

# ORNL

## INSTRUMENT EVALUATION SUMMARY

### Nuclear Research Corporation (NRC) NG-2A Neutron Gamma Survey Meter

**Description:** The NRC NG-2A is a microprocessor-controlled portable instrument that utilizes a  $\text{BF}_3$  tube located within a polyethylene moderator to measure neutron dose-equivalent rates, and multiple GM tubes located in the meter housing to monitor gamma dose rates.

**Ranges Tested:** mrem/hr (digital)

**Summary Date:** February 21, 1997

#### General Comments:

1. Confidence intervals used to ascertain whether results are conclusive or inconclusive are determined using the 0.95 quantile of the student's t distribution (95% confidence interval).
2. Only one instrument was available for evaluation.

#### RADIATION RESPONSE

**Probe Surface Sensitivity:** Not performed

#### ELECTRONIC and MECHANICAL REQUIREMENTS and TESTS

**Line Noise:** N/A

#### INTERFERING RESPONSES TEST RESULTS

**Radio Frequency/Microwave Fields:** No response abnormalities were observed when exposed to 140, 915, and 2450 MHz at 20 (+10, -0) volts/meter. During the scan evaluation from 0.1 to 1000 MHz, the instrument had observable susceptibilities at frequencies from 24.2 to 28.6 MHz and 174.5 to 650 MHz.

**Interfering Ionizing Radiations:** Not performed.

#### ENVIRONMENTAL FACTORS

**Temperature:** No susceptibilities were observed over the temperature test range of  $-10\text{ }^{\circ}\text{C}$  to  $50\text{ }^{\circ}\text{C}$  ( $+14$  to  $+122\text{ }^{\circ}\text{F}$ ).

**Temperature Shock:** No susceptibilities were observed when the instrument was exposed to rapid temperature changes of 22 to 50, 50 to 22, 22 to  $-10$ , and  $-10$  to 22 (in  $^{\circ}\text{C}$ ).

**Humidity:** No response abnormalities were observed during and after exposure to 95% relative humidity at  $22 \pm 2$  °C.