



Weatherford[®]

**CML IMPULSE SHUTTLE
ARRAY INDUCTION
ELECTRIC LOG**

COMPANY	SANDRIDGE ENERGY		
WELL	FALDTZ 2231 2-26H		
FIELD	STEWART		
PROVINCE/COUNTY	FINNEY		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	2640' FSL & 2200' FEL		
SEC 26	TWP 22S	RGE 31W	Other Services MPD/MDN
Longitude	15-055-222570100		
API Number	Permanent Datum G.L., Elevation 2890 feet		
Log Measured From	KB		
Drilling Measured From	K.B. @ 11 FEET		
Date	20-JAN-2014		Elevations: KB 2901.00 DF 2901.00 GL 2890.00
Run Number	ONE		
Service Order	3441-77442537		
Depth Driller	6979.00	feet	
Depth Logger	6979.00	feet	
First Reading	6964.00	feet	
Last Reading	5493.00	feet	
Casing Driller	5492.00	feet	
Casing Logger	5493.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WBM		
Density / Viscosity	9.40	lb/USg	37.00 CP
PH / Fluid Loss	9.30		
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.80 @ 70.0	ohm-m	
Rmf @ Measured Temp	1.35 @ 70.0	ohm-m	
Rmc @ Measured Temp	2.70 @ 70.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.99 @ 129.0	ohm-m	
Time Since Circulation	1.5 HOUR		
Max Recorded Temp	129.00	deg F	
Equipment / Base	18077	OKC	
Recorded By	M. JOHNSON		
Witnessed By	W. SCOTT		

BOREHOLE RECORD			Last Edited: 21-JAN-2014 07:00
Bit Size inches	Depth From feet	Depth To feet	
12.750	0.00	1870.00	
8.750	1870.00	5493.00	
6.125	5493.00	6979.00	

CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	1870.00	36.00
INTERMED	7.000	800.00	5493.00	26.00

REMARKS

LOGGED WITH WLS_13.06.9804 SOFTWARE

LOGGED USING IMPULSE METHOD OF DEPLOYMENT AND MEMORY LOGGING SYSTEM

LOGGED WITH ADVANTAGE DEPTH SYSTEM _CORRECTED BACK TO PIPE STRAP

LOGGING STRING: SMR-148,SER-184,MBS-131, MTI-076,MGS-108,MCL-049,SKJ-472,SHA-472,MISD-606,MDN-391,MPD-395,MISD-435,SHA-438,SKJ-438,MISE-572,MFE-395,MISE-575,MAI-170

HARDWARE: MAI: MISE 0.5 INCH STANDOFF ABOVE AND ISA 0.5 INCH STANDOFF BELOW
MFE: MISE 0.5 INCH STANDOFF ABOVE
MPD: 4" PROFILE PLATE, MISD SINGLE BOWSPRING DECENTRALIZER BELOW
MDN: MISD DOUBLE BOWSPRING DECENTRALIZER ABOVE

2.71 G/CC DENSITY MATRIX USED TO CALCULATE DENSITY POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST

FRESH WATER WAS BEING USE TO FILL HOLE

DRILL PIPE DEPTH DURING DEPLOYMENT - 6880
 LOGGING TOOL DEPTH AFTER DEPLOYMENT - 6965

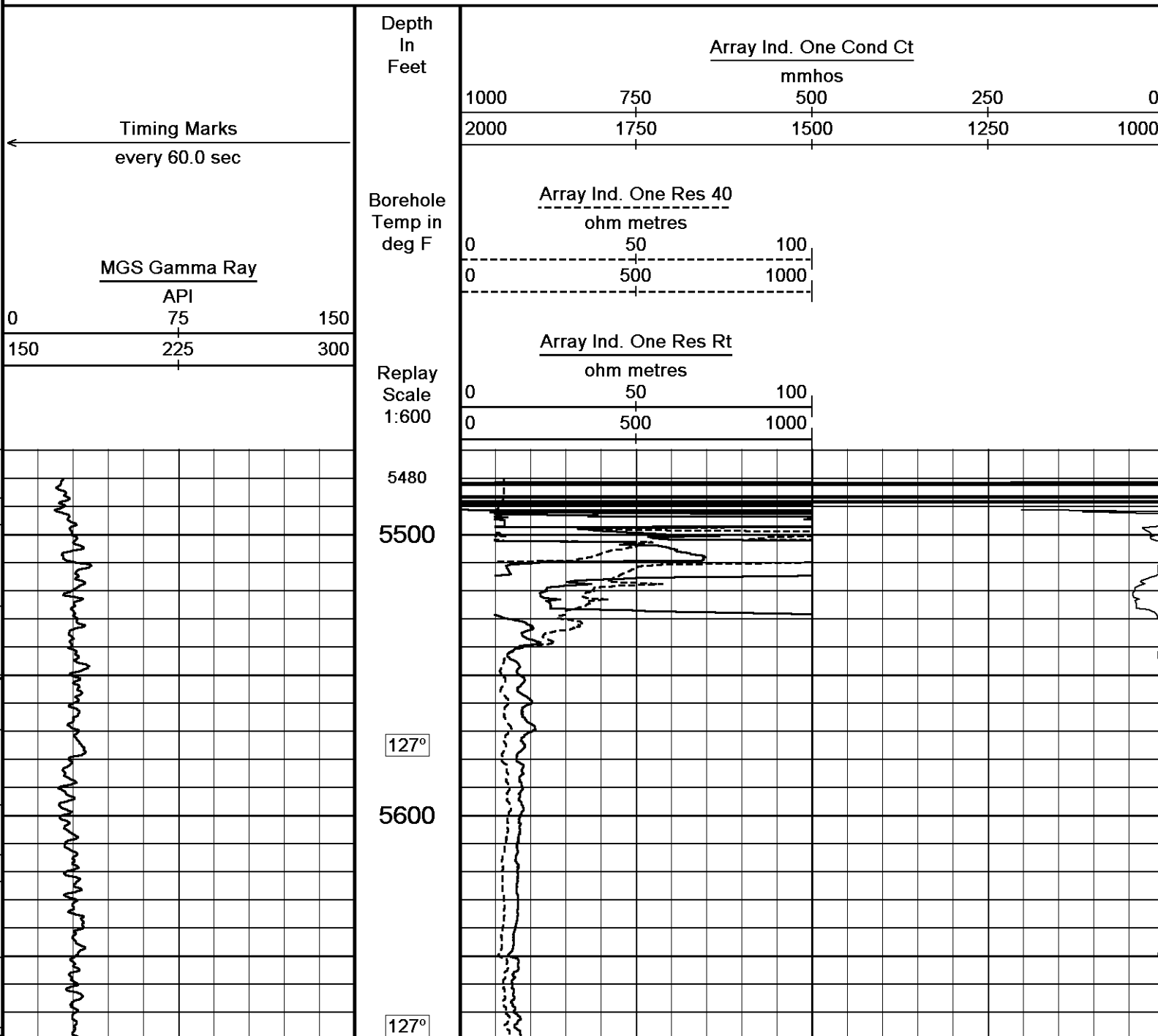
SERVICE ORDER #3441-77442537
 RIG: HORIZON #4

