

**BAKER  
HUGHES**

**SEGMENTED BOND TOOL**  
**GAMMA RAY LOG**

**Baker Atlas**

FILE NO: \_\_\_\_\_ COMPANY: **CORE ENERGY LLC,**  
WELL: **STATE CHARLTON 4-30**  
FIELD: **CHARLTON**  
COUNTY: **OTSEGO** STATE: **MICHIGAN**

Ver. 3.87  
THANK YOU! LOCATION: **NE/4, SW/4, SW/4,**  
**888' FSL & 1442' FWL,**  
**CHARLTON TWP.**  
SEC 30 TWP 31N RGE 01W  
OTHER SERVICES:  
ZL/CN/CR  
DL/ML/CR  
CBIL/CR  
DL/CR

PERMANENT DATUM: **G.L.** ELEVATION: **1188 FT**  
LOG MEASURED FROM: **K.B.** 13 FT ABOVE P.D.  
DRILL MEAS. FROM: **KELLY BUSHING**  
ELEVATIONS:  
KB 1201 FT  
DF 1200 FT  
OL 1188 FT

DATE	30 NOV 2006
RUN	1
SERVICE ORDER	518478
DEPTH DRILLER	5800 FT
DEPTH LOGGER	3800 FT
BOTTOM LOGGED INTERVAL	3800 FT
TOP LOGGED INTERVAL	SURFACE
CASING DRILLER	8.625 IN 3615 FT
CASING LOGGER	NOT LOGGED
BIT SIZE	7.875 IN
TYPE OF FLUID IN HOLE	BRINE-STARCH
DENSITY	10.3 LB/G 29 S
PH	8.5 11 G3
SOURCE OF SAMPLE	BOREHOLE
RM AT MEAS. TEMP.	.08 OHM 83 DEGF
RM AT MEAS. TEMP.	.08 OHM 83 DEGF
RM AT MEAS. TEMP.	.1 OHM 83 DEGF
SOURCE OF RMF	C. C.
RM AT BHT	.036 OHM 109 DEGF
TIME SINCE CIRCULATION	4 HRS.
MAX. RECORDED TEMP.	109 DEGF
EQUIP. NO.	4134 INT. PLEASANT
RECORDED BY	DARVIN BROWN
WITNESSED BY	MR. WATT PAGESTROM

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE 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
8.888 IN	0 FT	72 FT
14.75 IN	72 FT	804 FT
10.625 IN	804 FT	3815 FT
7.875 IN	3815 FT	5800 FT

# **CASING RECORD**

SIZE	WEIGHT	GRADE	FROM	TO
18 IN			0 FT	72 FT
11.75 IN			0 FT	804 FT
8.625 IN	32 LB/F		0 FT	3615 FT

# **REMARKS**

RUN 1 TRIP 1: KELLY BUSHING WAS USED AS DEPTH REFERENCE POINT.

FLUID LEVEL WAS LOGGED AT 46 FEET.

RIG: AES # 2  
CREW: J. GREYKA & T. THERIAULT

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	CCL	23462A	119242	CENTRALIZED
1	1	GR	13133A	350038	CENTRALIZED
1	1	PCM	18335A	119887	DECENTRALIZE
1	1	SBT	14244A	153575	OPEN (PAD)
1	1	VOL	14246A	118047	CENTRALIZED

## MAIN SECTION

ECLIPS 5.1 Sep 16, 2005  
Updates: 1,2

Wed Nov 29 22:26:43 2006

Perpllt /main/61

Cplot 9.18

Pdf\_Cpp /main/16

Fileview 5.00

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/core\_energy/st\_charlton\_4\_30/1331e04.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 40.000 ft BOTTOM DEPTH: 3606.750 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
SBT	FILTER ()	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"

### SBT PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
SBT	CASING OD	8.625	in	TOP	BOTTOM
	CASING WT	32.000	lbm/ft	"	"
	CORR. FACTOR 1	0.153	dB/ft	"	"
	CORR. FACTOR 2	0.286	dB/ft	"	"
	CORR. FACTOR 3	0.374	dB/ft	"	"
	CORR. FACTOR 4	-1.412	dB/ft	"	"
	CORR. FACTOR 5	1.423	dB/ft	"	"
	CORR. FACTOR 6	-0.804	dB/ft	"	"
	SPACING	0.687	ft	"	"
	SPREADING FACTOR	4.389	dB/ft	"	"
	CEMENT STRENGTH	2500	psi	"	"
	HI CUTOFF	9.627	dB/ft	"	"
	LOW CUTOFF	3.273	dB/ft	"	"

## SBT NORMALIZATION RESULTS

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS
SBT	CORR. FACTOR1	0.474	dB/ft
	CORR. FACTOR2	0.450	dB/ft
	CORR. FACTOR3	0.401	dB/ft
	CORR. FACTOR4	-1.830	dB/ft
	CORR. FACTOR5	1.030	dB/ft
	CORR. FACTOR6	-0.525	dB/ft

FILE: /data/core\_energy/st\_charlton\_4\_30/1331e04.sbt.qo.meta

## CURVE DESCRIPTION REPORT

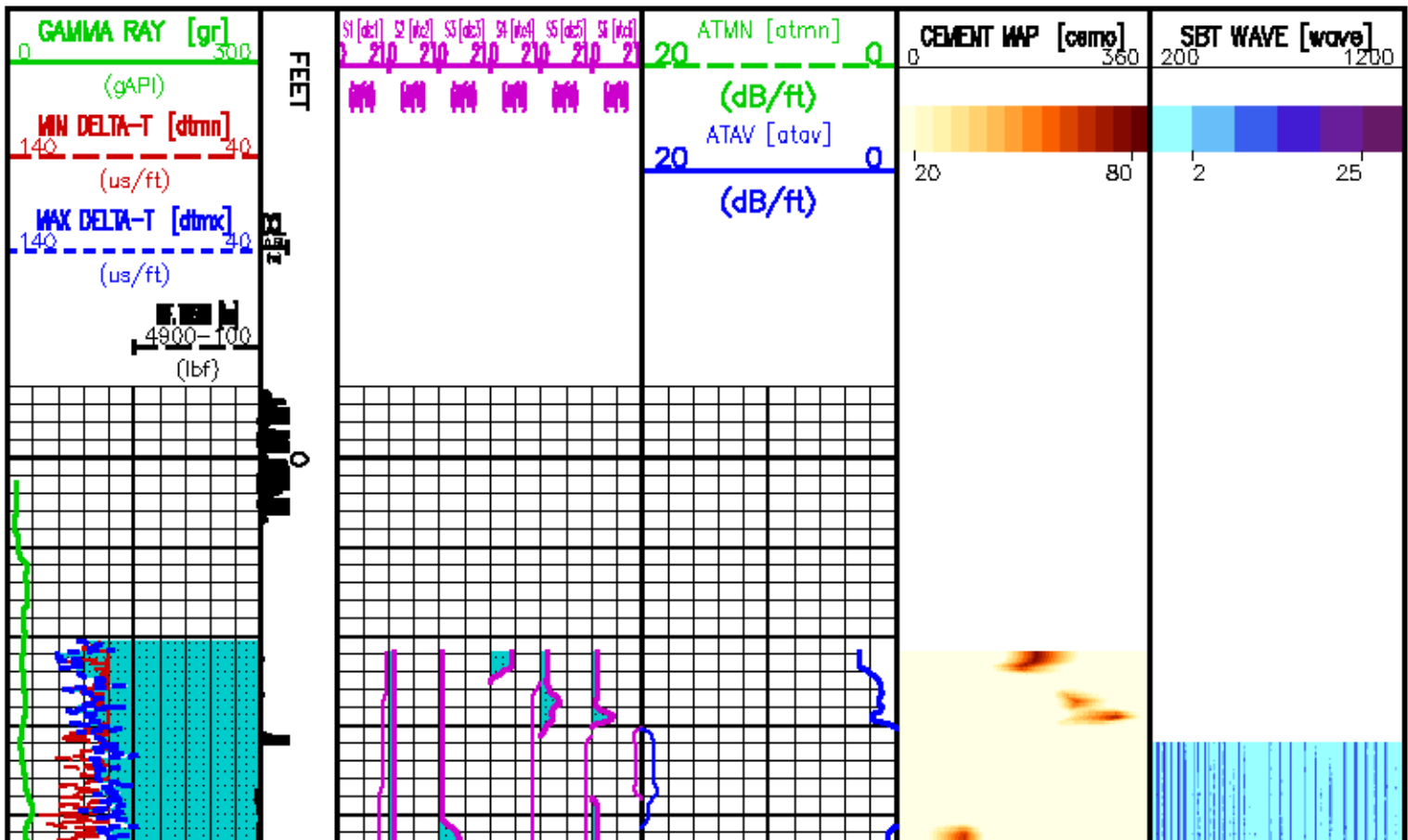
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:ATAV	ATAV	Nov 29 19:56:26 2006	AVERAGE ATTENUATION
F1:ATC1	ATC1	Nov 29 19:56:26 2006	ATTENUATION PAD 1
F1:ATC2	ATC2	Nov 29 19:56:26 2006	ATTENUATION PAD 2
F1:ATC3	ATC3	Nov 29 19:56:26 2006	ATTENUATION PAD 3
F1:ATC4	ATC4	Nov 29 19:56:26 2006	ATTENUATION PAD 4
F1:ATC5	ATC5	Nov 29 19:56:26 2006	ATTENUATION PAD 5
F1:ATC6	ATC6	Nov 29 19:56:26 2006	ATTENUATION PAD 6
F1:ATMN	ATMN	Nov 29 19:56:26 2006	ATTENUATION MINIMUM
F1:CCL	CCL	Nov 29 19:56:26 2006	CASING COLLAR LOCATOR
F1:CEMO	CEMO	Nov 29 19:56:26 2006	CALIBRATED AND ORIENTED CEMENT MAP
F1:DTMN	DTMN	Nov 29 19:56:26 2006	MINIMAL DELTA-T
F1:DTMX	DTMX	Nov 29 19:56:26 2006	MAXIMAL DELTA-T
F1:GR	GR	Nov 29 19:56:26 2006	GAMMA RAY
F1:TEN	TEN	Nov 29 19:56:26 2006	DIFFERENTIAL TENSION
F1:WAVE	WAVE	Nov 29 19:56:26 2006	250 BYTES DIGITIZED WAVEFORM

