



MIDWEST WIRELINE

**DUAL COMPENSATED
POROSITY W/PE**

Company Cobalt Energy, LLC
Well Braun Unit #1-21
Field
County Graham
State Kansas

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Well Braun Unit #1-21
Field
County Graham State Kansas

Location: API #: 15-065-24285-00-00
NW/NW SW NW
1522 FNL & 259 FWL
SEC 21 TWP 10S RGE 22W
Permanent Datum Ground Level Elevation 2315
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing
Other Services
DIL/MEL
K.B. 2320
D.F.
G.L. 2315

Date	10/8/2023						
Run Number	One						
Type Log	CNL/CDL						
Depth Driller	3870						
Depth Logger	3868						
Bottom Logged Interval	3839						
Top Logged Interval	3200						
Type Fluid In Hole	Chemical						
Salinity, PPM CL	1800						
Density	9.2						
Level	Full						
Max. Rec. Temp. F	126						
Operating Rig Time	3 Hours						
Equipment -- Location	P-108 Hays						
Recorded By	D. Schmidt						
Witnessed By	Larry Nicholson						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	Casing Record	
One	12.25	0	220	8.625	23	From	To
Two	7.875	220	TD			0	220

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

Wakeeney,
North to D Rd (Graham County),
4 East, South into

39.171756859 -99.791031651

Log Measured From: Kelly Bushing 5 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew

Engineer: D. Schmidt
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: Larry Nicholson
Secondary Witness:
Secondary Witness:
Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.23		GR-M&W (105)	3.00	3.50	50.00
CNLSC CNSSC	37.13 36.38		CNT-M&W (210)	5.00	3.50	100.00
LCAL	28.21		MWLith-STEP LITHO Short (701-01)	8.40	5.00	250.00
LLW8N	28.21		ML-PSI STKBL ML (402)	7.58	4.00	65.00
LLW7N	28.21					
LLW6N	28.21					
LLW5N	28.21					
LLW4N	28.21					
LLW3N	28.21					
LLW2N	28.21					
LLW1N	28.21					
LSLOCK	27.96					
LLLOCK	27.96					
PELTMPR	27.96		DIL-M&W (505 HT)	18.25	3.50	220.00
LSHVNG	27.96					
LLHVNG	27.96					
LSW8N	27.71					
LSW7N	27.71					
LSW6N	27.71					
LSW5N	27.71					
LSW4N	27.71					
LSW3N	27.71					
LSW2N	27.71					
LSW1N	27.71					
MCAL	19.58					
MI	19.58					
MN	19.58					
RLL3F	15.50					
RLL3	15.50					
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: cobalt_braun unit 1-21.db: field/well/stkml/pass3.5
 Total length: 42.23 ft
 Total weight: 685.00 lb
 O.D.: 5.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_braun unit 1-21.db
 Dataset field/well/stkml/pass3.5/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	126	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	No	-13.6	-17	342	85	Off	3868

Variable Description

A : Cement Factor (a)
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.
 CASETHCK : Casing Thickness
 FLUIDDEN : Fluid Density
 M : Cement Exp (m)
 MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select
 PERFS : Perforation Flag
 SNDERR : Deep Sonde Error Correction
 SNDERRM : Medium Sonde Error Correction
 SPSHIFT : S.P. Baseline Offset
 SRFTEMP : Surface Temperature
 SZCOR : CN Size Cor. ?
 TDEPTH : Total Depth

