



MIDWEST WIRELINE

**DUAL COMPENSATED
POROSITY W/PE**

Company **Cobalt Energy, LLC**
Well **Darvin #1-22**
Field **Wildcat**
County **Graham** State **Kansas**

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State **Kansas**

Location: **API #: 15-065-24303-00-00**
NE NW SW SE
1207 FSL & 2076 FEL
SEC 20 TWP 10S RGE 22W
Permanent Datum **Ground Level** Elevation **2331**
Log Measured From **Kelly Bushing**
Drilling Measured From **Kelly Bushing**

Other Services
DIL/MEL
BHCS

Elevation
K.B. **2336**
D.F. **2331**
G.L. **2331**

Date	11/24/2023						
Run Number	One						
Type Log	CNL/CDL						
Depth Driller	3900						
Depth Logger	3898						
Bottom Logged Interval	3869						
Top Logged Interval	3200						
Type Fluid In Hole	Chemical						
Salinity, PPM CL	1600						
Density	9.2						
Level	Full						
Max. Rec. Temp. F	115						
Operating Rig Time	Full						
Equipment -- Location	P-108 Hays						
Recorded By	D. Schmidt						
Witnessed By	Larry Nicholson						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
One	12.25	0	259	8.625	23	0	259
Two	7.875	259	TD				
Casing Record							

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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 Rd D (Graham County),
5 East, 1 South Rd C, 1/2 East,
North into**

39.164528688 -99.761612634

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_darvin 1-22.db: field/well/stkml/pass4.1
 Total length: 42.23 ft
 Total weight: 685.00 lb
 O.D.: 5.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_darvin 1-22.db
 Dataset field/well/stkml/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	115	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	No	-1	5.35	184	30	Off	3898

