



**Weatherford**<sup>®</sup>

**COMPOSITE LOG**

COMPANY	O'BRIEN RESOURCES, LLC.		
WELL	JECCHA 4 #2		
FIELD	WILDCAT		
PROVINCE/COUNTY	RUSH		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1302' FNL & 2137' FWL		
SEC 4	TWP 19S	RGE 17W	Other Services
Latitude			
Longitude			
API Number	15-165-22137		
Permanent Datum GL, Elevation	2070 feet		
Log Measured From	KB		
Drilling Measured From	KB @ 13 FEET		
Date	04-OCT-2016		
Run Number	ONE		
Service Order	4558-162772378		
Depth Driller	3907.00	feet	Elevations: KB 2083.00
Depth Logger	3908.00	feet	DF 2081.00
First Reading	3905.00	feet	GL 2070.00
Last Reading	267.00	feet	
Casing Driller	265.00	feet	
Casing Logger	267.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.35 lb/USg	53.00 CP	
PH / Fluid Loss	9.50	13.60 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.46 @ 75.0	ohm-m	
Rmf @ Measured Temp	0.37 @ 75.0	ohm-m	
Rmc @ Measured Temp	0.55 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.33 @ 103.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	103.00	deg F	
Equipment / Base	13096	OKC	
Recorded By	ADAM SILL		
Witnessed By	JIM MUSGROVE		

**BOREHOLE RECORD**

Last Edited: 04-OCT-2016 13:29

Bit Size inches	Depth From feet	Depth To feet
7.875	265.00	3907.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	265.00	24.00

**REMARKS**

- SOFTWARE ISSUE: WLS 15.03.5939.
- 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: 1742 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 2300: 466 CU.FT.

- RIG: DUKE #7.

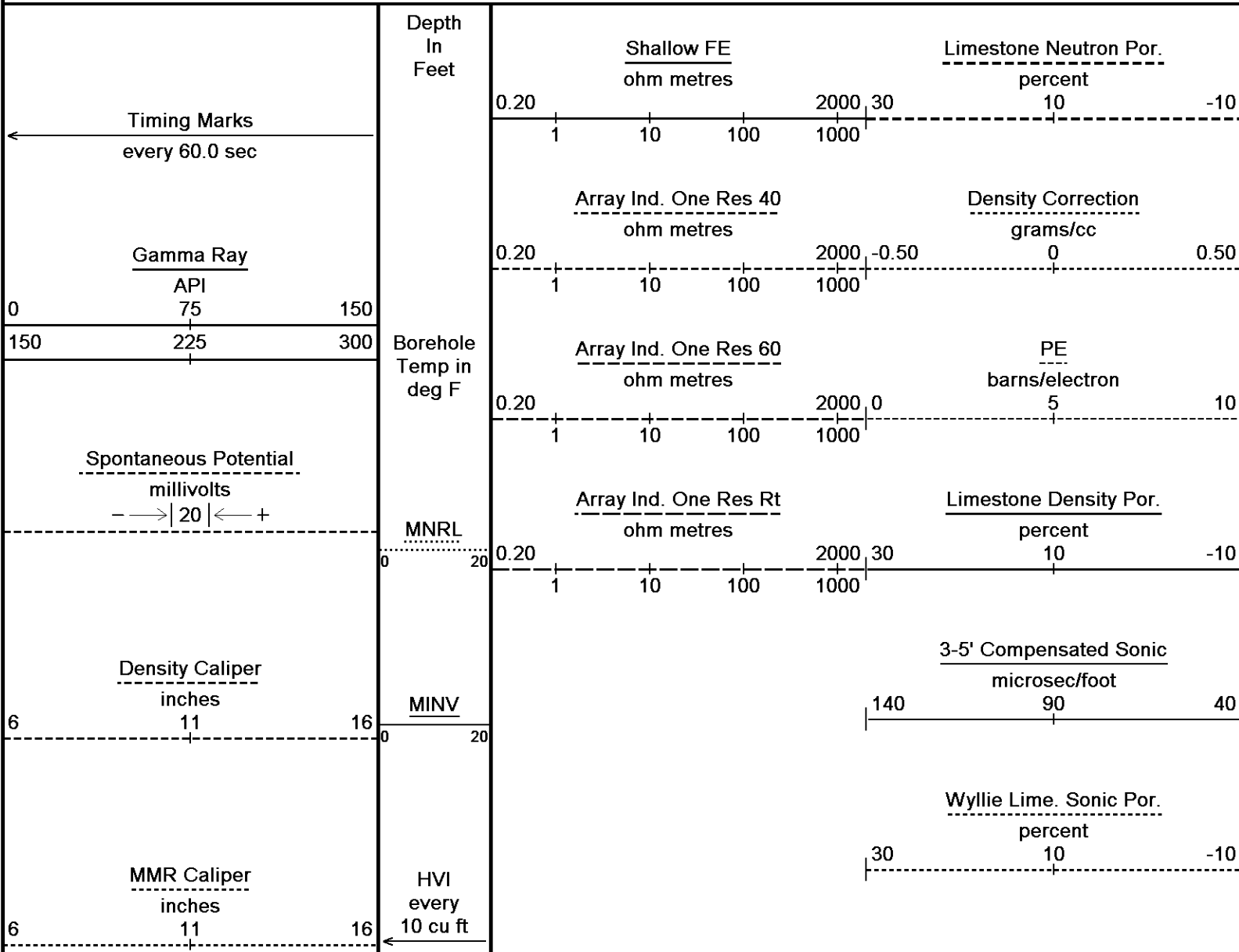
- ENGINEER: A. SILL.

- OPERATOR: B. TOVAR.

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.

**5 INCH MAIN**

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 04-OCT-2016 18:54  
 Filename: C:\Minimus 15.03.5939\Logs\O'Brien (LA) Jecha 4 #2\O'Brien (LA) Jecha 4 #2\_002.dta Recorded on 04-OCT-2016 16:29  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939



Bit Size  
inches  
6 11 16

Annular  
Integral  
every  
10 cu ft  
→

3' Transit Time  
microseconds  
1100 100

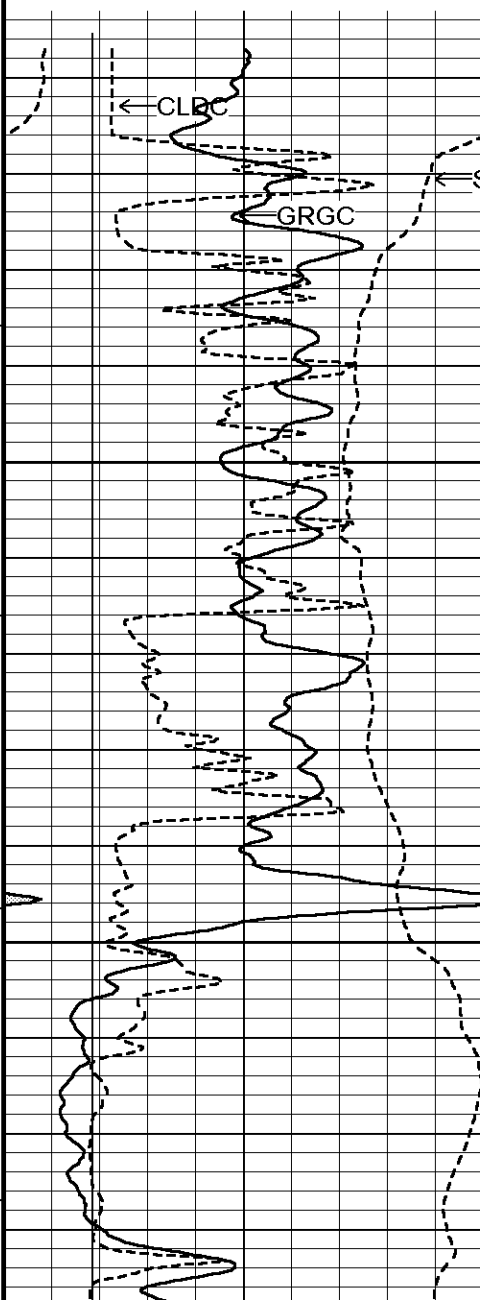
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microseconds  
1100 100

5' Transit Time  
microseconds  
1100 100

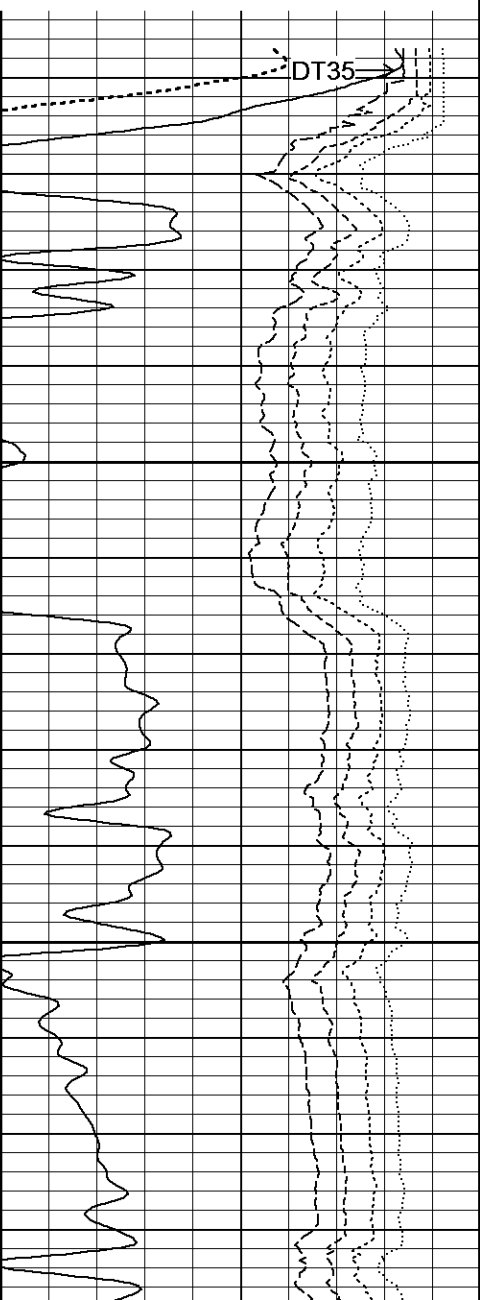
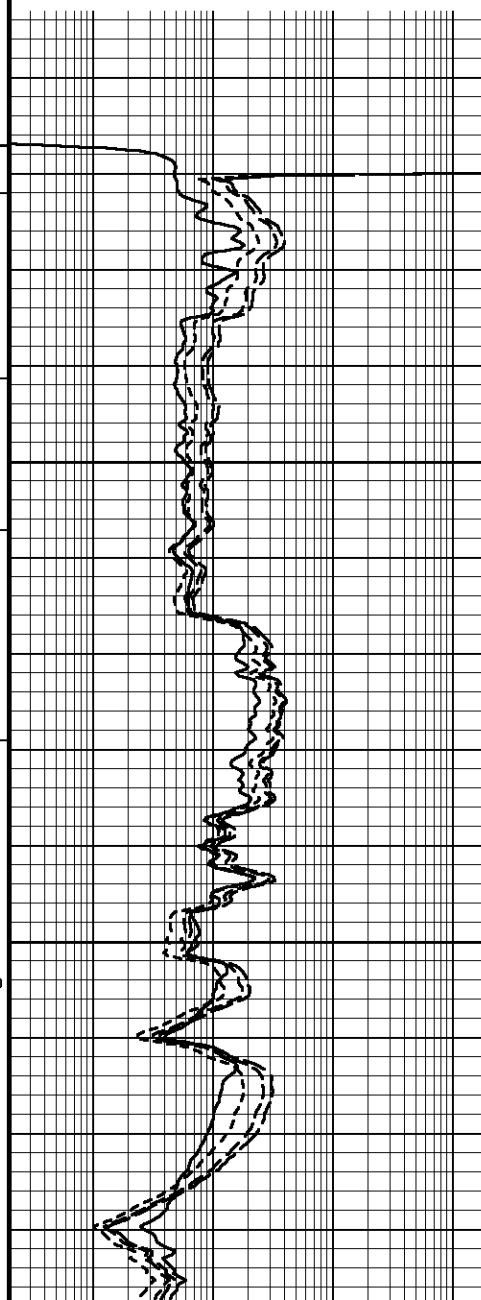
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1100 100

