

WELCOME TO THE FIFTH ANNUAL SAN JUAN MINING & RECLAMATION CONFERENCE

May 28-29, 2015
The Peaks Resort and Spa
Telluride-Mountain Village, Colorado

“Evolution of Society, Mining and Reclamation”



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MINERS ASSOCIATION



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Mountain Studies Institute (MSI) is a non-profit, non-advocacy, mountain research and education center. Our mission is to enhance understanding and sustainable use of the San Juan Mountains through research and education.

It is our vision that through science education, information is not only understood, but used to transform our communities into healthier, more sustainable places to live. More information available at www.mountainstudies.org



The Uncompahgre Watershed Partnership works to protect and restore the Upper Uncompahgre River Watershed through coordinated community and agency efforts and to build an informed and engaged citizenry on watershed issues. We strive for a healthy river in a thriving community. If you would like more information about the UWP and information on current projects please visit www.uncompahgrewatershed.org



COLORADO
Division of Reclamation,
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Department of Natural Resources

The Colorado Division of Reclamation, Mining and Safety (DRMS) is committed to balance the need for mineral resources production with protection of the public, environment and Colorado's natural resources. Its Mission is to protect the public, miners and the environment during current mining operations, restore abandoned mines, and to ensure that all mined land is reclaimed to beneficial use.

<http://mining.state.co.us>



Willow Creek Reclamation Committee
Creede, Colorado

The Willow Creek Reclamation Committee's mission is to improve water quality and habitat, reduce flood risks, reclaim areas impacted by mining, and preserve historic structures in the Willow Creek watershed

in ways that are practical, cost effective, and beneficial to the economic sustainability of the Creede community. Their spirit and resolve have drawn a wealth of outside resources to their cause, and have allowed them to succeed beyond their wildest imagination. For more information, visit us at www.willowcreede.org



The San Miguel Watershed Coalition was formed in 1998 to enable a collaborative forum for all stakeholders to discuss and influence the future of the watershed. The San Miguel Watershed Coalition's mission is to advance the ecological health and promote the economic vitality of the watershed through the collaborative efforts of the entire community. Our ultimate goal is to realize a watershed that is healthy in every respect, while

offering a sustainable and quality lifestyle for all who live within it. www.sanmiguelwatershed.org



The Telluride Institute is an innovative non-profit organization that fosters the transition to a sustainable world. We work to support the health of environments, cultures, and economies. Founded in 1984 to create strong local environmental and cultural activities in our corner of Colorado we're making change happen through freethinking research that has crossed continents, politics, and disciplines, our programs demonstrate innovative and practical methods for building and sustaining healthy communities and environments. www.tellurideinstitute.org

PLEASE STOP BY OUR BOOTHS DURING THE POSTER & EXHIBIT SESSIONS TO LEARN MORE ABOUT OUR ORGANIZATIONS AND PROJECTS.

2015 San Juan Mining & Reclamation Conference Agenda

May 28, 2015 - FIELD TOUR	
8:30am – 9:30am	Registration at Bridal Veil Parking Lot, east of Pandora Mill
9:30am – 4:00pm	Field Tour (visit www.mountainstudies/sjmrc to pre-purchase lunch, if you like)
	Stop 1 - Telluride Idarado Mine Remediation Project (hard rock site) 9:30 - 11 AM
	Stop 2 - Lunch 12 - 1 PM
	Stop 3 - Uravan Mine Remediation Project (uranium site) 2 - 3:30 PM
6:00pm - 7:00pm	Evening Mixer at the Palmyra Restaurant Bar, Peaks Resort (cash bar)
May 29, 2015 - PRESENTATIONS, The Peaks at Mountain Village	
8:00am – 8:30am	Registration at The Peaks, Mountain Village
8:30am – 8:45am	Opening Remarks - Linda Luther-Broderick, San Miguel Watershed Coalition
SESSION I	Hardrock Mining & Reclamation <i>Moderator: Gwen Nelson, Willow Creek Reclamation Committee</i>
8:45am – 9:00am	Voluntary clean-up in Rico – Mark Walker, Kansas State University Technical Assistance to Brownfield's Coordinator
9:00am – 9:25am	Idarado's Red Mountain Project – Devon Horntvedt, Worthington Miller Environmental
9:25am – 9:50am	Good Samaritan Legislation Update - Ty Churchwell, Trout Unlimited
9:50am – 10:15am	Cleaning up abandoned mines in the Uncompahgre Watershed - Agnieszka Przeszlowska, Uncompahgre Watershed Partnership & Jeff Litteral, CO Division of Reclamation, Mining & Safety
10:15am – 10:45am	Break & Exhibit Session (refreshments)
SESSION II	Coal Mining & Reclamation <i>Moderator: Agnieszka Przeszlowska, Uncompahgre Watershed Partnership</i>
10:45am – 11:10am	Boston Coal Mine Reclamation Project - Kirstin Brown, CO Division of Reclamation, Mining & Safety
11:10am – 11:35am	Solomon Bioreactor - Gwen Nelson, Willow Creek Reclamation Committee
11:35am – 12:00pm	Smith Hill Coal Mine Reclamation Project – Tara Taffi
12:00pm – 1:30pm	Lunch (on your own, suggested The Village Table)
SESSION III	Uranium Mining & Reclamation <i>Moderator: Marcie Bidwell, Mountain Studies Institute</i>
1:30pm – 1:55pm	Radionuclide Metrics and Safety Levels - Steve Renner, CO Division of Reclamation, Mining & Safety
1:55pm – 2:20pm	Clean up of Uranium Legacy in Southeastern Utah - Don Metzler, US Department of Energy
2:20pm – 2:45pm	Radiounuclide study in San Miguel Watershed - Mark Williams, University of Colorado
2:45pm – 3:15pm	Break & Exhibit Session (refreshments)
SESSION IV	Panel: Futures of Energy Fuels, Mining & Reclamation Moderator: Camille Price Colorado Division of Reclamation, Mining & Safety
3:15pm – 5:00pm	Discussion on Futures of Mining, Energy Fuels, & Reclamation