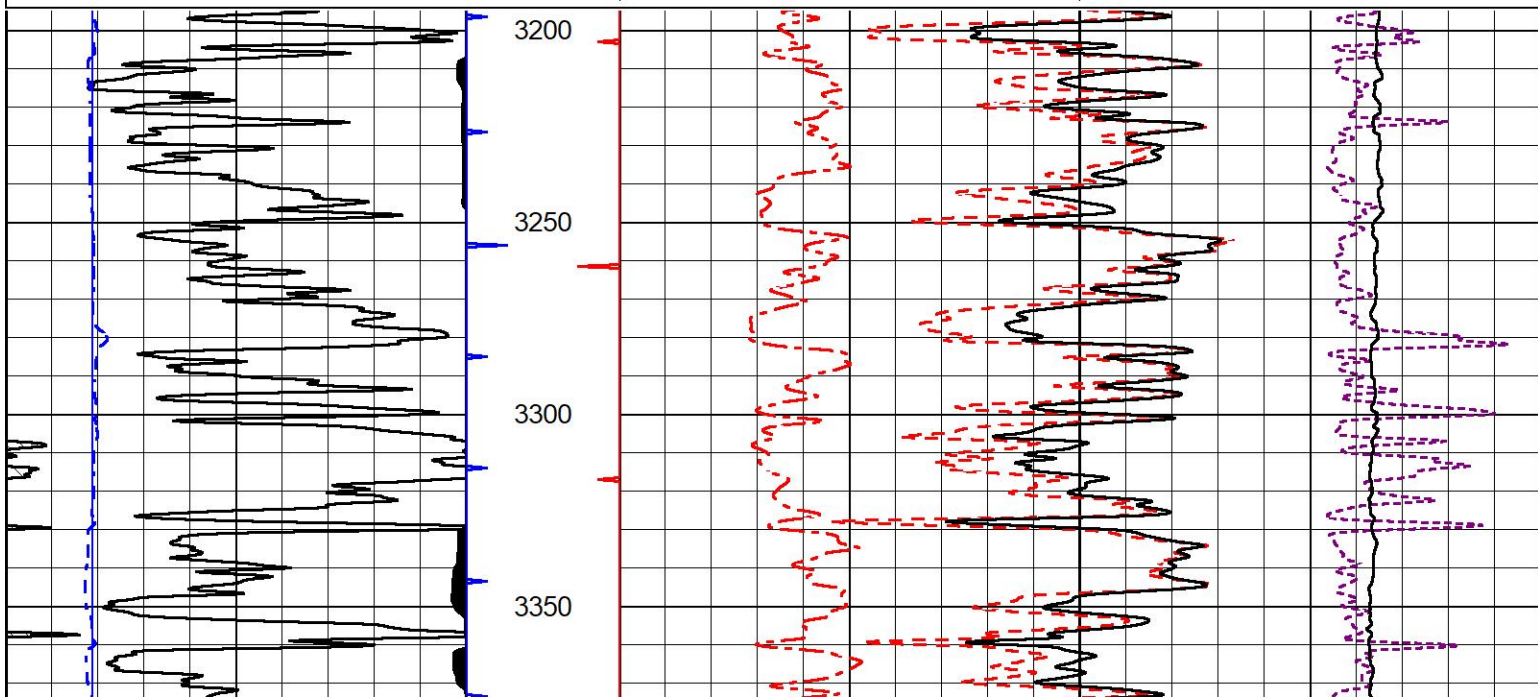


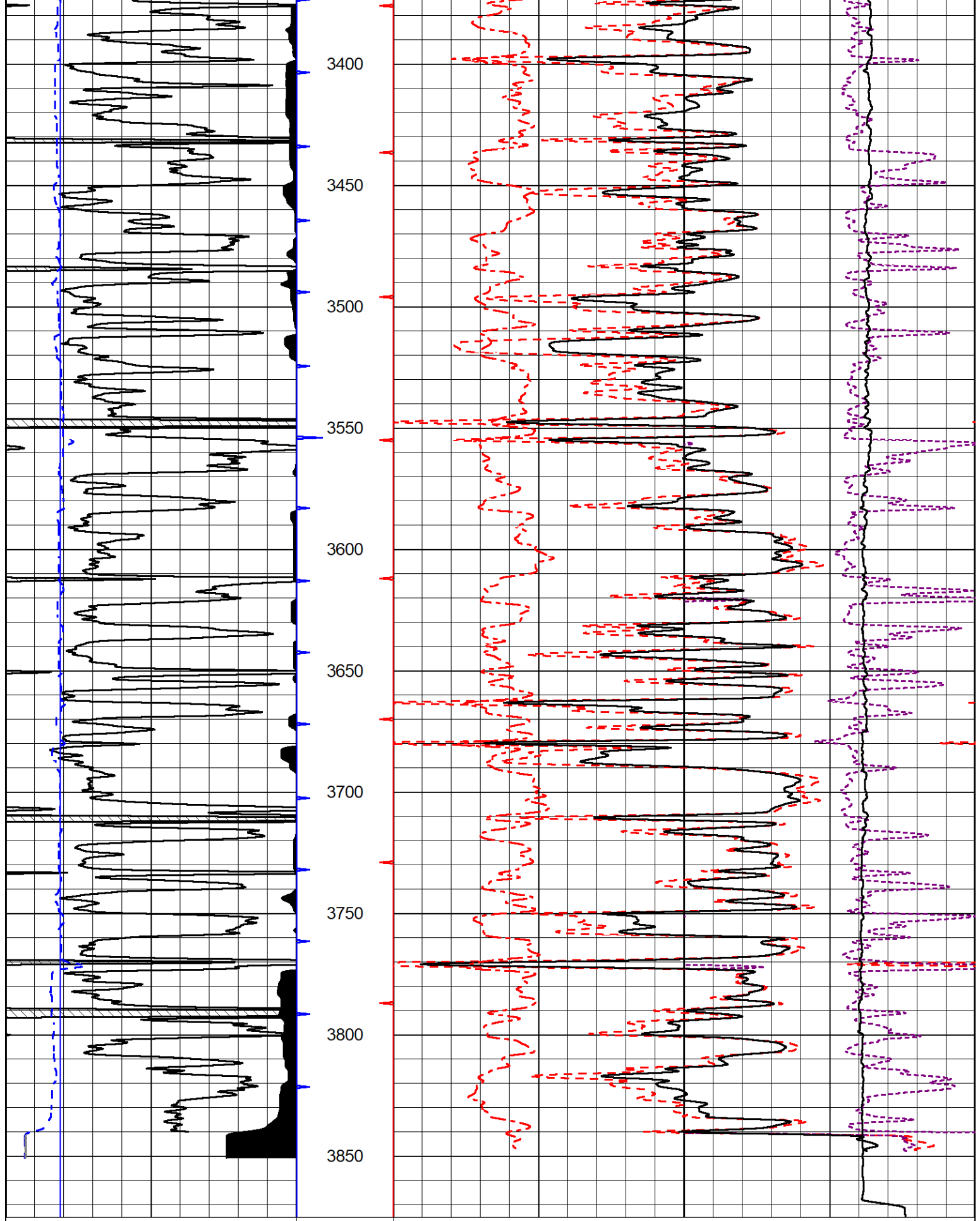
2" SCALE BULK DENSITY

MAIN PASS

Database File cobalt_braun unit 1-21.db
 Dataset Pathname stkml/pass3.2
 Presentation Format _cdlpe
 Dataset Creation Sun Oct 08 16:59:57 2023
 Charted by Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150	30	Compensated Density Porosity (pu)	-10
6	Caliper (in)	16	2	Bulk Density (g/cc)	3
			10000	Line Tension (lb)	0
			0	pecln	10 -0.25
				Correction (g/cc)	0.25