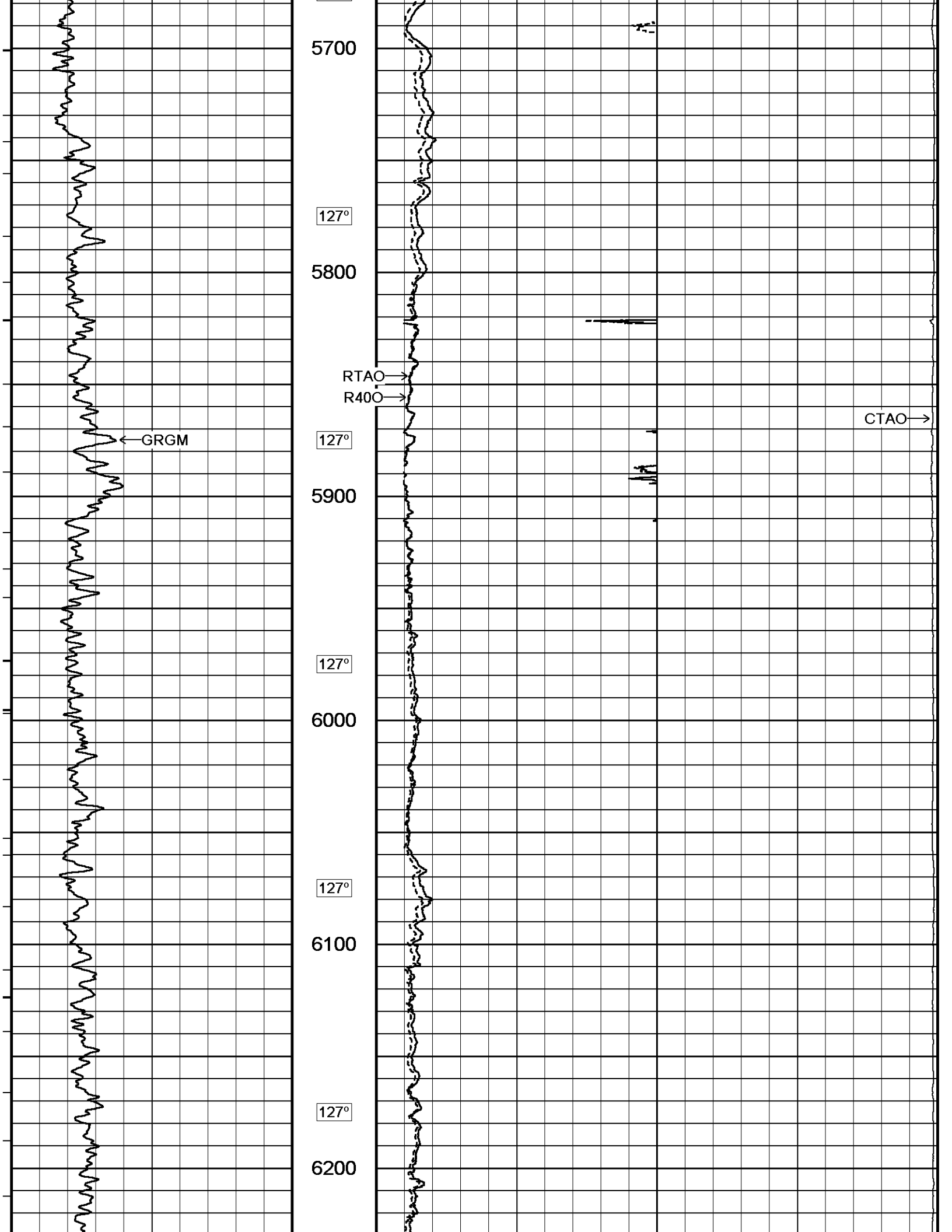
OPERATERS: R. BRADSHAW, B. BALLINGER

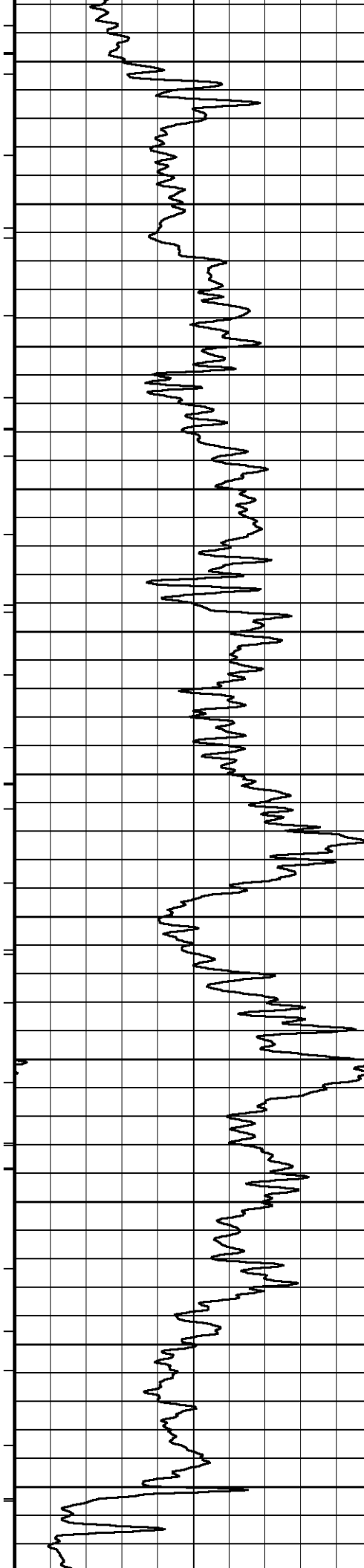
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

5 INCH MAIN LOG

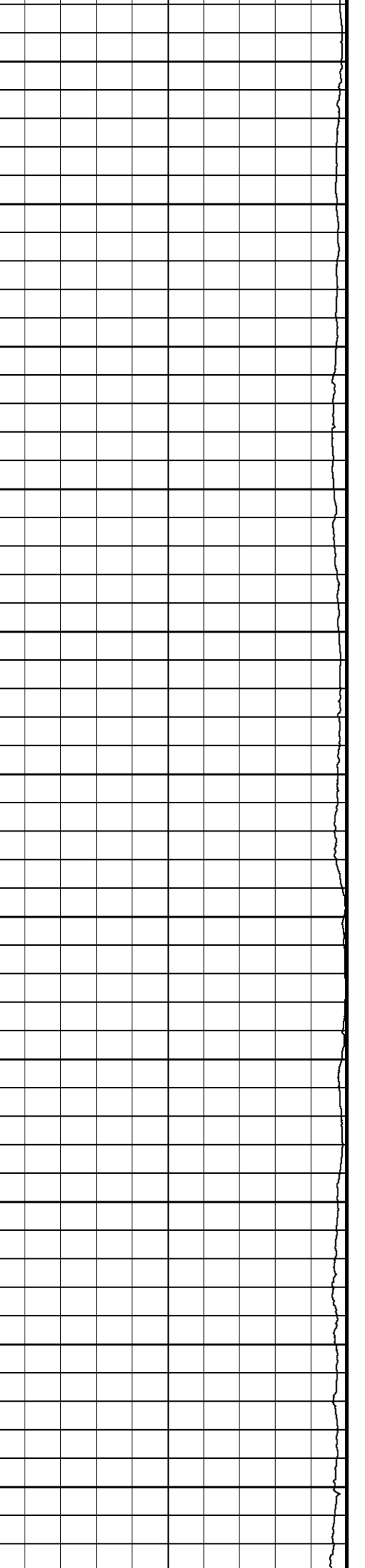
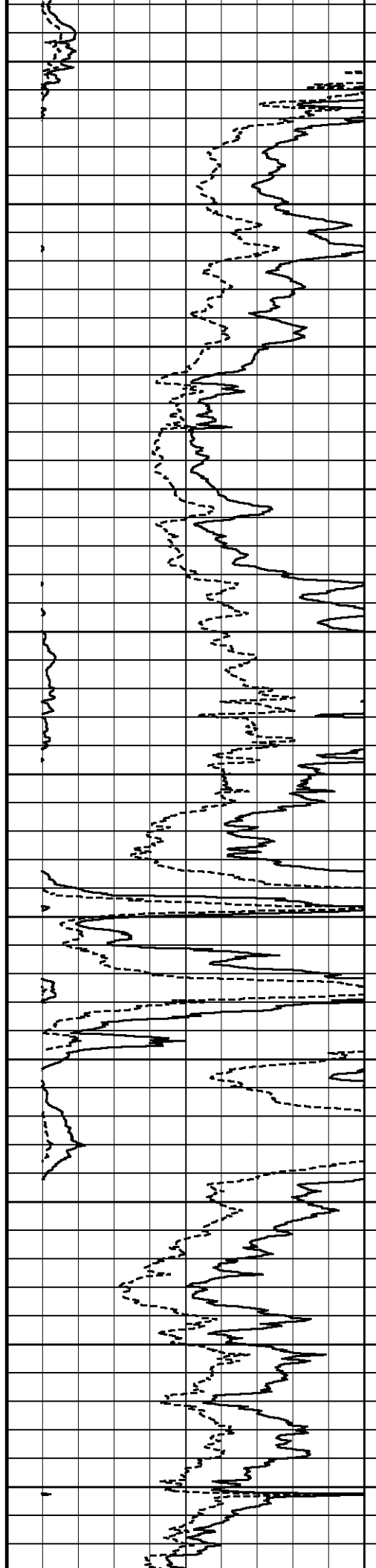
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 System Versions: Processed with 13.06.9804 Plotted with 13.06.9804

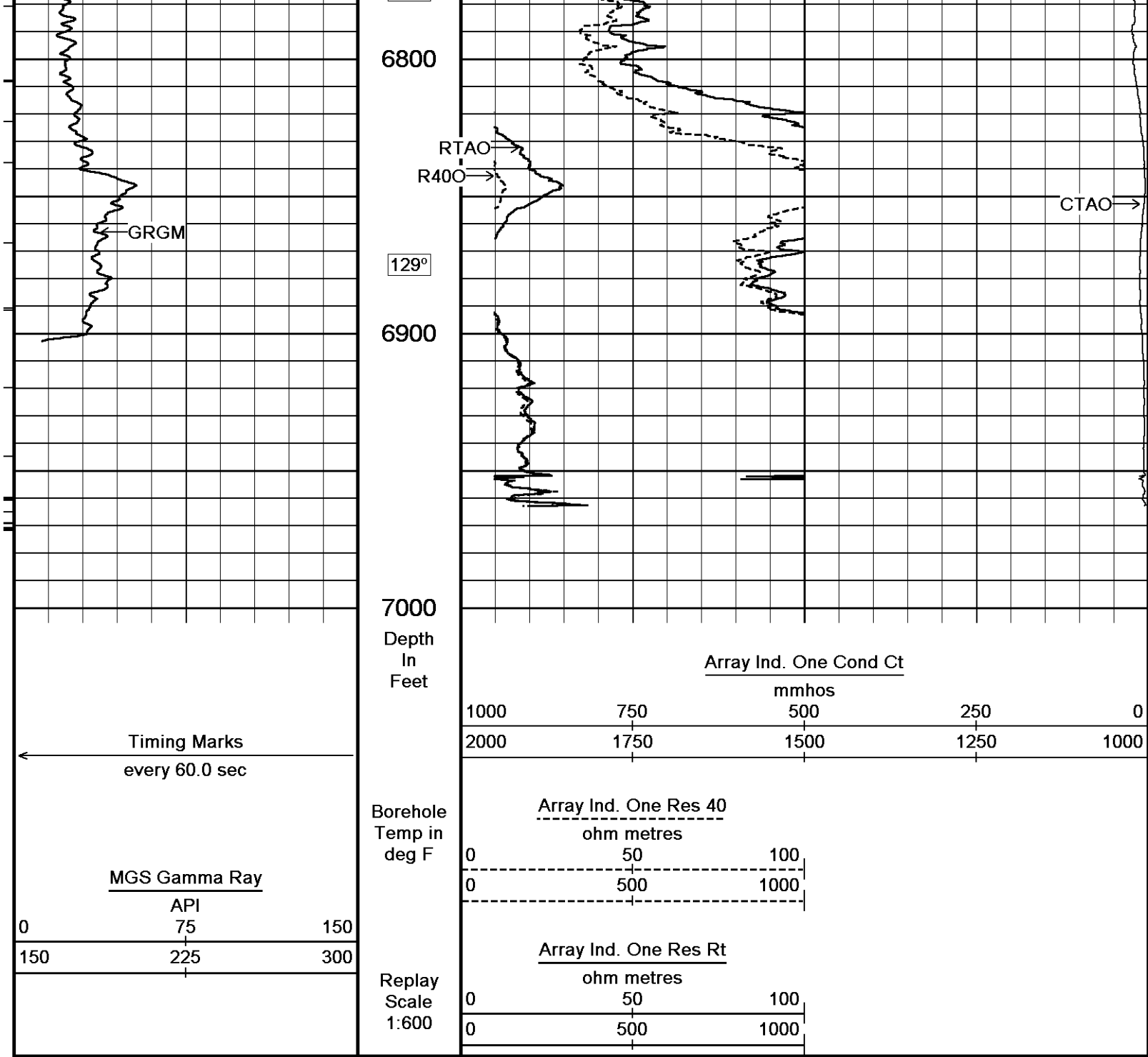






126°
6300
125°
6400
125°
6500
124°
6600
124°
6700
124°





Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\DATA\Sandridge_Fal dtz 2231 2-26H\Fal dtz 2231 2-26H_Rtap.dta
 System Versions: Processed with 13.06.9804 Plotted with 13.06.9804

