



Borehole

22-00-03

Log Event A

Borehole Information

Farm : <u>BY</u>	Tank : <u>BY</u>	Site Number : <u>299-E33-84</u>
N-Coord : <u>46,058</u>	W-Coord : <u>53,198</u>	TOC Elevation : <u>649.18</u>
Water Level, ft :	Date Drilled : <u>7/22/1949</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.313</u>	ID, in. : <u>8</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>150</u>	

Borehole Notes:

The borehole was drilled with a cable tool drilling rig to a depth of 150 ft. The casing was perforated from 40 to 100 ft at 5 holes per foot upon completion of the drilling. Drilling records give no indication of the presence of grout.

Logging depth is less than the drilled depth, apparently because of an obstruction in the borehole.

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>8/2/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>10.0</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>8/3/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>146.0</u>	Counting Time, sec.: <u>100</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>

Log Run Number : <u>3</u>	Log Run Date : <u>8/4/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>44.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>9.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



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Analysis Information

Analyst : D.C. Stromswold

Data Processing Reference : P-GJPO-1787

Analysis Date : 1/23/1996

Analysis Notes :

Verification spectra collected before and after the log runs showed that the logging tool was operating properly.

Gain drift during run 2 required two energy calibrations to maintain proper peak identification. Gain drift during runs 1 and 3 were minimal, enabling a single energy calibration to be used during data processing for each of these runs.

Repeatability at the overlap logging section was within the calculated statistical uncertainties.

Correction factors for 0.25-in.-thick steel casing were used during data processing. No water correction was applied because the borehole was dry.

Cs-137, Co-60, and Sb-125 were the man-made contaminants detected in this borehole. Cs-137 was detected mainly from the surface to about 102 ft at concentrations up to about 20 pCi/g. Co-60 was detected mainly from 46 to 146 ft at concentrations up to about 13 pCi/g. Sb-125 was detected from 53.5 to 72 ft at concentrations up to about 4 pCi/g.

The K-40 concentration increases below a depth of about 47 ft, which coincides with the bottoms of nearby tanks. The U-238 peak in the backfill at 12.5 ft is due to enhanced concentrations of Bi-214, a daughter of U-238 that produces the 609-keV gamma-ray used to measure U-238. The gap in the U-238 data below about 60 ft is due to the increased MDLs that result from the increased background from Co-60.

See the Tank Summary Data Report for BY-103 for additional log analysis.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Westinghouse Hanford Company (WHC) Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data from WHC with no attempt to adjust the depths to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.