

Lessons Learned from Working with the *Department of Energy* (*DOE*)

Creating a National Resource: Peer Trainers

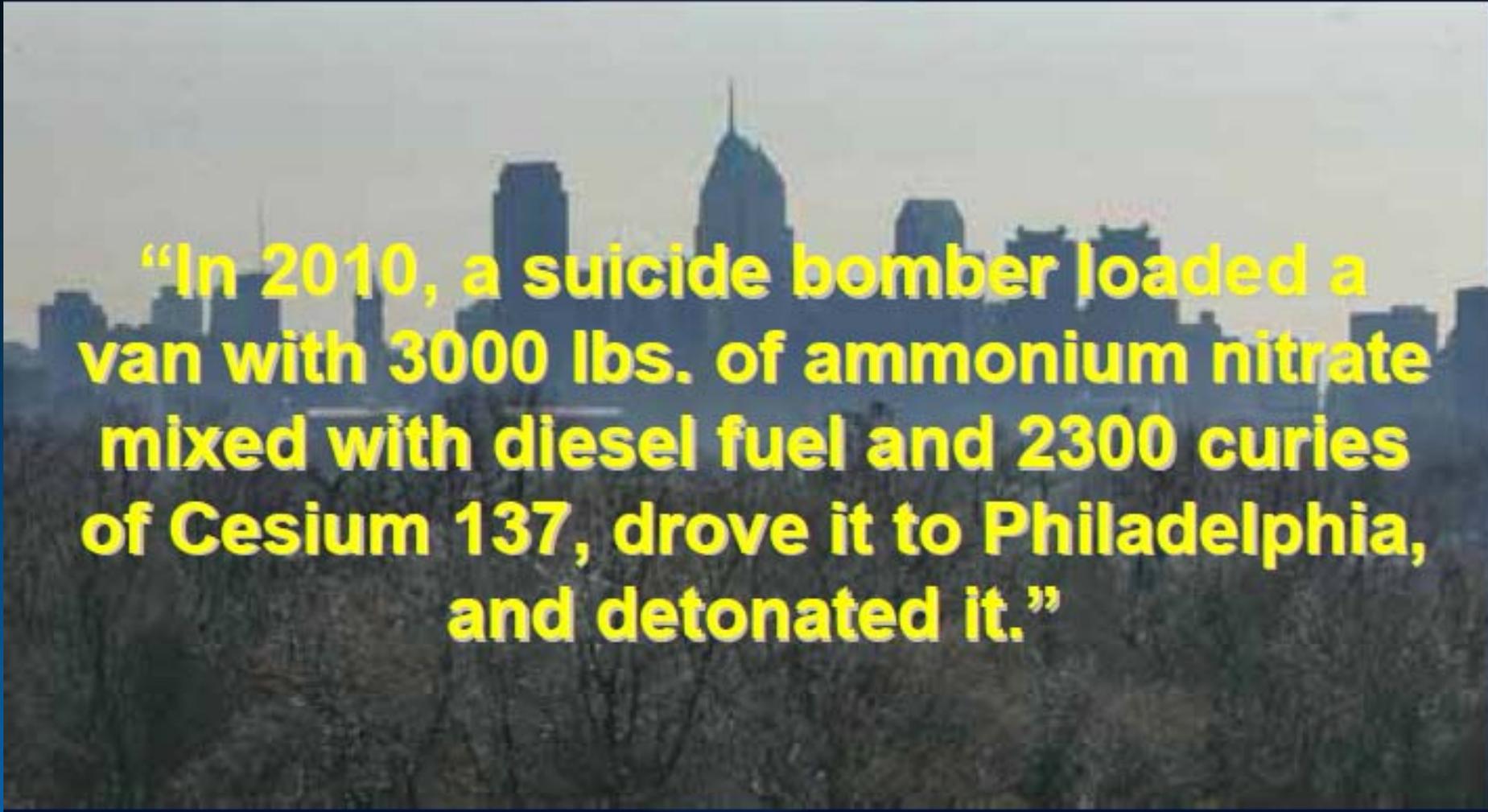
Jim Remington
Program Analyst

National Institute of Environmental Health Sciences
Worker Education and Training Program

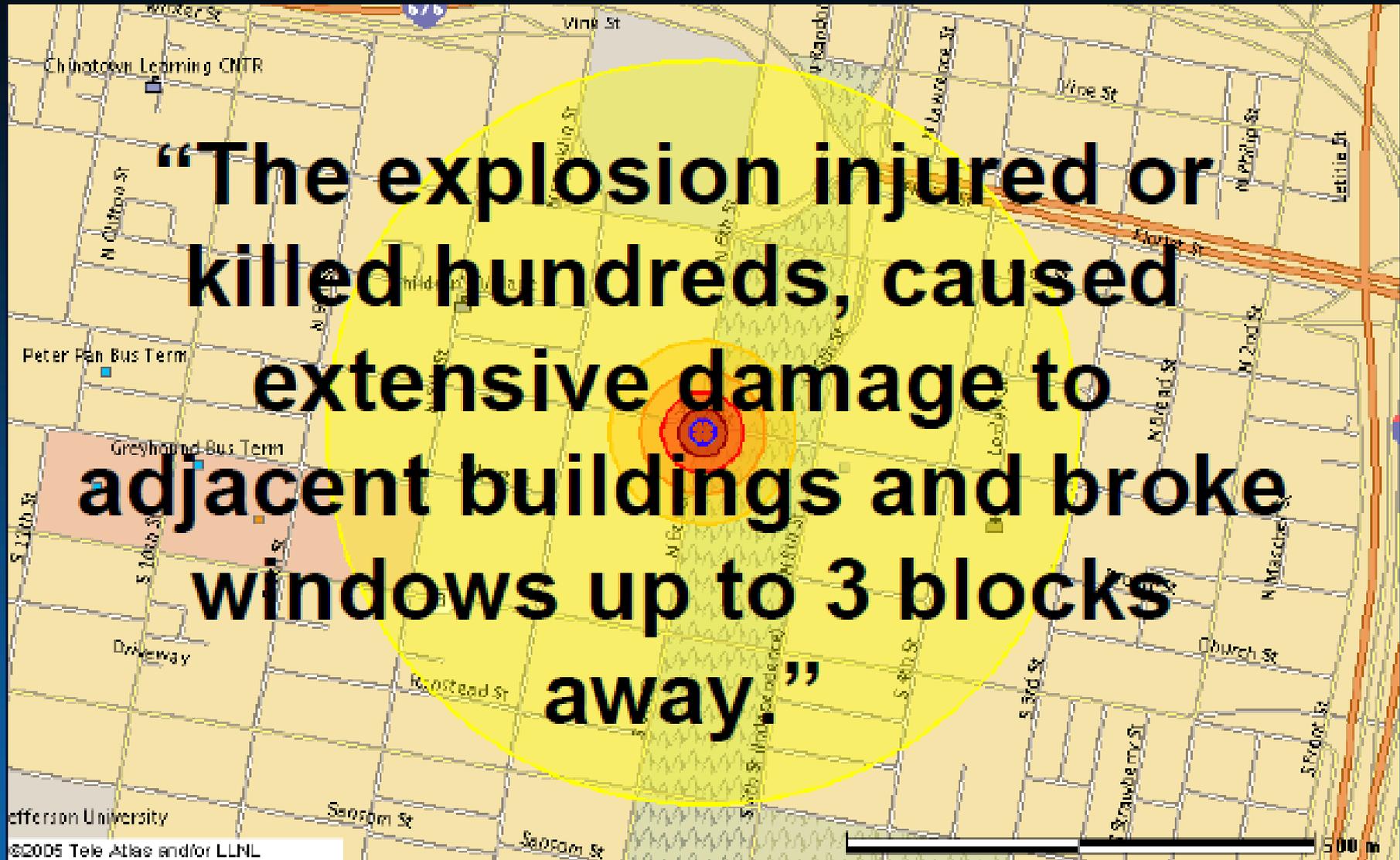
Liberty RadEx Health & Safety Preparedness

