



**American Exploration & Mining Association's**  
127th Annual Meeting, Exposition & Short Courses



American Exploration &  
Mining Association  
EST. 1895

**Mining's Role in Securing America's Future**

**December 5-10, 2021**

**Nugget Casino Resort, Sparks, Nevada, USA**

**Final Program**

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## EXHIBIT HALL HOURS & ACTIVITIES

### TUESDAY DECEMBER 7

8:00 am - 5:00 pm

- Exhibitor Set up

### WEDNESDAY DECEMBER 8

9:00 am - 6:30 pm

- Exhibits Open ~ 9:00
- Morning Coffee Break ~ 9:35 - 10:20
- Sandwich Lunch ~ Noon - 1:30  
*Sandwich, chips, cookie & soda \$15.00*
- Afternoon Coffee Break ~ 3:35 - 4:20
- Welcoming Reception ~ 5:30 - 6:30

### THURSDAY DECEMBER 9

9:00 am - 6:30 pm

- Exhibits Open ~ 9:00 am
- Morning Coffee Break ~ 9:35 - 10:20
- Sandwich Lunch ~ Noon - 1:30  
*Sandwich, chips, cookie & soda \$15.00*
- Afternoon Coffee Break ~ 3:35 - 4:20
- Happy Hour Reception ~ 5:30 - 6:30

### FRIDAY DECEMBER 10

9:00 am - 11:00 am

- Exhibits Open ~ 9:00 - 11:00
- Morning Coffee Break ~ 9:35 - 10:20
- **TEAR DOWN - 11:00 - 5:00**



## 2021 Program Chairman

### Hayley Rambur

Corporate Social Responsibility Manager  
Perpetua Resources  
Boise, ID  
[Hayley.Rambur@Perpetua.us](mailto:Hayley.Rambur@Perpetua.us)



Hayley Rambur is the Corporate Social Responsibility Manager for Perpetua Resources (formerly Midas Gold). Her role incorporates STEM advocacy, education outreach, community relations, ESG and tribal relations. Hayley uses her background in geology and secondary education to directly communicate with the public and other stakeholders in Idaho about the environmental, ecological, and socioeconomic benefits of the Stibnite Gold Project.

Hayley grew up in Moscow, Idaho and graduated from the University of Idaho with degrees in Geology and Secondary Education. While in college, Hayley gained underground mining experience and worked for the Idaho Geologic Survey, helping to expand the Idaho mines and prospects database. As an Idaho STEM Action Center Foundation Board Member, she advocates and provides resources for rural and industry education throughout the state. Hayley is enthusiastic about leading the next generation of U.S. mining and is an active member and supporter of Women's Mining Coalition, the Idaho Mining Association, and her local Section of SME.



## 2021 Program Co-Chairman

### Todd Glindeman

Mining Market Sector Director  
Brown and Caldwell  
Boise, ID  
[TGlindeman@brwncald.com](mailto:TGlindeman@brwncald.com)



Todd Glindeman is the Mining Market Sector Director for Brown and Caldwell (BC) and is based in Boise, Idaho. He has been with BC his entire 21-year career. Todd has been leading and managing large-scale mining compliance and permitting projects in Idaho for more than decade. He works with mining industry partners to develop plans for efficiently addressing regulatory challenges and negotiating the permitting processes. He has more than 20 years of experience in client service, program and project management, and environmental services.

Todd graduated from the University of Idaho with BS and MS degrees in Environmental Science in 1999 and 2006, respectively. He is an active member of the Idaho Mining Association and has participated as a conference planning committee member for the Idaho Mining Conference since its inception in 2018. Todd has also participated in board positions for the Boise Section SME, including serving as the 2018–19 Chair.



## 2021 President of AEMA

**Jeff Parshley, P.G., C.P.G.**  
Corporate Consultant (Mine Closure)  
SRK Consulting (U.S.) Inc.  
Reno, NV  
[jparshley@srk.com](mailto:jparshley@srk.com)



Jeff Parshley is the Corporate Consultant (Mine Closure) of SRK Consulting and an experienced mine closure strategist and regulatory specialist. He has extensive, global experience working with industry and governmental organizations contributing to the development of several regulatory guidelines for mine closure and closure cost estimating and development of closure related corporate standards, policies, and guidance documents. He has worked with legal and policy aspects of mining projects since his early career and regularly works on World Bank and IFC compliance projects. A graduate of Dartmouth College, Jeff has nearly 40 years of experience, including more than 30 years in mine closure.

## 2021 Annual Meeting Staff Committee Members & Staff Contacts

### Staff Committee Members

#### AEMA Executive Director

**Mark Compton**  
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American Exploration &  
Mining Association

# SCHEDULE OF EVENTS

## SUNDAY DECEMBER 5

- 7:00 - 8:00 Sunday Short Course Badge Pickup
- 8:00 - 5:00 3-Day Short Course
- 3:00 - 5:00 Registration & Packet Pick Up

## MONDAY DECEMBER 6

- 7:00 - 5:00 Registration & Packet Pick Up
- 8:00 - 5:00 Short Courses

## TUESDAY DECEMBER 7

- 7:00 - 5:00 Registration & Packet Pick Up
- 8:00 - 5:00 Short Courses
- Exhibitor, Core Shack & Student Poster & Professional Poster Set Up
- 2:30 - 5:00 AEMA Board Meeting - 3rd Fl. Southern Pacific
- 6:00 - 8:00 Hosted Kickoff Reception - 5th Fl - Chalet Terrace

## WEDNESDAY DECEMBER 8

- 7:00 - 5:30 Registration & Packet Pick Up
- 7:00 - 9:15 Burrito Breakfast - *hosted by Kappes Cassiday & Florin Analytical Services*
- 8:00 - 11:30 Morning Technical Sessions
- 9:00 - 6:30 Exhibit Hall & Student Posters
- 9:35 - 10:20 Exhibit Hall Coffee Break (All sessions break)
- Noon - 1:30 Wednesday Keynote Speaker Luncheon - 1st Fl. Celebrity Showroom
- Exhibit Hall Sandwich Lunch
- 2:00 - 5:30 Afternoon Technical Sessions
- 3:35 - 4:20 Exhibit Hall Coffee Break (All sessions break)
- 5:30 - 6:30 Welcoming Reception in the Exhibit Hall
- 6:30 - 7:30 Students & Junior Professionals Reception

## THURSDAY DECEMBER 9

- 7:00 - 5:30 Registration & Packet Pick Up
- 7:00 - 9:15 Burrito Breakfast - *hosted by Kappes Cassiday & Florin Analytical Services*
- 8:00 - 11:30 Morning Technical Sessions
- 9:00 - 6:30 Exhibit Hall & Student Posters
- 9:35 - 10:20 Exhibit Hall Coffee Break (All sessions break)
- Noon - 1:30 Thursday Keynote Speaker Luncheon - 1st Fl. Celebrity Showroom
- Students & Junior Professionals Luncheon - 5th Fl. Chalet Terrace
- Exhibit Hall Sandwich Lunch
- 2:00 - 5:30 Afternoon Technical Sessions
- 3:35 - 4:20 Exhibit Hall Coffee Break (All sessions break)
- 5:30 - 6:30 Happy Hour Reception in the Exhibit Hall

## FRIDAY DECEMBER 10

- 7:00 - 11:00 Registration & Packet Pick Up
- 7:00 - 9:15 Burrito Breakfast - *hosted by Kappes Cassiday & Florin Analytical Services*
- 8:00 - 11:30 Morning Technical Sessions
- 9:00 - 11:00 Exhibit Hall & Student Posters
- 9:35 - 10:20 Exhibit Hall Coffee and Moose Milk Break (All sessions break)
- 11:00 - 5:00 Exhibit Tear Down

## Wednesday Keynote Speaker



**Gregory A. Lang**  
*President & CEO*  
*Nova Gold Resources, Inc.*  
*Vancouver, BC*  
*CANADA*

### **The Evolution of Sustainability Practices at Donlin Gold**

Mr. Greg Lang is NOVAGOLD's President and Chief Executive Officer. Mr. Lang has more than 35 years of diverse experience in mine operations, project development and evaluation, including time as President of Barrick Gold North America, a wholly owned subsidiary of Barrick Gold Corporation ("Barrick"). Mr. Lang held progressively responsible operating and project development positions over his 10-year tenure with Barrick and, prior to that, with Homestake Mining Company and International Corona Corporation, both of which are now part of Barrick. He holds a Bachelor of Science in Mining Engineering from the University of Missouri-Rolla and is a Graduate of the Stanford University Executive Program.

## Luncheon Speaker Sponsors

### **Wednesday Keynote Luncheon Sponsors**

Wednesday noon - 1:30 - Celebrity Showroom ~ \$60

Crowley Fleck LLC, HDR Engineering, Inc.,  
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### **Thursday Keynote Luncheon Sponsors**

Thursday noon - 1:30 - Celebrity Showroom ~ \$60

Brown and Caldwell, Crowley Fleck LLC, Hecla Mining Co.,  
Pray & Company HR & Business Solutions

### **Student & Junior Professionals Lunch Sponsors**

Thursday noon - 1:30 ~ \$50

Orozko Lounge on the main floor of the resort

**Teck American Incorporated**



## Thursday Keynote Speaker



**Allison Forrest**  
*Responsible Investment Officer*  
*Resource Capital Funds*  
*Denver, CO*

### **ESG and Mining Private Equity: An investor's approach to exploration and juniors**

To maximize performance, achieve ESG objectives and secure permits, mining and exploration companies must put ESG matters at the forefront of decision making. ESG prioritization is critical to any high functioning company and investors are well-positioned to leverage ESG improvements and help companies navigate ESG complexities in an ever changing environment. Ms. Forrest will review ESG implementation strategies including:

- Alignment with best practice
- Structured communication with company management
- Setting ESG goals/milestones that are associated with funding

#### **Biography:**

Allison Forrest is an Environmental, Social and Governance (ESG) expert in matters that measure the sustainability and impact of mining company investments. She is the Responsible Investment Officer at Resource Capital Funds (RCF), a mining-focused private equity firm with \$3.8B in assets under management. She has conducted over 40 ESG due diligence site visits in 16 countries and over 100 ESG desk-top due diligence reviews, globally. Her work has included the creation and implementation of RCF's Responsible Investment (RI) Program, including the RI policy and strategy, which outline the firm's ESG pre-investment, post-investment and exit practices. She is a committee member on two RCF committees, the RCF ESG Committee and the RCF Foundation Board and chairperson/member of ESG committees overseeing RCF's public and private portfolio company ESG performance.

## Thursday Special Guest Speaker



**Governor Mike Dunleavy (R)**  
*State of Alaska*

Governor Mike Dunleavy arrived in Alaska in 1983 as a young man looking for opportunity, and he found it. His first job was working in a logging camp in Southeast Alaska. Later on, Governor Dunleavy pursued his dream of becoming a teacher. He earned his teacher's certificate, and then a master of education degree from the University of Alaska Fairbanks. He spent nearly two decades in northwest Arctic communities working as a teacher, principal, and superintendent.

Governor Dunleavy and his family moved to Wasilla in 2004, where he owned an educational consulting firm and worked on a number of educational projects statewide. Dunleavy served on the Mat-Su Borough School Board, with two years as Board President, and then as a state senator for five years.

Serving as Alaska's 12<sup>th</sup> Governor, Governor Dunleavy is focused on moving Alaska forward and believes that our greatest years are yet to come if we work together to maximize our potential.

# AEMA Welcomes Students and Junior Professionals

Thursday 8:00 - 11:30 ~ Cascade 4



## ***Students & Young Professionals Technical Session***

It's what you know, who you know....and who knows YOU. Engagement and exposure with mining industry professionals is advantageous for students and those in the early stages of their careers. Whether its landing that first job or identifying new opportunities for development, learning the value of networking early and often is a high-value life skill. This session provides a venue for (1) students seeking to demonstrate their interest in advancing mining through their academic research, or (2) junior professionals who want to bring new ideas or observations to their peers. Attendees should come ready to meet those who are (and will be) shaping the future of our nation's mining industry.

Thursday noon - 1:30 - Orozko Lounge 1st Floor, tickets \$50

## ***Students & Junior Professionals Lunch***

Sponsored by: Teck American Incorporated

This buffet lunch will feature a short keynote speaker (20-30min) followed by roundtable discussion with students/junior professionals and the mentors (Industry Representatives from various paths and backgrounds) and will wind up with the student poster awards presentations.

Thursday 6:30 - 8:00 - Redwood 6

## ***Student & Junior Professionals Reception***

Sponsored by: SRK Consulting (U.S.), Inc. &  
Teck American Incorporated

Thursday evening Students and Junior Professional reception. Join us after the Thursday happy hour reception in the exhibit hall for a chance to meet with and connect our students and junior professionals with company leaders and industry folks.

## Student Poster Contest Contestants

Sponsored by: Teck American Incorporated,  
Hall Mineral Services LLC, Perpetua Resources,  
Arcadis US, Inc. & SRK Consulting (U.S.) Inc.

- **Cobalt as a Panacea for American Economic sustainability,** *Omejeh Timothy Enejoh, Glasgow Caledonian University, Scotland, Middlesbrough, UK*
- **Paragenetic Evolution and Mineralization at the Majuba Hill Cu-(Mo)-(Sn) Deposit, Pershing County Nevada,** *Alexander Holmwood, University of Nevada, Reno*
- **Two Birds with One Stone: Risk Reduction and Enhanced Water Recovery via Passive Solar Distillation,** *Thomas (Drew) Horseman, Vanderbilt University, Nashville, TN*
- **The Robertson Deposit: Intrusion Related Gold Deposit in the Northern Shoshone Range, Nevada,** *Neal Mankins, University of Nevada, Reno*
- **Bonita Peak Mining District Superfund Site Field Sampling with DRMS and WARM,** *Jessica Miller, Western Colorado State University, Gunnison, CO*
- **Artisanal and Small-Scale Gold Mining National Mercury Emissions Estimates using Hg: Au Ratios,** *Ashley Nguyenminh, University of Texas at Arlington, Grand Prairie, TX*

*Judging will take place Wednesday morning*

### **Student Travel Aid Sponsors:**

*J.R. Simplot Company, North America Mining Magazine, Teck American Incorporated, MRC Corp. & Jentech Drilling Supply*

## AEMA'S 2021 SHORT COURSE PROGRAM

Date	Three Day Short Course	Two Day Short Courses			One Day Short Courses	
SUNDAY DEC 5 8:00 - 5:00	Using SRCE Version 2.0 New & Updated Training  <i>Cascade 1</i>					
MONDAY DEC 6 8:00 - 5:00	Using SRCE Version 2.0 New & Updated Training  <i>Cascade 1</i>	Understanding the SEC's New Mining Disclosure Rule S-K 1300  <i>Cascade 3</i>	NEPA Training  <i>Cascade 4</i>	Practical Methods for Geostatistics, Spatial Analy- sis & Block Modeling  <i>Redwood 6</i>	Data Analytics for Earth Science Profession- als Using EXCEL  <i>Cascade 5</i>	
TUESDAY DEC 7 8:00 - 5:00	Using SRCE Version 2.0 New & Updated Training  <i>Cascade 1</i>	Understanding the SEC's New Mining Disclosure Rule S-K 1300  <i>Cascade 3</i>	NEPA Training  <i>Cascade 4</i>	Practical Methods for Geostatistics, Spatial Analy- sis & Block Modeling  <i>Redwood 6</i>	U.S. Mining Law  <i>Cascade 2</i>	<p><i>on-line class only</i></p> <p>Fundamentals of Mineral &amp; Metallurgical Processing</p> <p>Corby Anderson Colorado School of Mines &amp; Courtney Young Montana Tech</p>
Tuesday Evening - Hosted Awards & Recognition Reception - Chalet Terrace 6:00 - 8:00						

**2021 Short Courses are sponsored in part by:**

**Terra Law Group LLC, Brooks & Nelson,  
Ann & Tom Carpenter, Montgomery Associates,  
RockTech USA, Stoel Rives LLP, & Wood**

## AEMA'S 2021 TECHNICAL SESSION PROGRAM

	MINERAL DEPOSITS GEOLOGY & EXPLORATION		BUSINESS & FINANCE	OPERATIONS	ENVIRONMENTAL	LEGISLATIVE & PUBLIC AFFAIRS
DEC 8 WED AM 8:00 - 11:30	State & Province Reports I  <i>Cascade 2</i>	Alaska: Where Mining is an Economic Bright Spot  <i>Cascade 1</i>	Growth Companies  <i>5th Fl Chalet Terrace</i>	Sustainable Mining to Support Renewable Energy Transition  <i>Cascade 3</i>	Mine & Exploration Permitting: Suc- cess Strategies for a Changing Process  <i>Cascade 4</i>	Old Meets New: Solving Old School Problems with New Technology Tactics  <i>Cascade 5</i>
NOON - 1:30	WEDNESDAY KEYNOTE SPEAKER LUNCHEON - CELEBRITY SHOWROOM					
DEC 8 WED PM 2:00 - 5:30	State & Province Reports II  <i>Cascade 2</i>		Accessing Capital for Exploration, Development & Operations  <i>5th Fl Chalet Terrace</i>	New Projects in Old Districts  <i>Cascade 3</i>	Abandoned Mine Lands - One Step Forward & Two Steps Back  <i>Cascade 4</i>	2021 Public Lands  <i>Cascade 1</i>
5:30 - 6:30	WEDNESDAY WELCOMING RECEPTION - IN THE EXHIBIT HALL					
6:30 - 7:30	STUDENTS & JUNIOR PROFESSIONALS RECEPTION					
DEC 9 THUR AM 8:00 - 11:30	Rowing, Steamboating or Power- boating the Green Energy River  <i>Cascade 1</i>		Students & Junior Professionals Session  <i>Cascade 4</i>	Mining Hydrology  <i>Cascade 2</i>	New World for Looking After the Old World: Federal, State & Tribal Develop- ments for Cul- tural Resources Compliance & Industry Initia- tives  <i>Cascade 3</i>	
NOON - 1:30	THURSDAY KEYNOTE SPEAKER LUNCHEON - CELEBRITY SHOWROOM					
NOON - 1:30	STUDENTS & JUNIOR PROFESSIONALS LUNCHEON & STUDENT POSTER AWARDS					
DEC 9 THUR PM 2:00 - 5:30	Large Left Lateral Leaps to Geologic  <i>Cascade 2</i>		Human Re- sources For Natural Resources: Employment Challenges & Staffing Trends  <i>5th Fl Chalet Terrace</i>	NEPA at 50+ Will There be a New Normal?  <i>Cascade 1</i>	Large Left Lateral Leaps for Environmental Professionals - The COVID-19 Apocalypse  <i>Cascade 4</i>	What Does MSHA Have In Store Under the New Administra- tion  <i>Cascade 3</i>
5:30 - 6:30	THURSDAY HAPPY HOUR RECEPTION - IN THE EXHIBIT HALL					
DEC 10 FRI AM 8:00 - 11:30	The Curt Everson Great Basin Exploration Session  <i>Cascade 2</i>			Artificial Intelligence & Data Analytics Applications in Mining Opera- tions  <i>Cascade 4</i>	Mine Closure & Reclamation  <i>Cascade 1</i>	Building Back Better: Connecting the Dots with Mining  <i>Cascade 3</i>
11:00 - 5:00	EXHIBITOR TEAR DOWN					

## THREE DAY SHORT COURSE

SUNDAY DECEMBER 5, MONDAY DECEMBER 6 & TUESDAY DECEMBER 7

### USING SRCE VERSION 2.0 – NEW AND UPDATED TRAINING

Cost: \$675 ~ **Cascade 1**

Instructor: **Jeff Parshley, P.G., C.P.G., Corporate Consultant (Mine Closure), SRK Consulting (U.S.), Inc., Reno, NV**

#### **Course Description**

The Standardized Reclamation Cost Estimator (SRCE) is a public domain Microsoft Excel-based tool that has been used in Nevada for more than 10 years to calculate mine closure costs for financial assurance. The SRCE uses straightforward user inputs to create a first-principles estimate of closure costs. In addition to the Nevada-specific version, another version of SRCE is available for use in other states and internationally.

