

**SHELTER-IN-PLACE FOR RESIDENTIAL HOMES DURING A HAZARDOUS
MATERIAL RELEASE IN THE TOWN OF WELLESLEY, MASSACHUSETTS**

LEADING COMMUNITY RISK REDUCTION

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An applied research project to the National Fire Academy as part of the
Executive Fire Officer Program.

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that the appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

Abstract

The problem was that the Town of Wellesley, Massachusetts, did not have a shelter in place plan for residential homes during a hazardous materials release. The need for a residential home shelter in place plan was that the community of Wellesley is intersected by several highways, freight and commuter railways and has the potential of being involved in a hazardous materials release. The purpose of this study was to develop a shelter in place plan for residential homes in the Town of Wellesley that can be accomplished by residents in a limited amount of time. This was an action research project. The research questions were:

1. What are the benefits to a community in developing and maintaining a shelter-in-place plan for a hazardous material release?
2. What comparable community's shelter-in-place plan for a hazardous material release could be utilized in Wellesley?
3. What organizations provide guidance for the development and implementation of a shelter-in-place plan during a hazardous material release?
4. What is the most feasible method to disseminate to the community a shelter-in-place plan for a hazardous material release?

The procedures involved interviews of various individuals with topic expertise, and a thorough review of available literature. The information derived from the research procedures answered the research questions.

The recommendation based on this study, was for the Town of Wellesley, Massachusetts, to adopt and disseminate the Shelter-in-place check list, decision tree and informational mailer as written in this study.

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Introduction

The problem is that the Town of Wellesley, Massachusetts, does not have a shelter-in-place plan for residents during a hazardous material release. The community of Wellesley is intersected by several highways, freight and commuter railways and has the potential to be involved in a hazardous material release. The concept of shelter-in-place involves seeking to limit an individual's exposure to a hazardous material by seeking refuge within a structure. The refuge within the structure can be enhanced with the creation of an isolated space to await rescue or dissipation of the threat. The decision to shelter in place or evacuation must be made in a timely fashion to have the greatest potential effect.

The purpose of this research project is to develop a shelter-in-place plan for residential homes in the Town of Wellesley that can be accomplished by the residents in a limited amount of time. The purpose is also to create a knowledgeable understanding of the shelter and evacuation concepts for those charged with determining if shelter-in-place is the best course of action. It is additionally important to determine the most feasible method of introducing this concept to the community. This is an action research project. The research questions are:

1. What are the benefits to a community in developing and maintaining a shelter-in-place plan for a hazardous material release?
2. What comparable community's shelter-in-place plan for a hazardous material release could be utilized in Wellesley?
3. What organizations provide guidance for the development and

implementation of a shelter-in-place plan during a hazardous material release?

4. What is the most feasible method to disseminate to the community a shelter-in-place plan for a hazardous material release?

Background and Significance

The Town of Wellesley formed a local emergency planning committee (LEPC) on September 14, 2001. This committee has representation from the following organizations: fire/rescue, police, health, hospitals, public schools, colleges, public works, town administration, local business leaders and private citizens. In the past, a significant focus of the LEPC was to improve communication and coordination during crisis periods in our community. In December 2001, the LEPC completed a review of the town's emergency management plan. This comprehensive emergency management (CEM) plan combines all four phases of emergency management: mitigation, preparedness, response and recovery. The CEM plan was developed in accordance with existing federal, state and local laws. The CEM plan takes in to account the roles and responsibilities of the various entities involved in emergency management under a variety of potential incidents.

One specific area of the CEM plan that needs to be developed and implemented in the near future is a shelter-in-place plan during a hazardous materials release. In the time immediately following the terrorist events of September 11, 2003, many people purchased plastic and duct tape, but lacked the basic understanding of the intended use and value. Evening news shows reported supplies of plastic and duct tape had been purchased in volume. There were limited instructions on the use and value of these

items from local, state or federal agencies. A coordinated and widely understood shelter-in-place plan is clearly needed in many communities.

At present, the Town of Wellesley has no shelter-in-place plan for residential homes during a hazardous materials release. After a conversation with the Emergency Management Director Kevin Rooney, it was concluded that the development of a shelter-in-place program for residential homes would be a significant asset to future local emergency planning efforts (Personal Communication, Nov. 20, 2003). This research project is important to the Town of Wellesley for several reasons. This research will provide information necessary to develop a shelter-in-place plan for the community of Wellesley during a hazardous material release. This research will identify the benefits of a shelter-in-place plan to the community. It is anticipated that the findings of this research will become the basis for establishing a shelter-in-place plan for the Town of Wellesley. Furthermore, this research will be completed to add to the body of knowledge available for other organizations to evaluate the benefits of developing and implementing a shelter-in-place plan for their community.

This Applied Research Project (ARP) relates to material taught at the National Fire Academy (NFA) in the Leading Community Risk Reduction (LCRR) Course. This course involved the process of developing a community wide risk reduction program. The LCRR course identifies the process of leading risk reduction by knowing the potential threats that exist within your community. Having a clear understanding of potential hazards and assessing the community risk is a significant component in developing a risk reduction plan. The success of a community plan depends upon the support that is received from the community and within the implementing

organization. The LCRR discusses the values associated with building coalitions using stakeholders to support the plan and the internal relationships that exist within a coalition (NFA, 2003a). The risk assessment, intervention strategies, and action plans relate to the research project as useful tools for the development of a shelter-in-place plan for a residential homes during a hazardous material release.

This project relates to the United States Fire Administration Operational Objective, “ To promote within communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization”, by establishing a shelter-in-place plan for residential homes during a hazardous material release (NFA, 2003b, p. II-2).