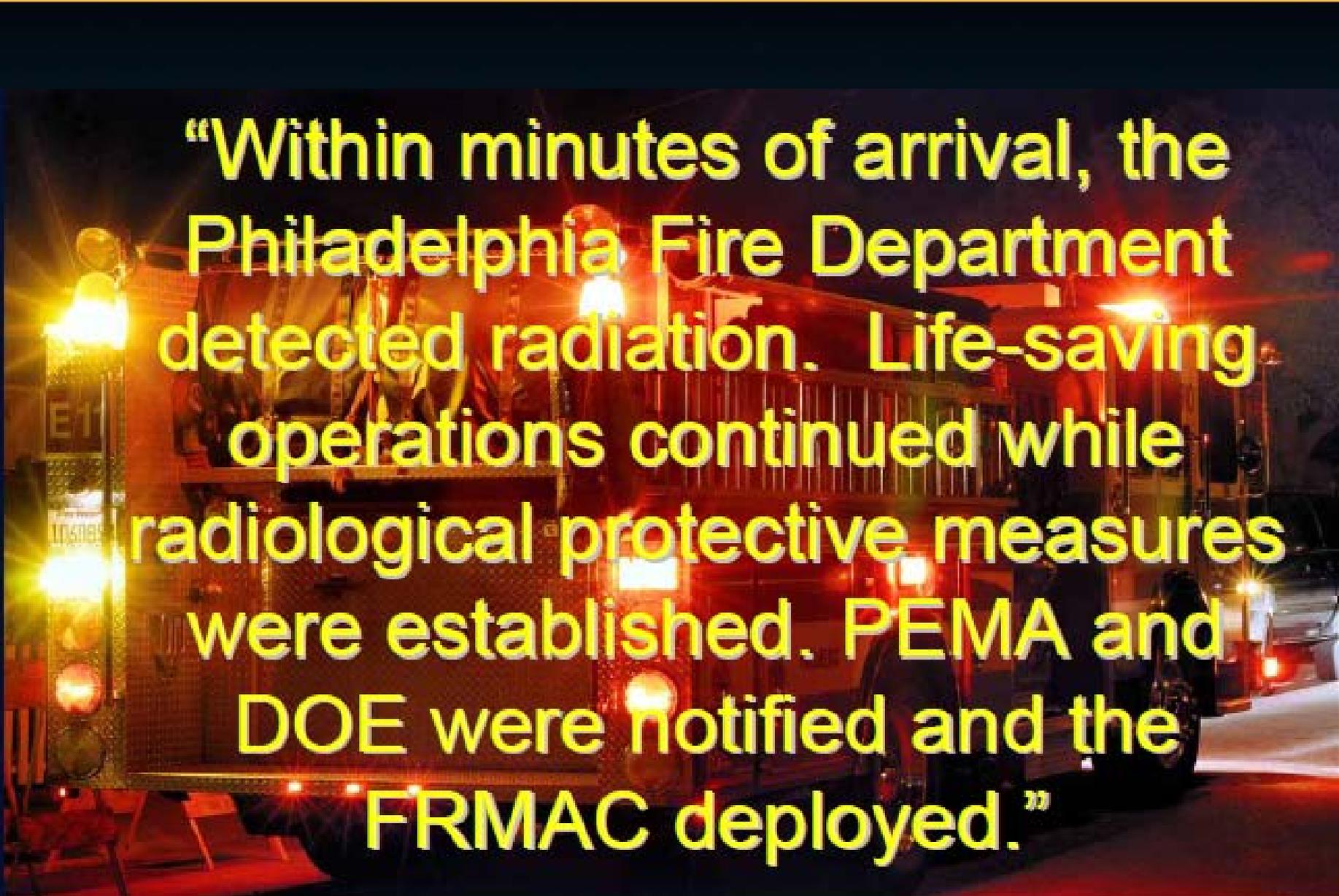
Liberty Radiation Exercise



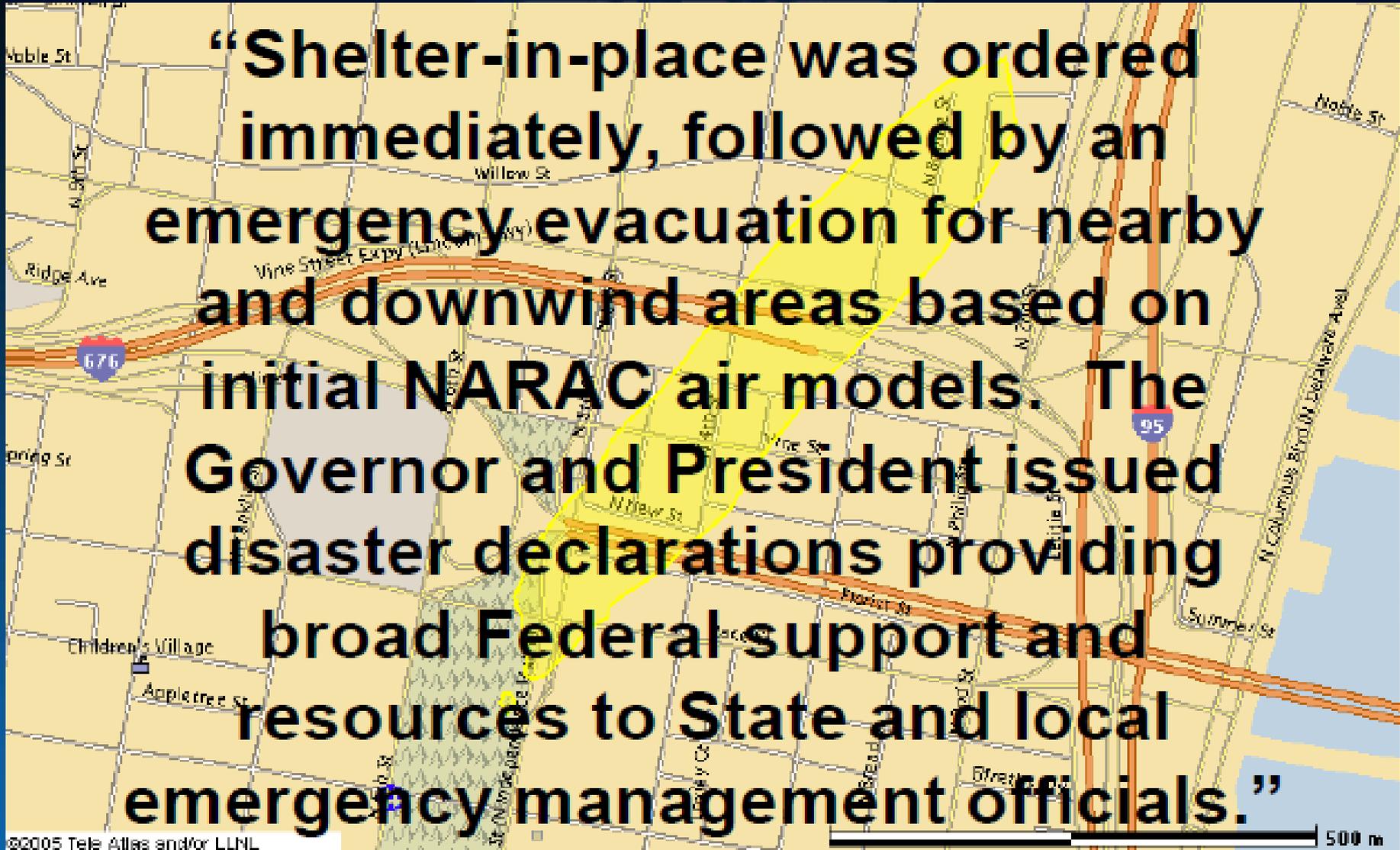


“In 2010, a suicide bomber loaded a van with 3000 lbs. of ammonium nitrate mixed with diesel fuel and 2300 curies of Cesium 137, drove it to Philadelphia, and detonated it.”

