

HazTech

T R A N S F E R

Great Plains/Rocky Mountain Hazardous Substance Research Center

Joint conference draws record crowd

By Diana Tillison

In a time when budgets for environmental research are shrinking, the Great Plains/Rocky Mountain Hazardous Substance Research Center (HSRC)/Waste-management Education & Research Consortium (WERC) Joint Conference on the Environment boasted nearly 500 attendees from industry, academia, and government. Held at the Holiday Inn Pyramid in Albuquerque, N. M., May 21-23, 1996, this event had the largest attendance in the history of the HSRC's 11-year-old annual conference. Associates of the HSRC and WERC gave 115 oral presentations and 124 poster presentations. Ten organizations, including the HSRC and WERC, exhibited their services and publications.

R2D2 session

On May 20, a professional development seminar for students in the Research and Re-Education for Displaced Defense Personnel Program (R2D2) was held. Three panels of scientists from industry, academia, and government offered perspectives on keys to successful careers and how to best serve society. Students and faculty members from the HSRC and WERC consortium universities who are conducting research under the R2D2 program, as well as other interested persons, attended this session.

Opening session

On May 21, conference attendees were welcomed to the conference by Stan Grant, conference chair. Larry Erickson, director of the HSRC, and Ron Bhada, director of WERC, offered welcomes from their respective organizations, giving attendees a brief overview of what their organizations are currently doing and what their future directions will be. Edgar Thornton, deputy secretary, offered a welcome from the New Mexico Environment Department, and Lester Swindle offered a welcome from the New Mexico Department of Energy, Minerals, and Natural Resources on behalf of Jennifer Salisbury, secretary.

Kathleen Garland, director of the Mining and Minerals Division of the New Mexico Department of Energy, Minerals, and Natural Resources, gave the first plenary address. Her organization deals with environmental concerns, research needs, and technology transfer in New Mexico. Garland highlighted



Jameson Bear, right, discusses his award-winning poster.

basic areas of environmental concern, some of them unique to New Mexico.

The second plenary speaker, William Brack, president of the Chino Mines Company of the Phelps-Dodge Corporation, brought an industry perspective on environmental cleanup. Brack said that those in the mining industry need to be good stewards of the environment even though meeting all the regulations is expensive. He named research needs such as preventative technologies, environmental stabilization, innovative closure technologies, remedial action for soil and water, selective recovery, and dust suppression technologies.

Best paper award presentation

At the Tuesday luncheon Larry Erickson presented the Karen Morehouse Best Paper Award. This award goes to the team of researchers who had the best paper in the previous year's conference. This year's winning paper, entitled "Polycyclic aromatic

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July 1996

Speakers, awards highlight Albuquerque events



Larry Erickson, center director, presents C.J. Hurst, right, the Karen Morehouse Best Paper Award for his work with co-authors at Utah State University and the Kerr Lab.

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hydrocarbon biodegradation as a function of oxygen tension in contaminated soil," was authored by C.J. Hurst, R.C. Sims, J.L. Sims, D.L. Sorensen, and J.E. McLean, of Utah State University, and S. Huling, of the Robert S. Kerr EPA National Risk Management Research Laboratory. The paper appears in the *Proceedings of the 10th Annual Conference on Hazardous Waste Research*.

Tuesday luncheon address

Norman Francingues, division chief of the Environmental Laboratory of the U.S. Army Engineer Waterways Experiment Station (WES), addressed the conference during the luncheon Tuesday. Francingues' organization conducts civil and military research in hydraulics, geotechnics, structures, the environment, coastal engineering, and information technology.

Wednesday luncheon address

During the luncheon on the second day of the conference, William Suk of the National Institute of Environmental Health Sciences (NIEHS) gave an address on remediation technologies. He profiled one of NIEHS' projects involving polychlorinated biphenyl (PCB) contamination affecting the Mohawk Nation. The project addresses cognitive function problems in children exposed to PCBs during certain critical time periods in their development. In this project investigators are attempting to identify, assess, and remediate the contamination. Suk noted that all of the NIEHS' publications are on the World Wide Web.

Best poster award presentations

After Suk's presentation, Ron Bhada made best poster award presentations. These awards were based on the ratings of a panel of judges.

Awards for outstanding posters were given to: W.C. Bisset, O. Zincircioglu, and A.S. Gopalan, New Mexico State University; and P.H. Smith, Los Alamos National Laboratory, "Development of polyhydroxamate chelators for applications to actinide remediation."

