

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK

-----X
THE PARENTS-TEACHERS ASSOCIATION :
OF P.S. 89, : Index No. 02/
 :
Plaintiff, :
 :
-against- :
 :
THE BOARD OF EDUCATION OF THE CITY : AFFIDAVIT
 : OF
OF NEW YORK, HAROLD O. LEVY, in his capacity : DR. MARJORIE J. CLARKE
as Chancellor, and DAVID KLASFELD, in his :
capacity as Deputy Chancellor, :
 :
 :
Defendants. :
-----X

STATE OF NEW YORK }
COUNTY OF NEW YORK }

DR. MARJORIE J. CLARKE, being duly sworn, deposes and says:

1. I am an environmental scientist with an expertise in the area of incineration emissions, their prevention and control, particularly the incineration of certain toxic and pollutant materials and their effects on the environment.

2. Currently, I am involved in reviewing the levels of toxic and other pollutant materials existing in the environment of "Ground Zero" and its surrounding area since the events of September 11, 2001. In fact, on February 11, 2002, I and many other professionals will be giving testimony before Senator Hillary Clinton at a hearing concerning the concentrations, compositions and health effects of fine particulate matter and gases in the air surrounding lower Manhattan.¹ These hearings will give environmental and health professionals the

opportunity to present, often for the first time, information about contaminants in the World Trade Center environment.

3. Fine particulate matter may consist of any number of the following: asbestos, silica, fiberglass, heavy metals, concrete and combinations, possibly coated with condensed organics, heavy metals, and/or acids. Gases may consist of carbon monoxide, volatile organic compounds, including dioxins, PCB and other chlorinated compounds, volatilized heavy metals, such as mercury, lead, cadmium, arsenic, nickel, and chromium, acid gases, such as HCl, sulfur dioxide, and oxides of nitrogen.

4. New information is being gathered daily about the concentration of fine particulates and other contaminants in the air surrounding lower Manhattan and the potential hazardous effects on persons exposed to such pollutants. Many of these data are being compared and analyzed and will be presented for discussion at the hearings scheduled for February 11, 2002. To date, no comprehensive study of the safety of the air quality in lower Manhattan exists.

5. More importantly, there has **not** been a comprehensive collection and analysis of data concerning the hazardous effects on children exposed to certain levels of pollutants and toxins in the air surrounding lower Manhattan, which is of particular concern and importance given the large population of children who live and attend school in the area.

6. If the total extent of the BOE's testing was for particulates and VOC's they missed a lot of potential toxins and carcinogens. A large number (hundreds, if not thousands) of discrete chemicals (organic compounds, heavy metals, and acids are of the most concern) would have

been produced and emitted by collapse and uncontrolled burning of the enormous, crematorium, incinerator, asbestos factory, volcano that was the World Trade Center.

7. The chemical composition of the particulate is important. In an incinerator, as particulate matter moves from hotter to cooler parts of the incinerator, it becomes coated with volatilized organics, acids and metals. If very fine (respirable) particulate matter coated with such substances enter the lungs and proceed past the cilia and lodge in the alveoli (because of their small size, evading the coughing response), these toxic and carcinogenic substances can have time to impart their hazardous propensities.

8. In addition to the coating of the particles, the shape and composition of the particles themselves is important. Asbestos, silica and fiberglass are all physical irritants. Asbestos can cause lung cancer, asbestosis and mesothelioma when even a small number of asbestos particles are resident in the lung tissue for enough time.

9. It is well known that children, as a group, are more likely to be impacted by inhalation of air pollutants than adults.

10. Standards for particulate matter are not written to assume that the composition of the particulate matter contains asbestos, silica or fiberglass. These dusts are very unusual, particularly together in one dust. Typically, PM standards are more likely to be based on emissions from burning of fossil fuels, in cars, power plants or factories. The particulate matter most frequently emitted by these sources is unburned carbon particles.

11. Dusts should be measured for specific types of asbestos, silica, fiberglass, organic compounds like dioxin and PCB, heavy metals like lead, cadmium, mercury, arsenic and chromium, and acids like SO₂ and HCl. These dusts come from 3 sources - blown from the WTC itself, blown off of trucks bringing debris to the barge (and off the barge itself), and

reentrained dust blown off the rooftops, sidewalks, ledges and streets. Until all these sources of new dust are stopped, the exposure to all the chemicals mentioned above will continue.

12. A particle size profile should be done for the dusts to determine the extent to which they could be deeply inhaled into the lungs.

13. The missing VOC data is problematic, as is missing data on specific toxic organics. The VOC data would indicate the impact of the idling diesel trucks moving debris to the barges, and the effects of any remaining fires at the WTC.

14. Furthermore, testing must be conducted to determine whether debris, which blows off the trucks carrying materials from the "Ground Zero" destruction site and is unloaded into the barges near the school, poses an additional health risk to the children and staff of P.S. 89. Currently, trucks transporting tons of debris from "Ground Zero" pass directly in front of the school every day on their countless trips to a barge located just two blocks from the school. Often these trucks idle before the school entrance as traffic builds up between the destruction site and the barge. Since trucks are not subject to the same stringent emissions standards as cars, the diesel emissions are likely to be greater than the level of emissions that normally came from the west side highway prior to 9/11.

15. The residual emissions from the World Trade Center collapse and fires, as well as new emissions from idling trucks disposing of the remains of the WTC, come in many forms, gaseous and particulate, heavy metals, chlorinated organics, acids. However, standards for air quality, indoor and outdoor dust, wipe samples, etc. are typically for single pollutants or pollutant classes (e.g. dioxins).

But the emissions from the WTC collapse and fires, and the diesel trucks going to barge, are a mixture of elevated levels of many different types of pollutants. There may well be synergistic effects which multiply the deleterious health effects. For example, the Mt. Sinai Environmental Sciences Laboratory recently testified to the NYS Assembly Committee on Environmental Conservation (Dr. Steven Levin) that their decades of research into asbestos has shown the synergistic effect of two pollutants (asbestos and cigarette smoke) on human health is not the sum of the effects of each one alone, but 80 to 90 times the impact. So, even if air in a particular location does not exceed standards for individual pollutants, combinations of carcinogens, toxins and irritants, elevated above background levels, could well be harmful to human health.

16. Given these factors, it is entirely premature at this time to render any qualification or determination concerning the safety of the air inside and surrounding Public School 89. Further, since cleaning of the school was just completed on January 14, 2002, testing must continue for an extended period to properly ascertain whether the school's interior is safe from hazardous levels of toxins and carcinogens. Until such a determination can be rendered, it is my opinion that the children and staff of P.S. 89 should not return to the school's lower Manhattan location.

DR. MARJORIE J. CLARKE

Signed and sworn before me
this 24th day of January 2002
