Stoller
Hanford Office

DOE-EM/GJ1331-2006

299-E33-44 (B8554)
Log Data Report

Borehole Information:

Borehole:	299-E33-44 (B8554)		Site:	Near BY WMA Fence line	
Coordinates (WA St Plane)		GWL[1] (ft):	245.4	GWL[1] Date:	08/30/06
North	East	Drill Date	Elevation (TOC)	Total Depth (ft)	Type
137469.16	573706.41	09/98	Not available	255	Cable

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Stainless steel	2.45	8	7.75	0.125	2.45	9.8
Stainless steel	1.55	N/A	4	0.125	1.55	238
Ss #10 slotted screen	None	N/A	4	0.125	238	253

Borehole Notes:

Spectral gamma logging was conducted in this borehole in May 2002, and a Log Data Report was issued. During logging in 2002, the sonde hit a snag in the casing at 81 ft, became detached from the cable, and fell to the bottom of the borehole; the sonde was subsequently retrieved and repaired. The maximum logging depth achieved in that logging event was 133 ft. The current logging was designed to complete acquiring log data to the bottom of the borehole. This Log Data Report is an update based on additional logging conducted in August, 2006.

GWL has changed from 244.3 ft in May 2002 to 245.4 ft on August 30, 2006.

Completing logging to the bottom of the borehole was considered necessary to help define the extent of a vadose zone uranium plume discovered in boreholes to the south and southeast (boreholes 299-E33-41 and -18, respectively). Log data suggest no influx of uranium in the deep vadose zone has occurred.

Spectral Gamma Logging System (SGLS) Equipment Information:

Logging System:	Gamma 1G		Type:	SGLS (35%) SN: 34-TP10951A
Effective Calibration Date:	11/29/05	Calibration Reference:	DOE/EM-GJ1052-2005	
		Logging Procedure:	MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3 Repeat		
Date	08/29/06	08/31/06	08/31/06		
Logging Engineer	Spatz	Spatz	Spatz		
Start Depth (ft)	120.0	203.0	209.0		
Finish Depth (ft)	204.0	256.0	231.0		

Log Run	1	2	3 Repeat		
Count Time (sec)	200	200	200		
Live/Real	R	R	R		
Shield (Y/N)	N	N	N		
MSA Interval (ft)	0.5	0.5	0.5		
ft/min	N/A[2]	N/A	N/A		
Pre-Verification	AG111CAB	AG112CAB	AG112CAB		
Start File	AG111000	AG112000	AG112054		
Finish File	AG111084	AG112053	AG112076		
Post-Verification	AG111CAA	AG112CAA	AG112CAA		
Depth Return Error (in.)	- 1.5	N/A	- 2		
Comments	No fine-gain adjustment	No fine-gain adjustment	No fine-gain adjustment		

Logging Operation Notes:

Logging was conducted with no centralizer on the sonde. Measurements are referenced to the top of casing. A repeat section was collected in this borehole to evaluate the logging system's performance.

Analysis Notes:

Analyst:	Henwood	Date:	09/11/06	Reference:	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging system was performed before and after each day's data acquisition. Acceptance criteria were met.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated using the EXCEL worksheet template identified as G1GNov05.xls. A casing correction for 0.125-in.-thick casing was applied to the SGLS data. This casing thickness is the same used to correct the 2002 data. A correction for water was applied to the data below 245 ft.

Results and Interpretations:

No manmade radionuclides were detected in this borehole for the current logging event (between 120 and 256 ft). Because of the interest in the possibility of processed uranium entering the area of this borehole, a plot of the MDLs for 238U and 235U in addition to 137Cs is included. The original log data acquired in 2002 from the ground surface to 133 ft indicated only 137Cs near the ground surface at a maximum concentration of approximately 2 pCi/g.

The naturally occurring KUT log data reflect well completion materials. Bentonite chunks are reported emplaced in the annular space around the borehole to approximately 199 ft. Bentonite pellets are reported from 199 to 227.3 ft and silica sand from 227.3 to 253.3 ft. The KUT data roughly reflect the depths reported for the completion materials.

