



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company LANDMARK RESOURCES, INC.
Well GERSTBERGER UNIT #1-20
Field WILDCAT
County WICHITA
State KANSAS

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Location: API #: 15-203-20355-00-00

246' FNL & 215' FEL

SEC 20 TWP 17S RGE 36W

Permanent Datum GROUND LEVEL Elevation 3220'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL/BHCS
Elevation
K.B. 3231'
D.F. N/A
G.L. 3220'

Date	3/29/2019		
Run Number	ONE		
Depth Driller	4795'		
Depth Logger	4800'		
Bottom Logged Interval	4799'		
Top Log Interval	3500'		
Casing Driller	8.625" @ 296'		
Casing Logger	296'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	7500		
Density / Viscosity	9.1 68		
pH / Fluid Loss	10.0 9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.80 @ 69		
Rmf @ Meas. Temp	0.60 @ 69		
Rmc @ Meas. Temp	1.08 @ 69		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.45 @ 124		
Operating Rig Time	5 HOURS		
Max Rec. Temp. F	124		
Equipment Number	P-24		
Location	HAYS		
Recorded By	IAN MABB		
Witnessed By	TERRY MCLEOD		

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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.

LEOTI, KS.
2 MILES EAST TO RD 15,
NORTH 6 1/2 MILES,
WEST INTO

Log Measured From: KELLY BUSHING

11 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: IAN MABB
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: TERRY MCLEOD
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 124	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 4	mmho/m 2	mV 426	degF 41	Off	ft 4800

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	37.48			CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD	28.43			CDL-M&W (96-916)	8.50	4.00	250.00
	DCAL						
	SSD						
MCAL	19.83			ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
	MI						
	MN						
RLL3F	15.80						
RLL3	15.80						
CILD	8.00			DIL-PSI HIGH TEMP (967 (HT))	18.50	3.50	220.00

CILM

4.70

SP

0.20

Dataset: landmark_gerstberger_unit_1_20.db: field/well/stackmel/pass4.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

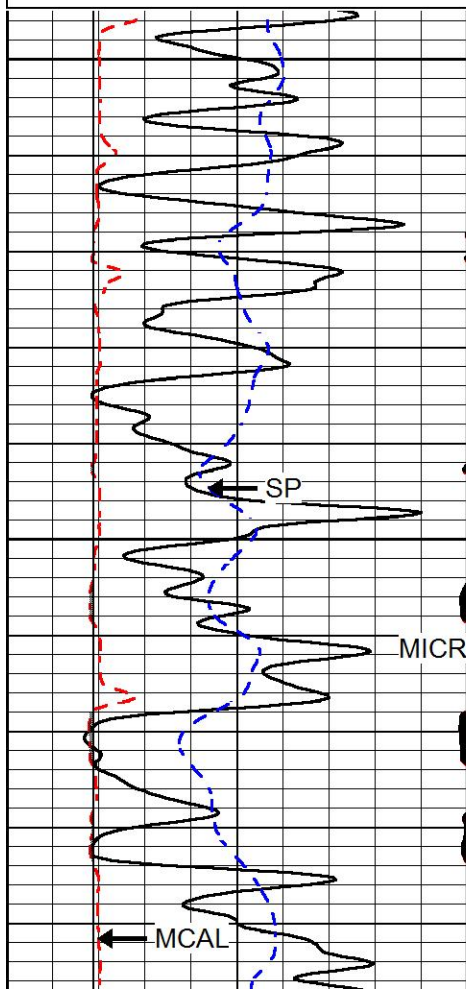


MAIN PASS

Database File landmark_gerstberger_unit_1_20.db
Dataset Pathname stackmel/pass4.1
Presentation Format _micro
Dataset Creation Fri Mar 29 04:53:19 2019
Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mccl (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



