

NEW CANADIAN STANDARD FOR PROTECTION OF FIRST RESPONDERS FROM CHEMICAL, BIOLOGICAL, RADIOLOGICAL and NUCLEAR (CBRN) EVENTS UNDER DEVELOPMENT

About the Author – Allan Parisien retired from the RCMP with twenty-five years of service. He has twenty years of experience specific to counter terrorism response, training, and defence-related science & technology. His career includes work with the RCMP's Special Emergency Response Team, the Joint National Chemical, Biological, Radiological and Nuclear (CBRN) Response Team, the Canadian Police College, the Canadian Emergency Preparedness College, the CBRN Research and Technology Initiative, and Allen-Vanguard Corporation. Currently, he works for the Canadian Police Research Centre (CPRC) and serves as chair of the First Responder Sub-Group of the Canadian Standard for the Protection of First Responders from CBRN Events. Al has accumulated a depth of knowledge that extends into project management and business administration from both the public and private sector perspectives. He continues to be a proponent for advancing first responder counter terrorism contingencies. Enquiries relative to the article that follows can be directed to al.parisien@cprc.org.

The Canadian Police Research Center has received several enquiries from managers of first responder organizations looking for guidance with respect to providing personal protective equipment (PPE) to their personnel should there be a release of a CBRN material or a contagious disease outbreak. Usually they have already found out that there is no cheap and easy answer that can be purchased and fielded off-the-shelf. There is good news in that work is underway to complete central pieces of a comprehensive Canadian solution to the overall challenge. This is complex subject matter and Canadian experts are working together to fill the critical knowledge and technology gaps. The bad news is that providing appropriate protection for responders will never be as straightforward as making a well-informed purchase decision. It will require training, doctrine, life cycle management, fit testing, and in all likelihood, a variety of PPE.

The CBRNE Research & Technology Initiative (CRTI) has provided funding to the Royal Military College (RMC), the Canadian General Standards Board (CGSB) and the Canadian Standards Association (CSA) to lead work on a new Canadian standard that will support the needs of first responder organizations. RMC led the conduct of research and produced guidance for first responders in an initial project that is now being followed by the development of the Standard.

Managers recognize their responsibility for workplace health and safety and they are accustomed to turning to recognized standards in order to exercise due diligence on behalf of their employees. Unfortunately, in this case, there are a number of standards that deal with pieces of the global requirement. The pieces don't fit together and there are a number of important considerations that are not addressed well by any of them. As an example, CSA Z94.4-02 covers respiratory protection and standing-up a comprehensive support program, but it does not address CBRN aspects. Further to this, National Fire Protection Association (NFPA) and National Institute of Occupational Safety and Health (NIOSH) Standards do not address applications for CBRN personal protective equipment designed to military specifications.

Protective equipment must be selected particular to the type and nature of the hazard and its concentration. Respiratory protection is of the utmost importance but life-threatening exposure can occur through the skin as well. There are numerous suits, gloves, goggles, boots, and everything from paper masks to SCBA in the marketplace. We are as far from one-stop-shopping or one-size-fits-all as can be.

So the problem is protecting first responders while they work in a wide range of hazard environments. Police, Paramedics, Firefighters and Emergency First Receivers are all human beings. They are affected in the same ways by similar hazards. Differentiation between these target groups begins with the activities that they will engage in while in the hazardous environment. The specific activities of each group will change the potential for them to be exposed. This is best quantified through Simulated Workplace Protection Factor (SWPF) test methods. Such exposure determinations are not exploited under existing standards but SWPF testing will strengthen the scientific basis of the new standard and carry it forward into the future.

It is also important to consider how PPE performs as a system and with other equipment that will be used at the same time. This is to say, the performance of respiratory protection devices and dermal protection, whether suits, boots, gloves or goggles, is best determined together and along with any ancillary equipment that will be added - particularly items like equipment belts and helmets. Seals can be broken and protective materials can be degraded by the interplay between kit items and layers. For the most part, in existing standards, protection factors for the many pieces of PPE are determined separately. In contrast to this, SWPF testing measures exposures while a responder is engaged in representative work activity and fully equipped as the responder would be working in an actual hazardous environment.

In Canada we have already experienced occurrences of Avian Influenza (AI) and Severe Acute Respiratory Syndrome (SARS). Responder managers have every reason to be concerned about protecting their people so that they can perform during contagious disease outbreaks. These hazards are part of the Biological component of CBRNE and again, existing standards are disparate. To remedy this, the CPRC is currently working with RMC and responder partners to initiate SWPF testing that will fill underlying knowledge gaps. This research will enable the Contagious Disease Sub-group of the standard committee to develop appropriate and consistent content and to integrate it into the Standard.

The new Canadian standard aims to cover all the limitations listed previously but it will also be unique in that it will provide for all the official first responder target groups. The bar has been set high and the challenge is to produce a standard that works in many operational contexts. Beyond this, the committee seeks to enable responders to save lives rather than to impose unjustifiable restrictions. Work has been underway for over one year and the project will take at least a second year to complete. At this time the first draft is almost together and it will be available for public review soon.

Many responder organizations invested in purchasing PPE following 9/11 and others are at some stage in procurement processes presently. The Standard will define the circumstances under which particular

PPE is required. It will not make PPE redundant but rather it will outline a selection process that will ensure that responder risk is minimal and that PPE is used within its performance limitations.

So where does this leave the first responder managers looking for guidance? My recommendation is to familiarize yourself with the applicable existing standards and to consult a local CBRN specialist technician (graduate of the Government of Canada CBRN First Responder Training Program – Intermediate level). Reality is that you continue to bear responsibility for the health and safety of your people between now, and taking the most prudent action possible under the new standard. The standard will help you to make informed procurement decisions and work within the limitations of the PPE that you make available to your people. It will even define the full logistic challenge i.e. training, life cycle management, fit testing, records, and medicals. On the other hand, these will always be complex issues and the responsibility for making decisions rests in your lap.