



POLLUTION PREVENTION
FACULTY AND PROGRAMS:
CONTINUING EDUCATION



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Consumnes River College offers an Environmental Technology Program which is designed to provide training for entry-level technicians who will be involved with environmental protection, regulatory compliance and workplace safety and health applications. Graduates may be employed by business and governmental agencies that require a knowledge of hazardous materials handling practices, techniques for the storage, treatment, transport and disposal of hazardous materials, and a basic understanding of the chemical and biological phenomena which underlie the regulation of hazardous material operation. Courses include *Hazardous Materials Awareness and Safety*, *Air Quality Issues*, *Hazardous Waste Management Applications*, and *Work Experience in Environmental Technology*. For more information, visit WWW site at http://tlc.crc.losrios.cc.ca.us/academic/sci_area/envtech/envtmain.htm. For more information on people involved with the Environmental Technology Program, see record number 133 (Buechner).

132 MS. ANN BOYCE

Director, Environmental Technology Program
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Each year, the Environmental Technology Program at Bakersfield College offers a 3 credit course *Waste Generation, Reduction, and Treatment* that emphasizes pollution prevention issues. Worked with the Partnership for Environmental Technology Education (PETE) on a NSF funded project to develop print materials and videos to use in the Environmental Technology Program. To date, the network has developed four videos on pollution prevention and a book on pollution prevention and waste management.

133 DR. MARY BETH BUECHNER

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Teaches *Environmental Technology* and *Biology*. The Environmental Technology program at Consumnes River College is designed to provide training for entry-level technicians who will be involved with environmental protection, regulatory compliance and workplace safety and health applications. Graduates may be employed by business and governmental agencies that require a knowledge of hazardous materials handling practices, techniques for the storage, treatment, transport and disposal of hazardous materials, and a basic understanding of the chemical and biological phenomena which underlie the regulation of hazardous material operation. Courses include *Hazardous Materials Awareness and Safety*, *Air Quality Issues*, *Hazardous Waste Management Applications*, and *Work Experience in Environmental Technology*. For more information on people involved with the Environmental Technology Program, see record number 129 (Baker).

134 MS. JANETH CAMPBELL

Senior Management Analyst, Division of Waste Management

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Recognizing the need to integrate pollution prevention and other environmental essentials into worker education efforts, the Florida Department of Environmental Protection collaborated with the Florida Community college System to organize the Florida Community College Consortium for Pollution Prevention Education. The 28 Community colleges in Florida educate over 800,000 students each year, with many of them becoming industrial workers in highly polluting industries. The goal of the Consortium is to go to the source of the problem, the people who choose to pollute or not to pollute, and educate them on the regulatory requirements and pollution prevention opportunities. With this cooperative Pollution Prevention Partnership, real progress can be made in avoiding wastes to all media, while saving money. For more information on the Consortium Pollution Prevention Education Center, located at Brevard Community College Teaching and Research Labs, visit WWW site at http://www.brevard.cc.fl.us/BTR_Labs/fc3p2e.

135 DR. RICHARD DELLA VALLE

Director, Environmental Technology

California Community College Economic

Development Network

Napa Valley Community College

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Involved in the Environmental Technology Certificate Program and Contract Education Program at Napa Valley Community College. Also represents the entire California Community College program through the *California Community College Economic Development Network* (EDNET). Dr. Della Valle has 23 years of experience in engineering geology, aqueous geochemistry, physical chemistry, sedimentology, hydrology and curriculum development in environmental technology. He has conducted and managed research and educational programs for radiological waste disposal, vadose zone modeling, aqueous transport of metals and chemical speciation, adsorption and fixation reactions. Dr. Della Valle has participated in the planning, design and supervision of hazardous materials and hazardous waste management programs that included industrial waste water treatment facilities, plating shops, metal cleaning facilities, electronic shops, hazardous waste landfills and ground water monitoring programs. He has managed multi-million dollar projects in remediation, research and education. For more information on Napa Valley Community College's Environmental Technology Program, visit WWW site at <http://nvc.cc.ca.us/et/>.

136 MS. CYNTHIA D. DONALDSON

Environmental Science Department

Naugatuck Valley Community Technical College

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Waterbury, CT 06708

Phone: (860) 596-8703**Fax:** (860) 596-8674

Offers an associate degree and certification program in environmental management of the industrial sector. Courses include: regulations, hazardous materials, waste management, soil resources, environmental chemistry, industrial safety, waste minimization, control processes, and environmental management.

