



Borehole

# 22-06-09

Log Event A

## Borehole Information

Farm : <u>BY</u>	Tank : <u>BY-106</u>	Site Number : <u>299-E33-114</u>
N-Coord : <u>46,102</u>	W-Coord : <u>53,392</u>	TOC Elevation : <u>648.02</u>
Water Level, ft :	Date Drilled : <u>7/31/1970</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>8/18/1995</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>40.5</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>8/21/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>97.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>39.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



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### Analysis Information

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Analyst : D.C. Stromswold

Data Processing Reference : P-GJPO-1787

Analysis Date : 2/8/1996

#### Analysis Notes :

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

Gain drift was minimal during data acquisition of run 2, enabling a single energy calibration to be used during data processing. Gain drifts during run 1 necessitated two energy calibrations to maintain proper radionuclide identification.

Repeatability was good at the overlap log section, being within the statistical uncertainty.

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 and Co-60 were the man-made contaminants detected. Cs-137 was measured almost continuously from the surface to about 32 ft with concentrations less than 1 pCi/g (except at depths above about 5 ft where the concentrations were higher). Below 32 ft, Cs-137 was detected discontinuously to TD. Co-60 was located in the interval from about 72 to 89 ft at concentrations of about 0.2 pCi/g.

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

See the Tank Summary Data Reports for tanks BY-106 and BY-109 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.