

**Basic Training Prerequisites for Weapons of Mass Destruction and Chemical, Biological,  
Radiological, Nuclear Explosive Training**

EXECUTIVE ANALYSIS OF FIRE SERVICE OPERATIONS IN EMERGENCY  
MANAGEMENT

A. Bruce M<sup>c</sup>Pherson, Bureau Chief  
New Hampshire Fire Academy  
Concord, New Hampshire

An applied research project submitted to the National Fire Academy  
As part of the Executive Fire Officer Program  
March 2005

## **Abstract**

The issue that this applied research project addressed was that the Federal Government only allows their funds to be used for advanced training. The problem this creates is that, due to the potential lack of training in response to Weapons of Mass Destruction and Chemical, Biological, Radiological, and Nuclear Explosives (WMD/CBRNE) incidents, the department may not be able to meet community needs, which may result in needless loss of life and property.

The purposes of this research was to highlight the importance of finding sources of funding to assure prerequisite training is complied with and to determine what existing fire training organizations follow as prerequisite knowledge to participate in advanced programs. Descriptive methodology was used to answer the following research questions:

1. What training should be acquired prior to responding for WMD/CBRNE incidents?
2. What are the safety issues when training in WMD/CBRNE without basic training?
3. What do other jurisdictions require as prerequisite training before taking WMD/CBRNE training and what funding sources are used for that training?

Review of obtained literature revealed that other officials and individuals in the fire safety community agree that thoroughly educated first responders, particularly firefighters, are America's best asset facing the threat of WMD. To supplement the literature review, an electronic mail survey was sent to the 50 State Fire Training Directors to obtain an overview of how the problem affected their states.

The research revealed that the fire service is not training first responders for a WMD attack adequately to safely protect communities and cities throughout America. After reviewing this research, it has been recommended that the advanced WMD course that receives federal funding

should require module prerequisites from the Firefighter I certification curriculum resulting in far more efficient classes and better trained first responders.

## Table of Contents

Abstract.....	2
Table of Contents.....	4
Introduction.....	5
Background and Significance.....	6
Literature Review.....	7
Procedures.....	9
Results.....	11
Discussion.....	14
Recommendations.....	16
Reference List.....	18
Table 1 Survey Results.....	13
Appendix A: WMD/CBRNE Survey.....	20

## **Introduction**

As a result of 9-11, and the ensuing biological attacks, America recognizes that the fire service, with its personnel resources, specialized equipment and training, rapid response and mutual aid capabilities, and a well refined incident management system, plays a critical, if not central role, in response to any terrorist act or other major catastrophe.

(Minnesota State Fire Chiefs Association, 2002, p. 19)

Currently the New Hampshire Fire Academy offers “Weapons of Mass Destruction,” a class generated to help meet the intensifying need for experienced and educated firefighters and first responders to the ever growing risk America faces of experiencing a weapon of mass destruction incident. The federal government provides grant money for the instruction of advanced training, including this course, yet does not require any prerequisites.

The fact that there are no prerequisites for this federally-funded class has forced instructors to spend valuable class time in the Weapons of Mass Destruction class to teach basic information that should be common knowledge to a trainee who is in an advanced course.

The problem this creates is that, due to the potential lack of training in response to WMD/CBRNE incidents, the department may not be able to meet community needs, which may result in needless loss of life and property.

Therefore, the purpose of this applied research project is two-fold. One is to find sources of funding to assure prerequisite training is complied with, which could include expanded federal funds. The second purpose is to ascertain what existing fire training organizations follow as prerequisite knowledge to participate in advanced programs (i.e., WMD courses).

Descriptive research methods were used to answer the following questions:

1. What training should be acquired prior to responding for WMD/CBRNE incidents?
2. What are the safety issues when training in WMD/CBRNE without basic training?
3. What do other jurisdictions require as prerequisite training before taking WMD/CBRNE

### **Background and Significance**

Prior to 9-11, there was not a specific class or program dedicated to WMD awareness. There also was no urgency surrounding this topic prior to the events of that day. As the danger rises for a possible attack, it is imperative that the New Hampshire Fire Academy advance their training programs to prepare tomorrow's first responders to meet those possibilities. Currently, the advanced WMD course, as stated, can be taken by anyone, regardless of prior knowledge or course work, which creates a major problem. Again, instructors are using class time that is reserved for WMD instruction, and instead are teaching unprepared students the basics of breathing apparatuses, hazardous materials, personal protective equipment, and incident management systems. This indirectly wastes the funding that the federal government provides specifically for this class and creates a training program that is inefficient in adequately training our students. If this pattern continues, future first responders will not have the training and know-how they need to safely provide assistance and direction should a CBRNE event occur, greatly impacting possible survival rates. A small legislative change within our organization can help eliminate this possible occurrence by creating a program that is not only effective in its instruction but also efficient with its resources.