137 DR. HOWARD H. GUYER

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Fullerton College's Environmental Technology Certificate and Associate Degree program is one of 28 articulated programs within the California Community College System. *Industrial Waste Stream Generation/Reduction/Treatment*, is one class that takes students through 6-8 regional industries, with a central focus on waste minimization activities that are successful within that industry. The remaining courses within the program include toxicology, basics of industrial hygiene, safety and emergency response, site characterization, sampling and analysis, regulations and an introductory course that presents an overview of the program. These courses are over a foundation of required classes requiring one semester of chemistry, biology, environmental science and a communication skills class. The students completing this program are serving in various industry capacities, often becoming the environmental health and safety person for small-medium sized companies. For more information on people involved with the Environmental Technology Program, see record number 42 (Powers).

138 DR. MICHAEL F. HELMSTETTER

Community College Consortium for Pollution Prevention Education
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The Community College Consortium for Pollution Prevention Education currently includes 23 of Florida's 28 community colleges, as well as representatives from government and industry. The Consortium was created to develop educational materials, as well as for the training and dissemination of these materials. The curricula are designed to help industry with understanding regulations as well as prevention efforts to prevent possible non-compliance fines. The multimedia course materials are distributed through worker training courses and through degree programs.

139 MR. STEVE KLEIST

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Vermillion Community College offers Associate Degree programs in Water Resources, Pollution Control, Hydrology and Waste Management. The College, in conjunction with Bermidji State, offers a BS degree program in Environmental Studies and Waste Management.

140 DR. VICTOR KRIMSLEY

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The Environmental Technology program is designed to train technicians for work in the environmental field. The purpose of the program is to provide trained personnel to meet the growing demand for workers in business and industry to comply with the environmentally-related regulations. Nationwide studies indicate that the demand for trained hazardous materials technicians will continue to grow throughout the next fifteen to twenty years. In establishing this program, Hartnell College will become one of twenty-three California community colleges offering an Environmental Technology program. Courses in the program include: *Introduction to Environmental Technology*, *Hazardous Waste Management Application*, and *Waste Stream Generation/Reduction/Treatment*.

141 DR. JOHN PETTUS

Program Coordinator, Environmental Technology
Irvine Valley College
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Irvine Valley College offers an AA degree and occupational certificate in Environmental Technology. The curriculum in *Environmental Hazardous Materials Technology* is designed to provide students with the knowledge and skills that will allow them to work with hazardous wastes in compliance with governmental regulations while at the same time protecting human health and environment. Courses include *Hazardous Waste Generation, Reduction and Treatment*, and *Hazardous Materials Management Applications*.

142 DR. BRUCE SCHUHMACHER

Instructor, Environmental Technology
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Administering grant to instruct students across college on importance of pollution prevention. Also developing curriculum for Environmental Technician students.

143 MR. PIERRE THIRY

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The Environmental Technology Program at City College of San Francisco offers a Certificate (35 units) and Associate Degree (65 units) in Environmental Technology. Pollution Prevention is an important component of the instruction in Environmental Technology. The emphasis in course *ET 112: Waste Generation, Reduction and Treatment* is on pollution prevention. The students, as a part of their course, have to assist a local industry or business in their pollution prevention activities.

144 DR. KENNETH ZION

Director, Environmental Technology Department
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The Environmental Technology curriculum provides training in environmental hazardous materials handling and regulatory compliance. A Certificate and an Associate Science Degree are offered. An emphasis is placed on preparing students for gainful employment as environmental technicians within several industrial areas including: electroplating, metal finishing, printed circuit board production, oil refining and chemical production, steel production, general manufacturing, printing and graphics reproduction, agriculture processes and consumer services industry.



PROFESSIONAL EDUCATION

145 MR. JOHN ATKINSON

College of Engineering, Engineering Extension
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E-mail: atkinj2@rpi.edu.internet

Teaches a two day course, *Pollution Prevention—Compliance, Planning, and Profiting*. It is a seminar/lecture and workshop. Provides a method of implementing a proactive P2 program stressing human, business, and financial solutions to organizational and cultural barriers.

