1229982
0081119H

299-E24-25 (C7514)
Log Data Report

Borehole Information:

Borehole:	299-E24-25 (C7514)		Site:	200-BP-5, 216-C-1 Hot Semi Works	
Coordinates (WA St Plane)		GWL[1] (ft):	290.5	GWL Date:	01/12/10
North (m)	East (m)	Drill Date	TOC[2] Elevation	Total Depth (ft)	Type
Unknown	Unknown	01/08/10	Unknown	361	Cable Tool

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (inch)	Inside Diameter (inch)	Thickness (inch)	Top (ft)	Bottom (ft)
Threaded Steel	-4.15	9 5/8	8 5/8	1/2	-4.15	358

Borehole Notes:

The driller reported total depth and casing depth. The logging engineer measured casing diameters and rounded to the nearest 1/16-inch.

Logging Equipment Information:

Logging System:	Gamma 1 L		Type: Serial No.:	60% HPGe SGLS 47TP3211A
Effective Calibration Date:	3/26/09	Calibration Reference:	HGLP-CC-030, Rev. 1	
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Logging System:	Gamma 1 H		Type: Serial No.:	NMLS H310700352
Effective Calibration Date:	4/01/09	Calibration Reference:	HGLP-CC-047, Rev. 1	
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3 Repeat		
HEIS Number	1015132	1015133	1015134		
Date	1/11/10	1/12/10	1/12/10		
Logging Engineer	Spatz/ McClellan	Spatz/ McClellan	Spatz/ McClellan		
Start Depth (ft)	0.0	204.0	0.0		
Finish Depth (ft)	205.0	359.0	36.0		
Count Time (sec)	100	100	100		
Live/Real	R	R	R		
Shield (Y/N)	N	N	N		
MSA Interval (ft)	1.0	1.0	1.0		
Log Speed (ft/min)	NA	NA	NA		
Pre-Verification	AL047CAB	AL048CAB	AL048CAB		
Start File	AL047000	AL048000	AL048156		
Finish File	AL047205	AL048155	AL048192		
Post-Verification	AL047CAA	AL048CAA	AL048CAA		
Depth Return Error (in)	Low 2	Low 4	0		
Comments	No fine gain adjustments made	Fine gain adjustment made before file –106.	No fine gain adjustments made.		

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Neutron Moisture Logging System (NMLS) Log Run Information:

Log Run	4	5	6	7 Repeat	
Date	1/13/10	1/13/10	1/13/10	1/13/10	
Logging Engineer	Spatz/ McClellan	Spatz/ McClellan	Spatz/ McClellan	Spatz/ McClellan	
Start Depth (ft)	0.0	111.0	222.0	240.0	
Finish Depth (ft)	112.0	223.0	290.75	269.0	
Count Time (sec)	15	15	15	15	
Live/Real	R	R	R	R	
Shield (Y/N)	N	N	N	N	
MSA Interval (ft)	0.25	0.25	0.25	0.25	
Log Speed (ft/min)	NA	NA	NA	NA	
Pre-Verification	AH024CAB	AH024CAB	AH024CAB	AH024CAB	
Start File	AH024000	AH024449	AH025000	AH025276	
Finish File	AH024448	AH024897	AH025275	AH025392	
Post-Verification	AH025CAA	AH025CAA	AH025CAA	AH025CAA	
Depth Return Error (in)	NA	NA	NA		
Comments	None	None	None	None	

Logging Operation Notes:

SGLS data were collected using Gamma 1, HO 68B-3574. Pre- and post-survey verification measurements were acquired in the Amersham KUTh-118 field verifier. Maximum logging depth was 359.0 feet before the sonde un-weighted, approximately 1-feet below the casing. A centralizer was installed on the sonde.

NMLS data were collected using Gamma 1, HO 68B-3574. Pre- and post-survey verification measurements were acquired in the AmBe standard field verifier. Maximum logging depth was 290.75 feet, just before ground water. A centralizer was installed on the sonde.

The zero reference is the ground surface.

Analysis Notes:

Analyst:	LEGLER	Date:	1/15/2010	Reference:	GJO-HGLP 1.6.3, Rev. 0

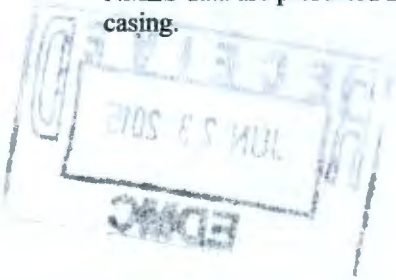
Pre- and post-survey verification measurements met the acceptance criteria of the established systems.

A casing correction for 1/2-inch thick casing was applied during analysis.

SGLS spectra were processed in batch mode in APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated in an EXCEL template identified as AL20090326.xls, using an efficiency function and corrections for casing and dead time as determined by annual calibrations.

During routine processing of gamma spectra, regions of interest are forced at specific energy levels associated with natural and manmade radionuclides that can be anticipated to be present. This processing approach sometimes results in an isolated "detection" near the minimum detection level (MDL) resulting in a false positive. Where these detections occur, the individual spectrum is scrutinized and a determination is made regarding the validity of the detection. If the detection is deemed not representative of a full energy peak, or if confirming peaks are not detected, it is removed from the data set. The integrity of the raw data files and the processed files are maintained should questions arise in the future regarding these determinations.

NMLS data are presented in counts per second (cps) because no calibration data exists for an 8 5/8-inch diameter casing.



Results and Interpretations:

No manmade radionuclides were detected in this borehole. Minimum Detectable Levels (MDLs) for Cs-137 are plotted.

Moisture data indicates a small increase at 247 feet that corresponds to a small increase in the Total Gamma data, which could indicate a thin fine-grain sediment layer.

The KUT and Moisture repeat plots indicate that the respective systems were working properly.

List of Log Plots:

Depth Reference is ground surface

Manmade Radionuclides
Natural Gamma Logs (3 pages)
Combination Plot (4 pages)
Combination Plot (0-360 ft)
Total Gamma & Dead Time (3 pages)
Total Gamma & Moisture (3 pages)
Repeat Section of Natural Gamma Logs
Moisture Repeat Section

[1] GWL – groundwater level
[2] TOC – top of casing

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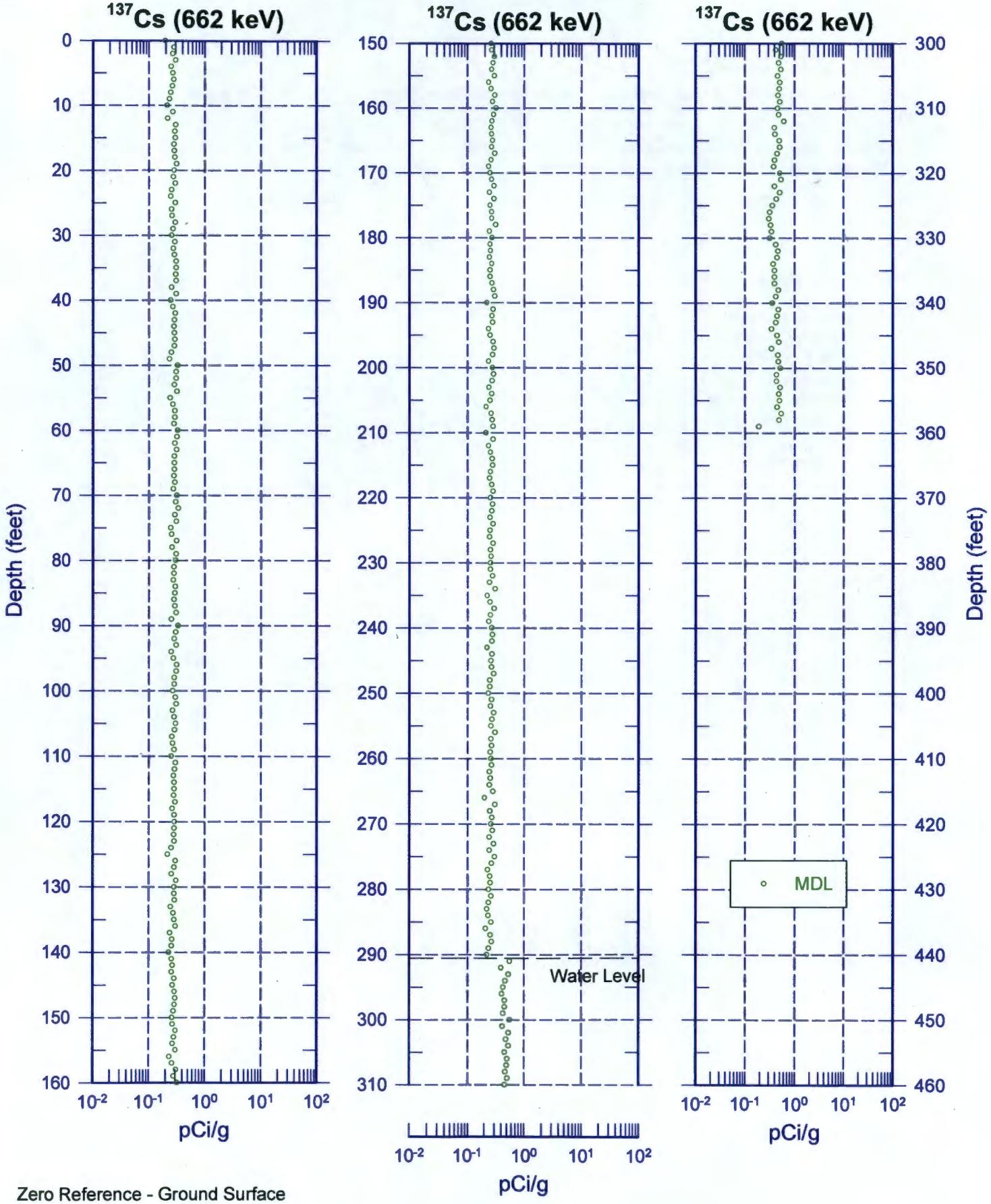
299-E24-25 (C7514)
Manmade Radionuclides



Zero Reference - Ground Surface

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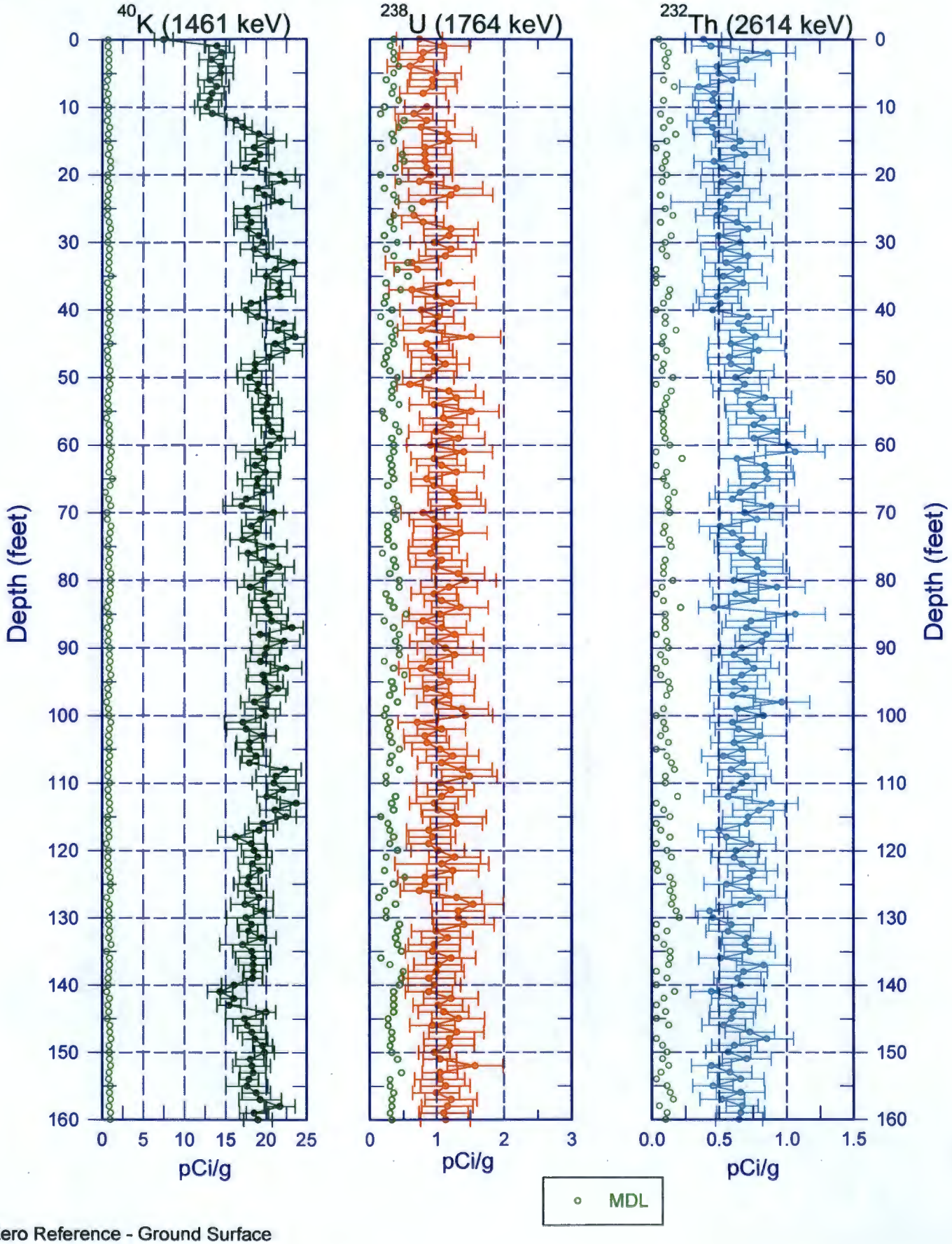
299-E24-25 (C7514)
Natural Gamma Logs



Zero Reference - Ground Surface

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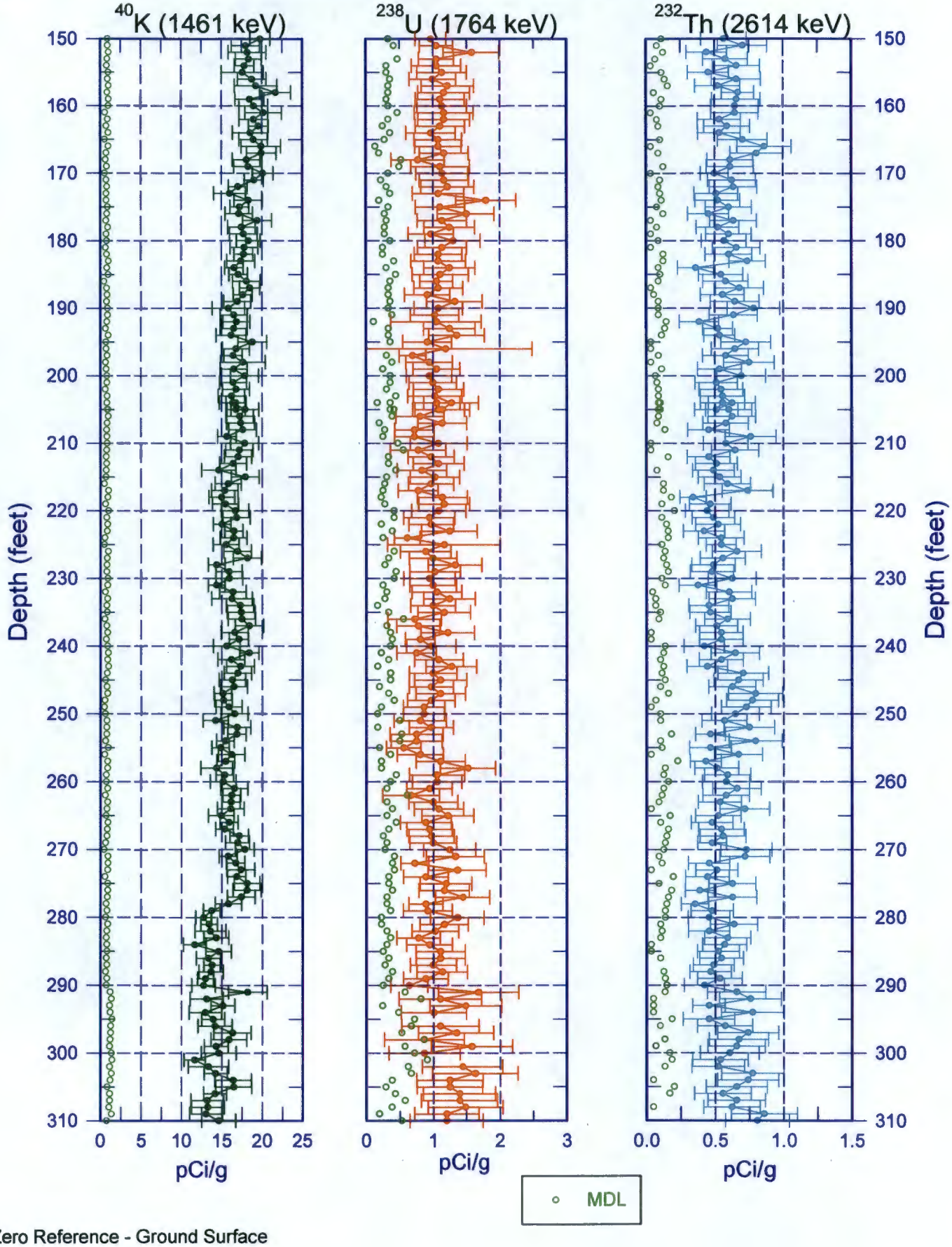
299-E24-25 (C7514)
Natural Gamma Logs



Zero Reference - Ground Surface

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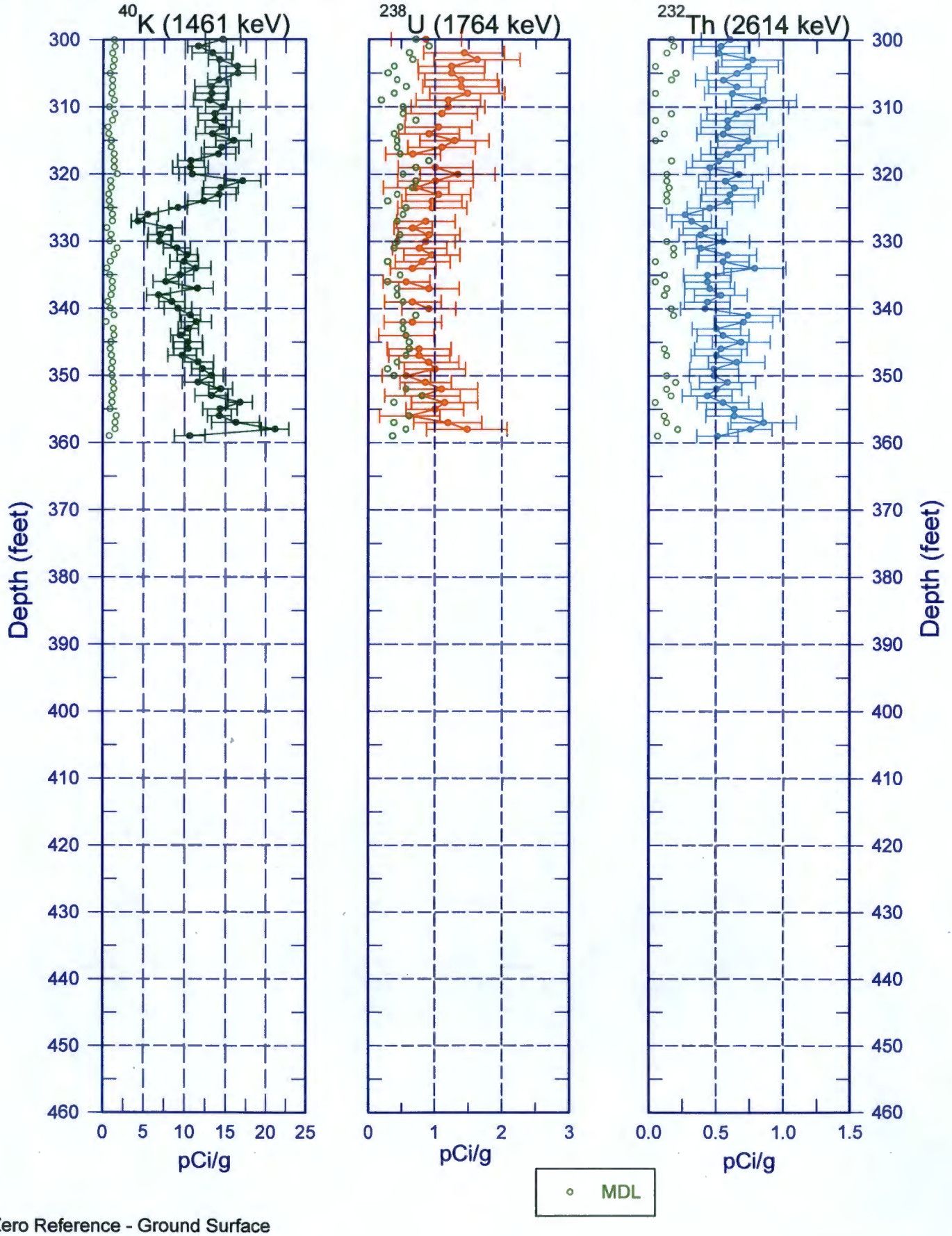
299-E24-25 (C7514)
Natural Gamma Logs



Zero Reference - Ground Surface

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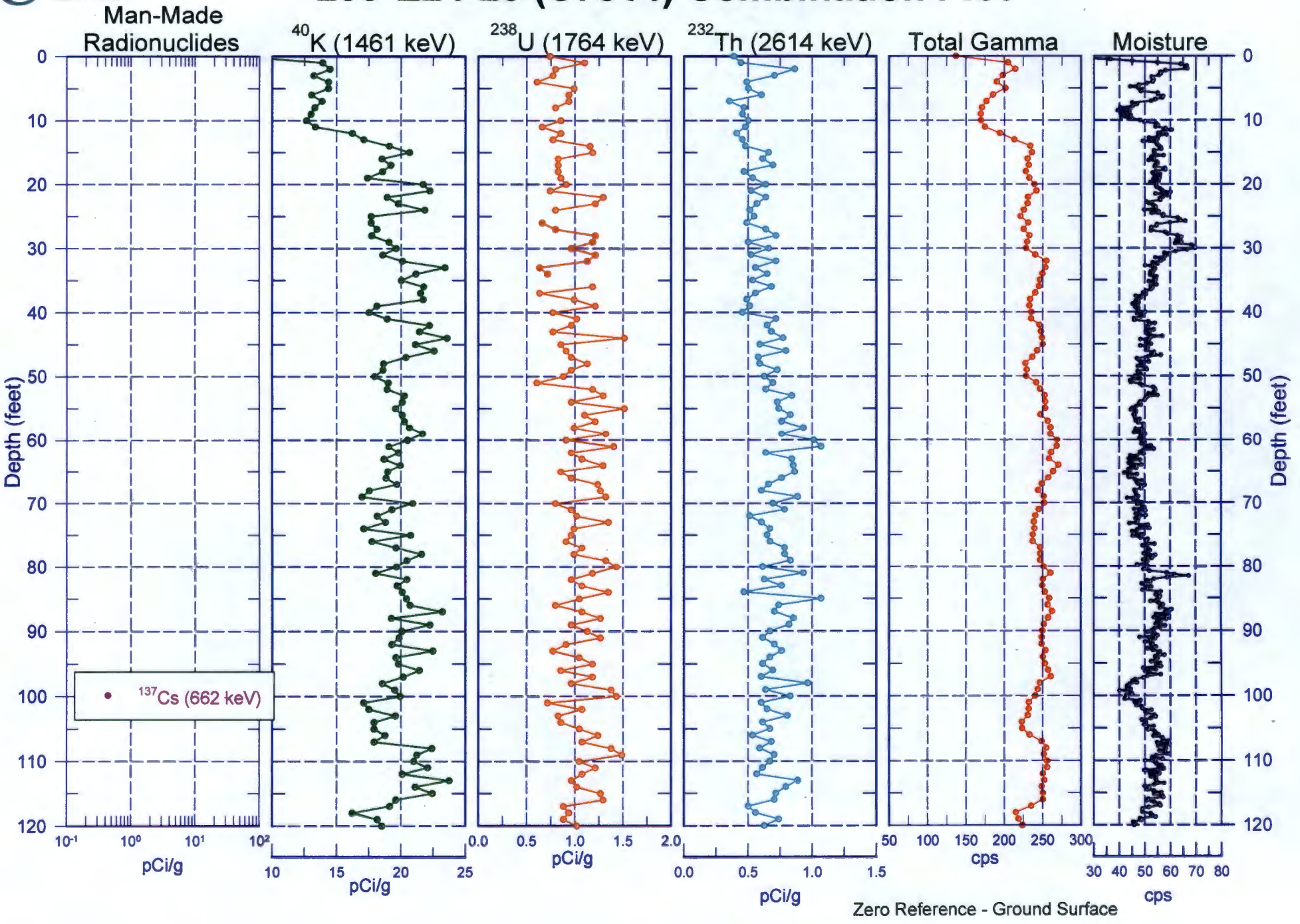
299-E24-25 (C7514) Combination Plot



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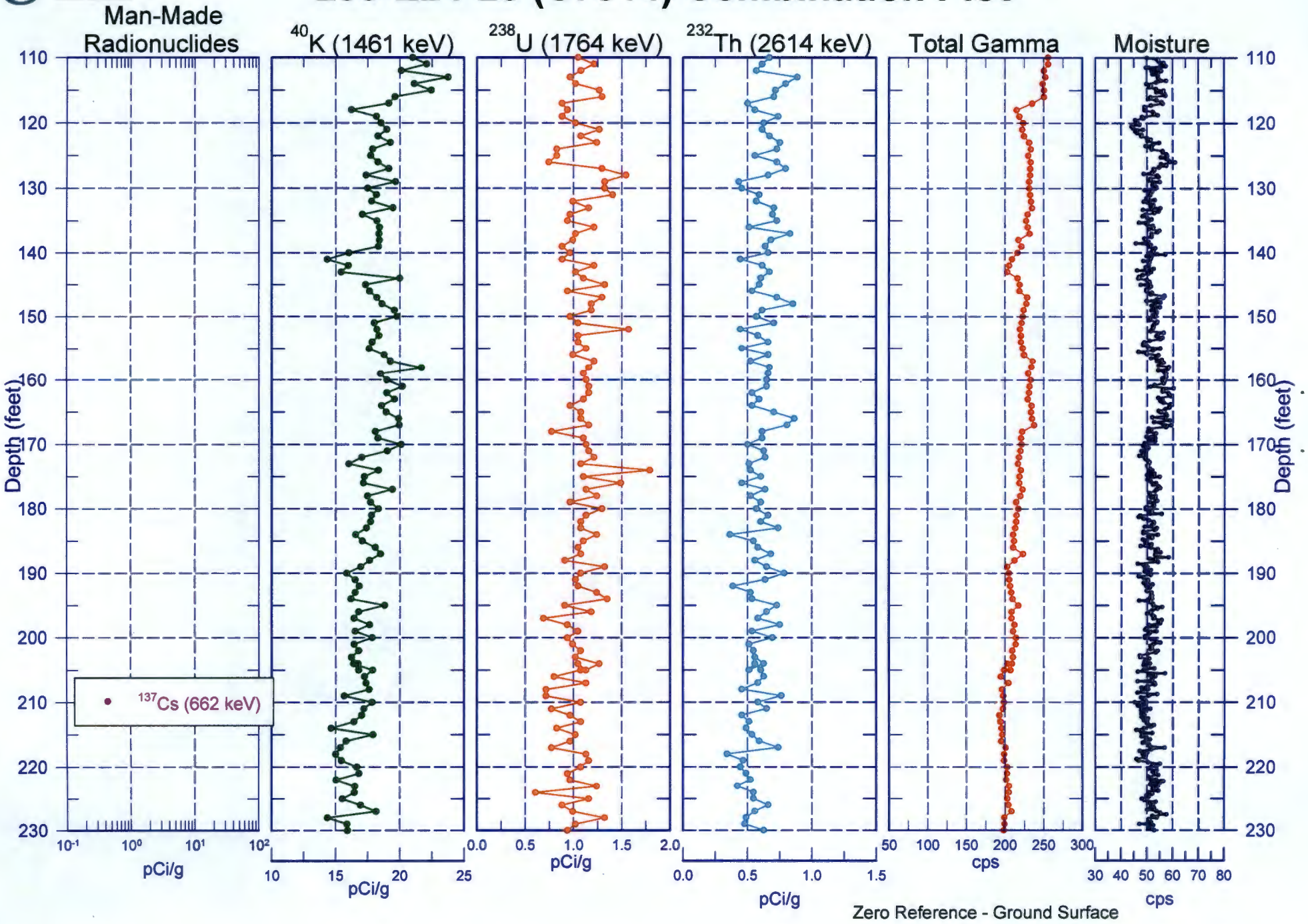
299-E24-25 (C7514) Combination Plot



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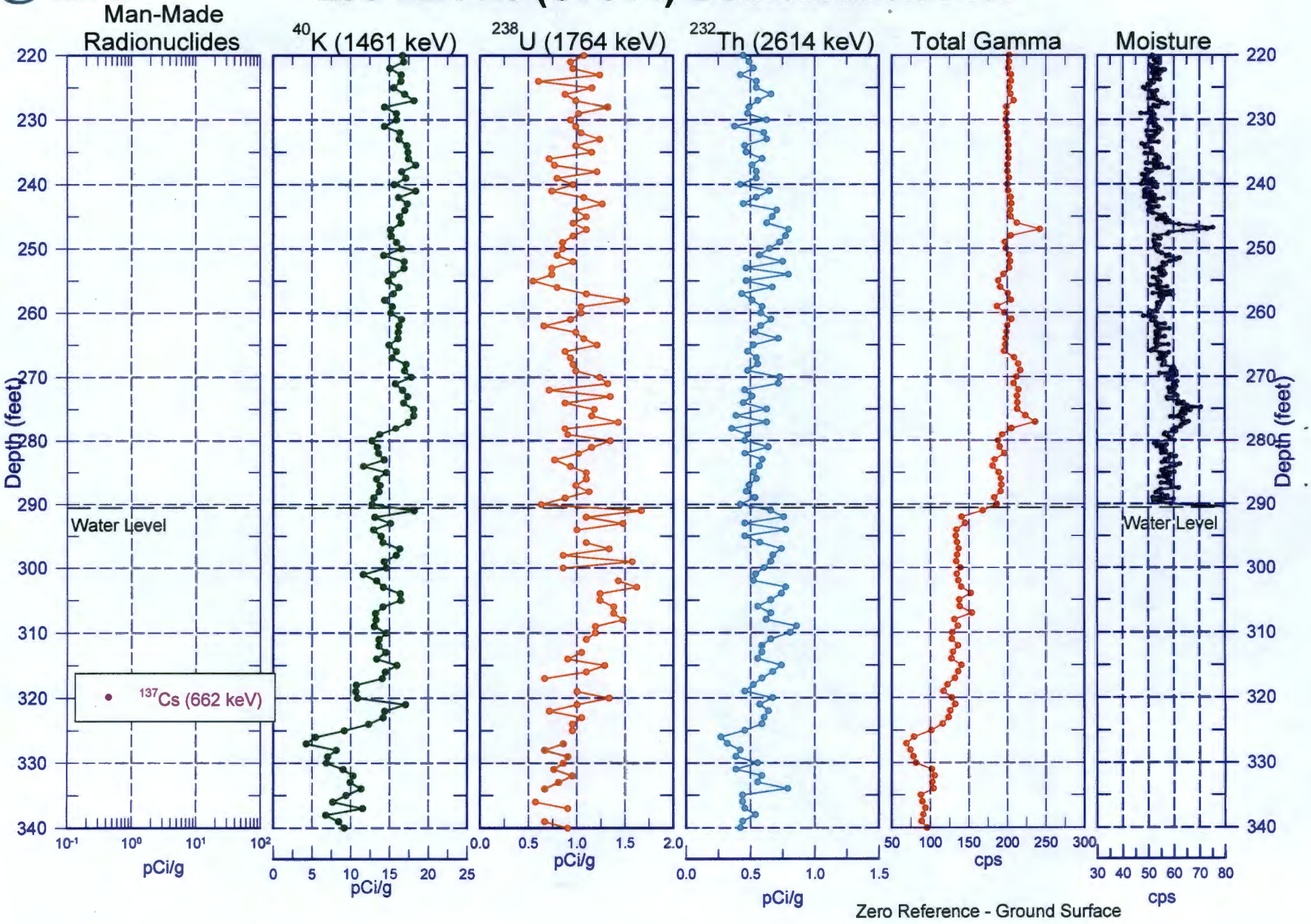
299-E24-25 (C7514) Combination Plot



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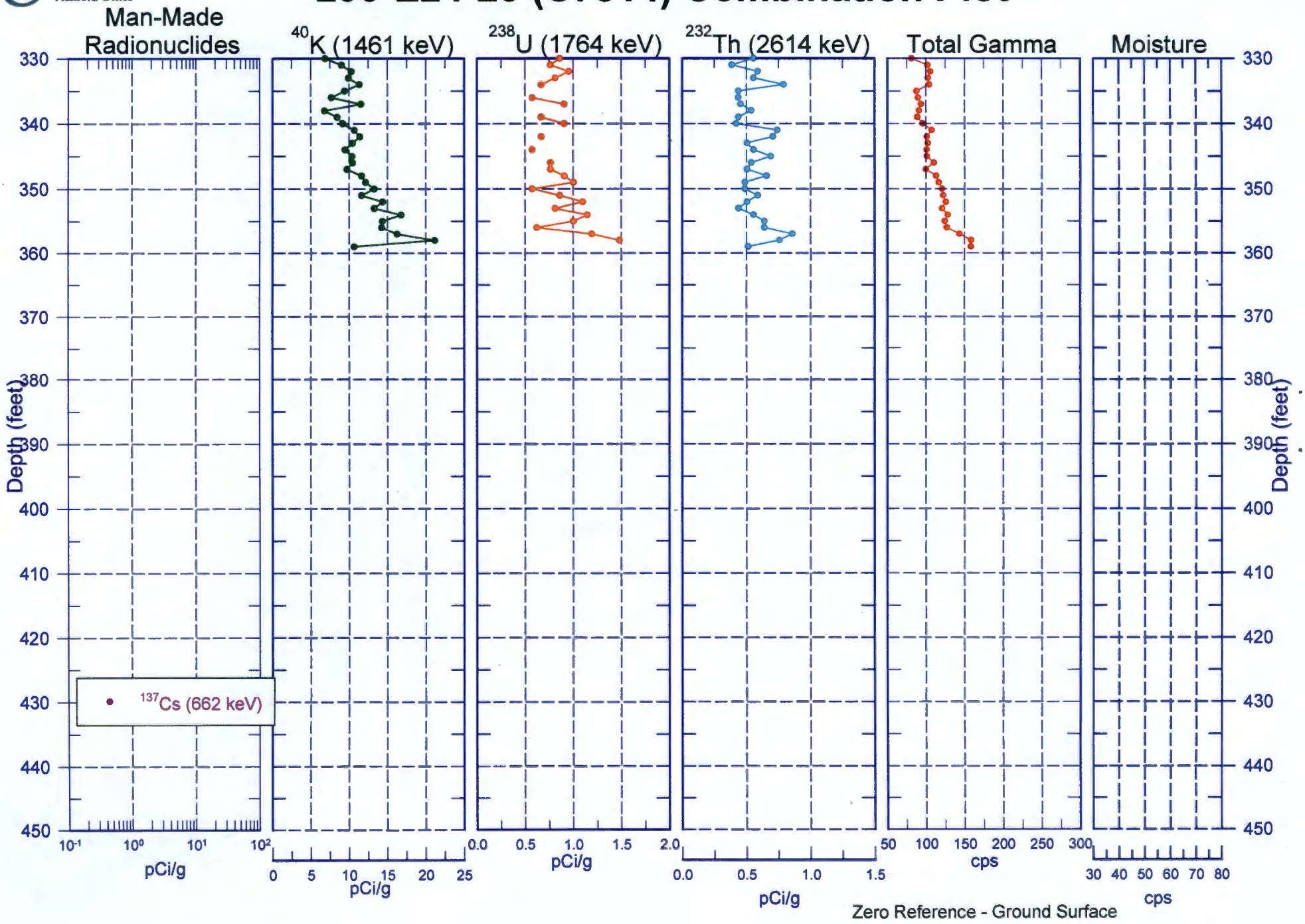
299-E24-25 (C7514) Combination Plot



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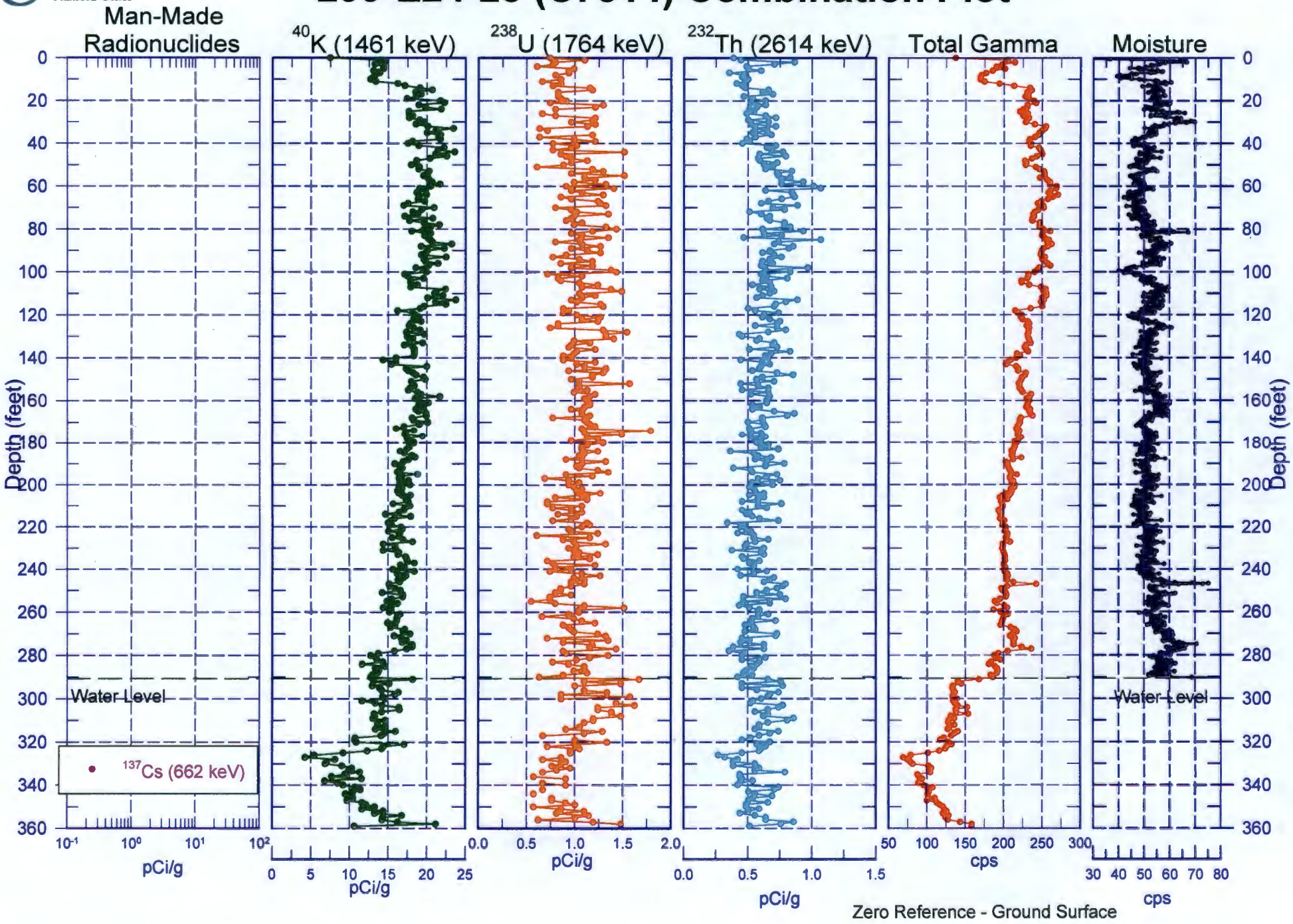
299-E24-25 (C7514) Combination Plot



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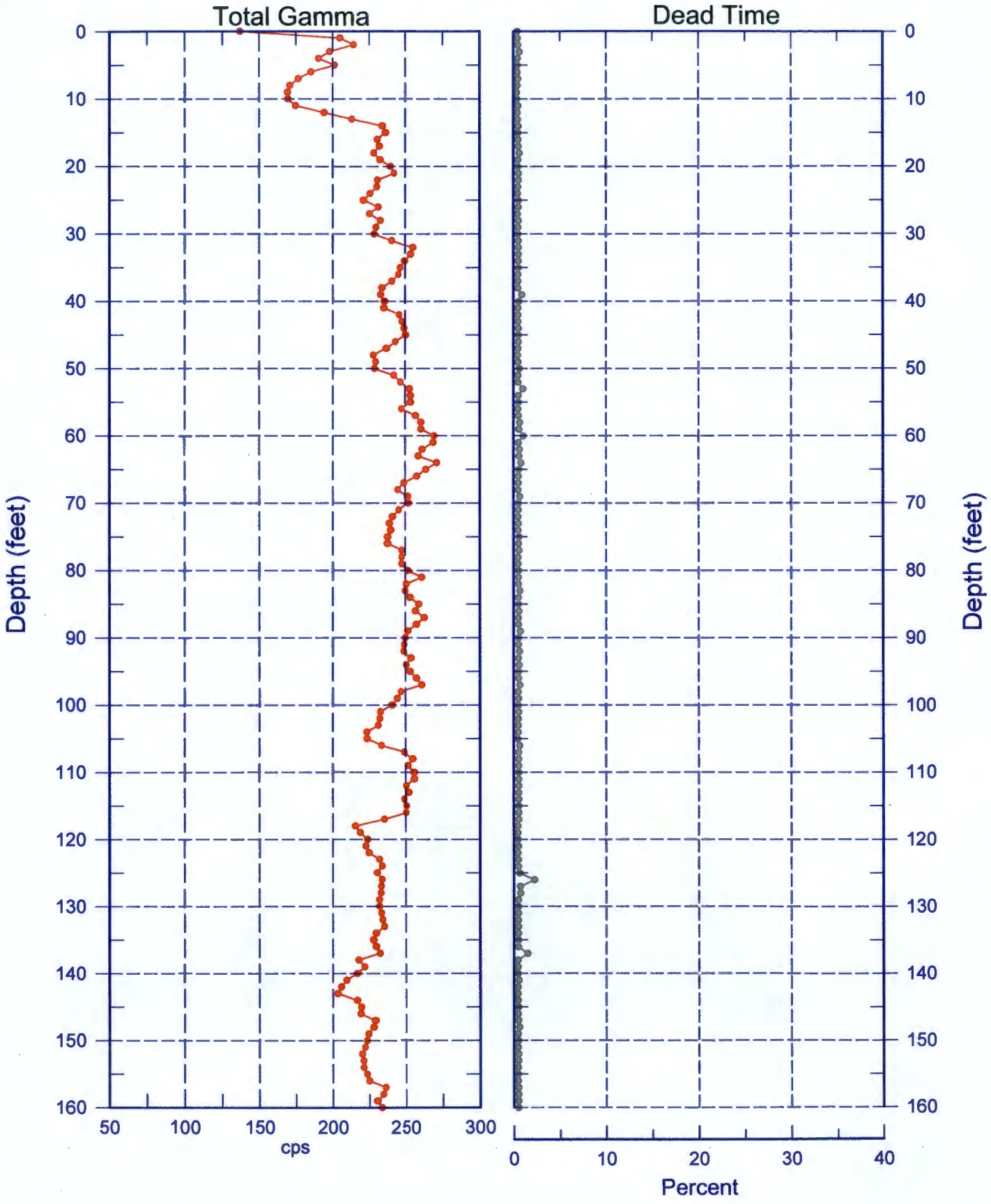
299-E24-25 (C7514)
Total Gamma & Dead Time



Reference - Ground Surface

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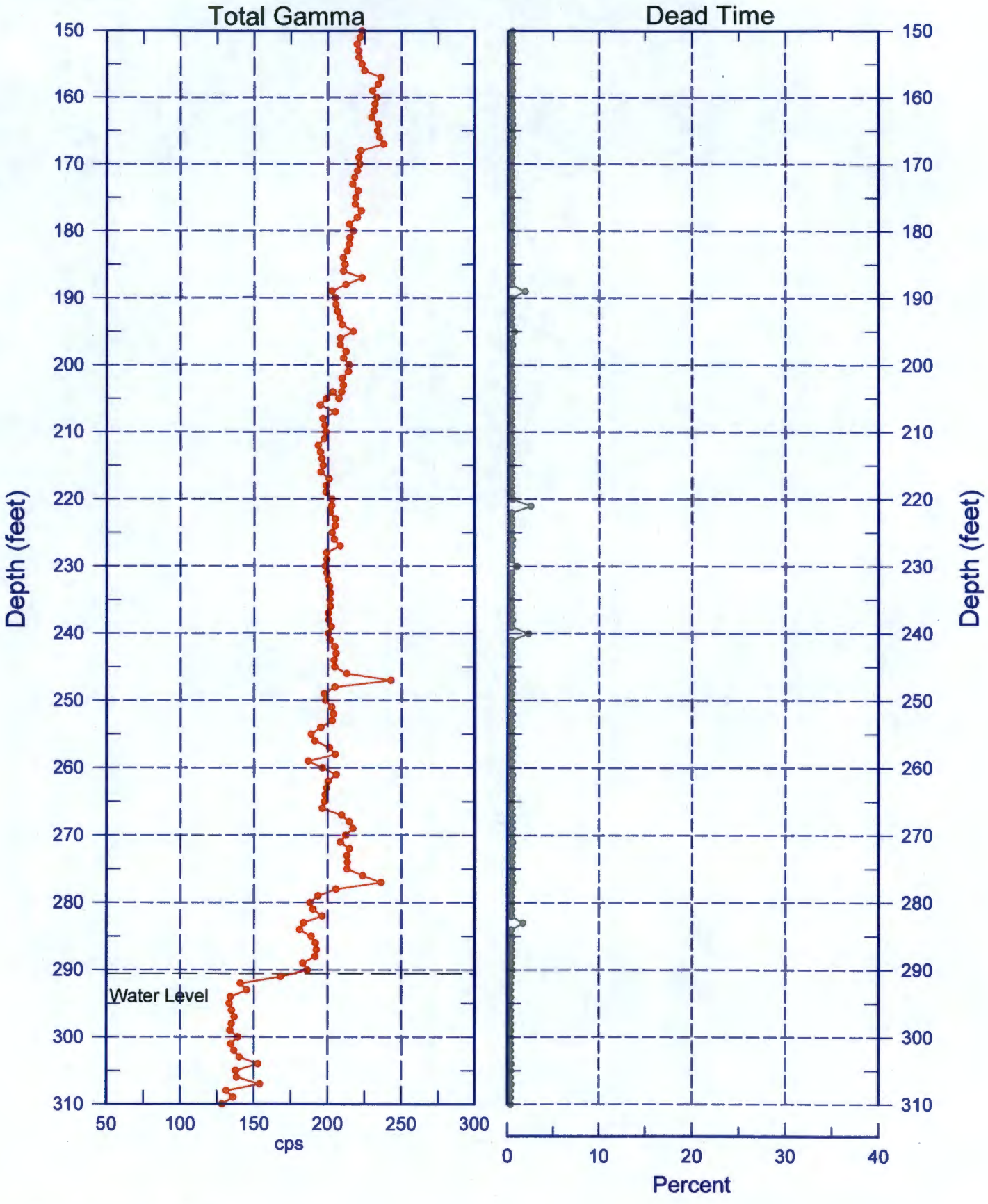
299-E24-25 (C7514)
Total Gamma & Dead Time



Reference - Ground Surface

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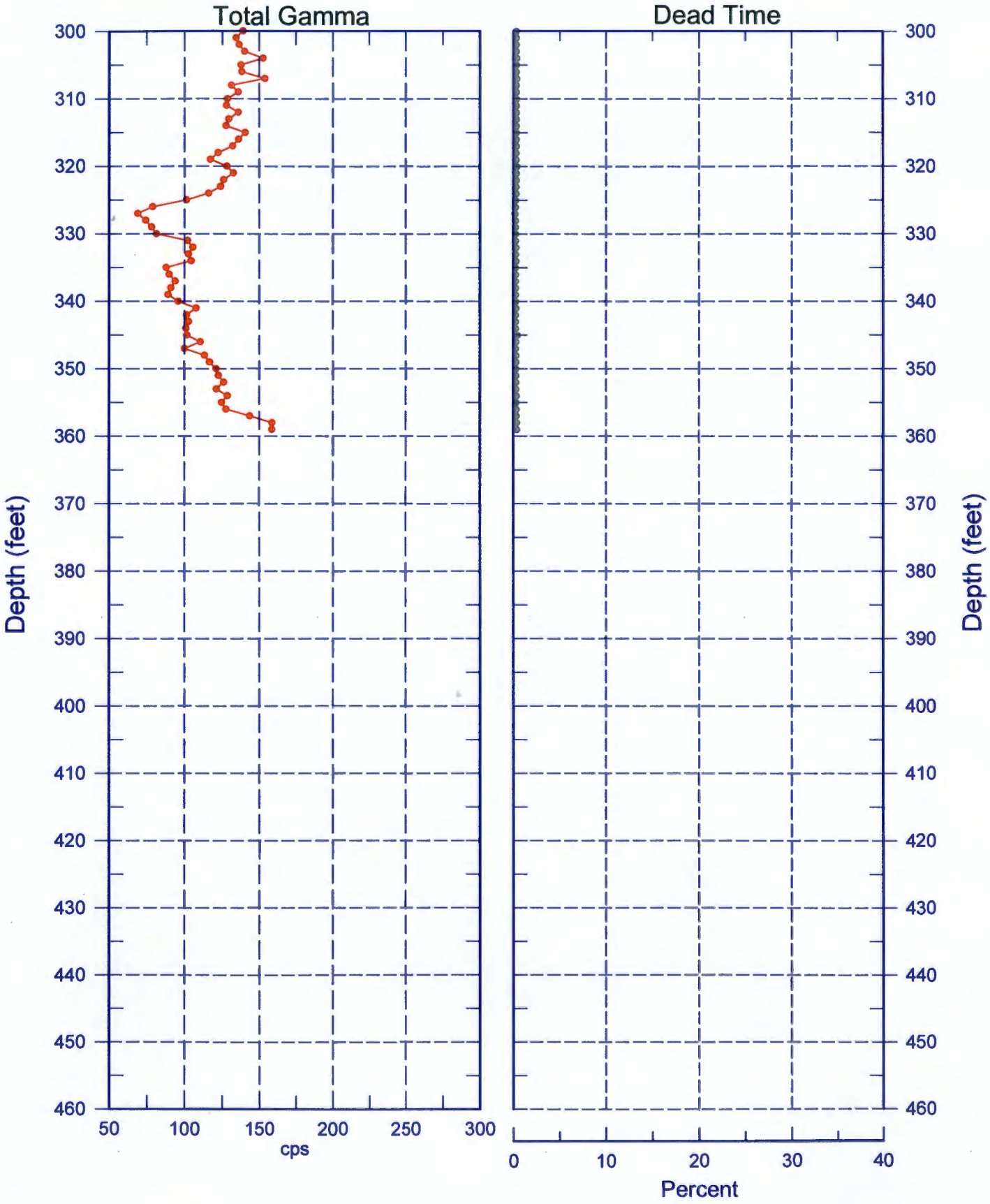
299-E24-25 (C7514)
Total Gamma & Dead Time



Reference - Ground Surface

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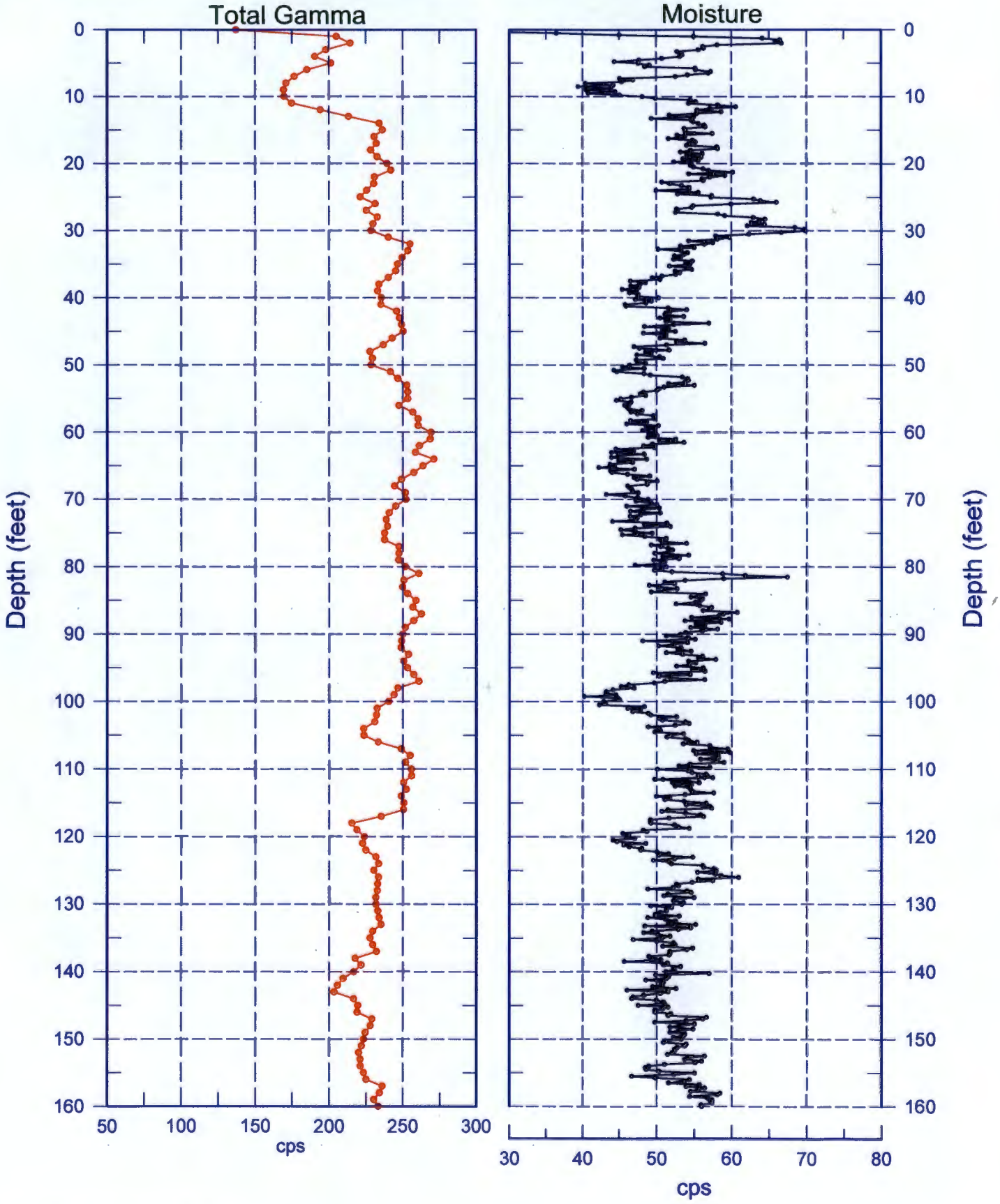
299-E24-25 (C7514)
Total Gamma & Moisture



Reference - Ground Surface

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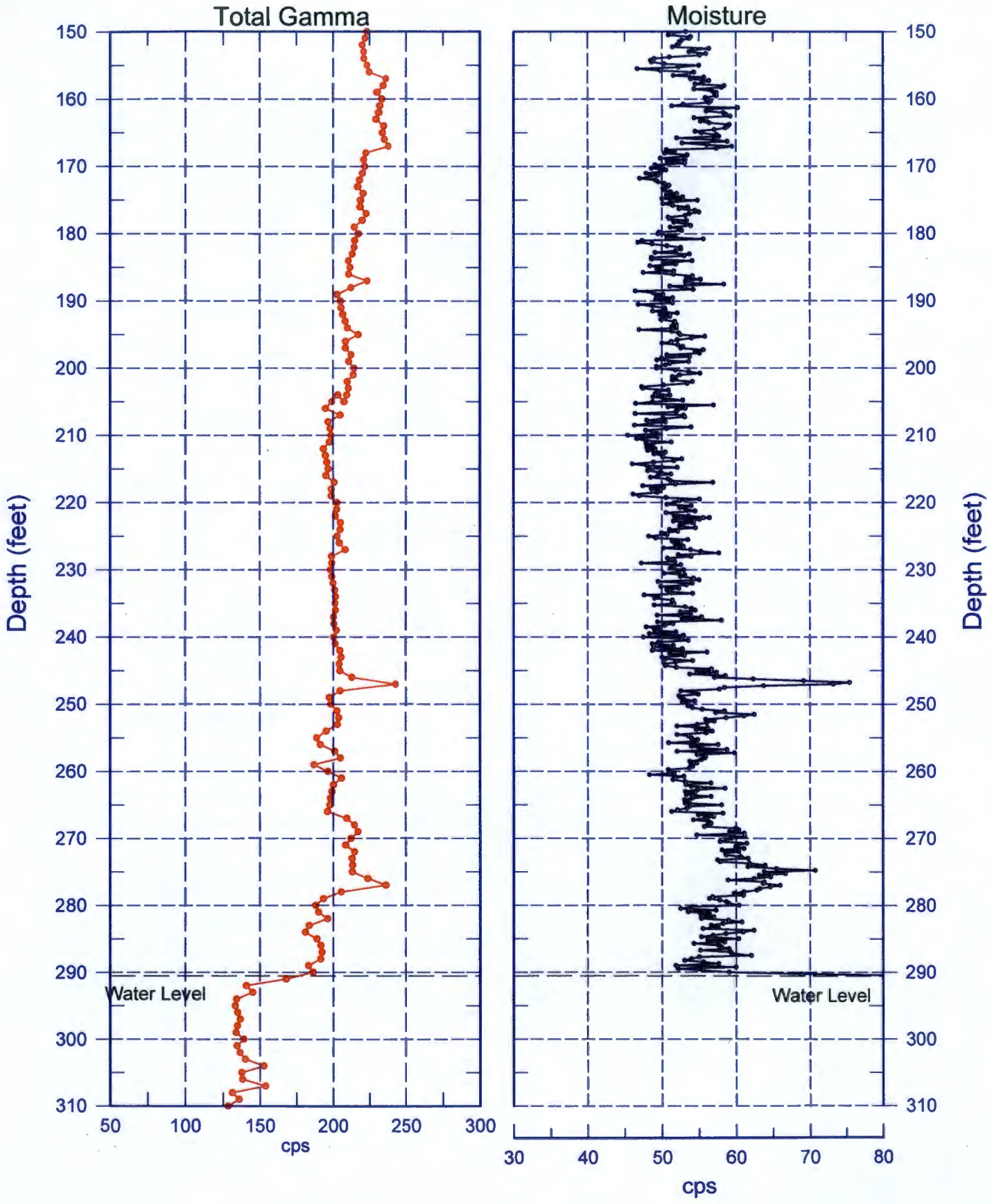
299-E24-25 (C7514)
Total Gamma & Moisture



Reference - Ground Surface

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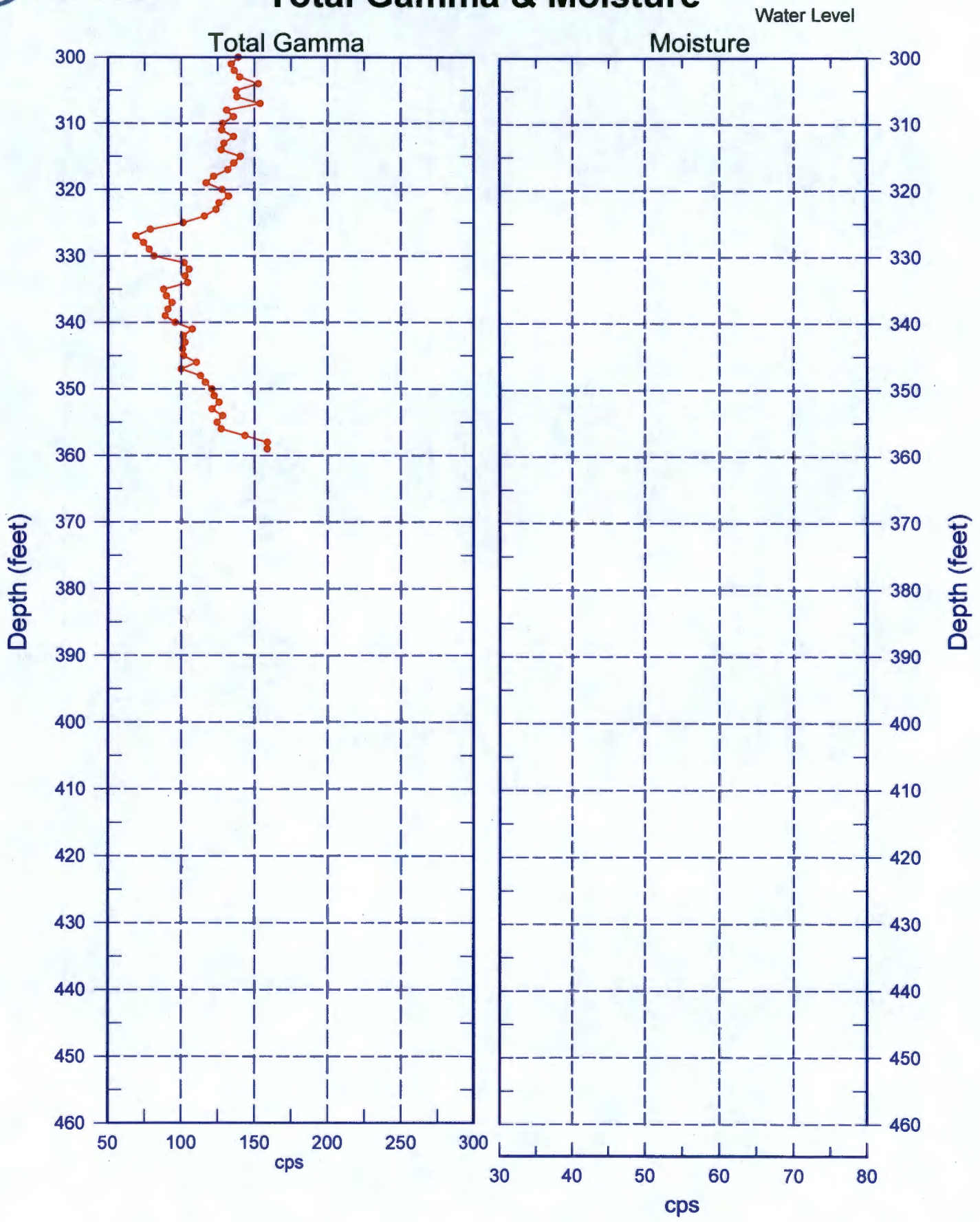
299-E24-25 (C7514)
Total Gamma & Moisture



Reference - Ground Surface

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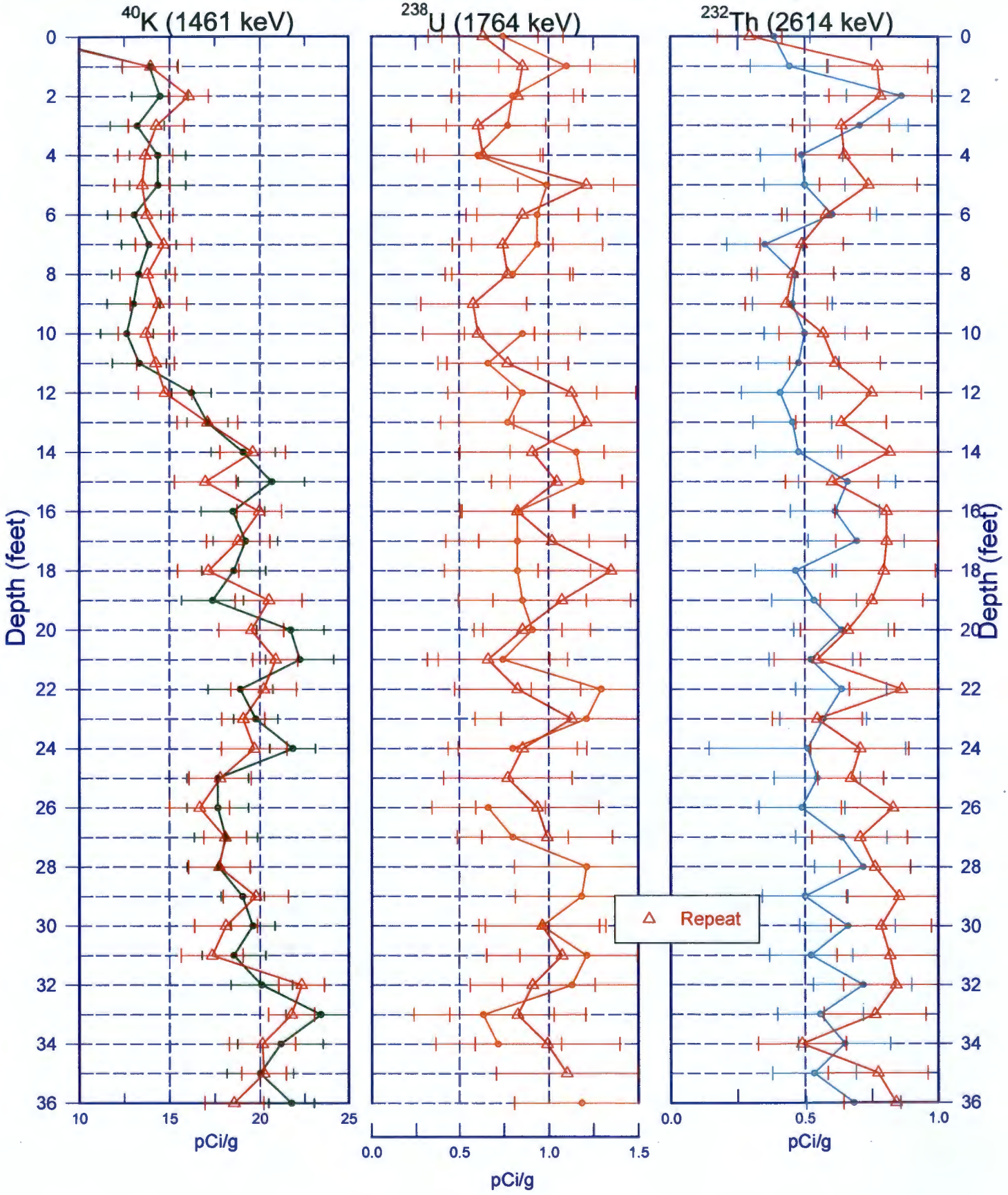
299-E24-25 (C7514)

Repeat Section of Natural Gamma Logs



Zero Reference - Ground Surface

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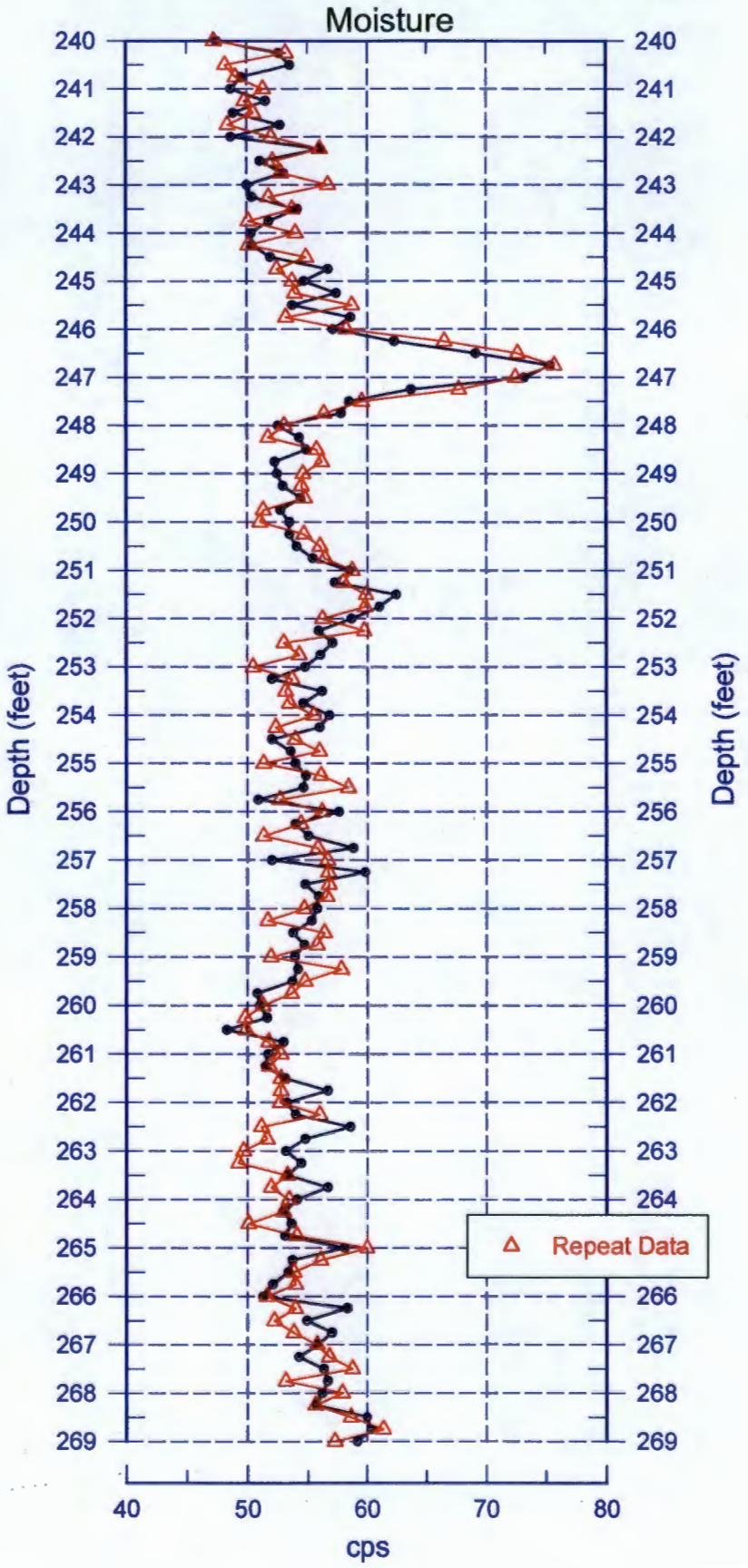
299-E24-25 (C7514)
Moisture Repeat Section



Reference - Ground Surface