PRECISION ENERGY SERVICES

Compact

COMPENSATED NEUTRON PHOTO DENSITY

1:200

COMPANY	ORIGIN ENERGY LIMITED
WELL	PETERBOROUGH - 1ST1
FIELD	OTWAY BASIN
PROVINCE/COUNTY	VICTORIA
COUNTRY/STATE	AUSTRALIA
LOCATION	38º 35' 11.98" S, 142º 51' 34.06" E

FINAL PRINT

LSD	SEC	TWP	RGE	Other Services
				MICRO-LATEROLOG COMPENSATED SONIC

API Number
Permit Number PEP 154

Permanent Datum MSL , Elevation 0.0 metres
Log Measured From KB @ 14.95 above Permanent Datum
Drilling Measured From

Elevations:
KB 14.95 metres
DF metres
GL 9.65 metres

Date	05-SEP-2004			
Run Number	2			
Depth Driller	2070.00	metres		
Depth Logger	2052.55	metres		
First Reading	2051.50	metres		
Last Reading	1750.00	metres		
Casing Driller	495.60	metres		
Casing Logger	495.40	metres		
Bit Size	8.50	inches		
Hole Fluid Type	KCL POLYMER			
Density / Viscosity	1.14 g/c3		45.00 CP	
PH / Fluid Loss	9.50		4.40 ml/30Min	
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.30 @ 22.2	ohm-m		
Rmf @ Measured Temp	0.53 @ 22.3	ohm-m		
Rmc @ Measured Temp	0.12 @ 22.1	ohm-m		
Source Rmf / Rmc	FILTER		PRESS	
Rm @ BHT	0.14 @ 74.0	ohm-m		
Time Since Circulation	26 HRS			
Max Recorded Temp	74.00	deg C		
Equipment Name	SCOMBO			
Equipment / Base	8			
Recorded By	SHAWN STASIUK			
Witnessed By	JOHN HOBDAY			
Circ. Stop	01:00-SEP 05			

BOREHOLE RECORD

Bit Size inches	Depth From metres	Depth To metres
8.500	495.00	2070.00

CASING RECORD

Type	Size inches	Depth From metres	Shoe Depth metres	Weight pounds/ft
K55	9.625	0.00	495.00	36.00

REMARKS

1) SOFTWARE ISSUE: JUN 17, 2004.
2) CUSTOMER SCALES AND INTERVALS LOGGED.
3) HFS, MPD, MDN, MCG RAN IN COMBINATION.
4) HARDWARE: MDN: DUAL BOWSPRING

5) MPD CORRECTED FOR BOREHOLE SIZE AND MUD DENSITY.
6) MDN CORRECTED FOR BOREHOLE SIZE AND MUD DENSITY AND SALINITY.

7) SERVICE ORDER:2391
8) RIG:CENTURY 7

PRINTS: 1 FIELD 3 FINALS

9) TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 70 CU.M.
10) TOTAL ANNULAR VOLUME WITH 7 INCH CASING = 31.5 CU.M.

11) PARTIAL CEMENT IN THE HOLE BETWEEN 925 AND 980M.
12) LOGGING TOOLS WERE REPEATEDLY HUNG UP FROM 720 TO 1354M.
13) UNABLE TO MAKE IT PAST 2049M. SEVERAL ATTEMPTS WERE MADE.

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.

MAINLOG 1:200

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-SEP-2005 11:05
Filename: D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta
Recorded on 08-SEP-2005 02:48
System Configuration Dates: Logged : Plotted 17-JUN-2004:

