



**State of New Jersey**  
*Department of Environmental Protection*

CHRIS CHRISTIE  
GOVERNOR

BOB MARTIN  
COMMISSIONER

KIM GUADAGNO  
LT. GOVERNOR

April 9, 2010

Re: **Vapor Intrusion Testing, Pompton Lakes, NJ**

Dear Resident,

The New Jersey Department of Environmental Protection (NJDEP) and U.S. Environmental Protection Agency (EPA) are offering an alternative vapor intrusion sampling program to the current DuPont-led program, in response to requests by members of the community. Testing by NJDEP's contractor will be available to anyone residing in the vapor mitigation area that has not yet had a vapor mitigation system installed or had previous sub-slab soil gas testing conducted. Representatives from both NJDEP and EPA will participate in this testing to confirm all sampling is being conducted in accordance with the approved Scope of Work created for this project.

The vapor intrusion investigation will involve placing one air sampling canister inside your home for 24 hours. Another canister will be placed outside of your residence to measure the ambient air. Following collection of the canisters, NJDEP's contractor will collect a sub-slab soil gas sample from a 1-inch diameter hole drilled through the slab of the first floor to evaluate whether vapors exist in the soil gas beneath the slab of your property. The hole produced will be grouted and sealed after the sampling is complete. I have enclosed a fact sheet that explains the sampling procedure that will be taken.

All samples will be analyzed for volatile organic chemicals, including PCE and TCE, using the NJDEP Low Level Method TO-15. The testing and analysis will be performed at no cost to you and the results will be provided to you. Laboratory analysis will be conducted by Test America of Burlington, Vermont.

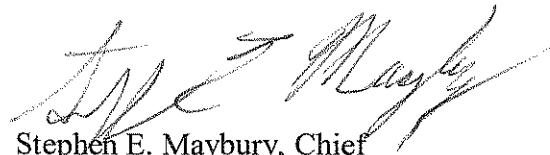
Please keep in mind that regardless of your results, all homes in the plume will still have the opportunity to install a vapor mitigation system in your home, at no cost to you by a contractor of your choice or through the Dupont-led program. Ample data has been collected throughout this project to confirm soil gas exceedances in more than 95% of the homes in the plume tested. In addition, pre-installation data is not necessary to support the conclusion by NJDEP and EPA that mitigation should be conducted in homes located in the area of the elevated shallow groundwater contamination, and considering that any

indoor air data collected will not be representative of conditions during the heating season (worst case scenario) you may want to consider moving forward with the design work at the same time.

If you have received this letter and have already had soil gas testing conducted at your property but have not yet had a vapor mitigation system installed, NJDEP and EPA urge to you please consider doing so. NJDEP, EPA and the NJ Department of Health and Senior Services, continue to recommend these systems as the appropriate measure to ensure no ground water vapors enter the home.

Vapor intrusion sampling is anticipated to begin in early May 2010. If you are interested in having soil gas only or both soil gas and indoor air testing conducted, or would like to discuss this further, please contact Mindy Mumford at (609) 777-1976 or via email at [mindy.mumford@dep.state.nj.us](mailto:mindy.mumford@dep.state.nj.us).

Sincerely,

A handwritten signature in cursive script, appearing to read "Stephen E. Maybury".

Stephen E. Maybury, Chief  
Bureau of Case Management  
NJDEP

Enclosure

# Evaluating Indoor Air near VOC Contaminated Sites

## What are VOCs?

**Volatile organic compounds (VOCs)** are a class of chemicals that readily evaporate at room temperature. Gasoline, dry cleaning fluid, degreasing agents (solvents) and paint thinners are several examples of products that contain these compounds. VOCs may be found in soil and/or ground water due to spillage onto the ground, leaks from underground storage tanks and other types of discharges.

## How VOCs in soil or ground water can affect indoor air

If VOCs contaminate soil or ground water at a site, it is important to evaluate nearby buildings for possible impacts from **vapor intrusion**. Vapor intrusion occurs when gases from the contaminated soil or ground water seep through cracks and holes in

foundations or slabs of buildings and accumulate in basements, crawl spaces or living areas, as shown in the diagram below.

A variety of factors can influence whether vapor intrusion will occur at a building located near soil or ground water contaminated with VOCs. These include, but are not limited to, the concentration of the contaminants, the type of soil, the depth to ground water, the construction of the building, the condition of the foundation or slab and the existence of underground utilities that can create pathways for vapors to travel.

Short term exposure to high levels of organic vapors can cause eye and respiratory irritation, headache and/or nausea. Breathing low levels of organic vapors over a long period of time may increase an individual's risk

for respiratory ailments, cancer and other health problems.

Organic vapors can be present inside a building at potentially harmful levels without being detectable by odor. **Sub-slab soil gas testing, near-slab soil gas testing and/or indoor air testing** are usually required to determine whether vapor intrusion is occurring at a property.

