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CHEM NEWS

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Chemical weapon terrorism in Iraq and Afghanistan

By Wm. Robert Johnston

Source: http://www.johnstonsarchive.net/terrorism/wmdterrorism-1.html

Iraq and Afghanistan have seen intense levels of terrorism during U.S.-led occupation, including attacks on occupation forces, attacks on civilian government and non-government targets, and sectarian violence. Limited attention has been paid to terrorist attacks using chemical weapons. These have been relatively unsophisticated attacks but still represent a problematic and vicious trend amongst Islamistic terror tactics. These attacks are grouped as follows:

- At least one attempt to use old Iraqi chemical weapons in improvised explosive devices. This was a very unsophisticated effort and did not result in more than minor injury from chemical releases.
- 15 attacks in Iraq from October 2006 to June 2007 using chlorine tanks in car or truck bombs. In many cases more casualties resulted from the bomb itself than from the chlorine release, but several attacks did result in significant numbers of injuries (mostly minor) resulting from chlorine exposure. Total casualties in these attacks were 115 killed (mostly from the explosions) and 854 injured (a large fraction from chlorine exposure).
- Acid attacks on children and others in Afghanistan. The worse of these attacks targeted girls because they were attending school. Such (generally) non-fatal but mutilating criminal attacks (e.g. against family or acquaintances) are a growing problem elsewhere in Asia, such as in Pakistan.
- 20 poison gas attacks on girls' schools in Afghanistan from April 2009 to August 2010. These appear to have involved the release of pesticide-type chemicals in schools; no fatalities have resulted, but a total of at least 613 children and 36 teachers have been injured, some seriously. These attacks have been attributed to the Taliban and have been connected with threats against girls pursuing educations.
- An attack on a girls' school in Afghanistan in 2012 involving poisoning of the school's water supply. In this case 150 children and 21 teachers were injured but none fatally.

Total identified attacks:

- in Iraq, 16 (2004-2007), 115 killed, 856 injured.
- in Afghanistan, 24 (2008-2012), 2 killed, 839 injured.

Listing of attacks:

date	location	method and target	total casualties		child casualties	
			killed	injured	killed	injured
16 May 2004	Baghdad, Iraq	attempted use of IED with artillery shell containing binary sarin agents	0	2	0	0

21 Oct 2006	Ramadi, Iraq	car bombing with chlorine tanks	0	4	0	0
28 Jan 2007	Ramadi, Iraq	suicide bombing with dump truck carrying chlorine tank	16			
19 Feb 2007	Ramadi, Iraq	suicide car bombing involving chlorine release	2	16	0	
20 Feb 2007	Taji, Iraq	bombing of chlorine tanker truck	9	150	0	52
21 Feb 2007	Baghdad, Iraq	explosion of car bomb carrying chlorine tanks	6	73		
16 Mar 2007	Ramadi, Iraq	suicide bombing with pickup truck carrying chlorine tanks	0	2	0	
16 Mar 2007	Falluja, Iraq	suicide bombing with dump truck carrying chlorine tanks	2	100		
16 Mar 2007	Falluja, Iraq	suicide bombing with dump truck carrying chlorine tanks	6	250	0	7
28 Mar 2007	Falluja, Iraq	truck bombing involving chlorine in attack on government center	0	71	0	0
6 Apr 2007	Ramadi, Iraq	suicide bombing with truck carrying chlorine tanks	35	50		
25 Apr 2007	Baghdad, Iraq	truck bombing involving chlorine	1	2		
30 Apr 2007	Ramadi, Iraq	explosion of chlorine tanker near restaurant	6	10		
15 May 2007	Abu Sayda, Iraq	bombing at open air market involving chlorine release	32	50		
20 May 2007	Zangoura, Iraq	truck bombing involving chlorine at police checkpoint	0	11		
3 Jun 2007	Diyala province, Iraq	suicide car bombing using chlorine tanks at US military forward operating base	0	65	0	0
12 Nov 2008	Kandahar province, Afghanistan	acid attack on school girls	0	15	0	14
26 Apr 2009	Charikar, Kapisa province, Afghanistan	gas poisoning attack on girls' school	0	45	0	40

11 May 2009	Charikar, Kapisa province, Afghanistan	gas poisoning attack on girls' school	0	62	0	61
12 May 2009	Afghanistan	gas poisoning attack on girls' school	0	104	0	98
21 Apr 2010	Kunduz, Afghanistan	gas poisoning attack on girls' school	0	23	0	23
24 Apr 2010	Kunduz, Afghanistan	gas poisoning attack on girls' school	0	51	0	48
25 Apr 2010	Kunduz, Afghanistan	gas poisoning attack on girls' school	0	13	0	13
4 May 2010	Kabul, Afghanistan	gas poisoning attack on girls' school	0	25	0	22
11 May 2010	Kunduz, Afghanistan	gas poisoning attack on girls' school	0	30	0	30
11 May 2010	Kabul, Afghanistan	gas poisoning attack on girls' school	0	6	0	6
Jun 2010	Afghanistan	gas poisoning attack on girls' school	0	30	0	30
12 Jun 2010	Ghazni City, Afghanistan	gas poisoning attack on girls' school	0	60	0	60
25 Aug 2010	Kabul, Afghanistan	gas poisoning attack on girls' school	0	74	0	60
28 Aug 2010	Kabul, Afghanistan	gas poisoning attack on girls' school	0	52	0	48
31 Aug 2010	Kabul, Afghanistan	gas poisoning attack on girls' school	0	74	0	74
2010	Kabul, Afghanistan	gas poisoning attack on girls' school	0		0	
2010	Afghanistan	gas poisoning attack on girls' school	0		0	
2010	Afghanistan	gas poisoning attack on girls' school	0		0	
2010	Afghanistan	gas poisoning attack on girls' school	0		0	
2010	Afghanistan	gas poisoning attack on girls' school	0		0	

2010	Afghanistan	gas poisoning attack on girls' school	0		0	
28 Nov 2011	Kunduz, Afghanistan	acid attack on family in home	0	4	0	3
31 Mar 2012	Esfandi area, Ghazni province, Afghanistan	acid attack on children	2	0	2	0
17 Apr 2012	Takhar province, Afghanistan	water poisoning attack on girls' school	0	171	0	150

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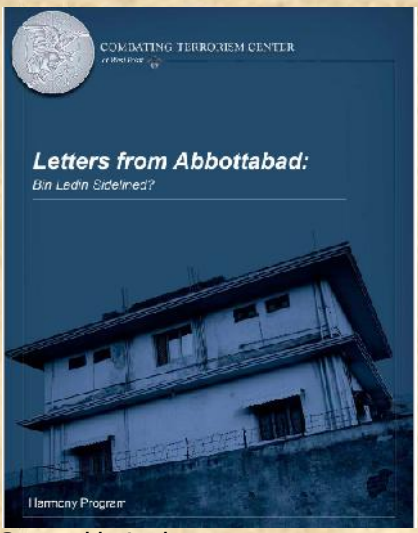
three years he participated in the Dean's Scholars Program in the College of Natural Sciences.

Al Qaeda Worried Collateral Damage From Chemical Attacks Would Hurt Its Image

Source:http://www.securitymanagement.com/news/al-qaeda-worried-collateral-damage-chemical-attacks-would-hurt-its-image-009819

In 2007, al Qaeda suspended using chlorine gas as a weapon while waiting for guidance on whether or not to continue the practice, worrying that collateral damage from attacks could hurt its image, according to documents published online.

The Combating Terrorism Center at West Point on Thursday released 197 pages (175 pages translated from Arabic) of documents found last year on electronic storage devices in Osama bin Laden's Abbottabad, Pakistan compound. Both the original Arabic documents and the English versions are available online. In a May 2, 2012 raid, Navy SEALS killed al Qaeda mastermind Osama bin Laden and recovered hundreds of items including flash drives, hard drives, and discs.



In a letter to a legal scholar named Hafiz Sultan, an unnamed operative writes that he is concerned about al Qaeda's conduct in Iraq and looks for guidance on using chlorine gas as a weapon.

Chlorine is a choking agent, a chemical that attacks the respiratory system. As a weapon it's most likely to be used in gas form and is extremely flammable when mixed with other chemicals. When released into the air it spreads quickly, causing breathing difficulty, nausea, fluid buildup in the lungs, blistered skin, and eventually death.

"The gas could be difficult to control and might harm some people, which could tarnish our image, alienate people from us," the operative wrote.

The letter is dated March 28, 2007--one month after two high profile chlorine attacks in Baghdad. In the first attack, a bomb placed under a chlorine truck sent 150 villagers to the hospital. A day later, insurgents exploded pick-up truck carrying

chlorine canisters. The explosion killed five people and sent 55 more to the hospital.

"Also, the brothers where Mahmud is have the potential to use [chlorine gas] on the forces of the apostates, Jalal and Mas'ud, and have already considered using it. However, I informed them that matters as serious as this required centralized [coordination] and permission from the senior leadership," the letter reads. The writer says they would put chlorine attacks on hold and wait for guidance. According to media reports, attacks continued, but at a slower pace.

A U.S. Department of Defense spokesman did not immediately return requests for comment.

Other documents released by CTC show al Qaeda was an organization hypersensitive about its image and its own ability to win the hearts and minds of people in the region caught in the crossfire between itself and its enemies.

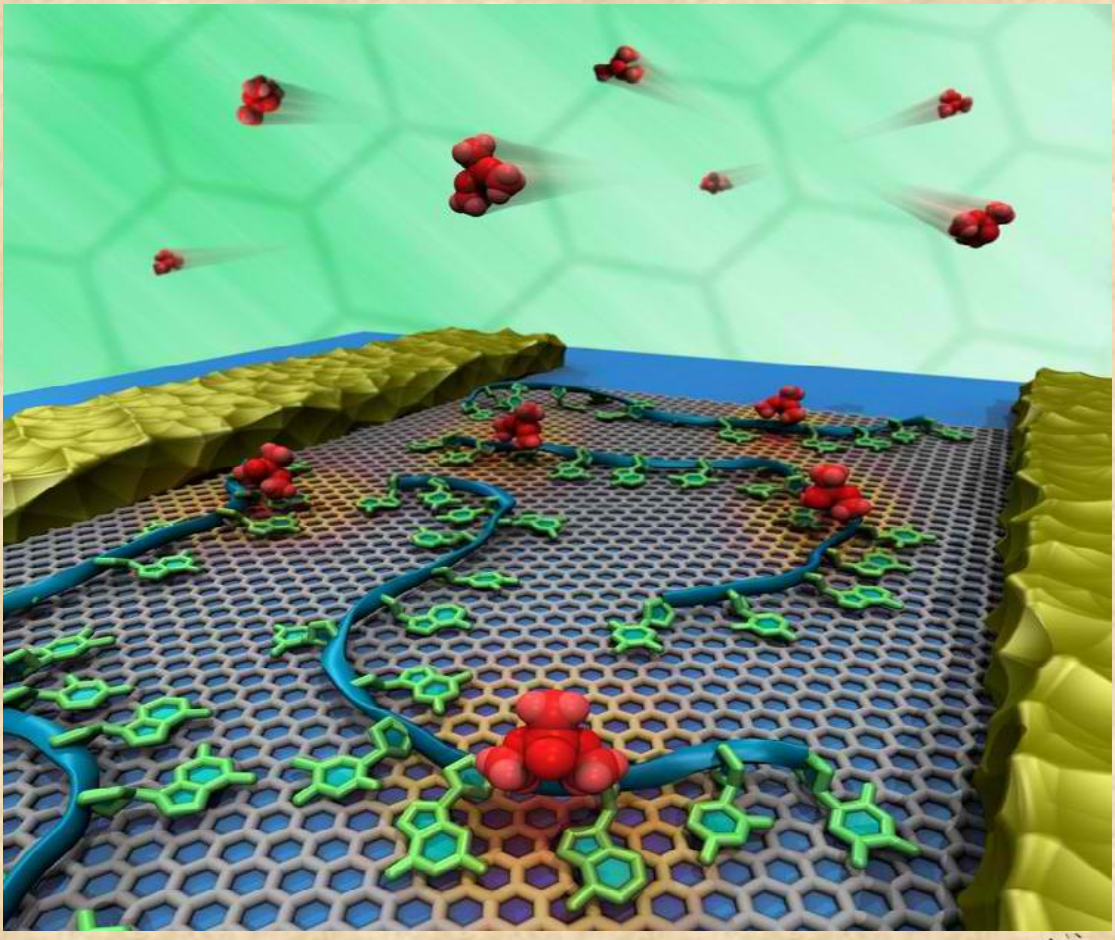
In one letter, al Qaeda spokesman Adam Gadahn provides PR advice for the tenth anniversary 9/11 and suggests the organization distance itself from the Pakistani Taliban and the Islamic State of Iraq, an insurgent group.

NOTE: Download the full report from Newsletter's website – "CBRN-CT Papers" secrion.

New DNA-based chemical sensor acts as an all-electronic nose

Source: http://www.homelandsecuritynewswire.com/dr20120503-new-dnabased-chemical-sensor-acts-as-an-allelectronic-nose

Chemical sensors are very good at detecting a single substance or a class of chemicals, even at highly rarified concentrations; biological noses, however, are vastly more versatile and capable of discriminating subtle cues that would confound their engineered counterparts; even highly trained



noses, however, do leave a certain ambiguity when relaying a signal

Chemical sensors are exceedingly good at detecting a single substance or a class of chemicals, even at highly rarified concentrations. Biological noses, however, are vastly more versatile and capable of discriminating subtle cues that would confound their engineered counterparts. Unfortunately, even highly trained noses do leave a certain ambiguity when relaying a signal and are not particularly suited for work in specialized situations like operating rooms.

An American Institute of Physics (AIP) release reports that a new DNA-based chemical sensor appears to be both extremely sensitive and discerning, making it an important stride on the path to an all-electronic nose.

A team of researchers report in a paper published in the American Institute of Physics' journal *AIP Advances* that specially tailored strands of DNA attached to carbon nanotubes can tell the difference between very similar molecules, even those that have an identical chemical makeup.

"We're trying to develop this into an electronic nose system," says A. T. Charlie Johnson, a physicist at the University of Pennsylvania and study co-author. "We used this system to distinguish between optical isomers, molecules that are nearly identical except that one is structurally reversed—a mirror image."

The system works by affixing DNA strands to carbon nanotubes, which are excellent electrical conductors. The DNA strands have been fine-tuned to respond to particular chemicals, so when strands come in contact with a target chemical — even at very low concentrations — it produces a measurable electrical signal along the nanotube. The sensors were able to check for molecules that differ by as little as one carbon atom. Though the researchers are not the first to observe this effect, they have achieved an unprecedented level of differentiation for an all-electronic chemical detector. "What I'm focusing on is the size of the difference in the signal," says Johnson.

The researchers are next interested in creating something akin to an actual electronic nose consisting of many individual DNA-based sensors performing the same role as an olfactory receptor.

The goal is to have a system that is highly versatile and sensitive with wide-scale applications.

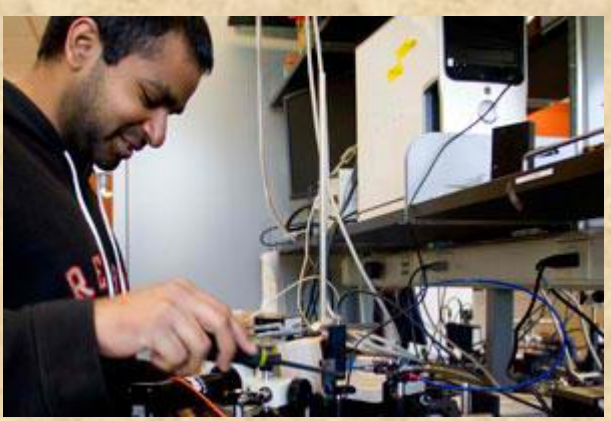
For example, the chemical dimethylsulfone is associated with skin cancer. The human nose cannot detect this volatile but it could be detected with the new sensor at concentrations as low as 25 parts per billion.

— Read more in S. M. Khamis et al., "DNA-decorated carbon nanotube-based FETs as ultrasensitive chemical sensors: Discrimination of homologues, structural isomers, and optical isomers," AIP Advances 2, no. 2 (17 April 2012)

Smart gas sensors offer better chemical detection

Source:http://www.homelandsecuritynewswire.com/dr20120502-smart-gas-sensors-offer-better-chemical-detection

Smart chemical sensors can detect chemical weapon vapors or indicators of disease better than the current generation of detectors; they also consume less power, crucial for stretching battery life on the battlefield, down a mineshaft, or in isolated clinics



Assembling the table-top test bed for smart gas detector // Source: umich.edu

Portable gas sensors can allow you to search for explosives, diagnose medical conditions through a patient's breath, and decide whether it is safe to stay in a mine.

These devices do all this by identifying and measuring airborne chemicals, and a new, more sensitive, smart model is under development at the University of Michigan. The smart sensor could detect chemical weapon vapors or indicators of disease better than the current design. It also consumes less power, crucial for stretching battery life down a mineshaft or in isolated clinics.

