



DOE-EM/GJ1277-2006

## 299-W22-72 (C4970) Log Data Report

### Borehole Information:

<b>Borehole:</b> 299-W22-72 (C4970)		<b>Site:</b> 200-UP-1			
<b>Coordinates (WA St Plane)</b>		<b>GWL<sup>1</sup> (ft):</b> 236.9		<b>GWL Date:</b> 3/1/06	
<b>North</b> Not available	<b>East</b> Not available	<b>Drill Date</b> 03/06	<b>Ground Level Elevation</b> Not available	<b>Total Depth (ft)</b> 359	<b>Type</b> Becker

### Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	?	6.24	6.0	0.12	?	359
Steel	3.65	9.0	8.0	0.50	3.65	359

### 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.

### Logging Equipment Information:

<b>Logging System:</b> Gamma 4N	<b>Type:</b> SGLS (60%) SN: 45TP22010A
<b>Effective Calibration Date:</b> 08/16/05	<b>Calibration Reference:</b> DOE/EM-GJ953-2005
<b>Logging Procedure:</b> MAC-HGLP 1.6.5, Rev. 0	

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

Log Run	1	2 Repeat			
Date	03/01/06	03/01/06			
Logging Engineer	Spatz	Spatz			
Start Depth (ft)	357.5	30.5			
Finish Depth (ft)	0.5	0.5			
Count Time (sec)	NA	NA			
Live/Real	R	R			
Shield (Y/N)	N	N			
Sample interval (ft)	1.0	1.0			
ft/min	1.0	1.0			
Pre-Verification	DN241CAB	DN241CAB			
Start File	DN241000	DN241358			

<b>Log Run</b>	<b>1</b>	<b>2 Repeat</b>			
Finish File	DN241357	DN241388			
Post-Verification	DN241CAA	DN241CAA			
Depth Return Error (in.)	Low 2.0	0.0			
Comments	Fine-gain adjustment made at bottom of borehole and after file -007.	Repeat section.			

**Logging Operation Notes:**

Pre- and post-survey verification measurements were acquired in the Amersham verifier, SN 115. A centralizer was installed on the sonde during logging. Maximum borehole depth achieved was 357.6 ft, before the sonde un-weighted.

**Analysis Notes:**

<b>Analyst:</b>	Pope	<b>Date:</b>	07/24/06	<b>Reference:</b>	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 all verification spectra, except for the count rate of the 1461 keV peak from the pre-run verification spectrum, which is much less than 1% above the upper-control limit. The resolutions and count rates of the 609 and 2614 keV energy peaks are well within control limits, as are all peaks from the post-run spectrum. The pre-run spectrum was examined, and was found to be 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.