This research project was developed to satisfy the Executive Fire Officer Program Applied Research Project requirement and is associated with the Executive Analysis of Fire Service Operations in Emergency Management at the National Fire Academy. This research

project is relevant to module Unit 2, Emergency Operations, which concentrated on “incidents that usually are beyond the capability of most fire departments, incidents that go beyond even what other agencies can provide.” (p.SM 2-3)

There is an established linkage to one of the United States Fire Academy’s objectives: “to promote within communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization.”

This project was important to the author, as the risk of a devastating release of a WMD incident has increased. It is the fire service training programs that must keep up in order to be fully prepared and provide our communities with highly trained personnel in the event of an attack.

The author’s research will investigate how other states’ training programs conduct their curriculum in reference to WMD awareness and what type of prerequisite training should be required prior to entry into an advanced WMD course. This will be completed by the use of survey questions and descriptive research methodology.

### **Literature Review**

Research began with a study of articles and other sources that were relevant to the response to WMD and the importance of adequate training programs. Additionally, a survey was sent electronically to all 50 North American Fire Training Directors (NAFTD) and an additional ten were sent to the same organization representing Canada. The information gathered was used to help determine what can be done to react to the current problem and how to maintain a proactive approach to continuously improve training methods of this topic as its importance is steadily increasing. As the 2002 Legislative Initiative by the Minnesota State Fire Chiefs Association stated, “Response to a WMD incident requires specially trained and qualified

firefighters, hazardous materials and EMS personnel.” (p.20) They continued to discuss areas in which training needed to be focused upon in order to effectively respond to WMD incidents, including Awareness Level Training, Decontamination Training, and Operations Training just to name a few.

Throughout the research, it was common opinion that the first responder’s training and efficient response to incidents of WMD are most important in creating safeguards should an incident occur. Numerous articles shed light on this opinion, including David F. Peterson (2002) who said, “Each department must decide how it will respond to a terrorist incident-a very real threat today- and then train and equip its personnel accordingly.”(2002, p.89)

It is unacceptable under any circumstances for a first responder to arrive at a scene and not have the training and knowledge that it takes to help get the situation under control. In a matter of life or death, the difference could be made in the classroom and on the training grounds. Sufficiently providing personnel with in-depth training and up-to-date equipment are additional factors to combat loss of life.

During the last five years, communities across the United States have awakened to the reality that responding to the unthinkable-a terrorist act involving weapons of mass destruction-is a local responsibility...What happens in the first minutes can mean the difference between life and death. (Touger, 2001, p.63)

This statement from the NFPA Journal puts the exact risks into words and should influence local, state and federal agencies to get the ball rolling and satisfy the need of adequate training. As a state agency, we cannot wait for another attack to be urgent with our improvements. After understanding that this problem is nationwide and is not going away, it is time for us to take the steps to meet the needs and prepare our first responders so that they can

provide a sense of security and overall safety to our communities. The responsibility not only rests with each respective agency but also with the NFPA who sets the standards for firefighters. The whole response system becomes responsible. As the EMS Best Practices periodical stated, “The reality is that any large-scale incident involving chemical, radiological or biological weapons will seriously challenge even the best EMS system.” (1999, p. 84)

In summary of the literature, it is easy to see that we all must shoulder the burden to better ourselves and our system, from top to bottom, federal employees to volunteers. The author of this research paper agrees with the cited text that outlines the need for improving our training process for preparation of a terrorist attack using weapons of mass destruction. The New Hampshire Fire Academy, as the State of New Hampshire’s fire training institution, needs to review our training processes and make the necessary adjustments to ensure that our graduates are as prepared as possible.

### **Procedures**

Research for this project began at the National Fire Academy’s (NFA) Learning Resource Center (LRC). This research revealed numerous current articles and references on the topic matter. The research continued once the author returned home, using the State of New Hampshire Fire Academy Library and through the use of a survey.

Descriptive research approach with historical data was used to help analyze the scope of the problem and what can be done to correct it. Many articles have been published on this topic, particularly in the last few years due to the increase risk of terrorism, and the author tried to use the most relevant and recent publications and resources for this project.

