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Tafjord Dam
Case Study

Industries:
Power

Regions:
Norway

Summary`:
- Paint dry 92% relative humidity or better in targeted areas
- 30 watts average power consumption

Timings:
- The installation design for the EPS system took 5 weeks
- The assurance acceptance of the design took 12 weeks
- The structure was available for fit-out within 8 weeks

Tafjord Dam Specifics:
- Constructed from reinforced concrete
- 12m thick at the top and 40m thick at the base
- It is 96m high and is the second highest magazine dam in Europe

Control Equipment:
- One EPS (early model) control unit & one EPS terminal box installed
- Today we are using the AOP system. The AOP system is an enhancement and a new generation of electro-osmostic technology

Problem
In the early 90's cracks appeared that resulted in a significant amount of leakage into the main body of the structure, such as the pump room and technical rooms. Due to the nature of the structure being so wet, the cracks were undetectable.

Many of the affected areas were located at the
base of the structure, some 600 metres below the surface of the water.

Challenges
The water ingress problem was in an area under very high water pressure. Undetectable amounts of cracks were present in the structure.

Contract
The MPS system is not an, 'off the shelf' product. As each structure has its own set of conditions and environment, it has its own cost.
The MPS system is a unique innovative first world technology with a simple installation technique.

However, the largest component to cost is the cost of labour and the access to site. There is no need to undertake expensive excavations as the AOP system is applied entirely from within the inside /dry side of the structure. Hence,

the application of AOP is comparable in cost to a traditional temporary solution, but considerably less expensive than a traditional perceived permanent solution. In many cases, there are no other engineering alternatives to the AOP system.

Out Come

All treated areas of this installation reached the target of 92% paint dry relative humidity or better and have stayed dry ever since.
Once the structure was dry, all the cracks become detectable. The cracks were repaired using conventional sealing methods. The old EPS system is now holding back the main body of water penetrating the structure.

AOP system

The AOP system has achieved DTI approval and we now have the CE mark. We are also compliant with all EMC related regulations and restrictions.
The AOP system has approval for installation in sensitive areas and has been tested for emissions and interference in electronic sensitive areas.
The AOP is an evolutionary technology based on an accepted theory. It gives new life to existing brick, masonry and concrete structures avoiding expensive reconstruction and has a broad field of application in new concrete structures. The “state of the art” methods in use in the building industry today can be characterised as temporary solutions to a problem for which there is no apparent cost effective permanent solution. The AOP system provides a permanent solution. The AOP system is utilised for transporting water encapsulated within the capillaries out of structures, as well as permanently preventing the penetration of water into structures. A control unit produces an extra low voltage electrical charge, which is passed through electrodes in the form of probes or wires strategically placed within portions of the walls and /or floors that are wet.