



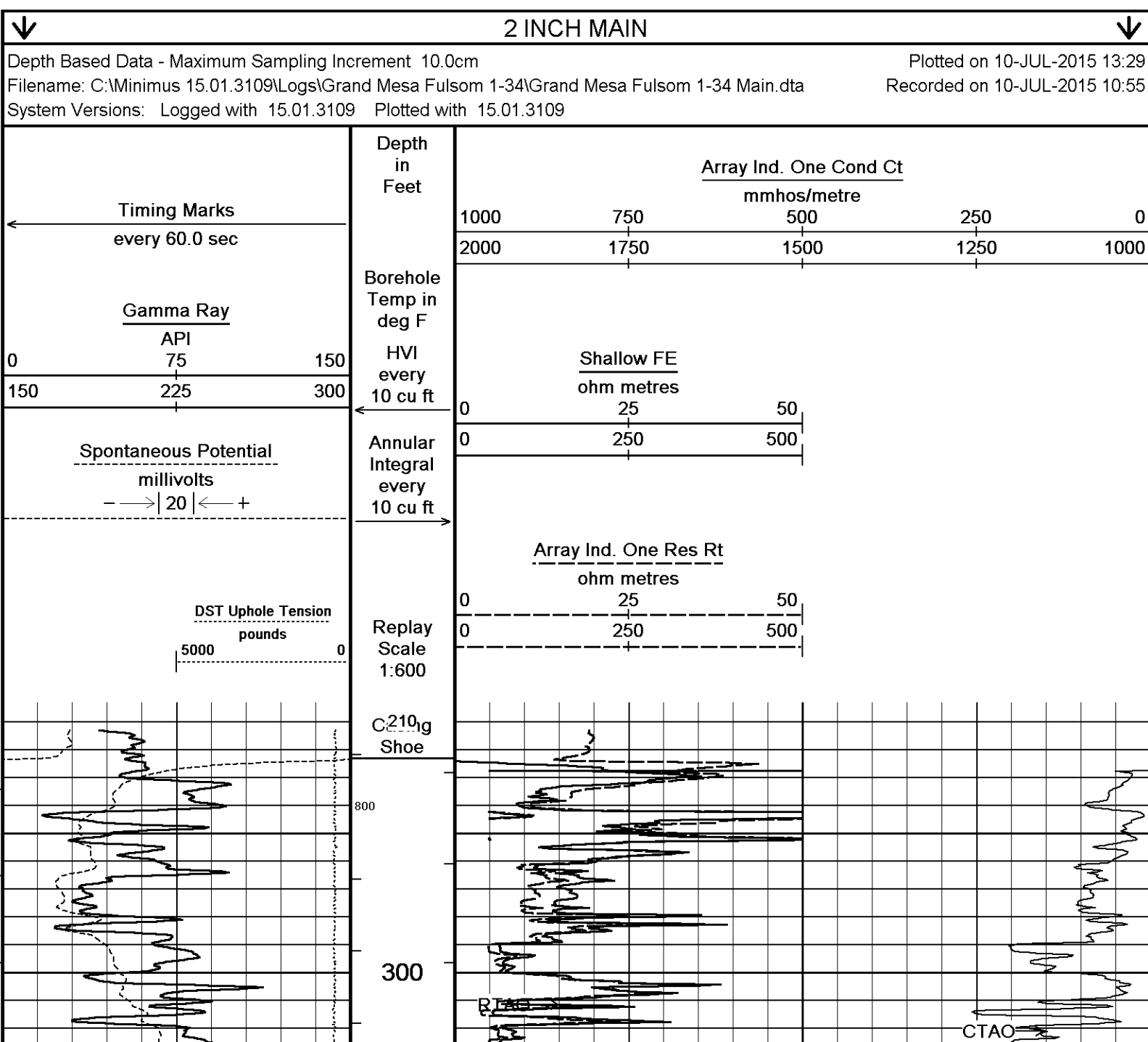
Weatherford

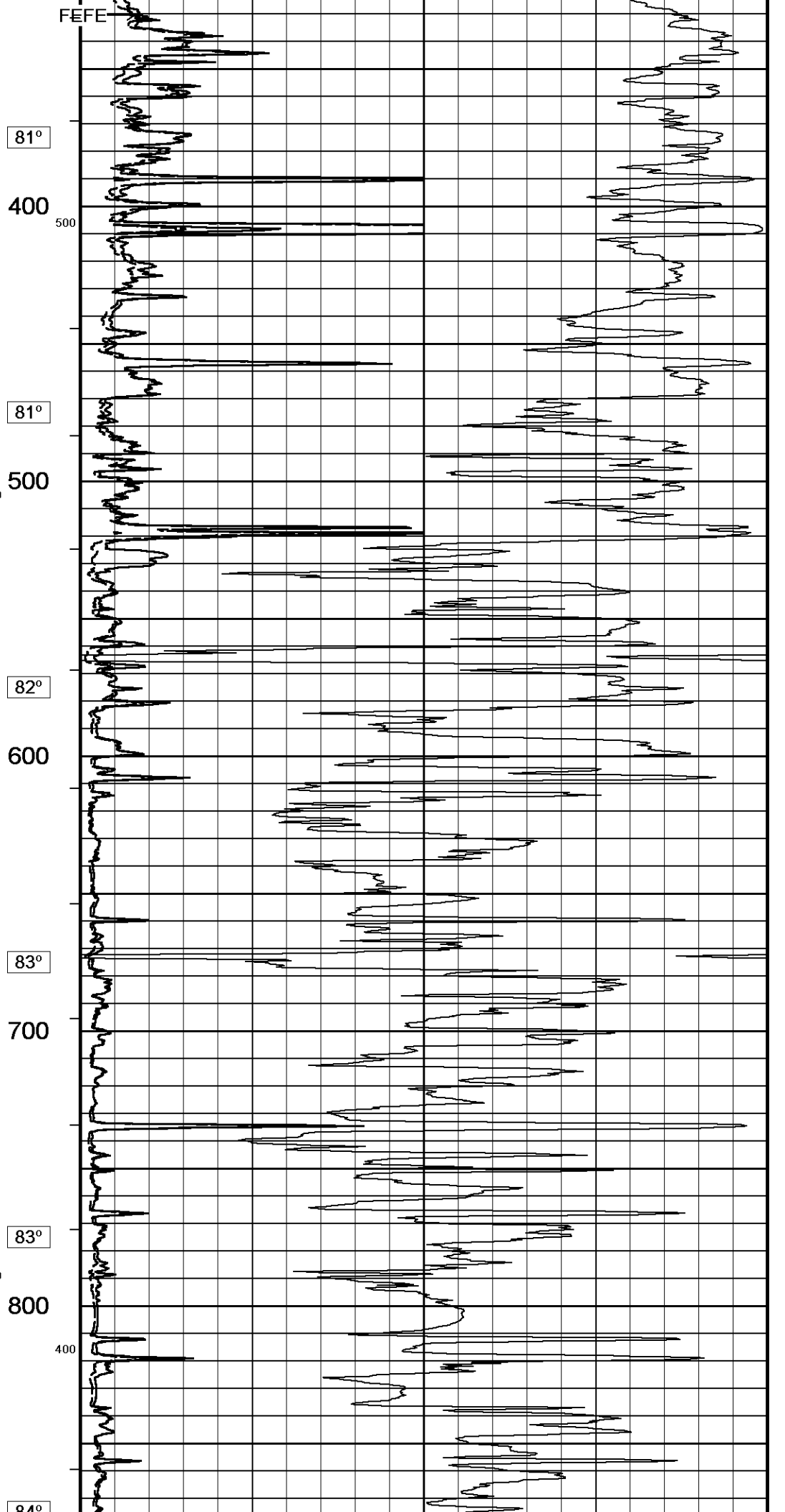
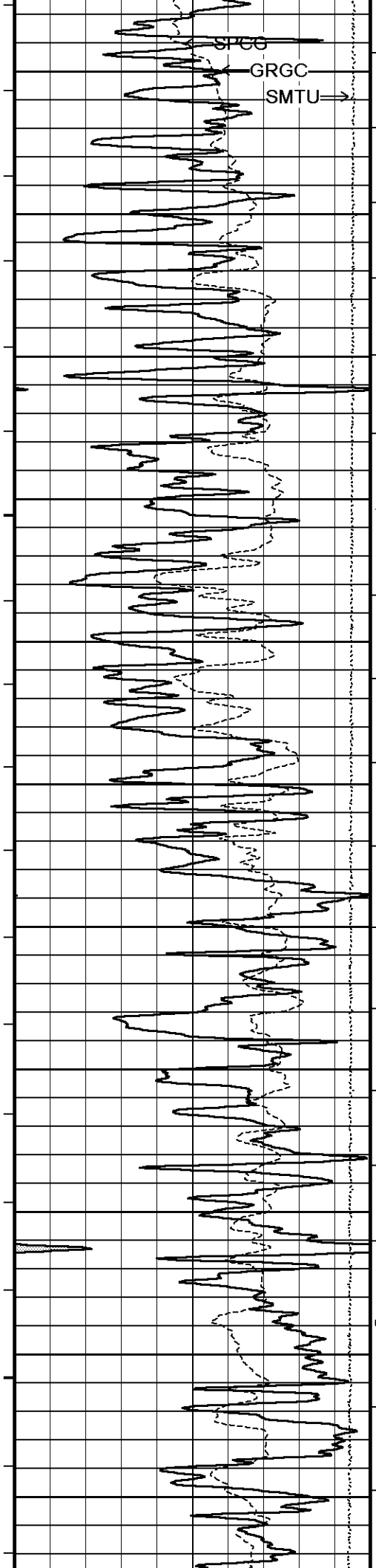
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

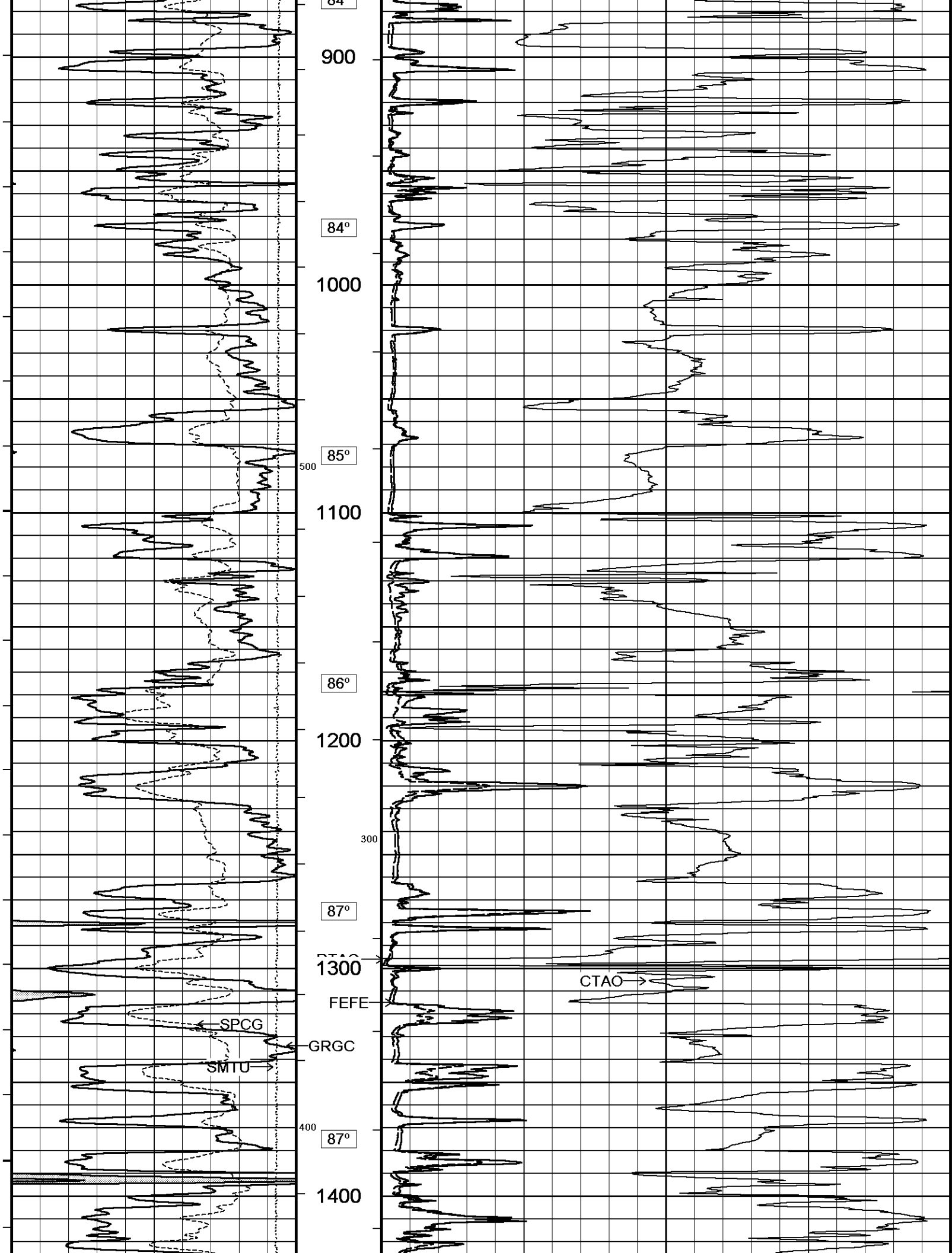
COMPANY	GRAND MESA OPERATING COMPANY									
WELL	FULSOM 1-34									
FIELD	WILDCAT									
PROVINCE/COUNTY	MARION									
COUNTRY/STATE	U.S.A. / KANSAS									
LOCATION	664' FNL & 1980' FWL									
SEC 34	TWP 22S	RGE 05E	Other Services			MML				
Latitude	38.098411		MPD/MDN							
Longitude	-96.870502		MSS							
API Number	15-115-21495									
Permanent Datum GL, Elevation 1487 feet						Elevations:				
Log Measured From KB						KB 1499.00				
Drilling Measured From KB @ 12 feet						DF 1497.00				
						GL 1487.00				
Date	10-JUL-2015									
Run Number	ONE									
Service Order	7577-123648841									
Depth Driller	2570.00					feet				
Depth Logger	2571.00					feet				
First Reading	2568.00					feet				
Last Reading	223.00					feet				
Casing Driller	222.00					feet				
Casing Logger	223.00					feet				
Bit Size	7.875					inches				
Hole Fluid Type	WBM									
Density / Viscosity	9.30	lb/USg	50.00	CP						
PH / Fluid Loss	9.00		0.00	ml/30Min						
Sample Source	MUD TANK									
Rm @ Measured Temp	2.30 @ 75.0					ohm-m				
Rmf @ Measured Temp	1.84 @ 75.0					ohm-m				
Rmc @ Measured Temp	2.75 @ 75.0					ohm-m				
Source Rmf / Rmc	CALC		CALC							
Rm @ BHT	1.85 @ 94.0					ohm-m				
Time Since Circulation	4 HOURS									
Max Recorded Temp	94.00					deg F				
Equipment / Base	13244		LIB							
Recorded By	JEFFREY RANDLE									
Witnessed By	STEVE CARL									
JOB #	LB15-099									