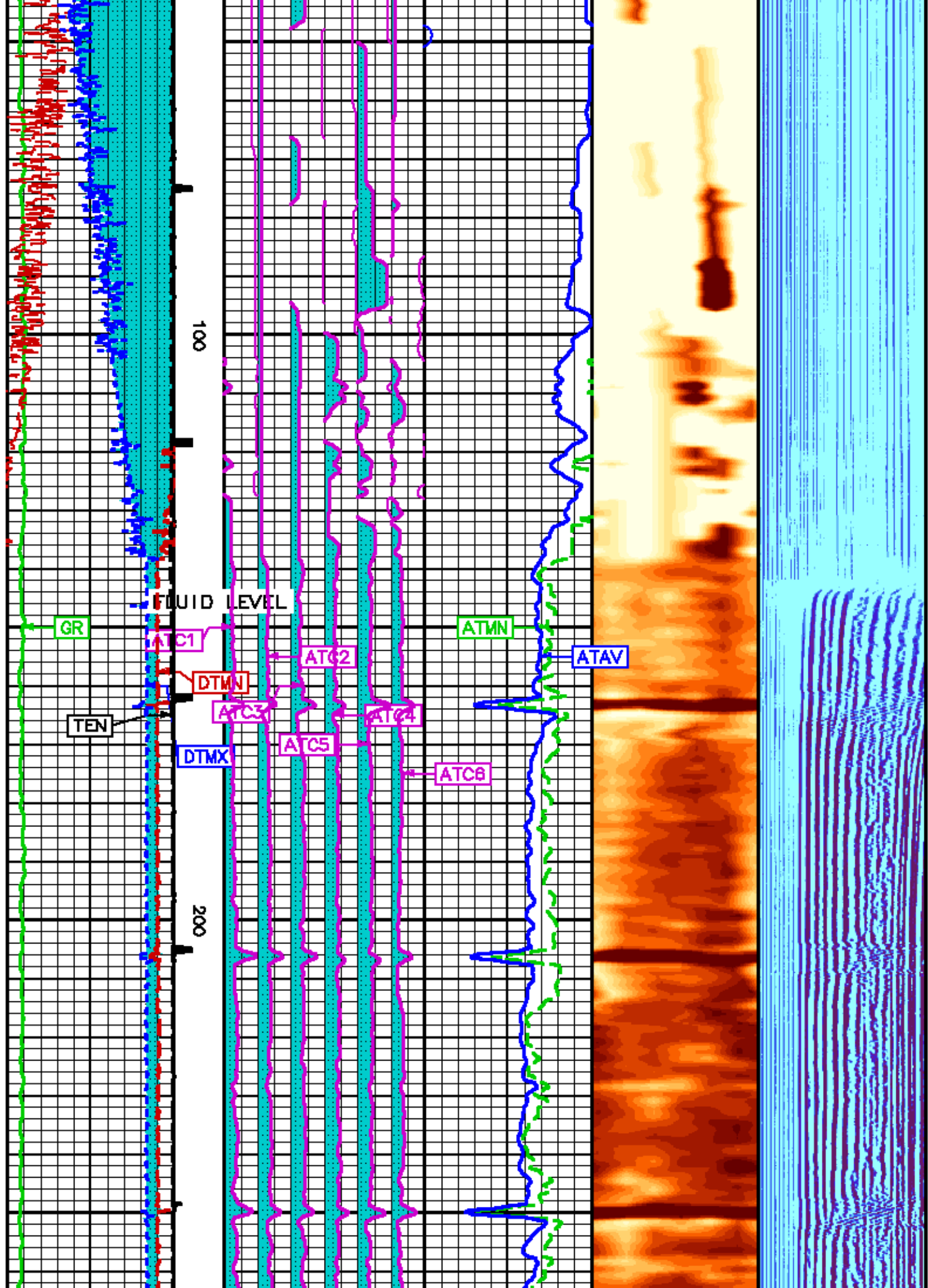
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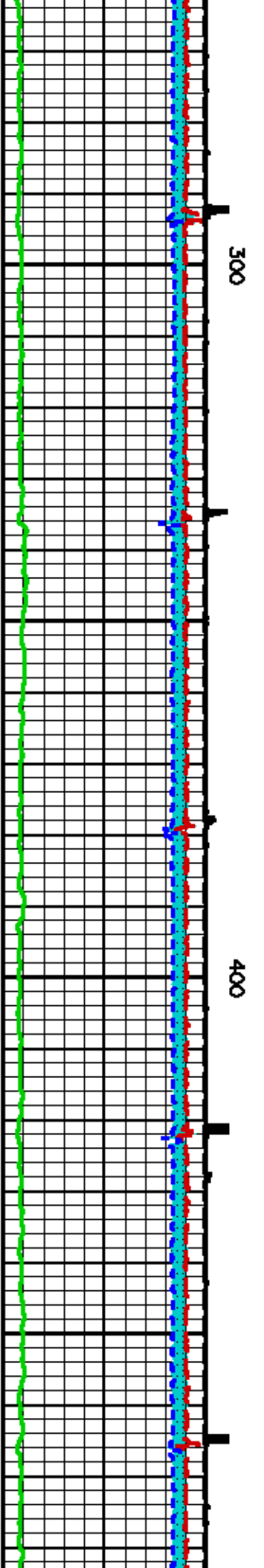
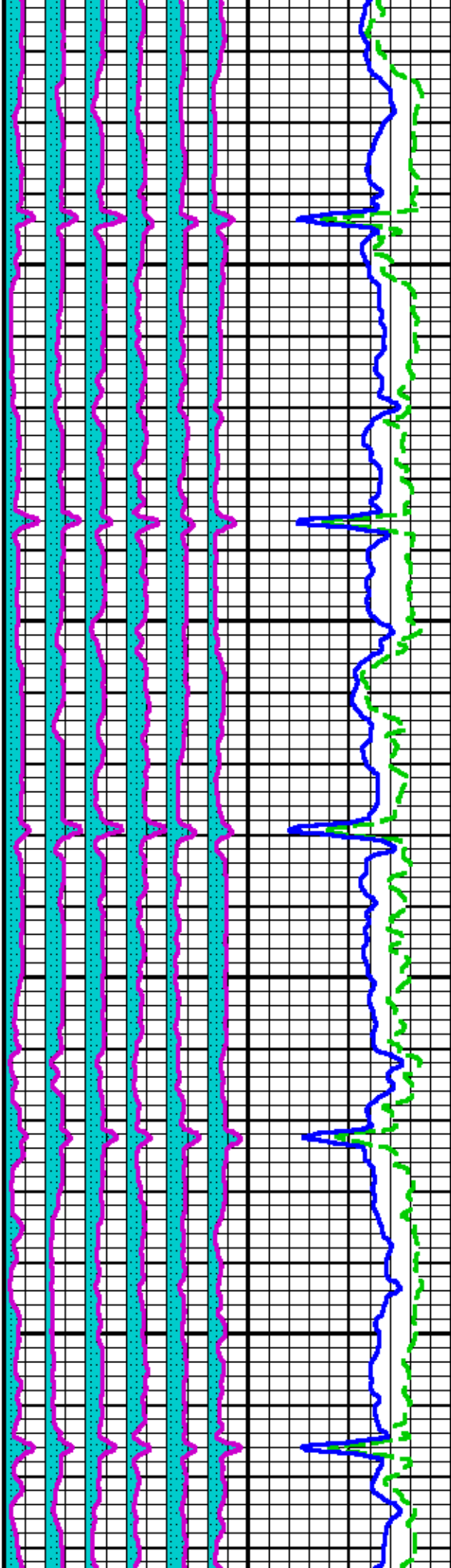
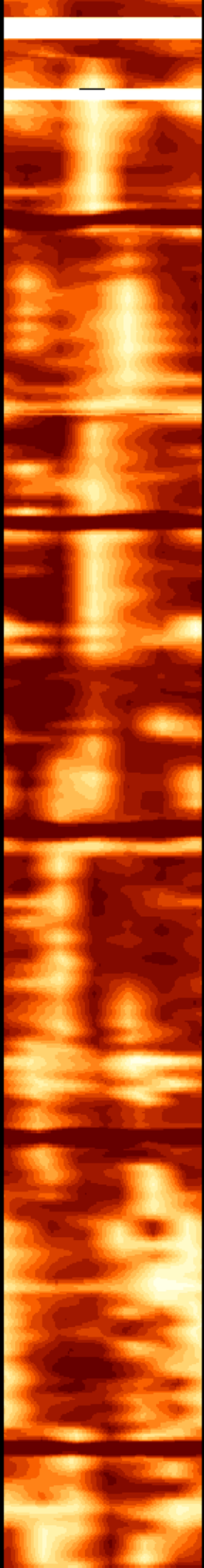
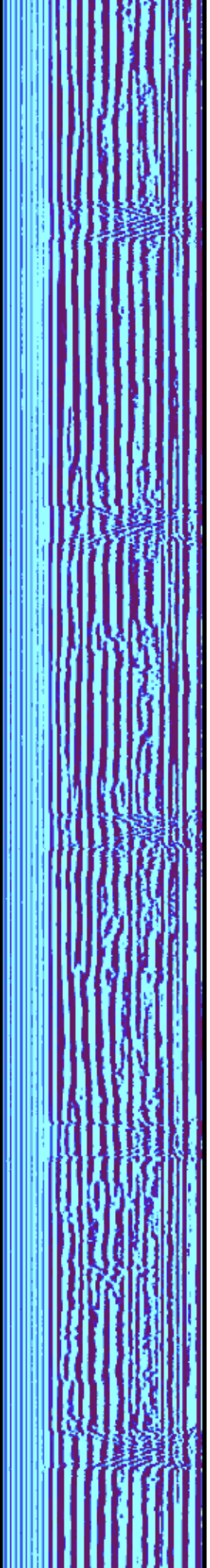
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
ATAV	15.50	ATC4	15.50	CCL	44.00	TEN	0.00
ATC1	15.50	ATC5	15.50	DTMN	15.50		
ATC2	15.50	ATC6	15.50	DTMX	15.50		
ATC3	15.50	ATMN	15.50	GR	34.50		

Presentation : s:\s1\data\csm\_energy\st\_charlton\_4\_30\sbtt.pdf [5"/100' Scale]  
 Plot Interval : -8 - 3601.75 Feet

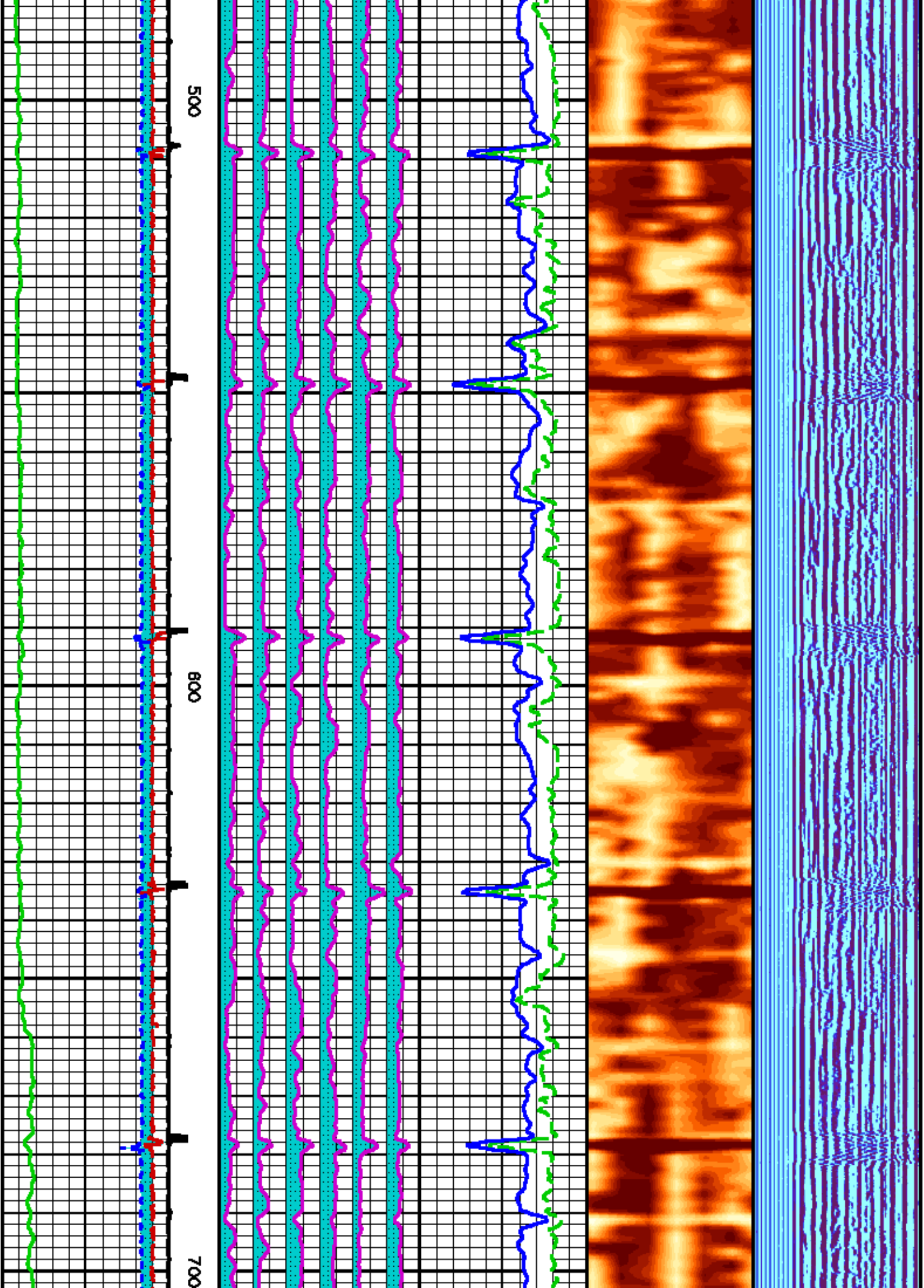
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 Created On : Nov 29 19:56:26 2006  
 Company : CORE ENERGY, LLC.  
 Well : STATE CHARLTON 4-30  
 Field : CHARLTON  
 File Interval : -8 - 3607 Feet  
 Out : j331e

