



Navy Tech Goes Commercial NoFoam Product Stems from Military Research

Streamlined technology transfer programs continue to encourage private companies to commercialize technology coming out of the nation's military research centers. JR Thomas International Inc., of Ventura, CA, took advantage of the system to license a firefighting equipment test system developed at the nearby Naval Facilities Engineering Service Center (NFESC).



Naval engineers Rance Kudo and Ray Cappillino (back row from left), with Tony Thomas and Capt. Neil Gamble (front row).

The *NoFoam* Unit allows firefighters to test their equipment without using the firefighting foam that is so effective in quelling blazes, but which is also harsh on the environment and requires extensive cleanup efforts after every test.

"Aircraft are very expensive. We do not want a \$20 million to \$30 million resource going up in flames," said Kurt Buehler, Regional Coordinator of the Federal Laboratory Consortium for Technology Transfer. That makes the oxygen-hungry foam, developed by the Navy in the 1960's, a blessing to aircraft rescue and firefighting units.

However, the foam is not easily biodegradable, it has a toxic component and its high oxygen requirement has been known to interfere with beneficial bacteria in sewage treatment plants if allowed to drain naturally. A 30-second test can generate 850 gallons to 2,600 gallons of extremely foamy wastewater. The required quarterly equipment testing and the associated cleanup costs behooved environmental technologists to find an alternative.

Rance Kudo, Jesse McNolty, and Ray Cappillino did just that. As members of NFESC's Environmental Quality Division, they developed the *NoFoam* Unit, which attaches to fire trucks to replace the foam fluid with a brightly colored surrogate for testing. The green fluid provides visual reassurance and, more importantly, the system monitors the flow rate of the fluid to ensure the correct foam-to-water ratio.

The solar-powered unit, which can work with any aircraft rescue and firefighting vehicle, mitigates cleanup costs and the

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From the Regional Coordinator's Desk

We started the new year by attending and presenting at a number of technology based conferences. The FLC Far West and Mid-Continent Regions joined forces for presentations and a display booth at the National SBIR conference in Albuquerque, NM, March 11-14, 2003. Of the more than 650 attendees, about 500 were from the small business sector, and the balance from Universities, Federal Agencies, State and Local Governments. We talked with many businesses, cited various laboratory opportunities and distributed litera-



Kurt Buehler, FLC FW Regional Coordinator congratulates Tony Thomas of JR. Thomas International Inc. after signing a license with the Naval Facilities Engineering Service Ctr. to sell the *NoFoam* Unit to the private sector.

ture from our regions, as well as the FLC national organization. Dr. Mike Sullivan represented our region by giving presentations at two venues. He gave a presentation at the Nanotech Intellectual Property and Technology Showcase which was part of the annual Nanotechnology Investing Forum held in Palm Springs, CA. Dr. Sullivan also participated in the Stakeholder Forum on Technology for Visual Impair-

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NAVAIR China Lake and Homeland Defense **FBI Blast Scores A Hit**

Police officers, members of the New York City bomb squad; firefighters; ATF (Alcohol, Tobacco, and Firearms) agents; FBI personnel, and military explosives experts from across the country gathered at NAVAIR China Lake recently as part of the FBI Large Vehicle Bomb Post Blast Crime Scene School.

"We have a good rapport with the people at China Lake," FBI Special Agent Miles said. This was the 40th class and the 11th held at China Lake. "We can do larger detonations here. The relatively pristine range allows students to identify parts of the vehicle and the TPU [the time power unit that initiates the bomb in a real terrorist setup] after the explosion. Our school benefits from the experience of Jess [Fortney, Track Operations head, SNORT] and his crew in handling large amounts of explosives. They help us all around. Whatever

we need, they make it happen. It's very easy for us to get business done here," he added.

Filling a gap in bomb investigation training, it's now an FBI sanctioned school, sponsoring investigators from across the nation. Leaders of the school Miles and Gomez cover topics such as management of a large bomb crime scene, team configurations, explosive physics, post blast injuries, evidence collection, contamination avoidance, chain of custody, residue analysis, aircraft bombings, Oklahoma City bomb briefing and forensics case studies. Miles said less than 100 people in the United States have had hands-on experience in reconstructing such a large vehicle bomb.

