Projects by T&T Power Group

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T&T Power Group Provides **Intelligent** Power **Generation** and **Control** Solutions.

Servicing **7000+** Pieces of Power and Control Equipment

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When Ordinary Doesn’t Fit...
Performing substantial upgrades to an outdated system, and exceeding expectations.

BACKGROUND

The Annacis Island Waste Water Treatment Plant (AIWWTP) is the second largest treatment plant in Canada, serving about 1.3 million people, with one of the highest levels of process treatment automation in the industry. An essential service that most don’t want to think about, waste water treatment is a vital part of ensuring our lakes and rivers stay clear and clean for future generations.
THE PROBLEM

As populations increase and higher volumes of waste are produced, the task of treating that water is also growing. In order to ensure waste water doesn’t find its way directly into our natural waterways, treatment facilities need to remain up-to-date with modern and reliable equipment. With that said, this was a major project with some major challenges. The upgrade not only focused on replacing outdated equipment: three 1,200-horsepower influent pumps and four 684-horsepower trickling filter pumps.

The existing VFDs, transformers and motors had been in service since 1997 without any major failure. However, it was becoming increasingly difficult to service and find parts for the existing drives, and they were reaching the end of their service life. This equipment is critical to operations and meeting the daily operating certificate for their facility.

The equipment had to be designed for no drive failures in 15 years. It also needed to stop the backspin of IPS pump/motor. On a power loss, at the moment of loss of drive output power, the pump will quickly start to slow in the forward moving direction and for a very short moment will stop before quickly accelerating in back spinning motion.

The new VFDs also needed to be capable of detecting and bringing a back-spinning pump to stop and resuming the pump control within 10 seconds after power is restored. The total voltage and current harmonic distortion were also not to exceed existing levels. Additional standards to be met included:

- Provision of a sinusoidal output filter to meet general purpose motor criteria per NEMA MG1 part 30.
- Minimum system efficiency of 97%.
- CDAC Control and Monitoring – hardwired I/O for control and feedback; monitoring to be via Modbus (TCP and Rs485).
- Witness full-load FAT testing – full-load dynamometer testing of qty (1) 1200 HP VFD and qty (1) 684 HP VFD.
- Existing cabling was to be used so footprint of new installation couldn’t exceed the existing. All cable entry and exit locations had to match the existing system.
- There was to be provision of on-site start up, commissioning and training assistance.
- Units had to be replaced one at a time as operation conditions permitted.
- Replacement work had to occur during summer when the water levels were low enough to mitigate waste overflow and any resulting government fines.

OUR SOLUTION

Through partnering with companies like Danfoss, Rittal, Bender, MTE and Phoenix Contact on this project, our T&T Power Group was able to deliver the appropriate equipment at the appropriate times.

Not only that, but our team was able to provide innovative solutions to hit required performance targets while also meeting the challenge of rising energy costs.

The Annacis Island Waste Water Plant Upgrade project called for 97% energy efficiency, a goal that was achieved and exceeded upon completion with 98% efficiency. Close examination of the electrical design requirements and challenges well in advance of the project, coupled with careful pre-planning, helped us achieve this result.

The Annacis Island Waste Water Plant Upgrade project took about two years to complete, with the majority of the work occurring during the dry season of July and August.

We are incredibly proud to say that, through integrated and innovative solutions, excellent communication, planning and implementation, the project exceeded both performance and time expectations. While this waste water treatment upgrade wasn’t the most glamorous job we’ve ever done, it’s right up there in terms of importance and innovation - and we couldn't be more proud of the outcome.
We focus on our people
We adapt and adjust so you don’t have to
We learn and improve every day
We serve our customers and each other

GROWTH
We believe individual growth will support the growth of our business

CULTURE
FLEXIBILITY
SERVICE
INNOVATION

From Sea to Sea.

150 staff across 10 offices including... Vancouver, Prince George, Edmonton, Saskatoon, Thunder Bay, Ottawa, Toronto, Wellesley (HQ), Montreal, and Moncton.