

Second Line of Defense

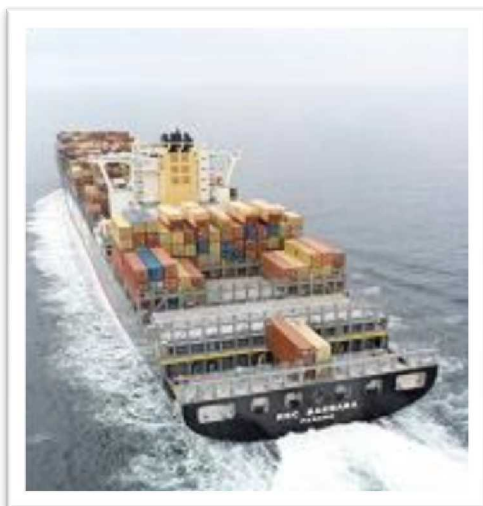
A program overview and the role of
Sandia National Laboratories

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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

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



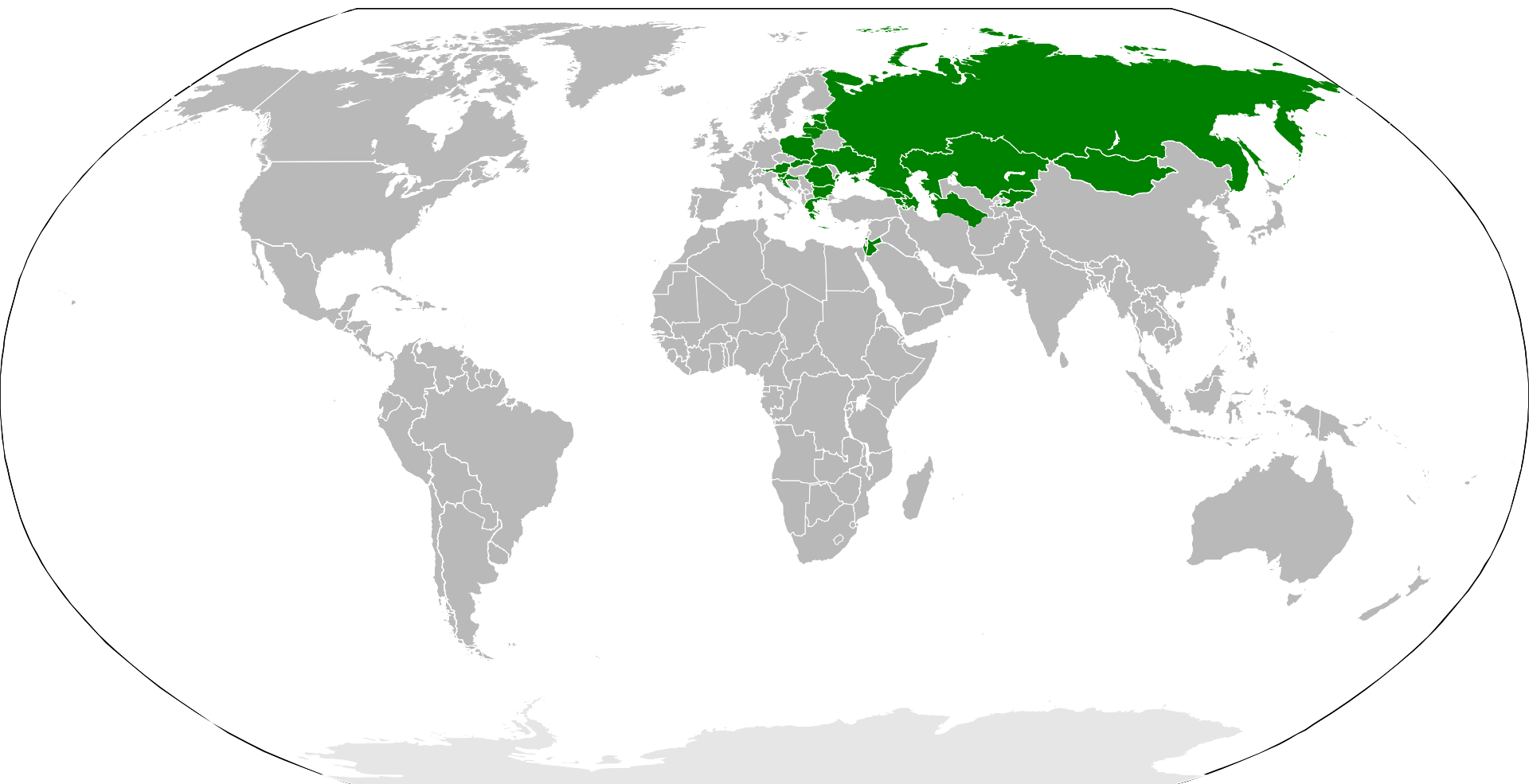
Vehicle monitors



Rail monitor



SLD Core Program



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



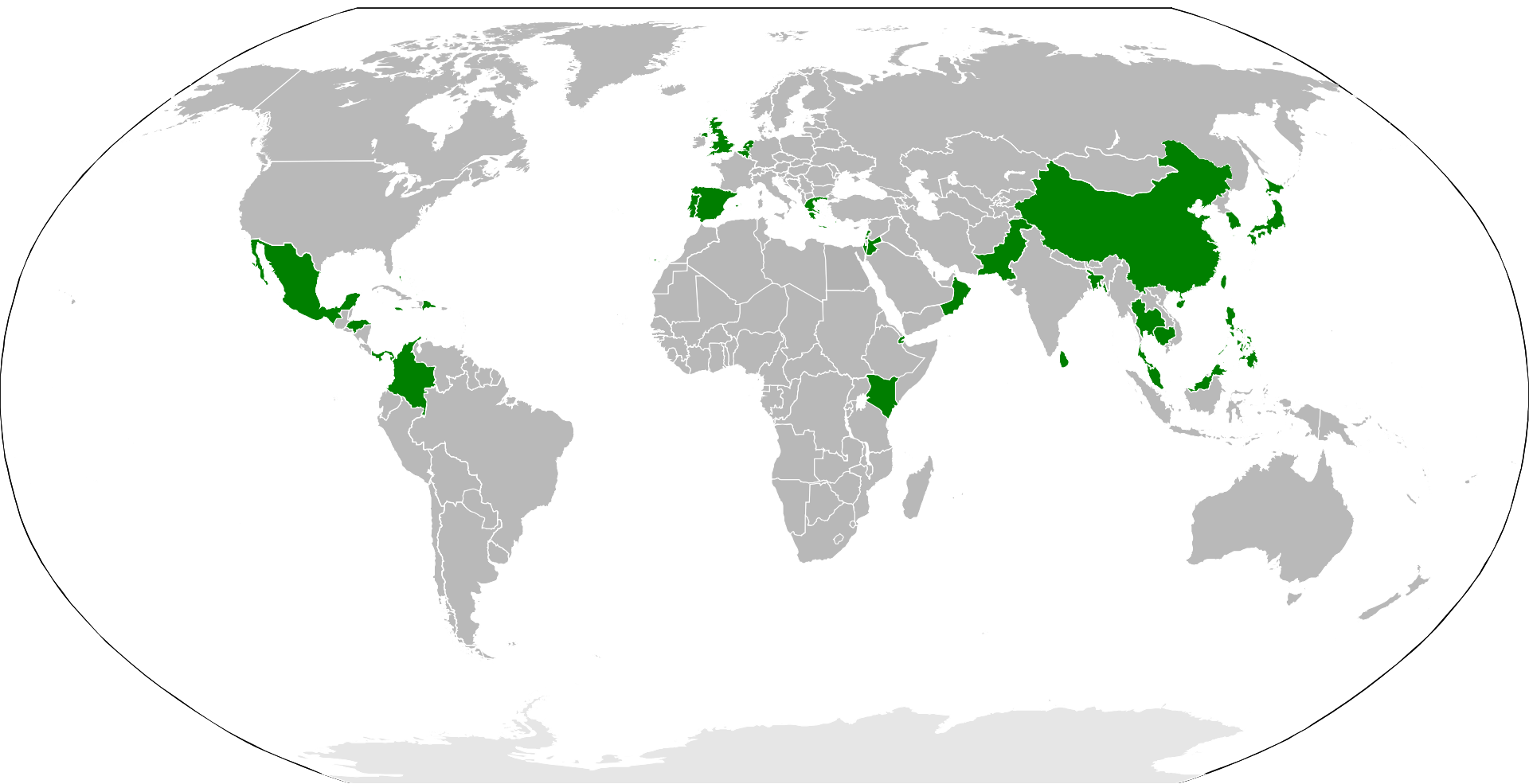
Mobile Detection System



