National Conference on Mining-Influenced Waters

Approaches for Characterization, Source Control and Treatment

August 12-14, 2014 • Albuquerque, New Mexico

Sponsored by the U.S. Environmental Protection Agency

CONFERENCE AGENDA

Day 1 – Tuesday, August 12, 2014

7:30 AM – 5:00 PM **Registration & Name Badge Pickup** (*Grand Ballroom Foyer*)

Grand Ballroom

	Plenary Session **Session Chairs: Douglas Grosse and Diana Bless, U.S. EPA/ORD/NRMRL**
8:30 AM – 8:45 AM	**Greetings and Opening Remarks** – Douglas Grosse, Conference Co-Chair, Senior Environmental Engineer, National Risk Management Research Laboratory (NRMRL), Office of Research and Development (ORD), U.S. Environmental Protection Agency (EPA)
8:45 AM – 9:05 AM	**EPA Region 6 Program and Priorities** – Ron Curry, Regional Administrator, Region 6, U.S. EPA
9:05 AM – 9:25 AM	**Superfund Mine Site Challenges and Opportunities** – Robin H. Richardson, Acting Director, Office of Superfund Remediation and Technology Innovation (OSRTI), Office of Solid Waste and Emergency Response (OSWER), U.S. EPA
9:25 AM – 9:45 AM	**Scientific Assessments Informing Decisions: The Bristol Bay Assessment Example** – Jeffrey Frithsen, Ph.D., Senior Scientist, National Center for Environmental Assessment (NCEA), ORD, U.S. EPA
9:45 AM – 10:10 AM	**Break** (*Grand Ballroom Foyer*)
10:10 AM – 10:15 AM	**Identifying Opportunities for the Sustainable Management of Rare Earth Element (REE) Applications** – Diana Bless, Chemical Engineer, NRMRL, ORD, U.S. EPA
10:15 AM – 10:40 AM	**EPA Report on Treatment Technologies for Mining-Influenced Water** – Michele Mahoney, Soil Scientist, OSRTI, OSWER, U.S. EPA
10:40 AM – 11:05 AM	**Partnering to Support Sustainable Mining** – Terrence Chatwin, Ph.D., Technical Director, INAP
11:05 AM – 11:30 AM	**Dramatic Improvements at Margajita River, Pueblo Viejo Gold Mine, Dominican Republic** – Carlos Tamayo Lara, Ph.D., Environmental Manager, Barrick Gold Corporation

11:30 AM – 1:00 PM **Lunch** (*on your own*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	1 Characterization **Session Chair: Carol Russell, U.S. EPA Region 8**	**2 Source Control / Mine Closure Approaches** **Session Chair: Shahid Mahmud, U.S. EPA/OSWER/OSRTI**
1:00 PM – 1:30 PM	**Characterizing Mining-Related Contamination in the Ocoee River, Tennessee** – Thomas Moyer, Ph.D., Black & Veatch Special Projects Corporation	**Land Application of Biochemical Reactor Effluent: An Innovative Method for Mitigating Acid Rock Drainage** – James Gusek, Sovereign Consulting, Inc.
1:30 PM – 2:00 PM	**Application of Tracer Studies in Assessment of Abandoned Mines** – Curt Coover, CDM Smith	**Dissolved Organic Carbon Augmentation: An Innovative Tool for Managing Operational and Closure-Phase Impacts from Mining on Surface Water Resources** – Charles Wisdom, Ph.D., Geosyntec Consultants
2:00 PM – 2:30 PM	**The Continuing Evolution of Ground Water Sampling Methods** – Kent Cordry, GeoInsight, Inc.	**Influence of Pre-Mine Weathering and Rock Type on TDS Release from Appalachian Coal Mine Spoils** – W. Lee Daniels, Ph.D., Virginia Tech

