



COMPENSATED DENSITY/NEUTRON LOG

Company	DOWNING-NELSON OIL CO., INC.
Well	THOMPSON-NUCKOLLS UNIT #1-17
Field	STEFFEN SOUTH
County	PAWNEE
State	KANSAS
Location:	API # : 15-145-21846-00-00 170 FSL & 2090 FEL
Permanent Datum Log Measured From	GROUND LEVEL Elevation 2102'
Drilling Measured From	KELLY BUSHING 8' A.G.L. KELLY BUSHING
Other Services DIL/MEL SONIC	Elevation K.B. 2110 D.F. 2108 G.L. 2102
Date	02/23/19
Run Number	ONE
Depth Driller	4456
Depth Logger	4453
Bottom Logged Interval	4433
Top Log Interval	3500
Casing Driller	8 5/8 @ 1230
Casing Logger	1230
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4/50
pH / Fluid Loss	9.5/10.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80 @ 60
Rmt @ Meas. Temp	.60 @ 60
Rmc @ Meas. Temp	.96 @ 60
Source of Rmt / Rmc	MEASURED
Rm @ BHT	.40 @ 120
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	///
Maximum Recorded Temperature	120F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	GUS PFANENSTIEL
Witnessed By	MARC DOWNING

<<< Fold Here >>>

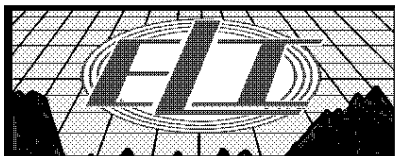
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

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

DIRECTIONS

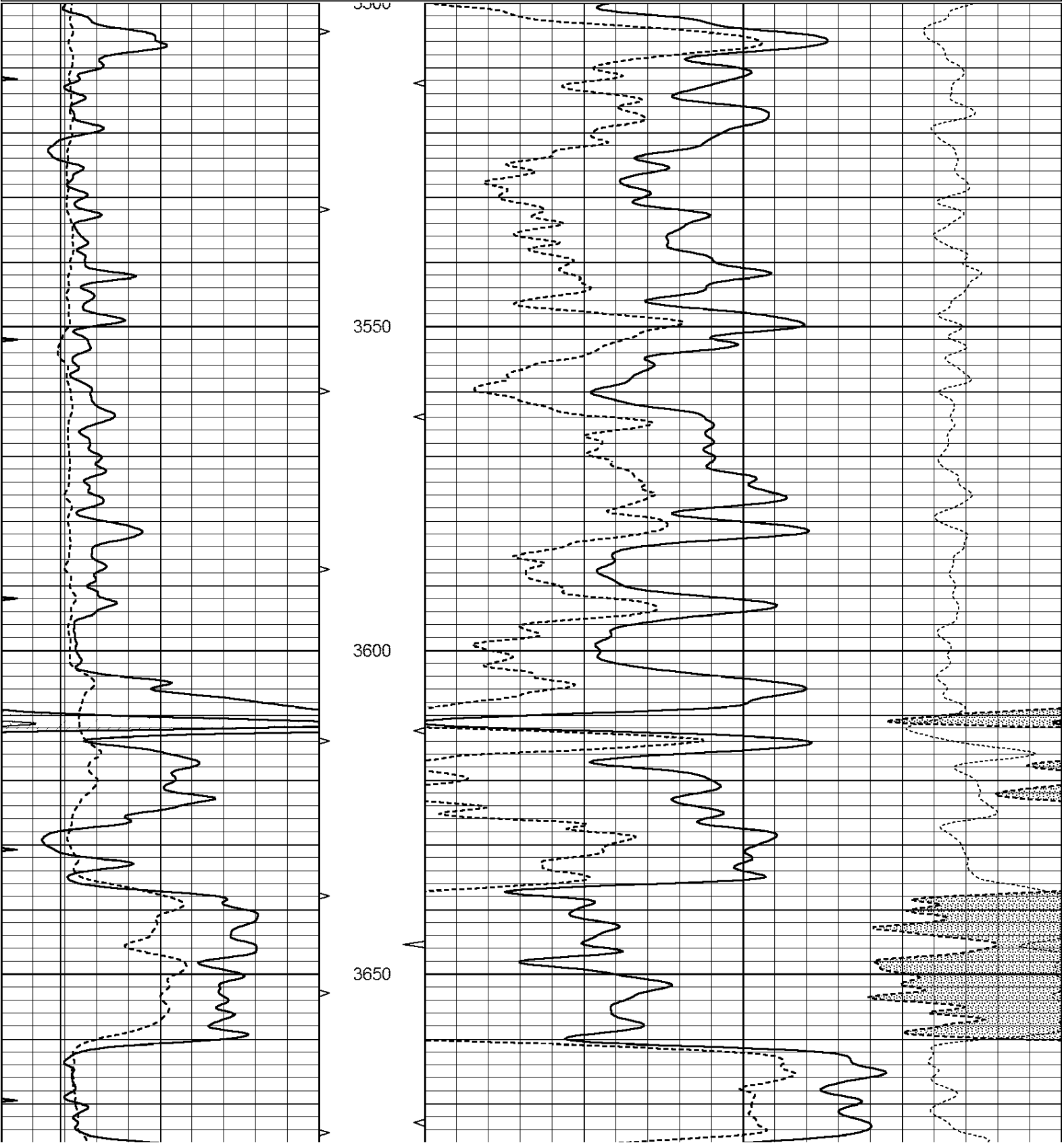
BURDETT TO 345 NORTH TO CURVE WEST 1/2 MILE, NORTH ON 350 RD.
TO Q RD., 1/2 WEST, NORTH INTO.

