

## **An Approach to First Responder Radiological Preparedness**

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### **Program Background**

The Massachusetts (MA) Emergency Management Agency (EMA) has been distributing radiation equipment through out the Commonwealth of MA for many years. A great amount of emphasis on radiation training and equipment distribution was common during the cold war days.

In the mid 1990s after the Berlin wall tumbled down, there was realignment at the federal level. Part of the reevaluation by the federal government in the emergency management arena resulted in the reduction of the financial support for radiological preparedness activities.

As a result of this realignment, many states eliminated their radiological instrumentation maintenance and calibration (RIM&C) facilities due to the federal financial reductions.

Since MA had four nuclear power plants with 10-mile emergency planning zones (EPZ) impacting communities in MA, the owners, realizing the regulatory importance of radiological preparedness, of the four nuclear reactor sites were able to provide financial support to help keep the MA RIM&C facility funded. The focus of this funding was to provide radiological equipment and training to the EPZ communities.

### **Program Development Post 9/11**

A challenge requires solutions. Solutions require the development of strategies to address the solutions.

MA, as well as the rest of the country, has been presented the challenge of the new paradigm. How do we prepare our emergency responders (first and secondary) to properly respond to accidents/incidents involving radioactive materials and the reality of terrorism involving the use of radiation?

All you really have to do is ask. Obtaining and modifying existing protocols and asking for input from multiple agencies from the local, state and federal levels can assist in the development of the solutions to the questions facing us in these times.

The MA strategy developed by the EMA and MA Department of Public Health-Radiation Control Program (RCP) is three fold:

- Provide training geared towards understanding the basic principles of radiation and radiation safety and in state resources (self protection/asset protection/assistance).
- Standardize the types of radiation detection instrumentation-three categories of equipment.
- Provide hands-on experience with the three categories of radiation equipment to be deployed by the responder at a radiation incident.

### **Equipment**

The three categories of equipment being deployed are:

- personnel dosimeters
- radiation measurement
- radiation detection

The purchase and distribution of radiation equipment that fits into the three categories of equipment has been accomplished with the existing stock of Civil Defense (CDV) equipment owned by MA; modification of some of the existing CDV equipment; some use of radiation detection equipment available through the Homeland Defense Equipment Reuse (HDER) program coordinated by the Department of Justice; and the purchase of new equipment through

the various Homeland Security funding mechanisms from the federal government.

For the personnel dosimetry category, pocket optical dosimeters (POD) and recently purchased electronic dosimeter units are currently being deployed by MA to various first responder and potentially impacted organizations. Electronic dosimetry appears to be the unit of choice by first responders because of the availability of audible and visual features that are not found on PODs.

The radiation measurement and detection capabilities can be filled with CDV equipment currently owned by MA and radiation equipment that has recently been purchased.

Measurement equipment is typically a meter with an energy compensated Geiger-Muller (GM) detector. The equipment is used to measure general area dose rates in a potentially impacted area.

Detection equipment is used to check for loose and fixed contamination on personnel and equipment. This category of equipment is usually comprised of a pancake GM.

In general ruff and rugged is the best. The environment in which the equipment will be deployed can be harsh. It has to be kept simple for optimal and accurate use by the first responder community. Standardization is preferable in order to achieve inter operability between responder organizations.

Standardization of equipment categories is a key element of the overall strategy.

### **Meeting the Needs of the Customer**

City or town fire fighters, Emergency Medical Services (EMS) and law enforcement personnel all fit into the category of first responders. Secondary responders would include specialized regional or state HAZMAT teams, specialized response organizations such as state agency emergency response teams a federal agency response teams.

This is a wide brush-stroke of responder types. It should come as no surprise that each responder group has a different mission. These mission differences can place individuals closer to a radiological impacted area and therefore pose a greater potential of receiving higher radiation doses and the potential of working in higher dose rate fields.

A set of standard operating guides (SOGs) identifying typical first responder radiation dose and dose limits have been developed through a subcommittee of the City of Boston-Emergency Management and Planning Committees.

The subcommittee had representatives from Boston Fire, Emergency Medical Services and Police, MA Radiation Control Program, Massport, City of Cambridge, MA, Boston Emergency Management Agency and the 1<sup>st</sup> Civil Support Team-Weapons of Mass Destruction (MA Army National Guard).

The SOGs have been developed to provide maximum flexibility to the Incident Commander. The Incident Commander within the Incident Command System is constantly reevaluating the incident based on input from the Command Staff that includes a Safety Officer. An Incident Commander always retains the option to adapt the SOGs to the response missions that need to be accomplished while maintaining personnel safety.

Remember, the single biggest asset a response group has is its' people. Personnel safety is paramount in the overall response, assessment and mitigation of any incident.

Different incident missions may drive agencies to select various dose rate and accumulated dose parameter alarm set points within the electronic dosimeters. It is therefore critical that the individual response organization validate via documentation the reasons for selecting their mission alarm set points.

### **Training and Retraining**

To date over 1,000 responders have been trained on radiation basics and radiation instrumentation. Local, state and federal agencies have

been able to train with and be trained by each other in their respective areas of expertise. In addition to the training, radiation response equipment has been distributed to various entities including local, state and federal organizations.

MA has revitalized the Federal Emergency Management Agency Radiological Training Series program and is conducting the Fundamentals Course for Radiological Response and retraining courses. In addition, MA has developed a one-day training course that is typically delivered to local fire, police and EMS departments. The training course was developed by MA RCP and EMA and is flexible in order to meet the needs of the customer.

MA is in the final stages of conducting a one-day training course, which has been developed as a cooperative effort through the MA Department of Fire Services Fire Academy. The course will meet the academic requirements of the MA Fire Academy.

It is hoped that this will be the first of a series of modular radiological training courses offered to the first responder community that prepares them and us for the present and the future.