



COMPENSATED DENSITY/NEUTRON LOG

Company	MAI OIL OPERATIONS, INC.
Well	MORGENSTERN-HERRES UNIT #1
Field	McCAULEY
County	BARTON
State	KANSAS
Company	MAI OIL OPERATIONS, INC.
Well	MORGENSTERN-HERRES UNIT #1
Field	McCAULEY
County	BARTON
State	KANSAS
Location:	API # : 15-009-26186-00-00
Permanent Datum	438' FSL & 107' FWL
Log Measured From	GROUND LEVEL Elevation 1867'
Drilling Measured From	KELLY BUSHING 8' A.G.L. KELLY BUSHING Elevation K.B. 1875' D.F. 1873' G.L. 1867'
Date	09/24/17
Run Number	ONE
Depth Driller	3435
Depth Logger	3435
Bottom Logged Interval	3411
Top Log Interval	2700
Casing Driller	8 5/8" @ 453
Casing Logger	453
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.2/53
pH / Fluid Loss	10.5/10.2
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.1@78
Rmt @ Meas. Temp	.83@78
Rmc @ Meas. Temp	1.32@78
Source of Rmt / Rmc	MEASURED
Rm @ BHT	.77@111
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	///
Maximum Recorded Temperature	111F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	GUS PFANENSTIEL
Witnessed By	JIM MUSGROVE

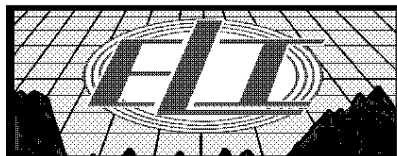
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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

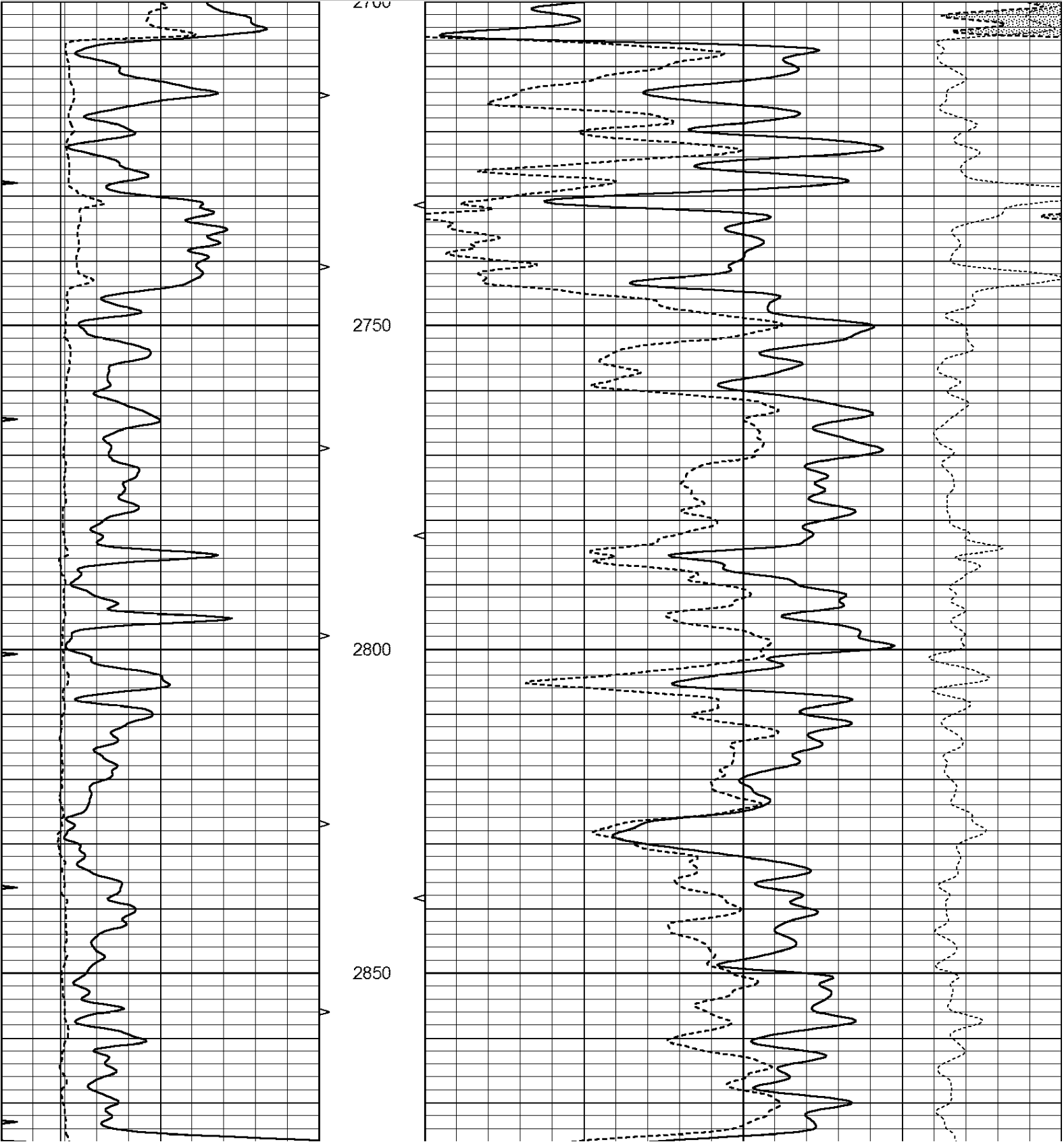
DIRECTIONS
1 EAST OF HOISINGTON,
1/4 NORTH, EAST INTO.