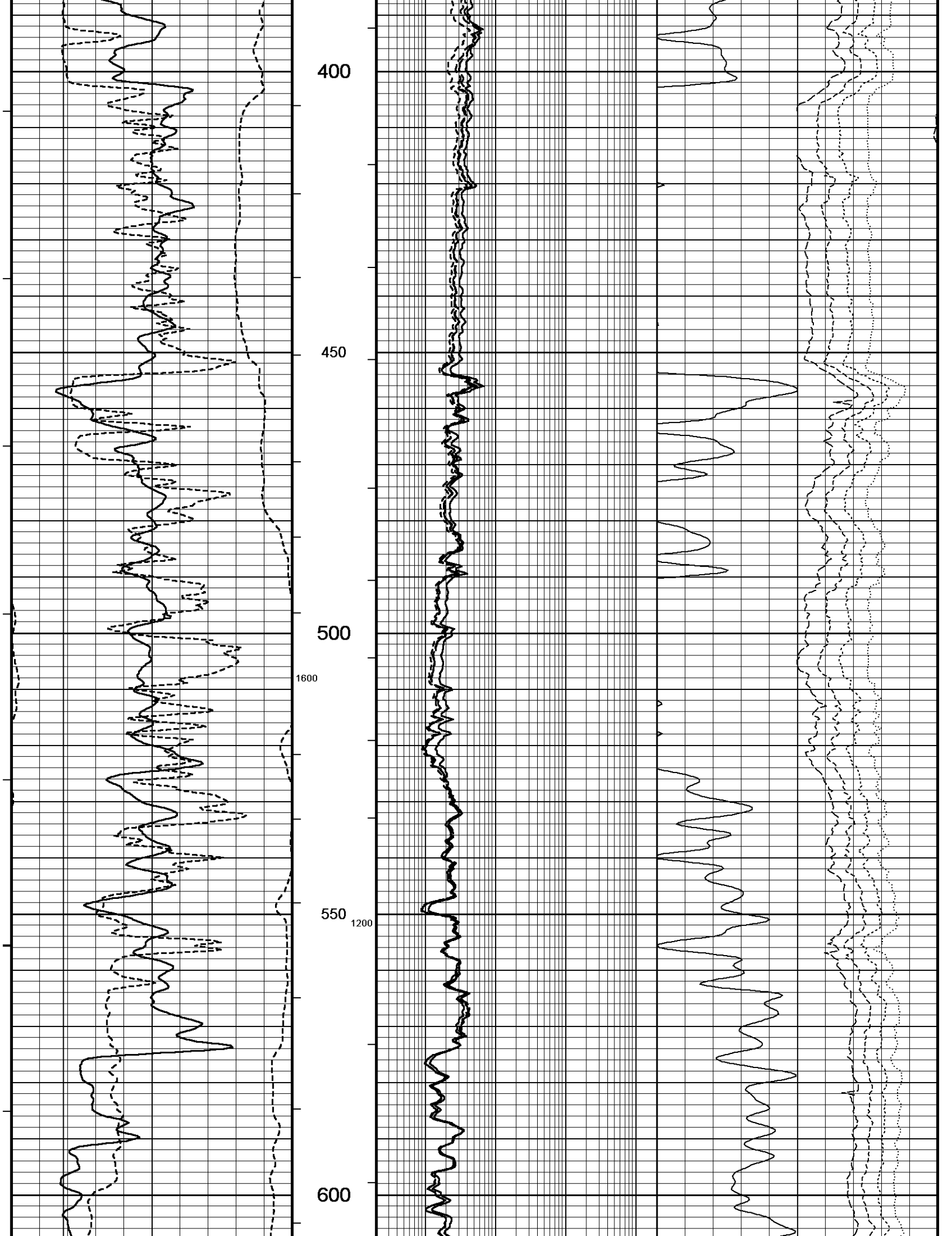
DST Uphole Tension  
pounds  
5000 0

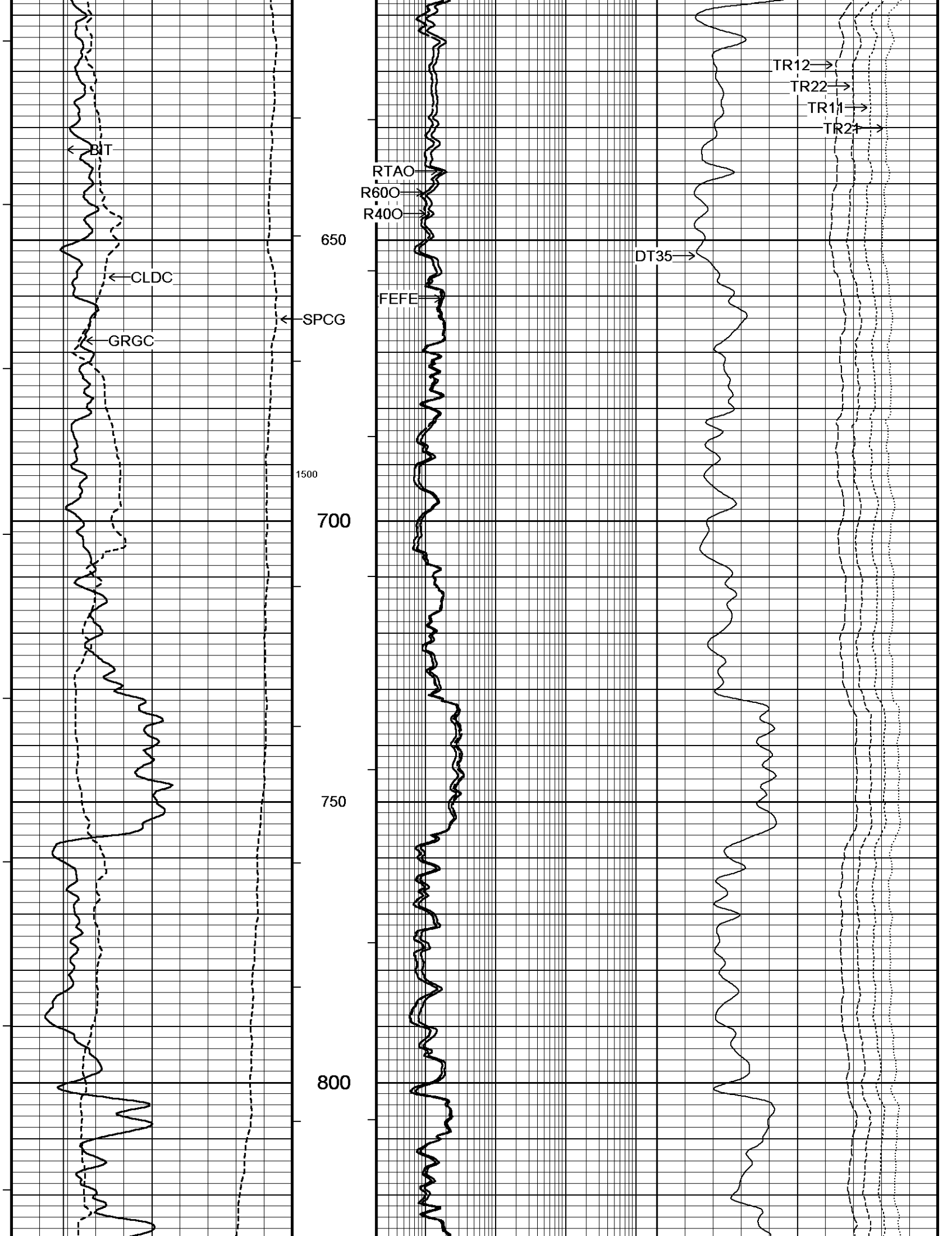
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Scale  
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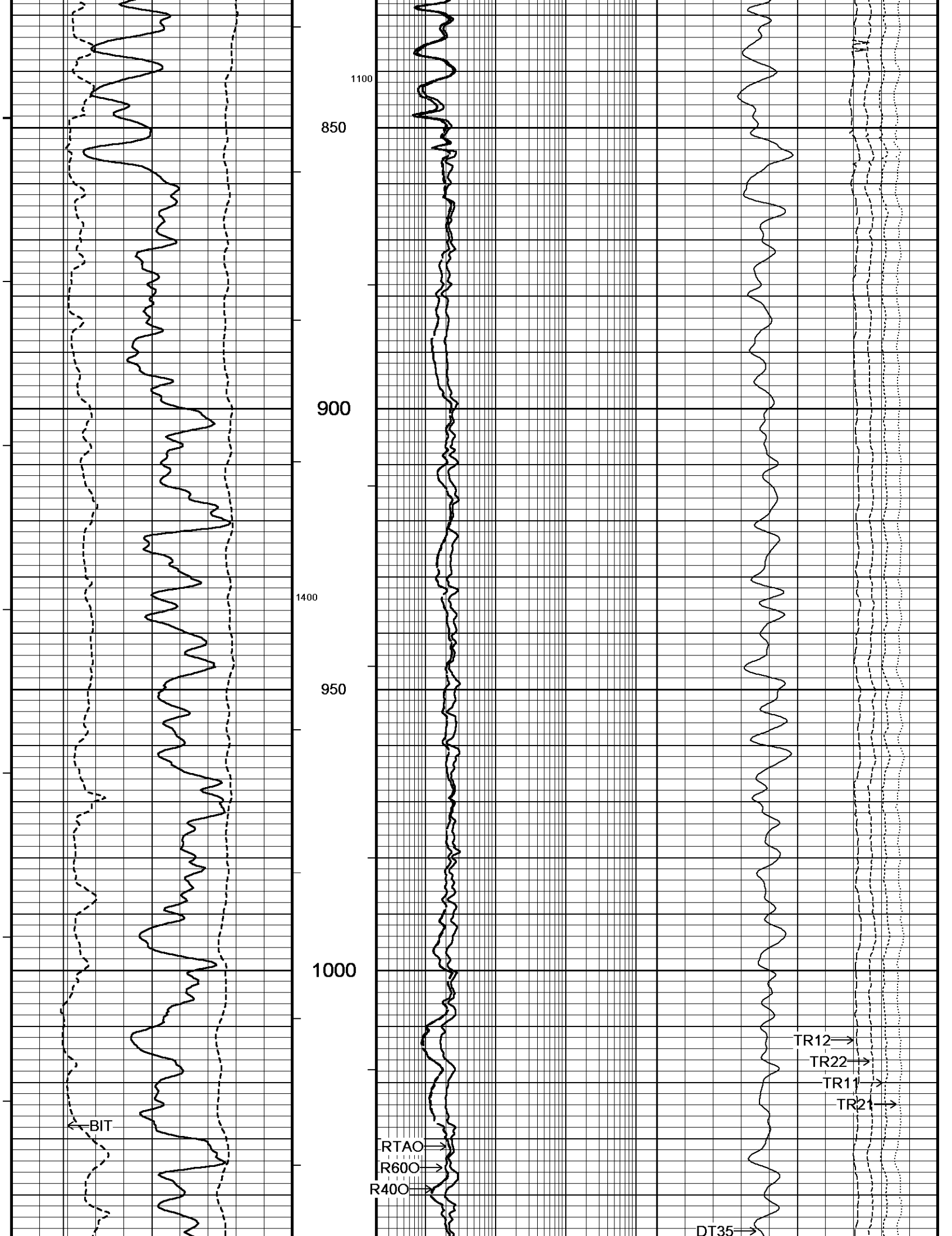


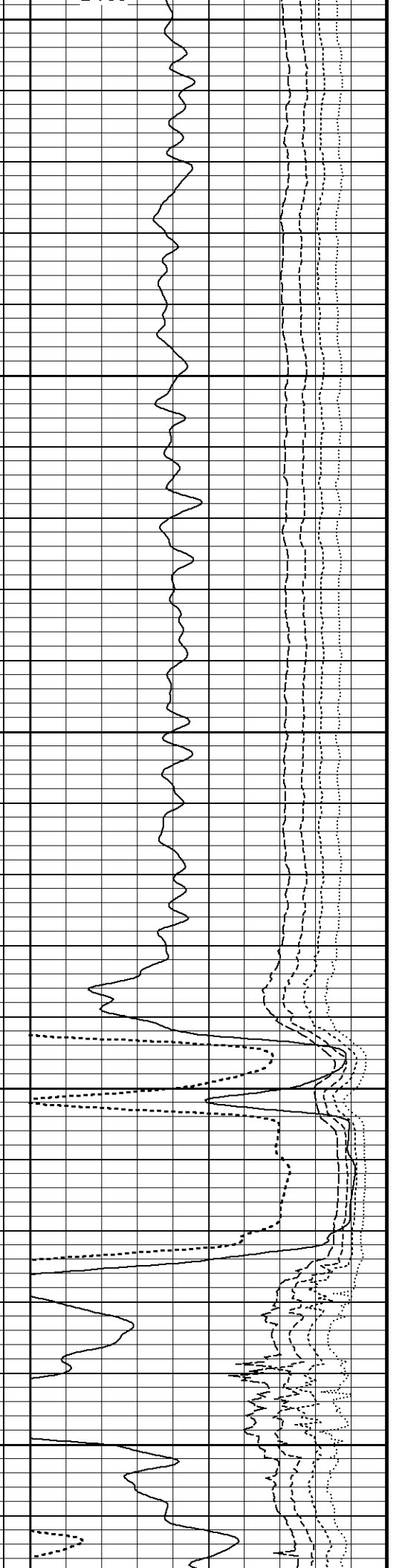
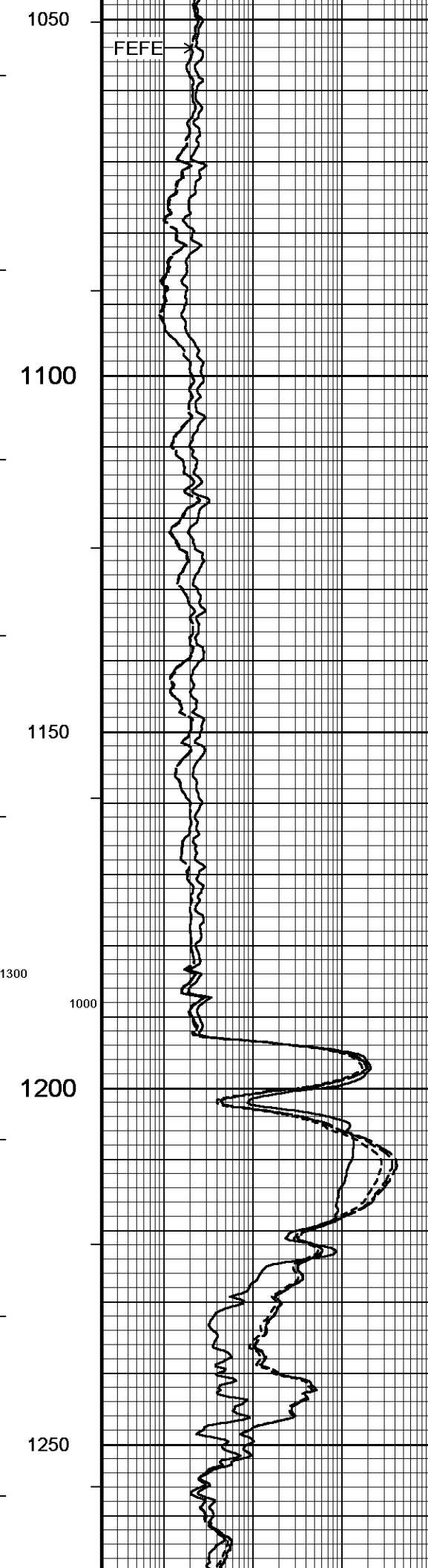
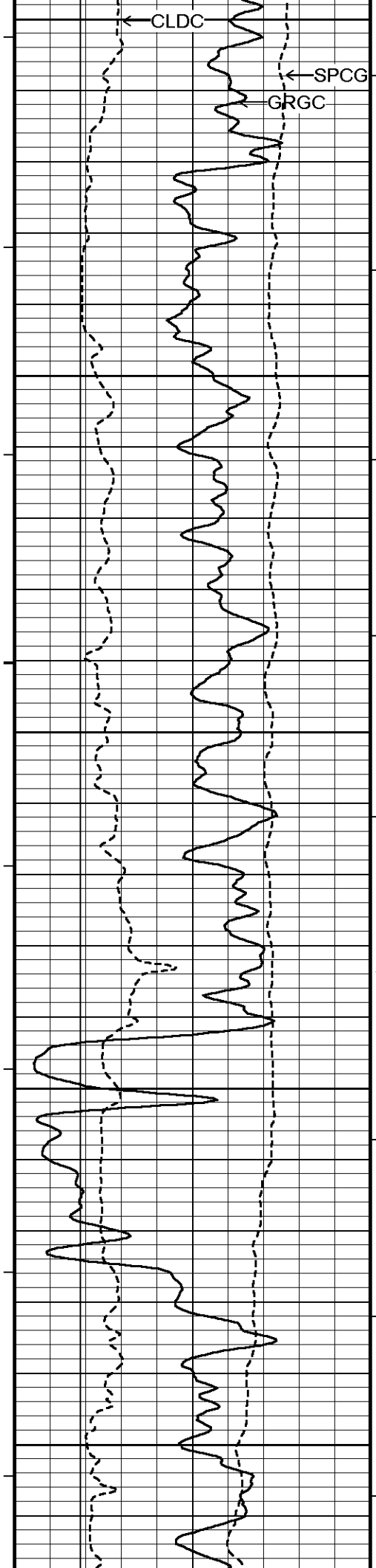
256  
Casing  
Shoe  
300  
1700  
350  
1300