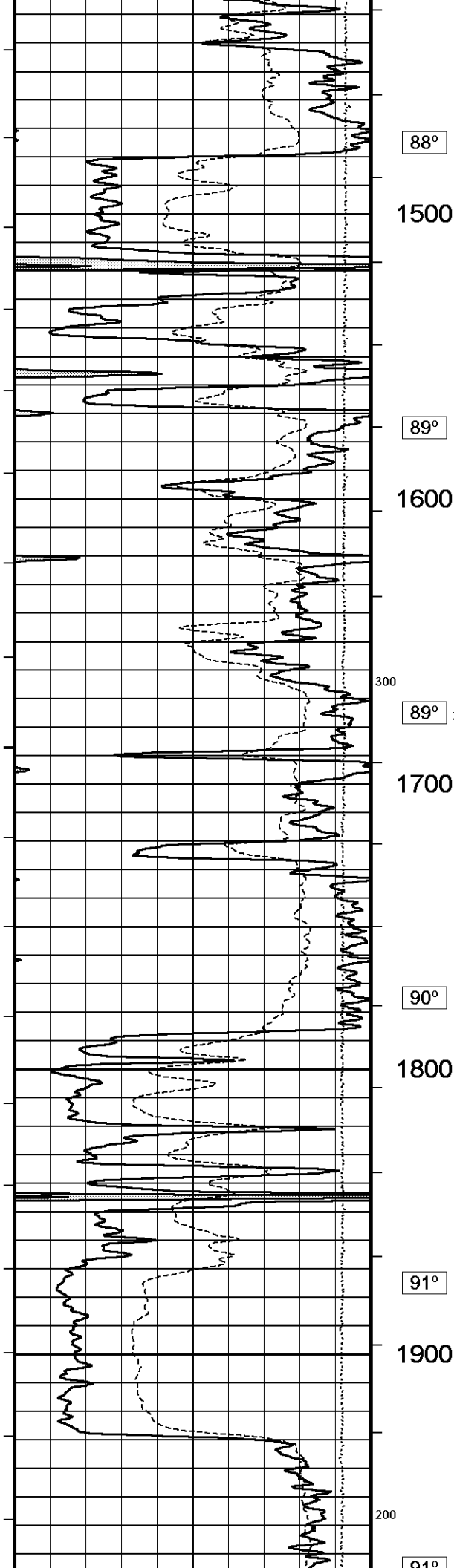
BOREHOLE RECORD					Last Edited: 10-JUL-2015 10:21
Bit Size inches		Depth From feet		Depth To feet	
12.250		0.00		228.00	
7.875		228.00		2570.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	222.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 15.01.3109.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 809 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 552 CU.FT.









88°

1500

89°

1600

89°

1700

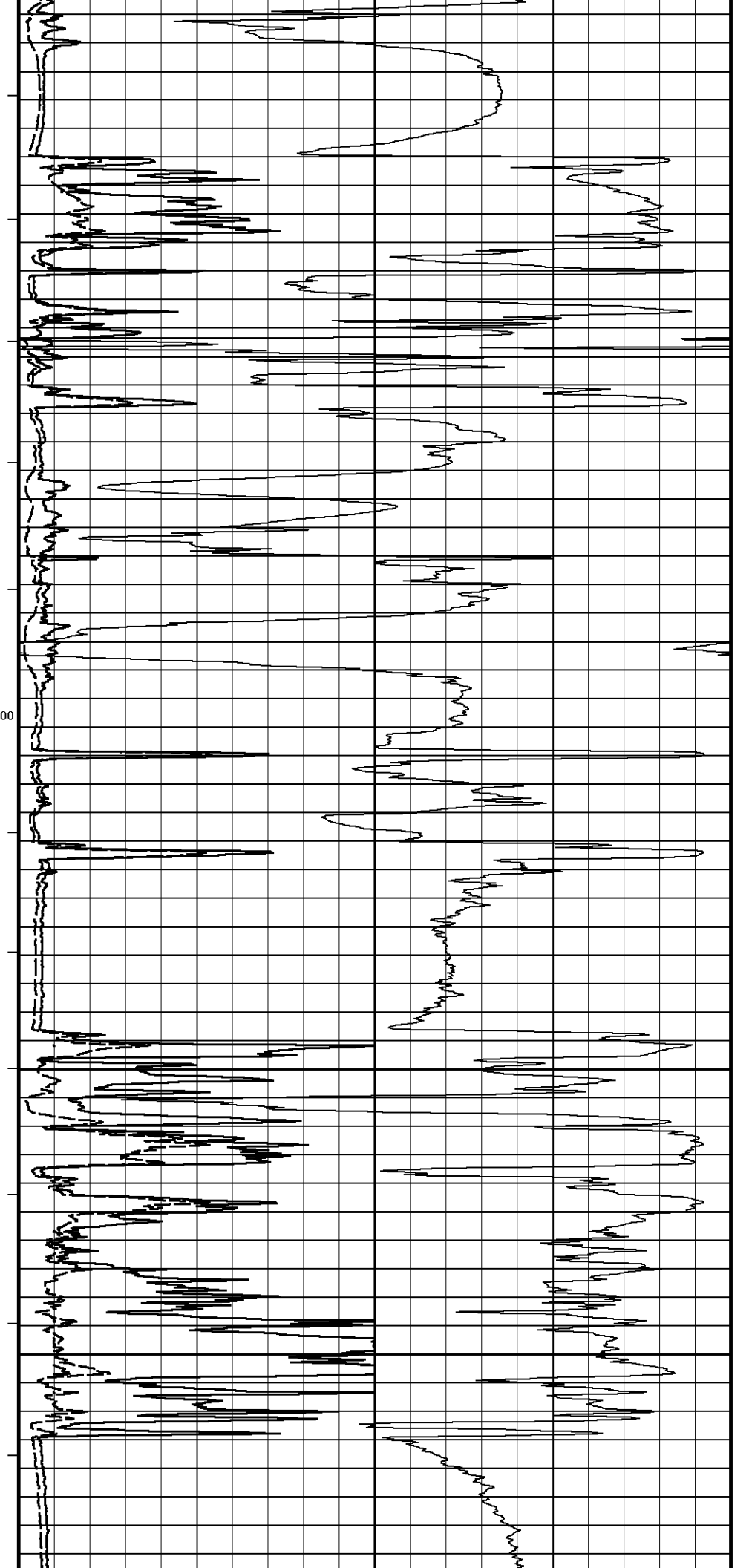
90°

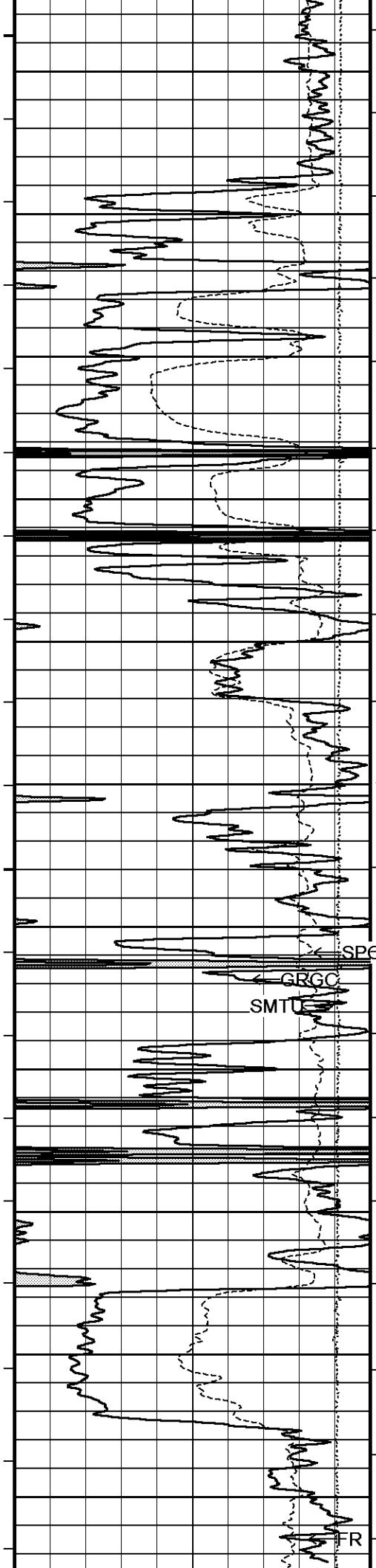
1800

91°

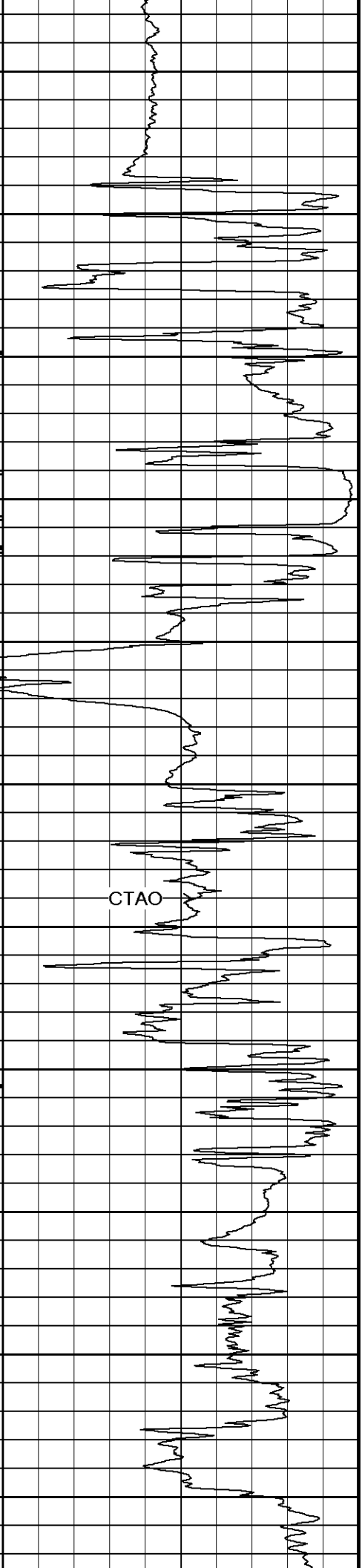
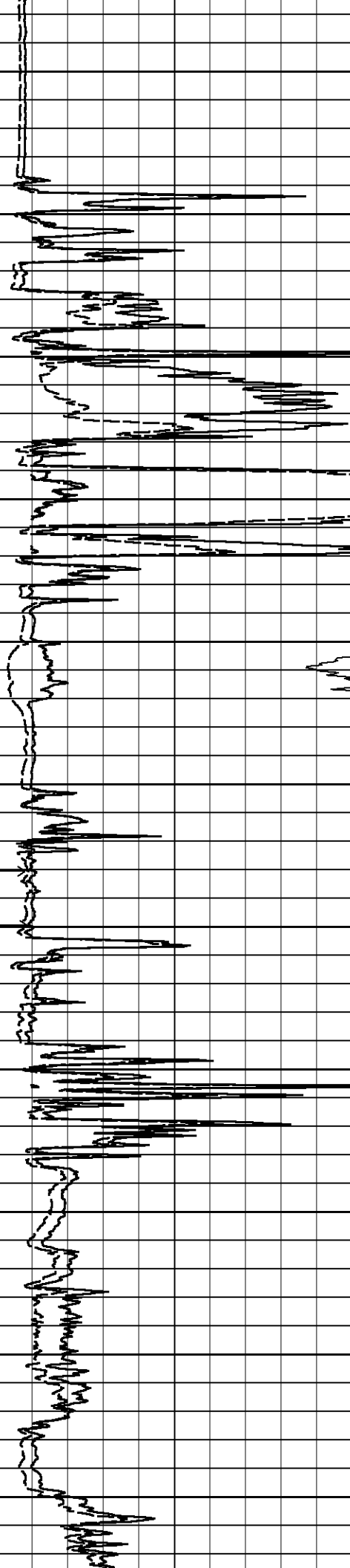
1900

