MICRO LOG

Company	CROSS BAR ENERGY, LLC.
Well	BURKETT "E" #53
Field	BURKETT
County	GREENWOOD
State	KANSAS

Company CROSS BAR ENERGY, LLC.
Well BURKETT "E" #53
Field BURKETT
County GREENWOOD State KANSAS

Location: API # :
732' FSL & 330' FWL
SEC 23 TWP 23S RGE 10E

Other Services
CDL/CNL/PE
DIL/SON

Permanent Datum GROUND LEVEL Elevation 1394
Log Measured From KELLY BUSHING 5.5' A.G.L.
Drilling Measured From KELLY BUSHING

Elevation
K.B. 1399.5
D.F. 1397.5
G.L. 1394

Date	9/16/19		
Run Number	TWO		
Depth Driller	2419		
Depth Logger	2418		
Bottom Logged Interval	2400		
Top Log Interval	800		
Casing Driller	8 5/8" @ 207'		
Casing Logger	209'		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 9350 PPM	
Density / Viscosity	9.2/34		
pH / Fluid Loss	9.5/9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.45 @ 88F		
Rmf @ Meas. Temp	1.08 @ 88F		
Rmc @ Meas. Temp	1.74 @ 88F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	1.25 @ 102F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	////		
Maximum Recorded Temperature	102F		
Equipment Number	3802		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	STUART WOODIE	ALBERT BRENSING	

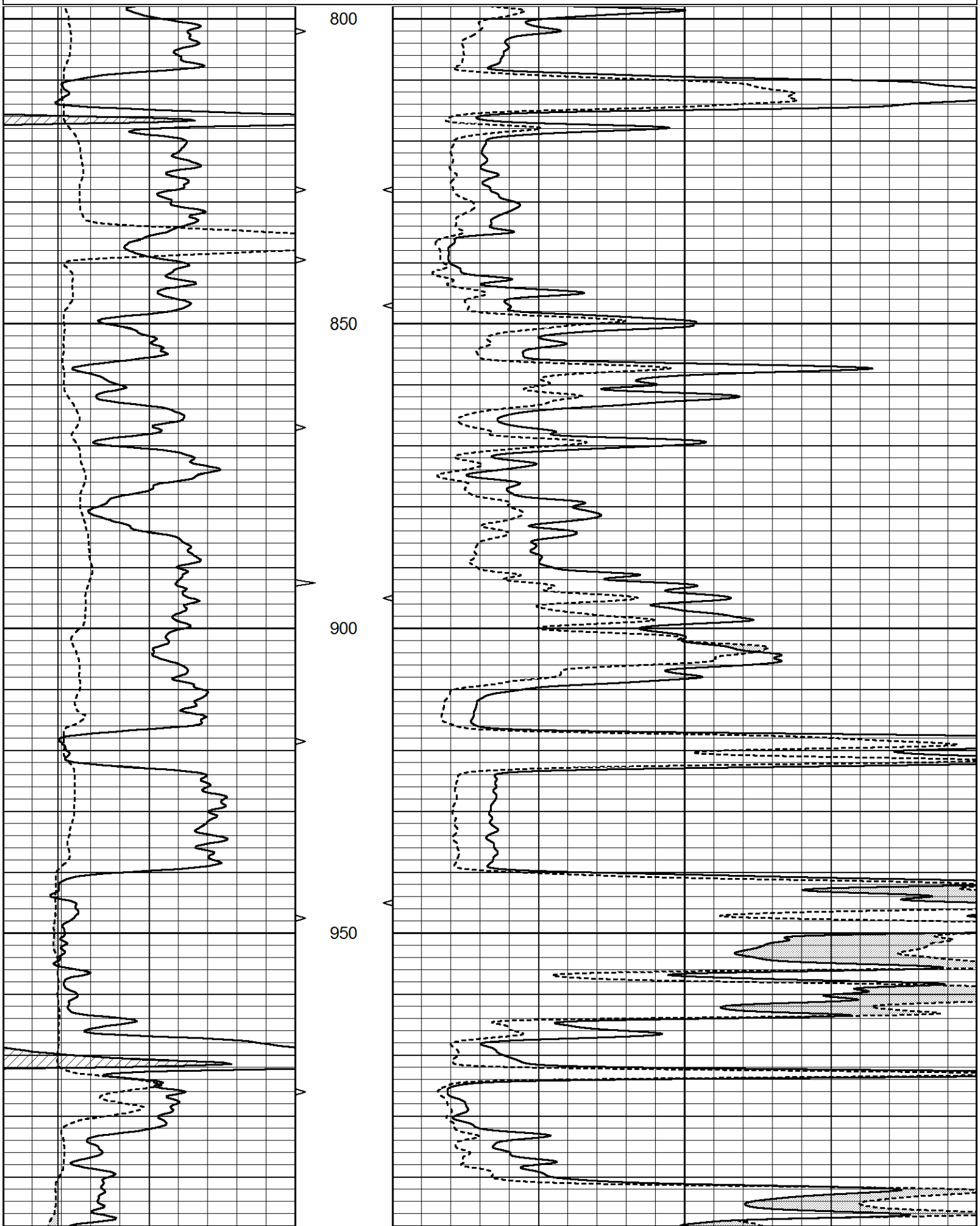
<<< Fold Here >>>

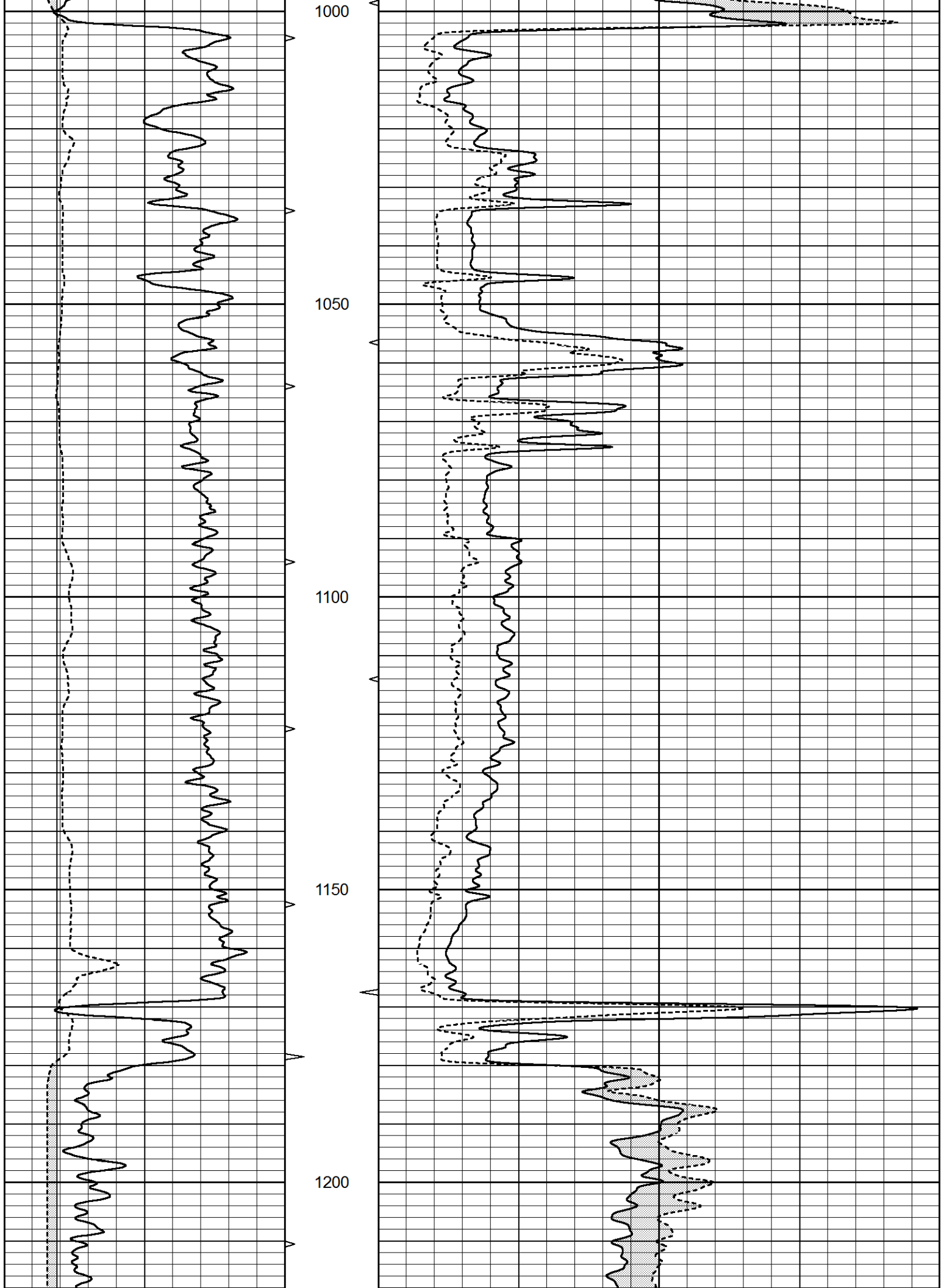
Comments

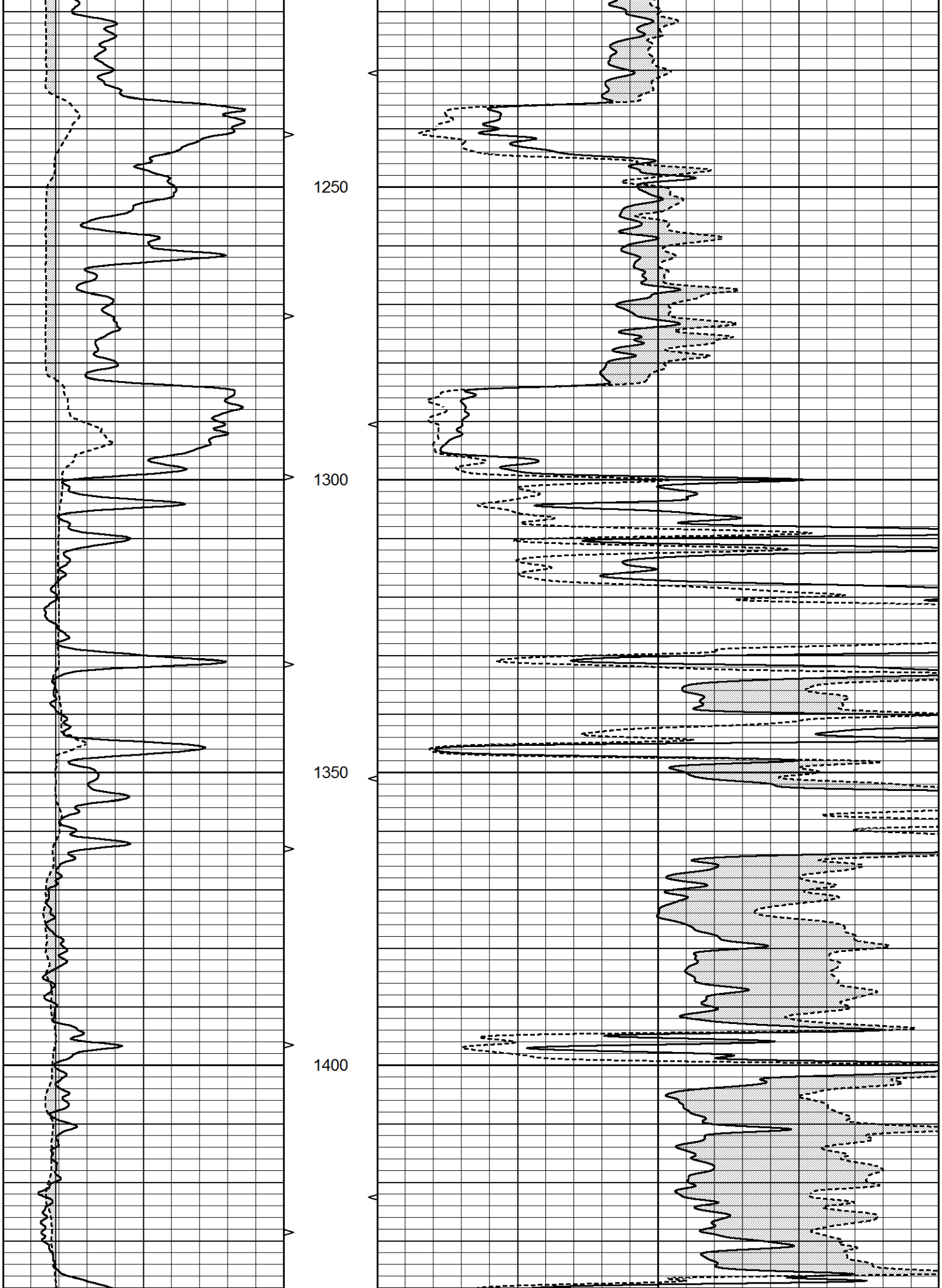
THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395
DIRECTIONS
CASSODAY, KS. - EAST TO GREENWOOD COUNTY LINE
STAY EAST TO Q RD. - 1 SOUTH TO 290TH RD - WEST ACROSS LOW
WATER BRIDGE AND UP HILL - AFTER CATTLEGUARD STAY LEFT
BACK AROUND TO NORTH INTO

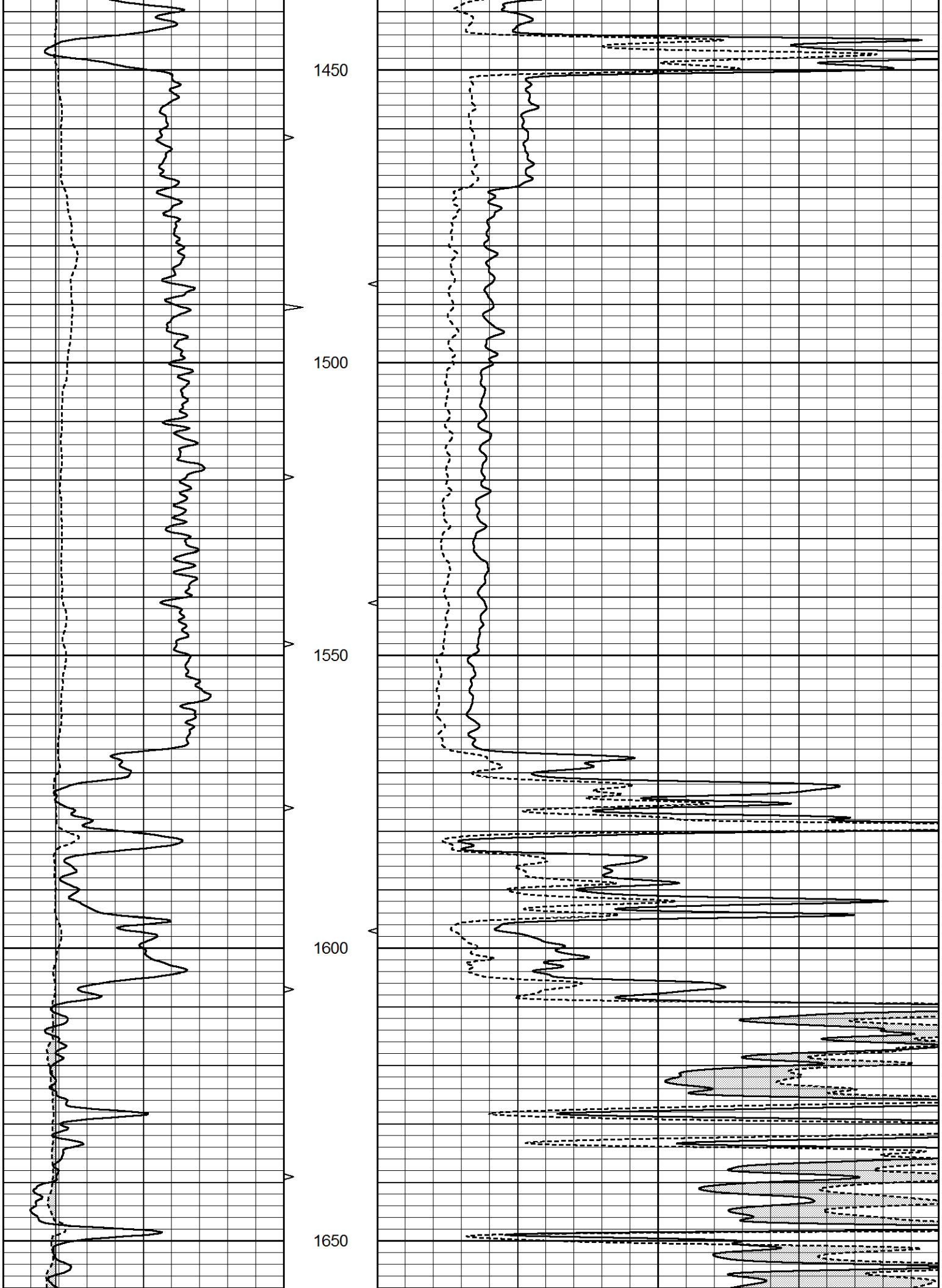
Database File	3993pe8.db
Dataset Pathname	pass6.1
Presentation Format	_micro
Dataset Creation	Mon Sep 16 16:08:49 2019
Charted by	Depth in Feet scaled 1:240

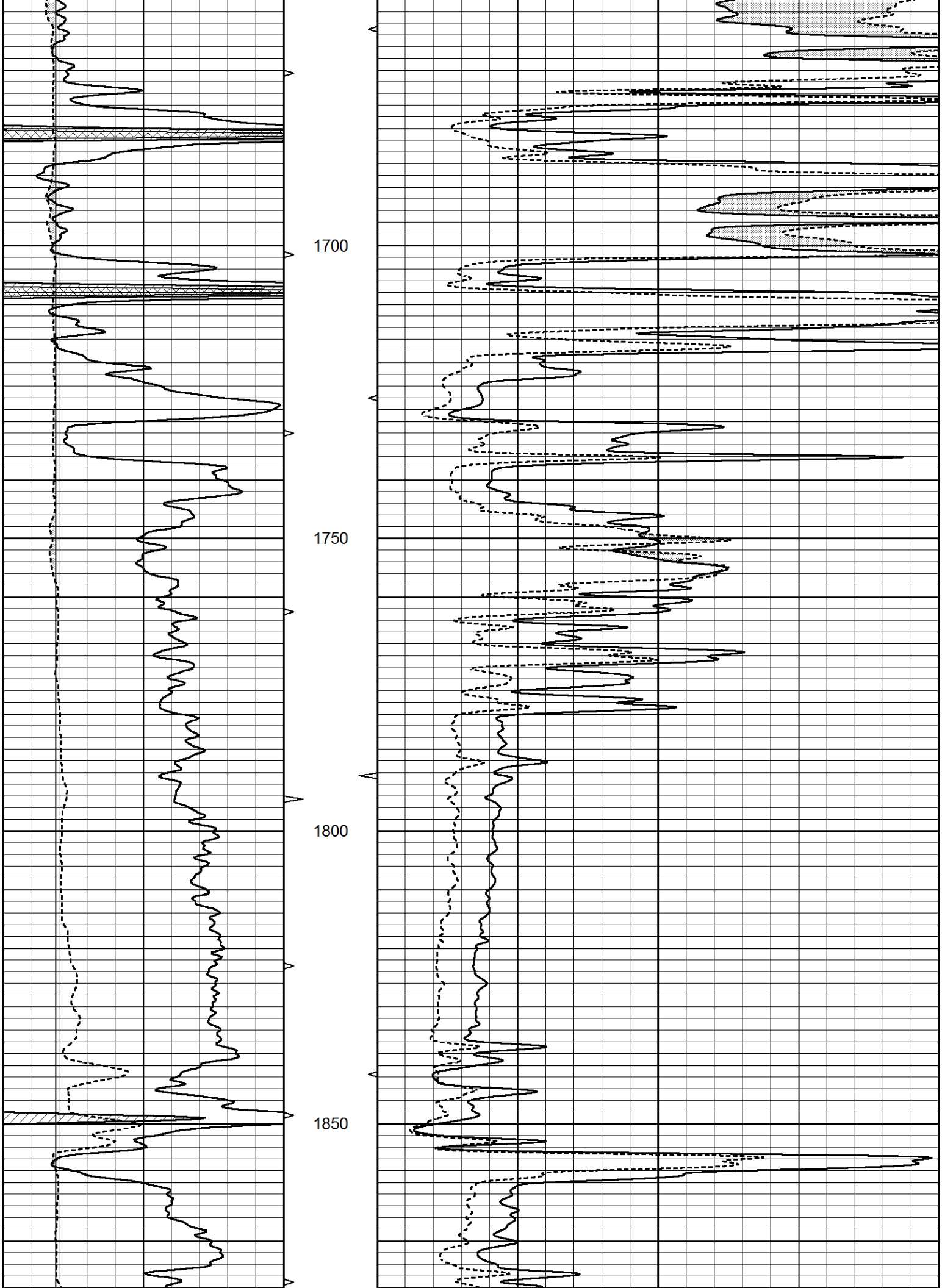
0	GAMMA RAY (GAPI)	150	ABHV		0	MEL1.5 (Ohm-m)	40
6	CALIPER (in)	16	10 (ft3)	0	0	MEL2.0 (Ohm-m)	40
			TBHV				
			0 (ft3)	10			

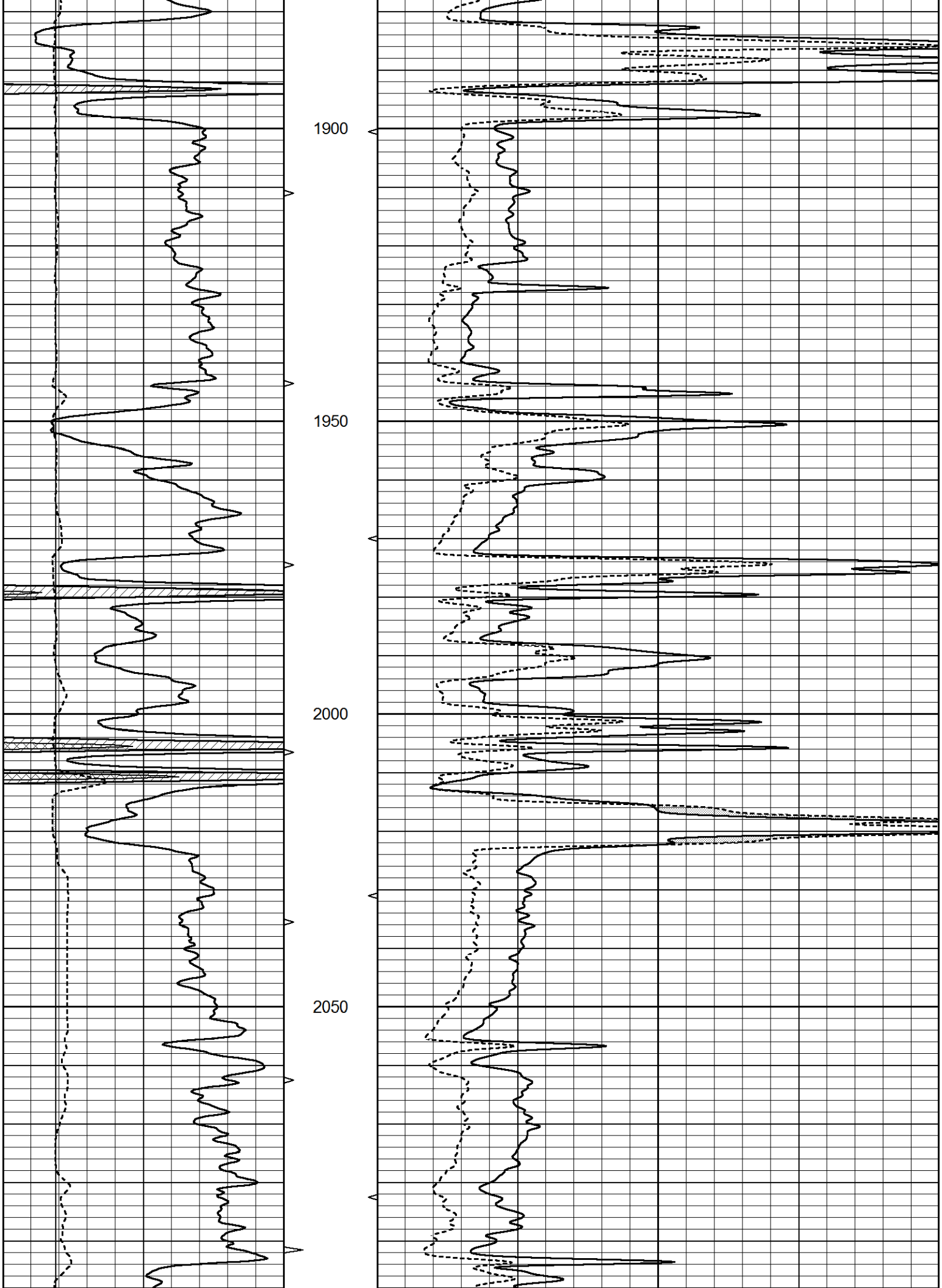


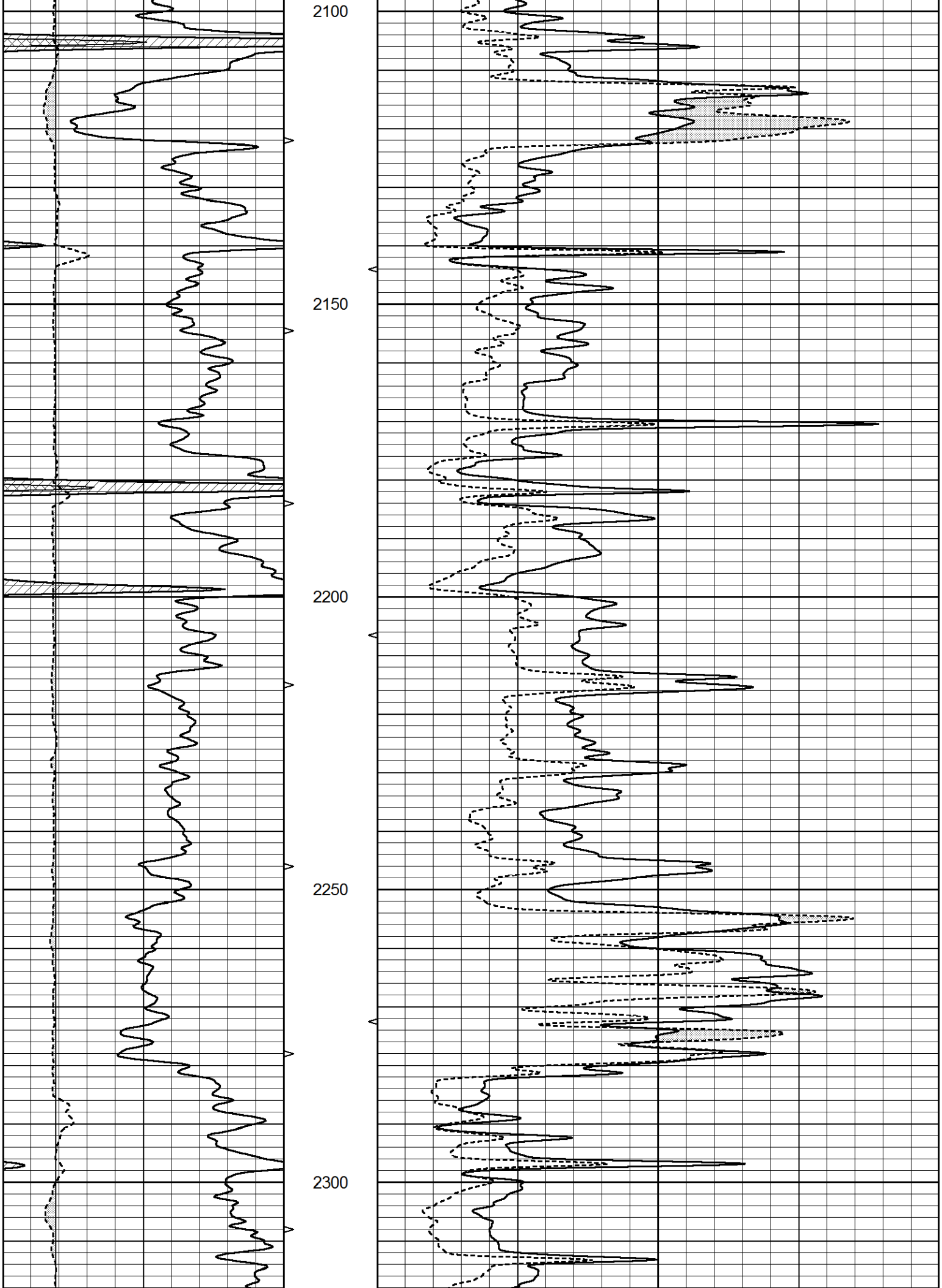

1000
1050
1100
1150
1200

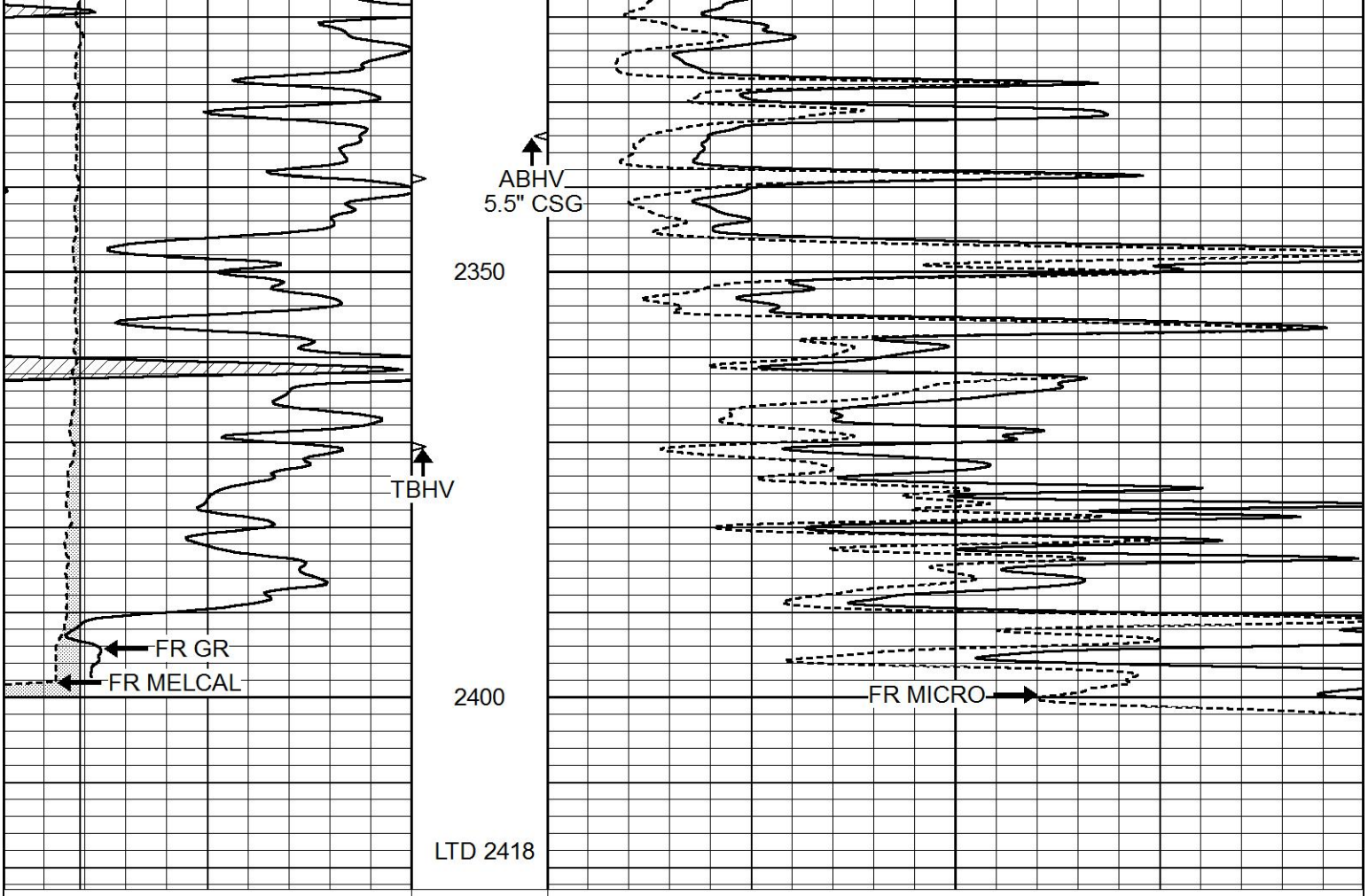

1250
1300
1350
1400


1450
1500
1550
1600
1650


1700
1750
1800
1850

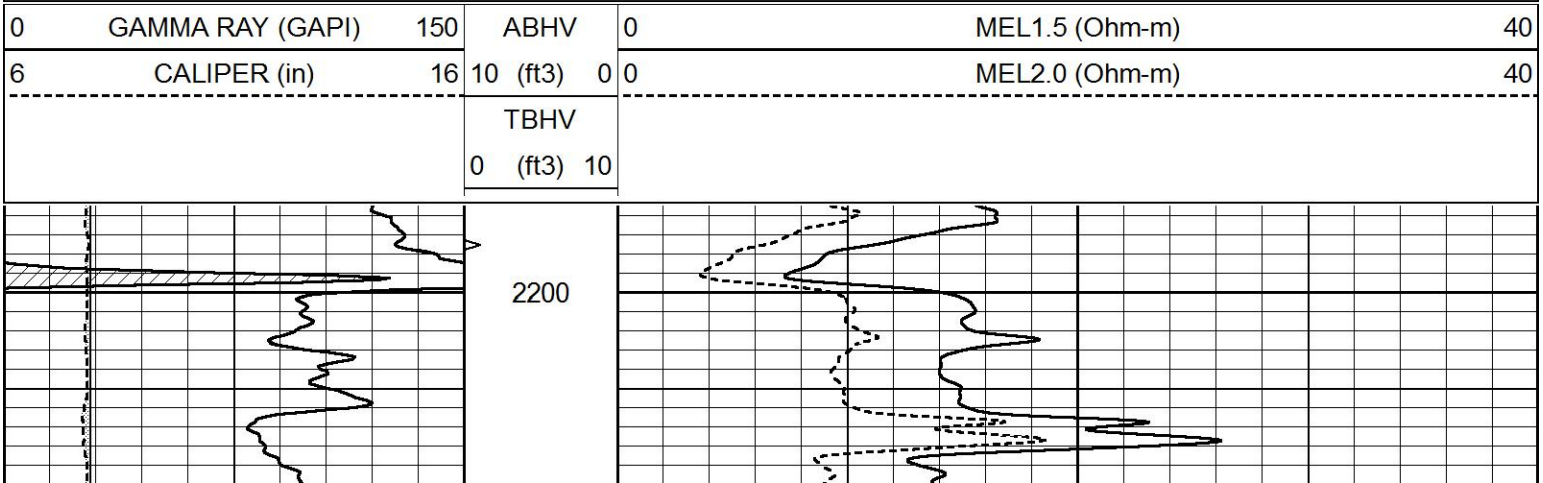

1900
1950
2000
2050

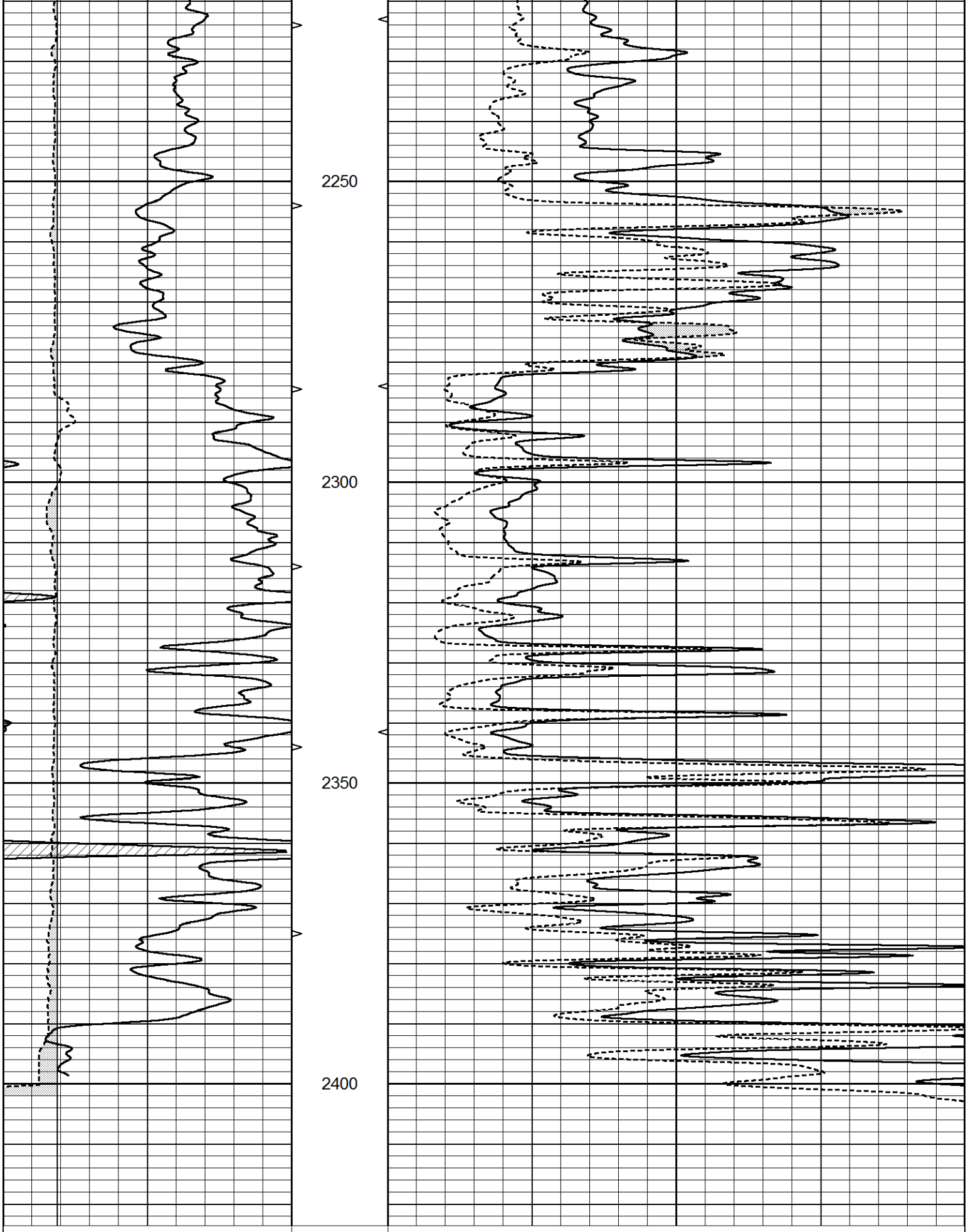

2100
2150
2200
2250
2300



REPEAT SECTION

Database File	3993pe8.db
Dataset Pathname	pass5.1
Presentation Format	_micro
Dataset Creation	Mon Sep 16 16:12:14 2019
Charted by	Depth in Feet scaled 1:240