These completion materials could affect the ability of the SGLS to detect low levels of contaminants. However, log data acquired with a sodium iodide detection system in 1998, before completion materials were added, also indicated no contamination.

The repeat sections for the SGLS data indicate good agreement for the naturally occurring and man-made radionuclides.

List of Plots:

Depth scale: 1" = 20 ft except for repeat log

Man-Made Radionuclides
Natural Gamma Logs
Combination Plot (110-230 ft)
Combination Plot (220-340 ft)
Total Gamma & Dead Time
Repeat Section of Natural Gamma Logs

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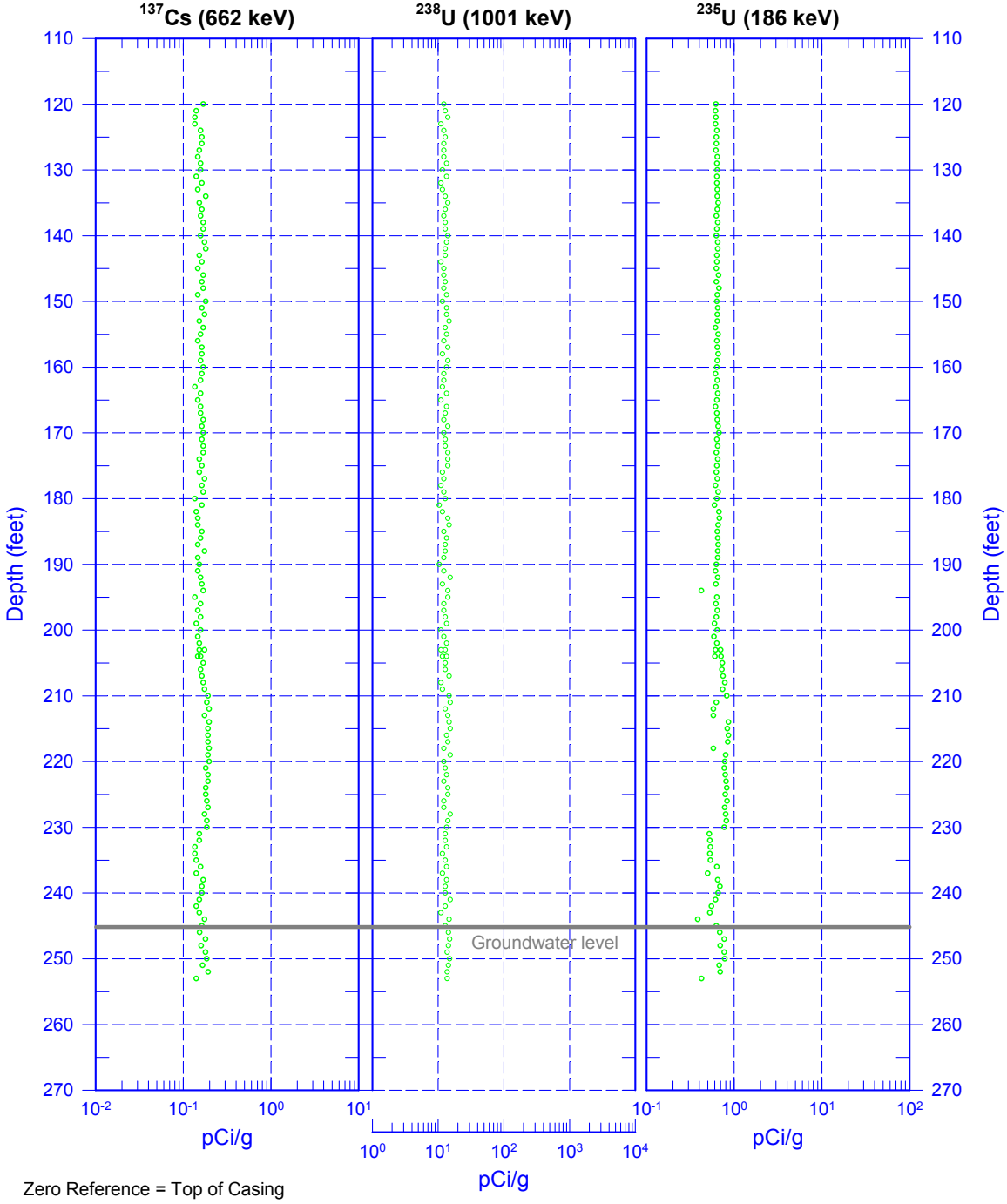
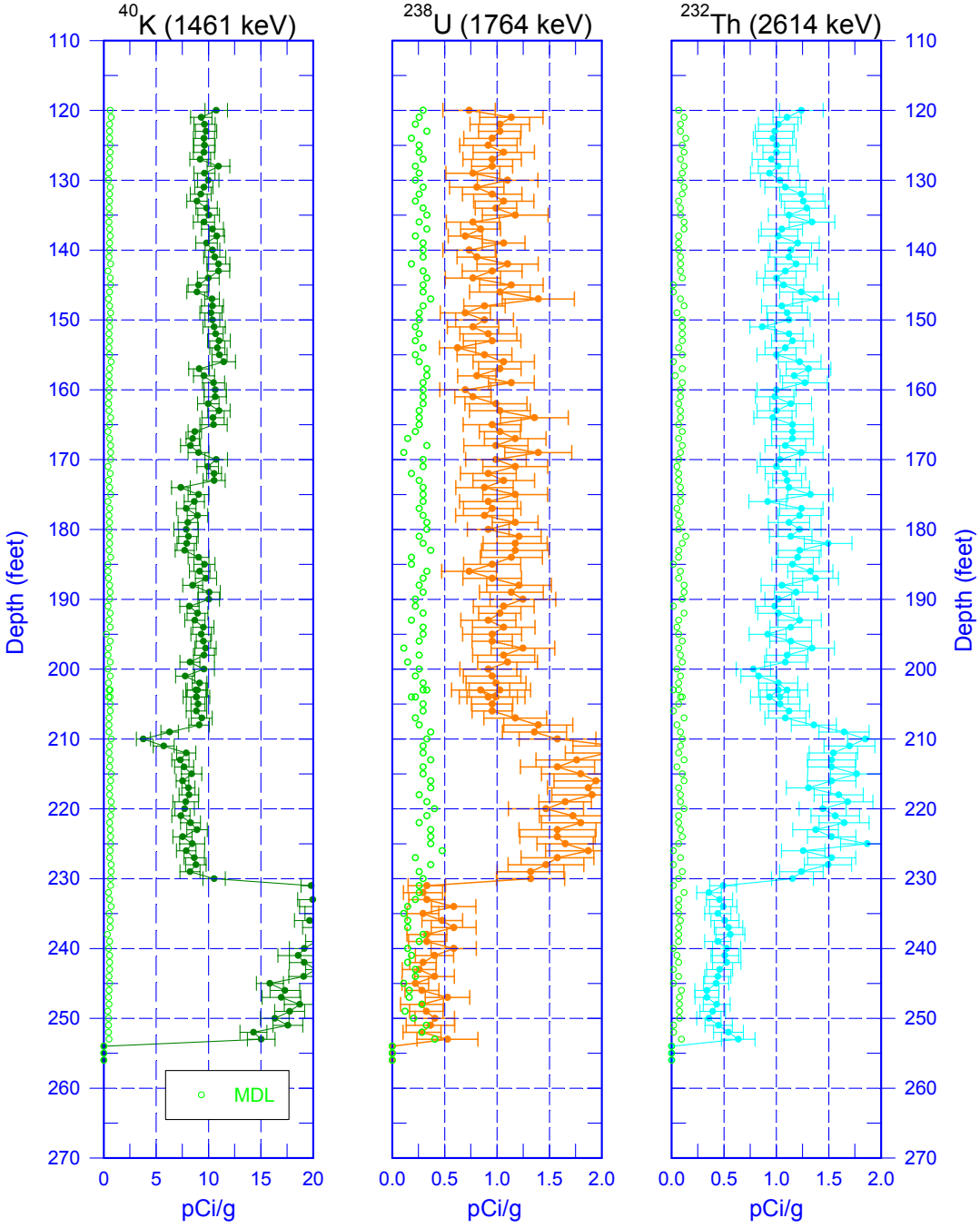
[1] GWL – groundwater level
[2] N/A – not applicable

