



FILE NO: CH100237	COMPANY WELL FIELD COUNTY	LARAMIE ENERGY PICEANCE 28-08W VEGA MESA	STATE COLORADO
API NO: 05077097760000			

Ver. 4.01 28 9S 93W 28-05 PAD PATTERSON 306	LOCATION: SEC 28 TWP 9S RGE 93W	OTHER SERVICES RPM
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PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM	GL KB KB	ELEVATION 22 FT ABOVE P.D.	ELEVATIONS: KB 7600 FT DF GL 7578 FT
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DATE	18-OCT-2015
RUN	1
SERVICE ORDER	US100237
DEPTH DRILLER	7864 FT
DEPTH LOGGER	7662 FT
BOTTOM LOGGED INTERVAL	7652 FT
TOP LOGGED INTERVAL	2545 FT
TIME STARTED	7:30
TIME FINISHED	13:30
OPERATOR RIG TIME	6 HOURS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	46 FT
LOGGED CEMENT TOP	NA
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	10 FMIN
MAX. RECORDED TEMP.	222 DEGF
REFERENCE LOG	BAKER HUGHES BOND LOG
REFERENCE LOG DATE	25-AUG-2015
EQUIP. NO.	HL-6670
LOCATION	GRAND JCT.
RECORDED BY	P. EDWARDS
WITNESSED BY	J. GRUBICH

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
7.875 IN	22 FT	7864 FT

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
4.5 IN	11.6 LB/F		22 FT	7864 FT

REMARKS

RUN 1 TRIP 1: All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 18/OCT/2015 at the client's request.

The amount of linear shift is 0 feet
Logged in PNC-3D mode.

LOGGED WITH ZERO PSI AT WELLHEAD

BHT = 222 degF

SJ = 6054' - 6076'

SJ = 6917' - 6939'

GAMMA RAY SPIKES AT 2751' AND 7238' INVALID

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	PCM	8250EA	Z166326	FREE
1	1	TEL/CCL	8248ED	10387150	FREE
1	1	GR	8262XA	10274382	FREE
1	1	RPM	8281EA	10190984	FREE
1	1	RPM	8283PA	10169251	FREE
1	1	RPM	8281FA	10307727	FREE
1	1	TEMP	8255XA	Z120516	FREE

G-SAND SECTION PNC-3D MODE

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

Updates: 1 Patches: 6

Plotted: Sun Oct 18 13:02:57 2015

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH2808W/n354h03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 2542.500 ft BOTTOM DEPTH: 3172.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER (1)	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	Oct 18 12:21:15 2015	CASING COLLAR LOCATOR
F1:GR	Oct 18 12:21:15 2015	GAMMA RAY
F1:ISS	Oct 18 12:21:15 2015	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Oct 18 12:21:15 2015	LONG SPACE COUNT RATE
F1:RATO	Oct 18 12:21:15 2015	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Oct 18 12:21:15 2015	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Oct 18 12:21:15 2015	CORRECTED FORMATION SIGMA
F1:SS	Oct 18 12:21:15 2015	SHORT SPACE COUNT RATE

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	25.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	22.75	LS	12.75	RICS	12.75	SS	12.75

Presentation : HL6670:/dat1a/CH2808W/8W_RPM_GSAND.fvpdf [5"/100' Scale]

Plot Interval : 2545 - 3145 Feet

Data File 1 : F1 : HL6670:/dat1a/CH2808W/n354h03GSAND8W.xtf
Created On : Oct 18 12:21:15 2015
Company : LARAMIE ENERGY
Well : PICEANCE 28-08W
Field : VEGA
File Interval : 2524.5 - 3179.25 Feet
OCT : n354h

GR BACKUP

FEET

ISS [iss]

0 1E+06

(1)

GAMMA RAY [gr]

0 150

(gAPI)

CCL
(mV)

LS [ls]

0 29000

(1)

SS [ss]

0 290000

(1)

RATO [rato]

17 0

(1)

RICS [rics]

39 9

(1)

SGFC [sgfc]

60 0

(1)

2600

GR

ISS

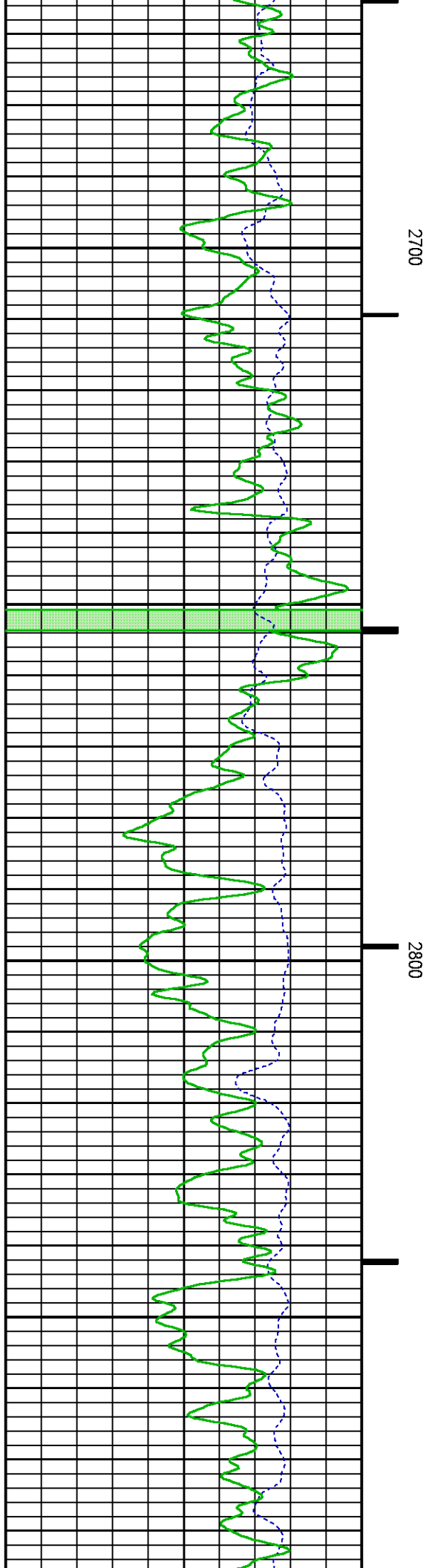
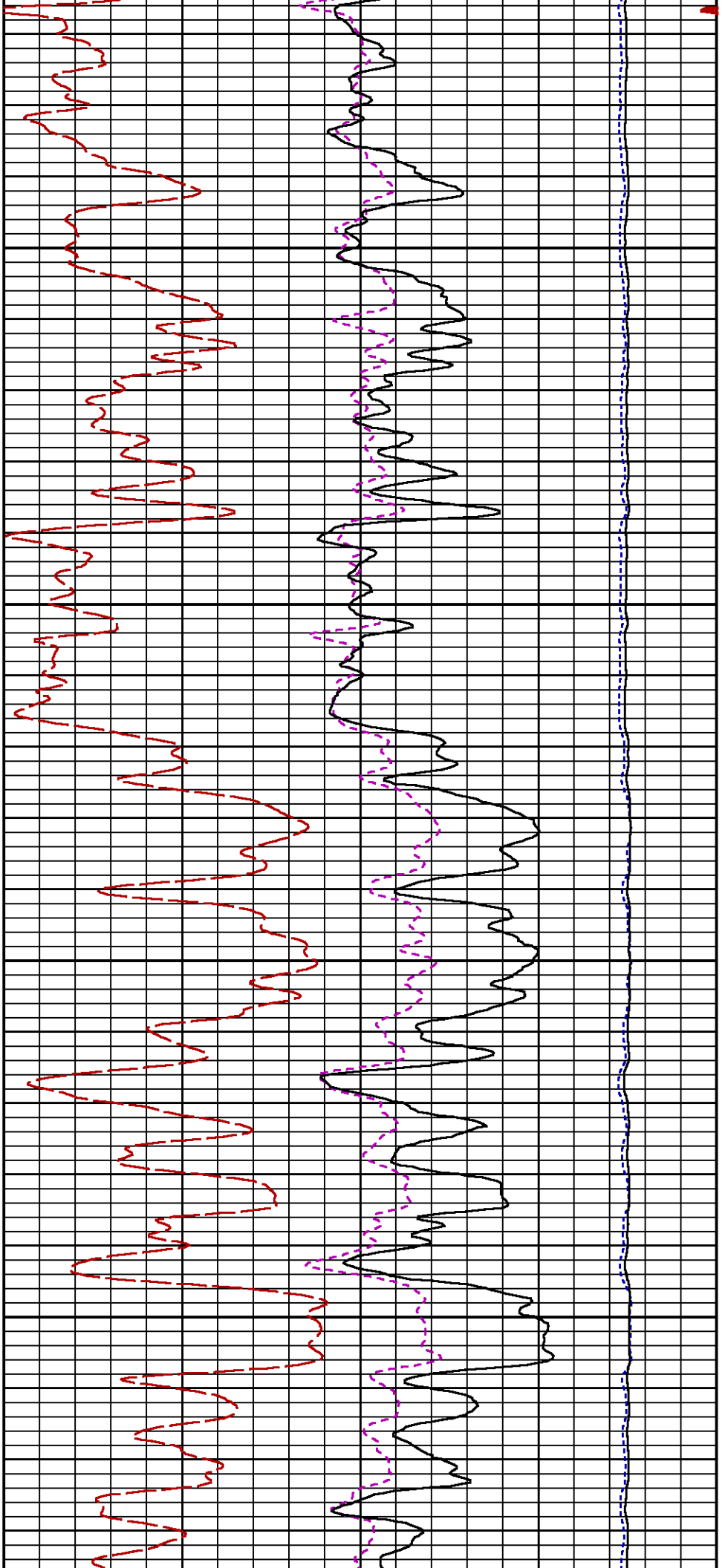
RATO