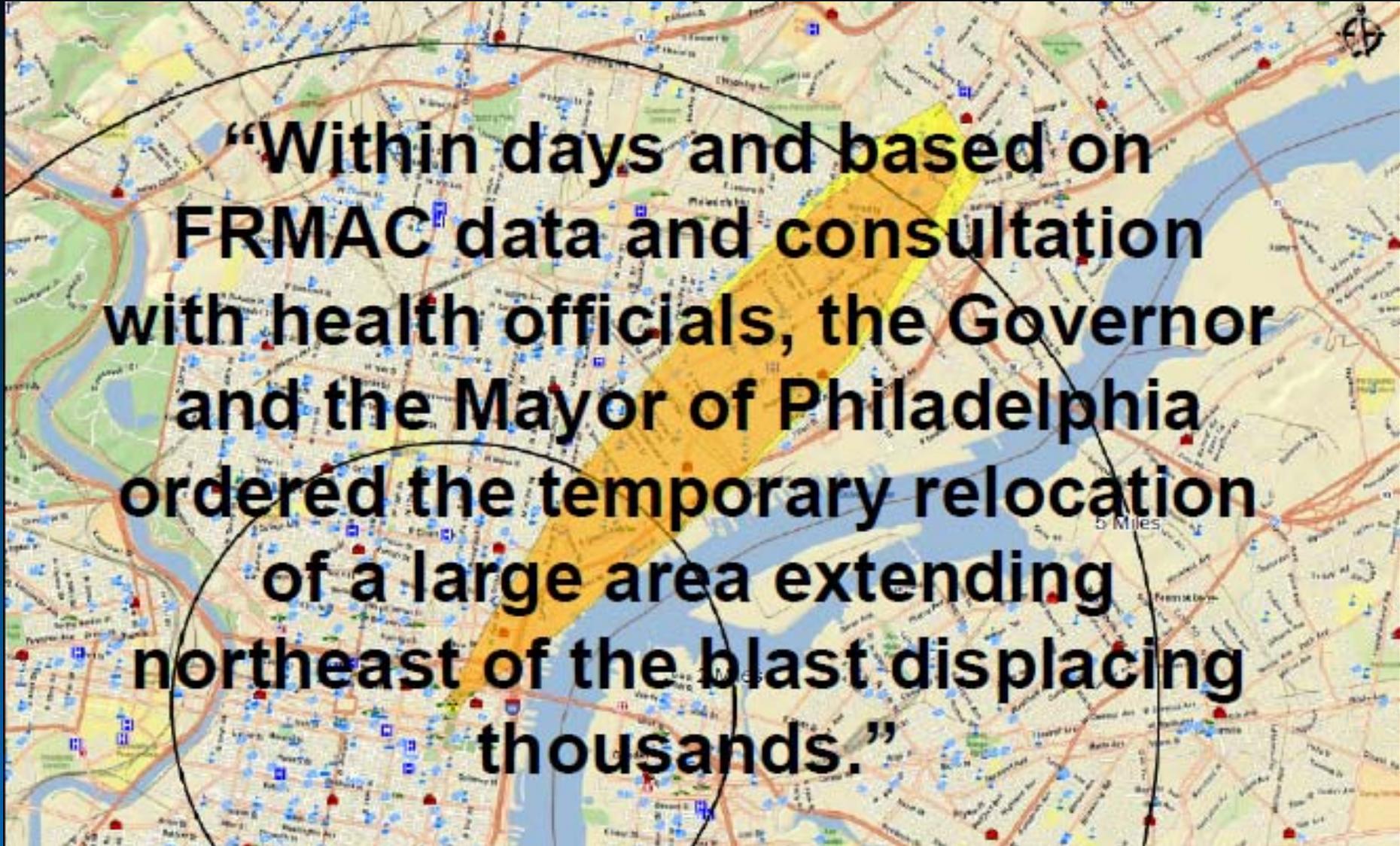




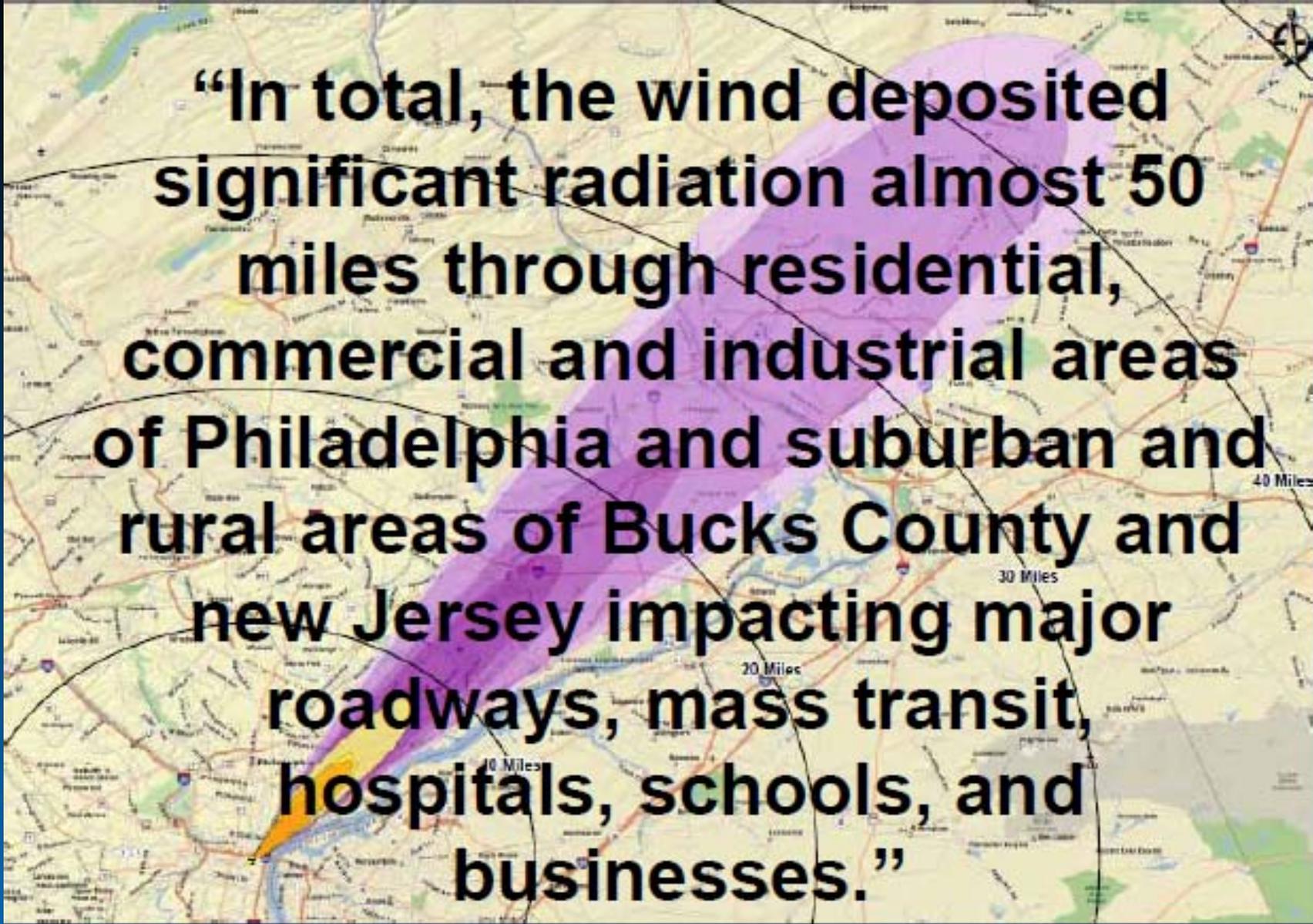
“Within minutes of arrival, the Philadelphia Fire Department detected radiation. Life-saving operations continued while radiological protective measures were established. PEMA and DOE were notified and the FRMAC deployed.”



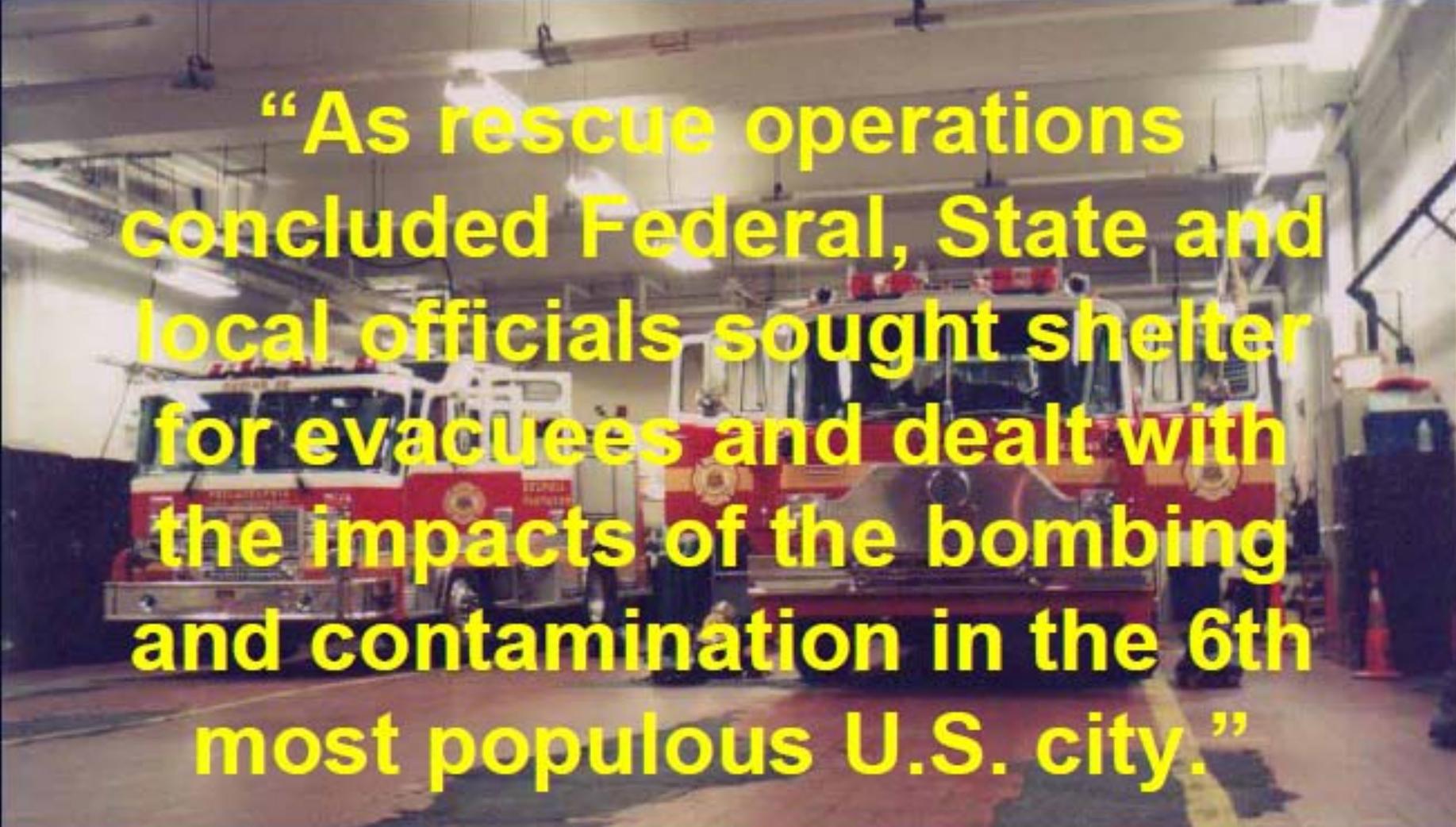
“Shelter-in-place was ordered immediately, followed by an emergency evacuation for nearby and downwind areas based on initial NARAC air models. The Governor and President issued disaster declarations providing broad Federal support and resources to State and local emergency management officials.”



