

Squamish Hydro Dam

Squamish, BC, Canada (2005)



PRODUCT USED:
Hard-Cem®

OWNER:

Canadian Hydro Developers

PROJECT MANAGER:

Canadian Projects Ltd.

CONTRACTOR:

Graham Industrial Services

READY-MIX SUPPLIER:

Cardinal Concrete

DISTRIBUTOR:

Cementec Industries Inc.

BACKGROUND

In conjunction with BC Hydro, Canadian Hydro Developers started the construction of a concrete dam in 2004 to help the Squamish, British Columbia, area generate electricity. This dam was designed to act as an independent power plant, and its bottom 4 m needed enough durability to protect the concrete from the highly erosive forces of a constant water flow that possessed large amounts of silt. Otherwise, the concrete would have gradually eroded away and needed to be fixed or replaced.

However, that wasn't the only challenge in the way of the dam's construction. For instance, the surrounding area was subject to a freeze-thaw environment, which meant the dam would need air-entrained concrete. Both BC Hydro and Canadian Hydro Developers knew this and chose to use that particular concrete, but in doing so, they needed to use a concrete hardener that they could easily use on air-entrained concrete. They also needed one that could work with vertical applications as they planned to pour the concrete via helicopter bucket.

SOLUTION

The product that the two companies thought was capable of navigating all of these challenges was the durability-enhancing admixture Hard-Cem. As an integral additive meant to be added directly to the concrete mix, it was capable of protecting the concrete from erosion for both vertical and horizontal applications, and it was also fully compatible with air-entrained concrete. In short, it was a perfect match for the needs of BC Hydro and Canadian Hydro Developers.

With that in mind, the two companies added Hard-Cem to their air-entrained concrete mix, giving it the durability the dam needed. The end result left everyone involved with concrete placement and finishing impressed with Hard-Cem's workability and ability to protect the dam and reduce its long-term life cycle costs.

