



Weatherford

SGR Compensated Sonic Log

1:200

Main Pass 3

COMPANY IODP Expedition 347 Baltic Sea
 WELL BSB-3/Hole 59B
 FIELD Lillebelt
 PROVINCE/COUNTY Denmark
 COUNTRY/STATE Denmark
 LOCATION

Latitude 55 00.299 N Other Services
 Longitude 10 06.507 E Gamma Ray
 Resistivity

Permanent Datum M.S.L., Elevation 31.2 metres
 Log Measured From GL
 Drilling Measured From GL

Elevations: metres
 KB 40.60
 DF 40.60
 GL 0.00

Date	19-SEP-2013	
Run Number	3	
Service Order	50004126	
Depth Driller	204.00	metres
Depth Logger	72.00	metres
First Reading	72.00	metres
Last Reading	0.00	metres
Casing Driller	21.00	metres
Casing Logger	21.00	metres
Bit Size	8.500	inches
Hole Fluid Type	Sea Water	
Density / Viscosity	1.00	g/c3
PH / Fluid Loss		
Sample Source		
Rmf @ Measured Temp		
Rmf @ Measured Temp		
Rmc @ Measured Temp		
Source Rmf / Rmc		
Rm @ BHT		
Time Since Circulation	3 hrs	
Max Recorded Temp		
Equipment / Base	16104	
Recorded By	C.Sedlatschek	
Witnessed By	A. Fehr	

REMARKS

1. Well Manager Version 13.07.1135 used.
2. All Logs recorded in standard resolution.
3. No repeat pass as per client request.
4. 3 Main Passes run on well 59B.
5. All main passes correlated to drill bit depth
6. Depth correction for Main Pass 3 = -0.1m.

BOREHOLE RECORD

Last Edited: 19-SEP-2013 08:06

Bit Size inches	Depth From metres	Depth To metres
8.500	20.00	204.00

CASING RECORD

Type	Size inches	Depth From metres	Shoe Depth metres	Weight pounds/ft
	5.500	0.00	20.00	23.00

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.