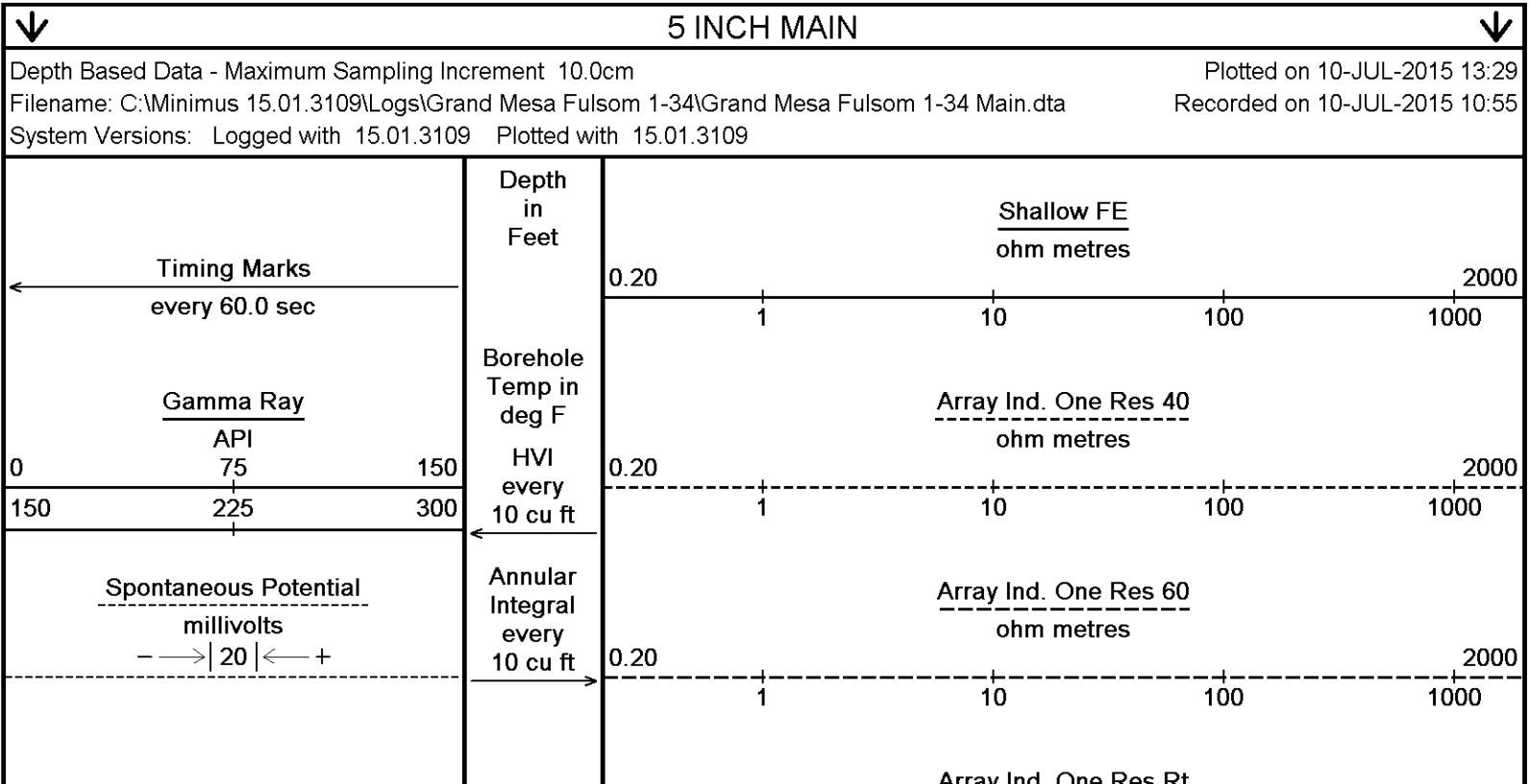
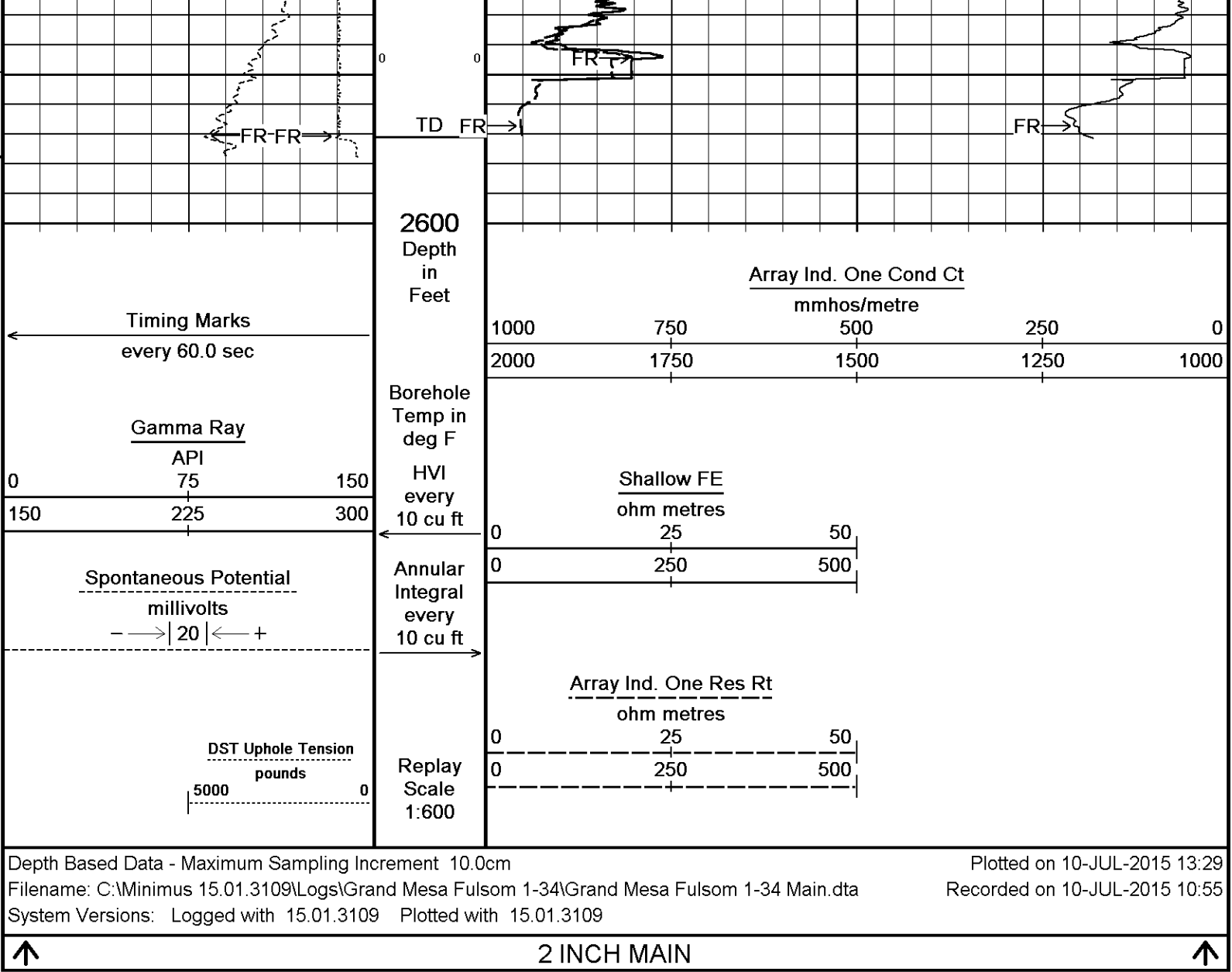
91°





2000
2100
2200
2300
2400
2500





DST Uphole Tension

pounds

5000

0

Replay
Scale
1:240

1700

90°

1750

90°

1800

90°

1850

91°

1900

Array Ind. One Res Rt

ohm metres

0.20

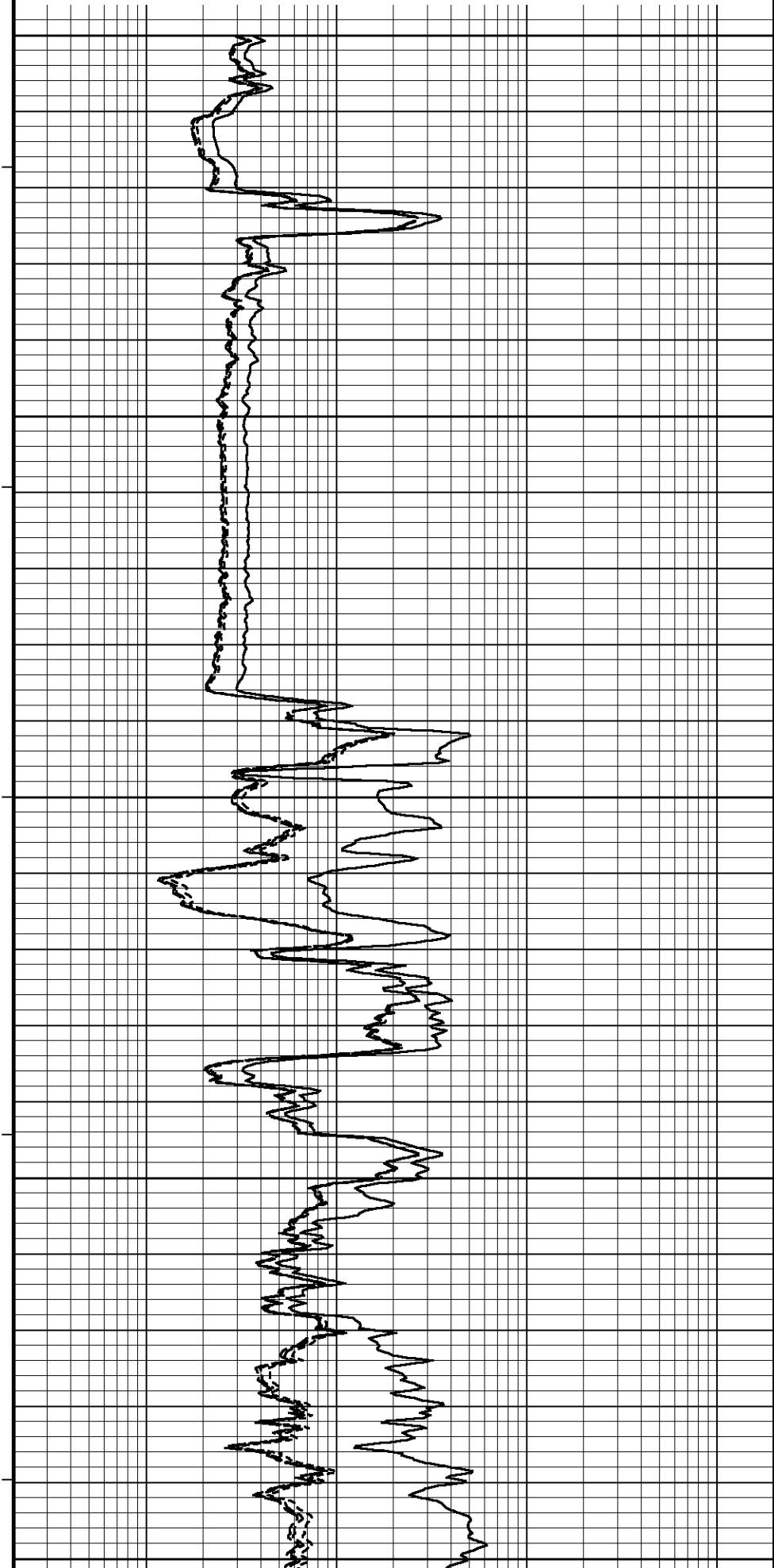
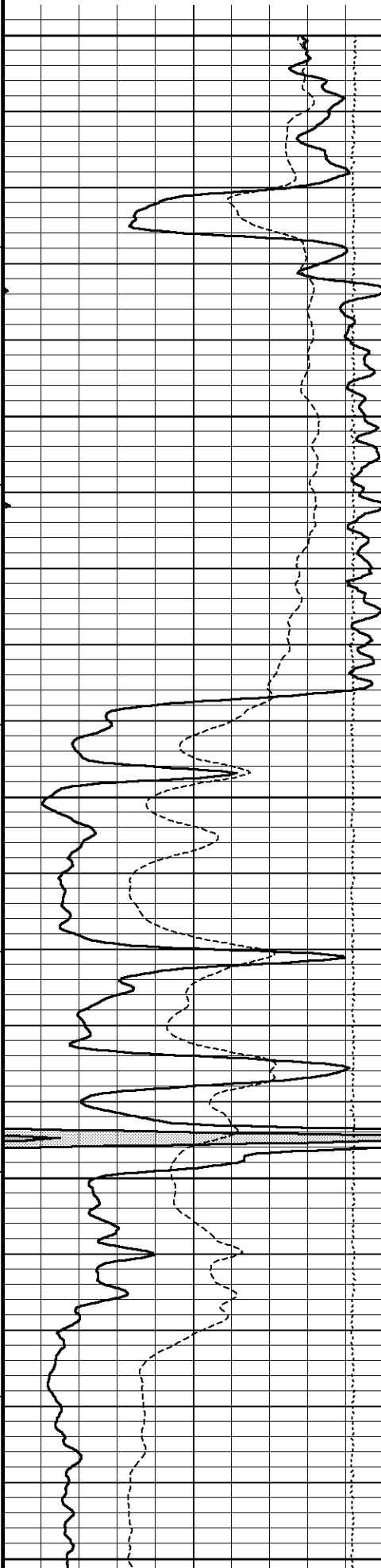
1

