FNM 250-8-72

Fred Arsenic Sales

FALCONBRIDGE NICKEL MINES LIMITED

INTER-OFFICE MEMORANDUM

DATE: December 14, 1978

TO: D.J. Emery

COPIES TO: W.A. Moore, K. Morton, P. Zaharuk

FROM: P.J. Raleigh

SUBJECT: PRESENT STATUS OF DEVELOPMENT
WORK ON GOLD RECOVERY FROM ARSENIC DUST

In order to bring you up to date on the work being carried out at Thornhill Laboratory on behalf of Giant Yellowknife Mines Limited on the subject scheme the following, we believe, is correct up to this date.

1. Leaching As_2O_3 from Gold bearing residues

   The arsenic dust can be leached using acidified hot water to dissolve the As_2O_3 from the insoluble gold bearing compounds.

   The water at $\pm$ 100°C can dissolve up to 100 grams/litre of As_2O_3. The hot solution can then be filtered and clarified with charcoal. Upon cooling the solution will allow 90% of the contained As_2O_3 to precipitate. Water at + 10°C holds 10 grams/litre of As_2O_3.

   The crystals of As_2O_3 can be dried in a very small dryer and stored for shipment. The product is granular and should not be difficult to handle in a screw conveyor.

2. The residue from the leach can be recovered from the filter, repulped if necessary to a density suitable for roasting. The gases will handle in the same fashion as the present roaster gases. The roaster product can be treated in existing calcine treating equipment. There is a lot of sulphides in the Con material that should supply a good proportion of the fuel for the roasting operation.

After further gold extraction tests are done, a flowsheet will be prepared, with equipment sizes proposed, for your review and comments. The capital cost of new equipment for items covered in #1 will be prepared. Operating costs will require input from your staff.

.../

Development of the processing scheme to this point has been materially aided by the experience of Mr. H.T. Evans, who has had some operating experience, processing arsenic bearing dusts at the Deloro plant in the fifties.

A very similar process was also operated during and after the war (WW II) at the Consolidated Beattie property at Duparquette, Quebec. Data on this operation is being sought.

It is apparent that the process redevelopment is on a good basis and that Giant is in a position to take advantage of the increasing markets for As_2O_3 in North America.

P.J. Raleigh

PJR/ft