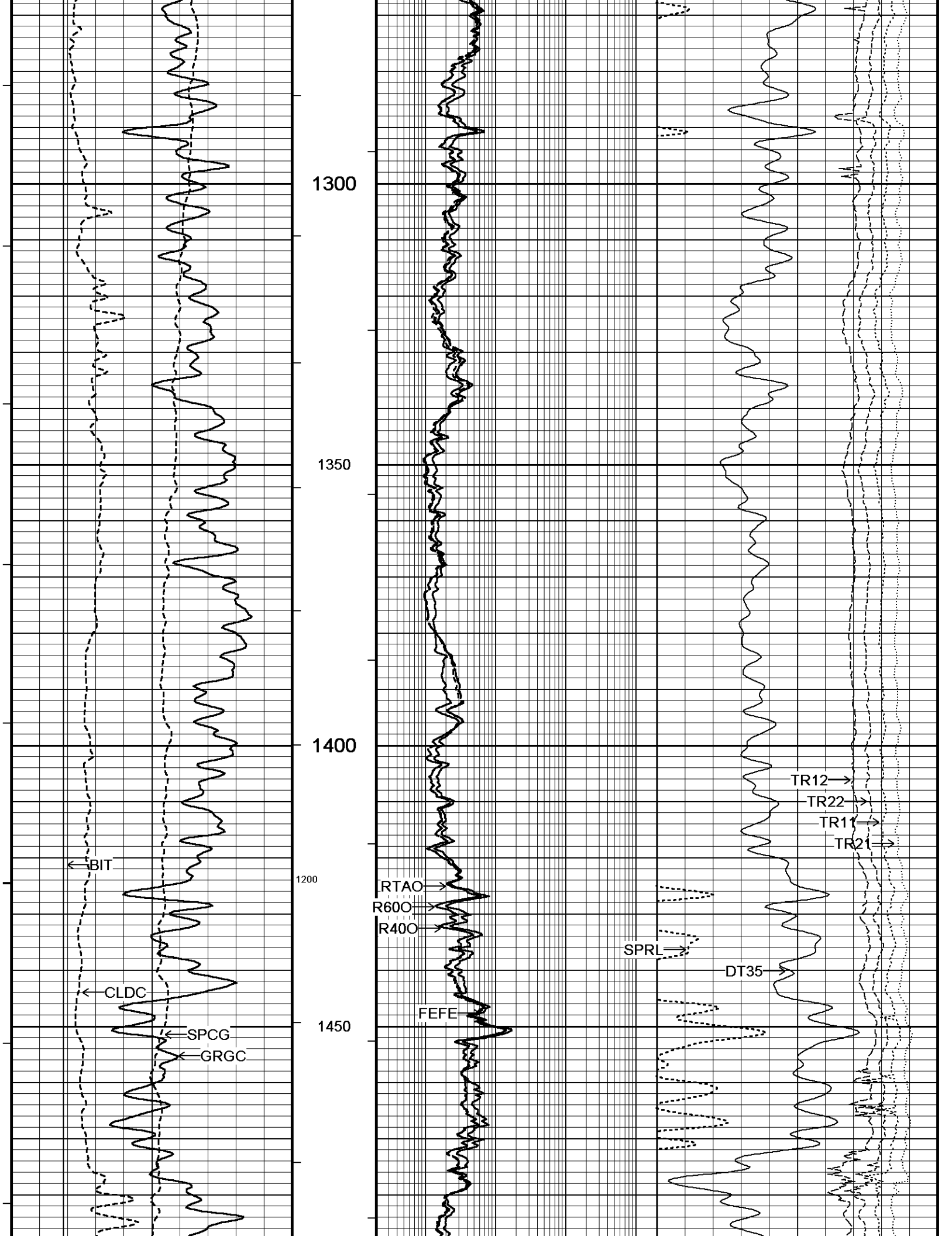


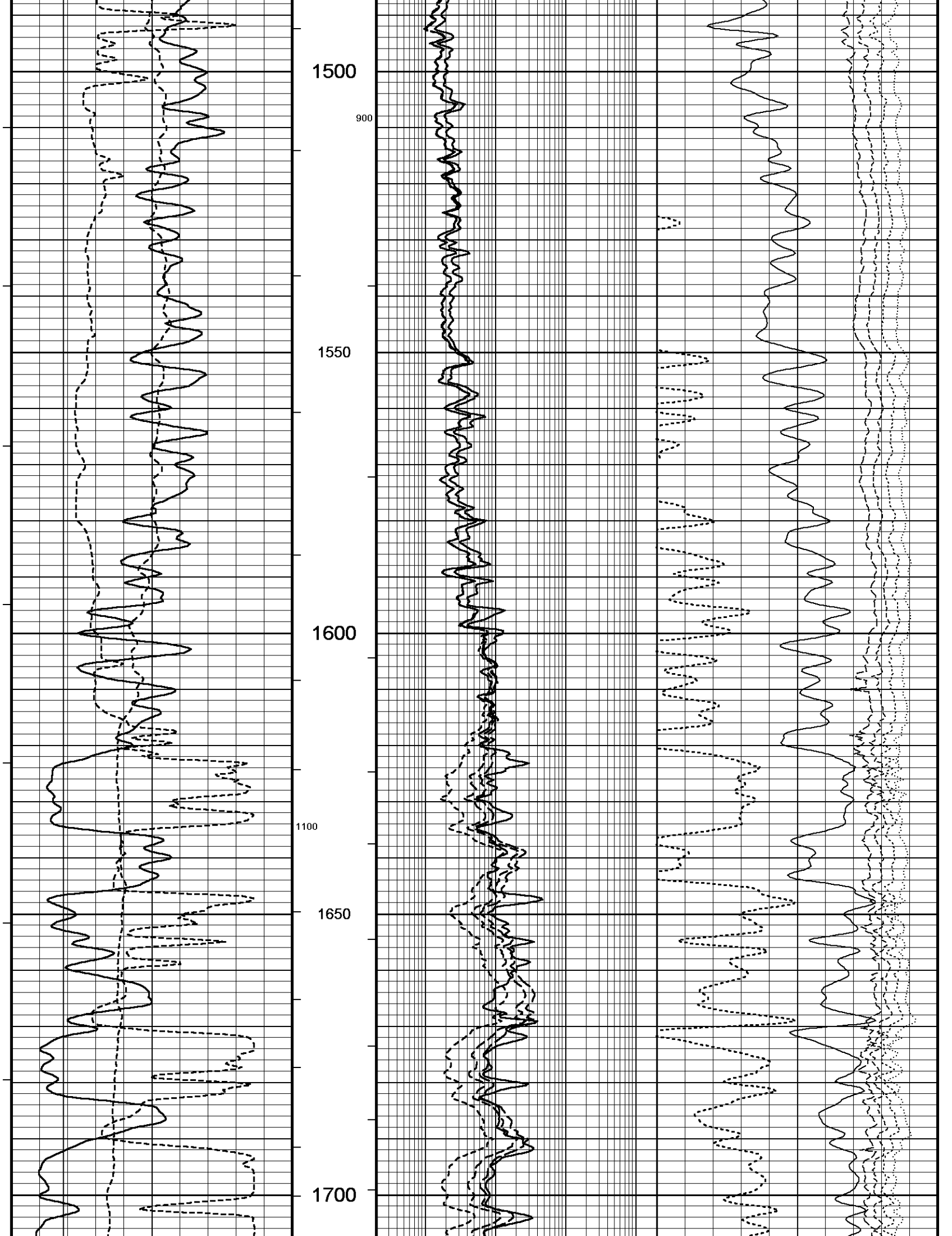


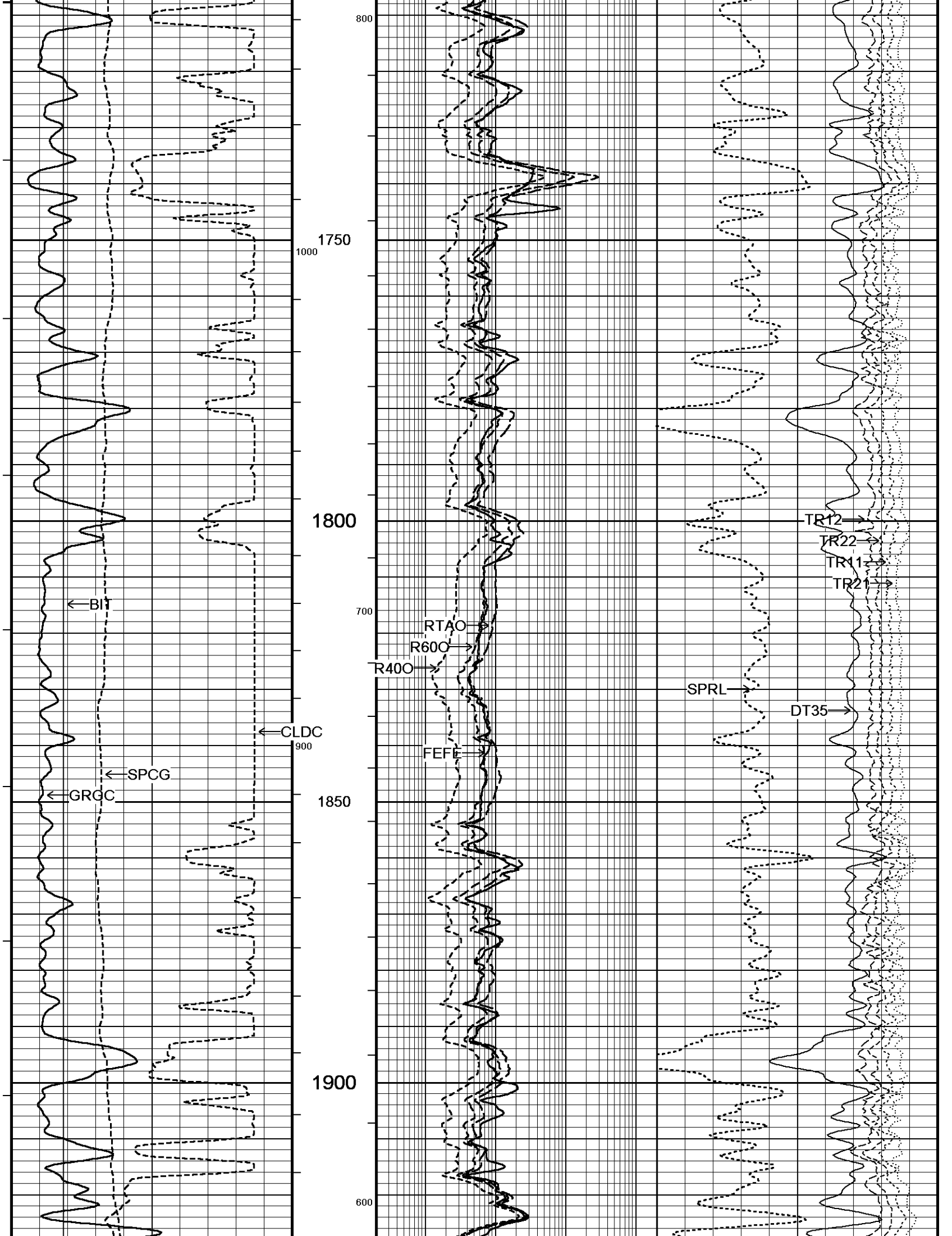


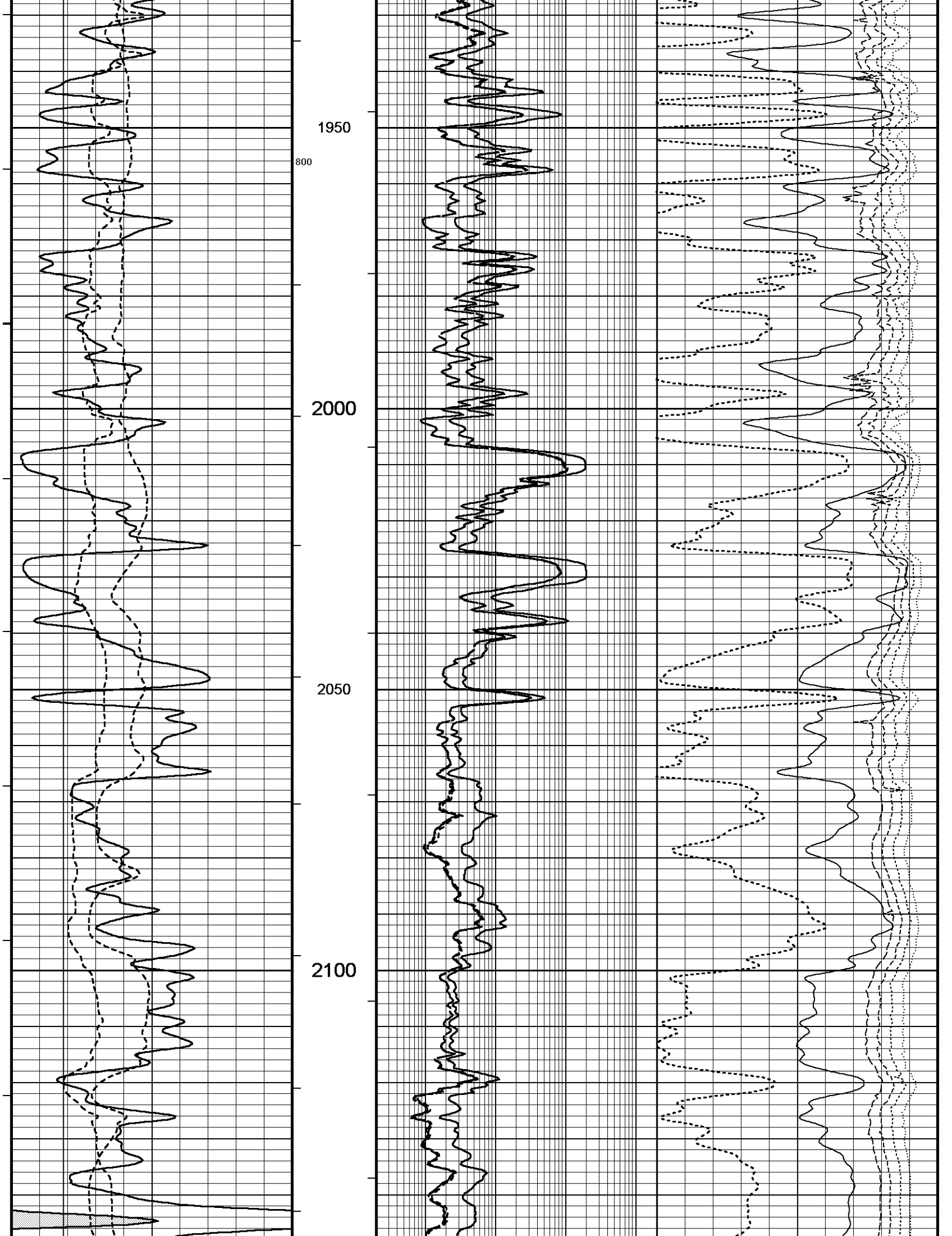


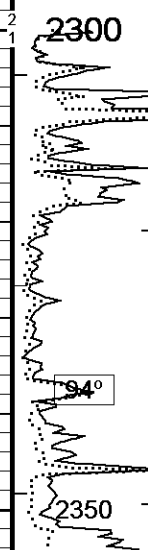
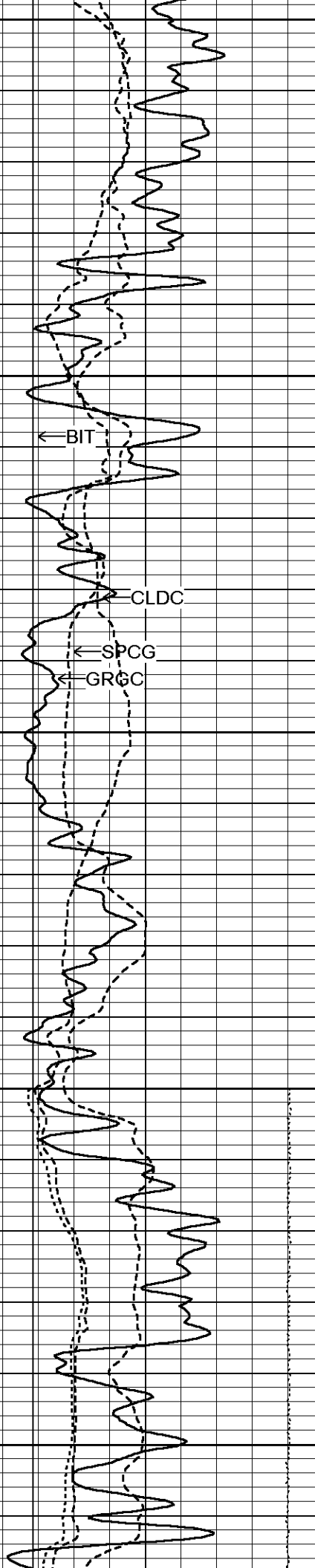
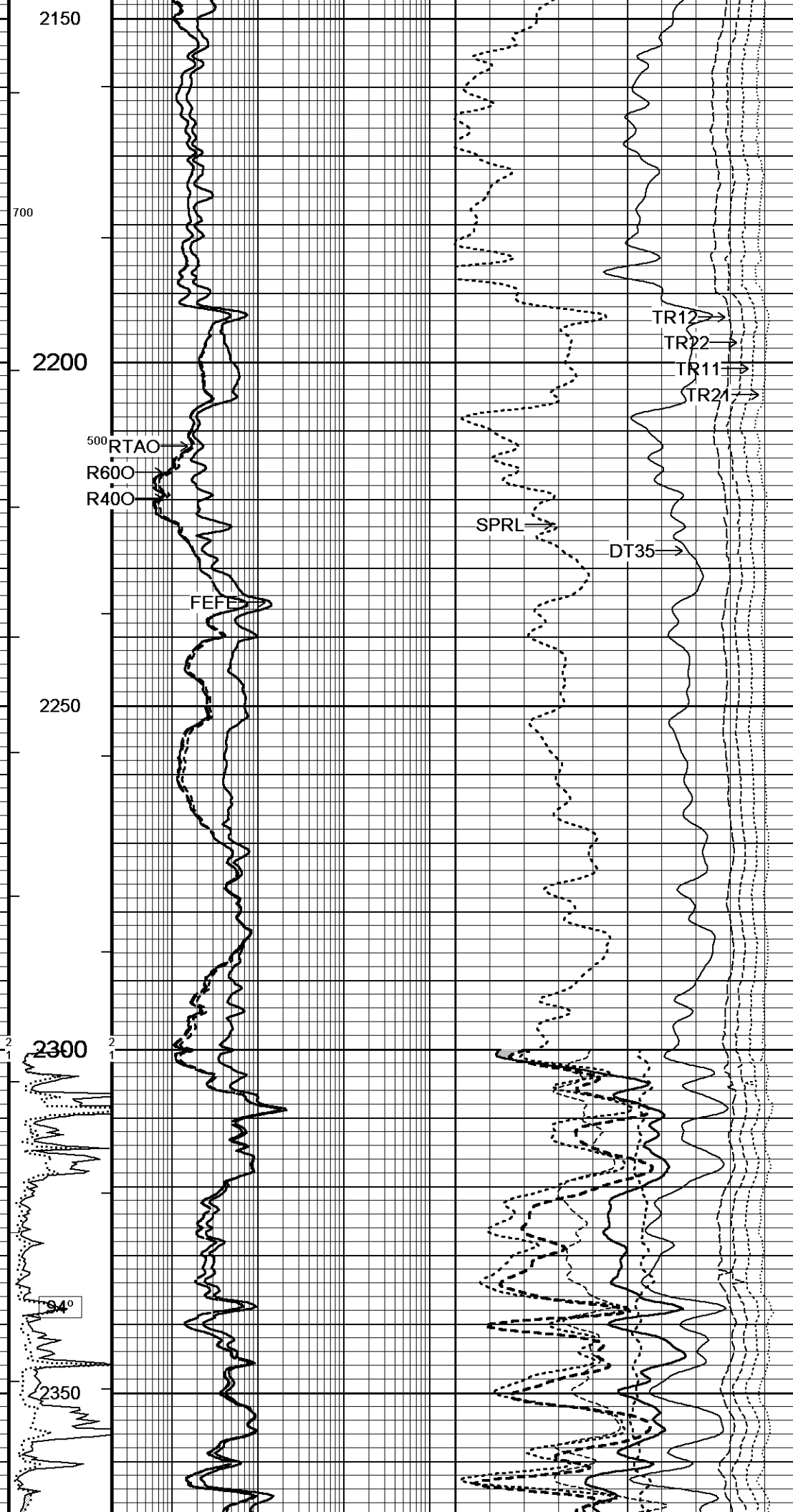


