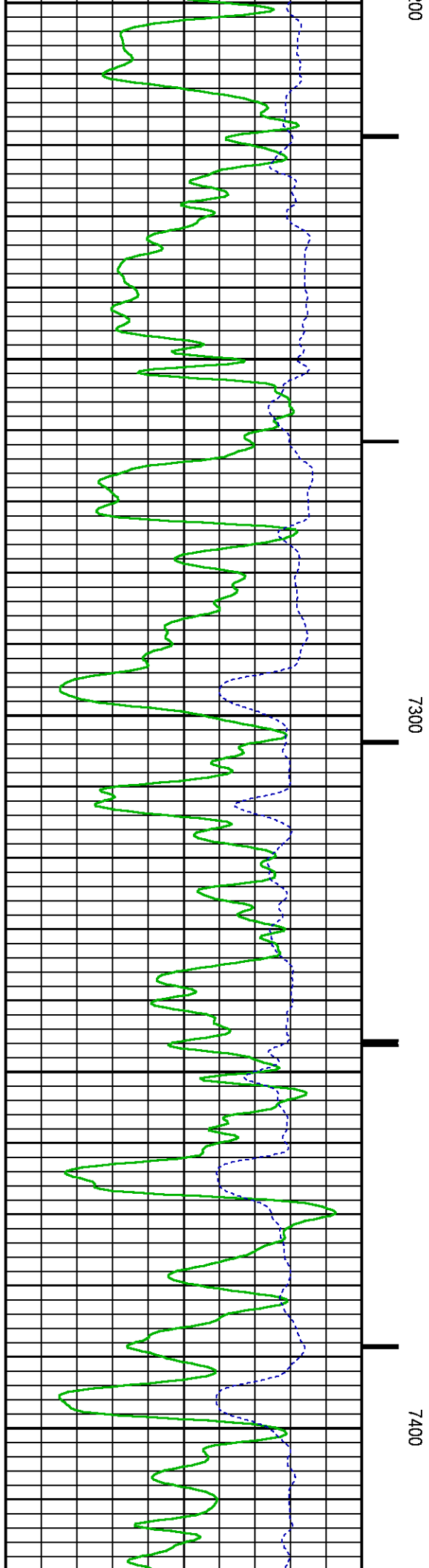
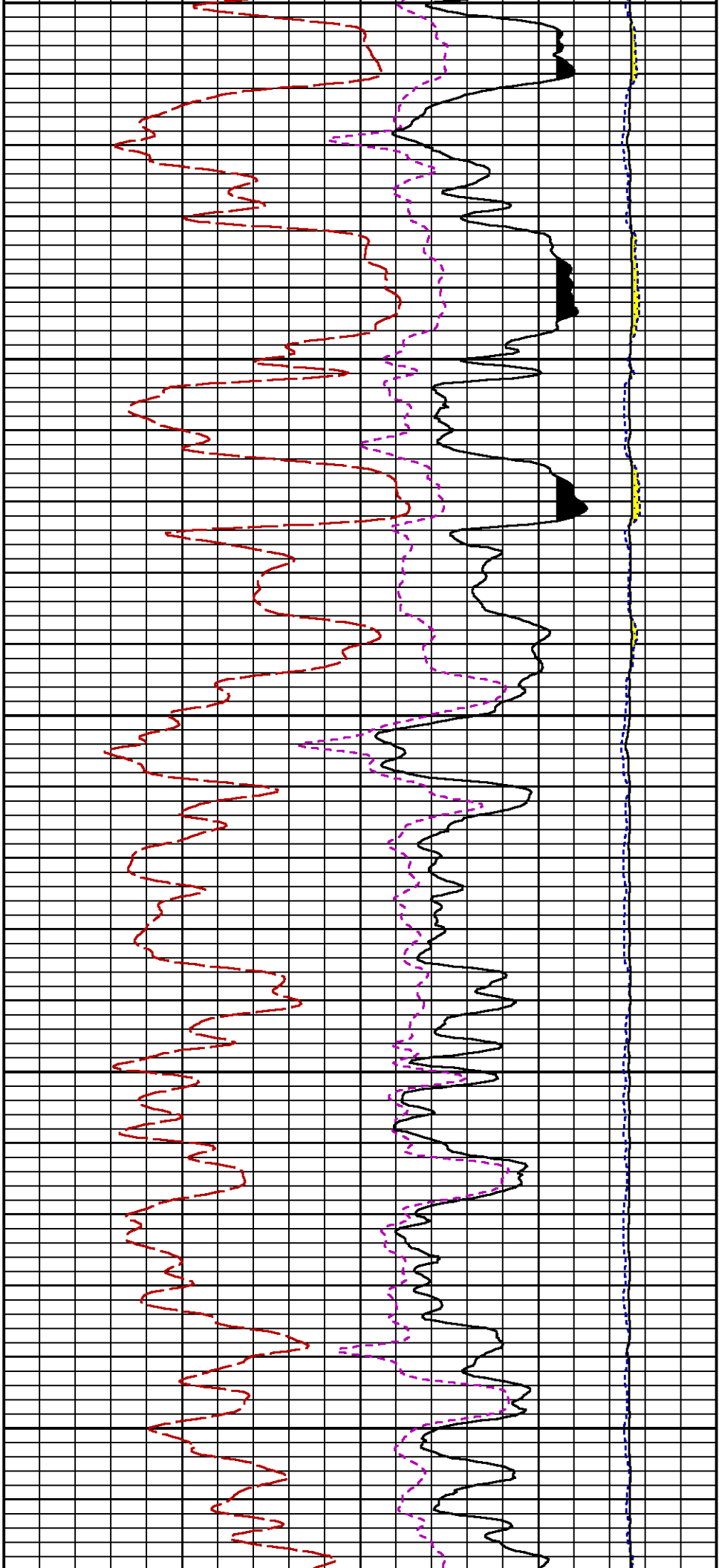