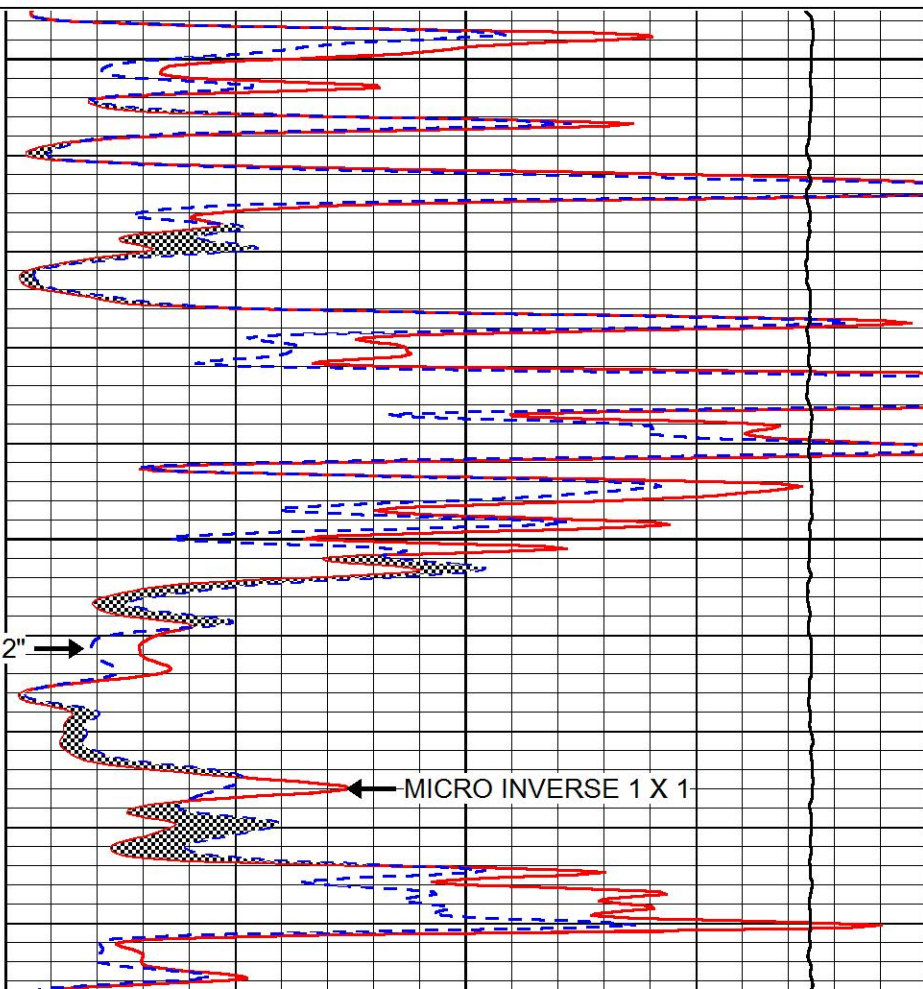
3500

3550

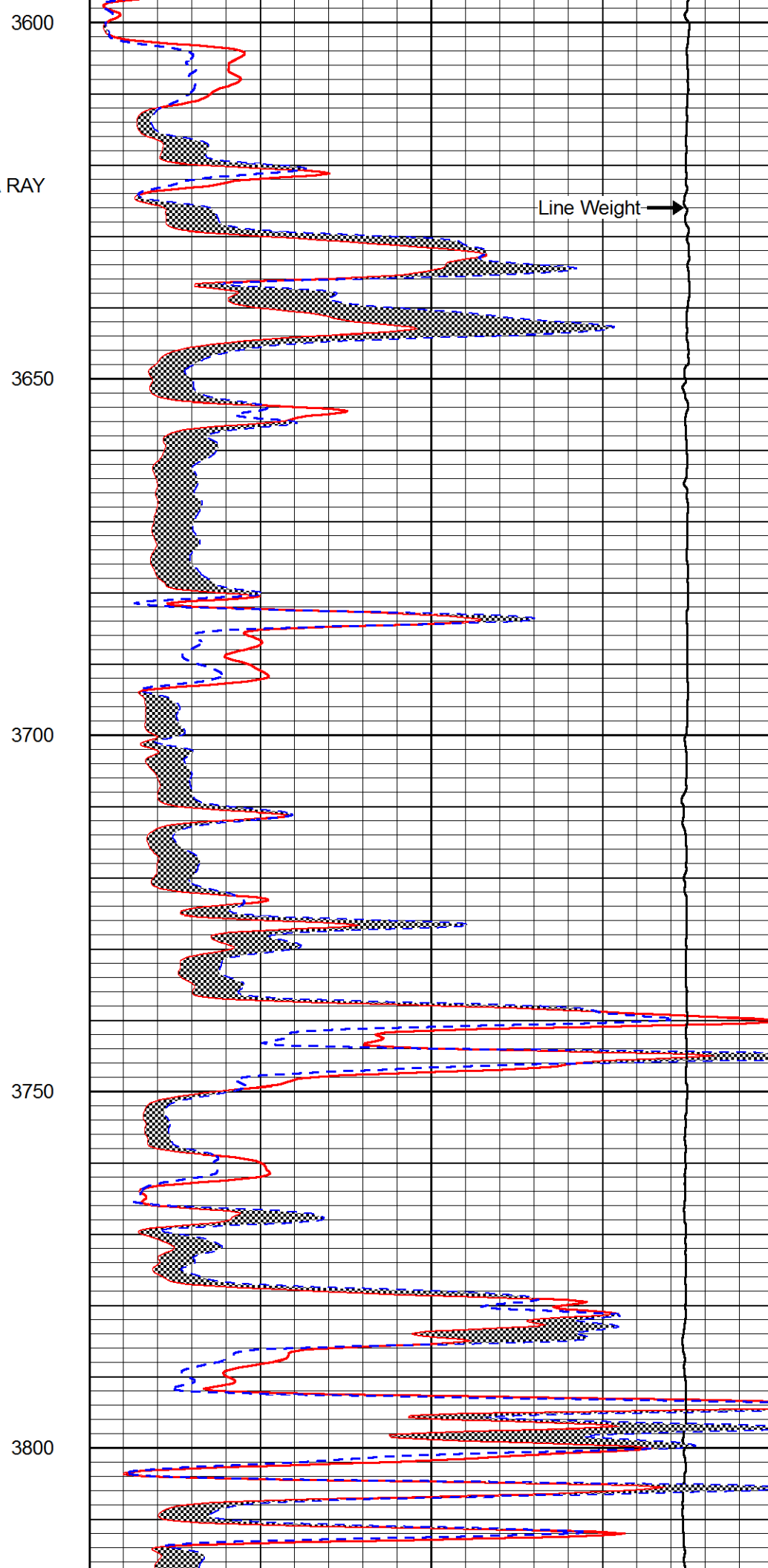
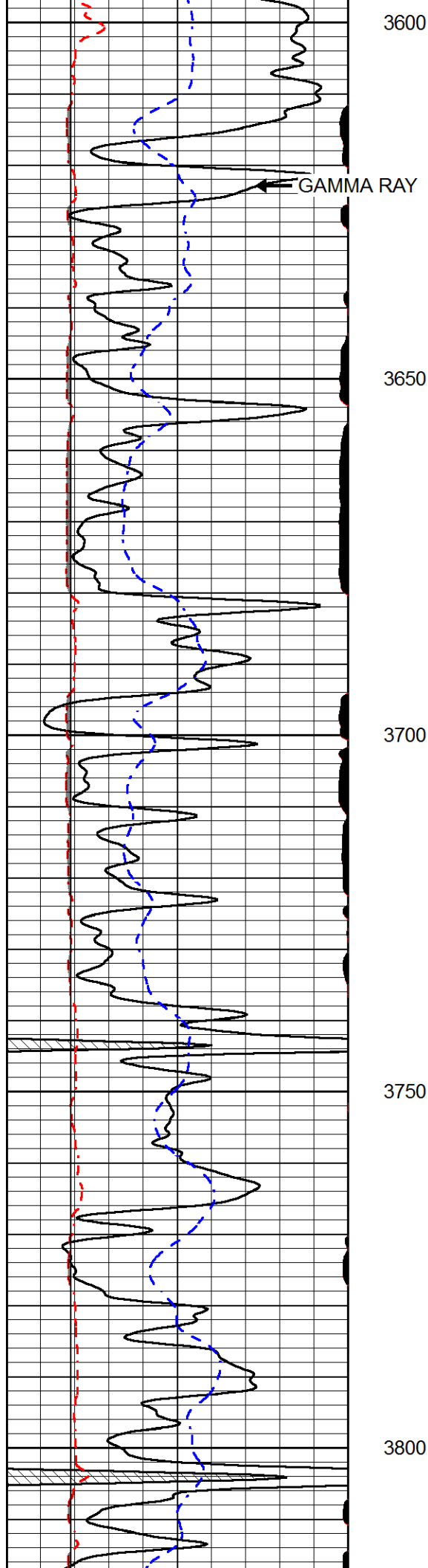
MICRO NORMAL 2"

