



**COMPENSATED
DENSITY/NEUTRON
LOG**

Company BLACKHAWK PRODUCTION, CO.

Well SANDERS #11

Field TOULON

County ELLIS State KANSAS

Location: API #: 15-051-27011-0000

1170' FNL & 330' FWL

SEC 10 TWP 14S RGE 17W

Permanent Datum GROUND LEVEL Elevation 2010
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services
CDL/CNL
ML

Elevation

K.B. 2018
D.F. 2016
G.L. 2010

Date	8/26/21		
Run Number	ONE		
Depth Driller	3630		
Depth Logger	3631		
Bottom Logged Interval	3611		
Top Log Interval	2850		
Casing Driller	8 5/8" @ 1225		
Casing Logger	1225		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.0/56		
pH / Fluid Loss	10.4/8.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.5@ 70F		
Rmf @ Meas. Temp	.38@ 70F		
Rmc @ Meas. Temp	.60 @ 70F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	.30@ 113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	////		
Maximum Recorded Temperature	113F		
Equipment Number	1523		
Location	HAYS, KANSAS		
Recorded By	GUS PFANENSTIEL		
Witnessed By	JASON T ALM		

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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

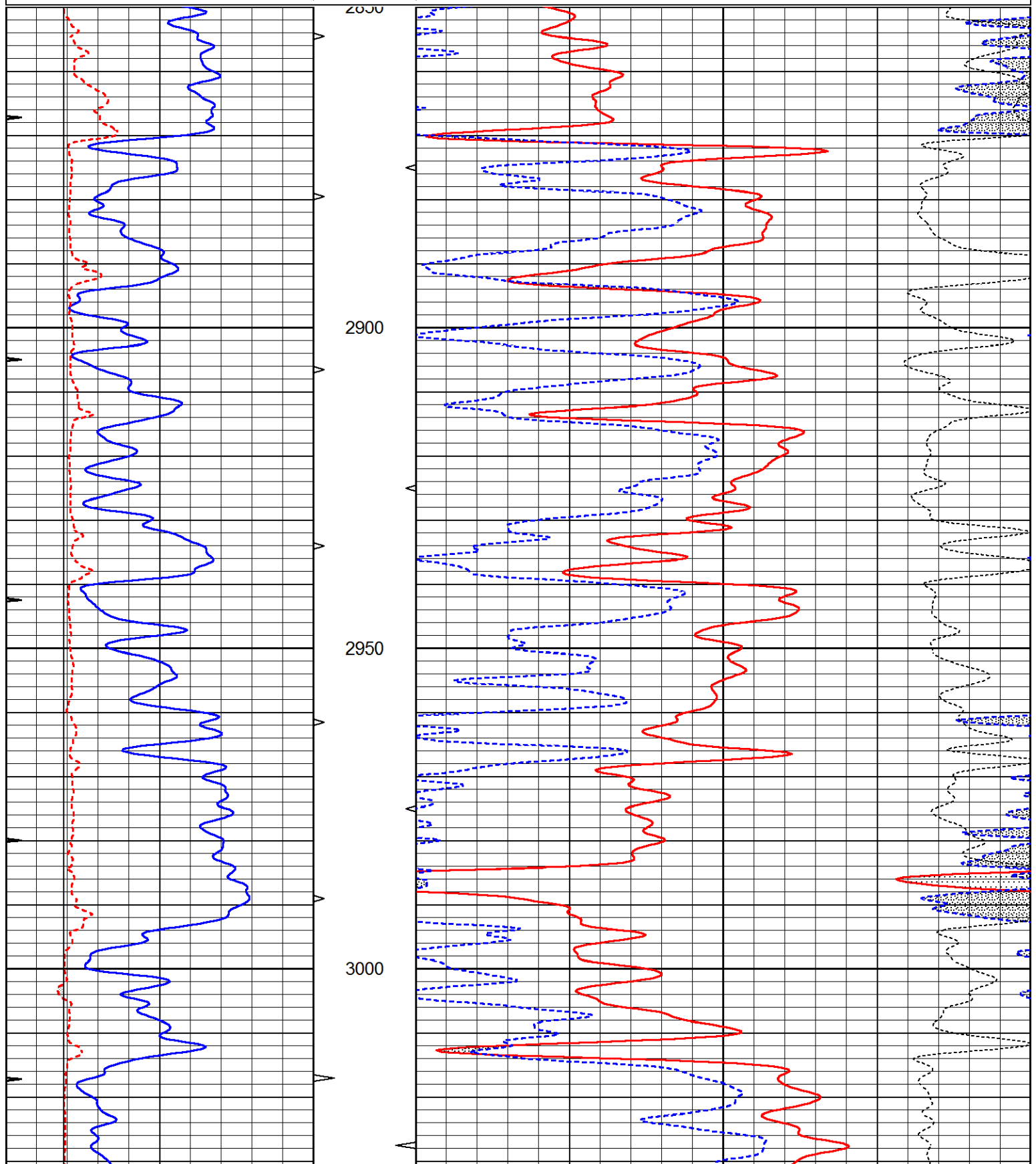
THANK YOU FOR USING ELI WIRELINE, HAYS, KS. (785) 628-6395
DIRECTIONS: TOULON EAST 2 MILES, NORTH 3/4 MILE, EAST INTO.

