

The New York Times - 5/15/02

Air Testing After Sept. 11 Attack Is Both Perplexing and Reassuring

By KIRK JOHNSON

The ground-level atmosphere of Lower Manhattan has become one of the most intensely studied and sampled environments on the planet. Air monitors have been hung from trees and strapped to the belts of truck drivers. At least 11,000 people who worked at ground zero have had chest X-rays. Thousands more have been interviewed by researchers. What has been learned, scientists say, will have a far-reaching effect on urban disasters in the future.

Whether the Sept. 11 attack continues to have serious repercussions on the environment and public health, though, remains an open question as the cleanup of the World Trade Center site nears completion.

Many scientists and physicians say the accumulated evidence so far suggests a glancing blow: thousands of people developed coughs from the fires and dust, or were nauseated by the smells, but most have fully recovered. The exposures, even to things like asbestos, those experts say, were too short to cause widespread cancer or other lung diseases. On a scale of 1 to 10, if a 10 is an event like the poison gas release in Bhopal, India, that killed thousands in 1984, anything over 5 leaves permanent

health consequences, and a 1 has no effect at all, then the trade center attack appears to have been a 3 or a 4, according to an informal survey by The New York Times of scientists, doctors and researchers involved in the health assessments. Others say it is too soon to tell.

What they agree on is that the many scientific and medical investigations into the effects of Sept. 11 are revealing an unforeseen complexity -- in the nature and consequences of the disaster, as well as in the underlying environment in a part of New York that they say has never really been examined.

When investigators from the University of California at Davis were studying the smoke near ground zero in October, for example, they were surprised to find that other pollution was getting in the way.

One distinctive pattern that kept showing up was later tracked by chemical analysis to an oil-burning electricity plant on Staten Island. The plant's distinctive fingerprint of hydrocarbon particles emerged like a ghost in the data, the researchers said, unbidden and, until then, un-

Continued on Page B4

P.1-3

The New

Air Testing After Sept. 11 Is Both Perplexing and Reassuring

Continued From Page A1

known.

That was only the start of the story.

When a research scientist from Columbia University, Dr. Steven Chillrud, read the results from the Davis research, he saw a pattern, too. The Davis team's range of concentrations for two pollutants, sulfur and nickel, looked remarkably similar to findings from a study in 1999 and 2000 in northern Manhattan. The earlier study attributed those emissions to heating oil and diesel combustion.

"The numbers they were getting were comparable to what I already had on my computer," said Dr. Chillrud, who works at the university's Lamont-Doherty Earth Observatory. "That put out a warning flag."

The research team at Davis, which is about to publish its findings in a peer-reviewed paper, is now re-analyzing its numbers to distinguish diesel emissions from the compounds and particles already identified. On some nights last October, they have

acknowledged, idling trucks were lined up near one of their air monitors on Varick Street, waiting to haul debris from the site. Dr. Chillrud, meanwhile, has received a federal grant to compile a database that might be called "the air before 9/11," to ascertain as much as possible what was normal downtown so that results like the Davis study and others can be put into context.

This has, of course, always been the way of science. Through fits and starts, challenge and reassessment, it haltingly proceeds, at least in theory, to some firmer truth. Still, many researchers and physicians looking into the health effects of the trade center collapse say they often feel that they are starting from scratch. Like the power plant plume, they say, every new fact reveals a dozen more questions that the scientists had never thought to ask.

Some compounds that were created in the fires of the trade center, for instance, have never been seen in nature or in the laboratory. Metals and glass from windows and computers and girders were turned into mist by the intense heat and pres-

sure of the collapse, and those mist particles then bonded with larger pieces of concrete, creating billions of tiny hybrid fragments, each coated with a sheath created from the elements of destruction. Asbestos was pulverized into pieces so tiny that ordinary tests devised to track the fibers missed them.

What those discoveries really mean, however, will be the subject of the next round of study. Larger particles of concrete have generally been considered an irritant to the lungs but not a grave threat. A predominance of super-tiny asbestos, some researchers say, may have in fact been a partial blessing — larger fibers are the ones most directly linked to lung disease, according to decades of medical research. Others say that smaller fibers and hybridized dust particles are not sufficiently understood.

"That's what's most striking to me — that I can't begin to answer these questions," said Prof. Steven B. Markowitz, the director of the Center for the Biology of Natural Systems at Queens College. "For all the thousands of air quality samples, here we

P.2-3

The New York Times - 5/15/02

are eight months out and there's such limited health data."

In some cases, the difficulty of research is not the science, but the wrinkles of human behavior. Earlier this year, for example, Dr. Markowitz and his team examined 415 laborers who worked cleaning the interiors of buildings near ground zero, and he said that part of the problem in assessing their long-term health outlook was that unlike the workers clearing the twin towers debris, they were rarely given respirators to protect their lungs. In some instances, Dr. Markowitz said, the workers told him their employers directly discouraged them from wearing respirators, even if they already had them.