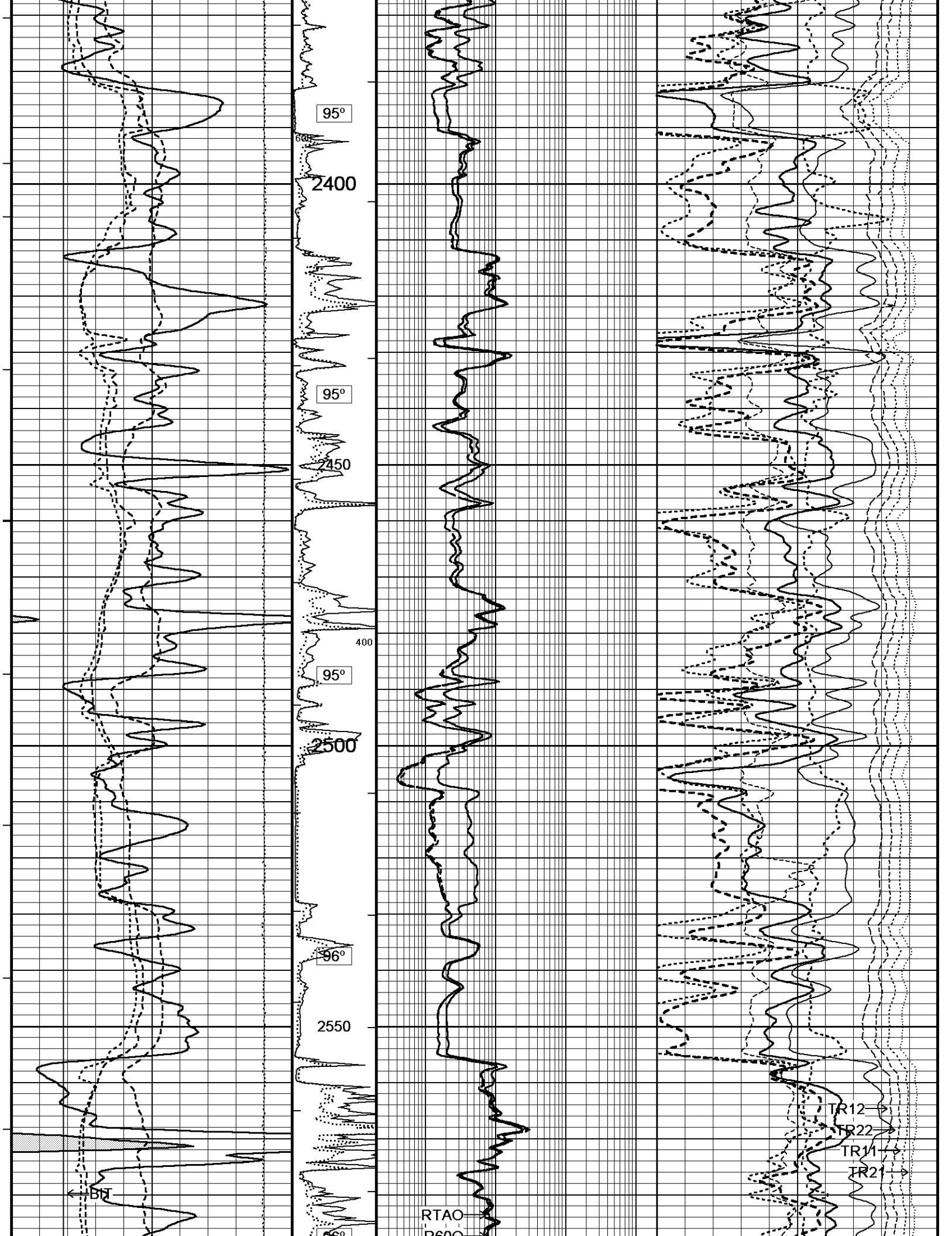


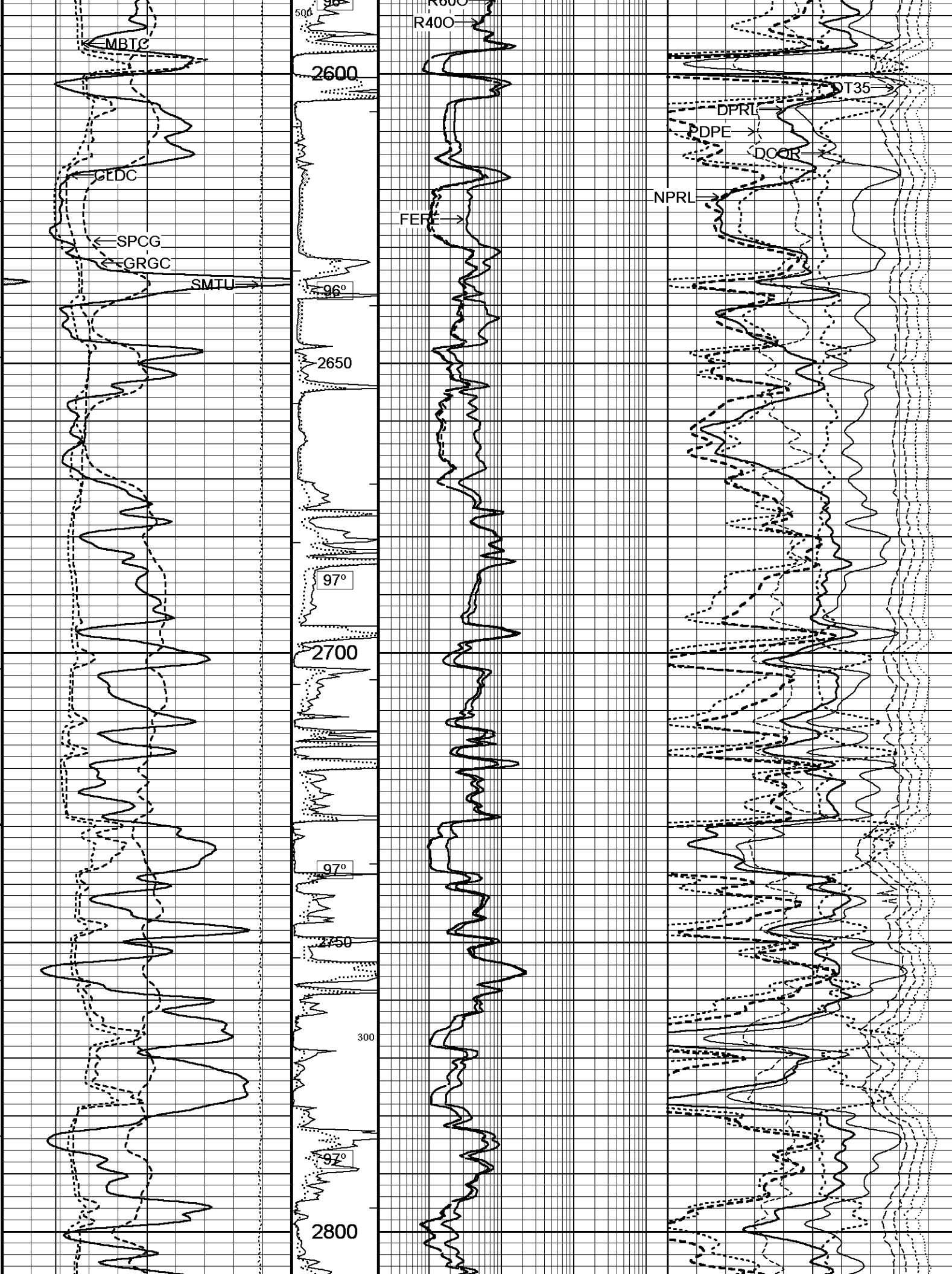


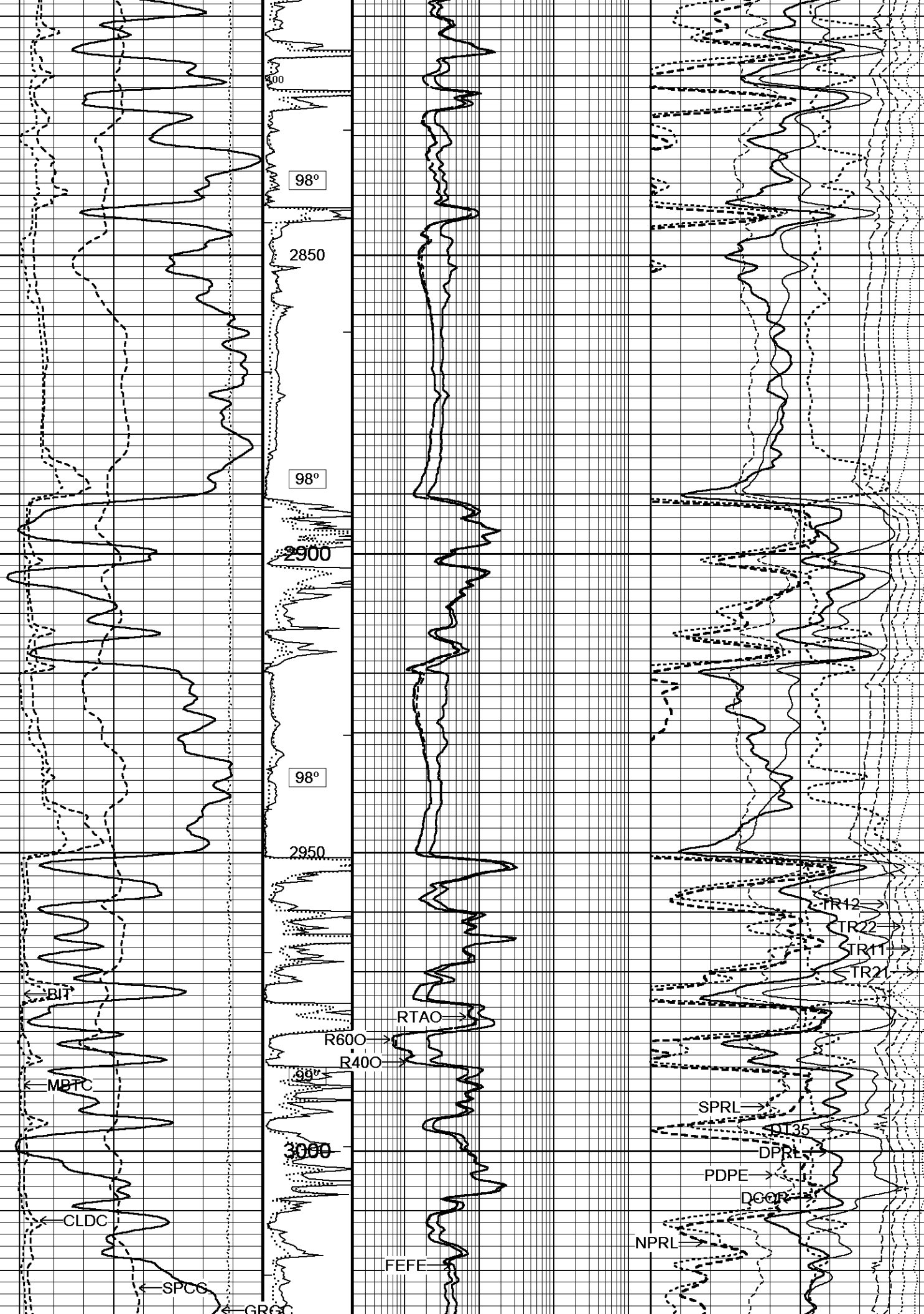












SMTU →

99°

3050

300

100°

3100

200

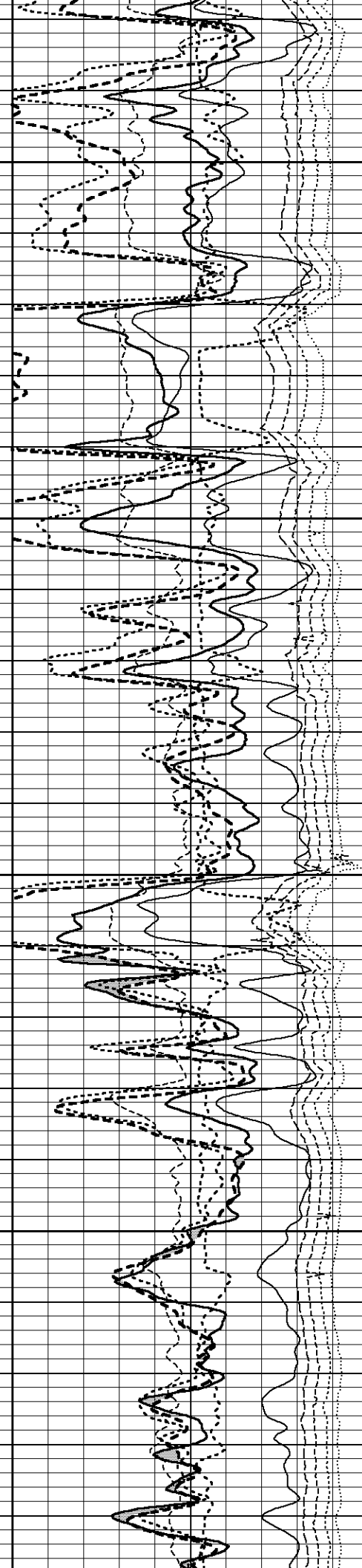
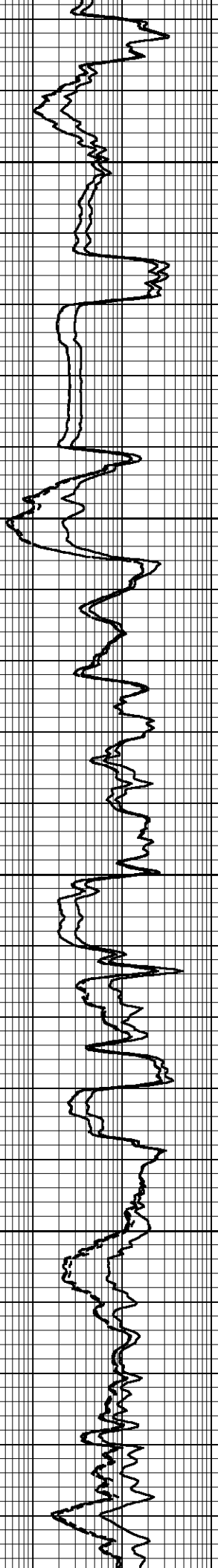
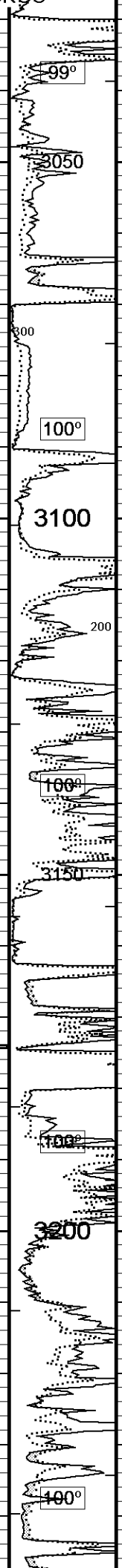
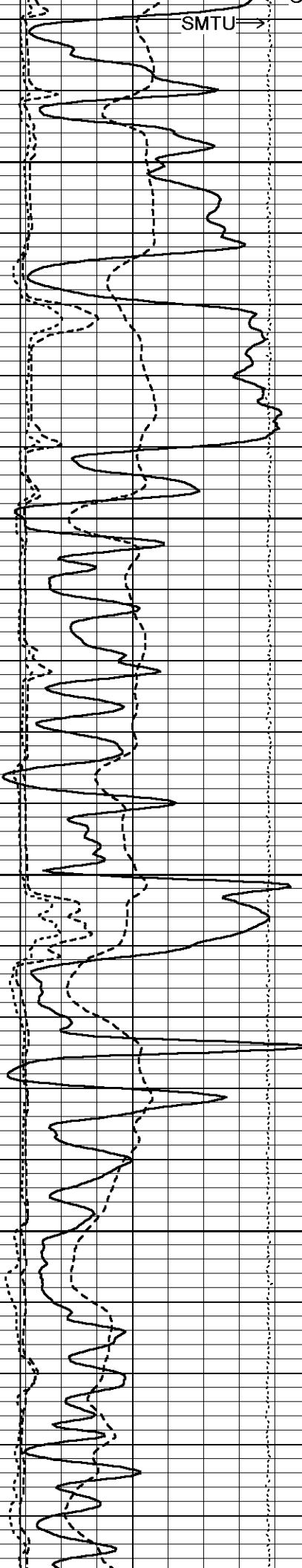
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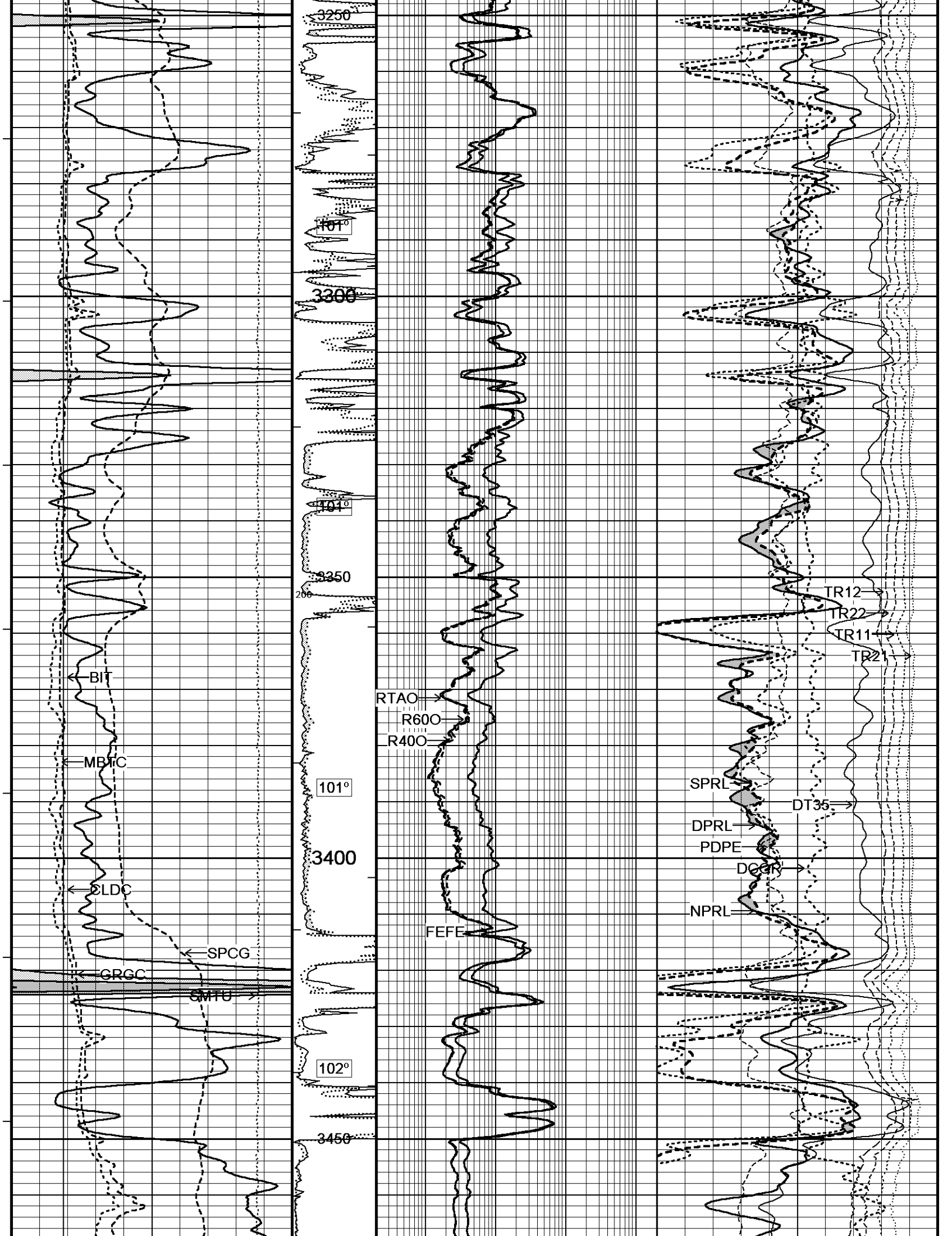
