



PIONEER

Pioneer Energy Services

Dual Compensated Porosity Log

API No.

15-167-23, 992-00-00

Company **EMPIRE ENERGY E&P LLC**

Well **DRISCOLL HEIRS # 31-6**

Field **DRISCOLL**

County **RUSSELL**

State **KS**

Location **2156' FNL & 1928' FEL
NW/SE/SW/NE**

Other Services
CNL/CDL/MEL
BHCS

Sec: **31** Twp: **15 S** Rge: **11 W**

Permanent Datum **GROUND LEVEL** Elevation **1868 FT**

Log Measured From **KELLY BUSHING** 13 Ft. Above Perm. Datum

K.B. **1881 FT**
D.F. **1880 FT**
G.L. **1868 FT**

Drilling Measured From **KELLY BUSHING**

SEPTEMBER 20, 2014

Date

Run Number

ONE

CNL / CDL

3450 FT

3442 FT

3421 FT

2200 FT

CHEM GEL

4,800 ppm

9.3 ppg

43 FT

107 F

4 HRS

H - 20

Hays

A. HARTMAN

MIKE BAIR

Witnessed By

Borehole Record

Casing Record

Run No

Bit

From

To

Size

Wgt.

27 #

From

To

ONE

12-1/4"

0.0

727 FT

8-5/8"

TD

TWO

7-7/8"

727 FT

TD

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

727 FT

<<< Fold Here >>>

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

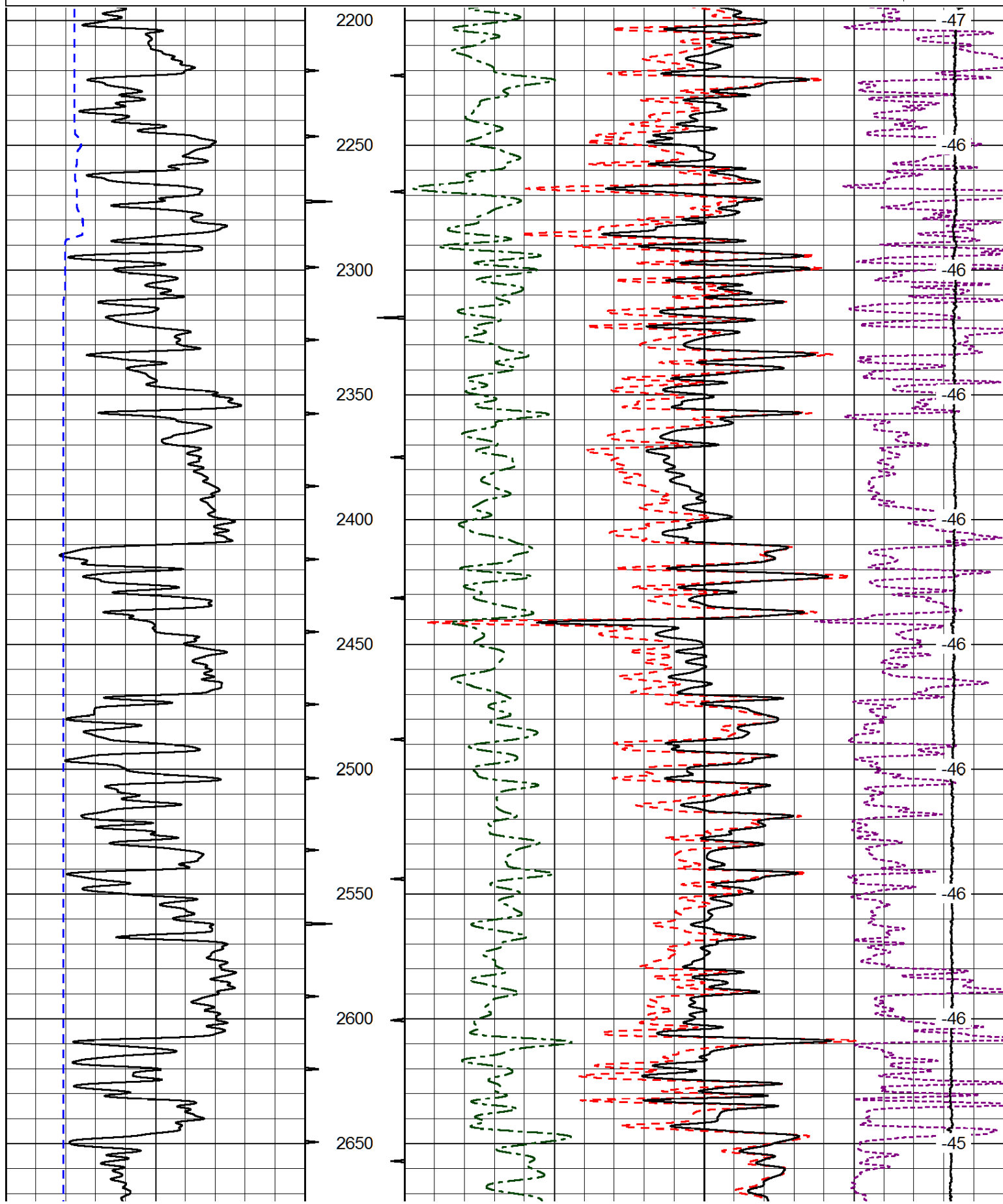
Thank you for using Log-Tech, Inc.
(785) 625-3858

