399-2-19 (C6197)
Log Data Report

Borehole Information:

Borehole:	399-2-19 (C6197)		Site:	300-FF-5	
Coordinates (WA St Plane)		GWL[1] (ft):	23.3	GWL Date:	05/22/08
North (m)	East (m)	Drill Date	TOC[2] Elevation	Total Depth (ft)	Type
Unknown	Unknown	05/20/08	Unknown	60.8	Sonic

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Threaded Steel	0.95	7 5/8	6 7/8	3/8	-0.95	60.0

Borehole Notes:

Well site geologist reported depth to bottom, depth to water and depth of casing. Logging engineer measured casing employing a steel tape and rounding to the nearest 1/16-in. The zero reference is the ground surface.

Logging Equipment Information:

Logging System:	Gamma 1 N		Type: / Serial No.:	60% HPGe SGLS / 45TP22010A
Effective Calibration Date:	03/28/08	Calibration Reference:	HGLP-CC-031	
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Logging System:	Gamma 1 M		Type: / Serial No.:	NMLS / H340207279
Effective Calibration Date:	05/06/08	Calibration Reference:	HGLP-CC-032	
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2 Repeat
Date	05/22/08	05/22/08
Logging Engineer	McClellan	McClellan
Start Depth (ft)	0.0	4.0
Finish Depth (ft)	59.0	10.0
Count Time (sec)	200	200
Live/Real	R	R
Shield (Y/N)	N	N
MSA Interval (ft)	0.5	0.5
Log Speed (ft/min)	N/A	N/A
Pre-Verification	AN076CAB	AN076CAB
Start File	AN076000	AN076119
Finish File	AN076118	AN076131
Post-Verification	AN076CAA	AN076CAA
Depth Return Error (in.)	N/A	1.0 high
Comments	Fine gain adjustment made before 089.	No fine gain adjustment made. Repeat Section

Neutron Moisture Logging System (NMLS) Log Run Information:

Log Run	3	4 Repeat
Date	05/23/08	05/23/08
Logging Engineer	McClellan	McClellan
Start Depth (ft)	0.0	4.0
Finish Depth (ft)	28.75	10.0
Count Time (sec)	15	15
Live/Real	R	R
Shield (Y/N)	N	N
MSA Interval (ft)	0.25	0.25
Log Speed (ft/min)	N/A	N/A
Pre-Verification	AM004CAB	AM004CAB
Start File	AM004000	AM004116
Finish File	AM004115	AM004140
Post-Verification	AM004CAA	AM004CAA
Depth Return Error (in.)	N/A	½ high
Comments	None.	Repeat Section

Logging Operation Notes:

Data were collected using Gamma 1, HO 68B-3574. SGLS pre- and post-survey verification measurements were acquired in the Amersham KUTh-118 field verifier. Maximum logging depth was 59.2 ft. before the sonde un-weighted. A centralizer was installed on the sonde. NMLS pre- and post-survey verification measurements were acquired in the AmBe standard.

Analysis Notes:

Analyst:	LEGLER	Date:	7/22/08	Reference:	GJO-HGLP 1.6.3, Rev. 0

The pre- and post-survey verification measurements met the acceptance criteria for the established systems. A correction for a 3/8-in. thick casing was applied to spectral log data (SGLS) from ground surface to total logged depth of borehole. A water correction was also applied from 28.75 ft to total logged depth of borehole.

SGLS spectral were processed in batch mode in APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with an EXCEL template identified as G1NMar08.xls using efficiency functions, and corrections for casing, dead time and water as determined by annual calibrations.

Moisture data are presented in counts per second (cps) because no calibration data exists for a 6 7/8-in. inner diameter casing.

Results and Interpretations:

Cs-137 was detected at 3.5, 6.5, 9.0, 16.5 and 19.0 ft. Inspection of the individual spectra at depths 3.5, 9.0, 16.5, and 19.0 ft indicated that these detections are statistical fluctuations associated with the processing software. At 6.5 ft, the Cs-137 concentration is 0.2 pCi/g.

Co-60 was detected from 6 to 13 ft. The maximum concentration was 0.3 pCi/g at 6.5 ft.

