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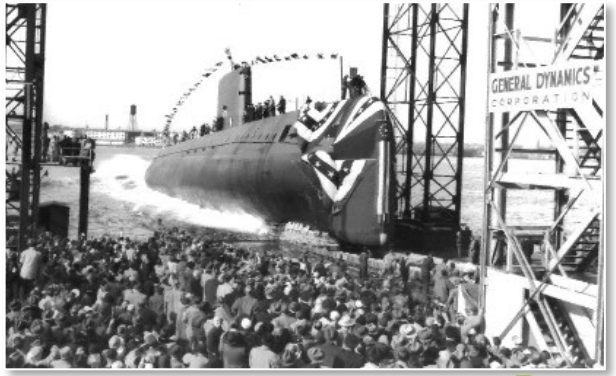
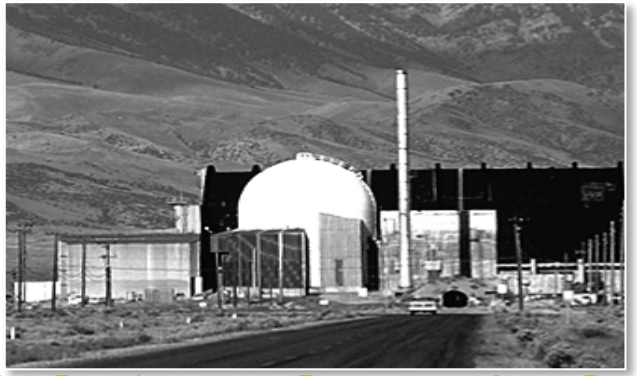
National & Homeland Security Overview

Idaho National Laboratory

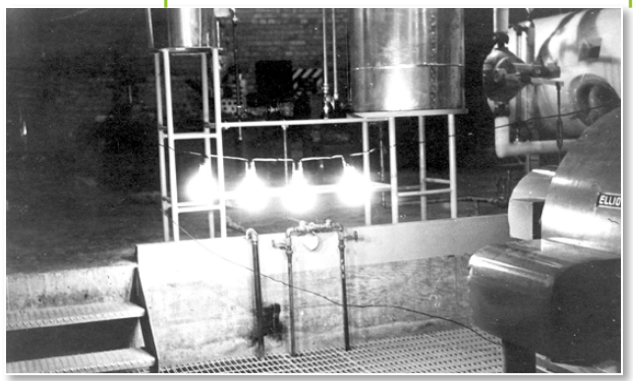
INL - The History of Supporting National Security

- Testing naval large caliber guns
- National Reactor Testing Station 1949, INEL 1974, INEEL 1994, INL 2005
- Fuel cycle development and demonstration – reprocessing
- Design construction testing and operation of 52 unique nuclear reactors, including Navy's Nautilus Submarine Prototype (S1W) Reactor
- Specific Manufacturing Capability (SMC) 1982