2250
2300
2350
2400
0 GAMMA RAY (GAPI) 150
6 CALIPER (in) 16
ABHV
10 (ft3) 0
TBHV
0 MEL1.5 (Ohm-m) 40
0 MEL2.0 (Ohm-m) 40

0 (ft3) 10

Calibration Report

Database File	3993pe8.db
Dataset Pathname	pass5.1
Dataset Creation	Mon Sep 16 16:12:14 2019

MICRO_USR Calibration Report

Serial Number:	070911	
Tool Model:	ProbeL	
Performed:	Wed Aug 07 14:47:35 2019	
Caliper Calibration:	Gain=3.755	Offset=2.450
	Low Cal	High Cal
References	8.000	14.000
Readings	1.451	3.049
1.5" Calibration:	Gain=37.000	Offset=-0.500
	Low Cal	High Cal
References	0.000	20.000
Readings	0.004	0.843
2" Calibration:	Gain=45.000	Offset=-0.650
	Low Cal	High Cal
References	0.000	20.000
Readings	0.021	0.810

Microlog Calibration Report

Serial-Model:	070911-ProbeL
Performed:	Sat Apr 11 01:13:01 2015

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m	b
Normal	0.0002	0.4836	V	0.0000	10.0000	Ohm-m	20.6908	-0.0051
Inverse	0.0018	0.6297	V	0.0000	10.0000	Ohm-m	15.9263	-0.0282
Caliper	0.0000	1.0000	V	0.0000	1.0000	in	1.0000	0.0000

Gamma Ray Calibration Report

Serial Number:	070558	
Tool Model:	Probe1	
Performed:	Mon Jan 21 19:38:56 2019	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.2500	GAPI/cps

SONIC LOG

Company CROSS BAR ENERGY, LLC.
Well BURKETT "E" #53
Field BURKETT
County GREENWOOD State KANSAS

Location: API # :

732' FSL & 330' FWL

SEC 23 TWP 23S RGE 10E

Other Services
CDL/CNL/PE
DIL/MEL

Elevation
K.B. 1399.5
D.F. 1397.5
G.L. 1394

Permanent Datum GROUND LEVEL Elevation 1394
Log Measured From KELLY BUSHING 5.5' A.G.L
Drilling Measured From KELLY BUSHING

Date	9/16/19		
Run Number	TWO		
Depth Driller	2419		
Depth Logger	2418		
Bottom Logged Interval	2408		
Top Log Interval	200		
Casing Driller	8 5/8" @ 207'		
Casing Logger	209'		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 9350 PPM	
Density / Viscosity	9.2/34		
pH / Fluid Loss	9.5/9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.45 @ 88F		
Rmf @ Meas. Temp	1.08 @ 88F		
Rmc @ Meas. Temp	1.74 @ 88F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	1.25 @ 102F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	////		
Maximum Recorded Temperature	102F		
Equipment Number	3802		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	STUART WOODIE	ALBERT BRENSING	

Company CROSS BAR ENERGY, LLC.
Well BURKETT "E" #53
Field BURKETT
County GREENWOOD
State KANSAS

<< Fold Here >>>

Comments

THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395

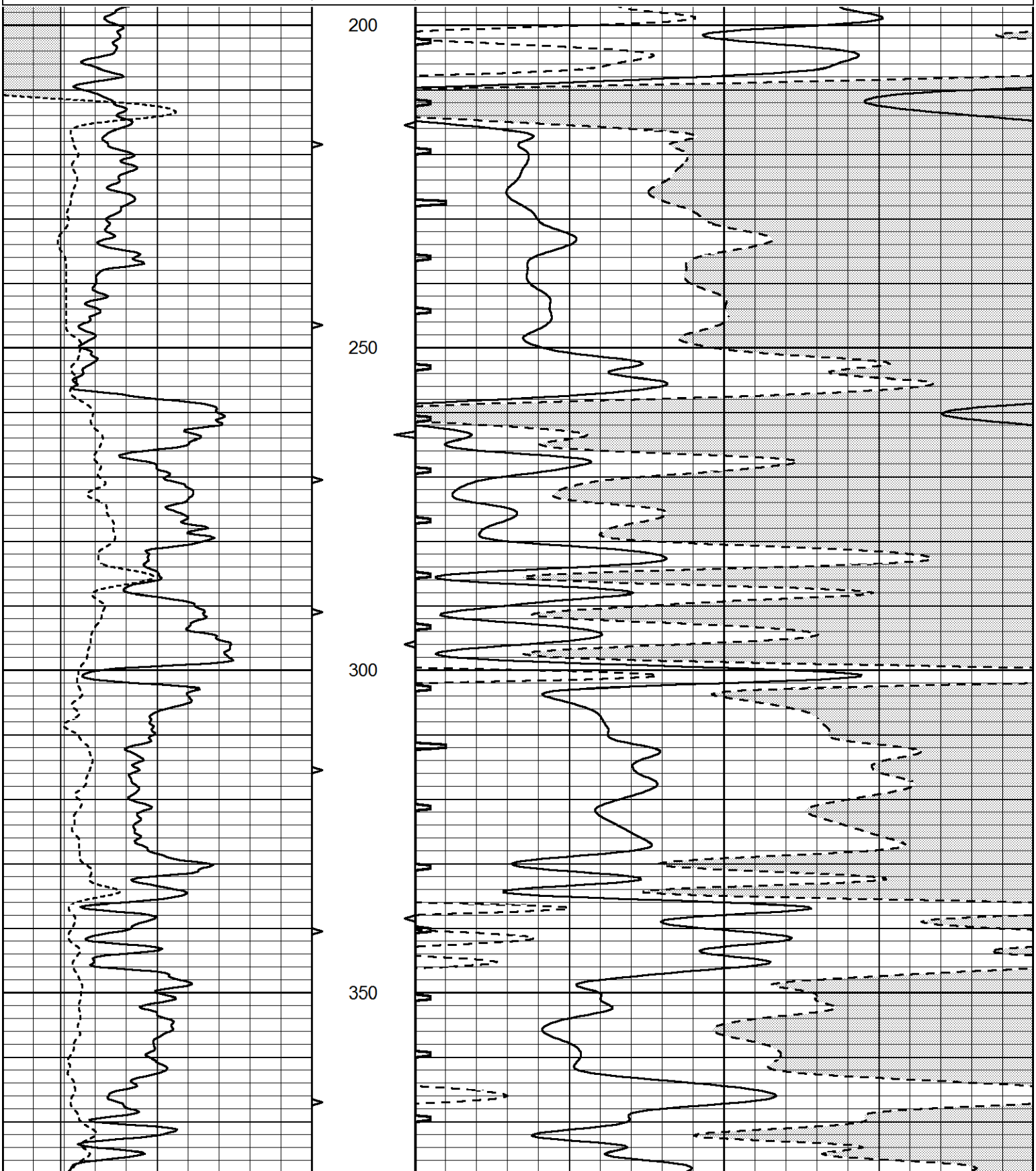
DIRECTIONS

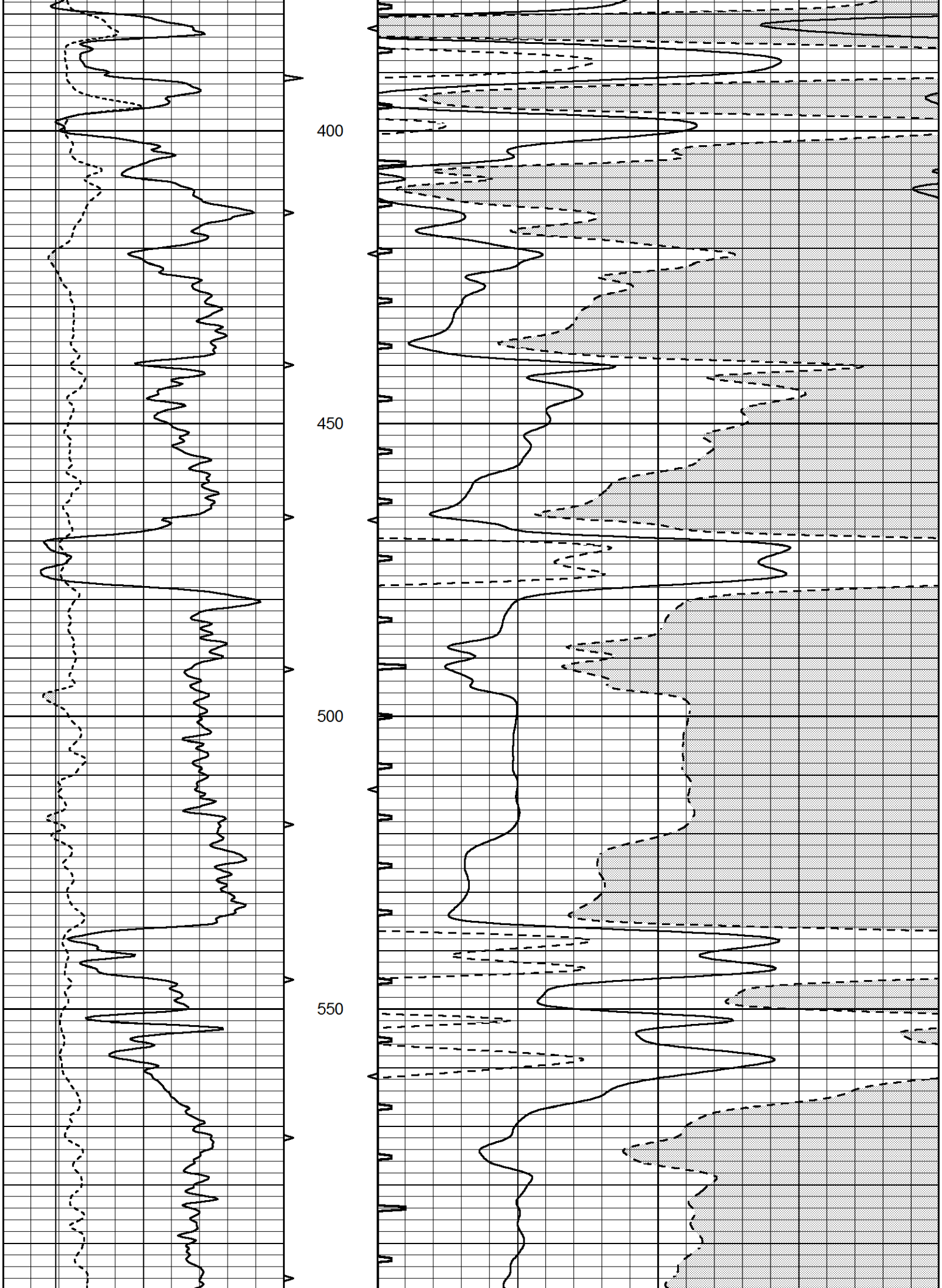
CASSODAY, KS. - EAST TO GREENWOOD COUNTY LINE
STAY EAST TO Q RD. - 1 SOUTH TO 290TH RD - WEST ACROSS LOW
WATER BRIDGE AND UP HILL - AFTER CATTLEGUARD STAY LEFT
BACK AROUND TO NORTH INTO

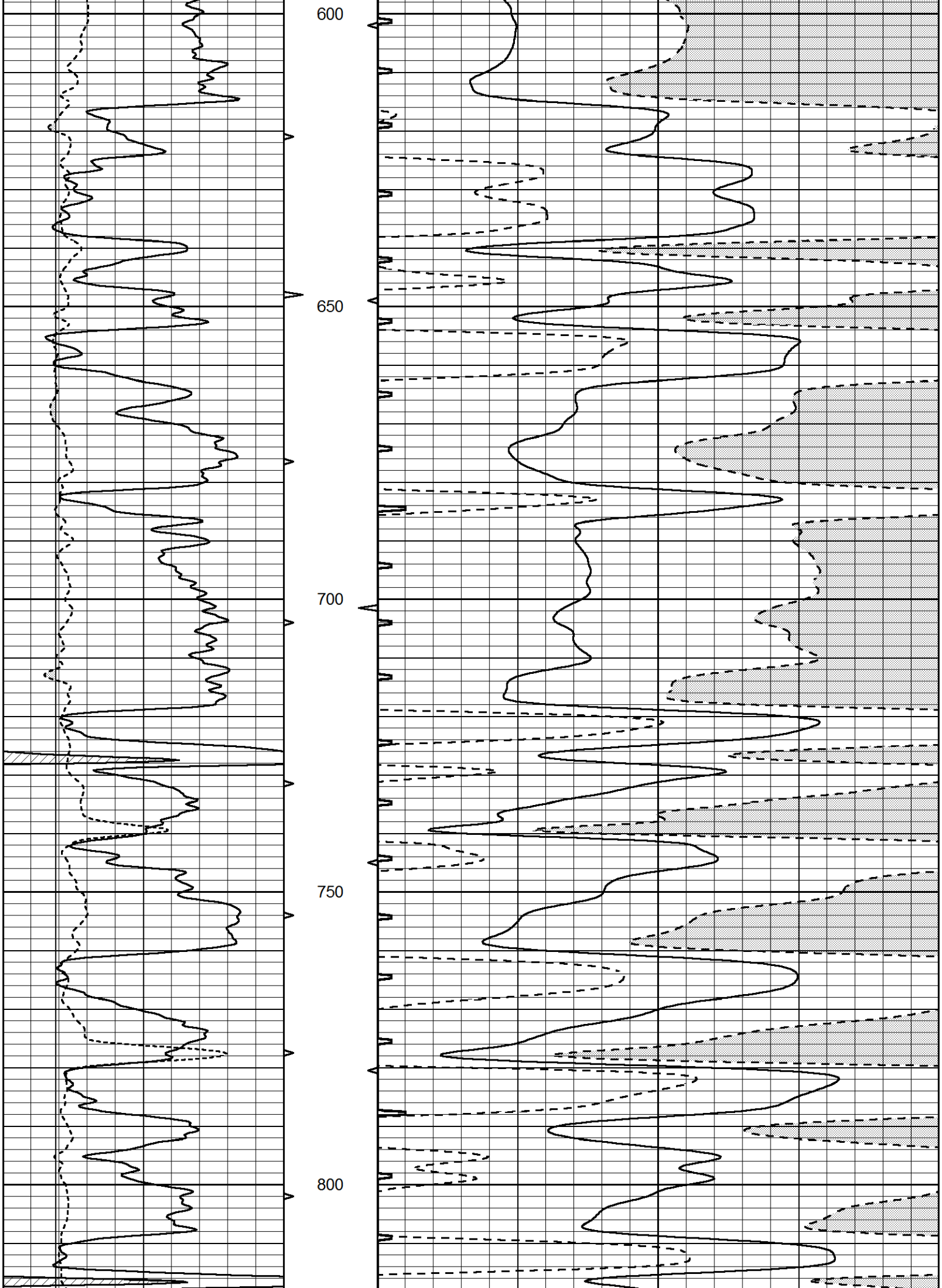
MAIN SECTION

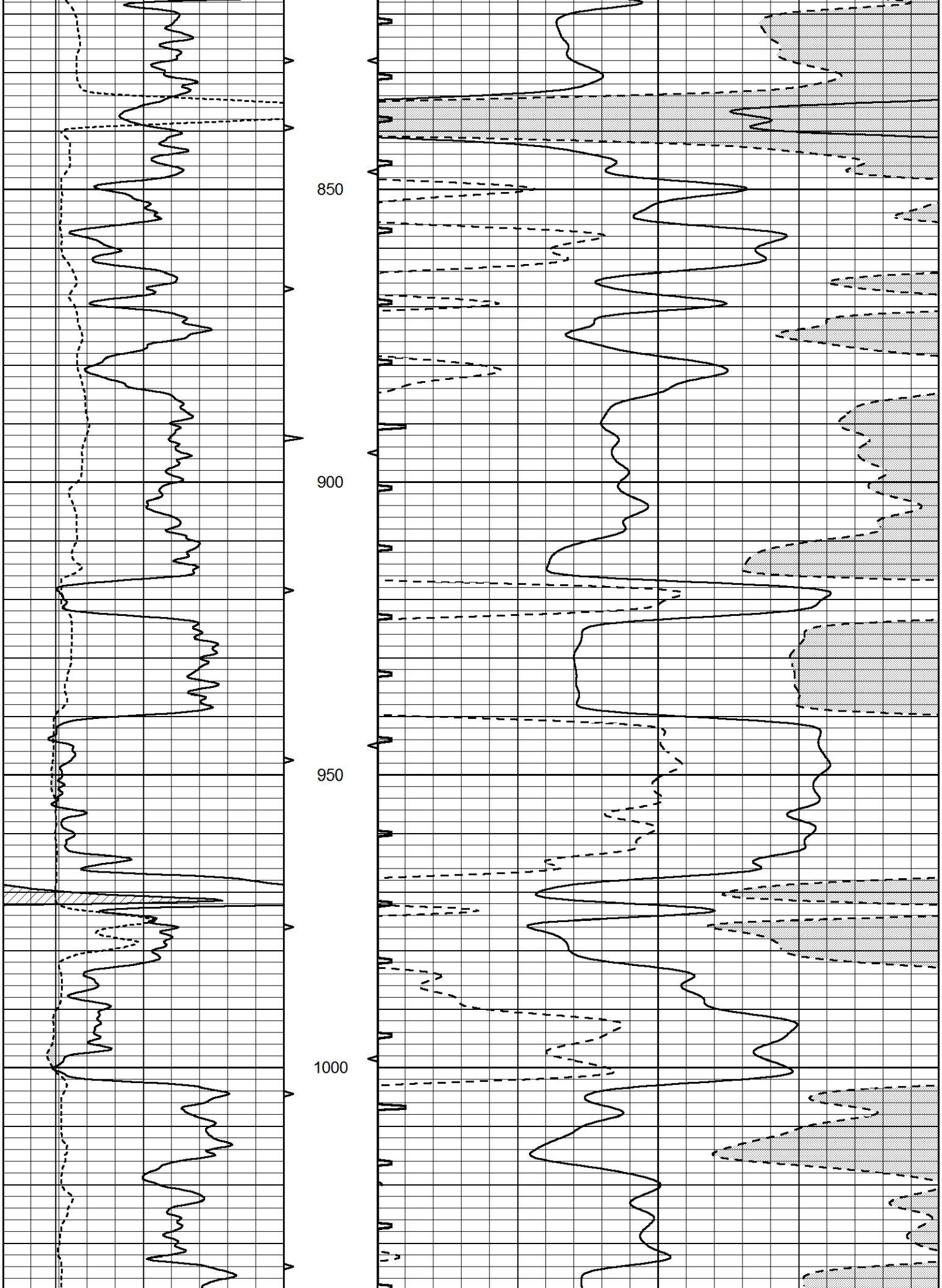
Database File	3993pe8.db
Dataset Pathname	pass6.2
Presentation Format	_slt
Dataset Creation	Mon Sep 16 16:21:24 2019
Charted by	Depth in Feet scaled 1:240

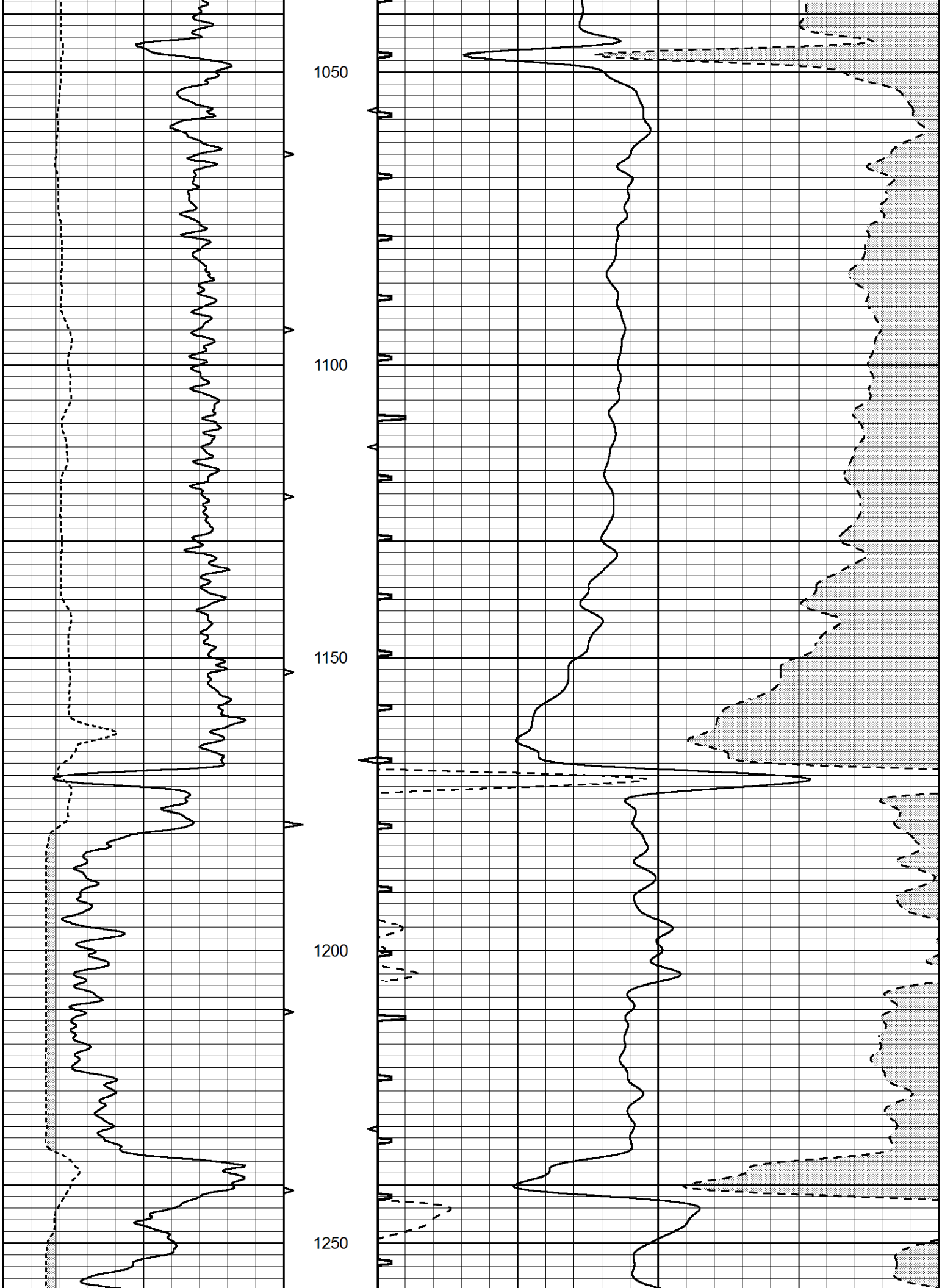
0	GAMMA RAY (GAPI)	150	ABHV	140	DELTA TIME (usec/ft) 40
6	CALIPER (in)	16	10 (ft3) 0	30	SONIC POROSITY (pu) -10
6	CALIPER (in)	16	TBHV	0	ITT (msec) 20
			0 (ft3) 10		

