ORNL
INSTRUMENT EVALUATION SUMMARY

Bicron Surveyor M with pancake GM probe

Description: The Surveyor M is a four-range portable instrument that utilizes a pancake GM probe to measure count rates. The ranges are X 1 (0 - 500 cpm), X 10 (0 - 5000 cpm), X 100 (0 - 50000 cpm), and X 1000 (0 - 500000 cpm). The X 1000 range is not used for this instrument/detector combination.

Ranges Tested: X 1 and X 10

Report Date: September 21, 1995

General Comments:

1. Readings on the X 1 range were somewhat erratic due to the level of radiation required to test the range. This was expected and considered normal unless indicated otherwise.

RADIATION RESPONSE

Probe Surface Sensitivity: Not performed

ELECTRONIC and MECHANICAL REQUIREMENTS and TESTS

Line Noise: N/A

INTERFERING RESPONSES TEST RESULTS

Radio Frequency Fields: Results were acceptable for both ranges tested during the frequency scan of 0.3 MHz to 35 MHz, and at 140 MHz at 50 volts/meter.

Microwave Fields: Results were acceptable on both ranges tested at 915 MHz and 2.45 GHz at 0.4 watts/meter^2 and 2.0 watts/meter^2 respectively.

Electric Fields: Results were acceptable for both ranges tested for the electrostatic field (5000 volts/meter), and 60 and 400 Hz at 100 volts/meter.

Magnetic Fields: Results were acceptable for all instruments at 10 Gauss (10 Oersted) when tested on the X 10 range. All instruments responded low when tested on the X 1 range.

Interfering Ionizing Radiations: Not performed.

ENVIRONMENTAL FACTORS

Temperature: Results were acceptable for each range tested over the temperature range of -10 °C to +50 °C (14 °F to 122 °F).

Temperature Shock: Results were acceptable for all temperature shock combinations.

Humidity: Results were acceptable over the test range of 40 % to 95 % relative humidity.

Ambient Pressure: Results were acceptable at pressures from 630 mmHg to 795 mmHg (24.8 inHg to 31.3 inHg).