



# MICRORESISTIVITY LOG

**Company** STEWART PRODUCERS, INC.  
**Well** SUTTON NO. 4  
**Field** UNNAMED  
**County** NESS **State** KANSAS

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**Location:** API #: 15-135-25980-00-00  
 1784' FSL & 1700' FWL  
 SEC 8 TWP 18S RGE 24W  
 Permanent Datum: GROUND LEVEL Elevation 2319'  
 Log Measured From: KELLY BUSHING  
 Drilling Measured From: KELLY BUSHING  
 Other Services: CNL/CDL DIL  
 Elevation: K.B. 2324', D.F. N/A, G.L. 2319'

Date	12/13/2017
Run Number	ONE
Depth Driller	4410'
Depth Logger	4409'
Bottom Logged Interval	4408'
Top Log Interval	2900'
Casing Driller	8.625" @ 218'
Casing Logger	217'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	7600
Density / Viscosity	9.2 52
pH / Fluid Loss	9.5 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.70 @ 62
Rmt @ Meas. Temp	.53 @ 62
Rmc @ Meas. Temp	.95 @ 62
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.36 @ 120
Operating Rig Time	2 HOURS
Max Rec. Temp. F	120 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	DAVID GOLDAK

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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.  
 NESS CITY KANSAS  
 3 NORTH TO 160 RD, 5 3/4 WEST, SOUTH INTO

Log Measured From: KELLY BUSHING      5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://www.pioneerenergy.com)      785-625-3858

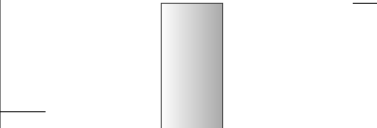
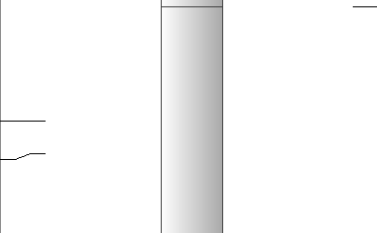
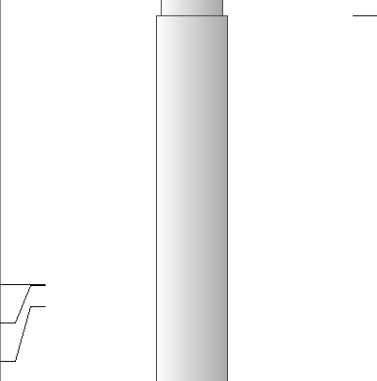
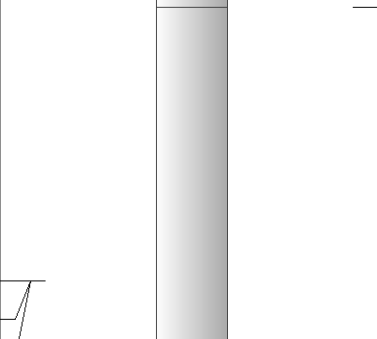
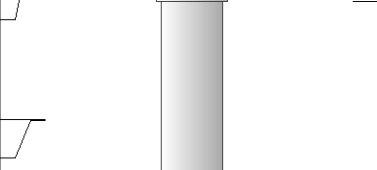
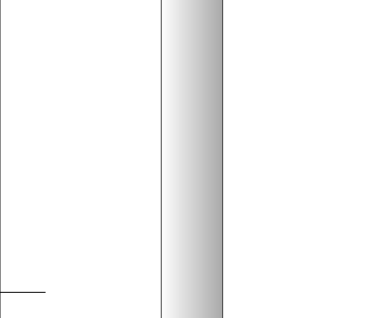
<b>Your Pioneer Energy Services Crew</b> Engineer: J. HENRICKSON Operator: Operator: Operator:	<b>This Log Record Was Witnessed By</b> Primary Witness: DAVID GOLDAK Secondary Witness: Secondary Witness: Secondary Witness:
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# Log Variables

DatabaseC:\ProgramData\Warrior\Data\stewart\_sutton\_4.db  
 Dataset field/well/stackml/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-320	0	Off	4409

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (168-986)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 978)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset:           stewart\_sutton\_4.db: field/well/stackml/pass3.1  
 Total length:      43.08 ft  
 Total weight:      685.00 lb  
 O.D.:               4.00 in

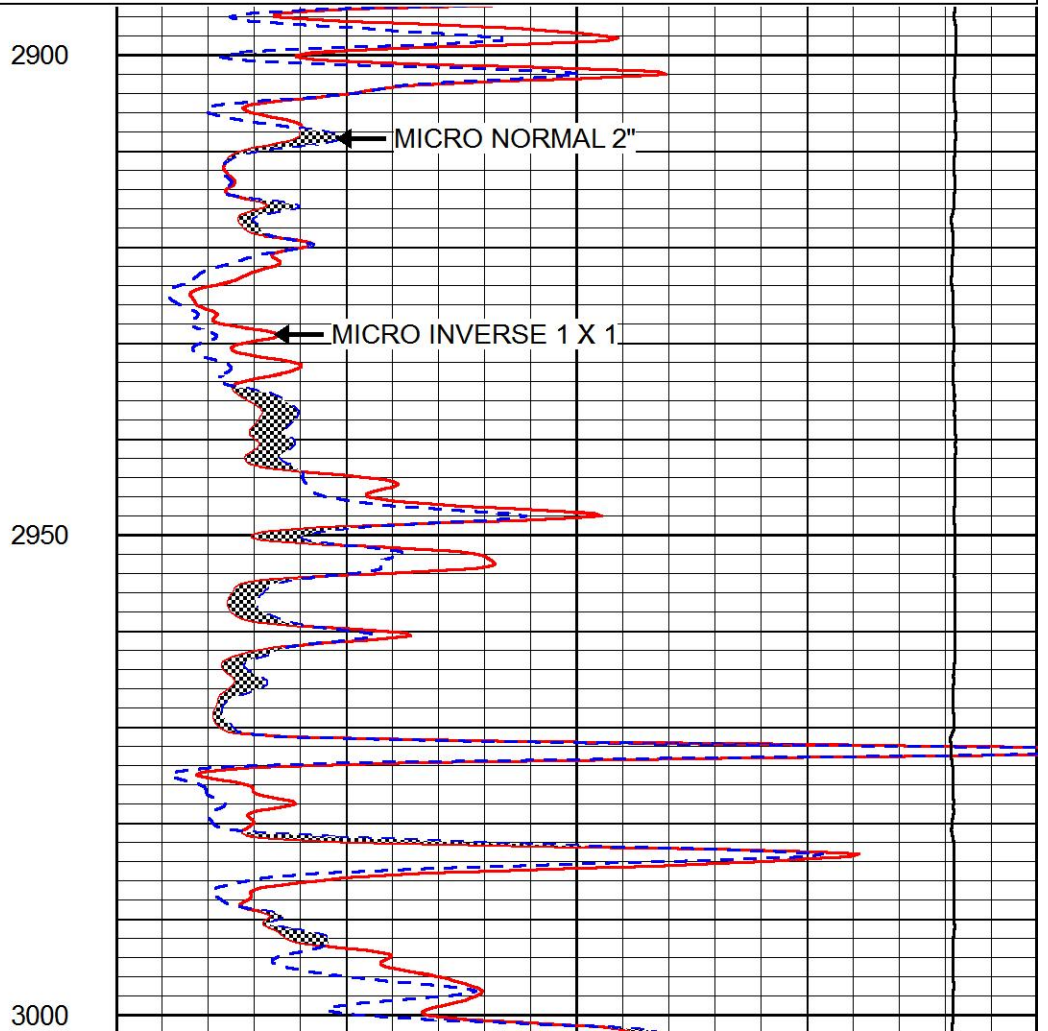
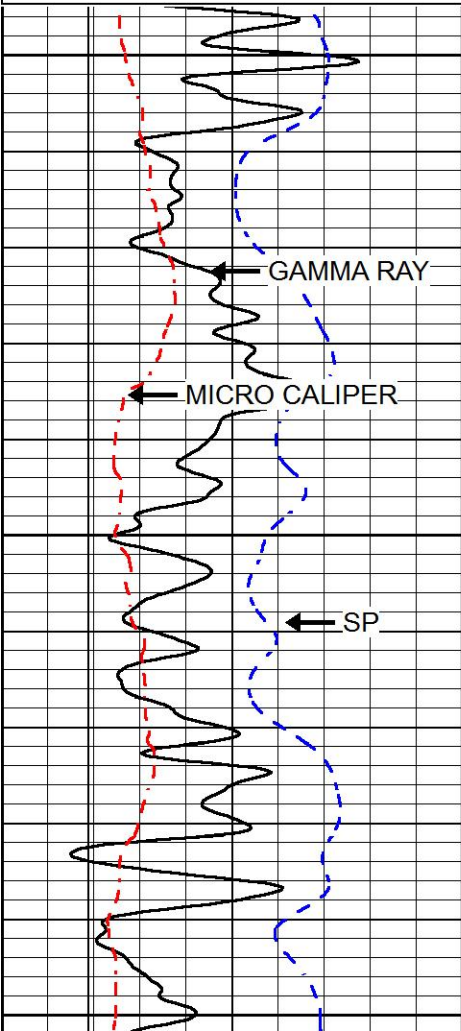


