



DUAL INDUCTION LOG

PIONEER
Pioneer Energy Services

Company **TDI, INC.**
Well **UNREIN #1**
Field **WILDCAT**
County **ELLIS** State **KANSAS**

Location: API #: 15-051-26920-00-00

625' FSL & 565' FEL

SEC 29 TWP 14S RGE 17W

Permanent Datum **GROUND LEVEL** Elevation **1926'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Other Services
CNL/CDL
MEL
Elevation
K.B. 1936'
D.F. N/A
G.L. 1926'

Date	7/26/2018		
Run Number	ONE		
Depth Driller	3550'		
Depth Logger	3548'		
Bottom Logged Interval	3547'		
Top Log Interval	1090'		
Casing Driller	8.625" @ 1106'		
Casing Logger	1104'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	6200		
Density / Viscosity	9.0 65		
pH / Fluid Loss	11.0 6.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.20 @ 79		
Rmt @ Meas. Temp	0.15 @ 79		
Rmc @ Meas. Temp	0.27 @ 79		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.14 @ 112		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	112		
Equipment Number	91		
Location	HAYS		
Recorded By	IAN MABB		
Witnessed By	HERB DEINES		

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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.

MUNJOR, KS.

2 MILES EAST, 1 MILE SOUTH AND WEST INTO

Log Measured From: KELLY BUSHING

10 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: HERB DEINES

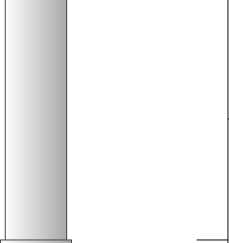
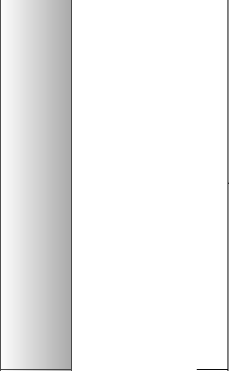
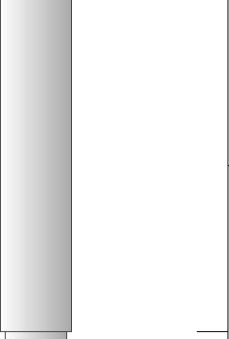
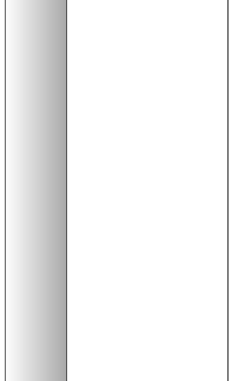
Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-6	2
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	73	0	5.5	0	3548	112	7.875

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 (817-947)	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					

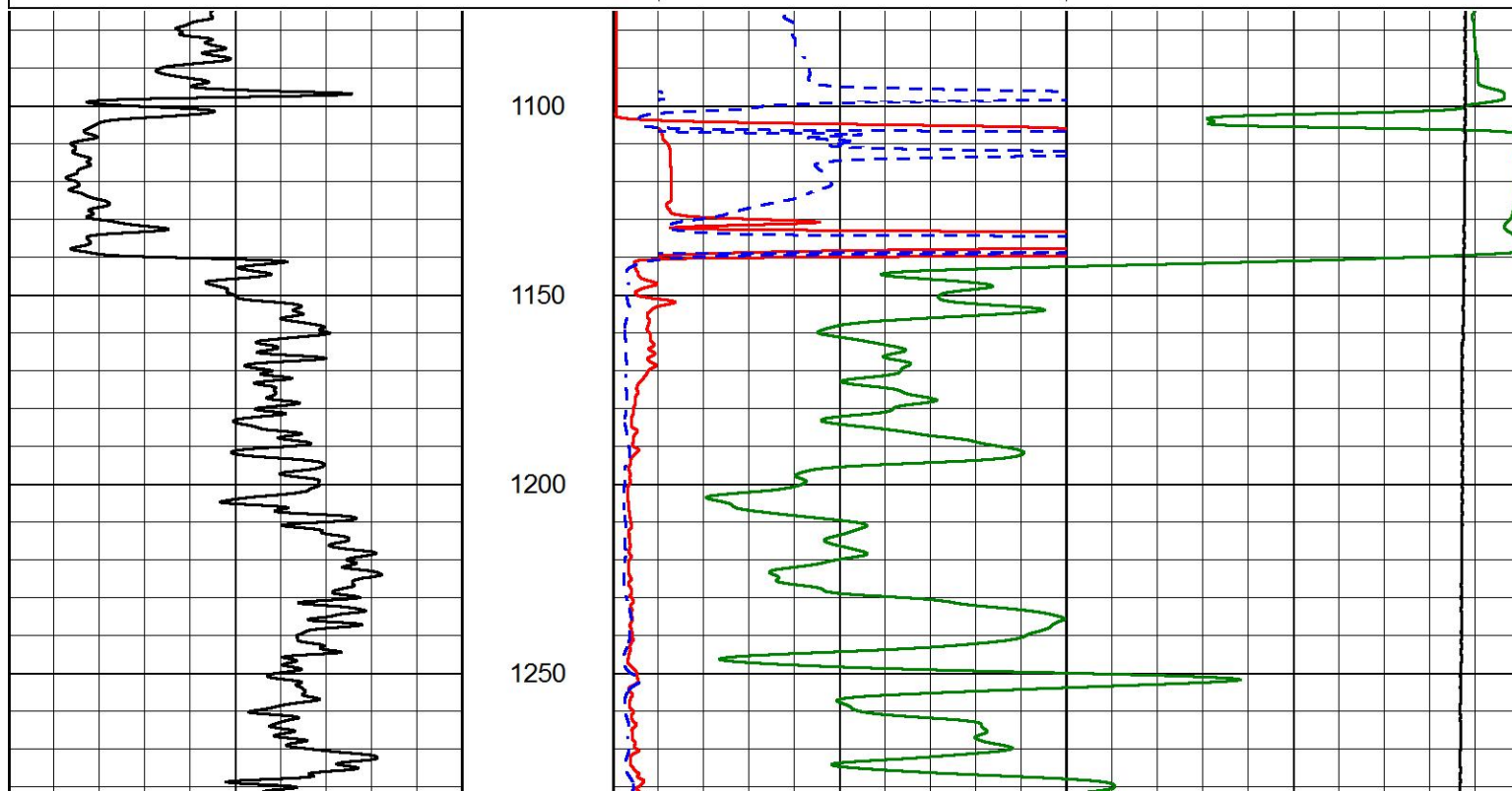
			DIL-PSI HIGH TEMP (933 (HT))	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: tdi_unrein_1.db: field/well/stackmel/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