2:30 PM – 3:00 PM **Break** (*Grand Ballroom Foyer*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	3 Characterization (cont.) **Session Chair: Krista McKim, U.S. EPA Region 5**	**4 Source Control / Mine Closure Approaches (cont.)** **Session Chair: John Hillenbrand, U.S. EPA Region 9**
3:00 PM – 3:30 PM	**High Spatial and Temporal Resolution of Contaminated Flows** – Ian Sharp, FLUTe	**Design Aspects of Mine Site Cover Systems** – Stephen Dwyer, Ph.D., Sandia National Laboratories
3:30 PM – 4:00 PM	**Techniques for Successful Storm-Water Monitoring in a Mining-Influenced Watershed** – Thomas McComb, Barge Waggoner Sumner and Cannon, Inc.	**Bio-mediated Soil Improvement Field Study for Erosion Control and Site Restoration** – Christopher Hunt, Ph.D., Geosyntec Consultants
4:00 PM – 4:30 PM	**Insights on Mine Site Characterization from EPA's Optimization Review Initiative** – Tom Kady, U.S. EPA Environmental Response Team	**Long-Term Results of Cover System Monitoring in Semi-arid Western USA** – Monisha Banerjee, Ph.D., GeoSystems Analysis, Inc.

5:00 PM – 6:30 PM **Poster Session** (*Roxy Room*)

Day 2 – Wednesday, August 13, 2014

7:30 AM – 5:00 PM **Registration & Name Badge Pickup** (*Grand Ballroom Foyer*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	5 Characterization (cont.) **Session Chair: James Sickles, U.S. EPA Region 9**	**6 Water Treatment** **Session Chair: James Hanley, U.S. EPA Region 8**
8:30 AM – 9:00 AM	**Effective Field Techniques and Watershed Modeling for Characterizing Mercury Loading to Surface Water, Black Butte Mine Superfund Site, Lane County, Oregon** – Howard Young, CDM Smith	**The Economics of Water Treatment: Conventional versus High Density Sludge Precipitation** – Mary Boardman, Colorado Department of Public Health and Environment
9:00 AM – 9:30 AM	**On the Problem of Hydraulic Characterization of Gravelly Mine Waste and Cover System Materials** – Tzung-Mow Yao, Ph.D., GeoSystems Analysis, Inc.	**Alkaline Flush: An Emerging Technology for In Situ Treatment of Mine Impacted Alluvial Aquifers** – Olufunsho Ogungbade, Freeport-McMoRan
9:30 AM – 10:00 AM	**Shaft Sampling and Profiling at the Section 27 Mine** – Cynthia Ardito, INTERA, Inc.	**Innovative Contaminant Removal from Mining Water with a Single Pass Advanced Treatment System** – William Roper, Ph.D., Micronic Technologies Corporation

10:00 AM – 10:30 AM **Break** (*Grand Ballroom Foyer*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	7 Characterization (cont.) **Session Chair: Mark Purcell, U.S. EPA Region 6**	**8 Water Treatment (cont.)** **Session Chair: Gary Riley, U.S. EPA Region 9**
10:30 AM – 11:00 AM	**Lessons Learned from Mining-Influenced Waters Studies at the New Mexico Bureau of Geology and Mineral Resources** – Virginia McLemore, Ph.D., New Mexico Bureau of Geology and Mineral Resources	**Biochemical Reactors for Treating Mining Influenced Water** – Douglas Bacon, State of Utah Department of Environmental Quality
11:00 AM – 11:30 AM	**Assessing the Influence of Copper-Nickel-Bearing Bedrocks on Baseline Water Quality in Three Northeastern Minnesota Watersheds** – Perry Jones, U.S. Geological Survey	**Enhanced Sulfate Reduction Treatment of Mining-Influenced Water Using Biochemical Reactors - Impacts on Mercury Speciation** – Stephen Dent, Ph.D., CDM Smith
11:30 AM – 12:00 PM	**Evapotranspiration and Geochemical Controls on Groundwater Plumes at Arid Sites: Lessons from Archetype Uranium Milling Sites** – Brian Looney, Ph.D., Savannah River National Laboratory	**Biochemical Reactors for Passive Treatment of Selenium** – James Bays, CH2MHILL