146 MS. KRISTINE BENSON

Deputy Director, Alaska Health Project
Waste Reduction Assistance Program
1818 West Northern Sights, Suite 103
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Teaches waste reduction and P2 concepts, regulations, health and safety, and waste disposal in senior level environmental health course. The course is open to all disciplines. The course materials are available nationally. The course uses audio-visuals. Ms. Benson has developed several manuals to assist and educate local businesses and industry on waste management and planning for the future. The project is funded by various in-state agencies.

147 DR. CLARI BINDER

Environmental Health Services
 University of California—Santa Barbara
 120 Cremona Drive #C
 Goleta, CA 93117-3075

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Trains employees to become registered environmental health specialists. These specialists are qualified to be environmental enforcement inspectors. Uses site visits and videos to demonstrate the complexity of waste inspection and P2.

148 DR. RICHARD BRIGHT

Education and Training
 Clark Atlanta University
 Atlanta, GA 30314

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Director of a K-12 teacher training program which focuses on P2 and environmental science concepts. The program emphasizes science education for K-12 educators to better prepare students for college and P2 issues. Field trips are part of the curriculum. CEPER and Department of Energy funded.

149 DR. RALPH COOPER

Instructor, American Institute of Hazardous Materials Management
 14307 Fox Fire Lane
 San Antonio, TX 78231

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Teaches pollution prevention continuing education courses on the following topics: *Managing Hazardous Waste Liability and RCRA Compliance; Pollution Prevention and Waste Minimization - A Course for Managers; Managing Hazardous Chemicals in Laboratories; Environmental Regulation - 40 CFR and More; Planning for Prevention*, and *Responding to Chemical Emergencies*; plus various HazWOpER courses.

150 MR. PATRICK D. EAGAN

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Teaches Design for Environment (DfE), industrial ecology, and remediation courses to professionals nationally. Incorporates inplant environmental awareness and DfE into courses and research.

151 DR. CHERI EIR

Toxics Program
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Runs an internship program where interns study and audit waste streams. Currently works to enforce, through routine inspection/enforcement programs, an ordinance requiring acceptable P2 plans from generators. Trains hazardous material specialists to carry out the program.

152 DR. WILLIAM T. ENGEL

Director, Center for Training, Research and Education for Environmental Occupations
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The University of Florida Center for Training, Research and Education for Environmental Occupations (UF/TREEO) provides educational training for environmental professionals to remain technically current in such areas as: air quality, asbestos abatement, backflow prevention, groundwater, hazardous materials/waste, health and safety, lead abatement, solid waste, stormwater management, water quality and more. For more than 20 years, UF/TREEO has maintained its reputation as a premier environmental training center by developing quality courses on an as-needed basis, as well as offering some courses on-site. For more information, visit WWW site at <http://nersp.nerdc.ufl.edu/~treeo/>.

153 DR. RONALD A. ERCHUL

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Dr. Ronald Erchul, PE, CPG, is the coordinator of the annual *Environment Virginia Symposium*. This conference stresses environmental management and pollution prevention. Its goal is to exchange information and technology transfer between the private and public sectors of Virginia. The conference, which attracts approximately 500 attendees each year, is held on the Virginia Military Institute campus in Lexington, Virginia.

154 DR. BURNS E. HEGLER

Director, Industrial Assessment Center
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313 Engineering Research Lab
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Dr. Hegler is Emeritus Professor of Electrical Engineering and Director of the Industrial Assessment Center (IAC) at the University of Missouri-Rolla where he is engaged in extension activities involving conferences, short courses, funded grants/contracts, and technical assistance to business and industry. He advises transfer students in Electrical Engineering. Since the establishment of the IAC in 1989, he has conducted over 175 industrial assessments. Has also conducted audits in energy and safety for other commercial and/or govern-

ment activities. He has written and/or presented over 90 papers and has conducted over 85 short courses and conferences in his areas of interest, which include general industrial safety, electrical circuits, and energy management. His most recent papers are concerned with energy and waste reduction.

155 DR. JOEL S. HIRSCHHORN

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Has designed and presented many P2 lectures, seminars, and workshops in the U.S. and developing countries. Materials designed and used are specific to particular audiences, including industrial engineers and managers, government managers, and academics. Foreign programs have been given in Indonesia, Egypt, Morocco, Poland, Latvia, Mexico and the Phillipines.