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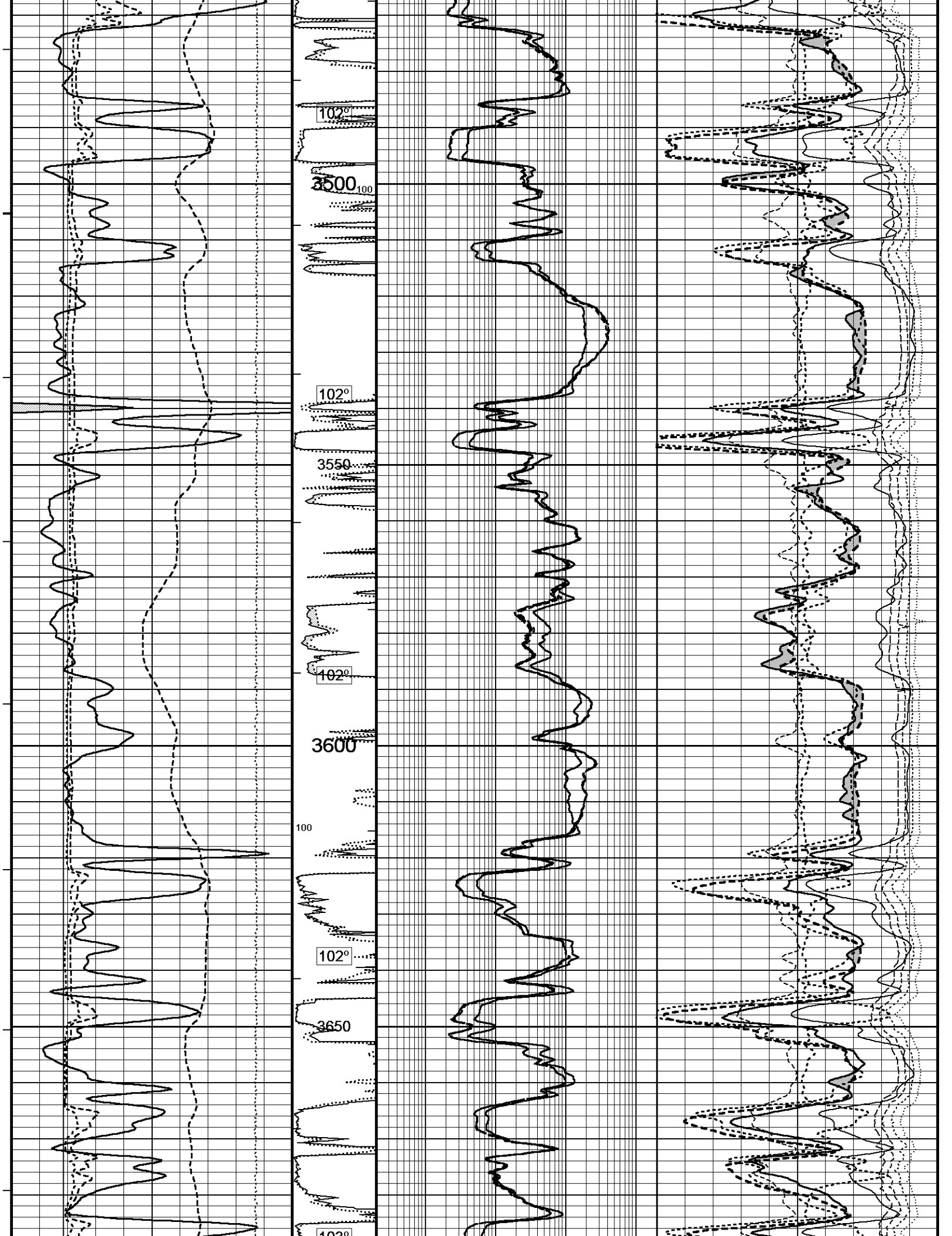
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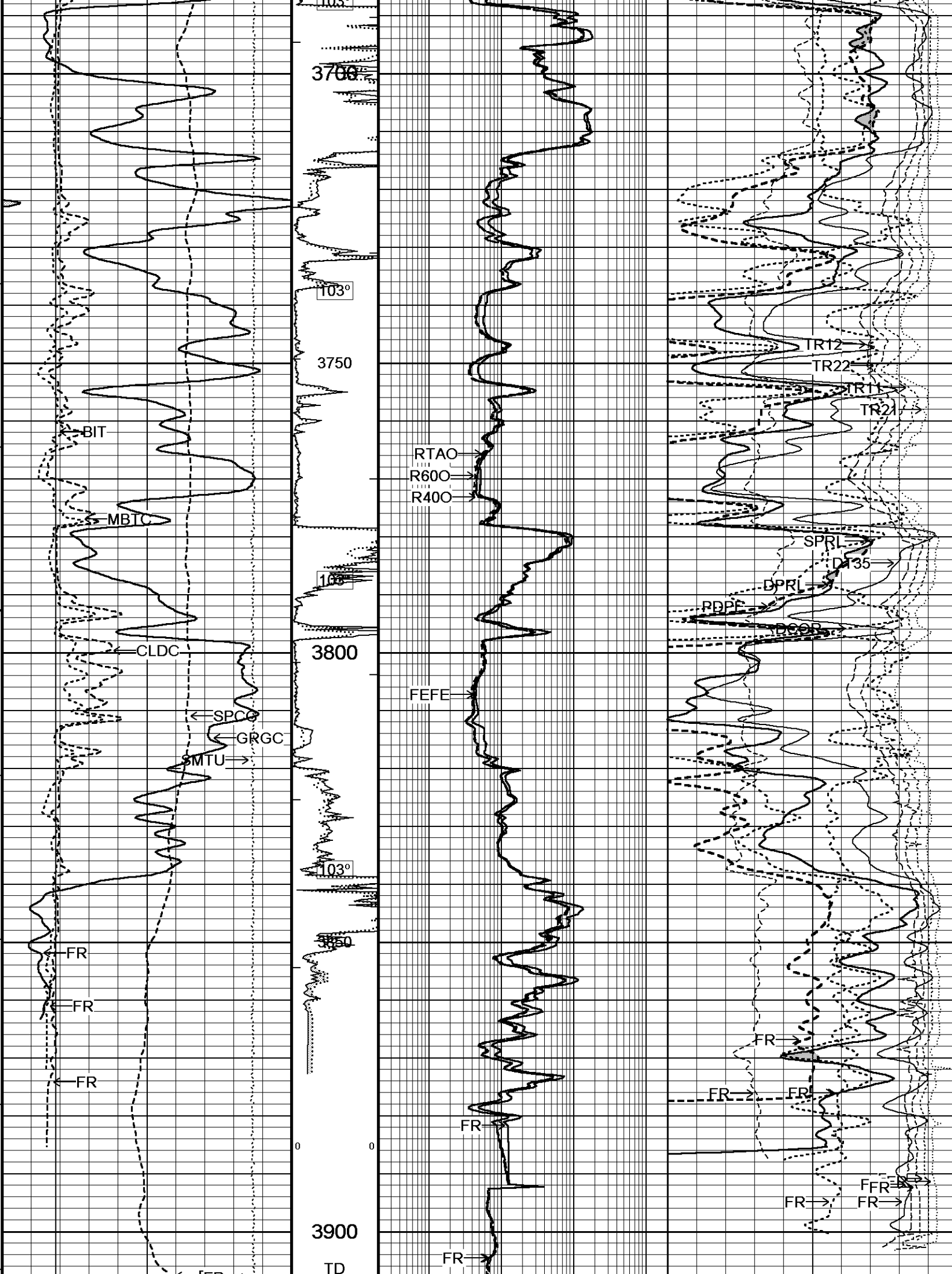
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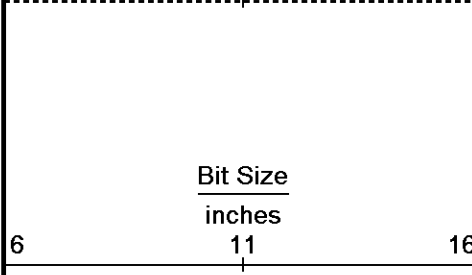
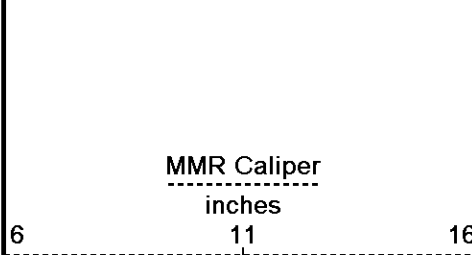
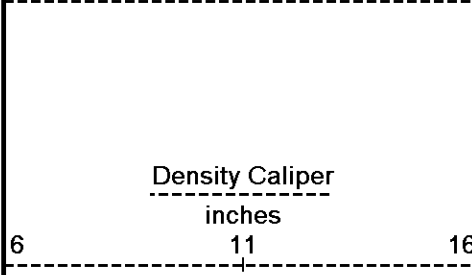
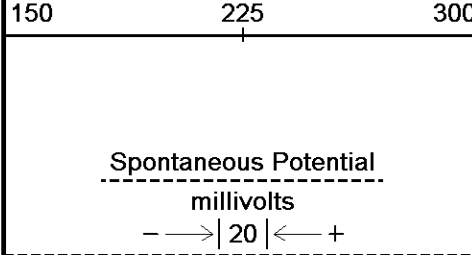
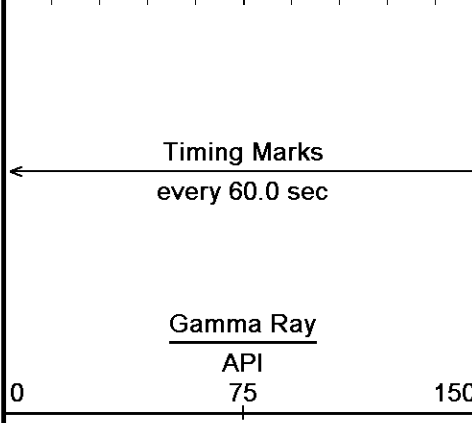
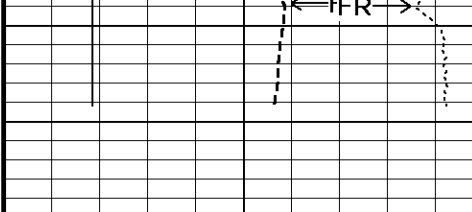
100°











