NEWSLINK

FEDERAL LABORATORY CONSORTIUM FOR TECHNOLOGY TRANSFER OCTOBER 2000 VOL. 16, NO. 9

USGS Goes Deep in Water Studies

Aside from wondering what is in the water we just drank from the kitchen faucet, many of us have had few questions about the quality of our water. Previously, factors determining water quality simply focused on the sanitation of rivers and streams—bacteria counts, oxygen in the water for fish, nutrients, temperature, and salinity, for example. However, we now face more complex environmental issues that ultimately can affect our drinking water and the health of our ecosystems.

To address these new concerns, the **U.S. Geological Survey's (USGS) National Water-Quality Assessment (NAWQA)** program is monitoring and reporting on the quality of the nation's water. The program's science-based information on nutrients, pesticides, industrial chemicals, and trace elements is critical data routinely used by other federal, state, and local agencies and nongovernmental organizations to help make management, regulation, conservation, and policy decisions.

A $60 million program, NAWQA was implemented in 1991 in 20 U.S. major river basins and aquifer systems to determine the conditions, trends, and human and natural influences on water quality and other watershed conditions. Almost a decade later, the program is conducting integrated and interdisciplinary studies of streams, groundwater, aquatic biota, and habitat quality in more than 50 basins nationwide. Consistent sampling and evaluation methods allow accurate comparisons among the basins and national compilations and assessments of water quality.

Water Quality: Water samples are taken as part of the U.S. Geological Survey's (USGS) National Water-Quality Assessment program. *Photo by Dennis A. Wentz, USGS.*

Low Level Focus

One of NAWQA's unique characteristics is its capacity to sample and investigate at very low levels (down to parts per trillion) for selected trace elements, more than 80 different pesticides, and 65 volatile organic compounds (VOCs). These levels are 10 to 1,000 times less than the standards set by the **Environmental Protection Agency (EPA)** and many states. "Looking at low levels is like putting on a pair of glasses," says **Tim Miller**, NAWQA's Chief. "The lens allows us to see what is actually present, understand how the environment functions, and learn the increasing and decreasing trends over time."

MTBE Danger

The NAWQA "low level lens" is instrumental in identifying emerging contaminants—such as methyl tertbutyl ether (MTBE), the gasoline additive used for 20 years to enhance octane and reduce air pollution.

Please see ***NAWQA****, p. 2*

"Defused" Russian Technology Aids New Business, Environment

Imagine developing technical processes that could benefit human health and the environment from technologies that also support biological, nuclear, and chemical weapons of mass destruction. Such are the environmental successes of the **U.S. Industry Coalition (USIC)**.

- Milk, juice, baby food, and water in the Chernobyl fallout area were successfully decontaminated by a process using nuclear magnetic particles.
- Microbes identified by biological warfare scientists are being transformed into an environmentally friendly means of remediating oil spills in surface soils.
- An improved "soilwashing" technique is removing radionuclides and heavy metals from contaminated soils using technologies developed by Russian weapons experts.

Funded via the **DOE's Initiatives for Proliferation Prevention (IPP)** program, USIC is a nonprofit association of American companies and

Please see ***USIC****, p. 2*

INSIDE

This issue of *NewsLink* focuses on **ENVIRONMENTAL TECHNOLOGIES.** The November/December issue will focus on information technology.

NAWQA from p. 1

An unintended consequence of using MTBE was its widespread presence and mobility in groundwater. As many as 9,000 community water wells in 31 states could be affected due to their proximity to underground MTBE storage tanks. MTBE's tendency to persist and migrate long distances raises public concern, particularly because MTBE can remain in groundwater for 10 years or more. Possible risks to humans and aquatic life are currently being evaluated by the EPA and other agencies. NAWQA is also sampling other emerging contaminants, including some pathogens, thalates, and pesticide degradates.

