

# Lab takes technology and makes things happen

## Pacific Northwest National Laboratory in Richland has an international reach

By **MICHAEL HILL**  
CONTRIBUTING WRITER

For 35 years, Pacific Northwest National Laboratory has functioned as the source of technological innovations that serve not only the citizens of its Richland, Wash., home, but the rest of the world as well.

As one of nine U.S. Department of Energy multiprogram national laboratories, PNNL delivers environmental science and technology in an effort to meet key national and international needs in such

areas as environment, health, energy, computer science and security.

Operated for the Department of Energy by Battelle Memorial Institute — the world's largest independent science and technology provider — PNNL functions out of the Hanford nuclear site and maintains a staff of approximately 3,500, an annual budget of more than \$550 million and additional offices in Seattle, Sequim, Tacoma, Portland and Washington, D.C.

"Basically, we provide the science and technology to help the decision-makers

make their calls, whether that means developing technologies that would lower the cost of doing something or improving the effectiveness of some process," said Mark Hanson, manager of business operations for the laboratory's environmental technology division.

Responsible for the development of innovations ranging from optical digital recording to acoustic medical holography to vitrification (the process of locking hazardous waste into a stable glass form), PNNL researchers are currently

focusing on efforts ranging from salmon recovery to nuclear waste storage to the development of lightweight, strong and environmentally friendly vehicle parts.

However, PNNL researchers do more than just generate revolutionary new technologies — they also boost the local economy through the creation of new businesses and jobs. As a result of its varied small business assistance efforts, PNNL has contributed to the creation of more than 27 new Washington-based companies in the last four years.

Whether through the creation of spinoff companies, the licensing of specific technologies or the financial support of like-minded visionaries, PNNL seems bent on proving that economic development is as much a priority as dreaming up new and better ways of solving problems.

Jeff Surma, president and CEO of Richland-based Integrated Environmental Technologies, spent 16 years as a researcher at PNNL prior to founding his company in 1995.

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**Jeff Surma, CEO, Integrated Environmental Technologies**



From 1990 to 1995, Surma and a team of PNNL researchers worked on developing an environmental clean-up technology called controlled plasma glassification, a process whereby solid waste is converted via heat into a stable, reusable, glass-like product that prevents any contaminants from leaching into the environment.

Thanks to PNNL's entrepreneurial leave of absence program, Surma was able to turn the process into his own company.

"I've always liked technology and business and the idea of starting my own high-tech company was really intriguing," Surma said. "So when the national labora-

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tory started offering their entrepreneurial leave of absence program, I jumped at the opportunity."

With the assistance of PNNL's economic development office, Surma was granted exclusive rights to the patent and allowed to transition slowly out of the company while he worked to get his own business off the ground. IET, which employs 32, expects to double that number in the next two years, thanks to a growing, worldwide base of clients that produces everything from radioactive waste to medical waste to polychlorinated biphenols — toxic materials formerly used in transformers.

Surma said his confidence in forging ahead with IET had a lot to do with the fact that the entrepreneurial leave of absence program allows participants to return to their vacated positions should their start-up efforts fail.

"Because of the way the program is set up, I knew I had a safety net to fall back on if anything had gone wrong," he said. "Without that, I don't know if I could have done it."

Bill Heath is another former PNNL researcher who now has a big hand in overseeing the operations of another local company formed through the laboratory's small business assistance initiatives.

Heath, who still functions as a consultant for PNNL, is vice president and chief technical officer of Current Environmental Solutions, which is also based in Richland and has offices in Atlanta, Chicago, Seattle and Orange County.

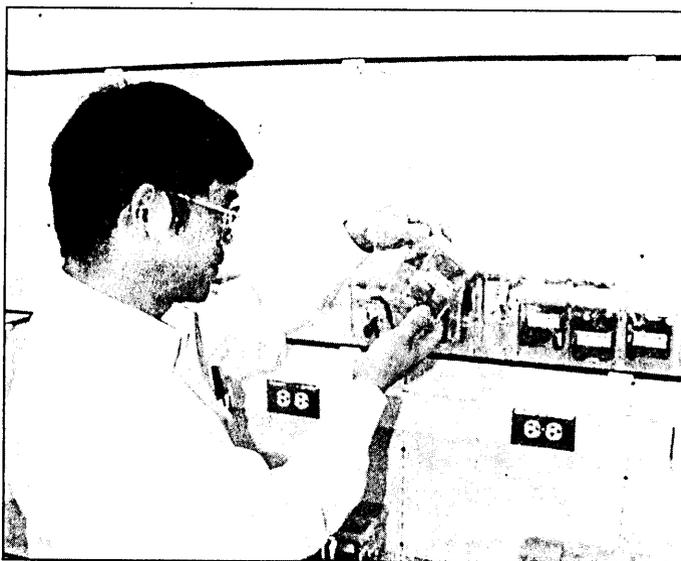
Founded in 1997, CES was formed as a joint venture between Battelle and TerraVac Inc., a company with expertise in soil cleanup, to commercialize a revolutionary method for rapid remediation of contaminated soil developed by PNNL researchers.

Known as six-phase soil heating, this process uses an electrical soil heating technique that quickly removes contaminants from tight or wet soils by vaporizing them with steam, which is then removed through vents and treated above ground.

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According to Heath, who served as principle inventor and developer of the technology while at PNNL, Current Environmental Services came about as a result of the laboratory's desire to structure a joint venture between TerraVac and Battelle, who granted CES a license in exchange for equity in the corporation.

As a result, the technical expertise for the company is provided by PNNL with



PORTLAND BUSINESS JOURNAL PHOTO

**Dr. Ziyu Dai is one of many scientists focusing on efforts ranging from salmon recovery to nuclear waste storage at Pacific Northwest National Laboratory.**

assistance from its entrepreneurial leave of absence program and its technical assistance program.

"To me, what made it work is that, in anticipation of forming a limited liability company, TerraVac and Battelle jointly deployed the technology in a subcontractor relationship to a few different sites," Heath said. "That's a good move, because it allows the potential licensee or partner to go out and kick the tires before they decide they want to invest in the technology."

Heath expects the company, which employs 10, will add five employees per year for at least the next three years. Clients include both private businesses and U.S. government organizations, and typical contamination sites vary from dry-cleaning sites to parts manufacturing sites to maintenance facilities.

Yet another means by which PNNL has reached out to the private sector is through its support of the Applied Process Engineering Laboratory, a not-for-profit Eastern Washington technology business start-up center with engineering and manufacturing space as well as wet labs, bio labs, and electronic laboratories.

As many as a dozen companies occupy APPEL's 90,000-square-foot facility, located in Richland.

Funding for the \$6 million dollar facility came from the PNNL, Port of Benton, city of Richland, Energy Northwest and Washington State University at Tri-Cities. The program, which debuted in 1998, broke even a year ago and has since become financially solvent.

In addition to providing start-up capital, PNNL has made its scientists, engineers, and other professional staff available to APPEL occupants for consulting, collaboration, or professional support. Up

to 40 hours a year of free professional services are available to each tenant, and other forms of technical support, including a certified analytical laboratory and instrument calibration services, have been made available by PNNL.

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