London 2012 – Safest Games Ever?

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SPECIAL REPORT

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Level A PPE is for operations only not for mass media attraction!

By Ioannis Galatas, MD

Dear CBRN First Responders/Colleagues,

Fed up with all these nice pictures and videos from CBRN exercises and drill around the globe showing first responders in Level A PPE carrying stretchers with contaminated casualties, performing decontamination of victims, carrying bags and instruments and all their gear, I decided to write something about it.

At first I thought of writing a normal technical review with SOPs, data etc. Then I thought that you as first responders already know all about it. I think the main problem here are the planners and officials in high places that although they have never been into PPE in their lives do write about them and incorporate them into their plans and missions as if it were common military or working or lab uniforms. This is why I decided to ask for your expert opinions through a given outline containing specific questions or statements (see below). When I gather all your answers I will include them in the coming issue of the Newsletter (August 2012) along with your contact details.
We all have to show them that Level A PPE is for a given environment and for a given operational time. It is NOT for taking pictures or impressing the media and populace! Let us make our lives a little more comfortable – basically your lives since I am retired now but always at the side of active first responders that might one day face the deadly enemy face-to face.

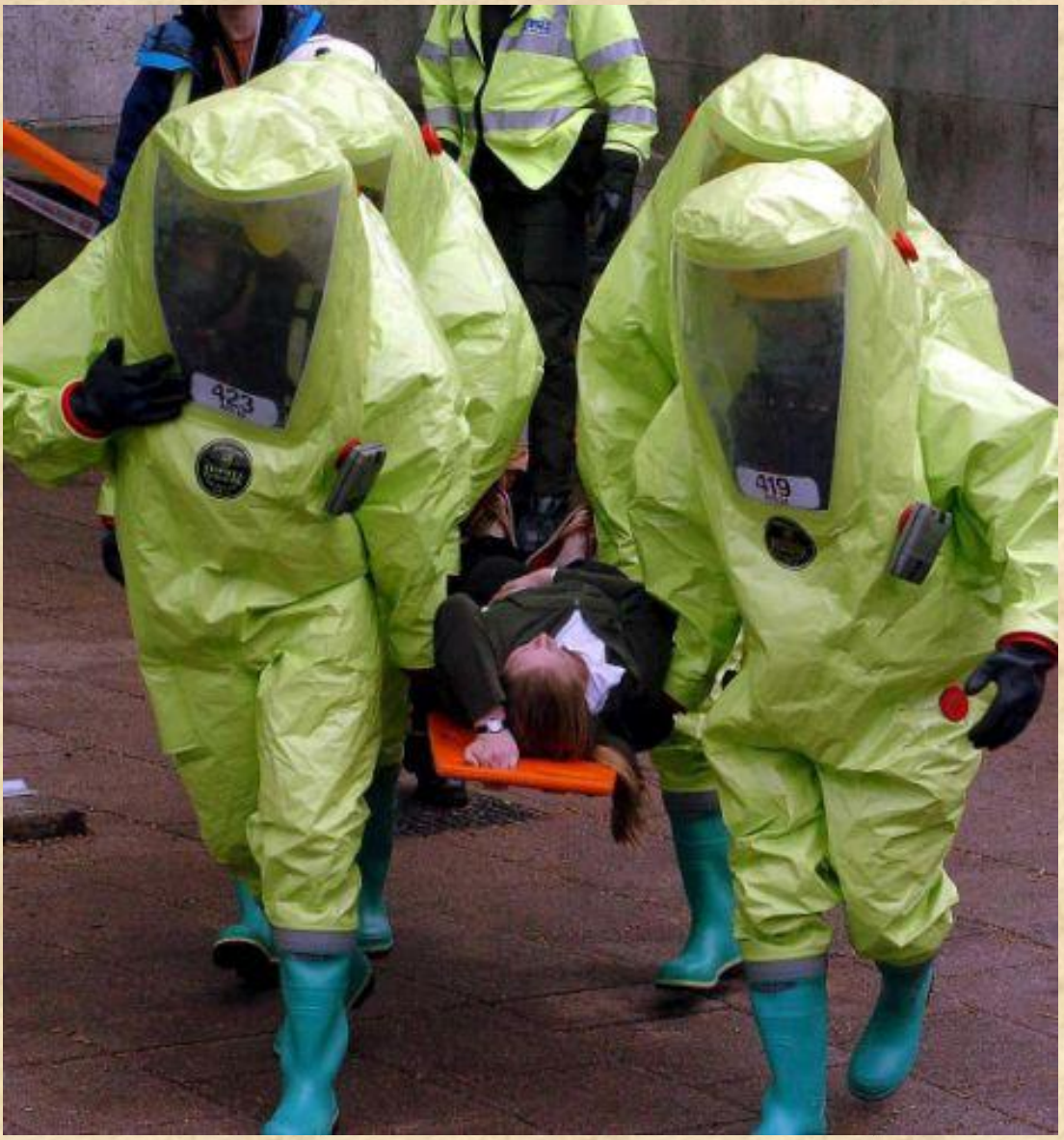
Short introduction

Level A protection should be worn when the highest level of respiratory, skin, eye, and mucous membranes' protection is needed. It consists of a fully encapsulating chemical-resistant suit and self-contained breathing apparatus (SCBA). This suit can be worn only for 15 to 30 minutes because the person wearing it can quickly become overheated. Special training is required to utilize the suit.