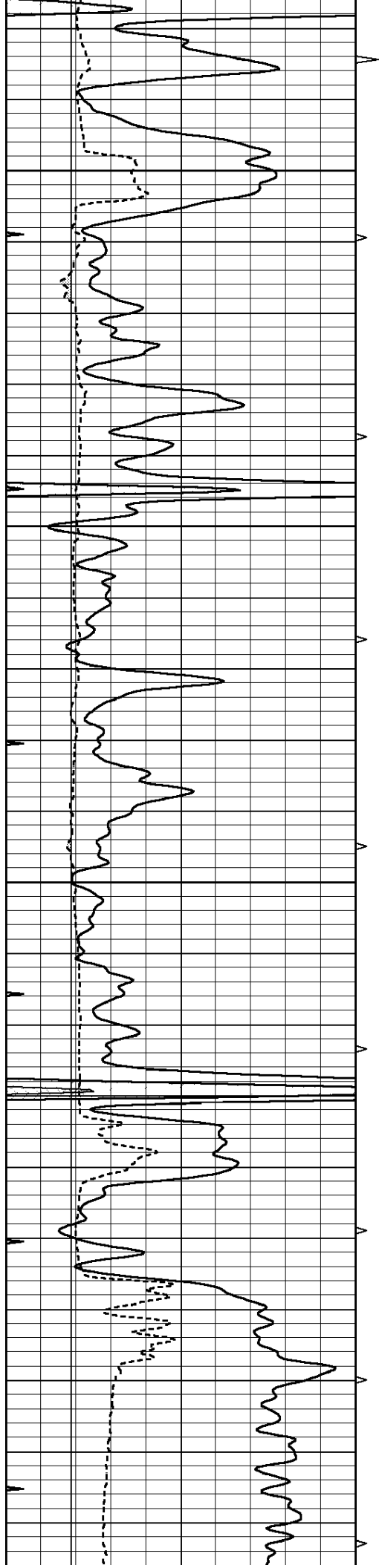


MAIN PASS

Database File: 1824ddn.db
Dataset Pathname: pass3.1
Presentation Format: den_neu
Dataset Creation: Sun Sep 24 17:34:20 2017 by Calc Open-Cased 090629
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		



