



Lessons from historical dam incidents

Project Summary SC080046/S1

A report published by the Environment Agency offers new insights and information on lessons learnt from past dam incidents, near misses and failures, and good practice to be adopted by the reservoir industry to avoid serious incidents in the future.

The number of casualties from a breached dam can be greater than from most other kinds of technological disaster. Maintaining reservoir safety is important in a country such as the UK where a number of dams pose a high risk, being located upstream of heavily populated and industrialised areas. Although the probability of a dam failing is generally low, the consequences of failure could be great. As most reservoirs constitute a low probability/high consequence scenario, careful management of these risks is essential.

Fortunately, few catastrophic failures have occurred in Great Britain and since 1925, there has been no loss of life due to dam disasters in the UK. Since 1925, however, the UK has seen failures involving the breaching of embankments, along with many near misses and other serious incidents. Overseas, disastrous failures in dams and reservoirs have resulted in many lives lost.

Much can be learned from these failures. This report aims to help those responsible for the safety of reservoirs. These include engineers who build, inspect and advise on dams and reservoirs, personnel who visit reservoirs in the course of their duties, and staff who operate and monitor reservoirs.

The report looks at the general, technical and regulatory lessons that can be learned from dam incidents in the UK. It looks at how serious incidents have improved our understanding of dam behaviour and the hazards posed by these structures, charting the close links between historical incidents and failures and the development of reservoir safety legislation and guidance.

The report looks at how incidents have been managed, including the role of owners and panel engineers. The significance of drawdown rates (drawing water down rapidly to prevent the dam from overtopping) and other emergency provisions for dam incidents such as evacuation planning are discussed. Some examples of incident management are described.

The report also classifies and analyses the different types of failure that dams can experience. This is followed by descriptions of over thirty major incidents and summaries of seventy other incidents involving dams and reservoirs.

This summary relates to information from project SC080046, reported in detail in the following output(s):

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