

Uranium favorability interpreted from Uranium Reconnaissance Program data, ground radiometry and gravity (New Brunswick)

**J.J. Chandra - Geological Surveys Branch and D.E. Gemmell
Mineral Development Branch, New Brunswick Department of Natural Resources*

Twenty-nine anomalies selected from the U.R.P. survey (1976), were investigated on the ground by hand-held and truck-mounted gamma-ray sensors. Of these anomalies, nine have been found to be real. The remaining twenty pseudo anomalies are due to $>2\pi$ sensor-source geometric effects, extensive bedrock exposure and/or lack of vegetative cover resulting from clear-cutting and forest fire.

Data from these ground investigations have shown that airborne measurements of 3-4 ppm eU in drift-covered areas correspond to an overburden uranium content of 5-7 ppm eU and a concentration of the order of 13-18 ppm eU in the underlying bedrock. In the same manner, the airborne-ground radioelement correspondences were determined for the elements K and Th. This upgrading of the airborne data has allowed the calculation of Uranium Favorability

Indices (U.F.I.'s) from the equation (Saunders, 1978):

$$U.F.I. = \frac{MeTh \cdot MeK}{MeU}$$

Three U.F.I.'s were calculated; U.F.I.-1 using airborne data only; U.F.I.-2 equating airborne data to ground regional values and U.F.I.-3 equating airborne data to bedrock radioelement content. In addition, a Radioactive Heat Product map (R.H.P.) was produced utilizing the regional airborne and regional ground radiometric values.

The nine valid airborne anomalies of the U.R.P. survey fall within well defined uranium favorability zones outlined by this study. Interestingly, these several areas of potential uranium enrichment outlined in the four maps show a strong relationship to regional and residual gravity anomalies.