

Bill
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PREPARED BY COMINCO
FOR MEETING WITH MINISTER 1987/04/05

676523

THE ALEY NIOBIUM PROPERTY AND CONCERNS ABOUT THORIUM
IN THE URANIUM EXPLORATION REGULATIONS

BACKGROUND, APRIL 6, 1987

The regulations governing exploration for uranium have recently become available and we learn thorium has been included. This is a surprise to us, as the initial news release of December 17th regarding the end of the uranium moratorium did not mention thorium. It is especially surprising that the threshold level for thorium is the same level as for uranium, though thorium is substantially less radioactive but more abundant, and it is not a source material for weapon systems.

Cominco has been developing the Aley niobium deposit in northeastern B.C. This deposit contains thorium but at levels that average less than half the threshold level in the regulations. Thorium at Aley is of no commercial interest. However, there may be uncertainty in the application of the regulations, which refer to thorium values of mineralization.

In the case of uranium exploration, the explorer searches for uranium. Locating grades over a certain level in a structure have an identifiable meaning. Thorium is three times as common in the earth's crust and occurs in a wide variety of rock types. It is not mined separately. The decay products of concern with uranium have half lives of 1622 years and 3.8 days; for thorium the half lives are 3.6 days and 54 seconds. Uranium minerals dissolve in groundwater at room temperature, thorium minerals do not.

Since thorium is more abundant but not as radioactive, its decay products not as detrimental, and its minerals not soluble in groundwater, we believe it is not appropriate to lump thorium with uranium in application of the regulations. In any sampling process, isolated spikes will occur, so an average of several samples is required to represent the true value. Therefore, isolated occurrences of thorium values exceeding the 0.05% threshold should not be sufficient to cause Designation of the property.

The regulations refer to "mineralization". The mineralization at Aley averages less than half the threshold thorium value. Since the zones of interest which could be mined do not exceed the threshold, we believe that in the circumstances, this is reason for non-Designation. If isolated values become cause for Designation, where does this stop? It could be extended to cases where an individual hand sample with a single crystal containing uranium or thorium is cause for Designation.

Application of the regulations to thorium at Aley will add substantial costs to exploration and development. High value uranium deposits may be able to bear this cost, but low value deposits with accessory thorium cannot. Further development of Aley is threatened if Designation is applied.

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