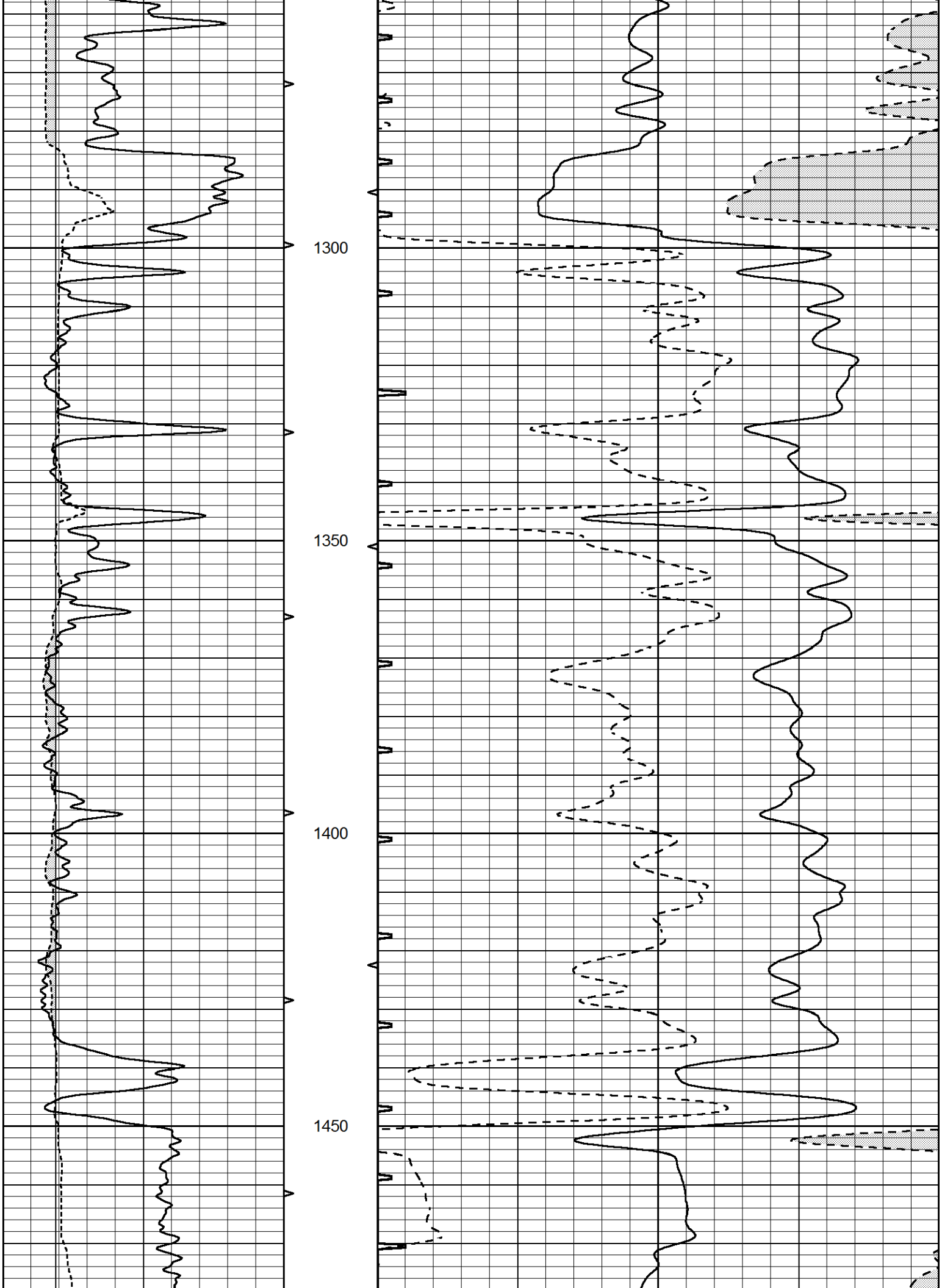


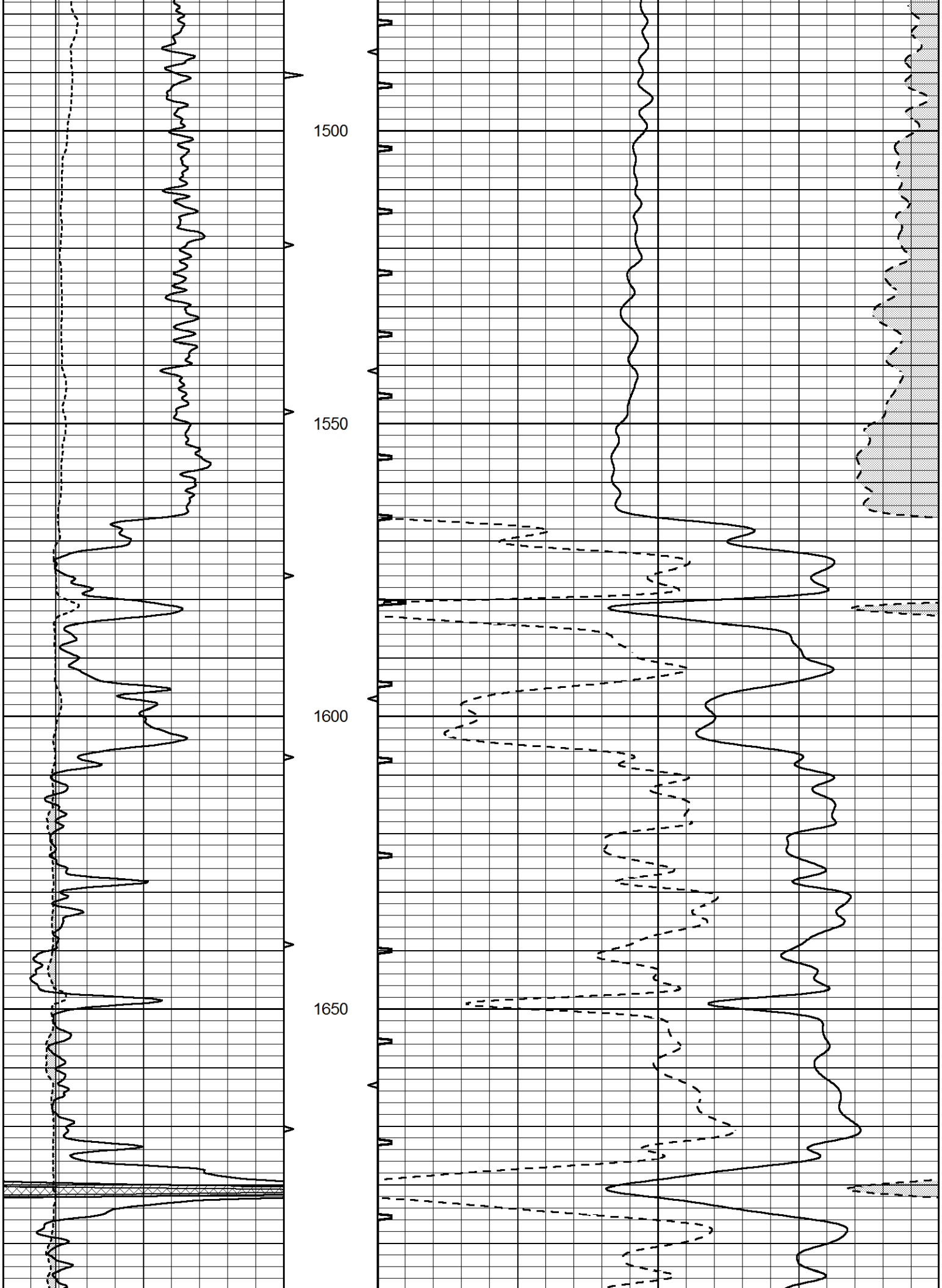

400
450
500
550

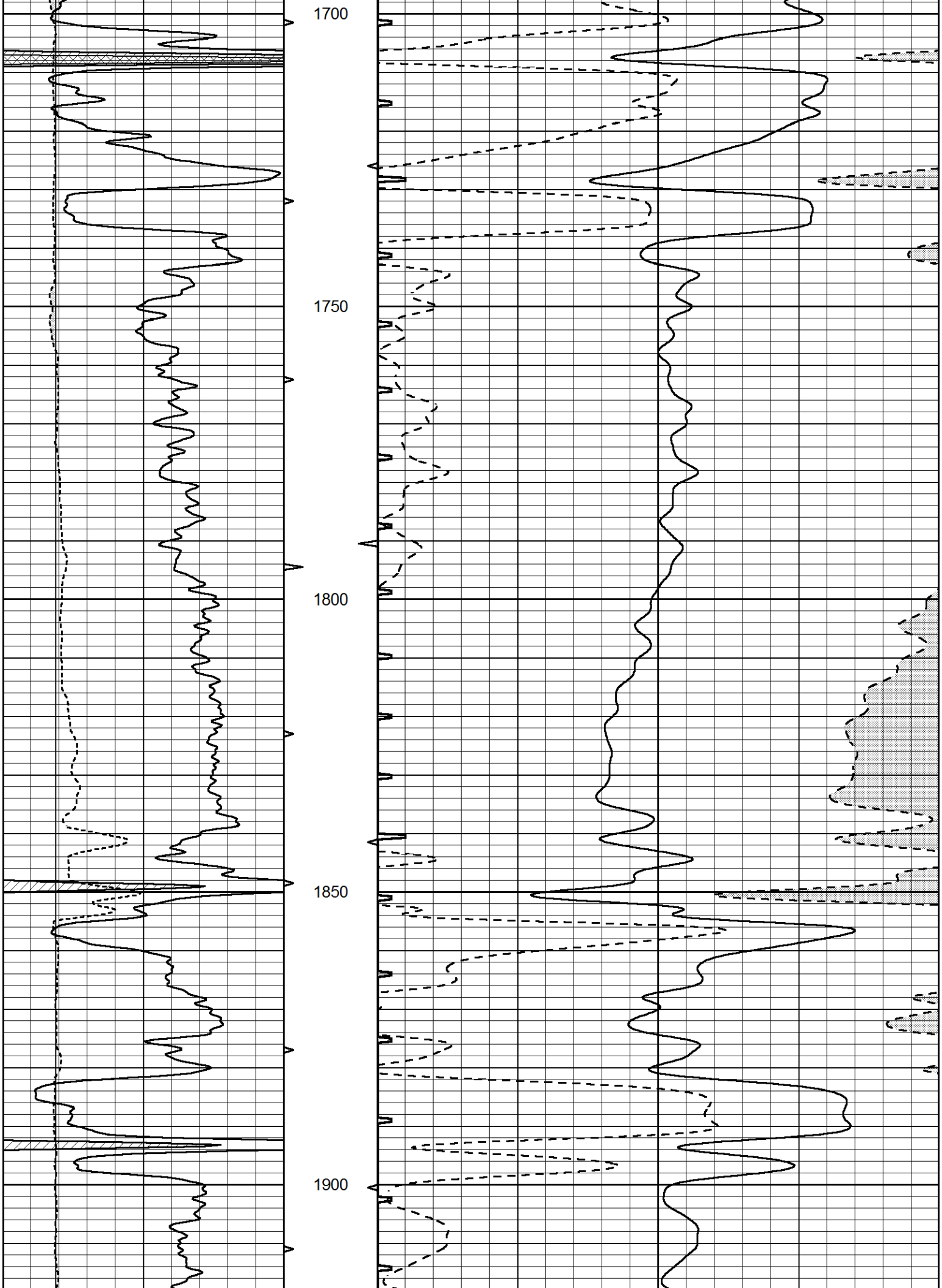

600
650
700
750
800

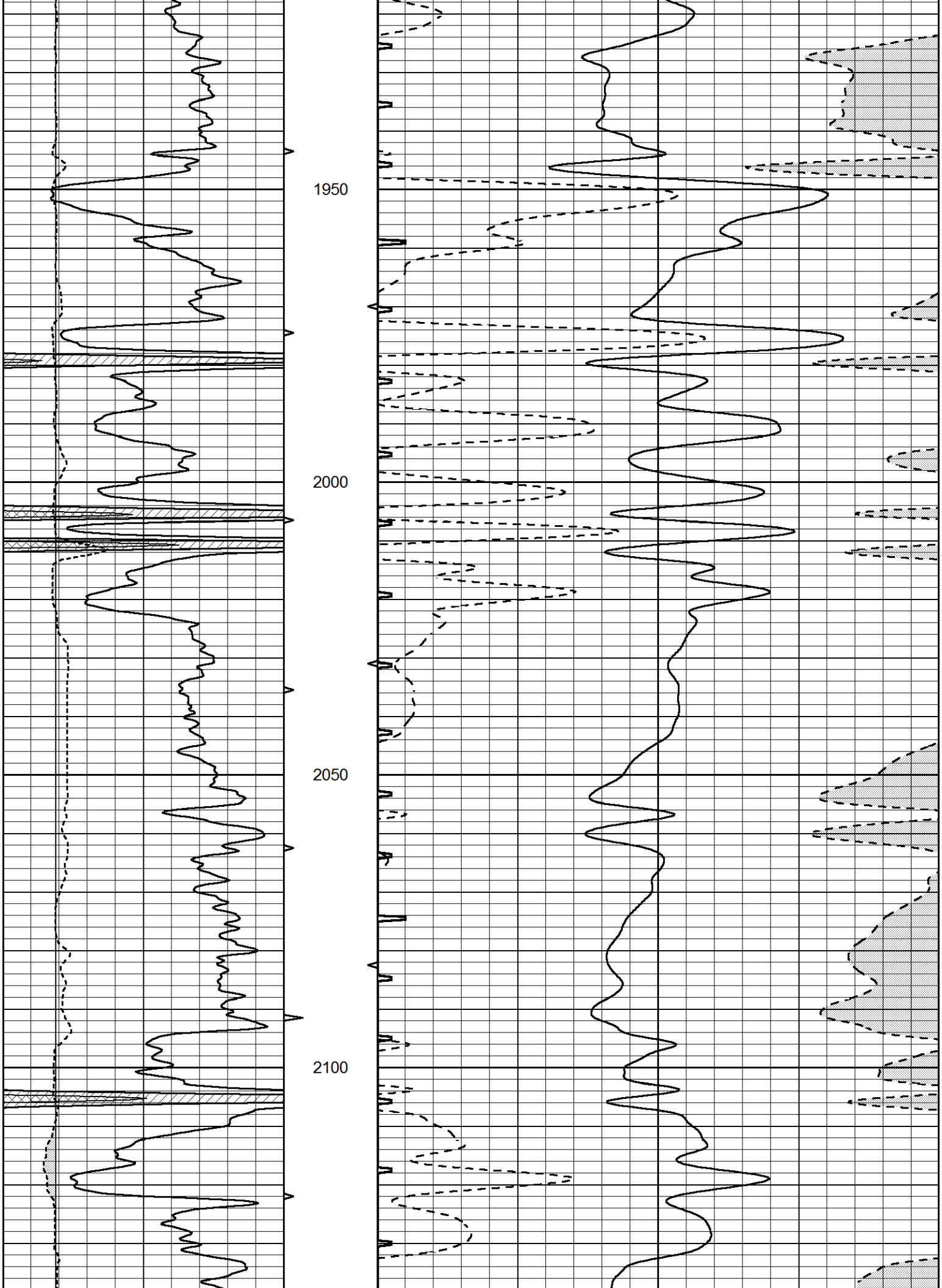

850
900
950
1000

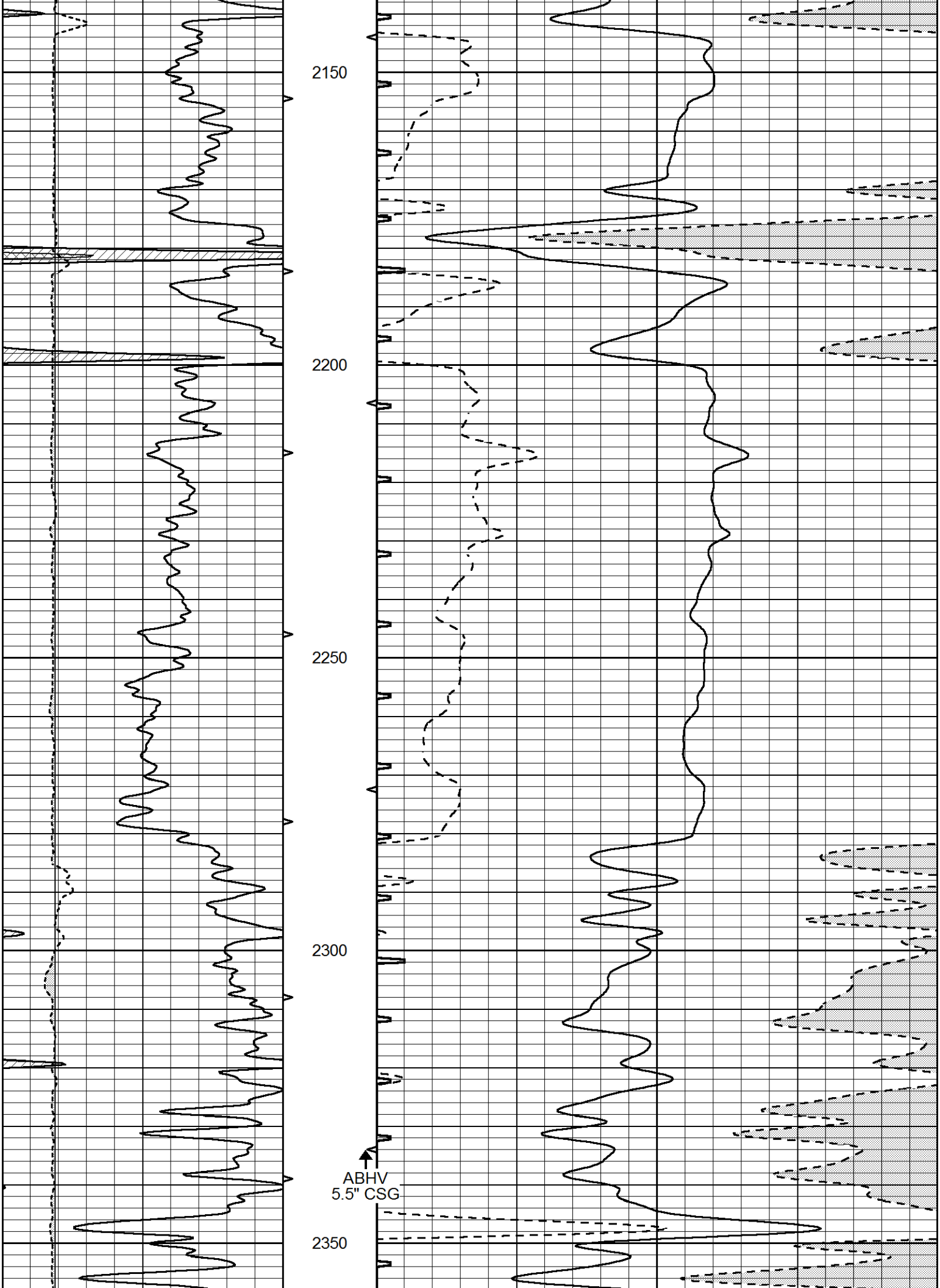

1050
1100
1150
1200
1250

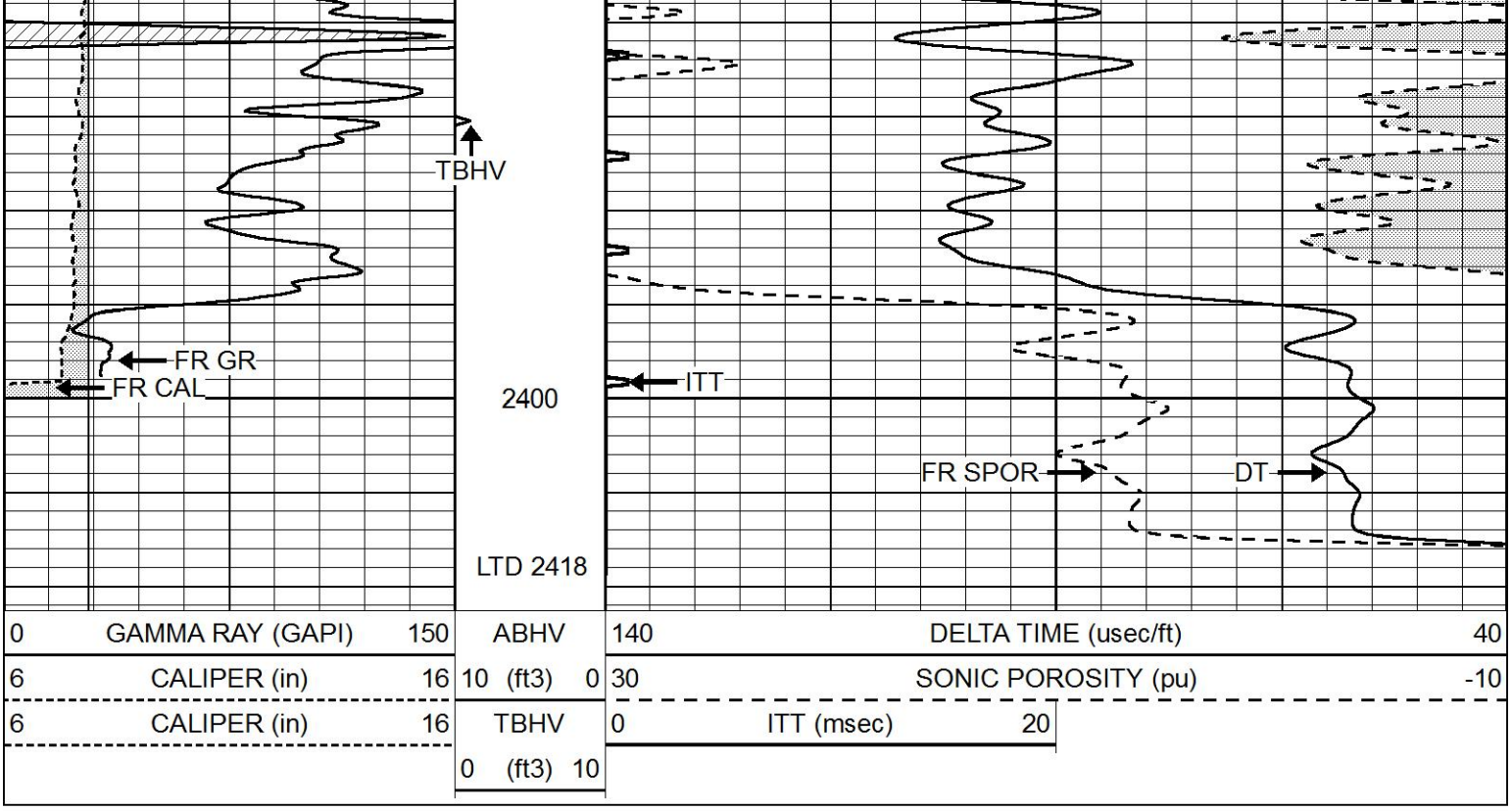

1300
1350
1400
1450


1500
1550
1600
1650


1700
1750
1800
1850
1900

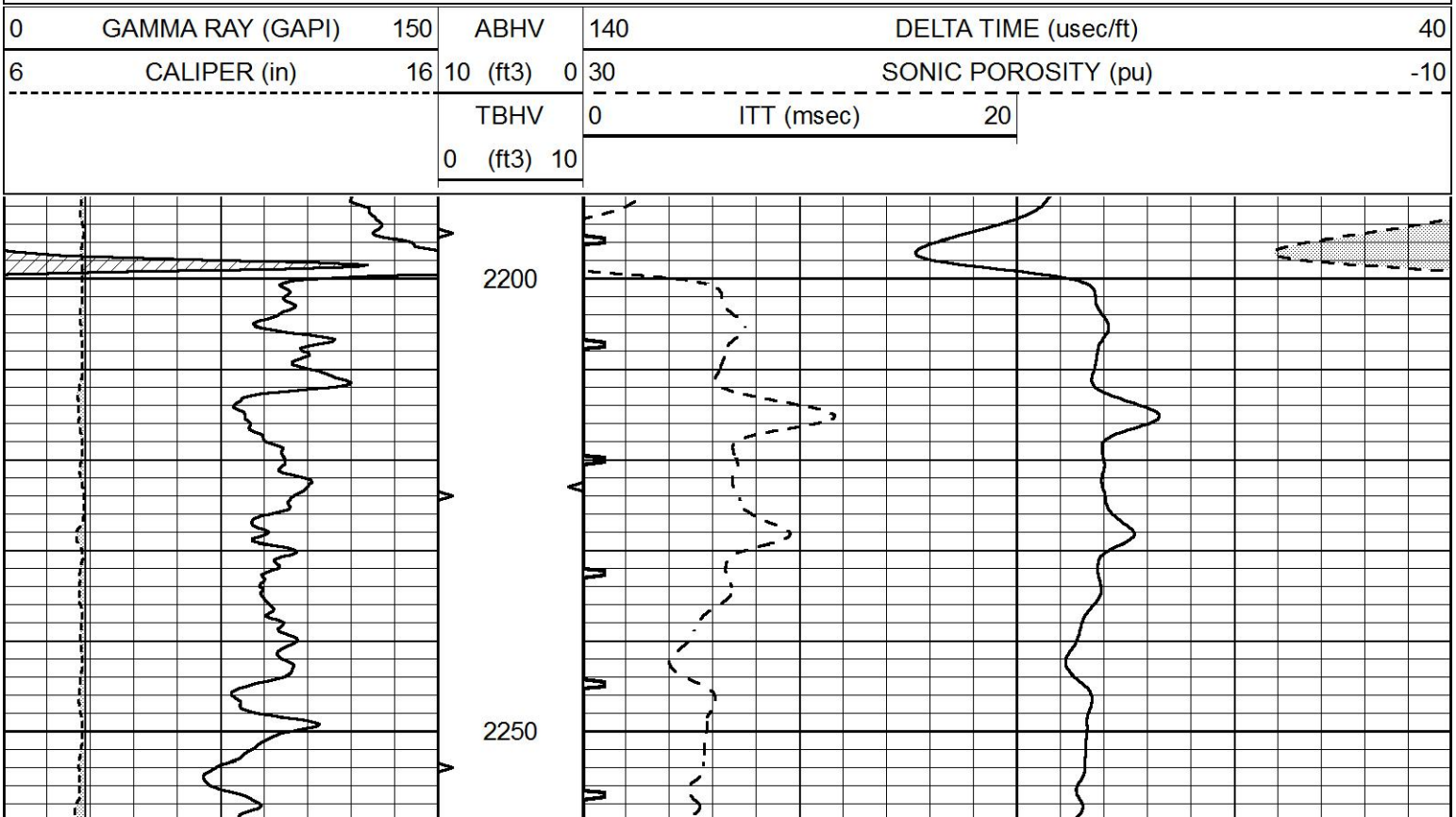

1950
2000
2050
2100

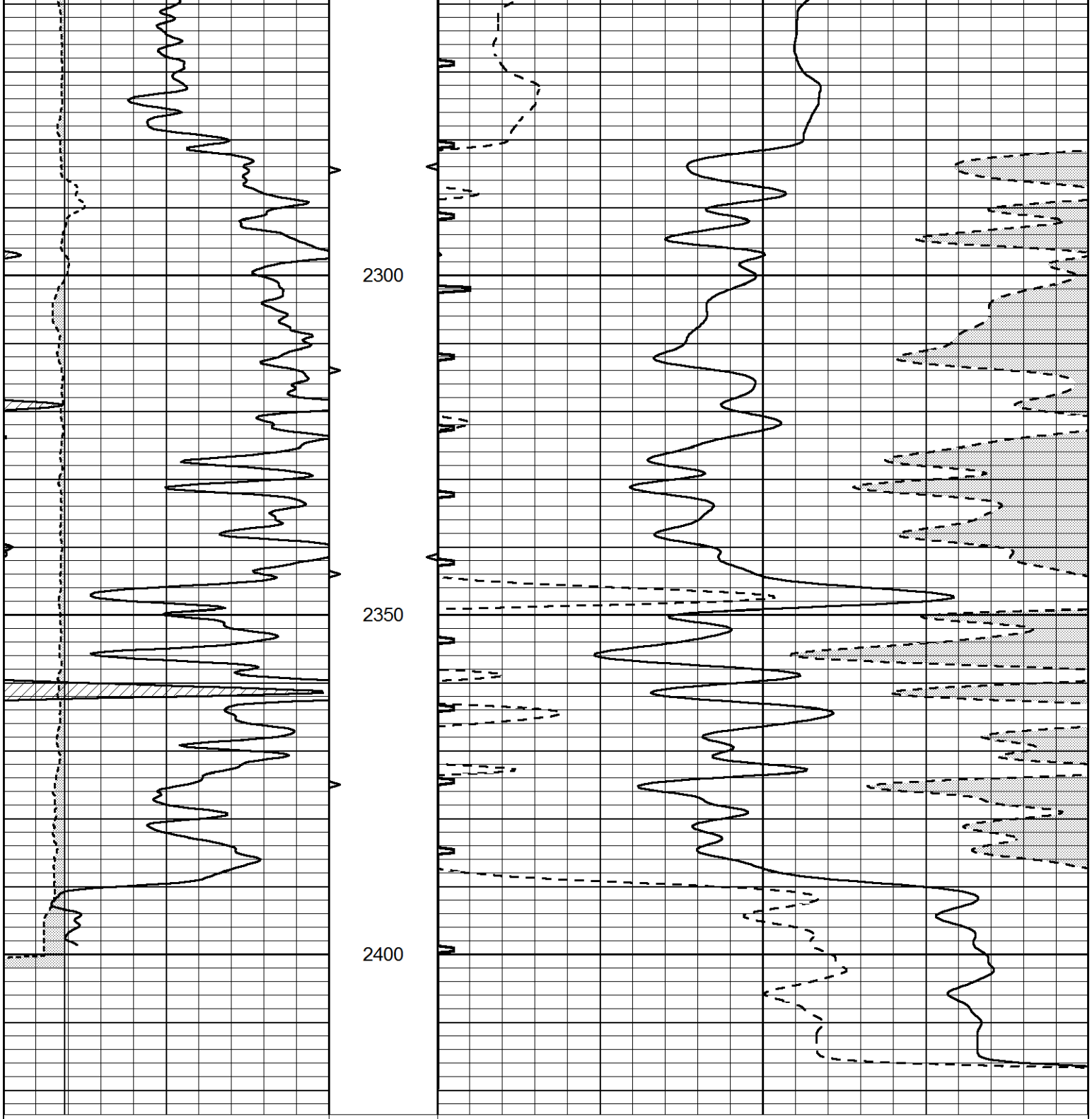

2150
2200
2250
2300
ABHV
5.5" CSG
2350



REPEAT SECTION

Database File	3993pe8.db
Dataset Pathname	pass5.1
Presentation Format	_slt
Dataset Creation	Mon Sep 16 16:12:14 2019
Charted by	Depth in Feet scaled 1:240




2300
2350
2400
0 GAMMA RAY (GAPI) 150
6 CALIPER (in) 16
ABHV
10 (ft3) 0
TBHV
0 (ft3) 10
140 DELTA TIME (usec/ft) 40
30 SONIC POROSITY (pu) -10
0 ITT (msec) 20

COMPENSATED DENSITY/NEUTRON PE LOG

Company CROSS BAR ENERGY, LLC.
Well BURKETT "E" #53
Field BURKETT
County GREENWOOD State KANSAS

Location: API # :

732' FSL & 330' FWL

SEC 23 TWP 23S RGE 10E

Other Services
DIL/MEL
SONIC

Elevation
K.B. 1399.5
D.F. 1397.5
G.L. 1394

Permanent Datum GROUND LEVEL Elevation 1394
Log Measured From KELLY BUSHING 5.5' A.G.L
Drilling Measured From KELLY BUSHING

Company CROSS BAR ENERGY, LLC.
Well BURKETT "E" #53
Field BURKETT
County GREENWOOD
State KANSAS

Date	9/16/19		
Run Number	ONE		
Depth Driller	2419		
Depth Logger	2418		
Bottom Logged Interval	2394		
Top Log Interval	800		
Casing Driller	8 5/8" @ 207'		
Casing Logger	209'		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 9350 PPM	
Density / Viscosity	9.2/34		
pH / Fluid Loss	9.5/9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.45 @ 88F		
Rmf @ Meas. Temp	1.08 @ 88F		
Rmc @ Meas. Temp	1.74 @ 88F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	1.25 @ 102F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	////		
Maximum Recorded Temperature	102F		
Equipment Number	3802		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	STUART WOODIE	ALBERT BRENSING	

<<< Fold Here >>>

Comments

THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395

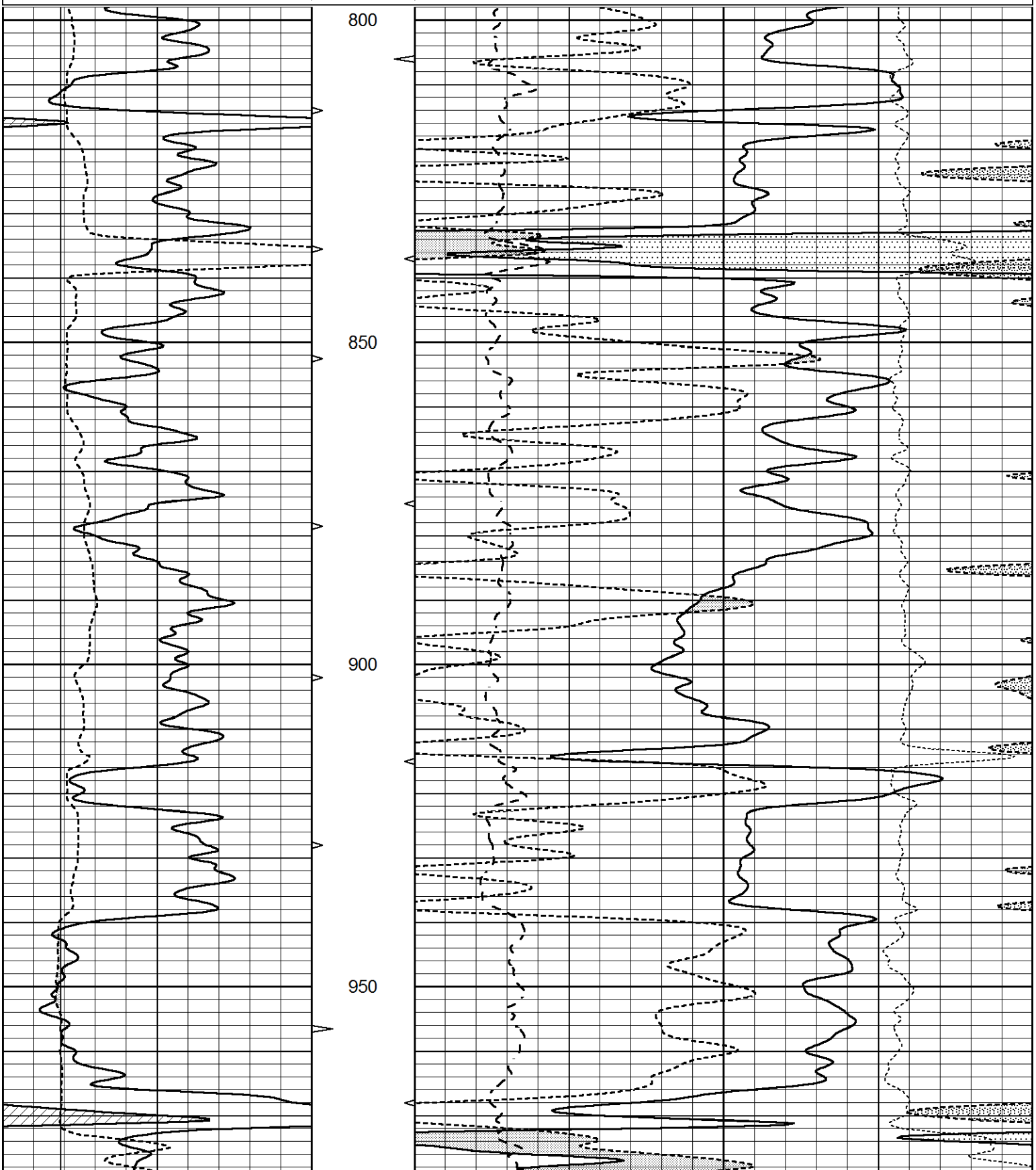
DIRECTIONS

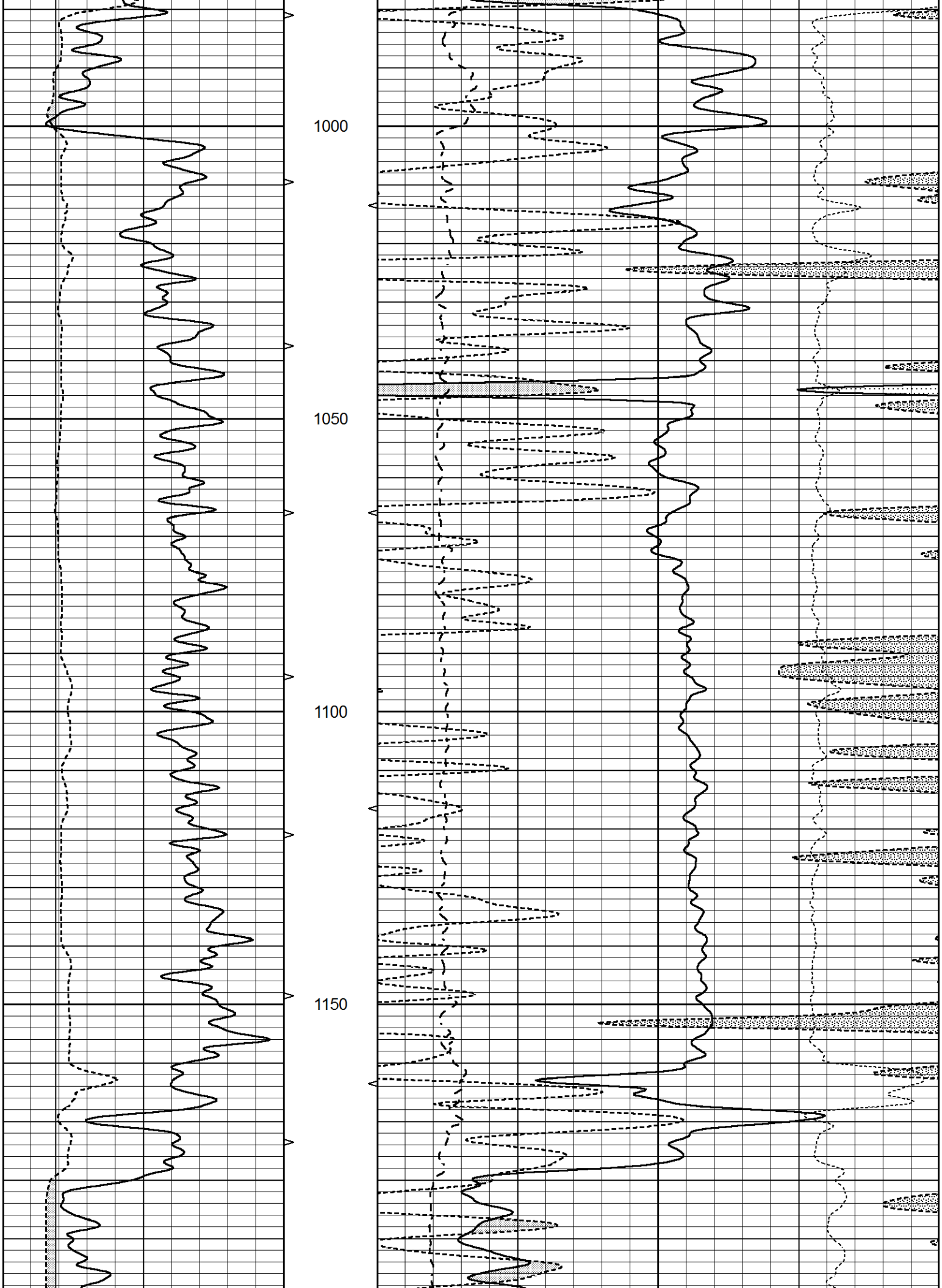
CASSODAY, KS. - EAST TO GREENWOOD COUNTY LINE
STAY EAST TO Q RD. - 1 SOUTH TO 290TH RD - WEST ACROSS LOW
WATER BRIDGE AND UP HILL - AFTER CATTLEGUARD STAY LEFT
BACK AROUND TO NORTH INTO