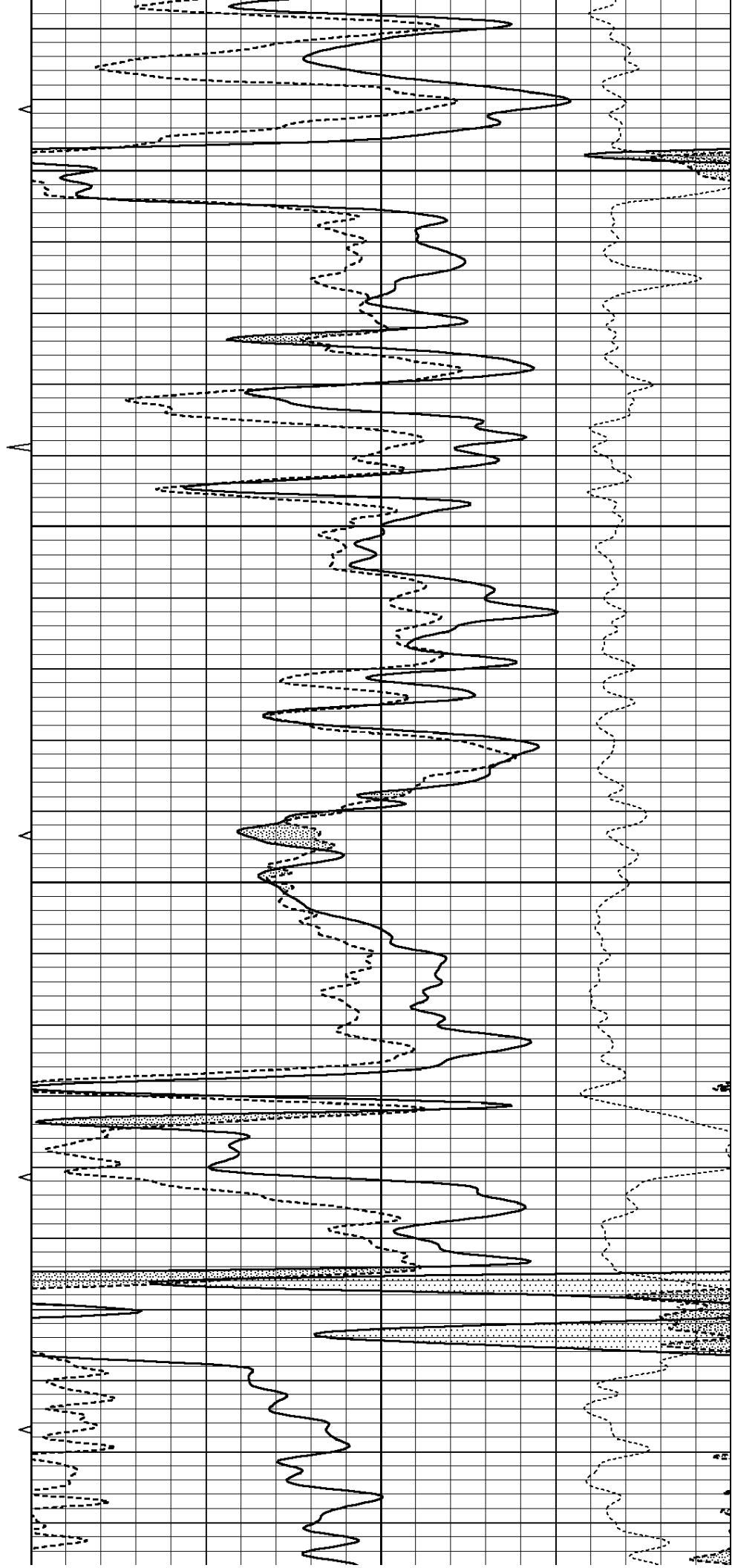


