



COMPENSATED DENSITY / NEUTRON LOG

Company PIONEER OPERATIONS, LLC.

Well RICHERSON #1

Field UNNAMED

County ROOKS State KANSAS

Location: API # : 15-163-24484-0000

4913' FSL & 4424' FEL

SW - NE - NW - NW

SEC 7 TWP 8S RGE 18W

GROUND LEVEL Elevation 1980

Log Measured From KELLY BUSHING 7' A.G.L.

Drilling Measured From KELLY BUSHING

Other Services
DIL

Elevation

K.B. 1987

D.F. 1985

G.L. 1980

Date 8/15/23

Run Number ONE

Depth Driller 3480

Depth Logger 3470

Bottom Logged Interval 3446

Top Log Interval 2800

Casing Driller 8 5/8" @ 218'

Casing Logger 218

Bit Size 7 7/8"

Type Fluid in Hole CHEMICAL MUD CHLORIDES 2,400 PPM

Density / Viscosity 9.2/63

pH / Fluid Loss 10.5/5.8

Source of Sample FLOWLINE

Rm @ Meas. Temp 1.10 @ 83F

Rmf @ Meas. Temp .825 @ 83F

Rmc @ Meas. Temp 1.32 @ 83F

Source of Rmf / Rmc MEASUREMENT

Rm @ BHT .823 @ 111F

Time Circulation Stopped 2 HOURS

Time Logger on Bottom 12:30 P.M.

Maximum Recorded Temperature 111F

Equipment Number 922339

Location HAYS, KANSAS

Recorded By JEFF LUEBBERS

Witnessed By JANET STAAB DAN WELLS

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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.

15-163-24484-0000

Comments

THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395
DIRECTIONS

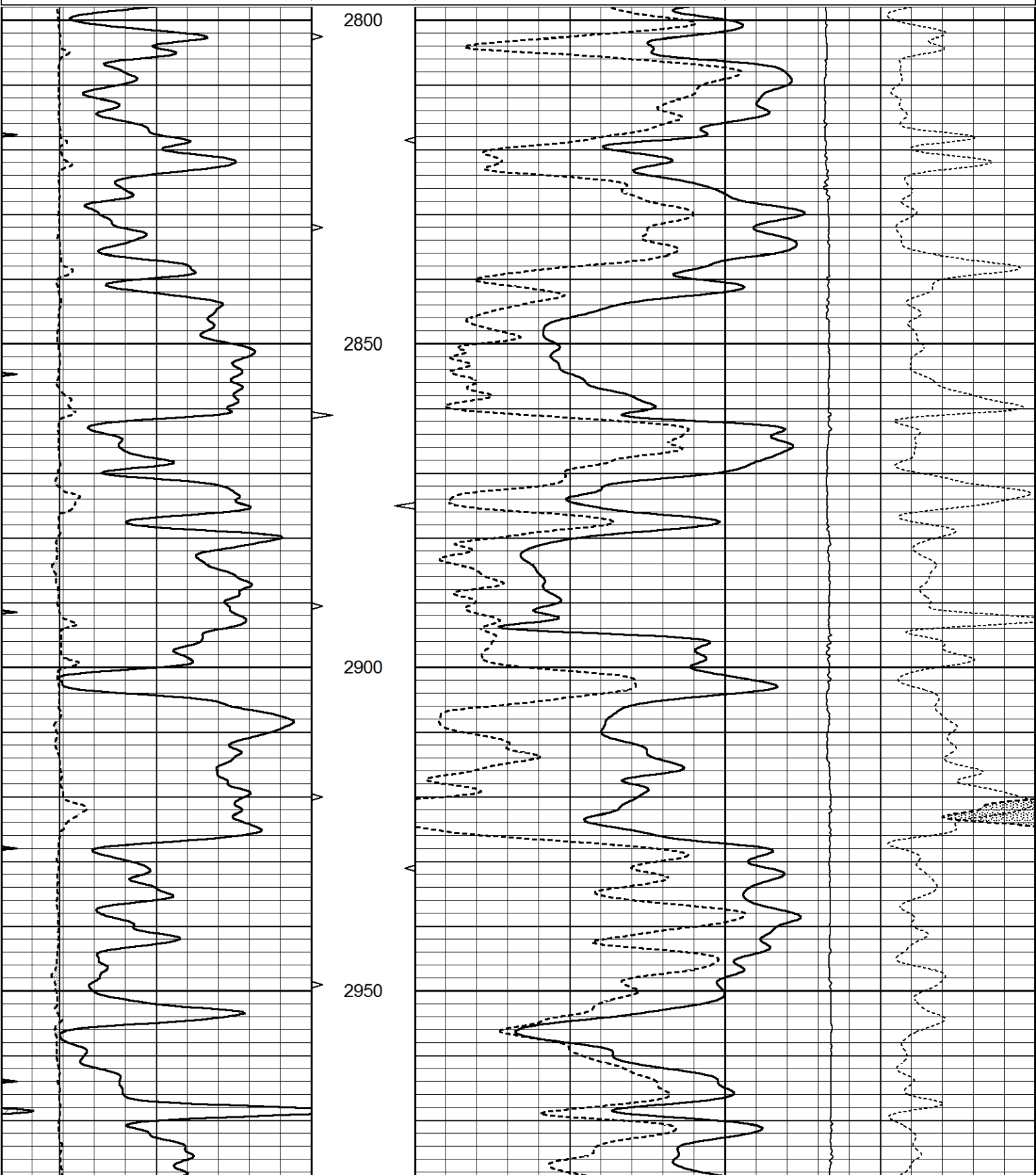
PLAINVILLE, KS., (4 WAY STOP) 9N. ON HWY 183 TO "N TERR RD." (WILKENS) 1W., 1/2S. TO
CURVE, 3 1/2W. TO "RD. 13", 1N., E. INTO

