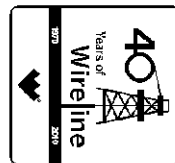




Weatherford[®]

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY SHAKESPEARE OIL
WELL JANZEN 1-16
FIELD WILDCAT
PROVINCE/COUNTY SCOTT
COUNTRY/STATE U.S.A./KANSAS
LOCATION 780' FNL & 815' FWL



SEC TWP RGE Other Services
16 16 34 MPD/MDN
API Number 15-171-20790 MML
Permit Number MSS

Permanent Datum G.L., Elevation 3139 feet
Log Measured From K.B. @ 10 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations: feet
KB 3149.00
DF 3148.00
GL 3139.00

Date	21-DEC-2010	
Run Number	ONE	
Depth Driller	4880.00	feet
Depth Logger	4876.00	feet
First Reading	4873.00	feet
Last Reading	352.00	feet
Casing Driller	351.00	feet
Casing Logger	352.00	feet
Bit Size	7.880	inches
Hole Fluid Type	CHEMICAL	
Density / Viscosity	9.50 g/c3	45.00 sec/qt
PH / Fluid Loss	10.00	9.60 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	0.77 @ 73.0	ohm-m
Rmf @ Measured Temp	0.62 @ 73.0	ohm-m
Rmc @ Measured Temp	0.92 @ 73.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.53 @106.0	ohm-m
Time Since Circulation	4 HOURS	
Max Recorded Temp	106.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13096	LIB
Recorded By	SHAWN NUTT	
Witnessed By	TIM PRIEST	
S.O.#/JOB#	3524640	LB10-324

BOREHOLE RECORD

Last Edited: 21-DEC-2010 12:25

Bit Size inches	Depth From feet	Depth To feet
7.880	352.00	4876.00

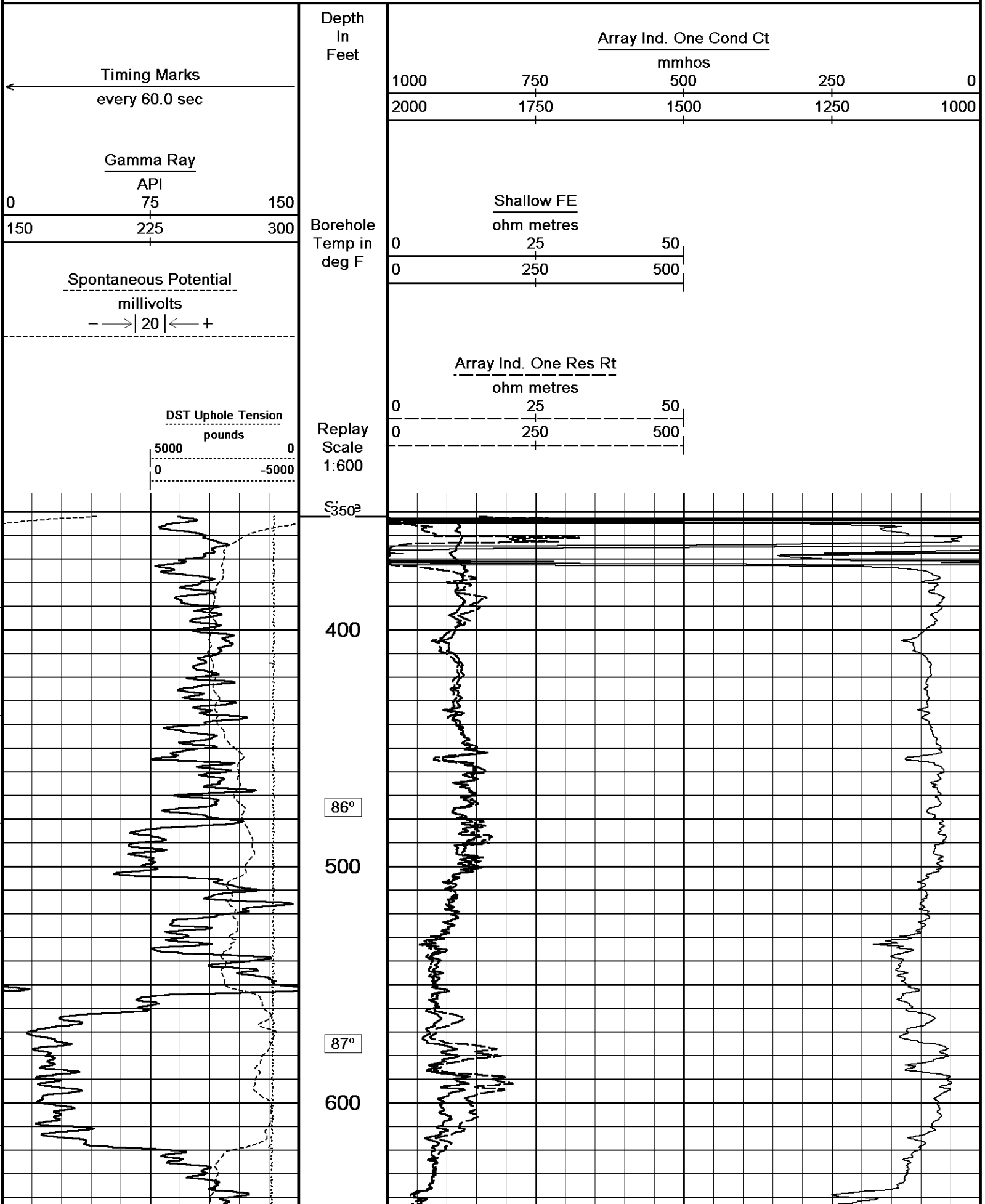
CASING RECORD

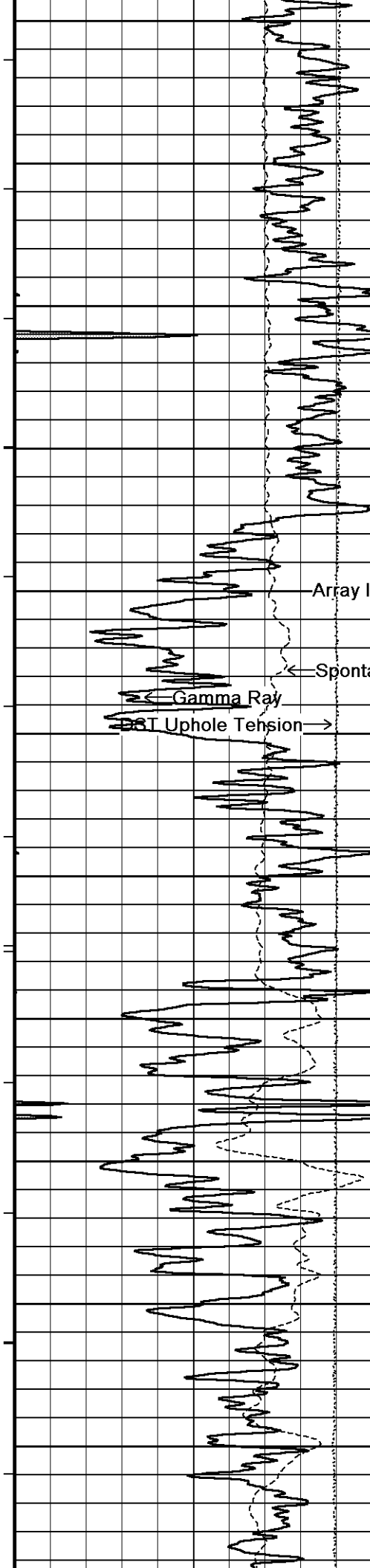
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	352.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, MSS, SKJ
Hardware: MPD: 8 inch profile plate used. MAI, MSS and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= 437 cu. ft.
Service order #3524640
Rig: HD #2
Engineer: Shawn Nutt
Operator(s): K. Rinehart

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.





88°

700

89°

800

Array Ind. One Res Rt

89°

Shallow FE

Spontaneous Potential

Gamma Ray

DST Uphole Tension

900

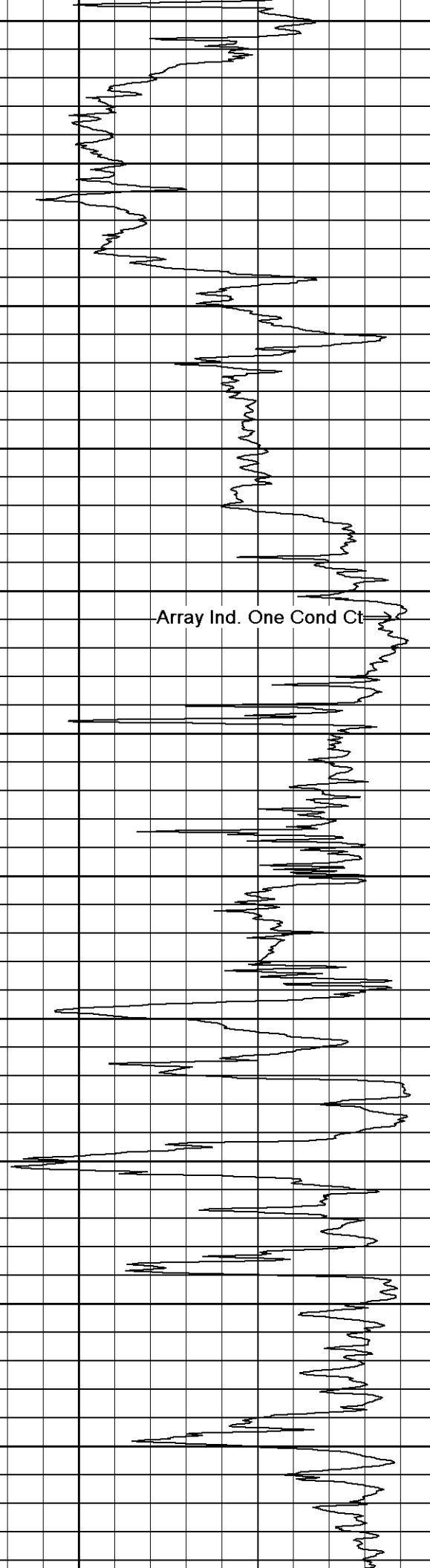
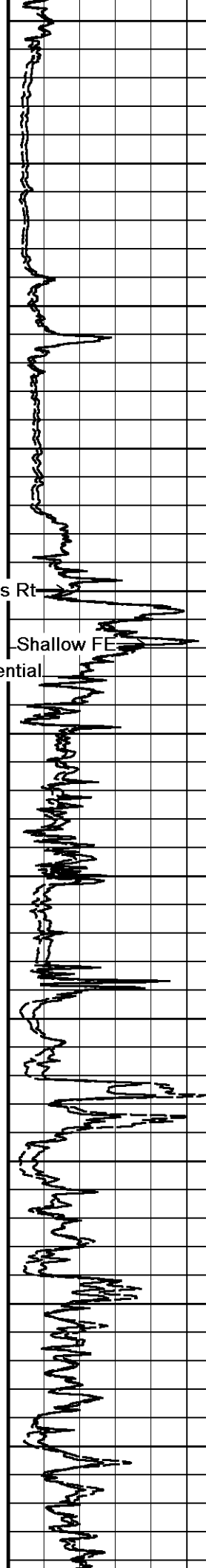
90°

