

EVALUATING MINE WATER TREATMENT CHOICES (EMWATCH)

by

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Coal and metalliferous mining in the UK has a long history, dating back to at least Roman times. The legacy of this historical mining, plus recent coal and metal mine closures, is that there are numerous mine water discharges throughout the UK. These discharges vary greatly in water chemistry and include net alkaline, net acidic, highly ferruginous, saline and metal-rich discharges. The environmental impact of the discharges is also variable but there is often severe loss of aquatic biodiversity and other undesirable effects such as loss of potable water, unsightly discolouration by ochre and economic implications.

Additional key words: passive treatment, active treatment, constructed wetlands

In recent years many schemes to treat mine water, and hence prevent environmental harm, have been implemented. These range from 'passive' constructed wetland schemes to 'active' chemical treatment works.

The legal position is that, for mines abandoned before 31 December 1999, the mine operator has no liability for implementing site remediation works or for resultant pollution. Thus the burden of responsibility falls on public bodies.

One such body that has been at the fore-front of implementing mine water remediation schemes is the UK Coal Authority – they have been working closely with the Environment Agency to identify mine water problems, prioritise mine water discharges in terms of

their environmental impact and to implement treatment schemes. Work is also carried out to predict and prevent future pollution events resulting from cessation of pumping in the UK coalfields. Treatment schemes have also been implemented by local authorities, private sector/public sector partnerships and industry, with input from academic institutions and local communities.

EMWaTCh is a project supported by landfill tax credits and the Coal Authority. A principal aim of the project is to carry out a review of the various treatment schemes currently operational in the UK and to assess their efficacy, cost effectiveness and environmental significance. Active treatment options for mine water treatment are also catalogued and evaluated. Innovative and emerging technologies are being assessed for their potential future role in treating mine water and a record will be made of current academic research, with relevance to mine water treatment, being carried out in the UK.

At the completion of the project, in autumn 2001, a document will be produced which will aid in the selection, design and implementation of the most appropriate treatment techniques for particular mine water discharges.

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