

INL News Release  
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NEWS MEDIA CONTACTS:

Keith Arterburn, 208-351-2999, keith.arterburn@inl.gov  
Misty Benjamin, 208-526-5940, misty.benjamin@inl.gov

**Innovative technology gamers INL R&D 100 Award**

IDAHO FALLS — Idaho National Laboratory's R&D 100 winner purifies industrial wastewater, offering significant resource savings benefits. INL researchers earned an R&D 100 Award for one nominated technology under the 2013 international competition hosted by R&D Magazine.

"My sincere congratulations to the winners of this year's R&D 100 Awards," said Energy Secretary Ernest Moniz. "The scientists and engineers who developed these award-winning technologies at the cutting edge facilities across our national labs are keeping Americans at the forefront of the innovation community and assuring our nation's economic competitiveness and national security."

INL nominated three technologies for the 2013 R&D 100 competition and now has earned a total of 48 R&D 100 Awards since 1986. INL's 2013 R&D 100 Award winner is the Switchable Polarity Solvents Forward Osmosis (SPS FO) technology, which cleanses industrial wastewater by leveraging the switching qualities of selected specialized thermolytic salts (a class of catalysts). Patent-pending and environmentally friendly, the SPS FO process purifies water from extremely concentrated solutions, especially those containing salts, organics, inorganics, biologics and many other materials.

Once the water is drawn through a specialized semi-permeable membrane, the SPS FO diluted solute is exposed to low-grade heat, which causes the thermolytic salts to release carbon dioxide and switch to an oily insoluble material. This oily material is physically separated from the water, permitting its reuse. It offers a significant benefit to water-intensive industrial processes such as oil-gas fracking operations that use 3 to 5 million gallons of water per well (video at [www.inl.gov/spsfo](http://www.inl.gov/spsfo)).

"INL researchers once again earned top honors for their exceptional performances by winning more recognition in the annual R&D 100 competition," said Todd Allen, INL deputy lab director for Science & Technology. "We could not be more proud of them."

Idaho National Laboratory is one of the Department of Energy's 10 multiprogram national laboratories. INL is the nation's leading center of nuclear energy research and development performing work in each of DOE's strategic goal areas—energy systems, science and innovation, nuclear safety and security. Battelle Energy Alliance manages the day-to-day operations of the national laboratory.

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