

FALCONBRIDGE NICKEL MINES LIMITED

INTER-OFFICE MEMORANDUM

DATE: February 22, 1980

TO: ✓ D. J. Emery

COPIES TO: W. A. Moore, P. J. Raleigh, F. G. T. Pickard

FROM: L. S. Price

SUBJECT: Giant Yellowknife Environment - Waste Water Quality

As you are aware the water licence granted to Giant Yellowknife stipulates that a dramatic improvement in waste water quality must be achieved before May 1, 1981. Failure to meet the designated quality criteria by that date would leave Giant exposed to legal action under either the Northern Inland Waters Act or the Fisheries Act. The former has a maximum fine of \$5,000 per day, the latter a fine of \$50,000 for the first offense and \$100,000 for each subsequent offense, each day is a new offense.

Many methods of quality improvement have been examined over the past 4-5 years for treating various contaminants and for the overall problem. The first major study was a joint project between Giant and Environment Canada. This study resulted in five related possible treatment concepts.

Since then several other concepts have been examined and two have been piloted, namely hot water leaching of the precipitator dust stream to remove arsenic and an electrochemical process to allow full recycle of cyanide barren solution.

The most attractive approach, for both economics and assured water quality, available for action at this time is the combined alkaline chlorination-ferric iron precipitation treatment of the final tailings waters, or Alternate 5 in the D.P.A.T. report

A preliminary update of the cost estimate for this approach indicates a Capital Cost of \$1,000,000 and an annual operating cost of \$500,000.

I recommend this approach be approved so that detailed design and construction can begin to have the system ready to operate in the spring of 1981.

The "electrochemical treatment of barren" research should continue since the success on this approach would reduce operating costs for both the cyanide plant and the new waste water treatment plant.



L. S. Price