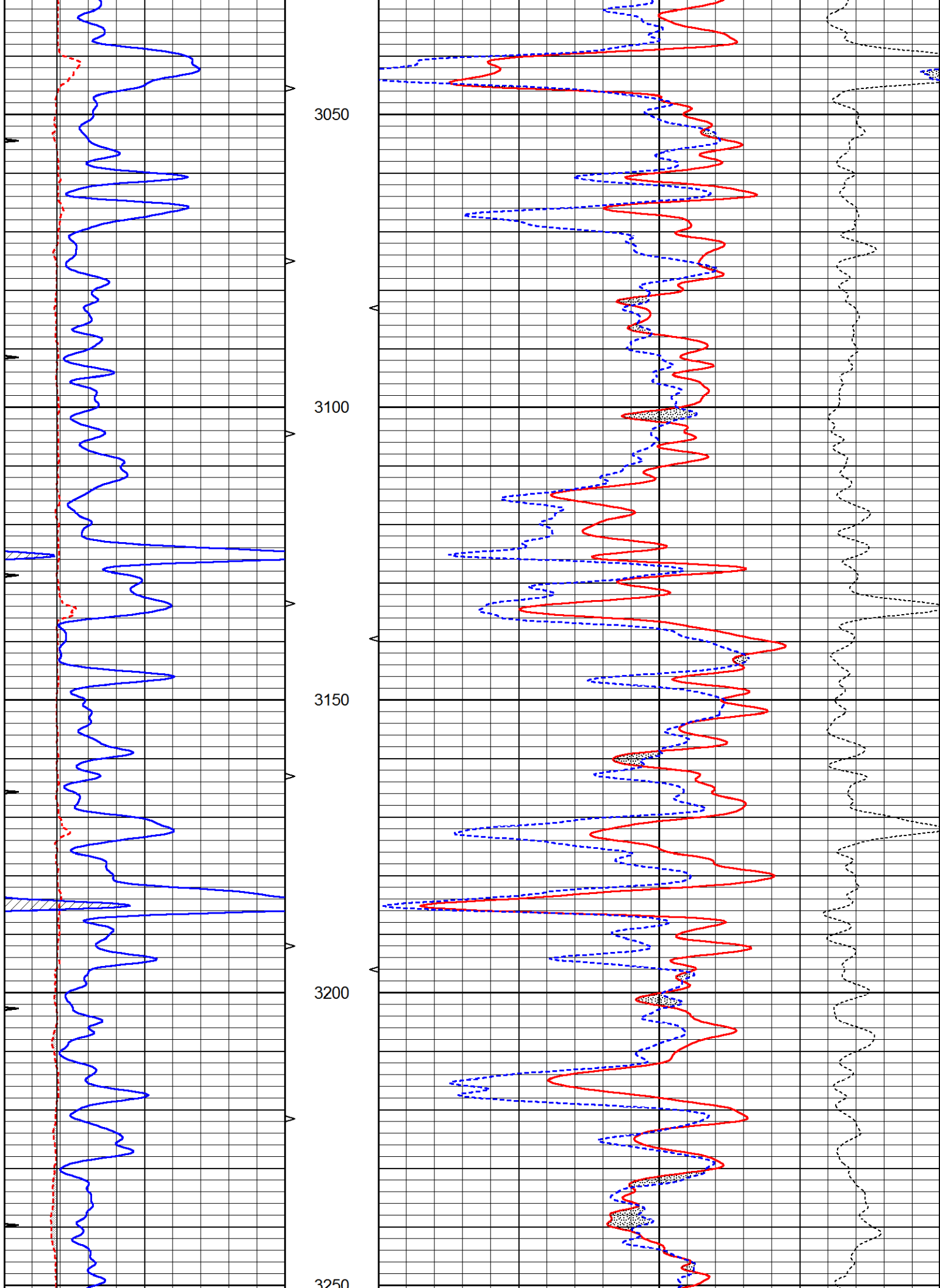


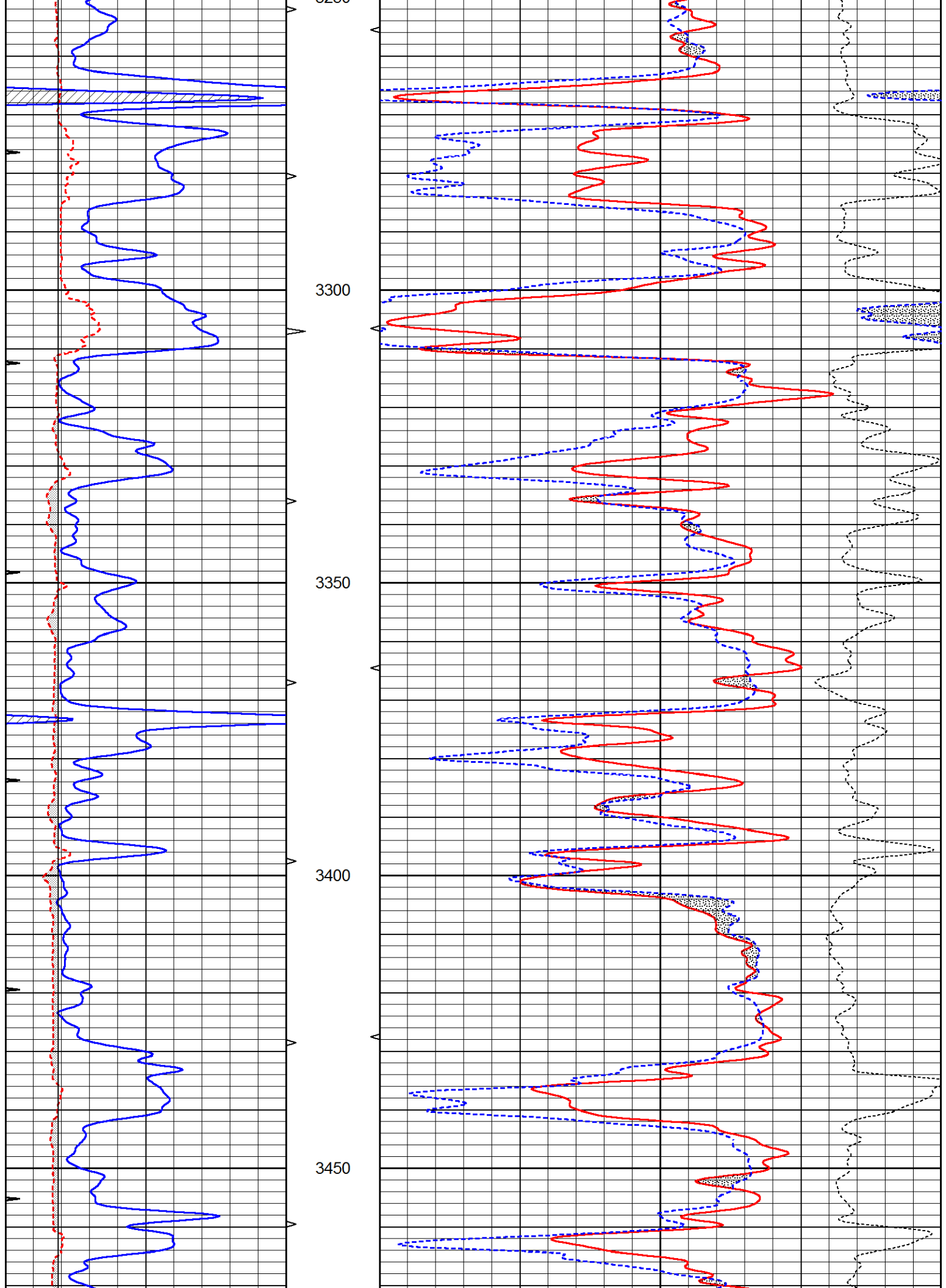
MAIN PASS

