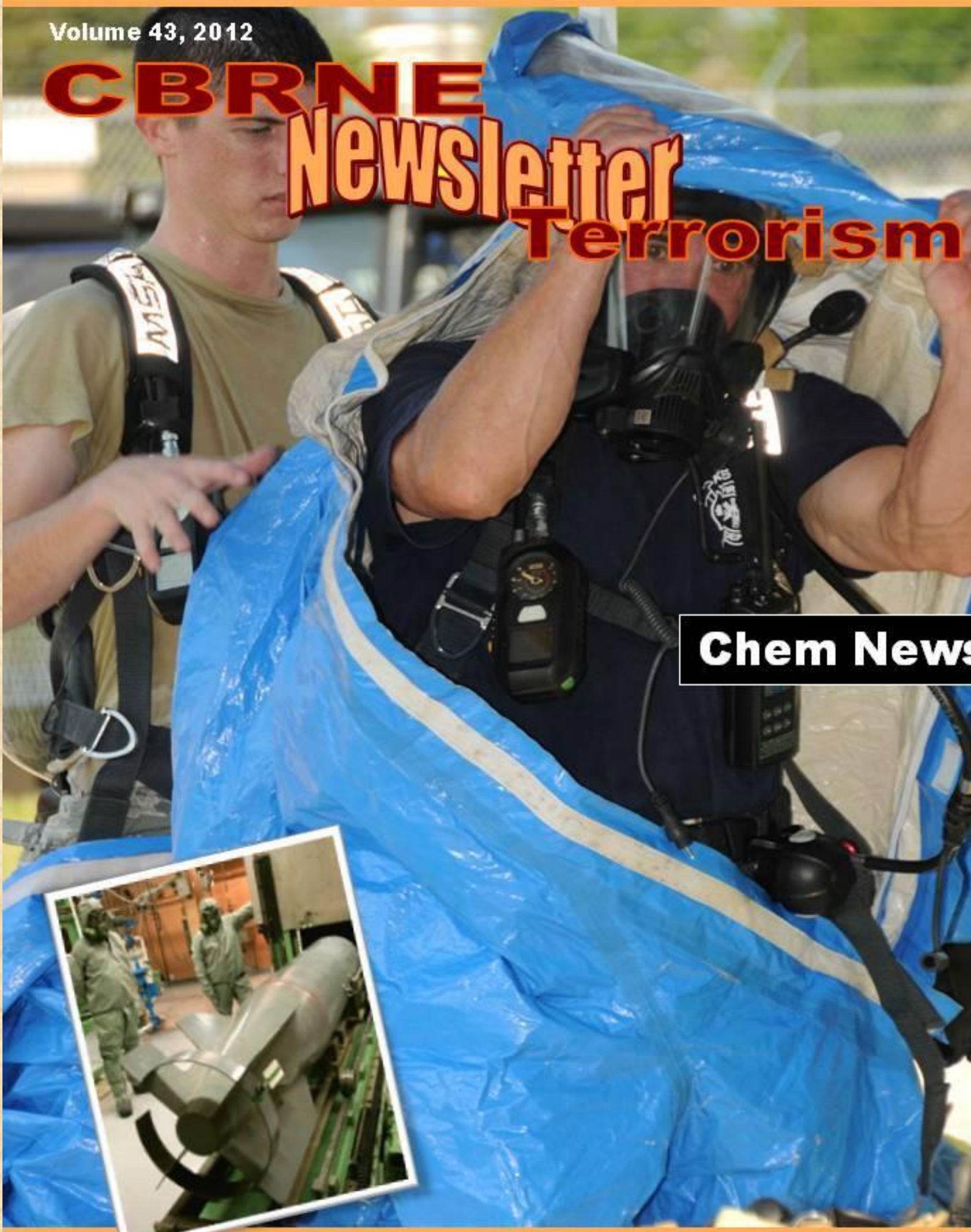
Syria's WMDs – Are they under control?

Volume 43, 2012

CBRNE Newsletter Terrorism



Chem News

www.cbrne-terrorism-newsletter.com

Chem News

The CBRNE-Terrorism Newsletter is looking for photos of CBRN First Responders in action. The best images submitted will be included on the covers of upcoming editions! Images must be your property and must be sent as large hi-res JPEGs. Please include captions.

GDLS shows off CBRN systems solution

Source:http://www.shephardmedia.com/news/landwarfareintl/eurosatory-2012-gdls-shows-cbrn-systems-solution/

General Dynamics Land Systems (GDLS) is exhibiting its CBRN vehicle solutions for the first time at Eurosatory in Paris this week (June 2012).

Designed for and in the process of being delivered to the Swiss Army, the vehicles include the Piranha III CBRN Reconnaissance vehicle (top) and the Duro CBRN laboratory (bottom). The Swiss Army has procured 11 of each platform giving it an organic CBRN vehicle capability for the first time, it was added.

GDLS executives explained how the 8X8 Recce vehicle, designed in collaboration Thales for sensor capabilities, was capable of a 24 hour 'silent watch'. Complete with raised roof, protected test and sample kits, air conditioning and air pressure system, the Recce vehicle has been designed for 'future threats worldwide'.

'Changing combat missions call for different sensors, be they for counter-terrorism or urban conflicts. Piranha's ballistic and mine protection means it can work in "hot zones",' a GDLS executive said.

The Duro, a 6X6 vehicle weighing 14 tonnes, provides the laboratory component of the overall CBRN capability. Tasked with following up and supporting recce vehicles, the Duro is capable of carrying either a nuclear, biological or chemical laboratory but never concurrently.

It emerged that the Swiss Army's concept of operations will be to deploy three Piranha IIIs and three Duro vehicles in order to reduce false alarm rates. It is also expected that they will conduct missions alongside main battle tanks.

Describing interest from Japan for such a capability, executives said this solution would be ideal in responding to catastrophes like the Fukushima nuclear disaster last year. 'Japan is

building similar systems now,' one source told *Shephard*.

CBR terrorism a clear danger to India: ORF-RUSI Study

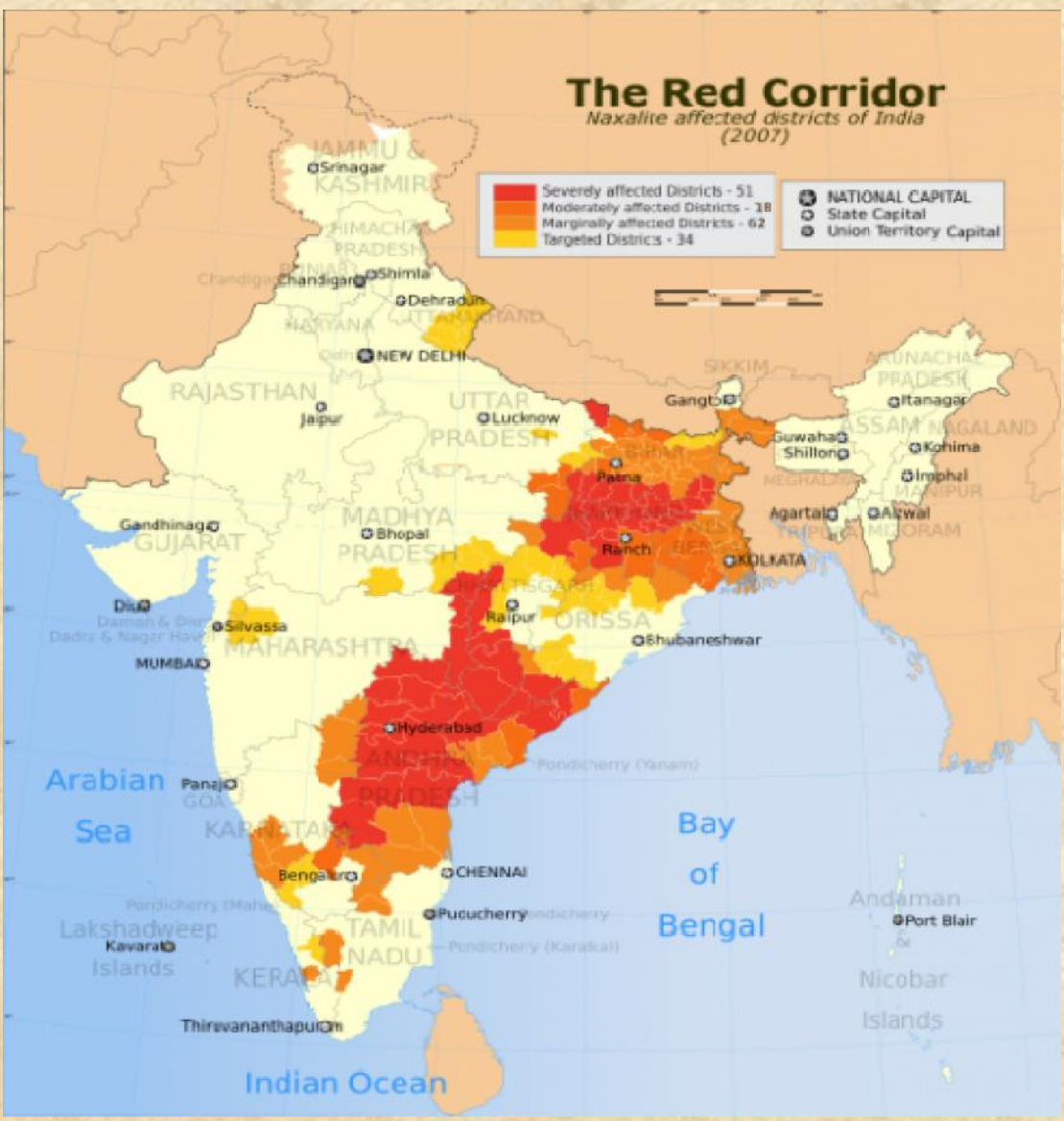
Source: http://www.newstrackindia.com/newsdetails/2012/06/15/284-CBR-terrorism-a-clear-danger-to-India-ORF-RUSI-Study.html

There is a clear danger to India from CBR (Chemical, Biological and Radiological materials) terrorism due to the known intentions of terrorist groups active within India's borders, according to a new research study.

Terrorist organisations may seek to carry out CBR attacks in future by detonating a radiological dispersal device ('dirty bomb'); by carrying out an armed assault on an industrial facility handling CBR materials or on vehicles transporting material between sites; or by infiltrating facilities in order to steal CBR materials or to sabotage the site, the study done by Observer Research Foundation and the Royal United Services Institute (RUSI) has warned.

Releasing the study report, titled 'Chemical, Biological and Radiological Materials: An Analysis of Security Risks and Terrorist Threats to India', former Home Secretary G.K. Pillai admitted that for the government, CBR threats so far had been of "low priority importance".

"It is a low priority issue. With too much happening, it is something likely to happen. Also with threats low," said Pillai, who was at the centre of



introducing internal security reforms after the Mumbai terror attacks.

Pillai said the wake-up call on this issue for the government came when, just before the New Delhi Commonwealth Games, the radio-active material sold from the Delhi University created problems for the people.

Explaining the threat that can be posed by the missing explosives from factories, Pillai said once the Madhya Pradesh Police found out that 14,000 tonnes of explosives went missing. He added that much of this landed in the hands of mining mafia which used it for illegal mining activities.

Noted strategic expert Dr. C. Raja Mohan, RK Mishra chair at ORF, said though India has been raising WMD-related issues at various international fora, not much work has been done on domestic aspects of the issue, though "it is not an inconsequential threat."

"Though India has been battling insurgencies and terrorism for over three decades, the changing nature of the threat now make it more deadly. CBR threat for India is loud and clear given that Pakistan has become the locus of international terrorism making the threat that much more horrifying," said Dr. Rajeswari Rajagopalan, ORF Senior Fellow, who led the study team.

She said external terrorist groups active in India, such as the the Lashkar-e-Taiba (LeT), Jaish-e-Mohammad (JeM) and Harkat-ul-Jihad-e-Islami (HuJI) aggravate the danger for India, point out that these groups had in the past attacked key installations and public buildings, including the Indian Parliament in December 2001. "These groups are capable of posing the more serious CBRN threat. Such a possibility became apparent when David Coleman Headley, an American working for LeT, disclosed that he had conducted hostile surveillance on nuclear installations in India," Dr Rajeswari Rajagopalan said.

Saying that the role of small-scale industries is crucial in this regard, she said control of the flow of CBR material from small-scale industries needs special attention.

The ORF-RUSI study found that site security at facilities and industries handling CBR materials is variable. Large industrial sites, particularly under the protection of the Government-funded Central Industrial Security Force (CISF), are well-protected with robust security and safety arrangements, but this is not mirrored in all medium- and small-scale facilities, some of whom have employed private security agencies who are not adequately trained.

The study found that transport of CBR materials presented particular vulnerabilities as the majority of regulation focused on transport accidents, not on deliberate attack. Protection of CBR materials in transit needs to be strengthened, the study suggested.

In such a scenario, the study suggested greater standardisation of site security with well-developed practical plans for implementation.

The study also suggested that CBR training and awareness needs to be pushed out to frontline staff in security agencies and industry in order to ensure that the threats are both fully understood and that any observed incidents are recorded correctly.

Another important suggestion is to give an increased role to the National Disaster Management Authority in prevention and mitigation of CBR incidents, as well as the response to such events.

The report noted that the threat of CBR terrorism is a global security concern with past incidents such as the deliberate contamination of food by the Rajneeshee religious cult in Oregon, USA in 1984 and the release of a chemical agent by the Aum Shinrikyo cult on the Tokyo subway in March 1995. These incidents showed that deliberate attacks are within the capabilities of malicious actors and can have devastating consequences.

In addition, industrial accidents such as the Bhopal gas tragedy in India in 1984, mishandling of dangerous radiological material such as the accidental sale of radioactive Cobalt-60 to a scrap dealer in Delhi in 2010, and the intentional poisoning of the Kaiga Atomic Power Station water supply in Karnataka in 2009 showed the damage that could be caused by malicious actors using CBR materials. Such incidents also highlight security and safety vulnerabilities surrounding CBR materials and the sites on which they are stored and used.

Since India faces a serious battle against terrorism from armed Naxal rebels, insurgent and separatist groups such as United Liberation Force of Assam (ULFA), and other international terrorist groups such as Lashkar-e-Taiba (LeT) and Jaish-e-Mohammad (JeM), CBR threats needs to be taken care of

more seriously, the report said.

Lone Wolf CBRNE Capabilities: Lessons from Norway

By Maurits Beltgens and Serguei Batsanov
Approved by Ilja M. Bonsen
IB Consultancy
Brussels, Belgium; The Hague, The Netherlands; Singapore

Source: http://news.cbrnresourcenetwork.com/newsDetail.cfm?id=63

Introduction

The terrorist attacks in Norway on July 22nd, 2011 have brought lone wolf terrorism to the forefront of public concern. The bombing of government buildings in Oslo and subsequent mass shootings on the nearby island of Utøya which resulted in the deaths of seventy seven people, were carried out by lone wolf Anders Breivik.

Breivik's attacks started at 3:20 p.m. when a bomb made primarily from fertilizer exploded outside government offices in central Oslo.(1) The bombing was soon followed by a mass shooting on Utøya Island at 5:27 p.m., which lasted about an hour and caused the death of sixty nine people.(2)

This current events report will discuss lone wolves' CBRNe (Chemical, Biological, Radiological, Nuclear, and Explosives) capabilities as demonstrated by the actions of Breivik and others. While Breivik eventually resorted to the more traditional use of conventional weapons, i.e. small arms and explosives, his manifesto indicates that he spent a great deal of time and effort entertaining the use of CBRN weapons.

Contrary to popular belief, CBRNe based attacks are not only of interest to large well-funded terrorist groups. Lone wolves are just as interested in CBRNe based attacks due to their destructive capabilities.

The Lone Wolf In his article, "Lone Wolf Terrorism", Peter Phillips explains, "True lone wolf terrorists are individuals who … operate alone, without accomplices and outside of a formal terrorist organisational or command structure."(3)

The threat lone wolves pose can be challenging to classify due to the wide array of capabilities and motives that vary from one lone wolf to the next. Attacks by lone wolves range from basic to highly sophisticated attacks; some involving years of careful planning while others seem to occur at the spur of the moment.

When looking at the history of terrorist attacks by lone wolves it becomes apparent that their motivations can be categorized into two groups. The first category includes lone wolves who have their own personal vendettas. The target of these vendettas can range from the government to former employers; the latter being particularly dangerous due to their extensive knowledge of buildings security features. The second category of lone wolves are those who share the same ideology as other actor types such as extreme right, or international religious fundamentalist, but choose to operate independently of such groups. This is especially true for lone wolves sympathizing with the extreme right, or other single issue groups such as anti-abortion groups, which have seen an increase in the amount of lone wolf supporters.(4) Lone wolves tend to be highly motivated due to their deep seated frustration for any number of issues, leading them to take extreme actions in an attempt to right some form of wrongdoing they believe they have suffered.

