



*Welcome to the inaugural issue of the Centre for Security Science's newsletter. Created in March 2006, the Centre is a collaborative effort between the Department of National Defence (DND) and Public Safety and Emergency Preparedness Canada (PSEPC). The Centre works with 19 other partner departments involved in protecting the safety and security of Canadians to deliver timely and relevant science and technology (S&T) research in support of an all-hazards approach to natural and accidental disasters, and terrorist and criminal acts. The goal of this newsletter is to keep you informed about the Centre's activities and to highlight the accomplishments of our partners. If you have success stories or photographs to contribute to future issues of the Centre for Security Science News or other communications events, please e-mail them to [susan.mcintyre@drdc-rddc.gc.ca](mailto:susan.mcintyre@drdc-rddc.gc.ca).*

## Director General's Message

Every day, Canadians are inundated with images and stories of catastrophic events that threaten public security and safety both at home and abroad. The good news is that whatever their cause—be it a terrorist plot, a criminally inspired event, one that is caused by human error or accident (as in the massive blackout in August 2003), or one caused by natural events (such as the Ste. Agathe floods)—S&T can be brought to bear on solutions to prepare for, prevent, respond to, and mitigate the consequences of these situations.

The last five years have seen major strides forward in protecting Canadians from chemical, biological, radiological, and nuclear (CBRN) threats through the CRTI program, and it is largely on CRTI's innovative model of S&T cooperation that the Centre for Security Science was created. Bringing together CRTI and its sister program, the Public Safety Technical Program (PSTP), under one roof allows us to leverage existing S&T strengths with new resources to create a more profound impact.

With the request for the renewal of CRTI funding for an additional five years we asked for enhancements based on stakeholder feedback, and these changes will be the basis for the Centre's approach. Primarily, CRTI will now add an Explosives Portfolio (see page 4) so that the program

will cover chemical, biological, radiological, nuclear, and explosive (CBRNE) threats. We will integrate broader risk assessment methodologies, which will lead to a capability-based planning approach. The Centre's research and technology development program will focus on four mission areas: in addition to the CBRNE program led by CRTI, PSTP will manage the Critical Infrastructure Protection (both physical and cyber), Disruption and Interdiction, and Standards and Analysis portfolios. We will continue to competitively fund projects from early research through to the acquisition of mature technologies. With the advent of the Centre, we now intend to proactively provide S&T results that will have an impact on policy, regulations, standards, and operations.

While there is good capacity in federal government laboratories, the Centre will be looking to tap into the enormous S&T capacity in universities and industry for a holistic Canadian capability in public safety and security. Similarly, we will work to build stronger relationships with the operational arm of DND and engage responder and receiver communities across Canada at the provincial and municipal levels; as the backbone of our response in the face of an emergency, we want to take the outputs of our S&T work and make sure it meets their operational needs. Lastly, we hope to develop more international agreements such as the one we currently have in place with the United States (US) Department of Homeland Security to leverage the investments of international partners.

Clearly, we have a lot of work ahead of us in 2007 and beyond, and it will only be through the continued engagement of our existing partners and by building new partnerships that we can fulfill our mission. I hope that you will join us in our commitment to ensuring the safety and security of Canada and Canadians.

**Dr. Anthony Ashley**  
**Director General, Centre for Security Science**

### **Dates to Remember**

Proposal Synopses for Round 6 Due	18 January 2007
Bio Cluster Preparedness Workshop	Week of 27 January 2007
BI-EX West Hydra Tabletop Exercises for Local and Municipal Agencies, and Provincial and Federal Agencies	19 – 23 March 2007
Full Proposals Due	16 April 2007
BI-EX West Hydra Tabletop Exercise for All Participating Agencies	21 – 25 May 2007
Round 6 Project Funding Announcement	4 June 2007
CRTI Summer Symposium Week 2007	11 – 15 June 2007
Call for Proposals (Round 7)	12 June 2007
BI-EX West Full-scale Exercise and Immediate Debriefing	15 – 19 October 2007
BI-EX West Follow-up Integrated Debriefing	5 – 9 November 2007

### **Lieutenant Colonel Colin Murray Joins the Centre**

After more than 26 years of flying military helicopters, Lieutenant Colonel Colin Murray recently left the flight deck to join the Centre for Security Science as the Senior Military Officer. Lt. Colonel Murray will work to develop collaborative relationships between the Centre, the Canadian Forces (CF), and other stakeholders on public security issues.

