Product Case History

Mamquam Generating Station

PRODUCT USED:

Exterior Coating 1: Carbomastic 615

Exterior Coating 2: Carboguard 690

Crone Knoy Award Recipients

LOCATION:

SQUAMISH, BC

DATE OF APPLICATION:

FEBRUARY 2014

MARKET:

POWER

SUBSTRATE:

STEEL

SURFACE PREP:

ABRASIVE BLASTING
AND WATER WASHING

EXPOSURE:

EXCESSIVE MOISTURE, HUMIDITY
& COLD TEMPERATURES

AREA COATED:

The Mamquam Hydro-Electric 56 MW Facility was built in 1996. It is based on using a bored power tunnel with a 434m steel tunnel liner just preceding the power house. The tunnel liner is 2.1 M (7Ft) in diameter and is 434m (1424Ft) long. The tunnel liner was not coated before initial installation, and due to extreme moisture and humidity levels the steel suffered severe pitting and corrosion along the entire length. The owner, Atlantic Power, decided to have the exterior of the tunnel liner prepared and coated to help preserve the liner and to increase its service life.

Carboline came to the rescue. This was a very challenging project to come up with a coating system due to the excessive moisture and humidity that is present 365 days a year in this environment. The tunnel liner is located down a vertical shaft and is located directly under a pool and waterfall that allows water to run through the rocks and seep directly onto the steel liner. Small rivers ran under the supported steel liner. A coating system was required that was not only moisture tolerant but also cold temperature curable. The project was completed in February and the water running through the in-service liner was 1°C and the surrounding ambient air was 11°C, well below the dew point.

The system chosen was Carbomastic 615 MIO Filled Epoxy Primer with Carboguard 690 Epoxy as the top-coat. After an initial power wash with clean water, the surfaces to be coated were abrasive blasted to SSPC SP10 Near White Metal. This provided the surface profile desired, though due to excess moisture the surface was power washed a second time to remove the residual blast media and rust bloom that was also present. The area was blown down to remove any standing water and each coat was spray applied and back rolled to remove the moisture under the film. Additional attention was given to all of the areas that were pitted to assure proper coverage on edges and in the valleys of the pitting. This process required a grid approach to assure full coverage along the whole length of the liner.

COATING SELECTION EXPLANATION:

The use of Carboline's Phenalkamine Epoxies offering the moisture tolerance and low temperature curing abilities made the difference in this successful project, as did the dedicated crew from Certified Coatings Specialists who performed the challenging work and the valued assistance of our Expert Technical Service Team along the way.

For their work on this project, Carboline and Certified Coatings Specialists are the recipients of the Crone Knoy Award from SSPC for the Outstanding Achievement in an Industrial or Commercial Coatings Work that demonstrates Innovation, Durability and Utility.