In the gold standard method of gas detection, chemicals are separated before they are measured, said Xudong "Sherman" Fan, a professor in the Department of Biomedical Engineering. In a vapor mixture, it's very difficult to tell chemicals apart," he said.

A University of Michigan release reports that the main advance of the sensor under development by Fan and his colleagues at U-M and the University of Missouri, Columbia, is a better approach to divvying up the chemicals. The researchers have demonstrated their concept on a table-top set-up, and they hope to produce a hand-held device in the future.

Different chemical vapors can be thought of as tiny clouds, all overlapping in the original gas. In most gas sensors today, researchers separate the chemicals into smaller clouds by sending the gas through two tubes in sequence. A polymer coating on the inside of the first tube slows down heavier molecules, roughly separating the chemicals according to weight. The time it takes to get through the tube is the first clue to a chemical's identity, Fan explained.

A pump and compressor collect gas from the first tube and then send it into the second tube at regular intervals. The second tube is typically coated with polar polymers, which are positively charged at one end and negatively charged at the other. This coating slows down polar gas molecules, allowing the non-polar molecules to pass through more quickly. With this second clue, the researchers can identify the chemicals in the gas.

The decision-maker added by Fan's group consists of a detector and computer that watch for the beginnings and ends of partially separated chemical clouds. Under its direction, the compressor only runs when there is a complete cloud to send through. In addition to consuming one-tenth to one-hundredth of the energy expended by the compressor in typical systems, this approach makes data analysis easier by keeping all molecules of one type together, said Jing Liu, a graduate student in Fan's group.

"It can save a lot of power, so our system can be used in remote areas," she said.

The release notes that because no gas can enter the second tube until the previous chunk has gone all the way through, the smart system takes up to twice as long to fully analyze the gas. Adding alternative tubes for the second leg of the journey, however, can get the system up to speed. Then, the decision-maker acts like a telephone operator.

"It can tell if one tube is 'busy' and send the gas to another line," Fan said.

This way, the device never stops the flow of the gas from the first tube. These second tubes can be customized for separating specific gasses, made to various lengths and with different coatings. As an example, Fan suggested that a dedicated tube for sensing specific molecules could serve as a "hotline."

"If we have suspicion that there are chemical weapon vapors, then we send that particular batch of molecules to this hotline," said Fan. "It could identify them with really high sensitivity."

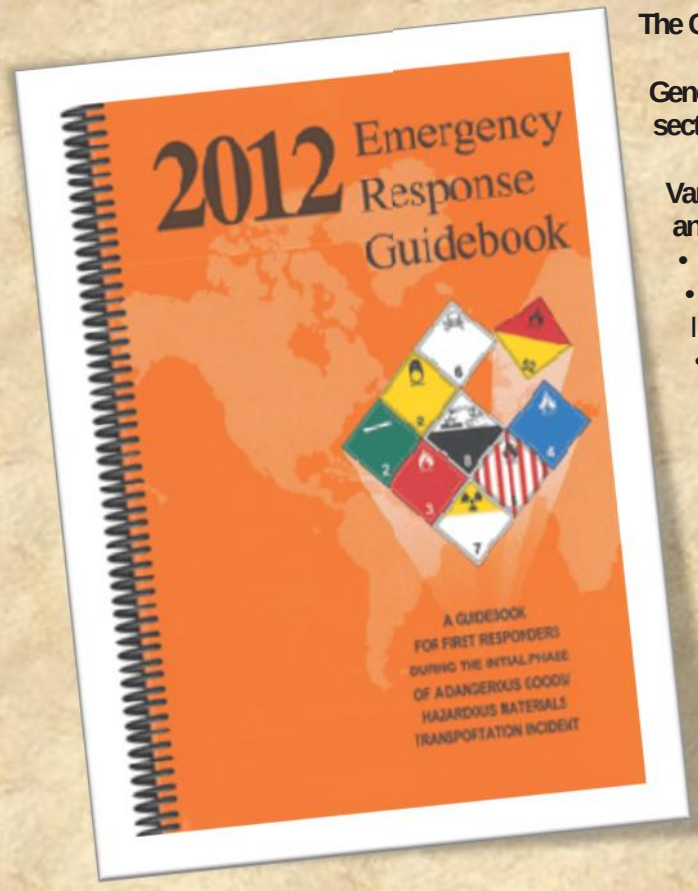
Fan's team will study these sophisticated setups in the future. For now, they have proven that their decision-maker can distribute gas between two secondary tubes. Their smart sensors fully identified gasses containing up to 20 different chemicals, as well as compounds emitted by plants.

The work was supported by the National Science Foundation and the Center for Wireless Integrated Microsensing and Systems at the University of Michigan.

— Read more in Jing Liu et al., "Adaptive Two-Dimensional Microgas Chromatography," Analytical Chemistry 8, no. 8(2 April 2012): 4214–20

Coming soon – ERG 2012

Source: http://phmsa.dot.gov/hazmat/training/publications?goback=.gde_1946022_member_114640163



The Guidebook cover has been updated.

General Information (WHITE) pages – several sections have been moved

Various sections have been expanded and/or revised, including:

- Shipping Documents (Papers)
- How to Use this Guidebook During an Incident
- User's Guide
- Isolation and Evacuation Distances
- Who to Call for Assistance
- Table of Placards and Initial Response Guide to Use On-Scene
- Rail Car Identification Chart
- Road Trailer Identification Chart
- Fire and Spill Control
- Pipeline Safety Information
- Criminal/Terrorist Use of Chemical/ Biological/Radiological Agents
- Glossary
- Publication Data (and related information)
- Emergency Response Telephone Numbers

Index List of Dangerous Goods in Order of ID Number (YELLOW-bordered pages) and the Index List of Dangerous Goods in Alphabetical Order (BLUE-bordered pages):

- Addition of all new dangerous goods listed in UN
- Recommendations on the Transport of Dangerous Goods to 17th Revised Edition

Safety Recommendation/Emergency Response Guides ("Guides," or ORANGE-bordered pages):

- Tune-up of some guides

Table of Initial Isolation and Protective Action Distances, and the Table of Water-Reactive Materials Which Produce Toxic Gases (GREEN-bordered pages):

- Added Table 3 for six gases which are toxic by inhalation
- Tune-up of Initial Isolation and Protective Action Distances

Added a Boiling Liquid Expanding Vapor Explosion (BLEVE) Chart to Fire and Spill Control Section

Added an Improvised Explosive Device (IED) Safe Standoff Distances Chart to Criminal/Terrorist Section

➲ **The new 2012 ERG's are projected to be available mid-June, 2012.**

Russia Destroys Over 60% of its Chemical Weapons Stockpile

Source:
http://en.ria.ru/russia/20120322/172313361.html

Russia has destroyed more than 24,000 metric tons of chemical warfare agents, or 60.4 percent of its chemical weapons stockpile, Russia's industry and trade ministry said.

"We have set a goal to destroy 100 percent of chemical weapons in Russia by 2015. At the moment, two facilities have already completed their chemical weapons disposal tasks," Russian Deputy Industry and Trade Minister Georgy Kalamanov said.

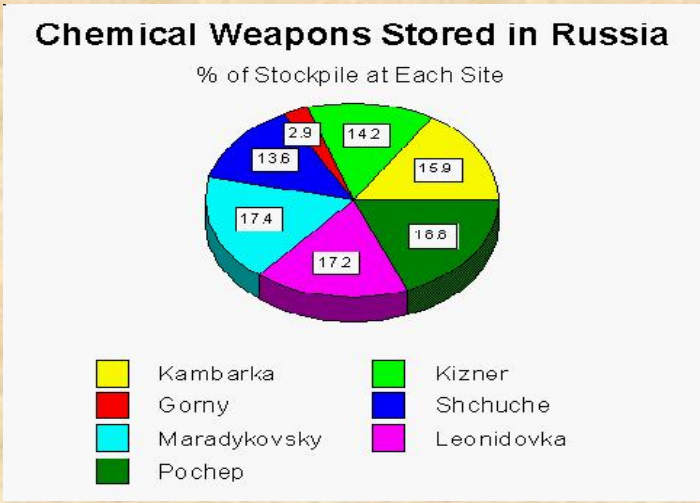
One of Russia's chemical weapons disposal facilities in Kurgan region

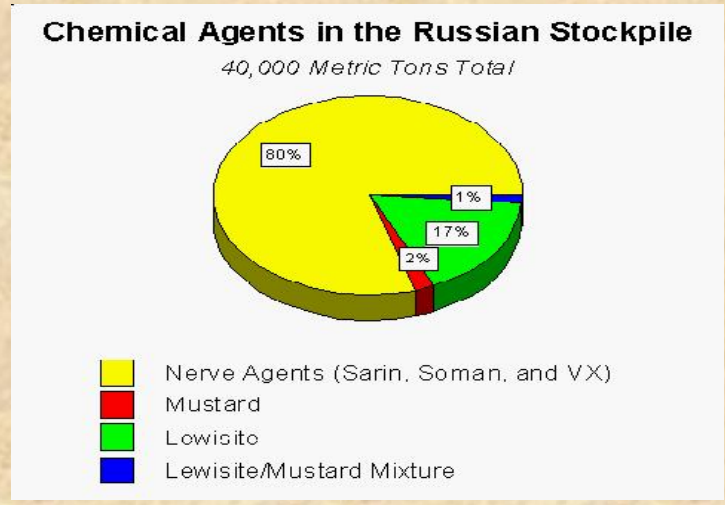
Chairman of the State Commission on Chemical Demilitarization Mikhail Babich said Russia "makes huge effort to complete this process as soon as possible," his press service said.

He also said that "all states outside the legal frame of the [Chemical Weapons] Convention should join it immediately, and all states parties should comply in full with all provisions of this treaty."

So far, Russia destroyed almost all chemical weapons scheduled for disposal in 2011. Six chemical weapons disposal plants are operating on Russia's territory.

The 188 states parties to the Convention initially planned to destroy all chemical weapons in the world by 2012. Russia and the United States, who have 40,000 and 27,000 metric tons of chemical weapons, respectively, said they were behind schedule and the deadline was postponed until December 31, 2015.





Army chemical specialists training to keeping America safe

Source:http://www.dvidshub.net/news/88111/army-chemical-specialists-training-keeping-america-safe#.T6qdBlKRQ4k

His hands worked quickly and steadily as sweat was beading from his forehead down to his cheek. His two team members watched from a distance as they hoped they wouldn't hear a dreadful boom.

Sgt. Ruben Lugo Jr., an explosive ordinance disposal sergeant with B Company, 110th Chemical Battalion from Joint Base Lewis McChord, Wash., led Spc. Alexander Main, an explosive ordinance disposal team member, and Staff Sgt. Philip Ellis, sample team leader, into a simulated chemical contaminated building during the team's certification exercise at the Yakima Training Center, May 7.

Sgt. Ruben Lugo Jr., an explosive ordinance disposal sergeant with B Company, 110th Chemical Battalion from Joint Base Lewis McChord, Wash., has his chemical suit cut off of him by a decontamination team after being designated as a chemical casualty during his entry team's certification process at the Yakima Training Center, May 7. B Company was in YTC in support of 2nd Chemical, Biological, Radiological, and Nuclear (CBRN) Battalion's Defense CBRNE (Chemical, Biological, Radiological, Nuclear and high- yield Explosives) Response Force (DCRF). The DCRF is made up of more than 800 soldiers in 16 supporting units from six different military installations across the country who could respond to any U.S. CBRNE incident to prevent the loss of American civilians.

B Company is one of only two Chemical, Biological, Radiological, Nuclear and high-yield Explosives (CBRNE) units capable of performing this type of mission and are an integral part of the 2nd CBRN Battalion's Defense CBRNE Response Force (DCRF). The DCRF is made up of more than 800 soldiers in 16 supporting units from six different military installations across the country who could respond to any U.S. CBRNE incident to prevent the loss of American civilians.

To complete the scenario, Ruben's team had to enter a building they suspected to contain dangerous chemicals, explosives and other obstacles. Their job was to make sure the area was clear for the collection team to enter the building and take samples of the chemicals so they could be analyzed and properly neutralized.

One of the obstacles they faced was a five-gallon container with a grenade attached to it on the second floor that was rigged to go off if the door next to it was opened. Lugo's team overcame this by trying to open the door from outside the building using specialized mounting plates, metal clasps, rope and a large mallet. After that didn't work, due to the door being barricaded from the inside, Lugo climbed the side of the building to the second floor window where he was able to safely enter the building, defuse the grenade and remove the obstruction.

"I got a lot of good experience today," said Lugo. "We had great learning experiences and gained a lot of building blocks, which is why we came here."

B Company differs from other Army units because its missions can be called in by civilian agencies here in the U.S. An incident here in the states can begin with a concerned citizen calling 911 and first responders suspecting chemical agents, and end with soldiers from B Company clearing a house in their full chemical gear or working with a Department of Defense agency to help protect the area around the house from harm.

"What we bring to the fight is a more detailed technical expertise," said Capt. Stephen Siegner, a CBRNE response team team leader with B Company. "Your conventional chemical unit wouldn't be able to mitigate this kind of problem."

Bringing their soldiers to YTC gives B Company a different environment to help prepare them for the stresses that come with such a dangerous mission.

"This was my first time doing training like this,"

said Pfc. Ashley Ganan, a decontamination team member with B Company. "I was pretty nervous because when we do our dry runs it's not as intense and nerve racking as it is when you're put on the spot so this was really good training for me."

As each section of the team finished doing their part of the training, they all had to be decontaminated before leaving the affected area. This is necessary so that they do not spread any contamination to other areas before a different chemical unit can neutralize the area. Even as the soldiers were finishing the exercise, tired and covered in sweat, they still looked ready and eager to do it again and you could see in their face that they really love what they do.

A Flexible Nerve-Gas Sensor

Source: http://cen.acs.org/articles/90/web/2012/05/Flexible-Nerve-Gas-Sensor.html

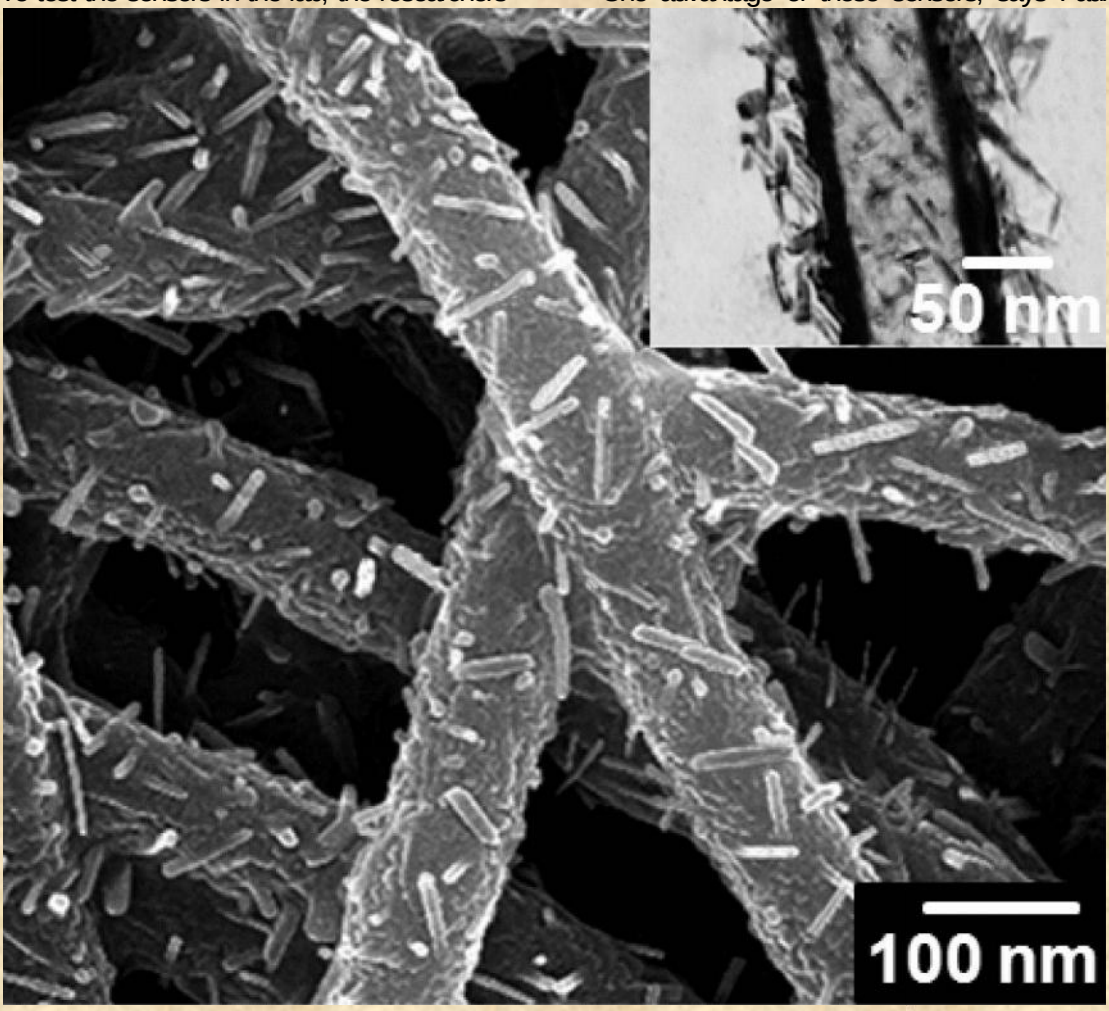
A chemical sensor based on polymer nanostructures can detect nerve gas at concentrations as low as 10 parts per trillion. With further development, the flexible sensor materials might enable wearable systems for detecting chemical weapons, the researchers say.