Field Tour: Thursday May 28th

Schedule:

8:30 – 9:30	Registration at Bridal Veil Parking Lot, east of Pandora Mill
9:30- 9:45	Car Pool Logistics – Buddy System
9:45 – 11:15	Idarado Mine Remediation (Telluride) Tour
11:15 – 12:15	Car Pool/Caravan to Naturita Town Park (see map)
12:15 – 1:15	Lunch at Naturita Town Park 411 W 2nd Ave., Naturita
1:15- 1:30	Travel to Uravan
1:30 – 3:30	Uravan Mine Remediation Tour - Jason Smith UMETCO
3:30 – 4:30	Travel to Telluride



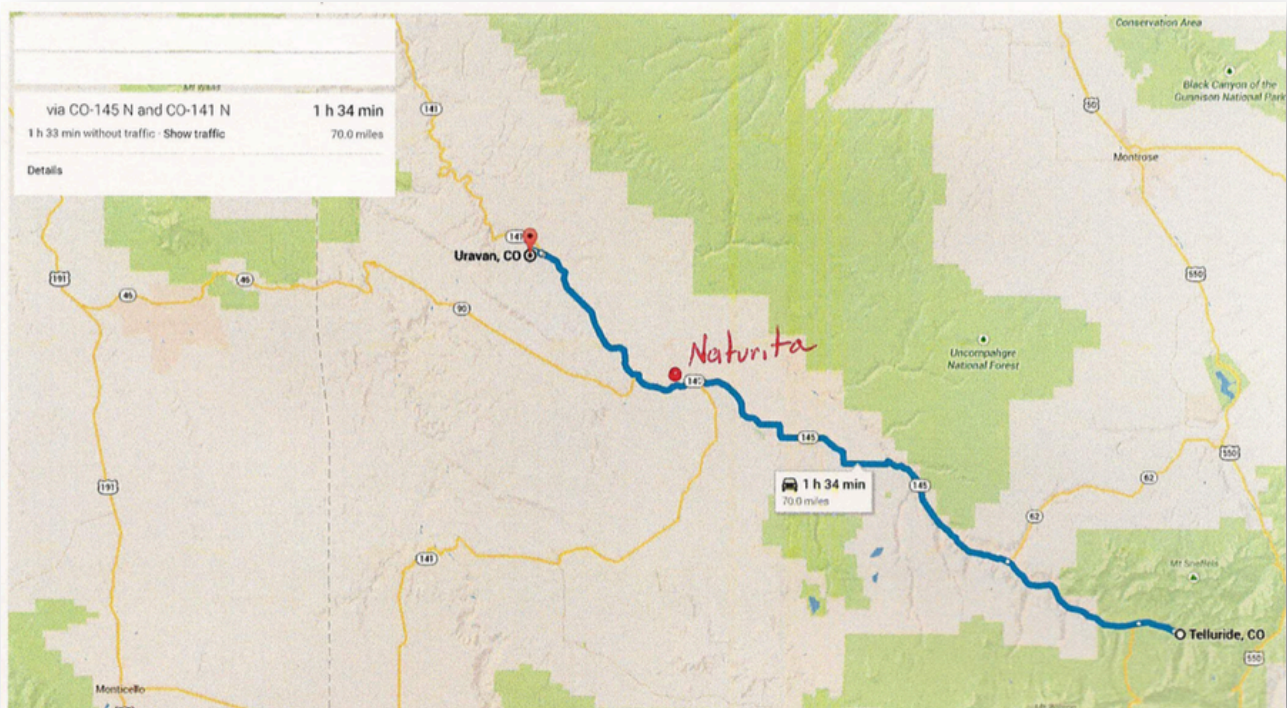
DIRECTIONS: Go 1.5 mi past end of Town on Easty Hwy 145

FIELD TOUR STOP 1: IDARADO MINE REMEDIATION PROJECT

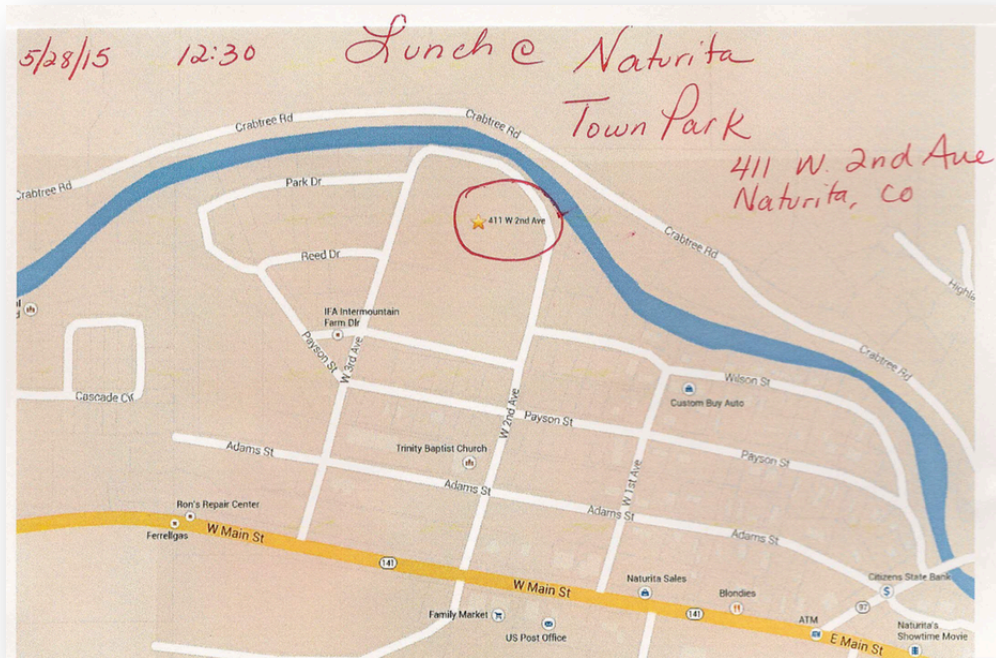
The Idarado Mine is located between the Town of Telluride and the City of Ouray in San Miguel and Ouray counties, respectively. In 1983, the Colorado Department of Public Health and Environment (CDPHE) filed suit against the Idarado Mining Company for natural resource damages under CERCLA (Superfund). The major human health concern is possible exposure to heavy metals in the tailings, specifically lead and cadmium. Human contact with tailings is minimal. The main impact to the aquatic system is from zinc and changes in pH.