Lastly, this research will provide the residents of Wellesley with the information and plans necessary to implement a shelter-in-place plan for a residential home during a hazardous material release. The significance of this project is that it will benefit the community by providing a comprehensive, multi-hazard, risk-reduction, shelter-in-place plan that the fire department will research and implement.

Literature Review

The NFA’s Learning Resource Center (LRC) was the primary source of research material. The materials were secured through the interlibrary loan procedure. The purpose of this literature review is to discover relevant information on identifying the benefits to a community in developing a shelter-in-place plan for a residential home during a hazardous material release. This review will examine shelter-in-place plans currently used in comparable communities. This review will identify those organizations that provide information on developing and implementing a shelter-in-

place plan. Lastly, this review will discover information on identifying the most feasible method of disseminating a shelter-in-place plan.

The Federal Emergency Management Agency (FEMA) has the primary responsibility for implementation of the 1986 Emergency Right-to-Know Act, public law 99-499, commonly known as EPCRA or SARA Title III. Section 301(a) of the legislation required each governor to appoint a State Emergency Response Commission (SERC). The SERC working with the Massachusetts Emergency Management Agency (MEMA) has begun the process of fulfilling the requirements of the legislation. The legislation has four major areas that include emergency planning, emergency release notification, hazardous chemical storage reporting requirements and toxic chemical release inventory (MEMA, 2003). The understanding of the legislation provides the researcher with the foundation of the requirements for planning at the various levels of government. Those agencies responsible for the legislation will provide the information to address the research questions of the project.

The Massachusetts SERC, under the direction of MEMA conducted a conference for Local Emergency Planning Committees (LEPC's) on November 12, 2003, in Randolph, Massachusetts. One particular session was conducted on shelter-in-place and the concerns surrounding this issue. The members of the discussion panel provided their views on the topic of shelter-in-place. The SERC has a subcommittee that wrote a brief manual on introducing the shelter-in-place concept to the community. This manual provides very simple explanations surrounding the introducing of the shelter-in-place concept. One of the most interesting parts of this manual is the use of the 1984 chemical accident, which occurred in Bhopal, India.

The SERC shelter in place manual states that officials in Bhopal estimated 50% of the victims could have been saved using a shelter-in-place plan. The potential benefits of having a plan are clear and using a high profile incident that people can recall captures the reader's attention. The SERC shelter-in-place manual provides easy to understand illustrations relative to the circumstances and benefits in using this type of protective action (SERC, 2003). The SERC manual provides a very clear introduction to the shelter-in-place concept and associated alerting systems. The simplicity of the manual makes it comprehensible by both layman and emergency professionals. However, the manual does not provide details on the steps necessary to create a shelter in a residential home or any occupancy.

The incident in Bhopal, India, was reviewed to get a significant picture of a very dramatic event in which the shelter-in-place concept may have benefited many of the victims. The story of the Bhopal chemical accident is told in dramatic fashion in the book titled, *Five minutes past midnight in Bhopal*. The authors present the story of Bhopal by interviewing the individuals affected by the events of December 3, 1984. The information in this book provided the researcher with a very sobering picture of the human tragedy that resulted from the lack of public education on the dangers of the hazardous material and failure to have adequate emergency response plans.

The authors provided some history to the development of the deadly chemical methyl isocyanate (MIC) an ingredient in a product commonly known as Sevin. The Union Carbide MIC plant in the United States, upon opening, had provided the area residents with a shelter-in-place plan to follow in the event of an emergency. The Bhopal plant lacked many of the safety systems implemented in the United States plant.

This material had the effect on the research of reading about a worst-case scenario involving hazardous materials in a populated area (Lapierre & Moro, 2002).

A discussion was held with John Sorensen (personal communication, December 4, 2003) of the Oak Ridge Laboratory located on Oak Ridge, Tennessee. Oak Ridge Labs were contracted to do a technical review of FEMA's shelter-in-place plans during a chemical emergency. He stated that the rate of release is critical to the decision process on whether to evacuate or shelter. The quality of the protection provided an individual is directly related to the "tightness" or air leaks of the sheltering structure. Sorensen stated that during a public compliance test of sheltering in place most West Helena, Arkansas, participants complied. Many participants indicated that during a real emergency they would consider fleeing the incident over instructions to shelter in place. The trust can be built with education about the use and values of sheltering-in-place; he concluded communication is vital to reducing the public's anxiety during a sheltering event. Sorensen and an associate, Barbara Vogt, wrote a research paper on using duct tape and plastic. They determined that sheltering in place could reduce an individual's exposure during fast evolving release (Sorenson & Vogt, 2001).

Veerman (1989) wrote that the nature of the incident determines whether or not to evacuate or to shelter in place. Regardless of the decision to evacuate or shelter, the entire population needs to be educated and familiar with all aspects of each plan. Both mechanisms of limiting the public's exposure are valuable and need to be sufficiently planned. Additionally the author states:

The home is an ideal life support system with food, shelter, telephone, radio, television and most of all a large volume of clean, uncontaminated air that could

sustain the occupants through a short-term gas release exposure. If the home is fairly tight as would be the case where winters are fairly severe" (p. 40).

This article addresses significant issues such as planning, educating the public and first responders, and most importantly ongoing communications throughout an incident with the affected parties.

Authors Mannan and Kilpatrick (2000) support Veerman's position that sheltering place should be identified as a potential choice in the incident commander's decision process. However, they do identify that evacuation is the most common and effective method of protecting the public during a HAZMAT event. The suddenness of the spread of the hazardous material and the materials involved are the two initial considerations. The two initial factors determine how the incident commander must approach the incident.