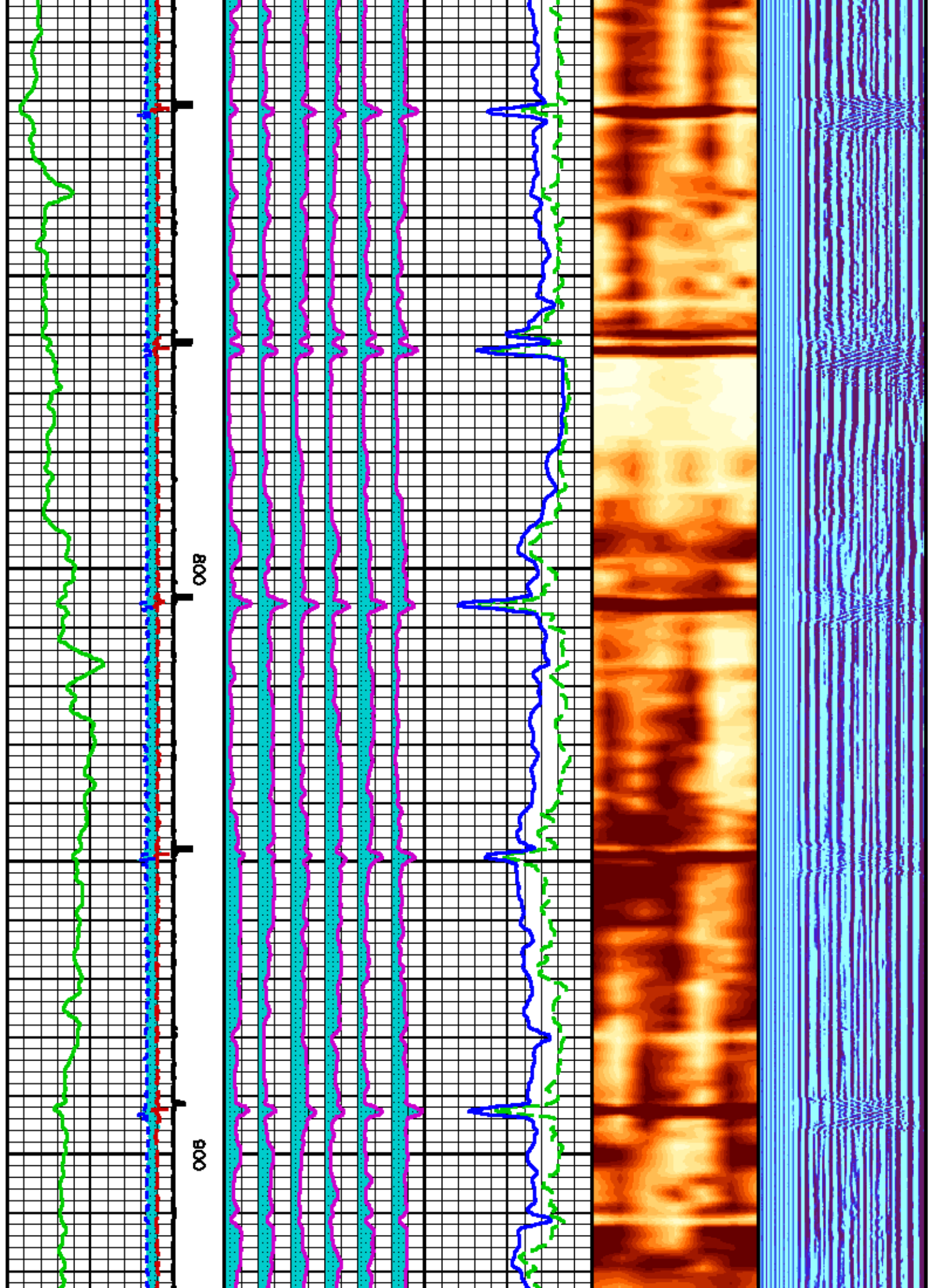


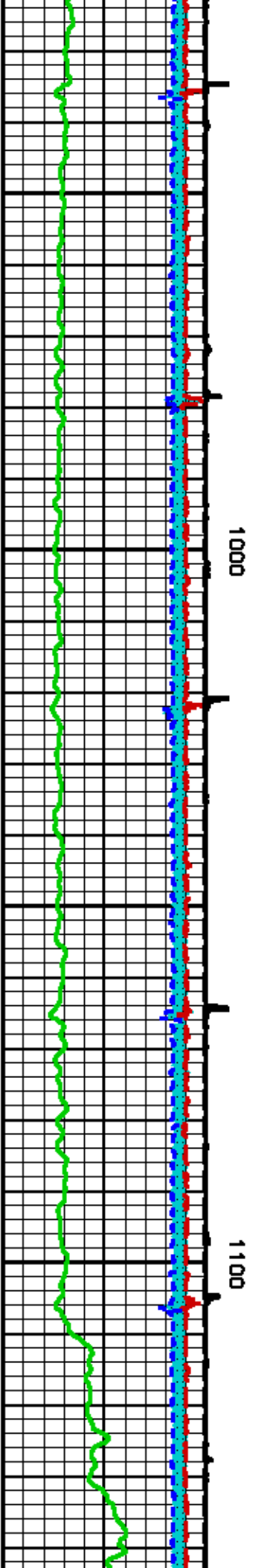
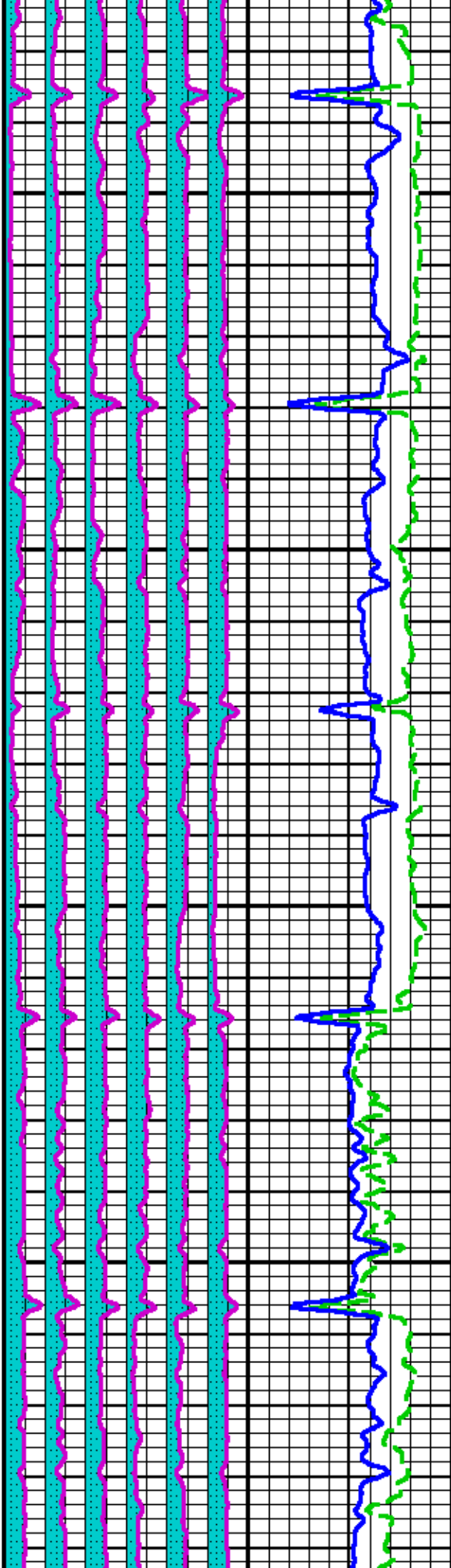
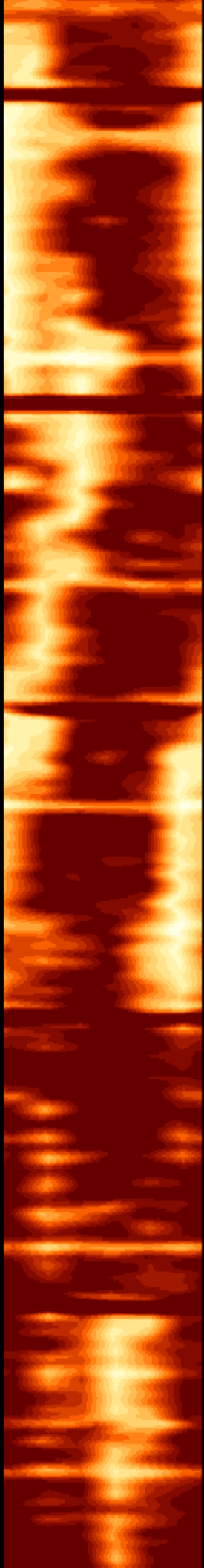
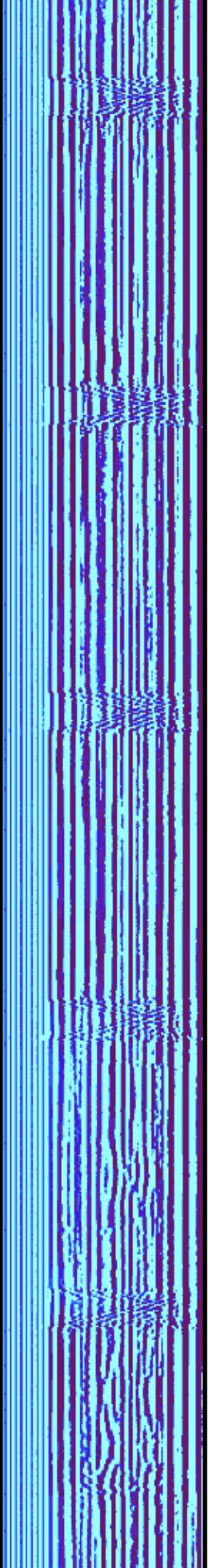




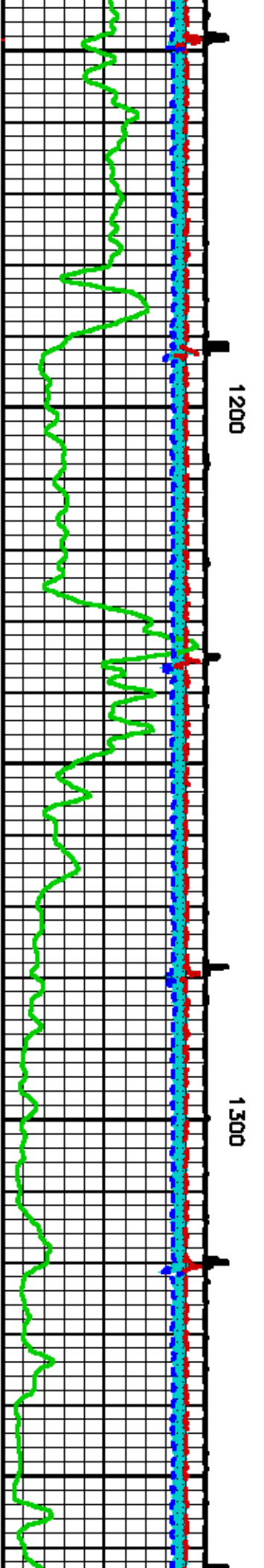
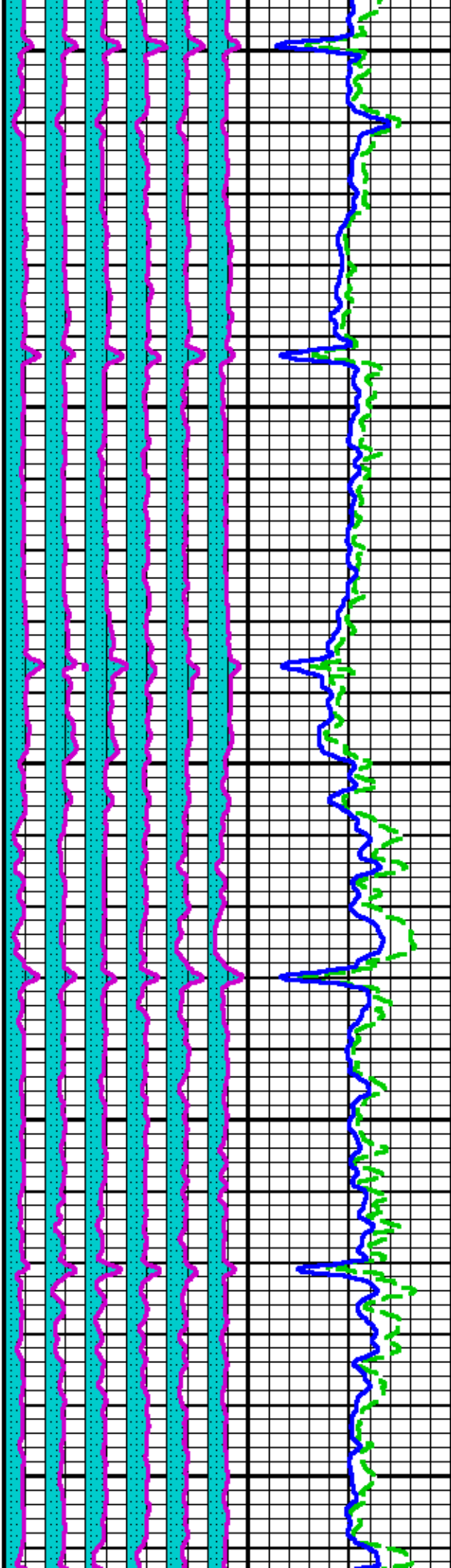
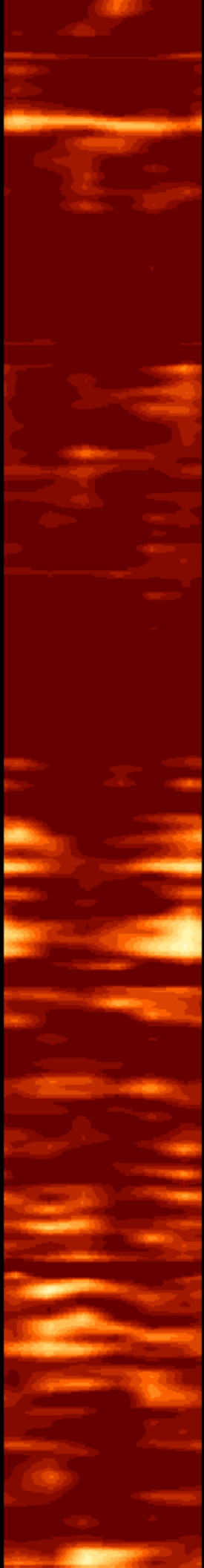
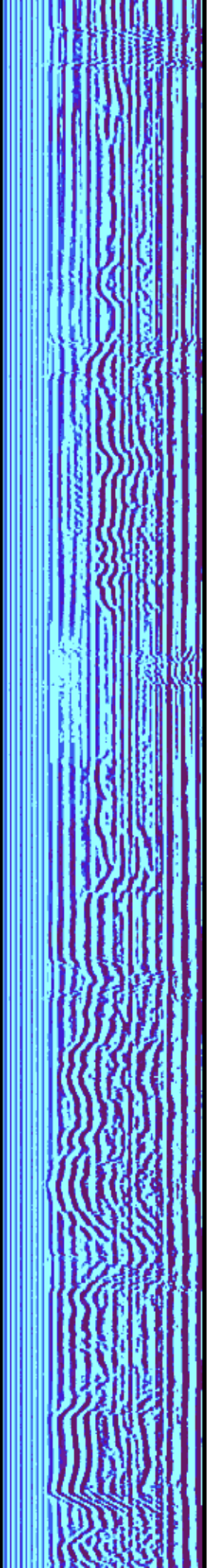


