NABORS
COMPLETION & PRODUCTION SERVICES CO.

DUAL INDUCTION LOG

Company	LIBERTY OPER. & COMPL. INC.
Well	CHAROLAIS #1
Field	BEMIS - SHUTTS
County	ELLIS
State	KANSAS

Company LIBERTY OPERATIONS & COMPLETIONS, INC.
Well CHAROLAIS #1
Field BEMIS - SHUTTS
County ELLIS State KANSAS
Location: API # : 15-051-26607-0000
1455' FNL & 330' FWL
N/2 - NW - SW - NW
SEC 5 TWP 11S RGE 17W

Other Services
CDL/CNL/PE
MEL/SONIC

Permanent Datum GROUND LEVEL Elevation 1957
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING

Elevation
K.B. 1962
D.F. 1960
G.L. 1957

Date	10/4/13	
Run Number	ONE	
Depth Driller	3610	
Depth Logger	3606	
Bottom Logged Interval	3604	
Top Log Interval	00	
Casing Driller	8 5/8"@222'	
Casing Logger	222	
Bit Size	7 7/8"	
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 7,500 PPM
Density / Viscosity	9.3/55	
pH / Fluid Loss	10.0/8.8	
Source of Sample	FLOWLINE	
Rm @ Meas. Temp	.850@80F	
Rmf @ Meas. Temp	.638@80F	
Rmc @ Meas. Temp	1.02@80F	
Source of Rmf / Rmc	MEASUREMENT	
Rm @ BHT	.602@113F	
Time Circulation Stopped	2.5 HOURS	
Time Logger on Bottom	10:45 A.M.	
Maximum Recorded Temperature	113F	
Equipment Number	4854	
Location	HAYS, KANSAS	
Recorded By	JEFF LUEBBERS	
Witnessed By	TONY RICHARDSON	ROGER COMEAU

<<< Fold Here >>>

Comments

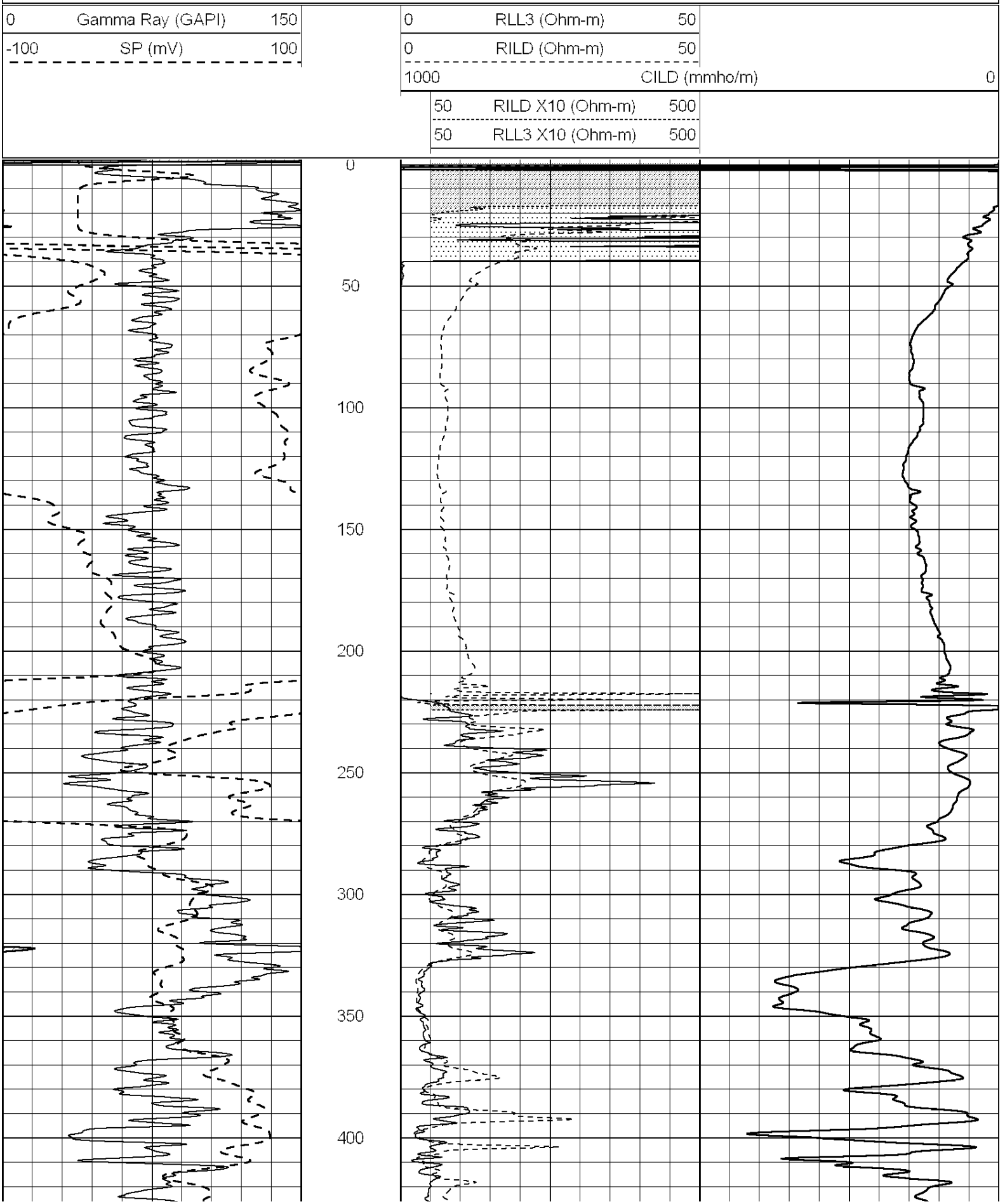
THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395
DIRECTIONS
TURKVILLE SCHOOL, E. SIDE TO "TOULON RD.", 2 1/2N., E. INTO UP HILL

