



Borehole **20-08-09**

Log Event A

Borehole Information

Farm : <u>B</u>	Tank : <u>B-108</u>	Site Number : <u>299-E33-196</u>
N-Coord : <u>45,338</u>	W-Coord : <u>52,798</u>	TOC Elevation : <u>653.34</u>
Water Level, ft :	Date Drilled : <u>2/28/1972</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>	

Borehole Notes:

Borehole 20-08-09 was drilled in February 1972 to a depth of 100 ft with 6-in. casing. Data from the drilling log and Chamness and Merz (1993) were used to provide borehole construction information. In April 1973, this borehole was deepened and the 6-in. casing was extended to a depth of 130 ft. There is no mention that the borehole casing was perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing.

Equipment Information

Logging System : <u>2B</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>11/1997</u>	Calibration Reference : <u>GJO-HAN-20</u>	Logging Procedure : <u>MAC-VZCP 1.7.10-1</u>

Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>10/28/1998</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>130.0</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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Logging Operation Notes:

This borehole was logged in a single log run. The top of the borehole casing, which is the zero reference for the SGLS, is approximately even with the ground surface. The total logging depth achieved by the SGLS was 130.0 ft.

Analysis Information

Analyst : E. Larsen

Data Processing Reference : MAC-VZCP 1.7.9

Analysis Date : 02/02/1999

Analysis Notes :

The pre-survey and post-survey field verification for each logging run met the acceptance criteria established for peak shape and system efficiency. The energy calibration and peak-shape calibration from the accepted calibration spectrum that most closely matched the field data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra acquired during the logging operation.

A casing correction factor for a 0.280-in.-thick steel casing was applied to the concentration data during the analysis process.

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.

Results/Interpretations:

The man-made radionuclides Cs-137 and Co-60 were detected around this borehole. The Cs-137 contamination was detected mostly continuously from the ground surface to 12.5 ft. Isolated occurrences of Cs-137 contamination were detected at 18, 48.5, and 51 ft and at the bottom of the logged interval (129.5 to 130 ft). A small zone of Co-60 contamination was also detected at the bottom of the logged interval (129 to 130 ft).

The K-40 concentrations increase sharply from 37 to 39 ft. The K-40 and Th-232 concentrations increase at about 70 ft. The KUT concentrations gradually decrease between 109 ft and the bottom of the logged interval.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks B-108 and B-111.