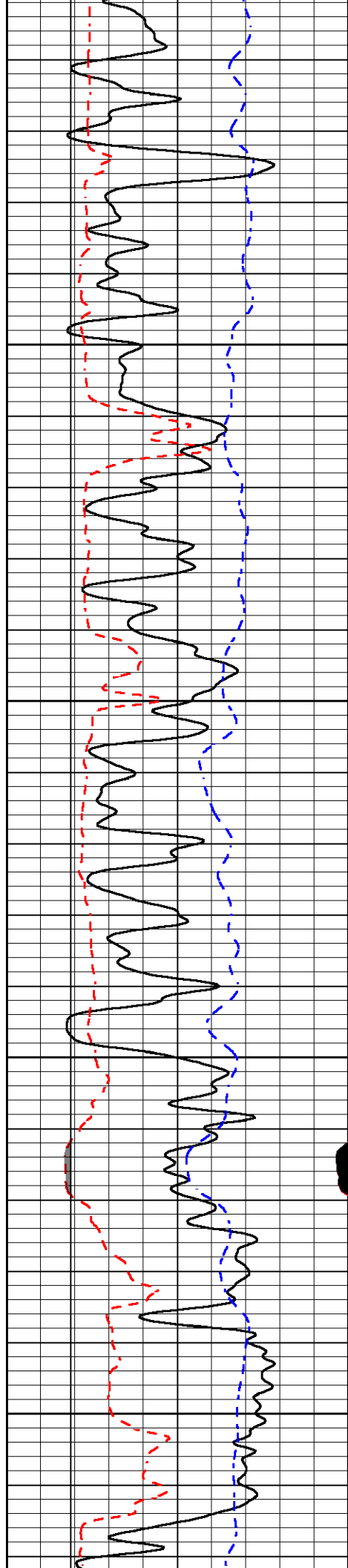
# MAIN PASS

Database File        stewart\_sutton\_4.db  
 Dataset Pathname   stackml/pass3.1  
 Presentation Format  micro  
 Dataset Creation    Wed Dec 13 14:57:33 2017  
 Charted by         Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
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
15000	LINE TENSION (lb)	0



