



**Weatherford®**

**HOLE VOLUME  
CALIPER  
LOG**

COMPANY

SANDRIDGE

WELL

MARR 0780 5-6H

FIELD

NORTH PARK

PROVINCE/COUNTY JACKSON

COUNTRY/STATE USA / COLORADO

LOCATION SHL: 345 FNL & 2382' FEL

SEC 7 TWP 7N RGE 80W Other Services

Latitude 40.5985140000

Longitude -106.4155420000

API Number 05-057-065750000

Permanent Datum GL, Elevation 8130 feet

Log Measured From KB

Drilling Measured From KB @ 5.5

Date 19-AUG-2016

Run Number ONE

Service Order 7953-158842941

Depth Driller 2325.00 feet

Depth Logger 2320.00 feet

First Reading 2280.64 feet

Last Reading 45.00 feet

Casing Driller 45.00 feet

Casing Logger 45.00 feet

Bit Size 12.250 inches

Hole Fluid Type WBM

Density / Viscosity 9.70 lb/USg 50.00 Sec/Qt

PH / Fluid Loss 8.00 12.00 ml/30Min

Sample Source FLOWLINE

Rm @ Measured Temp 1.80 @ 69.0 ohm-m

Rmf @ Measured Temp 1.35 @ 69.0 ohm-m

Rmc @ Measured Temp 2.25 @ 69.0 ohm-m

Source Rmf / Rmc CALC CALC

Rm @ BHT 1.214 @104.0 ohm-m

Time Since Circulation 4 HRS

Max Recorded Temp 104.00 deg F

Equipment / Base 13173 CASPER

Recorded By G. SHIREMAN

Witnessed By C. MARBERRY

Elevations:  
KB 8135.50  
DF 8135.50  
GL 8130.00

**BOREHOLE RECORD**

Last Edited: 19-AUG-2016 19:23

Bit Size  
inches

Depth From  
feet

Depth To  
feet

12.250

45.00

2325.00

**CASING RECORD**

Type

Size  
inches

Depth From  
feet

Shoe Depth  
feet

Weight  
pounds/ft

SURFACE

20.000

0.00

45.00

84.00

**REMARKS**

SOFTWARE VERSION 16.01.9649

TOOLS RUN: CBH, SHA, MCG, MXC, MSS, MXC, MFE, MAI

HARDWARE: MAI: BASKET

TIGHT PULLS, BOREHOLE SIZE AND RUGOSITY WILL AFFECT REPEATABILITY AND DATA QUALITY

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST

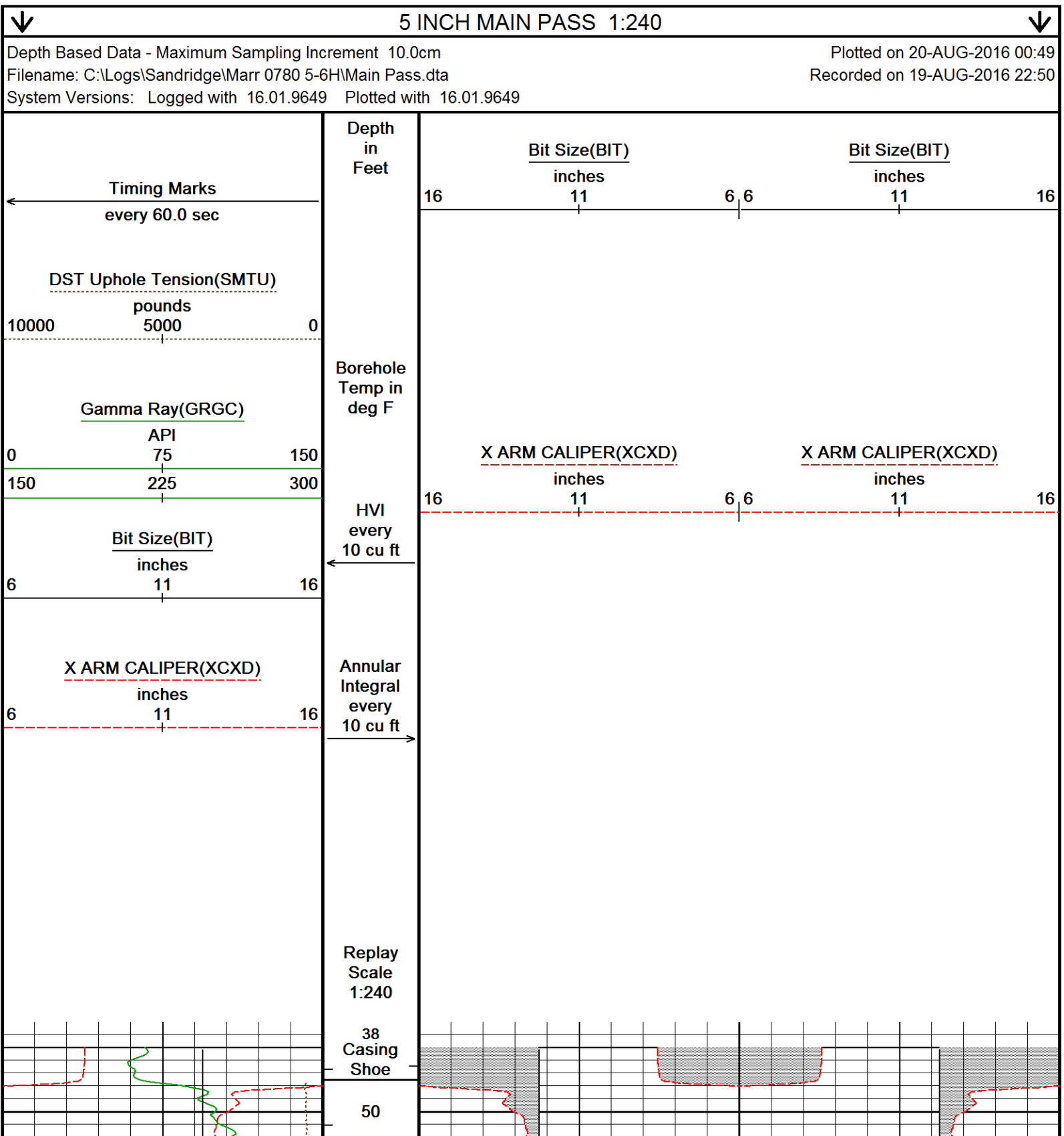
TOTAL HOLE VOLUME FROM 2000 TO SURFACE CASING = 1760 CUBIC FEET

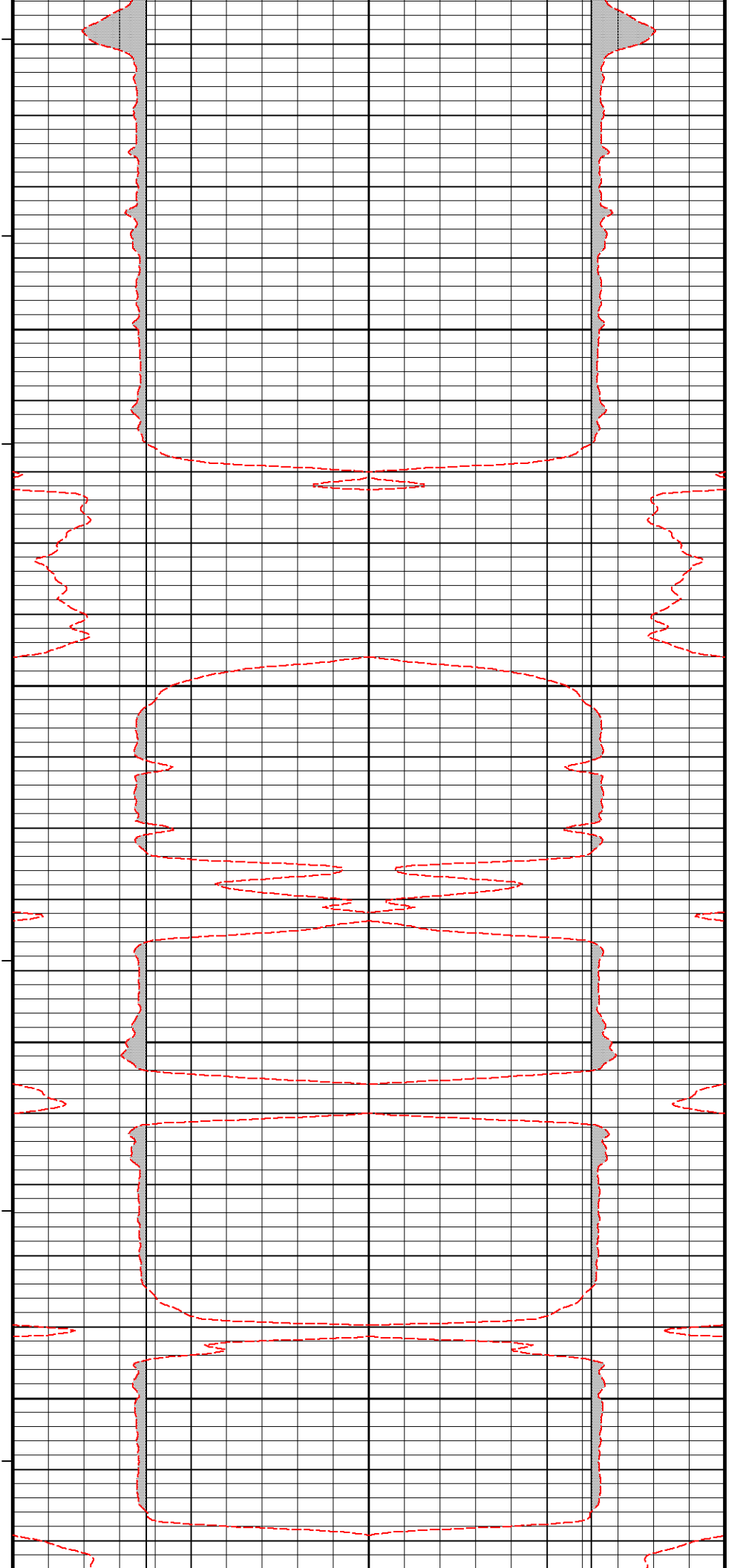
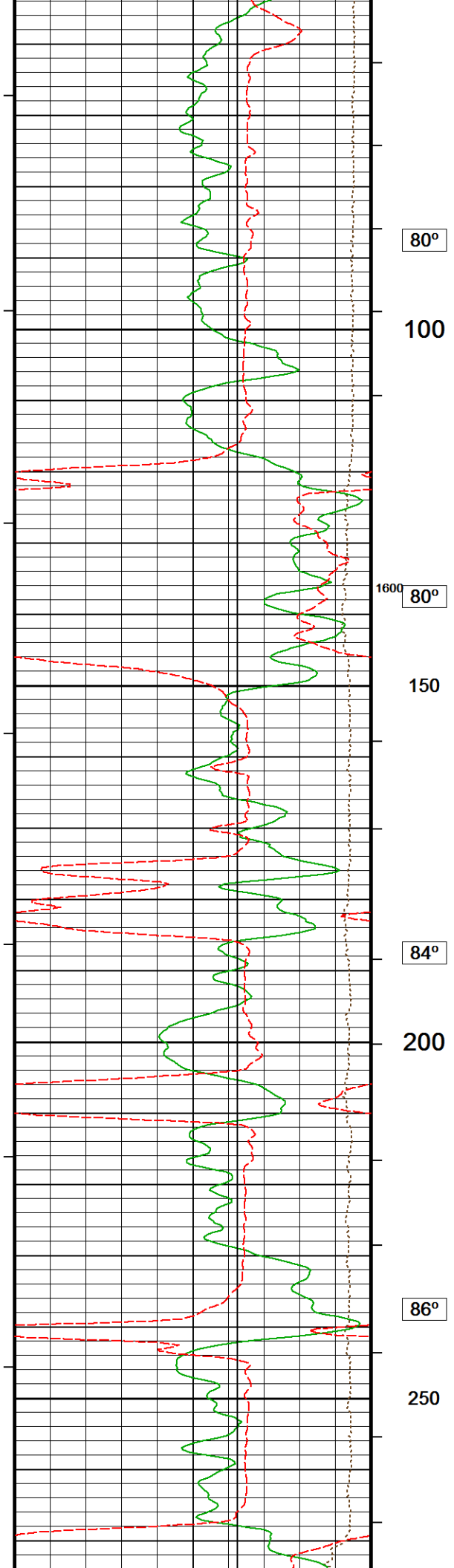
TOTAL ANNULAR VOLUME FROM 2000 TO SURFACE WITH 9.625 IN CASING= 575 CUBIC FEET