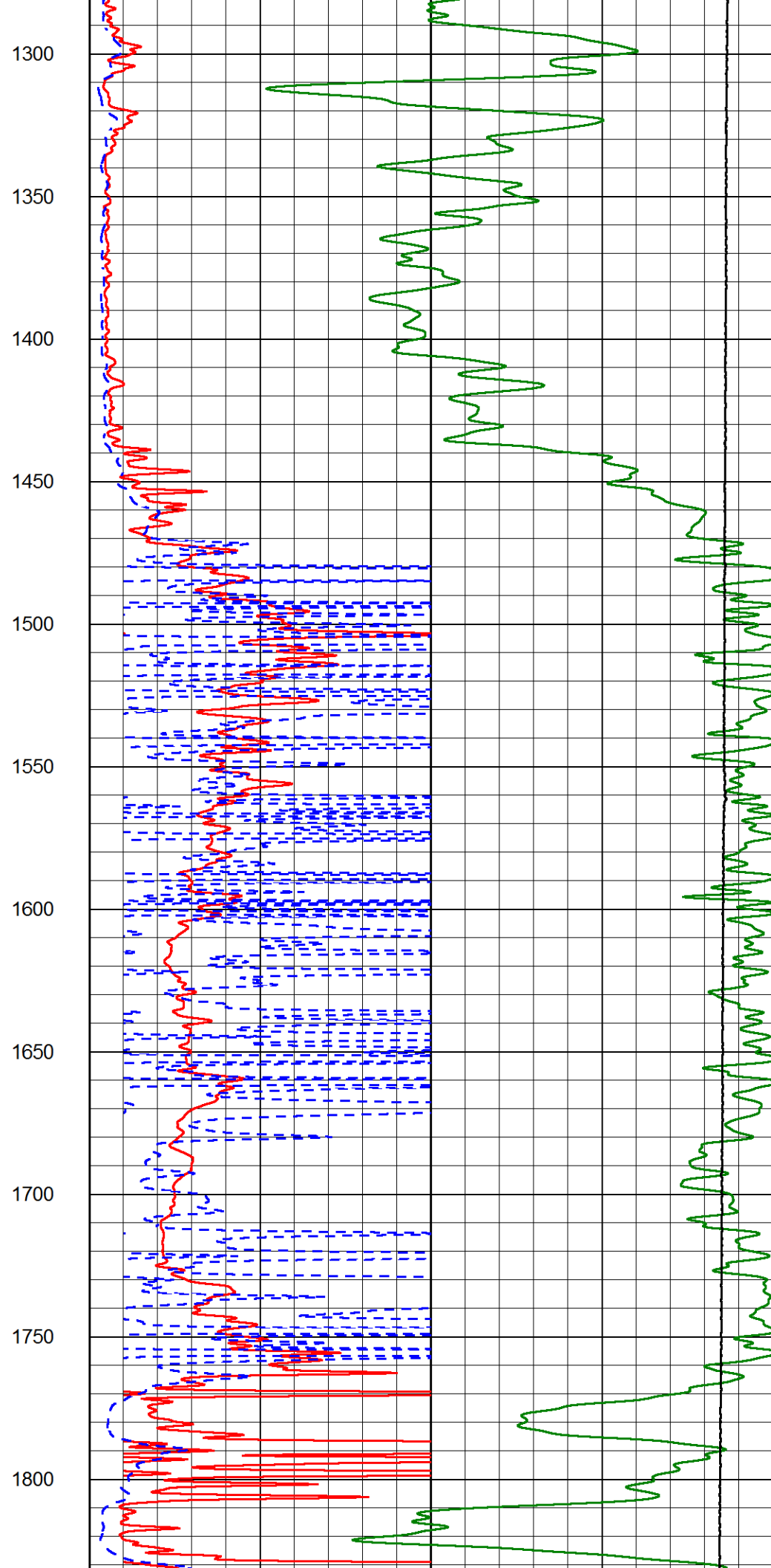
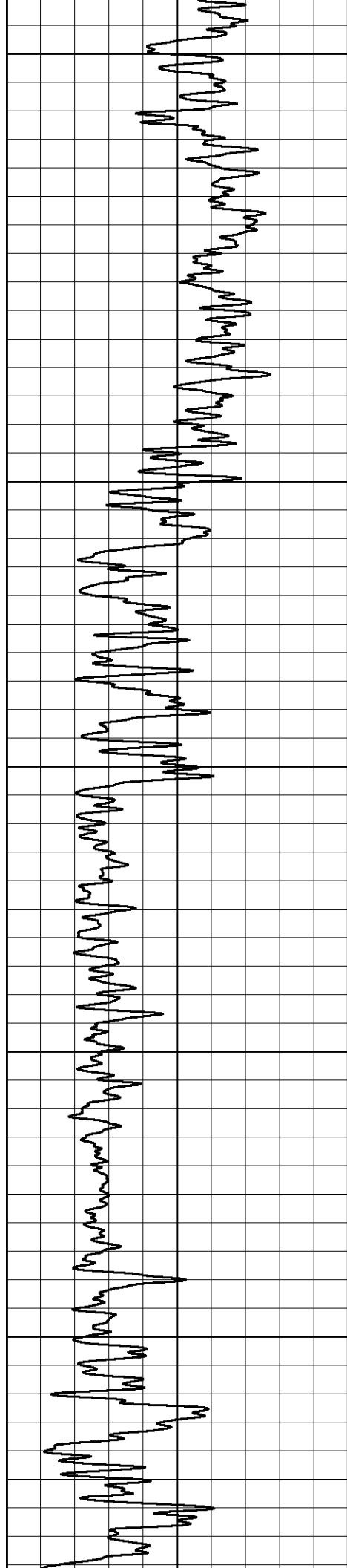


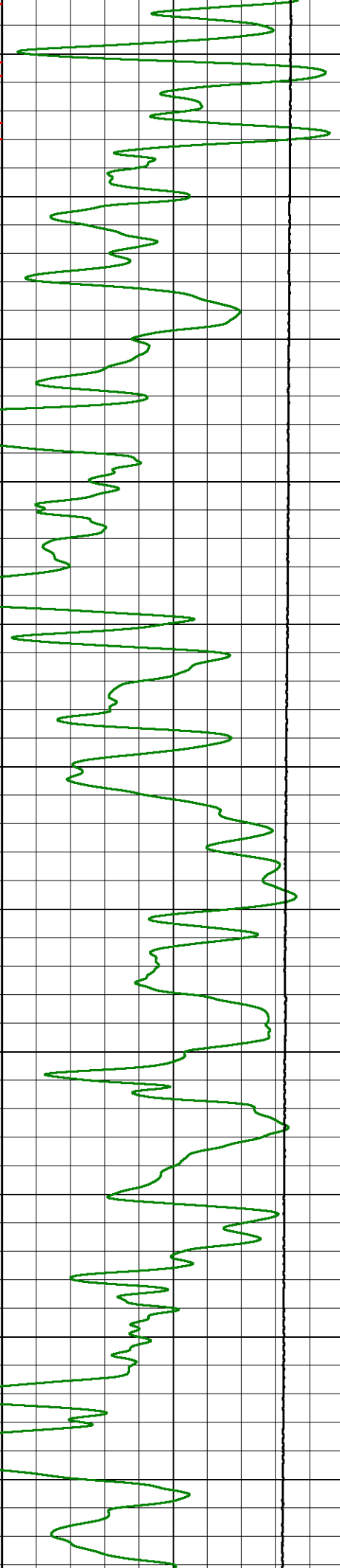
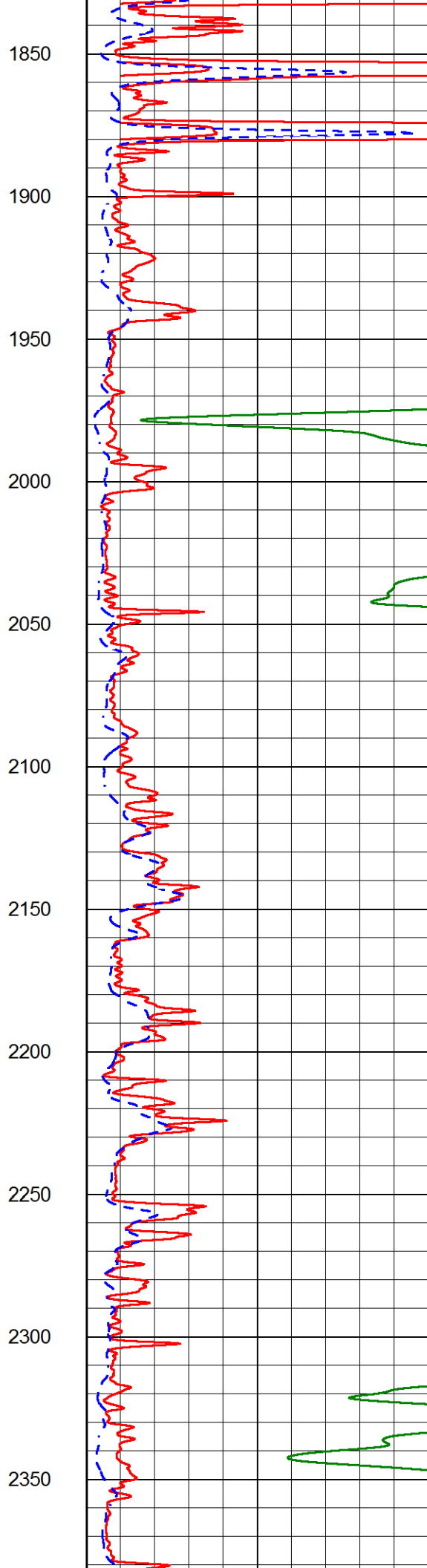
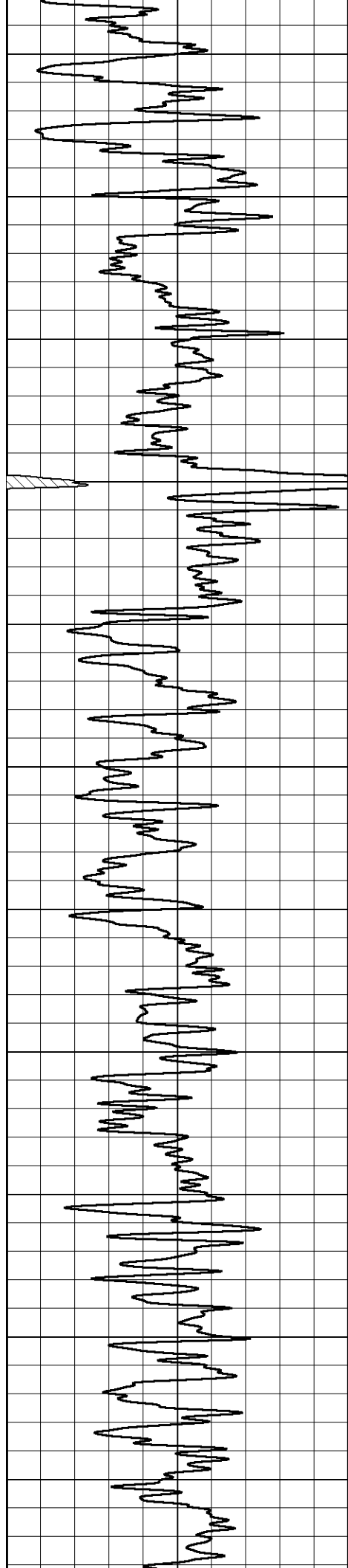
MAIN PASS

