

Radiation Inspection Systems Laboratory

Description

Oak Ridge National Laboratory's Radiation Inspection Systems Laboratory is set up to test and optimize radiation detection systems ranging from handheld background survey meters to advanced spectroscopic portal monitors. The laboratory supports field operations and optimization of radiation portal monitors (RPM) using polyvinyl toluene and sodium iodide for gamma detection and helium-3 for neutron detection. Focus areas include

- Radiation Inspection System Development,
- Nuclear Smuggling Detection and Deterrence (NSDD), Portal Monitor Testing and Training,
- Spectroscopic Portal Monitor Evaluation, and
- Optimization of Fielded Radiation Monitoring Systems.

The Radiation Inspection Systems Laboratory at ORNL was primarily built to support the NSDD Office (NA-213). The NSDD mission is to strengthen the capabilities of partner countries to deter, detect, and investigate the trafficking of nuclear and radiological materials. ORNL has developed significant capability and expertise in analyzing data received from RPMs that are installed around the world as well as their operability and maintenance status. This laboratory is also used to provide training to partner countries. The courses taught emphasize data analysis methods incorporated in an ORNL-developed analysis tool and the basics of operating RPMs, detector components, spectroscopy, shielding, and moderation. The objective is to educate and train personnel on key factors that affect the operability of RPMs to enhance RPM effectiveness in the field.

Specifications	
Radiation Detection Equipment	Pedestrian RPM (x2)
	Vehicle RPM (x6)
	Spectroscopic RPM (x2)
Handheld Identification Equipment	ORTEC high purity germanium detector
	Sodium iodide detectors
Computing Capacity	36 core MATLAB server
	Microsoft SQL Server
	Database of 500M+ occupancies
Source Capability	Material Balance Areas
	Indoor and outdoor testing capability

Contact

Michael Wright
 Leader, Nuclear Material
 Detection and Characterization
 Group
 Oak Ridge National Laboratory
 865.574.5604
wrightmc@ornl.gov

ornl.gov

ORNL is managed by
 UT-Battelle for the
 US Department of Energy



Experts provide instruction on RPM operation

Date: April 2017



Indoor testing area



Outdoor testing area