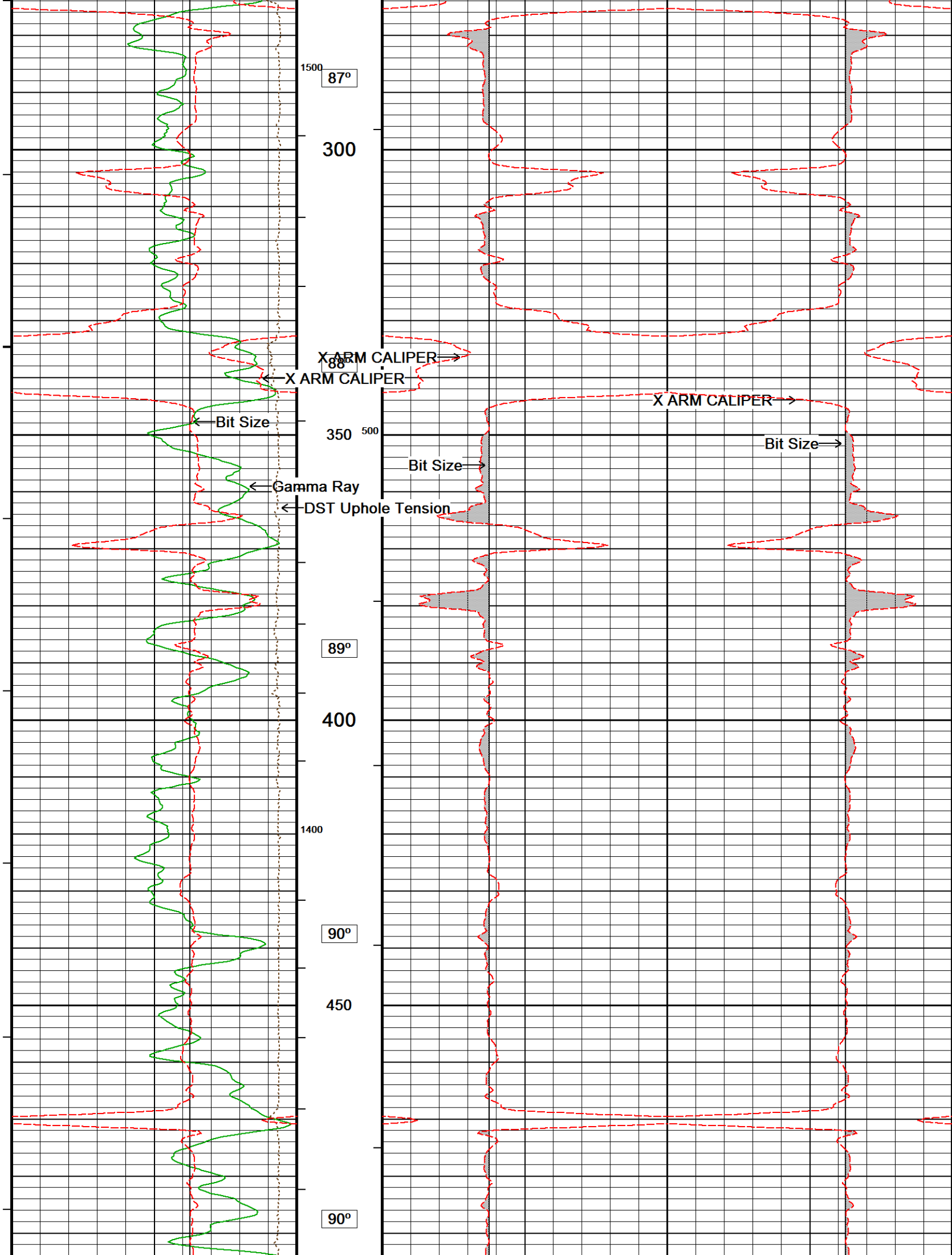
RIG: WHITE MOUNTAIN OPERATING 344

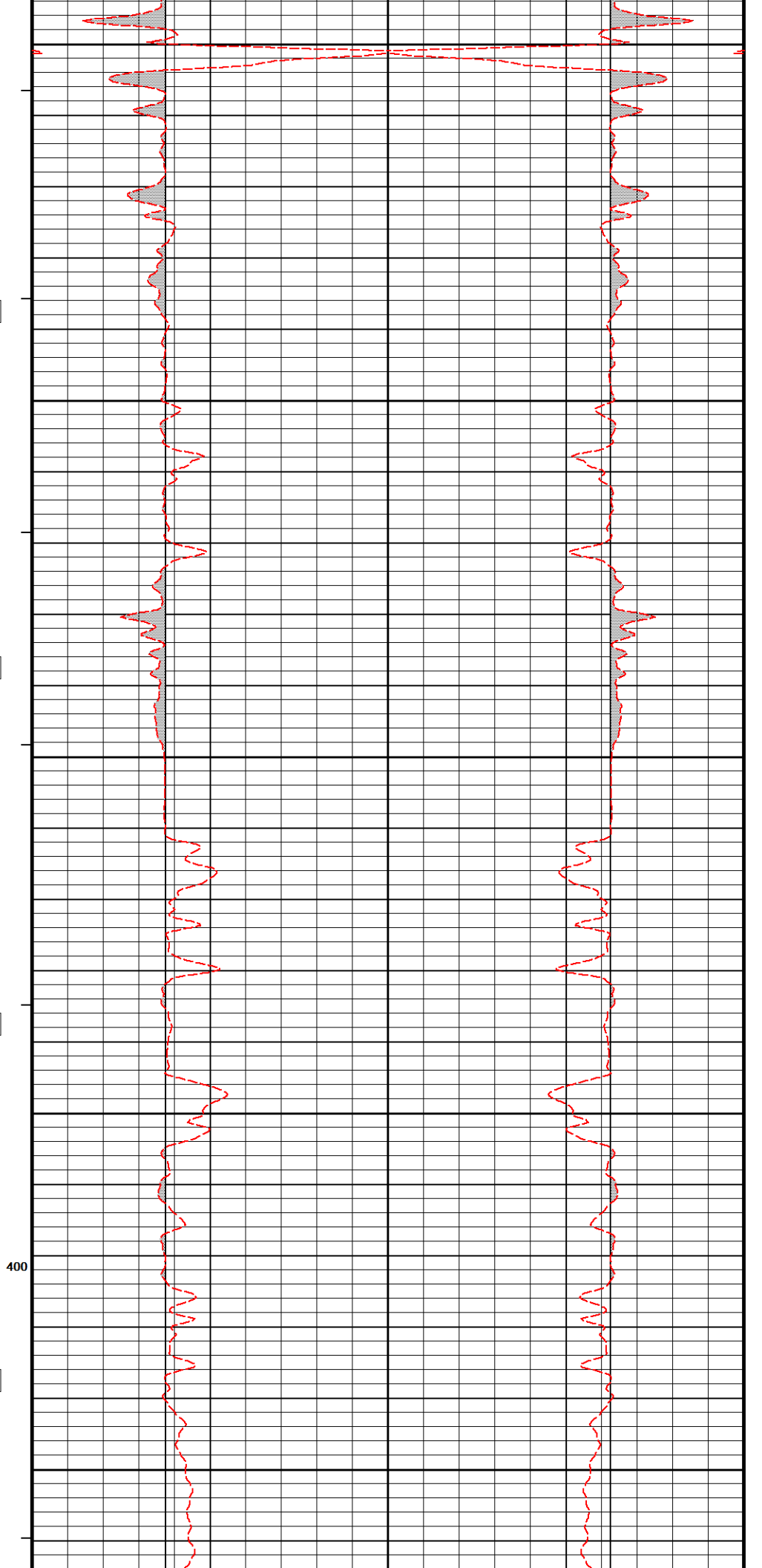
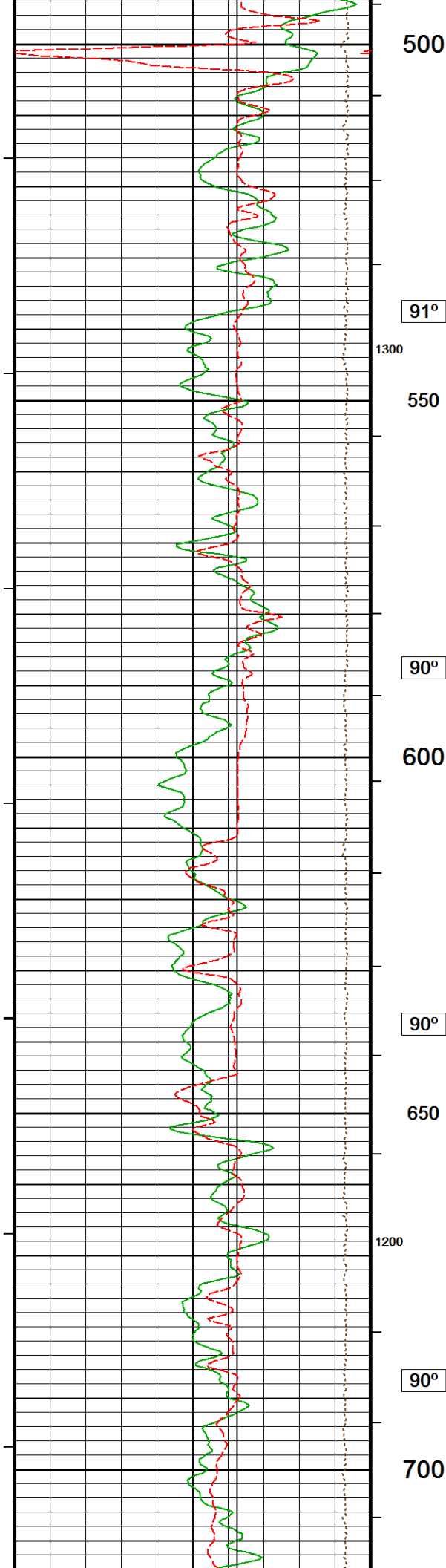
