

Borehole

41-12-10

Log Event A

Borehole Information

Farm : <u>SX</u>	Tank : <u>SX-112</u>	Site Number : <u>299-W23-116</u>
N-Coord : <u>35,272</u>	W-Coord : <u>75,909</u>	TOC Elevation : <u>661.15</u>
Water Level, ft :	Date Drilled : <u>3/29/1962</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>75</u>	

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 Information

Log Run Number : <u>1</u>	Log Run Date : <u>7/10/1995</u>	Logging Engineer: <u>Mike Widdop</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>4.0</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>7/11/1995</u>	Logging Engineer: <u>Mike Widdop</u>
Start Depth, ft.: <u>4.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>73.5</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. StromswoldData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 11/22/1995**Analysis Notes :**

Borehole 41-12-10 was logged in two runs in a move-stop-acquire mode that collected spectra for 100 seconds every 0.5 ft. Gain drifts during run 2 necessitated four different energy calibrations during data processing to maintain proper radionuclide identification, whereas run 1 was analyzed using only one energy calibration. For unknown reasons, the gain stabilizer did not hold the gain constant.

Verification spectra collected before and after run 1 show that the tool was operating correctly. The verification spectrum obtained before run 2 had slightly poorer energy resolution and lower count rate (by about 15 percent) than normal, perhaps caused by detector temperature changes after the tool had inadvertently warmed up during the night.

Correction factors for 0.33-in.-thick steel casing were used during data processing because correction factors for 0.31-in.-thick casing were not available. As a result, the calculated concentrations will be only slightly high.

Cs-137 was the only man-made radionuclide identified, occurring from the surface to 6 ft, with a few isolated values near MDA to TD. The maximum measured concentration was about 1.5 pCi/g at 1.5 ft.

The total gamma log indicated lithology changes below about 60 ft.

The absence of sufficient overlap logging precluded judgment on the repeatability of the data.

See the Tank Summary Data Report for SX-112 for additional log analysis.

Log Plot Notes:

Three log plots are provided. One shows the Cs-137 concentrations. Another shows the naturally occurring radionuclides (K-40, U-238, and Th-232), which can be used for lithology interpretations. A combination plot includes logs of Cs-137, natural gamma, total gamma derived from the spectral data, and data from the WHC Tank Farms gross gamma logging system. The headings of the Cs-137 and natural gamma 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 minimum detectable activity (MDA). The MDA of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible. If the reported concentration is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value and detection is not ensured with 95-percent certainty-

The Tank Farms gross gamma plot is the latest available from WHC. No attempt has been made to adjust the plot for depth discrepancies.