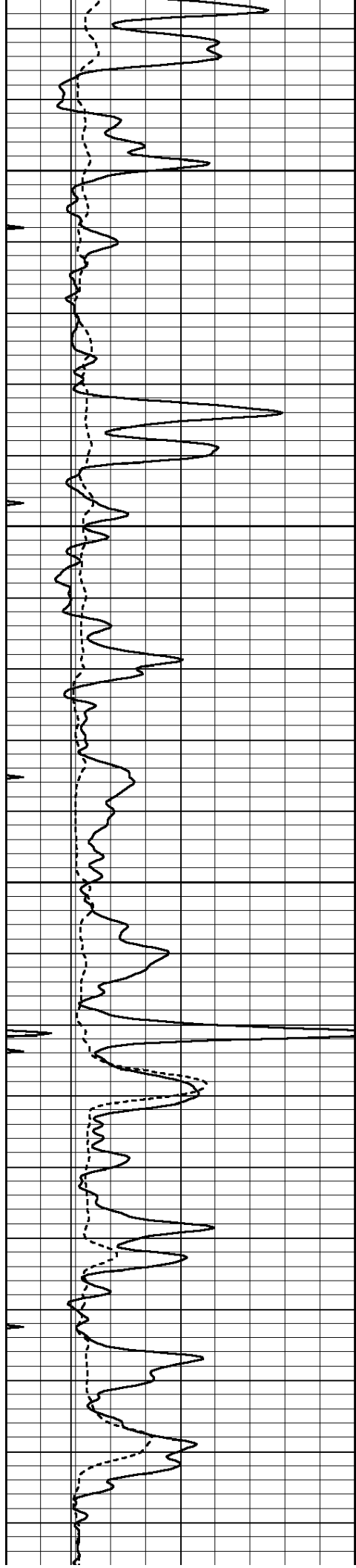


MAIN PASS

Database File: 3485ddn.db
Dataset Pathname: pass3.1
Presentation Format: den_neu
Dataset Creation: Sat Feb 23 05:05:12 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
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		