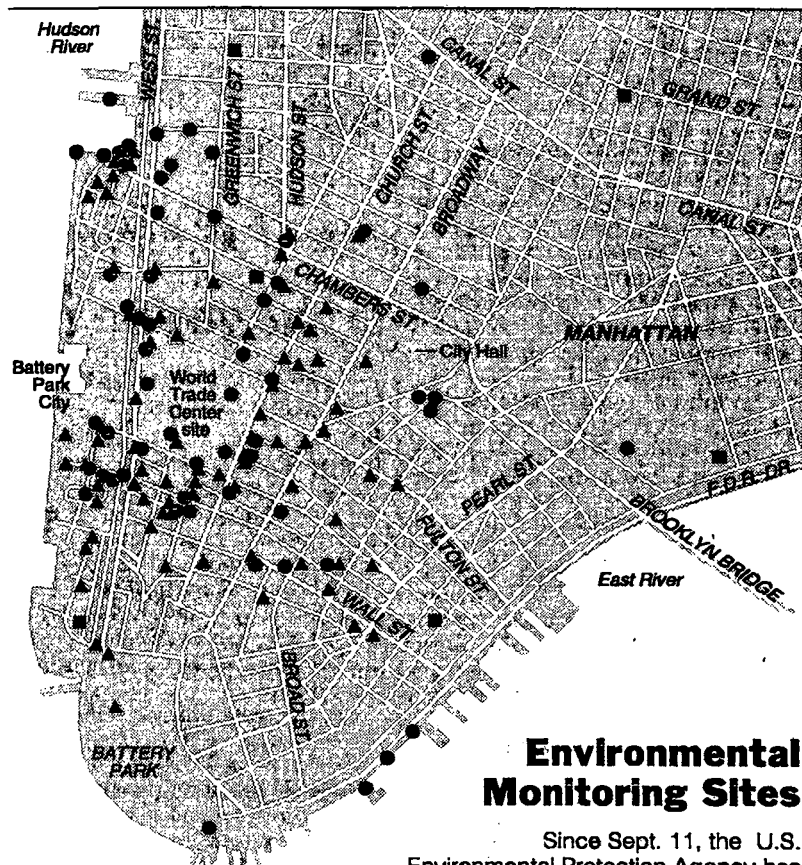
"They were told it might scare the other workers," Dr. Markowitz said. "These workers were looking down on ground zero, seeing people wearing respirators, and they're working indoors in a confined space, and they don't have them. There's no excuse for that."

Many health experts say the federal Environmental Protection Agency's announcement last week that it would lead a program to clean up and test 15,000 or more residential apartments south of Canal Street will also create a broad new base of knowledge about downtown. Some of the experts are already saying, true to the form of the disaster's aftermath, that entirely new lines of scientific inquiry will probably be opened as a result.

Because the government has no established standards for the amount of asbestos allowable in residential air, many researchers are not sure what the government's tests will reveal.

Some investigators, like Dr. Marjorie J. Clarke, a scientist in residence at Lehman College in the Bronx who has persistently criticized the environmental agency since Sept. 11, said she also planned to press the agency to conduct a broader array of testing for things like dioxins and heavy metals in addition to asbestos.

"I have a whole raft of questions for them," she said.



Environmental Monitoring Sites

Since Sept. 11, the U.S. Environmental Protection Agency has used dozens of monitoring stations to gauge levels of dust, water and air pollution in Lower Manhattan and to look for pollutants such as asbestos, lead and byproducts from combustion.

- Air sampling site
- ▲ Dust sampling site
- Water sampling site

Source: Environmental Protection Agency

The New York Times

Other researchers and public officials say the flood of downtown research will result in a health portrait of New York City that goes far beyond assessing the effects of Sept. 11. Especially in places like Chinatown, figures about asthma and other chronic illnesses were almost nonexistent, researchers say.

"We realized that there was no base line — if you wanted to see what the consequences of the attack were, there was a serious data gap," said Dr. Sebastian Bonner, an investigator at the Center for Urban Epidemiologic Studies at the New York Academy of Medicine.

Dr. Bonner said that under a re-

search program he is directing, financed by the federal Centers for Disease Control and Prevention and the city's Department of Health, a team of six interviewers, including four who are fluent in the major dialects of Chinatown, have begun fanning out to reach the parents of 2,000 children in preschool and day care centers south of 14th Street.

So far, he said, the response has been better than he had hoped, but the research is definitely made more difficult by the fact that his interviewers are working in a somewhat crowded field.

"These parents are being surveyed to death," he said.

P. 3-3