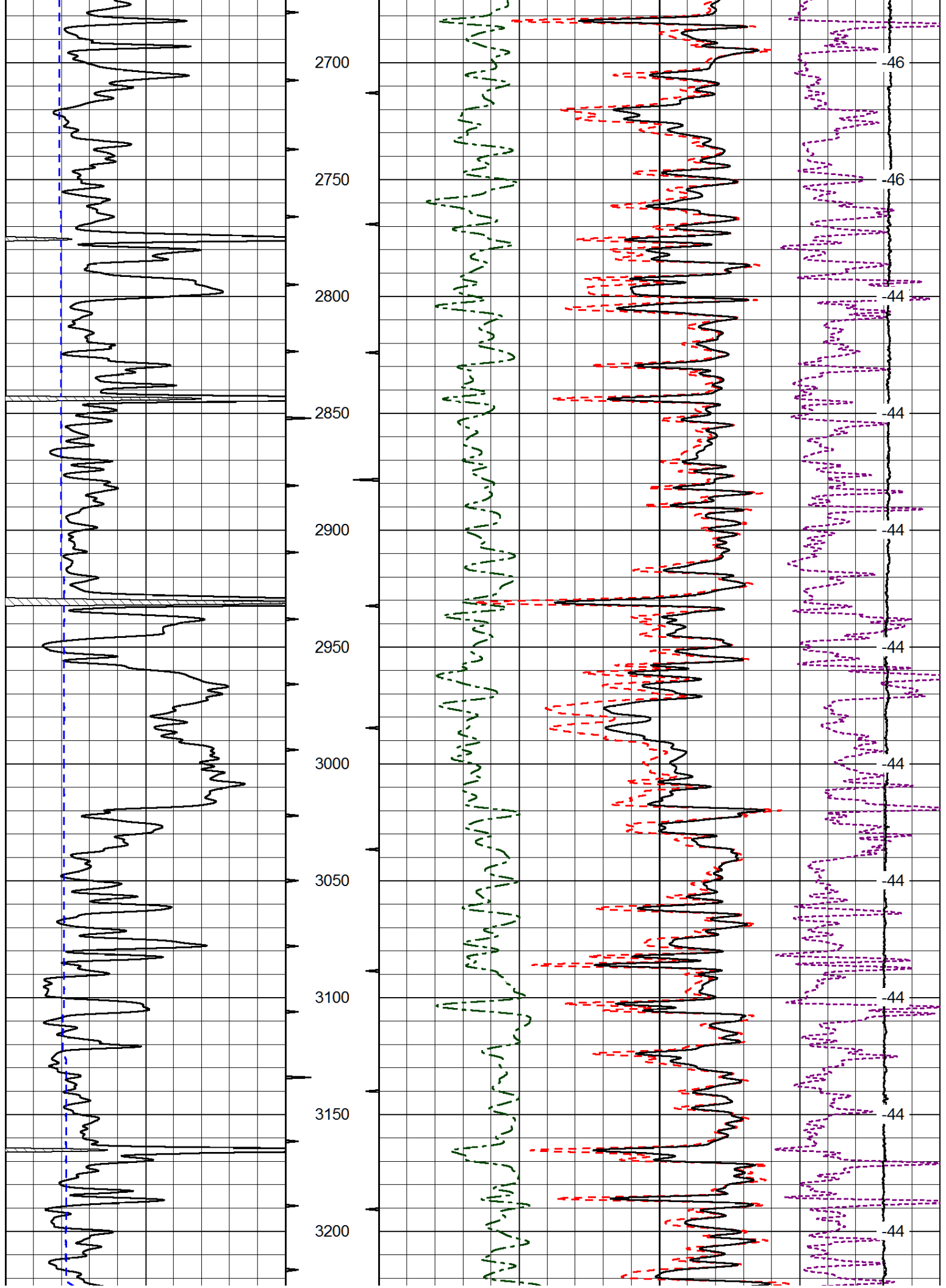
SERVICE ORDER # 12081
POROSITY VALUES BASED ON A LIMESTONE MATRIX. 2.71 g/cc
ANNULAR BOREHOLE VOLUMES CALCULATED FOR 5.5" CASING.

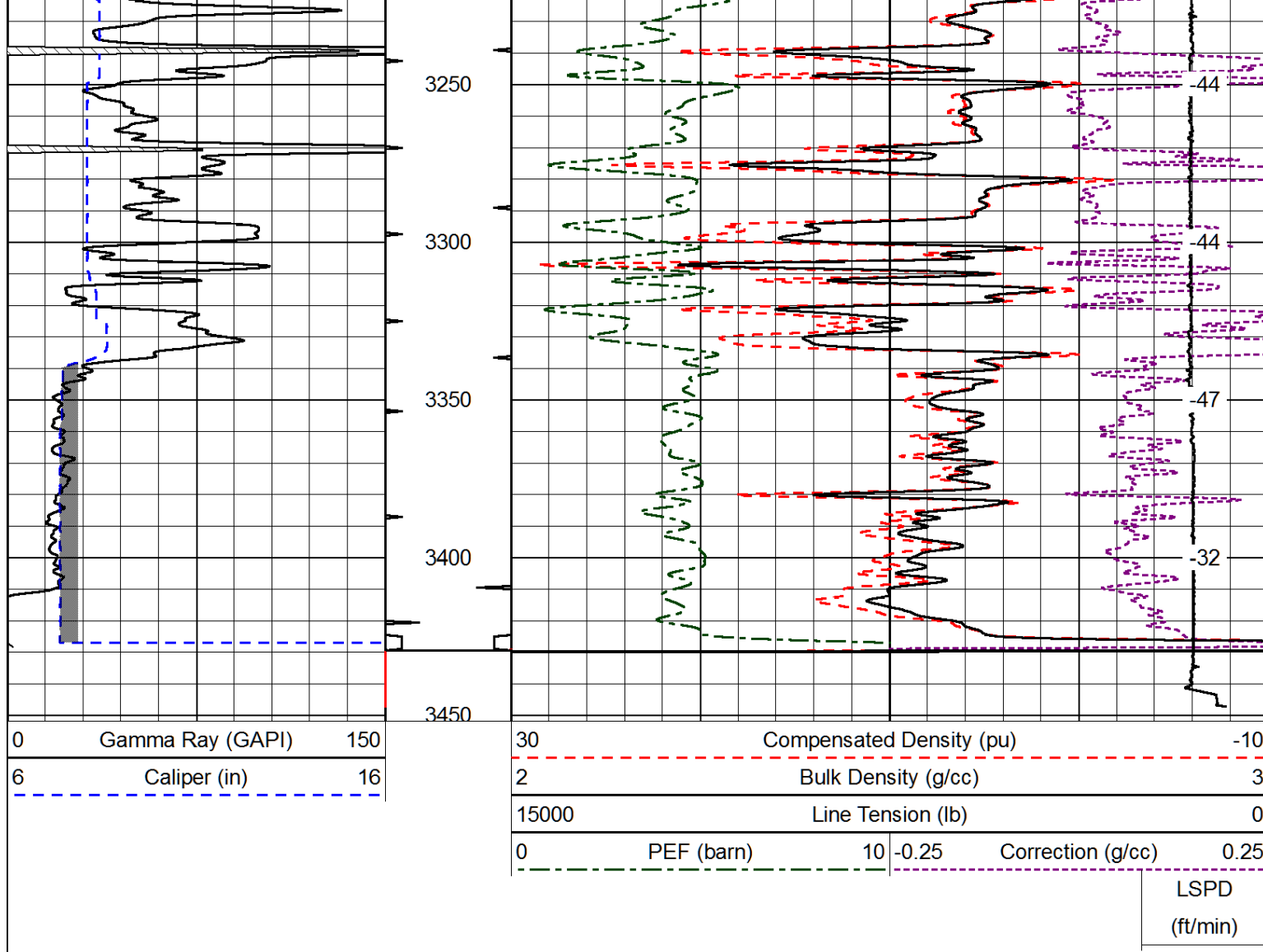
Database File: c:\warrior\data\empire_driscollheirs_#31-6\12081.db
Dataset Pathname: pass6.3
Presentation Format: cdl
Dataset Creation: Sun Sep 21 16:10:06 2014
Charted by: Depth in Feet scaled 1:600

