



2009 Joint Conference

Annual Meeting of the American Society of
Mining and Reclamation
and

The 11th Billings Land Reclamation Symposium

May 30 – June 5, 2009 * Billings, Montana, USA



FINAL PROGRAM



Conference Theme:

*Revitalizing the Environment: Proven Solutions
and Innovative Approaches*

CONVENERS

American Society of Mining and Reclamation
United States Office of Surface Mining Reclamation and Enforcement
Reclamation Research Group LLC, Bozeman, MT

PROGRAM COMMITTEE

Catena Consulting LLC
CDM Consulting
Montana Bureau of Mines and Geology, Montana Tech-University of Montana
Montana Department of Environmental Quality
Montana Department of Transportation
R & R Consulting
United States Bureau of Land Management
United States Environmental Protection Agency
United States Forest Service
University of Wyoming, Department of Renewable Resources
Wyoming Department of Environmental Quality

FINANCIAL CONTRIBUTORS

Gold Level

Buchanan Consultants
Peabody Energy
Inter-Mountain Labs

Silver Level

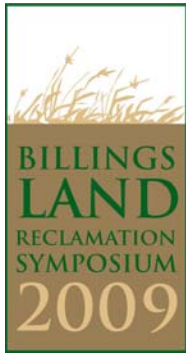
BHP Billiton

Bronze Level

BKS Environmental
HDR Engineering, Inc

Copper Level

Wind River Seed
CDM
Arkansas Valley Seed Co.
SWCA Environmental Consultants
Rocky Mountain Bio Products



Joint Conference
of the
11th Billings Land Reclamation Symposium
&
**26th Annual Meeting of the American Society
of Mining and Reclamation**



***Revitalizing the Environment:
Proven Solutions and Innovative Approaches***

General Program Committee

Peter Bierbach
Bureau of Land Management

Kris Edwards
U.S. EPA

Mike Browne
USDA-Forest Service

Henry Austin and Duane Matt
Office of Surface Mining-WRTT

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Montana Dept. of Transportation

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Robert Postle
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Steve Regele
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Peter Stahl
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Judd Stark
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John Wheaton
Montana Bur. of Mines & Geology

Chris Yde
Montana Dept. of Enviro. Quality

Dave Schellinger
Wyoming Dept. of Enviro. Quality

May 30, 2009

Dear Symposium Attendee:

Welcome to Billings, Montana and the Joint Conference of the 26th Annual Meeting of the American Society of Mining and Reclamation and the 11th Billings Land Reclamation Symposium. The theme of the 2009 Joint Conference is *Revitalizing the Environment: Proven Solutions and Innovative Approaches* highlights a collaborative effort in providing a comprehensive forum for dissemination of land reclamation and restoration topics, and the open discussion of public policy relating to land management issues. This Joint Conference features five technical workshops, 125 presentations of research findings, five technical field tours, and exhibits from industry and government agencies. The General Program Committee invites you to fully participate in this extensive agenda.

The 3rd floor of the Billings Crowne Plaza Hotel is the center of activity for the Joint Conference registration, workshops, technical and poster sessions, exhibits and most social activities. Transportation to and from Pompey's Pillar for the BBQ and Crow Tribal drummers and dancers, and the Field Tours will be from the Conference hotel.

This Final Program provides detailed information and the schedule for all Conference activities. If you need assistance, please stop by the Registration Desk on the 3rd floor of the Crowne Plaza Hotel.

Your participation in this Joint Conference will contribute to the continuing success of the Society's Annual Meetings and the Billings Symposium. Thanks for attending, sharing your expertise with and learning from your colleagues. Enjoy Montana's Big Sky Country.

Sincerely,

Dennis R. Neuman
Joint Conference Co-convenor

GENERAL PROGRAM COMMITTEE

Conveners and Co-Chairpersons

Richard I. Barnhisel
Executive Secretary
American Society of Mining
and Reclamation

Dennis R. Neuman
Principal
RRG, LLC

Robert Postle
Manager
Field Operations
OSMRE

Members

Peter Bierbach
BLM-Montana Field Office

Dawn Major
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Kris Edwards
US EPA-Montana Office

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Robert Rennick
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Mike Browne
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Chris Yde
MT Dept. Environ Quality

Henry Austin
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Duane Matt
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Dave Schellinger
Wyoming Dept.
Environ. Quality