Path to Radicalization

Although the Breivik episode occurred in "well-to-do" Norway, it is important to note that the current economic and financial crisis, with instability on financial and stock markets, dangerously growing sovereign debts, threatening national defaults, and the subsequent implementation of unprecedented austerity measures, may lead to the dangerous polarisation of societies and further increase the risk of radicalisation under various "colors", be it extreme right, extreme left or religious. This may in turn, contribute to a further growth of radical extremism, including the "lone

wolf" phenomenon, but also manifesting itself in street disturbances and acts of anarchism. Furthermore, while a linear logic suggests that gruesome episodes like the Breivik rampage are one of a kind and should not be expected to repeat often, the general culture of violence that Breivik so dramatically represented may in fact be contagious.(5) It is deeply disturbing, for example, that within weeks of the events in Norway the debate in some European countries has shown a good deal of sympathy and understanding among the public and some opinion leaders towards Breivik's crimes.(6)

Breivik, a thirty two year old Norwegian right wing extremist, carried out these attacks in an effort to combat what he believed to be the Islamic colonization of Western Europe. Breivik claims to be a member of an organization which he calls Pauperes Commilitones Christi Templique Solomonici (PCCTS) also known as the Knights Templar, however, there is no evidence suggesting there are in fact other members of such a group. During his attacks Breivik targeted members and supporters of Norway's Labor Party, who he believed were behaving like "cultural Marxists" for allowing what he saw as a Muslim takeover of Norway.

Breivik's path to radicalization started at an early age, in his manifesto he states:

"When I was around 16-17 years old I joined the Progress Party Youth organization (FpU) as they were anti-immigrant and pro-free-market." He recounted that his path to radicalization further progressed when, "around year 2000 I realized that the democratic struggle against the Islamization of Europe, European multiculturalism was lost … resistance is saying you will put a stop to this. I decided I wanted to join the resistance movement."(7)

Breivik's path to radicalization culminated with the attacks on July 22nd 2011, which he claims to have spent the last three years of his life working on.

Similarities to Other Lone Wolves

Prior to Anders Breivik's recent attack, the most immediate example of a lone wolf to come to mind when discussing the lone wolf actor type was Timothy McVeigh. Although one could argue that McVeigh does not fit the "classic" definition of a lone wolf, because he was helped by Terry Nichols, experts generally categorize him as a lone wolf because he executed the attack alone and did not follow the orders of a larger organization.(8)

McVeigh's attack on Oklahoma City's federal building using a truck filled with 2,300 kg of ammonium nitrate and nitro methane, on April 19th, 1995 was the most deadly terrorist attack in the United States prior to 9/11. It killed 168 people and injured more than 400. McVeigh planned and executed the attack as revenge for the federal government's siege of the Branch Davidian compound in Waco, Texas, two years earlier, which led to the death of 76 people.(9)

It is noteworthy that there are similarities between Breivik and McVeigh, including both used fertilizer based explosives, both held right wing extremist views, and both targeted government buildings. Another lone wolf that Breivik shares similarities with is Ted Kaczynski, more commonly known as the Unabomber. In fact, Breivik seems to have been inspired by Kaczynski having copied many parts directly from Kaczynski's manifesto in his own manifesto "2083 A European Declaration of Independence" which he published shortly before his attacks under the alias Andrew Berwick. For example in Kaczynski's manifesto Kaczynski states:

"One of the most widespread manifestations of the craziness of our world is leftism, so a discussion of the psychology of leftism can serve as an introduction to the discussion of the problems of modern society in general."(10)

Similarly Breivik in his "own" manifesto states:

"One of the most widespread manifestations of the craziness of our world is multiculturalism, so a discussion of the psychology of multiculturalists can serve as an introduction to the discussion of the problems of Western Europe in general."(11)

The only changes Breivik makes is replacing the word leftism with multiculturalism and replacing modern society with Western Europe. This is just one of the many instances where Breivik has copied Kaczynski's manifesto almost verbatim. It is interesting that Breivik chose to use so much of Kaczynski's manifesto when writing his own, considering they did not share similar ideologies. In fact, they were quite different, as Kaczynski was concerned about the industrialization and modernization of society and its impact on the environment, whereas

Breivik's focus lay in what he believed to be the Islamic colonization of Western Europe.

Lone Wolves CBRNe Capabilities

Contrary to popular belief, CBRNe based attacks are not only of interest to large well-funded terrorist groups. Lone wolves are just as interested in CBRNe based attacks due to their destructive capabilities.

As Michael Day points out in his article, "From Inspiring to Instructing", there has been an increase in terrorist attacks by lone wolves.(12) This increase in attacks by lone wolves will surely lead to an increase in the likelihood of a lone wolf choosing to use CBRNe-based weapons in their attacks. Support for this assumption may be found in the arrest of several lone wolves since Breivik's attacks in Norway, notably including the arrest of a Mexican chemistry student, Jose Perez Bautista on the 17th of August, 2011, who is accused of planning to use chemical gases to poison protesters of the Pope's visit to Spain.(13) Furthermore, U.S. President Barack Obama has recently stated that attacks by lone wolves are, "the most likely scenario that we have to guard against right now."(14)

This position is substantiated by Breivik's claim that, "there are cells that are already in the process of attempting to acquire chemical, biological, radiological or nuclear weapons."(15)

But how much of a threat do lone wolves really pose when discussing CBRNe attacks? Because of the independent nature of lone wolf activities one might assume that their network, financial means and CBRN knowledge are all extremely limited, and that, as a result, they do not amount to much of a threat in regard to CBRNe. However, this is not always the case as Bruce Ivins demonstrated with his alleged anthrax mailing campaign in 2001. Indeed, even lone wolves may be capable of using sophisticated CBRNe materials in their attacks.

Historically, the vast majority of lone wolves attacks using CBRNe materials involve the use of explosives. This is mainly due to the fact that out of the CBRNe agents explosives are the most easy to acquire.

Breivik's interest in chemical agents

It is known that Breivik was extremely interested in using chemical agents in his attack. In his manifesto he describes how to fill hollow tip bullets with deadly toxins such as ricin and pure nicotine in an attempt to make them even more deadly. Ricin is one of the most deadly toxins known to man and can be fairly easily extracted from castor beans. Although ricin is often classified as a biological agent as it is extracted from naturally occurring flora, because its effects are purely chemical it will be referred to as a chemical agent in this report. In fact, ricin is so potent that it is listed together with other deadly chemical agents such as sarin and VX in the Chemical Weapons Convention.

Furthermore, in its pure form nicotine is also extremely poisonous. In his manifesto Breivik details how to obtain these agents, listing numerous recipes and instructions as to the most effective methods for acquiring them. Although no evidence of the actual use of these materials in his bullets have been released to the public, so far we must conclude that it was most likely within his capabilities to use them.

Breivik's interest in biological agents

One of the agents Breivik had considered using was anthrax which he stated as being, "one of the most effective" weapons.(16) He believed that, "anthrax has an excellent shock effect, and is likely to result in massive media coverage".(17) He was confident that such an attack could result in the deaths of as many as 200,000 people, however, such a large scale attack did not fit with his goal of "surgically precise attacks" on specific people and buildings.

Past incidents involving anthrax such as the Sverdlovsk anthrax leak of 1979, which killed at least sixty four people, shows the danger anthrax poses to humans.(18) Because anthrax spores are highly resistant to weather conditions they can remain active years after their initial release, Breivik believed that anthrax could be easily obtained by collecting soil from a former anthrax site. He also presumed that anthrax could be obtained on the black market. In his manifesto Breivik approved of Ivins' use of anthrax contaminated letters, and even included statements that he thought his "Knights Templar" should use when mailing out similar letters.

Breivik's interest in Radiological/Nuclear Weapons

Breivik also discusses the use of radiological and nuclear weapons in his manifesto. He outlines the difficulties one would face in an attempt to acquire such weapons and materials. It is extremely unlikely that a lone wolf would be able to obtain a nuclear weapon, however it might be within the capabilities of a lone wolf to acquire radiological materials that could be used to make a radiological dispersion device, or "dirty bomb". Breivik believes that, "fissile material can be stolen from any major hospital (at least enough to create a nasty little dirty bomb)." An attack using such a device would lead to large scale economic and psychological damage to the affected region.

Although such a device would not initially generate more structural damage or casualties to its target than a traditional explosive device, the cost and difficulty of clean-up could mean that the affected area remains unusable years after the initial explosion. Furthermore Breivik also entertained the idea of attacking nuclear power plants in hopes of causing large scale radioactive contamination, listing detailed descriptions of nuclear reactor safety and security features in his manifesto.

Breivik's interest in explosives

Although Breivik ultimately chose to use homemade explosives in his attack, the detailed descriptions of his experiments with toxins such as ricin suggest that he did have the capabilities required to use other agents. Breivik explains his decision for ultimately choosing the use of explosives in his attack when he states, "pound for pound, euro for euro and hour for hour of effort, high explosives are far more effective at inflicting massive … casualties."(19)

In his manifesto Breivik gives an in depth description of how he acquired the necessary equipment and materials needed to create the bomb that he detonated on July 22nd 2011. He describes how he created elaborate cover stories to justify the purchase of large quantities of explosive making materials. While the manufacturing of explosives has become increasingly difficult in recent years due to new countermeasures and screening procedures, Breivik's actions show that with some careful planning lone wolves are still capable of creating powerful explosives.

Conclusions

In short, the recent events in Norway perpetrated by Breivik highlight several lessons political decision makers and law enforcement agencies need to be aware of including;

The need to pay more attention to the process of radicalization and invest more resources into de-radicalization strategies and address the culture of violence phenomenon.

The need to develop better procedures and methodologies for the timely identification of emerging lone wolves.

The development of additional countermeasures against the unauthorized access to CBRNe materials and precursors, including more stringent national implementation of existing international treaties, dealing with CBRNe (such as the Biological Weapons Convention, Chemical Weapons Convention, Nuclear Non-Proliferation Treaty and others).

The need for increasing cooperation amongst states and other relevant stakeholders (law enforcement, industry, and the research and cyber security community) in all three of the above mentioned areas. The sheer amount of detailed information contained in his manifesto on executing future attacks, coupled with the extensive media coverage that Breivik's attack received, means that there could be a serious risk of copycat behaviour by future lone wolves.

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NIOSH-Approved Escape Mask Designed for Terrorist Attacks Chemical Spills and Fires

Source: http://www.fireengineering.com/articles/2012/06/niosh-approved-escape-mask-designed-for-terrorist-attacks-chemical-spills-and-fires.html

ILC Dover, the manufacturer of protective equipment for the most demanding applications, announced that the National Institute for Occupational Safety and Health (NIOSH) has approved its SCape® CO/CBRN30 Escape Mask.

This easy-to-use respirator is the only one of its kind that meets the stringent NIOSH standards for an escape respirator that can be used for 30 minute duration for chemical, biological, radiological, nuclear (CBRN) and carbon monoxide (CO) protection. Most victims of fire are not injured by heat or flames, but rather by smoke and gases, especially carbon monoxide. Protection from CO could mean the

SCape® CO/CBRN30 APER Performance Data

SCape® CO/CBRN30 System Level Agent (SMARTMAN)

Test Agent	Challenge Concentration	Service Time
Mustard (HD) Vapor	50 mg/m3	>30
Mustard (HD) Liquid	0.43-0.86 ml	>30
Sarin (GB) Vapor	210 mg/m3	>30

SCape® CO/CBRN30 Chemical Test Agents (Filter Gas Life)

Test Agent	Challenge Concentration (ppm) (64 lpm at both 25% and 80% RH)	Allowable Breakthrough (ppm)	Service Time (min)
Ammonia (NH_3)	1250	25	>30
Cyanogen Chloride (CK)	150	2	>30
Cyclohexane (C_6H_{12})	1300	10	>30
Formaldehyde (CH_2O)	250	10	>30
Hydrogen Cyanide (HCN)	470	10	>30
Hydrogen Sulfide (H_2S)	500	30	>30
Nitrogen Dioxide (NO_2)	100	1	>30
Phosgene ($COCl_2$)	125	1.25	>30
Phosphine (PH_3)	150	0.5	>30
Sulfur Dioxide (SO_2)	750	5	>30

SCape® CO/CBRN30 Carbon Monoxide (CO) Penetration Performance

CO Challenge Concentration	Maximum allowable Peak Excursion (detected CO levels in parts per million) at 30 minute identified service life duration	Resulting Maximum Peak Excursion (detected CO levels in ppm)
3600 ppm	500 ppm	<200 ppm*

CO Challenge Concentration	Maximum allowable Concentration Time (Ct) (ppm-minutes) for 30 minute identified service life duration**	Resulting Concentration Time (Ct) (ppm-minutes) at 30 minutes
3600 ppm	12075	<2000*

* Maximum peak excursion levels of CO and maximum Ct values occur during test conditions of 0°C and 92% relative humidity. Excursion levels of CO and Ct values at 25°C are lower.

difference between life and death for people trying to evacuate homes or buildings during a fire - especially high rises, subways, factories, hospitals, government agencies and other densely populated structures. According to the CDC, each year, more than 400 Americans die from unintentional CO poisoning, more than 20,000 visit the emergency room and more than 4,000 are hospitalized due to CO poisoning. Fatality is highest among Americans 65 and older, unborn babies, infants, and people with chronic heart disease, anemia, or respiratory problems.

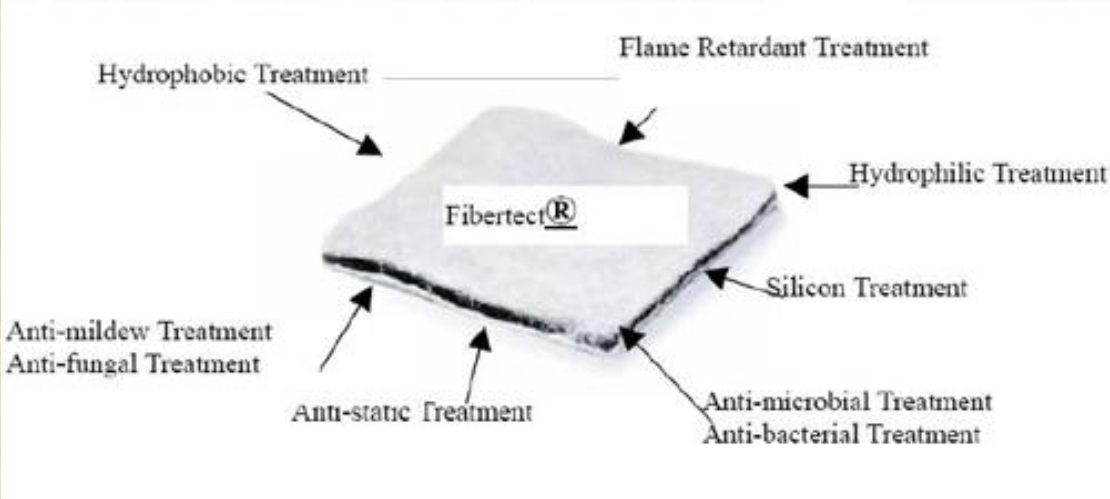
"ILC Dover has a long history of protecting people from extremely dangerous toxins and elements in some of the most demanding environments--including space and the battlefield," said Doug Durney, director of marketing and new business development, ILC Dover. "This

unsurpassed expertise is leveraged when creating and manufacturing all of our personal protective products including the SCape CO/ CBRN[80] , which offers the highest level of protection available and is the most user-friendly escape mask available today."
Since Sept. 11, 2001, there has been an ever-increasing demand for civilian escape masks that are capable of protecting untrained users from chemical, biological, radiological, and nuclear (CBRN) inhalants. Hazardous conditions may be caused by spills of toxic gases or liquids from trucks, rail cars or industrial plants or could be the result of terrorist attacks.
Unlike other escape masks, the SCape CO/CBRN[80] can be used by persons with glasses and/or facial hair, has no securing straps, nose cup, or mouth bit and utilizes a positive-flow ventilation system that automatically activates when removed from the package. Its clear hood with large visor allows the user to perform a wide range of tasks, such as using a cell phone or other communication device, and to be more easily recognized while reducing the feelings of claustrophobia. Other features include a comfortable neck seal and blower indicator light.

FiberTect® Technology for Dry Decontamination

Source: http://news.cbrnresourcenetwork.com/newsDetail.cfm?id=66

FiberTect® is a three layer, inert, flexible, drapable, nonwoven composite substrate for absorbing and adsorbing chemical warfare agents (CWAs), toxic industrial chemicals (TICs), toxic industrial materials (TIMs), and pesticides.
FiberTect® is a three layer, inert, flexible, drapable, nonwoven composite substrate for absorbing and adsorbing chemical warfare agents (CWAs), toxic industrial chemicals (TICs), toxic industrial materials (TIMs), and pesticides. Made by First Line Technology (Chantilly, VA), it can be packaged into personal or responder decontamination kits and used in conjunction with Reactive Skin Decontamination Lotion (RSDL®) to provide more effective decontamination.



FiberTect is the next generation of activated carbon dry decon. It is effective in decontaminating personnel, weapons, and sensitive parts of equipment. FiberTect can also be used to wipe away bulk chemicals. Users include first responders and receivers, hospitals, HazMat units, military personnel, and firefighters. This patented technology (US 7,516,525) is devoid of loose particles, self-contained and packaged for easy use, storage, and transport.

FiberTect Layers, Materials, and Treatments

FiberTect features a three layer design with top and bottom fabric layers and a center layer of fibrous activated carbon that is needle punched into a composite fabric. The top and bottom layers provide structural coherence, improving mechanical strength and abrasion resistance, while the center layer acts as the active decontaminant.
The materials used to manufacture the outer layers of FiberTect may vary in order to best provide absorption and/or adsorption properties for multiple functional uses. Outer layer

materials that could be used to tailor FiberTect to specific applications include Kevlar, Nomex, rayon, wool, nylon, cotton, viscose, polypropylene, modified acrylic, and standard polyester.
Once fabricated, FiberTect may be coated with additional treatments to further enhance its effectiveness. Possible treatments include: anti-bacterial, anti-fungal, anti-microbial, anti-mildew, flame retardant, hydrophilic, hydrophobic, and silicon.

