

# Second Line of Defense

A program overview and the role of  
Sandia National Laboratories

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Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.



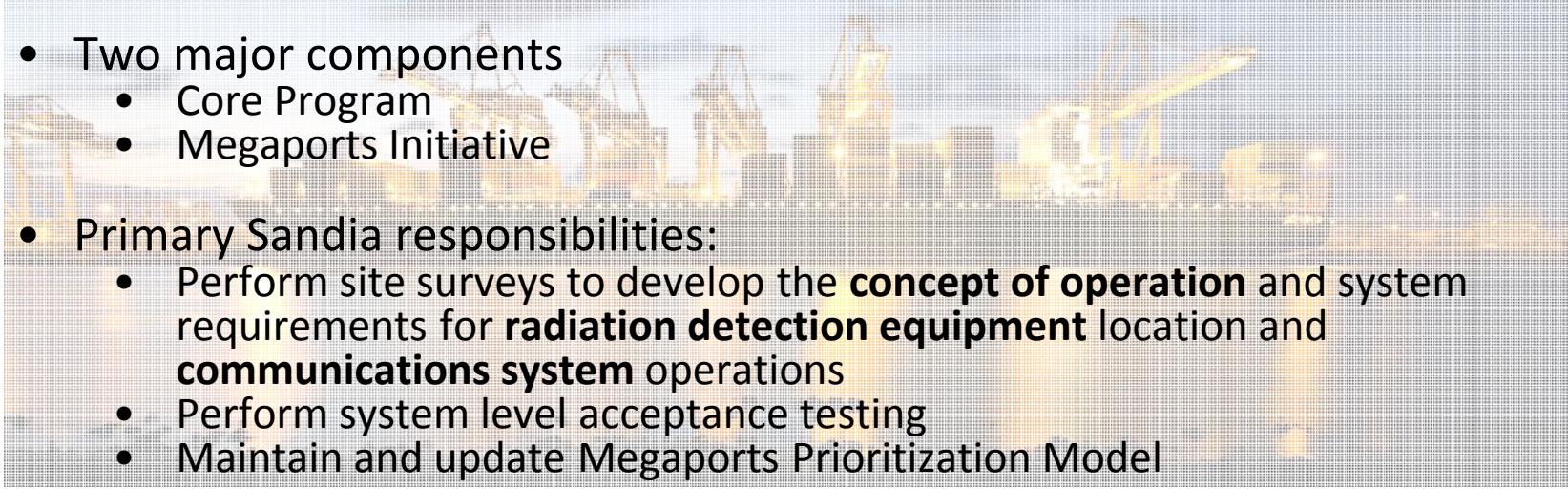
# Second Line of Defense

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## *Mission*

*Strengthen the overall capability of foreign governments to deter, detect, and interdict illicit trafficking in special nuclear material and other radioactive materials across international borders.*

- Plays a key role in National Nuclear Security Administration's (NNSA) Nonproliferation Mission through the Office of International Material Protection and Cooperation (NA-25)
- Two major components
  - Core Program
  - Megaports Initiative
- Primary Sandia responsibilities:
  - Perform site surveys to develop the **concept of operation** and system requirements for **radiation detection equipment** location and **communications system** operations
  - Perform system level acceptance testing
  - Maintain and update Megaports Prioritization Model





# SLD Core Program

- Detection and interdiction of nuclear and other radioactive materials at land **border crossings**, airports, seaports, and other points of entry and exit across international borders
- Program started in Russia in 1998 and has expanded to other former Soviet Union countries and key countries in Europe, Asia, and the Americas
- Currently active at over 200 sites in 26 countries