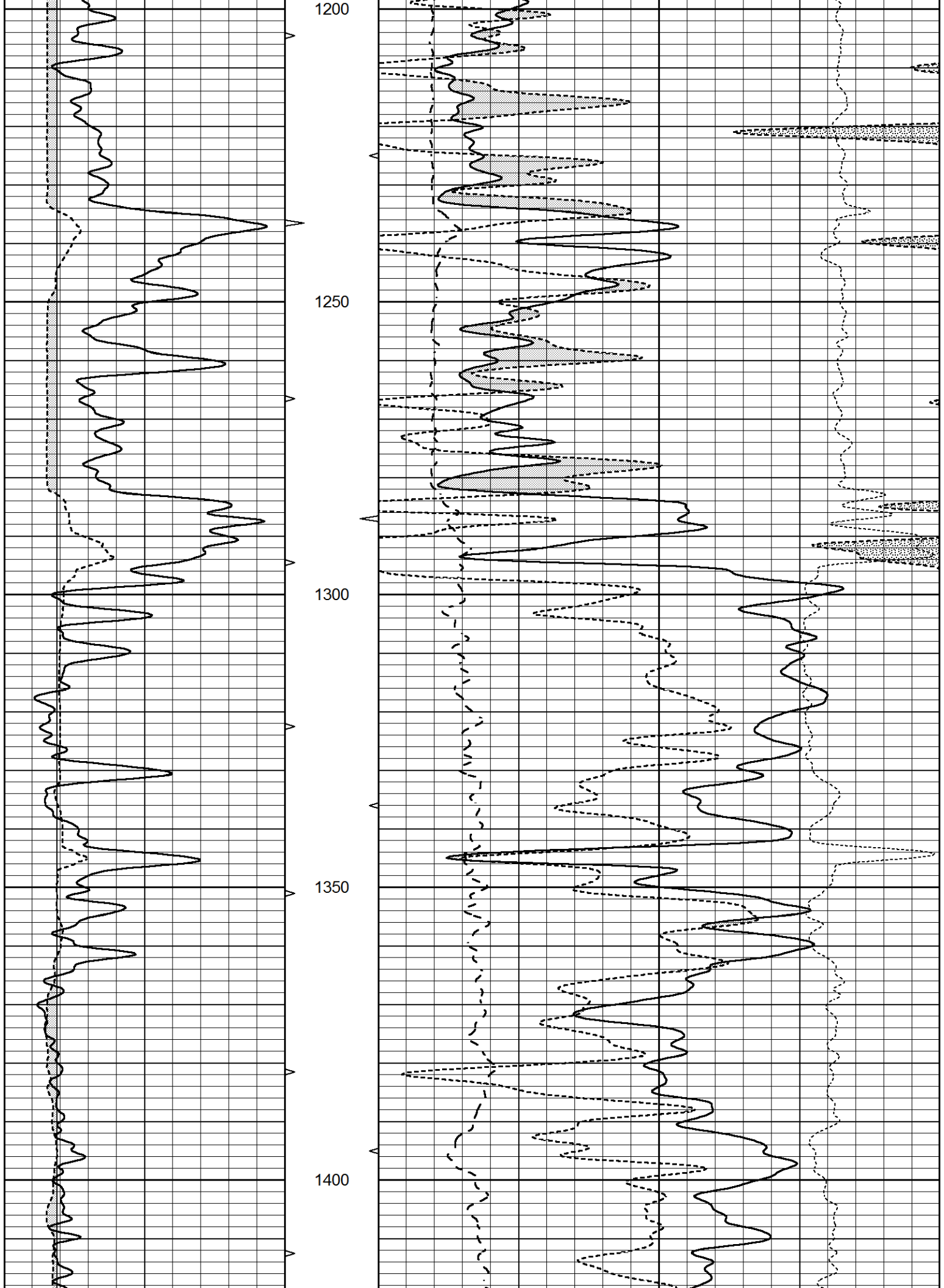
MAIN SECTION

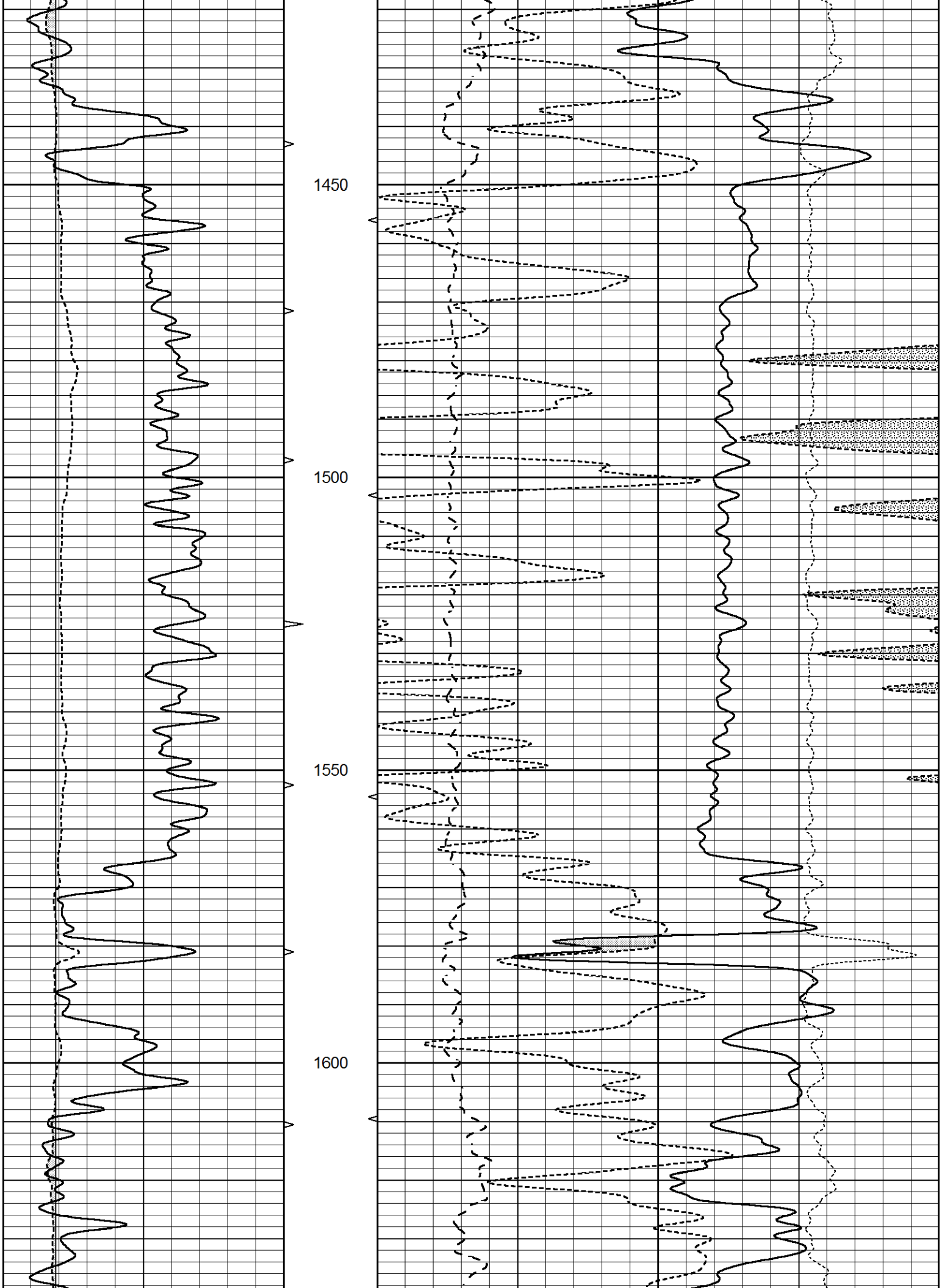
Database File	3993pe8.db
Dataset Pathname	pass3.1
Presentation Format	_ldt_neu
Dataset Creation	Mon Sep 16 14:18:30 2019
Charted by	Depth in Feet scaled 1:240

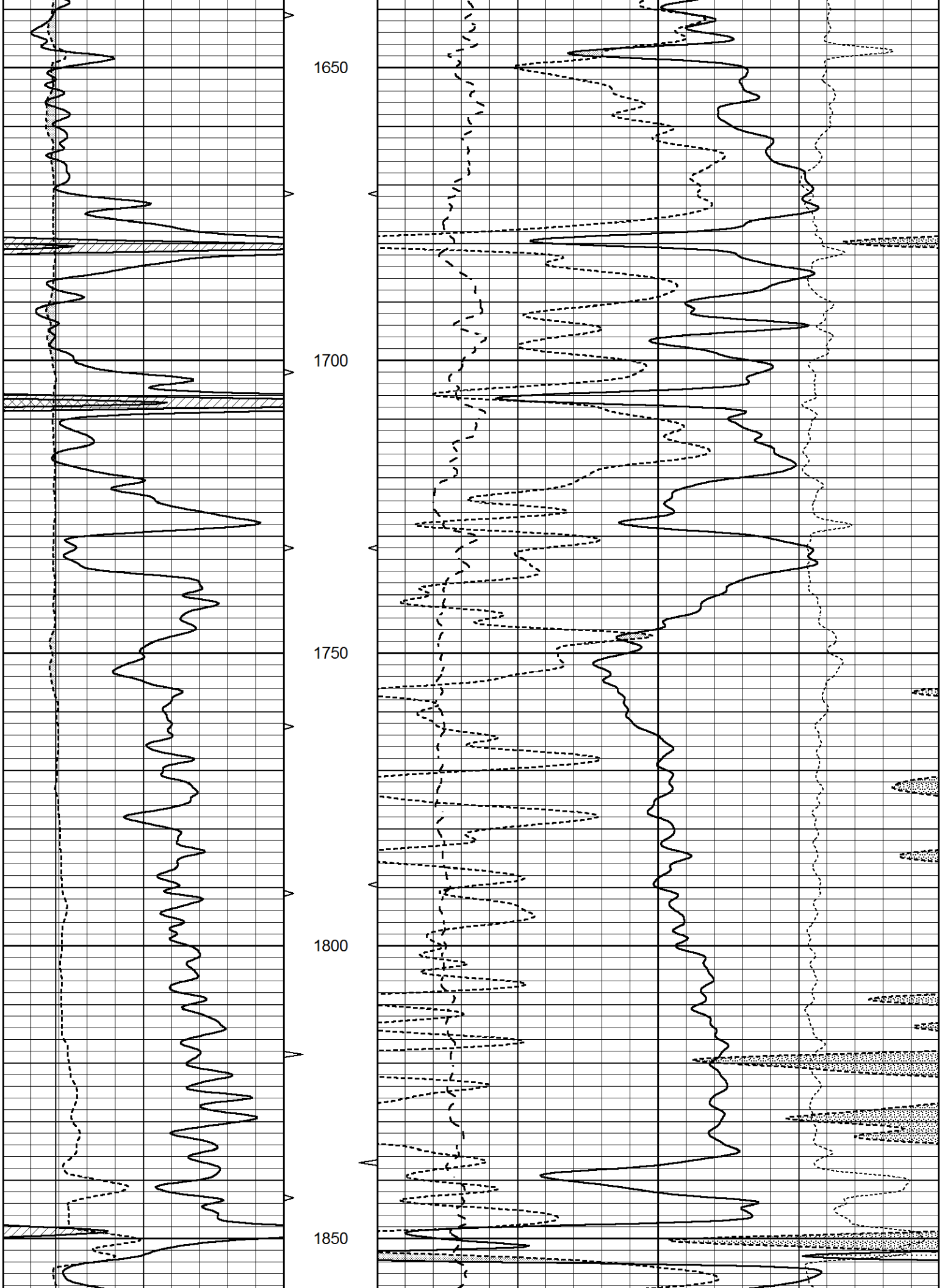
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)		-10
6	CALIPER (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)		-10
			TBHV	0	PE	10 -0.25 CORRECTION (g/cc)	0.25
			0 (ft3) 10				

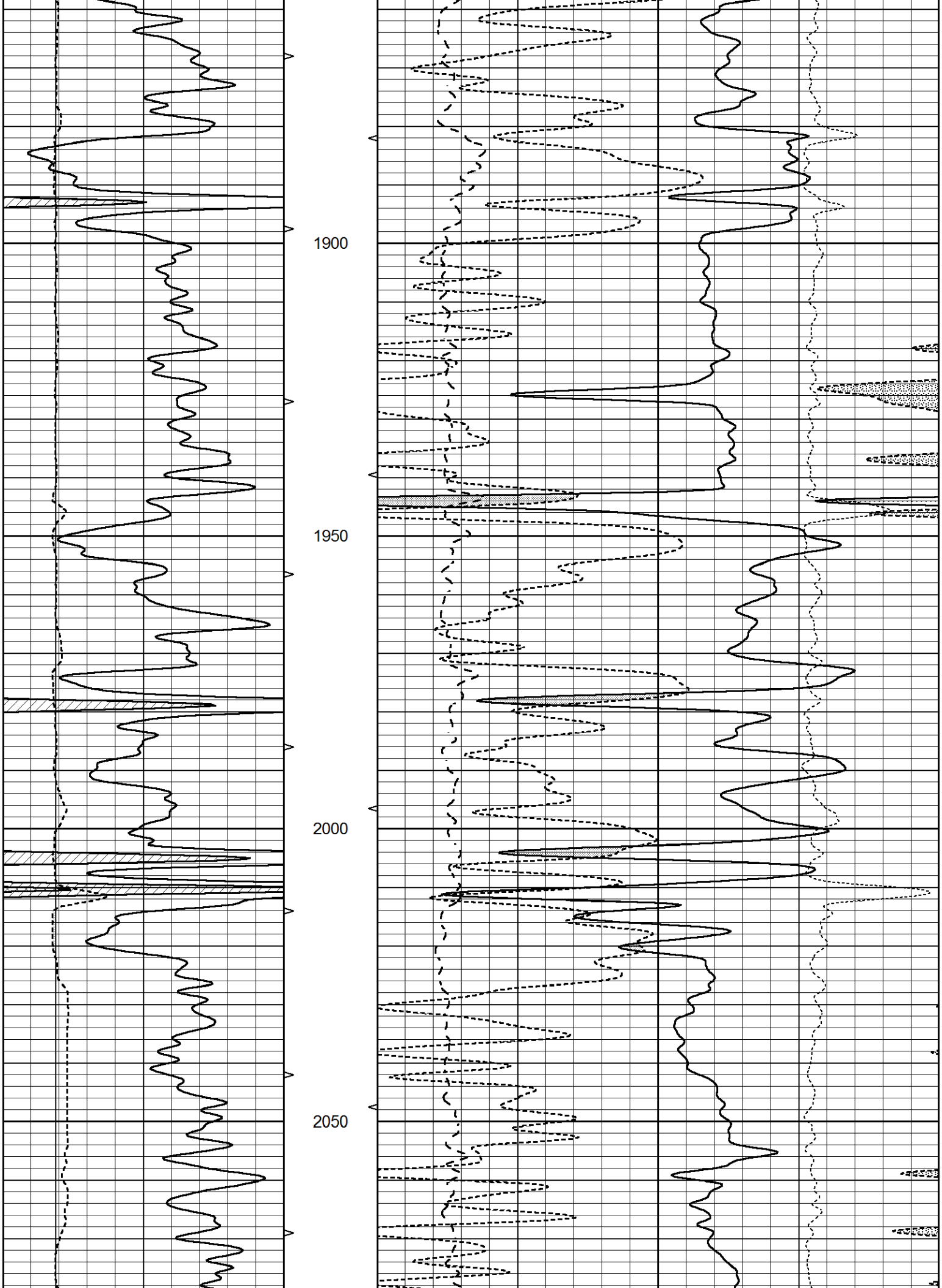


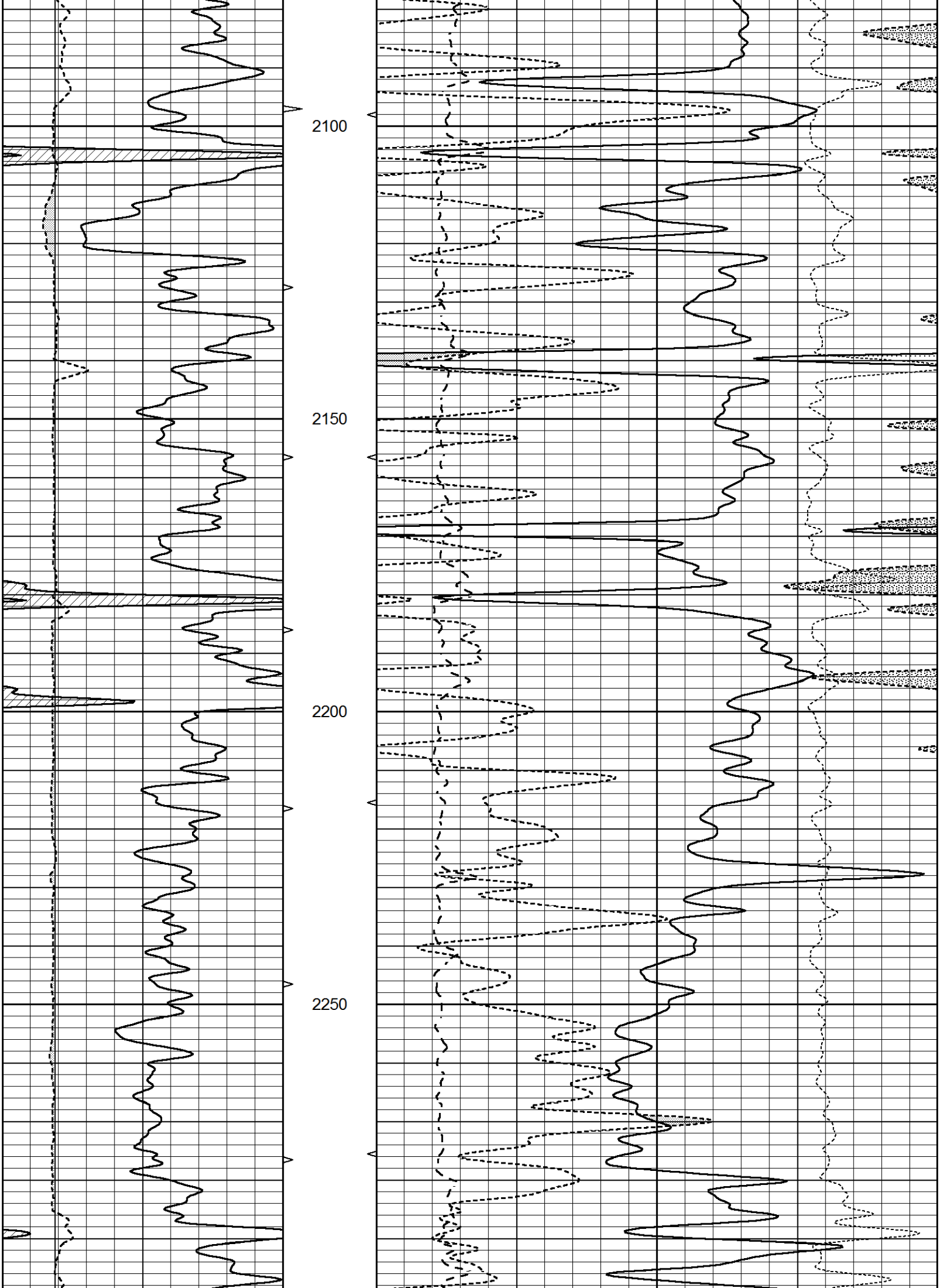

1000
1050
1100
1150

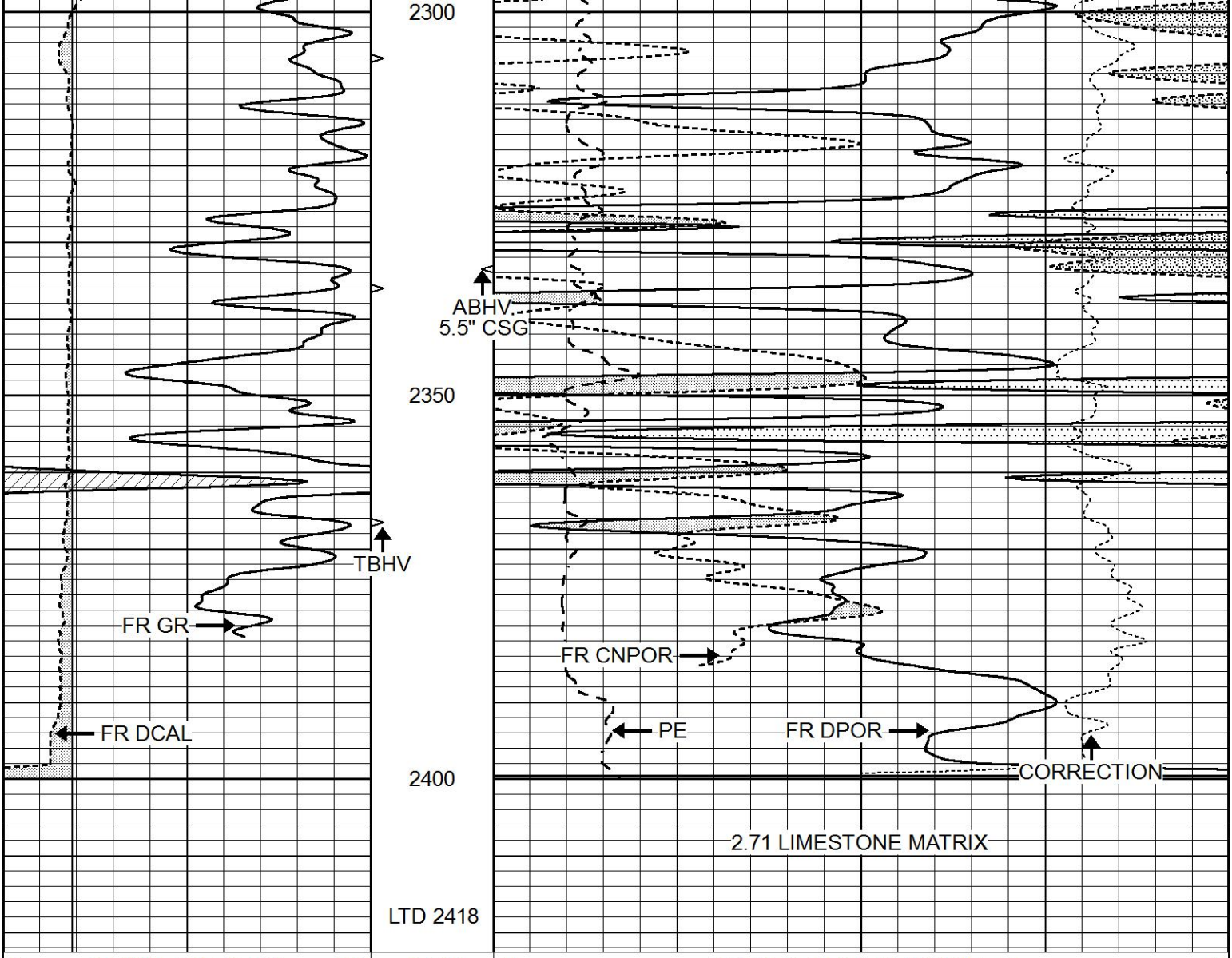

1200
1250
1300
1350
1400


1450
1500
1550
1600


1650
1700
1750
1800
1850


1900
1950
2000
2050


2100
2150
2200
2250

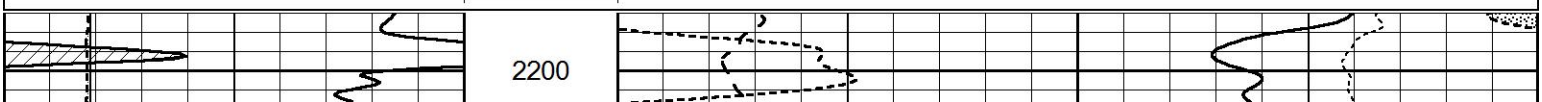


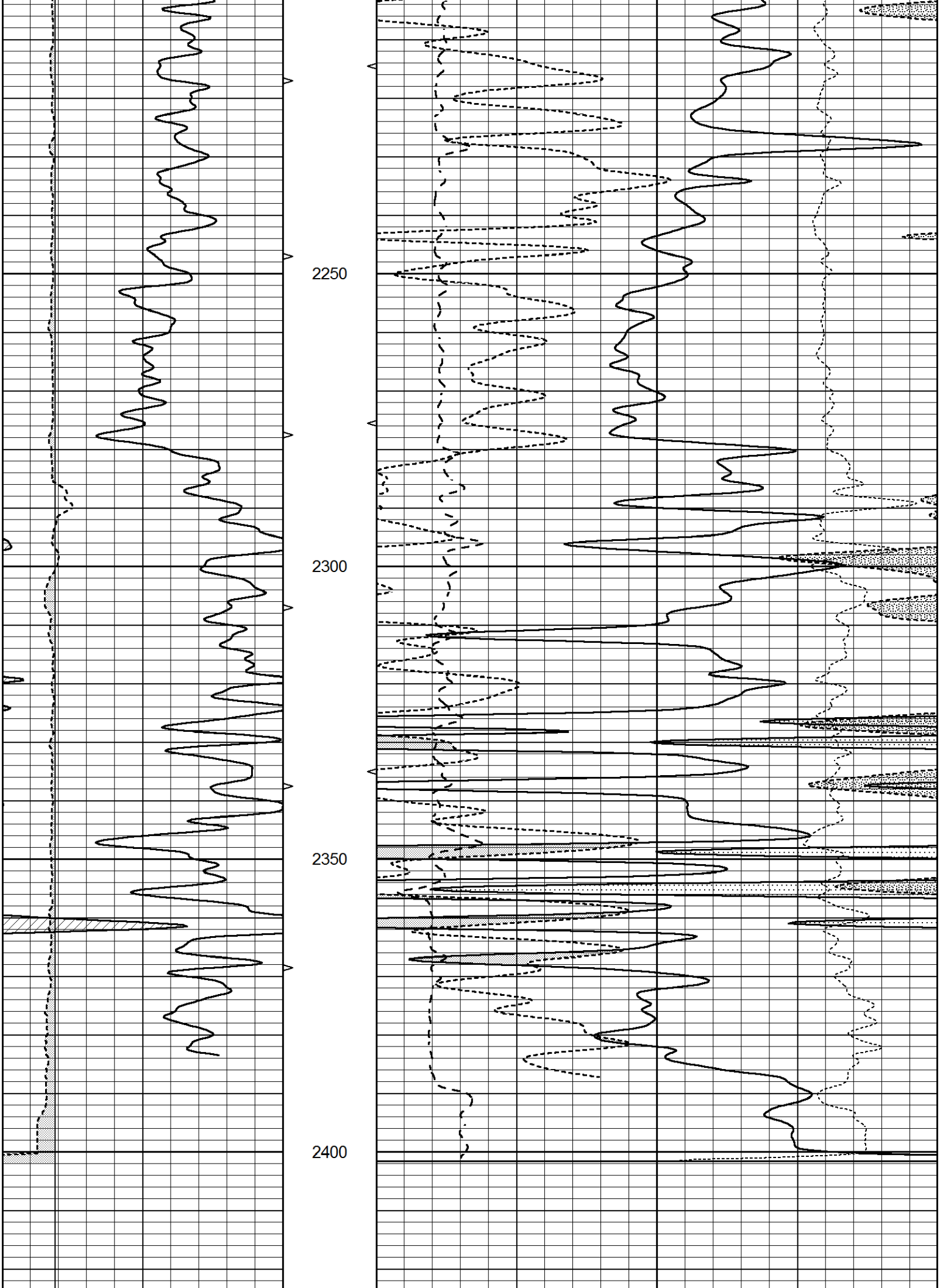
0 GAMMA RAY (GAPI) 150		ABHV	30	COMPENSATED DENSITY (pu)	-10
6 CALIPER (in) 16	10 (ft3) 0		30	COMPENSATED NEUTRON (pu)	-10
	TBHV		0 PE 10	-0.25 CORRECTION (g/cc)	0.25
	0 (ft3) 10				

REPEAT SECTION

Database File	3993pe8.db
Dataset Pathname	pass2.1
Presentation Format	_ldt_neu
Dataset Creation	Mon Sep 16 13:54:48 2019
Charted by	Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 150		ABHV	30	COMPENSATED DENSITY (pu)	-10
6 CALIPER (in) 16	10 (ft3) 0		30	COMPENSATED NEUTRON (pu)	-10
	TBHV		0 PE 10	-0.25 CORRECTION (g/cc)	0.25
	0 (ft3) 10				




2250
2300
2350
2400

0	GAMMA RAY (GAPI)	150	ABHV		30	COMPENSATED DENSITY (pu)		-10	
6	CALIPER (in)	16	10 (ft3)	0	30	COMPENSATED NEUTRON (pu)		-10	
			TBHV		0	PE	10	-0.25	CORRECTION (g/cc) 0.25
			0 (ft3)	10					

Calibration Report

Database File 3993pe8.db
Dataset Pathname pass2.1
Dataset Creation Mon Sep 16 13:54:48 2019

Dual Induction Calibration Report

Serial-Model: FW1410-55-Probe
Surface Cal Performed: Tue Feb 19 11:44:18 2019
Downhole Cal Performed: Tue Feb 19 11:44:24 2019
After Survey Verification Performed: Tue Feb 19 11:44:27 2019

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	1.000	400.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V	1.000	464.000	mmho/m	632.856	1.197
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.007	0.649	V	0.000	400.000	mmho/m	623.784	-4.595
Medium	0.004	0.743	V	0.000	464.000	mmho/m	627.284	-2.251

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	-0.824	395.917	mmho/m	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	mmho/m	3.468	471.590	mmho/m	1.001	-0.099
LL3		7.503	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.481	V		3745.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	3.565	471.327	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1500.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		3745.000	mmho-m		

Compensated Neutron Calibration Report

Serial Number: 080621PMC
Tool Model: NABORS

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	7	
Tool Model:	Probe1	
Performed:	Tue Feb 19 11:45:10 2019	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.4300	GAPI/cps

DUAL INDUCTION LOG

Company CROSS BAR ENERGY, LLC.
Well BURKETT "E" #53
Field BURKETT
County GREENWOOD State KANSAS

Location: API # :

732' FSL & 330' FWL

SEC 23 TWP 23S RGE 10E

Other Services
CDL/CNL/PE
MEL/SON

Elevation
K.B. 1399.5
D.F. 1397.5
G.L. 1394

Permanent Datum GROUND LEVEL Elevation 1394
Log Measured From KELLY BUSHING 5.5' A.G.L
Drilling Measured From KELLY BUSHING

Date	9/16/19		
Run Number	ONE		
Depth Driller	2419		
Depth Logger	2418		
Bottom Logged Interval	2416		
Top Log Interval	00		
Casing Driller	8 5/8" @ 207'		
Casing Logger	209'		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 9350 PPM	
Density / Viscosity	9.2/34		
pH / Fluid Loss	9.5/9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.45 @ 88F		
Rmf @ Meas. Temp	1.08 @ 88F		
Rmc @ Meas. Temp	1.74 @ 88F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	1.25 @ 102F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	////		
Maximum Recorded Temperature	102F		
Equipment Number	3802		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	STUART WOODIE	ALBERT BRENSING	

<<< Fold Here >>>

Comments

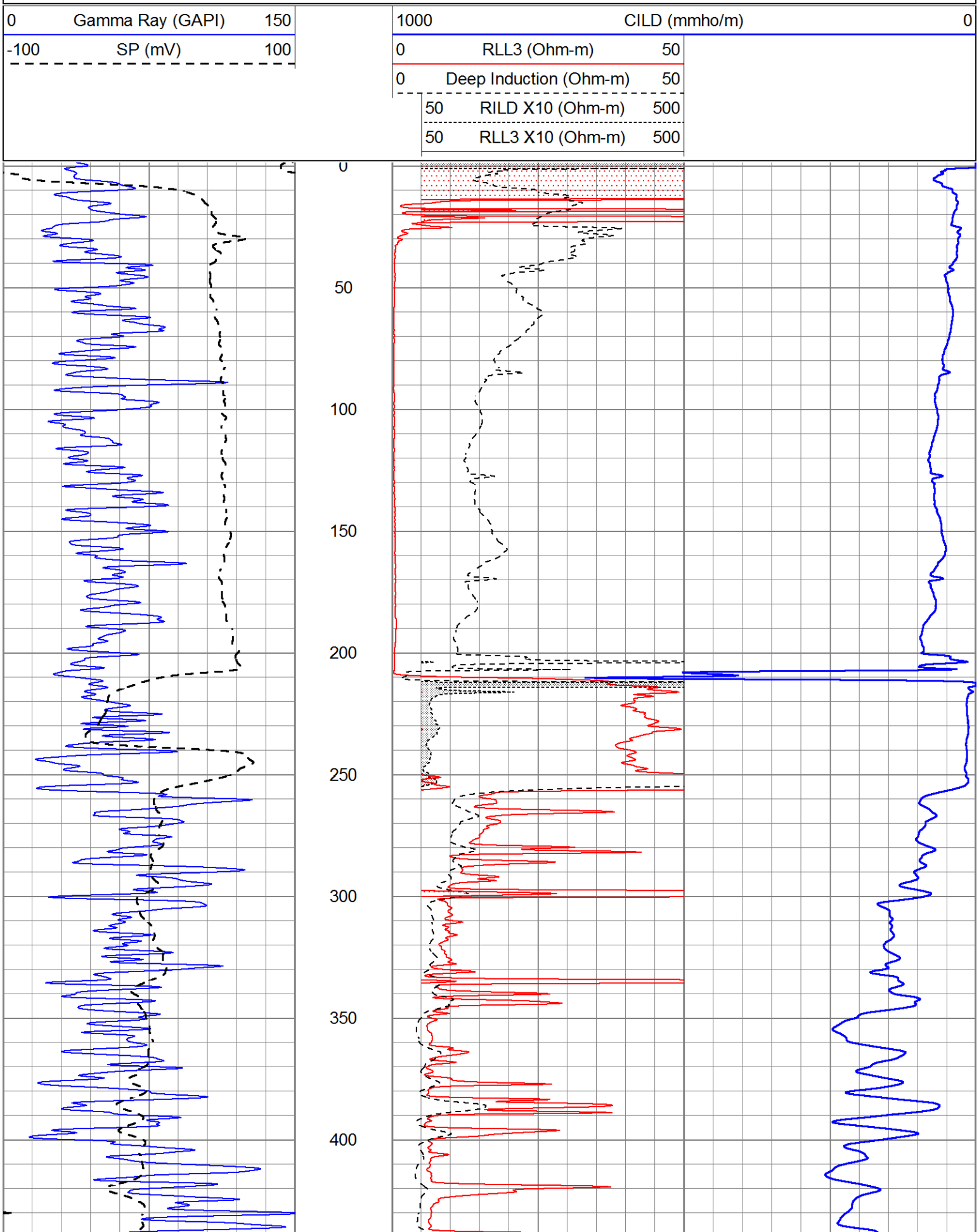
THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395

