



GLOBAL NUCLEAR THREAT

Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) Incidents

Color-Coded Checkered Identification System

- Law Enforcement
- Fire and Rescue
- Medical Personnel
- Border Service Personnel
- Military Personnel
- CBRNE Personnel

To Protect Those Who Protect Us



**Strengthening Safety, Effective and Interoperable
Workforce for
First Responders and Essential Service (ES) Personnel**

**“Protect Emergency Responders by Identifying
Who’s Who”**



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Emergency Preparedness for First Responders and ES Personnel

Executive Summary

In the wake of the terrorist attack on September 11, 2001, and ongoing terrorism and nuclear threats aggressiveness from foreign adversaries has triggered significant threats towards the U.S. and Canada. These threats directly involve chemical, biological, radiological, nuclear and explosive (CBRNE) events, violent terrorist activities, cyber and EMP (electromagnetic pulse) attacks on power grids and telecommunication infrastructure.



Today, all governments federal, local including intelligence communities and emergency experts recognize that consequences of such events would be catastrophic, and will lead to loss of thousands of lives, human suffering, damages to property and destruction of critical infrastructures such as power grid and telecommunication. Responding to such devastating events can be extremely complex, and need an efficient and interoperable workforce supported by multi-emergency groups coordination capabilities with interconnected communication response.



Protect First Responders and ES Personnel

First responders and ES personnel (military, border services, and CBRNE) play a significant role in protecting public and property. Since, they are the first on the scene, in the line of defense during catastrophic events. Therefore, it is essential that every emergency personnel is protected so that they can control the chaotic environment, protect the public, save lives, and assist with medical aid needed for victims.



Color-Coded Identification and Interoperable Communication System (SCI-IC System)

In order to enhance the personal safety of first responders and ES personnel, and to build an effective interoperable workforce, we innovated a “Color-Coded Identification and Interoperable Communication System” (SCI-IC System). The SCI-IC system was first introduced during the 2010 Vancouver Winter Olympics, and it was well received. Presently this system is used by first responders in Canada, and law enforcement personnel in the U.S., including other emergency responders.

The Company

SIGZEEN Integrated Solutions Inc. is a Canadian company located in British Columbia, Canada. We are the first to innovate the Color-Coded Identification and Interoperable Communication system (SCI-IC System) to distinctively identify first responders and ES personnel from other workers and the general public.

Our mission is to find short and long-term solutions that contribute to enhance interoperability. Most importantly communication interoperability and an effective interoperable operation system required to improve multi-jurisdictional operational capabilities.

Our main goal is to provide a specific perspective framework that can help to close existing gaps identified by world governments, international agencies, intelligence communities, security experts and emergency response communities, in regards to protecting first responders and ES personnel.

To achieve these objectives, we are researching, innovating, developing and promoting safety programs and safety products that would help to enhance the safety of emergency responders. In particular, to build a safe, effective and interoperable work environment, when they respond to a chemical, biological, radiological, nuclear and explosive (CBRNE) incident, terrorist attacks, mass shootings or any other complex emergency situations.

As we develop and promote our safety programs and safety products for law enforcement and other emergency response communities, we also continue to assess ongoing challenges and growing threats around the world. These findings would provide sufficient information and guidance to understand how to improve our safety program and products according to present and future challenges.

2010 Vancouver Winter Olympics



The SCI-IC System was first introduced to law enforcement personnel in British Columbia, Canada during the 2010 Vancouver Winter Olympics, and it was well received.

NATO Presentation



Future Forces 2014
NATO Defence Conference
Prague, Czech Republic

Past Performances:

- Introduced SCI-IC system to law enforcement personnel during the 2010 Vancouver Winter Olympics.
- Carried out a nationwide SCI-IC awareness campaign.
- Participated in Canadian Chiefs of Police Association conferences.
- Introduced the SCI-IC system to governments, and their respective agencies (awareness program).
- Speaker presentation at the NATO defense conference Prague, Czech Republic. The topic presented was “Cyber, EMP and Physical attacks on power grids and the safety of first responders.”.

Present Activities:

- Promote the SCI-IC system to all governments and respective agencies, including international agencies and their respective counterparts.
- Carrying out comprehensive research programs regarding “Psychological Behavior and Social Implications on Humans without Electronic Communications and Safety of First Responders and the Public”.

Vision and Goals



Our Goals

- Provide a reliable protective identification system for the personal safety of first responders and ES personnel.
- Provide a unique identification system to visually communicate when responders' communication equipment malfunctions due to disruption on power grids and telecommunication infrastructure.
- Provide an identification system to eliminate or minimize confusion caused among responders and the public during a catastrophic event.