FiberTect Form Factors
FiberTect is available in several different form factors.
FiberTect Mitts allow for easy clean-up of bulk chemicals on people, weapons, and sensitive equipment and can be used over gloves.
FiberTect Wipes are versatile pieces of cut cloth that come individually wrapped and can be used in a variety of dry decon situations.
Perforated rolls of FiberTect Wipes are ideal for instances in which the amount of dry decon needed is not known.

FiberTect Development and Testing
FiberTect development and testing was sponsored by the U.S. Department of Homeland Security and managed by the Technical Support Working Group, Office of the Assistant Secretary of Defense for Special Operations/Low Intensity Conflict, U.S. Department of Defense. Product testing was conducted by Lawrence Livermore National Laboratories (LLNL).
FiberTect proved superior in all testing results against 30 comparable products for decontaminating against toxic chemical agents, TICs, and TIMs. Challenge chemicals and results include:
Sulfur Mustard: **Outperformed** all 30 other sorbents for absorptive capacities directly from skin (95% removal) and adsorptive capacities, including current military M291 sorbents.
Methylparathion (organophosphate): **Outperformed** all sorbents for absorptive and adsorptive capacities.
70% Nitric Acid, 70% Sulfuric Acid, 10 % Sodium Hypochlorite, and P-Zylene: **No material degradation**.
Water and P-Xylene: **Outperformed** other sorbents for both hydrophilic and hydrophobic absorptive capabilities.

About First Line Technology
Founded in 2003, First Line Technology, LLC is an ISO 9001:2008-certified manufacturer and supplier of innovative solutions for first responders and the military. Current sole source product lines include PhaseCore® personal cooling products, and the AmbuBus Bus Stretcher Conversion Kit.

Chemical, Biological and Nuclear Warfare

Source: http://www.chembio.biz/

As threats to global security become ever more subtle and complex, it has become increasingly vital for nations to prove themselves equally adept in their response to these threats – especially in the world of chemical and biological warfare. Defence departments therefore need to be kept regularly informed about fast-changing CBR technologies in order to adapt and respond to a shifting defence landscape.
This is why React Media, publisher of Chemical, Biological and Nuclear Warfare, has decided to increase the frequency of this indispensable publication to twice per year and introduce a quarterly eZine, delivered to subscribers only. Led by industry expert Andy Oppenheimer, CBNW will keep readers informed about the latest breakthroughs by companies and defence departments.
International partnerships are becoming increasingly vital to the prosperity and growth of all defence and aerospace companies, so we will also be reporting on how the global chemical and biological defence industries are evolving in this new business environment.
Each section of CBNW will include articles by internationally recognized

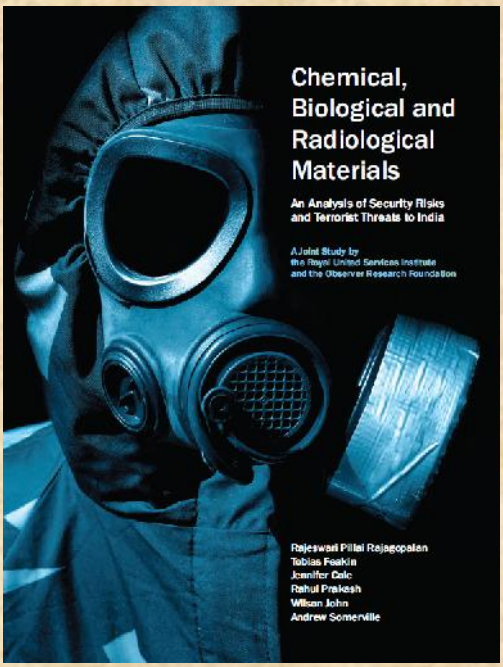
experts, including service officers, high-ranking military officials, political analysts, university professors and defence and foreign policy correspondents.
CBNW is distributed free to defence ministers and procurement officers worldwide and at all major defence trade shows. Each issue is also available online at the same time as the printed version hits desks.
In the US, CBNW is distributed to members of the Senate and House Appropriations Committees, plus their senior staff members, senior members of the Department of Defence, the relevant section of the media and defence think-tanks.
We're excited about keeping industry leaders better and more frequently informed about new developments in the field of chemical and biological warfare. We look forward to receiving comments from you on how you'd like CBNW Review to be even more relevant to your area of expertise.

CBNW Editor ***Andy Oppenheimer*** *is a UK-based leading authority on chemical, biological, radiological and nuclear weapons and counterterrorism. He is a Member of the International Association of Bomb Technicians and Investigators (IABTI) and author of 'IRA – The Bombs and the Bullets: A History of Deadly Ingenuity'.*

Report Cites Risks of WMD Material Theft in India

Source:http://www.nti.rsvp1.com/gsn/article/report-highlights-risks-cbrn-material-theft-india/?mgh=http%3A%2F%2Fwww.nti.org&mgf=1

A new expert report highlights the continued risk that ingredients suitable for use in a weapon of mass destruction could be stolen from facilities in India, DNA India reported on Tuesday.
The analysis by the British Royal United Services Institute and the Observer Research Foundation in New Delhi examines the potential for local and regional extremist organizations to obtain chemical, biological and radiological materials from insufficiently protected plants in the nation.
The report describes possible threats in India such as a radiological "dirty bomb" strike in which conventional explosives would be used to spread radioactive materials across a wide area; a frontal attack on a plant where chemical, biological, or radiological substances are used; or an effort to sneak into an industrial plant with the purpose of pilfering materials or disabling equipment.



Ex-Home Secretary G.K. Pillai said New Delhi became aware of the real danger of a WMD attack in 2009 when 14,000 metric tons of industrial chemicals were reported missing in Madhya Pradesh. Even so, the risk of a chemical, biological, or radiological terrorist attack has been of "low priority importance" to the Indian government, he said.

There have been a number of instances over the years in which radiological or nuclear materials have gone missing in India or unexpectedly turned up, according to the report. Those incidents include the 2008 confiscation by police of 9 pounds of uranium in Bihar state.

Physical protections vary greatly at sites where chemical, biological, and radiological materials are used, according to the report. Bigger installations, especially those that are guarded by the Central Industrial Security Force, are considered fairly secure. However, small and medium-size sites including some with nongovernmental security guards are considered more vulnerable. The report's authors recommended development of more uniform standards for site security.

NOTE: You can read the full report in the Newsletter's website – "CBRNE-CT Papers" section

Syria Moving Parts of Chemical Arsenal

Source: http://www.nytimes.com/2012/07/14/world/middleeast/syria-moves-some-chemical-weapons-us-says.html?_r=1

Syria has started moving (July 13, 2012) some parts of its huge stockpile of chemical weapons out of storage, American officials said Friday, but it was uncertain whether the transfer was a precaution as security conditions across the country rapidly deteriorated, or something more sinister.

Some analysts and lawmakers said Syria's president, Bashar al-Assad, might use chemical weapons in a last-ditch attack against an increasingly potent rebel force, possibly as part of a campaign of ethnic cleansing. Other officials said Syrian security forces might be moving parts of the arsenal to prevent it from falling into rebel hands.

UK MoD DCBRNC takes delivery of latest CBRN training simulation systems

Source: http://www.argonelectronics.com/news/dcbrnc-takes-delivery-latest-cbrn-training-simulation-systems/

The UK MoD Defence Chemical, Biological, Radiological and Nuclear Centre (DCBRNC) at Winterbourne Gunner has just taken delivery of the latest CBRN training simulation systems. Supplied by UK manufacturer Argon Electronics, the new systems include both instrumentation and simulation software.

CBRN Programme Team Leader, Phil Strudley, says, "The acquisition of this latest equipment is an important step for the CBRN training centre, providing our trainers with a range of sophisticated tools that allow us to simulate a wide range of threat scenarios".

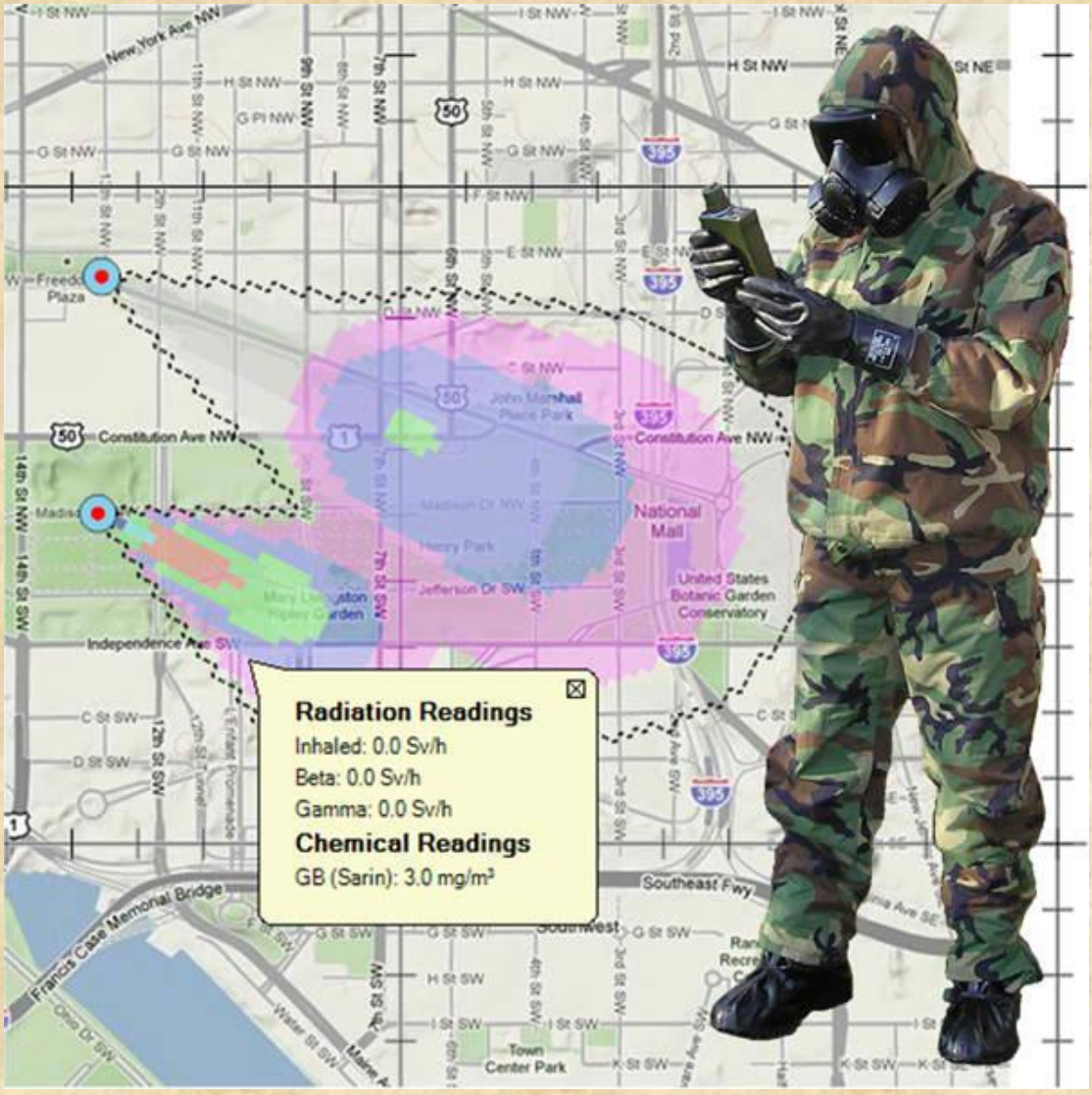
The CBRN team worked closely with Argon to ensure that the contract was fulfilled on time and within budget. "The equipment was specified, ordered and delivered within sixteen weeks", adds Phil Strudley. "This shows what can be achieved with a good working relationship between our DE&S team and a specialised UK manufacturer".

The Argon equipment includes the company's latest CAMSIM and LCAD hand held instruments, the MCAD simulator and the advanced PlumeSIM wide area CBRN field exercise and desktop training system. This enables instructors to manage multiple remote simulator instruments under a fully configurable virtual plume, in real time, over user selected mapping.

Phil Strudley concludes, "Tools such as PlumeSIM will allow us to train

personnel faster and more efficiently, giving them the knowledge and experience that will help them perform an even better job once they return to operational duties. These advanced simulators will also help reduce the Integrated Logistics Support costs associated with our detectors".

Steven Pike, Managing Director of Argon Electronics, says, "The need for effective training and simulation is becoming increasingly important. As a result, the DCBRNC is playing a vital role in providing world class support to the UK's armed forces, helping to protect both military and civilian personnel. We're delighted that the Centre chose to specify Argon simulation instrumentation and software for this essential function, and have worked closely with the DE&S team at Abbey Wood to ensure that our equipment was delivered to a tight time-scale."

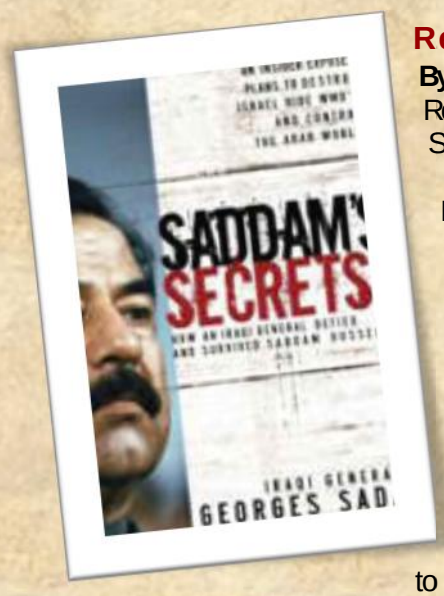


CBRN PlumeSIM

Wide area CBRN / HazMat field exercise and table training system. Everyone we demonstrate this system to is amazed at the impact it can have on exercises. We have a free evaluation copy of the PlumeSIM software that you can try, simply make an enquiry.

- Portable and very quick to set up and use.
- Planning mode enables you to prepare exercises on your PC / Laptop without system hardware.
- Simple, flexible scenario creation based upon single or multiple CWA, HazMat & radiological releases.
- User defined environmental conditions.

- Perfect for counter terrorism exercisces, nuclear emergency exercises.
- Simulation of plumes, deposition and hot spots.
- Table top classroom mode for pre-exercise familiarisation.
- Very modular system enabling you to expand as and when budgets permit.
- Real time trainee movement and instrument usage reporting, with recording for After Action Review.
- Supports M4 JCAD-SIM, CAMSIM, AP2/4C-SIM, RDS200-SIM, EPD-Mk2-SIM, AN/PDR-77-/VDR-2 / RDS100-SIM, SAM935 Spectrometer Simulator and more.
- Radiological or chemical / HazMat only version available with future upgrade option.



Revealing "Saddam's Secrets"

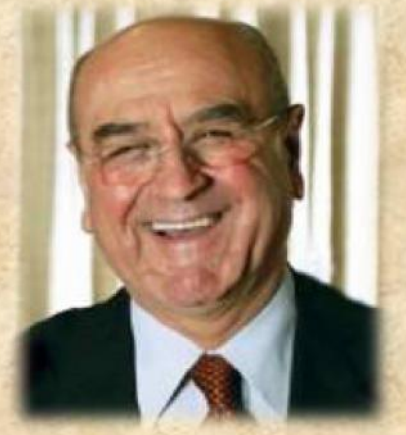
By Georges Sada (with Jim Nelson), Integrity Publishing
Reviewed by Peter Ryan
Source: http://middleeastwindow.com/node/1593

It would be fair to say that every book published about Iraq since 2003 is judged by one central criteria: is the author attempting to criticize or justify the U.S.-led invasion? A reader, generally, either believes that the war was an absolute mistake or an absolute necessity. An occupation or a liberation. An assault on human rights or a humane intervention. Either way, they mostly want to see their views confirmed rather than challenged. And both sides are generating millions for the publishing industry. Even epic histories like Robert Fisk's *Great War for Civilization* (which is primarily about events prior to the second Gulf war) rush to make their feelings on the invasion known-pro or con-in the first chapter. The publishers know full well that this is the "acid test" which will determine whether or not a casual browser at *Borders* decides that yet another book about the Middle East is worth its 20 to 30 dollar cover price.

Georges Sada's new book *Saddam's Secrets: How an Iraqi General Defied and Survived Saddam Hussein* follows this pattern perfectly. In the first chapter, he announces his position: "The decision to remove Saddam was the right thing to do. It was done at the right time and, I believe, in the right way." At this sentence, half the audience is hooked. The other half slams the cover shut.

But, speaking as someone who went to the streets to protest the U.S.-led invasion, I urge any reader, regardless of their political background, not to abandon Georges' book so hastily. As the memoir of a former Iraqi general who dared to tell the truth to Saddam Hussein, *Saddam's Secrets* offers an inspiring account of a man who was able to "speak truth to power" and live to tell about it.

