



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company PICKRELL DRILLING COMPANY, INC.
Well DUFF A #1
Field NONE
County LOGAN
State KANSAS

Company PICKRELL DRILLING COMPANY, INC.
Well DUFF A #1
Field NONE
County LOGAN
State KANSAS

Location: API #: 15-109-21537-00-00
1683' FNL & 2233' FWL
SEC 9 TWP 15S RGE 32W
Permanent Datum GROUND LEVEL Elevation 2672'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING
Other Services
CNL/CDL
DIL
Elevation
K.B. 2679'
D.F. N/A
G.L. 2672'

Date	3/8/2018
Run Number	ONE
Depth Driller	4380'
Depth Logger	4382'
Bottom Logged Interval	4381'
Top Log Interval	3200'
Casing Driller	8.625" @ 221'
Casing Logger	218'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	4000
Density / Viscosity	9.4 54
pH / Fluid Loss	10.0 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.60 @ 40
Rmt @ Meas. Temp	0.45 @ 40
Rmc @ Meas. Temp	0.81 @ 40
Source of Rmt / Rmc	CHARTS
Rm @ BHT	0.20 @ 120
Operating Rig Time	3 HOURS
Max Rec. Temp. F	120
Equipment Number	91
Location	HAYS
Recorded By	D. SCHMIDT
Witnessed By	AARON YOUNG

<<< Fold Here >>>

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

OAKLEY,
24 SOUTH ON HWY 83 TO GOLD RD, 1 SOUTH,
2 WEST TO LOCATION

Log Measured From: KELLY BUSHING 7 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

Your Pioneer Energy Services Crew

Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: AARON YOUNG
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 120	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m 0	mV -130	degF 20	Off	ft 4382

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (182-152)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

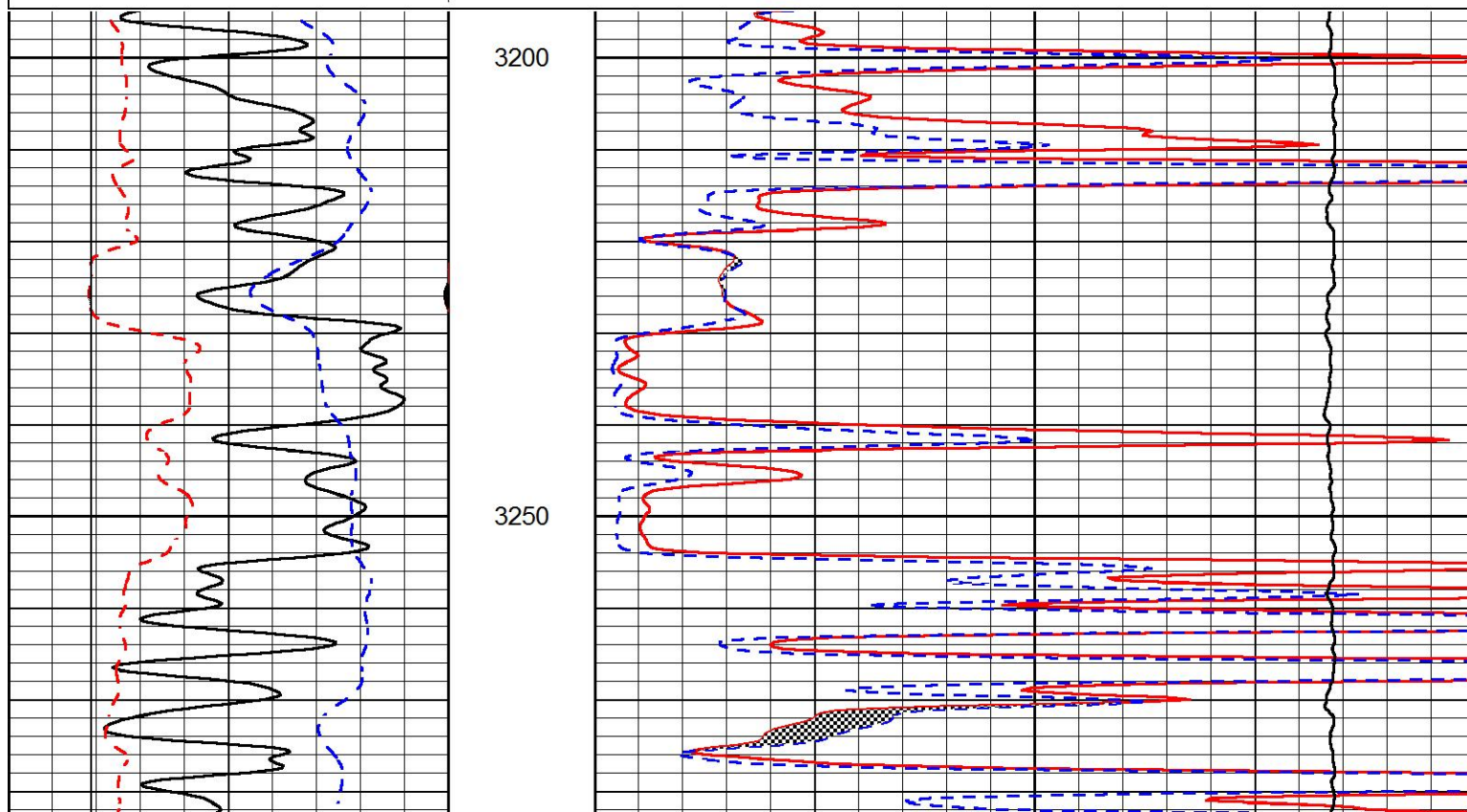
				DIL-PSI HIGH TEMP (933 (HT))	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: pickrell_duff a 1.db: field/well/STKML/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

