Inoperable reservoir valves - why wait for the inspection?

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SYNOPSIS. Until recently Undertakers have had limited options for dealing with these problematic valves and usually they would only 'appear on the radar' and therefore be identified as requiring remedial action during statutory visits by a Panel Engineer.

This is understandable and until recently was unavoidable as conventional solutions are costly and disruptive perhaps requiring the use of divers or the need for a complete reservoir drawdown. Environment Agency requirements mean that a considerable amount of time and expense is involved in planning such an exercise in order to facilitate for example, a reservoir drawdown in order to enable a valve exchange.

In this day and age where risk management and climate change forces people to consider the consequences of the 'unthinkable' then this approach demands reconsideration.

INTRODUCTION

Rhaslas reservoir is a 60 million gallon reservoir in Ebbw Vale, South Wales, the scour valve was seized shut. Previous attempts at operating the valve resulted in the phosphor bronze spindle being sheared leaving the gate firmly wedged into the valve seats. Following an inspection under Section 10 of the Reservoirs Act 1975, remedial works to the valve were recommended in the interests of safety to make the valve operable.

As the reservoir no longer served as an industrial source of water, serious consideration was being given to decommission it and that would have resulted in a substantial and costly civil engineering project.

H-GRIP: A NEW SOLUTION

At this point the Undertaker became aware of a novel solution for seized valves known as H-Grip. Before this equipment could be attached to the valve, it was necessary to carry out remedial works to replace the broken

Ensuring reservoir safety into the future. Thomas Telford, London, 2008

spindle. This was achieved by firstly redressing the gate and replacing the carrier blocks for the spindle nut.

Figure 1: Rhaslas reservoir embankment – scour valve chamber

Figure 2: Valve gate prepared for attachment of new spindle nut carrier blocks

Figure 3: Typical H-Grip set up to release a seized valve

Following this, the bonnet and new spindle were reassembled and then H-Grip was attached. Within a matter of minutes the valve gate was made free and could be cycled with great ease. The risk associated with having a large reservoir that could not be drawn down through the scour valve had been eliminated – in an instant.

CONCLUSION

In recent years scores of such seized reservoir valves in the U.K. have been successfully made operational using this technique – to date there have been

no instances of failure to make these valves work – as good as new. Significantly, they have all been carried out without shutdowns, drawdowns, lengthy planning exercises or any disruption whatsoever.

However, almost all of these risks were initially identified by the Inspecting Engineer's Report which drew attention to the remedial actions required.

Perhaps in this day and age where extreme weather events of the summer of 2007 brought reservoir safety into sharp focus, it is now time to rethink the traditional approach for dealing with seized reservoir valves and to recognize the important role they play in the safe management of reservoirs.

Put simply: inoperable reservoir valves – why wait for the inspection?