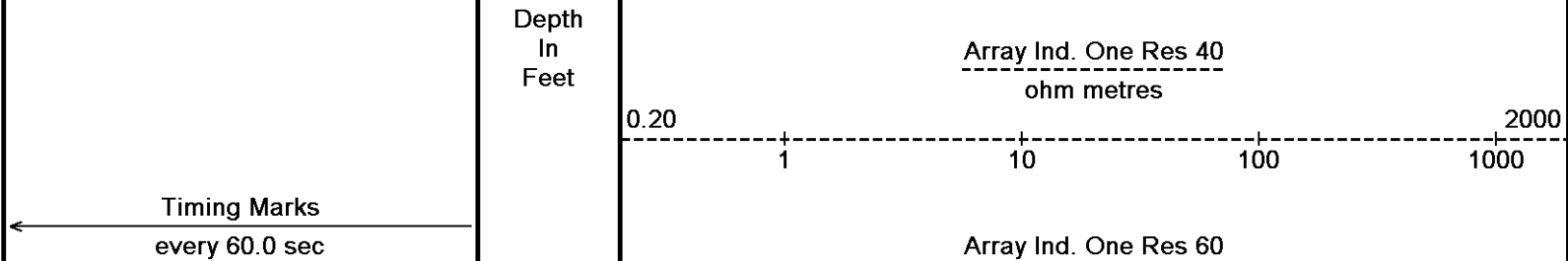
Plotted on 16-APR-2014 12:05
 Recorded on 21-JAN-2014 05:30

5 INCH MAIN LOG

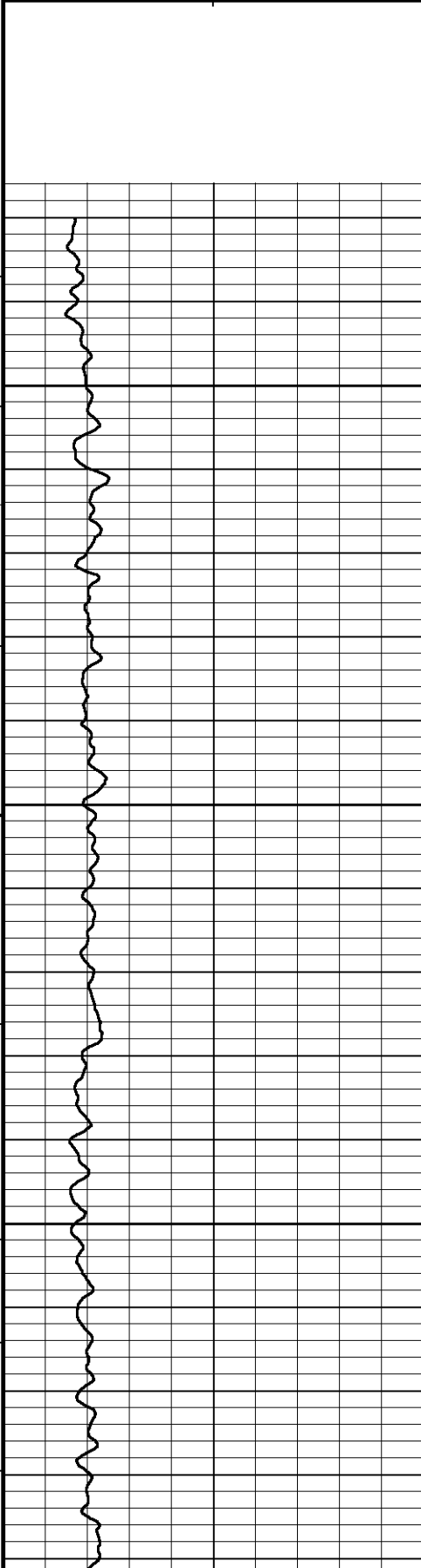
5 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\DATA\Sandridge_Fal dtz 2231 2-26H\Fal dtz 2231 2-26H_Rtap.dta
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Plotted on 16-APR-2014 12:05
 Recorded on 21-JAN-2014 05:30



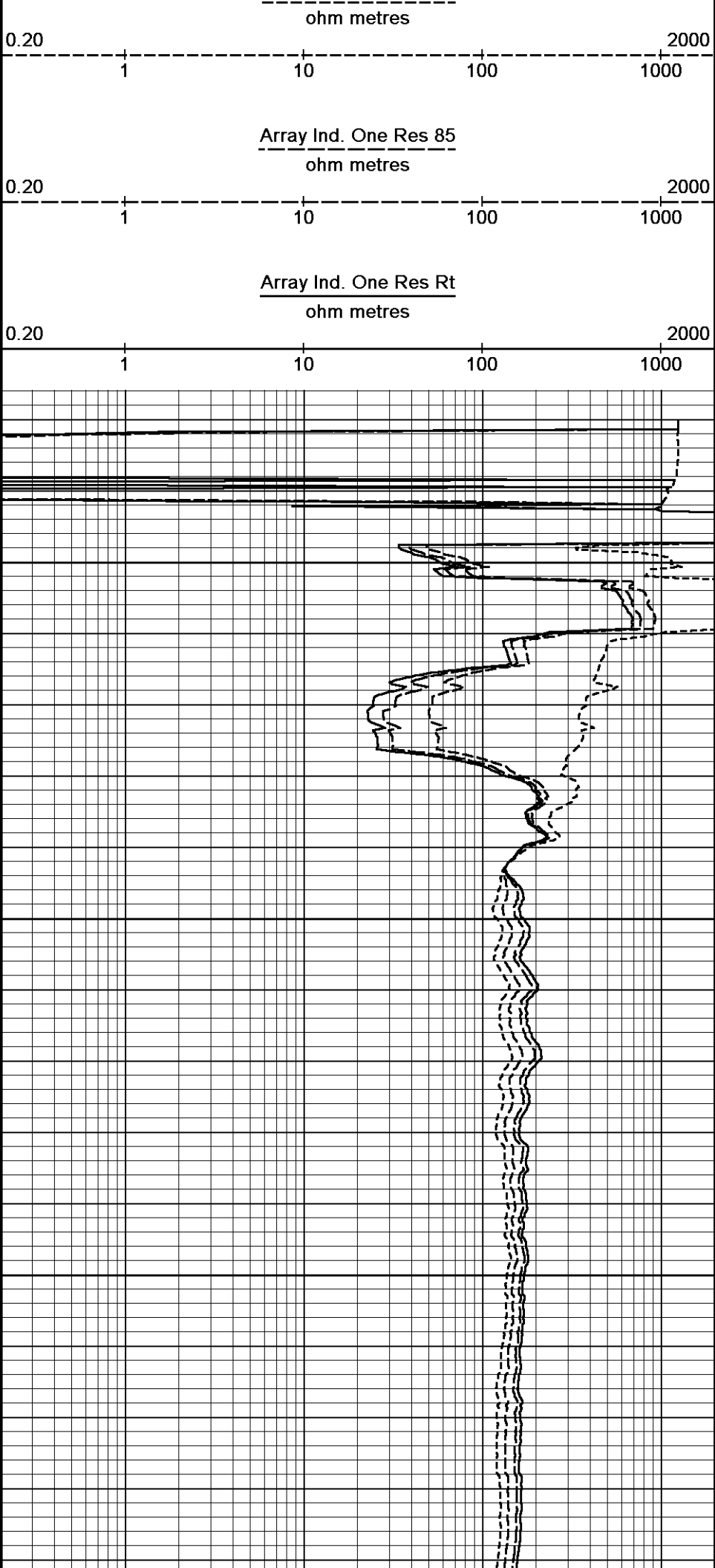
MGs Gamma Ray
 API
 0 75 150
 150 225 300

