

DESIGN OF TAILING STORAGE FACILITIES TO OPTIMIZE RECLAMATION SUCCESS¹

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Abstract: In the planning and design of mill tailing disposal facilities, the chemical and physical nature of the fine-grained material to be disposed of has to be fully understood in order to develop an efficient and safe long-term storage facility that can be reasonably reclaimed. Disposal of tailing has become the single most important source of environmental impact for mining projects and the development of many promising ore bodies has been delayed or even stopped due to problems of facility siting and design under pressure of increasingly stringent regulatory requirements associated with the operation, closure, and post-closure.

The design and construction of tailing-retaining embankments is generally similar to that of conventional water-retaining structures in that the type of embankment selected must be compatible with constraints imposed by service and site-related factors. However, in most cases, tailing embankment design requires specifically that these factors be considered: Type of tailings and their engineering characteristics, mill output of tailing and liquid effluent, available construction materials, water handling requirements, seismic design parameters, environmental performance objectives, and tailing management practices

The design and construction of the impoundment area is heavily influenced by the environmental performance objectives and the tailing management practices. The impoundment area design, without question, is the most challenging aspect as regards optimum conditions for closure and successful reclamation.

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