

299-W11-43 (C4694)
Log Data Report

Borehole Information:

Borehole: 299-W11-43 (C4694)		Site: ~ 70 ft south of 216-T-34 Crib			
Coordinates (WA State Plane)		GWL (ft)¹: 267.6		GWL Date: 06/22/05	
North	East	Drill Date	TOC² Elevation	Total Depth (ft)	Type
Not available	Not available	06/05	N/A ³	438	Becker

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Becker dual wall - inner	3.9	6.24	6	0.12	0	438
Becker dual wall - outer	3.4	9	8	0.5	0	438
The casing thicknesses for both the 6- and 8-in. casings are from published data for Becker dual wall casing.						

Borehole Notes:

Zero reference is the ground surface. This borehole was logged through the drill pipe. Below 438 ft, the driller reports the borehole is open.

The Becker drilling system uses a dual-wall casing. Air flows down the annulus and cuttings are returned inside the inner casing. Total wall thickness is 0.620 in., increasing to 1.115 in. at the casing joints, which occur at 10-ft intervals.

Logging Equipment Information:

Logging System: Gamma 1E	Type: 70% HPGe (34TP40587A)
Effective Calibration Date: 3/04/05	Calibration Reference: DOE-EM/GJ864-2005
Logging Procedure: MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3 Repeat	4	
Date	06/23/05	06/23/05	06/24/05	06/24/05	
Logging Engineer	Spatz	Spatz	Spatz	Spatz	
Start Depth (ft)	438.0	130.0	129.0	84.0	
Finish Depth (ft)	129.0	85.0	85.0	0.0	
Count Time (sec)	N/A	N/A	N/A	N/A	
Live/Real	R	R	R	R	
Shield (Y/N)	N	N	N	N	
Sample Interval	1.0	1.0	1.0	1.0	
MSA Interval (ft)	N/A	N/A	N/A	N/A	

Log Run	1	2	3 Repeat	4	
Log speed (ft/min)	1.0	1.0	1.0	1.0	
Pre-Verification	AE077CAB	AE077CAB	AE078CAB	AE078CAB	
Start File	AE077000	AE077310	AE078000	AE078045	
Finish File	AE077309	AE077355	AE078044	AE078129	
Post-Verification	AE077CAA	AE077CAA	AE078CAA	AE078CAA	
Depth Return Error (in.)	N/A	- 2	N/A	N/A	
Comments	Fine-gain adjustment after files – 217, 225, and 264.	Fine-gain adjustment after file –314.	No fine-gain adjustment.	No fine-gain adjustment.	

Logging Operation Notes:

The log was run in continuous mode with a logging speed of 1 ft/min. Data files were written at 1-ft intervals and contain the total counts acquired between two consecutive depths. For example, the depth interval of 438 ft, indicated in the above table, represents a file where the total gamma count data were acquired for approximately 60 seconds between 438 and 437 ft. The data points shown in log plots have been adjusted 0.5 ft to the midpoint of the depth interval so that the count rate (total counts per second) for the interval is written at 437.5 ft. The total gamma log was produced for correlation purposes. Gamma energy spectra are available, but counting statistics are relatively poor for most individual peaks.

Total gamma data were collected using Gamma 1E. Pre- and post-survey verification measurements employed the Amersham KUT (⁴⁰K, ²³⁸U, and ²³²Th) verifier with serial number 118. Logging was performed with a centralizer installed on the sonde. Zero reference was the ground surface. Maximum logging depth achieved was 438 ft.

Analysis Notes:

Analyst:	Henwood	Date:	07/19/05	Reference:	
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Pre-run and post-run verification spectra were collected at the beginning and end of the day and compared to the acceptance criteria. All of the verification spectra were within the acceptance criteria.

Log spectra were processed in batch mode using APTEC SUPERVISOR to determine total counts, and count rates were calculated in EXCEL. Water and dead time corrections were not applied to the data. Gamma attenuation changed significantly as the sonde passed through the Becker dual walled pipe joints, and it is not possible to provide accurate casing correction factors. The influence of the thick joints is apparent on the total gamma where reduced count rates are exhibited at approximately 10-ft depth intervals.

Log Plot Notes:

Log plots are provided for total gamma counts per second. A plot of the repeat log versus the original log is included.

Results and Interpretations:

A decrease in gamma activity occurred at each casing joint, where the increase in wall thickness results in greater attenuation of gamma activity. No anomalous gamma activity was observed. This observation suggests no significant concentrations of man-made radionuclides.

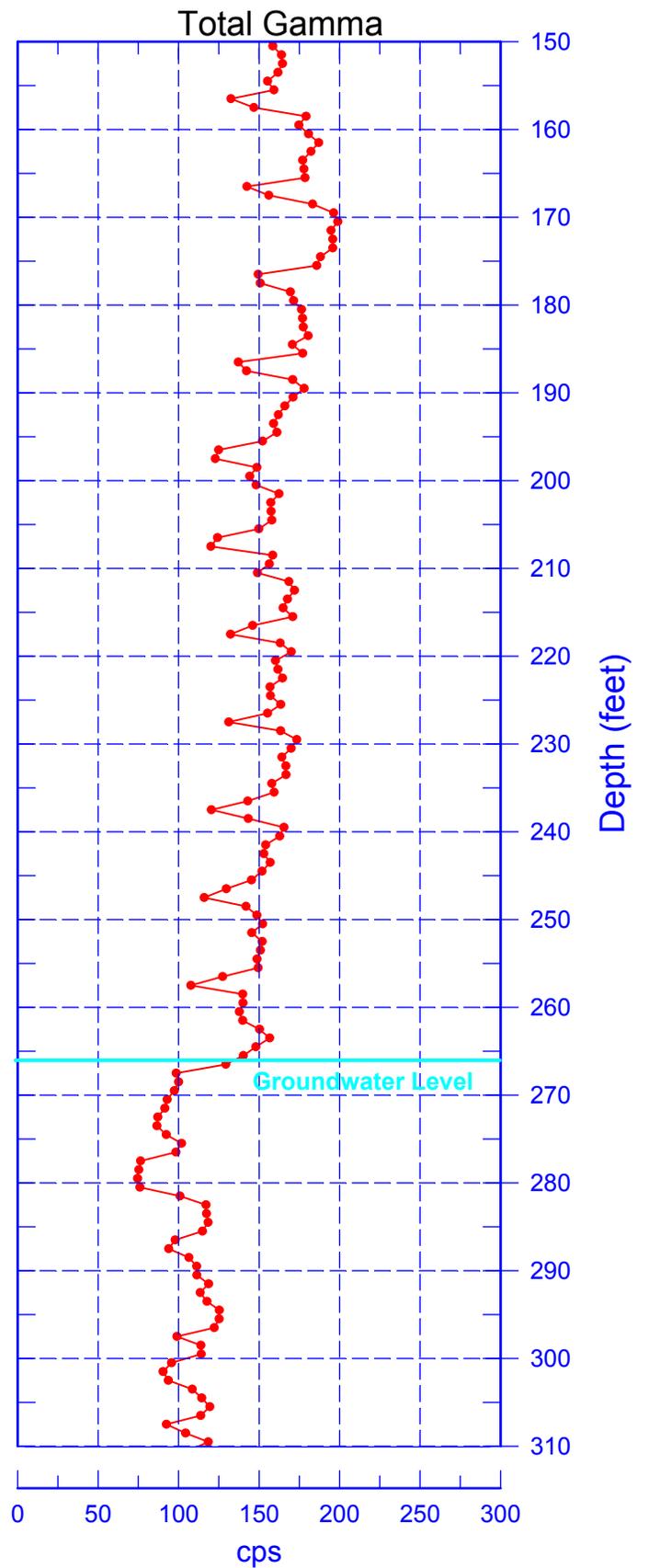
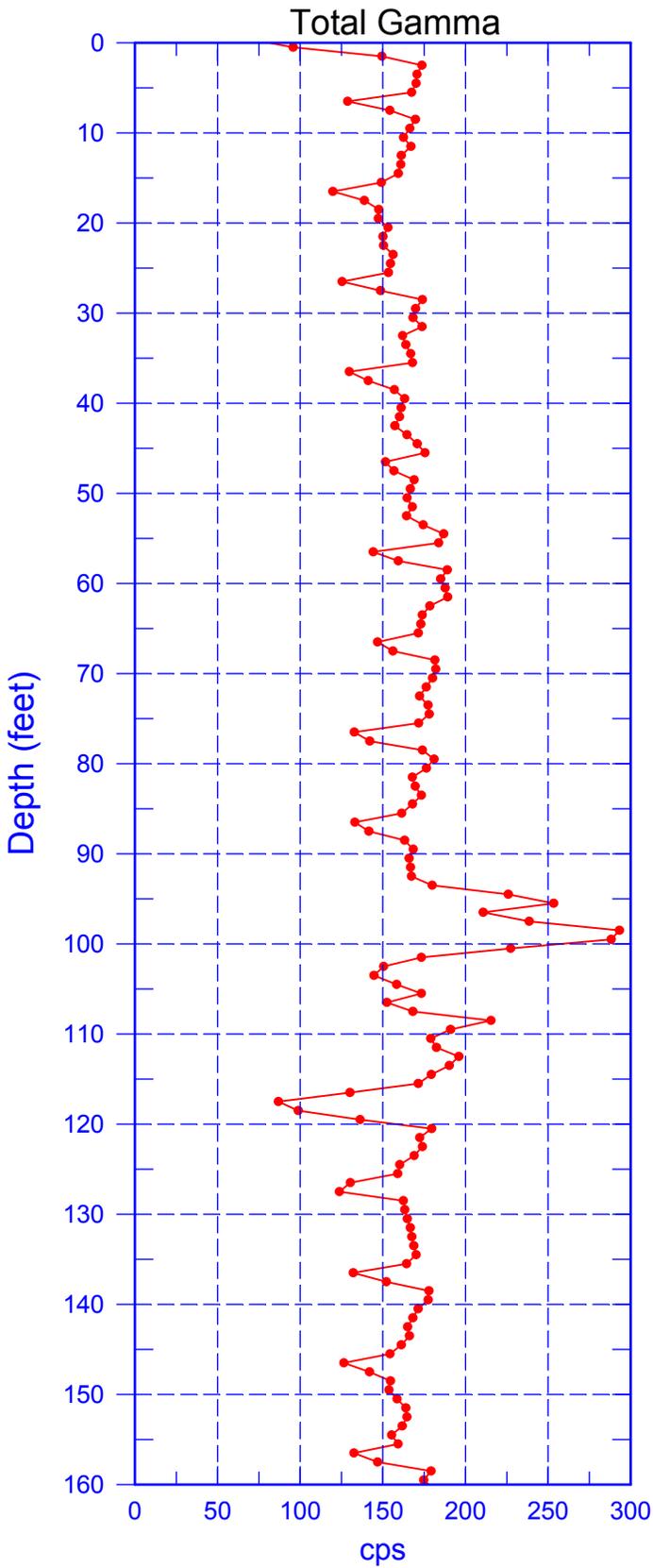
A plot of the repeat log demonstrates reasonable repeatability of the total gamma log.

¹ GWL – groundwater level

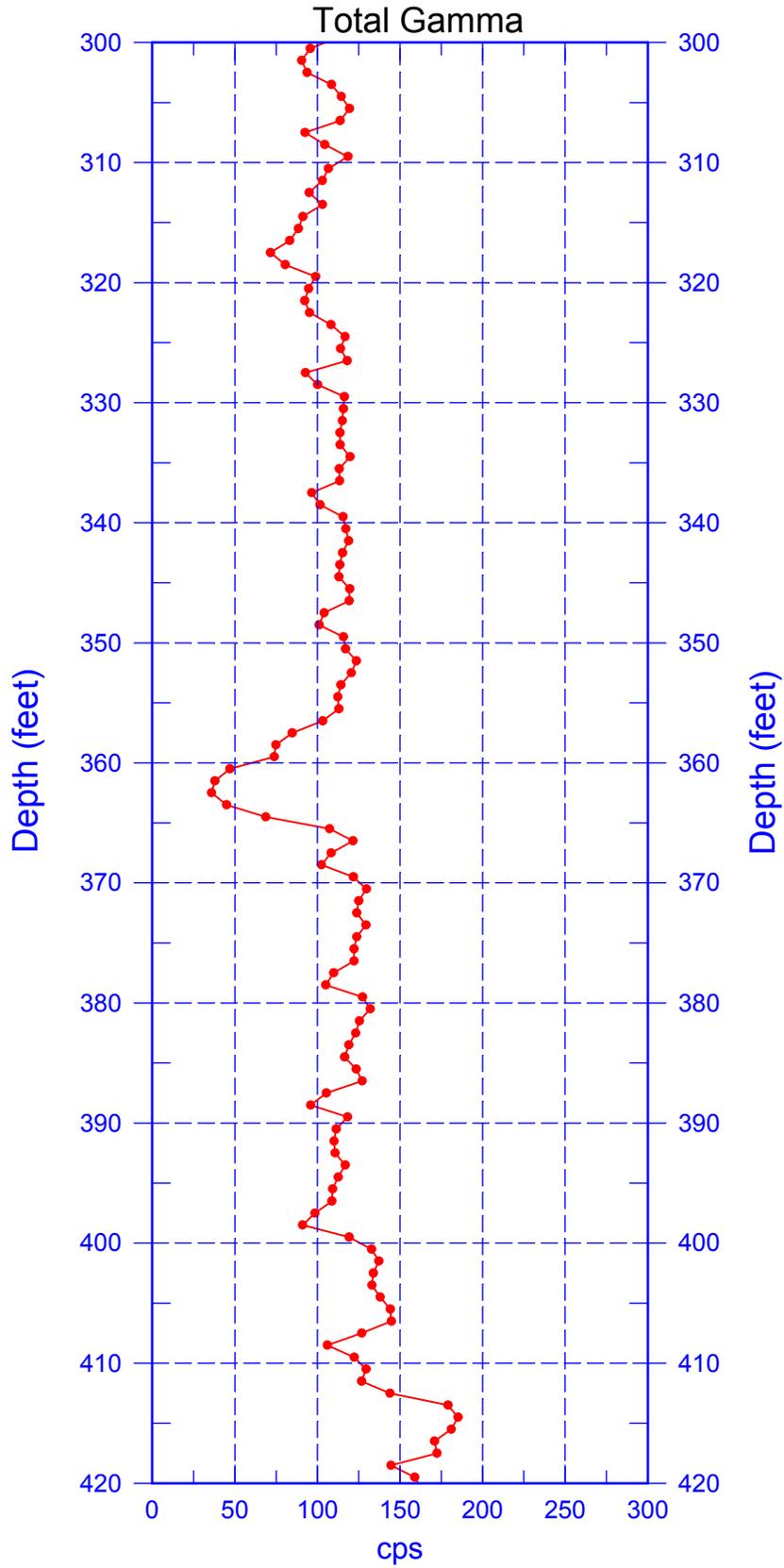
² TOC – top of casing

³ N/A – not applicable

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Repeat of Total Gamma Log (85 to 129 ft)