The authors state that the most important benefit of sheltering in place is that it reduces the concentrations of materials. Another important factor is the effect of the weather and metrological considerations on a hazardous material incident. The authors state, "Is shelter-in-place a viable protective action? The answer is yes in certain circumstances and situations... used when the emergency response commander feels that it is the most viable and effective means of protecting the public"(p.).

The authors Yard (2000) and Boechler (2001) discuss the value of shelter-in-place as a short-term alternative to evacuation or prelude to evacuation. In both of their separate articles, they state that evacuation can be time consuming, labor intensive and may potentially expose the evacuees to greater exposure levels than remaining inside. Both authors support the prior authors views in the awareness of the meteorological

conditions can assist the incident commanders decision-making process. The limited time in which to make the decision to shelter or evacuate requires both the emergency responder and the general public to be familiar with the concepts of sheltering and or evacuation .

A discussion was held with retired Fire Captain Lawrence Ferazani (Personal Communication, February 2, 2004). Captain Ferazani serves on the State Emergency Response Committee (SERC), currently as the chair of the subcommittee on shelter-in-place. In a phone conversation with Captain Ferazani, he stated that he was not aware of any communities in Massachusetts that currently have a shelter-in-place plan for residential neighborhoods. He did state that some facilities and schools have various shelter-in-place plans but these are not community wide plans. It is the purpose of the SERC subcommittee to develop a uniform system of sheltering and an educational program to introduce the plan to the public. The overall plan will provide guidance for a citizen to prepare their homes as shelters. The public will be educated about the overall community plan to provide communications and incident updates. These plans will be adapted to fit a community with the local emergency planning committee providing an organizational leadership role.

The literature available that provide guidance on the benefits, design and implementation are found in material produced by federal agencies and organizations affiliated with the federal government. The major government agency associated with shelter-in-place is the Federal Emergency Management Agency (FEMA). On the FEMA web page, the section about chemical emergencies discusses the concept of shelter-in-place during a chemical emergency. A chemical emergency is defined and the purpose

of having an emergency plans for the public. Two types of chemical emergencies, which are discussed, are incidents that occur in the home and those that occur near the home. The threat of a chemical emergency originating from outside the home may result in a need to shelter-in-place. FEMA provides detailed instructions on sheltering-in-place and suggestions on public education on this topic (FEMA, 2003).

The Department of Health and Human Services, Center for Disease Control and Prevention (CDC, 2003) provides a fact sheet about sheltering-in-place during a chemical emergency. This two-page document provides the need for sheltering and the process of creating the safest possible shelter in the event of a chemical emergency. This document answers the question of how to prepare a shelter, when to prepare, what to expect and how to obtain more information on this topic .

The American Red Cross (ARC, 2003) provides a fact sheet that is comparable to the previous FEMA and CDC sheltering in place instructions. The ARC provides instructions on sheltering in place at home, work, school and vehicle. This document provides detailed instructions including caring for pets and their supplies. The preparing of survival kits that include radios, communications, medicines, water, food, first aid kit and the process of creating a shelter in the home are clearly explained.

The National Institute for Chemical Studies (NICS, 1998) presents shelter-in-place as a simple self-protecting measure that can be utilized in the home when a situation requires this type of action. The shelter-in-place method is for short-term shelter when evacuation is not a practical choice. This document provides several examples of successful sheltering that resulted in saving lives. The NICS discusses the importance of people following directions to begin, maintain and terminate the shelter-in-place

procedure. Following directions associated with shelter-in-place can reduce an individual's exposure. The NICS provides in-place protection checklist for first responders and incident commanders to consider. The value of public education on the topic of shelter-in-place is demonstrated in this document. The need for pre-emergency planning, education and communication with those at risk both during and after the incident is extremely significant. Several methods of communicating to the public about the value and process of shelter in place are presented.

The literature provided limited methods for introducing shelter-in-place plans to the public. The initial introduction of the concept is outlined in the Massachusetts SERC (2002) shelter-in-place booklet. There is a need for a more complex plan involving a notification and communications system that can address an event that has limited impact outside of the immediate area.

In a paper for the National Fire Academy's Executive Fire Officer Program, Damien John Garino (2003) provides detailed information surrounding the potential uses of a reverse 911 systems during a hazardous materials release. The automated phone system can be utilized to reach phones located within a particular geographic area that could be determined by the nature of a given event. The limited likelihood of having access thru major media outlet for a limited area release demonstrates the benefit of this type of system.

A discussion was held with the Wellesley Deputy Police Chief (Personal Communication, February 17, 2004) about the process of introducing the City Watch/reverse 911 system currently used in Wellesley. The system had been under review by the Wellesley Police Department for several years, but it was funded in the

March of 2002. The City Watch/reverse 911 system was purchased in July 2002. The introduction of the system was completed using several methods such as newspaper articles explaining the system and direct mail. The direct mail method was a collaboration of Wellesley Municipal Electric Service and the Wellesley Public Safety Communications Center at the Police Department. The municipal electric service allowed an informational document about City watch/reverse 911 to accompany their bill. The informational mailer was designed based upon successful documents used by other communities. There was also a request for information that would allow the addition of any significant numbers that citizens might want to include in the notification system. This system has been used to inform the public about a water ban and the impact it could have on public safety. The system can be programmed to call phone banks such as households with school age children, public works personnel, or a specific geographic area to inform a select segment of the public about an incident.

