Aerobic Wetland Treats Dual Discharges

Pilot Scheme in Tyneside

The Authority co-funded a pilot study to consider the possibility of developing an innovative combined passive treatment scheme to improve the quality of both minewater and sewage. The study was such a success that a pioneering scheme with an aerobic wetland is now under way in Tyneside.

A pioneering combined scheme to treat minewater from the former Kibblesworth mine, and effluent from the nearby Birtley sewage treatment works, is due to be completed next summer.

Costs of the innovative £1.2 million scheme are being shared between the Authority and Northumbrian Water.

Work began in mid-August and the scheme will become operational next summer when the reeds have been planted. At 5.5 hectares, the proposed reedbed area will be the largest passive treatment facility that the Authority has ever built.

Minewater has been pumped from the former Kibblesworth mine since the pit was closed in the mid 1970's. Pumping is necessary in this area to provide protection from flooding and minewater pollution in the Newcastle/Gateshead area.

Until recently, no treatment of the pumped water was necessary, and the raw minewater was discharged directly into the adjacent River Team. However, the quality of the pumped minewater has deteriorated in the last couple of years, and, in consultation with the Environment Agency it was decided to examine the potential for treating the raw minewater to acceptable environmental standards.

Northumbrian Water, which operates the Birtley sewage treatment works some 200 metres upstream of the Kibblesworth discharge, has obligations under the National Environment Programme to improve the final effluent from the sewage works.

It quickly became apparent that there was an opportunity for the potential co-treatment of both minewater and the sewage effluent. A pilot study, co-funded by the Authority and Northumbrian Water was carried out by Newcastle University to consider the possibility of developing an innovative combined passive treatment system to improve the quality of both discharges.

The study proved to be a great success confirming that not only was co-treatment possible, but that the use of the two water sources provided an environment condusive to effective passive treatment.

A feature of the Kibblesworth scheme is an aerobic wetland treating the combined minewater and sewage treatment works effluent discharges to reduce both the iron content of the mine water discharge and the ammonia content of the sewage effluent. An incidental benefit of the scheme is that some heavy metals will also be removed from the sewage effluent.

"The completed scheme will be known as the Lamesley Wetlands and it is expected that it will have long term ecological benefits for the area in addition to the remediation of the minewater and sewage effluent," says Alex Norton, Assistant Development Manager with the Authority.

Inside this Issue

New Chair of Environment Group

Dr Helen Mounsey, the new Chair of the Environment Group.

Board Member Dr Helen Mounsey is the new Chair of the Authority's Environment Group. A Director with IBM Business Consulting Services, she has a wide interest in environmental matters both inside and outside work.

First appointed to the Board of the Authority in November 2002, and recently re-appointed for a second term, Dr Mounsey was with the consulting practice of PriceWaterhouseCoopers from 1989 until the merger with IBM Business Consulting Services, and her current post, in October 2002.

During her time as a consultant, she has worked extensively on asset management and operational systems in the utilities sector, especially on electricity and water applications.

Dr Mounsey has a particular specialism in geographical information systems (GIS), including publishing many articles and books between 1982 and 1989 when she was a lecturer in GIS at Birkbeck College, the University of London. Between 1980 and 1982 she was a senior research assistant at the University of Durham, where she obtained her PhD, and a computing officer at the University of Edinburgh.

She has been a member of the Association of Geographical Information since its formation in the 1980's and was Honorary Treasurer and a Member of their Management Committee and Council between 1994 and 2001.