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cost of foam liquid used in testing. It also builds firefighters' confidence by assuring them the system is working and allowing frequent practice with the equipment, Kudo said.

Tony Thomas, founder of JR Thomas, produces the trailers and the fittings that connect the trucks to the *NoFoam* test system. Primarily a manufacturing representative in the ocean industry, Thomas had worked many times with NFESC and immediately saw the commercial applications for *NoFoam*.

"The neat thing about this is airports like LAX use the same foam," Buehler said, adding that some airports have spent millions of dollars on test cleanup facilities. Thomas will manufacture the units and begin marketing to U.S. and Canadian commercial airports.

"A lot of the product's moving forward on the government side has been by word-of-mouth, because it works," Thomas said. "It is very simple, as most of the good ideas are."

By mid-February, when Thomas and Capt. Neil Gamble of NFESC signed the joint patent agreement, *NoFoam* Units had tested about 75 firefighting vehicles in different branches of the military.

According to the licensing agreement, Thomas paid \$2,000 at the outset and will pay per-unit royalties, which go back to the inventors and the Engineering Service Center.

Buehler, who is the Far West Regional Coordinator with the Federal Laboratory Consortium for Technology Transfer, admits, "Every time you deal with government, there will be some bureaucracy involved."

However, the consortium continues to strive for more streamlined ways to promote the movement of federal lab research and technology into the private sector as it has done for nearly 30 years. New laws and programs simplify

the process further; for example, standardized collaboration agreement documents cut legal review to a minimum. "We exist to help private industry be successful," Buehler said.

The technology transfer law applies not only to classic laboratories like Lawrence Livermore National Laboratory, but every Navy base, including Port Hueneme's Naval Facilities Engineering Service Center, which provides specialized facilities engineering support to the Navy.

With a reorganization of some departments at Naval Base Ventura County a few years ago, the Engineering Service Center shifted away from more theoretical research and development to more practical problem-solving, making its work more commercial-ready.

"There's a lot of potential here," Buehler said. "Our job is demonstration and validation, where the rubber hits the road, so there is more opportunity than in labs working on technology for 10 years out."

The NFESC focuses on specialized facilities engineering in five primary areas: ocean facilities, shore facilities, environmental engineering, energy and utilities, and amphibious and expeditionary, for construction, maintenance and war-damaged restoration of bases.

It also offers unusual testing facilities, such as pressure chambers simulating deep-ocean conditions. Including the largest pressure vessel west of the Mississippi, the deep ocean laboratory is open for government and private sector use.

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Article from Pacific Coast Business Times
Laura Polland, Technology Editor

Laboratory Profile

DHHS/CDC/NIOSH-Spokane Research Laboratory

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Background:

The Spokane Research Laboratory conducts health and safety research to assist in the prevention of injuries, fatalities, and disease in the extractive industries. Relevant research is also being used to benefit worker health and safety in other industry sectors, such as construction and agriculture. SRL is part of the Office for Mine Safety and Health Research (OMSHR) in the National Institute for Occupational Safety and Health (NIOSH), an institute in the Centers for Disease Control and Prevention (CDC), Department of Health and Human Services.

SRL currently employs 76 full-time personnel and up to 25 part-time students and /or academic consultants. The facility includes a 50,000 square-foot building built in 1974 that houses over 90 offices; five laboratories; wood, metal, and electrical shops; two equipment bays; and a heated metal building with about 12,000 square feet of storage and staging areas. An additional facility, the Reardon Missile Site, located approximately 25 miles west of Spokane, is used for storing and testing research concepts and equipment.

Vision/Mission:

Vision: Delivering on the Nation's promise: safety and health for all mine and other workers through research and prevention.