0 Gamma Ray (GAPI) 150
 6 Caliper (in) 16

30 Compensated Density Porosity (pu) -10
 2 Bulk Density (g/cc) 3

10000 Line Tension (lb) 0

0 pecln 10 -0.25 Correction (g/cc) 0.25

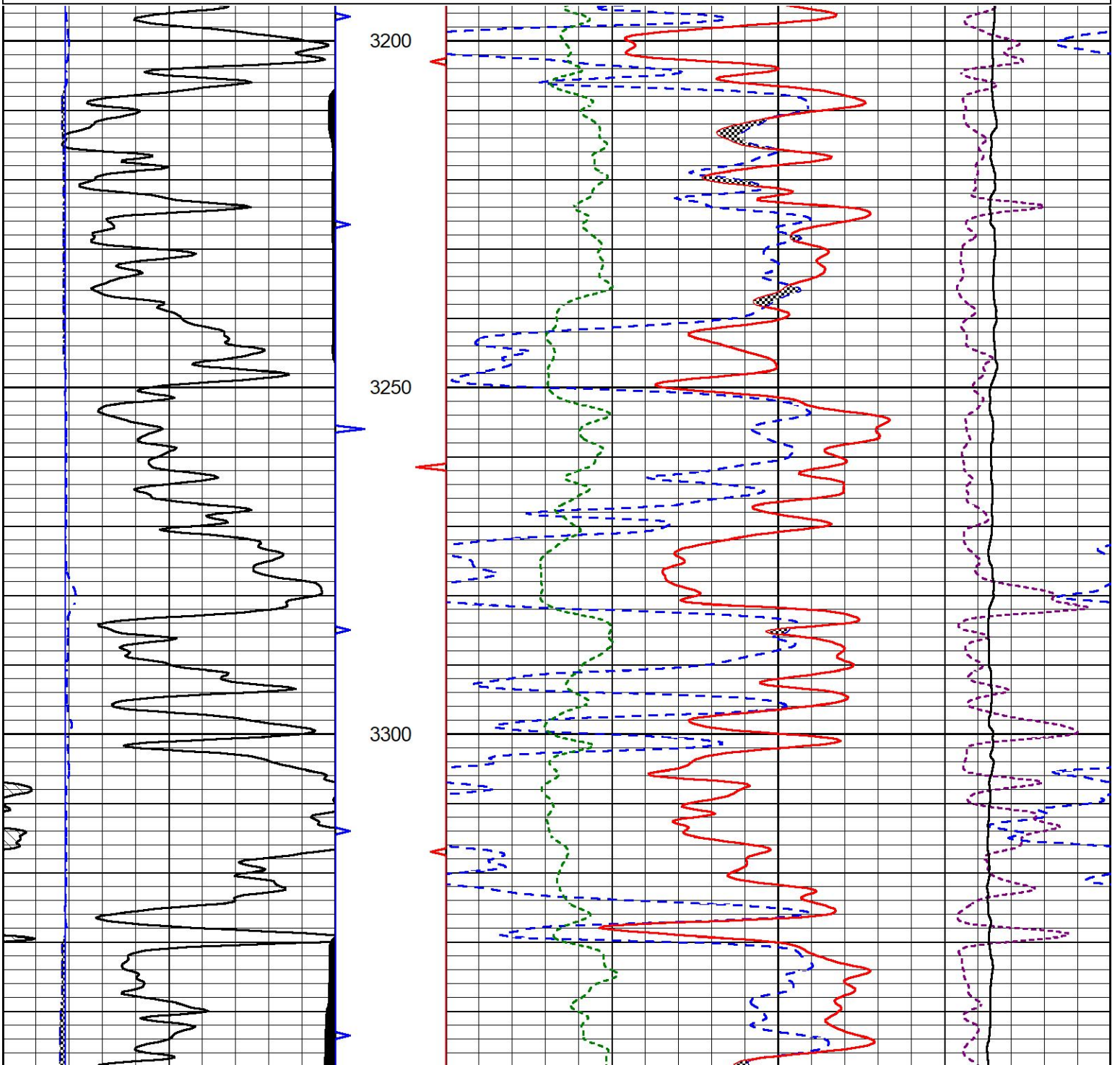


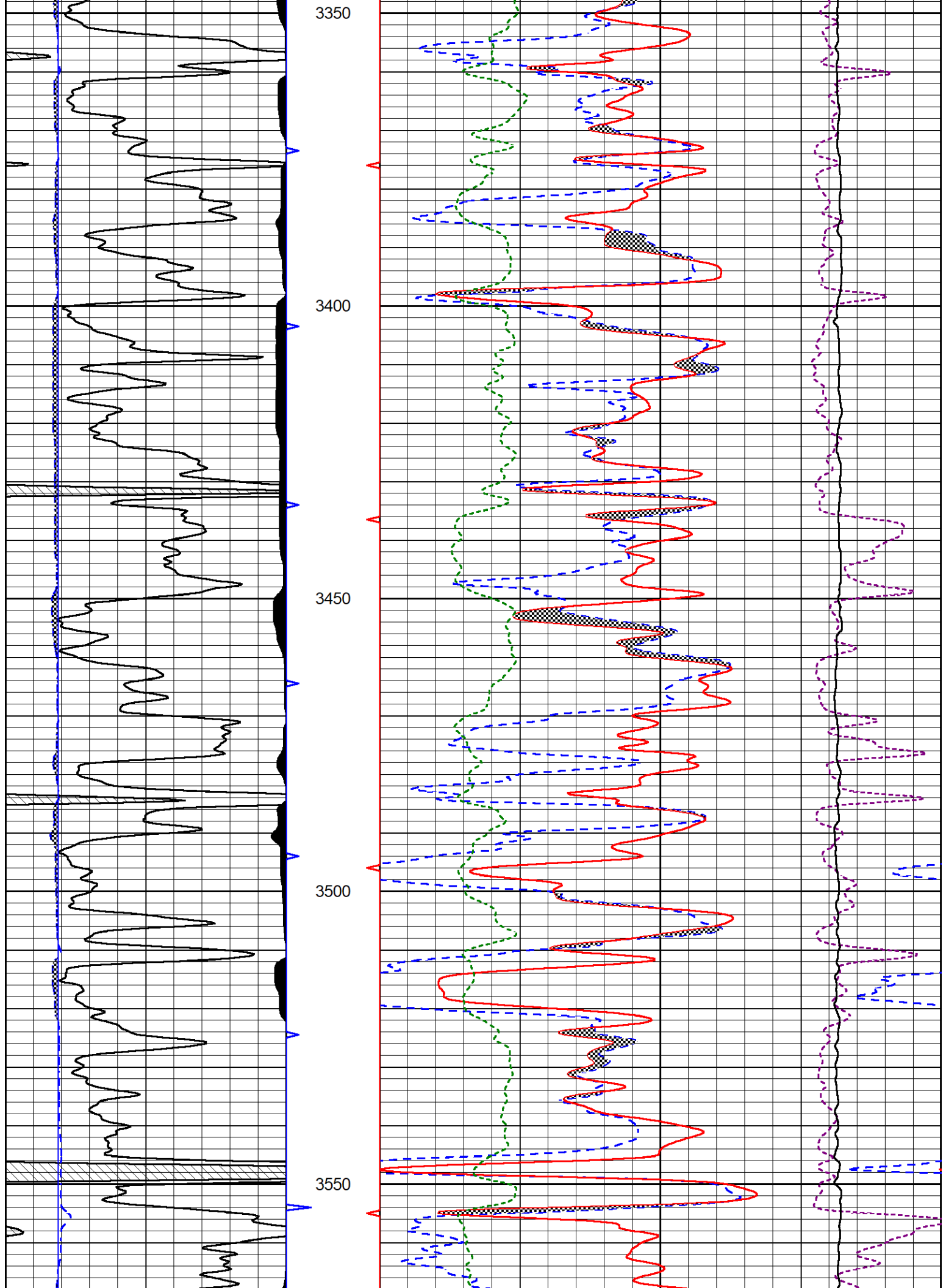
DETAIL SECTION

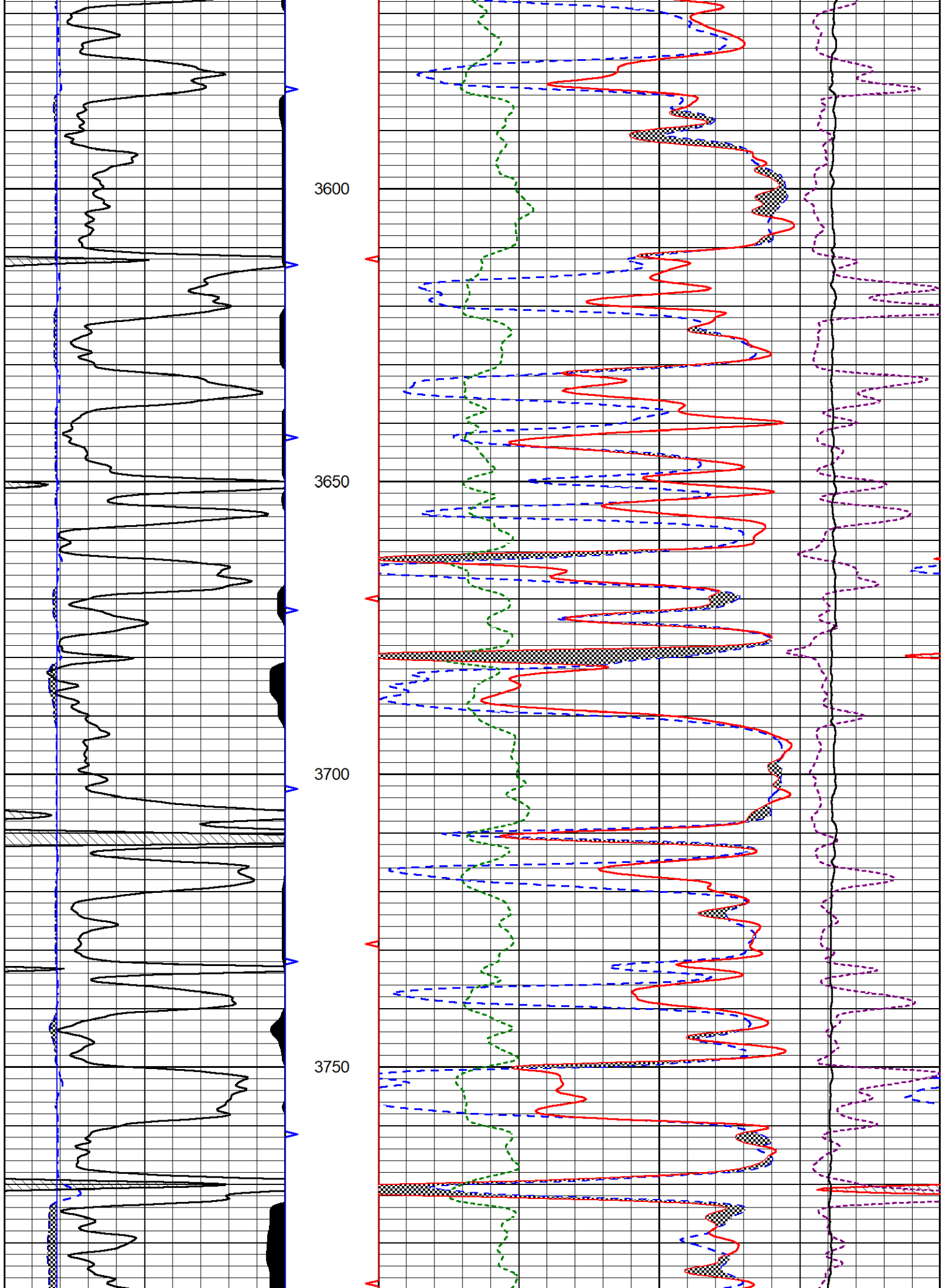
MAIN PASS

