Where is ALARP taking us Qualitative versus Quantitative?

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# ABSTRACT

The water dam industry has been using the ALARP (As Low As Reasonably Practicable) principle for many years using detailed quantified risk assessments in order to assess the tolerability of public safety risks. There is no clear guidance in the International Council on Mining and Metals (ICMM) publication and the Global Industry Standard on Tailings Management (GISTM) on how to evaluate risk and then determine an ALARP risk position for tailings facilities.

There is a range of approaches for evaluating risk from the simple qualitative matrix approach to the semi quantitative and hybrid risk assessments to the detailed fully quantified risk analyses. The more detailed risk analyses are preferred where there is a population at risk (PAR), however, where a tailings facility has little or no PAR or potential life loss (PLL), then the simplified analyses are appropriate, particularly since the cost benefit ratios are limited in value for the ALARP evaluation.

This paper presents recent work completed by the authors in the application of the ALARP principle for qualitative and fully quantitative analyses with a review of an analysis program that can be used for fully quantified risk analysis.

The paper then provides a case study using both quantitative and qualitative risk analysis in the application of the ALARP principle and reflects on the resulting justification to both pursue and avoid dam safety upgrades to small and large tailings dams.