In summary, there was sufficient information available on the benefits of shelter in place. There were no communities currently using a community wide shelter in place program in Massachusetts. There are several major government agencies and private organizations that provide information to guide a community to adopting a shelter in place plan. Fortunately, for this researcher the community of Wellesley has a state of the art notification system and has a successful method of introducing a new notification system to the public.

Procedures

A search for relevant literature was conducted using the online card catalog of the National Fire Academy's Learning Resource Center. Selected materials were received

using the interlibrary loan procedure. The Public libraries in Natick and Framingham, Massachusetts, participated in the interlibrary loan process and provided direct materials. These libraries provided the necessary information to provide sufficient data on the topic of shelter in place.

A general internet search provided information on the topic of shelter in place and provided a significant list of government agencies and private organizations. This general listing included FEMA, MEMA, CDC, NICS and the ARC.

A phone call to the Washington office of FEMA led to the name of Mr. Sorensen PhD. of the Oakridge National Labs, on December 4, 2003. Mr. Sorensen authored several government documents on the topic of sheltering in place. We talked about the value of public education in creating public trust in such areas as sheltering in place.

A discussion with retired Fire Captain Lawrence Ferazani, Chairman of the SERC subcommittee on sheltering in place, on February 2, 2004. Captain Ferazani talked at length on the status of the shelter in place subcommittee. The researcher was invited to participate in the March 2004 shelter in place sub committee meeting. This interview was conducted to gain information on the State of Massachusetts plans to develop a shelter in place plan using the SERC subcommittee.

A discussion with Deputy Police Chief William Brooks on February 17, 2004 regarding the introduction of the City watch/reverse 911 systems to the community of Wellesley in July 2002. Deputy Brooks provided a chronological list of events surrounding the introduction of the City watch/reverse 911 systems. He provided details about the methods to educate the public on City watch/reverse 911, from newspaper article to direct mail information. This discussion was conducted to gain

additional information for potential methods of introducing a shelter in place program. This conversation provided details on a successful method of educating the public on a new public safety initiative.

The literature review and discussions were extensive, but did not include all available sources due to time constraints of this applied research project. The due date of this project is prior to the conclusions of the SERC shelter in place sub committee and does not have the benefit of reviewing their research findings.

Definition of Terms:

1. City Watch- Trade name of the emergency phone dialing system comparable to the reverse 911 systems.
2. Reverse 911- a registered trademark of Sigma Communications Inc. A phone system that's capable of calling multiple numbers playing a recorded emergency message.
3. Shelter In Place- to take shelter in a building to limit your exposure to a chemical, biological or radiological danger taking precautions such as closing all doors, windows shutting off all air handling systems and await communications from local officials.

Results

The result of the research for the question “ What are the benefits to a community in developing and maintaining a shelter in place plan for hazardous materials release? “ are that the community has an additional mechanism available to protect the public during a hazardous materials release. A sudden event may not allow for the traditional response of evacuation to a hazardous materials release. The shelter in place plan can

reduce the level of exposure that would occur during a labor-intensive evacuation process. The shelter in place plan allows rescue personnel to focus their resources on those persons and situations that require immediate attention.

The results from the research of the question “ What comparable community’s shelter in place plan for a hazardous materials release could be utilized in Wellesley?” are from a discussion with the Chairman of the SERC sub committee on shelter in place that there are no communities in Massachusetts that have community-wide shelter in place plan. The problem of no community wide plan is the focus of the research of the subcommittee. It was stated by Chairman Ferazani in the conversation that some communities have shelter in place plans for specific buildings in the community but not for the residential neighborhoods.

The results from the research on the question “ What organizations provide guidance for the development and implementation of a shelter in place plan during a hazardous materials release?” provide a substantial list of resources from government agencies to private organizations. The organizations that provide guidance in the form of literature on the topic of sheltering in place include: FEMA, MEMA, CDC, ARC, NICS, and Oak Ridge National Laboratories. The literature from these prior organizations is very comparable in their instructions to shelter in place. The NICS literature provided a checklist for citizens and incident commanders to follow in Appendix D. The NICS provided a decision tree to assist the incident commander in deciding between evacuation or sheltering in place in Appendix B.

The results from the research on the question “ What is the most feasible method to disseminate to the community a shelter in place plan for a hazardous materials

release?” are to follow a previously successful public safety initiative of introducing the City Watch/reverse 911 system. The discussion with Deputy Police Chief Brooks provided the details of the methods of introducing the new system to the public using newspaper articles, local cable tv and direct mail of the local public electric utility. These methods of disseminating the information about the new system and using the system to alert citizens of important community news has established an understanding in the community of the warning system. This method is what the researcher will follow to implement the residential shelter in place plan.

The establishment of a local sheltering in place plan for Wellesley residential neighborhoods needs to be reviewed by Wellesley’s LEPC and approved by the Board of Selectman. This research has selected the shelter in place plan description as stated in the ARC website document in Appendix A and the NICS ‘s decision tree in Appendix D and responders checklists in Appendix B. These document’s modified to Wellesley will become the proposed document to be presented to the Wellesley LEPC and the Wellesley Board of Selectmen in Appendix C & D. The Wellesley document Appendix G will be mailed to inform the public of our shelter in place plan, after it has received approval from the LEPC and the Board of Selectmen.