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data,

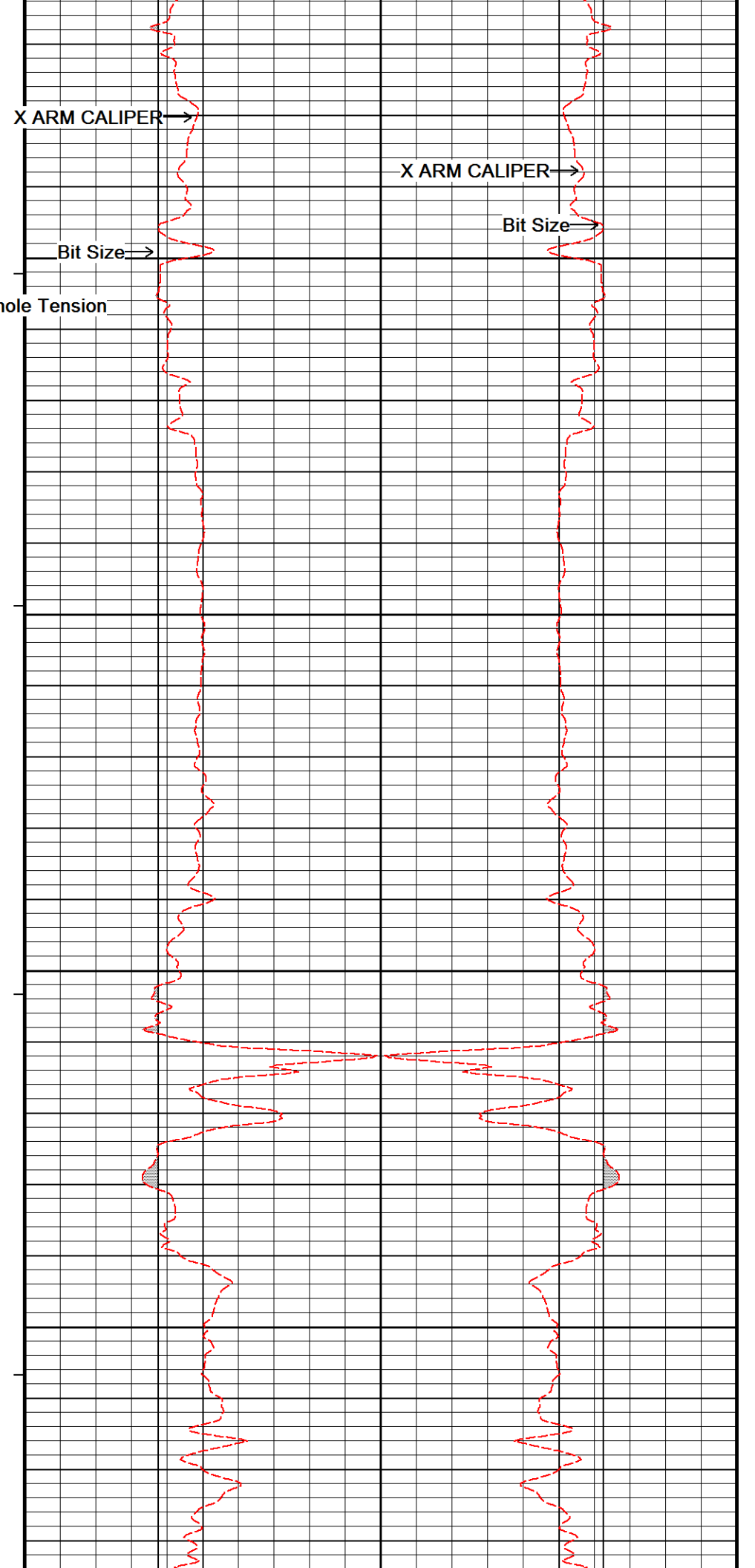
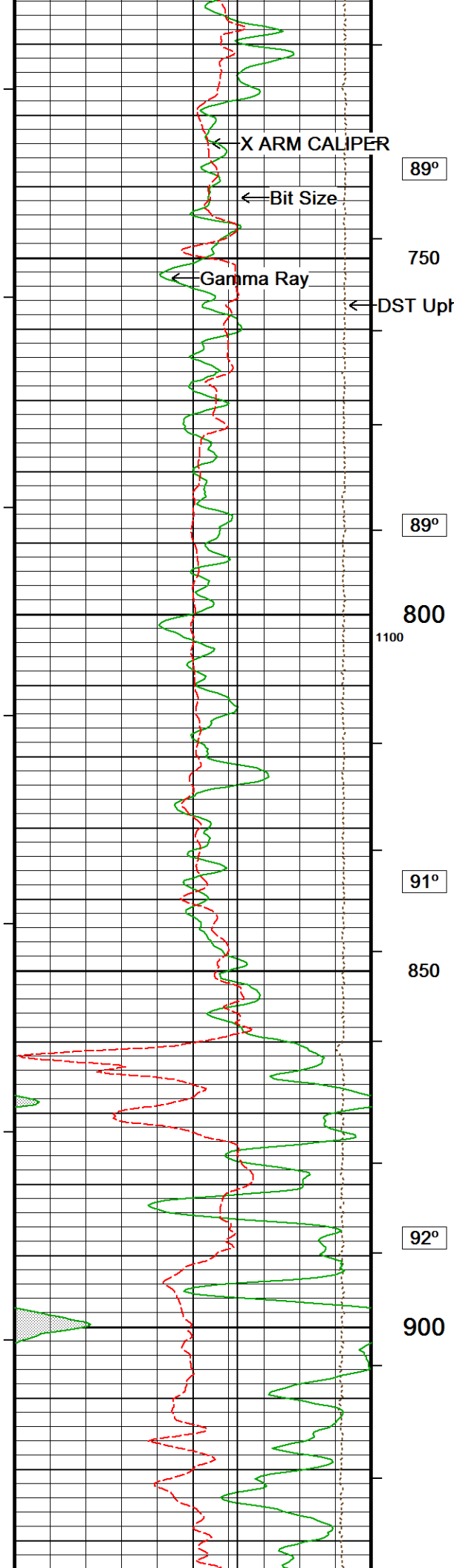
type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