1000

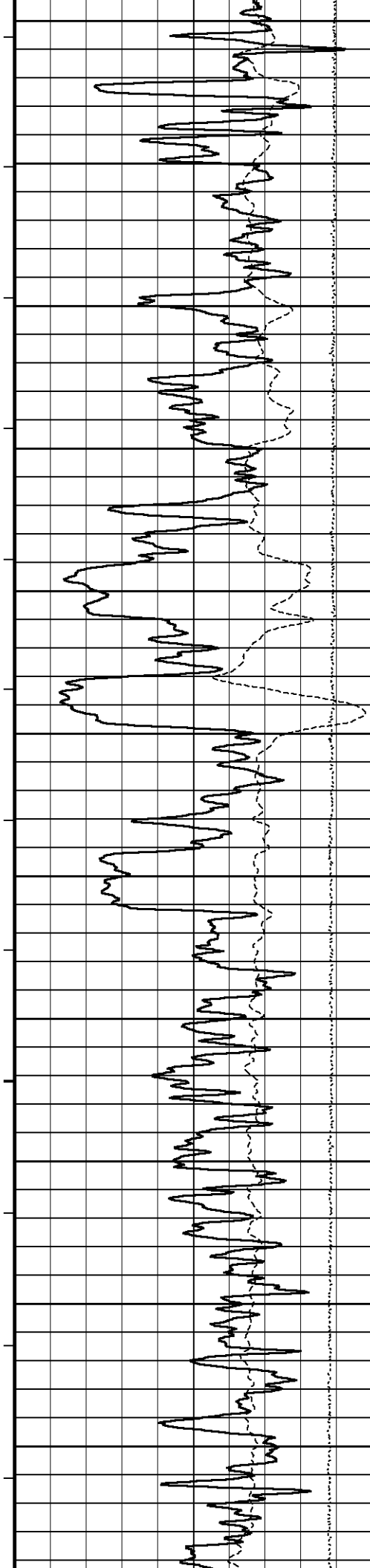
91°

1100

92°



Array Ind. One Cond Ct



1200

92°

1300

92°

1400

93°

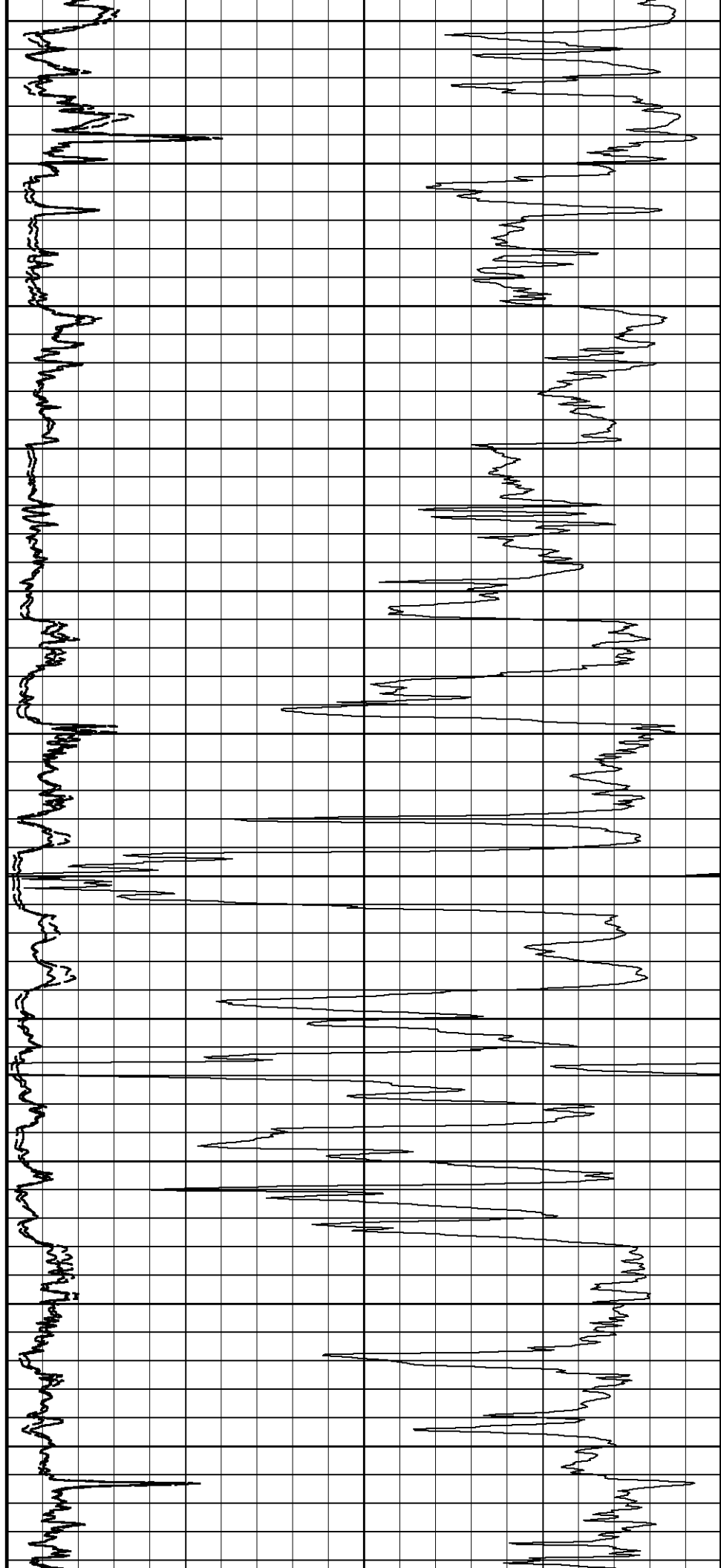
1500

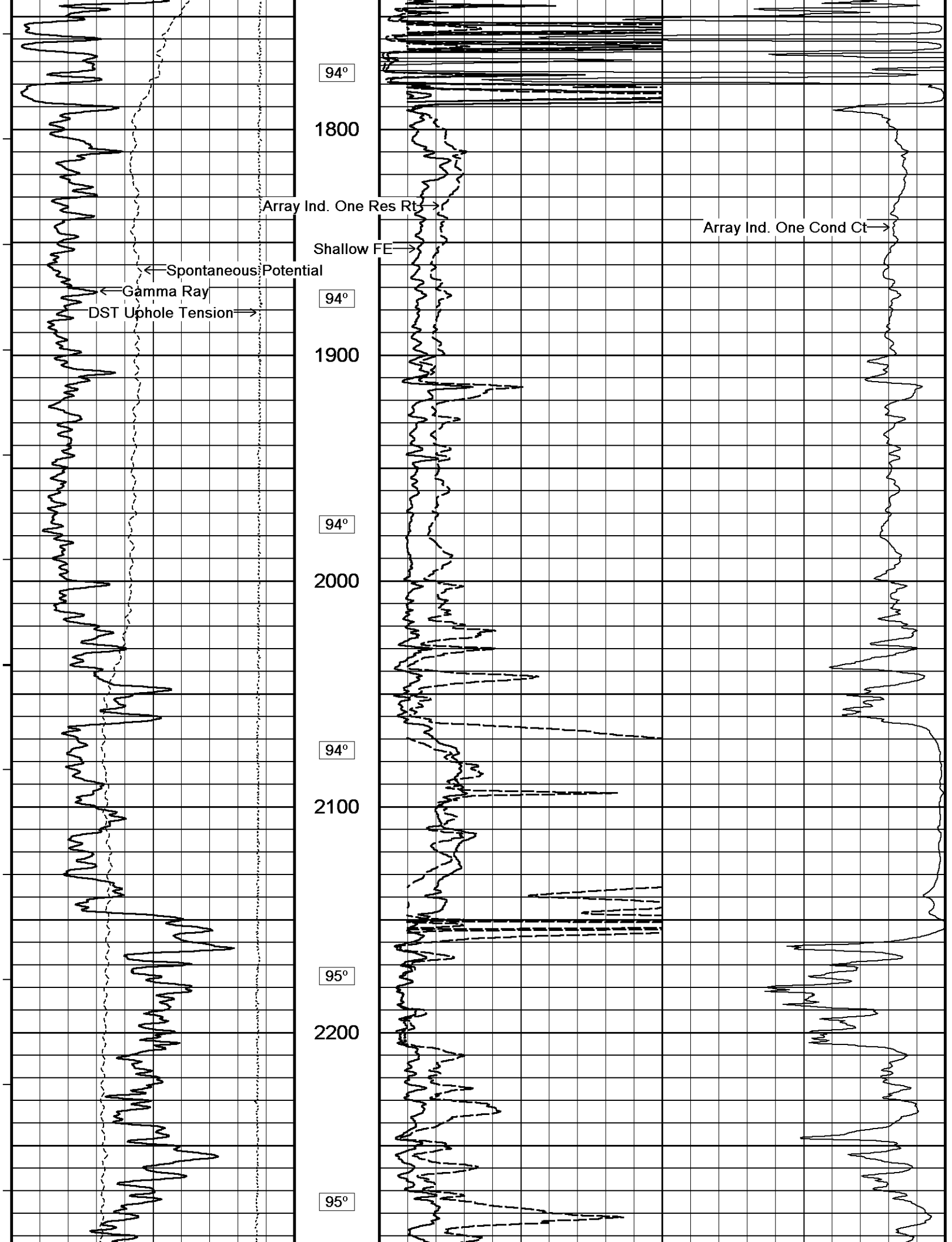
94°

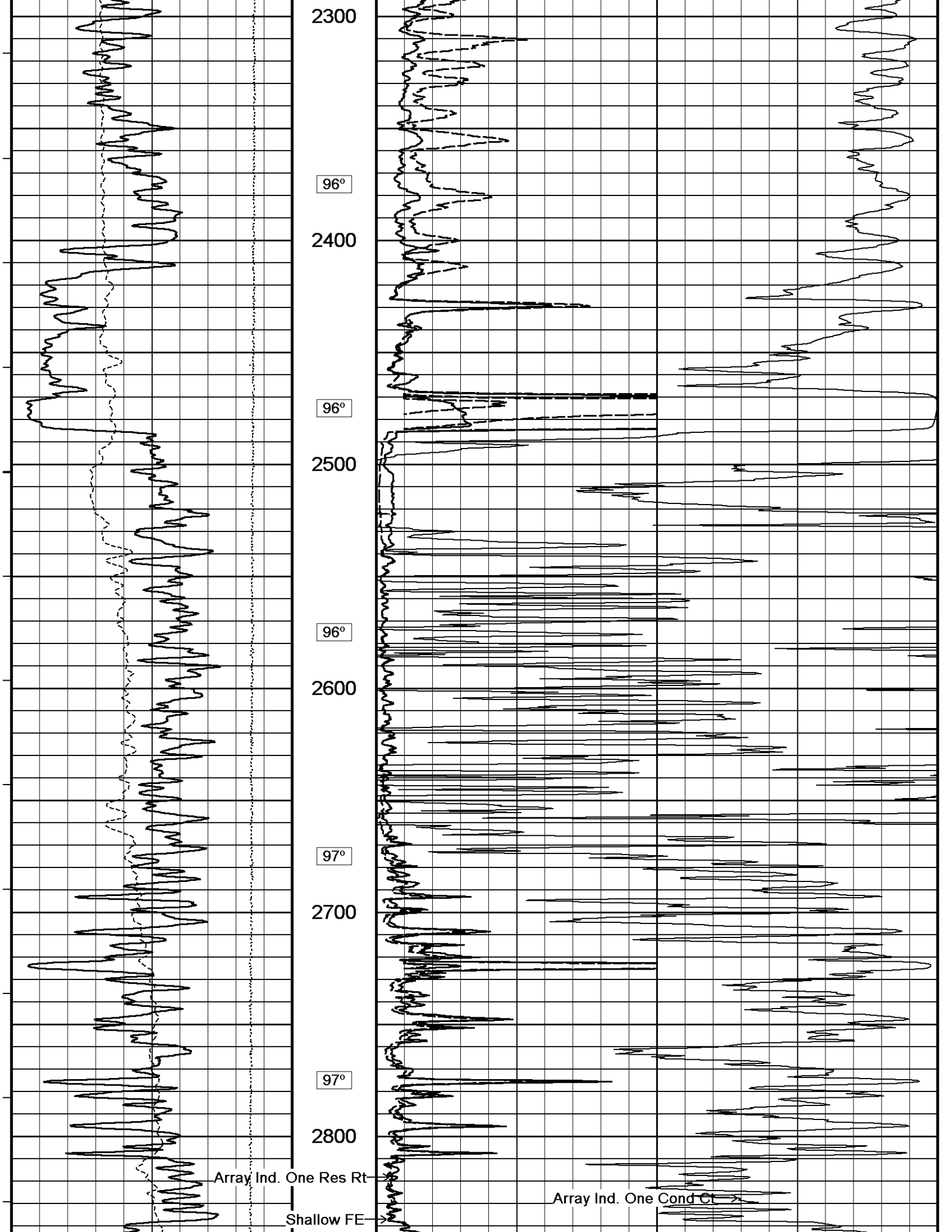
1600

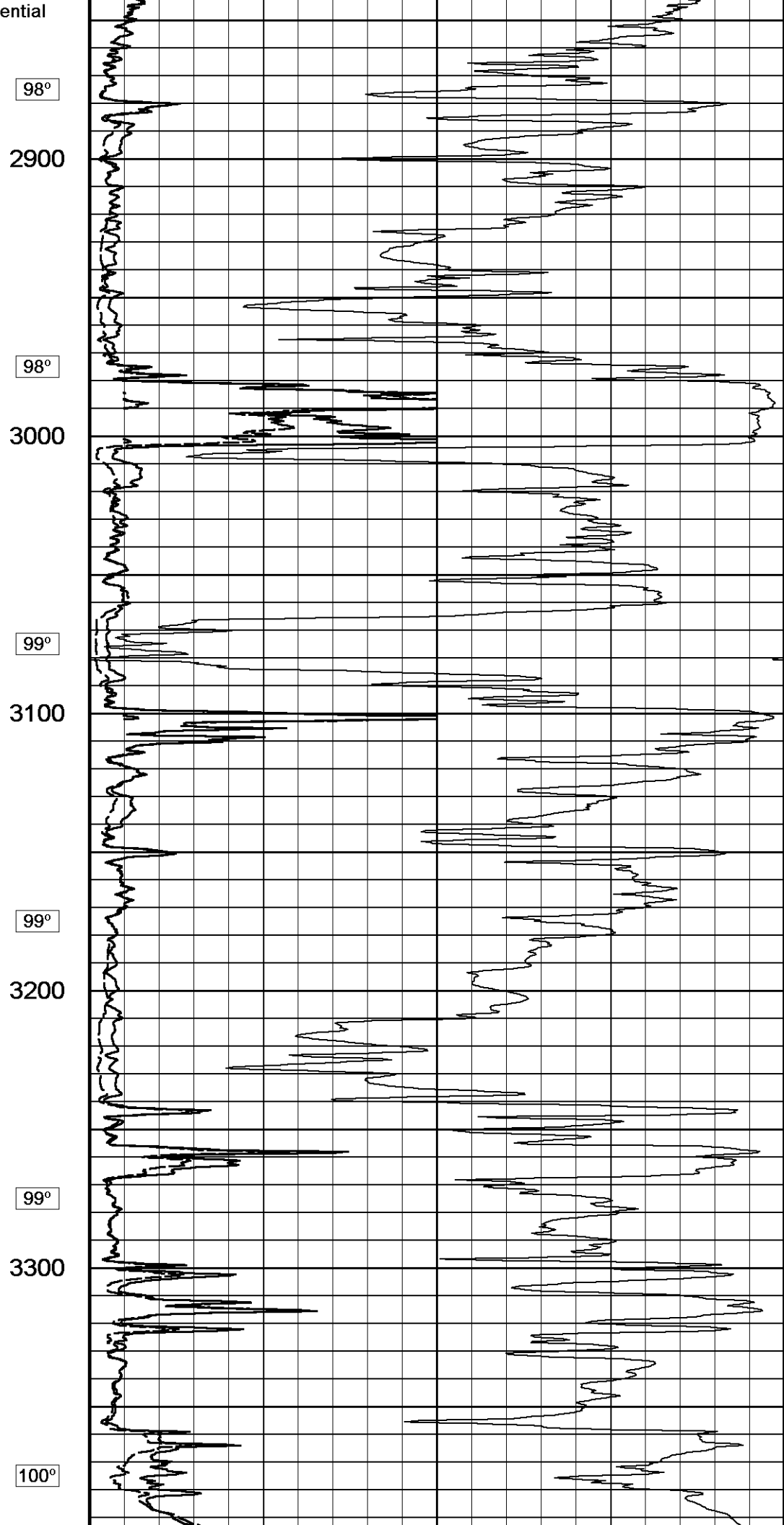
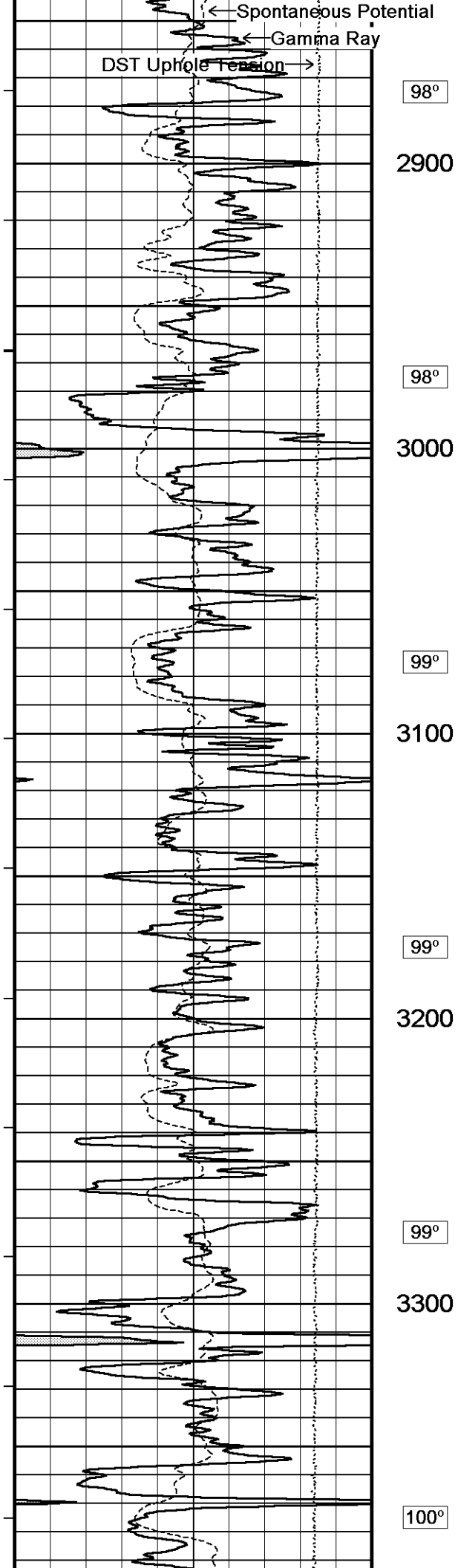
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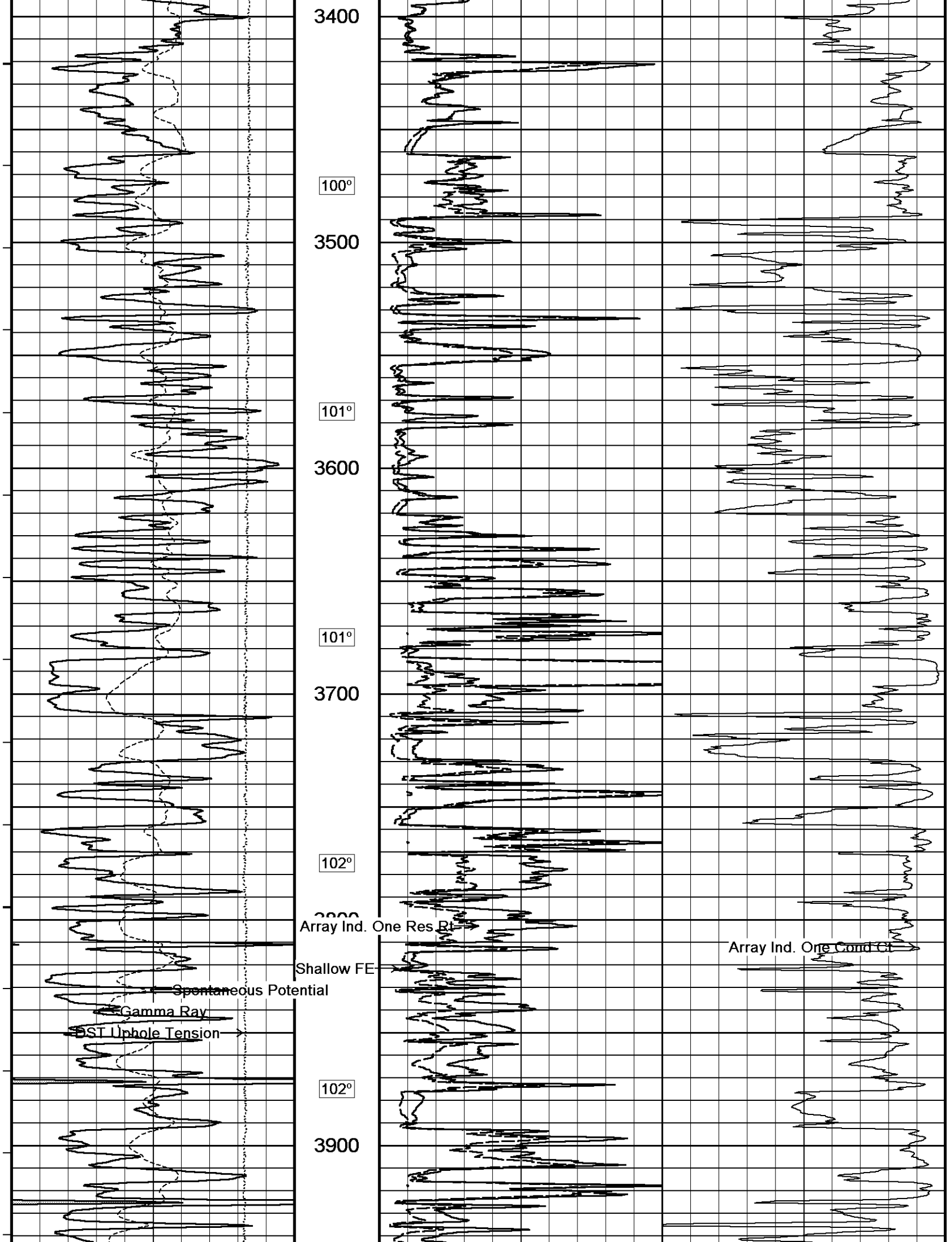
1700

