Plans are underway for the 12th annual Conference on Hazardous Waste Research, sponsored by the Great Plains/Rocky Mountain Hazardous Substance Research Center, set for May 20-22, 1997, in Kansas City, Mo. This year’s conference theme is “Building Partnerships for Innovative Technologies,” and the focus will once again be on the various aspects of research, education, and technology transfer and training in the Great Plains and Rocky Mountains.

Participants are encouraged to submit technical papers for oral or poster presentations. Possible topics include partnerships and technology innovation, bioremediation, mine waste remediation/reclamation, environmental fate and transport, and other related topics. An insert in this issue of HazTech Transfer offers further details on the call for papers, as well as other conference details.

Several workshops, to be held prior to and following the main conference, are also in the planning stages and will cover such areas as phytostabilization of heavy metals, wastewater remediation, and an eight-hour HAZWOPER refresher course.

Co-sponsors of the 1997 conference include the U.S. Environmental Protection Agency, Waste-management Education and Research Consortium, National Institute of Environmental Health Services, and the National Mine Land Reclamation Center.

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'97 conference plans set for Kansas City

HSRC-funded research team receives NSF grant

Researchers at the University of Nebraska recently received a National Science Foundation (NSF) grant through EPSCoR (Experimental Program to Stimulate Competitive Research).

The proposal, “Environmental Processes for Accelerated Bioremediation of Xenobiotics in Soil and Water,” was awarded a two-year, $430,000 grant from NSF and $220,000 in match from Nebraska EPSCoR and is one of two new research clusters funded in the program.

Principal investigators (PIs) include Pat Shea and Steve Comfort (Applied Organic and Environmental Chemistry), Tian Zhang (Environmental Engineering), Garald Horst (Applied Plant Physiology), and Rhae Drijber (Soil Microbiology and Ecology), who are working with a team of chemists, microbiologists, and others in the areas of soil chemistry and physics, biotechnology, toxicology, and engineering to study fundamental processes and alternative technologies in remediation.

The research group is interested in developing continued on page 3
HSRC Update on center activities ................

HINU and HERS involved in TOSC project

Staff from Haskell Indian Nations University (HINU) and the Haskell Environmental Research Studies Center (HERS) spent several weeks traveling in Indian country as part of the HSRC’s Technical Outreach Services to Communities program.

HINU instructors Mike Tosee and Bill Curtis traveled with Dana D’zurella, a HERS staff member and former HINU student, to Native American nations in Florida, Idaho, and New York. The trio visited the Seminole Nation in Florida, the Coeur d’Alene Nation in Idaho, and the Mohawk Nation in upstate New York.

The purpose of their visits was to document hazardous substance and other environmental problems that each nation is experiencing. HINU and HERS staff met with tribal environmental officials, tribal leaders, and tribal members, documenting the issues from several perspectives and capturing the interviews and issues on video.

HERS co-director contributes to curriculum development

Dan Wildcat, HERS co-director and HINU instructor, contributed to the environmental technology curriculum being developed by KSU’s College of Technology in Salina, Kan. Wildcat wrote components that discussed the European and native views on nature and the cultural and archeological resources discovered on public or private land. The curriculum development project is funded by the Department of Defense.

Interconnectedness main theme in spring video series

Production of the NAOMI Spring Seminar Series, All Things Are Connected: The Sacred Circle of Life, is ready to begin this fall.

The four-part satellite and video series will introduce real issues Indian nations are addressing through the efforts of their own environmental agencies, offices, and professionals, surrounding the themes of land, air, water, and living beings. Each program will identify challenges, solutions, and required resources that deal with the theme featured in the seminar program.

The first program will be a satellite uplink tentatively scheduled to air in mid-January. The second and third programs will be filmed for videotape distribution in February and March. The series will conclude with a second uplink scheduled for April.

Search for R2D2 program funding through DoD, partnerships, and jobs continues

Efforts continue to identify third-year funds for the R2D2 program. Opportunities may exist to serve as an official partner for research and technology transfer with DoD organizations, regulators, local communities, private industry, and international organizations involved with DoD environmental issues. Our TOSC and NAOMI programs may be an integral part of these activities.

Regardless of results of efforts to secure additional funding, the center director intends for all HSRC researchers, staff, and programs to make every attempt to support R2D2 students through the duration of their degree programs.

As reported in the January issue of HazTech Transfer, current priority is on completing existing research projects and on job placement activities. Research results and a pool of knowledgeable students are key to establishing new partnerships.

The R2D2 student resume portfolio on our World Wide Web site illustrates this point. In addition to information on R2D2 students about to enter the work force, this portfolio includes information on the other R2D2 students in the program. The Internet address for this portfolio is: http://www.engg.ksu.edu/HSRC/R2D2/Resume.Students.html.