12:00 PM – 1:30 PM **Lunch** (*on your own*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	9 Source Control / Mine Closure Approaches (cont.) **Session Chair: Stephen Hoffman, U.S. EPA/OSWER**	**10** Water Treatment (cont.) **Session Chair: Joy Jenkins, Ph.D., U.S. EPA Region 8**
1:30 PM – 2:00 PM	**Strategy and Design Considerations for Prioritization of Mine Waste Source Area Remediation within the Headwaters of the Tar Creek Watershed** – Marc Schlebusch, CDM Smith	**Treatability Studies for Acidic Mining-Influenced Water** – Angela Frandsen, CDM Smith
2:00 PM – 2:30 PM	**Acid Rock Drainage Source Control and Tailings Pile Closure at the Elizabeth Mine Superfund Site, Orange County, Vermont** – Andrew Boeckeler, Nobis Engineering, Inc.	**Innovative Biological and Molecular Tools Applied to Mine Waste Issues** – Brady Lee, Pacific Northwest National Laboratory
2:30 PM – 3:00 PM	**Passive Interflow Controls: An Approach to Improve Best Management Practices for Water Diversion at Abandoned Mine Sites** – Gary Hazen, CDM Smith	**Electro-Biochemical Reactor Water Treatment Technology Demonstrates Low Selenium and Other Metal Effluents in Hardrock Mining Wastewaters** – A. Ola Opara, Ph.D., Inotec, LLC

3:00 PM – 3:30 PM **Break** (*Grand Ballroom Foyer*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	11 Source Control / Mine Closure Approaches (cont.) **Session Chair: Carter Jessop, U.S. EPA Region 9**	**12** Water Treatment (cont.) **Session Chair: Michele Mahoney, U.S. EPA/OSWER/OSRTI**
3:30 PM – 4:00 PM	**Advances in Groundwater Remediation and Modeling for Mining-Related Contaminants** – Michael Truex, Pacific Northwest National Laboratory	**Iron Mountain Mine Superfund Site – Long Term O&M Challenges** – James Sickles, U.S. EPA Region 9
4:00 PM – 4:30 PM	**Hydrologic and Water-Quality Effects of the Dinero Tunnel Bulkhead, Sugar Loaf Mining District, Near Leadville, Colorado: Implications for Monitoring Remediation** – Katherine Walton-Day, Ph.D., U.S. Geological Survey	**Characterization and Remediation of Iron(III) Oxide-Rich Scale in a Pipeline Carrying Acid Mine Drainage at Iron Mountain Mine, California, U.S.A.** – Kate Campbell, Ph.D., U.S. Geological Survey
4:30 PM – 5:00 PM	**In-Situ Nitrate and Selenium Reduction/Stabilization within Coal Waste Rock: Bench-Scale Evaluation** – A. Ola Opara, Ph.D., Inotec, LLC	**Tackling AMD, Mining Impacted Groundwater and Private Mine Ownership in a Superfund Site that Spans the Panhandle of Idaho** – Ed Moreen, U.S. EPA

Day 3 – Thursday, August 14, 2014

7:30 AM – 12:00 PM **Registration & Name Badge Pickup** (*Grand Ballroom Foyer*)

	Track A (*Regal/Wurlitzer Room*)	Track B (*Ambassador/Registry Room*)
	13 Beneficial Use **Session Chair: Scott Jacobs, U.S. EPA/ORD/NRMRL**	**14 Prediction and Modeling** **Session Chair: Robert Weber, U.S. EPA/ORD**
8:00 AM – 8:30 AM	**Extraction of Useful Resources from Mining-Influenced Water (MIW)** – Kate Campbell, Ph.D., U.S. Geological Survey	**Approach for Estimating a Probable Range of Pit Lake Concentrations for Mine Pits with Sulfide Wall Rock** – Steven Lange, Knight Piésold and Co.
8:30 AM – 9:00 AM	**Large-Scale Treatment of Agricultural Effluents Using Mine Drainage Residuals** – Philip Sibrell, U.S. Geological Survey	**Assessing Potential Impacts from Underground Mine Dewatering in the Gallup, Dakota, and Westwater Canyon Aquifers with a Basin-Wide Groundwater Flow Model** – John Sigda, Ph.D., INTERA, Inc.
9:00 AM – 9:30 AM	**Jordan River & Midvale Slag Superfund Site-Beneficial Use** – Marian Hubbard, Salt Lake County Watershed Planning and Restoration	**Contaminated Sediment Fate and Transport Model in the Tri-State Mining District** – Douglas Grosse, U.S. EPA/ORD/NRMRL

9:30 AM – 10:00 AM **Break** (*Grand Ballroom Foyer*)

