

Sydney Desalination Plant - Pump Station

Sydney, Australia (2010)

BACKGROUND

Sydney's growing population and increased dependence on already at-capacity dams and rainwater for their drinking water supply has forced the local water supply body to look at new technologies; one such technology is desalination. Desalination plants are both economically and environmentally friendly.

Construction of the Sydney Desalination Plant was completed in 2010. The new plant uses reverse osmosis technology to extract drinking water from seawater. The plant has a current output of 250 megalitres of drinking water per day with the potential to be scaled up to 500 megalitres per day. A key component to the project was the minimization of impact to the environment; the plant is even powered using 100 percent renewable energy from the Capital Wind Farm in nearby Bungendore.

The desalination plant is located right on the Australian coastline and is subject to harsh salty, seawater and sand. An essential component to the desalination plant's operation is the pumping house that runs 24 hours a day, seven days a week. The pump house sits well into the salty water table and the harsh location poses a risk to the concrete and structural durability of the pump house.

SOLUTION

The pumping house's exposure to the salty ground water meant proper waterproofing that would protect the concrete and structural rebar and work for the life of the structure was vital. The original specification for the pump house did not call for Kryton, but the parties involved had worked with Kryton's integral crystalline admixture products in the past and selected Kryton's products for the pump house to enhance the waterproofing and general performance of the concrete.

Kryton's Krystol Internal Membrane™ (better known as KIM®), is an admixture that builds the waterproofing right in to the concrete, eliminating the need for traditional membranes. 2000 m³ of KIM treated concrete was poured to form the water-tight pump house. KIM reduces site disturbance by eliminating the need to excavate for membrane application, contributes to more efficient waste management as concrete treated with KIM can be recycled and is available in mixer-ready bags, which further minimizes construction waste. KIM's environmentally friendly characteristics fit well with the project's goal to minimize the impact on the environment.

All pile caps and other highly exposed below-grade areas of the pump house were coated with Krystol T1. Krystol T1 is a brush-applied slurry containing crystalline chemicals that become an integral part of the concrete to provide a strong barrier to water.

Not only does Kryton's Krystol products ensure that the pump house will be waterproof, the Krystol line of products are also certified safe for contact with potable water by NSF International (certified to NSF/ANSI std. 61) and have zero volatile organic compounds (VOCs).



Kryton's concrete waterproofing system was able to protect against leaks, even at high water pressure.



Pump house under construction

OWNER:

Sydney Water

CONTRACTOR:

Water Delivery Alliance

DISTRIBUTOR:

Kryton Pty. Ltd.

APPLICATOR:

Kryton Pty. Ltd.

PRODUCTS:

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