Currently, soldiers and police use mass spectroscopy-based devices to detect organophospates, the group of compounds that includes the nerve gas sarin. Jyongsik Jang, a polymer scientist at Seoul National University, says sensors based on nanostructured polymers would be less expensive and more sensitive, while also being lightweight and flexible enough to make a wearable device built on plastic or even fabric.

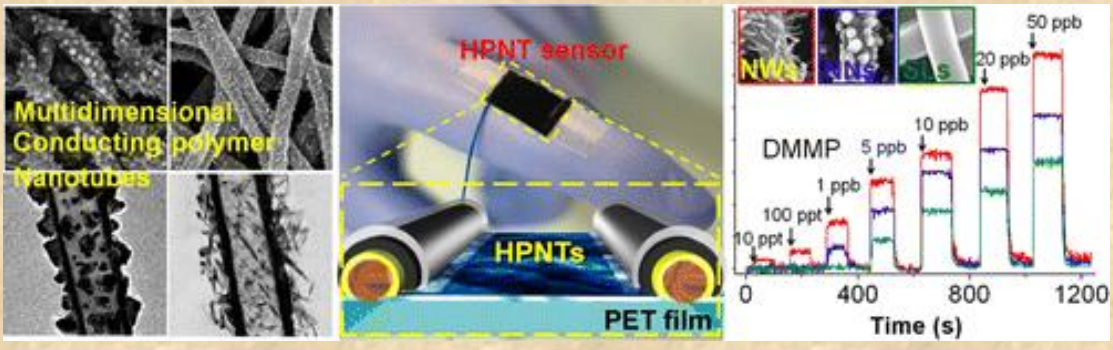
Jang's sensors use the inexpensive conductive polymer poly(3,4-ethylenedioxythiophene). When chemists add hydroxyl groups to PEDOT's sidechains, the polymer can interact with organophosphates via hydrogen bonds. This interaction changes the polymer's electrical resistance, which simple electronics can easily measure. The more surface area a PEDOT sensor has to interact with gases in the environment, the stronger the response, Jang's team reasoned. Based on that idea, they wanted to make hydroxylated PEDOT nanostructures to maximize surface area, and in turn produce ultrasensitive sensors.

They started by electrospinning mats of the polymer to make nanotubes. Then the scientists used a vapor-deposition process to coat the tubes' surfaces with nanosized nodules or rods. The nanorod-coated tubes have twice the surface area of untreated tubes. The team made resistors out of mats of these tubes and then placed them between two wires on a plastic sheet to make a flexible sensing device.

To test the sensors in the lab, the researchers used dimethyl methylphosphonate, a standard gas used in the laboratory as a stand-in for sarin, which is classified by the United Nations as a weapon of mass destruction. The tubes coated with nanorods performed the best, demonstrating measurable changes in resistance at concentrations as low as 10 parts per trillion. This detection limit is two to three orders of magnitude more sensitive than previously reported sensors, says Jang. His team is now developing a wearable device that contains the sensor, its power source, and all the other necessary parts.

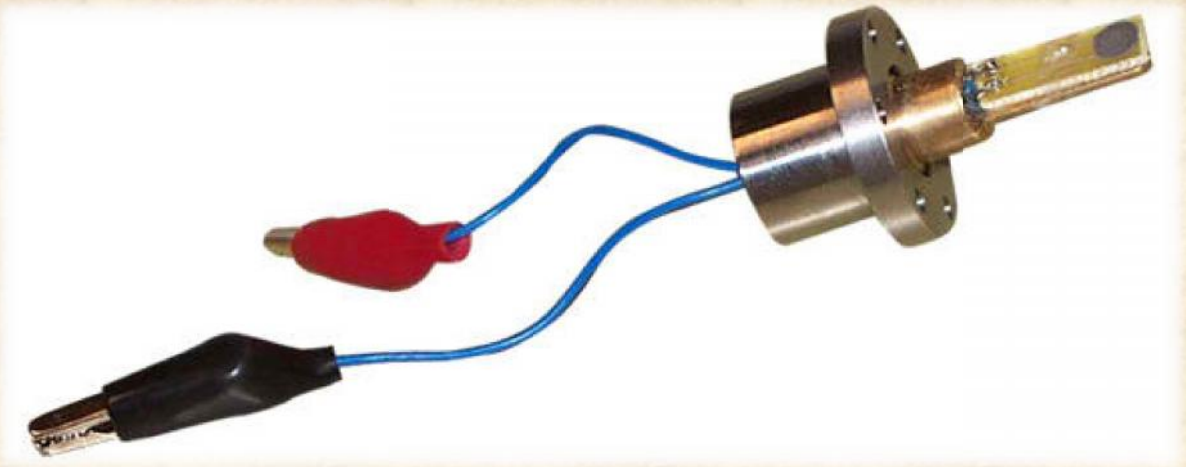


One advantage of these sensors, says Paul Rhodes, a team manager at chemical-sensor company Nanosense, is that the sensors can be used continuously, because the gas molecules don't stay bound to the polymer for long. Other proposed detection methods involve the gas binding irreversibly to a detector. However, he says he would like to see more evidence that the sensors are specific for organophosphate gases. "You can't freak out that you've got nerve gas if someone has mopped the floor with ammonia," he says.



A Nose in Your Clothes

Source: http://www.technologyreview.com/article/40392/?nlid=nldly&nld=2012-05-11



Peratech's VOC-sensing film (the small round gray area on right side of this testing equipment) could be integrated into clothing or onto paper. Peratech

A U.K. company says its highly pressure-sensitive material could be used to integrate an "electronic nose" into paper or clothing.

Peratech's sensor rapidly detects volatile organic compounds (VOCs)—gases in our surrounding environment that are produced by a wide variety of sources, everything from household paints to a person's own skin. Many do not have an odor, but an electronic sensor could alert a user to the presence of harmful chemicals or perhaps indicate that something is off-kilter with a user's health. Peratech's approach follows a long history of attempts to build portable and sensitive electronic noses, but the company claims its technology makes for a faster sniffer that produces a much larger response signal (change in electric charge). Furthermore, its sensors can be a few microns thick, broadening potential applications.

"By using a new sensing medium, we are taking it out to areas where previously it wasn't viable," says David Lussey, Peratech's chief technology officer. For instance, the **VOC sensors could be integrated into protective clothing for first responders entering chemically contaminated areas**, or into everyday clothing to monitor a person's own VOCs, which could indicate health status.

Peratech builds its sensors with its quantum tunneling composites (QTCs), which have previously been used to create pressure-sensitive touch screens. In quantum tunneling, electrons jump between conductors that are distributed through an otherwise nonconductive matrix. Deformation like twisting or bending brings the conductors close enough to one another that electrons can travel this way. In the case of the new sensors, the QTC is made of VOC-absorbing polymers that are spotted with Peratech's conductive metallic particles. When the polymer absorbs a VOC, it swells, thus pushing the conductive particles closer to one another, enabling quantum tunneling and thus electron flow.

Building VOC sensors with absorptive polymers and conductive materials is a well-known approach, says Tim Swager, MIT professor of chemistry and chemosensor expert. Historically, the method has not been very sensitive. One of the few real-world applications has been for product validation, such as monitoring food production for batch-to-batch consistency. In industrial settings, there are large amounts of a compound for the sensor to sniff out. Similar technologies "never worked for trace sensing," says Swager, referring to tiny but significant quantities of a target compound.

What's more, the polymers used may not be completely specific to a particular VOC, which could be problematic if the sensors are used in an uncontrolled environment full of diverse compounds. Whether Peratech will be able to solve these polymer problems remains to be seen—the company is looking for collaborators that are interested in exploring polymer selectivity and sensitivity in its sensors.

A special feature of Peratech's sensor is that it can be printed in thin film. Many of the electronic noses available today are handheld walkie-talkie-like devices. Peratech's sensor requires a low amount of power that could be supplied by a small dedicated power source integrated into clothing. Alternatively, power could come from a mobile phone in a wearer's pocket attached to the sensor via washable ribbon cables.

Lussey expects many more uses to come from Peratech's QTCs. The company's website suggests dozens of uses: from portable fabric keyboards to prosthetics with pressure-sensitive skin to more secure RFID cards. "What we have here is a small tiger by the tail. There are so many things we can do with this stuff, but we are doing one thing at a time."

Air-conditioned protective clothing for police, first responders, soldiers

Source: http://www.empa.ch/plugin/template/empa/3/119954/---/l=2

Functional sportswear is taken for granted these days. It is unexceptional for a sports jacket, for instance, to be both waterproof and breathable. In the case of working clothes, the functionality is mostly restricted to personal protection against fire, sharp objects, chemicals, and so on, with wearer comfort (mostly) not being significance top priority.

Bullet-proof vests made of Kevlar, as their name suggests, hold off bullets but they are also impenetrable to water vapor. Thus, police personnel who must wear such gear under their uniforms sweat profusely when the weather is warm. A situation which is merely uncomfortable when working in the office negatively affects the physical performance of police officers on duty.

An EMPA release reports that researchers at the Swiss Federal Laboratories for Materials Science and Technology, or EMPA (for *Eidgenössische Materialprüfungs- und Forschungsanstalt*), together with EMPA's industrial partners, have developed a "smart" protective vest with an integrated cooling system based on the cool-pad technology, originally designed for use in cooling garments for medical applications. The cool pads built into the vest are filled with water, which is allowed to evaporate through the membrane, cooling down its surroundings. A mini fan blows air though a fabric spacer behind the pad, providing further cooling.

The researchers say that integrating such an A/C into a garment proved to be tricky. It required a novel fabric spacer, which was stable under pressure yet also flexible and soft to the touch, and which offered very little resistance to air flow. A suitable spacer was developed together with Swiss textile manufacturer Eschler. There were also no fans on the market which were small enough to be

built into the vest; so EMPA engineers designed a miniaturized version themselves. Two units including batteries and control electronics now provide the cooling air circulation in the vest.

The cool pads used until then were also unsatisfactory, since in the protective vest, when the fans were mechanically stressed they frequently leaked water. A new technique for welding the ultra-thin pad membranes using diode

lasers proved more reliable than the conventional method, with the seam remaining

soft and flexible. In addition, the EMPA specialists were able to increase the evaporation rate and, therefore, the cooling ability.

This, however, was not all. In order to simplify refilling the cool pads with water, the researchers developed a portable filling station that can be attached to the vest with a quick-release fastener. During the same "pit stop," the mini fans can be exchanged for those with freshly charged batteries. The vest is then ready once again for three to four hours of duty.

The release notes that comparative measurements show that the new vest is significantly lighter and also cools much better than systems currently on the market. In practical use, too, the vest has proven its worth.

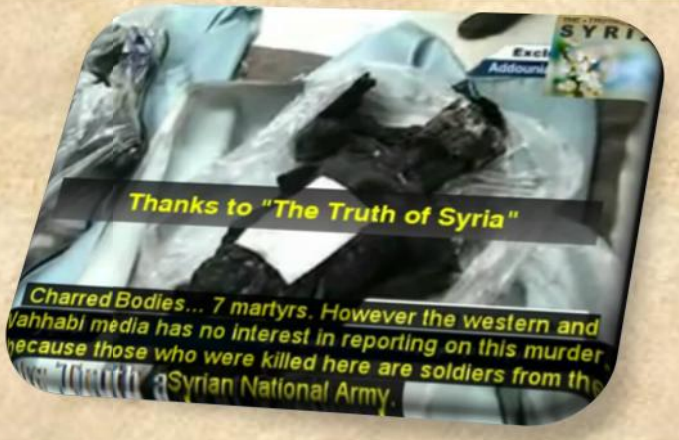
Staff of the Zürich City police force tested the vest over several warm summer days, and the police officers who used it found it helpful.

The first small series of the novel under-uniform protective vest will be produced in the near future by project partner Unico swiss tex GmbH.

EMPA says that the smart cooling technology is also suitable for protective suits worn over normal clothing, uniform jackets, camouflage suits, and even for rucksacks.

Chemical weapons used in Syrian uprest?

Source:http://www.firstpost.com/topic/place/iraq-syria-terrorists-used-chemical-weapons-against-national-syr-video-7pluoAxG-cM-19-1.html



New patent foreshadows future of trace detection technology

Source: http://phx.corporate-ir.net/phoenix.zhtml?c=88760&p=irol-newsArticle&ID=1696966&highlight=

Implant Sciences Corporation the other day announced that it has been issued patent # 8,173,959 from the U.S. Patent and Trademark Office. The patent, "**Real-Time Trace Detection by High Field and Low Field Ion Mobility and Mass Spectrometry**," covers a method for a hyphenated trace detection employing a combination of ion mobility spectrometry, differential mobility spectrometry, and mass spectrometry. This marks the thirteenth patent Implant Sciences has been issued and the third it has received in fiscal 2012.

The company says that its latest patent focuses on the **real-time detection, identification, and analysis of trace amounts of narcotics, explosives and chemical agents.**

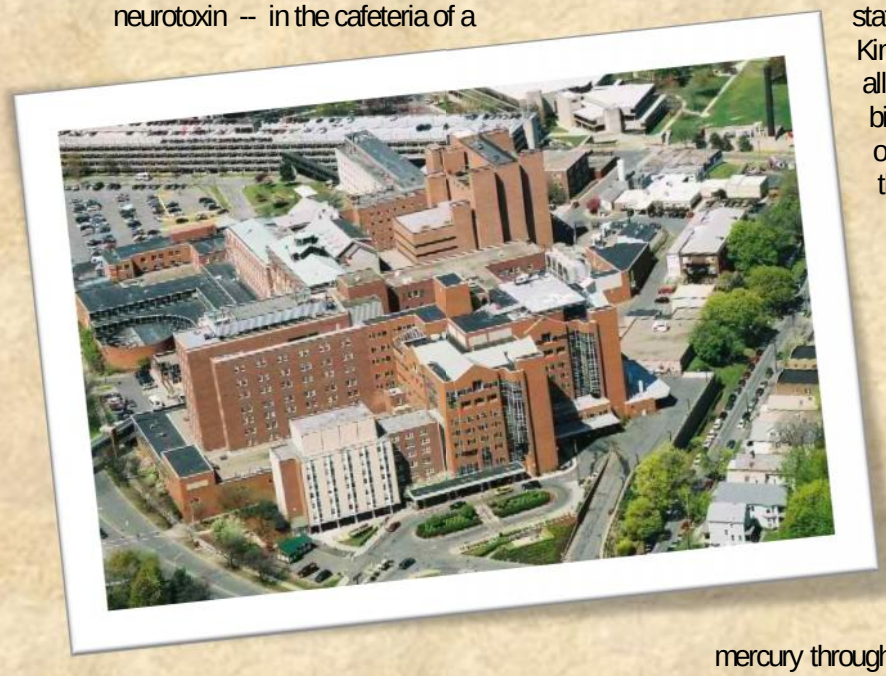
Todd Silvestri, Implant Sciences' vice president of technology, stated, "We believe the technology described in this patent will define the next generation of trace detection equipment. Systems incorporating this invention will be able to detect a wider range of threats with greater accuracy and fewer false alarms while maintaining the advantages of IMS throughput."

"Mass Spectrometry has been a promising technology in trace detection for more than a decade," added Implant Sciences' COO, Dr. Bill McGann. "The time for implementation is now, and the benefits for expanding the range of detection will greatly enhance global security. Turning credible science into practical technology through innovation is a cornerstone of the Implant Sciences global strategy."

Man charged with chemical attack on hospital

Source: http://www.gsnmagazine.com/node/26375?c=federal_agencies_legislative

An upstate New York man, upset over hospital bills, was charged by federal authorities with spreading mercury – a potentially potent neurotoxin -- in the cafeteria of a hospital in Albany last March.

