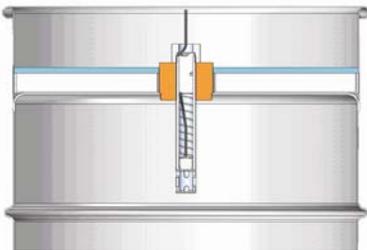


For immediate release

New SRNL Device Measures Liquid Fill Level

AIKEN, S.C. (November 18, 2010) – The U.S. Patent and Trademark Office recently granted Savannah River Nuclear Solutions (SRNS) a U.S. Patent for an Ultrasonic Liquid Level Detector developed by Savannah River National Laboratory (SRNL) to remotely measure the fill level of a hazardous liquid in a container. The inventors, William Hinz and Dennis Kotz, constructed a functional prototype and demonstrated it at the Savannah River Site (SRS).



The Ultrasonic Liquid Level Detector is positioned inside a container of liquid to detect the fill level remotely.

In the nuclear storage industry, these devices are critical for the precise filling of drums containing hazardous liquids. The most commonly used devices measure from the side or bottom of the container. One type measures liquid level from within a container, but requires multiple devices attached separately at specific areas.

“The core technology was available and well understood, but the access restrictions and the presence of shielding material presented a real challenge for the location and placement of the sensor. We sketched a device that took into consideration all the logistical complexities of the container design and the potential operational issues. A novel, spiral patterned shielding plug was incorporated to minimize any radiation exposure to personnel in the area. Several weeks later a full scale prototype was developed and demonstrated to be effective,” said Hinz.

The Ultrasonic Liquid Level Detector was designed to be a simple, compact detector that could be positioned and used anywhere within a

- More -

“This device was conceived because we needed a creative solution for a challenging process where there was not an off-the-shelf fix,” said Hinz.

Ultrasonic devices are used to determine the liquid level by transmitting and receiving ultrasonic energy traveling through liquids and solids to accurately measure distance. In



The Ultrasonic Liquid Level Detector contains a cable running vertically through, a shielded plug at the top, a spring inside the casing, a sensor, and a vented target chamber at the bottom.

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SRNL Device

2/2

container, even above a liquid, independent of the orientation of the detector or the distance from the liquid surface to the bottom of the container. The patent states that the device achieves these goals and “is especially useful when a container is being filled remotely with a hazardous liquid ... and shielding is positioned around the container so that access from the side or bottom is not possible.”

“This new device will make it much easier to determine the level of liquid in such a container, with less error and radioactive exposure,” said Hinz.

SRNL is DOE’s applied research and development national laboratory located at the Savannah River Site. SRNL puts science to work to support DOE and the nation in the areas of environmental management, national and homeland security, and energy security. The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC.

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