299-E33-44 (B8554)
Man-Made Radionuclides



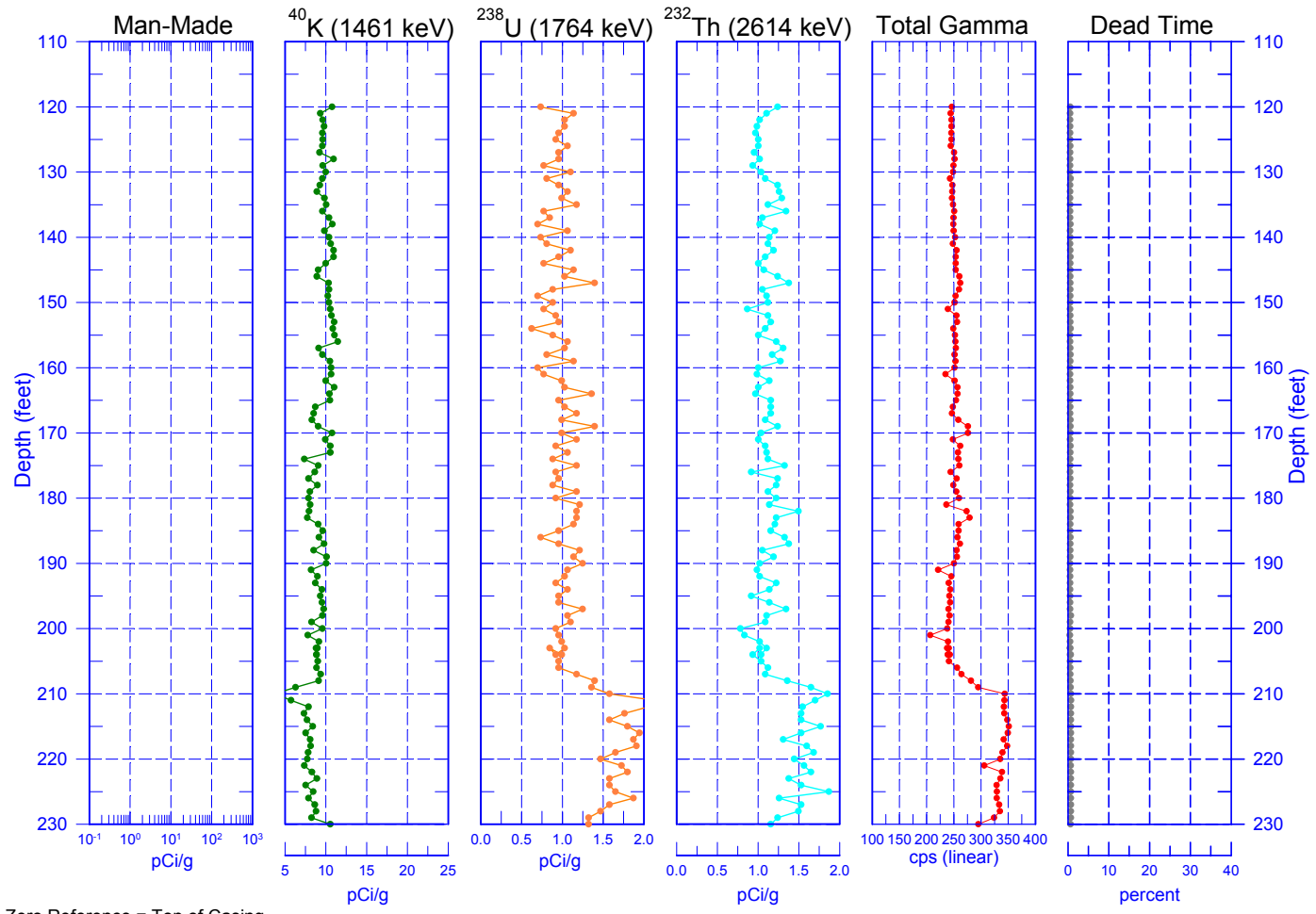
Zero Reference = Top of Casing

299-E33-44 (B8554)
Natural Gamma Logs