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

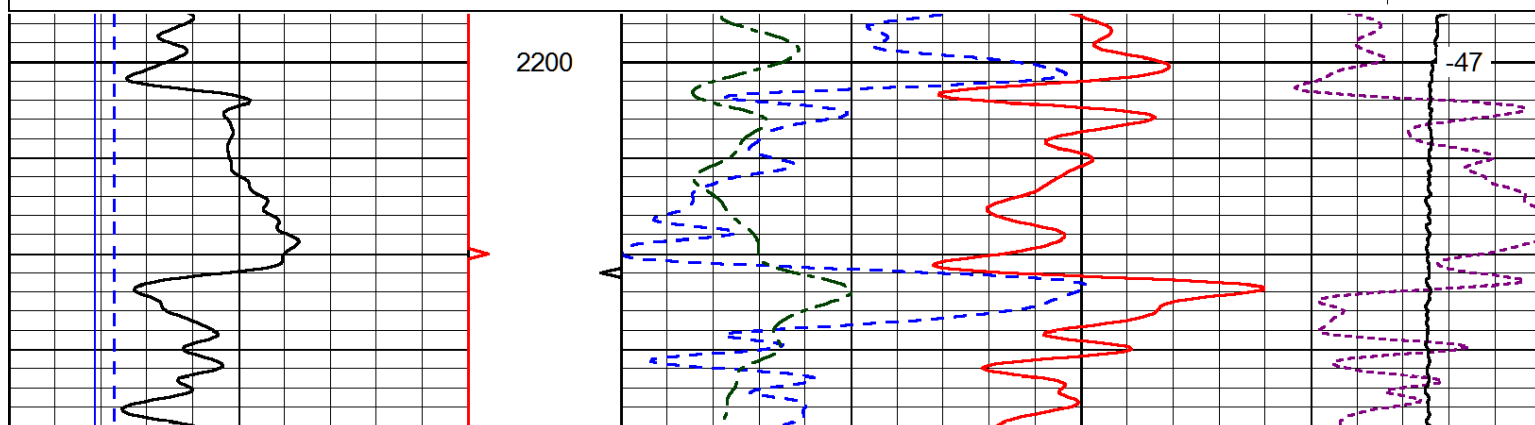
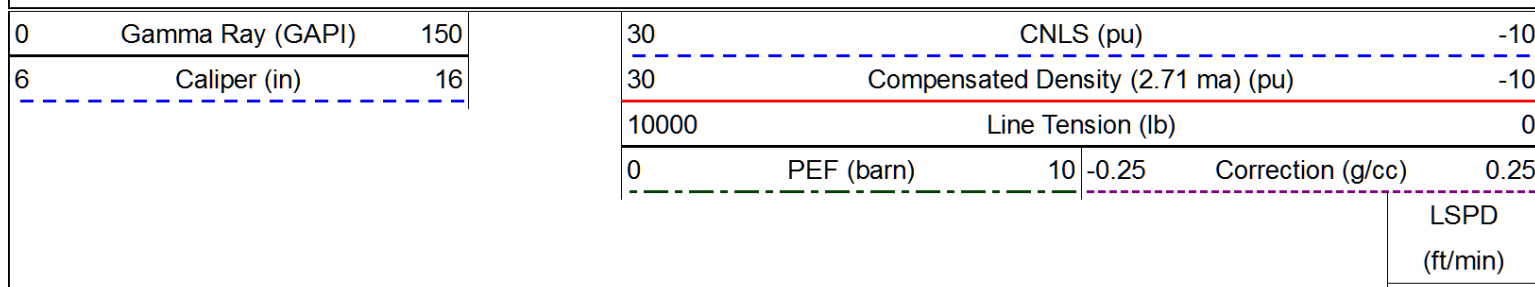
30	Compensated Density (pu)		-10
2	Bulk Density (g/cc)		3
15000	Line Tension (lb)		0
0	PEF (barn)	10 -0.25	Correction (g/cc) 0.25
			LSPD (ft/min)

