National Security Test Range

Inclusive testing capabilities completed by world-class R&D staff

INL is home to a variety of energetic and ballistic testing capabilities and breaching techniques.

The nation requires advanced tools and techniques to ensure the safety of our war fighters. Idaho National Laboratory's National Security Test Range (NSTR) provides access to capabilities to understand and mitigate emerging challenges faced on the battlefield.

The NSTR is located about 45 miles west of Idaho Falls on INL's isolated 890-square mile desert Site. It has several dedicated test ranges and restricted airspace that allows research to be conducted safely and securely.

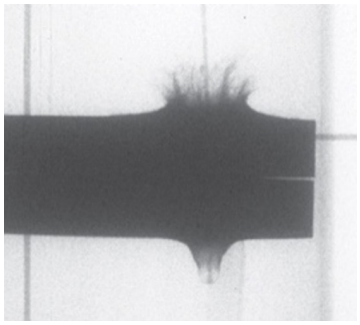
The range is uniquely positioned to support a variety of full-scale research and development, practical specialized testing, and training opportunities for the Department of Energy, Defense and Homeland Security, National Nuclear Security, and other federal and industry collaborators.

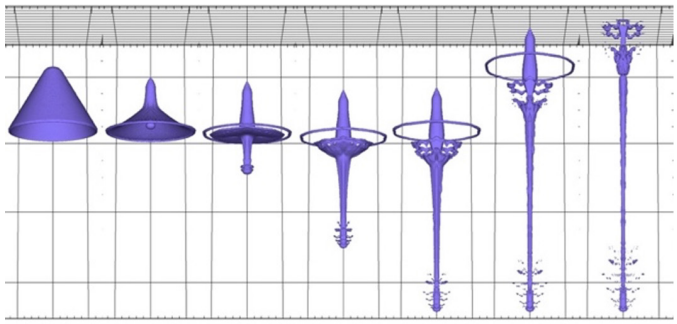
The lab's National and Homeland Security expertise spans ballistics, explosives and barrier testing, current breaching strategies, high-performance modeling and simulation capabilities, and classified program support. The NSTR's research and testing capabilities are flexible and adaptable to meet custom requirements

SPECIALIZED NATIONAL SECURITY TEST RANGE CAPABILITIES

- 20,000 pound Net Explosive Weight (NEW) limit
- 8.7 km range fan
- 3000 meter firing range *(Fall 2022)*
- Classified testing capability
- Tactical breaching training
- Classified networking
- Delay analysis and testing for vulnerability assessments
- Dynamic testing experience
- Domestic small arms and heavy weapons ballistics
- Foreign weapons, grenades and rockets
- Military, foreign improvised, secondary HME, binary, and custom explosives
- Barrier testing including VBIED testing
- Explosive and heavy breaching techniques
- Emerging threat intelligence
- Explosive and energetics chemists
- Mechanical/thermal breaching techniques
- Custom test fixtures for R&D
- Scientific test cannons – 14.5 mm, 20 mm, 30 mm
- Flyer plates, EFPs, IEDs, various shaped charges

Idaho National Laboratory





Above: INL has an isolated range for extensive energetic and blasting testing.

Below: High-fidelity analytical capabilities compliment INL's breadth of testing capabilities.

RESEARCH AND DEVELOPMENT

Advanced national security research and development initiatives require access to advanced measurement, analytical, modeling and simulation tools alongside full-scale testing capabilities. NSTR enables a strategic approach to technology development and deployment with the following critical capabilities and advanced equipment and techniques:

- Dynamic scientific measurements – pressure, acceleration, force, strain, velocity, and penetration
- High-speed data acquisition
  - » High-techniques meDAQ, 16 ch, 2MS/sec/ch, PC-controlled
  - » National Instruments/PCB, 2 PXI chassis, 96 ch each, 60MS/sec/ch, extensible
- High-speed photography and advanced flash X-ray
  - » Phantom cameras, L3 Titan FXR system, Shimadzu Hyper Vision HPV-X2 cameras *(Fall 2022)*
- High performance computational capabilities
  - » Eulerian and Lagrangian computational mechanics,
  - » Multiphysics computational analysis and customizable solvers
  - » Artificial intelligence and machine learning from full-scale simulation to molecular modeling
  - » Immersive visualization for very large dataset
  - » Statistical post-processing for optimization and validation
- Explosive and energetic materials characterization – material test chamber, electrostatic discharge testing, and acoustic mixing
- Dedicated manufacturing facilities for secure prototyping and production

FOR MORE INFORMATION

Technical Contact
Anthony Nickens
208-526-5539
anthony.nickens@inl.gov

Media contact
Ethan Huffman
208-526-5051
ethan.huffman@inl.gov

www.inl.gov

A U.S. Department of Energy National Laboratory

22-50026_R4