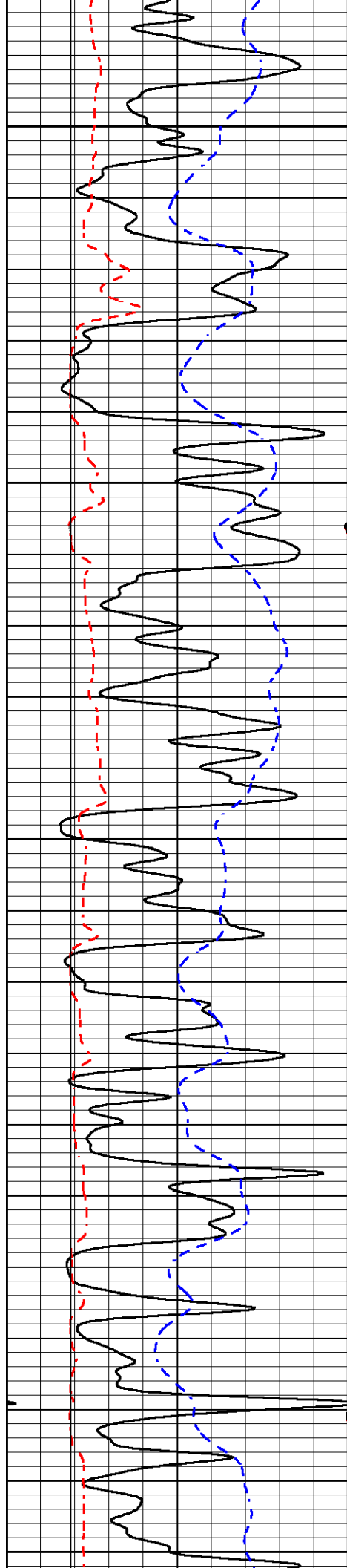


MAIN PASS

Database File	pickrell_duff a 1.db
Dataset Pathname	STKML/pass3.1
Presentation Format	micro
Dataset Creation	Thu Mar 08 06:03:43 2018
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0	Micro Inverese 1 X 1 (Ohm-m)	40
6	MCAL (in)	16	0	Micro Normal 2" (Ohm-m)	40
2.875	mcals (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			





