

Abandoned Minewaters Investigation - Whittle Colliery The Coal Authority



Whittle Colliery was abandoned in 1997 when the pumps were switched off by the last operators of the mine. Since this time groundwater within the old workings has been rising and as a result there has been considerable regulatory and public concern in respect of the timing and nature of a possible uncontrolled outbreak of minewaters in the future.

The first stage of Entec's commission involved undertaking a review of the hydrogeology and geochemistry with the purpose of providing an independent assessment of earlier predictions about the size and scale of the problem.

This was followed by a feasibility study, which identified the potential treatment options. Because of uncertainties with respect to the available water quality data, Entec organised a pumping trial and pilot plant treatability testing using Entec's own in-house containerised treatment plant. The trial also involved the construction of two new boreholes into the Whittle Drift mine and was completed successfully in March 1999.

The results of the trial and bulk water sampling and analysis formed the basis of outline and subsequently detailed design which consists of an aeration cascade, twin oxidation lagoons and three large wetlands

and a sludge drying bed, which have been sculptured into the surrounding countryside. The design included input from Entec's in-house landscape design team, who also provided a schedule for additional indigenous planting

Entec completed the detailed design of a system utilising passive wetlands in late 1999 and construction commenced in Summer 2000. The design and construction of the pumping system took place in early 2001 and was complete by the Spring of that year. An outline design of a 'bolt-on' active manganese treatment plant has also been undertaken due to the sensitive nature of the receiving watercourse.

Construction of the system utilising aeration cascades, oxidation lagoons and reedbeds commenced in Spring 2000, with the reedbeds being planted later in that year. This has been followed by the design and construction of a pumping station in 2001, the successful implementation of a bespoke pumping and treatment trial over a five week period in January/February 2002 to test the impact on river manganese levels and the final commissioning of the system in July 2002.



*Natural remediation
for a man-made
problem*

