



Borehole **50-08-08**

Log Event **A**

**Borehole Information**

Farm : <u>I</u>	Tank : <u>T-108</u>	Site Number : <u>299-W10-176</u>
N-Coord : <u>43,432</u>	W-Coord : <u>75,777</u>	TOC Elevation : <u>Unknown</u>
Water Level, ft : <u>96.3</u>	Date Drilled : <u>4/30/1978</u>	

**Casing Record**

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

**Borehole Notes:**

Borehole 50-08-08 was drilled in April 1978 using a cable-tool drilling rig. The borehole was drilled to a depth of 103 ft and completed to a depth of 100 ft with 6-in.-diameter casing. Seventy-two gal of grout was placed around the upper 12 ft of the borehole casing, and a plug of 9 gal of grout was placed at the bottom of the borehole from 100 to 103 ft.

The casing thickness is assumed to be 0.280-in., on the basis of the published thickness for schedule-40 steel casing, which was the standard casing used at the Hanford Site in the 1970s.

The top of the casing, which is the zero reference for the SGLS, is approximately even with the ground surface.

**Equipment Information**

Logging System : <u>1B</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1997</u>	Calibration Reference : <u>GJO-HAN-14</u>	Logging Procedure : <u>MAC-VZCP 1.7.10-1</u>

**Logging Information**

Log Run Number : <u>1</u>	Log Run Date : <u>05/13/1998</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>200</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>44.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>
Log Run Number : <u>2</u>	Log Run Date : <u>05/14/1998</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>96.0</u>	Counting Time, sec.: <u>200</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>43.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



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**Logging Operation Notes:**

This borehole was logged in two log runs. Logging began on May 13 and was completed on May 14, 1998. The total logging depth achieved by the SGLS was 96 ft. Although the total depth of the borehole was measured as 97.4 ft with a weighted tape, the tool would not go deeper than 96 ft. Spectra were collected at intervals of 0.5 ft using a 200-s counting time.

At the time of logging, there was water in borehole at a depth of 96.3 ft.

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**Analysis Information**

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Analyst : D.L. Parker

Data Processing Reference : MAC-VZCP 1.7.9

Analysis Date : 07/30/1998

**Analysis Notes :**

The pre-survey and post-survey field verification for each logging run met the acceptance criteria established for peak shape and system efficiency. The energy calibration and peak-shape calibration from the field verification spectrum that most closely matched the field data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra.

A casing correction factor for a 0.280-in.-thick steel casing was applied to the concentration data during the analysis process.

**Log Plot Notes:**

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A time-sequence plot of selected gross gamma logs from 1978 to 1993 is included.

A plot of the peak historical gross gamma activity recorded in the borehole at a depth of about 65 ft from 1978 to 1994 is also included. The graph compares the calculated decay of Ru-106 to the decay in gross gamma activity.

**Results/Interpretations:**

The man-made radionuclides Cs-137 and Co-60 were detected with the SGLS in this borehole. The Cs-137 contamination was detected intermittently from the ground surface to 7 ft. The maximum Cs-137 concentration of about 0.2 pCi/g was measured at a depth of 1 ft.



Spectral Gamma-Ray Borehole  
Log Data Report

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Co-60 contamination was detected almost continuously from 67 to 75.5 ft and continuously from 80.5 to 88.5 ft. The maximum Co-60 concentration was recorded as 0.6 pCi/g at 82 ft.