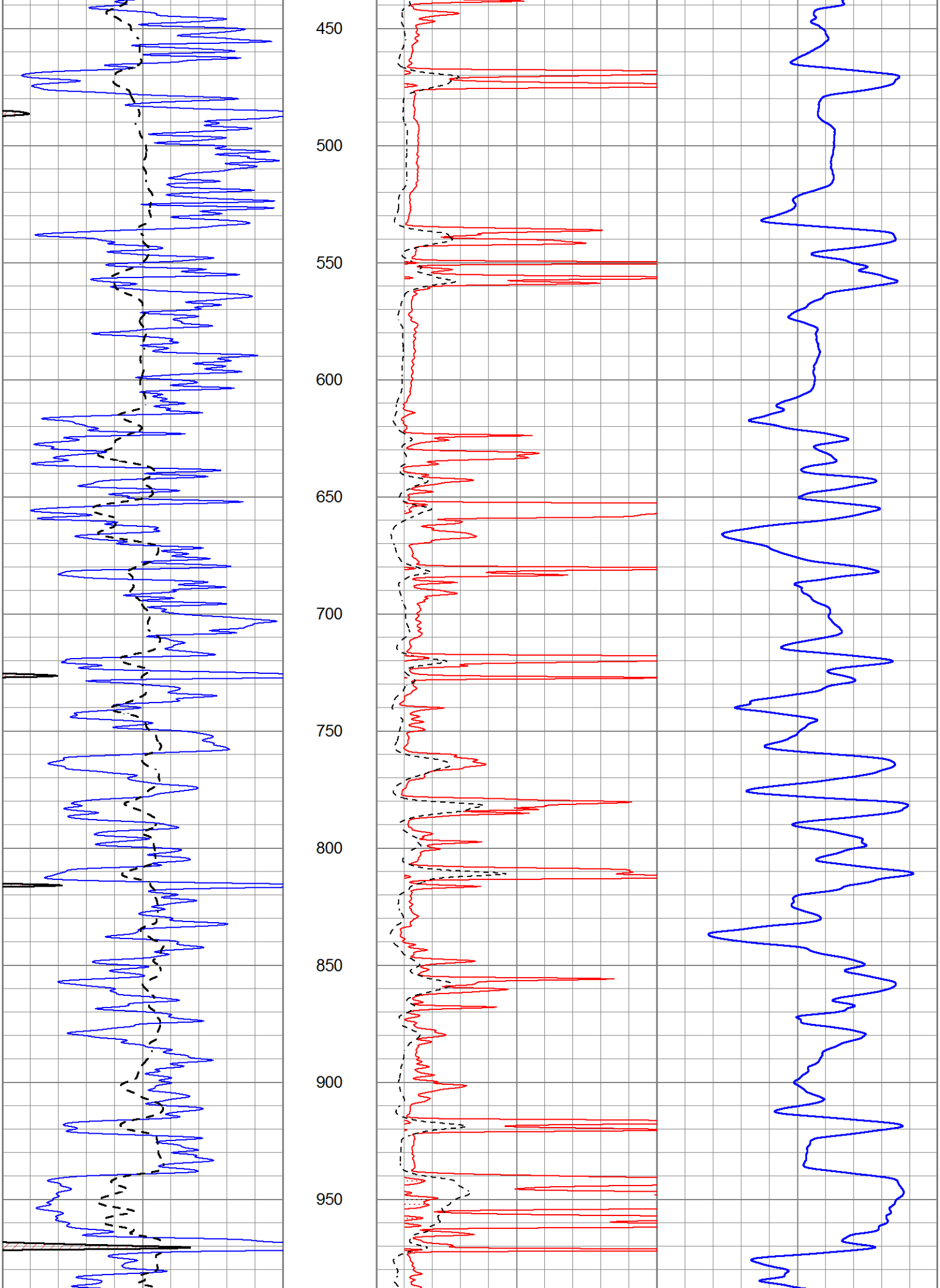
DIRECTIONS

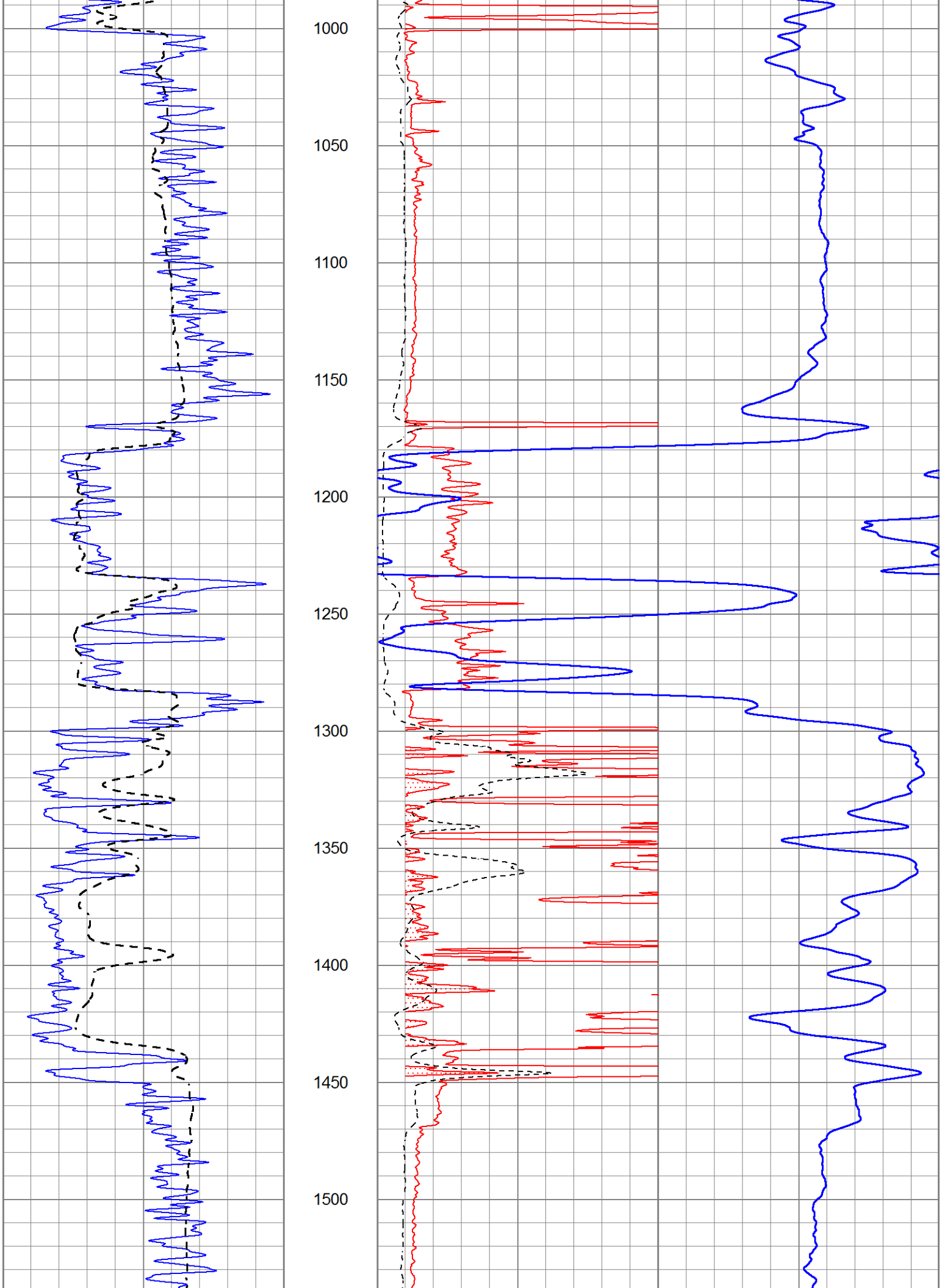
CASSODAY, KS. - EAST TO GREENWOOD COUNTY LINE
STAY EAST TO Q RD. - 1 SOUTH TO 290TH RD - WEST ACROSS LOW
WATER BRIDGE AND UP HILL - AFTER CATTLEGUARD STAY LEFT
BACK AROUND TO NORTH INTO

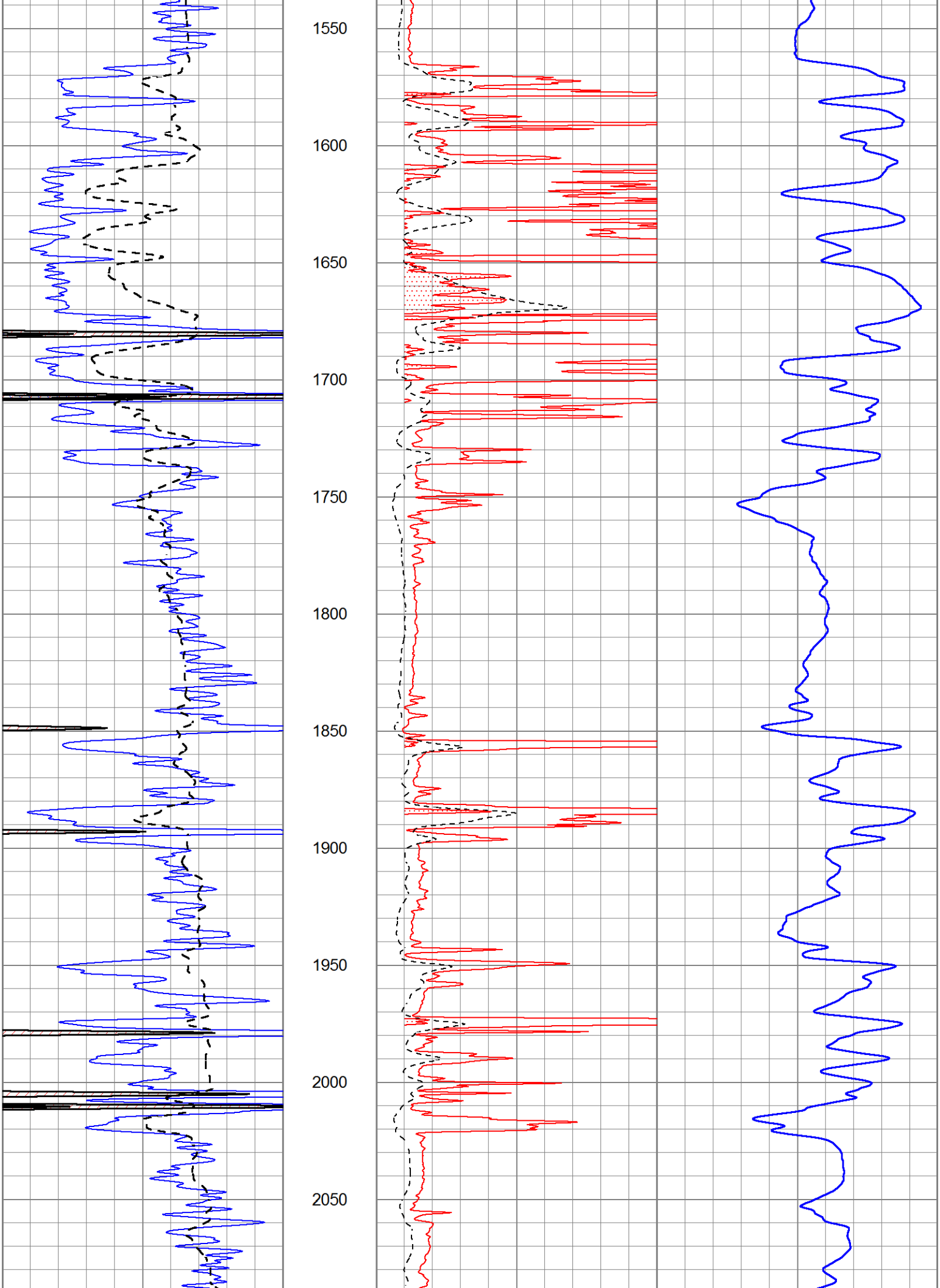
MAIN SECTION

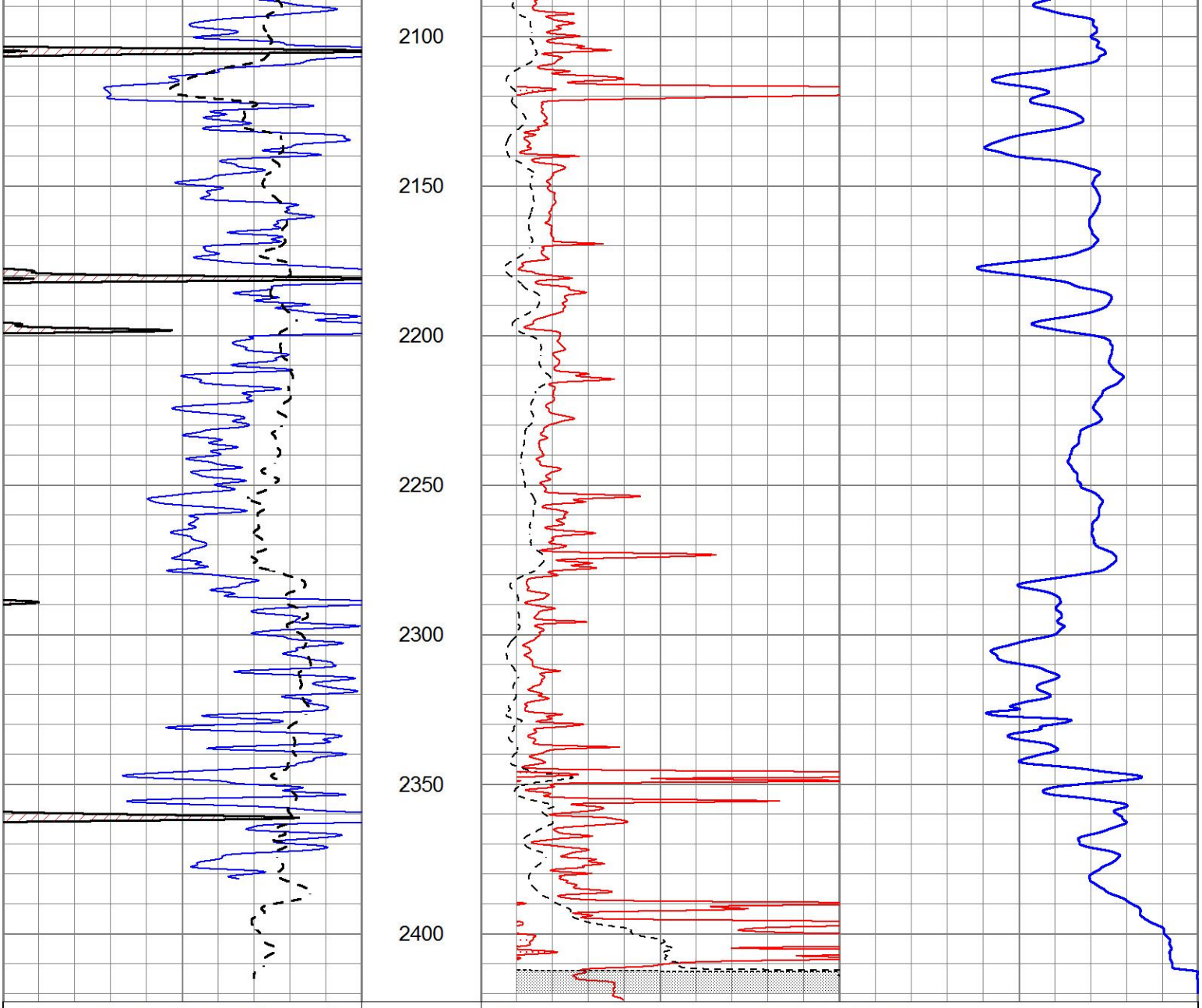
Database File	3993pe8.db
Dataset Pathname	pass3.2
Presentation Format	_dil2
Dataset Creation	Mon Sep 16 14:51:13 2019
Charted by	Depth in Feet scaled 1:600




450
500
550
600
650
700
750
800
850
900
950


1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500


1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050

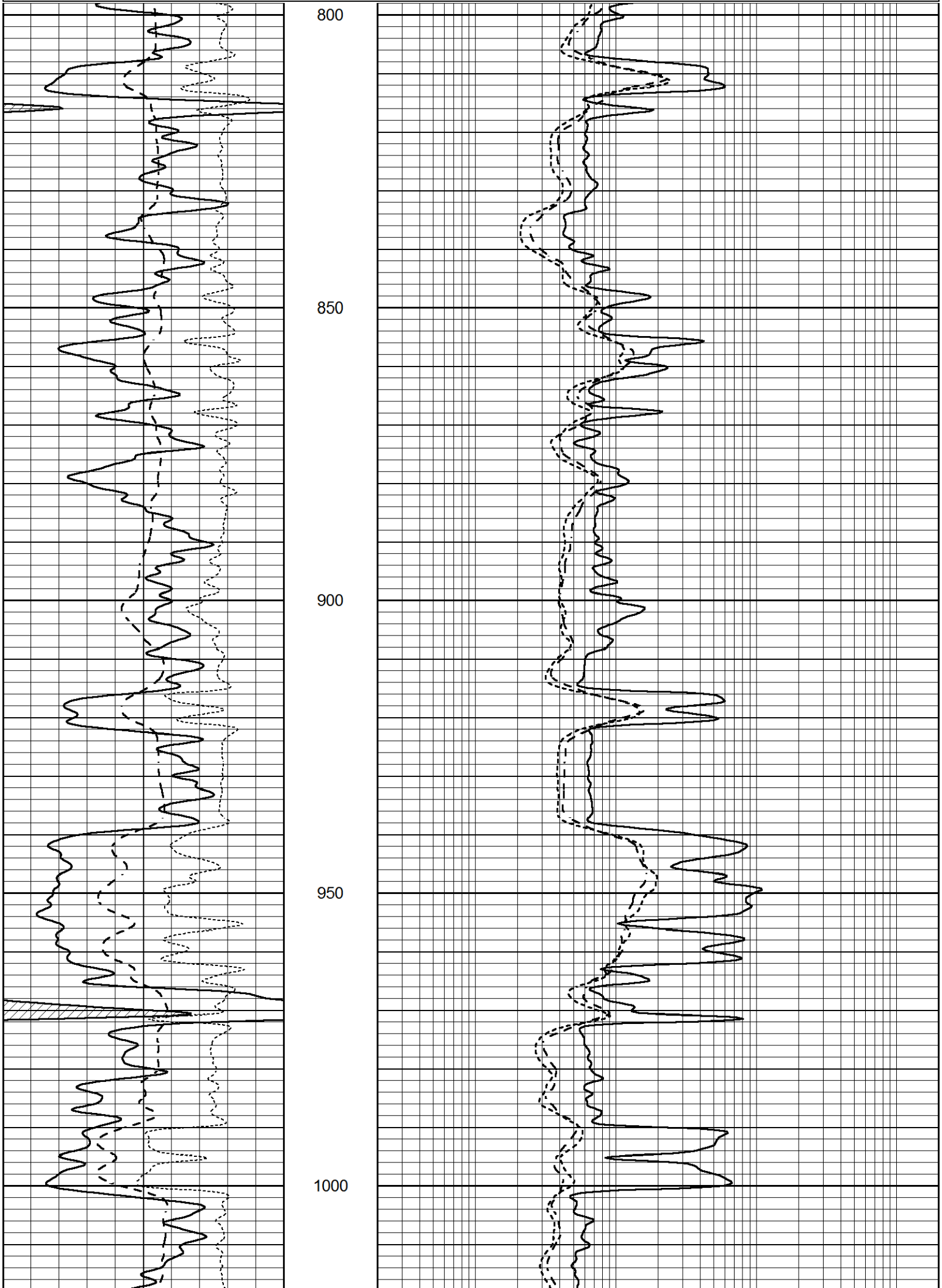


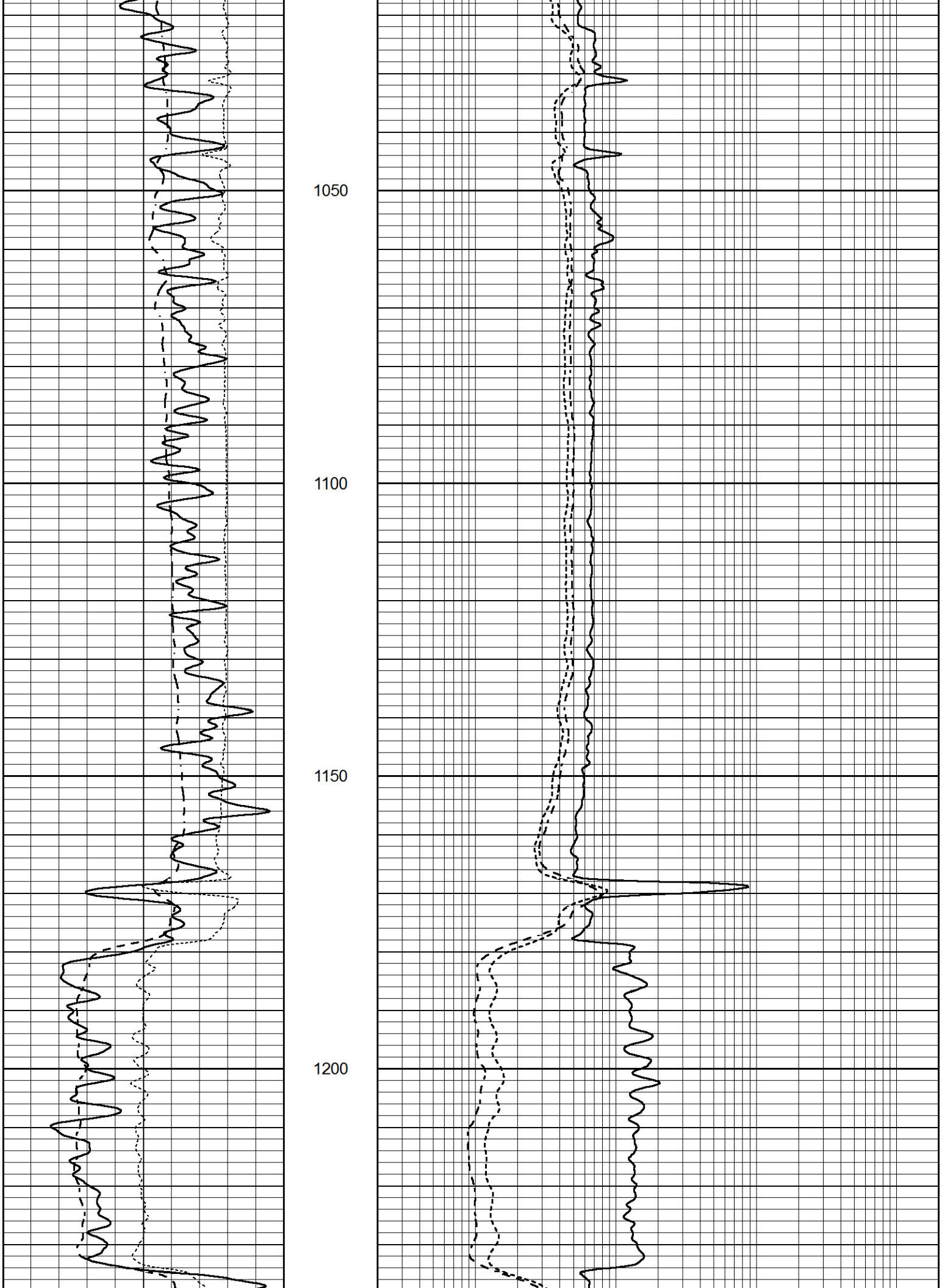
MAIN SECTION

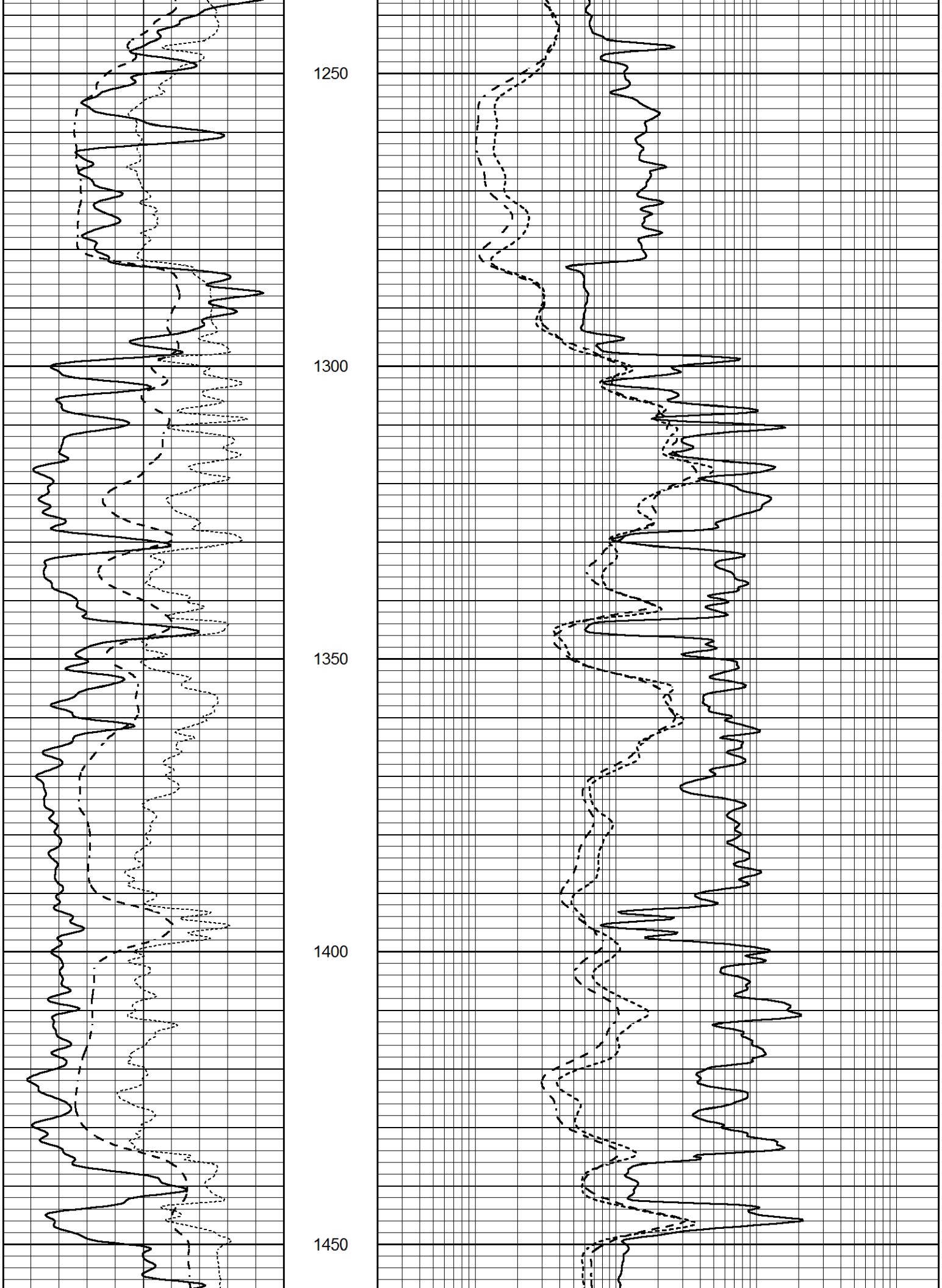
Database File	3993pe8.db
Dataset Pathname	pass3.1
Presentation Format	_dil
Dataset Creation	Mon Sep 16 14:18:30 2019
Charted by	Depth in Feet scaled 1:240

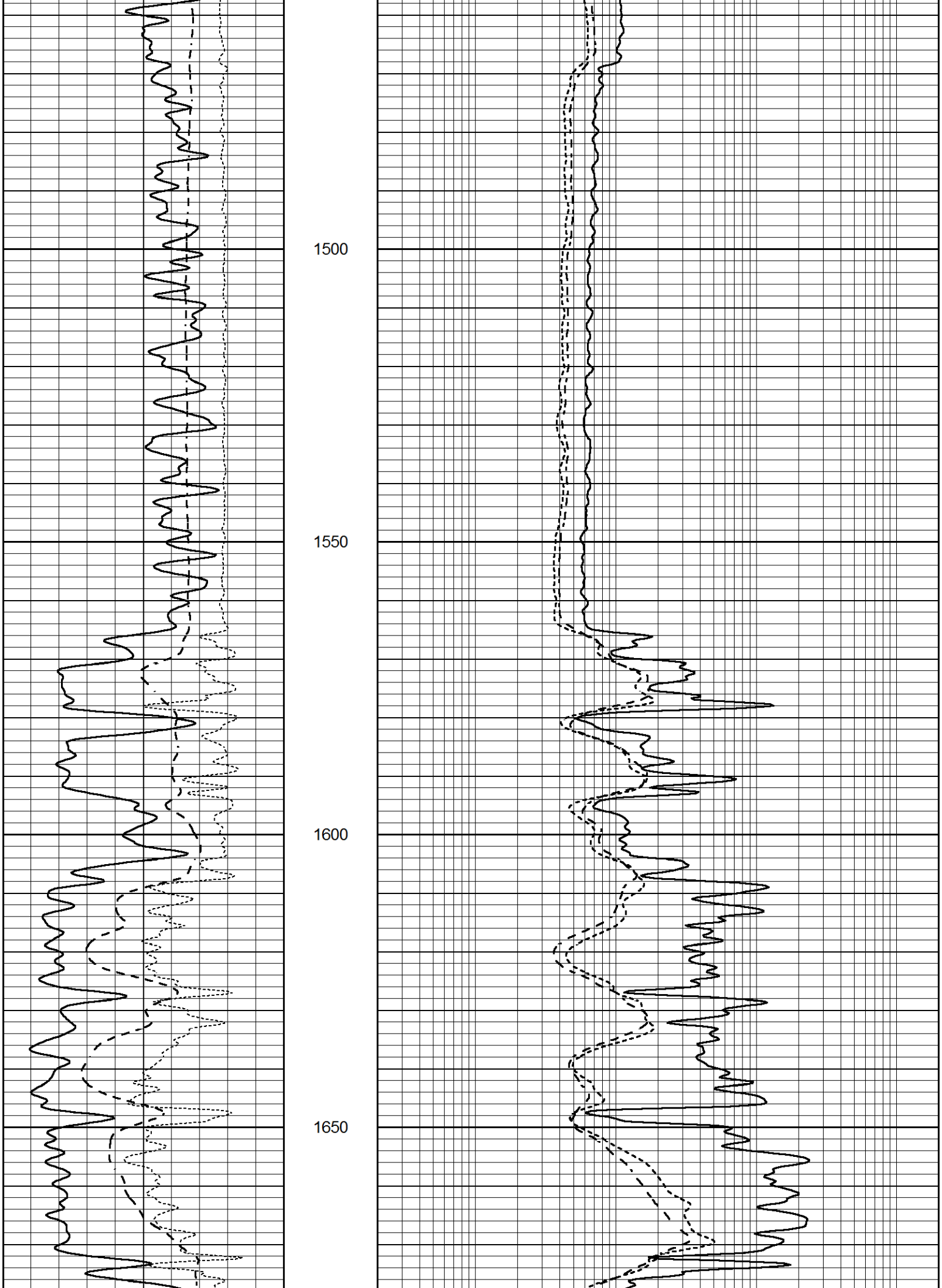
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

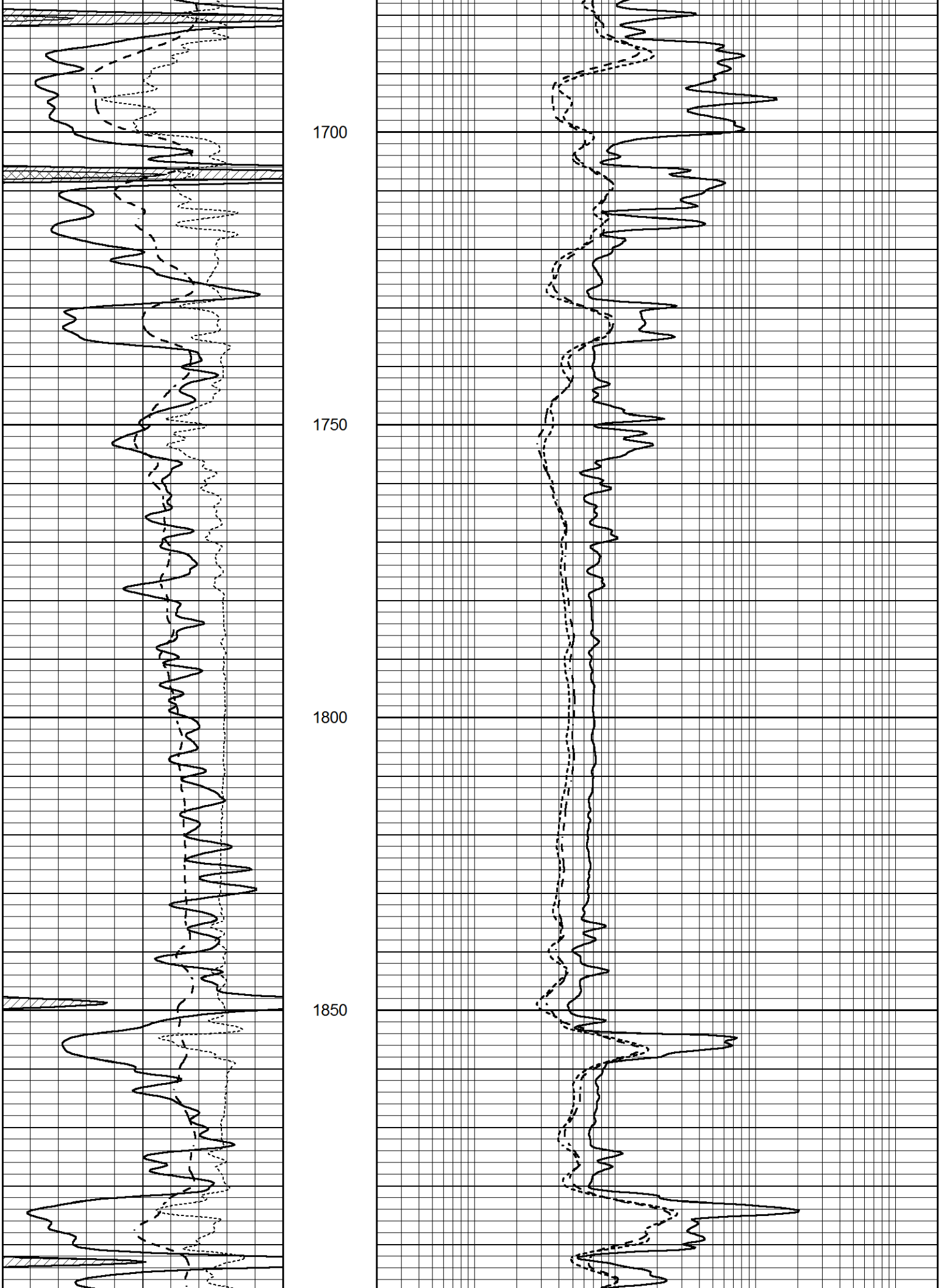
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