“There are all kinds of relationships that need to be built, from the strategic and operational to the tactical, which includes the responder communities,” says Lt. Colonel Murray. “That means a lot of co-operation and collaboration with other departments, provinces, municipalities, and first responder organizations.”

Lt. Colonel Murray sees an expanded role for the CF and the Centre in providing operational support to Canada’s first responders on the ground. “It’s the provinces and municipalities that will have to deal with what is going on [during an emergency], but if it’s beyond their control, then they have to go to the federal government,” Lt. Colonel Murray explains. “The federal government is naturally going to look toward the CF to assist and the Centre will function as the conduit to all of the federal government departments with S&T. There’s a lot of S&T going on, not just in DND, but in other departments as well, and if we can bring that to the CF and vice versa, we will contribute to the Centre’s mission, to provide PSEPC with innovative and integrated public security S&T solutions.”



**Lieutenant Colonel Colin Murray**

The relationships Lt. Colonel Murray hopes to build and expand on are also international in scope. He would like to see the Centre use existing bilateral and multilateral international agreements to leverage S&T developed by other countries, such as the US, to help Canada prepare for, prevent, respond to, and recover from high-consequence public security events. “In November, I was in Boston representing the Centre at a multinational forum focused on port security. There were three other countries including Singapore, a small country, but with perhaps the largest throughput of shipping in the world. Canada’s volume of trade makes our ports vulnerable and a significant security challenge. Each country has its own solutions to deal with port security, and each is anxious to share their technologies. The focus of the group was to find ways that we can exchange these technologies.”

Lt. Colonel Murray's experience makes him well suited to lead the efforts he describes. He began his career as an Operational Line Pilot and then Flight Instructor at 12 Wing Shearwater in Halifax after graduating from Royal Military College (RMC) in Kingston in 1984. His flight logbook includes a number of operational tours, as well as an exchange tour flying with the US Navy. His staff positions have included time with the Maritime Helicopter Project, which is scheduled to deliver the first Cyclone helicopter in 2008. Within DND Headquarters, he has served on the Air Staff and Joint Staff under the Deputy Chief of the Defence Staff. Before joining the Centre, Lt. Colonel Murray was the Combined Forces Air Component Commander Fwd 2 with the 1<sup>st</sup> Canadian Air Division. In this role, he acted on behalf of the Air Commander 1<sup>st</sup> Canadian Air Division, representing Air Force capabilities during the planning and execution of all CF operations.

## ***Applying Operations Research to Public Security***

Operations research (OR) had its birth in World War II, when it was used primarily by the British to solve military problems such as determining the optimum size and composition of naval convoys to reduce shipping losses. Today, the field of OR is applied to decision-making and scheduling of everything from emergency room logistics to handing out virtual-line tickets at Disneyworld.

Simply put, OR is the science of decision making for complex operational problems. Using scientific and advanced analytical methods, OR helps to identify a problem and the associated risks, to manage costs, and to leverage hidden information—ultimately to achieve a strategic advantage through better decisions.



**Dr. Paul Chouinard**

Dr. Paul Chouinard recently joined the Centre to take on the role of Manager of Security Operations Research with the goal of applying the methods of OR to public security challenges, especially as they relate to capability planning, risk analysis, critical infrastructure protection, collaboration, and psychosocial issues.

“The goal in the first year is to get the team established, so people know there is a resource that they can go to for help with problems,” says Dr. Chouinard. From there, Dr. Chouinard hopes to build a network of OR professionals across the federal government and other groups involved in public security. Those involved would include professionals with backgrounds in physical sciences and engineering, mathematics and statistics, information science, economics, sociology, and political science.

“We need to look at how [the OR] group can be part of a larger analytical network that can have some critical mass. It’s going to have an emphasis on groups like Canadian Security Intelligence Service and the Royal Canadian Mounted Police (RCMP) since they are operational organizations,” Dr. Chouinard explains.