Potential employers and HSRC partners, especially those who are stakeholders in DoD affairs, are encouraged to visit this and other (linked) R2D2/HSRC Web sites.

Journal of Hazardous Substance Research calls for papers
**Team receives NSF grant**

continued from page 1

innovative, integrated approaches to clean up soil and water and restore contaminated sites. A number of postdoctoral research associates and graduate students, including R2D2 program student Ellie Bier, are associated with the project.

The group intends to build a new research and education program in remediation and environmental restoration at the University of Nebraska, complementing strong university programs already in place in the Water Center/Environmental Programs, the Center for Biotechnology, and environmental toxicology at the Eppley Institute of the University of Nebraska Medical Center.

The new NSF project focuses on organonitrogen contaminants in soil-water systems, specifically nitroaromatics (nitrotoluenes) and heterocyclic nitramines (triazines). Much of this work centers on remediating soil at the former Nebraska Ordnance Plant in Mead, Neb., which is highly contaminated with munitions compounds (mainly TNT and RDX), and cleanup of atrazine and other nitrogenous pesticides in soil and water.

Researchers are taking an integrated approach to remediation, recognizing the diversity of contamination in situ and that technologies resulting from interdisciplinary research are needed to achieve environmental goals. Their goal is to increase the understanding of processes governing environmental fate and toxicity of these contaminants, and provide information that can be used to develop cost-effective and environmentally sound remediation strategies for contaminated soil and water.

Remediation technologies currently under study include (i) abiotic oxidation promoted by metals and peroxide, (ii) chemical reduction by zero-valent metals, (iii) sequential abiotic reduction-oxidation, and (iv) combined abiotic-biotic (plant-based and microbial) processes. Microelectrode and microslicing techniques are being used to quantify the effects of microenvironment oxygen, redox, and pH on xenobiotic transformations and fate. Research will determine the potential to use plants, plant-rhizosphere, and microbial systems to remediate marginally contaminated soil and complete the remediation process following abiotic treatment.

Research results will provide technologies that can be transferred to industry and used to remediate and restore contaminated sites.

The group began its work with a small grant from the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) at Hanover, N.H., and received its first significant funding from this HSRC in 1994 (Project 92-94, “Fate and Transport of Munitions Residues in Contaminated Soils”).

Pat Shea, lead PI for the NSF/EPSCoR project, said, “The Great Plains/Rocky Mountain HSRC has been a key to the success of our group.”

Steve Comfort added, “Without HSRC support, it is unlikely that our group would be where we are today.”

Funding of “Simultaneous Transformation and Nitrate in Contaminated Water, Sediment and Soil by Zero-Valent Iron-Promoted Processes” (Zhang, Shea and Comfort), this year’s number two-ranked Great Plains/Rocky Mountain HSRC proposal, will complement the NSF project. In addition, NSF/EPSCoR co-PIs Comfort, Zhang, Drijber, and Horst have recently received grants from the National Water Research Institute, NRI Competitive Grants Program, and industry for related projects.

---

**Consortium Directory**

Our World Wide Web address is: http://www.engg.ksu.edu/HSRC/home.html

Key personnel at each university are:

**Kansas State University**
Larry Erickson, 913-532-4362/2390*
Dick Hayter, 913-532-6026**
Stan Grant, 913-532-7495
J. Patrick McDonald, 913-532-7496
Diana Tillison, 316-686-9274
Carla Wolfe, 913-532-7464
Rita McDonald, 913-532-6519
Allison Hodges, 913-532-8027
Blase Leven, 913-532-0780
FAX: 913-532-5985