Timing Marks
every 60.0 sec

DST Uphole Tension
pounds
0 2500 5000
5000 7500 10000

Borehole Corrected Gamma
API
0 100 200
200 300 400

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Depth in Metres

Borehole Temp in deg C

HVI every 0.1 cu m

Annular Integral every 0.1 cu m

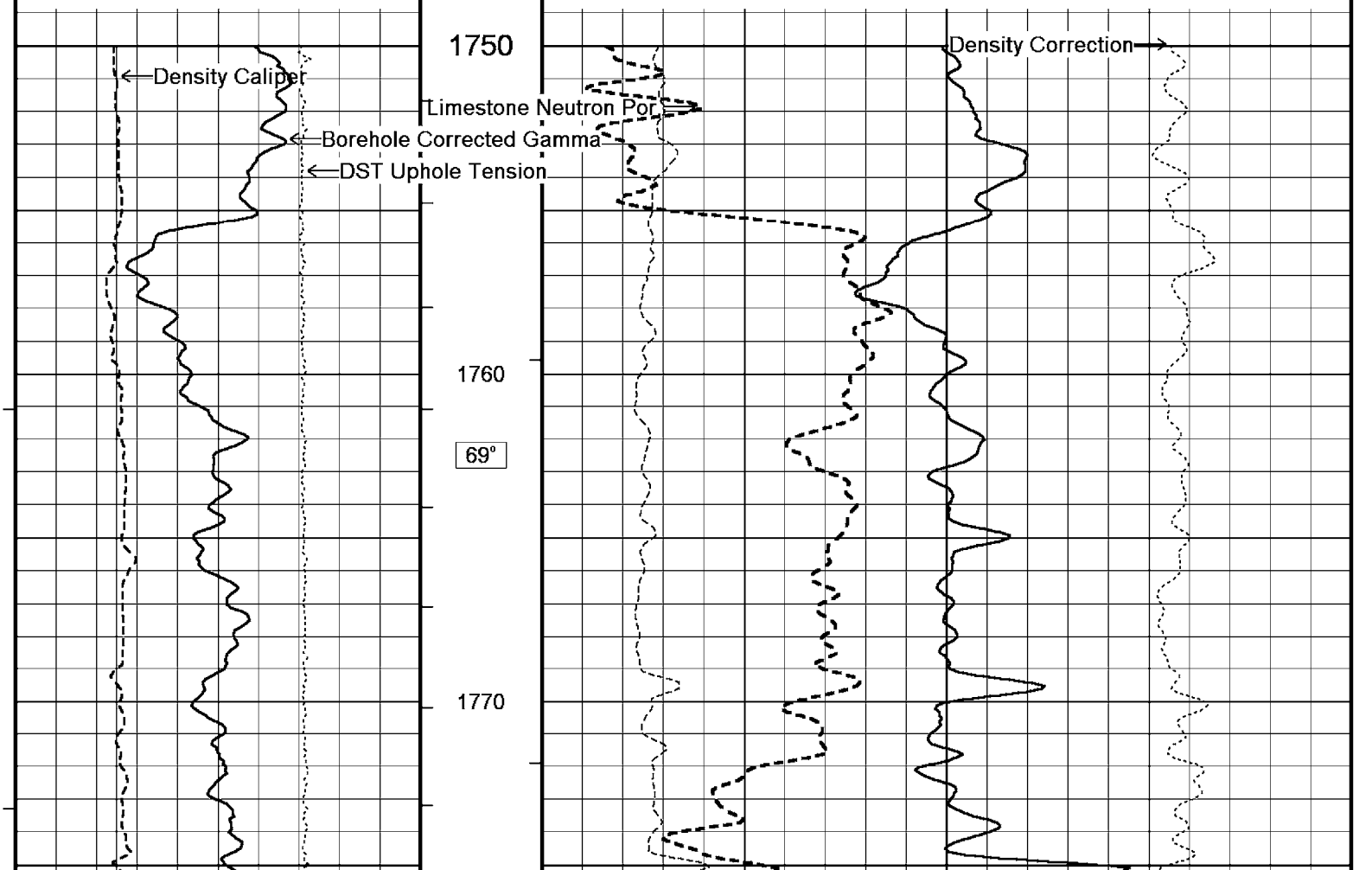
Replay Scale 1:200

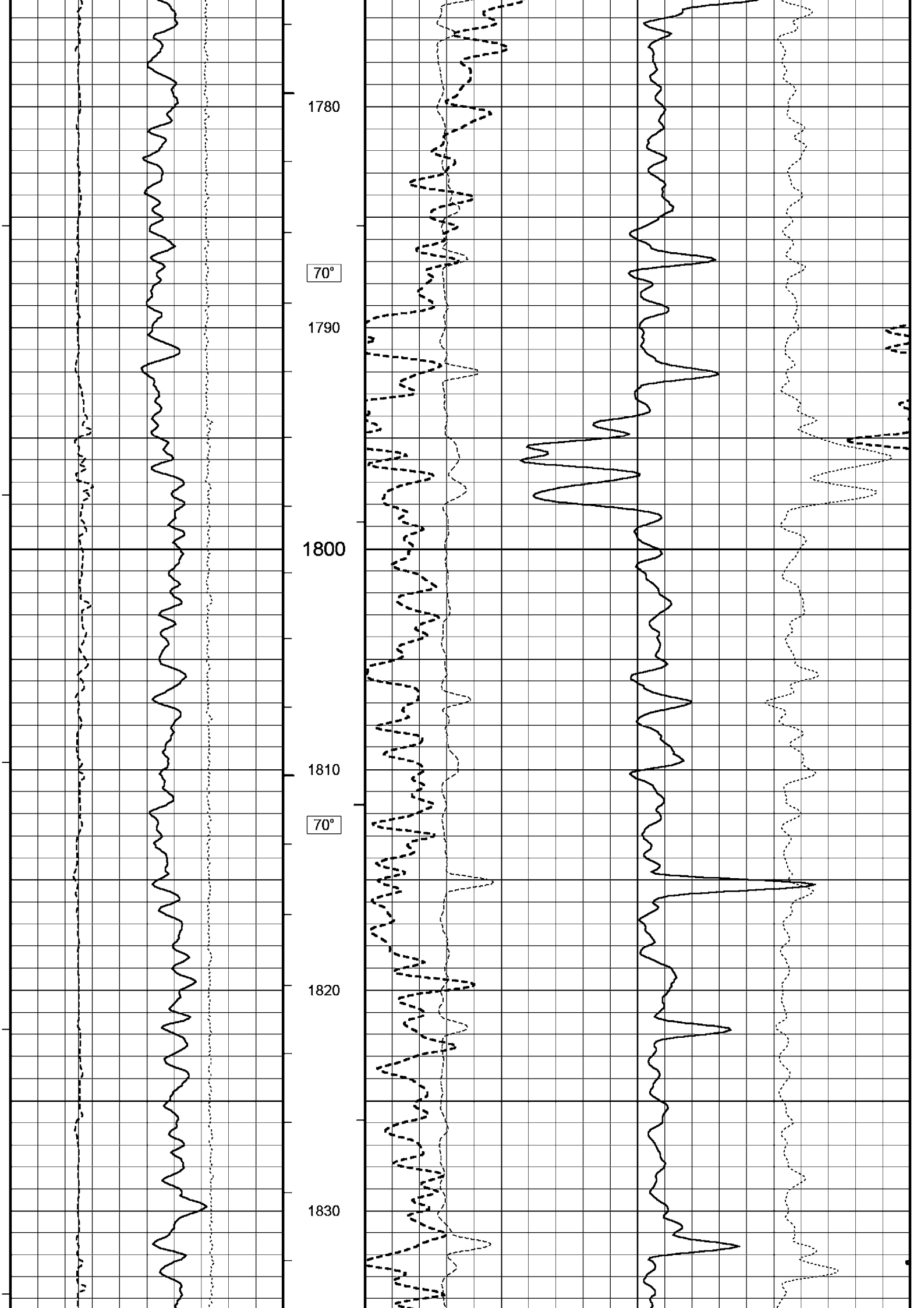
Limestone Neutron Por.
percent
45 30 15 0 -15

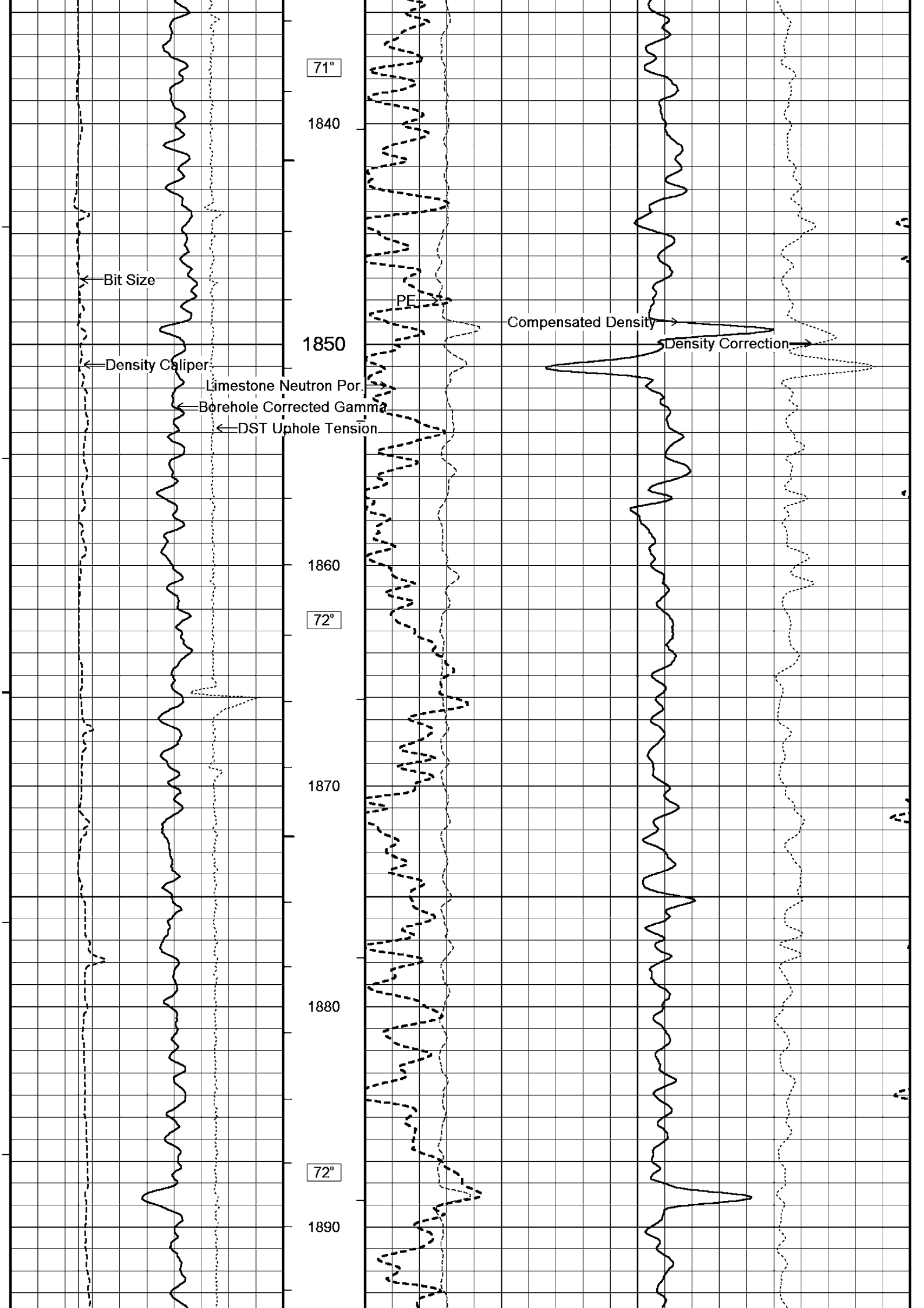
Compensated Density
grams/cc
1.95 2.20 2.45 2.70 2.95