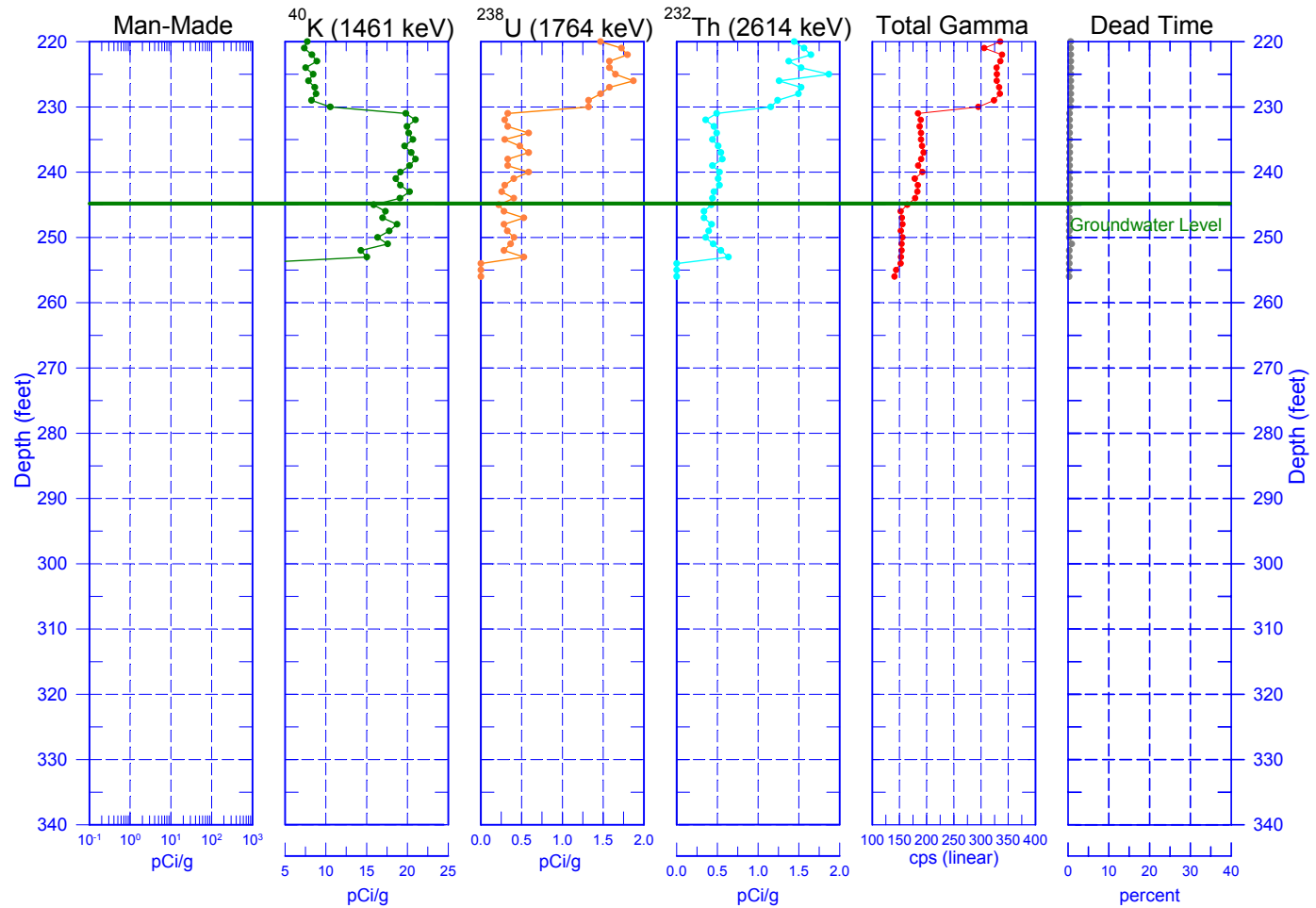
Zero Reference = Top of Casing

299-E33-44 (B8554) Combination Plot



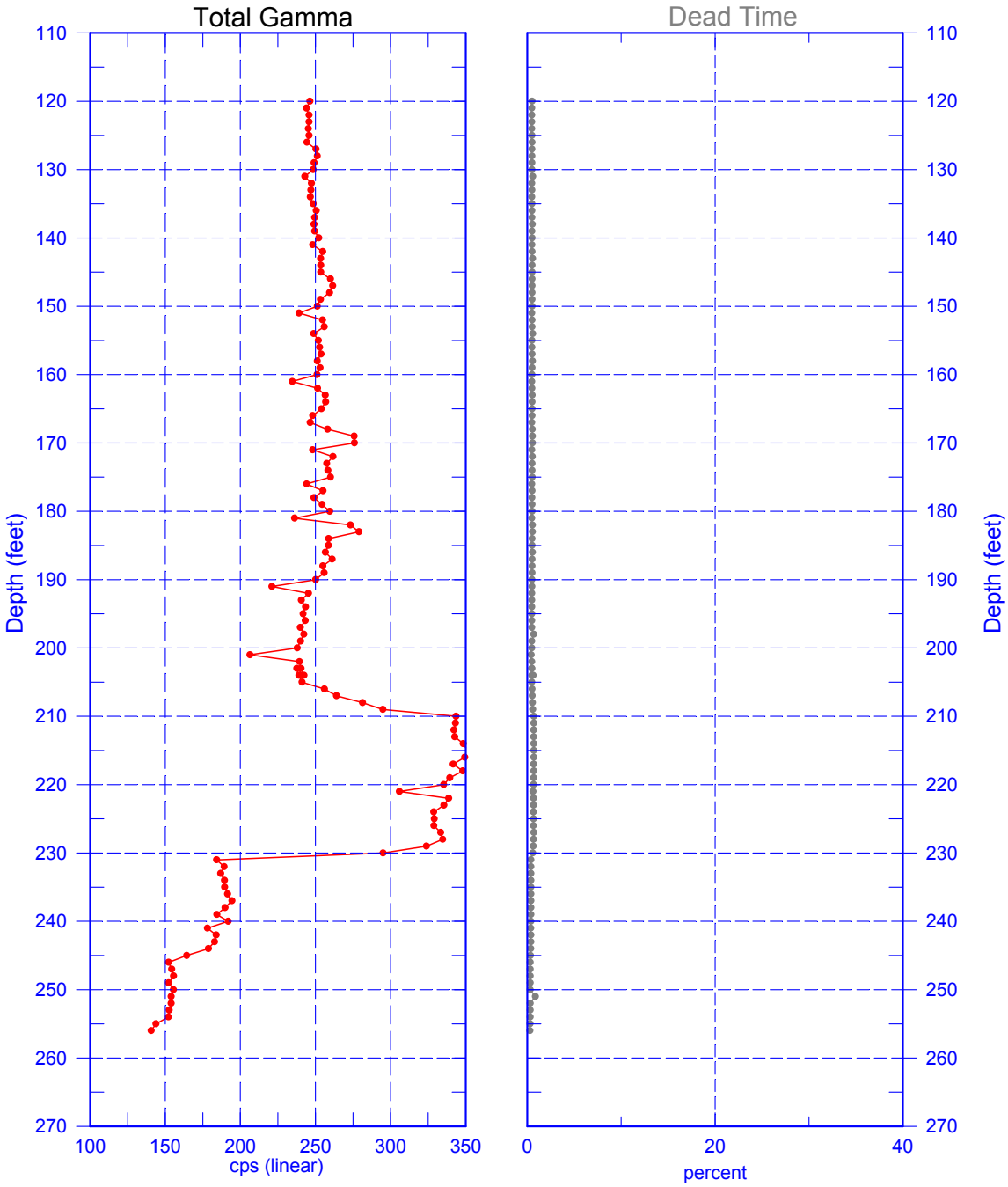