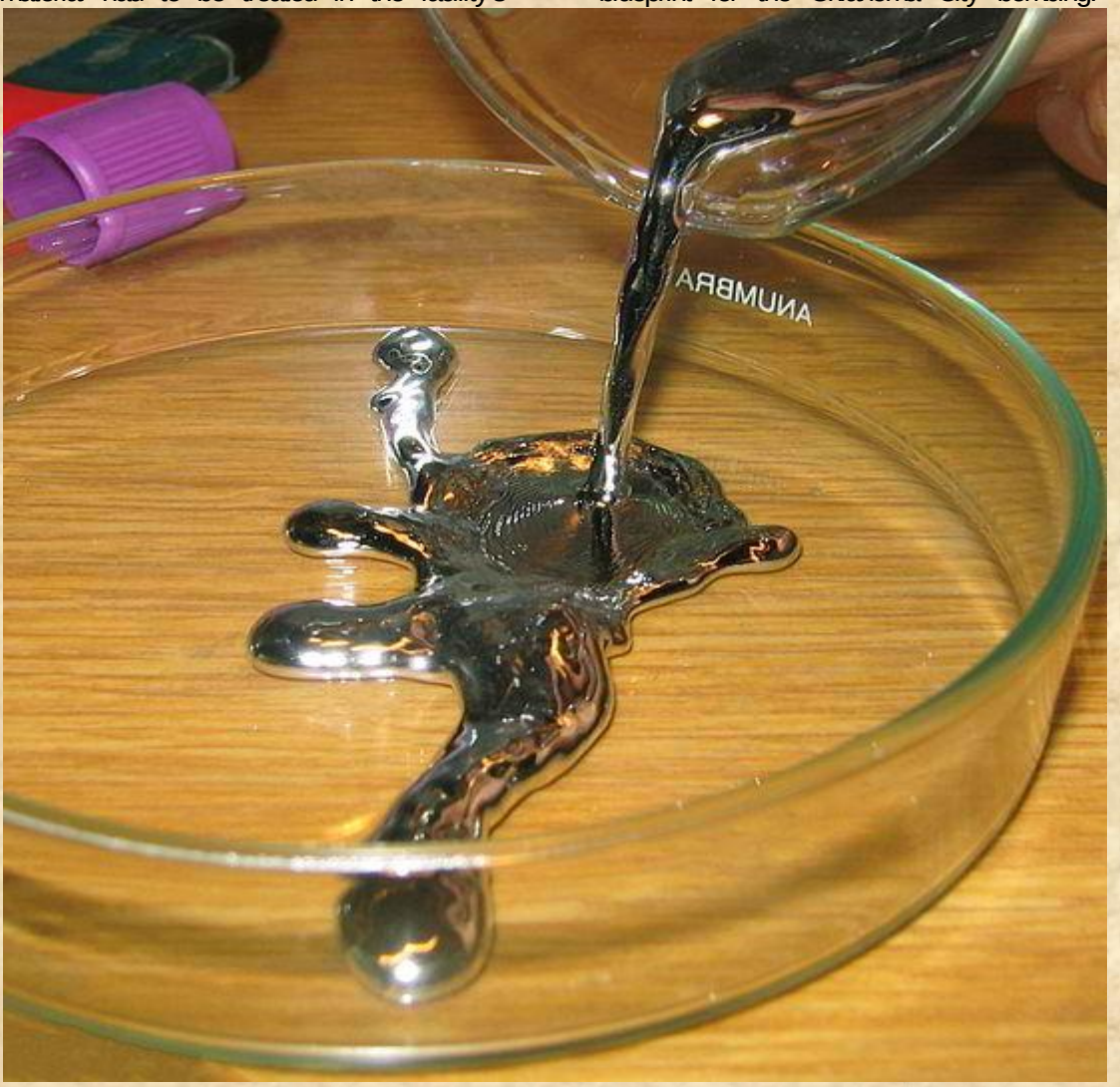


Martin Kimber, 59, of Ruby, NY was formally indicted on chemical weapons charges on May 17. He is charged in three counts with violations of the chemical weapon statute that prohibits possession, stockpiling, or use of a toxic chemical as a weapon; and with a violation of the consumer product tampering statute.

Kimber, according to the federal allegations, was embroiled in a billing dispute with the hospital over treatment he had received there in 2010. According to the indictment, he began complaining about having to pay for the treatments in early 2011. The center's director, indictment said, defended its decision for Kimber's payment. Kimber allegedly had provided inaccurate information about his injury and didn't complete the proscribed medical treatment.

Kimber allegedly spread mercury throughout the Albany Medical Center cafeteria on four different occasions, including on food served to customers, on the cafeteria salad bar, a toaster, an ice-cream freezer, and on chicken.

A person who ate the chicken laced with the material had to be treated in the facility's emergency room, according to the indictment and hazardous materials response teams had to respond and remove the material each time it was found.



The days the toxic substance was spread, said the indictment, coincided with New York State E-Z Pass toll records of Kimber's trips from Ruby to the exit for the Albany Medical Center. Kimber was also captured on video surveillance cameras in the hospital's cafeteria, according to the indictment.

The indictment said canisters of mercury were found by law enforcement officers in Kimber's car and house, along with about 21 guns and Nazi and racist literature and paraphernalia. The arrest warrant also said a copy of *The Turner Diaries* was also found at his home. The book, said the indictment, had a cover-page warning that read "This book contains racist propaganda" and "The FBI said it was the blueprint for the Oklahoma City bombing."

Kimber's possession of the book reflects "sympathy for domestic terrorism," according to the indictment.

He was arrested on April 25, 2012 and is in jail, being held in pretrial detention, said the FBI.

On March 2, 2012, following a detention hearing, the FBI said a federal judge determined Kimber was a serious danger to the community and that no combination of release conditions could be established to permit him to be released.

The two chemical weapons counts each contain a maximum possible term of life in jail and a fine of $250,000 or twice the gross loss to any victim, said the FBI. The consumer product tampering charge contains a maximum possible penalty of 10 years in jail and a fine of $250,000 or twice the gross loss to any victim, it said.

Mercury:Toxicity and safety

Mercury and most of its compounds are extremely toxic and must be handled with care; in cases of spills involving mercury (such as from certain thermometers or fluorescent light bulbs), specific cleaning procedures are used to avoid exposure and contain the spill. Protocols call for physically merging smaller droplets on hard surfaces, combining them into a single larger pool for easier removal with an eyedropper, or for gently pushing the spill into a disposable container. Vacuum cleaners and brooms cause greater dispersal of the mercury and should not be used. Afterwards, fine sulfur, zinc, or some other powder that readily forms an amalgam (alloy) with mercury at ordinary temperatures is sprinkled over the area before itself being collected and properly disposed of. Cleaning porous surfaces and clothing is not effective at removing all traces of mercury and it is therefore advised to discard these kinds of items should they be exposed to a mercury spill.

Mercury can be inhaled and absorbed through the skin and mucous membranes, so containers of mercury are securely sealed to avoid spills and evaporation. Heating of mercury, or of compounds of mercury that may decompose when heated, is always carried out with adequate ventilation in order to avoid exposure to mercury vapor. The most toxic forms of mercury are its organic compounds, such as dimethylmercury and methylmercury. Inorganic compounds, such as cinnabar are also highly toxic by ingestion or inhalation. Mercury can cause both chronic and acute poisoning.

Occupational exposure

Due to the health effects of mercury exposure, industrial and commercial uses are regulated in many countries. The World Health Organization, OSHA, and NIOSH all treat mercury as an occupational hazard, and have established specific occupational exposure limits. Environmental releases and disposal of mercury are regulated in the U.S. primarily by the United States Environmental Protection Agency.

Case control studies have shown effects such as tremors, impaired cognitive skills, and sleep disturbance in workers with chronic exposure to mercury vapor even at low concentrations in the range 0.7–42 μg/m^3. A study has shown that acute exposure (4 – 8 hours) to calculated elemental mercury levels of 1.1 to 44 mg/m^3 resulted in chest pain, dyspnea, cough, hemoptysis, impairment of pulmonary function, and evidence of interstitial pneumonitis. Acute exposure to mercury vapor has been shown to result in profound central nervous system effects, including psychotic reactions characterized by delirium, hallucinations, and suicidal tendency. Occupational exposure has resulted in broad-ranging functional disturbance, including erethism, irritability, excitability, excessive shyness, and insomnia. With continuing exposure, a fine tremor develops and may escalate to violent muscular spasms. Tremor initially involves the hands and later spreads to the eyelids, lips, and tongue. Long-term, low-level exposure has been associated with more subtle symptoms of erethism, including fatigue, irritability, loss of memory, vivid dreams and depression.

Treatment

Research on the treatment of mercury poisoning is limited. Currently available drugs for acute mercurial poisoning include chelators N-acetyl-D, L-penicillamine (NAP), British Anti-Lewisite (BAL), 2,3-dimercapto-1-propanesulfonic acid (DMPS), and dimercaptosuccinic acid (DMSA). In one small study including 11 construction workers exposed to elemental mercury, patients were treated with DMSA and NAP. Chelation therapy with both drugs resulted in the mobilization of a small fraction of the total estimated body mercury. DMSA was able to increase the excretion of mercury to a greater extent than NAP.

Canada Provides OPCW its Largest-Ever Donation to Expedite Destruction of Chemical Weapons in Libya

Source: http://www.opcw.org/news/article/canada-provides-opcw-its-largest-ever-donation-to-expedite-destruction-of-chemical-weapons-in-libya/

Canada has made a voluntary contribution to the OPCW of CAD 6 million (€ 4.53 million) for the Organisation to support the Libyan Government's efforts in resuming and completing the destruction of its remaining stockpile of chemical weapons.

Canadian Foreign Minister John Baird first announced the offer of assistance in Tripoli last October, when he visited the city shortly before the end of the eight-month conflict which resulted in the fall of the Qadhafi regime. The donation is the largest the OPCW has ever received from a State Party since it was established in 1997.

"This historic donation reflects the spirit of solidarity and mutual aid that has exemplified the OPCW from its beginning, and which is vital to achieve our goal of ridding the world of all chemical weapons," said the OPCW Director-General, Ambassador Ahmet Üzümcü. "I commend the Government of Canada for its generous support, and we look forward to working closely with Libya to eliminate the last of its chemical weapons as soon as possible."

The Libyan authorities, in turn, highly appreciate the support provided by the Government of Canada to Libya in order to achieve its comprehensive programme for the disposal of chemical weapons.

OPCW will use the funds for three main activities: 1) Project management and training of personnel to operate the destruction facility, 2) purchase of equipment and related materials for destroying sulfur mustard agent and chemical weapons munitions stored at the Ruwagha depot, and 3) provision of support services for OPCW on-site inspectors at Ruwagha.

The OPCW will continuously maintain rotating teams of 5-6 inspectors at Ruwagha throughout the destruction process, which OPCW officials expect should be completed for Libya's Category 1 chemical weapons within 6 months after operations resume.

Libya is one of three States Parties, together with the Russian Federation and the United States, that are unable to meet the 29 April 2012 final extended deadline set by the Chemical Weapons Convention for completing the destruction of their declared chemical arsenals. By decision of the Conference of States Parties in December, the three countries must submit detailed destruction plans to the OPCW, with completion dates, by no later than the final extended deadline, and are subject to enhanced reporting and verification measures.

EDITOR'S RECOMENDATION

Small-scale Terrorist Attacks Using Chemical and Biological Agents: An Assessment Framework and Preliminary Comparisons

Source: http://www.fas.org/irp/crs/RL32391.pdf

A paper you have to read especially for the tables included:

List of Tables

- Table 1. Chemical agent comparison according to barriers to potential terrorist use
- Table 2. Biological agent comparison according to barriers to potential terrorist use
- Table 3. Toxin agent comparison according to barriers to potential terrorist use
- Table 4. Comparison of chemical agent characteristics
- Table 5. Comparison of biological agent characteristics
- Table 6. Comparison of toxin agent characteristics

Afghan girls poisoned in second anti-school attack

Source:http://www.reuters.com/article/2012/05/23/us-afghanistan-poisoning-idUSBRE84M0N420120 523

More than 120 schoolgirls (10-18 yrs old) and three teachers have been poisoned in the second attack in as many months blamed on conservative radicals in the country's north, Afghan police and education officials said on Wednesday.

The attack occurred in Takhar province where police said that radicals opposed to education

of women and girls had used an unidentified toxic powder to contaminate the air in classrooms. Scores of students were left unconscious.

Afghanistan's intelligence agency, the National Directorate of Security (NDS), says the Taliban appear intent on closing schools ahead of a 2014 withdrawal by foreign combat troops.

"A part of their Al Farooq spring offensive operation is ... to close schools. By poisoning girls they want to create fear. They try to make families not send their children to school," NDS spokesman Lutfullah Mashal said.

Afghanistan's Ministry of Education said last week that 550 schools in 11 provinces where the Taliban have strong support had been closed down by insurgents.

Last month, 150 schoolgirls were poisoned in Takhar province after they drank contaminated water.

Since 2001 when the Taliban were toppled from power by U.S.-backed Afghan forces, females have returned to schools, especially in the capital Kabul. They were previously banned from work and education.

But there are still periodic attacks against students, teachers and school buildings, usually in the more conservative south and east of the country, from where the Taliban insurgency draws most of its support.

Over 400 students poisoned in Khost

Source: http://ariananews.af/regional/over-400-students-poisoned-in-khost/

More than 400 students and 3 teachers of a Boys School were poisoned in the south-eastern Khost Province on Tuesday, May 15, officials said.

So far, the main reason of the incident has not been cleared, Khost health officials said, the students might have drunk well water in the school.

Head of Khost Civilian Hospital Dr. Aminullah said the number of poisoned students was more than 400 but most of them were in good health and have been discharged.

This school was destroyed few years ago by unidentified gunmen attacking with mine explosion but it was rebuilt and opened back for the students.

Influx of Islamist Terrorists Boosts Concerns over Syria's Chemical Weapons

Source:http://blog.heritage.org/2012/05/25/influx-of-islamist-terrorists-boosts-concerns-over-syrias-chemical-weapons/

Syria's "Arab Spring," long delayed by barbaric repression, is now rapidly deteriorating into a bloody civil war.

The Bashar al-Assad regime's stubborn rejection of political compromise and its brutal suppression of the opposition has led increasing numbers of Syrians to take up arms against the regime. They have been joined by a small but growing stream of foreign Islamist militants who have flocked to Syria like moths to a flame.

The Assad regime has been targeted by a series of suicide bombings carried out by the Al-Nusra Front to Protect the Levant, which emerged in February and claims that its attacks are meant to avenge Sunni Muslims killed by the Alawite-dominated regime. Al-Nusra is believed to be a front for Al-Qaeda's Iraq branch, which is expanding its operations into Syria. There are also rumors that other Al-Qaeda affiliates are seeking to expand their operations in Syria.

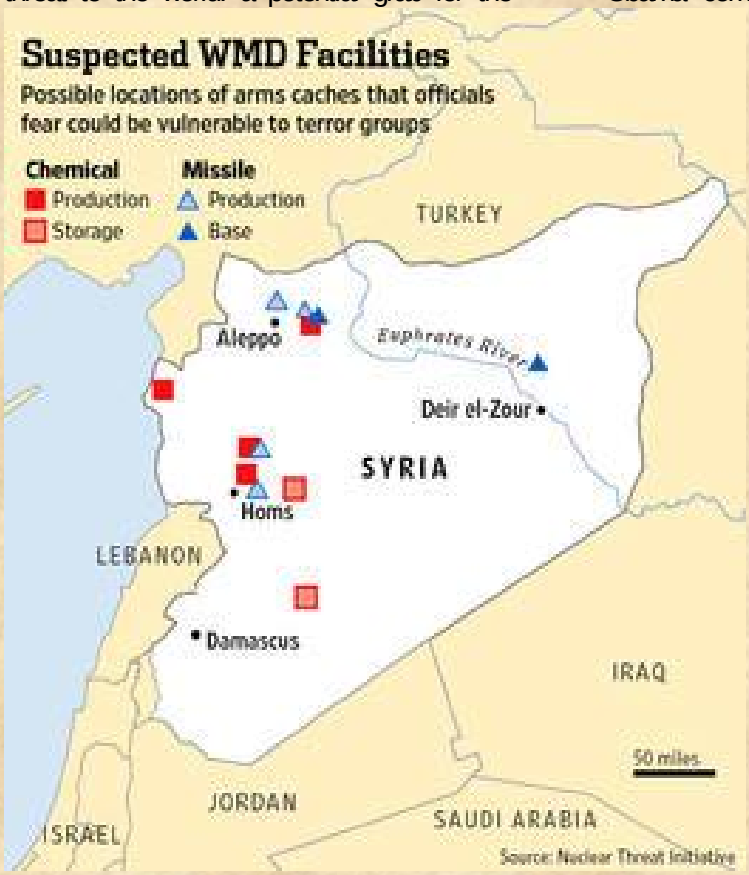
The Assad regime has also imported Hezbollah militants to help crush the opposition. Based in Lebanon, the Shia Islamist terrorist group has dispatched fighters to support Assad's military campaign against the Syrian opposition in areas near the Lebanese border. These Lebanese surrogates are reportedly sometimes accompanied by Iranians, who also serve as technical advisers in training Syria's security services to monitor communications and ferret out opposition leaders.

The intensifying conflict and growing activity of Islamist extremists has prompted the U.S. and other countries to make contingency plans to seize Syria's huge stockpiles of chemical weapons to prevent them from falling into the hands of terrorists if the regime collapses. U.S. intelligence agencies are monitoring chemical weapons production and storage sites, which reportedly remain heavily guarded by the regime. But if the Assad regime disintegrates, U.S. forces may be called in to keep the chemical genie bottled up.

