



Borehole **21-00-09**

Log Event **A**

**Borehole Information**

Farm : <u>BX</u>	Tank : <u>BX</u>	Site Number : <u>299-E33-92</u>
N-Coord : <u>45,462</u>	W-Coord : <u>53,623</u>	TOC Elevation : <u>656.36</u>
Water Level, ft :	Date Drilled : <u>4/30/1967</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>	

**Borehole Notes:**

Borehole 21-00-09 was drilled in April 1967. Data from the drilling log and Chamness and Merz (1993) were used to provide borehole construction details. During borehole drilling, something "very hard" was encountered at 21 ft that flattened the "core barrel shoe." It was suspected that an underground pipe had been encountered, but research failed to turn-up any structures that could have caused the damage to the drilling equipment. Drilling was resumed and the borehole was completed to 75 ft with 6-in. casing.

The top of the casing, which is the zero reference for the SGLS, is about 0.5 ft below the ground surface.

**Equipment Information**

Logging System : <u>1B</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>02/1997</u>	Calibration Reference : <u>GJO-HAN-13</u>	Logging Procedure : <u>P-GJPO-1783</u>

**Log Run Information**

Log Run Number : <u>1</u>	Log Run Date : <u>08/01/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>74.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>29.0</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>08/04/1997</u>	Logging Engineer: <u>Gary Lekvold</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>30.0</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.L. Parker

Data Processing Reference : MAC-VZCP 1.7.9

Analysis Date : 01/20/1998

### Analysis Notes :

The pre-survey and post-survey field verification spectra for all but one logging run met the acceptance criteria established for peak shape and system efficiency. One post-survey verification spectra did not meet the established acceptance criteria. The energy calibration and peak-shape calibration from the spectra that best matched the data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra acquired during the logging operation.

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

### 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. 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, 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.

A plot of selected historical gross gamma logs from 1975 to 1992 is included. The plot can be used to help identify any historical changes in gross gamma activity.