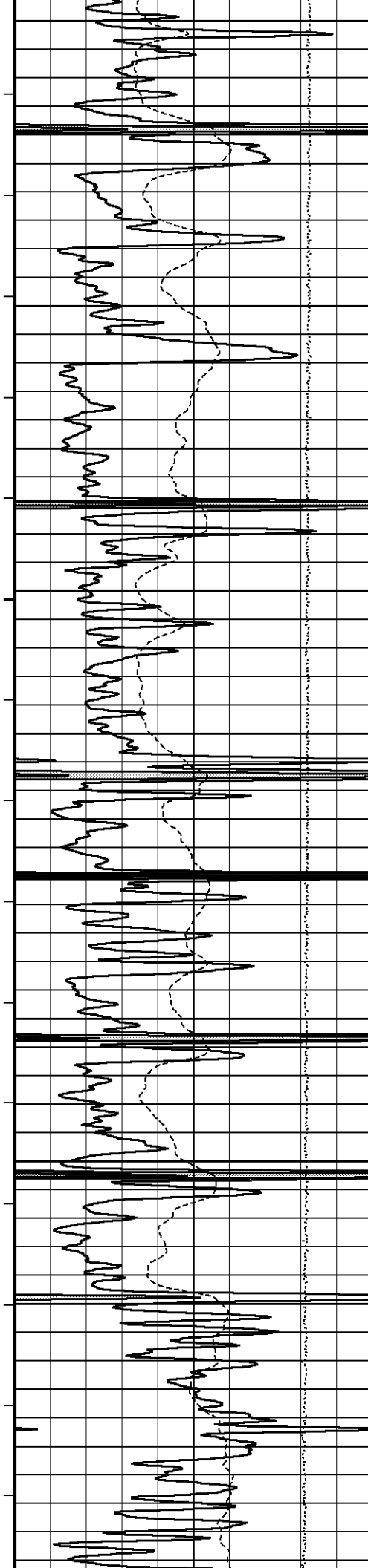












103°

4000

103°

4100

103°

4200

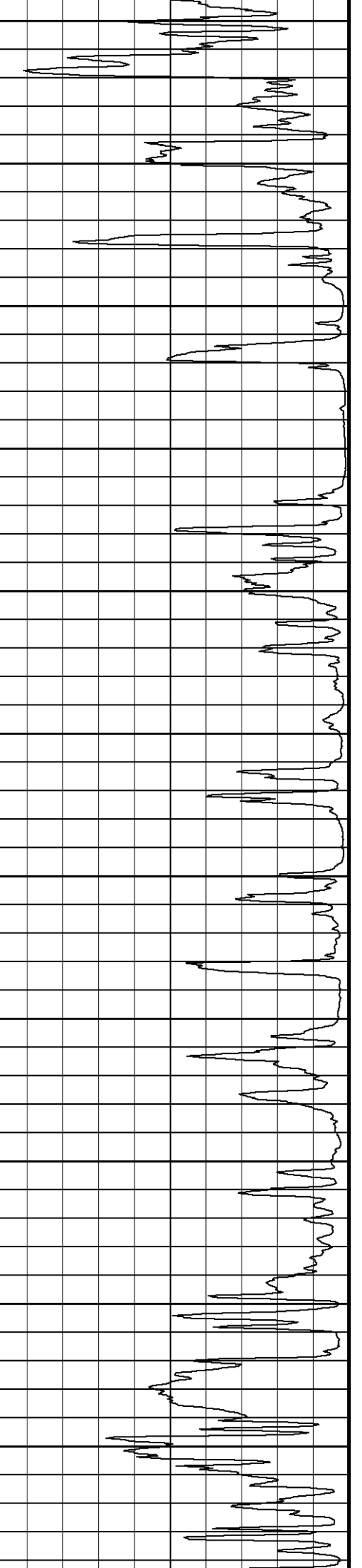
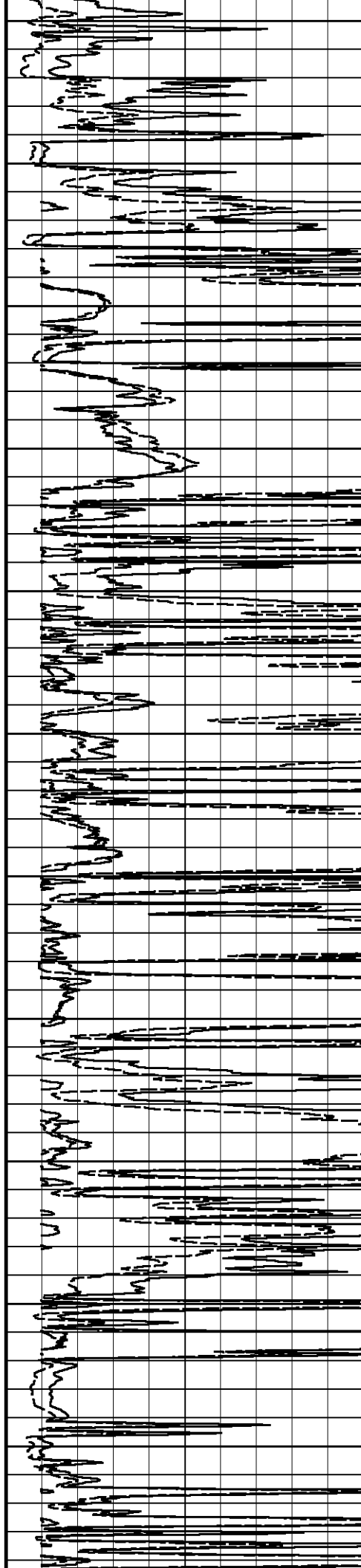
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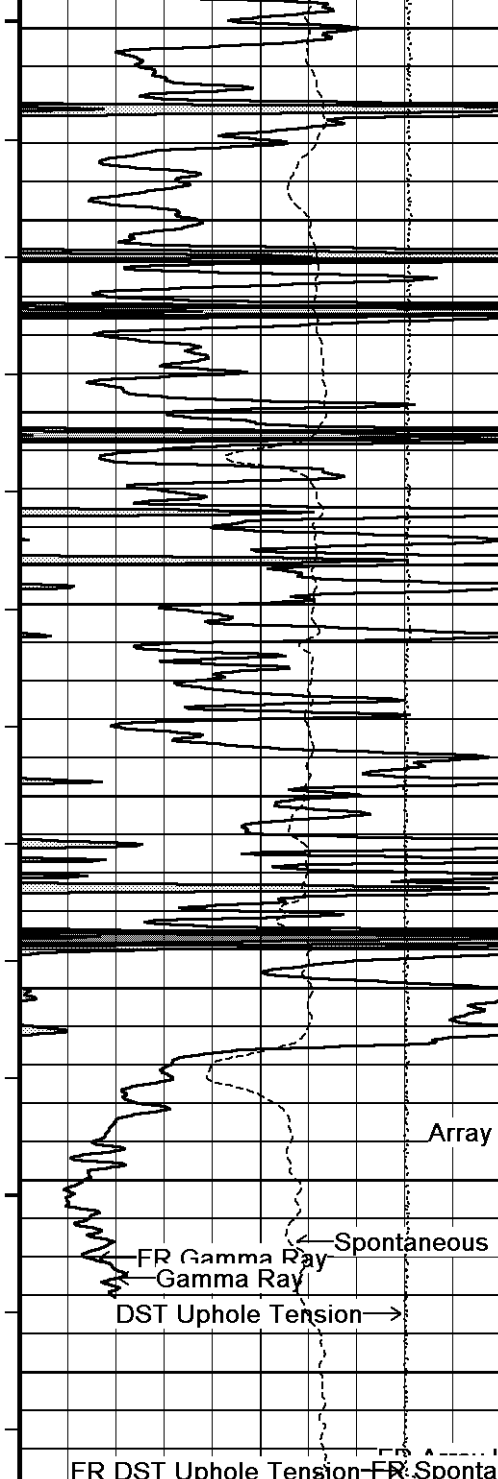
4300

105°

4400

105°





4500

107°

4600

108°

4700

109°

4800

Shallow FE

FR Gamma Ray

Gamma Ray

DST Uphole Tension

Spontaneous Potential

4900

4920

Depth

In

Feet

Timing Marks

every 60.0 sec

Gamma Ray

API

75

150

150

225

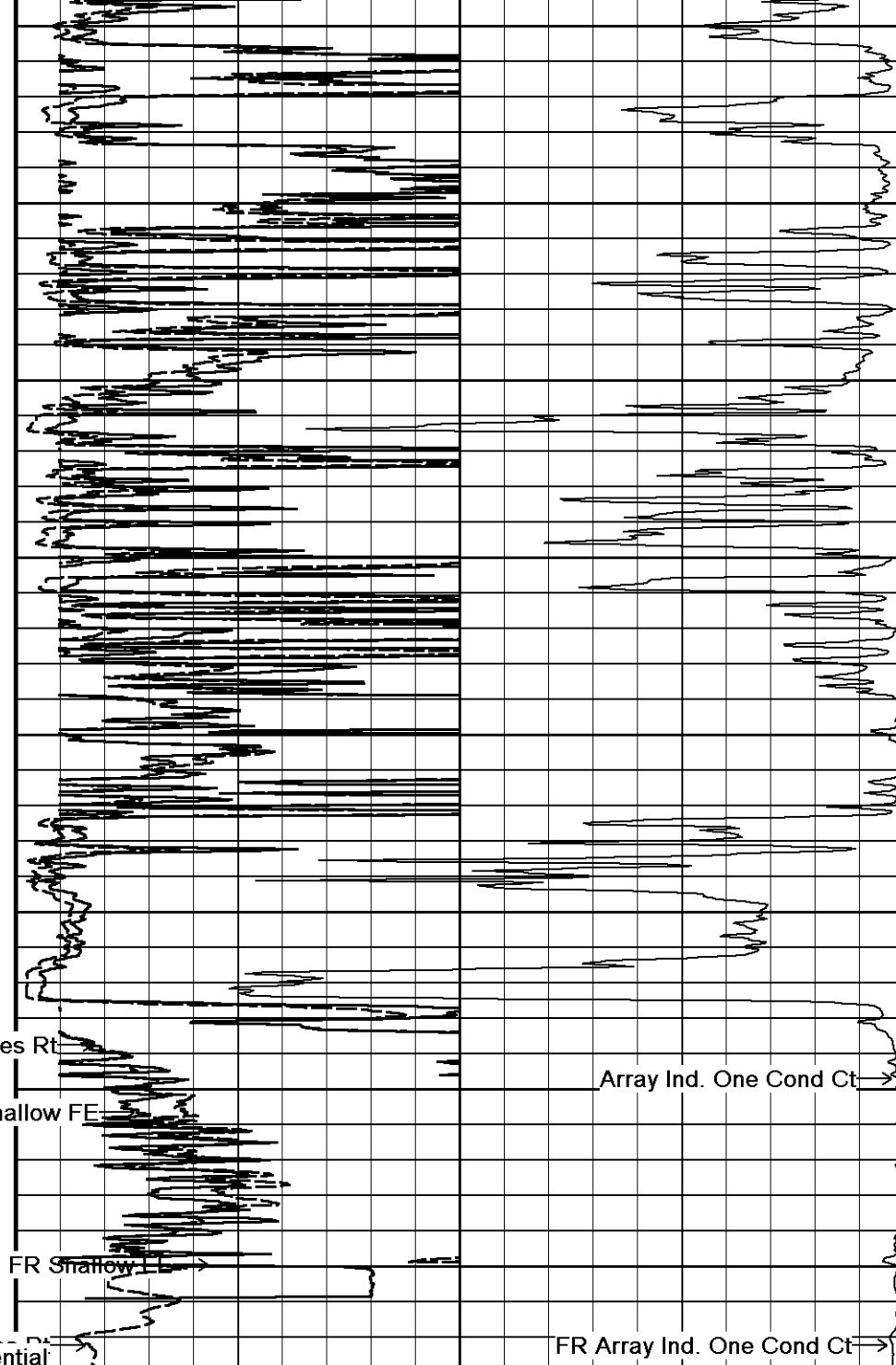
300

Spontaneous Potential

Borehole

Temp in

deg F



Array Ind. One Res Rt

Shallow FE

FR Shallow FE

FR Array Ind. One Cond Ct

4900

4920

Depth

In

Feet

Timing Marks

every 60.0 sec

Gamma Ray

API

75

150

150

225

300

Spontaneous Potential

Borehole

Temp in

deg F

Shallow FE

ohm metres

0

25

50

0

250

500

Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

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250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

0

2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

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250

0

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1750

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1250

1000

FR Array Ind. One Cond Ct

mmhos

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FR Array Ind. One Cond Ct

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FR Array Ind. One Cond Ct

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FR Array Ind. One Cond Ct

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FR Array Ind. One Cond Ct

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FR Array Ind. One Cond Ct

mmhos

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750

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2000

1750

1500

1250

1000

FR Array Ind. One Cond Ct

mmhos

1000

750

500

250

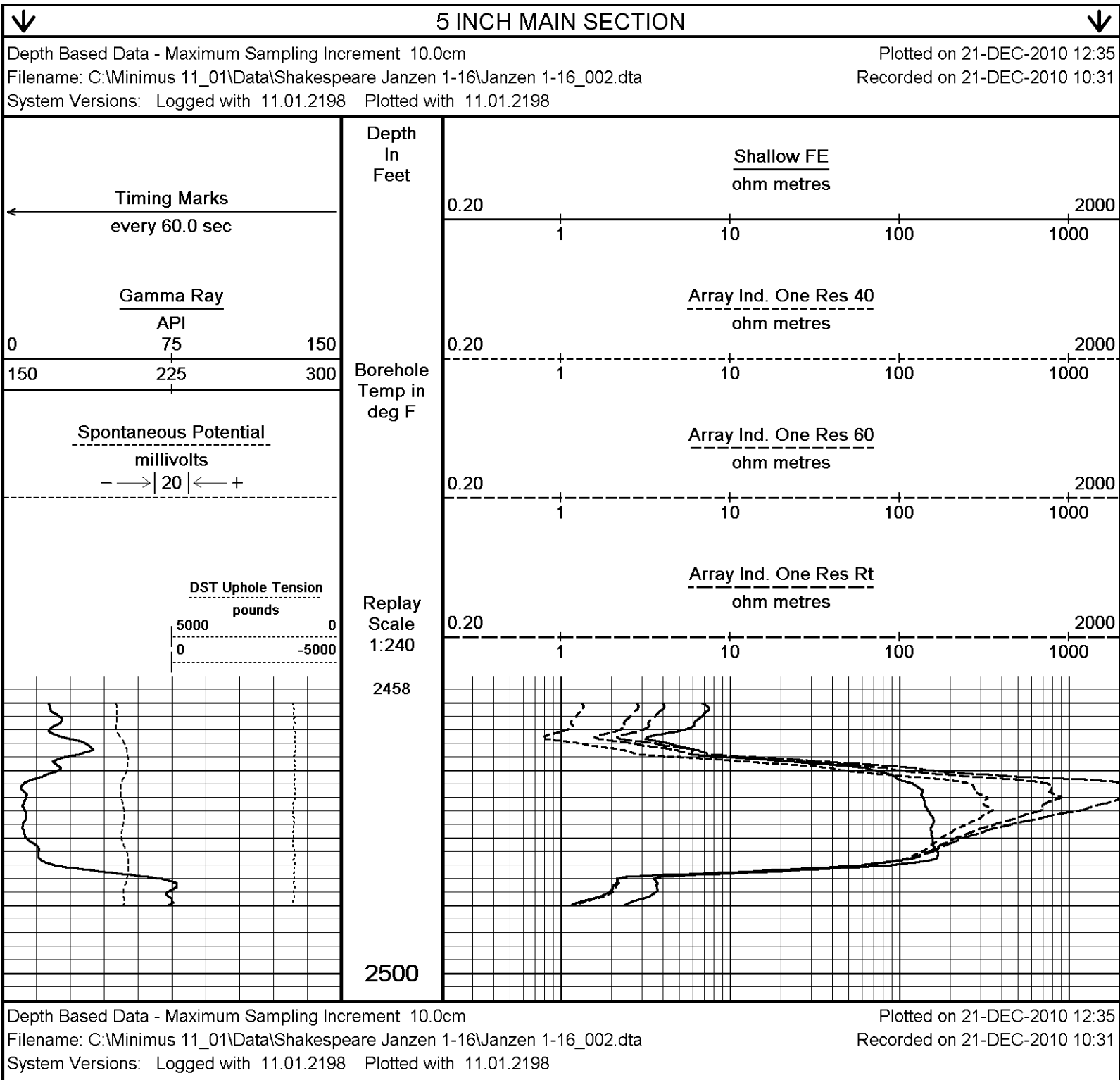
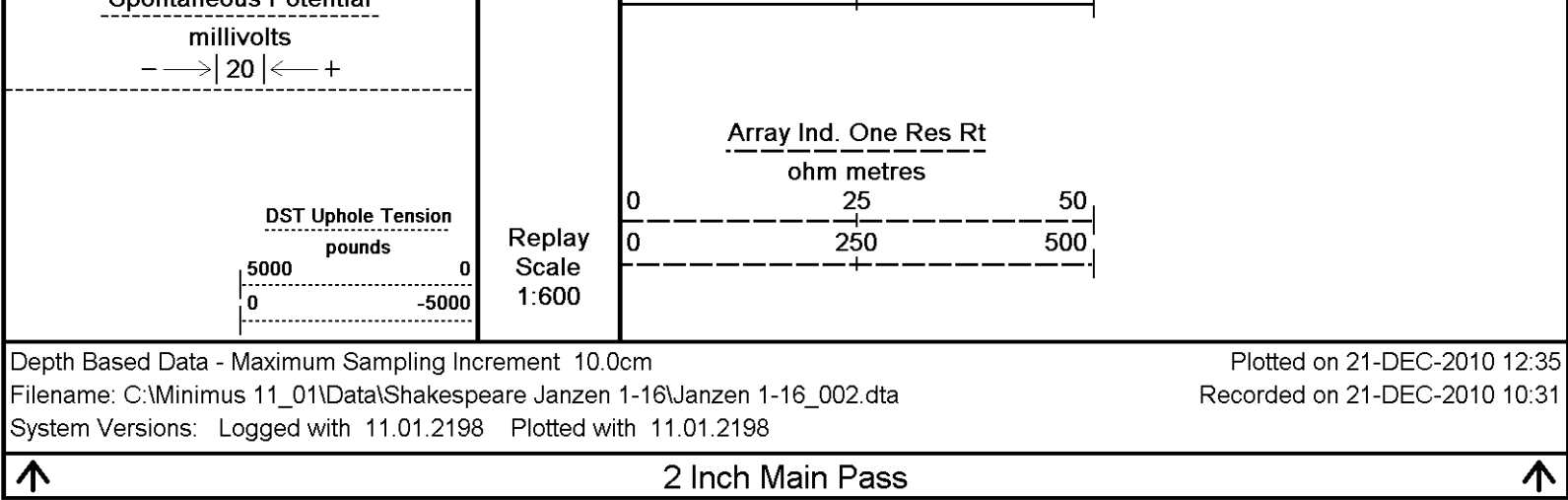
0