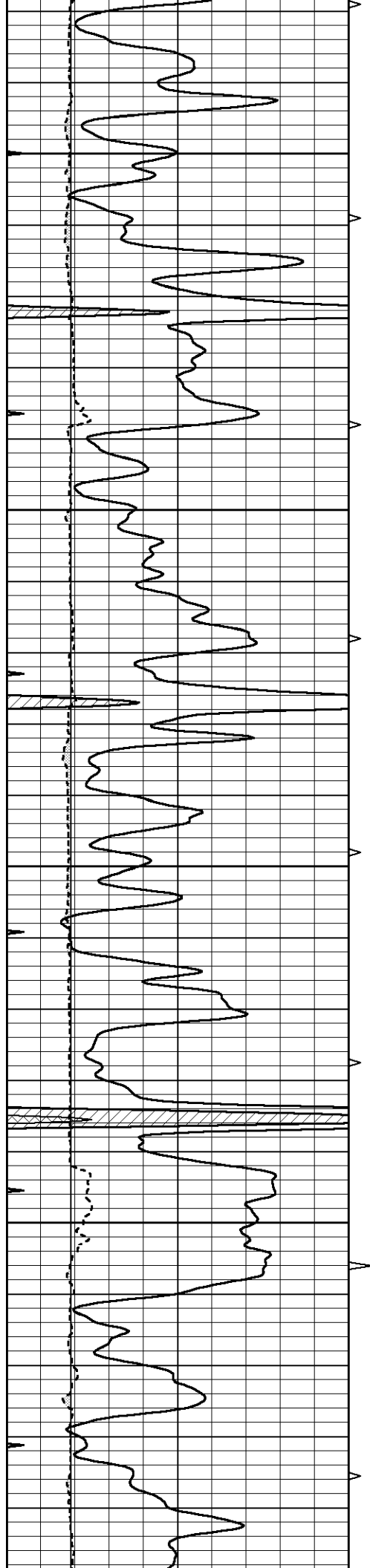


MAIN SECTION

Database File	7319ddn.db
Dataset Pathname	pass3.1M
Presentation Format	_den_neu
Dataset Creation	Tue Aug 15 13:47:33 2023
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)			-10	
6	DCAL (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	LTEN (lb)	5000	