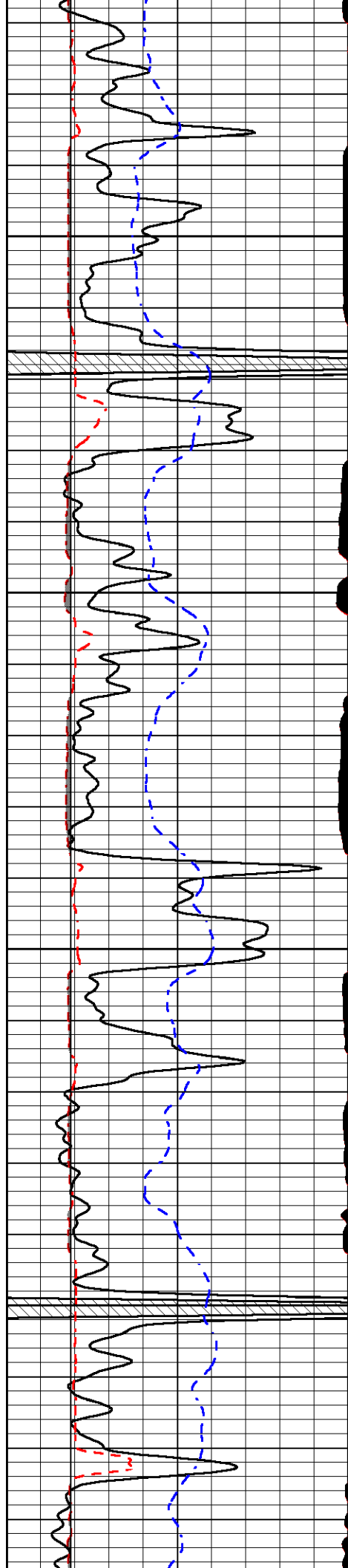
MCAL

SP



MICRO INVERSE 1 X 1



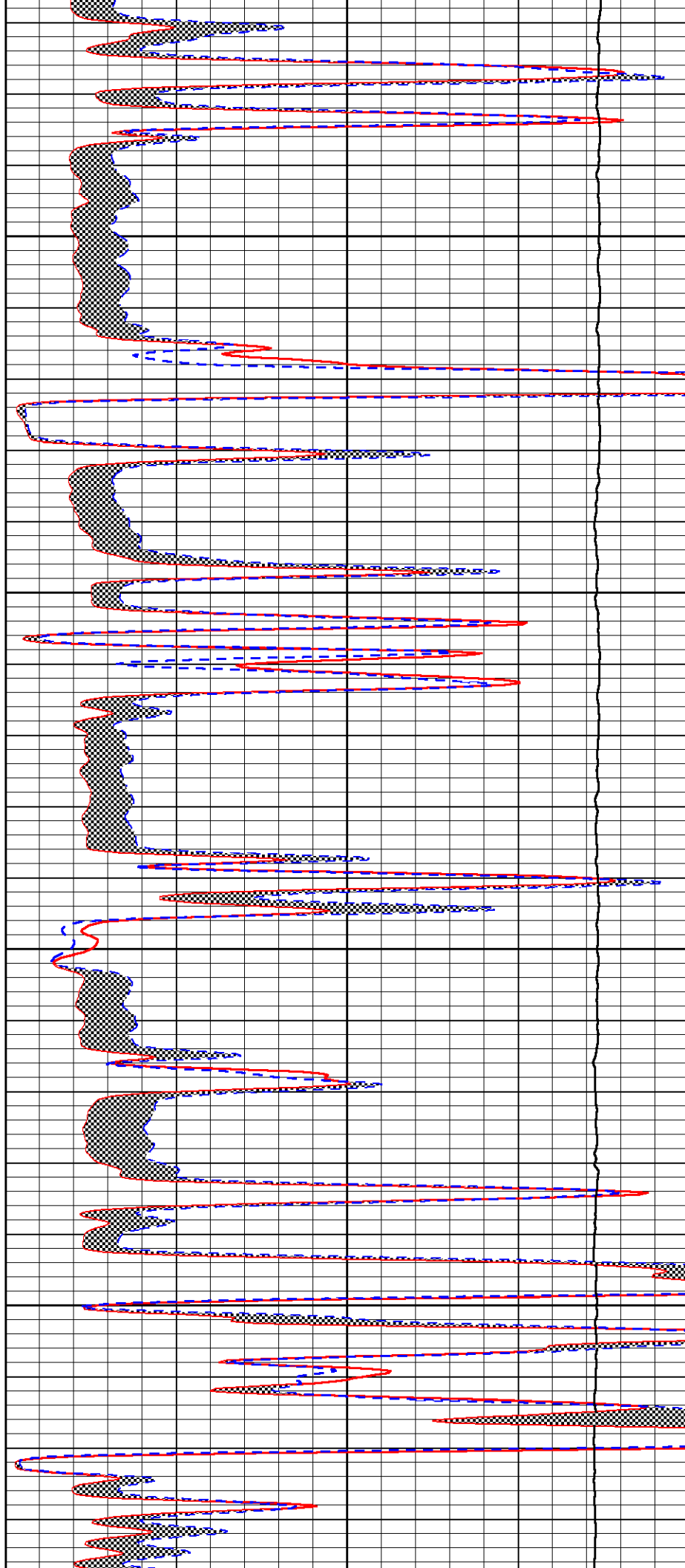


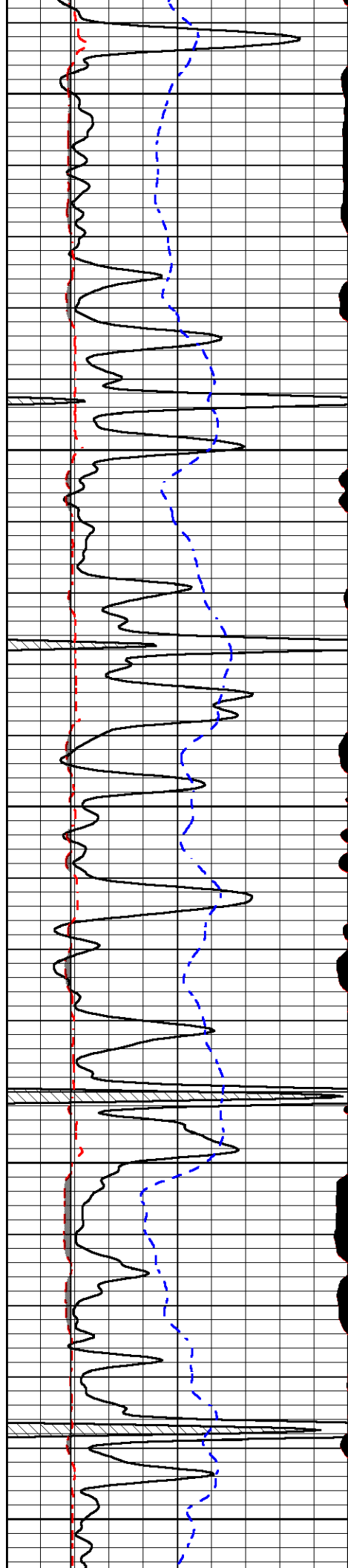
3850