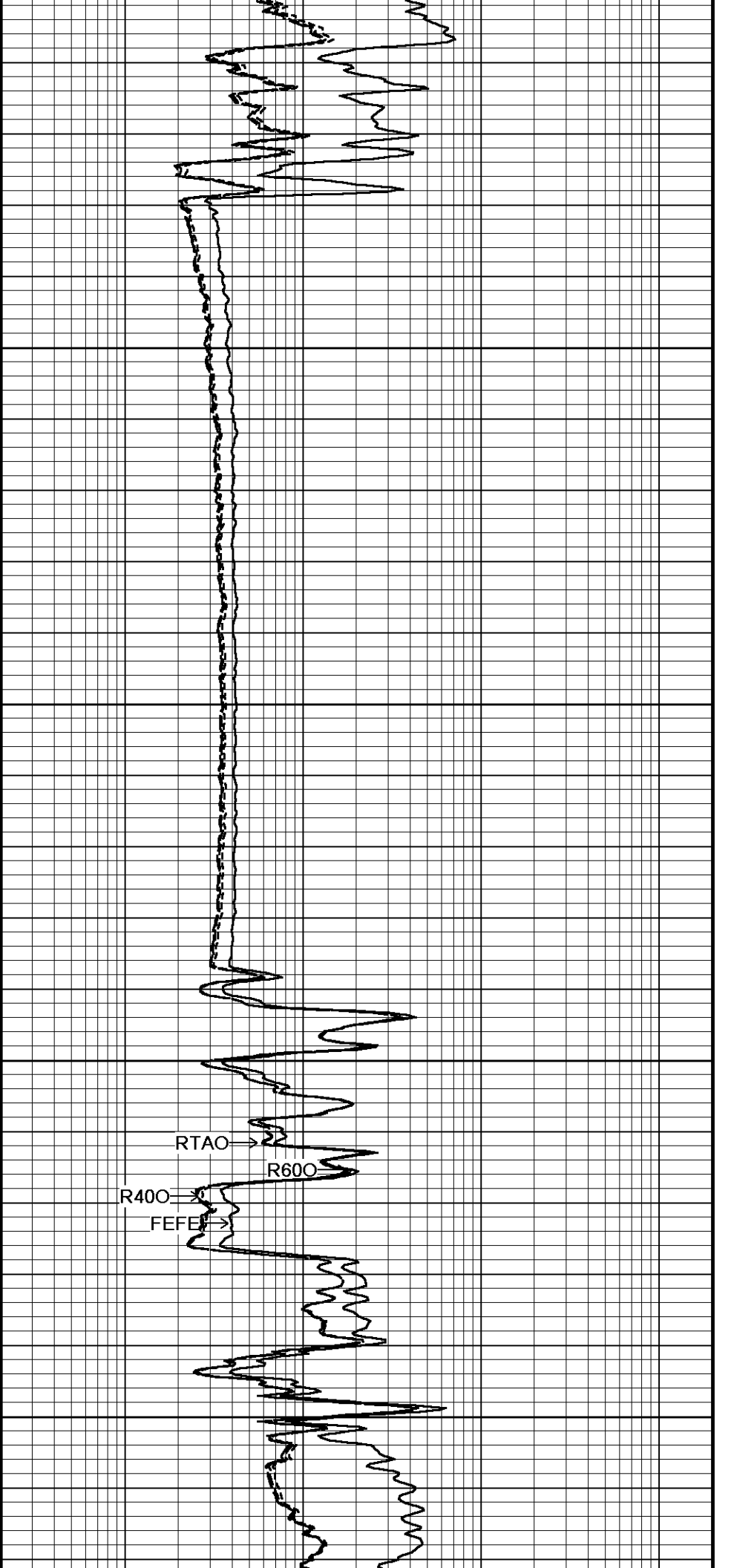
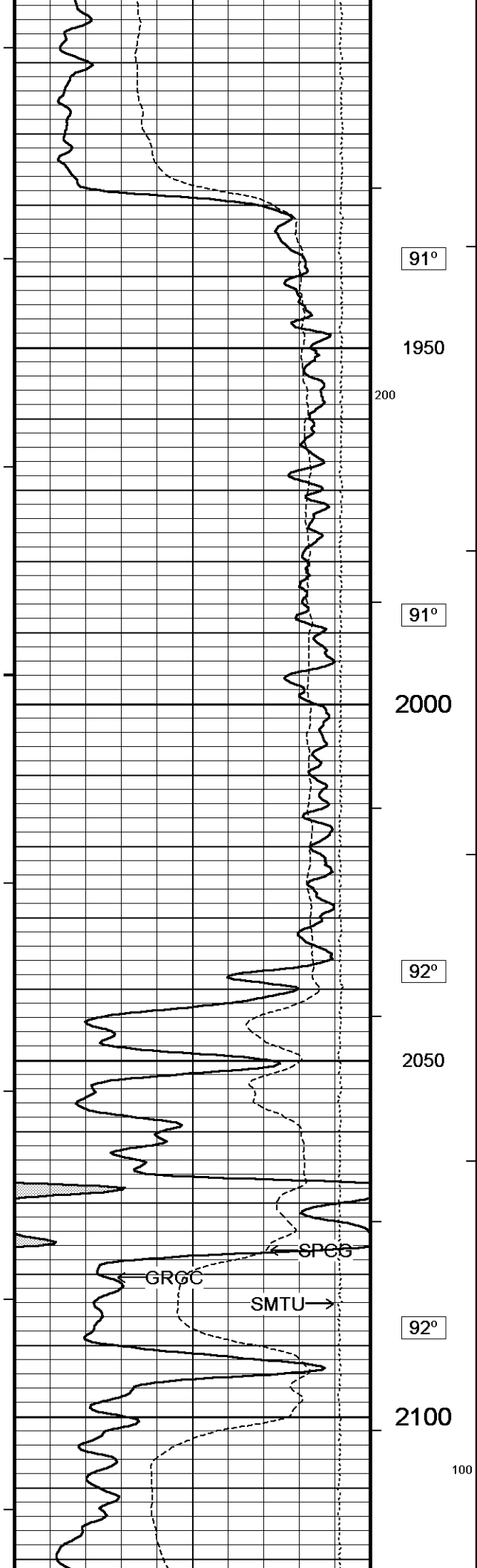
10

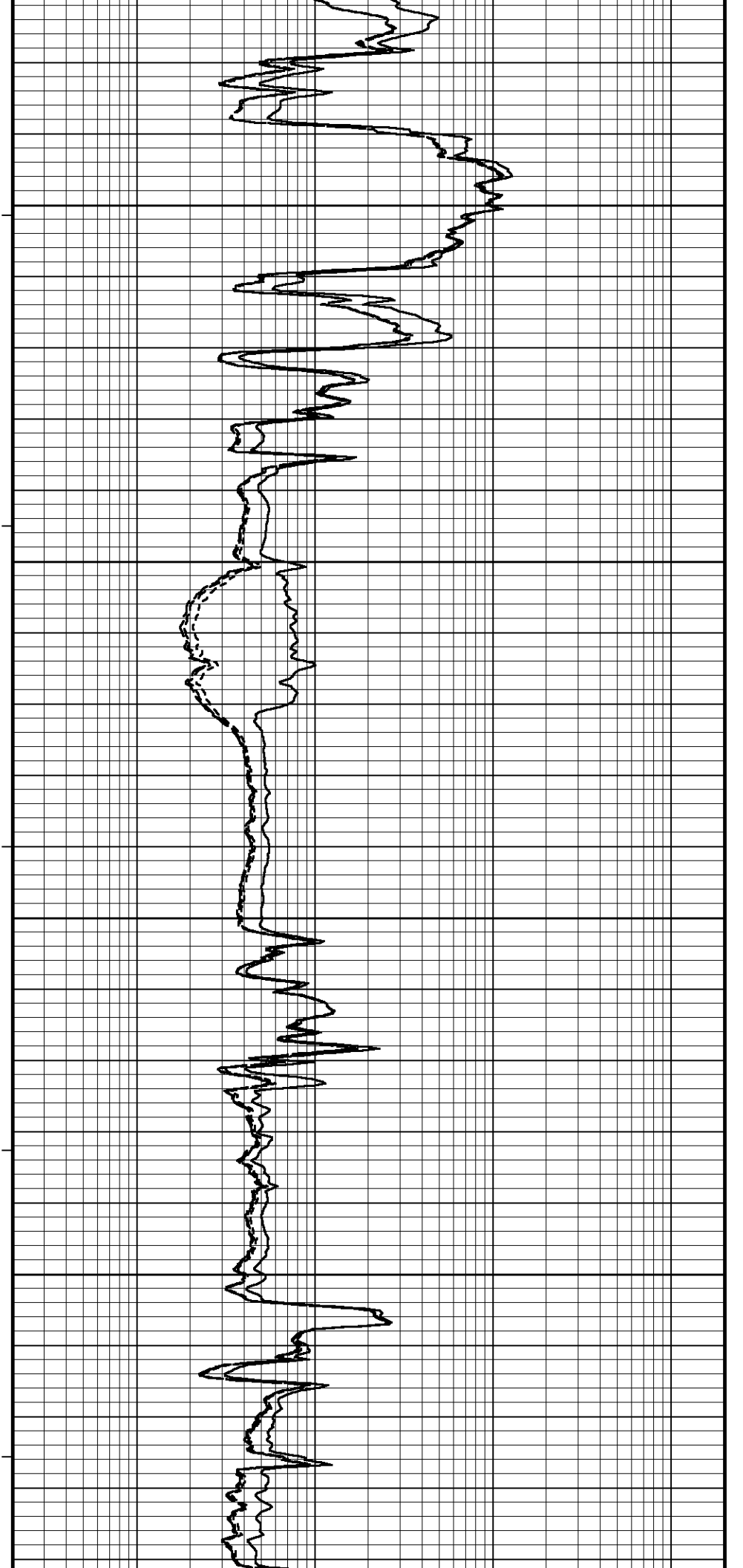
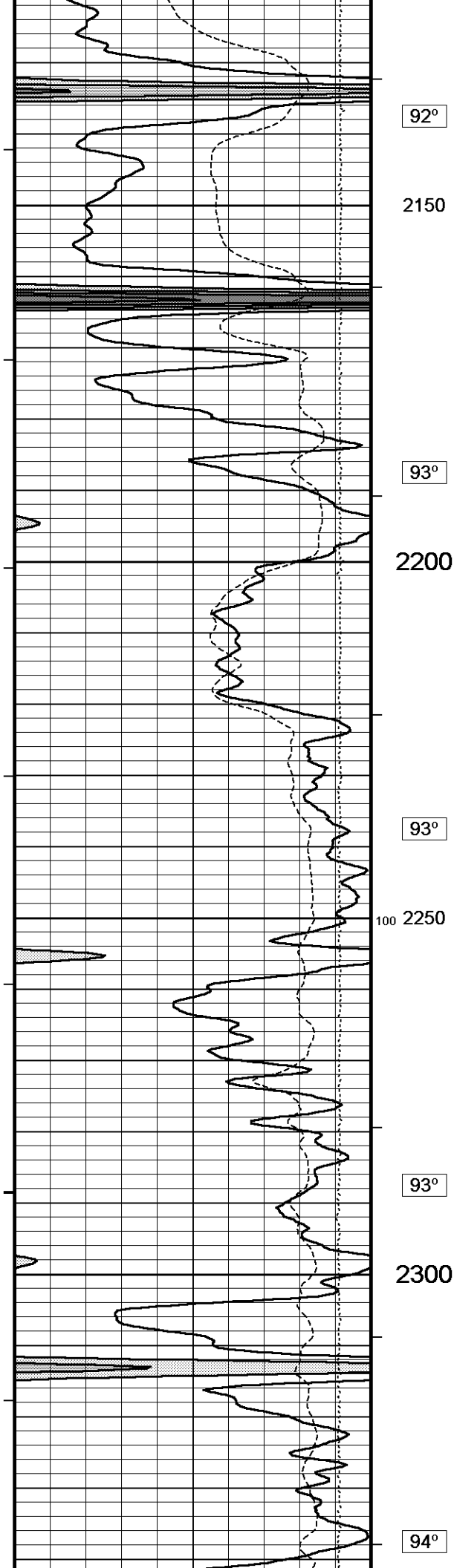
100