← Timing Marks
every 60.0 sec

Gamma Ray
API
0 100 200
200 300 400

SGS Gamma Ray
API
0 100 200
200 300 400

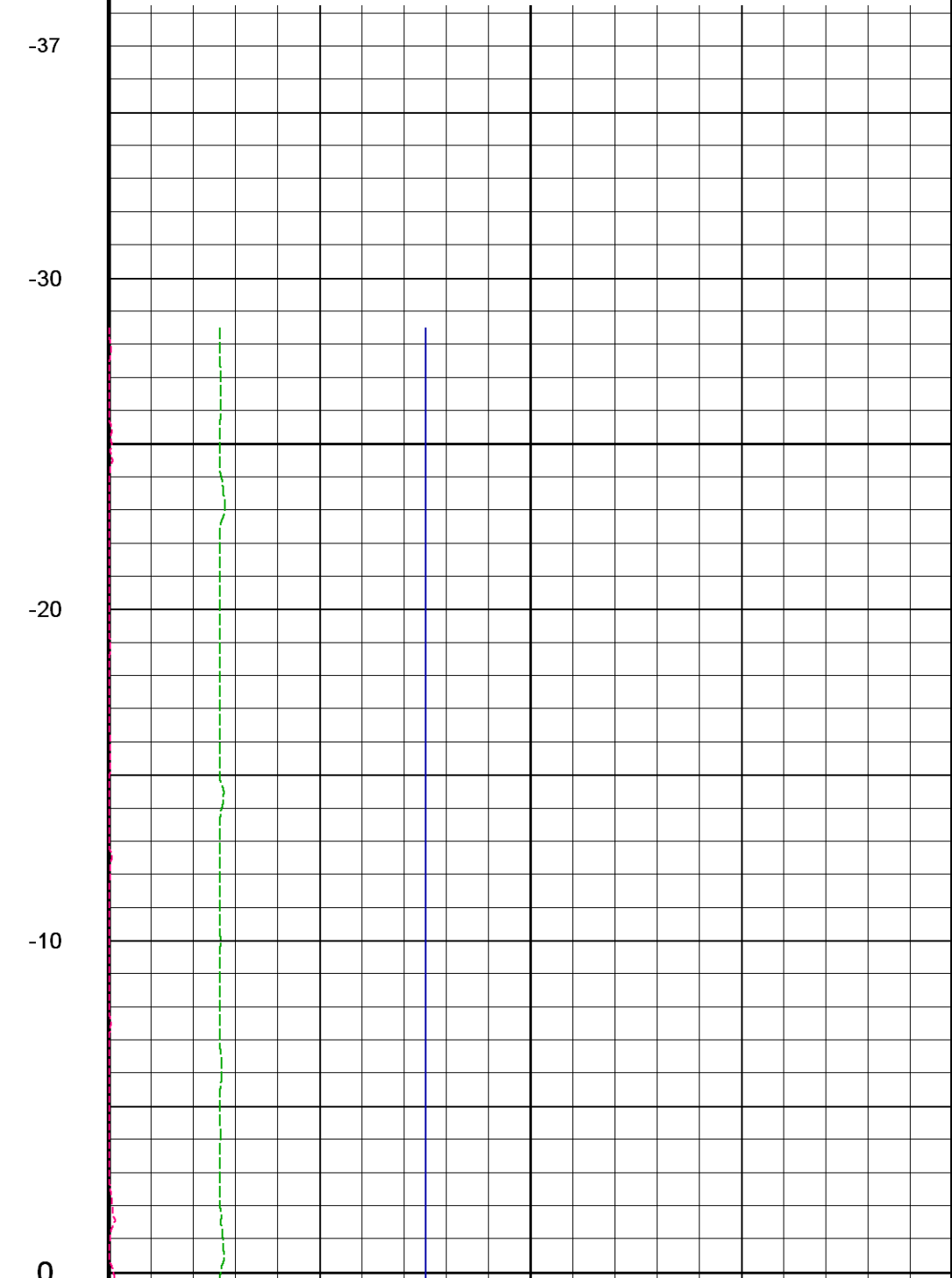
Depth
in
Metres

Replay
Scale
1:200

Thorium Gamma
parts/million
0 30 60 800
60 90 120 450 100

Uranium Gamma
parts/million
-10 10 30
30 50 70

Potassium Gamma
percent
-5 5
5 15



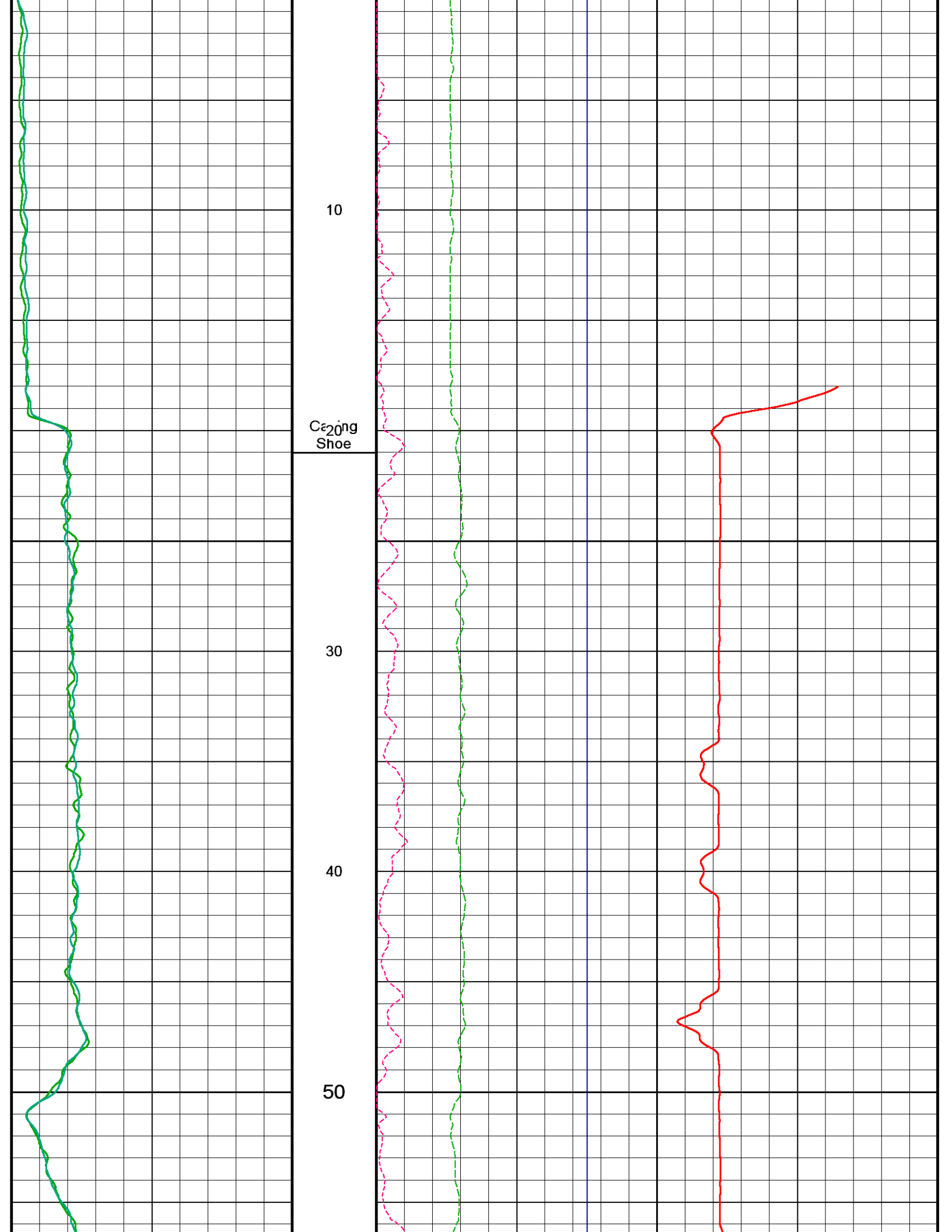
-37

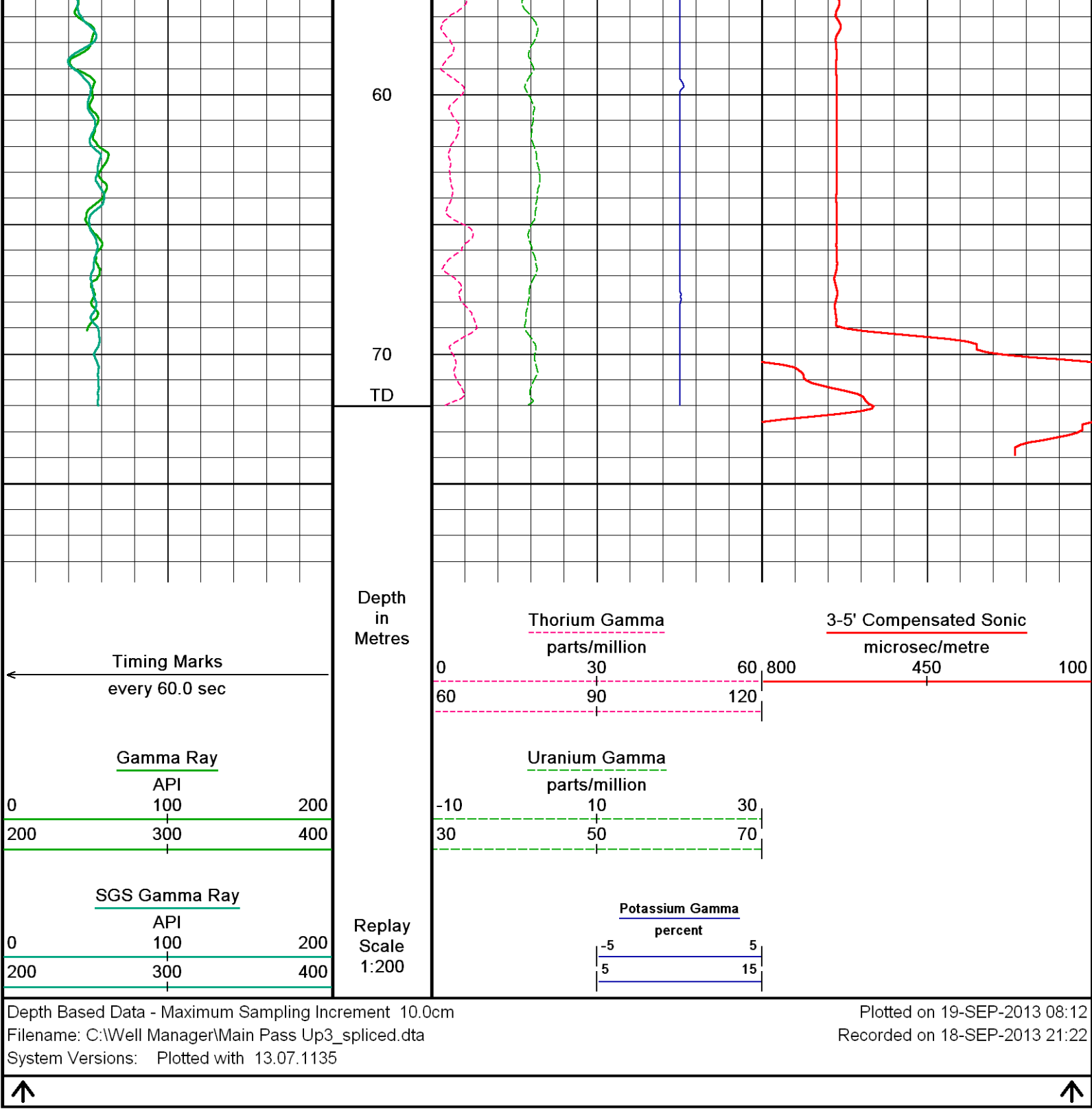
-30

-20

-10

0





BEFORE SURVEY CALIBRATION

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General Constants All 000

Last Edited on 12-SEP-2013,02:52

General Parameters

Mud Resistivity	3.210	ohm-metres
Mud Resistivity Temperature	20.000	degrees C