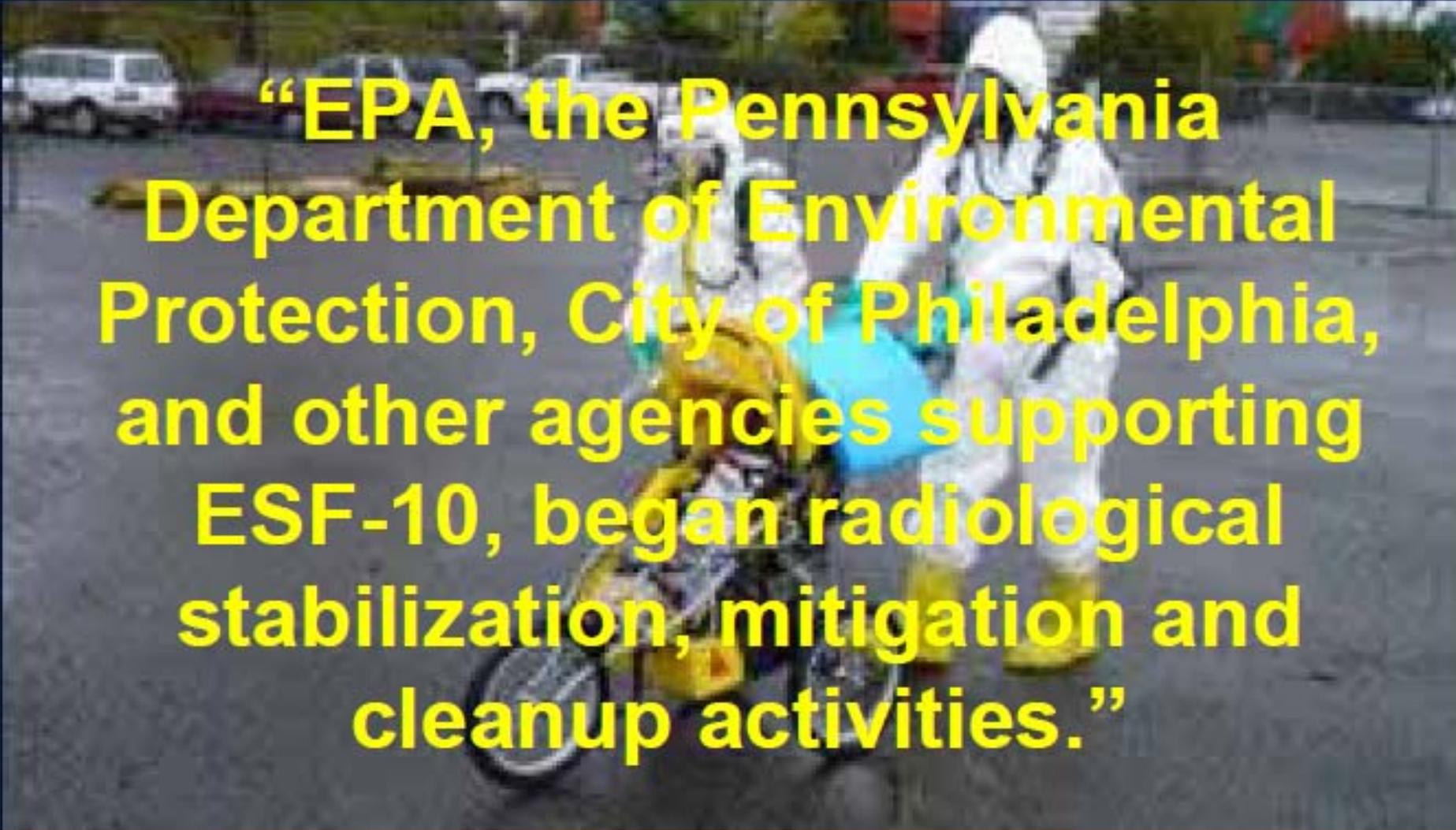
“Within days and based on FRMAC data and consultation with health officials, the Governor and the Mayor of Philadelphia ordered the temporary relocation of a large area extending northeast of the blast displacing thousands.”



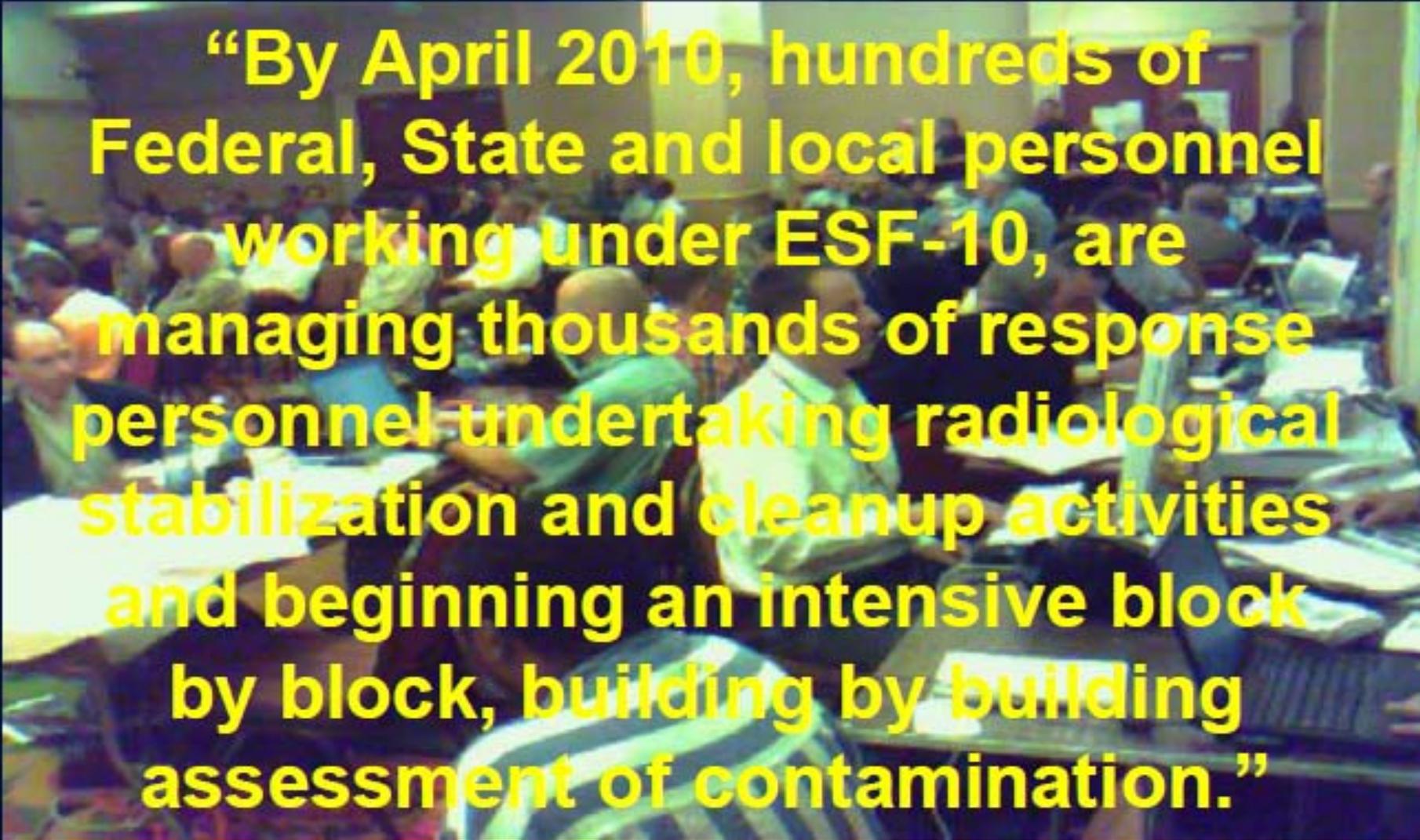
“In total, the wind deposited significant radiation almost 50 miles through residential, commercial and industrial areas of Philadelphia and suburban and rural areas of Bucks County and new Jersey impacting major roadways, mass transit, hospitals, schools, and businesses.”



