

Water Treatment Plant Upgrade



Anchor Products – Edgecumbe

September 2000



The water treatment plant at Anchor Products Edgumbe is a conventional plant having a flat-bottomed vertical upflow clarifier. Such plants usually run at a maximum industry standard of around 2.7 meters per hour upflow rate, but the Edgumbe plant is now running successfully at an upflow rate of 4 meters per hour.

The plant was upgraded several years ago with the addition of a polyelectrolyte dosing system and run on a stop/start basis, which was expected to provide a flow of 400 m³/hr. That was never achieved because of floc carry over from the clarifier.

A further upgrade by Filtration Technology last year involving the installation of Wallace & Tiernan automatic chlorination equipment, a Lasertrim streaming current monitor, direct on line bulk chemical dosing and other equipment, has optimised the system and solved the problem.

The plant now runs at a variable flow rate, with the rate of flow constantly changing at a very slow rate depending on the reservoir level and downstream site demand, which are automatically monitored online as part of a comprehensive PLC control system.

The flow is controlled by VSD on the pump depending on the reservoir level or site demand, supported by proportional controllers on the PAC and poly pump speeds. The chlorine controls also have proportional controls. The PAC Lasertrim streaming current monitor responds to changes in water condition.



The plant draws water from the Rangitaiki River at an average 3 NTU increasing to 60 or 70 during bad weather, and is consistently producing 0.3 NTU off the clarifier.

Comprehensive monitoring means detailed reports are produced by the system daily which includes PAC and Poly consumption and turbidity level analysis, and also shows longer term trends.

As well, critical components are monitored and alarmed, preventing disruption to production at the factory, which runs 24 hours a day, 11 months of the year.



SPECIFICATIONS

Flow Rate:	up to 400 m ³ /hr
Turbidity:	< 0.5 NTU
Raw Water Pump Speed Control:	PDL Extravert
Prechlorination:	Wallace & Tiernan V100 Motorised Valve PCU Controller
Poly Dosing:	Wallace & Tiernan Encore 700 Westfall Static Mixer
PAC Dosing:	Wallace & Tiernan Encore 700 with Auto Stroke and Speed Control Lasertrim Coagulant Control System
Post Chlorination:	Wallace & Tiernan V100 Motorised Valve PCU Controller Depolox 4 with pH
Raw Water Turbidity:	Hach Surface Scatter 6
Filter Turbidity:	Hach 1720D
Post Filter Turbidity:	Hach



CLIENT:	Anchor Products – Edgecumbe
PROCESS DESIGN:	Filtration Technology
PROJECT MANAGEMENT:	Filtration Technology
SUBCONTRACTORS:	<i>Mechanical</i> – Griffiths Steeltech <i>Civil</i> – R&T Walker <i>Electrical</i> – Barry Lee <i>Computer Hardware/Software</i> - PavTech