



MAP 37096G

GREAT BEAR RIVER

DISTRICT OF MACKENZIE
NORTHWEST TERRITORIES

SCALE 1:1,000,000

20 MILES 0 20 40 60
20 KILOMETERS 0 20 40 60

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GEOLOGICAL SURVEY OF CANADA, OTTAWA.

Airborne Gamma-Ray Spectrometer Survey, July 1975 to August 1975 flown by Kenting Earth Sciences Ltd., and Terra Surveys Ltd. Data reduction and map compilation by Northway Survey Corporation Ltd.

The topography for this series of maps was reproduced from 1:250,000 or 1:1,000,000 topographical map sheets published by the Department of Energy, Mines and Resources, Ottawa.

The data presented on this map were compiled into profiles from gamma-ray spectrometer and radar-altimeter information recorded digitally along the lines shown. The four channel gamma-ray spectrometer with 32 lines of sodium iodide detector (NaI(Tl)) measured gamma radiation in the following energy ranges:

Channel 1	2.42 Mev - 2.82 Mev
Channel 2	1.56 Mev - 1.88 Mev
Channel 3	1.36 Mev - 1.56 Mev
Channel 4	0.40 Mev - 2.82 Mev

Channels 1, 2 and 3 respectively, were centered on the 2.02 Mev ²³²Th photo peak, on the 1.76 Mev ²³²Th photo peak and on the 1.46 Mev ⁴⁰K photo peak. Counts were accumulated into these channels and recorded at one second intervals. The average terrain clearance was measured and recorded at one second intervals. The detector was thermally stabilized to minimize spectrum shift. The survey aircraft was flown at a standard survey altitude of 400 feet and at a ground speed between 200 km/hr and 250 km/hr.

The data were corrected for background radiation, spectral scattering and deviations of terrain clearance from the planned survey altitude. The corrected data were then converted to five second intervals by averaging, and plotted as profiles along the flight lines. Corrected count rates from channels 1, 2 and 3 were converted to average surface concentrations of equivalent thorium, equivalent uranium and potassium, respectively, using factors determined for each gamma-ray spectrometer used in the survey. These conversion factors are approximately the following:

1 ppm eTh =	4 cps
1 ppm eU =	11 cps
1% K =	60 cps

Each value shown on the map represents the average surface concentration over an area of several tens of thousands of square meters. This area generally includes some outcrops, overburden and water in swamps, ponds and streams. Consequently, the concentrations indicated on the map are usually lower than concentrations in the bedrock.