N. Bordelon, H. Huebner, K. Washburn, and K.C. Donnelly, Texas A&M University, "Bioavailability of mixtures in soil using aqueous and solvent extraction."

N.A. Yancey, J.E. McLean, R.C. Sims, W. Scouten, and A. Singh-Cundy, Utah State University; P. Kotrba and M. Mackova, Institute of Chemical Technology; T. Macek, Academy of Sciences of the Czech Republic; and M. Truksa, Gregor Mendel University of Agriculture, "Cadmium accumulation in transgenic and non-transgenic tobacco plants."

Z.M. Li, P.J. Shea, S.D. Comfort, and T.C. Zhang, University of Nebraska; and L.E. Erickson, Kansas State University, "Oxidation of TNT in soil slurries as influenced by temperature, dissolved organic matter, and clay minerals."

Commendable designations were given to Kansas State University and the University of New Mexico. A special award for use of technology to prepare posters was given to Utah State University.

Awards for outstanding Native American posters were given to:

C. Brown, M. Mitchell, W. Pierce, and S.C. Semken, Navajo Community College; and B. Tsosie, New Mexico Institute of Mining and Technology, "Navajo students monitor a local uranium-mill tailings site."

S.C. Semken and F. Morgan, Navajo Community College, "Earth systems and Navajo pedagogy."

An award for visual effect was given to:

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Ecolotree Inc. wins award

The American Council of Engineering Consultants (ACEC) has distinguished Ecolotree Inc. with an Honor Award in the 1996 Engineering Excellence Awards Competition.

Ecolotree Inc. is an emerging research-based company founded by HSRC-funded researcher Dr. Louis Licht in 1990 while he was finishing his Ph.D. at the University of Iowa. During 1995 the company was a corporate tenant in the University of Iowa Technology Innovation Center on the Oakdale Research Campus. In May 1996 it became a corporate "graduate" and is now located in downtown Iowa City with a branch office in Portland, Ore.

The ACEC honored Ecolotree Inc. for its role in the design, installation, and management of an innovative engineered plant system project for the Woodburn, Ore., wastewater treatment plant. Ecolotree staff teamed with other engineers to grow 10,000 poplar trees in a 10-acre abandoned sludge lagoon as a

concept trial. The site successfully established design criteria for a 400-acre Ecolotree Buffer that will be installed in 1997. When fully operational, the buffer will be an alternative for discharging 5,000,000 gallons of waste water to a small river during the summer growing season.

Ecolotree Inc. utilizes proprietary technology to design, install, and manage engineered plant systems of poplar trees and grasses in environmentally sensitive situations. Staff are working with research institutions from across the country on water contamination from manure runoff, landfill leachate, industrial waste water, demolished factories, chemical spill sites, and municipal water treatment plants. The innovation is developing a plant system that safely cycles these contaminants into wood and soil humus while achieving performance standards required by environmental laws. Over 30 sites have been installed in 11 states and Europe.

Student research honored

Nancy Chou, a high school student from Manhattan, Kan., was honored in a science fair competition for a project she had developed with assistance from an HSRC-funded investigator, Dr. Larry Davis, professor of biochemistry at Kansas State University.

Chou was awarded, at a regional science fair, first place in the biology category, first place in biological sciences, and grand prize for the entire fair for her project "Degradation of TNT by Higher Plants." The prize included a trip to Arizona to compete in the International Science and Engineering Fair.

Chou had first worked with Davis on an independent study assignment for a high school science project in her junior year. That summer she was employed as his lab assistant on campus, then was able to work with him again on her senior year project.

She gave oral presentations on her project at the Kansas Junior Academy of Science Competition at both district and state levels, and received "highly superior" ratings at each. Chou graduated from Manhattan High School in May and will attend Washington University in St. Louis in the fall.

Consortium Directory

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

Key personnel at each university are:

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Technical services provided to communities

By J. Patrick McDonald

The Technical Outreach Services for Communities (TOSC) program is a pilot project that began in 1994. The purpose of the pilot program is to examine the ability of the HSRCs to provide technical assistance to communities impacted by hazardous waste sites. The five HSRCs have each implemented their own model during the pilot stage of the project (which should continue through 1997). The TOSC program for the Great Plains/Rocky Mountain HSRC has taken a unique approach to the pilot project.