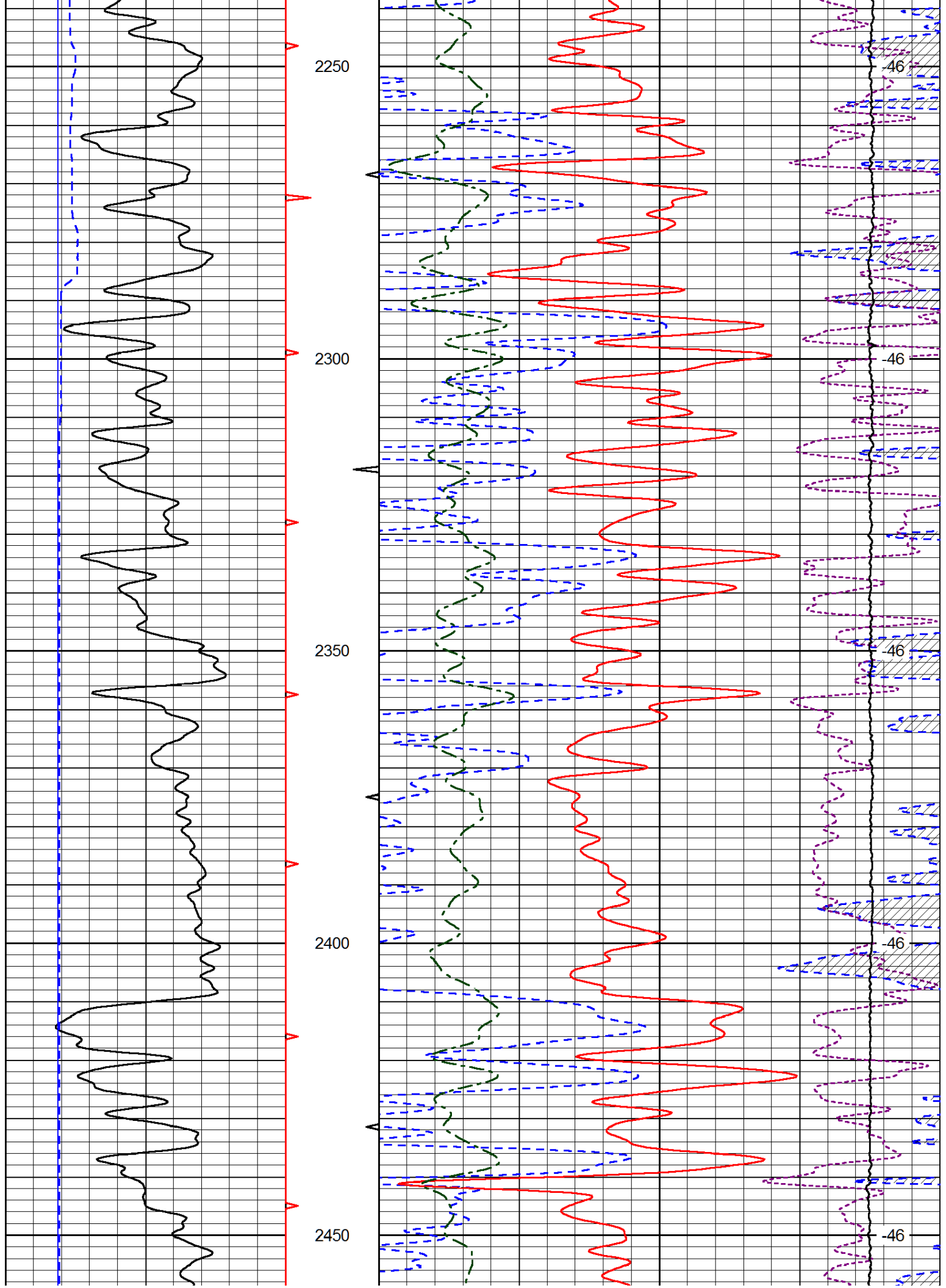


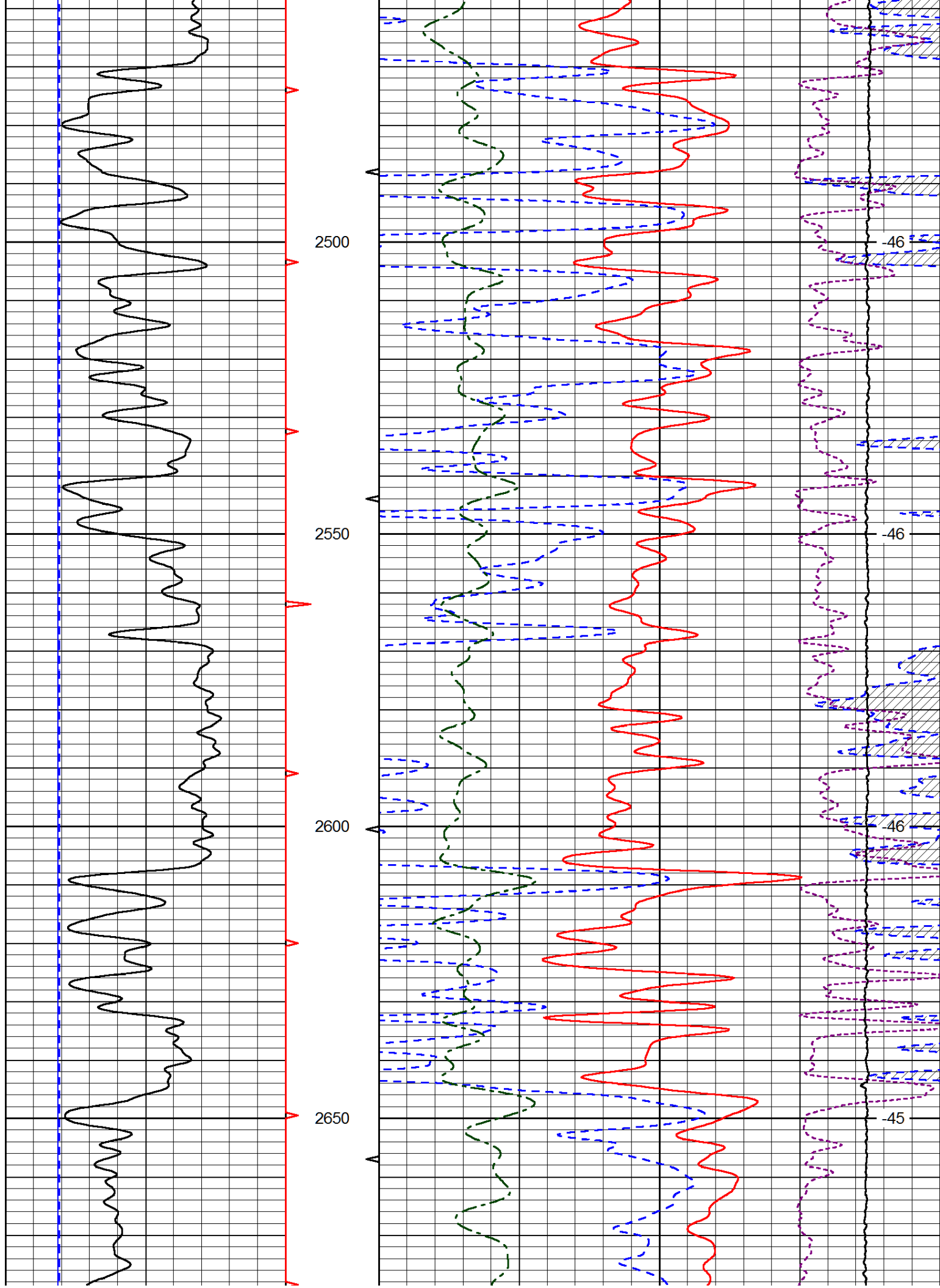


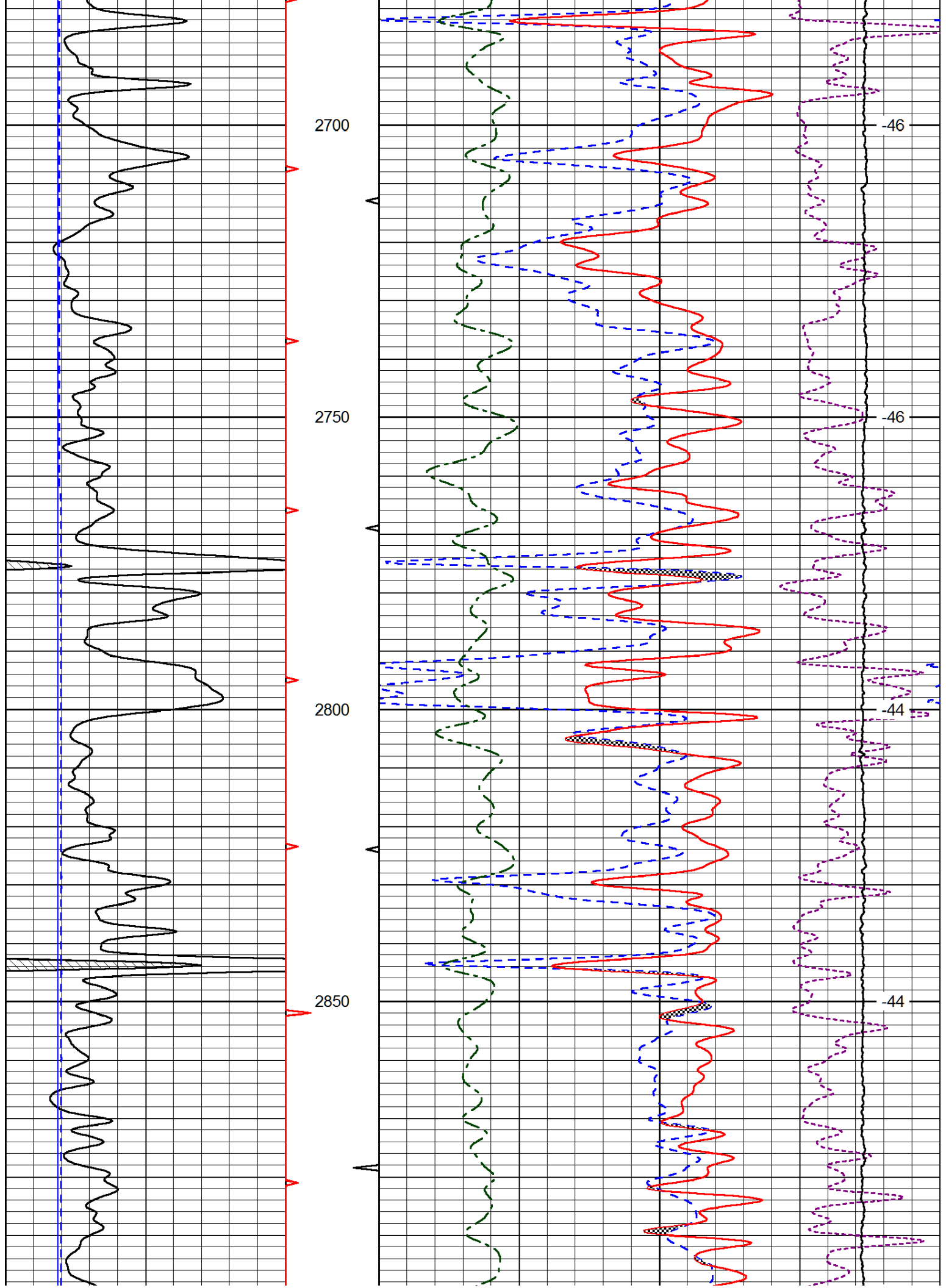


