

2009

IDAHO
NATIONAL
LABORATORY

INL's Wireless Test Bed continues to build its capabilities. A major WiMax upgrade was initiated in 2009.

is again pleased to offer this accounting of its activities over the past year. With nearly 4,100 employees, INL – one of Idaho's largest and historically most stable employers – is engaged in wide-ranging national-priority research in areas that enable energy and environmental sustainability and help safeguard us and the systems of modern society from natural and manmade hazards.

While this performance summary is able to offer only select research, renewal and responsibility highlights of 2009 operations at your Idaho National Laboratory, much more information is available on the lab's Web site – www.inl.gov – and on INL's Facebook and YouTube sites.

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U.S. DEPARTMENT OF
ENERGY

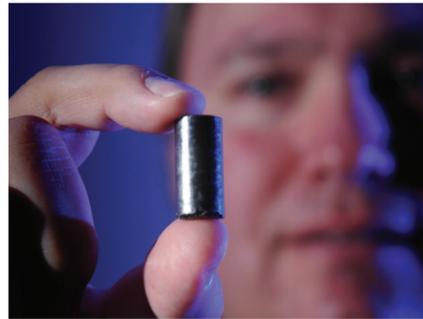
INL is operated for the U.S. Department of
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Idaho National Laboratory **INL**

RESEARCH

INL's research community had another highly productive year in 2009. Important advances were made across the lab that contributed greatly to fulfilling INL's mission to "Ensure the nation's energy security with safe, competitive and sustainable energy systems and unique national and homeland security capabilities." Following are a few highlighted results of this national priority work.



An advanced particle fuel element.

Nuclear Science & Technology

- An INL-based team announced the successful development and testing of a new type of nuclear fuel. The fuel, designed for use in advanced high-temperature reactors, leaves less waste and could help industries burn fewer carbon-emitting fossil fuels.
- INL's high-temperature steam electrolysis was selected as the technology that presented the greatest potential for successful deployment and demonstration of the Next Generation Nuclear Plant and the efficient generation of hydrogen.
- INL's proposal to establish a Center for Materials Science of Nuclear Fuel was approved. The center, one of only two newly created Energy Frontier Research Centers in the entire Pacific Northwest, will advance design capability for future nuclear fuel systems.

National & Homeland Security

- The U.S. Department of Homeland Security established the Industrial Control Systems Cyber Emergency Response Team capability at INL. The team's experts respond to computer threats and suspicious activity affecting national and international industrial control systems.
- Three INL employees, supporting the National Nuclear Security Administration, coordinated the removal of more than 230 pounds of highly enriched uranium from Kazakhstan, Romania and Belarus. This work helped reduce the amount of weapons-grade nuclear materials available worldwide.



A plug-in hybrid electric Prius from the Maui Electric Company fleet.

Energy & Environment

- DOE's Advanced Vehicle Testing Activity, conducted by INL, reached the dual milestones of accumulating 12 million electric-drive vehicle test miles and one million plug-in hybrid electric vehicle test miles with 96 different vehicle models.
- A team of INL and Idaho State University researchers invented a scalable, revolutionary nanoparticle production technology called Precision Nanoparticles. This award-winning technology may boost efforts to develop new, more capable solar cells.

RENEWAL

National priority research requires world-class facilities. INL continued its multiyear efforts to renew and rebuild its key facilities and capabilities in 2009.

- INL began and/or completed construction of four significant facilities at its two major desert operations complexes: the Radiochemistry Laboratory at the Materials and Fuels Complex, and the Test Train Assembly Facility, the Technical Support Building and the Radioanalytical Chemistry Laboratory at the Advanced Test Reactor Complex.
- INL modernized the Radiation Measurements Laboratory at the Advanced Test Reactor Complex, and completed upgrades to laboratory space in the Hot Fuel Examination Facility and the Analytical Laboratory at the Materials and Fuels Complex.

- Looking ahead, INL received approval from the Office of Engineering and Construction Management to proceed with the lease contract award on the 148,000-square-foot INL Research and Education Laboratory and initiated the acquisition of leases for a Testing and Demonstration Lab and the Industrial Control System Cyber Emergency Response Team facility.



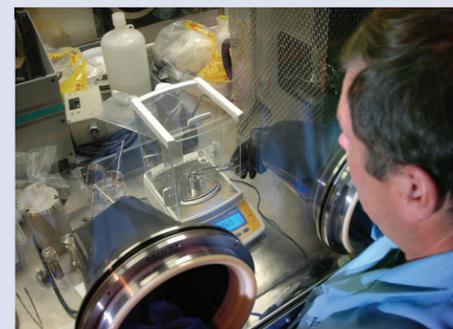
Rendering of the planned Research and Education Laboratory.



National & Homeland Security office building.



Interior of ICS-CERT facility.



Analytical Laboratory glove box.

RESPONSIBILITY

People of INL demonstrated a strong sense of responsibility – a responsibility to be safe, to help educate the next generation of scientists and engineers, and to make all the communities where they live a little better.

Safety

- INL received the Legacy of Stars Award, the highest award possible in the Department of Energy's Voluntary Protection Program. The award evaluates three distinct criteria including a site's safety goals, its outreach and mentoring efforts and its safety performance.

Education



An intern tour group at EBR-I.

- INL invests millions of dollars in education initiatives aimed at building the work force of tomorrow. Specific efforts include the Employee Education Program, innovative internship and postdoctoral programs, investment in K-12 STEM education and innovative teacher development opportunities, and creation of a Work Force Development initiative aimed at growing the pipeline of future INL and energy sector workers.
- The one-of-a-kind Center for Advanced Energy Studies, a partnership among INL, Idaho State University, the University of Idaho and Boise State University, delivered a 9:1 return on the state of Idaho's \$1.6 million investment.

- Notable highlights from 2009 include recognition of INL's internship program as one of the nation's 10 best; 275 internships awarded to students ranging from high school to Ph.D. candidates; and the investment of more than \$900,000 in FY 2009 to develop new strategic national and international research collaborations.

Community

- Corporate community giving from Battelle Energy Alliance topped \$200,000, and made a difference for charities and causes ranging from the United Way to the American Heart Association.
- Employees gave their time and money for community betterment through multiple means – including the flagship Team INL program. Through Team INL in 2009, employees came together on 35 projects, which represented more than 2,100 volunteer hours of service.



Team INL at work in Blackfoot.

Summary

Improving our communities, safely conducting national priority research and renewing our scientific infrastructure – your Idaho National Laboratory delivered on all these expectations in 2009, and remains committed to excellence in these key areas again in 2010.