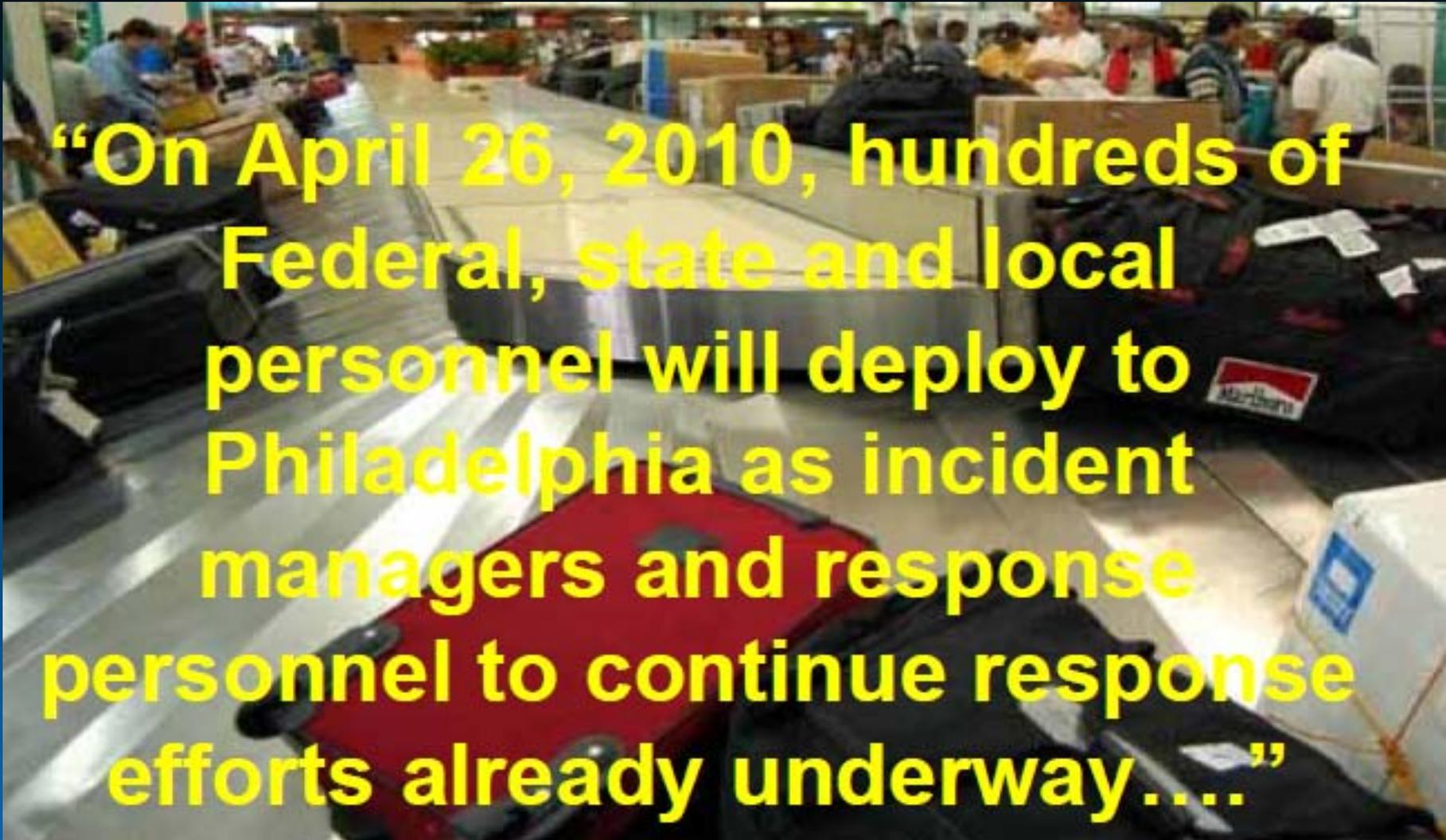
“As rescue operations concluded Federal, State and local officials sought shelter for evacuees and dealt with the impacts of the bombing and contamination in the 6th most populous U.S. city.”



“EPA, the Pennsylvania Department of Environmental Protection, City of Philadelphia, and other agencies supporting ESF-10, began radiological stabilization, mitigation and cleanup activities.”



“By April 2010, hundreds of Federal, State and local personnel working under ESF-10, are managing thousands of response personnel undertaking radiological stabilization and cleanup activities and beginning an intensive block by block, building by building assessment of contamination.”



“On April 26, 2010, hundreds of Federal, state and local personnel will deploy to Philadelphia as incident managers and response personnel to continue response efforts already underway....”

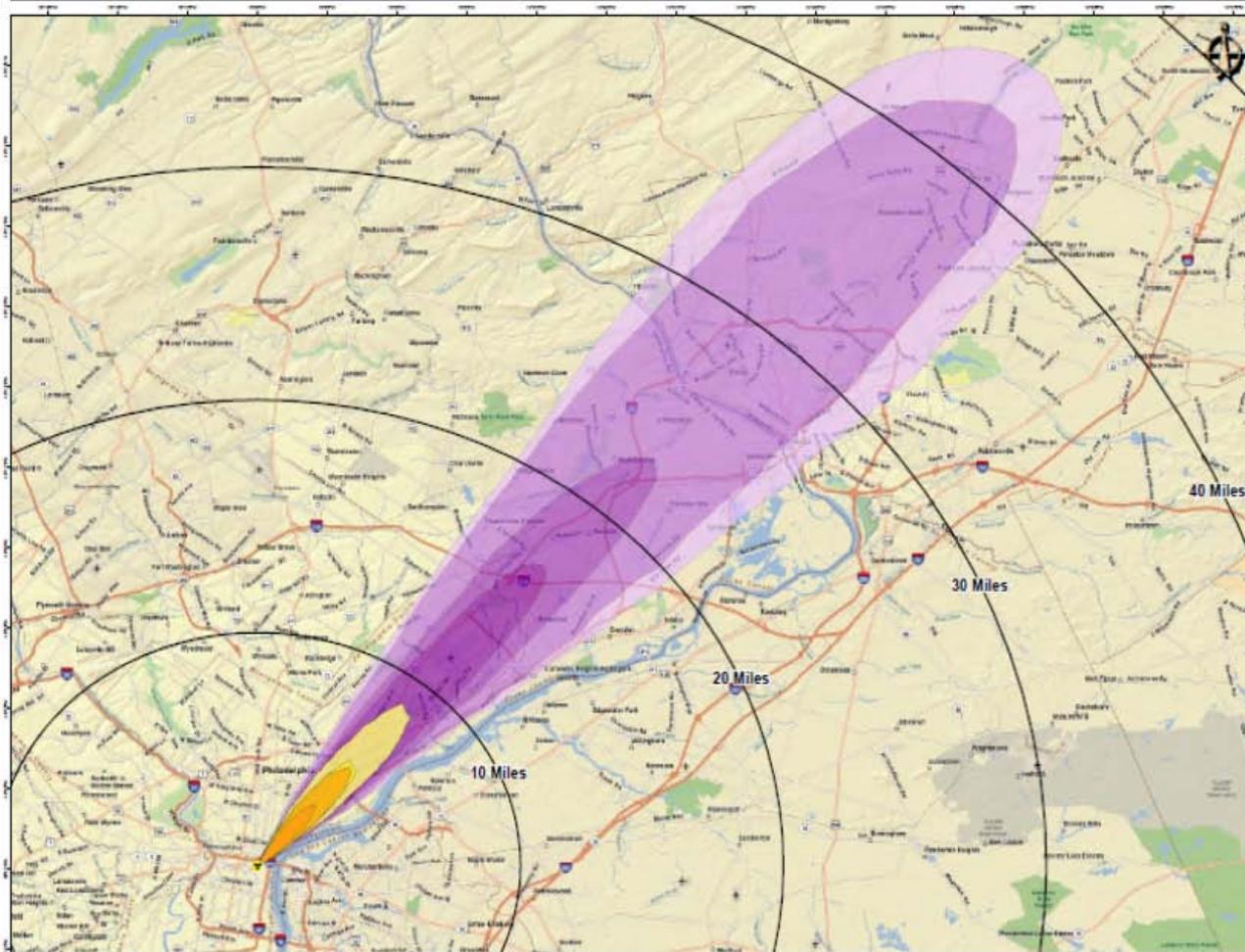
- Impacted population $\approx 1,000,000$
- ≈ 50 miles long/10 miles wide
- ≈ 300 square miles
- $\approx 40,000,000$ tons
- $\approx 2,000,000$ tri-axle dump trucks

EXERCISE

Liberty RadEx Relocation and Deposition

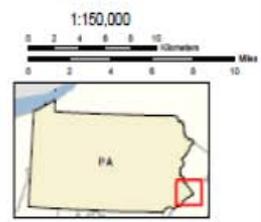
Federal and State PAGs with Deposition Data

SET 01
Liberty RadEx
Philadelphia, PA



- ★ Release Point
- EPA Relocation PAG**
NARAC Product for CS-137
Radiological Release Intermediate
Phase PAGs
- > 2.0 rem
Exceeds first-year relocation PAG
(12 hrs to 1 yr 12 hrs)
Population : 22,700
- > 0.5 rem
Exceeds second-year relocation PAG
Population : 59,600
- > 0.0 rem
Exceeds 8th-year relocation PAG
Population : 148,000
- PA State Specific 1st year PAG**
NARAC Product for CS-137
Radiological Release Intermediate
Phase (State Levels)
- > 500 mrem
Exceeds first-year relocation (state requested level) (12 hrs to 1 yr 12 hrs)
Population : 61,200
- Ground Deposition Levels**
μCi/m²
- > Six background (0.09 – 0.2 μCi/m²)
- > 10x background (0.2 – 1.0 μCi/m²)
- > 1.0 μCi/m²
- >100 x background (2.2 – 7965.48 μCi/m²)

Not Intended For Public Distribution
This map was produced by the Geographic Information Systems department of NNSA's Remote Sensing Laboratory (RSL) at Nellis AFB, Las Vegas, Nevada. RSL Prod 2017, ESRI World Street Map, and PHILARC database were used for map generation. RSL map identification number is: GroundDepositionLevels.mxd