Saddam's Secrets is being marketed as the "book that proves Saddam secretly moved his WMDs to Syria" before the war. This is not a new accusation. It is an idea that has been suggested by U.S. weapons inspectors and Israeli intelligence sources. Sada's book offers no overwhelming new proof of the Iraq-Syria WMD connection (he was not a firsthand witness to the transport of weapons but he is friends with an Iraqi who claims to have participated in the transfer). So many might wonder: why all the hype?



But there is a better reason to read this book. Georges spent his life in the Iraqi military. But it becomes increasingly clear, chapter after chapter, that Georges is, and always has been, a man in pursuit of peace. The fact that his path-of-peace led him through the Iraqi air force, Saddam's inner circle and, most recently, as spokesperson for Iraqi Prime Minister Iyad Illaywi, only makes his story that much more remarkable.

Chapters:

Part V: WMDs-the Evidence

Most Americans believe the Iraqi WMD debate is over. This is not surprising considering that David Kay, Bush's top weapons expert in Iraq, said in January of 2004 that "My summary view, based on what I've seen, is we're very unlikely to find large stockpiles of weapons- I don't think they exist." In 2005, Charles Duelfer, the chief U.S. investigator officially "gave up" the search for WMD in Iraq. Former US secretary of state Colin Powell referred to his presentation to the United Nations, offering "proof" of Iraq's WMD program, as a "blot" on his record.

Though both Republicans and Democrats widely believed that Saddam possessed WMD before the war, the consensus has now changed. Now both sides largely believe that Saddam had no weapons of mass destruction at the time of the invasion-or at least, he had no substantial weapons program.

But Charles Duelfer, among others, never ruled out the possibility that Iraq's WMDs had been moved to Syria. "[We are] unable to rule out the possibility that WMD was evacuated to Syria before the war," he told reporters, remarking that they had uncovered "sufficiently credible" evidence that this may have occurred. According to a report from the Telegraph David Kay told reporters "We are not talking about a large stockpile of weapons... But we know from some of the interrogations of former Iraqi officials that a lot of material went to Syria before the war, including some components of Saddam's WMD programme. Precisely what went to Syria, and what has happened to it, is a major issue that needs to be resolved."

Saddam's Secrets will largely be marketed as "the book that proves Saddam hid his WMDs in Syria." This aspect of Georges' book has already earned him an interview on the Fox News' show, *Hannity and Colmes*. Unfortunately, the Syria-Iraq WMD connection is probably the weakest link in Georges' narrative.

On June 4th, 2002 a dam in Zeyzoun, Syria collapsed. The flood waters covered an area of nearly forty square miles. The Syrian government reached out to its neighbors, Jordan and Iraq, for assistance. Georges believes that Saddam used this as an opportunity to transfer his remaining WMDs across the Syrian border. Though Georges did not personally witness this transaction, he knows someone who did. Which is the basis of his evidence. "My knowledge of these transfers," he states, "[comes] from a man who was actually involved in the transfers-a civilian pilot who witnessed the commercial 747 go back and forth between Syria and Iraq."

Don't get me wrong-Georges may be right. U.S. intelligence has been unable to rule out the possibility that Iraq transferred WMDs to Syria and David Kay has suggested that a small amount of WMD components were shipped across the border (but not the "large stockpiles" Saddam was believed to have possessed). Israeli intelligence has recently made similar allegations. But most readers won't find the fact that Georges knows a guy who claims to have witnessed the transfers particularly compelling. Worthy of investigation, yes. But not, to quote George Tenet, a "slam dunk" case.

Georges is largely dismissive of those who question the presence of WMDs in Iraq, stating, "I'm convinced it was only politics that made some people change their minds after the fact." This is clearly an exaggeration. Every effort was made to track down the weapons of mass destruction, but our weapons inspectors came home empty-handed. Politicians from both parties have pointed to this as a sign of "intelligence failures" on the part of the CIA. Even if Saddam did still have some elements of a WMD program before the invasion (which seems plausible), the politicians who dragged America into war made much more sweeping claims. We were told not only that Saddam had large stockpiles of weapons but that, with these weapons, he posed an imminent threat to the United States.

A World War 1 soldier being treated for mustard gas. Photo: Jon Spence

Mustard gas

Source: http://www.flickr.com/photos/jonspence/5174852937/

After suffering "shell-shock" in 1916, my Grandfather returned to France in June 1918. It was to be a short-lived return to the Front. On 8 August 1918 he was exposed to mustard gas at close range whilst waiting in a shell hole to advance. Although he was wearing a mask, gas entered the mask just above the eye. The stretcher-bearers noticed this and advised him to go back in the ambulance to the coast. Although, at first, he felt no pain and he insisted he was fit to carry on, the medics persevered and persuaded him to take the ambulance away from the immediate danger. He remained in the ambulance for twenty-four hours unattended. On 9 August he was admitted to 1st Australian General Hospital in Rouen, then on 20 August was transferred to Trent Bridge Hospital in Nottingham, where this photograph was taken.

The medical report for 20 August reads -
"Sgt S ….. on August 8th 1918 was exposed to the Enemy's "Mustard Gas" in France at close range. His clothes were saturated with gas, chiefly on the right side. As he was not able to get attention and have his clothes removed, there was extensive "burning" of the skin, and in parts this was severe. Almost the whole surface of the body was affected; the more seriously injured parts were both shoulders and axillae, back of the neck, right side of the chest, back and buttocks, right leg to below the knee and genitals.
When admitted to the . . . . . hospital on August 20th, these parts were all septic and discharging pus. Flavine had been used, and was continued for a few days, in an attempt to lessen the discharge of pus; but the dressing was so extremely painful to the patient and the benefit only partial, that it was given up, and BURNOL (No. 7 paraffin) treatment begun".

Resolving mystery odor alarms

Source: http://www.homelandsecuritynewswire.com/dr20120724-resolving-mystery-odor-alarms

In May, more than 1,000 people were evacuated from Terminal 2 at the Fort Lauderdale airport. The evacuation was caused after a strong odor was detected near the security checkpoint. Three Transportation Security Administration (TSA) employees and two travelers were overcome by the fumes and taken to a nearby hospital.

Part of the terminal remained evacuated for approximately two hours as local fire departments and DHS responded to the scene. People evacuated from the area stated that the odor had a gas-like smell, but by the time hazardous materials teams were able to sample the air, nothing out of the ordinary was found. The incident caused a number of departing flights to be delayed.

Cinnaminson, New Jersey-based EMSL Analytical says that mystery odors issues, like what occurred at the Fort Lauderdale airport, happen on a much more frequent basis than many people believe. They can be caused by a wide range of sources that can occur both within a building or infiltrate a structure from an outside source.

As in the Florida case, if air samples cannot be taken quickly enough, the mystery odor may dissipate to such a low level as to be inconclusive or undetectable. One way to overcome this in places that have recurring mystery odors is to have sampling equipment on hand and staff trained quickly to take an air sample.

Joe Frasca, senior vice president for marketing at EMSL Analytical says, "Mystery odors are at times easily identified. More often than not it can be a real challenge to pinpoint and frequently requires air sampling to determine its source and to be able to rectify the problem. Air sampling will identify what is in the air as some odors may not be hazardous to people's health, but others can cause everything from short to long term health concerns."

► Watch an EMSL-sponsored an educational video about mystery odors.

HazMatID Elite

Source: http://www.smithsdetection.com/HazMatIDElite.php

Feature highlights

- Optimized for easy operation in personal protective gear
- MIL-STD-810G certified for use in harsh conditions and high-temperature operation
- Integrated pressure device for analysis of solid materials, plus direct touch-to-sample capability
- Automated analysis of mixtures with priority alerting for explosives, CWAs, TICs and narcotics
- Long-range, embedded RF wireless transmission

HazMatID Elite is a next-generation handheld unknown solid and liquid chemical identifier that combines high performance with simplicity and performs an analysis in 1 minute or less. Using Fourier Transform Infrared (FTIR) spectroscopy, HazMatID Elite is capable of identifying chemical warfare agents, explosives, toxic industrial chemicals, narcotics, suspicious powders,among other dangerous chemical classes.

Analysis is performed by placing a small amount of unknown substance onto the diamond atr sensor and applying pressure with an integrated press for solid samples. The sample interface also includes an integrated well for the containment of liquid samples. A second, touch-to-sample, diamond ATR interface is available for rapid analysis of pooled liquids and surface films, and enables robotics applications.

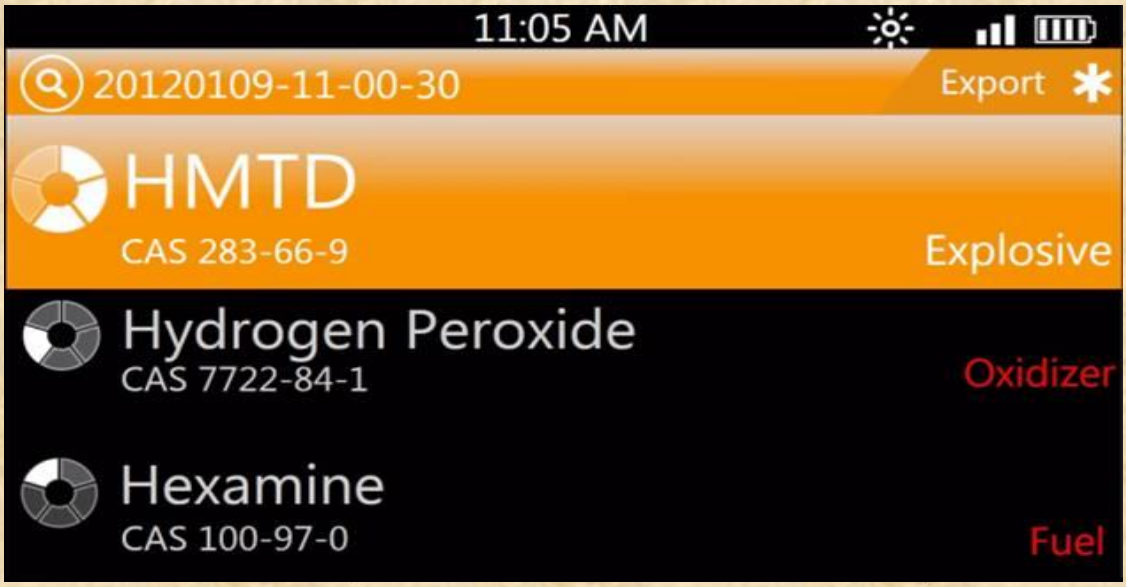
MIL-STD-810G certified for operation in harsh conditions, HazMatID Elite has the widest thermal and solar operational range of any portable or handheld chemicalidentifier. Its revolutionary optical engine also provides high vibration immunity and resistance to mechanical disturbances seen during vehicle or human transport.

The HazMatID Elite user interface contains a large display screen with a high viewing angle and visibility in direct sunlight conditions, large keypad controls for effective operation in protective gear, and an intuitive software workflow design. On-screen instructional graphics guide users through the essential operations of the device to maximize ease-of-use and reduce the training burden for security personnel.

Long-range, embedded rf wireless transmission is also included for rapid communication of data out of the hotzone to aid in information integration, decision making, and connection to ReachBackID™ 24/7/365 support services. PC-based command software provides advanced data handling capabilities for specialized users.

Specifications	
Technology	Fourier-Transform Infrared Spectroscopy
Size	26.9 x 14.3 x 7.9 cm (10 5/8 x 5 5/8 x 3 1/8 in)
Weight	2.29 kg (5.05 lbs.)
Sample Interface	Diamond ATR sensor with integrated solid press and liquids well Second, touch-to-sample diamond ATR sensor for direct sampling
Decon	IP-67 rated and sealed for decontamination by immersion
Operational Ranges	Operational in extreme weather and temperatures ranging from -20° C to 50° C (-4° F to 122° F). Humidity ranging from 0-100%.
User Interface	4.3 inches internally-bonded LCD color display for high visibility in direct sunlight conditions Individually-lit keypad and instructional graphics guide users through the operation of the device

Power	Rechargeable lithium-ion battery for 4 hours of operation Disposable 123A battery compatible
Wireless	Embedded RF modem for 1 km line-of-sight data transfer and command control FIPS 140-2 compliant encryption GPS included
External Data Storage	Full USB support
Libraries	10,000 spectra of chemical warfare agents, explosives, narcotics, TICs, pesticides, white powder, and other chemical classes. User-defined libraries transferable from the HazMatID.
Available Options	
Command PC Software	Advanced software package for data management and spectral reprocessing against upgraded databases (up to 35,000 spectra)
Repeater	RF repeater for extending the wireless data transfer range
Colors	Olive drab or yellow



The Specter of Syrian Chemical Weapons

By Scott Stewart

Source:http://www.stratfor.com/weekly/specter-syrian-chemical-weapons?utm_source=freelist-f&utm_medium= email&utm_campaign=20120802&utm_term=sweekly&utm_content=readmore&elq=8f7fb73e59ff4dbbb29e9a133767fe5b

The unraveling of the al Assad regime in Syria will produce many geopolitical consequences. One potential consequence has garnered a great deal of media attention in recent days: the possibility of the regime losing control of its chemical weapons stockpile. In an interview aired July 30 on CNN, U.S. Secretary of Defense Leon Panetta said it would be a "disaster to have those chemical weapons fall into the wrong hands -- hands of Hezbollah or other extremists in that area." When he mentioned other extremists, Panetta was referring to local and transnational jihadists, such as members of the group Jabhat al-Nusra, which has been fighting with other opposition forces against the Syrian regime. He was also referring to the many Palestinian militant groups such as Hamas and the Popular Front for the Liberation of Palestine-General Command, which have long had a presence in Syria and until

recently have been supported by the al Assad regime.

The fear is that the jihadists will obtain chemical weapons to use in terrorist attacks against the West. Israel is also concerned that Palestinian groups could use them in terrorist attacks inside Israel or that Hezbollah could use such weapons against the Israelis in a conventional military battle. However, while the security of these weapons is a legitimate concern, it is important to recognize that there are a number of technical and practical considerations that will limit the impact of these weapons even if a militant group were able to obtain them.

Militant Use of Chemical Weapons

Militant groups have long had a fascination with chemical weapons. One of the largest non-state chemical and biological weapons programs in history belonged to the Aum Shinrikyo organization in Japan. The group had large production facilities located in an industrial park that it used to produce thousands of gallons of ineffective biological agents. After the failure of its biological program, it shifted its focus to chemical weapons production and conducted a number of attacks using chemical agents such as hydrogen cyanide gas, phosgene and VX and sarin nerve agents.

Jihadists have also demonstrated an interest in chemical weapons. The investigation of the 1993 World Trade Center bombing found that bombmaker Abdul Basit (aka Ramzi Yousef) had added sodium cyanide to the large vehicle-borne improvised explosive device detonated in the Trade Center's basement parking garage. The cyanide was either consumed or so widely scattered by the huge blast that its effects were not noticed at the time of the attack. The presence of the cyanide was only uncovered after investigators found a list of the chemicals ordered by conspirator Nidal Ayyad and debriefed Basit after his arrest.

In his testimony at his 2001 trial for the Millennium Bomb plot, Ahmed Ressam described training he had received at al Qaeda's Deronta facility in Afghanistan for building a hydrogen cyanide device. Ressam said members of the group had practiced their skills, using the gas to kill a dog that was confined in a small box.

Videos found by U.S. troops after the invasion of Afghanistan supported Ressam's testimony - as did confiscated al Qaeda training manuals that contained recipes for biological toxins and chemical agents, including hydrogen cyanide gas. The documents recovered in Afghanistan prompted the CIA to publish a report on al Qaeda's chemical and biological weapons program that created a lot of chatter in late 2004.

There have been other examples as well. In February 2002, Italian authorities arrested several Moroccan men who were found with about 4 kilograms (9 pounds) of potassium ferrocyanide and allegedly were planning to attack the U.S. Embassy in Rome.

In June 2006, Time magazine broke the story of an alleged al Qaeda plot to attack subways in the United States using improvised devices designed to generate hydrogen cyanide gas. The plot was reportedly aborted because the al Qaeda leadership feared it would be ineffective.

In 2007, jihadist militants deployed a series of large vehicle-borne improvised explosive devices augmented with chlorine gas against targets in Iraq. However, the explosives in these attacks inflicted far more casualties than the gas. This caused the militants to deem the addition of chlorine to the devices as not worth the effort, and the Iraqi jihadists abandoned their chemical warfare experiment in favor of employing vehicle-borne improvised explosive devices without a chemical kicker.

There have also been several credible reports in Iraq of militants using chemical artillery rounds in improvised explosive device attacks against coalition forces, but those attacks also appear to have been largely ineffective.

Difficult to Employ

Using chemical munitions on the battlefield presents a number of challenges. The first of these is sufficiently concentrating the chemical agent to affect the targeted troops. In order to achieve heavy concentrations of the agent, chemical weapon attacks were usually delivered by a massive artillery bombardment using chemical weapons shells. Soviet military chemical weapons doctrine relied heavily on weapons systems such as batteries of BM-21 multiple rocket launchers, which can be used to deliver a massive amount of ordnance to a targeted area. Additionally, it is very difficult to control the gas cloud created by the massive barrage. There were instances in World War I

and in the Iran-Iraq War in which troops were affected by chemical weapon clouds that had been created by their own artillery but had blown back upon them.