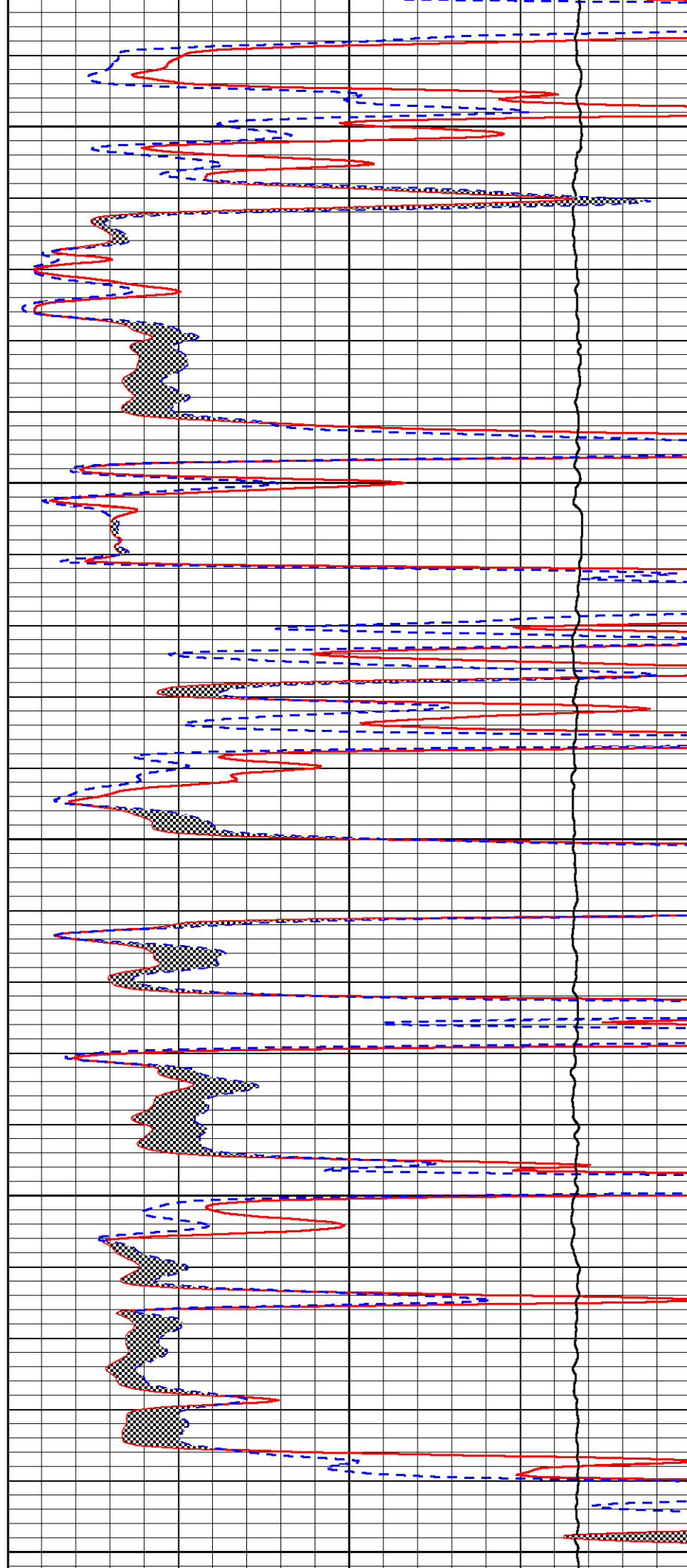
3300

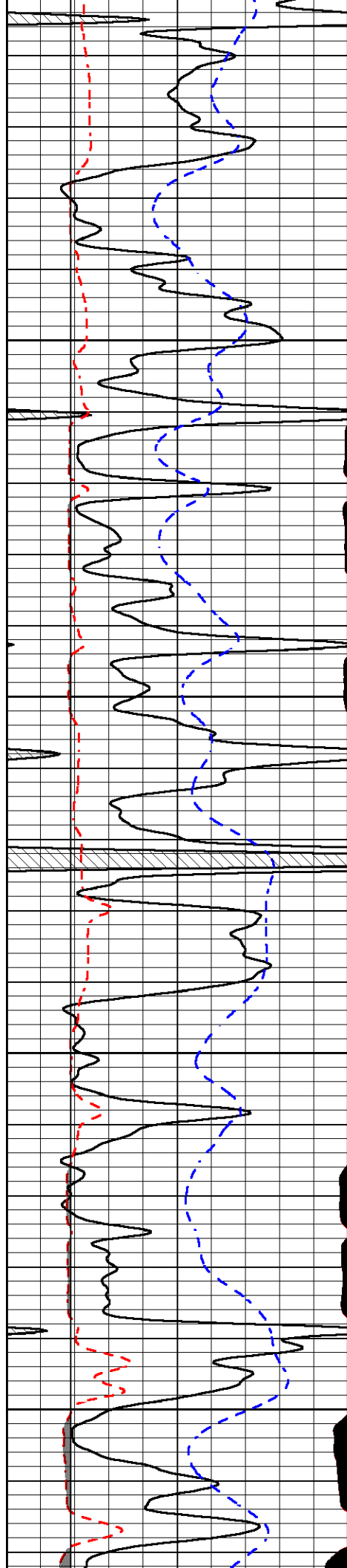
3350

3400

3450

3500



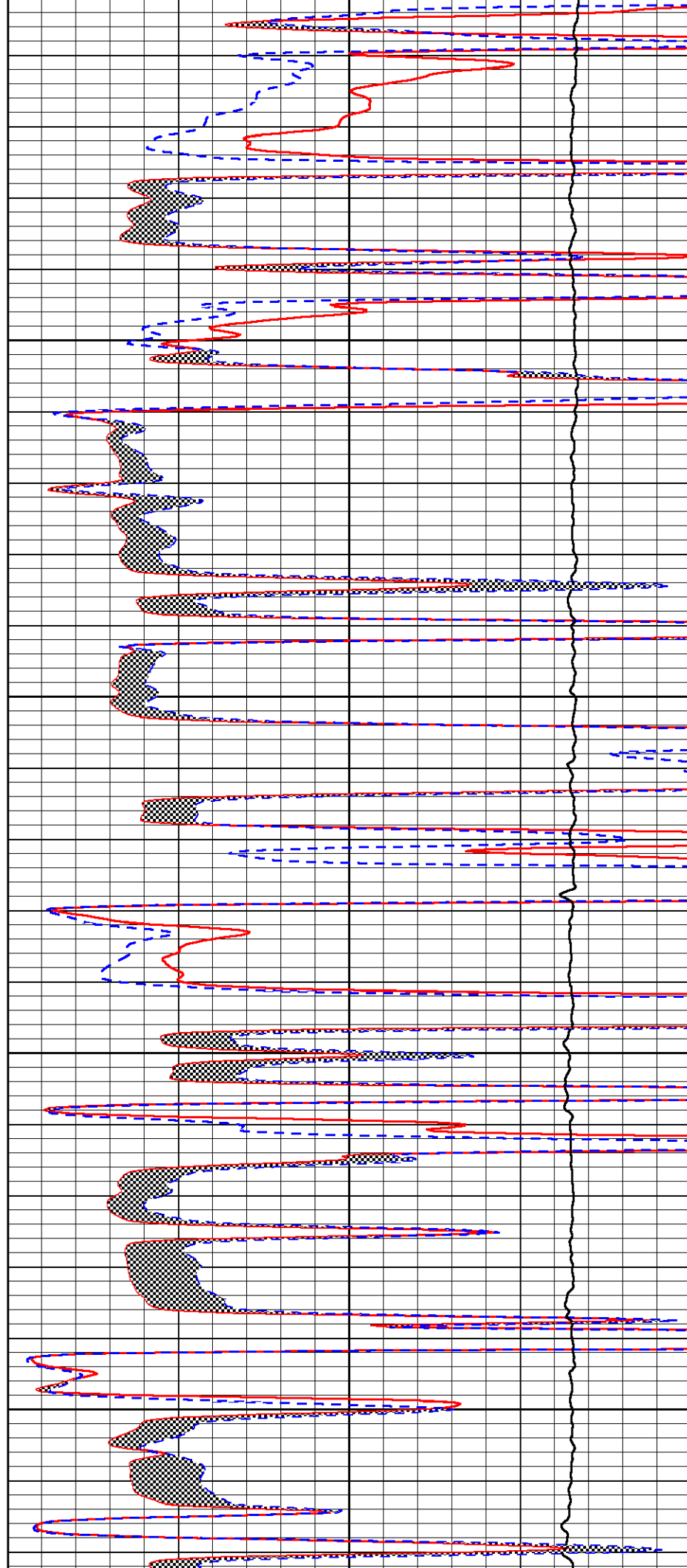


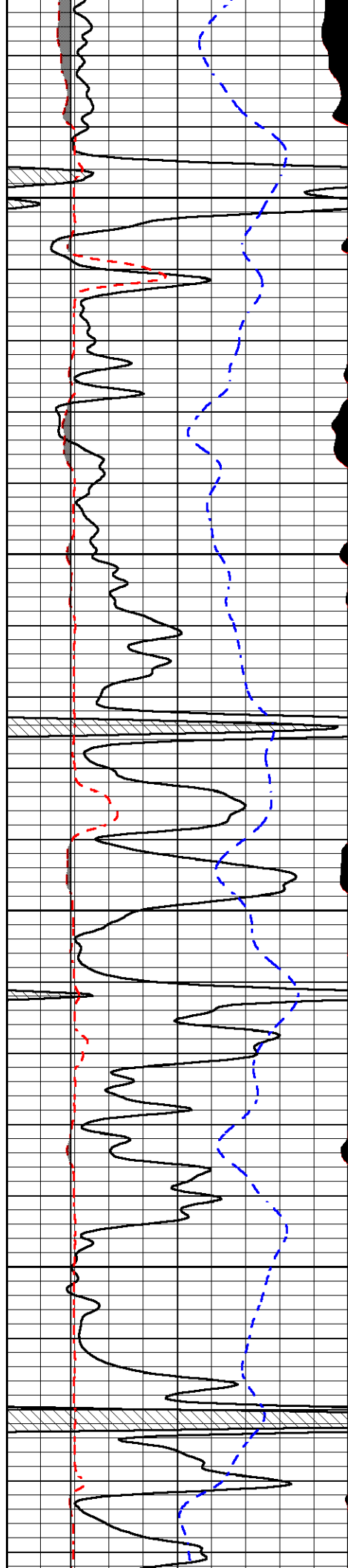
3550