Pedestrian monitor



Vehicle monitors

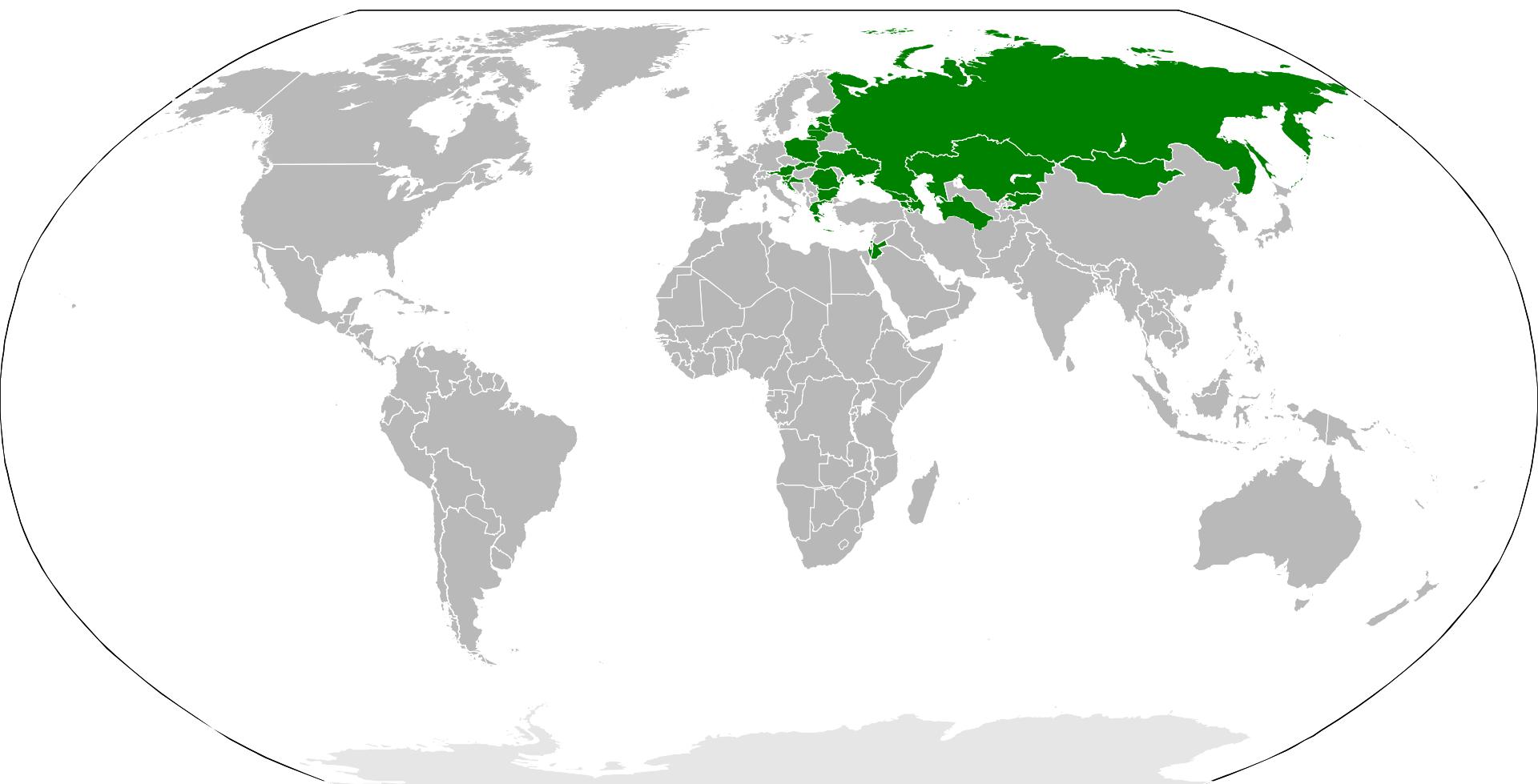


Rail monitor



# SLD Core Program

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National Nuclear Security Administration





# SLD Megaports Initiative

- Detection and interdiction of nuclear and other radioactive materials throughout the **global maritime shipping network** with focus on containerized shipments
- Started in 2003 as an extension of the Core Program. Also works collaboratively with the Department of Homeland Security's *Container Security Initiative* and *Secure Freight Initiative* in select ports
- Currently active in ports in over **30** countries