3900

3950

4000





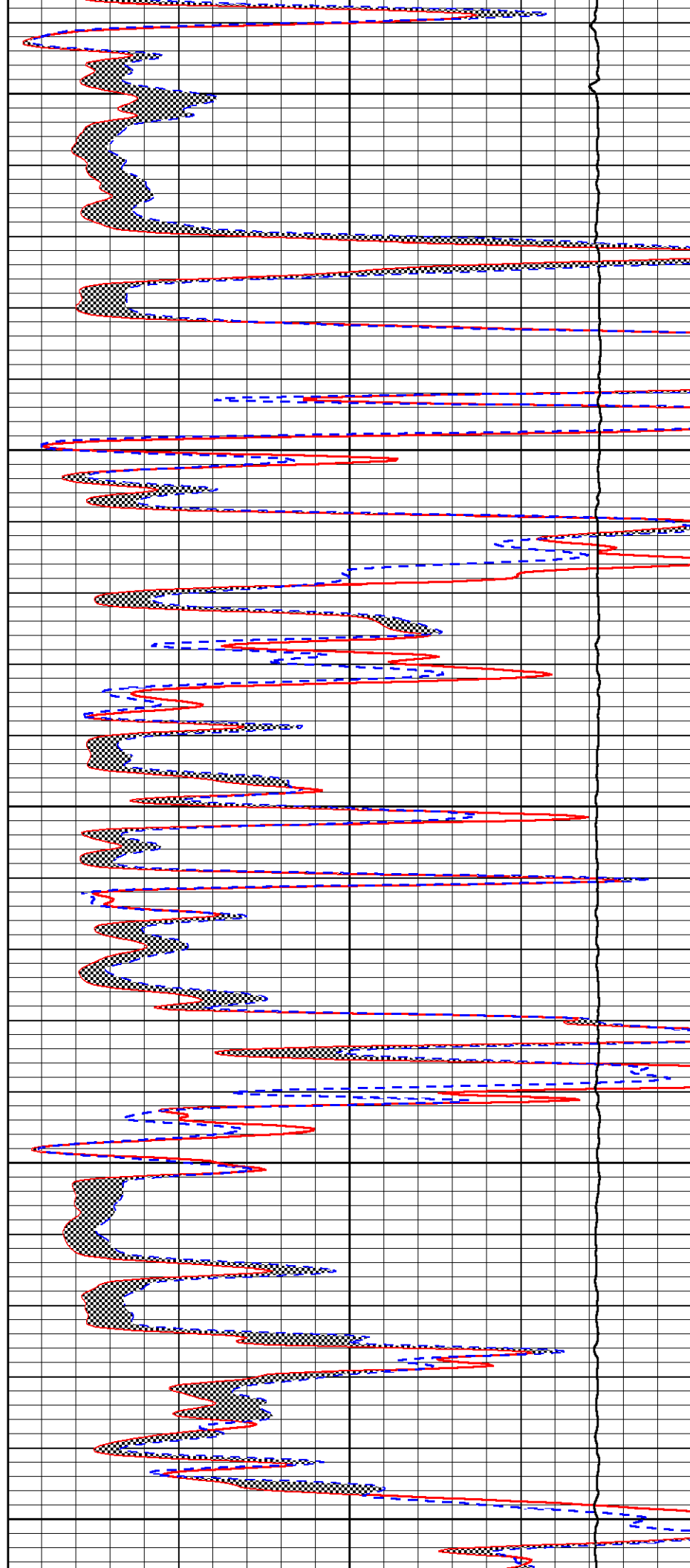
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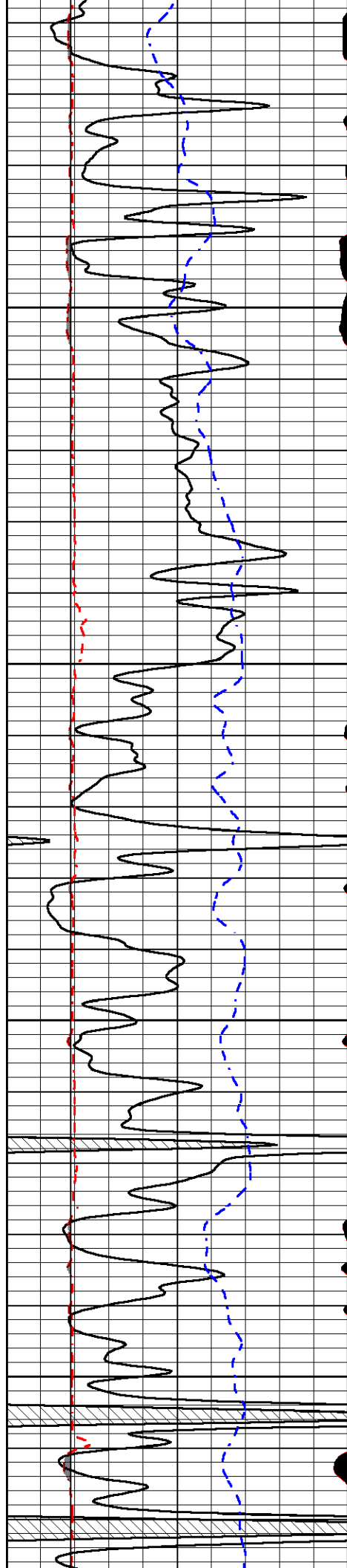
4100