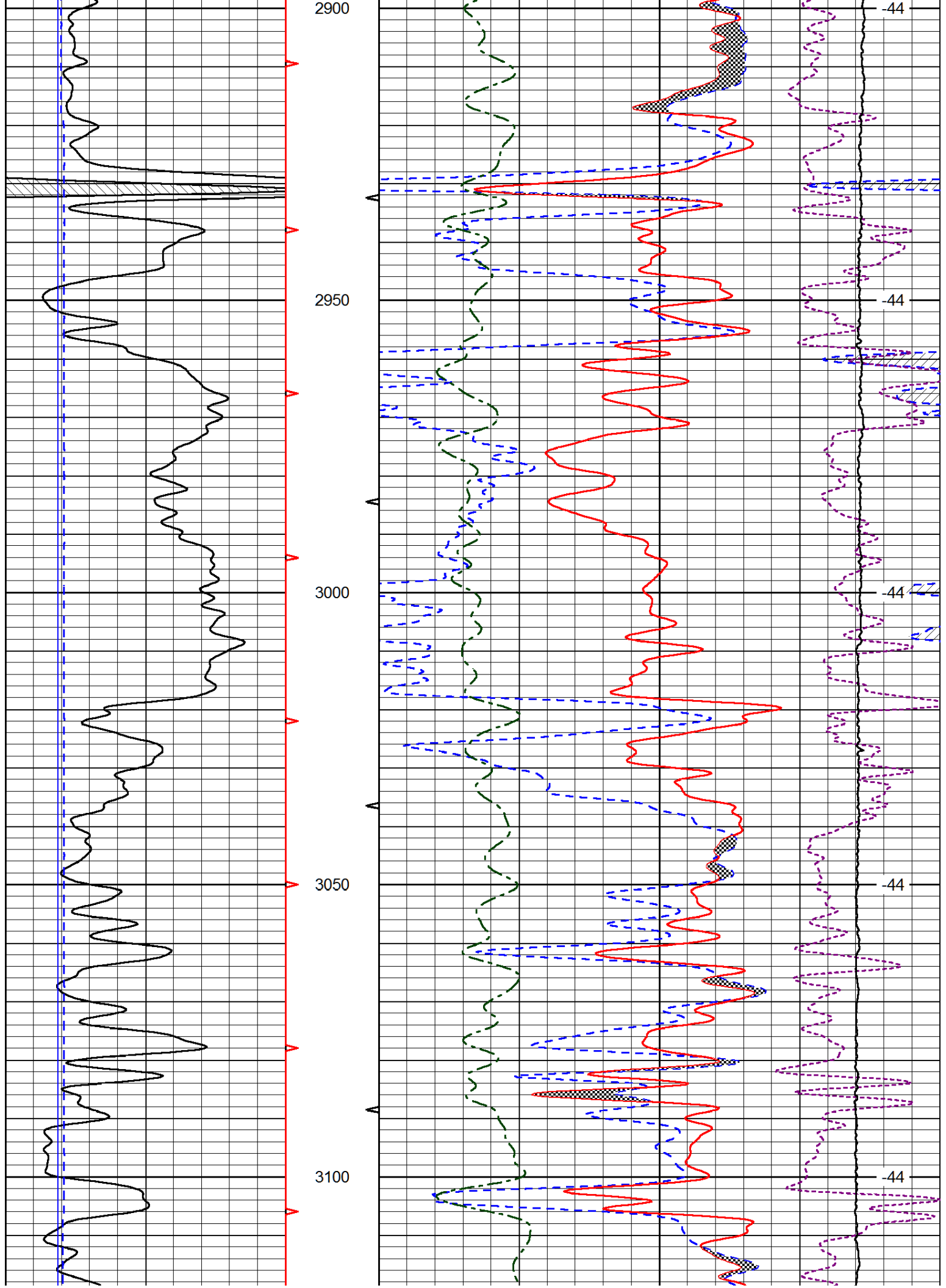
Database File: c:\warrior\data\empire_driscollheirs_#31-6\12081.db
 Dataset Pathname: pass6.3
 Presentation Format: cndlspec
 Dataset Creation: Sun Sep 21 16:10:06 2014
 Charted by: Depth in Feet scaled 1:240