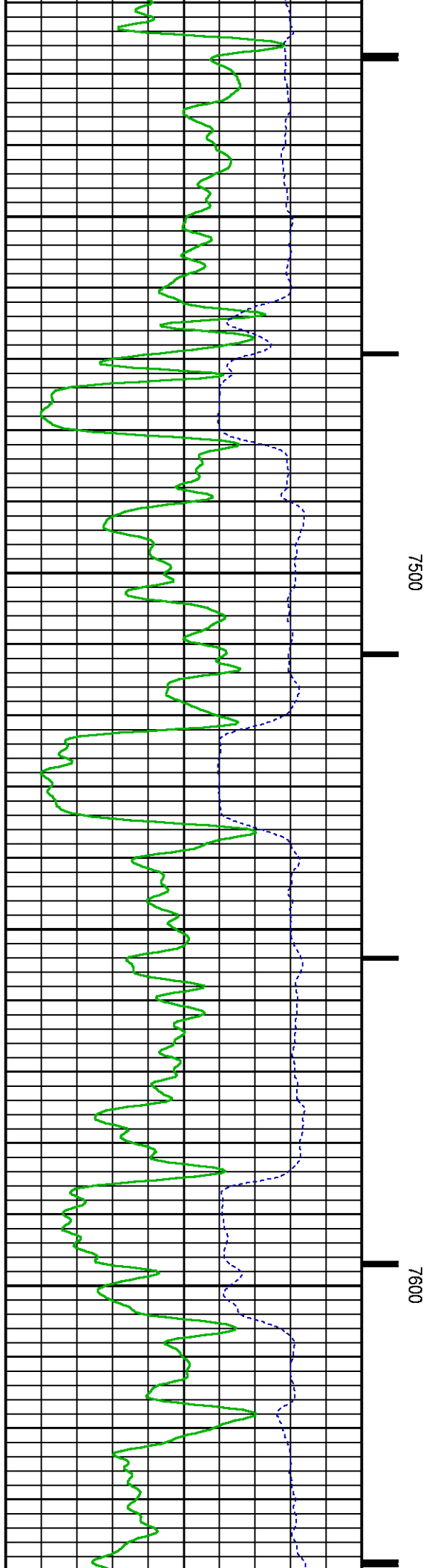
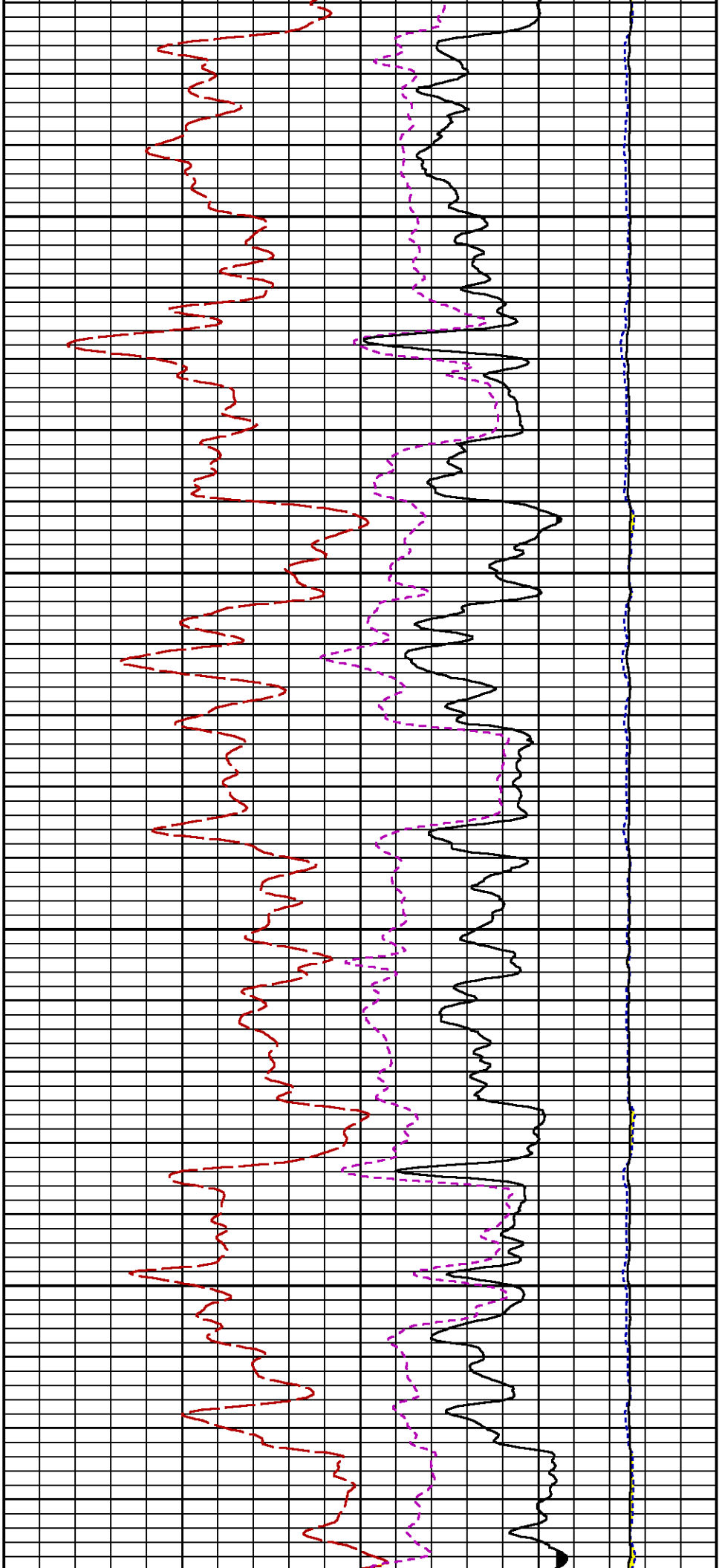
7000

