Stoller
Hanford Office

DOE-EM/GJ1290-2006

299-W18-77 (A7560)
Log Data Report

Borehole Information:

Borehole:	299-W18-77 (A7560)		Site:	216-Z-1A Crib	
Coordinates (WA St Plane)		GWL[1] (ft) :	N/A	GW Date:	07/13/06
North	East	Drill Date	Ground Level Elevation	Total Depth (ft)	Type
135,431.162 m	566,544.972 m	3/30/67	205.369m	21	Cable

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	-0.5 ft	6 5/8	6	5/16	0	21

Borehole Notes:

The logging engineer measured the casing stick-up and diameter using a caliper and steel tape. Logging data acquisition is referenced to the TOC (below grade). The driller's log notes that no contamination was encountered.

Logging Equipment Information:

Logging System:	Gamma 1N		Type:	SGLS (60%) SN: 45TP22010A
Effective Calibration Date:	04/05/06	Calibration Reference:	DOE/EM-GJ1183-2006	
		Logging Procedure:	GJO-HGLP 1.6.5, Rev. 1	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3	
Date	07/13/06	07/13/06	07/13/06	
Logging Engineer	McClellan	McClellan	McClellan	
Start Depth (ft)	21.0	4.0	7.0	
Finish Depth (ft)	0	4.0	7.0	
Count Time (sec)	200 s	1000 s	1000 s	
Live/Real	R	R	R	
Shield (Y/N)	NA	NA	NA	
MSA Interval (ft)	1.0 ft	NA	NA	
ft/min	NA	NA	NA	
Pre-Verification	AN037CAB	AN037CAB	AN037CAB	
Start File	AN037000	AN037022	AN037023	
Finish File	AN037021	AN037022	AN037023	
Post-Verification	AN037CAA	AN037CAA	AN037CAA	
Depth Return Error (in.)	0	0	0	
Comments	No fine gain adjustment made.	Repeat section.	Repeat extra	

Logging Operation Notes:

Logging was conducted with a centralizer. Measurements are referenced to top of casing. Maximum depth was 21.3 ft.

Analysis Notes:

Analyst:	McCain	**Date:**	08/14/06	**Reference:**	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging systems were performed before and after each day's data acquisition. SGLS acceptance criteria were met. The FWHM for the 609 peak in AN037CAB was slightly above the upper control limit and the net counts for the 609 keV peak in AN037CAA was slightly below the lower control limit. In both cases the spectra were examined and found to be acceptable.

A casing correction for 5/16-in.-thick casing was applied throughout the borehole.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with an EXCEL worksheet template identified as G1NApr06.xls using an efficiency function and corrections for casing and dead time as determined from annual calibrations.

Results and Interpretations:

No evidence of manmade contamination was detected in this borehole. Spectra were evaluated for gamma activity at 312 keV (^{233}Pa/^{237}Np), 375 keV (^{239}Pu), 662 keV (^{137}Cs or ^{241}Am), and 722.01 keV (^{241}Am). The few cases where activity was detected at the MDA appear to be isolated statistical fluctuations.

The repeat measurements show good repeatability for natural radionuclides.

List of Log Plots:

Man-Made Radionuclide Plot (0-160 ft)
Natural Gamma Logs (0-160 ft)
Combination Plot (0-120 ft)
Combination Plot (0-25 ft)
Total Gamma & Dead Time (0-160 ft)
Repeat Section for Natural Gamma Logs (0-22 ft)