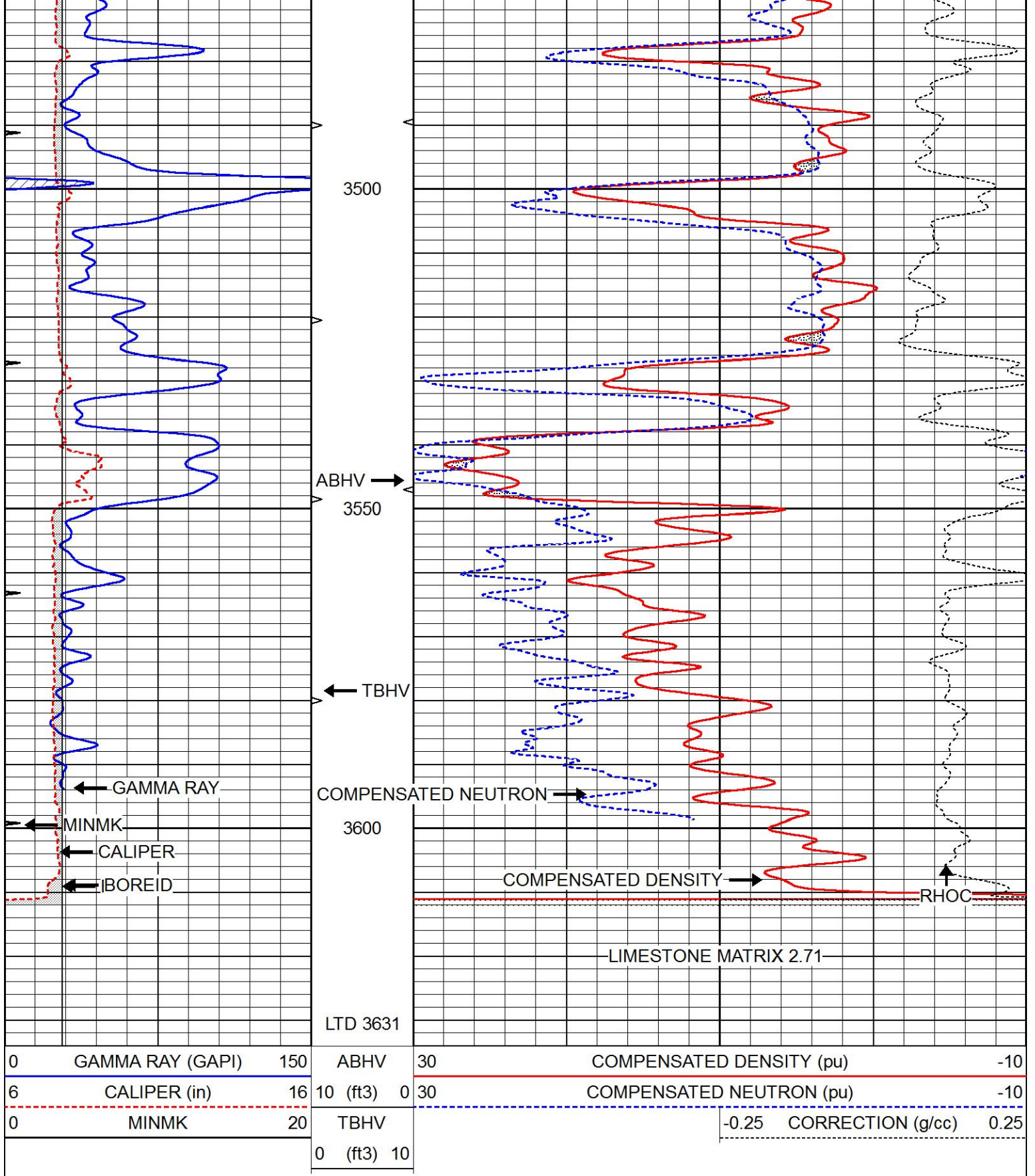
Database File 5618ddn.db
 Dataset Pathname pass3.1
 Presentation Format den_neu
 Dataset Creation Thu Aug 26 13:42:19 2021
 Charted by Depth in Feet scaled 1:240

