

# AMBIENT AIR MONITORING AT GROUND ZERO AND LOWER MANHATTAN

## Following the Collapse of the World Trade Center

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**2001**  
**September 11**  
Terrorist attacks in New York, Washington, DC, and Pennsylvania

**2001**  
**September 12**  
EPA Region 2 requests assistance from EPA's Office of Research and Development (ORD) to monitor air quality in lower Manhattan

**2001**

The U.S. EPA National Exposure Research Laboratory (NERL) responded immediately to requests from the EPA Region 2 offices to assist with outdoor air monitoring in lower Manhattan after the terrorist attacks on September 11

**2001**  
**September 13**  
ORD's National Exposure Research Laboratory (NERL) assembles a team to prepare equipment and conduct measurements

**2001**  
**September 16**  
NERL field sampling team arrives in New York City

**2001**  
**September 17-19**  
NERL field team works with Emergency Response Team (ERT) from Region 2 and the U.S. Coast Guard to identify objectives of air monitoring to assist efforts of Region 2

Aerial view of the World Trade Center showing movement of smoke through lower Manhattan

The NERL collaborated with the emergency response team from EPA's Region 2 offices and the U.S. Coast Guard to measure concentrations of particulate matter (PM) and air toxics in the air around Ground Zero and lower Manhattan

**2001**  
**September 20**  
Field team locates sites and installs monitoring equipment near Ground Zero and lower Manhattan

The NERL began monitoring on September 21, 2001 at three sites around Ground Zero with additional monitoring sites located in lower Manhattan

View of World Trade Center from one of the air monitoring sites

**2001**  
**September 21**  
Ambient air monitoring begins

Map of lower Manhattan showing the site of the World Trade Center and the NERL's air monitoring sites

Construction workers emerging from the debris pile at the World Trade Center

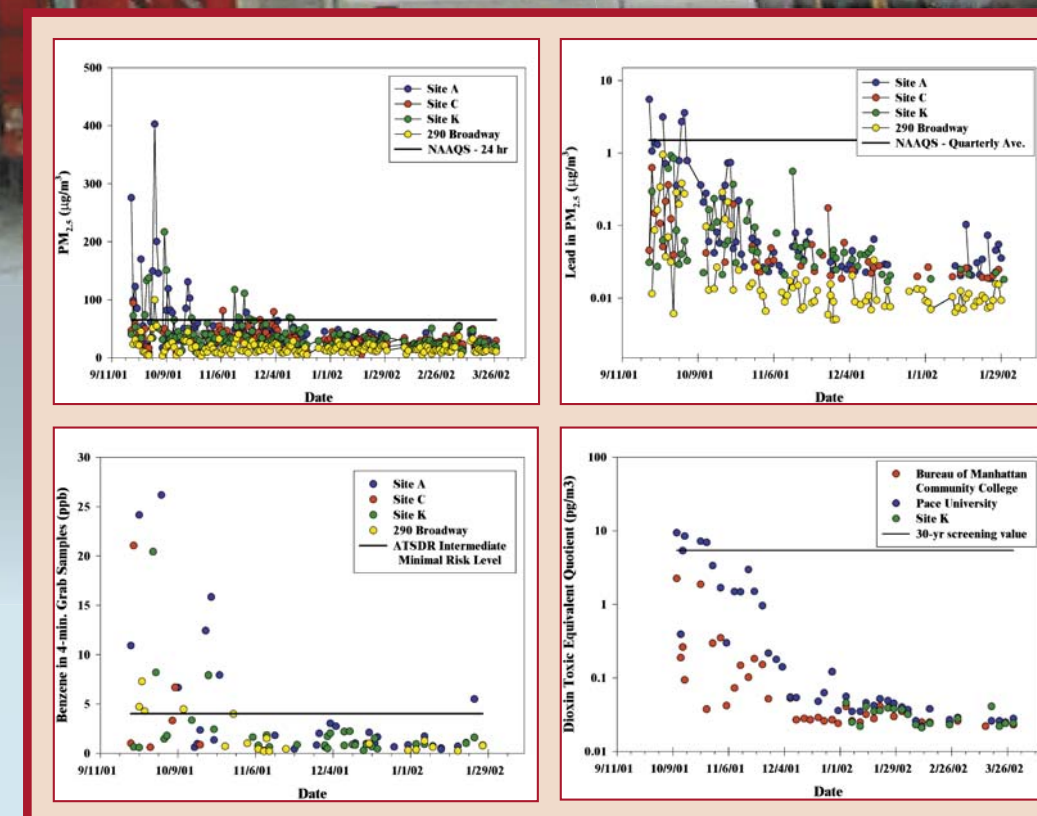
**2001**  
**October 30**  
All hands meeting in NY to brief Region 2 employees on results of air monitoring

**2001**  
**November 19**  
Meetings with Region 2 to identify additional measurement parameters and sampling sites in lower Manhattan

**2001**  
**December 19**  
Fires declared out by fire officials

Region 2 and NERL developed an updated monitoring strategy that included additional air monitoring sites and meteorological measurements in the surrounding area to better understand the migration of pollutants from the WTC through lower Manhattan

Results from outdoor air monitoring indicate that concentrations of PM and air toxics were elevated and highly variable through late October, 2001, particularly at the sites close to Ground Zero. Beginning in November, 2001, concentrations of PM and air toxics decreased substantially and stabilized thereafter



Air and dust samples are being analyzed for heavy metals (lead, etc.), volatile organic compounds (benzene, etc.) and dioxins/furans

The EPA National Center for Environmental Assessment (NCEA) is using these air quality data to assess the public's potential exposure and its risk associated with such exposure

Collecting dust samples around Ground Zero for chemical analyses

NERL researchers servicing air monitoring equipment as NYPD officers look on

The results from the PM and air toxics monitoring proved to be critical in evaluating the public's exposure and, ultimately, in protecting the public's health

**2002**  
**May 15**  
Ambient air monitoring completed



GRK