

# MEMORANDUM

To D.J. Emery; c.c. J.M. Mortimer  
L. Price;  
From H.E. Rawson  
Subject Arsenic - Precipitated Arsenic and Tailings Dams

Date August 6/75  
Ref. \_\_\_\_\_

Considerable time and research has provided the following information:

1. The arsenic compound formed by lime addition to the #5 and #8 agitator is reversing once contact is made with other waters.
2. The solids from the #5 agitator continue to produce soluble arsenic once allowed freedom from the mill circuit; i.e. tailings pond.

These effects are brought about by dilution of the lime treated pulps and lowering of pH. As we know, the Cottrell dust which forms carbon plant feed has considerable arsenic in it, 3 to 6%, and although not positive, I feel it is in the  $As_2O_3$  form. This form is moderately soluble in water, as well as in acids and bases. At a temperature of 200°C such as in the carbon process, solubility is in the neighbourhood of 18 g/l. Once the quench waters have solubilized as much arsenic as possible from the Cottrell dust, the reaction stabilizes. When limed in #8, soluble arsenic already in solution is precipitated out from the water portion of the pulp. As the pulp is discharged to tailings, water barren of soluble arsenic contacts the arsenic bearing solids and the reaction resumes.

It becomes apparent that the present tailings area will continue to generate soluble arsenic until such time as it is stabilized by abandonment.

Based on these findings it would appear that only isolation of arsenic - lime precipitates and of arsenic bearing solids can prevent production of soluble arsenic from the tailings impounding area. The problem then becomes one of filtration of this ultra fine material and clarification of waters with the obviously greater problem of new storage areas.