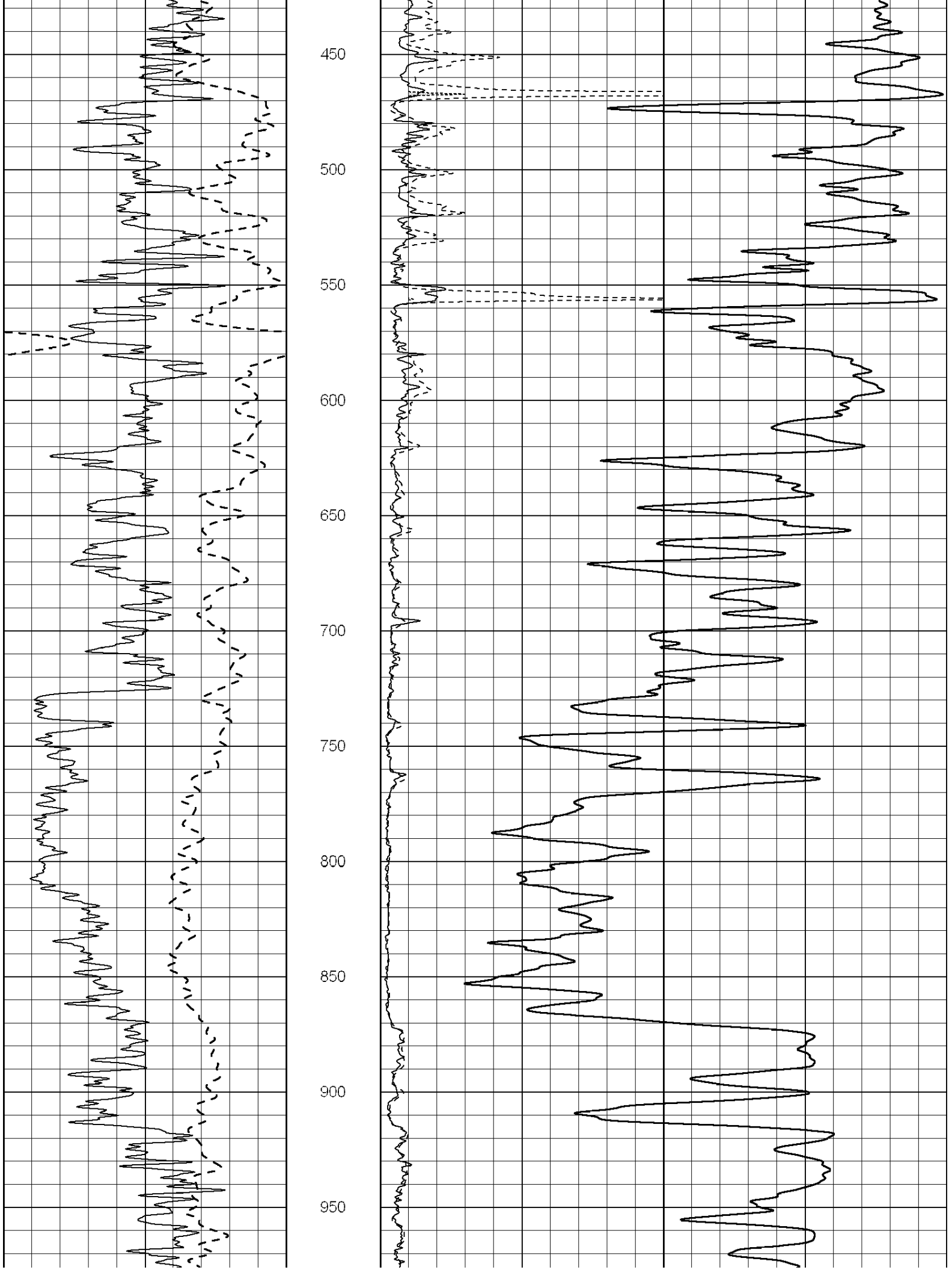
NABORS
COMPLETION & PRODUCTION SERVICES CO.