Port container monitoring



Mobile Detection System

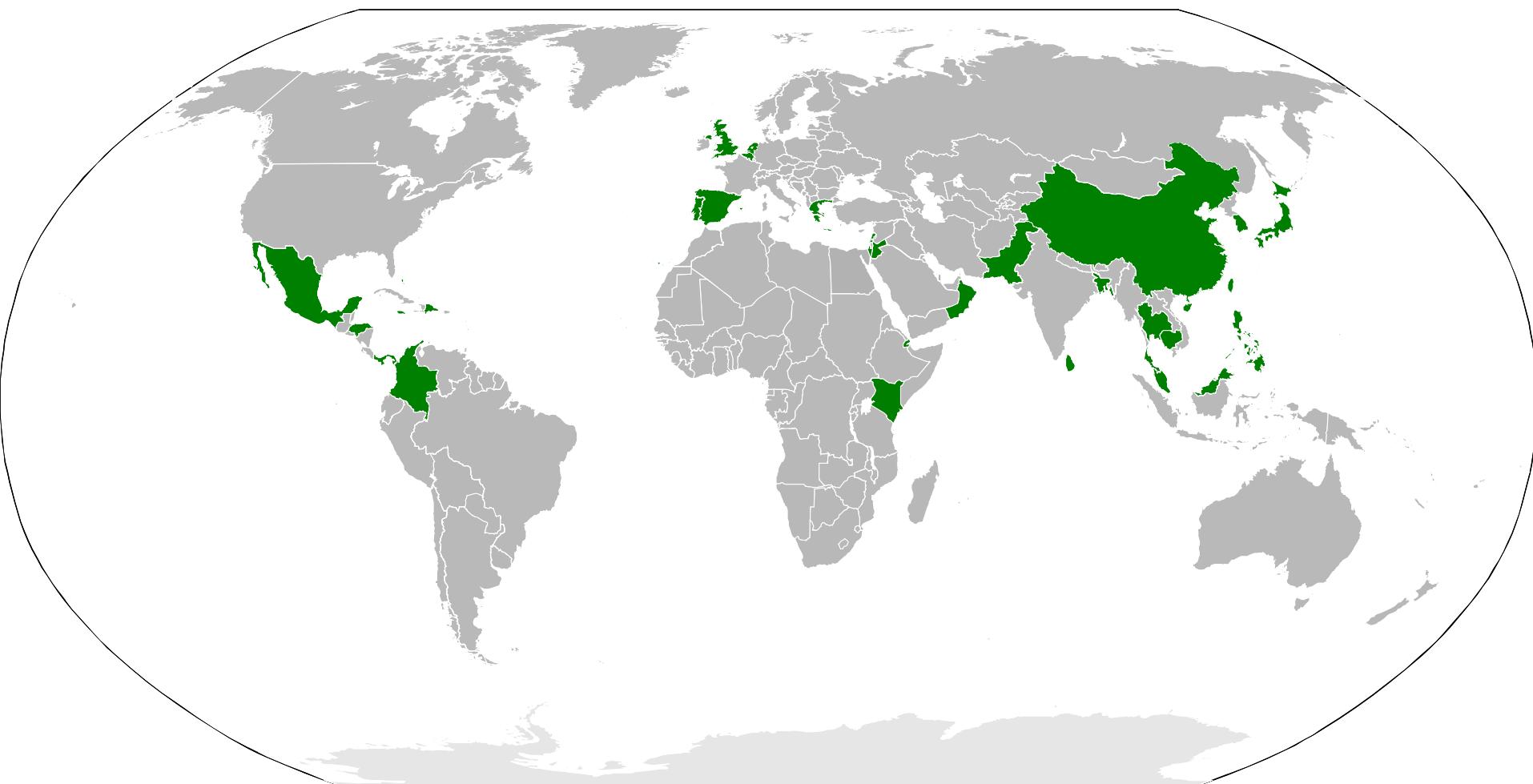


Advanced spectroscopic monitor

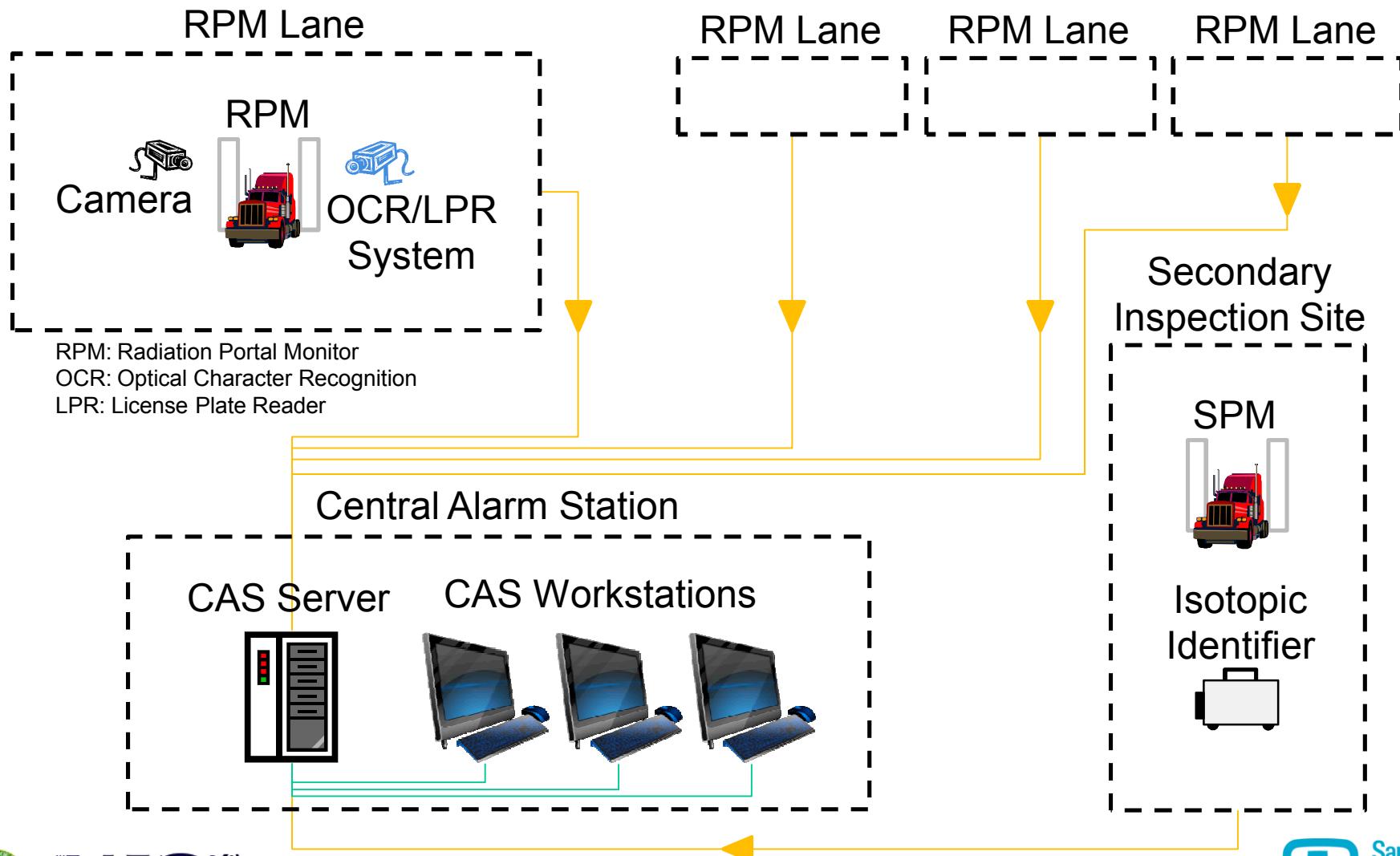


# SLD Megaports Initiative

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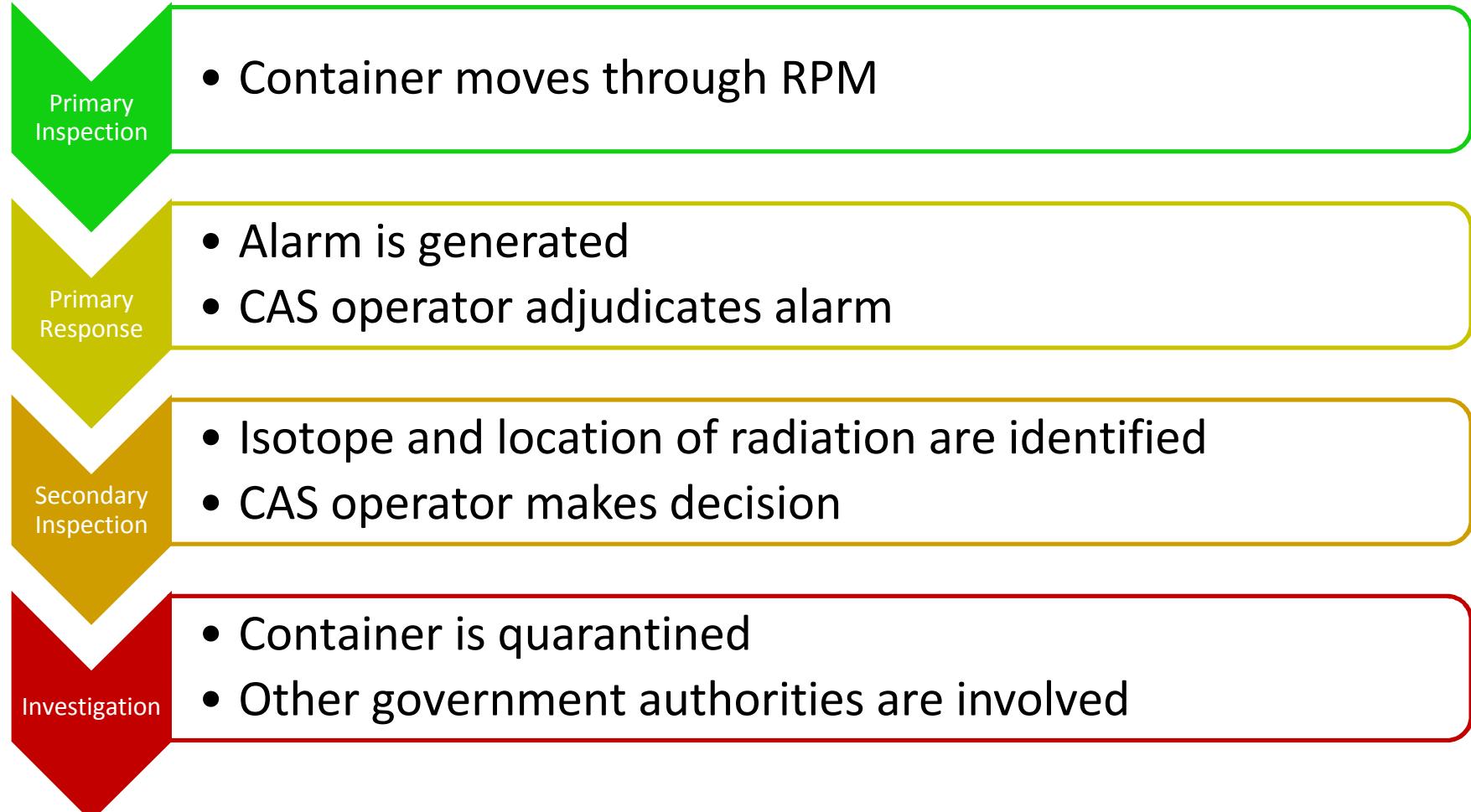
# Megaports Radiation Detection System





# Megaports Concept of Operations

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# Megaports Prioritization Model

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Final Score

Threat

Volume

Country

Shipping  
Lanes

Total  
Volume

Monitor  
%



# Megaports Prioritization Model

## Country Score

Human Development Index

Governance

Piracy

Special Nuclear Material Stockpiles

Terrorism

Ships per year between ports

Distance

Country score at receiving port

## Shipping Lanes Score



# Megaports Prioritization Model

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Total Volume

Twenty-foot Equivalent  
Units (TEUs) handled  
by the port

Monitoring %

How many TEUs we can  
monitor given the port  
configuration