The survey was used in an attempt to (a) supplement the review process, (b) answer the research questions, and (c) collect data on the opinion of the fire service regarding training and

prerequisite requirements for advanced weapons of mass destruction courses. The survey consisted of ten questions to gain opinions from the fire service. The author chose to use two types of questions in the survey. Generally, closed-ended questions were used to force the respondents to give a direct answer. Additionally, the author also provided the respondents a chance to explain their answer if they so chose. Within the survey, the first question asked was if prerequisite training was required before enrolling in Weapons of Mass Destruction within their jurisdiction. If the respondents answered yes, they were subsequently asked what training was required and who funded that training. The rest of the questions were asked to determine what kind of prerequisite training should be required before taking the WMD course. There were various options including Self-Contained Breathing Apparatus (SCBA), Personal Protective Equipment (PPE), advanced Hazardous Materials Operations, and Incident Management System (IMS) training. The data that was collected confirmed that there is a great need for prior training before enrolling in advanced WMD courses. A sample of the survey is located in Appendix A.

The survey was electronically mailed to all 50 of the North American Fire Training Directors (NAFTD) in an attempt to get a nationwide perspective. The author sent the surveys addressed to the “State Fire Training Director” using the electronic list serve from NAFTD. Eight surveys were completed and returned.

### **Limitations**

Of the possible 50 requests sent via electronic mail to NAFTD, there were only eight returns. Although any information gathered was important and useful, the small response greatly reduced the significance of the sample.

### **Definition of Terms**

**CBRNE**-An acronym representing Chemical, Biological, Radiological, and Nuclear explosives

**EMS**- Emergency Medical Service

**HazMat**- Hazardous Materials

**IMS**- Incident Management System

**NAFTD**- North American Fire Training Directors, a group of all the fire training directors across North America to allow for information exchange and assistance

**NFA**-National Firefighters Association

**NFPA**- National Fire Protection Association

**PPE**- Personal Protective Equipment, such as respirators, clothing, eye protection, etc.

**RAND**- A nonprofit institution that helps improve the policy and decision making through research and analysis.

**SCBA**- Self-Contained Breathing Apparatus

**WMD**- Weapons of Mass Destruction

### **Results**

The results of the applied research project came from the comprehensive examination of the data published in professional journals, periodicals, and a survey. During each research process, the research questions provided the direction necessary for this applied research project.

The first question to be addressed was: “What training should be acquired prior to responding for WMD/CBRNE incidents?” The research gathered from the surveys in particular, which was also supported by the published articles referenced, clearly showed that prior training in SCBA, PPE, and in-depth Haz-Mat training should be acquired prior to enrolling into an

advanced WMD course. As Deputy District Chief Gene Ryan nicely elaborated, “They’re trying to teach you new skills and better your knowledge, not re-educate you, you can’t come into these places behind the curve.” (Elliot 2002 p.21) This really summarized the problem that this research project addresses concerning the efficiency of the advanced WMD courses.

The second question researched was: “What are the safety issues when training in WMD/CBRNE without basic training?” There are numerous safety issues concerning training when responding to a WMD incident. There is a vast difference in the approach to an incident of WMD versus a general fire incident. “However, no terror/tactical violence event is a ‘garden-variety’ incident. Initial responders are confronted with an unfamiliar, unpredictable and unsafe scene.” (Christen, Maniscalco and Walker 2002, p.100) An aggressive initial response to a general fire is common among departments, yet responses to a WMD/CBRNE incident are more cautious and tactical. The correct training regarding approach is just one issue that is relevant to safety. Other safety issues include proper equipment training and IMS training. Proficiency within those two categories is vital to securing the scene, tending to victims, and ultimately saving lives - safely.

The third question addressed was: “What do other jurisdictions require as prerequisite training before taking WMD/CBRNE training and what funding sources are used for that training?” Of the eight responses to the e-mail survey, 100 percent of them indicated that there were no prerequisites required before starting WMD/CBRNE training. Correspondingly, there were no funding sources needed due to the lack of any pre-training requirements.

**Table 1- Survey Results**

<b>Questions</b>	<b>Yes</b>	<b>No</b>
1. Does your jurisdiction require prerequisite training before taking Weapons of Mass Destruction/ CBRNE?	0%	100%
2. If yes: What training? Who pays?	N/A	N/A
3. Should Incident Management Systems training be a prerequisite training module before taking WMD/CBRNE training?	88%	12%
4. Should Basic Fire Fighting I be a prerequisite for WMD/CBRNE training?	88%	12%
5. Should Basic Fire Fighting II be a prerequisite for WMD/CBRNE training?	75%	25%
6. Do you feel safety is an issue when training WMD/CBRNE without any prerequisite training?	100%	0%
7. Should SCBA training be a prerequisite training module before taking WMD/CBRNE training?	88%	12%
8. Should PPE training be a prerequisite training module before taking WMD/CBRNE training?	88%	12%
9. Should Haz-Mat Operations be a prerequisite training module before taking WMD/CBRNE training?	100%	0%
10. Does your jurisdiction do any joint training with Law Enforcement?	100%	0%

The research associated with the electronic mail survey showed that only eight of the 50 responded. The results were tabulated based on the eight responses so that the results show the facts of the information that was actually received.

