

Metals Producer Reduces Wastewater Toxicity, Gains Process Improvement

INCO, Port Colborne Refinery
Port Colborne, Ontario, Canada

Challenge

One of Canada's best known companies and largest exporters, INCO Limited is primarily a nickel producer but also produces copper, precious metals, and is one of the few producers of cobalt in North America.

Located on the north shore of Lake Erie, the company's Port Colborne Refinery treats over 11,000 liters per minute of process wastewater. This wastewater is discharged into two settling ponds, which ultimately flow into Lake Erie. Port Colborne management is extremely concerned about the quality of the water not only because INCO places a high premium on environmental protection, but because the company must comply with Municipal Industrial Strategy for Abatement (MISA), a provincial program for addressing levels of persistent toxic substances in industrial direct discharges entering Ontario's waterways.

As part of the MISA initiative, INCO's Port Colborne plant was subject to the Acute Toxicity for Wastewater test, which evaluates the ability of rainbow trout and daphnia magna (water fleas) to live in the plant's effluent for 96 consecutive hours. Test results are reported in "percent mortality"; if more than 50% of the organisms die, the test is a failure.

While the company was diligent about treating its wastewater, the polymers Port Colborne was using to treat the water were not performing adequately, as an unacceptable level of toxins was finding its way into the lake. And while an "acceptable" percent of fish were dying in the acute toxicity test, INCO felt the level was still too high.



What was needed - a new polymer, a new process, or both?

Solution

On the advice of another plant that was using its services, Port Colborne went to GE Water & Process Technologies for a solution. Two technical experts from GE Infrastructure Water & Process Technologies analyzed the problem, ultimately providing Port Colborne with two new polymers based on a different technology that would leave decrease levels of toxins in the wastewater while still effectively removing the nickel and other primary metals. The GE experts also created an improved control and monitoring system

Results

Using the GE polymers, Port Colborne hasn't failed any of the toxicity tests for the past year. In fact, since switching the new polymers, the percent kills that Port Colborne has achieved has been zero for both trout and daphnia. What's more, instead performed on a monthly basis, because of the excellent performance the toxicity testing is now being conducted quarterly.

a product of
ecomagination™



Find a contact near you by
visiting ge.com/water or
e-mailing custhelp@ge.com.

Global Headquarters
Trevose, PA
+1-215-355-3300

Americas
Watertown, MA
+1-617-926-2500

Europe/Middle East/Africa
Heverlee, Belgium
+32-16-40-20-00

Asia/Pacific
Shanghai, China
+86 (0) 411-8366-6489

©2008, General Electric Company. All rights reserved.

*Trademark of General Electric Company; may be registered in one or more countries.

CH1064 Mar-08

Port Colborne has also gained tighter process control and has, in general, improved its water treatment procedures.