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

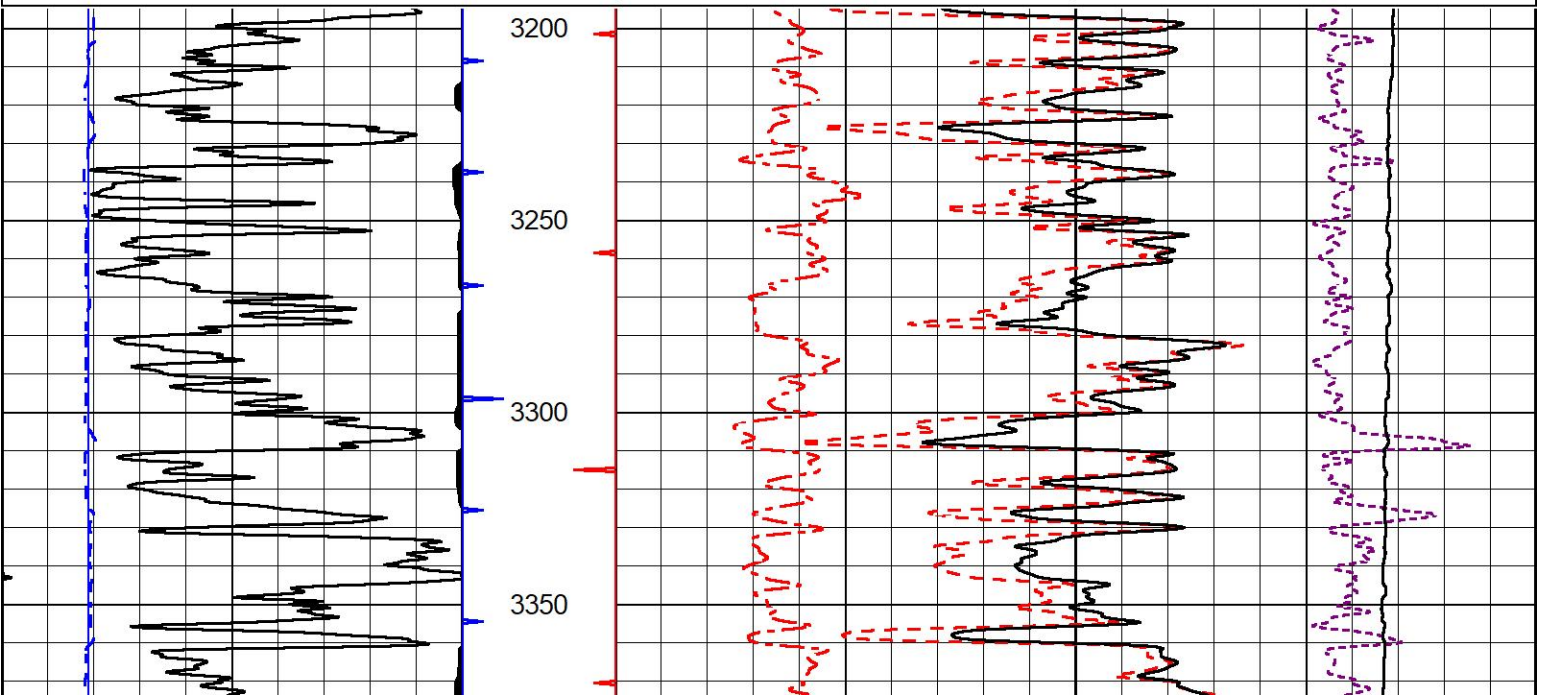


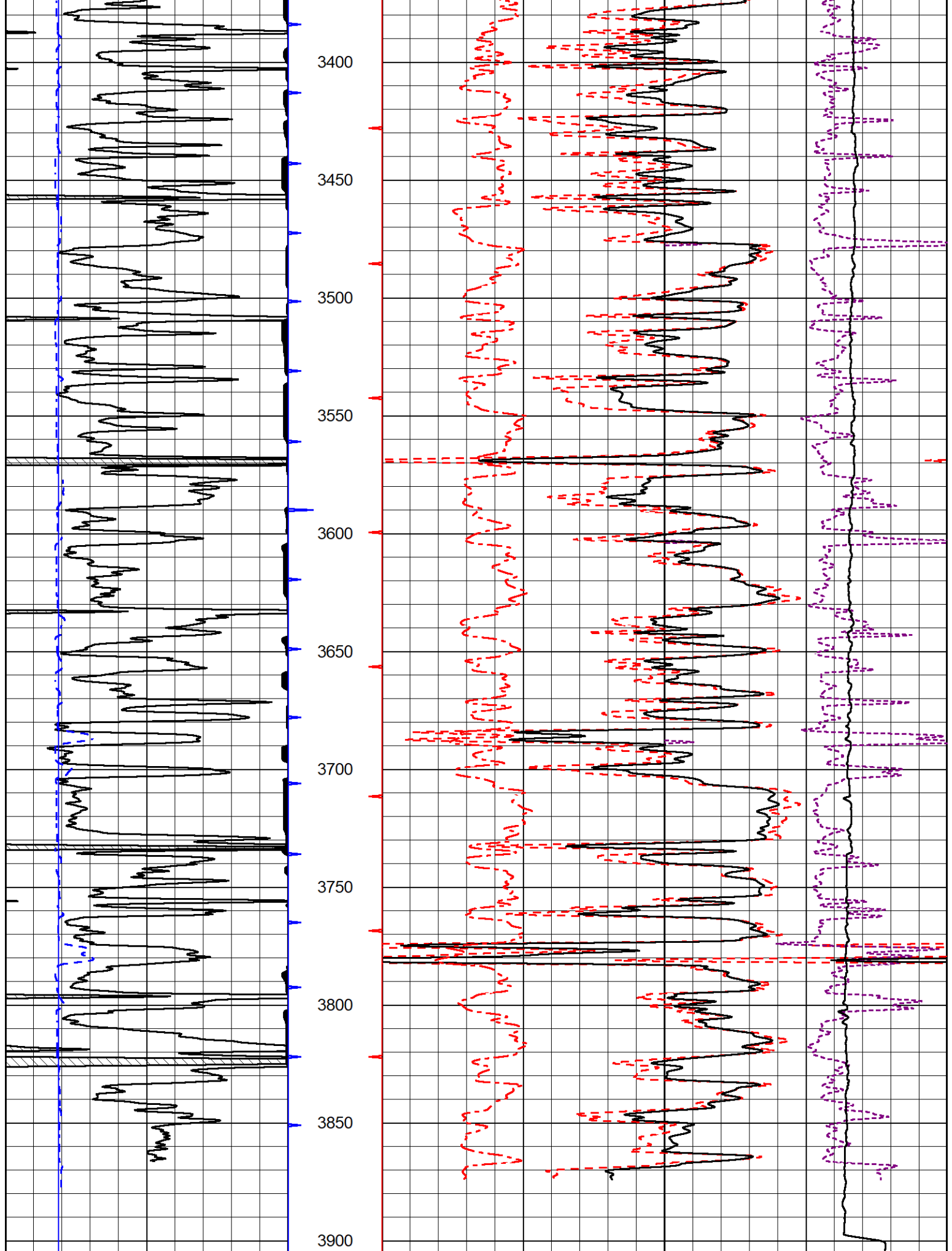
2" SCALE BULK DENSITY

MAIN PASS

Database File cobalt_darvin 1-22.db
 Dataset Pathname stkml/pass4.2
 Presentation Format _cdlpe
 Dataset Creation Fri Nov 24 16:53:06 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