Over the last two years the non-Nevada version has been significantly upgraded with numerous new features and improved performance to create SRCE 2.0. The new features greatly expand the capabilities and functionality of the model - so much that we have completely re-vamped our standard SRCE training short course.

Because so many of the new features focus on things like detailed cost scheduling, filtering, and tracking costs by category, we have completely updated our curriculum to focus on strategizing the model setup based on site or company specific needs, and the type and intent of the cost estimate.

There will still be a heavy emphasis on hands-on training, but after an initial few simple exercises, we will focus on closure cost types, how to set up a closure chart of accounts, developing useful filters, and effective scheduling for project-specific needs.

Attendees will need to bring a laptop computer and engineering scale ruler for the hands-on exercises. If users wish to bring an existing SRCE model from a previous version, we will show them the process of importing that model into SRCE Version 2.0.

#### **About the Instructor:**



**Jeff Parshley** is the Corporate Consultant (Mine Closure) of SRK Consulting and an experienced mine closure strategist and regulatory specialist. He has extensive, global experience working with industry and governmental organizations contributing to the development of several regulatory guidelines for mine closure and closure cost estimating and development of closure related corporate standards, policies, and guidance documents. He has worked with legal and policy aspects of mining projects since his early career and regularly works on World Bank and IFC compliance projects. A graduate of Dartmouth College, Jeff has nearly 40 years of experience, including more than 30 years in mine closure.

**Monday Short Course Coffee Breaks are sponsored in part by: SVL Analytical**

**Monday Short Course Lunch is sponsored in part by: Davis Graham & Stubbs**

## TWO DAY SHORT COURSES MONDAY DECEMBER 6 & TUESDAY DECEMBER 7

### NEPA TRAINING

Cost: \$450 ~ *Cascade 4*

**CLE Request Pending**

**Instructor:** **Matt Petersen**, NEPA Technical Director, SWCA Environmental Consultants, Denver, CO

#### **Course Description:**

SWCA is offering a two-day short course on implementing streamlining techniques to deliver defensible NEPA decisions on complex mining projects within current CEQ-mandated timeframes. This class will provide practical instruction on planning pre-work specifically to streamline the NEPA process, early and efficient alternatives development, and collaborative impacts analysis planning to minimize re-work. The course will cover the following:

- 1) Overview of NEPA as a planning tool to expedite mine plan review
- 2) Tips for effective pre-work – Early integration of mine plan development and data gathering work plans with pending NEPA requirements.
- 3) Alternative development – issues-driven alternatives development and defensible elimination of alternatives from detailed analysis
- 4) Systematic planning impacts analysis – Issue identification and planning for concise issues-based analysis
- 5) Flexible NEPA for a changing administration – writing NEPA analysis to conform with existing CEQ regulations while addressing Biden administration EOs and updates to DOI priorities, including climate and environmental justice

#### **About the Instructor:**



**Matt Petersen** is the NEPA Technical Director for SWCA Environmental Consultants. He has 28 years of experience as a NEPA practitioner and has provided National Environmental Policy Act (NEPA) management or oversight for over 40 large-scale EISs, including projects in Nevada, Arizona, Alaska, Colorado, Idaho, New Hampshire, Utah, Vermont, Texas, New Mexico, California, and Wyoming. His NEPA experience includes work with most major federal agencies and encompasses mining, resource management plans, ski areas expansions, fire management plans, oil and

gas, pipelines, transmission lines, wind farms, airports, and power plants. He has taught applied NEPA seminars and classes for the Bureau of Land Management (BLM), USDA Forest Service (USFS), Bureau of Reclamation (BOR), U.S. Department of Transportation Maritime Administration, and the Federal Aviation Administration (FAA).

## ~ Tuesday's Kickoff Reception ~

**6:00 - 8:00 5th Floor Chalet Terrace**

**Sponsored by: Revival Gold, Inc.,**

**Mojave Precious Metals, Inc., Dorsey & Whitney LLC,**

**EM Strategies, Inc. & Nugget Casino Resort**

## TWO DAY SHORT COURSES | MONDAY DECEMBER 6 & TUESDAY DECEMBER 7... (continued)

### UNDERSTANDING THE SEC'S NEW MINING DISCLOSURE RULE: S-K 1300

Cost: \$450 ~ *Cascade 3*

**CLE Request Pending**

Instructors: **Greg Gosson**, *Technical Director, Geology & Compliance, Wood, Vancouver, Canada and*

**Stella Searston**, *Consulting Geologist, Mining Technical Services, Denver, Colorado*

#### **Course Description**

The new SEC rule rescinds Industry Guide 7 and consolidates all mineral property disclosure requirements into Regulation S-K 1300. The new rule modernizes disclosure requirements since IG 7 dates back to 1982, and provides investors with a more comprehensive understanding of registrant's mineral properties. The new rule more closely aligns the SEC's disclosure requirements and policies for mineral properties with current industry and global regulatory practices and standards. S-K 1300 became effective February 25, 2019 and mining registrants can voluntarily immediately comply with the new rule. All mining registrants with the SEC must comply from January 1<sup>st</sup>, 2021 onward.

This short course will compare Regulation S-K 1300 disclosure requirements to the current SEC Industry Guide 7 and will cover the following topics on Regulation S-K 1300:

- Those companies that must comply and those that are exempt
- The three defined stages of mining issuers, and of mineral properties
- Requirements for "summary disclosure" and for "individual property disclosure"
- Determining material mineral properties
- Exploration results, mineral resource and mineral reserve disclosure requirements
- "Initial assessment" reports and their required content
- "Feasibility study" and "pre-feasibility study" reports and their required parameters
- "Technical report summary" report triggers and their required content
- Qualified Person definition, registrant's requirements and QP responsibilities
- Commodity price allowances and marketing study requirements
- Reconciliation disclosure
- Internal controls disclosure requirements
- Voluntary disclosure allowances

Course participants will be provided with a course completion certificate.

#### **About the Instructors:**



**Stella Searston** has more than 30 years of worldwide experience in mining consulting, mineral exploration, and regulatory compliance issues, with a focus on Australasia, the Pacific, Africa, and North and South America. Stella's specialties include project and property evaluation; resource development; feasibility study and project management including data room setup; commodity and company reviews; technical reviews, audits, and due diligence; and Technical Reports, Technical Report Summaries and Competent Person's Reports under NI 43 101, SK 1300, JORC, and

SAMREC.





**Greg Gosson** has 36 plus years in the mining industry; five years as Chief Mining Advisor of the BC Securities Commission; Led the project to revise NI 43-101 in 2005; Involved in drafting legislation on Civil Liability under BC Securities Act, and NI 51-102 Continuous Disclosure Obligations; Former chair, current member of the Mining Technical Advisory and Monitoring Committee on NI 43-101: industry advisory group to the Canadian securities regulators; Member of the PDAC Securities Committee; Member of the CIM Committee on Mineral Resources and Reserves (and Best Practices); Member of the CIMCSA Working Committee on NI 43-101; 12 years as Technical Director, Geology & Compliance with Wood , formerly AMEC/Amec Foster Wheeler.

## **PRACTICAL METHODS FOR GEOSTATISTICS, SPATIAL ANALYSIS AND BLOCK MODELING**

Cost: \$450 ~ **Redwood 6**

Instructor: **Todd McCracken**, *P. Geo., Director – Mining & Geology, BBA E&C Inc., Sudbury, ON CANADA*

### **Course Description**

Every resource estimation completed always has an aspect of the job that may not fit within the normal practices and a solution is needed. This 2-day course, geared for geologist, engineers and other mining professional, presents practical methods to overcome the typical “stumbling blocks” for the various stages of a resource estimation while being consistent with industry standards.

Topics to be covered include:

- Data Management
- Solid / wireframe models
- Domain selection
- Top cut / bottom cut
- Sample compositing
- Geostatistics
- Block size selection
- Estimation strategy
- Model validation
- Resource Classification

**Top “take aways”:** There are acceptable methods to overcome every obstacle during the resource estimation process.

**Audience:** Attendees should have intermediate to advanced level of geological and resource modeling skills. Should have a solid understanding of geostatistics. This is not a software training course.

**Course delivery strategy:** The course is delivered in a manner where the concepts are presented to the various topics, then draw out examples from the participants to re-enforce the concepts.

*(continued on next page.)*

## TWO DAY SHORT COURSES | MONDAY DECEMBER 6 & TUESDAY DECEMBER 7... (continued)

### PRACTICAL METHODS FOR GEOSTATISTICS... (Continued)

#### About the Instructor:



**Todd McCracken** is a geologist with more than 30 years of experience in mineral exploration, mine operations and resource estimation. His experience is with mine operations and exploration. Todd's commodities expertise includes gold, base metals, nickel-PGE, lithium pegmatite, and vanadium. Todd has worked on projects across Canada, the United States, Mexico, Ghana, Peru, Madagascar, Nicaragua, and China.

Todd is the Director - Mining & Geology - Central Canada for BBA. The group provides project management, QA/QC programs, due diligence reviews, resource estimations, mine design, ventilation, rock mechanics, tailing facilities, preliminary economic analysis (PEA), as well as prefeasibility and feasibility studies (PFS and FS).

## ONE DAY SHORT COURSE | MONDAY DECEMBER 6

### DATA ANALYTICS FOR EARTH SCIENCE PROFESSIONALS USING EXCEL

Cost: \$300 ~ *Cascade 5*

Instructor: **Javad Sattarvand, Ph.D.**, *Associate Professor, Department of Mining and Metallurgical Engineering, University of Nevada, Reno*

#### Course Description:

#### Requirement:

Students need to have their laptop with MS Excel installed on it. Students need to have a basic knowledge of using spreadsheets and statistics.

#### Learning Outcomes:

Upon completion of this short course:

1. You will become familiar with the sources of the data in earth science and engineering,
2. You will be able to use Excel for cleaning and preparing the input data
3. You will be able to use Excel for applying statistical calculations
4. You will be able to use Excel for visualizing the data
5. You will be able to apply Excel on time series and perform forecasting

#### Topics of the Course

1. Data types in exploration and mining operations
2. Excel Introduction, advanced features
3. Data Analytics tools
  - a. Data preparation
    - i. Data sorting
    - ii. Data filtering
    - iii. Pivot tables
    - iv. Power query

- b. Data Analysis
  - i. Basic Statistics
  - ii. Test Hypothesis
  - iii. Utilize Data Distributions
  - iv. Perform Bayesian Analysis
- c. Data Visualization
  - i. Charts and Graphs
  - ii. Automation
  - iii. Animation
  - iv. Dynamic Dashboards
- d. Forecasting
  - i. Errors, Accuracy, and Bias
  - ii. Trendline Forecasting
  - iii. Modeling Exponential Growth
  - iv. Seasonality
  - v. Multiple Regressions

***About the Instructor:***



**Dr. Javad Sattarvand, Ph.D.**, is an associate professor at the Department of Mining and Metallurgical Engineering, at the University of Nevada, Reno since 2015. Dr. Sattarvand has received his Ph.D. in Mining Engineering from the University of Rheinisch-Westfälische Technische Hochschule Aachen – Germany in 2009. With 17 years of academic appointments as a lecturer, Assistant Professor and Associate Professor in the USA, Germany, Netherlands, and Iran and supervising 34 masters and 3 Ph.D. students, he is the teacher for mining automation and mining robotics courses at the University of Nevada, Reno. Dr. Sattarvand has published 26 journal

and over 70 conference papers and has received over three million dollars of federal grants, mostly from NIOSH. He has been also the recipient of the prestigious SME's career development grant (\$300K). Dr. Sattarvand's industrial expertise is in mine planning, optimization algorithms, and programming for different mining applications, mine monitoring, and mine control systems. He has founded two start-up companies and his cooperation with major global consulting companies resulted in more than 20 industrial projects and the commercialization of several software and hardware products for mining automation.

**Tuesday Short Course Coffee Breaks are sponsored  
exclusively by Small Mine Development**

**Tuesday Short Course Lunch is sponsored in part by:  
Wood**

## ONE DAY SHORT COURSE | TUESDAY DECEMBER 7

### U.S. MINING LAW ONE DAY SHORT COURSE AND HANDBOOK

Cost \$300 ~ *Cascade 2*

**CLE Request Pending**

Instructors: **Parsons Behle & Latimer**, Salt Lake City, UT

#### Course Description

This full-day course will provide a comprehensive overview of the mining law in the United States relating to the acquisition, exploration, development, operation and closure of hard rock mining projects on public lands. The course provides in-depth coverage of types of land and mineral ownership in the U.S., types of mineral claims, historical and current issues under the General Mining Law of 1872, the process and issues involved in obtaining, holding and financing mineral tenures, extralateral rights, an overview of environmental permitting, acquiring power, and an overview of water law in the western U.S. The course includes an overview of the typical methods for entering into exploration and development joint venture arrangements, including the revised Rocky Mountain Mineral Law Foundation "Form 5" limited liability company agreement, lease, purchase and sale of exploration and mining project issues, and a discussion of the standard royalty mechanisms including net smelter return and net profits interest royalties. The course also covers current significant environmental issues in the exploration and development of operations, including key air and water discharge issues, environmental impact statements, permitting of tailings facilities, bonding, and mine closure and reclamation issues. The course is ideal for persons who are interested in acquiring mining projects in the U.S., or simply wish to have a refresher on key concepts. The course will include an extensive 200+ page Mining Law handbook and appendices, which include various form royalty and other agreements.

Schedule:

- **Overview of Land & Mineral Ownership in the U.S.**
- **Overview of U.S. Mining Laws**
- **Detailed Review of the General Mining Law of 1872**
- **Acquisition of Mineral Tenures**
- **Financing the Project & Ancillary Concepts**
- **Structure of US Environmental Laws and Regulations**
- **Power and Energy Issues**
- **Essential Concepts of US Water Law**
- **Current Critical Issues and Proposed Rules**
- **Ethical considerations in multi-jurisdictional mining transaction due diligence, safe harbors of multijurisdictional practice, and essential aspects of a lawyer's ethical duty of confidentiality, the attorney- client privilege and work product immunity**

#### About Parsons Behle & Latimer

In 1882, Parsons Behle & Latimer was founded as a mining law firm, and for the past 130 years, we have partnered with hard rock mining clients in the U.S., Canada, Central and South America to guide them through every aspect of some of the largest mining transactions ever completed.

Parsons' Mining attorneys create solid, long-term relationships with national and inter-

national mining clients to become a solid partner through every phase of a project from exploration to closure and reclamation. Clients gain exceptional efficiencies from our multidisciplinary teams that provide every mining-related service including environmental and energy law, EPCM, financing, corporate transactions and M&A, real estate, government relations, litigation and employment and labor law.

Parsons' Mining team handles:

- Land and claim acquisition and leasing
- Pre-project, acquisition and divestiture due diligence
- Joint ventures
- Project financing
- Tax structuring
- Project permitting and environmental compliance
- Purchasing
- Refining and smelting arrangements
- Commodity hedging
- Power supply arrangements
- Political advisory services
- Mergers, reorganizations and divestments
- Litigation
- All other legal aspects of mining exploration and development

We partner with clients that range from small junior exploration and mining companies to diversified international mining companies.

## Technical Session Sponsors

Newfields  
Integra Resources Corp.  
Laura Skaer Consulting  
Pilot Gold (USA), Inc.  
Stoel Rives LLP  
Struhsacker Consulting  
Terra Law Group LLC  
& Wood

## STATE & PROVINCE REPORTS (Part 1)

### Cascade 2

#### Area of Interest - Mineral Deposits, Geology & Exploration

Chaired by: **John Muntean Ph.D**, Director, Ralph J. Roberts Center for Research in Economic Geology (CREG) Arthur Brant Chair in Exploration Geology, Nevada Bureau of Mines and Geology, University of Nevada Reno

#### Session Description:

Want to hear about exploration and mining activities for the past year in Western States and Provinces? In this all-day session, Economic Geologists from Western US States and Canadian Provinces will report on the exploration and development activities in metals and industrials for the past year in their respective areas. These specialists will also provide their insight into new mineral commodities and areas which are experiencing activity, and opportunities and challenges. The afternoon session is finished with a summary of USGS activities and mineral exploration trends. *State reports include:*

- **Utah's mining and exploration 2020 to 2021: Covid and beyond (Virtual)**, Stephanie Mills, Senior Metals Geologist, Utah Geological Survey, Salt Lake City, UT
- **The Status of the Mining Industry in New Mexico 2021**, Virginia McLemore, Research Geologist, New Mexico Bureau of Geology and Mineral Resources, Socorro, NM
- **Mining and Mineral Resource Potential in California**, Fred Guis, Minerals Resource Manager, California Geological Survey, Sacramento, CA
- **British Columbia Exploration and Mining Overview, 2021**, Bruce Northcote, Regional Geologist, Mineral Development Office, British Columbia Geological Survey, Vancouver, BC, Canada

#### John Muntean



John Muntean is an Associate Professor with the Nevada Bureau of Mines and Geology (NBMG), at the University of Nevada Reno (UNR). There he serves as the Director of the Ralph J. Roberts Center for Research in Economic Geology, which is a mineral industry associates programs, where annual donations are pooled together to fund graduate student research on Nevada's mineral deposits. He also is also the Arthur Brant Chair in Exploration Geology at UNR, and is currently serving as the Acting Director of the Nevada Bureau of Mines and Geology. In the past he worked for Placer Dome, Homestake, and Santa Fe Pacific.