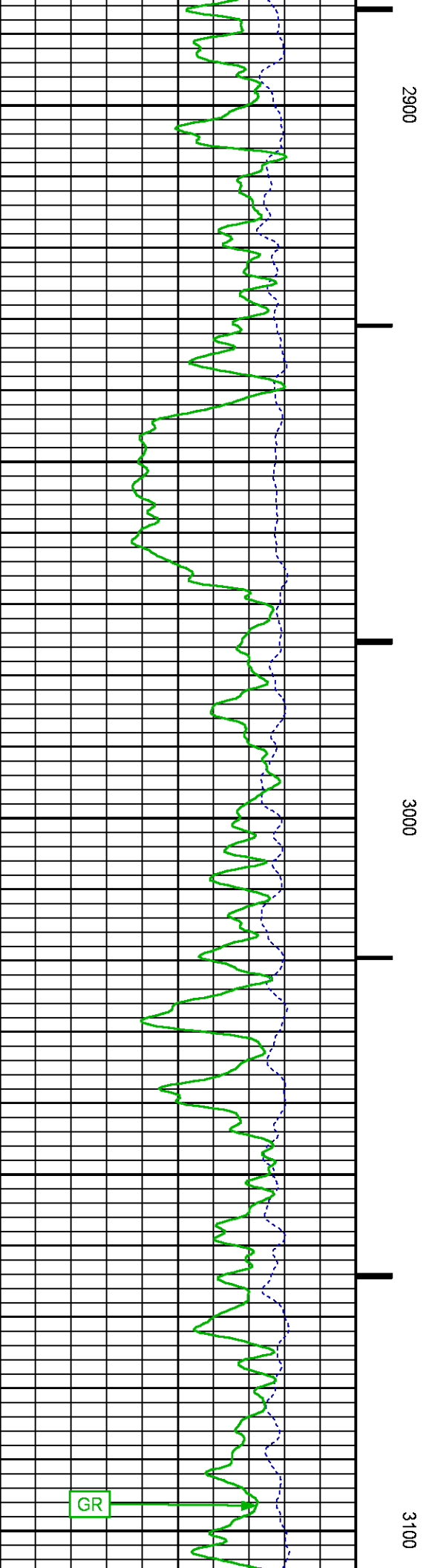
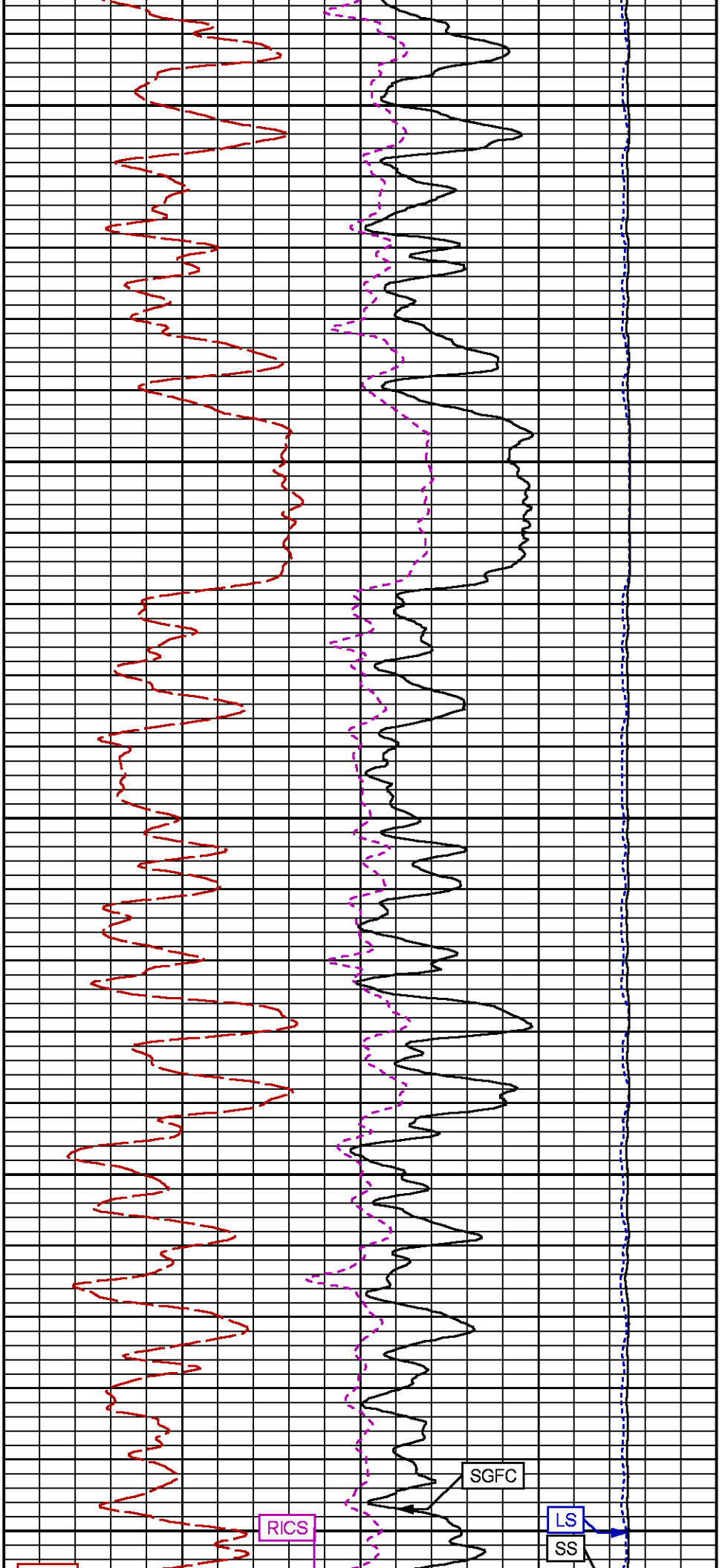
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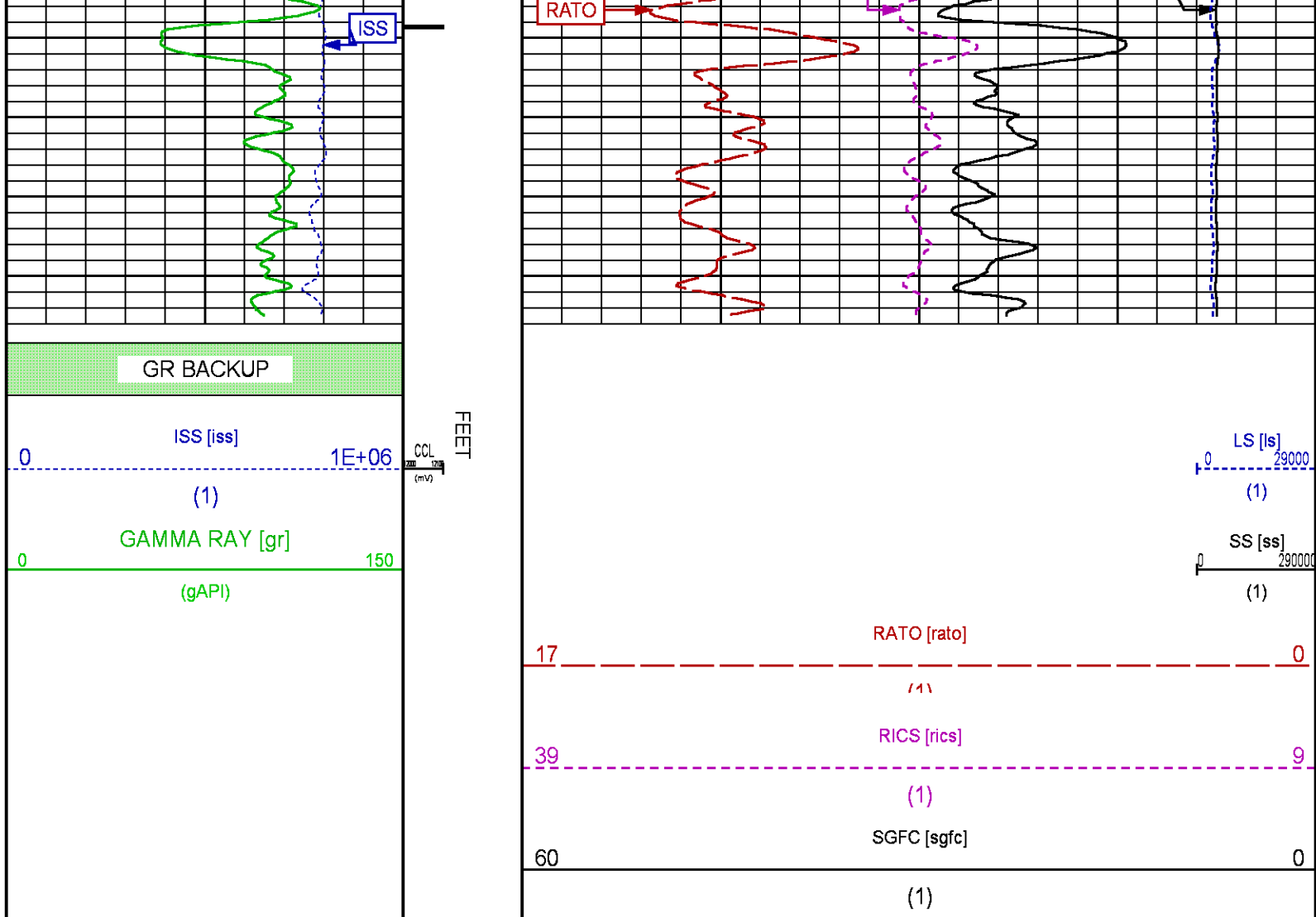
SGFC

LS

SS







MAIN SECTION PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 6

Plotted: Sun Oct 18 12:17:19 2015

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH2808W/n354h02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4488.000 ft BOTTOM DEPTH: 7670.500 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
MATRIX
CORRECTION BUFFER

4.50
SANDSTONE
11

in

"

"

"

"

"

"

CURVE DESCRIPTION REPORT

CURVE NAME CREATION DATE

CURVE DESCRIPTION

F1:CCL	Oct 18 08:44:50 2015	CASING COLLAR LOCATOR
F1:GR	Oct 18 08:44:50 2015	GAMMA RAY
F1:ISS	Oct 18 08:44:50 2015	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Oct 18 08:44:50 2015	LONG SPACE COUNT RATE
F1:RATO	Oct 18 08:44:50 2015	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Oct 18 08:44:50 2015	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Oct 18 08:44:50 2015	CORRECTED FORMATION SIGMA
F1:SS	Oct 18 08:44:50 2015	SHORT SPACE COUNT RATE

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	25.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	22.75	LS	12.75	RICS	12.75	SS	12.75

Presentation : HL6670:/dat1a/CH2808W/8W_RPM_MAIN.fvpdf [5"/100' Scale]
Plot Interval : 4493 - 7667 Feet

Data File 1 : F1 : HL6670:/dat1a/CH2808W/n354h02MAIN_8W.xtf
Created On : Oct 18 08:44:50 2015
Company : LARAMIE ENERGY
Well : PICEANCE 28-08W
Field : VEGA
File Interval : 4462 - 7670.5 Feet
OCT : n354h

GR BACKUP

FEET

ISS [iss]

1E+06

(1)

GAMMA RAY [gr]

150

(gAPI)

CCL
(mV)

4500

LS [ls]

29000

(1)

SS [ss]

290000

(1)

RATO [rato]

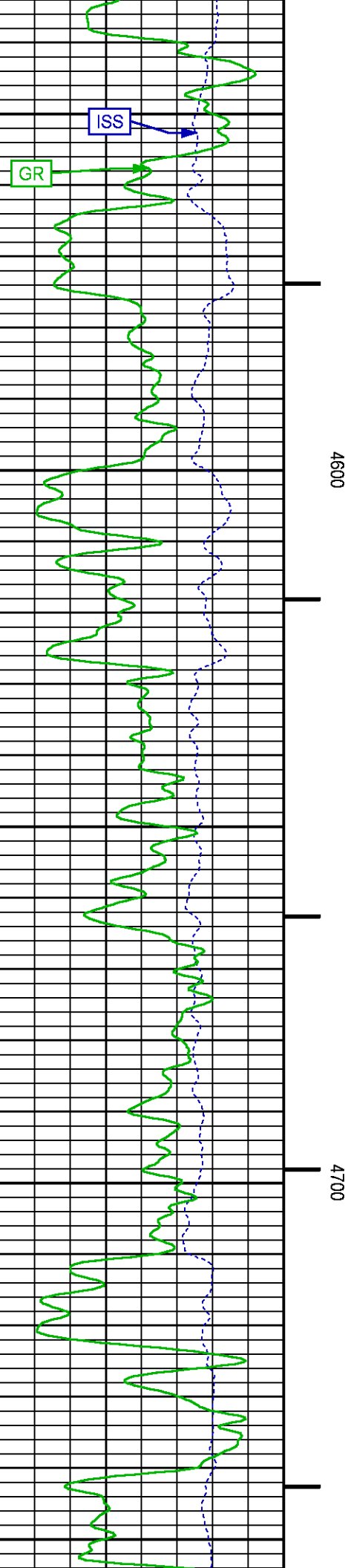
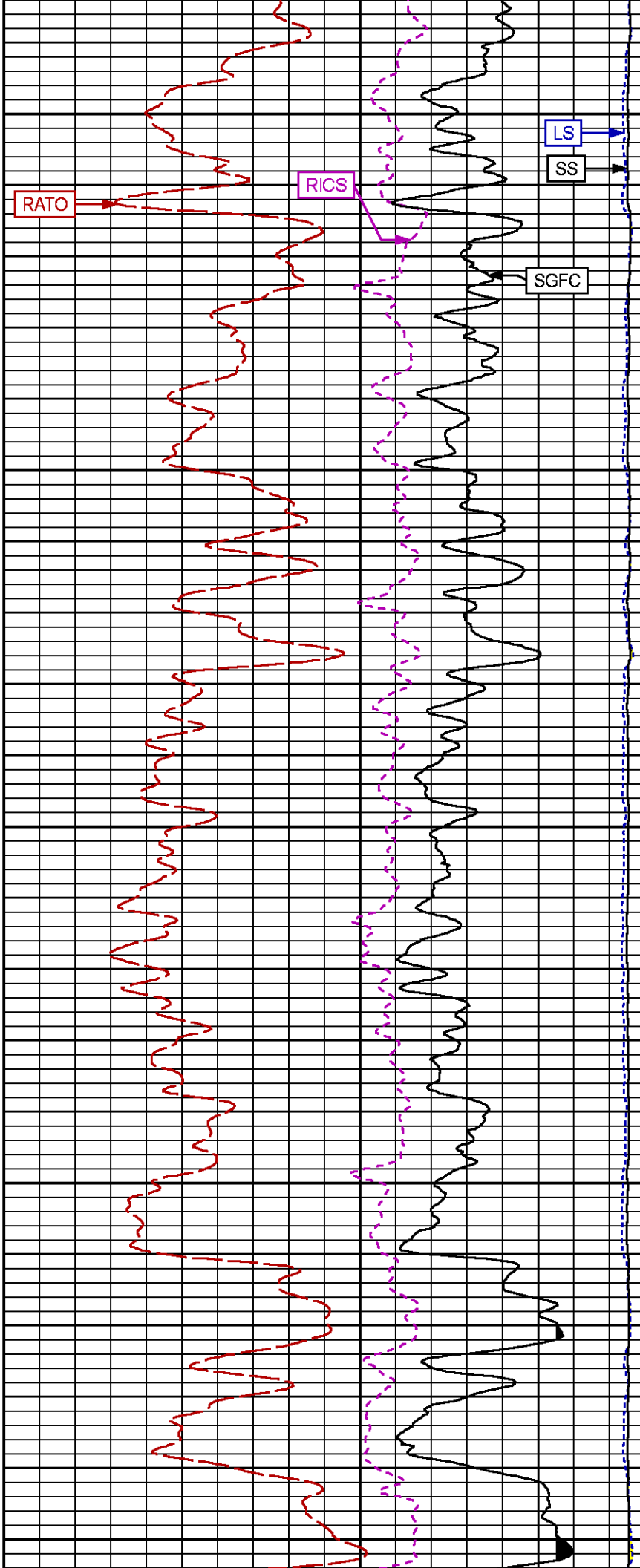
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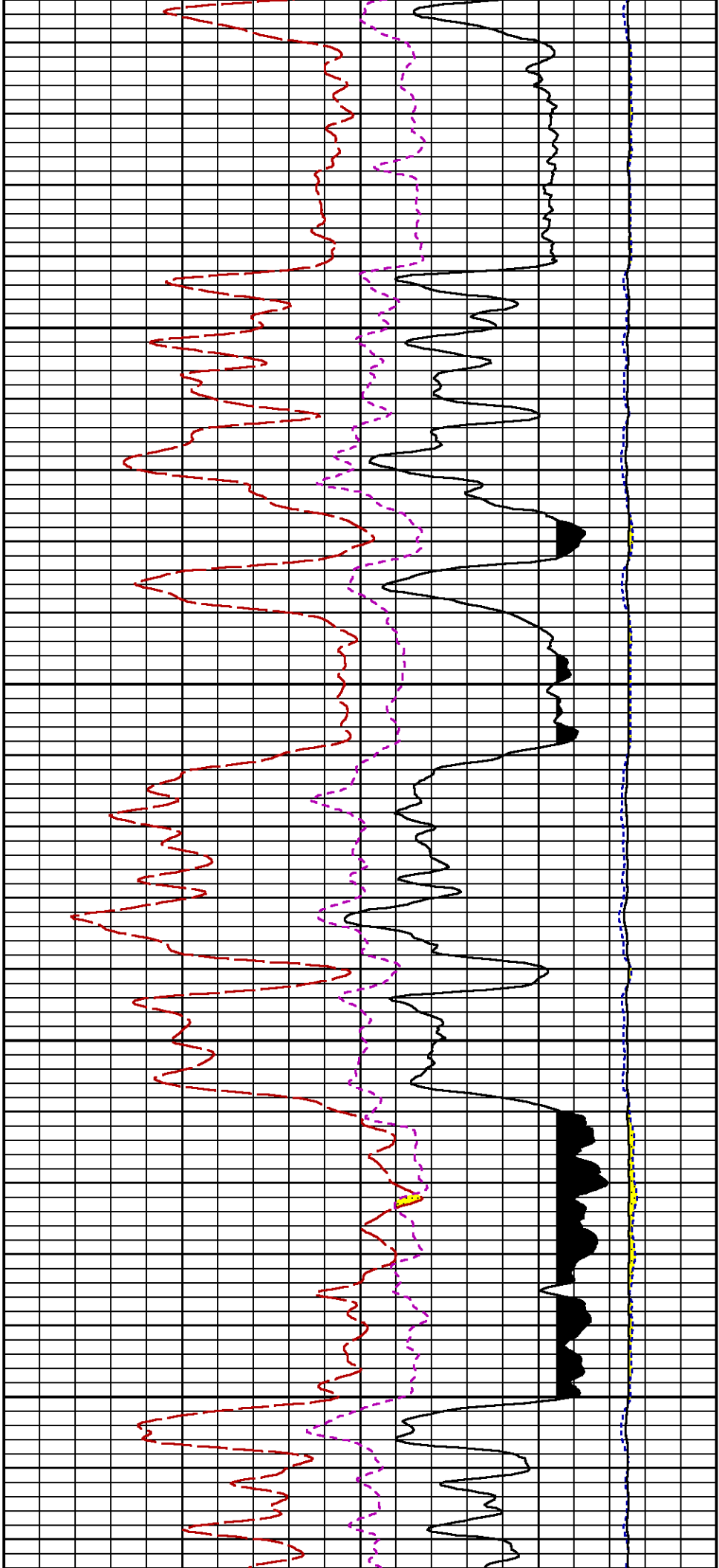
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(1)