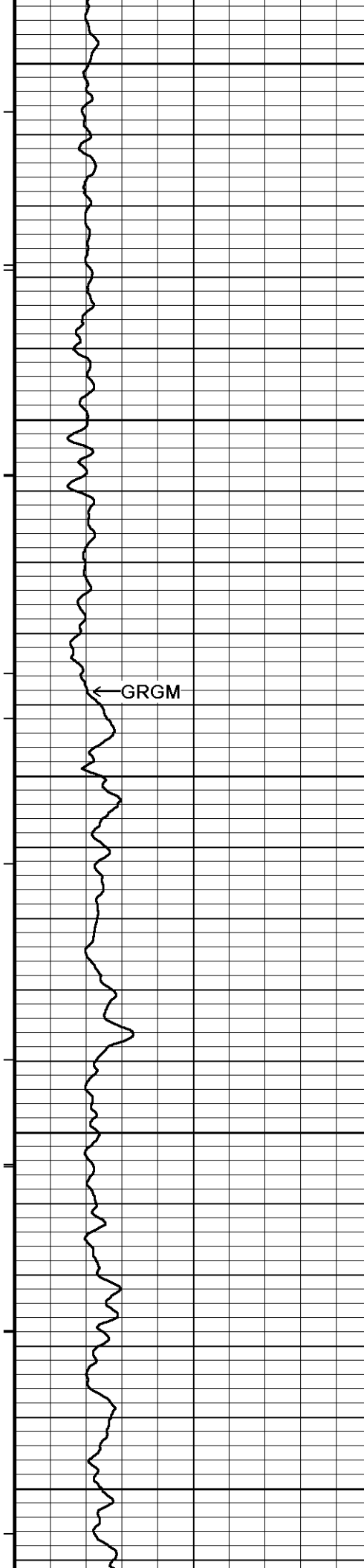


Borehole
 Temp in
 deg F

Replay
 Scale
 1:240

5478
 5500
 127°
 5550
 127°
 5600
 127°





5650

127°

5700

127°

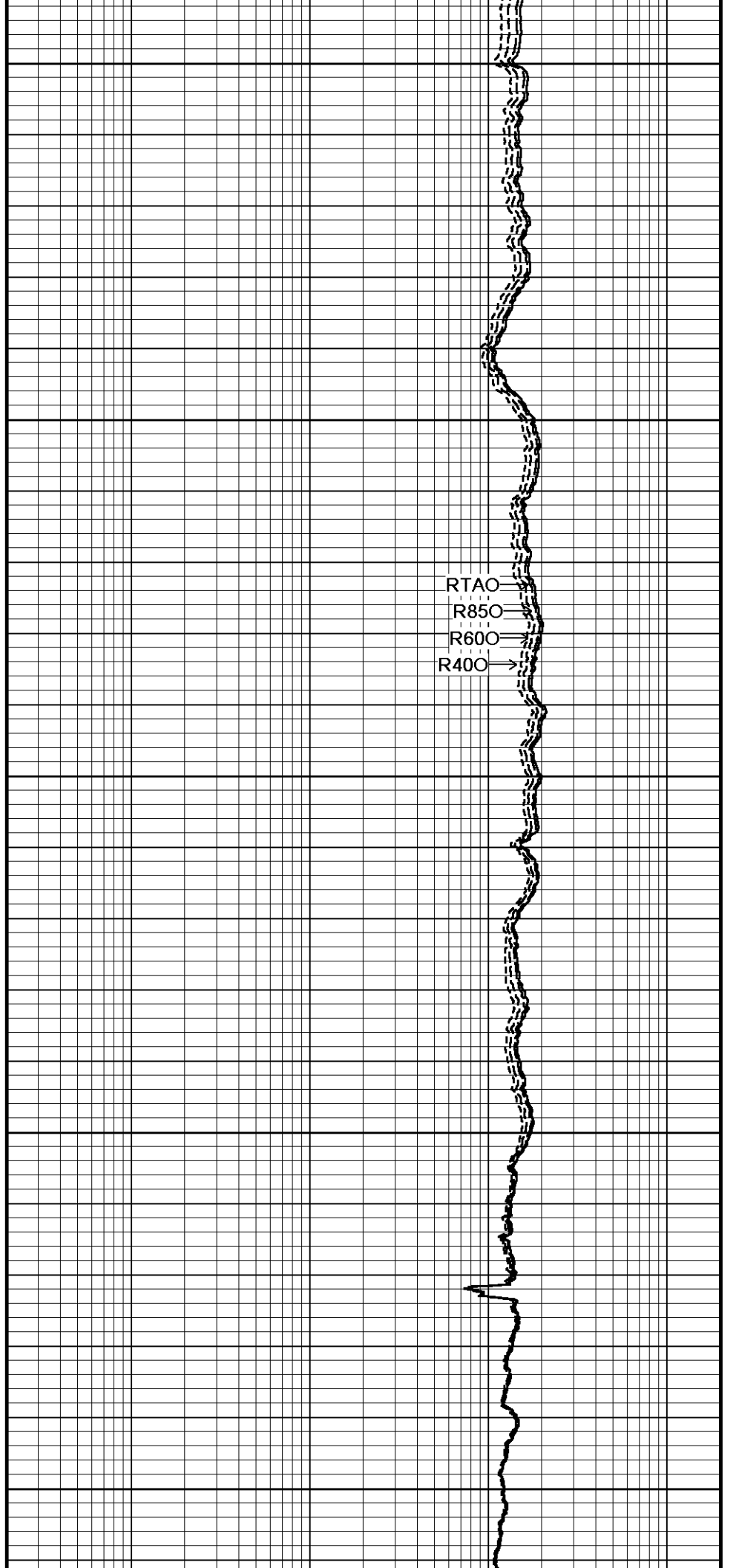
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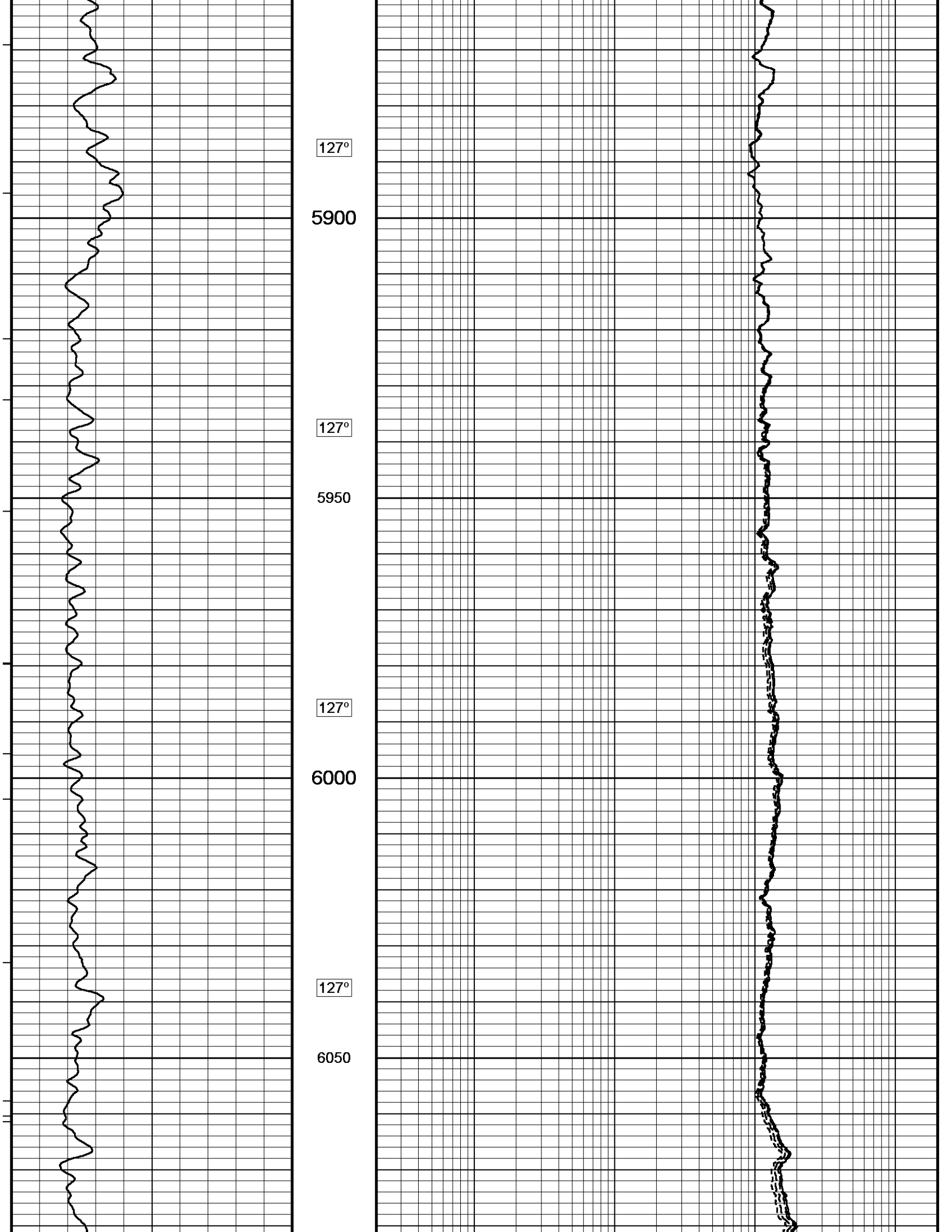
127°