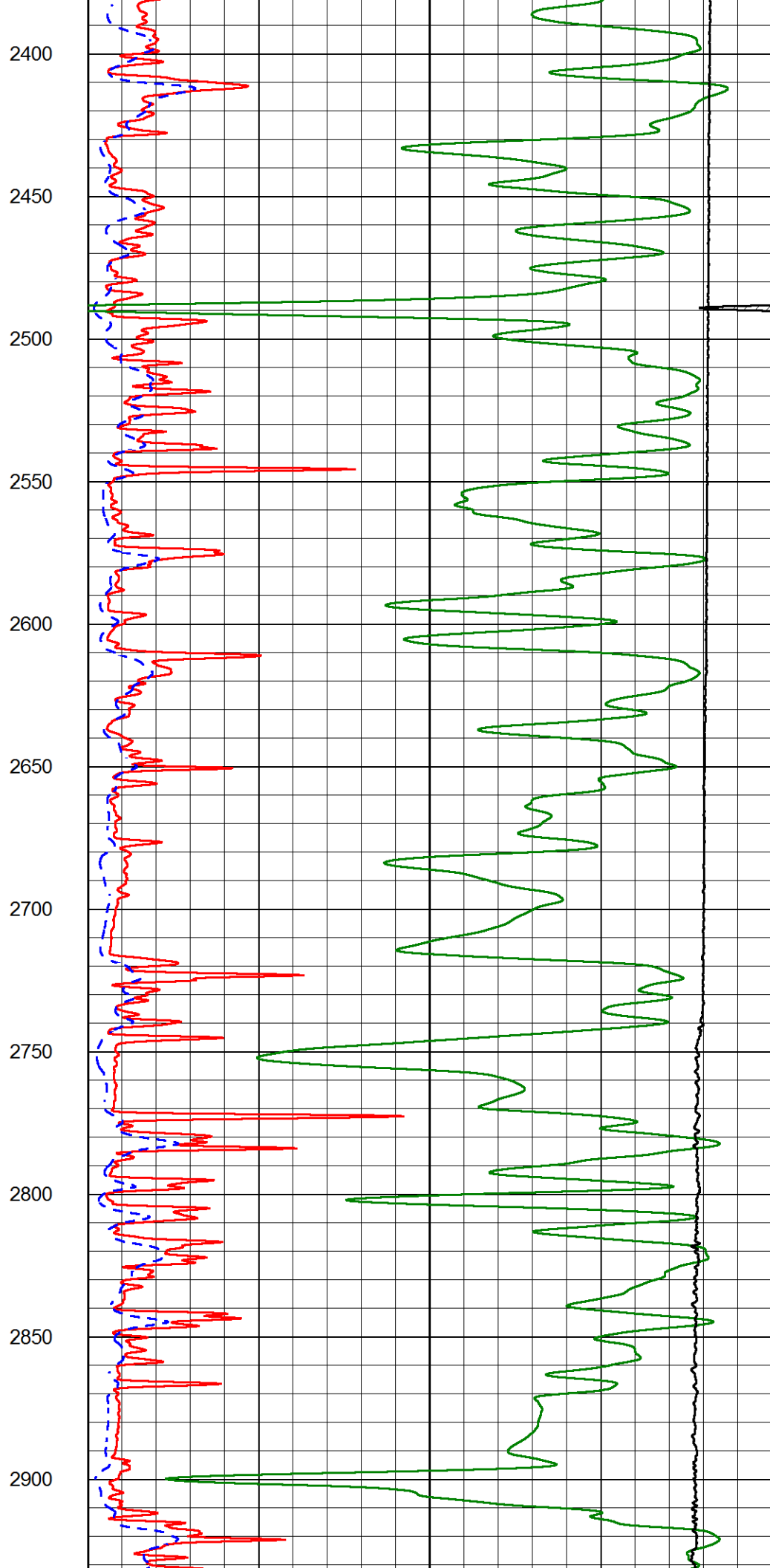
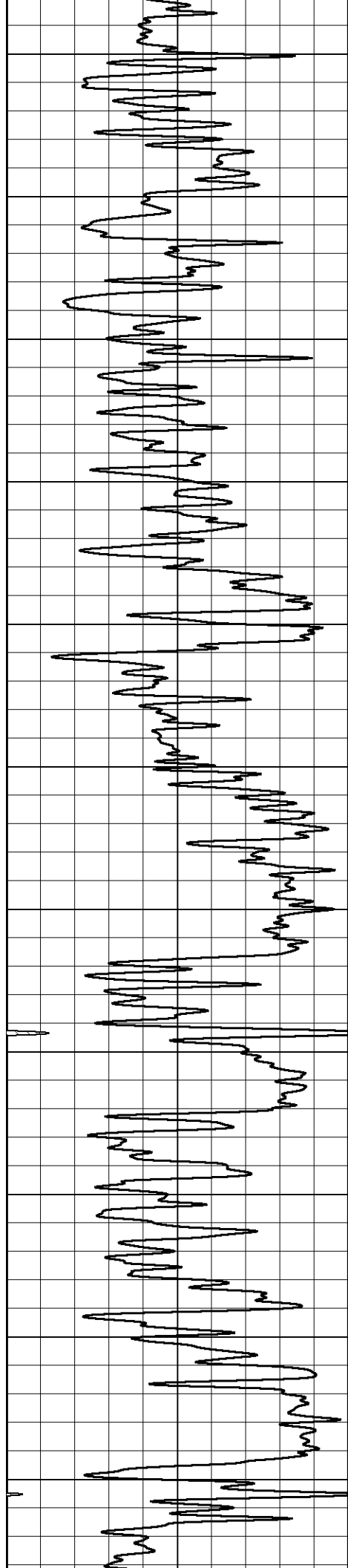
Database File	tdi_unrein_1.db
Dataset Pathname	stackmel/pass4.1
Presentation Format	dil2in
Dataset Creation	Fri Jul 27 00:43:56 2018
Charted by	Depth in Feet scaled 1:600

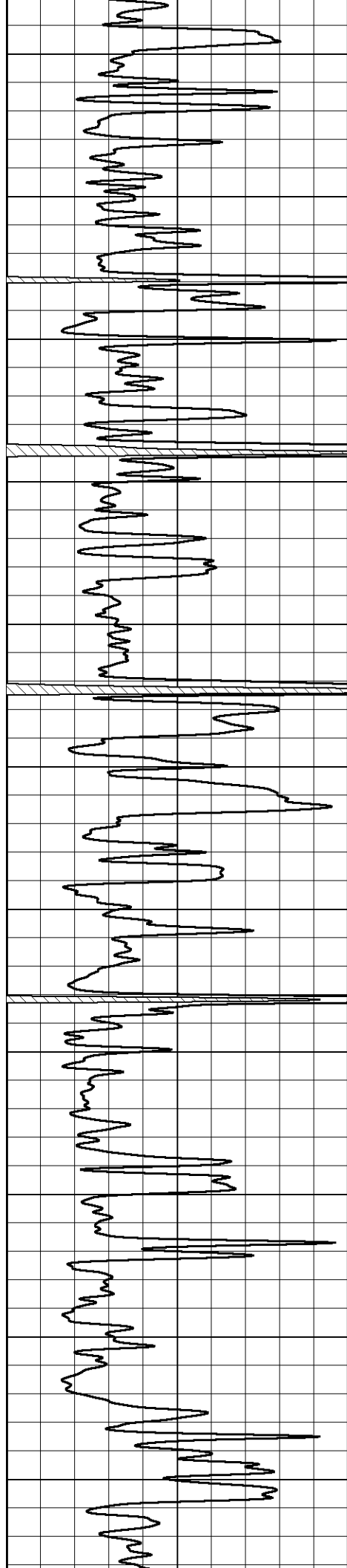
GAMMA RAY 0 (GAPI) 150	1000	CONDUCTIVITY (mmho/m)	0
	15000	Line Tension (lb)	0
	0	RLL3 (Ohm-m)	50
	0	DEEP RESISTIVITY (Ohm-m)	50
	50	RLL3 (Ohm-m)	500
	50	Deep Resistivity (Ohm-m)	500