Research – Development – **Demonstration** – Deployment



Solving Global Security Challenges

Wireless security and spectrum sharing

Secure industrial control systems across critical infrastructure sectors

Secure and resilient power grids

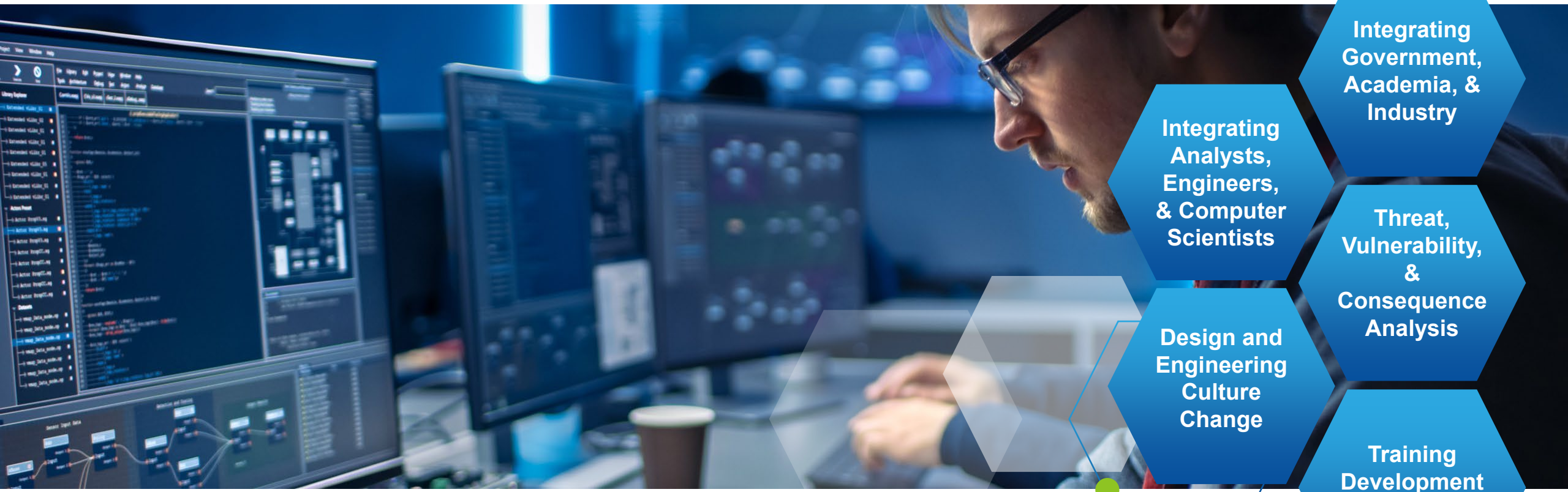
Enabling the warfighter, Intelligence Community and First Responders

Global security against nuclear and radiological threats

Nuclear nonproliferation safeguards and security

INL is positioned to address the worldwide issues in:
Critical Infrastructure Protection and Resiliency • Defense Systems • Nuclear and Radiological Security

Mission: Industrial Control System Security



Innovating and applying control-system cybersecurity solutions.

Mission: Secure and Resilient Grid

- Cyber-Defense Operations and Incident Response
- Cyber Architecture Risk Evaluation and Mitigation
- Vulnerability Management and Coordination
- Digital Engineering Design and Architecture

Creating a more secure and resilient world through innovated infrastructure-related solutions.

Mission: Wireless Security

Creating and deploying wireless technology solutions.

Mission: Infrastructure and Risk Analysis

All Hazards Risk Analysis

Dependency and Interdependency Analysis

Nationally Recognized Infrastructure Studies

Risk Management

Advancing infrastructure and risk analysis to create a more secure and resilient world.

Mission: Nuclear Safety and Security / First Responder Training

- Detection of Special Nuclear Materials
- Radiological Response Training
- Calibration Standards for Nuclear Treaty Monitoring
- Safeguard Techniques for Pyroprocessing

Advancing nonproliferation technologies to enable the expansion of nuclear energy.

Mission: Defense Systems

- Advanced Modeling & Simulation
- Materials Science & Energetics
- Nationally Recognized Vulnerability Studies
- U.S. Army Abrams Armor Center of Excellence
- Explosives & Ballistics Test Range

Ensuring technical superiority in materials science and armor-related defense systems.

