



Borehole

22-05-01

Log Event A

Borehole Information

Farm : <u>BY</u>	Tank : <u>BY-105</u>	Site Number : <u>299-E33-109</u>
N-Coord : <u>46,038</u>	W-Coord : <u>53,327</u>	TOC Elevation : <u>648.76</u>
Water Level, ft :	Date Drilled : <u>7/9/1970</u>	

Casing Record

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

Borehole Notes:

According to the driller's records, this borehole was not perforated or grouted.

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>7/20/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>98.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>66.5</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>7/20/1995</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>0.5</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>7/20/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>8.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>3.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>
Log Run Number : <u>4</u>	Log Run Date : <u>7/20/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>67.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>7.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Borehole

22-05-01

Log Event A

Log Run Number :	<u>5</u>	Log Run Date :	<u>7/21/1995</u>	Logging Engineer:	<u>Bob Spatz</u>
Start Depth, ft.:	<u>4.5</u>	Counting Time, sec.:	<u>100</u>	L/R : <u> </u>	Shield : <u> </u>
Finish Depth, ft. :	<u>0.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

Analysis Information

Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787

Analysis Date : 2/13/1996

Analysis Notes :

This borehole was logged in five log runs. Log run 2 consisted of two spectra collected at 0 and 0.5 ft. These spectra were not used because the logging tool was depleted of liquid nitrogen, which caused data collection problems. Log run five data were not used because high dead times from 0 to 3.5 ft did not allow proper peak resolution.

The pre- and post-survey field verification spectra showed consistent activities, indicating the logging system operated properly during data collection. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated energy versus channel number recalibrations during processing of the data to maintain proper peak identification. A depth overlap, where data were collected on separate days at the same depth, occurred in this borehole at 67 ft. The calculated concentrations were within the statistical uncertainty of the measurements, indicating very good repeatability.

The casing thickness is 1/4 (0.25) inch. Casing-correction factors for a 0.25-in.-thick steel casing were applied during analysis.

Cs-137 and Co-60 were the only man-made radionuclides identified in this borehole. The presence of Cs-137 was measured almost continuously from the ground surface to about 41 ft, and intermittently from 49 ft to TD. Data were not collected above 3.5 ft in depth because of excessive dead times in the data collection system. Co-60 was measured from 84 ft to TD.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank BY-105.

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



Borehole

22-05-01

Log Event A

represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.