2950

3000

3050

3100

3150

3200

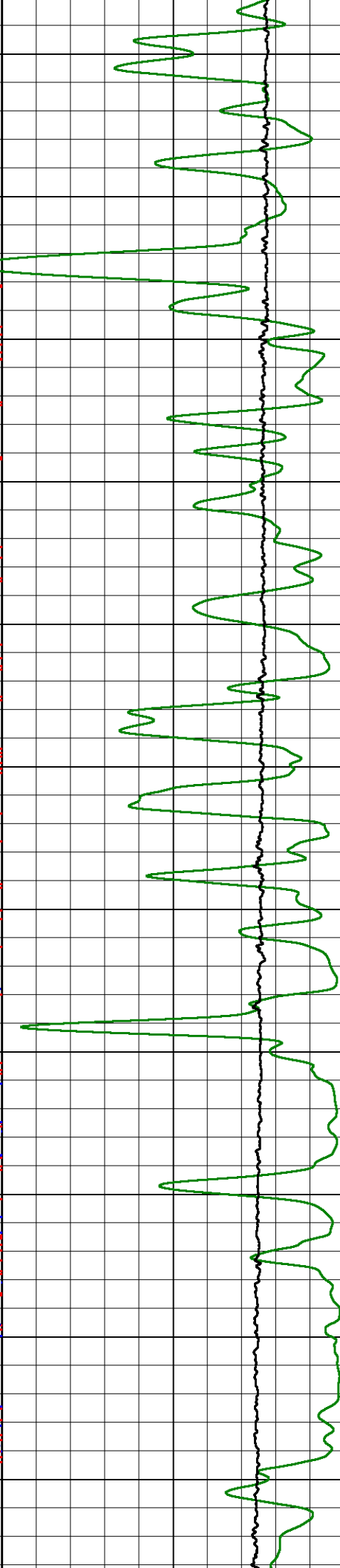
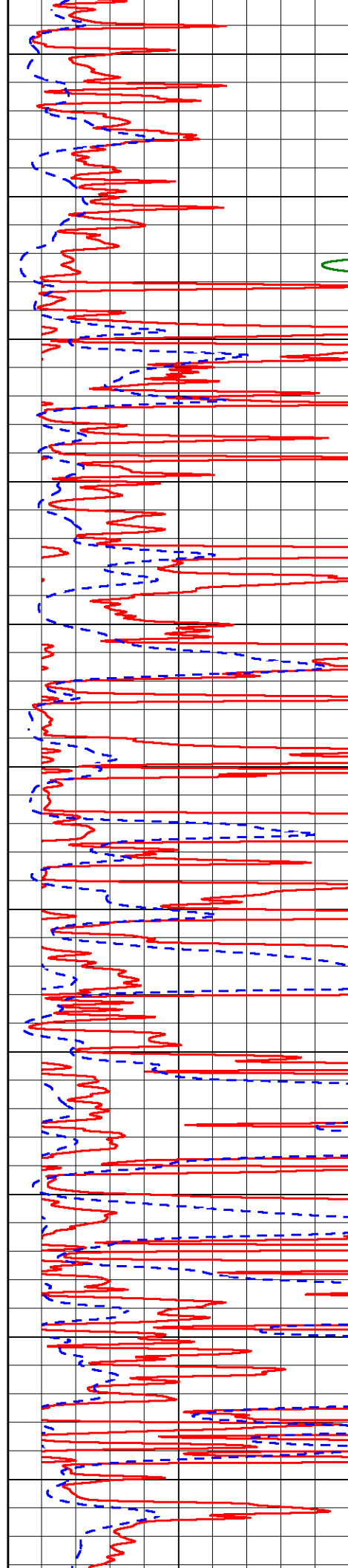
3250