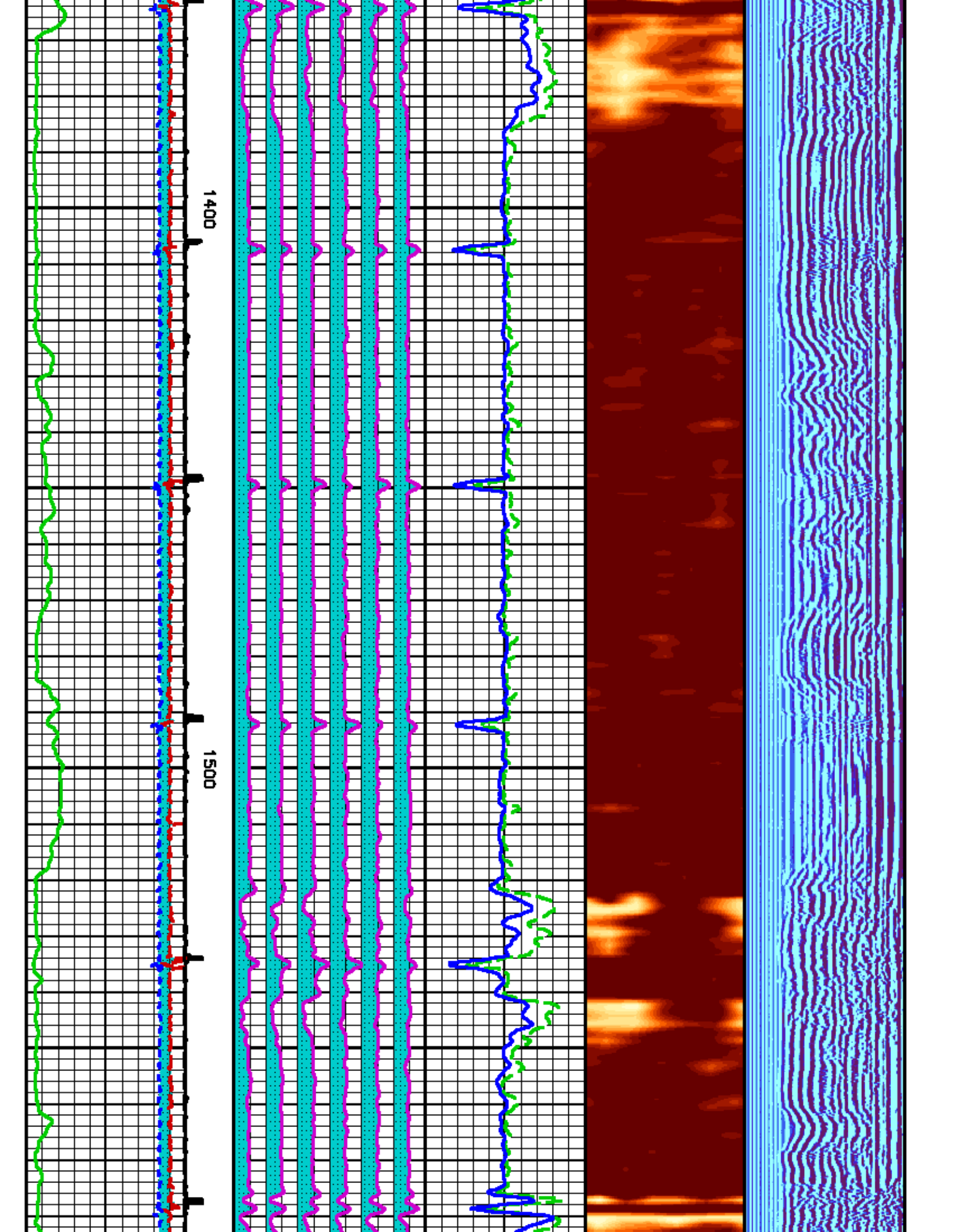


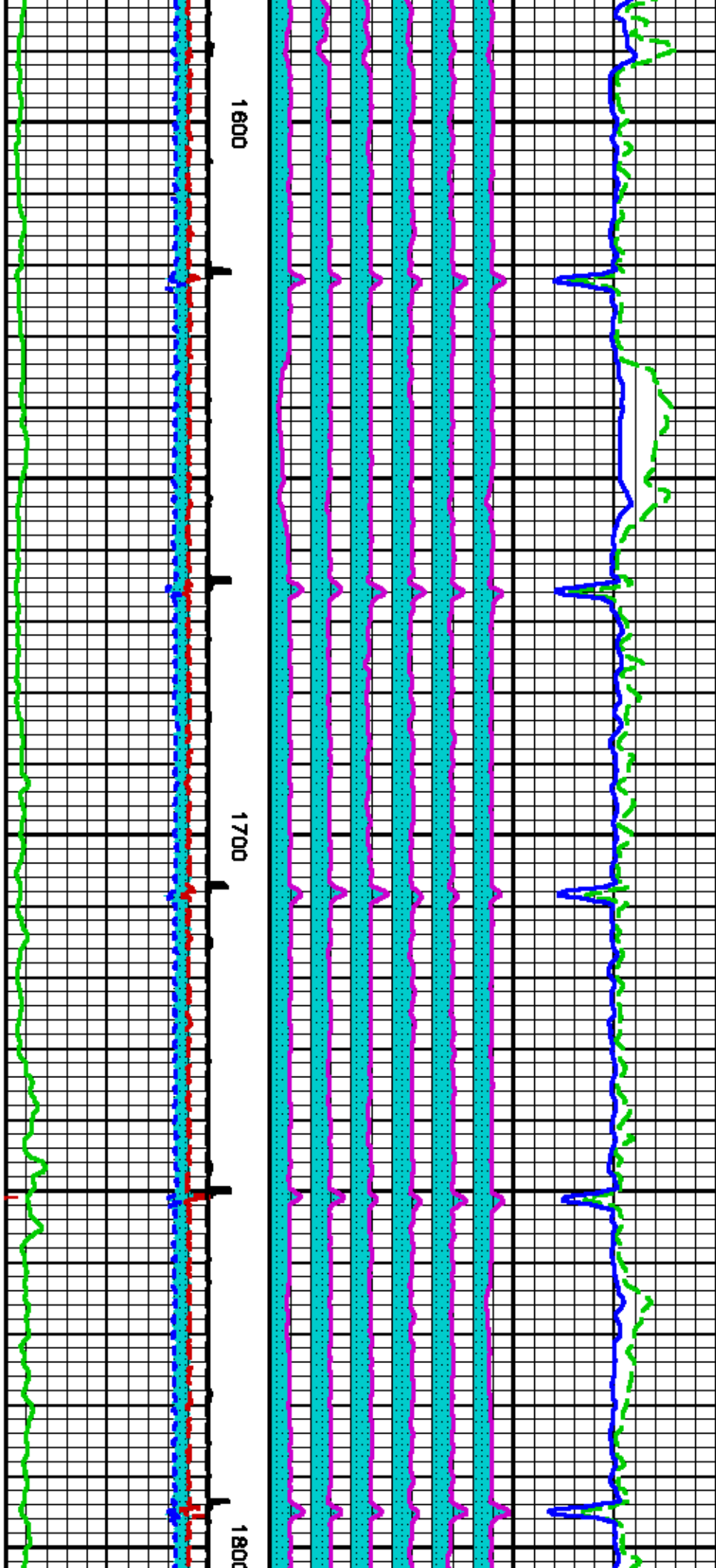
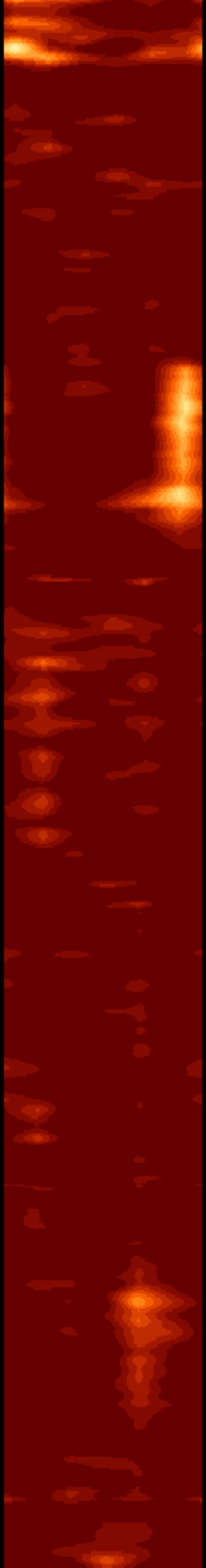
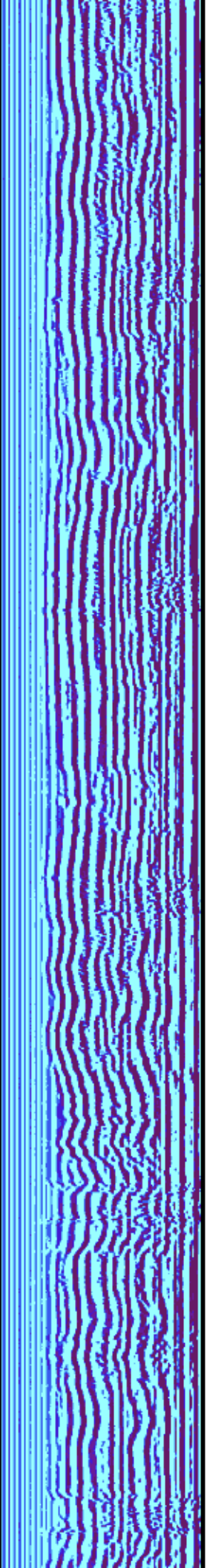




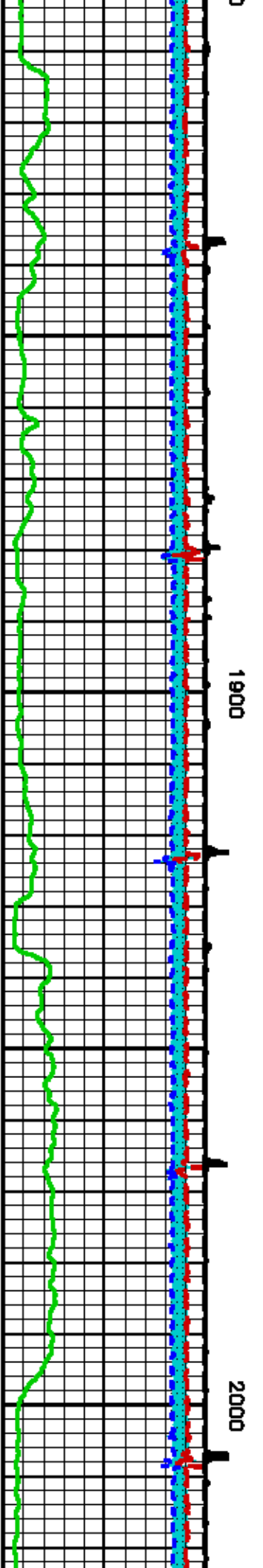
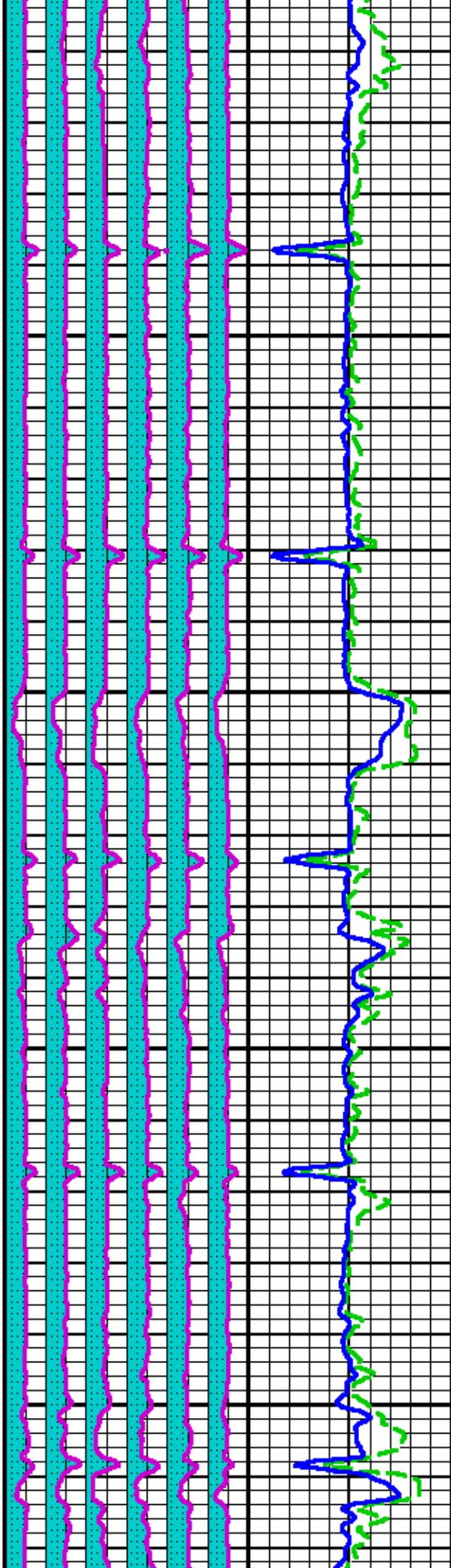
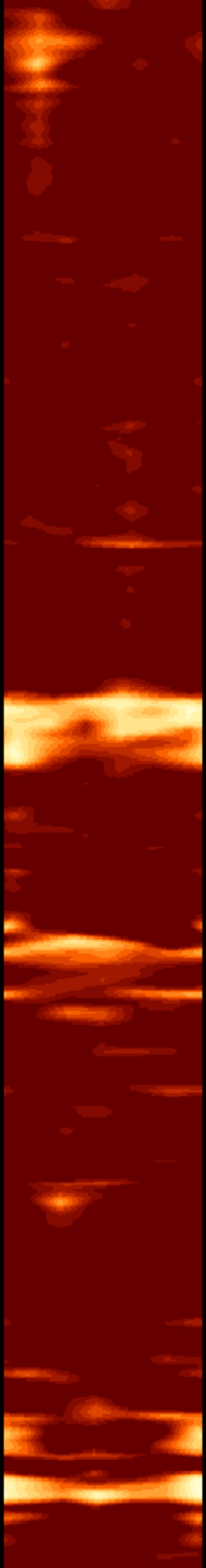
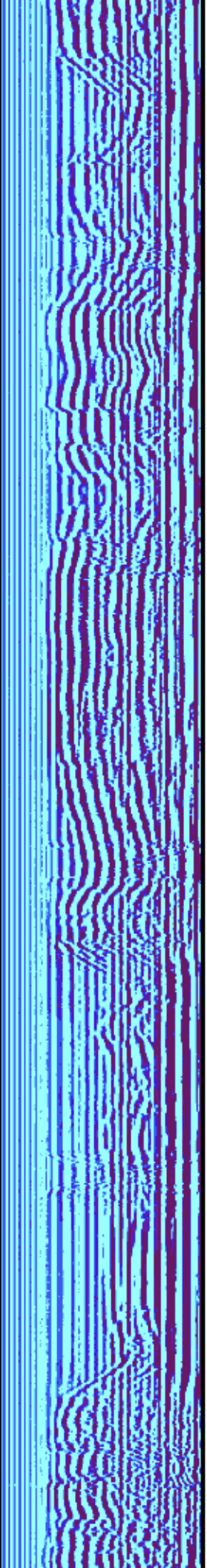