Level A PPE components

- Positive-pressure, full face-piece SCBA or positive pressure-supplied air respirator with escape SCBA
- Totally encapsulating chemical-protective suit

- Chemical-resistant outer gloves
- Chemical-resistant inner gloves
- Chemical-resistant, steel toe and shank boots meeting ANSI standards



Warranted Level A Conditions

- Hazardous substances have been identified and require the highest level of protection for skin, eyes, and the respiratory system
- The atmosphere contains < 19.5 % oxygen
- Site operations involve a high potential for splash, immersion, or exposure to unexpected materials that are harmful to the skin
- Operations are being conducted in confined, poorly ventilated areas, and the absence of hazardous substances has not yet been determined
- Direct-reading instruments indicate high levels of unidentified vapors or gases in the air

Limitations of PPE

Decisions about PPE use must consider its limitations.

Safety Hazards

- Restricted movement due to weight

- Restricted vision due to visual field limitations
- Difficulty communicating due to face protection

Physiological/Psychological stressors

- Psychological stress resulting from confining nature of full suits
- Heat stress and risk of dehydration
- The highest levels of PPE generally cannot be worn continuously for more than 30 minutes

Management Requirements

- Need for a management program that ensures effective use of PPE
    - Medical Management
    - Facial hair interferes with proper fit of masks
    - Improper use, penetration/tears are potentially hazardous