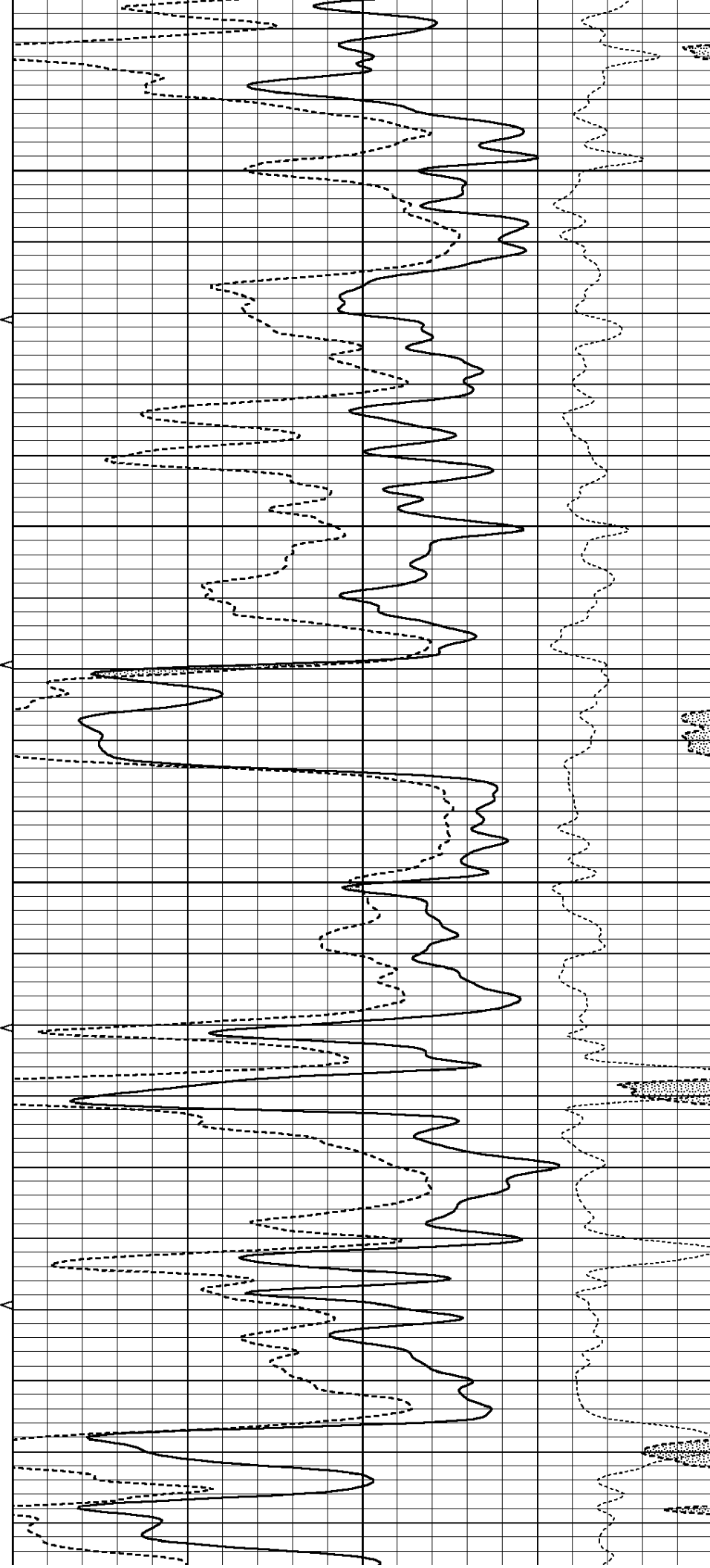