Obama weighs action to prevent Al Qaeda grabbing Syrian WMD

Source:http://www.debka.com/article/22043/Exclusive-Obama-weighs-action-to-prevent-Al-Qaeda-grabbing-Syrian-WMD-

US President Barack Obama, though widely expected to pursue direct action against Syrian ruler Bashar following the Houla atrocity, is preoccupied with what he regards as a greater threat to the world: a potential grab for the huge Syrian stock of chemical and biological weapons by Al Qaeda's or other terrorist organizations. This is reported exclusively by debkafile's Washington and intelligence sources.



The US president is trying to persuade Russian President Vladimir Putin to accept his new plan for the immediate assignment by the UN Security Council of 3,000 armed monitors to Syria to take charge of the six chemical and biological stores. Another 2,000 will join the team later.

To allay Putin's suspicions of a trick to insert Western armed forces into Syria against Moscow's will, Obama suggested that most of the monitors would be Russian or nationals of governments lining up with its support of the Assad regime.

Our sources learn that, in one of the conversations between the two presidents, Obama commented: "If only one barrel of anthrax reaches the hands of a Caucasian terrorist group, Russian will face its greatest terrorist threat in its history. Millions of Russians may perish."

It was clear from this comment that Assad's WMD are not stored as warheads, bombs or shells but kept in large barrels or kegs in six underground bunkers, holding Sarin (GB), Tabun (GA) and VX nerve gases, some four kinds of mustard gas and anthrax. The storage silos are spread out among Al Safir, the main Syrian missile base in the north; Cerin, a biological research center on the Mediterranean shore; military facilities at Hama and Homs; the Syrian naval base leased to the Russians at Latakia; and Palmyra, on the highway between Homs and Aleppo.

According to the information reaching US intelligence, three of these locations are situated in heavily embattled areas between the Syrian army and rebels, in addition to which, in the last two weeks, al Qaeda elements have penetrated the war-torn districts with a view to seizing some of the WMD stores.

Obama warned Putin that the jihadists have never been so close to getting hold of large quantities of such deadly unconventional weapons, especially now that the Syrian army's 4th Division, commanded by Assad's brother Maher, which guards those stores, is additionally assigned with suppressing the revolt and therefore inadequately manned for securing them.

DCBRNC courses

Source:http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/TrainingandExercises/DCBRNC/DcbrncCourses.htm

The Defence CBRN (Chemical, Biological, Radiological and Nuclear) School is the instructional element of the DCBRNC. Its mission is to deliver the UK's Tri-Service CBRN Defence Training for Operations on land. The CBRN training courses that are currently being run are as follows:

CBRN Defence Advisors' Course

The 10-day CBRN Defence Advisors' Course replaces the CBRN Operational Advisor, CBRN Tactical Advisor and CBRN Training Officer Courses. It is aimed at military officers within a Battlegroup / unit who have responsibility to assist the commander in the tactical planning and execution of CBRN defence measures and unit CBRN training, or who fill CBRN staff appointments. The Course is designed to train CBRN Defence Advisors operating at Battlegroup / Deployed Operating Base at Staff Officer 3 (SO3) level.

Course Dates

16-27 Jan 2012
14-25 May 2012
16-27 Jul 2012
12-23 Nov 2012
21 Jan-1 Feb 2013

CBRN Defence Senior Officers' Symposium

The annual CBRN Defence Senior Officers' Symposium replaces the Strategic CBRN Desk Officer and CBRN Associate Staff courses. The symposium programme is split into 3 main forums concentrating on the threat, countering the threat, and UK CBRN defence capabilities.

Symposium date

Date to be confirmed.

CBRN Defence Cell Controller (BRACIS) Course

This is a 10-day course for military personnel who manage and carry out the functions of CBRN (Warning & Reporting) Control and Collection Centres in line with Allied Technical Publication ATP-45(D).

This task includes gathering CBRN data, interpreting that information and issuing subsequent reports on the spread of the threat. The emphasis on the Course is on the automated plotting of threats using the latest version of BRACIS software. The CBRN Defence Cell Controller (BRACIS) Course supersedes the CBRN Defence Cell Controller Course from **Sep 2011** onwards.

Course dates

28 Nov-9 Dec 2011
20 Feb-2 Mar 2012
11-22 Jun 2012
17-28 Sep 2012
3-14 Dec 2012
18 Feb-1 Mar 2013

GSR Conversion Course
This 5-day course will qualify existing CBRN Defence Instructors to fit, test and maintain the new General Service Respirator (GSR) and operate the Advanced Respirator Testing System (ARTS). The Course will be conducted in a number of locations in addition to the Defence CBRN Centre.

Course dates
8-11 May 2012
11-14 Jun 2012
23-26 Jul 2012
28-31 Aug 2012
24-27 Sep 2012
22-25 Oct 2012
19-22 Nov 2012
10-13 Dec 2012
28-31 Jan 2013
18-21 Feb 2013
18-21 Mar 2013

CBRN Defence Trainer Course
This is a 10-day course aimed at providing military personnel with the knowledge and skills to conduct and deliver instruction and testing on MATT 4 / CCS. It incorporates instruction on all the in-service respirators, including GSR. The Course, combined with the CBRN Defence Operational Instructor Course, supersedes the CBRN Defence Instructor Course from **Jan 2012** onwards. Depending on their training requirements, individuals can apply for the CBRN Defence Trainer Course alone or apply for both the CBRN Defence Trainer and CBRN Defence Operational Instructor Courses, which are scheduled back-to-back on the training programme.

Course dates
9-20 Jan 2012
6-17 Feb 2012
10-18 Mar 2012 (Reservist)
16-27 Apr 2012
14-25 May 2012
30 Jun-8 Jul 2012 (Reservist)
23 Jul-3 Aug 2012
3-14 Sep 2012
8-19 Oct 2012
29 Oct-9 Nov 2012
26 Nov-7 Dec 2012
7-18 Jan 2013
2-10 Mar 2013

CBRN Defence Operational Instructor
This is a 5-day course aimed at providing military personnel with the knowledge and skills to conduct unit instruction in CBRN incident response. The Course, combined with the CBRN Defence Trainer Course, supersedes the Defence CBRN Instructor Course from **Jan 2012** onwards.

Depending on their training requirements, individuals can apply for the CBRN Defence Trainer Course alone or apply for both the CBRN Defence Trainer and CBRN Defence Operational Instructor Courses, which are scheduled back-to-back on the training programme.

Course dates
23-27 Jan 2012
20-24 Feb 2012
19-23 Mar 2012 (Reservist)
30 Apr-4 May 2012
28 May-1 Jun 2012
9-13 Jul 2012 (Reservist)
6-10 Aug 2012
17-21 Sep 2012
22-26 Oct 2012
12-16 Nov 2012
10-14 Dec 2012
21-25 Jan 2013
11-15 Mar 2013 (Reservist)

CBRN Defence Equipment Manager's Course
This one-day course is intended for civilian and military stores staff of any rank who are responsible for storage, maintenance and management of in-service CBRN defence equipment. Please note that the CBRN Instructor Course incorporates this training and qualification.

Course dates
13 Mar 2012
8 Jun 2012
9 Oct 2012
13 Mar 2013

CBRN Defence Casualty Decontamination Area Course
This 4-day course is designed to train military band personnel to perform casualty decontamination in a CBRN environment in support of medical treatment facilities.

Course dates
8-11 Nov 2011
31 Jan-3 Feb 2012
5-8 Mar 2012
20-23 Mar 2012

DCBRNC is the home of the Joint CBRN Medical Faculty. The Centre also provides CBRN medical training to all Medical Officers in the UK Armed Services as well as specialist medical training to UK and NATO/Allied Nations. As well as military training, DCBRNC also supports civilian response in partnership with the Health Protection Agency and Department of Health.

Joint CBRN Medical Faculty
The Joint CBRN Medical Faculty supports development of the medical response to a CBRN incident and the management of CBRN casualties. It is a cross-

government group with the remit under the Surgeon General to develop CBRN clinical guidance, medical training and research.

CBRN Clinical Training objectives are:
1. Manage any CBRN casualties including trauma
2. Manage the medical aspects of a CBRN incident
3. Treat chemical casualties
4. Treat biological casualties including sepsis
5. Treat radiological casualties including nuclear

Principles of CBRN casualty management:

- Recognition
- Safety
- First Aid
- Triage
- Quick Look
- Life Saving Interventions (LSIs)
- Casualty Hazard Management
- Supportive Management
- Definitive Management

Accredited by The College of Emergency Medicine

CBRN Emergency Medical Treatment (EMT) Course
The EMT course is a 3-day new entry Medical Officer course developed to provide military doctors with an awareness of the effects and management of CBRN agents and teach the competencies to provide Role 1 (pre-hospital) medical management of CBRN casualties.

Accredited by The College of Emergency Medicine

CBRN Clinical Course
This 5-day course is designed to train Role 1 (pre-hospital), 2 (hospital) and 3 (medical, nursing and allied health) professionals in the recognition, triage and treatment of CBRN casualties in a CBRN environment and beyond.
The CBRN Clinical Course is sponsored by the Joint Medical Command but open to NATO, allied military and UK civilian organisations. This course supports the military competencies for Emergency Medicine, Acute Medicine, Intensive Care Medicine and specialist nurse training. Applications should be submitted to the Defence CBRN School.
The CBRN Clinical Course has been accredited by the College of Emergency Medicine for Continuing Professional Development (20 points CPD) and is compliant with NATO STANAG 2954.

DCBRNC SimMan3G during medical training

The CBRN Clinical Course has been accredited by the College of Emergency Medicine for Continuing Professional Development (20 points CPD) and is compliant with NATO STANAG 2954.

Course dates
14-18 May 2012
16-20 Jul 2012
29 Oct-2 Nov 2012
25 Feb-1 Mar 2013

CBRN Medical Training Facilities

The medical training at DCBRNC uses blended learning including interactive presentations, table top exercises, collective training and simulation. The Centre now has a dedicated medical training area for pre-hospital training as well as high-fidelity hospital training using the SimMan3G dedicated to CBRN medical management.

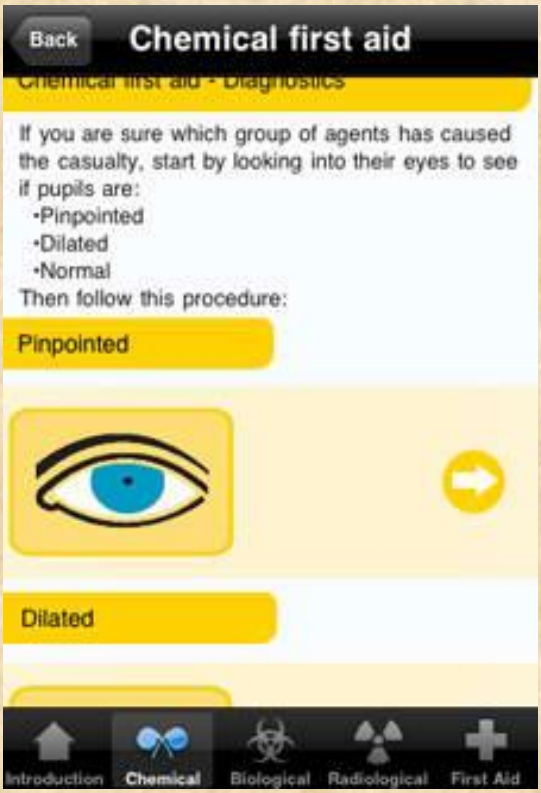
Military and Civilian Health Partnership awards 2011

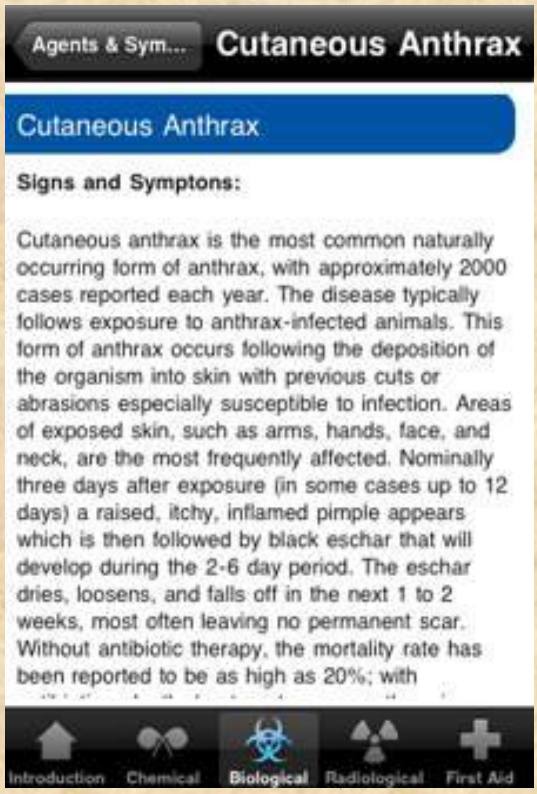
The training faculty were awarded the 2011 Military Civilian Health Partnership Award for Education and Training.

CBRN Survival Guide for iPhone

Source: http://www.webbedfeetuk.com/iphone-app-developers-cbrn-survival-guide.php

The CBRN Survival Guide is a iPhone app that was developed to offer clear and concise advice for surviving any toxic hazard.
The app provides background information on the spectrum of CBRN hazards and offers sensible first aid advice on casualties of blast and toxicological effects.
Phoenix Hazard Training approached Webbed Feet UK to develop an iPhone app based on an existing guide. We designed a clear, easy to use interface that allowed a user to quickly find the information they needed. We also developed an interactive section where users can enter their symptoms to determine the hazard.





CBRN Medical Field Hospital Course

Source: http://www.phoenixcbrn.com/cbrn-field-hospital-course.php

Phoenix Hazard Training Ltd provides solutions to protect organizations, individuals and assets against the CBRN threats based on specialist CBRN knowledge combined with substantial operational experience.
Phoenix Hazard Training has a solid customer base in the UK, Middle and Far East working with an established group of Partners providing supplementary security solutions.
Phoenix Hazard Training assist its customers to understand, identify and develop solutions to protect their organizations, individuals and assets against the growing CBRN threat based on thorough CBRN knowledge including:

- Warning & Reporting solutions;
- Awareness and Equipment training;
- Consultancy including on-site support;
- Protection, Detection and Decontamination equipment;
- Operating procedures.

CBRN Medical Field Hospital Course

- Course is 1 week in English and 2 weeks non-English
- 15 students per course

Course content:

Area of contamination from a chemical attack:

- Look at the sizes of an area that is contaminated by a chemical liquid release
- Look at the sizes of downwind hazard area from chemical gas and vapours
- The number of chemical casualties from the release

(Note: we have the latest hazard modelling software for casualties)

Chemical hazards (warfare) and its effects on the body:

- Nerve agents;
- Choking agents;
- Blood agent;
- Blister agents;
- Incapacitating agents
- Toxic Industrial Chemicals.

Management of Chemical Casualties

- Principles of Casualty Management;
- Layout;
- Equipment needed;
- Triage - Chemical Casualty;
- Triage Team;
- Emergency Medical Team;
- Decon Team;
- How to remove clothes;
- How to give nerve agent treatment - auto jet with atropine;
- How atropine works on the body;
- Atropine is a poison - symptoms – treatment;
- How to remove chemical liquid;
- Check respirator.

Note: we have training auto-jet pens for the students to use.

Biological Hazards:

Look at the problems of handling personnel contaminated with Biological Agents.

- Test for biological hazards;
- Decontamination;
- Management of Biological Casualties.

Radiological hazards:

Look at the problems of handling personnel contaminated with Radiation Isotopes.

- Types of radiation;
- Radiation sickness;
- Decontamination.

First aid for Blister Agent:

- Treatment of blister agent in the eyes;
- Treatment of blister agent on the skin;
- Treatment of blister agent digested.

First aid for Choking Agent:

- Treatment of choking agent in the eyes;
- Treatment of choking agent on the skin;
- Treatment of choking agent in the lungs.

Cross contamination hazards

- What is Cross contamination hazards CBR;
- How it will spread and create more casualties.

Testing for contamination

- Where to test and on what

Decontamination of transport

- Key points inside the field ambulance

Command and Control

- Calculate the time it will take to decontaminate a number of casualties;
- Calculate how many personal you need to carry out the task;
- How weather effects the hazard;
- Calculate how long the field hospital is in the hazard area.

Collective Protection (COLPRO)

- Understand the roles and responsibilities of Liquid Hazard Assistant (LHA);
- Understand the roles and responsibilities of the shelter marshal;
- Demonstrate an understanding of the integral components within a COLPRO system;
- Understand the roles and responsibilities of the Vapour Hazard Area Assistant (VHA).