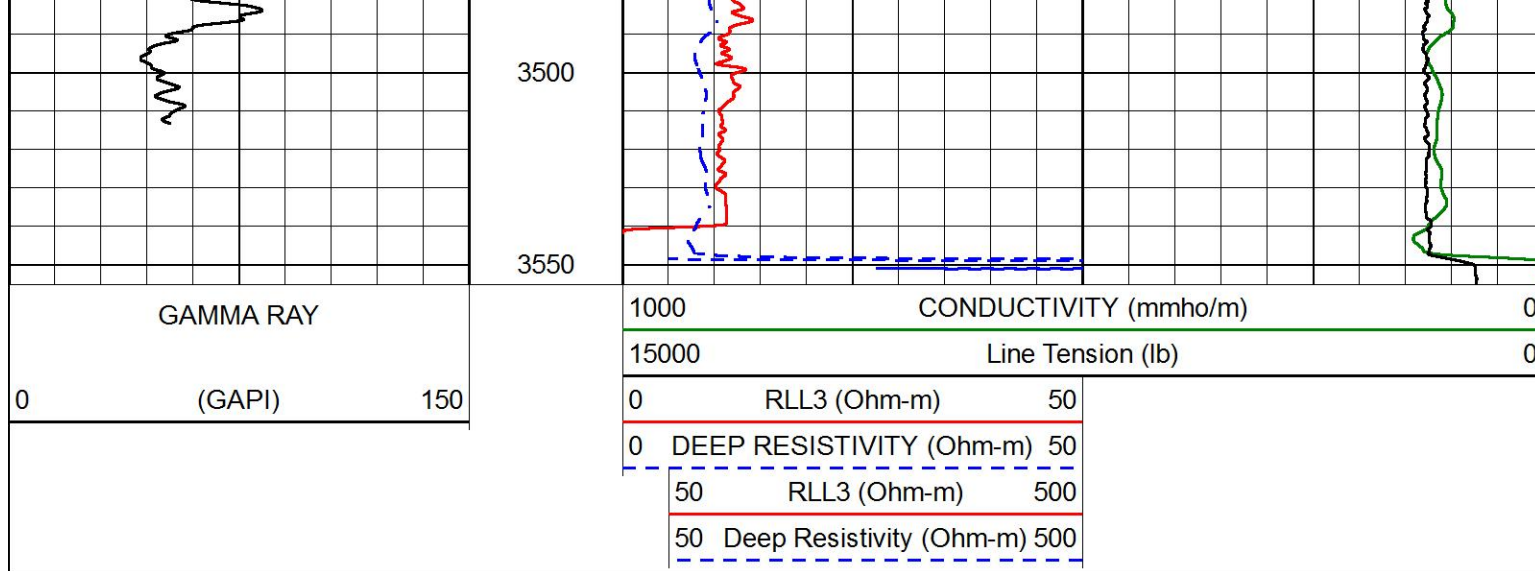
3300

3350

3400

3450





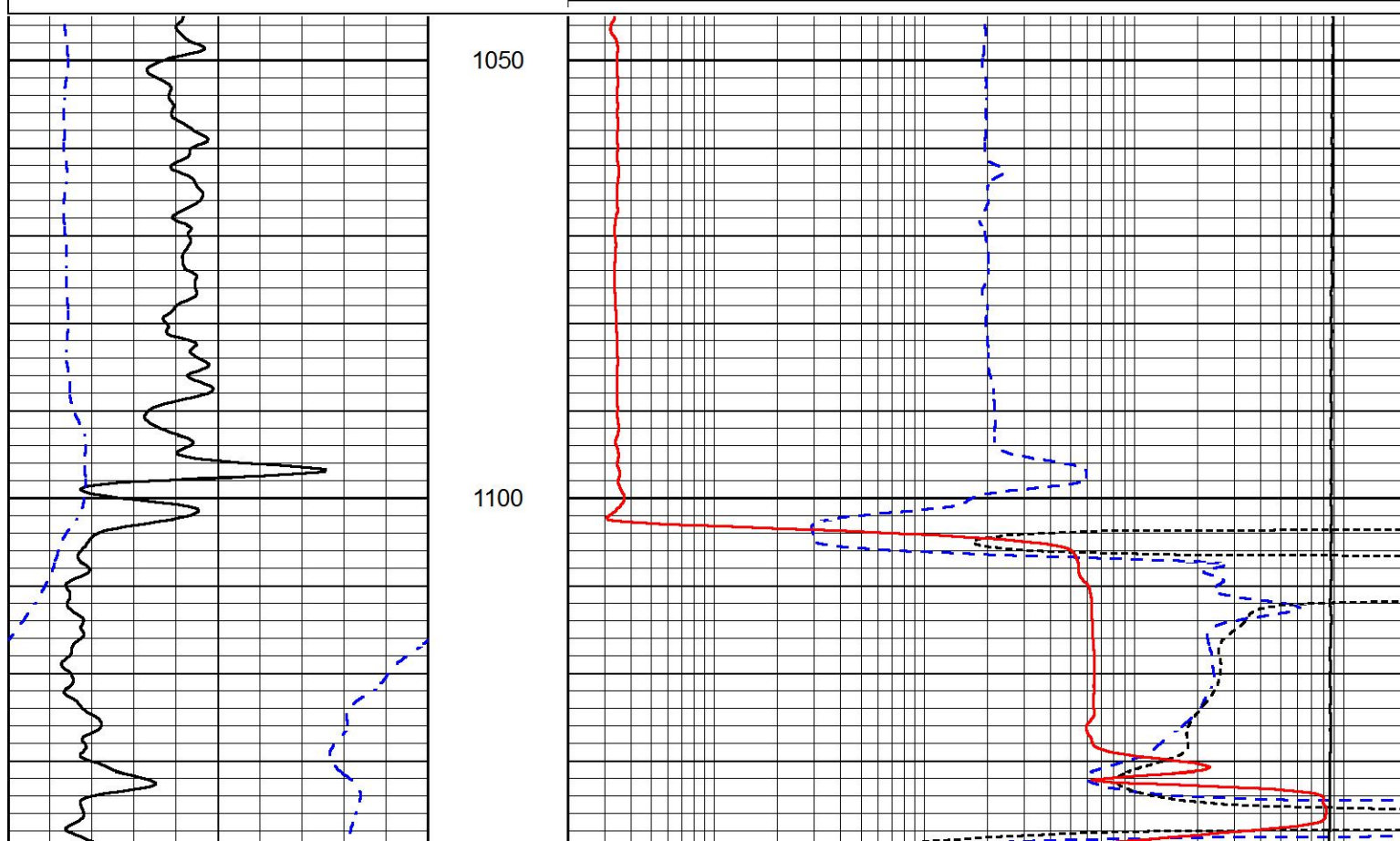


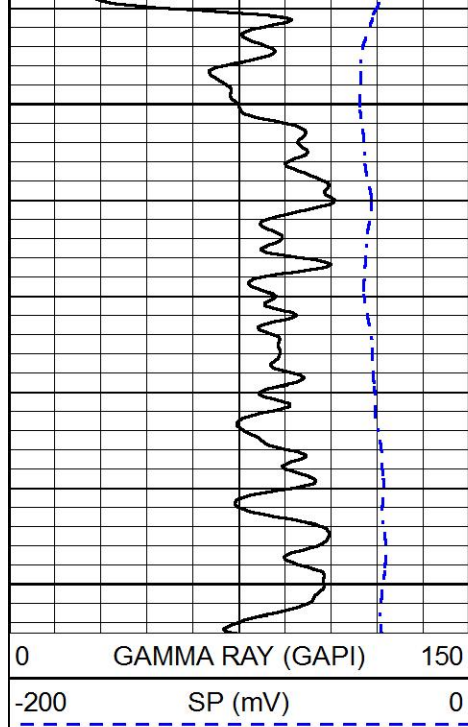
PIONEER
Pioneer Energy Services

MAIN PASS

Database File	tdi_unrein_1.db
Dataset Pathname	stackmel/pass4.1
Presentation Format	dil
Dataset Creation	Fri Jul 27 00:43:56 2018
Charted by	Depth in Feet scaled 1:240

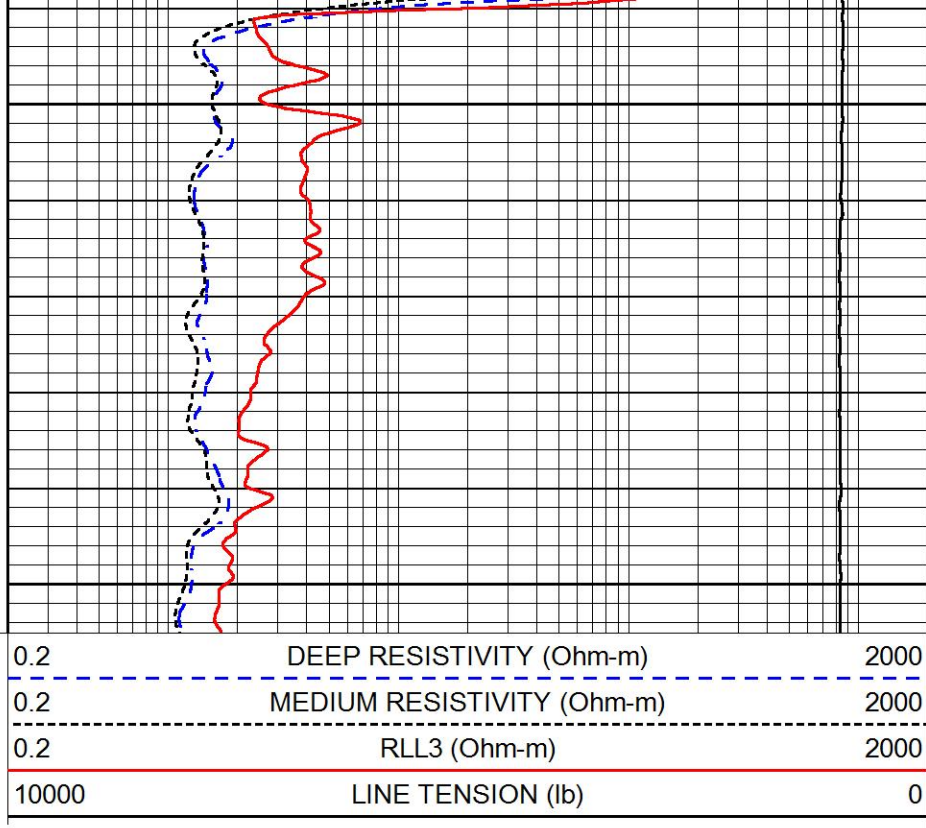
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0