Delivering a lethal dose is also a problem in employing chemical weapons in terrorist attacks, as seen by the attacks outlined above. For example, in the March 20, 1995, attack on the Tokyo subway system, Aum Shinrikyo members punctured 11 plastic bags filled with sarin on five different subway trains. Despite the typically very heavy crowds on the trains and in the Tokyo subway stations that morning, the attacks resulted in only 12 deaths -- although thousands of other commuters were sickened by the attack, some severely.

The Syrian regime is thought to have mustard gas as well as tabun, sarin and VX nerve agents in its chemical weapons inventory. Mustard gas, a blistering agent, is the least dangerous of these compounds. In World War I, less than 5 percent of the troops who were exposed to mustard gas died. Tabun and sarin tend to be deployed in a volatile liquid form that evaporates to form a gas. Once in gas form, these agents tend to dissipate somewhat quickly. VX, on the other hand, a viscous nerve agent, was developed to persist in an area after it is delivered in order to prevent an enemy force from massing in or passing through that area. While VX is more persistent, it is more difficult to cause a mass casualty attack with it since droplets of the liquid agent must come into contact with the victim, unlike other agents that evaporate to form a large cloud.

But there are other difficulties besides delivering a lethal dose. Because of improvements in security measures and intelligence programs since 9/11, it has proved very difficult for jihadists to conduct attacks in the West, even when their attack plans have included using locally manufactured explosives. There have been numerous cases in which plots have either failed, like the May 2010 Times Square attack involving Faisal Shahzad, or been detected and thwarted, like the September 2009 plot to attack the New York subway system involving Najibullah Zazi.

Because of the improved security, it would be very difficult for jihadists to smuggle chemical agents into the United States or Europe, even if they were able to obtain them. Indeed, as mentioned above, the chemical artillery rounds used in improvised explosive devices in Iraq were employed in that country, not smuggled out of the region.

This means that jihadists not only face the tactical problem of effectively employing the agent in an attack but also the logistical problem of transporting it to the West. This difficulty of transport will increase further as awareness of the threat increases. One way around the logistical problem would be to use the agent against a soft target in the region. Such targets could include hotels, tourist sites, airport arrival lounges or even Western airliners departing from airports with less than optimal security.

Another option for jihadists or Palestinian militants could be to attempt to smuggle the chemical agent into Israel for use in an attack. However, in recent years, increased security measures following past suicide bombing attacks in Israel have caused problems for militant groups smuggling weapons into Israel. The same problems would apply to chemical agents -- especially since border security has already been stepped up again due to the increased flow of weapons from Libya to Gaza.

Militants could attempt to solve this logistical challenge by launching a warhead or a barrage of warheads into Israel using rockets, but such militant rocket fire tends to be very inaccurate and, like conventional rocket warheads, these chemical warheads would be unlikely to hit any target of value. Even if a rocket landed in a populated area, it would be unlikely to produce many casualties due to the problem of creating a lethal concentration of the agent -- although it would certainly cause a mass panic.

The use of chemical weapons would also undoubtedly spur Israel to retaliate heavily in order to deter additional attacks. This threat of massive retaliation has kept Syria from using chemical weapons against Israel or allowing its militant proxies to use them.

Hezbollah may be the militant organization in the region that could most effectively utilize Syrian chemical munitions. The group possesses a large inventory of artillery rockets, which could be used to deliver the type of barrage attack required for a successful chemical weapon attack. Rumors have been swirling around the region for many months that Libyan rebels sold some chemical munitions to Hezbollah and Hamas.

While we have seen confirmed reports that man-portable air-defense systems and other Libyan weapons

are being smuggled into Sinai en route to Gaza, there has been no confirmation that chemical rounds are being smuggled out of Libya.

Still, even if Hezbollah were to receive a stockpile of chemical munitions from Syria or Libya, it has a great deal to lose by employing such munitions. First, it would have to face the aforementioned massive retaliation from Israel. While Israel was somewhat constrained in its attacks on Hezbollah's leadership and infrastructure in the August 2006 war, it is unlikely to be nearly as constrained in responding to a chemical weapon attack on its armed forces or a population center. Because of the way chemical weapons are viewed, the Israelis would be seen internationally as having just cause for massive retaliation. Second, Hezbollah would face severe international repercussions over any such attack. As an organization, Hezbollah has been working for many years to establish itself as a legitimate political party in Lebanon and avoid being labeled as a terrorist organization in Europe and elsewhere. A chemical weapon attack would bring heavy international condemnation and would not be in the group's best interest at this time.

So, while securing Syrian chemical munitions is an imperative, there are tactical and practical constraints that will prevent militants from creating the type of nightmare scenario discussed in the media, even if some chemical weapons fell into the wrong hands

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New GAO Report on Chemical Facility Security

Source: http://www.maritime-executive.com/pressrelease/new-gao-report-on-chemical-facility-security

For those whose maritime security portfolios include the transport and storage of hazardous chemicals in port areas, GAO recently released its report on the CFATS program entitled, Critical Infrastructure Protection: DHS Is Taking Action to Better Manage Its Chemical Security Program, but It Is Too Early to Assess Results. In a terrorist attack, including one in a port, hazardous chemicals stored at a wide variety of facilities could be used to kill or injure large numbers of people. For example, terrorist could release chemicals held at these facilities to harm the surrounding populations, or steal the chemicals and use them to make chemical weapons, or use them to build an improvised explosive device. Any of these scenarios in a port could wreak havoc to the maritime transportation system. To reduce this threat, Congress passed legislation to create the Chemical Facility Anti-Terrorism Standards (CFATS) program in 2006.

The GAO report was released at a July 26 hearing by the House of Representatives, Committee on Appropriations, Subcommittee on Homeland Security. Due to late changes in the schedule of the House of Representatives, the hearing was abbreviated and did not include full oral statements or questions and answers. Nevertheless, the GAO report provides the first results of its review of the CFATS program run by the Department of Homeland Security's National Protection and Programs Directorate (NPPD). Some large chemical facilities in ports fall under both the Maritime Transportation Security Act or MTSA (for their waterside operations) and CFATS (for their operations back from the water). In December 2011, an NPPD internal memo was leaked to the media, revealing risks to the program. The GAO review focused primarily on the internal memorandum (i.e., how it was developed and what challenges it found) as well as the related action plan (i.e., what corrective actions were underway and what was their status). Key findings are summarized below.

The Internal Memo. The internal memo discussed numerous challenges that put the CFATS program at risk. Five-and-a-half years after CFATS became law, and after almost half a billion dollars in spending, the CFATS program office had not approved any site security plans or carried out any compliance inspections at regulated facilities. This is in contrast to the U.S. Coast Guard, which had a process to approve security plans and inspect port facilities in place within two years after MTSA became law. The CFATS memo attributed the program's problems to a lack of planning, poor internal controls, and a workforce whose skills were inadequate to fulfill the program's mission. The internal memo also cited the slow pace of the site security

plan approval process, the lack of an established inspection process, an inability to perform compliance inspections, and the lack of a records management system to document activities and decisions. The memo also cited human capital management problems and weak administrative controls over vehicles, purchase cards and travel.

The Action Plan. GAO found that the agency had a detailed plan, with 94 items and corrective actions linked back to the internal memo. The action plan also identified specific officials accountable to resolve each item, and had projected milestones for tracking progress. This approach is consistent with GAO and other criteria for successfully managing programs and projects. Based on GAO's detailed review of the June 2012 version of the action plan, the agency was making progress and had completed 40 percent of the corrective actions. The area of the most progress was human capital issues (with 57% of corrective actions closed), while the area of the least progress was the core mission issues (with 27% closed). Many of the core mission issues will require long term efforts to close. For example, it could take 18 months to complete the first compliance inspections, and several years to complete such inspections for all of the 4,500 chemical facilities that fall under CFATS regulation. In addition, GAO's analysis of the evolving action plan and milestones found that almost half of the action item completion dates have slipped, with several items slipping by more than 90 days. The GAO report has both a graphic (figure 4) and an appendix (appendix III) which provide more details on agency progress in completing the various action items. But overall, GAO found that it was too early to determine if the corrective actions to date had put CFATS back on the right track. GAO recommended that NPPD put performance measures in place to link the action plan progress to the longer-term mission of assessing risks and inspecting facilities.

GAO will continue to review the CFATS program for the Appropriations Committee and other committees of the House and Senate. This new review will shift focus away from the internal memo and action plan toward NPPD efforts to advance the core CFATS mission, including efforts to determine chemical facility risk, manage the process used to assess vulnerabilities, review security plans, and perform inspections; and work with owners and operators of high-risk chemical facilities, some of which operate in the maritime environment. GAO expects to report on the results of this review in early 2013.

NOTE: To obtain a copy, visit GAO's website at www.gao.gov/cgi-bin/getrpt?GAO-12-515T , and next to the word "Highlights," click on "View Report (pdf)."

New CBRN filter claims ten year shelf life

Source: http://www.globalresponsepublishing.com/story.php?id=1347

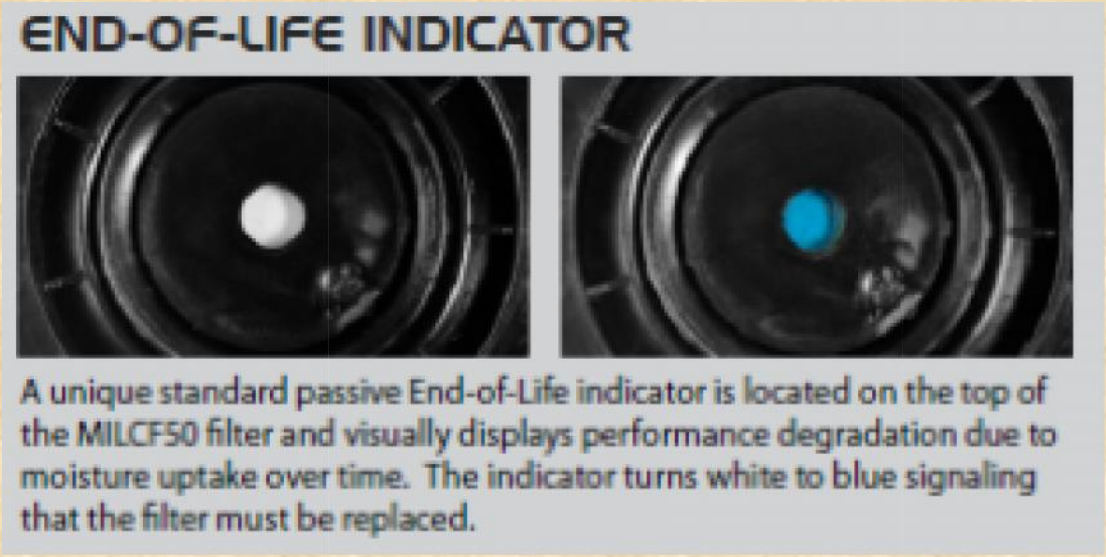
Avon Protection has launched a new conformal military CBRN filter that is designed to provide an accurate measure of usable life span with a unique end of service life indicator.

Avon has based the MILCF50's design and end of life technology on its exclusive conformal filter range for the US army's M50 and M53 mask series. It utilises Avon's conformal filter design and is designed to fit the new generation of 50 series masks.

By adding extra robust packaging and incorporating an end of life indicator that instantly gauges any moisture ingress, Avon claims that shelf life can be guaranteed for 10 years.

Avon's MILCF50 filter offers protection against chemical, biological

and radiological warfare agents in accordance with NATO requirements. It utilises Avon's advanced filter design and manufacturing technology, so offers defence against certain toxic industrial chemicals such as chlorine, hydrogen sulphide, sulphur dioxide and organic vapours with a boiling point of above 65 Celsius. The filter is also effective against dust, fumes, bacteria and virus.



Threat	Challenge Concentration (PPM)	Protection Time (Minutes)
Nerve Agent		>180
Hydrogen Cyanide	940	>70
Cyanogen Chloride	300	>70
Ammonia	2500	>20
Cyclohexane	2600	>30
Formaldehyde	500	>70
Hydrogen Sulfide	1000	>100
Nitrogen Dioxide	200	>20
Phosgene	250	>100
Phosphine	300	>25
Sulfur Dioxide	1500	>20

www.avon-protection.com
t: +44 (0) 1225 896705 e: customerservice@avon-protection.com

AVON PROTECTION

More info available at:
http://www.avon-protection.com/Downloads/2011_us/GR00773-01%20Filter%20Data%20Sheet%20MILCF50.pdf

HZS new generation of CWA stimulant

Source: http://www.hotzonesolutions.com

Austrian NBC defense has conducted extensive testing with our simulant and were very satisfied with the results concluding that HZS simulants fit perfectly their training requirement (detection and decontamination).
Dutch NBC defense used them during their last training with excellent results; they already initiate the procurement process.
Numerous letters of interest for that new product has been received already. We are now in discussion with the Dutch ministry of defense concerning the export license requirement and patent issues. We hope to be able to start the selling in the coming two months.

GB* **Physical properties**

Clear colourless mobile fluid that spreads readily on all surfaces. Has an acceptable miscibility with water. CALID3 reacts positively as Yellow for G agents. AP2C, AP4C, CAM, RAID and RAID-M Field detectors behave correctly.
Persistency is close to GB, expressed in terms of hours. The volatility is high at of 20°C, creating a large air detection area. At higher temperatures, the detection levels may create a realistic scenarios.

It is recommended to handle this simulant wearing light vinyl or nitrile gloves and protective laboratory glasses.
If any contact with the skin occurs, wiping with absorbent paper and subsequent washing with water and soap is sufficient for avoiding adverse effects.

HD* **Physical properties**

Clear yellow coloured oily fluid that spreads readily or produces droplets on surfaces. Not soluble in water. Heavier than water. CALID3 reacts positively as Red for HD agent. AP2C, AP4C, CAM, RAID and RAID-M Field detectors behave correctly.
Persistency is consistent with HD, expressed in terms of days or weeks related to the quantity used .The volatility is low at 20°C temperature. Droplet under water covers with a grey film in some hours. Nevertheless, the inner liquid is still detected as HD using field detectors, including CALID3.

It is recommended to handle this simulant wearing light vinyl or nitrile gloves and protective laboratory glasses as any chemical should be handled.
If any contact with the skin occurs, wiping with absorbent paper and subsequent washing with water and soap is sufficient for avoiding adverse effects.

V* agents **Physical properties**

Clear yellow to brown coloured viscous oil spreading readily on surfaces. Not soluble in water. CALID3 reacts positively as dark Green for V agent.
AP2C, AP4C, CAM, RAID and RAID-M Field detectors behave correctly.
The persistency is extremely high and the decontamination is not straightforward. The volatility is very low at 20°C temperature.
This formula contains only a few per cent of hazardous materials and the physical properties are very realistic.

It is recommended to handle this simulant wearing light vinyl or nitrile gloves and protective laboratory glasses.
If any contact with the skin occurs, wiping with absorbent paper and subsequent washing with water and soap is sufficient for avoiding adverse effects.

MSDS AVAILABLE UPON REQUESTED

New Dutch patent application - Simulant for live agent - in the name of Hotzone Solutions Benelux B.V ref: W/2LH47/ "

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International CBRNE Master Course

Source: http://www.hotzonesolutions.com

On June 8th 2012 a Workshop was held at the Tor Vergata University of Rome to present the International CBRNE Master Course, which will be launched in academic year 2013-2014.
The representatives of all Institutions involved in CBRNE response, high ranking officials of the Italian Armed Forces, outstanding exponents of the Industry, and the highest authorities of the University – including the Rector – participated in the workshops. Representatives of NATO, the EDA, and other European University also attended the event and expressed their interest in the initiative.
Mr. Dieter Rothbacher – HZS Group co-owner and co-founder – represented the Company and chaired a Round Table with the Italian authorities and experts. It was an extremely successful Workshop in terms of turnout and media coverage, please follow the link to watch the video (in Italian). *http://www.uniroma.tv/video.asp?id=21340*
At the end of the Conference, **Hotzone Solutions Group** signed an agreement with the **University of Tor Vergata** (Rome, Italy), the **Seibersdorf Laboratories** (Austria), **VOP CZ** (Czech Republic), and the **Chornobyl Centre** (Ukraine) for the organisation and carrying out of the Master Course.

The International CBRN Master Course will take place at the University's premises, as well as in outstanding international training facilities. Master Course participants shall attend most classes and lectures in Rome, at Tor Vergata, which is the second oldest public university in Rome and among the largest in Italy. With its 43,000 students, its 1,538 faculty members, its 6 schools (including the schools of Economics, Law, Engineering, Arts and Humanities, Medicine, Science), its 157 post-graduate Master Courses and 78 Ph.D Programmes, Tor Vergata is one of the most prestigious public universities in Italy, and is included in the list of the 150 best universities in Europe.
It will be an absolutely unique and CBRNE Master Course, as it will combine traditional classes and lectures with highly specialised and realistic training, including Live Agent Training (LAT) and the use of open and closed radioactive sources. The practical training modules will be conducted at three specialised International Partner Facilities – namely Seibersdorf Laboratories ,VOP CZ , and the Chornobyl Centre – and will be coordinated by Hotzone Solutions experts.

