

699-50-56 (C5197)
Log Data Report

Borehole Information:

Borehole: 699-50-56 (C5197)		Site: 600 Area, north of 200 east			
Coordinates (WA St Plane)		GWL¹ (ft): 151.2	GWL Date: 11/30/06		
North (m) Not available	East (m) Not available	Drill Date 12/06	TOC² Elevation (ft) Not available	Total Depth (ft) ~ 163	Type Cable

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Welded Steel	4.7	8 5/8	7 3/4	7/16	4.7	~ 163

Borehole Notes:

Casing diameter and casing stickup measurements were acquired by the logging engineer using a caliper and steel tape. Groundwater level is provided by the on site geologist. Logging measurements are referenced to the ground surface.

Logging Equipment Information:

Logging System: Gamma 4E	Type: SGLS (70%) SN: 34TP40587A
Effective Calibration Date: 05/08/06	Calibration Reference: DOE/EM-GJ1199-2006
Logging Procedure: HGLP-MAN-002, Rev. 0	

Logging System: Gamma 4H	Type: NMLS SN: H310700352
Effective Calibration Date: 11/22/06	Calibration Reference: HGLP-CC-002
Logging Procedure: HGLP-MAN-002, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2 Repeat		
Date	12/01/06	12/01/06		
Logging Engineer	Pearson	Pearson		
Start Depth (ft)	163.0	116.0		
Finish Depth (ft)	0.0	100.0		
Count Time (sec)	100	100		
Live/Real	R	R		
Shield (Y/N)	N	N		
MSA Interval (ft)	1.0	1.0		
ft/min	N/A ³	N/A		
Pre-Verification	DEE91CAB	DEE91CAB		
Start File	DEE91000	DEE91164		
Finish File	DEE91163	DEE91180		
Post-Verification	DEE91CAA	DEE91CAA		
Depth Return Error (in.)	+ 1.0	- 0.5		
Comments	Fine gain adjustment after files -010 and -031.	No fine gain adjustment.		

Neutron Moisture Logging System (NMLS) Log Run Information:

Log Run	3	4	5 Repeat		
Date	12/04/06	12/04/06	12/04/06		
Logging Engineer	McClellan	McClellan	McClellan		
Start Depth (ft)	0.0	99.25	151.25		
Finish Depth (ft)	100.0	151.25	135.0		
Count Time (sec)	15	15	15		
Live/Real	R	R	R		
Shield (Y/N)	N	N	N		
Sample Interval (ft)	0.25	0.25	0.25		
ft/min	N/A	N/A	N/A		
Pre-Verification	DH312CAB	DH312CAB	DH312CAB		
Start File	DH312000	DH312401	DH312610		
Finish File	DH312400	DH312609	DH312675		
Post-Verification	DH312CAA	DH312CAA	DH312CAA		
Depth Return Error (in.)	N/A	N/A	0.0		
Comments	None	Directory change	None		

Logging Operation Notes:

Logging was conducted with a centralizer on each sonde. Logging data acquisition is referenced to the ground surface. Repeat data were collected for the SGLS and NMLS to evaluate system performance.

Analysis Notes:

Analyst:	Henwood	Date:	01/30/07	Reference:	GJO-HGLP 1.6.3, Rev. 0
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Pre-run and post-run verifications for the logging systems were performed before and after the day's data acquisition. The acceptance criteria were met.

A casing correction for a 7/16-in.-thick casing was applied to the SGLS data.

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 G4EMay06.xls using efficiency functions and corrections for casing, water, and dead time as determined from annual calibrations. The NMLS data were converted to percent volumetric moisture using calibrations established for 8-in. boreholes.

Results and Interpretations:

No manmade radionuclides were detected in this borehole.

Moisture measurements indicate some variability, most notably between 101 and 113 ft and between 121 and 132 ft. Both depth intervals correspond with relatively high Th-232 concentrations. Elevated Th-232 concentrations generally indicate fine-grained sediment such as clay.

