

# IPEX Industrial Case Study

Water & Wastewater Treatment Applications

## IPEX Double Containment PVC System Protects Chemical Lines at North Toronto Wastewater Treatment Plant



Originally commissioned in 1929, the North Toronto Wastewater Treatment Plant is one of four wastewater treatment facilities operated by the City of Toronto. Located in the Don Valley, the plant currently serves a population of about 55,000. The facility operates at a rate of about 7.5 million gallons per day (mgd) with major treatment processes that include screening and grit removal, primary treatment, secondary treatment, phosphorus removal, effluent disinfection and dechlorination.

Before being discharged into the Don River, final effluent at the North Toronto plant is disinfected with sodium hypochlorite and dechlorinated with sodium bisulphate. The end result is a high-quality effluent that has consistently surpassed the requirements of the Ontario Ministry of the Environment (MOE). To ensure safety and reliability, the systems that transport the sodium hypochlorite and sodium bisulphate are double contained to prevent any possible leaks or spills.

“We have confidence in the Guardian™ product, and IPEX has also been easy to work with. They were very involved, even coming onsite to provide product demonstration and training.”

**Buddhika Liyanage,**  
Resident Engineer with AECOM

“The Don River is a sensitive waterway and ecosystem, and the MOE has ordered all facilities in the area to use sodium bisulphate to bring chlorine down to safe levels,” explains Umberto Lafarciola, Mechanical Foreman with Malfar Mechanical Inc., a Woodbridge, Ontario-based mechanical contractor that installed the piping on the project. “In the plant’s containment area, piping from the pump stations delivers the disinfection and dechlorination chemicals, and we needed to use a double containment system due to the corrosive nature of the chemicals.”

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# IPEX Double Containment Systems

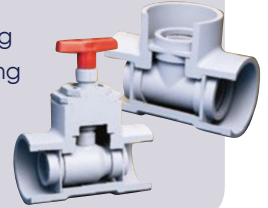
## Xirtec<sup>®</sup>140

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



## Guardian<sup>™</sup>

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



For the double containment system, the North Toronto plant used the Guardian<sup>™</sup> Vinyl double containment system from IPEX. The Guardian system is comprised mostly of 2" Xirtec<sup>®</sup>140 Schedule 80 PVC carrier pipe inside a 4" Xirtec140 Schedule 40 PVC containment pipe. Some portions of the system also used 1" Xirtec140 Schedule 80 PVC inside a 3" Xirtec140 Schedule 40 PVC. To reduce system installation and maintenance costs, the Guardian system features a patented Centra-Lok<sup>™</sup> 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.



**IPEX double containment ball valves were used.**

"Guardian double containment was specified due to the corrosive nature of the sodium bisulphate. We believe that PVC provides excellent resistance to the chemicals," says Buddhika Liyanage, resident engineer with AECOM, a global provider of professional technical and management support services to environmental, energy, water and government facilities. "We have confidence in the Guardian product, and IPEX has also been easy to work with. They were very involved, even coming onsite to provide product demonstration and training."

Onsite training by IPEX was arranged for Malfar piping installers to emphasize proper solvent welding and other installation procedures prior to the job. "IPEX has always been responsive to our needs, and it gives me peace of mind to know that they will be there onsite when we need technical support and training," says Lafarciola. "For the North Toronto plant, the Guardian system performed perfectly. We haven't had any leaks or failures."

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 North Toronto Wastewater Treatment Plant, while ensuring reliable service to the surrounding community for the life of the system.