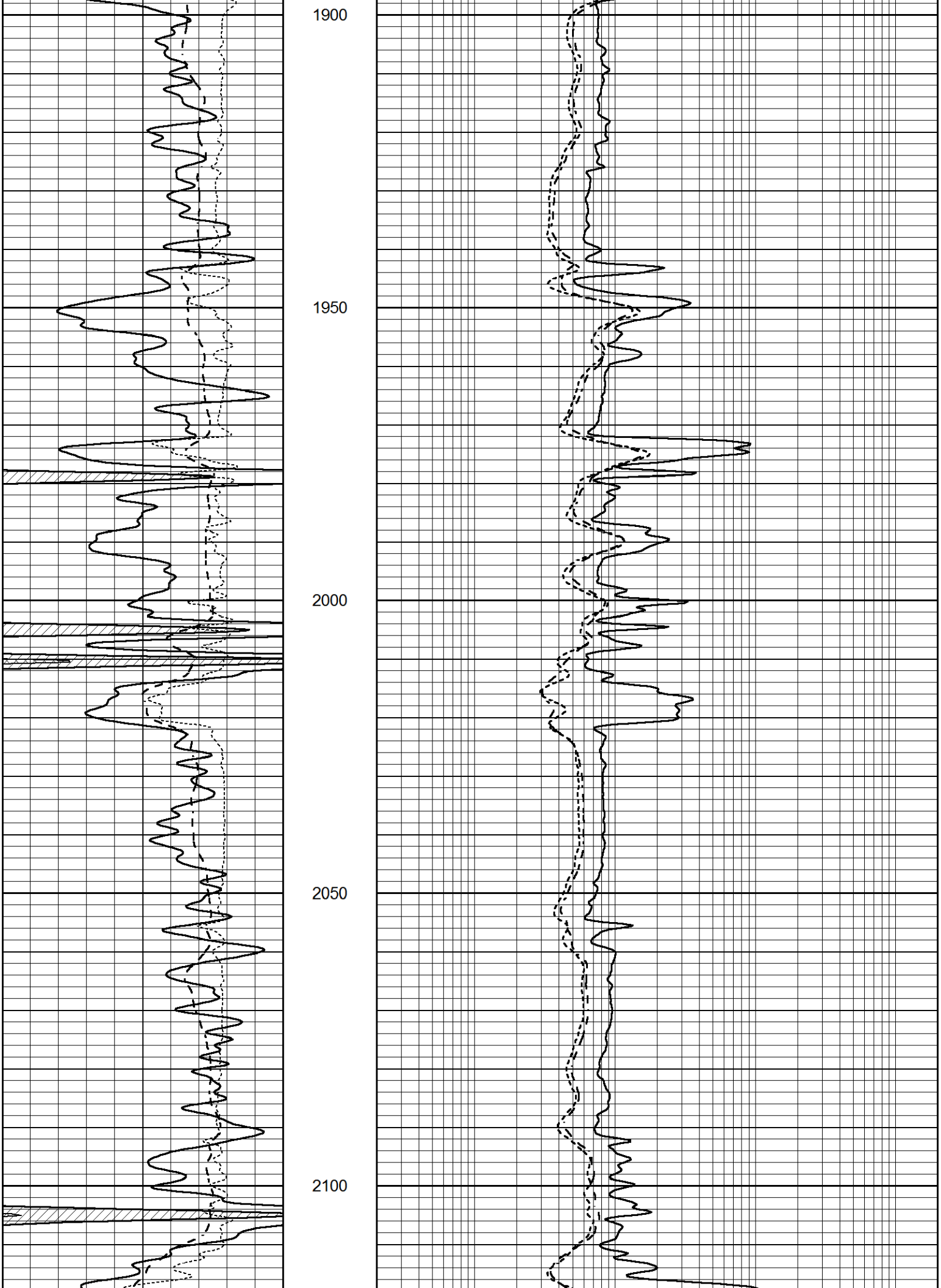

800
850
900
950
1000

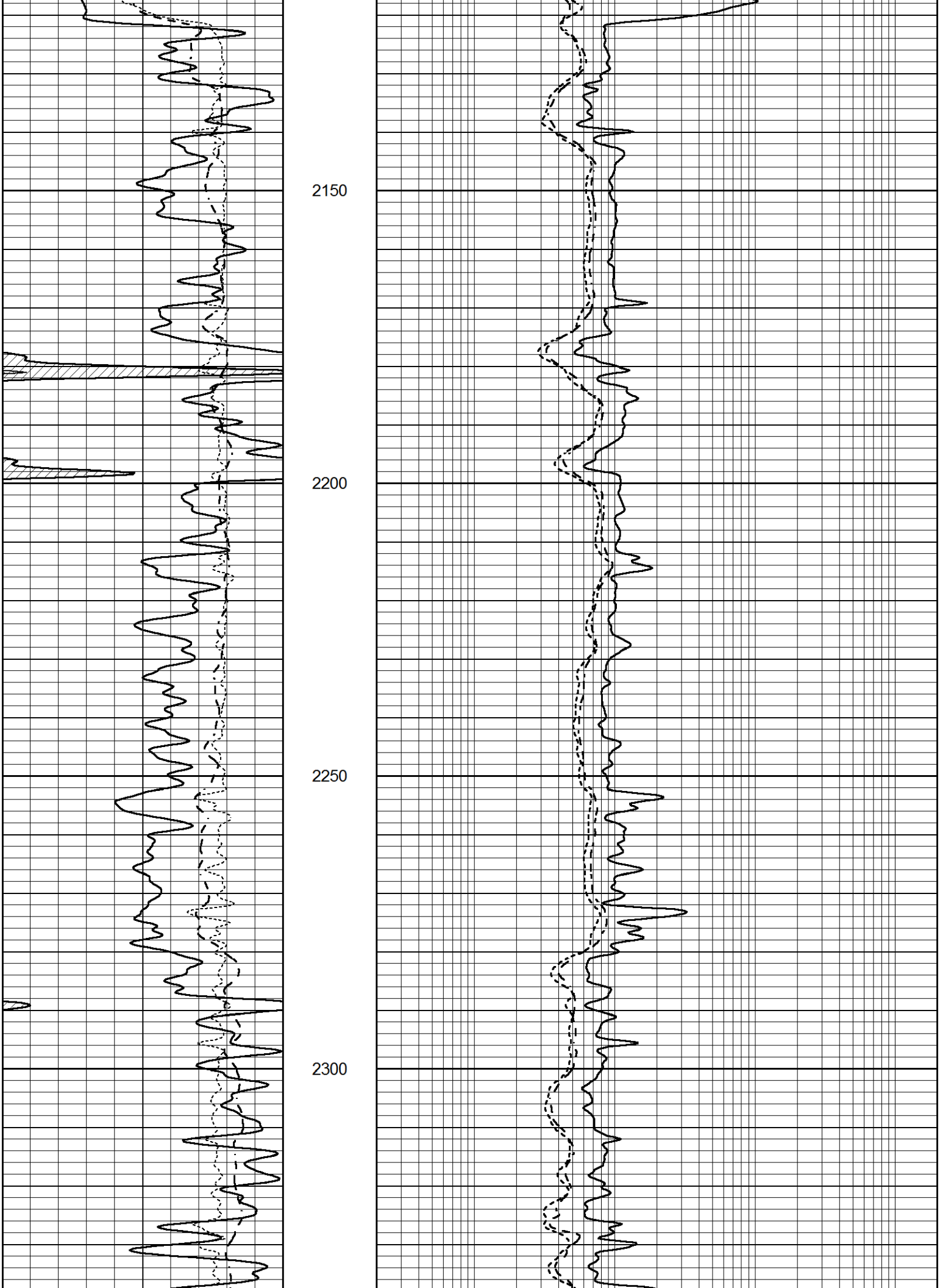

1050
1100
1150
1200

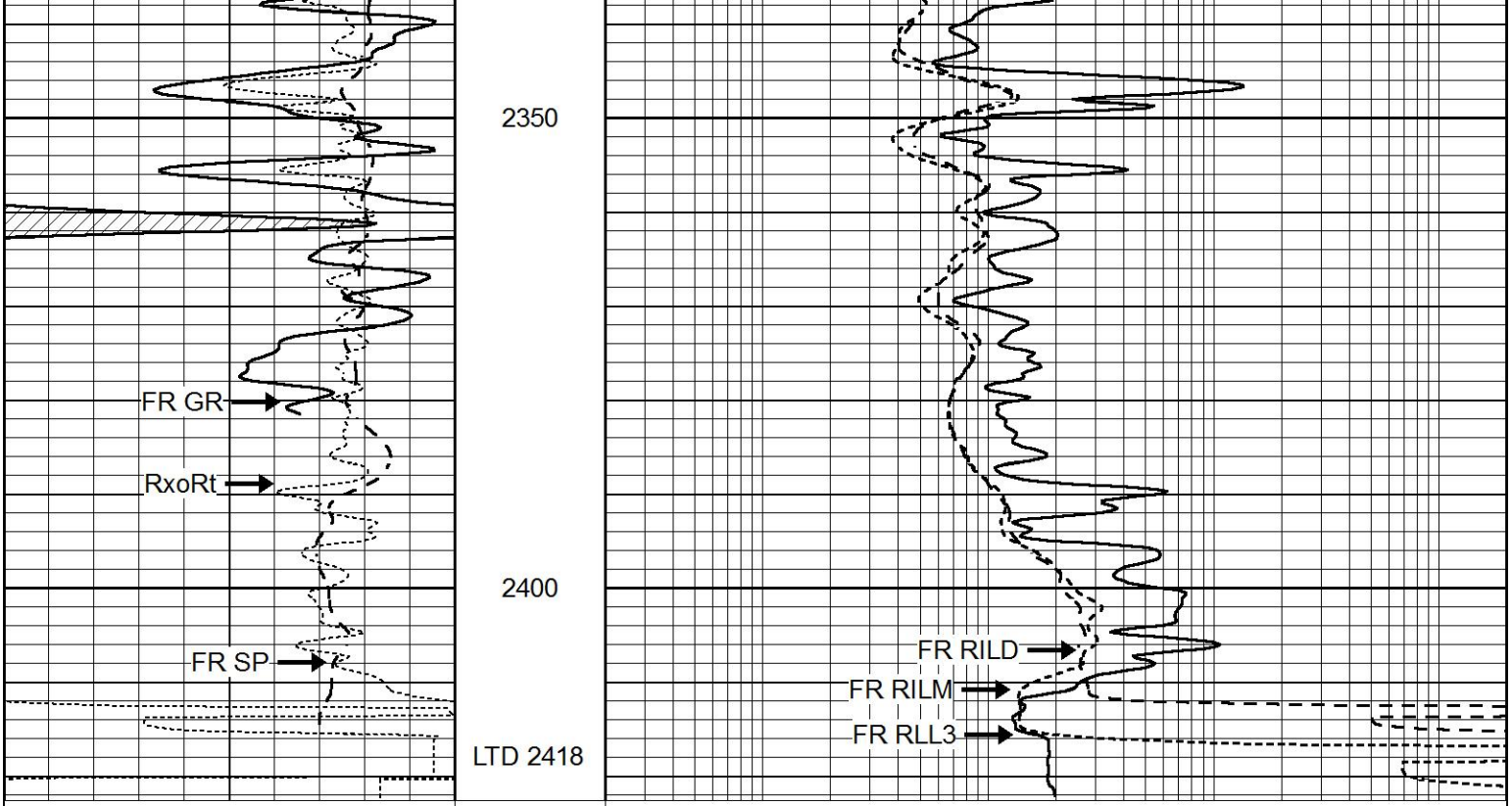

1250
1300
1350
1400
1450


1500
1550
1600
1650


1700
1750
1800
1850


1900
1950
2000
2050
2100


2150
2200
2250
2300



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

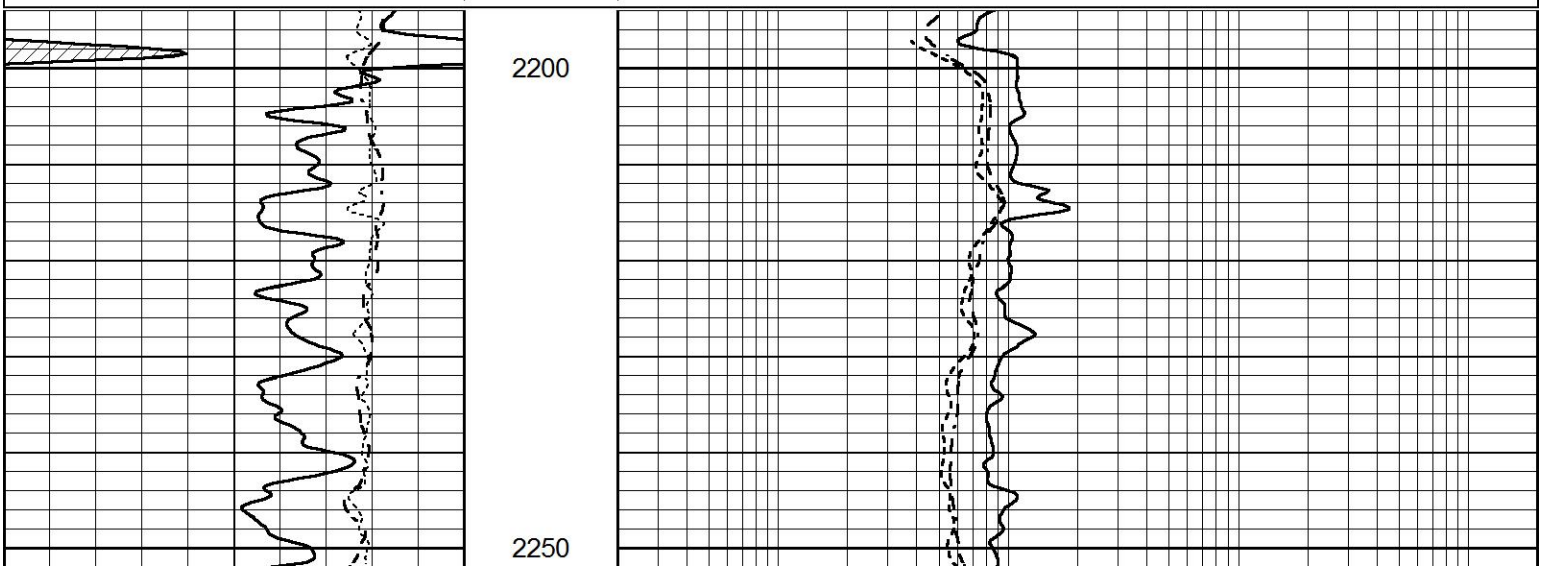
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

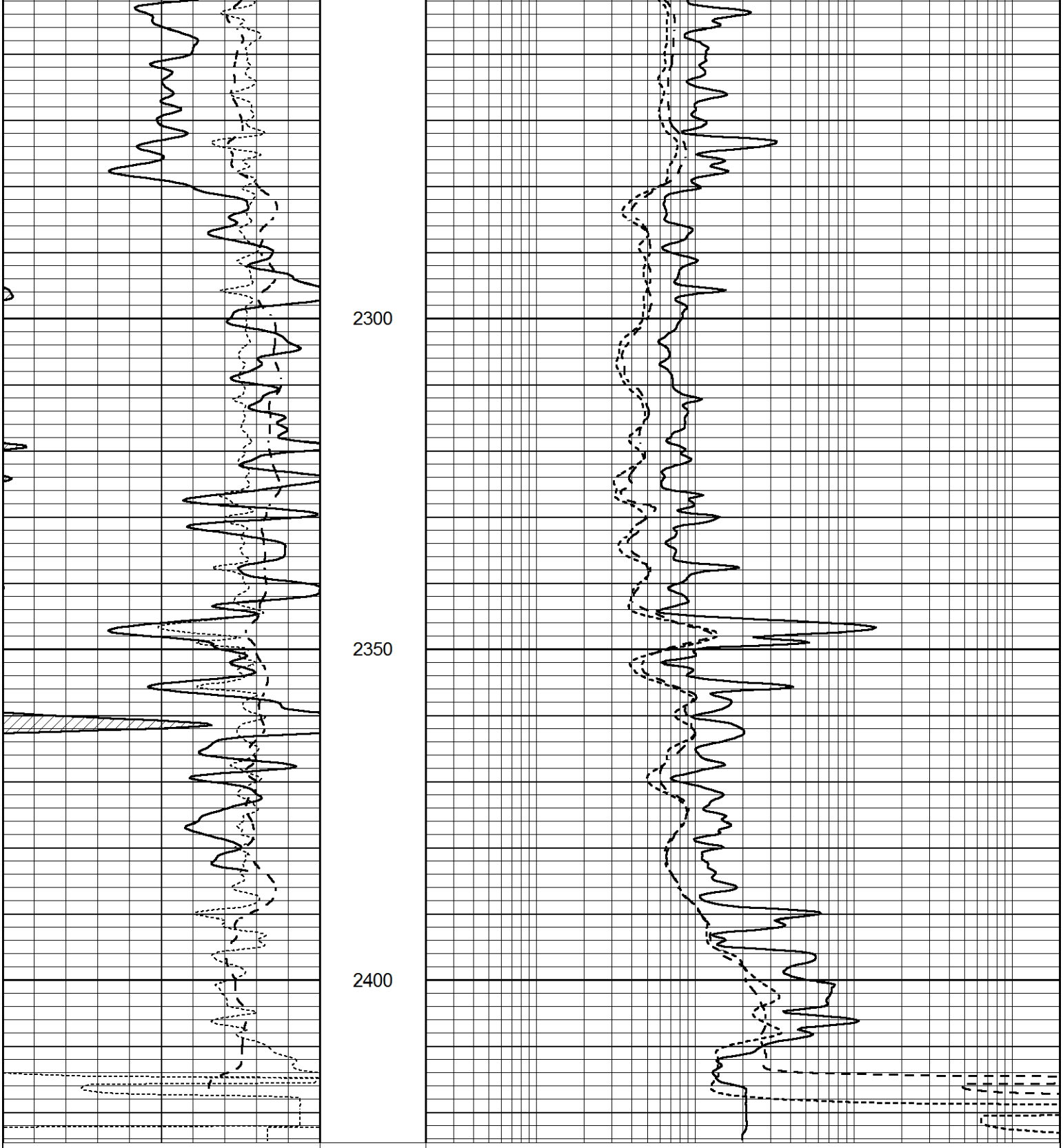
REPEAT SECTION

Database File	3993pe8.db
Dataset Pathname	pass2.1
Presentation Format	_dil
Dataset Creation	Mon Sep 16 13:54:48 2019
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000





Calibration Report

Database File	3993pe8.db
Dataset Pathname	pass2.1
Dataset Creation	Mon Sep 16 13:54:48 2019

Dual Induction Calibration Report

Serial Model:	EW1410-55 Probe

Serial-Model: PW1410-55-Probe
Surface Cal Performed: Tue Feb 19 11:44:18 2019
Downhole Cal Performed: Tue Feb 19 11:44:24 2019
After Survey Verification Performed: Tue Feb 19 11:44:27 2019

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	1.000	400.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V	1.000	464.000	mmho/m	632.856	1.197
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.007	0.649	V	0.000	400.000	mmho/m	623.784	-4.595
Medium	0.004	0.743	V	0.000	464.000	mmho/m	627.284	-2.251

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	-0.824	395.917	mmho/m	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	mmho/m	3.468	471.590	mmho/m	1.001	-0.099
LL3		7.503	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.481	V		3745.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	3.565	471.327	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1500.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		3745.000	mmho-m		

Compensated Neutron Calibration Report

Serial Number: 080621PMC
Tool Model: NABORS

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number: 7
Tool Model: Probe1
Performed: Tue Feb 19 11:45:10 2019

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps

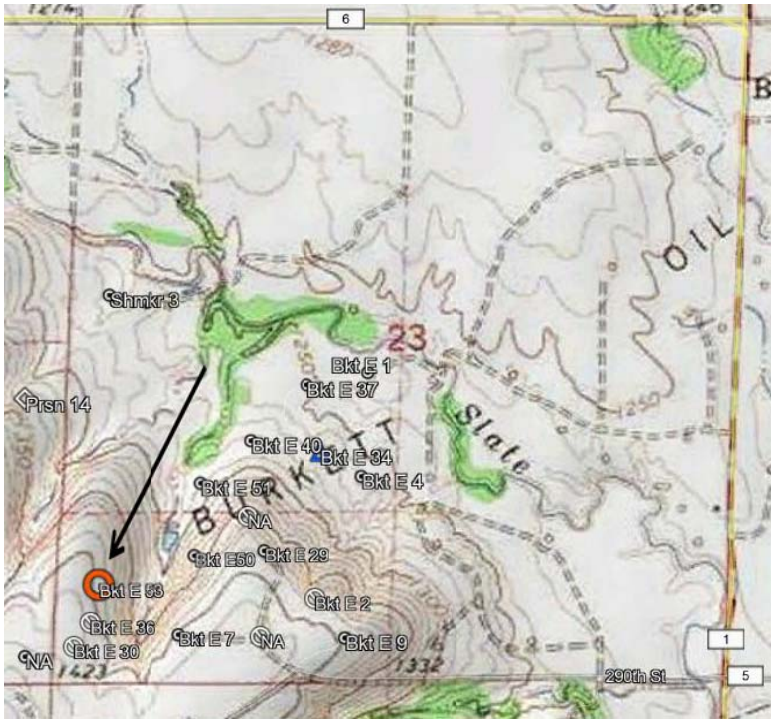
Calibrator Reading:	1.0	cps
Sensitivity:	0.4300	GAPI/cps

Geological Wellsite Report

By David Griffin, PG
GGR Inc.
Sept. 19, 2019

Well Info: Burkett E-53
S2 NW SW SW/4
732' fsl, 330' fwl
Section 23-T23S-R10E
Greenwood County, KS
API No. 15-073-24245-00-00

Datum: GL Elev 1399', Svy
RTD: 2419'
5.5" Long String Set



Operator: Cross Bar Energy, LLC
1700 N. Waterfront Pkwy
Bldg 300, Suite A
Wichita, Kansas, 67206
Contact: Andrew Brensing

Contractor: Three Rivers Exploration

Objective: Bartlesville SS

Drilling Notes:

Sept. 10, 2019, Spud Well
Sept. 10, 2019, Set 200' $8\frac{5}{8}$"
Sept. 11, 2019, Drill Under Surface, $7\frac{7}{8}$" PDC Bit
Sept. 14, 2019, 8 PM, at 2096', Begin Button Bit Trip
Sept. 15, 2019, Drill from 2096' to 2364', Button Bit
Sept. 16, 2019, Drill from 2364' to TD at 2419',
Open Hole Logged by Eli Wireline, Set 5.5" Pipe

Geological Supervision:

David Griffin, RG, GGR Inc. provided wellsite supervision from Sept. 14 thru Sept 16, 2019. Drilling was witnessed from 1900' to TD'. Gas detection was performed from 1900' to TD. Samples were collected and microscopically examined from 1900' to TD. Annular velocity of 115 to 120 ft/min was measured and used for lagging samples.

Geological Datums:

Cross Bar Energy, LLC *Burkett E-53* *S2 NW SW SW/4* *Sec. 23-T23S-R10E*					Structural Comparison Wells					
					Cross Bar Energy, LLC *Burkett E-51* *SE SE NW SW* *Sec. 23-23S-R10E*			*Cross Bar Energy, LLC* *Burkett E-50* *SE NE SW SW* *Sec. 23-23S-R10E*		
	Sample Tops GL Elev. 1399'		OH Log Tops GL Elev. 1399'		STR COMP	OH Log Tops GL Elev. 1291'		STR COMP	OH Log Tops GL Elev. 1346'	
Zones of Interest	**Depth**	**Subsea**	**Depth**	**Subsea**		**Depth**	**Subsea**		**Depth**	**Subsea**
Douglas SS Porosity	na		1180	+220	+8	1063	+228	+5	1121	+225
Base SS	na		1283	+116	+6	1169	+122	+9	1221	+125
Lansing Group	na		1298	+101	+4	1186	+105	+3	1242	+104
Kansas City Group	na		1570	-171	+4	1458	-167	+12	1505	-159
Base KC	na		1737	-338	-1	1630	-339	+1	1683	-337
Marmaton Group	1855	-456	1854	-455	+0	1746	-455	+6	1795	-449
Cherokee Group	2010	-611	2009	-610	-7	1908	-617	+6	1950	-604
Ardmore LS	2096	-697	2095	-696	-3	1990	-699	+8	2034	-688
Cattleman SS	2111	-712	2110	-711	-3	2005	-714	+5	2052	-706
Base SS	2122	-723	2122	-723	+2	2012	-721	+13	2056	-710
Bartlesville Zone Marker	2197	-798	2196	-797	-9	2097	-806	+7	2136	-790
Bartlesville SS	2244	-845	2243	-844	-7	2142	-851	+20	2170	-824
Bartlesville SS, Main Pay	2253	-854	2252	-853	-15	2159	-868	+19	2180	-834
Base SS	2279	-880	2279	-880	-13	2184	-893	+15	2211	-865
Pn Basal Cgl, (Erosional Miss.)	2372	-973	2372	-973		na			na	
Mississippian (Carbonate)	2389	-990	2386	-987		na			na	
Total Depth	2419	-1020	2418	-1019		2320	-1029		2190	-844

Bartlesville SS Pay Zone Description

2250'-2256', (2260' Sample), **Top of Pay Sand, Fair Potential, 20% SS,** light gray with scattered light brown, very fine grained sub-angular quartz, fair porosity (Φ), fair odor, fair residual oil stain, trace show of free oil (SFO) rinses from cuttings with water, 20% bright fluorescence (BF), strong gas kick of 1302 units; 50% SS, light gray, poor Φ, silty, no show; 30% Siltstone, very light gray and Shale, minor.

2256'-2260', (2265' Sample), **Good Pay Potential, 50% SS,** same as above, good odor, fair residual oil stain, slight SFO rinses from cuttings, good live oil breakout when crushed, 50% BF; falling gas readings; 50% Siltstone, very light gray and Shale, minor.

2260'-2264', (2270' Sample), **Very Good Pay Potential, 70% SS,** light grayish-brown, very fine to fine grained quartz, fair to good Φ, good odor, good oil stain, slight SFO rinses from samples, stained cuttings have good live oil breakout when crushed, gassy with strong gas kick reaching 1410 units, acid treatment breaks oil out of cuttings, moderately calcareous; 70% BF; SS, 10%, very light gray, very fine and silty, tite, no show; 20% Siltstone and shale, very light gray to gray.

2264'-2270', (2275' Sample), **Very Good Pay Potential, 80% SS,** light grayish brown, very fine to fine grained sub-angular quartz, fair to good Φ, very good odor, very good oil stain, fair SFO rinses from cuttings and when cuttings are crushed, gassy with strong gas kick reaching 1553 units, 80% BF; 20% Tite SS, Siltstone and Shale.

.

2270'-2275', (2280' Sample), **Very Good Pay Potential, 90% SS,** light grayish brown, very fine to fine with minor medium grained sub-angular quartz, fair to good Φ, good odor, very good oil stain, good SFO rinses from cuttings, gassy with strong gas kick of 2,000 units reaching instrument maximum, 90% BF; 10% Tite SS, Siltstone and Shale.

2275'-2281', (2285' Sample), **Good Pay Potential, 70% SS,** light grayish brown, very fine to fine grained sub-angular quartz, fair to good Φ, good odor, good oil stain, fair SFO, 70% BF; SS, 30%, very light gray, vf and silty, tite, no show; 30% Tite SS, Siltstone and Shale.

Other Oil Shows

Cattleman SS

2111'-2114', (2120' Sample), **No Pay Potential, 50% SS,** very light gray, very fine grained sub-angular quartz, poor to fair Φ, no odor, no show, no Flor.; 50% Shale, vari-col grays.

2114'-2118', (2125' Sample), **Marginal Pay Potential, 20% SS,** off white with scattered brown oil stain, very fine to medium grained sub-angular quartz, fair Φ, partly recrystallized quartz, good odor, good show of oil droplets, slight SFO rinses from cuttings, gas kick of 200 units; 60%, SS, very light gray, very fine to fine grained, silty, tite, no show; 20% Siltstone and Shale, very light gray to gray.

2118'-2124', (2130' Sample), **Marginal Pay Potential, 15% SS,** same as above, fair Φ, fair to good odor, good show of brown oil droplets, very slight SFO rinses from cuttings, good gas kick of 530 units; 50%, SS, very light gray, very fine to fine grained, silty, tite, no show; 35% Siltstone and Shale, very light gray to gray.

Summary:

The Cattleman SS had fair to good shows of live brown oil droplets in two porosity streaks from 2111' to 2124', however, it lacks obvious pay zone quality.

The top of the Bartlesville SS was encountered at 2244', a fair oil stain was present from 2244' to 2253', however, it lacked free oil. The porous main pay zone was encountered from 2253' to 2279', with fair to very good oil stain and trace to good shows of light gravity free brown oil. Very strong sustained gas readings reaching 2,000 units were observed. The BV SS is 13' higher in structure than Burkett E-51 and 19' lower than Burkett E-50. The characteristic of the BV pay sand is somewhat similar to that in Burkett E-51.

Saltwater percentages of the Bartlesville main pay sand were evaluated using open hole log data using a spreadsheet format, (modified from Pfeffer, KGS). Pay zone cutoffs of 12% porosity, 60% SW and an Rw of 0.06 were selected in the calculations, (actual cutoffs may be slightly different). Pay zone was flagged from 2253' to 2278.5' with SW ranging from 38% to 60%. Volumetric analysis indicates that approximately 86,579 stock tank barrels of oil are in place based on 7.5 acre spacing. The spreadsheet is attached for reference.

Recommendations:
Based on the favorable oil and gas shows and SW calculation in the Bartlesville SS, the operator set and cemented 5.5" production casing. It is recommended that perforations be placed in the main pay sand from 2253' to 2277' (GL) and treated similarly as in the successful offsetting producers. The cased hole log should be correlated to the open hole for final selection of perforations.

Respectfully Submitted,

David Griffin, PG
GGR (Griffin Geological Resources), Inc.
Lawrence, Kansas

Attachments: Sample Log, SW and STOOIP Spreadsheet

Cross Bar Energy, LLC

Burkett E-53, S2 NW SW SW/4, Sec 23-T23S-R10E

%SW and STOOIP Estimations, BV SS

By David Griffin, PG

Model = Archie

PARAMETERS	
X	
Y	
A	1
M	1.8
N	2
RW	0.06
CTHK	30.5
AVPHI	0.14
FTOIL	1.56
PAYFEET	21.5
Oil In Place	86,579 Barrels (Apx)
	7.5 Acre Spacing
P	
Q	
R	
DMIN	
DMAX	
KB	
TD	
BHT	
ST	
RMF	
RMFT	

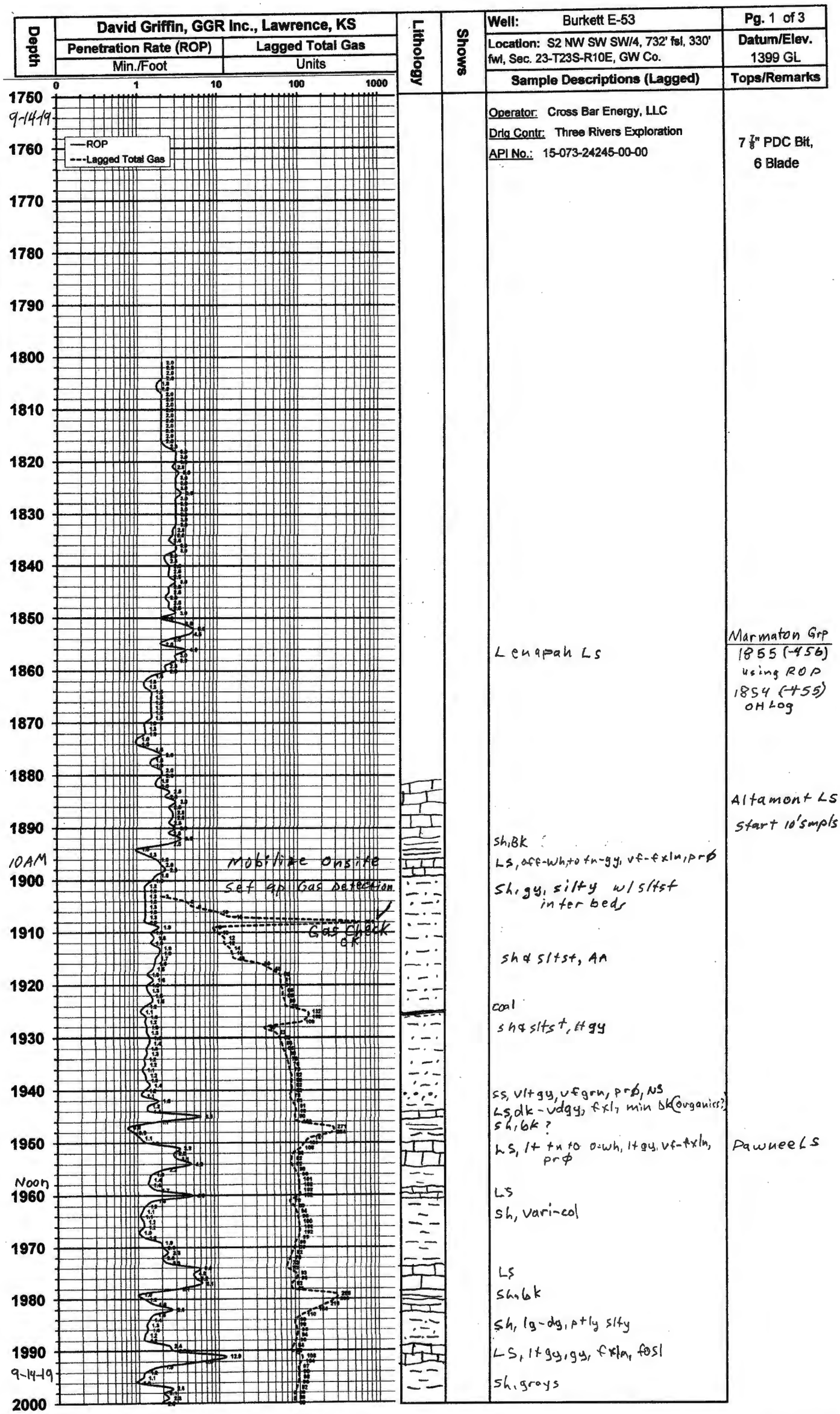
CUT-OFFS	
PHICUT	0.12
SWCUT	0.6
VSHCUT	0.78
BVWCUT	0.2