Mission: Provide quality leadership in

the prevention of work-related illness, injury, and death in the extractive industries in the western United States by:

- Tracking fatal and nonfatal traumatic injuries, occupational diseases, health and safety hazards, and the use of control technology in the extractive industries. The focus is on issues unique to mine workers in the Western states, such as those associated with deep metal mines, western coal mines, and precious metal deposits;
- Conducting field investigations, health hazard evaluations, and laboratory studies of occupational diseases, injuries, and fatalities;
- Conducting laboratory and field investigations to better understand the causes of catastrophic events that may lead to multiple injuries and fatalities, such as collapse of underground workings, massive slope failures, and the collapse of mining facilities;
- Developing tests and demonstrating sensors, predictive models, and engineering control technologies to reduce miners' risks for injury or death;
- Preparing and recommending appropriate criteria for new standards, NIOSH policy, documents, or testimony related to health and safety in the extractive industries;
- Creating underground and surface health and safety training tools.

Core Competencies:

SRL professionals have diverse educational backgrounds at the B.S., M.S., and Ph.D. levels. Collectively, researchers have education and experience in mining, mechanical, civil, and electrical engineering; geology; geophysics; mathematics; industrial hygiene; chemistry; biology; epidemiology; communications; and business administration. Several employees are Certified Mine Safety Professionals and/or licensed engineers or geologists. Descriptive

and analytic epidemiology is used as the basic approach to acquire and analyze information on mine injuries and illnesses and mine accidents, hazards, and exposures. This information is provided to researchers and stakeholders to help them to eliminate the most significant health and safety problems in the mining industry.

Geotechnical Engineering: SRL researchers are nationally and internationally recognized for their work in developing engineering controls to reduce ground fall hazards and pioneering seismic monitoring methods to help forecast uncontrolled or unplanned deformation of ground. Work has included the development of a variety of rock bolts, including instrumented bolts and cable bolts, and three-dimensional computer models used to help predict ground failures.

Safety Control Technology: Researchers are investigating the use of new technologies to reduce and control hazards associated with the use of mining equipment and practices. For example, proximity warning systems for haulage trucks are being studied as a possible means of eliminating collisions with pedestrians and other vehicles, and other studies are underway to identify methods to reduce operator injuries from jolting and jarring on heavy mining equipment.

Materials Handling: The vast amount of material transported to and from mines and the large scale of the systems and equipment used for moving this material create the potential for serious injuries. Researchers at SRL are investigating innovative ways to reduce the dangers inherent in such work through redesign and development of equipment, modification of work practices, and transfer of information.

ARS CRADA Update

ARS and Agdia Developing New Insect Marking Kit

Agricultural Research Service entomologist James R. Hagler has developed a simple, effective way of marking insects and is working with Indiana-based Agdia Inc. to make this technique available in an easy-to-use test kit.

Hagler, with the ARS Western Cotton Research Laboratory in Phoenix, AZ, is working with Agdia as part of a Cooperative Research and Development Agreement (CRADA). The company produces diagnostic test kits for researchers and growers.

There are many reasons for marking insects, such as to determine where insects migrate or to track the movement of particular insects. But marking can be time consuming and expensive, and conventional insect markers do not work well on very small insects.

Hagler has spent the last 10 years perfecting his technique of feeding insects diets mixed with a protein known as immunoglobulin G (IgG). He then releases the marked insects. When he finally recaptures the insects, he analyzes them using an immunological test called ELISA. Agdia is working with Hagler to make the test even easier and quicker--with results in a few minutes rather than a few hours.

Hagler has been testing other ways of marking insects more

efficiently. One way is to simply spray them with a hand sprayer or an airbrush. However, this can be difficult since some of these insects are microscopic. For the really small ones, he is trying to "fog" them with a nebulizer that creates vapor similar to that released by dry ice when it's placed in water. At the end of the CRADA, Hagler hopes that through the partnership, a simple-to-use test kit will be on the market so individuals can easily test whether their insects contain the IgG and other markers.