**Wednesday Morning Coffee Breaks are  
sponsored in part by  
Fordia Powered by Epiroc, Foth, Itasca Denver, Inc.  
& TonaTec Exploration**

## ALASKA: WHERE MINING IS AN ECONOMIC BRIGHT SPOT

### Cascade 1

#### Area of Interest - Mineral Deposits, Geology & Exploration

Chaired by: **Deantha Skibinski**, *Executive Director, Alaska Miners Association, Anchorage, AK*

#### Session Description:

Alaska's economy is largely driven by resource development, and over the past year, low oil prices, a canceled cruising season, and other significant challenges made for a dire economic outlook for Alaska. However, with an essential industry designation, strategic protection protocols, and a Federal Administration putting domestic mineral production in the spotlight, mining emerged as the only industry in Alaska to see growth. Hear from mining operators and developers about how miners hope to continue being Alaska's economic bright spot. Presentations & speakers include:

- **Opportunities in Alaska and Navigating the Path to Get There**, *Corri Feige, Commissioner, Alaska Department of Natural Resources, Anchorage, AK*
- **Thinking Globally, Developing Locally: Alaska's Environmental Excellence**, *Jason Brune, Commissioner, Alaska Department of Environmental Conservation, Anchorage, AK*
- **Donlin Gold Project Update**, *Dan Graham, General Manager, Donlin Gold, Anchorage, AK*
- **Celebrating 25 Years of Mining at Fort Knox - A Foundation for a Golden Future**, *Anna Atchison, External Affairs Manager, Alaska, Fairbanks, AK*
- **Usibelli Coal Mine Update**, *Fred Wallis, VP Engineering, Usibelli Coal Mine, Healy, AK*

#### Deantha Skibinski



Deantha was born and raised in Anchorage and Big Lake, Alaska and is a graduate of the University of Alaska. She came to AMA from the Resource Development Council, where she worked as a projects coordinator for seven years. In that role, she advocated for the mining and tourism industries and managed efforts on the cruise ship head tax and mining shutdown ballot initiative campaigns and administered the Alaska Alliance for Cruise Travel, an organization promoting tourism businesses benefiting from visitors to our state. Deantha is an Executive

Committee member of the Armed Services YMCA of Alaska, an organization dedicated to supporting military members and their families. She has served on past Governors' Transition Teams, is a recipient of the Top Forty Under 40 award, and was one of a delegate to the first-ever Conference of Young Alaskans.

**Wednesday Afternoon Coffee Breaks are  
sponsored in part by**

**Teck American Incorporated,  
Freemyer & Associates, Inc. and RockTech USA**

## GROWTH COMPANIES

### **5th Floor Chalet Terrace**

*Area of Interest – Business & Finance*

Chaired by: **John Antwi**, *President, Elim Group of Companies, Reno, NV*

#### **Session Description:**

Most sectors of the global economies that show significant growth have minimal barriers to entry, the Tech Industry is a typical example. How many startup mining companies survive the market expectations and transition to mid-tier and major mining companies? When they survive startup, how is growth defined for such a junior exploration or mining company? What is the ideal business model for these growth companies to provide maximum shareholder value? What are the barriers to entry and how can startups be encouraged in the mining sector?

In this session we will be looking to explore how to start and grow an exploration and mining company and some success stories in this market.

Speakers and presentations include:

- **From Bootstrapping to IPO and Everything in-Between**, *Chad Peters, President, CEO & Co-Founder, Ridgeline Minerals Corp., Winnemucca, NV*
- **Karora Resources, Gold Producer**, *Paul Huet, Chairman and CEO, Western Australia*
- **Seabridge Gold, One of the world's largest resources of gold, copper and silver**, *Jay Layman, President, Toronto, ON, CANADA*
- **Panel Discussion Follows**

#### **John Antwi**



John Antwi is a mining executive with over 30 years of experience in Mine Technical and Financial Services with a knack for identifying the potential of geologic assets. He is a value driver with expertise in achieving strategic, operational, and financial goals for junior, mid-tier, and senior mining production companies. John is an innovative senior executive with expertise in implementing portfolio optimization initiatives and recommending project development opportunities to support corporate strategic objectives. He began his career by rendering geological services for a gold mining company in Africa and progressed to top performing executive overseeing growth initiatives, mergers and acquisitions with multi-billion-dollar organizations in the United States and Canada. Until the acquisition of Klondex Mines by Hecla, John was the Senior Vice President for Corporate Development and Planning for Klondex.

John served on the American Exploration & Mining Association's board and is a founder, President and Director of Elim Group of Companies. Mr. Antwi has a bachelor's degree in Geological Engineering from KNUST, Ghana and a Masters degree in Mineral Economics from the Colorado School of Mines.



# SUSTAINABLE MINING TO SUPPORT THE RENEWABLE ENERGY TRANSITION

## Cascade 3

### Area of Interest – Operations

Chaired by: **David A. Ellerbroek**, *Vice President for Client Service and Strategy, Brown and Caldwell, Lakewood, CO*  
and

**Dr. Ehsan Vahidi**, *Assistant Professor and John N. Butler Endowed Professor  
University of Nevada, Reno*

### Session Description:

Massive investment in renewable energy technologies is required to support the transition to low-carbon technologies for producing electricity and to prevent the worst impacts from climate change. This investment needs to occur not only in developed countries, but also developing countries where approximately 2 billion people still don't have access to reliable electric power. Large-scale deployment of renewable wind and solar power will reduce demand for carbon-emitting fossil fuels, but requires a rapid increase in the production of the minerals that form the basis of a low-carbon technologies. The challenge for the mining industry is to convert mineral development into a low- or zero-carbon process, so that the benefits of installing renewable energy projects is not offset by carbon emissions from mineral development.

Mineral production is currently an energy intensive process with production of industrial metals accounting for over 10 percent of global greenhouse gas (GHG) emissions (Fazian and Court 2015).

Copper, iron, lithium, cobalt, iridium, aluminum, nickel, and zinc are basic requirements of the renewable energy-based economy. Renewable energy technologies, including solar panels, wind turbines, and electric batteries, require these metals to be available at low cost to compete with fossil-based alternatives. The world will require as much copper in the next 25 years as was produced in the past 5 millennia in order to support new renewable energy projects. To meet this demand and cap global warming at 1.5°C, global production of nearly every base metal (including copper, aluminum, magnesium, nickel, and lead) is expected to increase by 225 to 250 percent in the next 30 years, according to the World Bank (Elshaki et al. 2018).

The challenge for the mining industry in the context of supporting the renewable energy transition is obvious: increase output of strategic minerals while decreasing inputs of fossil fuels that support all aspects of mineral development including exploration, mining, mineral processing, mine closure, and use of metals upstream in the value chain. Decarbonizing mineral production also offers an opportunity for mining companies to lower energy costs, increase reliability, provide operating cost certainty, and develop long-term revenue streams that will exist after mining ceases by developing renewable energy projects that support mineral development. In fact, renewable energy projects offer the opportunity to support mine closure and community development after the mine is closed by providing long-term revenue streams after mining has ended. Social capital will also be developed as mining companies use renewable energy to lower GHG emissions, provide rural power, improve working conditions for miners, help States meet emissions targets, and work with local communities. Several of the largest mining companies, such as BHP and Rio Tinto, have committed to lowered carbon emissions while supplying the minerals that drive the low-carbon economy. *Presentations & Speakers:*

## SUSTAINABLE MINING... (Continued)

- **Low Carbon Mining to support the Renewable Energy Transition**, *David A. Ellerbroek, Vice President for Client Service and Strategy, Brown and Caldwell, Lakewood, CO*
- **Assessing the Environmental Footprint of Gold Production in Nevada**, *Duncan Brown, Student in the Department of Mining and Metallurgical Engineering, University of Nevada-Reno, Reno, NV*
- **Hydrometallurgical Recovery of Valuable Metals from Spent Lithium-ion Batteries and its Associated Environmental Impacts**, *Hector Solorio Arteaga, University of Nevada-Reno, Reno, NV*
- **The Revenue Virginius Mine: Revitalizing Ouray's Mining Heritage through Public Engagement**, *Todd Jesse, Environmental Specialist, Ouray Silver Mines, Ouray, CO*
- **The Race to Net-Zero Carbon Mining**, *Amber Bieg, MBA, Partner, Warm Springs Consulting, Boise, ID*
- **Developing a Strategy to Meet Water Sustainability Goals**, *Ted Douglass, Sales and Strategy Lead - Compliance and Permitting, Brown and Caldwell, Boise, ID*

### David A. Ellerbroek



Dave Ellerbroek works at Brown and Caldwell as Director of Client Service and has more than 30 years experience working in the environmental, water and engineering industries leading technical teams at the project, program and executive levels. His technical background includes working in the mining and oil and gas industry solving problems related to hydrology, geochemistry and environmental engineering. He also teaches part time at Western Colorado University with a focus on environmental management related to sustainability transitions and mine reclamation.

### Dr. Ehsan Vahidi



Dr. Ehsan Vahidi received his B.Sc. and M.Sc. degrees in Metallurgical Engineering, from Sharif University of Technology and the University of Tehran, respectively. After earning his second master's degree in Environmental Engineering from the University of South Florida, he obtained his Ph.D. from Purdue University in Environmental & Ecological Engineering. His Ph.D. research on the sustainability assessment of rare earth production sponsored by the Department of Energy led to several awards including the first- ever *Ecological Sciences and Engineering (ESE) Outstanding Research Award*, the *2018 College of Engineering*

*Outstanding Graduate Student Research Award*, and the prestigious *Donnan Dissertation Fellowship* from the Purdue Graduate School.

Professional Posters are sponsored by:  
**Teck American Incorporated**

# MINE AND EXPLORATION PERMITTING: SUCCESS STRATEGIES FOR A CHANGING PROCESS

## Cascade 4

## CLE Request Pending

### Area of Interest – Environmental

Chaired by: **Ben Veach, PE**, U.S. Mining Sector Leader, Stantec, Reno, NV

#### Session Description:

The changes in administration have ushered in a new process for permitting mines and exploration projects. Policies and Procedures for permitting on federal lands have and continue to change. How are others finding success amid all the uncertainty? What are the results and how are they impacting our industry?

This session will explore how the changes to permitting and environmental regulations have impacted the landscape for mining and exploration. Learn from the experts how to avoid painful delays in permitting. Topics will include NEPA, USFWS Permitting, Mine Planning and Groundwater Successes and Failures. Presentations and Speakers include:

- **Baseline Groundwater as a Basis for Successful Permitting**, Rachel Peavler, Lead Hydrologist, Stantec, Salt Lake City, UT
- **Mine Permitting in California: Navigating the Intersection of State, County and Federal Processes**, David Cerasale, Director, Environmental Department, Westland Resources, Portland, OR
- **Critical Success Factors for Permitting Schedules**, George Fennemore, Senior Environmental Manager, Stantec, Boise, ID
- **Preplanning and Maintaining the Course to Plan Approval**, John Sherve, Field Manager, BLM Battle Mountain District, Nevada, Grand Junction, CO

### Ben Veach, PE



Ben, a Principal in the Environmental Services group, is responsible for the operations within the Stantec Mining footprint in the US. He brings more than 30 years of Nevada consulting experience as a project manager, engineer, and land use planner. His primary responsibility is to provide environmental mining support to the Stantec staff and clients across the US. His duties include being the responsible safety officer, financial lead, and all things related to the operation and maintenance of the Stantec Quality Management program. He leads a group of NEPA specialists, Wildlife biologists, Geologists, and Water specialists,

all focused on serving the mining industry. Ben brings a unique mixture of civil engineering and land use planning to the team that is useful at improving communications and focus to the project team. He has proven the ability to lead diverse teams of professionals from project inception through build-out on a wide range of projects.

Wednesday Exhibit Hall Sandwich Lunch  
Noon - 1:30 \$15

Sponsored in part by: Newfields, Arcadis US, Inc.,  
Golder Associates, Inc., International Directional Services,  
Jentech Drilling Supply, Rockwood Casualty Insurance  
Company & TonaTec Exploration

## OLD MEETS NEW: SOLVING OLD SCHOOL PROBLEMS WITH NEW TECHNOLOGY AND MODERN TACTICS - Positive Strategies for Social Media, Community Engagement, and Social License

### Cascade 5

#### Area of Interest - LEGISLATIVE & PUBLIC AFFAIRS

Chaired by: **Adam Hawkins**, *President, Global External Relations, Phoenix, AZ*

#### Session Description:

You will learn from industry experts on how to build and maintain a coalition of support around your operation. This session will show you how to use modern tactics for growing your project's support base. This will include:

- Back to the Basics: A quick refresher of how to communicate in a way that gets measurable results.
- Simplifying Data Analytics: Understanding and using public opinion research to help you identify audiences and communicate with them effectively.
- Maxing Out the Numbers with Positive Comment Letters: Using online comment generators for public comment periods.
- Making Your Message Viral: Learn the tricks of the trade that social media influencers use to engage and energize your support base.
- Grassroots 101: Learn how to build traditional support coalitions and keep supporters engaged and on message.

Talks include:

- **Real-Time Monitoring and Data Management of a NEPA Draft EIS Public Comment Period**, *Jessica Joyner, STS, Project Manager, Brown and Caldwell, Boise, ID*

#### Adam Hawkins



Adam is one of the leading practitioners in social license to operate – the support needed from the community to develop and sustain large-scale projects. He lectures frequently on the subject and has helped clients across the globe develop successful community engagement plans. A fixture in the public affairs, communications, and lobbying community for over a decade, Adam's insight is sought after and trusted by clients across the globe. Adam started his career as a staffer in the United States Senate. Prior to launching Global, Adam worked in house for Rio Tinto and within two leading public policy firms, assisting clients

on issues that included environment; water, natural resources, taxation, HR, commerce, transportation, and public lands. All of this experience has made Adam adept at working with key regulators such as the Environmental Protection Agency, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, Mining Safety and Health Administration, and Army Corps of Engineers. Adam graduated with honors from Thunderbird School of International Business with a MBA and holds a BA/BS from Arizona State University.

## AFTERNOON SESSIONS | WEDNESDAY DECEMBER 8

SESSION TIMES: 2:00 - 5:30 COFFEE BREAK 3:35 - 4:20

### STATE & PROVINCE REPORTS (Part 2)

#### **Cascade 2**

*Area of Interest - Mineral Deposits, Geology & Exploration*

Chaired by: **John Muntean Ph.D**, *Director, Ralph J. Roberts Center for Research in Economic Geology (CREG) Arthur Brant Chair in Exploration Geology, Nevada Bureau of Mines and Geology, University of Nevada Reno*

#### **Session Description:**

Want to hear about exploration and mining activities for the past year in Western States and Provinces? In this all-day session, Economic Geologists from Western US States and Canadian Provinces will report on the exploration and development activities in metals and industrials for the past year in their respective areas. These specialists will also provide their insight into new mineral commodities and areas which are experiencing activity, and opportunities and challenges. The afternoon session is finished with a summary of USGS activities and mineral exploration trends. *State reports include*

- **Idaho Mining and Exploration, 2021**, *Virginia S. Gillerman, PhD, Idaho Geological Survey, Boise, ID*
- **Update on Current USGS Mineral Resources Program and Earth MRI and MRP Research Activities**, *Warren Day, Earth MRI Science Coordinator / Research Geologist, USGS, Denver, CO*
- **NBMG/UNR Nevada Mineral Exploration Update**, *John Muntean, Associate Professor, University of Nevada Reno, Reno, NV*
- **Alaska Update**, *Steve Masterman, State Geologist, Alaska Geological Survey, Fairbanks, AK*

### ACCESSING CAPITAL FOR EXPLORATION, DEVELOPMENT & OPERATIONS

#### **5th Floor Chalet Terrace**

*Area of Interest - Business & Finance*

Chaired by: **Tim Alch**, *Financial Analyst, Managing Partner, TAA Advisory LLC, Edgewater, NJ*

#### **Session Description:**

Where in The Cycle Are We? 2021 started with robust prices and a favorable outlook with producers amassing profits and some saying M&A is coming. Though notable is Covid limits site visits and jurisdictional issues and changing rules and regulations and adapting to ESG regulations present risks to industry players. What are the successful miners and explorers doing to access capital during the Pandemic? What can owners and operators do to increase their odds of attracting investors and capital? Join us for a lively discussion and q&a with leading experts about the latest issues, trends and ways to get the right attention. Get your questions answered. *Presentations & Speakers:*

- **Disclosing Risks and Opportunities in Reporting Mineral Resources: Importance for project financing**, *Abani Samal, Ph.D., CPG, RM-SME, Fellow SEG, Principal, GeoGlobal LLC, Riverton, UT*


## AFTERNOON SESSIONS | WEDNESDAY DECEMBER 8... (Continued)

SESSION TIMES: 2:00 - 5:30 COFFEE BREAK 3:35 - 4:20

### ACCESSING CAPITAL FOR EXPLORATION... (Continued)

- **Why so serious? Summer Doldrums, Tax Loss Selling - Record Financing Year!** *Kai Hoffman, CEO, Soar Financial Group, Vancouver, BC, CANADA*
- **Mid-Sized Mining Company Development - Financing Issues, Trends and Possible Alternatives,** *Richard 'Rick' Reeves, Managing Director, Northcott Capital LLC, Denver, CO*
- **Current Industry Trends: Impact on Mine Finance,** *Cynthia Urda Kassis, Partner and Co-Head of Mining & Metals Group, Shearman & Sterling LP, New York, NY*
- **Shifting Federal Regulations and Mining Investments: A discussion of U.S. regulatory changes that can impact mining economics and how you invest in companies and projects,** *James Voyles, Of Counsel, Lewis Roca, Phoenix, AZ*
- **An Update re U.S. Securities & Exchange Commission's Mining Property Disclosure Requirements: Get it done!,** *Ben Parsons, MSc, MAusIMM (CP), Principal Consultant (Resource Geology), SRK Consulting, Denver, CO*

#### Tim Alch



Tim is Managing Partner of TAA Advisory. Tim is known for project management, team building, corporate and business development and financial and investment and minerals market advisory. His career spans equity, investment analysis, executive placement and event management. He is a Senior Associate of and was a Managing Director of Behre Dolbear; SVP of Anderson & Schwab; Equity Analyst at Paine Webber, Prudential Securities, and Dean Witter Reynolds and Senior Consultant: Industry Analyst at CRU International (London), World Steel Dynamics (New York) and Resource Strategies (Philadelphia). He is an Honors Geology graduate and John Mason Clarke fellow Amherst College and studied Mineral Economics at Penn State. Tim is a member of SME, AEMA, PDAC & NCUSCR; an Executive Committee Member (2008-16) and Executive Director (2016-21) of NY SME; and an SME Finance Strategic Committee Member (2017-20). In 2020 Tim was selected as the 2020 recipient of the SME President's Citation for Local Section Service Award.