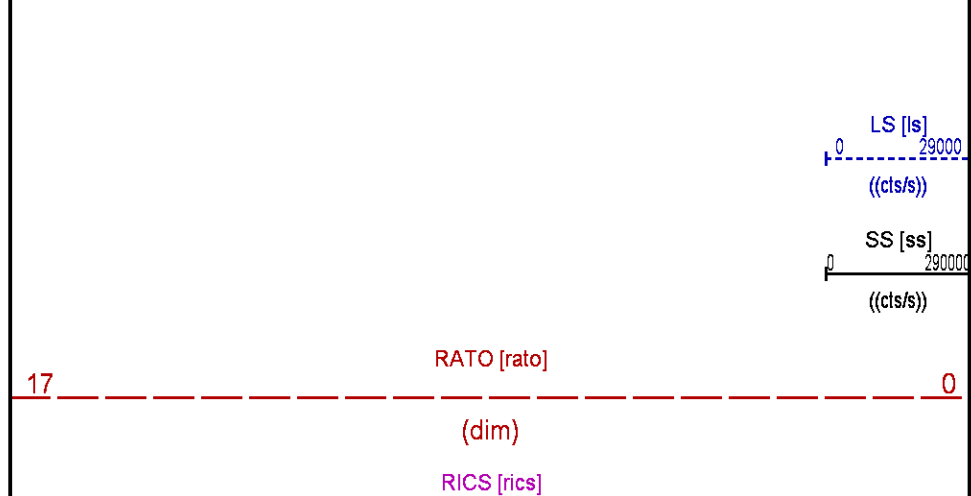
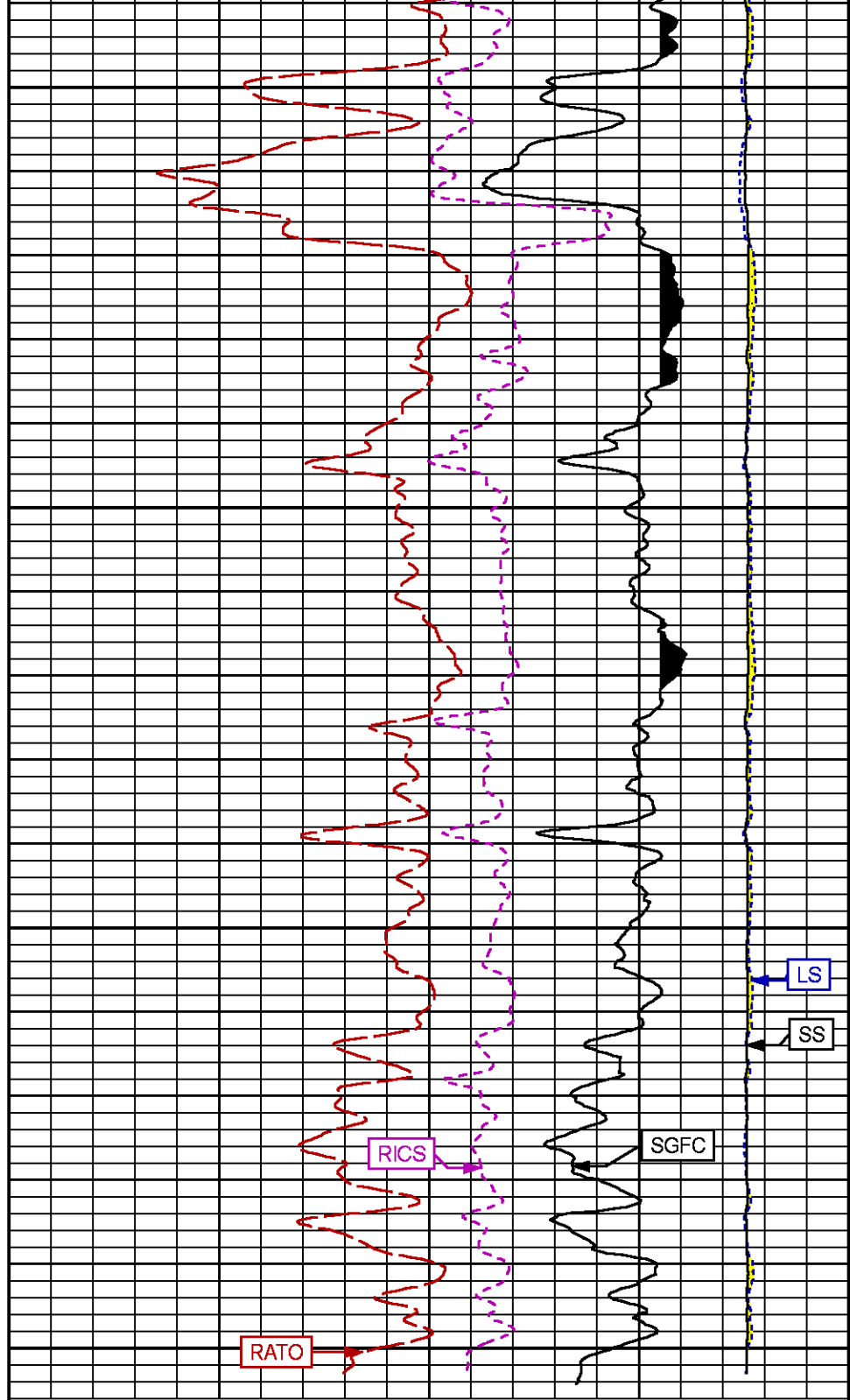