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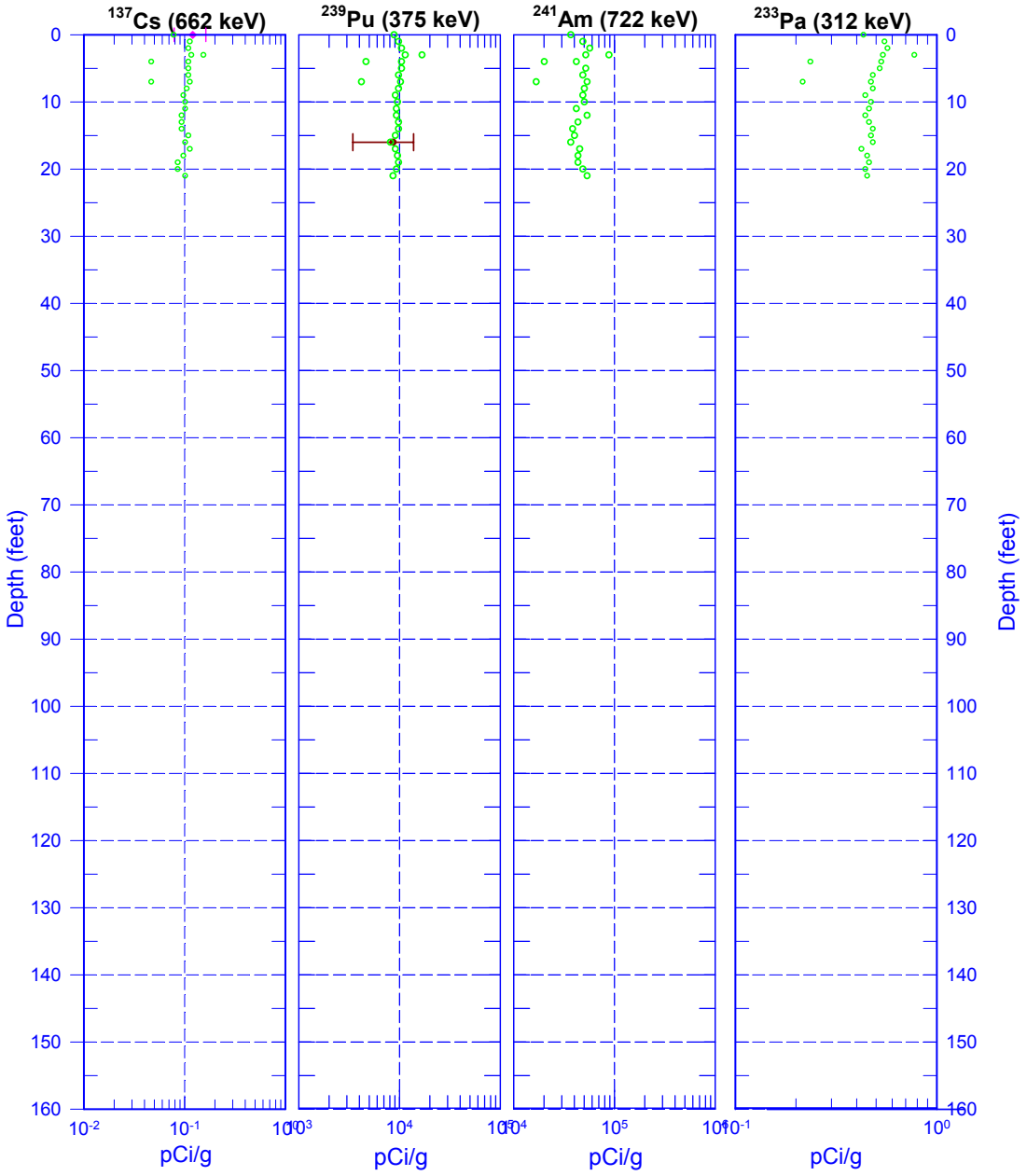