### NEW PROJECTS IN OLD DISTRICTS

#### **Cascade 3**

##### *Area of Interest - Operations*

Chaired by: **Kennet Bertelsen, PE**, *Senior Civil Engineer, Morrison-Maierle, Spokane, WA*

##### **Session Description:**

Old mining districts can offer a wealth of opportunity for the right project including but not limited to new mines. As the regulatory landscape continually changes, so do the opportunities and challenges presented by historic mining districts. This session will host presentations by those who are pioneering new projects in old mining districts. Projects range from new mines taking advantage of the same commodity the area was known for, to projects with no connection to the districts' original claim to fame. *Presentations & Speakers:*

- **Re-purposing the Historic Comstock Mining District for a Sustainable Future**, *Alexia Sober, Mercury Market Research & Grants Manager, Comstock Mining, Inc., Virginia City, NV*
- **Gold Point Property: A Rediscovered Epithermal Camp at Gold Point, Walker Lane, Nevada**, *Matthew Dumala, Senior Engineer & Partner, Archer, Cathro & Associates, Vancouver, BC CANADA*
- **How a New Geologic Interpretation Jump Started Exploration at the Swift Project, Lander County, NV**, *Mike Harp, Vice President Exploration, Ridgeline Minerals, Winnemucca, NV*
- **Integra's DeLamar Project in Southwest Idaho - Third time's the charm**, *Tim Arnold, Vice President of Operations, Integra Resources LLC, Sparks, NV*
- **i-80 Gold: Four Historic Mines, One New Vision**, *Tim George, Manager of Engineering, i-80 Gold, Reno, NV*

### **Kennett Bertelsen**



Kennet is a senior civil engineer providing project management and design oversight on a variety of infrastructure projects for private and public clients. He has provided fresh water supply, booster station, stormwater analysis, haul road design, and wastewater treatment infrastructure planning and design to mining clients in Alaska, Montana, Idaho, Wyoming, Nevada, and Colorado. Throughout the Pacific Northwest he has worked on industrial site characterization and redevelopment for warehouses, production facilities, maintenance facilities and fuel storage/distribution, including development within superfund sites. This includes completing fuel storage containment design and 40 CFR 112 compliance for over 60 new and existing sites.

## **ABANDONED MINE LANDS - ONE STEP FORWARD & TWO STEPS BACK, THE CHALLENGES CONTINUE**

### **Cascade 4**

### **CLE Request Pending**

#### *Area of Interest - Operations*

Chaired by: **Jay Gear**, *Vice President, Environment, Health & Safety, Coeur Mining, Chicago, IL*  
*and*  
**Allen Freemyer**, *President, Freemyer & Associates, Washington, DC*

#### **Session Description:**

Abandoned mine lands (AML) are legacy sites that pose safety hazards, may lead to sedimentation and erosion issues, and may often impact water resources. Abandoned mines represent one of the least addressed threats to water quality in the United States. On the whole, there are abandoned mines located near current mining operations and in historic mining districts, many are stabilized but the vast majority are not.

Great progress has been made over recent years to define the problem, to promote awareness and partnerships, to advance cleanups, and to define an administrative or legislative process that navigates the regulatory minefields that challenge cleanups from occurring. This session will continue to explore these aspects, reflect on successes and strategies, delve into the legal mechanics of the regulatory regime, and visit potential Good Samaritan Policy under the new Administration.



## AFTERNOON SESSIONS | WEDNESDAY DECEMBER 8... (Continued)

SESSION TIMES: 2:00 - 5:30 COFFEE BREAK 3:35 - 4:20

### ABANDONED MINE LANDS... (Continued)

#### Session 1 (95 min):

- **Panel 1: Practical Insights, Successes, and Challenges - from the frontlines in the field and with regulation**
  - **Jaina Moan** - *The Nature Conservancy*
  - **Jason Willis**, *Trout Unlimited*
  - **Kate Garufi**, *HDR Denver - Rocky Mountain Remediation Practice Lead*
  - **Rob Ghiglieri**, *Nevada Division of Minerals (NDOM) - Deputy Administrator*

#### Session 2 (70 min):

- **Panel 2: Advancing an AML Program under the Biden Administration and Congress during the 117<sup>th</sup> Congress**
  - **Kate Farr** - *Senate Committee on Energy and Natural Resources - Energy Counsel for Senator John Barasso*
  - **Shahid Mahmud**, *Environmental Protection Agency (EPA) - Director of EPA Mining Office of Mountains, Deserts, and Plains*
  - **Tawny Bridgeford**, *National Mining Association (NMA) - Deputy General Counsel and Vice President, Regulatory Affairs*
  - **Ashley Nichols**, *House Committee on Natural Resources - Energy and Mineral Resources Subcommittee Staff Director*
  - **Ann Carpenter**, *Mining and Metallurgical Society of America (MMSA)*
  - **Tom Clarke**, *Director of Legislative and Regulatory Affairs – Interstate Mining Compact Commission (IMCC)*

#### Jay Gear



Jay joined Coeur Mining in 2014 and transitioned to the Vice President of Environment in February 2018. Gear is an accredited environmental management and science professional with over two decades of progressive experience in the mining, chemical, and consulting industries. Gear currently oversees all aspects of Coeur's environmental efforts, which include, permitting, environmental performance, strategic planning, corporate responsibility, etc. Before joining Coeur, Jay worked in the environmental and public policy group at a molybdenum mining operation in New Mexico, in the corporate environmental remediation group for a leading chemical and ammunitions company, and in the environmental consulting field primarily with the investigation and remediation of impacted industrial sites throughout the United States, Puerto Rico, and Canada. Mr. Gear holds a Bachelor of Science degree in Watershed Management with a hydrogeology emphasis from the University of Wisconsin in Stevens Point.

#### Allen Freemyer



Mr. Freemyer established himself as a nationally recognized expert in legislation, appropriations, natural resources, water, energy and environment matters while serving as senior staff for nine years on the Committee on Resources in the U.S. House of Representatives. Mr. Freemyer established his current practice in February 2002 after serving as the Chief of Staff of the Committee under the direction of Chairman James V. Hansen. Prior to becoming Chief of Staff, Mr. Freemyer was Staff Director and Counsel



to the Subcommittee on National Parks and Public Lands. Prior to working in Congress, Mr. Freemyer was in a private law practice. While serving on the Committee, Mr. Freemyer established himself as an expert legislative strategist with hundreds of Public Laws to his credit. His primary focus is in the areas of natural resource, energy, water, and environmental policy. He also has extensive experience with appropriations, national defense, transportation and various other issues. As Chief of Staff, Mr. Freemyer had a unique opportunity to work with House and Senate Leadership, as well as many outside groups in the formulation of policy, appropriations, and legislation. Mr. Freemyer possesses a complete working knowledge of the political and policy interface between Congress and the Executive Branch.

## 2021 PUBLIC LANDS

CLE Request Pending

### Cascade 1

#### Area of Interest - Legislative & Public Affairs

Chaired by: **Joshua Cook**, Partner, Crowley Fleck PLLP, Billings, MT,  
and  
**Laura Granier**, Partner, Holland & Hart, Reno, NV

#### Session Description:

Multiple Use, Mineral Development and the Nation's Supply Chains, National Security and Renewable Energy Goals. *Presentations & Speakers:*

- **Hot Legal Topics Affecting the Mining Industry and How to Harness them: Right to Mine, Permitting, Environmental Review, Climate Solutions, and More**, *Chris Stoneback, Partner, and Selena Sauer, Environmental and Natural Resources Attorney, Crowley Fleck PLLP, Billings MT*
- **A Solution in Search of a Problem: The Hard Rock Mining Regulations and Policies Provide Comprehensive Protection of Public Lands While Facilitating Multiple Use**, *Debra Struhsacker, Environmental Permitting & Government Relations Consultant, Reno, NV*

#### Joshua Cook



Joshua Cook is a partner in Crowley's Energy, Environment, and Natural Resources Department. His primary areas of practice are mining, Indian law, oil and gas law, and renewable energy. Joshua handles complex mining matters, including patented and unpatented claim disputes, and large scale due diligence of mining, renewable, and oil and gas properties. He covers property acquisitions and dispositions, title examinations, as well as permitting and environmental issues. He also assists pipeline, transmission line and development companies with right of way issues.

Joshua serves on the Board of Trustees for the American Exploration & Mining Association, is involved with the Nevada and Wyoming Mining Associations, and works on the Legislative Committee of the Montana Mining Association. He is a Trustee at Large and serves on the Special Institutes Committee of the Rocky Mountain Mineral Law Foundation, serves as a reporter for the Foundation's Newsletter and an update author for the American Law of Mining Treatise. Before law school, Joshua worked in the mining industry where he located mining claims on public domain lands throughout Nevada and other western states.

## AFTERNOON SESSIONS | WEDNESDAY DECEMBER 8... (Continued)

SESSION TIMES: 2:00 - 5:30 COFFEE BREAK 3:35 - 4:20

### PUBLIC LANDS... (Continued)

Laura Granier



Laura Granier is a partner at the law firm of Holland & Hart where she focuses her practice on mining, energy and natural resource issues. Her practice includes regulatory work and litigation with a focus on natural resources, mining law, public lands, energy, and water. She has successfully handled issues of first impression involving mineral resources in Nevada and has been extensively involved in the land use planning process in Nevada for Greater Sage Grouse conservation efforts. Laura was lead counsel for the nine Nevada counties and several private plaintiffs who successfully challenged the 2015 land use plan amendments – obtaining an order from the United States District Court for Nevada remanding the LUPAs. Ms. Granier has successfully handled litigation involving complex land tenure issues for various mining projects throughout Nevada. She has worked closely with state legislators in previous sessions on challenging issues related to water, mineral resources, revenue, education and land use. Her regulatory experience includes a broad spectrum of work before various agencies with regulatory jurisdiction over environmental issues, mining, water, education, taxes, land use, and public utilities.

## MORNING SESSIONS | THURSDAY DECEMBER 9

SESSION TIMES: 8:00 - 11:30 COFFEE BREAK 9:35 - 10:20

### ROWING, STEAMBOATING OR POWERBOATING THE GREEN ENERGY RIVER: The Role Of Critical Raw Materials (Or Minerals) In Navigating The Upstream To Downstream Supply Chain

#### *Cascade 1*

*Area of Interest - Mineral Deposits, Geology & Exploration*

Chaired by: **Christopher Dail**, *Manager, Exploration, Perpetua Resources., Donnelly, ID and*

**Peter Vikre**, *U.S. Geological Survey, Reno Office, Geology, Minerals, Energy and Geophysics Science Center, Mackay School of Earth Sciences and Engineering, University of Nevada-Reno*

#### **Session Description:**

Raw materials are the basis and upstream end of our supply chains that lead to downstream manufacturing. When raw materials are sourced from non-domestic sources, US manufacturers are at a significant disadvantage in the highly competitive manufacturing component of the supply chain in nearly all industry sectors. This session will explore the impacts of domestic versus non-domestic sourcing of raw materials for downstream manufacturers in the electronics, battery, solar and other green /renewable energy sectors. Speakers and talks include:

- **From Rocks to Docks - How Global Supply Chain Resiliency Depends Upon Plentiful REE Access**, *Joe Carson, CEO, Spend Strategies, LLC, Boise, ID*

- **Biorecovery of Critical Materials: Sustainable Solutions for the 21st Century**, *David Reed, Senior Staff Scientist, Idaho National Laboratory, Idaho Falls, ID*
- **Overview of Internal USGS Workshop on Waste as a Resource**, *Tanya Gallegos, U.S. Geological Survey, Reston, VA*
- **Big Data Comes to the Cowboy State: Assessing the Production Potential of Critical Minerals of Wyoming**, *Tim O'Brian, Leonardo Technology Inc., Germantown, MD*
- **Re-establishing a Cobalt and Manganese Supply Chain Starting in Pennsylvania Coal Measures**, *Ned Mamula, Leonardo Technologies, DOE Critical Minerals Program, Middleburg, VA*
- **ROUNDTABLE PARTICIPANTS TO BE DETERMINED**

### Chris Dail



Chris has 35 years of experience as an exploration geologist. His experience includes project to program level planning and execution across several continents and on a variety of mineral deposit types. Chris' role at Perpetua Resources is primarily focused on identifying and evaluating the exploration potential for new prospects and deposits within the project area. Chris has been with Perpetua since the company was founded. He decided to join the project because of the opportunity to help restore fisheries and habitat at the site and bring stable, well-paying jobs to a rural area depending on seasonal, often low paid tourism-type jobs. He believes Perpetua's goal to use modern mining practices and leave behind positive legacy.

Chris enjoys recreating throughout Idaho and the surrounding region including cross country and downhill skiing, rafting, sailing his historic wooden sailboat in lake Coeur d'Alene and hiking through the variety of terranes in the region with his wife.

## STUDENTS & JUNIOR PROFESSIONALS

### Cascade 4

#### Area of Interest - Business & Finance

Chaired by: **Dale Kerner**, *Permitting Manager, Perpetua Resources, Donnelly, ID* and **Norma Angelica Perez**, *Mining Engineer, Greenfield Talent Program, Nevada Gold Mines, Elko, Nevada*

#### Session Description:

It's what you know, who you know....and who knows YOU. Engagement and exposure with mining industry professionals is advantageous for students and those in the early stages of their careers. Whether its landing that first job or identifying new opportunities for development, learning the value of networking early and often is a high-value life skill. This session provides a venue for (1) students seeking to demonstrate their interest in advancing mining through their academic research, or (2) junior professionals who want to bring new ideas or observations to their peers. Attendees should come ready to meet those who are (and will be) shaping the future of our nation's mining industry. Speakers & talks include:

- **Leveraging In-situ Native Materials for Open-pit Earthen Cover Construction**, *Josh Ekhoff, Geologist/Hydrogeologist, Brown and Caldwell, Boise, ID*
- **Volcanic Glass Diagenesis as a Potential Concentration Mechanism for Lithium in McDermitt Caldera Sediments, SE Oregon**, *Sarah Holden, Student/Resource Modeler, University of Nevada Reno, Reno, NV*

## MORNING SESSIONS | THURSDAY DECEMBER 9

SESSION TIMES: 8:00 - 11:30 COFFEE BREAK 9:35 - 10:20

### STUDENTS & JUNIOR PROFESSIONALS... *(Continued)*

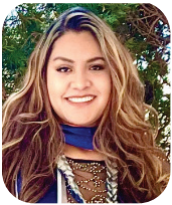
- **Fluid Inclusions and Origin of Carlin-style Mineralization at the Cove Deposit, Nevada**, Sarah Shapley, Student, University of Nevada, Reno, Reno, NV
- **The Robertson Deposit: Eocene Intrusion Related Gold Deposit in the Northern Shoshone Range, Nevada**, Neal Mankins, Student, University of Nevada Reno, Reno, NV
- **Paragenetic Evolution and Mineralization at the Majuba Hill Cu-(Mo)-(Sn) Deposit, Pershing County, Nevada**, Alex Holmwood, Student, University of Nevada Reno, Reno, NV
- **Satellite-Based Hyperspectral Imagery (HSI) - The Midas Touch for Mining?**, Cathy George, Renaissa Ghosh and Trinisha Jain, Students, Duke University, Durham, NC

#### Dale Kerner



Dale Kerner is a Professional Geologist licensed in the State of Idaho. He currently serves as the Permitting Manager for Perpetua Resources, working to obtain the many permits and approvals required for mining and reclaiming the historic Stibnite Gold Project in central Idaho. Prior to joining Perpetua Resources predecessor, Midas Gold in 2017, Dale had an 18-year career in environmental consulting that included geological exploration, mine planning & permitting, and NEPA project planning and coordination. Dale obtained degrees at Boise State University (MS Geology) and the University of Wisconsin/Eau Claire (BS Geology). Dale is an active member of the SME Boise Section and the Idaho Mining Association Conference Planning Committee. He utilizes these platforms to build meaningful connections between the mining industry, the public and the educational institutions that are developing our nation's future mining workforce.

#### Norma Angelica Perez



Norma Angelica Perez is a recent mining engineering graduate from the Mackay School of Mines at the University of Nevada, Reno. She currently serves as a mining engineer in the Greenfield Talent Program for Nevada Gold Mines at the Portal Underground Mines out on the Carlin Trend, working in a leadership position between operations and the engineering department as part of her talent program. Angelica landed 3 underground internships during her college career with Nevada Gold Mines at the Leeville underground (2 summers) and Cortez underground (1 winter) mine sites as a long-range planning, infrastructure, and ventilation intern. She was very active in and outside of the classroom taking on leadership positions in the John Mackay Club, Women's Rugby team, Archery Club, Greek Life, Tri-Beta National Honor's Society, ScienceFIT, and student mine design competitions. Angelica is an advocate for higher education and was a teaching assistant for the Mining Department. Prior to obtaining her Mining Engineering degree, Angelica obtained a Neuroscience degree at the University of Nevada, Reno.