The state was involved in either court activities or negotiations with the company until July 1992 when a negotiated remedy was finalized in federal court. The remediation involved stabilizing and revegetating the 11 large tailings piles, diverting surface runoff around mine wastes and rerouting internal mine waters away from highly mineralized regions in the underground workings. The majority of the work is completed; additional remediation is being conducted on Red Mountain to continue to improve the water quality in Red Mountain Creek. Negotiations are underway with the Town of Telluride to remediate tailings on its land at Society Turn. The cleanup was implemented by Idarado at their expense. The total cost for this work is approximately 30 million dollars. The Field Tour Will look at the Remediation conducted in the San Miguel River Valley.

TELLURIDE TO URAVAN MAP:



FIELD TOUR STOP 2: LUNCH AT NATURITA TOWNPARK:



FIELD TOUR STOP 2: URAVAN

The Uravan mineral belt is an area in San Miguel, Colorado and Grand County, Utah of uranium deposits that provided the most productive uranium mining in the United States in the early 20th century. The Uravan mineral belt of Colorado and Utah supplied half the world's radium from 1910 to 1922, and vanadium and uranium were byproducts. The mines were forced out of business in 1923 and revived after World War II. The Uravan mineral belt contains what was the last producing uranium mine in the state, the Topaz Mine, part of the Sunday Complex near Uravan, Colorado, which was closed down on March 18, 2009 by then owner Denison Mines due to depressed uranium prices.

Speaker Abstracts: Friday May 29th

Opening Remarks

INTRODUCTION

Linda Luther-Broderick, San Miguel Watershed Coalition
Executive Board Member, kbandll@wildblue.net

Linda Luther-Broderick is a founding member of the San Miguel Watershed Coalition, a Colorado non-profit, whose mission is to advance the ecological health and promote the economic vitality of the watershed through the collaborative efforts of the entire community.

The Watershed Coalition grew out of a program of the Telluride Institute, an organization that began asking questions about water and the state of the upper watershed in 1993. Luther-Broderick was hired as a program coordinator by the Telluride Institute after a 4-year term on the San Miguel County Board of County Commissioners. She was the first coordinator for the Coalition, a member of the Idarado Liaison Committee, and has been San Miguel County's Open Space and Recreation Coordinator since 2001. As such, she supervises a department that houses six programs, including parks, trails, open space, historic preservation, the county fairgrounds, and vegetation control program.

Session I

THE EVOLUTION OF MINING RECLAMATION AND REGULATION IN THE SAN JUAN MOUNTAINS

Mark Walker, Kansas State University
Technical Assistance to Brownfield's Coordinator, mark.walker@state.co.us

Just as mining practices have evolved with time, so has mining reclamation and regulation. This presentation will cover the early years of regulation and mining reclamation beginning with Superfund and trace its evolution to present times using local case examples.

PASSIVE MINE WATER TREATMENT IN THE SAN JUANS: CHALLENGES, IDEAS, AND SOLUTIONS

Devon Horntvedt, Worthington Miller Environmental
Environmental Engineer PE, Consultant for Worthington Miller Environmental for Idarado Mining Company
devon.horntvedt@wm-env.com

This presentation will give a brief peek into the challenges faced by engineers attempting to implement passive water treatment technologies in the San Juan region. The discussion will touch on real-world problems from the environmental and chemical conditions that make traditional passive treatment methods difficult in the region, to the treatment alternatives as we understand them today and potential viable pathways forward for the efficient management of acid rock drainage.”

SAN JUAN CLEAN WATER – A NEW LOOK AT GOOD SAM

Ty Churchwell, Trout Unlimited

Backcountry Coordinator for Trout Unlimited's 'Sportsmen's Conservation Project' (national TU's public land programs)

tchurchwell@tu.org

Historically, mining played a large role in settling the American West and building up the nation. However, its legacy – more than 500,000 abandoned hard rock mines with an estimated clean-up cost ranging from \$36-72 billion – has persisted for the better part of a century with little progress toward a solution. According to the Environmental Protection Agency (EPA), abandoned hard rock mines affect 40 percent of headwaters in the western United States. The lack of dedicated funding sources and burdensome liability for would-be Good Samaritans have hindered abandoned mine clean-ups. For over two decades attempts have been made by numerous federal lawmakers to pass national Good Samaritan legislation - to facilitate compliance by non-responsible parties with the Clean Water Act (CWA) for voluntary abandoned mine cleanups. At present, attempts to amend the CWA have been unsuccessful, largely due to well-intended people in the environmental community who worry about opening up the CWA to a new discharge permit category for Good Samaritans. Representative Tipton and Senator Bennet have expressed interest in again seeking liability relief for non-responsible parties to address abandoned mine drainage at mine sites where there is no 'possible responsible party' (PRP). The delegates have advised members of the Animas River Stakeholders Group and TU that they intend on introducing site-specific Good Samaritan as a pilot program in this Congressional session. The bill will mirror the previous legislation introduced in 2012 by Senator Udall and Representative Tipton, but geographic limitations would be placed on the scope of the bill to only include the ten counties of the San Juan Mountains in SW Colorado.