Depth  
In  
Feet

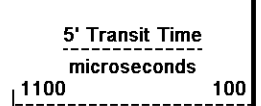
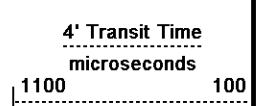
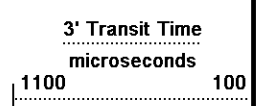
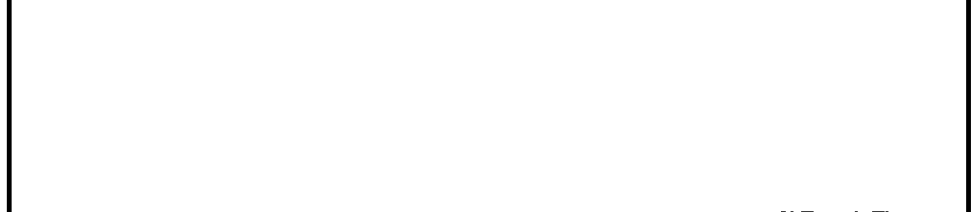
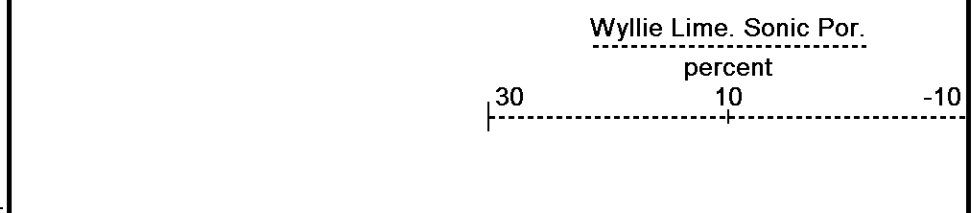
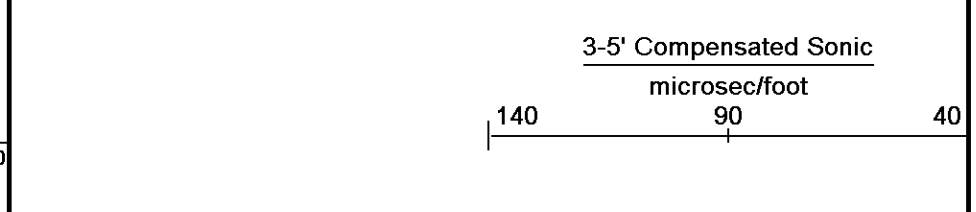
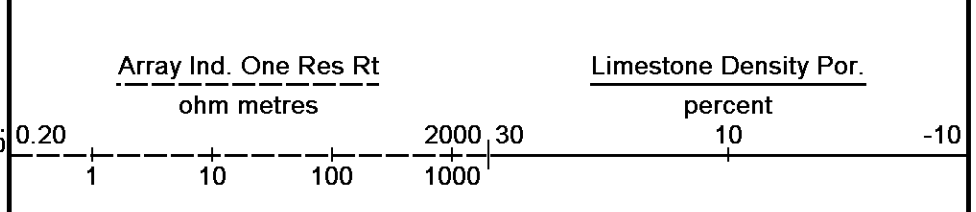
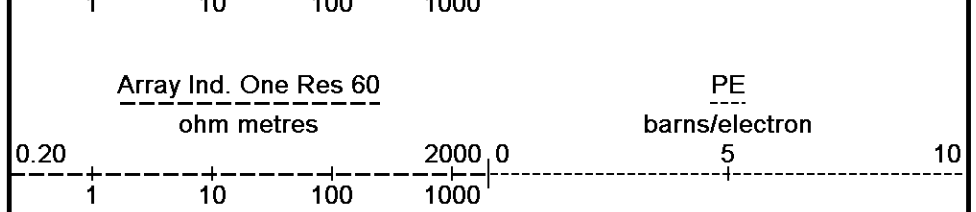
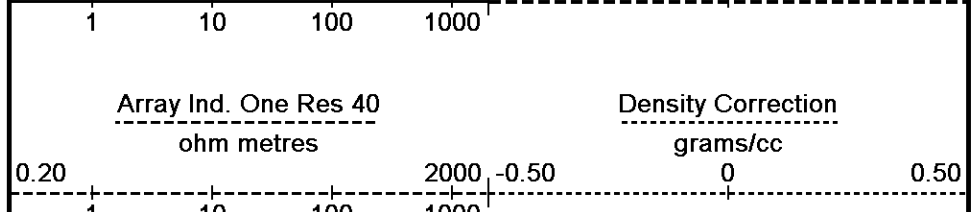
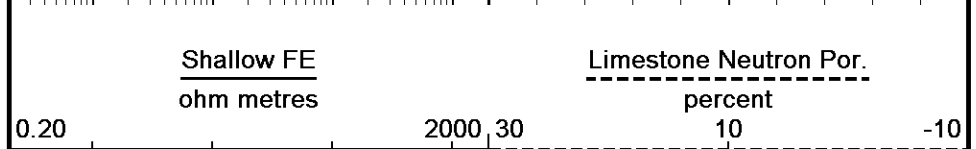
Borehole  
Temp in  
deg F

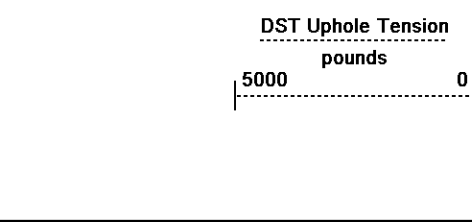
MNRL

MINV

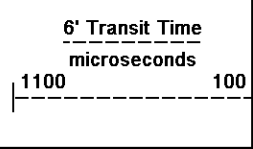
HVI  
every  
10 cu ft

Annular  
Integral  
every  
10 cu ft





Replay  
Scale  
1:240

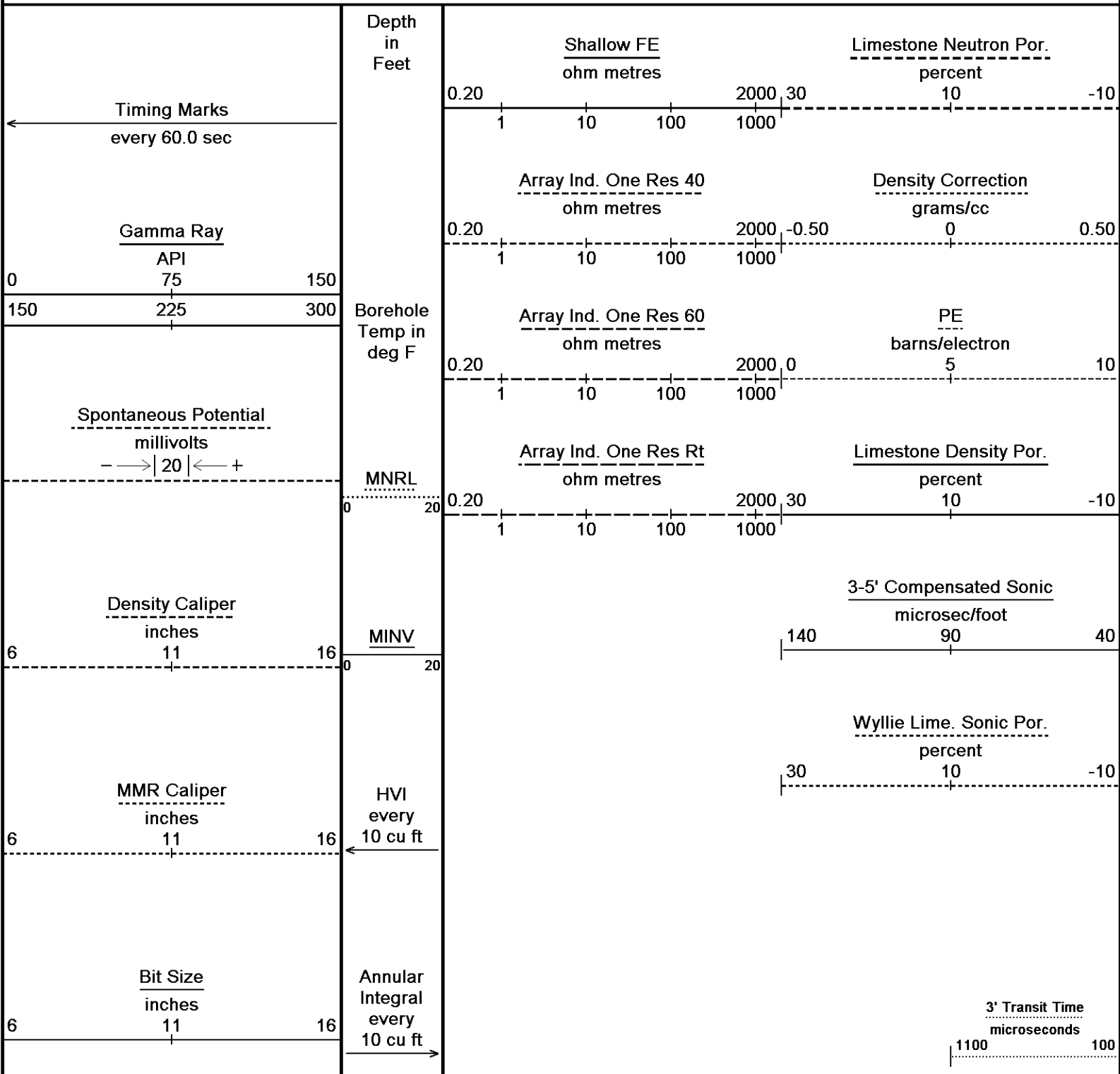


Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 04-OCT-2016 18:54  
 Filename: C:\Minimus 15.03.5939\Logs\O'Brien (LA) Jecha 4 #2\O'Brien (LA) Jecha 4 #2\_002.dta  
 Recorded on 04-OCT-2016 16:29  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939

↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 04-OCT-2016 18:54  
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 Recorded on 04-OCT-2016 16:05  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939