Discussion

The Massachusetts SERC Conference on sheltering in place attracted the researcher’s attention as a useful mechanism to have available to our incident commanders and a useful tool for the public to participate in self-protection during a hazardous materials release in their neighborhood. The shelter in place manual provided at the conference was very informing and made the most of pictorials to present the shelter in place

method of protection. The eight-page manual was too long and would not be read by the public. A very interesting aspect of the manual was the information about the Bhopal, India, chemical accident clearly demonstrated the need to have and maintain evacuation plans and shelter in place plans. Retired Captain Ferazani stated, "Currently, Massachusetts communities have no residential shelter in place plan ... it is the purpose of the SERC subcommittee to develop a uniform system of sheltering and an educational program to introduce the plan to the public" (Personal Communication, February 2, 2004).

The discussion with John Sorensen of the Oak Ridge National laboratory was very important to talk directly to the individual who has authored FEMA literature of the topic of sheltering in place. He spoke on the importance of educating the public on the value of sheltering but cautioned on the public officials anticipating compliance. Sorensen stated, " Many individuals who complied to instructions to shelter in place during a test stated they would consider trying to flee during a real event". The incident commander must be aware of the potential to assist those that refuse to comply with the shelter in place decision. Sorensen also directed the researcher to review a research paper he co-authored; *Will duct tape and plastic really work?* determined that shelter in place can reduce an individual's chemical exposure (Sorensen & Vogt, 2001). Education and communication on the topic will result in greater cooperation during a chemical, biological or radiological emergency.

The literature clearly supports the concept of sheltering in place as a means of limiting an individual's exposure to a hazardous material. The consensus was evacuation is the primary choice. "Sheltering in place is a viable protective when the

emergency response commander feels that it is the most viable and effective means of protecting the public” (Mannan & Kilpatrick, 2000, p. 217). The conditions that might effect an incident commander’s decision to evacuate or shelter in place are the materials involved and metrological conditions. The literature demonstrates a need to have an educated and informed public on the topic of sheltering. There is a need for clear, ongoing communications between the incident commander and the public including bystanders and those directly involved to prevent panic.

Several government agencies and private organizations provide information on the topic of sheltering place. These agencies and organizations were very comparable in content but the NICS provided additional information using both a decision tree in Appendix B and checklist in Appendix C for completing the necessary procedures. These documents provide the necessary information to provide incident commanders in the initial stages of an incident to evacuate or shelter in place. The ARC document in Appendix A provided clear and easily understood material for the public to understand the concept of shelter in place to the public.

The best method to introduce the concept of sheltering in place is the successful practice used to introduce the emergency phone notification system used in Wellesley.

“Educating the public on the potential benefits is critical for the successful implementation of a new public safety initiative such as City Watch or a shelter in place plan ”, stated Deputy Chief Brooks. The newspaper articles, cable TV, town web page and direct mail provide a sufficient saturation of information to inform the public on the shelter in place plan, but needs to be an on going effort to maintain the public

interest in participating during an emergency. The plan needs to be marketed to the public using clear messages to continue to inform the public on this important public safety initiative.

Recommendations

The citizens in community of Wellesley will be safer with the addition of a shelter in place plan as alternative to evacuations. The researcher recommends the adoption of the NICS shelter in place protection checklist as adapted to Wellesley in Appendix E and the decision tree in Appendix C to be used by incident commanders. The process of sheltering in place is best described by the ARC fact sheet on this topic. The ARC fact sheet clearly explains to the citizens what shelter in place means, why it might be necessary and how to accomplish this process. The fact sheet of the ARC Appendix A provides an informative document and lends the trusted reputation of this organization to the value of a sheltering in place plan for the community of Wellesley, Massachusetts. The researcher recommends the adoption of this fact sheet as the plan to be introduced to the citizens. Additional information that is unique to Wellesley should be included in the Wellesley version of the ARC plan Appendix G, such as the inclusion of the City Watch system and additional information sources such as phone numbers and web sites of public safety agencies. The public education of this program should begin with the LEPC working with the Board of Selectmen to introduce this initiative to the public using newspaper articles. The second public education approach should involve a direct mailer using the municipal electric billing system to include the ARC/Wellesley shelter in place plan. The mailing of this public safety message annually will aid in maintaining an informed public.

Lastly, the researcher requested in the letter to the Board of Selectmen Appendix F, the adoption of the shelter in place plan Appendix E to be included in the municipal electric service billing. The citizens of Wellesley will be safer due to the results of this research and will have a plan that can serve as a model to other similar Massachusetts communities. At the printing of this research project the Town of Wellesley Board of Selectmen have not responded on the adoption of this shelter in place plan. The researcher is confident the shelter in place plan for the Town of Wellesley will be implemented during the spring or summer of 2004.

Future researchers should consider contacting the Wellesley Fire Department or Wellesley 's LEPC to receive any updated information on our residential shelter in place plan.

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Appendix A

American Red Cross

Shelter-in-Place in an Emergency

What Shelter-in-Place Means:

One of the instructions you may be given in an emergency where hazardous materials may have been released into the atmosphere is to shelter-in-place. This is a precaution aimed to keep you safe while remaining indoors. (This is not the same thing as going to a shelter in case of a storm.) Shelter-in-place means selecting a small, interior room, with no or few windows, and taking refuge there. It does not mean sealing off your entire home or office building. If you are told to shelter-in-place, follow the instructions provided in this Fact Sheet.

Why You Might Need to Shelter-in-Place:

Chemical, biological, or radiological contaminants may be released accidentally or intentionally into the environment. Should this occur, information will be provided by local authorities on television and radio stations on how to protect you and your family. Because information will most likely be provided on television and radio, it is important to keep a TV or radio on, even during the workday. The important thing is for you to follow instructions of local authorities and know what to do if they advise you to shelter-in-place.