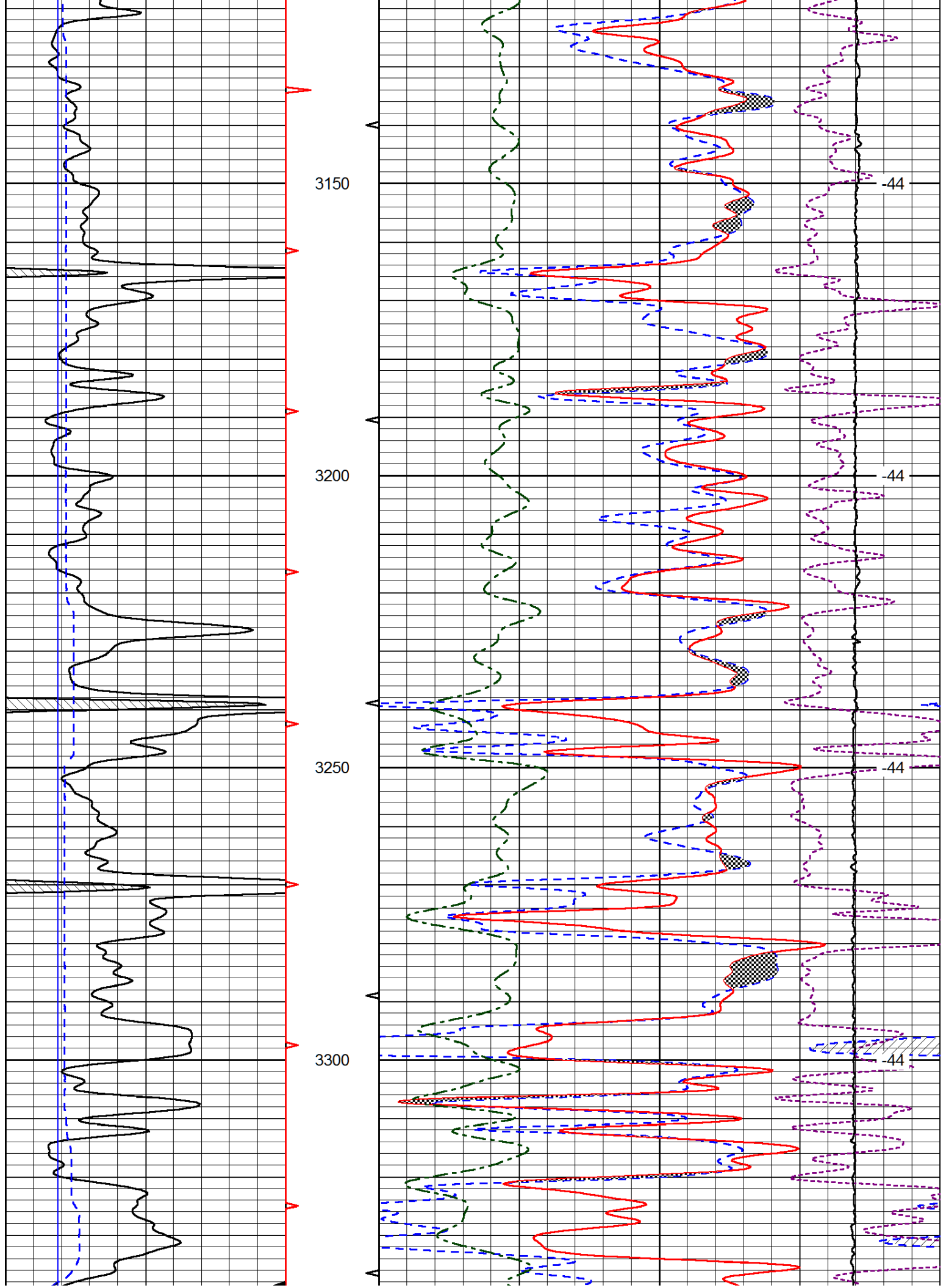


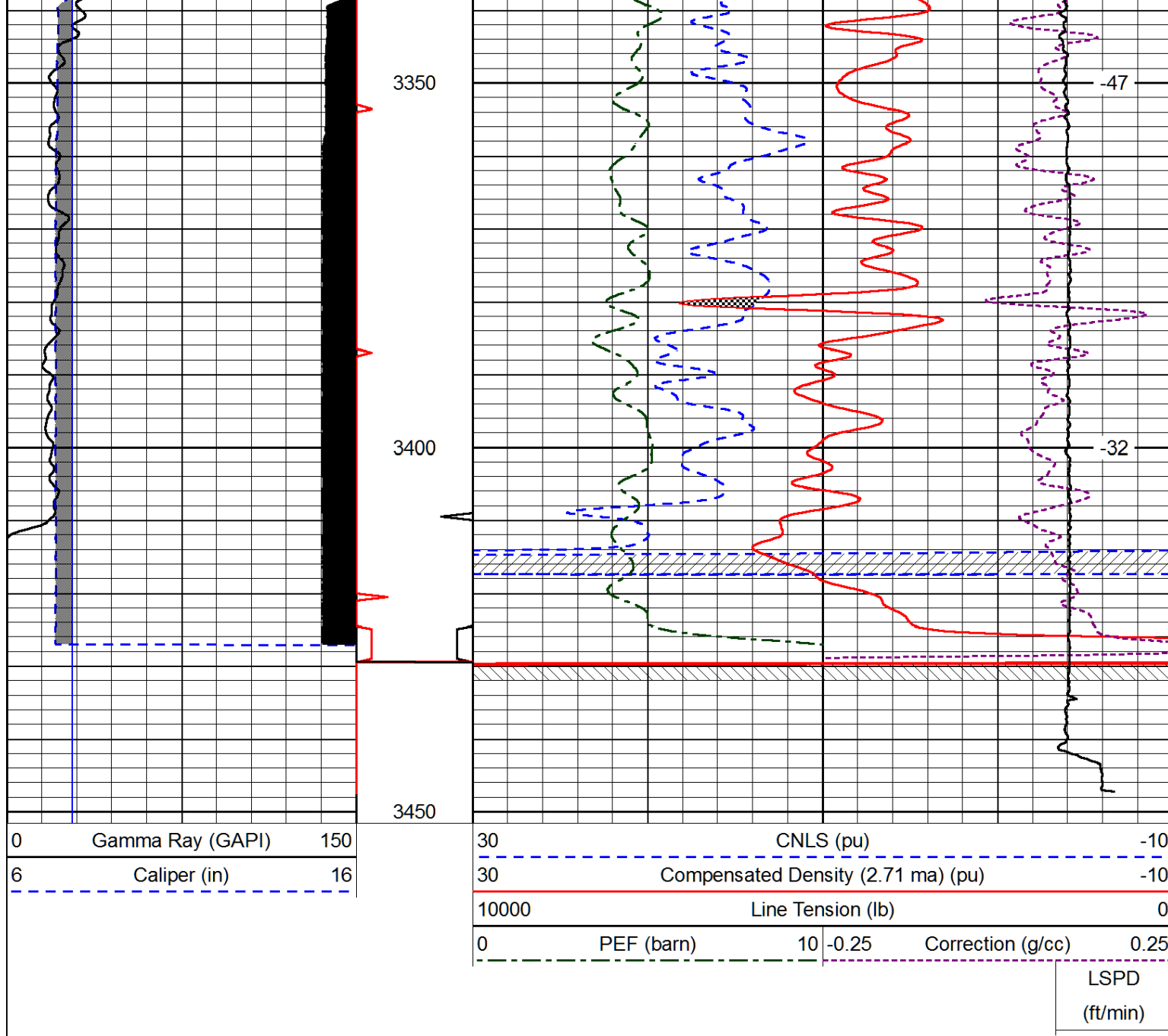














PIONEER
Pioneer Energy Services

Dolomite Matrix(2.83)