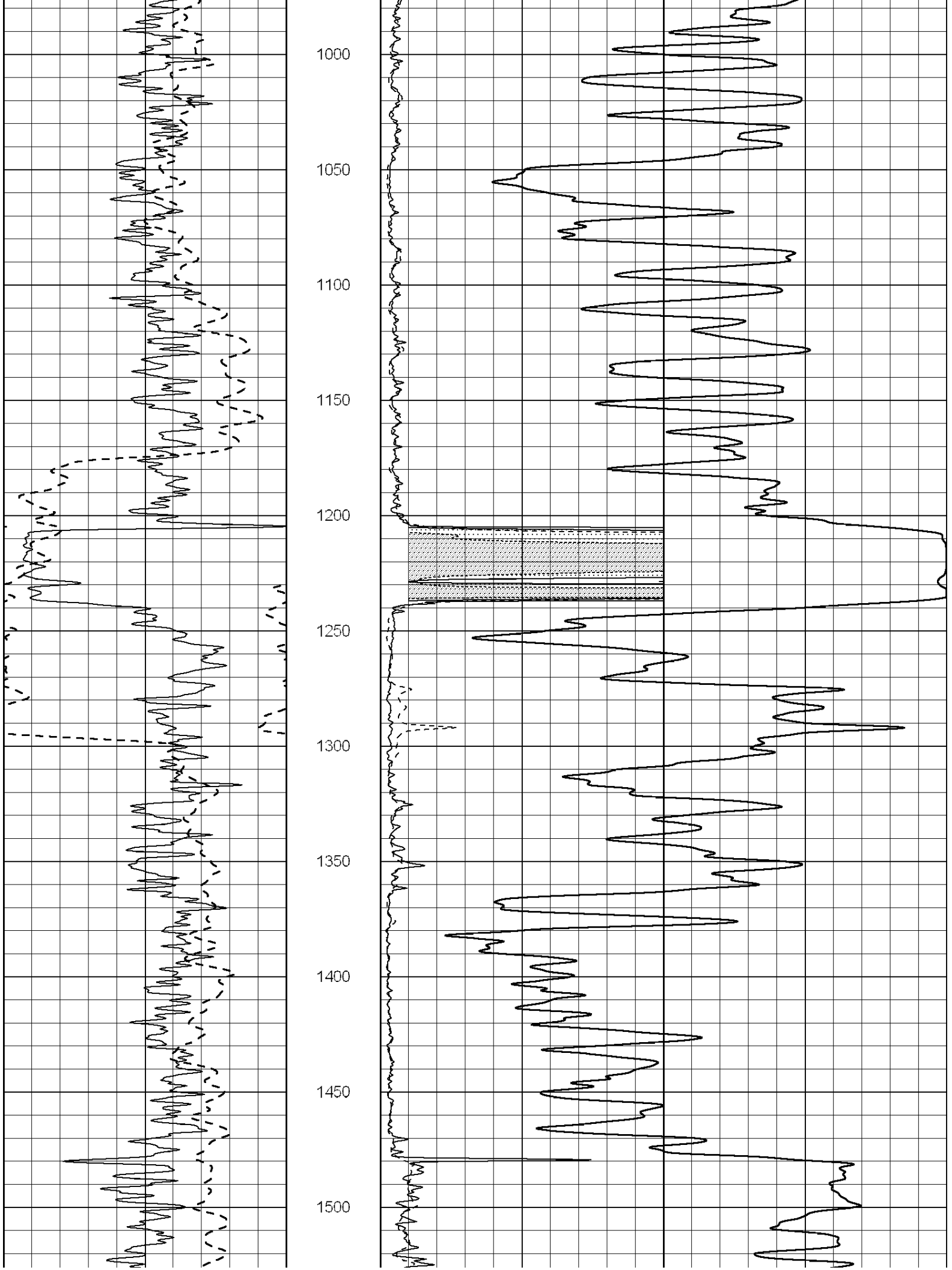
MAIN SECTION

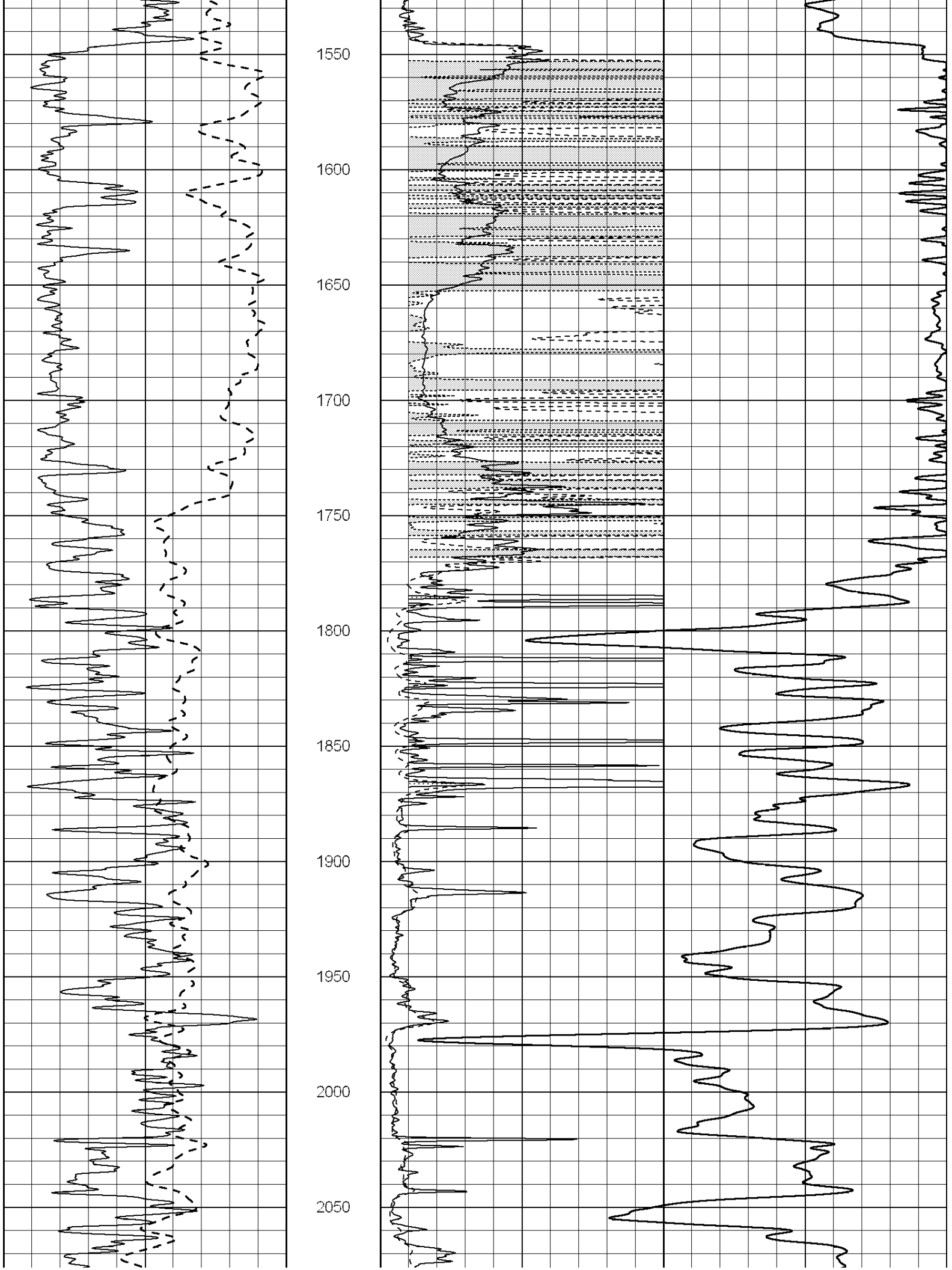
SERVICES CO.

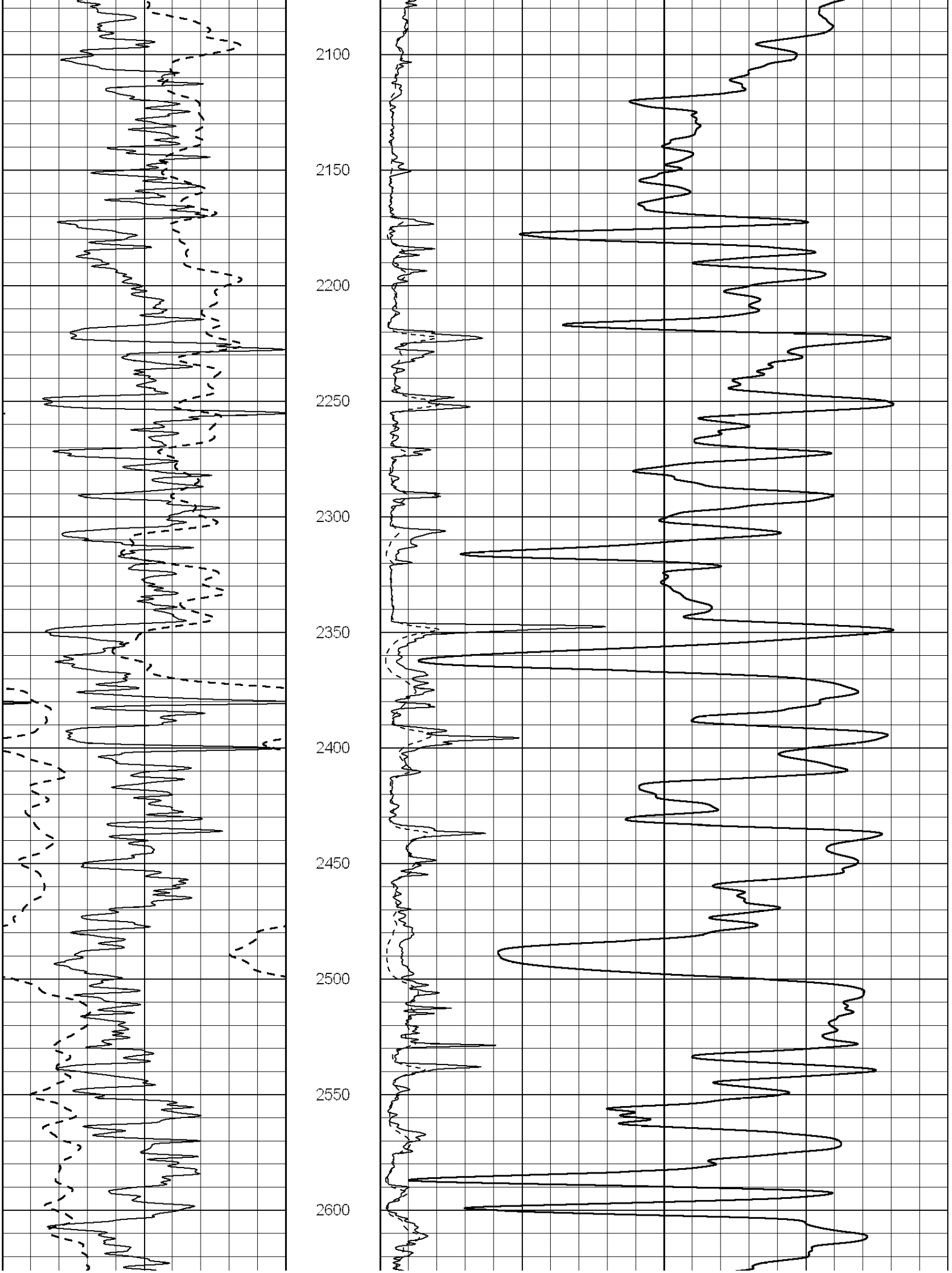
Database File: 011681pe.db
Dataset Pathname: pass3.8
Presentation Format: dil2
Dataset Creation: Fri Oct 04 12:00:43 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:600