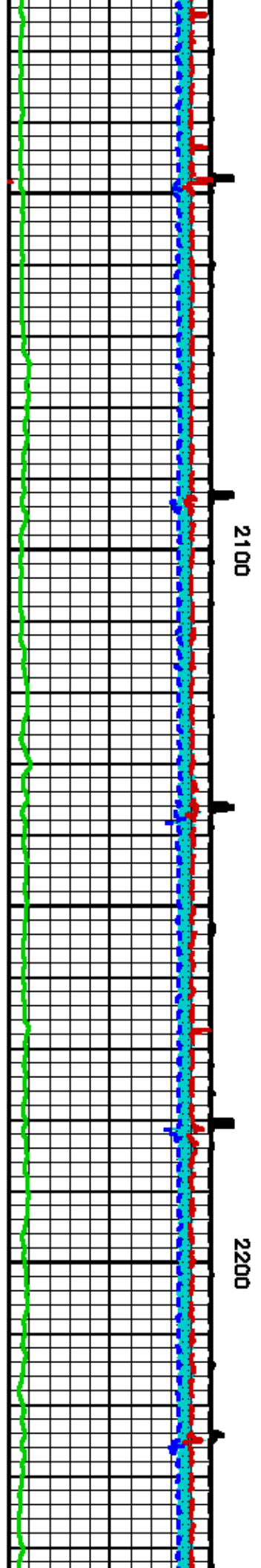
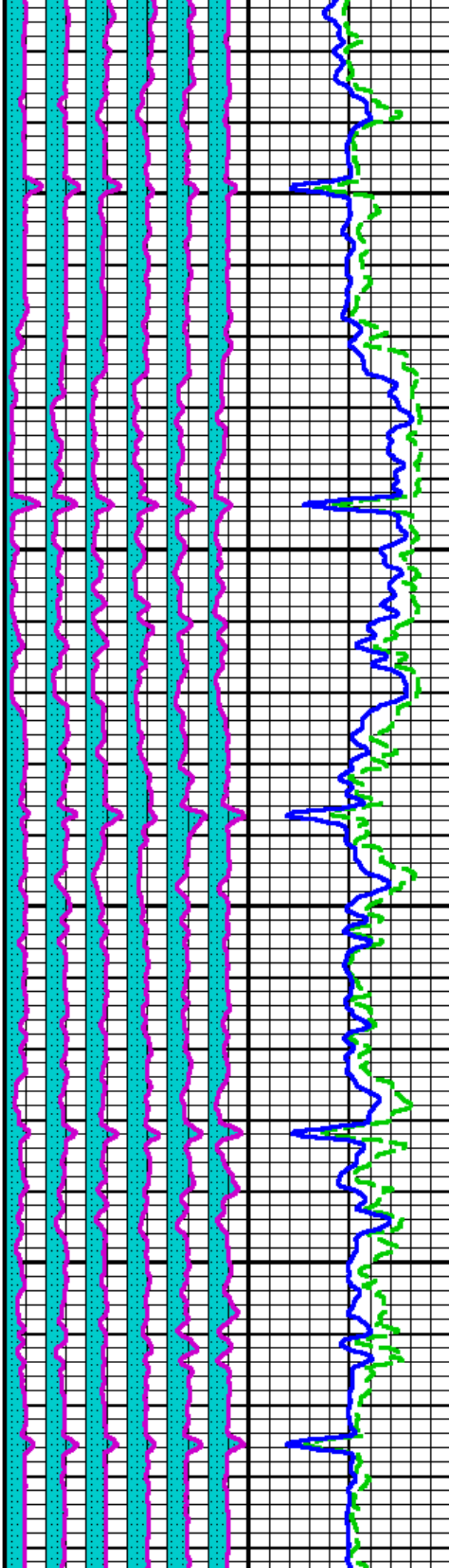
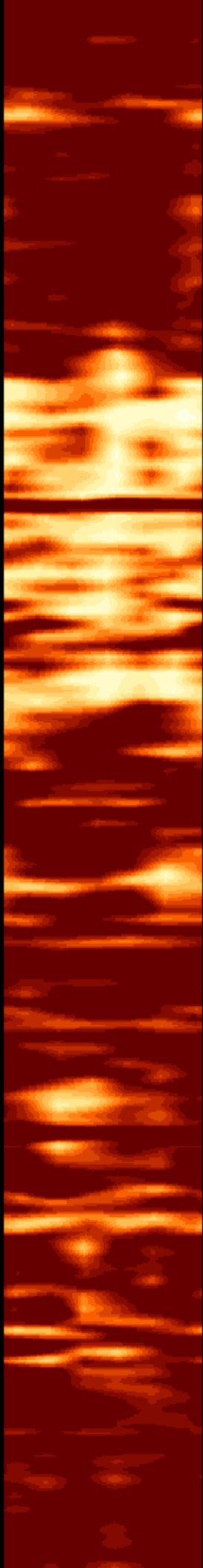
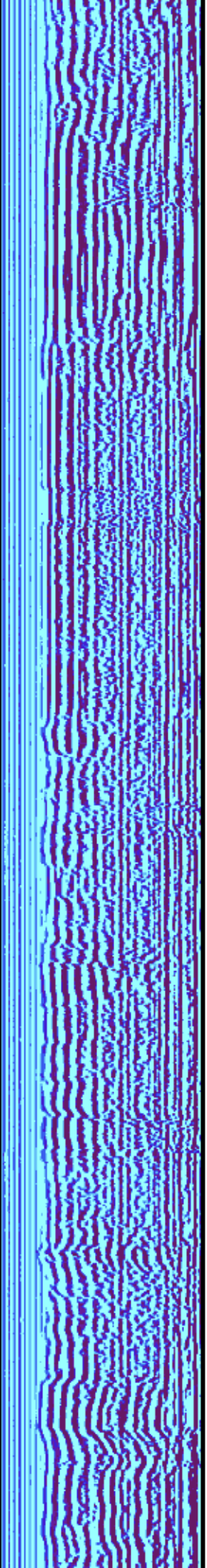


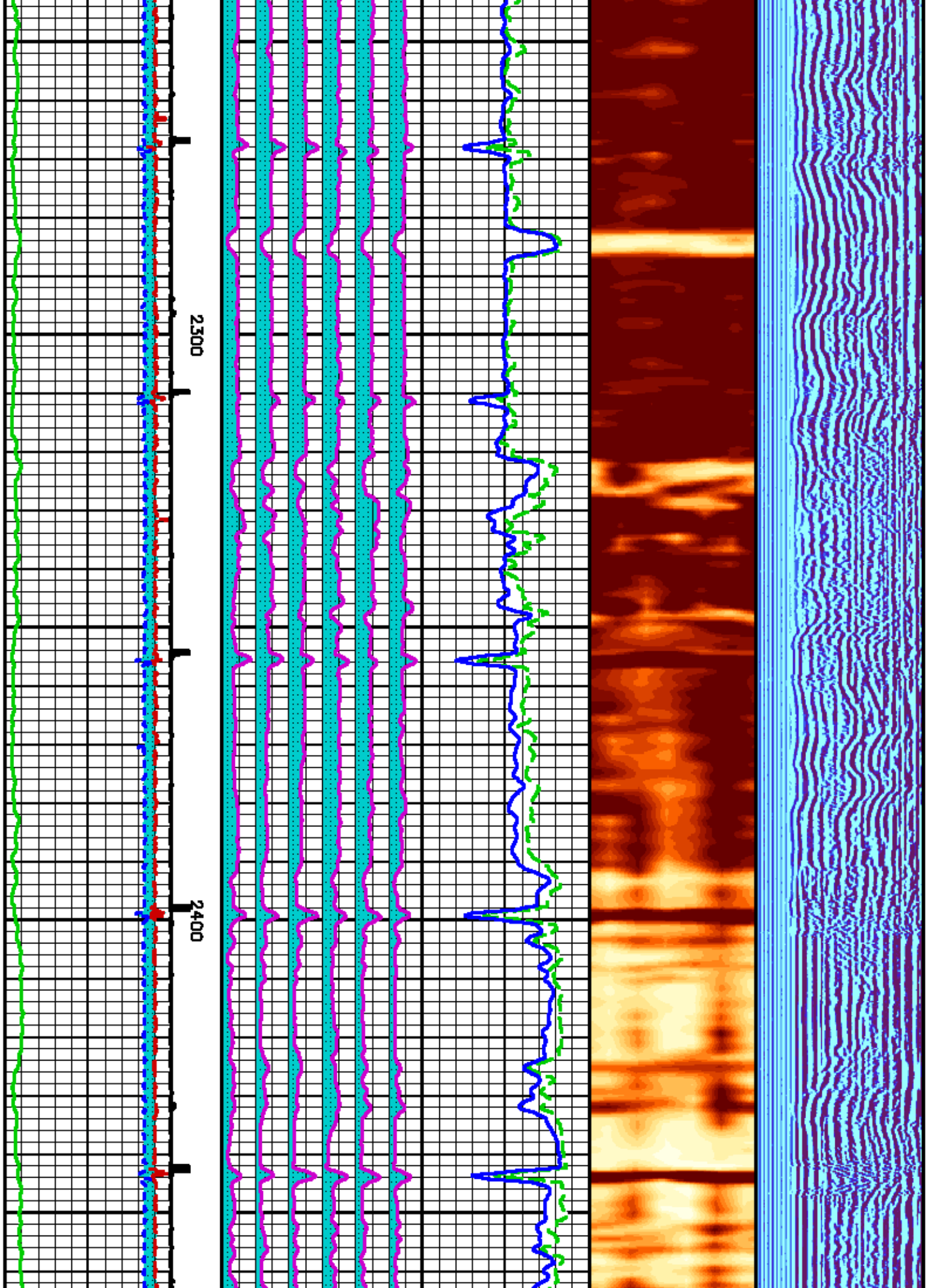




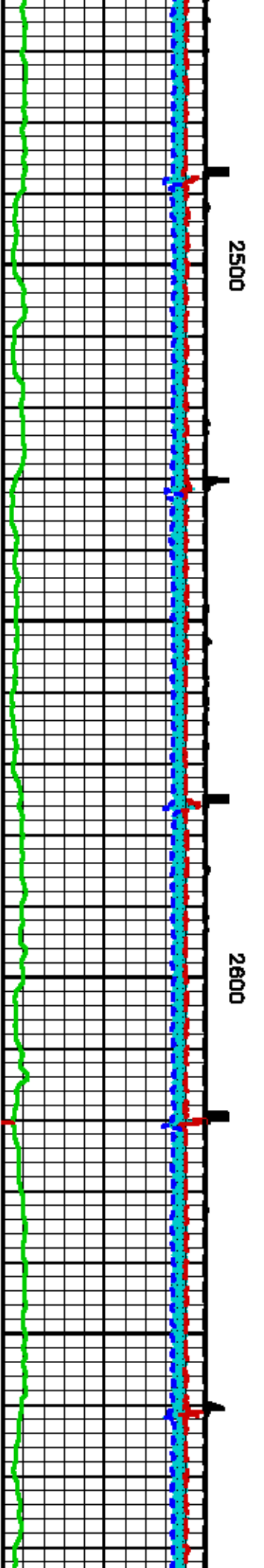
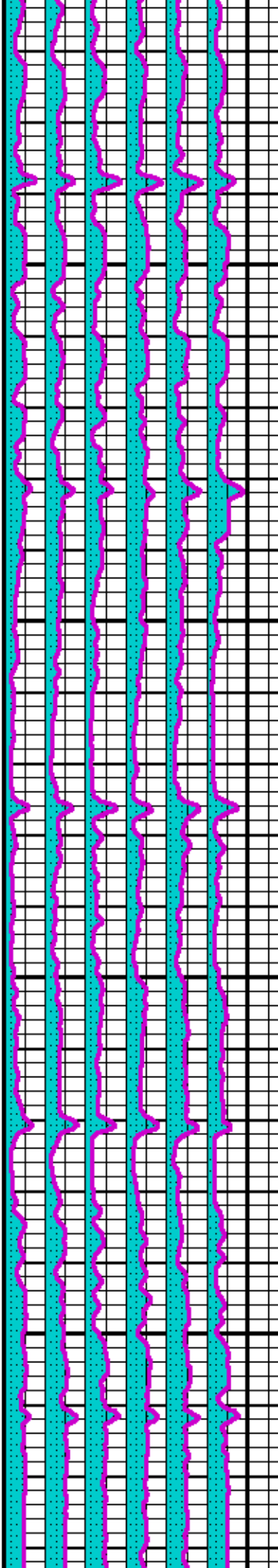
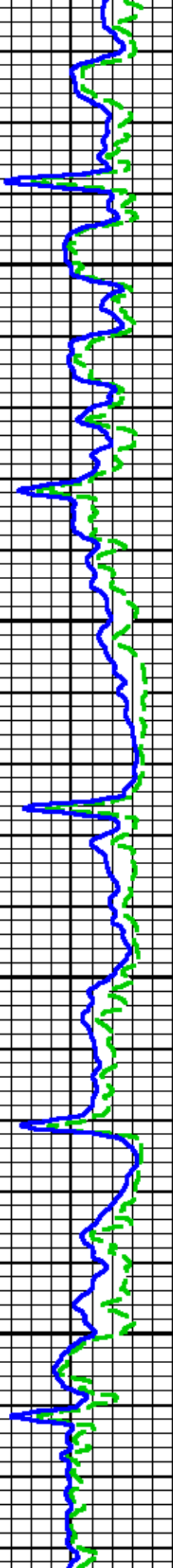
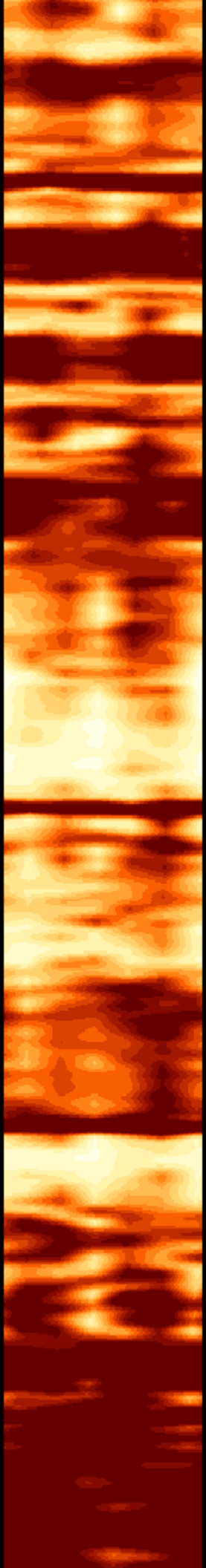
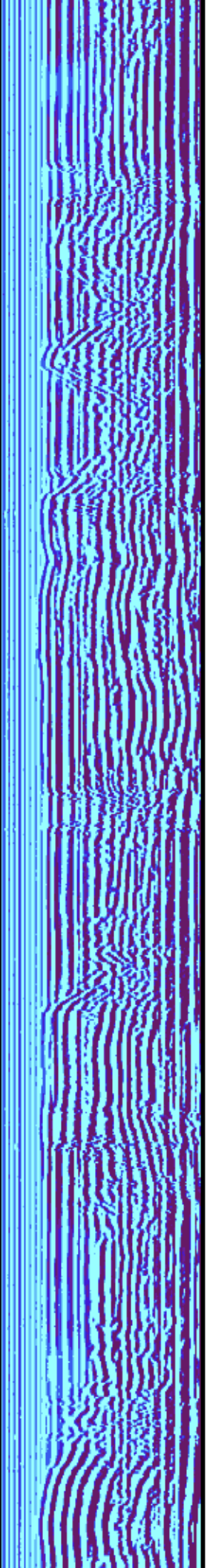


