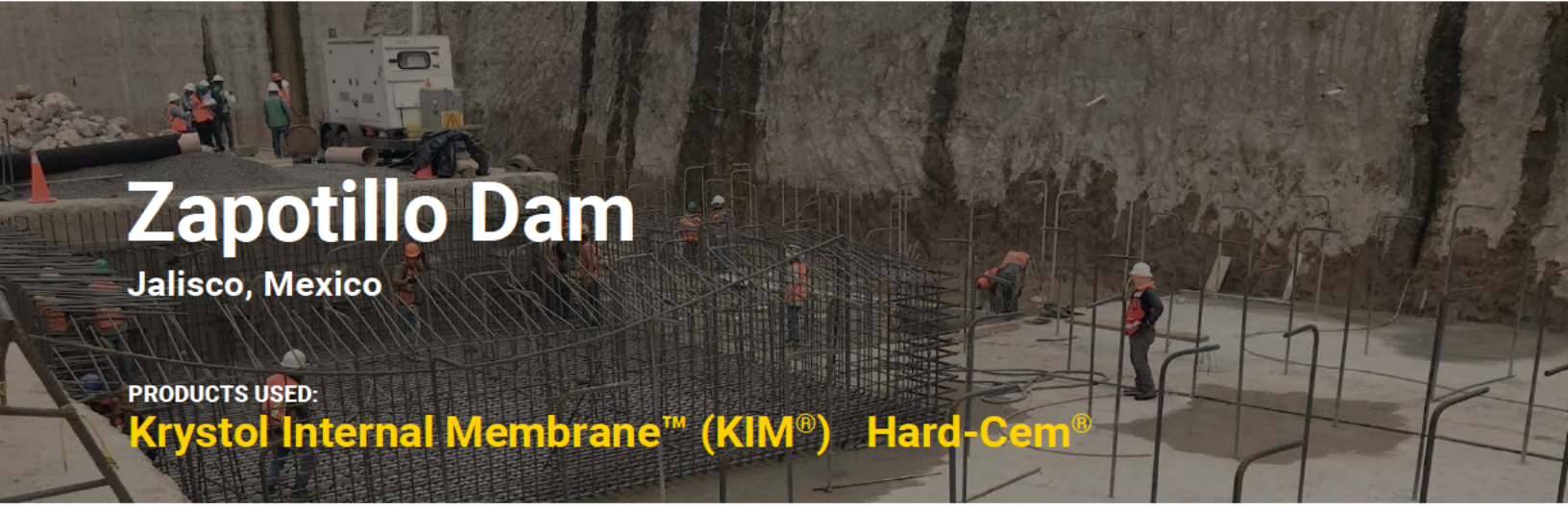

Zapotillo Dam

Jalisco, Mexico

PRODUCTS USED:

Krystol Internal Membrane™ (KIM®) Hard-Cem®

OWNER:	ENGINEER:	CONTRACTOR:
Comisión Nacional del Agua	AYESA	FCC Construcción

READY-MIX SUPPLIER:	DISTRIBUTOR:
CEMEX	Punto Seco S.A. de C.V.

BACKGROUND

With Mexico still in need of a bigger drinking water supply, the Mexican government's national water agency, Comisión Nacional del Agua (CONAGUA), proposed the creation of a new storage reservoir in Jalisco, Mexico. Known as the Zapotillo Dam, this project was designed to improve the fresh water supply to parts of Guanajuato and Jalisco. It would improve the lives of around 2.3 million inhabitants, giving the population better access to water they could safely drink.

To ensure the dam could safely provide this access and still maintain appropriate water levels and protect nearby communities from flooding, CONAGUA's construction team needed to build a buffer tank and other complementary works before the reservoir could be filled. These structures would not only need to be waterproof but also resistant to significant abrasive and erosive forces. Furthermore, with millions of inhabitants relying on this reservoir for a healthier living, CONAGUA's construction team wanted to ensure these structures could operate without interruption.

SOLUTION

Facing concerns about the durability of the concrete and the reliability of the water supply, CONAGUA's construction team sought solutions that would ensure the durability of their concrete. That led them to sourcing KIM and Hard-Cem admixtures to provide quality waterproofing and abrasion and erosion resistance.

KRYTON®
SMART CONCRETE®

1645 East Kent Avenue, Vancouver, BC, Canada, V5P 2S8 | T 1.604.324.8280 | F 1.604.324.8899 | W kryton.com | E info@kryton.com

Zapotillo Dam

Jalisco, Mexico

PRODUCTS USED:

Krystol Internal Membrane™ (KIM®) Hard-Cem®

With KIM, the construction team's concrete would reap the benefits of having an award-winning waterproofing admixture that's been certified by NSF to be safe with potable water. The concrete would become permanently watertight and safe from any waterborne contaminants. And it would all be thanks to KIM's unique Krystol® technology. Designed to disperse throughout the concrete mix during batching, this technology would imbue the concrete with the ability to chemically react in the presence of water and unhydrated cement particles. As a result, even the slight presence of water would allow the concrete to react to form solid interlocking crystals, which would fill up the capillary pores and micro-cracks of the concrete. That would ensure that the water would not be able to pass through the concrete and that the concrete itself could self-seal hairline cracks even under heavy hydrostatic pressure.

Then, with the addition of Hard-Cem, the concrete would gain a more durable and resilient cement paste. Without it, the cement paste would remain the weakest element of the concrete as it usually has a microstructure that's vulnerable to abrasion and erosion. Hard-Cem corrects that by giving the concrete its own unique metal-mineral microstructure that when embedded throughout cement paste, imparts high durability against abrasion, erosion, and impact. It's a process that can double the wear life of the concrete and ensure that it remains highly resistant to wear and tear, which also reduces the need for maintenance or repair work.

All of these benefits provided by both KIM and Hard-Cem allowed CONAGUA's construction team to ensure the Zapotillo Dam's buffer tank and related works remained durable. It also proved that CONAGUA could rely on these structures to maintain safe operations and keep the reservoir in service while avoiding interruptions for concrete replacement or repair work. All of which would help lower the lifetime carbon footprint of the dam while securing a highly reliable source of drinking water for millions of people.

KRYTON®

SMART CONCRETE®

Kryton International Inc.

1645 East Kent Avenue, Vancouver, BC, Canada, V5P 2S8 | T 1.604.324.8280 | F 1.604.324.8899 | W kryton.com | E info@kryton.com