

Environmental Federation of Missouri
221 Bolivar Street* Suite 300 *Jefferson City, Missouri 65102

September 30, 2010

Ms. Angie Gehlert
Executive Director
Missouri Recycling Association
P. O. Box 2144
Jefferson City, Missouri 65102

Subject: Missouri Yard Waste Landfill Ban Proposed Resolution

Dear Ms. Gehlert:

The Environmental Federation of Missouri (EFM) wishes to offer the following input on the proposed Yard Waste Ban resolution being proposed by the MORA board.

Landfill gas is produced when organic materials such as yard waste are decomposed by bacteria under anaerobic conditions. The purpose of introducing yard waste into a sanitary landfill is to expedite this decomposition process thus increasing the production of landfill gas of which approximately 50% is methane. Thus, according to US EPA, where "green energy" may be produced from a sanitary landfill, the introduction of yard waste into the landfill may be beneficial.

The Environmental Federation of Missouri (EFM) wishes to offer the following input on the proposed Yard Waste Ban resolution being proposed by the MORA board:

- 1.) The first Whereas fails to mention that in 2007 House Bill 1056 passed in the Missouri legislature and was subsequently signed into law. HB 1056 allows yard waste to be disposed of in a municipal solid waste disposal area if the disposal area operates as a bioreactor and its landfill gas is used to produce electricity. Therefore, the statement that Yard Waste has been banned from Missouri landfills since 1992 is in-accurate.
- 2.) The second Whereas states that Yard Waste is a valuable resource (in part) because it saves landfill space. However, allowing small quantities of Yard Waste to be disposed of in landfills which produce energy can actually enhance breakdown of material in the landfill which in turn may end up saving greater space.
- 3.) The third Whereas states that the yard waste ban supports a growing compost industry in Missouri with new jobs and tax revenues. EFM would like to point out that the landfill gas conversion to electricity also creates jobs as well as supplies alternative energy at a relatively low cost to power Missouri industries which may, in the end, produce many additional jobs. Also, by allowing small quantities of yard waste into the landfill there would be an increase in fee revenue due to the fact that the landfills collect \$2.11 per ton for waste disposed of while compost facilities, even though they are pollution generating facilities, pay nothing.
- 4.) In the fourth and fifth Whereas it states that "landfill gas recovery systems capture only a fraction of the gas released as large quantities of methane can be lost to the atmosphere". The Los Angeles County Sanitation District (LACSD) examined five landfills and discovered that in each site they were able to maintain recovery efficiencies of methane above 90%. The highest, Scholl Cannon, had a collection efficiency of 98.9%.
- 5.) EFM agrees with the fifth whereas and suggests that MORA consider supporting legislation which would regulate food waste composting to a similar degree to which landfills are currently regulated.
- 6.) The final whereas of the MORA draft resolution states that the ban must be kept in order to protect Missouri's citizens and the environment from significant negative impacts. EFM would like to point out that there are compost operations in Missouri and surrounding states that are presently undergoing enforcement actions for significant damage to the environment. EFM submits that MORA should consider the need for regulation of commercial compost facilities which can and do negatively impact the environment.

Further EFM would like MORA to consider the following:

1. Removal of a portion of yard waste from separate collection will result in less overall vehicle fuel consumption. In many cases yard waste, especially in scattered collection applications, is better to be mixed with MSW at the curb rather than to create large sums of harmful air emissions in an attempt to collect a miniscule quantity of material. Missouri will experience an overall improvement of air quality as a result of removing some portion of the yard waste trucks that travel Missouri's roads every day.
2. Landfill gas recovery systems do benefit the environment by reducing overall GHG emissions. A limited amount of yard waste will aid in enriching the landfill gas which is an alternative source of energy that,

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according to the US EPA, can offset 900 lbs of carbon emissions for each ton of waste placed into a sanitary landfill that is equipped with a gas recovery system and energy production capabilities.

Further Support for the EFM position is as follows:

- "Biodegradative Analysis of Municipal Solid Waste in Laboratory-Scale Landfills" (attached)-Research by Barlaz, Eleazer, Odle, Qian, and Wang (1997) measured the behavior of waste wood, paper, food waste, and yard waste. The study says "Where there is interest in methane recovery, banning yard waste from landfills may be self defeating." The study goes on to discuss that grass, leaves, and branches were the major identifiable contributors of refuse-decomposing microbes to landfills. Thus, the banning of yard waste may impede the production of landfill gas in a sanitary landfill unless the landfill is receiving substantial volumes of other wastes that carry refuse-decomposing microbes. However the study does warn that because of the potential increased production of landfill gas caused by the reintroduction of yard wastes, it is imperative that a sanitary landfill have an active gas collection system capable of controlling emissions.
- EPA publication titled Solid Waste Management and Greenhouse Gases "A Life Cycle Assessment of Emissions and Sinks" 3rd Edition Published, September 2006 (GHG Report). According to the EPA GHG report, GHG emissions at landfills appear to be based presumably on LMOP estimates. The GHG Report assumes these emissions occur at the time the waste is placed in the landfill making the emissions appear greater. A more realistic scenario is that GHG would be released over a period of decades as the waste mass decomposes with some portion of the emissions actually dissolving into the leachate of the site itself.
- In the 2006 Green House Gas Report EPA assumed the average landfill with recovery capabilities has on average a 75% recovery efficiency rate with an additional 15% down time calculated in. By way of comparison, The Los Angeles County Sanitation District (LACSD) examined five landfills and discovered that in each site they where able to maintain recovery efficiencies above 90%. The highest, Scholl Cannon had a collection efficiency of 98.9%. Where such sites exist the EPA average calculations can be somewhat misleading, especially when comparing the recovery vs. disposal and its impact on the environment.
- EPA publication titled Solid Waste Management and Greenhouse Gases "A Life Cycle Assessment of Emissions and Sinks" 3rd Edition Published, September 2006 (GHG Report). Page ES-13 - "Landfills manage a mixed waste stream; therefore, net emissions are determined more by technology factors (e.g., the efficiency of landfill gas collection systems)."
- EPA publication titled Solid Waste Management and Greenhouse Gases "A Life Cycle Assessment of Emissions and Sinks" 3rd Edition Published, September 2006 (GHG Report). Page ES-15 -EPA conducted sensitivity analyses to examine the GHG emissions from landfills with gas recovery, and methane, oxidation rate and gas collection system efficiency. The sensitivity analyses demonstrate that the results for landfills are very sensitive to these factors, which are site-specific. Thus, using a national average value when making generalizations about emissions from landfills masks some of the variability that exists from site to site.
- EPA publication titled Solid Waste Management and Greenhouse Gases "A Life Cycle Assessment of Emissions and Sinks" 3rd Edition Published, September 2006 (GHG Report). page 90 "Perhaps the most important caveat to the analysis of GHG emissions and storage associated with landfilling is that the results are based on a single set of laboratory experiments, those conducted by Dr. Morton Barlaz." The statement concludes by noting: "EPA recognizes that more research is needed in this area".

EFM favors a thorough discussion of the concept that material diversion no matter how costly to the economy or the environment is good. EFM believes that Missouri owes it to the next generation to, at this time, re-visit those parameters that determine highest and best management of materials in the waste stream.