International CBRNE Institute

Source: http://www.hotzonesolutions.com

Hotzone Solutions has established the International CBRNe Institute (ICI) in partnership with the municipality of the town of Les Bons Villiers, Belgium.
The CBRNe expertise and knowledge of the ICI are aimed at assisting national as well as international experts, relevant international organizations and their staff members, and interested governments in adapting their doctrine through active risk management, reshaping or adapting CBRNe forces to become more flexible, responsive, multidisciplinary and multiagency.
The mission of the ICI is to provide basic and advanced awareness training courses on CBRNe matters as follows:

- Preparedness of students for prior toxic entries in live agent training; No live agent training will be conducted at the ICI;

- Specialized courses and training for specialists at all levels and from various areas of expertise (police, fire brigade, emergency medical services, military personnel,);
- Training on Crisis-management operations for first responders;
- Training on toxic industrial material (TIM) and environmentally enhanced preparedness.

The ICI experts will deliver specific courses and training for specialists, such as Sampling and Identification of Biological, Chemical, Radiological Agents (SIBCRA), Automated Data Processing (ADP), Warning and

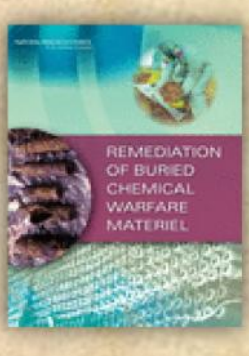
Reporting (W&R), Collective Protection (COLPRO), and Reconnaissance.
The objective of ICI is also to uphold a high level of knowledge within the CBRNe community by participating in international conferences and symposia.

The ICI will also support International CBRNe master's degree courses, which are coordinated and overseen by Hotzone Solutions,for high-level decision makers. Furthermore, the ICI will provide expertise to requesting governments.

New Approaches Needed for Uncovering, Identifying, and Treating Buried Chemical Warfare Material

Source: http://www.sciencedaily.com/releases/2012/08/120806130857.htm

The current approach for identifying and destroying buried chemical munitions and related chemical warfare materials uncovered during environmental remediation projects is neither reliable enough nor has the capability to efficiently tackle large-scale projects, says a new report from the National Research Council. An alternative or modified approach is needed to remediate the Redstone Arsenal and other such projects on active and former U.S. Department of Defense sites and ranges.



Additionally, the report recommends that the Office of the Secretary of Defense and the Army each select a single office to manage and fund recovered chemical warfare materiel (RCWM) remediation activities for DOD.Currently, authority and funding for RCWM activities depend on how and where the materiel is discovered, and could fall under multiple offices of either the secretary of defense or the Army Secretariat.The Army mission for RCWM remediation is turning into a much larger program that will rival those for conventional munition and hazardous substance cleanup, the report says, and is expected to cost billions of dollars over several years.A clear organizational structure and long-term funding are needed.
The secretary of the Army should also establish a new position at the level of the senior executive service (civilian) or a general officer (military) to lead the RCWM program.The secretary should delegate full responsibility and accountability for RCWM program performance to this person, including for planning, budgeting, and execution and for day-to-day oversight, guidance, management, and direction of the program.

Following a 1985 directive from Congress, the Army has undertaken the monumental task of destroying the existing U.S. stockpile of chemical weapons.To date, 90 percent of the stockpile has been destroyed, and the remaining 10 percent is expected to be destroyed by 2022.However, during the early- to mid-20th century, chemical weapons and chemical warfare materiel were often disposed of by open pit burning and burial at approximately 250 sites in 40 states, the District of Columbia, and three territories. Remediation of this buried materiel, in addition to environmental cleanup of the burial sites, therefore poses significant challenges to the nation and DOD.The report examines important regulatory issues that ultimately affect the need, timing, and costs of remediating these sites.Federal and state environmental remediation policies address whether buried CWM must be excavated and destroyed or contained in place.
To destroy any intact chemical munitions uncovered during remediation efforts, teams will most likely use either the Army's Explosive Destruction System (EDS) or one of three commercially available technologies.The EDS is an effective and reliable technology, and the Army has an active research and development program under way to improve the throughput rate, or speed at which chemicals can be identified.The three commercially available destruction technologies have higher throughput rates, but reliability problems were encountered when one of these -- the Dynasafe Static Detonation Chamber -- was recently used to destroy a portion of stockpiled munitions in Anniston, Ala.The report recommends ways to alleviate these problems and suggests alternatives to the EDS and commercial systems.Also explored is the potential use of robotic

systems to access and remove buried CWM.
The lack of an accurate inventory of buried munitions and of a reliable cost estimate for the RCWM program makes it difficult to establish precise, long-term budget requirements and draw up a funding plan for an RCWM program going forward that has the level of certainty typically associated with DOD project implementation.The report recommends as a "matter of urgency" that the secretary of defense increase funding for the remediation of chemical warfare materiel to enable the Army to complete the inventories of known and suspected buried chemical munitions no later than 2013 and develop a quantitative basis for overall funding of the program, with updates as needed to facilitate accurate budget forecasts.Pending establishment of a final RCWM management structure, this task should be assigned to the director of the Army's Chemical Materials Agency as chair of the provisional RCWM integrating office.
Redstone Arsenal facility in Alabama -- the site with the largest quantity of buried CWM in the U.S., and which has groundwater contamination -- is presented as a case study to show how issues raised in the report can be practically applied.

31st MEU HazMat and WMD team practice night operations

Source:http://www.dvidshub.net/news/92838/31st-meu-hazmat-and-wmd-team-practice-night-operations#.UCKHeqAaLJa

Chemical, biological, radiological and nuclear defense Marines with the 31st Marine Expeditionary Unit, completed low-light assessment and consequence management team training here, Aug. 2.
Wearing Class "B" protective suits and breathing through oxygen masks, the team looks as if they belong in a science-fiction movie. But unlike the realm of science-fiction, the threats this team faces are both deadly and real.
Chemical, biological, radiological and nuclear defense Marines with the 31st Marine Expeditionary Unit, completed low-light assessment and consequence management team training here, Aug. 2.
"Our purpose here was to rehearse our reconnaissance (tactics, techniques and procedures), improve our ability to respond and familiarize the Marines with operating in a low-light or no-light environment," said Chief Warrant Officer 3 Jonathan B. Davis, officer in charge of the CBRN defense team and native of Cleveland, Tenn.
More than a dozen Marines conducted reconnaissance and analysis on a suspicious, fenced-in warehouse and storage facility. To cover the large storage lot and building, the Marines split into small teams. Flashlights were used for the visual search, while a variety of detection equipment was used to notify the Marines of unseen dangers.
The team's Multi-RAE scanner detects gasses and vapors, a radioisotope device reads radiation levels, and the First Defender and HazMat ID systems identify any detected threats.
"We have 100 percent confidence in our equipment and its ability to tell us what we are dealing with," said Cpl. Ryan P. Berthiaume, a CBRN defense specialist for the 31st MEU and native of Palmer, Mass. "The equipment allows us to provide the incident commander accurate information, to decide the best course of action."
The Marines of the CBRN defense team are qualified technicians in the detection, identification and decontamination of hazardous materials and chemical components to weapons of mass destruction.
The team is capable of detecting the full range of traditional CBRN materials and hundreds of thousands of dangerous industrial and commercial chemicals. But detection and identification are just the beginning of the CBRN defense team's capabilities.
The Marines also conduct sampling, extraction of contaminated casualties, mitigating spills of hazardous materials, technical decontamination, mass decontamination, and sensitive site exploitation.
"Our primary focuses are terrorist incidents, accidents involving hazardous materials and supporting operations to prevent the spread of WMDs," said Staff Sgt. Bradley A. Mowree, CBRN defense chief and native of Lander, Wyoming."
As part of theater security cooperation, the team's purpose with the 31st MEU is to support the

combat of WMD threats, establish initial response for large scale HazMat incidents, and support allied responses to HazMat incidents. When participating in exercises with allied nations in the Asia-Pacific, the CBRN Marines focus on sharing knowledge with their counterparts and increasing interoperability for response operations.

The 31st MEU is the Marine Corps' force in readiness for the Asia-Pacific region and the Marine Corps' only continuously forward-deployed expeditionary unit.

What is the optimal position of an intubator wearing CBRN-PPE when intubating on the floor: A manikin study

Source: http://www.resuscitationjournal.com/article/S0300-9572%2811%2900043-8/abstract

Authors: Nick Castle, Yugan Pillay, Neil Spencer (South Africa)

Abstract

Introduction

Prompt airway management following a CBRN incident is linked to improved patient survival. However, responding rescuers will have to wear CBRN-PPE and treat patients positioned on the floor which will adversely impact on intubation skill performance.

Methods

48 final year paramedic students intubated manikin's positions in 4 different positions; on an ambulance trolley (60 cm of the floor), lying prone, kneeling and sitting. Each skill was performed twice once wearing CBRN-PPE and once in normal clothes. Intubating order was randomised.

Results

Intubation performance when wearing standard clothing was similar in all four positions but this was not the case when intubation was performed while wearing CBRN-PPE. CBRN-PPE had a negative impact on intubation performance regardless of the position of the intubator. Intubation on the trolley while wearing CBRN-PPE was completed in 100% of attempts within 60 s compared with 79.2% for kneeling, 75% for sitting and 43.8% for laying. After 120 s nearly 20% of intubation attempts using the kneeling and sitting position and nearly 40% of attempts with the intubator lying on the floor were still not completed. **Intubation on an ambulance trolley, while**

wearing CBRN-PPE, was always successful compared with sitting (88.8%), kneeling (81.2%) and laying (62.5%).

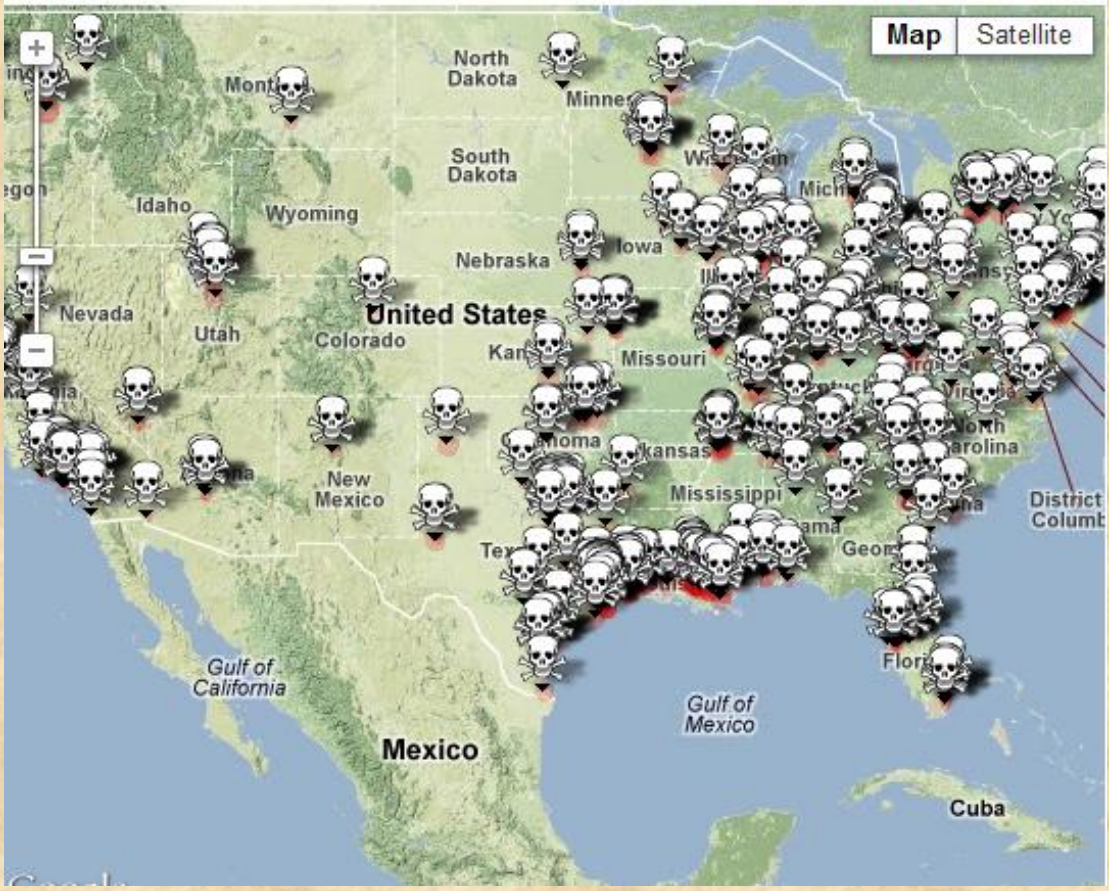
Conclusion

This manikin-based study serves to reaffirm that CBRN-PPE has an adverse impact on intubation performance as well as identifying the negative impact of patient position on the performance of intubation within a CBRN environment. Elevating the patient off the floor, prior to intubation, could improve intubation success when wearing CBRN-PPE as well as potentially improving safety of the intubator. In the immediate phase of a CBRN incident, intubation attempts should be delayed until optimal intubating conditions are available or at least until the patient is removed from the floor. Use of and intermediate airway devices should be considered as a 'stop gap'.

Do you live near a high risk chemical plant?

Source 1: http://usactions.greenpeace.org/chemicals/map/
Source 2: http://www.huffingtonpost.com/john-deans/americas-chemical-plants-are-ticking-time-bombs_b_1757110.html#slide=1350509

One in three Americans is at risk of a poison gas disaster by living near one of hundreds of chemical facilities that store and use highly toxic chemicals. A chemical disaster at just one of these facilities



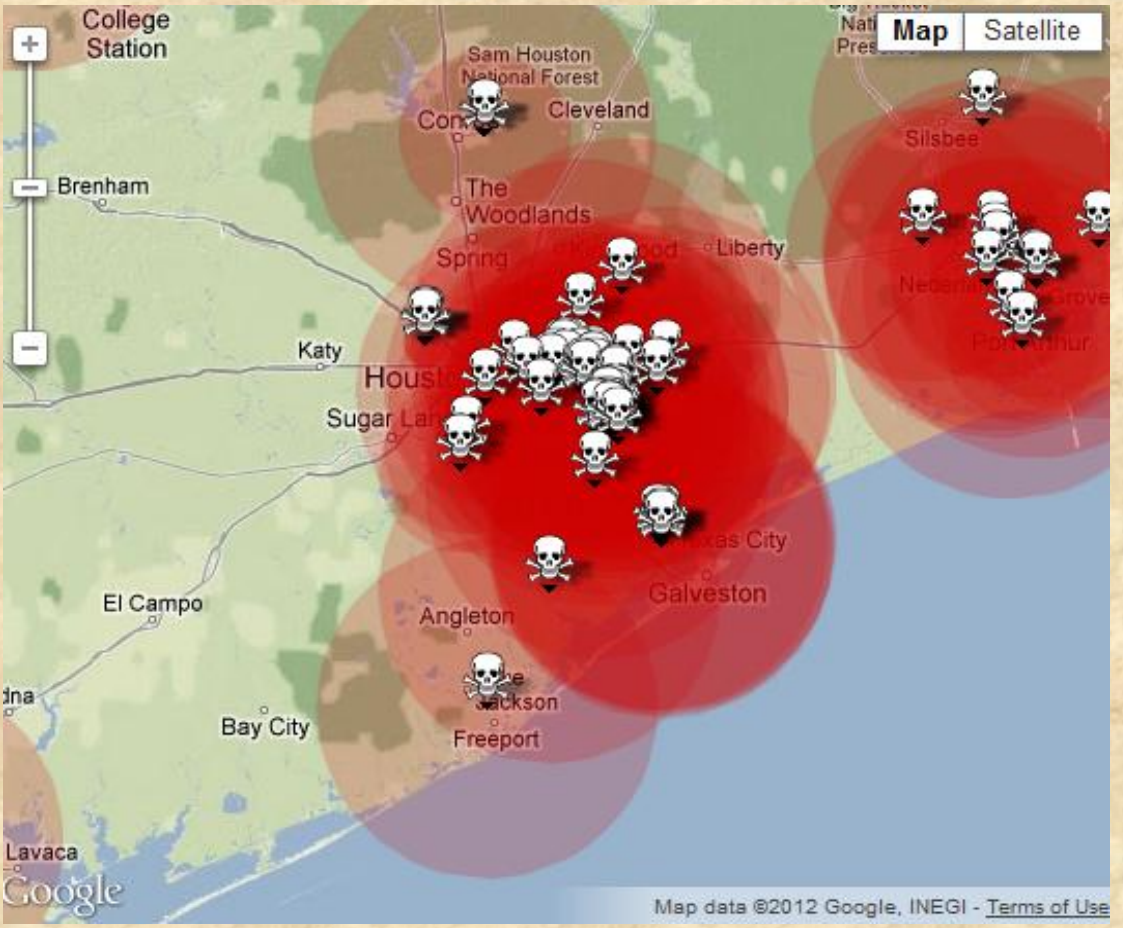
could kill or injure thousands of people with acute poisoning. Of the 12,361 chemical facilities that report their chemical disaster scenarios to the Environmental Protection Agency (EPA), Greenpeace has identified 483 chemical facilities across the U.S. that each put 100,000 people or more at risk. Of those, 92 put one million or more people at risk up to 25 miles downwind from a plant.

The good news is that there are many cost-effective, safer chemical processes already in use that eliminate these risks without sacrificing jobs. Since 1999, more than 500 plants have switched to safer alternatives. But that's not what most chemical plants have done. Even

though chemical plant safeguards fail every week, the chemical industry has largely refused to make their plants safer and more secure.
This problem is not new, the world was shocked in 1984 when thousands of people were killed at a chemical plant disaster in Bhopal, India in 1984. Congress even amended the Clean Air Act in 1990 to try and address this problem, but the amendment has gone largely unused. It's time for the Obama Administration to finally create new regulations under the Clean Air Act that will require these dangerous facilities to prevent chemical disasters by switching to safer alternatives.

Vulnerability Zones

The red circle around each chemical plant marks the "vulnerability zone". The size of this zone varies for each facility and ranges from less than a mile to 25 miles. Each zone was determined by the plant



owner based on the type and quantity of the toxic chemical on site, local topography and weather patterns. Anyone within this zone could potentially be impacted by a toxic chemical release. Impacts could range from minor injury to fatality depending on the chemical involved and the extent of exposure. The EPA requires chemical companies to determine these zones and report them once every five years in the facility's risk management plan.

Immediate, in-the-field identification of hazardous materials

Source: http://www.homelandsecuritynewswire.com/dr20120809-immediate-inthefield-identification-of-hazardous-materials

Soldiers in war zones, and law enforcement and first responders on the scene will soon have the ability to collect and immediately analyze trace amounts of potentially dangerous chemical, explosive, or biological agents with the help of a surface swabbing device developed and prototyped by a Maine-based technology company with the help of the University of

Maine Advanced Manufacturing Center (AMC). The device, roughly the size of a penny, snaps on the end of a wand to swab a potentially

contaminated surface. Residue on the swab then can be immediately scanned and identified using a portable instrument developed by Smiths Detection, a prominent U.S. defense contractor, according to UMaine alumnus Eric Roy, project manager and senior research scientist at Orono Spectral Solutions (OSS) in Bangor, where the "surface sampler" was designed.

A University of Maine release reports that OSS and the AMC are working with prospective manufacturers to mass-produce the surface swabbing devices, which will then be distributed by Smiths Detection. The swabs have been tested at Edgewood Chemical and Biological Center, a secure U.S. Department of Defense facility in Maryland, with chemical warfare agents, biological warfare agents, explosives, and other threat materials.

The Defense Department funded the research and development of the new device.

The OSS swabs work like a "nanosponge" that interfaces directly with a portable, computerized, infrared spectrometer made by Smiths Detection, Roy says. It promises revolutionary advancement in field-testing of suspect powders and liquid residues, he says, and allows almost instant identification, a process that now requires much larger samples, and days or weeks to identify.

"It's really the first technology of its kind that allows field-portable infrared spectrometers to identify unknown trace residues," says Roy, who received his Ph.D. in oceanography from UMaine in 2009 and has been leading the development of the swabbing material for about a year and a half.

"When a mortar shell containing a chemical weapon explodes in a war zone, or military personnel come across a clandestine laboratory, the nature of any additional chemical or biological threat must be assessed immediately."

OSS, an 8-year-old University of Maine spin-off company comprising UMaine faculty and graduates, has a patent pending on the new absorptive material.

The release notes that AMC director John Belding designed the plastic chassis for the material and developed a procedure to attach the material to the button-like base. He says development of the swabbing device was straightforward but involved testing a variety of materials before settling on one suitable for battlefield conditions, and which could be easily mass-produced. He designed the swab with a 3D computer for concept visualization, made prototypes on computer-controlled machining equipment and developed basic automation equipment to prove out full-scale production methods.

"We worked with OSS to first define the design parameters of the swab, then we looked at the different aspects of manufacturability," says Belding. "It's important with any development to not just make a part, but make that part so that it can be easily produced and manufactured in volume."

Roy expects that thousands of OSS swabs will be ready to be distributed by Smiths Detection following the product launch this fall. He and his team already are working on next-generation modifications of the novel swab material, which will be suited for other defense, homeland security and environmental applications.

Close proximity to the university, where OSS rents lab space at the College of Engineering Laboratory for Surface Science and Technology, makes it possible for OSS to work in Maine, Roy says. AMC, in conjunction with other advanced campus centers, works with hundreds of small Maine businesses, helping them solve problems, convert innovative new products into beta prototypes or modifying old products for increased efficiency. The process both preserves and creates jobs, Belding says.

New detection device for forensic and security applications

Source: http://www.homelandsecuritynewswire.com/dr20120809-new-detection-device-for-forensic-and-security-applications

A new biological sampling and detection device, created by the U.K. Ministry of Defense (MoD) scientist, could soon be used by first responders in the forensic and security sectors in the United Kingdom and abroad.

The device was created and developed by Dr. Peter White of the Defense Science and Technology Laboratory (DSTL). MoD says that he was looking for a hand-held device that could sample and detect a range of hazardous substances and explosives at the same time, to assist frontline troops and counter-terrorism personnel.

The patented technology allows for rapid sampling of up to eight targets simultaneously, testing powder, liquids, or surfaces directly and has applications across the forensic and security areas.

Peter White says: "Devices that are currently fielded do not integrate sampling with detection and are not easy to use if you are wearing gloves. This invention combines a mature established detection technology (similar to that used in pregnancy test kits) into an integrated hand held device that could be used by a generalist frontline operator wearing protective clothing."

Ploughshare Innovations Ltd, DSTL's technology transfer company, has licensed the technology to BBI Detection Ltd which is developing products to supply on a global basis.

BBI Detection currently develops and manufactures bespoke detection devices for the security sector but is hoping this new device, which it has **named IMASS**, for Integrated Multiplex Assay and Sampling System, will be accessible to a wider customer base. MoD notes that levels of interest have been high in overseas markets, including the United States. BBI has made a number of improvements to the device which has many possible applications, including surface testing for food allergens or illegal drugs, or defense uses in bio-threat and explosives detection.

Richard Lamotte, CEO of BBI Detection says: "It's been incredibly exciting to be part of the development and commercialization of the IMASS device. Obviously its ergonomic design features make it particularly suitable for biodetection in challenging frontline environments. It also has a multitude of applications in the wider diagnostic arena. Discussions with potential customers, both within the U.K. and further afield, have generated significant interest and anticipation for the launch of the final product."

Meanwhile, DSTL has recently obtained funding from the Home Office to see how IMASS could be developed for use in counterterrorism, by the emergency services.

U.K. to help IRAQ destroy legacy chemical weapons

Source: http://www.homelandsecuritynewswire.com/dr20120809-u-k-to-help-iraq-destroy-legacy-chemical-weapons

UNSCOM verifies destroyed Iraqi CW following Gulf War // Source: jmu.edu

Scientists from the U.K. Ministry of Defense (MoD) are to provide training which will support the Iraqi government's efforts to dispose of remnants of the chemical weapons amassed during Saddam Hussein's regime.

Under an agreement signed in Baghdad, experts from the MoD's Defense Science and Technology Laboratory (DSTL) will provide training to Iraqi personnel, which will help them to safely dispose of partially destroyed chemical munitions and agents, along with other contaminated materials.

The materials are contained in two sealed bunkers at the old Al Muthanna Chemicals Weapons Complex, a large site in the western desert some eighty km north-west of Baghdad, which was the principal manufacturing plant for both chemical agents and munitions during Saddam's rule.

MoD says that thousands of tons of chemical weapons were produced, stored and deployed by the Saddam regime. Iraq used these weapons during the Iran–Iraq war (1980 to 1988) and against the Kurds in Halabja in 1988. Following the First Gulf War, most of Iraq's chemical munitions were destroyed under supervision of UN inspectors (UNSCOM) and the partially destroyed contents of these two sealed bunkers are all that remain of those legacy weapons.

The Chemical Weapons Convention, which Iraq joined in 2009, requires that although the material is unusable and does not pose a significant security risk, it must be disposed of. The nature of the material contained in the two bunkers will make the destruction process difficult and technically challenging.

MoD says that the United Kingdom has therefore agreed to provide training to Iraqi personnel at DSTL's site in Porton Down — a world-leading centre of excellence for chemical defense. The training will take place later this year and will teach technical personnel how to safely handle toxic chemicals. The team at DSTL will also offer training to Iraqi medical personnel on how to deal with the health risks associated with the material.

U.K. Armed Forces minister Nick Harvey said: "We were glad to support Iraq when it joined the Chemical Weapons Convention in 2009. One of the key obligations of member states is to destroy any chemical weapons it possesses, so the U.K. is delighted to be able to help Iraq by providing world-leading expertise and high quality training to Iraqi personnel involved in this difficult and dangerous task."

More info about Al Muthanna Chemical Weapons Complex

Source: https://www.cia.gov/library/reports/general-reports-1/iraq_wmd_2004/chap5_annxB.html

Syria's Chemical Weapons: A Risk Assessment

By Brom Shlomo

Source: http://www.inss.org.il/publications.php?cat=21&incat=&read=7035

Following the assassination of key personnel in the Syrian security establishment in a successful attack by the rebels, and the battles between opposition forces and the Syrian army in parts of Damascus and Aleppo – the two major cities whose fall would signal the fall of Assad's regime – assessments of the impending collapse of the regime have become more prevalent. These assessments have again touched off a debate about Syria's chemical weapons in a scenario of a disintegrating regime.

It seems that the regime recovered quickly from losing many of its senior members, and military forces, still cohesive and loyal to the regime, have managed to take advantage of their military superiority to overcome the rebels who infiltrated Damascus, which is again under almost complete control of the regime. The army is trying to replicate its performance in Aleppo, and stands good chances of doing so. Yet while chemical weapons may thus currently seem a less urgent topic, it remains important, as the regime seems incapable of suppressing the rebellion despite of its obvious superior strength. Presumably the military capabilities of the opposition forces will increase, thanks to assistance from several countries, and therefore it is quite possible that assessments about the eventual demise of the regime are valid, even if it takes significantly longer than initially expected.

Three principal scenarios have arisen in which chemical weapons could be a factor, either when the Syrian regime approaches its end or after its fall:

a. The regime makes a desperate attempt to use chemical weapons against opposition forces, as Saddam Hussein did in the Kurdish revolt.
b. The regime transfers the chemical weapons to Hizbollah when it senses its end is near.
c. The chemical weapons stockpiles fall into the hands of armed rebels, including extreme groups associated with al-Qaeda.

The scenario in which a dying regime uses chemical weapons against Israel seems implausible. It is unclear what benefit the leaders of the regime would gain; the regime is not fundamentally ideological, driven by the desire to see the destruction of Israel. It is much more interested in its own survival, both as a regime and as individuals.

In response to reports about chemical weapons in Syria, including statements by Israel's Prime Minister and Defense Minister on the possibility of Israeli military intervention, the Syrian Foreign Ministry announced that the Syrian government would not use chemical weapons against its own people but only against foreign threats. It seems that on the one hand the Syrian regime is using the West's discussion of the chemical weapons to clear its name as a murderous regime, and on the other hand, to deter any foreign military intervention. It also constituted Syria's first public confirmation that it has chemical weapons.

The use of chemical weapons against the rebels would not be particularly effective, because the rebels operate like guerilla forces and the fighting occurs mostly in populated urban settings. Chemical weapons would cause primarily the deaths of unprotected civilians. Regime leaders likely understand that in addition to this type of weapon being ineffective, its use would jeopardize their own chances for survival.

The likelihood of the chemical weapons being transferred to Hizbollah hands also seems low. The Syrian regime is aware of the sensitivity of this weapon. There is no precedent for the transfer of chemical weapons from a state to a non-state organization, which is tantamount to relinquishing control of the weapon. It is unclear what advantage giving Hizbollah this weapon would confer on the regime's leaders who are not ideologues, and even professed a willingness to make a peace with Israel. It is also highly doubtful that Hizbollah would be interested in having responsibility for chemical weapons, whose usefulness against a protected population like Israel with the ability to respond is questionable.

By contrast, the third scenario is far more plausible, assuming that the regime does in fact fall. Opposition forces are divided and not under a single command. After the fall of the regime,

a period of chaos will likely ensue and various armed groups will seize control of the different military facilities and weapons manufacturing plants, as was the case in Libya. They are liable to use some of these weapons themselves and designate some for barter, and in doing so are liable also to take charge of various chemical weapons components.

The degree of risk regarding the fall of these components into the hands of rebel groups is directly correlated with the structure of the Syrian chemical weapons arsenal, which was built primarily to afford Syria a strategic deterrent against what the Syrians assumed were Israel's nuclear capabilities. The arsenal comprises three types of materials: two of nerve gases – Sarin and VX, and a mustard-type gas affecting skin. The launching and delivery means are mostly airborne bombs and ballistic missiles of the Scud type. The Syrians, aware of the sensitivity of using chemical weapons and the problems of storing it, took two major measures. First, there is a geographical separation between the chemical weapons and the means of launching them, and the chemical weapons themselves are stored in facilities located far from population centers. Second, the weapon is mainly binary, meaning that in storage there are two types of chemicals, each of which alone is not particularly harmful; it is only their combination by a mixing mechanism that renders them deadly.

As has been reported, including by Israeli intelligence sources, the Syrian army has stepped up its surveillance and taken other precautionary measures in everything connected with the chemical weapons. This makes much sense, because the regime must take into account the risk that rebels could seize control of the chemical components facilities in the course of the fighting and want to use them against the regime. Therefore, it seems that the actual risk of the components falling into the hands of rebel groups is not great. For any particular group to be able to use this weapon, it would have to seize control of all the system components, dispersed in various locations, and also seize control of the complex launching system requiring operational and logistical capabilities, such as surface-to-surface missiles and airplanes. If the chemical weapon components become commodities on the black market, there is a long term danger that single-minded terrorist groups like al-Qaeda would try to acquire all the components and create self-manufacturing capabilities.

The analysis of the threats leads to several conclusions:

a. Despite the low probability of the first two scenarios – use of chemical weapons against Israel and transfer of the weapons to Hizbollah – Israel must send messages of deterrence, both to the Syrian regime and to Hizbollah, about the intolerable cost they would incur for taking such measures. If endowed with sufficient information, Israel might consider pinpoint attacks on such weapons transferred to Hizbollah. In this case, it is preferable that the attack be carried out on Syrian territory to reduce the probability of setting off a broader confrontation with Hizbollah.

b. There is no good reason to attack the chemical components storage facilities before the regime collapses. Syria has large stockpiles of chemicals, and it is doubtful that all the bunkers where the chemicals are kept and certainly the launching mechanisms could be attacked and destroyed. Partial success is liable to generate the opposite result, as the regime could conclude it is preferable to use the weaponry left at its disposal before all of it is destroyed and certainly if the attack causes environmental damage.

c. The United States and its allies must prepare for the possibility that it will become necessary to seize control of at least the main chemical weapons storage facilities once the regime collapses. Contrary to media assessments, it seems that the number of main facilities is small and mostly located in distant, isolated areas. Thus, securing them would not be a particularly complex operation if the Syrian army collapses. Syrian military personnel might even cooperate with these forces in order to safeguard the weapons.

d. Assuming that the leaders of the Syrian regime retain a modicum of responsibility, parties with which it still communicates, such as Russia, China, and the Arab League, should be tapped to transmit messages to President Assad about the expectations of the international community regarding safeguarding the chemical weapons.

e. It is advisable that the nations of the West establish mechanisms for use on the black weapons market in order to seize control of any chemical weapon components falling into the hands of irregular fighting forces.

US sets up teams with Israel, Jordan, Turkey against chemical attack

Source:http://www.debka.com/article/22266/US-sets-up-teams-with-Israel-Jordan-Turkey-against-chemical-attack-

The United States last week began laying plans for the contingency of Syrian chemical warfare by setting up joint military, intelligence and medical working teams with Israel, Turkey and Jordan, all of which are feared under threat by Syrian president Bashar Assad, debkafile's military sources report.

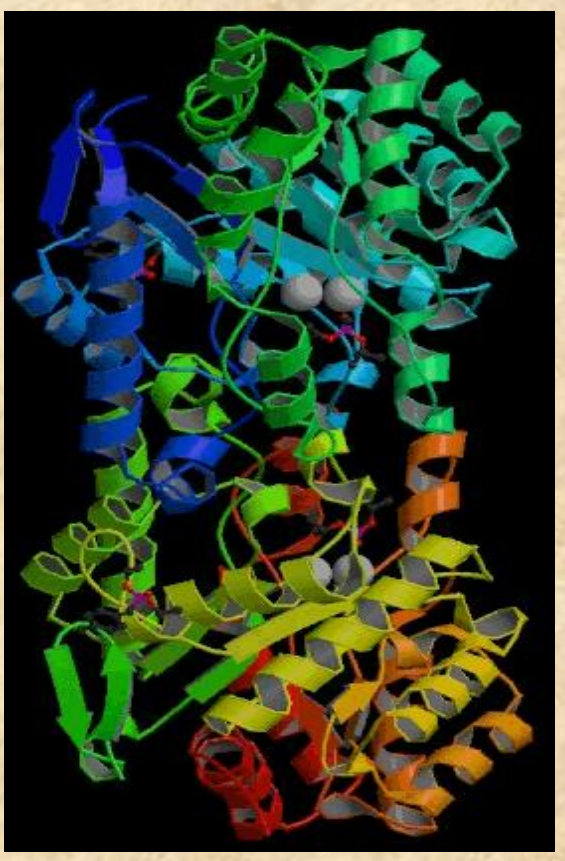
The White House, the CIA and the Pentagon's DIA are laying odds on a Syrian unconventional attack. All three countries under potential threat have put their medical services on the ready. Because Jordan lacks the appropriate medical facilities, the United States and France have freighted over to the kingdom special forces trained in chemical warfare, military hospitals and hundreds of tons of medical equipment. Washington is taking into account that American military and strategic interests in all three countries may also be in danger.

