

Pontsticill Water Treatment Works

Case study

Focus products: Intercrete® 4820, Intercrete 4841

Location: Merthyr Tydfil, Wales

Client: Dŵr Cymru Welsh Water

Contractor: Stonbury

Summary: Repair and protection of secondary filters



Background

Pontsticill Water Treatment Works, operated by Dŵr Cymru Welsh Water, is located within the boundaries of Brecon Beacons National Park. Drawing water from the Pontsticill Reservoir, it holds up to 3,400 million gallons for supply throughout South Wales. The original Water Treatment Works was built in 1927 but this was superseded by a new treatment plant completed in 1995, consisting of a DAF (Dissolved Air Flotation) plant and primary and secondary rapid gravity filters.

Investigations in 1998 revealed that wash-water volumes were greater than expected due to erosion of the concrete. Analysis of the concrete confirmed that an average of 5mm had been eroded and aggregate was exposed due to the aggressive nature of the water.

The solution

Intercrete products were chosen to reinstate the integrity of the secondary filters, due to their proven track record of protecting structures subjected to aggressive water. Rapid application and quick curing properties were also crucial, as repairs on the eroded concrete took place whilst the Water Treatment Works was still in operation. Intercrete 4820, a fully waterproof, engineering quality fairing coat, was initially used as a levelling coat before the application of Intercrete 4841. This two component, waterborne cementitious modified polymer coating also benefits from microsilica inclusion which reacts with lime to form insoluble hydrates, thereby protecting the concrete from leaching and erosion with aggressive waters.

In addition to its excellent chemical resistance, a 2mm coating of Intercrete 4841 resists 10 bar hydrostatic pressure (100 metre head of water) and provides the same degree of waterproofing as 1000mm of good quality concrete. Both Intercrete 4820 and 4841 are CE marked in accordance with EN 1504 and are approved under Regulation 31(4)(a) for use in contact with drinking water. The application of Intercrete products at Pontsticill will provide effective waterproofing and protection for many years to come.