First aid with ballistic injury and chemicals in the wound:

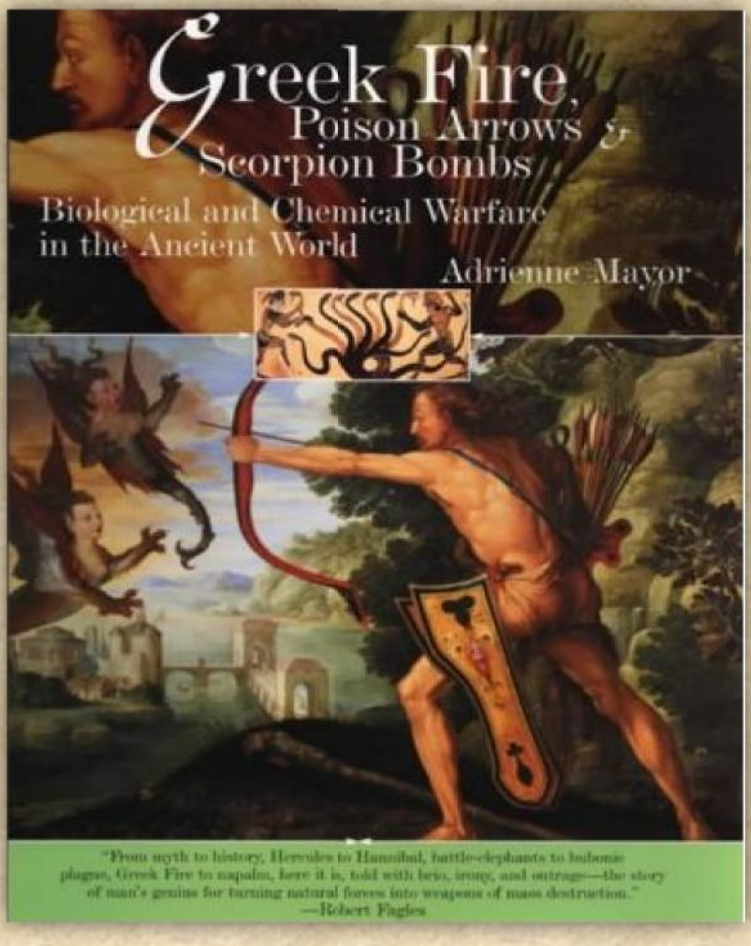
Recognition of ballistic injuries and other open wounds plus the effect of chemical substances being allowed entry.
Recognition of blast injuries including amputations and open chest/abdominal wounds.
Treatments to include:

- Use of Asherman shield;
- Combat applied tourniquet;
- Emergency bandage;
- Burns dressings/gels.

Greek Fire, Poison Arrows, and Scorpion Bombs: Biological and Chemical Warfare, in the Ancient World

Author: Adrienne Mayor (2003)
Source: http://www.strategypage.com/bookreviews/218.asp

Classical folklorist Adrienne Mayor's *Greek Fire, Poison Arrows, and Scorpion Bombs* is an intriguing, if over-reaching look into the ancient antecedents of chemical and biological warfare. Wide-ranging and well-supported by history, literature and archaeology, it is an excellent reminder that certain seemingly recent ideas and practices are not as modern as they seem. The book is an engaging read for students of classical or military history. Despite this, the book lacks focus and suffers from the author's background as a folklorist.



Mayor begins not with historical fact, but with mythology. The first chapter focuses on the poison arrows of the Greek demigod Herakles. Certainly the chapter is well-spent: ancient Greek myth is ancient Greek religion, and discussing the myths of Herakles and his arrows reveals a great deal of the moral attitude the Greeks had towards such weapons. It is, however, here that Mayor makes her first stumble by categorizing poison arrows as "biological," when strictly speaking the use of such toxins should be chemical warfare. Indeed, Mayor herself makes the same comparison later on in the book. This might seem to be a minor issue, but such distinctions are important, and it also underlines Mayor's lack of familiarity with modern security studies. Later in the book, when discussing ancient and modern moral attitudes towards biological warfare, she contrasts the ancient attitude that the defenders of a city under siege are permitted any action with modern treaties that deal with chemical and biological warfare and their clauses permitting research for defensive purposes. Either she is overly vague in making the comparison, or she does not understand in the treaties in question these clauses do not allow signatories to legitimately use chemical weapons under any circumstances; they only allow defensive research, ostensibly to develop countermeasures against these forms of attack. Such clauses are much abused, but their moral and legal standing is still very different from Mayor's description of ancient attitudes on the matter of defensive weapons use. The comparison is like apples and oranges.

In what is supposed to be a book about historical fact, not mythological fiction, Mayor returns to the mythological roots of chemical and biological warfare much too often. The mythological references are interesting and have value in a moral context, but Mayor's folklorist

background leads her to sprinkle her text with too much of this material.

Furthermore, the inclusion of unconventional animals into the study is questionable. The US military classifies trained animals as "biological weapons systems"; this is not biological warfare in the same sense that germ warfare would be. The sole instance that bears a distinct resemblance to modern techniques is the scorpion bomb; the very name conjures an image of a cluster bomb delivering stinging poisonous fragments onto the enemy.

These difficulties aside, there is value in gathering the many examples of ancient uses of poisons, germs, and incendiaries into a single study. *Greek Fire, Poison Arrows, and Scorpion Bombs* accomplishes that task very well. The incendiaries are the most obvious of the classical antecedents. The comparison between napalm and phosphorus with Greek fire, hot sand, and fire arrows is obvious.

Clay pot scorpion bomb replican as used in 198 AD against Romans (Source: National Geographic)

The most fascinating (and perhaps most disturbing) part of the book, however, deals with the various poisons used for arrows, especially in the case of the Scythians. In many respects, a cloud of arrows that could produce horrible, lethal wounds would produce the same kind of terror in the enemy as a cloud of chemical nerve toxins would today. Mayor's detailed description of the ancient manufacture of these poisons is certainly horrific enough. If there were such a thing as an amusing tale of poisons, then this book collects them by including the stories of the fabled "mad honey" that felled both.

CBRNE and HAZMAT Response

Source: http://news.cbrnresourcenetwork.com/newsDetail.cfm?id=60

New Challenges

Today's First Responder, regardless of his/her specialty, has new challenges that didn't exist until the events of September 11, 2001. The responder now has become a significant player in an international conflict. This conflict is no longer against identifiable foes, using previous weapons and strategies; now we are facing an enemy that will use any and all weapons against any and all populations, military or civilian. With these new challenges, new tools and better management of resources have to be brought to bear on dealing with the response to these attacks on the international community.

AristaTek has made some observations regarding these challenges the responder now faces and will describe how we've tried to help the responder meet the challenges.

HAZMAT vs CBRNE

The term HAZMAT (hazardous material) in the past and even today is associated with industrial chemicals typically found in the normal activities of most businesses but is actually an umbrella term that includes any substances considered hazardous. The hazard can be represented in one or more forms - chemical toxicity, flammability, biological activity, radioactivity, explosive potential, instability, or a combination of these forms.

The term TICs/TIMs (toxic industrial chemicals and toxic industrial materials) is often used to refer to the large subset of HAZMAT that relates to substances used in industry. These include manufacturing processes, the production of chemical products,

purification of water supplies, or production of energy resources. These processes are accepted by our society as benefits that provide us with the lifestyle we have grown to expect and appreciate. Integrated with these processes are the transportation systems, e.g., pipelines, barges, shipping vessels, railroads, air cargo, over the road trailers, which allow industry to move these materials throughout our nation or between nations.

There is another smaller but special subset of HAZMAT - the CBRNE (chemical, biological, radiological, nuclear and explosive) agents, which is just a more descriptive term for the generic WMD (weapons of mass destruction) used by the public and in mass media publications. Unfortunately the general public (one might also suspect the media) seems to have some misconceptions about WMD or CBRNE agents. There seems to be some implied special aspect of these substances that allows them to be referred to with such a special name. But in truth there is nothing special about these substances, other than they're very dangerous, whether due to their toxicity, lethalness, or their power to maim and kill. Nevertheless, these agents are just a subset of the world of HAZMAT, albeit an important subset.

The procedures, equipment, and training that are used to deal with accidental releases of TICs/TIMs are by and large the same when dealing with CBRNE or WMD agents. An exception that one might argue is in the case of the denotation of a nuclear device, which results in consequences far beyond those of a typical HAZMAT incident. While the magnitude is much greater a counter argument might be you're dealing with the same types of consequences, just on a much larger scale. That being said, AristaTek recognizes the impact of any CBRNE agent when used against a population is expected to be significant. The point to be made is that in the event of individual(s) using CBRNE agents on a population, the First Responder community will be using the same tools and resources they use for the accidental release of TICs/TIMs as for the release or use of a CBRNE agent.

HAZMAT as a WEAPON

This leads us to additional observation, the use of TICs/TIMs as a weapon against a military or civilian population. While this might be obvious, it should be recognized as a very probable and likely event. While the manufacturing and transportation industries have implemented many process safety features into their systems, these are not designed to thwart or defeat the actions of criminals (foreign or domestic) that intentionally want to release hazardous substances from their containers. Currently the only answer to that problem is improved intelligence, security, and surveillance to preempt such an event from happening. In a free society like the U.S., this is an extremely difficult task, but there are efforts being made to manage these industrial hazards and their associated threats when combined with criminal elements.

It is interesting to note that with respect to HAZMAT, the front line units within the DOD were probably lacking, when compared to their current level of training, in the years immediate after the al-Qaeda attacks. That obviously has changed dramatically with the completion of the Terry CBRN Facility at Fort Leonard Wood, and the advanced training now provided to the war fighters that graduate from the school.

Fortunately, at the ten year plus point after the 2001 attacks, there has been no HAZMAT as a weapon event targeted against either a military or civilian population.

First Responders

First Responder is a rather broad term but encompasses many different disciplines and specialties, and those disciplines are found in both the civilian and military communities. These include the Hazmat response teams, fire service, law enforcement, emergency medical services, hospitals, emergency management agencies, emergency operations centers, public works, and 911 call and dispatch centers. These can be organized at the local, county, regional, tribal, state, and federal level, but most authorities recognize that the local responders will be the first resources to arrive on scene and will be expected to take command and begin the task of directing the initial stages of incident response. Therefore, these local First Responders are now the key response resource to a terrorist event, just as they are for the HAZMAT accidents that occur in every community.

Effective Response

The First Responder, military or civilian, needs multiple skills, tools and resources to deal with an

incident. The list of tools and resources can be long, but AristaTek has focused on a particular element of that list – INFORMATION.

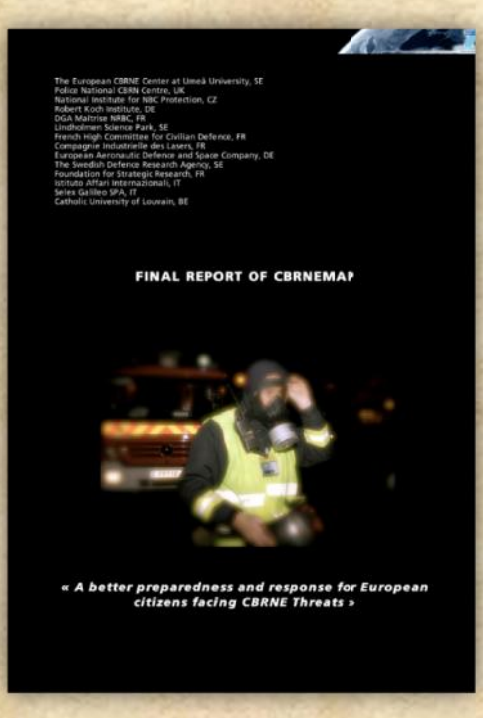
We group what our PEAC-WMD™ software does with respect to information into three broad areas; (1) static info that can be retained in and accessed from an electronic database, (2) info generated on the fly from a computational tool that allows the user to characterize an incident and then to calculate a safe standoff distance or exclusion zone for the current threat, and (3) automatically capturing the info used and generated during an incident to document what was done.

Static info is comprised of many different types of data related to the substance(s) involved, e.g., chemical/physical properties, appropriate PPE, symptoms of exposure, toxicity, decontamination procedures, ALS/BLS protocols, and reactivity info if mixed with other substances. In other words, how can this substance hurt people, how can I protect people, or how can I treat people that have been exposed?

Safe standoff distances and exclusion zones can include plume modeling for toxics, blast and/or fragmentation distances for explosives, radiant heat distances for flammables, radiological dose calculations, etc. In other words, if people haven't been exposed or impacted by the threat, where should they stay to continue to be safe?

Automatically documenting what was done relieves the responder from this important, necessary and mandatory process so he/she can focus on the current decisions and activities to bring the incident under control and to a safe conclusion. In other words, paper work and writing reports don't seem to excite most responders, but it is important and required, so PEAC makes that an easy part of the job.

The beauty of the PEAC-WMD software is the intuitive structure of the application to allow direct and simple access to the specific INFORMATION needed and the underlying fact that whether the user is dealing with a HAZMAT or CBRNE incident, the process is the same. This is directly related to the earlier observation made above and that was originally identified by AristaTek founders 15+ years ago, CBRNE is just a special subset of HAZMAT. So why treat it differently or have to learn a special application for that once in a lifetime event that may never occur? Learn it once and then always use the same software because you're basically applying the same skills to respond to CBRNE as for TICs/TIMs.



CBRNE Map

Source: https://www.cbrnemap.org/

The CBRNEmap will address the cross-cutting activity required to develop a CBRNE Demonstrator using an holistic approach that puts end-users, industrials and other stake-holders together with members or the S&T community in the forefront of development. The CBRNEmap will evaluate the complex matrix of temporal events (before, during and after) against sectors (such as law enforcement, Civil protection, rescue and Health together with suc processes ad Border control, and Mass transport), and will take into consideration that each of the letters "CBRNE", may have its own aspects of vulnerabilities, priorities and possible solutions. These generic needs will be matched by advanced technological solutions that will be integrated at the system of systems level to become the CBRNE Demonstrator.

NOTE: You can download full report at the Newsletter's website – "CBRNE-CT Papers" section.

The Role of the Insurance Industry in CBRN Incidents

By Roger Stokes

Source: http://www.crawfordgts.com/techtalk/2010-3Q/04-fourth.html

The insurance industry is highly likely to be a key stakeholder following any CBRN terrorist incident and will need to play a

significant part in the clearance, decontamination and recovery phases. Loss adjusters and their specialists require information at an early stage and access to the scene for their needs to be considered.

In the U.K., a joint protocol has been developed to ensure that this need is recognised and enable cooperation between the various responding services and agencies. Parties to this protocol, called "The Role of the Insurance Industry in Dealing with Civil Emergencies," include:

- ABI - Association of British Insurers;
- CILA - Chartered Institute of Loss Adjusters;
- Air Accidents Investigation Branch;
- Local Government Association;
- Chief Fire Officers' Association;
- Association of Chief Police Officers.

The protocol provides for a principal point of contact within a Gold Command/SCG to liaise with a principal point of contact acting on behalf of the insurance industry. The insurance industry contact will be provided with details of the event at the earliest opportunity. Representatives(s) of the insurance industry will be allowed access, as and when appropriate, to carry out necessary insurance investigations. Similarly, representatives of the insurance industry also will be invited to join any RWG that may be established.

In the recovery phase, the private sector will play a significant part, given the size of the resources, specialist expertise and capabilities (e.g. site clearance, decontamination and engineering) at its disposal. Private sector companies also have a direct commercial interest in ensuring the remediation of sites and the rapid rehabilitation of the communities they operate in.

Other issues insurers and adjusters should keep in mind in the event of a CBRN attack are:

- In the event of a terrorist attack involving CBRN substances, access to any affected site for representatives of the insurance industry will be restricted until clean-up measures are implemented by, in all probability, one of the GDS contractors or other specialist firms. Site visits by adjusters could be delayed for months, or even years, until an area is decontaminated. Adjusting activities will therefore concentrate on remote implementation of business continuity plans and business recovery, and probably re-housing at alternative locations. It is likely that any alternative location will need to be at a considerable distance from the terrorist site.
- Emergency services will concentrate on the mass decontamination of people and mitigating the spread of CBRN material. It is important that the right specialists are used at the initial stages to help with decisions on mitigation. Proper liaison via nominated insurance industry contact to the Gold Command/SCG/RWG will be essential to ensure that the needs of our industry our met. This includes mitigation, decisions on decontamination, cost control, project management and business interruption aspects.
- It is likely that initial damage and contamination appraisals will be carried out by specialists, working on behalf of loss adjusters, who are familiar with the substances involved and adequately trained in the use of CBRN personal protective

equipment (PPE). They would be our eyes and ears, perhaps using a combination of video recording and photography in association with their contamination assessments.

- Any longer-term clean-up operation would probably be beyond the capabilities of existing damage mitigation companies. Crawford has contacts with companies that are able to decontaminate buildings and property involving CBRN material. However, availability of equipment and qualified personnel to carry out long-term decontamination operations is severely limited. Nevertheless, we understand that the GDS is identifying personnel and equipment on a global basis and this information will be invaluable in our response to decontamination issues.