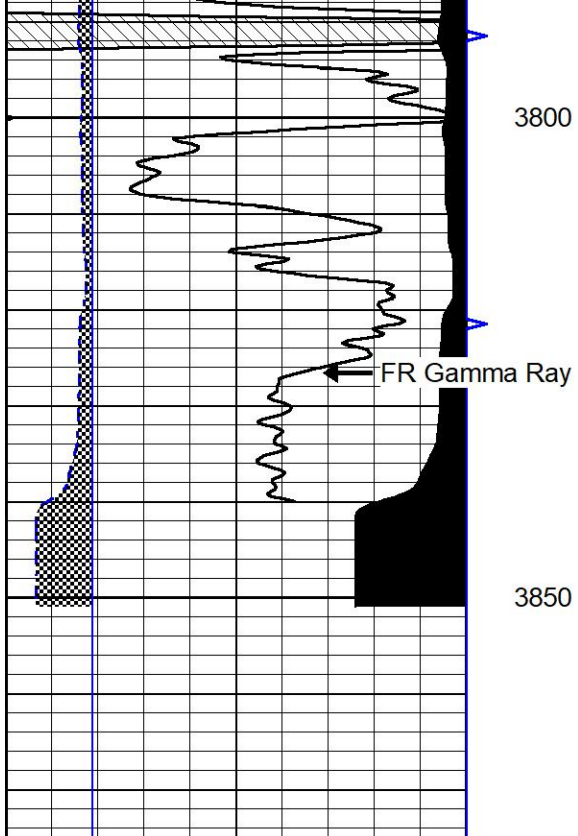
Database File cobalt_braun unit 1-21.db
 Dataset Pathname stkm1/pass3.5
 Presentation Format _CNDLS~4
 Dataset Creation Sun Oct 08 17:01:09 2023
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	30	CNPOR (pu)	-10
6	Caliper (in)	16	30	Compensated Density Porosity (pu)	-10
			10000	Line Tension (lb)	0
