NYC Health
THE NEW YORK CITY DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH QUESTIONS FOLLOWING THE WORLD TRADE CENTER DISASTER

The September 11, 2001 World Trade Center (WTC) disaster was unprecedented in the history of the United States. The New York City Department of Health (DOH), as well as other City, State and federal agencies continue to monitor conditions and are committed to working with the community to identify and address health concerns. The purpose of this fact sheet is to answer common questions related to the WTC disaster, particularly as they relate to the fires at the site and the potential impact on public health.

Why did the fires at the site burn for so long?

Initially, it was anticipated that the fires would cease burning within the first few weeks of the disaster. Unfortunately, they continued to burn at the site, contributing to prolonged, intermittent releases of smoke into the air. In most situations, fires in buildings can be put out quickly. In the case of the WTC, the fires burned below the surface and were fed by large quantities of combustible materials like carpeting, furniture, computers, and other building materials. As steel and rubble are removed and the pile shifts, oxygen is added to the hot embers and the fires can be revived. As a consequence, smoke continued to be released intermittently.

I live and/or work downtown. Do I need to be concerned about the air I'm breathing?

For healthy people living and working in areas near the WTC site, it is believed that the contaminant levels in the environment do not pose serious long-term health risks. While exposure to smoke can cause eye, nose and throat irritation among healthy individuals, these symptoms are usually short-lived and are unlikely to lead to ongoing health problems. The fires at the site can also contribute to odors in the surrounding area. When odors are present, some people may experience short-term effects such as respiratory irritation, headaches and dizziness. These effects tend to lessen once exposure to the odors is stopped.

ADVISORY: If you experience more serious symptoms, such as shortness of breath, or chest pains, or if you have a medical condition you feel is worsening, you should seek medical attention immediately.

I am experiencing eye, nose, and throat irritation. What from the WTC site may be causing this?

Smoke from the fires still burning at the WTC site is the likely source of compounds such as airborne particles or particulate matter (PM) and sulfur oxides, which can cause

temporary airway irritation. Results of analyses of the fine particles in the air have shown that sometimes the composition of the particles is alkaline, which can also result in respiratory irritation.

If I have asthma or other respiratory conditions, am I at greater risk for adverse health effects?

If you have asthma, chronic bronchitis, emphysema, or other respiratory ailments, you may be more affected by ongoing exposure to the smoke.

ADVISORY: If you have asthma or other respiratory conditions, work with your health care provider to make sure that you are on the proper medications to stabilize your condition. It is also important to limit your exposures to dust, smoke and other triggers that in the past have affected your health condition. For example, on days when the outside air causes you discomfort, you should limit outdoor exercise or activities. Air filters can be used indoors to improve indoor air quality.

I still notice dust in the neighborhood. What is being done to control the dust and clean up the neighborhood?

Initially, the collapse of the WTC towers caused significant quantities of smoke and dust to be released into the surrounding area. The dust contained a range of construction materials including concrete, gypsum, silica, plastics, and fiberglass. Asbestos, which was used in portions of the building as insulation, has also been found in smaller quantities in the dust and debris.

In order to reduce dust in the environment and minimize exposure, the following steps have been taken:

- In the first few weeks after the disaster, the Department of Sanitation (DOS) and Department of Transportation (DOT) mounted an extensive clean up effort to remove debris from surrounding public areas. The DOS continues routine wetting-down of streets in the downtown area in order to minimize dust that may currently be generated from the WTC site.
- All trucks leaving the WTC site are required to be hosed down before leaving the site and trucks carrying debris out of the site are required to be covered.
- Steel beams are wetted down before they are loaded onto the barge located at Pier 25, at the West Side Highway and one block north of Chambers Street.

Should include DEP/EPA HRPA Voc.

The NYC Department of Environmental Protection (DEP) has issued guidance on cleaning building exteriors for residential and or commercial buildings. These guidelines can be found at the DEP website at **nyc.gov/dep**.

Do I need to be worried about asbestos in the air?

Asbestos was found in samples of dust and debris near the WTC site in the first few weeks after the WTC incident. Based on those results, extensive air monitoring for asbestos was conducted in the neighborhood surrounding the WTC site. Workers on-site have been instructed to wear protective equipment such as respirators, as they may be handling asbestos-containing materials as well as other contaminants.

Based on the asbestos air test results ~~so far~~, the risk for disease from asbestos exposure in the community near the WTC is very low. Asbestos exposure does not cause immediate symptoms and short-term exposure cannot be detected by routine medical tests, such as physical exams, blood work or chest x-rays. it takes at least 15-20 years to see any symptoms or disease related to asbestos exposure. ~~but~~ Experts believe that the levels of exposure to asbestos are low enough that the likelihood of developing disease from the limited, short-term exposures associated with the WTC incident is very small.