How to Shelter-in-Place At Home:

- Close and lock all windows and exterior doors.
- If you are told, there is danger of explosion, close the window shades, blinds, or curtains.
- Turn off all fans, heating and air conditioning systems.
- Close the fireplace damper.
- Get your family a disaster supply kit; make sure the radio is working.
- Go to an interior room without windows that's above ground level. In the case of a chemical threat, an aboveground location is preferable because some chemicals are heavier than air, and may seep into basements even if the windows are closed.
- Bring your pets with you, and be sure to bring additional food and water supplies for them.
- It is ideal to have a hard-wired telephone in the room you select. Call your emergency contact and have the phone available if you need to report a life-threatening condition. Cellular telephone equipment may be overwhelmed or damaged during an emergency.
- Use duct tape and plastic sheeting (heavier than food wrap) to seal all cracks around the door and any vents into the room.

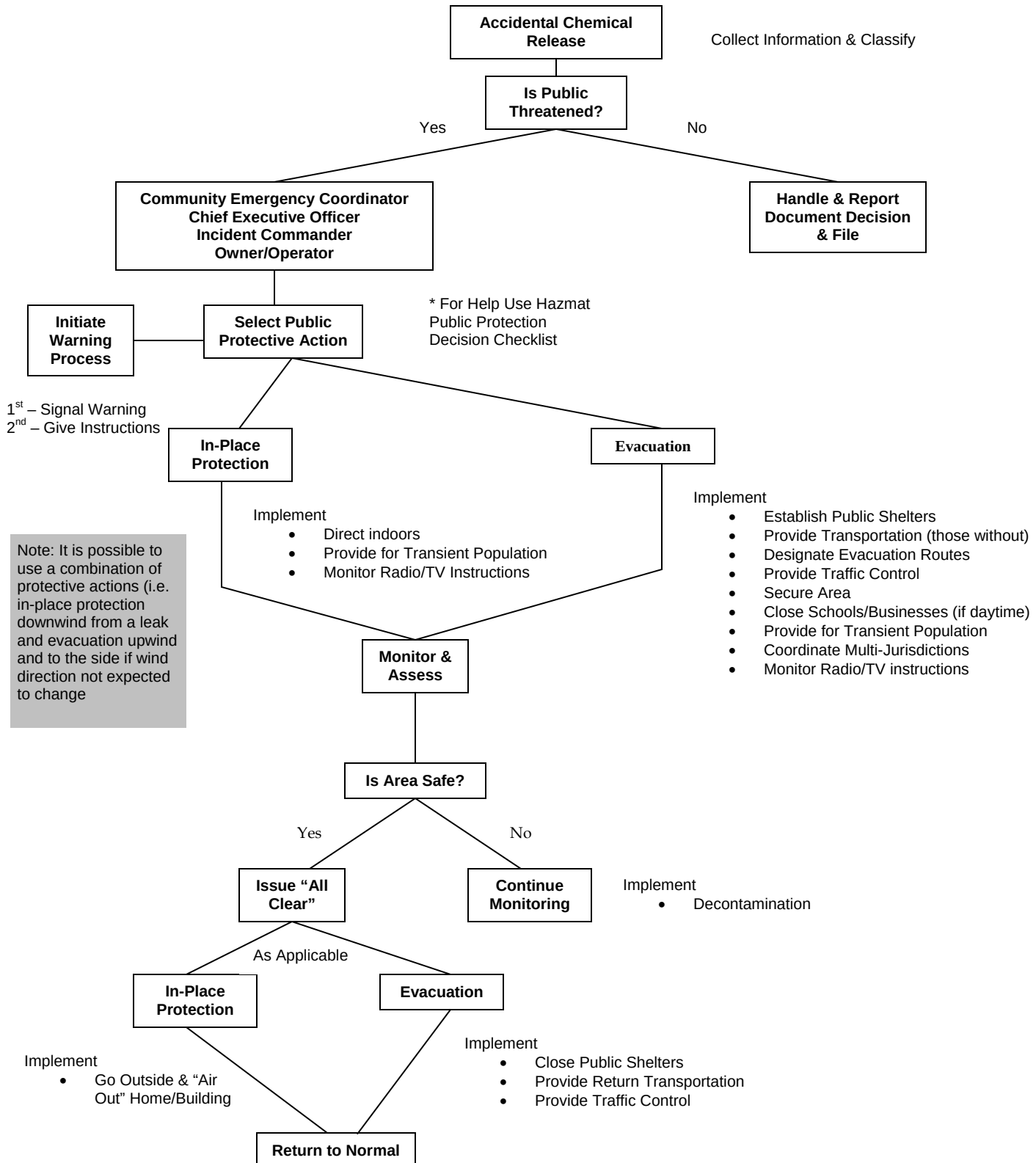
- Keep listening to your radio or television until you are told all is safe or you are told to evacuate. Local officials may call for evacuation in specific areas at greatest risk in your community.
- well. Avoid selecting a room with mechanical equipment like ventilation blowers or pipes, because this equipment may not be able to be sealed from the outdoors.
- It is ideal to have a hard-wired telephone in the room(s) you select. Call emergency contacts and have the phone available if you need to report a life-threatening condition. Cellular telephone equipment may be overwhelmed or damaged during an emergency.
- Use duct tape and plastic sheeting (heavier than food wrap) to seal all cracks around the door(s) and any vents into the room.
- Bring everyone into the room(s). Shut and lock the door(s).
- Write down the names of everyone in the room, and call your business' designated emergency contact to report who is in the room with you, and their affiliation with your business (employee, visitor, client, customer.)
- Keep listening to the radio or television until you are told all is safe or you are told to evacuate. Local officials may call for evacuation in specific areas at greatest risk in your community.