Pre-Exercise: Opportunity to provide all participants RDD awareness training

- NIEHS provided 3 Webinars on RDD awareness

March 23, March 26, and April 19, 2010

- EPA Contractor (Tetrattech) provided webinar on Cesium-137
- Many agencies provide higher level training to those participants who required it



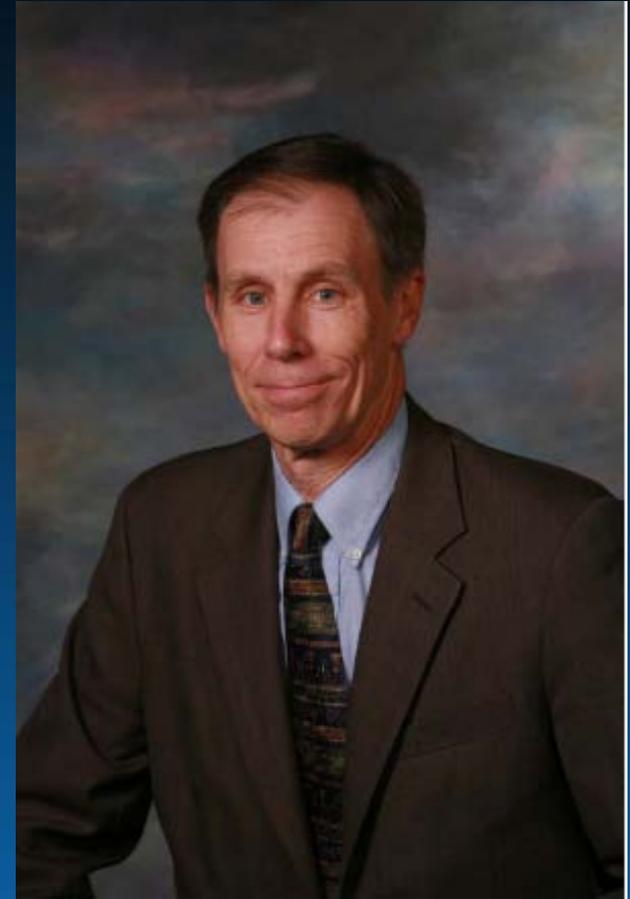
Protecting Yourself During a Dirty Bomb Response

An Awareness Level Training Tool for Skilled Support Personnel



Webinar Content: RDD Basics

- RAD Basics
- Biological effects of ionizing radiation
- Protective measures
- NRC Guide 8.13, Instruction Concerning Prenatal Radiation Exposure
- RDD
- RDD, what it is and its Characteristics
- Contamination
- Exposure
- Cesium 137
- Ionizing versus non ionizing radiation
- Detection and monitoring equipment
- Antidote and treatment



Dr. Bruce Lippy, The Lippy Group LLC

Webinar Content: All Hazard Awareness

- Driving
- Workzones
- HASP
- Chemical Hazards HAZCOM
- Excavation
- Confined space
- Structural integrity
- Flying debris
- Unstable surfaces
- Ladders, lifts
- Electrical
- Heavy equipment
- Carbon monoxide



Ron Snyder, HMTRI
Kirkwood Community College

Webinar Content: NIMS & ICS +

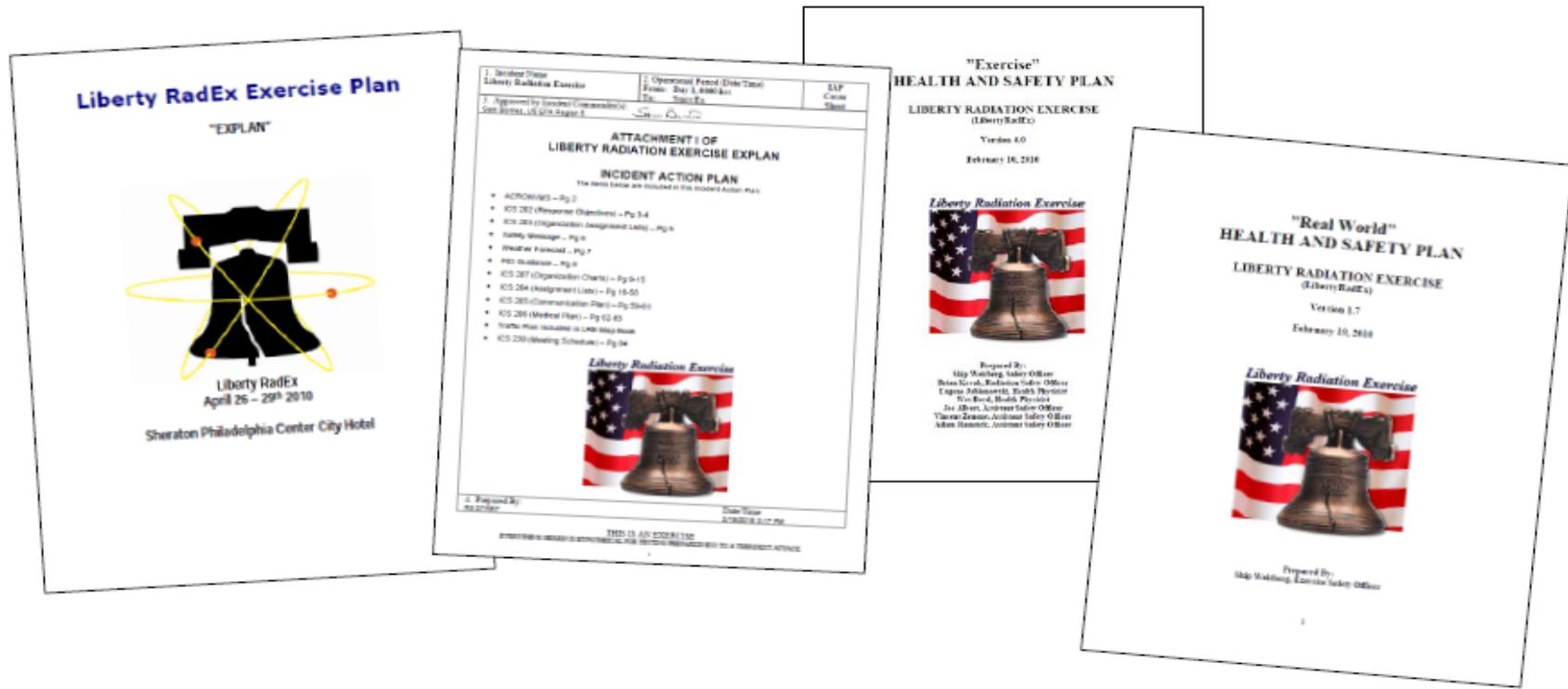
- NIMS & ICS
- Decon manager
- Field emergencies (decon injury)
- PPE
- Bloodborne Hazards
- Decontamination
- Fatigue
- Heat or Cold stress
- Traumatic Stress



Pete Gomez, Captain , Miami Fire-Rescue



Important Documents to Review



Liberty RadEx Exercise Plan
"EXPLAN"

Liberty RadEx
April 25 – 29th 2010
Sheraton Philadelphia Center City Hotel

ATTACHMENT I OF LIBERTY RADIATION EXERCISE EXPLAN
INCIDENT ACTION PLAN
THE BELLS FROM AN INCIDENT BY THE INCIDENT ACTION PLAN

- ACRN01903 – Pg. 2
- ICS 202 (Personnel Objectives) – Pg. 3-4
- ICS 203 (Organization Organization Chart) – Pg. 6
- Safety Message – Pg. 6
- Weather Forecast – Pg. 7
- PFD Schedule – Pg. 8
- ICS 207 (Organization Chart) – Pg. 9-15
- ICS 204 (Assignment Lists) – Pg. 16-55
- ICS 205 (Communication Plan) – Pg. 56-61
- ICS 206 (Medical Plan) – Pg. 62-63
- HazMat Plan included in ICS 204 Map Book
- ICS 209 (Meeting Schedules) – Pg. 64

"Exercise" HEALTH AND SAFETY PLAN
LIBERTY RADIATION EXERCISE (LibertyRadEx)
Version 4.0
February 16, 2010

Liberty Radiation Exercise

Prepared By:
Mig Waldburg, Safety Officer
Brian Sciala, Radiation Safety Officer
Eugene Johnson, Health Physician
Tim Beck, Health Physician
Dr. Jhon, Accident Safety Officer
Theresa Zeman, Accident Safety Officer
Adam Hammett, Accident Safety Officer

"Real World" HEALTH AND SAFETY PLAN
LIBERTY RADIATION EXERCISE (LibertyRadEx)
Version 1.7
February 16, 2010

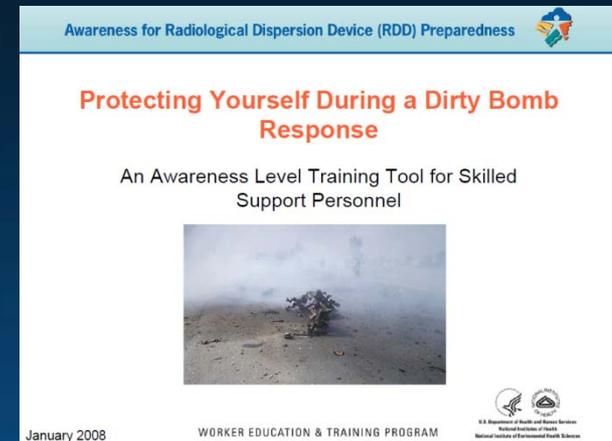
Liberty Radiation Exercise

Prepared By:
Mig Waldburg, Exercise Safety Officer

During Exercise: Site and Task Specific Training and Support

Training and Information Distribution from Incident Command Post
(Sheraton Hotel)