NAWQA is just one of many USGS water-related programs—all of which are designed to assess U.S. water resources and provide credible and unbiased scientific information to other government agencies, academia, industry, and nongovernmental organizations. Headquartered in Reston, VA, the USGS has three regional centers in Reston, Denver, and Menlo Park, CA—along with field offices in every state. More than 1,200 state and local partnering agencies work with the USGS on key water-related issues across the nation.

NAWQA Data Vital Resource for Industry

Manufacturing industries such as chemical companies and crop producers often collaborate with the USGS in area water assessments, sampling, and evaluations. Companies, trade associations, and many environmental groups also find NAWQA's extensive environmental databank to be especially useful. NAWQA monitoring information for 2,800 stream sites and 5,000 wells in 46 states is available online at <http://water.usgs.gov/nawqa>. The data represent more than 15,000 pesticide and VOC samples and 26,000 nutrient samples collected in the water column—as well as more than 1,200 trace element and organic compound samples in bed sediment and aquatic animal tissue. NL

For more info: Tim Miller, 703-648-5715, tlmiller@usgs.gov

USIC from p. 1

universities that are developing former Soviet Union defense technologies while simultaneously contributing to national security goals related to the nonproliferation of weapons of mass destruction. USIC's mission is to marry technology development in the nations of Russia, Ukraine, Kazakhstan, and Belarus with U.S. commercial expertise in creating new business. The primary goals are to: identify and develop nonmilitary applications of defense technologies; create long-term jobs in the high-technology commercial marketplace for scientists and engineers in the former Soviet Union; and foster new business opportunities and jobs in the U.S. More than 120 USIC projects are currently underway.

"Swords into Soilwashers": Via the USIC program, technology developed by Russian weapons experts has been adapted to create an improved soilwashing technique.

DOE Help

Each project has three partners—a DOE national lab (to evaluate and validate new applications of defense technologies and assist in product development); a former Soviet weapons institute and/or spin-off company; and an American company, consortia, or university. IPP dollars support the DOE lab and former Soviet business partners, while USIC members use their own dollars and in-kind contributions to match—and often surpass—the IPP investment.

U.S. Company Opportunities

Currently, U.S. company involvement is invited for the milk-fruit-water decontamination project with **Argonne National Lab**. Technologies available for commercialization by U.S. industrial partners can be found in: accelerators, biotechnology, energy, environment, manufacturing, nuclear materials, nuclear waste management, sensors, instrumentation, and software development. NL

For more info: Gary Tydings, 703-526-9447 x303, gtydings@usic.net; www.usic.net

Subscribe to the Free FLC Environmental E-Mail Newsletter!

If you are interested in learning more about environmental technologies, facilities, and resources available from federal labs, you need to subscribe to the FLC's free environmental e-mail newsletter. Published every few months, the newsletter covers topics such as pollution prevention, recycling, and waste reduction.

To subscribe:
Send an e-mail to jbegley@utrsmail.com and type "ENV NL (Oct 00)" in the subject line.

Attention Universities and Colleges!

Have you asked for your free subscription to *EduLink*—the FLC's newsletter highlighting federal technology transfer programs with universities and colleges? The debut issue was inserted into last month's issue of *NewsLink*.

To subscribe: Send an e-mail to jbegley@utrsmail.com and type "Subscribe EduLink" in the subject line.

FED LABS FLASH

Technology transfer news, notes, and events within the federal lab community

Environmental Incubator Seeks Tenants

The **National Environmental Technology Incubator**, located in the **International Center for Water Resources Management** at Ohio's **Central State University** is now accepting applications from potential tenants. The incubator will provide an affordable head-start to companies focused on environmental technology and will serve as a resource for established companies seeking to diversify their product line. Available resources will include technical expertise from federal labs, regional universities, and **Battelle**; business, legal, accounting, and marketing, expertise will also be available. Tenants can also rent facilities (including fully-equipped laboratories) for reasonable rates.

