

## Radiation Portal Monitor Project: Enhancing National Security While Maintaining the Flow of Legitimate Trade and Travel



Protecting our borders  
through effective  
radiation detection



*The Radiation Portal Monitor Project supports CBP's twin goals of*  
*1) increasing U.S. security through the detection and interdiction of illicit radioactive materials at U.S. borders while*  
*2) maintaining the flow of legitimate trade and travel.*

### Introduction

In its efforts to detect and prevent illicit radiological materials from entering the United States, the Department of Homeland Security's U.S. Customs and Border Protection (CBP) established the Radiation Portal Monitor Project (RPMP) in 2002. This project is enhancing CBP's ability to detect and intercept illicit nuclear and radiological materials by installing radiation portal monitors at U.S. ports of entry.

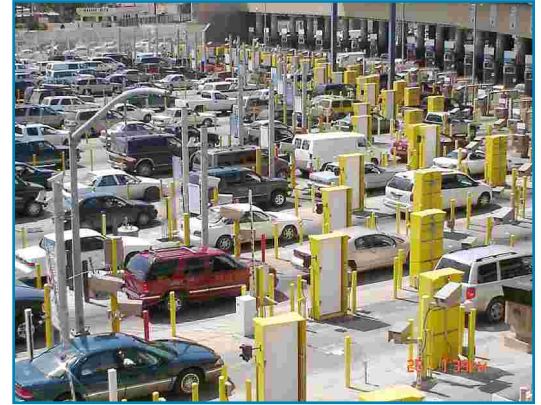
### Safe, Effective Screening

Radiation portal monitors (RPMs) are a cost-effective screening method for the presence of radioactive substances. RPMs provide a passive, safe means to screen cars, trucks, cargo containers, and other conveyances. The goal is to screen 100% of incoming vehicles, cargo, and mail for nuclear and radioactive materials, while maintaining the efficient flow of legitimate trade and travel. RPMs are being installed at more than 300 ports of entry representing five types of entry points (or "vectors"):

- international mail and express consignment courier facilities
- land border crossings
- railroad crossings
- international airports
- seaports.

### Teamwork

Successful completion of a project of this scale requires close cooperation and teamwork among multiple organizations. CBP management staff and field personnel play critical roles in approving key stages of the work and providing the needed oversight and authority when interfacing with various ports. The mission is also supported by the Department of Homeland Security's Domestic Nuclear Detection Office (DNDO) to develop new detection technology for deployment at the CBP ports of entry.



*Radiation Portal Monitors screen an average of 50,000 vehicles a day at San Ysidro, California, the world's busiest border crossing.*

Working hand in hand with CBP and DNDO, Pacific Northwest National Laboratory (PNNL)—a U.S. Department of Energy national laboratory located in southeastern Washington State—is providing the technical oversight for the Radiation Portal Monitor Project and managing actual RPM deployment activities.

Joint deployment teams from CBP Headquarters and PNNL coordinate and conduct the RPM design and commissioning activities, while subcontracting construction and installation activities. They work closely with local CBP officials and local stakeholders at the installation sites. These diverse stakeholders include local and regional governments; airport, bridge, and port authorities; labor unions; the U.S. Postal Service; and private industries such as seaport terminal operators, express courier services, airlines, and railroads.

"Having cooperation and support of our local stakeholders is critical to the success of this effort," said Chris Milowic, CBP's Director of the Technology Solutions Program Office, which manages the RPMP. "The schedules for accomplishing this work are extremely challenging and having onsite support is what allows us to achieve this enhanced security in a timely manner and with minimal disruption to ongoing operations at the ports." Joint teams involving CBP's National



# Radiation Portal Monitor Project:

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Enforcement Equipment Maintenance and Repair, CBP's Laboratories and Scientific Services, and PNNL also provide onsite training for local CBP staff and operational support after the systems are commissioned. The U.S. General Services Administration contracts for construction activities at land crossing sites.



*RPMs provide critical protection at rail border crossings, which handle about 70 million metric tons of cargo a year.*

### Installation Process

Typically, deployment of the RPM systems at a port site involves multiple steps, including site surveys; meetings with stakeholders; development and review of deployment designs; issuance of construction contracts; infrastructure construction; equipment installation, testing, and calibration; CBP staff training; RPM system commissioning; and post-commissioning support.

### Adapting Technology

The need to provide effective radiation detection while maintaining trade and travel in highly diverse operational environments has required RPMP to adapt existing commercial RPM technology in a number of ways. For instance, the mobile RPM, a portable radiation detection device mounted on a truck chassis, is designed to scan cargo containers. This unit can be used in mobile mode (driving past the cargo) or stationary mode (two units working in tandem with cargo driven between them).

The remotely operated RPM is another example of adapted technology. This is an integrated system that allows monitoring of and communication with multiple exit gates by CBP officers located in a central booth. Components may include cameras, traffic control lights, gate arms, intercoms, and optical character recognition systems. These components are modular, allowing the design to be tailored to the specific needs of each deployment.



*Given the diversity of RPM deployment sites, the RPMP frequently needs to adapt existing technology to meet CBP requirements. Two such adapted systems are the truck-mounted mobile RPM, shown here, and the remotely operated RPM system.*