Database File: c:\warrior\data\empire_driscollheirs_#31-6\12081.db

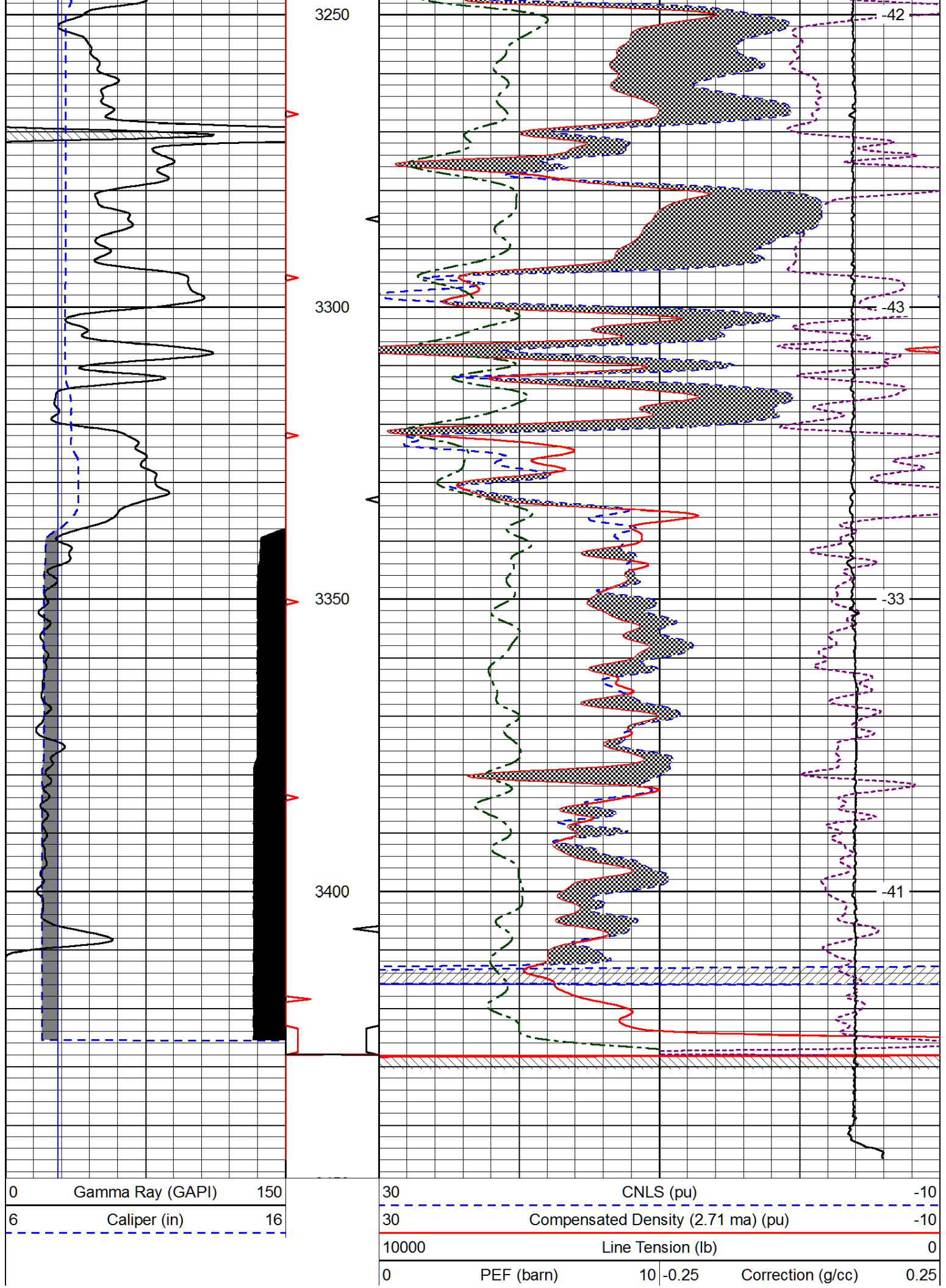
Dataset Pathname: pass5.6

Presentation Format: cndlspec

Dataset Creation: Sun Sep 21 17:18:09 2014

Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
30	CNLS (pu)	-10
30	Compensated Density (2.71 ma) (pu)	-10
10000	Line Tension (lb)	0
0	PEF (barn)	10
-0.25	Correction (g/cc)	0.25
LSPD (ft/min)		



						LSPD (ft/min)

Sensor	Offset (ft)	Schematic		Description	Len (ft)	OD (in)	Wt (lb)
GR	35.89			GR-PSI (31) GAMMA RAY	3.00	3.50	40.00
CNLSC	32.23			CNT-PSI (908)	5.08	3.50	100.00
CNSSC	31.10						
MCAL SCAL				ML-PSI (790)	3.10	3.00	40.00
	26.21			SWN-PSI (0001)	0.08	3.30	100.00
	26.13						
LSD MN MI DCAL SWN SSD RLL3				CDL-PSI (910) MICROLOG-DENSITY-COMBINATION	8.46	5.50	150.00
	20.17						
	19.54						
	19.54						
	19.42						
	19.38						
	19.37						
	15.50						
CILD	8.52			DIL-PSI (64) SIMPLEC DIFL	17.67	3.75	200.00
CILM	4.80						
SP	0.08						

Dataset:	12081.db: field/well/run1/pass3
Total Length:	37.39 ft
Total Weight:	630.00 lb
O.D.	5.50 in

Calibration Report

Database File: C:\Warrior\Data\Empire_DriscollHeirs_#31-6\12081.db
Dataset Pathname: pass3
Dataset Creation: Sat Sep 20 21:10:59 2014 by Log 0

Dual Induction Calibration Report

Serial-Model: 64-PSI
Surface Cal Performed:

Loop:	Readings		References		Results	
	Air	Loop	Air	Loop	m	b
Deep	118.900	415.527	16.500	293.000	mmho/m	0.554
Medium	105.496	944.564	13.900	377.000	mmho/m	0.608

Compensated Density Calibration Report

Serial-Model: 910-PSI
Source / Verifier: /
Master Calibration Performed: Thu May 01 17:50:54 2014
Before Survey Verification Performed:
After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.820	g/cc	17077.50	24099.00	cps
Aluminum	2.630	g/cc	4673.63	15605.50	cps
Spine Angle = 71.46			Density/Spine Ratio = 0.593		
	Size		Reading		
Small Ring		in			
Large Ring		in			

Before Survey Verification

Target	Measured
g/cc	g/cc
g/cc	g/cc
g/cc	g/cc

After Survey Verification

Target	Measured
g/cc	g/cc
g/cc	g/cc
g/cc	g/cc

Sidewall Neutron Calibration Report

Serial Number: 0001
Tool Model: PSI

SWN Calibration							
Readings		Target		Normalization			
1.00 cps		1.00 cps		1.0000			
Caliper Calibration		Sun Jun 13 15:33:21 1993					
Readings		Reference		Gain		Offset	
0.00		0.00		1.00		0.00	
1.00		1.00					
Microlog Calibration Report							
Serial-Model: Performed:				790-PSI Thu Sep 18 17:44:15 2014			
		Readings		References		Results	
	Zero	Cal		Zero	Cal	m	b
Normal	0.0000	0.0312		0.0000	10.0000	Ohm-m	16368.8000
Inverse	0.0001	0.0436		0.0000	10.0000	Ohm-m	9568.2000
Caliper	0.0000	1.0000		0.0000	1.0000	in	1.0000
							0.0000
Compensated Neutron Calibration Report							
Serial Number: Tool Model:				908 PSI			
CALIBRATION							
Detector		Readings		Target		Normalization	
Short Space		6380.57	cps	11500.00	cps	1.8023	
Long Space		454.72	cps	1000.00	cps	2.4616	
PRE-SURVEY VERIFICATION		Mon Jan 09 03:49:51 2006					
Detector		Readings		Measured		Target	
1)	Short Space	18385.10	cps				
	Long Space	9235.07	cps	-1.39	pu	16.23	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		cps				
	Long Space		cps		pu		pu
Gamma Ray Calibration Report							
Serial Number:		31					
Tool Model:		PSI					
Performed:		Tue Oct 16 18:33:28 2007					
Calibrator Value:		110.0		GAPI			

Background Reading:	42.0	cps
Calibrator Reading:	209.0	cps
Sensitivity:	0.4500	GAPI/cps



Company	EMPIRE ENERGY E&P LLC		
Well	DRISCOLL HEIRS # 31-6		
Field	DRISCOLL		
County	RUSSELL		
State	KS	Country	