GOAL 1: Establish a Color-Coded Identification System

To provide a Color-Coded checkered protective garment that exclusively designed for first responders and Essential Service personnel (military, border services, and CBRNE personnel). This provides a method to differentiate emergency responders from other high visibility clothing wearers, such as construction workers, private security guards, road workers, non-emergency workers, and the general public. Also provides a method to enhance effective coordination approaches, and ability to identify individual emergency response groups and their representation.

GOAL 2: Establish a Color-Coded Interoperable Communication System

To enhance interoperable communications capabilities among first responders and ES personnel. The system is specially designed to communicate when first responders' communication equipment is interrupted or malfunctions, and unable to communicate among emergency response groups. These situations can arise due to disruptions on nations' power grids and network communication infrastructures.

GOAL 3: Establish a Color-Coded Incident Command System

To enhance multi-response groups interoperable communications and operational capabilities. This method is designed to enhance the communications, among local responders in an incident area, and respond groups who arrive from other jurisdictions. This Incident Command System further provides the Color-Coded number identification system. The key feature of the system is that command leaders and group members have the ability to quickly and visually identify the members and their specific duties and responsibilities. The number system is designed with specific colors, numbers and shapes of patches that can be worn over existing garments. The number identification system would have the ability to protect first responders and ES personnel from impersonators who may pretend to be emergency responders and plan to interrupt emergency operations, also attempt to harm law enforcement personnel.



No Power - No Communication



EMP and Cyber Attacks

The electrical power and telecommunication infrastructure are the primary assets of our society, and everything depends on electricity and network communication. A single weapon detonated at high altitude could destroy a large part of communication facilities in the U.S. and Canada, within few seconds. Protecting the U.S and Canada power grids and communication infrastructure against an electromagnetic attack like one practiced in North Korea is a high priority for these nations.

EMP and Cyber attacks - Preparedness

The government and security experts realized that such attacks could disable a significant portion of emergency responders communication equipment and operation capabilities while creating a disrupting environment for emergency response operations. To address this urgent issue, today, all governments have made extensive efforts to incorporate EMP preparedness and response measures into emergency response plans.

Manual Communication System

The lack of electrical power and communication abilities would severely disrupt inter emergency groups coordination efforts. In such an environment it is crucial that first responders have a manual system in place that would help them to identify and communicate manually without electronic communication. The SCI-IC system could provide such a manual system by identifying who's who at the incident area and its vicinity.



SCI-IC System

Color-Coded Identification System

Common Clothing and Implications

During emergency response situations or recovery operations, it is critical that first responders have the ability to distinctively recognize and differentiate from other workers such as non-emergency personnel, private security guards, general workers and the general public who wear similar high visibility garments. The lack of identification could turn into significant problems, which could lead to personal safety issues of first responders and ES personnel.

Our Solution

To address this issue, we developed a Color-Coded Checkered High Visibility garment that each color corresponds with the specific emergency group. This method was designed based on evaluating existing requirements and lessons learned from various disasters.

Color Psychology

We also examined the importance of color psychology and how specific colors affect emergency operations. It is essential that when the public is disorientated and in a chaotic environment, they should have the ability to quickly and easily recognize emergency personnel at the incident area, and it's vicinity.

- Law Enforcement- Canada and the U.S.
- Fire and Rescue Personnel
- Medical Personnel
- Canada Border Services
- CBRNE Personnel
- RCMP
- B.C. Legislature - Police
- BC Sheriff Services and More ...

Present Users



Solution 1

Checkered Color-Coded Identification System



Law Enforcement

Black/Silver Checkered - Black color represents power, security, authority, and capability to control the situation.



Fire and Rescue

Red/Silver Checkered - Red color often associates warm, vibrant, and intensity and grabs attention. The color red has a long history related to fire and rescue.



Medical and Paramedics

Blue/Silver Checkered - Blue color associates with inspiration, sadness calming and care. Mostly this color is used by the medical industry for hospitals and medical care, which provides a calm feeling and efficient interaction with people who need help.



Military



Green/Silver and Green/Yellow - Green color mostly associate with nature, also with military uniforms for decades. The Military personnel has two color combinations, one with the silver background and green checkered in the center for military commanders, and the other a yellow background and green checkered in the center for the military, and the U.S. national guards.



Border Service Agents

Black/Silver Checkered - same as law enforcement.



Nuclear Personnel

Silver reflector-blue center strip and nuclear sign for nuclear personnel.



Biological/Radiological Personnel

Silver reflector/green center strip and biological sign.



