

Water Structures Category

Repair of Wisla-Czarne Dam Concrete Structures

Wisla, Poland

Submitted by **Osrodek Techniki i Kooperacji OTiK Sp. z o.o.**



The Wisla-Czarne Dam is a small earth dam built in 1973. Workmanship faults, poor concrete quality, and exposure to severe environmental conditions caused deterioration of the concrete, which was unsuccessfully repaired several times over the years. This project allowed the evaluation of the structures to detect the damage that was causing the water infiltration. Test repairs were performed that enabled the selection of effective repair materials and sealing methods for underground tunnels being repaired 25 meters below water level. Six years of field testing were conducted to check durability and to select the best material for protection of the concrete shield against wavy motion and ice float aggression. Field corrosion monitoring was performed to determine the proper repair system for the carbonated walls of the overflow channel.

Once the research was completed, the project was awarded. Once the repairs began, different structural faults of the expansion joints were detected and repaired. Each of the renovated structures (service and monitoring tunnels, bottom outlet valves chamber, concrete shield on the upstream side of the dam, overflow channel, bridge over the overflow channel, and discharge basin)

demanded different, individually selected repairs and protection dedicated to local exposure conditions. All repairs were successfully completed and water infiltration was dramatically reduced.

Wisla-Czarne Dam

Owner

Regionalny Zarząd Gospodarki Wodnej
Gliwice, Poland

Project Engineer

BSiPBW Hydroprojekt
Krakow, Poland

Repair Contractor

OTiK Sp. z o.o.
Gdynia, Poland

Material Suppliers

Tecnochem Italiana s.r.l.
Bergamo, Italy

Cortec Corp.
St. Paul, Minnesota