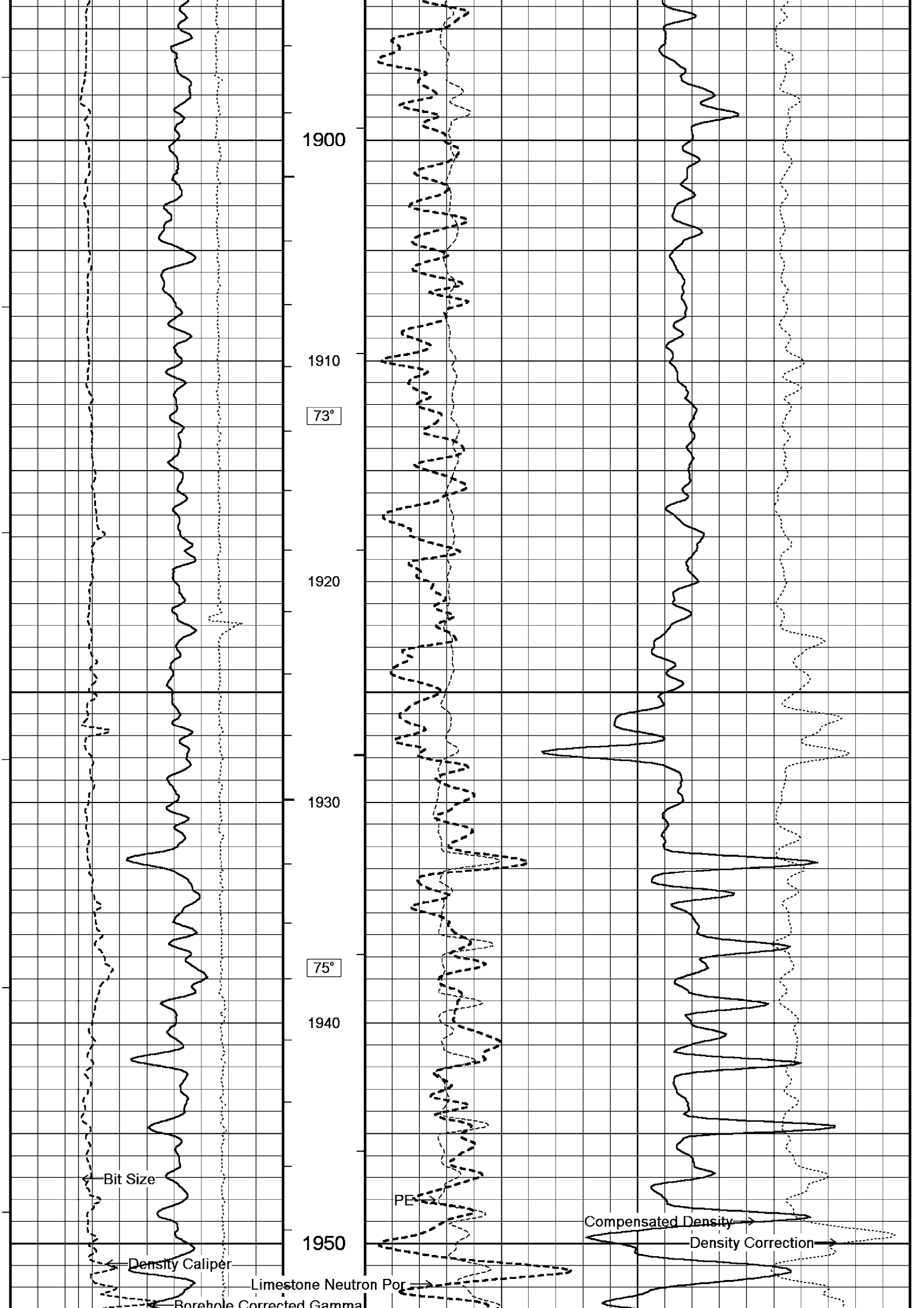
PE
barns/electron
0 5 10 15 20

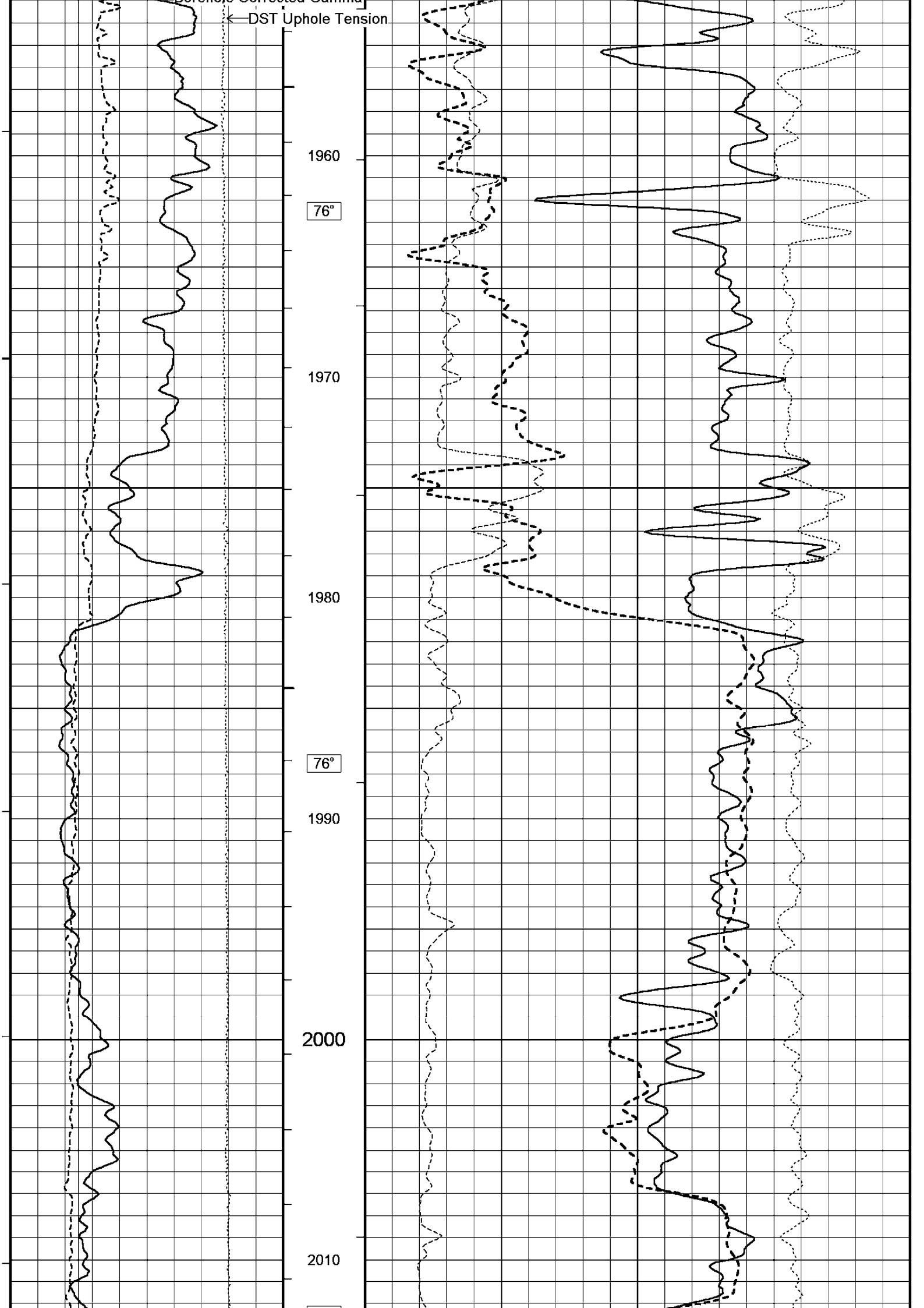
Density Correction
grams/cc
-0.25 0 0.25

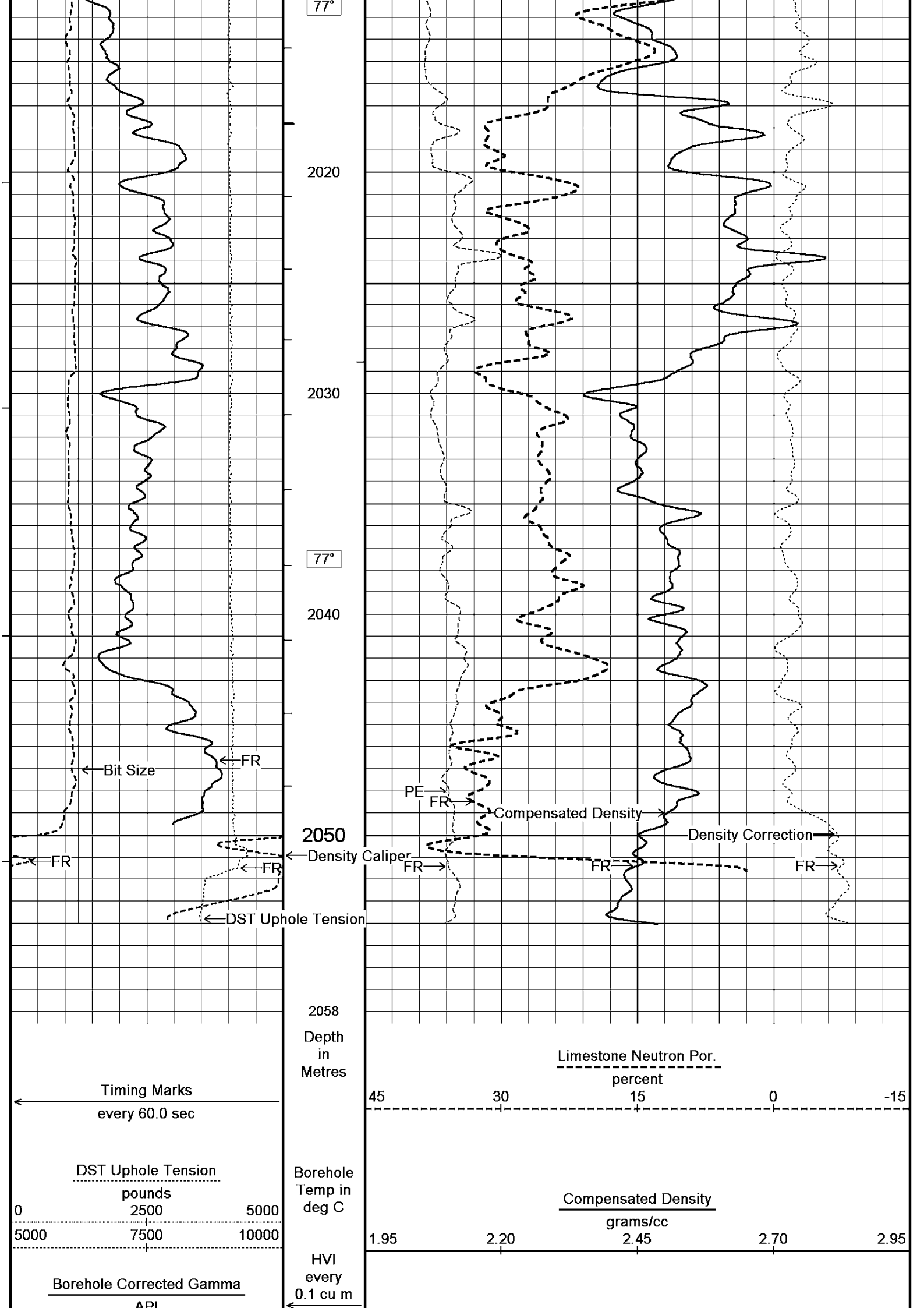



1780
70°
1790
1800
1810
70°
1820
1830


71°
1840
Bit Size
PE
Compensated Density
1850
Density Caliper
Density Correction
Limestone Neutron Por.
Borehole Corrected Gamma
DST Uphole Tension
1860
72°
1870
1880
72°
1890


1900
1910
73°
1920
1930
75°
1940
1950
Bit Size
Density Caliper
Limestone Neutron Por
Borehole Corrected Gamma
PE
Compensated Density
Density Correction


←DST Uphole Tension
1960
76°
1970
1980
76°
1990
2000
2010


77°
2020
2030
77°
2040
2050
2058
Bit Size
FR
FR
FR
Density Caliper
DST Uphole Tension
PE
FR
Compensated Density
Density Correction
FR
FR
FR
Depth in Metres
Timing Marks
every 60.0 sec
DST Uphole Tension
pounds
0
2500
5000
5000
7500
10000
Borehole Temp in deg C
Borehole Corrected Gamma
API
HVI every 0.1 cu m
Limestone Neutron Por.
percent
45
30
15
0
-15
Compensated Density
grams/cc
1.95
2.20
2.45
2.70
2.95