Dr. Chouinard holds a PhD in physics from the University of Saskatchewan. After graduating, he joined DND where he performed operational and research analysis in support of the Canadian army and navy. Following that, he worked for the North Atlantic Treaty Organization (NATO). “My initial responsibility was to help develop a rationale by which NATO would determine its requirements for its missions,” Dr. Chouinard explains. “The methodology I helped derive has become the basis that NATO uses to structure its core requirements.”

Dr. Chouinard returned to Canada in 2003 and rejoined DND where he performed OR in support of strategic planning for DND operations. When the new OR team to support PSEPC was being set up at the Centre, Dr. Chouinard jumped at the opportunity to be part of the team. “I think the timing of being here at the beginning of a new OR team is an extremely interesting challenge.”

## ***TBS Approves CRTI Funding for Next Five Years***

After working on the Treasury Board Secretariat (TBS) submission for close to three years, the CRTI Secretariat is pleased to announce that on 2 November 2006, TBS approved the funding of CRTI for the next five years.

With the renewed funding, CRTI will continue its commitment to CBRN counterterrorism and forensics, expand its mandate to include a new Explosives Cluster (see article on this page), and together with PSTP and the Centre, work towards meeting Canada's emerging needs in public security through S&T.

## ***CRTI Renewing Itself to Ensure Defence R&D Remains Relevant to Canadians***

CRTI is shifting gears for its second five-year phase of operations, accelerating its efforts to improve Canada's resilience to high-consequence security events and to ensure the tools it develops make it into the hands of responders.

The time and energy that CRTI is spending reorganizing and renewing its own priorities is being driven by the continuing need to insert S&T into the decision-making processes related to the security of Canadians. "We're looking at what S&T needs to be done to diminish vulnerabilities to terrorist or other events," explains CRTI's Director, Dr. Mark Williamson.

Dr. Williamson and his colleagues in the Secretariat have been reflecting on the lessons of the past five years and identifying both the gaps and the potential of the CRTI program. The recognition that the science solutions designed to counter specific CBRN terrorist threats have the potential to protect Canadians from other high-risk events, such as natural disasters and industrial accidents, is shaping the form of CRTI's renewal. The addition of explosives to the CBRN focus of CRTI serves to broaden the program's impact in reducing vulnerabilities.

According to Dr. Williamson, one of the biggest changes as CRTI enters its second phase will be in adopting a capability-based outlook to establish research investment priorities. "It's a more strategic approach that will give us a better understanding of the existing large-scale capability gaps that need to be filled if we are to develop a resilient Canadian society." Project proponents will see the change reflected in a more proactive approach to soliciting and funding possible projects. The first of the new calls for proposals was released in early December 2006.

This "national capability" approach will require CRTI to engage the response community more comprehensively, as well as the federal government's security policy drivers. "We need to better define and harness the security policy-S&T interface and use that to inform how the municipal to federal levels of government interact," explains Dr. Williamson.

Engaging the diverse set of security policy and S&T communities will be a critical aspect of future CRTI accomplishments. CRTI learned, during the first phase, that building horizontal S&T clusters was a major enabler of success. This facilitated better dialogue and interactions between departments. As Dr. Williamson says, the success of the whole CRTI venture comes down to how well CRTI is working across departments involved in the security domain.

Dr. Williamson and his colleagues have also prioritized the need to talk more with the response community and industry to improve the transformation and exploitation of S&T products to ensure they wind up in the hands of responders. Technology acceleration project partners, for example, are likely going to be asked to provide a plan that will include provisions for deploying and sustaining the product. "This is the big issue for CRTI's next phase," says Dr. Williamson. "How do we support that leap, that transition to commercialize or deploy a product? It's challenging and stimulating, but we're more than up to it."

## ***CRTI Adds New Explosive Cluster***

The creation of CRTI's new Explosive Cluster will allow police, industry, and researchers to develop new and novel means to detect explosives, as well as means to improve safety for bomb technicians conducting render-safe procedures.

According to Alain Goudreau, PSTP and CRTI Explosives Cluster Portfolio Manager, all departments and agencies with an explosives-related mandate are invited to participate, including the RCMP, Transport Canada, the Canadian Air Transportation Safety Authority, Natural Resources Canada, Canada Border Services Agency, and DND. "The short-term goals of the cluster deal with addressing the more immediate critical gaps in explosive fundamental science, in trace detection technology, and in operational countermeasure capabilities," explains Goudreau.