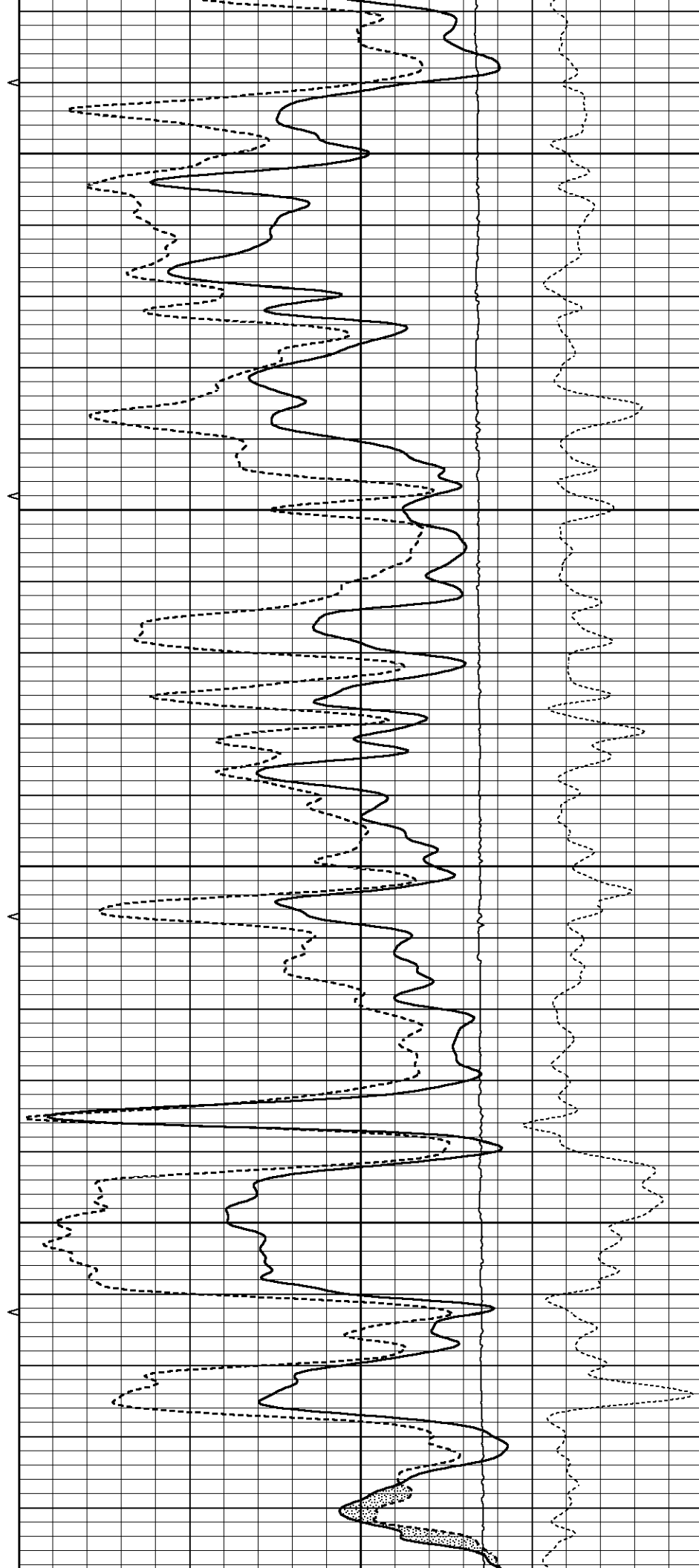


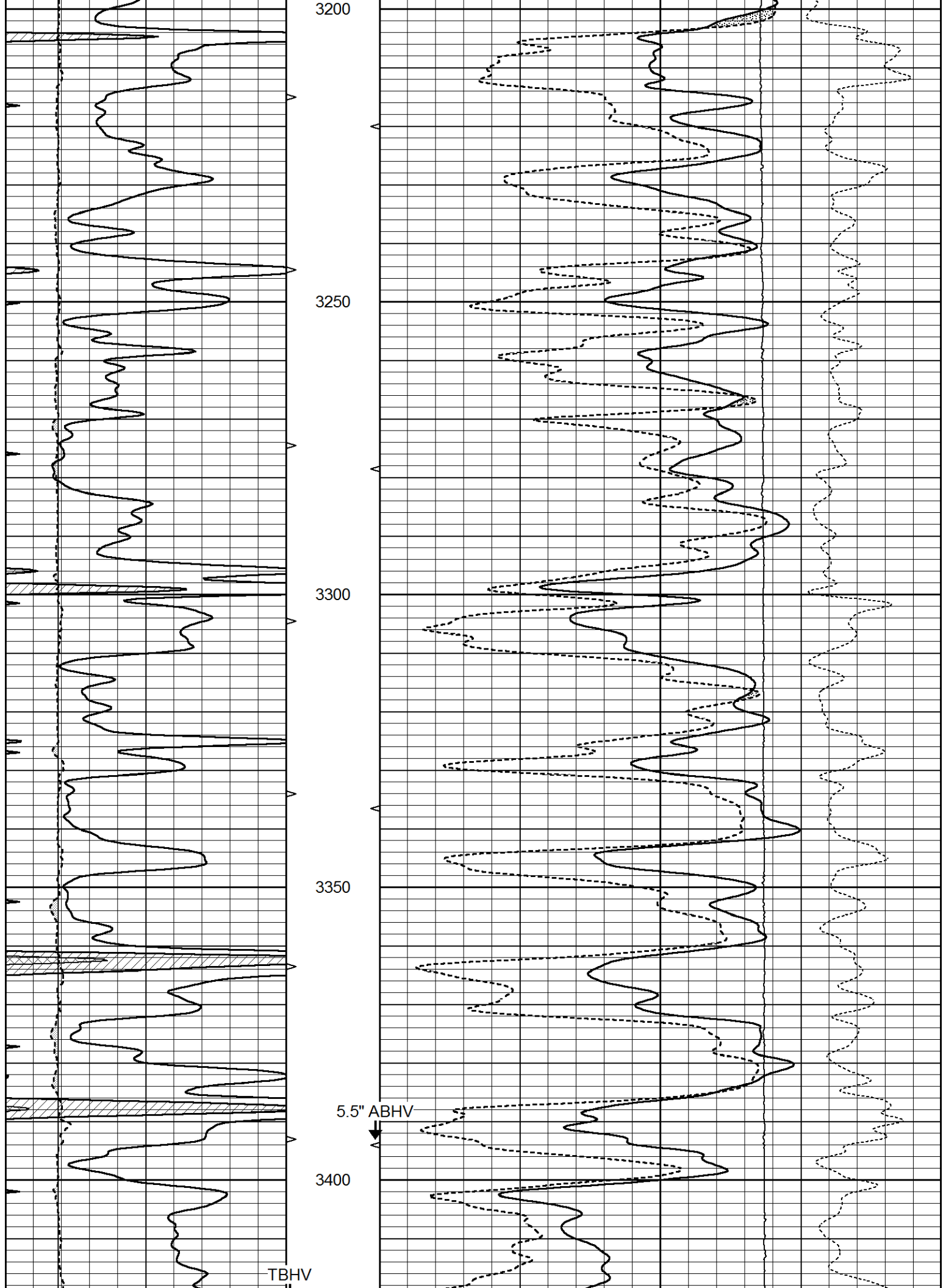