Water Level	0.000	metres
Borehole Fluid Processing	Wet Hole	

Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	8 Arm CMI
HVOL Caliper 1	N/A
HVOL Caliper 2	N/A

TI/OL Caliper z	N/A	
Annular Volume Diameter	7.000	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	N/A	
Resistivity used	N/A	
RWA Constant A	N/A	
RWA Constant M	N/A	
SW/APOR Tool Source	0.000	

Gamma Calibration MCG-D.J 387

Field Calibration on 28-AUG-2013 14:21

	Measured	Calibrated (API)
Background	176	122
Calibrator (Gross)	1239	857
Calibrator (Net)	1063	735

Gamma Constants MCG-D.J 387

Last Edited on 12-SEP-2013,01:55

Gamma Calibrator Number	097	
Mud Density	1.00	gm/cc
Caliper Source for Processing	Bit Size	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Sonic Constants MSS-D.A 391

Last Edited on 18-SEP-2013,11:34

Maximum Boundary Contrast	328.08	micro-sec/m
Fluid Transit Time	620.08	micro-sec/m
Limestone Transit Time	155.84	micro-sec/m
Sandstone Transit Time	182.09	micro-sec/m
Dolomite Transit Time	142.72	micro-sec/m
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	272.72	micro-sec/m

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	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

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

Use 6' Waverform to derive IR	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