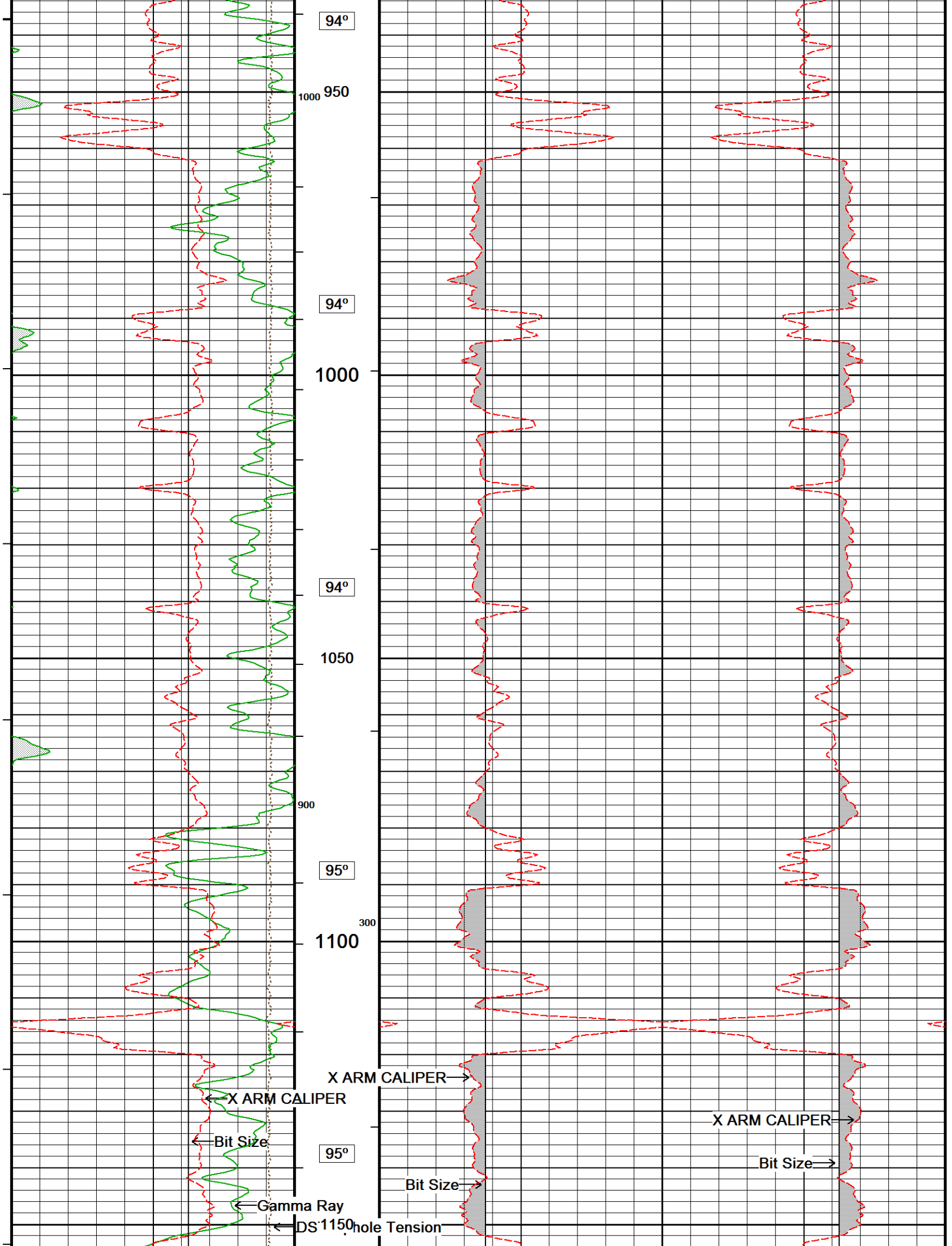


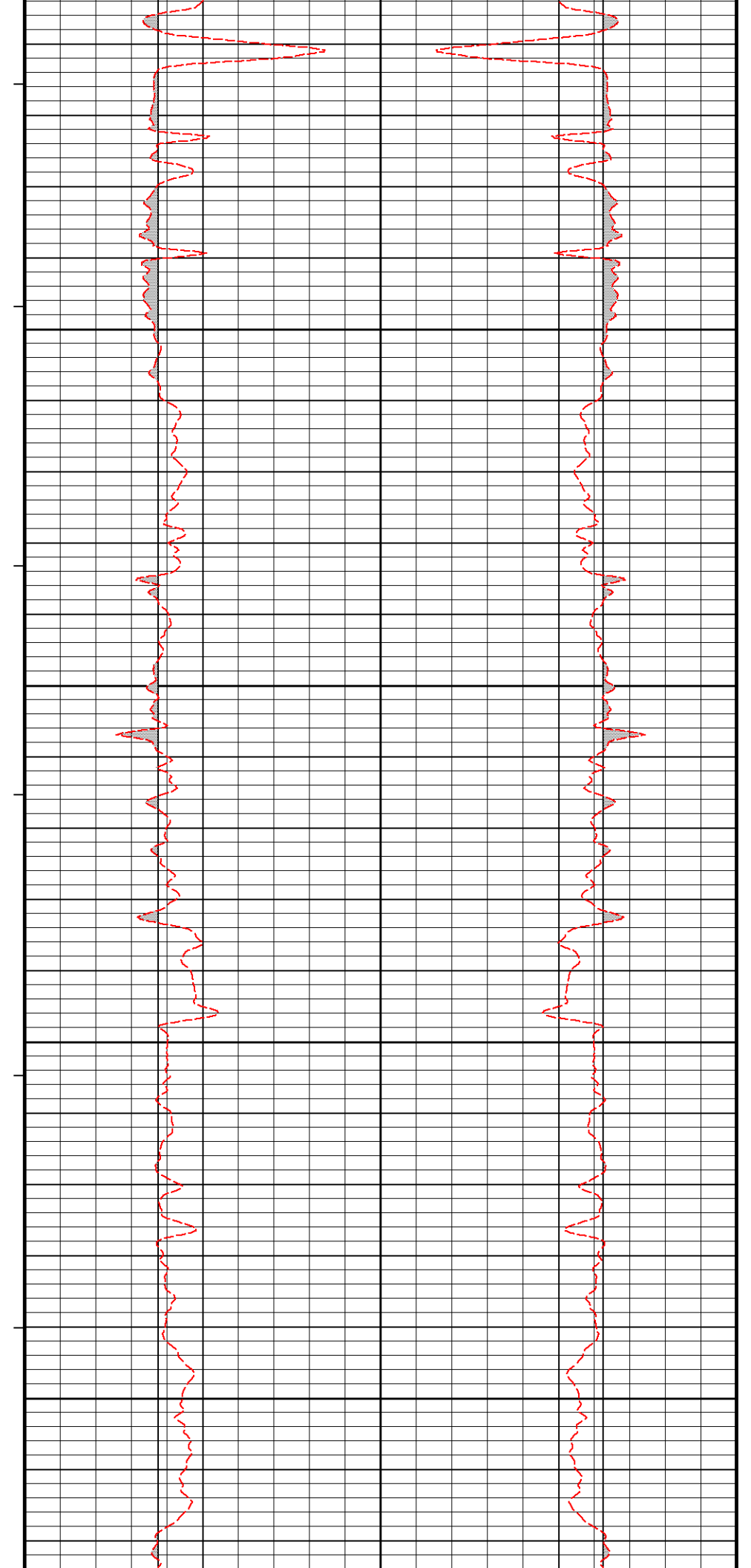
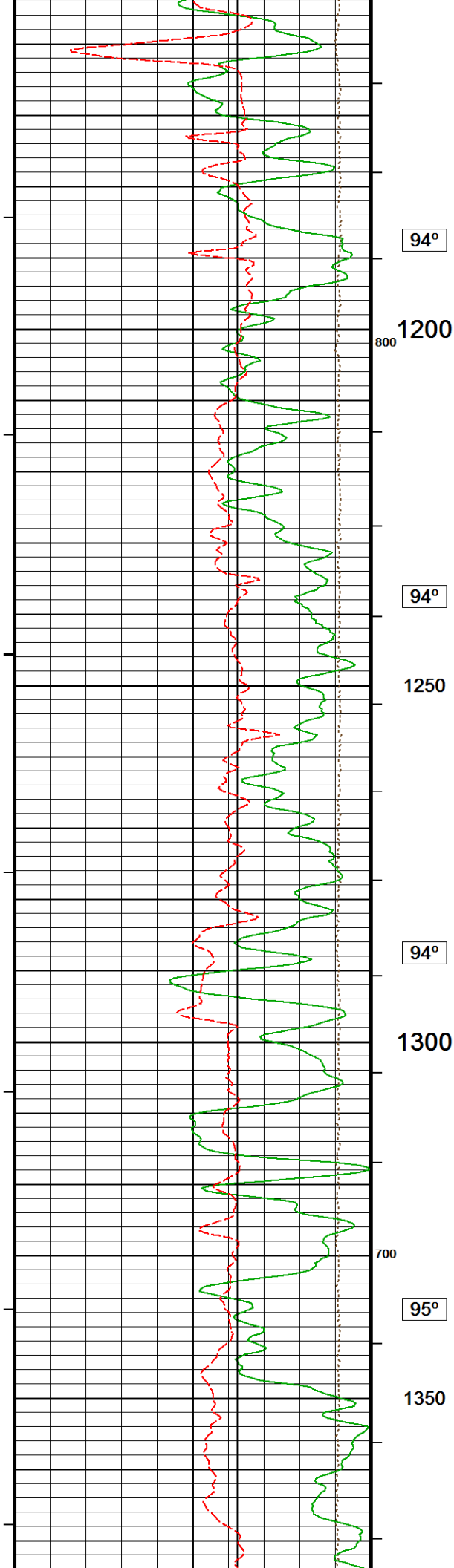




