

Onyskiw, Denise

From: Conger, Jeremy [Jeremy.Conger@Williams.com]
Sent: Thursday, February 04, 2010 8:05 AM
To: Onyskiw, Denise
Subject: Kokopelli SWD 9-12D OH PDF
Attachments: KOKOPELLI SWD 9-12D_TCOMBO PRINT.PDF; image003.gif; image004.gif

Denise,

Here is a PDF copy of the OH Triple Combo. The paper copies were also sent to you with our final permit docs, instead of through the regular channels. If the COGCC needs additional paper copies, please let me know and we can get them.

Thanks,

Jeremy
303-888-4515

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Wednesday, February 03, 2010 2:10 PM
To: Neifert, Angela
Subject: hard copies of well logs

Angela,

If you have hard copies of the well logs (specifically the T-Combo) or, better yet, a .pdf version, can you send it to me? I like to do a visual to check what the LAS data is showing.

Thanks.

Denise M. Onyskiw, P.E.

Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us



Company: ORION ENERGY PARTNERS

Well: KOKOPELLI SWD 9-12D

Field: JOLLEY 8-1 Pad

County: GARFIELD

State: COLORADO

****PLATFORM EXPRESS****
ARRAY INDUCTION TOOL
GAMMA RAY

County: GARFIELD
Field: JOLLEY 8-1 Pad
Location:
Well: KOKOPELLI SWD 9-12D
Company: ORION ENERGY PARTNERS

LOCATION		Elev.:	K.B.	6575.01 ft
Permanent Datum:	GROUND LEVEL		G.L.	6555.01 ft
Log Measured From:	KELLY BUSHING	20.00 ft	above Perm. Datum	
Drilling Measured From:	KELLY BUSHING		D.F.	6576.01 ft
API Serial No.	05-045-18532	Section	8	Township
				6S
				Range
				91W

Logging Date	28-Aug-2009			
Run Number	1			
Depth Driller	8305 ft			
Schlumberger Depth	8310 ft			
Bottom Log Interval	8310 ft			
Top Log Interval	200 ft			
Casing Driller Size @ Depth	9.625 in	@	1536 ft	@
Casing Schlumberger	1540 ft			
Bit Size	8.750 in			
Type Fluid In Hole	WBM			
Density	9.6 lbm/gal	47 s		
Fluid Loss	6 cm3	9.1		
Source Of Sample	SAMPLE			
RM @ Measured Temperature	2.700 ohm.m	@	71 degF	@
RMF @ Measured Temperature	2.450 ohm.m	@	75 degF	@
RMC @ Measured Temperature	2.180 ohm.m	@	75 degF	@
Source RMF	CALCULATED	CALCULATED		
RM @ MRT	1.224 @ 164	1.175 @ 164	@	@
Maximum Recorded Temperatures	164 degF			
Circulation Stopped	28-Aug-2009	4:00		
Logger On Bottom	28-Aug-2009	17:08		
Unit Number	2379	VERNAL		
Recorded By	John Gilliland			
Witnessed By	Don Findlay			

Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth		@		
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
Density				
Fluid Loss				
Source Of Sample				
RM @ Measured Temperature		@		@
RMF @ Measured Temperature		@		@
RMC @ Measured Temperature		@		@
Source RMF				
RM @ MRT		@		@
Maximum Recorded Temperatures				
Circulation Stopped				
Logger On Bottom				
Unit Number				
Recorded By				
Witnessed By				

Date Created: 28-AUG-2009 17:43:00

Logging Cable

Type:	7-46A XS
Serial Number:	7080
Length:	24000 FT
<hr/>	
Conveyance Method:	Wireline
Rig Type:	LAND

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	157.40 FT
Rig Up Length At Bottom:	157.00 FT
Rig Up Length Correction:	0.40 FT
Stretch Correction:	12.00 FT
Tool Zero Check At Surface:	0.90 FT

1. IDW used as primary depth control; Z-chart used as secondary
2. All Schlumberger depth control policies followed
- 3.
- 4.
- 5.
- 6.

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 2

FMI ran at FMEX manual = 157 V Auto Gain Low

HGNS tool ran without bowspring due to hole conditions.

Neutron corrected for hole size and standoff

Density corrected for hole size

Cement Hole Volume computed using FMI caliper

RUN 1

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

AWKC-00044
17C0-154
8 ft

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL

START

STOP

LOGGED INTERVAL

START

STOP

EQUIPMENT DESCRIPTION

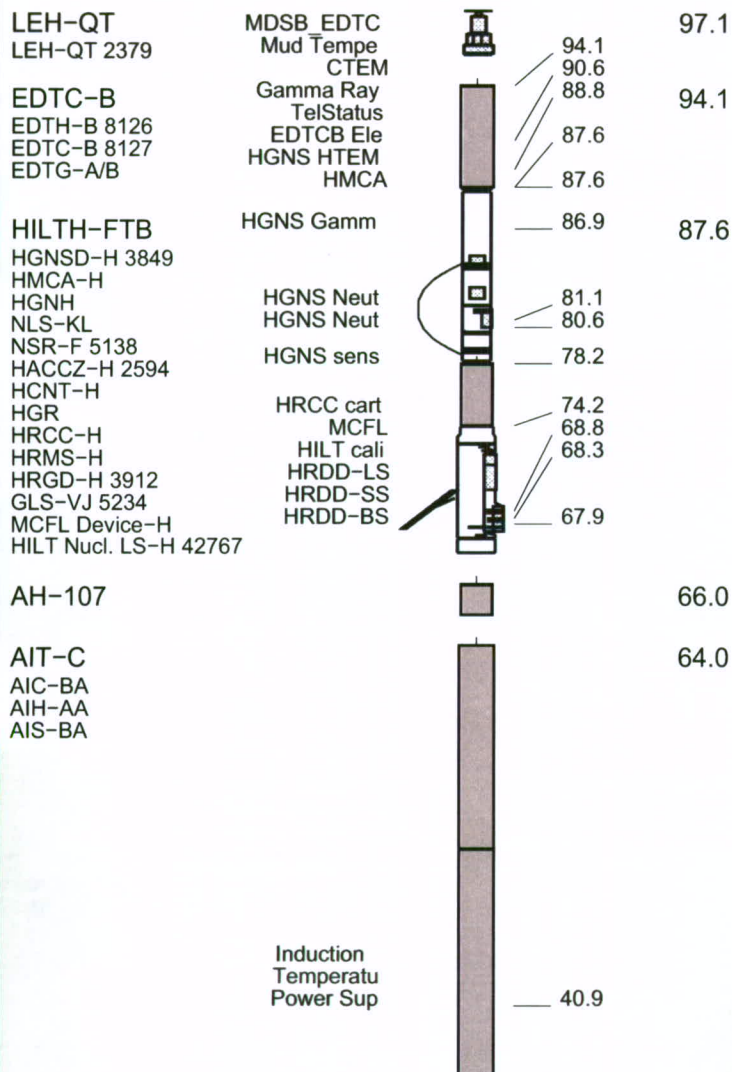
RUN 1

RUN 2

SURFACE EQUIPMENT

WITM (EDTS)-A NCS-VB
GSR-U/Y
NCT-B
CNB-AB

DOWNHOLE EQUIPMENT



SPA-A
SPA-A

SP SPARC

28.4

30.4

AH-107

26.4

FBST-B

24.4

ECH-MRA
FBCC-A 1773
AH-185 1731
FBSH-A
GPIC-C
FBSC-B
FBSS-B 855

PADS
FBCC FBSC
DF ACCZ
HTEN HMAS HV
Accelerom
Tension GPIT
TOOL ZERO

1.3

0.0

MAXIMUM STRING DIAMETER 5.00 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Client: ORION ENERGY PARTNERS

Well: KOKOPELLI SWD 9-12D

Field: JOLLEY 8-1 Pad

State: COLORADO

Country: USA


Drawing Date: 8/28/2009

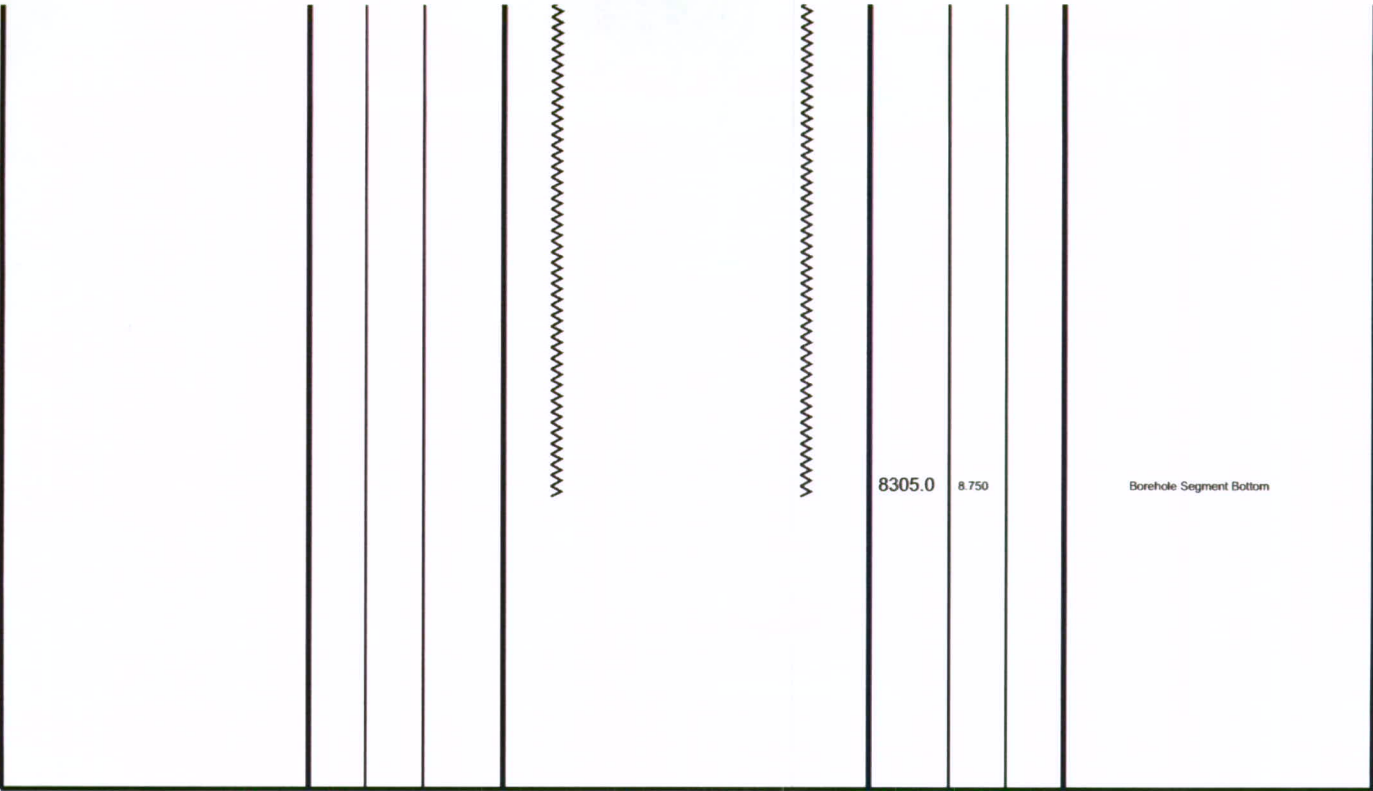
API #: 05-045-18532

Rig Name: Patterson 312

Reference Datum: Kelly Bushing

Elevation: 6555.0 ft

Country: USA		Elevation: 6666.6		N				
Production String	(in)		(ft)	Well Schematic	(ft)	(in)		Casing String
	OD	ID				MD	MD	
					0.0	9.625		Casing String
					1536.0	9.625		Casing Shoe
					1536.0	8.750		Borehole Segment



ALL DEPTHS DRILLER DEPTHS

Schlumberger

MAIN PASS
5" = 100'

MAXIS Field Log

Company: ORION ENERGY PARTNERS

Well: KOKOPELLI SWD 9-12D

Input DLIS Files

DEFAULT	FMI_AIT_TLD_MCFL_114LUP	FN:14	PRODUCER	28-Aug-2009 17:08	8322.0 FT	1419.5 FT
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Output DLIS Files

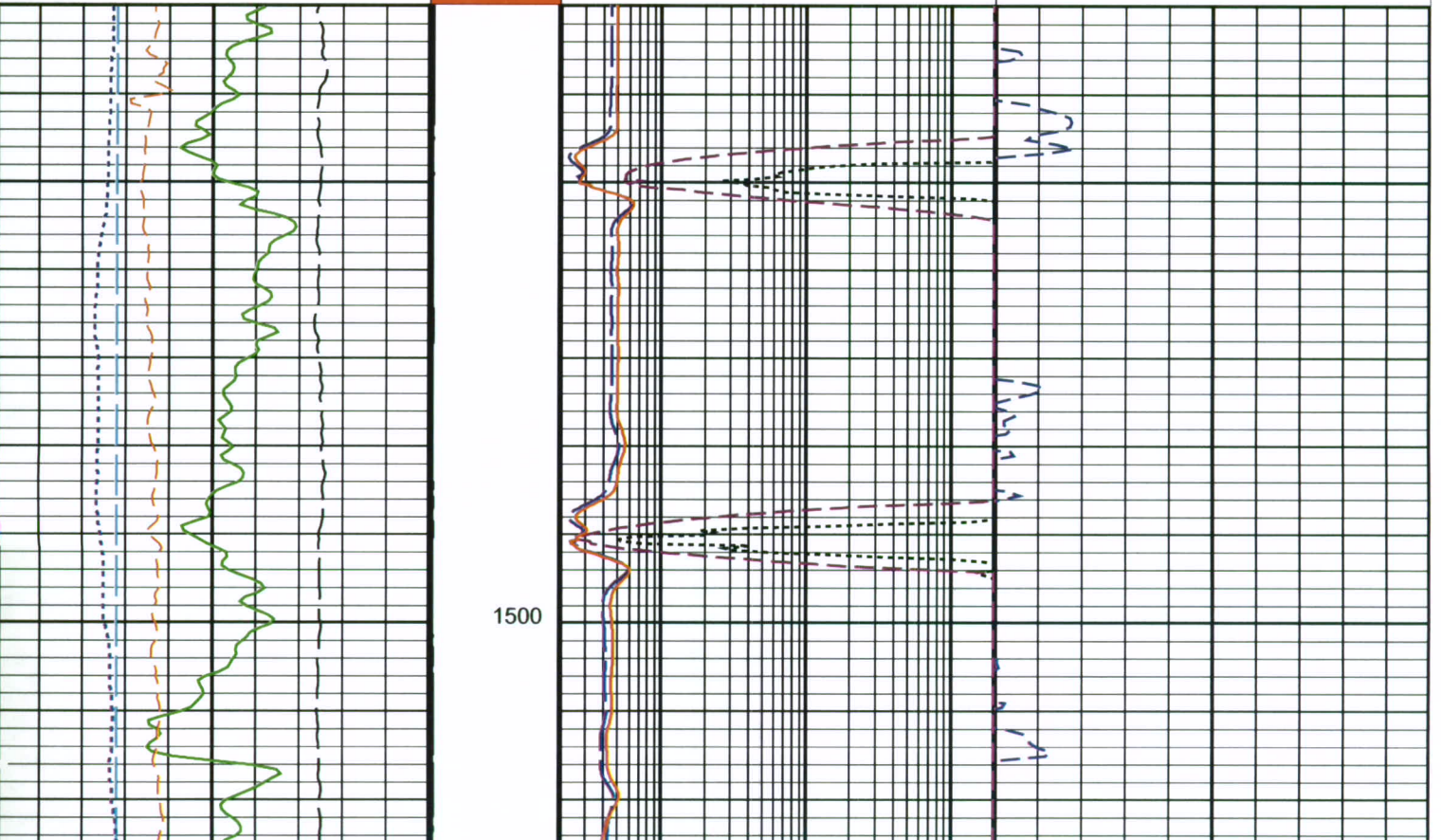
DEFAULT	FMI_AIT_TLD_MCFL_004PUP	FN:3	PRODUCER	28-Aug-2009 20:22	8332.0 FT	1429.5 FT
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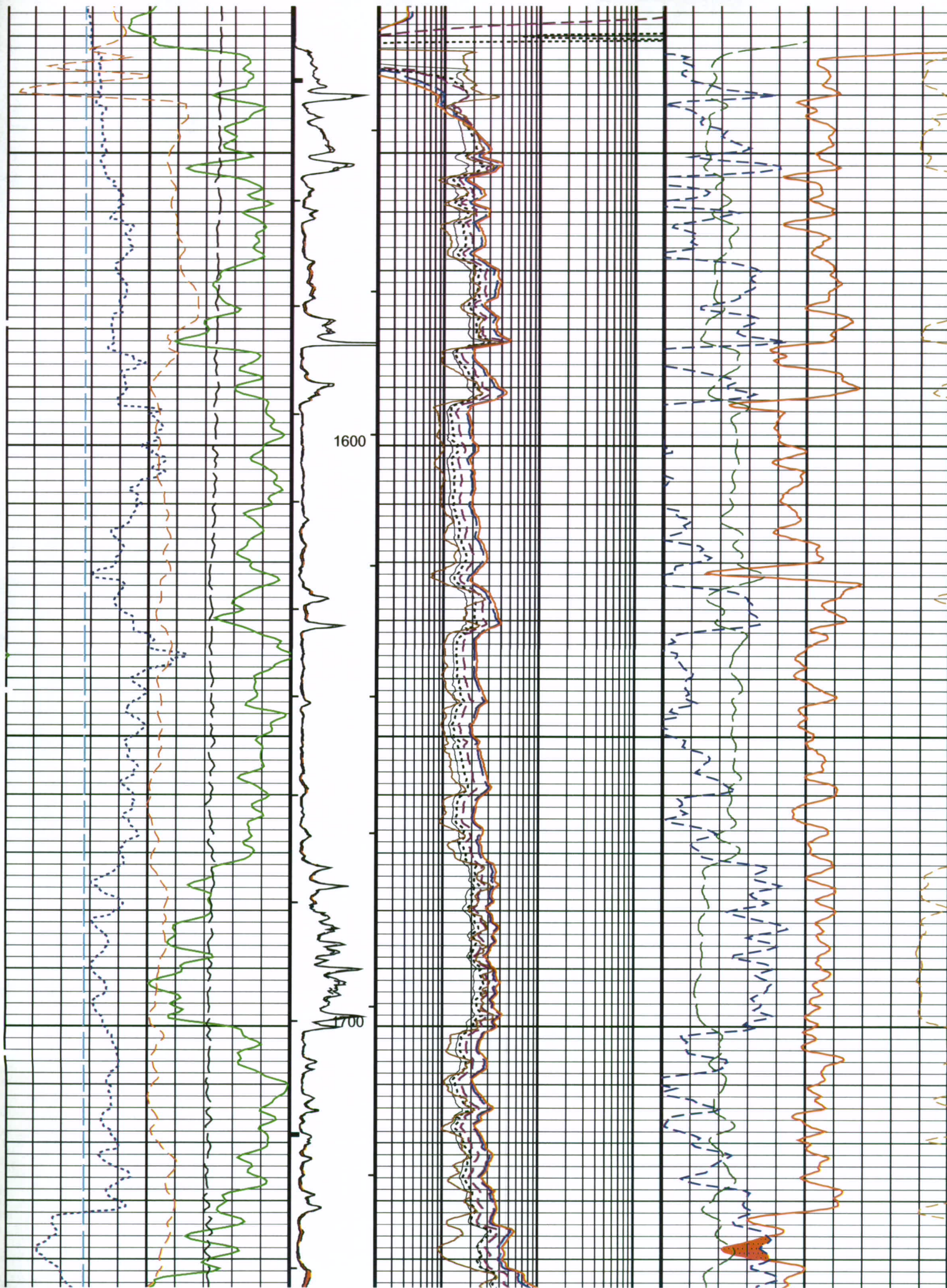
Integrated Hole/Cement Volume Summary

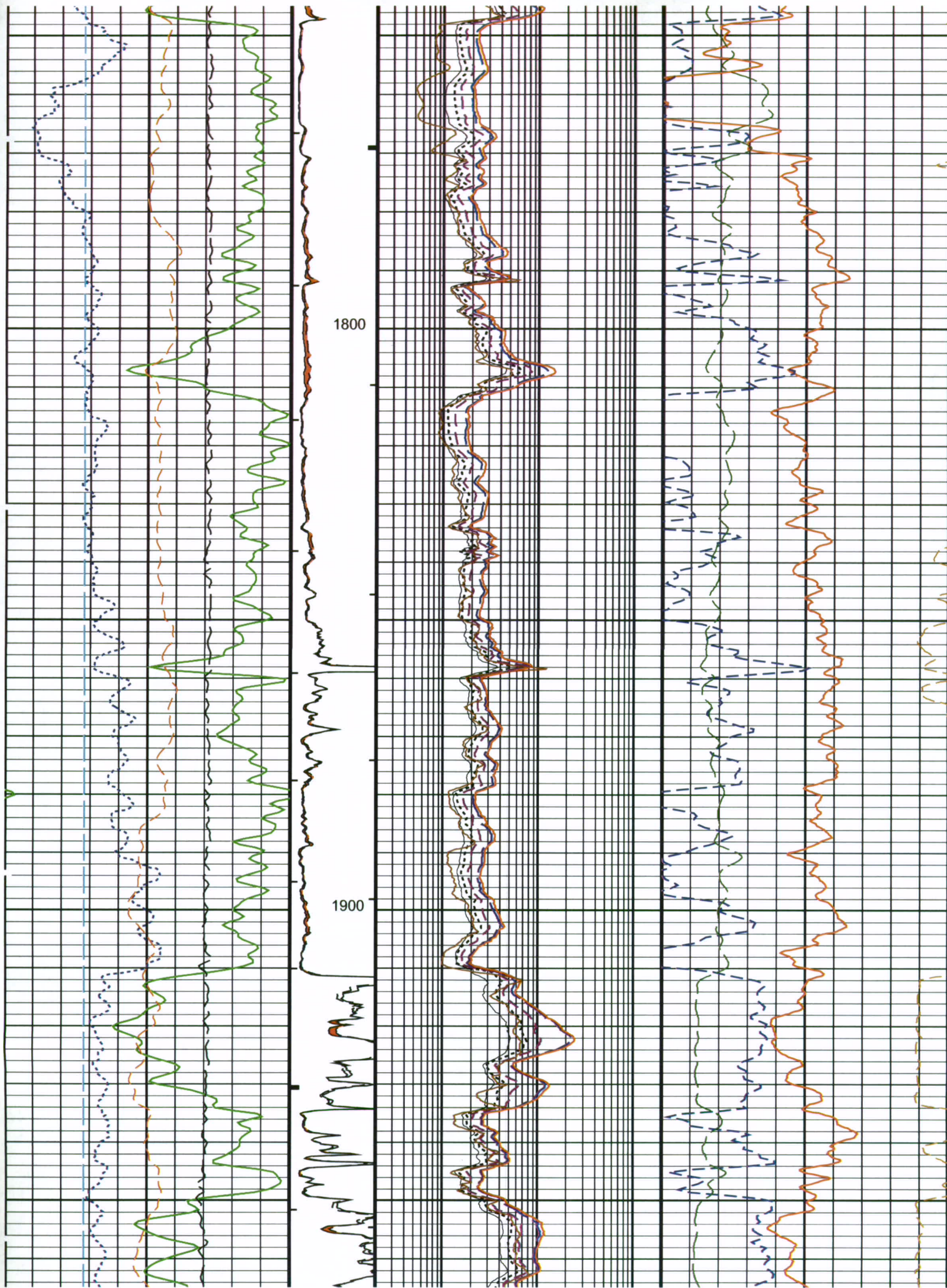
Hole Volume = 3500.82 F3
Cement Volume = 2383.10 F3 (assuming 5.50 IN casing O.D.)
Computed from 8310.0 FT to 1536.0 FT using data channel(s) HCAL