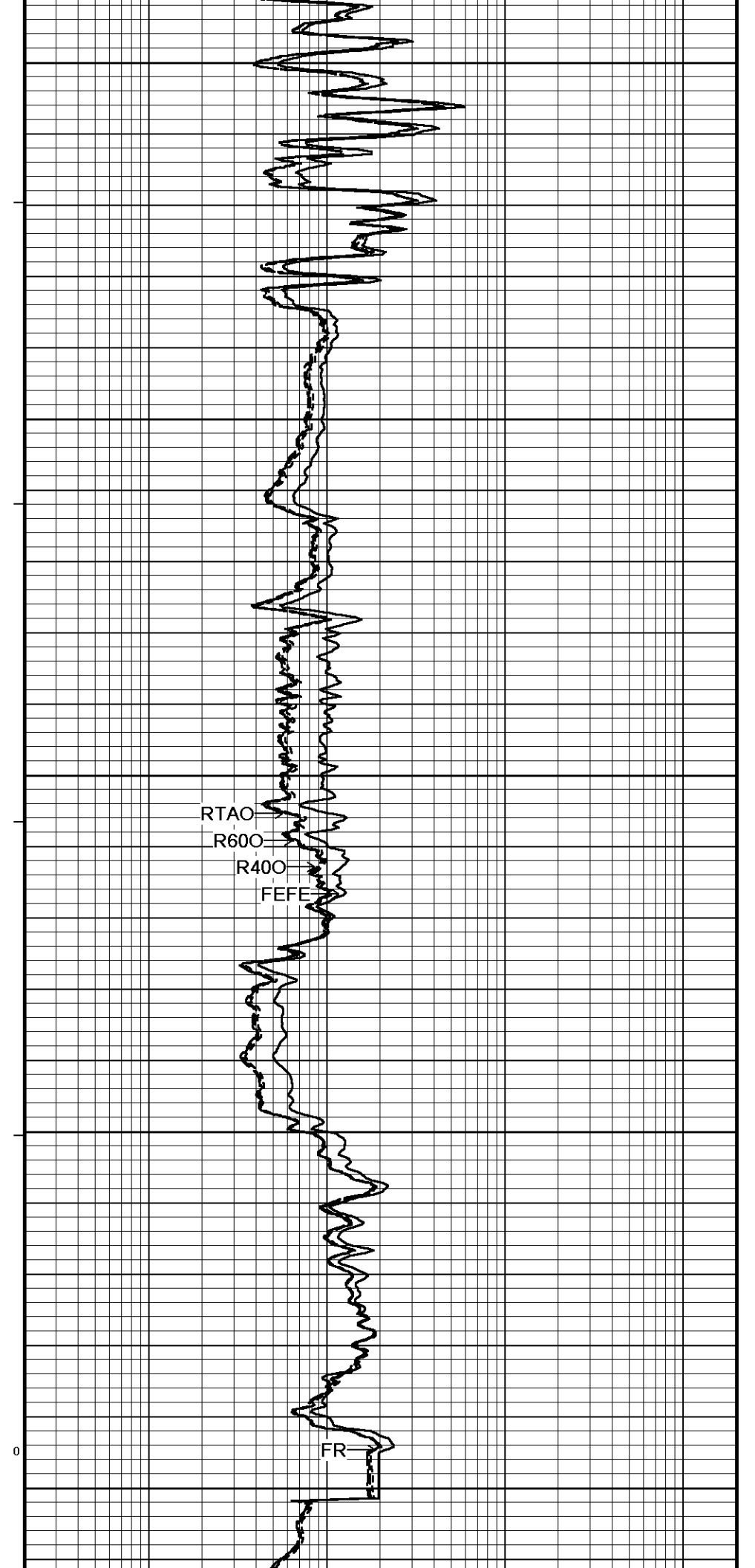
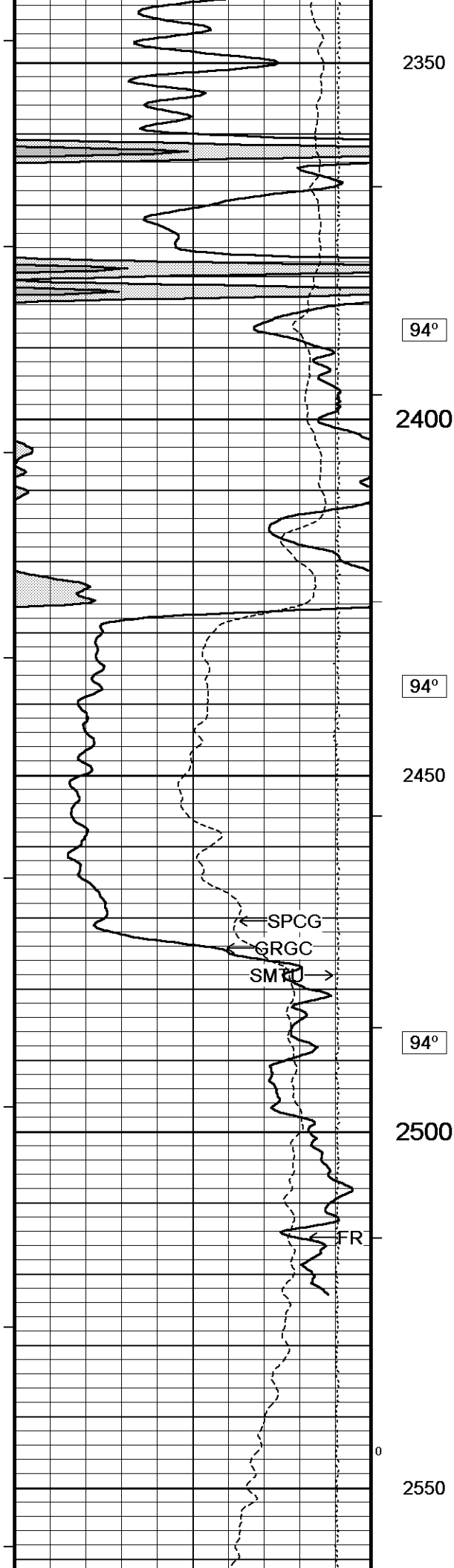
1000

