Emergency planning for mining waste facilities in England

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SYNOPSIS Mineral extraction and processing operations generate significant volumes of coarse and fine wastes, which need to be stored in safety in purpose-built mine waste facilities. The finer wastes comprise particulate materials which, together with industrial water, are generally deposited into stage-constructed storage reservoirs. In the UK such facilities are regulated by Health and Safety Legislation and there are additional regulatory requirements, which include emergency planning, for those facilities characterised as Category A under the Extractive Waste Directive.

The hazard potential which would arise should the confining embankment fail in such a manner that a breach were to develop and lead to an uncontrolled outflow of any water and solids which have been impounded therefore needs to be assessed during the design and construction of any UK mine waste facility. A standard method of determining impacts arising from such a breach was developed for all high-risk reservoirs in England and Wales in 2010 but was never extended to cover Category A mine waste facilities.

This paper describes the methodology used to determine the most credible failure mode for two mine waste facilities in England, and how conventional flood mapping techniques, originally developed for large raised reservoirs on behalf of the Environment Agency, have been adapted in order to define the downstream impacts.