



# PHOENIX NUCLEAR LABS

PROVIDING NUCLEAR TECHNOLOGY FOR THE BETTERMENT OF HUMANITY

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## **PNL awarded \$3.6 million in Army contracts**

Monona, Wis. – Phoenix Nuclear Labs (PNL) announced today that it has been awarded multiple contracts by the U.S. Army totaling \$3.6 million. Under these contracts, PNL will build an advanced neutron radiography system to detect defective munitions and demonstrate the ability to use their neutron generators to detect and identify concealed explosive threats.

The company will deliver an upgraded, pilot production neutron radiography system that will be the first such system to be installed in a munitions production facility. The new system is expected to produce 10 times higher neutron yield, enabling faster performance and higher resolution. It will be capable of producing digital images that will improve the system's ability to analyze and store data.

In parallel, the Neutron-Emitting Mobile Explosives Sensing and Identification System (NEMESIS) will utilize PNL's commercial neutron generator technology to demonstrate active neutron interrogation for explosive threat detection. The strong, compact neutron generator developed by PNL over the last 11 years is the enabling technology for mobile explosive threat detection from large standoff distances, greatly enhancing existing warfighter capabilities.

"The Army's support for PNL's technology over the last 8 years has been tremendous," said Evan Sengbusch, PNL's vice president of business development. "Beginning to deploy our technology in the field to save warfighter lives is very rewarding."

Ross Radel, PNL's president, credited the Wisconsin congressional delegation with providing strong support for these mission-critical technologies. "Advocacy from Sen. Tammy Baldwin, D-Wis., and Rep. Mark Pocan, D-Wis., has been vitally important in getting a small company like PNL in front of big customers like the Army," he said.

Sen. Baldwin said, "I'm proud to be a strong supporter of made in Wisconsin innovation that is strengthening our national security."

Neutron radiography is a nondestructive inspection technique similar to X-rays. However, neutrons, unlike X-rays, are able to deeply penetrate high-density materials such as shell casings and other metallic objects and visualize lower-density materials such as carbon or hydrogen. The Army has been seeking neutron radiography capabilities for decades, but until now only nuclear reactors could produce enough neutrons to take images in practical time periods. PNL's technical innovations have led to a 100-fold increases in neutron yield compared to existing off-the-shelf technologies without the safety risks associated with nuclear reactors.

The PNL neutron radiography platform is the first system capable of bringing neutron radiography out of an R&D environment and into a production setting, similar to industrial X-ray systems. This technology has the potential to greatly improve the safety and effectiveness of defense and aerospace components such as munitions, aircraft components, and composite materials.

Similarly, neutron-based explosives detection has been studied for decades, and the technique has been shown to be, in principle, a very powerful method suitable for rapid explosives detection and identification. However, attempts to field neutron-based interrogation systems have had limited success due to the low neutron yield of existing sources. The much higher neutron yield provided by the PNL generator offers a significant leap in explosives detection speed and standoff distance.

#### **About Phoenix Nuclear Labs**

Founded in 2005 in Middleton, Wis., Phoenix Nuclear Labs has developed a proprietary, particle accelerator-driven, nuclear fusion technology that has applications ranging from medicine to national defense. The company is focused on commercializing its core accelerator technology for near-term applications, including neutron radiography imaging for the nondestructive evaluation and quality control of military and aerospace components, medical isotope production, semiconductor processing, and the detection of explosive devices. For more information, visit: <http://phoenixnuclearlabs.com>.

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