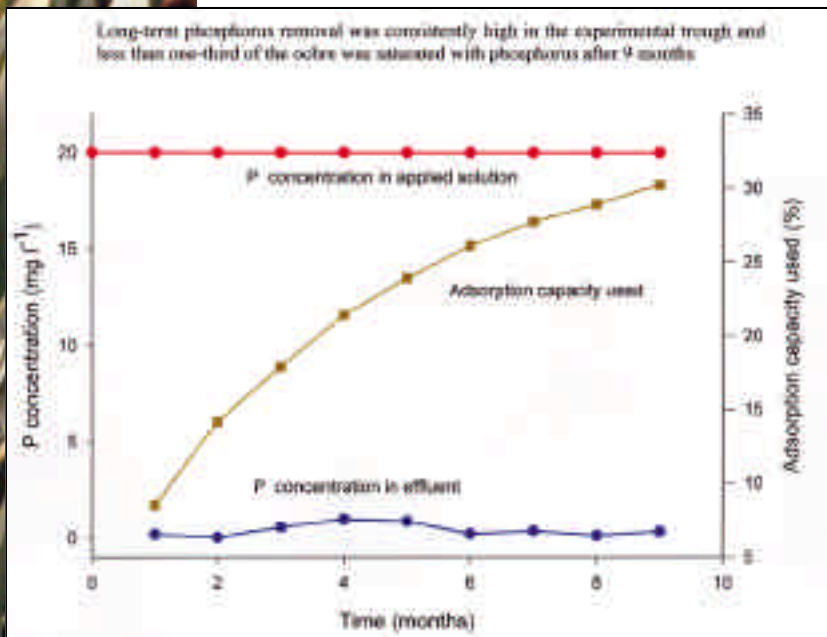
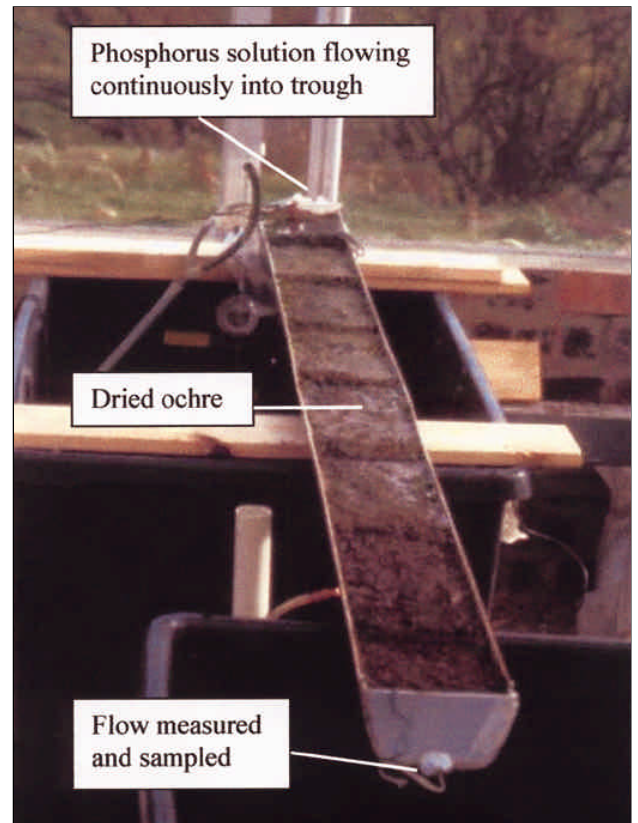


Experimental trough, packed with 10kg of dried ochre

Life After Ochre?

Research work has been undertaken at the University of Edinburgh to seek beneficial after use of the waste "ochre" produced in the treatment of minewater.

The university team, led by Dr. Kate Heal, have been carrying out laboratory experiments using dried ochre to remove phosphates. The dried ochre resembles granulated coffee and has, at test bench scale, proven very successful at removing and retaining phosphate,



Minewater Treatment Review

A review of existing minewater treatment technologies in use in the UK, is being carried out by the Camborne School of Mines and the Clean Rivers Trust. This review will cover Coal Authority schemes, and those operated by authorities and industry. Current academic research into minewater-related topics are also to be considered.

The £90,000 project is being funded principally by a grant from Biffaward, an environmental fund which utilises landfill tax credits donated by Biffa Waste Services. The Authority has contributed the remaining £9,000 towards the work.

Case studies of all the current treatment schemes have been compiled which outline the site specific nature of the minewater impact, describe the remedial measures that have been implemented and collate monitoring data. Cost implications of the schemes are also considered. The resultant report, which is to be published by the International Water Association, will form a useful assessment of the continuing development in best practice for minewater treatment, in which the Authority has played an integral and leading role.

Dr Melanie Brown of Camborne School of Mines says: "Of particular interest is the gradual evolution of schemes that have a more natural appearance, and are more sensitively incorporated into the landscape - thus the schemes not only achieve the principal goal of minewater remediation, but also provide aesthetic, ecological and social benefits.

"Good examples of this approach can be seen at Polkemmet, in West Lothian, where an area of pre-existing wetland is used as a final 'polishing' stage, and at Gwynfi in Gwent, where a small but effective constructed wetland has been ingeniously integrated into a steep-sided Welsh valley".

which may have applications in agricultural environmental clean up work or in sewage treatment.

The experiments included mixing the dried ochre with Bottom Furnace Ash (BFA) from Longannet power station. Trials with BFA alone only removed a few per cent of the phosphorus but a mix of 20% ochre with 80% BFA removed over 99%.

The material may also offer potential for use in active geochemical barriers for prevention of groundwater pollution.

Kate Heal says: "Due to the success with phosphates, further experiments were carried out on removal of iron, zinc, copper, nickel chromium and cadmium with the results being equally encouraging.

"Re-use of dried ochre for wastewater treatment is doubly beneficial because it reduces the amount of waste going to landfill while directly improving water quality and maintaining biodiversity in rivers."

Field trials for phosphate removal are planned to be commenced next year with a bed of ochre being used as a substrate to a wetland system for treatment of sewage effluent.