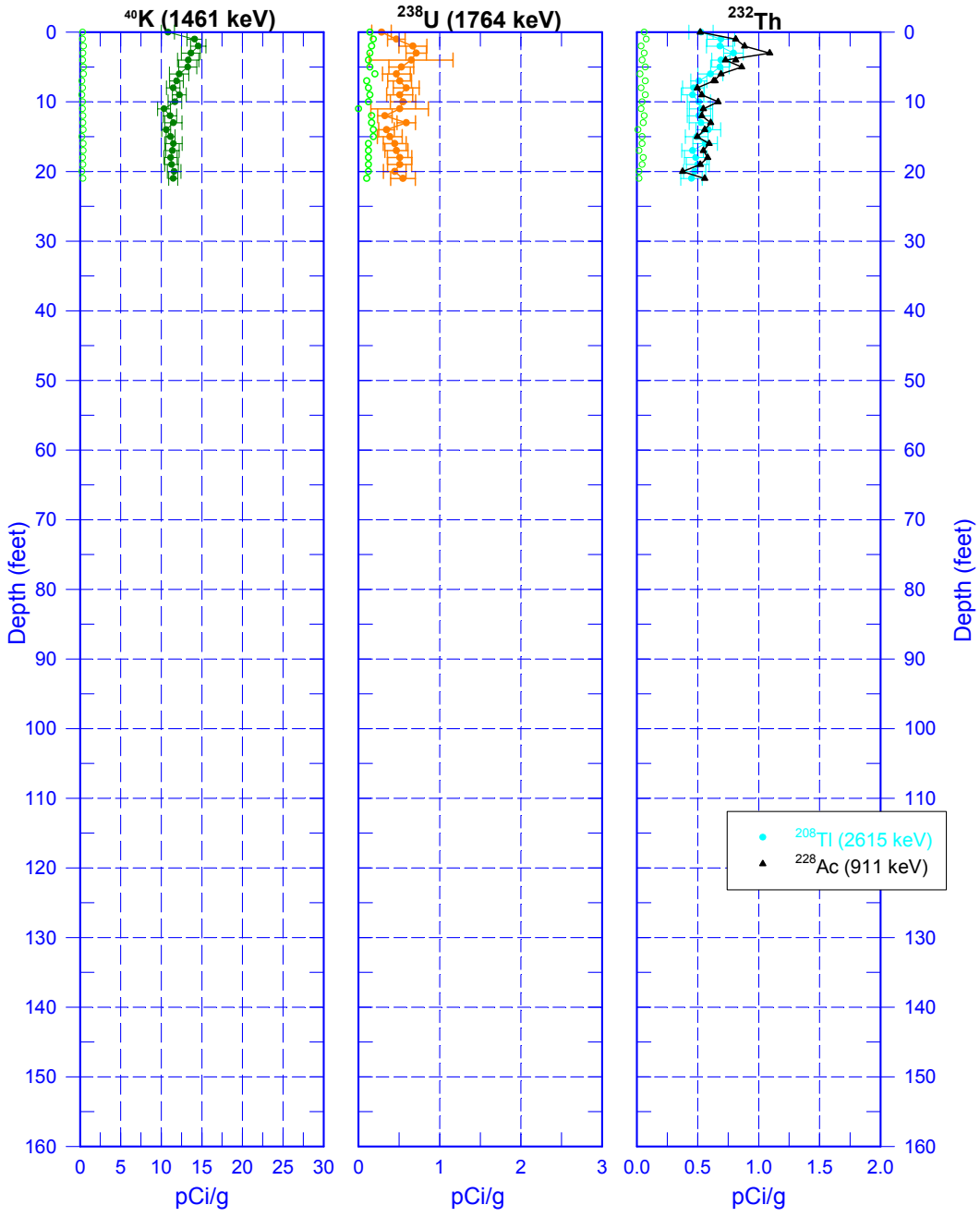
[1] GWL – groundwater level
[2] N/A – not applicable

299-W18-77 (A7560)
Man-made Radionuclide Plot



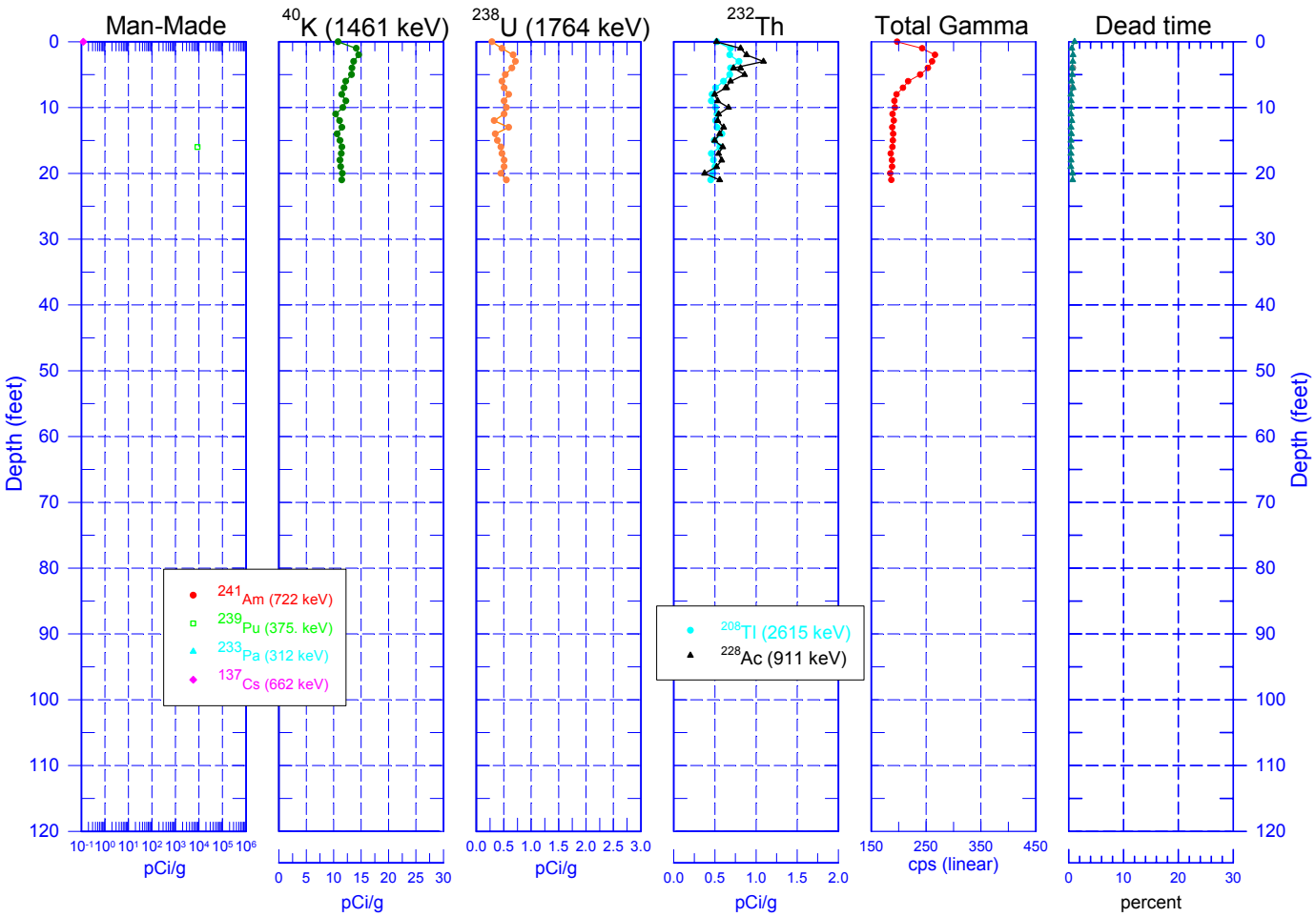
Zero Reference = Top of Casing

299-W18-77 (A7560)
Natural Gamma Logs



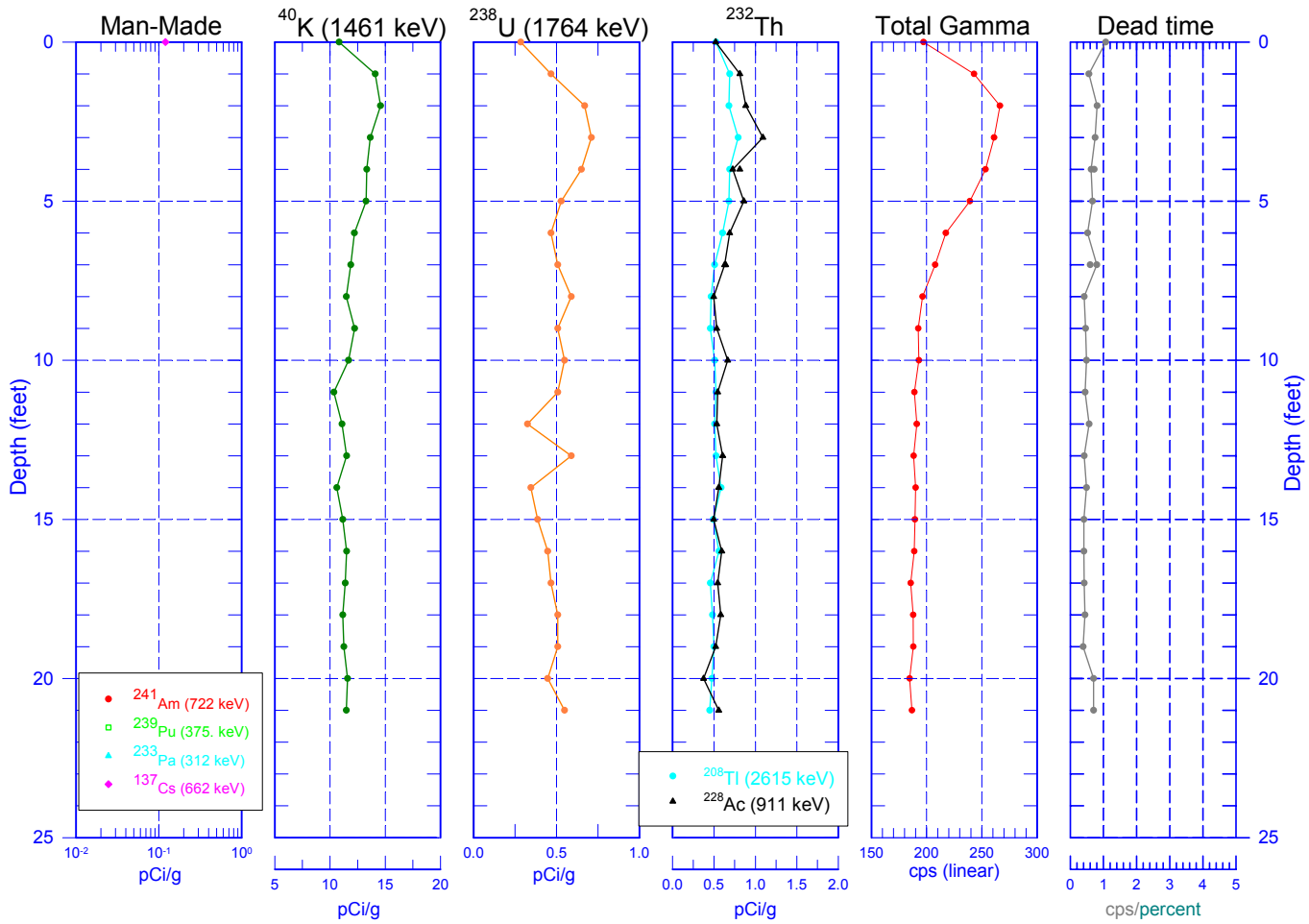
Zero Reference = Top of Casing

299-W18-77 (A7560) Combination Plot



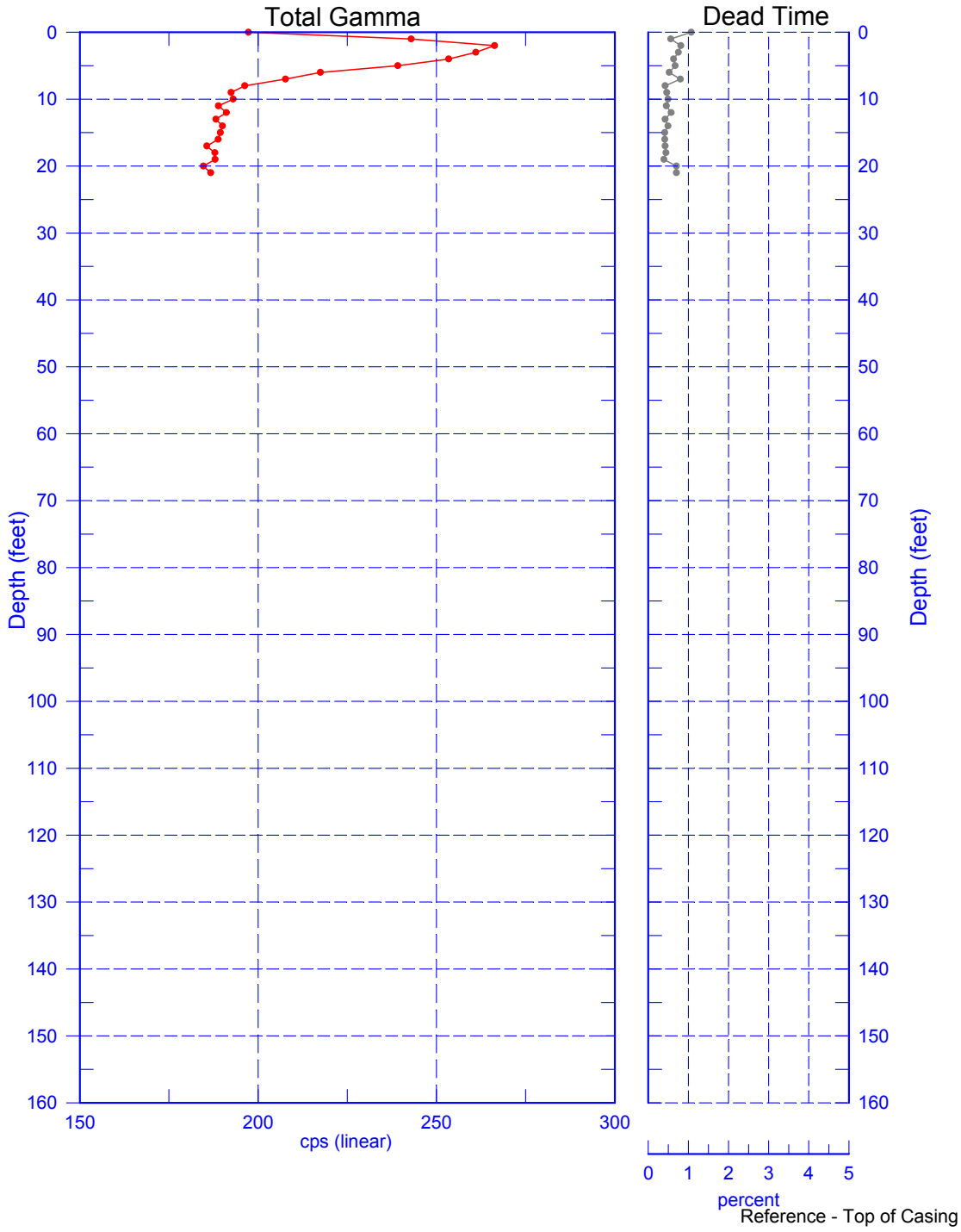
Zero Reference = Top of Casing

299-W18-77 (A7560) Combination Plot



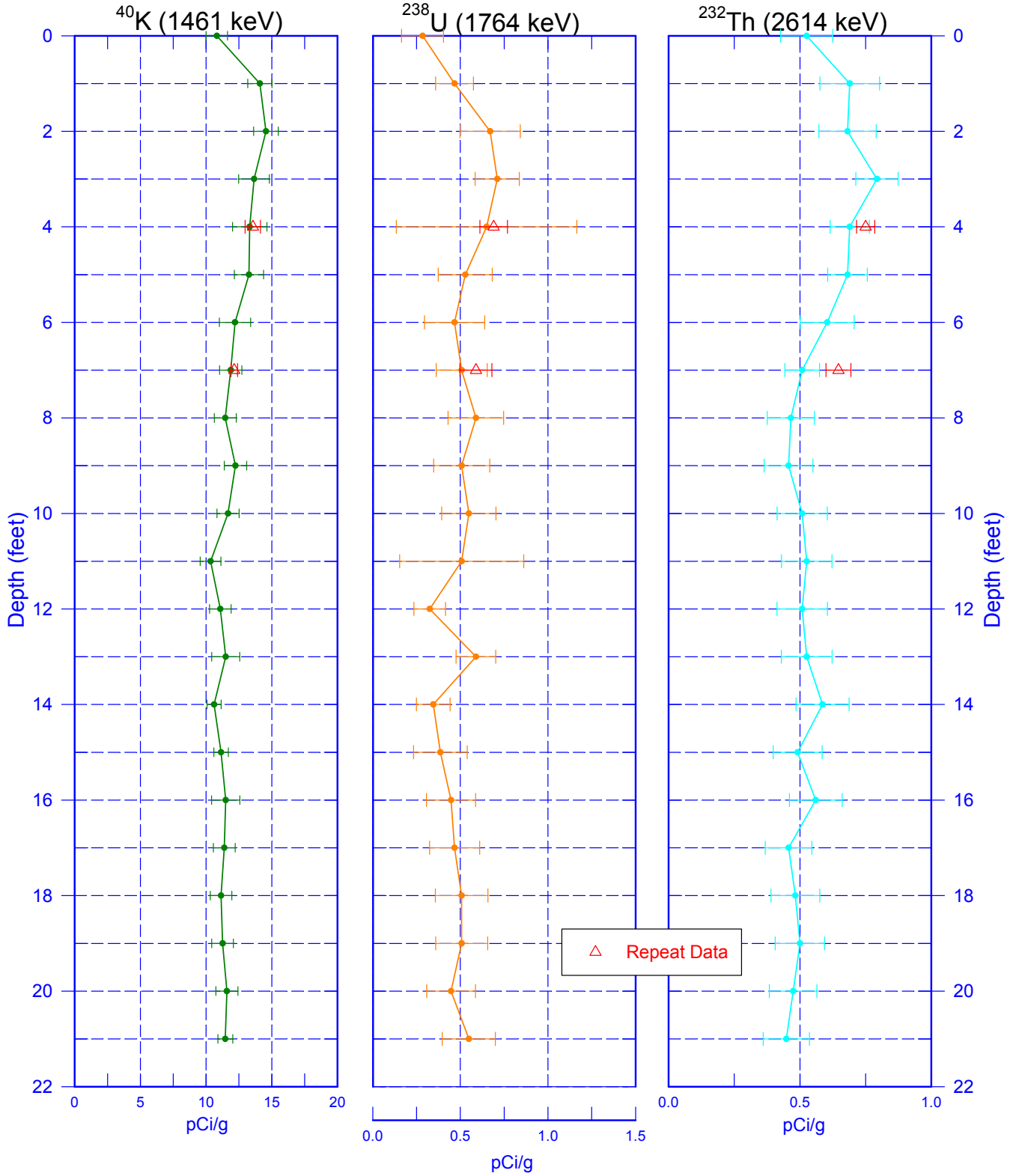
Zero Reference = Top of Casing

299-W18-77 (A7560)
Total Gamma & Dead Time



299-W18-77 (A7560)

Repeat Section of Natural Gamma Logs



Zero Reference = Top of Casing