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FALCONBRIDGE NICKEL MINES LIMITED

TELEPHONE  
682-3868

1112 WEST PENDER STREET  
VANCOUVER I. B. C., CANADA

File #8900

~~1983~~

May 20, 1964.

Dr. A. Sutherland Brown,  
Department of Mines & Petroleum Resources,  
Victoria, B. C.

Dear Atholl:

Thanks for your letter of May 7th and copy of your 1963 report on Tasu. I am in agreement with your picture of the porphyries excepting that I think they were in part intruded into tuffs. I cannot see them cutting only the Karmutsen or the limestones. When we did our original work up there it appeared that there were some tuffaceous rocks overlying or at least lying to the west of the Karmutsen. Ken Polk wanted to make these "glowing avalanches". Perhaps in order to have some tuffaceous material there we will be forced to have an intrusive welded tuff as per attached abstract.

With best wishes,

Yours sincerely,

FALCONBRIDGE NICKEL MINES LIMITED



Alex Smith.

AS:MH  
Encl.

DEPT. OF MINES AND PETROLEUM RESOURCES		
Rec'd MAY 21 1964		
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### **Intrusive Welded Tuff in the Sawatch Range, Colorado**

**BROCK, M. R., and FRED BARKER, *U. S. Geological Survey, Denver, Colo.***

A Tertiary(?) dike of welded tuff cuts vertically across the foliation of schist and amphibolite near the crest of the Sawatch Range about 2½ miles southwest of Buena Vista, Colorado.

The dike is about 1¼ miles long, 30–50 feet thick, and is well exposed over a vertical distance of 800 feet. The intrusive rock consists of about one third glass shards, one third coarse pumice fragments, and one third mineral and wall-rock fragments. Finer-grained sheetlike masses of the same material are irregularly spaced throughout the dike; these are compositionally banded and foliated parallel to the dike walls. Lithologically the rock is a typical pumiceous tuff. Field and petrographic evidence indicates that the dike formed from fragmentation of a vesiculating acidic magma, and that the fragmental material was emplaced and welded at depths of at least 800 feet.

The dike is believed to have been a feeder for an extrusive ash-flow tuff, although no remnants of such flows have been recognized in the immediate area.