156 MR. MITCHELL L. KENNEDY

Adjunct Faculty, Massachusetts Toxics Use Reduction Institute
The Pollution Prevention Cooperative
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Professional trainer of federal, state and university staff on the use and development of pollution prevention tools, such as total cost assessment, process mapping, opportunity assessment and selection. Is an Adjunct Faculty for the *Massachusetts Toxics Use Reduction Institute (TURI) Planner Certification Course*. Currently developing small business and tribal training curricula on the economics of pollution prevention in pre-development planning. For more information on people involved with TURI, see record numbers 116 (Becker), 121 (Hensley) and 125 (Luskin).

157 DR. JON W. KINDSCHY

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University of California—Riverside Extension currently offers *Pollution Prevention and Waste Minimization* as a required course in the Certificate in Hazardous Materials Management program. A one day seminar on pollution prevention was held in 1995 and 1996. UCR Extension has held P2 and compliance workshops for facility managers, small business owners and managers, and P2 for auto repair shops. Dr. Kindschy aided in the development of the Zero Waste program (with funds from Cal EPA DTSC), which is currently being implemented by San Bernardino and Riverside counties.

158 DR. JACK E. LEONARD

President, Environmental Management Institute
Indiana University
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The Environmental Management Institute trains industrial and government employees in the handling of hazardous chemicals. The Institute maintains a strong emphasis on pollution prevention as opposed to pollution control techniques. The Institute has developed and presented a series of twelve one-day courses on the pollution prevention opportunities in various industrial processes for the Indiana Department of Environmental Management, and has been a key player in developing the Indiana Pollution Prevention measurement index. Dr. Leonard served as an editor for the *Institute of Hazardous Materials Management Manual and Study Guide*, where he incorporated pollution prevention concepts and principles into every aspect of the manual.

159 DR. DAVID LIEBL

Solid and Hazardous Waste Education Center
University of Wisconsin—Madison
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The center develops and conducts educational programs to communicate the need for P2 and its costs/benefits. Targeted audiences are business managers, industrial facility managers, government officials, engineering consultants, and extension agents. The courses emphasize practical approaches to P2. The Center draws experts from industries, trade organizations, equipment suppliers, relevant government agencies, etc. to assist in their educational efforts.

160 DR. JAMES G. MEENAHAN

Adjunct Instructor, Wayne State University
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Since 1972, Mr. Meenahan has taught a 2 day/16 hour course, *Industrial Waste Treatment Plant Operator Training Course*, to refresh hazardous waste operators preparing to take the state haulers exam. The course is sponsored by ESD—The Engineering Society, a technical society which sponsors conferences and workshops on various topics, including environmental issues and pollution prevention. Mr. Meenahan has also presented various pollution prevention workshops and conferences through The Engineering Society. He also teaches *Waste Minimization/Pollution Prevention* at Wayne State University as an adjunct professor.

161 MS. GAYLA NEUMEYER

Energy Systems and Resources Program
University of Missouri
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The University of Missouri-Columbia's Energy Systems and Resources Program offers a 3-credit hour graduate course for secondary science teachers on the environmental aspects of energy supply and demand. This

two-week intensive course will be offered for the first time during the summer 1994 semester and is funded by Union Electric Company (St. Louis, MO) and the University of Missouri. Environmental implications of the complete fuel cycle of existing energy technologies and future energy sources will be reviewed. Evening sessions will focus on the societal implications of energy use and policy in relation to the environment.

162 MR. WAYNE PFERDEHIRT

Solid and Hazardous Waste Education Center
University of Wisconsin—Extension
610 Langdon St. Room 529
Madison, WI 53703

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Mr. Wayne Pferdehirt, PE, AICP, provides training and technical assistance to manufacturers in prevention and improved management of waste products. Co-Director of Printers' National Environmental Assistance Center. Directs continuing education courses in the design of collection systems for recyclables and solid wastes, and material recovery facilities to process recyclables. Solid and Hazardous Waste Education Center (SHWEC) develops and conducts educational programs to communicate the need for P2 and its cost/benefit analysis. Targeted audiences are business managers, facility managers, government officials, engineering consultants, and extension agents. The courses use a hands-on format. The Center draws experts from industries, trade organizations, equipment suppliers, relevant government agencies, etc. to assist in their educational efforts.

