RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole 51-00-03

Log Event A

Borehole Information

Farm : TX	**Tank :** TX	**Site Number :** 299-W15-67
N-Coord : 41,803	**W-Coord :** 75,690	**TOC Elevation :** 670.30
Water Level, ft :	**Date Drilled :** 1/31/1949	

Casing Record

Type : Steel-welded	Thickness : 0.313	ID, in. : 8
Top Depth, ft. : 0	Bottom Depth, ft. : 150	

Borehole Notes:
According to the driller's records, this borehole was perforated from 98 to 38 ft with five holes per foot. There is no record that this borehole was grouted. The top of the casing is located on a hill that is approximately 6 ft higher than the average tank farm surface. The casing thickness is presumed to be 0.322 in., on the basis of published thickness for schedule-40, 8-in. steel tubing.

Equipment Information

Logging System : 2	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 11/1995	**Calibration Reference :** GJPO-HAN-3	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 4/2/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 149.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 63.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 4/3/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 64.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 0.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : S.D. Barry

Data Processing Reference : P-GJPO-1787 Analysis Date : 9/30/1996

Analysis Notes :

This borehole was logged in two log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation. Depth overlaps, where data were collected on separate dates at the same depth, occurred at about 63 ft. This depth overlap shows the calculated concentrations of KUT are within the statistical uncertainty of the measurements, indicating very good repeatability.

Casing correction factors for a 0.322-in.-thick steel casing were not available during analysis. A correction factor for 0.330-in.-thick casing was applied, which will cause the calculated concentration to be slightly greater than the actual concentration.

Cs-137 and Eu-154 were the man-made radionuclides identified in this borehole. The presence of Cs-137 contamination was measured almost continuously from the ground surface to about 103 ft. A region of high concentration exists from approximately 4.5 to 10 ft with a maximum concentration of about 309 pCi/g at 8.5 ft. Concentrations in the remainder of the borehole were less than 5 pCi/g. A region of Eu-154 is located from 5.5 to 9.0 ft with a maximum concentration of 1.5 pCi/g.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks TX-105 and TX-109.

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 both 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.

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.

Historical gross gamma logs from 1980 to 1993 were plotted and are provided with the suite of SGLS logs for this borehole.