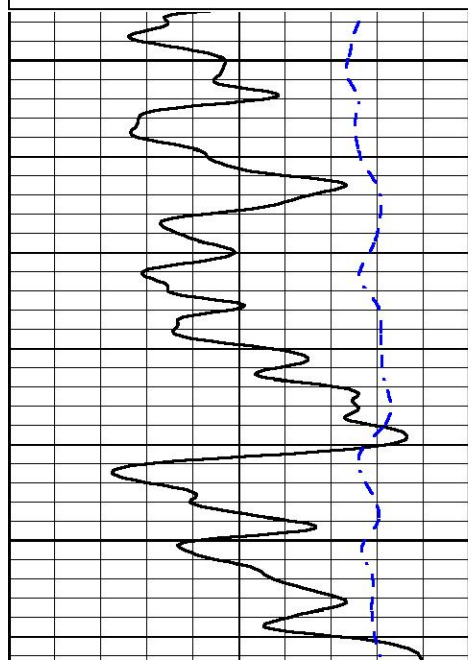
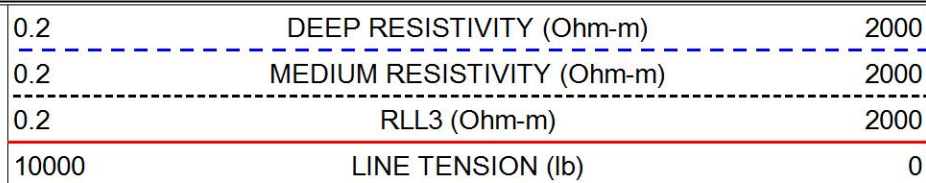
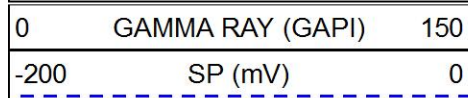
1150

1200



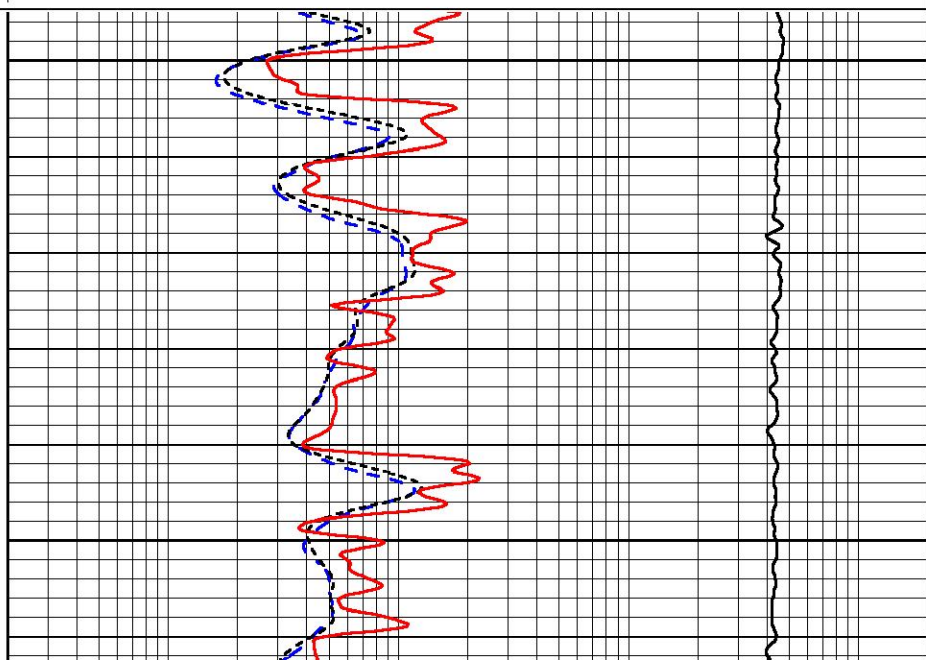
MAIN PASS

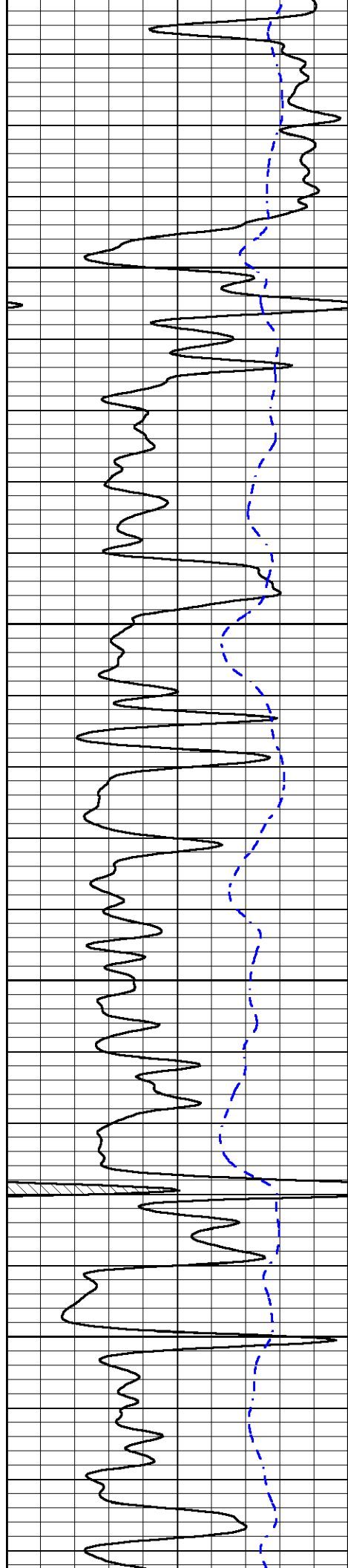
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Dataset Pathname stackmel/pass3.2
Presentation Format dil
Dataset Creation Fri Jul 27 00:20:34 2018
Charted by Depth in Feet scaled 1:240