In Istanbul, Saturday, Aug. 11, US Secretary of State Hillary Clinton quite frankly discussed a chemical war scenario. Referring to working groups, she said: …we need to get into the real details of such operational planning and it needs to be across both our governments (US and Turkey). Our intelligence services and our military have very important responsibilities and roles to play, so we are going to be setting up a working group to do exactly that. We have planned for many contingencies, including the very horrible scenario of the use of chemical weapons."

Destroying Chemical Warfare Agents: New Substances 15,000 Times More Effective

Source: http://www.medicalnewstoday.com/releases/248810.php

In an advance that could be used in masks to protect against nerve gas, scientists are reporting development of proteins that are up to 15,000 times more effective than their natural counterpart in destroying chemical warfare agents. Their report appears in ACS' journal *Biochemistry.*



Frank Raushel, David Barondeau and colleagues explain that a soil bacterium makes a protein called phosphotriesterase (PTE), which is an enzyme that detoxifies some pesticides and chemical warfare agents like sarin and tabun. PTE thus has potential uses in protecting soldiers and others. Natural PTE, however, works against only one of the two molecular forms of these chemical warfare agents, and it happens to be the less toxic form. The scientists thus set out to develop new versions of PTE that were more effective against the most toxic form.

To improve the enzyme's activity, Raushel and colleagues used an approach called "directed evolution." This technique imitates the way natural selection leads to improved forms of the biochemical substances in living things. In using directed evolution, the team made small random changes to the natural enzyme's chemical architecture and then tested resulting mutant enzymes for their ability to break down nerve agents. They isolated several mutants that fit the bill, including one that proved to be 15,000 times more effective than the natural enzyme.

Military's dumped mustard gas closes Gulf of Mexico's Horn Island

Source: http://www.examiner.com/article/military-s-dumped-mustard-gas-closes-gulf-of-mexico-s-horn-island

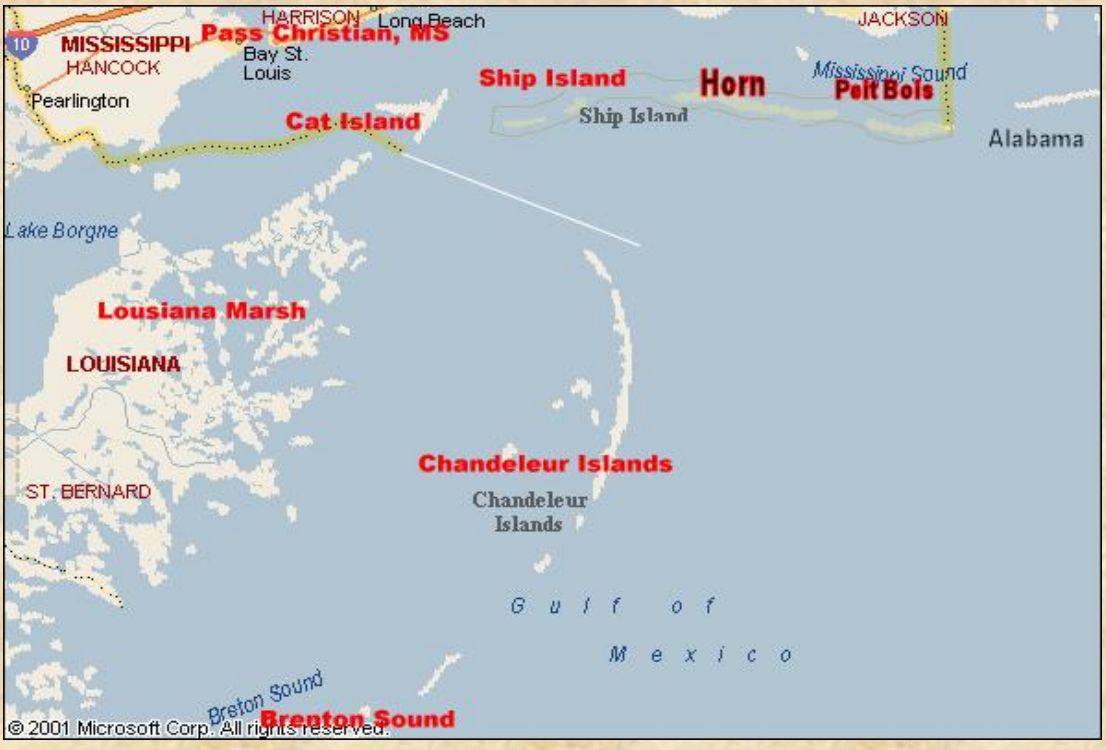
The Gulf Islands National Seashore will hold a press conference today in Ocean Springs to further alert the public to hazardous materials thought to be mustard gas chemical weapon found on Horn Island, a long, thin barrier island off the Gulf Coast of Mississippi, south of Ocean Springs and part of the Gulf Islands National Seashore.

Gulf Islands National Seashore Superintendent Dan Brown will discuss today at a press conference the partial closure of Horn Island to the public due what appears to be mustard gas found there, according to the National Park Service.

"A preliminary test also indicated the possible presence of a chemical agent known commonly as mustard gas," Brown said.

"Additionally, based on an initial records search that was done, we have reason to believe that some containers of mustard gas may have been deposited in the island's Big

Lagoon.We are therefore closing the portion of the lagoon that we own and we are notifying the owners of those nearby privately-owned tracts of the potential hazard."



When exposed to sea water, mustard forms a thick outer "crust" over a core of mustard that brings the mustard to the surface where it can injure unsuspecting fishermen and swimmers.

Park rangers have placed area closure signs around the perimeter of site, approximately 1,000 feet in all directions.

Military legacy of dumping chemicals of mass destruction into the oceans

For decades, the US military secretly dumped millions of pounds of decaying chemical weapons and nuclear waste into the oceans until the early 70's.

"The Army now admits that it secretly dumped 64 million pounds of nerve and mustard agents into the sea, along with 400,000 chemical-filled bombs, land mines and rockets and more than 500 tons of radioactive waste - either tossed overboard or packed into the holds of scuttled vessels," the *Daily Press* reported after its 2005 investigation.

"We don't want to be cavalier at all and say this stuff was exposed to water and is OK," said William Brankowitz, a deputy project manager in the Army Chemical Materials Agency and a leading authority on the Army's chemical weapons dumping during the *Daily Press* investigation.

"It can last for a very, very long time," Brankowitz said.

"We do not claim to know where they all are," Many canisters were leaking when dumped and most are likely leaking now, after many decades in seawater.

"A drop of nerve agent can kill within a minute. When released in the ocean, it lasts up to six weeks, killing every organism it touches before breaking down into its nonlethal chemical components," *Daily Press* reported. "Mustard gas can be fatal."

In June, British Petroleum asked the National Park Service for a list of potential chemical and biological hazards on Horn Island before deploying cleanup crews teams there as part of the Deepwater Horizon response Gulf Operation.

There are 32 disposal sites off United States shores, most with poorly known contents.

In a report, *A plea for complete information*, Peter Brewer believes it's time for the U.S. government to communicate openly about these toxic sites.

"It's just one of those things where society has had a blind spot," Brewer says. "Problems that aren't talked about never get better."

Sources: *Mississippi Press;* National Park Service; *Daily Press;* Bill Phillips; *Ocean Dumping of Chemical Weapons, Noblis, Congressional Research Service report: U.S. Disposal of Chemical Weapons in the Ocean: Background and Issues for Congress; Dangerous unknowns—MBARI researcher points out lack of information on chemical weapons dumps in the sea;* Brewer, P. and N. Nakayama. *What lies beneath: A plea for complete information. Environmental Science and Technology* 2008, March 1, 2008, pages 1394-1399.

Detector Uses Sound Waves to Identify Chemical Agent Attacks

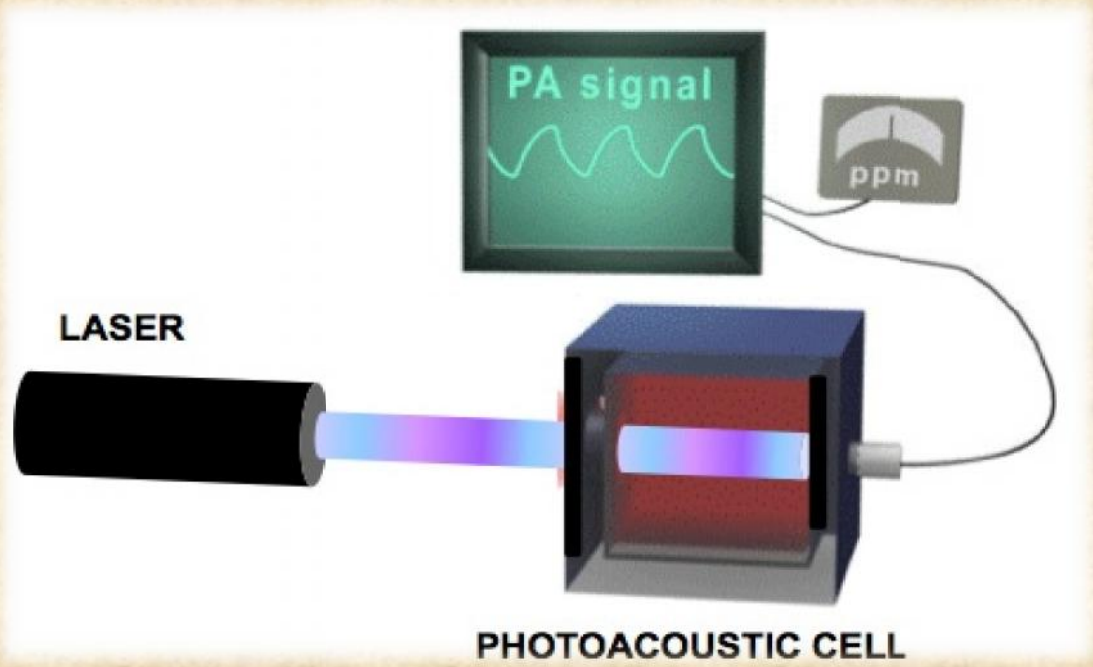
Source: http://globalbiodefense.com/2012/08/20/detector-uses-sound-waves-to-identify-chemical-agent-attacks/?goback=.gde_160062_member_149493712

U.S. Army researchers have developed a chemical sensor that is designed to detect low levels of dangerous toxins in the air by their sound.

The new system updates technology based on *photoacoustic effect*, in which the absorption of light by materials generates characteristic acoustic waves. By using a laser and very sensitive microphones — in a technique called laser photoacoustic spectroscopy (LPAS) — very low concentrations of gases can be detected.

Traditional LPAS systems have a major drawback in that they can identify only one chemical at a time, prompting the researchers to pursue a method that would allow simultaneous detection of multiple agents. "As I started looking into the chemical/biological detection problem, it became apparent that multiple LPAS absorption measurements — representing an 'absorption spectrum' — might provide the added information required in any detection and identification scheme," said Kristan Gurton, an experimental physicist at the U.S. Army Research Laboratory (ARL).

To create such a multi-wavelength LPAS system, the ARL team designed a specialized photoacoustic cell that allows different gases to flow through while modulated laser beams propagate through the cell. Each laser is each modulated at a different frequency in the acoustic range.



As gas vapors flow into the cell, a portion of the laser power is absorbed, resulting in localized heating of the gas. "Since gas dissipates thermal energy fairly quickly, the modulated laser results in a rapid heat/cooling cycle that produces a faint acoustic wave," explains Gurton. Each laser in the system will produce a single tone, picked up by small microphones in the cell. "Different agents will affect the

relative 'loudness' of each tone," says Gurton, "so for one gas, some tones will be louder than others, and it is these differences that allow for species identification."

The signals produced by each laser are separated using multiple "lock-in" amplifiers each tuned for a specific laser frequency. By comparing the results to a database of absorption information for a range of chemical species, the system can identify each of the chemicals present.

The method allows for instant identification of agents, as long as the signal-to-noise ratio, which depends on both laser power and the concentration of the compound being measured, is sufficiently high, and the material in question is in the database.

Before such a sensor could be used in the field, Gurton says, a quantum cascade (QC) laser array with at least six "well-chosen" mid-infrared laser wavelengths would need to be available. With such a set-up, the method "could be tailored for a variety of detection scenarios ranging from the obvious need to protect our soldiers during conflict to civilian applications like detecting the presence of harmful chemical gases that are difficult to detect with conventional techniques."

A paper by the researchers entitled "Selective real-time detection of gaseous nerve agent simulants using multi-wavelength photoacoustics," has been published in the Optical Society's journal, *Optics Letters*.

A Brief History of Acid-Filled Eggs

Source: http://nymag.com/daily/intel/2012/08/acid-filled-eggs-convention-anarchist-rnc-dnc.html

About three days ago (Aug 19), it seemed like this year's drama-deprived GOP convention would be — to paraphrase Larry David — *prettaaayyy*, *prettaayyyy*, *prettaaayyy* boring. Now there's a potential hurricane barreling down on Tampa, and oh, what's this? An FBI bulletin warning of anarchist protesters armed with acid-filled eggs?

Federal authorities are urging law enforcement agencies across the country to watch out for signs that extremists might be planning to wreak havoc at the upcoming political conventions — by blocking roads, shutting down transit systems and even employing what were described as acid-filled eggs.

The concept of acid-filled eggs may be new to you, but it seems to be a time-honored tradition within certain left-wing protest movements. As the *New Yorker* reported, they turned up during the 1999 WTO riots in Seattle:

The black-bloc crews, whose graffiti and occasional "communiques" run to nihilist slogans ("Civilization Is Collapsing-Let's Give It a Push!"), were masked, well organized, young and fleet of foot, and armed with crowbars and acid-filled eggs.

In 1998, British authorities became concerned that animal-rights activists with the Animal Liberation Front had armed themselves with acid-filled eggs:

Scotland Yard is preparing to deal with a terrifying device known to be in the hands of extreme animal rights protesters — the acid-filled egg. Police fear leading politicians could be blinded, maimed or scarred for life if struck by one of the eggs. Protection officers now carry emergency antidote kits.

In fact, the use of the acid-filled egg goes back more than a century. According to an April 22, 1905, story in the New York Times:

Although the teamsters' strike is not marked by quite so much violence as it was a few days ago, none of Montgomery Ward Co.'s goods can

be moved without the assistance of a large body of police, and even then there are demonstrations with bricks and acid-filled egg shells.

By this point, you're saying "Okay, we get it, explain how they make the acid eggs already." Fine, but only because it's pretty obvious: According to the *Telegraph*, the AFL would use a needle to inject a special formula of sulfuric acid — not strong enough to "eat through the shell but still be strong enough to damage human tissue" — into the egg, then cover the egg with wax to seal up the hole.

Whether the acid-filled eggs actually materialize at the conventions remains to be seen. Anarchists, kind of by definition, aren't always the most organized bunch. Still, if you're looking for us down there, we'll be the guy wearing Amar'e-style goggles the entire time.

Toronto CBRNE Newlsetter

Contact the Editor: threatwatchtoronto@gmail.com

Toronto CBRNE Newsletter — Volume 3, Issue # 4, 2012

THREATWATCH

Is It Just Hyperbole, Or Are We All DOOMED!!!

VOLUME 3, ISSUE #4, 2012

What to expect

- Editorial Page
- The Hot Zone
- Global Gang Threats and CBRNE
- Don't Drop The Soap! The Basics of Decontamination
- Syria and WMD's: Another Failure of Global Diplomacy
- Bloody Friday: The Halabja Chemical Weapon Massacre
- 1966 Nuclear Bomber Crash

Looking back on two and a half years of contributions to this newsletter would lead one to think the editor is a complete doomsayer, lurking in a mutant-proof bomb shelter stocked with the 3 G's: guns, groceries, and gold. Unfair! The bunker isn't mutant proof at all.

Threatwatch isn't a fuzzy bunny newsletter, and by its very nature, it's hard to find pleasant topics out there (especially in this issue). Threatwatch focuses on weapons of mass distraction and terrorism. But the fact that no major events have happened in North America since 9/11 has resulted in bureaucratic eye-rolling, political yawning, and bean counter funding cuts across the board.

Have we over exaggerated the threat? Are we right to be complacent? Surely the enemy is out there, just waiting to strike at our weakest moment. But when? Where? And with what?

A review of the literature available provides no straight answers. I have been through thousands of pages of documents that suggest the next weapon of choice is a dirty bomb, or TICS, or maybe explosives, or possibly suitcase nukes. The place of choice will be a major city, or the food supply, or water reservoirs, or rural towns. The time will be during large public events, or when we lower our guard, or never.

Anyone who researches into these topics will be completely frustrated at the ambiguity of the information. One might as well watch zombie apocalypse movies as read about CBRNE topics; the plots are similar.

And so we remain complacent, but as the events around the rest of the globe teach us, complacency is a luxury we cannot afford. *Hands down and head up ass* is not a strategy for success. Cutting funding because "nothing's going on" is the strategic equivalent of going to war with a pointed stick.

I am resolute in my belief that being vigilant, letting slip the Dogs of War, and spending vast amount of loot are the only things keeping the rats from completely gnawing through the floorboards of this continent. We are safe only because of this.

But at what cost? Nobody is really free anymore. We have become an island, at the mercy of both government intervention and the threat of terrorism. And all this talk is making me inch towards the door of my bunker again. Call you later.

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