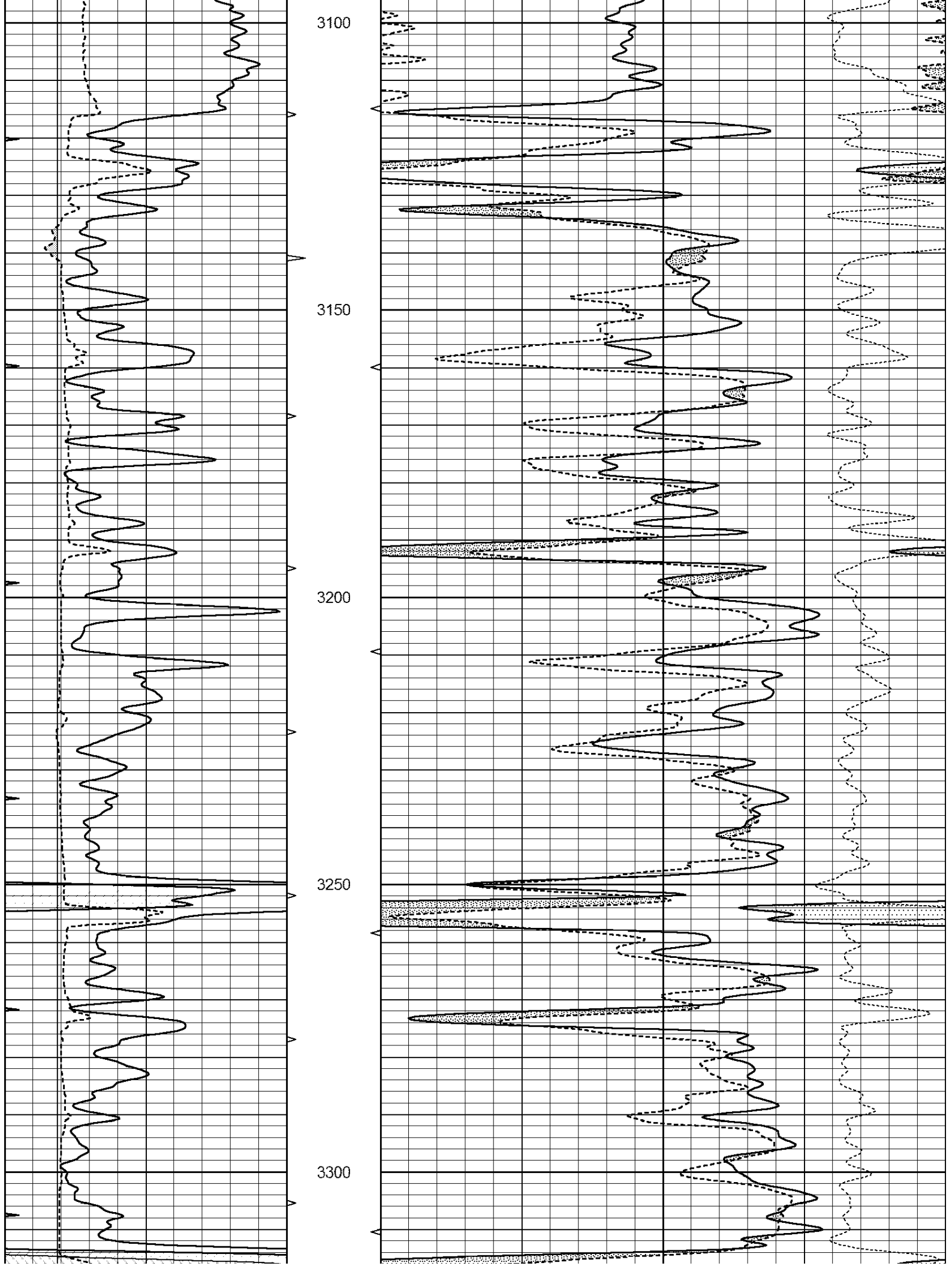
2900

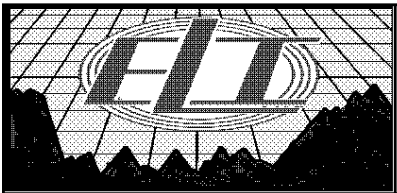