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

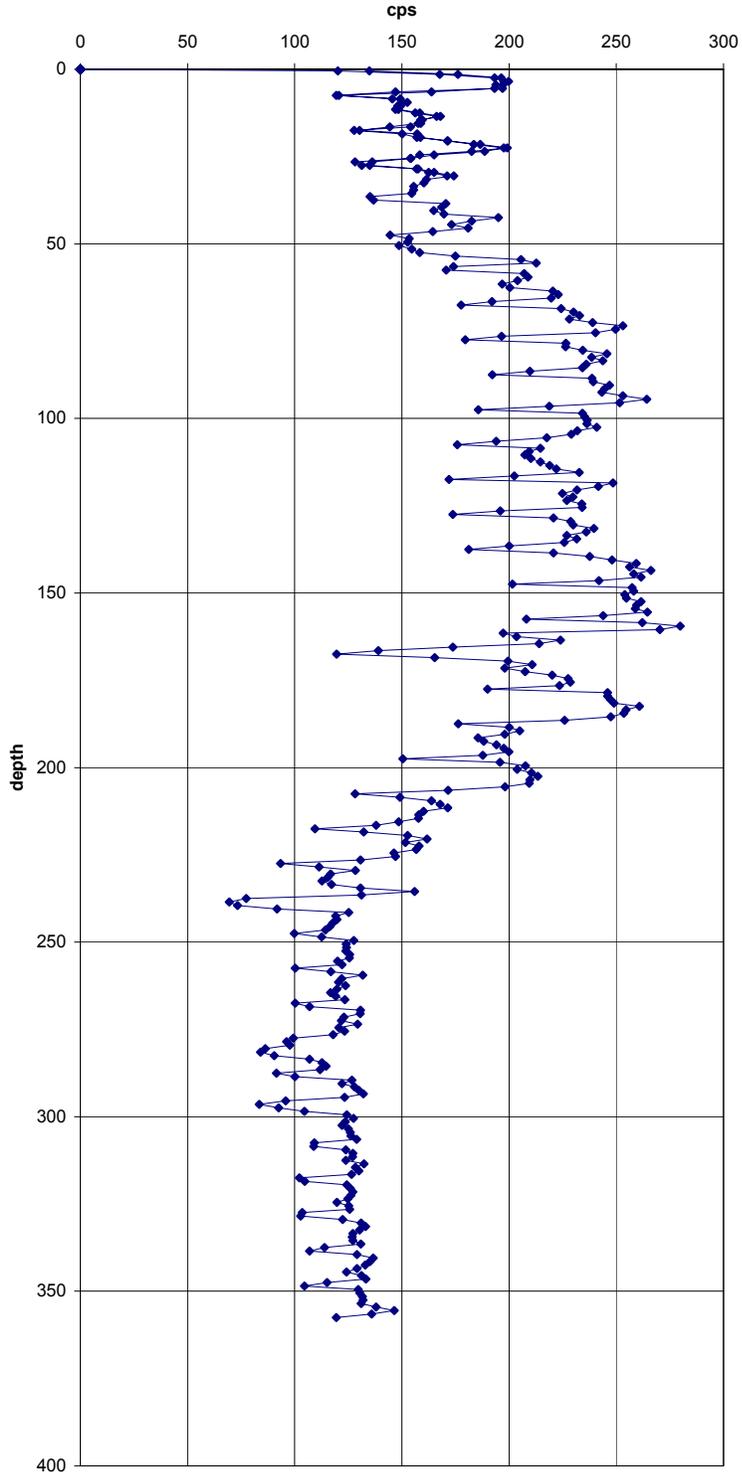
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<sup>1</sup> GWL – groundwater level

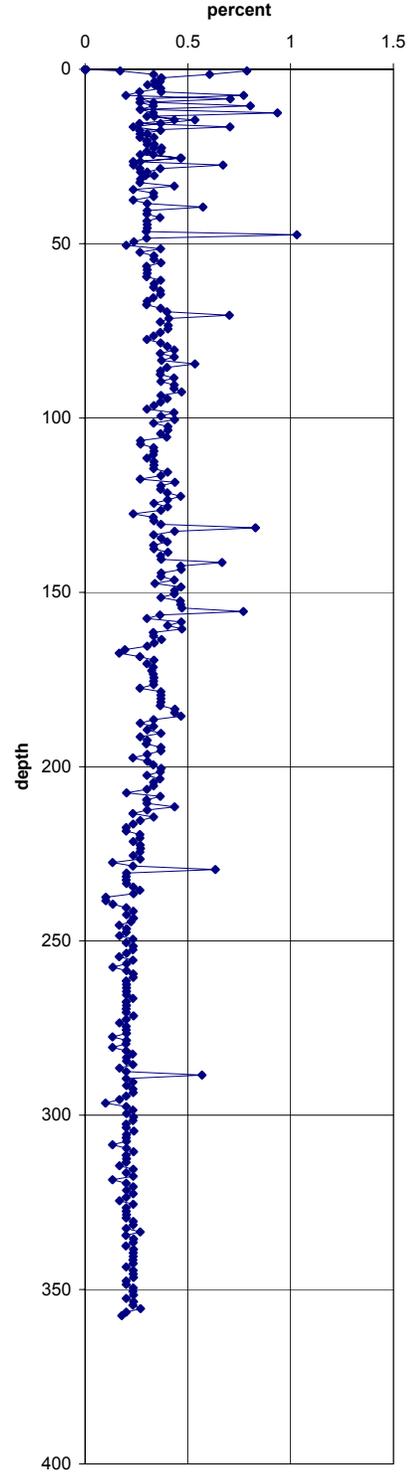
<sup>2</sup> N/A – not applicable

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## Total Gamma



## Dead Time



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## Repeat Section