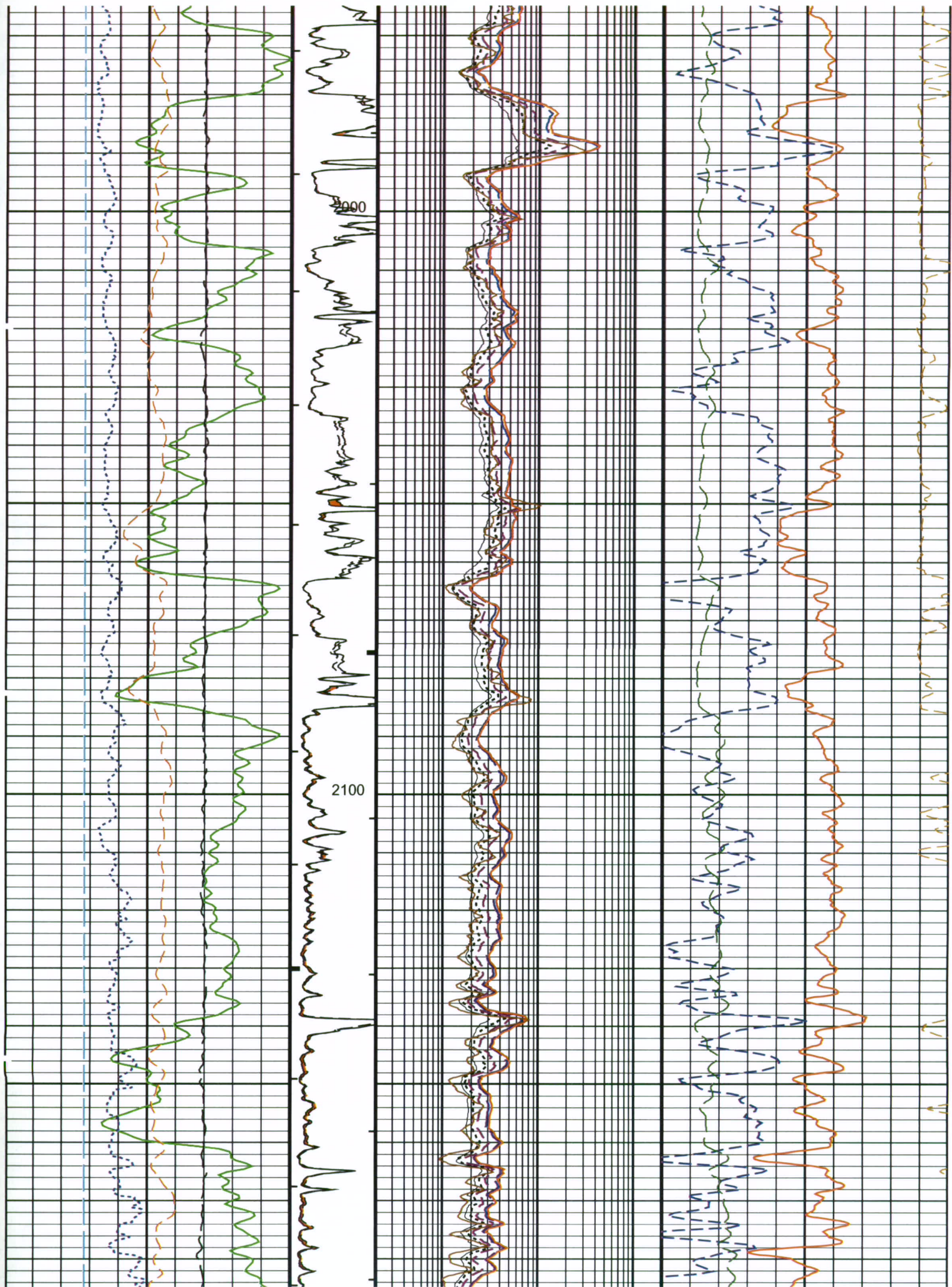
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3

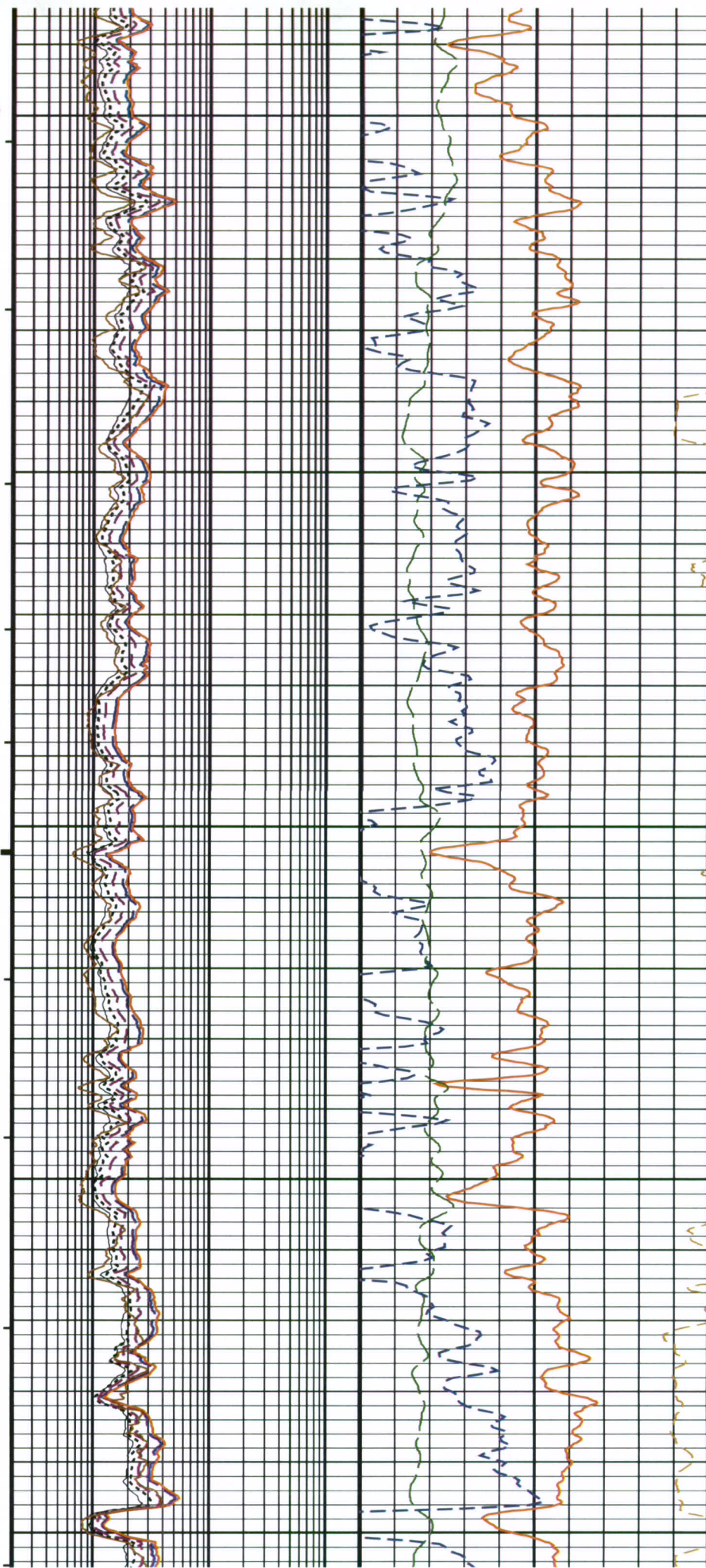
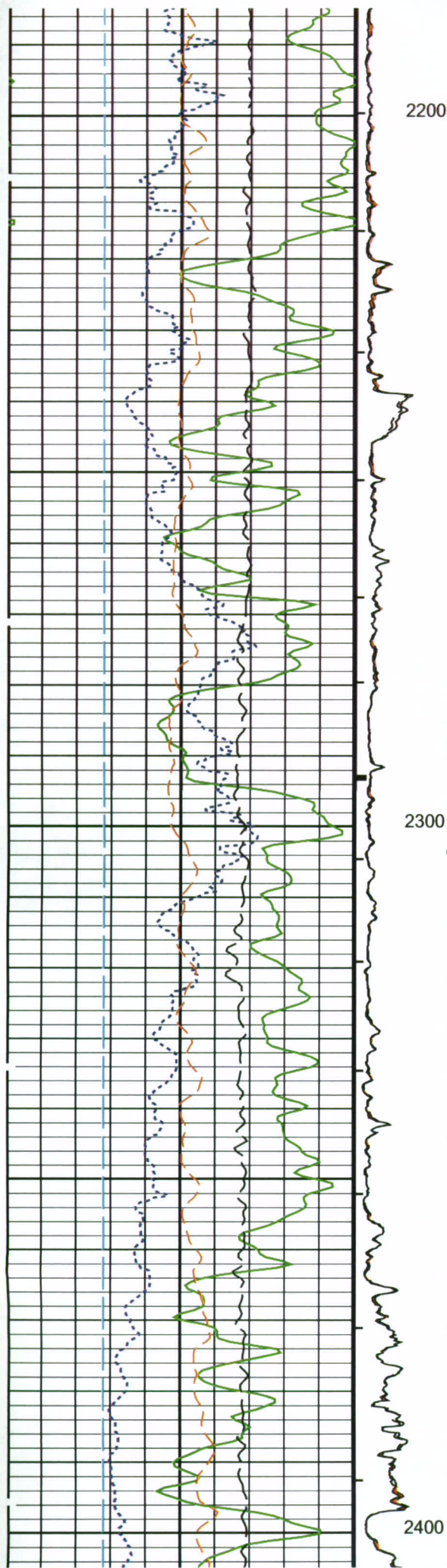
		Std. Res. Invaded Zone Resistivity (RXOZ)			
		2	(OHMM)	2000	
		AIT 90 Inch Investigation (AT90)			
		2	(OHMM)	2000	
		AIT 60 Inch Investigation (AT60)			
		2	(OHMM)	2000	
		Gas From DPHZ to NPOR			
HILT Caliper (HCAL) (IN)		AIT 30 Inch Investigation (AT30)		Std. Res. Formation Pe (PEFZ)	Density Correction (HDRA)
6	16	2	(OHMM)	2000	
Gamma Ray (GR) (GAPI)				0	10
0	150			(----	-0.2
Bit Size (BS) (IN)					0.05
6	16				
Tension (TENS) (LBF)		AIT 20 Inch Investigation (AT20)		Alpha Processed Neutron Porosity (NPOR)	
10000	0	2	(OHMM)	2000	
Perm From HMIN to HMNO		AIT 10 Inch Investigation (AT10)		Std. Res. Density Porosity (DPHZ)	
-80	20	2	(OHMM)	2000	
				0.3	-0.1