Zero Reference = Top of Casing

299-E33-44 (B8554) Combination Plot



Zero Reference = Top of Casing

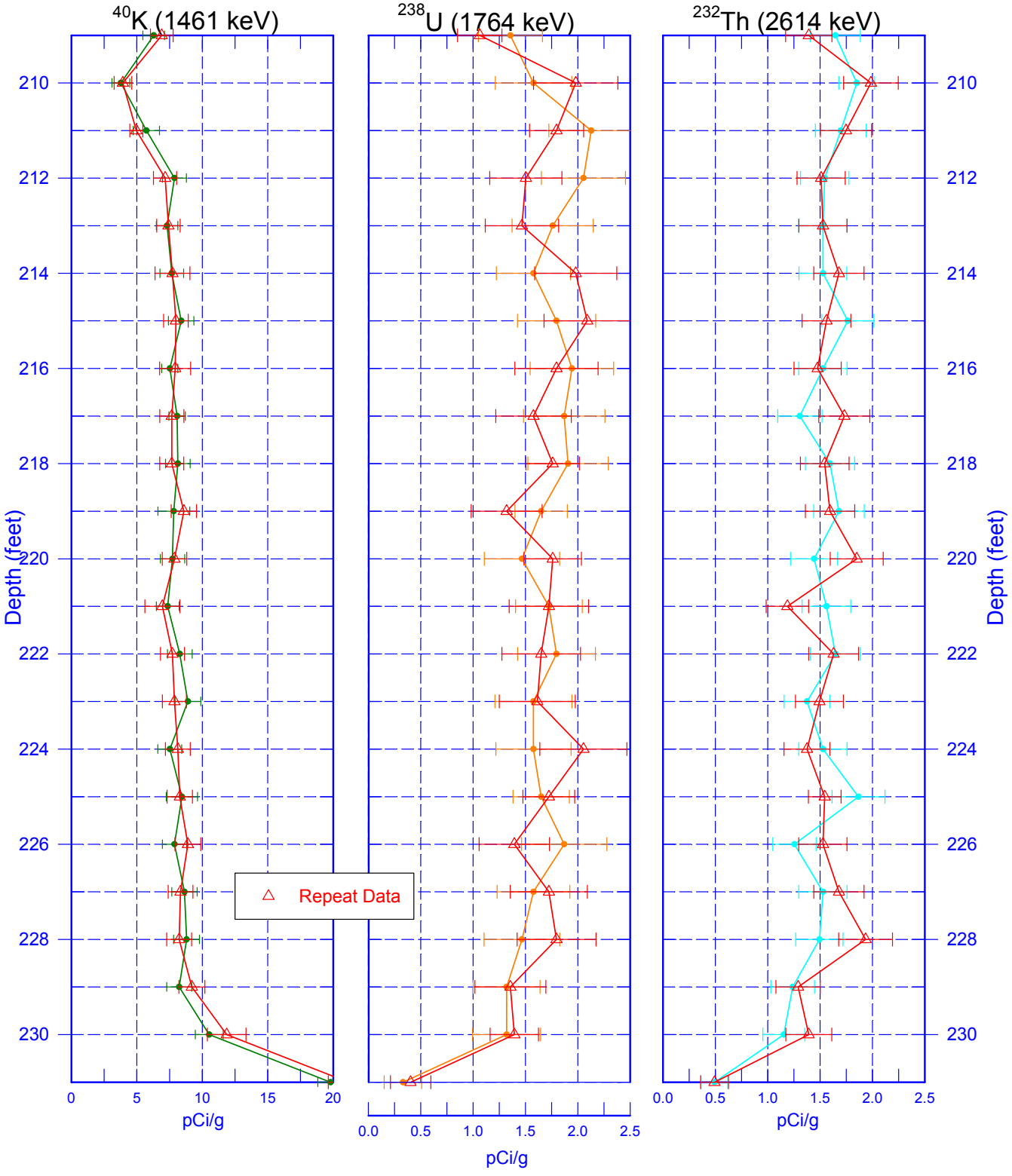
299-E33-44 (B8554)
Total Gamma & DeadTime



Reference - Top of Casing

299-E33-44 (B8554)

Repeat Section of Natural Gamma Logs



Zero Reference = Top of Casing