

SUBSURFACE GEOLOGY OF THE EAST BULL LAKE RESEARCH AREA (RA 7).  
IN NORTHEASTERN ONTARIO

by

R.B. Ejeckam, R.I. Sikorsky, D.C. Kamineni and G.F.D. McCrank

ABSTRACT

Eight major lithologic units and a suite of mafic dykes identified by detailed mapping of the central portion of the gabbro-anorthosite complex of the East Bull Lake pluton are recognized in four cored boreholes drilled in the same area. Two, or possibly three, of the boreholes penetrated the base of the pluton into granite gneiss.

Major lithologic units can be correlated between the boreholes as well as between borehole and the surface except in the Folsom Lake Fault Zone where the high degree of deformation and alteration makes correlation with confidence impossible.

Dykes are prominent in the boreholes. Most dykes are amphibolitic with high total fracture frequencies but low open fracture frequencies.

High magnetic susceptibility in the core coincides with mafic dykes, a troctolite unit and a layered gabbro unit. Low magnetic susceptibility in the core coincides with highly fractured and serpentinized zones.

Preliminary hydrogeological studies have identified one fractured zone at the base of a troctolite unit that is permeable in the three holes in which it and the troctolite are present. Other fractured intervals are permeable but further studies are needed to establish whether there is continuity between boreholes.

Geological Survey of Canada  
Energy, Mines and Resources Canada

Work done for

Atomic Energy of Canada Limited  
Whiteshell Nuclear Research Establishment  
Pinawa, Manitoba ROE 1LO  
1985 October