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CBRN Research & Technology Initiative Projects

CRTI 03-0018TD Airport Radiological Counter Terrorism Sensor Network

Project Lead: Health Canada
Industry Partner: [McFadden Technologies Ltd.](#)
Project summary

Airports and the air travel and transport industries of which they are a part are important components of the Canadian national critical infrastructure and are integral to modern economic and community life. They support government, business, family and recreational travel. As a consequence, the traveling public, airport facilities and aircraft as well as the First Responders who protect them require the most appropriate security tools available in the post 9/11 environment.

In the context of the global economy, airport and air transport security is an increasingly recognized area of concern. International and national standards for air industry security are addressing the current understanding of prevailing risks. One important group of terrorist agents is comprised of the radioactive and nuclear materials. Significant radiological sources as well as a large number of smaller sources are widely used within Canada and around the world in medical, industrial and scientific applications. Because of the variable security with which radiological sources adaptable as terrorist agents are held, they are widely understood to be available for theft, diversion or illegal acquisition.

Since there is currently limited capability for radiological surveillance at Canadian airports, it is of concern that illicit radioactive materials may be introduced undetected into airports and into airport passenger, baggage or cargo systems.

- a. Radioactive materials could be directly and effectively deployed as a terrorist agent, leading to actual or perceived health risks to air passengers, airport employees, and First Responders. The actual health risks include mortality and morbidity both acute and long term.
- b. Nuclear materials and radioactive materials could be introduced into an airport system in transit to another intended target area either within Canada or across international borders.
- c. Radioactive materials could be introduced into an aircraft to enhance the impact of the use of that aircraft as a weapon.

The public has increased expectations for security, prevention, interdiction and incident site management. The safety of First Responders has become a focus of concern and effort. Radiological agents have high potential for

psychosocial impacts and the disruption of political and economic systems. Decontamination costs and airport downtime may be onerous.

The CRTI funded Airport Radiological Counter Terrorism Sensor Network Project will implement an operational radiological security system at the Ottawa International Airport which will provide a model transferable for the protection of other airports in the national aviation system.

The Airport Radiological Network will provide routine radiological security for passengers and the airport. Particular emphasis will also be placed on the safety of both First Responders and on airport staff in an actual or suspected radiological incident.

A shared-objectives development team will include the Ottawa International Airport end users of the security system, First Responders of the Ottawa Police Service, the Radiation Protection Bureau of Health Canada, McFadden Technologies Inc. and Mobile Detect Inc. to ensure relevance and practicality.

As part of its contribution, the National Dosimetry Service of Health Canada will implement new capacity to respond to airport and other radiological emergency incidents with tools to provide greater safety for workers and First Responders.

In the first Project year, radiation sensors will be selected and deployed in a network of both mobile and fixed surveillance units. This difficult to circumvent mix of static and portable sensors will provide a powerful security tool for deterring the illegal movement of radiological materials into the Ottawa International Airport. Effective capabilities for early detection and effective incident interdiction and management will become available for the first time. In parallel, emergency response capacity for the protection of workers and First Responders through radiation dosimetry will be implemented.

In the second Project year, operational experience with the Network will develop the knowledge base required for transfer to other airports. Transport Canada will use experience with the system to address future regulatory options.

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