**Haskell Indian Nations Univ.**
George Godfrey, 913-749-8428 **

**Lincoln University**
Mary Wyatt, 314-681-5173 **

**Montana State University**
Al Cunningham, 406-994-6199 **

**South Dakota State University**
Vern Schaefer, 605-688-6037 **

**University of Iowa**
Jerry L. Schnoor, 319-335-5665*
Burt C. Kross, 319-335-4423**

**University of Missouri-Columbia**
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Richard Potter, 314-882-3469**

**University of Missouri-Rolla**
Tom J. O’Keefe, 314-341-4358*
Allen W. Matheway, 314-341-4777**

**University of Montana**
Jerry L. Brossenhek, 406-243-5648*
Chris Heyer, 406-243-7876**

**Montana Tech**
Karl Burgher, 406-496-4428**

**University of Nebraska-Lincoln**
Pat Shea, 402-472-1533*
Larry Hammers, 402-472-2844**

**University of Utah**
Sam Ghosh, 801-581-6931*

**Utah State University**
Ron Sims, 801-797-6095*
Ryan Dupont, 801-797-3272**

**University of Wyoming**
George Vance, 307-766-2297 *
Roger Wilmut, 307-766-5353 **

*—research **—technology transfer
By J. Patrick McDonald

As part of a longer-term environmental monitoring technical assistance program in Lithuania, sponsored by the U.S. Environmental Protection Agency, HSRC researchers from Montana State University traveled to Lithuania and subsequently hosted Lithuanian scientists in Montana. U.S. scientists hoped to obtain environmental chemistry information from Lithuania that may be used by modelers for ecological risk assessment while at the same time providing technical assistance and training to Lithuanian scientists.

Dr. Robert V. Thurston and John F. Neuman, a research chemist, visited Lithuania on March 12-22, 1995. They provided technical assistance and training at Vilnius University on chemical analytical methods, and in HPLC instrument repair and modification. Presentations were also given at the Lithuanian Institute of Ecology on aquatic toxicology and methods. In addition, eight refurbished 8088 and 80286 PCs were taken to Lithuania and installed as the first equipment to start a data processing instructional classroom within the Faculty of Ecology of the University.

Jurga Motiehunaite, a lichenologist from the Lithuanian Institute of Botany, and Gintaras Svecevicius, a fisheries physiologist from the Lithuanian Institute of Ecology, stayed at MSU March 30-April 26. Both Lithuanian scientists are studying the impact of heavy metals in their respective disciplines but neither had appropriate instrumentation or analytical training. During their visit to MSU, the scientists received hands-on training to operate a Varian 1100 atomic absorption spectrograph (AAS). The training also included instruction in theory, and samples of lichens and fish tissues (some of which were brought from Lithuania) were prepared and analyzed for metal content. The training also included practice of methods for quality assurance and control.

The next phase of the project will send MSU scientists back to Lithuania for additional analytical training. They hope to bring the AAS and additional PCs. This phase is currently seeking funding.

Research results

Detailed results were published in the technical report Environmental Studies in the Nemunas River Basin, Lithuania (referenced below). The report contains 17 papers from 56 scientists. The research covers five technical areas:

- Identification of organic and inorganic chemical pollutants and monitoring of chemical and biological parameters in Lithuanian surface and ground waters.

Ecological and water quality modeling, including evaluation of assumptions for modeling fate and effects of pollutants.

Measurement of transformation and equilibrium constants for predicting fate of pollutants.

Investigation of microbiological transformation processes.

Toxicity testing of identified pollutants in biological species indigenous to the Baltic Republics.

Applications

Aside from the enhanced international cooperation and benefit of improvement of analytical methods employed in Lithuania, the project resulted in an inventory of industrial and municipal chemical wastes (mostly heavy metals and xenobiotics) that are being discharged into the environment of Lithuania, neighboring Baltic Republics, and the Baltic Sea. The inventory is expanding to include a former Soviet air base. The wastes being inventoried in the municipal, industrial, agricultural, and military sites are believed to be representative of wastes discharged at other sites in the former Soviet Union. These reports will provide necessary information for remedial cleanup formulation as there is little other data on environmental chemistry for this geographic region.

The project has also resulted in experience in providing technical training to non-native English speakers and scientists trained outside the U.S. This experience should prove valuable in other international outreach efforts undertaken by the HSRC.

Principal investigator

Robert V. Thurston, research professor, Fisheries

continued on page 5

This map shows Lithuania’s Baltic location.
New electronic journal seeks papers

continued from page 2
Scope
The editors will consider for publication original articles and reviews that deal with all aspects of hazardous substance research.
These include remediation of contaminated soil, sediments and ground water, stabilization and reclamation of mine lands, hazardous substance management, pollution prevention, environmental fate and transport, risk management, site assessment, analytical methods, innovative technologies, toxicology, ecotoxicology, geochemistry, hydrogeology, transformation processes, separation processes, and agricultural chemical management.
Basic and applied manuscripts which include new theory, models, methods, and/or experimental results will be considered.
Submission
Papers should be submitted to:
Larry E. Erickson
GP/RM HSRC
Kansas State University
101 Ward Hall
Manhattan, KS 66506
Complete submission guidelines are available on the Internet at:
www.engg.ksu.edu/HSRC/JHSR/guidlns.html
Subscription rates
Institutional subscription: $250/year
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Subscribers may print copies of papers for their use without paying a copying charge. Institutional subscribers may make archival copies and multiple copies of the same article without paying the copying charge in order to serve the needs of individuals employed by the organization. Subscribers will receive a monthly listing of new papers via electronic mail.