CLEANING UP ABANDONED MINES IN THE UNCOMPAHGRE WATERSHED

Agnieszka Przeszlowska, Uncompagne Watershed Partnership

Project Manager, aprzesz@gmail.com

Jeff Litteral, Colorado Division of Reclamation, Mining and Safety, Inactive Mine Reclamation Program

Project Manager, jeff.litteral@state.co.us

Several headwater streams in the Uncompahgre Watershed of the northern San Juan Mountains are on Clean Water Act's 303(d) list of impaired waters and do not meet standards for aquatic life uses. The impairments are caused by acidity and metals loading from natural mineralization and historic hardrock mining in the region. Numerous abandoned mine sites in the region are either point or non-point sources of these impairments. The Uncompahgre Watershed Partnership is implementing remediation projects to reduce contamination from three legacy mine sites and improve water quality in impaired streams. In fall 2014, we constructed a diversion ditch at the Michael Breen Mine on Engineer Pass road which contributed metals to the upper Uncompahgre River which is impaired by cadmium, copper, zinc, manganese and is on Colorado's Monitoring & Evaluation (CO M&E) list for lead. We also stabilized a historic ore load-out structure and plan to re-vegetate disturbed areas in summer 2015. In 2015, we will collaborate with a private land owner to remove waste rock at the Vernon Mine and re-route drainage from a draining adit to improve water quality in Gray Copper Gulch which is impaired by copper and is on CO M&E list for iron and low pH. In 2015, we also plan to work closely with operators of Fortune Revenue Silver Mine to reduce contamination of Sneffels Creek from Atlas Mill tailings by routing the stream away from the tailings and stabilizing them to prevent future erosion. Sneffels Creek is on the 303(d) list for cadmium and zinc. These implementation projects also include pre- and post-project water and macroinvertebrate sampling at high and low stream flows to determine the effect of remediation measures. Sampling at other legacy sites in the watershed will be conducted in 2016 and 2017 to inform prioritization of future projects.

Session II

BOSTON COAL MINE PROJECT

Kirstin Brown, Colorado Division of Reclamation, Mining and Safety, Inactive Mine Reclamation Program
Reclamation Specialist/Geologist, kirstin.brown@state.co.us

The Boston Coal Mine Project is located at the Boston Mine site in Lightner Creek on the flanks of Perin's Peak in La Plata County, 5 miles from Durango, Colorado. The Boston Mine is located on Colorado Parks and Wildlife property that is managed as a protected state wildlife area. The goal of the project was to reduce erosion from the Boston Mine Site through revegetation and erosion control. By reclaiming the land, the site was returned to native vegetation for wildlife while reducing erosion and maintaining the historic character of the site. The Boston Project enlisted the cooperation and assistance of many agencies and non-profit groups, such as Mountain Studies Institute, Southwest Conservation Corps, Fort Lewis College, Colorado Parks and Wildlife, City of Durango, and Office of Surface Mining, innovative dry-land reclamation techniques, shared by the New Mexico Abandoned Mined Land Program, were adapted to the Boston Mine site. The reclamation focus was shifted from large scale revegetation by the acre to small scale revegetation. Reclamation was designed by the square foot, with care taken to leave any pre-existing vegetation intact in the fragile desert environment. Much of the revegetation and soil amendment was done by hand, especially on the steep slopes of the coal waste pile. The result is reclaimed coal waste piles and adjacent land with 60% tree and shrub success and native vegetation stabilizing the steep slopes and coal waste piles, benefitting the local wildlife and preserving the rich coal mining history in Durango, Colorado.

SOLOMON BIOREACTOR

Gwen Nelson, Willow Creek Reclamation Committee
Watershed Director, 719-658-0178 | guineverenelson@gmail.com

The Solomon Mine operated from 1900-1945 in the Creede Mining District, just upstream of Creede, Colorado. The Solomon Mine was a producer of silver ore that sat along East Willow Creek. Both East and West Willow Creeks are listed The Solomon Adit drains approximately 20 gpm of water that contains high concentrations of arsenic, cadmium, lead and zinc. In the 1990's the State of Colorado installed a constructed wetland to treat the adit water before it contributed heavy metal concentrations to East Willow Creek. The system functioned well until 1995 when an adit changed from a non point source to a point source. The system needed maintenance then, and still needs it today. The Willow Creek Reclamation Committee decided to collaborate with the EPA, State of Colorado Water Quality Control Division and Colorado Division of Reclamation Mining and Safety to see how the 2007 EPA Good Samaritan Memo would provide protection for the project sponsors. Concerns about avalanches in the small, steep valley of East Willow Creek have put the on hold.

SMITH HILL INACTIVE COAL MINE RECLAMATION PROJECT

Tara Tafi, Colorado Division of Reclamation, Mining and Safety
Reclamation Specialist, Geologist | tara.tafi@state.co.us

The Smith Hill Project site, located on lands owned and managed by the Crested Butte Land Trust (CBLT), is approximately four miles northwest of the town of Crested Butte, Colorado, in Gunnison County, Colorado. The Smith Hill Mine, also called the Anthracite Mine, was the last stop on the rail line that connected the Town of Crested Butte to the coal mines located in the Slate River Valley. Significant coal wastes from the Smith Hill Mine and associated railway were found on the valley floor in the vicinity of the coal load out area. These refuse piles had fragmented the wetlands associated with the Slate River and disrupted the hydrologic characteristics of the area. The coal wastes supported limited vegetation, some of which were invasive species and noxious weeds. Coal wastes were also found around the tramway and on the hillside where the mine site was located. Additional issues at the site included a poorly functioning cattle load out area utilized by a local rancher, an artificial pond, formed from sedimentation, that flooded the access road, and unstable, highly erosive coal waste piles, located throughout the project area. The Smith Hill Project addressed abandoned coal waste piles located in the wetlands associated with the

Slate River and several areas of un-vegetated, steeply sloping coal wastes located directly above the wetlands. The Colorado Division of Reclamation Mining and Safety (DRMS) worked closely with the Crested Butte Land Trust, the Allen Family who has a cattle grazing permit in the area, the landowner of the mine, and the public to complete a successful reclamation project at the site. Approximately 11,000 cubic yards of coal refuse were removed from approximately 6 acres of wetland and adjacent upland areas. Three acres of wetland restoration and four acres of steep slope revegetation were accomplished as part of this project. The project increased the beneficial use of the area by repairing impacted wetland, improving wildlife habitat, reducing slope instability and erosion from coal wastes, and improving the functionality of the site as a cattle load out area.

