A Practical Application of UK Guidelines for the Public Acceptability of the Risk of Dam Failure

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SYNOPSIS The recently published “Guide to Risk Assessment for Reservoir Safety Management” (Environment Agency 2013) sets out methodologies for the assessment of the probability that a dam will fail. However the acceptability of those risks to the general public, and to the HSE, in the wake of a catastrophic dam failure is by no means obvious. In the aftermath of a dam disaster the first question that will be asked is “Was a risk assessment carried out?” and the second question might be “Was the risk acceptable by UK standards?” If the answer to either of these questions is “no” the dam owner may be at risk of incurring a considerable fine or even a custodial sentence if fatalities have occurred; so the implications of the correct application of the published guidance are profound. But what is an acceptable risk?

The authors have reviewed the published UK guidance and formulated a hierarchy of risk evaluation. This starts with the probability that dam failure is “intolerable” if even a single fatality occurs, then assesses societal risk, where the number of people likely to be killed is compared with the probability of the fatal event occurring, and finally calculates the individual risk that can be weighed against the cost of reducing the failure probability by carrying out remedial works.