

PUBLISHED PAPER

EFFECTS OF RECIRCULATING LOADS ON PLANT PERFORMANCE AND PRODUCT QUALITY

M.J. Perrin A.G. Hanrahan G. Sherritt A.D Meyers
A&B Mylec Pty Ltd

ABSTRACT

As plant designers seek to reduce project costs for new plants and upgrades to maintain their market competitiveness, as a response of customer pressures, some recently installed circuits have incorporated substitutions of clarified water streams with dilute slurry and other recirculating loads that reduce the metallurgical efficiency of the installation. Capital expenditure savings with the design of such circuits are possible but these savings need to be carefully assessed against any potential loss in product quality or yield over the duration of the project that the recirculating load may create. Similar assessments need to be made with modifications of older plants where the introduction of a recirculating load can occur where reductions in operating and maintenance costs are prioritised at the expense of metallurgical efficiency.

Recirculating loads are most prevalent in plant fines beneficiation circuits where the predominant numbers of non-medium carrying dilute slurries are found.

This paper will investigate the metallurgical and economic issues surrounding the majority of all recirculating loads that are common in coal preparation plant design today. Modelling of a DMC, spirals, flotation or tailings wash plant will be evaluated to quantify the benefits of removing or re-directing recirculating loads that decrease the metallurgical efficiency of the plant.

**METALLURGICAL
CONSULTANTS**

Reference:

Perrin, M., Hanrahan, A., Sherritt, G., & Meyers, A. (2008). Effects of Recirculating Loads on Plant Performance and Product Quality. In D. Mathewson (Ed.), *Proceedings of the Twelfth Australian Coal Preparation Society Conference* (pp. 109 - 121). Darling Harbour, Sydney: ACPS.