

Borehole

**41-05-12**

Log Event A

**Borehole Information**

Farm : <u>SX</u>	Tank : <u>SX-105</u>	Site Number : <u>299-W23-129</u>
N-Coord : <u>35,498</u>	W-Coord : <u>75,760</u>	TOC Elevation : <u>663.28</u>
Water Level, ft :	Date Drilled : <u>Unknown</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>130</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>5/31/1995</u>	Logging Engineer: <u>Mike Widdop</u>
Start Depth, ft.: <u>124.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>33.5</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>6/1/1995</u>	Logging Engineer: <u>Mike Widdop</u>
Start Depth, ft.: <u>34.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>0.0</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 : J.R. BrodeurData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 9/18/1995**Analysis Notes :**

This borehole was first drilled to 75 ft and deepened in 1978 to 130 ft. No drilling logs were found for this borehole. Grout was placed around the casing from 0 to 18 ft and in the bottom of the hole as a plug from 125 to 130 ft. The thickness of the grout around the borehole from 0 to 18 ft is unknown, and a grout correction was not applied. Therefore, the concentration data reported for this region is underestimated.

The borehole casing thickness was not recorded in the drill logs and could not be determined in the field. It is estimated to be 0.31 in. The casing correction used in the data analysis was that for 0.33-in. casing.

The borehole was logged in two log runs: run 1 from 124 to 33.5 ft and run 2 from 34.5 to 0 ft. Field verification spectra taken between log runs showed good agreement. The digital spectrum stabilizer was not activated during data acquisition, and there was energy drift between spatially sequential spectra making it necessary to re-energy-calibrate some spectra. This does not affect the efficiency or the concentration determination.

Cs-137 was found from the surface to about 24.5 ft, and it was found in a zone from 36 to 40 ft. From 40 ft to 68 ft it was found at concentrations just above MDA where, in some cases, the lower error bar extends below the MDA concentration, indicating that detection was not within the 95-percent confidence interval.

The natural gamma logs (K-40, U-238 and Th-232) show variations near the 60-ft depth region, indicating changes in the lithology in this region.

**Log Plot Notes:**

Three log data plots are provided. The Cs-137 log is provided as a separate plot to document the concentration and show the distribution. An estimation of the concentration error is shown as error bars representing the 95-percent confidence interval. The MDA values were calculated for every depth measurement location and are shown on the plot as open circles.

The natural gamma plot is made of logs of the naturally occurring K-40, U-238 and Th-232. These logs are provided to show geologic features and permit correlation of these data with other geologic information. On the Th-232 plot, the MDA value is shown as zero at some depth locations. The zero value is a result of an anomaly in the commercial spectrum analysis software and has been corrected by the vendor. Because the MDA calculation at these few points is not significant relative to the intended use of the plot, the data were not reprocessed and corrected. Therefore, these MDA data should be ignored.

The combination plot shows the individual radionuclide concentrations and is provided to permit correlation of the data between logs and with other boreholes. The plot includes the Cs-137 log, the natural gamma logs, the total gamma log calculated from the spectral gamma data and the Tank Farms gross gamma log.