Session III

RADIONUCLIDE METRICS AND SAFETY LEVELS

Steve Renner, Colorado Division of Reclamation, Mining and Safety, Inactive Mine Reclamation Program
Senior Environmental Protection Specialist / Senior Project Manager, steven.renner@state.co.us

The Colorado Division of Reclamation, Mining and Safety, Inactive Mine Reclamation Program is the State agency charged with safeguarding the public from the deleterious effects of abandoned or inactive mines in Colorado. As part of this effort, IMRP has safeguarded well over 500 inactive uranium mines in western Colorado since the late 1980's. The IMRP is concerned that the safety and health of its employees and contractors is protected as they complete our mission. Over the years, the IMRP thought process regarding protection of contractor and employee safety at abandoned uranium mines has significantly evolved. IMRP has established a goal of allowing radiation exposures as low as reasonably achievable for its employees and contractors as they work to safeguard abandoned uranium mines. This presentation will focus on the IMRP health and safety protocols developed for use at abandoned uranium mines by reclamation staff, and delve into the common terminology and units used to describe risk and exposure.

CLEANUP OF URANIUM LEGACY IN SOUTHEASTERN UTAH

Don Metzler, US Department of Energy
Moab Federal Project Director, (970) 257-2115 | donald.metzler@gjem.doe.gov

The U.S. Department of Energy (DOE) Moab Uranium Mill Tailings Remedial Action (UMTRA) Project site is located in southeastern Utah. A uranium mill operated from 1956 to 1984 on the now 480-acre site. When processing operations ceased, an estimated 16 million tons mill tailings and associated contaminated materials was present in a pile. In 2001, through Congressional legislation, ownership and responsibility for reclamation of the site was transferred to DOE. In 2005, DOE issued a Record of Decision to relocate the tailings primarily by rail to an engineered disposal cell constructed 30 miles north of the Moab site near Crescent Junction, Utah. The cell is in an ideal geologic setting with 2,000 feet of Mancos Shale as its floor and almost no groundwater present. Removal of tailings began in 2009 and as of mid-May 2015, DOE had safely relocated 7.5 million tons. Revegetation is required following soils disturbance such as remediation. Riparian and upland zones have been established with a transitional zone in between. DOE's end state vision is to establish a park-like setting for the site and to transfer ownership to another entity for the public good. Active remediation of contaminated groundwater at the Moab site is part of the project scope. Uranium and ammonia are the two main contaminants of concern. Elevated concentrations of ammonia can affect young-of-year endangered fish species in backwater channels adjacent to the Colorado River bank. In 2003, DOE began implementation of an interim action system that currently includes 8 extraction and more than 30 freshwater injection wells. The system is designed to protect surface water quality and to recover ammonia, uranium, and other contaminants prior to discharge to the Colorado River. The status of soils and groundwater cleanup and revegetation are addressed in the presentation the along with a discussion of future use considerations.

ESTABLISHING A BASELINE FOR RADIONUCLIDES IN THE SAN MIGUEL BASIN- WHAT'S IN THE WATER NOW?

Dr. Mark Williams, University of Colorado

Fellow, Institute of Arctic and Alpine Research, markw@snobear.colorado.edu

With active mining in The Basin, new concerns for impacts on watersheds have arose. The baseline radionuclide study was initiated to address the concerns raised by the local governments in the watershed as a result of the Colorado Department of Public Health and Environment issuing a Radioactive Materials License (No. 1170-01) to Energy Fuels Resources for the proposed Piñon Ridge Uranium Mill, in the Paradox Valley of Montrose County in western Colorado. Dr. Williams will share the recent results of an effort to document the current level of radionuclides present in snow, surface water, groundwater and air samples.

Panel: Discussion on Future of Mining, Energy Fuels, & Reclamation

RICH BUSH

Department of Energy, Office of Legacy Management

Rich has a B.S. in Chemical Engineering, an M.S. in Environmental Engineering, and worked on a Ph. D. in Hydrology and Geochemistry. Rich performed lab and field research for the U.S. Bureau of Mines on hydrometallurgical processes including cyanide heap leaching, magnetic separation, acid mine drainage, passivation of sulfides, ion exchange of clays, and feldspar leaching reaction rates. Since the Bureau of Mines shut down in 1997, he has been with the U. S. Department of Energy performing contract management in technology development on weapon production site cleanup and monitoring. Since the inception of the Office of Legacy Management in December of 2003, Rich has managed a number of DOE Uranium Mill tailings sites. That includes long-term stewardship, groundwater monitoring and modeling, regulatory compliance, and science and technology development projects.

HEATHER KNOX

Executive Director, EcoAction Partners

Heather Knox, a long-time Telluride local, has been the Executive Director for EcoAction Partner's since late 2013. Former Executive Director for the Michael D. Palm Theatre, Heather started her professional career working for the Telluride Conference Center, operated by the Mountain Village government. Heather rose through the ranks at the Telluride Conference Center, finishing her ten years (1997 – 2007) with Mountain Village as the Director of Economic Development that was comprised of the departments of Special Events, the Telluride Conference Center, and Guest Services. In this position Heather also served as the appointed staff person for the newly formed sustainability organization, The New Community Coalition (2007), which was funded by the governments of Telluride, Mountain Village, and San Miguel County. The New Community Coalition went through a strategic planning/branding process in 2011 and changed its name to EcoAction Partners. EcoAction Partners serves the towns of Telluride, Mountain Village, Ridgway & Ouray, and San Miguel and Ouray counties. Heather lives off-the-grid in a solar powered home with propane heat and a generator back-up on a series of steep mining claims purchased in 1998.

HALSEY LANDON

Project Manager, Sheep Mountain Alliance

Halsey lives in Telluride, Colorado and works with Sheep Mountain Alliance on a number of projects including mining land restoration, public lands and natural resource stewardship, renewable energy, and educational programs with the local community. He graduated from Colorado College in 2013 with a degree in Environmental Policy, and has worked for several environmental policy organizations in Colorado and Massachusetts. Previous to his work with Sheep Mountain Alliance, Halsey worked with the State of the Rockies Project documenting large-landscape conservation in the west. He has also worked with the Colorado Cleantech Industry Association in Denver and the New England Clean Energy Council in Boston. He spends his free time skiing, mountain biking and fishing and works as a ski technician at Boot Doctors & Paragon Outdoors in the winter.