3600

3650

3700



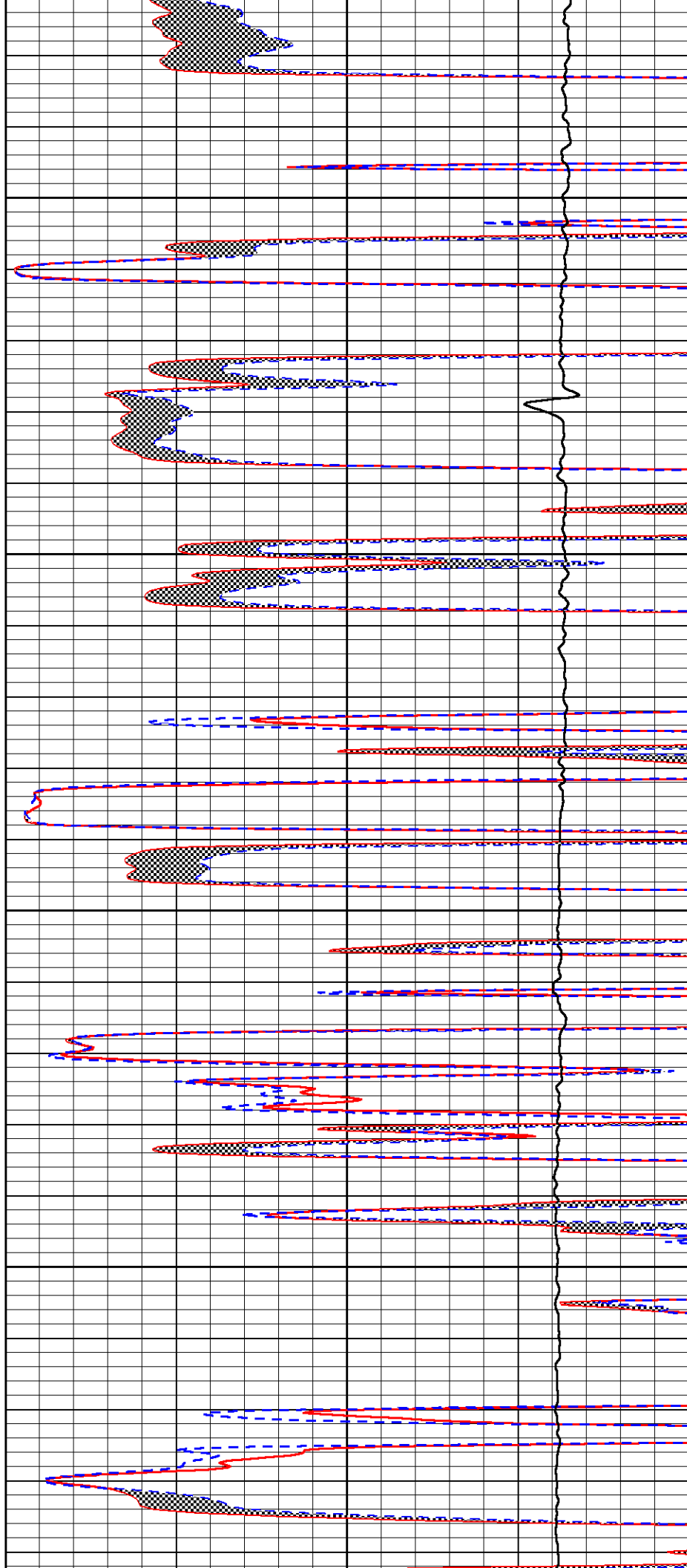


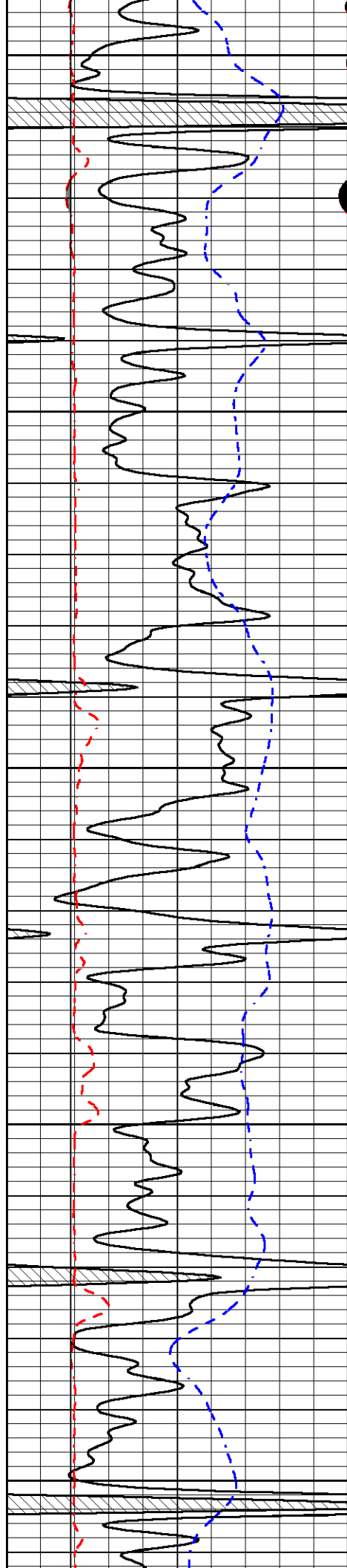
3750

3800

3850

3900





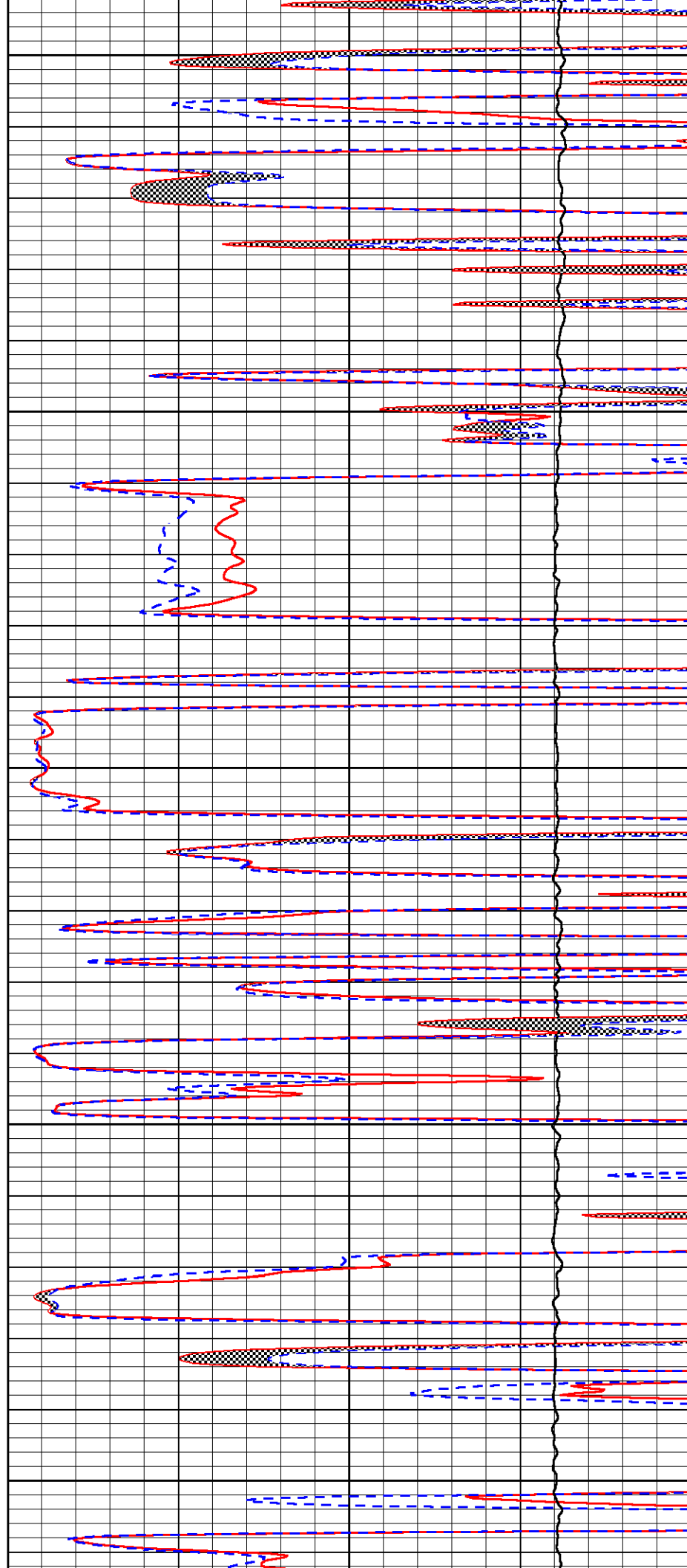
3950

