



Borehole **40-00-06**

Log Event **A**

Borehole Information

Farm : <u>S</u>	Tank : <u>S</u>	Site Number : <u>299-W23-56</u>
N-Coord : <u>35,875</u>	W-Coord : <u>75,722</u>	TOC Elevation : <u>663.00</u>
Water Level, ft :	Date Drilled : <u>4/30/1952</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>2.800</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>150</u>	

Borehole Notes:

This borehole was drilled during April 1952 and completed to a depth of 150 ft with 6-in.-diameter casing. The driller's log states that the casing was perforated from 40 to 100 ft with five holes per foot. The driller's log contains no mention of grouting in the borehole. The casing thickness is assumed to be 0.280 in., on the basis of published thickness for schedule-40, 6-in. casing.

The zero reference for the SGLS logs is the top of the riser, which is about 6 in. above the ground surface. The borehole is located in a berm that is approximately 3.5 ft high and 10 ft wide.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>05/1996</u>	Calibration Reference : <u>GJPO-HAN-5</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>07/22/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>0.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>18.5</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>07/23/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>150.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>68.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>
Log Run Number : <u>3</u>	Log Run Date : <u>07/24/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>69.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>17.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Borehole **40-00-06**

Log Event A

Analysis Information

Analyst : D.L. Parker

Data Processing Reference : P-GJPO-1787

Analysis Date : 04/10/1997

Analysis Notes :

This borehole was logged in three log runs using a centralizer. No spectra were recorded at the ground surface. The pre- and post-survey field verification spectra met the acceptance criteria established for peak shape and system efficiency. The energy and peak-shape calibration from the field verification spectra that best matched the data were used to establish the channel-to-energy parameters used in processing the spectra acquired during the three log runs.

Casing correction factors for a 0.280-in.-thick casing were applied during the analysis.

Cs-137 was the only man-made radionuclide detected in this borehole. Cs-137 contamination was detected continuously from depths of 0.5 to 6.5 ft, from 48 to 50 ft, and at 98 ft. The maximum Cs-137 concentration below the top of the berm was 11.4 pCi/g at a depth of 1 ft. A higher Cs-137 concentration (19.2 pCi/g) was detected at a depth of 0.5 ft (top of the berm). The higher concentration is an apparent concentration and is probably the result of direct gamma rays at the ground surface.

The logs of the naturally occurring radionuclides show an increase at a depth of about 59 ft. U-238 concentrations increase at a depth of about 69 ft. Th-232 and U-238 concentrations increase below a depth of 134 ft.

The SGLS total count log plot reflects the logs of the man-made and naturally occurring radionuclides.

Details concerning the interpretation of data for this borehole are presented in the Tank Summary Data Report for tank S-111.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. 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 the man-made and natural radionuclides, 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.

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.