

**August 13, 2003 \* 8:30 a.m. – 4:30 p.m.**



# **Science To Achieve Results**

## **STAR Grant Seminar**

**Sponsored by:**

**EPA Region 7 and EPA's National Center for  
Environmental Research**

**U.S. EPA Region 7 Office  
901 N. 5<sup>th</sup> Street  
Kansas City, Kansas**



**US EPA Region 7  
901 N. 5th Street  
Kansas City, Kansas 66101**

**Official Business  
Penalty for Private Use \$300  
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**STAR Grant Seminar • Wednesday, August 13, 2003 • 8:30 a.m. - 4:30 p.m. • U.S. EPA Region 7 Regional Office  
(Plaza Level Conference Rooms)**



## Seminar Overview

This seminar will feature presentations from recipients of the Office of Research and Development's Science to Achieve Results (STAR) Grants, sponsored by the National Center for Environmental Research. This is a rare and unique opportunity for federal, state, and tribal scientists and engineers to learn about a variety of projects, including environmental monitoring, innovative technologies for site remediation, and waterborne diseases, to studies on health effects from contaminant exposures.

Don't miss this unique opportunity to hear from scientific experts and learn about how their discoveries might have an impact on environmental science and policy making, your environmental program, your project, your state, and your community.

## Who Should Attend

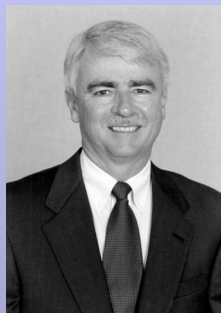
Speakers and research projects were specifically selected to address the needs and interests of federal, state, and tribal environmental employees in Region 7. The purpose of this seminar is to educate and engage discussion between researchers and scientists from federal, state, and tribal environmental programs on the latest state of the art in environmental research. The seminar also will give researchers in Region 7 the opportunity to discuss their research in the context of EPA Region 7 environmental science needs and priorities.

Seminar presentations will revolve around the three priority themes established by Region 7 to address cross-cutting issues important to the region. The priority themes are:

- Protection of Critical **E**cosystems
- Protection of Sensitive **P**opulations
- Environmentally Protective **A**griculture

## Welcome! From Conference Co-sponsors and Guest Speakers

"It brings me great pleasure to welcome everyone to the Region 7 Environmental Research Seminar. We have a diverse group of organizations represented, which will give us the opportunity to learn and experience a variety of perspectives as we forge a pathway to scientific excellence. This seminar represents another significant step in EPA's efforts to expand Strategies, Tactics, And Results. I hope to see you all at this event. Again, welcome!"



**James B. Gulliford**

*Regional Administrator, US EPA Region 7*



"This workshop gives you the opportunity to interact with some of the area's leading scientists conducting research on issues of critical importance to our region. The STAR grantees are an important part of EPA's research program and provide us with the nation's best scientists and engineers from both academic and nonprofit research centers. Please join us for this special event."

**Dr. Paul Gilman**

*EPA Science Advisor and Assistant Administrator,  
Office of Research and Development*

## Seminar Specifics

For more information on this seminar contact Brenda Groskinsky at (913) 551-7188 or [groskinsky.brenda@epa.gov](mailto:groskinsky.brenda@epa.gov).

Date: Wednesday, August 13, 2003

Time: 8:30 a.m. - 4:30 p.m.

Location: US EPA Region 7  
901 N. 5th Street  
Kansas City, KS  
Plaza Level Conference Rooms



4:00 p.m. - 4:30 p.m.