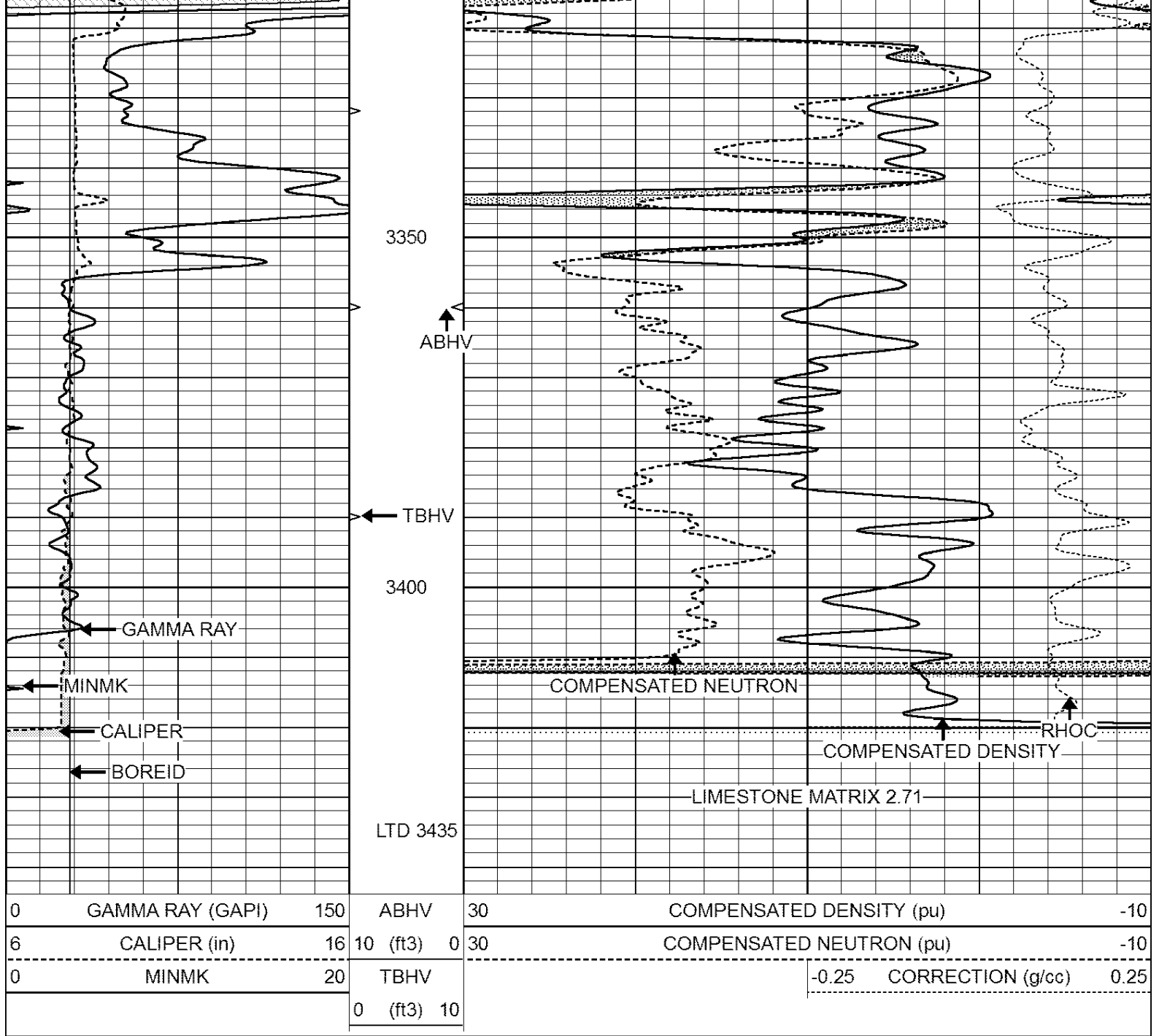
2950