2000

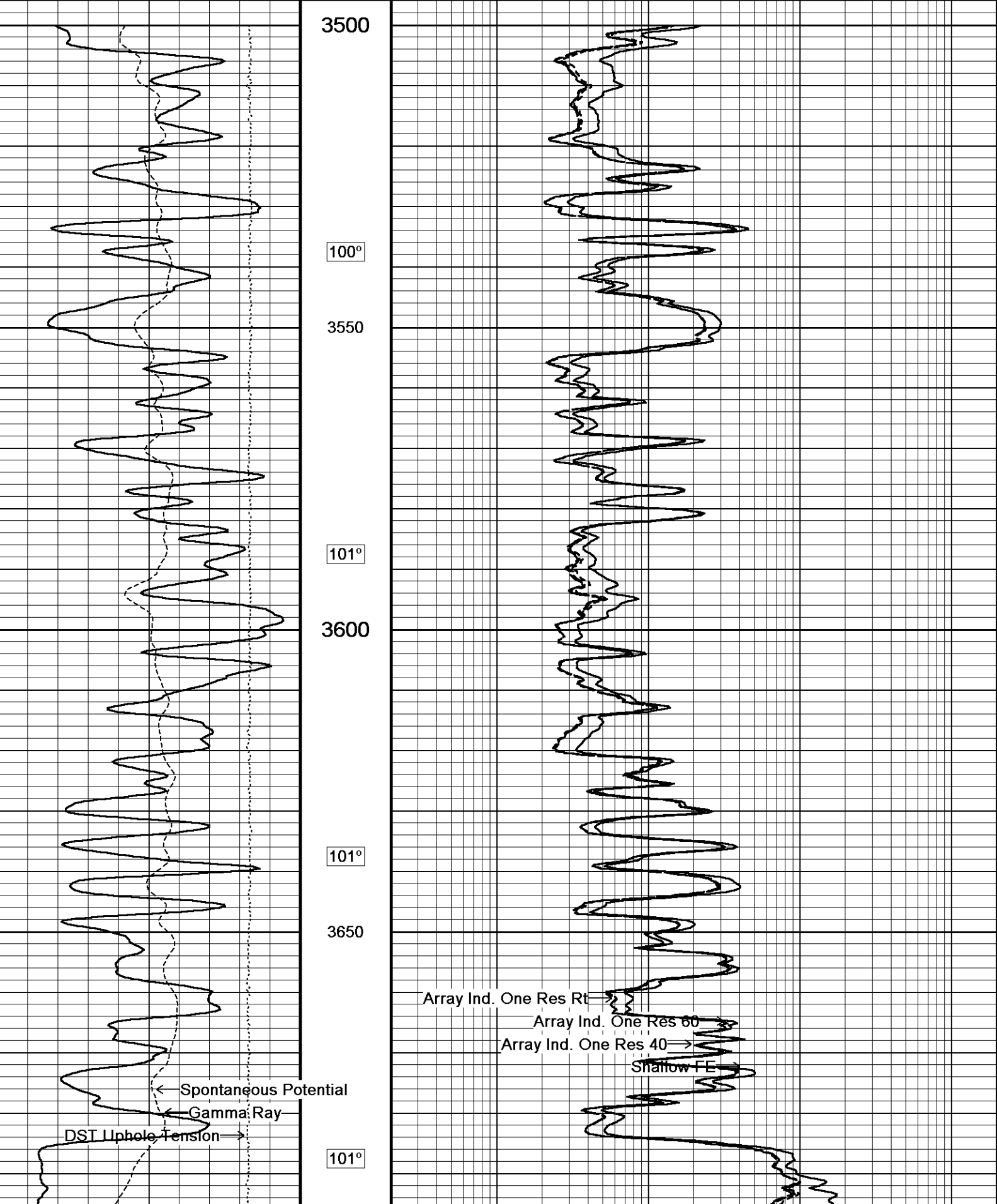
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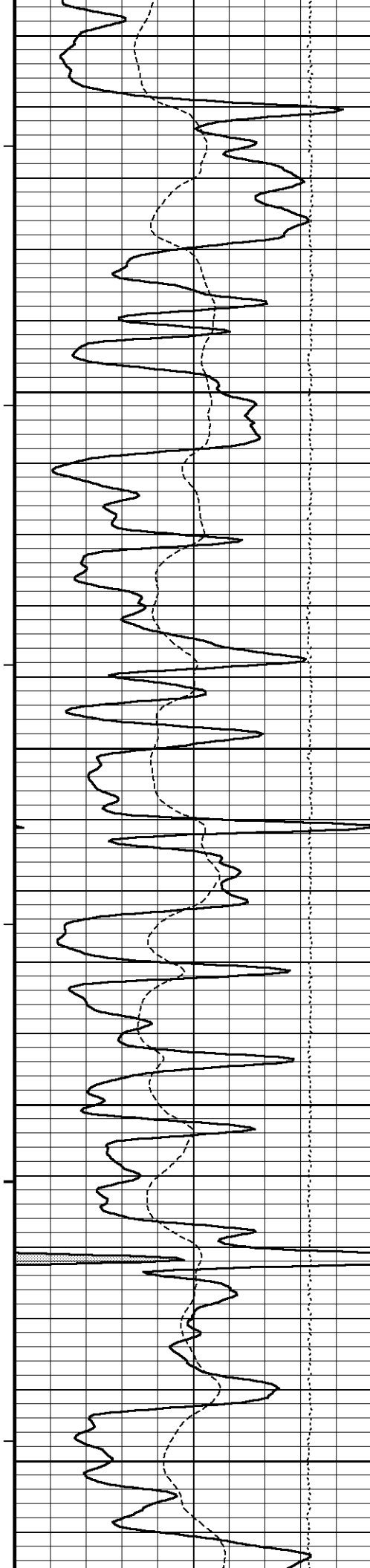
1500

1250



Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 11_01\Data\Shakespeare Janzen 1-16\Janzen 1-16_002.dta
System Versions: Logged with 11.01.2198 Plotted with 11.01.2198
Plotted on 21-DEC-2010 12:35
Recorded on 21-DEC-2010 10:31