4150

4200

4250



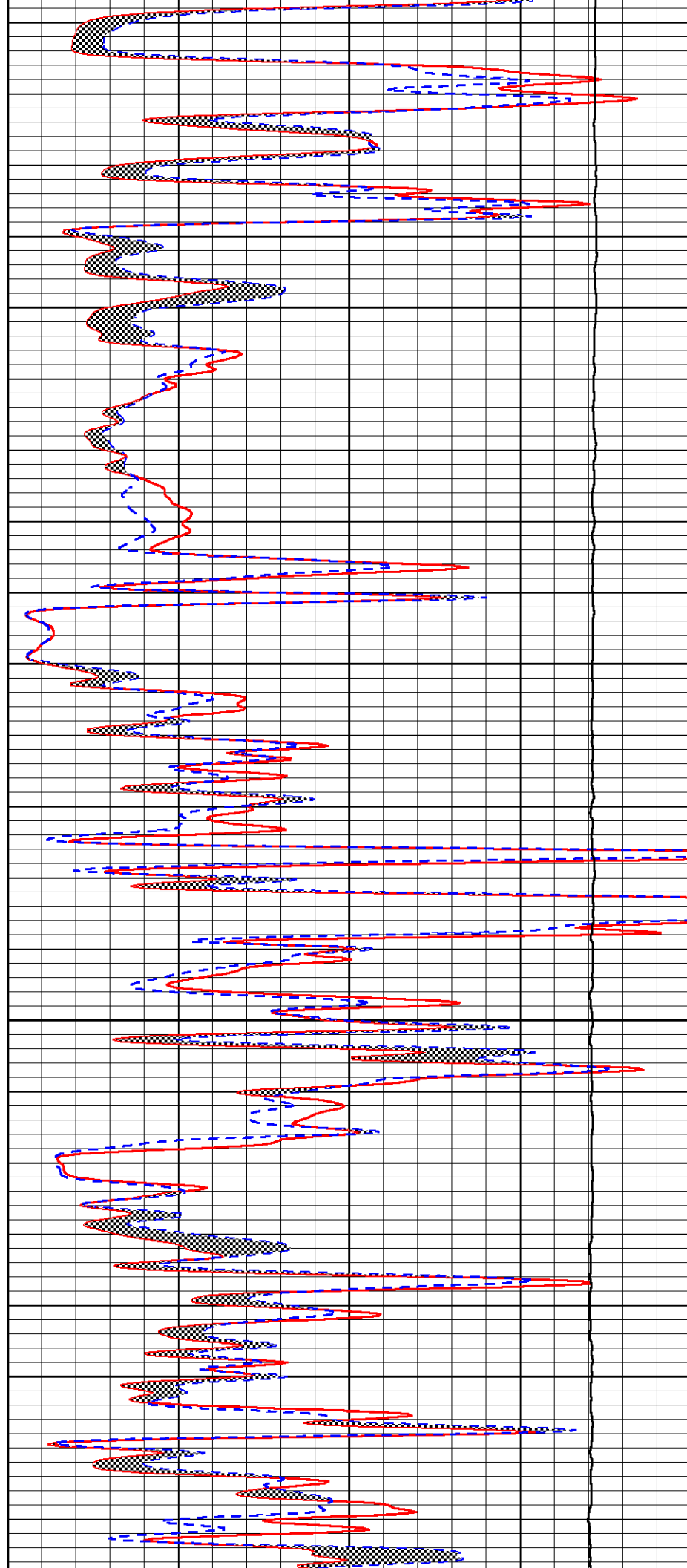


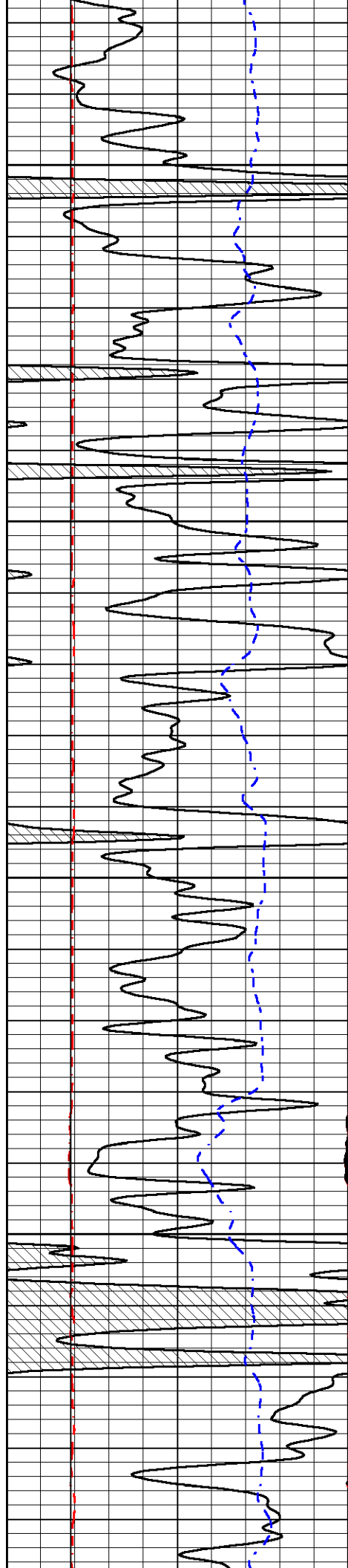
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4350