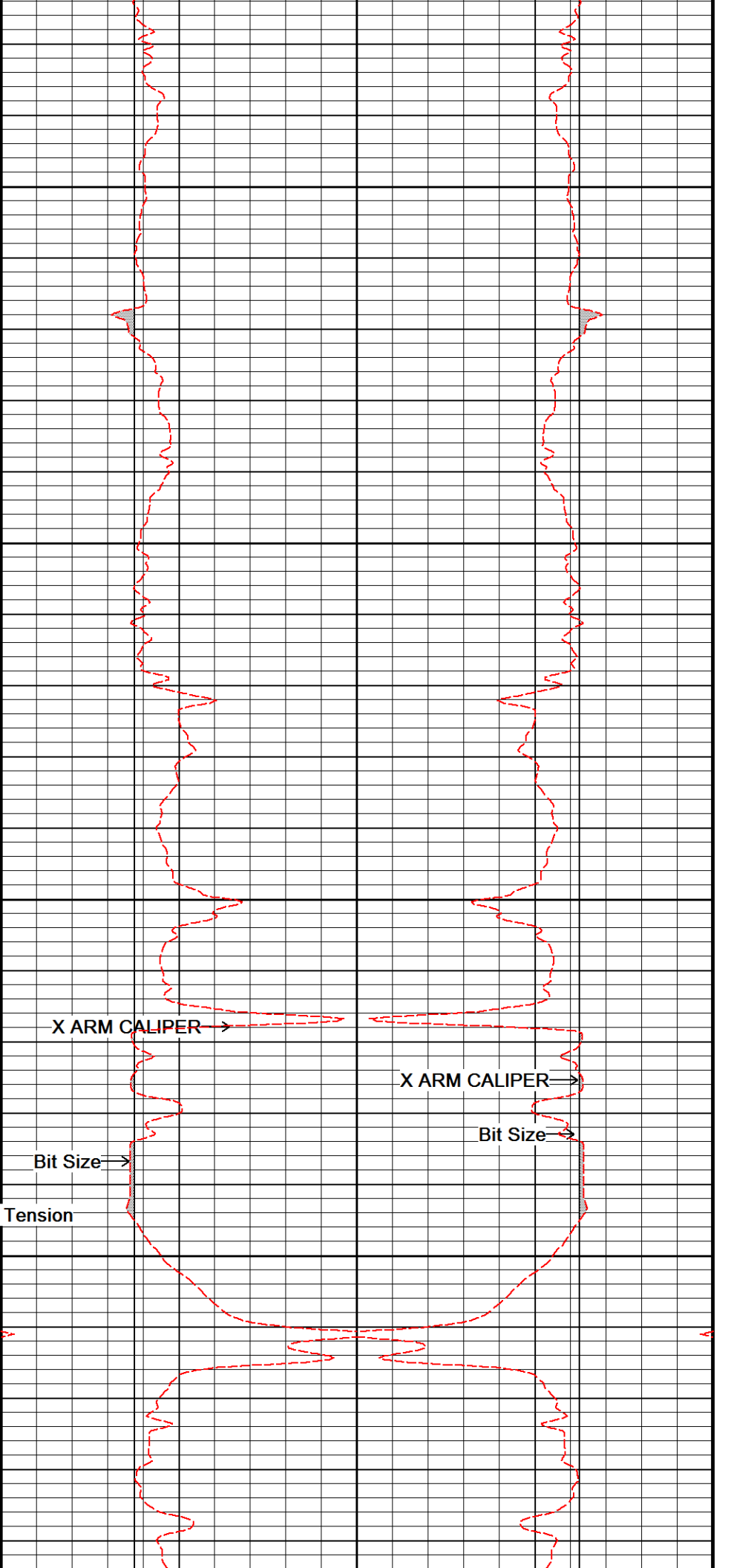
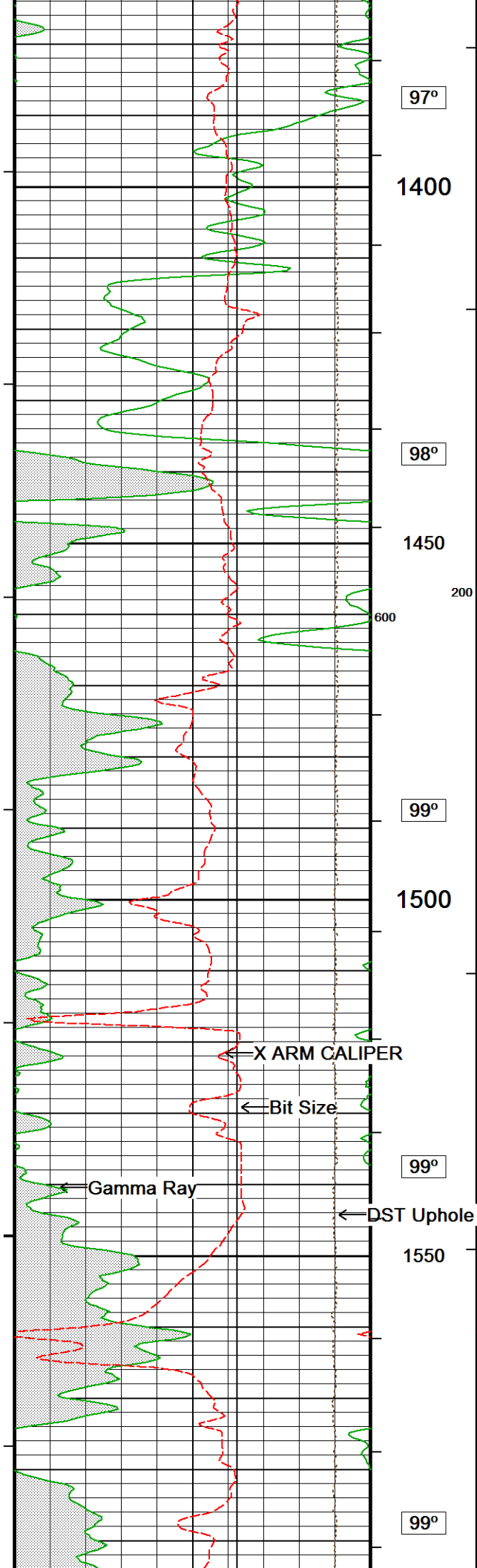


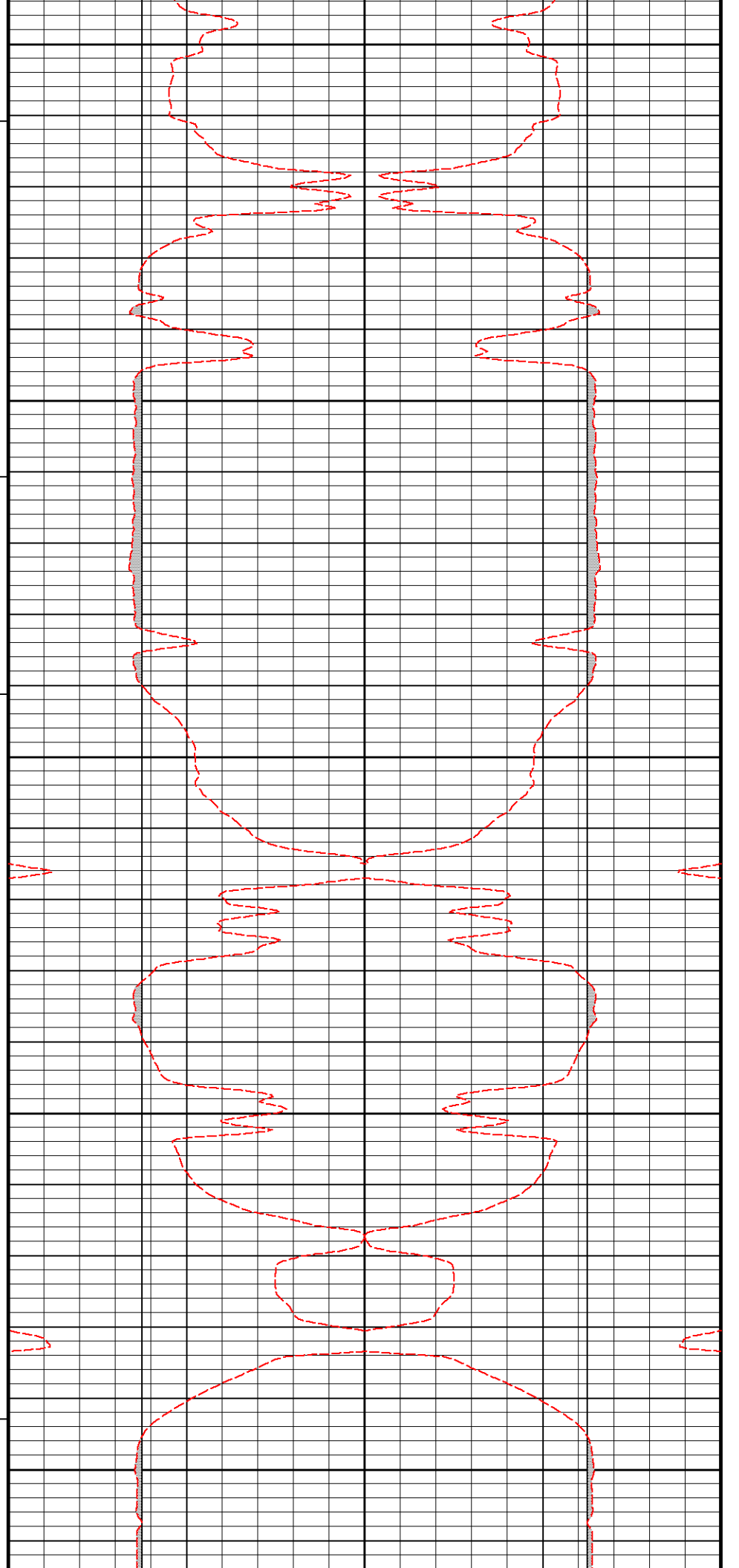
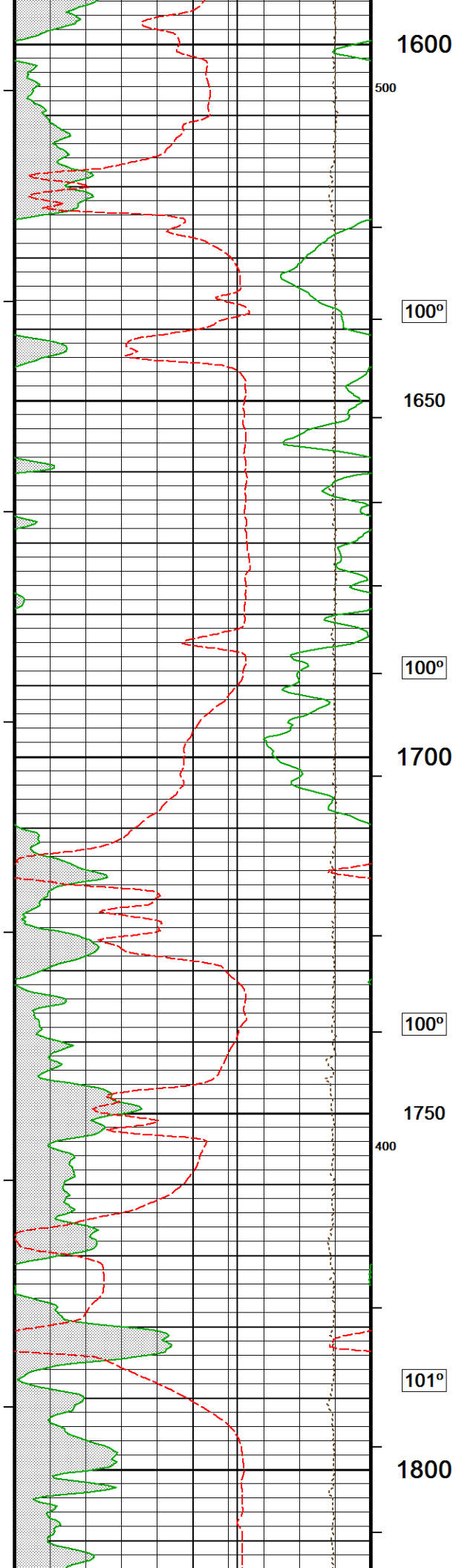