RICS [rics]

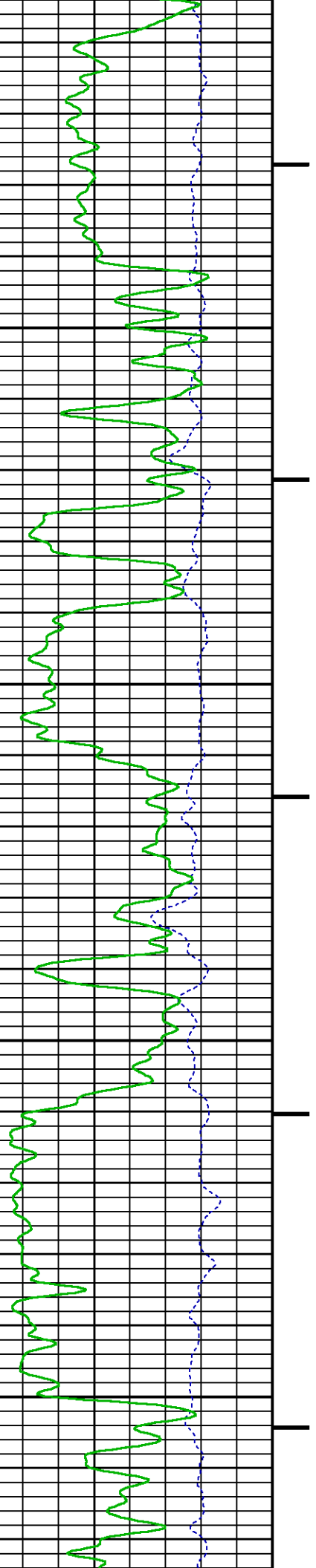
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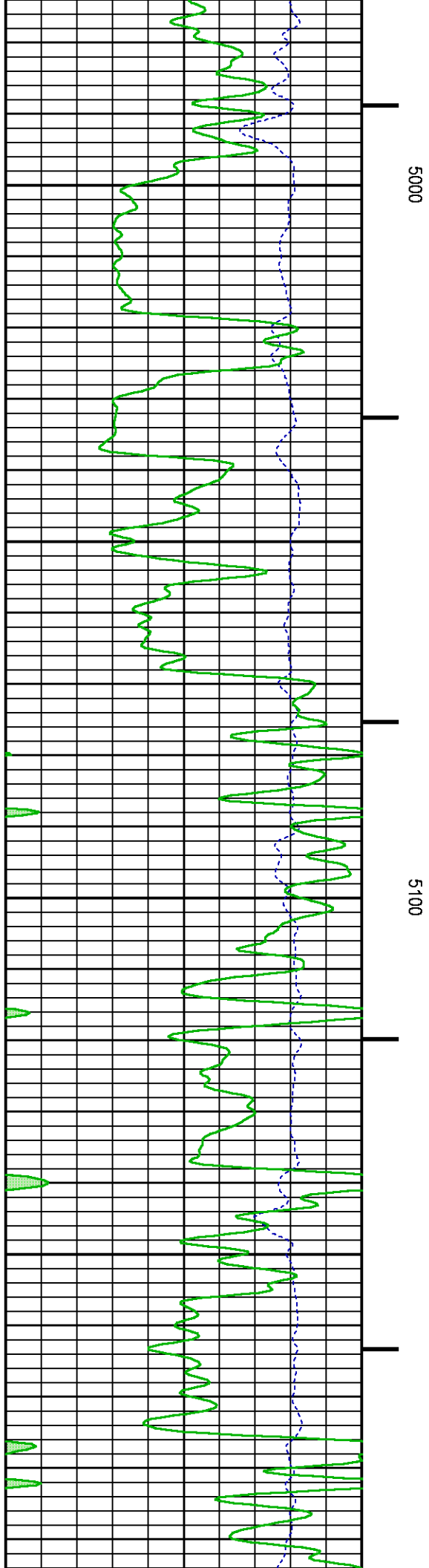
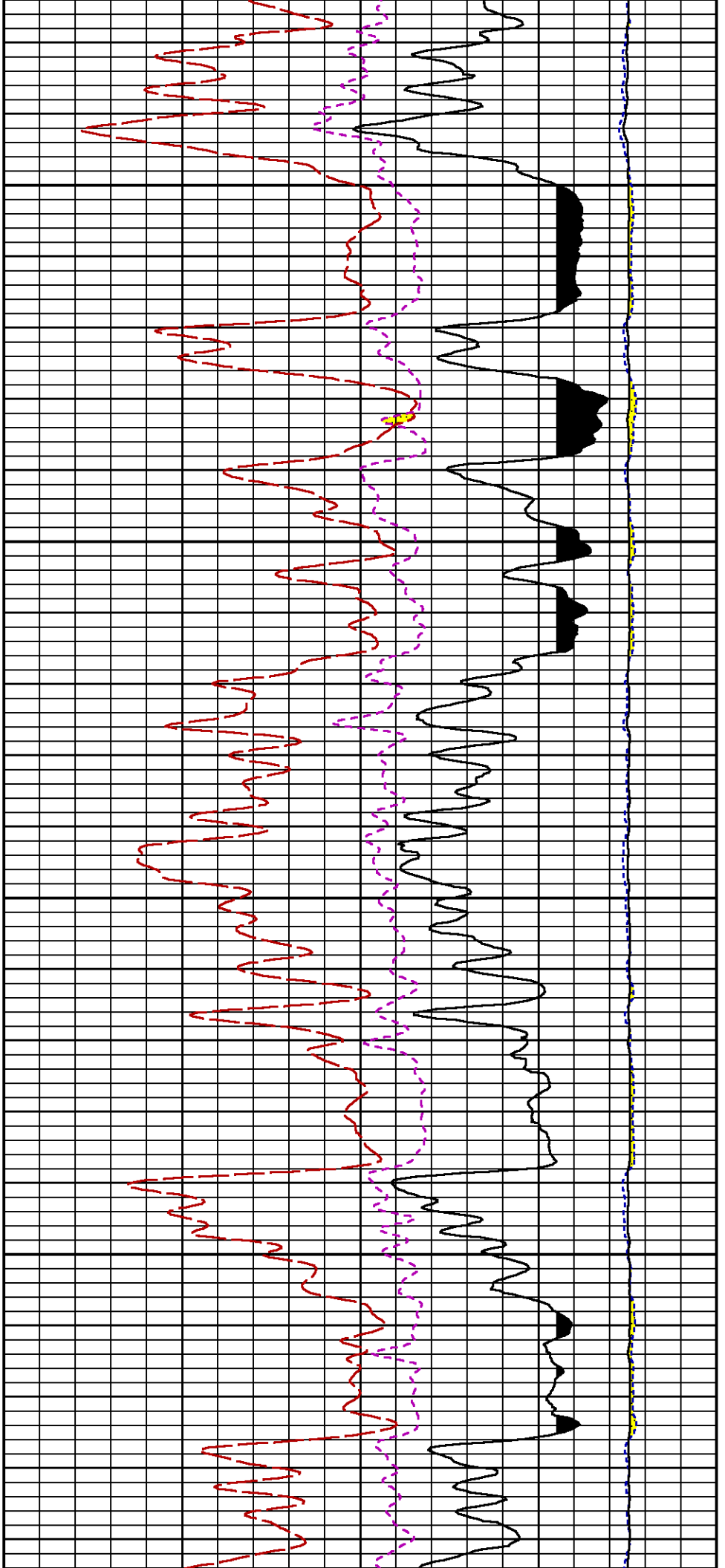


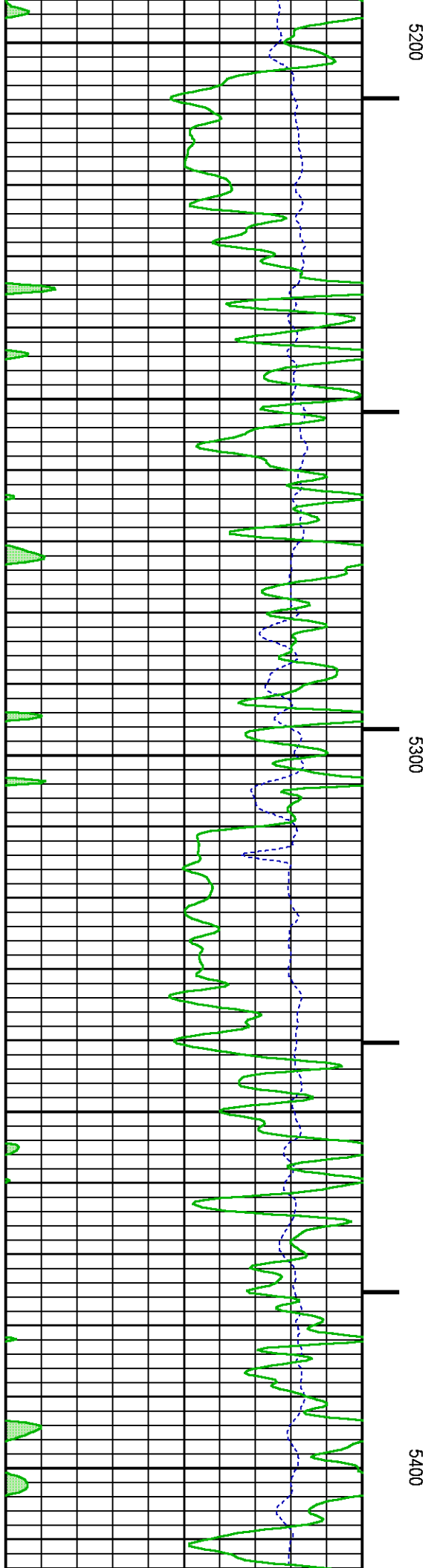
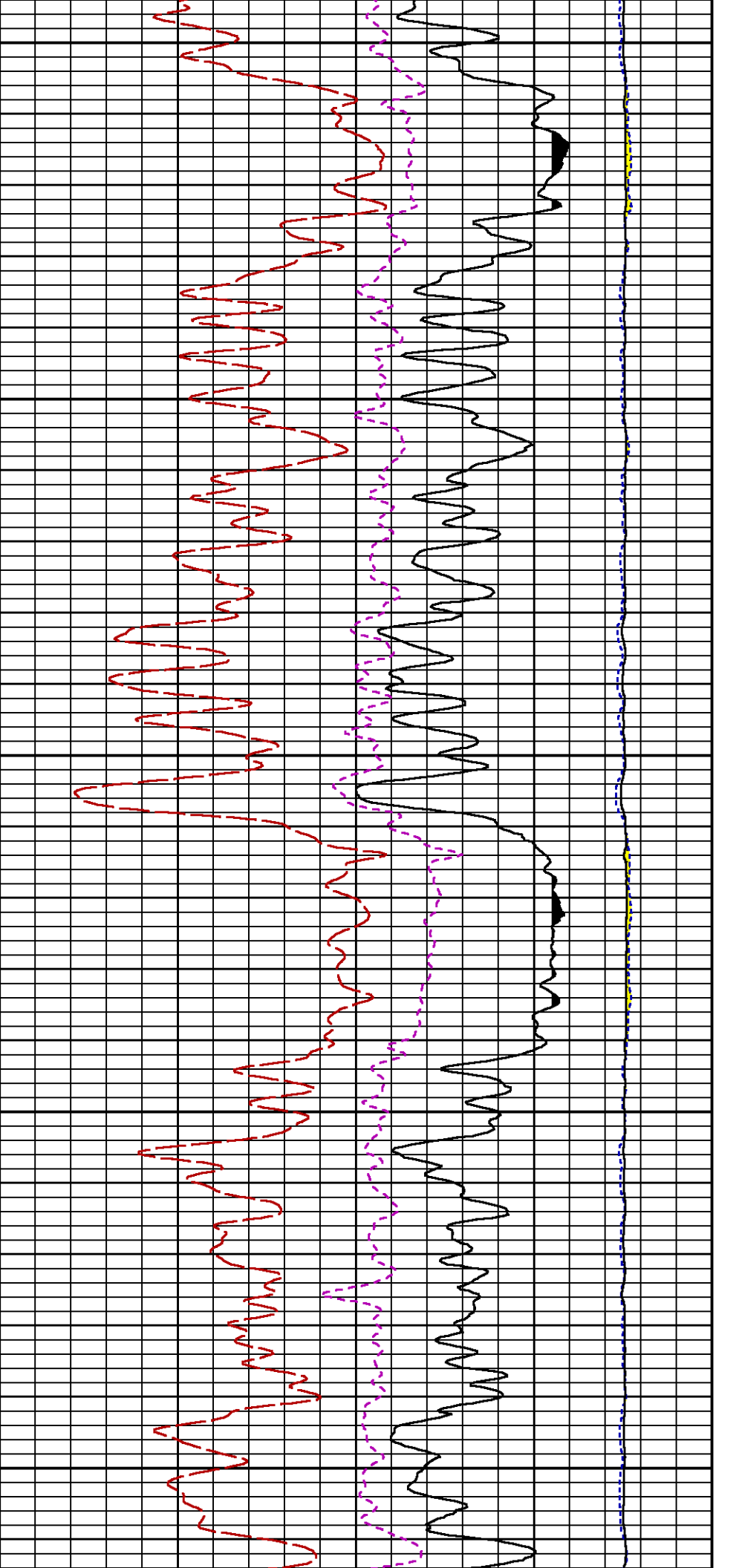