DST Uphole Tension  
pounds  
5000 0

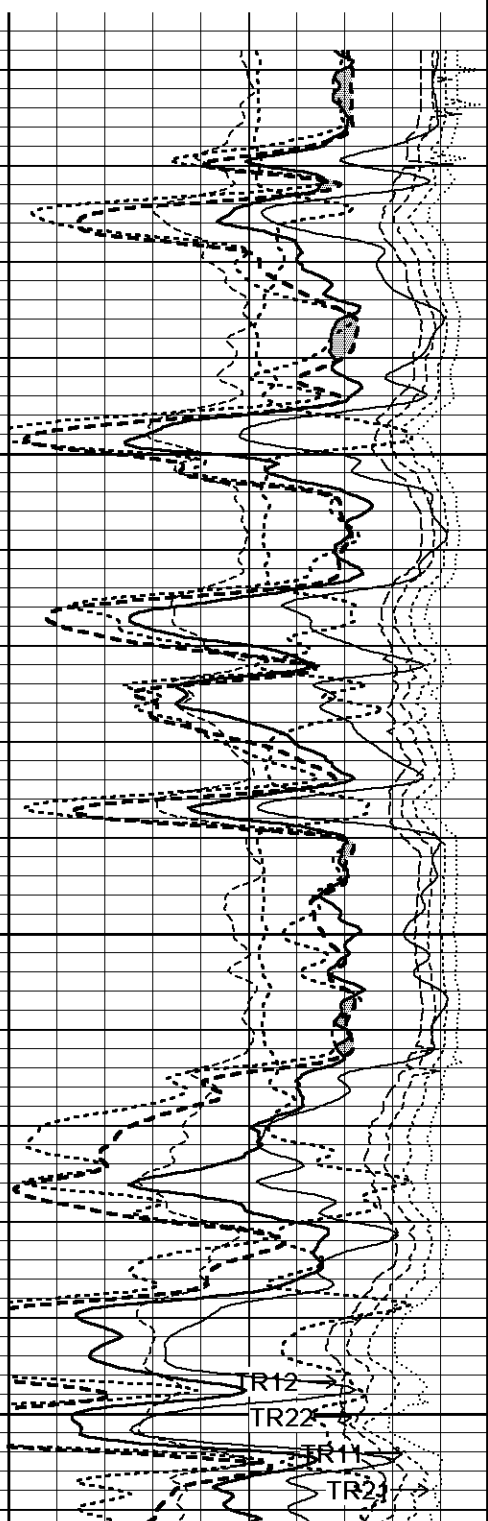
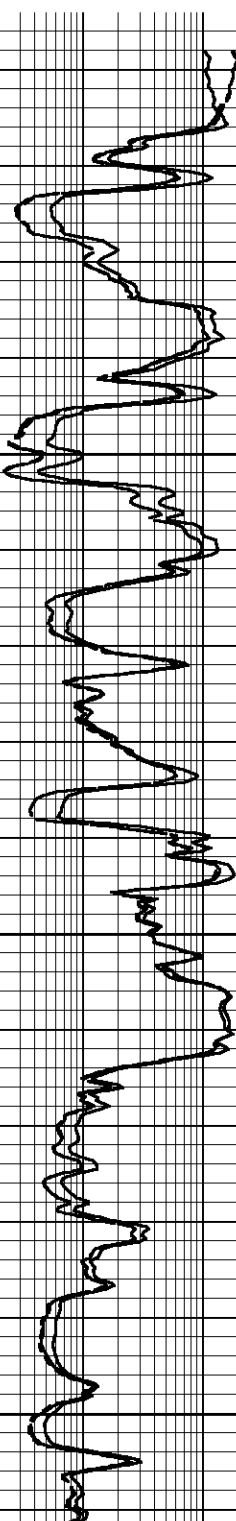
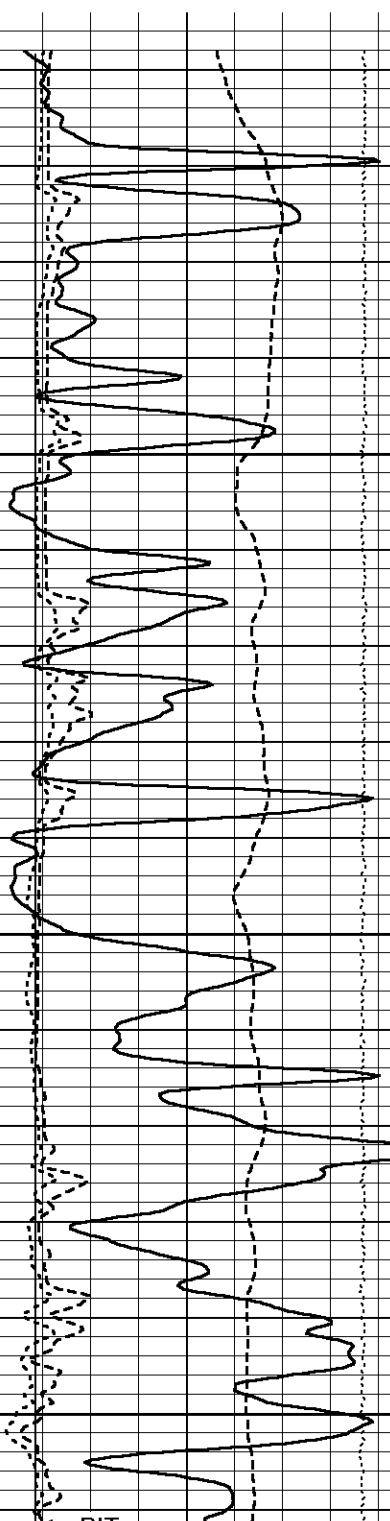
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Scale  
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4' Transit Time  
microseconds  
1100 100

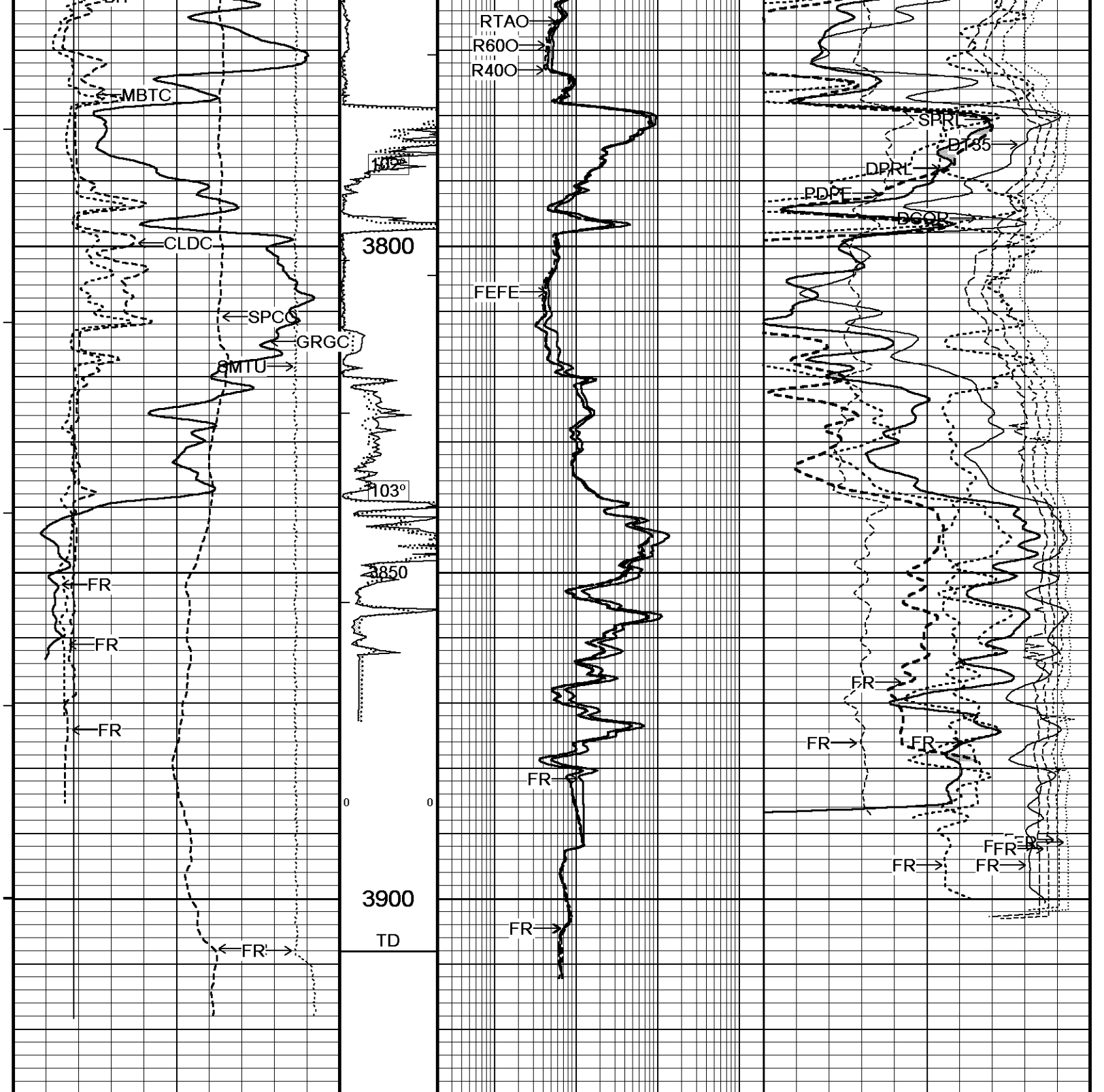
5' Transit Time  
microseconds  
1100 100

6' Transit Time  
microseconds  
1100 100

3606  
100  
3650  
102°  
3700  
102°  
3750



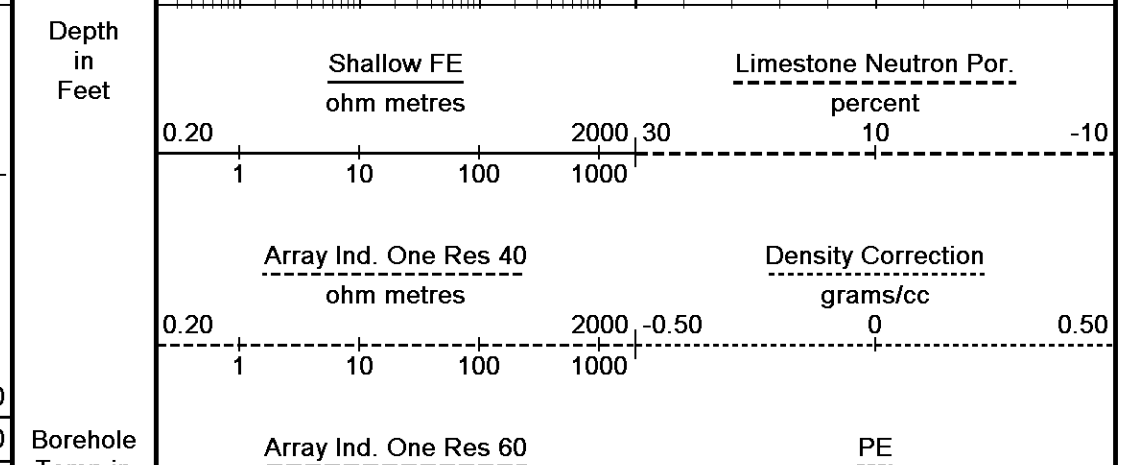
BIT

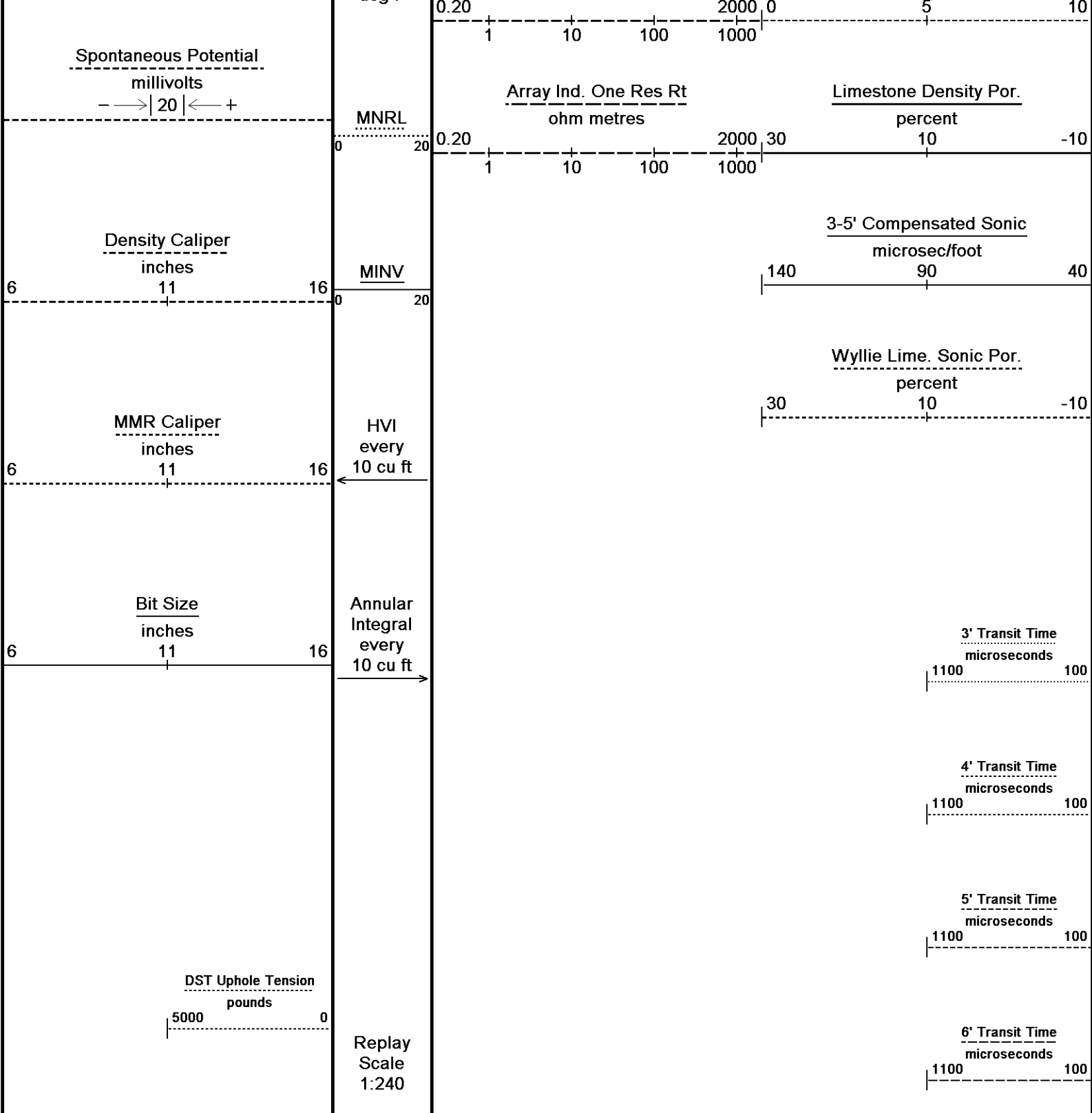


Timing Marks every 60.0 sec

Gamma Ray		
API		
0	75	150
150	225	300

Borehole Temp in deg F





Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 04-OCT-2016 18:54  
 Filename: C:\Minimus 15.03.5939\Logs\O'Brien (LA) Jecha 4 #2\O'Brien (LA) Jecha 4 #2\_001.dta  
 Recorded on 04-OCT-2016 16:05  
 System Versions: Logged with 15.03.5939 Plotted with 15.03.5939

