

COUNTY OF SUFFOLK



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Frequently Asked Questions **Exposure at Construction and Demolition Debris Dump Sites**

What is construction and demolition debris?

Construction and demolition debris are the waste materials from the construction, renovation, and demolition of buildings, roads, and bridges. Construction and demolition debris can include materials such as concrete, wood, asphalt, gypsum (drywall), metals, bricks, glass, plastics, salvaged building components, and trees, earth, and rock from clearing sites. It may be ground up and mixed with soil at dump sites. Such soils have sometimes been found to contain contaminants such as metals, polycyclic hydrocarbons (PAHs), pesticides and asbestos.

Is soil dust a health concern?

Soil disturbance at sites can produce dust particles that are made up of different materials and vary in size. Small dust particles can become airborne and can be inhaled. No matter what is in the dust, breathing large amounts of airborne dust can cause short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath. Exposure to high levels of very small dust particles in air can also affect lung function and worsen medical conditions such as asthma and heart disease. Visible dust that settles on outdoor surfaces such as cars or outdoor items is made up of relatively large particles. When these large particles are disturbed and inhaled they do not reach the deepest parts of the lungs; however, breathing these particles can still be irritating to the respiratory system.

Questions about Asbestos

What is asbestos?

Asbestos is the name given to a group of fibrous minerals that occur naturally in the environment. Asbestos fibers are strong, flexible, and heat resistant. Asbestos has been used over the years for a wide range of building materials and manufactured goods, including roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products, friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets and coatings.



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How is someone exposed to asbestos?

We are all exposed to very low levels of asbestos in air, with levels of exposure that are generally higher in cities and industrial areas than in rural or suburban areas. Elevated levels of exposure occur most often when the asbestos-containing material is disturbed during demolition work, which releases fibers into the air. Undisturbed or buried asbestos-containing materials release very few fibers into the air. Asbestos-containing materials are described as “friable” if the material, when dry, can be crumbled or reduced to a powder by hand pressure. Examples of asbestos containing materials that are considered friable include asbestos pipe insulation or spray-on fireproofing. Non-friable asbestos containing-materials cannot be readily crumbled or reduced to a powder by hand pressure. Some examples of materials considered non-friable are intact asbestos floor tiles, roofing tiles and cement shingles. Friable asbestos containing materials can release asbestos fibers into the air with minor disturbance, and so pose a greater exposure risk than non-friable materials. Non-friable asbestos containing materials will not readily release asbestos fibers into the air if they are undisturbed, but they can release fibers if they are aggressively processed (for example, cut or ground) or burned.

What are the health concerns of asbestos exposure?

Breathing in high levels of asbestos can lead to health problems due to fibers accumulating in the lungs. Fibers embedded in lung tissue over many years may result in lung diseases such as asbestosis, lung cancer, or mesothelioma (a type of cancer). These diseases are a risk primarily for workers exposed to high levels of asbestos for years or decades and are very rare in people who did not work in asbestos industries. There are often no immediate symptoms from exposure to asbestos. Though no level of exposure to asbestos is completely safe, the risk of disease is directly related to how much, how often and how long a person is exposed.

Questions about Chemicals that may be Found in Soil

Is it unusual to find chemicals in soil?

No. All soils contain chemicals, and their presence does not always mean the soil is contaminated. The concentration of many chemicals in soil depends on its mineral content. For example, soil naturally contains metals such as arsenic, cadmium, cobalt, chromium, lead, manganese and zinc, although human activities can add to the naturally occurring levels of these metals. Soil may also contain polycyclic aromatic hydrocarbons, which are widespread in the environment as products of incomplete combustion such as forest and grass fires, and the burning of fuel in motor vehicles. It is also not unusual to find low concentrations of some pesticides in soil because of their widespread historical use and the persistence of some pesticides in the environment.

How might people be exposed to chemicals in soil?

Exposure means actually coming into contact with a substance and taking it into your body. People can be exposed to chemicals in soil if they get soil particles on their hands and swallow the soil through hand-to-mouth activity. Some exposure may also occur when soil is tracked inside a building, becomes part of indoor dust, and is inhaled or swallowed. Other ways people could be exposed to chemicals in soil are by breathing windblown soil and dust particles, or by coming into direct contact with the soil and absorbing certain soil chemicals through the skin, but these exposures are usually small compared to soil and dust ingestion. Simply being near soils that may contain chemicals does not mean exposure to soil chemicals has occurred. Finally, people can be exposed to soil chemicals if they eat fruits and vegetables that are grown in contaminated soil.

What determines if I will have adverse health effects from chemicals in soil?

The risk for adverse health effects from exposure to any chemical depends primarily on how the chemical can affect health, the amount of chemical to which a person is exposed and how long and how often the exposure occurs. Without exposure, no matter how toxic the chemical, there can be no risk of adverse health effects. The greater the amount of a chemical a person is exposed to, and the greater the length and frequency of the exposure, the more likely it is that health effects will occur. Other factors that influence the risk for adverse health effects are people's age, sex, general health, lifestyle and their inherent sensitivity to chemicals.