Lessons learned from an explosives exercise hosted by the Canadian Bomb Data Centre and funded by the PSTP last May have helped identify some of the gaps that need to be addressed. The exercise, which was conducted over four days in Temagami, Ontario, was designed to prepare first responders to conduct post-blast investigations of multi-site, multi-modal incidents (i.e., on a bus and a train), similar to the terrorist attacks carried out in Madrid, Spain, and London, England. Participants included first responders from Ontario municipal police forces (Ottawa, Toronto, York Region, Windsor, and London) as

well as RCMP from across Canada, Sûreté du Québec, the Ontario Provincial Police, and the US Defense Intelligence Agency.

Nick Cartwright, who is the Director of Science and Technology at Transport Canada, is the new Explosives Cluster Lead. “We’ve been working together across the government departments for probably the last 25 years, but in unstructured ways,” Mr. Cartwright explains. “This is an opportunity to move forward in a collaborative, intellectually inspiring environment.”



**Participants at the Temagami exercise dealt with explosive incidents on a train (above) and bus (below).**



**The post-blast investigation involved surveying multiple sites for evidence (below).**



One key goal for the cluster is the development of integrated and interoperable solutions to give Canada the capability to effectively respond in the case of attack

using explosives combined with CBRN agents, such as a dirty bomb. “The goal is to build and develop the community of interest and be as inclusive as we can,” says Cartwright. “We’ll be working to develop an integrated, interoperable solution that people are comfortable with because the time to debate those things is not when you have the device in front of you.”

Members of the explosives community, such as Inspector John Bureaux, the Officer-in-Charge of the Explosives Disposal and Technology Section of the RCMP and the Canadian Bomb Data Centre, are excited about the development of the Cluster. “This is a tremendous opportunity for those of us in Canada with a responsibility in this area to conduct focused research and evaluation,” says Inspector Bureaux.

The increasing sophistication of bomb design, as well as Canada’s participation in international activities to combat terrorism, makes funding this research crucial. The S&T developed under CRTI will not only keep Canadians safe at home, it will help the Canadian military deal with the improvised explosive devices being encountered in Afghanistan.

### ***Halifax Exercise Tests Emergency Response to Radiological-Nuclear Mass Casualty Event***

Canadian emergency rooms (ERs) may be prepared to deal with chemical and biological mass casualty events, but most are not ready to face a radiological-nuclear (RN) mass casualty event. To confirm this, the CRTI Federal Advisory Group, in conjunction with International Safety Research, spent the last year identifying medical emergency response gaps and developing a medical RN emergency response tool. The effectiveness of the tool was tested during the Medical Nuclear Emergency Response Exercise (MEDNEREX) held on October 11, 2006 in Halifax, Nova Scotia.

MEDNEREX was a multi-jurisdictional, live mass casualty exercise involving over 100 participants from 16 organizations at the municipal, provincial, and federal levels, including local emergency medical services. In addition to testing the tool, the National Biological Dosimetry Response Plan (CRTI 0027RD) was also exercised.

The MEDNEREX scenario, although unlikely, was exaggerated to result in a release of radioactive material onboard a nuclear-powered vessel, resulting in 11 contaminated or exposed casualties requiring medical treatment. The Canadian Forces Base (CFB) Halifax Nuclear Emergency Response Team performed

initial decontamination and treatment of casualties, who were then taken to the Queen Elizabeth II Hospital. The tool, which was adapted from the European Union (EU) Medical Treatment Protocols (METREPOL) for radiation accident victims, was used to guide ER care.



**CRTI's MEDNEREX exercise tested Halifax's emergency medical services capacity to deal with mass casualties in the event of a radio-nuclear incident (above and below).**



Feedback from the participating ER staff is now being used to refine the tool to make it more effective for ER use. "The tool proved to be too cumbersome for the ER medical emergency response. It was better suited for dealing with a few—rather than multiple—casualties, and needs to be adapted for mass casualty events," says Diana Wilkinson, a defence scientist at DRDC Ottawa and the project's lead.

Planning for a second MEDNEREX, to take place in 2008, is now underway and is being designed to test the revised tool, as well as Canada's readiness for the 2010 Olympics.