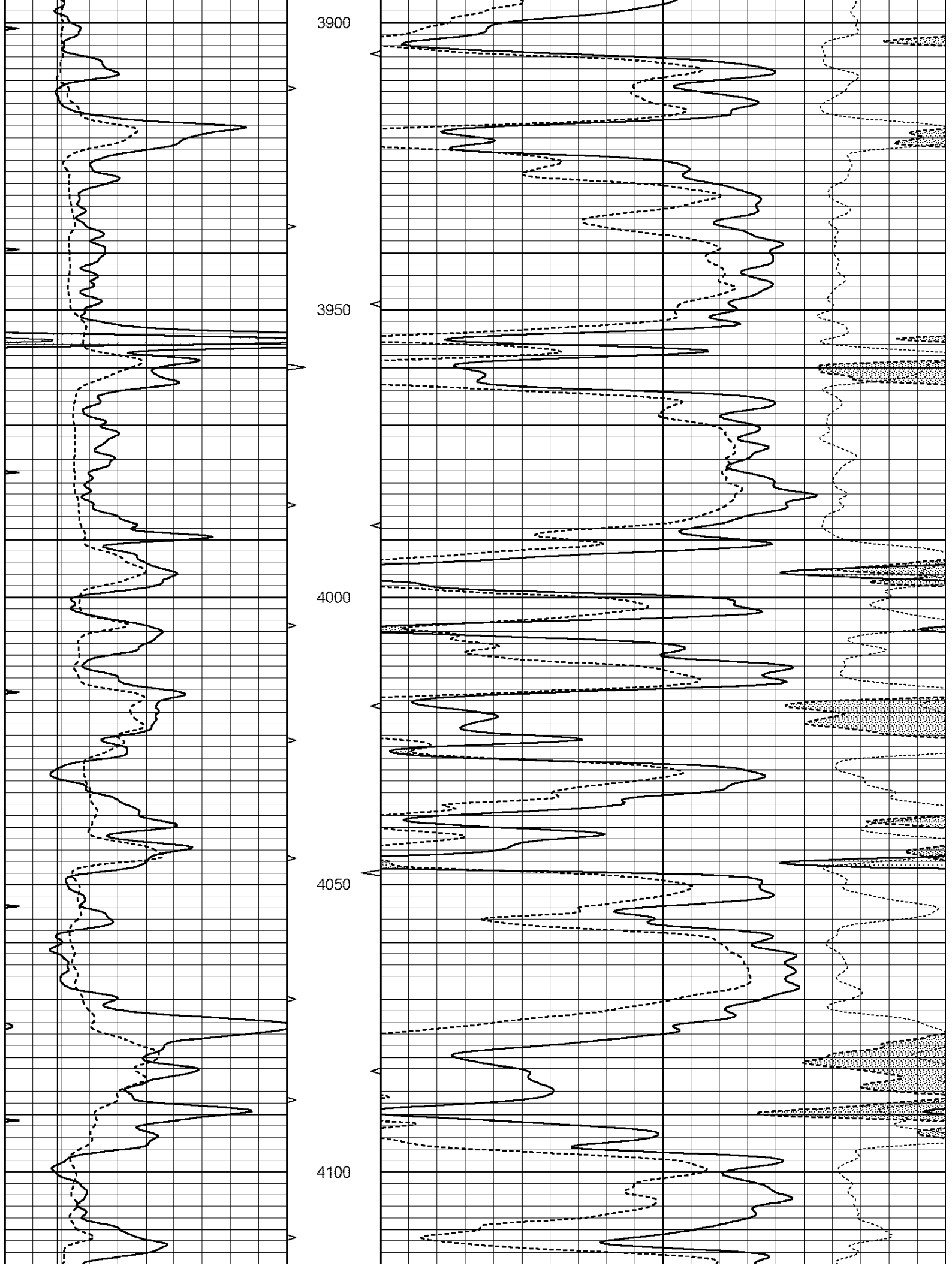
3700

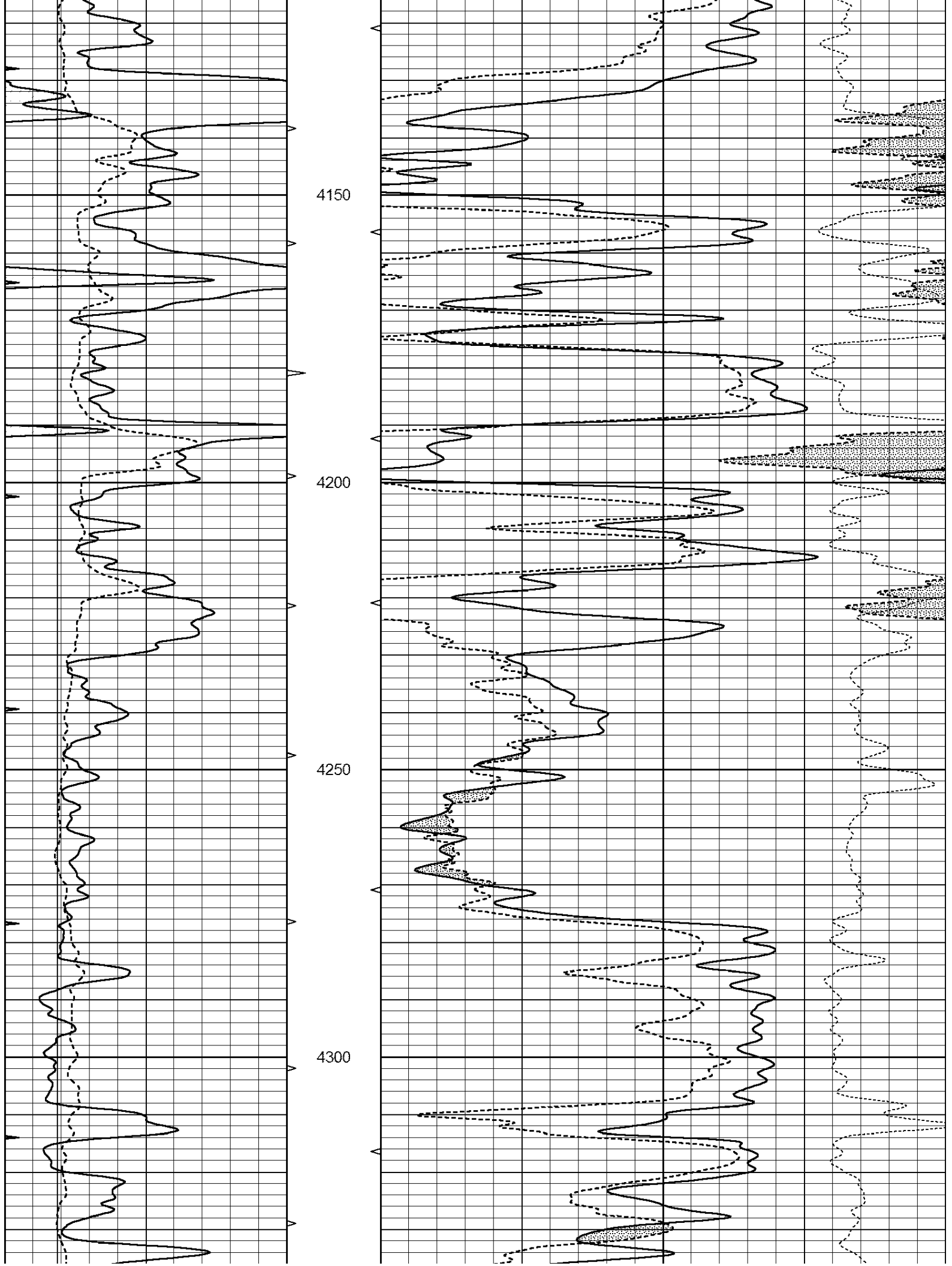