0	Caliper (in)	10	2	Bulk Density (g/cc)	0
10000			10000	Line Tension (lb)	0
0	pecln	10	-0.25	Correction (g/cc)	0.25



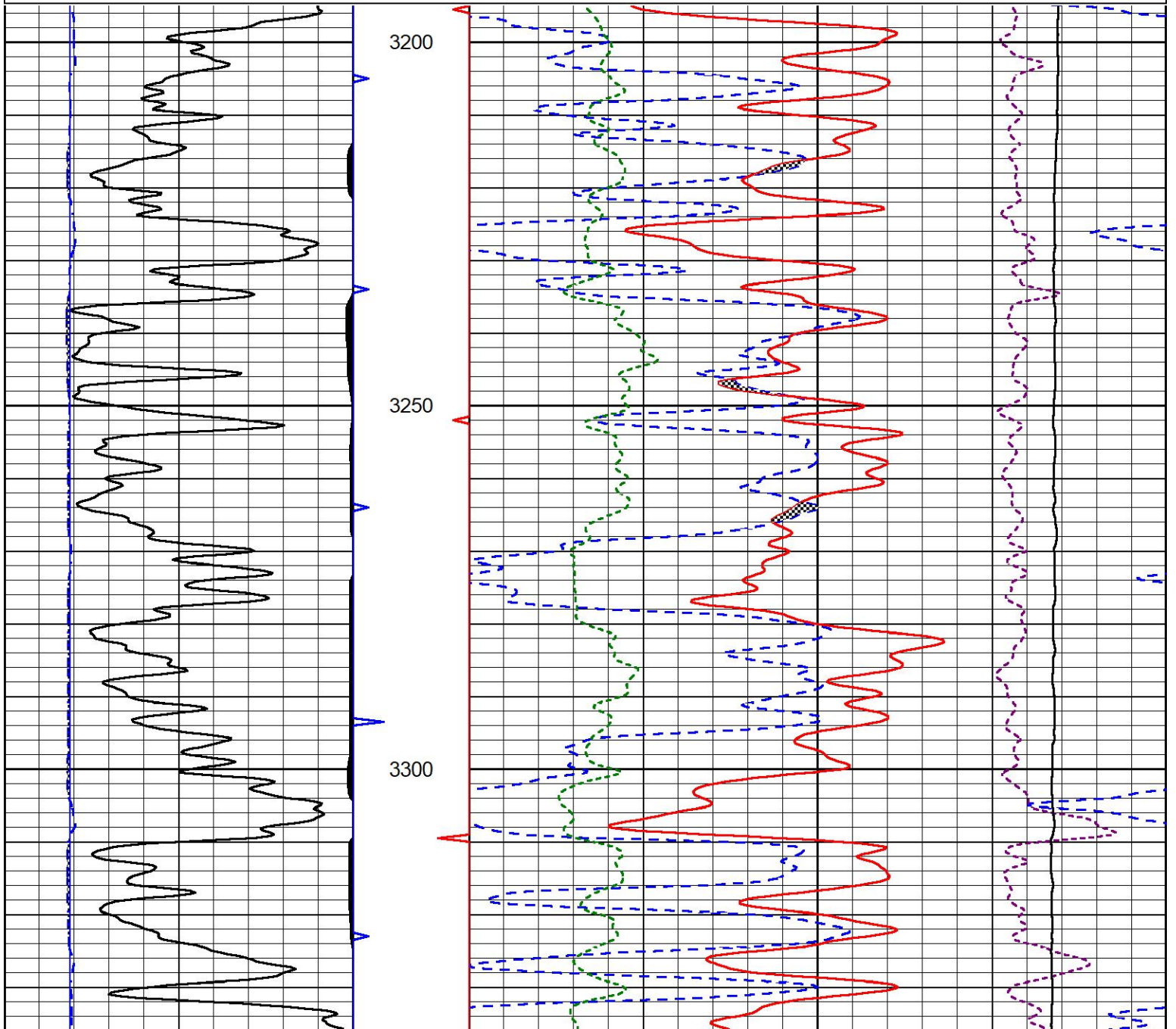
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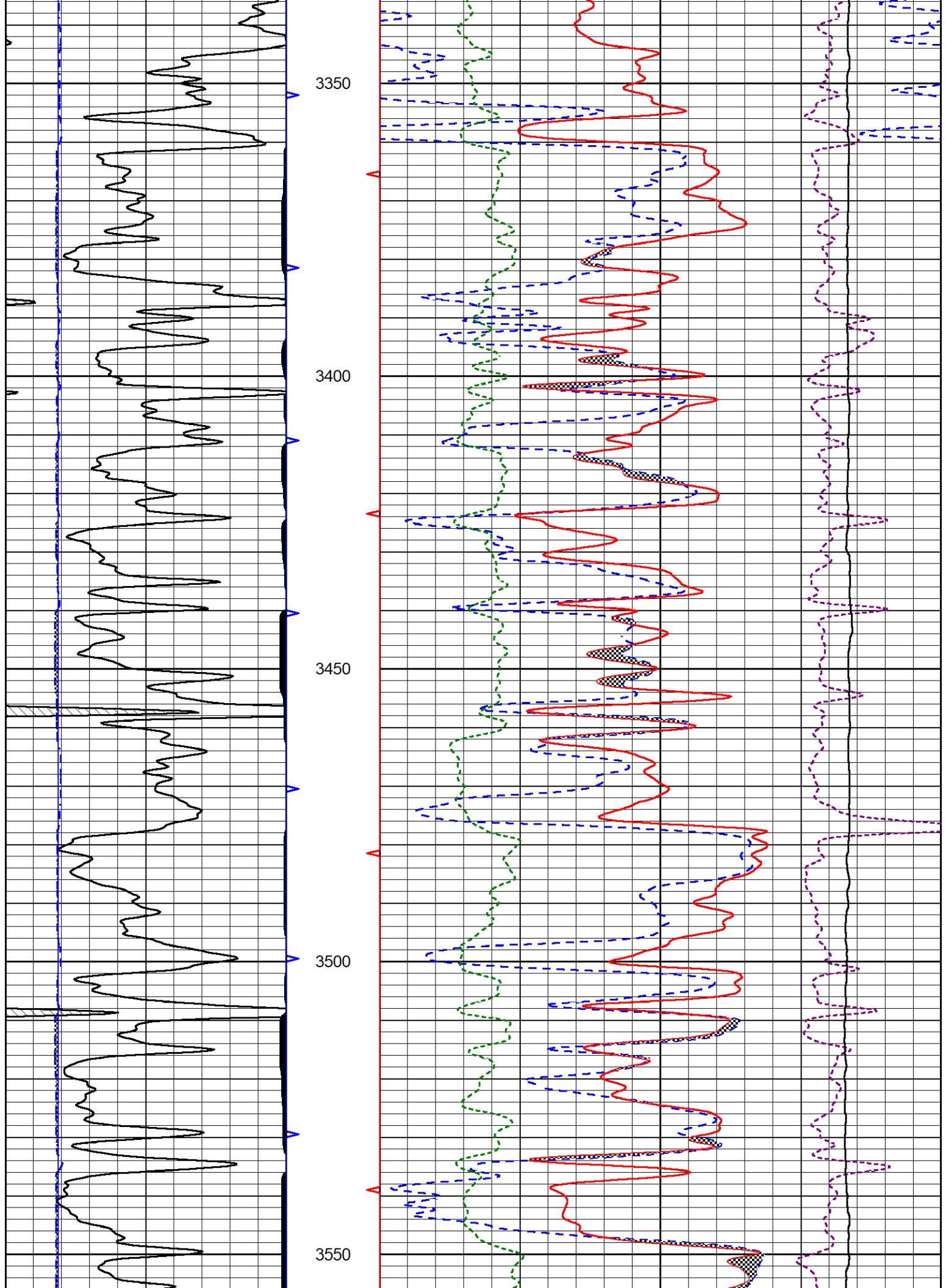
MAIN PASS