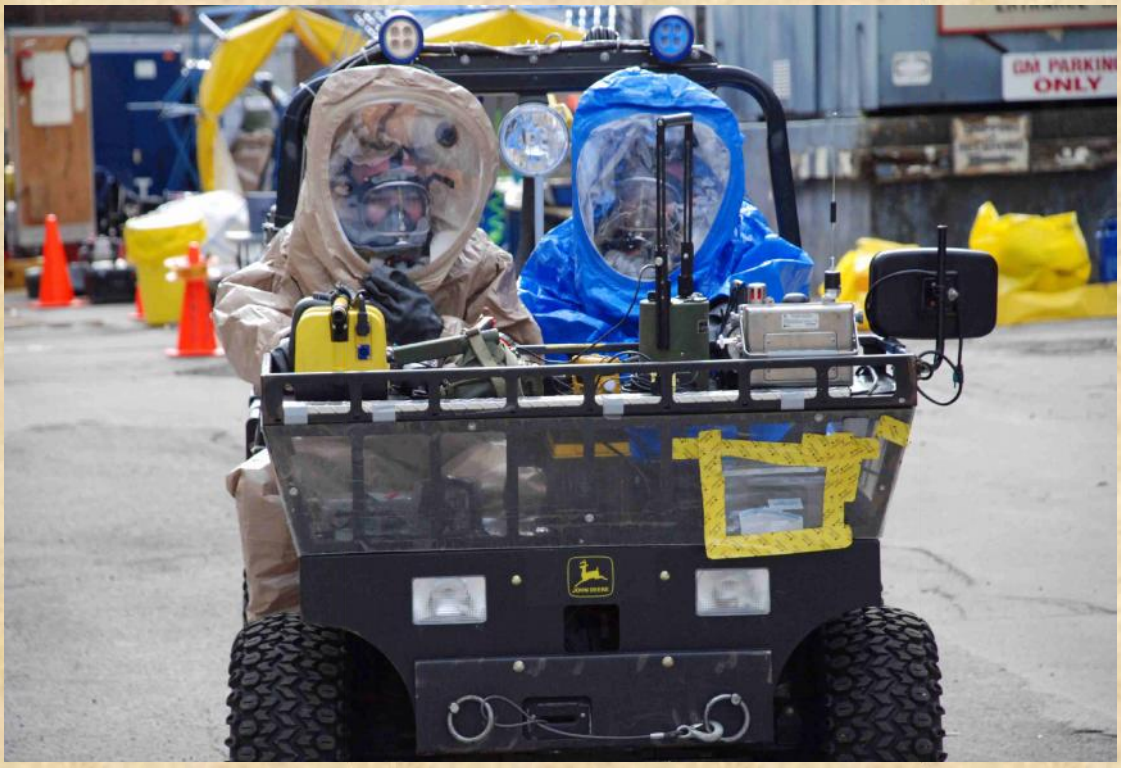
Entry-and-Escape SCBA disadvantages

- **Open-Circuit:** These devises supply clean air to the wearer from a cylinder. Wearer exhales air directly to the atmosphere. Shorter operating time (30-60 min depending on the size of the air tank [usually 1 hr cylinder] and the work rate/load of the individual) and heavier weight (up to 13.6 kg – 35 lbs) than closed-circuit SCBA
- **Closed-Circuit (Rebreather):** These devises recycle exhaled gases (CO_2, O_2 and nitrogen) by removing CO_2 with an alkaline scrubber and replenishing the consumed oxygen with oxygen from a liquid or gaseous source. At very cold temperatures, scrubber efficiency may be reduced in exhalation and generate heat in the CO_2 scrubbing operations, adding to the danger of heat stress. Auxiliary cooling devises may be required. When worn outside an encapsulating suit, the breathing bag may be permeated by chemicals, contaminating the breathing apparatus and the respirable air. Decontamination of the breathing bag may be difficult. Positive-pressure closed-circuit SCBAs offer substantially more protection than negative-pressure closed-circuit SCBAs.

Drill scenarios

In an almost universally identical way all drills' scenarios share same basic components:

- All drills have the prefix "CBRNE" but the scenario is almost always about CWAs most usually without the "E" component
- The "chemical" terrorist attack happens at the center of the city in a very crowded street or shopping mall
- The "chemical" agent released – although never referred by name – is a known agent because terrorists are not going to invent a new one just for the occasion
- All drills end after the decontamination phase ignoring (?) the more interesting part of escaped contaminated victims arriving by all means at the front gates of hospitals all over the city under attack.
- In all drills attention to details is limited because they test the overall plan not the "small" operational details that will be followed (?) during the real event.



- Operational stress and timing is an option/exception not the rule. They comment that they will do it super-fast when there is a real incident.
- Level A people are involved in all phases of the drill – from entering hot zone to the evacuation and decontamination of contaminated victims. Usually, nearby first responders in Levels B and C spectators or decorative figures

What Level A PPE first responders can do

Usually the available operational time between donning and doffing is 40 minutes (they have to have enough air for the decon process as well)
During these 40 min they have to:

- Carry their equipment into the scene (usually by themselves; rarely by using special trolleys);
- Walk towards hot zone (in rare case they drive there with special mini vehicles – i.e. Gators);
- Do initial assessment of the scene under attack (dead bodies, symptomatology of survivors, existence of an anticipated secondary IED, structural damages etc)
- Do initial CBRN detection
- Take samples (air, liquid, solid, tissues)
- Return to base and run through their own decontamination lines (usually in the same area with mass decon facilities for the populace without any extra security posted around)

- Provide first aids to their own colleageus in case an accidental exposure to chemical agent happens

Usual composition of entry team: 3-4 persons

What we usually see in the media, articles, video clips

Level A entry team:

- Carry their gear by themselves;
- Walk towards the hot zone;
- Exit scene with a stretcher and a contaminated victim – sometimes coming all the way from an underground station using stares not escalators;
- Participate in the decontamination process of casualties;
- Wait in line to be decontaminated.

And they perform all these duties in a contaminated environment, under extremely stressful conditions and within 40 minutes!!!

Proposal/Suggestion

All CBRNE planners should be forced to spend at least two full hours into Level A PPE even if they do nothing but sitting in a chair.

Photos in this article

I will not reveal the source of the photos incorporated herein because my objective is not to state that I know better than others but to assist our responders and planners to end up with a more down-to-earth approach/planning mentality that will make their involvement safer and as efficient as possible

Your opinion counts

- Please fill the following form and e-mail it to me at: igalatas@yahoo.com
- Your contact details and answers will be published as they are in the coming issue of the "CBRNE-Terrorism Newsletter" (August 2012).

- For your convenience, the form in .docx format is available at the "New Issue" link of the website hosting the Newsletter.

I would like to cordially thank you all for your contribution and comments in our common effort to do the right things and not those subjected by outsiders and marketers.

Form to be completed

Please fill all sections

First/Last Name	
Rank/Current position in your organization	
Your organization/affiliation	
Years in service	
Years involved in CBRNE operations	
Your background/specializations/skills	

Please answer all questions and add your comments where appropriate

Do you think that Level A should be the predefined PPE for all CBRN operations?	
Do you think that in many scenarios, Level C PPE would be sufficient to do the job?	
What do you think are the tasks that Level A people should perform?	
Do you think that Level A personnel should be involved in the evacuation of contaminated/wounded victims away from the incident site?	
Do you think that Level A personnel should be involved in the decontamination process of contaminated/wounded victims away from the incident site?	
Do you think that CBRNE planners have hands-on experience in all types of PPE?	

Are you satisfied with currently available Level A PPE – and if not why?	

BG(ret'd) Ioannis Galatas, MD *is the Editor-in-Chief of the "CBRNE-Terrorism Newsletter".*