Colors: ON

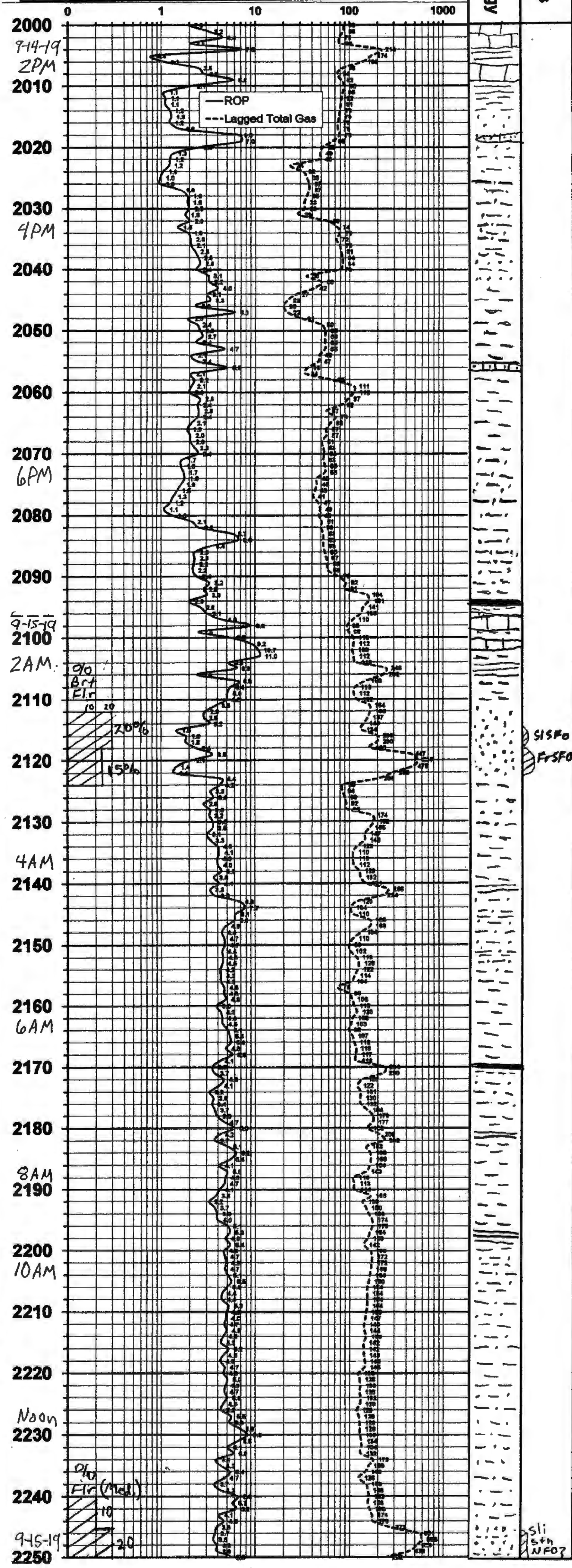
STOOIP=

Stock tank original oil in place

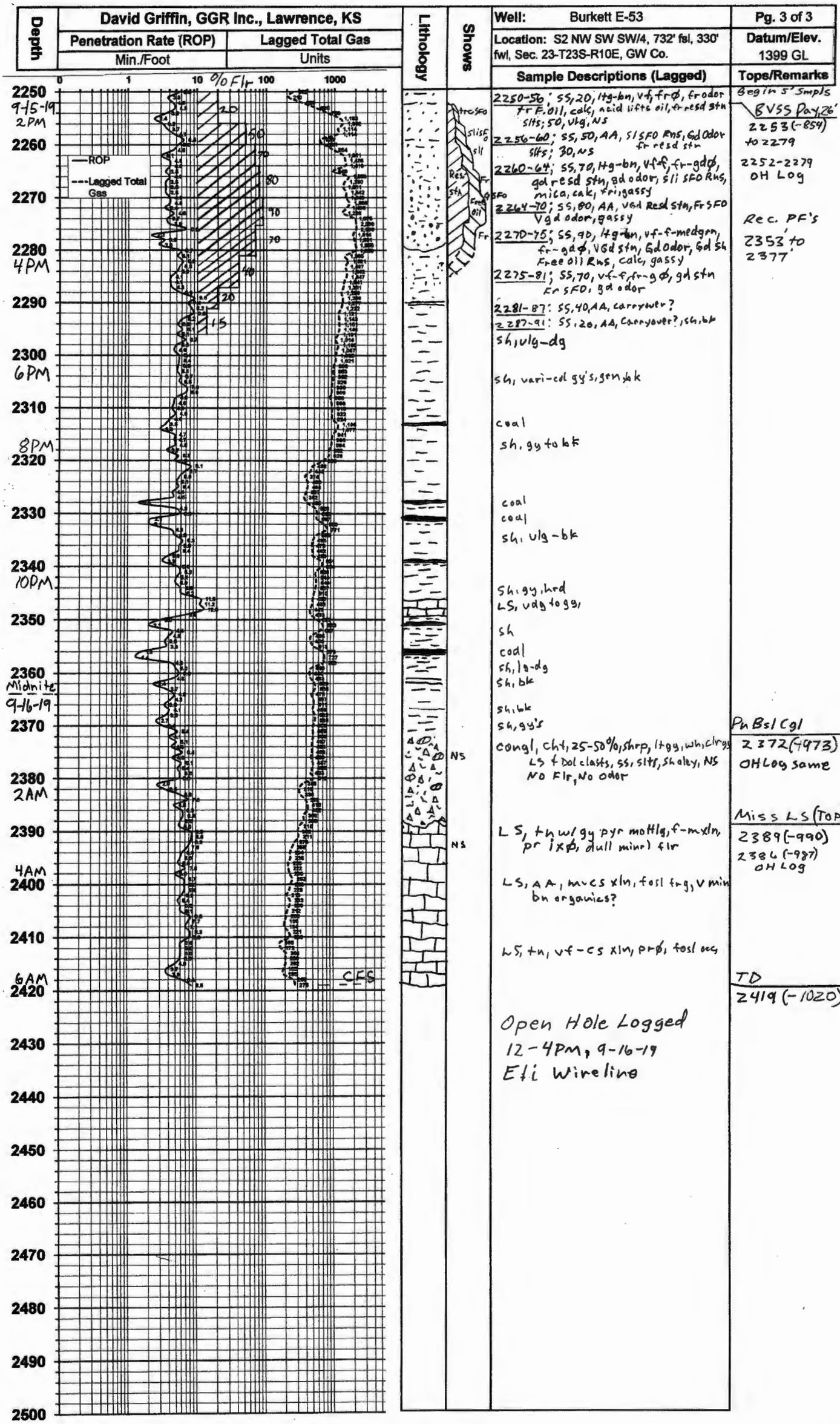
ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	BOI
1	2250	0.5	6.11	15.9%	0.22	1.64	2.52	51.7%	0.082	0.789	0	1.05
2	2250.5	0.5	6.11	15.4%	0.21	1.74	2.47	53.3%	0.082	0.823	0	1.05
3	2251	0.5	6.2	14.9%	0.20	1.85	2.43	54.6%	0.081	0.860	0	1.05
4	2251.5	0.5	6.39	14.5%	0.20	1.93	2.42	55.0%	0.080	0.862	0	1.05
5	2252	0.5	6.65	14.3%	0.20	2.00	2.42	54.9%	0.078	0.798	0	1.05
6	2252.5	0.5	6.88	14.0%	0.20	2.07	2.41	54.8%	0.077	0.706	0.03	1.05
7	2253	0.5	7.04	13.8%	0.20	2.13	2.40	55.0%	0.076	0.644	0.03	1.05
8	2253.5	0.5	7.16	13.6%	0.20	2.18	2.40	55.2%	0.075	0.594	0.03	1.05
9	2254	0.5	7.26	13.6%	0.20	2.17	2.41	54.7%	0.074	0.532	0.03	1.05
10	2254.5	0.5	7.37	14.1%	0.22	2.05	2.45	52.7%	0.074	0.503	0.03	1.05
11	2255	0.5	7.48	14.8%	0.24	1.88	2.52	50.1%	0.074	0.515	0.04	1.05
12	2255.5	0.5	7.54	15.1%	0.25	1.81	2.55	49.0%	0.074	0.530	0.04	1.05
13	2256	0.5	7.49	14.5%	0.23	1.94	2.50	50.8%	0.074	0.560	0.04	1.05
14	2256.5	0.5	7.4	13.4%	0.20	2.22	2.40	54.8%	0.074	0.624	0.03	1.05
15	2257	0.5	7.34	12.6%	0.18	2.51	2.32	58.5%	0.073	0.712	0.03	1.05
16	2257.5	0.5	7.27	12.5%	0.17	2.53	2.31	59.0%	0.074	0.806	0	1.05
17	2258	0.5	7.24	13.4%	0.19	2.25	2.38	55.7%	0.074	0.883	0	1.05
18	2258.5	0.5	7.23	14.5%	0.22	1.93	2.49	51.7%	0.075	0.919	0	1.05
19	2259	0.5	7.24	15.4%	0.25	1.74	2.56	49.0%	0.076	0.880	0	1.05
20	2259.5	0.5	7.25	15.5%	0.25	1.71	2.58	48.6%	0.076	0.768	0.04	1.05
21	2260	0.5	7.26	15.0%	0.24	1.83	2.53	50.2%	0.075	0.685	0.04	1.05
22	2260.5	0.5	7.21	14.1%	0.21	2.04	2.44	53.2%	0.075	0.692	0.03	1.05
23	2261	0.5	7.15	13.3%	0.19	2.26	2.37	56.3%	0.075	0.716	0.03	1.05
24	2261.5	0.5	7.05	13.0%	0.18	2.35	2.34	57.7%	0.075	0.708	0.03	1.05
25	2262	0.5	6.94	13.4%	0.19	2.24	2.36	56.8%	0.076	0.699	0.03	1.05
26	2262.5	0.5	6.85	14.0%	0.20	2.07	2.41	55.0%	0.077	0.686	0.03	1.05
27	2263	0.5	6.8	14.3%	0.21	1.98	2.44	53.9%	0.077	0.675	0.03	1.05
28	2263.5	0.5	6.77	14.2%	0.20	2.01	2.42	54.4%	0.077	0.693	0.03	1.05
29	2264	0.5	6.78	13.9%	0.19	2.10	2.39	55.7%	0.077	0.707	0.03	1.05
30	2264.5	0.5	6.8	13.7%	0.19	2.16	2.38	56.4%	0.077	0.684	0.03	1.05
31	2265	0.5	6.81	13.7%	0.19	2.14	2.38	56.1%	0.077	0.640	0.03	1.05
32	2265.5	0.5	6.76	13.9%	0.19	2.09	2.39	55.6%	0.077	0.604	0.03	1.05
33	2266	0.5	6.73	14.0%	0.20	2.06	2.40	55.3%	0.078	0.606	0.03	1.05
34	2266.5	0.5	6.75	14.2%	0.20	2.00	2.42	54.5%	0.078	0.642	0.03	1.05
35	2267	0.5	6.8	14.8%	0.22	1.88	2.47	52.6%	0.078	0.678	0.04	1.05
36	2267.5	0.5	6.83	15.2%	0.23	1.79	2.51	51.1%	0.078	0.689	0.04	1.05
37	2268	0.5	6.88	14.6%	0.22	1.91	2.46	52.8%	0.077	0.691	0.03	1.05
38	2268.5	0.5	6.9	12.9%	0.17	2.40	2.32	59.0%	0.076	0.711	0.03	1.05
39	2269	0.5	6.88	10.6%	0.12	3.39	2.12	70.2%	0.075	0.737	0	1.05
40	2269.5	0.5	6.92	8.8%	0.09	4.74	1.96	82.7%	0.073	0.751	0	1.05
41	2270	0.5	6.99	8.1%	0.08	5.55	1.89	89.1%	0.072	0.749	0	1.05
42	2270.5	0.5	7.1	8.4%	0.08	5.19	1.93	85.5%	0.072	0.737	0	1.05
43	2271	0.5	7.31	9.7%	0.11	4.04	2.05	74.3%	0.072	0.711	0	1.05
44	2271.5	0.5	7.61	11.5%	0.15	2.95	2.24	62.3%	0.072	0.686	0	1.05
45	2272	0.5	7.94	13.5%	0.22	2.20	2.44	52.6%	0.071	0.682	0.03	1.05
46	2272.5	0.5	8.28	15.3%	0.28	1.77	2.62	46.2%	0.071	0.670	0.04	1.05
47	2273	0.5	8.48	16.0%	0.31	1.62	2.70	43.8%	0.070	0.646	0.04	1.05
48	2273.5	0.5	8.57	15.8%	0.31	1.66	2.69	44.0%	0.070	0.640	0.04	1.05
49	2274	0.5	8.72	15.5%	0.30	1.72	2.67	44.4%	0.069	0.620	0.04	1.05
50	2274.5	0.5	8.8	15.7%	0.31	1.69	2.69	43.8%	0.069	0.606	0.04	1.05
51	2275	0.5	8.78	16.5%	0.34	1.53	2.77	41.8%	0.069	0.662	0.05	1.05
52	2275.5	0.5	8.7	17.7%	0.39	1.35	2.88	39.4%	0.070	0.726	0.05	1.05
53	2276	0.5	8.55	18.5%	0.41	1.25	2.94	38.2%	0.071	0.714	0.06	1.05
54	2276.5	0.5	8.31	18.4%	0.40	1.26	2.92	38.9%	0.072	0.708	0.06	1.05
55	2277	0.5	8.13	17.6%	0.36	1.37	2.83	41.0%	0.072	0.752	0.05	1.05
56	2277.5	0.5	7.97	16.3%	0.30	1.58	2.69	44.4%	0.072	0.738	0.05	1.05
57	2278	0.5	7.78	14.6%	0.24	1.91	2.53	49.6%	0.072	0.644	0.04	1.05
58	2278.5	0.5	7.49	12.9%	0.19	2.38	2.36	56.3%	0.073	0.585	0.03	1.05
59	2279	0.5	7.07	11.4%	0.14	2.97	2.20	64.9%	0.074	0.625	0	1.05
60	2279.5	0.5	6.53	9.8%	0.10	3.96	2.02	77.9%	0.076	0.713	0	1.05
61	2280	0.5	6.01	8.3%	0.07	5.26	1.85	93.6%	0.078	0.790	0	1.05


David Griffin, GGR Inc., Lawrence, KS
Penetration Rate (ROP)
Min./Foot
Lagged Total Gas
Units
Depth
Lithology
Shows
0
1
10
100
1000
1750
1760
1770
1780
1790
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
9-14-19
9-14-19
ROP
Lagged Total Gas
10AM
Noon
Mobilize Onsite
Set up Gas Detection
Gas Check
OK
Well: Burkett E-53
Location: S2 NW SW SW/4, 732' fsl, 330' fwl, Sec. 23-T23S-R10E, GW Co.
Pg. 1 of 3
Datum/Elev.
1399 GL
Sample Descriptions (Lagged)
Tops/Remarks
Operator: Cross Bar Energy, LLC
Drlg Contr: Three Rivers Exploration
API No.: 15-073-24245-00-00
7 7/8" PDC Bit, 6 Blade
Lenapah LS
Marmaton Grp
1855 (-456) using ROP
1854 (-455) OH Log
Altamont LS
start 10' smpls
sh, Bk
LS, off-wh, to tn-gy, vf-fxln, prϕ
sh, gy, silty w/ sltst interbeds
sh & sltst, AA
coal
sh & sltst, lt gy
ss, vlt gy, vfgrn, prϕ, NS
LS, dk-vdgy, fxl, min bk (organics?)
sh, bk?
LS, lt tn to o-wh, lt gy, vf-fxln, prϕ
Pawnee LS
LS
sh, vari-col
LS
sh, bk
sh, lg-dg, ptly slty
LS, lt gy, gy, fxln, fosl
sh, grays

Depth	David Griffin, GGR Inc., Lawrence, KS		Lithology	Shows	Well: Burkett E-53	Pg. 2 of 3
	Penetration Rate (ROP) Min./Foot	Lagged Total Gas Units			Location: S2 NW SW SW/4, 732' fsl, 330' fwl, Sec. 23-T23S-R10E, GW Co.	Datum/Elev. 1399 GL
					Sample Descriptions (Lagged)	Tops/Remarks



Depth	Sample Descriptions (Lagged)	Tops/Remarks
2000	LS, ltgy to gy, fosl; sh, bk	
2005	LS, tn to ltgy; sh, bk	Cherokee 2010 (-611); 2009 (-610) OH Log
2015	SS, vlg, vf-f grn, pr-fr ø, cln, ptly lmy, LS, tn, interbed NS, No Flr	Squirrel SS 2005-12, 7'
2025	sh, ltgy to gy, slt, mica, carb (smc)	
2040	SS, 10%, vlg, vf-f grn, pr ø, NS	
2045	Sh, gy to vdg	
2055	LS, dk to vdg, sdy	
2062	Sh, lg to dg	
2070	Sh, gy to dgy, ptly SMC	
2093	Bevier coal	2096' Button Bit Trip
2097	LS	Ardmore LS 2096 (-697); 2095 (-696) OH Log
2105	V-Shale, Blk shale, ptly coaly	V-Shale, 2105
2111	SS, vlg, vf grn, pr-fr ø, NS or Flr - 5' smpls -	Cattleman SS, 11' 2111 (-712); 2110 (-711) OH Log to 2122
2115	SS, ø-Wh, bn oil stn, vf-f grn, min med grn ptly re-crys qtz, fr ø, Sli-Fr show oil droplets brkout w/crushed sli calc. gd odor	
2128	slts, vlg	
2134	sh, vlg, gy	
2140	sh, bk	
2146	slts, min sh	
2156	sh, lg-dg mostly	
2170	coal	
2173	slst	
2176	sh, vlg-vdg	
2180	sh, bk	
2188	sh, grays	
2196	sh, bk	Bartlesville Zone 'X' 2197 (-798); 2196 (-797) OH Log
2202	slts, vlg + sh, grays interbeds pr ø, NS	
2215	AA	
2225	slt + sh, hard	
2238	slt + sh, silty, hrd	
2246	SS, 20, vltgy-sli bn, vf, pr-fr ø, silty, sli odor, fr reed stn, No F. Oil; SS, 50, vlg, fite NS, silty, mica, all ss is Calc. Moder.	BV SS 2244 (-845); 2243 (-844) OH Log



Well: Burkett E-53 | **Pg. 3 of 3**

Location: S2 NW SW SW/4, 732' fsl, 330' fwl, Sec. 23-T23S-R10E, GW Co. | **Datum/Elev.** 1399 GL

Sample Descriptions (Lagged) | **Tops/Remarks**

Begin 5' Smpls

2250-56': SS, 20, ltg-bn, vf, fr ϕ, fr odor fr F. Oil, calc, acid lifts oil, fr resd stn slts; 50, vlg, NS

2256-60': SS, 50, AA, SI SFO Rns, Gd Odor fr resd stn slts; 30, NS

2260-64': SS, 70, ltg-bn, v-f-f, fr-gd ϕ, gd resd stn, gd odor; sli SFO Rns, mica, calc, fri, gassy

2264-70': SS, 80, AA, vGd Resd Stn, Fr SFO Vgd odor, gassy

2270-75': SS, 90, ltg-bn, vf-f-med gr, fr-gd ϕ, VGd stn, Gd Odor, Gd Sh Free Oil Rns, calc, gassy

2275-81': SS, 70, vf-f, fr-g ϕ, gd stn Fr SFO, gd odor

2281-87': SS, 40, AA, carryover?

2287-91': SS, 20, AA, Carryover?, sh, bk sh, vlg-dg

sh, vari-col gy's, gn & bk

coal
sh, gy to bk

coal
coal
sh, vlg-bk

sh, gy, hrd
LS, vdg to gy,

sh
coal
sh, lg-dg
sh, bk

sh, bk
sh, gy's

congl, cht, 25-50%, shrp, ltgy, wh, clrgy LS & Dol clasts, SS, slty, sh oley, NS NO Flr, No odor

LS, tn w/ gy pyr mottlg, f-mxln, pr ixϕ, dull miner flr

LS, AA, mvcs xln, fosl frg, v min bn organics?

LS, tn, vf-cs xln, pr ϕ, fosl occ,

Open Hole Logged
12-4PM, 9-16-19
Eli Wireline

BVSS Pay 26'
2253 (-854)
to 2279
2252-2279
OH Log

Rec. PF's
2353' to
2377'

Pn Bsl Cgl
2372 (-973)
OH Log same

Miss LS (Top)
2389 (-990)
2386 (-987)
OH Log

TD
2419 (-1020)

Sonic Cement Bond Log

XCEL WIRELINE

API No.

Company Cross Bar Energy, LLC.

Well Burkett E #53

Field Burkett

County Greenwood State Kansas

Location

732' FSL & 330' FWL

Sec: 23 Twp: 23S Rge: 10E

Other Services

Perforate

Elevation

K.B. 1399.5
D.F. 1397.5
G.L. 1394

Permanent Datum Ground Level Elevation 1394
Log Measured From Kelly Bushing 5.5 Ft. Above Perm. Datum
Drilling Measured From Kelly Bushing

Run Number	One		
Date Survey	10/2/2019		
Date Cementing	9/17/2019		
Type Cementing Operation	Primary		
Depth Driller	2419		
Depth Logger	2383		
Logged Interval	2382 to 90		to
Casing Driller	5.5 @ TD		@
Float Collar -- D.V. Tool	////	1424	
Squeeze Depth	////		
Amount & Type Cement	////		
Amount & Type Admix	////		
Type Fluid In Hole	Water		
Fluid Level	90		
Salinity PPM CL	////		
Weight lb/gal -- Vis.	////	////	
Approx. Logged Cement Top			
Calculated Cement Top			
Max. Hole Temperature	////		
Tool No.	DIG01		
Spacing Recorded	3-5		
Equipment -- Location	01	Pratt	
Recorded By	N. Schmeidler		
Witnessed By	Adrew Brensing		

<< Fold Here >>>

Comments

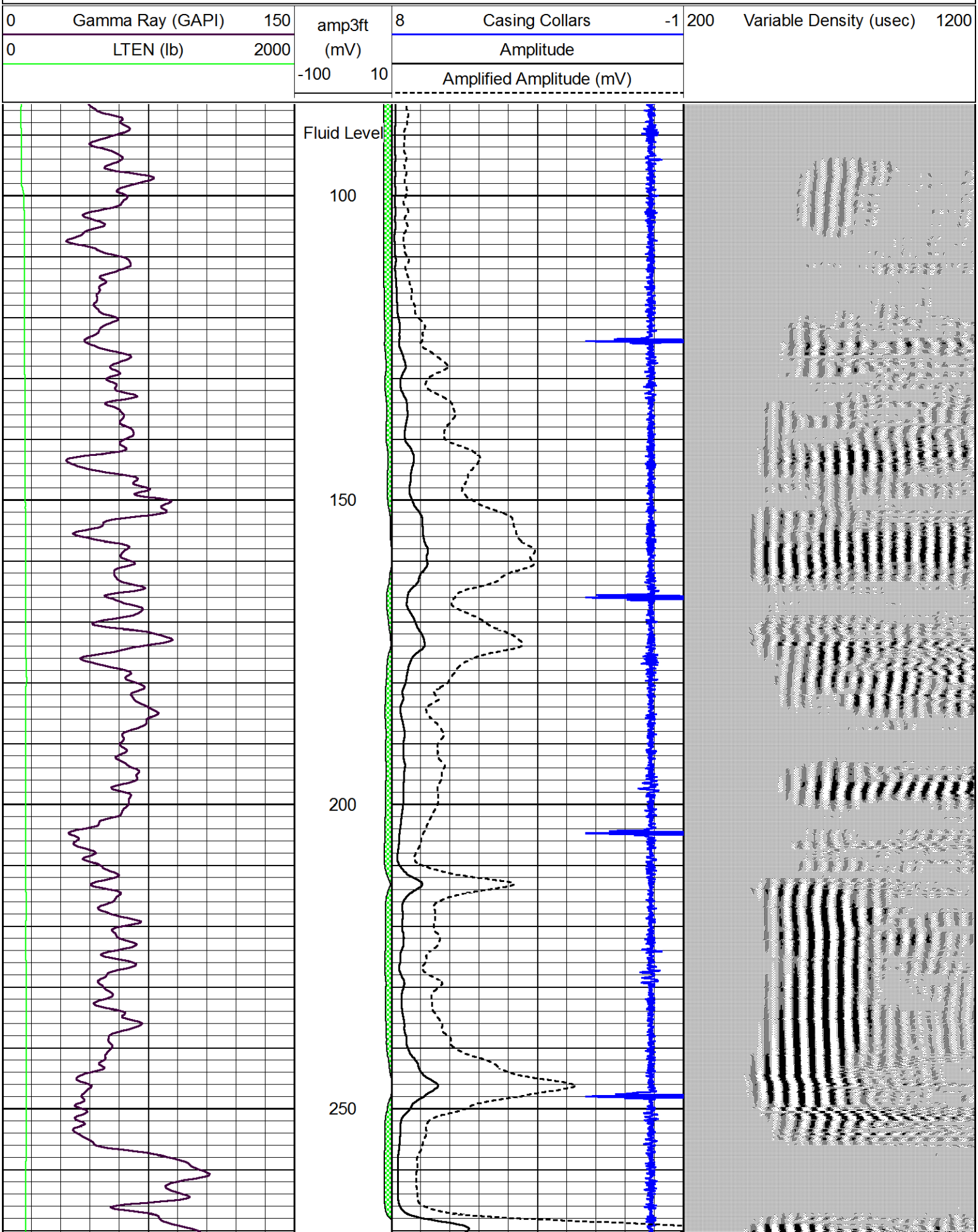
Thank you for using Excel Wireline (620) 388-5676

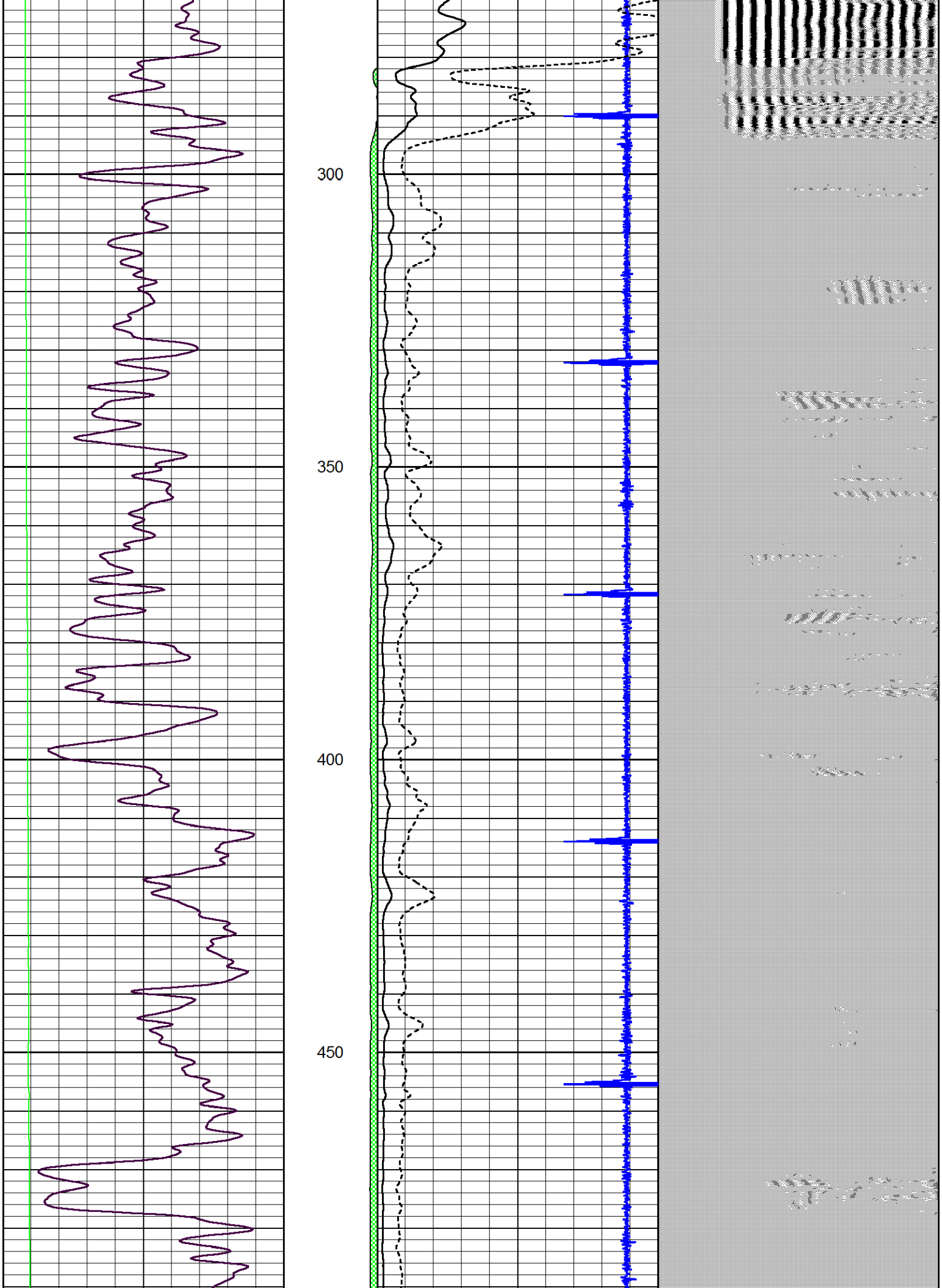
Cassday
20.25 E on 150th to Q Rd
1 S to 290 Rd, W to CG
Stay SW to Rd N to well

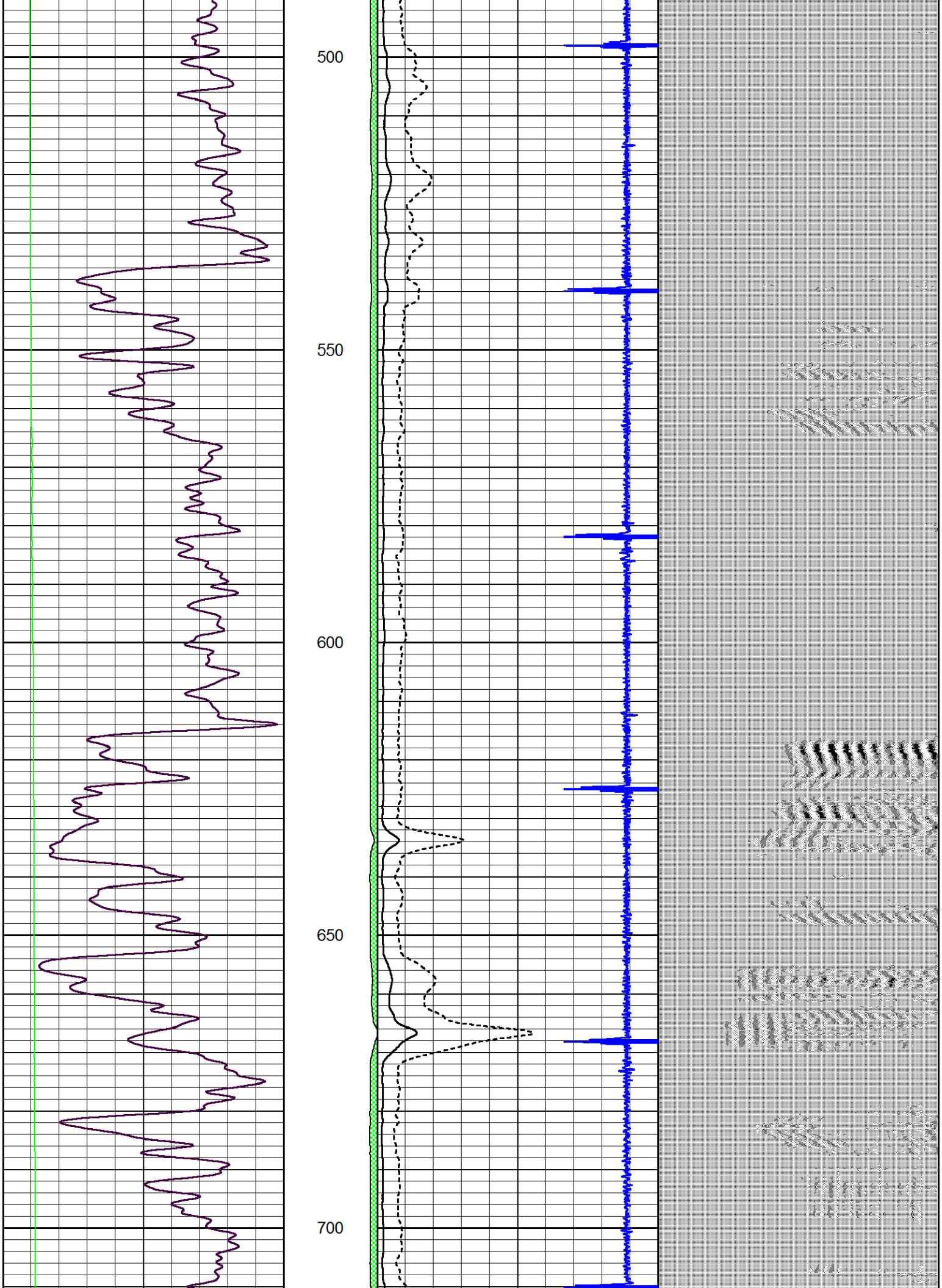
Main Pass

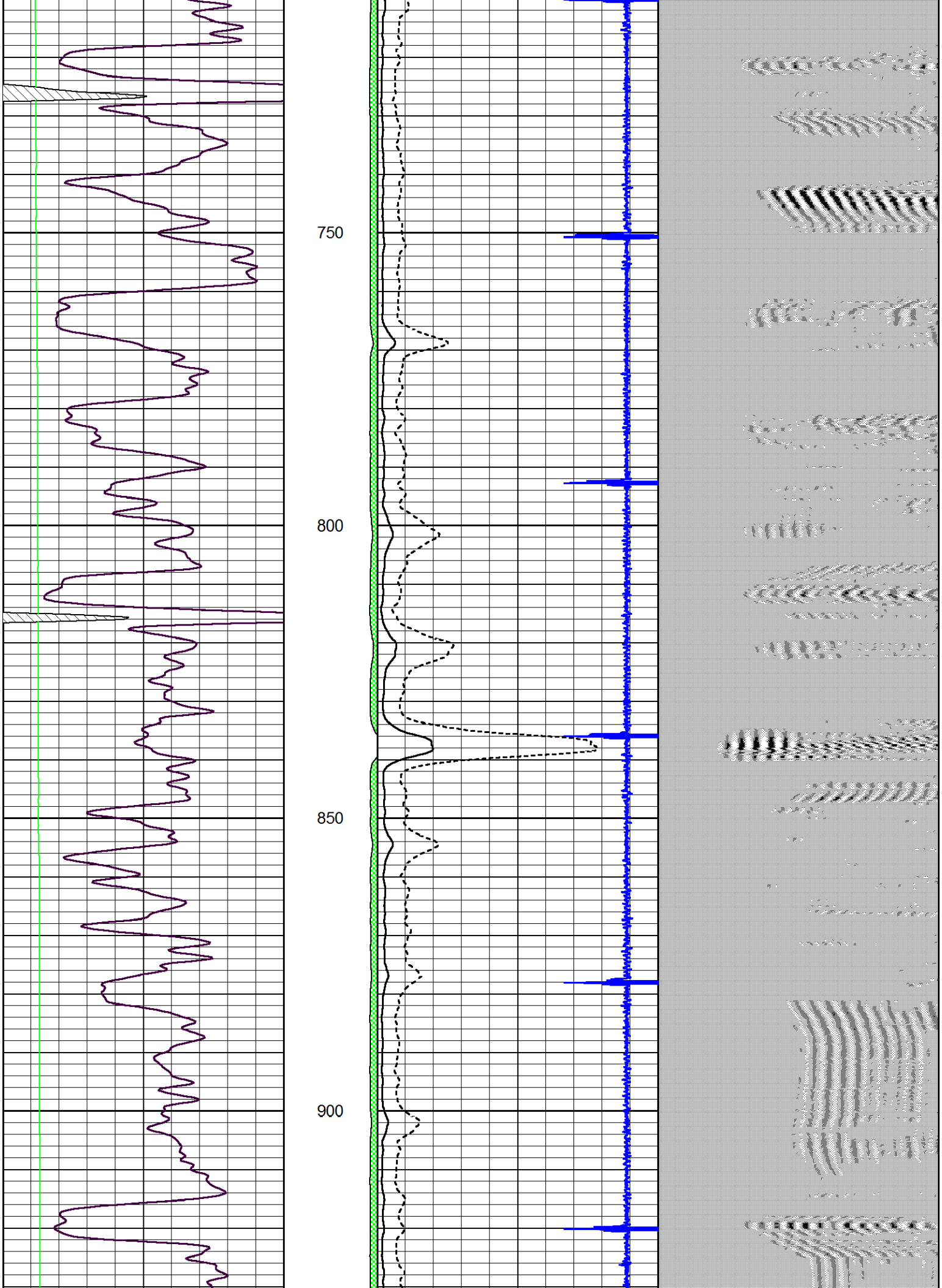
XCEL WIRELINE

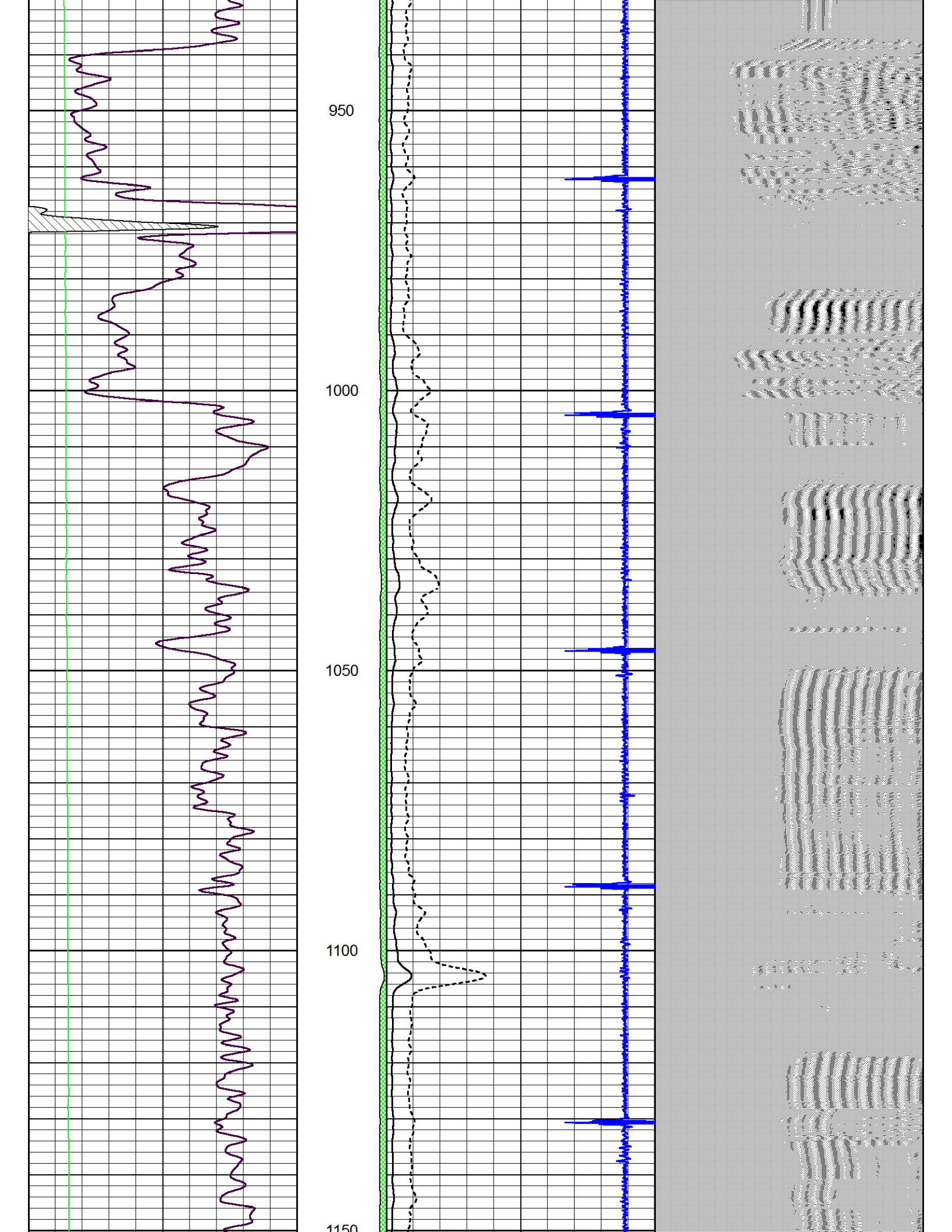
Database File	cross_bar_burkett_e_53.db
Dataset Pathname	grcbl/pass3
Presentation Format	excel
Dataset Creation	Wed Oct 02 15:21:40 2019
Charted by	Depth in Feet scaled 1:240

