

IPEX Industrial Case Study

Water & Wastewater Treatment Applications

IPEX Guards 137 Million Gallons a Day at the Lakeview Wastewater Treatment Plant



Originally built in the late 1950s to handle an average flow of 2 million gallons per day (mgd), the G.E. Booth (Lakeview) Wastewater Treatment Plant (WWTP) is a key facility for the Region of Peel. In 2009, the facility underwent a \$260 million expansion to treat 137 mgd from the more than 1.3 million residents and 90,000 commercial businesses in the eastern section of Mississauga, Brampton, Bolton, and Caledon East.

Now expected to effectively meet the area's wastewater treatment needs until at least 2031, the expanded Lakeview WWTP includes a new headworks facility, enhanced nitrification, a new biosolids handling facility and additional incinerator capacity. Upon completion of the project, Lakeview became the largest perforated-plate screening facility in North America and the largest fluidized-bed biosolids incineration facility in the world.

At the Lakeview facility, wastewater flowing through eleven primary sedimentation tanks is mixed with ferrous chloride at aeration tanks to solidify and remove excess phosphorus. After secondary clarifiers

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Vlad Petran,
Manager of Wastewater Treatment

remove the additional solids from the wastewater, the wastewater is further disinfected before it flows over weirs and eventually discharges into Lake Ontario. The diffusion pipe system reaches more than 1.25 kilometers from the shore to the lake bottom. To ensure safety and reliability, the chemical feed system that transports the ferrous chloride diluted with carrier water is double contained to prevent any possible leaks or spills.

“The chemical feed system is a long system of pipes running through underground tunnels, and ferrous chloride is a very corrosive chemical,” explains Vlad



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IPEX Double Containment Systems

Xirtec[®]140

Guardian[™]

- Available in schedule 40, schedule 80 and SDR 1/2" through 24" sizes
- Completed systems of vales, pipe and fittings
- Easy to install



- Available in schedule 40 and schedule 80 1/2"-12" carrier and 2"-18" containment sizes
- Patented Centra-Lock[™] Design – minimizing potential for failures and leaks and reducing installation and maintenance costs
- Easy to install



Petran, Manager of Wastewater Treatment, Capital Works, Region of Peel, and former senior project engineer with AECOM Canada Ltd.* that designed the system. "Any leaks can create a safety hazard, as well as potentially cause damage to the concrete structure or other systems running through the tunnels. Using a double containment



system ensures a spill-free system for better reliability."

During the initial design phase of the Lakeview project, IPEX worked with designers to introduce its Guardian[™] Vinyl double containment

system. The Guardian system is comprised of 2" Xirtec[®]140 Schedule 80 PVC carrier pipe inside a 4" Xirtec140 Schedule 40 PVC containment pipe. To reduce system installation and maintenance costs, the Guardian system features a patented Centra-Lok[™] design that allows the system to be installed with full 20-foot lengths, while keeping the carrier pipe perfectly centered inside the containment piping. The system is also available in spool piece fabrications according to specific application designs.



"We chose the PVC Guardian double containment system because it offered the corrosion resistance we needed, and it is was the most cost-effective option," says Petran. "IPEX also worked with us to find the most economical way to design the system with expansion joints to accommodate the seasonal temperature changes in the tunnels. We also liked the fact that IPEX provided a local technical sales representative to work closely with us and the contractor."

Maple Reinders Constructors Ltd. of Mississauga, ON did the Guardian system installation. Maple Reinders is an award winning contractor with offices located across Canada. Project Manager Lyndon Grovum of Maple Reinders coordinated onsite training by IPEX for piping installers to emphasize proper solvent welding and other installation procedures prior to the job.

Visual leak detection stations were created using clear PVC S40 pipes.

"The plant operation staff was concerned about detecting any leaks in the system. To provide extra peace of mind and a worry-free system, IPEX provided clear tubes at visible low points in the system where potential leaks would be noticed," says Petran. "These detection points are inspected on a regular basis. The system is working as intended—we have not experienced any leaks since the system was installed in 2009."



For more than 20 years, Guardian systems from IPEX have been the benchmark in double containment piping in North America. With all the corrosion resistance, performance and longevity benefits of Xirtec140 PVC, the Guardian Vinyl double containment system improves overall safety at the Lakeview WWTP, while ensuring reliable service to the surrounding community for the life of the system.

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