

TechBriefs

Savannah River National Laboratory

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At a glance

- > New tooling for identification of mercury in subsurface
- > Rapid site characterization
- > Minimally invasive technique
- > Easy measurement and logging of electromotive potential
- > Patent applied for

Contact Information

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Elemental Mercury Probe

Background

Engineers at SRNL have designed a new probe for the identification of elemental mercury in the subsurface using direct push techniques. The device provides a cone-penetrometer based sensor that produces an electric potential when mercury is contacted in the subsurface. This direct-push approach provides an easy-to-use and minimally invasive technique for characterization of mercury contaminated soils and sediments.

Stage of development

SRNL has conducted proof-of-concept testing with significant preliminary results. Additional testing and further research and development are currently under way. Evaluation and deployment of this device and technique is being utilized at locations within the United States for detection and characterization of mercury contaminated sites.



How it works

The device incorporates use of a disposable, sacrificial tip to cover the electrode during deployment. The abrasive action of the subsurface during insertion of the probe removes the tip covering allowing for a spontaneous electrical reaction (potential) when mercury is present. This potential can be easily measured and logged with standard equipment. During the reaction the mercury present is not depleted and serves as a catalyst creating a unique voltage signal at depth.

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Technology transfer

The Savannah River National Laboratory (SRNL) is the U.S. Department of Energy's (DOE) applied research and development laboratory at the Savannah River Site (SRS).

With its wide spectrum and expertise in areas such as homeland security, hydrogen technology, materials, sensors, and environmental science, SRNL's cutting edge technology delivers high dividends to its customers.

The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC. SRNS is responsible for transferring its technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

Partnering opportunities

SRNS invites interested companies with proven capabilities in this area of expertise to enter into a licensing agreement with SRNS to market this nuclear material detection system. Interested companies will be requested to submit a business plan setting forth company qualifications, strategies, activities, and milestones for commercializing this invention.

Qualifications should include past experience at bringing similar products to market, reasonable schedule for product launch, sufficient manufacturing capacity, established distribution networks, and evidence of sufficient financial resources for product development and launch.

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