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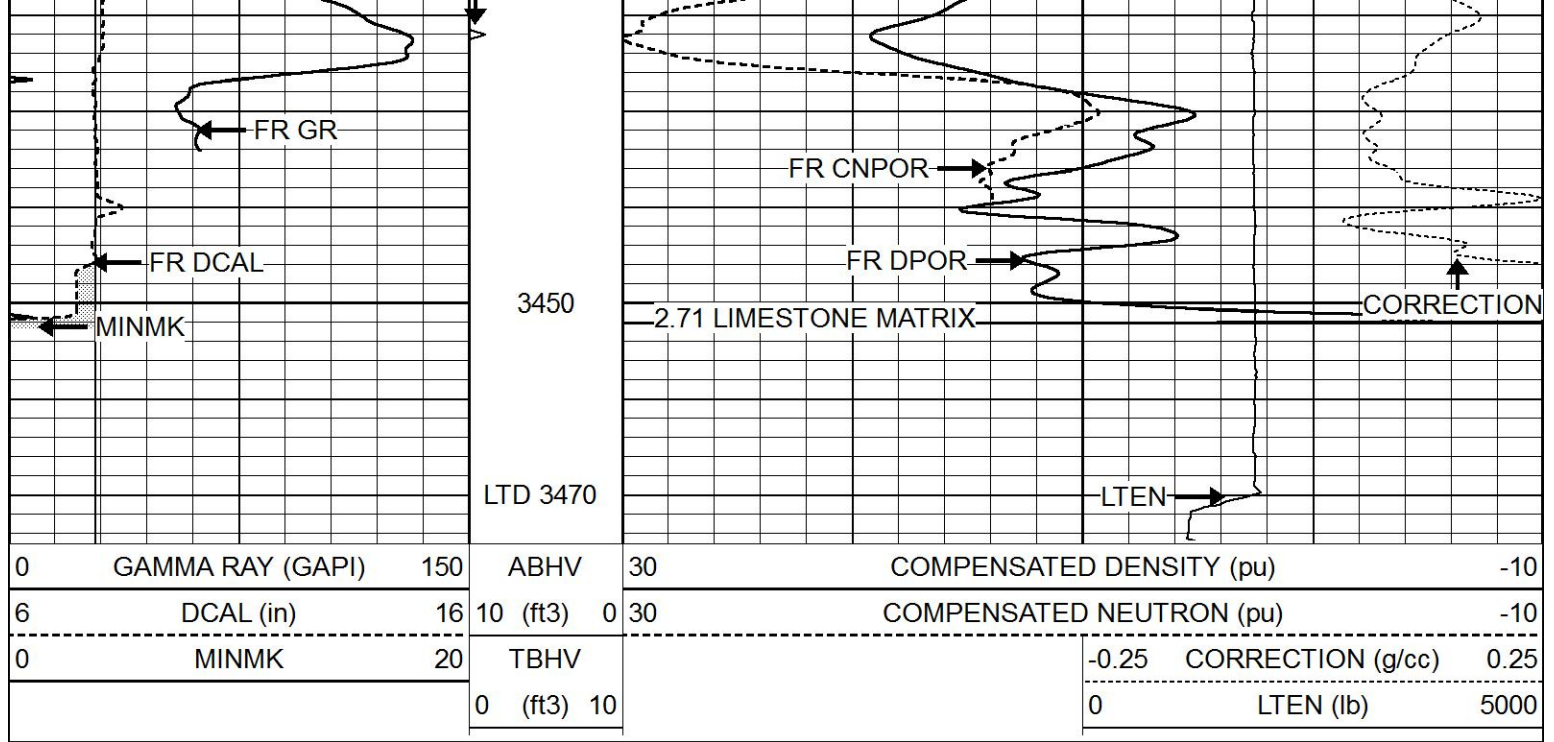
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3100