3750

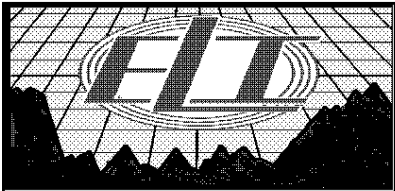
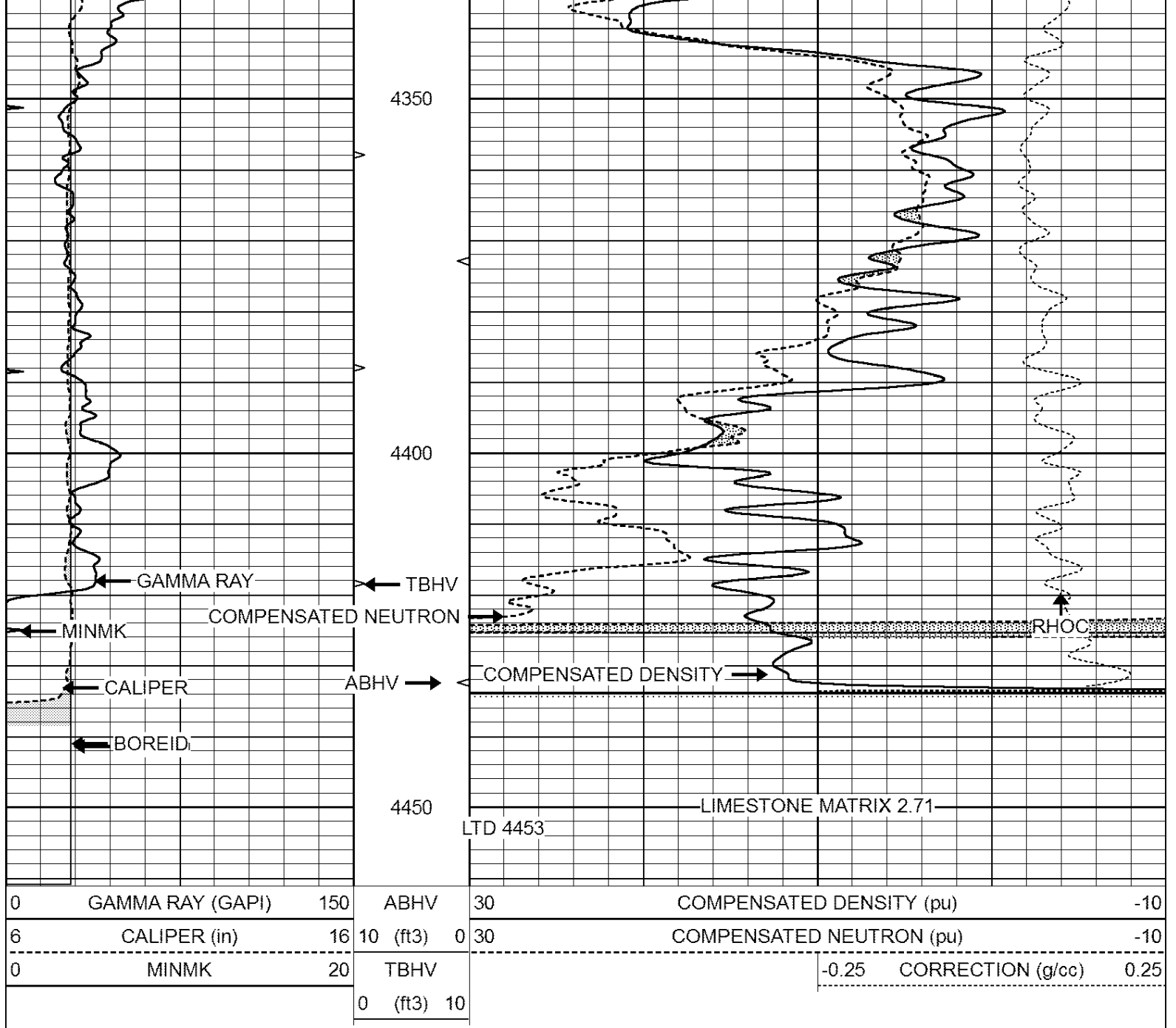
3800