U-235 was detected at 5.0, 14.0, 23.5, 34.0 and 35.5 ft. Inspection of the individual spectra at these depths indicates that these detections are statistical fluctuations associated with the processing software.

U-238 (Pa-234m) was detected at depths 6.5, 32.5, 49.5, and 54.0 ft. Inspection of the individual spectra at these depths indicates that these detections are statistical fluctuations associated with processing software.

The KUT repeat plot indicates good repeatability. The manmade repeat plot for Cs-137 does not repeat as the detection are statistical fluctuations. The moisture repeat plot indicates good variability.

Radon is exhibited from 29 – 59 ft, as shown by an elevated 609 keV energy peak relative to the 1764 keV energy peak.

List of Log Plots:

Depth Reference is ground surface

Manmade Radionuclides
Natural Gamma Logs
Combination Plot
Total Gamma & Dead Time
Total Gamma & Moisture
Manmade Repeat Section
Repeat Section of Natural Gamma Logs
Moisture Repeat Section

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

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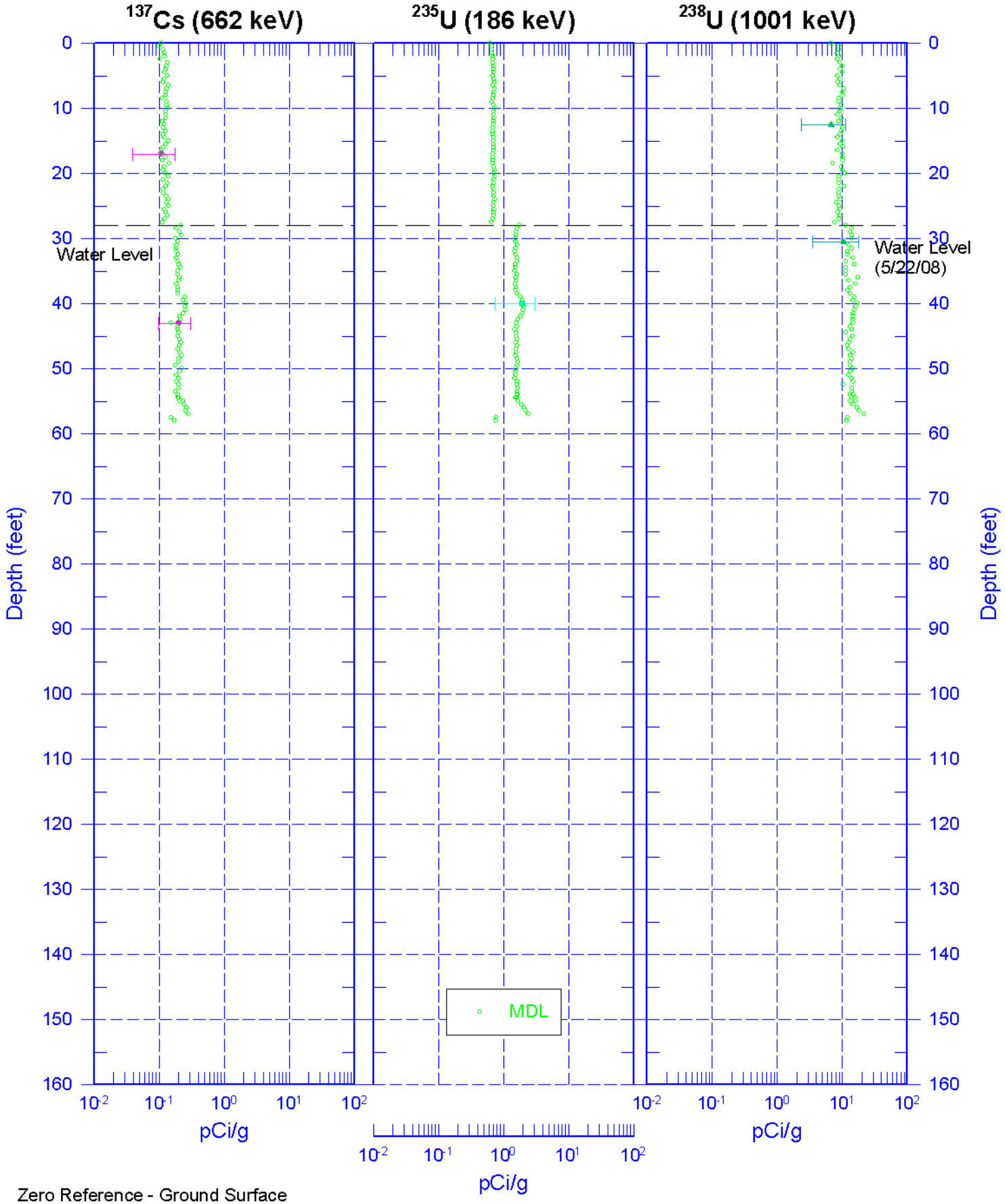
399-2-13 (C6190)
Manmade Radionuclides