Local officials on the scene are the best source of information for your particular situation.

Following their instructions during and after emergencies regarding sheltering, food, water, and clean up methods is your safest choice.

Remember that instructions to shelter-in-place are usually provided for durations of a few hours, not days or weeks. There is little danger that the room in which you are taking shelter will run out of oxygen and you will suffocate.

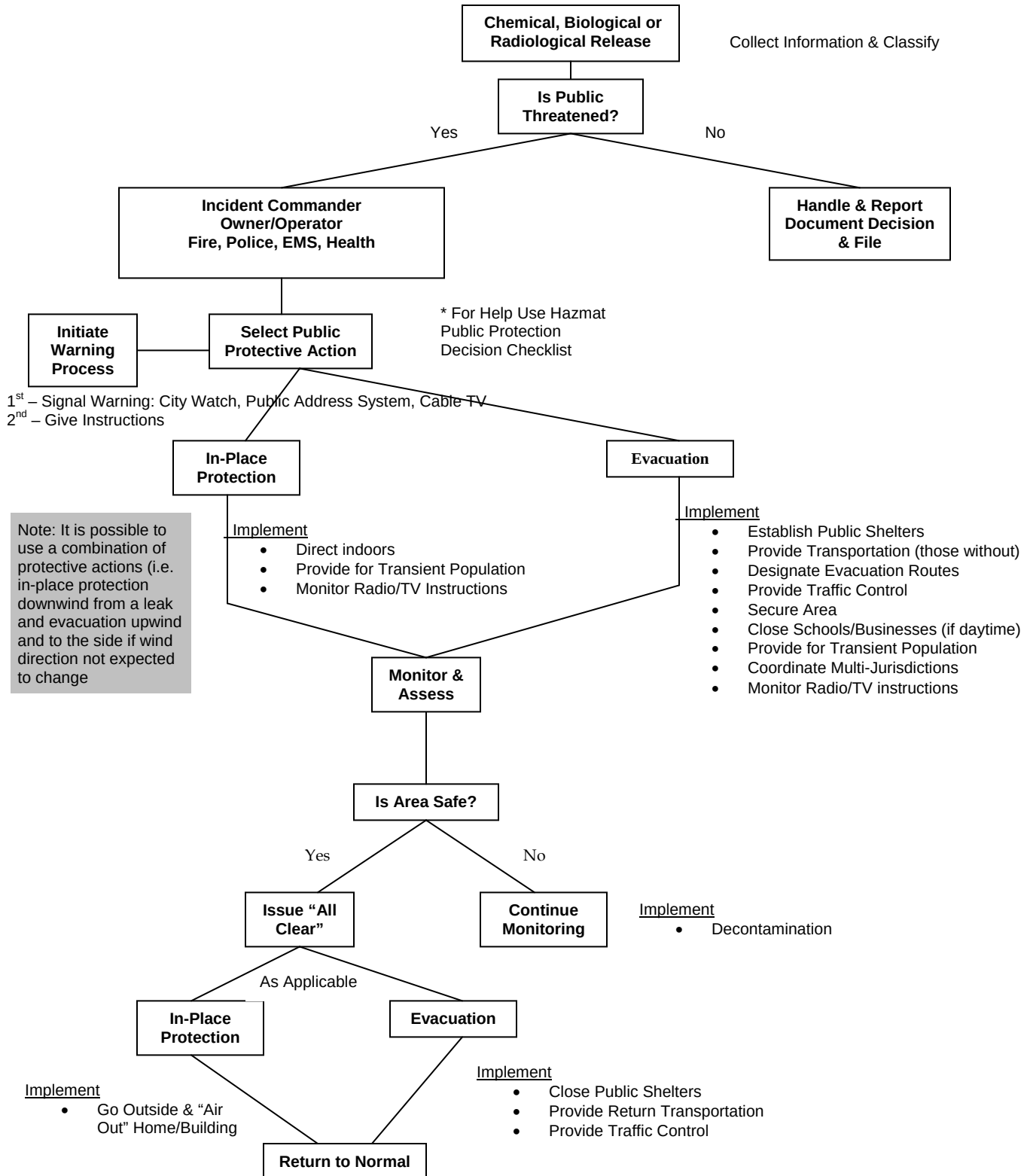
Appendix B NICS HAZMAT Public Protection Decision Tree



Appendix C
Wellesley Fire Department
Standard Operating Procedure
301.01

Evacuation or Shelter in Place Decision Tree

(The information in this SOP was copied in part from NICS, Shelter In Place 1998)



Appendix D

National Institute for Chemical Studies

In-Place Protection Checklist

1. ___ Determine area to be sheltered in place by readily identifiable boundaries.
2. ___ Activate alert warning devices (sirens).
3. ___ Issue specific instructions to population (through EBS, cable TV)
4. ___ Implement in place protection, including:
 - Stay inside house or building, or go inside immediately
 - Close windows and doors
 - Turn off air conditioners and heating system blowers
 - Close fireplace dampers
 - Gather radio, flashlight, food, water, medicines, duct tape
 - Go to leeward area of house and seal cracks and all openings
 - Do not use basement, as toxic gases may be heavier than air
 - Provide protective breathing, if necessary (may use wet towel)
5. ___ Provide special sheltering for transient populations (parks, camp grounds)
6. ___ Provide special instructions to special populations (hospitals, nursing homes)
7. ___ Provide special instructions to group quarters (jails, senior centers)
8. ___ Provide special instructions/ aid to handicappers (mental & physical)
9. ___ Once conditions are stabilized, inspect affected areas for safe exit
10. ___ Issue all clear
11. ___ Instruct residents to go outdoors, air out house or building

