

Decew Falls Water Treatment Plant Spillway

St. Catharines, ON, Canada (2017)

PRODUCT USED:
Hard-Cem®

OWNER:

Regional Municipality of Niagara

ENGINEER:

Associated Engineering

GENERAL CONTRACTOR:

Rankin Construction Inc.

CONCRETE SUPPLIER:

Lafarge

PRECAST MANUFACTURER:

International Erosion Control Systems Group Inc.

DISTRIBUTOR:

Form & Build Supply

BACKGROUND

Over time, the Decew Falls Water Treatment Plant's spillway had eroded away, leaving the Regional Municipality of Niagara with the decision to replace it. During the original construction of the reservoir spillway, the municipality had chosen to build it using wood. However, the material had deteriorated significantly, and the engineering company planning the project wanted to replace it with concrete, which would be more durable. To ensure the concrete remained durable and lasted a long time, they sought out a concrete hardening solution that could extend the service life of the new structure.

The solution would need to be compatible with air-entrained concrete as the project called for its use in both horizontal and vertical applications. Moreover, both cast-in-place and precast concrete would be used in the project. As a result, the engineering company went looking for a hardener that was versatile and able to increase the spillway's durability even when subjected to constant erosion and flowing water. After considering the performance of different hardening options, the engineering team was not satisfied; each product had its own set of limitations.

SOLUTION

Eventually, however, they came across Hard-Cem, a solution that met all their diverse requirements and more. When added to concrete, Hard-Cem's proprietary technology increases the hardness of the concrete paste and reduces the exposure that fine and coarse aggregate have to the elements. Since it's an integral solution, Hard-Cem can be used in both cast-in-place and precast concrete and in both horizontal and vertical applications. Hard-Cem's integral quality also ensures that it continues to offer surface wear resistance throughout its life, unlike surface-applied liquid membranes, which can flake or peel away with time. By increasing the service life of concrete in this way, Hard-Cem is able to double its service life and defer a substantial amount of maintenance and repair costs. With that in mind, the precast manufacturer incorporated Hard-Cem into their traditional precast mix to make the articulating blankets and other areas exposed to the water. The erosion resistance that Hard-Cem provides will ensure that even though the structure is exposed to constant running water, it will last significantly longer.