3150



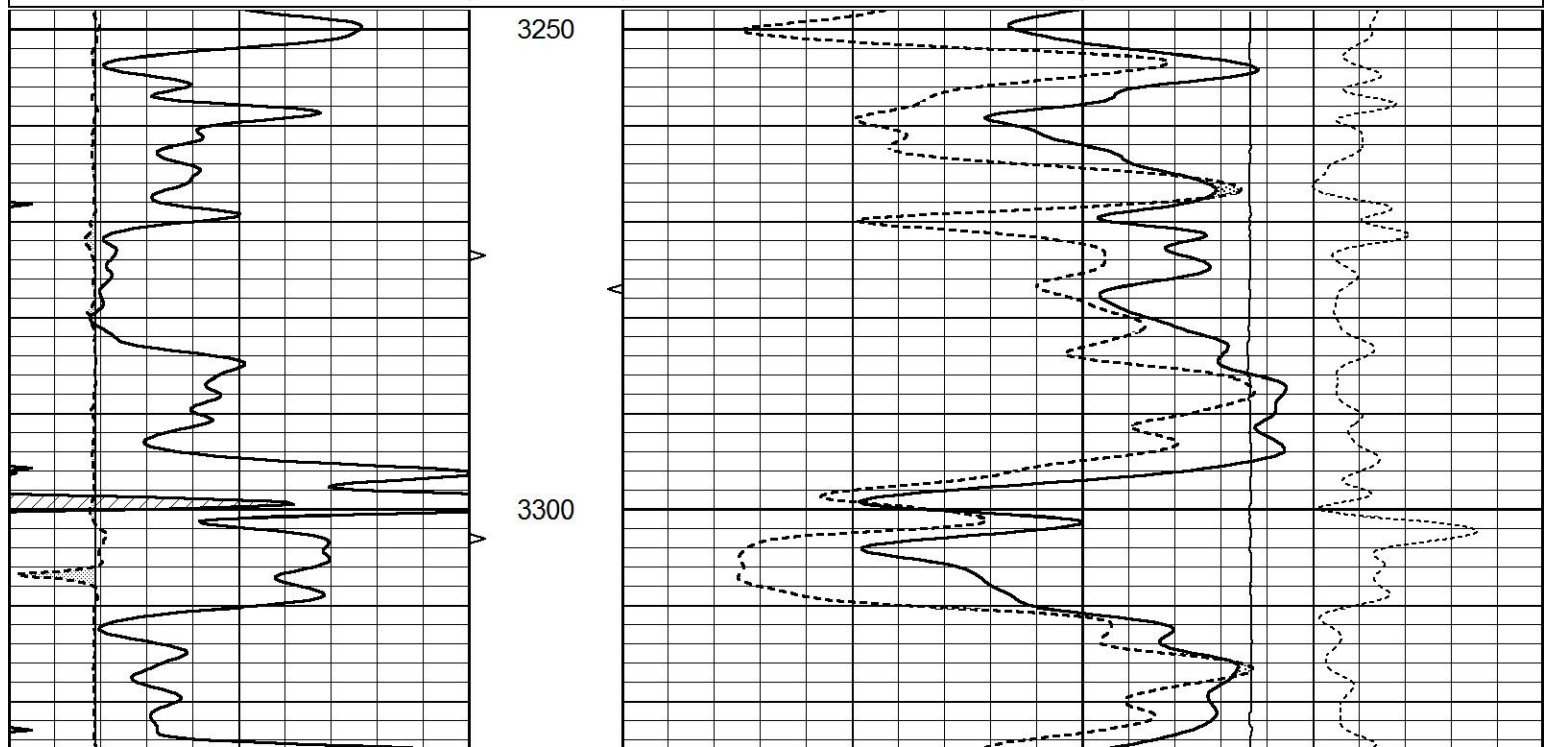


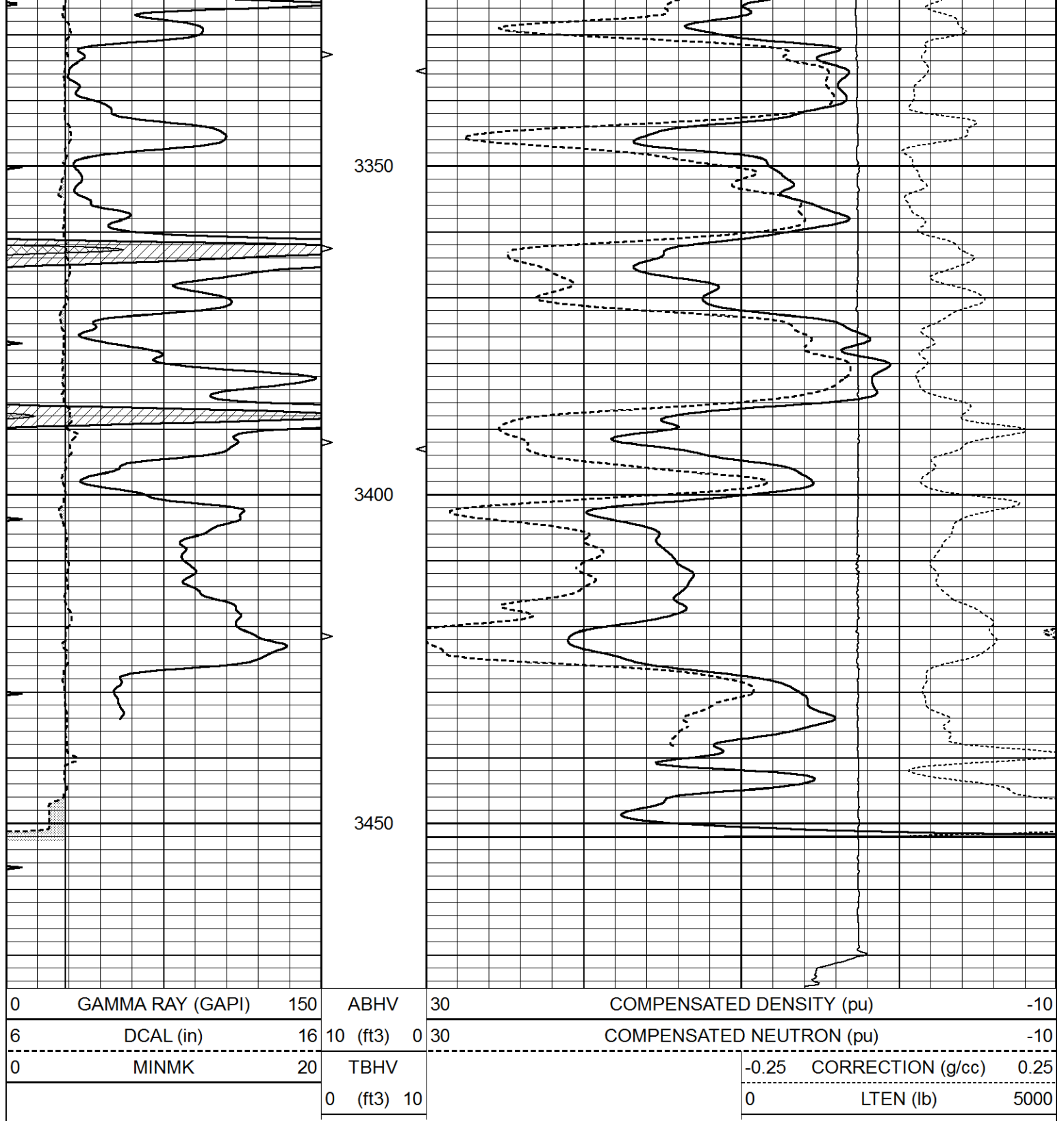


REPEAT SECTION

Database File 7319ddn.db
 Dataset Pathname pass2.1R
 Presentation Format _den_neu
 Dataset Creation Tue Aug 15 13:16:19 2023
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)			-10	
6	DCAL (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	LTEN (lb)





Calibration Report

Database File 7319ddn.db
Dataset Pathname pass3.1M
Dataset Creation Tue Aug 15 13:47:33 2023

Dual Induction Calibration Report

Serial-Model: DIL7-GEAR
Surface Cal Performed: Sat Aug 05 01:43:07 2023
Downhole Cal Performed: Tue Apr 17 15:38:44 2007
After Survey Verification Performed: Tue Apr 17 15:38:40 2007

Surface Calibration

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.019	0.660	V	0.000	400.000	mmho/m	660.000	18.000
Medium	-0.006	0.655	V	0.000	462.500	mmho/m	720.000	-32.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.010	0.665	V	0.000	400.000	mmho/m	610.018	-5.925
Medium	0.009	0.655	V	0.000	400.000	mmho/m	618.983	-5.564

Downhole Calibration								
Readings				References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	3.372	400.834	mmho/m	0.556	401.206	mmho/m	1.008	-2.843
Medium	13.557	467.446	mmho/m	9.465	462.114	mmho/m	0.997	-4.055
Shallow	2.521	0.019	V	500.000	2.000	Ohm-m	225.000	0.000

After Survey Verification								