3850





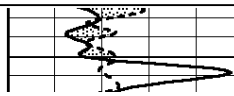
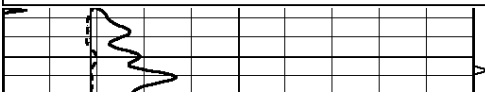


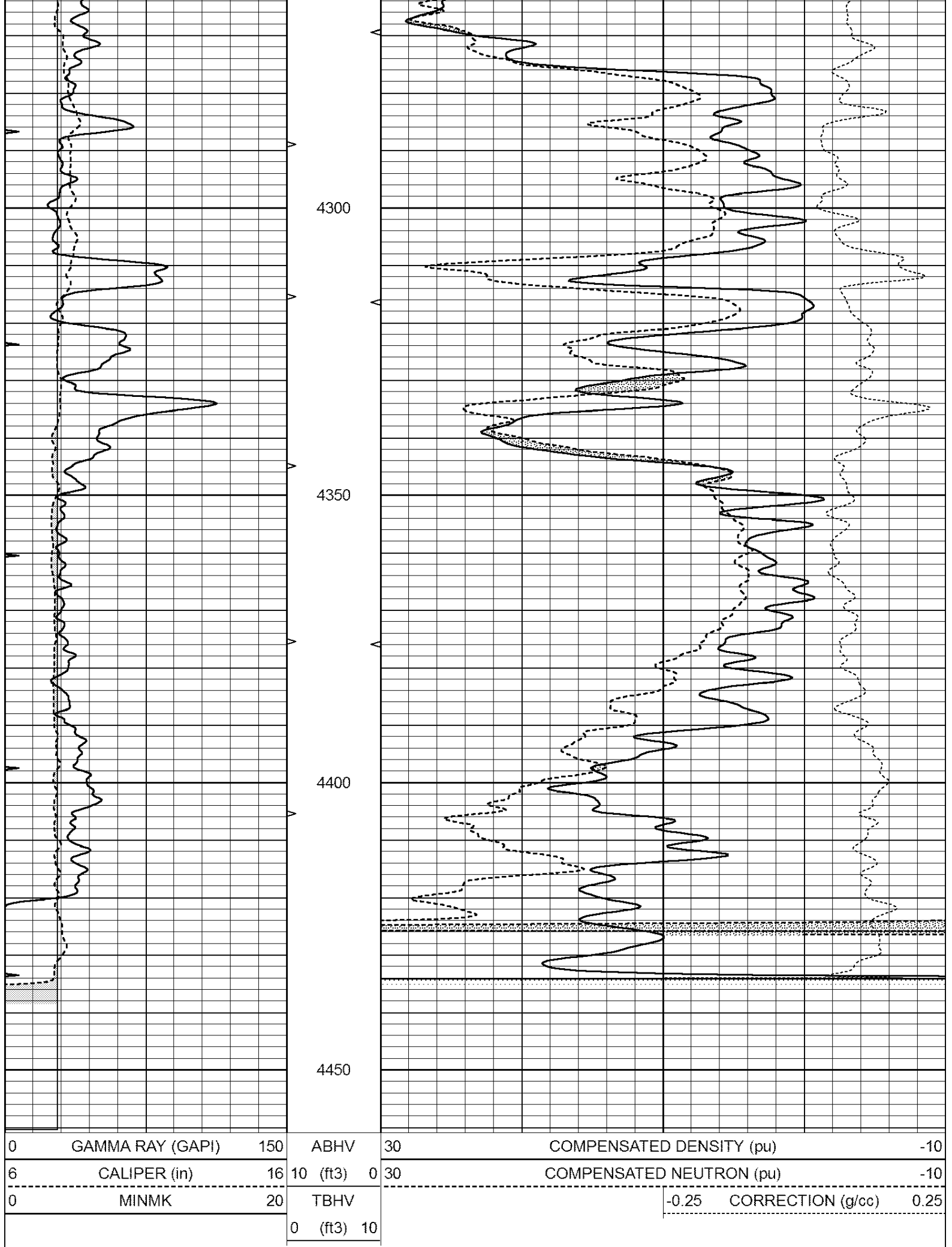


REPEAT PASS

Database File: 3485ddn.db
 Dataset Pathname: pass2RP
 Presentation Format: den_neu
 Dataset Creation: Sat Feb 23 04:50:16 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
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		





0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)			-10	
6	CALIPER (in)	16	10 (ft3)	0	30	COMPENSATED NEUTRON (pu)			-10
0	MINMK	20	TBHV				-0.25	CORRECTION (g/cc)	0.25
			0 (ft3)	10					

Calibration Report								
Database File:		3485ddn.db						
Dataset Pathname:		pass2RP						
Dataset Creation:		Sat Feb 23 04:50:16 2019						
Dual Induction Calibration Report								
Serial-Model:		PROBE8-DILG						
Surface Cal Performed:		Mon Sep 10 14:28:35 2018						
Downhole Cal Performed:		Mon Sep 10 14:28:38 2018						
After Survey Verification Performed:		Mon Sep 10 14:28:40 2018						
Surface Calibration								
Readings			References			Results		
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-12.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739
Downhole Calibration								
Readings			References			Results		
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	mmho-m		
After Survey Verification								
Readings			Targets			Results		
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
LL3		1.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		1.000	mmho-m		1.000	mmho-m		
Litho Density Calibration Report								
Serial: 001N		Model: PRB						
Master Calibration								
Performed Fri Feb 22 10:21:38 2019								
