**Comparative Impacts of Local Waste to Energy vs.**

**Long Distance Disposal of Municipal Waste**

**Extended Abstract # 08**

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**INTRODUCTION**

In particular, this paper examines the comparative dioxin, particulate matter, and other air emissions of these two disposal scenarios. Different emissions can have a different impact not only on the health of local residents, but the health of our planet as well, due to global warming. In addition to these risks, the conservation of fossil fuels that are used for long-distance trucking and power generation will also be compared.

**Landfill Emissions**

When landfill gases are either flared for disposal, or even combusted for energy recovery at the landfill, they are likely to form dioxin/furan emissions. It is known that steel and iron halides in the combustion flare can catalyze dioxin formation. In fact, a 1998 New York State Department of Health report on health effects from MSW landfills reported that women living near the studied landfills, where gas is migrating, have a four-fold increased chance of bladder cancer or leukemia.

**Truck Emissions**

Using New York City (NYC) as an example, we find that in 2004, over 3,000,000 tons of MSW from NYC were transported mainly by means of 20-ton long haul travel trailers (92.4% by truck and 7.6% by train)10 over long distances to other states such as Pennsylvania (63%), Virginia (34%) and Ohio (2.9%).

… if NYC were to develop two waste-to-energy facilities to combust 2 million tons of MSW per year, instead of transporting and disposing of this tonnage in Pennsylvania’s landfills, it would avoid 26 million truck miles annually. This would avoid emissions of about 16,000 kilograms (32,000 lbs) of truck particulate emissions per year.

… trucking also generates dioxin emissions due to combustion of the fuel. This can occur with the combustion of any organic material with halogens, e.g. dioxins are formed in diesel engines, where the fuel contains residual chlorine … A Norwegian study shows that the dioxin emissions could be as high as 8.2 ng TEQ per truck-mile, while a U.S. EPA study estimates 0.8 ng TEQ per truck mile.

**Health Risks**

According to the National Academy of Sciences, as many as 15% of the general population suffer from multiple chemical sensitivity (MCS). British environmental medicine specialist Dr. Jean Monro has stated that, “In my clinical practice I have had patients who report cases of onset of MCS from exposure to landfill sites. The syndrome often begins with generalized symptoms such as headaches, migraines, constant fatigue, muscle pain, asthma, and progresses to specific organ dysfunction.”

The key NMOC (emission of non-methane organic compounds) from landfills, which are implicated in the formation of atmospheric ozone in landfill gas and their health effects from inhalation exposure have been previously well documented. Multiple health risk studies have shown that estimated cancer health risks for exposure to MSW landfill emissions were 41 in a million, compared to estimated cancer health risks for waste-to-energy (WTE) plants of 8 in a million, respectively. Generally, lifetime cancer risks in excess of the 10 in a million range are considered unacceptable by health risk professionals. WTE combustion may pose far less health risks than landfill exposure when impacts from diesel truck transportation of MSW are accounted for, as is discussed.

… a recent study, conducted by Pearl Moy for New York City (NYC), points out that disposing of waste via landfills increases health risks 30-fold, compared with using waste-to-energy, which produces several types of energy, e.g. steam, electricity, by combusting MSW. Moy’s study concluded that the emissions from diesel truck engines transporting waste to landfills resulted in a ten-fold increase in health risks in the landfill disposal option.

**Waste-to-Energy Emissions**

When considering WTE as a waste management strategy, the general public voices the most concern about dioxins.

Table 2, however, documents the average emissions of 95 Waste-to-Energy plants in the United States for each pollutant, including dioxins. As noted, these values are much lower than the U.S. EPA standard values.

The most significant contributor to the dioxin inventory in the U.S. today is the uncontrolled combustion of residential and agricultural waste (“backyard barrel burning”) and the residential combustion of wood in stoves. “Backyard barrel burning” constitutes over 50% of the U.S. dioxin emissions. Extensive research has been conducted by the US EPA on this topic and the research concluded that “A family of 4 burning trash in a barrel in their backyard – still a common practice in many rural areas – can potentially put as much dioxin and furan into the air as a well-controlled municipal waste [combustor] serving tens of thousands of households…”

**CONCLUSION**

Today, there are more than 600 modern, successful WTE facilities operating worldwide,

including 89 in the United States, without any significant pollution. … Also, if we choose to continue to look towards Europe for environmental standards, it must be noted that MSW landfills are now banned in Europe, … A recent German Ministry of the Environment report also indicates negligible dioxin emissions from 66 WTE plants in that nation …