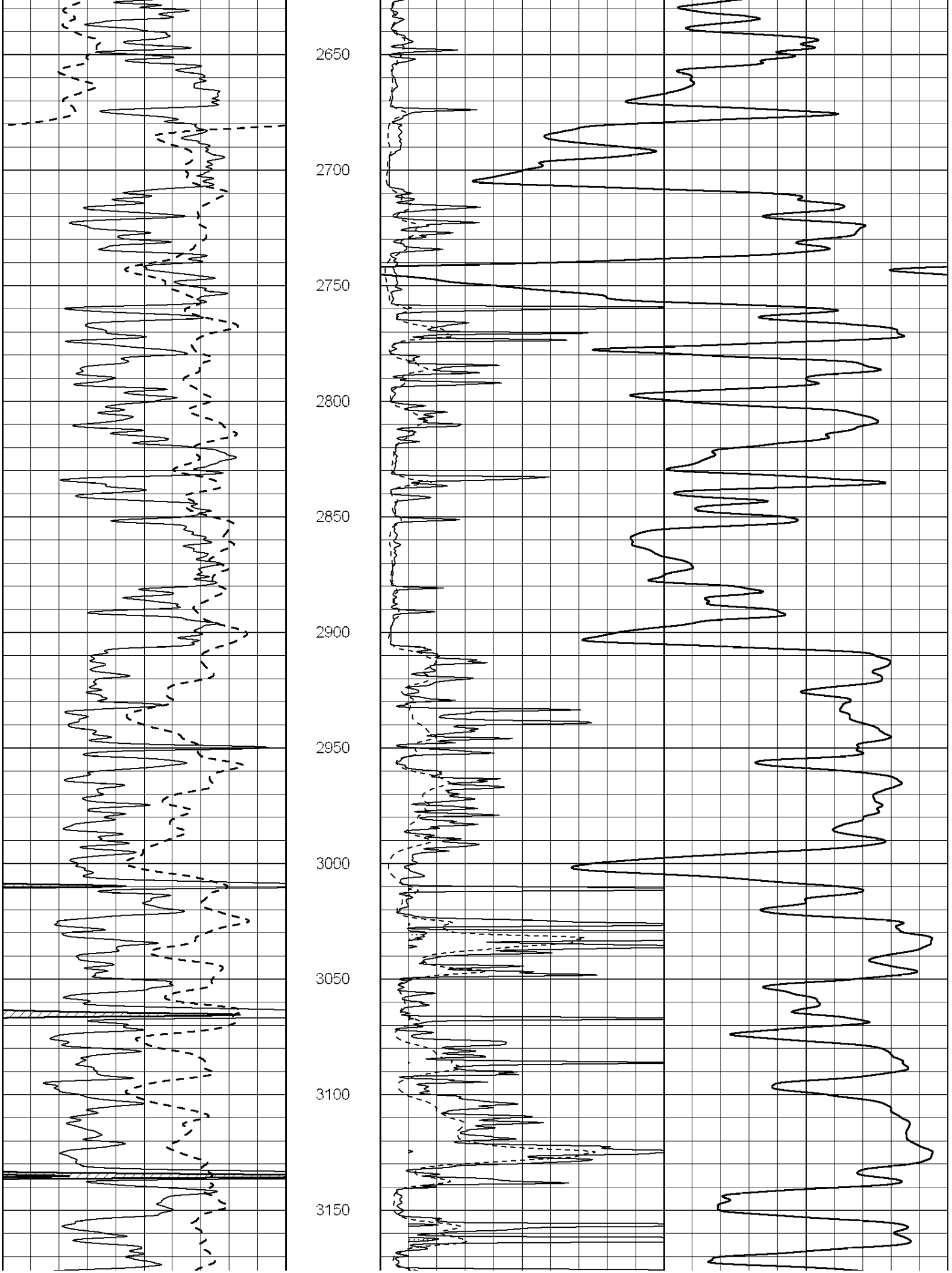


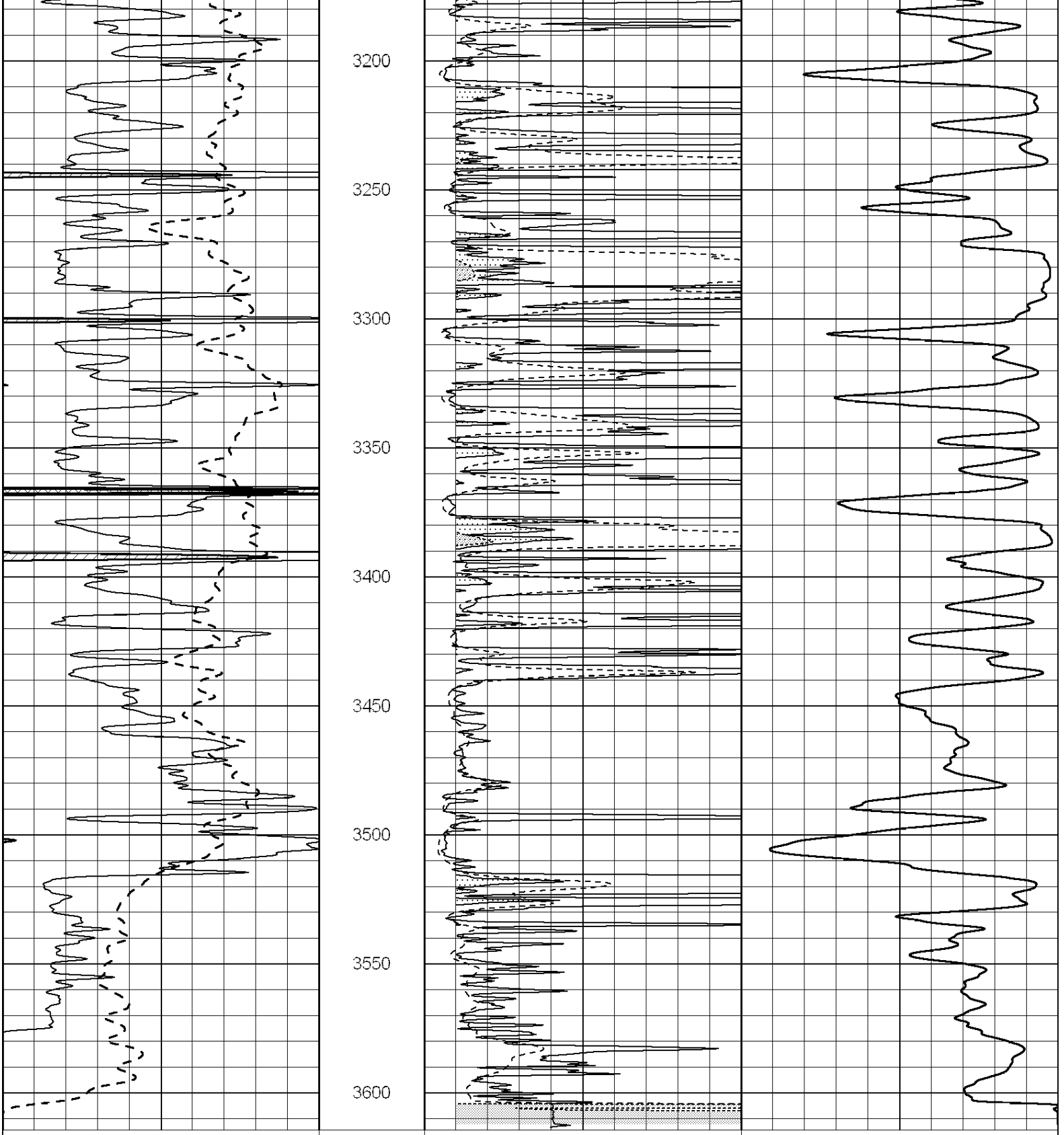

450
500
550
600
650
700
750
800
850
900
950


1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500


1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050


2100
2150
2200
2250
2300
2350
2400
2450
2500
2550
2600


2650
2700
2750
2800
2850
2900
2950
3000
3050
3100
3150



NABORS

