Learning from Disasters: Weapons of Mass Destruction Preparedness
Through Worker Training
Opryland Hotel, Nashville, TN April 25, 2002
Disaster Response Initiative

Overall Theme: Improve the protection of worker health and safety at future federal disaster sites by developing appropriate training for disaster workers and to help develop plans for assuring worker health and safety protection at federally declared disaster sites.
The WETP Disaster Response Initiative include the following components:
- A Nation-wide Cadre of Well-trained Environmental Response Workers
- A Coordinated Federal Disaster Response Training Program
- Cadre of Weapons of Mass Destruction (WMD) remediation workers
- National Registry of Workers
- Cross Training of Workers
Disaster Response Initiative cont.

- Revamping Existing Hazardous Waste Courses & Modules
- Translation of H&S Training for Use with Non-English Speaking Populations
- Petrochemical Industry Awareness/Operations Training
- Transportation Industry Awareness & Training on Security and Transport of Hazmat & Nuclear Shipments
- Development of a Critical Incident Stress Management Initiative
Workers
Memorial Day
Mourn for the Dead, Fight For the Living
NIEHS Responds to 9/11 Attacks

- Congress appropriated $10.5 Million to NIEHS as part of the Omnibus federal terrorism response package.
- NIEHS held a limited competition for administrative supplements to active NIEHS research and training grantees that can demonstrate previous or current training response activities at the World Trade Center that resulted from the terrorist attack of September 11.
NIEHS

WTC Research Supplements

• NIEHS received $4,500,000 to support World Trade Center (WTC) response activities specifically related to research focused on exposure assessment, epidemiology studies, and community outreach and education.
WTC Research Awards

• Six supplemental awards were issued in April 2002 to current NIEHS Superfund Basic Research Program (SBRP) and NIEHS Environmental Health Sciences Core Center grantees.

• Purpose of these administrative supplements is to support the development of an integrated research approach that will provide a framework to address current and future health and environment concerns arising from the WTC attacks of 9/11.
Columbia University

• Development of a relational database for WTC-related air monitoring data compiled from NIEHS-supported research.

• An epidemiological study to evaluate acute/cumulative air pollutant exposures on pregnancy outcomes in 300 women (150 exposed, 150 unexposed) and their children.

• Analysis of air and dust samples collected between October and January and an analysis of soils and sediments in NY harbor and urban park lakes to reconstruct chemical and elemental depositional fluxes following 9/11.

• Community Outreach with the West Harlem Environmental Action to make the air monitoring database accessible to the public.
A registry of WTC site clean up workers. It is estimated that 3000 to 4000 workers will be identified and included in this registry.

A respiratory symptoms and psychological health assessment of WTC workers. This study will include questionnaires and for a subset of workers (approximately 125 to 175) pulmonary function testing.

A personal exposure assessment of WTC workers to airborne contaminants and its comparison to air monitoring data.

Outreach to worker populations will include focus groups to identify concerns, newsletters and risk communication panels.
A WTC-NYC firefighters clinical study of 300 subjects to assess cardio-pulmonary effects. This study is in collaboration with CDC/NIOSH/Bureau of Health Services of FDNY and NYU.

WTC resident respiratory impact study to examine prevalence for respiratory symptoms, especially new onset of asthma-like symptoms.

Analysis of collected indoor and outdoor settled dust samples and air samples for elemental and chemical composition will be performed on a subset of the 1250 samples collected to date.

Toxicity analysis of dust samples in whole animals and in vitro models.

Community outreach to include public forums, newsletters, video development and web pages.
• A clinical and epidemiology study of 200 WTC ironworkers and a comparison group of 125 ironworkers who never worked at or near ground zero to investigate respiratory abnormalities and Post-Traumatic Stress and compare findings.

• An epidemiological study of 300 pregnant women and children to assess relationships to fetal/child development. This study is complementary to the Columbia study with a different population of women.

• Exposure assessment employing NASA’s Airborne Visible Infrared Imaging Spectrometer (AVRIS) for remote sensing imagery for WTC plumes.

• Community outreach that is being coordinated with the existing Pediatric Environmental Health Specialty Unit at Mount Sinai.
• An exposure assessment to measure PAH levels in filter samples gathered by EPA at ground zero during the weeks following the WTC collapse.