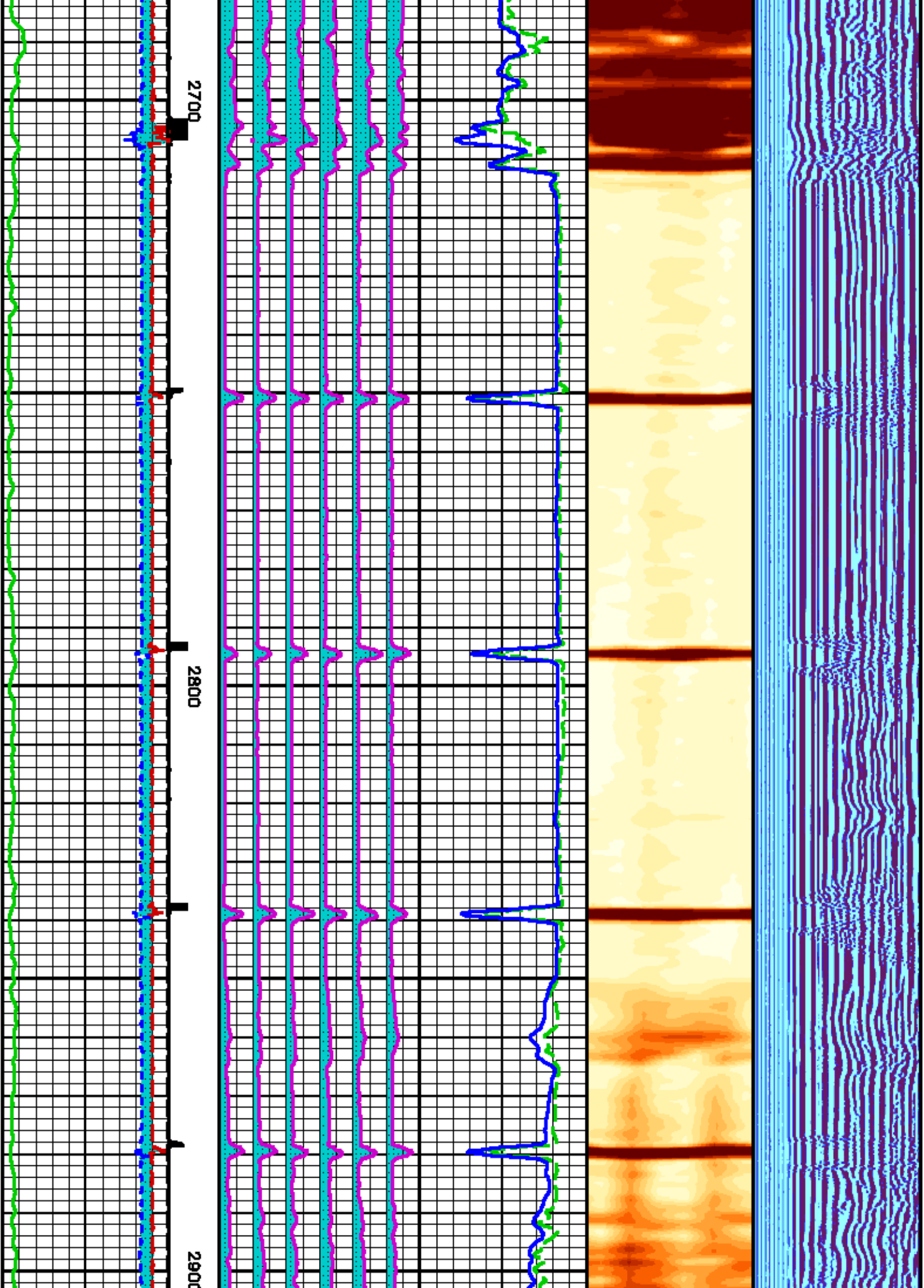




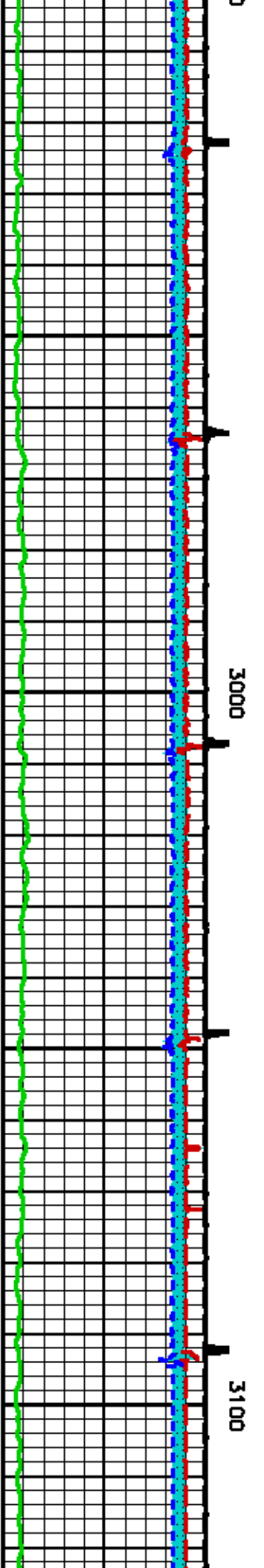
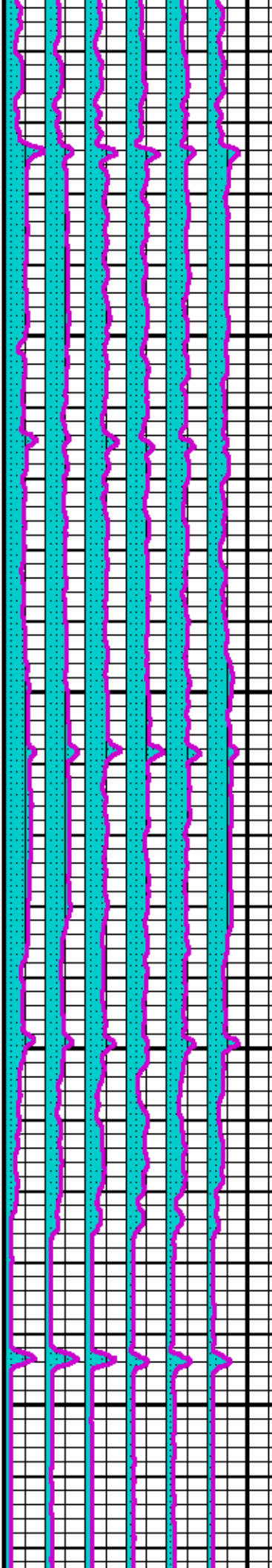
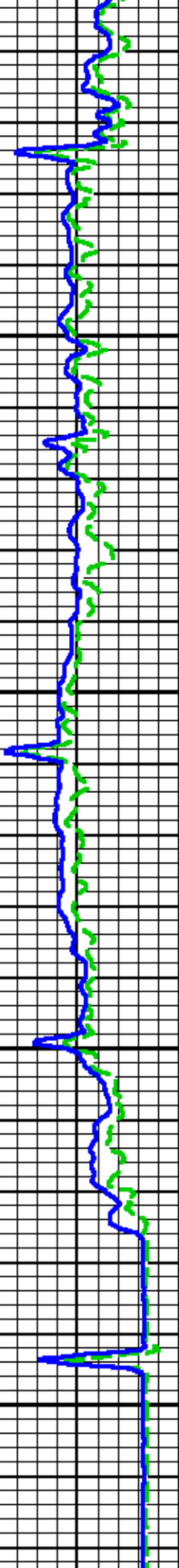
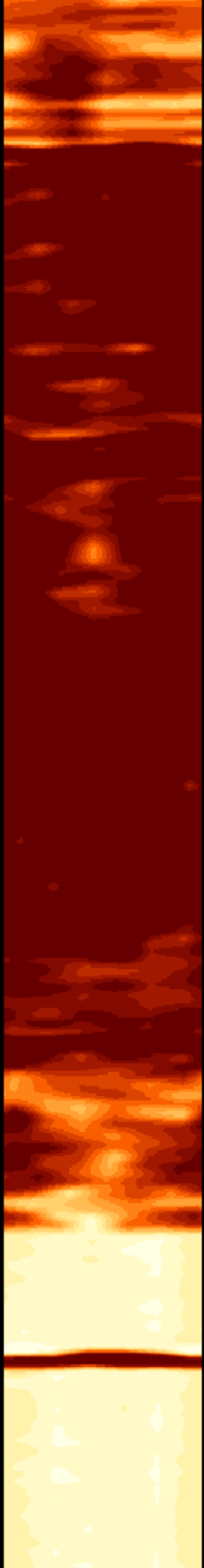
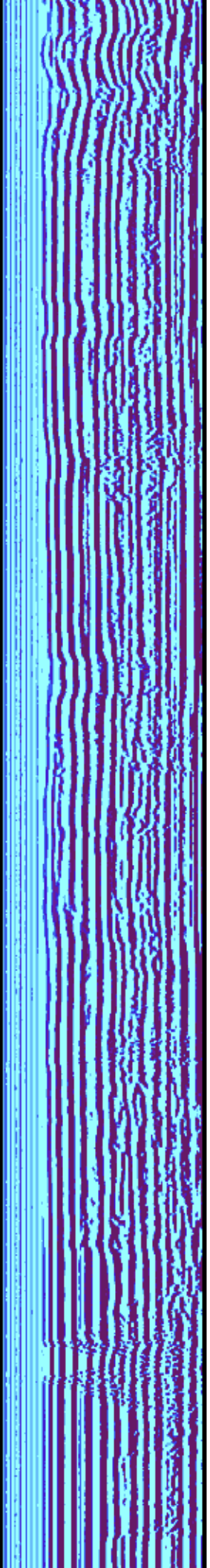


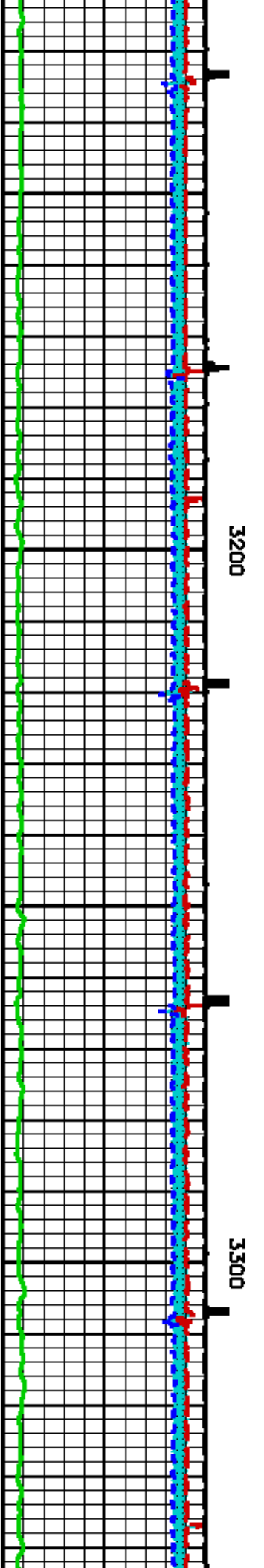
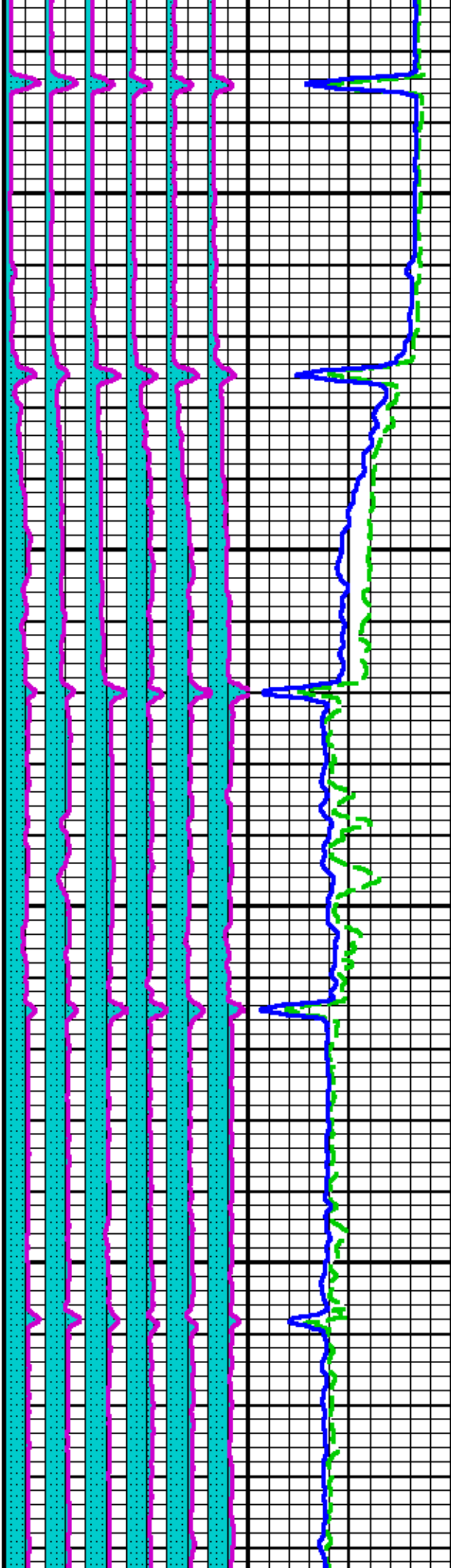
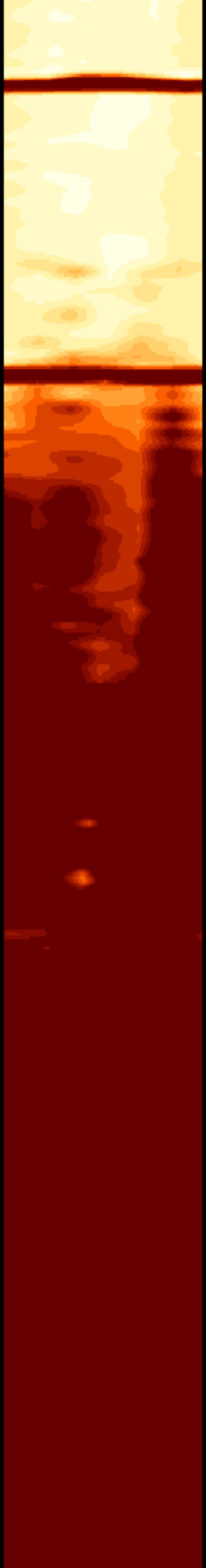
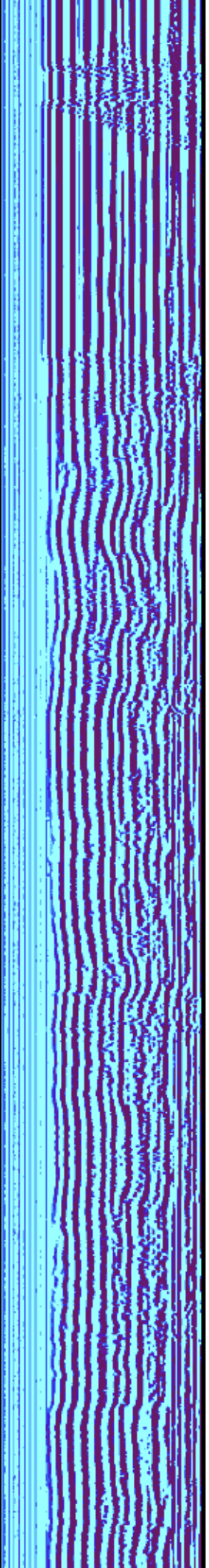


