# thermo scientific

# **Radiation Threats**

Radiation can be found in many industries and in thousands of locations across the country, not just in large metropolitan areas and nuclear power plants. If not properly controlled and monitored, they can be a threat to public health and safety. You should have a plan that includes the proper tools and training, to monitor, detect, and respond to radiation threats and accidents to keep your jurisdiction safe.

#### Nuclear Power Plants



- 60+ sites operating throughout US
  - Significant risk for terrorism or accident resulting in radioactive release
  - High level spent radioactive fuel stored on site
  - Low level waste transported to disposal sites
    Uranium fuel transported to site each year for
  - refueling

# Fracking and Oil & Gas Exploration



- Radioactivity from deep within the earth
   can be released during fracking
- Waste water can contain levels of radiation
- Low level contamination with Uranium in
- cuttings and on tools difficult to control

#### Scrap Metal Recycling Facilities



#### **Medical Facilities**



# • Orphan sources can find their way into scrap metal from demolished industrial or medical facilities

- Without detection, radiation can end up in thousands of consumer products after steel is recycled
- Without detection, melting of a source can contaminate an entire factory and all of the material produced with harmful radiation

# Numerous medical facilities contain high level

- radioactive sources
- Radiochemistry Patients and imaging
- Proton beam treatment
- Radiation research labs
  Blood irradiators



#### Ports of Entry

![](_page_0_Picture_31.jpeg)

### Gauging and Testing

![](_page_0_Figure_33.jpeg)

![](_page_0_Picture_34.jpeg)

Water

significant risk

Radioactive sources used and transported every day for testing and measurement

Transport

• With almost 20,000 miles of border and coastline, smuggling of sources is a

- Construction
- Packaging
- Food analysis
- Industrial radiography for structural inspections (welds, concrete, etc)

![](_page_0_Picture_40.jpeg)

Interstate Highway System 🗕

## Nuclear Material Transportation, Storage, and Research

![](_page_0_Picture_43.jpeg)

- Radioactive waste processing and Storage facilities
- Waste is transported on highways and railways every day
- Fuel for nuclear reactors is transported to plants across USA
- National Laboratories located across country dedicated to research and store radioactive material
- Waste Isolation Pilot Plant (WIPP\*) handles all high level waste from nuclear weapons production and other high level waste for the entire USA

![](_page_0_Picture_49.jpeg)

#### Visit www.thermofisher.com/radiationsecurity

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