Roger Stokes *joined Crawford in 1992 after working in process design, operations and troubleshooting, production and management in the chemical industry for more than 10 years. A chemical engineer by training and chartered engineer in the U.K., he is based in the Power & Energy Division of Global Technical Services and has handled major chemical, petrochemical and refinery losses world-wide.*

UK - COLPRO Protection

► Check the CBRN COLPRO Division at: http://www.unionindustries.co.uk/cbrn/index.htm

EDITOR'S RECOMMENDATION: Threat Watch (Canada)

THREATWATCH

Bimonthly CBRNE Newsletter

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Read two very interesting articles at the latest issue of the Newsletter (Vol 3, issue #3, 2012):

1. Identifying and Differentiating Between Clandestine Biological, Chemical, Explosive, and Meth Labs

" … All four types of clandestine laboratories have distinguishing features, but differentiation may be complicated if the owners are involved in multiple illicit activities. The following table summarizes some indicators that are unique to each type of laboratory:

Methamphetamine	Explosives	Biological	Chemical
Large quantity of empty cold medicine packages	Blasting caps	Agent samples: soil, blood, or organs; vials from commercial vendors	Chemical agent detection kits
Large number of matches	Fuses, wires, detonation cord	Agar plates, petri dishes, liquid growth medium	Auto injector antidotes for nerve agents
Red phosphorous	Switches	Castor beans or plants	Cyanide salts
Hydriodic acid	Tubes, pipes, shrapnel	Fermenters	Phosgene
Propane tanks with blue fittings	Hexamine fuel tablets	Drying and milling equipment	Live or dead animals in cages
Lithium	Ammonium nitrate	Sterilization equipment	Thiodiglycol
	Fuel oil	Incubator	Thionyl chloride
	Urea nitrate	Live or dead animals in cages	Phosphorous trichloride

(U//FOUO) Comparison of laboratory indicators.

2. The Iron Harvest: Unexploded Ordinance (UXO) Threats in the CBRNE Environment

"… UXO from the Second World War is still uncovered each year in Germany. While the majority only akes the local news, one of the more spectacular finds in recent history was a 1.8-tonne RAF bomb dropped in the Second World War, uncovered in 2011 in Koblenz on the bottom of the river Rhine after a prolonged drought. It caused the evacuation of 45,000 people from the city and was the biggest bob-related evacuation in Germany's post-war history.

Phosgene bombs

In June 2010, construction workers in Göttingen, Germany discovered an Allied 500 kilograms bomb from World War II buried approximately 7 metres below the ground. German EOD experts were notified and attended the scene. While residents living nearby were being evacuated and the EOD personnel were preparing to disarm the bomb, it detonated, killing three of them and injuring 6 others. The bomb was fitted with a delayed-action chemical fuse, which had become highly unstable after over 65 years underground. Imported during World War II as part of a top-secret program, dozens of **113kg bombs** containing deadly **phosgene** were buried near Lithgow, Germany. The bombs were only re-discovered after 84-year-old retired chemical weapons armorer Geoff Burn blew the whistle, identifying the site on an aerial map. The Department of Defense confirmed the claim, engaging specialist contractors capable of safely removing the bombs."

Naoko Kikuchi, Tokyo Subway Sarin Attack Cult Member, Arrested In Japan

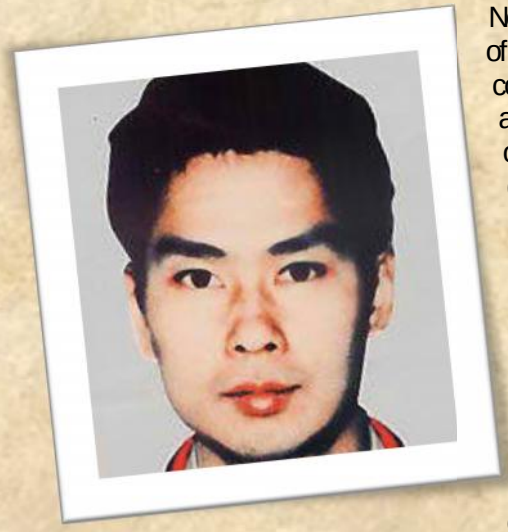
Source: http://www.huffingtonpost.com/2012/06/03/naoko-kikuchi-sarin-attac_n_1565960.html

One of the two remaining fugitive members of the doomsday cult behind the 1995 nerve gas attack on Tokyo subways was arrested Sunday (June 3), Japanese media reports said.

Former senior Aum Shinrikyo cult member Naoko Kikuchi, 40, had been spotted in Sagamihara city, 30 kilometers (20 miles) southwest of Tokyo, and acknowledged who she was when approached by police, according to NHK TV and other media reports, citing investigative sources. She was wanted on charges of murder in the 1995 attack.

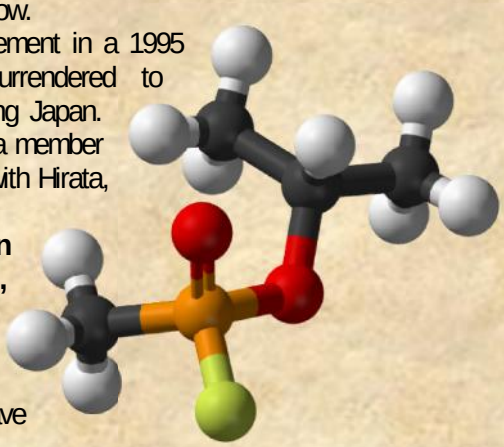
Police declined to confirm the reports.

Cult members, who had amassed an arsenal of chemical, biological and conventional weapons in anticipation of an apocalyptic showdown with the government, released the nerve gas sarin in Tokyo's subways, killing 13 people and injuring more than 6,000.



Nearly 200 members of the cult have been convicted in the gas attack and dozens of other crimes. Cult guru Shoko Asahara is still on death row.

Makoto Hirata, suspected of involvement in a 1995 cult-related kidnapping-murder, surrendered to police on New Year's Eve, stunning Japan. Ten days later, Akemi Saito, also a member of Aum Shinrikyo, who had lived with Hirata, gave herself up.



The other cult member still on the run is Katsuya Takahashi, 54. The cult, renamed Aleph, once had 10,000 members in Japan and claimed another 30,000 in Russia. It still has hundreds of members. The cult is under police surveillance and its new leaders have publicly disavowed Asahara.

Private and Public Partners Practice to Prepare for a Real Disaster

Source: http://www.prweb.com/releases/2012/6/prweb9569402.htm

More than 200 people representing businesses in Lake and Cook counties, along with public partners representing federal, state and local jurisdictions, participated in a full-scale disaster exercise at Grainger in Lake Forest on Saturday, June 2. Complementing the exercise, experts from public and private organizations led discussions on topics regarding community resiliency and catastrophic response.

"Today's event focuses on strengthening the relationships between public and private organizations through hands-on training as well as exploring ideas to help us work better together," said Kent McKenzie, Lake County Emergency Management Agency Coordinator. "The time to strengthen our partnerships is now, not after the crisis hits."

Exercise Red Dragon 2012 tested the response of Army Reserve chemical units to Chemical, Biological, Radiological, Nuclear (CBRN) incidents and fostered communications with Lake and Cook county first responders, medical personnel as well as local community and business leaders. Red Dragon is an annual exercise for the 335th Signal Command (Theater). About 2,500 soldiers are expected to participate in three states including Wisconsin, Illinois and Georgia this year.

"Red Dragon trains, tests and evaluates Army Reserve Chemical, Biological, Radiological, Nuclear (CBRN) units and represents a major opportunity for soldiers to perform their mission in an environment as realistic as possible, working alongside their civilian counterparts," said Brig. Gen. L. Wayne Brock, III, Deputy Commander, 335th Signal Command (Theater) and Exercise Director for Red Dragon 2012. "This exercise will improve their role in providing seamless support to federal, state and local authorities during an emergency response to a large-scale attack or disaster."

2012 is the third year that the Lake-Cook Regional Critical Incident Partnership – a consortium of local businesses and emergency response agencies in Lake and Cook counties – has partnered with the U.S. Army Reserve and Grainger to host a disaster preparedness summit. In 2010, the team launched the region's first full-scale exercise and in 2011 hosted a forum keynoted by Lt. Gen. Russel Honoré (RET).

"Emergency preparedness is a team sport and both public and private sector partners play a critical role," said Court Carruthers, President, Grainger US. "The effectiveness of our response will be determined, to a large degree, by what we accomplish preparing ahead of time during these

types of events. Grainger is extremely proud to be a part of this partnership."

ABOUT RED DRAGON

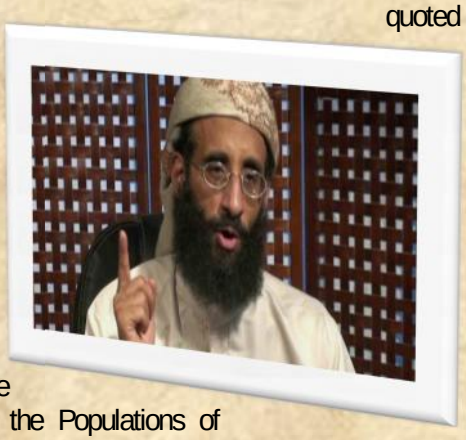
Red Dragon is an annual Chemical, Biological, Radiological, Nuclear (CBRN)-driven exercise, using Army Reserve chemical units to respond, assess, and decontaminate mass casualties. Realistic disaster scenarios, developed in coordination with local first responders and authorities, as well as civilian medical personnel, will take place between June 1-3, in Atlanta, Ga., Lake Forest, Ill., Fort McCoy, and across Wisconsin.

EDITOR'S COMMENT: You have to see it to believe it! Decontamination with personnel on Level 0 PPE but with gas masks and blowers! Watch the video at: http://www.youtube.com/watch?feature=player_embedded&v=SZKRXj4oKy8

From the grave, al-Awlaki calls for bio-chem attacks on the U.S.

Source: http://security.blogs.cnn.com/2012/05/02/from-the-grave-al-awlaki-calls-for-bio-chem-attacks-on-the-u-s/

The editor and star contributor may be dead, but that hasn't prevented al Qaeda in Yemen from issuing the eighth and ninth editions of its online English-language magazine, Inspire.



The eighth edition of the high-color magazine includes the most detailed advice yet from radical cleric Anwar al-Awlaki on launching attacks against Western countries. In a five-page article entitled "Targeting the Populations of Countries at War With Muslims," al-Awlaki justifies the killing of women and children and the use of chemical and biological weapons in addition to bombings and gun attacks.

Al-Awlaki and the man widely believed to have been Inspire's editor, former North Carolina blogger Samir Khan, were both killed in a drone attack in September in Yemen. It's unclear why it's taken so long to publish their articles.

The influence of al-Awlaki through his writings in Inspire and elsewhere have become apparent in several terrorism cases in Europe and the United States,

Al-Awlaki says women and children should not be deliberately targeted, but if they are among "combatants," it is "allowed for Muslims to attack them."

"Muslims are allowed to target the populations of countries that are at war with Muslims by bombings or fire-arms attacks or other forms of attacks that inevitably lead to the deaths of non-combatants," al-Awlaki wrote.

The continuation of jihad, al-Awlaki wrote, took precedence over every other consideration - and gun attacks such as that by Pakistani militants against civilian targets in Mumbai in 2008 were legitimate. More than 150 people were killed in a three-day assault on hotels and other places in Mumbai. Jihad allowed the shooter "to shoot randomly at crowds," al-Awlaki added.

"The use of poisons of chemical and biological weapons against population centers is allowed and strongly recommended due to the effect on the enemy," al-Awlaki continued. He then quoted several religious scholars to justify such attacks, concluding: "These statements of the scholars show that it is allowed to use poison or other methods of mass killing against the disbelievers who are at war with us."

There is no evidence that al Qaeda in the Arabian Peninsula or any other part of the terror group has developed any sort of chemical or biological weapon capability.

Elsewhere, al-Awlaki talks about his life in America and the aftermath of 9/11.

"September 11 was a Tuesday. By Thursday the FBI were knocking on my door," he wrote.

"The questions revolved around the attacks. They visited me again but this time they were asking for cooperation which I made it clear that they shouldn't expect."

An article by Khan warns American Muslims that they will never be accepted as Americans and should understand that Islam and the United States are incompatible. And he praises the few mujahedeen who have left America. He is quoted in another article as saying that attacking the enemy in their backyard is one of the best ways to help the jihad.

Elsewhere in the magazine, a Dr. Khateer contributes advice on building remote detonation devices using a motorbike alarm and washing-machine timer.

There's also a lengthy piece accusing Pakistan's army of betraying Islamic principles and being at the service of the "Crusaders."

"The services of the Pakistani Army to the Crusaders are so enormous and so significant that without them the invasion and occupation of Afghanistan would have been impossible," writes the author, who is described as a former Pakistani soldier. He says the army's "senior officers should be targeted for assassination."

There are also effusive tributes to al Qaeda commanders killed in the past year during fighting in southern Yemen against government forces.

The ninth edition, whose title "Wining on the Ground" is misspelled, runs to 62 pages and includes tributes to al-Awlaki and Khan. The editors urge followers to post the issue on online forums to thwart any attempt by the FBI to bring down sites that host the magazine.

"To the disappointment of our enemies ... we are still publishing America's worst nightmare," says an editorial. It describes the magazine's aims as to inspire jihad in the English-speaking world and "to deliver to every inspired Muslim anywhere around the world the operational know-how of carrying out attacks from within the West."

In a section called 'Open Source Jihad," followers are urged to ignite wildfires in the United States, and there are instructions on how to create an "ember bomb."

Also in the ninth edition, an al Qaeda member describes how he met al-Awlaki while they were both held in prison in Yemen. Later, he writes, al-Awlaki left the Yemeni capital for a more remote area because of constant harassment by security forces. After al-Awlaki became a target of the United States for alleged involvement in terror plots, the author recalls speaking with al-Awlaki after he narrowly escaped one drone attack.

"This time eleven missiles missed its target but the next time, the first rocket may hit it," al-Awlaki is quoted as saying.

Cristanini S.p.A. (Italy) – 40 years of excellence!

The Cristanini SpA company was founded in 1972 and has a long worldwide experience in the field of high pressure technology - with a very strong presence throughout the world - and offers a full range of protective residential, industrial and military equipment.

The incomparable expertise and know-how of Cristanini are the result of years of research, applied engineering, production of accessories and equipment in order to propose innovative solutions in the field of CBRN decontamination.

The close relationship with the customer and the wide range of experiences of Cristanini SpA allowed the development of a broad line of products designed to meet a myriad of customer needs and often to solve important issues.

The R&D program is conducted in collaboration with the most famous universities, including the Department of Chemical Engineering of the University of Padua in Italy and in the military laboratories around the world. The current state of the R&D activity is validated by 25 patents. This is the result of a creative work and an integrated approach, looking for new solutions to highly complex problems in engineering, science and technology.

► **Importers and agents in 73 different countries around the world.**

Chemical Meteorology (CHEMET)

Source: http://www.metoffice.gov.uk/publicsector/CHEMET

CHEMET can be used to track the dispersion of a chemical release. Telephone advice is available on demand which will give a simple short-range prediction of the anticipated behaviour of the plume.

CHEMET overview

In the event of an incident involving hazardous chemicals, local Fire and Police services will contact the Met Office Environment Monitoring and Response Centre (EMARC). Typical scenarios could be a chemical spillage, a fire at a chemical plant or oil refinery, or a road traffic accident in which a hazardous substance has either escaped or ignited. For small-scale events, EMARC produces meteorological guidance and a plume prediction as a chemical meteorology (CHEMET) report. For larger release events, such as the Buncefield Oil Depot fire, more-sophisticated plume modelling techniques are utilised.

CHEMET can be used to track the dispersion of a chemical release. Telephone advice is available on demand which will give a simple short-range prediction of the anticipated behaviour of the plume. Within 15 minutes, this is followed by meteorological and dispersion maps which provide a more detailed forecast. A map of areas at risk is sent to the emergency services. The situation is constantly monitored, and updates given until the emergency is over.

CHEmical METeorology (CHEMET) Report

A chemical meteorology (CHEMET) report is made of two parts. Form A describes the details of the incident (the input to the model) and Form B provides a forecast of the relevant meteorological parameters, together with an Ordnance Survey map showing the main area at risk.

CHEMET Form A contains the input data, which consists of the incident details including grid reference of the location, time of the event and any additional information on the chemicals involved. If available it can also include details of the current weather at the site. The Form As are completed by the emergency services and forwarded to EMARC.

CHEMET Alert Form A (PDF, 91 kB)

CHEMET Form B contains the weather forecast information along with an area at risk map. Further details on the different sections of the Form B are given below.

CHEMET Forecast Form B (PDF, 171 kB)

Explanation of sections on Form B

Forecast period: The length of validity is left to the forecaster's discretion, based on his or her expert interpretation of the changing meteorological conditions, but will typically be about three to four hours. If an update has been requested, a renewed Form B will normally be prepared and sent half an hour before the validity of the previous form ends. The date and time is given as, for example, 15/1200, where '15' is the day of the month and '1200' is the time (local time).

