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Identification and Monitoring of Radiation in commerce Shipments (IMRicS)

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Overview

The Department of Energy (DOE) Oak Ridge National Laboratory (ORNL) is currently prototype testing state-of-the-art sensor technologies associated with detection of radiological materials in commerce. These technologies are deployed at an Evaluation User Facility at the I-40/I-75 Weigh and Inspection Station in Knoxville, TN. This real-world testing addresses radiological and nuclear material detection in commerce and is part of a larger program entitled Performance-Based 21st Century Commercial Vehicle Inspection System, which is an Integrated Safety and Enforcement System for the 21st Century with Homeland Security Benefits.



Fig. 1: IMRicS Installation

The initial deployment of the Commercial Vehicle Radiological System Module in Tennessee is unique in that it is the first system, of its kind, to be installed at Weigh and Inspection Stations under the auspices of State safety and law enforcement entities. This safety and security initiative serves the security, safety and enforcement needs of local, state and federal government entities and utilizes the respective state's existing weigh and inspection infrastructure. The weigh and inspection infrastructure is a recognized and accepted infrastructure by the commercial carrier industry, and thus the deployment of the Commercial Vehicle Radiological System Module will have a negligible impact on interstate commerce. Safety Monitoring includes drivers, vehicles and cargo addressing safety of shipments in transport, identification of unsafe vehicles and carriers, and monitoring of domestic and foreign commercial vehicles (as it relates to North American Free Trade Agreement [NAFTA]). Enforcement opportunities address cargo safety, tracking, placarding, motor carrier safety regulations, hazardous materials regulations, and over dimension and over weight commercial vehicles. Homeland Security Applications address Radiological Dispersal Device (RDD - "Dirty Bomb") identification, identification of unsafe or illicit transport of hazardous materials including chemicals and radiological materials, food safety and screening for shipments of illicit drugs.



The overall goal of this project is to continuously improve commercial truck and bus, safety and security, through the application of state-of-the-art technologies to driver, vehicle, and cargo inspections. The prototype system is assisting enforcement officers to perform their job more effectively and efficiently, enhance homeland security monitoring of highway transport and thereby create a National Performance Based Infrastructure for Commercial Vehicle Inspection



Fig. 2: IMRicS Installation

for the 21st century.

Implementing and expanding the Commercial Vehicle Radiological System Module as a module of an Integrated Safety and Enforcement System for the 21st century will result in the

Identification and Monitoring of Radiological (in commerce) Shipments (IMRicS) and will continue to benefit both state and federal authorities under the auspices of State safety and law enforcement entities.

Fact Sheet

- IMRicS Fact Sheet ([PDF](#))

Media

- Miller, Tim. "ORNL Testing Two Types of Radioactive Detection Systems" Retrieved February 25, 2005 from <http://www.wate.com/Global/story.asp?S=2988081>
 - Part 1 - [Fixed Sensors](#) (Mirrored Copy)
 - Part 2 - [Making SensorNet Mobile](#) (Mirrored Copy)
- [Video 1](#) (17MB) - Watt's Bar Sensors - 2004 Newscast
- [Video 2](#) (15MB) - Watt's Bar Sensors - 2004 Newscast
- [Video 3](#) (18MB) - Watt's Bar Sensors - 2004 Newscast
- [Video 4](#) (23MB) - SensorNet - 2/23/05 Newscast
- [Live Video Feed - Watt Road Weigh Station](#) - Access Available by Request

Publications

- Walker, RM, Abercrombie, RK, and Batsell, SG 2004. "Identification and Monitoring of Radiation (in commerce) Shipments (IMRicS) Module of the Integrated Safety and Security Enforcement and Interdiction System (ISSEIS)," *Ft. Bragg/SensorNet Capabilities Workshop, Oak Ridge, TN USA, Oak Ridge National Laboratory, 01/12/2004* ([PDF](#)).
- Abercrombie, RK and RM Walker 2004. "Commercial Vehicle Radiological System Module of an Integrated Safety and Enforcement System for the 21st Century with Homeland Security Benefits," *44th INMM Annual Meeting, Phoenix, AZ USA, Institute of Nuclear Materials Management, 07/13/2003-07/17/2003* ([PDF](#)).

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