FOUR PEOPLES OF THE EARTH

Erica Ohliger & Nelson Caraballo,
Trustees of The Mother Earth Restoration Trust-
heartoftheworldsp4c@gmail.com

Saga María, ÑankwaChaparro, LuntanaDingula:
Emissaries of the Four Peoples of La Sierra Nevada de
Santa Marta, Heart of the World.

The delegation of 5 individuals comes in function of The Great Mother and Spiritual Authority of the Four Peoples of La Sierra Nevada de Santa Marta, Colombia; We have been mandated by our Elders and the Great Mother to the Universal Re-Unification Process for awareness of Original Principles (collaboration & complementary relationships, dialogue & reciprocity to fulfill essential responsibilities in the web of life). Since the year 2000, and most recently since 2011, we have been travelling to many parts of the world analyzing from different perspectives, the current situation the entire world is in, seeking to define the root cause of the crisis humanity currently faces as a collective whole. We have met with scientists and academicians, conservationists, original peoples and many other children of the Earth interested in harmony, clean water and earth for the global society. We have managed to bring about awareness for UNITY and for Mother Earth Restoration and continue to cultivate relationships with all the aforementioned, thus expanding our collective to greater and greater reach. We remain in devotion for Mother Earth Restoration.

Mission: To gain the conscious commitment of humanity to Mother Earth Restoration

Vision: By 2025 humanity will have regained ecological, social and cultural balance on Earth and we will have restored the effects brought about in the web of life by human action.

JOHN REAMS

Business Owner, Reams Construction Co., Chairman of the Western Small Miners Association

John Reams is a small business owner, founding Reams Construction Co. in 1979, a civil general contracting company in Naturita, Colorado. He also has since founded Tomcat Mining Corp. and Naturita Sales, LLC. John has a strong work ethic learned growing up on the family ranch. He is an avid general aviation pilot certified as an Airline Transport Pilot as well as a certified Flight Instructor. He currently serves on the Montrose County Airport Advisory Board (Vice Chairman) and as an appointee of Governor Hickenlooper on the Colorado Aeronautical Board (Secretary). Using his leadership skills, he serves as a Chairman of the Western Small Miners Association, and Vice Chairman of the Southwest Resource Advisory Council through Bureau of Land Management.

KEVIN RITTER

General Manager/CEO, San Miguel Power Association

Mr. Ritter has been at SMPA since September 2007. Prior to that he was at Trico Electric Cooperative in Tucson, AZ for 34 years. His experience has included working in electric operations, fleet, purchasing/warehousing, human resources, accounting, finance, and planning. He has supervised, or worked closely with, virtually every are of an electric cooperative utility. As General Manager/CEO he is responsible for the overall corporate management of the company, accomplishing the strategic direction of the organization, positioning the company for the future, planning for changes in the industry, and maintaining the overall health and financial stability. It is the Mission of San Miguel Power Association, Inc. to demonstrate corporate responsibility and community service while providing our members safe, reliable, cost effective, and environmentally responsible electrical service.

LEIGH ROBERTSON

Executive Director, Sheep Mountain Alliance

Leigh started with Sheep Mountain Alliance (SMA) in January of 2015. She works with the terrific board of directors to choose which issues SMA will focus on in the coming year. SMA provides information on those conservation topics, get their members and the public involved, and strive to preserve and/or restore our beautiful ecosystems. Leigh is also involved in increasing membership, fundraising, supervising staff and volunteers, and coordinating with our partners. SMA is a 27-year-old grassroots citizen organization dedicated to preserving the natural environment in the Telluride region and southwestern Colorado. SMA strives to protect and educate people about the regional ecosystems, wildlife habitats and watersheds. Help us “*Protect What You Love*” by getting involved at: www.SheepMountainAlliance.org

Poster Sessions & Exhibitors

2014 STATE OF THE SAN MIGUEL WATERSHED REPORT

Deanna Drew, San Miguel Watershed Coalition

Board of Directors President, ddrew@mtnvillage.org | www.sanmiguelwatershed.org

The San Miguel Watershed Coalition produced the 2014 State of the San Miguel Watershed Report in partnership with state and federal agencies to assess ecological health within the drainage area of the San Miguel River. This publication is a sequel to the 2005 report and is intended as a public information tool to stimulate watershed management discussions. The goal of the report is to establish a quantitative scientific grading system for watershed health by using existing scientific data and to recommend new data collection and monitoring programs that will enable more complete future analysis and discussion.

FOUR PEOPLES OF THE EARTH

Christy Campbell and Peter Loomis

Supporters, heartoftheworldsp4c@gmail.com

In their simple, yet profound wisdom, these ancient peoples of the Earth from La Sierra Nevada de Santa Marta, Colombia, South America, are a living example of sustainability after thousands of years preserving their relationship with Mother Earth, come to share with the community their insight and ongoing actions/initiatives for global transformation and Mother Earth Restoration.

BIOCHAR FOR REMEDIATION OF SOLID SOURCE MINE WASTES AND TREATMENT OF MINE DRAINAGE

Chris Peltz Research Services LLC

Scientist, chris@researchservicesco.com

Soil amendments are often required for re-vegetating and stabilizing solid mine wastes in order to reduce the migration of metals to air, surface and ground water; reduce soil toxicity; and meet liability and regulatory requirements. The presence at many sites of metal rich waste rock and mill tailings pose major impediments to successful reclamation. Stabilization and isolation strategies can be improved and reinforced when re-vegetation is incorporated into reclamation designs, and achieves success. Additionally, acid rock drainage and metal leachate originating from mine sites requires treatment, sometimes into perpetuity at high costs. The carbon rich product of a pyrolysis reaction, biochar has been utilized as a soil amendment for mining affected soils at sites in Australia, the U.S, Spain, the U.K., China and many other sites achieving varying degrees of success in facilitating vegetation growth and soil pedogenesis. Presented here are the results from a range of studies and implementation projects, with examples from Colorado, Nevada, and Utah. These projects and studies focused on biochar application as a soil amendment for mining affected soil piles and tailings, and as a component of passive treatment for acid mine drainage.