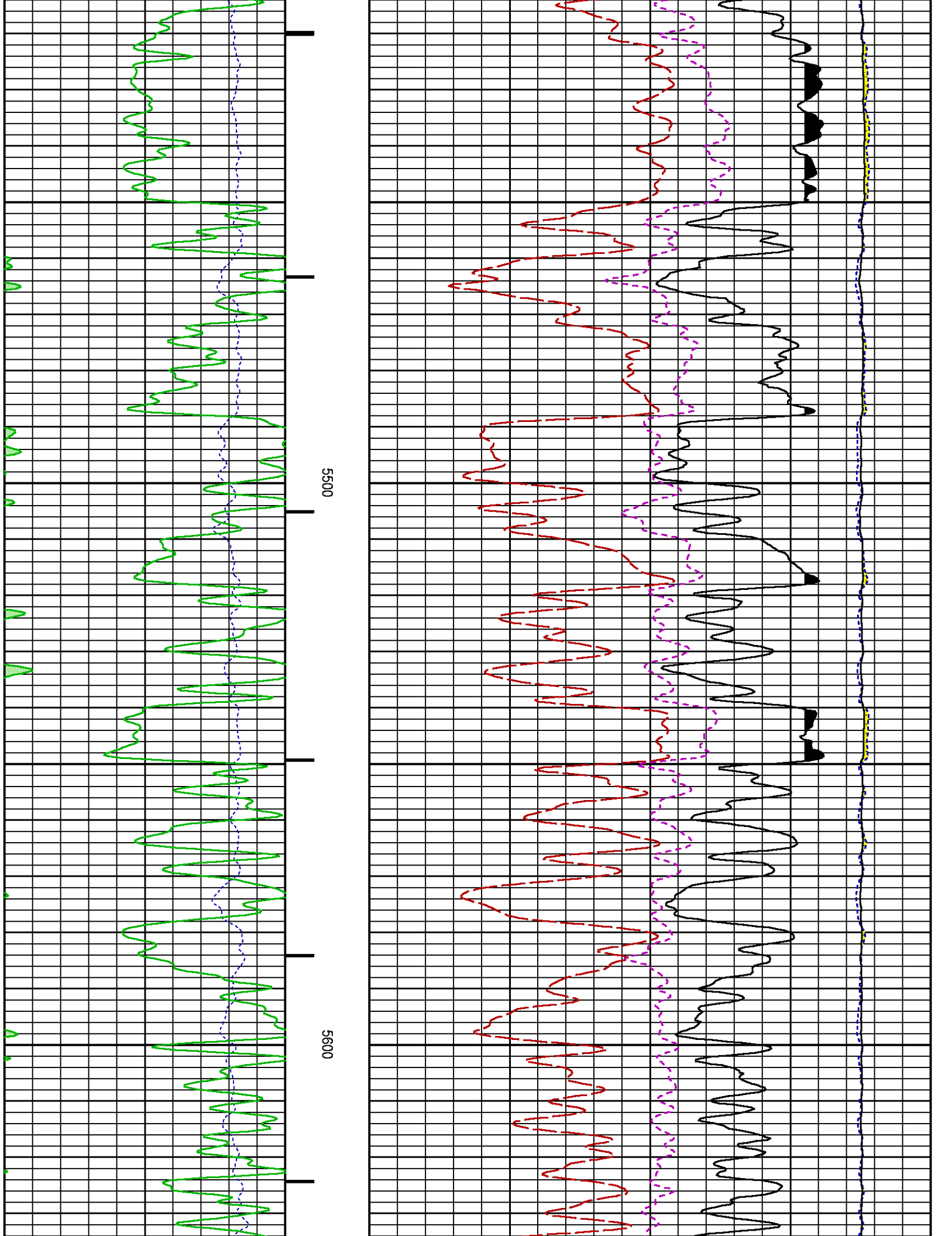
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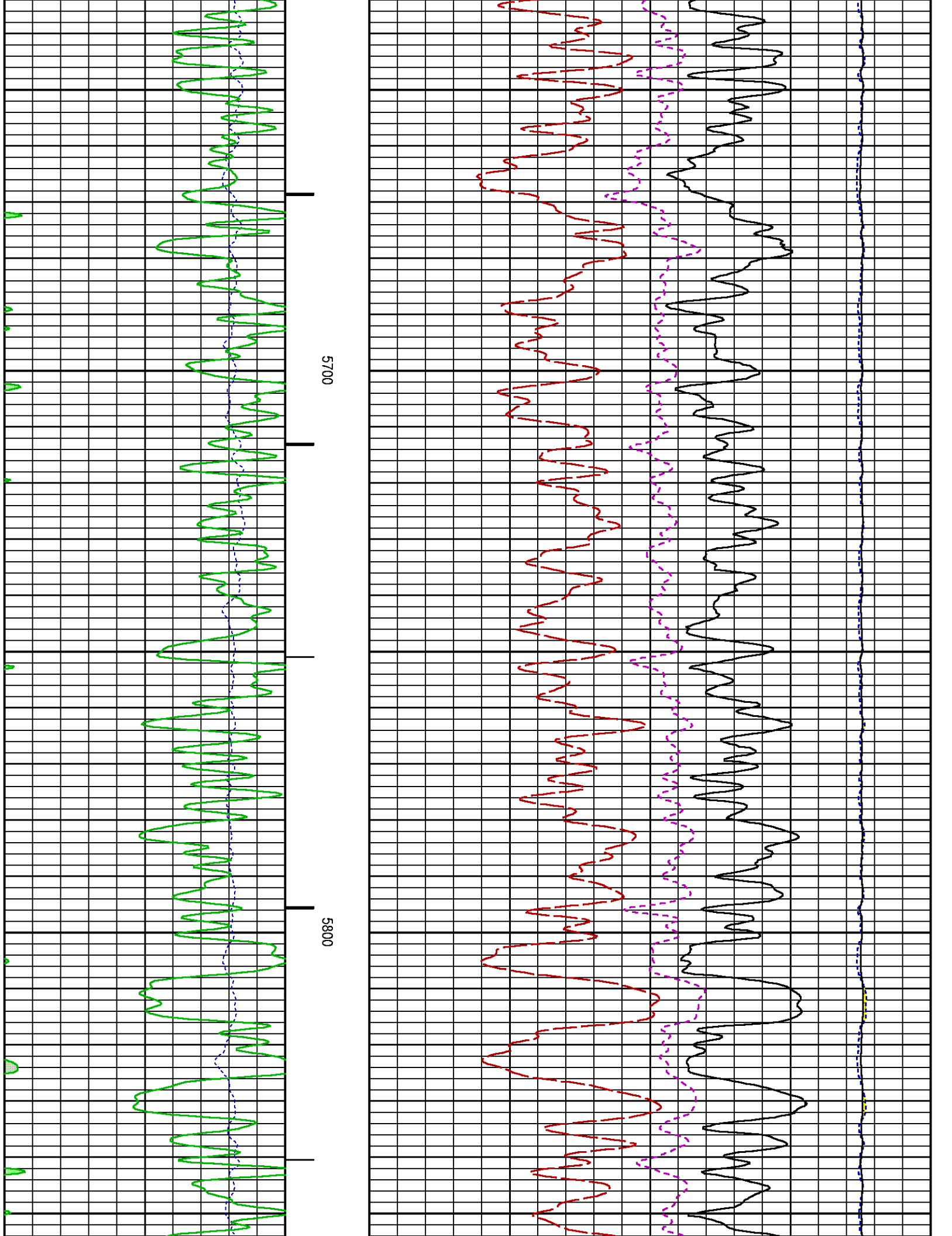
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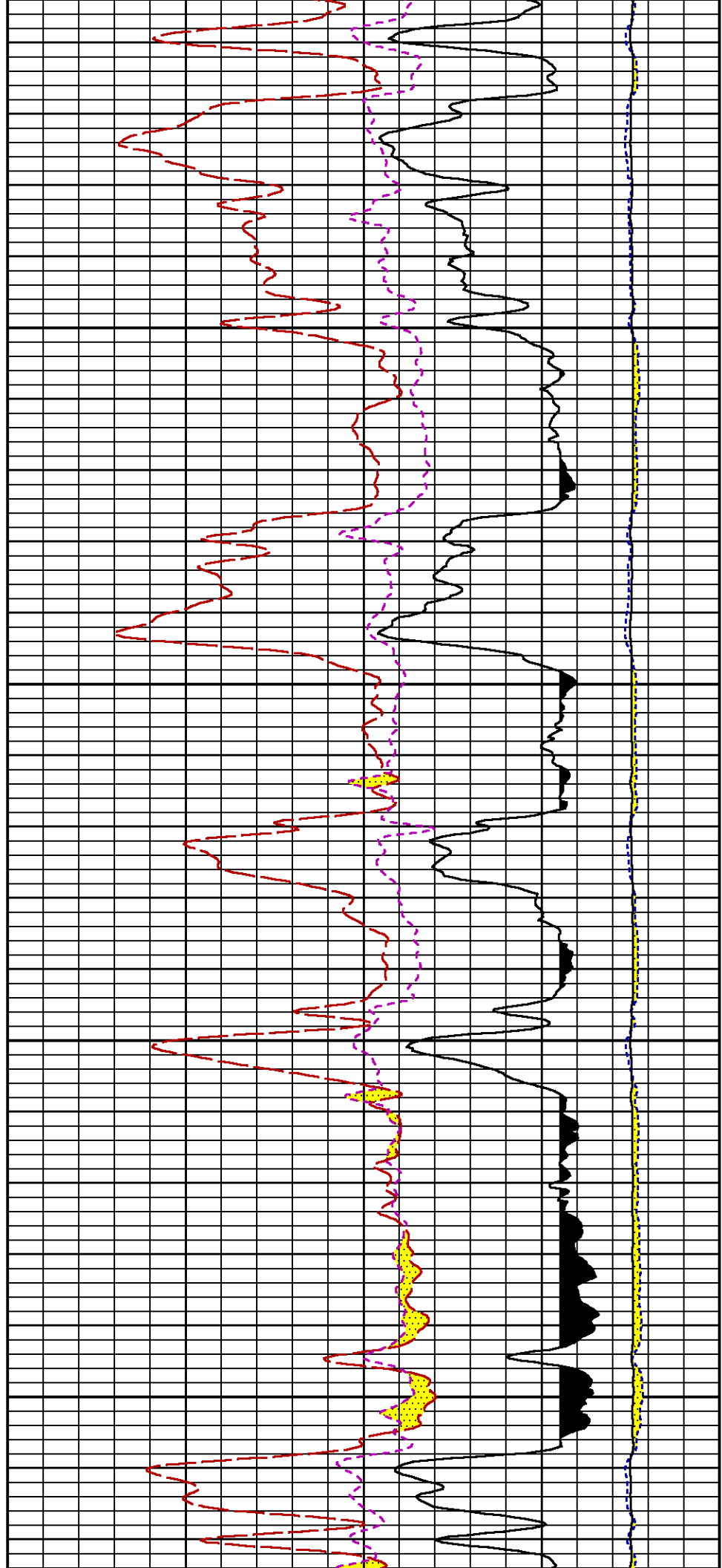
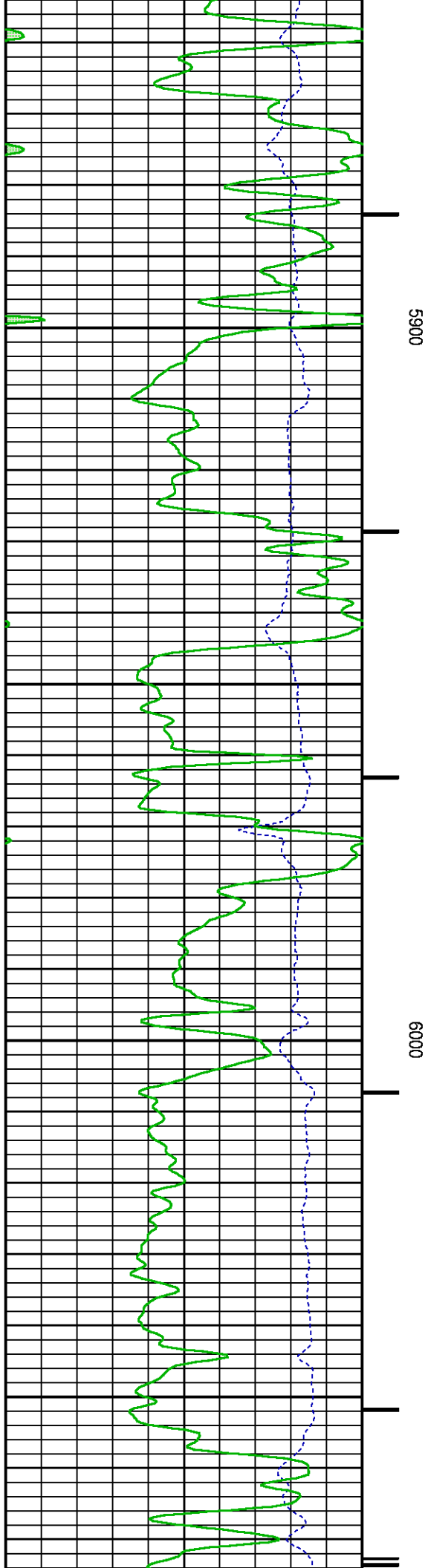


