

Alaknanda Hydroelectric Dam

Srinagar, Uttarakhand, India (2014)

BACKGROUND

A lack of consistent electricity is one of the major issues facing India, to help alleviate this problem GMR Energy designed and constructed a new 330 megawatt hydroelectric dam. The project started in 2005 in Uttarakhand, just outside the town of Srinagar.

One of the challenges project faced was how to waterproof and protect the concrete used for the dam and power station. The project team knew that when concrete is not properly waterproofed it can deteriorate and fail, and in this case result in a devastating flood. The local town of Srinagar is all too familiar with flood devastation. In 1894, over 10,000 million cubic feet of water from the breached Gohna Lake dam completely swept away the original town of Srinagar.

SOLUTION

Due to the risk and potential consequences involved in waterproofing the dam, the Alakanada team decided to bring Kryton expertise and products on-board in 2010 to waterproof key areas of the dam. They decided to partner with Kryton because of our unparalleled warranty, comprehensive technical service support and the successful 40+ year history in waterproofing and increasing the durability of concrete. Kryton's system can add decades to the life of concrete structures and unlike membrane systems that can deteriorate over time, the Kryton system becomes a part of the concrete matrix, waterproofing from the inside out. Since Kryton products are able to withstand very high amounts of water pressure, which sections of this project will be exposed to, it will provide long term protection for the concrete.

Once Kryton became involved with the project the technical support team was able to help the on-site ready-mix plant optimize the concrete mix design. Additionally, the Kryton team facilitated the application of Kryton's surface-applied waterproofing system, Krystol T1 and Krystol T2, to the upstream section of the dam face and two spillway tunnels that are each a kilometer long. The internal system, Krystol Internal Membrane (KIM), was used in the 1.8 km long canal leading to the pen stocks and two tunnels.

Both the KIM and Krystol T1 & T2 and contain Krystol® technology. When added to concrete, Krystol chemically reacts with water and un-hydrated cement particles to form insoluble needle-shaped crystals that fill capillary pores and micro-cracks in the concrete and block the pathways for water and waterborne contaminants. Any moisture introduced over the lifespan of the concrete will initiate crystallization, ensuring permanent waterproofing protection.

OWNER:

GMR Energy

DEVELOPER:

Alaknanda Hydro Power Company Limited (AHPCL)

ENGINEER:

Halcrow

DISTRIBUTOR:

Kryton Buildmat Co. Pvt.

PRODUCTS:

Learn more at kryton.com
 Krystol Internal Membrane™ (KIM®)
 Krystol T1®
 Krystol T2®



Alakanada dam site.



Kryton's waterproofing products were used to treat tens of thousands of square meters of concrete at the dam.