4400

4450



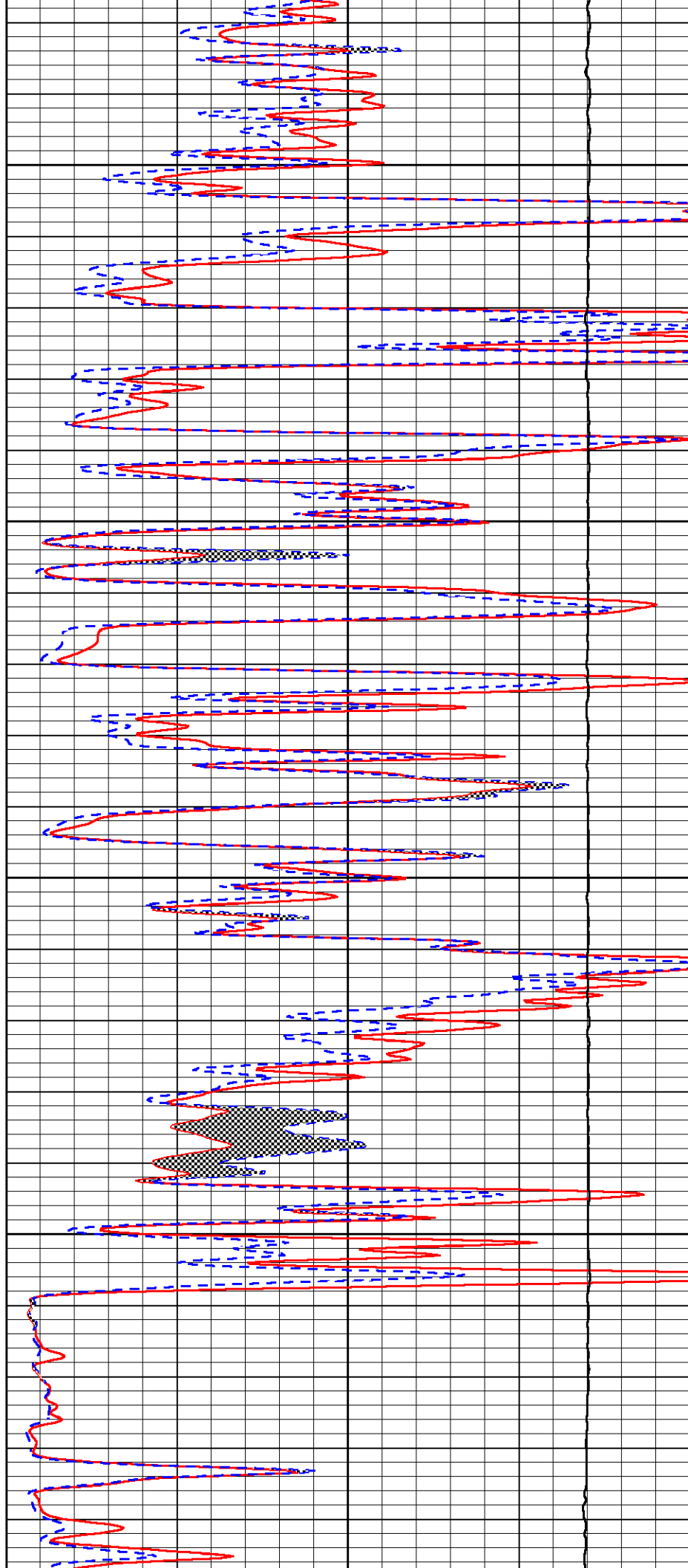


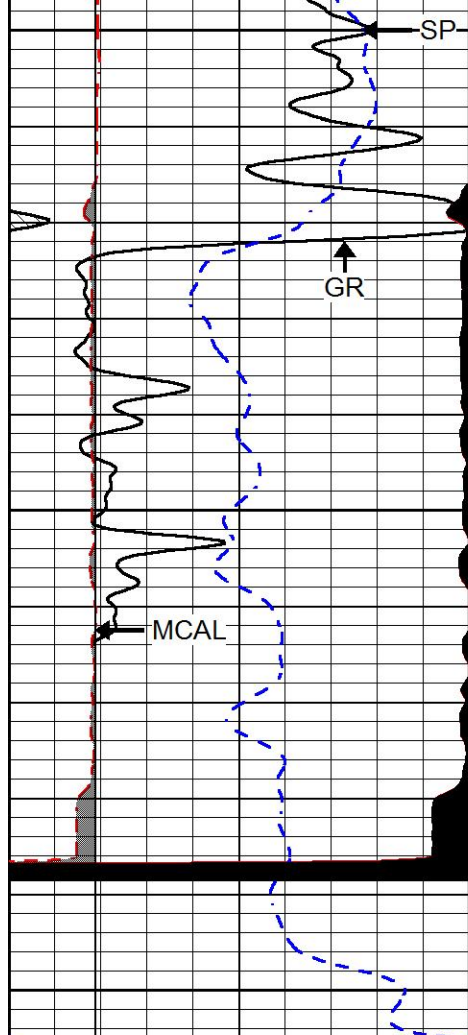
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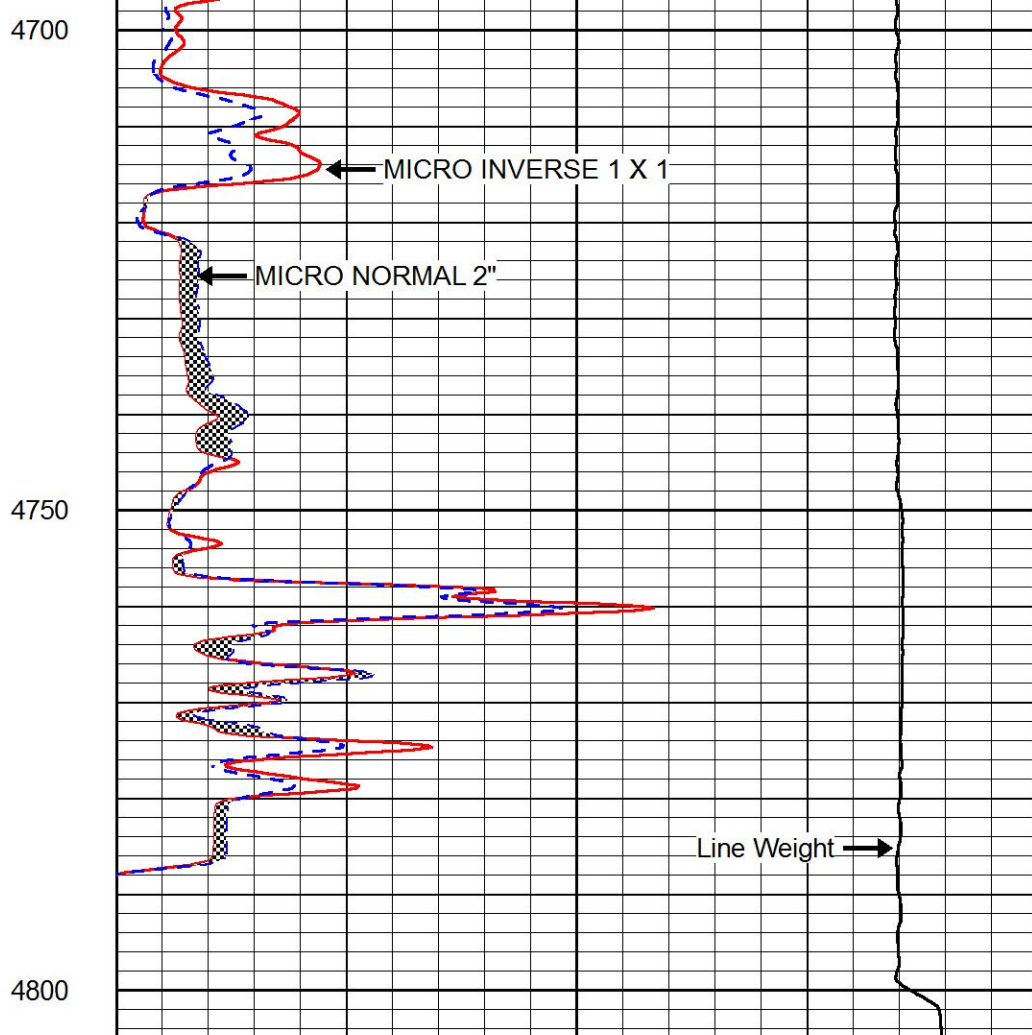
4600

4650





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



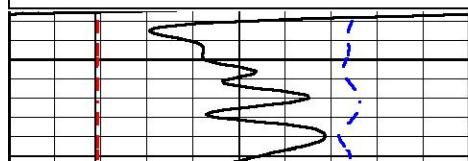
