

## C5570 Log Data Report

### Borehole Information:

<b>Borehole:</b> C5570		<b>Site:</b> 216-A-2 Crib			
<b>Coordinates (WA St Plane)</b>		<b>GWL<sup>1</sup> (ft):</b> 261.15	<b>GWL Date:</b> 07/05/05		
<b>North (m)</b>	<b>East (m)</b>	<b>Drill Date</b>	<b>TOC Elevation</b>	<b>Total Depth (ft)</b>	<b>Type</b>
Not available	Not available	05/07	Not available	35	Percussion

### Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Threaded Steel	4.4	6 5/8	5 3/8	5/8	4.4	35

### Borehole Notes:

The logging engineer measured the casing diameters using a caliper and steel tape. The driller provided the casing depth. Logging data acquisition is referenced to the ground surface.

### Logging Equipment Information:

<b>Logging System:</b> Gamma 1N	<b>Type:</b> SGLS (60%) SN: 45TP22010A	
<b>Effective Calibration Date:</b> 02/20/07	<b>Calibration Reference:</b> HGLP-CC-010	
	<b>Logging Procedure:</b> HGLP-MAN-002, Rev 0	

<b>Logging System:</b> Gamma 1C	<b>Type:</b> HRLS SN: 39-A314	
<b>Effective Calibration Date:</b> 11/22/06	<b>Calibration Reference:</b> HGLP-CC-004	
	<b>Logging Procedure:</b> HGLP-MAN-002, Rev 0	

### Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2 Repeat			
Date	05/02/07	05/02/07			
Logging Engineer	Spatz	Spatz			
Start Depth (ft)	34.5	23.5			
Finish Depth (ft)	23.5	0.5			
Count Time (sec)	20	100			
Live/Real	R	R			
Shield (Y/N)	N	N			
MSA Interval (ft)	1.0	1.0			
ft/min	N/A <sup>2</sup>	N/A			
Pre-Verification	AN052CAB	AN052CAB			
Start File	AN052000	AN052012			
Finish File	AN052011	AN052035			
Post-Verification	AN052CAA	AN052CAA			
Depth Return Error (in.)	N/A	+ 0.25			
Comments	High rate interval; dead time > 40%	Gain adjustment after file -027			

**High Rate Logging System (HRLS) Log Run Information:**

<b>Log Run</b>	<b>3</b>	<b>4 Repeat</b>			
Date	05/02/07	05/02/07			
Logging Engineer	Pearson	Pearson			
Start Depth (ft)	34.5	29.5			
Finish Depth (ft)	23.5	26.0			
Count Time (sec)	300	300			
Live/Real	R	R			
Shield (Y/N)	N	Internal			
Sample Interval (ft)	1.0	0.5			
ft/min	N/A	N/A			
Pre-Verification	AC173CAB	AC173CAB			
Start File	AC173000	AC173012			
Finish File	AC173011	AC173019			
Post-Verification	AC173CAA	AC173CAA			
Depth Return Error (in.)	- 0.5	N/A			
Comments	Fine gain adjustment after file -000	No fine gain adjustment			

**Logging Operation Notes:**

Logging was conducted with a centralizer on each sonde. Measurements are referenced to ground surface.

**Analysis Notes:**

<b>Analyst:</b>	P.D. Henwood	<b>Date:</b>	05/03/07	<b>Reference:</b>	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 data acquisition. Acceptance criteria were met for all systems.

A casing correction for 5/8-in.-thick casing was applied to the spectral log data (SGLS and HRLS).

SGLS and HRLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with EXCEL worksheet templates identified as G1NFeb07.xls for the SGLS and G1CNov06.xls for the HRLS using efficiency functions and corrections for casing and dead time as determined from annual calibrations. Dead time corrections are applied where dead times exceed approximately 11 percent for both the SGLS and HRLS. Where dead time is excessive HRLS data (with and without the internal shield) are substituted.