**Exhibit Hall Bars are sponsored by  
Ruen Drilling, Inc.**

#### Area of Interest - Operations

**Chaired by:** **Mike Hardy**, *Senior Project Manager, Lumos & Associates, Reno, NV* and **Ronald T. Parratt Jr.**, *Water & Energy Specialist, Newmont Mining Corporation, Victor, CO*

#### Session Description:

Mining hydrology continues to change and evolve as a critical resource to manage in and around the various mine sites and exploration projects across the world. The various aspects of minerals extraction all have challenges to overcome related to water. Whether too much, too little, challenging quality or change in regulations, this session plans to present talks that address water as it is managed in relation to mining. Presentations and Speakers:

- **Utah Water Rights Basics**, *Ryan Hamilton, Assistant Regional Engineer, Weber/Western Region, Utah State Engineers Office, Salt Lake City, UT*
- **Water Rights Law Topics in Nevada Mining**, *Adam Sullivan, Nevada State Engineer, Nevada State Engineers Office, Carson City, NV*
- **Hydrogeology Baseline Characterization: Scoping a Project from Exploration to Permit**, *Chris Cottingham, Principal Hydrogeologist/Intermountain West Operations Manager, Montgomery & Associates, Salt Lake City, UT*
- **From Groundwater Modeling to Hydrologic Decision Support Services**, *Mark Porter, Principal Hydrogeologist, Brown and Caldwell, Boise, ID*
- **Two Birds with One Stone: Risk Reduction and Enhanced Water Recovery via Passive Solar Distillation**, *Thomas Andrew Horseman, Ph.D. Candidate, Vanderbilt University, Nashville, TN*

#### Michael Hardy, P.E., P.G., WRS



Michael has over 30 years in the field of water resources with the majority of his experience in regional groundwater characterization and analysis, water rights, well field management, and exploration and production well drilling. Michael began his career as a hydrogeologist for an in-situ lithium mining operation in western central Nevada. Some of his responsibilities included managing an extensive wellfield (60 plus wells), company water rights and conducted multiple well drilling projects. After 9 years, Michael went to work for water resource

company where he was a project manager of large water infrastructure projects in excess of \$4.3 million. Michael joined Lumos & Associates, Inc. in 2003 where he has managed multiple large groundwater investigations, water infrastructure projects and water rights. Michael is also a very active member with the Nevada Water Resources Association where he was a Board Member, past President and Treasurer for the organization.

#### Ronald T. Parratt, Jr.

Ronald Parratt is a professional mining hydrogeologist working as the Site Water Coordinator – Water and Energy Specialist for Newmont Mining Corporation at their Cripple Creek and Victor operations in Colorado. He has 15 years of experience and expertise in mining hydrology including, ground water modeling, mine dewatering, water quality program management, and permitting. His interest in hydrogeology began while working as a driller's assistant for Layne Christiansen Drilling in AZ. This inspired him to get his master's

## MORNING SESSIONS | THURSDAY DECEMBER 9... (continued)

SESSION TIMES: 8:00 - 11:30 COFFEE BREAK 9:35 - 10:20

### **MINING HYDROLOGY.. (Continued)**

#### **Ronald T. Parratt, Jr.... (Continued)**

degree in Hydrogeology at the University of Nevada, Reno. He worked for Newmont as an Engineer II: Hydrogeologist at their Twin Creeks, Midas and Phoenix mines and during his time with Schlumberger Water Services, he worked as a Project Hydrogeologist on several projects throughout Nevada, Idaho and Chile. In his spare time, he enjoys being in the outdoors with his family, golfing and hiking.

## **NEW WORLD FOR LOOKING AFTER THE OLD WORLD: Federal, State and Tribal Developments for Cultural Resources Compliance and Industry Initiatives**

### **Cascade 3**

**CLE Request Pending**

*Area of Interest: Environmental*

Chaired by: **Connie Rogers**, *Principal, Terra Law Group, Denver, CO*

*and*

**Paul Burnett**, *Director, SWCA Environmental Consultants, Denver, CO*

#### **Session Description:**

This session will review recent developments in federal and state laws and policies, the increasing role of Tribes, and proactive measures being undertaken by the mining industry to meet the challenges of increased attention to cultural and tribal resources in evaluation of mining projects. Specific topics include:

- **Legal Update.**
- **Nevada Mining Association Cultural Resources Checklist.**
- **The View from the SHPO's Office.**
- **Probability Modeling.**
- **Managing Cultural Resources Using Story Maps.**
- **Tribal Consultation.**
- **Case Study: Update on Resolution Copper.**
- **Open Forum.**

Speakers: **Allen Biaggi**, *A. Biaggi & Associates LLC*; **Katie Blake**, *Sustainability & External Relations Specialist, Newmont Corporation*; **Paul Burnett**, *SWCA*, **Rebecca Palmer**, *Nevada State Historic Preservation Officer*, **Victoria Peacey**, *Corporate Senior Manager Environmental Permitting and Approvals at RioTinto Copper and Diamonds, RioTinto*, **Connie Rogers**, *Terra Law Group*, and **Sara Thorne**, *Senior Permitting Manager, Coeur Mining, Inc.*

Core Shack Display is sponsored by:  
Engineering & Mining Journal, DGI Geosciences, U.S., Inc.  
& Skyward Specialty Insurance

**Connie Rogers**



Connie Rogers helps clients get their projects approved and operational. Connie advises clients in navigating complex regulatory regimes and environmental reviews, with an emphasis on compliance with federal land management statutes, the National Environmental Policy Act, species protection statutes, federal Indian law, cultural resource and religious freedom concerns, and international human rights and indigenous peoples issues. Connie's clients include companies, local governments, non-profits and educational institutions in developing and implementing

major infrastructure (water, wastewater, transmission), mining, energy (conventional and renewable) projects. Connie previously practiced in a large Rocky Mountain regional law firm, and served as Deputy Solicitor for Energy and Mineral Resources at the U.S. Department of the Interior, where she was the lead lawyer on issues relating to the development of renewable and conventional energy and mineral resources on Interior-managed lands.

**Paul Burnett**



Paul Burnett has been promoted to Cultural Resources Director for SWCA Environmental Consultants' Denver office. He will support the continued success and growth of the office by overseeing staff recruitment and development, project execution, client management, business development, and business operations.

Paul has been with SWCA since 2004. He most recently served as the Cultural Resources Team Lead in the company's Fort Collins office and has played an important role in the cultural resources program in Colorado, leading survey and excavation projects, developing project strategy and approach, managing complex projects, and working closely with clients and agencies.

He's been a member of SWCA's Science Leadership Program since 2010. His work in statistical modeling that spans historic properties, fire studies, and desert tortoise research earned him the first Steven W. Carothers Scientific Merit Award in 2016.

***Thursday Coffee Break Sponsors***

***Morning***

***Perpetua Resources,***

***Foth Infrastructure & Environment, LLC***

***Mincon, & TonaTec Exploration***

***Afternoon***

***Tech American Incorporated***

***Perpetua Resources***



## LARGE LEFT LATERAL LEAPS TO GEOLOGIC

### Cascade 2

**Beer Sponsored by: Integra Resources Corp., Headwater Gold Inc., Barr Engineering Co. & Jentech Drilling Supply**

#### *Area of Interest - Mineral Deposits, Geology & Exploration*

Chaired by: **Andrew Harley, PhD**, Mining Director, SWCA Environmental Consultants, Broomfield, CO

This year we will work to keep the tradition of provocative talks, accentuated by “inspired” discussions and commentary from the audience alive. Maybe even pour more life into it. Of course, we will count on (un)conventional beverages to help. The session is targeting presentations at the cutting edge of exploration science. This is a good forum for new ideas on exploration and development of mineral projects to see the light-of day. Topics of interest include technologies improving the effectiveness and productivity of exploration, improvement of energy efficiency and productivity waste reduction for mining and processing, geomicrobiology, data driven innovation, data analytics and artificial intelligence. *Presentations & Speakers:*

- **New Eyes on Old Rocks: A New Structural Model Reinvents a World-Class Gold District -Black Hills South Dakota**, *Rob Bergman, President, Big Rock Exploration, Minneapolis, MN*
- **Southwest New Mexico: Another Carlin Type Terrane?**, *John Zimmerman, President, Zimrock, Inc., Grass Valley, CA*
- **Exsolve Recycling Technologies: Re-domesticating Wealth and Opportunity through Recapture of Lost Value Metals**, *Rob Bergman, President, Big Rock Exploration, Minneapolis, MN*
- **Geology to Biology - Tailings as Feedstock for Fertilizer - A Case for Multiple Opportunities**, *Mike Gingles, President, Americas Tailings, Inc., Castle Pines, CO*
- **The Beartrack - Arnett Gold Project -Lemhi County, ID**, *Steven Priesmeyer, Vice President Exploration, Revival Gold, Inc., Toronto, ON CANADA*

#### **Andrew Harley, PhD**



Dr. Andrew Harley has over 30 years experience with a background in geochemistry, soil science, plant nutrition and agronomy, Dr. Harley is able to integrate innovative solutions to reduce costs and improve efficiencies throughout the mine life cycle. Recent mining work includes: Geochemical evaluation and waste rock characterizations; supporting permit and license applications for proposed mining, ore processing and smelting operations, 3<sup>rd</sup> party NEPA support, and supporting mining companies with water quality issues including

overburden characterization and land application of treated water. Dr. Harley’s academic research involved understanding the role of weathering reactions of minerals for nutrient controls in agriculture soils and the development of mineral-based fertilizers.



## HUMAN RESOURCES FOR NATURAL RESOURCES: Employment Challenges & Staffing Trends

**5th Floor Chalet Terrace**

**CLE Request Pending**

*Area of Interest - Business & Finance*

Chaired by: **Sarah Lightner**, *Vice President, Corporate Operations, Geotemps, Inc./Geopros, Inc., Reno, NV*

### **Session Description:**

This session will address the recruitment and employment challenges commonly seen in the mining industry and related implications from a litigation and regulatory perspective. How to get the candidates across the finish line post-covid? Managing your employees once onboard with the ever changing landscape. Speakers and talks include:

- **How To Get Candidates Across the Finish Line**, **Margarita Piñon**, *Director of Talent Acquisition at Geopros, Inc., Reno, NV*
- **Sarah Marten**, *Certified Professional in Human Resources, SRK Consulting (U.S.), Inc., Reno, NV*
- **Operations, Regulations, Workplace Safety, and Community Regulations**, **Laura Granier**, *Attorney, Partner, Holland & Hart, Reno, NV*
- **Labor and Employment Issues Facing the Mining Sector**, **Dora Lane**, *Attorney, Partner at Holland & Hart, Reno, NV*

**Sarah Lightner**



A passionate operations and recruitment leader committed to building and sustaining a strong team of staffing and recruitment managers. She and her team are focused on connecting technical professionals to the uniqueness and culture of the mining and minerals industries.

Utilizing her MBA and studies in Sociology and Psychology enable her to be a valued resource to her team and her clientele. She brings an awareness of industry and societal needs together to best recruit for

quality and longevity, minimizing turnover thus improving attrition rates.

Her commitment to industry and community includes responsibilities as Chair and head of the Fundraising committee for the Society of Mining and Metallurgical Engineers - Nevada Chapter, and active member of the Nevada Mining Association, the Geological Society of Nevada, and the American Exploration & Mining Association.

### **Thursday Exhibit Hall Sandwich Lunch Sponsors**

**NewFields, Foth, Arcadis US, Inc., Golder Associates, Inc.  
International Directional Services,  
Rockwood Casualty Insurance Company,  
& TonaTec Exploration**

## NEPA AT 50+; Will There be a New Normal?

### Cascade 1

### CLE Request Pending

#### Area of Interest - Mineral Deposits, Geology & Exploration

Chaired by: **Edward (Ted) Boling**, Partner, Perkins Coie LLP, Washington, DC and **Bob Maynard**, Partner, Perkins Coie LLP, Boise, ID

#### Session Description:

This session will provide an updated critical look at NEPA since the major revision of the Council on Environmental Quality regulations completed in 2020, featuring seasoned NEPA experts with practical experience concerning mining projects. The revised CEQ regulations were intended to clarify the scope of effects analyses, allow applicants and mitigation to have a larger role in the overall process, and limit the time and size of environmental documents. These changes are currently subject to a broad regulatory review pursuant to President Biden's Executive Order 13990. CEQ has committed to a "comprehensive reconsideration of the 2020 Rule to evaluate its legal basis, policy orientation, and conformance with Administration priorities, including the Administration's commitment to addressing climate change and environmental justice." In coordination with OMB under Section 213, Executive Order 14008, CEQ's NEPA review will need to include provisions "to ensure that Federal infrastructure investment reduces climate pollution, and to require that Federal permitting decisions consider the effects of greenhouse gas emissions and climate change" and "to accelerate the deployment of clean energy and transmission projects in an environmentally stable manner." This emphasis on the development of renewable energy production and transmission will have to be harmonized with the goals, under Section 216, of conserving at least 30 percent of our lands and waters by 2030 and, under Section 219, of securing environmental justice and spurring economic opportunity for disadvantaged communities. The presentations and discussion will focus on the aspects of the 2020 regulations that should be retained by CEQ, the implications of changes directed by these Executive Orders, and provide an update on the changes CEQ is considering with examples of incorporating adaptive management principles into mining NEPA documents. The session will cover other current developments regarding NEPA in the courts and Congress. *Panel Members:*

- **Lance Miller, Ph.D.**, Vice President, Natural Resources, NANA Regional Corporation, Anchorage, AK
- **Ron Rimelman**, Vice President, Environment, Health, Safety & Sustainability, NOVA-GOLD RESOURCES, INC., Salt Lake City, UT
- **NEPA in a Changing "Mine-Scape"**, Aylin Lewallen, Managing Scientist and Kelly Collins, PG, CHG, BCES, Managing Principal, Brown and Caldwell, Denver, CO

#### Ted Boling



**Edward (Ted) Boling** served as the country's top National Environmental Policy Act (NEPA) attorney as an associate director at the Council on Environmental Quality (CEQ) in the Executive Office of the President. Ted served at CEQ, the U.S. Department of the Interior (DOI), and the U.S. Department of Justice (DOJ) in Democratic and Republican administrations. His experience includes deep involvement in federal infrastructure permitting issues and the first comprehensive revision of CEQ's NEPA regulations in 40 years.

Drawing on over 30 years of high-level public service, Ted currently advises leaders on transportation and energy development projects, agencies that must hire outside counsel, and the environmental professionals that support them on the development of renewable energy, resource development, transportation, and infrastructure. Clients are drawn to working with him because they know that by tapping into his experience, they will be able to prudently manage and effectively defend the choices they make, resources they commit, and risks to which they expose their organizations.

Ted's extensive government experience at CEQ included the development of the National Ocean Policy, CEQ's climate change guidance, and the regulatory response to the Deep-water Horizon disaster. He drafted NEPA guidance on mitigation and monitoring, cumulative impacts analysis, and the development categorical exclusions from detailed NEPA documentation. Ted advised the White House on the establishment of numerous national monuments, including the first marine national monuments in the United States and the largest marine protected areas in the world. He also assisted in briefing three U.S. Supreme Court cases.

### **Bob Maynard**



Bob Maynard is a partner based in the Perkins Coie Boise office and chair of the firm's Mining/Oil & Gas Group. Bob has more than forty years of experience in National Environmental Policy Act (NEPA) and other environmental and natural resources law. He has assisted numerous mining projects with permitting and other regulatory, transaction, and litigation matters and issues in the eastern and western U.S. and Alaska. His work has encompassed the prospecting, exploration, development, production and reclamation/closure operation phases. He served many

years as a federal attorney representing the U.S. Forest Service regarding mining and other matters in Alaska and Washington D.C. He speaks and writes frequently on NEPA and other environmental and natural resources law and policy topics.

## **LARGE LEFT LATERAL LEAPS FOR ENVIRONMENTAL PROFESSIONALS - THE COVID-19 APOCALYPSE: Environmental regulations in a post-pandemic recovery**

**Beer Sponsored by: Teck American Incorporated & ACZ Laboratories Inc.**

### **Cascade 4**

*Area of Interest - Environmental*

Chaired by: **Shawn Calendine**, *Geoscientist, hydroGEOPHYSICS, Inc., Tucson, AZ*

#### **Session Description:**

Over 18 months we learned how a pandemic could weave a web of illness, economic distress, and uncertainty across the globe. We have watched some governments successfully fight the virus, and others catastrophically fail. As global economies re-emerge, many governments and industries prioritize a speedy return to growth. How has the mining industry and the regulatory environment changed in response to the pandemic disruption, a new executive branch administration, and the continually emerging demands of a pandemic recovery? *Presentations and Speakers:*

- **The Pandemic and Climate Change. Pandemic and climate change impacts on mine operations,** *Chris Peters, P.G., Senior Hydrogeologist, Montgomery & Associates, Tucson, AZ*

## AFTERNOON SESSIONS | THURSDAY DECEMBER 9... (Continued)

SESSION TIMES: 2:00 - 5:30 COFFEE BREAK 3:35 - 4:20

### LLLLL FOR ENVIRONMENTAL PROFESSIONALS... (Continued)

- **Shredding the Red Tape. So is it even possible to complete an EIS for a mine these days?**, *Chris Garrett, Hydrologist/Project Manager, SWCA Environmental Consultants, Phoenix, AZ*
- **Compliance vs. Gridlock**, *Robert S. Livermore, GI, CEM, CESCO, Principal Mining Group Director, Civil & Environmental Consultants, Inc., Phoenix, AZ*
- **Building Bridges**, *Judd Samson, Intermountain Region (R4), USFS PSOL, Ogden, UT*
- **What's in Your Toolbox? Mitigating impacts through assessment management**, *Nathan J. Wojcik, Ph.D., Ecologist, SWCA Environmental Consultants, Broomfield, CO*

***The AEMA makes no assertions about this session's political correctness except that it is unlikely to be.***

#### Shawn Calendine



Shawn Calendine is the Marketing & Development Manager at hydroGEOPHYSICS, a leader in the field of geophysical consulting and geosciences servicing the environmental, engineering, groundwater, mining, oil and gas, and natural-resource exploration industries. Shawn creates long-term value for hydroGEOPHYSICS by bringing a robust professional quality to the company's marketing environment and by developing strong relationships with clients, building trust through integrity,

flexibility, a deep understanding of client needs, along with decades of experience as an environmental scientist and geoscientist.

## WHAT DOES MSHA HAVE IN STORE UNDER THE NEW ADMINISTRATION?

### Cascade 3

### CLE Request Pending

#### Area of Interest - Environmental

Chaired by: **Karen Johnston**, *Member, Jackson Kelly PLLC, Denver, CO*  
**Jason Nutzman**, *Director, Fennemore, Denver, CO and*  
**Diane Watson**, *Silverado Compliance Solutions, San Francisco, CA*

#### Description:

Almost one year into the Biden Administration, mine operators have seen an upswing in enforcement actions and new initiatives. The Acting Assistant Secretary for Mine Safety and Health has put their stamp on the agency and is aiming for a more progressive approach. Hear from representatives from industry and a former long-time MSHA employee regarding key initiatives implemented by MSHA, MSHA's rulemaking agenda, and how MSHA is managing enforcement during the pandemic. In this session you will hear about the new wave of discrimination cases and what to expect during a special investigation. This will be followed by a brief update on litigation under the Mine Act and a roundtable discussion with an opportunity for your questions to be addressed by our participants. This session will be a round table discussion. Participants are:

- Karen Johnston, *Member, Jackson Kelly PLLC, Denver, CO*
- Jason Nutzman, *Director, Fennemore, Denver, CO*
- Diane Watson, *Silverado Compliance Solutions*

**Karen L. Johnston**



Karen L. Johnston is a Member of Jackson Kelly PLLC, resident in the Denver office. She handles all aspects of the defense of safety and health cases involving both MSHA-regulated and OSHA-regulated facilities as part of the firm’s nationwide occupational safety and health practice group. She counsels mine operators and general industry employers with respect to prevention and avoidance of liability under the Occupational Safety and Health Act and the Federal Mine Safety and Health Act, as well as the Safe Explosives Act. She also handles all aspects of the defense of enforcement actions arising under those statutes, including both administrative and civil litigation. She conducts seminars and training sessions on enforcement and discrimination topics under various state and federal safety and health statutes.

