

# CANPOTEX TERMINAL 5 EXPANSION



**PROJECT**  
**INDUSTRY**  
**LOCATION**  
**PRODUCTS**

Canpotex Terminal 5 Expansion  
Marine, Transportation  
Portland, Oregon, USA  
PENETRON<sup>®</sup>, PENETRON ADMIX<sup>®</sup>,  
PENECRETE MORTAR<sup>™</sup>

# CANPOTEX TERMINAL 5 EXPANSION

## CASE SUMMARY

Already the largest port on the West Coast for bulk mineral exports, Portland, Oregon, is expanding to increase capacity and improve cargo handling efficiency. Canpotex, a potash marketing and export company owned by three Saskatchewan potash producers, has invested \$140 million in the expansion of their potash export facility at Portland's Marine Terminal 5 in the Rivergate Industrial District. This mineral bulk processing facility handles potash and other bulk commodities for export to overseas markets.

**“Easily mixed in during batching and unaffected by climatic conditions, PENETRON ADMIX becomes an integral part of the concrete matrix for the life of the concrete.”**

### High-efficiency processing systems built on durable concrete

The new equipment and infrastructure will improve efficiency at Terminal 5's potash ship-loading operations. The new ship-loader, an improved control system, and an upgraded conveyor system

will enable shorter turnaround times for Canpotex trains and ships. The new storage building will allow the potash exporter to better manage inventory and logistics at the terminal. Initially, a membrane solution was specified for the concrete piers, tunnel and building foundations. However, the project owners then evaluated other waterproofing solutions for the concrete destined for the Terminal 5 project. Penetron worked with CalPortland to come up with the right mix that would meet the demands of the marine environment in Portland.

### Saving time and money with crystalline

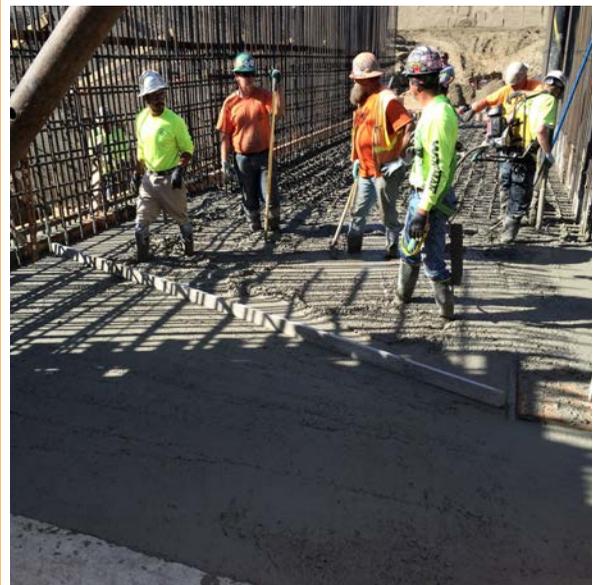
PENETRON ADMIX, an integral crystalline waterproofing admixture, was found to be the best solution because of ease of mixing into the concrete during batching and the permanent protection against any further penetration of water or other liquids. This decision was also based on reports from many contractors who were able to

accelerate their schedules and reduce construction costs – for projects located in a marine environment – when they switched from a membrane to PENETRON's crystalline solution.

### Combining crystalline slurry and mortar

PENETRON ADMIX was used to treat all concrete delivered by CalPortland for the construction of the new tunnels housing the conveyor systems, the 2-foot-thick slabs on grade, and the 2-foot-thick walls of the new potash storage building. The crystalline admixture was also added to treat the entire length of the 624-foot-long concrete transfer tunnel; PENETRON slurry and PENEKRETE MORTAR were used in combination to all tie holes in the walls and as a patch system for honeycombing, cracks and other defects in the concrete. PENETRON ADMIX is a highly effective permeability-reducing concrete admixture that provides comprehensive protection against chemical attack (such as chloride ions found in seawater), freeze-thaw cycles and corrosion, while withstanding high hydrostatic pressure. Easily mixed in during batching and unaffected by climatic conditions, PENETRON ADMIX becomes an integral part of the – now impermeable – concrete matrix for the life of the concrete. Both the CalPortland owners and the general contractor were very pleased with the results of the Terminal 5 project.

*Technical note: Potash (potassium chloride) is a mineral nutrient used as a fertilizer to increase crop yields around the world. Over two million metric tons of Saskatchewan potash are exported through Portland every year to international markets, including Australia, Brazil, China, Japan, Korea and Taiwan.*



PENETRON ADMIX-treated concrete ensures that the 624-foot-long transfer tunnel is now impermeable to water, making the Marine Terminal 5 in Portland more durable.