How are chemicals in soil evaluated?

Background refers to the chemical levels that are typically found in soil. Background concentrations of a chemical in soil are those that are either naturally occurring, or may be present due to common, widespread uses of a chemical over time, and not attributable to a specific source of the chemical. For example, lead occurs naturally at low levels in soil but its concentration is commonly higher than naturally-occurring levels in nearly all soils because of the long-term and widespread use of lead as a gasoline additive. When the gasoline was burned in motor vehicles, lead was released to air in the exhaust and eventually settled out in soils. The New York State Department of Health conducted a study of background surface soils from rural areas in New York State (http://www.dec.ny.gov/docs/remediation_hudson_pdf/appendixde.pdf).

In some cases, the soil concentration may be compared to a soil guidance value, such as the New York State Soil Cleanup Objectives (SCOs) (6 NYCRR Part 375; [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Ide849a90b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Ide849a90b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))). SCOs are chemical-specific soil concentrations that are protective of public health and the environment based on how the land is used (for example, as a residential, commercial or industrial property). They take into account repeated and long-term exposure to soil chemicals through swallowing soil, by inhaling soil particles and through direct contact of soil with the skin. SCOs also take into account exposure to soil chemicals through eating homegrown fruits and vegetables if the land is used for this purpose.

The SCOs are one of several tools for evaluating potential health risks from contamination in soil, and, as well as determining whether actions are needed to reduce exposures. The SCOs are not "bright lines" that separate soil concentrations that cause health effects and those that do not. A soil concentration above an SCO does not mean health effects are likely. Several additional factors are also considered when characterizing risks from exposure to chemicals soil and whether or not to take actions to reduce those exposures. These include the toxicity of the chemicals, the strengths and limitations in the sampling data, the quality and quantity of the toxicological data for the chemicals under evaluation, the exposure assumptions on which the SCOs are based, and the actual potential for human exposure.

Is there a medical test to determine whether or not I have been exposed contaminants in the soil at a construction and demolition dump site?

Unfortunately, blood or urine tests for environmental exposures usually do not provide parents and families with the answers they seek. For most environmental chemicals, such tests are not routine, and do not have standard reference ranges. The results of testing do not indicate the source of a chemical (e.g., a dump site), because we are exposed to many of the same chemicals through sources other than soil. Test results also can't be used to draw conclusions about the risk for health effects. Also, a patient can have a "positive" result which is actually a typical finding in the general population due to the widespread exposure to some chemicals

in the environment. In nearly all cases, the result of a blood or urine test for environmental chemicals will not provide a patient or health care provider with information that can be used to make decisions about patient diagnosis or treatment. Blood lead screening in young children is one important exception.

Though not specific to construction and demolition debris dump sites, New York State requires that all children be tested for lead at age 1 and age 2 years, and lead screening for risk factors should be conducted at least annually until age 6 years or later depending on risk factors. If parents are concerned about their child's overall exposure to lead, they should discuss with their healthcare provider whether such screening is appropriate.

General Recommendations

What kinds of precautions should I take to reduce exposure to chemicals in soil?

All soils contain chemicals and microorganisms and therefore it makes sense for people to try to reduce their exposure to soil. Children and adults should always wash their hands with simple soap and water after outdoor activities to help reduce the potential for exposure. Fruits and vegetables should be washed before eating. Use of doormats and periodic damp mopping of floors and wet dusting of surfaces can help reduce exposure to outdoor soil that might be tracked indoors. Similarly, wiping outdoor furniture or dusty surfaces with a damp cloth or hosing down will reduce the amount of surface dust that may be released into the air or enter the home on shoes and clothing. These general practices can help reduce people's exposure to the chemicals and microorganisms that are present in all soils.

Additional Resources

- General questions about asbestos, dust or chemicals in soil: Please see the New York State Department of Health website links below or call 518-402-7800 or 800-458-1158:
 - Asbestos: <http://www.health.ny.gov/environmental/indoors/asbestos/>
 - Dust: http://www.health.ny.gov/environmental/indoors/air/pmq_a.htm
 - Chemical Exposures: <http://www.health.ny.gov/environmental/about/exposure.htm>
- Questions on air quality and hazardous or solid waste cleanups: Please contact the New York State Department of Environmental Conservation (800-535-1345) or visit their website at http://www.dec.ny.gov/cfm/xtapps/aqi/aqi_forecast.cfm and <http://www.dec.ny.gov/chemical/8486.html>
- For occupational and environmental medical specialists:
 - Occupational and Environmental Medicine of Long Island (questions related to adult exposures): 631-439-5300
<https://www.northwell.edu/find-care/services-we-offer/occupational-and-environmental-medicine/about#37106>
 - Pediatric Environmental Health Specialty Unit at Mount Sinai Hospital, New York (health care provider questions related to exposures to children): 866-265-6201
<http://icahn.mssm.edu/research/pehsu>