

Giant
YELLOWKNIFE MINES LIMITED

MEMO TO: T.R.P. Metallurgical Team
(D. Cooper; D. Bartlett; B. Cross; S. El-Alfy; J. Bartrum)

CC: K. Blower

FROM: J. S. McAlpine

DATE: November 8, 1988

SUBJECT: INCREASED REVENUE REQUIRED FOR INCREASED CYANIDE ADDITION

Question

Assuming that increasing the cyanide rate of addition by 1 kg/ton, what increase in recovery would be required to cover the cost of the increased cost of cyanide.

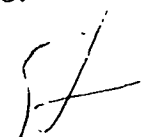
Calculation

The 1989 plan calls for treating 1,530,000 tons at a grade of .070 oz/ton. If the increase in cyanide addition is 1.0 kg per ton, the increased cost for cyanide priced at \$2.10 per kg would be \$3,213,000. It is expected that the gold price for the T.R.P. production will be \$583 in 1989. Therefore, an additional 5,511 recovered ounces of gold would be needed to cover the cost of increasing the cyanide addition rate.

Assuming a base recovery of 32% without the increased cyanide addition rate, the recovery would need to improve by 5.1% to 37.1% to cover the cost of cyanide alone.

Conclusion

Plant recovery must be maximized and then reagent consumption optimized. This memo is simply to point out that a large improvement in recovery is required to cover significant increases in the cyanide addition rate.


J. Steven McAlpine
Mine Manager

/kid

File note: DAS

Oct 21/88

TRP Plant CN Consumption

Feed to circuit, say 37.5% solids
56% solids 2.7

NACN Addition, 1 lb/ton solids.

Residual cyanide 0.3 lb/ton solution.
(150 ppm).

Calc 1. Feed pulp 1310 g slurry / liter

$$\begin{aligned}\text{Volume solution} &= 1310 \times (1 - .375) \\ &= 819 \text{ ml / l. slurry.}\end{aligned}$$

$$\text{Weight of Solids} = 1310 \times .375 = 491 \text{ g}$$

$$2. \text{CN Added} = \frac{1}{2000} \times 491 = 0.246 \text{ g} = 246 \text{ mg}$$

$$3. \text{CN Residual} = 819 \text{ ml} \times \frac{.15 \text{ mg}}{\text{ml}} = 123 \text{ mg}$$

123 mg.

∴ At 1 lb/ton addition levels, about 50% of the cyanide is consumed by cyanicides.

Recommend Testwork at level < 1 lb/ton
to investigate effect on residual CN^- , and

possible problems with re-precip on reactive
Cyanides - Low R.R. - reference Dite