COMPLETION & PRODUCTION

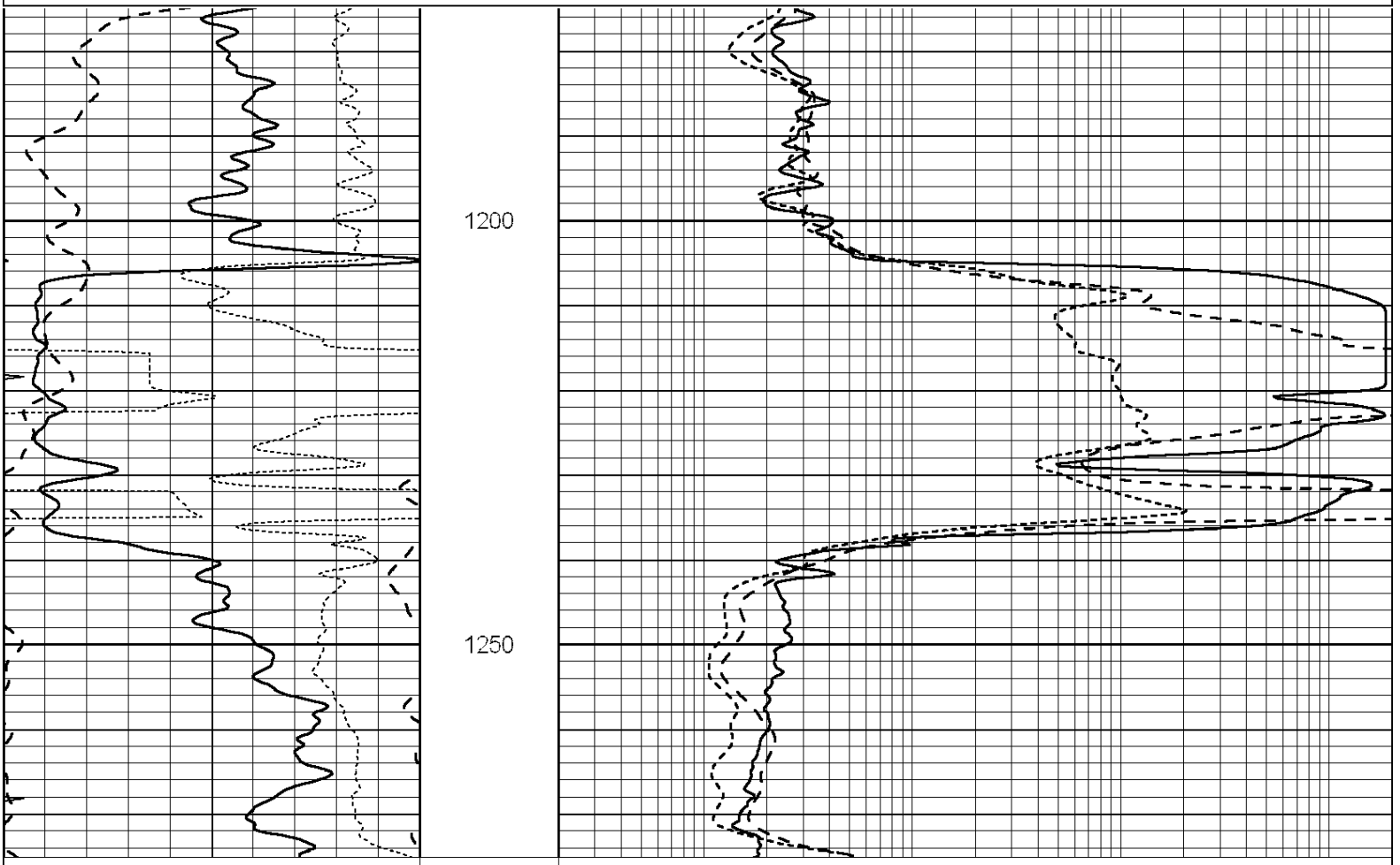
ANHYDRITE

NABORS
COMPLETION & PRODUCTION SERVICES CO.

Database File: 011681pe.db
Dataset Pathname: pass3.9
Presentation Format: _dil
Dataset Creation: Fri Oct 04 12:00:58 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

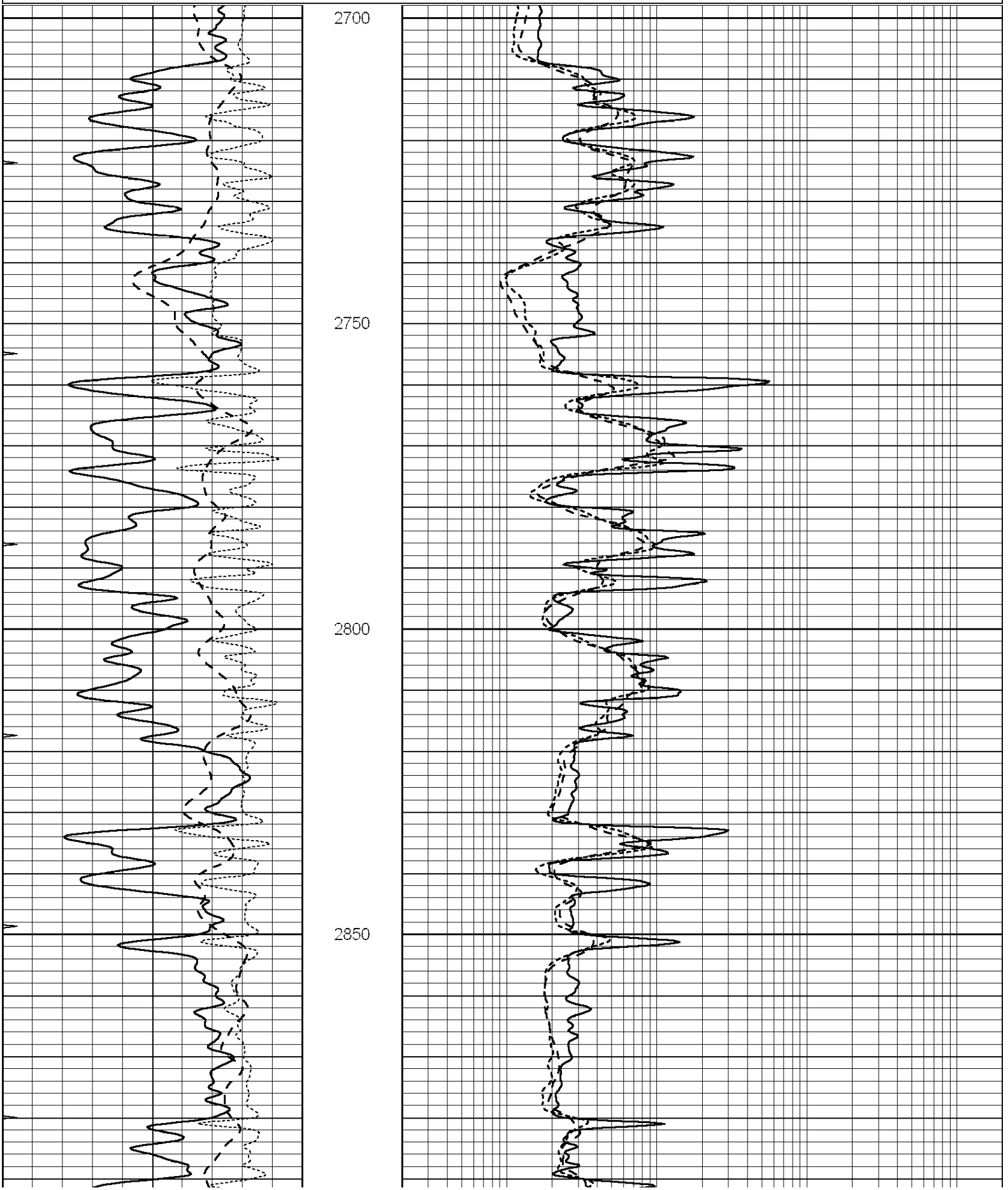
NABORS
COMPLETION & PRODUCTION SERVICES CO.

