



News: New research published on lessons from historical dam incidents

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New research has been published by the Environment Agency which reviews historical dam incidents and considers the lessons to be learned. This article provides an overview of the research report which is now freely available on the Agency website.

The Environment Agency has recently published the research report on *Lessons from historical dam incidents* (Charles *et al.*, 2011).

The report was prepared for the Agency by Halcrow Group Ltd working in collaboration with Dr Andrew Charles and Dr Paul Tedd of the Building Research Establishment. It provides a useful reference of key facts and points of learning from more than 100 incidents that have shaped reservoir safety legislation, design practices and construction methods.

This report aims to provide a useful reference for all those involved in reservoir safety including technicians, engineers and managers involved in the operation, monitoring and surveillance of dams, researchers and design engineers. It is likely to be viewed as an essential reference for aspiring and current panel engineers.

The focus of the report is on incidents at dams that have occurred in Great Britain but some reference is made to some important international incidents. Drawing from international experience is particularly helpful for those types of dam not commonly found in Great Britain.

The introductory section covers the national incident database and the value of post-incident reporting and investigations. Section 2 gives a historical overview which shows how serious incidents have improved our understanding of dam behaviour and the hazards posed by dams. Section 3 shows the close links between historical incidents and failures and the development of reservoir safety legislation and guidance. Section 4 looks at how incidents have been managed, including the role of owners and panel engineers. The significance of draw-down rates and other provisions for dam incidents such as evacuation planning are presented. Four examples of incident management are described: the incidents at Ogston, Rivington Upper, Ulley and Maich Water.

Section 5 represents the major part of research output. It provides an overview of serious incidents and a classification and brief analysis of the modes of failure. This is followed by descriptions of over 30 major incidents (e.g. the Carsington incident; Figure 1) and summaries of 70 other incidents. Photographs and drawings have been provided where possible, together with references to the technical papers and articles for additional information. The incidents have been grouped



Figure 1. Failure at Carsington dam

according to the type of incident or mode of failure to facilitate the use of the report as a look-up reference for specific types of reservoir safety problems.

The ability of the reservoir industry to gather and disseminate points of learning on dam incidents is only possible through the willingness of dam owners, operators and engineers to share information in an open manner. The Agency continues to administer the national post-incident reporting database and to gather information on incidents. Incidents can be reported to the Agency's reservoir safety team in Exeter (reservoirs@environment-agency.gov.uk, tel.: 01392 442001). Live incidents should be

reported to the incident hotline on 0800 807060. An annual report is published on the Agency website (EA, 2010).

REFERENCES

- Charles JA, Tedd P and Warren A (2011) *Lessons from Historical Dam Incidents*. Environment Agency, London, UK. See <http://publications.environment-agency.gov.uk/PDF/SCHO0811BUBA-E-E.pdf> (accessed 23/08/2011).
- EA (Environment Agency) (2010) *Learning from Experience – Post-incident Reporting for UK Dams 2009 Annual Report*. Environment Agency, London, UK. See <http://www.environment-agency.gov.uk/business/sectors/118443.aspx> (accessed 23/08/2011).