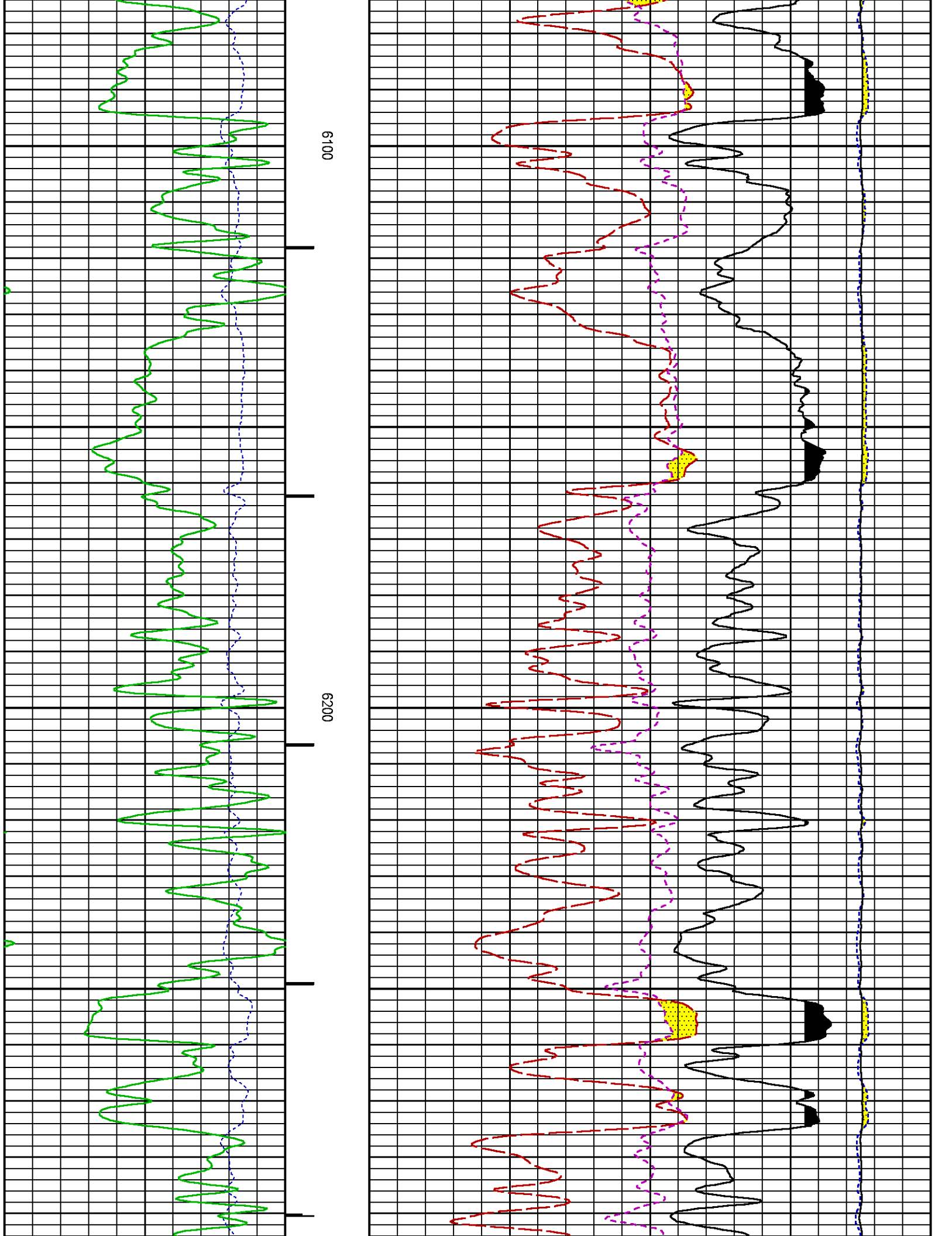


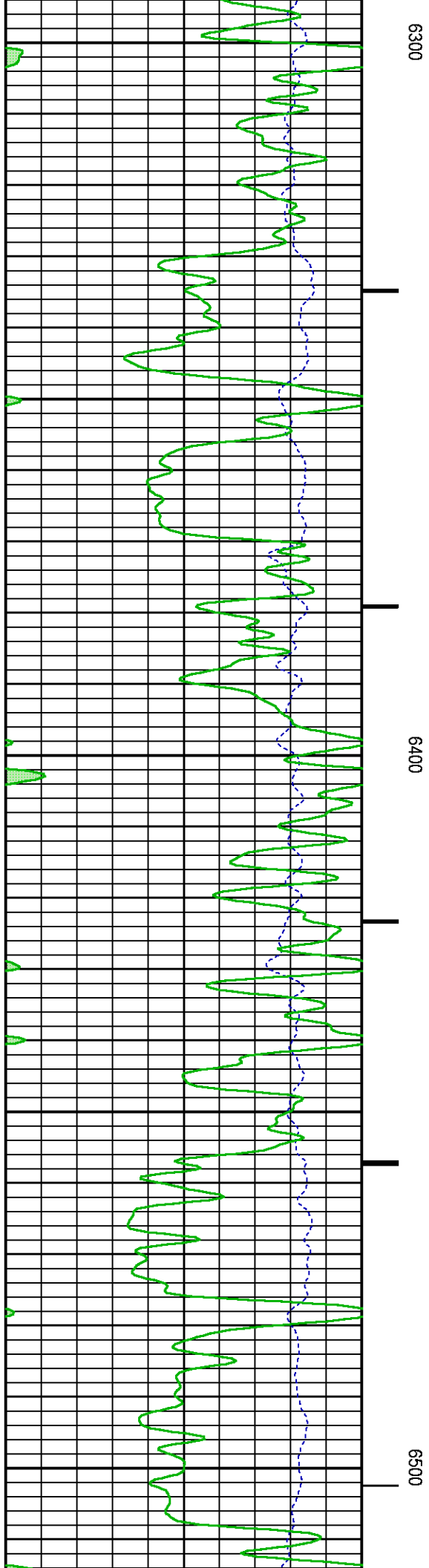
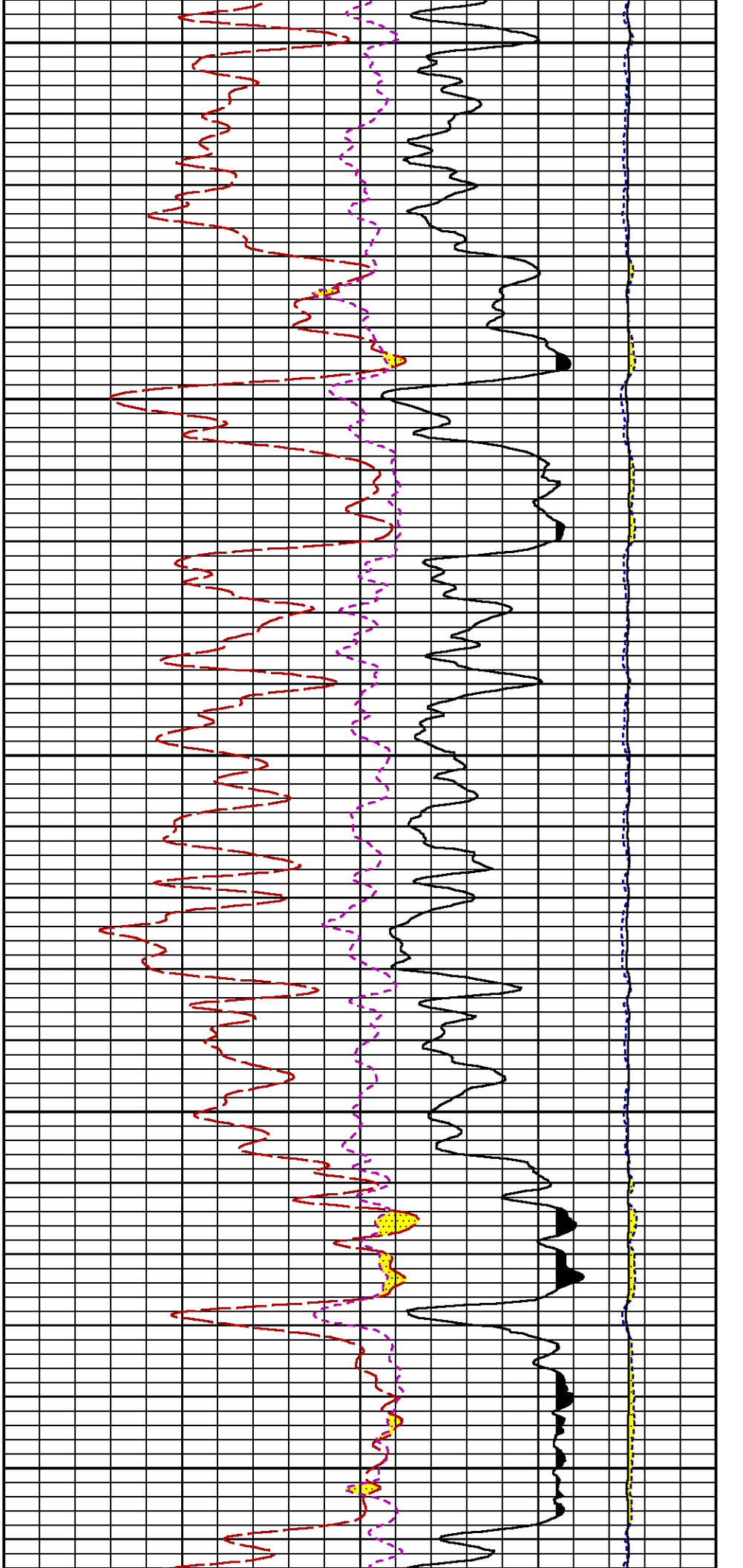