## ***CNPHI Connects Health Responders and Receivers Across Canada***

The Canadian Network for Public Health Intelligence (CNPHI) is gaining international attention for its innovative information architecture that allows public health authorities to connect with each other and with critical public health intelligence.

The successful result of a three-year CRTI-funded project (02-0035RD), CNPHI was developed by the Public Health Agency of Canada (PHAC) in coordination with the Canadian Food Inspection Agency, Canadian Public Health Laboratory Network, the University of Guelph, and the Canadian Council of Medical Officers of Health.

CNPHI is a secure, web-based resource that collects and processes surveillance data, disseminates strategic intelligence, and helps public health officials across Canada coordinate their responses to biological threats, including bioterrorism. It is the first tool of its kind that allows federal, provincial, and regional health authorities to share data in a time-efficient, coordinated, and secure manner.

Prior to the development of the CNPHI, there was no real-time sharing of information, if any at all, says Dr. Amin Kabani, Senior Medical Advisor with the PHAC's National Microbiology Laboratory in Winnipeg and the project's lead. "We needed to strengthen our command, control, communication, coordination, and information (C<sup>4</sup>I) structure in order to be able to respond to any event."

Dr. Kabani and his team submitted their proposal to CRTI to develop the network just before the 2003 severe acute respiratory syndrome (SARS) outbreak. The lessons learned from SARS demonstrated that they were on the right track with developing CNPHI. There was widespread recognition after SARS that filling this gap was critical to ensuring effective, coordinated emergency response to public health crises and emergencies.

CNPHI is divided into two main tools: the Canadian Integrated Outbreak Surveillance Centre (CIOSC) and the Response and Resource Management Centre. The CIOSC includes public health alerts and notifications, as well as surveillance systems for detecting and tracking communicable diseases that pose a threat to public health. The Response and Resource Management Centre provides secure, web-based resources to assist public health officials and other stakeholders in responding to public health emergencies, and is specially designed to facilitate activity during emergency operations.

“Public health officials can now get surveillance data faster, transmit the data faster to the people who need to know, keep it private and confidential, keep ownership of the data where it belongs, and coordinate the response to an alert,” explains Dr. Kabani.

Launched in October 2004, CNPHI is now being used by more than 90 percent of the public health authorities across Canada and is being built into an integrated cross-Canada solution—the Electronic Public Health System.

Beyond Canada’s borders, the Global Health Security Action Group, World Health Organization (WHO), the US, and Australia have all expressed interest in adopting components of the complete system.

## **Merv Fingas Retires From Environment Canada**

Dr. Merv Fingas recently retired as the Chief of the Emergencies Science and Technology Division (ESTD) at Environment Canada’s Environmental Technology Centre (ETC) and the Head of CRTI’s Chemical Cluster. Dr. Fingas spent more than 25 years in the field of oil spill technology at the ETC, specializing in spill dynamics and behaviour, spill-treating agents, in-situ burning of oil spills, and the technology of personal protection equipment.

Dr Carl Brown is Dr. Fingas’ acting replacement both at the ETC and as the Head of CRTI’s Chemical Cluster.

## **Publications and Patents**

Dickie, Sheldon, Cam Boulet, and Susan McIntyre. 2006. *From Response to Prevention: S&T Aids CBRN Response*. Issue 3: 19-22.

Feldmann, Heinz. 2006. “Focus on Research: Marburg Hemorrhagic Fever — The Forgotten Cousin Strikes.” *New England Journal of Medicine* 355: 866-869.  
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McIntyre, Susan. 2006. *Knowledge Management in Canadian Science and Technology Service Delivery Review*, Vol 5, No 1.  
<[http://www.dpsa.gov.za/documents/service\\_delivery\\_review/Vol5no1/SDR\\_vol\\_5\\_no\\_1\\_2006.pdf](http://www.dpsa.gov.za/documents/service_delivery_review/Vol5no1/SDR_vol_5_no_1_2006.pdf)>

Soltes, Glenn, Michael Hust, Kitty K.Y. Ng, Aasthaa Bansal, Johnathan Field, Donald I.H. Stewart, Stefan Dübel, Sanghoon Cha, and Erik J. Wiersma. 2006. “On the influence of vector design on antibody phage display.” *Journal of Biotechnology*.  
<<http://dx.doi.org/10.1016/j.jbiotec.2006.08.015>>

## **CRTI Project Leader Louise Lemyre Joins European Delegation on the Psychosocial Impacts of Terrorism**

With the magic of CRTI networking, Dr. Louise Lemyre of the University of Ottawa is now a member of the European Union Coordination Action project, “Assessment of the vulnerabilities of modern societies to terrorist acts employing radiological, biological, or chemical agents with the view to assist in developing preventative and suppressive crisis management strategies.” The purpose of the three-year project is to assess the vulnerability of EU society and its critical infrastructure to CBR threats and to provide this information and recommendations for future research to policy and decision makers.

The project, which is led by the Netherlands Organisation for Applied Scientific Research, includes partners from the United Kingdom, France, Spain, and Sweden. Dr. Lemyre was invited to participate in the project as a result of her innovative research on the psychosocial aspects of terrorism, and a seventh meeting, held in Ottawa, was added to the schedule.

At a special workshop with the EU Research Commission in Luxembourg, Dr. Lemyre presented the Psychosocial Risk Assessment and Management (P-RAM) tools that she developed with CRTI funding (CRTI 02-0080RD) to a group of delegates from 25 countries. The P-RAM tools are a set of bilingual (English and French) training modules that educate responders, decision makers, and the general public on how to prepare for, react to, and cope with a CBRN terrorist threat or event. The audience of scientists and decision makers were impressed with her presentation and are looking forward to seeing the complete set of P-RAM training modules.

A very pleased Dr. Lemyre describes the meetings as useful for further fostering the reputation and network of CRTI and the new Centre for Security Science with the Europeans. “We disseminated the material, the presentations, the slides, and the CDs to all of the 25 countries. It’s a very good window for CRTI and Canada.”

## **New Detection Methods Enhance Radiological-Nuclear Emergency Response**

Trent University researchers, in partnership with Health Canada, the National Research Council, and MDS ScieX scientists, have successfully developed new techniques to rapidly detect and analyze radioactive contamination that could pose serious health risks to first responders at the scene of an RN incident.

With funding from CRTI, the project team combined the capabilities of an inductively coupled plasma mass spectrometer (ICP-MS) and a high-performance liquid chromatography (HPLC) unit or a flow injection analysis unit to detect and analyze plutonium, uranium, americium, and thorium in urine and air samples. They also developed a method to measure strontium in environmental samples by coupling electrothermal vaporization with an ICP-MS equipped with a reaction cell. The new techniques reduce sample preparation and analysis time from days to hours, and are fully automated, significantly improving the precision with which elements can be measured and reducing sample contamination and human error.



**ICP-MS combined with a HPLC unit improves the detection limits and speed of analysis for actinides in urine and air samples.**

While the three-year project (CRTI 0133RD) officially wrapped up last year, the team plans to continue its research with the goal to increase the potential of new measurement methods by conducting experiments with more types of samples, such as soil and plants.

***Performance of Chemical, Biological, and Radiological Decontamination Foam Keeps Getting Better***

Emergency response and security agencies will soon be able decontaminate surfaces or equipment exposed to chemical and biological vapour and liquid hazards as a result of improvements to the world-renowned CASCAD® decontamination foam.

With CRTI's support, scientists at DRDC Suffield and their industry partner, Allen-Vanguard, undertook the adaptation of the military-strength surface decontaminating foam (SDF) for civilian application. Over the course of the three-year project (02-0043TA), Dr. Garfield Purdon and his team at DRDC Suffield conducted tests to prove the effectiveness of the new

civilian-grade foam, while Allen-Vanguard worked to extend the application time of the foam and modify it to be effective in Canada's cold, winter climate. The result is a range of closely related decontaminant foams than can be used to defeat chemical and biological threats and squalch bombs. The new foams can also be used to deal with dirty bombs that use ordinary explosives to scatter radioactive material.

Dr. Purdon plans to continue studying the SDF's performance, especially to determine how it will work against toxic industrial chemicals (TICs), which are a source of growing concern in civilian and military circles.

***Multi-purpose Sensor Network Improves Defence Against Gamut of Terrorist Threats***

A research team, led by the radiation experts at Health Canada in partnership with Bubble Technology Industries (BTI), have put the finishing touches on a rapidly deployable detection and monitoring system that also communicates the presence and location of multiple threat agents, including chemical and biological warfare agents, TICs, and alpha, beta, and gamma radiation—all using a wireless network (CRTI 02-0041TA).