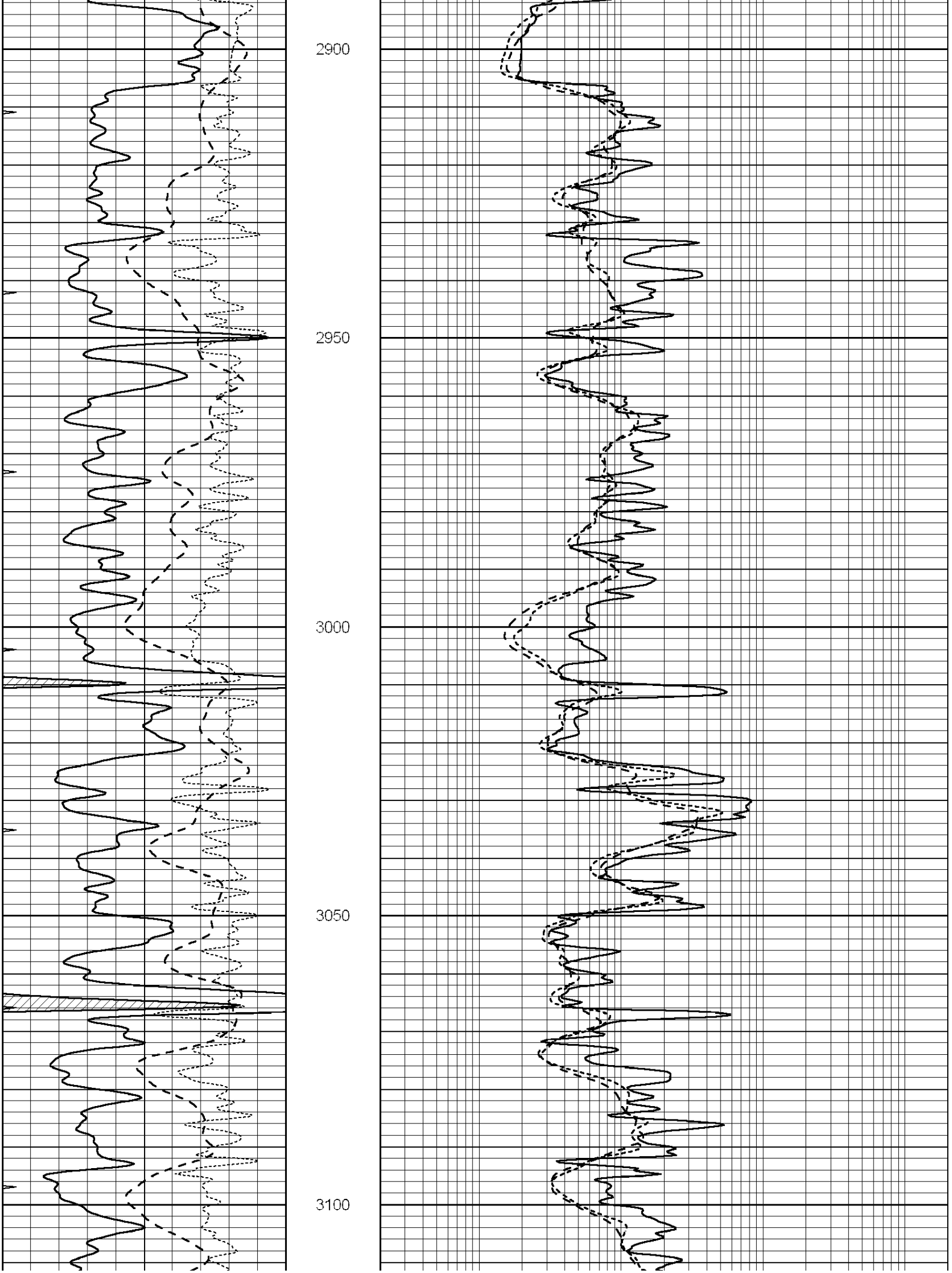
MAIN SECTION

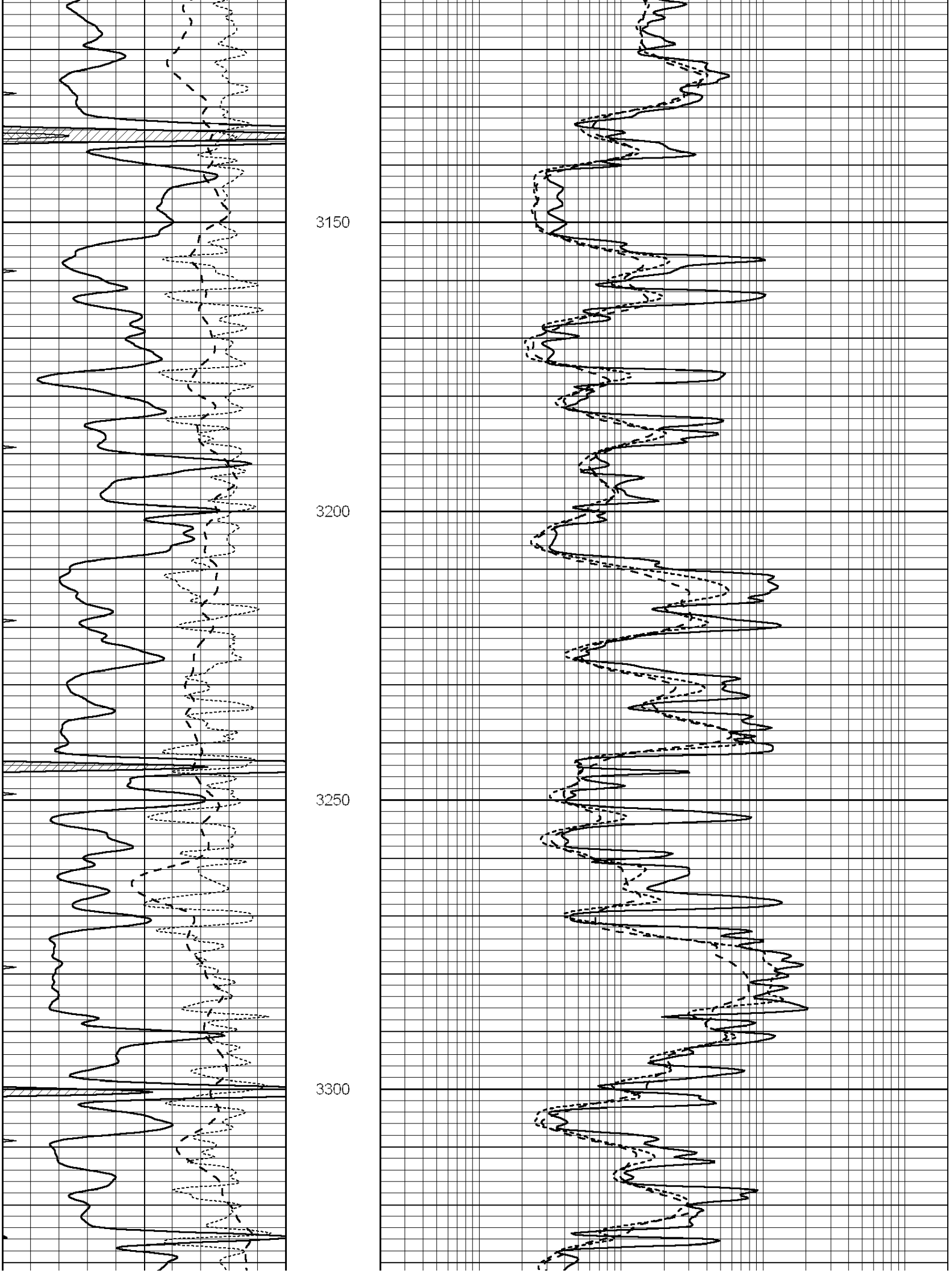
Database File: 011681pe.db
Dataset Pathname: pass3.8
Presentation Format: _dil
Dataset Creation: Fri Oct 04 12:00:43 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