↑ REPEAT SECTION ↑

**BEFORE SURVEY CALIBRATION**  
 C:\Minimus 15.03.5939\Logs\O'Brien (LA) Jecha 4 #2\O'Brien (LA) Jecha 4 #2\_001.dta

General Constants All 000 Last Edited on 04-OCT-2016,15:43

<b>General Parameters</b>		
Mud Resistivity	0.460	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet

## 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	None	

## Rwa Parameters

Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

## Down-hole Tension Calibration SMS 0

Field Calibration on 24-JUL-2016 15:20


Reading No	Measured	Calibrated (lbs)
1	15235.81	0.00
2	16026.61	481.00

## Gamma Calibration MCG-C 123

Field Calibration on 04-OCT-2016 08:13

	Measured	Calibrated (API)
Background	143	100
Calibrator (Gross)	795	556
Calibrator (Net)	652	456

## Gamma Calibration Tolerances MCG-C 123

Ratio	1.431		Counts/API
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## Gamma Constants MCG-C 123

Last Edited on 04-OCT-2016,13:32

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.12	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

## High Resolution Temperature Calibration MCG-C 123

Field Calibration on 31-OCT-2015,17:05

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

## High Resolution Temperature Constants MCG-C 123

Last Edited on 22-SEP-2015,11:43

Pre-filter Length	11
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## SP Calibration MCG-C 123

Field Calibration on 14-JUL-2016 12:06

	Measured	Calibrated (mV)
Reference 1	101.2	100.6
Reference 2	-99.1	-99.9

## Micro Normal and Micro Inverse Calibration MMR-C.A 247

Base Calibration on 28-AUG-2016 19:13

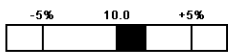
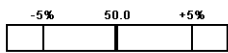
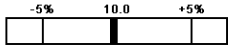
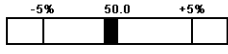
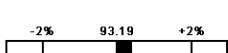
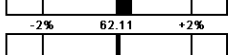
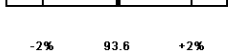
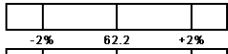
Field Check on 04-OCT-2016 15:26

## Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.2	49.9	5.1	25.6
Micro Inverse	10.0	49.5	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.6	93.6
Micro Inverse	62.2	62.2

## Micro Normal &amp; Micro Inverse Calibration Tolerance MMR-C.A 247

Micro Normal Res. 1	10.2		ohm	Micro Normal Res. 2	49.9		ohm
Micro Inverse Res. 1	10.0		ohm	Micro Inverse Res. 2	49.5		ohm
Micro Normal Base Check	93.6		ohm-m				
Micro Inverse Base Check	62.2		ohm-m				
Micro Normal Field Check	93.6		ohm-m				
Micro Inverse Field Check	62.2		ohm-m				

**Micro Normal and Micro Inverse Constants MMR-C.A 247**

Last Edited on 26-JUN-2016,15:44

Pad Type 8-12 in Soft Rubber Inflatable 006-9011-159  
 Micro Normal K Factor 0.5110  
 Micro Inverse K Factor 0.3380  
 Standoff Offset 0.0000 inches

**Caliper Calibration MMR-C.A 247**

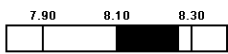
Base Calibration on 28-AUG-2016 19:08  
 Field Calibration on 04-OCT-2016 15:24

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14869	5.98
2	18207	7.97
3	21411	9.86
4	25389	11.92
5	0	0.00
6	N/A	N/A

Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	8.27	8.10

**Caliper Calibration Tolerances MMR-C.A 247**

Short Arm Field Cal. 8.27  in

**Micro-Resistivity Caliper Constants MMR-C.A 247**

Last Edited on

Sonde Configuration Resistivity Mode

**Neutron Calibration MDN-A.B 66**

Base Calibration on 22-MAY-2016,18:15  
 Field Check on 04-OCT-2016 08:22

Base Calibration					
	Measured		Calibrated (cps)		Ratio
	Near	Far	Near	Far	
	3116	97	3714	110	
Ratio	32.277		33.764		


  


Field Calibrator at Base		
	Calibrated (cps)	
Ratio	2061	3028
	0.681	


  

Field Check		
	Calibrated (cps)	
Ratio	2167	3105
	0.698	

**Neutron Calibration Tolerances MDN-A.B 66**

Ratio 32.277 

Base Check 0.681 

Field Check 0.698 

**Neutron Constants MDN-A.B 66**

Last Edited on 04-OCT-2016,13:32

Neutron Source Id P0204NN  
 Neutron Jig Number NJ5736  
 Air Hole Processing Legacy

Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 28-AUG-2016 18:58  
Field Check on 04-OCT-2016 15:05

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.3	126.8
Base Check		281.3
Field Check		281.4

FE Calibration Tolerances MFE-B.J 352

Reference 2	963.3		ohm
Base Check	281.3		ohm-m
Field Check	281.4		ohm-m

FE Constants MFE-B.J 352

Last Edited on 04-OCT-2016,15:04

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	

Sonic Constants MSS-A.A 55

Last Edited on 04-OCT-2016,13:31

Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft
Sonde Mode	Compensated	
Hole Type	Open Hole	

Sonde Parameters

	Measured	Calibrated
Offset	N/A	0.0000
Free Pipe	N/A	N/A
Peak Amplitude Source		N/A

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing	N/A	Discriminator (mV)	N/A
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A
Use 4' Waveform to derive TR	N/A
Use 5' Waveform to derive TR	N/A
Use 6' Waveform to derive TR	N/A
3' Waveform Discriminator Level	N/A mV
4' Waveform Discriminator Level	N/A mV
5' Waveform Discriminator Level	N/A mV
6' Waveform Discriminator Level	N/A mV
3' Waveform Filter	N/A
4' Waveform Filter	N/A
5' Waveform Filter	N/A
6' Waveform Filter	N/A
Semblance Level	N/A
Semblance Window Width	N/A micro-sec
Sonic 1 Despiker	N/A N/A
Sonic 2 Despiker	N/A N/A

Induction Calibration MAI-A.A 111

Base Calibration on 05-AUG-2014,09:34  
Field Check on 04-OCT-2016 15:23

Base Calibration

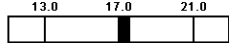
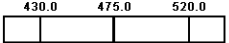
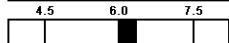
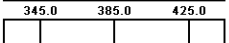
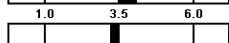
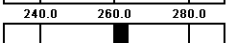
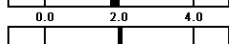
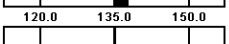
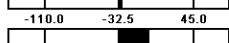
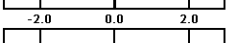
Test Loop Calibration Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.6	473.6	9.3	966.2
2	6.4	385.9	7.6	821.4
3	3.2	264.0	5.2	566.0
4	2.1	135.5	2.6	279.2

Array Temperature 23.0 Deg F

Test Loop Calibration Verified 22-MAY-2016,17:59

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	12.1	3873.0	15.9	3871.4
2	29.8	3528.1	32.3	3525.6
3	29.1	3021.3	31.1	3019.0
4	19.1	2058.5	20.5	2056.8
Deep	17.7	1962.1	19.1	1960.6
Medium	43.1	3976.4	45.6	3973.2
Shallow	44.4	5232.7	48.1	5229.1
Array Temperature	65.8		86.7 Deg F	

Induction Calibration Tolerances MAI-A.A 111

Low Conductivity 1	17.6		mmho/m High Conductivity 1	473.6		mmho/m
Low Conductivity 2	6.4		mmho/m High Conductivity 2	385.9		mmho/m
Low Conductivity 3	3.2		mmho/m High Conductivity 3	264.0		mmho/m
Low Conductivity 4	2.1		mmho/m High Conductivity 4	135.5		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		%
Background Vx 4	0.0		mmho/m Phase Check Loop 4	0.0		%

Induction Constants MAI-A.A 111

Last Edited on 04-OCT-2016,15:21

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	
Symmetrised Receiver Gains			
Receiver 1	1.00		
Receiver 2	1.00		
Receiver 3	1.00		
Receiver 4	1.00		
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		

High Resolution Temperature Calibration MAI-A.A 111

Field Calibration on 24-NOV-2014,10:23

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 111

Last Edited on 26-JUN-2014,15:06

Pre-filter Length	11
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Photo Density Calibration MPD-B 104

Base Calibration on 28-AUG-2016 20:24  
Field Check on 04-OCT-2016 15:09

Density Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Base Calibration				
Background	1145	1339		
Reference 1	49665	24007	59556	30836
Reference 2	20032	2442	24941	2541

Field Check at Base  
1144.9 1338.6

Field Check  
1142.9 1322.6

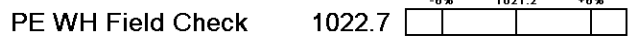
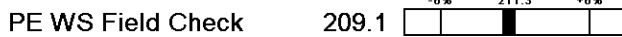
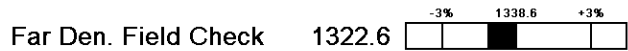
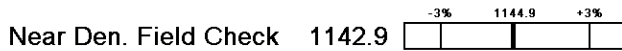
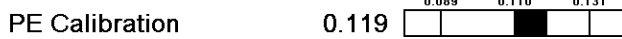
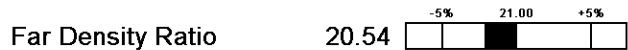
PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	211	1021		
Reference 1	20773	49486	0.424	0.371
Reference 2	5807	19899	0.296	0.272

Field Check at Base  
211.3 1021.2

Field Check  
209.1 1022.7

Photo Density Calibration Tolerances MPD-B 104



Density Constants MPD-B 104

Last Edited on 04-OCT-2016,15:09

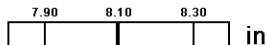
Density Source Id	P50557B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.12	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	
Matrix Density (gm/cc)	Depth (ft)	
2.71	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	

Caliper Calibration MPD-B 104

Base Calibration on 28-AUG-2016 19:51  
Field Calibration on 04-OCT-2016 15:20

Base Calibration Reading No	Measured	Calibrator Size (in)
1	13646	3.99
2	22688	5.98
3	31297	7.97
4	39521	9.86
5	48608	11.92
6	N/A	N/A
Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	8.09	8.10

Caliper Calibration Tolerances MPD-B 104



### DOWNHOLE EQUIPMENT

C:\Minimus 15.03.5939\Logs\O'Brien (LA) Jecha 4 #2\O'Brien (LA) Jecha 4 #2\_001.dta

Cablehead, 11 pin  
CBH-CA 176 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma  
MCG-C 123 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity  
MMR-C.A 247 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron  
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

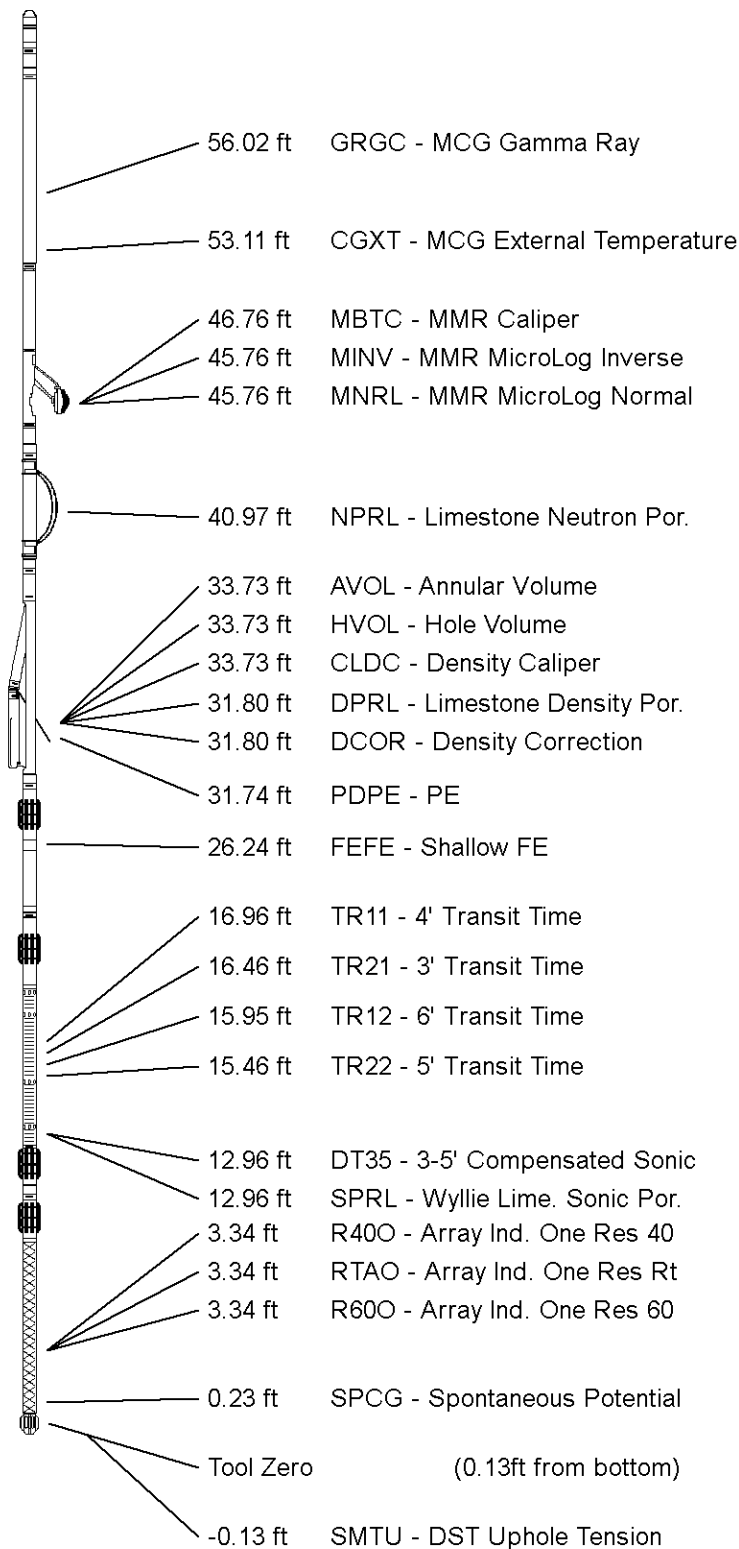
Compact Density/Caliper  
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric  
MFE-B.J 352 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 111 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

O'BRIEN RESOURCES, LLC.

WELL

JECHA 4 #2

FIELD

WILDCAT

PROVINCE/COUNTY

RLISH

PROVINCE/COUNTY / COUNTY  
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2083.00	feet	First Reading	3905.00	feet
Elevation Drill Floor	2081.00	feet	Depth Driller	3907.00	feet
Elevation Ground Level	2070.00	feet	Depth Logger	3908.00	feet



**Weatherford**<sup>®</sup>

COMPOSITE LOG