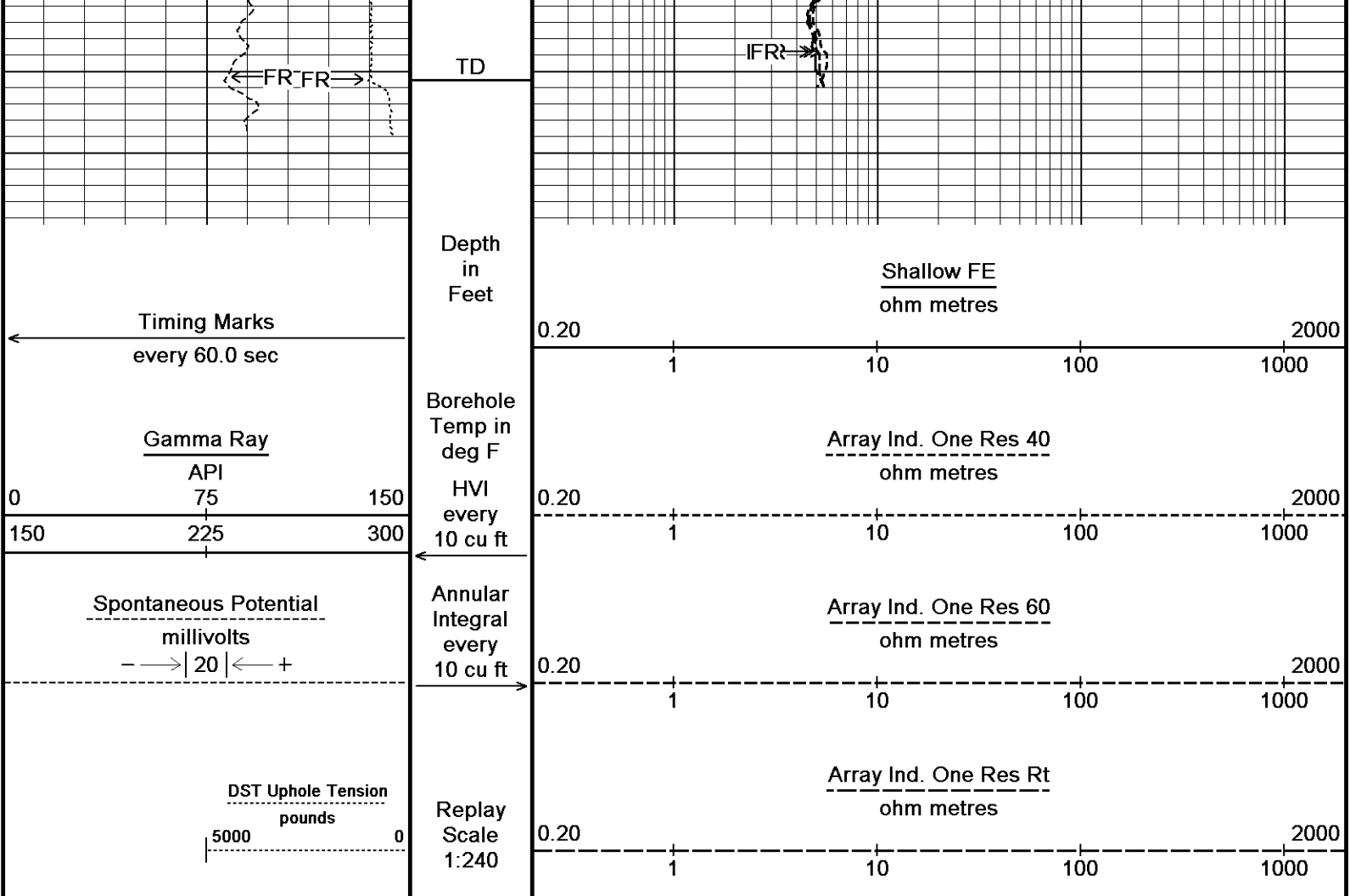
2000









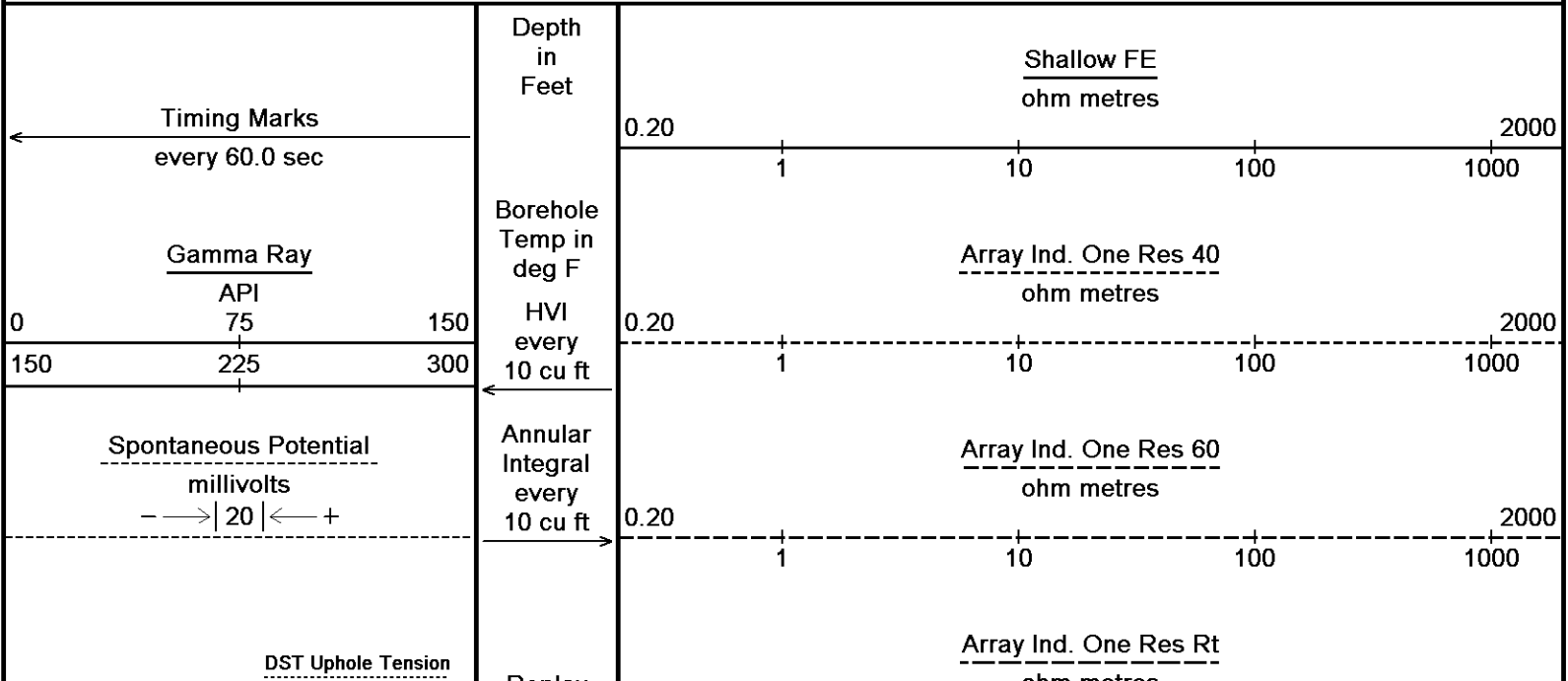


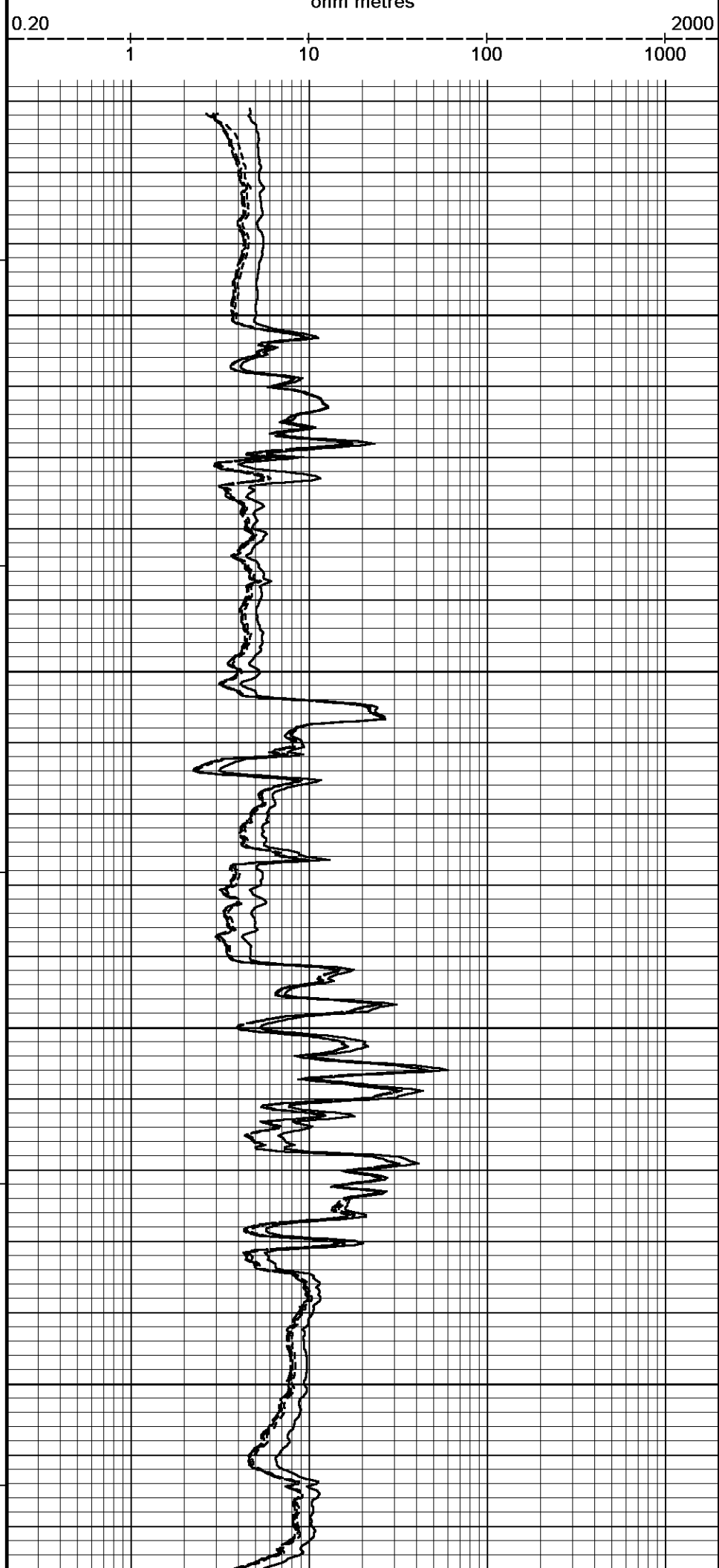
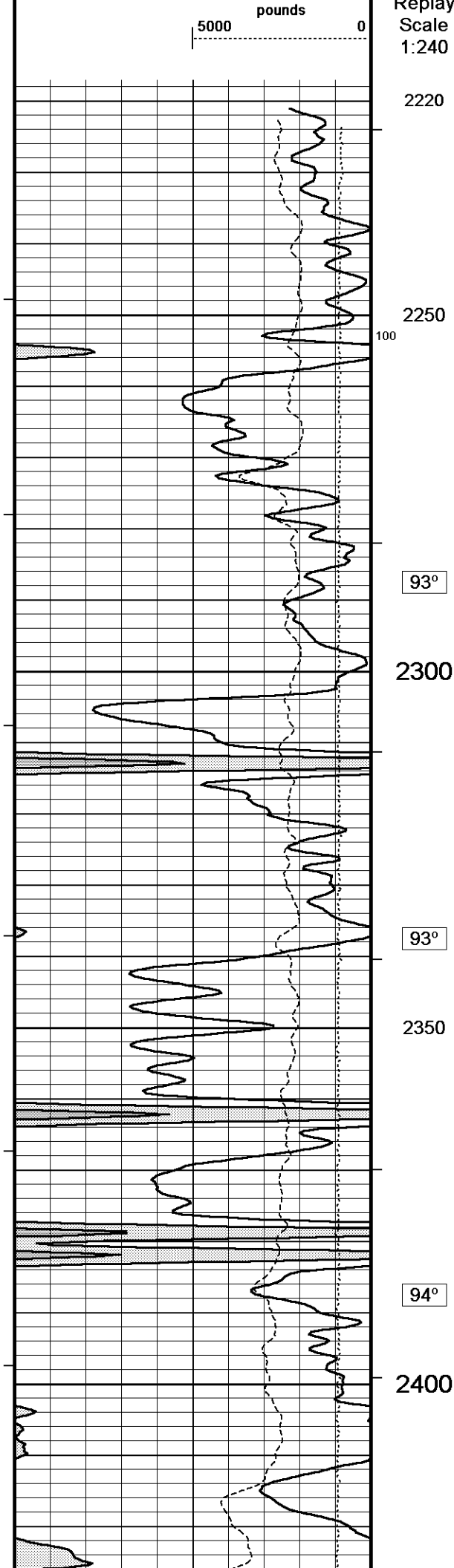
Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 10-JUL-2015 13:29
Filename: C:\Minimus 15.01.3109\Logs\Grand Mesa Fulsom 1-34\Grand Mesa Fulsom 1-34 Main.dta	Recorded on 10-JUL-2015 10:55
System Versions: Logged with 15.01.3109 Plotted with 15.01.3109	

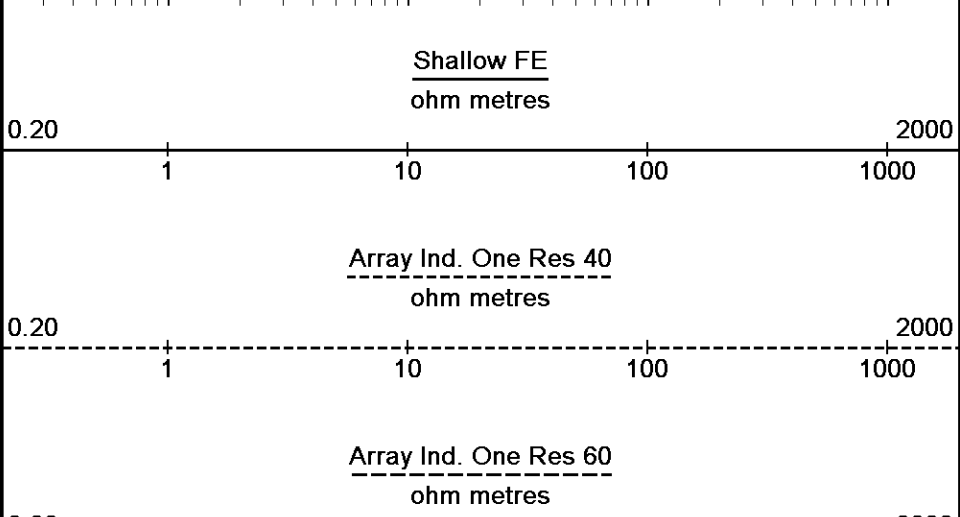
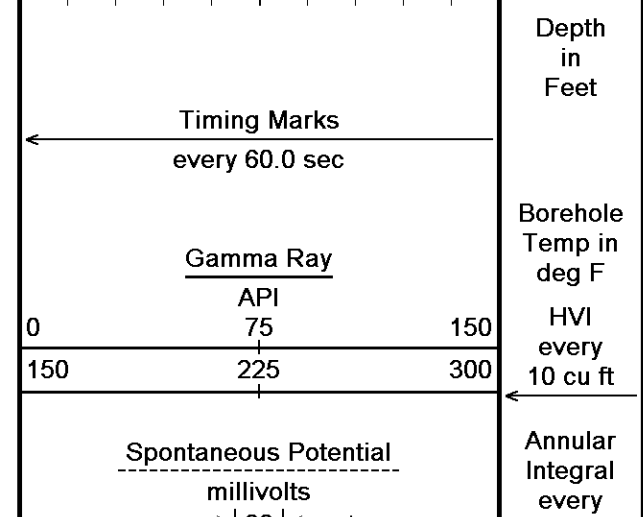
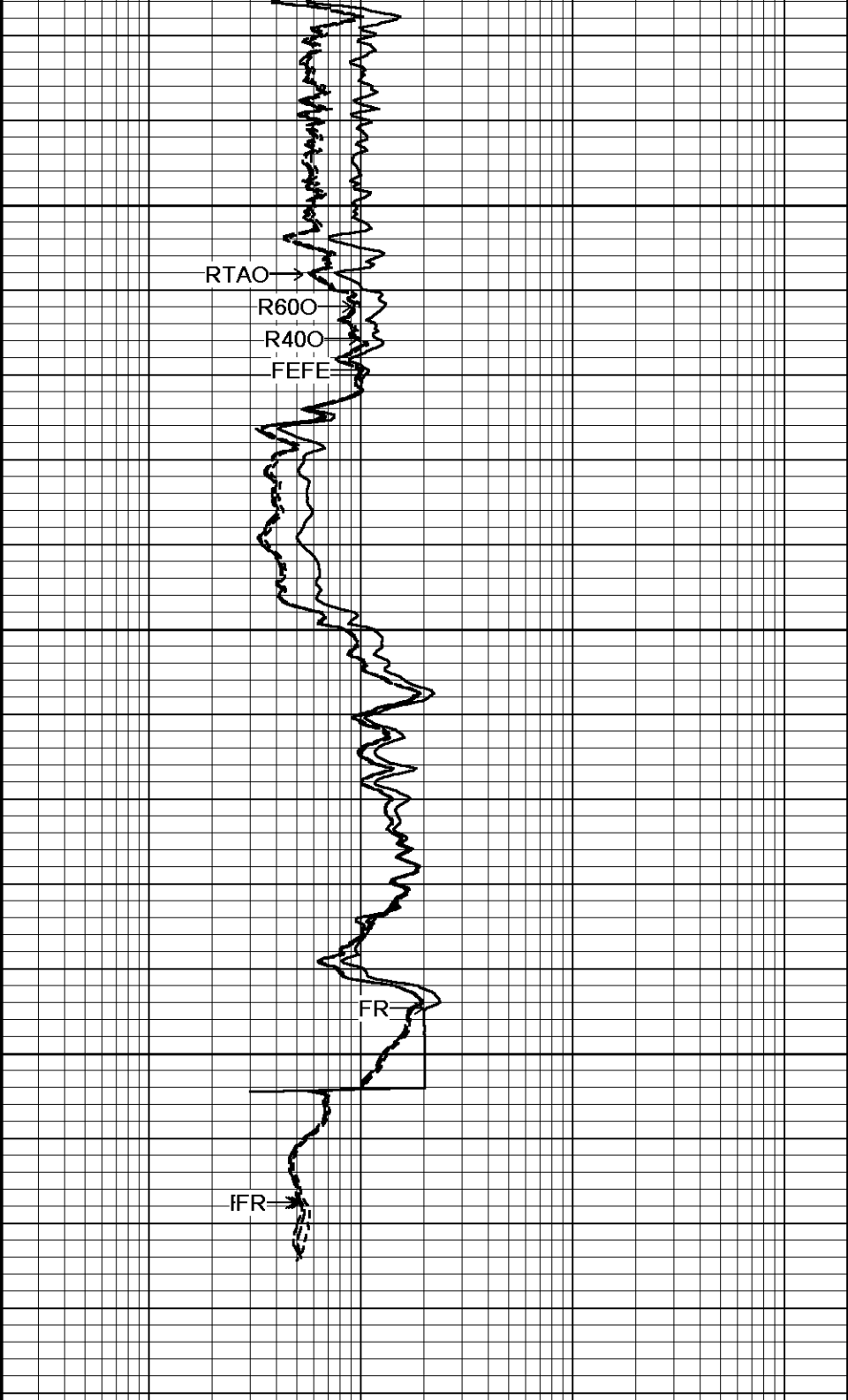
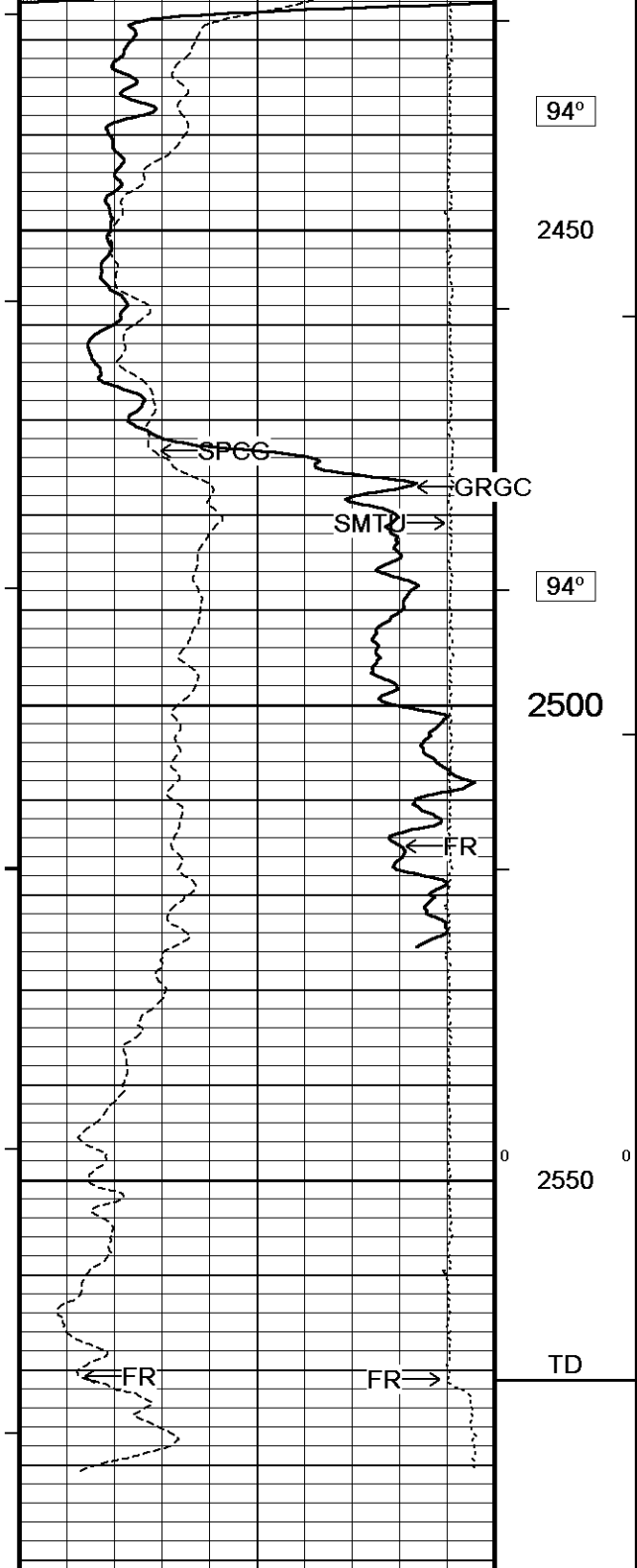
↑	5 INCH MAIN	↑
---	-------------	---