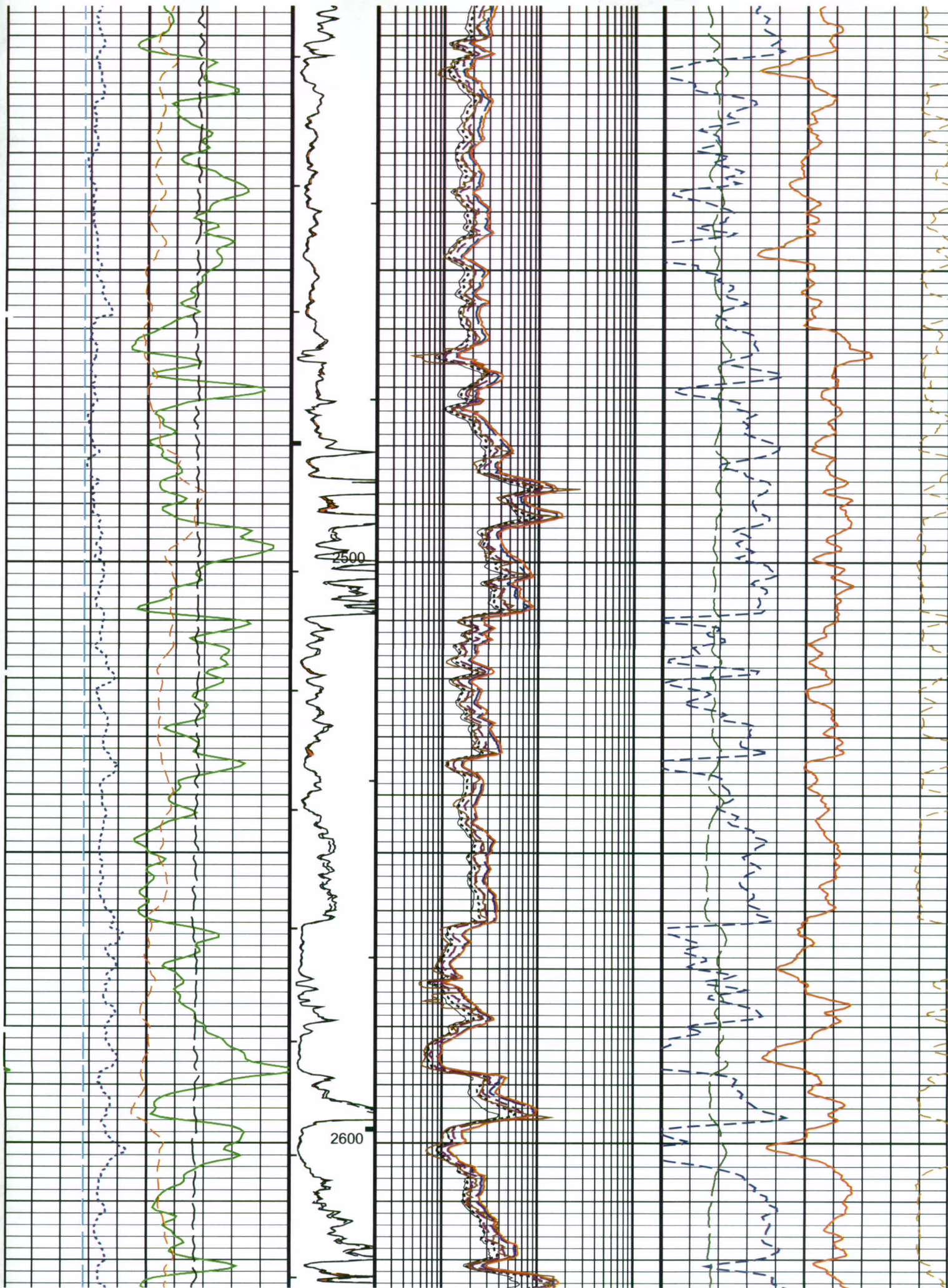


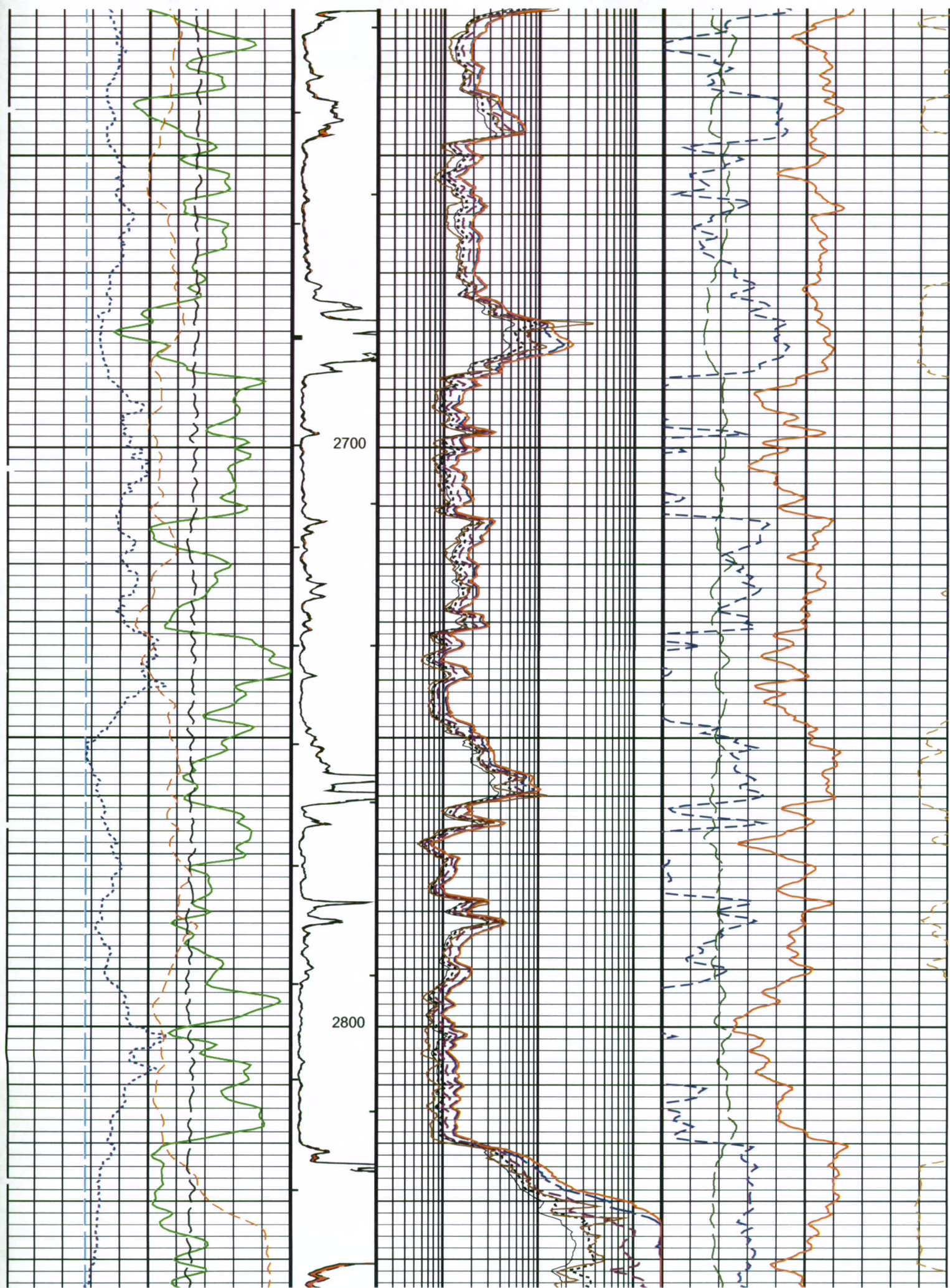


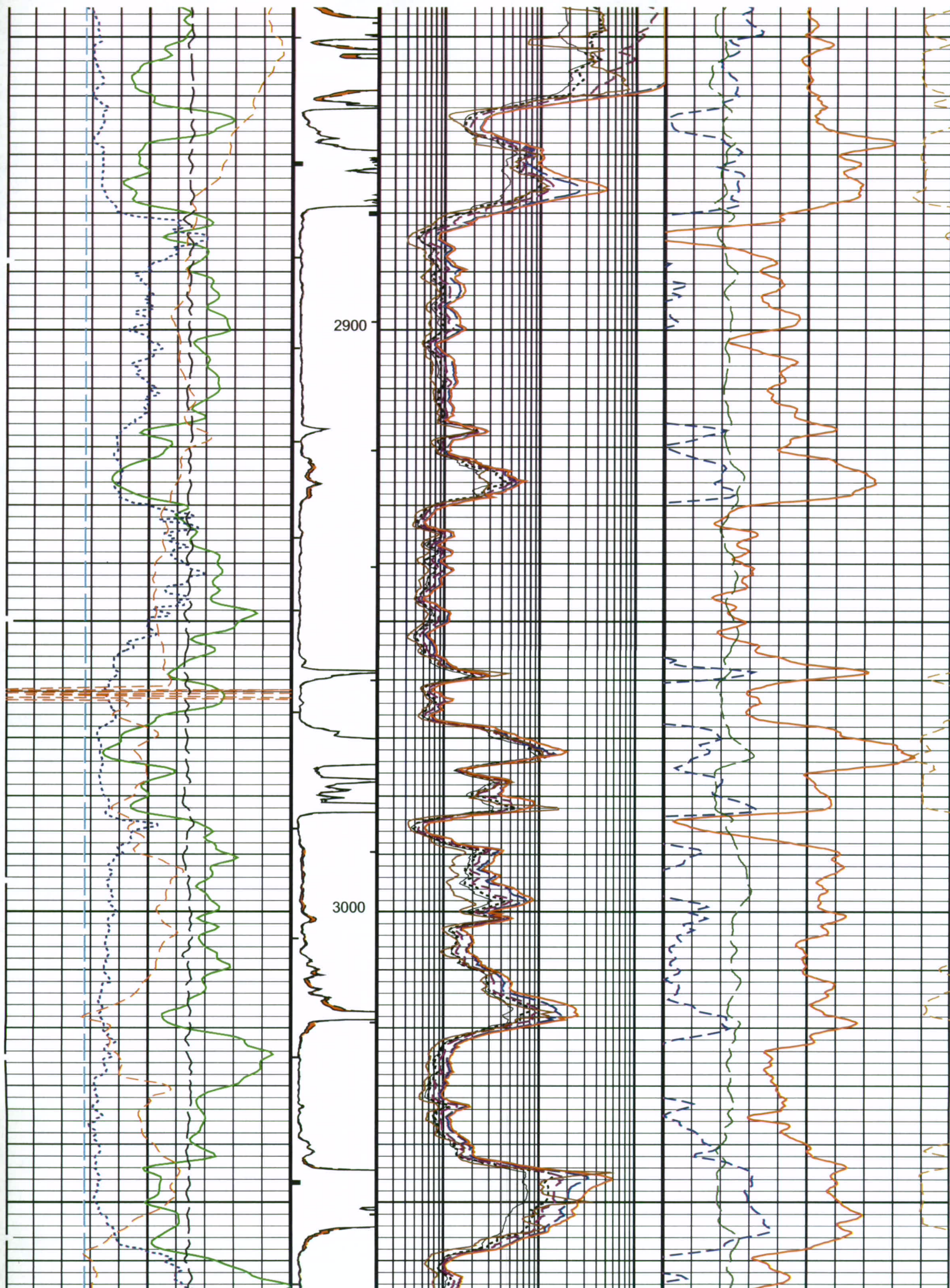


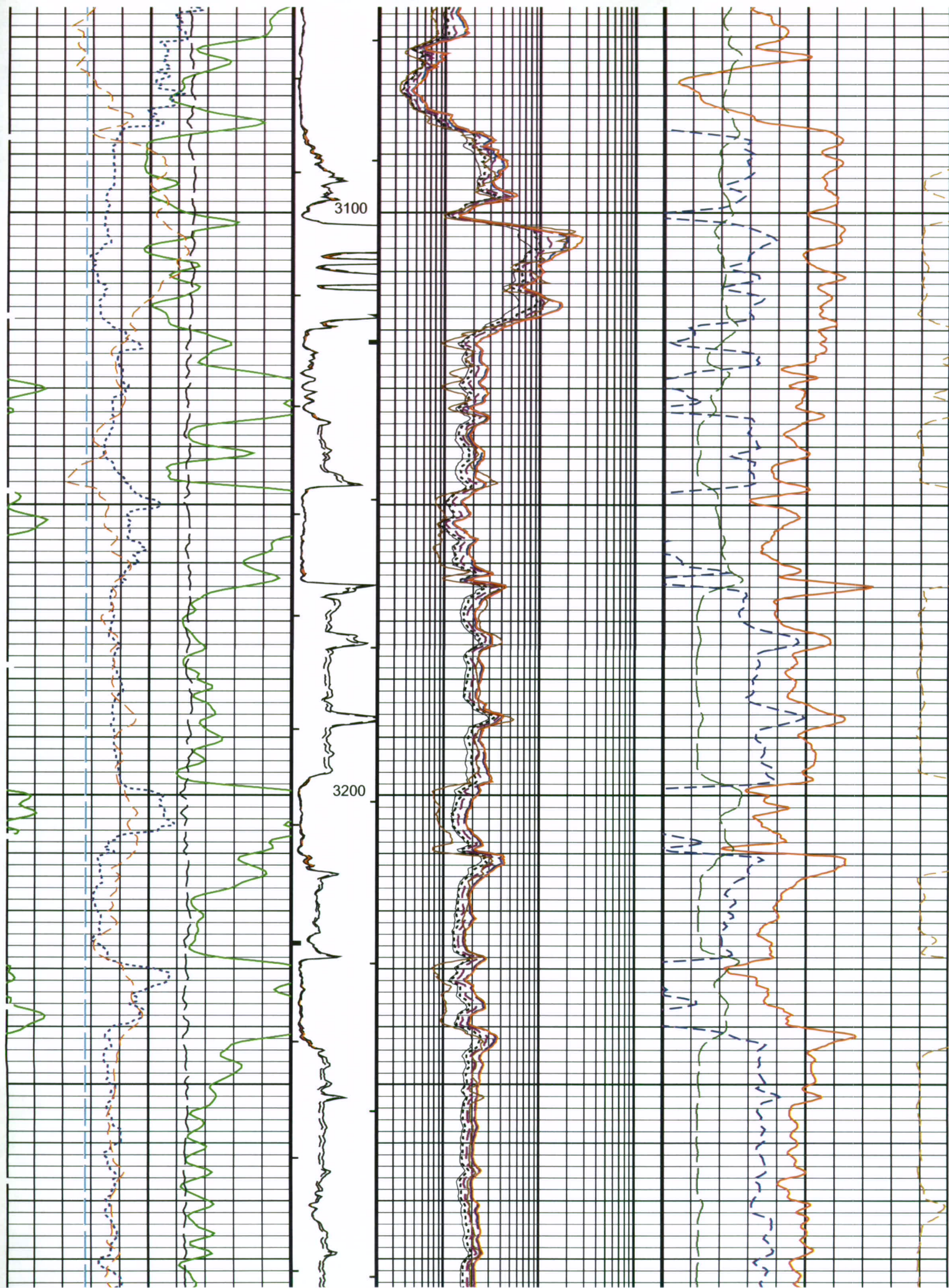


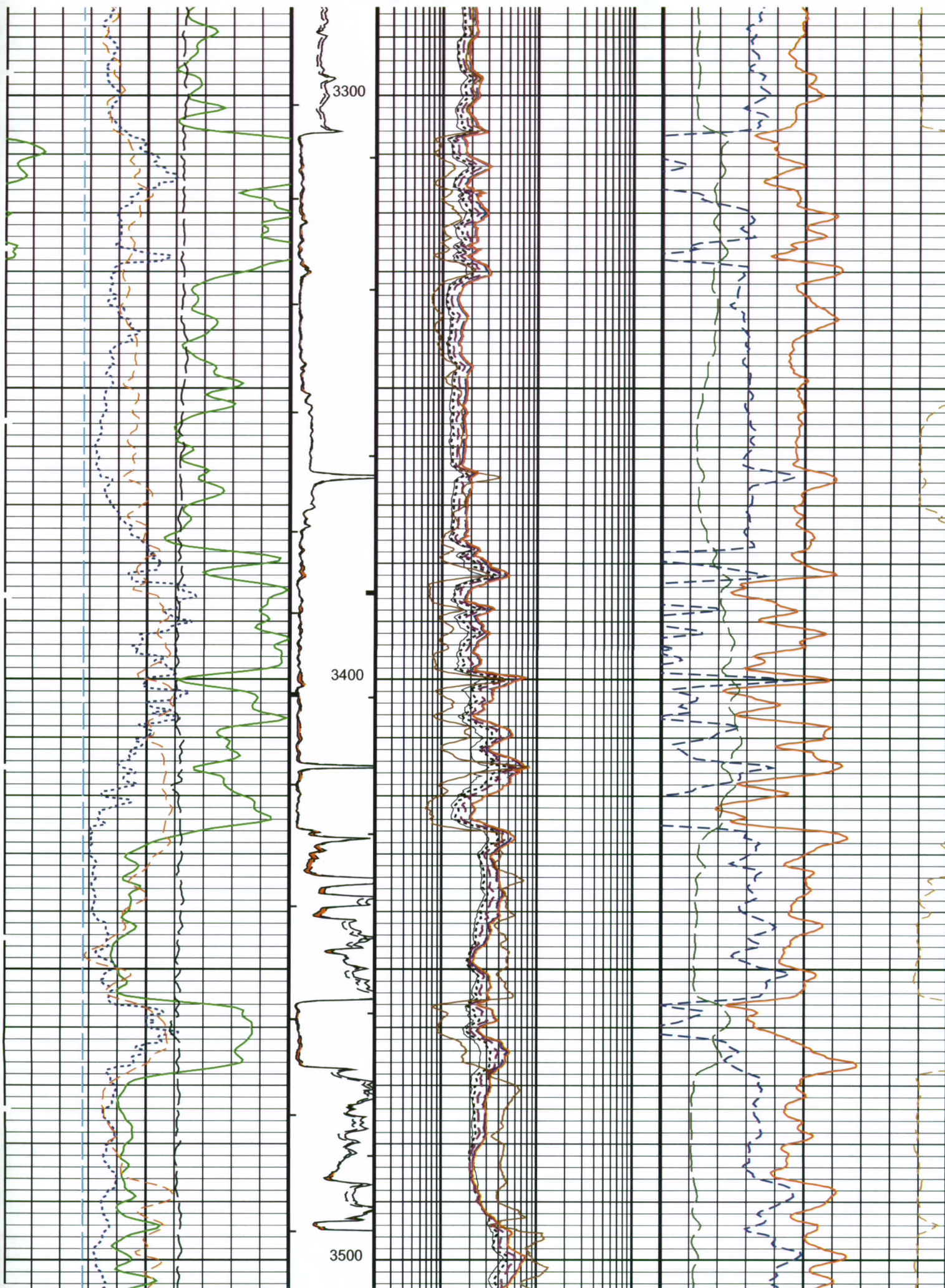


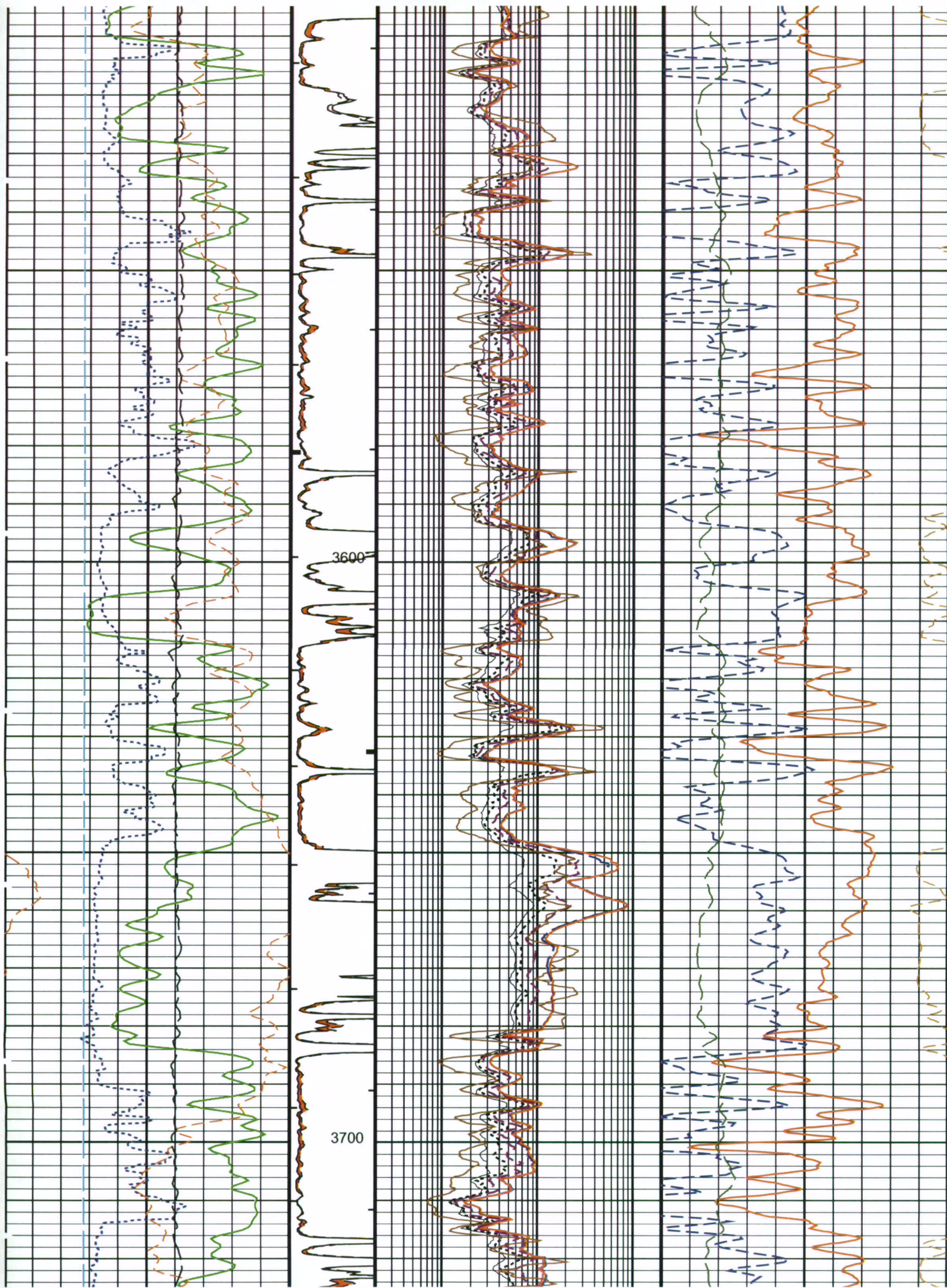


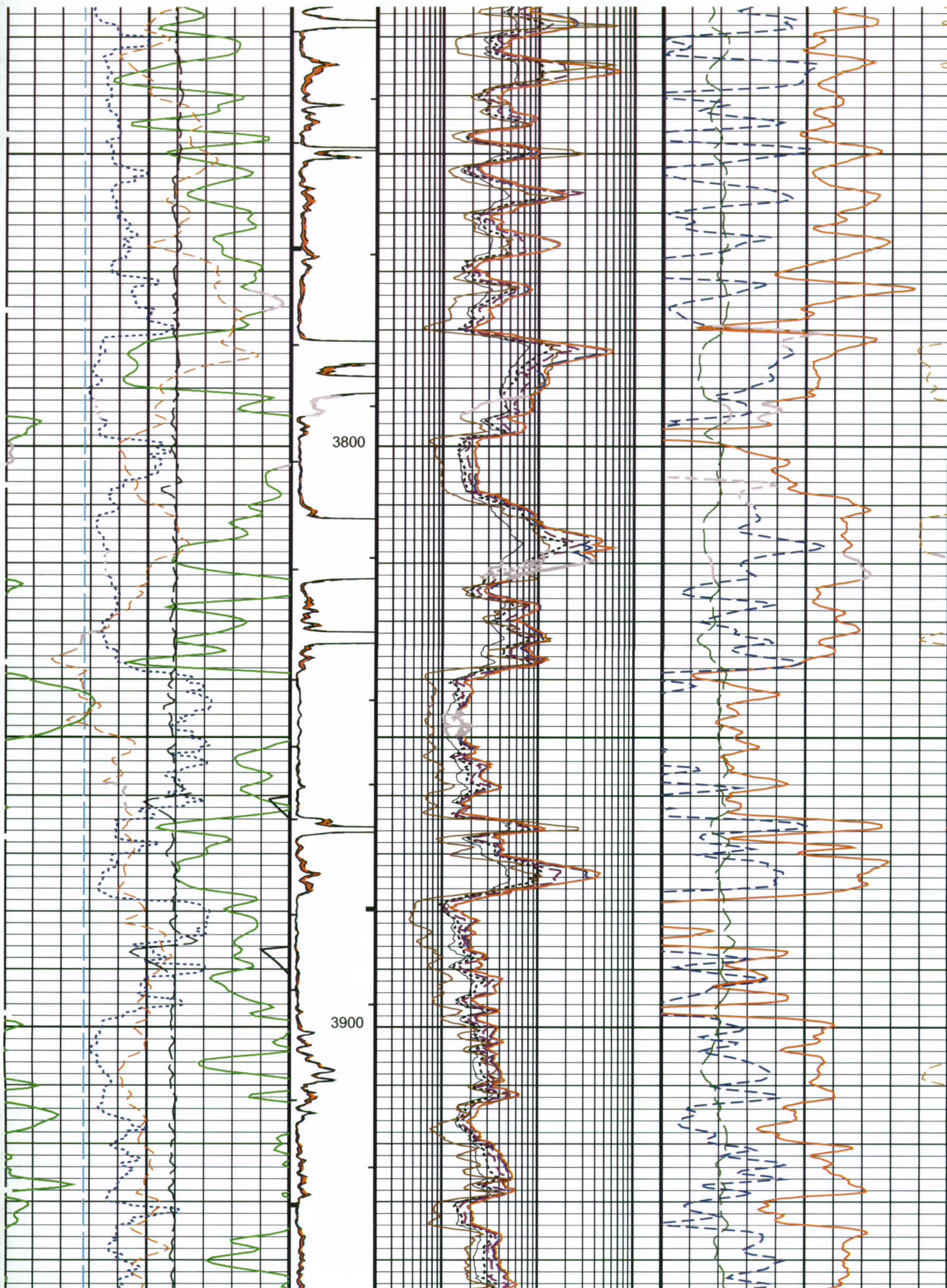