Program objectives

The primary purpose of the TOSC program is to inform, educate, and empower communities so that they are better able to cope with hazardous substance issues within their communities. Within these three broad areas, the five-center TOSC program has identified a variety of activities listed in Table 1.

Community activities

Hotline. One of the facets of the TOSC program for regions 7 and 8 is a telephone answer hotline. The Hazardous Substance Information Line (800-798-7796) is available inside regions 7 and 8 as a resource for communities or individuals with questions about hazardous substances. The hotline is also used by community groups seeking more in-depth technical assistance.

Technical assistance. Where an active community group exists, or where there is sufficient community interest, additional services can be provided. Such services include providing existing information, question and answer sessions, and custom workshops or training sessions. Subject matter includes risk assessment, site characterization techniques, and remediation technologies. Several such activities have been undertaken in regions 7 and 8.

Rocky Mountain Arsenal. One of the largest and most complex sites in the country, this former DOD facility in the Denver area has a variety of environmental problems. Although this site is on the National Priority List, and a Technical Assistance Grant has been awarded, the TOSC program determined that due to the complexity of the site and the diverse nature of the affected community, it was an appropriate site for assistance.

After meeting with community groups, EPA, and the Site Specific Advisory Board (SSAB), a one-day, Saturday workshop on the Arsenal RI/FS and Risk Assessment was prepared and presented on April 29, 1995. The full-day workshop focused on science, engineering, and project management fundamentals as they apply to the Arsenal RI/FS. Since that workshop, an immuno-assay screening tool for dioxin has been proposed for use at the site. A short workshop on immuno-assay techniques is in the planning stages for this summer.

Black Hills Army Ammunition Plant. Direct technical assistance is being provided to the Restoration Advisory Board (RAB) at this Edgemont, S.D., site. In addition to review of technical documents, TOSC representatives have attended several RAB meetings and provided a short training session on science and engineering fundamentals. Work is just beginning on the site and significant TOSC activities are planned for the summer.

Other sites. In addition to the above two major efforts, TOSC has provided assistance to a variety of communities within the region pair. Assistance in various forms has been provided at Gilbert & Mosely, Wichita, Kan.; John Garland Park, Kansas City, Kan.; Joslyn St. Tailings, Helena Mont.; Ash Grove Cement Kihl, Louisville, Neb.; Badlands Bombing Range, Pine Ridge, S.D.; and several other communities.

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Informing	Educating	Empowering
Information/brochure dissemination	Workshop(s)	Role playing/mock interactions
Hot line	Structured public meeting	Document review/critique
Public meeting	User-focused, customized documents	Direct technical assistance/coaching
Clearinghouse	Training session(s)	Substantive process participation
Question & Answer	Lecture/classroom	Facilitating community group organization
Availability sessions	Train-the-trainer sessions	
News media interactions		
Conduit functions-referrals		

Table 1. Potential TOSC activities

Conference identifies needs of Southwest

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J.O. Bear, Haskell Indian Nations University, "Environmental concerns on the Osage reservation."

An award for technical content was given to: Hankaas and Marshall, Sinte Gleska University, "Radon in houses: Its relation to hydrogeology, on the Rosebud Reservation, S.D."

Awards for outstanding R2D2 posters were given to:

R.L. Segar, Jr., S.A. Vivek, K. Leung, P. Kalia, K.L. Bauman, and J.R. Foeller, University of Missouri-Columbia, "Cometabolism of trichloroethane in fluidized-bed bioreactors."



Kathleen Garland outlines environmental concerns and research needs in New Mexico.

M.L. Smith, W.D. Constant, K.T. Valsaraj, and R.R. Kommalapati, Louisiana State University, "Soil flushing of hexachlorobenzene using surfactant and colloidal gas aphanes in a two-dimensional system."

Commendable designations were given to the New Jersey Institute of Technology and

Michigan State University. Honorable mention was given to the University of Michigan.

Native American poster session and reception

On the evening of May 22 a reception and poster session was held featuring Native American environmental education and research. Attendees were given the opportunity to view posters and speak with the authors.

Workshops and short courses

Three workshops and two short courses were held prior to and following the conference. On May 20, a workshop on the Beneficial Effects of Vegetation in Metals-Contaminated Soils was held. On May 23, a Remediation of Munitions-Contaminated Soil and Water Workshop and a Bioremediation Alternatives Workshop were held. On May 23-24, the HAZWOPER 8-Hour Refresher Short Course and Selection of Remediation Technologies Short Course were offered.