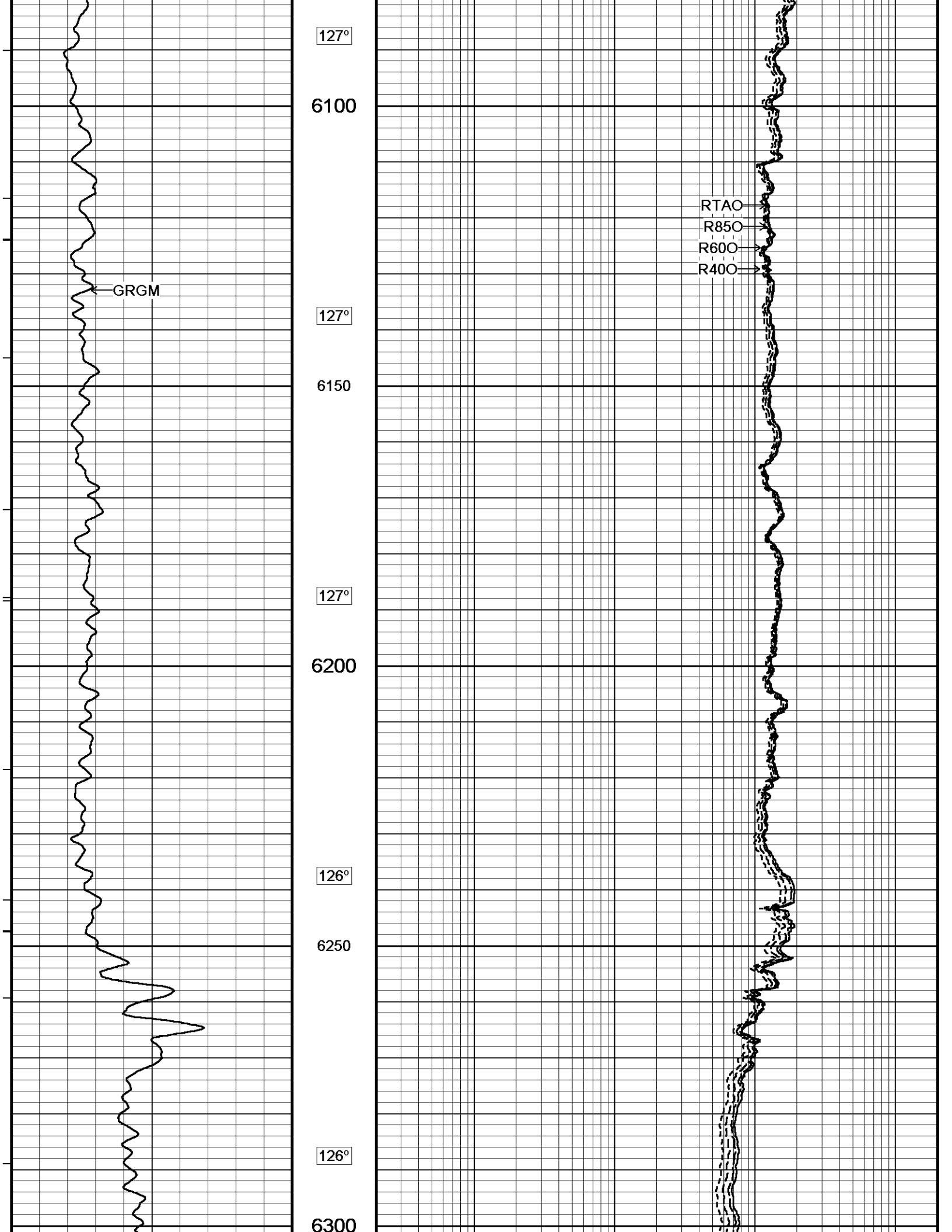
5800

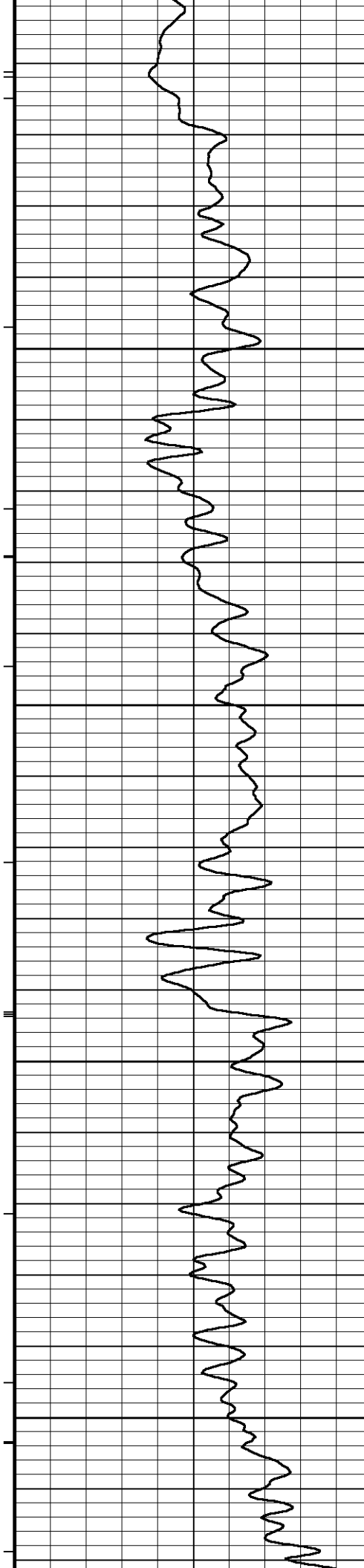
127°

5850









125°

6350

125°

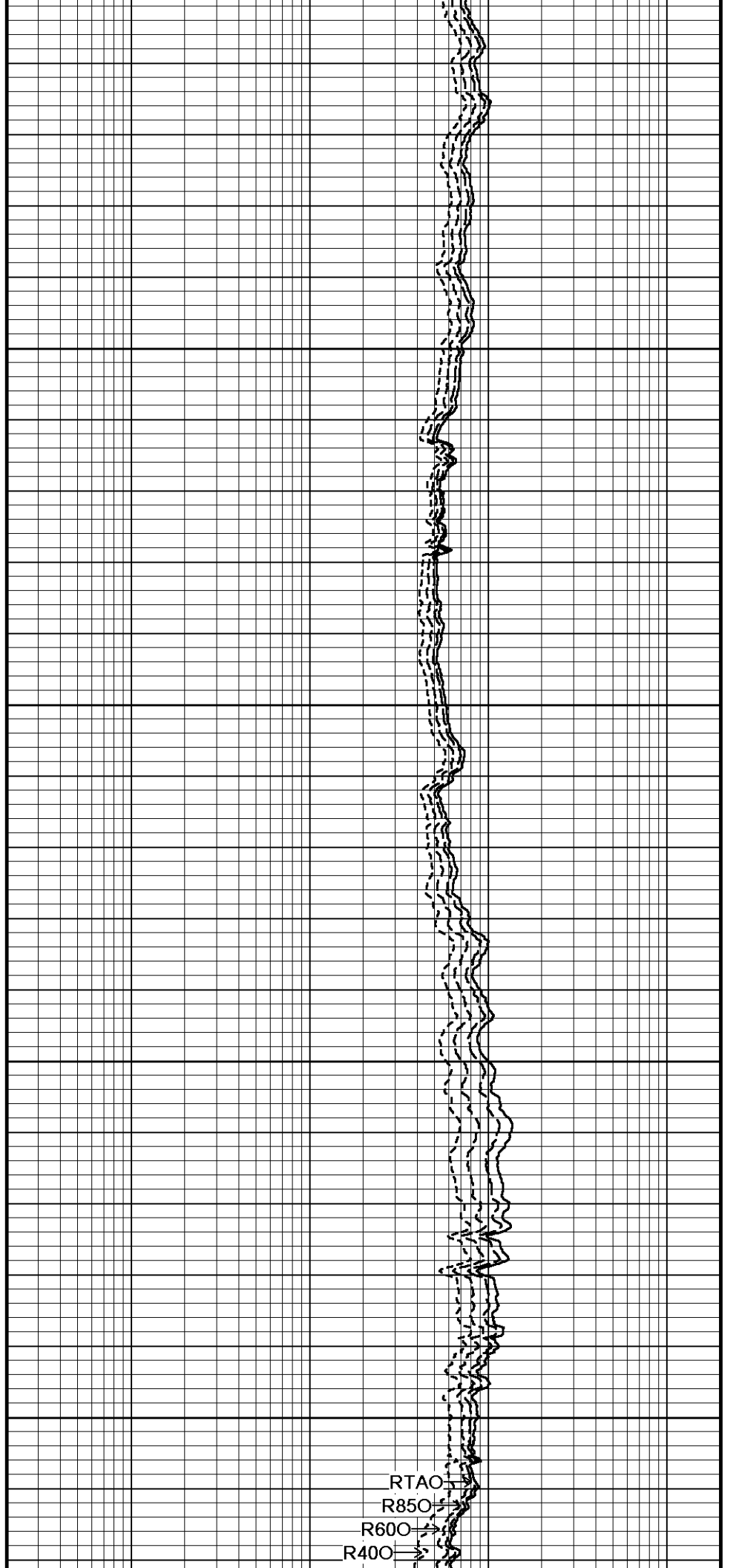
6400

125°

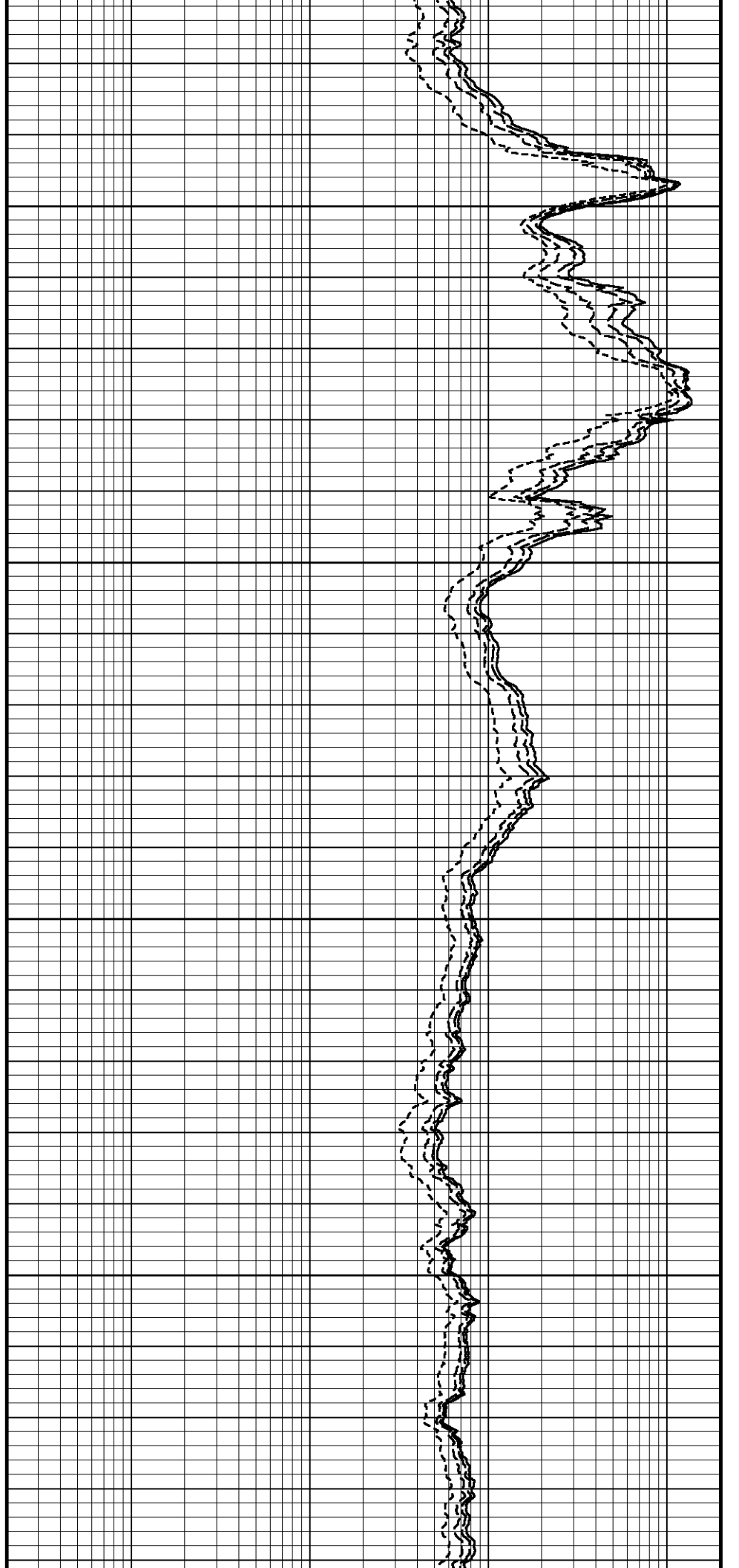
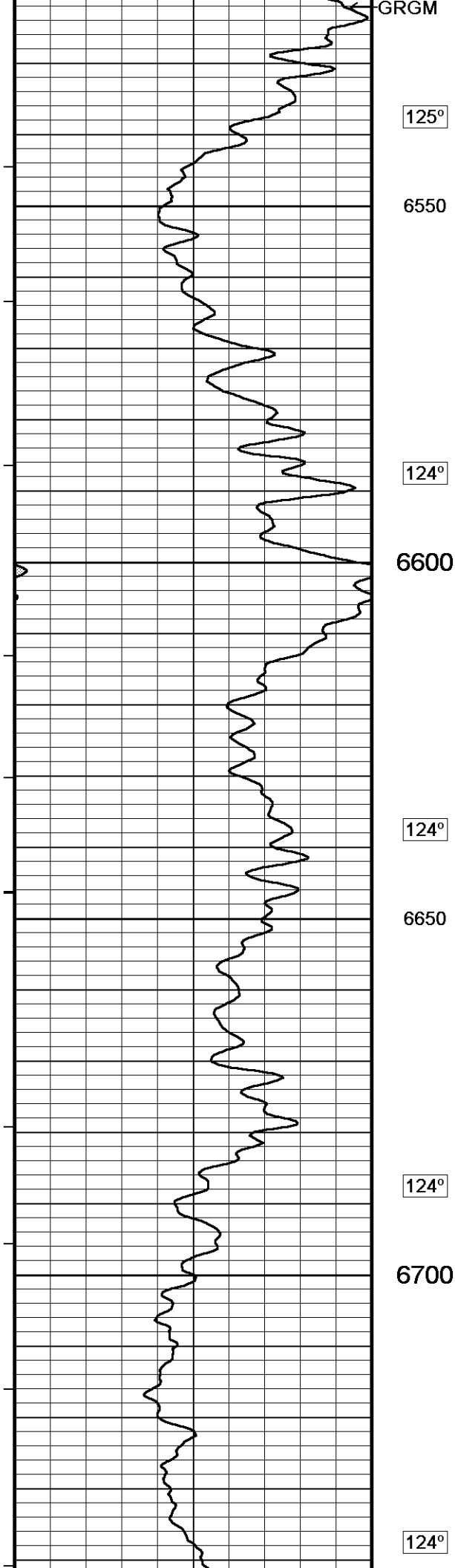
6450