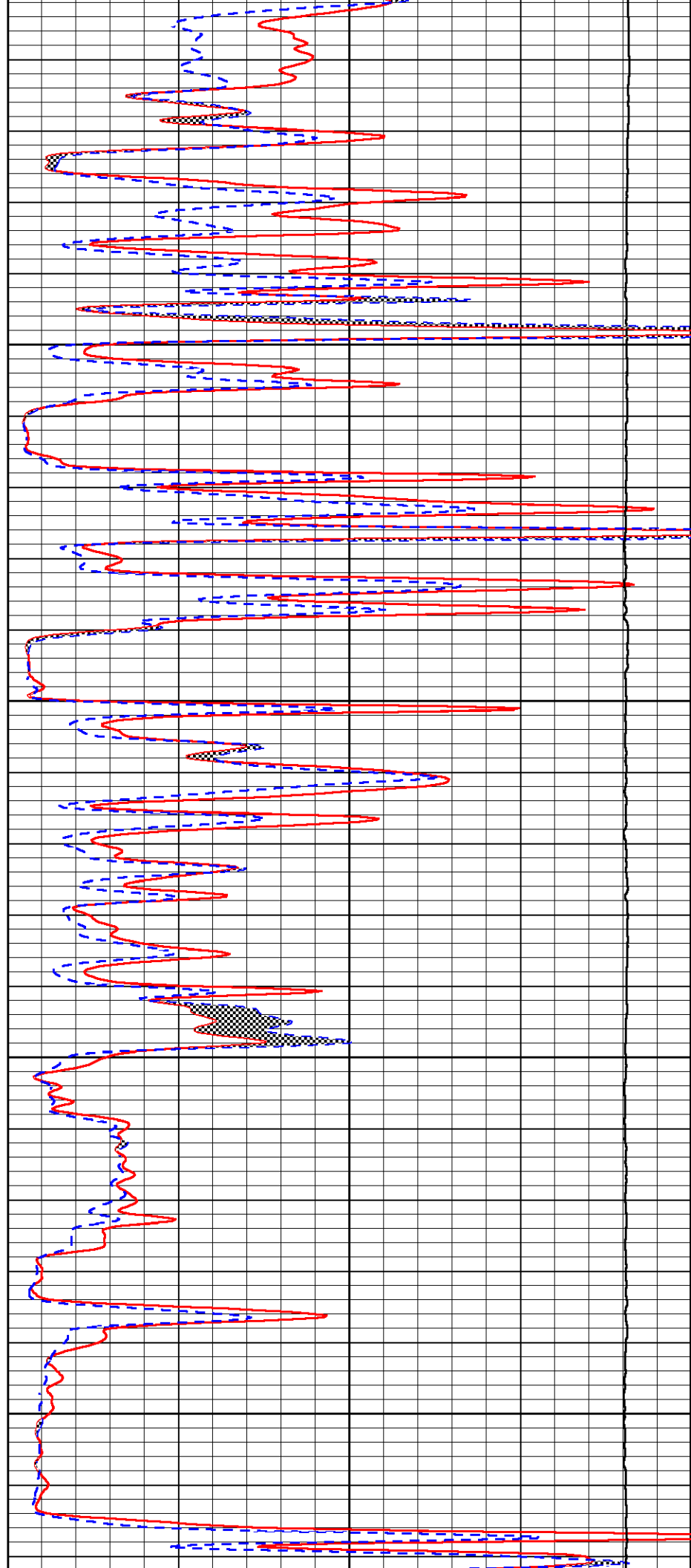


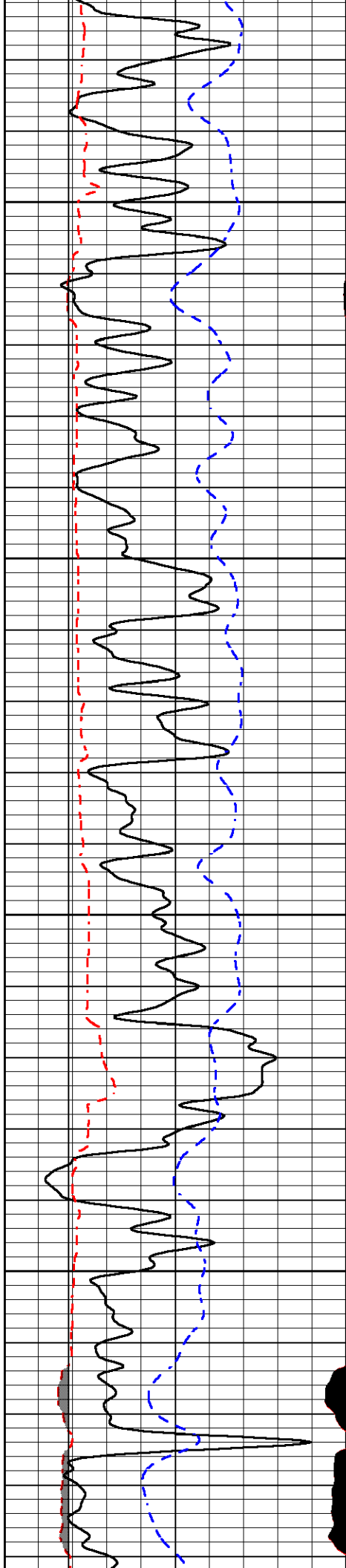
3050

3100

3150

3200



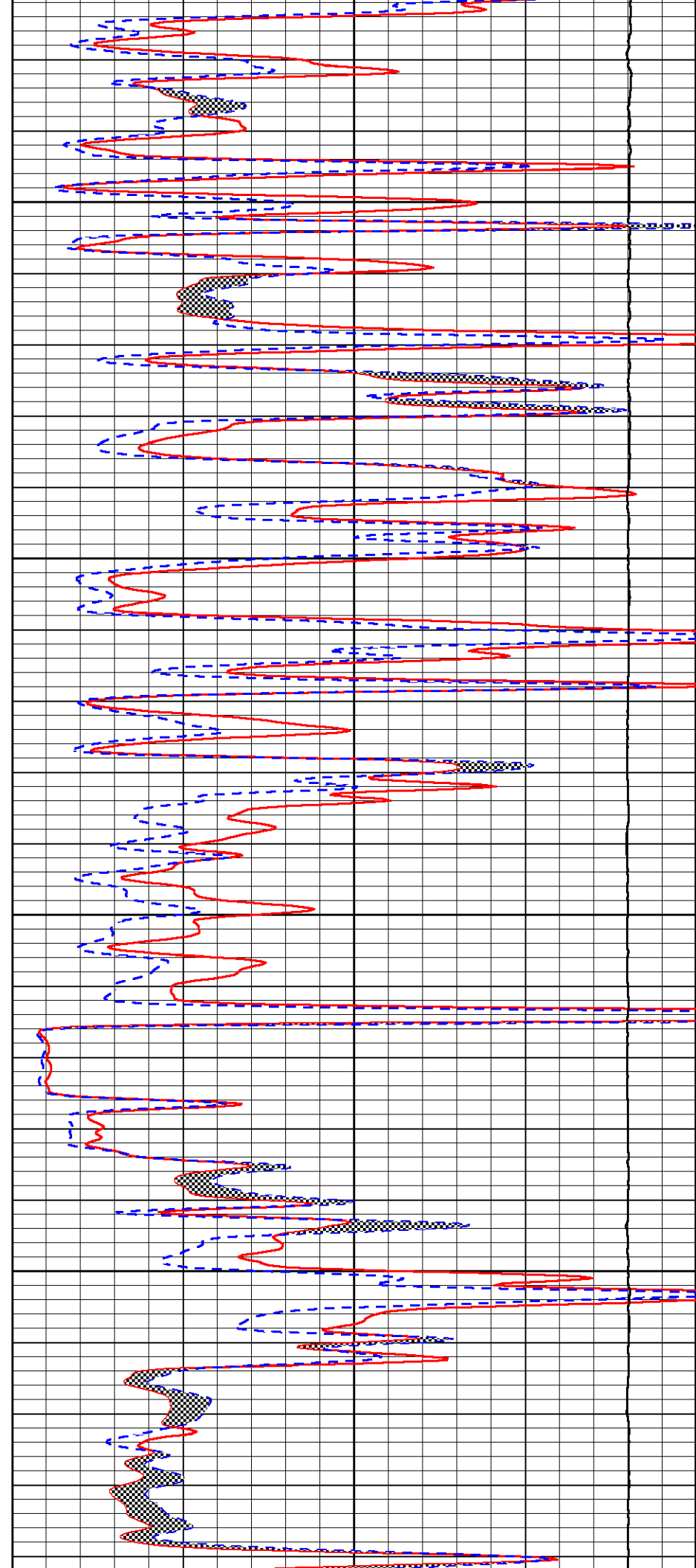


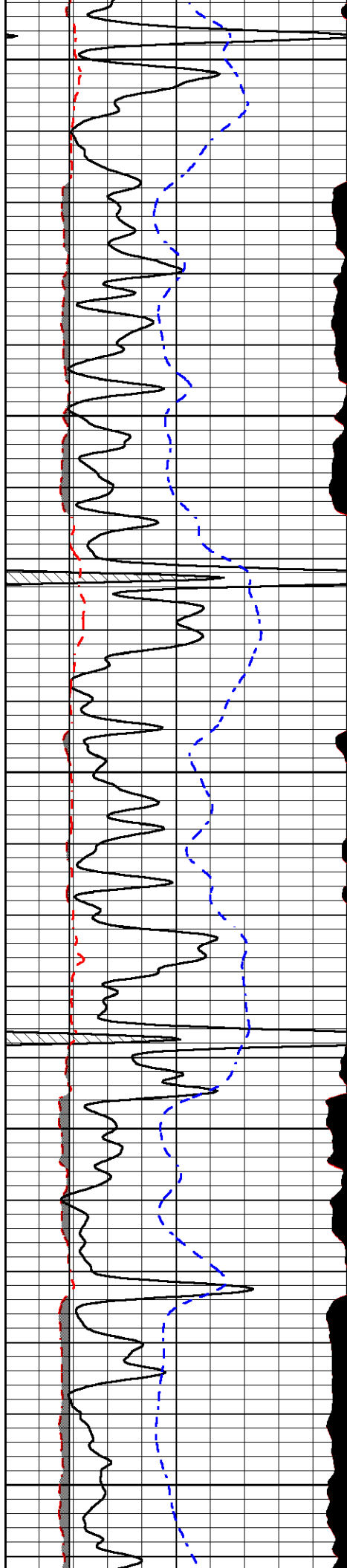
