

NAWTEC Speaker Abstract
**PCDDs/PCDFs in MSW Emissions – Pre and Post Mercury Control
- A Comparison of Profiles**

Gary T Hunt
TRC Environmental
Lowell, MA

In recent years since enactment of the NSPS, carbon injection has significantly reduced mercury emissions from MSW units. What is not well known is that carbon injection has also resulted in further unintentional reductions in PCDDs/PCDFs emissions from MSW emissions. These emissions reductions have taken place on a mass basis as well as a TEF weighted basis. The latter have been more pronounced on a percent reduction basis owing to changes in the PCDDs/PCDFs profile directly attributable to preferential adsorption of selected 2,3,7,8-substituted congeners on activated carbon injected in the gas stream for mercury removal. These lower molecular weight congeners are typically present in the gas phase and contribute more significantly to the TEF weighted sum.

This presentation will examine the PCDDs/PCDFs emissions profile from an MSW located in the State of Connecticut. Profiles characteristic of both traditional waste-to-energy emissions or pre-mercury control for this facility as well as those characteristic of post-mercury control will be presented. Profiles will be developed and presented using an algorithm used previously in an examination of PCDDs/PCDFs present in ambient air in the vicinity of the MSW located in Hartford Connecticut. This algorithm makes use of all PCDDs/PCDFs data available from use of isotope-dilution high-resolution gas chromatography/high-resolution mass spectrometry techniques. These data include the following: congener sums, 2,3,7,8-substituted congeners as well as all non 2,3,7,8-substituted congeners from selected congener classes. Profile data representing ambient air will be compared to profiles representing MSW post-control device emissions. These data comparisons support the following findings and conclusions:

- PCDDs/PCDFs emissions benefit from the use of activated carbon required by regulation for mercury control. Use of activated carbon on an industry wide basis has resulted in additional unanticipated reductions in PCDDs/PCDFs emissions from MSW facilities.
- PCDDs/PCDFs emissions profiles as a result of carbon injection differ from traditional profiles found in MSW emissions.
- Emissions profiles for MSW post-mercury control differ from those found in ambient air in the vicinity of MSW facilities.
- Changes in PCDDs/PCDFs emissions profiles attributable to the use of activated carbon provide an additional forensics tool for assessing contributions of source emissions to ambient air and other environmental media in the vicinity of facilities that use activated carbon for mercury control.

Mr. Gary Hunt is a Vice President of Air Toxics Programs and Director of Air Toxics Monitoring within TRC in their Lowell, MA office. He works principally in the toxic air pollutant area and, in particular, the characterization, quantification and control of toxic air pollutant emissions from stationary and fugitive sources, as well as their distribution, occurrences, transport and fate in the atmosphere.

Mr. Hunt, who holds a B.S. in chemistry from Villanova University and an M.S. in Environmental Sciences from Rutgers University, has more than 28 years of experience in air quality consulting. He is an internationally recognized expert in the field of toxic air pollutants. Mr. Hunt is a Qualified Environmental Professional (QEP) and Fellow Member of the Air & Waste Management Association. He is also a member of the American Chemical Society, Sigma XI, the Water Environment Federation, and the American Society of Mechanical Engineers. Mr. Hunt has authored more than 100 journal manuscripts and symposia presentations on environmental topics.