In summary, through the survey which the North American Fire Training Directors participated in and through the descriptive research of this project, the author has arrived at the following conclusions:

The training process which first responders are embarking upon in response to the threat of WMD does not effectively provide the correct methods for advanced learning. The lack of prerequisite training shows that students are unprepared to learn about responding to a WMD incident, therefore creating a safety issue. Although we can never be 100 percent prepared for such an incident, it is part of the fire service's and training academies responsibility to prepare students and get as close to that 100 percent as we can.

### **Discussion**

The attack of September 11 redefined the scale of emergency for which America must be prepared, but emergency responders lack the equipment, training and information to adequately protect themselves as they meet the challenge of protecting their communities, according to a new report issued by RAND. (Pennsylvania Fireman, May 2002, P.20)

It has become evident through study results and relevant findings from literature resources that America, as a whole, is not prepared for a terrorist WMD incident. Advanced training has become necessary; but, with this emergence, it also has become even more vital that the basic tools and knowledge need to be mastered before even thinking of considering ourselves as prepared. It is up to training institutions and the individuals training within them to dedicate themselves to providing and acquiring these basic *and* advanced skills respectively. All services need to come together as one in order to form a fully rounded response team. It is every responder's duty to stay educated and up to date on the newest technologies and threats as they become known.

Today, police officers, firefighters and emergency medical personnel are preparing to respond to acts of terrorism. Depending upon his or her position, the first responder should be well versed in the awareness, operational and incident command levels of

terrorism training. The competency one needs should be commensurate with the amount of involvement one would have at a terrorist incident (Pennsylvania Fireman, Jan. 2002, P.118)

This statement coincides with results from the electronic survey. Overwhelmingly (over 85 percent), it was the opinion of the respondents that there needs to be prior training in certain aspects in order to safely and efficiently be trained at an advanced level, while 100 percent of the responses said that the lack of any prior training before a WMD course creates a safety issue. As first responders, their competency would then commensurate, as the Pennsylvania Fireman stated, with the amount of involvement of those particular first responders.

It is very easy to see from the results of the study that there simply needs to be a prerequisite training program for our first responders before letting them train in advanced courses. Creating programs like that is the step in the right direction of becoming a safer and more prepared service.

The overall implications facing the fire service by requiring prerequisite training modules are more positive than negative. There may be a small rise in cost to provide prior training, but the returns on those costs are sky high as the educated and prepared personnel who leave our institution will be literally second to none.

The need to train personnel and to exercise the plan(s) developed cannot be understated. Success of the operation may certainly depend upon preparation. If you do not prepare prior to the incident, there will be a lot of mistakes, you will be jeopardizing your employees and citizens of your jurisdiction. Preparation is the key to success. Take time, apply resources, allocate funds and become committed. (Pennsylvania Fireman Jan. 2002, p.124)

## **Recommendations**

The problem, as previously stated, is that the federal government only allows their funds to be used for advanced training. Because of this, there is the potential lack of training in response to WMD/CBRNE incidents. The department may not be able to meet community needs, which may result in needless loss of life and property. The purpose of this applied research project is to shed light on the problem of inadequately trained first responders in regard to WMD/CBRNE incidents and how to change the training process by requiring prerequisite training.

Based on the knowledge acquired in this applied research project, it is the author's recommendation that the New Hampshire Fire Standards & Training Commission and the Department of Safety Division of Fire Standards & Training and Emergency Medical Services establish a visiting committee to review this project and move forward to develop a structured prerequisite training program for the advanced WMD/CBRNE classes.

There are various approaches to fixing this problem. The most direct and ensuring is to provide this prerequisite training at the New Hampshire Fire Academy. If first responders, regardless of whether they are law enforcement, fire service or medical responders, are trained in a set of modules prior to enrolling in advanced courses, then they will individually make the WMD courses more productive. If students were trained prior to entry, instructors of these advanced courses would then be able to dedicate all of the class time to address the matters of WMD and train these students on an advanced level, instead of trying to get students up to speed on general information that must be known in order for the advanced curriculum to make sense.

Requiring prerequisite training in the modules of SCBA, PPE, HazMat and IMS before being eligible for advanced WMD courses would be recommendations offered by the author.