	Grand Ballroom
	15 Closing Session **Session Chair: Douglas Grosse, U.S. EPA/ORD/NRMRL**
10:00 AM – 10:30 AM	**A Semi-Passive Bioreactor for Treatment of a Sulfate and Metals Contaminated Well Field, Nacimiento Mine, New Mexico** – Timothy Tsukamoto, Ph.D, TKT Consulting, LLC
10:30 AM – 11:45 AM	**Panel Discussion**
11:45 AM – 12:00 PM	**Closing Remarks**

12:30 PM – 5:00 PM **Optional Post-Conference Field Trip to the Nacimiento Copper Mine**

Poster Presentations

Characterization

1. **Using ICP Spectrometry Data and Alkalinity Results for Effective Screening of Acidity Samples to Improve Laboratory Efficiency** – Curtis Callahan, U.S. EPA Region 4
2. **Applying Exploration Geophysical Methods to Mine Waters** – Jennifer Hare, Ph.D., Zonge International, Inc.
3. **Evaluation of DGT Samplers for Monitoring Mining-Influenced Water** – Curt Coover, CDM Smith
4. **Environmental Site Investigations under the Chino Administrative Order on Consent** – Matt Schultz, New Mexico Environment Department

Water Treatment

5. **Column Study Treatability Testing for In Situ Remediation of Mining-Influenced Water** – Nicholas Anton, CDM Smith
6. **Biochemical Reactors for Treating Mining Influenced Water** – David Cates, Oklahoma Department of Environmental Quality
7. **Subsurface Barriers and Innovative Geochemistry: Reducing Contaminant Concentrations in Groundwater and Contaminant Discharges to Fourmile Branch at the Savannah River Site, South Carolina** – Carol Eddy-Dilek, Savannah River National Laboratory
8. **Stewardship Concepts for Management of Hard Rock Mining Wastewaters** – John McKernan, U.S. EPA, Office of Research and Development, National Risk Management Research Laboratory
9. **Wastewater Treatment of High Total Dissolved Solids and Acidity at the Cerro de Pasco Mine Site** – Melissa Rhodes, Golder Associates, Inc.

Source Control/Mine Closure Approaches

10. **Use of Biochars Produced by Gasification of Grass and Wood in the Remediation of Two Acid Mine Soils of Western Oregon** – Stephen Griffith, USDA ARS
11. **Investigating Biochar as a Tool for Mine Soil Remediation** – Mark Johnson, Ph.D., U.S. EPA, Office of Research and Development, National Health and Environmental Effects Research Laboratory
12. **Mechanistic Understanding of Biogeochemical Transformations of Trace Elements in Contaminated Mine Waste Materials under Reduced Conditions** – Ranju Rani Karna, Kansas State University
13. **Biochar for Remediation of Solid Source Mine Wastes and Mine Drainage Treatment** – Christopher Peltz, Research Services LLC

Beneficial Use

14. **Chemical Safety and Sustainability of Rare Earth Elements: Selection of a Product System for a LCA Case Study** – Diana Bless, U.S. EPA, Office of Research and Development, National Risk Management Research Laboratory
15. **Thermal and Hydrological Characterization of an Abandoned Mine Complex for Low-Enthalpy Geothermal Extraction: The Corning Mine Complex, Perry County, Ohio** – Joshua Richardson, Ohio University

Prediction and Modeling

16. **Predicting Water Quality for a High Altitude Mine Waste Facility in Peru** – Dawn Kaback, Ph.D., AMEC Environment and Infrastructure, Inc.

Exhibits

U.S. Environmental Protection Agency (EPA) Engineering Technical Support Center (ETSC) – Douglas Grosse, U.S. EPA, Office of Research and Development, National Risk Management Research Laboratory

U.S. Environmental Protection Agency (EPA) Technology Innovation and Field Services Division (TIFSD) – Michele Mahoney, U.S. EPA, Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation

Organic Substrates for Biochemical Reactors – Michael Sieczkowski, JRW Bioremediation, LLC

ACZ Laboratories Inc. – Michael McDonough, ACZ Laboratories Inc.

Flexible Liner Underground Technologies (FLUTe) – Ian Sharp, FLUTe

CDM Smith Summary of Presentations – Gunnar Emilsson, CDM Smith