

A review of the importance of hydraulic residence time on improved design of mine water treatment systems.

ABSTRACT

Hydraulic residence time is an important parameter for the design of mine water treatment systems, in particular for wetland system and settlement lagoon. Despite much investigations have been done on system hydraulic residence time, little is still known about how the residence time may relate to treatment system performance. Such an understanding will be useful for improvement of existing treatment system performance and in the design of future systems. Thus, this review attempts to explore this issue on how the assessment of system hydraulic behaviour (of which the residence time), coupled with the assessment of geochemical factors may be incorporated in future design of mine water treatment systems. Review of current design practice for mine water treatment systems in UK applications of passive treatment is also presented. Recommendation for design guidance is discussed to provide some insights into new approach for improved design of such systems.

Keyword: Wetland; Settlement lagoon; Mine water; Hydraulic efficiency.