Earnhart



**Dietrich Earnhart, Ph.D.**

Professor of Economics  
University of Kansas

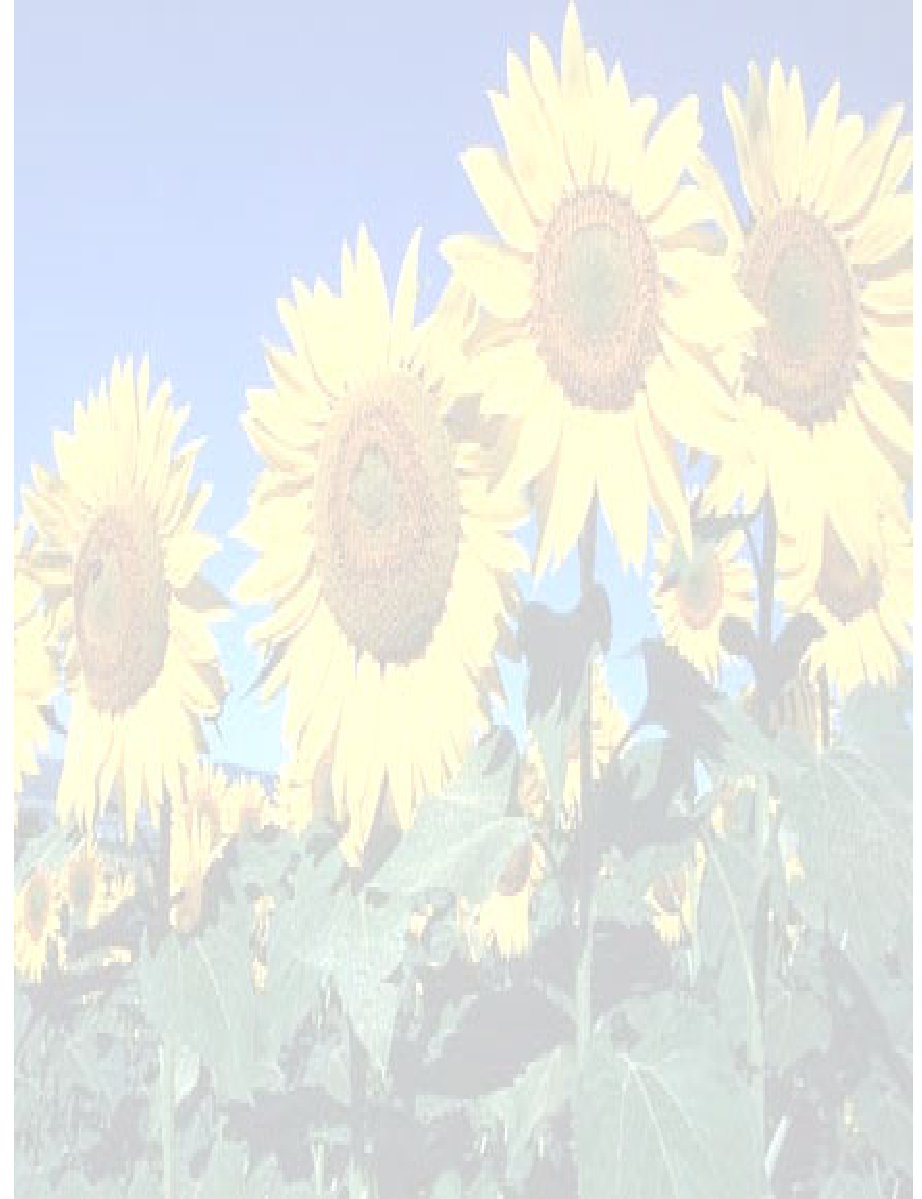
**The Effects of Regulatory Factors on  
Facility-Level Environmental Performance:  
A Study of Wastewater Discharges by the  
Chemical Manufacturing Industry**

This research attempts to integrate the fields of economics, political science, law and engineering management to determine the factors shaping corporate environmental performance at individual chemical manufacturing facilities. We seek to compare the effects of government intervention (e.g., federal vs. state inspections), compare the effects of specific deterrence and general deterrence, and capture the influence of community pressure using community characteristics as proxies.



Sponsored by

US EPA Region 7  
EPA's National Center for Environmental Research



# Agenda

8:30 - 9:00	<p>Welcome</p> <p><b>James B. Gulliford</b>, Regional Administrator, EPA Region 7</p> <p><b>Paul Gilman</b>, EPA Science Advisor Assistant Administrator, EPA Office of Research and Development</p>
9:00 - 9:30	Effects of Ethanol on BTEX Natural Attenuation by Pedro J.J. Alvarez, Ph.D.
9:30 - 10:00	Rural Asthma Study by Angela Kuehl, M.S., Pharm.D.
10:00 - 10:30	<b>Morning Break</b>
10:30 - 11:00	X-ray C-based Assessment by Beverly Cohen, Ph.D.
11:00 - 11:30	Metals Removal by Wetlands by Mark Fitch, Ph.D.
11:30 - 12:30	<b>Lunch (on your own)</b>
12:30 - 1:00	Bacterial & Nutrient Reduction by George Marchin, Ph.D.
1:00 - 1:30	Atrazine in Surface Soils by Alok Bhandari, Ph.D.
1:30 - 2:00	Classifying Reference Conditions in Streams by Charles P. Hawkins, Ph.D.
2:00 - 2:30	Nitrate Reduction by Tian C. Zhang, Ph.D.
2:30 - 3:00	Lake and Reservoir Strategy for NE by John Holz, Ph.D.
3:00 - 3:30	<b>Afternoon Break</b>
3:30 - 4:00	Water Quality in Midwestern Lake Ecosystems by Catherine Kling, Ph.D.
4:00 - 4:30	Regulatory Env. Performance by Dietrich Earnhart, Ph.D.

**Adjourn**

**2:30 p.m. - 3:00 p.m.**

**Holz**



**John Holz, Ph.D.**  
Assistant Professor  
University of Nebraska at Lincoln

## **Development and Implementation of a Comprehensive Lake and Reservoir Strategy for Nebraska**

This research focuses on developing a comprehensive classification scheme for agriculturally dominated ecosystems by: 1) establishing a protocol for aggregating water bodies in agricultural ecosystems into classification strata and identifying reference condition for these classes; and 2) establishing the role of remote sensing and GIS in a classification strategy. Interesting, the Level IV Ecoregions do not accurately represent water quality of Nebraska's reservoirs or natural Sand Hills lakes.