## Testing for vapor intrusion

If your home or building is located near VOC-contaminated soil or ground water, NJDEP or an environmental contractor may ask permission to evaluate your property for vapor intrusion. This process typically involves first conducting sub-slab soil gas testing to check for vapors beneath the building, followed by indoor air testing, if necessary. During sub-

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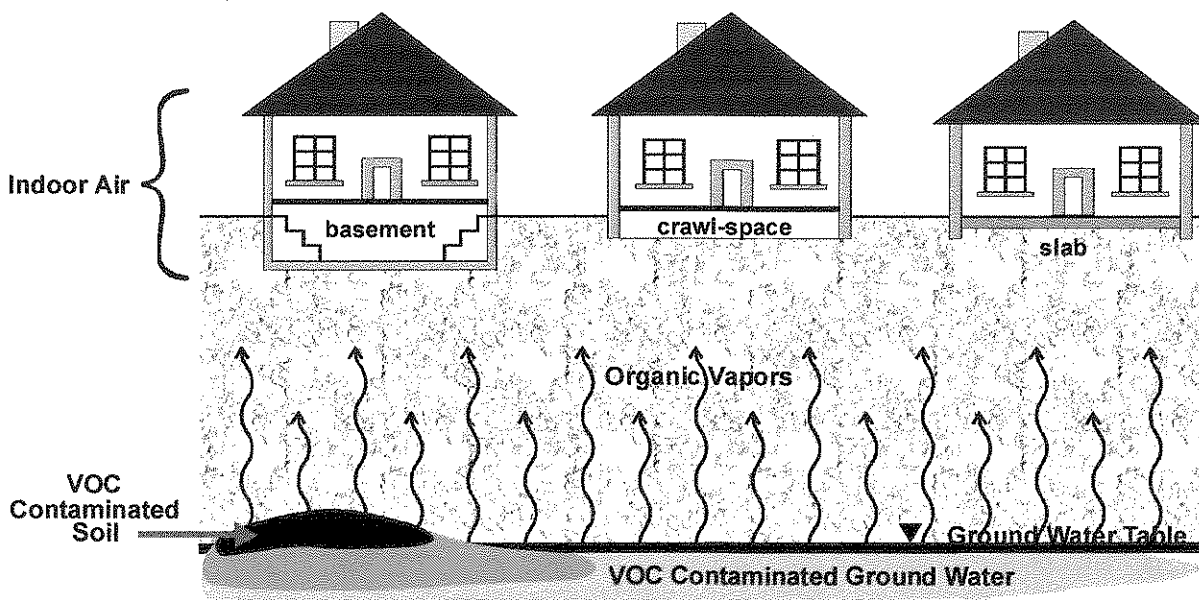


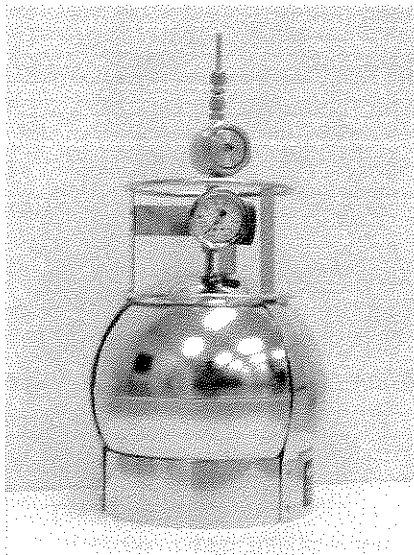
Diagram adapted from USEPA's *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Ground Water and Soils*, November 2002



(continued)

slab testing, a small hole is bored through the basement floor or slab and a sample of the **soil gas** (the air trapped between the soil particles) is collected using an evacuated air testing canister (see below). If it is not possible to collect a soil gas sample from beneath the floor or slab, the sample may be collected by placing a probe in the soil directly adjacent to the building (near-slab testing). The soil gas sample is then sent to a certified laboratory to be analyzed for VOCs. If the analysis shows VOCs related to the subsurface contamination are present above NJDEP's Soil Gas Screening Levels (SGSL), then indoor air testing is necessary.

During indoor air testing, a canister is placed in the basement, crawl space or other part of the building for a period of time (normally 24 hours). If the analysis of the indoor air sample shows VOCs related to the subsurface contamination are present above NJDEP's Indoor Air Screening Levels (IASL), vapor intrusion is likely occurring. Additional evaluation of the property may be needed to confirm this finding.



An evacuated air testing canister. The pressure inside the canister is initially set lower than the indoor air, causing air to flow into the canister when the valve is opened.

### Background contamination

Many materials and substances commonly found in commercial and residential settings, such as paints, paint thinners, gasoline-powered machinery, certain building materials and cleaning products, dry cleaned clothing and cigarette smoke, contain VOCs that may be detected by indoor air testing. Even VOCs from motor vehicle emissions and other outdoor sources can contaminate indoor air. When VOCs from these sources are detected during indoor air testing, they are referred to as **background contamination**.

Sometimes it can be difficult to determine whether the VOCs detected inside a building are due to vapor intrusion, background contamination or a combination of both. Before your building is evaluated for vapor intrusion you should receive a copy of NJDEP's *Instructions for Occupants - Indoor Air Sampling Events*. Please follow these instructions to minimize background contamination and help ensure that the test results are as definitive as possible.

### Addressing vapor intrusion

If testing confirms vapor intrusion is causing potentially harmful levels of VOCs to accumulate inside a building, a **subsurface depressurization system** may be installed at the property. The system prevents vapors from entering the building by continuously venting the contaminated air beneath the basement slab or crawl space to the exterior of the structure. Subsurface depressurization systems are also used throughout the country to reduce levels of naturally occurring radon gas in buildings. See NJDEP's fact sheet titled *Subsurface Depressurization Systems* for more information about how these systems work.

*Instructions for Occupants — Indoor Air Sampling Events, the Subsurface Depressurization Systems fact sheet and general information about vapor intrusion can be found in NJDEP's Vapor Intrusion Guidance Document, which is available at <http://www.state.nj.us/dep/srp/guidance/vaporintrusion>*

### Information for Residents and Property Owners

Contact Name \_\_\_\_\_

Agency/Company \_\_\_\_\_

Phone Number \_\_\_\_\_

Email Address \_\_\_\_\_

NJDEP Contact & Phone Number \_\_\_\_\_  
(if different than above) \_\_\_\_\_

Sampling Date/Time \_\_\_\_\_

Notes/Instructions \_\_\_\_\_  
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