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Risks of Air Near Ground Zero Still Unclear

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A group of environmental researchers found that potentially dangerous concentrations of very fine particles were released after the collapse of the World Trade Center. But their study, possibly the most comprehensive yet, sheds little light on the health risks associated with exposure to such tiny particles.

Though the air downtown has greatly improved, scientists at the University of California, Davis, said yesterday that "extremely high amounts" of very small particles were collected in October at a test site a mile north of the World Trade Center. The Environmental Protection Agency doesn't have safety thresholds for tiny particles. But the agency's larger particles measuring 2.5 micrometers shouldn't exceed 65 micrograms per cubic meter in a 24-hour period. UC Davis researchers discovered 185 micrograms per cubic meter in about an hour and a half at the test site.

The amount of particles found "is in fact very bad," said Thomas Cahill, a University of California, Davis researcher who studies airborne particles. The particles are from a variety of substances, some of them toxic. Mr. Cahill said the concentration of particles in lower Manhattan in October was higher than the Kuwait oil fires during the Gulf War and some of the worst concentrations in Beijing, where coal is burned for heat in the winter.

"When you're worse than Beijing and Kuwait oil fires, then you're in a new category," said Mr. Cahill.

Some scientists caution that such information doesn't mean that there are serious health consequences. Most people were ex-

posed to short-term bursts of contaminants; much of the known research focuses on long-term exposures.

Says Lung Chi Chen, a professor of environmental medicine at New York University: "If a person has pre-existing [heart or respiratory] disease, he may have some higher risk of exacerbating the condition. But for people who are healthy, it may not have that much risk."

UC Davis scientists also said improper cleanups risk re-suspension of contaminants in the air. They recommended wet cleaning—using mops and rags to remove dust rather than vacuums or brooms. They also recommended that furniture fabrics, which can trap dust, be steam cleaned.

The air-quality issue was front-and-center yesterday in a senate subcommittee hearing hosted downtown by Senators Hillary Rodham Clinton (D., N.Y.) and Joseph Lieberman (D., Conn.). Speakers charged the EPA with falsely assuring downtown residents that the air was safe to breathe when, in fact, the EPA was testing outdoor air quality. Indoor air-quality tests, an EPA regional administrator responded, was New York City's responsibility.

Residents have continuously voiced concern that government agencies failed to inform them of the health risks since Sept. 11, haven't properly removed debris and failed to force landlords to implement necessary protocols to remove contaminants. Fueling their fears is uncertainty from the scientific community, which has never witnessed this kind of environmental disaster.

The health risks of exposure to tiny particulate matter aren't well known. Larger particles, roughly 10 micrometers in size, can cause the kinds of coughs and nose-

bleeds that lower Manhattan residents have complained of. They can also be coughed out or filtered by the human nose. But particles 2.5 micrometers and smaller can penetrate deeply into the lungs and enter the bloodstream.

UC Davis scientists said the very fine particles contained lower levels of dangerous metals such as lead and mercury than they anticipated. Mostly, the tiny particles contained high levels of sulfuric acid, which Mr. Cahill characterized as "pretty harmless" because the lungs can dissolve it in mucous and sweep it away. But other environmental specialists say it can be irritating and help introduce other harmful materials into the bloodstream.

There were also high readings of silicon. Mr. Cahill says that silicon doesn't dissolve but stays in the lining of the lung and eventually moves into the bloodstream, which can be dangerous. But others, such as NYU's Prof. Chen, say that tiny silicon particles aren't harmful.

Mr. Cahill concedes, "you're into an area where we don't know."