**3:30 p.m. - 4:00 p.m.**

**Kling**



**Catherine Kling, Ph.D.**  
Professor of Economics  
Iowa State University

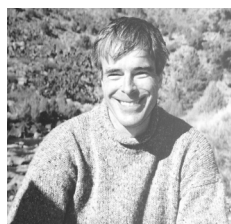
## **Valuing Water Quality in Midwestern Lake Ecosystems: Temporal Stability and the Role of Information in Value Formation**

In this project, economists and ecologist join forces to assemble an extensive panel data set of revealed and stated preferences concerning Iowa lakes. In conjunction, an ongoing ecological effort was utilized to collect detailed water quality data on these same lakes in overlapping years.



1:30 p.m. - 2:00 p.m.

Hawkins



**Charles P. Hawkins, Ph.D.**  
Professor of Aquatic Ecology  
Utah State University

**Evaluation of the Performance of  
Different Approaches to Classifying  
Reference Conditions in Streams**

This project is designed to identify the type and level of stream classification that is optimal for bioassessment purposes by asking, 1) How is the sensitivity of assessments affected by the approach used to classify sites, the type of assemblage examined, and the spatial scale of the classification? and 2) Are approaches to site classification transferable among regions?

9:00 a.m -9:30 a.m.

Alvarez



**Pedro J.J. Alvarez, Ph.D.**  
Professor, Department of Civil and Environmental  
Engineering  
University of Iowa

**Effects of Ethanol on BTEX Natural  
Attenuation**

The use of ethanol as a gasoline additive is likely to increase in the future as a means to decrease air pollution by automobile emissions and also decrease our dependence on foreign oil. Nevertheless, the presence of ethanol may lead to indirect impacts related to natural attenuations of BTEX compounds (i.e., benzene, toluene, ethyl benzene, and xylene) and the overall impact that this has on the environment.

2:00 p.m. - 2:30 p.m.

Zhang



**Tian C. Zhang, Ph.D.**  
Associate Professor  
University of Nebraska at Lincoln

**Enhancement of Nitrate Reduction in  
Zero-Valent Iron Promoted Processes**

This study focuses on the enhancement of nitrate reduction by adding organic buffers or some selected cations in feed solution.

9:30 a.m -10:00 a.m.

Kuehl



**Angela Kuehl, M.S., Pharm.D.**  
Rural Childhood Asthma Study Proj. Coordinator  
University of Iowa College of Public Health

**Multi-component Intervention Study of  
Asthma in Children from Rural  
Communities**

This community-based study that tested the effect of a multi-component intervention by comparing asthma health outcomes and change in environmental exposures. The study also compares rural and town cases of asthma in children.



10:30 a.m - 11:00 a.m.

Cohen



**Beverly S. Cohen, Ph.D.**  
Professor of Environmental Medicine  
New York University School of Medicine

**X-ray CT-based Assessment of Variations in Human Airway Geometry**

Few data are available regarding the regional deposition of particulate matter in the lungs of people with respiratory diseases and the elderly who may be at special risk of environmentally related lung disease. This presentation will provide a summary of particulate matter effects and transport within human lungs and the technology used to collect the data and model the results.

11:00 a.m. - 11:30 a.m.

Fitch



**Mark Fitch, Ph.D.**  
Associate Professor  
University of Missouri-Rolla

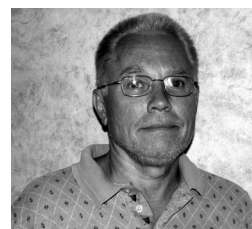
**Constructed Wetlands for the Treatment of Neutral Mine Drain**

This work, currently funded through the Midwest Hazardous Substance Research Center, is focused on the use of low-operating cost constructed wetlands to decrease the toxicity of neutral metal-tainted waste waters such as lead mine drainage, tailing leachates, some landfill leachates, and many industrial waste waters. The initial focus was efficacy, with 90-95% lead removal and 60-70% zinc removal observed, and near-zero toxicity of the wetland effluent.



12:30 p.m. - 1:00 p.m.

Marchin



**George Marchin, Ph.D.**  
Professor of Microbiology  
Kansas State University

**Bacterial and Nutrient Reduction by Filter Strips in Agricultural Watersheds**

Many Kansans receive their drinking water from surface waters such as lakes or rivers. Bacterial contamination and high nutrient levels have been identified in some of these bodies of waters. Runoff from beef feedlots can be a source for pollutants to be transported to surface water. Vegetative filter strips have been identified as an effective method for controlling nutrients leaving a feedlot. Few studies have been done to test the effectiveness of filter strips in a field setting. The purpose of this study was to evaluate the filter strips by determining their ability to reduce nutrients and bacteria in feedlot runoff.

1:00 p.m. - 1:30 p.m.

Bhandari



**Alok Bhandari, Ph.D.**  
Associate Professor  
Kansas State University

**Atrazine in Surface Soils: Contact-Time Dependent Physicochemical Interactions**

Atrazine continues to be a major surface water pollutant in the Midwestern United States due to its wide use as a weed killer on grain crops. The City of Kansas City spends about \$250,000.00 annually to keep atrazine below the city's drinking water MCL. The objective of this study was to investigate the fate and transport of the herbicide in the Hillsdale reservoir and its drainage basin.