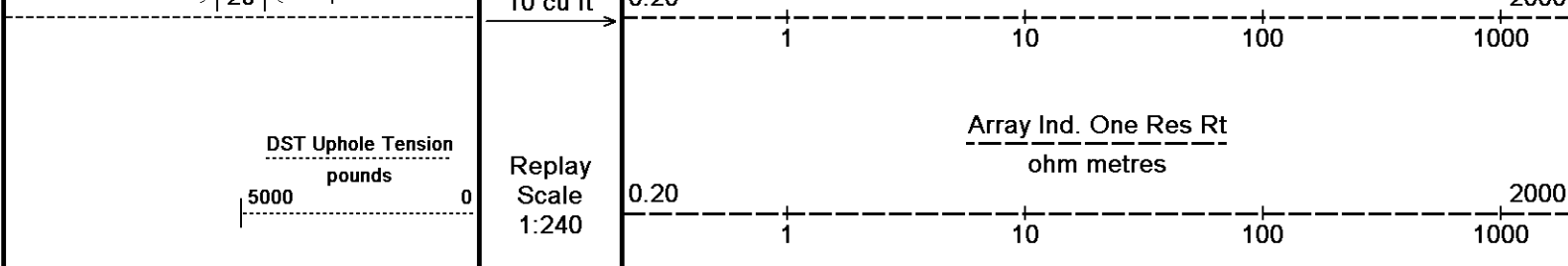
↓	REPEAT SECTION	↓
---	----------------	---

Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 10-JUL-2015 13:29
Filename: C:\Minimus 15.01.3109\Logs\Grand Mesa Fulsom 1-34\Grand Mesa Fulsom 1-34 Repeat.dta	Recorded on 10-JUL-2015 10:36
System Versions: Logged with 15.01.3109 Plotted with 15.01.3109	









Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 10-JUL-2015 13:29
 Filename: C:\Minimus 15.01.3109\Logs\Grand Mesa Fulsom 1-34\Grand Mesa Fulsom 1-34 Repeat.dta Recorded on 10-JUL-2015 10:36
 System Versions: Logged with 15.01.3109 Plotted with 15.01.3109

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION

C:\Minimus 15.01.3109\Logs\Grand Mesa Fulsom 1-34\Grand Mesa Fulsom 1-34 Repeat.dta

General Constants All 000			Last Edited on 10-JUL-2015,10:00
General Parameters			
Mud Resistivity	2.300	ohm-metres	
Mud Resistivity Temperature	75.000	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	Density Caliper		
HVOL Caliper 2	N/A		
Annular Volume Diameter	4.500	inches	
Caliper for Differential Caliper	MMR Caliper		
Rwa Parameters			
Porosity used	Base Density Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		
SW/APOR Tool Source	0.000		

High Resolution Temperature Calibration MCG-C 208		Field Calibration on 07-JUL-2015,01:05	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MCG-C 208		Last Edited on 07-JUL-2015,01:05	
Pre-filter Length	11		

Gamma Calibration MCG-C 208		Field Calibration on 09-JUL-2015 10:38	
	Measured	Calibrated (API)	
Background	66	45	
Calibrator (Gross)	1129	770	
Calibrator (Net)	1063	725	

Gamma Calibration Tolerances MCG-C 208			
Ratio	1.467	1.40 <input checked="" type="text" value="1.475"/> 1.55	Counts/API

Gamma Constants MCG-C 208			Last Edited on 10-JUL-2015,02:35		
Gamma Calibrator Number	GRC038				
GRC-M Calibrator Jig in Use?	NO				
Inactive Background Jig in Use?	NO				
Mud Density	1.11	gm/cc			
Caliper Source for Processing	Density Caliper				
Tool Position	Eccentred				
Potassium Equivalence	Chloride				
K Mud Concentration	0.00	%			

FE Calibration MFE-A.A 55

Base Calibration on 29-JUN-2015 09:04
Field Check on 09-JUL-2015 10:05

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	950.9	126.8
Base Check		281.6
Field Check		281.7

FE Calibration Tolerances MFE-A.A 55

Reference 2	950.9		ohm
Base Check	281.6		ohm-m
Field Check	281.7		ohm-m

FE Constants MFE-A.A 55

Last Edited on 09-JUL-2015,10:01

Running Mode	No Sleeve
MFE K Factor	0.1268
Borehole Correction Constants	
Sonde Position	0.5 inches
Hole Size Source	Density Caliper
Hole Size Constant Value	N/A inches
Rm Source	Global Value: Temperature Corrected
Temp. for Rm Corr.	MCG External Temperature

Induction Calibration MAI-A.A 157

Base Calibration on 24-JUN-2015,16:31
Field Check on 09-JUL-2015 10:00

Base Calibration

Test Loop Calibration	Measured	Calibrated (mmho/m)
Channel	Low High	Low High
1	16.6 469.8	9.3 966.2
2	6.2 381.8	7.6 821.4
3	3.2 260.6	5.2 566.0
4	1.9 133.0	2.6 279.2

Array Temperature 75.7 Deg F

Test Loop Calibration Verified 29-JUN-2015 12:57

Channel	Base Check (mmho/m)	Field Check (mmho/m)
	Low High	Low High
1	16.0 3894.8	14.7 3893.8
2	30.7 3558.9	30.4 3559.0
3	29.4 3056.1	29.3 3056.2
4	19.9 2095.2	19.8 2095.5
Deep	18.5 1999.6	18.4 1999.7
Medium	42.4 4010.6	42.5 4010.8
Shallow	45.1 5257.2	44.7 5257.2

Array Temperature 98.4 74.7 Deg F

Induction Calibration Tolerances MAI-A.A 157

Low Conductivity 1	16.6		mmho/m	High Conductivity 1	469.8		mmho/m
Low Conductivity 2	6.2		mmho/m	High Conductivity 2	381.8		mmho/m
Low Conductivity 3	3.2		mmho/m	High Conductivity 3	260.6		mmho/m
Low Conductivity 4	1.9		mmho/m	High Conductivity 4	133.0		mmho/m
Background Vx 1	0.0		mmho/m	Phase Check Loop 1	0.0		%
Background Vx 2	0.0		mmho/m	Phase Check Loop 2	0.0		%
Background Vx 3	0.0		mmho/m	Phase Check Loop 3	0.0		%

Induction Constants MAI-A.A 157

Last Edited on 09-JUL-2015,09:57

Induction Model

RtAP-WBM

Borehole Correction Constants

Tool Centred

No

Hole Size Source

Density Caliper

Hole Size Constant Value

N/A

inches

Stand-off Type

Fins

Stand-off

0.50

inches

Number of Fins on Stand-off

8.0000

Stand-off Fin Angle

45.00

degrees

Stand-off Fin Width

0.5000

inches

Rm Source

Global Value: Temperature Corrected

Temp. for Rm Corr.

MCG External Temperature

Squasher Start

0.0020

mhos/metre

Squasher Offset

N/A

mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Caliper Calibration MPD-B 103

Base Calibration on 29-JUN-2015 11:07

Field Calibration on 09-JUL-2015 10:08

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14970	3.99
2	25053	5.98
3	34976	7.97
4	44960	9.86
5	56128	11.92
6	N/A	N/A

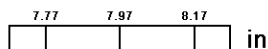
Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.96	7.97

Caliper Calibration Tolerances MPD-B 103

Short Arm Field Cal.

7.96



in

DOWNHOLE EQUIPMENT

C:\Minimus 15.01.3109\Logs\Grand Mesa Fulsom 1-34\Grand Mesa Fulsom 1-34 Repeat.dta

CBH-CB 265 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-C.A 248 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

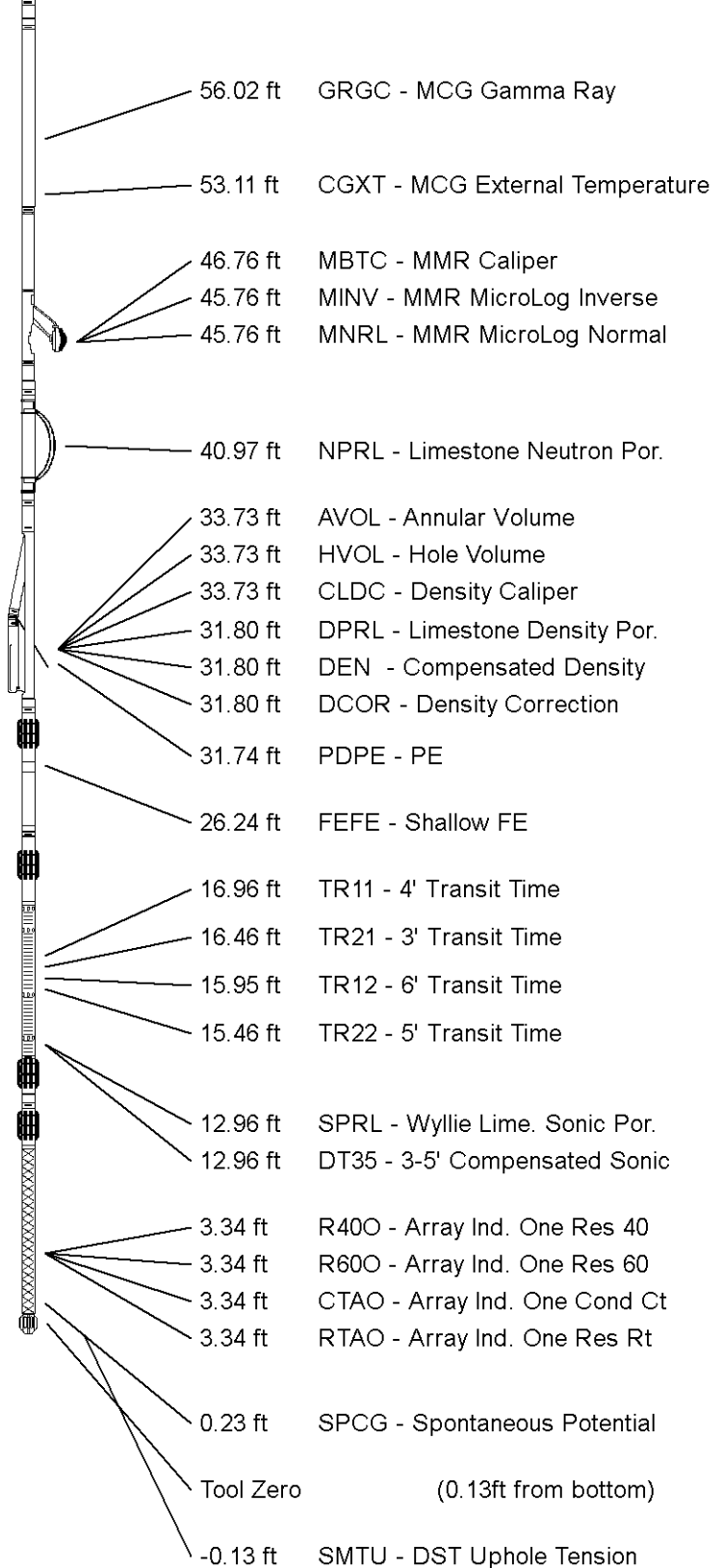
Compact Density/Caliper
MPD-B 103 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-A.A 55 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 157 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 63.70 ft Weight: 480.6 lb



All measurements relative to tool zero.

