



Borehole

22-03-09

Log Event A

Borehole Information

Farm : <u>BY</u>	Tank : <u>BY-103</u>	Site Number : <u>299-E33-105</u>
N-Coord : <u>46,102</u>	W-Coord : <u>53,291</u>	TOC Elevation : <u>648.14</u>
Water Level, ft :	Date Drilled : <u>8/6/1970</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:

The borehole was drilled with a cable tool drilling rig, and the casing is apparently ungrouted and unperforated.

Equipment Information

Logging System : <u>2</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>7/27/1995</u>	Logging Engineer: <u>Steve Kos</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>97.5</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 : 1/19/1996

Analysis Notes :

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

The logging system malfunctioned below 86 ft, producing data whose depths are uncertain. The cause of the problem is probably the depth encoder which measures logging cable movement.

Gain drift was minimal during data acquisition, enabling a single energy calibration to be used during data processing.

The absence of a repeat logging section precluded judgment of the repeatability.

Correction factors for 0.33-in.-thick steel casing were used during data processing, because correction factors for 0.31-in. casing were not available. As a result, the calculated concentrations will be slightly high. No water correction was applied because the borehole was dry.

Cs-137, Co-60, and Eu-154 were the man-made contaminants detected in this borehole. Cs-137 was found mainly from the surface to about 48 ft (i.e., in the backfill around the tank). Co-60 was mainly found near 6 and 49 ft, and below 62 ft. Eu-154 was detected only near 6 ft. Cs-137 concentrations were less than 30 pCi/g, except at the surface. Co-60 concentrations were at their maximum (about 10 pCi/g) near 79 ft and at the lowest depth reached (apparently about 98 ft). Eu-154 concentrations were less than 3 pCi/g.

K-40 concentrations increased below 48 ft, the depth of the tank's bottom.

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.