John Wheaton
MT Bureau of Mines and
Geology

2009 Joint Conference Overview

Saturday, May 30, 2009		
Tour 1	Zortman/Landusky, Kendall Mine, Spring Creek Restoration - CANCELLED	7:00 am - lobby
Tour 2	Coal and Coal Bed Methane Reclamation	7:00 am - lobby
Workshop 1	Soil Management for Site Reclamation - Conference Room 1	9:00 am – 3:00 pm
Workshop 2	Remote Sensing – Conference Room 5	8:00 am – 5:00 pm
Sunday, May 31, 2009		
Tour 3	Wetland Mitigation near Laurel and Roundup, Montana	7:00 am - lobby
Workshop 3	A Tool for Selecting Appropriate Vegetation for Restoring Disturbed Sites – CANCELLED	9:00 am – 5:00 pm
Workshop 4	Designing Sustainable Cover Systems & Final Landforms for Mine Waste Storage Facilities – CANCELLED	8:00 am – 5:00 pm
Workshop 5	Test and Treat: Mine Influenced Water Trials and Tribulations – Skybridge 2 (2nd Floor)	9:00 am – 5:00 pm
Exhibits	Exhibitor setup on 3 rd Floor – Ballrooms A & B	1:00 pm – 4:00pm
ASMR Activity	ASMR National Executive Committee Meeting – Boardroom 1 (2nd Floor)	8:00 am – 5:00 pm
Welcome Reception	Hors d'oeuvres, libation, and conversation. Sponsored by Inter-Mountain Labs. Exhibit Hall - Ballrooms A & B	5:00 pm – 7:00 pm
Monday, June 1, 2009		
Plenary Session	Address by Richard Opper, Director of Montana Department of Environmental Quality. Panel discussion – <i>Cooperative Management to Revitalize Landscapes</i> - Ballroom C	8:30 am – 11:00 am
ASMR Activity	ASMR Business Meeting - Ballroom C	11:15 am–12:00 pm
Catered Lunch	Luncheon in Exhibit Hall - Ballrooms A & B	12:00 pm – 1:30 pm
Technical Sessions	<i>Revegetation-Plant Materials; Revegetation-Riparian and Wetland; Case Histories</i>	1:30 pm – 4:30 pm
ASMR Activity	ASMR Technical Division Meetings to be held in Ballroom C, Conference Rooms 1 & 5 and Skybridge Rooms 1 – 3 (2 nd floor)	4:30 pm – 5:30 pm
Tuesday, June 2, 2009		
Technical Sessions	<i>Wyoming Reclamation & Restoration Center; Industrial Innovations; Mine Influenced Waters</i>	8:00 am – 12:00 pm
Lunch	Lunch on your own	
Technical Sessions	<i>Revegetation-Woody Species; Evaluating Revegetation Success; Mine Influenced Waters</i>	1:30 pm – 4:30 pm
Poster Session	Presentations of Technical Posters on 3 rd Floor combined with a Conference Social	4:30 pm – 6:30 pm
Wednesday, June 3, 2009		
Technical Sessions	<i>Revegetation-Woody Species; Water Management; Revegetation-General</i>	8:30 am – 11:30 am
Lunch	Lunch on your own	
Technical Sessions	<i>Western Regional Technology Transfer, Soils and Overburden, Revegetation-General</i>	1:00 pm – 4:00 pm
Conference Evening Social	Transportation to and from Pompeys Pillar, BBQ dinner and entertainment by Crow Tribal Drummers and Dancers. Load buses on west side of Hotel	4:30 pm – 9:30 pm
Thursday, June 4, 2009		
Tour 4	Historic Hardrock Mine Sites and an Active Gold Mine in Western Montana	7:00 am - lobby
Tour 5	Pryor Mountains: Environmental Disturbances, Rehabilitation, and Recovery	7:00 am - lobby
Technical Sessions	<i>Revegetation on Acid Metalliferous Wastes; Soils and Overburden; Technological Tools</i>	8:30 am – 12:00 pm
ASMR Activity	ASMR Awards Luncheon - Ballrooms A & B	12:00 pm – 2:00 pm

REGISTRATION DESK HOURS

3rd Floor – Crowne Plaza Hotel

<u>Day/Date</u>	<u>Time(s)</u>
Friday, May 29	3:30 – 5:30 pm
Saturday, May 30	6:30 am – 12:00 pm and 4:00 – 5:30 pm
Sunday, May 31	6:30 am – 1:00 pm and 4:00 – 6:00 pm
Monday, June 1	7:00 am – 11:30 pm and 1:00 – 5:00 pm
Tuesday, June 2	7:00 am – 12:00 pm and 1:30 – 4:00 pm
Wednesday, June 3	7:30 am – 11:30 am and 1:00 – 4:00 pm
Thursday, June 4	6:30 am – 10:30 am

EVENING WELCOME RECEPTION

The Joint Conference Welcome Reception will be held from 5:00 to 7:00 pm on Sunday, May 31 in the Crowne Plaza Hotel Ballroom for all attendees. Items donated for the ASMR Silent Auction will be accepted and will be on display in Conference Room 4. Light appetizers and refreshments as well as an open bar will be available. Renew old acquaintances and meet new people that share mutual professional interests.

EXHIBITS and TRADESHOW

The Joint Conference Exhibit and Tradeshow serves as an important focal point for participant interaction. All coffee and refreshment breaks, as well as the scheduled catered events, are held in the Exhibit Hall. Setup time for exhibitors will be Sunday, May 31 after 1:00 pm with breakdown after 12:00 pm on Wednesday, June 3.

CATERED EVENTS

Coffee, tea, and pastries in the morning and coffee, tea, soft drinks and snacks in the afternoon will be available in the Exhibit Hall to all Joint Conference participants during the duration of the conference. In addition, a Welcome Reception on Sunday evening, a buffet lunch on Monday, and Hors d'oeuvres during Tuesday's Poster Session will be provided to all participants and are included in your registration fee. A social event for Wednesday evening at Pompey's Pillar has been arranged; however participants are required to pay a \$40 fee for this event. The social includes a western style BBQ and entertainment by Crow Tribal drummers and dancers.

PLENARY SESSION

Monday, June 1, 2009 – 8:30 a.m. Ballroom C

Richard Opper, Director of the Montana Department of Environmental Quality will open the Joint Conference as Keynote Speaker. Mr. Opper, a soil scientist with a Master of Science degree from Montana State University, will address the Joint Conference Theme: *Revitalizing the Environment: Proven Solutions and Innovative Approaches*.

A panel of experts has been selected to present and then lead a discussion with audience participation on *Cooperative Management to Revitalize Landscapes*. Panelists are: Torie Bowman, Western Hardrock Watershed Team; Patrick Angel, Office of Surface Mining; Gary Burnett, Blackfoot Challenge; and Chris Ross, Nevada AML Program.

ASMR GENERAL BUSINESS MEETING

Monday, June 1, 2009 – 11:15 a.m. Ballroom C

The General Business Meeting of the members of the Society will be held in Ballroom C. This function is to be attended by all active members, former members, and interested individuals. The status and future plans of the Society will be presented by Officers of American Society of Mining and Reclamation.

PRE-CONFERENCE WORKSHOPS

- **Soil Management for Site Reclamation**

Date: Saturday, May 30, 9:00 am to 3:00 pm

Lead Instructor: Dr. Peter Stahl, University Wyoming, Department of Renewable Resources

Number of Students: 10 (minimum) to 20 (maximum); **Cost:** \$90.00

The objective of this workshop is to discuss soil related issues of importance to environmental specialists working on reclamation of oil and gas drill pads and surface coal mines. Topics to be discussed include management of soil properties, soil amendments, prevention of soil erosion, soil stockpiling, and seedbed preparation. In addition to the workshop leaders, speakers will include practicing reclamationists with expertise in the given topic areas.

- **Basics of Remote Sensing for SMCRA Applications**

Date: Saturday, May 30, 8:00 am to 5:00 pm

Lead Instructor: Dianne Osborne, Office of Surface Mining

Number of Students: 10 (minimum) to 25 (maximum); **Cost:** \$110.00

This workshop will provide a basic overview of what remote sensing is and how it can be used to support mining and reclamation applications. Attendees will learn what types of remotely sensed imagery are available, what imagery costs, how to decide what type of imagery to use, and how to get imagery. Current remote sensing applications and how to use data mining tools to support these applications will be presented.

- **A Tool for Selecting Appropriate Vegetation for Restoring Disturbed Sites**

Date: Sunday, May 31, 8:00 am to 5:00 pm – ***THIS WORKSHOP HAS BEEN CANCELLED.***

- Designing Sustainable Cover Systems and Final Landforms for Mine Waste Storage Facilities.

Date: Sunday, May 31, 8:00 am to 5:00 pm – *THIS WORKSHOP HAS BEEN CANCELLED.*

- Test & Treat: Mine Influenced Waters Trials and Tribulations

Date: Sunday, May 31, 9:00 am to 5:00 pm

Lead Instructor: Dr. David Reisman, Director of ORD, Engineering Technical Support Center, US Environmental Protection Agency, Jim Gusek and Thomas Rutkowski, Golder Associates

Number of Students: 10 (minimum) to 20 (maximum)

Cost: \$110.00

This workshop will focus on the U.S. EPA and its contractor, Golder Associates, Inc. testing of various mine influenced water (MIW) and different treatment methods at abandoned and closed mine sites in the United States during the last 7 years. The presenters will focus on the water chemistry, the type of treatment used, and the results for several biochemical reactors (BCRs). Emphasis will be placed on lessons learned at each site with specific recommendations regarding future tests that can be used by attendees planning their own testing in the future. This workshop is sponsored by the Engineering Technical Support Center, Office of Research and Development, U.S. EPA, Cincinnati, Ohio.

PRE-CONFERENCE FIELD TOURS

- Wetland Mitigation Near Laurel and Roundup, Montana.

This tour, conducted by Montana Department of Transportation ecologists visited three wetland mitigation sites in the general Billings area. Two sites were historically used as aggregate borrow sites, while the third is a retired sewage treatment lagoon. Widely fluctuating water tables, conflicts with adjacent aggregate operations, invasive species and public use are ongoing issues with both sites. The converted sewage treatment facility presents unique challenges with water quality and residual nutrient loading. Efforts to establish emergent wetland communities have been slow to develop, though wildlife use is at target levels.

- Coal Mine and Coalbed Methane Development and Reclamation – Powder River Basin in Montana and Wyoming.

This two-day tour included stops at active coal mines to discuss permitting and reclamation issues, visits to coalbed methane areas where disturbance, reclamation, and water management were discussed. Discussions of energy development relative to preservation were held at the Big Horn National Battlefield and the Rosebud Battlefield. Highlights of this tour included visits to the Spring Creek Mine and the Tongue River.

POST-CONFERENCE FIELD TOURS

- Historic Hard Rock Mine Sites and an Active Gold Mine in Western Montana

The intent of this 2 day trip is to show participants land disturbances and residual contamination caused by mining and the innovative approaches being used to achieve successful reclamation of historic and active mine sites under the law. The trip includes examples of land rehabilitation associated with large-scale open pit and underground mining. The agenda includes a tour of Butte to observe the legacy of large mining operations in an urban environment, visits to historic hard rock mining sites in the mountains of Western Montana, and a visit to the Montana Tunnels Gold Mine, a large active mine near Helena, Montana.

▪ Pryor Mountains Environmental Disturbances, Rehabilitation and Recovery

Geology, ecology and natural resources of the Pryor Mountains and surrounding areas of Montana and Wyoming will be discussed and briefly visited during this one day tour. Special features of the Pryor Mountains include proximity to the largest bentonite reserves in North America, limestone canyon lands and uranium deposits, ancestral wild horse herds, diverse and exceptional wildlife and floral populations, abrupt transitions from xeric to coniferous forest ecosystems, regional oil and gas fields, and a rich history of human use. Presentations of reclamation practices and procedures will include discussion of reclamation management challenges presented by recreation and grazing uses, radioactivity, and xeric environments.

ASMR ACTIVITIES

▪ ASMR National Executive Committee Meeting

Sunday, May 31, 8:00 am in Boardroom 1 (2nd Floor)

▪ ASMR Business Meeting for All Members

Monday, June 1, 11:15 am in Ballroom C

▪ ASMR Technical Division Meetings

Monday, June 1, 4:30 pm

Ecology – Conference Room 1; Forestry & Wildlife – Conference Room 5; Geotechnical Engineering – Skybridge 1; International tailings & Reclamation – Skybridge 2; Land Use Planning and Design – Skybridge 3; Soil & Overburden – Ballroom C; Water management – Ballroom C.

▪ ASMR Awards Luncheon

Thursday, June 4, 12 noon, Ballroom A and B

ORGANIZED SOCIAL EVENT – DINNER AND ENTERTAINMENT

Wednesday, June 3, 4:30 p.m. Pompeys Pillar

An evening social for attendees is scheduled for Wednesday, June 3. Buses will provide transportation to Pompeys Pillar east of Billings. Located along the Lewis and Clark National Historic Trail, Pompeys Pillar was proclaimed a national monument in January 2001. During his return trip to St. Louis, Captain William Clark of the Lewis and Clark Expedition climbed the Pillar and carved his signature and the date in the sandstone. A western style BBQ will include dinner, beer, wine and soft drinks. Special entertainment will feature Crow Tribal Native Dancers and the Black Whistle Drum Group. A bluegrass band will provide additional musical entertainment. This Joint Conference event is not to be missed. Cost is \$40. Transportation by bus to and from is included in the price. Buses start loading at 4:30 p.m. outside the Hotel. You must present your ticket to get on the bus. Private transportation is strongly discouraged by the Joint Conference Program Committee.

TECHNICAL CONCURRENT SESSIONS – Tuesday, June 2

TIME	<i>CONFERENCE ROOM NUMBER 1</i> Wyoming Reclamation & Restoration Center <i>Moderator Steve Williams</i>	<i>CONFERENCE ROOM NUMBER 5</i> Industrial Innovations <i>Moderator Robert Rennick</i>	<i>BALLROOM C</i> Mine Influenced Waters <i>Moderator David Reisman</i>
8:00	Activities of the Wyoming Reclamation and Restoration Center <i>S. Williams</i>	AM-Colonized Plant Materials for Mined-Land Reclamation <i>T. Meikle</i>	Passive Treatment and Monitoring at the Standard Mine Superfund Site, Crested Butte, CO <i>D. Reisman</i>
8:30	Ecosystem Recovery on Reclaimed Surface Minelands <i>P. Stahl</i>	Multiple Site Evaluation of RCTS™ Acid Mine Drainage Treatment, Emergency Mobilization, and Lime Utilization <i>T. Tsukamoto</i>	A Periodic Table of Passive Treatment for Mining Influenced Waters <i>J. Gusek</i>
9:00	Effects of Natural Gas Well Development, Reclamation, and Controlled Livestock Impact on Topsoil Properties <i>J. Norton</i>	An Investigation to Use Tailing Ponds as Solar Photovoltaic Farms <i>M. Momayez</i>	Overcoming the Obstacles of Operating a Biochemical Reactor and Aerobic Polishing Cell Year Round in Central Montana <i>E. Blumenstein</i>
9:30	Integrated Reclamation: Approaching Ecological Function <i>A. Hild</i>	Geotechnical Considerations for Solar Panel Installation on Mine Tailings <i>S. Annavarapu</i>	Rapid Alkalinity Generation and Metal Removal from Mine Impacted Water Using Crab-Shell Chitin Under Abiotic Conditions <i>M. Robinson-Lora</i>
10:00	COFFEE BREAK IN EXHIBIT HALL – Sponsored by SWCA Environmental Consultants and Arkansas Valley Seed		
10:30	Impacts of Oil and Natural Gas on Prairie Grouse: Current Knowledge and Research Needs <i>J. Beck</i>	Clean Coal Biotechnology for Montana <i>T. Rossetto</i>	Rotating Cylinder Treatment System Demonstration <i>P. Smart</i>
11:00	Coalbed Methane Natural Gas(CBNG) Produced Water: Outfalls and Disposal Ponds <i>K. Reddy</i>	Reduced-Impact Land Disturbance Techniques for Natural Gas Production <i>M. Mitchem</i>	Performance of an Ecologically-Engineered Multistage Acid Mine Drainage and Municipal Wastewater Co-Treatment System <i>W. Strosnider</i>
11:30	Economic Issues and Policies that Affect Reclamation Decision Making <i>M. Andersen</i>	<i>A Summary of Some Land Surface and Water Quality Monitoring Results for Constructed Geofluv Landforms</i> <i>N. Bugosh</i>	
12:00	LUNCH BREAK		

TECHNICAL CONCURRENT SESSIONS – Tuesday, June 2 (Continued)

TIME	CONFERENCE ROOM NUMBER 1 Revegetation – Woody Species <i>Moderator Vic Davis</i>	CONFERENCE ROOM NUMBER 5 Evaluating Revegetation Success <i>Moderator Mike Browne</i>	BALLROOM C Mine Influenced Waters <i>Moderator David Reisman</i>
1:30	Measuring Success of the Forestry Reclamation Approach and the Measure of its Success in Appalachia <i>P. Angel</i>	A Qualitative Reclamation Assessment Handbook for Abandoned Hardrock Mine Lands <i>P. Blicher</i>	Reduction of Fecal Indicator Bacteria Counts in an Ecologically-Engineered Acid Mine Drainage and Municipal Wastewater Passive Co-Treatment System <i>B. Winfrey</i>
2:00	Capability of Reclaimed Mined Land for Supporting Reforestation With Seven Appalachian Hardwood Species <i>J. Burger</i>	Land Reclamation Performance Evaluation Process and Standards Used at the Anaconda Smelter Site, Montana <i>R. Rennick</i>	Preliminary Evaluation of Locally Available Organic Substrates for Vertical Flow Passive Treatment Cells in Potosi, Bolivia <i>B. Santamaria</i>
2:30	Effects of Seedling Size and Ground Cover on the First-Year Survival of Planted Pine and Hardwoods Over an Extreme Drought <i>J. Franklin</i>	Montana's Framework for Establishing Technical Vegetation Standards <i>S. Downey</i>	Acid Mine Drainage Impacts on Irrigation Water Resources, Agricultural Soils, and Potatoes in Potosi, Bolivia <i>A. Garrido</i>
3:00	First Year Response of Mixed Hardwoods and Improved American Chestnuts to Compaction and Hydroseed Treatments on Reclaimed Mine Land <i>C. Fields-Johnson</i>	Using Reference Areas vs. Technical Standards in Assessing Revegetation Success: A Quantitative Case Study <i>C. Vik</i>	Response and Recovery of Sulfate-Reducing Biochemical Reactors from Aerobic Stress Events <i>E. Perrault</i>
3:30	Survival and Growth of Five Chestnut Seed Types on Mountaintop Surface Mine in West Virginia <i>J. Skousen</i>	Climatic Adjustments on Reclaimed Cropland Yields for Final Bond Release <i>S. Schroeder</i>	Evaluation of First 1.5 Years of Operation of a Passive Treatment System in SE Oklahoma <i>J. LaBar</i>
4:00	Effect of Vegetation Cover and Seasonal Drought on Loblolly Pine Survival on Reclaimed Mine Soil <i>D. Lang</i>	A Method for Assessing Vegetation Adequacy for Phase II Bond Release in Montana <i>S. Downey</i>	Challenges in Design and Construction of a Large Multi-Cell Passive Treatment System for Ferruginous Lead-Zinc Mine Waters <i>R. Naim</i>
4:30	POSTER SESSION IN EXHIBIT HALL AREA – with light refreshments and libations		

POSTER SESSION PRESENTATIONS – Tuesday June 2, 4:30 – 6:30 pm

Acid Mine Drainage Prevention Using Biological Source Treatment: Coal and Hard Rock Experiments – <i>J. Morris</i>	Rapid Removal of Fine Particles in Mine Water by Use of Coagulation and Flocculation Process - <i>M. Jang</i>
Toxicity and Genotoxicity Evaluation of Mine Acid Drainage Treatment Using <i>Artemia</i> sp. and <i>Geophagus brasiliensis</i> as Bioindicators – <i>F. da Silveria</i>	Evaluation of the Relative Importance of Lead in Air and in Soil as Sources of Elevated Blood Levels in East Helena, Montana – <i>L. Todd</i>
The Role of Dissolved Organic Carbon in Acetate Biostimulated Uranium Attenuation – <i>J. Hartmann</i>	In-situ Uranium Mining Well Field Design Considerations – <i>S. Way</i>
Switchgrass Production Potential on Reclaimed Surface Mines in West Virginia – <i>T. Keene</i>	Pilot-scale Tests of Oxidation and Neutralization for Mine Water: Precipitation Aspect – <i>M. Jang</i>
Development of Rhizobiaceae and Fabaceae Symbioses for Enhancing Biological Inputs of Nitrogen in Reclamation of Disturbed Lands in Wyoming – <i>N. Bird</i>	Five Years of Plant Community Establishment on Interim Reclamation on Molybdenum Tailings – <i>J. Voss</i>
Chitin as a Fractional Amendment to Compost to Enhance the Efficiency of MIW Treatment: Longevity Tests in Continuous Flow Columns – <i>C. Newcombe</i>	Landscape Restoration Regionalization for Resource-Exhausted Coal Mine Areas Based on GIS – <i>L. Wang</i>
Application of a Saturated-Unsaturated Groundwater Flow Model to Simulating the Probable Hydrologic Consequences of Mining at the Navajo Mine Extension Project, New Mexico – <i>A. O'Hayre</i>	Influence of Topsoil Depth on Vegetation Establishment Following Mine Land Reclamation – <i>J. Voss</i>
Biogeochemical Characterization of Agricultural Soils Polluted by Industrial Wastewaters: Implications for Bioremediation – <i>S. Chaerun</i>	Site Specific Reclamation: Reclamation Prescriptions Individualize for Successful Results – <i>K. House</i>
Revegetation of Acid Forming Gold Mining Spoils Containing High Levels of Arsenic – <i>I. de Assis</i>	Applying RS and GIS to the Monitoring of Soil Erosion in Deep Coal Mines – <i>S. Tang</i>
Comparison of A Neutron Probe with A PR-2 Soil Moisture Meter – <i>M. O'Neill</i>	The Application of 3S Techniques to the Techniques to the Reclamation of Chinese Coal Refuse Disposal Pile – <i>S. Tang</i>
Use of Recent and Historical Aerial Photography Interpretation Techniques to Quantify Post-Mining Reforestation Change and Associated Carbon Sequestration in Southwestern Virginia – <i>D. Osborne</i>	Microbial and Substrate Characterization of Four BLM Biochemical Reactor Systems in the Coeur D'Alene Idaho Area – <i>R. Hernández</i>
Prioritizing Abandoned Uranium Mine Land Reclamation Using a GIS Model – <i>L. DeLay</i>	Evaluation of Various Ion Exchange Resins for Determining Uranium Groundwater Flux – <i>V. Stucker</i>
Stabilization of Arsenic in Mine Tailings with Nano-sized Zero Valent Iron and Magnetite - <i>K. Kim</i>	Water Quality and the Fate and Transport of Arsenic in a Coalbed Natural Gas Produced Water Water Quality and the Fate and Transport of Arsenic in a Coalbed Natural Gas Produced Water Impoundment – <i>J. Sowder</i>
Characterization of Sludge in SAPS System – <i>H. Park</i>	Evaluation of Mine Acid Drainage Treatment Using <i>Artemia</i> sp. and <i>Allium cepa</i> L. Bioindicators of Toxicity and Genotoxicity – <i>T. Defaveri</i>
Influence of Differing Mine Site Characteristics and Planting Treatments on Survival and Bud Set Timing of <i>Castanea Dentate</i> – <i>C. Miller</i>	Zinc Increased Rooting by 280% in Transplants – <i>J. Wheeler</i>
Enhanced Microbiological Generation of Coalbed Methane - <i>L. Gallagher</i>	Coalbed Natural Gas (CBNG) Water Quality Trends in the Powder River Basin, Wyoming – <i>A. Whitman</i>
	Developing Adaptive Biological Strategies Within Current Monitoring Plans to Benefit Sensitive Species and Facilitate Mine Operations on Tribal Lands – <i>J. Zahratka</i>

TECHNICAL CONCURRENT SESSIONS – Wednesday, June 3

TIME	CONFERENCE ROOM NUMBER 1 Revegetation – Woody Species <i>Moderator Abby Wick</i>	CONFERENCE ROOM NUMBER 5 Water Management <i>Moderator B. T. Thomas</i>	BALLROOM C Revegetation – General <i>Moderator Peter Stahl</i>
8:30	Short- and Long-Term Transplant Performance on Mine Rock Material, Questa Mine, New Mexico <i>B. Young</i>	Assessment and Treatment Options at the Young Dong Coal Mine Site, South Korea <i>J. Ranville</i>	A Tool for Selecting Appropriate Vegetation for Restoring Disturbed Sites in Eastern Montana and Adjacent Areas <i>P. Hansen</i>
9:00	The Use of Landscape Fabric and Supplemental Irrigation to Enhance Survival and Growth of Woody Perennials Planted on Reclaimed Surface Mine Lands <i>R. Musselman</i>	Evaluating the Potential Impact of Surface Mining on Water Quality and Macroinvertebrate Communities in a Native Brook Char Fishery <i>F. Brenner</i>	Revegetating Topsoil, Scoria, and Spoil in Montana <i>R. Prodgers</i>
9:30	Effects of Sub-Irrigation Tubes and Cover Type on Woody Plant Establishment <i>J. Scianna</i>	Performance of a Full-Scale Horizontal-Flow Wetland for Zinc <i>M. Fitch</i>	Patterns of Annual Brome Abundance in Reclaimed and Native Rangelands in the Northern Great Plains: A Case Study from the Big Sky Mine, Southeastern Montana <i>D. Buckner</i>
10:00	COFFEE BREAK IN EXHIBIT HALL – Sponsored by <i>Wind River Seed and Rocky Mountain Bio Products</i>		
10:30	Fifth Year Transplant Survival on Constructed Test Plots, Questa Mine, Questa, New Mexico <i>A. Wagner</i>	The Effect of a Soil Cover on Dump Respiration and Seepage Quantity and Quality <i>M. Phillip</i>	Grass Establishment on Natural Gas Drill Pads in Wyoming as Impacted by Reclamation Techniques <i>S. Gundlach</i>
11:00		An Analysis of Steel Slag and Its Use in Acid Mine Drainage (AMD) Treatment <i>B. Mack</i>	Revegetation Monitoring at Block P Mill and Tailings Site, Montana <i>G. Massey</i>
11:30	LUNCH BREAK		
	Western Regional Technology Transfer <i>Moderator Duane Matt</i>	Soils and Overburden <i>Moderator Jerry Schuman</i>	Revegetation – General <i>Moderator Frank Munshower</i>
1:00	Each OSM region has a regional technology transfer team (Western Region that identifies, advances and develops technical solutions. The first part of this Session is open to all conference participants)	Topsoil: What is it and Who Cares? <i>R. Darmody</i>	Revegetation Trials in the Pinedale Anticline Project Area <i>S. Winslow</i>
1:30		Soil Respread Depths: Do We Know Enough to Implement Change? <i>S. Flath</i>	Nothing But Borrow – Revegetation Without Topsoil <i>R. Prodgers</i>
2:00		The Potential for Carbon Sequestration on Degraded Lands Within North Central Montana <i>J. Watts</i>	Mining Reclamation for Wildlife in West Virginia: A Continuing Challenge <i>R. Kelley</i>
2:30	COFFEE BREAK IN EXHIBIT HALL		
3:00	Western Regional Technology Transfer - continued	Redevelopment of Soil Carbon Pools on Reclaimed Surface Mine Lands <i>P. Stahl</i>	Sharp-Tailed Grouse Return to Mined Land <i>R. Karo</i>
3:30		Microbial Biomass of Reclaimed Soils Following Coal Mining in Virginia <i>H. Clayton</i>	Integrated Evaluation of Ecological Sustainability of a Mining Area in the Western Region of China <i>Y. Hao</i>

TECHNICAL CONCURRENT SESSIONS –Thursday, June 4

TIME	CONFERENCE ROOM NUMBER 1 Revegetation on Acid Metalliferous Wastes <i>Moderator Kris Edwards</i>	CONFERENCE ROOM NUMBER 5 Soils & Overburden <i>Moderator Jeff Skousen</i>	BALLROOM C Technological Tools <i>Moderator Kim Vories</i>
8:30	Mobility and Bioavailability of Arsenic, Lead, Copper, and Zinc at the Avoca Mine Site, County Wicklow, Ireland <i>K. Whiting</i>	A Model for Evaluating and Comparing Soil and Site Factors Affecting Productivity of Disturbed and Undisturbed Similar and Dissimilar Soils <i>R. Sinclair</i>	Assessing the Use of High Resolution Satellite Imagery to Inventory Abandoned Mine Land Features in Virginia <i>D. Osborne</i>
9:00	Acid Neutralizing Capacity and Leachate Results for Igneous Rocks, with Associated Carbon Contents of Derived Soils, Animas River AML Site, Silverton, CO <i>D. Yager</i>	Land Application of Coalbed Methane Produced Water: Changes in Soil Chemistry Through Time <i>K. Norvell</i>	Field GPS vs. Remote Sensing Workflows for Landform Review: Selecting the Right Technology for the Job <i>R. Calhoun</i>
9:30	Characterization and Treatment of Metal Contaminated Irrigated Meadows Adjacent to the Arkansas River Near Leadville, CO <i>S. Jennings</i>	Physical Protection of Organic Matter in Reclaimed Coal Mine Soils of SW Virginia <i>A. Wick</i>	Using ArcPad® to Identify Soil Probe Locations for Verifying Soil Respread Thickness on Reclaimed Land <i>B. Gunnerson</i>
10:00	COFFEE BREAK IN EXHIBIT HALL - Sponsored by CDM		
10:30	Direct Revegetation of Acidic Mine Tailings at the Idarado Mine Site in Southwest Colorado <i>E. Redente</i>	Spoil Quality Effects on Vegetation Establishment and Species Composition Following Reclamation of Mined Lands in Arid New Mexico <i>S. Perkins</i>	Inspection Assistance Using Remote Sensing Imagery <i>C. Bailey</i>
11:00	Potential of Three Legume Species for Phytoremediation of Arsenic Contaminated Soils <i>L. Dias</i>	Chemical and Mineralogical Characterization of Agricultural Soils Inundated by the December 26, 2004 Tsunami After Intrinsic Bioremediation in Banda Aceh, Sumatra Island, Indonesia <i>S. Chaerun</i>	Recent Developments in Close Range Photogrammetry for Mining and Reclamation <i>M. Dunn</i>
11:30	Metal Levels in Vegetation Growing on <i>In Situ</i> Treated Acid Metalliferous Mine Wastes in Montana <i>D. Neuman</i>		Mapping Vegetation Change on a Reclaimed Surface Mine Using Quickbird <i>M. Shank</i>
12:00	ASMR AWARDS LUNCHEON IN BALLROOM - Sponsored by Peabody Energy		

EXHIBITORS

ACZ Laboratories, Inc.
Arkansas Valley Seed
BHP Billiton
BioLynceus
BKS Environmental Services
Coal Black Liquids
Energy Laboratories, Inc.
Granite Seed Company
HDR Engineering, Inc.
Herrera Environmental Consultants
In-Situ Inc.
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