**Jason Nutzman**



Jason Nutzman works out of Fennemore’s Denver office in the natural resources, energy and environment practice group. Jason’s practice focuses on representing mining companies nationwide regarding Mine Safety and Health Administration (MSHA), Occupational Safety and Health Administration (OSHA), and general employment matters. He represents both coal and metal/non-metal clients before the Federal Mine Safety and Health Review Commission in accident investigations, special investigations, and discrimination investigations conducted by the Department of Labor with respect to the Mine Safety and Health Act.

**Diane Watson**



Diane Watson is a former MSHA supervisory special investigator with a deep understanding of law, regulation and policy within government. Diane served four Administrations where she worked through many transitions and evolutions of MSHA with one common theme throughout; protecting the miner. With 30 years experience dedicated to mine safety, Diane continues her quest to keep miners safe by helping companies build solid safety and health programs, proactively comply with regulations and prepare for regulatory review.

## **Exhibit Hall Reception Sponsors**

### **Welcoming Reception**

**Boart Longyear, Hecla Mining Co., Knight Piésold Consulting, Mine Development Associates/RESPEC Company LLC, Perkins Coie LLP & Preco Electronics a Sensata Technologies Company**

### **Thursday Happy Hour Reception**

**The Mining Record, O’Keefe Drilling, Stantec Consulting & Timberline Drilling, Inc.**

## MORNING SESSIONS | FRIDAY DECEMBER 10

SESSION TIMES: 8:00 - 11:30 COFFEE BREAK 9:35 - 10:20

### THE CURT EVERSON GREAT BASIN EXPLORATION SESSION

#### *Cascade 2*

##### *Area of Interest - Mineral Deposits, Geology & Exploration*

Chaired by: **Chad Peters, P.Geo.**, *President, CEO & Director, Ridgeline Minerals, Winnemucca, NV* and  
**Bob Felder**, *Director, Orogen Royalties, Reno, NV*

##### **Session Description:**

After almost 50 years of continuous production the Great Basin continues to yield new discoveries by both major and junior explorers alike. These new discoveries, although varying widely by deposit type, trend and commodity all began as an early stage prospect led by a committed team of geologists. This year's session will showcase a few of these explorers who are advancing their projects and applying sound exploration techniques in their quest for the next big discovery in the Great Basin.

- **The Sandman Project**, *Robbie Anderson, Consulting Geologist, Gold Bull Resources, Reno, NV*
- **The Hughes Project**, *Chris York, Exploration Manager, Summa Silver, Vancouver, BC*
- **Wrangling rocks at the Oyarbide Ranch: Upper Plate? Lower Plate? Call in the Brand Inspector**, *Matt Fithian, Senior Exploration Geologist, SSR Mining Inc., Vancouver, BC*
- **Generative Exploration in the Great Basin**, *Curtis Johnson, Senior Exploration Geologist, EMX Royalty Corp. Denver, CO (Pending Corporate Approval)*
- **The Cherokee Project: Miocene Silver-Copper-Gold Bearing Veins and Breccia Mineralization in Mesozoic Sedimentary Rocks**, *Robert Johansing, Consultant, Silver One Resources, Inc., Vancouver, BC, CANADA*

##### **Chad Peters**



Chad is a registered professional geologist and the President, CEO and co-founder of Ridgeline Minerals, a Nevada focused junior explorer. Chad and his team have raised \$14 million in the public markets since 2019 as well completed an IPO on the TSX Venture in 2020. Prior to co-founding Ridgeline Minerals Chad was a managing member of the Premier Gold Mines Ltd. Exploration team responsible for the discovery of over 10 Moz. of gold in Canada and the US.

##### **Bob Felder**



Bob Felder is a Director of Orogen Royalties Inc. following the successful merger of Renaissance Gold and Evrim Resources in 2020. Bob has worked on the exploration side of the mining industry for most of the past 40 years, beginning in technical positions as an exploration geologist, and progressing into management and executive roles, for both major and junior companies. He has been involved in the discovery and resource development of several projects in Nevada which have subsequently become mines, and through that experience has become very well versed in all aspects of mineral exploration and development.

Bob is active in the Nevada geologic community and currently serves on the Nevada Minerals Commission, as a Director of the Geological Society of Nevada (GSN) Foundation and as a Vice President of the Nevada Chapter of The American Institute of Professional Geologists (AIPG).

## ARTIFICIAL INTELLIGENCE & DATA ANALYTICS APPLICATIONS IN MINING OPERATIONS, THE DRIVING FORCE OF INDUSTRY

### Cascade 4

#### Area of Interest - Operations

Chaired by: **Javad Sattarvand, Ph.D.**, Associate Professor, *University of Nevada, Reno* and **Ali Soofastaei, Ph.D.**, *Artificial Intelligence Projects Leader, Vale-Australia-Brisbane*

#### Session Description:

The session will include speakers from the mining industry and academia on digital transformation of the mining industry through the intelligent networking of the machines and processing of the data with advanced data analytics and artificial intelligence.

- **Freeport - McMoRan's Advanced Analytics Journey**, *Lia Walker, Manager Innovation & Sr. Quality Leader, Freeport-McMoRan, Inc., Phoenix, AZ*
- **AI in Mining - Successes and Lessons Learned from Over Two Decades of Experience**, *Rajive Ganguli, Malcom McKinnon Professor of Mining Engineering, University of Utah, Salt Lake City, UT*
- **Applying the Power of Machine Learning to Domain Creation**, *Paul Douglas Richardson, Senior Geologist, Maptek, Denver, CO*
- **Innovation: The Journey (and roadmap) to AI and Full Automation**, *Satish Penmetsa, CEO, GroundHog, San Jose, CA*
- **Advanced Analytics for Shipping and Chartering Teams**, *Abhishek Kaul, C&A Lead, IBM, Singapore, CHINA*

#### Javad Sattarvand



Dr. Javad Sattarvand, Ph.D., is an associate professor at the Department of Mining and Metallurgical Engineering, at the University of Nevada, Reno since 2015. Dr. Sattarvand has received his Ph.D. in Mining Engineering from the University of Rheinisch-Westfälische Technische Hochschule Aachen – Germany in 2009. With 17 years of academic appointments as a lecturer, Assistant Professor and Associate Professor in the USA, Germany, Netherlands, and Iran and supervising 34 masters and 3 Ph.D. students, he is the teacher for mining automation and mining robotics courses at the University of Nevada, Reno. Dr.

Sattarvand has published 26 journal and over 70 conference papers and has received over three million dollars of federal grants, mostly from NIOSH. He has been also the recipient of the prestigious SME's career development grant (\$300K). Dr. Sattarvand's industrial expertise is in mine planning, optimization algorithms, and programming for different mining applications, mine monitoring, and mine control systems. He has founded two start-up companies and his cooperation with major global consulting companies resulted in more than 20 industrial projects and the commercialization of several software and hardware products for mining automation.



## MORNING SESSIONS | FRIDAY DECEMBER 10... (Continued)

SESSION TIMES: 8:00 - 11:30 COFFEE BREAK 9:35 - 10:20

### ARTIFICIAL INTELLIGENCE & DATA ANALYTICS APPLICATIONS IN MINING OPERATIONS, THE DRIVING FORCE OF INDUSTRY.. (Continued)

Ali Soofastaei



Dr. Ali Soofastaei is an artificial intelligence scientist and an industrial global project leader. He leads innovative industrial projects in the field of artificial intelligence (AI) applications to improve safety, productivity, and energy efficiency, and to reduce maintenance costs. Dr. Soofastaei completed his Ph.D. at The University of Queensland (UQ) in the field of AI applications in mining engineering where he led a revolution in the use of deep learning (DL) and AI methods to increase energy efficiency, reduce operation and maintenance costs, and reduce greenhouse gas emissions in surface mines. Currently he is leading an AI Program in Vale.

## MINE CLOSURE AND RECLAMATION

### Cascade 1

### CLE Request Pending

*Area of Interest: Environmental*

Chaired by: **Nick Rauh**, Mining Technical Sales Manager, AGRU America, Inc., Fernley, NV and **Steve Boyce PE**, Nevada Mining Practice Leader, Haley & Aldrich, Inc., Elko, NV

#### **Session Description:**

Mine closure is a critical component of environmental management in the mining industry. A thorough mine closure and reclamation plan is a complicated and often overlooked aspect in the design life of a site. This session will include technical presentations and case studies on the closure and reclamation process from shut down to post-closure monitoring from mining professionals across the industry. *Presentations and Speakers:*

- **Reclamation Trends in Mine Closure**, Jesse Dillon, Principal Ecologist, Cedar Creek Associates, Fort Collins, CO
- **Three Kids Mine Remediation and Closure for Residential Reuse**, Victoria Tyson-Boyd, Project Manager, Broadbent & Associates, Inc., Henderson, NV
- **Hydraulic Performance of a Storage Cover for Closure of a Tailing Facility**, Kelly Greaser, Senior Associate Hydrogeologist, Stantec Consulting Services, Denver, CO
- **Part 1 - Development of a Rapid Field Method for Classification of Potentially Acid Generating (PAG) Waste Rock**, Bill Walker, Principal Geochemist, NewFields Mining and Energy Services, Seattle, WA
- **Part 2 - Application of a Rapid Field Method for classification of Potentially Acid Generating (PAG) Waste Rock**, David Tooke, Senior Geochemist, NewFields Mining and Energy Services, Missoula, MT

Friday Morning Coffee Break with Moose Milk  
is sponsored by  
Chris Dail, Teck American Incorporated & Foth



### Nick Rauh



Nick Rauh is the Mining Sales Manager for AGRU America, Inc. in Reno, Nevada. Before taking over the Mining Division, Nick served as the Technical Manager for the Western and Central United States for AGRU. Prior to working on the manufacturing side, he served as a project engineer for a geosynthetic installation contractor for a number of years. Nick received a BS in Civil Engineering from the University of Nevada, Reno.

### Steve Boyce



Steve Boyce is a professional civil engineer and Nevada Mining Practice Leader for Haley and Aldrich, Inc. Steve graduated with an MS in Civil Engineering and an MBA from the University of Nevada. He has been active in the mining industry in Nevada, North America, and globally for over 30 years, performing roles in the regulatory, operations, and consulting arenas over that time. He has been completing and facilitating mine closure since 1997 and as a lifetime Nevada resident enjoys free time in the Nevada and Idaho outdoors.

## BUILDING BACK BETTER: CONNECTING THE DOTS WITH MINING

### Cascade 3

### CLE Request Pending

*Area of Interest: Legislative & Public Affairs*

Chaired by: **Mark Compton**, Executive Director, American Exploration & Mining Association, Spokane, WA

#### **Session Description:**

The Biden Administration has very clear priorities, including addressing climate change through renewable energy and vehicle electrification, rebuilding infrastructure, and highlighting environmental justice issues. Despite mining's indisputable role in addressing these challenges, tensions exist with other anti-development priorities of the Administration and Congress. This session will dive deeper into some of those tensions and how the mining industry can help policymakers connect the dots.

**8:00 AM - 9:35 AM**

### Tribal Engagement – Best Practices and Lessons Learned

#### **Panelists Include:**

- **Ann Carpenter - Moderator - Pathfinder**
- **Collette Brown Rodriguez – South 32**
- **Jodi Banta – University of Arizona**
- **Samantha Faga – Kinross**
- **Anna Huhta – University of Nevada-Reno**
- **Hesston Klenk – Resolution Copper**
- **Chantae Lessard – Coeur Mining**
- **Greta Schuerch – Teck Alaska**
- **LeRoy Shingoitewa – WestLand Resources**

## MORNING SESSIONS | FRIDAY DECEMBER 10... (Continued)

SESSION TIMES: 8:00 - 11:30 COFFEE BREAK 9:35 - 10:20

### BUILDING BACK BETTER... (Continued)

#### 10:20 AM - 10:55 AM

- **Navigating the Infrastructure Bill and a Shifting Regulatory Environment**, *James Voyles, Of Counsel, Lewis Roca's Regulatory Government Practice Group, Phoenix, AZ and Detrich Hoefner, Attorney, Lewis Roca's Regulatory Government Practice Group, Denver, CO*

#### 10:55 AM – 11:30 AM

- **Budgets, Birds, Royalties, Regs and Reconciliation: A Look Back & What's Next for Hardrock Mining**, *Sidney Smith, Government Affairs, American Exploration & Mining Association, Spokane, WA*

#### Mark Compton



Mark rejoined AEMA after serving six years as the Utah Mining Association's (UMA) President. Having worked for AEMA, then known as the Northwest Mining Association, from 2008-2012 as the Government Affairs Manager, he already possesses an organic familiarity with the Association, its membership, and the issues.

Additionally, Mark possesses over a quarter century of government affairs experience. Prior to his tenure at UMA, he served as AEMA's Government Affairs Manager and worked as a member of Idaho Governor C.L. "Butch" Otter's gubernatorial and congressional staff, where he handled issues focusing on natural resources and economic development in northern Idaho.

He has a profound appreciation for the importance of responsible resource development to our economy and our way of life. He believes that by working together, AEMA and its members can ensure the U.S. mining industry remains strong and is able to produce the raw materials on which our modern society depends.

A graduate of the University of Montana, Mark lives with his wife Kelley on the outskirts of Coeur d'Alene, ID.



**American  
Exploration & Mining**  
ASSOCIATION

# 2021 Exhibitors by Company

## A

**Acker Drill Company**, *Drilling Equipment, Drilling Rigs*, 229  
**ACZ Laboratories, Inc.**, *Analytical Laboratory Services*, 219  
**Agilent Technologies**, *Atomic Spectroscopy, Laboratory Equipment*, 724  
**AGRU America, Inc.**, *Geosynthetics, Liners*, 203  
**Alaska Marine Lines, Inc.**, *Transportation Services*, 233  
**Allied Copper Corp.**, *Mining Company* 842  
**ALS Minerals**, *Assay Laboratory, Laboratory Analytical Services*, 131  
**American Assay Laboratory**, *Assay Laboratory, Mineralogy Analyzer*, 700  
**Anachemia Mining**, *Laboratory Equipment & Supplies, Laboratory Chemicals*, 113  
**Analytik Jena US LLC**, *Spectroscopy*, 739  
**ARCADIS**, *Environmental Consultants, Engineering Services*, 428  
**ASC Engineered Services**, *Grooved Piping Products*, 327  
**Authentic Drilling**, *Drilling Company*, 824

## B

**Baroid Industrial Drilling Products**, *Drilling Fluid Products*, 718 and 720  
**Barr Engineering Co.**, *Engineers*, 308  
**Big Rock Exploration, LLC**, *Exploration Services*, 734  
**Bison Engineering Inc.**, *Environmental Consulting/Permitting, Environmental Services*, 538  
**Boart Longyear**, *Drilling Services, Drilling Company*, 708 and 710  
**Broadbent & Associates, Inc.**, *Environmental Consulting, Water Resources*, 312  
**Bureau Veritas Minerals**, *Assay Laboratory*, 111

## C

**Carlson Software**, *Mine Software*, 426  
**Cementation USA Inc.**, *Mine Construction*, 643  
**CGS Mule, LLC**, *Geological Supplies*, 313  
**Challenger Pipe & Steel**, *Steel Pipe & Casing, Grooved Piping Products*, 211  
**Coeur Products Ltd Inc.**, *Core Boxes, Core Drills*, 124 and 126  
**COLOG**, *Borehole Geophysical, Hydrophysical Logging*, 854  
**Colorado School of Mines**, *Educational/University, Metallurgy/Mining Departments*, 749  
**Concrete Canvas**, *Concrete Coverings*, 518  
**Contech Engineered Solutions LLC**, *Pipe, Erosion Control Products*, 506  
**Cornell Pump Company**, *Pumps*, 754  
**Corescan**, *Hyperspectral Scanning*, 774  
**CREG (Center for Research Economic Geology)**, *Research*, 127

## 2021 Exhibitors by Company... (Continued)

### D

**Datamine North America**, *Mining Software*, 511  
**DEA Incorporated/KonNx**, *Electrical Distribution Equipment*, 640  
**Devico**, *Directional Core Drilling, Downhole Survey Tools*, 432  
**DGI Geoscience US Inc.**, *Wireline Logging*, 513  
**Dias Geophysical**, *Geophysical Services*, 535  
**DMC Mining Services**, *Contract Mining, Engineering*, 209  
**Drilling HQ**, *Diamond Core Supplies*, 403 and 405  
**Dyno Nobel Inc.**, *Explosives*, 205 and 207

### E

**EC Applications, Inc.**, *Geosynthetics*, 512  
**Eastern Driller Mfg Co Inc.**, *DTH Hammers & Bits*, 642  
**EcoMister Evaporator**, *Dewatering Evaporator*, 531  
**EDCON-PRJ, Inc.**, *Geophysical Services*, 337 and 339  
**Ellington Geological Services**, *Analytical Laboratory Services*, 725  
**EM Strategies, Inc.**, *Environmental Consulting & Permitting*, 712  
**EMX Royalty Corp.**, *Royalty Company*, 522  
**Energy Laboratories, Inc.**, *Environmental Laboratory Services*, 322  
**Engineering & Mining Journal**, *Mining Publications*, 427  
**Engineering Analytics, Inc.**, *Engineering Consultants*, 332  
**ENSERO**, *Water Treatment, Reclamation*, 329  
**Envirocon, Inc.**, *Environmental and Reclamation Services*, 231  
**Environmental Products & Applications**, *Dust Control*, 210  
**Environmental Standards, Inc.**, *Data Validation*, 523  
**Esri**, *GIS Mapping Software*, 758  
**Evoqua Water Technologies**, *Water Treatment*, 424

### F

**Falcon Drilling Inc.**, *Drilling Company*, 742  
**First Drilling Group**, *Drilling Company*, 730 and 732  
**Florin Analytical Services**, *Analytical Laboratory Services, Laboratory Services*,  
**Fogco**, *Misters*, 534  
**Foremost**, *Drilling Products*, 532  
**Foth Infrastructure & Environment, LLC**, *Environmental Engineering*, 515 and 517  
**Frontier-Kemper Constructors, LLC**, *Hoisting System, Conveyance & Vertical Belts*, 336

## G

- General Tool, Inc.**, *Diamond Bits, Diamond Saw Blades*, 317
- Geo-Logic Associates**, *Engineering Consultants*, 316
- Geokon**, *Geophysical Instruments*, 765
- Geological Society of Nevada (GSN)**, *Books & Publications*, 119
- Geopros, Inc.**, *Direct Staffing Services for Industry*, 237
- Geotemps, Inc.**, *Staffing Services/Mining Industry-Temporary*, 239
- Gold Royalty Co.**, *Royalty Company*, 655
- Golder Associates Inc.**, *Mine Engineering, Environmental Consultants*, 133

## H

- Hard Rock Consulting, LLC**, *Geologic Consultants, Engineering Consultants*, 536
- Harris Exploration Drilling**, *Drilling Company*, 670
- Harrison Western Construction Corporation**, *Contract Mining, Underground Construction*, 414
- Hexagon Mining**, *Mine Modeling Software, Mine Software*, 826
- Hidden Valley Insurance Inc.**, *Insurance Services, Insurance & Risk Management*, 435
- Hoffman Diamond Products, Inc.**, *Diamond Bits*, 227
- Hole Products**, *Drilling Supplies*, 729
- HOLT Services inc.**, *Dewatering Wells, Environmental Drilling*, 504
- hydroGEOPHYSICS, Inc.**, *Geophysical Services*, 423

## I

- IMDEX Limited**, *Drilling Fluids & Solids Control, Down Hole Survey/XRF Rentals*, 404 and 406
- InfoMine USA, Inc./CostMine Division**, *Mine Information, Cost Estimating Services*, 338
- Inland Tarp & Liner**, *Liners*, 760
- Integra DeLamar**, *Mining Company*, 305
- International Directional Services (IDS)**, *Gyro Surveying & Instrument Rentals, Directional Drilling Services & Motor Sales*, 130 and 132
- International Lining Technology**, *Liner Installation, Geosynthetics*, 304
- Iron Woman Construction & Environmental Services LLC**, *Mine Construction*, 653
- Itasca Denver, Inc.**, *Hydrology, Geomechanics & Geochemistry Consulting, Environmental Consulting & Permitting*, 215

## J

- Jentech Drilling Supply, Inc.**, *Drilling Supplies*, 214
- Just Refiners USA Inc.**, *Refiners*, 330

## 2021 Exhibitors by Company... (Continued)

### K

**Kappes, Cassiday & Associates**, *Engineering Consulting Services, Laboratory Services*, 208  
**Klepfer Mining Services, LLC**, *Environmental Services*, 436  
**Knight Piesold**, *Consulting Engineers, Environmental Consulting & Permitting*, 722

### L

**Laszlo Photography, Inc.**, *Photography*, 848  
**Layne Christensen Company**, *Drilling Services*, 218  
**Ledcor CMI, Inc.**, *Contract Mining, Heavy Civil Construction*, 659  
**Legend, Inc.**, *Geological Supplies, Assay Supplies*, 727  
**Linkan Engineering**, *Water Management*, 417  
**Lumos & Associates, Inc.**, *Engineering and Environmental Consultants*, 302

### M

**Mackay School of Earth Sciences & Engineering**, *Educational / University*, 125  
**Major Drilling**, *Drilling Company*, 210 B and 212  
**McGinley & Associates**, *Environmental Consultants*, 648 and 650  
**MES Mining**, *Underground Mining Contractor, Tunneling*, 425  
**MICROMINE**, *Intuitive Mining Solutions*, 413  
**Mill Man Steel Inc. & Mavrik Environmental & Exploration**, *Steel Pipe , Dril Products*, 232  
**Millcreek Engineering**, *Engineers*, 836  
**Mine Development Associates (RESPEC)**, *Mining Software*, 743  
**Minerals Unlimited**, *Water Treatment*, 326  
**Montgomery & Associates**, *Engineering*, 660  
**Mount Sopris Instrument Company Inc.**, *Geophysical Logging Equipment*, 525  
**MTech/CAMP**, *University, Metallurgical Consulting*, 335  
**Mustang Extreme Environmental Services**, *Environmental Services*, 661

### N

**Nevada Alaska Mining Co., Inc.**, *Lithium and Vanadium Properties*, 422  
**Nevada Bureau of Mines & Geology**, *Government*, 127  
**NewFields**, *Consulting Engineering, Environmental Consultants*, 402  
**Nilex**, *Liners, Pipe*, 852  
**North America Mining Magazine**, *Publication*, 328  
**Northwest Demolition & Dismantling**, *Mine Rreclamation, Plant Reduction/Demolition*, 752  
**Northwest Linings and Geotextile Products, Inc/Sierra Geosynthetic Services, Inc.**, *Liner Installation, Geosynthetics*, 502  
**Northwest Machine Works, Inc.**, *Drilling Products, Underground Core Drilling Parts*, 235

## O

**OH Predictive Insight**, *Public Opinion, Market Data*, 307  
**O’Keefe Drilling**, *Drilling Company*, 437 and 439  
**OREAS North America. Inc.**, *Certified Reference Materials*, 834  
**Original Creations**, *Bronze Sculptures*, 1

## P

**Pace Analytical Services Inc.**, *Laboratory Services, Environmental Laboratory Services*, 315  
**Pacific Inter-Mountain Distributon, LLC**, *Erosion Control Products*, 527  
**Paragon Geochemical Laboratories, Inc.**, *Analytical Laboratory*, 318  
**Parsons Behle & Latimer**, *Legal Services*, 333  
**PayneWest Insurance**, *Insurance Services, Bonding*, 213  
**Perpetua Resources**, *Junior Exploration Company*, 508  
**Pioneer Technical Services, Inc.**, *Engineering and Environmental Consultants*, 306  
**Piteau and Associates**, *Engineering and Environmental Consultants*, 416  
**Practical Mining LLC**, *Engineering consultants, Surveying/Mapping*, 731  
**Precision Geosurveys**, *Airborne Geophysics*, 303  
**Prismo Metals**, *Exploration Company*, 726  
**Promine, Inc.**, *Mining Software, Surveying/Mapping*, 761

## R

**REI Drilling/DPI Drilling Products**, *Drilling Services, Drilling Supplies*, 649  
**RJM Precision Instruments, LLC**, *Underground Locators, LiDAR Scanners*, 429  
**RockTech USA**, *Drilling Products, Drill Hole Survey*, 323 and 325  
**Ruen Drilling, Inc.**, *Drilling Company*, 109

## S

**Sample Archive System**, *Core Boxes*, 654  
**Schramm Inc.**, *Drilling Rigs and Compressors*, 524  
**SGS**, *Analytical Laboratory Services, Metallurgical Consulting*, 747  
**Simcoe Geophysics Ltd.**, *Geophysical Services, Geophysical Instrumentation*, 526  
**Skyline Assayers & Laboratories**, *Assay Laboratory, Laboratory Analytical Services*, 638  
**Skytem Canada Inc.**, *Airborne Geophysical Services*, 537  
**Skyward Specialty Insurance Group**, *Insurance Services*, 723  
**Society for Mining, Metallurgy & Exploration, Inc. (SME)/MEC**, *Professional Association*, 418  
**Solmax Geosynthetics LLC**, *Geosynthetics, Liners*, 415  
**SpectIR, LLC**, *Hyperspectral Imaging*, 652  
**SRK Consulting (US), Inc.**, *Consulting Engineers*, 223 and 225  
**Stantec Consulting Services**, *Environmental Consultants*, 224 and 226

## 2021 Exhibitors by Company... (Continued)

### S... (Continued)

**State of Nevada-Division of Minerals**, *Information of Geology & Mining in Nevada*, 123

**Steel Blue North America**, *Safety Footwear, PPE*, 314

**Strata Products Worldwide**, *Underground Communications, Mine Safety Systems*, 433

**Superior Industries**, *Material Handling*, 334

**SVL Analytical, Inc.**, *Analytical Services*, 310

**SWCA**, *Environmental Consulting*, 409

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**Techline Alaska**, *Drilling Fluids, Drilling Supplies*, 702

**TerraCore**, *Hyperspectral Imaging*, 753

**Terramac**, *Crawler Carriers*, 750

**Tetra Tech**, *Engineering Consultants, Environmental Consultants*, 412

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**Timberline Drilling**, *Drilling Company*, 228

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### W

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**WestLand Resources**, *Engineering Consultants, Environmental Consultants*, 422

**Western Environmental Testing Laboratory**, *Environmental Laboratory Services*, 419

**Wilderness Medics, Inc.**, *Medical Services*, 838 and 840

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**Yellow Jacket Drilling Services, *Drilling Company, 519***

**Z**

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**Aston Bay Holdings, *Junior Exploration, C 15***

**Comstock Mining, Inc., *Mining Company, C 7***

**Gold Bull Exploration, *Junior Exploration Company, C 17***

**Gold Standard Ventures, *Junior Exploration Company, C 4***

**Integra Resources, *Junior Exploration Company, C 3***

**Lithium Nevada, *Lithium Company, C18***

**McEwen Mining, *Mining Company, C 14***

**Nevada Exploration, *Junior Exploration Company, C 8***

**Orogen Royalties, Inc., *Royalty Company, C 13***

**Pathfinder Tonopah, *Junior Exploration Company, C 5***

**Rex Minerals, *Junior Exploration Company, C 16***

**RRC Exploration, *Junior Exploration Company, C 12***

**Scotch Creek Ventures, *Junior Exploration Company, C 6***

**Silver Range Resources, *Junior Exploration Company, C 9***

**South Mountain Mines, Inc., *Junior Exploration Company, C 11***

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# 2021 Exhibitors by Category

## A

### ***Aerial Mapping***

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### ***Airborne Geophysical Services***

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### ***Analytical Laboratory Services***

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### ***Assay Laboratory***

ALS Minerals, 131

American Assay Laboratory, 700

Bureau Veritas Minerals, 111

Skyline Assayers & Laboratories, 638

### ***Assay Supplies***

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### ***Atomic Spectroscopy***

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## B

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### ***Books & Publications***

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### ***Borehole Geophysical***

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### ***Civil Construction***

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**Core Drills**

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**Cost Estimating Services**

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**Dewatering Solutions**

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**Direct Staffing Services for Industry**

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**Directional Core Drilling & Motor Sales**

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# 2021 Exhibitors by Category... (Continued)

## *D... (Continued)*

### ***Down Hole Survey/XRF Rentals***

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### ***Drill Hole Survey***

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### ***Drilling Company***

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Falcon Drilling Inc., 742

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Harris Exploration Drilling, 670

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Yellow Jacket Drilling Services, 519

### ***Drilling Equipment (inc Bits & Steel)***

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IMDEX Limited, 404 and 406

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### ***Drilling Products***

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### ***Drilling Rigs & Compressors***

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REI Drilling/DPI Drilling Products, 649

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### ***Drone Surveys***

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***DTH Hammers & Bits***

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***Educational/University***

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DEA Incorporated/KonNx, 640  
WEG Electric, 704

***Engineering and Environmental Consultants***

Lumos & Associates, Inc., 302  
Pioneer Technical Services, Inc., 306  
Piteau and Associates, 416

***Engineering Consultants***

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Engineering Analytics, Inc., 332  
Geo-Logic Associates, 316  
Hard Rock Consulting, LLC, 536  
Kappes, Cassiday & Associates, 208  
Practical Mining LLC, 731  
Tetra Tech, 412  
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Golder Associates Inc., 133  
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NewFields, 402  
Stantec Consulting Services, 224 and 226  
SWCA, 409  
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## *E... (Continued)*

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EM Strategies, Inc., 712  
Itasca Denver, Inc., 215  
Knight Piesold, 722  
WestLand Resources, 422

### ***Environmental Drilling***

HOLT Services inc., 504

### ***Environmental Engineers***

Foth Infrastructure & Environment, LLC, 515 and 517  
Welsh Hagen Associates, 438

### ***Environmental Laboratory Services***

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Pace Analytical Services Inc., 315  
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Klepfer Mining Services, LLC, 436  
Mustang Extreme Environmental Services, 661

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### ***Exploration Company***

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### ***Geologic Consultants***

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### ***Geological Supplies***

CGS Mule, LLC, 313  
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### ***Geophysical Instrumentation***

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Simcoe Geoscience Ltd., 526  
Zonge International, Inc., 217

### ***Geophysical Logging Equipment***

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**Geophysical Services**

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EDCON-PRJ, Inc., 335 and 337  
hydroGEOPHYSICS, Inc., 423  
Simcoe Geoscience Ltd., 526  
Zonge International, Inc., 217

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EC Applications, Inc., 512  
International Lining Technology, 304  
Northwest Linings and Geotextile Products, Inc/Sierra Geosynthetic Services, Inc., 502  
Solmax Geosynthetics LLC, 415

**GIS Mapping Software**

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**Grooved Piping Products**

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Challenger Pipe & Steel, 211  
Victaulic, 733

**Gyro Surveying & Instrument Rentals**

International Directional Services (IDS), 130 and 132

**H****Hoisting System, Conveyance & Vertical Belts**

Frontier-Kemper Constructors, LLC, 336

**Hydrology, Geomechanics & Geochemistry Consulting**

Itasca Denver, Inc., 215

**Hydrophysical Logging**

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**Hyperspectral Imaging/Scanning**

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**I****Information of Geology & Mining in Nevada**

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*I... (Continued)*

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Adamera Resources, C 10

Gold Bull Exploration, C 17

Gold Standard Ventures, C 4

Integra Resources, C 3

Nevada Exploration, C 8

Pathfinder Tonopah, C 5

Perpetua Resources, 508

Rex Minerals, C 16

RRC Exploration, C 12

Scotch Creek Ventures, C 6

Silver Range Resources, C 9

South Mountain Mines, Inc., C 11

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## ***Laboratory Analytical Services***

ALS Minerals, 131

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## ***Laboratory Chemicals***

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## ***Laboratory Equipment & Supplies***

Anachemia Mining, 113

Agilent Technologies, 724

## ***Laboratory Services***

Ellington Geological Services, 725

Florin Analytical Services, 208

Kappes, Cassiday & Associates, 208

Pace Analytical Services Inc., 315

## ***Legal Services***

Parsons Behle & Latimer, 333

## ***Liner Installation***

International Lining Technology, 304

Northwest Linings and Geotextile Products, Inc/Sierra Geosynthetic Services, Inc., 502

## ***LiDAR Scanners***

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AGRU America, Inc., 203  
Inland Tarp & Liner, 760  
Nilex, 852  
Solmax Geosynthetics LLC, 415

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**M****Maps**

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**Market Data**

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**Material Handling**

Superior Industries, 334

**Medical Services**

Wilderness Medics, Inc., 838 and 840

**Metallurgical Consulting**

MTech/CAMP, 335  
SGS, 747

**Metallurgy/Mining Departments**

Colorado School of Mines, 749

**Mine Construction**

Cementation USA Inc., 643  
Iron Woman Construction & Environmental Services LLC, 653

**Mine Engineering**

Golder Associates Inc., 133

**Mine Information**

InfoMine USA Inc./CostMine Division, 338

**Mine Modeling Software**

Hexagon Mining, 826

**Mine Reclamation**

Northwest Demolition & Dismantling, 752

**Mine Safety Systems**

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# 2021 Exhibitors by Category... (Continued)

## *M... (Continued)*

### ***Mining Association***

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### ***Mining Company***

Allied Copper Corp., 842

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### ***Mining Publications***

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North America Mining Magazine, 328

The Mining Record, 719 and 721

### ***Mining Related Fine Jewelry, Awards, Gift Items***

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### ***Mining Software***

Datamine North America, 655

Carlson Software, 426

Hexagon Mining, 826

Mine Development Associates (RESPEC), 743

Promine, Inc., 761

### ***Misters***

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***P***

### ***Photography***

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Nilex, 852

### ***Plant Reduction/Demolition***

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### ***PPE***

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### ***Public Opinion***

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Cornell Pump Company, 754  
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**Refiners**

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CREG (Center for Research Economic Geology), 127

**Reverse Circulation Hammers & Bits**

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EMX Royalty Corp., 522  
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Steel Blue North America, 314

**Spectroscopy**

Analytik Jena US LLC, 739

**Staffing Services/Mining Industry-Temporary**

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**Steel Pipe & Casing**

Challenger Pipe & Steel, 211  
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Alaska Marine Lines, Inc., 233

**Tunneling**

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**U****Underground Communications**

Strata Products Worldwide, 433

**Underground Construction**

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# 2021 Exhibitors by Category... (Continued)

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### **Underground Core Drilling Parts**

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### **Underground Locators**

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### **University**

MTech/CAMP, 826

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### **Water Management**

Linkan Engineering, 417

### **Water Resources**

Broadbent & Associates, Inc., 312

Evoqua Water Technologies, 424

Veolia Water Solutions & Technologies, 319

### **Water Treatment**

ENSERO, 329

Minerals Unlimited, 326

### **Wireline Logging**

DGI Geoscience US Inc., 513



**American  
Exploration & Mining**  
ASSOCIATION

## 2021 Exhibitors by Booth Number

- 1 Original Creations, *Bronze Sculptures*  
100 - 200
- 109 Ruen Drilling, Inc., *Drilling Company*
- 111 Bureau Veritas Minerals, *Assay Laboratory*
- 113 Anachemia Mining, *Laboratory Equipment & Supplies, Laboratory Chemicals*
- 115, 117 U. S. Bureau of Land Management, *Government*
- 119 Geological Society of Nevada (GSN), *Books & Publications*
- 123 State of Nevada-Division of Minerals, *Information of Geology & Mining in Nevada*
- 124, 126 Coeur Products Ltd Inc., *Core Boxes, Core Drills*
- 125 Mackay School of Earth Sciences & Engineering, *Educational / University*
- 127 CREG (Center for Research Economic Geology), *Research*
- 130, 132 International Directional Services (IDS), *Gyro Surveying & Instrument Rentals, Directional Drilling Services & Motor Sales*
- 131 ALS Minerals, *Assay Laboratory, Laboratory Analytical Services*
- 133 Golder Associates Inc., *Mine Engineering, Environmental Consultants*  
200 - 299
- 203 AGRU America, Inc., *Geosynthetics, Liners*
- 205, 207 Dyno Nobel Inc., *Explosives*
- 208 Florin Analytical Services, *Analytical Laboratory Services, Laboratory Services*
- 208 Kappes, Cassiday & Associates, *Engineering Consulting Services, Laboratory Services*
- 209 DMC Mining Services, *Contract Mining, Engineering*
- 210 Environmental Products & Applications, *Dust Control*
- 210B, 212 Major Drilling, *Drilling Company*
- 211 Challenger Pipe & Steel, *Steel Pipe & Casing, Grooved Piping Products*
- 213 PayneWest Insurance, *Insurance Services, Bonding*
- 214 Jentech Drilling Supply, Inc., *Drilling Supplies*
- 215 Itasca Denver, Inc., *Hydrology, Geomechanics & Geochemistry Consulting, Environmental Consulting & Permitting*
- 217 Zonge International, Inc., *Geophysical Services, Geophysical Instrumentation*
- 218 Layne Christensen Company, *Drilling Services*
- 219 ACZ Laboratories, Inc., *Analytical Laboratory Services*
- 222 TonaTec, *Drilling Company*
- 223, 225 SRK Consulting (US), Inc., *Consulting Engineers*
- 224, 226 Stantec Consulting Services, *Environmental Consultants*
- 227 Hoffman Diamond Products, Inc., *Diamond Bits*