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Dr. Mike Sullivan to Receive Prestigious Harold Metcalf Award

The FLC will honor Dr. Mike Sullivan of the Naval Air Warfare Center, Weapons Division, Point Mugu by presenting him with the Harold Metcalf Award at the FLC Meeting in Tucson, AZ, May 7, 2003. The Harold Metcalf Award is given to an FLC Representative who has made a notable contribution to the FLC in terms of sustained support and service.

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Health Hazard Exposure Control: Research is being conducted to identify high-risk health hazards in the mining environment and develop strategies to control worker exposures. Research has focused on measuring and controlling exposures to airborne particulates, heat, and toxic substances.

Socioeconomic Studies: The social and financial consequences of workplace injuries, fatalities, and related hazards are being studied to highlight the importance of health and safety to both workers and employers. The studies examine economic costs based on both direct and indirect costs of an injury or a fatality. In addition, the personal and social responses of victims and co-workers at job sites where accidents occur are being analyzed to evaluate the overall impacts on morale and productivity, and ultimately, the bottom line. These studies will provide a greater understanding of the complex interaction among the economic, psychological, and sociological impacts of injuries and fatalities on workers, employers, and society.

Interactive Mine Safety and Health Education/Research: Novel training methods are being developed to meet the need for safety training for miners, particularly new miners. For example, computer simulations are being used to create training modules for mine evacuation, accident reconstruction, and new miner training; "toolbox" training materials are be-

ing written and evaluated for training miners and construction workers on site; and new mining safety videos are being produced.

Core Competencies:

Laboratory personnel have designed and installed numerous types of instruments in hundreds of mines throughout the country to monitor roof failures, roof closure rate, microseismic activity, loads on roof supports, embankment stability, and in-place backfill and rock pillars. Monitoring and test equipment includes:

10,000-lb/in² polyaxial test cells; Small-scale (1/50) underground physical monitoring facility; Triaxial testing machine (to 1 million pounds); Stiff testing machine (rock failure to 1 million pounds); Split Hopkinson pressure bar test machine (to 300,000 lb); Shock-testing machine (to 10,000 G's); Force platform (to 2,000 lb); Industrial hygiene laboratory; Experimental hydrogen-powered vehicle; Collision avoidance systems for large mining and construction equipment; Bulk materials handling test facility; Engineering machine shop; Audio/video production and editing facilities; Three-dimensional computer-aided design capabilities; Analytical design capabilities using finite-element, finite-difference, boundary-element, and hybrid computer programs.

Miniaturized Power Source from PNNL

Think Small When Powering Today's Electronic Soldier

On the battlefield, having a reliable source of power to operate the many advanced electronic devices a soldier carries is essential. But today's heavy and cumbersome batteries fall short in satisfying the military's needs. In search of both a lightweight and reliable alternative, the Department of Energy's Pacific Northwest National Laboratory has developed the smallest power system yet, all wrapped up in a micro-sized package.

PNNL researchers, with funding from the Defense Advanced Research Projects Agency, have developed the world's smallest catalytic fuel processing reactor system to provide a low-watt power source for hand-held wireless equipment, sensors and other small but essential devices required by today's troops.

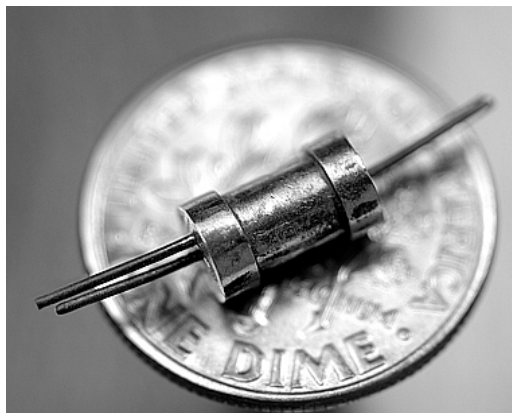
The petite power system - about the size of a cigarette lighter - converts liquid fuel to electricity via a microscale fuel processor coupled with a microscale fuel cell developed by Case Western Reserve University in Ohio. An integral part of the system is PNNL's revolutionary fuel reformer, about the size of a pencil eraser, which enables the system to convert fuel and water into hydrogen-rich gas. The fuel cell then generates electricity by converting hydrogen and oxygen from the air into electrical power and clean water.