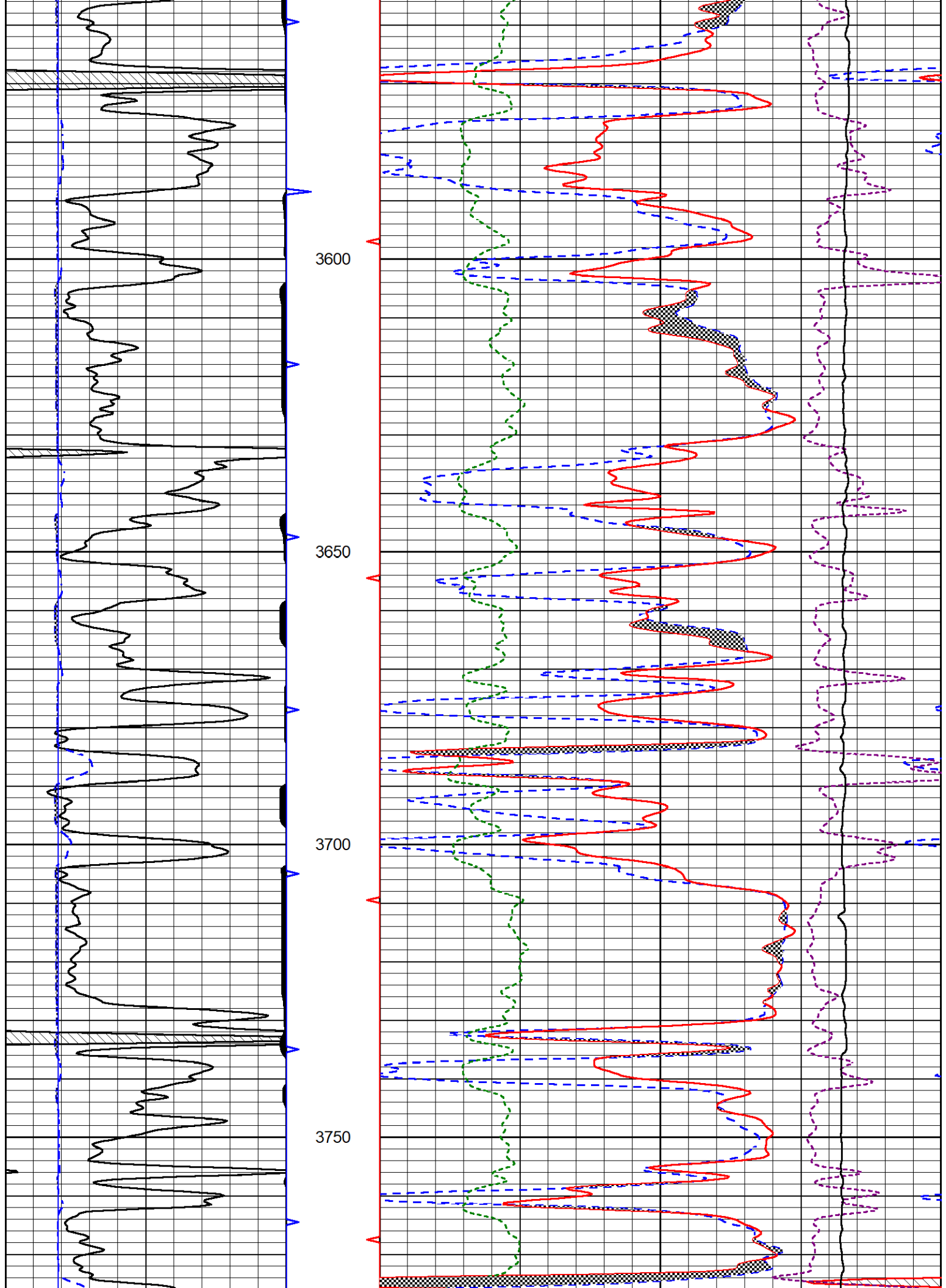
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 Dataset Pathname stkml/pass4.1
 Presentation Format _CNDLS~4
 Dataset Creation Fri Nov 24 17:17:58 2023
 Charted by Depth in Feet scaled 1:240

