VIA AIR MAIL

25 King Street West
Toronto

COPY

Mr. A. K. Muir
General Manager
Giant Yellowknife Gold Mines Ltd.,
Yellowknife, N.W.T.

Dear Ken:

A careful study has been made of various methods for disposal or storage of the crude arsenic that will be produced when the Cottrell plant is operating. The methods proposed were -

1. Pulping the collected arsenic with water and pumping into Veronica Lake which would first be drained and enclosed with woven wire fence for safety.

This method was rejected on account of possible seepage from the lake and difficulty of pumping the arsenic solution during cold weather. There is also a health hazard in handling the wet arsenic solutions.

2. Pulping with water and precipitation of the arsenic as an insoluble arsenate that could be discarded with the flotation tailings.

This possibility has been investigated in the Lakefield Laboratory and it has been proven that insoluble ferric arsenate can be made by the addition of iron powder or iron sulphide to the arsenic bearing solutions. Both of these reagents are too costly to use and the use of pyrrhotite is now being investigated at Lakefield under the supervision of Mr. Dowsett. The question of the stability of ferric arsenate has been raised and this point is also being determined.

3. Storage in steel tanks.

Prices and delivery of steel tanks have been obtained and advice re suitable lining to prevent corrosion. The cost of steel tanks is excessive and delivery uncertain under present conditions.

4. Storage in wood tanks.

Previous experience with storage of As_2O_3 in wood tanks would not recommend their use except as a temporary measure. Wood tanks dry badly and are difficult to support except in relatively small diameters.

5. Concrete tanks.

Storage in concrete tanks has proven perfectly successful but cost of concrete construction at Giant is excessive and large storage space will be required.

6. Underground storage in stopes prepared especially for the purpose.

After looking at the plans made for preparing the underground storage stopes it appears to be the most economical and safest plan to adopt. The

storage stopes will be about 500 feet from the nearest mine workings and in the area of permafrost. The only objection to this storage is the possibility of fractures in the formation which might connect with the mine workings. If such fractures do exist they will remain closed unless the ground thaws which is considered unlikely. As a safeguard, any suspected connecting ground fractures could be watched in the mine and closed by guniting in case any evidence of arsenic percolation developed.

Yours very truly,

(signed)

W. G. Hubler,
Consulting Metallurgist