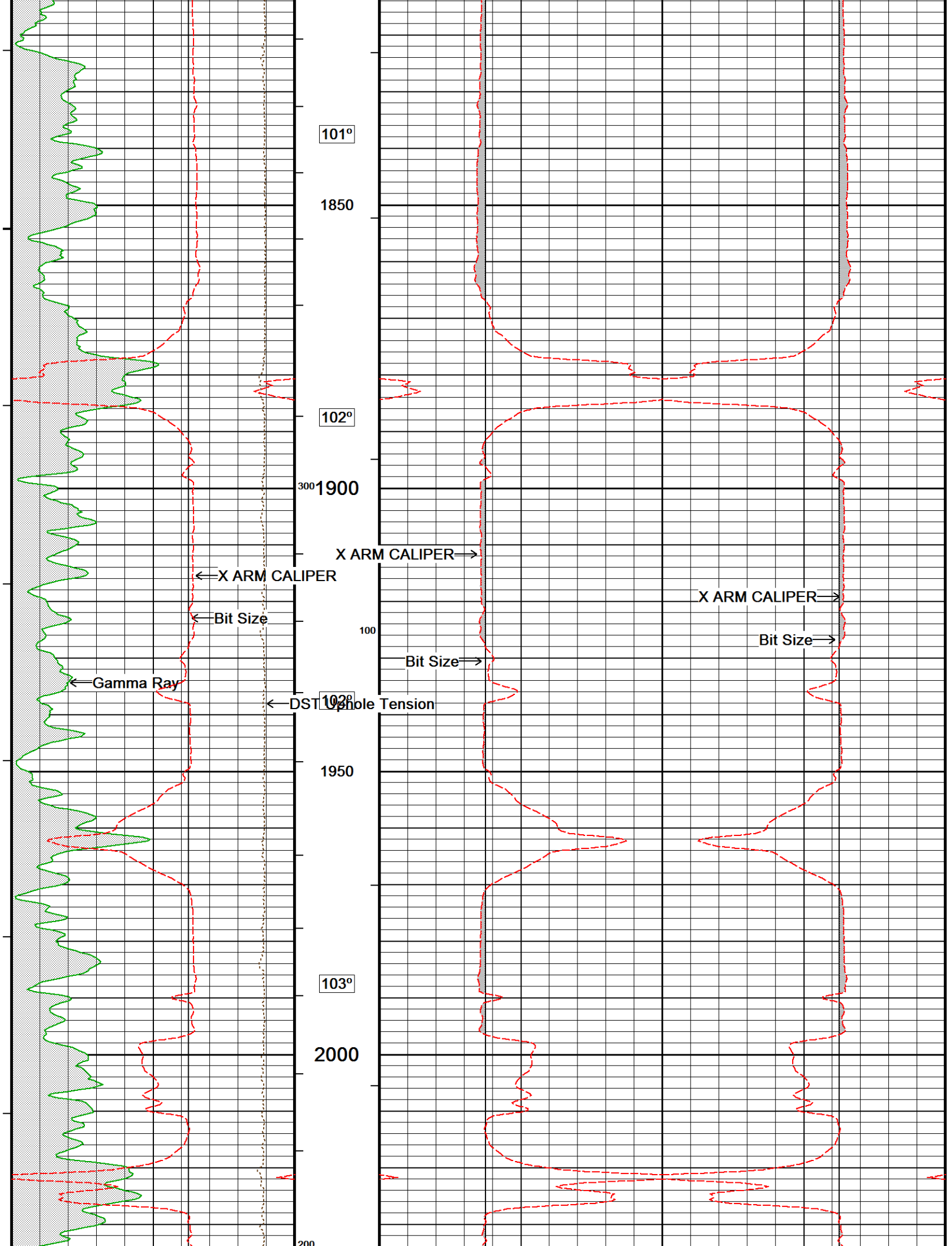


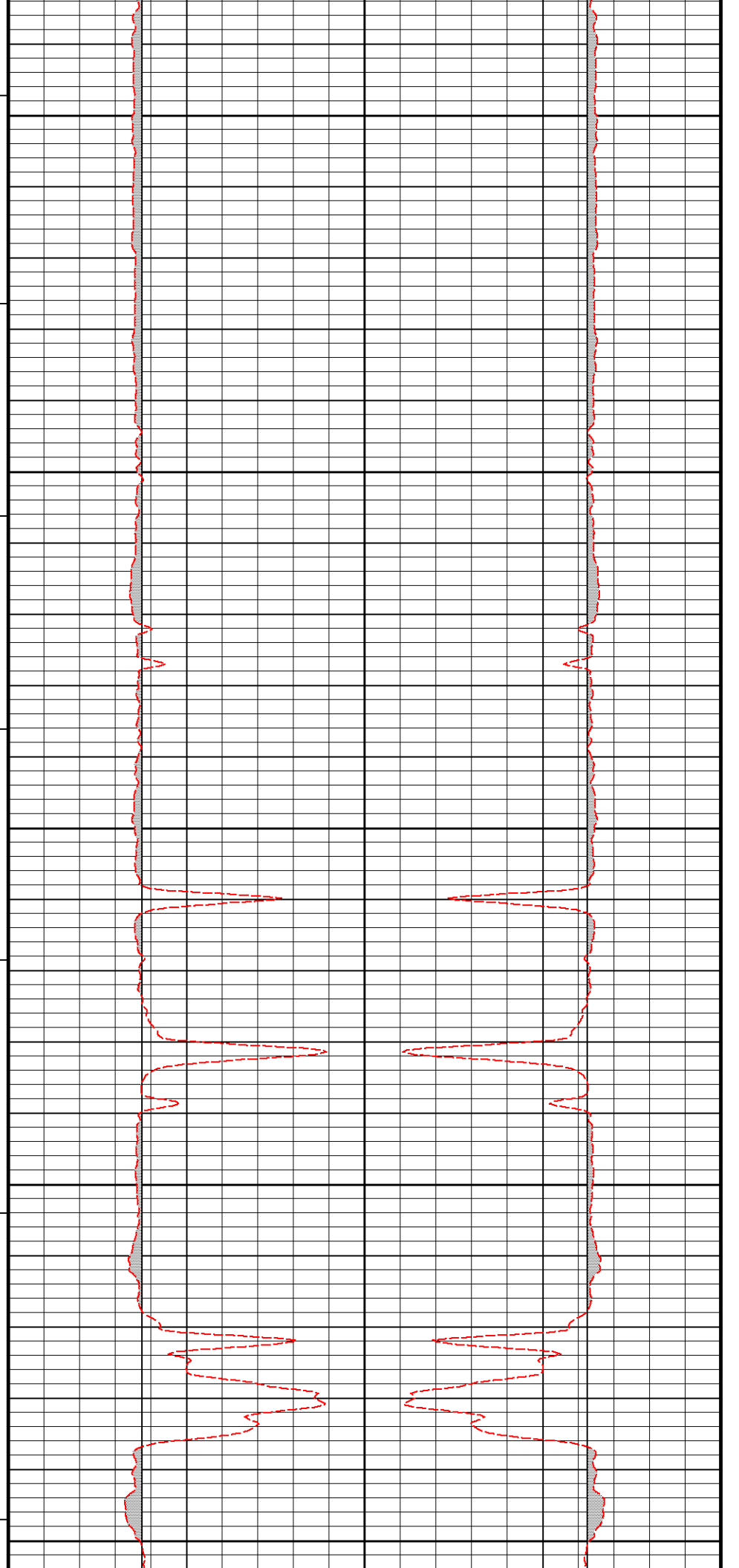
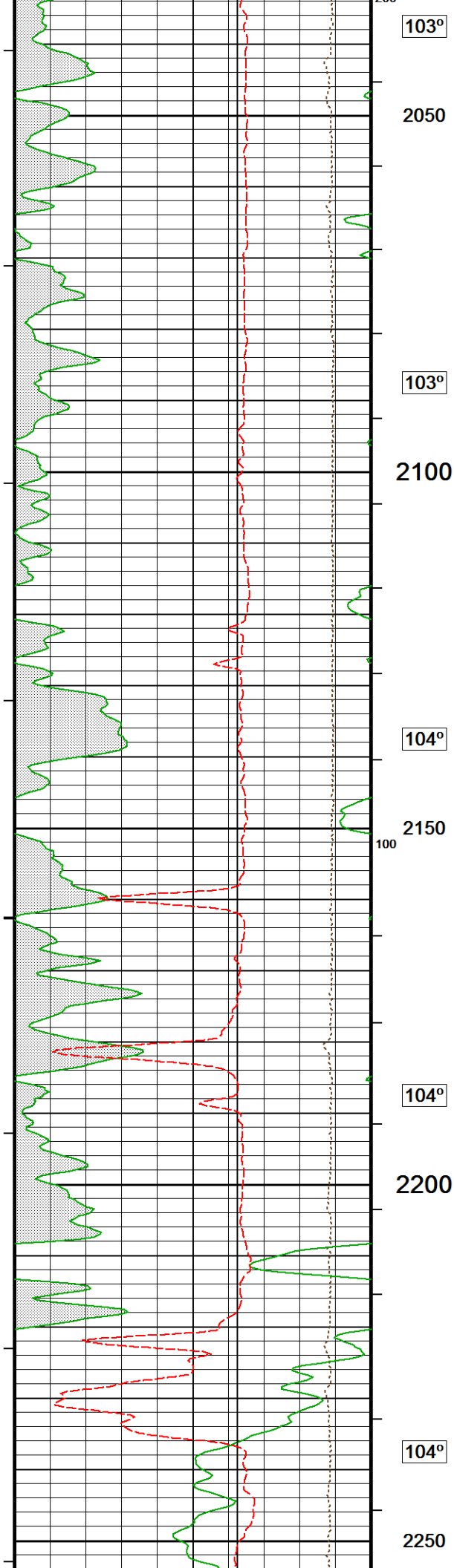


