

Highlights of GAO-17-57, a report to the Ranking Member, Committee on Homeland Security, House of Representatives

October 2016

RADIATION PORTAL MONITORS

DHS's Fleet Is Lasting Longer than Expected, and Future Acquisitions Focus on Operational Efficiencies

Why GAO Did This Study

Preventing terrorists from smuggling nuclear or radiological materials to carry out an attack in the United States is a top national priority. Terrorists could use these materials to make an improvised nuclear device that could cause hundreds of thousands of deaths and devastate buildings and other infrastructure. DHS's fleet of almost 1,400 RPMs helps secure the nation's borders by scanning incoming cargo and vehicles for radiological and nuclear materials. DHS began deploying RPMs to seaports and border crossings in fiscal year 2003. As RPMs began to approach the end of their expected 13-year service lives, DHS raised concerns over the sustainability of the fleet, the ability to maintain current scanning coverage, and the need for fleet recapitalization.

GAO was asked to report on the sustainability of the RPM fleet. This report provides information on (1) DHS's assessment of the condition of its RPM fleet and how, if at all, that assessment has changed over time; and (2) DHS's plans for meeting detection requirements in the future. GAO reviewed agency documentation, analyzed data on RPM age and condition, and reviewed budget justifications. GAO interviewed DHS officials and officials from a national laboratory on the current status of the RPM fleet and DHS's plans for future RPM acquisitions.

GAO is not making recommendations in this report. DHS provided technical comments on a draft of this report. These comments are incorporated as appropriate in the final report.

View GAO-17-57. For more information, contact Shelby S. Oakley at (202) 512-3841 or oakleys@gao.gov.

What GAO Found

The Department of Homeland Security's (DHS) assessment of its fleet of radiation portal monitors (RPM)—large, stationary radiation detectors through which vehicles and cargo containers pass at ports of entry—shifted over time and, as a result, DHS has changed the focus of its RPM replacement strategy. During fiscal years 2014 and 2015, as some RPMs began to reach the end of their estimated 13-year service life, DHS began planning for replacing the entire fleet of almost 1,400 RPMs. However, as of September 2016, the fleet remains nearly 100 percent operational and recent studies indicate that the fleet can remain operational until at least 2030 so long as proactive maintenance is carried out and RPM spare parts remain available. As a result, in 2016, DHS changed the focus of its RPM replacement strategy to selective replacement of RPMs—using existing RPMs that have been upgraded with new alarm threshold settings or purchasing enhanced, commercially available RPMs—to gain operational efficiencies and reduce labor requirements at some ports.

During fiscal years 2016 through 2018, DHS plans to replace approximately 120 RPMs along the northern U.S. border with upgraded RPMs and, during fiscal years 2018 through 2020, plans to replace between 150 and 250 RPMs at select high-volume ports with enhanced, commercially available RPMs. Specifically, DHS plans to replace some legacy RPMs—those that cannot be upgraded with the new alarm thresholds—at northern U.S. land border crossings with RPMs from existing inventory that have been upgraded. This upgrade enables improved threat discrimination and minimizes “nuisance” alarms created by naturally occurring radioactive materials (NORM) in commonly shipped cargo such as ceramics, fertilizers, and granite tile. Improved discrimination between NORM and threat material will create efficiencies for the movement of cargo through ports and minimize time that DHS's Customs and Border Protection (CBP) officers spend adjudicating the nuisance alarms. DHS is also planning limited replacement of upgraded RPMs at select high-volume ports with enhanced, commercially available RPMs that offer nuisance alarm levels significantly lower than even the upgraded RPMs. Currently, upgraded RPMs at some high-volume ports do not reduce nuisance alarm rates enough to implement remote RPM operations—which allows CBP officers to carry out other duties at the ports when not responding to an RPM alarm—because of the high number of vehicles and cargo containers passing through the ports daily.

Nuisance Alarms by Type of Radiation Portal Monitor (RPM)

Legacy RPMs



Upgraded RPMs



Approximately 75 percent fewer nuisance alarms, on average, compared with legacy RPMs

New, enhanced RPMs



Expectation of up to 99 percent fewer nuisance alarms, on average, compared with legacy RPMs

Source: GAO analysis of Department of Homeland Security data. | GAO-17-57