163 DR. CHARLES L. RICHARDSON

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The National Environmental Training Association offers specialized training, materials development, and distribution of information. The Association is currently developing a certification program for pollution prevention professionals to be administered by Arizona State University. For more information, visit WWW site at <http://www.envirotraining.org>.

164 DR. PAUL STILL

Florida Center for Solid and Hazardous Waste Management
University of Florida
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Gainesville, FL 32609

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Teaches short courses (1-2 days) on waste management and regulation with an introduction to P2. Is an operator for the Florida Recycling Marketing System (FRMS), an electronic bulletin board accessed via modem, with information about waste exchange, recycling, composting, and waste reduction. The toll free number for modem access is (800) 384-1239.

165 MS. DONNA TOY-CHEN

Hazardous and Toxic Materials Office
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Los Angeles, CA 90012

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Teaches a P2 and technologies course (with field trips) at University of California Extension, Riverside. Teaches a P2 on-line course for University of California Extension, Berkeley. Students are taught to recognize and implement waste minimization and P2 technologies. Conducts P2 training for Los Angeles businesses through the Hazardous and Toxic Materials (HTM) Office. The HTM Office also provides evaluation of industrial processes, waste stream analysis, and regulatory assistance to businesses and manufacturers upon request.

166 DR. C. H. J. VAN OIJEN

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The *European Postgraduate Course in Environmental Management* (EPCEM) is a one year full-time course for recent college graduates. During the course, attention is given to both environmental policy (local, regional, national and international governments) and to environmental management in companies, including pollution prevention. During the practical part of the course, one of the research projects usually focuses on pollution prevention in companies.

167 MS. DIANE WOLCOTT

Environmental Management
University of California—Berkeley
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The University of California Berkeley Extension offers many courses in environmental management. The courses address the technical aspects of pollution control and the regulation of toxic contaminants and are taught by local professionals. The topics are covered quantitatively. Case studies are used to illustrate techniques for pollution control and P2, hazardous materials management, site remediation, air quality management, and environmental auditing.

168 DR. BRYAN ZETLEN

Seattle Scientific
Central Washington University
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Has organized numerous technical seminars using local business and government professionals as speakers. Uses a role-playing format to illustrate real world issues. Teaches students about business protocol and how it may be used effectively to implement pollution prevention. General consulting to industry and govern-

ment on telecommunications and environmental issues, including economics. Author of Washington State Department of Ecology Hazardous Materials Response Study and numerous other articles for *Daily Trade Journal*, *Alaskan Fisherman's Journal*, and other professional journals.



TECHNICAL ASSISTANCE

169 DR. PHILLIP (JACK) ANNIS

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The Solid and Hazardous Waste Education Center develops multi-media pollution prevention curriculum and programs for delivery to manufacturers, small businesses, and local governments. The Center also provides technical assistance through on-site pollution prevention audits and telephone consultation.

170 MR. ADE BABATUNDE

Minnesota Office of Environmental Assistance
520 Lafayette Road
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St. Paul, MN 55155-4100

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The Minnesota Office of Environmental Assistance assists Minnesota businesses in identifying and implementing options to prevent waste generation and manage waste properly. Conducts workshops and seminars on various pollution prevention and waste management. Review grant proposals from persons researching, developing and implementing projects or practices in the areas of pollution prevention, waste reduction, source separation and recycling, market development, and waste education.

171 DR. DOUG A. BRIGHT

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Royal Roads University offers short courses and customized on-site training in environmental management systems, including Pollution Prevention. The Applied Research Division — with nearly equal representation by environmental chemists and environmental biologists — is involved in environmental research, education and consulting activities in the areas of environmental assessment, environmental management, and specialized research. The Division is designed to be extremely flexible and entrepreneurial so that it can rapidly respond to the individual needs of clients from all sectors. For more information, visit WWW site at <http://www.royalroads.ca/> or send an e-mail to applied-research@royalroads.ca.

172 DR. ED COHEN-ROSENTHAL

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Center for the Environment
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Activities of the Work and Environment Initiative include: (1) research and programmatic support of an ecological industrial park in Baltimore, MD; (2) labor-management cooperation; (3) high performance workplace training; (4) marketing, regulatory, and financial research. For more information, visit WWW site at <http://www.cfe.cornell.edu>. For more information on people involved with the Work and Environment Initiative, see record numbers 175 (McGalliard) and 176 (Palumbo).