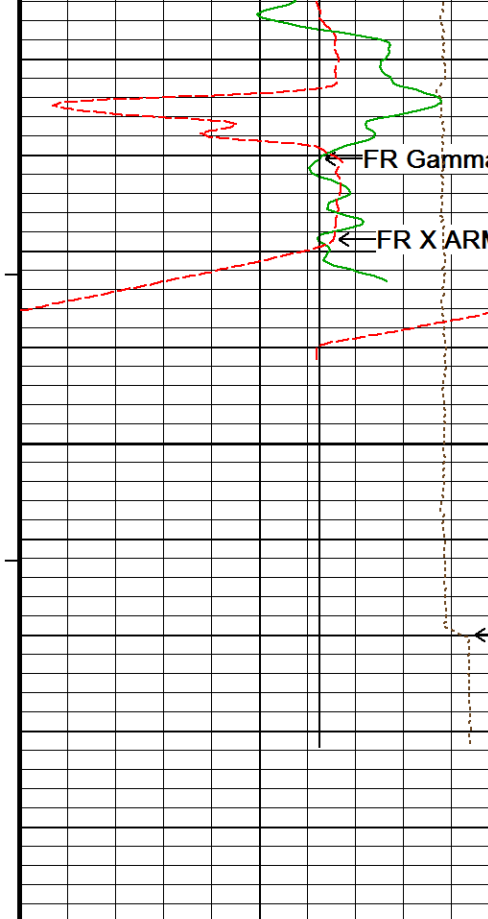












FR Gamma Ray

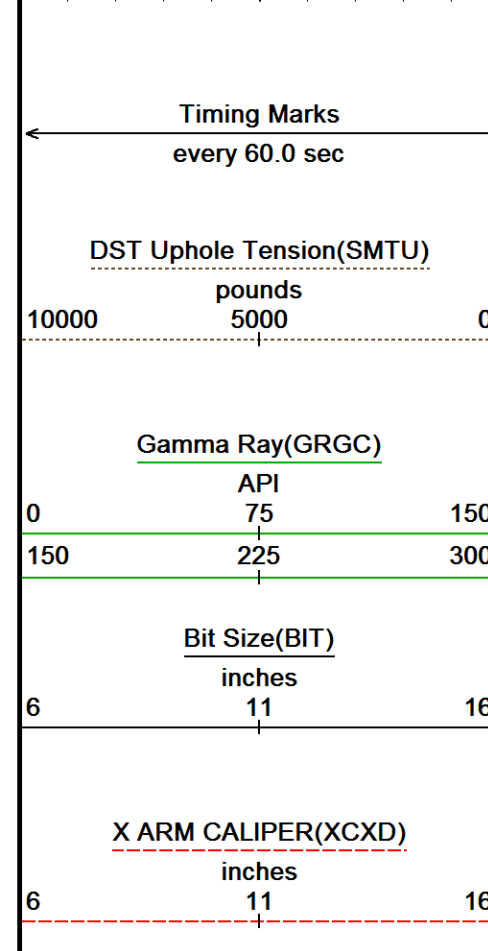
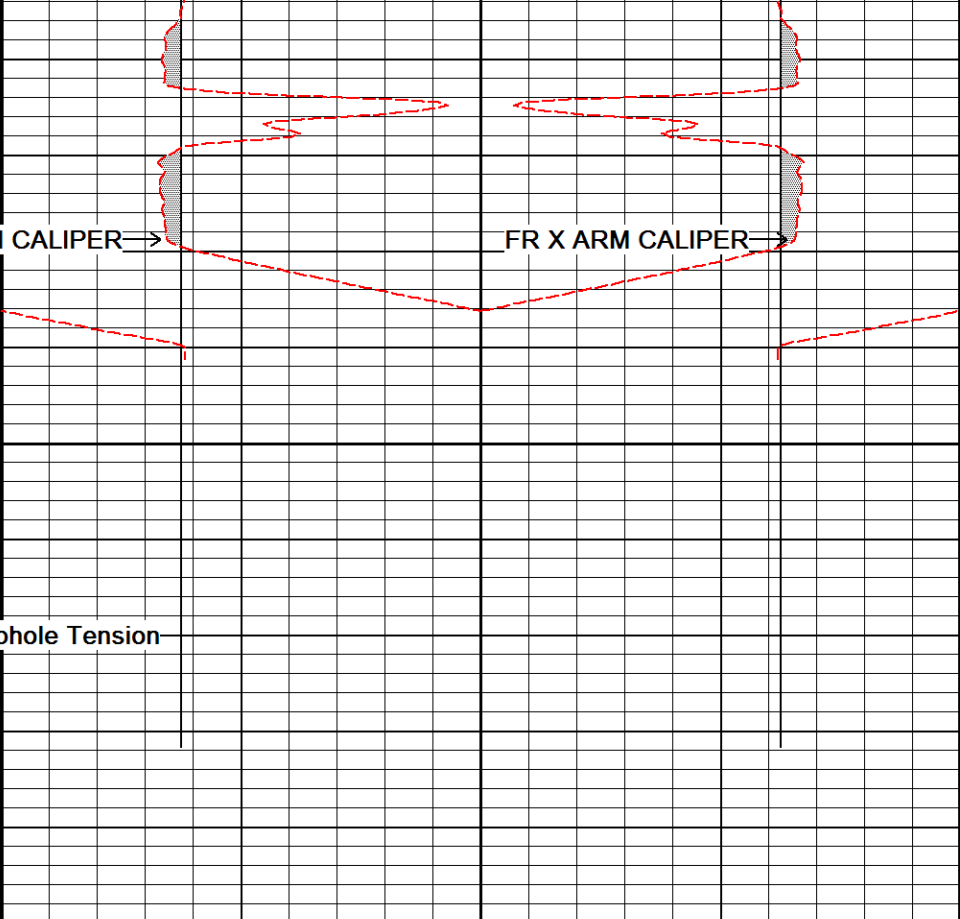
FR X ARM CALIPER

