Hi Susan,

I am hoping that a tragedy this weekend is a reminder of some of the potential dangers that we need to be aware of, understand, and ensure that it doesn't happen.

On Friday evening in Langley, BC. three workers at a mushroom compost facility died. Three more were seriously injured. It is now 60 hours after the tragedy, and the cause of death and of injury is not known or has not been revealed yet. We, as the larger family of composters mourn for the men and their families who have suffered a great loss. We are also humbled by the complexity of nature, and our responsibility to learn, to understand and to prevent.

Although mushroom composting is outside of the scope of most of the members of the Compost Council of Canada, we also need to sit up and take notice. What happened, and how could this be prevented, and does this relate to our compost facilities?

The answer is yes, this very much relates to all of our members. For those of us who are compost facility workers, we need to understand the potential risks associated with our industry. For those of us who are supervisors, we need to understand the risks, educate our workers, and do everything that we can to prevent this type of tragedy. For those of us who are regulators, we need to understand the implications of our regulations that are put in place to protect the environment and combine them with health and safety training and education for our workers.

So, what did happen on the mushroom farm, and how does it relate to the rest of us in composting? The tragedy appeared to be associated with toxic gases coming from the recirculation water - or leachate water. What we do know from science and experience is that anaerobic conditions, together with sulphur compounds and organic matter - will produce dangerous gases such as hydrogen sulphide. According to new agricultural health and safety guidelines in Ireland, one lung full of hydrogen sulphide at high concentrations can cause death. This is truly humbling.

How does this relate to us in composting? Composting is largely an aerobic activity, so we do not have to expect much hydrogen sulphide during the composting process. It relates because we are responsible for collecting leachate to prevent environmental pollution. Leachate contains sulphur compounds, and organic matter, and is anaerobic - hence we have the potential for hydrogen sulphide production as well. The mushroom industry uses gypsum or calcium sulphate, which increases the risk, but we know from the wastewater industry and from landfilling that hydrogen sulphide is produced because organic matter contains sulphur.

There are two reasons why hydrogen sulphide will become a larger concern to our Compost Council of Canada members.

1. Because we have to collect and treat leachate, we try to limit its production, which sometimes means that it is more concentrated, increasing the risk of hydrogen sulphide production.

2. We are increasing our composting of food wastes, which intensifies the composting process because of more readily available carbon and higher nutrient contents. We know about hydrogen sulphide production in our large intestines, we need to understand it on a much larger scale. Although we don't expect hydrogen sulphide during the composting process because it is aerobic, any leachate will be much more complicated.
Composting is no longer that simple process, where yard waste was deposited on the back 40, ground and turned a few times hopefully on an area that had good drainage, then marketed.

We need to be educated on the dangers, and the risks, educate others, and put safety measures in place. We also have to think through the implications of new regulations or new technologies designed to reduce environmental pollution.

From my perspective, this supports the vision of the Compost Council of Canada to ensure that our workers have proper training and accreditation, so that we can know that our workers are safe.

I have attached a short summary of the risks of hydrogen sulphide in the mushroom compost industry.

Sincerely, John

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