ARSENIC DISPOSAL

Methods Adopted By Companies Facing Similar Problems

1. Regulations in the Province of Quebec declare that As_2O_3 from Cottrell plants, shall be stored in weatherproof vats. Beatty Mines store their As_2O_3 in reinforced concrete vats of 2,000 ton capacity, completely sealed from the weather. This As_2O_3 is impure and a very limited amount is marketed. During the last war their supply on hand was all taken over by the Department of National Defence.

2. Anaconda Mining Company store their As_2O_3 in wooden barrels in weatherproof sheda. Most of their arsenic production is used in their underground timber treating plant.

Methods Proposed For Storage of Arsenic in the Yellowknife Area

1. It was thought that it might be possible to store dry arsenic trioxide in pits in the sand area west of the Airport. However, Mr. Muir now advises that since Dr. Kay's visit to Yellowknife three trenches were excavated and it was found that water is present a few feet below the surface. They feel, therefore, that this method of disposal can no longer be considered as practicable.

2. There is a small lake located on adjoining property to Giant Yellowknife Gold Mines and in a granite area west of No. 2 shaft. Drainage from this lake is into Baker Creek and eventually Yellowknife Bay.

Mr. Muir has asked whether it would be possible to use this lake bed as a disposal area, after the water had been partially pumped out and the outlet dammed. He considers that by damming off the few inlets through which spring run-off water enters the lake, evaporation would take care of the normal precipitation in the lake area itself. Capacity of the lake to its present level would be sufficient for approximately 40 years. Mr. Muir asked whether this method of disposal would be approved.

3. Both Mr. McNiven of Negus Mines and Mr. Muir of Giant have proposed that it might be possible to excavate a chamber in the rock and dispose of arsenic trioxide underground. Mr. McNiven says that from experience the rock structures on the footwall side of their ore bodies in the Yellowknife mineral belt are very dry. He believes that a chamber could be excavated and would provide 1,000,000 cu. ft. of storage space. Any seams could be grouted as well as walls and floor of the excavation, if necessary. Mr. Muir believes that it might be possible to locate a completely dry underground area, from which no migration of water would take place, immediately adjacent to the arsenic collection plant, which would eliminate mechanical handling to a large extent.

Mr. Dufresne, of the Quebec Department of Mines has advised that they have studied this problem and do not favour underground storage of arsenic trioxide. There are many factors which must be taken into consideration in this method of disposal at Negus Mines. Seams not now apparent in an excavation chamber might open up if the mine were to be abandoned and allowed to flood, thus producing a circulation of underground water directly connected to Yellowknife Bay.

4. The Con Mine are planning on installing another impinger unit to ensure 100 per cent running time. They are abandoning the idea of puting the slurry in trenches in the tailings pond. The new scheme is to seal off , by damming, natural rock basins and store the slurry in these. The excess water will be pumped back through the impinger.

One site has been picked and it is now being cleared and stripped to bedrock. Dr. Campbell their Consulting Geologist is going to make a study of this area when it is stripped, to determine whether any faults or fissures appear in the rock. Their impinger is now collecting over 96% of the arsenic.

5. Negus Mines do not plan on rasting for at least a year and a half. They plan on waiting until the other mines have solved the problem and an approved method of storage is determined.

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