3700

101°

3750

102°

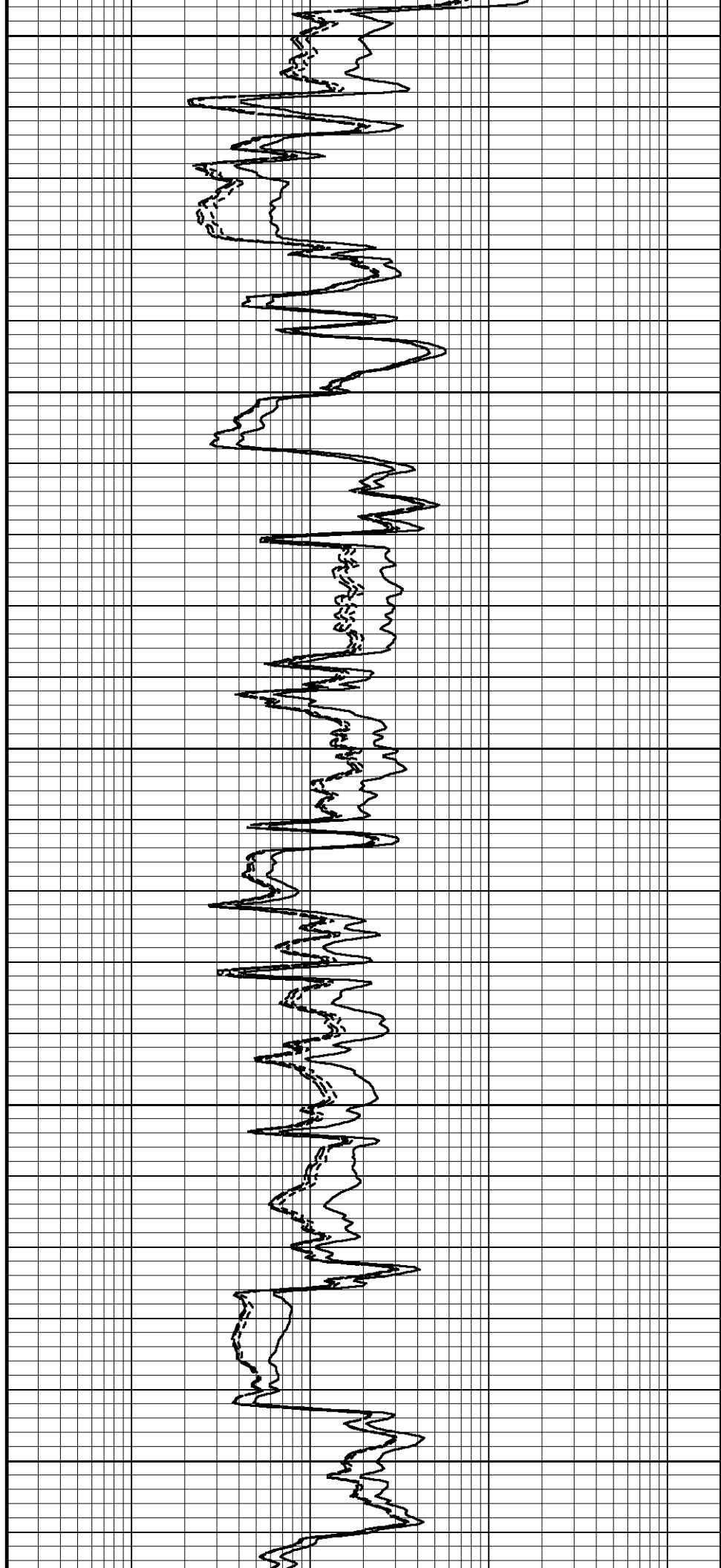
3800

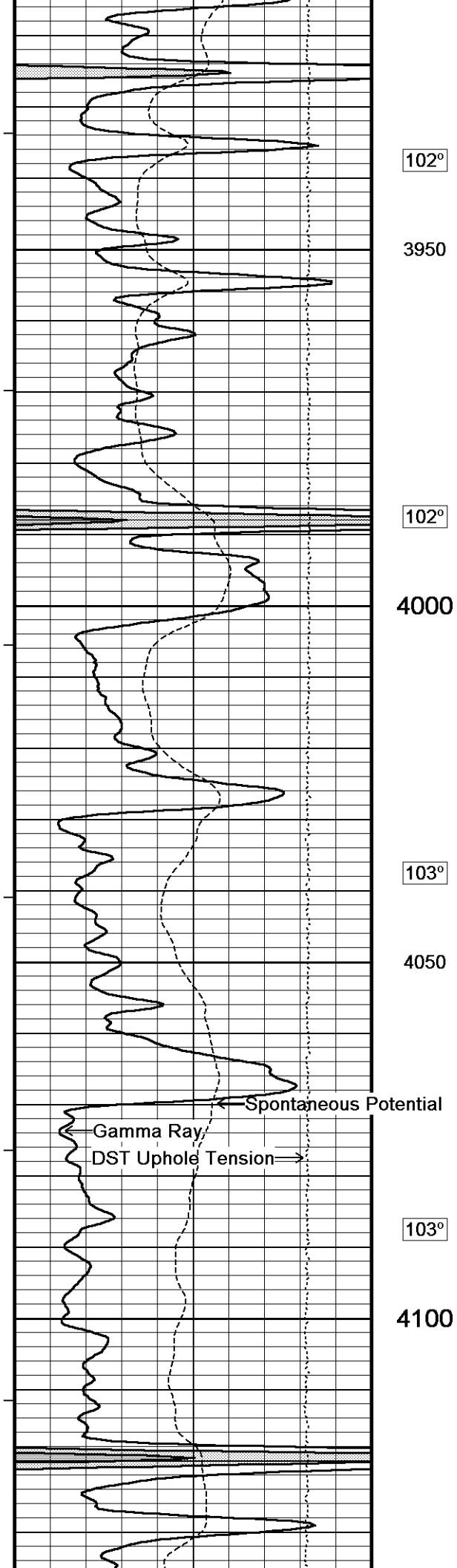
102°

3850

102°

3900





102°

3950

102°

4000

103°

4050

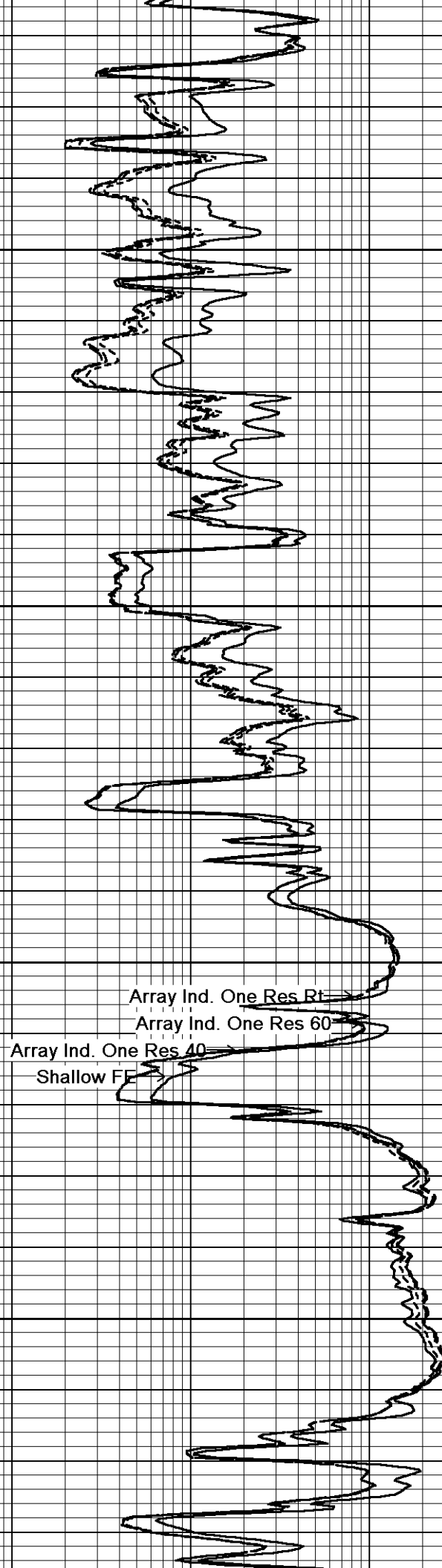
← Spontaneous Potential

Gamma Ray

DST Uphole Tension →

103°

4100

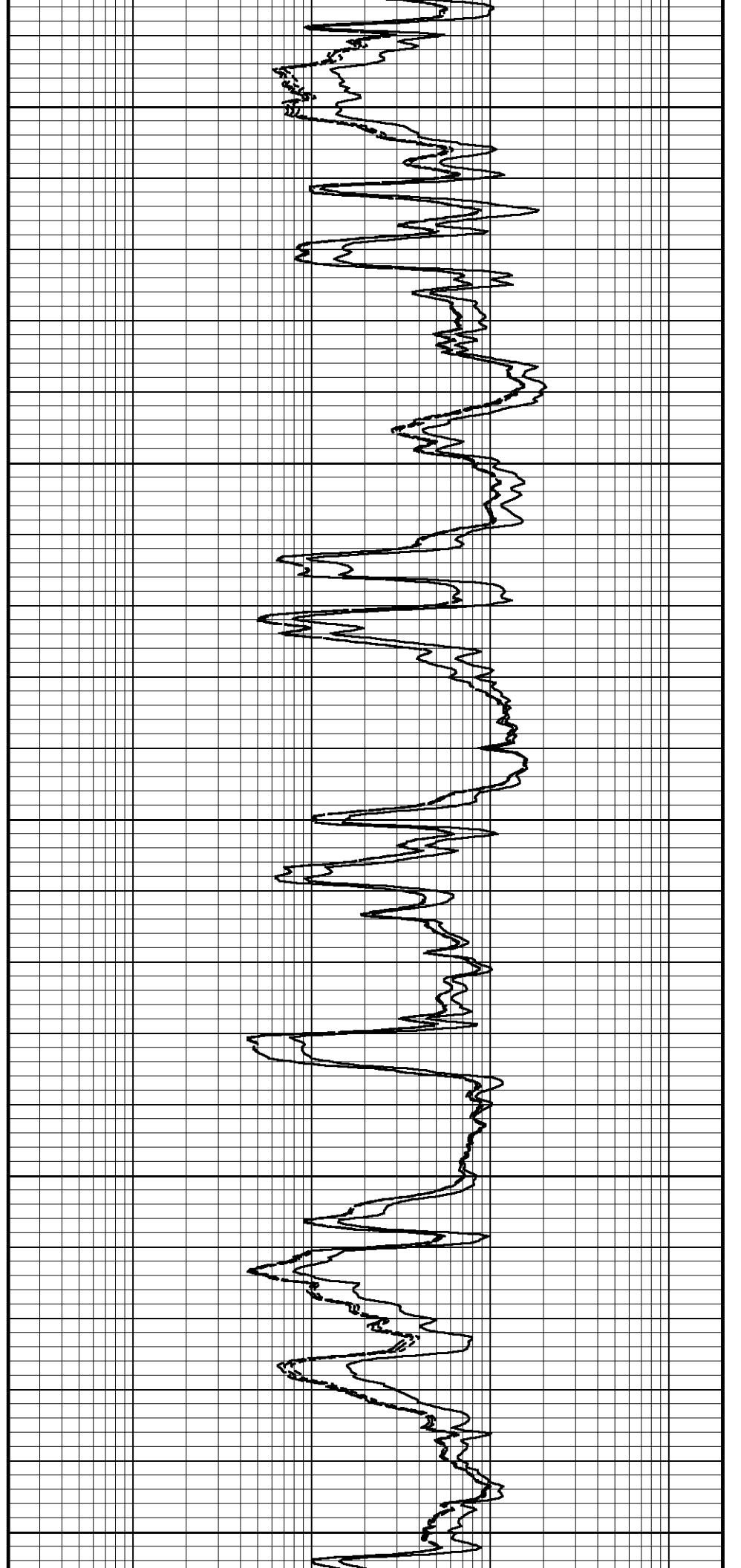
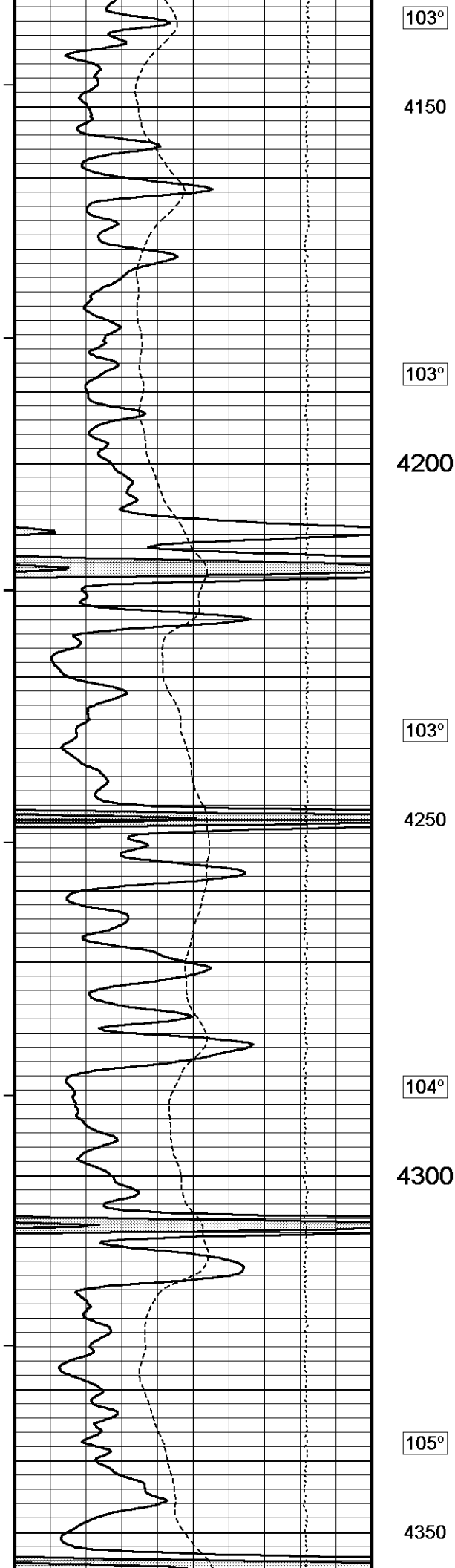


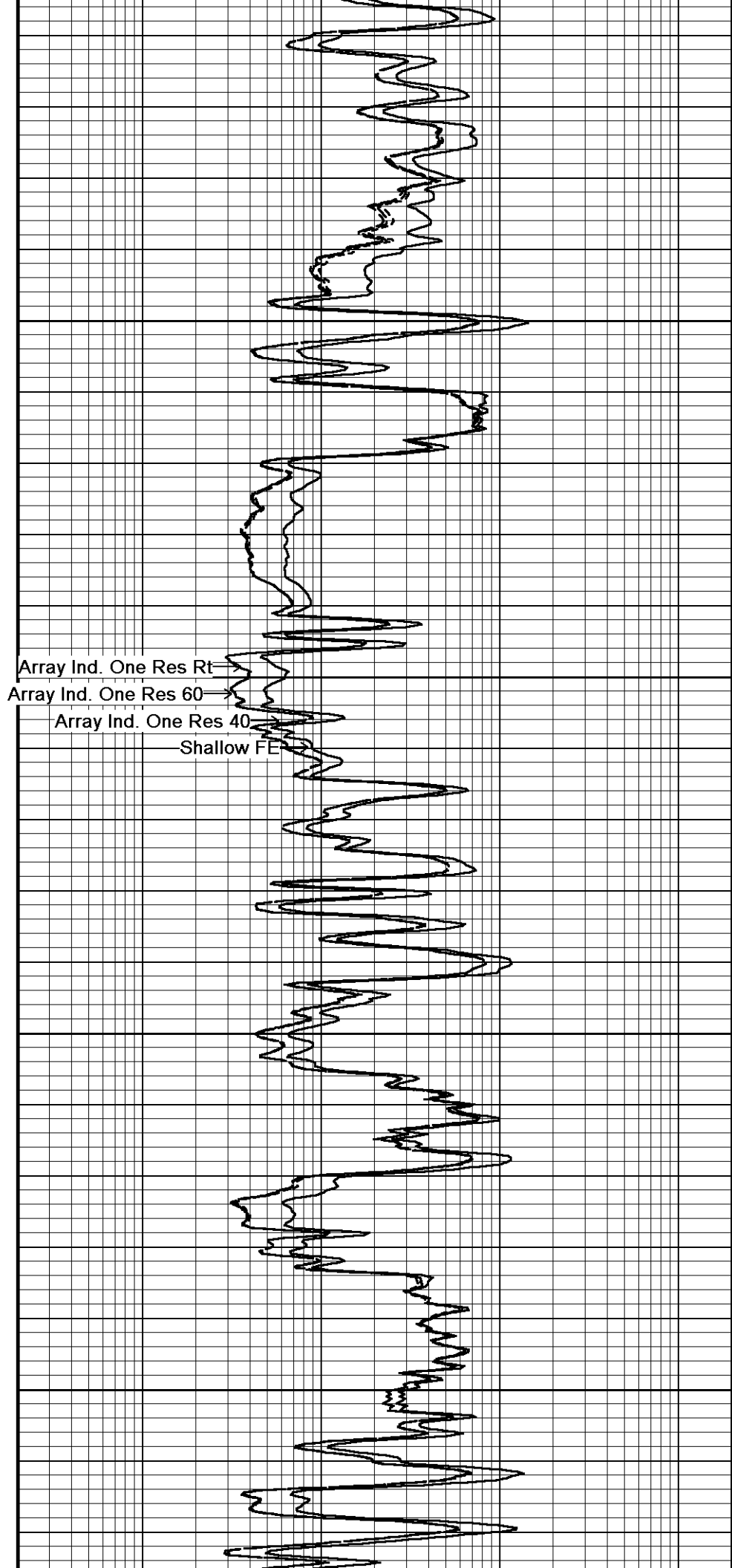
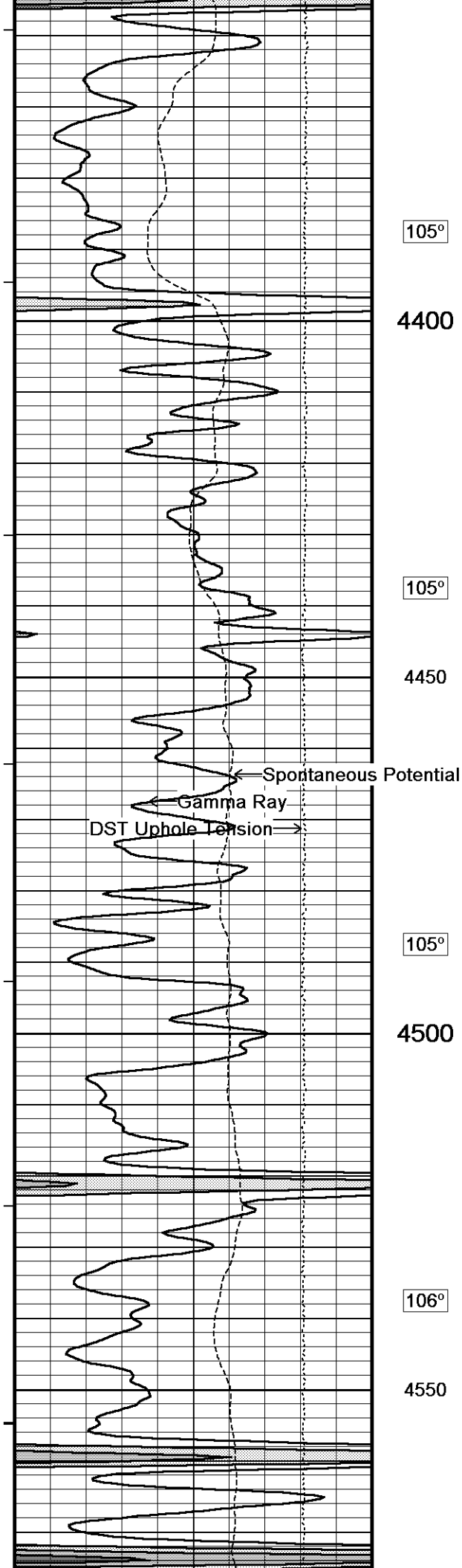
Array Ind. One Res Rt →

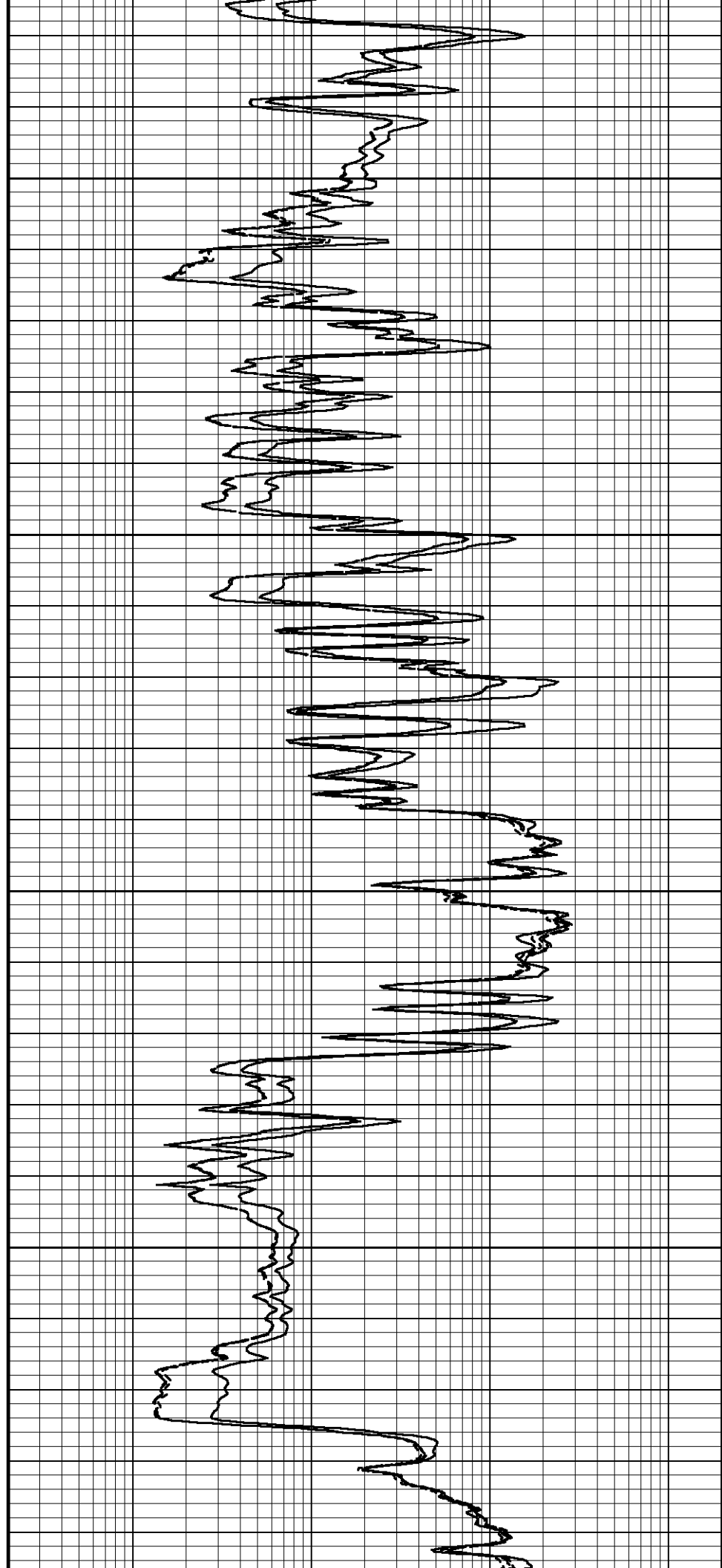
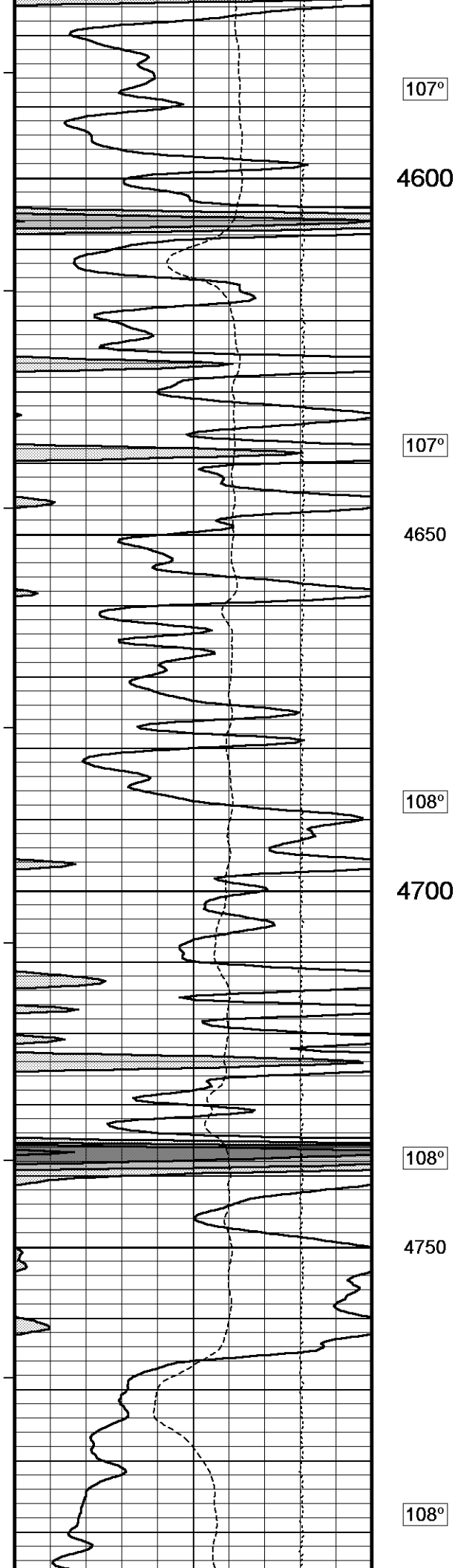
Array Ind. One Res 60 →

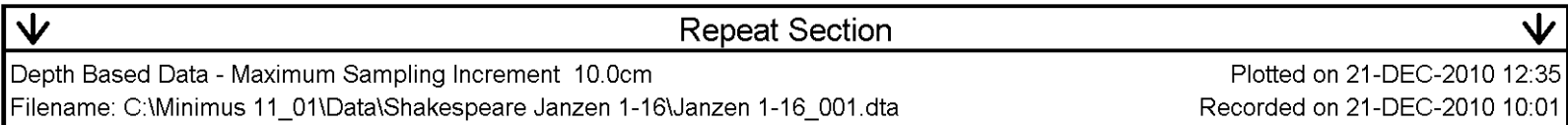
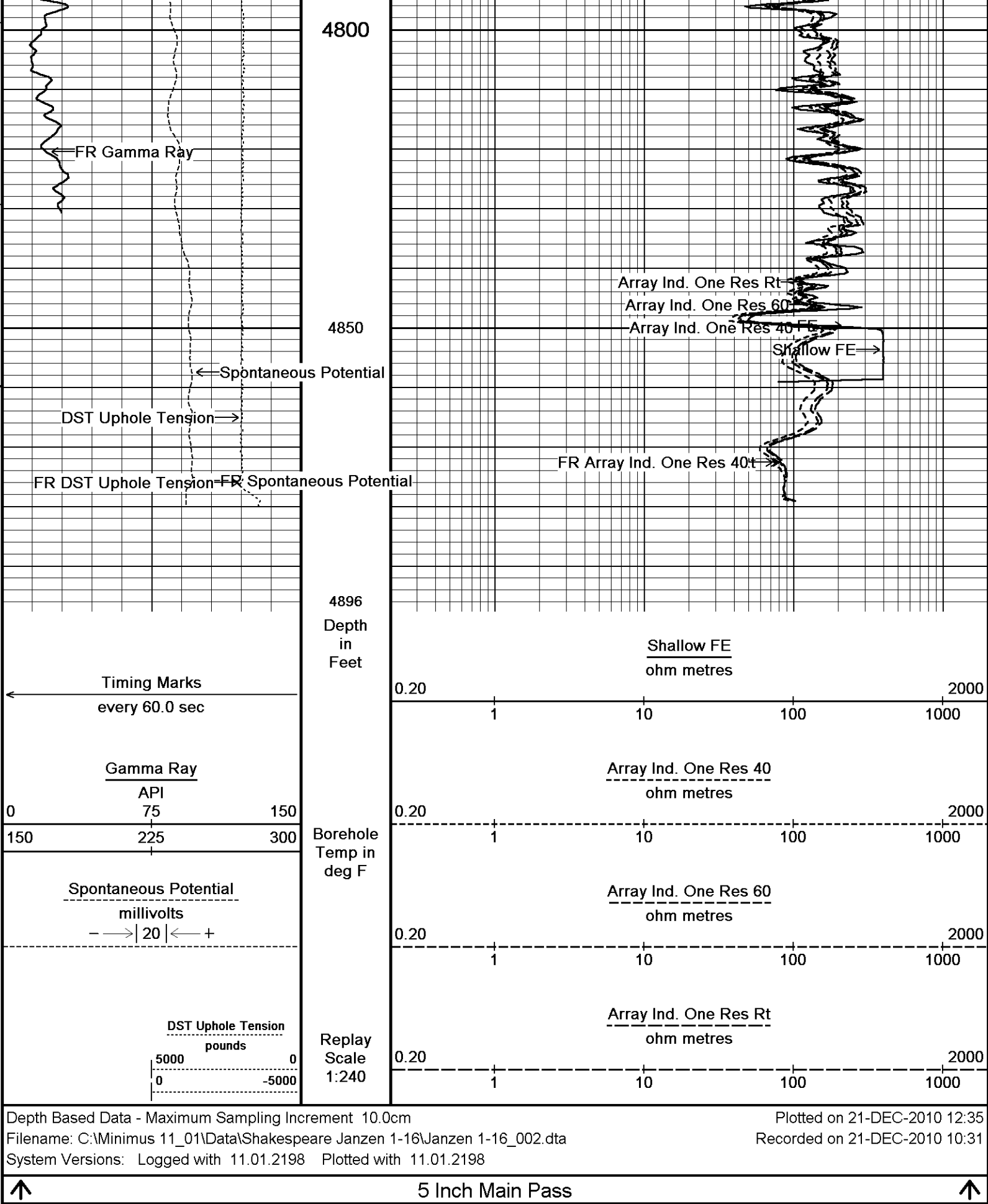
Array Ind. One Res 40 →

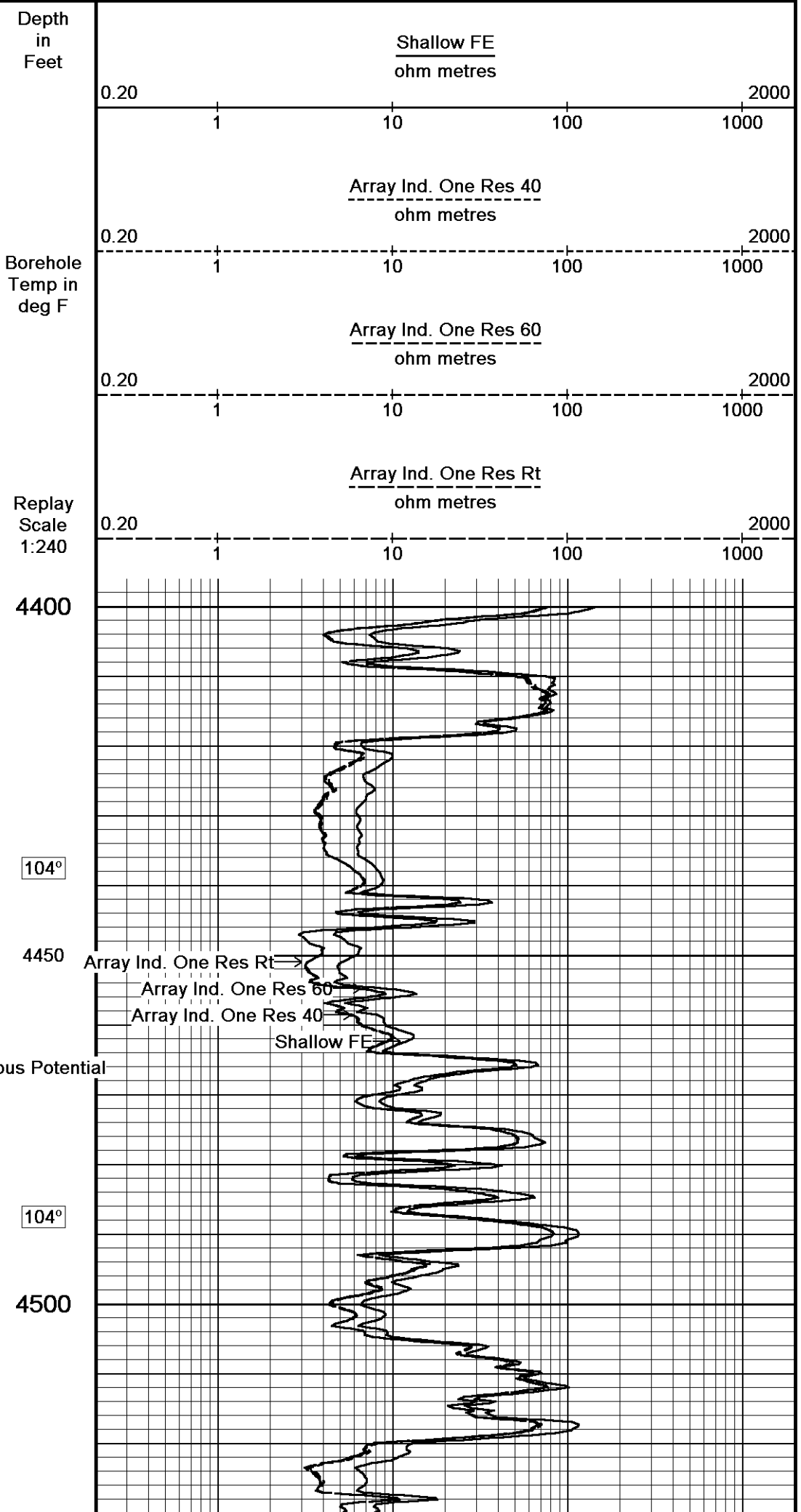
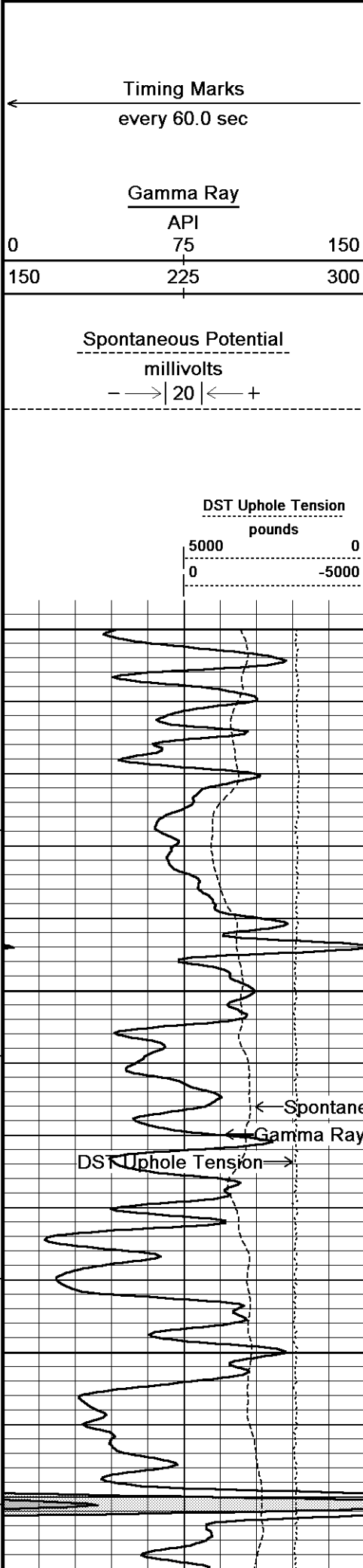
Shallow FF →

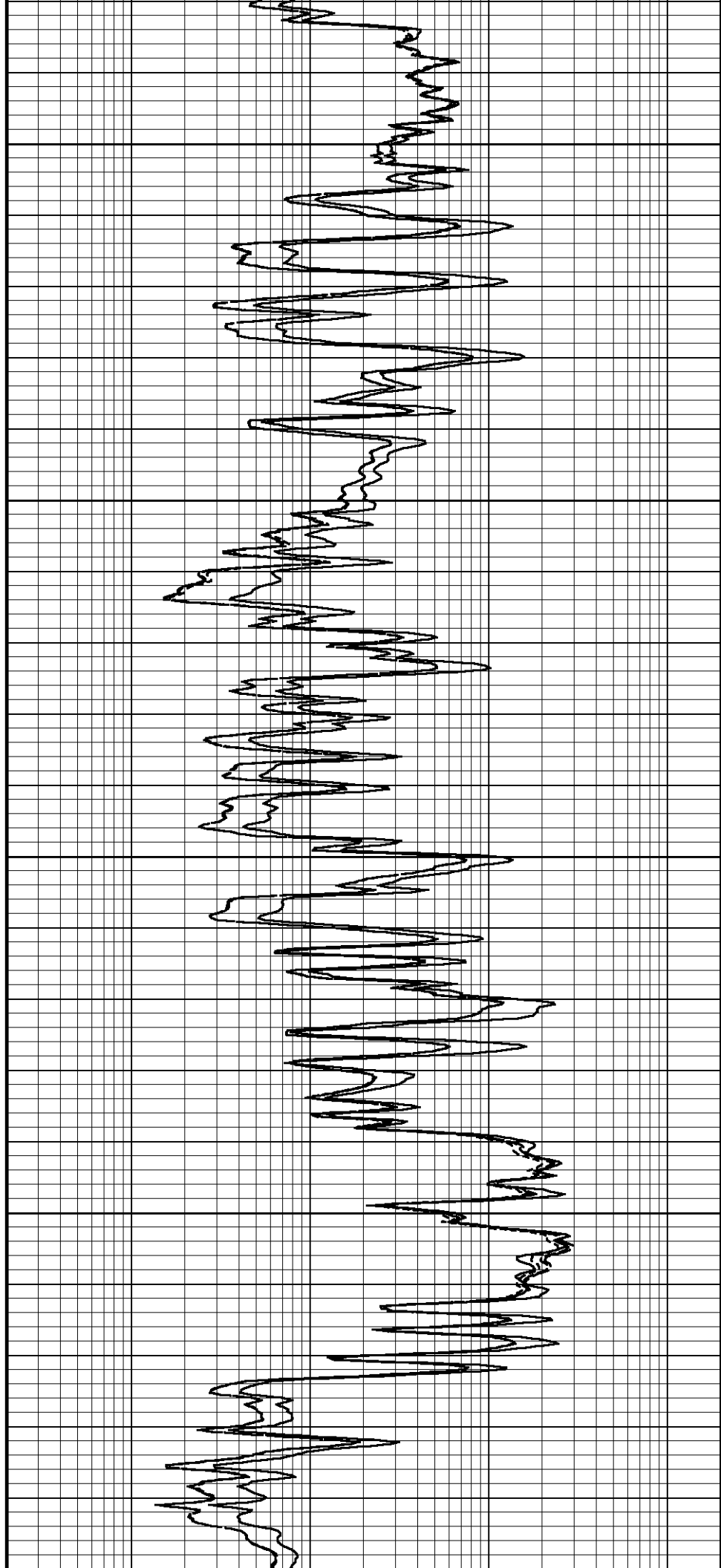
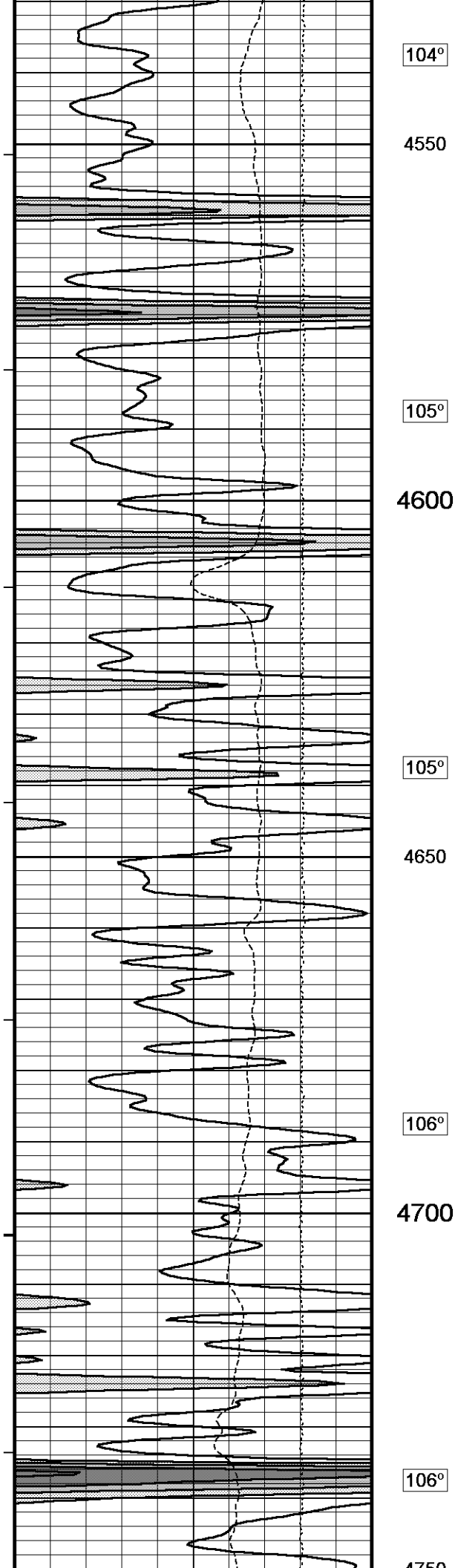