• A pilot study to initiate validation of a newly developed personal passive air particulate monitoring device.

• The development of a spatio-temporal mapping model for levels of particulate matter at the WTC and surrounding sites.
• An exposure assessment of indoor air quality. Nineteen indoor samples will be analyzed for organic constituents and fibers and subset of NYU’s ambient air samples will be analyzed for organics.

• The development and testing of computational models and databases for assessing the impact of contaminant release from the WTC fire and collapse on air quality of affected local microenvironments.

• A reproductive outcome study that will utilize existing databases of all births recorded in New Jersey and the five boroughs of NYC and six closest counties to NYC to assess gender ratio, premature birth and birth defects following September 11.

• A longitudinal cohort resident study of approximately 490 residents to assess post-traumatic stress, depression and panic following WTC and integrate this information with exposure data.

• Community outreach focused on increasing awareness of the potential environmental health effects resulting from the WTC tragedy.
NIEHS

WETP WTC/WMD Supplements

- International Association of Fire Fighters
- University of Medicine & Dentistry of NJ
- International Union of Operating Engineers
- Laborers-AGC Education & Training Fund
- Center to Protect Workers’ Rights
- National Puerto Rican Forum
Response to Weapons of Mass Destruction: Occupational, Environmental, and Public Health Issues

Paul A. Schulte, Ph.D.
WEAPONS OF MASS DESTRUCTION

Assessing Policy Tools for Combating Proliferation
Occupational Health

Environmental Health

Public Health
Occupational Health

Terrorism

Environmental Health

Public Health
Terrorism Lessons for Public Health: The Need for a Dual System

- Effective Leadership & Communication
- Modern Tools – Disease Tracking & Labs
- Trained Troops for Rapid Response

(Hearne, 2002)
World Trade Center
NIOSH Response
Emergency Worker Safety Initiative

• Evaluation and intervention
• Surveillance
• Communication and training
• Technology
• Prevention
Other WTC Follow-Up Activities

• Guidance on respiratory health problems
• Health Hazard Evaluations
• Baseline medical screening
Anthrax
Anthrax: NIOSH Response

- Developing sampling protocols and methods
- Allergy sock
- Reviewing and interpreting data
- Protecting workers
- Collaborating with other agencies
Follow-Up Activities

• Capitol buildings
• Review Working Group
• Building vulnerability assessments
• HHEs
• Research
National Personal Protective Technology Laboratory
NPPTL Activities

• Respirator standards
• Research
• Service
Terrorism and Other Disasters
Convergence of Occupational and Environmental Health
Environmental Health Tracking

Highlights the environmental health gap and the need for an environmental health tracking network
Environmental health system was inadequate and fragmented
Responsibilities scattered among agencies
Unable to link environmental and health databases

(McGeehin, 2002)
Pew Environmental Health Commission
Call for Action

! Strengthen the nation’s environmental health defense system

! Identify and control environmental precursors of disease

! Improve public health’s readiness to respond

(McGeehin, 2002)
Environmental Health Tracking

Essential Components

Hazard tracking

Exposure tracking  Health outcome tracking

(McGeehin, 2002)
Environmental Public Health Tracking

Track health, disease, and risks to target interventions
Detect new health events and unusual occurrences associated with environmental exposures
Monitor effects of interventions and policies
Raise awareness of environmental health issues
Guide research initiatives

GIS  Data Presentation  Data Mining & Knowledge Discovery  Statistical Models  Privacy

Hazard
- Hazardous Material Profile
- Exposure Profile
- Bionetworking
- Intervention Guidelines

Population
- Population Demography

Exposure
- Disease Tracking

Health Outcomes

Metadata  Data Standardization  Data Linking/Integration  Data Quality Assurance

Hazards Tracking
- Emergency Response Notification System
- Hazardous Substances Emergency Event Surveillance System
- Toxic Release Inventory

Exposure Tracking
- Blood Lead Poisoning (child & adult)
- National Report on Human Exposure to Environmental Chemicals
- Toxic Exposure Surveillance System

Population Demographics
- Census Data

Health Outcomes Tracking
- Administrative Data Systems
- Birth Defects Registries
- BRFSS
- Cancer Registries
- Health Surveys
- Vital Statistics

Selected Data Sources

(McGeehin, 2002)