	Background	Magnesium		Aluminum		Sandstone		
Window 1	1650.2	7609.7		2906.5		8386.5		cps
Window 2	1538.2	6635.9		2614.4		7212.4		cps
Window 3	1257.0	3718.7		1765.8		3927.1		cps
Window 4	376.8	375.6		373.4		374.5		cps
Long Space	0.0	5097.7		1076.2		5674.2		cps
Short Space	2.8	1704.3		1106.3		1723.6		cps
Rho		1.7100		2.5900		1.3800		g/cc
Pe		0.0000		2.5700		1.5500		
Rib Angle	: 44.5	Rib Slope	: 0.982	Density/Spine Ratio			: 0.545	
Spine Angle	: 74.5	Spine Slope	: 3.599	Spine Intercept			: -18.2	
Before Survey Verification				Performed Wed Dec 31 18:00:00 1969				

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification			Performed Wed Dec 31 18:00:00 1969		
Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

--

Compensated Neutron Calibration Report
--

Serial Number:	6l
Tool Model:	G

CALIBRATION						
	Detector	Readings		Target		Normalization
	Short Space	1.00	cps	1.00	cps	1.0000
	Long Space	1.00	cps	1.00	cps	1.0000

PRE-SURVEY VERIFICATION						
	Detector	Readings		Measured	Target	
1)	Short Space	cps				
	Long Space	cps		pu	pu	
2)	Short Space	cps				
	Long Space	cps		pu		
3)	Short Space	cps				
	Long Space	cps		pu		

POST-SURVEY VERIFICATION						
	Detector	Readings		Measured	Target	
1)	Short Space	cps				
	Long Space	cps		pu	pu	
2)	Short Space	cps				
	Long Space	cps		pu	pu	
3)	Short Space	cps				
	Long Space	cps		pu	pu	

Gamma Ray Calibration Report

Serial Number:	GR6
Tool Model:	OPEN
Performed:	Mon Sep 10 14:29:23 2018

Calibrator Value:	150.0	GAPI
-------------------	-------	------

Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps

Sensitivity:	0.5500	GAPI/cps
--------------	--------	----------