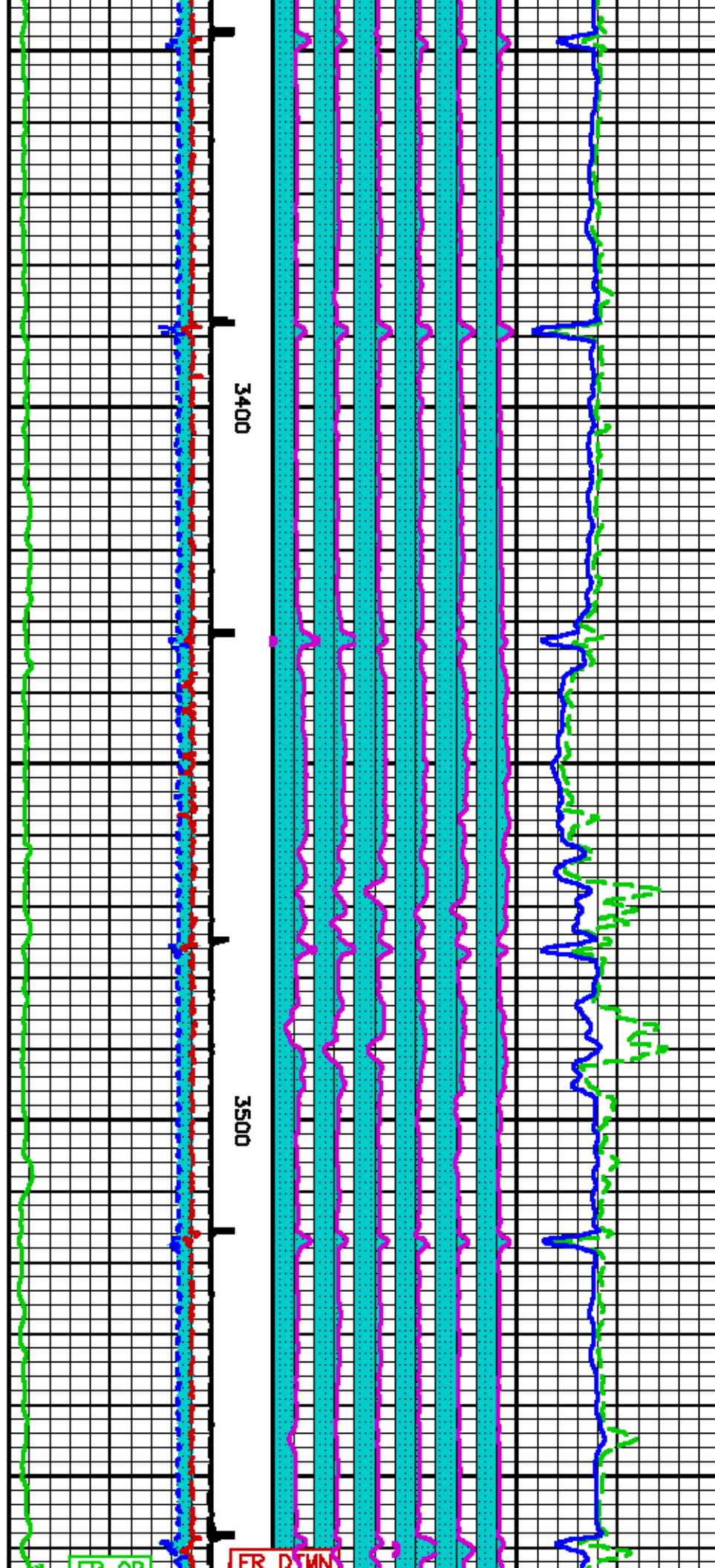
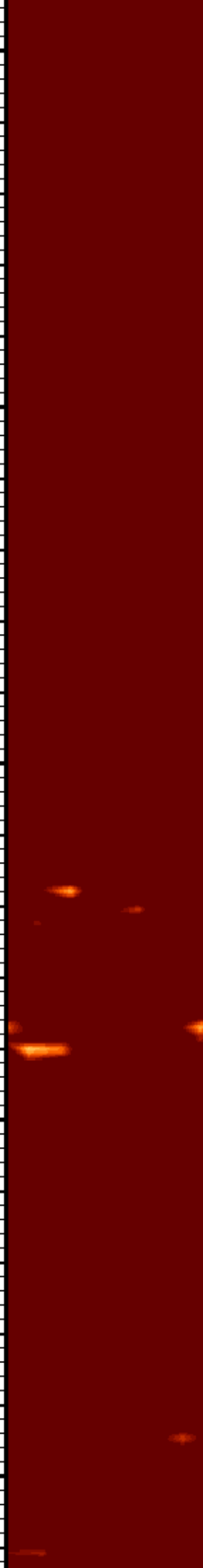
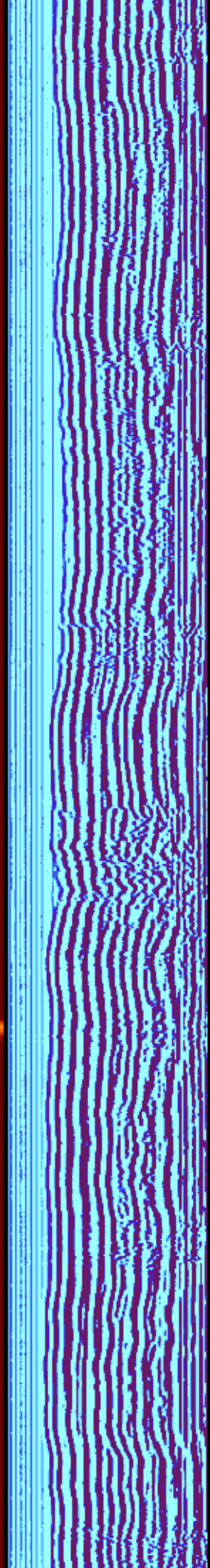


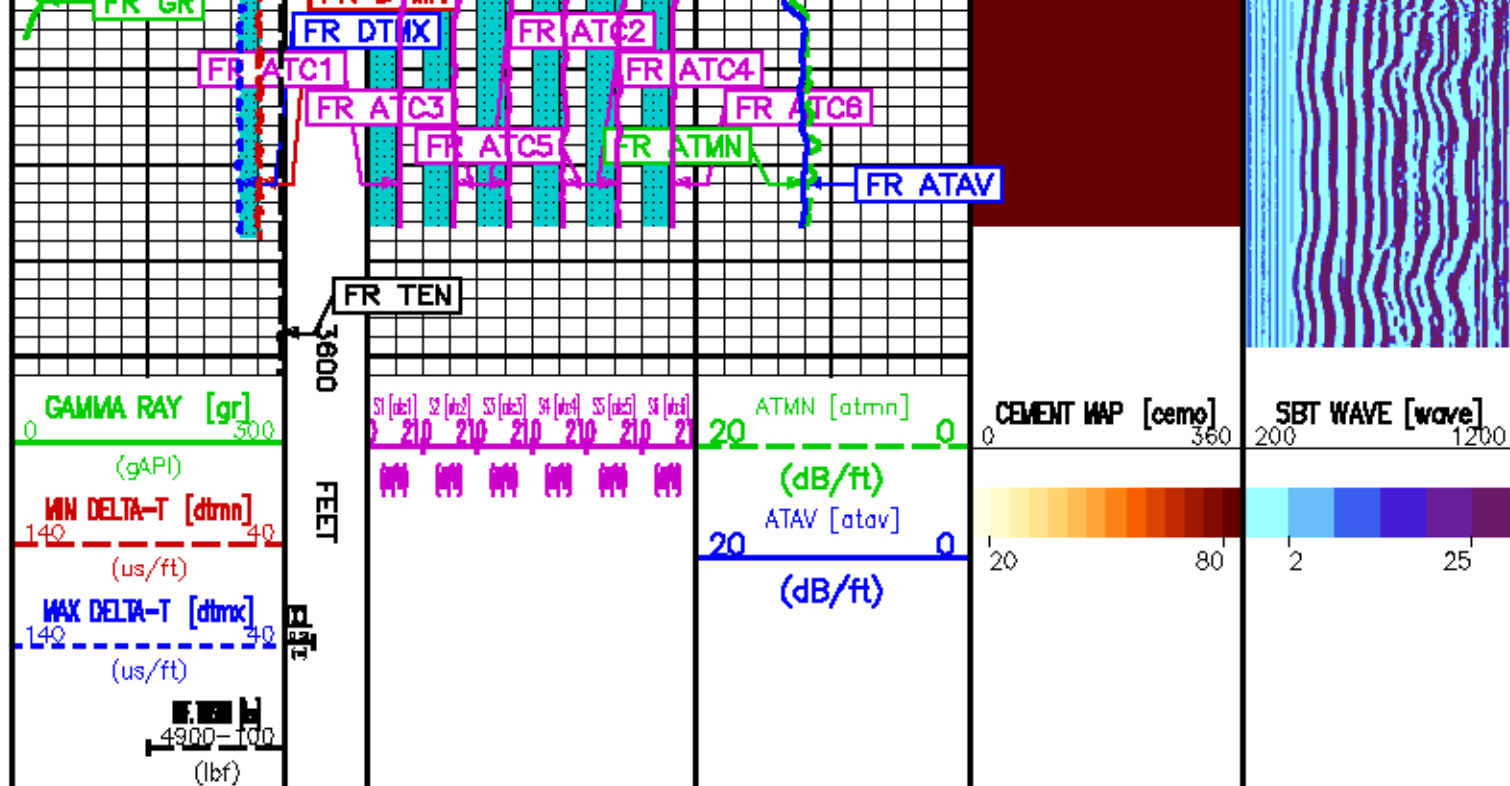












REPEAT SECTION

ECLIPS 5.1 Sep 16, 2005  
Updates: 1,2

Wed Nov 29 22:21:30 2006

Perplf /main/61

Cplot 9.18

Pdf\_Cpp /main/16

Fileview 5.00

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/cora\_energy/st\_charlton\_A\_30/1331e05.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 3093.500 ft BOTTOM DEPTH: 3579.000 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
SBT	FILTER ()	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"

### SBT PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
SBT	CASING OD	8.625	in	TOP	BOTTOM
	CASING WT	32.000	lbm/ft	"	"
	CORR. FACTOR 1	0.000	db/ft	"	"
	CORR. FACTOR 2	0.000	db/ft	"	"
	CORR. FACTOR 3	0.000	db/ft	"	"
	CORR. FACTOR 4	0.000	db/ft	"	"
	CORR. FACTOR 5	0.000	db/ft	"	"
	CORR. FACTOR 6	0.000	db/ft	"	"
	SPACING	0.687	ft	"	"
	SPREADING FACTOR	4.368	db/ft	"	"
	CEMENT STRENGTH	2500	psi	"	"
	HI CUTOFF	9.627	db/ft	"	"
	LOW CUTOFF	3.273	db/ft	"	"



## SBT NORMALIZATION RESULTS

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS
SBT	CORR. FACTOR1	0.153	dB/ft
	CORR. FACTOR2	0.288	dB/ft
	CORR. FACTOR3	0.374	dB/ft
	CORR. FACTOR4	-1.412	dB/ft
	CORR. FACTOR5	1.423	dB/ft
	CORR. FACTOR6	-0.804	dB/ft
FILE: /data/core_energy/st_charlton_4_30/331e03.sbt.qc.meta			

## CURVE DESCRIPTION REPORT

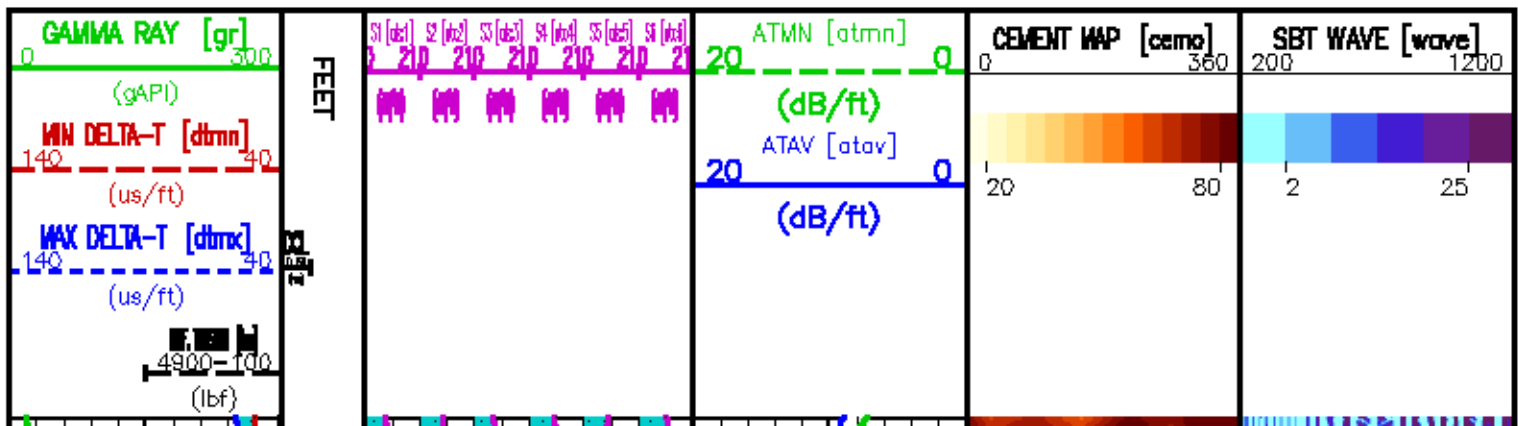
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
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F1:ATC1	ATC1	Nov 29 19:23:28 2008	ATTENUATION PAD 1
F1:ATC2	ATC2	Nov 29 19:23:28 2008	ATTENUATION PAD 2
F1:ATC3	ATC3	Nov 29 19:23:28 2008	ATTENUATION PAD 3
F1:ATC4	ATC4	Nov 29 19:23:28 2008	ATTENUATION PAD 4
F1:ATC5	ATC5	Nov 29 19:23:28 2008	ATTENUATION PAD 5
F1:ATC6	ATC6	Nov 29 19:23:28 2008	ATTENUATION PAD 6
F1:ATMN	ATMN	Nov 29 19:23:28 2008	ATTENUATION MINIMUM
F1:CCL	CCL	Nov 29 19:23:28 2008	CASING COLLAR LOCATOR
F1:CEMO	CEMO	Nov 29 19:23:28 2008	CALIBRATED AND ORIENTED CEMENT MAP
F1:DTMN	DTMN	Nov 29 19:23:28 2008	MINIMAL DELTA-T
F1:DTMX	DTMX	Nov 29 19:23:28 2008	MAXIMAL DELTA-T
F1:GR	GR	Nov 29 19:23:28 2008	GAMMA RAY
F1:TEN	TEN	Nov 29 19:23:28 2008	DIFFERENTIAL TENSION
F1:WAVE	WAVE	Nov 29 19:23:28 2008	250 BYTES DIGITIZED WAVEFORM

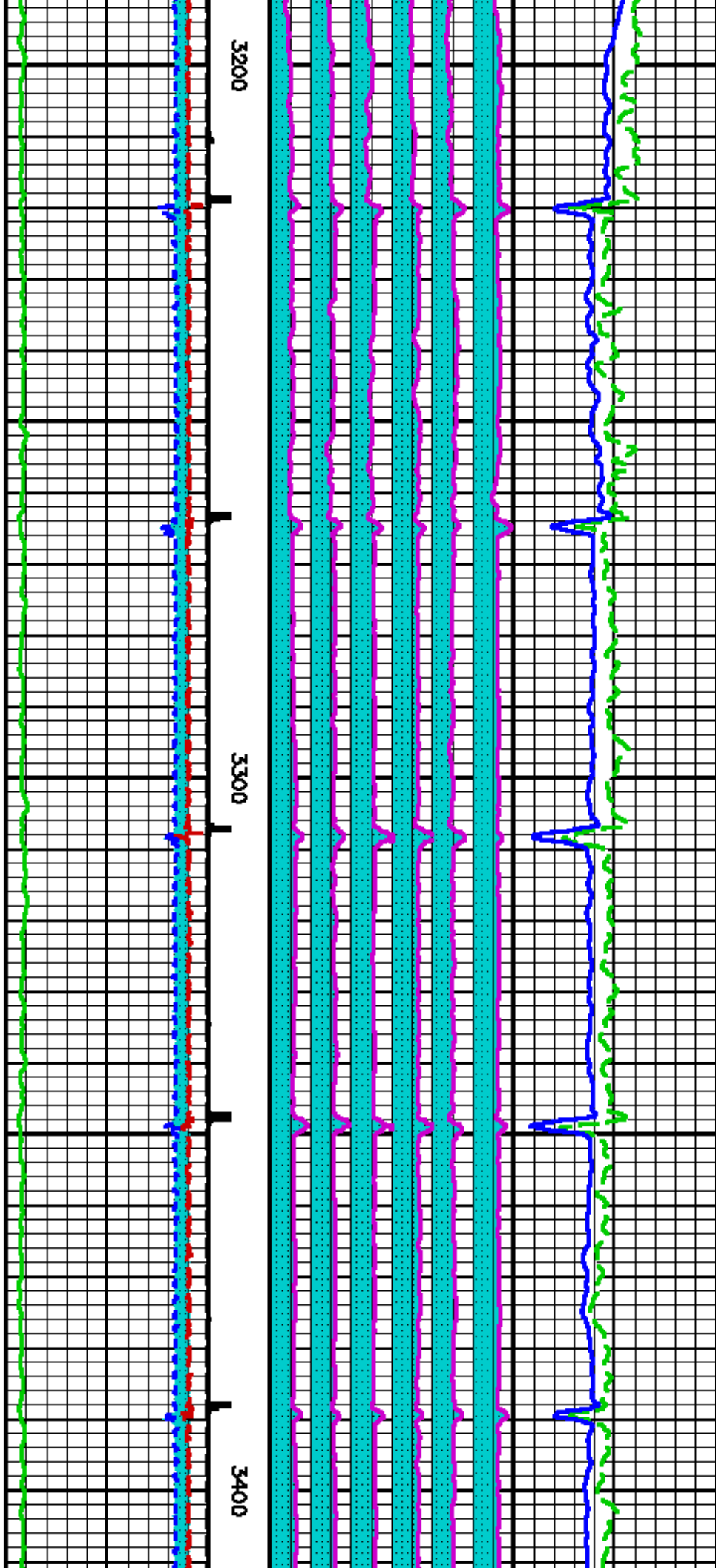
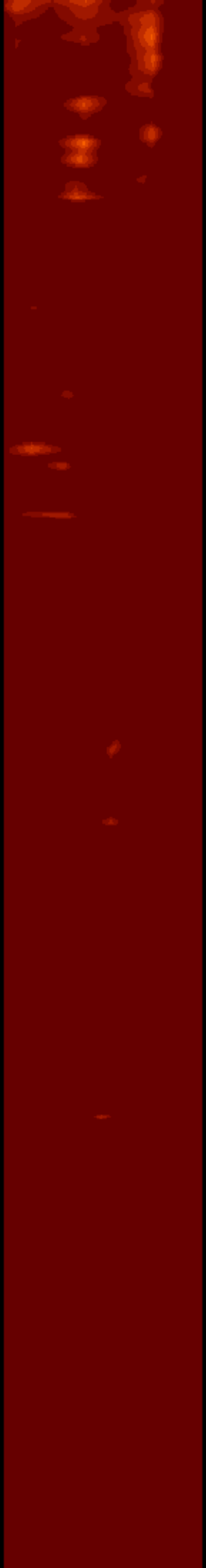
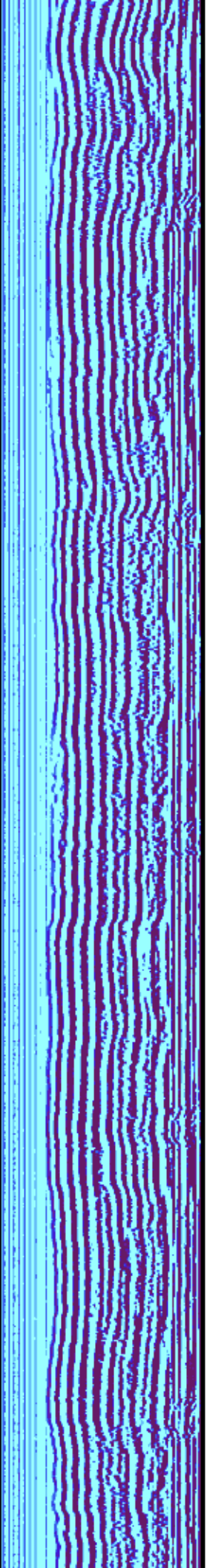
## CURVE MEASURE POINT OFFSET

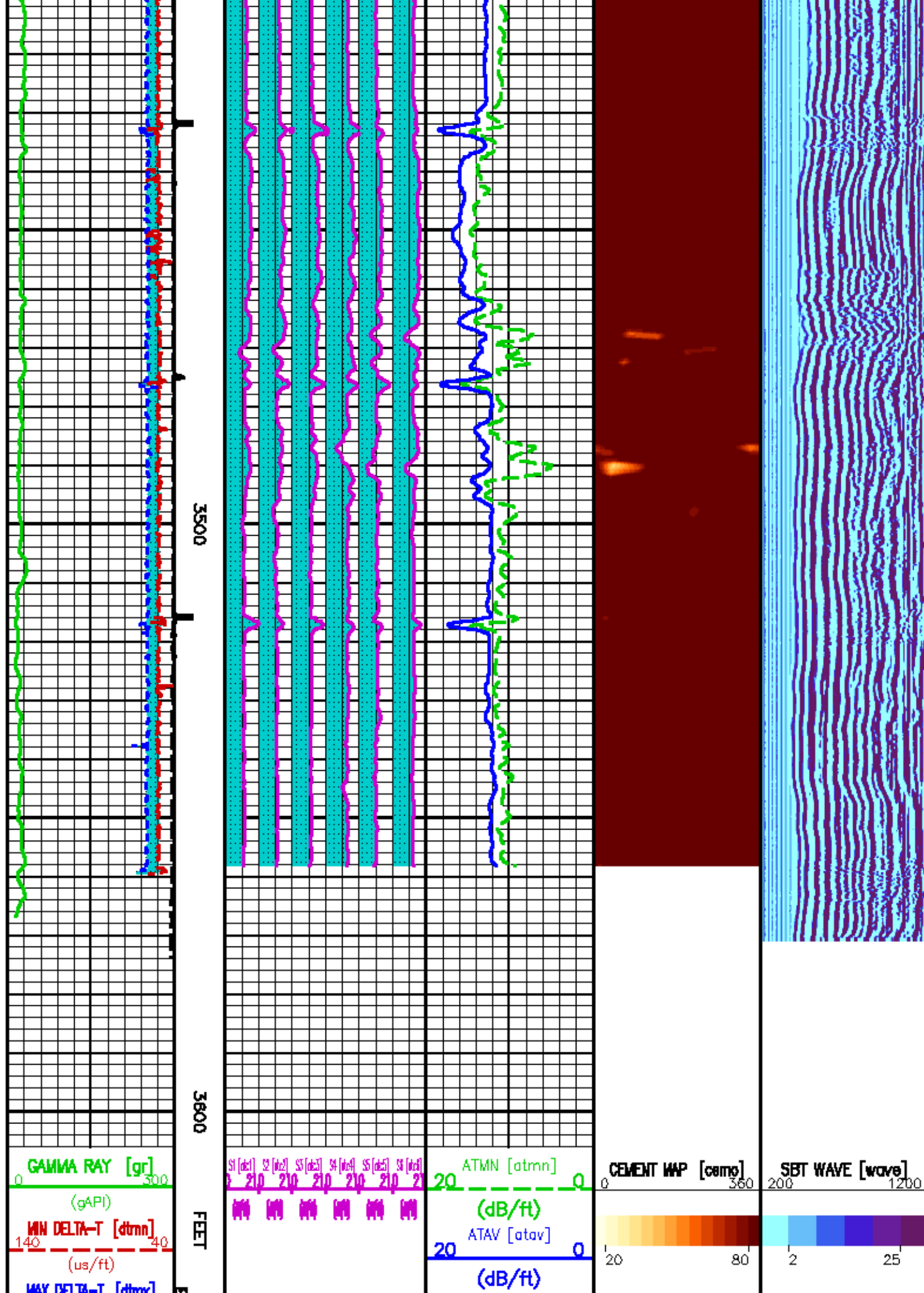
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
ATAV	15.50	ATC4	15.50	CCL	44.00	TEN	0.00
ATC1	15.50	ATC5	15.50	DTMN	15.50		
ATC2	15.50	ATC6	15.50	DTMX	15.50		
ATC3	15.50	ATMN	15.50	GR	34.50		

Presentation : spt:/data/core\_energy/st\_charlton\_4\_30/sbt\_RPT.pdf [5"/100' Scale]  
 Plot Interval : 3180 - 3605 Feet

Data File 1 : F1 : spt:/data/core\_energy/st\_charlton\_4\_30/331e03.xdf  
 Created On : Nov 29 19:23:28 2008  
 Company : CORE ENERGY, LLC.  
 Well : STATE CHARLTON 4-30  
 Field : CHARLTON  
 File Interval : 2.75 - 3579 Feet  
 Oct : 331e







140 (us/ft)	40 (lb)				
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## CALIBRATION / VERIFICATION SUMMARY

Source File: /dall/a/cera\_energy/at\_charlton\_4\_50/5BT.jp1

### GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1309XA 350036

DATE/TIME PERFORMED: Tue Aug 29 10:29:05 2006

UNIT #: 3885TA ML4134

CALB JIG #: 4702NK DA-444

	BACKGROUND (cts/s)	CALBTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBTR ON (gAPI)	CALBTR (gAPI)
GR	14.44	135.76	121.3	1.236	17.86	167.86	150
			170.0 242.0				

### GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1309XA 350036

DATE/TIME PERFORMED: Tue Aug 29 10:31:28 2006

UNIT #: 3885TA ML4134

VERI JIG #: 4702NK DA-444

	BACKGROUND (cts/s)	CALBTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBTR ON (gAPI)	DIFF. (gAPI)
GR	13.76	134.49	1.236	17.01	166.29	149.29
						140.00 160.00

### RB PRIMARY CALIBRATION SUMMARY

TOOL #: 1424XA 153575

DATE/TIME PERFORMED: Tue Nov 28 00:25:18 2006

UNIT #: 3885TA ML4134

	X-ATT (row)	Y-ATT (row)	OFFSET (deg)	X-MAX	Y-MAX	RB (deg)
PAD 2	-99.4	-426.2				0.00
						355.00 5.00
PAD 3	-426.0	-118.9				61.23
						55.00 85.00

77.11 445.74 437.21



## SBT PRIMARY CALIBRATION SUMMARY

TOOL #: 1424XA 153575

DATE/TIME PERFORMED: Wed Nov 29 19:00:55 2006

UNIT #: 3885TA ML4134

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	PAD 6
NOISE LEVEL	17.5 10.0	10.2 10.0	25.1 10.0	9.6 10.0	14.8 10.0	11.0 10.0
PAD SENS	197.1 90.0	279.4 90.0	195.0 90.0	140.3 90.0	164.6 90.0	167.4 90.0

## INSTRUMENT CONFIGURATION

Source File: /dallia/area\_energy/st\_charlton\_4\_50/1531a"-tdg

### CABLEHEAD

Series : CBL338  
Mnemonic : CBLH  
Diameter : 5.38"  
Weight : 24 lbs  
Length : 5.50'

### CCL

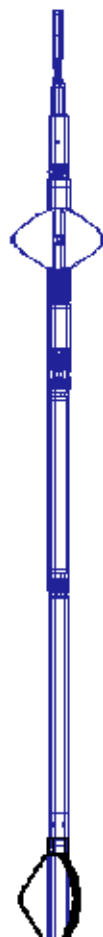
Series : 23400A  
Mnemonic : CCL  
Diameter : 4.50"  
Weight : 97 lbs  
Length : 6.78'  
Measure Point: 4.15': CCL MP

### GRAB RAY

Series : 13080A  
Mnemonic : GR  
Diameter : 3.63"  
Weight : 120 lbs  
Length : 6.51'  
Measure Point: 1.33': GR MP

### ACOUSTIC DIGITIZER

Series : 1633EA  
Mnemonic : AC  
Diameter : 3.38"  
Weight : 133 lbs  
Length : 8.00'



62.01'

CABLEHEAD TOP 48.28'

CCL MP 43.88'

GR MP 34.58'

**SEGMENTED BOND TOOL**

Series : 1424XA  
 Mononic : SBT  
 Diameter : 4.50"  
 Height : 240 lbs  
 Length : 17.33'  
 Measure Point: 7.54': ATT MP

**SEGMENTED BOND TOOL VOL SUB**

Series : 1424PA  
 Mononic : SBT  
 Diameter : 3.38"  
 Height : 108 lbs  
 Length : 7.88'  
 Measure Point: 4.00': SBT MP

**BALL PLUG 3 1/8**

TOTAL LENGTH: 32.24'  
 TOTAL WEIGHT: 738 lbs  
 MAX DIAMETER: 0"4.50"



ATT MP 18.43'

SBT MP 4.00'

0.00'



COMPANY  
 WELL  
 FIELD  
 COUNTY

CORE ENERGY LLC.  
 STATE CHARLTON 4-30  
 CHARLTON  
 OTSEGO

STATE MICHIGAN

FILE NO:

API NO:

21-137-57916-00-00

Baker Atlas



LOCATION:

NE/4, SW/4, SW/4,  
 866' FSL & 1442' FWL,  
 CHARLTON TWP.

SEC 30 TWP 31N RGE 01W

ELEVATIONS:

KB 1201 FT

DF 1200 FT

GL 1188 FT

THANK YOU!

DATE 30 NOV 2006