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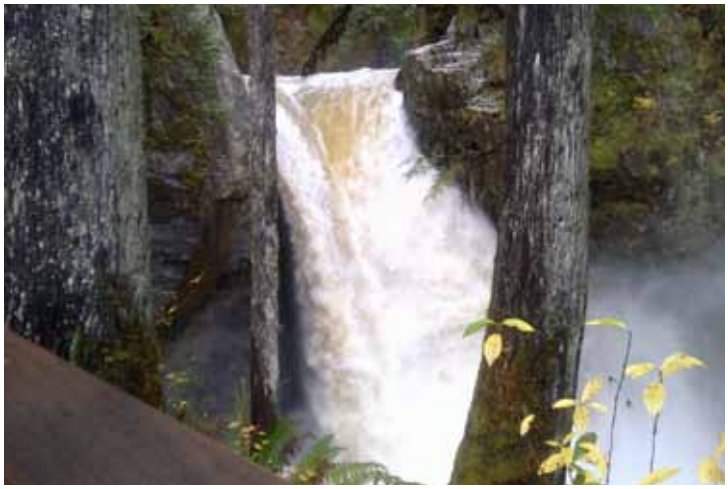
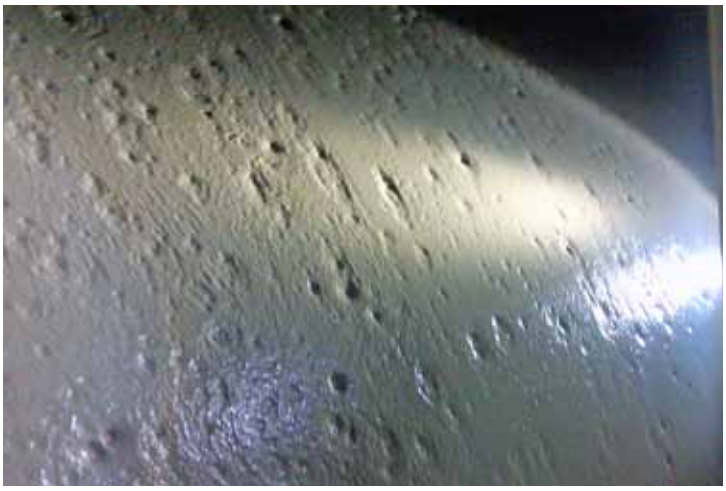
ADDITIONAL PHOTOS:



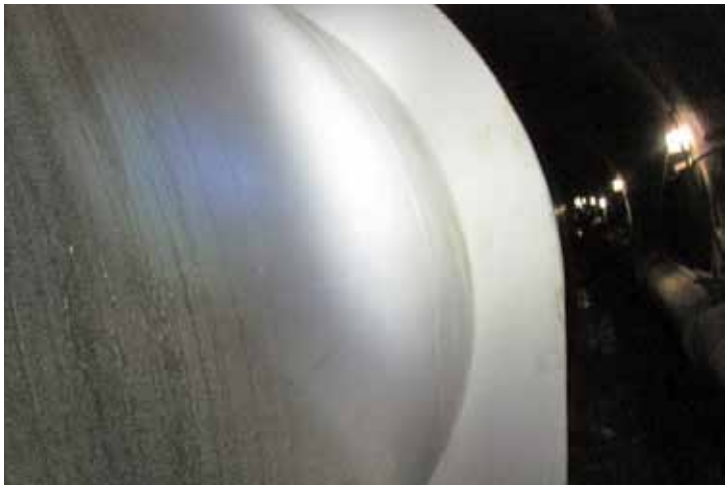
Waterfall over Vertical Shaft

Entrance at the Bottom of Vertical Shaft

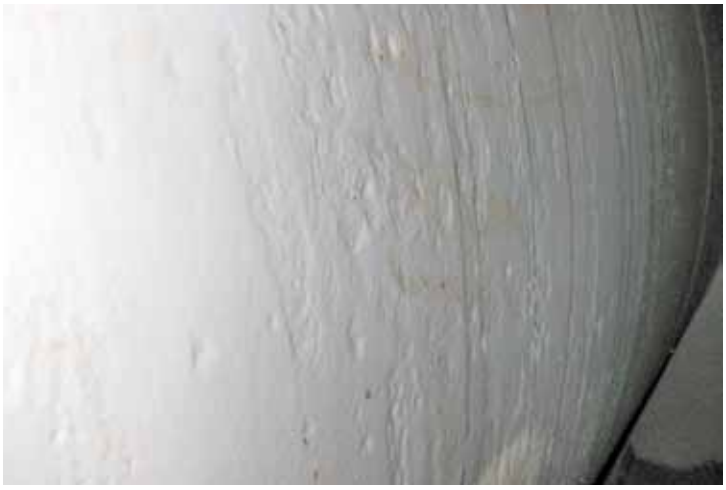
Tunnel Liner - Before Application



Tunnel Liner - After Application



Tunnel Liner - 6 Months After Application



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