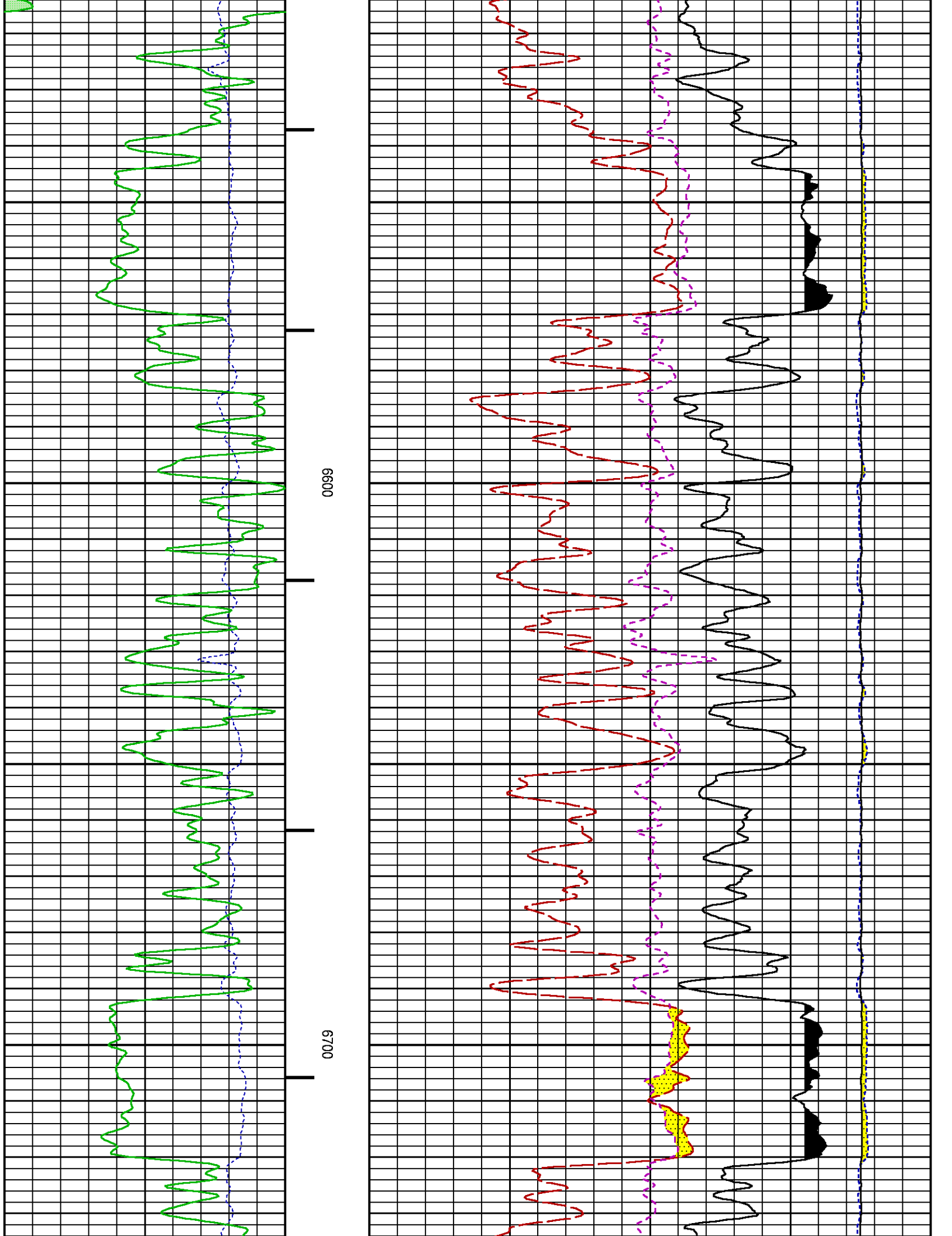


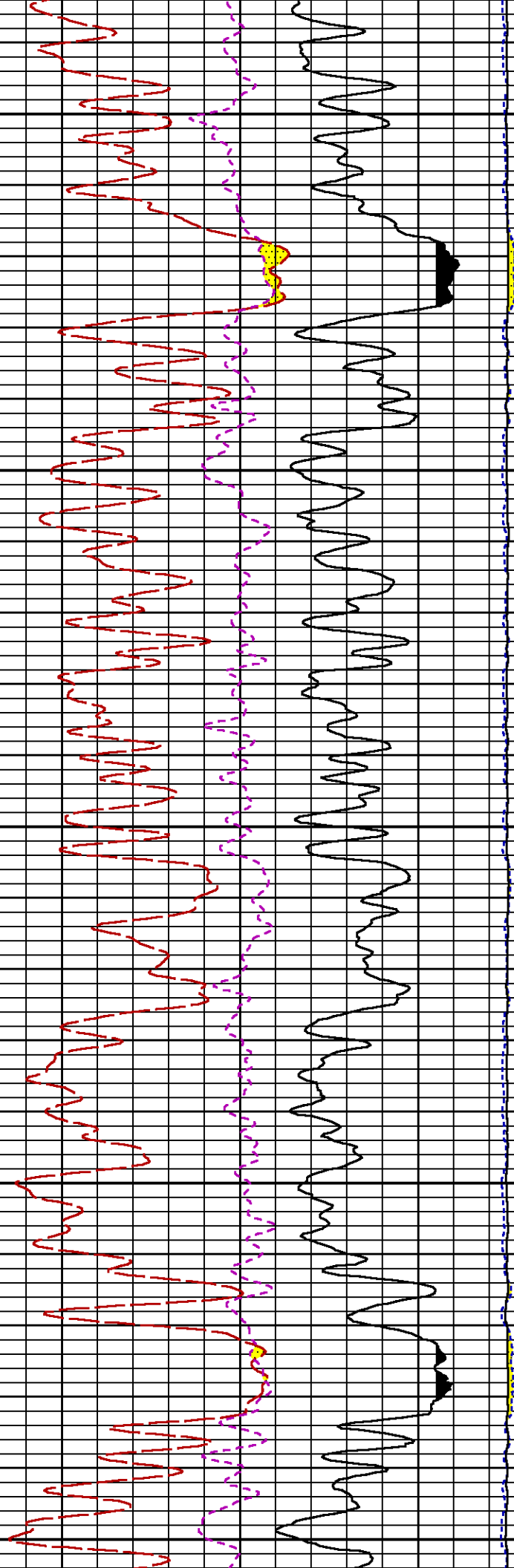
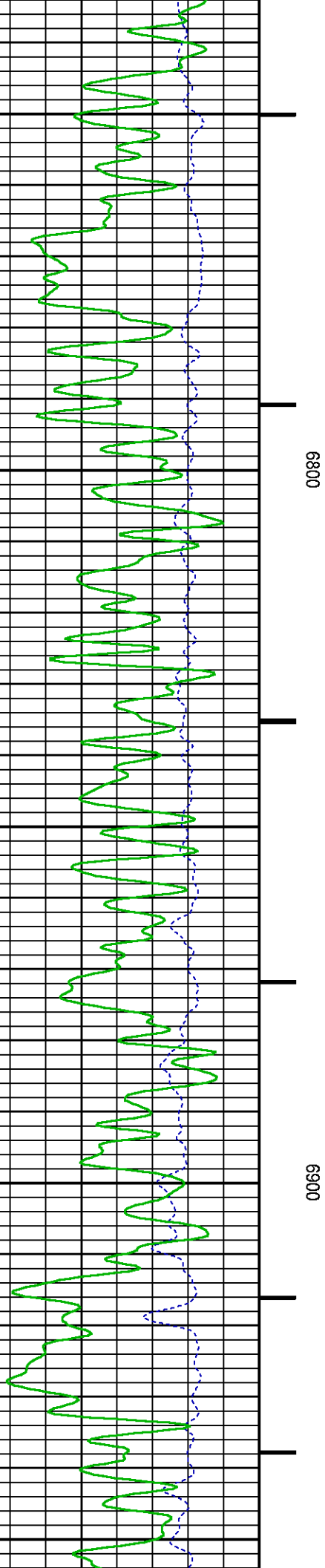


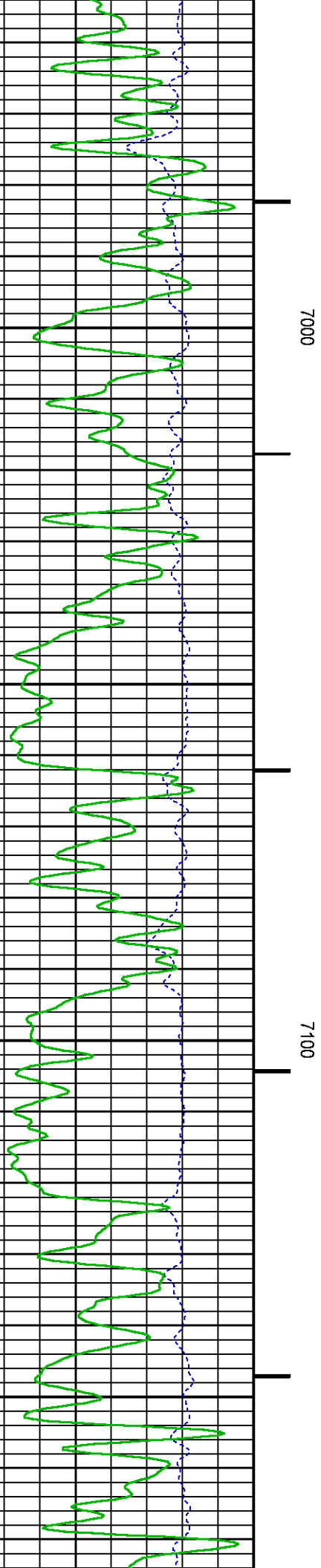
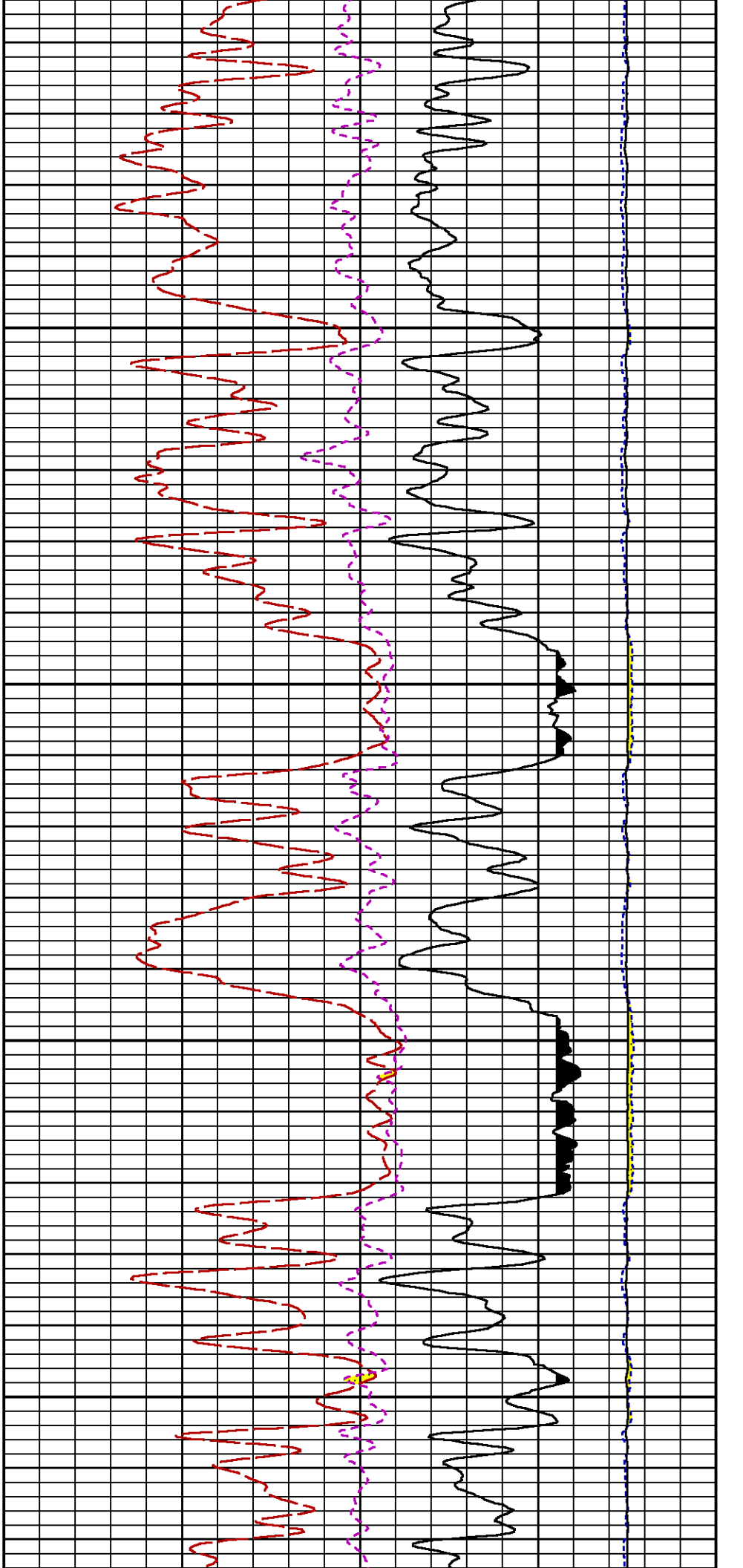


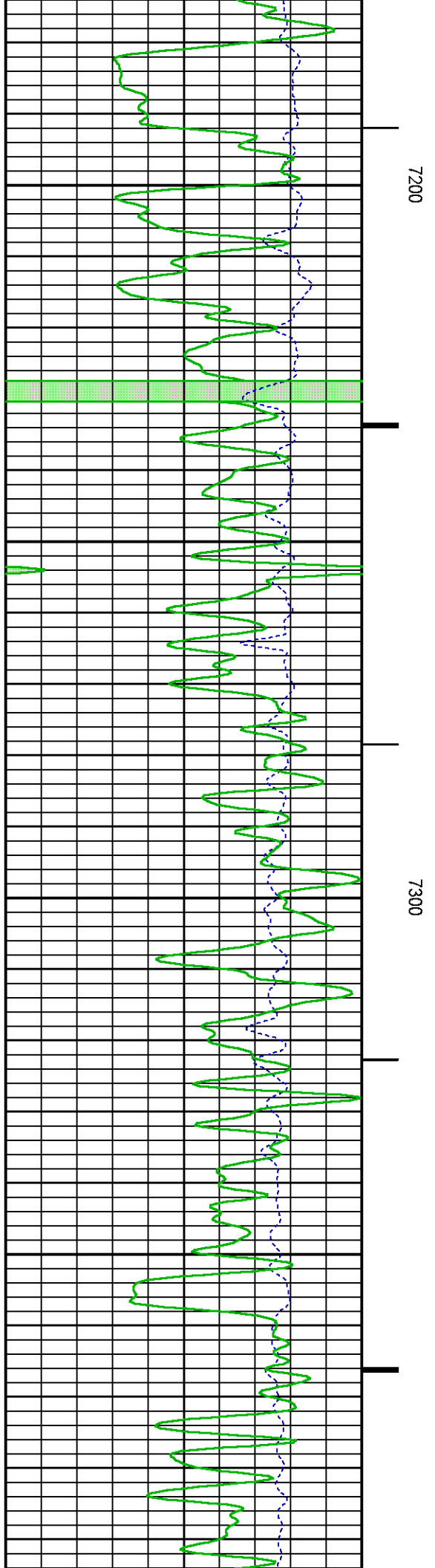
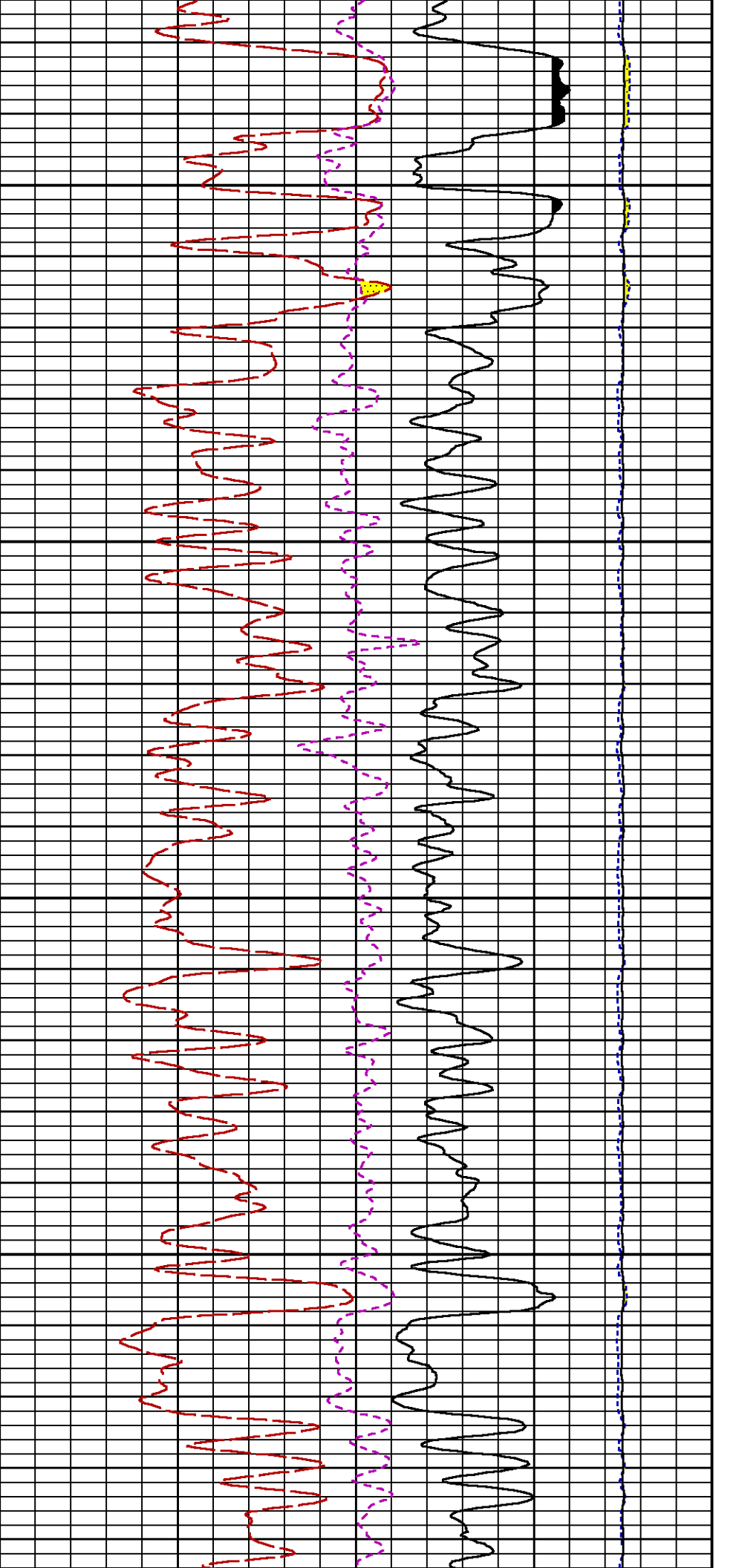