For more info: Gerald Noel, 914-376-6216, gnoel@csu.ces.edu

Book Reveals Mysteries of Vadose Zone

What we know (and still need to learn) about the underground expanse of soil and rock known as the vadose zone is summed up in a new book entitled *Vadose Zone Science and Technology Solutions*. Edited by **Brian Looney** of the **DOE's Savannah River Technology Center** and **Ron Falta** of **Clemson University**, the 1,500-page book and companion CD include more than 130 case studies covering current vadose zone science and technology and the gaps that need to be filled by future research. Sponsored by the **DOE Office of Science and Technology**, the book brought together experts from industry, government, and academia.

For more info: www.battelle.org/bclscrpt/bookstore99/vadose.cfm

New Tools Enhance Access to Federal Info

Two new Internet tools are improving access to scientific and technical research information across the federal government. The **GrayLIT Network** <www.osti.gov/graylit> and **Federal R&D Project Summaries** <www.osti.gov/fedrnd> use a single query to search documents across databases from several federal agencies. Developed by the **DOE Office of Scientific and Technical Information**, the GrayLIT Network includes more than 100,000 full-text technical reports located at the **DOE**, **DOD**, **EPA**, and **NASA**. Federal R&D Project Summaries includes more than 240,000 research summaries and awards from the DOE, **National Institutes of Health (NIH)**, and **National Science Foundation (NSF).** The tools are available to the public via a partnership with the **Government Printing Office** at <www.access.gpo.gov/su_docs>.

Oak Ridge Modernization Plans

On September 11, **Secretary of Energy Bill Richardson** announced a five-year plan to modernize facilities at **Oak Ridge National Lab (ORNL).** The plan includes the construction of 11 major facilities and the renovation of several others. Four of the 11 facilities will be funded by the state of Tennessee, and three will be funded by **Battelle**, the nonprofit research institute that manages ORNL via a partnership with the **University of Tennessee**. This type of partnership is the first of its kind and a potential model for other national labs. The modernization plan will also reduce operating costs, improve safety, and reduce energy consumption. New facilities will be built for mouse genomics, chemistry, computational science, and the **Oak Ridge Center for Advanced Studies**. NL

For more info: Billy Stair, 865-574-4160, stairb@ornl.gov

Important Information About Your NewsLink Subscription

As you've probably noticed, this issue of *NewsLink* contains a reader survey for you to complete and return. In addition to providing us with valuable feedback about how you use *NewsLink*, the survey also asks two important questions regarding your *NewsLink* subscription.

Renewing Your Subscription

As you know, the FLC offers *NewsLink* subscriptions at no cost. However, tremendous growth in our subscription base has increased our printing and distribution costs significantly. Thus, we need to ensure that we are only mailing *NewsLink* to people who really want to receive it. To help us do this, we are asking all *NewsLink* subscribers to "renew" their subscription by checking the appropriate box on the enclosed survey. ***If you do not respond, we will assume that you do not want your subscription renewed and will remove you from the mailing list.***

Electronic Subscription

Another way to help reduce *NewsLink* printing costs is to migrate subscribers to an electronic version of the newsletter. ***If you would prefer to receive* NewsLink *via e-mail, please check the appropriate box on the enclosed survey and provide an e-mail address.*** You'll receive the same information (minus the photos) as subscribers to the printed version.

THANKS FOR YOUR HELP IN THIS EFFORT!

TECHNOLOGY WATCH

Federal laboratory technologies available for technology transfer

"Hydrocyclone" Removes Contaminants at Lightning Speed

Cooperative research involving the **Air Force Research Lab Materials and Manufacturing Directorate**, **Advanced Processing Technologies, Inc.**, and **Kemco Systems, Inc.** has produced a reactor that removes 80% to 100% of contaminants found in cleaning and maintenance wastewater. During testing, the air-sparged hydrocyclone (ASH) efficiently removed oil and grease, oily solids, and aqueous film-forming foam (AFFF) from wastewater streams at a low cost ($0.40 to $1.10 per 1,000 gallons). The system processes up to 20 gallons of wastewater per minute—a capacity 100 to 500 times that of conventional equipment. The combination of low capital costs, low operational and maintenance expenses, high throughput, process flexibility, and high contaminant removal rates makes ASH invaluable to Air Force wastewater treatment processes. The technology may also have commercial applications.

