

**MINEWATER
SPECIAL**

Flagship Wetland Scheme

Improves the Quality of Life at Taff Bargoed....

**Largest minewater wetland
scheme in the country.**

**As well as treating contaminated water,
the Taff Merthyr scheme, which is the largest
minewater wetland in Britain, forms an integral
part of the Taff Bargoed Community Park.
The scheme benefits local residents as well
as forming a valuable habitat for wildlife.**

The Coal Authority has constructed a major minewater treatment system at the site of the former Taff Merthyr Colliery. The largest minewater wetland scheme in the country is a key feature of the Taff Bargoed Millennium Park, a major land reclamation project undertaken by Merthyr Tydfil County Borough Council and Groundwork Merthyr & Rhondda Cynon Taff.

Authority Chair John Harris officially launched the Taff Merthyr scheme, as part of the Millennium Park opening celebrations on 27 September 2001. Senior representatives from the partners involved in the Millennium Park project, together with representatives from the Welsh Assembly, Environment Agency and local Authorities attended this opening.

Taff Merthyr Colliery encountered significant water problems during its operational life. The Colliery was closed in 1993, at which time the two 600m deep shafts were filled and capped and the associated Colliery buildings were demolished. Water continued to fill the shafts and surrounding workings and in November 1994, minewater flows of up to 120 litres per second, containing around 20 milligrams per litre of dissolved iron salts began to flow from the two shafts via culverts close to the surface.

Although a small temporary treatment system was installed the bulk of the iron 'ochre' flowed to the Bargoed Taff with consequential orange staining and downgrading of the river for many kilometres downstream. With the promotion of the Taff Bargoed Millennium Park, there was clearly a need to phase the work associated with the remediation of the discharge with that being undertaken to create the Community Park on land incorporating the former Taff Merthyr, Deep Navigation and Trelewis Collieries.

The Taff Merthyr Project has been designed to ensure that minewater discharged to the Bargoed Taff, which feeds the Community Park lakes, remains clean.

The minewater treatment scheme has been constructed by the Authority on the derelict former Colliery site and extends some 7 hectares, containing over 3 hectares of wetland treatment. Treatment consists of four large settlement lagoons, 16 reed beds, a pumping/aeration system, access roads, cycle track and extensive landscaping. Pumping is necessary to ensure that the whole site is utilised for treatment. Minewater flows are

**One of the four primary
settlement lagoons.**



split and controlled into four treatment 'legs'. Standby pumps and telemetry systems are incorporated to ensure that the minewater is treated at all times.

Dissolved iron in the minewater is encouraged to oxidise by aeration. The oxidised iron particles are retained by settlement in the system. The primary settlement takes place in settlement lagoons where minewater is retained for a minimum of 24 hours. The final 'polishing' of the effluent takes place in the aerobic wetland reed beds, planted with reeds such as *Typha latifolia* and *Phragmites australis*. The reeds are encouraged to grow as they pass oxygen through their root system, causing aeration of the substrate,

***Water channel
within the site.***

assisting the settlement process.

The minewater remediation project was designed by Parsons Brinckerhoff Ltd, and project managed by Scott Wilson Kirkpatrick Ltd. Edmund Nuttall Ltd was contracted to carry out the construction works associated with the £1.5 million project. Construction commenced in June 1999 with commissioning and completion in Summer 2001.

The scheme successfully treats the variable minewater flows from the old Colliery workings, ensuring that the cleaned discharge to the Bargoed Taff contains less than 1 milligramme of iron per litre of water. This successful treatment operation prevents approximately 72 tonnes per year of iron sediment entering the Bargoed Taff.

The scheme has the added benefit of restoring a previously derelict site and forms an integral part of the wider Community Park.



Reed Beds

Healthy reed growth.

Cycle tracks provide public access links to the valley and extensive landscaping enhances the visual aspect of the site. The reedbeds themselves are forming a valuable wildlife habitat for a variety of species that visit the ponds and surrounding areas, and this is contributing to the bio-diversity of the area.

The Authority is responsible for the ongoing operation and maintenance of the minewater treatment system and looks forward to maintaining the improvement in quality of minewater discharged to the Bargoed Taff.