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3300

3350

3400





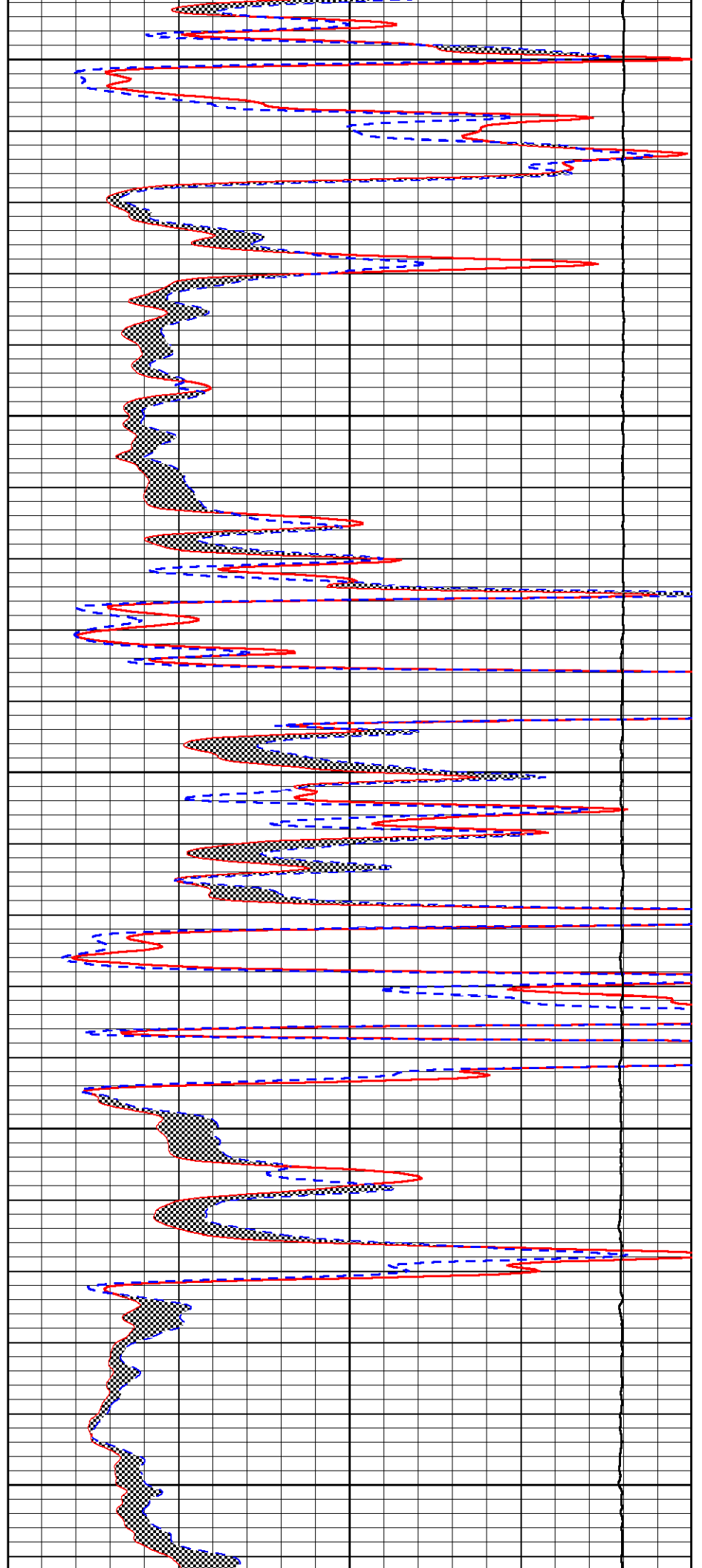
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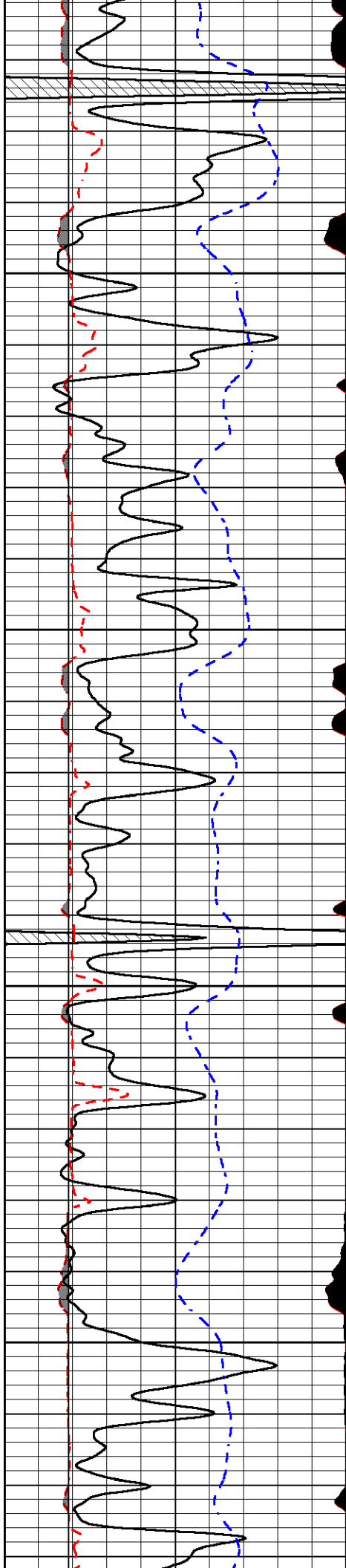
3500