Appendix E
Wellesley Fire Department
Standard Operating Procedure
301.02
Shelter in Place Protection Checklist

1. ___ Determine area to be sheltered in place by readily identifiable boundaries (GIS Mapping).
2. ___ Activate alert warning devices (Emergency public address, City Watch).
3. ___ Issue specific instructions to population (through EBS, City Watch, cable TV)
4. ___ Implement in place protection, including:
 - Stay inside house or building, or go inside immediately
 - Close windows and doors
 - Turn off air conditioners and heating system blowers
 - Close fireplace dampers
 - Gather radio, flashlight, food, water, medicines, duct tape
 - Go to leeward area of house and seal cracks and all openings
 - Do not use basement, as toxic gases may be heavier than air
 - Provide protective breathing, if necessary (may use wet towel)
5. ___ Provide special sheltering for transient populations (parks, camp grounds)
6. ___ Provide special instructions to special populations (Hospitals, nursing homes)
7. ___ Provide special instructions to group quarters (jails, senior centers)
8. ___ Provide special instructions/ aid to handicappers (mental & physical)
9. ___ Once conditions are stabilized, inspect affected areas for safe exit
10. ___ Issue all clear (using City Watch, Cable TV, vehicle public address system)
11. ___ Instruct residents to go outdoors, air out house or building

(The information in this SOP was copied in part from NICS, Shelter In Place 1998)

Appendix F

**TOWN OF WELLESLEY**

457 WORCESTER ST.
WELLESLEY, MA 02481
Telephone 781-235-1300

FIRE DEPARTMENT

RICHARD A. DeLORIE
DEPUTY CHIEF
Fax 781-237-3161

February 27, 2004

Dear Board of Selectmen,

Please review and consider accepting these three attached documents regarding a shelter in place plan for our community. The two of the documents are titled Wellesley Fire Department Standard Operating Procedures: 301.01 Evacuation or Shelter in Place Decision Tree and 301.02 Shelter in Place Protection Check List. These documents provide responding personnel with the tools to facilitate decision-making and the steps necessary to manage the defensive/protective aspects of an incident.

Additionally, please consider approving the document titled: The Town of Wellesley's Shelter in Place Plan during a Chemical, Biological, or Radiological Emergency. This document is designed to inform the public about the steps necessary to create a protective environment in their home and what actions will be take by our public safety personnel. This document will provide information on communications for alerting purposes and how to stay informed during a chemical release, such as information from City Watch, local cable or mobile public address systems on emergency vehicles.

The introduction of this aspect of our emergency preparedness plans will be accomplished with this mailer, local cable news discussing this topic, information posted on the town web sites and newspaper articles about the topic. If you have any question on this effort please contact me at your convenience.

Sincerely,

Richard A. DeLorie

Appendix G Town of Wellesley Shelter-in-Place Plan for Residential Housing During A Chemical, Biological, or Radiological Emergency

What Shelter-in-Place Means:

One of the instructions you may be given in an emergency where hazardous materials may have been released into the atmosphere is to shelter-in-place. This is a precaution aimed to keep you safe while remaining indoors. (This is not the same thing as going to a shelter in case of a storm.) Shelter-in-place means selecting a small, interior room, with no or few windows, and taking refuge there. It does not mean sealing off your entire home or office building. If you are told to shelter-in-place, follow the instructions provided in this Fact Sheet.

Why You Might Need to Shelter-in-Place:

Chemical, biological, or radiological contaminants may be released accidentally or intentionally into the environment. Should a chemical release occur, information will be provided by state authorities on television, radio stations on major incidents. Smaller chemical releases may be handled by local Public Safety Officials, which will contact you using our City Watch emergency phone system, local cable station or public address systems on emergency vehicles on how to protect you and your family. The important thing is for you to follow instructions of local authorities and know what to do if they advise you to shelter-in-place. *Please only call 911 if you are in immediate danger or having a medical emergency.*

How to Shelter-in-Place At Home:

- Close and lock all windows and exterior doors.
- If you are told, there is danger of explosion, close the window shades, blinds, or curtains.
- Turn off all fans, heating, and air conditioning systems and close the fireplace damper.
- Get your family a disaster supply kit; radio, phone, TV, batteries, first aid, limited food and drinks, and activity materials for kids and adults.
- Go to an interior room without windows that's above ground level. In the case of a chemical threat, an aboveground location is preferable because some chemicals are heavier than air, and may seep into basements even if the windows are closed.
- Bring your pets with you, and be sure to bring additional food and water supplies for them.
- It is ideal to have a hard-wired telephone in the room you select and have the phone available if you need to report a life-threatening condition. Cellular telephone equipment may be overwhelmed or damaged during an emergency.
- Use duct tape and plastic sheeting (heavier than food wrap) to seal all cracks around the door and any vents into the room. Only select a room that will provide enough space while recognizing the time it takes to seal it.
- Keep listening to your radio or television until you are told all is safe or you are told to evacuate. Wellesley Public Safety Officials may call for evacuation in specific areas and shelter in place, in areas of greatest risk.
- Remember that instructions to shelter-in-place are usually provided for durations of a few hours, not days or weeks. There is little danger that the room in which you are taking shelter will run out of oxygen.

Wellesley Public Safety Officials on the scene are the best source of information for your particular situation. Following their instructions during and after emergencies regarding sheltering, food, water, and clean up methods is your safest choice. (This document was copied in part from The American Red Cross Website on Shelter In Place Plans 2003).