Zero Reference - Ground Surface

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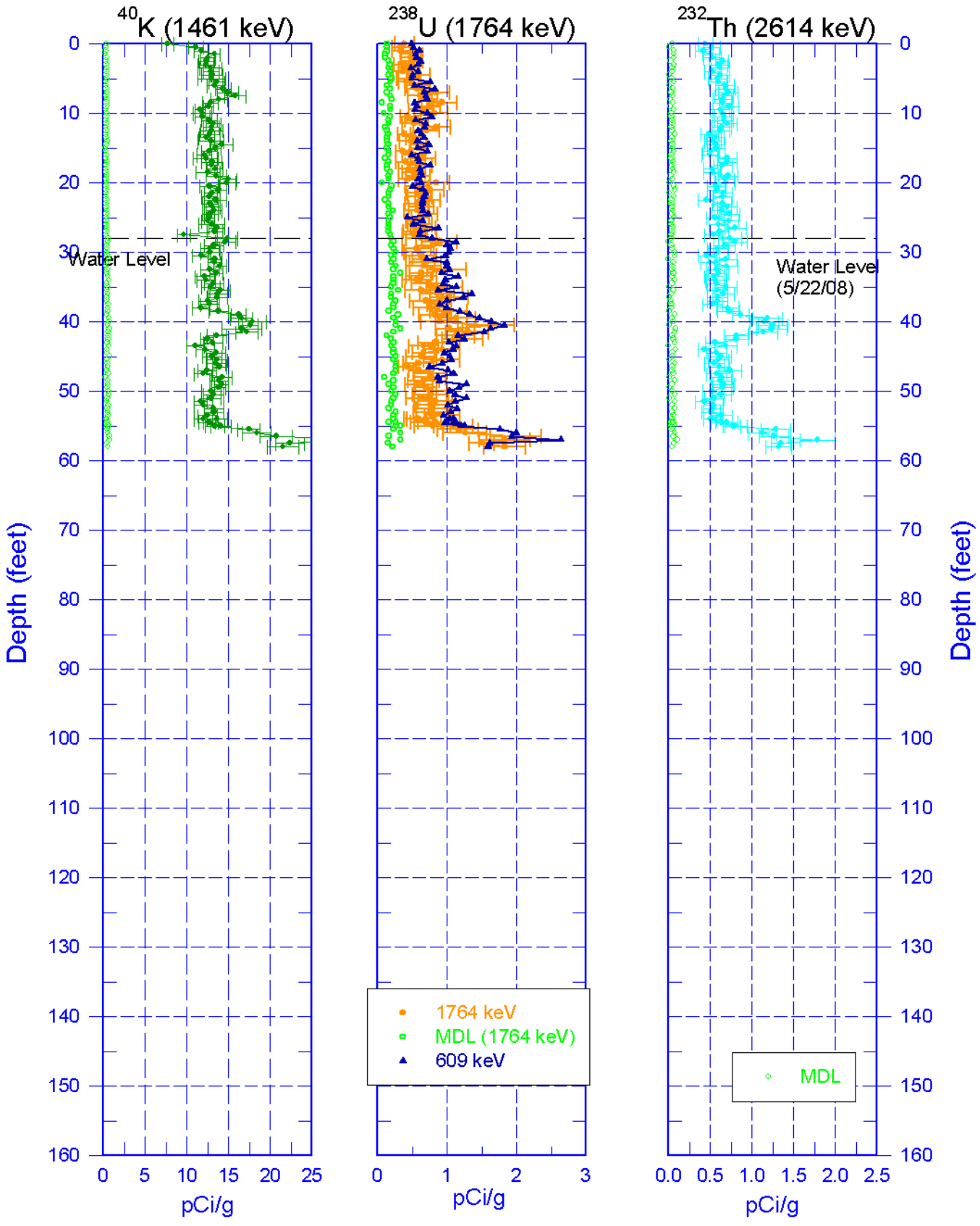
399-2-13 (C6190)
Natural Gamma Logs



Zero Reference - Ground Surface

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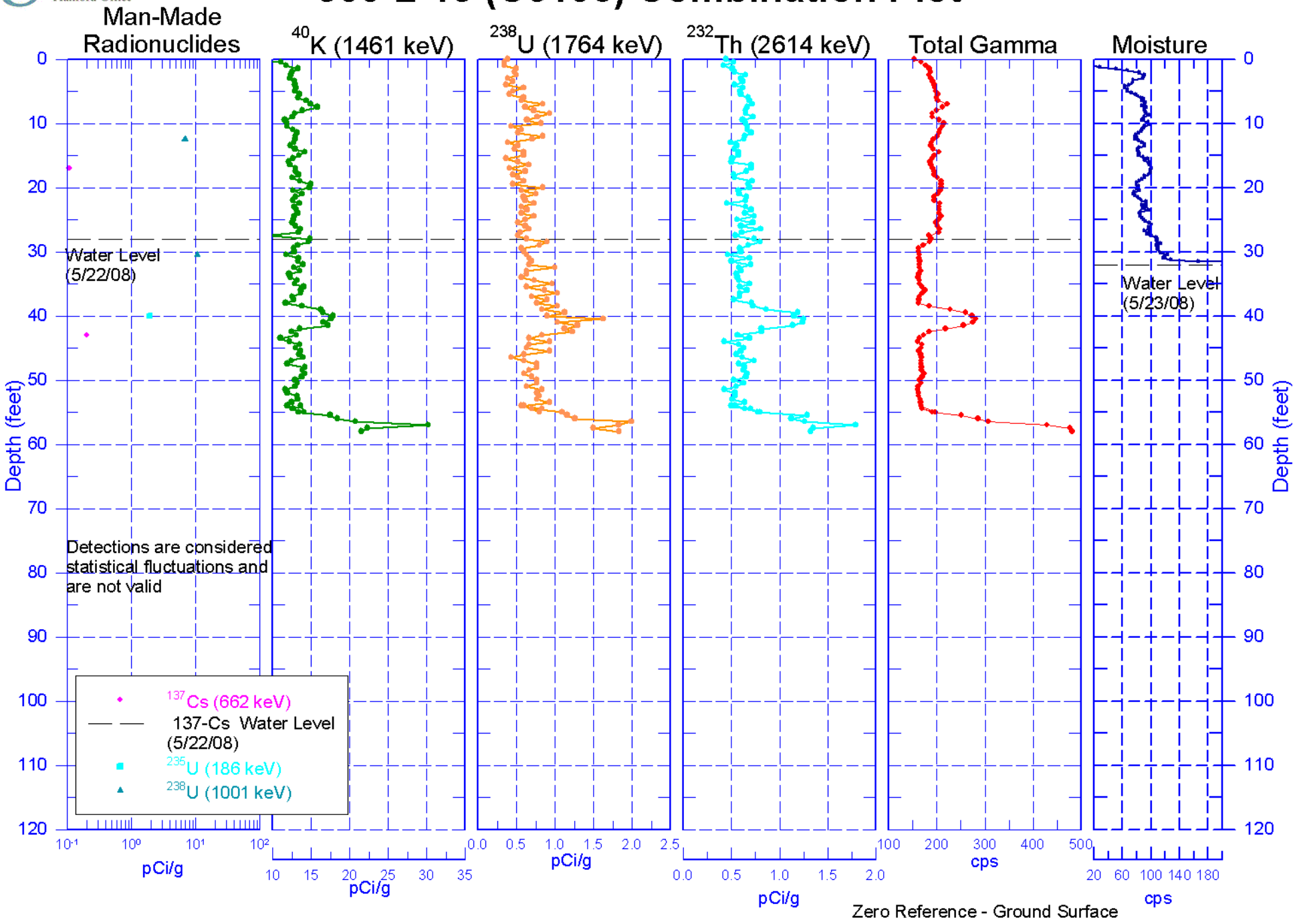
399-2-13 (C6190) Combination Plot



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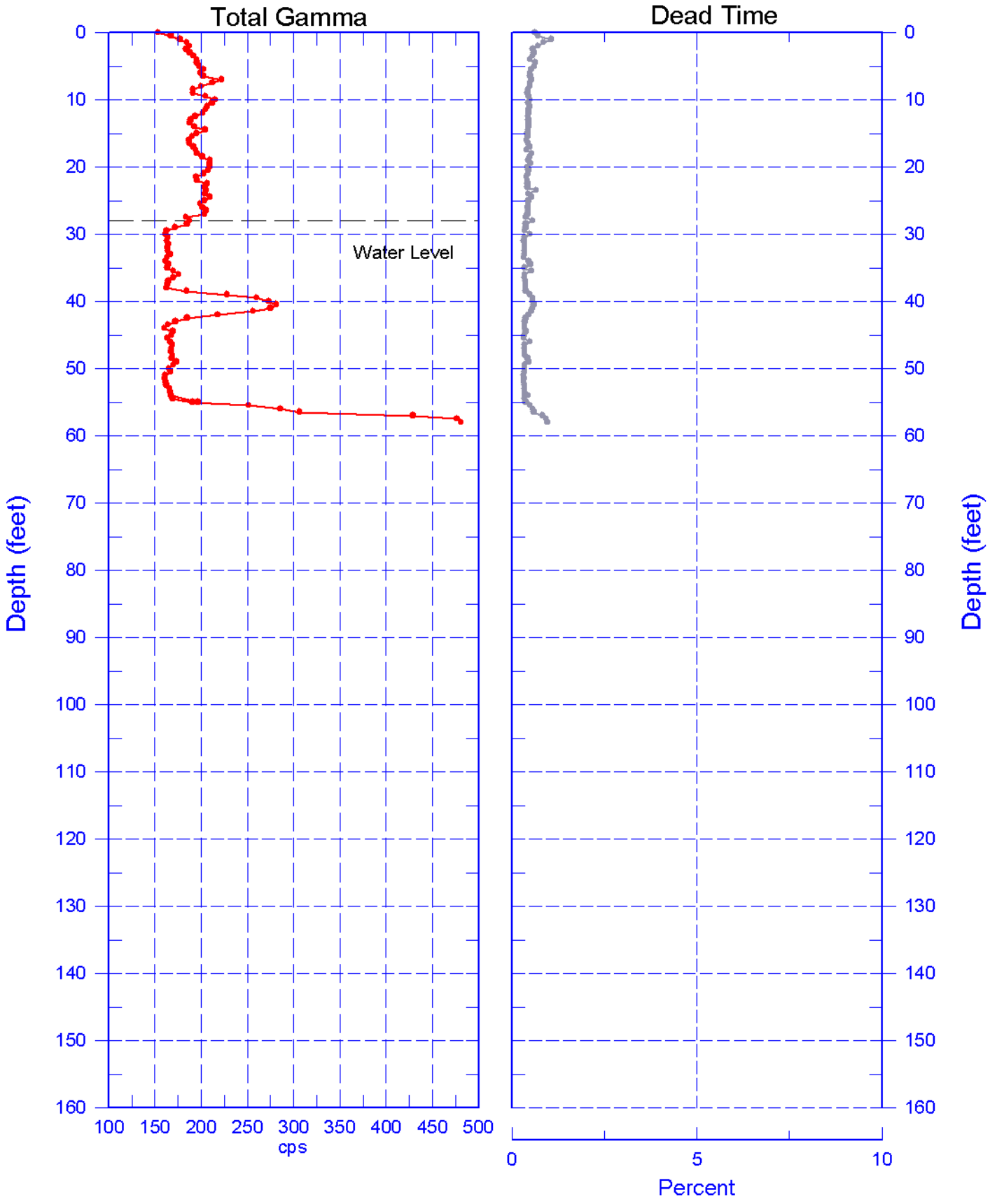
399-2-13 (C6190)
Total Gamma & Dead Time



Reference - Ground Surface

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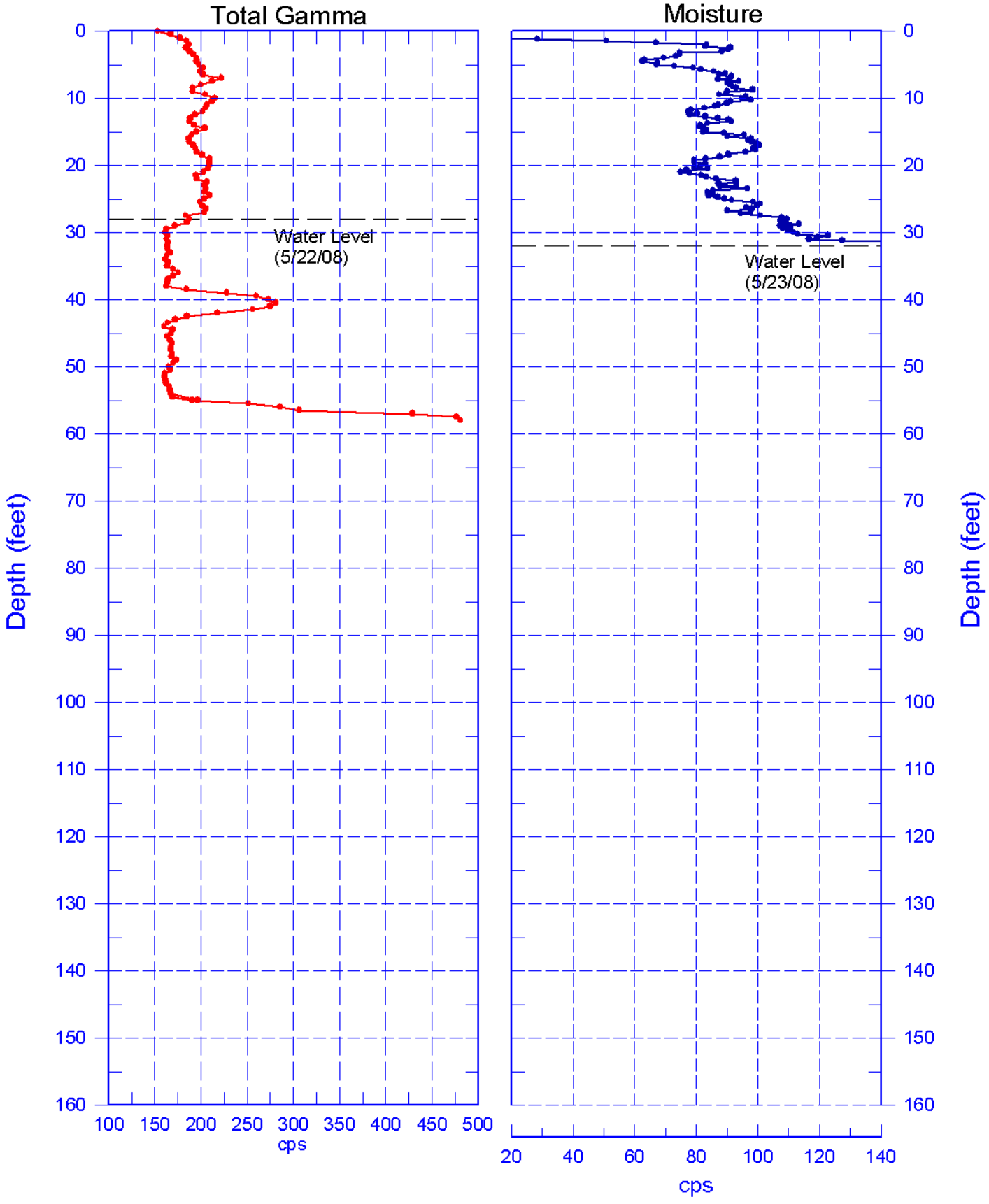
399-2-13 (C6190)
Total Gamma & Moisture



Reference - Ground Surface

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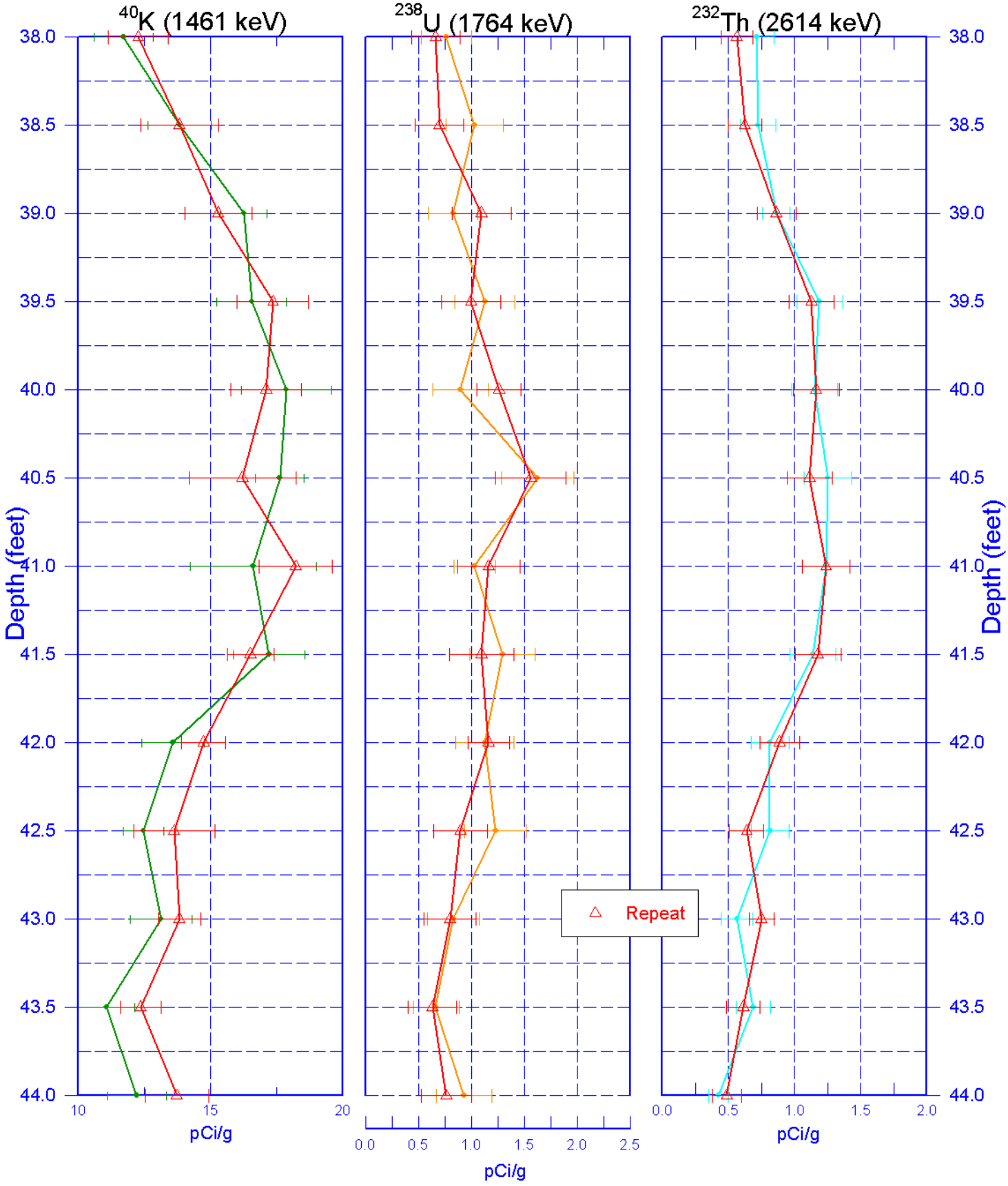
399-2-13 (C6190)

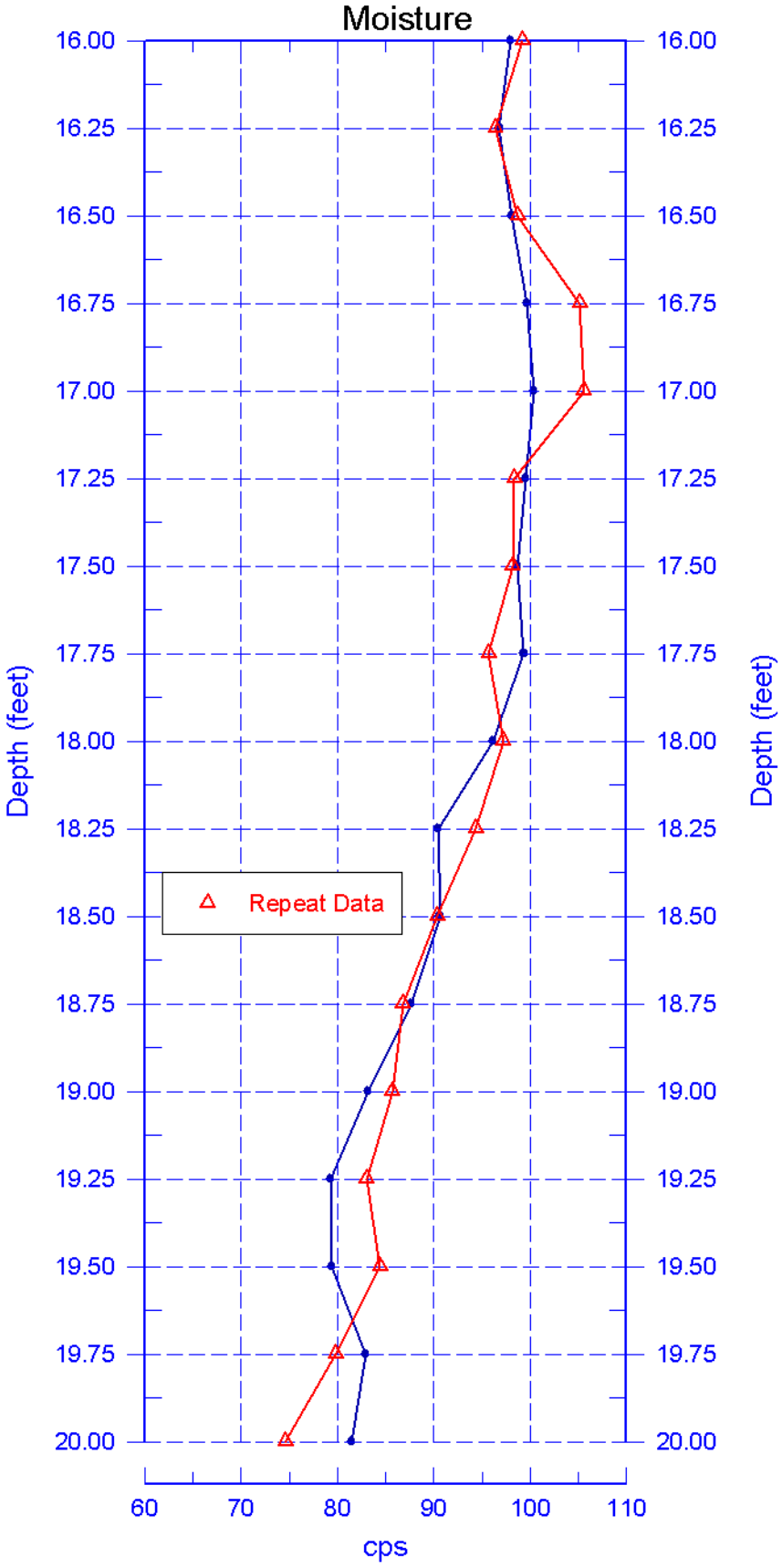
Repeat Section of Natural Gamma Logs



Zero Reference - Ground Surface

Stoller
Hanford Office

399-2-13 (C6190)
Moisture Repeat Section



Reference - Ground Surface