**Results and Interpretations:**

<sup>137</sup>Cs is detected in this borehole from 18.5 ft to the bottom of the borehole (34.5 ft). The maximum concentration is measured at approximately 20 million pCi/g at 27.5 ft in depth. However, because the contamination appears to lie in a thin interval (probably 0.5 ft or less), this assay could be significantly underestimated. The calibration of the logging system response is based on an infinite, uniform distribution that is not consistent with thin bed responses.

The repeat section for the SGLS indicates good agreement.

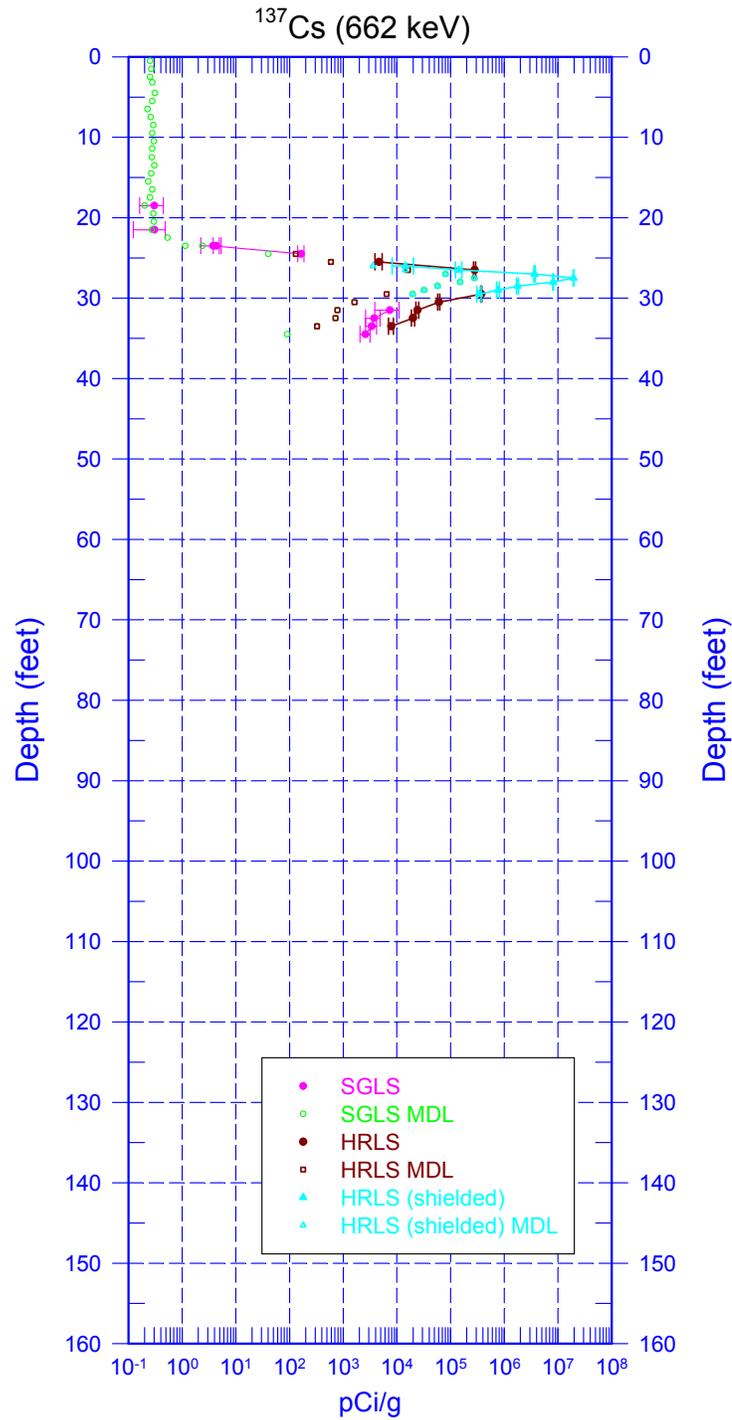
**List of Log Plots:**

Manmade Radionuclides  
Natural Gamma Logs  
Combination Plot (0-120 ft)  
Combination Plot (0-40 ft)  
Total Gamma & Dead Tune  
Repeat Section of Natural Gamma Logs

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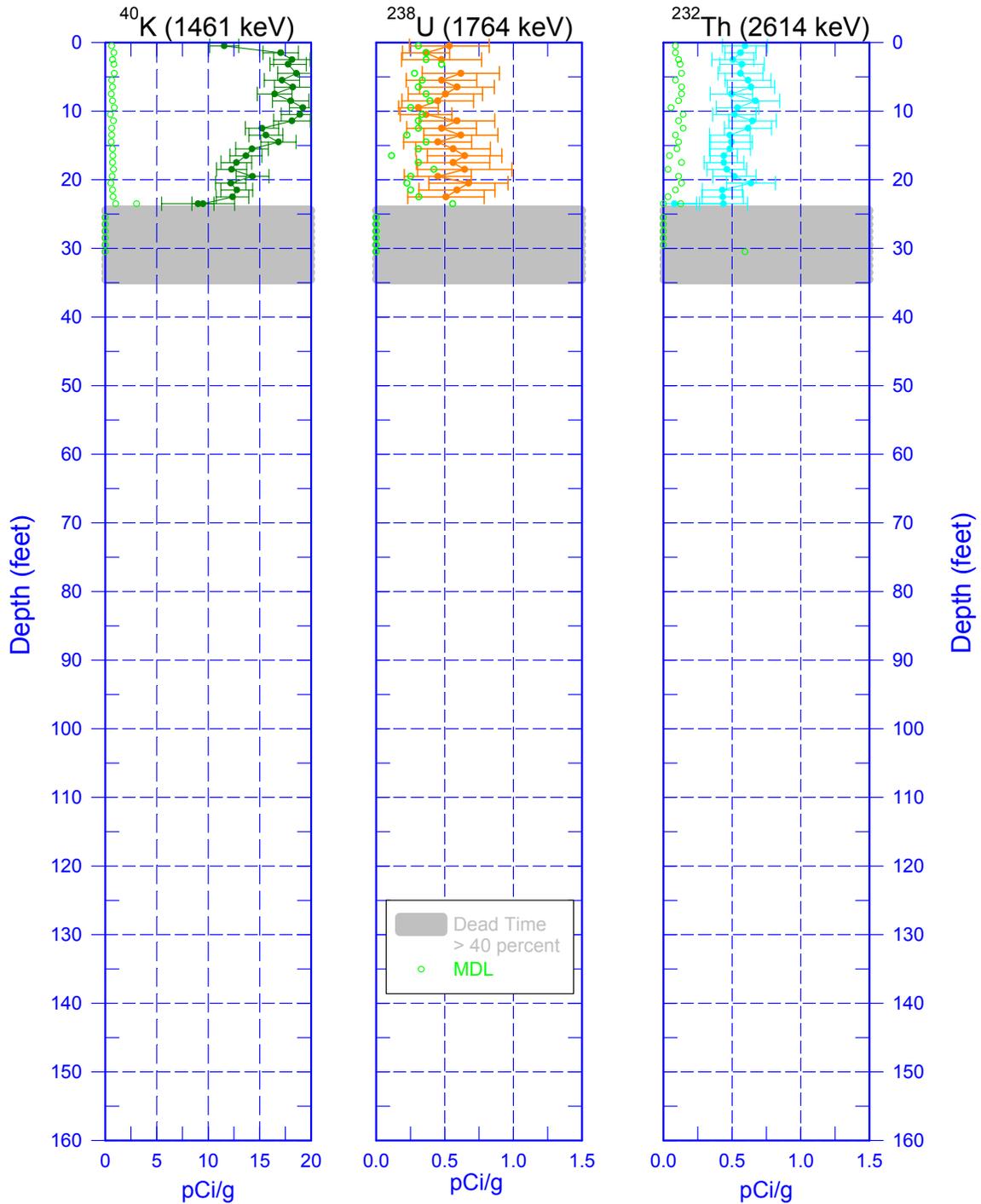
<sup>1</sup> GWL – groundwater level

## C5570 Manmade Radionuclides



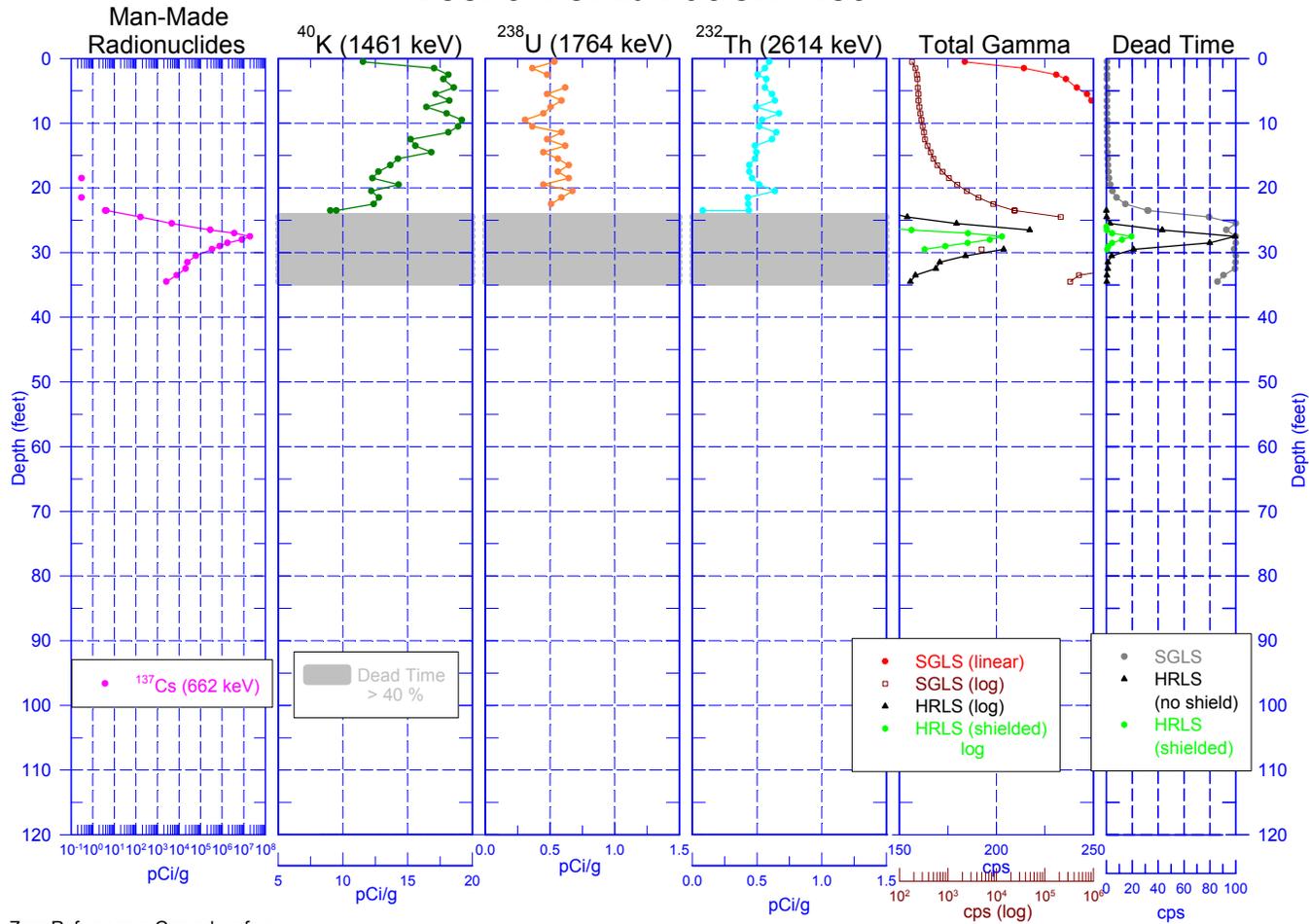
Zero Reference = Ground surface

### C5570 Natural Gamma Logs

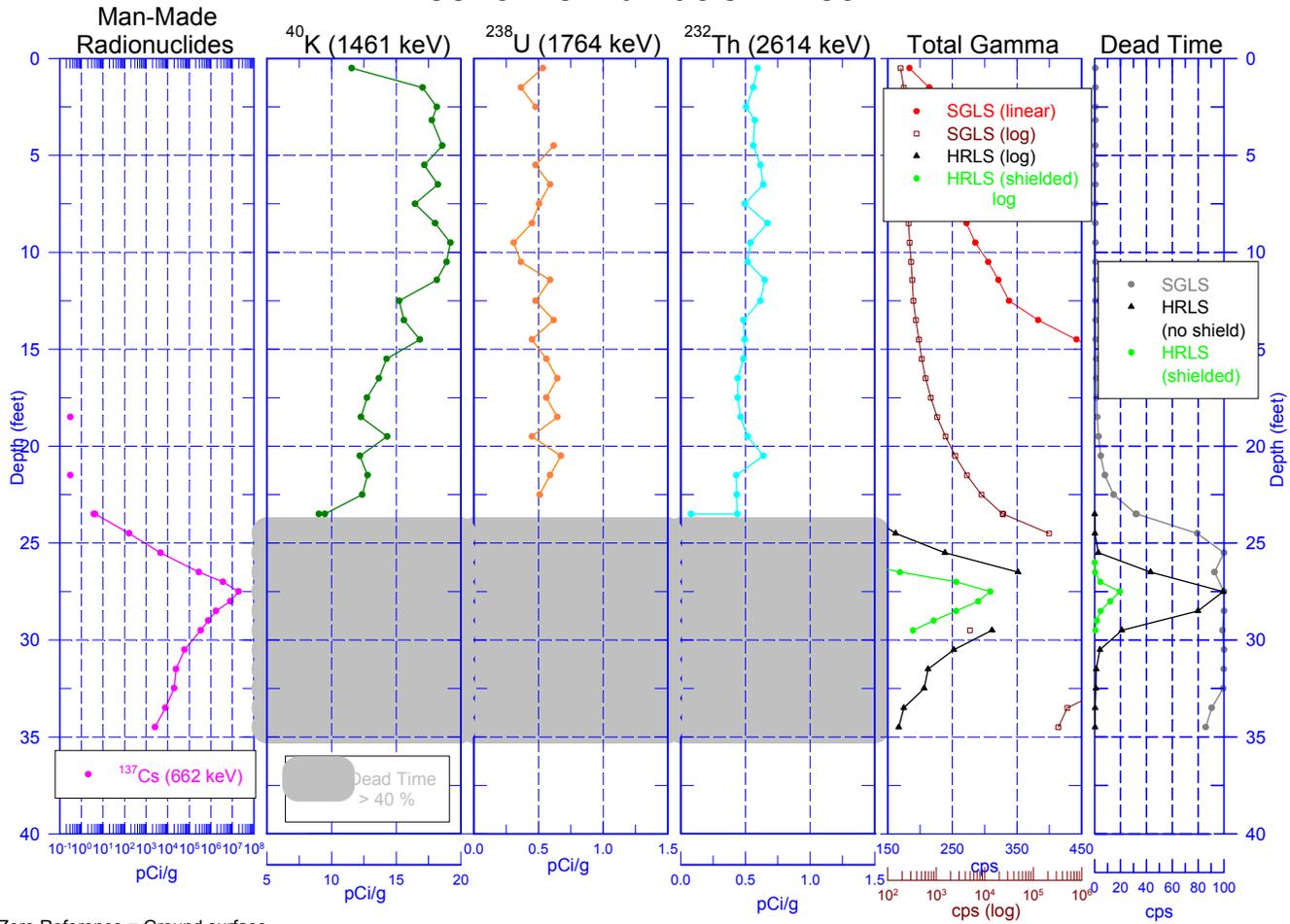


Zero Reference = Ground surface

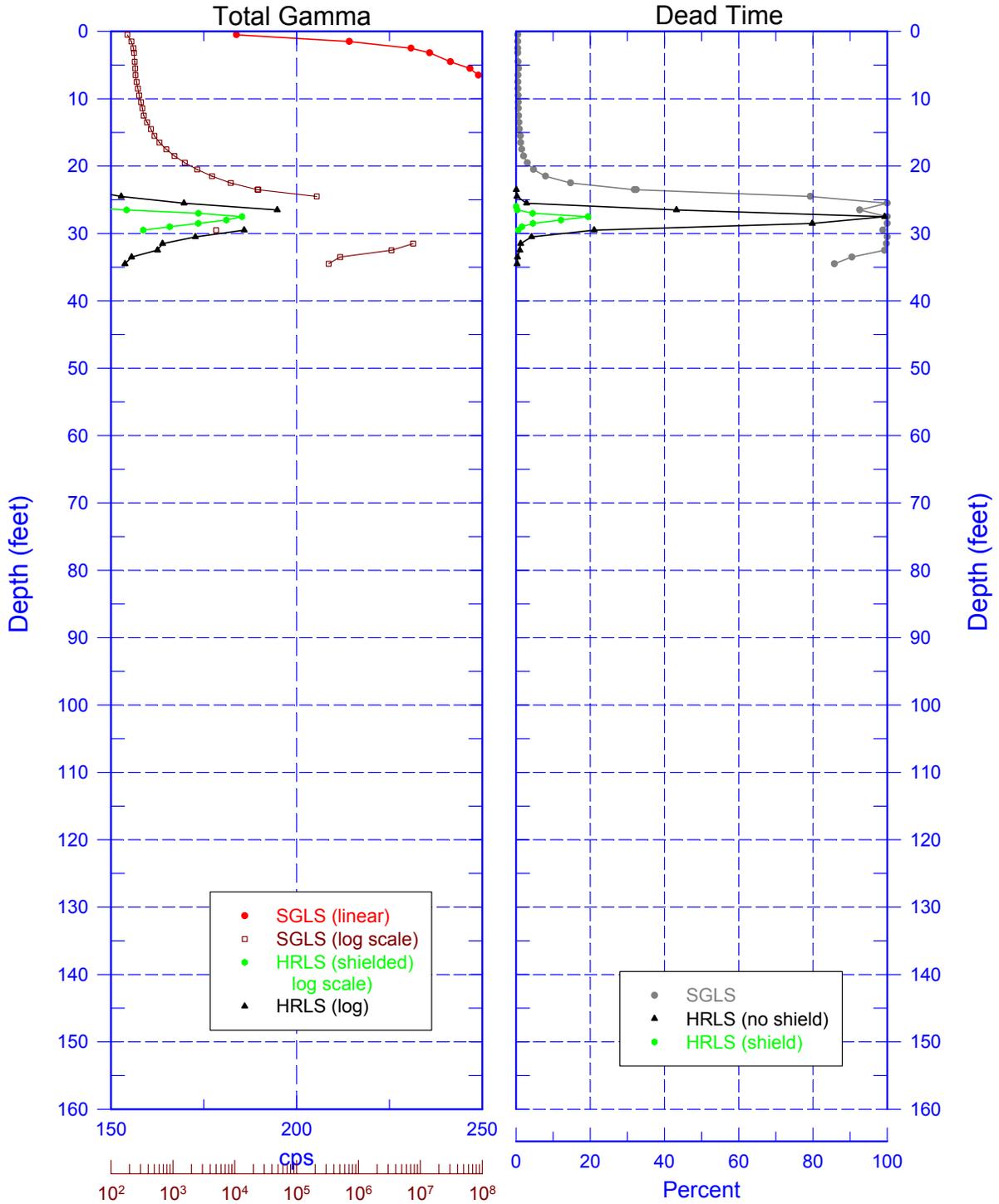
**C5570 Combination Plot**



**C5570 Combination Plot**



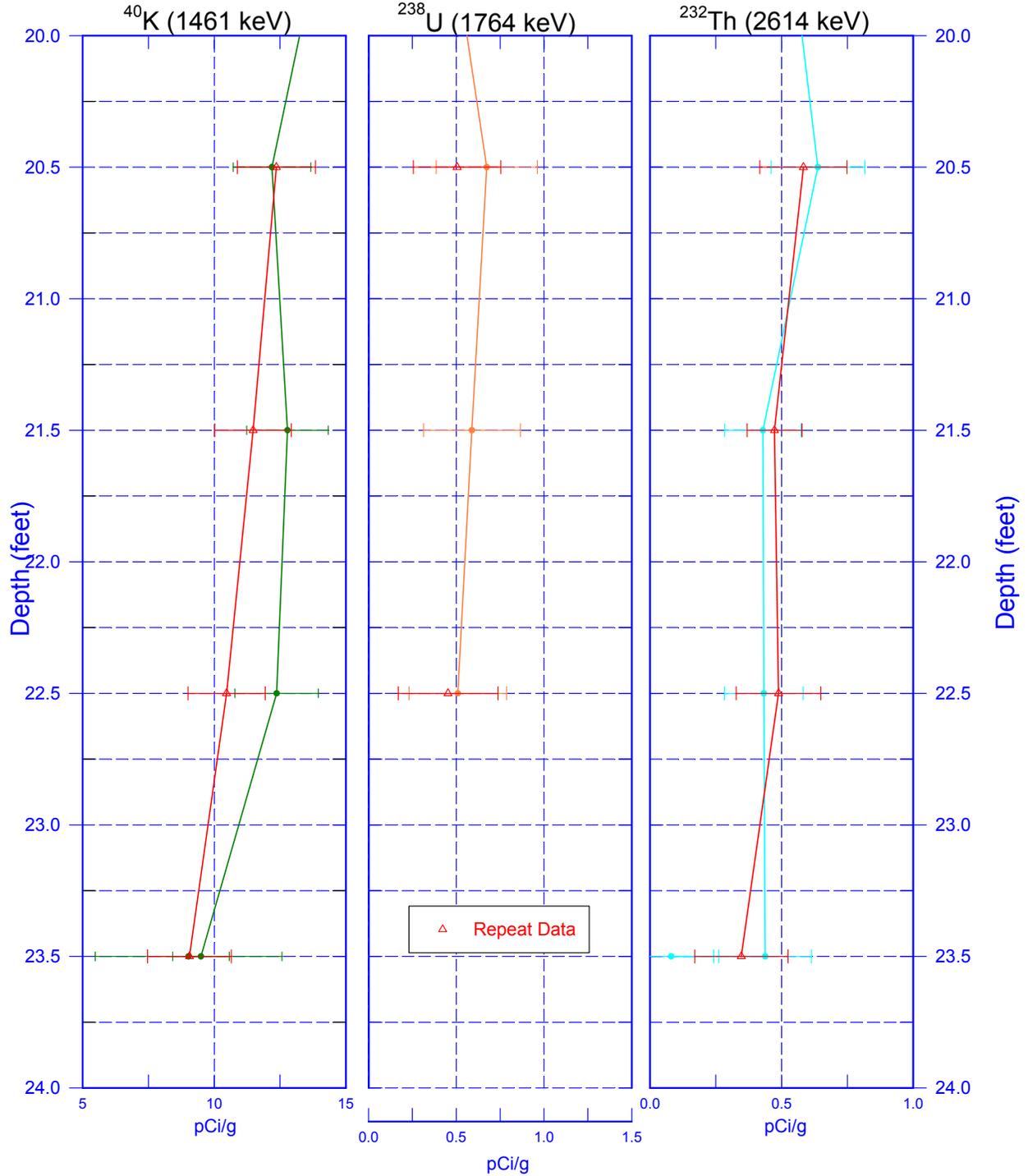
## C5570 Total Gamma & Dead Time



Zero Reference = Ground surface

### C5570

### Repeat Section of Natural Gamma Logs



Zero Reference = Ground surface