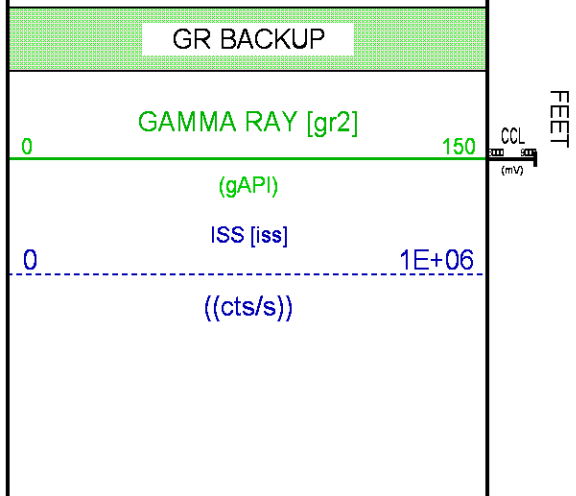
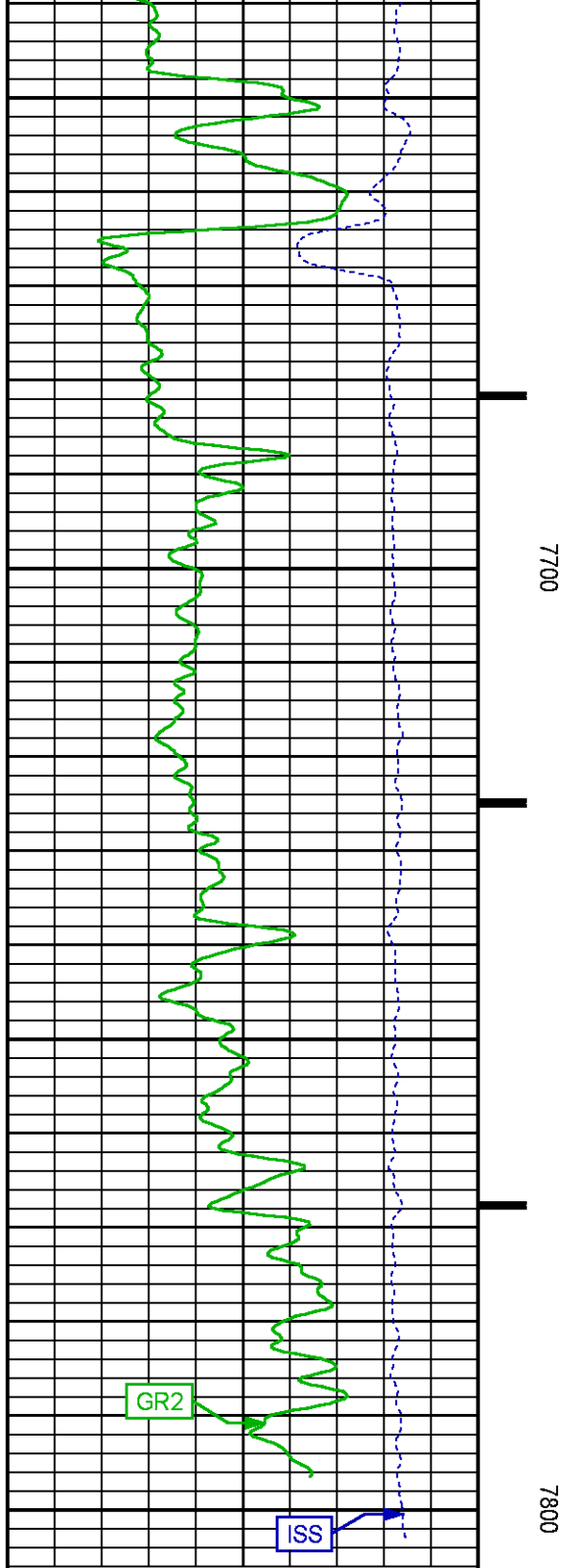
7100