Unique National Security Infrastructure & Capabilities

Electric Grid Test Bed

Commercial Feeds,
Test Loops/Spurs

Water Security Test Bed

Municipal Water System

Radiological Ranges

First Responder Training

Specific Manufacturing

100% Quality Product

Wireless Test Bed

Agile Spectrum

National Security Test Range

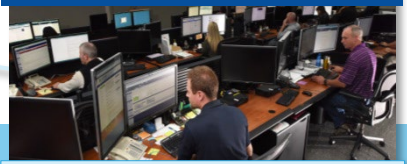
~20k TNT, VA Center

- ✓ **Full-scale real-world testing and demonstrations for deployment**
  (designed, built and operated by INL)
- ✓ **Integrated testing across multidisciplinary areas**
  (radiological, physical security, explosive, power, controls, cyber)
- ✓ **Rapid development through model, test, validate, and refine**
  (high fidelity, effects-based modeling, rapid testing and measurement)
- ✓ **Access to the full range of support services**
  (lineman, engineers, rad techs, fire fighters and security forces)
- ✓ **Ability to develop prototypes, manufacturing process and resolve uncertainty**

Nuclear Materials R&D

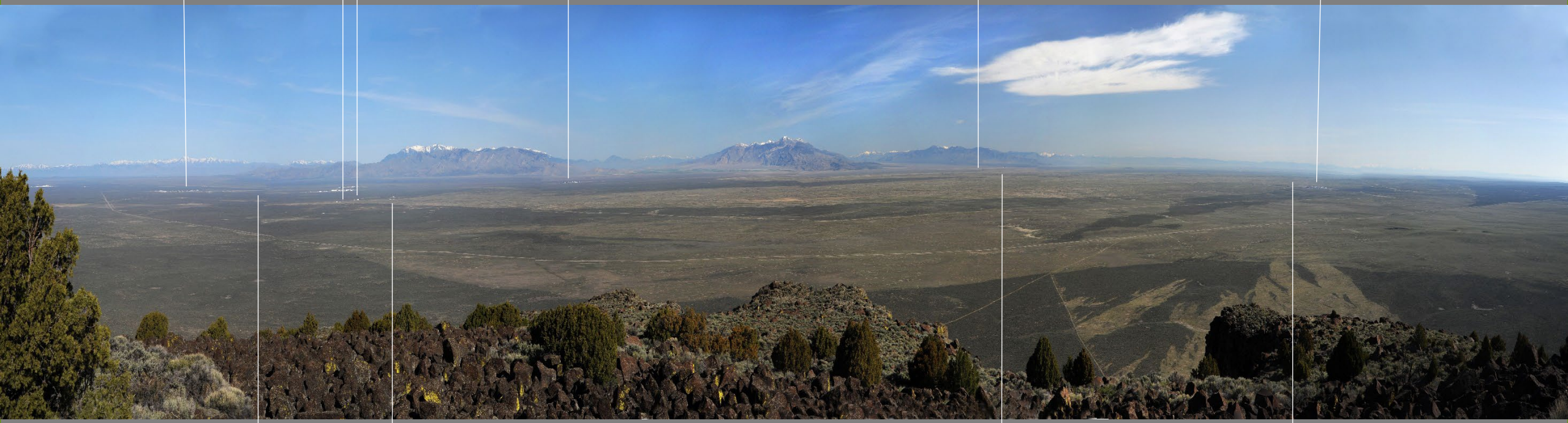
Electro-refining, SNM for Test/R&D

Research and Education Campus



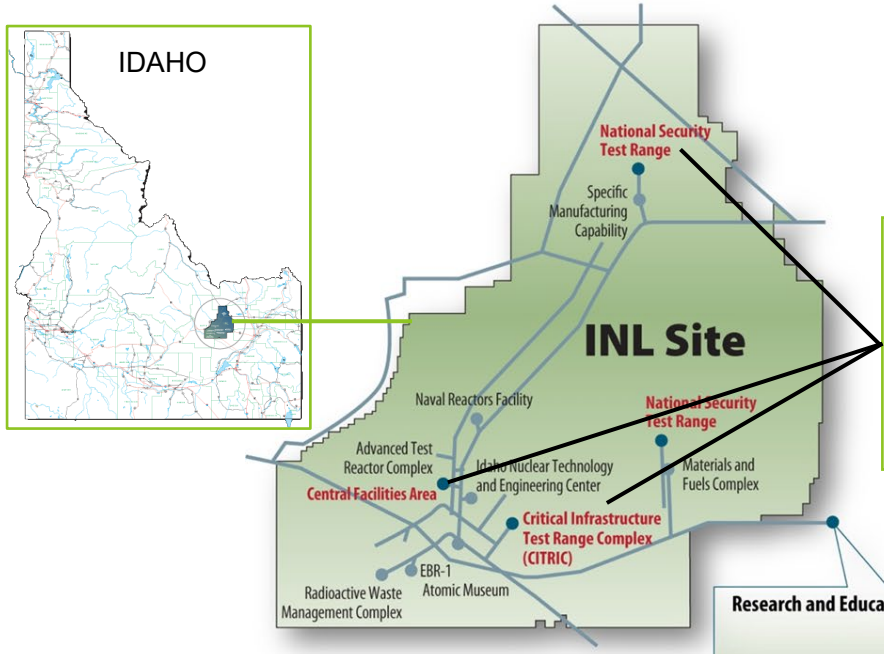
Controls & Energy Security Labs