- NIEHS RDD Awareness Booklets

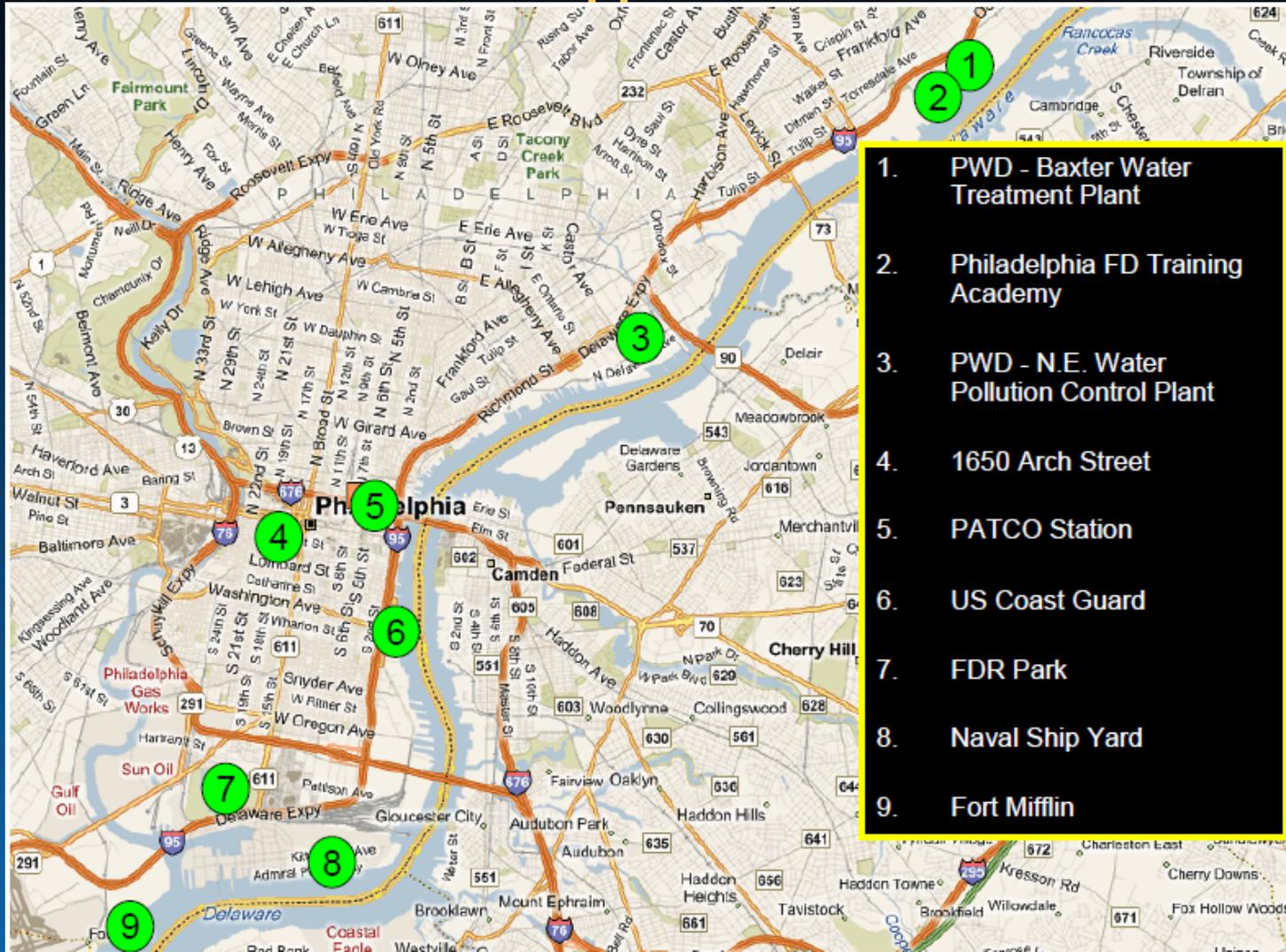


- JITTES (Just-In-Time Training for Emergency Incidents System)



Cesar Bandera, Cell Podium, LLC

During Exercise: Site and Task Specific Training and Support



Deployed Teams

Team 1: Dan Snyder

Gary Kukal

Team 2: Sid Thurmer, ICWUC, Oak Ridge

Lynn Taylor, ICWUC, Oak Ridge

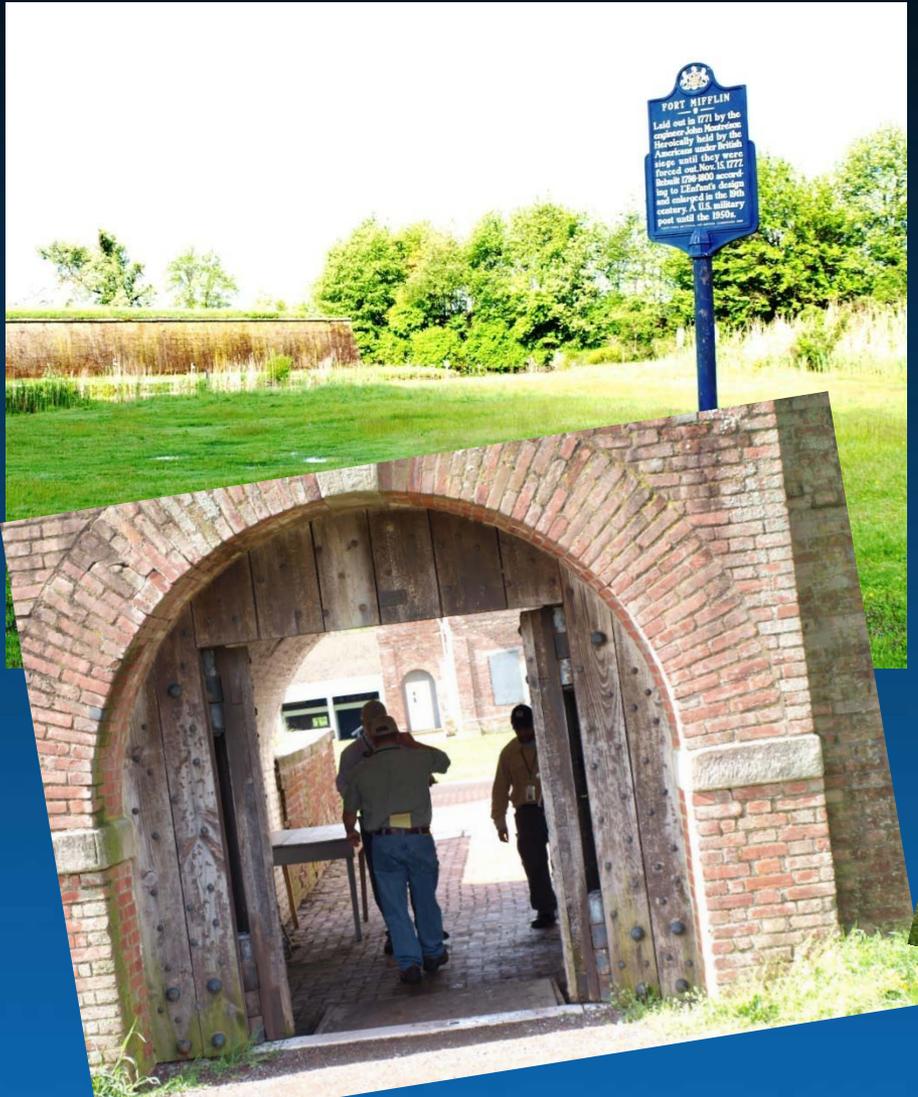
Team 3: Rob Wininger, IBEW, Hanford

Wright Beach, IBEW, Hanford

Coordinators: Don Dudley, ICWUC CWHSE, OSHA Coordinator

John Morawetz, ICWUC

Exercise Day 1: Ft Mifflin



Exercise Day 1: PATCO



Exercise Day 1: Philadelphia Fire Academy



Exercise Day 2: Navy Yard



Legend

 Extent of Play Area

Imagery Source: ESRI Bing Maps



0 600 1,200 2,400 Feet

Philadelphia Naval Ship Yard

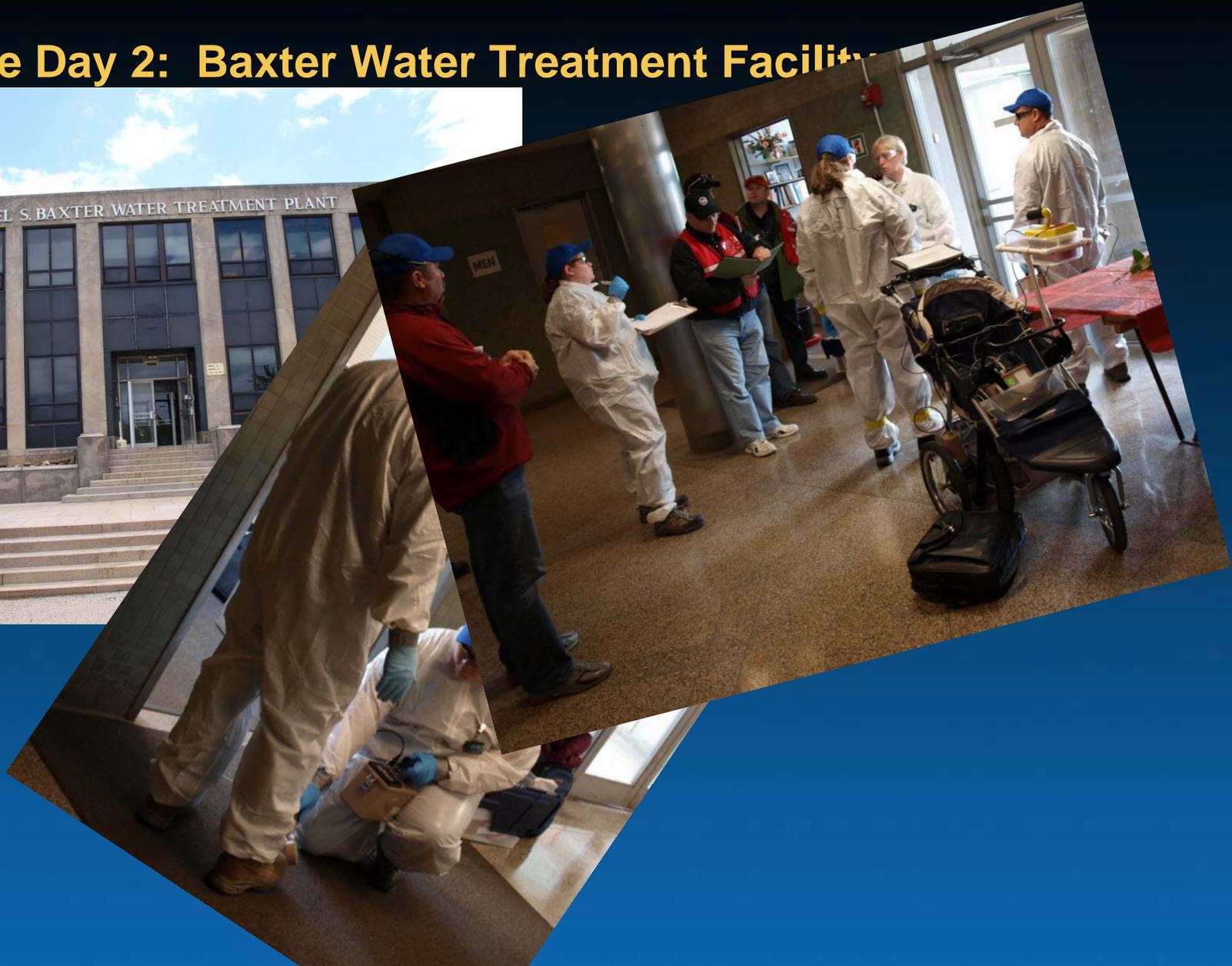
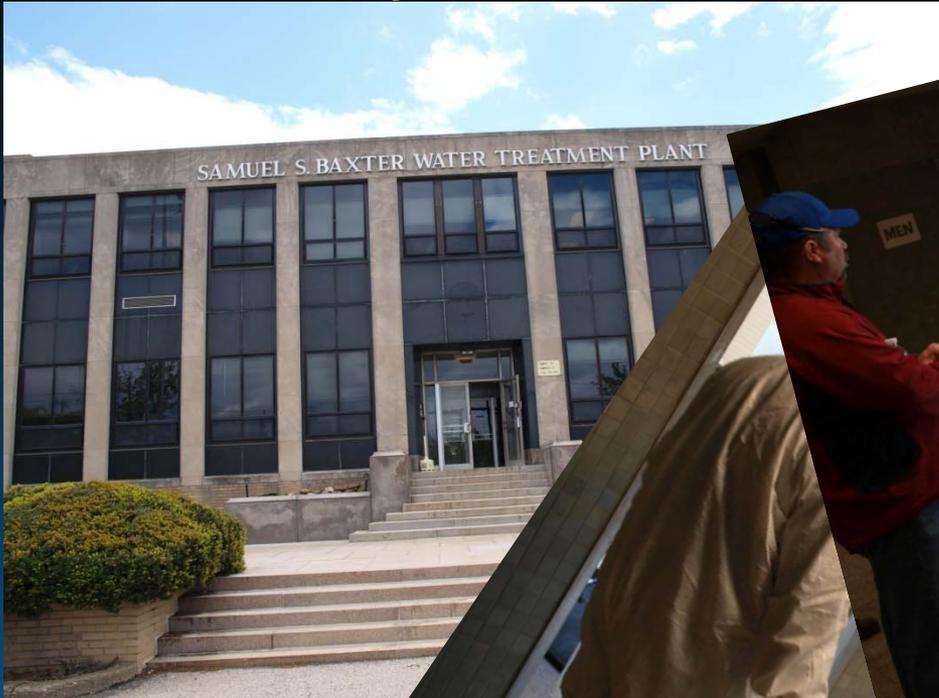


Liberty Rad Exercise
For Official Use Only

Exercise Day 2: FDR Park



Exercise Day 2: Baxter Water Treatment Facility



Exercise Day 3: Northeast Water Pollution Control Plant



Legend

 Extent of Play Area

imagery Source: ESRI Bing Maps



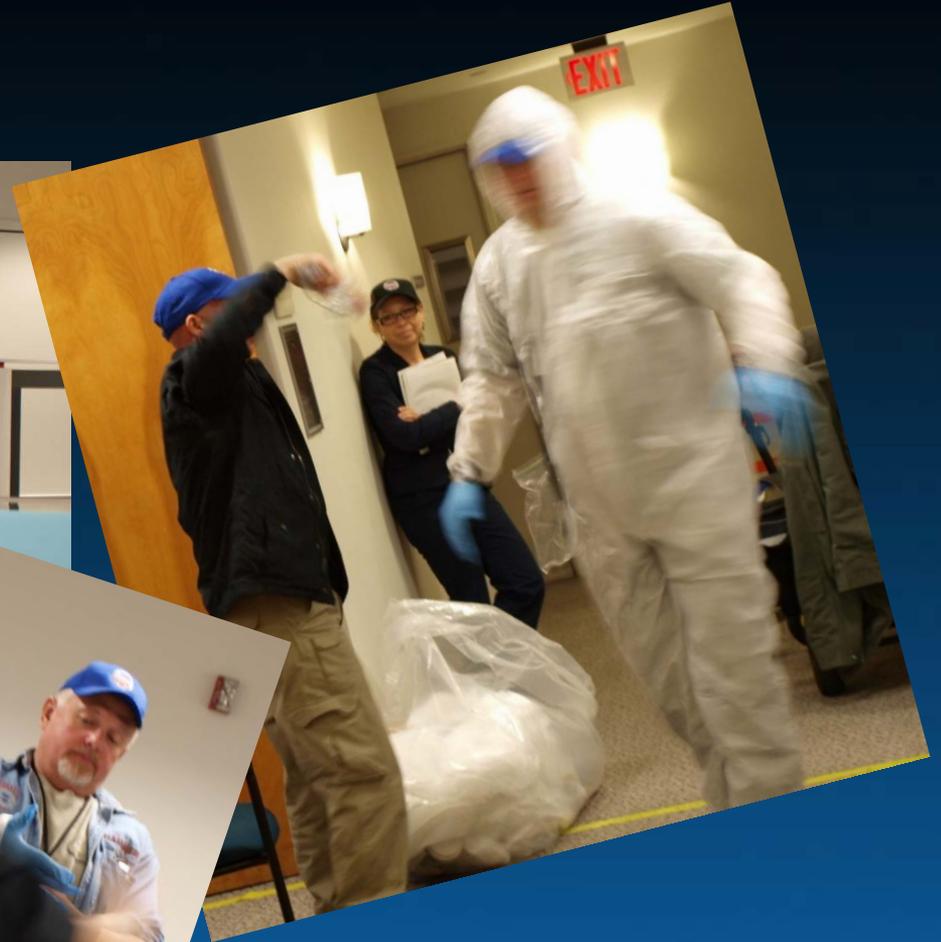
0 225 450 900 Feet

Northeast Water Pollution Control Plant



Liberty Rad Exercise
For Official Use Only

Exercise Day 3: Arch Street



Exercise Day 3: USCG Sector Delaware Bay



Legend

 Extent of Play Area



0 62.5 125 250
Feet

USCG Sector Delaware Bay



Liberty Rad Exercise
For Official Use Only

Valued Added

- Assistance to Safety Officers to identify hazards
- Orientation and Topic specific training as needed as problems occur
- Assistance with decontamination procedures

Areas we can improve on

- Better integration with safety officers
- Improve outreach and participation so training teams full capability can be utilized
- Provide tool kit that trainers can pull from to provide impromptu training as needed