3550

3600

3650



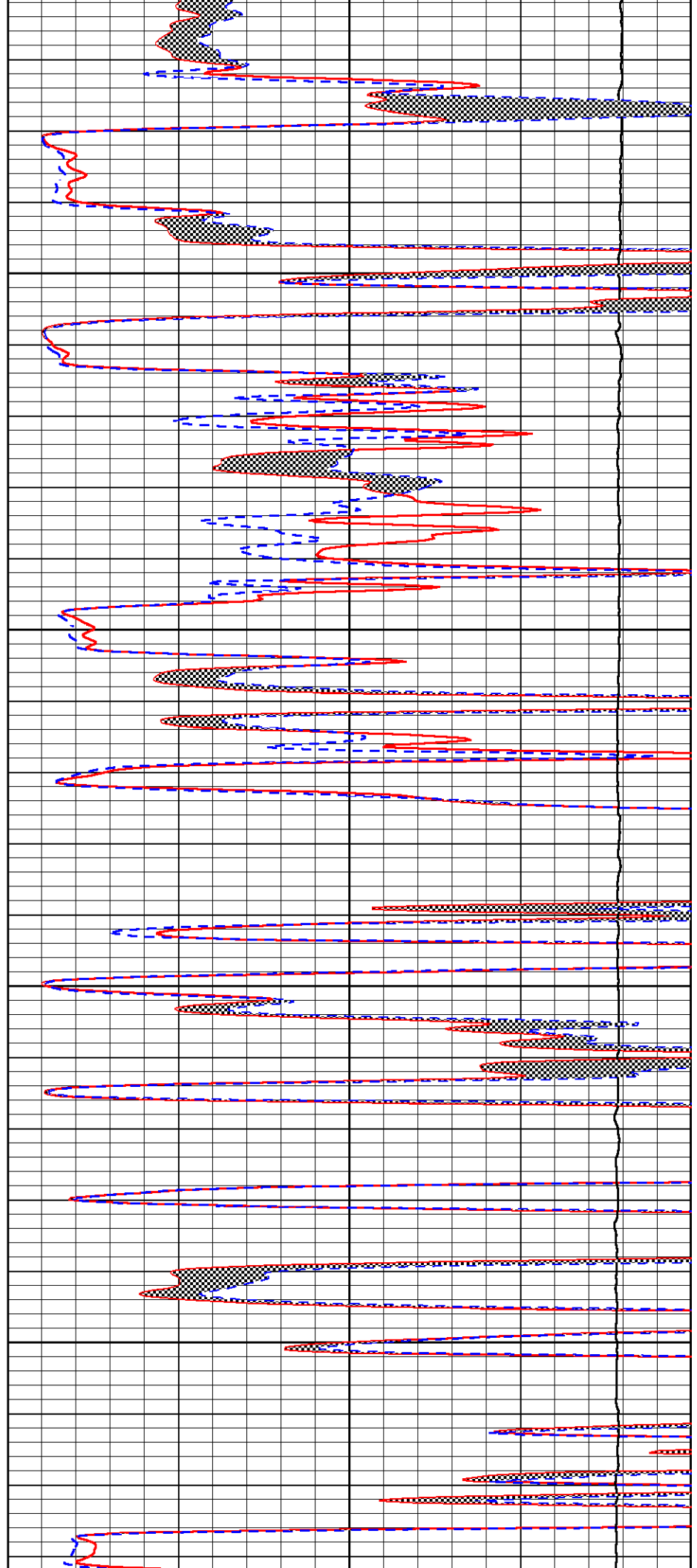


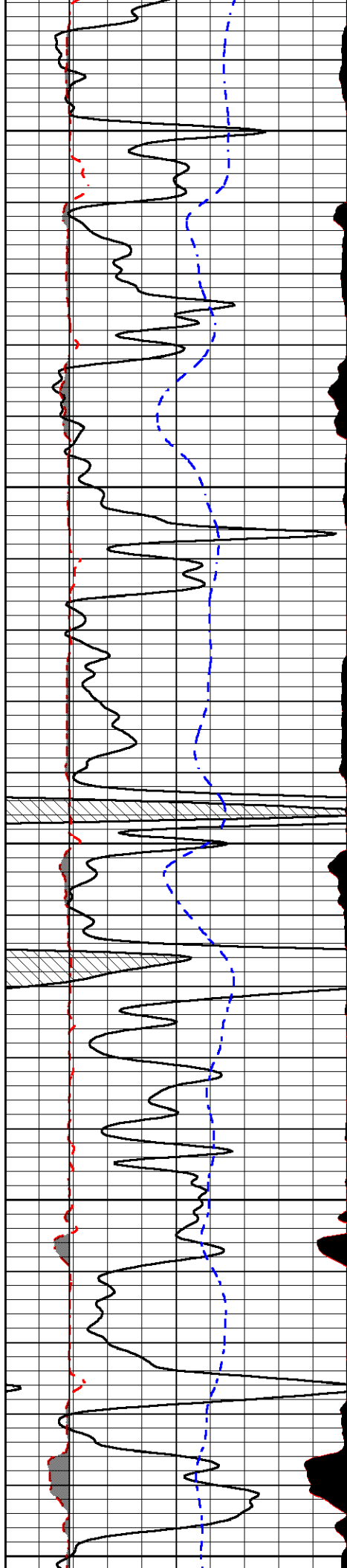
3700

3750

3800

3850





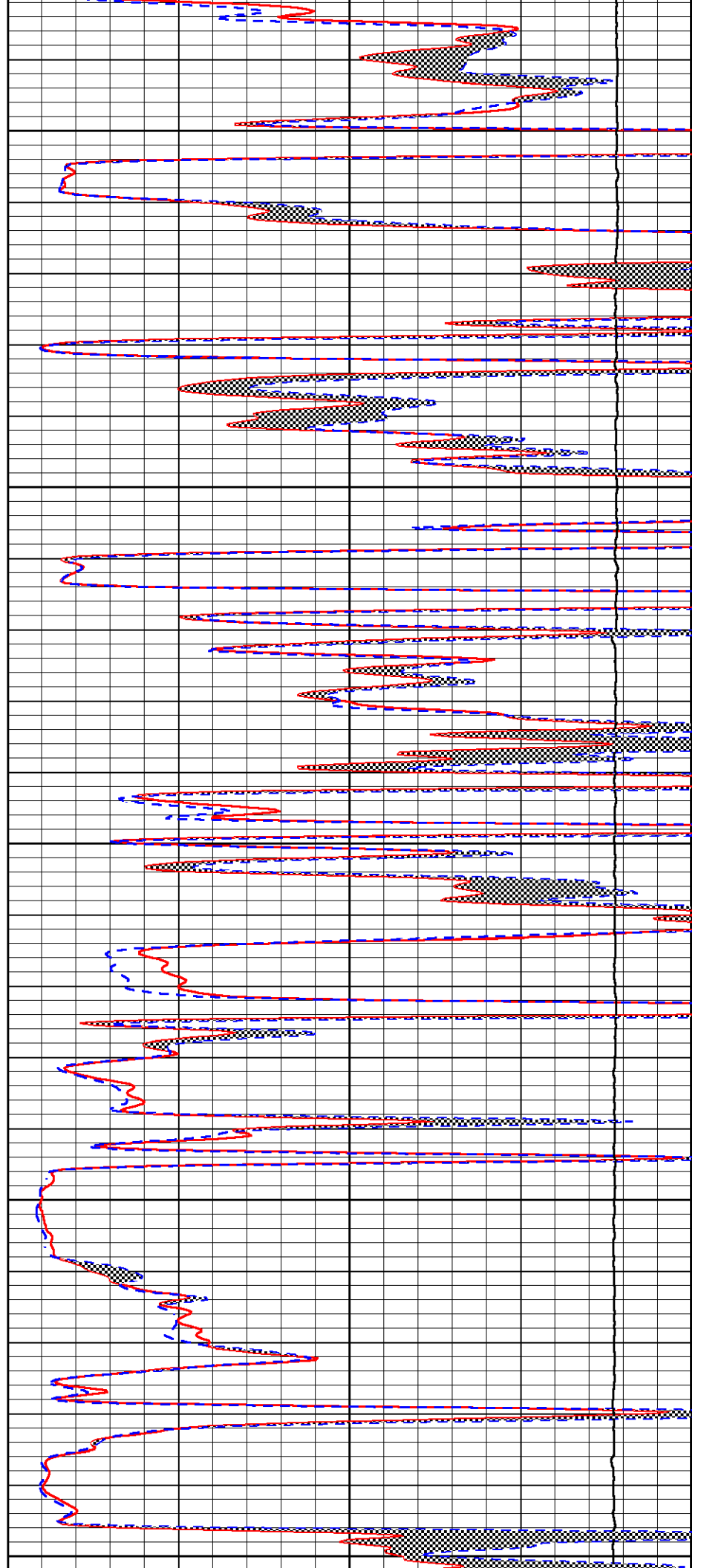
3900

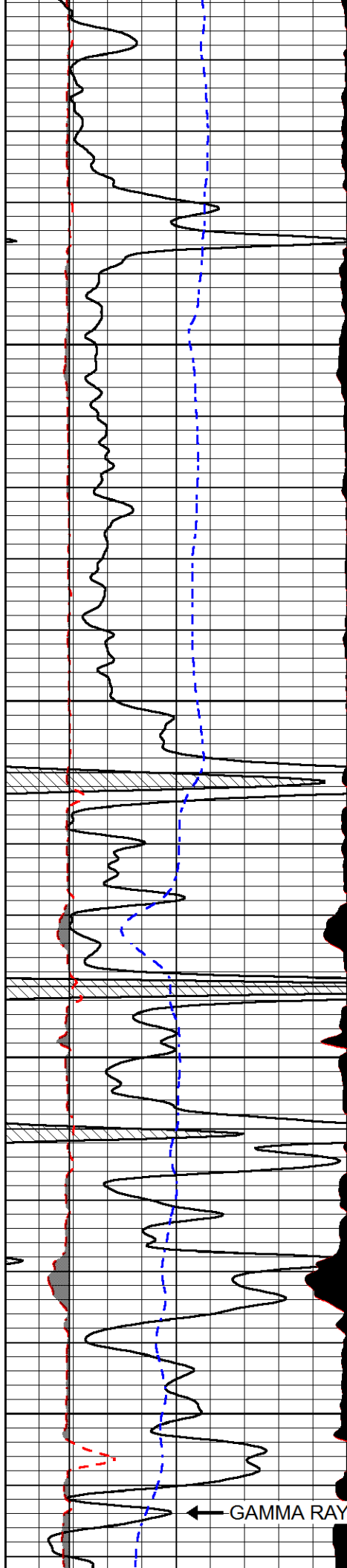