COLORADO DATA SHARING NETWORK

Lynn Padgett, Colorado Data Sharing Network

Project Coordinator, cdsn@coloradowaterdata.org | www.coloradowaterdata.org

The Colorado Data Sharing Network (CDSN) is the primary project of the Colorado Water Quality Monitoring Council (CWQMC). CDSN is a revolutionary way for organizations to share data with the public and with each other. After data are collected by organizations around the state, it can be easily uploaded and become viewable on the web. Each time data are shared, it not only increases the knowledge of water quality around the state, but hopefully saves time and resources for others who are interested in monitoring in a given basin. CDSN's toolkit includes: WQX-compatible database & data management system with built-in data analysis tools known as Ambient Water Quality Monitoring System (AWQMS), CDSN Exceedance & Monitoring Location-Mapper to search monitoring locations, exceedances, and download data from CDSN Google-Map, CDSN Web GIS Utility for simple to advanced GIS operations between AWQMS monitoring locations and useful baselayers as well as technical assistance and trainings.

COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY

Kirstin Brown, Colorado Division of Reclamation, Mining and Safety

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The Colorado Division of Reclamation, Mining and Safety (DRMS) is committed to balance the need for mineral resources production with protection of the public, environment and Colorado's natural resources. Its Mission is to protect the public, miners and the environment during current mining operations, restore abandoned mines, and to ensure that all mined land is reclaimed to beneficial use. DRMS also collaborates with citizen groups, non-profits and industry to conduct mine remediation projects at legacy sites to improve water quality and ecosystem functioning in the watersheds of the State, including those in the San Juan Region. <http://mining.state.co.us>

MINE RESTORATION WORK IN COLORADO

Jason Willis, Trout Unlimited

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Trout Unlimited's (TU) mission is to conserve, protect, and restore North America's trout and salmon fisheries and their watersheds. Since TU was founded in 1959, on-the-ground restoration of streams, watersheds, and fisheries has been our hallmark. For over 12 years the organization has been working to restore abandoned mines in the West, while advancing policy and programs to help facilitate Good Samaritan clean-up projects. TU views pollution from abandoned mines as one of the most important, yet least addressed, problems facing western watersheds. The mining legacy of more than 23,000 abandoned mines in Colorado continues to degrade our streams and rivers. Over the next year to three years, Trout Unlimited will be undertaking several mine clean-up projects across Colorado with partners, Colorado Department of Public Health and Environment, the United States Forest Service, and Division of Reclamation Mining and Safety. The Leavenworth Creek Project is located six miles south of Georgetown, CO and will include construction of 2,200 feet of riprap channel through an area consisting of historic mill tailings. The channel will help reduce interaction with mine tailings and convey clean runoff and precipitation to the mainstem of Leavenworth Creek. The Evans Gulch Project is located east of Leadville, CO and functions as one of the drinking water sources for the town and Lake County. A two year monitoring plan will identify non-point sources of zinc pollution and establish best management practices for reclamation of mine tailings. The Illinois Gulch Project is southwest of Breckenridge, CO and contains several abandoned mines and sources of contamination. TU will finalize a watershed plan, conduct water and soil quality monitoring at the Mountain Pride mine, and develop a restoration plan in 2016.

MOUNTAIN STUDIES INSTITUTE

Marcie Bidwell, Mountain Studies Institute

Executive Director, marcie@mountainstudies.org | www.mountainstudies.org

Mountain Studies Institute (MSI) is a non-profit, non-advocacy, mountain research and education center established in 2002 in Silverton, Colorado in the heart of the San Juan Mountains. MSI has developed a highly collaborative, dynamic, and unique approach to serving our region, which has grown to encompass fourteen counties in Southwest Colorado. Our mission is to enhance understanding and sustainable use of the San Juan Mountains through research and education. This mission has positioned MSI to identify and articulate information needs, facilitate and complete research and restoration initiatives, and most importantly to ensure that pertinent scientific information is made available to decision makers and the general public. It is our vision that through science education, information is not only understood, but used to transform our communities into healthier, more sustainable places to live.

TELLURIDE INSTITUTE'S WATERSHED EDUCATION PROGRAM

Laura Kudo, Telluride Institute - Watershed Education Program

Program Director, laura@tellurideinstitute.org, www.tellurideinstitute.org/watershed-education

The mission of Watershed Education Program (WEP) is commitment to contribute to the raising of a generation of informed stewards of place and community. The main programming of WEP is assisting classroom teachers in planning, preparing and executing full day and overnight field trips that are tied directly to their classroom curriculum and the Colorado State Standards. The programming uses the San Miguel River Watershed as the core element of a place-based curriculum that includes science, history, mathematics, language arts and art. WEP works in all the schools of the San Miguel River Watershed, including Telluride, Norwood, Nucla, Naturita and Paradox Valley. All programming is provided FREE of charge to the schools. WEP raises the funding through grants, foundation donations, and private donations.

SHEEP MOUNTAIN ALLIANCE

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Sheep Mountain Alliance (SMA) is a 27 year-old grassroots organization dedicated to preserving the natural environment in the Telluride region and southwest Colorado. Since its creation in 1988, SMA has continued to work diligently with individuals, organizations, local landowners and public land managers on public lands issues, private land conservation and wildlife habitat protection.