2800

2850



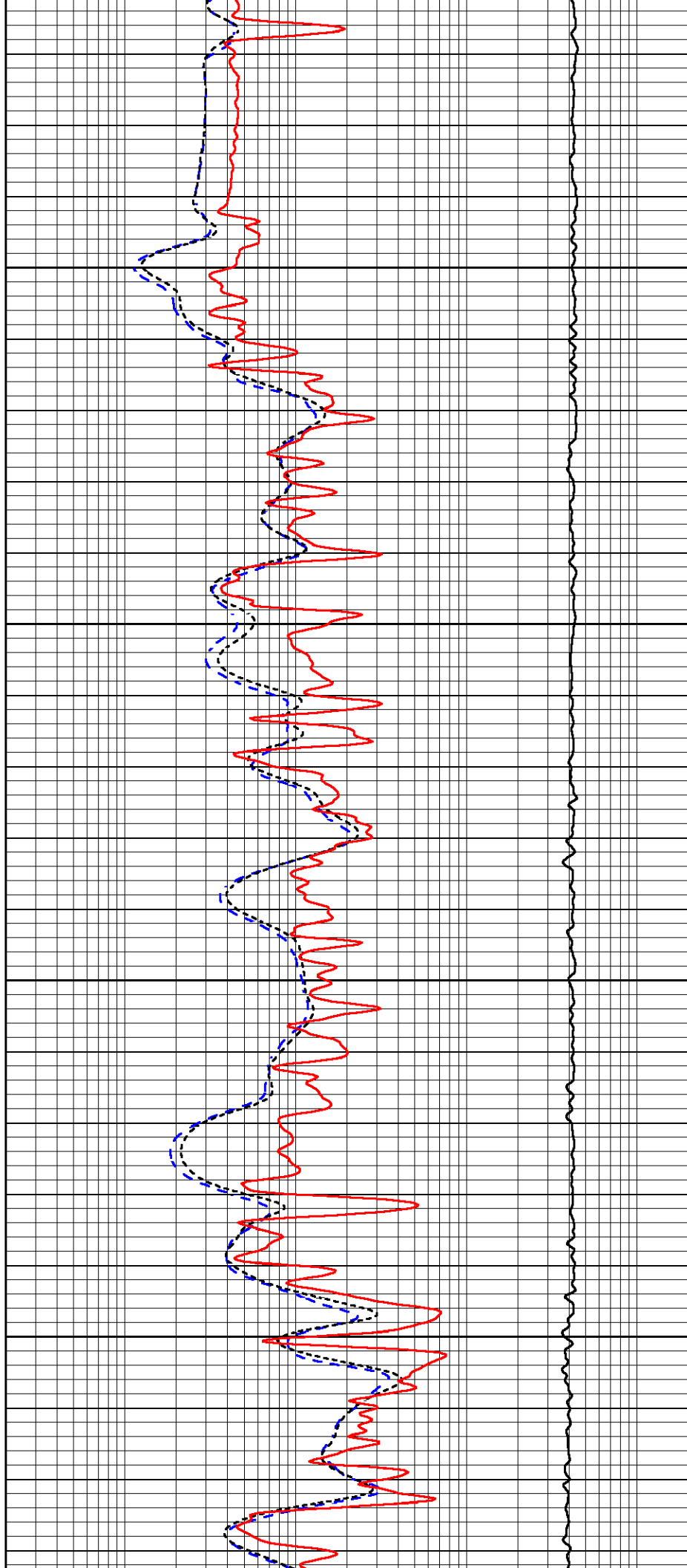


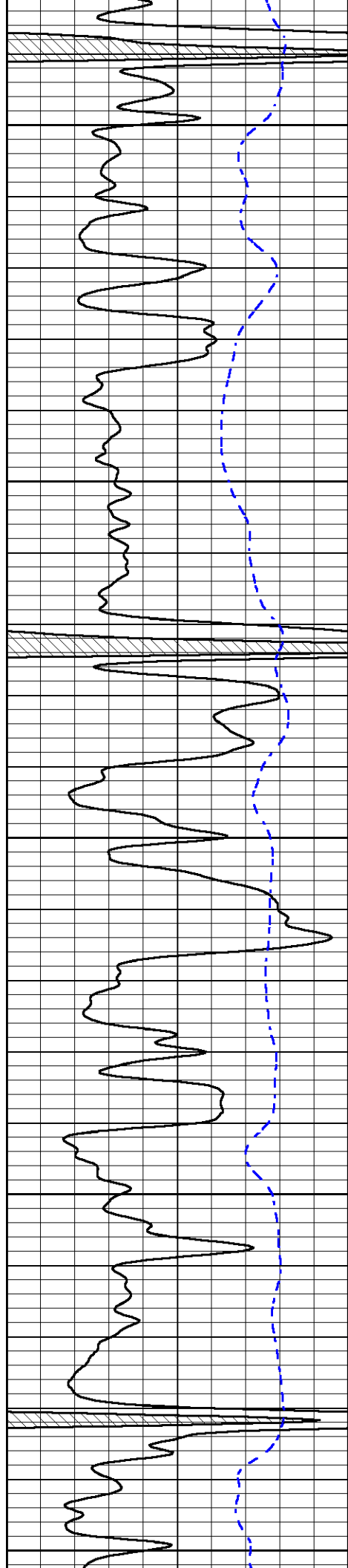
2900

2950

3000

3050





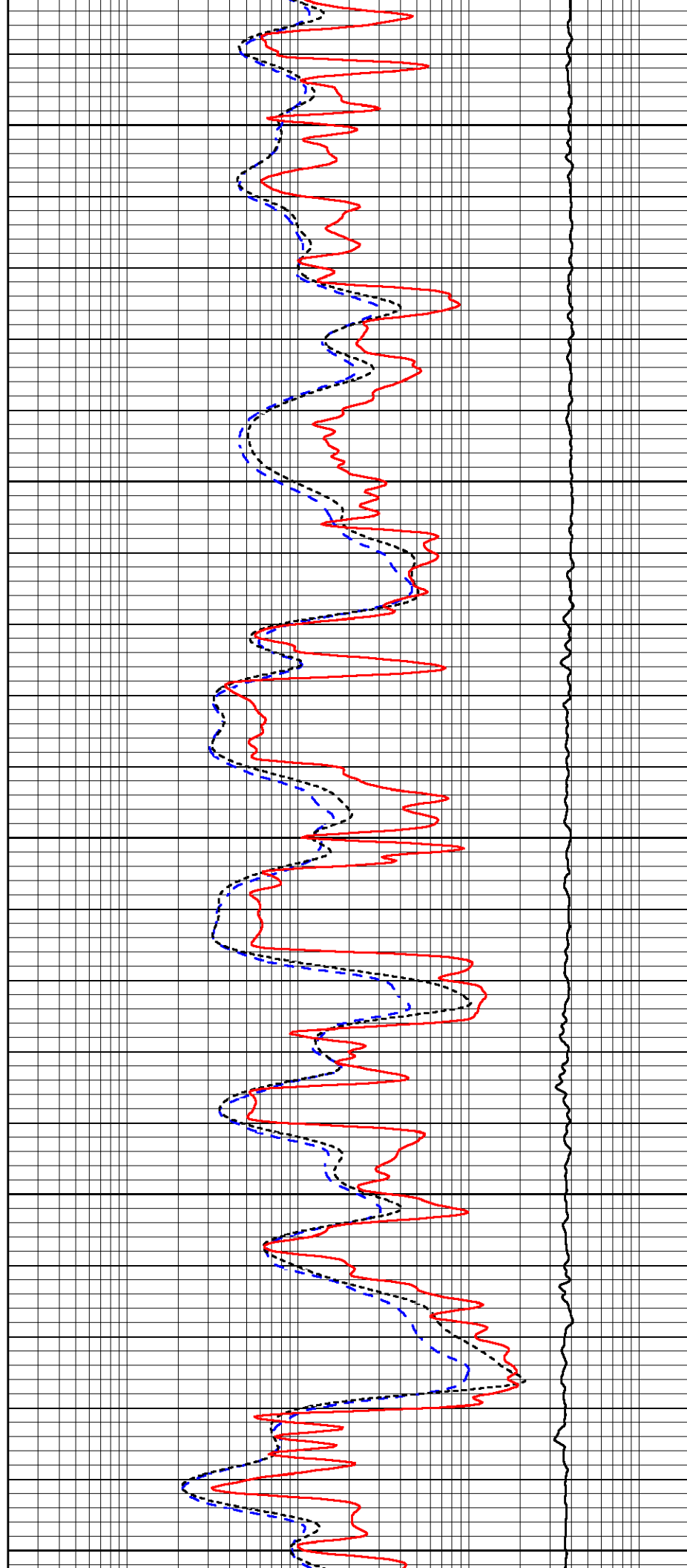
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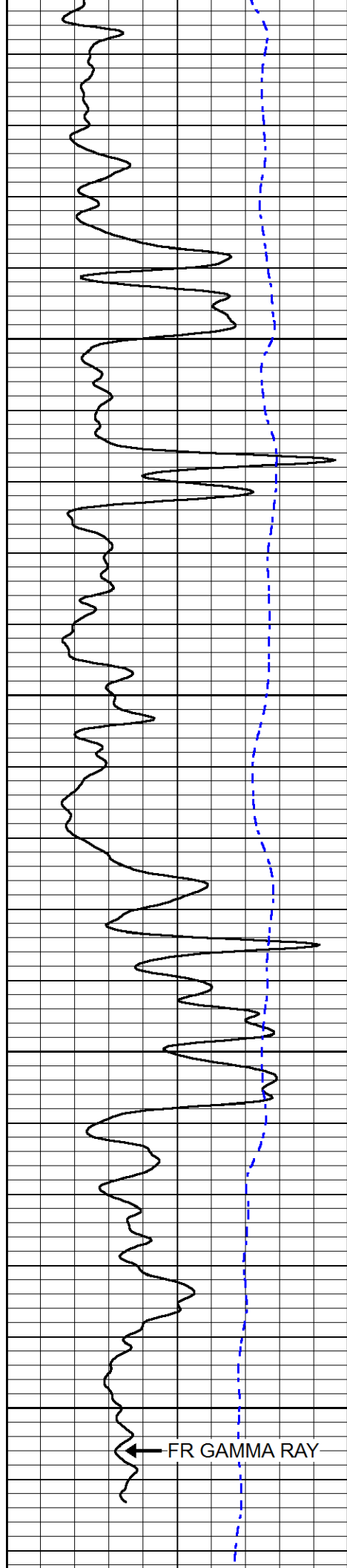
3150