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4000

4050

4100





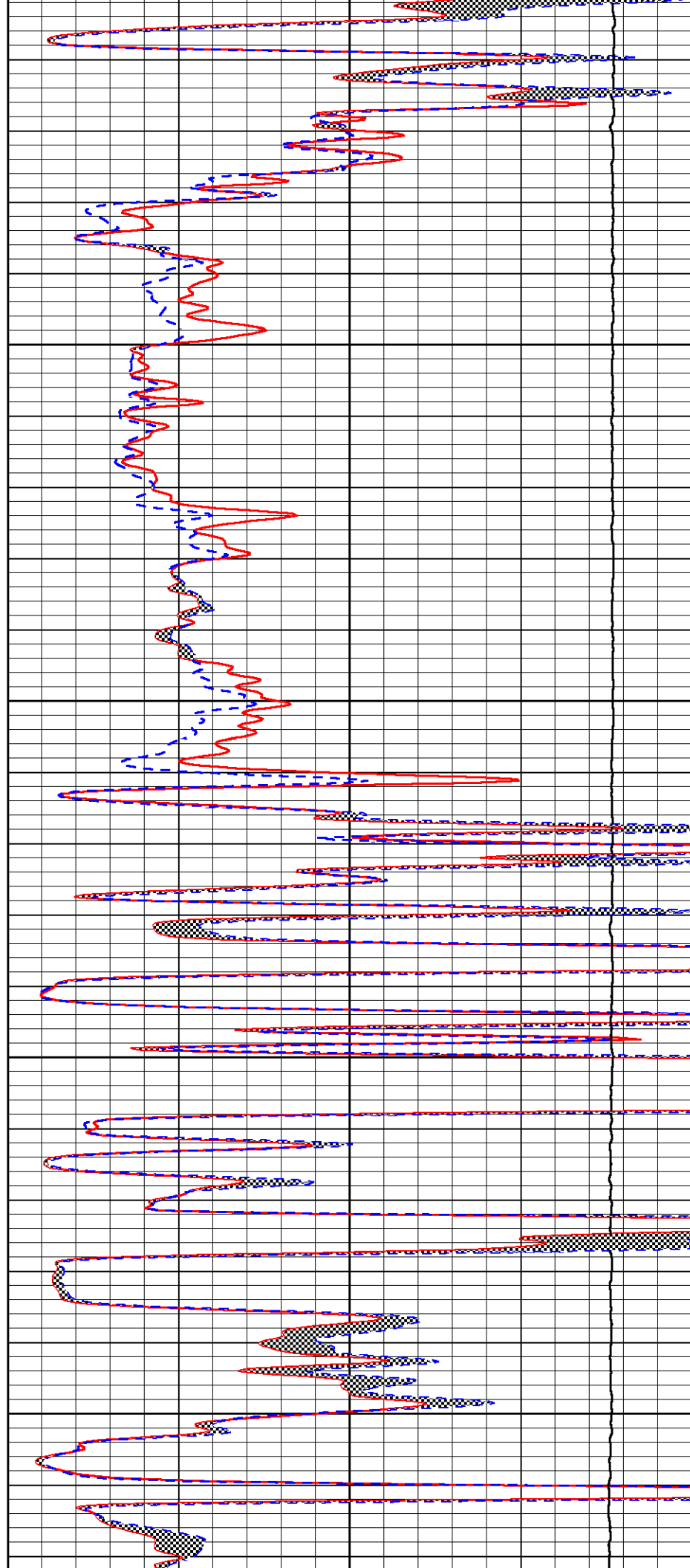
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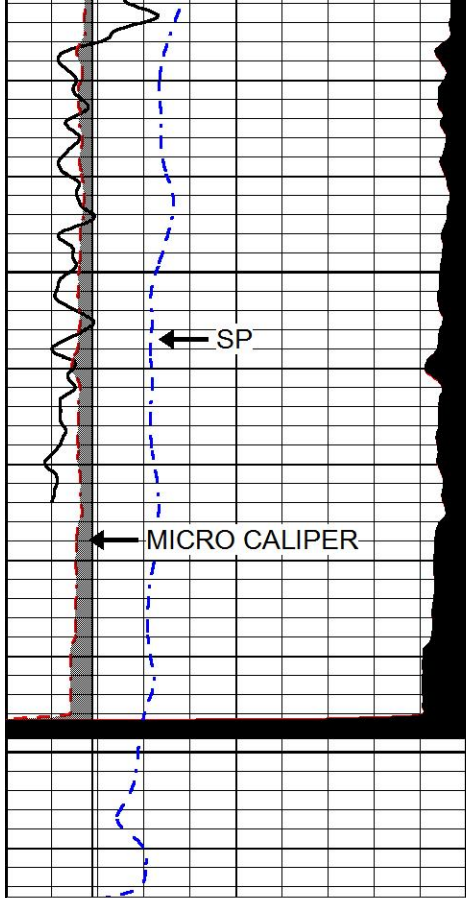
4200