3000

3050

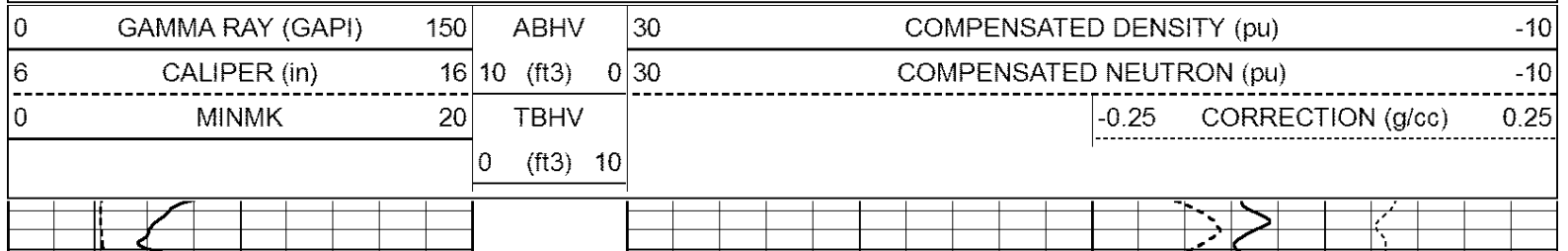


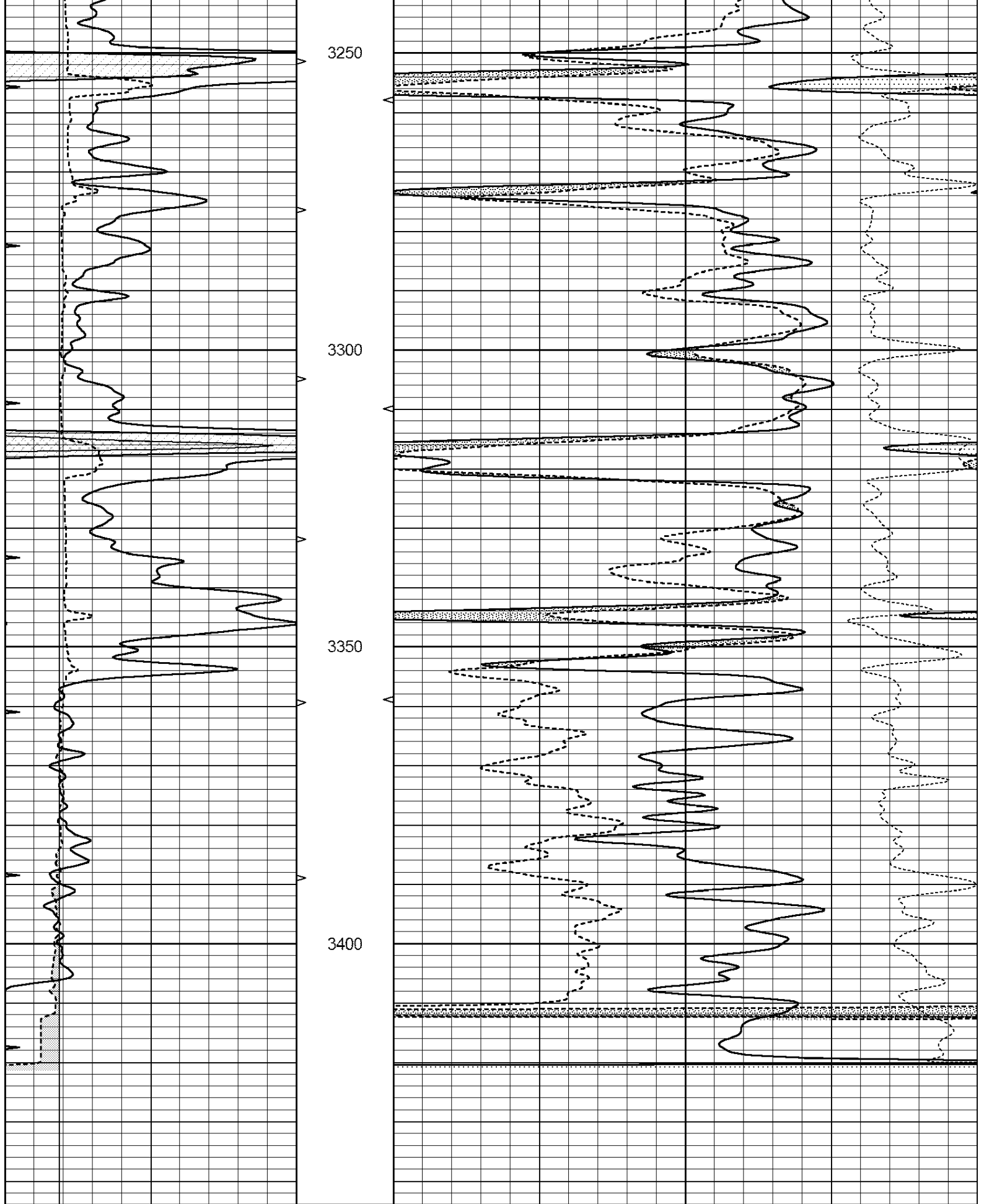




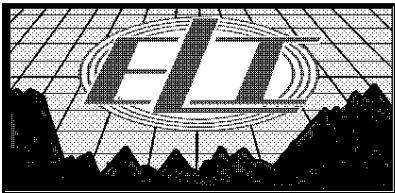
REPEAT SECTION

Database File: 1824ddn.db
 Dataset Pathname: pass2.1