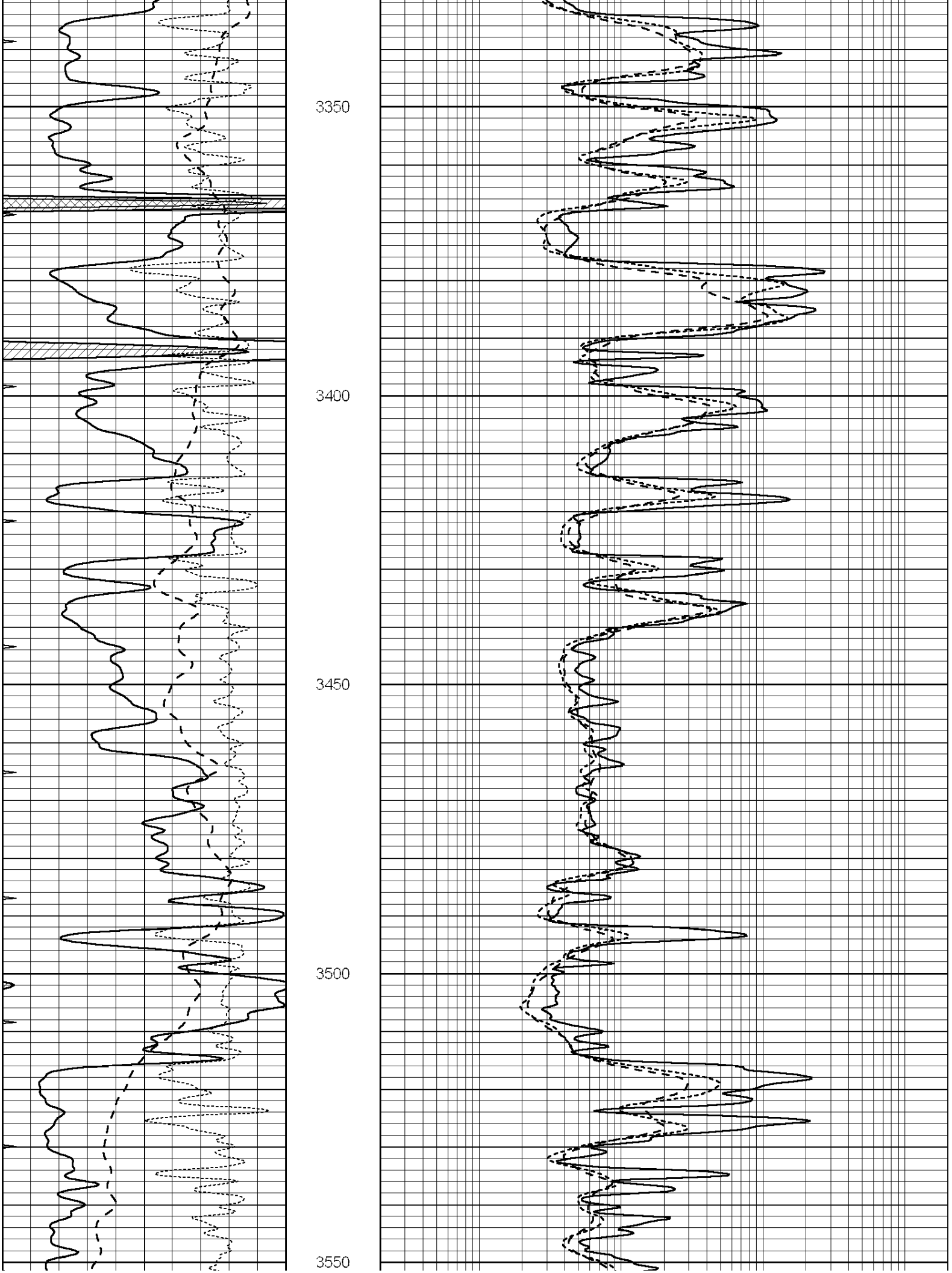
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

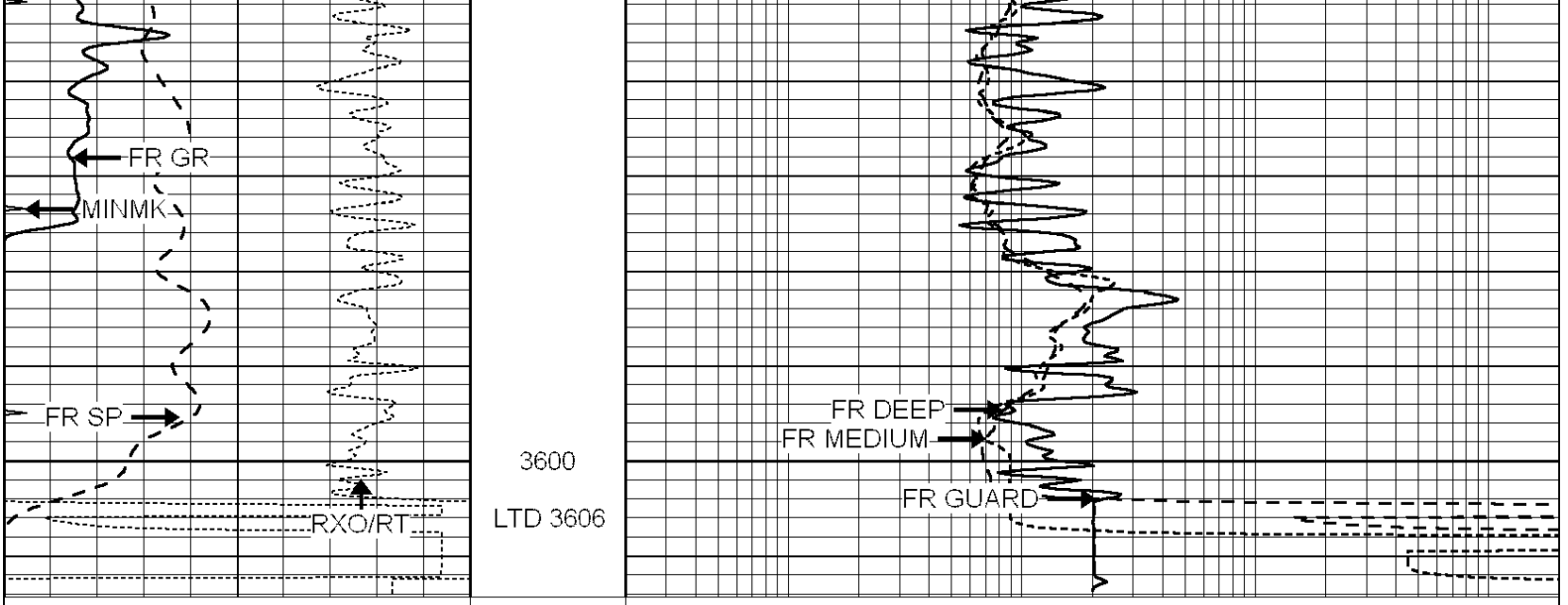
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000