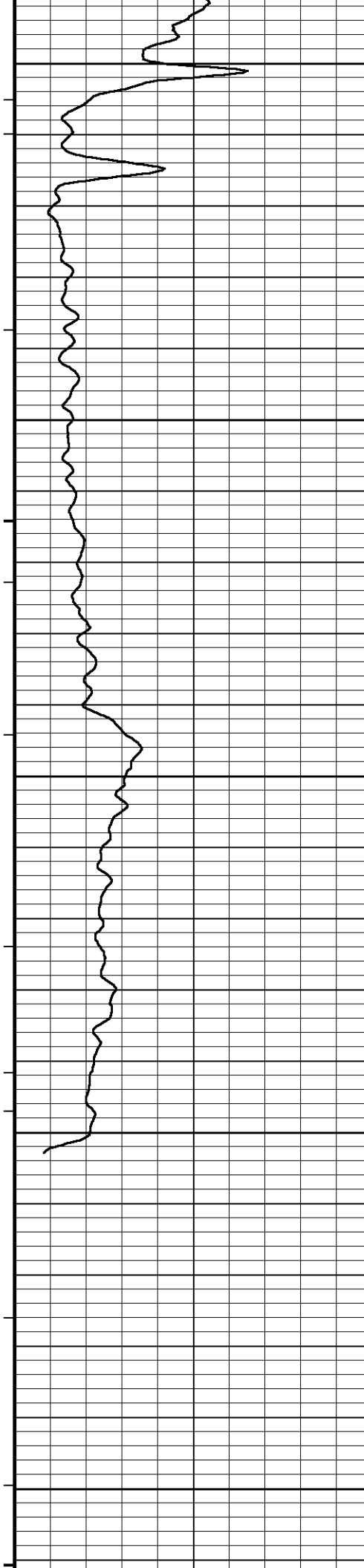
125°

6500



RTAO
R850
R600
R400





6750

125°

6800

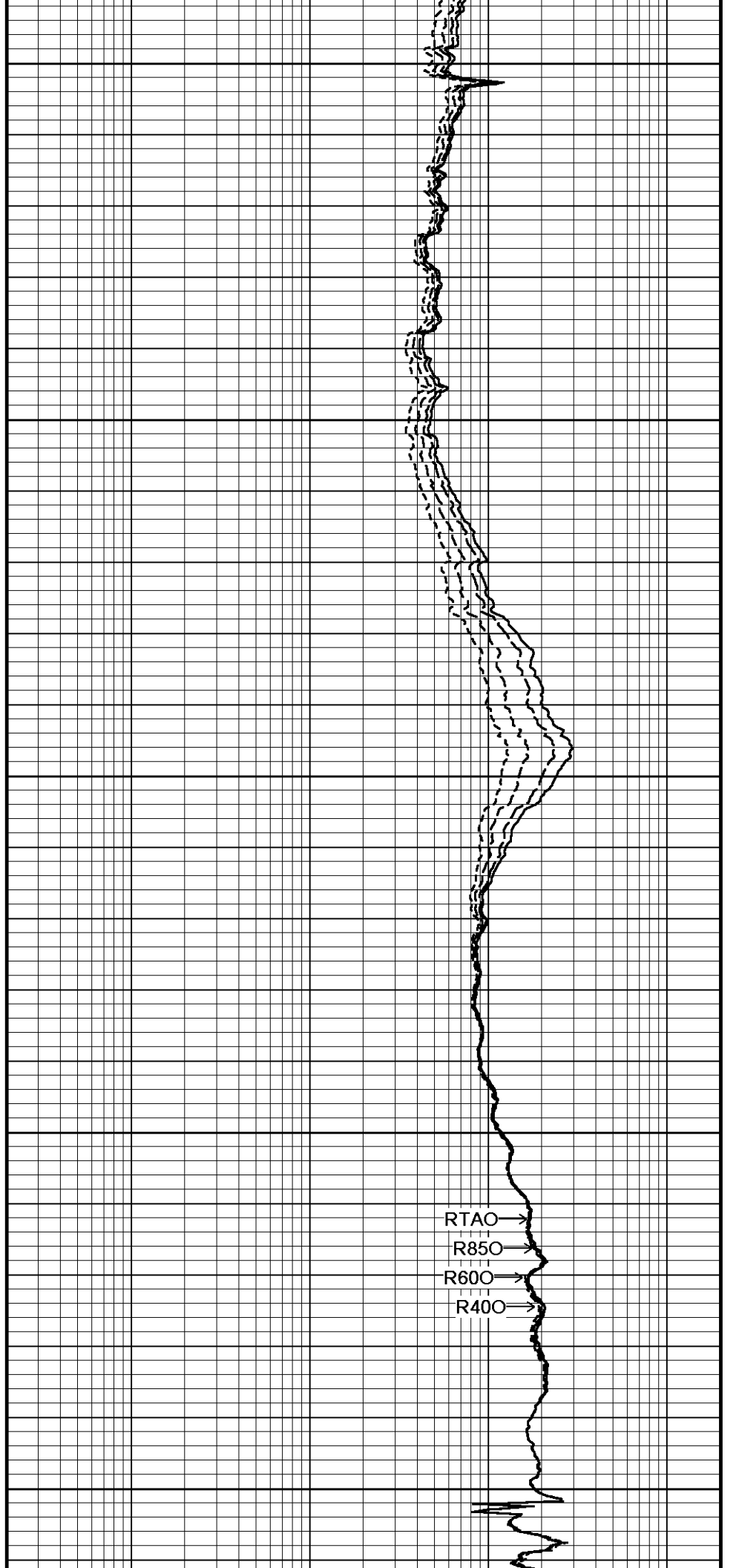
127°

6850

129°

6900

6950

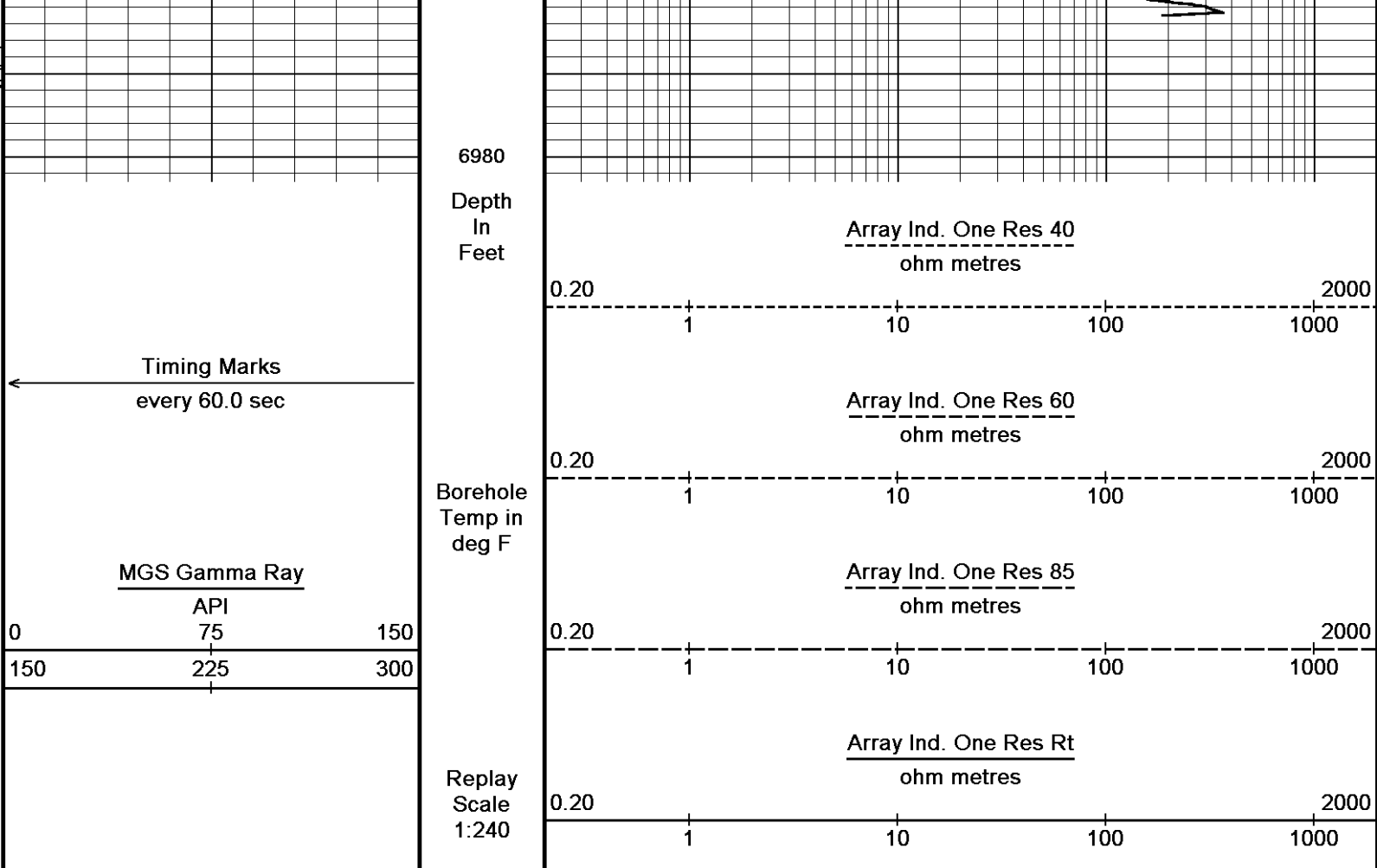


RTAO →

R850 →

R600 →

R400 →



Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 16-APR-2014 12:05
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↑ 5 INCH MAIN LOG ↑