Key SMA campaigns over the years have included:

- Negotiating with the Telluride Ski Area to ensure strong environmental protections for the Prospect Basin expansion
- Initiating the acquisition and open space preservation of the Telluride Valley Floor
- Creating the citizen-proposed San Juan Wilderness Bill
- Stopping the proposed Pinon Ridge Uranium Mill and promoting cleanup of industry-damaged lands in the Dolores and San Miguel Watersheds

The Uravan mineral belt has had a long history of uranium mining, which has continued to have long-term impacts on ecological and human health. The region is home to the largest concentration of uranium mines in the U.S., and an immense number of sites have not been reclaimed. Groups of abandoned uranium mine sites impact ground and surface water in the San Miguel and Dolores watersheds. Furthermore, the economy for uranium remains unstable, and upturn is speculative. Resurgence in uranium activity will likely cause economic harm to the area's tourism, agriculture, and recreation industries- the region's leading economic drivers. Mill and mine reclamation and remediation projects offer local jobs and a transition to renewable energy will provide long-term economic stability. SMA is committed to moving the industry into remediation and implementing renewable energy projects where possible.

SOCIAL AND ECONOMIC FACTORS THAT AFFECT THE FEASIBILITY OF COMMUNITY INVOLVEMENT PLANS (CIP'S)

Chloe Lewis, Western State Colorado University
Graduate Student, Master in Environmental Management, chloe.lewis@western.edu

The proposed project will determine social and economic factors that affect the feasibility of Community Involvement Plans (CIP's) developed by various federal agencies or industry representatives. We will partner with the EPA, DOI, industry leaders, citizen groups and communities to identify ways in which a better communication can help improve environmental resilience while mitigating social and environmental justice concerns. The main questions being addressed pertain to the effectiveness of current community outreach strategies and how they can be improved. Specifically, What are ways in which CIP's can ensure increased citizen's awareness, engagement, and scientific literacy pertaining to industry practices, environmental impacts and remedial activities? And, What are ways in which communication and outreach strategies can adequately address cultural, economic and other social demographics in order to ensure each plan incorporates various concerns of the entire affected population? The compiled information will be used to create a workbook to assist future discussions and the development of community outreach strategies. This workbook can be used as a significant and informed resource to effectively establish strong relationships between stakeholder groups, industry leaders and the federal government. This will help to achieve maximum satisfaction, public engagement and relative success as projects around the United States strive to create healthy and sustainable communities.

UNCOMPAHGRE WATERSHED PARTNERSHIP

Scott Williams, Uncompahgre Watershed Partnership
Board of Directors Treasurer,
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Judi Chamberlin, Uncompahgre Watershed Partnership
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www.uncompahgrewatershed.org

The Uncompahgre Watershed Partnership (UWP) is a non-profit, community based watershed group that was founded in 2007 by a coalition of citizens, nonprofits, local and regional governments, and federal and state agencies dedicated to understanding the Uncompahgre Watershed in Ouray County, CO. Our mission is to help protect the economic, natural, and scenic values of the Upper Uncompahgre River Watershed. The Partnership works to inform and engage all stakeholders and solicits input from diverse interests to ensure collaborative restoration efforts in the watershed. Our programs include mine remediation projects to improve water quality, river restoration to enhance riparian functioning, regular water monitoring with Colorado's River Watch program, annual San Juan Mining and Reclamation Conference as well as various community outreach and education programs which build an informed and engaged citizenry on watershed issues. We strive for healthy rivers in a thriving community.

WILLOW CREEK RECLAMATION COMMITTEE

Guinevere Nelson, Willow Creek Reclamation Committee
Watershed Director, guineverenelson@gmail.com | www.willowcreede.org

The Willow Creek Reclamation Committee's mission is to improve water quality and habitat, reduce flood risks, reclaim areas impacted by mining, and preserve historic structures in the Willow Creek watershed in ways that are practical, cost effective, and beneficial to the economic sustainability of the Creede community. The Willow Creek Project is a testimony to the grit and determination of a group of citizens who wanted to retain the independence and self-determination to decide how to clean up a small mountain stream that flows through their town. Their spirit and resolve have drawn a wealth of outside resources to their cause, and have allowed them to succeed beyond their wildest imagination.

EVALUATION – *Please complete this survey*

We would like to thank you for attending the fifth annual San Juan Mining Conference. We value your thoughts and feedback so that we may continually make improvements on the conference and provide detailed reporting to our sponsors. Please take a few moments to complete the following evaluation.

Name (optional): _____ Community Role: _____
Affiliation: _____

Conference Role: Attendee | Sponsor | Presenter/Panel/Exhibit

1. How does this conference benefit you and/or your community?

2. What was the most useful aspect of the field tour, presentation or panel discussion for you? Why?

3. What was the least useful aspect of the field tour, presentation or panel discussion for you? Why?

4. Are there audiences you think should participate in this conference that you didn't see this year? If so, who?

5. For 2016, what suggestions for improvement or recommendations for content do you have?

6. How did you hear about the conference? Check all that apply:
 E-mail or newsletter from presenting organization
 Word of mouth or e-mail from colleague or friend
 Event poster
 Newspaper article
 Community event calendar
 High Country News online ad

7. Where would you like to attend next year's San Juan Mining Conference?

Ouray

Durango

(over)

How would you rate the following facets of the conference? (5=Very Good 1=Very Poor)
 Please circle the number that represents your opinion of the conference’s ability to accomplish the following goals:

	Very Good	Good	Neutral	Poor	Very Poor
1) Educate participants on:					
a. the science and policy of mining	5	4	3	2	1
b. remediation of mine lands and activities addressing water quality impairments	5	4	3	2	1
2) Facilitate informed discussion among diverse presenters and stakeholders	5	4	3	2	1
3) Spark dialogue about the benefits legacy and operational mines can bring to communities	5	4	3	2	1
4) Expand knowledge and resources of stakeholders to actively participate in remediation/restoration of their mining communities	5	4	3	2	1
5) Opportunity to network	5	4	3	2	1

Please circle the number that represents your opinion of the conference’s performance in the following areas:

	Very Good	Good	Neutral	Poor	Very Poor
Venue	5	4	3	2	1
Field Tour	5	4	3	2	1
Presentation Topics	5	4	3	2	1
Length of Presentations	5	4	3	2	1
Quality of Panel Session	5	4	3	2	1
Posters & Exhibits	5	4	3	2	1

Additional Comments: