

6th Annual

# Abandoned Mine Reclamation Conference

“Alphabet Soup of AMR”

June 9-12, 2004

Indiana University of Pennsylvania  
Indiana, PA

June 9-10

Technical Session: “Difficult Discharges”

June 11-12

Watershed Session: “Getting to Know You”

AMD SAP ALD AMR

AML GPS SRBR GIS GPM

The world of abandoned mine reclamation is full of acronyms. This year’s theme of “Alphabet Soup of AMR” will bring together in one place the watershed associations, environmental organizations, consulting firms, government agencies, and other acronym-filled partners in AMR to share new technologies and ideas and to form new partnerships. The four-day conference will feature a two-day technical session followed by a two-day watershed session. The technical session will feature speakers on new technologies for treating AMD. The watershed session will provide opportunities for networking and hands-on learning. All are welcome at both sessions. Come to one or come to both! Learn what’s new in AMR and have a good time!

CFB VFR AIS SBR

FBC OLD SMCRA NPS pH

*For more information, please visit:*

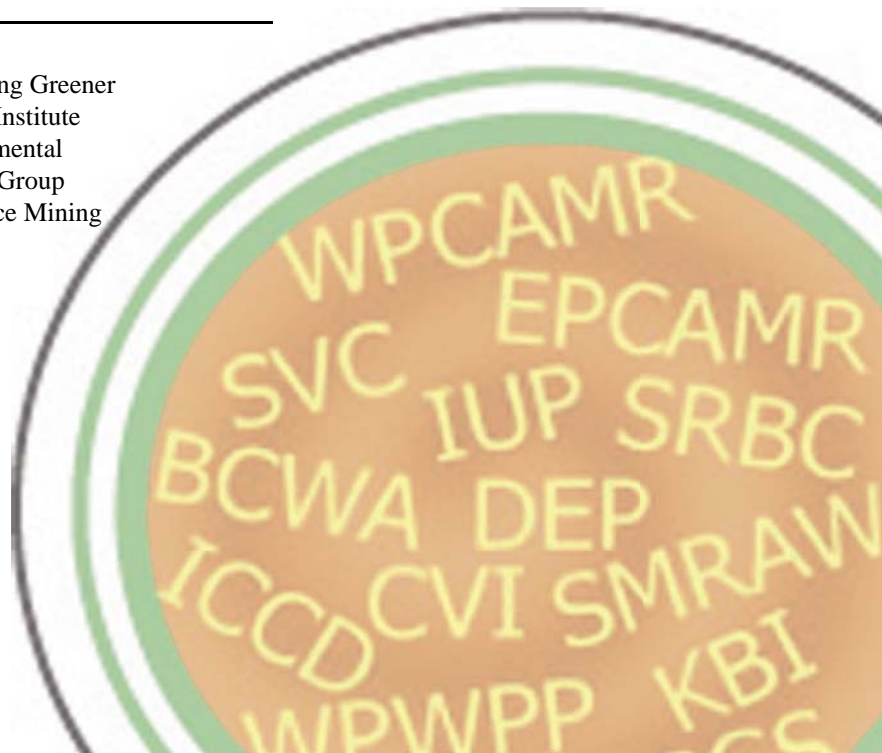
[www.amrclearinghouse.org/2004AMRConf/](http://www.amrclearinghouse.org/2004AMRConf/)

## Steering Committee:

Blacklick Creek Watershed Association  
Canaan Valley Institute  
Eastern PA Coalition for Abandoned Mine Reclamation  
Indiana County Conservation District  
Kiski Basin Initiatives  
PA Department of Environmental Protection  
Six Mile Run Area Watershed Committee  
Susquehanna River Basin Commission  
Saint Vincent College Environmental Education Center  
United States Geological Survey  
Western PA Coalition for Abandoned Mine Reclamation  
Western PA Conservancy

## Sponsors:

PA DEP Growing Greener  
Canaan Valley Institute  
Hedin Environmental  
Larson Design Group  
Office of Surface Mining



# Technical Session: "Difficult Discharges"

**Wednesday, June 9, 2004**

**11:00-12:30: Registration**

**12:30: Welcome**

**Moderator:** Mark Killar, *Western PA Conservancy*  
TBA, *Indiana University of Pennsylvania*  
Bruce Golden, *Western PA Coalition for Abandoned Mine Reclamation*  
Bob Hedin, *Hedin Environmental*

**1:05: Comparison of Three Methods to Measure Acidity of Coal-Mine Drainage**

Brent Means, *Office of Surface Mining*  
Little work has been done to determine if "hot acidity" data actually describe the base requirement for neutralization of mine drainage. This study compared three methods for estimating the acidity of net-acidic waters.

**1:50: Evaluation of Passive Versus Active Abandoned Mine Drainage Treatment Systems**

Terry Schmidt, *Skelly and Loy, Inc.*  
The presentation will identify and compare factors relevant to treatment system selection such as capital cost, operation and maintenance cost, space requirements, availability of power, and other factors.

**2:35: AMD Resource Recovery at Topper Run and Sulfur Creek Report**

Mark Perri, *Davis Technologies International*  
This project is for verification testing of the Advanced Cavitation Flotation Technology(TM) for resource recovery from Abandoned Mine

Drainage (AMD) at Topper Run/St. Michael and Sulfur Creek.

**3:20-3:40: Break**

**3:40: Innovative Method for Treatment of High Volume and High Metals Acid Mine Drainage Within Limited Areas**

Don Budeit, *Environmental Solutions LLC*  
Comparisons will be made between current passive treatment methods and use of a Maelstrom Oxidizer prior to use of settling ponds. The Maelstrom Oxidizer is a proprietary apparatus that accelerates the oxidation and settling of metals.

**4:25: Activated Iron Sludge Treatment of the Lower Saxman Run Discharge**

Jonathan Deitz, *Deitz et. al Consulting*  
The Activated Iron Sludge/Sequencing Batch Reactor (AIS/SBR) Process is capable of oxidizing ferrous iron and removing iron as iron oxides from mine drainage producing a clean effluent.

**5:10: Wrap-up**

**5:15-6:00: Social Hour**

**6:00-8:00: Dinner Reception**

Keynote Speaker:  
**J. Scott Roberts**, Deputy Secretary for Mineral Resources Management, *PA Department of Environmental Protection*

## New to the Conference - Technical Session

New challenges are constantly arising in the effort to reduce the impact of past mining activities. Creative thinking and innovative approaches are enabling us to overcome these challenges and improve Pennsylvania's landscape. In order to further this sort of creative thinking and to encourage the sharing of new ideas, the Abandoned Mine Reclamation Conference has added a two-day technical program in addition to the usual watershed program. Geared to environmental professionals, the technical session will explore new and innovative approaches in abandoned mine reclamation.

# Technical Session: "Difficult Discharges"

**Thursday, June 10, 2004**

## **8:30-4:30: AMDTreat Workshop**

Brent Means, *Office of Surface Mining*

Bob McKenzie, *Office of Surface Mining*

Optional all-day workshop. Also offered Friday.  
*See information on page 4.*

## **8:00-8:30: Registration**

## **8:30: Introduction**

## **8:35: Bench and Pilot Scale Test Results Passive Treatment of AMD at the Fran Mine, PA**

James J. Gusek, *Golder Associates, Inc.*

Bench and pilot scale tests of sulfate reducing bioreactors (SRBR's) revealed that this innovative technology could successfully treat the Fran AMD without plugging with aluminum hydroxide.

## **9:20: Lower Yellow Creek Restoration Project Application of Sulfate Reducing Biotechnology**

Dave Minnear, *L. Robert Kimball & Associates, Inc.*

The Blacklick Creek Watershed Association began the Yellow Creek Restoration Project to improve water quality. The presentation will describe the systems and lessons learned.

## **10:05: In-Situ Treatment of Coal-Based Acid Mine Drainage at the Tide Mine Site in Pennsylvania**

James Harrington, *ARCADIS*

Treatment involves transforming an environment where sulfide oxidation reactions are occurring to one where sulfate reduction reactions are occurring on the host rock and in the mine pool.

## **10:50-11:10: Break**

## **11:10: Ninevah Acid Mine Pollution Abatement Project**

Thomas A. Gray, *GAI Consultants, Inc.*

Potential for using alkaline coal ash as a grout to encapsulate acid-forming materials, grout to form seals to divert water, and non-cement slurry to neutralize the mine-water acidity will be explored.

## **11:55: Occurrence and Fate of Trace Elements in Circulating Fluidized Bed Combustion Products**

Dennis Noll, *Earthtech, Inc.*

Data clearly demonstrated that hazardous/toxic trace elements in the CFB ash placed in Pennsylvania are strongly bound in the ash and are not available to the ground and surface water.

## **12:40-1:55: Lunch**

## **1:55: Limestone Upflow Pond with Siphon Discharge Design Considerations**

Joe Schueck, *PA DEP, BAMR*

High volume, high metal AMD discharges challenge passive treatment systems by clogging and short-circuiting. The upflow pond is designed to flush automatically on almost a daily basis.

## **2:40: Optimization of Limestone Drains for Long-Term Treatment of Drainage**

Charles Cravotta, *U.S. Geological Survey*

Increased age of limestone drains leads to declines in limestone mass and alkalinity loading rates. Improvements can be made through enlargement, complete burial, and/or regular flushing.

## **3:25-3:45: Break**

## **3:45: Net Alkalinity and Hot Acidity: How to Get the Right Answer**

Carl S. Kirby, *Bucknell University*

"Net alkalinity" is poorly defined but used as a critical decision parameter in designing mine drainage treatment. We establish easily understood methods for calculating net alkalinity.

## **4:30: Wetlands Malfunction or Mother Nature**

Dennis Beck, *Trout Run Watershed Association*

A beaver dam impoundment/wetlands fed by an acidic mine discharge showed a correlation between pH and manganese at the influent and effluent due to biological and chemical influences.

## **5:15: Concluding Remarks**

## **5:25-7:25: Social**

# Watershed Session: "Getting to Know You"

**Friday, June 11, 2004**

**9:00-5:00: AMD Treat Workshop**

Brent Means, *Office of Surface Mining*  
Bob McKenzie, *Office of Surface Mining*  
Optional all-day workshop. Also offered  
Thursday. *See information below.*

**8:00-9:00: Registration**

**9:00: Welcome**

**Moderator:** Deb Simko, *Western PA Coalition for Abandoned Mine Reclamation*  
TBA, *Indiana University of Pennsylvania*  
Robert Hughes, *Eastern PA Coalition for Abandoned Mine Reclamation*

**9:15: Panel Discussion**

An overview of the new technologies introduced during the technical session of the conference will be presented. A panel of presenters will then be available for question and answer from the audience.

**10:30-10:45: Break**

**10:45: A Template for Watershed Restoration**

Janie French, *Canaan Valley Institute*  
Stephen Lathrop, *PA DEP*  
Watershed restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed and is one component of watershed management. The

watershed restoration template is a step-by-step process intended to assist the user with turning an assessment plan into a watershed restoration plan that prioritizes subwatersheds and restorative strategies.

**12:00-1:30: Lunch**

**1:30: Ask the Expert Smorgasbord**

All the agencies, all the organizations, all the acronyms! How can you keep them all straight? At the "smorgasbord" networking session, we will try to eat up all that alphabet soup and get those acronyms straight.

Dozens of different government agencies, industries, non-profit organizations, universities, and other experts in the mine reclamation field will be present to meet with participants. They will explain what their organization does and what services they can offer to participants. In this way, everyone will be able to make new contacts and open up new possibilities in the field.

**4:15: Rusted Roots**

Tim Butler  
Local artist will present a compilation of photographs and video depicting abandoned mine drainage and its impact on local citizens.

**5:30-7:30: Dinner Reception/Awards Ceremony**

## Using AMDTreat to Evaluate Mine Drainage Treatment



Thursday, June 10 - 8:30-4:30 or Friday, June 11 - 9:00-5:00

This class will focus on how to use the AMDTreat software to evaluate treatment methods and economics. The course is divided into three sections: chemistry, treatment, and AMDTreat. The course will start by exploring the chemistry of mine drainage as it relates to treatment. This section will focus on the chemistry of Acidity, Fe, Al, and Mn and at the end of this section participants will have an understanding of how to treat for each of these constituents. The Treatment section will explore the pros and cons of different active and passive treatment technologies. The last section focuses on applying the knowledge gained in the previous sections to the AMDTreat cost-estimating software. AMDTreat software is a flexible tool for estimating treatment costs and evaluating long-term treatment economics. The class will consist of classroom lecture, lab experiments, and classroom exercises. Students should bring a computer, however, the instructors will provide 4 computers for participant use.



# Watershed Session: "Getting to Know You"

**Saturday, June 12, 2004**

## **8:30-12:30: Hands-on Training at Lower Yellow Creek Restoration Project**

Participants will learn the essential techniques needed for conducting a stream assessment including physical, chemical, and biological parameters. They will do this at sites upstream and downstream of the Yellow Creek treatment systems.

### **Training Schedule**

Buses will depart from the IUP campus at 8:30am and return at 12:30pm.

***Participants should be prepared to enter the water and get dirty! Please bring your own boots!***

Each participant will take part in each of five stations at the site:

### ***Site Tour***

Members of the Blacklick Creek Watershed Association will lead participants on a one-hour guided tour of the five passive treatment systems at the Lower Yellow Creek Restoration Project. Participants will learn about the history of the site, the different types of systems, maintenance of the systems, and the success of the project.

### ***Macroinvertebrate Sampling***

Macroinvertebrates are used as an indicator of water quality. Participants will enter the stream and practice different techniques for collecting the insects. The participants will then learn how to identify the macroinvertebrates.

### ***Chemical Sampling***

Participants will learn how to correctly collect water samples. They will also use various field equipment to test for chemical parameters.

### ***Flow Measurement***

Flow is a very important parameter used to determine the amount of pollution in a stream. Participants will learn how to measure flow using several different tools and techniques.

## **Lower Yellow Creek Restoration Project**



The Lower Yellow Creek Restoration Project in the Blacklick Creek watershed was launched in 1998 as a 5 phase plan to restore the last 3.5 miles of Yellow Creek in Indiana County. At the time, that stream section was the only one in the entire 420 square mile Blacklick Creek Watershed meeting DEP recommended comprehensive sequential approaches to watershed restoration. In general, the AMD being treated exhibited pH values from 2.5 to 3.0, aluminum content around 25 mg/l and iron content from 30 to 100 mg/l. Each system has displayed success for varying periods of time - generally producing effluent of pH 6.0 or above with significantly reduced metal loadings (Aluminum <0.10 mg/l, Iron < 1.0 mg/l). Flow rates have varied from 30 gpm to over 250 gpm.

### ***Physical Assessment***

Different stream assessment forms and terms can be confusing. Participants will be trained in completing an approved physical stream assessment form including terminology and classifications.

### **12:30: Bag Lunch/Wrap-up**

A bag lunch will be provided at IUP during a conference wrap-up and slide show.

## DIRECTIONS

### from the Northwest

Interstate 79 south to Rt. 422 east  
Exit at Oakland Ave. (Rt. 286)  
Turn left on Oakland Ave.  
Proceed approximately 1 mile, past cemetery on right,  
until you see the university's archway.

### from the Northeast

Interstate 80 west to Rt. 220 south  
Rt. 220 south to Altoona  
Rt. 22 west to Ebensburg  
Rt. 422 West to Indiana  
Exit at Oakland Ave. (Rt. 286)  
Turn right on Oakland Ave.  
Proceed approximately 1 mile, past cemetery on right,  
until you see the university's archway.

### from the Southwest

Rt. 22 east to Indiana exit (1 exit east of Blairsville)  
Rt. 119 north to Indiana  
Rt. 422 west  
Exit at Oakland Ave. (Rt. 286)  
Turn right on Oakland Ave.  
Proceed approximately 1 mile, past cemetery on  
right, until you see the university's archway.

### from the Southeast


Turnpike (Interstate 76) west to Bedford exit 11  
Rt. 220 north to Altoona  
Rt. 22 west to Ebensburg  
Rt. 422 west to Indiana  
Exit at Oakland Ave. (Rt. 286)  
Turn right on Oakland Ave.  
Proceed approximately 1 mile, past cemetery on  
right, until you see the university's archway.

## ACCOMODATIONS

### University Accomodations

Apartment style rooms include common room,  
kitchen facilities, and private bathrooms. All rooms  
are air conditioned.

The University will provide 2 sheets.

 **Visitors will need to provide their own: pillows,  
pillow cases, towels, and washcloths.**

Prices:

\$29.25 per night per person for single occupancy  
\$24.50 per night per person for double occupancy  
\$21.25 per night per person for triple occupancy  
(Reservations should be made on page 7.)

### Local Hotels\*

**A block of rooms has been reserved at:**

Holiday Inn                      \$59.99 per night + tax  
1395 Wayne Ave.                      724-463-3561  
Indiana, PA 15701  
(Group name: AMR Conference)

Visit [www.indiana-co-pa-tourism.org](http://www.indiana-co-pa-tourism.org) for a complete  
listing of hotels and other businesses in Indiana.

**\*Scholarships will be awarded only up to the cost of  
university housing (\$29.25/night).**

### Paul Heyworth Scholarship

In loving memory of Paul Heyworth, life-long volunteer and environmentalist, a limited number of  
scholarships are available to help offset travel costs for members of non-profit organizations. Check the space  
on the registration form if you wish to be considered. Only mileage reimbursement up to \$50 at \$.25/mile and  
housing up to IUP's rates will be considered. Scholarships will be offered on a first come, first serve basis.

# CONFERENCE REGISTRATION - DUE MAY 19, 2004

A separate form is required for each registration. Photocopies are acceptable or download a copy from [www.amrclearinghouse.org](http://www.amrclearinghouse.org).

Name \_\_\_\_\_

Organization (full name + acronym) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone (\_\_\_\_) \_\_\_\_\_ Fax (\_\_\_\_) \_\_\_\_\_ Email \_\_\_\_\_

## CONFERENCE FEES

### Technical Session - June 9-10, 2004

Wednesday  Regular Session \$35 Cost \_\_\_\_\_

*(includes dinner)*

Thursday  Regular Session **or**  AMDTreat \$35 \_\_\_\_\_

*(includes breakfast, lunch)*

### Watershed Session - June 11-12, 2004

Friday  Regular Session **or**  AMDTreat \$25 \_\_\_\_\_

*(includes breakfast, lunch, dinner)*

Saturday  Regular Session \$10 \_\_\_\_\_

*(includes breakfast, lunch)*

### Exhibitor Fee

Please bring your displays to share in the exhibit hall!

Non-profit (free)  Government (\$35)  Corporate (\$125) \_\_\_\_\_

### Accommodations

Indiana University of Pennsylvania *(Remember to bring your own bedding and towels!)*

	Wed	Thurs	Fri		
Single	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$29.25/night x _____ nights =	_____
Double	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$25.50/night x _____ nights =	_____
Triple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$21.25/night x _____ nights =	_____

Roommate(s) \_\_\_\_\_

### Paul Heyworth Scholarship *(see page 6)*

I wish to be considered for the Paul Heyworth scholarship.

**TOTAL** \_\_\_\_\_

REGISTRATION IS DUE BY **MAY 19, 2004!**

Please make checks payable to "IUP" and mail to: Indiana University of Pennsylvania  
Suite 100, Keith Hall  
390 Pratt Drive  
Indiana, PA 15705

*Registration questions should be directed to: Kathy Evanko, IUP - (724) 357-2227  
Programmatic questions should be directed to: Sara Tumulty, WPCAMR - (724) 837-5271*



Department of Environmental Protection  
Office of Mineral Resources Management  
P.O. Box 2063  
Harrisburg, PA 17105-2063

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