For more info: 1Lt David Kempisty, 850-283-6126, David.Kempisty@tyndall.af.mil; John Spivey, 850-283-6205, John.Spivey@tyndall.af.mil

Green Battery: This nickel-metal hydride battery developed by the Air Force drastically reduces hazardous wastes and could save millions of dollars each year.

ORNL Helping EPA Put Instruments to the Test

Four manufacturers of portable instruments and test kits that detect explosives or polychlorinated biphenyls (PCBs) in soil and transformer oil now have a better idea of how well their gear works after participating in the **EPA's Technology Verification Program** at the **DOE's Oak Ridge National Lab (ORNL).** The program helps to accelerate the use of innovative technologies in the field. For 10 days in August, scientists from four companies—**Hybrizyme**, **Dexsil Corp.**, **SRI Instruments**, and **Texas Instruments**—analyzed about 200 samples and compared their results with lab reference analyses. "Our focus is on the evaluation of field analytical technologies that are useful for site characterization and monitoring," said **Amy Dindal** of ORNL's **Chemical and Analytical Sciences Division**. "This isn't a bake-off, though. Our goal is to establish the performance characteristics…not to determine which one is best." Performance reports are posted on the web.

For more info: Ron Walli, 865-576-0226, wallira@ornl.gov

NASA Technology Monitors Motor Vehicle Pollution

Cities and states may soon have a new tool in the battle against automotive air pollution—thanks to **NASA** satellite technology originally developed to track global greenhouse gases and the ozone layer. NASA's atmospheric remote sensing technology will be adapted to an autonomous roadside system that monitors motor vehicle emissions. Cars and trucks will pass through a low-power light beam, without stopping or slowing down. Space-age sensor technology will then instantly analyze vehicle exhaust pollutants important to local and state governments working to meet federally mandated air quality standards. In July, **NASA Langley** and **SPX Service Solutions** (Warren, MI) announced that SPX had licensed the technology for this purpose. A basic unit should be available by the end of 2000.

For more info: http://oea.larc.nasa.gov/news_rels/2000/00-057.html

"Green" Battery Promises Millions in Savings, Less Hazardous Waste

The **Air Force Research Lab Propulsion Directorate** has successfully designed and tested an innovative nickel-metal hydride (Ni-MH) battery that can replace current nickel-cadmium (Ni-Cd) batteries in more than 30% of DOD aircraft—thereby reducing manufacturing costs by as much as 25% and eliminating the hazardous wastes associated with Ni-Cd batteries. Currently, the Air Force disposes of more than 800,000 pounds of lead and cadmium from aircraft batteries—creating waste that must be treated according to local, state, and federal laws and regulations. The new Ni-MH battery eliminates hazardous material use and also offers lower periodic maintenance requirements, higher energy density, higher efficiency per unit volume, and higher specific power output. Ni-MH applications are far-reaching and could satisfy commercial aircraft requirements with minimal adjustment.

For more info: Kristin Schario, 937-255-3428, kristen.schario@wpafb.af.mil

Chemistry Stops Chromium Contamination

Soil contaminated with chromium is being carted up and carried away as part of cleanup projects at government and industrial sites throughout the U.S. But researchers at the **DOE's Pacific Northwest National Lab** have found a way to convert such soil to a less hazardous form that can be left in place. By injecting diluted hydrogen sulfide into the subsurface, a chemical reaction converts highly toxic hexavalent chromium to trivalent chromium, which occurs naturally in soils. This chemical reduction of chromium causes the material to cling to soil particles and not migrate down to the water table. Without the conversion, the toxic form of chromium moves quickly through soil into groundwater and possibly into rivers. Early demonstrations show potentially large cost savings.