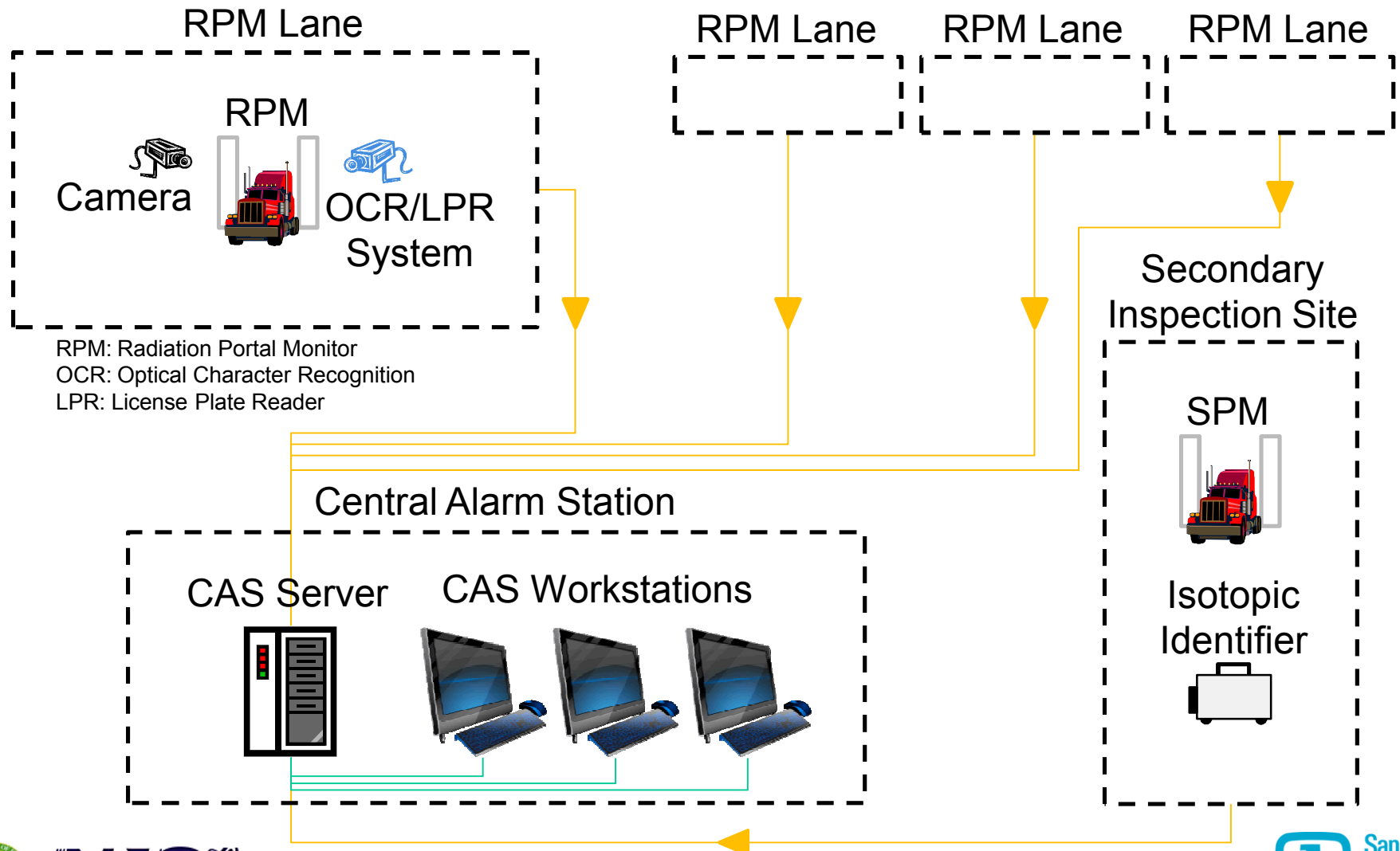
Advanced spectroscopic monitor



SLD Megaports Initiative



Megaports Radiation Detection System





Megaports Concept of Operations

Primary Inspection

- Container moves through RPM

Primary Response

- Alarm is generated
- CAS operator adjudicates alarm

Secondary Inspection

- Isotope and location of radiation are identified
- CAS operator makes decision

Investigation

- Container is quarantined
- Other government authorities are involved



Megaports Prioritization Model

Final Score

Threat

Volume

Country

Shipping
Lanes

Total
Volume

Monitor
%





Megaports Prioritization Model

Country Score

Shipping
Lanes Score

Human
Development
Index

Governance

Piracy

Special
Nuclear
Material
Stockpiles

Terrorism

Ships per
year between
ports

Distance

Country
score at
receiving
port





Megaports Prioritization Model

Total Volume

Monitoring %

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

How many TEUs we can
monitor given the port
configuration