7200









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

REPEAT PASS

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Patches: 4

Plotted: Tue Jul 3 22:18:06 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-19W/p354h01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 5515.000 ft BOTTOM DEPTH: 5747.688 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 | " " |
| | LARGEST CASING OD | 4.50 | in | " " |
| | MATRIX | SANDSTONE | | " " |

CURVE DESCRIPTION REPORT

| CURVE NAME | CREATION DATE | CURVE DESCRIPTION |
|------------|---------------|---|
| F1:CCL | N/A | CASING COLLAR LOCATOR |
| F1:GR2 | N/A | GAMMA RAY 2 |
| F1:ISS | N/A | INELASTIC SHORT SPACE COUNT RATE |
| F1:LS | N/A | LONG SPACE COUNT RATE |
| F1:RATO | N/A | SHORT/LONG SPACE COUNT RATE RATIO |
| F1:RICS | N/A | SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS) |
| F1:SGFC | N/A | BOREHOLE AND DIFFUSION CORRECTED SIGMA |
| F1:SS | N/A | SHORT SPACE COUNT RATE |

CURVE MEASURE POINT OFFSET

| CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) | CURVE | OFFSET (ft) |
|-------|-------------|-------|-------------|-------|-------------|-------|-------------|
| CCL | -21.75 | ISS | -9.50 | RATO | -9.50 | SGFC | -9.50 |
| GR2 | -19.25 | LS | -9.50 | RICS | -9.50 | SS | -9.50 |

Presentation : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 5513.75 - 5763.75 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : NICHOLS 0994-24-19W
Field : VEGA
File Interval : 5513 - 5764 Feet

GR BACKUP

GAMMA RAY [gr2]

(gAPI)

ISS [iss]

((cts/s))

FEEET

CCL
(mV)

5600

LS [ls]

((cts/s))

SS [ss]

((cts/s))

RATO [rato]

