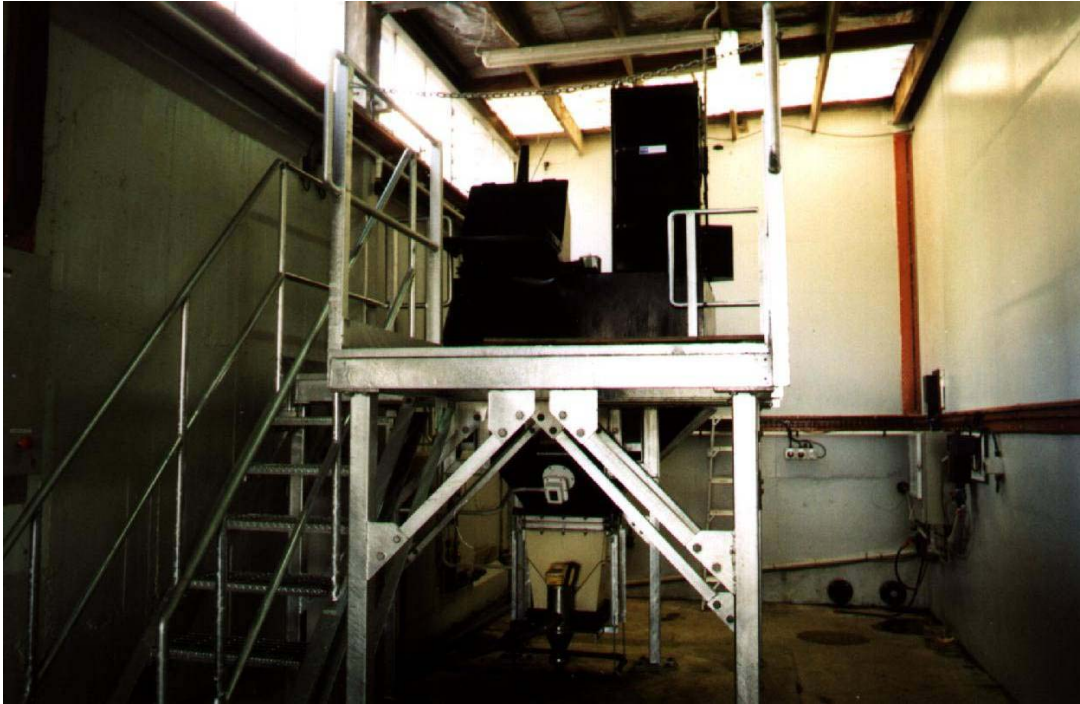




POWDERED ACTIVATED CARBON DRY CHEMICAL FEED SYSTEM



WHAKATANE DISTRICT COUNCIL WHAKATANE

AUGUST 2002

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WHAKATANE DISTRICT COUNCIL

P.A.C Feed System

Whakatane District Council invited tenders for a PAC Dosing System to dose PAC in metered quantity proportional to the raw water flow.

Filtration Technology Ltd (Filtec) offered the simple but innovative system of dry PAC dosing which has been proven elsewhere.

The entire system was designed and engineered, constructed and commissioned to meet original process requirements while avoiding the mixed slurry tank and dosing pump.

SYSTEM DESCRIPTION

Filtec PAC Dosing System comprises of a PAC storage hopper of extended 450 kg capacity along with entire operating and storage platform (250 kg storage), requisite handrails and stairways, PAC unloading hatch and bag resting supports, a dust extraction fan with shaker, a slide gate (for maintenance), a Wallace & Tiernan Volumetric Feeder (22 LPH capacity), a wetting cone for slurry making (from dry PAC), an eductor to pump dilute PAC to dosing point and a sparger for good distribution into the clarified water flowing through channels. A set of piping with flow meter and switch, pressure gauge and necessary valves and controls are also provided.

OPERATIONAL FEATURES

PAC loading in hopper is done by taking 25 kg bags from pallet and cutting straight into the unloading hatch. The dust extraction fan turned on by the operator helps quick unloading while avoiding inhaling of PAC. The volumetric feeder feeds a metered quantity of PAC (22 lph approximately) into the wetting cone (and is altered based on actual requirement of dosage proportional to the flow in the channel). The eductor pumps the slurry into discharge piping which is carried to dosing point and let into the clarified water through the sparger.

The entire process is controlled through automated proportional control through VSD. A functional description was provided to client to enable electrical and control wiring to the plant.

The project was commissioned in August 2002.



MECHANICAL SPECIFICATIONS

PAC HOPPER	:	Carbon steel, cylindrical with conical bottom and outlet flange, epoxy coated 450 kg over all capacity
SLIDE GATE	:	SS304
VOLUMETRIC FEEDER	:	FRP with stainless steel screw \varnothing 40 Wallace & Tiernan EA32-055 3 phase motor and Variable Speed Drive Capacity 22 LPH at turndown 4.5:1
WETTING CONE	:	Cylindrical with conical bottom, SS304
EDUCTOR	:	Penberthy LH $\frac{3}{4}$ " PVC
DUST EXTRACTION FAN	:	Torit DCE UMA 70 HG1AD epoxy coated Approx. 1000 m ³ /hr In-built shaker
PLATFORM/HANDRAIL	:	Carbon Steel (hot dip galvanised)
SPARGER	:	PVC 32NB with \varnothing 8 holes and syphon arrangement

PROCESS SPECIFICATIONS

- 0.5 – 9 kg/hr of PAC continuous delivery
- Dose rate 2.5 – 15 g/m³
- Process water main flow 200-600 m³/hr
- Operator attendance once in 24 hrs at maximum dose rate
- PAC available in 25 kg bags

PROJECT SUMMARY

CLIENT	:	Whakatane District Council
PROCESS DESIGN/BUILD	:	Filtration Technology Ltd
PROJECT AWARD	:	Mid May 2002
FABRICATION/CONSTRUCTION	:	July 2002
COMMISSIONING	:	August 2002
MAIN SUB CONTRACTORS	:	R W White Ltd, Hamilton Metal Designs, Auckland