A conference attendee finds out more about Crownpoint Institute of Technology.

Advisory committee meetings

During the conference, meetings of the HSRC's two advisory committees were held. The Science Advisory Committee (SAC) met May 21-22 to review ongoing research projects at HSRC consortium universities and the Training and Technology Transfer Advisory Committee (T3AC) met May 22 to review ongoing technology transfer projects. On May 23, the Haskell Environmental Research Studies Center (HERS) Advisory Board met to discuss aspects of the Native American and Other Minority Institutions (NAOMI) Program.

Abstract book

Abstract books from the conference are available upon request by contacting the GP/RM HSRC office at 913-532-6519.

Video wins award

Poplar Buffers: I Can Do That, the video showing how University of Iowa researchers Louis Licht and Jerry Schnoor are using poplar trees to clean up ground water pollution, has won acclaim in a national contest and received a Bronze Telly as a finalist in the 1996 National Telly Awards.

Produced by Steve Holmes Productions, Iowa City, Iowa, the video, funded in part by EPA and the Great Plains/Rocky Mountain HSRC, features various uses for poplar trees in cleaning up soil and water in agricultural settings and landfills, and explores their potential use at EPA Superfund sites.

The Telly Awards, founded in 1980, showcase and give recognition to outstanding non-network and cable TV commercials, film and video productions, as well as non-network TV programming. There were more than 9,000 entries in this year's competition.

Barbara Hetrick focuses on objectives

By Mary Rankin

Barbara Hetrick, head of the department of biology at the University of Northern Iowa, is entering the second year of research on her HSRC-funded project, "Vegetative Interceptor Zones for Containment of Heavy Metal Pollutants."



Dr. Barbara Hetrick

ment of Heavy Metal Pollutants." She lists four objectives to the work: assess the optimum plant species for survival, growth, and containment of heavy metals; study the impact of mycorrhizal fungi on revegetation, and the ability of vegetation zones to dissipate and contain heavy metal runoff; look at chemical changes in minespoil induced by vegetation; and develop a physically-based model for surface movement of heavy metals in the presence of vegetation.

"I have long been interested in roles of mycorrhizal symbiosis in facilitating plant growth in stressed environments," Hetrick said. "Research showing sequestering of heavy metals by mycorrhizal fungi suggested a potential role for the fungi in

TOSC provides services

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Program evaluation

EPA recently awarded a grant to a research team led by Dr. James Dearing of Michigan State University for the purpose of evaluating the effectiveness of the TOSC program. Dr. Dearing's team has determined that a case study approach might be most helpful, and they have selected the work done at the Rocky Mountain Arsenal for the case study for this region pair.

Key personnel

TOSC Coordinator: J. Patrick McDonald, 800 798-7796

While many people have contributed to the TOSC efforts in this region pair, the following HSRC members deserve special recognition:

Dr. Fred Oehme, Kansas State University, College of Veterinary Medicine.

Dr. Karl Burgher, Mine Waste Technology Pilot Program, Montana College of Mineral Science and Technology.

Mike Tosee, Haskell Indian Nations University.

environmental remediation. I was interested in evaluating the potential for these fungi to contribute to new technologies to deal with heavy metal waste."

Hetrick has been at her current position since 1994 and prior to accepting that post had been with the department of plant pathology at Kansas State University from 1980-1994. She has a B.A. from Ohio Wesleyan University, an M.A. from Washington State University, and a Ph.D. from Oregon State University. She also held a post-doctoral position at the University of California at Riverside.

In speaking about her roles in research, teaching, and writing, Hetrick doesn't claim a particularly favorite area, as she believes the different activities of her profession are quite interrelated. "I have always enjoyed writing," she explained, "because it is a creative and fun exercise in collating ideas (grant writing) or summarizing findings and impacts on future research (publications)."

"Research teaches a way of approaching problems," she continued, "and an objectivity to allow you to deal with the unexpected. It is this research approach which contributes most directly to teaching. Teaching science as problem solving and the objectivity to accept differing viewpoints makes students want to learn."

"And from research comes the thrill of discovery and the satisfaction of personal or team endeavor. So for me," she concluded, "the three are intertwined. Different activities have been of greater emphasis at points in my career, but I enjoy all three."

