INL Intelligence
Volume 9, Issue 11 – November 27, 2009

A high-level monthly briefing on operations and activities at the U.S. Department of Energy's Idaho National Laboratory
Work at the lab advances the Department's strategic priorities of energy security,
nuclear security, scientific discovery and environmental responsibility.

■ Lab Researchers Set World Fuel Performance Record

During the November meeting of the American Nuclear Society, INL scientists reported reaching a milestone of truly global significance – the highest burn-up level ever achieved with coated particle nuclear fuel. The fuel experiment, conducted in the unmatched Advanced Test Reactor, set the record for particle fuel by consuming approximately 19 percent of its low-enriched uranium – more than double the previous record set by similar experiments run by German scientists in the 1980s and more than three times that achieved by current light water reactor (LWR) fuel. Burn-up refers to the percentage of uranium fuel that has undergone fission reactions. Raising burn-up levels is desirable because it reduces the amount of used fuel generated by high temperature gas reactors, such as the Next Generation Nuclear Plant.

■ Plug-in Hybrid Vehicle Testing Goes the Distance

The U.S. Department of Energy, through its Advanced Vehicle Testing Activity (AVTA) at Idaho National Laboratory, has completed 1 million miles of plug-in hybrid electric vehicle (PHEV) testing. Ongoing evaluation of the vehicles demonstrates PHEV concepts in real-world usage by using fleet and public drivers. The 1 million test miles and more than 26,000 charging events have been accumulated in on-road operations across the United States and Canada. More than 215 PHEVs, comprising 12 different PHEV models, have made up the PHEV test fleet to date. Testing results can be found at http://avt.inl.gov/phev.shtml.

■ INL Scientists Look to Lock Up Excess Carbon Dioxide

Researchers at INL's Center for Advanced Energy Studies are charging ahead on a strategy to defuse more of the carbon dioxide the world currently produces. They want to inject the greenhouse gas deep underground, where it would react with rocks and remain entombed for thousands of years. Center scientists will soon be able to ramp up their efforts dramatically, thanks to collaborations with international research groups, newly installed lab equipment and a recently awarded $750,000 grant. The CAES team – drawn from INL, the University of Idaho and Idaho State University – will play a key role in determining if mineral sequestration is a viable strategy for mitigating the impact of climate change. Though mineral sequestration shows a great deal of promise, research into the approach is still in its early stages, and many complicating factors remain. One of the most challenging is cost, a problem for all forms of carbon capture and sequestration technology.

■ DOE Boosts Battery Lab Capabilities

Deputy Secretary of Energy Daniel Poneman has announced that his agency will invest $5 million in American Recovery and Reinvestment Act funding to establish a state-of-the-art High Energy Battery Test Facility at INL. The facility will possess capabilities that will enable development of low-cost batteries that meet real-world performance requirements. The funding will allow the lab to more than double the size of its long-established battery development and testing facilities.

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