With these changes in place, New Hampshire would then be one of the only states in America to require this type of in-depth training and therefore would be providing services to the State that is second to none and could be considered a premier training facility for the new age threats of WMD/CBRNE.

Not only would New Hampshire become a pioneer in the training for WMD, but it would also become the most prepared for the new threats that face our state and nation alike by producing graduates that have the adequate knowledge and training to protect life and property in the best way. “The fire service is the first line of homeland defense; we owe it to the people we serve to be as prepared as possible.” (Burriss 2002, p. 80)

## REFERENCES

- Burris, K. (2001, December). *USFA Today: Terrorism Training at the National Fire Academy*. Fire Engineering, 154(12), 79 & 80.
- Christen, H., Maniscalco, P., & Walker, R. (2002 July). *In Terrorism/Tactical Violence Responses*. Fire House, 27(7), 100 – 102, 104 & 106.
- Department of Homeland Security. (2004, March). *Department of Homeland Security (DHS) Announces Adoption of First Standards for First Responder Equipment*. Lititz, PA: State News, Pennsylvania Fireman, 67(6), p. 156.
- Elliott, T. (2002, March). *War-on-Terrorism Training: Federal sites offer unique, no-cost training for first responders*. Fire Rescue Magazine, 20(3), 21 – 23.
- EMS Best Practices (1999, December). *Operations: Finding Funding and Resources for Bioterrorism Preparation*. EMS Best Practices, 85 & 86.
- Ephron Touger, H. (2001, July/August). *Weapons of mass destruction: NFPA plays a key role protecting first responders in domestic terrorist incidents*. NFPA Journal, 63 – 65.
- Minnesota State Fire Chiefs Association. (2002, January/February). *Homeland Security and WMD Preparedness 2002 Legislative Initiative*. Minnesota Fire Chief, 38(3), 19 - 27.
- Mozingo, A. (2002, January). *Preparing For Response to Terrorism Incidents*. Lititz, PA: State News. Pennsylvania Fireman, 65(4), 118, 120, 122 and 124.
- National Fire Academy. (2001, March). *Executive Analysis Of Fire Service Operations In Emergency Management*. Emmitsburg, MD: Author.
- Peterson, D. (2002, March). *Terrorism and Turnouts: The Controversy*. Fire Engineering, 155(3), 89 – 94, 97 & 98, 100, 102, and 104.

RAND (2002, May). *Lessons Learned From Terrorist Attacks: America's Emergency Workers...Not Adequately Prepared*. Lititz, PA: State News, Pennsylvania Fireman, 65(8), p. 20.

United States Fire Administration Critical Infrastructure Protection INFOGRAM. (2004, February). *HSAS Preparedness Guide*. Lititz, PA: State News, Pennsylvania Fireman, 67(4), p. 52.

## Appendix A

# WMD/CBRNE Survey 2005

**This questionnaire is for the purpose of obtaining data as part of a research paper to tie basic firefighter certification as a prerequisite to the basic needs of WMD/CBRNE.**

1. Does your jurisdiction require prerequisite training before taking Weapons of Mass Destruction (WMD)/Chemical, Biological, Radioactive, Nuclear Explosive (CBRNE)?      Y\_\_\_\_\_ N\_\_\_\_\_
2. If yes:
  - a. What training? \_\_\_\_\_
  - b. Who pays? \_\_\_\_\_
3. Should Incident Management System (IMS) training be a prerequisite training module before taking WMD/CBRNE training?      Y\_\_\_\_\_ N\_\_\_\_\_
4. Should Basic Fire Fighting level I be a prerequisite for WMD/CBRNE training?      Y\_\_\_\_\_ N\_\_\_\_\_
5. Should Firefighting Level II be a prerequisite training before taking WMD/CBRNE training?      Y\_\_\_\_\_ N\_\_\_\_\_
6. Do you feel safety is an issue when training in WMD/CBRNE without any prerequisite training?      Y\_\_\_\_\_ N\_\_\_\_\_
7. Should Self-Contained Breathing Apparatus (SCBA) training be a prerequisite training module before taking WMD/CBRNE training?      Y\_\_\_\_\_ N\_\_\_\_\_
8. Should Personal Protective Equipment (PPE) training be a prerequisite training module before taking WMD/CBRNE training?      Y\_\_\_\_\_ N\_\_\_\_\_
9. Should Haz-Mat Operations (or more in-depth training) be a prerequisite training module before taking WMD/CBRNE training?      Y\_\_\_\_\_ N\_\_\_\_\_
10. Does your Jurisdiction do any joint training with Law Enforcement?      Y\_\_\_\_\_ N\_\_\_\_\_