3200

3250

3300



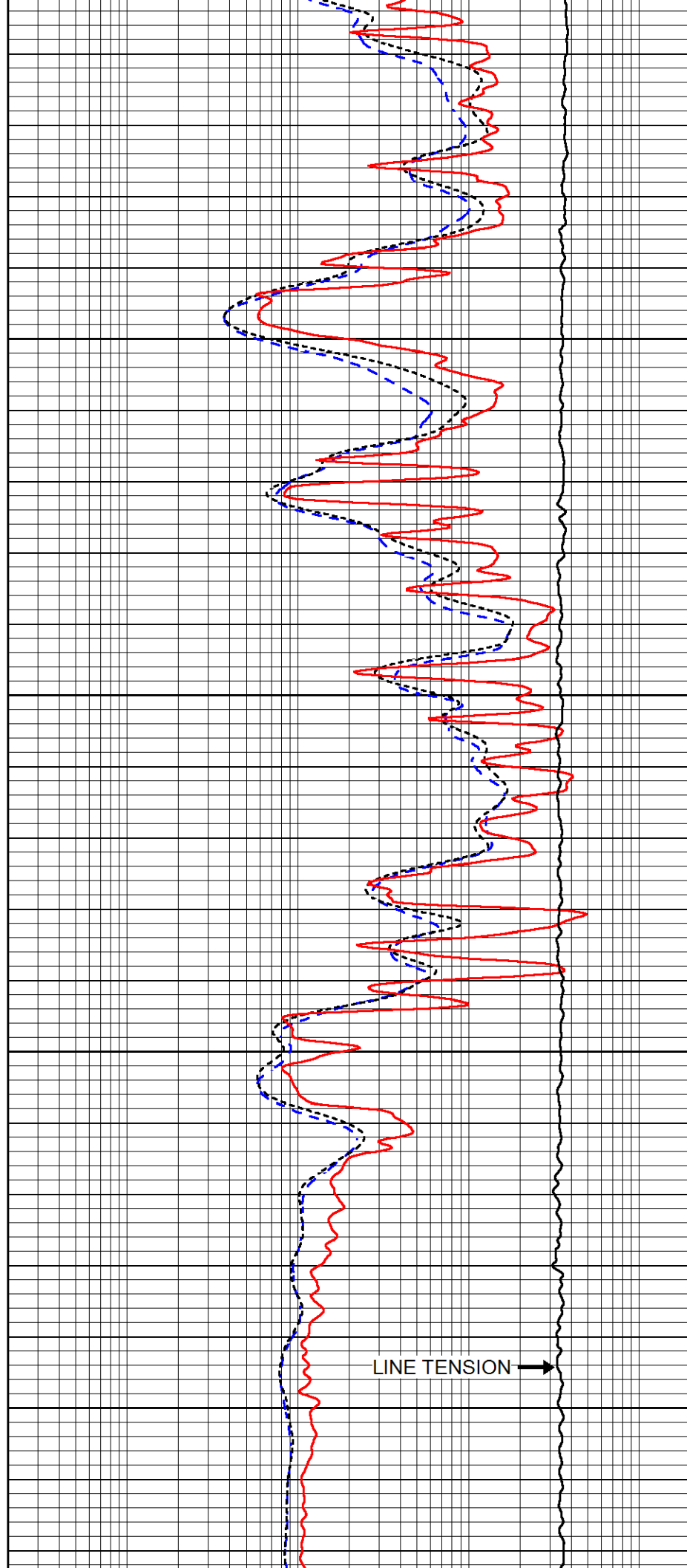


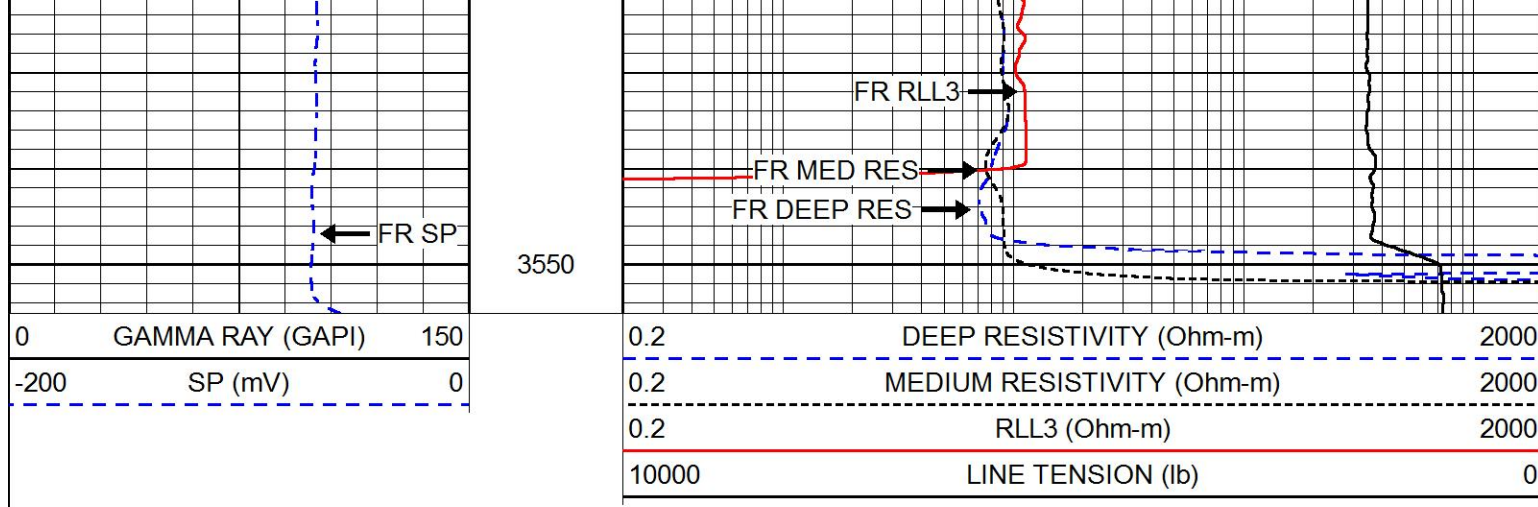
3350

3400

3450

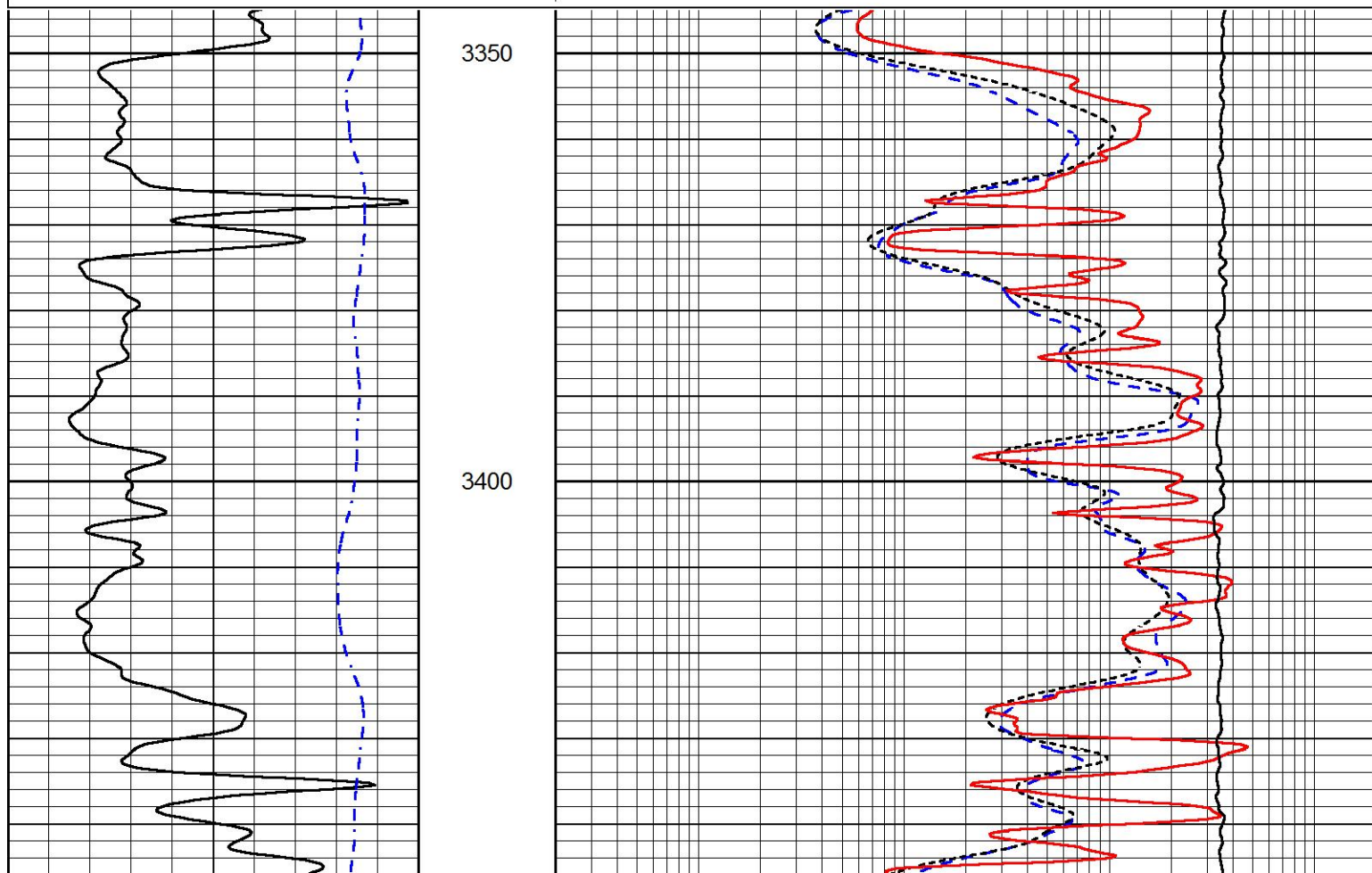
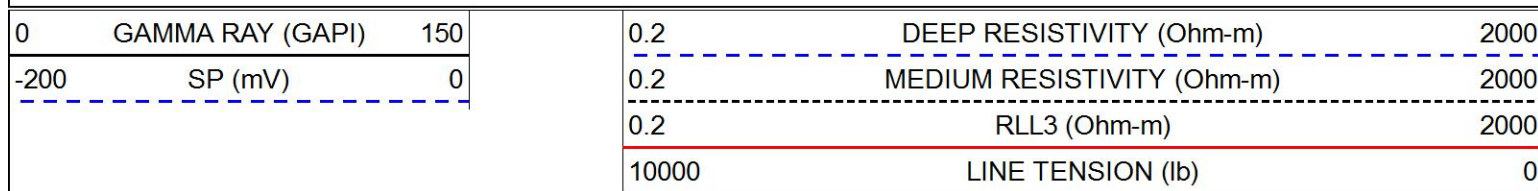
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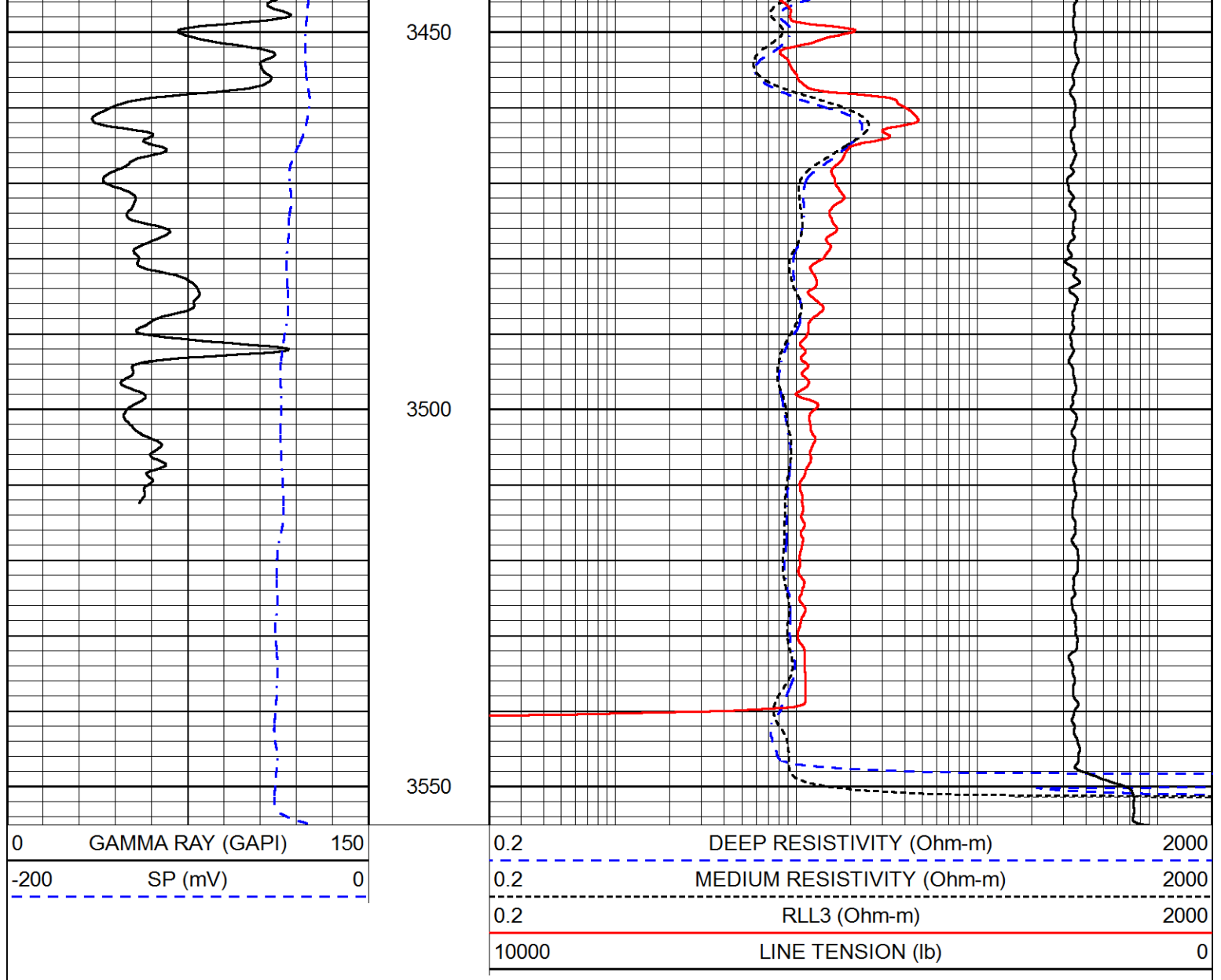




REPEAT SECTION

Database File tdi_unrein_1.db
 Dataset Pathname stackmel/pass2.1
 Presentation Format dil
 Dataset Creation Fri Jul 27 00:37:39 2018
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File tdi_unrein_1.db
 Dataset Pathname stackmel/pass3.1
 Dataset Creation Thu Jul 26 23:48:56 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP
 Calibration Performed: Sun Jul 15 05:36:29 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-17.000
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-60.500

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Sun Jul 15 07:40:28 2018

Readings References Results

	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	27000.0000	-0.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Sun Jul 15 05:36:52 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.670	g/cc	1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.50	in	1.02		
Large Ring	15.00	in	1.15		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: SUN JUL 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: Sun Jul 15 05:37:08 2018

 Calibrator Value: 1.0 GAPI

 Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

 Sensitivity: 0.6000 GAPI/cps



PIONEER
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Company TDI, INC.
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