
ENVIRONMENTAL Fact Sheet



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Odors and Your Health

INTRODUCTION

The New Hampshire Department of Environmental Services (NHDES) is often asked to evaluate health impacts from exposure to environmental odors. An odor is a chemical in the air that is “smelled” or sensed by our nose (olfactory system). Apples smell like apples due to the chemicals that create the apple odor. Odors, also called smells, can be both pleasant and unpleasant. Most humans can distinguish more than 5,000 odors.

We breathe 10,000 to 20,000 liters of air a day, mostly through our noses. The olfactory system comes in contact with a different variety and concentration of odors every day. Odors can alert people that something may be harmful, but generally, you can smell many chemicals before they are at levels that are harmful to your health. For example, we are able to smell hydrogen sulfide (H₂S), which smells like rotten eggs, at very low levels; levels much lower than those at which this chemical can cause toxic health effects.

CAN ODORS CAUSE HEALTH PROBLEMS?

Yes, certain groups of chemicals that produce odors are potentially harmful and can cause health problems. Some of these harmful chemicals are regulated by the NHDES under the Air Toxics Program and the US Environmental Protection Agency (EPA) under the Clean Air Act.

Just because something smells bad does not mean it is harmful, e.g., rotten eggs. Some harmful and/or deadly chemicals can have a mild or sweet odor like benzene, or no odor at all like carbon monoxide. Hydrogen sulfide (H₂S) smells like rotten eggs. The level at which you can begin to smell H₂S is approximately 1.0 microgram per cubic meter. EPA has determined that there is no health risk associated with exposure to H₂S at this concentration. The level that is considered to be harmful to public health and the environment for H₂S is 50 micrograms per cubic meter. What this means is you can begin to smell H₂S at levels below what is considered harmful to public health and the environment.

Effects from exposure to chemical odors can be an immediate health threat, a long-term threat, or may pose no health threat at all. Getting sick from chemical odors will depend on **what** you are exposed to, **how much** you are exposed to, **how long** you are exposed, **how often** you are exposed and your individual sensitivity to the odor.

The influence of odors on the health and comfort of individuals is difficult to evaluate. Odor sensitivity and response to odors differs from person to person. For some people who are more sensitive to odors, simply smelling a small amount of a foul odor can cause headaches and nausea. Sensitive populations include young children, pregnant women, the elderly and people with chronic health problems. People with chronic health problems include individuals with asthma, emphysema and other respiratory diseases, COPD (chronic obstructive pulmonary disease), depression, chemical hypersensitivity or stress-induced illness.

CONCLUSION

Often it is hard to draw a distinct line between a nuisance odor problem and an outright public health problem when members of a community are at risk of actually feeling sick. Unpleasant odors have often been recognized as “warning signs” of potential risks to human health rather than direct triggers of health effects. But we also know that odors from environmental sources might indeed cause health symptoms depending on the individual and specific environmental factors.

Each odor problem needs to be considered separately since they may differ widely in their nature and severity. While non-regulated chemical odors are not usually a significant public health hazard, the odors may be unpleasant and produce discomfort and temporary health symptoms. Measures to contain or eliminate unpleasant odors and prevent their migration into the community are warranted when these odors create a persistent nuisance.

Note: This fact sheet is accurate as of 2012, and information available after this date may render this information inaccurate or incomplete.