			0	PE	10 -0.25
				Corection (g/cc)	0.25







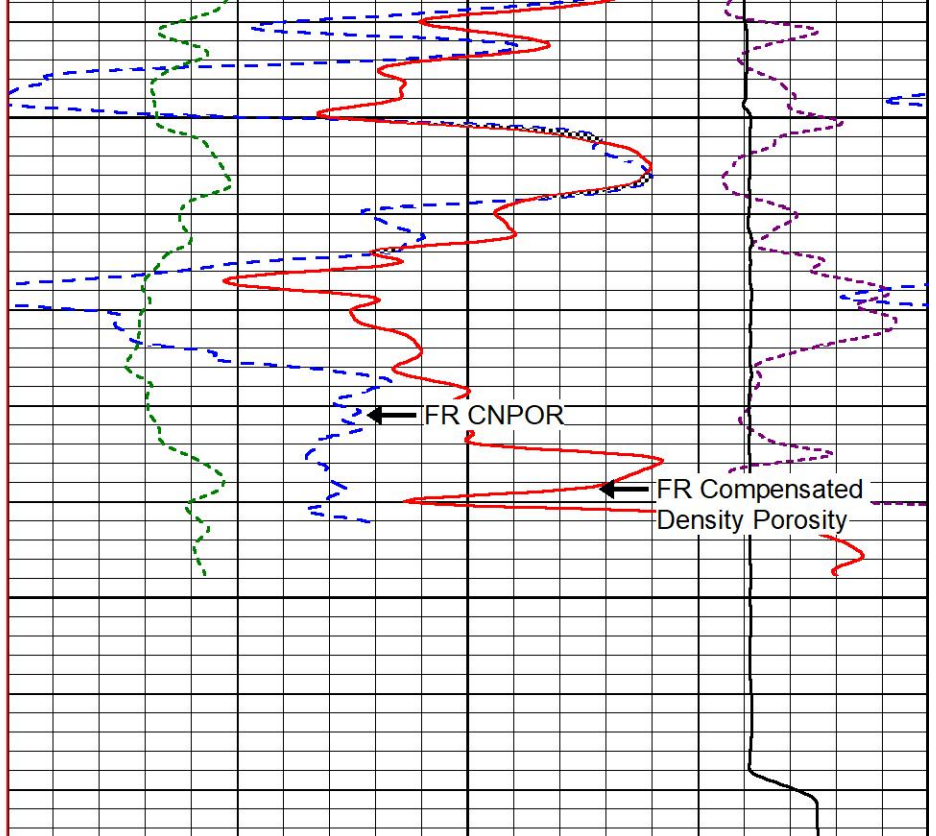


3800

FR Gamma Ray

3850

0	Gamma Ray (GAPI)	150
6	Caliper (in)	16



FR CNPOR

FR Compensated
Density Porosity

30	CNPOR (pu)		-10
30	Compensated Density Porosity (pu)		-10
10000	Line Tension (lb)		0
0	PE	10 -0.25	Corection (g/cc) 0.25