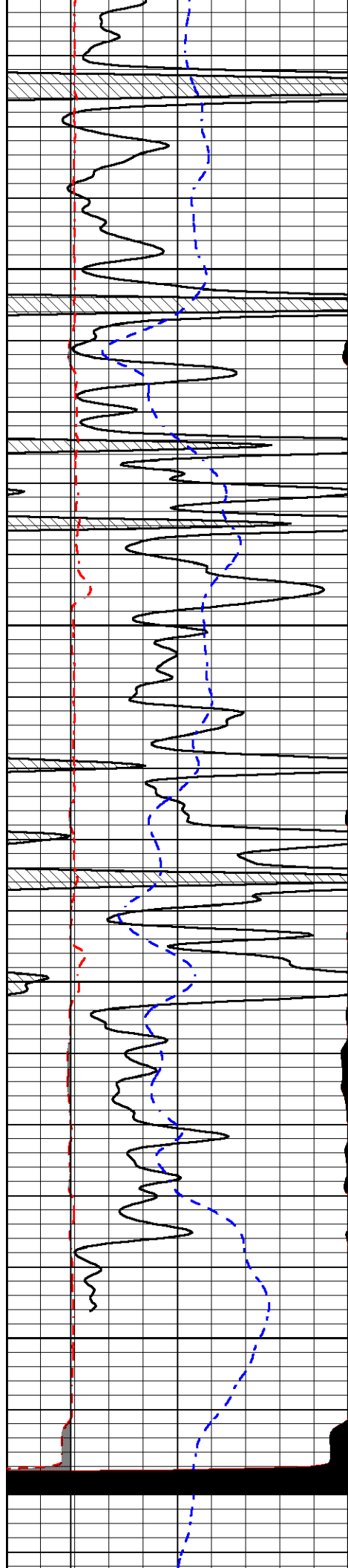
4000

4050

4100

4150



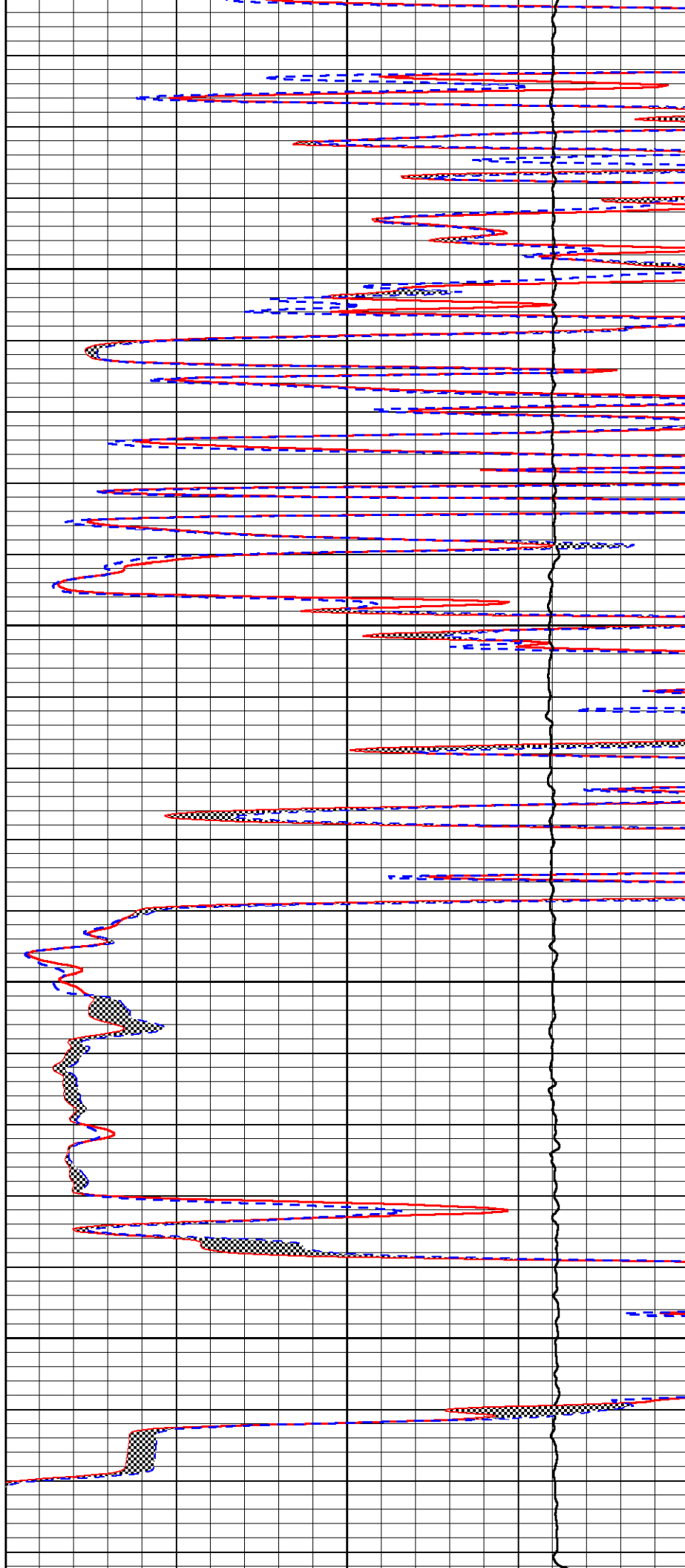


4200

4250

4300

4350



0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