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0



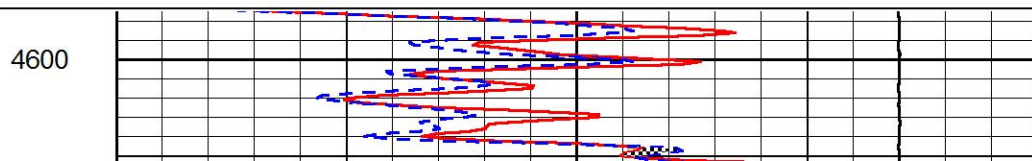
REPEAT SECTION

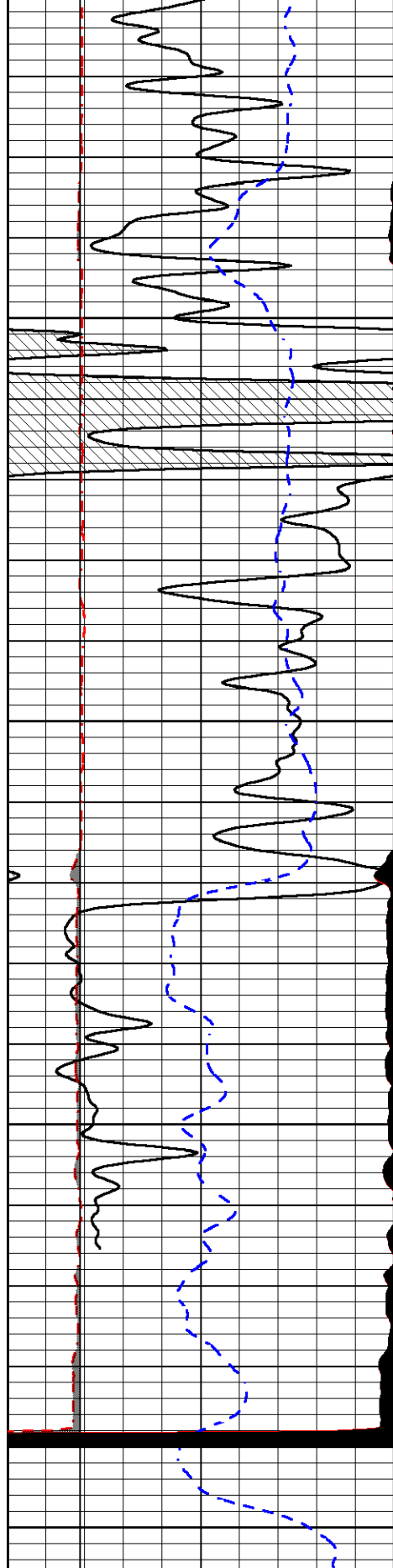
Database File landmark_gerstberger_unit_1_20.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format _micro
 Dataset Creation Fri Mar 29 04:23:37 2019
 Charted by Depth in Feet scaled 1:240

