



PARTNERING WITH FIRST RESPONDERS FOR ENHANCED SOLUTIONS

First responders are the first line of defense for public safety. Pacific Northwest National Laboratory (PNNL) partners with responders across the nation to create technology solutions to be better protected, connected, and aware.

With a multidisciplinary team of scientists, engineers, and specialists experienced in first response, PNNL advances technology solutions that reflect responders' dynamic technology needs in complex and evolving threat environments.

ADVANCING INFORMED SOLUTIONS

Effective solutions rely on robust user input and understanding of the response domain. PNNL has a long-standing history of engaging the responder community to invite their input to define and prioritize technology needs that translate into solutions that work.

PNNL uses a structured approach to:

- Craft a shared vision rooted in first responder functional and operational needs and requirements
- Identify existing and emerging technologies with the potential to solve the response challenges of today and tomorrow
- Develop prototypes based on the shared vision

- Champion the development of standards and processes necessary for safe and successful technology deployment
- Create a path to engage and attract industry partners to bring technology to market

BUILDING BETTER PARTNERSHIPS

PNNL convenes emergency management, public safety professionals, and the private sector to identify, analyze, and recommend solutions aligned to user needs. Through our alliance of public-private partnerships, PNNL is:

- Tackling difficult and complex first responder challenges
- Exploring long-term innovative solutions
- Integrating the efforts of first responders, research and development, and the investment community

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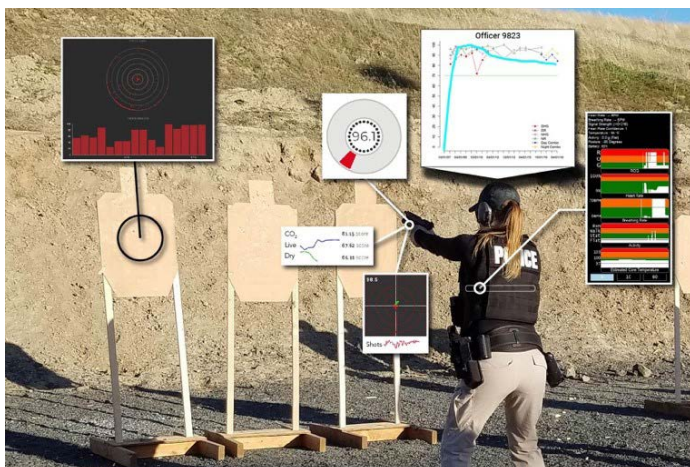
MAKING A DIFFERENCE

PNNL is accelerating the development and deployment of technology solutions that improve responders' capability and safety. Recent projects and partnerships include:

- **Technology Assessments** – Evaluating products of greatest interest or impact
- **VitalTag** – Wearable sensors to remotely and non-intrusively monitor responder health
- **Immersive Imaging** – Piloting high-definition video for soft target protection at large venues
- **Resource Allocation and Risk Reduction** – Deploying web-based tool for transportation security
- **Equipment Standards and Testing** – Developing standards and testing equipment for chemical-biological and opioid/fentanyl detection
- **Virtual Reality** – Creating visual training for hazardous environments
- **Artificial Intelligence/Machine Learning** – Improving human-machine teaming for improved decision-making and field assistance
- **Operational Field Assessments** – Evaluating emerging technology in real-world scenarios, and eliciting user feedback to drive product development
- **Conduct of Operations** – Building plans for informed operations and decision-making
- **Situational Awareness** – Applying science and technology to improve connectivity and information sharing
- **Robotics/Drones** – Exploring applications and implications of unmanned systems

Through the Northwest Regional Technology Center, PNNL supports regional preparedness, response, and recovery and enables homeland security solutions. Recent projects and collaborations include:

- Leading regional recovery and resilience planning for urban areas, military installations, and the private sector



- Supporting public safety through exercise scenario design, planning, and execution
- Co-hosting regional cybersecurity summits convening local public utility districts and industry partners

ABOUT PNNL

PNNL is the nation's premier laboratory for scientific discovery in chemistry, Earth sciences, and data analytics and for solutions to the nation's toughest challenges in energy resilience and national security. Founded in 1965, PNNL is operated by Battelle for the Department of Energy's Office of Science.