For the general public, working and/or living in the surrounding area, DEP issued guidance to building management or the building owner on what must be done to deem a building safe for re-occupancy. These DEP guidelines are still in effect. The DOH issued cleaning guidance for residents of buildings that were deemed to be safe for re-occupancy. This information can be found at **nyc.gov/health.**

While the risk for asbestos-related illness is thought to be very low, ~~it is still prudent to~~ take clean-up precautions to further reduce any unnecessary exposures. These simple steps include the following: wet wiping and mopping dusty surfaces, using a HEPA-filtered vacuum if possible, and removing shoes before entering homes to reduce tracking dust indoors. These precautions should be taken until the demolition and clean up at the WTC is completed.

What is fiberglass, and what are its potential adverse health effects?

Fiberglass is the trade name for a man-made mineral fiber that also may be called fibrous glass or glass wool. Fiberglass can be found in many different consumer products. In the past it was used for home furnace filters and insulation. Today it is used to insulate pipes and appliances, for sound control in aircraft and automobiles, and in curtains, roofing materials and reinforced plastics.

Fiberglass may have been used in the construction of the WTC. Extensive air monitoring to date has indicated that fiber concentration in air— including asbestos and fiberglass — is low.

High levels of occupational exposure to fiberglass fibers may cause skin irritation and itching. It may also cause upper respiratory tract irritation and may aggravate asthma or bronchitis. These are temporary conditions and are unlikely to occur for people in the community given the low concentrations of fibers in the air around the disaster area.

What is the illness being referred to in newspapers as "WTC Cough?"

The terminology "WTC Cough" has been used to refer to a condition identified in people who may have developed a persistent cough and other respiratory symptoms related to working at or near the WTC site. Physicians in the community have described such a cough among individuals who worked at the site within the first few days after the disaster when smoke and exposure conditions were most intense. Workers on the debris pile have been instructed to wear the appropriate personal protective equipment, including respirators, to prevent injuries or adverse health effects.

While environmental air sampling results outside of the debris pile and outside of the plume continue to show that levels of dust and other substances are within the levels specified by federal standards, City and State health agencies are communicating with physicians in the community to determine health conditions.

What is fine particulate matter and why is it being monitored?

The explosion at the WTC released very small airborne particles into the air known as "fine particulate matter," or "PM" for short. Particulate matter comes mostly from the process of combustion (burning). Fires are a source of particulate matter, as is the exhaust from cars, trucks, buses, and other operations that involve the burning of fuel.

Particulate matter ranges in size from very small to larger particles. The most commonly measured sizes are $PM_{2.5}$ and PM_{10}. $PM_{2.5}$ refers to particles that are 2.5 microns or less in diameter. These particles are extremely small and are therefore more likely to be inhaled deeper into the lungs. PM_{10} refers to particles that include 2.5 microns in size as well particles up to 10 microns in diameter, which, because of their relatively larger size, cannot travel as deep into the lungs. Increased levels of fine particulate matter can cause eye, nose, throat and lung irritation, which can trigger coughing and sneezing. Such exposures may aggravate symptoms for persons with underlying respiratory conditions.

Even prior to September 11, the New York State Department of Environmental Conservation (NYSDEC) has had continuous (real-time) air particulate monitors ($PM_{2.5}$) collecting samples at eleven sites in New York City. These routine monitors are located in each Borough. The data from these monitors are evaluated daily. Additional monitors have been set up to collect particulate data ($PM_{2.5}$ and PM_{10}) in the community near the site. Results from the air monitors are compared to the National Ambient Air Quality Standard. For PM_{10} the standard is 150 micrograms of particles per cubic meter of air (ug/m3). For $PM_{2.5}$, the standard is 65 ug/m3 for the general population. The $PM_{2.5}$ standard is 40 ug/m3 for people with respiratory illnesses, individuals with heart problems and the elderly or young, since these individuals may be more susceptible to more severe symptoms.

What are the results of the PM 2.5 and PM10 monitoring?

Testing at the monitoring sites set up both before and after September 11th has revealed that, in general, levels of fine and course Particulate Matter have been within the EPA standards.

Where can I find more information on the WTC-related environmental testing?

Daily WTC-related reports that contain results of sampling for air, water, and dust – including asbestos and Particulate Matter – are posted online at the U.S. Environmental Protection Agency's website, **epa.gov**. DEP results are posted at **nyc.gov/dep**.

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