



Water Wastewater

Client
Watercare Services Ltd.

Location
Auckland, New Zealand

Manukau Mangere Wastewater Treatment Plant

Project Highlights

- Design-build improvements project.
- One of the largest environmental restoration and wastewater treatment plant construction contracts in the Southern Hemisphere.
- The m³/d WWTP will treat wastewater for a population of 950,000.
- The world's largest wastewater effluent ultraviolet disinfection facility.

Project Description

In 1998, Watercare Services Ltd. awarded the design-build contract for Project Manukau, an upgrade of the Mangere Wastewater Treatment Plant, to Manukau Wastewater Services Ltd., a consortium of Fletcher Construction, CH2M BECA Ltd., Civil and Civic Ltd., and New Zealand Water Services Ltd. As part of the consortium, CH2M BECA, part of CH2M HILL's family of companies, was involved in the design, construction, and startup aspects of the project. CH2M HILL's role constitutes 25 percent interest of the joint venture, as well as several parent and joint guarantees for the entire amount.

Located in Auckland, New Zealand, Project Manukau represented one of the largest environmental restoration and wastewater treatment plant construction projects in the Southern Hemisphere. This undertaking efficiently blended two goals: providing greatly improved water quality and regaining five miles of shoreline for recreational pursuits.

The scope of the project included upgrading the existing WWTP with the world's largest effluent wastewater ultraviolet disinfection facility and a biosolids dewatering facility that enables the beneficial reuse of biosolids through composting. Approximately 500 hectares (1,235 acres) of oxidation ponds, reputedly the largest in the world when the plant opened in 1960, were decommissioned and replaced with nine reactor/clarifier tanks.

Remediation of the oxidation ponds, existing sludge lagoons, and sludge drying beds included removing and treating more than 4 million cubic meters of sludge. An upgraded cogeneration plant that uses gases collected from the effluent treatment plant generates power for the plant, along with other electrical demands. After nearly 42 years in existence, the removal of the last of the oxidation ponds in August 2002 benefited not only the surrounding marine environment, but has significantly improved the air quality by dramatically reducing odor and insect nuisances for nearby residents.

The Manukau Mangere WWTP is complete, and on-line operation was commissioned in April 2003 by Prime Minister Helen Clark. The resulting increase in water and air quality in neighboring Manukau Harbor will help restore nearly 8 kilometres of foreshore around the harbor for swimming, fishing, and shellfish harvesting.