

Connecticut Department of Public Health
***** FACT SHEET -- January, 1997 *****

REPRODUCTIVE HEALTH AND THE DANBURY LANDFILL

Introduction

Health concerns have been raised by residents in the town of Bethel due to their exposure to odors stemming from the Danbury Landfill. Odors from the landfill have increased since August, but this situation should be improved when a gas collection system and flare are installed (expected in spring, 1997). One of the health concerns expressed by community residents is that pregnant women or their offspring may be affected by the gases emanating from the landfill. The following sections summarize what is known about these gases and their implications for risk during pregnancy.

What is in the gases Coming from the Danbury Landfill?

Most of the gas emitted from typical municipal waste landfills consists of methane and carbon dioxide. These gases are non-odorous and not toxic at concentrations that can be reached in community air. Odorous gases that can come from landfills are hydrogen sulfide and other reduced sulfur gases. The air monitoring data thus far available at the Danbury Landfill suggests that hydrogen sulfide is the major cause of odor in the communities around the landfill. A variety of different volatile organic chemicals (VOCs) can also be released from municipal waste landfills, but these levels are usually quite low. The limited sampling data from Danbury supports the concept that VOC emissions from the landfill are too low to present a public health threat. Follow-up air sampling is being planned by state and local officials in conjunction with citizens.

Is Exposure to Hydrogen Sulfide a Risk Factor During Pregnancy?

Given that hydrogen sulfide seems to be causing strong odors around the landfill, it is relevant to consider whether exposure to this gas could be a risk during pregnancy. This possibility has been addressed in laboratory animal studies involving daily exposure during pregnancy to hydrogen sulfide at relatively high concentrations (up to 150 ppm; for comparison the highest level measured in the neighborhood around the landfill to date is 0.015 ppm). In these studies, hydrogen sulfide did not cause birth defects, pregnancy loss, or decrease in birthweight. This evidence has led the US Environmental Protection Agency (EPA) to conclude that hydrogen sulfide does not appear to alter fetal development.

Although human exposures occur to hydrogen sulfide in occupational settings and in communities surrounding landfills, there has been very little evaluation of reproductive outcomes in these populations. The few studies that have been conducted have had too

many limitations to be useful. Therefore, the animal studies form the basis for evaluating reproductive risks associated with hydrogen sulfide.

Is the Danbury Landfill a Risk to Pregnant Women?

The air sampling data thus far collected suggest that the levels of hydrogen sulfide in the community are low, and in fact, far below the levels tested in the animal studies. Additional sampling is being planned to provide more detailed air quality data around the landfill. While the sulfide gases coming from the landfill are unlikely to affect reproduction, the levels are high enough to produce strong odors. These odors may be highly unpleasant and at times, may be sufficient to make people feel ill. It should be kept in mind that such illness is a reaction to the odor and should improve once the odor dissipates.

The only criterion for hydrogen sulfide levels in the community is the World Health Organization (WHO) level of 0.11 ppm. This level is meant to protect the general public from any toxic effects (including reproductive effects) from hydrogen sulfide, although it is recognized that odors will be unpleasant at this level. Air testing conducted thus far in the community around the Danbury Landfill have found levels well below the WHO criterion.

In summary, the Danbury landfill is unlikely to be a reproductive risk to pregnant women in the surrounding community for the following reasons:

- Hydrogen sulfide is not considered to be a significant reproductive risk factor;
- The levels of hydrogen sulfide in the community appear to be low;
- Testing for other landfill gases have found that VOCs were either not present or at levels too low to be a public health risk.

If you would like additional information, contact the State Department of Public Health at 860-509-7742, your health care provider, or the Pregnancy Risk Hotline (1-800-325-5391).