



Borehole **51-18-10**

Log Event A

**Borehole Information**

Farm : <u>TX</u>	Tank : <u>TX-118</u>	Site Number : <u>299-W15-125</u>
N-Coord : <u>42.093</u>	W-Coord : <u>75,989</u>	TOC Elevation : <u>668.75</u>
Water Level, ft :	Date Drilled : <u>11/02/1970</u>	

**Casing Record**

Type : <u>Steel-welded</u>	Thickness : <u>0.258</u>	ID, in. : <u>5</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

**Borehole Notes:**

Drilling of this borehole began in September 1970 and was completed in November 1970 . Two initial attempts to drill this borehole were abandoned when the drill struck concrete at 44 ft. The casing was pulled and the drill rig was moved to a new location in the vicinity. The third attempt was successful and the borehole was completed at a depth of 100 ft with 6-in.-nominal-diameter carbon-steel casing.

The driller's notes do not indicate that the casing was perforated. There is no indication that the bottom of borehole was cemented or that any interval of the borehole was grouted.

The casing thickness is presumed to be 0.258 in., on the basis of published thickness for schedule-40, 5-in. steel tubing.

The top of the casing is the starting depth for the logs. The lip of the casing is about even with the ground surface and other borehole collars in the vicinity.

**Equipment Information**

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

**Log Run Information**

Log Run Number : <u>1</u>	Log Run Date : <u>4/29/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>99.0</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 : H.D. Mac Lean

Data Processing Reference : P-GJPO-1787

Analysis Date : 1/27/1997

#### Analysis Notes :

The SGLS log of this borehole was completed in a single logging run. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and system efficiency, indicating that the logging system was operating within prescribed specifications. The energy calibration and peak-shape calibration from the verification spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation. The gain drifted slightly during the data collection activity; it was necessary to apply minor corrections for gain drift in order to maintain proper peak identification.

Casing correction factors for a 0.250-in.-thick steel casing were applied during analysis.

The only man-made radionuclide encountered during the survey was Cs-137. The Cs-137 contamination was detected continuously in relatively small concentrations between the ground surface and 20 ft, 22 and 22.5 ft, and 28.5 and 29 ft. Detectable Cs-137 concentrations were also measured at the 34-ft depth.

The measured Cs-137 concentrations were generally less than 1 pCi/g. The maximum measured Cs-137 concentration was about 2 pCi/g at the ground surface. The measured Cs-137 concentrations below a depth of 11 ft were less than 1 pCi/g. The measured concentration at the 34-ft depth was less than 0.1 pCi/g (just above the MDL).

A step-like increase in the K-40 concentration plot and in the total gamma-ray count rate was shown at a depth of 46 ft. Measured concentrations were about 7 pCi/g above 49 ft and about 13 pCi/g below this depth. The U-238 and Th-232 concentrations increase slightly at a depth of about 97 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank TX-118.

#### Log Plot Notes:

Separate log plots show the concentrations of the man-made (Cs-137) and the naturally occurring radionuclides (KUT). The natural radionuclides can be used for lithology interpretations. The headings of the 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 MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.