

Improving Anglian Water's emergency response for reservoir safety

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SYNOPSIS The immediate and fast drawdown of a reservoir is often one of the initial steps to be taken in an emergency. This paper covers three main aspects of a project to improve emergency response at five reservoirs: drawdown criteria, optioneering and implementation. There are currently no consistent guidelines or standards as to an acceptable rate of drawdown, although various technical papers have proposed different criteria. In 2005 Anglian Water commissioned consultant Black & Veatch, together with Anglian Water's Reservoir Supervising Engineers, to assess drawdown rates for sixteen reservoirs. Rates proposed were such that it should be possible to reduce the volume of water in the reservoir by:

- 50% in 10 days for impounding reservoirs, assuming zero inflow.
- 50% in 20 days for pumped storage reservoirs and reservoirs that are large compared with their catchment.

It was found that five of the reservoirs did not meet these criteria. The requirement to improve drawdown was subsequently requested by the Inspecting Engineer at four reservoirs and the requirement to improve the rate of drawdown was made a matter of safety under the Reservoirs Act. A further study carried out by the Anglian Water @one Alliance took place to investigate options and costs. The options included:

- Modifying or providing additional scour and draw off facilities
- Using backflow through the inlet pipework
- Installing a penstock or valve through spillweir
- Temporary measures

Options were selected for all five reservoirs and implementation is now complete at two reservoirs and planned at the other three reservoirs.