0	Micro Inverese 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

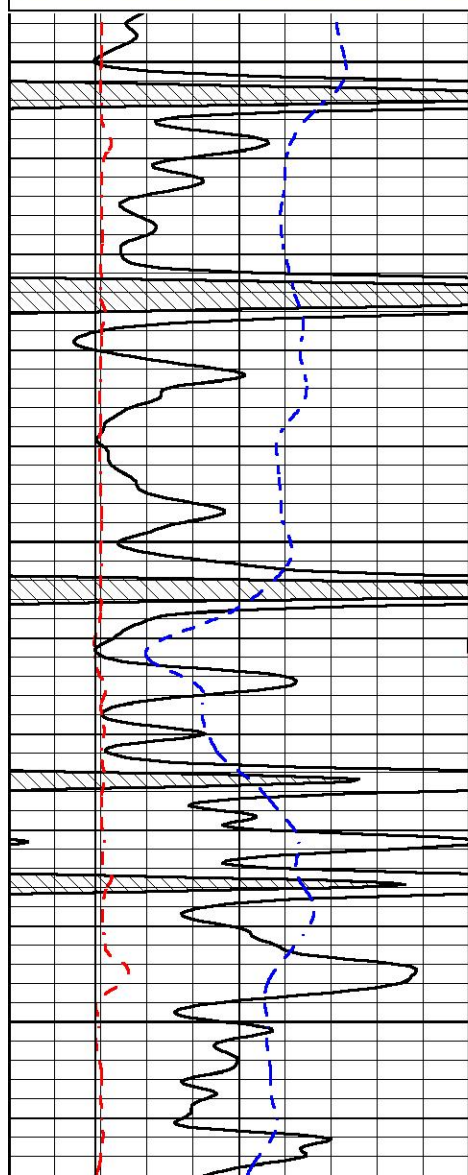


REPEAT SECTION

Database File pickrell_duff a 1.db
Dataset Pathname STKML/pass2.1
Presentation Format micro