COMPANY	GRAND MESA OPERATING COMPANY
WELL	FULSOM 1-34
FIELD	WILDCAT
PROVINCE/COUNTY	MARION
COUNTRY/STATE	U.S.A. / KANSAS

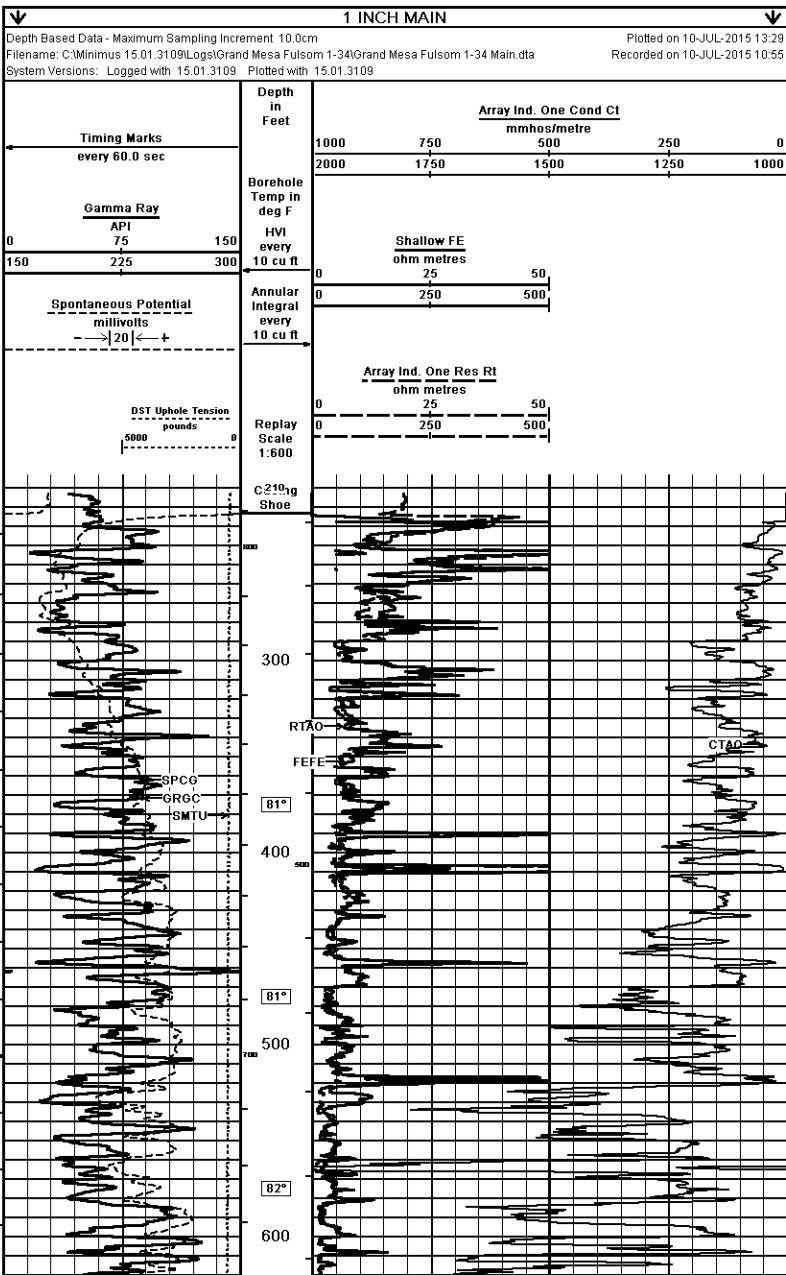
Elevation Kelly Bushing	1499.00	feet	First Reading	2568.00	feet
Elevation Drill Floor	1497.00	feet	Depth Driller	2570.00	feet
Elevation Ground Level	1487.00	feet	Depth Logger	2571.00	feet

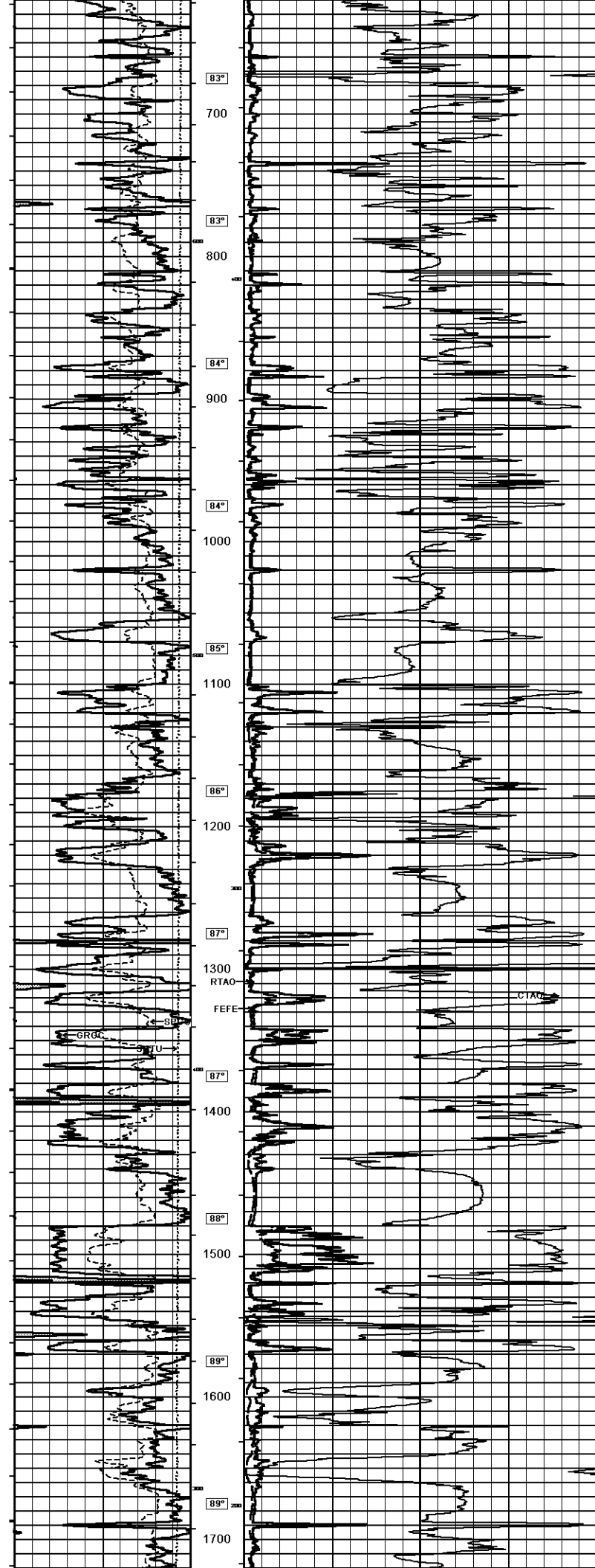


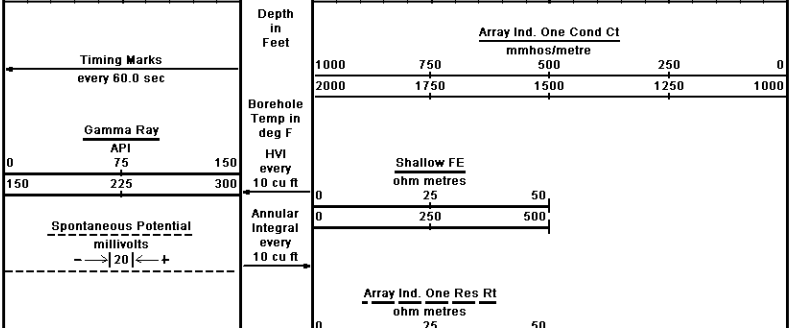
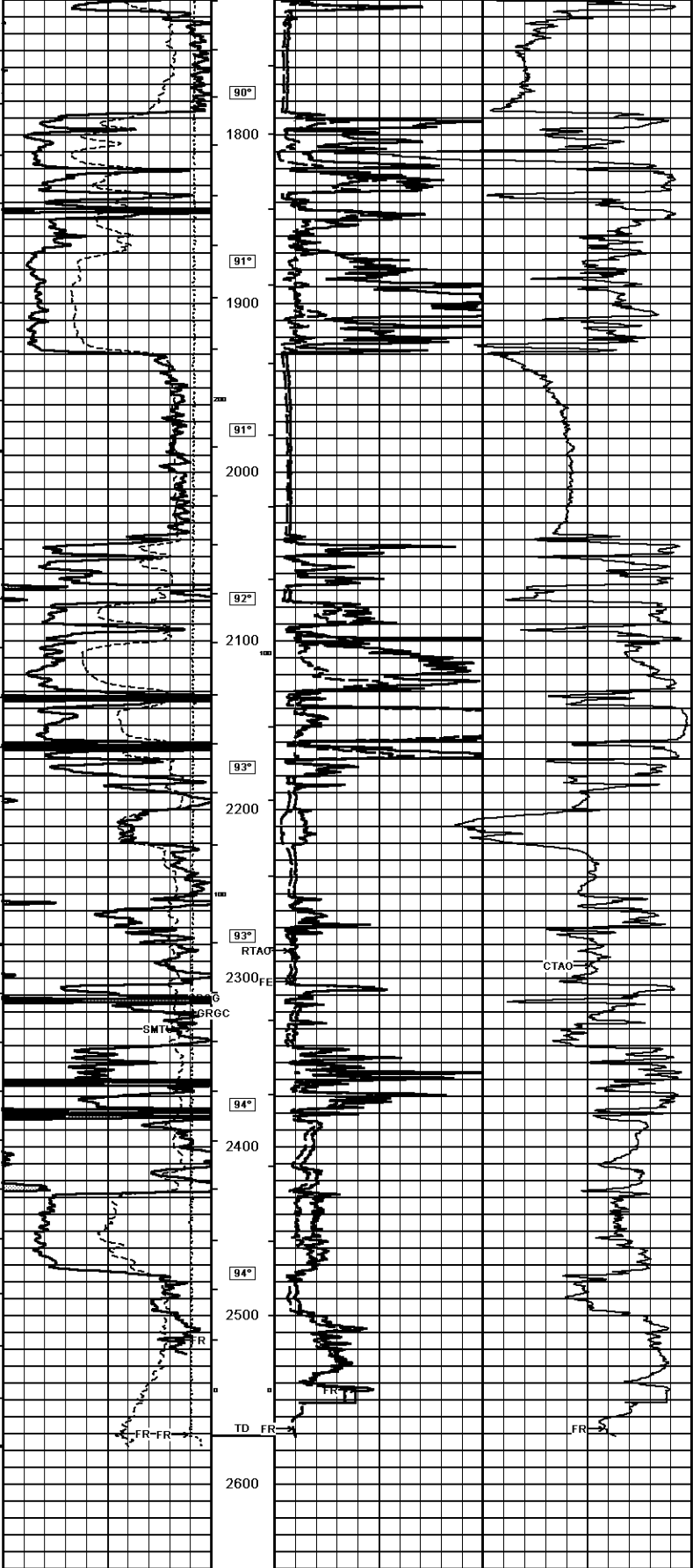
Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford	ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG
COMPANY GRAND MESA OPERATING COMPANY	
WELL FULSOM 1-34	
FIELD WILDCAT	
PROVINCE/COUNTY MARION	
COUNTRY/STATE U.S.A. / KANSAS	
LOCATION 664' ENL & 1980' FWL	
SEC 34 TWP 22S R3E G5E	Operator Services
Latitude 38.09341	Longitude 95.07052
UTM Zone 15-11S-21493	MMS
UTM Number 15-11S-21493	UTM Easting 1487.00
Permanent Datum Q.L. Elevation 1487 feet	UTM North 1487.00
Log Measured From KB @ 12 feet	UTM Easting 1487.00
Drilling Measured From KB @ 12 feet	UTM North 1487.00
Date 10-JUL-2015	UTM Easting 1487.00
Run Number ONE	UTM North 1487.00
Service Order 7517-12949841	UTM North 1487.00
Depth Driller 2517.00	UTM North 1487.00
Depth Logger 2517.00	UTM North 1487.00
First Reading 2568.00	UTM North 1487.00
Last Reading 223.00	UTM North 1487.00
Casing Driller 223.00	UTM North 1487.00
Casing Logger 223.00	UTM North 1487.00
Bit Size 7.875	UTM North 1487.00
Bit Type WBM	UTM North 1487.00
Hole Fluid Type WBM	UTM North 1487.00
Density/Viscosity 9.30 lb/USg	UTM North 1487.00
PH/Fluid Loss 9.00	UTM North 1487.00
Sample Source MUD TANK	UTM North 1487.00
Rm @ Measured Temp 2.30 @ 75.0	UTM North 1487.00
Rm @ Measured Temp 1.34 @ 75.0	UTM North 1487.00
Rm @ Measured Temp 2.75 @ 75.0	UTM North 1487.00
Source Rm / Rinc CALC	UTM North 1487.00
Rm @ BHT 1.85 @ 94.0	UTM North 1487.00
Time Since Circulation 4 HOURS	UTM North 1487.00
Max Recorded Temp 94.00	UTM North 1487.00
Equipment / Base 13244	UTM North 1487.00
Recorded By JEFFREY RANDEL	UTM North 1487.00
Witnessed By STEVE CARL	UTM North 1487.00
LOG# LRTS-989	UTM North 1487.00







DST Uphole Tension pounds 50000		Replay Scale 1:600	0250500		
Depth Based Data - Maximum Sampling Increment: 10.0cm Filename: C:\Minimus 15.01.3109\Logs\Grand Mesa Fulsom 1-34\Grand Mesa Fulsom 1-34 Main.dta System Versions: Logged with 15.01.3109 Plotted with 15.01.3109					
1 INCH MAIN					
COMPANY		GRAND MESA OPERATING COMPANY			
WELL		FULSOM 1-34			
FIELD		WILDCAT			
PROVINCE/COUNTY		MARION			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	1499.00	feet	First Reading	2568.00	feet
Elevation Drill Floor	1497.00	feet	Depth Driller	2570.00	feet
Elevation Ground Level	1487.00	feet	Depth Logger	2571.00	feet
Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG			