



299-W15-152 (C4685) Log Data Report

Borehole Information:

Borehole: 299-W15-152 (C4685)		Site: 200 West Area, west of PFP			
Coordinates (WA St Plane)		GWL¹ (ft): 238		GWL Date: 9/21/05	
North Not available	East Not available	Drill Date 09/05	Ground Level Elevation Not available	Total Depth (ft) 360	Type Becker

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	3.0	6.24	6.0	0.12	3.0	360
Steel	2.5	9.0	8.0	0.50	2.5	360

Borehole Notes:

The Becker drilling system uses a dual-wall casing. Air is forced 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 that occur at 10-ft intervals. The casing dimensions are derived from published values for Becker drill casing. Logging data acquisition is referenced to the ground surface. A thick layer of new gravel is spread on the ground surface to stabilize the work area.

Logging Equipment Information:

Logging System: Gamma 4E	Type: SGLS (70%) SN: 34TP40587A
Effective Calibration Date: 12/21/04	Calibration Reference: DOE/EM-GJ854-2005
Logging Procedure: MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2 Repeat			
Date	09/21/05	09/21/05			
Logging Engineer	Pearson	Pearson			
Start Depth (ft)	359.0	225.0			
Finish Depth (ft)	190.0	0.0			
Count Time (sec)	50	50			
Live/Real	R	R			
Shield (Y/N)	N	N			
Sample interval (ft)	1.0	1.0			
ft/min	NA	NA			
Pre-Verification	AE115CAB	AE115CAB			

Log Run	1	2 Repeat			
Start File	AE115000	AE115170			
Finish File	AE115169	AE115395			
Post-Verification	AE115CAA	AE115CAA			
Depth Return Error (in.)	NA	LOW 3.0			
Comments	No fine-gain adjustments made.	Repeat section included, 225.0' to 190.0'.			

Logging Operation Notes:

Pre- and post-survey verification measurements were acquired in the Amersham verifier, SN 118. A centralizer was installed on the sonde during logging. Maximum borehole depth logged was 359.0 ft.

Analysis Notes:

Analyst:	Pope	Date:	07/19/06	Reference:	GJO-HGLP 1.6.3, Rev. 0
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Pre-run and post-run verifications for the logging system were performed before and after data acquisition. Acceptance criteria were met for the pre-run verification spectrum, except for the count rate of the 1461 keV peak from the pre-run verification spectrum, which is less than 1% below the lower-control limit. Acceptance criteria were met for the post-run verification spectrum, except for the count rate and resolution (full-width at half-max) for the 1461 keV energy peak, and the resolution of the 609 keV peak, ranging from less than 2% to less than 1% outside control limits. For both spectra, the resolutions and count rates of the other energy peaks are within control limits. Inspection of additional peaks from the verification spectra, as well as peaks from the logging spectra, indicates nothing anomalous. A number of factors can have slight effects on the characters of verification spectra, including differences in the sediments on which the verifier is placed from location to location, elevated ambient radon levels, and changes in the performance of the tool itself. It is difficult to be sure what is different at this locale, but because the verification and log spectra exhibit consistent and usual character, it is believed not to be related to the tool, but rather to local variations in background radioactivity. The verification spectra are therefore considered acceptable.

Casing thickness (additive for the 6- and 9-in. casings) is approximately 0.620 in. The combined thickness at casing joints is 1.115 in. This thickness results in a significant reduction in gamma activity detection as the detector passes by a casing joint. However, it is not practical to correct individual data points for the effect of casing joints. The influence of the thick joints is apparent on the total gamma plot, where reduced count rates are exhibited at approximately 10-ft depth intervals.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to extract the total gamma count rate from individual files. No corrections are made for dead time, casing, or water.

Log Plot Notes:

Log plots are provided for the total gamma and dead time. A repeat log section is also presented.

Results and Interpretations:

A decrease in gamma activity occurs 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. An increase in total gamma activity

from about 129 to perhaps 139 ft may be coincident with the fine-grain sediments and caliche in the lower Hanford Formation.

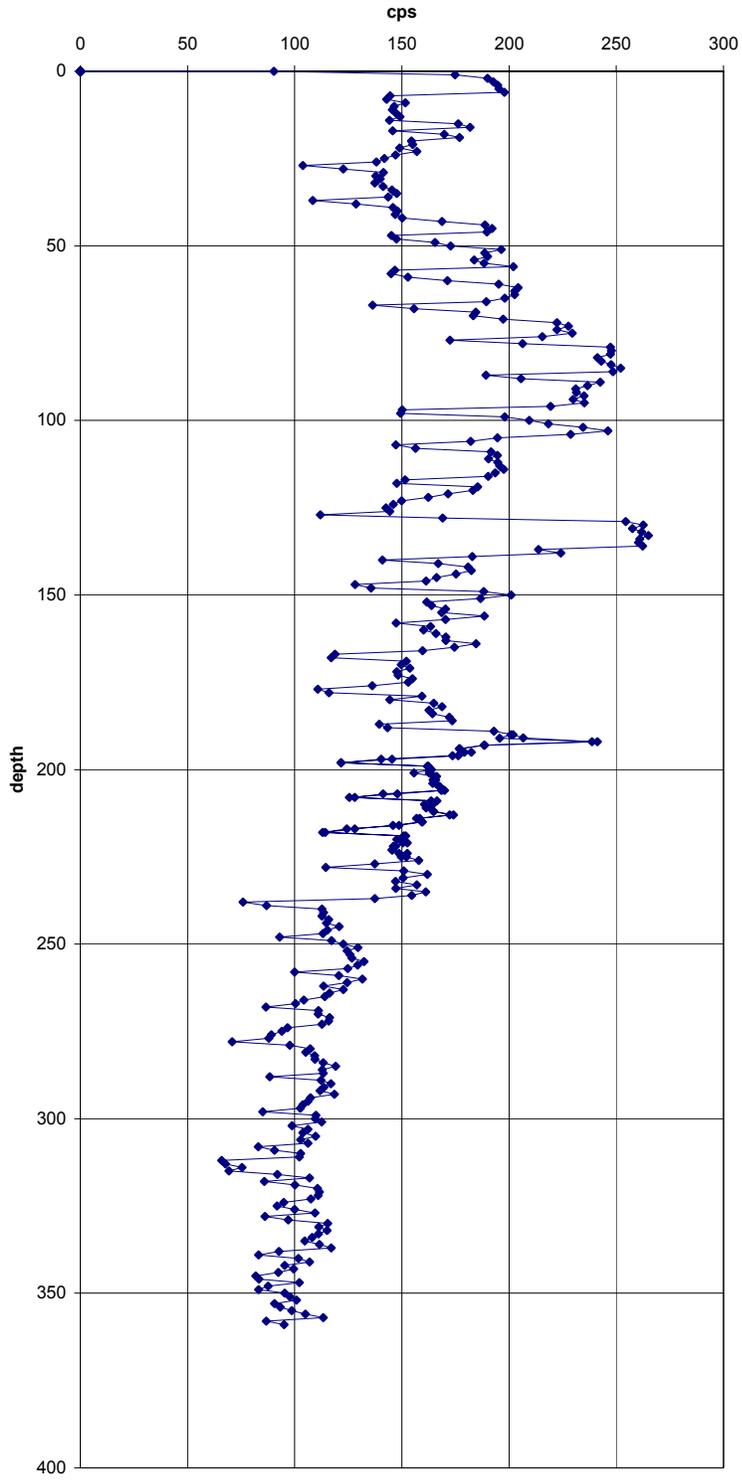
The repeat section indicates good agreement of the total count rate.

¹ GWL – groundwater level

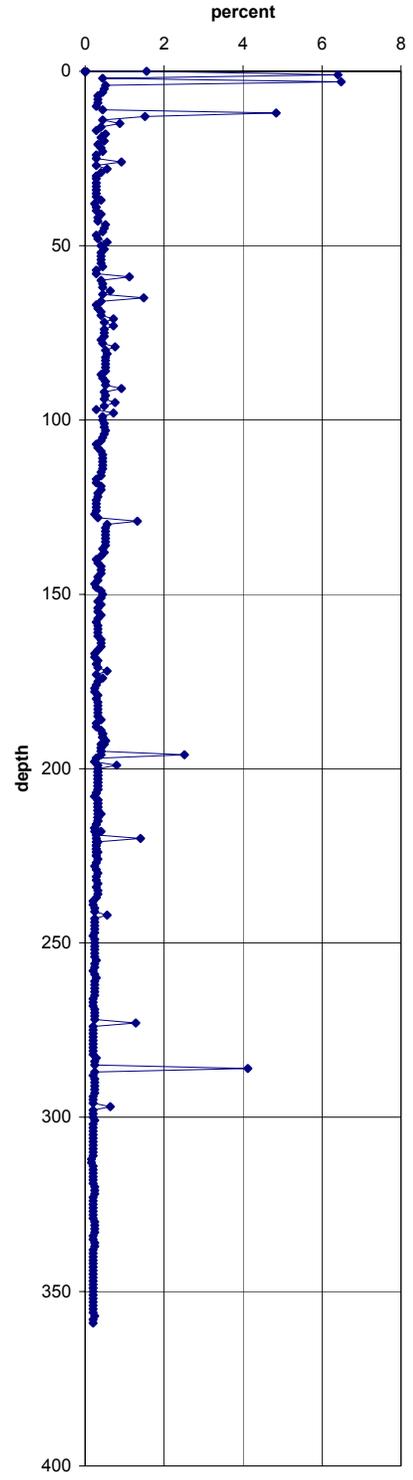
² N/A – not applicable

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Total Gamma



Dead Time



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Repeat Section