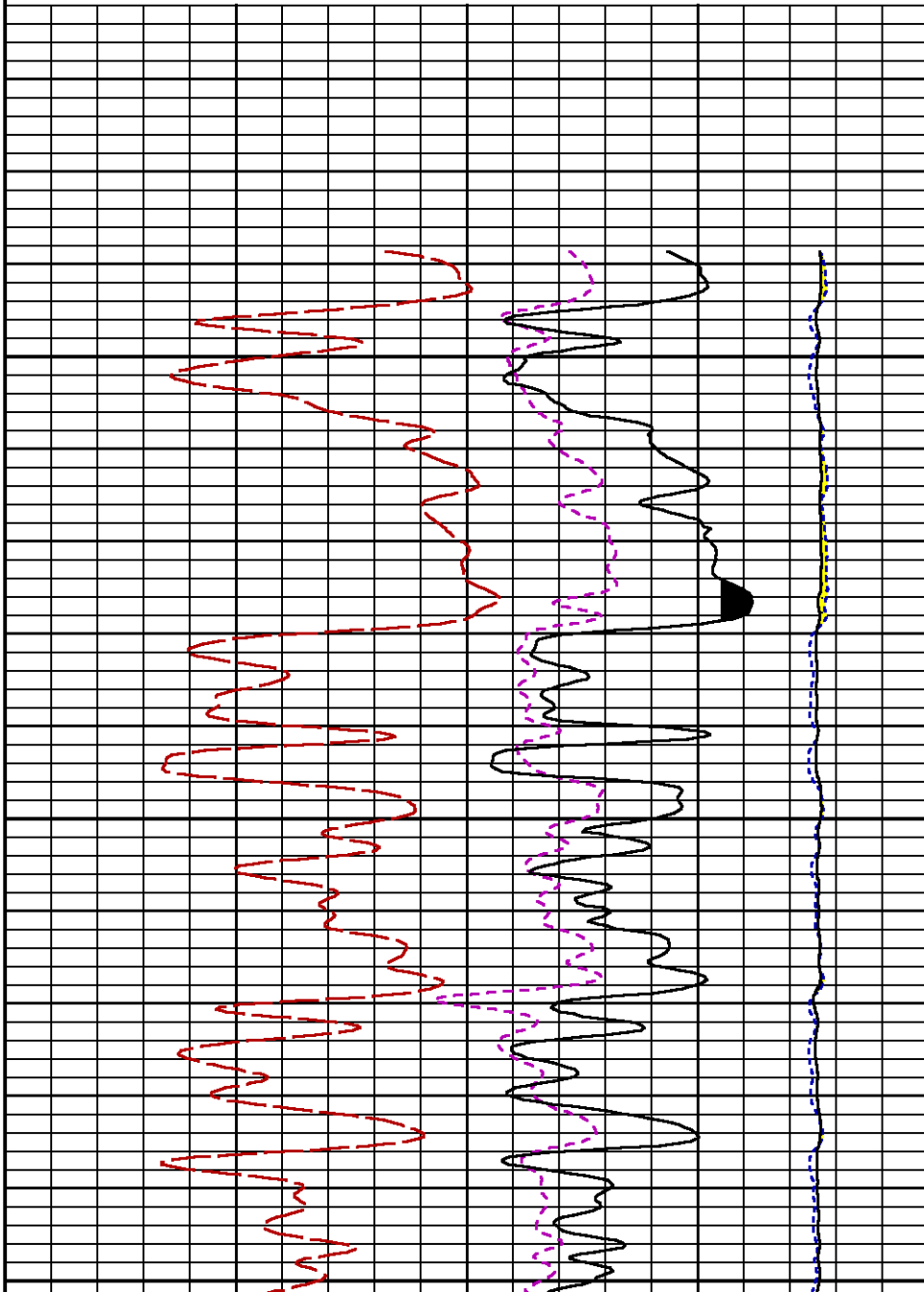
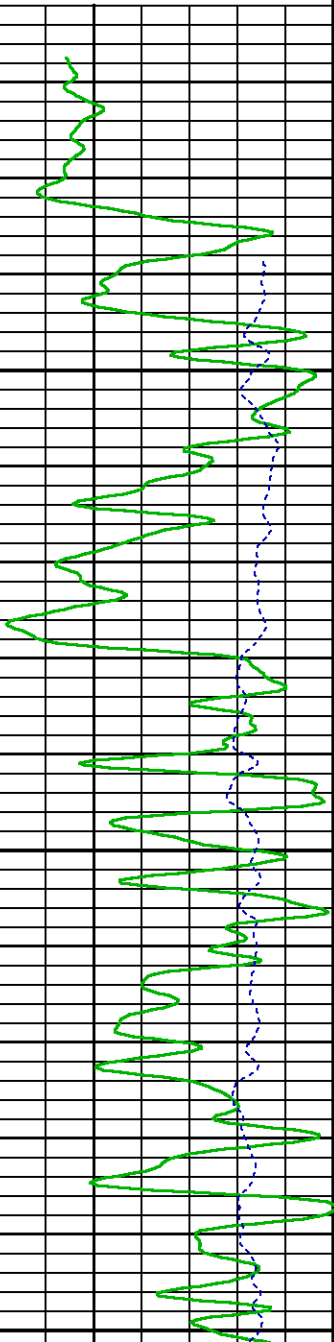
(dim)