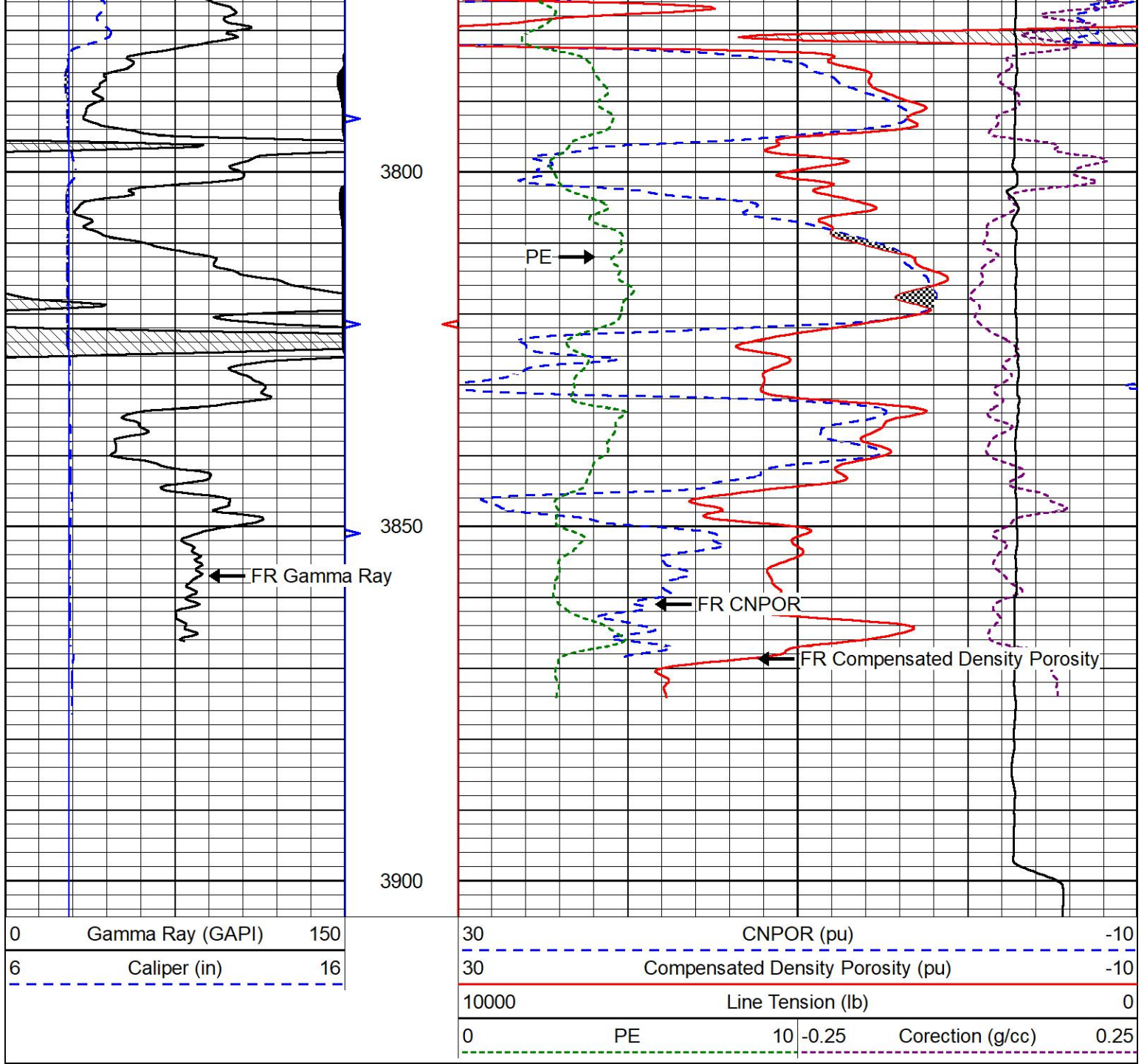
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16