"Our miniaturized fuel processor incorporates several chemical processes and operations in one device," said Evan Jones, PNNL principal investigator. The fuel processor system contains two vaporizers, a heat exchanger, a catalytic combustor and a steam reformer, all within a compact package no larger than a dime.

When ready for final deployment, the military envisions many useful applications for this emerging miniaturized energy-generating technology. According to Terry Doherty, director of PNNL's Department of Defense programs, soldiers could power personal, lightweight cooling systems while wearing protective suits and gear, prolonging their own comfort and efficiency during a reconnaissance.

"Vital personal communications devices could function for extended periods without the added weight of bulky, inefficient batteries," Doherty said. He added that miniature sensors powered by the same technology could be scattered before

advancing troops to monitor ground vibrations or detect dangerous toxic agents and relay this information electronically to soldiers. This technology broadens the possibilities for using self-sustaining items such as mobile devices in remote or difficult-to-access locations.



PNNL's revolutionary microscale fuel processor, which consolidates several chemical processes and operations into one package, is considered the smallest integrated catalytic fuel reformer in the world.

While methanol has proved to be the most effective fuel source, other liquid fuels such as butane, jet fuel - also known as JP-8 - or even diesel may be used. And, because the hydrogen power source is only produced as needed, there is no need to store or carry the volatile gas, reducing risk and creating a lighter load.

Testing has revealed that performance from the reformer and fuel cell prototype is impressive. "This system can produce an equivalent power (20 mW) to batteries, but at one-third the weight," Jones said. Similar micro fuel cell systems with greater power

output (50 W) currently under development are providing power equal to that of batteries weighing 10 times as much. Researchers suggest that with additional system efficiencies and improvements, even greater performance may be achievable. Development will now focus on creating a deployable system suitable for military use or industrial application.

PNNL researchers have found that huge processing plants, traditionally used to produce chemicals and other products, can be scaled down exponentially. "What can be achieved on a large scale," Jones said, "can be achieved at a microscale."

Contact: Geoff Harvey, 509-372-6083

Far West Regional Web Site

Need to find a laboratory, contact, technology or licensing opportunity? Help is but a mouse click away when you visit our user-friendly Far West Web Site.

Information is updated regularly and available to you 24/7. Come visit us at:

www.zyn.com/flcfw

On the Road to Internet2

SLAC Scientists Help Set Data Transfer Speed Record

Transmit 6.7 Gigabytes of data - the data equivalent of 4 hours of DVD-quality movies - across 7000 miles in less than a minute? Can do!

The Stanford Linear Accelerator Center (SLAC) is part of an international relay team that was recently awarded a certified data transfer speed record by the Internet2 consortium. The team transferred un-compressed data at 923 megabits per second for 58 seconds from Sunnyvale to Amsterdam - a distance of almost 6,800 miles, or about 1/4th of the way around the world. This transfer speed is more than 3500 times as fast as a typical home Internet broadband connection.

"This new world record for SLAC is an example of an Office of Science laboratory working collaboratively with industry to drive forward worldwide high-speed data transfer," said Dr. Raymond L. Orbach, Director of the Energy Department's Office of Science. "It underlines the tradition in particle physics of groundbreaking work in manipulation and transfer of enormous datasets."

Known practical benefactors of such high speed data transfer include, as Les Cottrell, assistant director of the SLAC Computer Services noted, "...doctors at multiple sites sharing and discussing a patient's cardio-angiographs to diagnose and plan treatment, or disaster recovery experts sharing information across the globe in near real-time to develop recovery and relief plans." Intended to deliver much more than merely a faster Web or email, these new technologies augment new applications such as digital libraries, virtual laboratories and distance learning.

Internet2 is a consortium of 200 universities working in a

worldwide partnership with industry and government to develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow's Internet. Thus, Internet2 is a "next generation Internet" intended to connect and serve research and educational institutions at transmission speeds that allow near-instant transfer of, for instance, multiple medical images consisting of hundreds of megabytes of data.