0 100 200

200 300 400

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Annular Integral every 0.1 cu m

Replay Scale 1:200

PE
barns/electron
0 5 10 15 20

Density Correction
grams/cc
-0.25 0 0.25

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta
System Configuration Dates: Logged : Plotted 17-JUN-2004:

Plotted on 13-SEP-2005 11:05
Recorded on 08-SEP-2005 02:48

MAINLOG 1:200

MAINLOG 1:200
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta
Filename: D:\ORIGIN\Peterborough_1\DPK\REPEAT_MDN_MPD.dta
System Configuration Dates: Logged : Plotted 17-JUN-2004:

Plotted on 13-SEP-2005 11:05
Recorded on 08-SEP-2005 02:48
Recorded on 08-SEP-2005 02:14

Depth in Metres

Timing Marks
every 60.0 sec

DST Uphole Tension
pounds
0 2500 5000
5000 7500 10000

Borehole Temp in deg C

Limestone Neutron Por.
percent
45 30 15 0 -15

Compensated Density
grams/cc
1.95 2.20 2.45 2.70 2.95

HVI every 0.1 cu m

Borehole Corrected Gamma
API
0 100 200
200 300 400

Annular Integral every 0.1 cu m

PE
barns/electron
0 5 10 15 20

Density Caliper
inches
6 11 16

Density Correction
grams/cc
-0.25 0 0.25

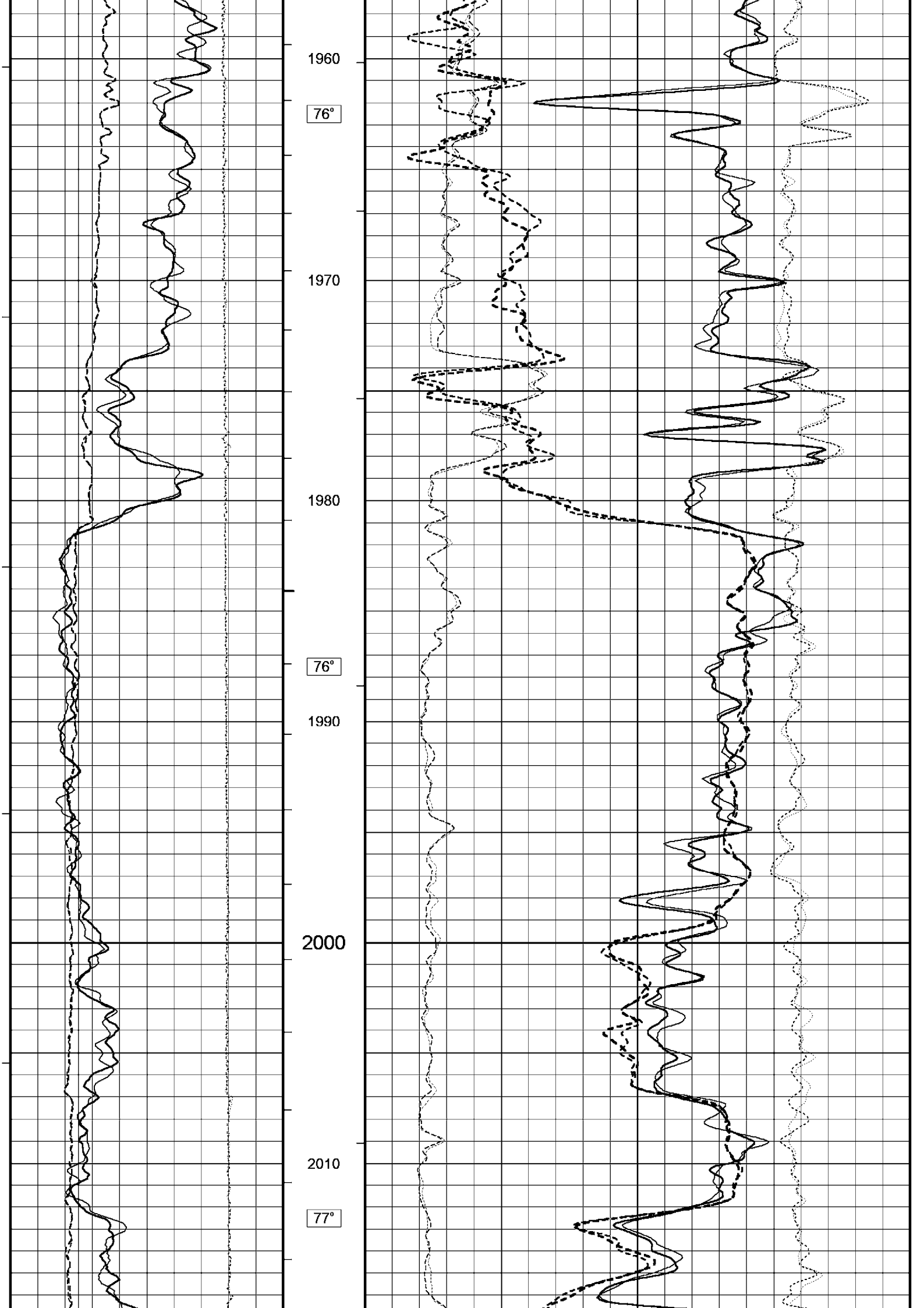
Bit Size
inches
6 11 16

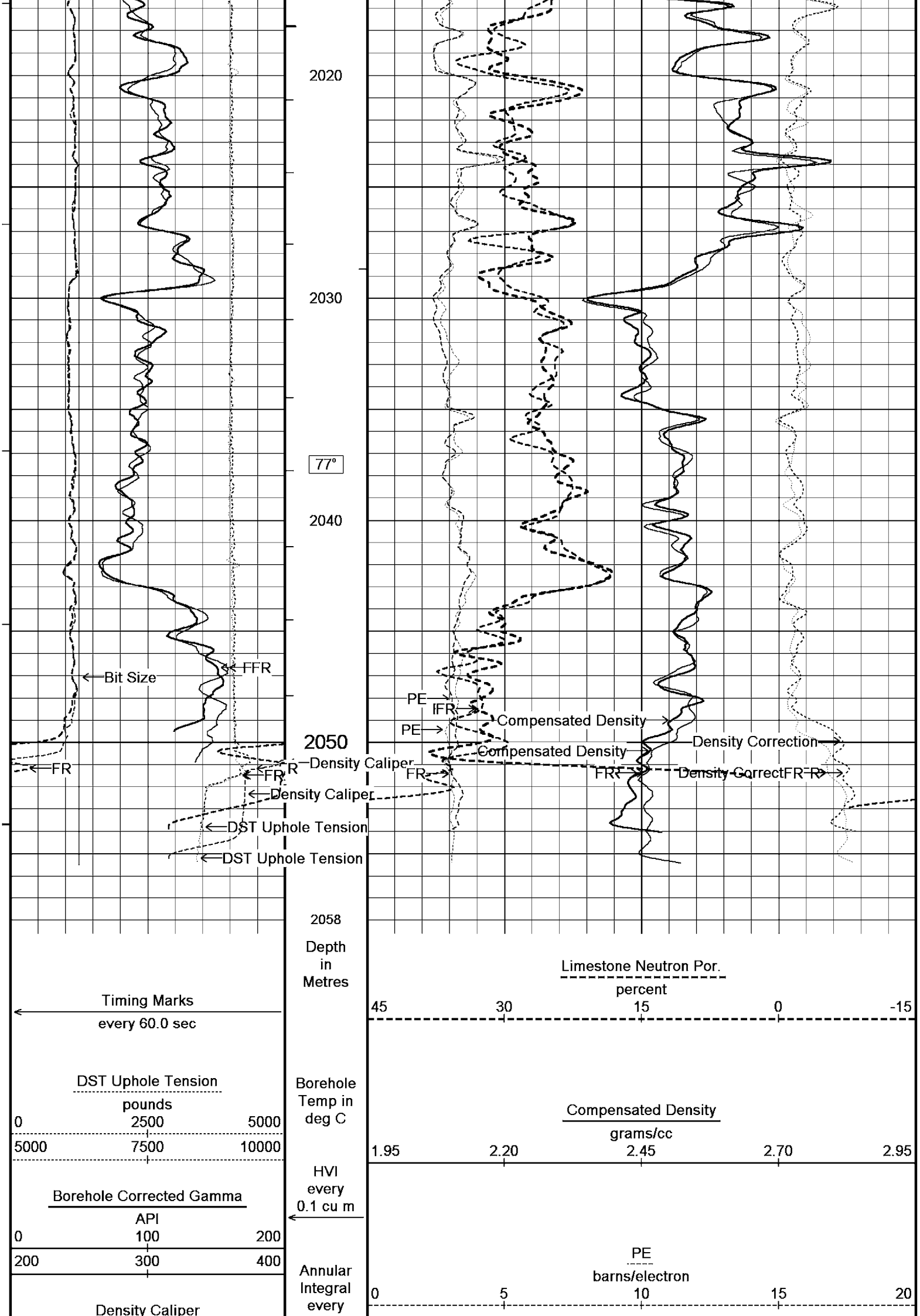
Replay Scale 1:200

1950

Density Caliper
Density Caliper
Limestone Neutron Por
Borehole Corrected Gamma
Limestone Neutron Por
DST Uphole Tension
Borehole Corrected Gamma
DST Uphole Tension

Density Correction
Density Correction


1960
76°
1970
1980
76°
1990
2000
2010
77°


2020
2030
77°
2040
2050
2058
Bit Size
FFR
FR
PE
IFR
Compensated Density
PE
Density Correction
Compensated Density
FR
FR
Density Caliper
FR
Density Caliper
FR
Density Caliper
DST Uphole Tension
DST Uphole Tension
Depth in Metres
Timing Marks
every 60.0 sec
DST Uphole Tension
pounds
0
2500
5000
5000
7500
10000
Borehole Corrected Gamma
API
0
100
200
200
300
400
Density Caliper
Borehole Temp in deg C
HVI every 0.1 cu m
Annular Integral every
Limestone Neutron Por.
percent
45
30
15
0
-15
Compensated Density
grams/cc
1.95
2.20
2.45
2.70
2.95
PE
barns/electron
0
5
10
15
20

inches
6 11 16

0.1 cu m

Density Correction
grams/cc
-0.25 0 0.25

Bit Size
inches
6 11 16

Replay
Scale
1:200

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 13-SEP-2005 11:05
Filename: D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta — Recorded on 08-SEP-2005 02:48
Filename: D:\ORIGIN\Peterborough_1\DPK\REPEAT_MDN_MPD.dta — Recorded on 08-SEP-2005 02:14
System Configuration Dates: Logged : Plotted 17-JUN-2004:

MAINLOG 1:200
REPEAT SECTION

MAINLOG 1:200
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 13-SEP-2005 11:05
Filename: D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta — Recorded on 08-SEP-2005 02:48
Filename: D:\ORIGIN\Peterborough_1\DPK\REPEAT_2_MDN_MPD.dta — Recorded on 08-SEP-2005 02:31
System Configuration Dates: Logged : Plotted 17-JUN-2004:

Depth in Metres

Limestone Neutron Por.
percent
45 30 15 0 -15

Timing Marks
every 60.0 sec

DST Uphole Tension
pounds
0 2500 5000
5000 7500 10000

Borehole Temp in deg C

Compensated Density
grams/cc
1.95 2.20 2.45 2.70 2.95

HVI every 0.1 cu m

Borehole Corrected Gamma
API
0 100 200
200 300 400

PE
barns/electron
0 5 10 15 20

Annular Integral every 0.1 cu m

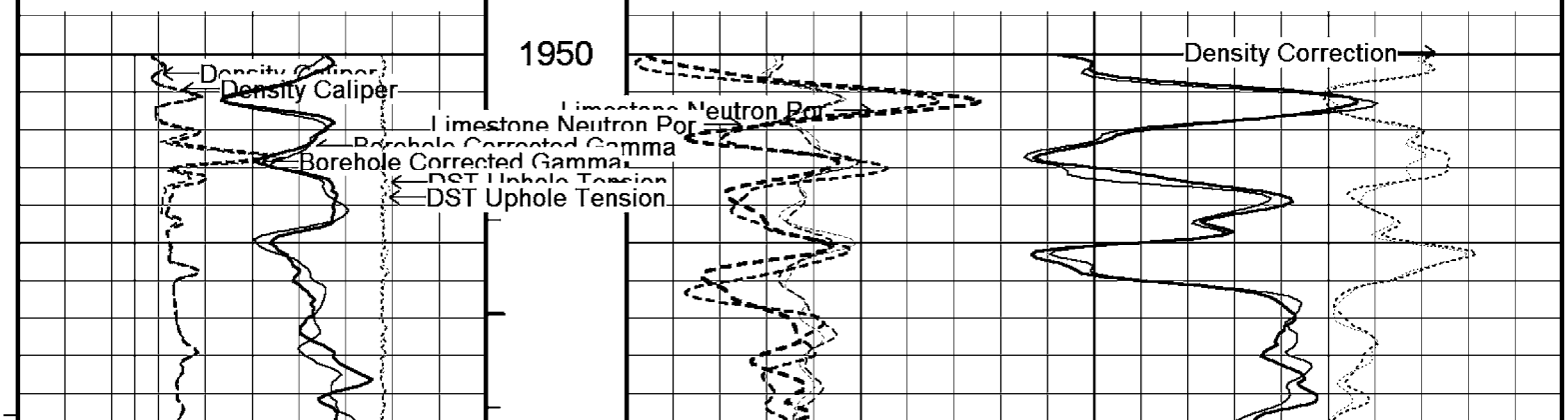
Density Caliper
inches
6 11 16

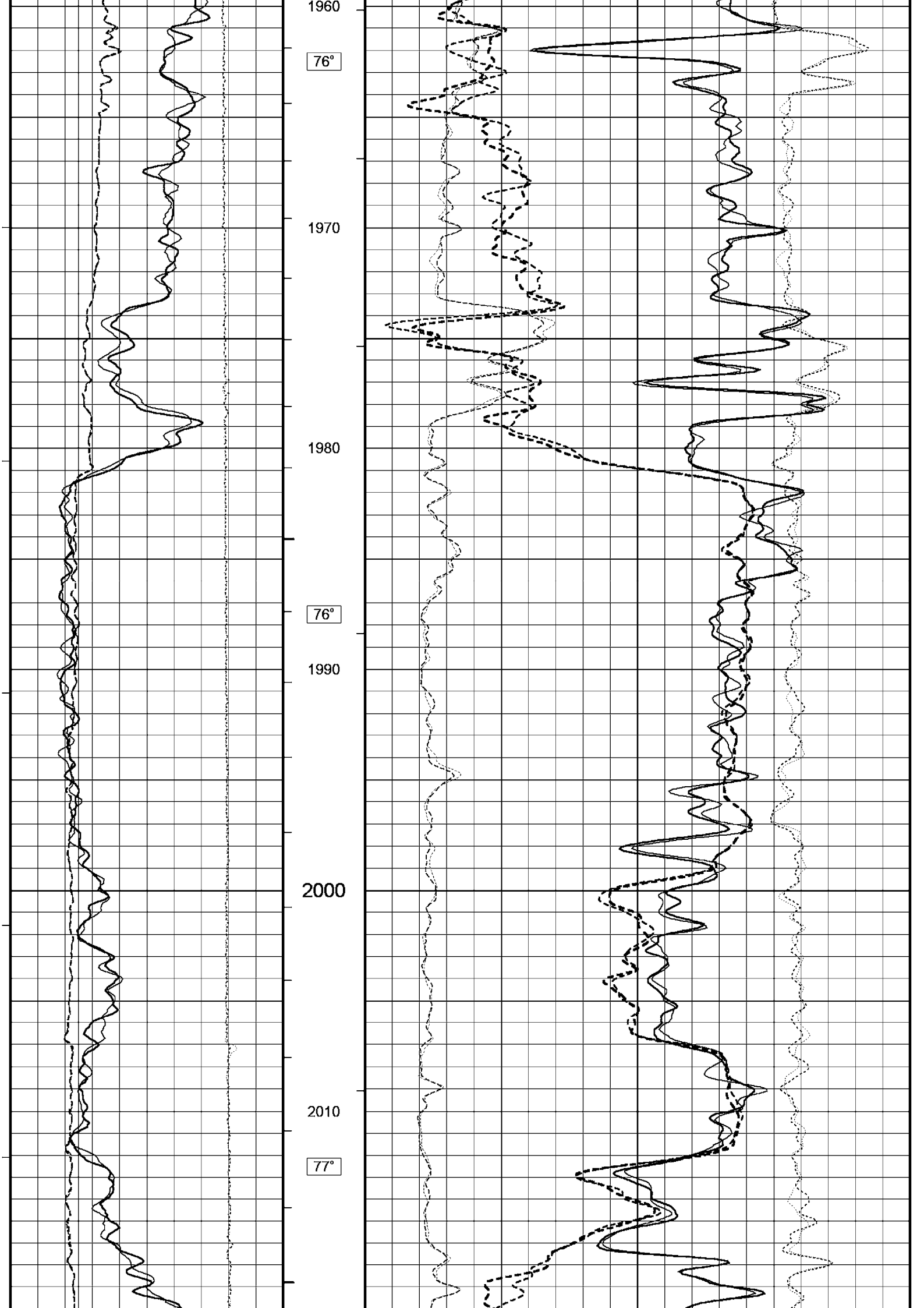
Density Correction
grams/cc
-0.25 0 0.25