Credit: Gazette Magazine



Law Enforcement



Medical/Paramedic



Fire and Rescue



Border Services



Military



Bio/Radiological



Nuclear



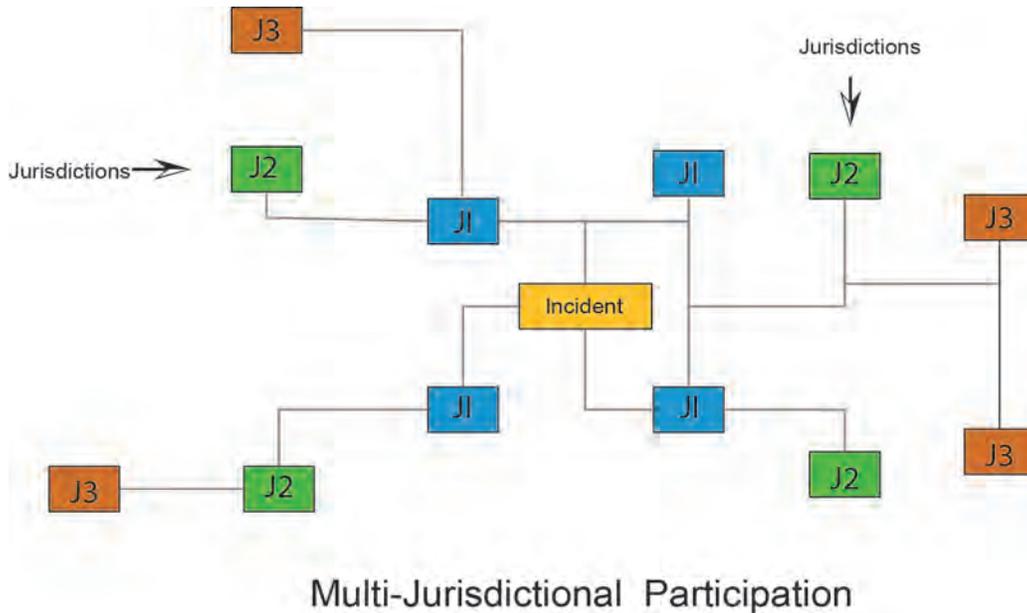
Special Forces 1



Special Forces 2

Solution 2

SIGZEEN Incident Command System



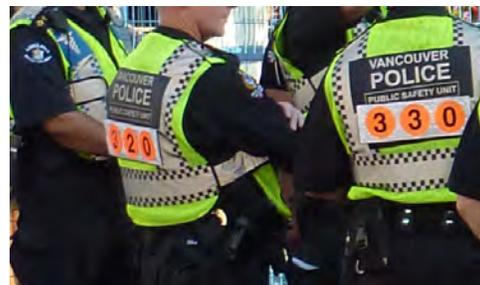
Multi-Jurisdiction and Multi-Agency Interoperability

Interoperable communication is a critical element for multi-jurisdictional and multi-agency task force joint operations. During mass destructions, emergency response efforts are not limited to a single jurisdiction and single agency. Such efforts require large-scale support, in particular, intervention from multi-jurisdiction participation.

It is imminent that such involvement needs effective and efficient coordination actions that collaborate with responders at the incident area, and emergency responders arriving from other jurisdictions, particularly working together under a single control command structure.

To support multi-jurisdiction workforce approach and support command leaders to carry out their roles and responsibilities efficiently, we developed a Color-Coded Incident Command System. This command system comprises inter-changeable sequences of numbers and various color-coded patches.

The unique characteristic feature of this system is that only the command leaders have the prior knowledge of what numbers are expected to be used for the specific incident. When an incident occurs, the command leaders will inform the team of the specific sequence of numbers to be worn. This will provide command leaders and members of the response units to identify who's who in the operational group, also their duties and responsibilities.



Field of Research

- The US Navy for fighting wildfires developed the incident command system in late 1960.
- Lessons learned from 11 September 2001, terrorist attack and ongoing CBRNE and terrorist threats towards western nations.
- Hurricane Katrina, Hurricane Sandy, and wildfire disasters around the world.
- The success and shortfalls of past emergency operations.
- The U.S. and Canadian governments and their agencies reports, research papers and articles.
- The U.S. and Canada CBRNE Strategy Plans and objectives.
- The NATO CBRNE Strategy Plan and objectives, including the existing systems and recommendation towards the safety of first responders.
- The intelligence community's findings and recommendations towards preparations for possible CBRNE and terrorist incidents.
- EMP and cyber attacks on power grids and telecommunication infrastructure.



We will continue our investigations and research activities to find more solutions for ongoing challenges towards protecting first responders and ES personnel in the event of complex emergency situations.





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