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			



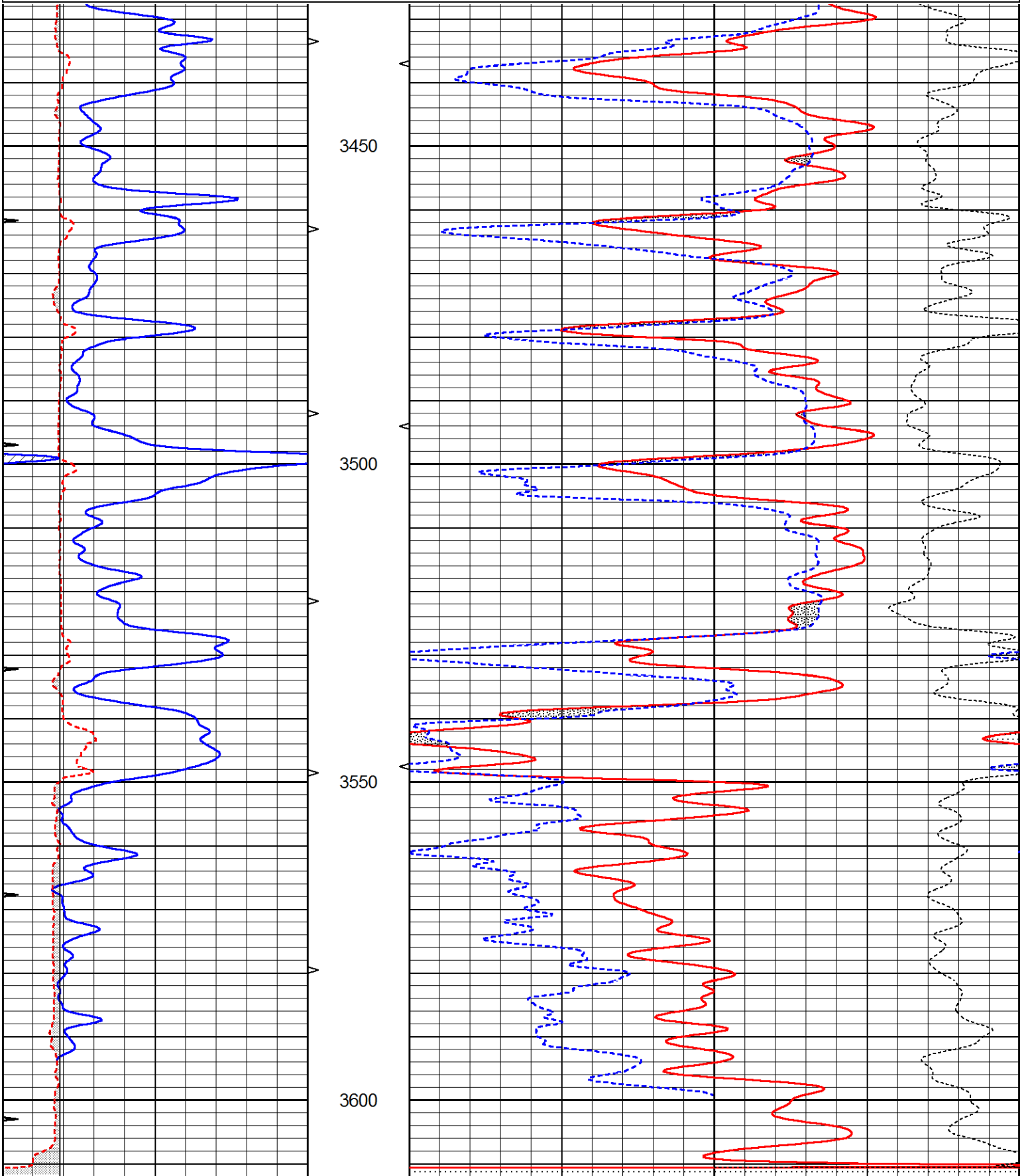






REPEAT SECTION

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 5618ddn.db
 Dataset Pathname pass2.1
 Dataset Creation Thu Aug 26 13:13:28 2021

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

Loop:	Readings				References			Results	
	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 Thu Mar 19 11:30:16 2020

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	1572 2	7510 8	2837 3	2643 1	cps

Window 1	1511.2	1701.9	2552.8	2409.9	cps
Window 2	1446.2	6523.9	2552.8	2409.9	cps
Window 3	1060.9	3611.4	1731.5	1684.8	cps
Window 4	145.5	363.4	363.2	368.1	cps
Long Space	0.0	5077.7	1106.6	963.7	cps
Short Space	3.1	1709.3	1103.4	916.9	cps
Rho		1.7100	2.5900	0.0000	g/cc
Pe		2.0000	2.7500	5.7900	

Rib Angle : 44.0 Rib Slope : 0.965 Density/Spine Ratio : 0.555
 Spine Angle : 74.0 Spine Slope : 3.481 Spine Intercept : -17.4

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: 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

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:	Thu Jul 30 20:04:35 2020		
Calibrator Value:	150.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	276.0	cps	
Sensitivity:	0.7500	GAPI/cps	