 Presentation Format: den_neu
 Dataset Creation: Sun Sep 24 16:22:03 2017 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240





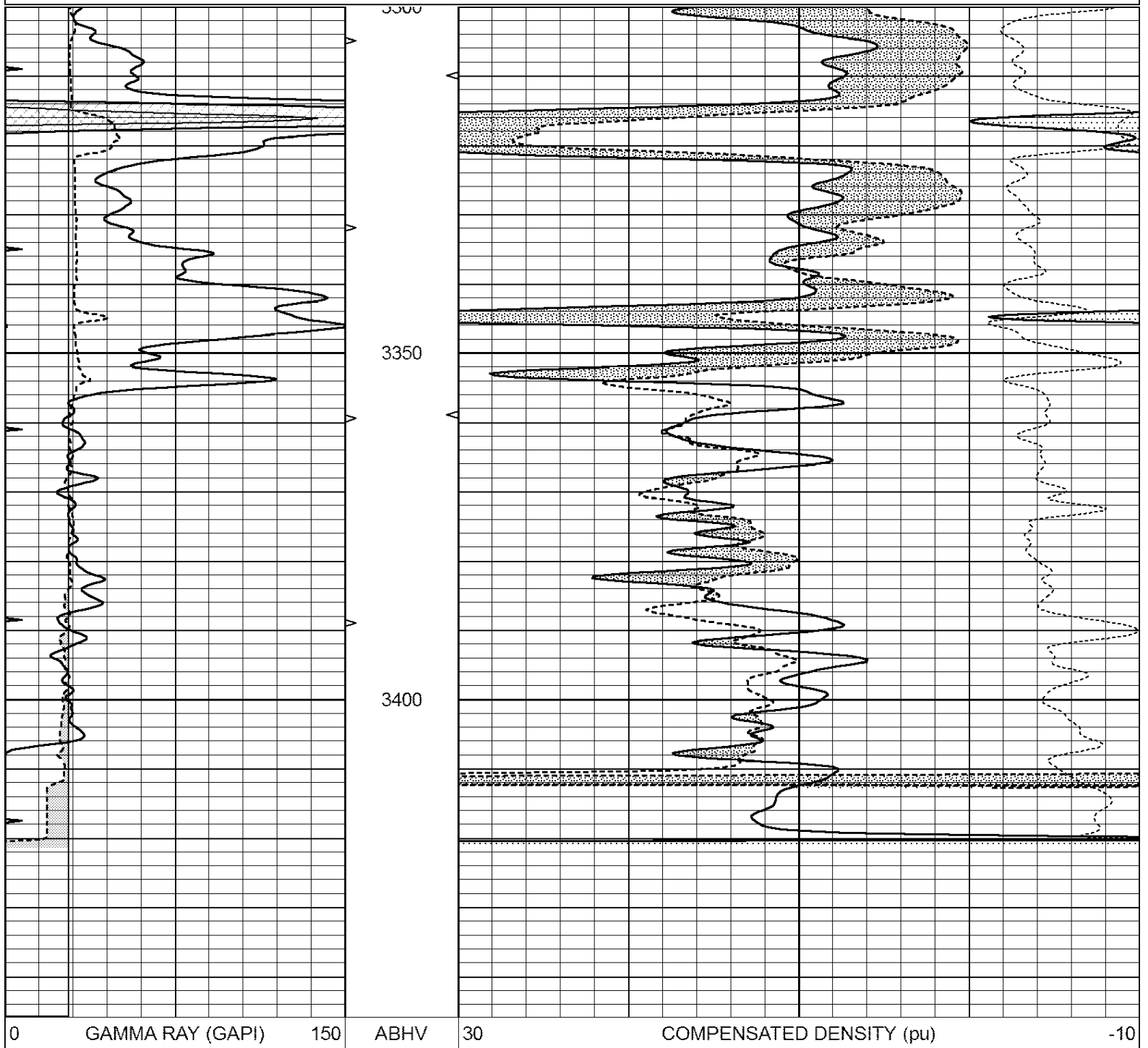
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		