The record-setting team consisted of staff from the SLAC, Caltech, the National Institute for Nuclear Physics and High Energy Physics (NIKHEF) in Amsterdam and the Faculty of Science of the Universiteit van Amsterdam. The record-setting international transmission also used the advanced networking capabilities of TeraGrid, StarLight, SURFnet, NetherLight, Cisco and Level 3 Communications. Cisco loaned \$1M of equipment for several months, and Level 3 provided the network and bandwidth supporting the research.

"We are very pleased to have been able to participate in this record-setting effort. Working in collaboration with advanced research laboratories such as SLAC and Caltech presented Cisco with an invaluable opportunity to utilize its switches and routers at the very frontiers of networking technologies," says Tony Bates, vice president and general manager, High-End Routing Business Unit at Cisco Systems.

The Stanford Linear Accelerator Center (SLAC) is one of the world's leading research laboratories. Its mission is to design, construct and operate state-of-the-art electron accelerators and related experimental facilities for use in high-energy physics and synchrotron radiation research.

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ment, sponsored by the Rehabilitation Engineering Research Center on Technology Transfer, held in San Francisco, CA, April 4-5, 2003.

The FLC Far West Region sponsored a training seminar, March 26, 2003, featuring Art Mortell, which was hosted at the Naval Facilities Engineering Service Center in Port Hueneme, CA. More than 35 people attended this seminar and gave Mr. Mortell high marks for his presentation.

The FLC annual meeting is May 5-9, 2003 in Tucson AZ. Plan to attend the Far West Regional meeting to be held on Wednesday, May 7, during the annual meeting. Dr. Mike Sullivan, the Far West Regional Deputy Coordinator, will be receiving the prestigious Metcalf award for outstanding ser-

vice to the FLC. Mike is also running for the Vice Chair position in the upcoming FLC National election.

The next regional meeting after Tucson will be in Hawaii, on the island of Oahu, August 18-22, in conjunction with the Hawaii technology transfer group consisting of small businesses, the University of Hawaii, the Office of Naval Research, and the Hawaii Federal Laboratories. This will be a joint meeting with the Mid-Continent Region, and the agenda will be available in Tucson, and on our web site at www.zyn.com/flcfw/meeting. We will also email a meeting announcement and agenda to each laboratory in the Far West Region and Mid-Continent regions. We have arranged for a block of government per diem rate rooms, but the number is limited, so you must register early in order to receive this special rate.

Federal Labs Assisting in Education

NASA To Partner With Collaborative Teacher Institute

The House Family Foundation has awarded a \$402,000 grant to the Collaborative for Higher Education's Teacher Institute in Santa Clara County, Calif.

Under the terms of the grant, the Collaborative Teacher Institute will partner with NASA Ames Research Center, located in California's Silicon Valley, to provide professional development for elementary school teachers in science, technology, engineering and mathematics (STEM).

"A key NASA objective is to enhance science and mathematics instruction with unique teaching tools and experiences that only NASA can provide," said Donald G. James, NASA Ames' education director. "The Teacher Institute, supported by this House grant, is an important component in support of NASA's objective."

The primary intent of the project is to boost the math and science content knowledge of teachers in Grades 3 through 5, many of whom have had limited exposure to these subjects. "If we want children to be excited about learning and pursuing careers in STEM, then it is imperative for teachers to understand and be enthusiastic about the science and math they are teaching," said Miriam Landesman, the Teacher Institute's education director.

The science content will be based upon the four key content areas of the California grades 3 through 5 science standards, and some applications will be drawn from NASA science curriculum already available. The Teacher Institute will begin this summer with an intensive two-week institute for teacher participants and will continue throughout the school year with monthly reinforcement sessions, classroom visits and an on-line interactive Web site.

Participating teachers will share what they learn by training other third through fifth grade teachers in their districts. A

project-based curriculum approach will be used to help teachers learn science, mathematics and technology while engaged in hands-on projects. The goal will be to increase teachers' STEM content knowledge and pedagogical skills and at the same time, ignite a passion and inquisitiveness in teachers about science and mathematics.