The repeat sections indicate good agreement of the naturally occurring KUT and moisture.

List of Plots:

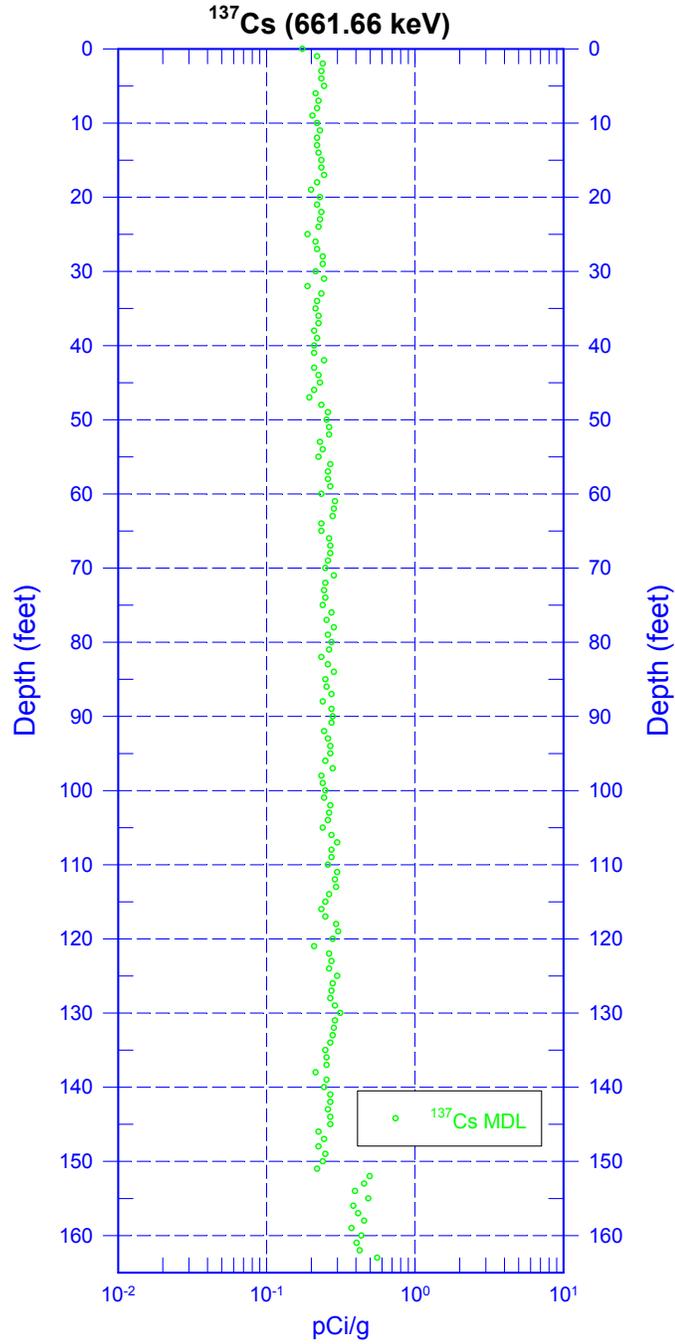
Depth Scale: 1" = 20 ft except for repeat logs

Manmade Radionuclides
 Natural Gamma Logs
 Combination Plot
 Combination Plot (0-180 ft)
 Total Gamma, Dead Time, & Moisture
 Repeat of Natural Gamma Logs
 Repeat of Total Gamma & Moisture

¹ GWL – groundwater level

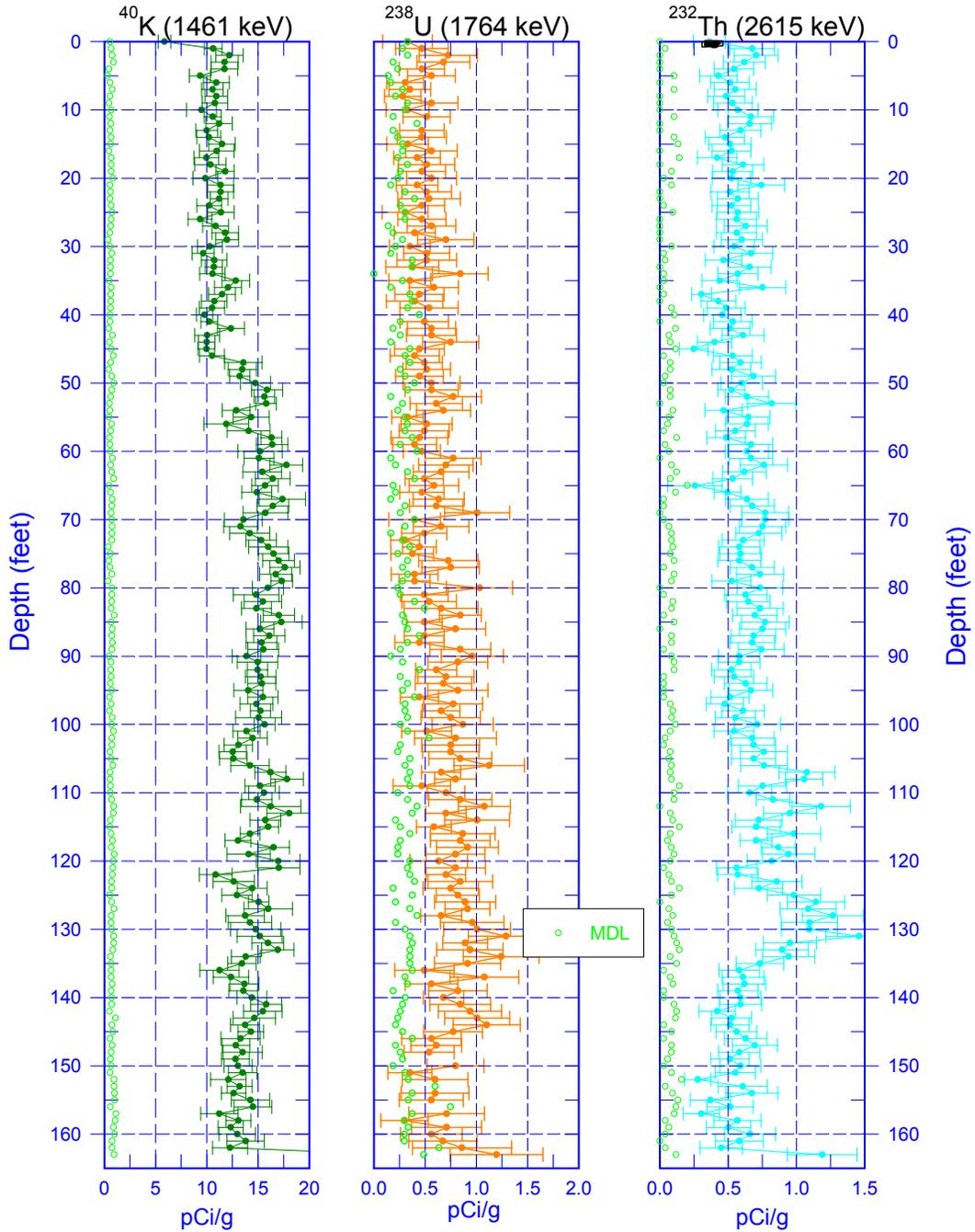
² TOC – top of casing

699-50-56 (C5197) Manmade Radionuclides



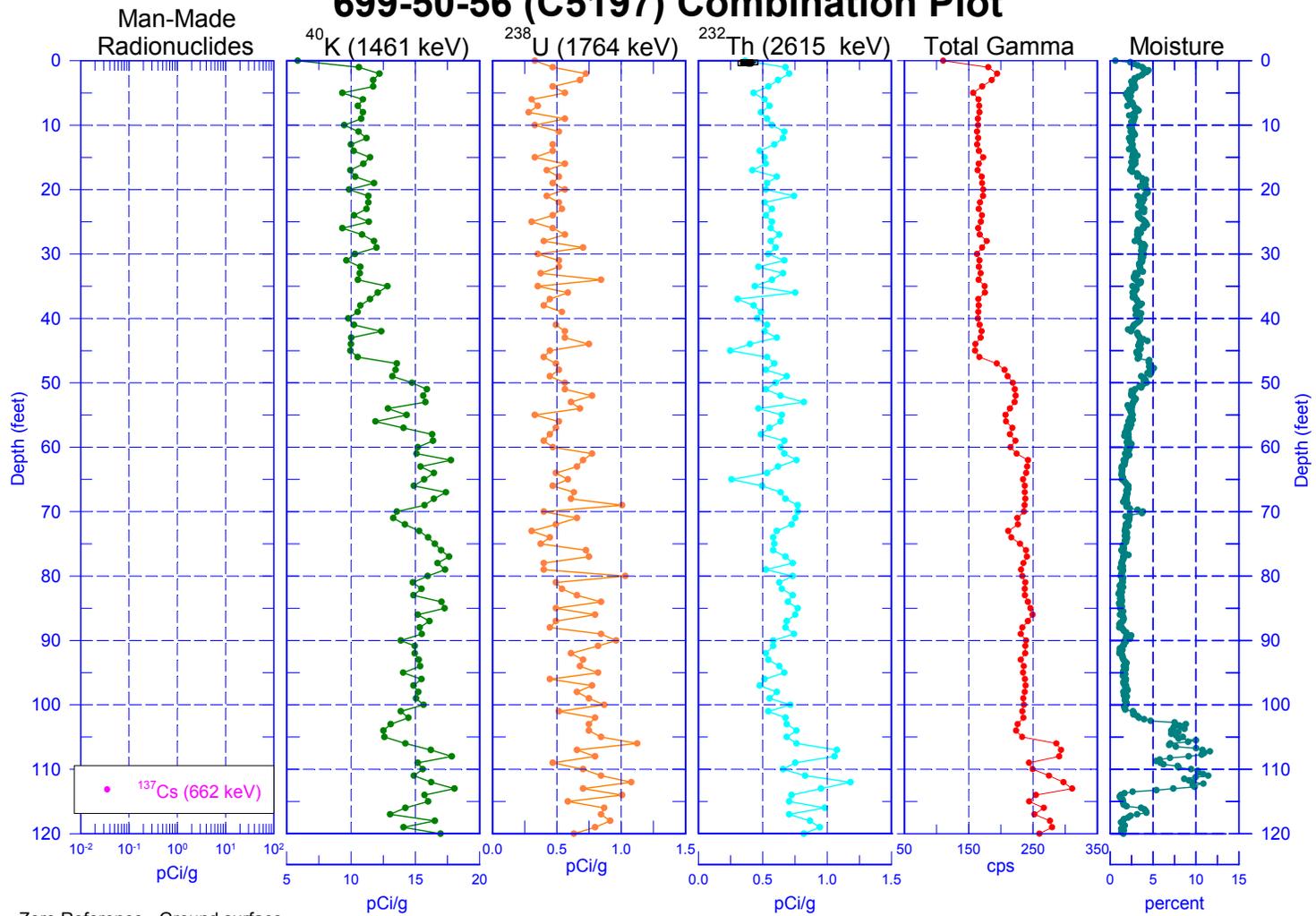
Zero Reference - Ground surface

699-50-56 (C5197) Natural Gamma Logs

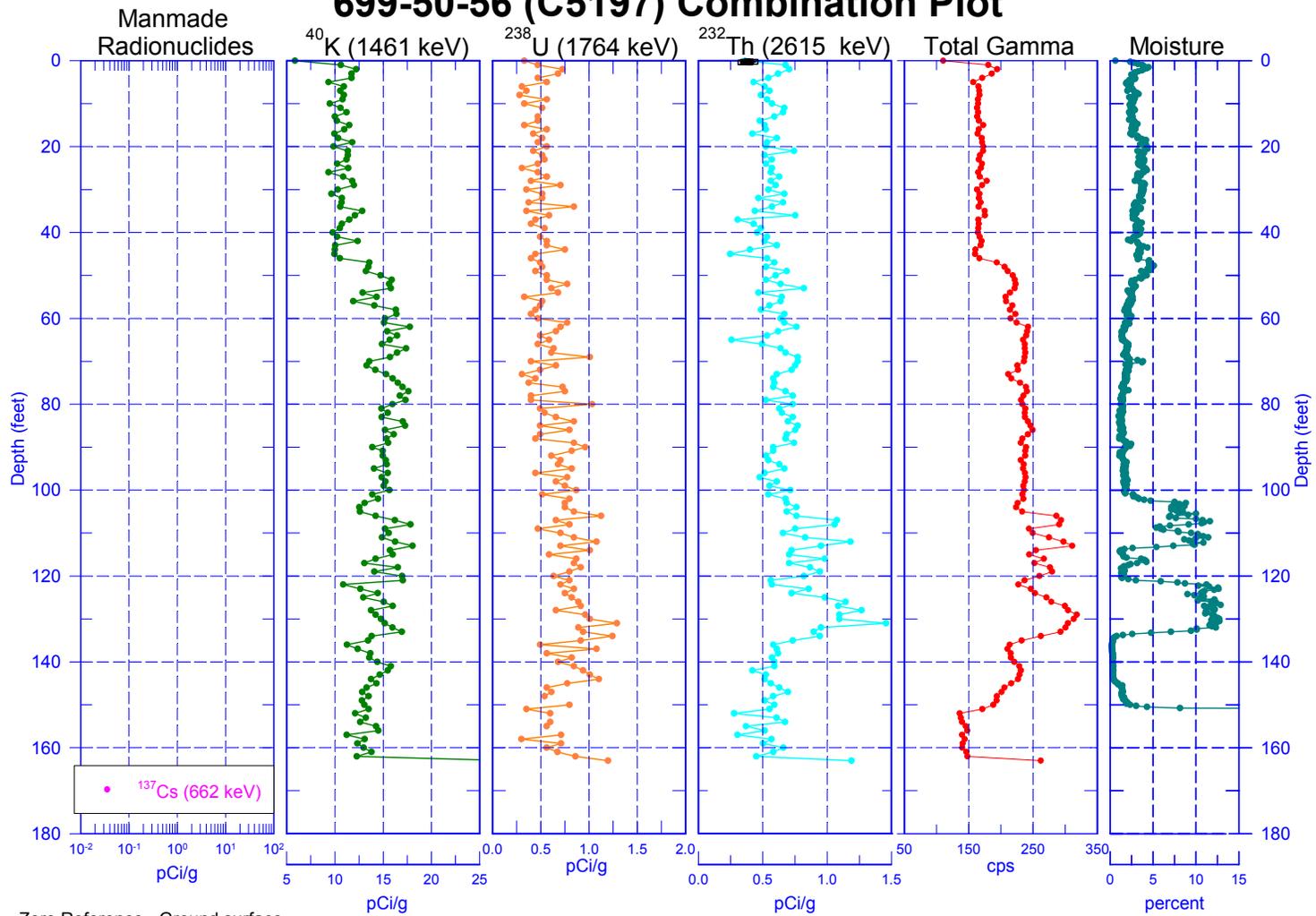


Zero Reference = Ground surface

699-50-56 (C5197) Combination Plot



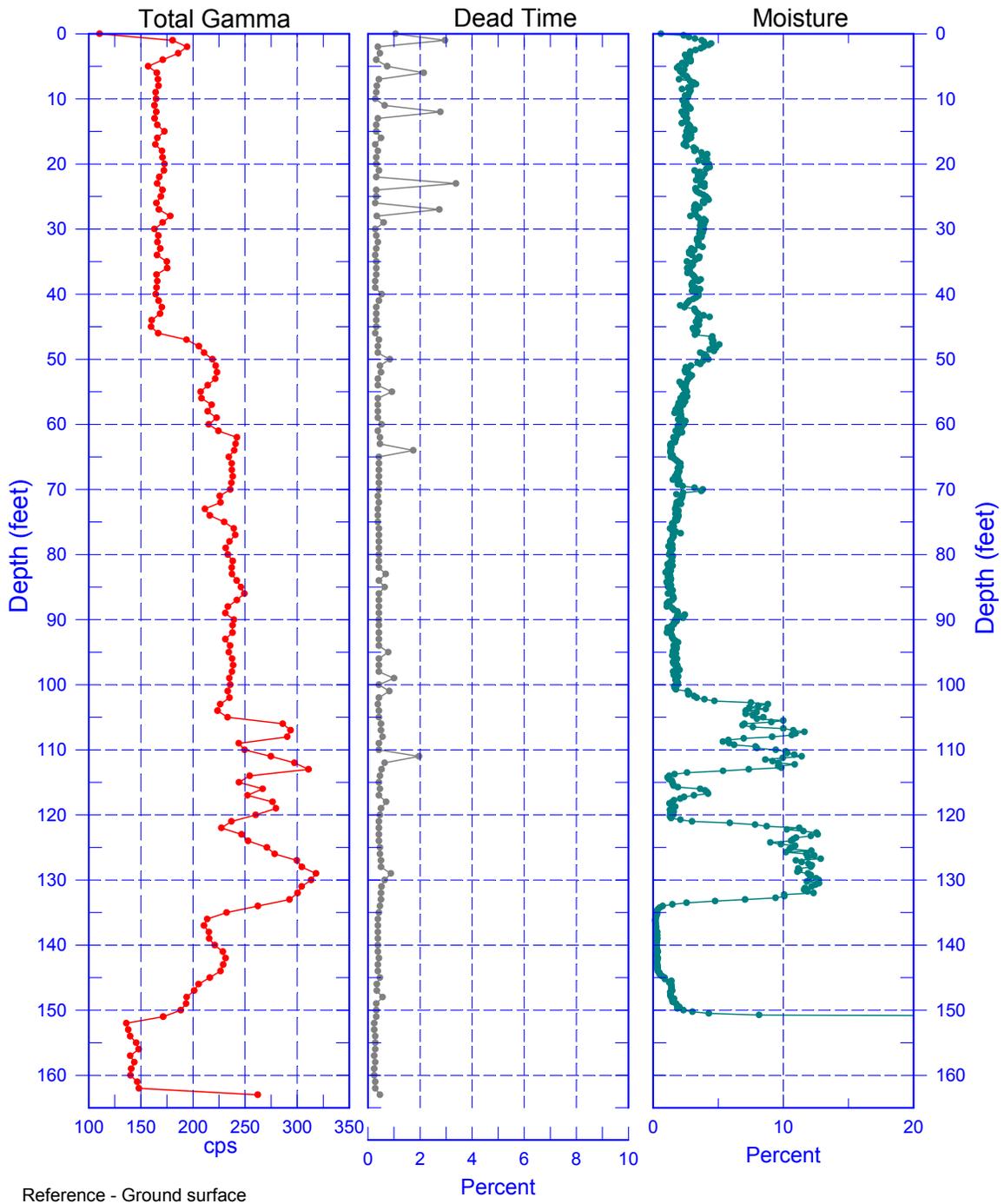
699-50-56 (C5197) Combination Plot



Zero Reference - Ground surface

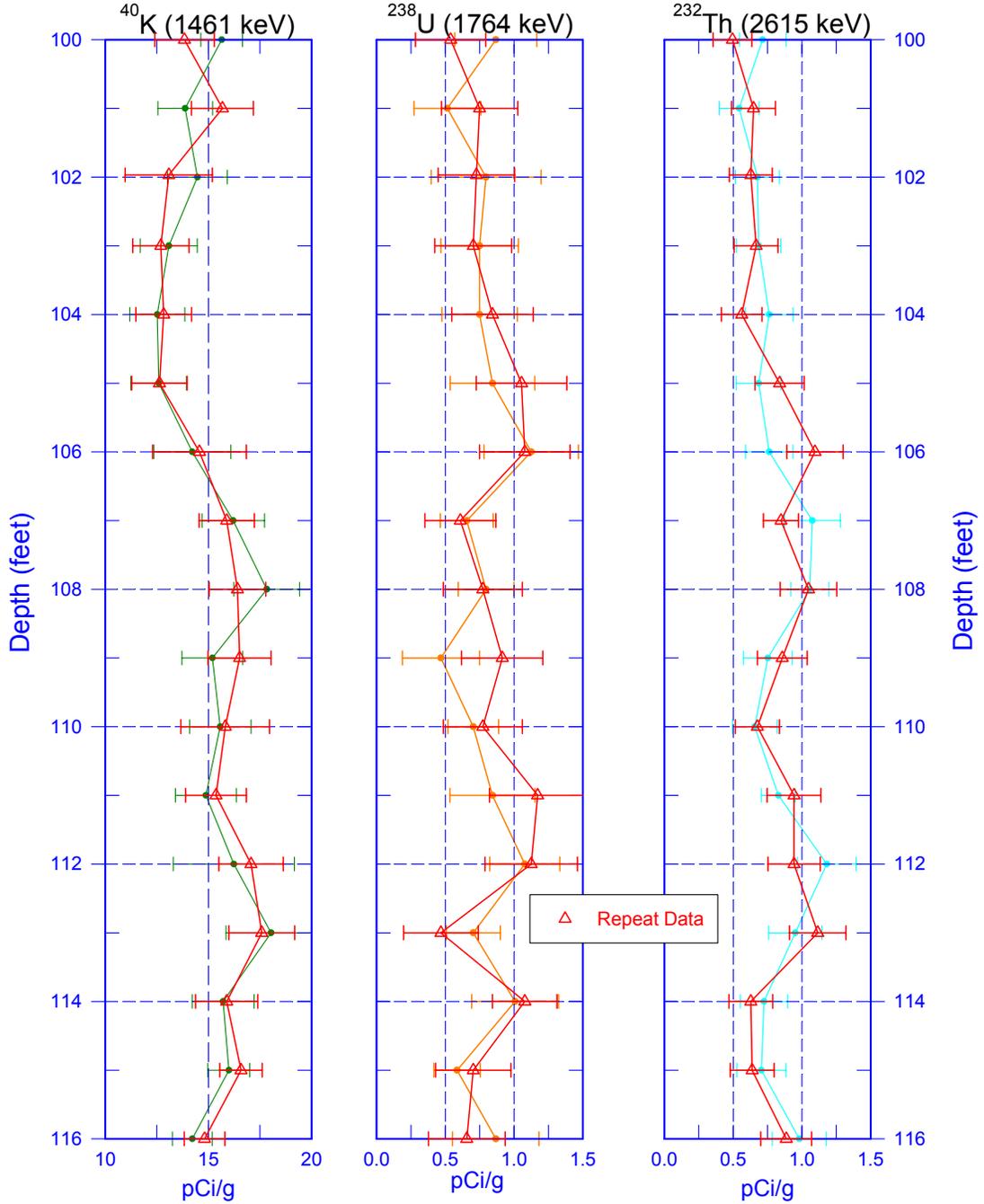
699-50-56 (C5197)

Total Gamma, Dead Time & Moisture



699-50-56 (C5197)

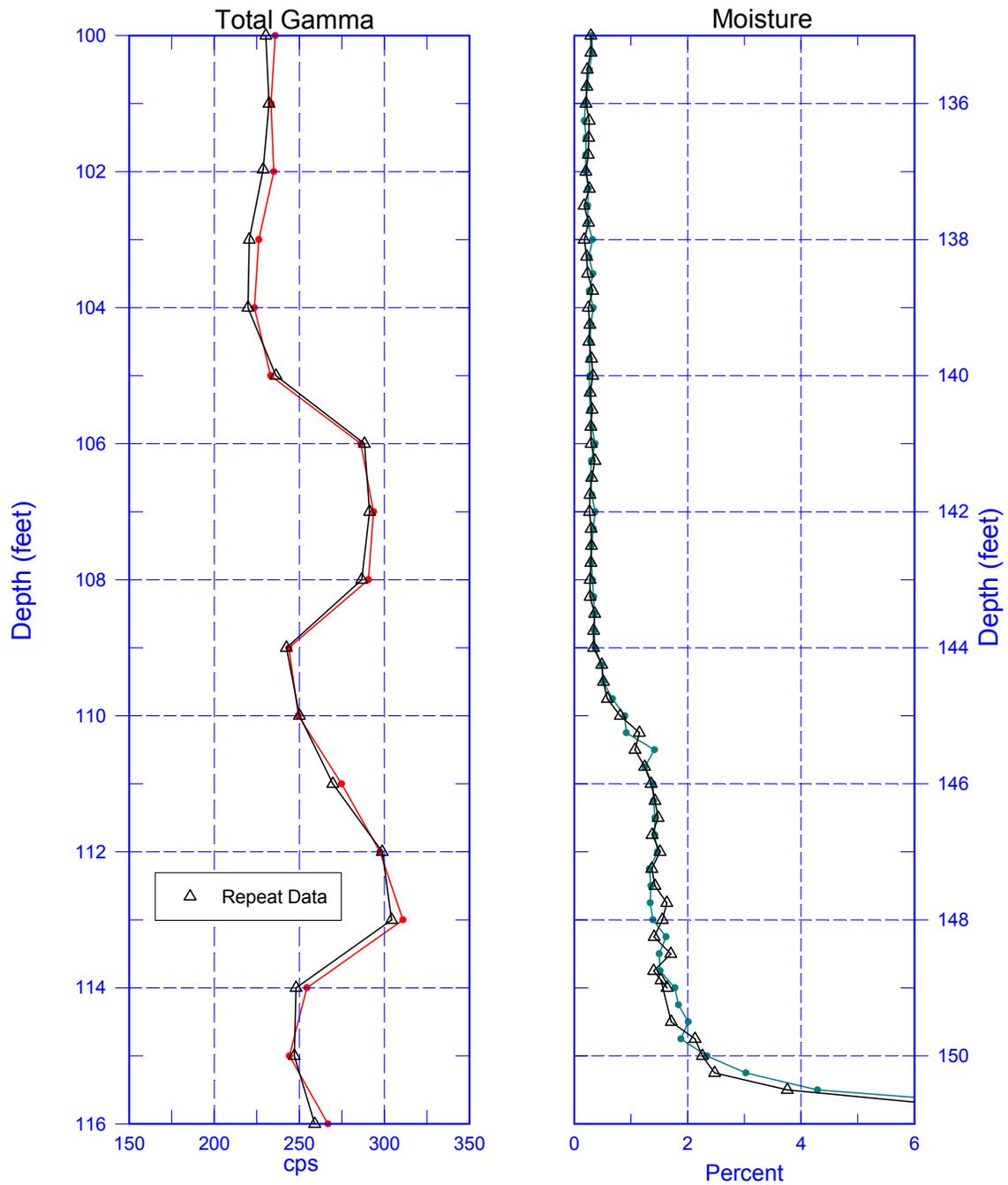
Repeat of Natural Gamma Logs



Zero Reference = Ground surface

699-50-56 (C5197)

Repeat of Total Gamma & Moisture



Reference - Ground surface