Hetrick and her husband Bob, a wide area network specialist at the University of Northern Iowa, in their "spare time" raise Shire draft horses and are fixing up a farm house built in 1900. Their daughter Marta completed second grade this year at the UNI laboratory school and wants to "sing Garth Brooks songs to dogs" when she grows up.

Haskell gets contract

Through the Haskell Environmental Research Studies Center (HERS), Haskell Indian Nations University will collaborate with Stone and Webster Environmental Technology and Services in a multi-million dollar contract to fund remediation efforts on lands impacted by military operations within the Missouri River Divisional Boundaries. HERS will receive approximately \$6 million over the next five to ten years from the U.S. Army Corps of Engineers to support Stone and Webster's Environmental Restoration Contract. HERS will provide services to the Denver-based firm in working on issues of Indian rights and land development.

Working together for a better environment has been encouraged in a variety of ways since the center began operation seven years ago. The HSRC and WERC Conference on the Environment was very successful because of the participation and cooperation of professionals from many different organizations. Investigators supported through the two host centers, the National Institute of Environmental Health Sciences, and national laboratories enriched the conference by presenting their work.

Because of our involvement with the R2D2 Program, designed to serve the needs of the Department of Defense, we are trying to enhance our cooperation with the Waterways Experiment Station, the Army Environmental Center, and other DoD units. Several center faculty are currently working with professionals at the Waterways Experiment Station, EPA National Laboratories, and

DOE-supported laboratories. We also have investigators working with faculty in other HSRC universities. The Karen Morehouse Best Paper Award was presented for work conducted jointly by professionals at Utah State University and the EPA Robert S. Kerr Risk Management Research Laboratory.

I want to thank all who participated in the conference and workshops, and especially those who helped to organize the event, and those who presented their work. These activities help transfer innovative technology to field sites where important problems are addressed. We are pleased that we were able to cooperate in this way with the Waste-management Education & Research Consortium which hosted the joint conference.

Larry Erickson
Director

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# 1122. Solvent Waste Reduction and Recycling: Practical Advice for Small Business. Cedar Falls, IA: Iowa Waste Reduction Center, University of Northern Iowa, 1992. 56 pp.

Rec# 1123. Demonstration of Remedial Action Technologies for Contaminated Land and Ground Water. New York: North Atlantic Treaty Organization, 1993. 2 volumes, 1389 pp.

Rec# 1124. Clean Water — Clean Environment — 21st Century; v. 1. Pesticides. St. Joseph, MI: American Society for Agricultural Engineers, 1995. 186 pp.

Rec# 1125. Davis, Robert H., ed. Proceedings of the 24th Annual Biochemical Engineering Symposium. Boulder, CO: Department of Chemical Engineering, University of Colorado, Sept. 9, 1994. 154 pp.

Rec# 1126. Rohde, John; Kelly, William E.; Woldt, Wayne; Keefer, Gary. Remediation of Contaminated Soils and Sediments. Manhattan, KS: Kansas State University. Part 1, Short Course Notes, 220 pp.; Part 2, Short Course Slides, 525 slides.

Rec# 1127. Weathers, Lenly Joseph. Biological and Metallic Iron-Promoted Transformations of Carbon Tetrachloride and Chloroform Under Methanogenic Conditions. Iowa City, IA: University of Iowa, 1995. Thesis, 220 pp.

Rec# 1128. Guidance for Performing Site Inspections Under CERCLA: Interim Final. Washington, DC: Environmental Protection Agency, 1992. 126 pp.

Rec# 1129. Abstracts of Remediation Case Studies. Washington, DC: Environmental Protection Agency, 1995. 99 pp.

Rec# 1130. Guide to Documenting Cost and Performance

for Remediation Projects. Washington, DC: Environmental Protection Agency, 1995. 55 pp.

Rec# 1131. Blue Ribbon Committee Report on the Waste-management Education and Research Consortium. Las Cruces, NM: New Mexico State University, 1994. 20 pp.

Rec# 1132. Experimental Evaluation of Two Sharp Front Models for Vadose Zone Non-Aqueous Phase Liquid Transport. Washington, DC: Environmental Protection Agency, 1994. 185 pp.

Rec# 1133. Selim, H. M.; Amacher, M. C.; Iskandar, I. K. Modeling the Transport of Heavy Metals in Soils. Hanover, NH: Dept. of the Army, Cold Regions Research and Engineering Laboratory, 1990. 156 pp.