Innovation in nuclear, control systems, power grid, wireless and physical security



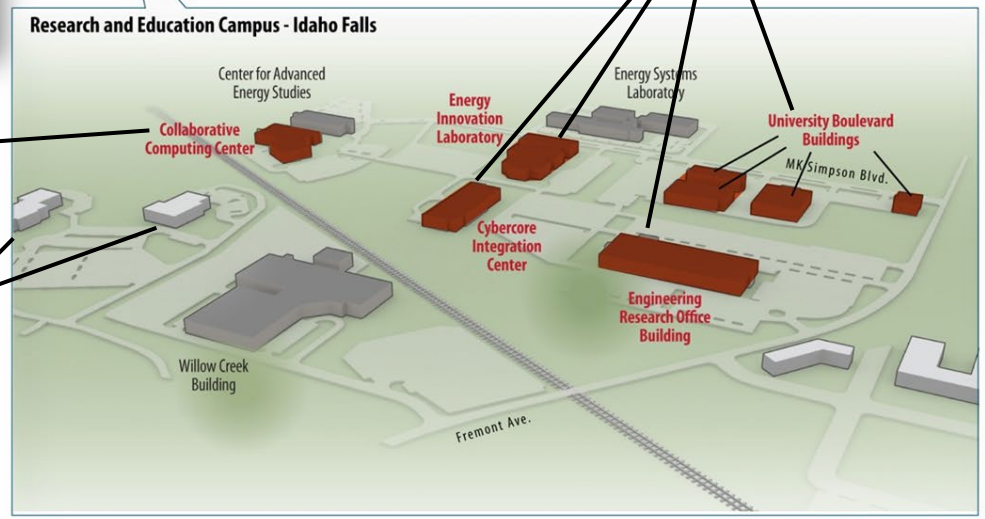
INL's 890 Square Mile Site // 5,000 staff // 298 buildings // 40 miles road // 17 miles rail // 3 fire stations

Critical Infrastructure Protection Research and Test Facilities



- Electric grid test beds
- Water test bed
- Wireless test beds
- UAV test range
- Radiological test range
- Explosives test range

- Control systems labs
- Energy security labs
- Electric vehicle and battery test Lab
- Secure assessment and vulnerabilities labs



High Performance Computers: Cyber-physical mod & sim, Proactive validation of security and automated response using machine learning

University Place: U of I, ISU, BSU Idaho Falls Campus, ISU Polytechnic Institute

IRON Network: Idaho Regional Optical Network, high speed (100Gb) links between partners, redundant backbone links to Salt Lake, Seattle

National & Homeland Security's Vision for the Future

- Securing the Path to NetZero
- Supply Chain Security
- Wireless Security
- Control Systems Cyber Security
- Threat Analysis
- Secure Manufacturing

Aligning and adapting our capabilities to meet evolving national security challenges.

Idaho National Laboratory