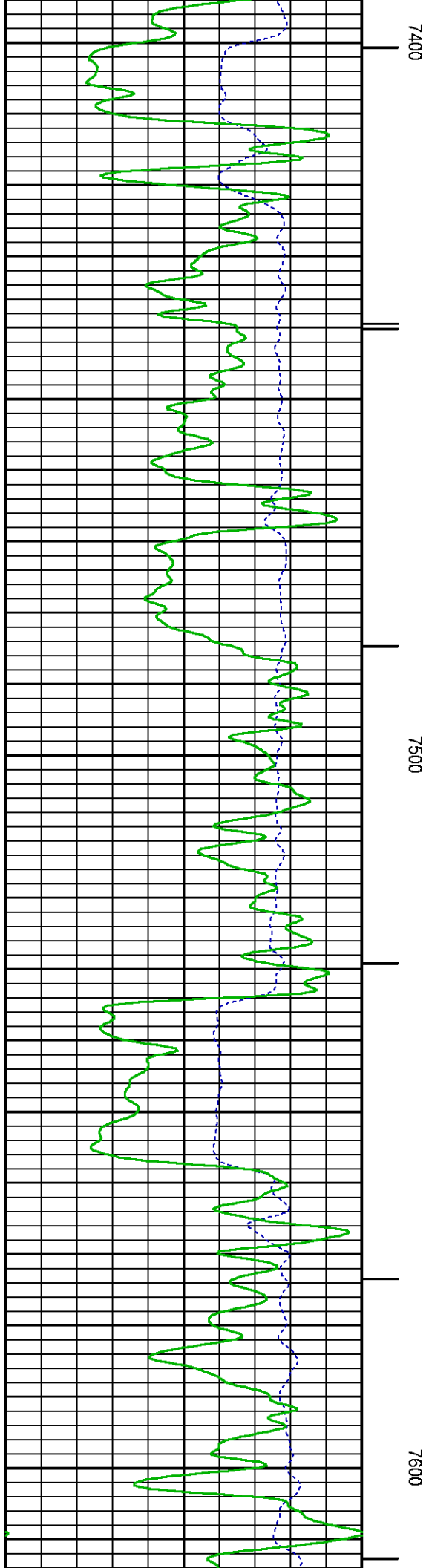
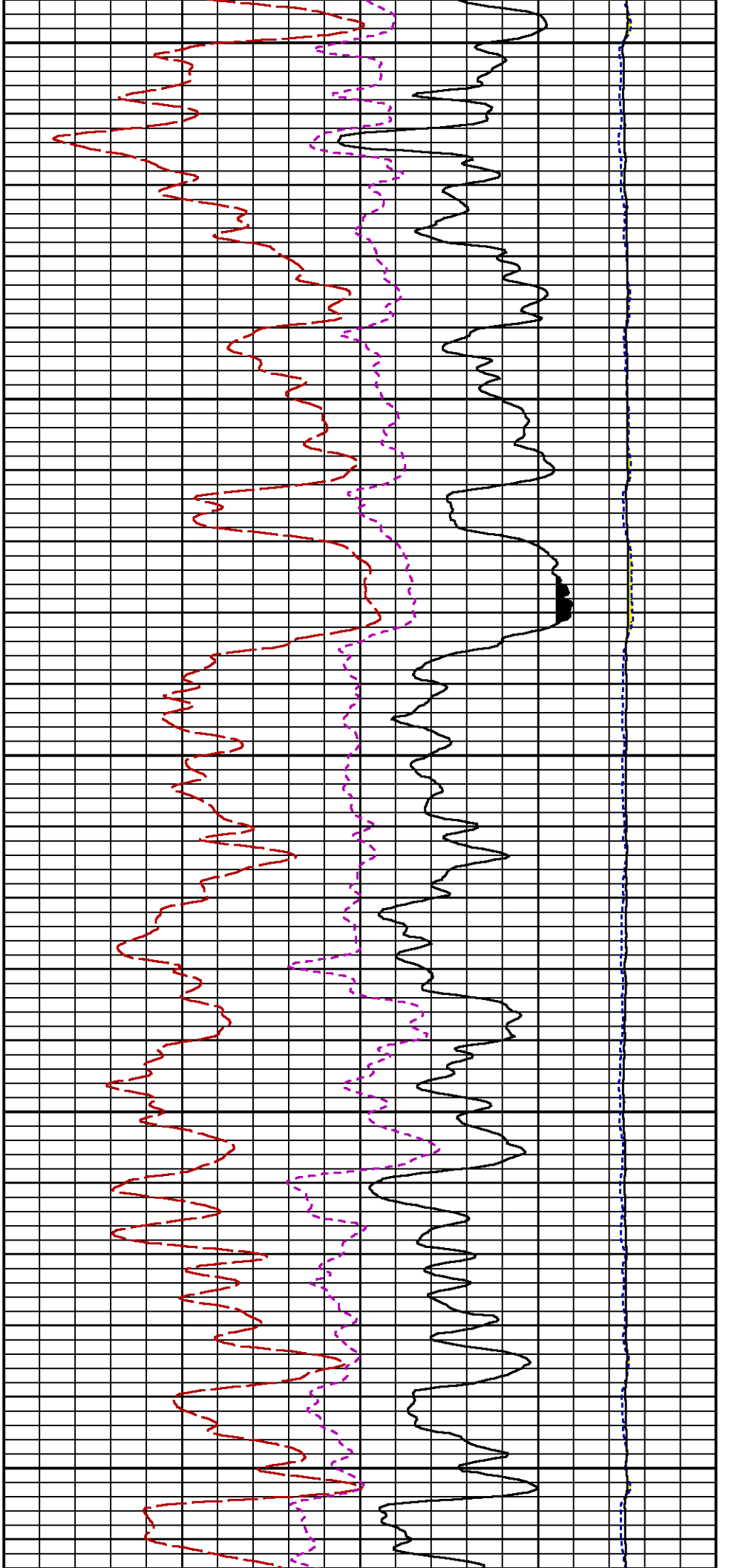


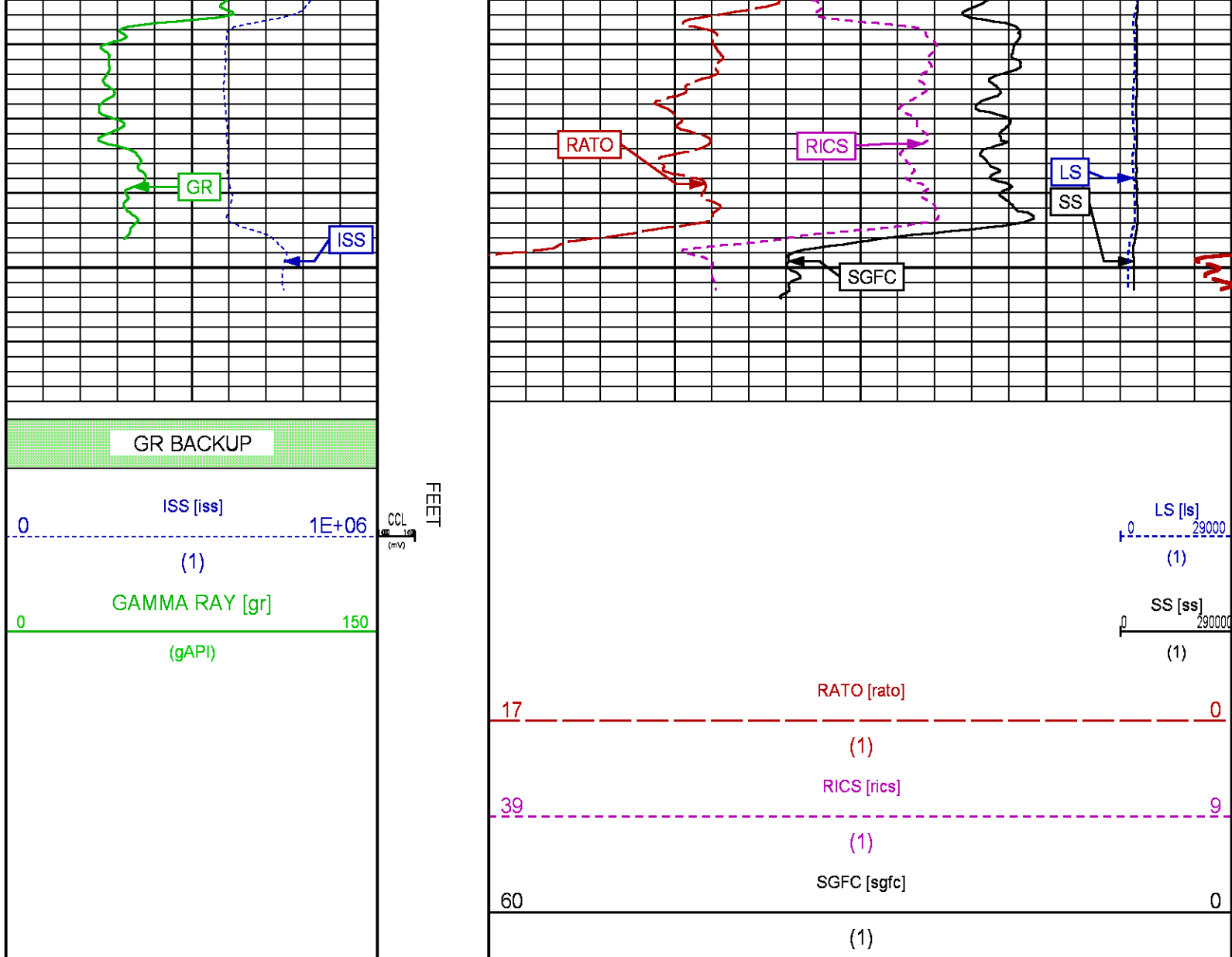












REPEAT SECTION PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 6

Plotted: Sun Oct 18 08:50:00 2015

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH2808W/n354h01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7432.500 ft BOTTOM DEPTH: 7675.500 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

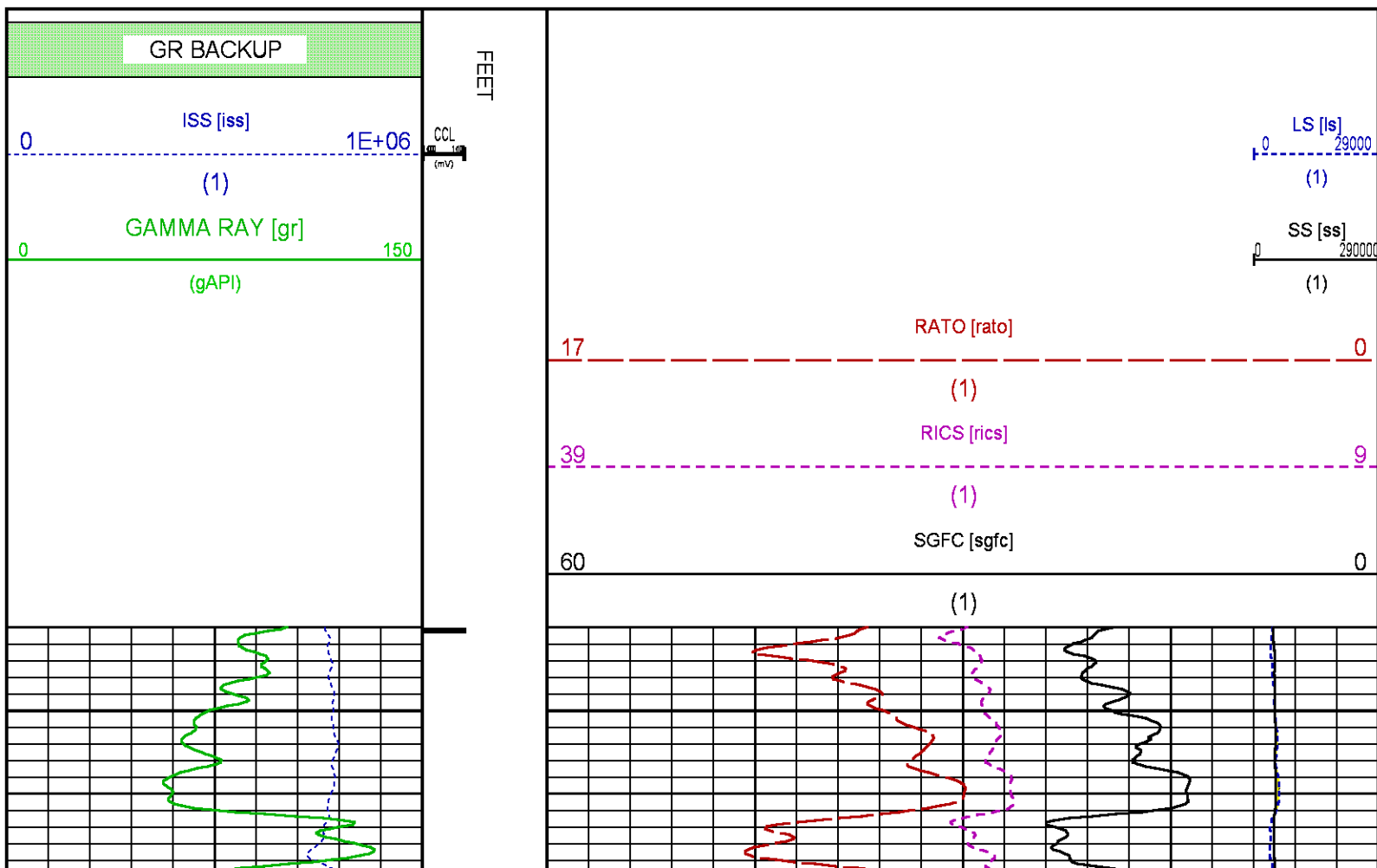
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Oct 18 08:25:00 2015	CASING COLLAR LOCATOR
F1:GR	Oct 18 08:25:00 2015	GAMMA RAY
F1:ISS	Oct 18 08:25:00 2015	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Oct 18 08:25:00 2015	LONG SPACE COUNT RATE
F1:RATO	Oct 18 08:25:00 2015	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Oct 18 08:25:00 2015	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Oct 18 08:25:00 2015	CORRECTED FORMATION SIGMA
F1:SS	Oct 18 08:25:00 2015	SHORT SPACE COUNT RATE

