

## **1.0 INTRODUCTION**

### **1.1 GENERAL OVERVIEW**

The Toronto communities of South Riverdale and the Beaches are situated adjacent to each other bordering Lake Ontario. Since the early 1970s, local residents of South Riverdale have been concerned about effects of local industries on the local environment and their health. While some of the large industrial facilities had either closed or re-located by the end of the 1990s, the residents of these communities remain concerned about the effects of past and current exposures to pollutants from these industries.

Today the Ashbridges Bay Treatment Plant (ABTP) is the only large-scale industrial plant remaining at the waterfront. In the early 1990s, the former Toronto Metro Works planned to make major modification and improvement to the operation of the ABTP. An environmental assessment process was initiated as required under the Ontario Environmental Assessment Act. Many studies were conducted and options considered. Various pilot projects were initiated, including applying 50% of the biosolids on agricultural land. In 1998, Toronto City Council made a decision to pursue 100% beneficial biosolids use, to construct a pelletizer plant to convert 50% of the dewatered cake into dry fertilizer pellets, to construct a new truck loading facility to permit biosolids shipment to agricultural land, and to close down the biosolids incinerator process (2003).

As part of the ABTP environmental assessment, a mediation process was initiated in 1998 between the City and nine (9) community groups or individuals. As a result of the negotiations, the City agreed in June 2001 to the groups' request to fund a number of studies, including a Community Health Status Study with a component of community exposure information with respect to the ABTP.

The South Riverdale and the Beaches community representatives have expressed interest in exploring whether emissions from the ABTP contribute to their perceived poor air quality. Works and Emergency Services have conducted several studies over the past decades to measure the in-stack concentrations of chemicals emitted during incineration of dewatered biosolids. Dispersion analysis using the Regulation 346 air dispersion model was carried out each time to assess the impact of the emissions on the ambient air.

To have an overall comprehensive picture of total air emissions from the ABTP and the resulting impact on the surrounding community, the community requested that the data generated piece-meal be compiled and interpreted. Since the current Regulation 346 air dispersion model is out-of-date and very limited, it is appropriate that the ambient air concentrations due to the emissions from the ABTP be remodelled using a state-of-the-science model, namely CALPUFF.

To determine the effects of the changes at ABTP on the surrounding communities, four (4) different emission scenarios were modelled. The four (4) modelling scenarios are:

- Scenario 1** air emissions from the incinerator when it was in full operation (pre 1996) and accounting for air emissions from all other sources within the treatment plant;
- Scenario 2** air emissions from the incinerator when it was in partial operation (2000-2002) and accounting for air emissions from all other sources within the treatment plant;
- Scenario 3** air emissions from the treatment plant after incineration is discontinued (2003-2004)
- Scenario 4** air emissions from the treatment plant after incineration is discontinued and odour control measures have been implemented (by 2010).

Toronto Public Health (TPH) commissioned an emission inventory and dispersion modelling assessment of ABTP emissions on the surrounding areas. Modelling was carried out with the aid of the US EPA CALMET/CALPUFF modelling system. The modelling analysis evaluated the potential concentrations of various chemicals in South Riverdale and the Beaches, attributable to the ABTP, against the Ontario Point of Impingement (POI) and Ambient Air Quality Criteria (AAQCs) as well as various health benchmarks provided by TPH.