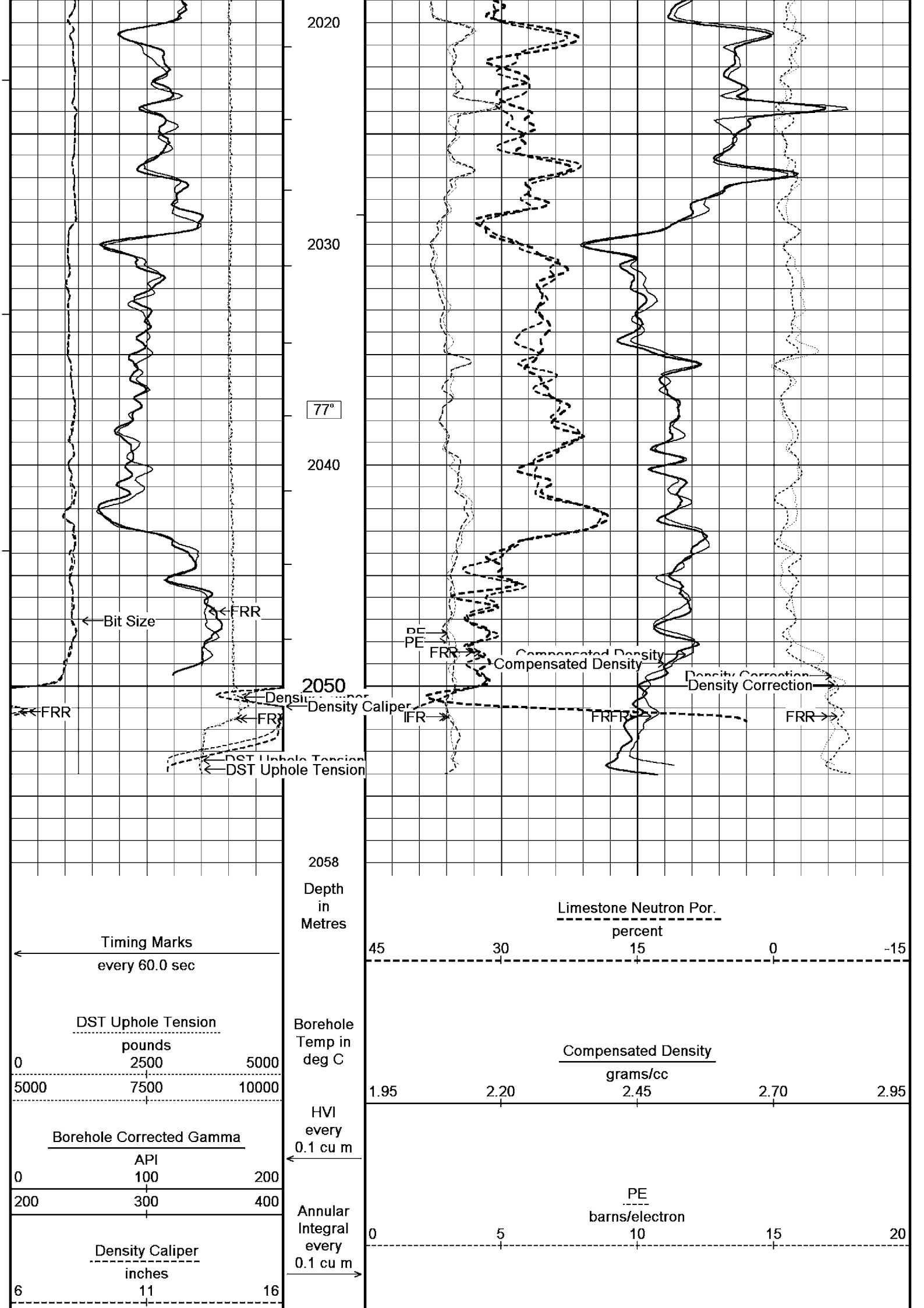
Bit Size
inches
6 11 16

Replay
Scale
1:200

1950




1960
76°
1970
1980
76°
1990
2000
2010
77°


2020
2030
77°
2040
2050
2058
Bit Size
FRR
PE
FRR
Compensated Density
Density Correction
Density Caliper
IFR
FRR
DST Uphole Tension
Depth in Metres
Timing Marks
every 60.0 sec
Limestone Neutron Por.
percent
45 30 15 0 -15
DST Uphole Tension
pounds
0 2500 5000
5000 7500 10000
Borehole Temp in deg C
Compensated Density
grams/cc
1.95 2.20 2.45 2.70 2.95
HVI every 0.1 cu m
Borehole Corrected Gamma
API
0 100 200
200 300 400
PE
barns/electron
0 5 10 15 20
Annular Integral every 0.1 cu m
Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Replay
Scale
1:200

Density Correction
grams/cc
-0.25 0 0.25

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 13-SEP-2005 11:05
Filename: D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta
Recorded on 08-SEP-2005 02:48
Filename: D:\ORIGIN\Peterborough_1\DPK\REPEAT_2_MDN_MPD.dta
Recorded on 08-SEP-2005 02:31
System Configuration Dates: Logged : Plotted 17-JUN-2004:

MAINLOG 1:200
REPEAT SECTION

BEFORE SURVEY CALIBRATION

D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta

General Constants All 000

General Parameters		
Mud Resistivity	0.300	ohm-metres
Mud Resistivity Temperature	20.000	degrees C
Water Level	0.000	metres
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	Density Caliper	
Annular Volume Diameter	7.000	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	N/A	
Resistivity used	N/A	
RWA Constant A	N/A	
RWA Constant M	N/A	

Gamma Calibration MCG 098

Field Calibration on 23-AUG-2005 10:33

	Measured	Calibrated (API)
Background	48	35
Calibrator (Gross)	1070	784
Calibrator (Net)	1022	749

Gamma Constants MCG 098

Gamma Calibrator Number	30	
Mud Density	1.14	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG 098

Field Calibration on 23-AUG-2005,10:33

	Measured	Calibrated(Deg C)
Lower	0.00	0.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG 098

Pre-filter Length	11

SP Calibration MCG 098

Field Calibration on 9-JAN-2005,00:41

	Measured	Calibrated (mV)
Reference 1	1604.7	1599.0
Reference 2	-1599.8	-1599.0

Neutron Calibration MDN 043

Base Calibration on 22-AUG-2005 15:53
Field Check on 4-SEP-2005 20:27

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far

	Near	Far	Near	Far
	3021	94	3714	110
Ratio	32.071		33.764	

Field Calibrator at Base	Calibrated (cps)	
	1674	2333
Ratio	0.717	

Field Check	Calibrated (cps)	
	1645	2338
Ratio	0.703	

Neutron Constants MDN 043

Neutron Source Id	NSNE-747	
Neutron Jig Number	31	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.14	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	20.00	degrees C
Mud Salinity	21.14	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Photo Density Calibration MPD 066

Base Calibration on 22-AUG-2005,12:13
Field Check on 4-SEP-2005 20:33

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	49825	17938	53111	19310
Reference 2	23308	2480	24951	2530

Field Check at Base		
	918.0	1089.7

Field Check		
	921.8	1085.1

PE Calibration

Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	176	793		
Reference 1	15856	49650	0.321	0.320
Reference 2	6240	23176	0.271	0.273

Field Check at Base		
	176.0	793.2

Field Check		
	175.6	798.1

Density Constants MPD 066

Density Source Id	NSDL250	
Nylon Calibrator Number	DNC-D-536	
Aluminium/Fe Calibrator Number	DAC-D-536	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.14	gm/cc
Mud Density Z/A Correction	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

Matrix Density (gm/cc)	Depth (m)
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

Caliper Calibration MPD 066

Base Calibration on 22-AUG-2005 11:11
Field Calibration on 8-SEP-2005,03:44

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	11983	4.01
2	20446	5.99
3	29120	7.98
4	37568	9.94
5	47008	12.01
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.37	8.92

DOWNHOLE EQUIPMENT

D:\ORIGIN\Peterborough_1\DPK\MAIN_SPLICE_MDN_MPD.dta

All measurements relative to tool zero.

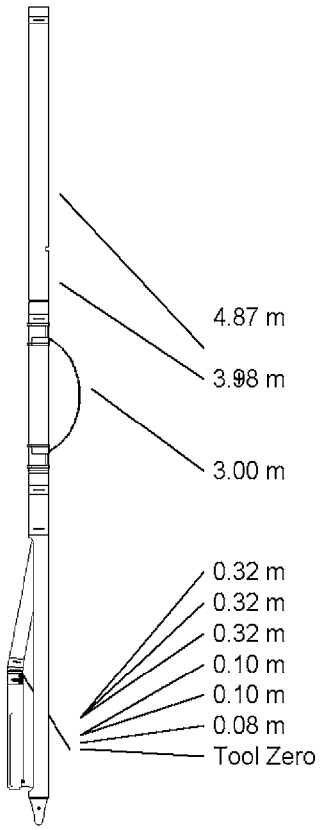
Compact Gamma
MCG 98 Length: 2.65 m Weight: 63.9 lb

Compact Neutron
MDN 43 Length: 1.53 m Weight: 50.7 lb

Compact Density/Caliper
MPD 66 Length: 2.92 m Weight: 90.4 lb

Pressure Bung + Hole Finder
HFS 3 Length: 0.28 m Weight: 6.6 lb

Total Length: 7.39 m Weight: 211.6 lb



4.87 m	GGCE - Borehole Corrected Gamma
3.98 m	CGXT - MCG External Temperature
3.00 m	NPRS - Sandstone Neutron Por.
0.32 m	AVOL - Annular Volume
0.32 m	HVOL - Hole Volume
0.32 m	CLDC - Density Caliper
0.10 m	DCOR - Density Correction
0.10 m	DPRS - Sandstone Density Por.
0.08 m	PDPE - PE
Tool Zero	(0.95m from bottom)

COMPANY	ORIGIN ENERGY LIMITED
WELL	PETERBOROUGH - 1ST1
FIELD	OTWAY BASIN
PROVINCE/COUNTY	VICTORIA
COUNTRY/STATE	AUSTRALIA

Elevation Kelly Bushing	14.95	metres	First Reading	2051.50	metres
Elevation Drill Floor		metres	Depth Driller	2070.00	metres
Elevation Ground Level	9.65	metres	Depth Logger	2052.55	metres

PRECISION ENERGY SERVICES

COMPENSATED NEUTRON
PHOTO DENSITY

Compact	1:200