

Borehole

**41-11-03**

Log Event A

**Borehole Information**

Farm : <u>SX</u>	Tank : <u>SX-111</u>	Site Number : <u>299-W23-97</u>
N-Coord : <u>35,253</u>	W-Coord : <u>75,719</u>	TOC Elevation : <u>663.01</u>
Water Level, ft :	Date Drilled : <u>3/15/1962</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>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 Information**

Log Run Number : <u>1</u>	Log Run Date : <u>6/19/1995</u>	Logging Engineer: <u>Dave Traub</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>19.0</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>6/20/1995</u>	Logging Engineer: <u>Dave Traub</u>
Start Depth, ft.: <u>17.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>75.0</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. StromswoldData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 11/9/1995**Analysis Notes :**

Borehole 41-11-03 was logged in two runs in a move-stop-acquire mode that collected spectra for 100 seconds every 0.5 ft. The first run was from 0 to 19 ft, and the second run (on the following day) was from 17 to 75 ft, giving a 2-ft overlap in the data. Repeatability in the overlap section was within the statistical uncertainty limits of the measurements. Gain drifts during the first run made it necessary to process the data in two segments with different energy calibrations. Gain drifts during the second run necessitated three different energy calibrations during data processing.

Verification spectra collected before and after the run showed that the tool was operating correctly. The verification spectrum obtained before the second run had slightly poorer energy resolution than normal, perhaps caused by detector or electronics temperature changes that morning.

Correction factors for 0.25-in.-thick steel casing were used during data processing.

Cs-137 was the only man-made radionuclide identified in this borehole, occurring from the surface down to about 20 ft.

The K, U, and Th logs showed possible lithology changes near 62 and 69 ft.

For additional log data interpretation, see the discussion for this borehole included in the Tank Summary Data Report for SX-111 .

**Log Plot Notes:**

Three log plots are provided. The first plot shows Cs-137 concentrations. The second plot 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 the latest available data from WHC Tank Farms gross gamma logging. 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 assured 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.