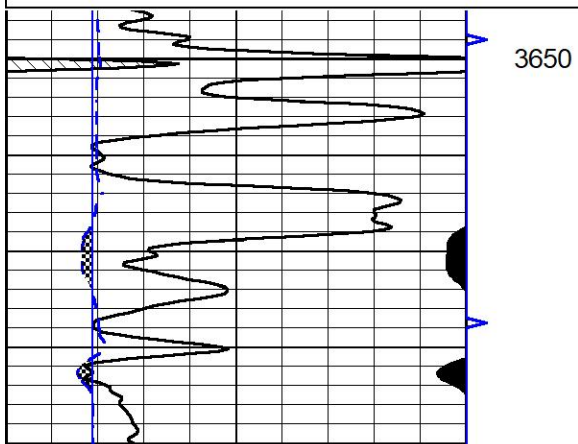
REPEAT SECTION

REPEAT PASS

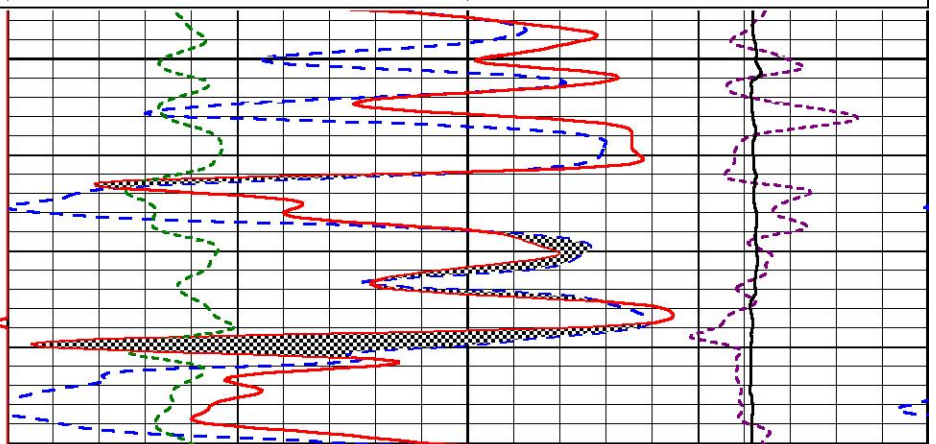
Database File cobalt_braun unit 1-21.db
 Dataset Pathname stkml/pass2.1
 Presentation Format _CNDLS~4
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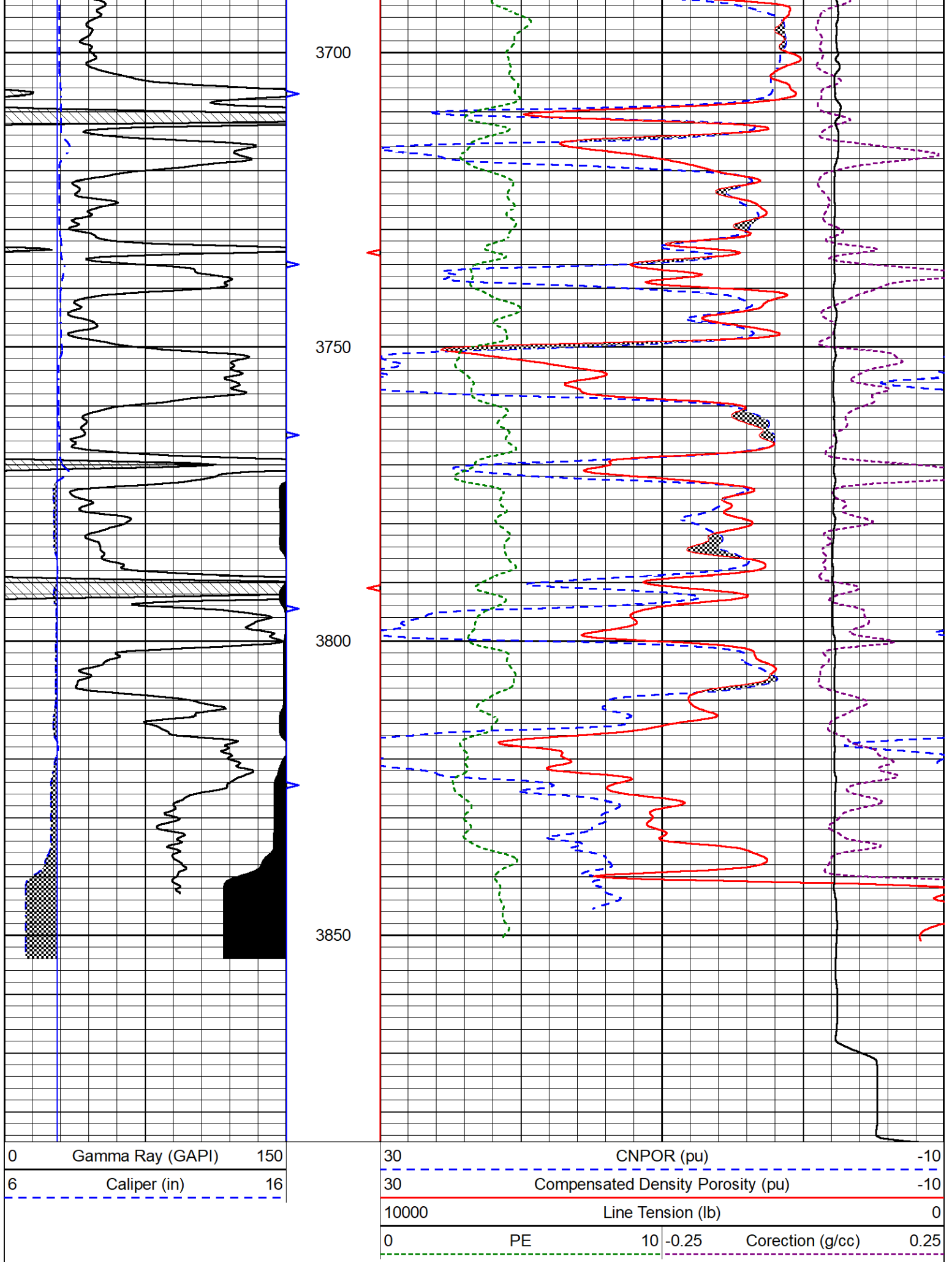
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16

30	CNPOR (pu)		-10
30	Compensated Density Porosity (pu)		-10
10000	Line Tension (lb)		0
0	PE	10 -0.25	Corection (g/cc) 0.25



3650





Calibration Report

Database File cobalt_braun unit 1-21.db
 Dataset Pathname stkml/pass3.5
 Dataset Creation Sun Oct 08 17:01:09 2023

Dual Induction Calibration Report

Serial-Model: 505 HT-M&W
 Surface Cal Performed: Fri Aug 11 21:22:17 2023

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	167.000	835.000	0.000	255.800	mmho/m	0.480	-42.000
Medium	1348.000	1348.000	0.000	255.800	mmho/m	0.410	-40.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Sat Sep 23 14:09:43 2023

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	31000.0000	-0.5000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	29000.0000	0.3000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.4400

LITHODENSITY Calibration Report

Serial Number: 701-01
 Tool Model: STEP LITHO Short
 Performed: Wed Aug 16 15:02:56 2023

Source:

	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
Background:									
SS:	52	53	205	255	24	69	44	1	cps
LS:	81	85	334	425	46	135	88	2	cps
Aluminum:									
SS:	774	936	2171	1967	43	73	44	2	cps
LS:	847	1595	3011	1457	56	137	87	5	cps
Magnesium:									
SS:	1271	1508	3520	2831	46	71	45	3	cps
LS:	3600	6590	11760	4608	88	128	83	13	cps
Aluminum+Iron:									
SS:	492	651	1805	1706	40	72	44	2	cps
LS:	499	1107	2530	1299	53	134	86	4	cps

	Density Actual	Calibrated	PE Actual	Calibrated	Quality
Background:					
SS:					0.222
LS:					0.212
Aluminum:					
SS:	2.6000	2.6000	g/cc		0.248
LS:	2.6000	2.6000	g/cc		0.220
Magnesium:					
SS:	1.6800	1.6800	g/cc	2.5700	2.5700 0.222
LS:	1.6800	1.6800	g/cc	2.5700	2.5700 0.213

Aluminum+Iron:

SS:

6.1800 0.239

LS:

6.1800 0.214

Caliper:

Reference:

Reading:

Small Ring:

6.0 in

100.0

Large Ring:

16.0 in

400.0

Gain:

18.000

Offset:

0.100

Compensated Neutron Calibration Report

Serial Number:

210

Tool Model:

M&W

CALIBRATION

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number:

105

Tool Model:

M&W

Performed:

Wed Aug 30 12:31:03 2023

Calibrator Value:

500.0

GAPI

Background Reading:

24.0

cps

Calibrator Reading:

637.0

cps

Sensitivity:

0.6500

GAPI/cps



Company

Cobalt Energy, LLC

Well

Braun Unit #1-21

Field

County

Graham

State

Kansas