## 2021 Exhibitors by Booth Number... (Continued)

- 228 **Timberline Drilling**, *Drilling Company*
- 229 **Acker Drill Company**, *Drilling Equipment, Drilling Rigs*
- 231 **Envirocon, Inc.**, *Environmental and Reclamation Services*
- 232 **Mill Man Steel Inc. & Mavrik Exploration & Environmental**, *Steel Pipe, Drilling Products*
- 233 **Alaska Marine Lines, Inc.**, *Transportation Services*
- 235 **Northwest Machine Works, Inc.**, *Drilling Products, Underground Core Drilling Parts*
- 237 **Geopros, Inc.**, *Direct Staffing Services for Industry*
- 239 **Geotemps, Inc.**, *Staffing Services/Mining Industry-Temporary*
- 300 - 399**
- 302 **Lumos & Associates, Inc.**, *Engineering and Environmental Consultants*
- 303 **Precision Geosurveys**, *Airborne Geophysics*
- 304 **International Lining Technology**, *Liner Installation, Geosynthetics*
- 305 **Integra DeLamar**, *Mining Company*
- 306 **Pioneer Technical Services, Inc.**, *Engineering and Environmental Consultants*
- 307 **OH Predictive Insights**, *Public Opinion, Market Data*
- 308 **Barr Engineering Co.**, *Engineers*
- 309 **United Central Industrial Supply**, *Cap Lamps, Gas Detection, Mine Rescue, Ventilation Products, Services*
- 310 **SVL Analytical, Inc.**, *Analytical Services*
- 312 **Broadbent & Associates, Inc.**, *Environmental Consulting, Water Resources*
- 313 **CGS Mule, LLC**, *Geological Supplies*
- 314 **Steel Blue North America**, *Safety Footwear, PPE*
- 315 **Pace Analytical Services Inc.**, *Laboratory Services, Environmental Laboratory Services*
- 316 **Geo-Logic Associates**, *Engineering Consultants*
- 317 **General Tool, Inc.**, *Diamond Bits, Diamond Saw Blades*
- 318 **Paragon Geochemical Laboratories, Inc.**, *Analytical Laboratory*
- 319 **Veolia Water Solutions & Technologies**, *Water Treatment*
- 322 **Energy Laboratories, Inc.**, *Environmental Laboratory Services*
- 323, 325 **RockTech USA**, *Drilling Products, Drill Hole Survey*
- 326 **Minerals Unlimited**, *Water Treatment*
- 327 **ASC Engineered Services**, *Grooved Piping Products*
- 328 **North America Mining Magazine**, *Publication*
- 329 **ENSERO**, *Water Treatment, Reclamation*
- 330 **Just Refiners USA Inc.**, *Refiners*
- 332 **Engineering Analytics, Inc.**, *Engineering Consultants*

- 333 **Parsons Behle & Latimer**, *Legal Services*
- 334 **Superior Industries**, *Material Handling*
- 335 **MTech/CAMP**, *University & Metallurgical Consulting*
- 336 **Frontier-Kemper Constructors, LLC**, *Hoisting System, Conveyance & Vertical Belts*
- 337, 339 **EDCON-PRJ, Inc.**, *Geophysical Services*
- 338 **InfoMine USA, Inc./CostMine Division**, *Mine Information, Cost Estimating Services*
- 400 - 499
- 402 **NewFields**, *Consulting Engineering, Environmental Consultants*
- 403, 405 **Drilling HQ**, *Diamond Core Supplies*
- 404, 406 **IMDEX Limited**, *Drilling Fluids & Solids Control, Down Hole Survey/XRF Rentals*
- 408 **Women's Mining Coalition**, *Education/Governmental Affairs, Public Affairs/Grassroots*
- 409 **SWCA**, *Environmental Consulting*
- 412 **Tetra Tech**, *Engineering Consultants, Environmental Consultants*
- 413 **MICROMINE**, *Intuitive Mining Solutions*
- 414 **Harrison Western Construction Corporation**, *Contract Mining, Underground Construction*
- 415 **Solmax Geosynthetics LLC**, *Geosynthetics, Liners*
- 416 **Piteau and Associates**, *Engineering and Environmental Consultants*
- 417 **Linkan Engineering**, *Water Management*
- 418 **Society for Mining, Metallurgy & Exploration, Inc. (SME)/MEC**, *Professional Association*
- 419 **Western Environmental Testing Laboratory**, *Environmental Laboratory Services*
- 422 **WestLand Resources**, *Engineering Consultants, Environmental Consultants*
- 423 **hydroGEOPHYSICS, Inc.**, *Geophysical Services*
- 424 **Evoqua Water Technologies**, *Water Treatment*
- 425 **MES Mining**, *Underground Mining Contractor, Tunneling*
- 426 **CarlsonSoftware**, *Mine Software*
- 427 **Engineering & Mining Journal**, *Mining Publications*
- 428 **ARCADIS**, *Environmental Consultants, Engineering Services*
- 429 **RJM Precision Instruments, LLC.**, *Underground Locators, LiDAR Scanners*
- 432 **Devico**, *Directional Core Drilling, Downhole Survey Tools*
- 433 **Strata Products Worldwide**, *Underground Communications, Mine Safety Systems*
- 435 **Hidden Valley Insurance Inc.**, *Insurance Services, Insurance & Risk Management*
- 436 **Klepfer Mining Services, LLC**, *Environmental Services*
- 437, 439 **O'Keefe Drilling**, *Drilling Company*
- 438 **Welsh Hagen Associates**, *Environmental Engineers*

## 2021 Exhibitors by Booth Number... (Continued)

### 500 - 599

- 502 Northwest Linings and Geotextile Products, Inc/Sierra Geosynthetic Services, Inc., *Liner Installation, Geosynthetics*
- 504 HOLT Services inc., *Dewatering Wells, Environmental Drilling*
- 506 Contech Engineered Solutions LLC, *Pipe, Erosion Control Products*
- 508 Perpetua Resources, *Junior Exploration Company*
- 511 Datamine North America, *Mining Software*
- 512 EC Applications, Inc., *Geosynthetics*
- 513 DGI Geoscience US Inc., *Wireline Logging*
- 514 Wood Rodgers, *Aerial Mapping, Surveying*
- 515, 517 Foth Infrastructure & Environment, LLC, *Environmental Engineering*
- 516 Utah Mining Association, *Mining Association*
- 518 Concrete Canvas, *Concrete Coverings*
- 519 Yellow Jacket Drilling Services, *Drilling Company*
- 522 EMX Royalty Corp., *Royalty Company*
- 523 Environmental Standards, Inc., *Data Validation*
- 524 Schramm Inc., *Drilling Rigs and Compressors*
- 525 Mount Sopris Instrument Company Inc., *Geophysical Logging Equipment*
- 526 Simcoe Geophysics Ltd., *Geophysical Services, Geophysical Instrumentation*
- 527 Pacific Inter-Mountain Distributon, LLC, *Erosion Control Products*
- 528 Unmanned Aerial Surveys, *Drone Surveys*
- 531 EcoMister Evaporator, *Dewatering Evaporator*
- 532 Foremost, *Drilling Products*
- 534 Fogco, *Misters*
- 535 Dias Geophysical, *Geophysical Services*
- 536 Hard Rock Consulting, LLC, *Geologic Consultants, Engineering Consultants*
- 537 Skytem Canada Inc., *Airborne Geophysical Services*
- 538 Bison Engineering Inc., *Environmetnal Consulting/Permitting, Environmental Services*

### 600 - 699

- 638 Skyline Assayers & Laboratories, *Assay Laboratory, Laboratory Analytical Services*
- 640 DEA Incorporated/KonNx, *Electrical Distribution Equipment*
- 642 Eastern Driller Mfg Co Inc, *DTH Hammers & Bits*
- 643 Cementation USA Inc., *Mine Construction*
- 648, 650 McGinley & Associates, *Environmental Consultants*
- 649 REI Drilling/DPI Drilling Products, *Drilling Services, Drilling Supplies*



- 652 **SpecTIR, LLC**, *Hyperspectral Imaging*
- 653 **Iron Woman Construction & Environmental Services LLC**, *Mine Construction*,
- 654 **Sample Archive System**, *Core Boxes*
- 655 **Gold Royalty Co.**, *Royalty Company*
- 659 **Ledcor CMI Inc.**, *Contract Mining, Heavy Civil Construction*
- 660 **Montgomery & Associates**, *Engineering*
- 661 **Mustang Extreme Environmental Services**, *Environmental Services*
- 670 **Harris Exploration Drilling**, *Drilling Company*
- 700 - 799**
- 700 **American Assay Laboratory**, *Assay Laboratory, Mineralogy Analyzer*
- 702 **Techline Alaska**, *Drilling Fluids, Drilling Supplies*
- 704 **WEG Electric**, *Electric Distribution Systems*
- 708, 710 **Boart Longyear**, *Drilling Services, Drilling Company*
- 712 **EM Strategies, Inc.**, *Environmental Consulting & Permitting*
- 718, 720 **Baroid Industrial Drilling Products**, *Drilling Fluid Products*
- 719, 721 **The Mining Record**, *Mining Publications, Maps*
- 722 **Knight Piesold**, *Consulting Engineers, Environmental Consulting & Permitting*
- 723 **Skyward Specialty Insurance Group**, *Insurance Services*
- 724 **Agilent Technologies**, *Atomic Spectroscopy, Laboratory Equipment*
- 725 **Ellington Geological Services**, *Analytical Laboratory Services*
- 726 **Prismo Metals, Inc.**, *Exploration Company*
- 727 **Legend, Inc.**, *Geological Supplies, Assay Supplies*
- 729 **Hole Products**, *Drilling Supplies*,
- 730, 732 **First Drilling Group**, *Drilling Company*
- 731 **Practical Mining LLC**, *Engineering Consultants, Surveying*
- 733 **Victaulic**, *Grooved Piping Products*
- 734 **Big Rock Exploration LLC**, *Exploration Company*
- 739 **Analytik Jena US LLC**, *Spectroscopy*
- 741 **WaterSolve, LLC**, *Dewatering*
- 742 **Falcon Drilling Inc.**, *Drilling Company*
- 743 **Mine Development Associates (RESPEC)**, *Mining Software*
- 744 **TechFlow**, *Pumps (Tsurumi)*
- 746 **Tsurumi (America), Inc.**, *Pumps*
- 747 **SGS**, *Analytical Laboratory Services, Metallurgical Consulting*
- 749 **Colorado School of Mines**, *Educational/University, Metallurgy/Mining Departments*
- 750 **Terramac**, *Crawler Carriers*
- 752 **Northwest Demolition & Dismantling**, *Mine Reclamation, Plant Reduction/Demolition*

## 2021 Exhibitors by Booth Number... (Continued)

- 753 TerraCore, *Hyperspectral Imaging*
- 754 Cornell Pump Company, *Pumps*
- 758 Esri, *Mapping Software*
- 760 Inland Tarp & Liner, *Liners*
- 761 Promine, Inc., *Mining Software, Surveying/Mapping*
- 765 Geokon, *Geophysical Instruments*
- 774 Corescan, *Hyperspectral Scanning*

### 800 - 900

- 825 Authentic Drilling, *Drilling Company*
- 826 Hexagon Mining, *Mine Modeling Software, Mine Software*
- 830 Tonopah Lithium Corp., *Lithium Exploration*
- 834 OREAS North America, Inc., *Certified Reference Materials*
- 836 Millcreek Engineering, *Engineers*
- 838 Wilderness Medics, Inc., *Medical Services*
- 842 Allied Copper Corp., *Mining Company*
- 848 Laszlo Photography, Inc., *Photography*
- 852 Nilex, *Liners, Pipe*
- 854 COLOG, *Borehole Geophysical, Hydrophysical Logging*

### CORE SHACK

- C 1 Stephen Smith, Inc./Larry R. Moyer, LLC, *Junior Exploration Company*
- C 2 Zephyr Minerals, *Junior Exploration Company*
- C 3 Integra Resources, *Junior Exploration Company*
- C 4 Gold Standard Ventures, *Junior Exploration Company*
- C 5 Pathfinder Tonopah, *Junior Exploration Company*
- C 6 Scotch Creek Ventures, *Junior Exploration Company*
- C 7 Comstock Mining, Inc., *Mining Company*
- C 8 Nevada Exploration, *Junior Exploration Company*
- C 9 Silver Range Resources, *Junior Exploration Company*
- C 10 Adamera Resources, *Junior Exploration Company*
- C 11 South Mountain Mines, Inc., *Junior Exploration Company*
- C 12 RRC Exploration, *Junior Exploration Company*
- C 13 Orogen Royalties, Inc., *Royalty Company*
- C 14 McEwen Mining, *Mining Company*
- C 15 Aston Bay Holdings, *Junior Exploration Company*
- C 16 Rex Minerals, *Junior Exploration Company*
- C 17 Gold Bull Exploration, *Junior Exploration Company*
- C 18 Lithium Nevada, *Lithium Company*

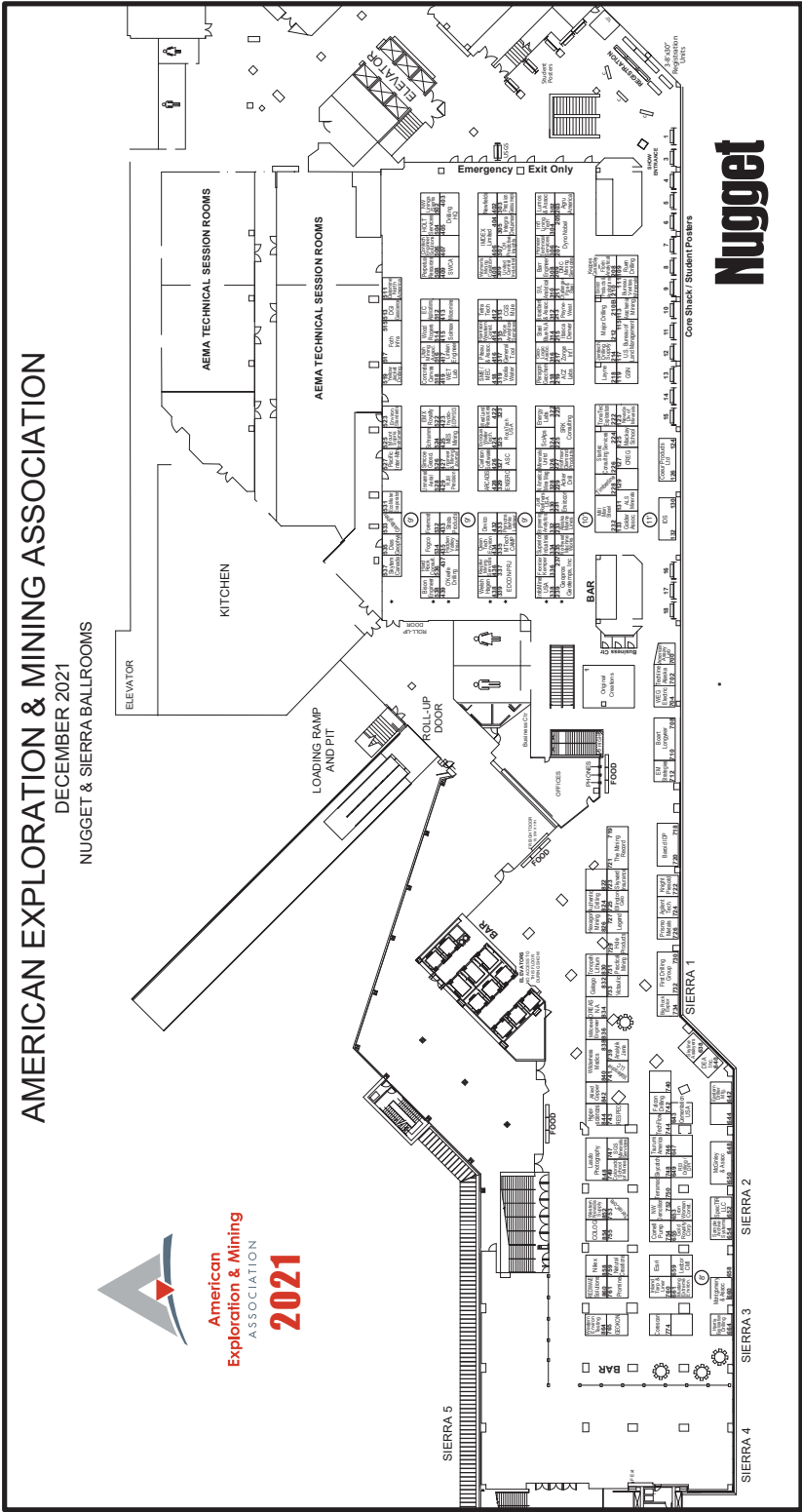


American  
Exploration & Mining  
ASSOCIATION  
**2021**

# AMERICAN EXPLORATION & MINING ASSOCIATION

DECEMBER 2021

NUGGET & SIERRA BALLROOMS



# Nugget

# Save the Date

*AEMA's 128th  
Annual Meeting, Exposition  
& Short Courses*

*December 4 - 9, 2022*

*Nugget Casino Resort  
Sparks, NV*