BEFORE SURVEY CALIBRATION

C:\DATA\Sandridge_Faldtz 2231 2-26H\Faldtz 2231 2-26H_Rtap.dta

General Constants All 000 Last Edited on 21-JAN-2014,05:43

General Parameters		
Mud Resistivity	1.800	ohm-metres
Mud Resistivity Temperature	70.000	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	Density Caliper	
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 06-MAY-2013,07:48

Reading No	Measured	Calibrated (lbs)
1	12115.60	0.00
2	13815.60	500.00

Strain Gauge Constants SER-B.A 184

Last Edited on

Atmospheric Pressure	14.70	psi
Serial Number	0	
Calibration Date	000000000000	
Base Check Date		
Dead Weight Serial Number	0	
Dead Weight Gravitational Correction	1.0	
Temperature	75.0	150.0
	250.0	350.0
Pressure psia	Inc.	Dec.
	Inc.	Dec.
0.0	0.000	0.000
2000.0	0.000	0.000
4000.0	0.000	0.000
6000.0	0.000	0.000
8000.0	0.000	0.000
10000.0	0.000	0.000

Strain Gauge Constants MMS-F.A 259

Last Edited on

Atmospheric Pressure	14.70	psi
Serial Number	0	
Calibration Date	000000000000	
Base Check Date		
Dead Weight Serial Number	0	
Dead Weight Gravitational Correction	1.0	
Temperature	75.0	150.0
	250.0	350.0
Pressure psia	Inc.	Dec.
	Inc.	Dec.
0.0	0.000	0.000
2000.0	0.000	0.000
4000.0	0.000	0.000
6000.0	0.000	0.000
8000.0	0.000	0.000
10000.0	0.000	0.000

Gamma Calibration MGS-C.J 108

Field Calibration on 20-JAN-2014,11:18

	Measured	Calibrated (API)
Background	38	27
Calibrator (Gross)	1260	884
Calibrator (Net)	1222	857

Gamma Constants MGS-C.J 108

Last Edited on 21-JAN-2014,05:43

Gamma Calibrator Number	GRCG073	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

SP Calibration MGS-C.J 108

Field Calibration on 13-JUN-2013,17:01

	Measured	Calibrated (mV)
Reference 1	100.0	100.0
Reference 2	-100.0	-100.0

High Resolution Temperature Calibration MGS-C.J 108

Field Calibration on 13-JUN-2013,17:01

	Measured	Calibrated(Deg F)
Lower	0.00	0.00
Upper	0.00	0.00

High Resolution Temperature Constants MGS-C.J 108

Last Edited on 13-JUN-2013,17:01

Pre-filter Length	11
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Neutron Calibration MDN-B.J 391

Base Calibration on 07-JAN-2014 12:00
Field Check on 20-JAN-2014,03:10

Base Calibration		
	Measured	Calibrated (cps)
	Near	Near
	Far	Far

Ratio	3232	33.134	98	3714	33.764	110
Field Calibrator at Base				Calibrated (cps)		
Ratio				1960	2952	
Field Check				Calibrated (cps)		
Ratio					0.664	

Neutron Constants MDN-B.J 391				Last Edited on 21-JAN-2014,05:44		
Neutron Source Id			N1055			
Neutron Jig Number			N639			
Epithermal Neutron			No			
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		Constant Value				
Formation Pressure			0.00	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-C.A 395				Base Calibration on 17-OCT-2013,12:24 Field Check on 20-JAN-2014 03:00		
Base Calibration		Measured		Calibrated (ohm-m)		
Reference 1			0.0	0.0		
Reference 2			972.5	126.8		
Base Check				279.1		
Field Check				278.7		

FE Constants MFE-C.A 395				Last Edited on 21-JAN-2014,05:45		
Running Mode			No Sleeve			
MFE K Factor			0.1268			
Caliper Source for FE correction		Density Caliper				
Caliper Value for FE correction			N/A	inches		
Rm Source for FE correction		Constant Value				
Temp. for Rm Corr.			N/A			
Stand-off			Centred	inches		

High Resolution Temperature Calibration MAI-A.A 170				Field Calibration on 15-FEB-2012 01:37		
		Measured		Calibrated(Deg F)		
Lower			1.00	1.00		
Upper			100.00	100.00		

High Resolution Temperature Constants MAI-A.A 170				Last Edited on		
Pre-filter Length			11			

Induction Calibration MAI-A.A 170				Base Calibration on 02-FEB-2012 17:42 Field Check on 20-JAN-2014 02:58		
Base Calibration						
Test Loop Calibration		Measured		Calibrated (mmho/m)		
Channel		Low	High	Low	High	
1		17.7	487.1	9.3	966.2	
2		6.2	384.7	7.6	821.4	
3		3.7	266.1	5.2	566.0	
4		2.2	136.5	2.6	279.2	

Array Temperature	72.1		Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			10.7	3752.6
2			29.8	3529.8
3			27.4	2997.5
4			18.6	2042.9
Deep			15.5	1905.6
Medium			41.2	3981.8
Shallow			46.2	5291.6
Array Temperature			48.3	Deg F

Induction Constants MAI-A.A 170

Last Edited on 21-JAN-2014,05:45

Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Density Caliper		
Hole Size for Borehole Correction	N/A	inches	
Tool Centred	No		
Stand-off Type	Fins		
Stand-off	0.50	inches	
Number of Fins on Stand-off	6.0000		
Stand-off Fin Angle	60.00	degrees	
Stand-off Fin Width	0.5000	inches	
Borehole Corr. Rm Source	Temperature Corr		
Temp. for Rm Corr.	Borehole Temp. Unfilt.		
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-C.J 395

Base Calibration on 07-JAN-2014 10:39
Field Calibration on 20-JAN-2014 03:07

Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	16176	4.00	
2	25615	5.98	
3	35504	7.96	
4	45616	9.86	
5	56208	11.87	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.96	6.00	

Photo Density Calibration MPD-C.J 395

Base Calibration on 07-JAN-2014 10:29
Field Check on 20-JAN-2014 03:04

Density Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Base Calibration				
Reference 1	49915	23413	59494	30754
Reference 2	21240	2169	26398	2598
Field Check at Base				
	982.9	1076.3		
Field Check				
	983.9	1073.9		

PE Calibration	Base Calibration	Measured		Calibrated
		WS	WH	Ratio
	Background	179	883	
	Reference 1	21106	49761	0.428
	Reference 2	6161	21134	0.295
	Field Check at Base			
		179.0	882.8	
	Field Check			
		181.1	884.5	

Density Constants MPD-C.J 395

Last Edited on 21-JAN-2014,05:44

Density Source Id	236	
Nylon Calibrator Number	DNCE766	
Aluminium Calibrator Number	DHCG856	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	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	

DOWNHOLE EQUIPMENT

C:\DATA\Sandridge_Faldtz 2231 2-26H\Faldtz 2231 2-26H_Rtap.dta

Shuttle Mechanical Release (SMR A)
SMR-A 148 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
SER-B.A 184 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 131 LG: 10.61 ft WT: 70.5 lb OD: 2.24 in

Compact Memory Sub F.A
MMS-F.A 259 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in



Compact Tool Isolator sub.
MTI-B.A 76 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 108 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 49 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 472 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 472 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 606 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 391 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.J 395 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 435 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 438 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

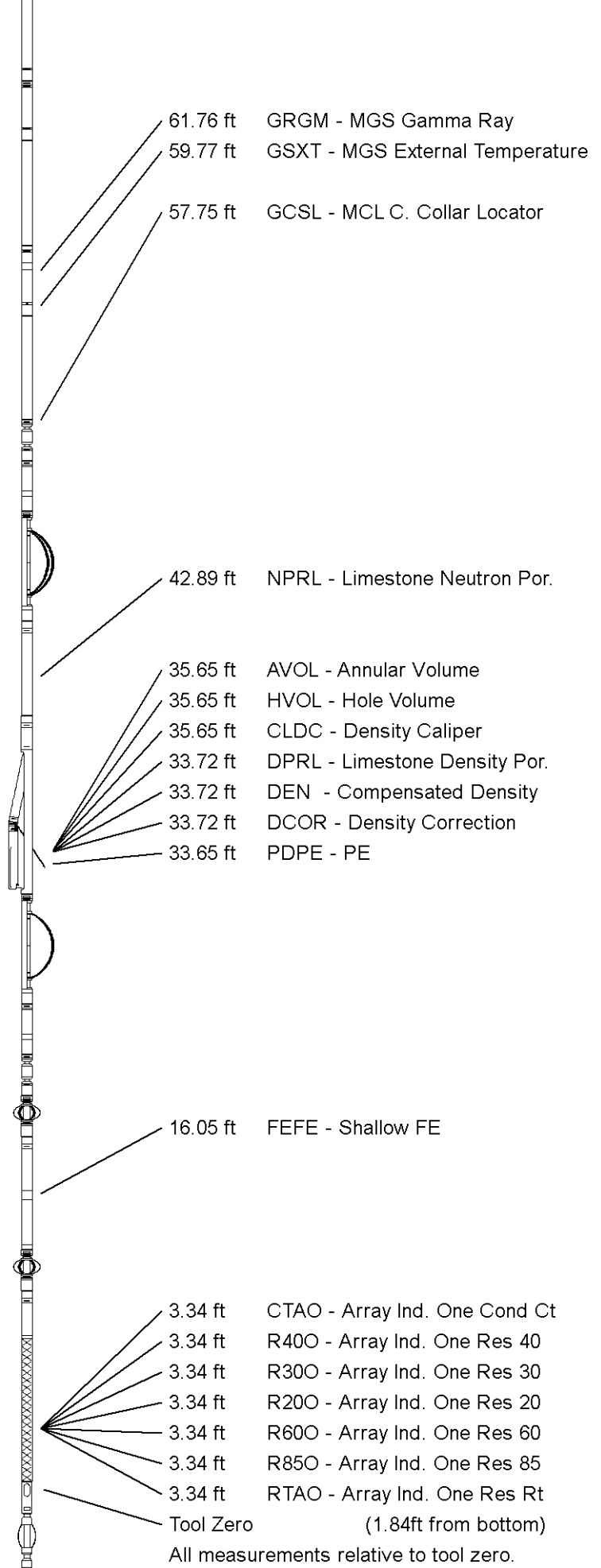
MIS-E.B Compact Inline Standoff sub
MIS-E.B 572 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-C.A 395 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 575 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-A.A 170 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 97.17 ft Weight: 727.5 lb