DOLOMITE MATRIX 2.81

Database File: 1824ddn.db
Dataset Pathname: pass2DOL
Presentation Format: den_neu
Dataset Creation: Sun Sep 24 16:27:35 2017
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				



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:	pe2.db					
Dataset Pathname:	pass2					
Dataset Creation:	Mon Aug 21 11:58:02 2017 by Log Open-Cased 090629					

Dual Induction Calibration Report						
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Serial-Model:	PROBE8-DILG					
Surface Cal Performed:	Mon Aug 21 11:58:18 2017					
Downhole Cal Performed:	Mon Aug 21 11:58:21 2017					
After Survey Verification Performed:	Mon Aug 21 11:58:23 2017					

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: 002			Model: PRB			

Master Calibration					Performed Mon Aug 21 11:56:41 2017	
	Background	Magnesium	Aluminum	Sandstone		
Window 1	833.6	7394.2	2287.3	8111.8		cps
Window 2	768.9	6322.3	1995.6	6800.0		cps
Window 3	621.5	3261.9	1186.4	3380.9		cps
Window 4	184.2	185.7	184.9	184.8		cps
Long Space	0.0	5553.4	1226.6	6031.1		cps
Short Space	1.2	1307.5	903.9	1387.7		cps
Rho		1.7100	2.5900	1.3800		g/cc
Pe		0.0000	2.5700	1.5500		

Rib Angle	: 46.3	Rib Slope	: 1.045	Density/Spine Ratio	: 0.566
Spine Angle	: 76.3	Spine Slope	: 4.090	Spine Intercept	: -20.7

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	

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Compensated Neutron Calibration Report
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Serial Number:	6I
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 Long Space	cps cps	pu	pu
Gamma Ray Calibration Report				
	Serial Number:	GR6		
	Tool Model:	OPEN		
	Performed:	Mon Aug 21 11:59:01 2017		
	Calibrator Value:	150.0	GAPI	
	Background Reading:	0.0	cps	
	Calibrator Reading:	276.0	cps	
	Sensitivity:	0.5500	GAPI/cps	