Rec# 1134. Sivils, Loren Dale. Phototransformation of Polychlorinated Dibenzo-P-Dioxins in the Gas and Particulate Phase. Rolla, MO: University of Missouri-Rolla, 1995. Thesis, 145 pp.

Rec# 1135. Raben, Craig A. Carbon Tetrachloride Transformation and Toxicity Under Denitrifying Conditions. Iowa City, IA: University of Iowa, 1994. Thesis, 93 pp.

Semken available to speak

Steve Semken, professor at the Navajo Community College, Shiprock, N.M., and member of the HERS Advisory Committee, has been selected by the National Association of Geoscience Teachers (NAGT) as one of its nine distinguished speakers for 1996-97. He will be available to visit a number of universities, colleges, or K-12 schools in the coming year to speak on geoscience education and environmental geology in relation to Navajo culture and students.

Institutions can receive NSF funding via NAGT to support a visit by Semken or any other of the eight distinguished speakers. Information and applications, due July 15, are available from Barbara Tewksbury at Hamilton College, Clinton, N.Y., (315) 8569-4713 or e-mail at btewksbu@hamilton.edu.

Calendar

July 29-Aug. 2 — Hazardous Waste Summer Institute, Columbia, MO; Univ. of Mo.-Columbia, John Atkinson, 573-882-8880.

July 29-Aug. 2 — HAZWOPER 40-Hour Course, Lakewood, CO; OSHA Training Institute, 800-933-8394.

Aug. 2 — Project Designer Refresher, Lawrence, KS; National Asbestos Training Center, Barbara Miles, 913-897-8549.

Aug. 12-16 — Trainer Course: Occupational Safety and Health Standards for General Industry, Lakewood, CO; OSHA Training Institute, 800-933-8394.

Aug. 23 — HAZWOPER Refresher, Overland Park, KS; Center for Environmental Education and Training, Shirley Welhoelter, 913-897-8527.

Aug. 27 — Project Designer Refresher, Overland Park, KS; National Asbestos Training Center, Barbara Miles, 913-897-8549.

Aug. 28 — Contractor/Supervisor Refresher, Overland Park, KS; National Asbestos Training Center, Barbara Miles, 913-897-8549.

Aug. 29 — Inspector/Management Planner Refresher, Overland Park, KS; National Asbestos Training Center, Barbara Miles, 913-897-8549.

Sept. 11 — Contractor/Supervisor Refresher, Overland Park, KS; National Asbestos Training Center, Barbara

Miles, 913-897-8549.

Sept. 12 — Inspector/Management Planner Refresher, National Asbestos Training Center, Barbara Miles, 913-897-8549.

Sept. 12 - Dec. 3 (Tuesday evenings) — Air Conditioning Clinic, Kansas City, MO; Univ. of Mo.-Columbia, John Atkinson, 573-882-8880.

Sept. 16-20 — Hazardous Waste Site Operations Training, Overland Park, KS; Center for Environmental Education and Training, Shirley Welhoelter, 913-897-8527.

Sept. 16-20 — Trainer Course: Occupational Safety and Health Standards for General Industry, Lakewood, CO; OSHA Training Institute, 800-933-8394.

Sept. 23-27 — HAZWOPER 40-Hour Course, Lakewood, CO; OSHA Training Institute, 800-933-8394.

Sept. 26-27 — Midwest Section Air & Waste Management Association Technical Conference, Kansas City, MO; Mark R. Johnson, 913-491-9100.

Oct. 9 — Project Designer Refresher, 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. 24 — ISO 14,000 International Standards for the Environment Satellite Conference; Univ. of Mo.-Columbia, Joanne Heisler, 573-882-2854.

Center calls for '97-'98 proposals

The Great Plains/Rocky Mountain Hazardous Substance Research Center is accepting proposals for both research and technology transfer projects for the May 1997-May 1998 funding cycle.

Deadlines are Aug. 15, 1996, for the research proposals and Sept. 15,

1996, for the training and technology transfer proposals.

Copies of Calls for Proposals may be obtained by calling or writing the GP/RM HSRC, 101 Ward Hall, Kansas State University, Manhattan, KS 66506-2502; phone 913-532-6519; fax 913-532-5985.

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T R A N S F E R

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