



NATIONAL SECURITY SCIENCES

# GEARS

*Global Evaluation, Analysis, Research, and Security Facility*



When radiological material is shipped, it is most vulnerable to theft during transportation. The material, the container it is shipped in, and even the semi-truck pulling the trailer are at risk of manipulation.

## ABOUT GEARS

The Global Evaluation, Analysis, Research, and Security Facility, referred to as GEARS, allows researchers and subject matter experts to develop and test proof of concept designs and mature technologies and systems to outfit transport vehicles with a suite of security measures to ensure safe delivery of radioactive material.

Established in 2021 at Oak Ridge National Laboratory, GEARS is designed to provide a place for scientists, engineers, and security experts to test security equipment in support of sponsor requirements. The facility will be the home of multiple vehicles, including two late-model semi-trucks, light-duty trucks, and multiple flatbed trailers; shipping casks; ISO containers with security breaching/penetration equipment; testing and evaluation equipment; and safety equipment with exterior lighting and portable generators.

## TECHNOLOGIES

GEARS is ideal for:

- Class 8 heavy duty truck research
- Research, test, and evaluate security technologies
- Rapid prototyping of security technologies
- Configuration testing against theft and sabotage scenarios
- Performance evaluation activities such as drills and exercises

The GEARS semi-truck allows researchers to install ORNL-developed software and equipment in the type of vehicle typically used for transport of radioactive sources and test them under real-world operating conditions.



ORNL's NA-21 Program Manager Ken Martin leads a tour demonstrating how ORNL is addressing transport security challenges with the GEARS facility.



Domestic Transport Project Manager Shannon Morgan demonstrates security technologies for the future of secure transport.



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**TRANSPORTATION SECURITY**

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