Dataset Creation Thu Mar 08 06:28:42 2018
Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

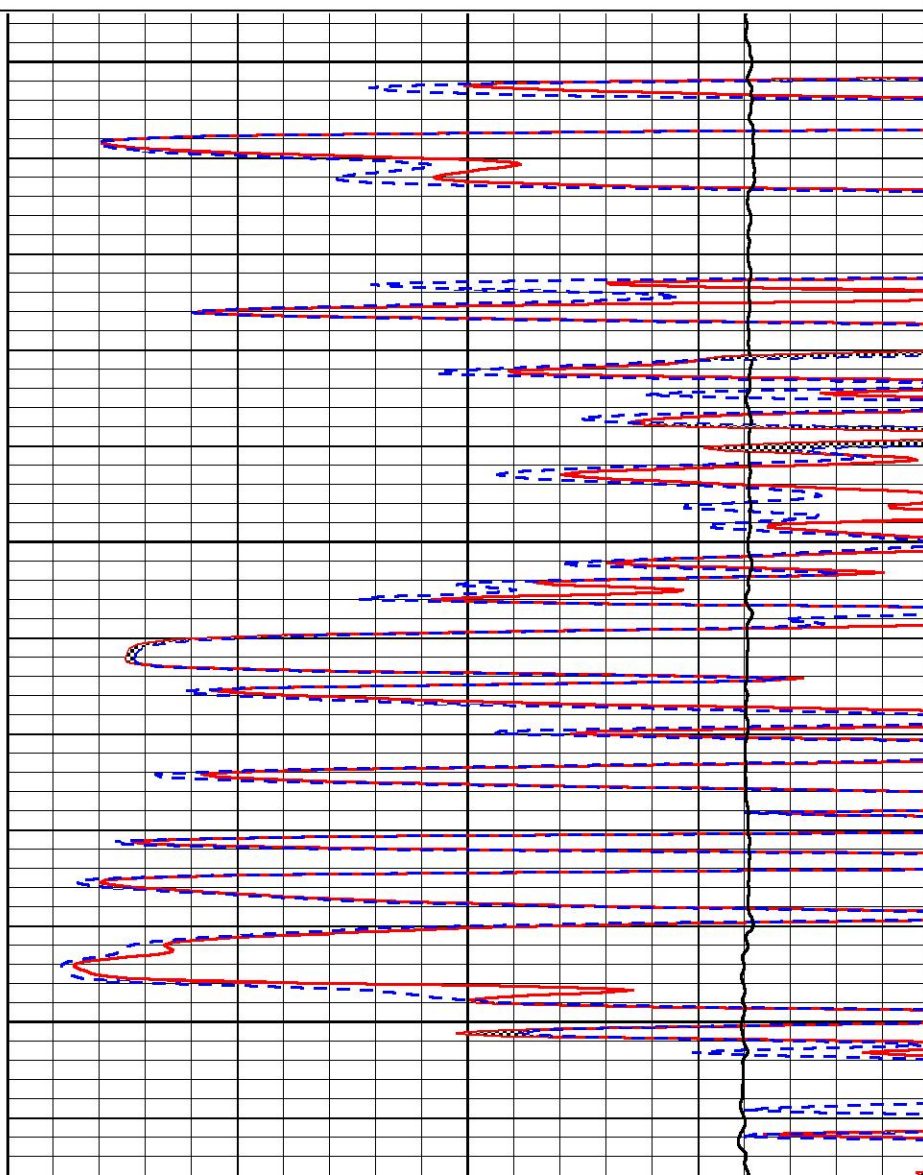
0	Micro Inverese 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