Readings				Targets			Results	
Internal:	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	3.372	400.834	mmho/m	1.008	-2.843
Medium	0.000	0.000	mmho/m	13.557	467.446	mmho/m	0.997	-4.055
Shallow	2.500	0.000	Ohm-m	500.000	2.000	Ohm-m	225.000	0.000

Litho Density Calibration Report								
Serial: 001				Model: PRB				

Master Calibration				Performed Tue Aug 02 14:54:49 2022				
	Background	Magnesium		Aluminum	Aluminum+Fe			
Window 1	1540.1	9840.1		3279.8	3001.8			cps
Window 2	1435.6	8495.4		2920.3	2720.3			cps
Window 3	1167.4	4527.9		1868.6	1810.1			cps
Window 4	344.6	343.5		346.7	342.3			cps
Long Space	0.0	7059.8		1484.8	1284.7			cps
Short Space	3.3	2502.7		1618.3	1368.5			cps
Rho		1.7100		2.5900	0.0000			g/cc
Pe		2.0000		2.7500	5.7900			
Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio			: 0.544	
Spine Angle	: 74.4	Spine Slope	: 3.576	Spine Intercept			: -19.1	

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				
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After Survey Verification					
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:	070808PMC		
		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:		070558			
Tool Model:		OPEN_GR			
Performed:		Mon Aug 14 04:12:15 2023			
Calibrator Value:		1.0	GAPI		
Background Reading:		0.0	cps		
Calibrator Reading:		1.0	cps		
Sensitivity:		0.3000	GAPI/cps		