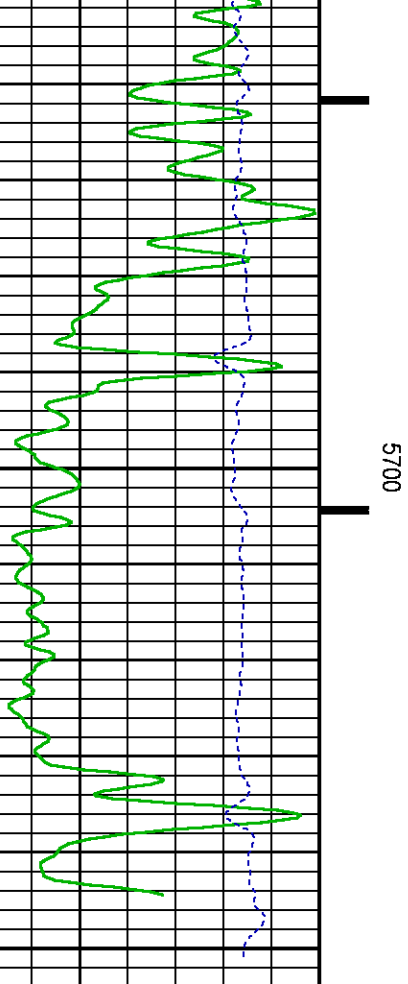
RICS [rics]

(dim)

SGFC [sgfc]

(cu)





GR BACKUP

GAMMA RAY [gr2]

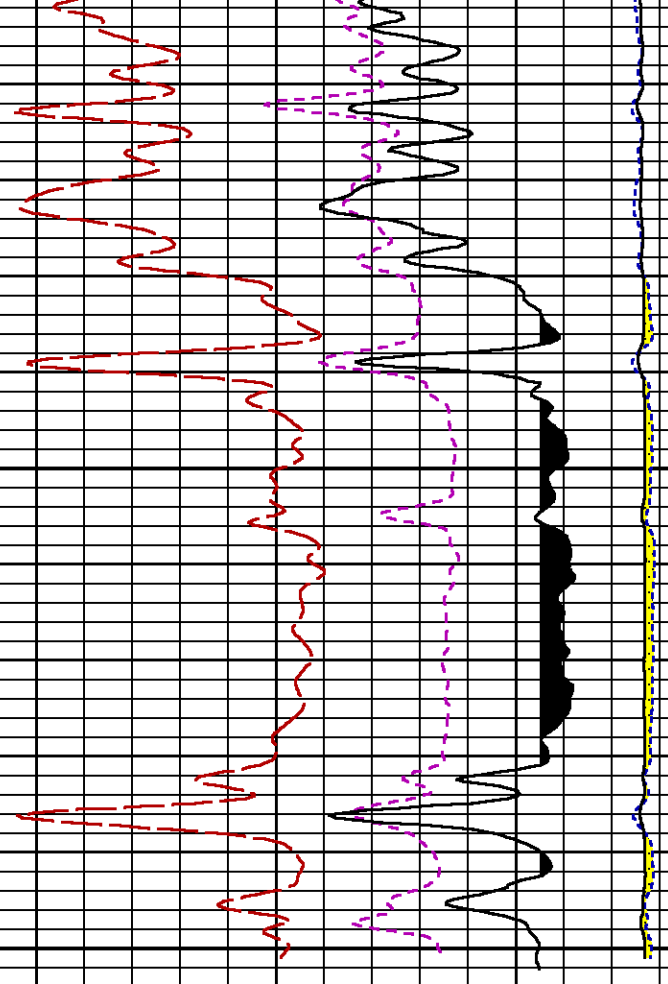
(gAPI)

ISS [iss]

((cts/s))

FEET

CCL
(mV)



RATO [rato]

(dim)

RICS [rics]

(dim)

SGFC [sgfc]

(cu)

LS [ls]

((cts/s))

SS [ss]

((cts/s))

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_NICHOLS_0994-24-19W/p354h.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 2812LB 11621284 DATE/TIME PERFORMED: Fri May 11 07:38:13 2018