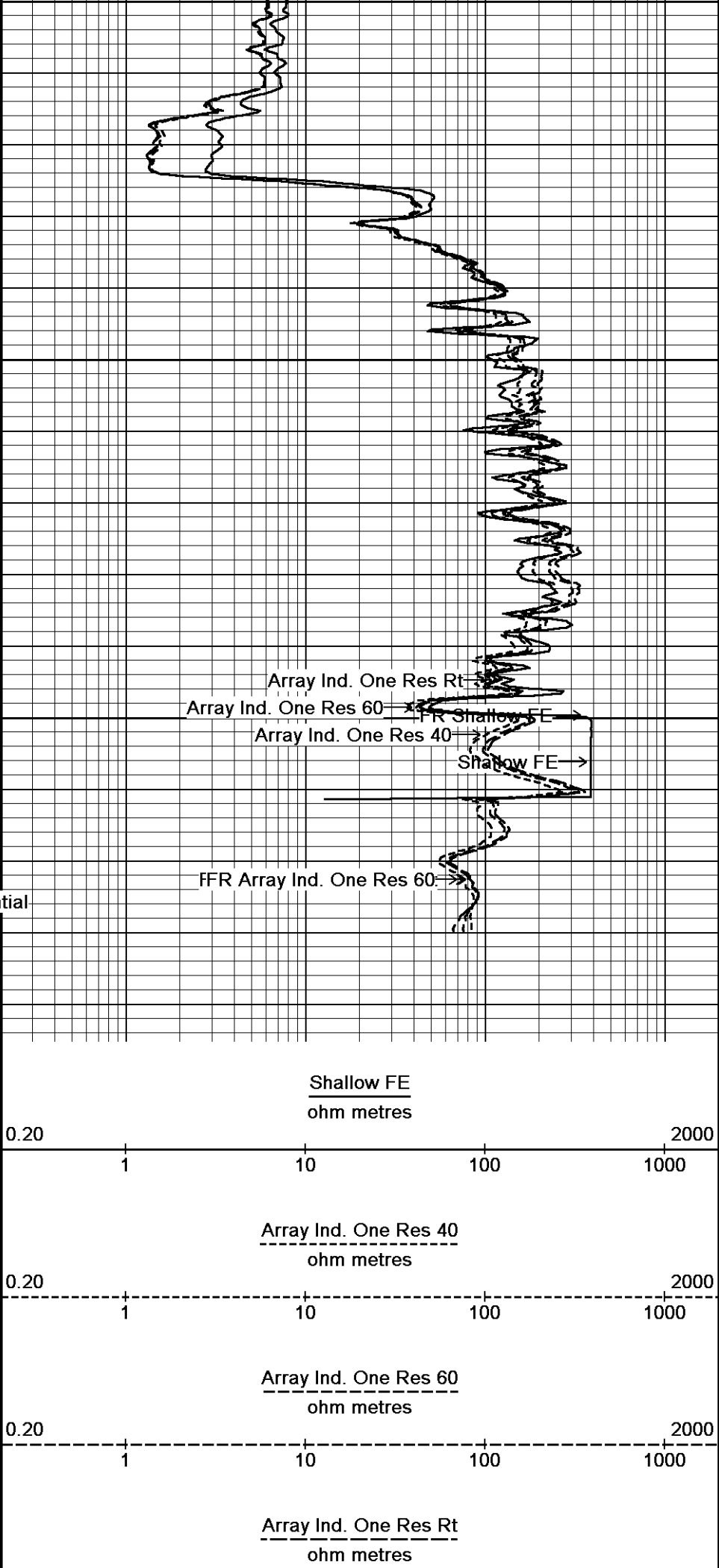
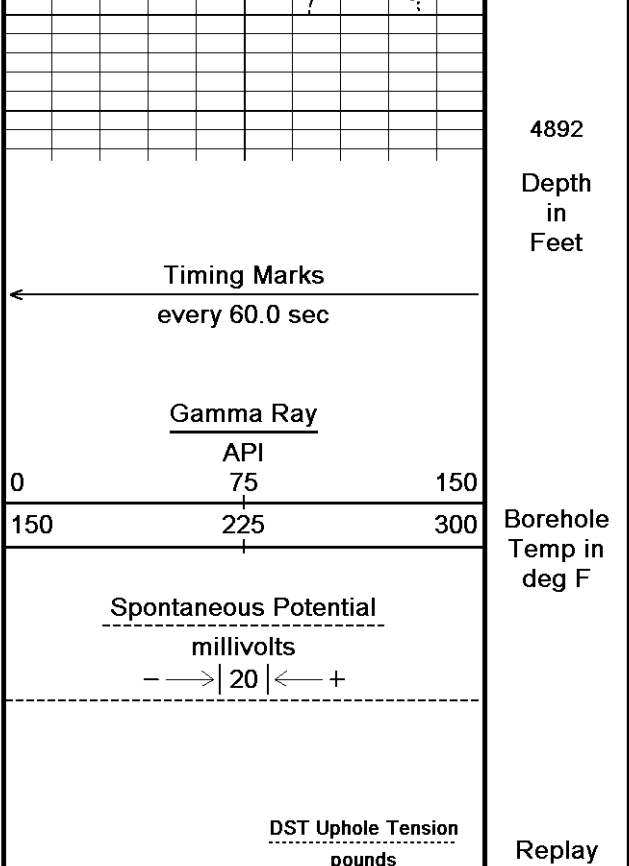
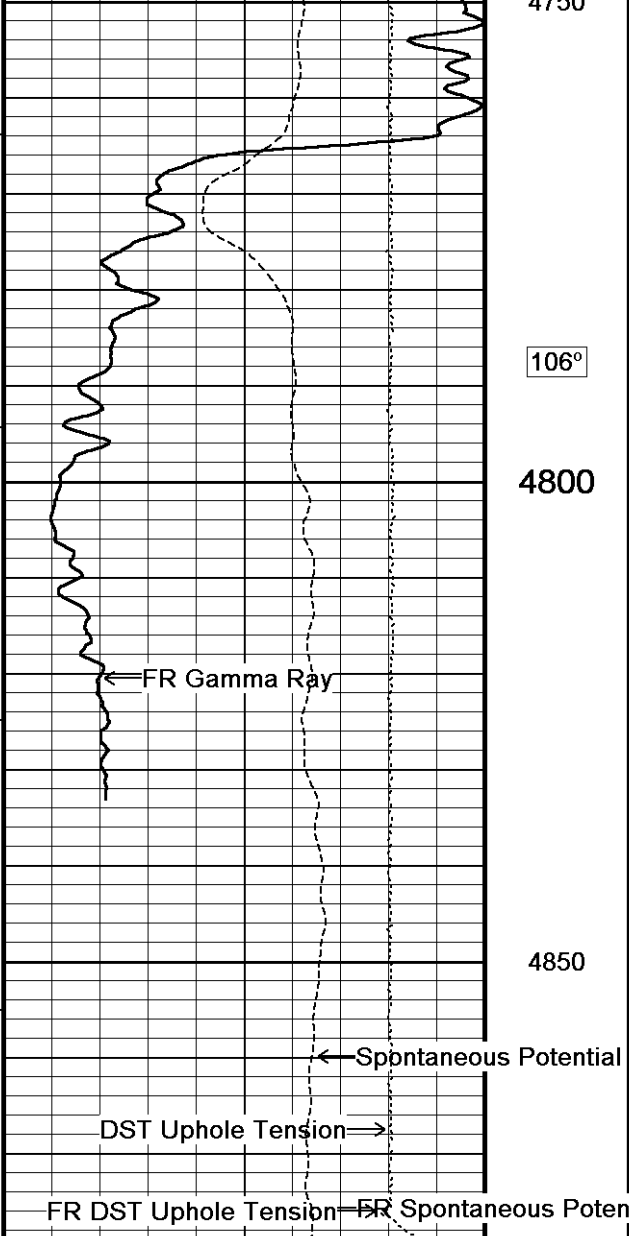












5000	0	Scale	0.20	1	10	100	1000	2000
0	-5000	1:240						

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 21-DEC-2010 12:35

Filename: C:\Minimus 11_01\Data\Shakespeare Janzen 1-16\Janzen 1-16_001.dta

Recorded on 21-DEC-2010 10:01

System Versions: Logged with 11.01.2198 Plotted with 11.01.2198



Repeat Section



BEFORE SURVEY CALIBRATION

C:\Minimus 11_01\Data\Shakespeare Janzen 1-16\Janzen 1-16.dta

General Constants All 000

Last Edited on 21-DEC-2010,08:40

General Parameters

Mud Resistivity	0.770	ohm-metres
Mud Resistivity Temperature	73.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	1.000
RWA Constant M	2.000

High Resolution Temperature Calibration MCG-B 67

Field Calibration on 06-AUG-2010,10:40

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-B 67

Last Edited on 06-AUG-2010,10:39

Pre-filter Length	11
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Gamma Calibration MCG-B 67

Field Calibration on 09-DEC-2010 10:58

	Measured	Calibrated (API)
Background	63	45
Calibrator (Gross)	707	501
Calibrator (Net)	644	456

Gamma Constants MCG-B 67

Last Edited on 21-DEC-2010,08:42

Gamma Calibrator Number	grcc141	
Mud Density	1.14	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

FE Calibration MFE-A.A 67

Base Calibration on 09-DEC-2010 09:55

Field Check on 12-DEC-2010 09:26

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	961.2	126.8
Base Check		280.8
Field Check		280.9

FE Constants MFE-A.A 67

Last Edited on 06-DEC-2010,11:30

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	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Induction Calibration MAI-A.A 188

Base Calibration on 09-SEP-2010,10:03
Field Check on 12-DEC-2010 09:24

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	16.5	472.3	9.3	966.2
2	6.0	378.3	7.6	821.4
3	3.5	260.7	5.2	566.0
4	1.1	135.1	2.6	279.2

Array Temperature 82.2 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	12.5	3849.2
2	0.0	0.0	30.3	3573.2
3	0.0	0.0	28.2	3044.8
4	0.0	0.0	21.0	2041.5
Deep	0.0	0.0	18.0	1926.4
Medium	0.0	0.0	40.1	4061.0
Shallow	0.0	0.0	44.4	5366.9

Array Temperature 0.0 41.5 Deg F

Induction Constants MAI-A.A 188

Last Edited on 21-DEC-2010,08:40

Induction Model

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	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Temperature Corr	
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	

DOWNHOLE EQUIPMENT

C:\Minimus 11_01\Data\Shakespeare Janzen 1-16\Janzen 1-16.dta

MCB-A.A 11B Tension Cablehead
MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 67 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 41 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

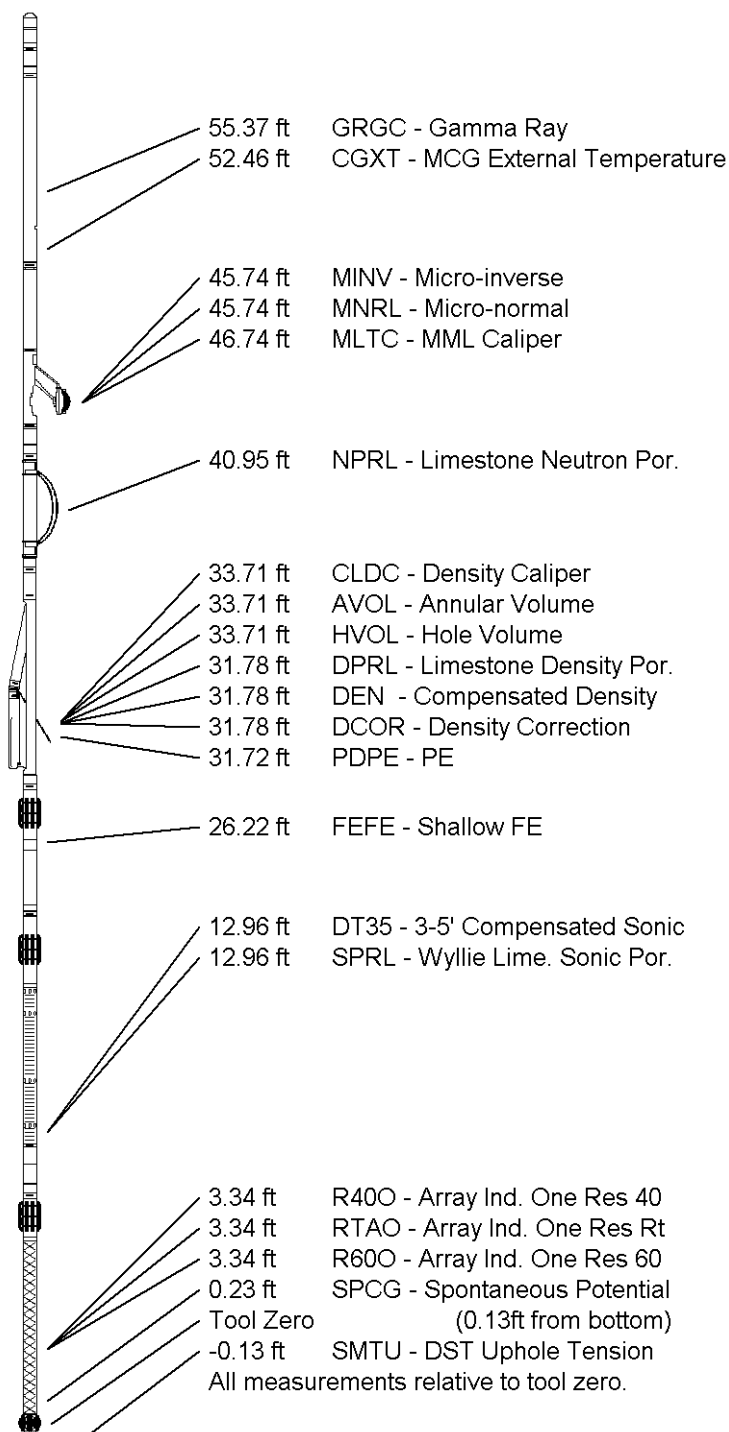
Compact Density/Caliper
MPD-B 61 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-A.A 67 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-A.A 127 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 188 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 63.05 ft Weight: 476.2 lb



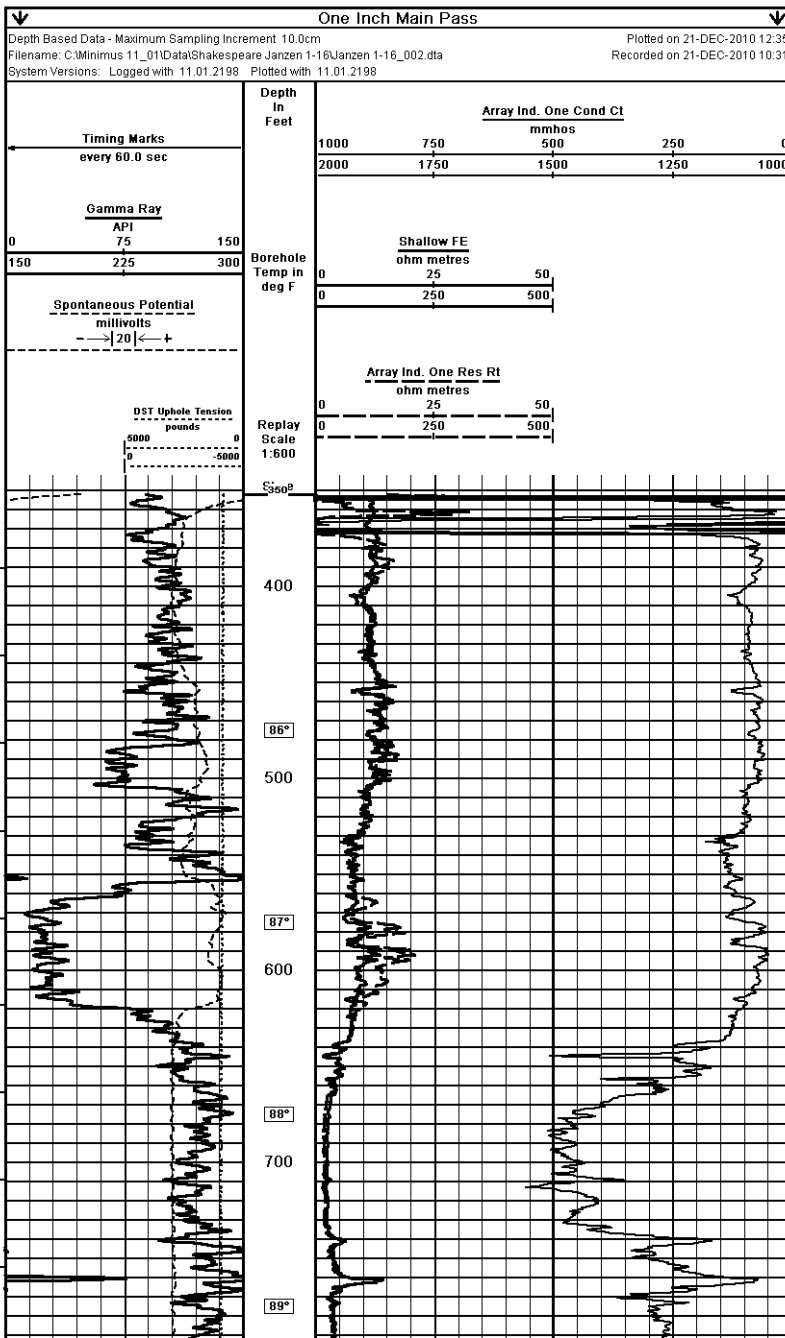
COMPANY SHAKESPEARE OIL
WELL JANZEN 1-16
FIELD WILDCAT
PROVINCE/COUNTY SCOTT
COUNTRY/STATE U.S.A./KANSAS