The Teacher Institute is implemented by the Collaborative for Higher Education, a partnership of public higher education institutions in Silicon Valley - San Jose State University, the University of California at Santa Cruz and the Foothill De Anza community colleges. The collaborative works closely with NASA Ames and ultimately will be located in NASA Research Park, a world-class, shared-use research and development campus in association with academia, industry and non-profit organizations.

The collaborative's vision is to create a statewide model of higher education institutions working together with a seamless delivery of educational services in math, science, engineering and technology. The collaborative is committed to addressing workforce development and filling the student pipeline in science, technology, engineering and mathematics.

"During the two-year project, it is estimated that over 3,500 students will benefit from the new STEM knowledge acquired by the teachers in this program. As these teachers continue to teach, thousands of additional students will be impacted as well," said Nancy Bussani, executive director, Collaborative for Higher Education. "We're delighted the House Family Foundation has chosen to support this program."

For more information about the NASA education program, please visit: <http://education.nasa.gov/>

Contact: Michael Mewhinney, 650-604-3937

continued from page 2: FBI Blast Scores Hit

"This school is as close to reality as it gets," explained Jim Norman, retired FBI special agent. Norman was the lead investigator in the Oklahoma City bombing and is now an instructor for this rigorous four-day class. "These new investigators need to be aware of the situations they'll face working on a case like this," Norman said.

Los Angeles County deputy district attorney, Ronald Smalstig, has been an instructor with the school since 1989. "The goal is to get into the courtroom with evidence that will convict the perpetrators making these bombs." Smalstig accentuates the value of proper evidence collection,

documentation and analysis, "because this is what will be attacked in the courtroom." The task is daunting — this crime scene covered 75 acres.

Captain Tom Israel of Georgia's Clayton County Police Department was the class incident commander. "This class gave me a new perspective," he said. "The most significant thing I'm taking from this class is from a command standpoint — such as chain of command and crime scene management. This training will benefit the entire nation."

Contact: Doris Lance, 760-939-4587

Far West and Mid-Continent Regional Meeting Joins TechEnterprise 2003 at Waikiki Beach, HI, August 18-22, 2003

The FLC Far West and Mid-Continent regions are teaming up with the Hawaii Technology Transfer Group, which consists of small businesses, the University of Hawaii, the Office of Naval Research, and Hawaii Federal Laboratories. This joint effort, TechEnterprise 2003, will be held at the Sheraton Waikiki Beach Hotel/Conference Center.



Some topics to be presented include; Licensing Techniques and Tools; Patent Law & Legislative Update; How Venture Firms Work With Federal Labs; Creating Spin-Off Companies from Lab Technologies; Inventive Partnering; Showcasing Technologies & Commercialization Opportunities, Venture Capital War Game, Telemedicine / Health Care / Medical Technology, Environmental Technology, Nanotechnology & Advanced Materials; The Hydrogen Economy, and Homeland Security.

We have arranged for a small block of government per diem rooms that will be available on a first come, first served basis.

Contact: Linda Downer
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web: www.zyn.com/flcfw/meeting

Calendar

May 5 - 9, 2003
FLC National Meeting
Tucson, AZ
856-667-7727 * www.federallabs.org

July 20 - 24, 2003
PICMET'03 - Technology Management for Reshaping the World
Portland, OR
503-725-3525 * info@picmet.org

August 18 - 22, 2003
FLC FW/MC Regional Conference TechEnterprise 2003
Honolulu, HI
360-582-9106 * www.zyn.com/flcfw

October 27 - 30, 2003
National SBIR Conference Small Business Tech Expo
Cleveland, OH
360-683-5742 * sharon@dbamlg.com

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Send material for consideration to the FLC Far West Support Office at the above address. If you would like this publication sent to any of your local or State organizations/agencies, please send the names and mailing addresses of their points of contact to the Regional Support Office.

Opinions or views expressed in the FAR WEST BULLETIN are those of the contributors and do not necessarily reflect those of the FLC, its officers or representatives.

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