Spectral Gamma Calibration SGS-E.J 113

Base Calibration on 03-MAR-2010 09:23
Field Calibration on 03-MAR-2010 08:20

Base Calibration

Potassium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	77.9	23.5	2.4	0.9	1.5
Calibrator (Gross)	203.9	108.4	25.0	0.9	1.5
Calibrator (Net)	126.0	84.9	22.6	-0.1	0.1
Concentrations	K % 5.8		U ppm 0.0	Th ppm 0.0	

Uranium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	77.9	23.5	2.4	0.9	1.5
Calibrator (Gross)	480.0	165.5	14.6	8.6	4.2
Calibrator (Net)	402.1	142.0	12.1	7.6	2.7
Concentrations	K % 0.0		U ppm 9.8	Th ppm 0.0	

Thorium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	77.9	23.5	2.4	0.9	1.5
Calibrator (Gross)	394.9	141.9	11.2	6.6	15.0
Calibrator (Net)	317.0	118.4	8.8	5.7	13.6
Concentrations	K % 0.0		U ppm 0.0	Th ppm 44.3	

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	77.9	23.5	2.4	0.9	1.5
Calibrator (Gross)	916.7	366.5	46.0	14.3	18.5
Calibrator (Net)	838.8	343.0	43.6	13.4	17.0

Field Calibration

Gamma Ray

	Measured	Calibrated (API)
Background	111	22
Calibrator (Gross)	1366	272
Calibrator (Net)	1256	250

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	77.9	23.5	2.4	0.9	1.5
Calibrator (Gross)	916.7	366.5	46.0	14.3	18.5
Calibrator (Net)	838.8	343.0	43.6	13.4	17.0

Spectral Gamma Constants SGS-E.J 113

Last Edited on 08-SEP-2013,08:26

Background Calibrator Number	000
Mixture Calibrator Number	000
Potassium Calibrator Number	000
Uranium Calibrator Number	000
Thorium Calibrator Number	000

Mud Density
 Caliper Source for Processing
 Tool Position
 Concentration of KCl
 K Mud Type
 K Mud Concentration

1.13
 Bit Size
 Eccentred
 Chloride
 6.72

gm/cc
 kppm
 %

DOWNHOLE EQUIPMENT

C:\Well Manager\sgs113mss391mcs387_Main Pass Up3_depth_corrected.dta

CBH-C, Cablehead, 11 pin
 CBH-CA 171 LG: 0.73 m WT: 24.3 lb OD: 57 mm

11C-11B MTA-K.A Compact Tool Adaptor
 MTA-K.A 130 LG: 0.47 m WT: 13.2 lb OD: 57 mm

Compact Comms Gamma
 MCG-D.J 387 LG: 2.65 m WT: 63.9 lb OD: 57 mm

Spectral Gamma Ray Sub
 SGS-E.J 113 LG: 2.37 m WT: 105.8 lb OD: 90 mm

Compact Sonic
 MSS-D.A 391 LG: 3.82 m WT: 72.8 lb OD: 57 mm

Compact Hole Finder
 HFS 1 LG: 0.24 m WT: 2.2 lb OD: 57 mm

Total Length: 10.27 m Weight: 282.2 lb



6.57 m GRGC - Gamma Ray

3.69 m GRPO - Potassium Gamma

3.69 m GRUR - Uranium Gamma

3.69 m GRTH - Thorium Gamma

3.69 m GRSG - SGS Gamma Ray

0.00 m DT35 - 3-5' Compensated Sonic
 Tool Zero (0.93m from bottom)

All measurements relative to tool zero.

COMPANY	IODP Expedition 347 Baltic Sea
WELL	BSB-3/Hole 59B
FIELD	Lillebelt
PROVINCE/COUNTY	Denmark
COUNTRY/STATE	Denmark

Elevation Kelly Bushing	40.60	metres	First Reading	72.00	metres
Elevation Drill Floor	40.60	metres	Depth Driller	204.00	metres
Elevation Ground Level	0.00	metres	Depth Logger	72.00	metres



GR-Resistivity Log

1:200

Main Pass 3

Weatherford[®]