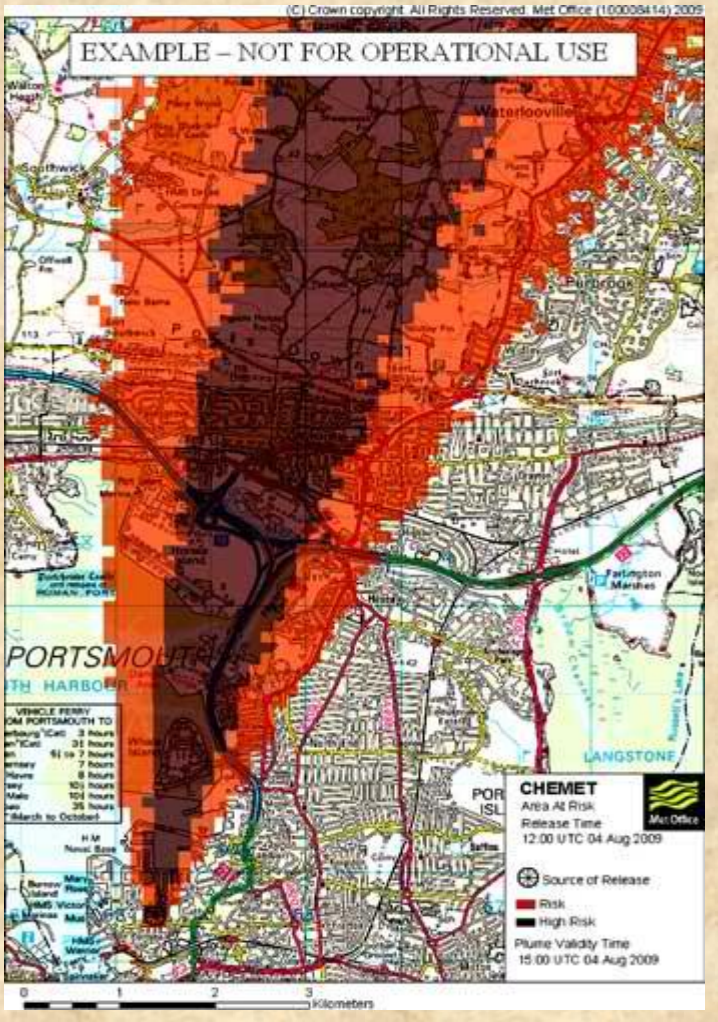
Surface wind direction: This is the direction from which the wind is forecast to blow using the 8-point compass degrees true. For example, a direction of 090° is (an easterly) wind blowing from the east towards the west.

Wind speed: This is the wind speed expected at 10 metres above ground level in kilometres per hour. Any changes in wind speed or direction during the period are given in sections 5 and 6 or in the remarks section 8.

Sections 7 and 8: These provide an indication of the behaviour of the plume due to weather conditions while the chemical is assumed to have neutral buoyancy. The remarks section may be used to give any extra details, such as whether washout or any significant or sudden wind changes may occur.

Section 9: This records the total cloud cover in oktas, or eighths of the sky. For example: 8 oktas means the sky is overcast and 4 oktas means the sky is half-covered by cloud. The total cloud cover is important in many dispersion models as it has a direct bearing on the value of the incoming radiation. The height (in feet above ground level) of the lowest significant cloud layer is also given. By 'significant' we mean a layer of five oktas or more. A full (or nearly full) cover of low cloud (height below 5,000 ft) may indicate the upper limit through which the chemical will be mixed.

Section 10: This gives the temperature of the air and the relative humidity.
Section 11: This provides information on the type of precipitation, if any, and its intensity which may be important when considering possible chemical washout.
Section 12: This is the depth of the mixing layer (the depth of atmosphere through which the chemical could be mixed).
Section 13: This describes the mean wind in the mixing layer and is a measurement of the mean over time as well as the mean within the layer.
Section 14: This is an estimate of the vertical stability of the atmosphere using the Pasquill Stability Index (where A is the most unstable, G is the most stable and D is neutral). The stability of the atmosphere will affect the behaviour of the plume.
Area at Risk Map: This shows a prediction of the plume direction, with two coloured areas. The smaller (inner) area, indicated by the darker colouring, is the Area at Highest Risk, and the larger (outer) area, indicated by the lighter colouring, indicates the Total Area at Risk.



CHEMET Area at Risk Map (Example) showing Total Area at Risk and Area of Highest Risk

Buncefield Oil Depot fire 2005 - case study

On Sunday, 11 December 2005, a little after 6 a.m., there was a major explosion at the Buncefield Oil Depot in Hemel Hempstead, Hertfordshire, resulting in the largest peacetime fire in Europe to date. The fire burned for four days before it was extinguished.

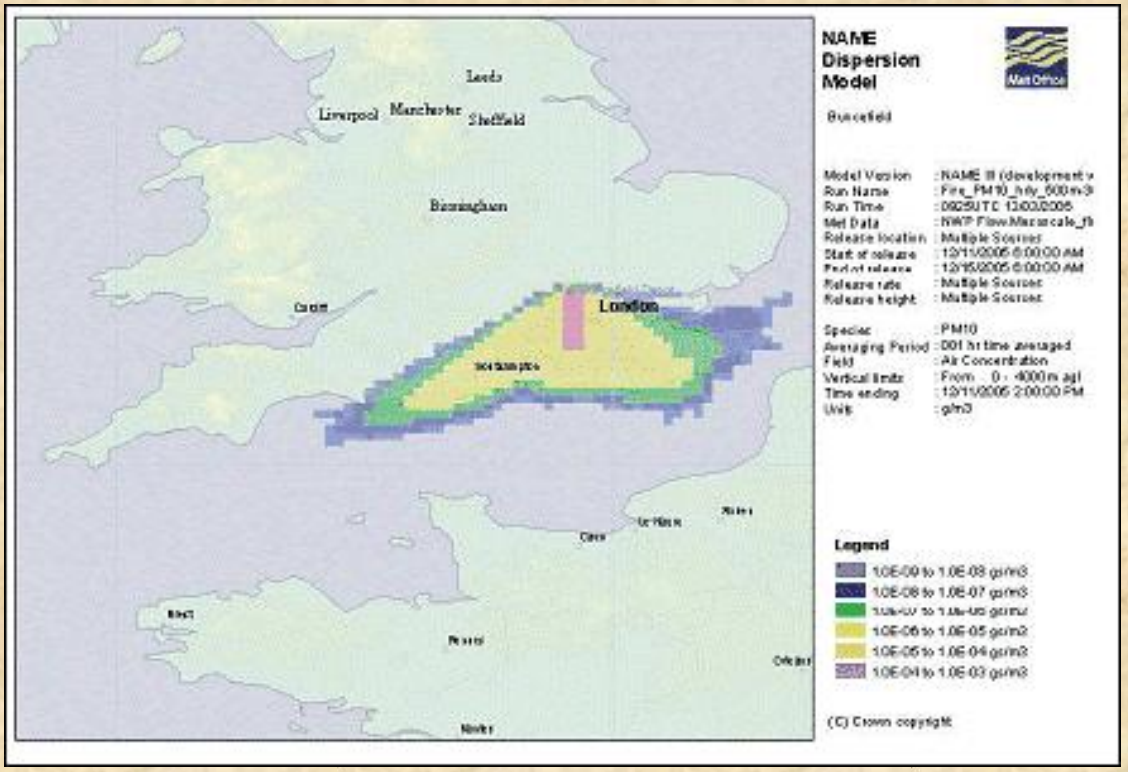
Several government departments and agencies asked the Met Office to provide guidance on the smoke plume — including Defra, the Cabinet Office, various emergency services and the Health Protection Agency. Information on the transport and dispersion of the plume provided by the Met Office assisted with decisions on potential evacuation areas and safe approaches for fire crews and played a vital part in getting people to safe locations.

Met Office actions

- We used sophisticated dispersion models (NAME), together with our weather forecasting model to predict the spread of the smoke.
- We used the dedicated Facility for Airborne Atmospheric Measurement (FAAM) research aircraft to take gas and aerosol measurements from within the plume.
- Our atmospheric dispersion modellers, based in Exeter, used information gathered to further refine the forecasts and verify our results.
- Forecasters and support was also available 24 hours a day through our Environmental Monitoring and Response Centre (EMARC).

As a result of the services from the Met Office the emergency services gained:

- clear guidance on how the smoke would move, spread and disperse;
- identification of the areas at risk from grounding of the smoke plume;
- indications on what the plume contained.



NAME predicted hourly averaged smoke plume of 0-4,000 m at 1400 UTC on Sunday, 11 December 2005

Saab shows new CBRN detection system

Source: http://www.saabgroup.com/en/About-Saab/Newsroom/Press-releases--News/2012---6/New-CBRN-detection-concept-from-Saab/

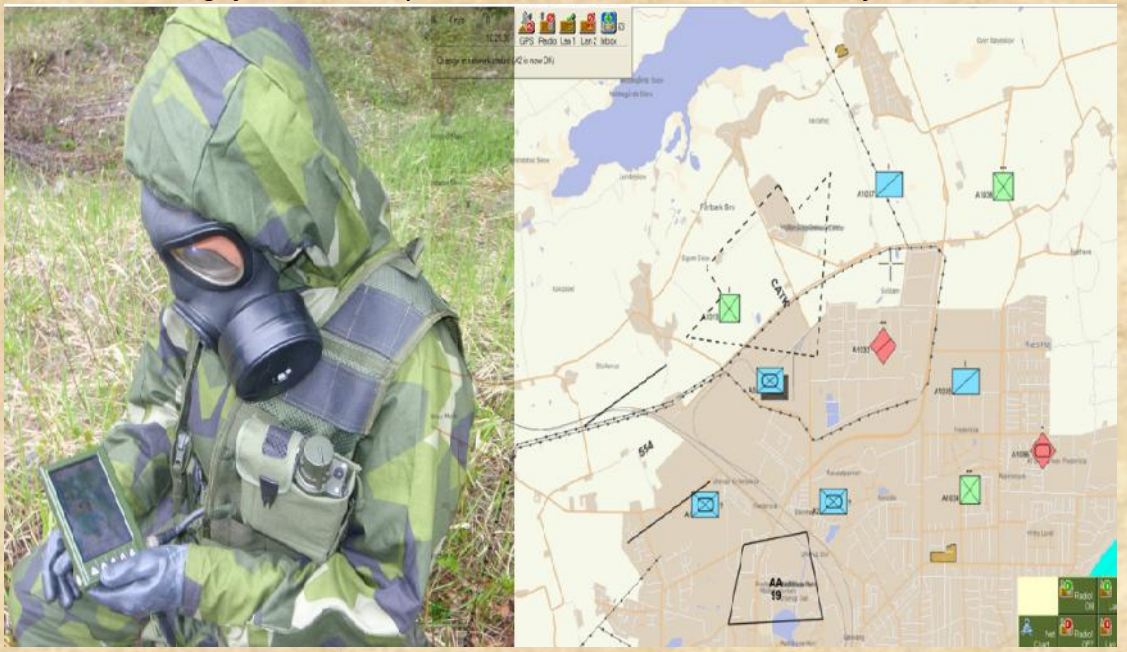
Swedish defense company Saab is showing a new chemical, biological, radiological, and nuclear (CBRN) detection and warning system designed for use by non-specialists in the field.

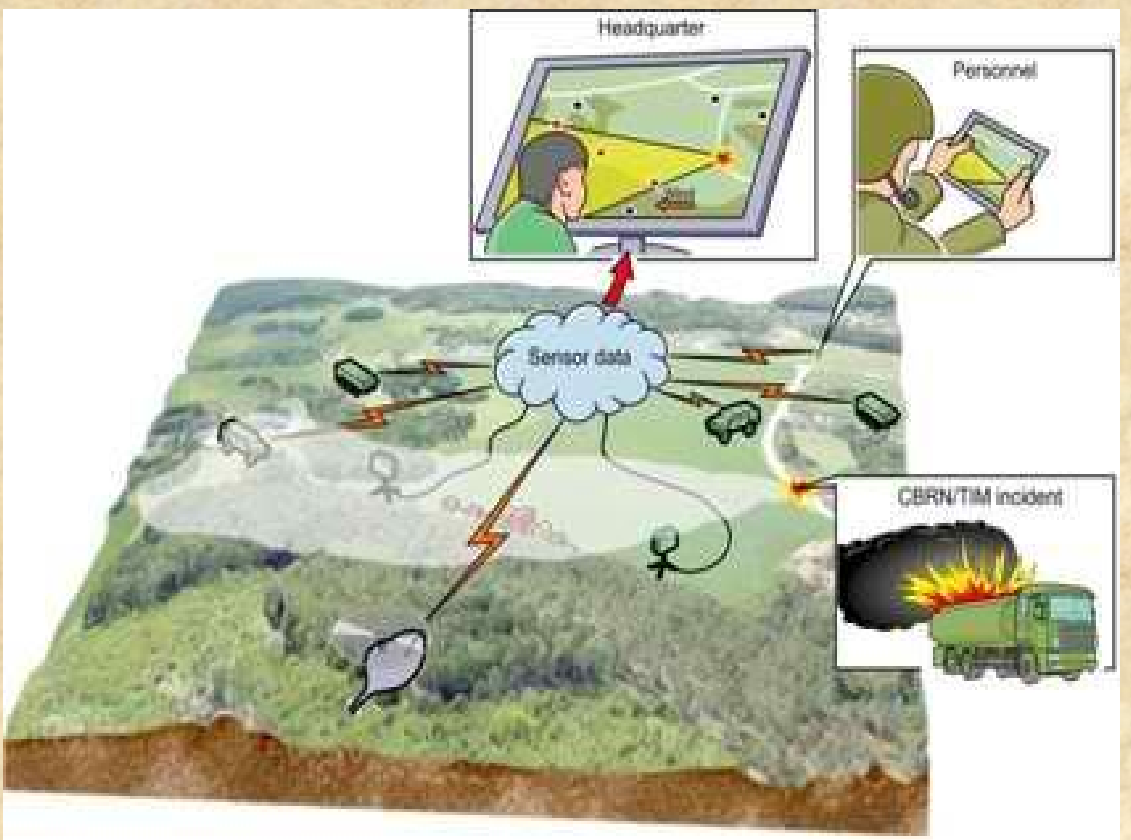
The Saab Automatic Warning and Reporting System (AWR) is a flexible, modular solution. The company says the new system can be carried by a soldier or mounted on a vehicle, or used as in a fixed installation. The AWR consists of both hardware and software and is designed to provide early warnings to units and personnel on the battlefield. The system helps the operator to make fast and accurate decisions, which is a key factor in limiting CBRN threats.

The company notes that AWR is also suitable for civil use to protect personnel operating in hazardous and

toxic environments, such as in the oil and gas, chemical, and nuclear industries.

"The AWR is a highly flexible force protection capability spanning over a wide area; and following the vehicle or the soldier wherever they operate. The flexible solution allows you to use sensors of your own choice, change instruments pending on changes in threats scenarios, or replace instruments with a newer version if needed," says Nils-Erik Lindblom, director of marketing and sales for CBRN at Saab´s Business Area Support and Services.





Katsuya Takahashi, Last Fugitive Suspected Of 1995 Tokyo Subway Sarin Gas Attack, Arrested

Source: http://www.huffingtonpost.com/2012/06/14/katsuya-takahashi-tokyo-subway-nerve-gas-attack-arrest_n_1598821.html

Japanese police Friday arrested the last fugitive suspected in a doomsday cult's deadly nerve gas attack on Tokyo subways 17 years ago, media reports said.

Katsuya Takahashi, 54, a former member of Aum Shinrikyo cult, was arrested on suspicion of murder after being spotted at a comic book cafe in downtown Tokyo, Japan's public broadcaster NHK said. A cafe employee had recognized him and called police.

Takahashi admitted who he was when approached by the police at the cafe, NHK said.

TV footage showed a huge crowd outside the shop, trying to catch a glimpse of the last cult fugitive. NHK showed a thin, bespectacled Takahashi being pushed into a police car.

His appearance had changed over years – in particular, his trademark bushy eyebrows have become much thinner. So police had to wait while

his fingerprints were verified. He was arrested after being taken to a nearby police station, then transferred to Tokyo police headquarters for interrogation, reports said.

Takahashi, who had been cult guru Shoko Asahara's bodyguard, was on Japan's most wanted list for his suspected role in the sarin gas attack on Tokyo subways, which killed 13 people and injured more than 6,000.

Takahashi's trail had been cold for years, but it heated up after another fugitive from the cult was arrested June 3.

Since then, thousands of officers were mobilized across the Tokyo area, handing out fresh photos of Takahashi and monitoring transportation hubs to keep him from escaping the capital.

A security camera last week showed Takahashi trying to withdraw money from a bank shortly after other fugitive was arrested. Police believe he had been hiding in the Tokyo area under a false name. Local media have reported that he was working at a construction company, where he was known as a quiet and anti-social person who always wore a surgical mask.

Aum Shinrikyo had amassed an arsenal of chemical, biological and conventional weapons in anticipation of an apocalyptic showdown with the government. Nearly 200 of its members have been convicted in the 1995 attack and dozens of other crimes. Thirteen, including Asahara, are on death row.

Makoto Hirata, charged in a 1995 cult-related kidnapping-murder as well as the subway attack, surrendered to police on New Year's Eve, stunning the nation. The second-to-last fugitive, Naoko Kikuchi, 40, was arrested on June 3. She had been accused of helping produce the sarin the group released on the subway.

The cult, split into two groups – each renamed Aleph and the Circle of Rainbow Light – once had 10,000 members in Japan and claimed another 30,000 in Russia. It still has hundreds of members. The cult is under police surveillance and its current leaders have publicly disavowed Asahara.■