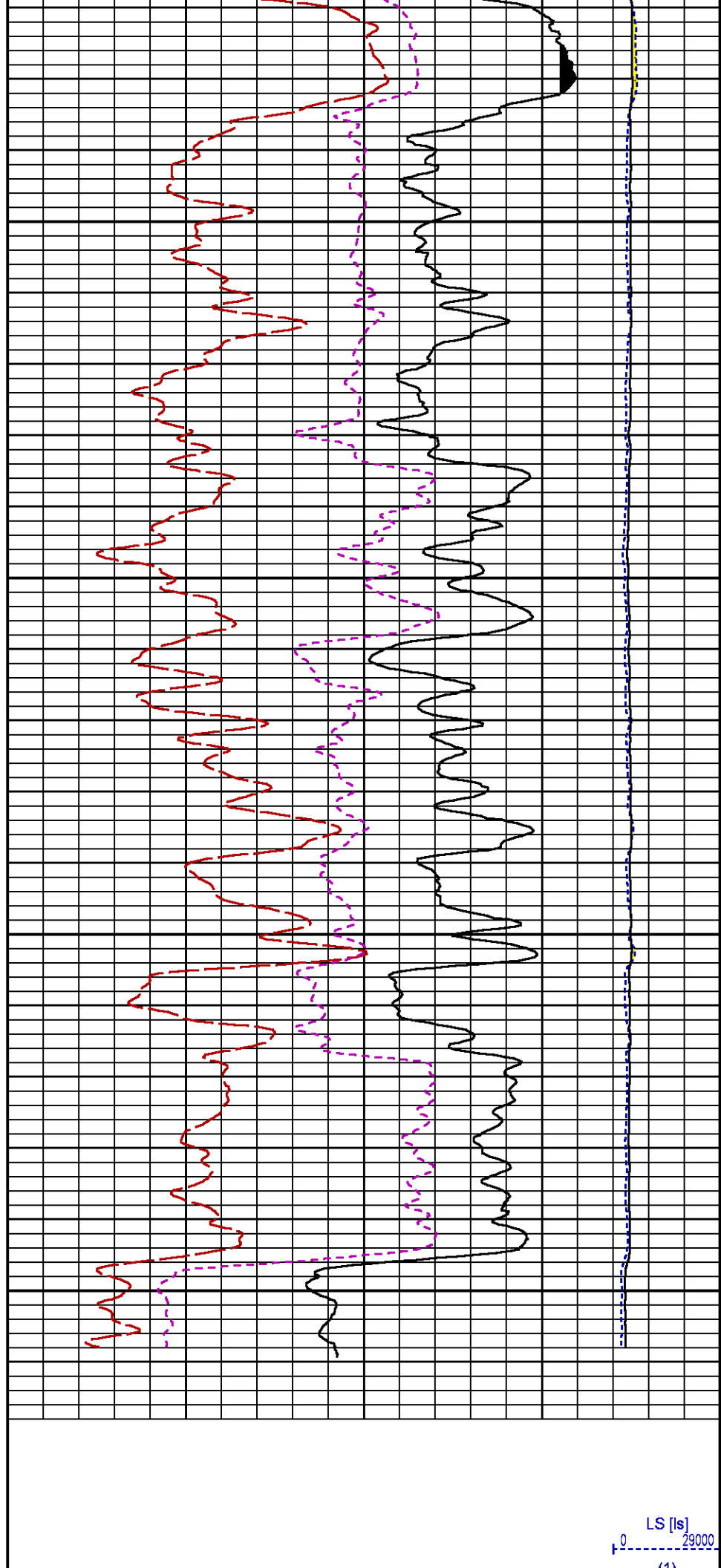
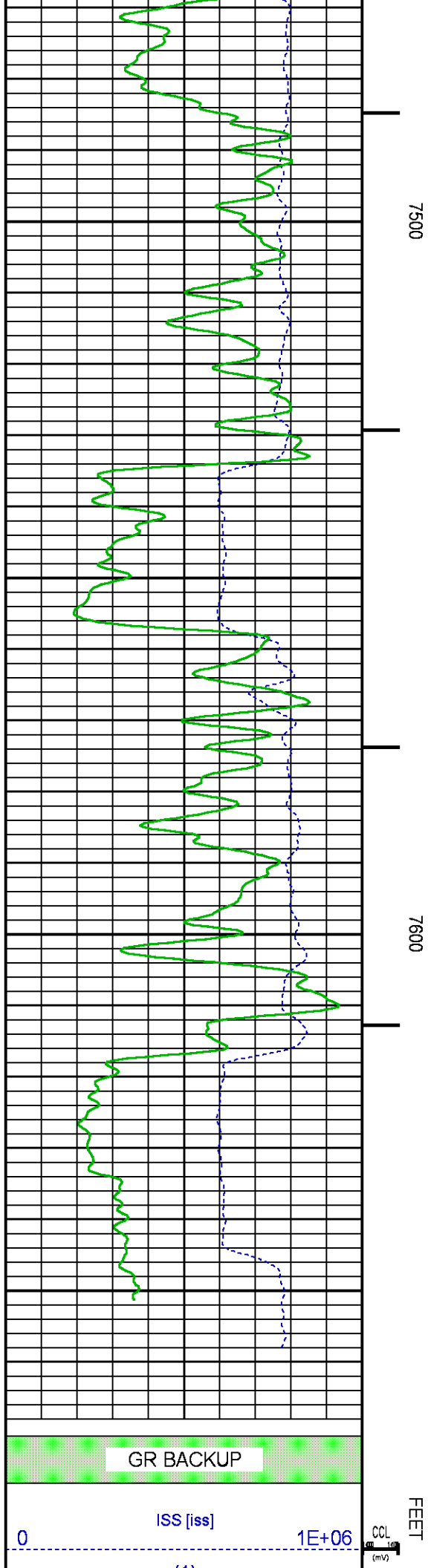
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	25.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	22.75	LS	12.75	RICS	12.75	SS	12.75

Presentation : HL6670:/dat1a/CH2808W/08W_RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 7440 - 7667 Feet

Data File 1 : F1 : HL6670:/dat1a/CH2808W/n354h01REPEAT8W.xtf
Created On : Oct 18 08:25:00 2015
Company : LARAMIE ENERGY
Well : PICEANCE 28-08W
Field : VEGA
File Interval : 7406.75 - 7675.5 Feet
OCT : n354h





(1)			(1)
GAMMA RAY [gr]			SS [ss]
0	150		290000
(gAPI)			(1)
		RATO [rato]	
	17		0
		(1)	
		RICS [rics]	
	39		9
		(1)	
		SGFC [sgfc]	
	60		0
		(1)	

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/CH2808W/n354h.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 2812LA 10274382

DATE/TIME PERFORMED: Fri Oct 9 13:18:59 2015

UNIT #: 3880TA HL6670

CALB JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	47.82	238.76	190.9	1.100	52.60	262.60	210

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LA 10274382

DATE/TIME PERFORMED: Fri Oct 9 13:21:02 2015

UNIT #: 3880TA HL6670

VERI JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	48.98	234.73	1.100	53.87	258.17	204.31
						200.00 220.00

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10169251

DATE/TIME PERFORMED: Thu Oct 8 10:31:28 2015

UNIT: 3885TC 6685

CALIBRATOR: 2437XB 112674

SOURCE: 8281AA 11765055

HOURS: 8281AA 64

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	794094	124	2318	2302	2313	89	7	0.9708
Interpolated	1300000	146	2294	2295	2306			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	794094	7648	1253	160	26.05	0.15	24.33	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	794094	164038	25399	87325	31076	8040	52891	12871
Fit Quality %	0.835	0.945	0.905	0.908	0.767	0.832	0.802	
	ISS	RBOR	RIN	RIN13	RICS	RATO	RTWO	RONE
	ISS/LS	ISS/LS	ISS/LS	ISS/LS	ISS/LS	ISS/LS	ISS/LS	ISS/LS
Raw Data	794094	1.44	4.84	31.28	15.01	10.87	3.87	4.11
	1.42	1.45	3.55	5.52	22.20	32.70	10.99	16.34
Fit Quality %	0.069	0.196	0.156	0.174	0.096	0.105	0.067	
Reduced	1398936	1.43	4.83	31.18	14.97	10.87	3.87	4.11
	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

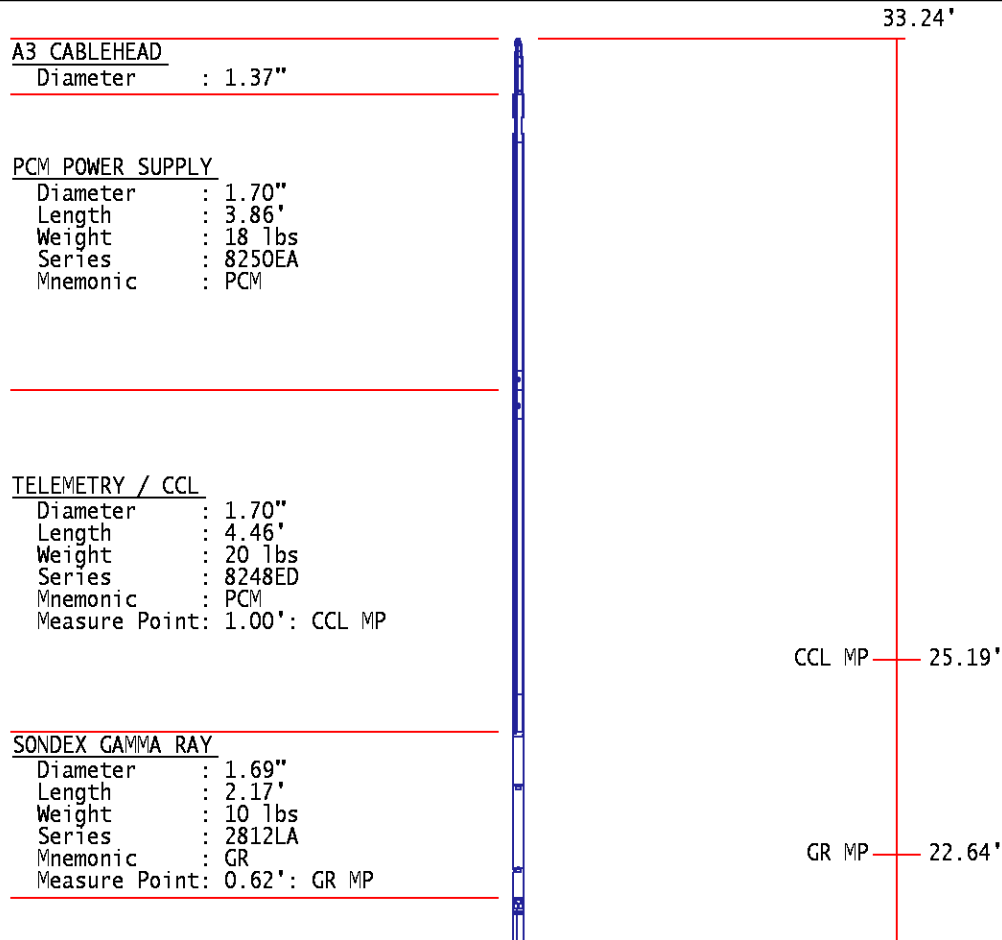
DATE/TIME PERFORMED: Fri Oct 9 14:47:11 2015

UNIT #: 3880TA HL6670

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-2.032071E+01	1.041576E-01	1.407105E-06	-1.763022E-10

INSTRUMENT CONFIGURATION

Source File: /dat1a/CH2808W/RPM-tdg



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 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

0.00'

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



COMPANY
WELL
FIELD
COUNTY

LARAMIE ENERGY
PICEANCE 28-08W
VEGA
MESA

STATE COLORADO

LOCATION:

ELEVATIONS:

KB 7600 FT

FILE NO:

CH100237

API NO:

05077097760000

28 9S 93W

28-05 PAD



SEC 28 TWP 9S RGE 93W

DF	PATTERSON 306
GL 7578 FT	
DATE	18-OCT-2015