UNIT #: 3885TD SHAFT1 CALB JIG #: 4702NK BA-930

| | BACKGROUND (cts/s) | CALBRTR ON (cts/s) | CR DIFF (cts/s) | MULT | BACKGROUND (gAPI) | CALBRTR ON (gAPI) | CALBRTR (gAPI) |
|----|-----------------------|-----------------------|--------------------|-------|----------------------|----------------------|-------------------|
| GR | 63.62 | 275.42 | 211.8 | 0.992 | 63.08 | 273.08 | 210 |

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LB 11621284 DATE/TIME PERFORMED: Fri May 11 07:40:26 2018

UNIT #: 3885TD SHAFT1 VERI JIG #: 4702NK BA-930

| | BACKGROUND (cts/s) | CALBRTR ON (cts/s) | MULT | BACKGROUND (gAPI) | CALBRTR ON (gAPI) | DIFF. (gAPI) |
|----|-----------------------|-----------------------|-------|----------------------|----------------------|-----------------|
| GR | 58.89 | 276.18 | 0.992 | 58.39 | 273.83 | 215.44 |
| | | | | | | 200.00 220.00 |

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10068031 DATE/TIME PERFORMED: Mon May 7 23:51:27 2018

UNIT: 5753XD 111111 CALIBRATOR: 2437XB 112674 SOURCE: 8281AA 10047980 HOURS: 8281AA 63

| | ISS | Mtr Vits (V) | SS Gain | LS Gain | XLS Gain | EA Temp (degF) | Sync Delay (usec) | RCAL |
|----------|--------|-----------------|---------|---------|----------|-------------------|----------------------|--------|
| Raw Data | 802814 | 119 | 2217 | 2481 | 2198 | 114 | 8.0 | 1.0138 |

| | | | | | |
|--------------|---------|-----|------|------|------|
| Interpolated | 1300000 | 139 | 2201 | 2485 | 2184 |
|--------------|---------|-----|------|------|------|

| | ISS | BKS | BKL | BKX | SGA1 | SDA1 | SGA2 | SDA2 |
|----------|--------|------|------|-----|-------------|-----------|-------------|-----------|
| Raw Data | 802814 | 7129 | 1185 | 158 | 25.96 | 0.15 | 24.13 | 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 | 802814 | 174125 | 28683 | 86762 | 30909 | 8359 | 52608 | 13370 |
| Fit Quality % | | 0.791 | 0.627 | 0.866 | 0.857 | 0.798 | 0.841 | 0.839 |

| | ISS | RBOR | RIN ISS/ILS | RIN13 ISS/IXS | RICS ISS/CSS | RATO SS/LS | RTWO SS2/LS | RONE CSS/CLS |
|---------------|---------|-----------|----------------|------------------|-----------------|---------------|----------------|-----------------|
| Raw Data | 802814 | 1.44 | 4.61 | 28.00 | 15.26 | 10.38 | 3.70 | 3.94 |
| | | 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 % | | 0.030 | 0.272 | 1.006 | 0.137 | 0.113 | 0.110 | 0.077 |
| Reduced | 1449874 | 1.44 | 4.61 | 27.83 | 15.26 | 10.37 | 3.69 | 3.93 |
| | | 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 |

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_GUNDERSON_0994-13-17W/RPM-tdg

A3 CABLEHEAD
Diameter : 1.37"

PCM POWER SUPPLY
Diameter : 1.70"
Length : 3.86"

33.24'

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

CCL MP 25.19'

GAMMA RAY, 1 11/16"
Diameter : 1.89"
Length : 2.17'
Weight : 10 lbs
Series : 2812LA
Mnemonic : GR

GR MP 22.64'

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'
Weight : 41 lbs
Series : 8283PA
Mnemonic : RPM
Measure Point: 5.45': XLS MP
Measure Point: 5.04': LS MP
Measure Point: 4.79': SS MP

XLS MP 13.58'
LS MP 13.16'
SS MP 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"

0.00'

TOTAL LENGTH: 33.24'
TOTAL WEIGHT: 140 lbs
MAX DIAMETER: 0'1.70'

**BAKER
HUGHES**
a GE company



ECLIPS

COMPANY LARAMIE ENERGY LLC

WELL NICHOLS 0994-24-19W

FIELD VEGA

COUNTY MESA **STATE** COLORADO

FILE NO:

CH137655

API NO:

05077103980000

LOCATION:

SHL; 2315' FNL & 2781' FWL

BHL; 670' FSL & 1550' FWL

SEC 24 **TWP** 9S **RGE** 94W

ELEVATIONS:

KB 7236 FT

DF

GL 7212 FT

DATE 03-Jul-2018