173 DR. RICHARD C. COLLINS

Director, Institute for Environmental Negotiation
Lawrence Lewis Professor of Urban
and Environmental Planning
University of Virginia
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The Institute for Environmental Negotiation (IEN) has had contracts for facilitating new state regulations that are aimed at pollution prevention in toxics and in waste tires. The IEN has also done special reports on specific industries in Virginia that are particularly suitable for P2 initiatives. Dr. Collins teaches a course in *Environmental Policy* which highlights P2 initiatives.

174 DR. SHERRY J. DAVIS

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E-mail: sdavis@oz.oznet.ksu.edu

The Pollution Prevention Institute provides technical assistance through the Engineering Extension office of Kansas State University. The Institute provides fact sheets and case studies, and conducts workshops to help local businesses. The Institute also works with special groups to prepare pollution prevention and recycling educational and general awareness presentations. For more information on people involved with the Pollution Prevention Institute, see record number 127 (Meyer).

175 DR. TAD McGALLIARD

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Activities of the Work and Environment Initiative include: (1) Research and programmatic support of an ecological industrial park in Baltimore, MD; (2) Labor-management cooperation; (3) high performance

workplace training; (4) marketing, regulatory, and financial research. For more information visit WWW site at <http://www.cfe.cornell.edu>. For more information on people involved with the Work and Environment Initiative, see record numbers 172 (Cohen-Rosenthal) and 176 (Palumbo).

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177 MS. SUSAN SALTERBERG

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The By-Product and Waste Search Service actively promotes reuse and recycling of Iowa business and industry by-products and wastes. Regional representatives, located at community colleges, councils of governments, and a solid waste agency, meet with business people to identify waste streams, facilitate transfer of those materials to companies for reuse or recycling, and divert wastes from disposal sites. Since 1990, more than 1,414 transfers of materials have occurred. More than 131,000 tons of materials have been diverted from disposal sites, saving businesses approximately \$3.2 million in disposal costs alone.

178 DR. KENNETH J. SAULTER

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Developing assessment tool methodology for technical assistance providers working with small and medium size manufacturers. Developing training curriculum and materials for field engineer training. Focus is on integrating pollution prevention, waste reduction and general environmental awareness into standard manufacturing continuous improvement assessments and assistance services. Typically works with industry specific groups and encourages technology demonstration projects of technologies and practices suitable for small- to medium-sized manufacturers.

179 MR. RANDALL F. SHANK

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The Virginia Cooperative Extension is a product of cooperation among local, state, and federal governments. It operates 107 county/city offices so that we are close to all the people of the Commonwealth. The Extension educators are local agent faculty and campus faculty, who take knowledge from the Virginia State and Virginia Tech land-grant universities, and their nationwide sister institutions to everyday people with everyday problems. Mr. Shank is the Educational Coordinator for Chesapeake Bay. He conducts educational programming and coordination for farmers, landowners, and land managers on nonpoint source pollution prevention through Virginia Tech. The programs are focused in the Chesapeake Bay watershed. For more information about the Virginia Cooperative Extension, visit WWW site at <http://www.ext.vt.edu/aboutvce.html>.

180 DR. SUSAN M. SMITH

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Activities of the Center for Improving Mountain Living include (1) P2 assistance to local business/industry, (2) organization of recycling programs, (3) market development, and (4) proper land use. The Center counsels the service industry (tourism, for example) on using legislation to leverage environmental improvements. Also instructs high school teachers, purchasing agents, photography businesses, and others on playing a role in P2 to keep the environment clean. The Center is funded by a variety of state sources and private foundations.

181 MR. TRAVIS WALTON

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The Technology Extension Services (TES), through its five field offices in Maryland, provides on-site engineering assistance to manufacturers. This assistance includes analyzing plant and process environmental issues in all media and determining practical solutions. Activities include P2 and waste minimization assistance and workshops. In addition to its own field engineers, TES is supported by faculty and staff of the College of Engineering and other university elements. For technical P2 matters contact Paul Gietka, Northern Regional Office (410-706-3233 or pg26@umail.umd.edu). For P2 related policies and programs of the TES, contact Mr. Walton.

182 MS. CATHERINE ZEMAN

Program Manager, Environmental Programs
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Assists in the development of curriculum modules for technical schools. Modules deal with focused pollution prevention topics and industry sectors.