4250

4300

← GAMMA RAY





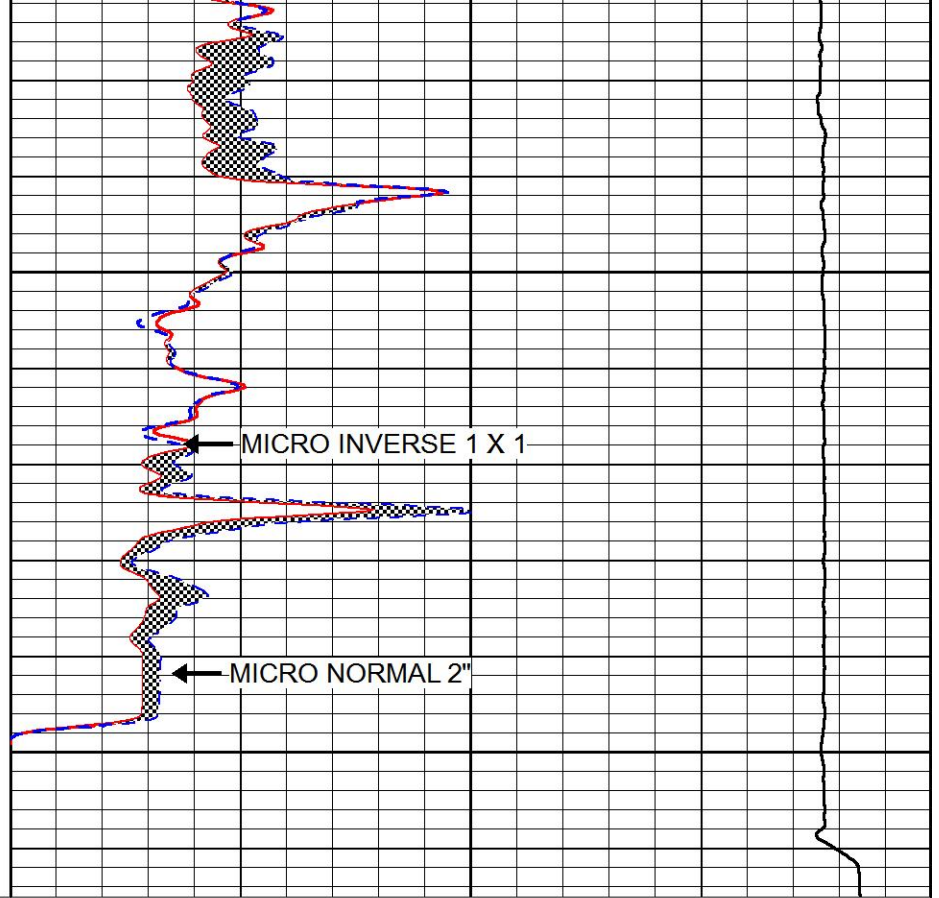
4350

← SP

← MICRO CALIPER

4400

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0



← MICRO INVERSE 1 X 1

← MICRO NORMAL 2"

0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

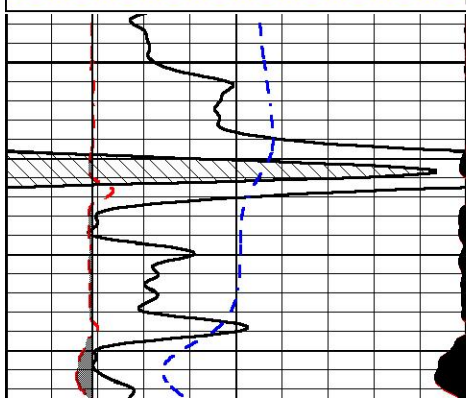


# REPEAT SECTION

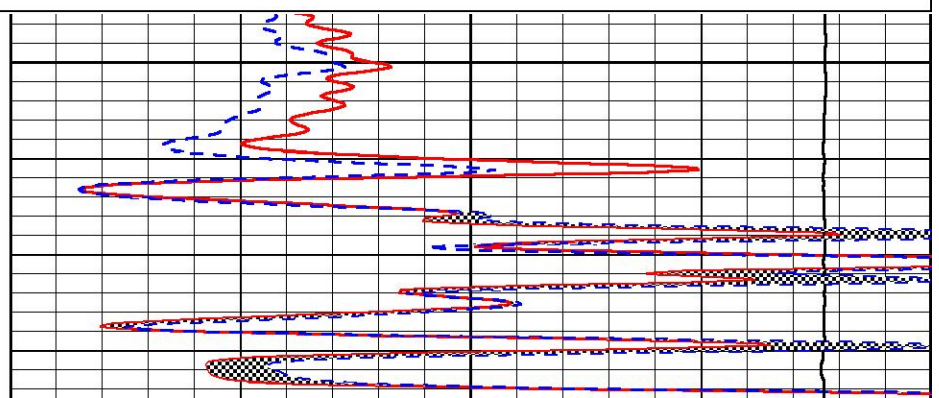
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 Presentation Format   micro  
 Dataset Creation    Wed Dec 13 14:58:08 2017  
 Charted by          Depth in Feet scaled 1:240