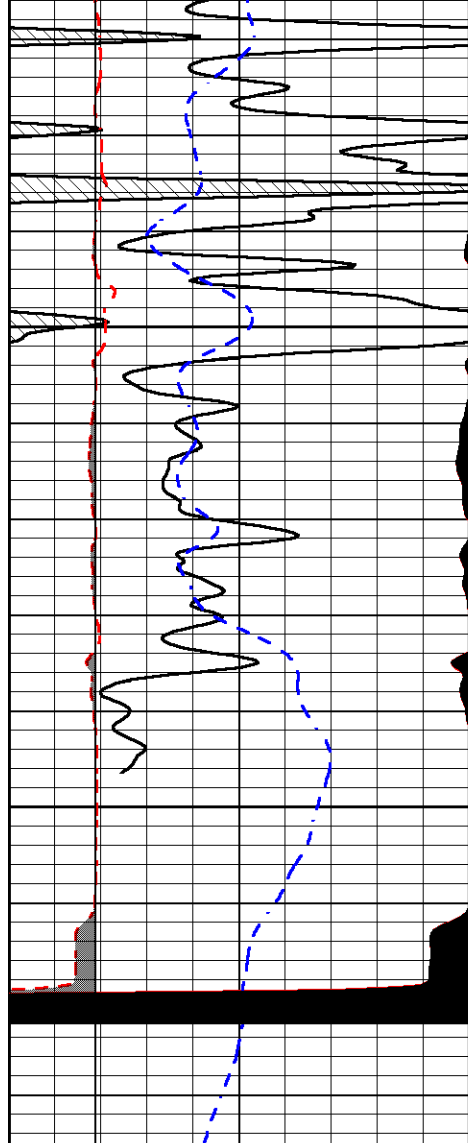


4150

4200

4250

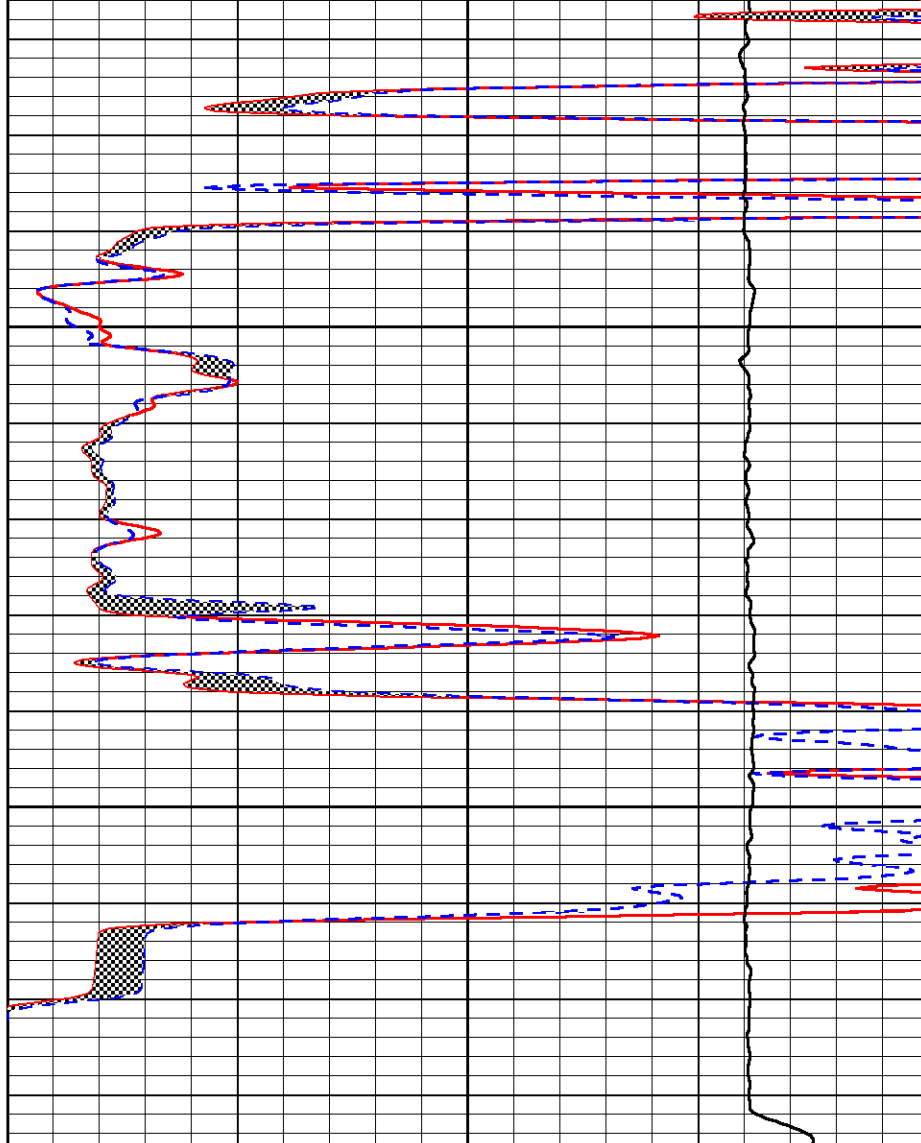




4300

4350

0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcals (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0



0	Micro Inverse 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

Calibration Report

Database File: pickrell_duff a 1.db
 Dataset Pathname: STKML/pass3.1
 Dataset Creation: Thu Mar 08 06:03:43 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP
 Calibration Performed: Sun Feb 18 17:32:17 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-18.350
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-61.000

Microlog Calibration Report

Serial-Model:
Performed:

PSI-01-PSIML
Mon Jan 15 11:19:55 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	38000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.7500

Compensated Density Calibration Report

Serial-Model: 182-152-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Thu Mar 08 04:54:58 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4992.81	6098.44	cps
Aluminum	2.645	g/cc	945.67	3945.60	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.517		
	Size		Reading		
Small Ring	4.50	in	1.09		
Large Ring	15.00	in	1.03		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: MON JAN 15 10:30:30 2018

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: 89
Tool Model: M&W
Calibration Performed: Mon Jan 15 11:20:44 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



Company PICKRELL DRILLING COMPANY, INC.
Well DUFF A #1
Field NONE
County LOGAN

Pioneer Energy Services

State

KANSAS