WELL
FIELD
PROVINCE/COUNTY
COUNTRY/STATE

FALDTZ 2231 2-26H
STEWART
FINNEY
U.S.A. / KANSAS

Elevation Kelly Bushing 2901.00 feet
Elevation Drill Floor 2901.00 feet
Elevation Ground Level 2890.00 feet

First Reading 6964.00 feet
Depth Driller 6979.00 feet
Depth Logger 6979.00 feet



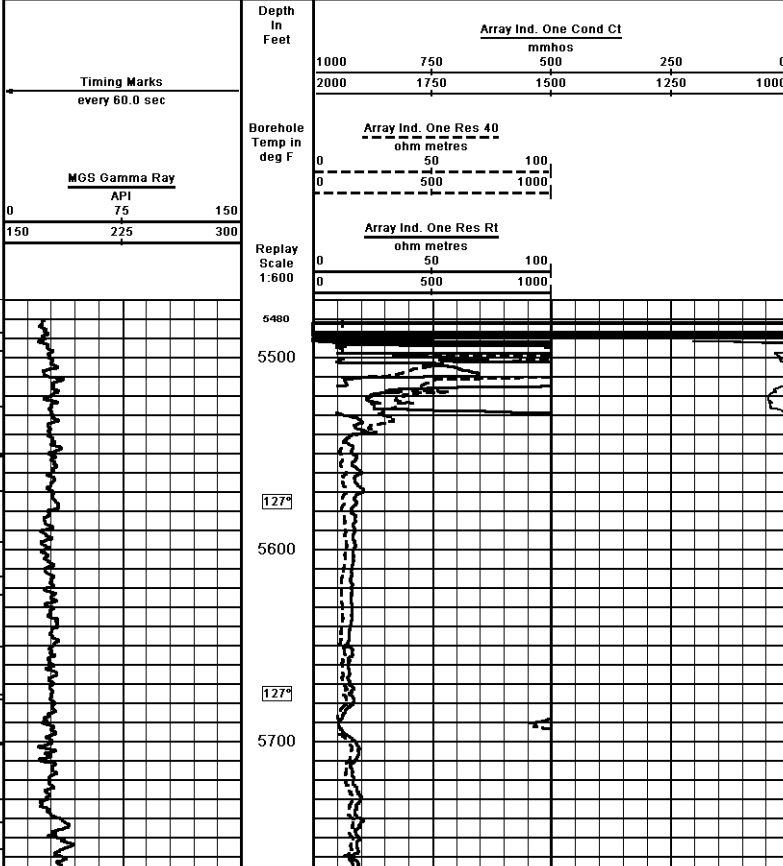
CML IMPULSE SHUTTLE
ARRAY INDUCTION
ELECTRIC LOG

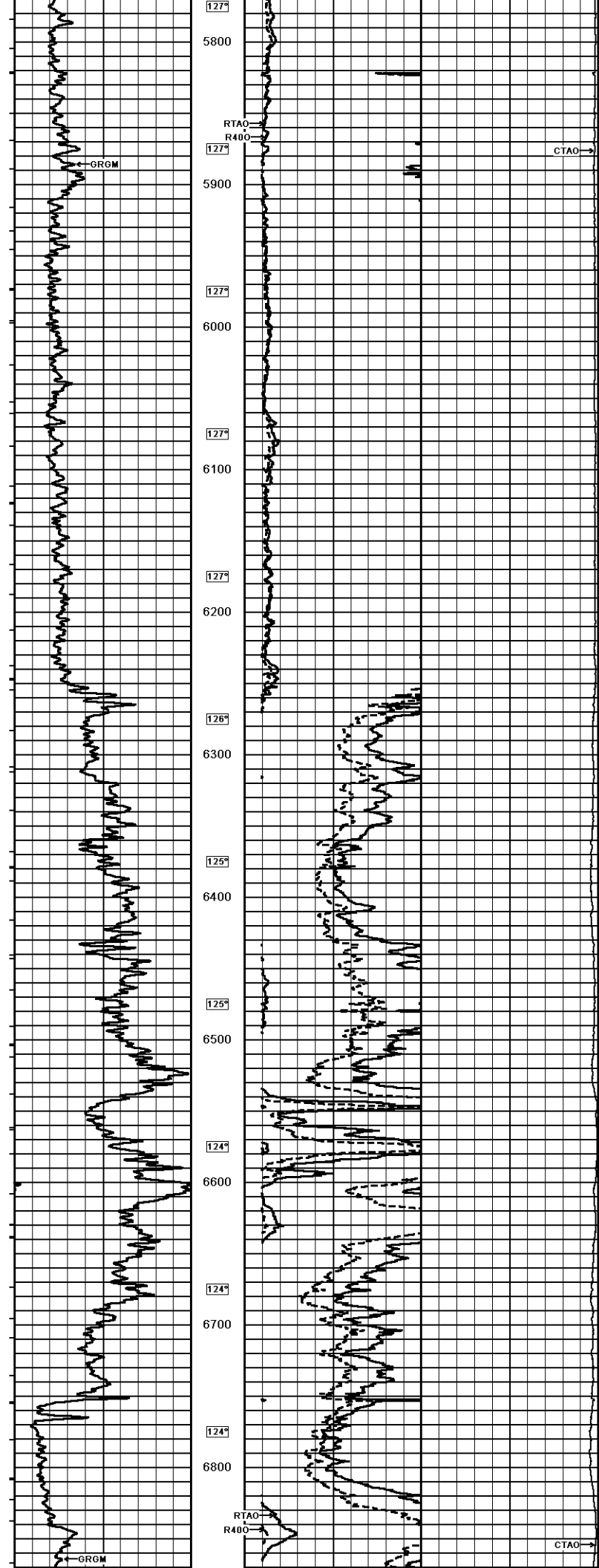
Weatherford[®]

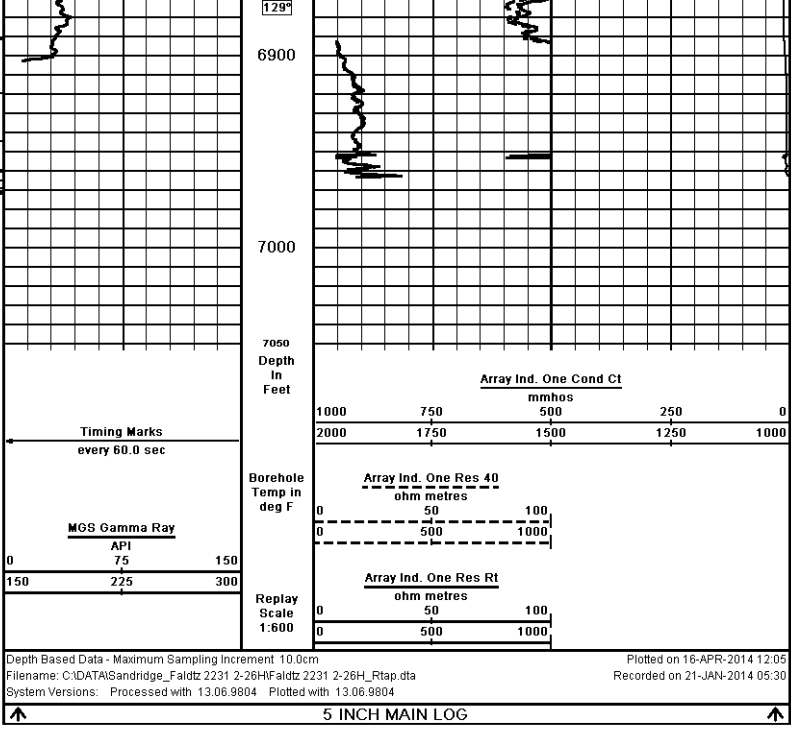
Weatherford		CML IMPULSE SHUTTLE ARRAY INDUCTION ELECTRIC LOG	
COMPANY	SANDRIDGE ENERGY	Well Number	15-065-2257000
WELL	FALDTZ 2231 2-26H	Permanent Datum O.L., Elevation	2890 feet
PROVINCE/COUNTY	FINNEY	Log Measured From KB	@ 11 FEET
COUNTRY/STATE	U.S.A. / KANSAS	Drilling Measured From KB	@ 11 FEET
LOCATION	2640' ESU & 2200' FEL	Date	20-JAN-2014
SEC 26	TWP 23S	RANGE	31W
SECTION	11E	OWNER/SOURCES	MCDONN
Latitude		Longitude	
Run Number	ONE	Service Order	3441-7742537
Depth Driller	6979.00	Depth Logger	6979.00
First Reading	6964.00	Last Reading	5493.00
Casing Driller	5493.00	Casing Logger	5493.00
Bit Size	6.125	Hole Fluid Type	WBM
Density/Viscosity	9.40	Ind/Sg	37.00
PH/Fluid Loss	9.30	Sample Source	FLOWLINE
Rm @ Measured Temp	1.80 @ 70.0	Rm @ Measured Temp	1.35 @ 70.0
Rm @ Measured Temp	2.70 @ 70.0	Source Rm/Temp	CALC
Rm @ BHT	0.99 @ 129.0	Time Since Circulation	1.5 HOUR
Max Recorded Temp	129.00	Equipment/Case	M. JOHNSON
Recorded By	VI SCOTT	Checked By	VI SCOTT


5 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 16-APR-2014 12:05
Filename: C:\DATA\Sandridge_Faldtz 2231 2-26H\Faldtz 2231 2-26H_Rtap.dta
Recorded on 21-JAN-2014 05:30
System Versions: Processed with 13.06.9804 Plotted with 13.06.9804







COMPANY	SANDRIDGE ENERGY		
WELL	FALDTZ 2231 2-26H		
FIELD	STEWART		
PROVINCE/COUNTY	FINNEY		
COUNTRY/STATE	U.S.A. / KANSAS		
Elevation Kelly Bushing	2301.00 feet	First Reading	6964.00 feet
Elevation Drill Floor	2301.00 feet	Depth Driller	6979.00 feet
Elevation Ground Level	2890.00 feet	Depth Logger	6979.00 feet
		CML IMPULSE SHUTTLE ARRAY INDUCTION ELECTRIC LOG	