For more info: 509-375-3776

TECH WATCH *continued*

Better Way to Measure Metals in Soil

The **Naval Research Lab (NRL)** has received a patent for a faster, safer device that measures concentrations of metals in soil located in hazardous waste environments. NRL's invention is a hand-held, X-ray fluorescence spectroscopy device that takes real-time fluorescence measurements of soil and sediment samples. An integral cone tip penetrometer accesses underground soil samples so measurements can be made without removing samples from the ground. The X-ray fluorescence technique enables operators to determine the presence of even very slight concentrations (less than 100 parts per million by weight) of metals typically found in environmentally contaminated sites. This feature is especially useful for initial surveys of hazardous waste sites.

For more info: Diane Banegas, 703-696-2868, banegad@onr.navy.mil

Maintaining Vegetation on Army Training Lands

Military training installations contain some of the most heavily used lands in the U.S.—with military vehicles often destroying vegetation. This destruction often leads to soil erosion, sedimentation of streams and lakes, loss of training realism, and reductions in the carrying capacity of the land. To help reverse these effects, the **U.S. Army Cold Regions Research and Engineering Lab (CRREL)**—in conjunction with **Pennsylvania State University** and **USDA** researchers—is exploring an integrated vegetation management approach to assess land use intensity, environmental requirements, and what plants need to survive in a training environment. The goal is to better understand and evaluate genetic diversity on military lands and to produce new cultivars of existing range land plants (via breeding programs) that can better maintain healthy plant communities while also increasing the morphological diversity of the ecosystem.

Rough Riders: Military training installations contain some of the most heavily used (and damaged) lands in the U.S. The U.S. Army Cold Regions Research and Engineering Lab is trying to reverse the damage by developing an integrated vegetation management approach.

For more info: Antonio Palazzo, 603-646-4374, apalazzo@crrel.usace.army.mil; www.crrel.usace.army.mil/gcd/research/breeding.htm

Recyclable Sorbent Coating for Pollutant Sampler

Scientists at the **DOE's Lawrence Berkeley National Lab** have developed an adsorbent resin for an organic vapor/particle sampler that greatly facilitates the direct determination of both gas and particulate semivolatile organic air pollutants (including nonpolar and moderately polar chemicals such as polycyclic aromatic hydrocarbons, pesticides, nicotine, and phenols). The resin is applied to annular denuders used to trap the gas phase species before the airstream passes through a filter and a backup denuder. Extracts are analyzed separately using gas or liquid chromatography. The resin-coated denuders allow users to directly detect and determine phase distributions of semivolatile pollutants—compared to current methods that rely on difference calculations or other techniques subject to large positive and negative artifacts. Pollutant trapping by the sorbent coating is reversible and can be incorporated into other pollutant sampling and trapping applications. Advantages are that the technology integrates vapor and particulate sampling in one device and directly detects and determines phase distributions. Applications include environmental assessment and air pollutant measurement.

For more info: Tech Transfer Dept., 510-486-6467, TTD@lbl.gov

Technology Assessment Program

The **Technology Assessment Program (TAP)** at **Florida International University's Hemispheric Center for Environmental Technology (FIU-HCET)** provides performance, cost, health, and safety information for baseline and innovative technologies used to deactivate and decommission DOE nuclear facilities. Technology evaluations are conducted under standardized, non-nuclear conditions at FIU-HCET's facilities in Miami, FL. To date, more than 80 technologies addressing the characterization, decontamination, and dismantlement of masonry and metal facilities have been assessed. During the assessments, data are collected to determine production rates, removal capabilities, media usage rates, waste volume generation, operational and maintenance requirements, and technology benefits and limitations. These data are available via reports and online databases at <www.hcet.fiu.edu/tap> or <www.DandD.org>. In 2001, TAP will begin supporting technology assessment needs for the DOE's mixed waste and tank focus areas. TAP can also support other members of the technology assessment and tech transfer community.

For more info: Marshall Allen, 305-348-1696, mallen@eng.fiu.edu

Software for Flow and Contaminant Transport

The **DOE's Westinghouse Savannah River Company (WSRC)** has developed a new finite element-based code to model subsurface flow and contaminant transport. The program performs transient 3-D calculations that simulate isothermal groundwater flow, moisture movement, and solute transport in variably saturated and fully saturated subsurface porous media. Called FACT (Flow and

*Please see **TECH WATCH**, p. 6*

SPOTLIGHT ON SUCCESS

Success stories from the federal lab community

KCP Engineers Develop Technology to Recycle Plastic Oil Bottles

In August, a team of engineers from the DOE's Kansas City Plant (KCP) received the Missouri Chamber of Commerce's *2000 Governor's Pollution Prevention Award* for developing a unique technology to recover and recycle used motor oil bottles. At least two billion motor oil containers are disposed of annually in the U.S.—but these "empty" containers still hold nearly 15 million gallons of oil. To put this in perspective, this means that more oil is being thrown away than what leaked from the 1989 Exxon Valdez accident, and enough usable plastic to fill more than 1,200 rail cars is just tossed in the trash.

Development of the technology began in 1994 when KCP engineers were asked to help a small business in Iowa recycle used oil bottles. (This assistance came through the DOE's **Technology Assistance Program**, which allows U.S.-owned companies with less than 500 employees to request up to 80 hours of technical assistance at no cost.) The business found that, for every 100 pounds of material processed, 95 pounds are recovered plastic and the remaining 5 pounds are oil. However, that leftover oil made it impossible to recycle the plastic bottles. When they tried to use solvents to clean the plastic chips, the end result was an environmental mess.

KCP engineers had already developed a separation process involving liquid and supercritical forms of CO_2, which acts as a solvent. They found that when the oil-contaminated plastic chips were "washed" with CO_2, the result was clean plastic chips and usable oil. This "zero waste generation" technology eliminates the problems caused by traditional recovery and recycling processes and, without creating secondary wastestreams, produces oil-free plastic and usable oil. These two commodities are produced in a single operation that simultaneously regenerates the process solvent for continual reuse.

Honeywell FM&T (which manages and operates KCP) patented the technology in 1998 and recently licensed it to **ITec International Technologies** in Cincinnati, OH. ITec plans to sell cleaning equipment using the technology to oil bottle manufacturers and recyclers worldwide. NL

For more info: Tanya Snyder, 816-997-5937, tsnyder@kcp.com

For more success stories, visit the FLC web site at www.federallabs.org

TECH WATCH *from p. 5*

Contaminant Transport), the software efficiently handles complex multilayer and/or heterogeneous aquifer systems while accommodating a wide range of boundary conditions. FACT writes both ASCII and binary Tecplot® data files. WSRC is seeking private companies interested in selling FACT as a commercial product under a license to WSRC.

For more info: Brenda Boggs, 800-228-3843, brenda.boggs@srs.gov

Biodegradable Films from Agricultural Polymers

The increased use of synthetic wrapping materials such as polyethylene and polypropylene creates environmental problems because they require many years to biodegrade. However, improved biodegradability can be achieved via chemical modification and dilution with more easily degradable components, including biodegradable polymers. A **USDA Agricultural Research Service** invention produces biodegradable films from nontoxic, agricultural polymers—including acidic polysaccharides such as pectin and alginic acid. Plasticizers can also be used to increase film flexibility. The films have high tensile strength, are flexible, and use agricultural waste products instead of petroleum-based polymers. Potential applications include food packaging.

For more info: Mary Ann Gwodz, 301-504-5345, mag@ars.usda.gov

New Grout for Geothermal Heat Pumps

Although geothermal heat pumps efficiently and cost-effectively heat and cool buildings while decreasing fossil fuel consumption, problems with the grout that filled the pumps' boreholes led the **New Jersey Department of Environmental Protection (NJDEP)** to ban their use—effectively causing the state's heat pump industry to come to a grinding halt. However, researchers at the **DOE's Brookhaven National Lab** developed a new grout—Mix 111 (a mixture of cement, water, silica sand, and small amounts of superplasticizer and bentonite)—that met NJDEP requirements and provided better sealing capability, reduced shrinkage, and improved crack resistance. Cited as an example of "scientists and engineers working together with industry and environmental regulators to solve real-world problems," the grout formula is now available to industry.

For more info: Dorry Tooker, 631-344-2078, dorryt@bnl.gov

Technology Developments at USGS

The **Technology Enterprise Office** of the **U.S. Geological Survey (USGS)** offers a variety of licensing opportunities in areas such as environmental clean-up; resource detection and assessment; sampling technologies for water, air, and soil;

*Please see **TECH WATCH**, p. 7*

TECH WATCH from p. 6

modeling and prediction software; and visualization/GIS. Here are just a few of the technologies currently available:

- active remediation technology for acid mine drainage
- VOC passive sampler
- a unique environmental drilling system—the Hoverprobe—that allows for drilling in shallow coastal areas and environmentally sensitive areas like the Everglades
- a Submersible Habitat for Analyzing Reef Quality (SHARQ), which isolates and tests (in situ) a large mass of water
- device and process for selenate removal from wastewater
- apparatus for sampling pesticide residues in runoff
- automated multichamber gas flux measuring system
- general earthquake observation system (GEOS)
- laser goniometer
- downhole passive water sampler and method of sampling
- interfacially synthesized reverse osmosis membrane
- water-powered isokinetic flow sampler
- automated groundwater sampling
- bacteria oxidation of methyl bromide. NL

For listing of available technologies: www.usgs.gov/tech-transfer/licenseopp.html

For more info: Julia Giller, 703-648-4450, jgiller@usgs.gov

Finding What You Want

Need help finding a technology or facility at a federal lab? In addition to *NewsLink*, the FLC also offers these free services to help you navigate the federal lab system.

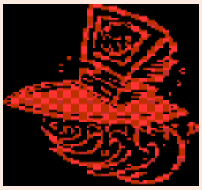
Laboratory Locator

Our Laboratory Locator personnel will search the FLC network for the exact technology or facility you are seeking. All you have to do is submit a Technical Request Form describing what you need. To do this, go to *www.federallabs.org* and click on LABORATORY LOCATOR or call 856-667-7727 and ask for Frank Koos or Rick Christ.

FLC Web Site

We continually update our web site with new technologies categorized into 15 industry topic areas—agriculture and food processing, assistive technology, automotive, biotechnology and medicine, chemical, computers and software, electronics, energy, environmental, law enforcement, manufacturing, materials, photonics, sensors, and transportation. Simply go to *www.federallabs.org* and click on TECHNOLOGIES. New entries are added weekly!

Technology Transfer on the Web



Environmental Technology Collaborations
www.ET3M.net

The **Interagency Environmental Technology Office** (part of the White House's **Council on Environmental Quality**), in conjunction with several U.S. government agencies, recently launched this site to help bring together U.S. and European companies interested in collaborating on environmental technology projects. For no charge, participants can post their company profile, search for and prequalify potential partners, access key information, find resources, and explore joint projects and opportunities.

Creating a Green Business
www.GreenBiz.com

This new online resource center gives companies an opportunity to align environmental responsibility with business success. **GreenBiz.com** is a nonprofit organization that brings environmental information, resources, and tools to the business community and targets businesses—allowing them to access information from other companies, government agencies, business groups, activist groups, academic organizations, and various organizations via the Internet.

EPA Tech Transfer Publications
www.epa.gov/ttbnrmrl

Go here to view the latest tech transfer publications from the **EPA**. Choices include environmental regulations and technology publications, guides to pollution prevention, handbooks, manuals, technical capsule reports, and seminar publications. The site also features conference announcements of interest to the environmental industry.

Initiatives in Environmental Technology
www.wpi.org/Initiatives

Published four times a year by the **Waste Policy Institute**—a nonprofit corporation affiliated with **Virginia Polytechnic Institute and State University**—this newsletter promotes information exchange among the **DOE's Office of Science and Technology (OSTI)**, other DOE offices and sites, industry, and other agencies concerned with technology development and deployment. The newsletter provides information about innovative environmental technologies and cleanup approaches that the OSTI is helping to develop and deploy.

NORM Technology Connection Web Site
www.iogcc.state.ok.us/NORM

For those in the petroleum industry who must deal with the problem of managing naturally occurring radioactive materials (NORM), a new source of online information is now available at this site. Launched by the DOE and the **Interstate Oil and Gas Compact Commission (IOGCC)**, the NORM Technology Connection web site provides streamlined access to NORM info that was previously difficult or time-consuming to obtain. NL

COMING ATTRACTIONS

November 1-3, 2000
Inspection 2000
Houston, TX

This free event allows business leaders to meet with NASA engineers at the Johnson Space Center to discover the latest NASA technologies, expertise, and processes that could be developed for commercial use. Items such as a heart assist device, scratch-resistant eyeglass lenses, and smoke detectors resulted from NASA technologies developed for space, then put to use on earth. Maybe you'll find the next big thing at this event!

http://inspection.jsc.nasa.gov

November 8-11, 2000
2000 Conference of State Sponsored Seed and Venture Funds
Honolulu, HI

This conference provides a forum for investment and development leaders concerned with serving the capital needs of local entrepreneurs. The agenda is full of new strategies, methods, and ways of thinking about seed and venture investing and how states can facilitate access to capital. Many networking opportunities are also offered.

405-843-6550 or admin@nasvf.org

November 28-30, 2000
Environmental Challenges for the Next Decade
Arlington, VA

Sponsored by the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP), this *Partners in Environmental Technology Technical Symposium and Workshop* will address the environmental issues and challenges facing the Department of Defense in the next decade.

www.serdp.org or www.estcp.org or 703-736-4548

November 28-30, 2000
Inventing, Patenting, and Licensing
Los Angeles, CA

This short course presents a step-by-step approach to documenting and protecting ideas and inventions; provides info on how to obtain a patent and license a product; covers the terminology of patenting and licensing as well as the subtleties of the patenting process; and helps attendees communicate more efficiently with patent counsel.

www.unex.ucla.edu/shortcourses/fall2000/inventing_patenting_fa00.htm

November 29-December 1, 2000
U.S. - European Partnering Event for Environmental Technologies
Amsterdam, The Netherlands

This event provides an opportunity to identify cooperative environmental technology projects and facilitate international partnerships. Sponsored by the White House Interagency Environmental Technology Office and the Dutch Ministry of Economic Affairs/Senter, the event is of special interest to environmental companies interested in extending their international network.

www.et3m.net; Sandra Collazo, 202-395-0854

December 11-13, 2000
Americas Nuclear Energy Symposium
Miami, FL

Hosted by the DOE and Florida International University's Hemispheric Center for Environmental Technology, this event provides a forum for a hemispheric discussion and exchange on the status of nuclear energy in the Americas. Opportunities for identifying areas of collaboration between the U.S. nuclear industry and international government, industry, and university representatives will also be emphasized.

www.nes2000.org or nuclear@eng.fiu.edu

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Upcoming focus issues include:
information technology, automotive, and manufacturing.

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