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Testing standards still unclear for liquefied carcasses from Cornell

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ITHACA - Before the overseers of Ithaca's wastewater treatment plant could consider accepting the liquefied remains of Cornell's animal carcasses, they'll have to decide how often the material must be tested and whether there should be limits on phenols.

Prions, infectious proteins that carry diseases such as scrapie, chronic wasting disease and mad cow disease, have received the bulk of the attention since the wastewater plant began deciding whether to take the waste, but a variety of other substances could come through the high-heat, high-pressure chemical digester Cornell will use to liquefy 750,000 pounds per year of animal carcasses and infectious bedding.

Phenols can be both manufactured and natural chemical substances. One example of a phenol that might appear in the work at Cornell's veterinary college is formaldehyde, used to preserve carcasses so they can be dissected by students, said Paul Jennette, biosafety engineer for the College of Veterinary Medicine.

Animal carcasses preserved with phenols account for "less than 1 percent" of all the waste that comes through the vet college, Jennette said.

Phenols can be used medicinally as an antiseptic or anesthetic, according to the federal Agency for Toxic Substances and Disease Registry, but at high levels in water and air, phenols can cause headaches, muscle tremors, and irregular heartbeat. Phenol is not carcinogenic, according to the federal agency.

The federal government limits the amount of phenols that wastewater treatment plants can discharge into public water bodies to 1 part per billion.

The Ithaca Area Wastewater Treatment Plant has no limit on the amount of phenols it takes into its plant and must process before discharging into Cayuga Lake, according to Pat Leary, a member of both the Ithaca Town Board and the Special Joint Committee that oversees the wastewater plant. Leary has taken the lead in writing the committee's resolution and findings statement on Cornell's liquid waste.

"The (State Pollutant Discharge Elimination System) permit that the wastewater treatment plant has right now doesn't mention phenols," Leary said.

Local environmental activist Walter Hang, president of Toxics Targeting, discovered a reading of 39,000 parts per billion total phenols in wastewater from a Pilot Test conducted by the Vet College, and reported in the Environmental Impact Statement on the project. Hang sent his findings to the Environmental Protection Agency's regional pretreatment coordinator, and to a variety of local elected officials and joint sewer committee members.

Leary said the committee is looking at whether Cornell should pre-treat its waste for phenols. In addition, the wastewater plant is undertaking a study to determine the maximum amount of various materials it could safely handle and the committee has asked that the study include phenols, she said.

Jennette said the Pilot Test referred to in the impact statement was specifically "spiked" with phenols

to see how much of the chemicals would pass through.

Carcasses with phenol come from anatomy classes, they consist of less than 1 percent of the vet college's total waste over a year, and the carcasses would be mixed in the digester with other non-phenol-treated waste, he said.

"We don't run entire loads of just anatomy waste," Jennette said. "Those loads certainly would be mixed in with the digester. It runs 5,000 pounds at a time. We don't get 5,000 pounds at a time from the anatomy lab."

Unlike prions, it is relatively easy to test for phenols, and a testing requirement for phenols could be added to Cornell's permit with the wastewater plant, he said.

On prions, the Centers for Disease Control and National Institute of Health issued a summary statement on prion diseases and concluded that "the alkaline hydrolysis process ... has been shown to completely inactivate (prion diseases) when used for the recommended period of time."

The Environmental Protection Agency, in a record of decision on prions, determined that while prions are "extremely resistant to inactivation," they can be destroyed through "incineration at very high temperatures and alkaline hydrolysis."

"The prion issue, I think we're good as long as they stick to the six-hour treatment. I don't think there's any worry about that," Leary said. "But the phenols and other kinds of things, we want to make sure that we're covered."

Additional Facts

Other sites

Liquefied cows around the country:

* Colorado State University in Fort Collins uses an alkaline hydrolysis digester and sends its waste to the local municipal sewer plant. They tried using an "evaporator" to avoid paying municipal discharge fees, but they couldn't control the odor.

* The University of Florida in Gainesville discharges its waste to a local aquifer, which is also used as a drinking water source. It also uses the treated liquid as a spray irrigation for local golf courses and nurseries.

Source: 2004 Supplemental Environmental Impact Statement prepared by Malcolm Pirnie, Inc. of Orchard Park, NY.
