



Portlands Energy Centre

## Portlands Energy Centre Water Quality.

Control Program & Monitoring

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### Challenge

To develop a control program for *Escherichia coli* (*E. coli*) that minimizes the potential impact of City of Toronto sanitary sewer overflows into the cooling water source that may be transferred inadvertently to the Outer Harbour, and potentially to the Cherry Beach area, during PEC operations.

### Background

Portlands Energy Centre (PEC) was issued an Amended Certificate of Approval (C-of-A) for Industrial Sewage Works, to allow for the collection, transmission and disposal of once through non-contact cooling water and storm water drainage, by the Ontario Ministry of Environment. One of the conditions of the C-of-A, is a requirement for an *E. coli* Control Program. The Ontario Provincial Water Quality Objective (PWQO) is 100 *E. coli* colony forming units (CFU) per 100 mL, based on the geometric mean of a minimum of one sample per week from each of at least 5 sampling sites. When *E. coli* levels exceed the objective, the beach waters are posted as unsafe for swimming. The average Lake Ontario beach swimming season begins in early June and generally continues the first weekend in September.

### Project

Monitoring data was collected over a 4-year period to characterize the relationship between *E. coli* concentrations within the cooling water source relative to precipitation and operational factors, as well as the influence of the cooling water effluent discharge upon the *E. coli* concentrations within the Outer Harbour and in particular the potential for influence at Cherry Beach. Monitoring included daily water quality sampling, evaluation of the effectiveness of hyperchlorination of the effluent during periods of elevated *E. coli* concentrations and modelling of the bacterial plume dispersion within the Outer Harbour, during the summer months.

### Outcome

Robert Eakins, Senior Fisheries Ecologist at EcoMetrix notes that *“the collection and analysis of the multi-year data, not only enabled the development of a control program that was proven effective at reducing E. coli concentrations in the cooling water effluent to levels protective of Cherry Beach, but was cost-effective for the client.”*



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EcoMetrix Team:

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