

Project Review:

Waihi WWTP Tertiary Treatment Plant Phosphorus & Algae Removal

Date Installed: July 2005

Review Date: Aug 2005



Plant Now Operational

A new tertiary treatment plant is removing phosphorus and algae from Waihi wastewater. The phosphorus and algae removal plant was designed and installed by ARMATEC Environmental Ltd in association with The Environmental Group of Australia. In August 2005 the plant was in the final commissioning phase.

Initial Results Excellent

The treated water now has a total phosphorus of less than 1 g/m³ and suspended solids of less than 15 g/m³. These are well below the resource consent limits of 1.4 g/m³ and 35 g/m³ for total phosphorus and suspended solids respectively. All tests done since plant start-up have met contract requirements.

Treatment

Since 1979 wastewater from the town of Waihi has been pumped to oxidation ponds for treatment. The treatment consents allowed direct discharge of the treated effluent to the Ohinemuri River. Stricter new consent requirements for the standard of treatment are aimed at better preserving the natural and recreational potential of the river.

Phosphorus and Algae Removal

The oxidation pond discharge is now further treated at the new tertiary treatment plant to remove phosphorus, algae, suspended solids and bacteria. The separation process involves using very fine air bubbles to float the algae together with other solids and precipitated phosphorus. The floated sludge is scraped off the flotation tank for disposal. The clean water is then put through a WEDECO ultraviolet sterilisation plant and discharged over a rock outfall to the Ohinemuri River. The plant is automated to minimise plant operator time.

Positive Impact on the Environment

There has been an immediate reduction in phosphorus, algae, solids and bacteria in the water discharged to the Ohinemuri River. Previously the Waihi oxidation pond effluent had been found to contribute a significant proportion of the phosphorus in the Ohinemuri River. After the plant started up there was a large reduction in the phosphorus level in the river as measured in the first test done by Environment Waikato. Measurements are ongoing.



Flotation tank where algae, phosphorus and suspended solids are removed from the oxidation pond effluent. The treated water is clear (left hand container).



Phosphorus and algae sludge being removed for disposal. Previously this sludge had gone into the Ohinemuri River.



The Ohinemuri River downstream in the Karangahake Gorge is now cleaner and safer for recreational activities.

ARMATEC Environmental Ltd

P.O. Box 3046, New Plymouth, New Zealand.

Ph 06-755-0410

Fax 06-755-2346

email: k-k@armatec.co.nz

www.armatec.co.nz

