RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole 41-12-03

Log Event A

Borehole Information

Farm : SX **Tank :** SX-112 **Site Number :** 299-W23-112
N-Coord : 35,229 **W-Coord :** 75,824 **TOC Elevation :** 661.79
Water Level, ft : **Date Drilled :** 3/26/1962

Casing Record

Type : Steel-welded **Thickness :** 0.280 **ID, in. :** 6
Top Depth, ft. : 0 **Bottom Depth, ft. :** 75

Equipment Information

Logging System : 1 **Detector Type :** HPGe **Detector Efficiency:** 35.0 %
Calibration Date : 03/1995 **Calibration Reference :** GJPO-HAN-1

Logging Information

Log Run Number : 1 **Log Run Date :** 7/6/1995 **Logging Engineer:** Mike Widdop
Start Depth, ft.: 0.0 **Counting Time, sec.:** 100 **L/R :** L **Shield :** N
Finish Depth, ft. : 62.0 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

Log Run Number : 2 **Log Run Date :** 7/6/1995 **Logging Engineer:** Mike Widdop
Start Depth, ft.: 75.5 **Counting Time, sec.:** 100 **L/R :** L **Shield :** N
Finish Depth, ft. : 67.5 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

Log Run Number : 3 **Log Run Date :** 7/6/1995 **Logging Engineer:** Steve Kos
Start Depth, ft.: 62.0 **Counting Time, sec.:** 100 **L/R :** L **Shield :** Y
Finish Depth, ft. : 64.5 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

Log Run Number : 4 **Log Run Date :** 7/6/1995 **Logging Engineer:** Steve Kos
Start Depth, ft.: 68.0 **Counting Time, sec.:** 100 **L/R :** L **Shield :** Y
Finish Depth, ft. : 66.0 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

Analysis Information

Analyst : D.C. Stromswold
Data Processing Reference : Data Analysis Manual Ver. 1 Analysis Date : 11/21/1995

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Analysis Notes :

Borehole 41-12-03 was logged in four runs in a move-stop-acquire mode that collected spectra for 100 seconds every 0.5 ft. Gain drifts during the first run necessitated two energy calibrations during data processing to maintain proper radionuclide identification, whereas the other runs were analyzed using only one energy calibration for each run. No data were obtained in the short interval from 65 to 65.5 ft because of the high count rates that produced excessive dead time in the data collection system.

An approaching electrical storm prevented collection of the verification spectrum after the logging was completed because the area was evacuated for safety. The verification spectrum obtained before logging and the logging data appear normal.

Correction factors for 0.33-in.-thick steel casing were used during data processing because correction factors for 0.31-in.-thick casing were not available. As a result, the calculated concentrations will be only slightly high.

Cs-137 was the only man-made radionuclide identified, occurring from the surface to 14 ft and from 57 ft to TD, with intermittent low values between these intervals. Measured concentrations in the lower interval were large, reaching about 4,000 pCi/g at 66 ft.

The gaps in the K, U, and Th logs in the interval from 61 to 67 ft are due to the high activity from Cs-137, which created pulse pileup and obscured the low-intensity natural gamma-ray peaks.

The absence of sufficient overlap logging precluded judgment on the repeatability of the data.

See the Tank Summary Data Report for SX-112 for additional log analysis.

Log Plot Notes:

Three log plots are provided. One shows the Cs-137 concentrations. Another shows the naturally occurring radionuclides (K-40, U-238, and Th-232), which can be used for lithology interpretations. A combination plot includes logs of Cs-137, natural gamma, total gamma derived from the spectral data, and data from the WHC Tank Farms gross gamma logging system. The headings of the Cs-137 and natural gamma 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 minimum detectable activity (MDA). The MDA of a radionuclide represents the lowest concentraton at which positive identification of a gamma-ray peak is statistically defensible. If the reported concentration is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value and detection is not ensured with 95-percent certainty.

The Tank Farms gross gamma plot is the latest available from WHC. No attempt has been made to adjust the plot for depth discrepancies.