2300

TD

FR DST Uphole Tension

Depth in Feet



Timing Marks every 60.0 sec

DST Uphole Tension(SMTU) pounds

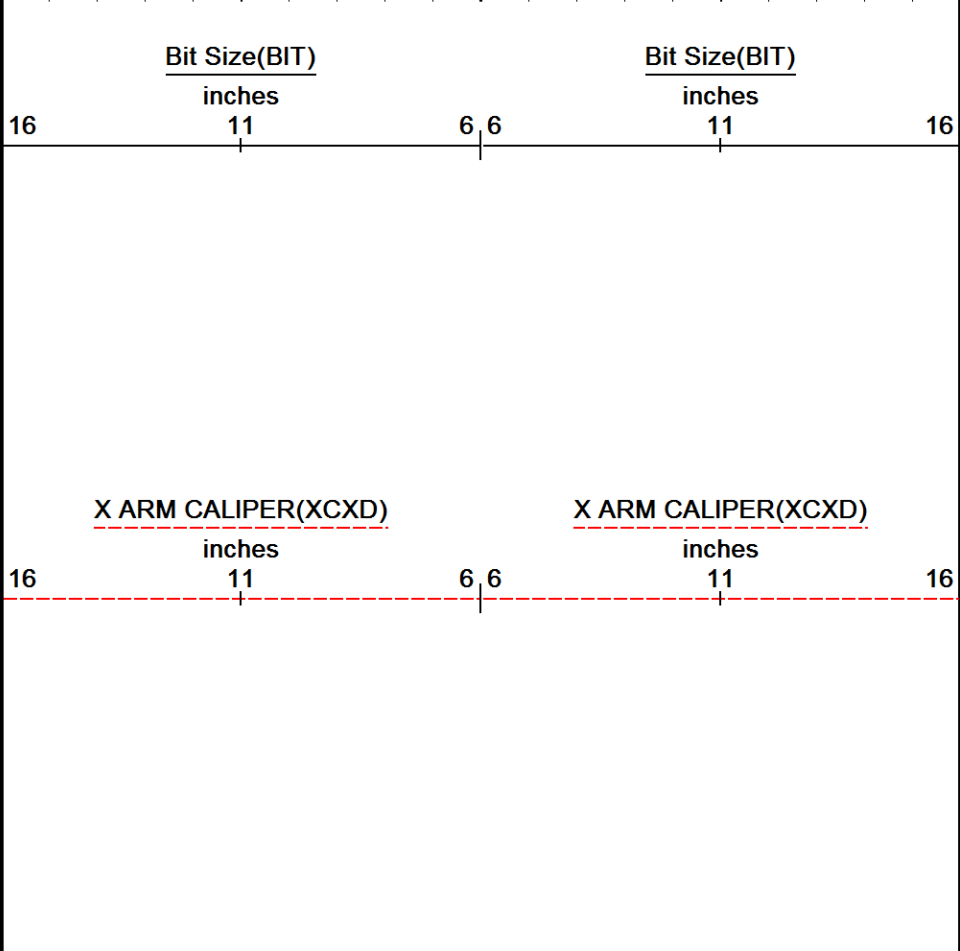
Gamma Ray(GRGC) API

Bit Size(BIT) inches

X ARM CALIPER(XCXD) inches

HVI every 10 cu ft

Annular Integral every 10 cu ft



Replay  
Scale  
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm  
Filename: C:\Logs\Sandridge\Marr 0780 5-6H\Main Pass.dta  
System Versions: Logged with 16.01.9649 Plotted with 16.01.9649

Plotted on 20-AUG-2016 00:49  
Recorded on 19-AUG-2016 22:50



5 INCH MAIN PASS 1:240



## BEFORE SURVEY CALIBRATION

C:\Logs\Sandridge\Marr 0780 5-6H\Main Pass.dta

### General Constants All 000

Last Edited on 19-AUG-2016,19:20

#### General Parameters

Mud Resistivity	1.800	ohm-metres
Mud Resistivity Temperature	69.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	

#### Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	Quad Arm Caliper X	
HVOL Caliper 2	N/A	
Annular Volume Diameter	9.625	inches
Caliper for Differential Caliper	None	

#### Rwa Parameters

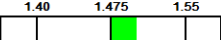
Porosity used	Wyllie Lime. Sonic Por.
Resistivity used	Array Ind. Two Res Rt
RWA Constant A	0.610
RWA Constant M	2.150
SW/APOR Tool Source	0.000

### Gamma Calibration MCG-E.A 514

Field Calibration on 03-AUG-2016 04:47

	Measured	Calibrated (API)
Background	91	60
Calibrator (Gross)	1460	972
Calibrator (Net)	1369	912

### Gamma Calibration Tolerances MCG-E.A 514

Ratio 1.501  Counts/API

### Gamma Constants MCG-E.A 514

Last Edited on 19-AUG-2016,19:21

Gamma Calibrator Number	GRC 072	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.16	gm/cc
Caliper Source for Processing	Bit Size	
Tool Position	Centred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

### High Resolution Temperature Calibration MCG-E.A 514

Field Calibration on 18-OCT-2014,09:50

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	100.00	100.00

### High Resolution Temperature Constants MCG-E.A 514

Last Edited on 18-OCT-2014,09:50

Pre-filter Length 11

### Caliper Calibration MXC-B.A 110

Base Calibration on 03-AUG-2016,04:28  
Field Calibration on 03-AUG-2016 04:32

# Base Calibration

Reading No  
1  
2  
3  
4  
5  
6

Measured  
12877  
17957  
23046  
28075  
33795  
N/A

Calibrator Size (in)  
3.98  
5.96  
7.97  
9.84  
11.91  
N/A

## Field Calibration

Measured Caliper (in)  
11.92

Actual Caliper (in)  
11.91

## DOWNHOLE EQUIPMENT

C:\Logs\Sandridge\Marr 0780 5-6HMain Pass.dta

Cablehead, 11 pin

CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Swivel Head Adaptor

SHA-J.B 588 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma

MCG-E.A 514 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Quad Arm Caliper

MXC-B.A 110 LG: 7.49 ft WT: 77.2 lb OD: 2.240 in

Compact Sonic

MSS-D.A 401 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Quad Arm Caliper

MXC-B.A 109 LG: 7.49 ft WT: 77.2 lb OD: 2.240 in

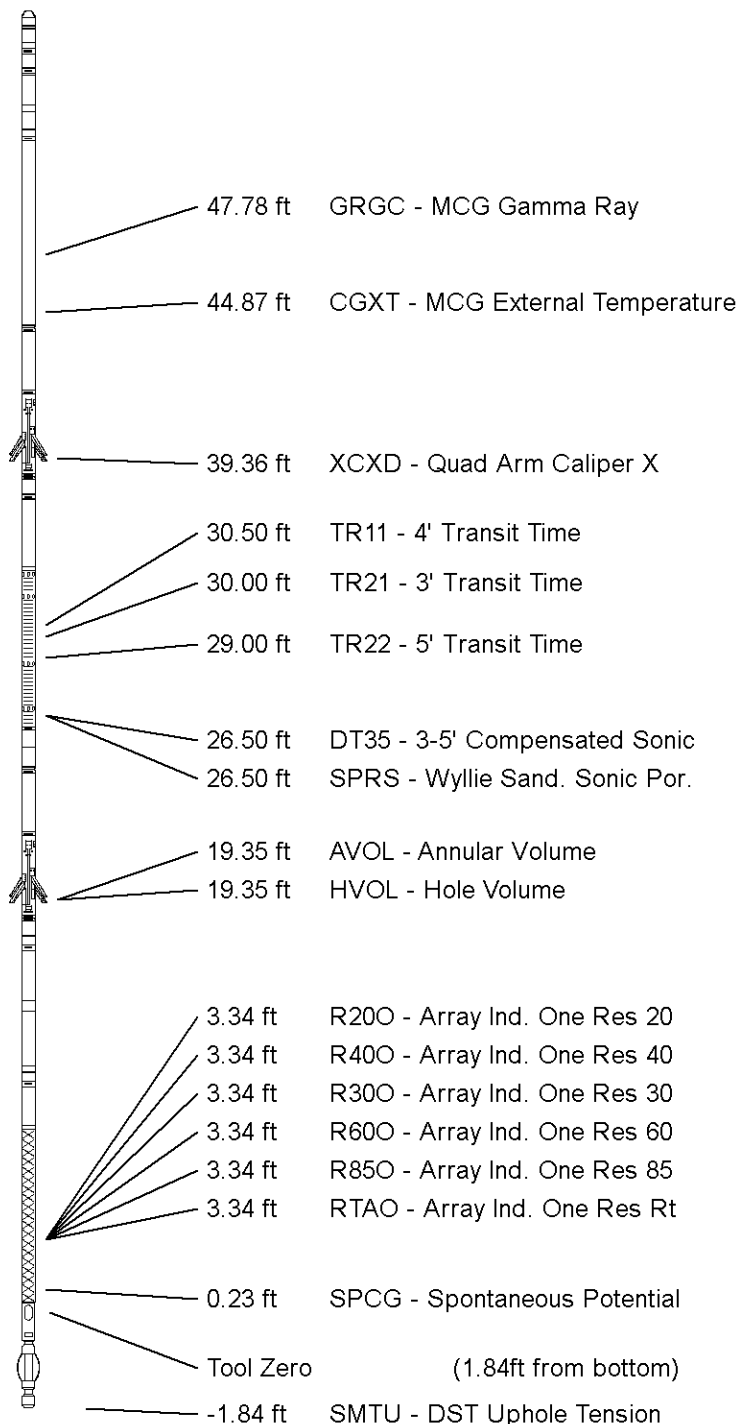
Compact Focussed Electric

MFE-C.A 417 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction

MAI-C.A 456 LG: 12.52 ft WT: 48.5 lb OD: 2.240 in


Total Length: 59.47 ft Weight: 434.3 lb



All measurements relative to tool zero.

COMPANY	SANDBRIDGE
WELL	MARR 0780 5-6H
FIELD	NORTH PARK
PROVINCE/COUNTY	JACKSON
COUNTRY/STATE	USA / COLORADO

Elevation Kelly Bushing	8135.50	feet	First Reading	2280.64	feet
Elevation Drill Floor	8135.50	feet	Depth Driller	2325.00	feet
Elevation Ground Level	8130.00	feet	Depth Logger	2320.00	feet

  
**Weatherford**<sup>®</sup>

HOLE VOLUME  
CALIPER  
LOG