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THE EFFECTS OF CRACK HEALING ON THE MICROCRACK STRUCTURE OF CORE SAMPLES FROM BOREHOLE ATK-1, IN THE EYE-DASHWA LAKES PLUTON, NORTHWESTERN ONTARIO

by

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ABSTRACT

Stress cracks in core samples from borehole ATK-1, in the Eye-Dashwa Lakes pluton, Atikokan, Ontario, have been identified with a scanning electron microscope (SEM). The stress cracks are old cracks which likely formed at the same time as the fractures and fracture zones in the pluton.

The two granodiorite samples examined have been altered to different degrees. The moderately altered sample has a smaller mean crack width, crack density, and crack porosity than the relatively unaltered sample. This reduction of crack porosity with increased alteration is consistent with the relationships between various rock properties and the degree of alteration which have been observed by others in the Nuclear Fuel Waste Management Program.

Newly formed or rejuvenated stress cracks were not observed in the samples. Therefore, laboratory-measured rock properties of specimens from the Eye-Dashwa Lakes pluton will depend on the initial porosity and the amount of crack healing which has occurred, and should not show the trends with depth which developed at the Whiteshell Nuclear Research Establishment (WNRE) drill site.

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