

PHYSICAL HYDROGEOLOGIC MEASUREMENTS IN FRACTURED CRYSTALLINE ROCK -  
SUMMARY OF 1979 RESEARCH PROGRAMS AT WNRE AND CRNL

by

C.C. Davison

ABSTRACT

The results of the National Hydrology Research Institute's FY 1979 research on the physical hydrogeology of crystalline rock are presented. Field studies were conducted in NQ cored boreholes at the sites of the Whiteshell Nuclear Research Establishment and the Chalk River Nuclear Laboratories to develop and evaluate equipment and methods for characterizing the fluid flow properties of fractured crystalline rock. Test methods include single packer drill stem tests, straddle packer tests, between-hole pressure interference tests, straddle packer pumping tests and a cross-hole  $\text{Cl}^-$  pulse tracer experiment. Data are presented to illustrate uncertainties that can affect the interpretation of the various field tests. The results are compared to previous hydrogeologic measurements, which have been made in these boreholes and with other available information regarding the fracture characteristics of the boreholes.

National Hydrology Research Institute  
Inland Waters Directorate  
Environment Canada

Work done for

Atomic Energy of Canada Limited  
Whiteshell Nuclear Research Establishment  
Pinawa, Manitoba ROE ILO  
1981 September