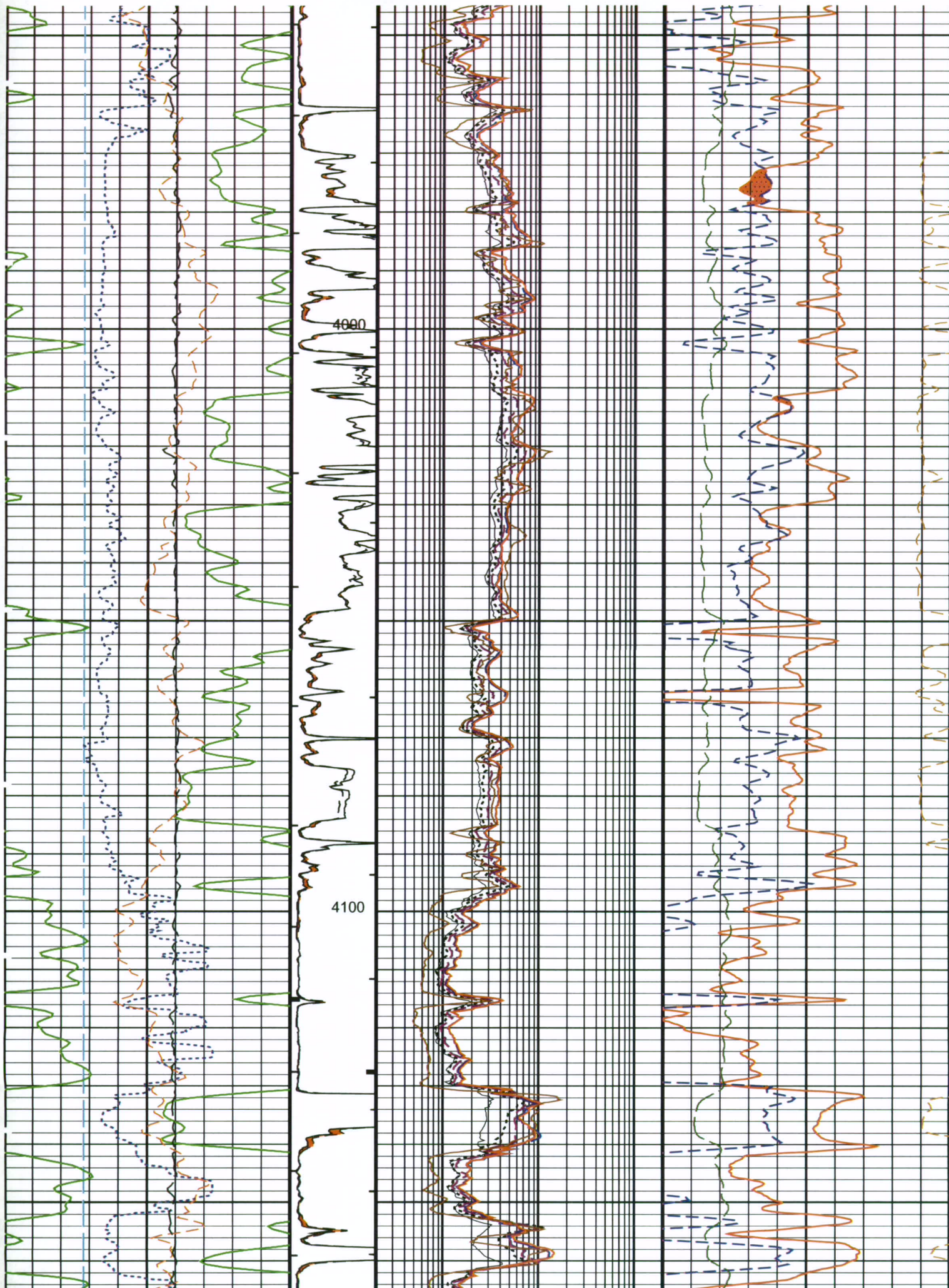


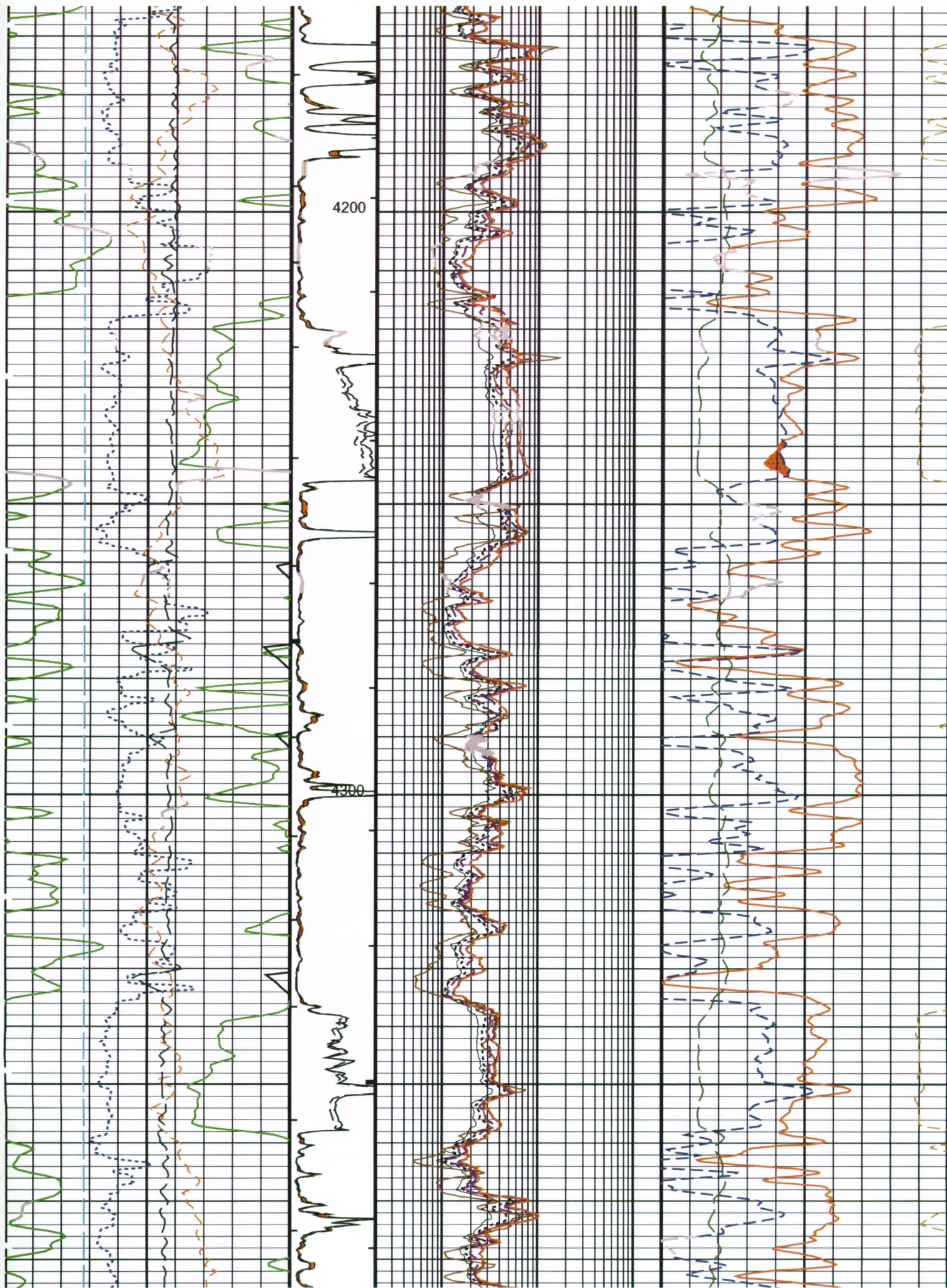


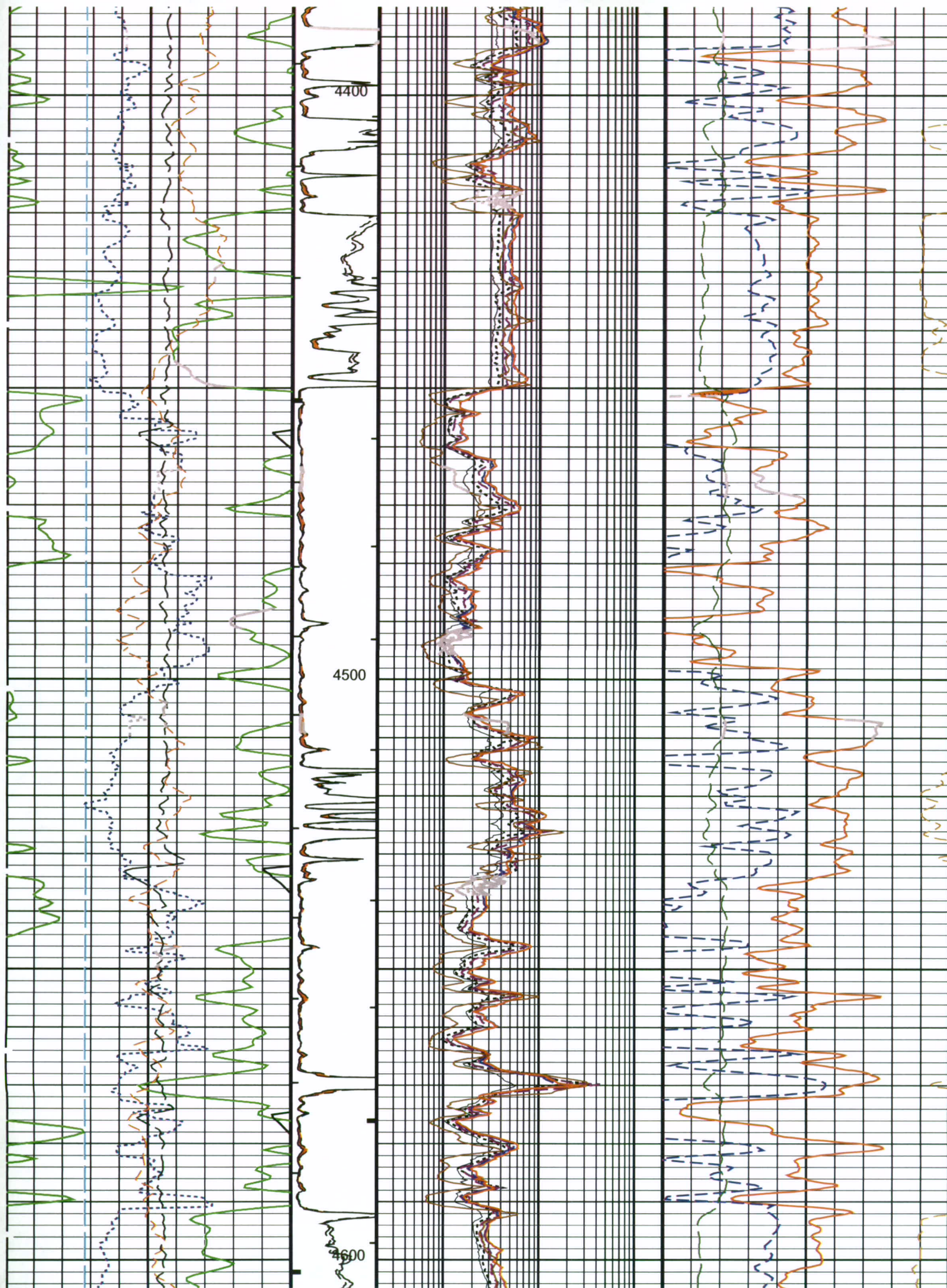


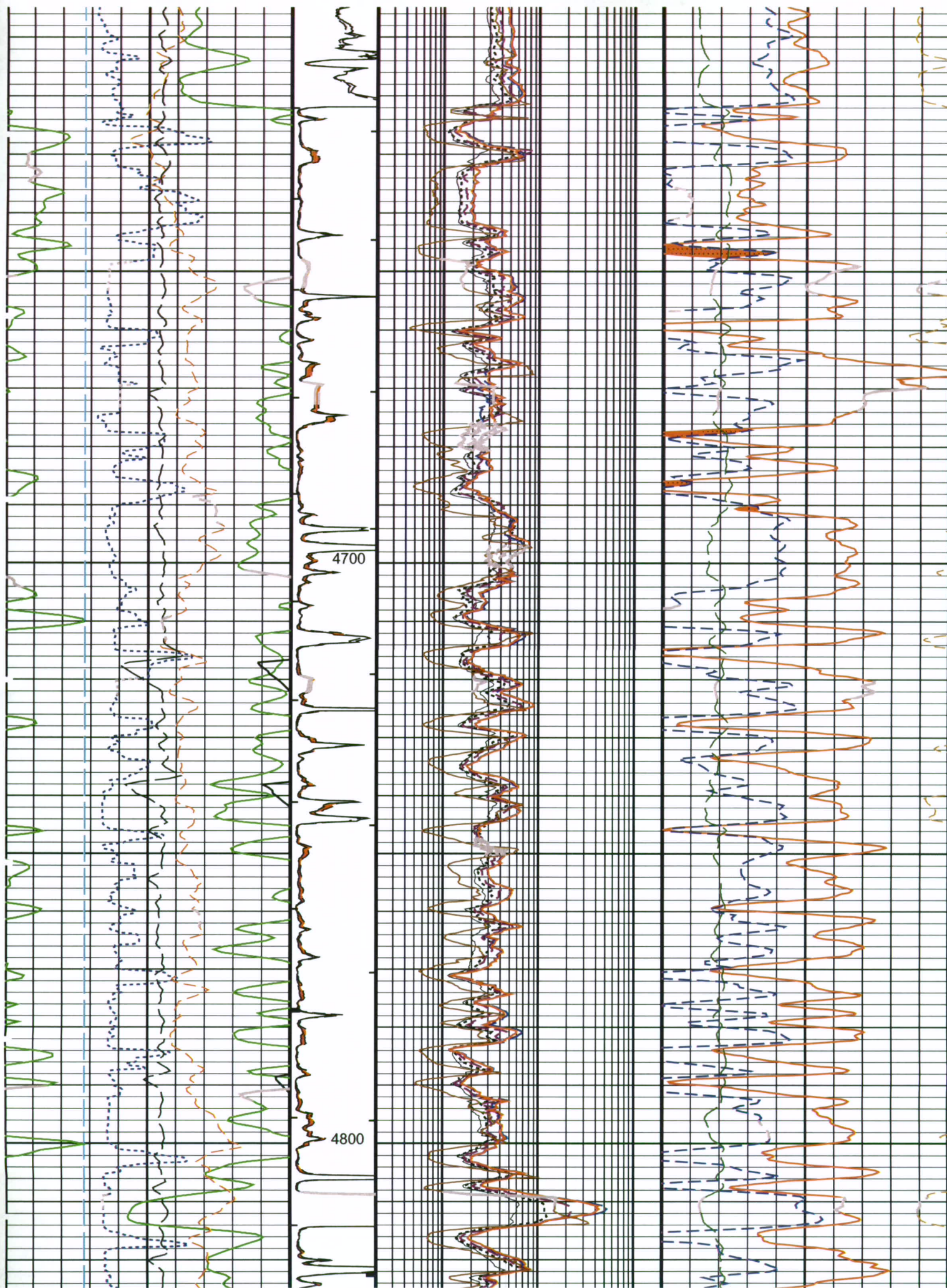


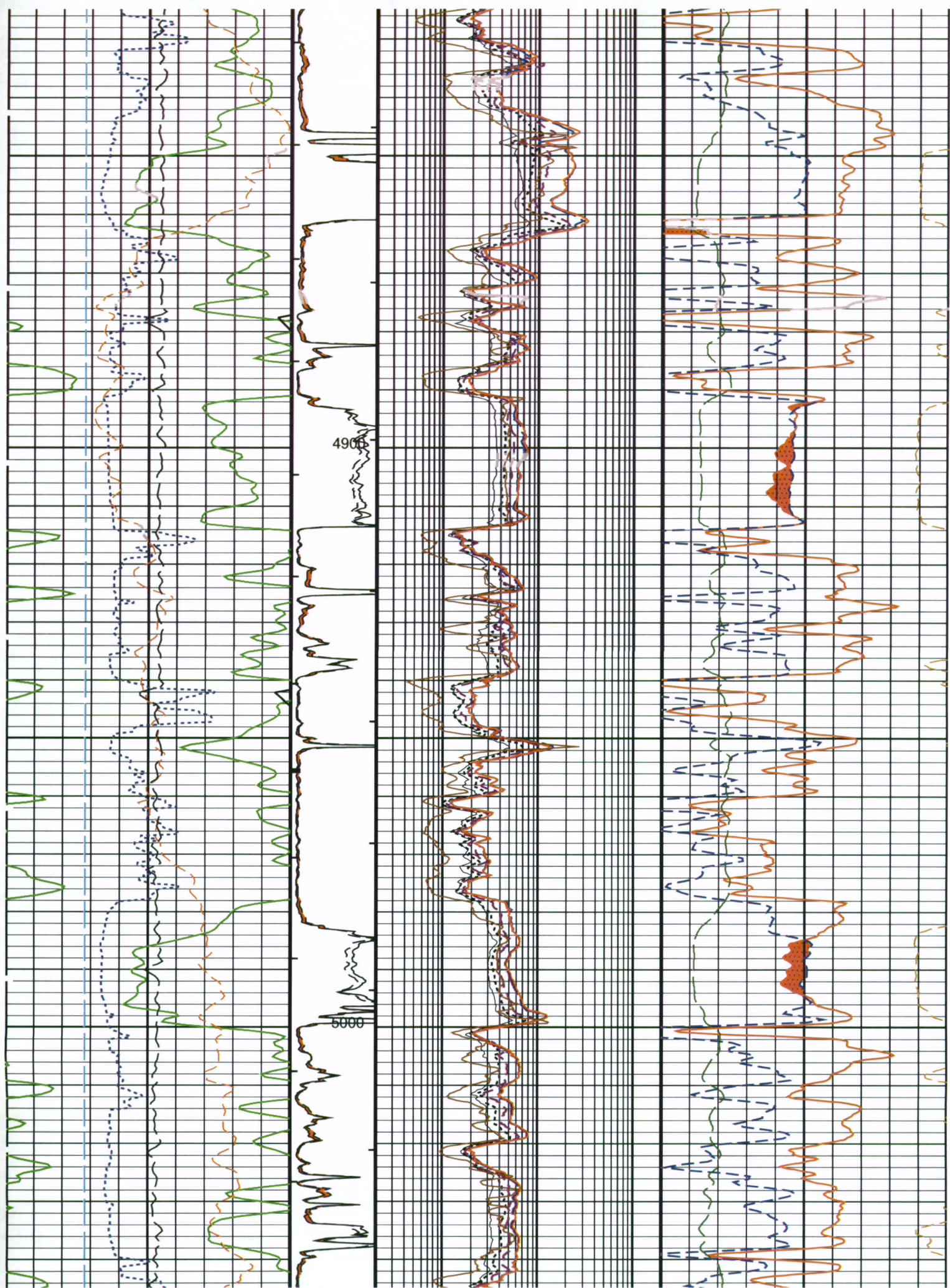


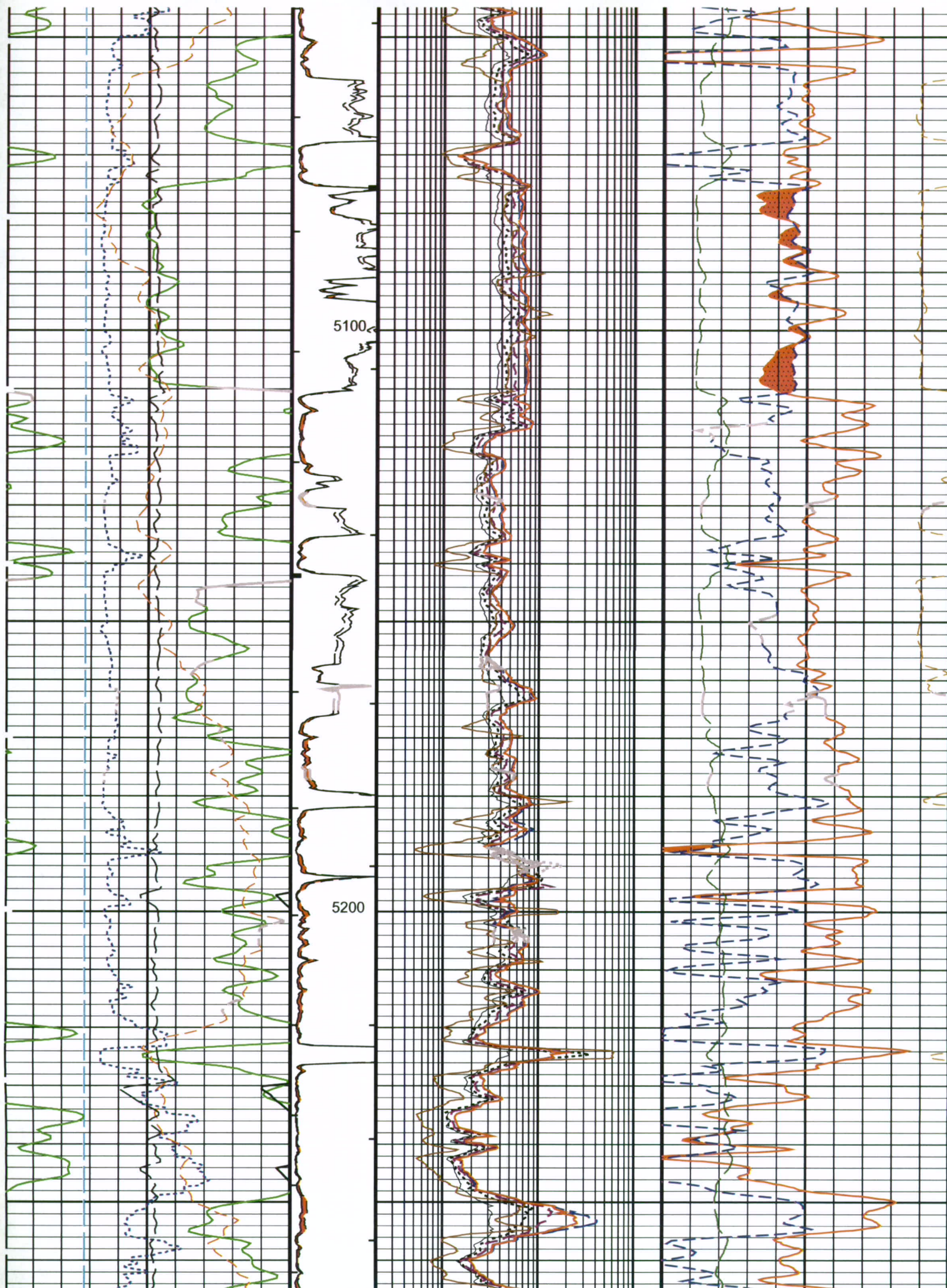