HSRC site receives three-star rating from Magellan
The Magellan Internet Guide recently gave the HSRC Web site a three-out of four-star rating. The site contains information about the HSRC program, including a large number of project abstracts from the individual centers. The site can be found by pointing your Web browser to:
http://eoeml-www.gtri.gatech.edu/home/hsrc/
Two new places have recently been put into Web space. The Journal of Hazardous Substance Research is now accepting manuscripts. Details can be found at:
http://www.engg.ksu.edu/HSRC/JHSR/
And a place for phytoremediation researchers has also been established. If you have info on phytoremediation you’d like to share with researchers in the area, click on over to:
http://www.engg.ksu.edu/HSRC/phytorem/
Every day new resources of interest to environmental researchers, regulators, and project managers are being added to the Internet. Occasionally we’ll highlight Web sites that we think are particularly valuable to our researchers. If you know of a site that deserves attention, e-mail the URL to hsrc@engg.ksu.edu.
Below are more WWW sites that might be of use.

Come environmentally cybersurfing!

Envirogate (Environmental Technology Gateway)
http://iridium.nttc.edu/environmental.html
Envirogate contains news, programs, technologies, and resources.
SAGE--Solvent Alternatives Guide (U.S. EPA)
http://clean.rti.org/
Provides information on solvent and process alternatives for parts cleaning. Includes a listing of existing and new cleaning technologies, ideas for minimizing waste, listing of state technical assistance providers, and a process conversion checklist.
National Pollution Prevention Center for Higher Education (NPPC)
http://www.umich.edu/~nppcpub/nppc.html
NPPC collects, develops, and disseminates educational materials on pollution prevention. The target audience is primarily academia.

Lithuanian scientists
continued from page 4
Bioassay Laboratory, Montana State University, Bozeman, Montana 59717
Publications

Bioassay Laboratory, Montana State University, Bozeman, Montana 59717

Karl Burgher serves dual role in HSRC

By Mary Rankin

Karl E. Burgher, professor and project manager for the Mine Waste Technology Program (MWTP) activities at Montana Tech of the University of Montana, has a dual role in HSRC-related programs. He is a project manager for the Technical Outreach Services for Communities (TOSC) program, and also serves as vice-chair for the Haskell Environmental Research Studies (HERS) Center at Haskell Indian Nations University (HINU).

His background in engineering, economics, and finance, Burgher said, helps him to communicate the concepts of risk to engineers, scientists, and the public. In his TOSC role, he has taught an eight-week public course on “Risk and the Environment.”

As vice-chair of HERS at HINU, Burgher helped establish the tape seminar series, “Mine Operations, Design, and Closure ’95 and ’96.” This event was co-sponsored by MWTP, EPA, DOE, and several other departmental offices and mining companies. He has worked with tribal officials of the Gros Ventre and Assiniboine, attended a sun dance, worked with the Navajos on an environmental training project, and has been involved with helping to plan the College of the Environment at HINU.

“My work at Haskell has allowed me to better understand the Native American people,” Burgher said. “I can teach about mining issues. I feel I am a source of information.”

Burgher said he became an engineer because he knew he lived in an increasingly technical world. But his passion has always been business and economics. So, after completing a B.S. and M.S. in mining engineering from Michigan Technological University, in 1980 and 1982, respectively, he then earned a B.S. in economics from the University of Missouri-Rolla in 1984, before completing his Ph.D. there in mining engineering in 1985, specializing in mathematical economics. “To work really effectively today, one must understand technology and money,” is Burgher’s belief.

“Engineering and technology simply exist. The exciting part is in making the choices of how to proceed, where to go, and if they should be a part of society.”

Karl Burgher

His favorite areas of his work are project management and bringing people with different points of view to the same table to find compromise. Another area of great appeal is graduate student advising. “I really enjoy helping graduate students make choices about their career paths,” he said, “helping others find what they will like to do for the next 30-40 years.”

Burgher’s heroes are the “dreamers who did what others said could not be done.” As a case in point, he described a team of four Russians residing at Montana Tech working on cleaning up the Berkeley Pit in Butte. It took them two years work on the project just to get to the point where they arrived in Montana. “Engineering and technology,” Burgher said, “simply exist. The exciting part is in making the choices of how to proceed, where to go, and if they should be a part of society.”

Family life, playing basketball, fly fishing, and building Chevy muscle cars are activities that occupy Burgher’s spare time. He and his wife Kathleen have been married for 15 years and have four daughters—Kristina, Laura, J aqueline, and Madeleine. As for the cars, he is currently finishing a ’74 El Camino and starting on a ’79 Corvette. “I got the ’Vette,” he explained, “because we have no daytime speed limit in Montana. I love to fly on the highways we have out West!”
Tenth conference proceedings nearing completion

Proceedings of the 1996 HSRC/WERC Joint Conference on the Environment have been desktop published and final proof copies of the manuscripts sent to contributing authors. We anticipate printing and mailing to be accomplished later this fall.

For those who have not yet ordered the 1996 publication, or who would like to have previous years’ proceedings, please use the order form below.

Order form
To order copies of HSRC/WERC joint conference proceedings, complete the form below and send it to: Proceedings, HSRC, Kansas State University, 101 Ward Hall, Manhattan, KS 66506-2502.

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Repository documents available through HSRC

As part of a continuing series on the holdings of the Hazardous Substance Research Center repository, following is a partial list of holdings available for checkout or interlibrary loan from Farrell Library at Kansas State University (KSU). This list is of some of the most recent acquisitions.

Floppy disk copies of the entire list of holdings are also available. To request a disk copy of the list, write to Repository List, HSRC, Kansas State University, 101 Ward Hall, Manhattan, KS 66506-2502, 913-532-6519, FAX 913-532-5985.


Rec# 1140. PCBs in Our Environment: The Legacy Continues. Manhattan, KS: Kansas State University, April 21, 1995. VHS Tape.


Calendar

Oct. 9 — Project Designer Refresh-
er, Overland Park, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Oct. 10 — Contractor/Supervisor
Refresher, Overland Park, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Oct. 11 — Inspector/Management
Planner Refresher, Overland Park, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Oct. 14-16 — Lead Inspector Train-
ing, Kansas City, KS; Mid-States Rocky
Mountain Regional Lead Training Cen-
ter, Barbara Miles, 913-897-8524.

Oct. 17-18 — Lead-Based Paint
Risk Assessment, Kansas City, KS;
Mid-States Rocky Mountain Regional
Lead Training Center, Barbara Miles, 913-897-8524.

Oct. 24 — ISO 14000 International
Standards for the Environment Satellite
Conference; Univ. of Mo.-Columbia,
Joanne Heisler, 573-882-2854.

Nov. 1 — Inspector/Management
Planner Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Nov. 8 — HAZWOPER Refresher,
Kansas City, KS; Center for Environ-
mental Education and Training, Shirley
Welhoelter, 913-897-8527.

Nov. 12-24 — Certified Hazardous
Materials Manager Review, Kansas
City, KS; Center for Environmental
Education and Training, Shirley Wel-
hoelter, 913-897-8527.

Nov. 15 — Certified Hazardous
Materials Manager Exam, Kansas City,
KS; Center for Environmental Educa-
tion and Training, Shirley Welhoelter,
913-897-8527.

Nov. 18-22 — Lead Abatement
Training for Supervisors and Con-
tractors, Kansas City, KS; Mid-States Rocky
Mountain Regional Lead Training Cen-
ter, Barbara Miles, 913-897-8524.

Nov. 20 — Project Designer
Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Nov. 21 — Contractor/Supervisor
Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Nov. 22 — Inspector/Management
Planner Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Dec. 2-6 — Hazardous Waste Site
Operations Training, Kansas City, KS;
Center for Environmental Education and
Training, Shirley Welhoelter, 913-897-8527.

Dec. 9-11 — Hazardous Materials
Emergency Response, Kansas City, KS;
Center for Environmental Education and
Training, Shirley Welhoelter, 913-897-8527.

Dec. 13 — HAZWOPER Refresher,
Kansas City, KS; Center for Environ-
mental Education and Training, Shirley
Welhoelter, 913-897-8527.

Jan. 10 — Inspector/Management
Planner Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Jan. 22 — Lead Inspector Refresher
Training, Kansas City, KS; Mid-States
Rocky Mountain Regional Lead Training Cen-
ter, Barbara Miles, 913-897-8524.

Jan. 23 — Lead Supervisor/Con-
tractor Refresher, Kansas City, KS; Mid-States Rocky Mountain Regional Lead
Training Center, Barbara Miles, 913-897-8524.

Jan. 29 — Project Designer Refresh-
er, Kansas City, KS; National Asbestos
Training Center, Barbara Miles, 913-
897-8549.

Jan. 30 — Contractor/Supervisor
Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Jan. 31 — Inspector/Management
Planner Refresher, Kansas City, KS; National
Asbestos Training Center, Barbara
Miles, 913-897-8549.

Feb. 21 — HAZWOPER Refresher,
Kansas City, KS; Center for Environ-
mental Education and Training, Shirley
Welhoelter, 913-897-8527.