2900
2950
3000
3050
3100


3150
3200
3250
3300


3350
3400
3450
3500
3550



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

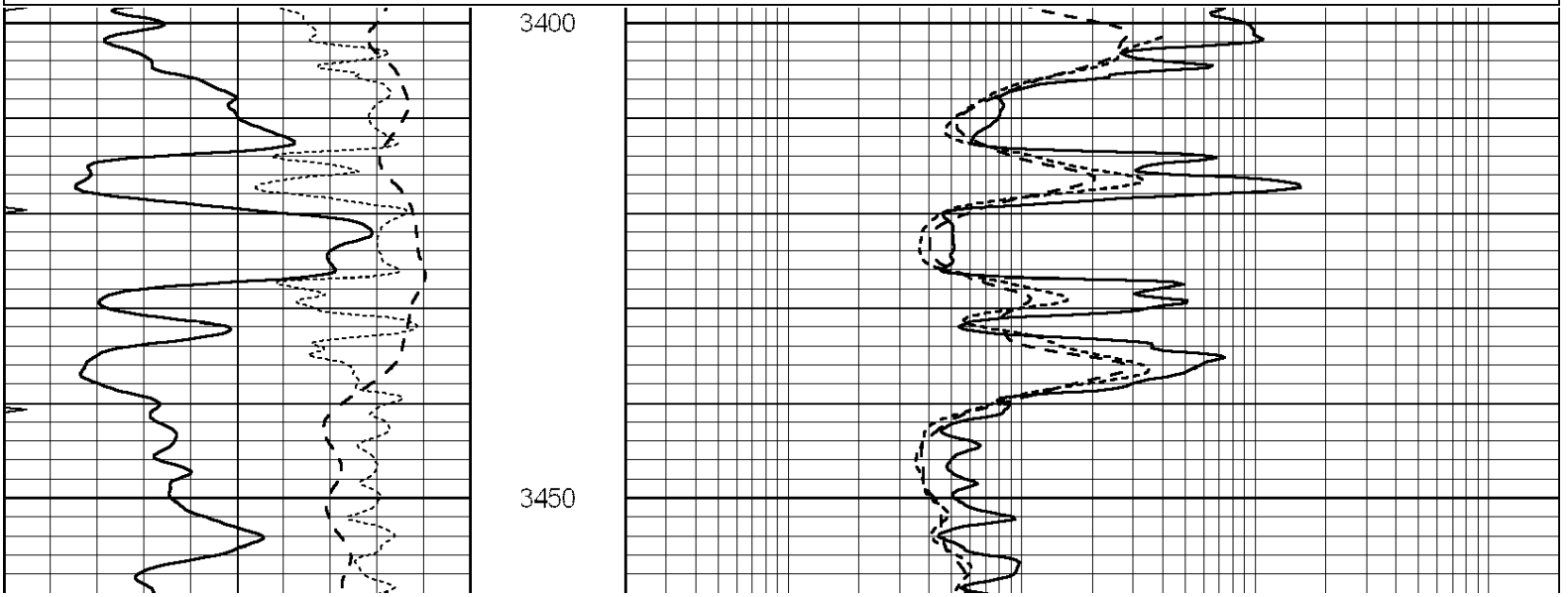
NABORS
COMPLETION & PRODUCTION SERVICES CO.

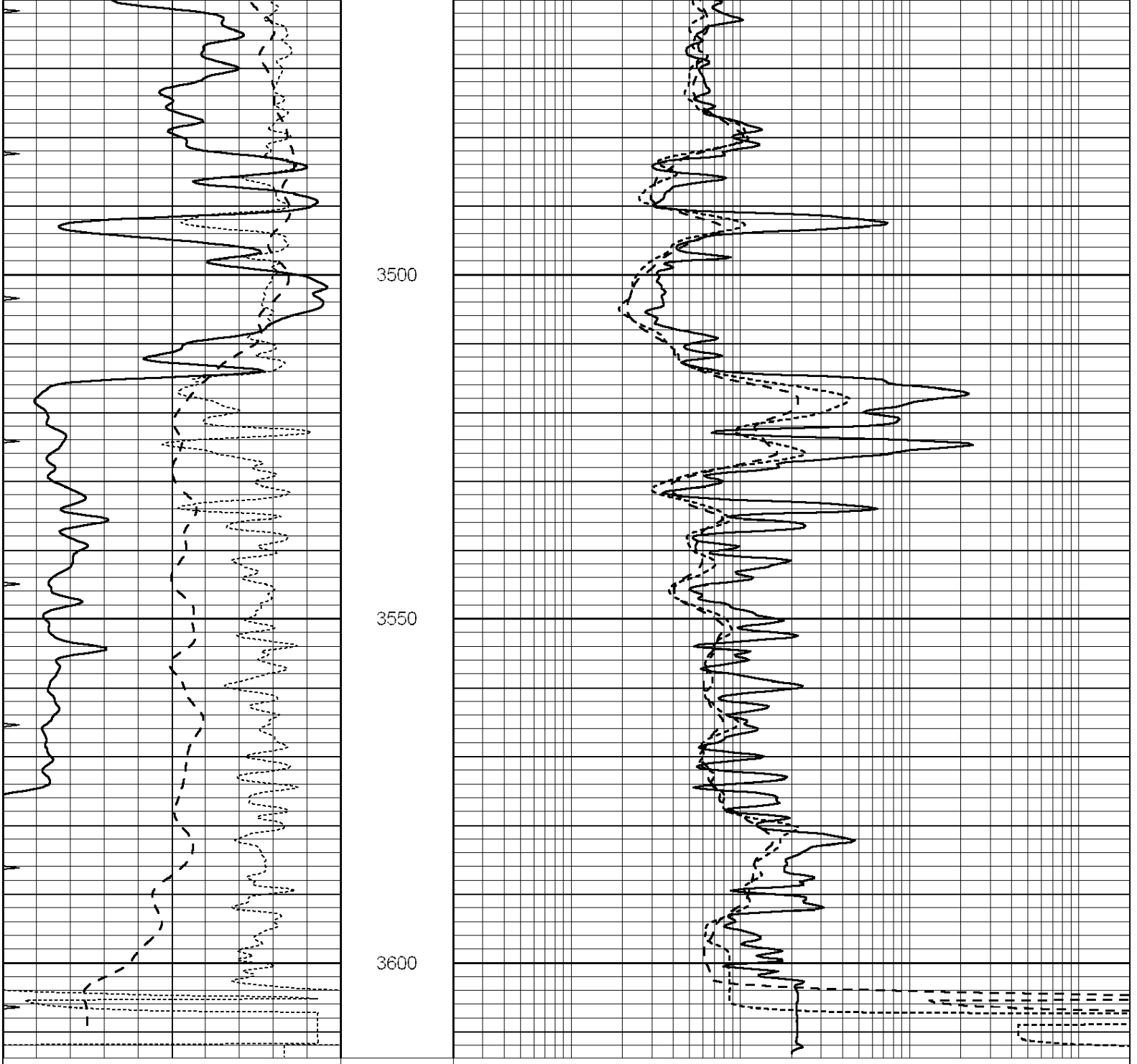
REPEAT SECTION

Database File: 011681pe.db
Dataset Pathname: pass2.6
Presentation Format: _dil
Dataset Creation: Fri Oct 04 11:04:21 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000





Calibration Report

Database File:	011681pe.db
Dataset Pathname:	pass3.8
Dataset Creation:	Fri Oct 04 12:00:43 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model:	PROBE9-DILG
Surface Cal Performed:	Fri Oct 04 10:50:50 2013
Downhole Cal Performed:	Mon Jul 28 12:02:56 2008
After Survey Verification Performed:	Mon Jul 28 12:02:56 2008

Surface Calibration

Loop:	Readings Air	Readings Loop		References Air	References Loop		Results m	Results b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	621.923	-19.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-24.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration

	Readings Zero	Readings Cal		References Zero	References Cal		Results m'	Results b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		4000.000	mmho-m		

After Survey Verification

	Readings Zero	Readings Cal		Targets Zero	Targets Cal		Results m'	Results b'
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
LL3		1.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		1.000	mmho-m		1.000	mmho-m		

Litho Density Calibration Report

Serial: 006 Model: PRB

Master Calibration — Performed Thu Sep 26 15:53:45 2013

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1565.4	12562.4	3739.8	12212.1	cps
Window 2	1413.2	8067.0	2864.0	8623.7	cps
Window 3	1076.5	3958.2	1664.4	4154.1	cps
Window 4	186.1	185.7	176.4	168.9	cps
Long Space	0.0	6653.9	1450.8	7210.6	cps
Short Space	2.5	2515.7	1653.9	2694.6	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	

Rib Angle	: 44.6	Rib Slope	: 0.986	Density/Spine Ratio	: 0.557
Spine Angle	: 74.6	Spine Slope	: 3.631	Spine Intercept	: -19.6

Before Survey Verification — Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification — Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Compensated Neutron Calibration Report

Serial Number: 070808
Tool Model: Probe

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number: 070559
Tool Model: OPEN_GR
Performed: Thu Oct 03 09:02:10 2013

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3500	GAPI/cps