



Weatherford

Spectral Gamma Ray Log

1:200

Main Pass

COMPANY IODP Expedition 347 Baltic Sea
 WELL BSB-5/Hole 64D
 FIELD Sweden
 PROVINCE/COUNTY Sweden
 COUNTRY/STATE Sweden
 LOCATION

Latitude 55 43.267 N Other Services
 Longitude 15 13.585 E Resistivity

Permanent Datum M.S.L., Elevation 59.78 metres
 Log Measured From GL
 Drilling Measured From GL

Elevations: metres
 KB 62.68
 DF 62.68
 GL 0.00

Date	23-OCT-2013		
Run Number	2		
Service Order	50004126		
Depth Driller	41.00	metres	
Depth Logger	27.00	metres	
First Reading	26.20	metres	
Last Reading	9.00	metres	
Casing Driller	9.00	metres	
Casing Logger	9.00	metres	
Bit Size	8.500	inches	
Hole Fluid Type	Sea Water		
Density / Viscosity			
PH / Fluid Loss			
Sample Source			
Rm @ Measured Temp			
Rmf @ Measured Temp			
Rmc @ Measured Temp			
Source Rmf / Rmc			
Rm @ BHT			
Time Since Circulation	0.5 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 correlated to drill bit depth at 9.0m.
3. Depth Offset for Resistivity Log DO = 0.0m.
4. Depth Offset for Spectral Gamma Ray Log DO = +4.0m.

BOREHOLE RECORD

Last Edited: 23-OCT-2013 06:27

Bit Size inches	Depth From metres	Depth To metres
8.500	0.00	41.00

CASING RECORD

Type	Size inches	Depth From metres	Shoe Depth metres	Weight pounds/ft
	5.500	0.00	9.00	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

Uranium Stripped Gamma
API
0 100 200
200 300 400

Depth
in
Metres

SMTU
0 1000

Replay
Scale
1:200

Casing
Shoe

TD

Thorium Gamma
parts/million

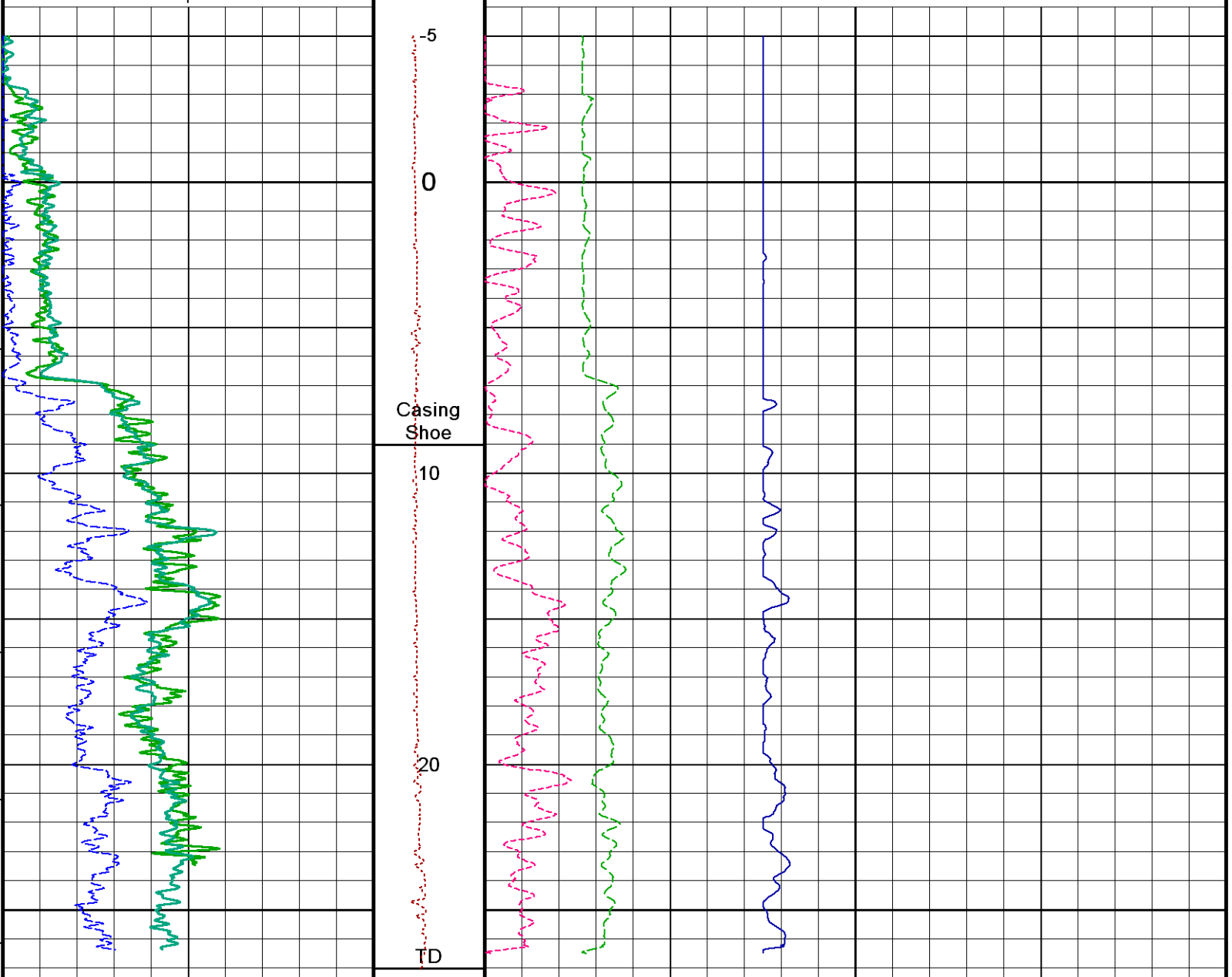
0 30 60
60 90 120

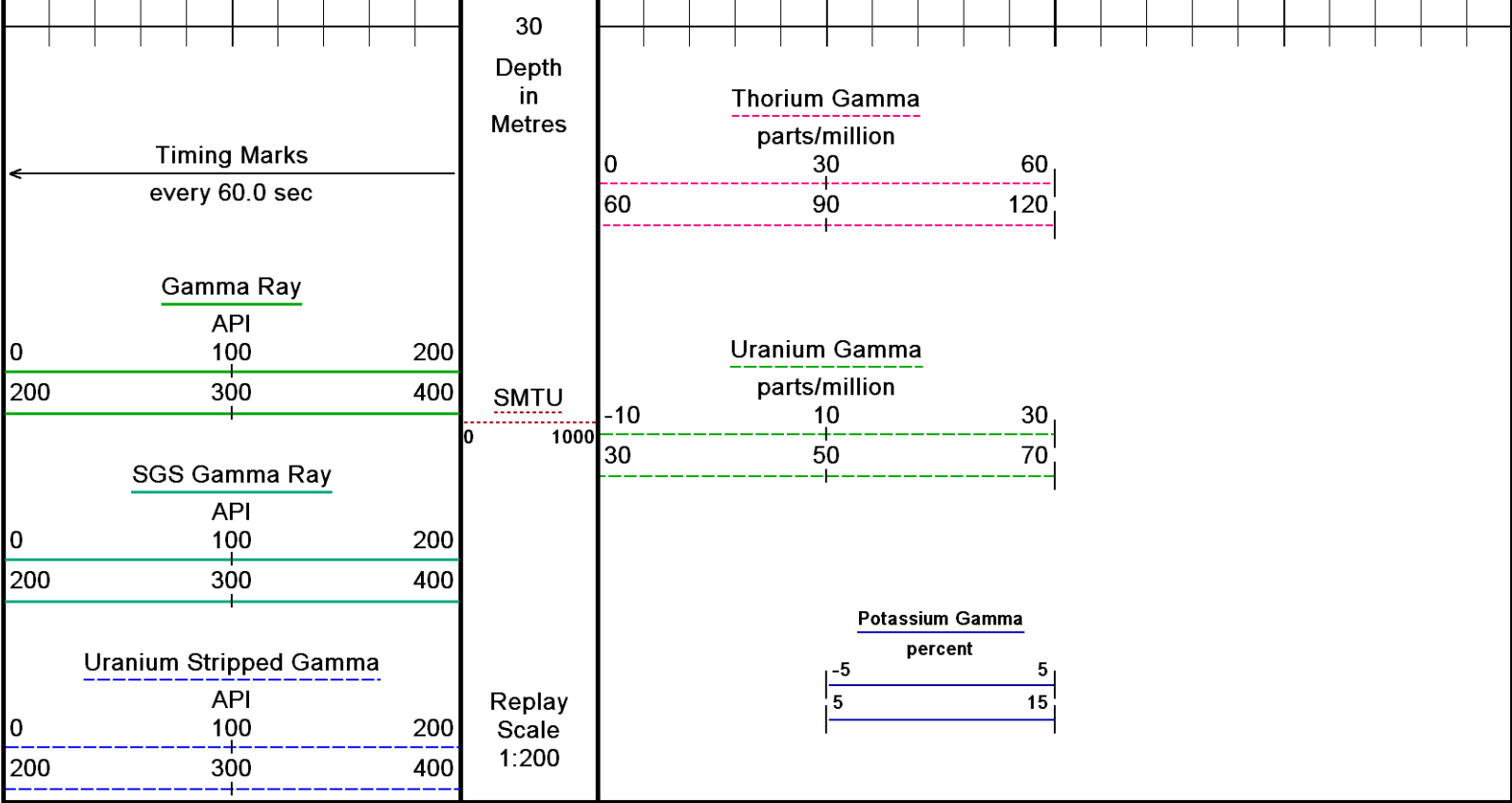
Uranium Gamma
parts/million

-10 10 30
30 50 70

Potassium Gamma
percent

-5 5
5 15





Depth Based Data - Maximum Sampling Increment 2.5cm
 Filename: C:\Well Manager\Copy of sgs113mcg387_BSB_5_Main_Pass.dta
 System Versions: Logged with 13.07.1135 Plotted with 13.07.1135
 Plotted on 23-OCT-2013 07:56
 Recorded on 23-OCT-2013 04:47



BEFORE SURVEY CALIBRATION

C:\Well Manager\Copy of sgs113mcg387_BSB_5_Main_Pass.dta

General Constants All 000 Last Edited on 01-OCT-2013,00:16

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	
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

Mud Density 1.13 gm/cc
 Caliper Source for Processing Bit Size
 Tool Position Eccentred
 Concentration of KCl kppm
 K Mud Type Chloride
 K Mud Concentration 0.00 %

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 1.13 gm/cc
 Caliper Source for Processing Bit Size
 Tool Position Eccentred
 Concentration of KCl kppm
 K Mud Type Chloride
 K Mud Concentration 6.72 %

DOWNHOLE EQUIPMENT

C:\Well Manager\COPY of sgs113mcg387_BSB_5_Main_Pass.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 Hole Finder
 HFS 1 LG: 0.24 m WT: 2.2 lb OD: 57 mm

Total Length: 6.45 m Weight: 209.4 lb



2.88 m GRGC - Gamma Ray

0.00 m GCGR - Uranium Stripped Gamma

0.00 m GRPO - Potassium Gamma

0.00 m GRUR - Uranium Gamma

0.00 m GRTH - Thorium Gamma

0.00 m GRSG - SGS Gamma Ray

Tool Zero (0.80m from bottom)

-0.80 m SWTO - DST Upcore Position

All measurements relative to tool zero.

COMPANY	IODP Expedition 347 Baltic Sea		
WELL	BSB-5/Hole 64D		
FIELD	Sweden		
PROVINCE/COUNTY	Sweden		
COUNTRY/STATE	Sweden		

Elevation Kelly Bushing	62.68	metres	First Reading	26.20	metres
Elevation Drill Floor	62.68	metres	Depth Driller	41.00	metres
Elevation Ground Level	0.00	metres	Depth Logger	27.00	metres



Spectral Gamma Ray Log

1:200

Main Pass

Weatherford[®]