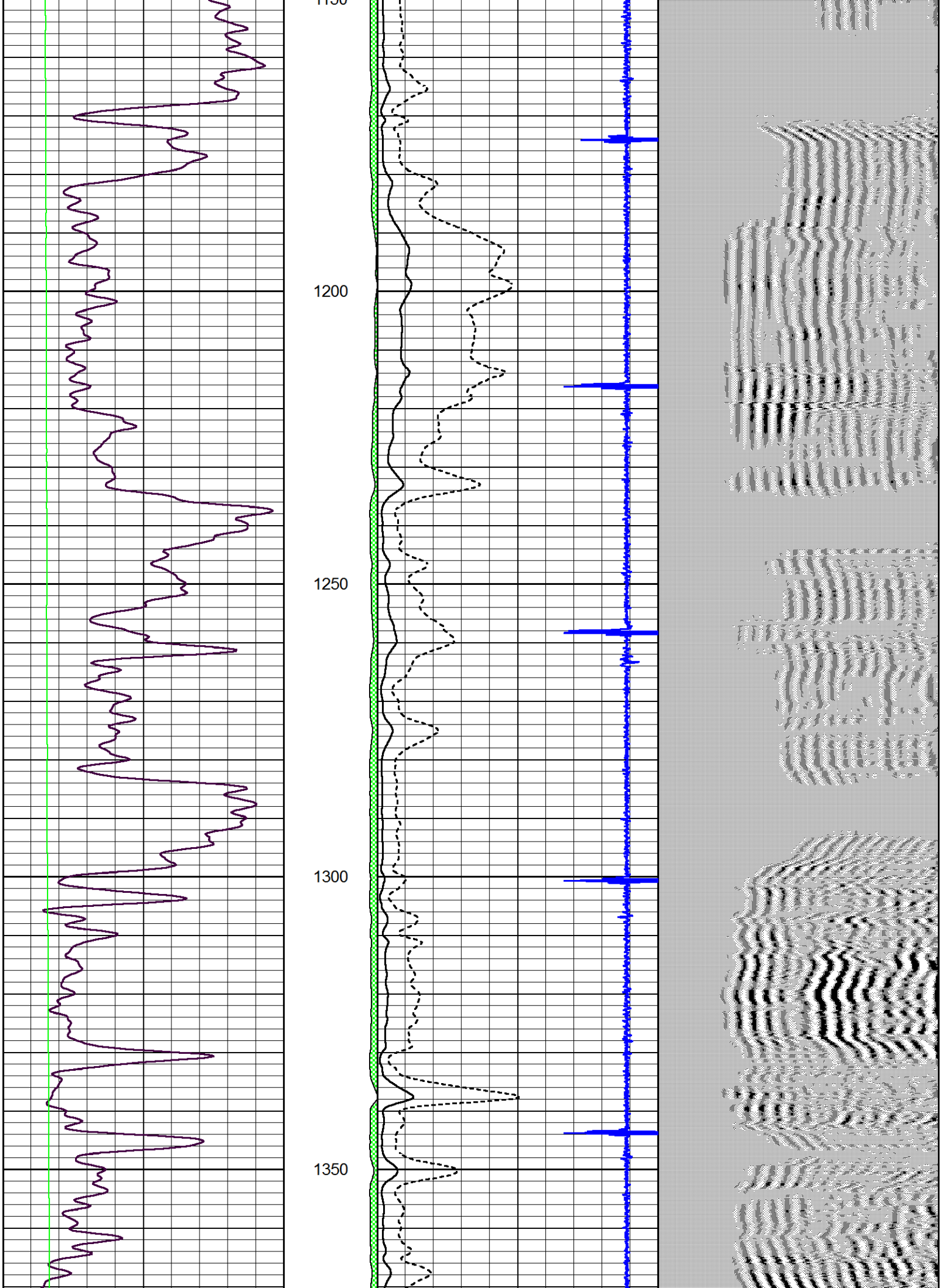


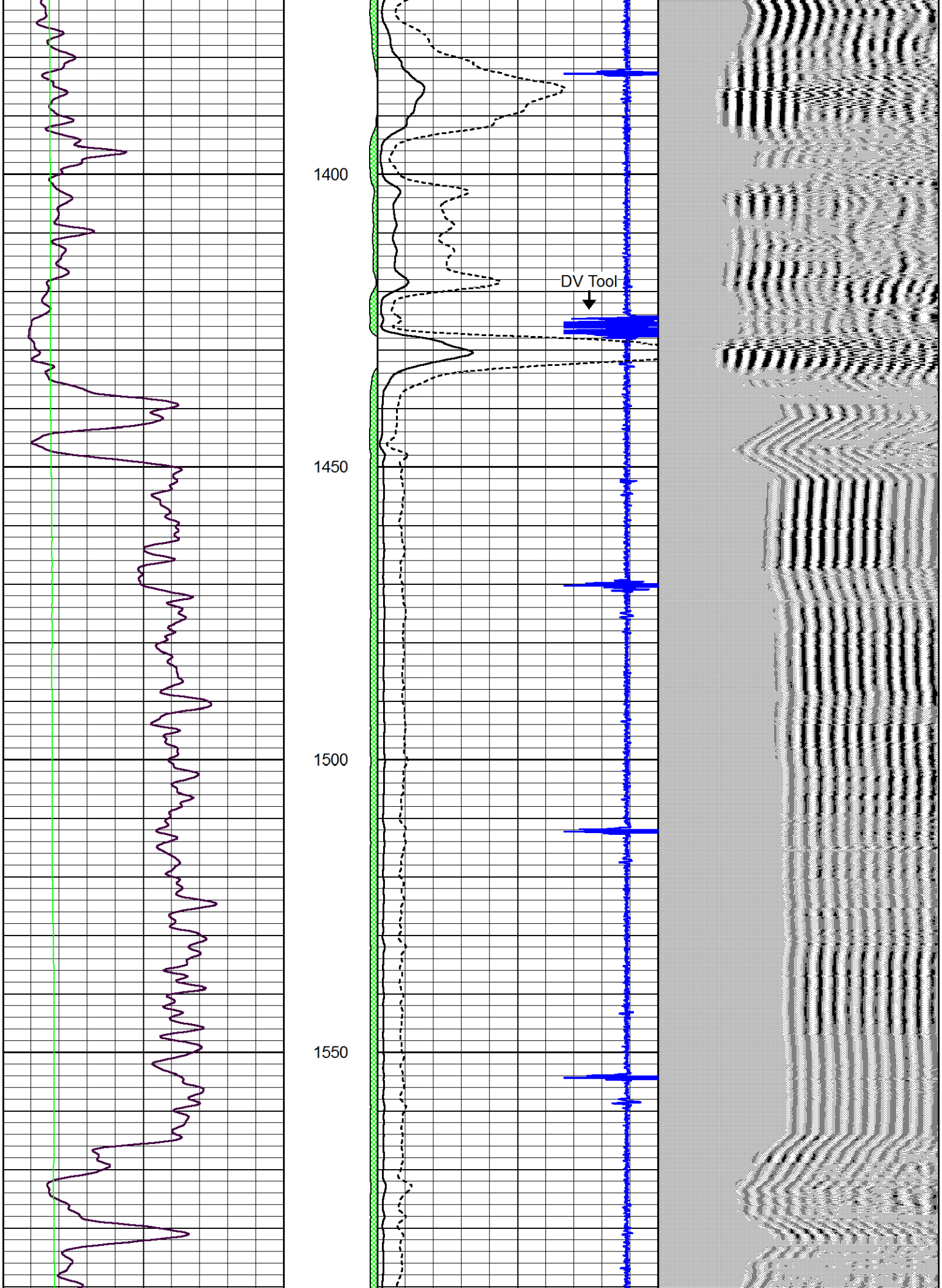

300
350
400
450

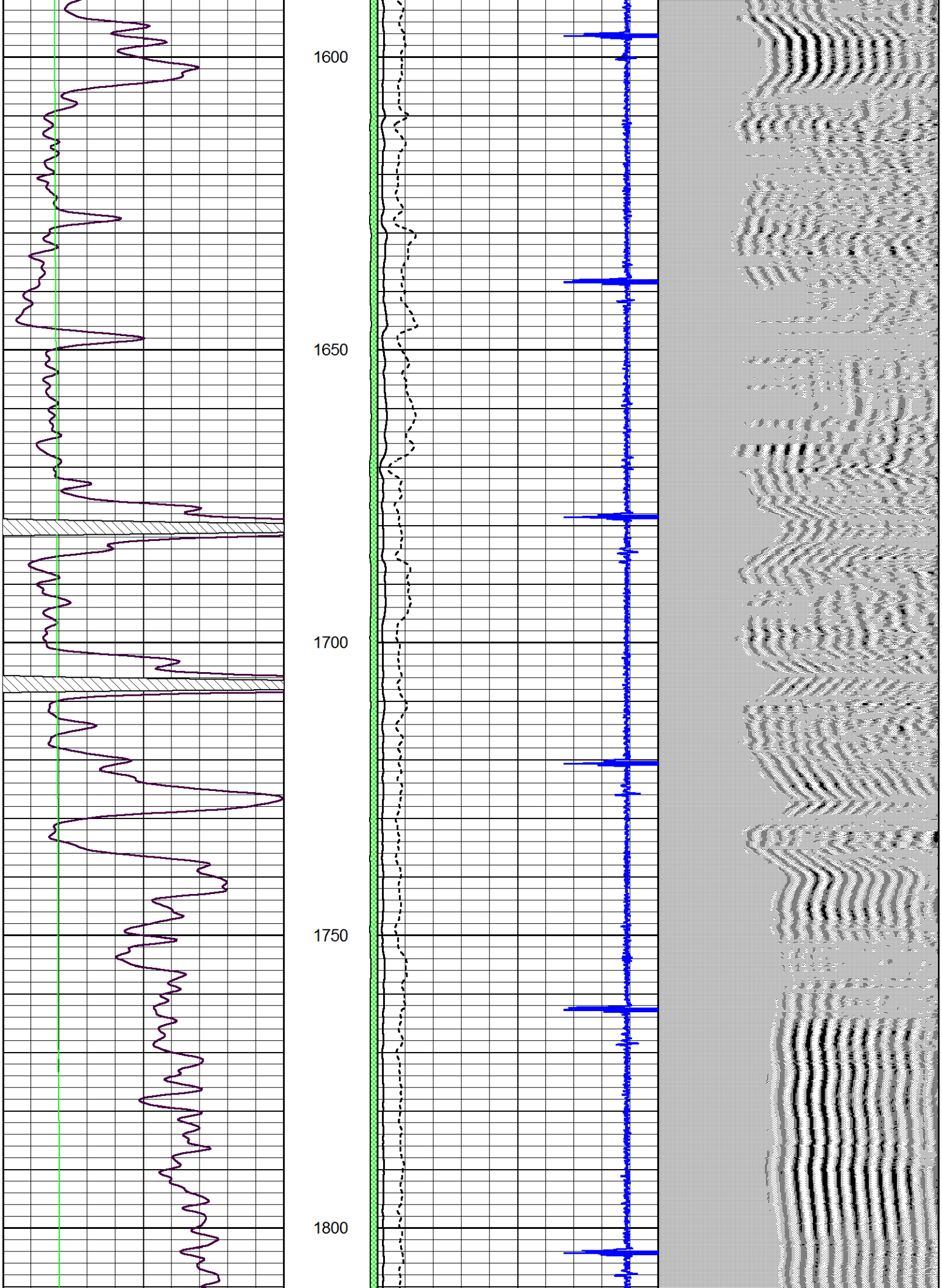

500
550
600
650
700

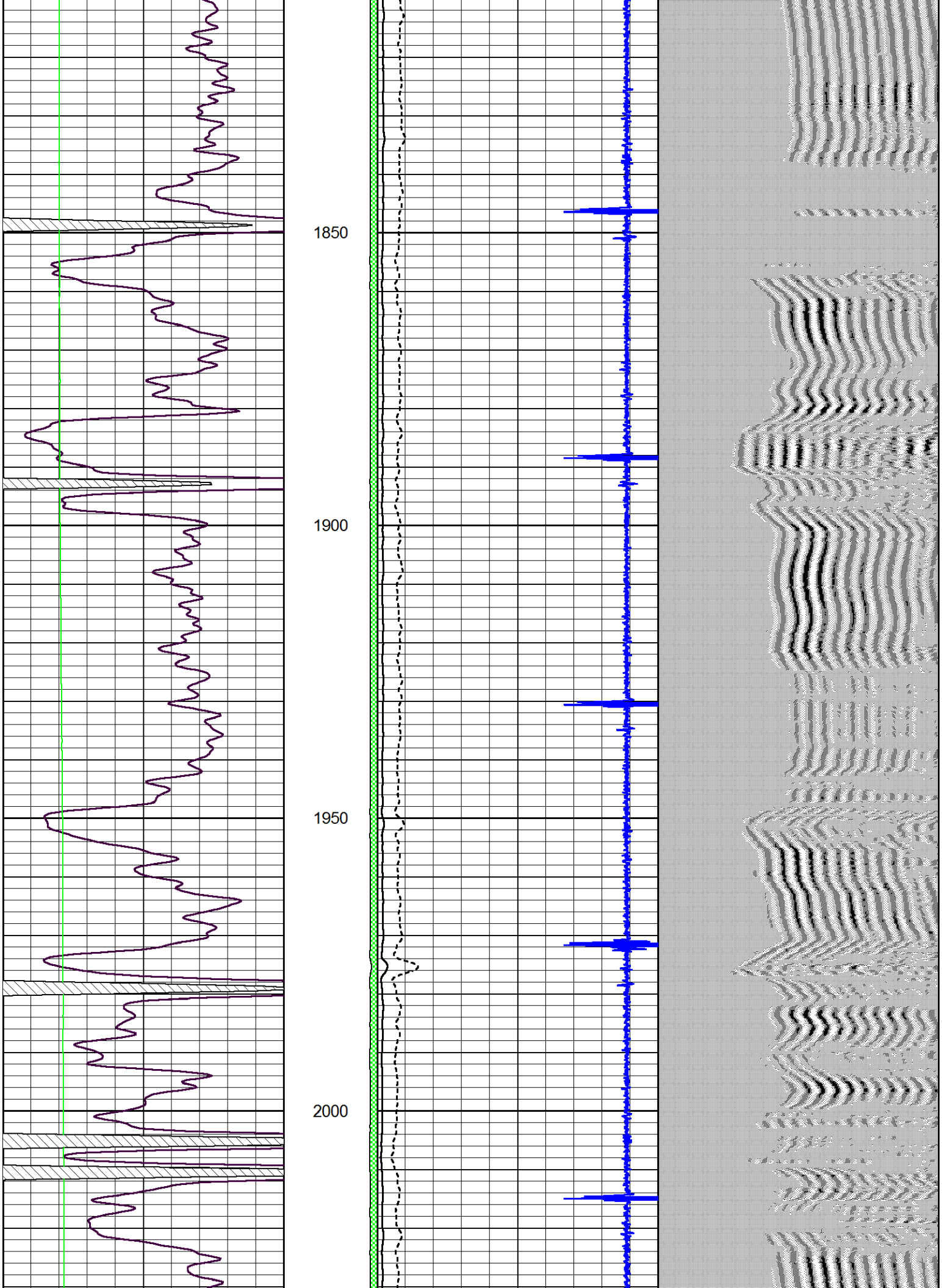

750
800
850
900

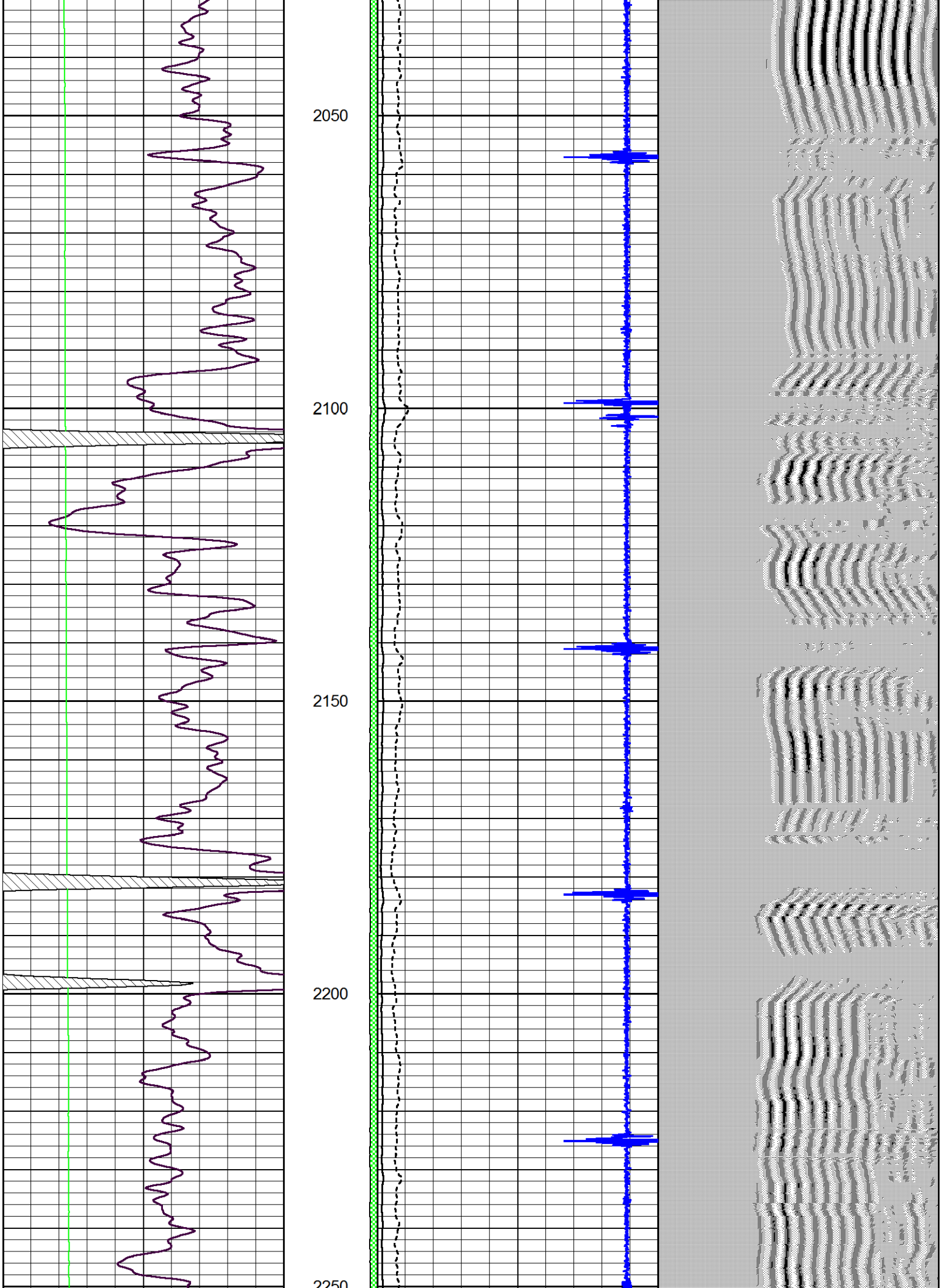

950
1000
1050
1100
1150

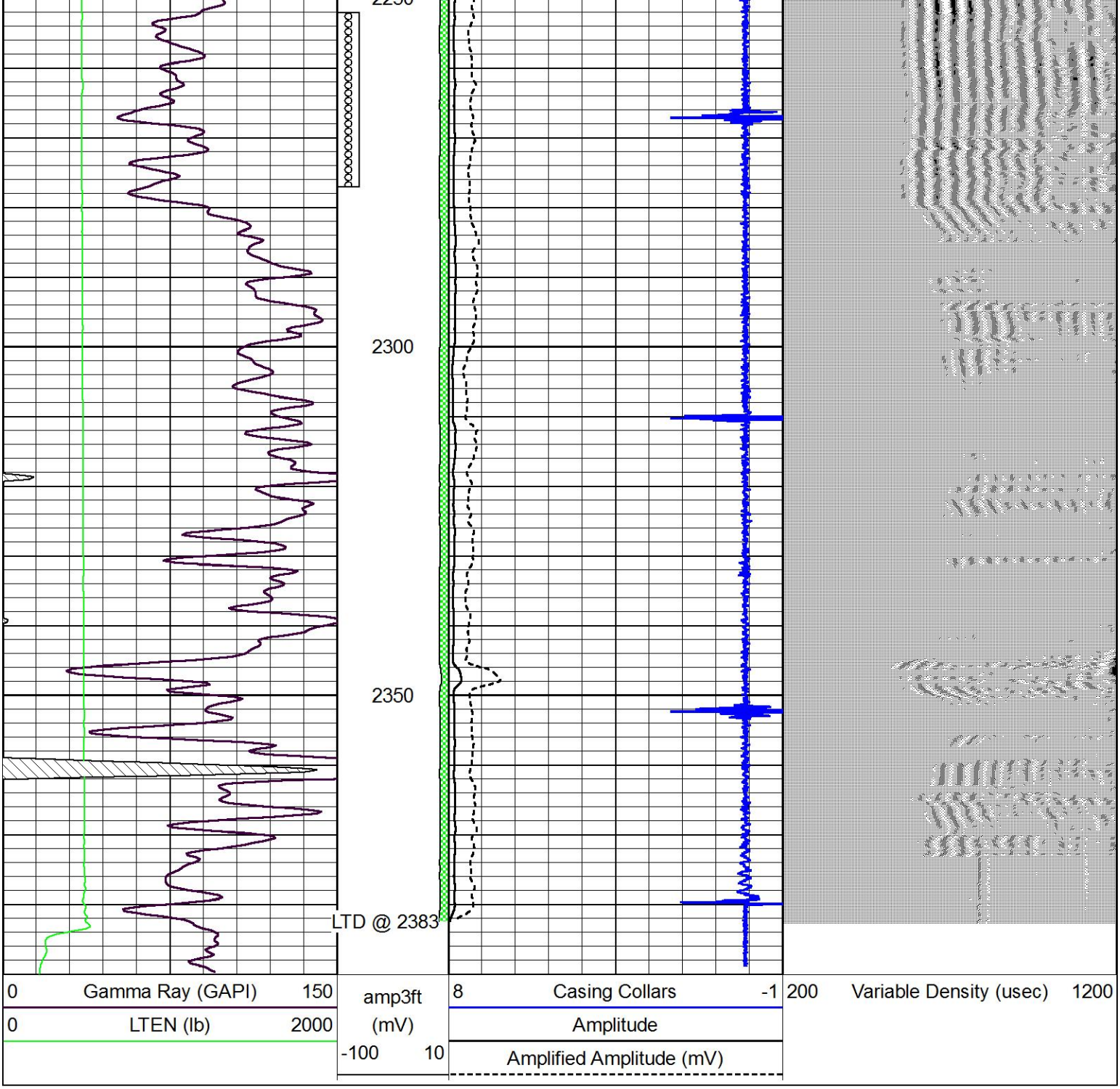

1150
1200
1250
1300
1350


1400
1450
1500
1550
DV Tool


1600
1650
1700
1750
1800

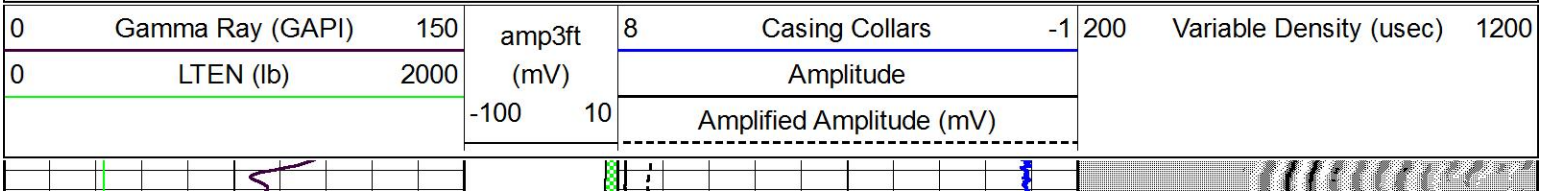

1850
1900
1950
2000

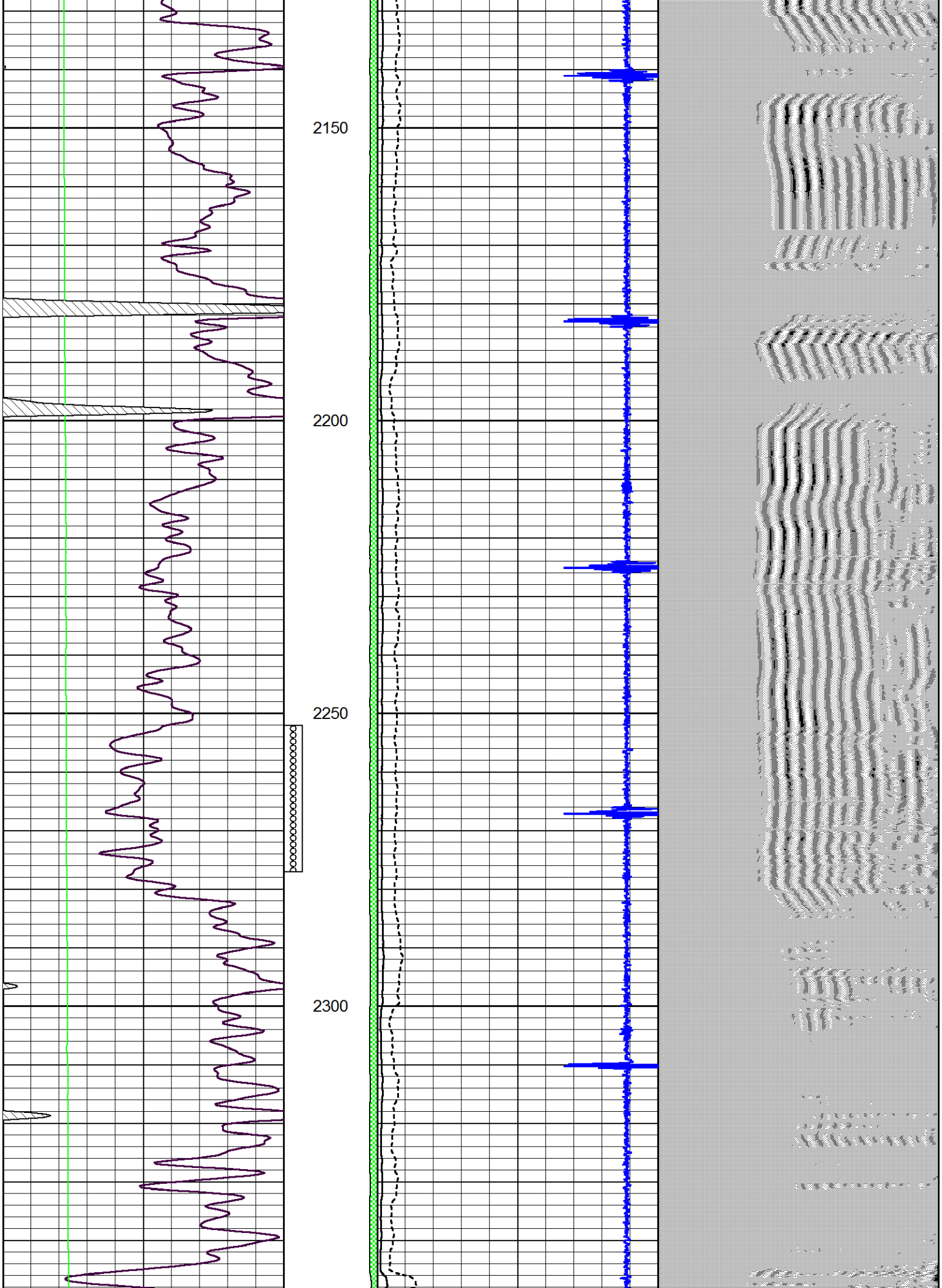

2050
2100
2150
2200
2250

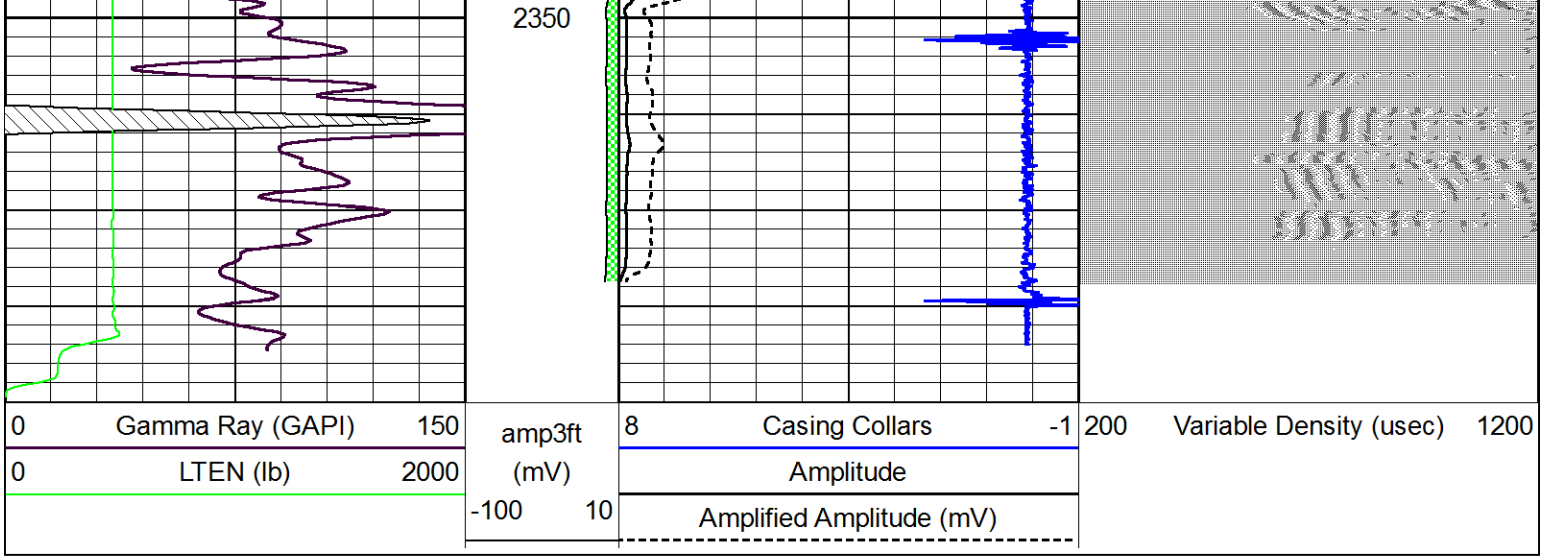


Repeat Section

Database File	cross_bar_burkett_e_53.db
Dataset Pathname	grcbl/pass2
Presentation Format	excel
Dataset Creation	Wed Oct 02 15:15:47 2019
Charted by	Depth in Feet scaled 1:240




2150
2200
2250
2300


2350
0
Gamma Ray (GAPI)
150
0
LTEN (lb)
2000
amp3ft
(mV)
-100
10
8
Casing Collars
-1
Amplitude
Amplified Amplitude (mV)
200
Variable Density (usec)
1200