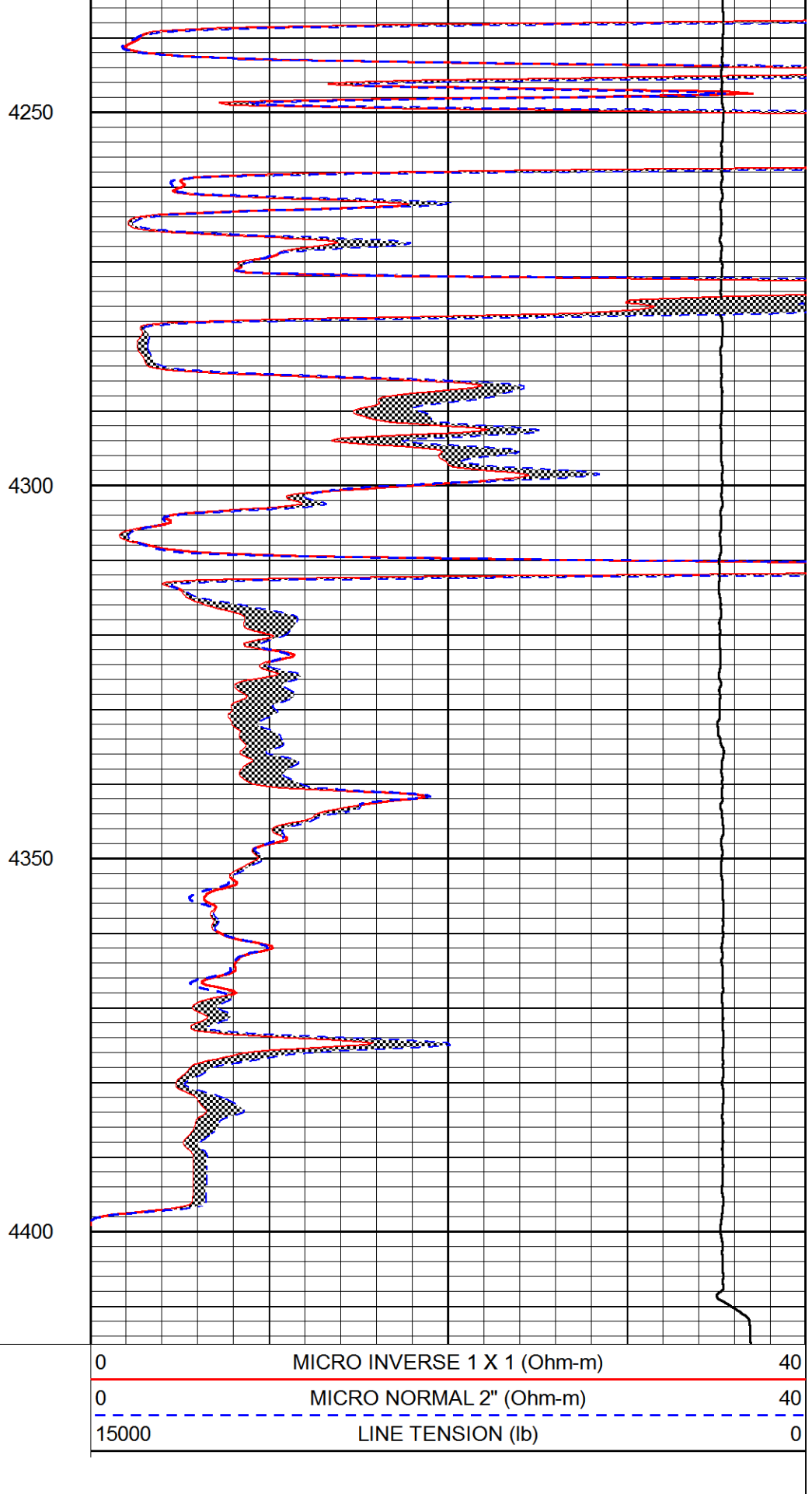
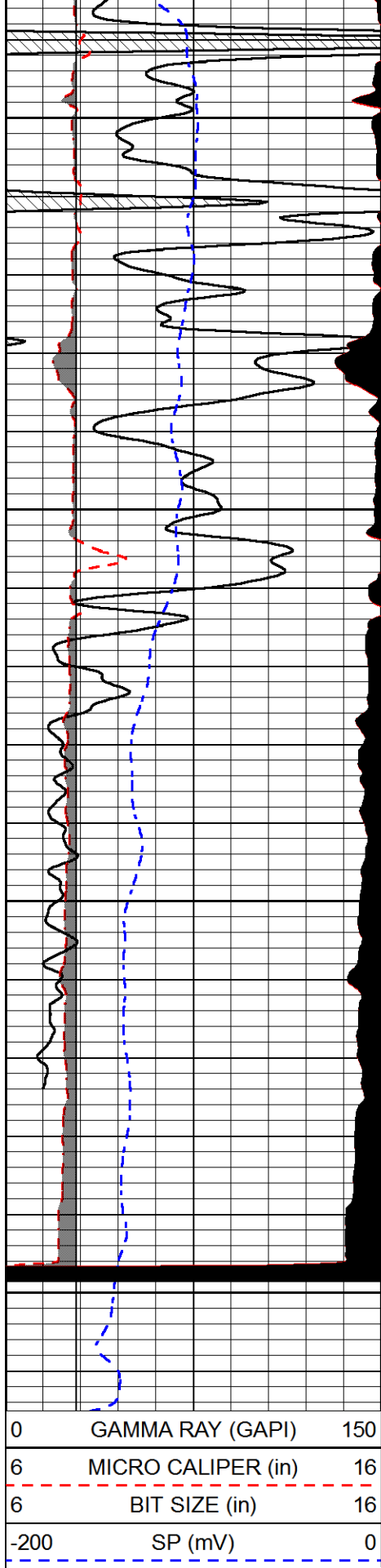
0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0



4200





### Calibration Report

Database File      stewart\_sutton\_4.db  
 Dataset Pathname   stackml/pass3.1  
 Dataset Creation   Wed Dec 13 14:57:33 2017

### Dual Induction Calibration Report

Serial-Model: PSI 978-M&W  
 Calibration Performed: Wed Dec 13 12:45:09 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.560	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.420	-35.000

### Microlog Calibration Report

Serial-Model: PSI-02-PSI STKBL ML  
 Performed: Fri Jun 23 01:25:19 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	12000.0000	0.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	13000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.5000

### Compensated Density Calibration Report

Serial-Model: 168-986-M&W  
 Source / Verifier: /  
 Master Calibration Performed: Tue Apr 11 17:07:47 2017

#### Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.690	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.531		
	Size		Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

### Compensated Neutron Calibration Report


Serial Number: tk10-MW  
 Tool Model: M&W  
 Calibration Performed: Wed Nov 16 11:21:36 2016

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-M&W  
 Tool Model: M&W

Calibration Performed:	Tue Apr 11 17:08:01 2017	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps

 <p><b>PIONEER</b> Pioneer Energy Services</p>	Company	STEWART PRODUCERS, INC.
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	Field	UNNAMED
	County	NESS
	State	KANSAS