

2 Decades of Environmental Mass Spectrometry

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In 1983, the Mass Spectrometry Laboratory at the Ministry of the Environment consisted of 4 scientists, 1 technician and 3 instruments. In 2005, this laboratory consists of 8 scientists, 7 technologists and 18 instruments. Included are 3 magnetic sector (1 tandem hybrid), 3 triple quadrupole and 12 single quadrupole (11 benchtop) mass spectrometers. These instruments provide a number of mass spectrometric techniques, including GC and LC in combination with EI, CI, ESI, APCI, LRMS, HRMS and MS/MS, that this laboratory introduced to the ministry. Applications include target compound analyses requiring HRMS and MS/MS, non-target compound analyses requiring full scan and library searching techniques, as well as special requests for which no ministry methods exist, emergency response and the identification of unknown organic compounds that are not in any existing databases. This presentation will illustrate how these instruments and the available mass spectrometric techniques have been used to address environmental problems within the province of Ontario.