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







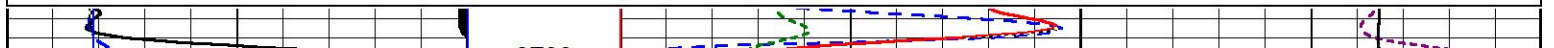


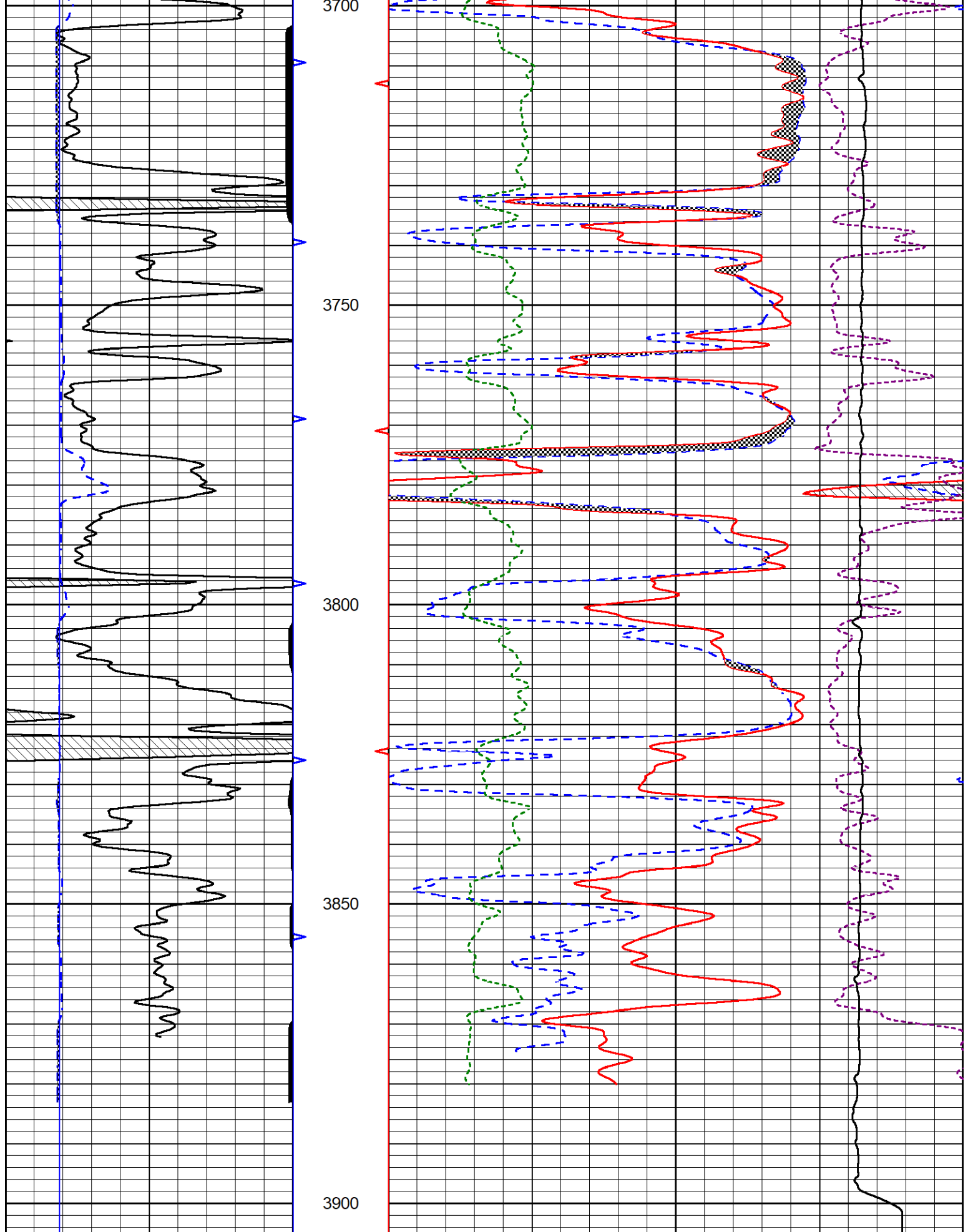
REPEAT SECTION

REPEAT PASS

Database File cobalt_darvin 1-22.db
 Dataset Pathname stkml/pass3.1
 Presentation Format _CNDLS~4
 Dataset Creation Fri Nov 24 17:06:01 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





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

30	CNPOR (pu)	-10
30	Compensated Density Porosity (pu)	-10
10000	Line Tension (lb)	0

Calibration Report

Database File cobalt_darvin 1-22.db
 Dataset Pathname stkml/pass4.1
 Dataset Creation Fri Nov 24 17:17:58 2023

Dual Induction Calibration Report

Serial-Model: 505 HT-M&W
 Surface Cal Performed: Thu Nov 9 13:00:56 2023

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	167.000	835.000	0.000	255.800	mmho/m	0.550	-56.000
Medium	1348.000	1348.000	0.000	255.800	mmho/m	0.450	-55.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Fri Oct 20 13:01:04 2023

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	23000.0000	-1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	21000.0000	0.0000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.4500

LITHODENSITY Calibration Report

Serial Number: 701-01
 Tool Model: STEP LITHO Short
 Performed: Wed Nov 8 15:09:59 2023

Source:

	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
Background:									
SS:	52	54	204	252	23	67	44	1	cps
LS:	78	87	326	426	46	135	86	3	cps

Aluminum:									
SS:	790	958	2239	2075	45	71	45	2	cps
LS:	877	1656	3109	1518	56	132	85	4	cps

Magnesium:									
SS:	1295	1558	3653	2988	50	71	47	3	cps
LS:	3705	6851	12249	4886	93	127	85	12	cps

Aluminum+Iron:									
SS:	500	668	1858	1761	40	72	47	2	cps
LS:	514	1150	2612	1334	53	134	84	4	cps

	Density Actual	Calibrated	PE Actual	Calibrated Quality
Background:				
SS:				0.209
LS:				0.223
Aluminum:				
SS:	2.6000	2.6000	g/cc	0.229

LS:	2.6000	2.6000	g/cc			0.218
Magnesium:						
SS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.203
LS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.195
Aluminum+Iron:						
SS:				6.1800		0.207
LS:				6.1800		0.229

Caliper:	Reference:	Reading:
Small Ring:	6.0 in	100.0
Large Ring:	16.0 in	400.0
Gain:	14.000	
Offset:	1.960	

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:	Sat Oct 21 23:48:19 2023
Calibrator Value:	500.0 GAPI
Background Reading:	24.0 cps
Calibrator Reading:	637.0 cps
Sensitivity:	0.6000 GAPI/cps



Company	Cobalt Energy, LLC
Well	Darvin #1-22
Field	Wildcat
County	Graham
State	Kansas