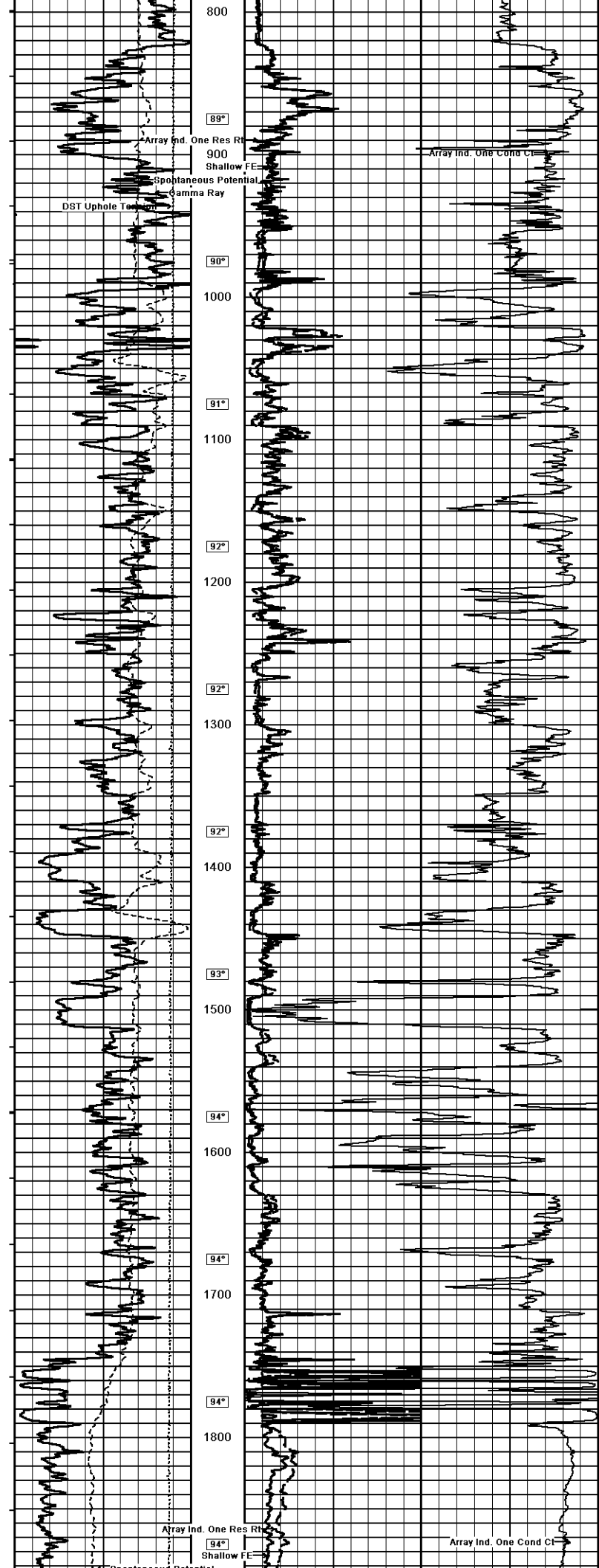
Elevation Kelly Bushing	3149.00	feet	First Reading	4873.00	feet
Elevation Drill Floor	3148.00	feet	Depth Driller	4880.00	feet
Elevation Ground Level	3139.00	feet	Depth Logger	4876.00	feet

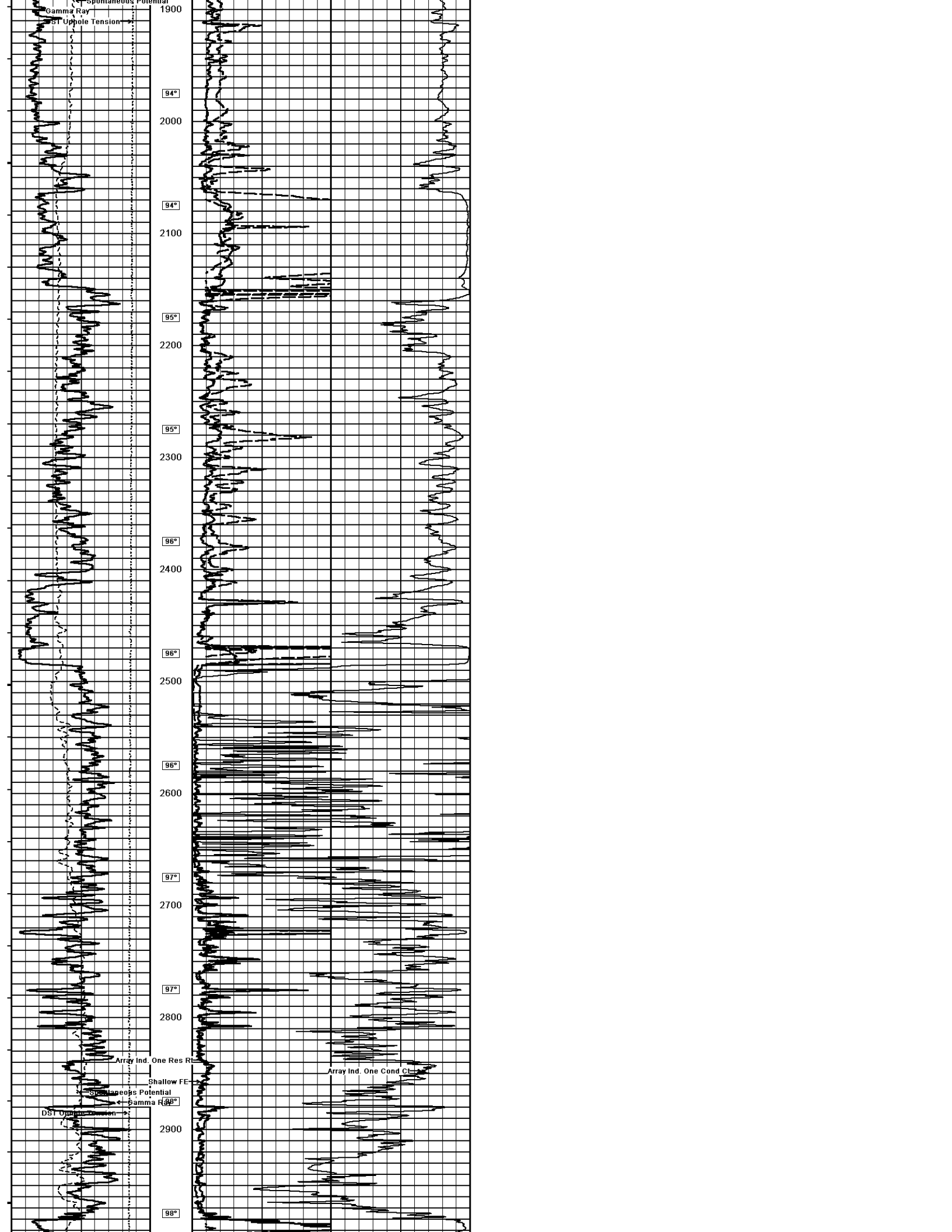
ARRAY INDUCTION

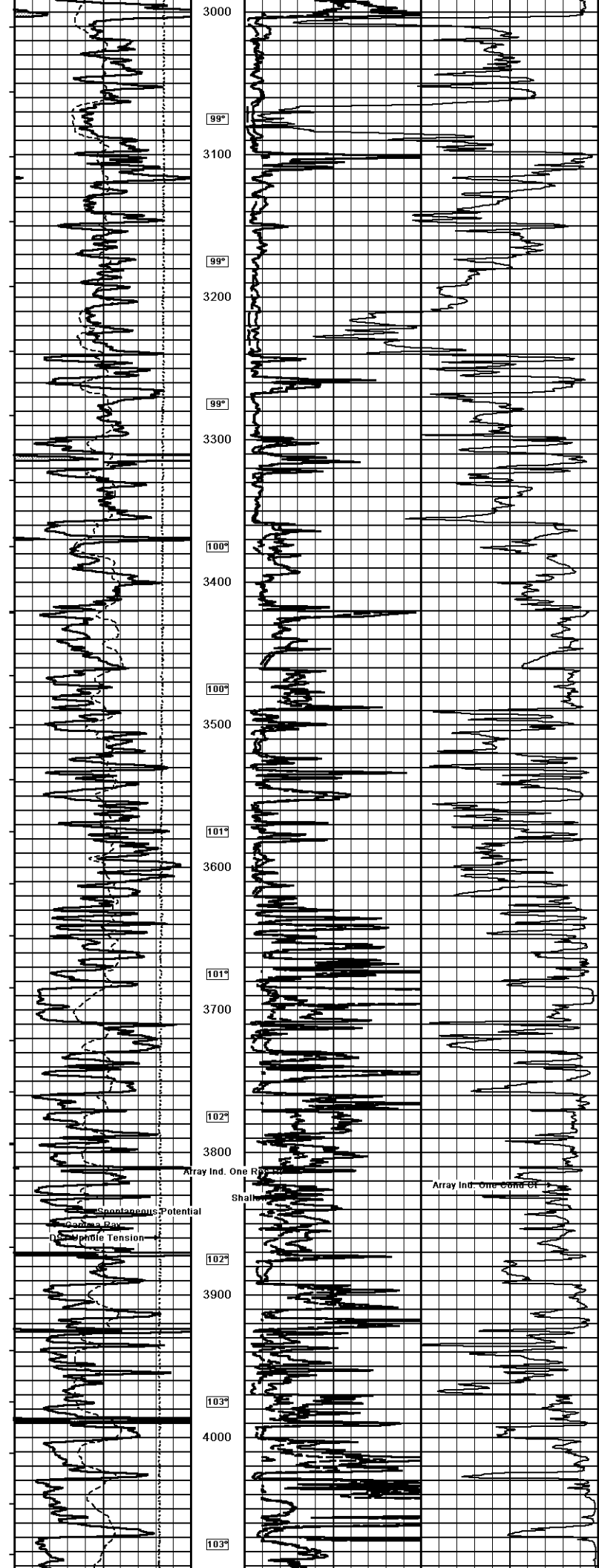


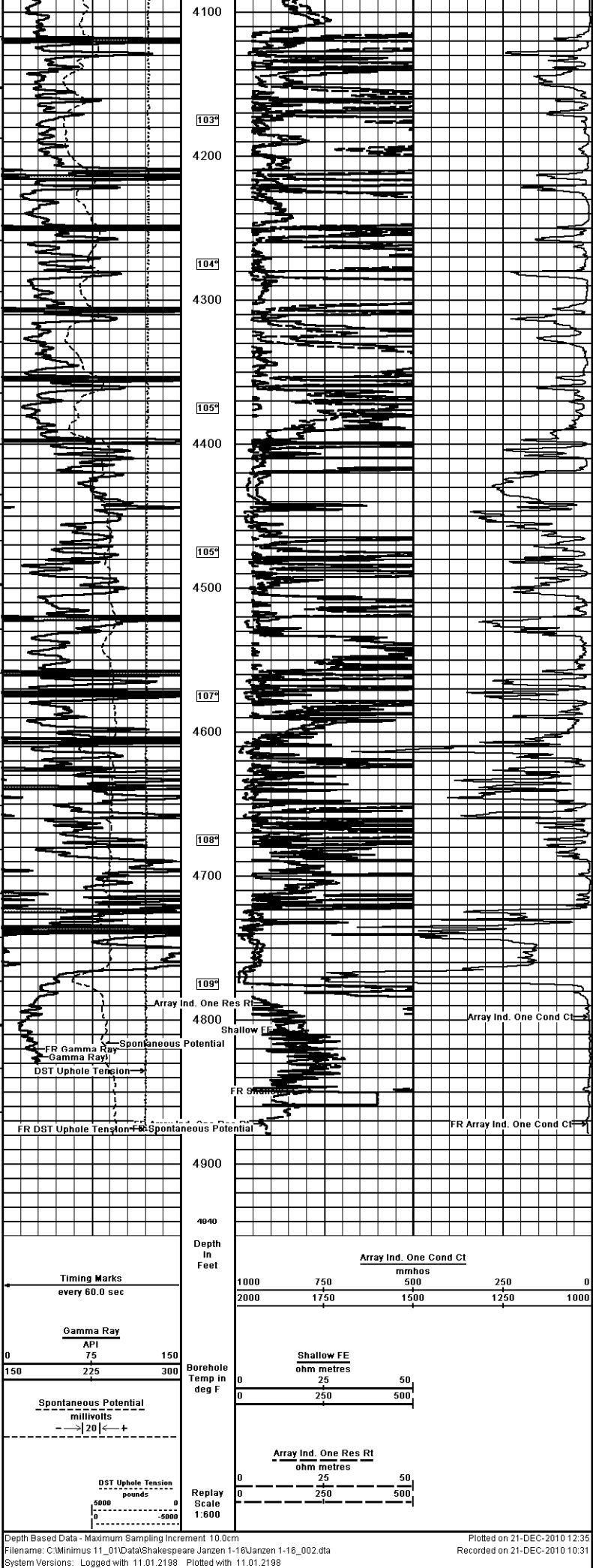
Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY: SHAKESPEARE OIL WELL: JANZEN 1-16 FIELD: WILDCAT PROVINCE/COUNTY: SCOTT COUNTRY/STATE: U.S.A./KANSAS LOCATION: 780' FNL & 815' FWL			
SEC: 16 TYP: 16 DATE: 21-DEC-2010 PERMITS: 16 LOG NUMBER: 154171-20730 LOG MEASURED FROM: K.B. @ 10 FEET above Permanent Datum LOGGING MEASURED FROM: K.B.	REE: 34 OTHER SERVICES: MMS PERMITS: 16 LOG NUMBER: 154171-20730 LOG MEASURED FROM: K.B. @ 10 FEET above Permanent Datum LOGGING MEASURED FROM: K.B.	Run Number: ONE Depth Driller: 4880.00 feet Depth Logger: 4876.00 feet First Reading: 4873.00 feet Last Reading: 352.00 feet Casing Driller: 351.00 feet Casing Logger: 352.00 feet Bit Size: 7.880 inches Hole Fluid Type: CHEMICAL Density/Viscosity: 9.50 g/cc pH/Fluid Loss: 10.00 Sample Source: FLOWLINE Run @ Measured Temp: 0.77 @ 73.0 ohm-m Run @ Measured Temp: 0.82 @ 73.0 ohm-m Run @ Measured Temp: 0.92 @ 73.0 ohm-m Source Rmt/Rinc: CALC Run @ BHT: 0.53 @ 106.0 ohm-m Time Since Circulation: 4 HOURS Max Recorded Temp: 108.00 deg F Equipment Name: COMPACT Equipment/Case: 13086 Recorded By: SHAWN LUTT Witnessed By: TIM PRIEST S.O.#/O# #: 3524840	
Date: 21-DEC-2010 Log Measured From: K.B. @ 10 FEET above Permanent Datum Logging Measured From: K.B.		Resistivity: 3146.00 K/F: 3146.00 G/L: 3139.00	











COMPANY		SHAKESPEARE OIL			
WELL		JANZEN 1-16			
FIELD		WILDCAT			
PROVINCE/COUNTY		SCOTT			
COUNTRY/STATE		U.S.A./KANSAS			
Elevation Kelly Bushing	3148.00	feet	First Reading	4873.00	feet
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		ARRAY INDUCTION			
		SHALLOW FOCUSSED			
		ELECTRIC LOG			