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

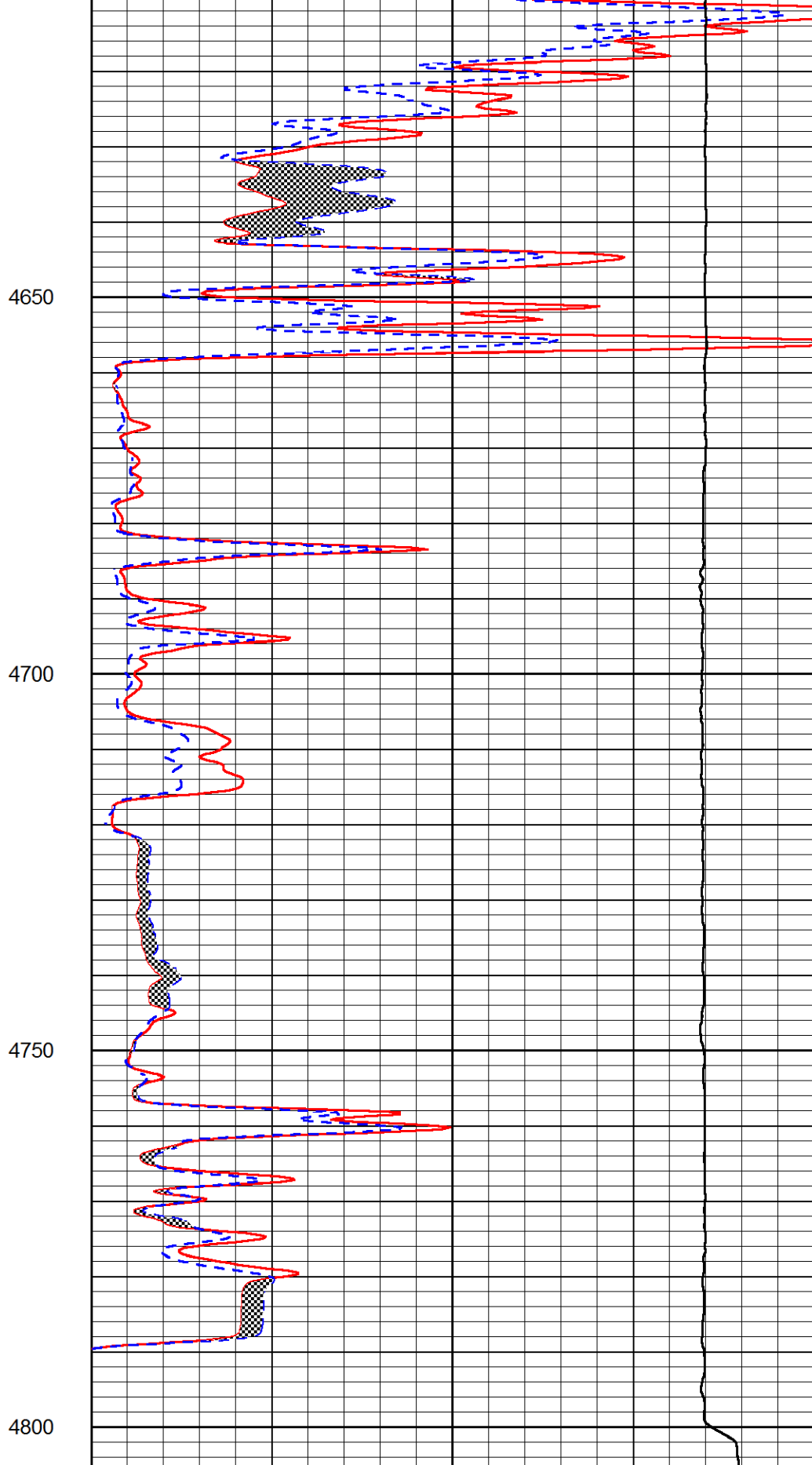


0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0





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 INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0

Calibration Report	
Database File	landmark_gerstberger_unit_1_20.db
Dataset Pathname	stackmel/pass4.1
Dataset Creation	Fri Mar 29 04:53:19 2019

Dual Induction Calibration Report

Serial-Model:	967 (HT)-PSI HIGH TEMP
Calibration Performed:	Sun Oct 07 19:24:22 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-40.000

Microlog Calibration Report

Serial-Model:	PSI-01-PSIML
Performed:	Sun Feb 24 09:53:40 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	21000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8000

Compensated Density Calibration Report

Serial-Model:	96-916-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Wed Mar 27 11:00:53 2019

Master Calibration						
	Density		Far Detector		Near Detector	
Magnesium	1.755	g/cc	8943.64	10054.60	cps	
Aluminum	2.655	g/cc	1595.61	6242.82	cps	
Spine Angle = 74.54			Density/Spine Ratio = 0.503			
	Size		Reading			
Small Ring	6.00	in	1.75			
Large Ring	16.00	in	1.46			

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	WED FEB 13 10:30:30 2019

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:	Fri Aug 24 11:16:10 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	LANDMARK RESOURCES, INC.
Well	GERSTBERGER UNIT #1-20
Field	WILDCAT
County	WICHITA
State	KANSAS