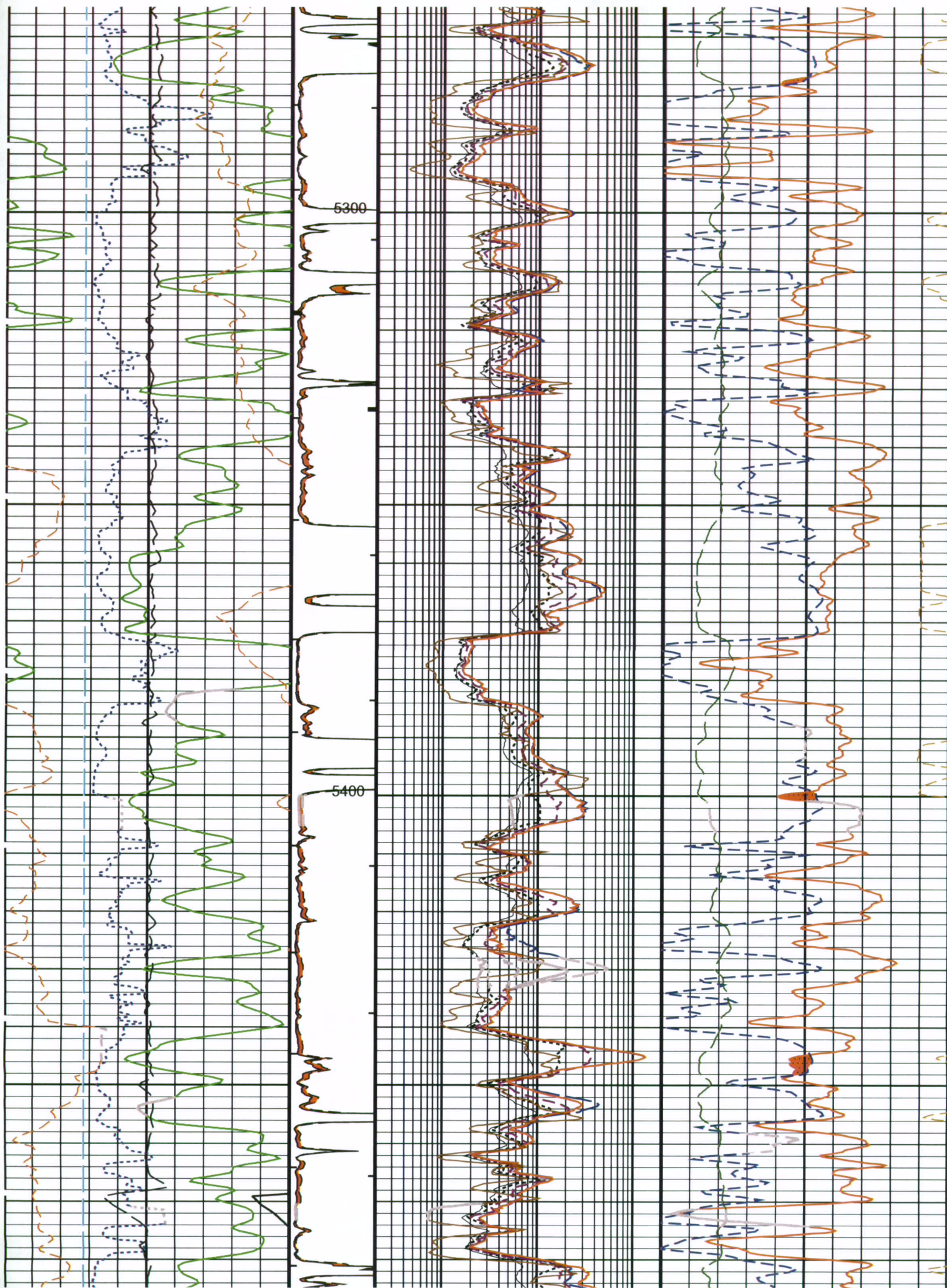


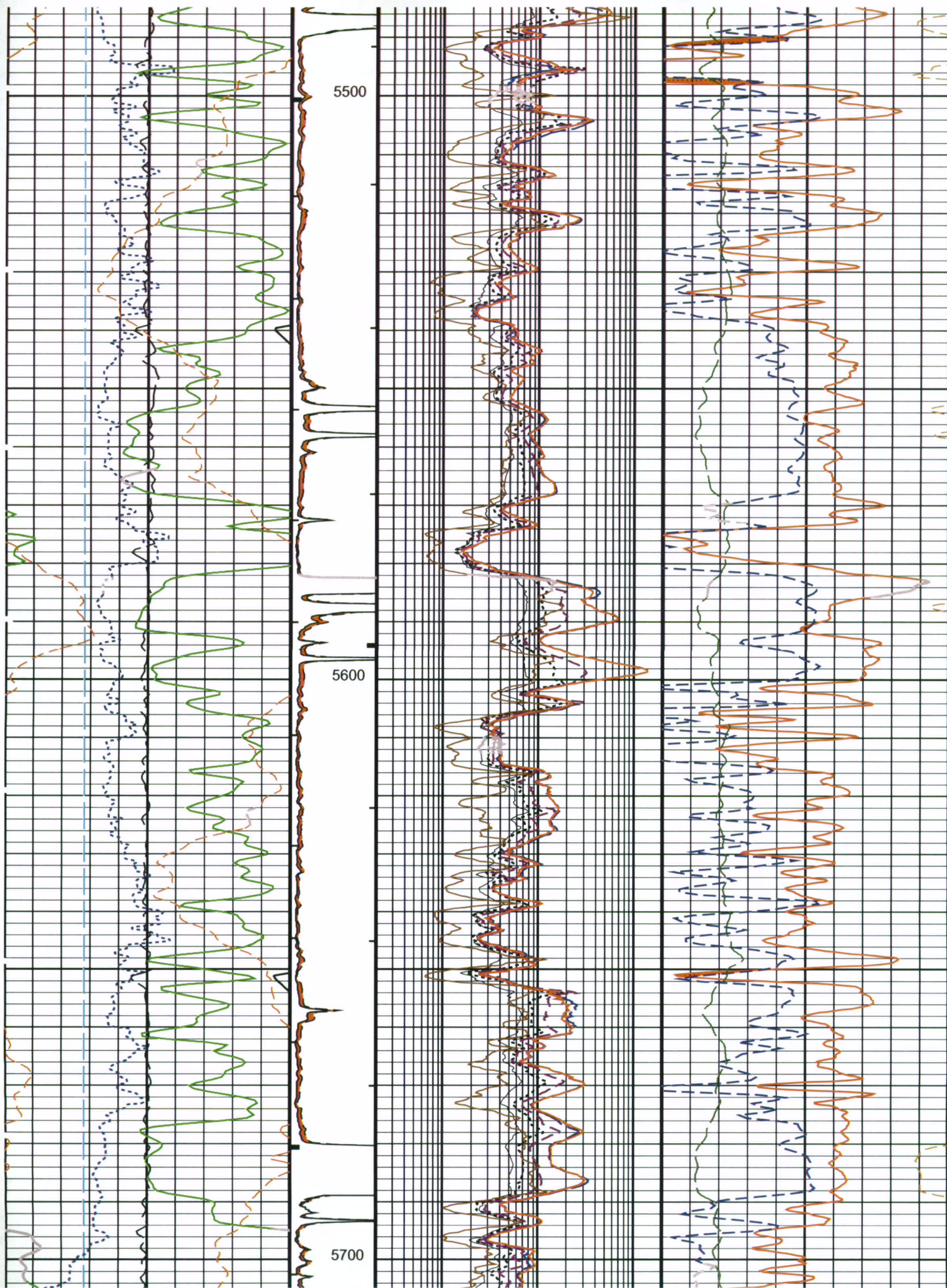


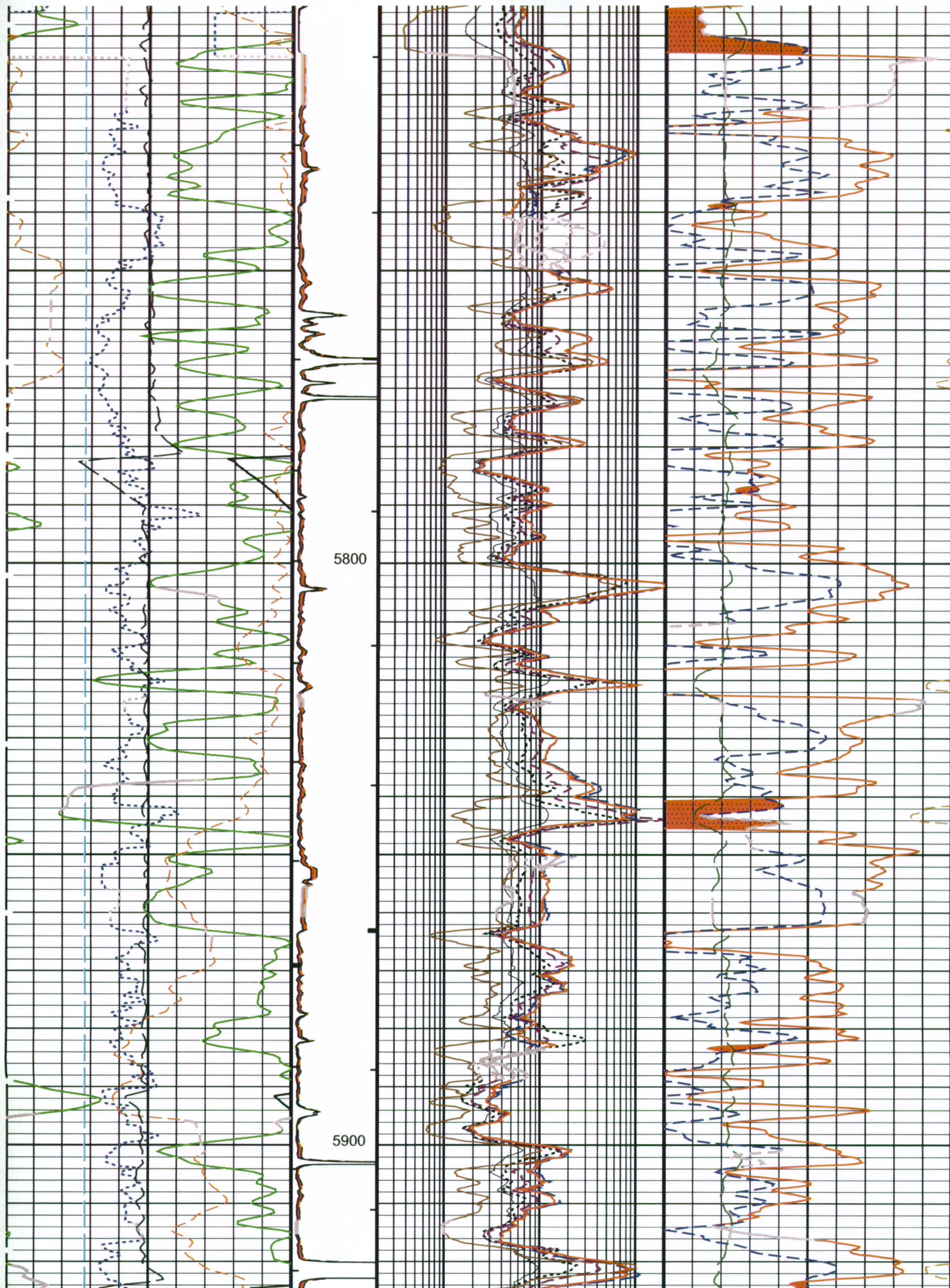


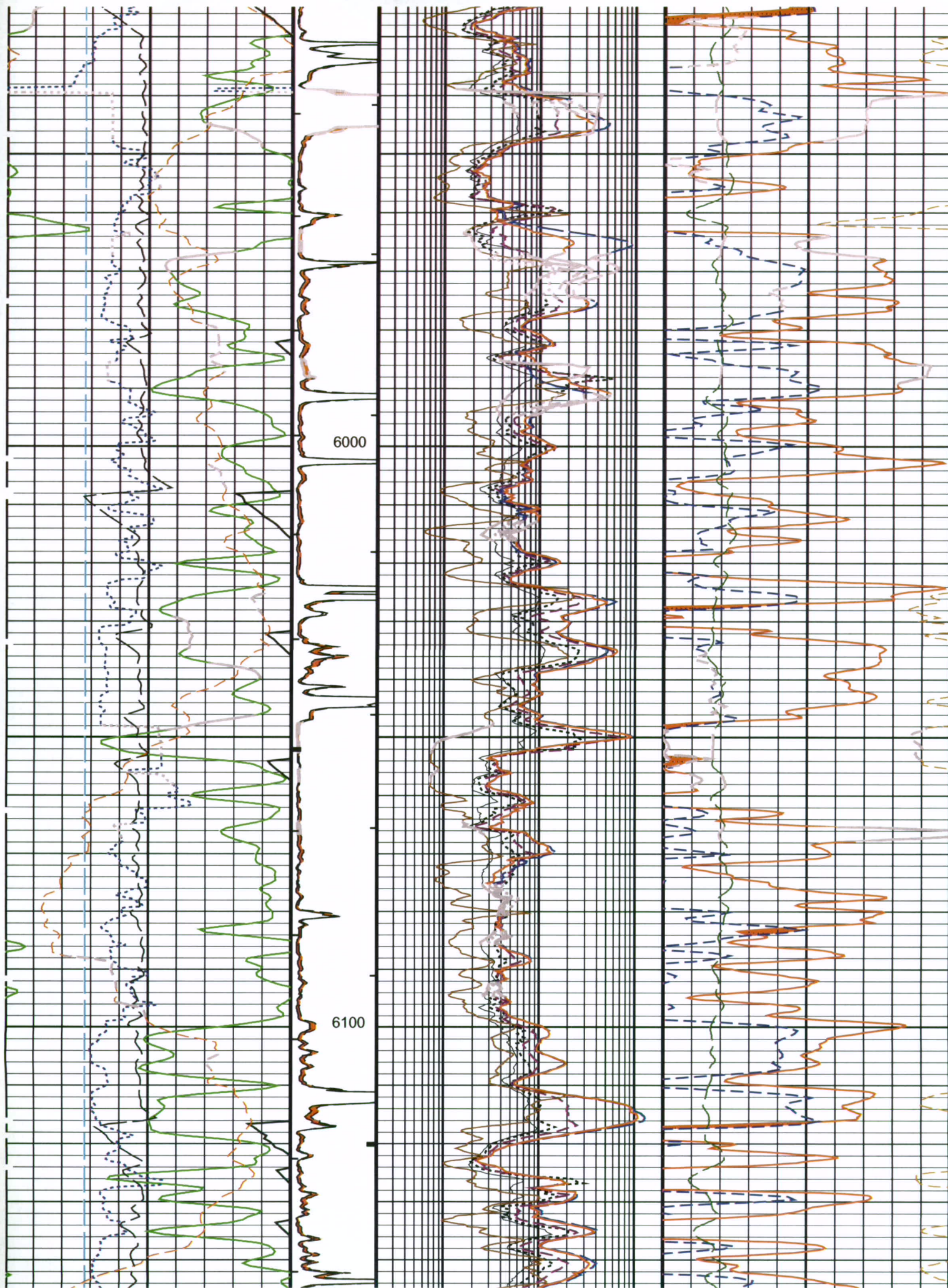


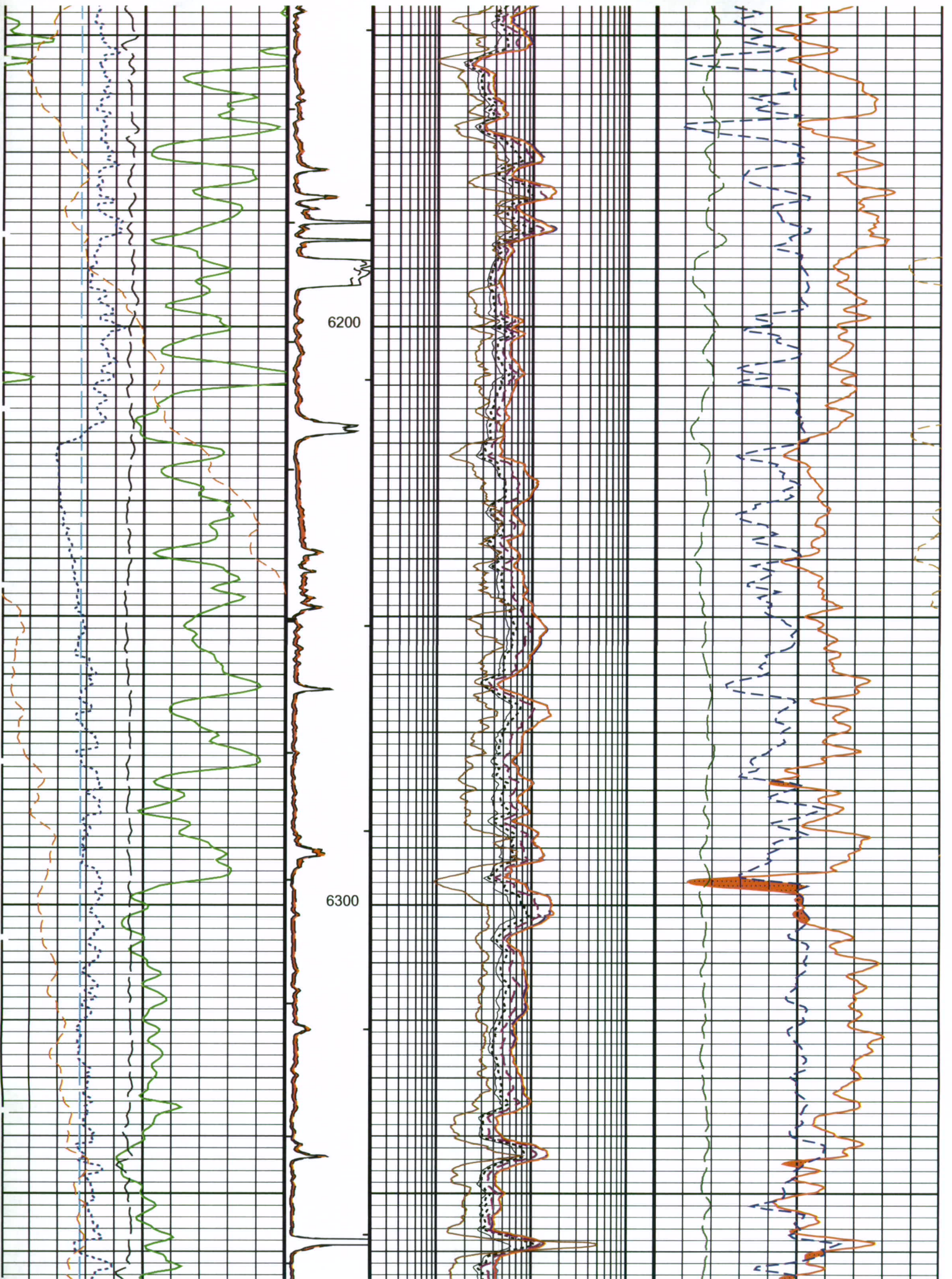


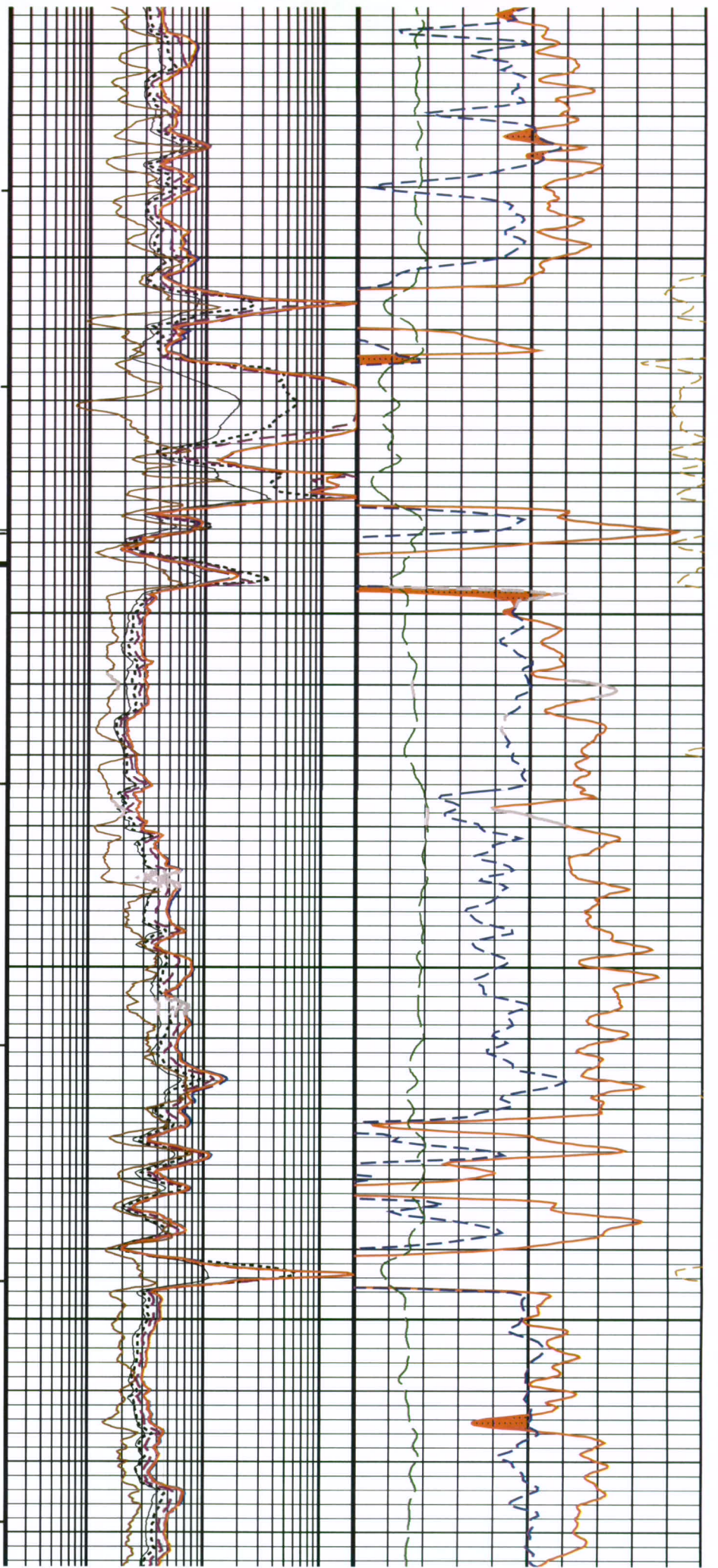
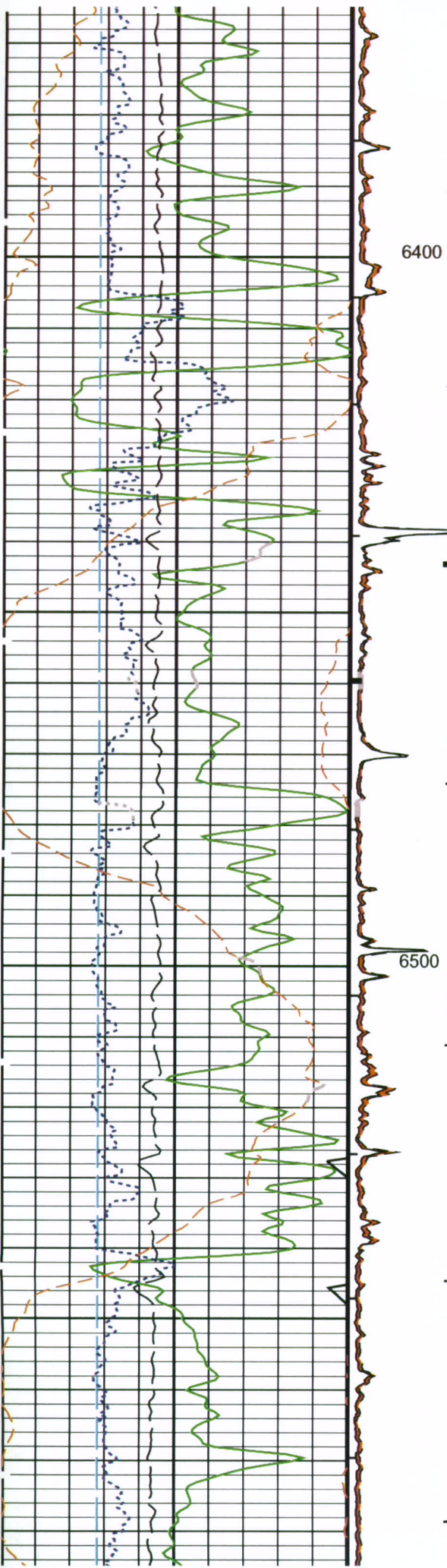


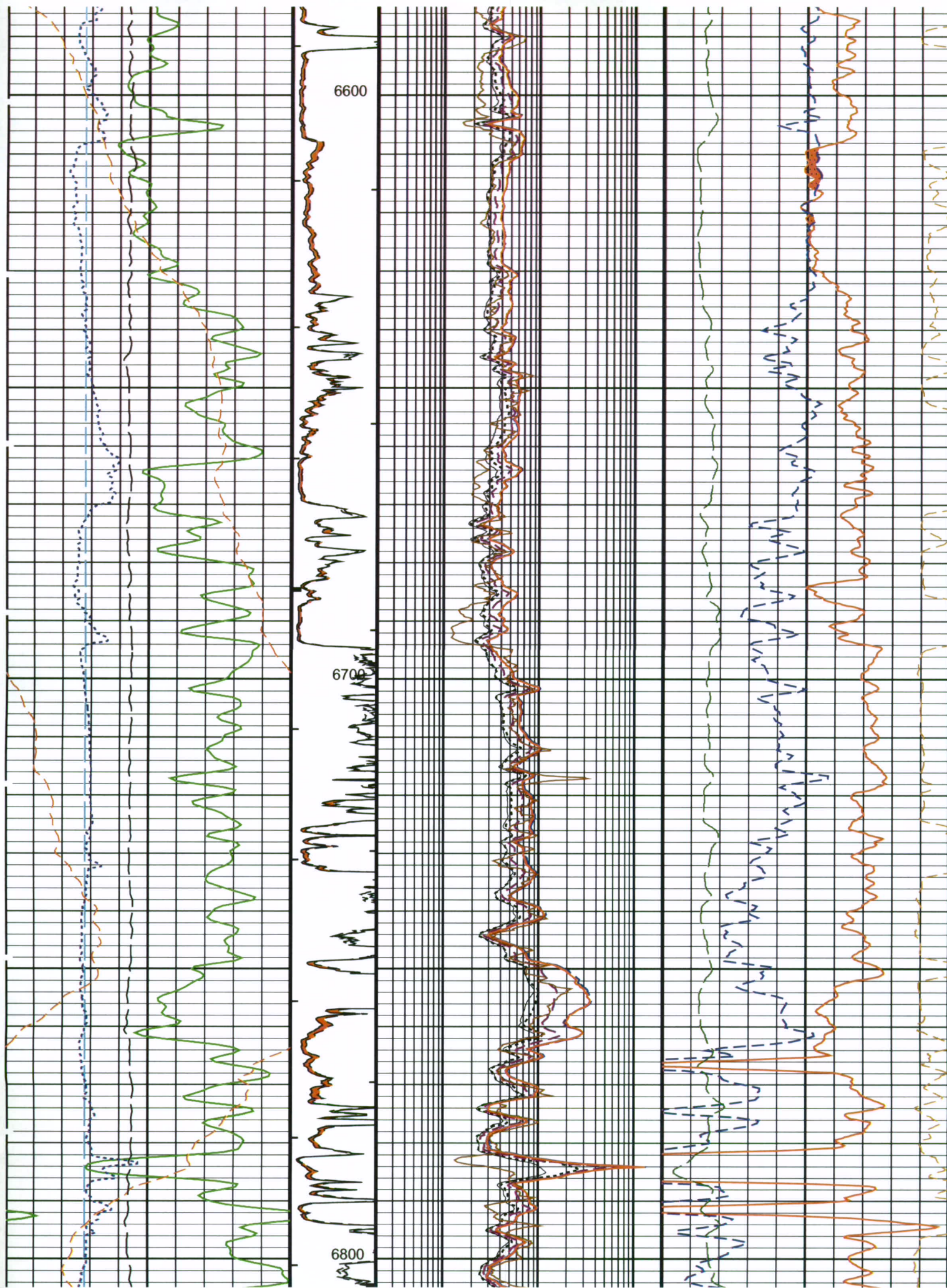


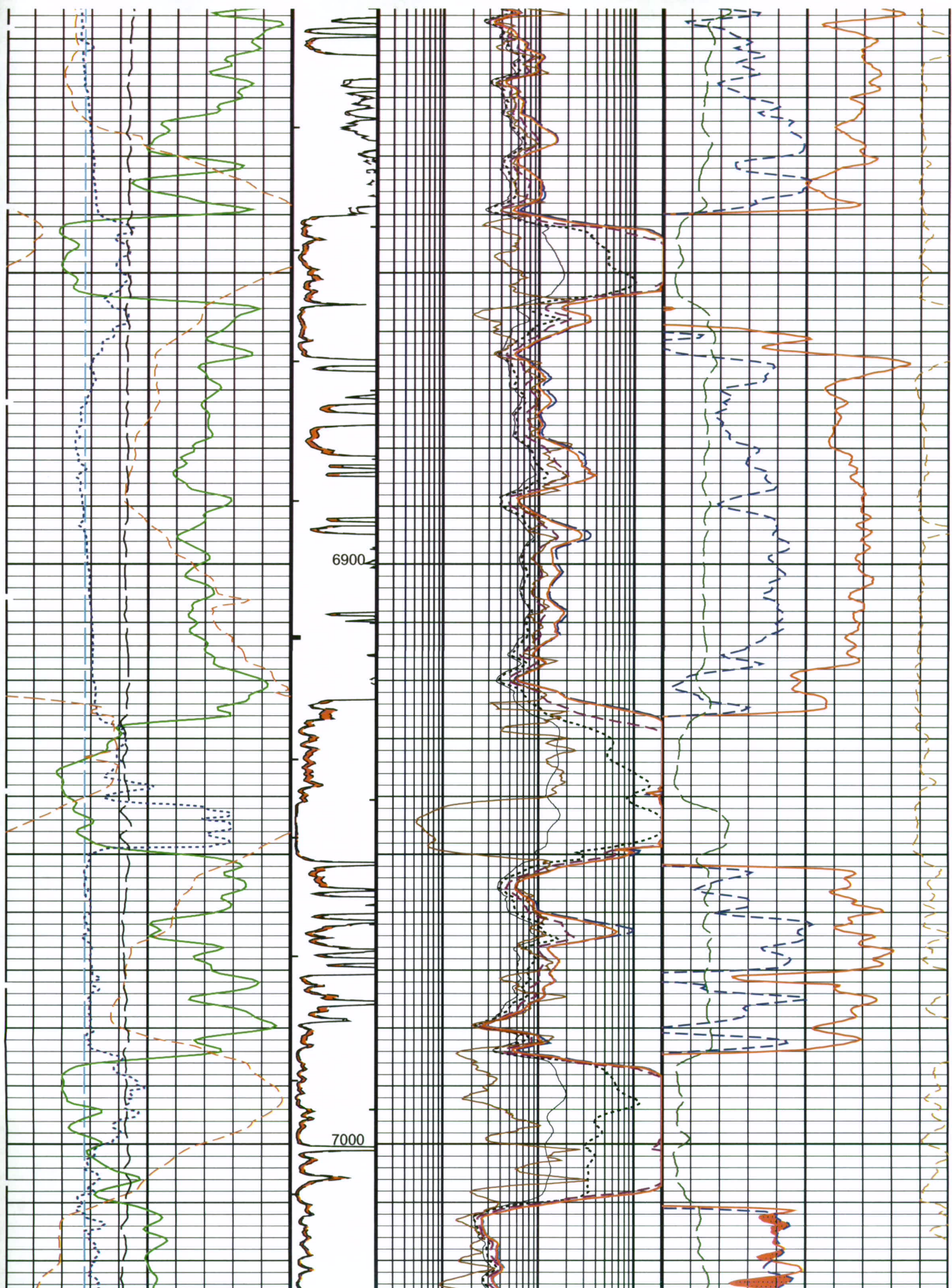


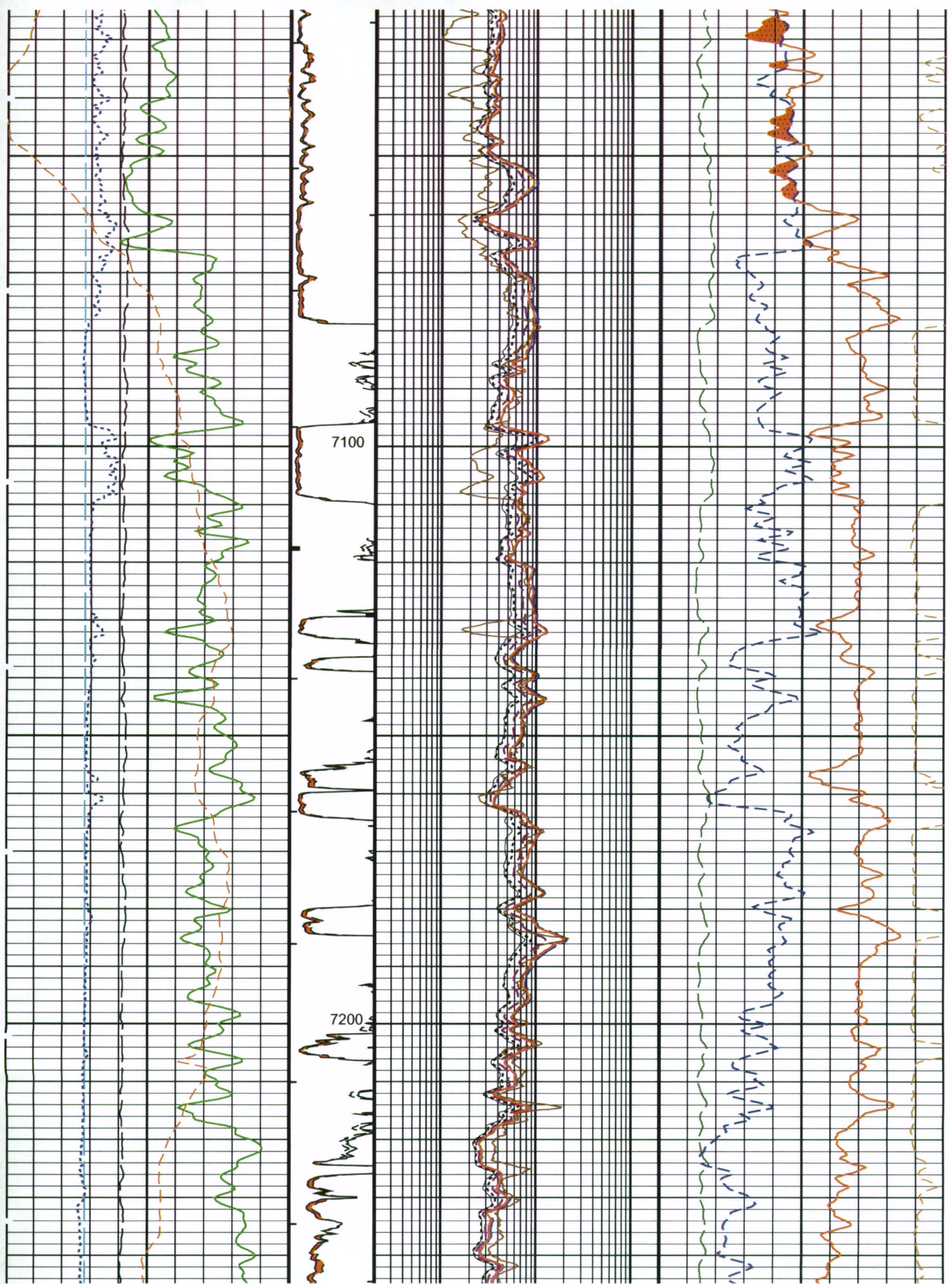


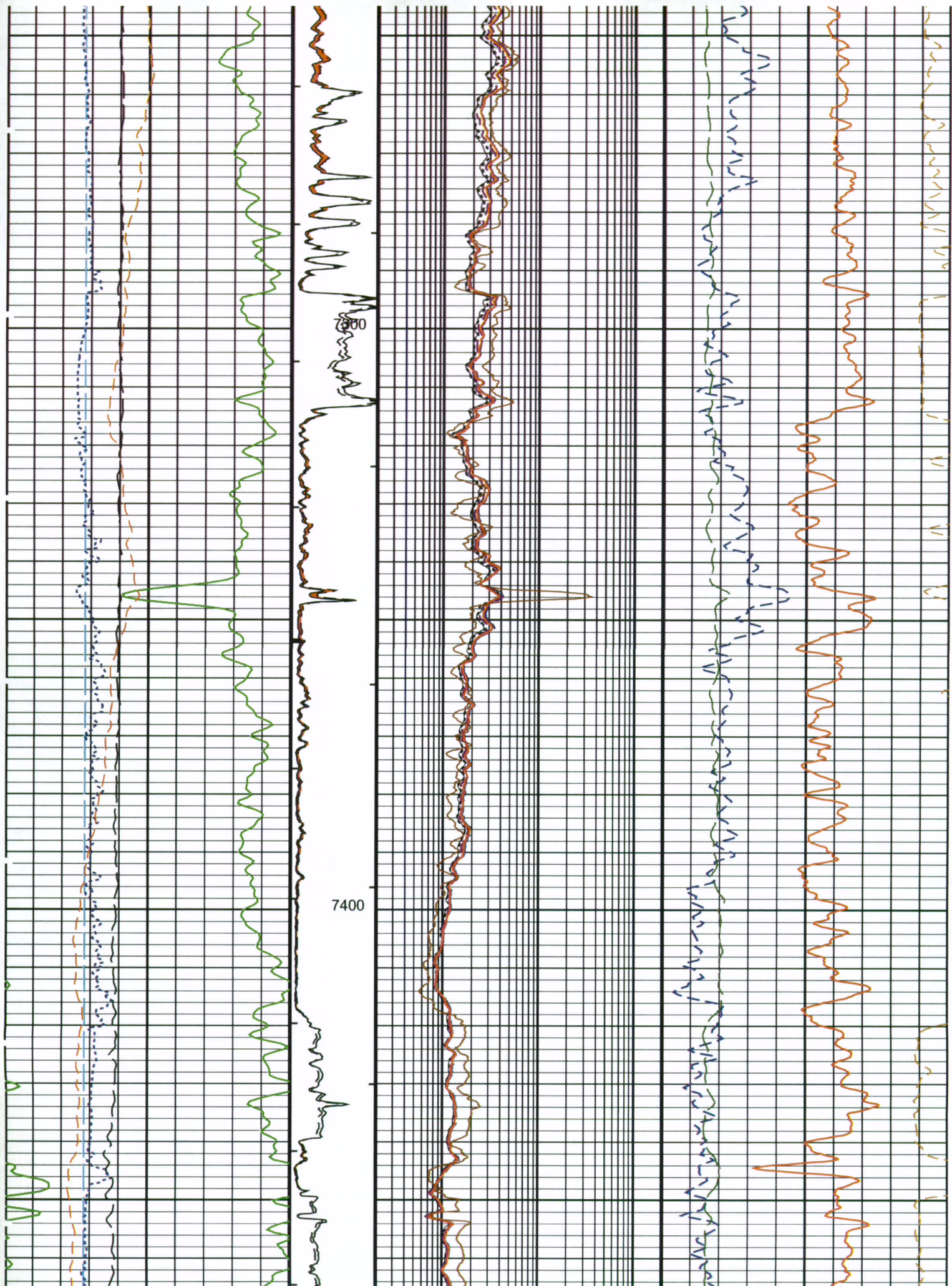


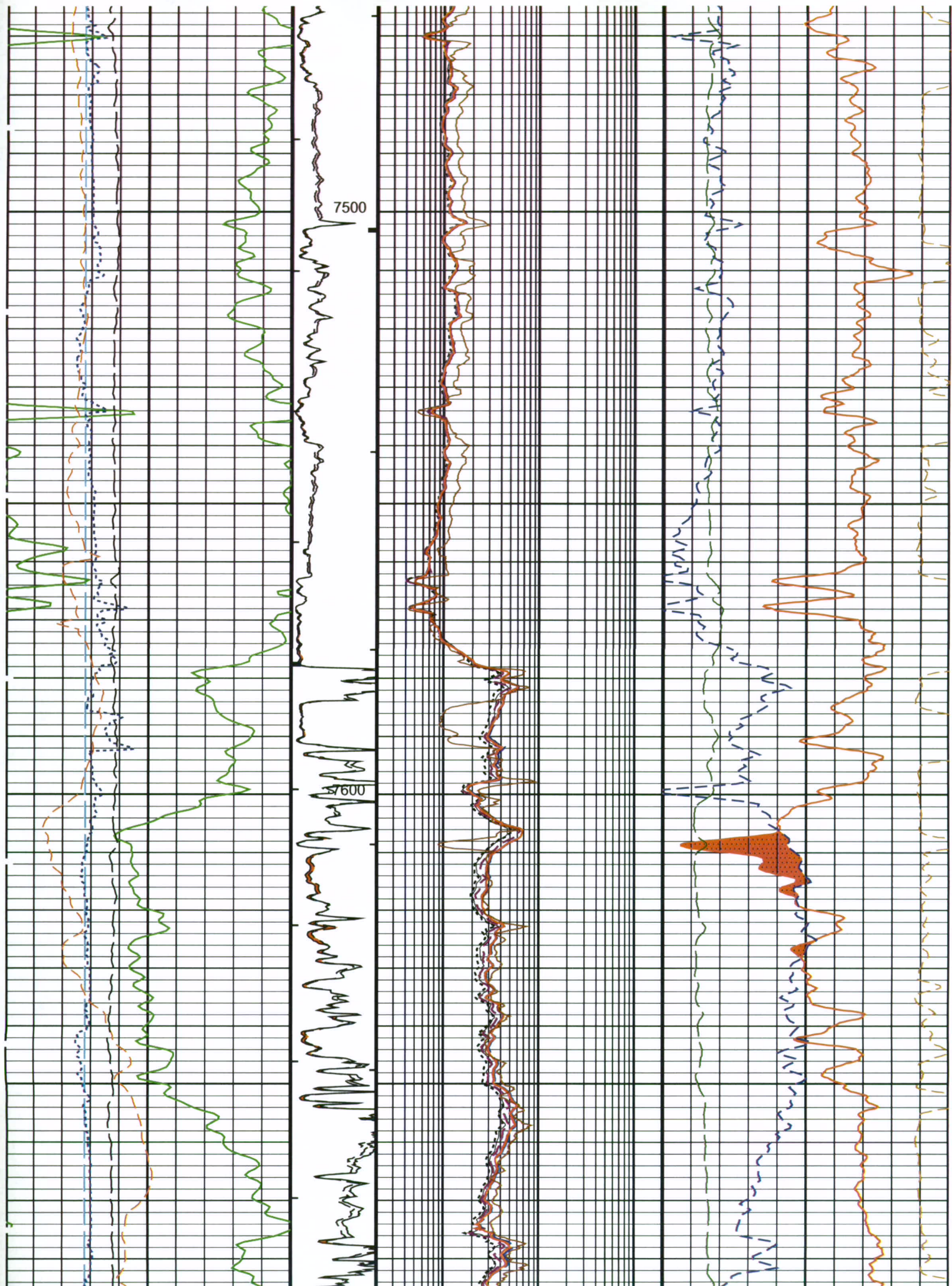


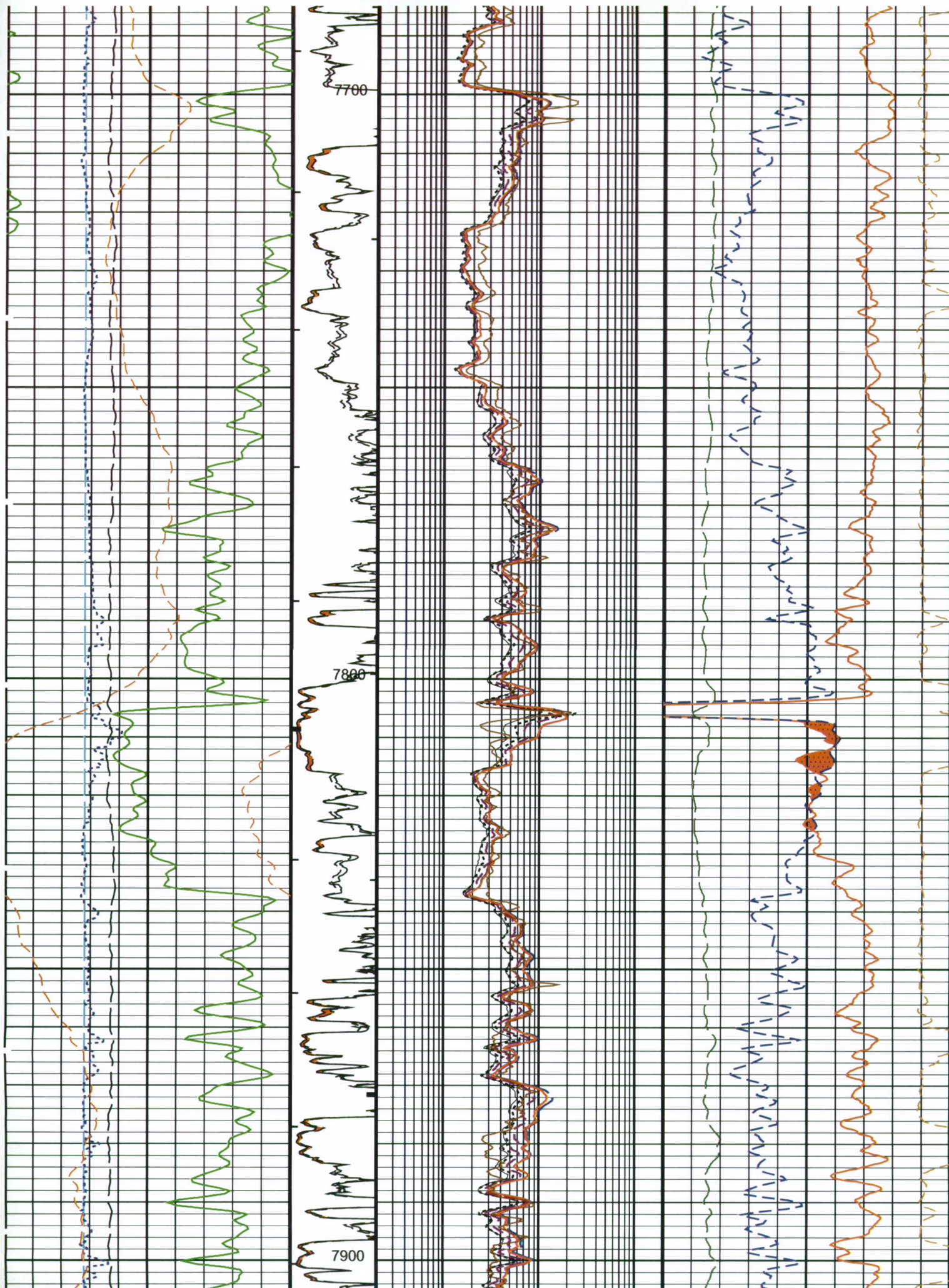


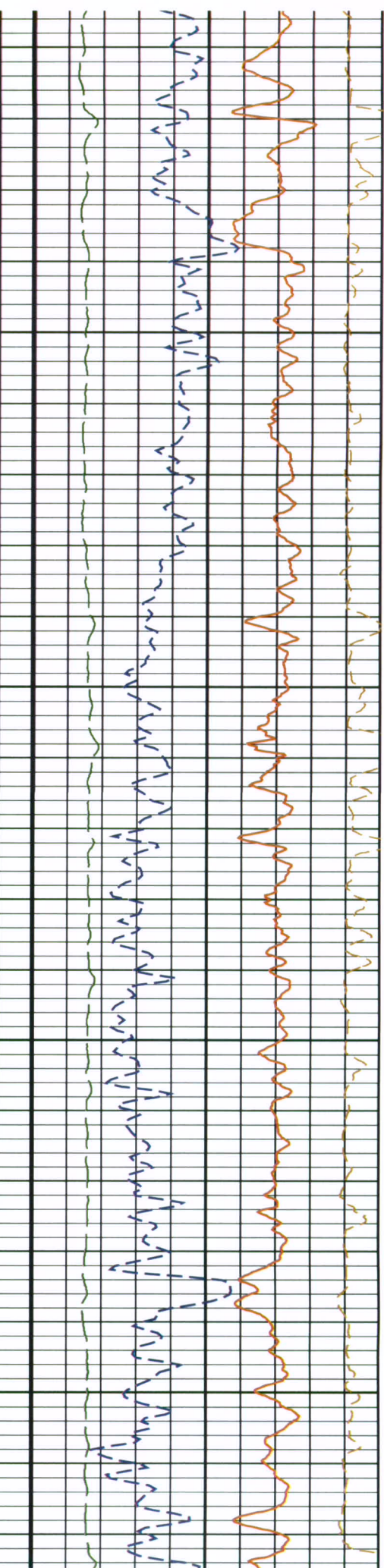
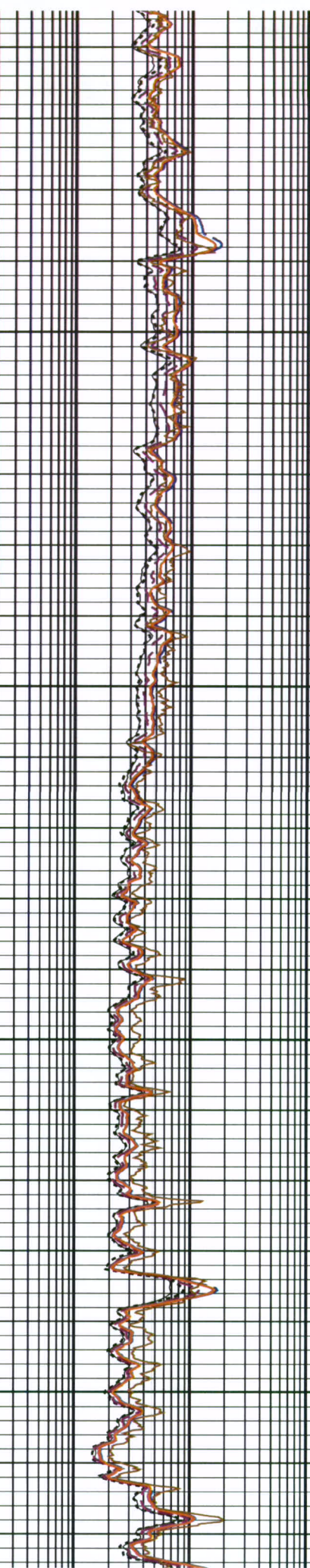
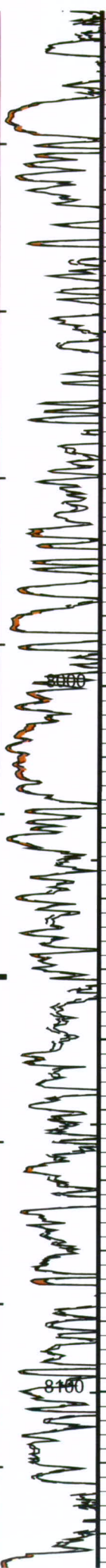
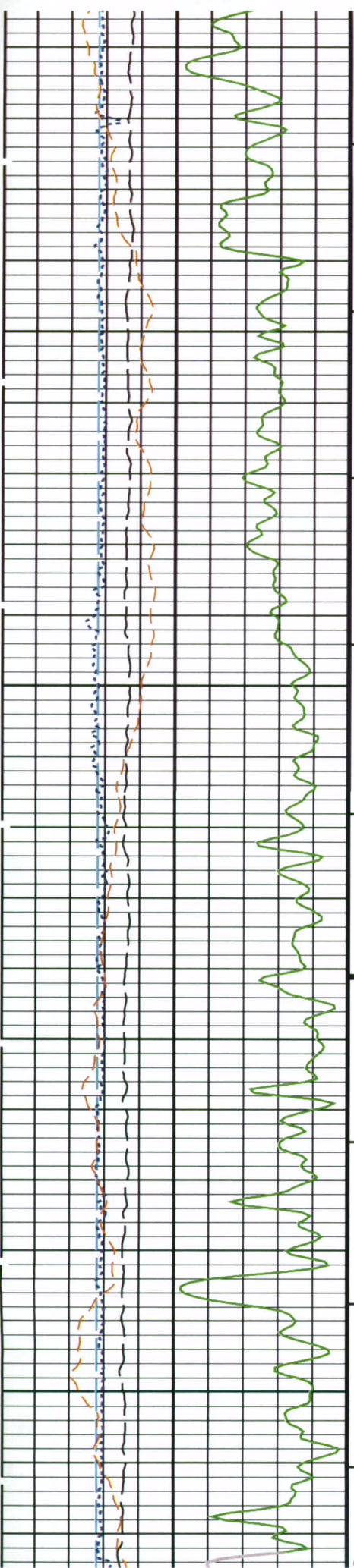


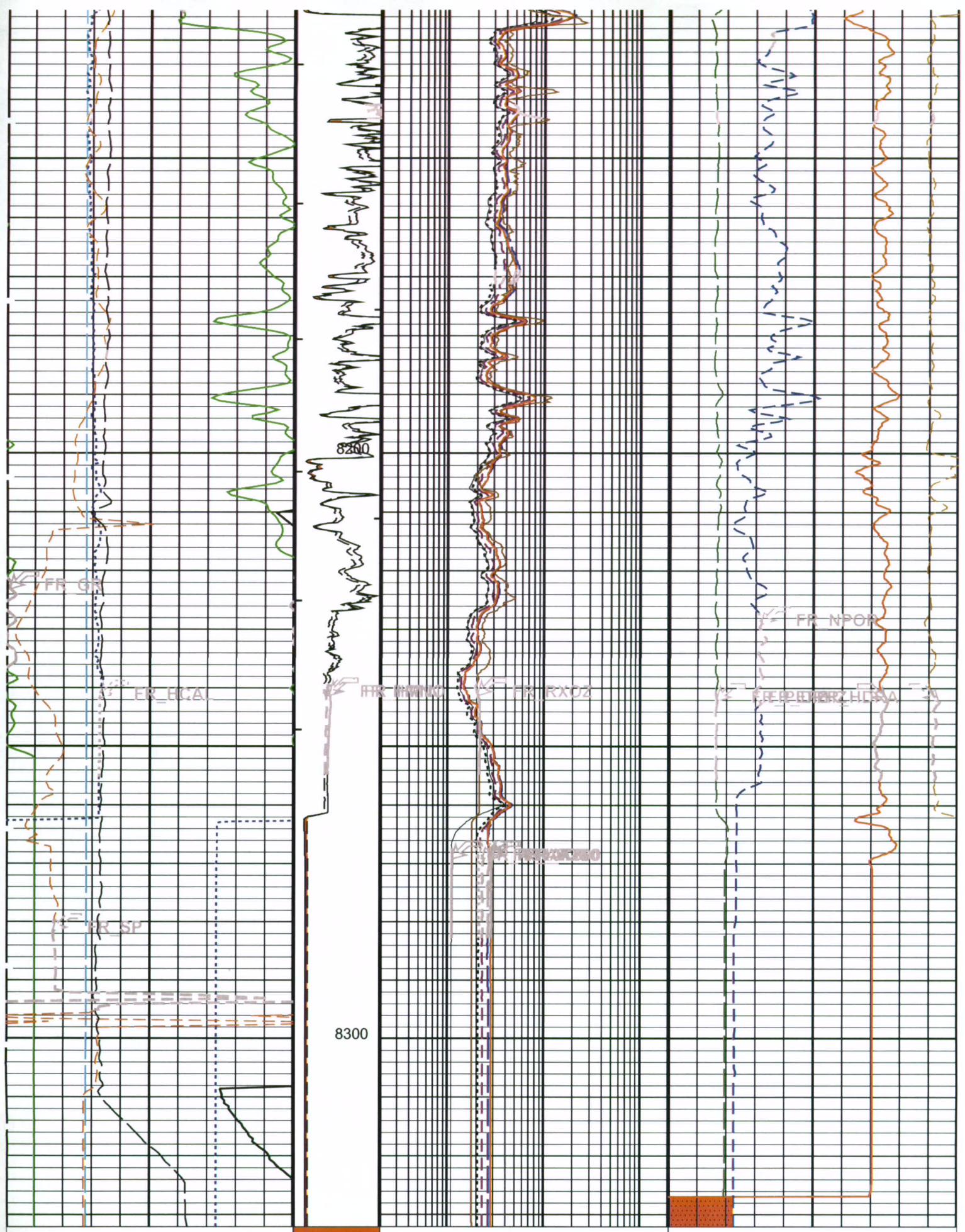












SP (SP)
(MV)

Perm
From
HMIN to
HMNO

AIT 10 Inch Investigation (AT10)
(OHMM)

Std. Res. Density Porosity (DPHZ)
(V/V)

-80

20

2

2000

0.3

-0.1

Tension (TENS) (LBF)		0	Computed Micro Normal (HMNO) (OHMM)	AIT 20 Inch Investigation (AT20) (OHMM)		Alpha Processed Neutron Porosity (NPOR) (V/V)			
10000				2	2000	0.3	-0.1		
			0	40					
Bit Size (BS) (IN)		6	Computed Micro Inverse (HMIN) (OHMM)	AIT 30 Inch Investigation (AT30) (OHMM)		Std. Res. Formation Pe (PEFZ) (----	Density Correction (HDRA) (G/C3)		
		16		2	2000	0	10	-0.2	0.05
			0	40					
Gamma Ray (GR) (GAPI)		0		AIT 60 Inch Investigation (AT60) (OHMM)		Gas From DPHZ to NPOR			
		150		2	2000				
HILT Caliper (HCAL) (IN)		6		AIT 90 Inch Investigation (AT90) (OHMM)				2	2000
		16		Std. Res. Invaded Zone Resistivity (RXOZ)				2	2000

PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
FBST-B: Full-Bore Scanner - B		
ACPP	Accelerometer PROM Presence	PRESENT
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE
ART	Accelerometer Reference Temperature	68 DEGF
EGCO	FMI EMEX and GAIN Correction	NO
FBCD	Correct Dip Buttons Values by EMEX and Gain	OFF
FBEF	FMI EMEX filtering activation	OFF
FBMV	FMI EMEX maximum voltage calculation	OFF
FDBD	FMI Dead Buttons detection	OFF
FDBP	FMI Dead Buttons Patching	OFF
FDL	FMI DSP Filter Length	1
FIEQ	FMI Image Equalisation	OFF
FIGA	FMI Image Gain	1
FIOF	FMI Image Offset	0
FLM	FMI Logging Mode	8PAD
FPSA	FMI Peak Signal Amplitude for Required Servo Level	ON
GLM	GPIT Logging Mode	DIPM
GMOD	Gain Mode	MANU
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION
MAPP	Magnetometer PROM Presence	PRESENT
MDEC	Magnetic Field Declination	10.3839 DEG
MRTE	Magneto Reference Temperature	66.2 DEGF
RBS	Resistivity Button Selection	AUTO
RBSI	Auto RBS Change Interval	10
SOFF	Standoff	-1 IN
TEMS	GPIT Temperature Sensor Used	BOTH
U-GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ?	NO
XGAI_FBST	Gain Value in Manual Mode	0_dB
XGMO	EMEX & Gain Modes	EmexManu_GainManu
XMOD	EMEX Voltage Regulation Mode	MANU
XVOL	EMEX Voltage	0 V
SPA-A: SP ADAPTOR		
SPNV	SP Next Value	0 MV
AIT-C: Array Induction Tool - C		
AAPL	Array Induction Answer Product Level (Depth Log/View only)	
	3_BholeCorr_BasicLogs_Radial_Processing	
ABHM	Array Induction Borehole Correction Mode	0_ComputeMudResistivity
ABHV	Array Induction Borehole Correction Code Version Number	900
ABLM	Array Induction Basic Logs Mode	6_One_Two_and_Four
ABLV	Array Induction Basic Logs Code Version Number	223
ACDE	Array Induction Casing Detection Enable	No

ACEN	Array Induction Tool Centering Flag (In Borehole)	Eccentered	
ADITM	Array Induction Desired Tool Mode	0x00_Log_000	
AEBC	Array Induction Enable Borehole Correction	Yes	
AEBL	Array Induction Enable Basic Logs	Yes	
AERP	Array Induction Enable Radial Processing	Yes	
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	Yes	
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AIGS	Array Induction Select Akima Interpolation Gating	On	
ALNV	Array Induction Log Not Valid Flag	Log_Valid-No_Default_Parameters	
AMRD	Array Induction Mud Resistivity Calibration Depth	0	FT
AMRF	Array Induction Mud Resistivity Factor	1	
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
ARFV	Array Induction Radial Profiling Code Version Number	701	
ARPM	Array Induction Radial Processing Mode	6_One_Two_and_Four	
ARPV	Array Induction Radial Parametrization Code Version Number	232	
ARTS	AIT Rt Selection (for ALLRES computation)	AIT_TwoResA60	
ASNO	Array Induction Sonde Serial Number	196	
ASTA	Array Induction Tool Standoff	0	IN
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection (Sonde Error Correction)	Internal	
ATTY	Array Induction Tool Type (of acquired data)	AITC	
AULV	Array Induction User Level Control	Normal	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
RTCO	RTCO - Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	68	DEGF
HILTH-FTB: High resolution Integrated Logging Tool-DTS			
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
EXSICL	External Shale Indicator Clean Value	20	
EXSISH	External Shale Indicator Shale Value	150	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal-like Formation Option	NO	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HACPP	Accelerometer PROM Presence	ABSENT	
HART	Accelerometer Reference Temperature	32	DEGF
HDCOD	HILT Density Coal detection	2	G/C3
HDSAD	HILT Density Salt detection	2.1	G/C3
HILT_GAS_DENSITY	HILT Gas Downhole Density	0	G/C3
HILT_GAS_OPTION	HILT Gas Computation Option	OFF	
HNCOD	HILT Neutron Coal detection	45	PU
HNSAD	HILT Neutron Salt detection	5	PU
HPHIECUT	HILT effective Porosity Cutoff	5	PU
HSCO	Hole Size Correction Option	YES	
HSIS	HILT Shale Indicator Selection	GR	
HSSO	HRDD Nuclear Source Strength Option	NORMAL	
HSWCUT	HILT Water Saturation from AITH cutoff	50	%
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.68	G/C3
MHC0	MCFL B0 Contrast Correction Coefficient	2.2e-005	OHMS
MHC1	MCFL B1 Contrast Correction Coefficient	3.2e-005	OHMS
MHCC	MCFL High Contrast Correction Switch	NO	
MPOF	MCFL Processing Operation Mode	ON	
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	

NSAR	HRDD Depth Sampling Rate	1	IN
PEA_FILTER	PEA Filter	NO_FILTER	
PEFC_FILTER	PEFC Filter	NO_FILTER	
PHIMAX	HILT max porosity	35	PU
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SEXP_HILT	HILT Saturation Exponent	2	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
DIR: Directional Survey Computation			
SPED	East Departure of Starting Point	0	FT
SPND	North Departure of Starting Point	0	FT
SPVD	TVD of Starting Point	0	FT
TAZI	Vertical Section Azimuth	0	DEG
TIED	East Departure of Tie-in Point	0	FT
TIMD	Along-hole depth of Tie-in Point	0	FT
TIND	North Departure of Tie-in Point	0	FT
TIVD	TVD of Tie-in Point	0	FT
DIRPLOT: Enhanced Directional Plots			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	8305.00	FT
TDL	Total Depth - Logger	8310.00	FT
System and Miscellaneous			
ALTDPCAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	800.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	36.00	LB/F
DFD	Drilling Fluid Density	9.60	LB/G
DO	Depth Offset for Playback	10.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	8.00	FT
MST	Mud Sample Temperature	70.50	DEGF

MOI	Mud Sample Temperature	70.00	DEG
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	2.4500	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	8310	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: TCOMBO_S5

Vertical Scale: 5" per 100'

Graphics File Created: 28-Aug-2009 20:22

OP System Version: 17C0-154

FBST-B

SRPC-3779-Q1_2009_OP17

SPA-A

17C0-154

AIT-C

17C0-154

HILTH-FTB

SRPC-3779-Q1_2009_OP17

EDTC-B

17C0-154

Input DLIS Files				
DEFAULT	FMI_AIT_TLD_MCFL_114LUP	FN:14	PRODUCER	28-Aug-2009 17:08
Output DLIS Files				
DEFAULT	FMI_AIT_TLD_MCFL_004PUP	FN:3	PRODUCER	28-Aug-2009 20:22

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REPEAT ANALYSIS

MAXIS Field Log

Company: ORION ENERGY PARTNERS

Well: KOKOPELLI SWD 9-12D

Input DLIS Files					
DEFAULT	FMI_AIT_TLD_MCFL_112LUP	FN:12	PRODUCER	28-Aug-2009 16:40	6780.0 FT 6408.5 FT
Output DLIS Files					
DEFAULT	FMI_AIT_TLD_MCFL_002PUP	FN:1	PRODUCER	28-Aug-2009 17:06	6792.0 FT 6420.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 162.11 F3

Cement Volume = 100.82 F3 (assuming 5.50 IN casing O.D.)

Computed from 6792.0 FT to 6421.0 FT using data channel(s) HCAL

OP System Version: 17C0-154

FBST-B

SRPC-3779-Q1_2009_OP17

SPA-A

17C0-154

AIT-C

17C0-154

HILTH-FTB

SRPC-3779-Q1_2009_OP17

EDTC-B

17C0-154

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 10 F3

Integrated Hole Volume Major Pip Every 100 F3

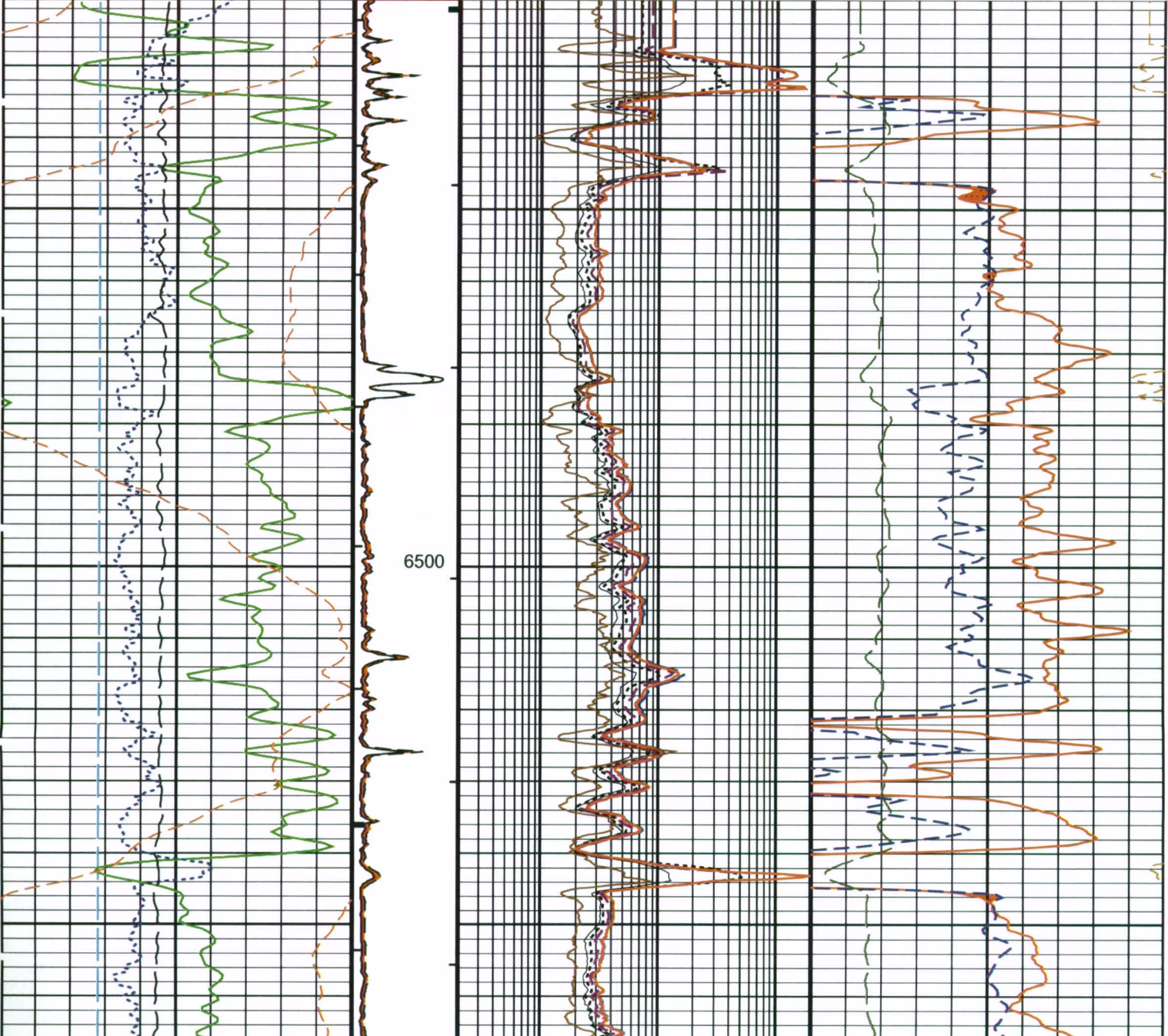
Integrated Cement Volume Minor Pip Every 10 F3

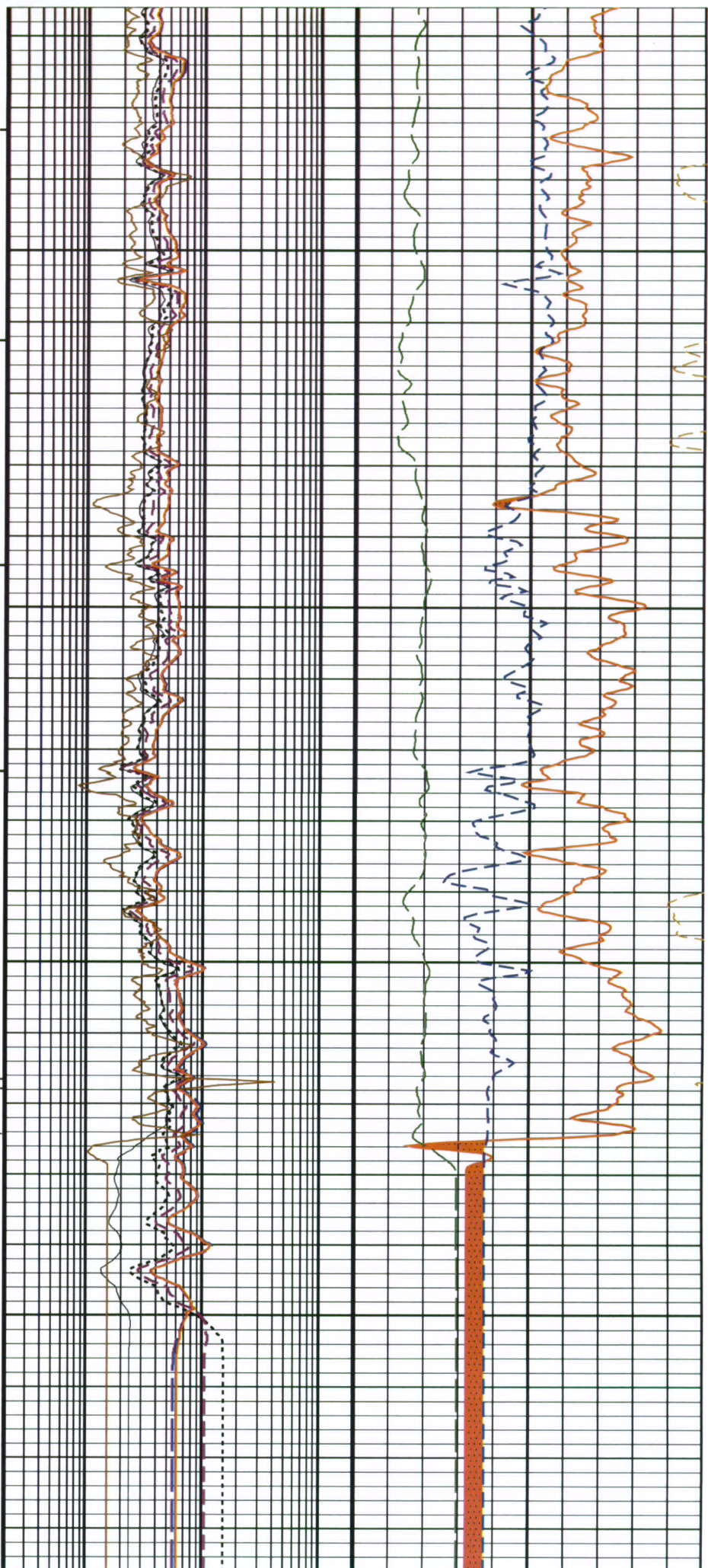
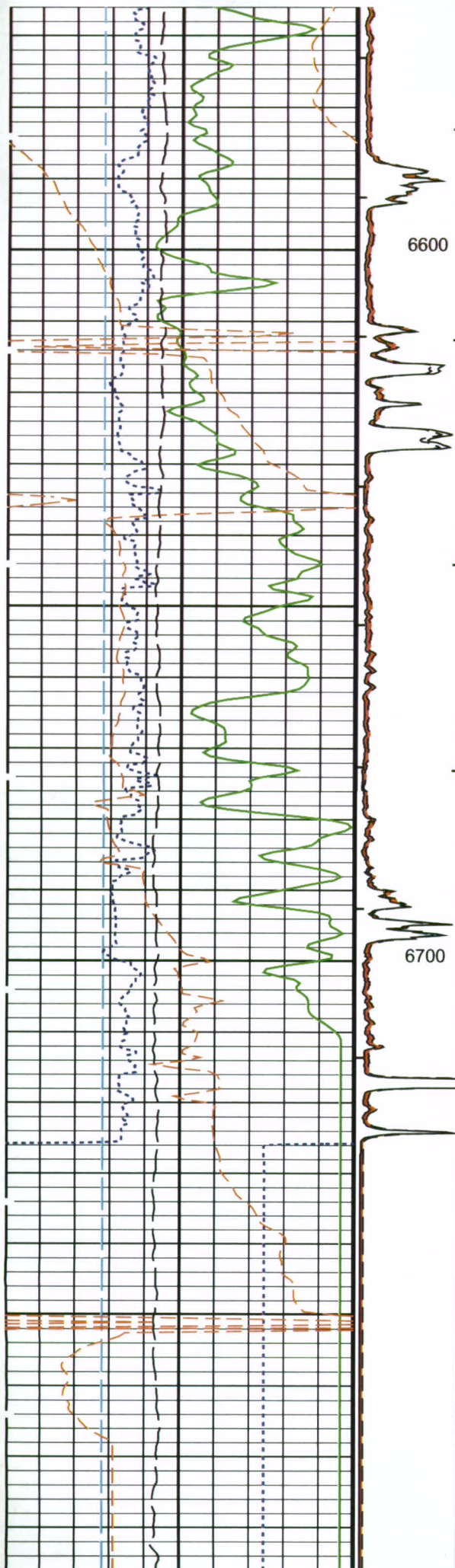
Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Std. Res. Invaded Zone Resistivity (RXOZ)		
2	(OHMM)	2000

HILT Caliper (HCAL) (IN)		6	16
Gamma Ray (GR) (GAPI)		0	150
Bit Size (BS) (IN)		6	16
Tension (TENS) (LBF)		10000	0
SP (SP) (MV)		-80	20
AIT 90 Inch Investigation (AT90) (OHMM)		2	2000
AIT 60 Inch Investigation (AT60) (OHMM)		2	2000
AIT 30 Inch Investigation (AT30) (OHMM)		2	2000
AIT 20 Inch Investigation (AT20) (OHMM)		2	2000
AIT 10 Inch Investigation (AT10) (OHMM)		2	2000
Computed Micro Inverse (HMIN) (OHMM)		0	40
Computed Micro Normal (HMNO) (OHMM)		0	40
Perm From HMIN to HMNO			
Gas From DPHZ to NPOR			
Std. Res. Formation Pe (PEFZ)		0	10
Density Correction (HDRA) (G/C3)		-0.2	0.05
Alpha Processed Neutron Porosity (NPOR) (V/V)		0.3	-0.1
Std. Res. Density Porosity (DPHZ) (V/V)		0.3	-0.1





<div>-80<div>SP (SP) (MV)</div>20</div>	Perm From HMIN to HMNO	<div>2<div>AIT 10 Inch Investigation (AT10) (OHMM)</div>2000</div>	<div>0.3<div>Std. Res. Density Porosity (DPHZ) (V/V)</div>-0.1</div>	
<div>10000<div>Tension (TENS) (LBF)</div>0</div>		<div>2<div>AIT 20 Inch Investigation (AT20) (OHMM)</div>2000</div>	<div>0.3<div>Alpha Processed Neutron Porosity (NPOR) (V/V)</div>-0.1</div>	
<div>6<div>Bit Size (BS) (IN)</div>16</div>		<div>2<div>AIT 30 Inch Investigation (AT30) (OHMM)</div>2000</div>	<div>0<div>Std. Res. Formation Pe (PEFZ) (----</div>10</div>	<div>-0.2<div>Density Correction (HDRA) (G/C3)</div>0.05</div>
<div>0<div>Gamma Ray (GR) (GAPI)</div>150</div>			<div>Gas From DPHZ to NPOR</div>	
<div>6<div>HILT Caliper (HCAL) (IN)</div>16</div>				
		<div>2<div>AIT 60 Inch Investigation (AT60) (OHMM)</div>2000</div>		
		<div>2<div>AIT 90 Inch Investigation (AT90) (OHMM)</div>2000</div>		
		<div>2<div>Std. Res. Invaded Zone Resistivity (RXOZ) (OHMM)</div>2000</div>		

PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
FBST-B: Full-Bore Scanner - B			
ACPP	Accelerometer PROM Presence	PRESENT	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ART	Accelerometer Reference Temperature	68	DEGF
EGCO	FMI EMEX and GAIN Correction	NO	
FBCD	Correct Dip Buttons Values by EMEX and Gain	OFF	
FBEF	FMI EMEX filtering activation	OFF	
FBMV	FMI EMEX maximum voltage calculation	OFF	
FDBD	FMI Dead Buttons detection	OFF	
FDBP	FMI Dead Buttons Patching	OFF	
FDFL	FMI DSP Filter Length	1	
FIEQ	FMI Image Equalisation	OFF	
FIGA	FMI Image Gain	1	
FIOF	FMI Image Offset	0	
FLM	FMI Logging Mode	8PAD	
FPSA	FMI Peak Signal Amplitude for Required Servo Level	ON	
GLM	GPIT Logging Mode	DIPM	
GMOD	Gain Mode	MANU	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MAPP	Magnetometer PROM Presence	PRESENT	
MDEC	Magnetic Field Declination	10.3839	DEG
MRTE	Magneto Reference Temperature	66.2	DEGF
RBS	Resistivity Button Selection	AUTO	
RBSI	Auto RBS Change Interval	10	
SOFF	Standoff	-1	IN
TEMS	GPIT Temperature Sensor Used	BOTH	
U-GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ?	NO	
XGAI_FBST	Gain Value in Manual Mode	0_dB	
XGMO	EMEX & Gain Modes	EmexManu_GainManu	
XMOD	EMEX Voltage Regulation Mode	MANU	
XVOL	EMEX Voltage	0	V
SPA-A: SP ADAPTOR			
SPNV	SP Next Value	0	MV
AIT-C: Array Induction Tool - C			

AAPL	Array Induction Answer Product Level(Depth Log/View only)		
	3_BholeCorr_BasicLogs_Radial_Processing		
ABHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
ABHV	Array Induction Borehole Correction Code Version Number	900	
ABLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
ABLV	Array Induction Basic Logs Code Version Number	223	
ACDE	Array Induction Casing Detection Enable	No	
ACEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
ADITM	Array Induction Desired Tool Mode	0x00_Log_000	
AEBC	Array Induction Enable Borehole Correction	Yes	
AEBL	Array Induction Enable Basic Logs	Yes	
AERP	Array Induction Enable Radial Processing	Yes	
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	Yes	
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AIGS	Array Induction Select Akima Interpolation Gating	On	
ALNV	Array Induction Log Not Valid Flag	Log_Valid-No_Default_Parameters	
AMRD	Array Induction Mud Resistivity Calibration Depth	0	FT
AMRF	Array Induction Mud Resistivity Factor	1	
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
ARFV	Array Induction Radial Profiling Code Version Number	701	
ARPM	Array Induction Radial Processing Mode	6_One_Two_and_Four	
ARPV	Array Induction Radial Parametrization Code Version Number	232	
ARTS	AIT Rt Selection (for ALLRES computation)	AIT_TwoResA60	
ASNO	Array Induction Sonde Serial Number	196	
ASTA	Array Induction Tool Standoff	0	IN
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection (Sonde Error Correction)	Internal	
ATTY	Array Induction Tool Type (of acquired data)	AITC	
AULV	Array Induction User Level Control	Normal	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
RTCO	RTCO - Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	68	DEGF
	HILTH-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
EXSICL	External Shale Indicator Clean Value	20	
EXSISH	External Shale Indicator Shale Value	150	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal-like Formation Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HACPP	Accelerometer PROM Presence	ABSENT	
HART	Accelerometer Reference Temperature	32	DEGF
HDCOD	HILT Density Coal detection	2	G/C3
HDSAD	HILT Density Salt detection	2.1	G/C3
HILT_GAS_DENSITY	HILT Gas Downhole Density	0	G/C3
HILT_GAS_OPTION	HILT Gas Computation Option	OFF	
HNCOD	HILT Neutron Coal detection	45	PU
HNSAD	HILT Neutron Salt detection	5	PU
HPHIECUT	HILT effective Porosity Cutoff	5	PU
HSCO	Hole Size Correction Option	YES	
HSIS	HILT Shale Indicator Selection	GR	
HSSO	HRDD Nuclear Source Strength Option	NORMAL	
HSWCUT	HILT Water Saturation from AITH cutoff	50	%
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.68	G/C3
MHCN	MCFI R0 Contrast Correction Coefficient	2 2e-005	OHMS

MHC1	MCFL B1 Contrast Correction Coefficient	3.2e-005	OHMS
MHCC	MCFL High Contrast Correction Switch	NO	
MPOF	MCFL Processing Operation Mode	ON	
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PEA_FILTER	PEA Filter	NO_FILTER	
PEFC_FILTER	PEFC Filter	NO_FILTER	
PHIMAX	HILT max porosity	35	PU
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SEXP_HILT	HILT Saturation Exponent	2	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
DIR: Directional Survey Computation			
SPED	East Departure of Starting Point	0	FT
SPND	North Departure of Starting Point	0	FT
SPVD	TVD of Starting Point	0	FT
TAZI	Vertical Section Azimuth	0	DEG
TIED	East Departure of Tie-in Point	0	FT
TIMD	Along-hole depth of Tie-in Point	0	FT
TIND	North Departure of Tie-in Point	0	FT
TIVD	TVD of Tie-in Point	0	FT
DIRPLOT: Enhanced Directional Plots			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	300	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	8305.00	FT
TDL	Total Depth - Logger	-50000.00	FT
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN

BSAL	Borehole Salinity	800.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	36.00	LB/F
DFD	Drilling Fluid Density	9.60	LB/G
DO	Depth Offset for Playback	12.0	FT
FLEV	Fluid Level	8.00	FT
MST	Mud Sample Temperature	70.50	DEGF
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	2.4500	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: TCOMBO_S5 Vertical Scale: 5" per 100'

Graphics File Created: 28-Aug-2009 17:06

OP System Version: 17C0-154

FBST-B	SRPC-3779-Q1_2009_OP17	SPA-A	17C0-154
AIT-C	17C0-154	HILTH-FTB	SRPC-3779-Q1_2009_OP17
EDTC-B	17C0-154		

Input DLIS Files

DEFAULT	FMI_AIT_TLD_MCFL_112LUP	FN:12	PRODUCER	28-Aug-2009 16:40	6780.0 FT	6408.5 FT
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Output DLIS Files

DEFAULT	FMI_AIT_TLD_MCFL_002PUP	FN:1	PRODUCER	28-Aug-2009 17:06
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CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Full-Bore Scanner - B Wellsite Calibration - Caliper Calibration							
Before: 20-Aug-2009 11:21							
Caliper 1 Small Jig	8.000	N/A	7.483	N/A	N/A	N/A	IN
Caliper 2 Small Jig	8.000	N/A	7.546	N/A	N/A	N/A	IN
Caliper 1 Large Jig	12.00	N/A	11.47	N/A	N/A	N/A	IN
Caliper 2 Large Jig	12.00	N/A	11.53	N/A	N/A	N/A	IN
Full-Bore Scanner - B Wellsite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 28-Aug-2009 15:13							
TEMPERATURE REFERENCE :	N/A	N/A	68	N/A	N/A	N/A	DEGF
YEAR OF CALIBRATION :	N/A	N/A	4	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	3	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	928	N/A	N/A	N/A	
Full-Bore Scanner - B Wellsite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 28-Aug-2009 15:13							
TEMPERATURE REFERENCE :	N/A	N/A	66	N/A	N/A	N/A	DEGF
YEAR OF CALIBRATION :	N/A	N/A	4	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	2	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	617	N/A	N/A	N/A	
Array Induction Tool - C Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase							
Master: 27-Aug-2009 10:19 Before: 28-Aug-2009 15:22							
Thru Cal Magnitude - 0	0	0.6165	0.6201	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.230	1.238	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	1.471	1.483	N/A	N/A	N/A	V

Thru Cal Magnitude - 2	0	1.471	1.400	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.4046	0.4071	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	2.170	2.188	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	0.5968	0.6004	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.544	1.557	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	0.4542	0.4581	N/A	N/A	N/A	V
Thru Cal Magnitude - 8	0	2.314	2.333	N/A	N/A	N/A	V
Thru Cal Magnitude - 9	0	0.6728	0.6785	N/A	N/A	N/A	V
Thru Cal Magnitude - 10	0	2.198	2.218	N/A	N/A	N/A	V
Thru Cal Magnitude - 11	0	0.7063	0.7122	N/A	N/A	N/A	V
Thru Cal Magnitude - 12	0	1.925	1.942	N/A	N/A	N/A	V
Thru Cal Magnitude - 13	0	0.6233	0.6284	N/A	N/A	N/A	V
Phase - 0	0	-76.30	-75.71	N/A	N/A	N/A	DEG
Phase - 1	0	-77.53	-76.94	N/A	N/A	N/A	DEG
Phase - 2	0	67.29	67.50	N/A	N/A	N/A	DEG
Phase - 3	0	-136.1	-135.5	N/A	N/A	N/A	DEG
Phase - 4	0	66.98	67.20	N/A	N/A	N/A	DEG
Phase - 5	0	-136.8	-136.2	N/A	N/A	N/A	DEG
Phase - 6	0	1.652	2.574	N/A	N/A	N/A	DEG
Phase - 7	0	71.60	72.21	N/A	N/A	N/A	DEG
Phase - 8	0	1.492	2.412	N/A	N/A	N/A	DEG
Phase - 9	0	71.32	71.93	N/A	N/A	N/A	DEG
Phase - 10	0	-14.10	-13.47	N/A	N/A	N/A	DEG
Phase - 11	0	76.43	76.68	N/A	N/A	N/A	DEG
Phase - 12	0	-14.76	-14.13	N/A	N/A	N/A	DEG
Phase - 13	0	75.29	75.55	N/A	N/A	N/A	DEG

Array Induction Tool - C Wellsite Calibration - Electronics Calibration Check - Rel Gain Mag. & Phase

Master: 27-Aug-2009 10:19 Before: 28-Aug-2009 15:22

ADC Rel Gain Magnitude - 0	25.00	25.03	25.03	N/A	N/A	N/A	
ADC Rel Gain Magnitude - 1	25.00	25.10	25.09	N/A	N/A	N/A	
ADC Rel Gain Magnitude - 2	25.00	25.11	25.11	N/A	N/A	N/A	
ADC Rel Gain Magnitude - 3	25.00	25.03	25.03	N/A	N/A	N/A	
ADC Rel Gain Magnitude - 4	25.00	25.03	25.04	N/A	N/A	N/A	
ADC Rel Gain Magnitude - 5	25.00	25.11	25.11	N/A	N/A	N/A	
ADC Rel Gain Magnitude - 6	25.00	25.12	25.12	N/A	N/A	N/A	
Phase - 0	0	0.9085	0.9120	N/A	N/A	N/A	DEG
Phase - 1	0	0.4399	0.4353	N/A	N/A	N/A	DEG
Phase - 2	0	0.9054	0.8932	N/A	N/A	N/A	DEG
Phase - 3	0	0.2182	0.2159	N/A	N/A	N/A	DEG
Phase - 4	0	0.4608	0.4571	N/A	N/A	N/A	DEG
Phase - 5	0	0.2237	0.2169	N/A	N/A	N/A	DEG
Phase - 6	0	0.3985	0.3988	N/A	N/A	N/A	DEG

Array Induction Tool - C Wellsite Calibration - Electronics Calibration Check - Auxilliary

Master: 27-Aug-2009 10:19 Before: 28-Aug-2009 15:22

Array Induction SPA Plus	3950	3970	3969	N/A	N/A	N/A	MV
Array Induction SPA Zero	-50.00	-49.22	-49.35	N/A	N/A	N/A	MV
Array Induction Temperature PI	4.500	4.479	4.479	N/A	N/A	N/A	V
Array Induction Temperature Ze	-0.05000	-0.04927	-0.04936	N/A	N/A	N/A	V

Array Induction Tool - C Wellsite Calibration - Test Loop Gain Correction

Master: 27-Aug-2009 10:19

Test Loop Gain Magnitude - 0	0	1.010	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 1	0	1.006	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 2	0	1.006	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 3	0	1.006	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 4	0	1.011	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 5	0	1.013	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 6	0	1.005	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 7	0	1.007	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 8	0	1.015	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 9	0	1.019	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 10	0	1.013	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 11	0	1.017	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 12	0	1.015	N/A	N/A	N/A	N/A	
Test Loop Gain Magnitude - 13	0	1.021	N/A	N/A	N/A	N/A	
Phase - 0	0	0.2622	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	0.2749	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.08634	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	-0.09026	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	-0.1172	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.1389	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	-0.03491	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.03618	N/A	N/A	N/A	N/A	DEG
Phase - 8	0	-0.2593	N/A	N/A	N/A	N/A	DEG
Phase - 9	0	-0.2178	N/A	N/A	N/A	N/A	DEG
Phase - 10	0	-0.09937	N/A	N/A	N/A	N/A	DEG
Phase - 11	0	-0.03484	N/A	N/A	N/A	N/A	DEG
Phase - 12	0	-0.2793	N/A	N/A	N/A	N/A	DEG
Phase - 13	0	-0.3469	N/A	N/A	N/A	N/A	DEG

Array Induction Tool - C Wellsite Calibration - Sonde Error Correction

Master: 27-Aug-2009 10:19

R Sonde Error Correction - 0	0	2.536	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 1	0	35.98	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 2	0	53.43	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 3	0	34.23	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 4	0	44.49	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 5	0	36.82	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 6	0	26.22	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 7	0	12.62	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 8	0	4.656	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 9	0	6.745	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 10	0	3.717	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 11	0	2.515	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 12	0	-5.979	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 13	0	-3.690	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 0	0	215.1	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 1	0	-40.72	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 2	0	71.92	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 3	0	-43.39	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 4	0	133.7	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 5	0	-77.89	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 6	0	20.40	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 7	0	2.018	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 8	0	-4.738	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 9	0	-23.25	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 10	0	-6.259	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 11	0	-13.50	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 12	0	-2.717	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 13	0	-17.25	N/A	N/A	N/A	N/A	MM/M

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary

Before: 20-Aug-2009 12:43

BS Window Ratio	0.7480	N/A	0.7465	N/A	N/A	N/A	
BS Window Sum	26550	N/A	26610	N/A	N/A	N/A	CPS
SS Window Ratio	0.4843	N/A	0.4829	N/A	N/A	N/A	
SS Window Sum	11910	N/A	11890	N/A	N/A	N/A	CPS
LS Window Ratio	0.2951	N/A	0.2960	N/A	N/A	N/A	
LS Window Sum	1329	N/A	1319	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations

Before: 20-Aug-2009 12:43

BS PM High Voltage (Command)	1266	N/A	1266	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1317	N/A	1316	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1368	N/A	1358	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration

Before: 20-Aug-2009 12:43

BS Crystal Resolution	11.04	N/A	11.11	N/A	N/A	N/A	%
SS Crystal Resolution	9.698	N/A	9.623	N/A	N/A	N/A	%
LS Crystal Resolution	8.651	N/A	8.567	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration

Before: 20-Aug-2009 12:46

Raw B0 Resistivity	3875	N/A	3880	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3819	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3824	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration

Before: 20-Aug-2009 12:41

HILT Caliper Zero Measurement	8.000	N/A	8.489	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.64	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration

Before: 20-Aug-2009 12:39

Gamma Ray Background	30.00	N/A	35.07	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkgd)	165.0	N/A	172.6	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement

Master: 8-Aug-2009 14:34 Before: 20-Aug-2009 12:40

CNTC Background	27.02	27.02	27.80	N/A	N/A	4.053	CPS
CFTC Background	30.91	30.91	28.32	N/A	N/A	4.637	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Ratio Measurement

Master: 8-Aug-2009 14:34

Thermal Near Corr. (Tank)	5800	5661	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2311	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.450	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration

Before: 25-Aug-2009 21:43

7-Axis Acceleration	22.10	N/A	22.08	N/A	N/A	N/A	E/S2
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High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results

Master: 4-Aug-2009 14:23

Rho Aluminum	2.596	2.599	--	--	--	--	G/C3
Rho Magnesium	1.686	1.688	--	--	--	--	G/C3
Pe Aluminum	2.570	2.524	--	--	--	--	
Pe Magnesium	2.650	2.634	--	--	--	--	

High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary

Master: 4-Aug-2009 14:23

BS Average Deviation	0	0.4814	--	--	--	--	%
BS Max Deviation	0	1.168	--	--	--	--	%
SS Average Deviation	0	0.3272	--	--	--	--	%
SS Max Deviation	0	0.8713	--	--	--	--	%
LS Average Deviation	0	0.3471	--	--	--	--	%
LS Max Deviation	0	0.8157	--	--	--	--	%

Enhanced DTS Cartridge Wellsite Calibration - EDTC Accelerometer Calibration

Before: 25-Aug-2009 21:43

EDTC Z-Axis Acceleration	32.19	N/A	32.11	N/A	N/A	N/A	F/S2
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Enhanced DTS Cartridge Wellsite Calibration - Detector Calibration

Before: 20-Aug-2009 11:19

Gamma Ray (Jig - Bkg)	149.8	N/A	149.8	N/A	N/A	13.62	GAPI
Gamma Ray (Calibrated)	161.0	N/A	161.0	N/A	N/A	15.00	GAPI

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 66.0 DEGF.
 Thermal Housing Size 3.362 IN.
 NSR-F serial number 5138

Full-Bore Scanner - B / Equipment Identification

Primary Equipment:





FullBore Scanner Sonde	FBSS - B	855
FullBore Scanner Sonde Upper part	FBSS - A	
FullBore Scanner Sonde Cartridge	FBSC - B	
GPIT Cartridge - C	GPIC - C	
Insulating Sub	AH - 185	1731
FullBore Scanner Control Cartridge	FBCC - A	1773

Auxiliary Equipment:

Electronics Cartridge Housing	ECH - MRA	
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Full-Bore Scanner - B Wellsite Calibration

Caliper Calibration

Phase	Caliper 1 Small Jig IN	Value	Phase	Caliper 2 Small Jig IN	Value
Before		7.483	Before		7.546
	6.800 (Minimum) 8.000 (Nominal) 9.200 (Maximum)			6.800 (Minimum) 8.000 (Nominal) 9.200 (Maximum)	
Phase	Caliper 1 Large Jig IN	Value	Phase	Caliper 2 Large Jig IN	Value
Before		11.47	Before		11.53
	10.20 (Minimum) 12.00 (Nominal) 13.80 (Maximum)			10.20 (Minimum) 12.00 (Nominal) 13.80 (Maximum)	

Before: 20-Aug-2009 11:21

Array Induction Tool - C / Equipment Identification

Primary Equipment:

Array Induction Sonde	AIS - BA	196
Adaptive Response Cartridge	AIC - BA	









Auxiliary Equipment:

Mass Isolated Housing	AIH - AA	
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Array Induction Tool - C Wellsite Calibration							
Electronics Calibration Check - Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6165		0.5920	-76.30		-88.00
	Before	0.6201			-75.71		
1	Master	1.230		1.185	-77.53		-89.00
	Before	1.238			-76.94		
2	Master	1.471		1.399	67.29		72.00
	Before	1.483			67.50		
3	Master	0.4046		0.3960	-136.1		-138.0
	Before	0.4071			-135.5		
4	Master	2.170		2.057	66.98		71.00
	Before	2.188			67.20		
5	Master	0.5968		0.5820	-136.8		-139.0
	Before	0.6004			-136.2		
6	Master	1.544		1.423	1.652		-3.000
	Before	1.557			2.574		
7	Master	0.4542		0.4000	71.60		68.00
	Before	0.4581			72.21		
8	Master	2.314		2.111	1.492		-3.000
	Before	2.333			2.412		
9	Master	0.6728		0.5930	71.32		68.00
	Before	0.6785			71.93		
10	Master	2.198		2.111	-14.10		0
	Before	2.218			-13.47		
11	Master	0.7063		0.5930	76.43		75.00
	Before	0.7122			76.68		
12	Master	1.925		1.853	-14.76		-1.000
	Before	1.942			-14.13		
13	Master	0.6233		0.5200	75.29		74.00
	Before	0.6284			75.55		
		70.00 % (Minimum)	(Nominal)	130.0 % (Maximum)	Nom -45.00 (Minimum)	(Nominal)	Nom + 45.00 (Maximum)
Master: 27-Aug-2009 10:19				Before: 28-Aug-2009 15:22			

Array Induction Tool - C Wellsite Calibration					
Electronics Calibration Check - Rel Gain Mag. & Phase					
Idx	Phase	Value	ADC Rel Gain Magnitude	Value	Phase DEG
0	Master	25.03		0.9085	
	Before	25.03		0.9120	
1	Master	25.10		0.4399	
	Before	25.09		0.4353	
2	Master	25.11		0.9054	
	Before	25.11		0.8932	
3	Master	25.03		0.2182	
	Before	25.03		0.2159	
Master	25.03			0.4608	

4	Master	25.03		0.4000			
	Before	25.04		0.4571			
5	Master	25.11		0.2237			
	Before	25.11		0.2169			
6	Master	25.12		0.3985			
	Before	25.12		0.3988			
		23.75 (Minimum)	25.00 (Nominal)	26.25 (Maximum)	-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)
Master: 27-Aug-2009 10:19				Before: 28-Aug-2009 15:22			

Array Induction Tool – C Wellsite Calibration											
Electronics Calibration Check – Auxilliary											
Phase	Array Induction SPA Plus MV			Value	Phase	Array Induction SPA Zero MV			Value		
Master				3970	Master				-49.22		
Before				3969	Before				-49.35		
3750 (Minimum)				3950 (Nominal)	4150 (Maximum)				-100.0 (Minimum)	-50.00 (Nominal)	0 (Maximum)
Phase	Array Induction Temperature Plus V			Value	Phase	Array Induction Temperature Zero V			Value		
Master				4.479	Master				-0.04927		
Before				4.479	Before				-0.04936		
4.250 (Minimum)				4.500 (Nominal)	4.750 (Maximum)				-0.1000 (Minimum)	-0.05000 (Nominal)	0 (Maximum)
Master: 27-Aug-2009 10:19					Before: 28-Aug-2009 15:22						

Array Induction Tool – C Wellsite Calibration						
Test Loop Gain Correction						
Idx	Value	Test Loop Gain Magnitude			Value	Phase DEG
0	1.010				0.2622	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.006				0.2749	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.006				-0.08634	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.006				-0.09026	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	1.011				-0.1172	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
5	1.013				-0.1389	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
6	1.005				-0.03491	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
7	1.007				-0.03618	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
8	1.015				-0.2593	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
9	1.019				-0.2178	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
10	1.013				-0.09937	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
11	1.017				-0.03484	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)

12	1.015		-0.2793			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
13	1.021		-0.3469			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 27-Aug-2009 10:19

Master: 27-Aug-2009 10:19

Array Induction Tool – C Wellsite Calibration								
Sonde Error Correction								
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	2.536				215.1			
		-27.00 (Minimum)	0 (Nominal)	34.00 (Maximum)		-548.0 (Minimum)	0 (Nominal)	548.0 (Maximum)
1	35.98				-40.72			
		23.00 (Minimum)	37.00 (Nominal)	48.00 (Maximum)		-208.0 (Minimum)	0 (Nominal)	208.0 (Maximum)
2	53.43				71.92			
		43.00 (Minimum)	54.00 (Nominal)	64.00 (Maximum)		-191.0 (Minimum)	0 (Nominal)	191.0 (Maximum)
3	34.23				-43.39			
		25.00 (Minimum)	37.00 (Nominal)	46.00 (Maximum)		-101.0 (Minimum)	0 (Nominal)	101.0 (Maximum)
4	44.49				133.7			
		23.00 (Minimum)	53.00 (Nominal)	74.00 (Maximum)		-208.0 (Minimum)	0 (Nominal)	208.0 (Maximum)
5	36.82				-77.89			
		13.00 (Minimum)	47.00 (Nominal)	69.00 (Maximum)		-196.0 (Minimum)	0 (Nominal)	196.0 (Maximum)
6	26.22				20.40			
		16.00 (Minimum)	27.00 (Nominal)	37.00 (Maximum)		-67.00 (Minimum)	0 (Nominal)	67.00 (Maximum)
7	12.62				2.018			
		4.000 (Minimum)	15.00 (Nominal)	25.00 (Maximum)		-34.00 (Minimum)	0 (Nominal)	34.00 (Maximum)
8	4.656				-4.738			
		-2.000 (Minimum)	8.000 (Nominal)	18.00 (Maximum)		-43.00 (Minimum)	0 (Nominal)	43.00 (Maximum)
9	6.745				-23.25			
		2.000 (Minimum)	11.00 (Nominal)	18.00 (Maximum)		-32.00 (Minimum)	0 (Nominal)	32.00 (Maximum)
10	3.717				-6.259			
		2.000 (Minimum)	8.000 (Nominal)	13.00 (Maximum)		-38.00 (Minimum)	0 (Nominal)	38.00 (Maximum)
11	2.515				-13.50			
		1.000 (Minimum)	7.000 (Nominal)	12.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
12	-5.979				-2.717			
		-6.000 (Minimum)	-2.000 (Nominal)	4.000 (Maximum)		-32.00 (Minimum)	0 (Nominal)	32.00 (Maximum)
13	-3.690				-17.25			
		-5.000 (Minimum)	1.000 (Nominal)	6.000 (Maximum)		-38.00 (Minimum)	0 (Nominal)	38.00 (Maximum)
Master: 27-Aug-2009 10:19								

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Array Induction Tool - C Master Calibration							
Electronics Calibration Check - Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6165		0.5920	-76.30		-88.00
1	Master	1.230		1.185	-77.53		-89.00
2	Master	1.471		1.399	67.29		72.00
3	Master	0.4046		0.3960	-136.1		-138.0
4	Master	2.170		2.057	66.98		71.00

5	Master	0.5968		0.5820	-136.8		-139.0
6	Master	1.544		1.423	1.652		-3.000
7	Master	0.4542		0.4000	71.60		68.00
8	Master	2.314		2.111	1.492		-3.000
9	Master	0.6728		0.5930	71.32		68.00
10	Master	2.198		2.111	-14.10		0
11	Master	0.7063		0.5930	76.43		75.00
12	Master	1.925		1.853	-14.76		-1.000
13	Master	0.6233		0.5200	75.29		74.00
		70.00 % (Minimum)	(Nominal)	130.0 % (Maximum)	Nom -45.00 (Minimum)	(Nominal)	Nom + 45.00 (Maximum)

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Array Induction Tool – C Master Calibration							
Electronics Calibration Check – Rel Gain Mag. & Phase							
Idx	Phase	Value	ADC Rel Gain Magnitude		Value	Phase DEG	
0	Master	25.03			0.9085		
1	Master	25.10			0.4399		
2	Master	25.11			0.9054		
3	Master	25.03			0.2182		
4	Master	25.03			0.4608		
5	Master	25.11			0.2237		
6	Master	25.12			0.3985		
		23.75 (Minimum)	25.00 (Nominal)	26.25 (Maximum)	-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)
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Array Induction Tool – C Master Calibration									
Electronics Calibration Check – Auxilliary									
Phase	Array Induction SPA Plus MV			Value	Phase	Array Induction SPA Zero MV			Value
Master				3970	Master				-49.22
	3750 (Minimum)	3950 (Nominal)	4150 (Maximum)			-100.0 (Minimum)	-50.00 (Nominal)	0 (Maximum)	
Phase	Array Induction Temperature Plus V			Value	Phase	Array Induction Temperature Zero V			Value
Master				4.479	Master				-0.04927
	4.250 (Minimum)	4.500 (Nominal)	4.750 (Maximum)			-0.1000 (Minimum)	-0.05000 (Nominal)	0 (Maximum)	
Master: 27-Aug-2009 10:19									

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Array Induction Tool – C Master Calibration						
Test Loop Gain Correction						
Idx	Value	Test Loop Gain Magnitude			Value	Phase DEG
0	1.010				0.2622	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.006				0.2749	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.006				-0.08634	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.006				-0.09026	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	1.011				-0.1172	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
5	1.013				-0.1389	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)

	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	1.005			-0.03491		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.007			-0.03618		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
8	1.015			-0.2593		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
9	1.019			-0.2178		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
10	1.013			-0.09937		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
11	1.017			-0.03484		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
12	1.015			-0.2793		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
13	1.021			-0.3469		
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

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Array Induction Tool – C Master Calibration								
Sonde Error Correction								
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	2.536				215.1			
		-27.00 (Minimum)	0 (Nominal)	34.00 (Maximum)		-548.0 (Minimum)	0 (Nominal)	548.0 (Maximum)
1	35.98				-40.72			
		23.00 (Minimum)	37.00 (Nominal)	48.00 (Maximum)		-208.0 (Minimum)	0 (Nominal)	208.0 (Maximum)
2	53.43				71.92			
		43.00 (Minimum)	54.00 (Nominal)	64.00 (Maximum)		-191.0 (Minimum)	0 (Nominal)	191.0 (Maximum)
3	34.23				-43.39			
		25.00 (Minimum)	37.00 (Nominal)	46.00 (Maximum)		-101.0 (Minimum)	0 (Nominal)	101.0 (Maximum)
4	44.49				133.7			
		23.00 (Minimum)	53.00 (Nominal)	74.00 (Maximum)		-208.0 (Minimum)	0 (Nominal)	208.0 (Maximum)
5	36.82				-77.89			
		13.00 (Minimum)	47.00 (Nominal)	69.00 (Maximum)		-196.0 (Minimum)	0 (Nominal)	196.0 (Maximum)
6	26.22				20.40			
		16.00 (Minimum)	27.00 (Nominal)	37.00 (Maximum)		-67.00 (Minimum)	0 (Nominal)	67.00 (Maximum)
7	12.62				2.018			
		4.000 (Minimum)	15.00 (Nominal)	25.00 (Maximum)		-34.00 (Minimum)	0 (Nominal)	34.00 (Maximum)
8	4.656				-4.738			
		-2.000 (Minimum)	8.000 (Nominal)	18.00 (Maximum)		-43.00 (Minimum)	0 (Nominal)	43.00 (Maximum)
9	6.745				-23.25			
		2.000 (Minimum)	11.00 (Nominal)	18.00 (Maximum)		-32.00 (Minimum)	0 (Nominal)	32.00 (Maximum)
10	3.717				-6.259			
		2.000 (Minimum)	8.000 (Nominal)	13.00 (Maximum)		-38.00 (Minimum)	0 (Nominal)	38.00 (Maximum)
11	2.515				-13.50			
		1.000 (Minimum)	7.000 (Nominal)	12.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

12	-5.979		-2.717			
	-6.000 (Minimum)	-2.000 (Nominal)	4.000 (Maximum)	-32.00 (Minimum)	0 (Nominal)	32.00 (Maximum)
13	-3.690		-17.25			
	-5.000 (Minimum)	1.000 (Nominal)	6.000 (Maximum)	-38.00 (Minimum)	0 (Nominal)	38.00 (Maximum)

Master: 27-Aug-2009 10:19

Master: 27-Aug-2009 10:19

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde
HILT Rxo Gamma-ray Device
HILT Micro Cylindrically Focused Log Dev
GR Logging Source
HILT High Res. Control Cartridge
HILT Gamma-Ray Neutron Sonde-DTS
HGNS Gamma-Ray Device
HGNS Neutron Detector with Alpha Source

HRMS - H
HRGD - H 3912
MCFL - H
GLS - VJ 5234
HRCC - H
HGNS - H 3849
HGR -
HCNT - H

Auxiliary Equipment:

Neutron Calibration Tank
Gamma Source Radioactive
HGNS Housing

NCT - B
GSR - U/Y
HGNS -

High resolution Integrated Logging Tool-DTS Wellsite Calibration




Stab Measurement Summary

Phase	BS Window Ratio		Value	Phase	SS Window Ratio		Value	Phase	LS Window Ratio		Value
Before			0.7465	Before			0.4829	Before			0.2960
	0.7106 (Minimum)	0.7480 (Nominal)	0.7854 (Maximum)		0.4601 (Minimum)	0.4843 (Nominal)	0.5085 (Maximum)		0.2804 (Minimum)	0.2951 (Nominal)	0.3099 (Maximum)
Phase	BS Window Sum CPS		Value	Phase	SS Window Sum CPS		Value	Phase	LS Window Sum CPS		Value
Before			26610	Before			11890	Before			1319
	25220 (Minimum)	26550 (Nominal)	27880 (Maximum)		11310 (Minimum)	11910 (Nominal)	12500 (Maximum)		1262 (Minimum)	1329 (Nominal)	1395 (Maximum)

Before: 20-Aug-2009 12:43

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Photo-multiplier High Voltages Calibrations

BS PM High Voltage (Command) V			Value	SS PM High Voltage (Command) V			Value	LS PM High Voltage (Command) V			Value
Before			1266	Before			1316	Before			1358
1166 (Minimum)	1266 (Nominal)	1366 (Maximum)		1217 (Minimum)	1317 (Nominal)	1417 (Maximum)		1268 (Minimum)	1368 (Nominal)	1468 (Maximum)	

Before: 20-Aug-2009 12:43

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %		Value	Phase	SS Crystal Resolution %		Value	Phase	LS Crystal Resolution %		Value
Before			11.11	Before			9.623	Before			8.567
	10.04 (Minimum)	11.04 (Nominal)	12.04 (Maximum)		8.698 (Minimum)	9.698 (Nominal)	10.70 (Maximum)		7.651 (Minimum)	8.651 (Nominal)	9.651 (Maximum)

Before: 20-Aug-2009 12:43

High resolution Integrated Logging Tool-DTS Wellsite Calibration

MCFL Calibration

WFOE Generation			WFOE Generation						
Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value	
Before		3880	Before		3819	Before		3824	
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)

Before: 20-Aug-2009 12:46

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN	Value	Phase	HILT Caliper Plus Measurement IN	Value
Before		8.489	Before		12.64

0.000 (Minimum)	5.000 (Nominal)	10.000 (Maximum)	5.000 (Minimum)	10.000 (Nominal)	15.000 (Maximum)
Before: 20-Aug-2009 12:41					

High resolution Integrated Logging Tool-DTS Wellsite Calibration					
Detector Calibration					
Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkgd) GAPI	Value
Before		35.07	Before		172.6
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	157.1 (Minimum)	165.0 (Nominal)	206.3 (Maximum)
Before: 20-Aug-2009 12:39					

High resolution Integrated Logging Tool-DTS Wellsite Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.02	Master		30.91
Before		27.80	Before		28.32
5.000 (Minimum)	27.02 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	30.91 (Nominal)	40.00 (Maximum)
Master: 8-Aug-2009 14:34			Before: 20-Aug-2009 12:40		

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Ratio Measurement											
Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)		Value
Master			5661	Master			2311	Master			2.450
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 8-Aug-2009 14:34											

High resolution Integrated Logging Tool-DTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z-Axis Acceleration F/S2	Value
Before		32.08
31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)
Before: 25-Aug-2009 21:43		

High resolution Integrated Logging Tool-DTS Master Calibration					
Inversion results					
Phase	Rho Aluminum G/C3	Value	Phase	Rho Magnesium G/C3	Value
Master		2.599	Master		1.688
2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)	1.676 (Minimum)	1.686 (Nominal)	1.696 (Maximum)
Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master		2.524	Master		2.634
2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)	2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)
Master: 4-Aug-2009 14:23					

High resolution Integrated Logging Tool-DTS Master Calibration											
Deviation Summary											
Phase	BS Average Deviation %		Value	Phase	SS Average Deviation %		Value	Phase	LS Average Deviation %		Value
Master			0.4814	Master			0.3272	Master			0.3471
	-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)		-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)		-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)
Phase	BS Max Deviation %		Value	Phase	SS Max Deviation %		Value	Phase	LS Max Deviation %		Value
Master			1.168	Master			0.8713	Master			0.8157
	-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)		-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)		-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)
Master: 4-Aug-2009 14:23											

High resolution Integrated Logging Tool-DTS Master Calibration				
Zero Measurement				
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS

Master		27.02	Master		30.91
5.000	27.02	40.00	5.000	30.91	40.00
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Master: 8-Aug-2009 14:34

High resolution Integrated Logging Tool-DTS Master Calibration														
Tank Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master	<div><div></div></div>			5661	Master	<div><div></div></div>			2311	Master	<div><div></div></div>			2.450
	4700	5800	6900		1900	2400	2900			2.120	2.159	2.540		
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)		
Master: 8-Aug-2009 14:34														

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:

EDTC Gamma Ray Detector
Enhanced DTS Cartridge


EDTG - A/B

EDTC - B 8127




Auxiliary Equipment:

EDTC Housing

EDTH - B 8126

Enhanced DTS Cartridge Wellsite Calibration		
EDTC Accelerometer Calibration		
Phase	EDTC Z-Axis Acceleration F/S2	Value
Before		32.11
	31.53 (Minimum)	32.19 (Nominal)
		32.84 (Maximum)

Before: 25-Aug-2009 21:43

Enhanced DTS Cartridge Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig - Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				33.61	Before				149.8	Before				161.0
	0	30.00	120.0		136.2	149.8	163.4			146.0	161.0	176.0		
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)		
Before: 20-Aug-2009 11:19														

Company: **ORION ENERGY PARTNERS**

Schlumberger

Well: **KOKOPELLI SWD 9-12D**

Field: **JOLLEY 8-1 Pad**

County: **GARFIELD**

State: **COLORADO**

****PLATFORM EXPRESS****
ARRAY INDUCTION TOOL
GAMMA RAY