The three-year project, undertaken with financial assistance from CRTI, was led by Health Canada Systems and Field Operations Specialist, Ed Korpach. "Our research into the response capability gaps facing first responders in the field showed a need for integrating portable detectors with a central data collection hub that would pull together, assess, and relay measurement data back to a command post," explains Mr. Korpach.

As part of the project, researchers from BTI developed two novel, field-ready sensors for the network: a high-rate gamma spectrometer and an air monitor to measure levels of alpha, beta, and gamma particulates. The air monitor also returns measurements that indicate how long a first responder can stay in a contaminated area in half the time of other commercial air detectors.

The new system allows for safe and efficient monitoring of contaminated areas and high-risk terrorist targets, as well as allowing for immediate and long-term tactical response. Flexible, modular, and scalable by design, the network can be expanded to include any number and type of sensors, providing first responders with a new tool to protect against and manage the consequences of a CBRN terrorist attack.



## **International S&T Cooperation Boosted at Decontamination Workshop in Moscow**

A Canadian delegation, including representatives from CRTI, Health Canada, Environment Canada, RMC, and Queen’s University flew to Moscow last September for a two-day technical workshop entitled “Decontamination of Buildings and Facilities after Chemical Terrorism.” More than 60 scientists, specialists, and representatives from federal agencies from Canada, the US, Poland, the Czech Republic, and Russia were in attendance. CRTI’s Chemical Portfolio Manager, Norm Yanofsky, along with Dr. Merv Fingas and his Environment Canada colleagues Konstantin Volchek and Trevor Lumley, were among the presenters.

The workshop strengthened Canada’s relationship with key Russian science organizations, including the Research Institute on Health Toxicology and Occupational Pathology (RIHTOP) and the International Science and Technology Center and culminated with the tabling of four joint project proposals. It also highlighted CRTI’s involvement in the Global Partnership Program, which oversees decommissioning of Russian weapon stocks and ensures that Russian weapons scientists are not vulnerable to financial offers from terrorist groups by engaging them in peaceful S&T projects.

The S&T cooperation between Russia and Canada first began three years ago, when a group of Russian scientists attended a Technical Decontamination Science Technology Workshop, organized and chaired by Dr. Fingas in Ottawa. This was followed by a workshop organized by RIHTOP in Volgograd in July 2005, where Canada co-chaired a meeting of international decontamination experts.

### **Alphabet Soup**

BTI	Bubble Technology Industries
C <sup>4</sup> I	command, control, communication, coordination, and information
CB	chemical and biological
CBR	chemical, biological, and radiological
CBRN	chemical, biological, radiological, and nuclear
CBRNE	chemical, biological, radiological, nuclear, and explosive
CF	Canadian Forces

CFB	Canadian Forces Base
CIOSC	Canadian Integrated Outbreak Surveillance Centre
CNPHI	Canadian Network of Public Health Intelligence
CRTI	CBRNE Research and Technology Initiative
DND	Department of National Defense
DRDC	Defence Research and Development Canada
ER	emergency room
ESTD	Emergencies Science and Technology Division
ETC	Environmental Technology Centre
EU	European Union
HPLC	high-performance liquid chromatography
ICP-MS	inductively coupled plasma mass spectrometer
ISTC	International Science and Technology Center
MEDNEREX	Medical Nuclear Emergency Response Exercise
METREPOL	Medical Treatment Protocols
NATO	North American Treaty Organization
OR	Operational Research
PHAC	Public Health Agency of Canada
P-RAM	Psychosocial Risk Assessment and Management
PSEPC	Public Safety and Emergency Preparedness Canada
PSTP	Public Security Technical Program
RN	Radiological-nuclear
RCMP	Royal Canadian Mounted Police
RIHTOP	Russian Institute on Health Toxicology and Occupational Pathology
RMC	Royal Military College
S&T	science and technology
SARS	severe acute respiratory syndrome
SDF	surface decontaminating foam
TBS	Treasury Board Secretariat
TIC	toxic industrial chemical
UK	United Kingdom
US	United States