Emergency Response
Case Study Philadelphia

“Nothing in Life Is to Be Feared, It Is Only to Be Understood. Now Is the Time to Understand More, So That We May Fear Less.”

- Marie Curie

The Proverbial Why?

The Nuclear Age post WWII put the fear of radiation in the hearts and minds of men throughout the world.

Presently the Philadelphia Fire Department in conjunction with Law Enforcement, the Health Department and Local Universities sought to develop a logical approach to Radiological Incidents.

Where are we going…

- Timeline
  - History of radiation detection in Philadelphia, PA
- Capabilities
  - CDV equipment vs. RIID's
  - 3 – Tiered Response Plan
- Case Studies
  - Rouge sources by former Drexel Univ. HP
  - Stolen ground soil density gauge

History of Radiation Detection Within the Philadelphia Fire Department

- A timeline:
  - Pre 2000: Civil Defense meters are stored at various firehouse's throughout the city. Members are instructed to check these quarterly. No formal training given. Commonwealth to maintain.
  - 2000: Pennsylvania Emergency Management Agency [PEMA] is no longer going to maintain the Civil Defense cache in the Commonwealth. The Philadelphia Fire Department [PFD] will maintain city's supply.

2001

- Mid 2001: all meters are calibrated, packed in pelican cases, and stored back at the original firehouses, typically in a locked closet. No plan to place units in service.

- Sept. 11, 2001: the united states is attacked.

- Sept. 18, 2001: anthrax scares throughout the nation. Five rapid response teams are placed in service consisting of a hazmat tech. FF and officer, a police officer and a health department official. Over a thousand responses made in the first few months.

2002

- Mid 2002: the federal government starts throwing money towards training and equipping first responders.

- Late 2002: the PFD receives free Ludlum, Bicron and Eberline meters through the homeland defense equipment reuse [HDER] campaign.

2003

- Early 2003: select members receive training on equipment from federal contractors. No formal training given as of yet to the rank and file.
- Mid 2003: special operations command is formed.
- Mid 2003: the PFD starts to develop a radiological response plan. 150 dosimeters are ordered using grant money.

2004

- Early 2004: select PFD members attend radiological response team [RRT] and radiological officer training through PEMA.

- Early 2004: relationships are fostered with university of Pennsylvania's radiological & environmental health and safety department.

- Mid 2004: 150 dosimeters are delivered to the PFD. Operational procedure #24 "radiological response" is re-written, addendum 1 "Dosimetry" is added, with assistance from university of Pennsylvania.

… 2004

- Late 2004: formal training is conducted for all PFD personnel on the operation and maintenance on the new dosimeter.

2005

- Early 2005: the state radiological officer grants specific members the radiological – III status.

- Early 2005: the PFD develops a plan to conduct RRT training to companies that housed the civil defense equipment.

- Mid 2005: formal RRT training is given to 22 fire engine companies, 11 battalion chiefs, technical rescue, squad companies, hazardous materials taskforce, E-78 [PIA] and members of the PPD's counter terrorism unit. Approximately 550 trained. The civil defense meters are now carried on the apparatus.

- Late 2005: the PFD receives 8 gamma/neutron pagers [PRD], 8 gamma pager/dosimeters and 3 radiation isotope identification units [RIID]. 4 PRD's, 4 dosimeters and 1 RIID are given to HMTF, 2 PRD's, 2 dosimeters and 1 RIID are given to each of the 2 squad companies. All training complete.

2006

- Early 2006: A multi-leveled tiered response is being developed and placed into service. OP 24 is being re-worked. A needs assessment was conducted from within which shows gaps in our response plan.
  - No formal radiological decon plan developed.
  - No portal monitors to assist in mass decon.

- Mid 2006: the PFD orders and receives the following from federal grants:
  - 9 portal monitors
  - 3 vehicle kits
  - 5 gamma/neutron RIID's
  - 12 contamination meters
  - 12 radiological response kits with various probes
  - 50 additional pager/dosimeters

- Mid 2006: addendum 2 “radiological decontamination” is being developed and added to OP 24. The following items are placed in service:
  - The pfd’s 3 mass decontamination task forces receive 2 portal monitors, 1 vehicle kit and 2 contamination meters.
  - The HMTF receives 1 portal monitor, 4 rad response kits and 1 gamma/neutron RIID.

- Each squad company receives 1 portal monitor, 2 rad response kits and 1 gamma/neutron RIID.
- The hazardous materials administration unit maintains a RAT cache of equipment that includes 5 rad response kits, 2 gamma/neutron RIID's, 3 gamma RIID's and 10 PRD's as well as detection for chemical and biological agents.
- The dosimeters on all 45 medic units are uprated to the newer style radiac pager/dosimeter.

3-Tiered Radiological Response Plan

Tier I

- 150 dosimeters are carried by every engine and ladder officer and at least 1 paramedic on every medic unit throughout the city.
  - Should a dosimeter alarm, using simple investigation measures the members may feel that no additional response is needed, however if something is amiss they may elect the assistance of a radiological response team. This team comprises of an engine company and a battalion chief [BC].

Tier II

- The RRT and BC will bring additional equipment that may include the civil defense meters and/or the HDER equipment. These companies have also been formally trained to PEMA and DOE standards. The BC may request further assistance from either the HMTF or a squad company.

Tier III

- HMTF response
  - 11 hazardous materials technicians
  - Advanced hardware & software support
- Squad company dispatched
  - 5 hazmat tech / tech. Rescue members
- Law enforcement
  - Force protection
  - Counter terrorism unit dispatched
- Emergency management notification
  - Local
  - State

“Train As You Play - Play As You Train”

- Example:
  - First arriving companies will:
    - Set-up hot, warm and cold-zones.
    - Request a hazmat response including multiple RRT companies.
    - Establish a decontamination corridor. Initial decontamination will be conducted by stripping and using a charged hoseline for wet decontamination on affected citizens.
    - Request MDTF’s as needed.
  - Arriving RRT’s will establish a perimeter that will be maintained using PPD’s major incident response team members.

- The HMTF, with help from the squad companies will determine acceptable action and interdiction levels and will determine isotope.

- The MDTF's will set-up radiological portal monitors and will establish a more formal shower facility. Affected citizens will receive medical treatment after proper decontamination, however medical treatment will not be delayed because of radiological contamination only.

- The medical branch officer will be in contact with the health department and will alert the hospitals via Prem-dot system.
  - RED
  - YELLOW
  - WHITE

- The city's emergency operations center and joint operations center will be in full effect along with the joint information center being established.

Former Drexel Univ. Health Physicist

- Retired 20 years prior
- Passed away approx. 10 years ago
- X-Ray machine repairman
- Movers discover boxes labeled Radioactive – Notify Police
- Multiple sources throughout property
- Multi-Agency Response

Stolen Ground Soil Density Gauge

- Construction site reports to NRC missing gauge.
- News media finds out 2 day later
- Anonymous phone tip to police
- Gauge found shredded in scrap yard
- Contamination throughout property, 1 civilian w/ external contamination
- Multi-agency, multi-state response

Did we accomplish anything?

Equipment augmented

Training issues resolved and on-going

Radiation response enhanced

New relationships fostered

Old relationships strengthened