



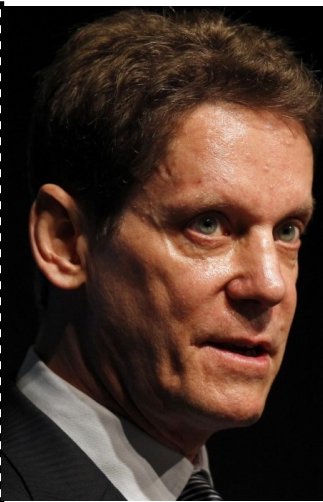
MINING FOUNDATION OF THE SOUTHWEST
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CONCENTRATES

December Awards Banquet to Induct the 2021 Honorees

Robert Friedland, Founder and Executive Co-Chairman, Ivanhoe Mining Ltd. 2021 Inductee



Robert Friedland was born in Chicago, Illinois, the eldest of three children born to immigrant parents Ilona and Albert Friedland. Friedland's father survived three years in Auschwitz while his mother worked as a forced laborer during the Holocaust. He graduated in 1974 from Reed College, Oregon, with a political science degree. Friedland was student body president during his senior year.

For more than 30 years, Friedland has been recognized by leaders of the international financial sector and mineral resource industries as an entrepreneurial explorer, technology innovator and company builder. He has a knack for hurdling seemingly insurmountable challenges to turn dreams into reality.

He is Founder and Executive Co-Chairman of Ivanhoe Mines and is hands down the best promoter in the mining industry. Friedland's legendary abilities as a presenter are well known as he highlights the fact that the world needs vast quantities of copper making this story compellingly relevant in a post-COVID world where adoption of clean-focused technology such as electric cars is expected to see copper demand surge.

In 1996, Mr. Friedland, then Co-Chairman of Diamond Fields Resources, was named Developer of the Year by the Prospectors and Developers Association of Canada (PDAC) for his work in establishing and financing companies engaged in mineral exploration and development around the world – a recognition, in part, of his leadership role in the development of the Voisey Bay nickel mine.

Mr. Friedland received the Dealmaker of the Year Award for the original Ivanhoe Mines from Australia's Diggers and Dealers Mining Forum in August 2011, which acknowledged his success in "managing some of the more interesting asset development logistics our industry has seen for many years".

In March 2012, Mr. Friedland was recognized as Mining Personality of the Year at the inaugural Asia Mining Awards, sponsored by the Hong Kong-based Asia Mining Club and the Mines & Money conference. The award noted his role in Mongolia's emergence as a major destination for mining investment. Ivanhoe Mines' Oyu Tolgoi copper-gold mining complex was voted Project Development of the Year.

Friedland was inducted into the Canadian Mining Hall of Fame in January 2016, honoring him as "a dynamic, transformative force in the Canadian and international mining industries" and "one of the most recognized mining personalities and achievers in the world".

Mr. Friedland holds United States and Canadian citizenships and resides in Singapore. He is married to Darlene, and they have three children. His son, Govind Friedland, is a geologist.

IVANHOE MINES

N E W H O R I Z O N S

Sydney Hay
President, AMIGOS
Mining Advocate and Supporter
2021 Medal of Merit Recipient



Sydney Hay is a champion for the mining industry -- a wealth creation engine for Arizona. An Arizona resident since 1979, Sydney was born and raised in a small town in Colorado. She graduated Summa Cum Laude from Kansas Newman College with a Bachelor of Science degree in Education. She spent the next several years teaching elementary and high school students, both in Kansas and in Arizona.

In the 1980's Hay was inspired to become involved in public policy and has been a tireless fighter for the citizens of Arizona ever since. She became a skilled political organizer and an association management executive and established her own firm, Southwest Policy Group, in 1990.

She has served for the past 27 years as President of AMIGOS (Arizona Mining and Industry Get Our Support), a trade association of small to mid-size businesses with members in over 20 states that supply Arizona's vital copper mining industry. This well-known and effective group makes mining industry views known to legislators and other government entities and keeps Arizona suppliers in the political process by using their collective clout to provide a pro-business, pro-mining point of view. Sydney leads the way in standing up for issues important to mining.

From 2005 to 2010 she was President of the Arizona Mining Association. She served a 5 year term on the Board of Governors of the Arizona Department of Mines and Mineral Resources including a stint as Chairman of the Board.

Politics is also in her blood. She has advised political candidates for local, state and national office. She was the Republican nominee for Congress from Congressional District 1 of Arizona in 2008. The Arizona Daily Sun described Sydney Hay as like "Martha Stewart with high-powered weapons."

Sydney lives with her husband Dan, a dog, two goats and is a proud horse owner.



Sarah A. Strunk
Chair of the Board, Fennemore
Business and Mining Attorney
2021 Medal of Merit Recipient



Sarah Strunk is Chair of the Board of Directors of Fennemore Craig, a Mountain West Law Firm. Strunk has represented numerous clients in the mining and natural resource industry over the past 3 decades and has been involved in many exciting development projects. She practices in business and finance law, with an emphasis on mergers and acquisitions, corporate governance, international sales contracts and exploration projects.

Prior to joining Fennemore, Strunk was Corporate Counsel to the copper and molybdenum division of Cyprus Amax Minerals Company. Ms. Strunk's first day at a mine site was her second day of work at Cyprus Amax. On that day she visited the mine and smelter in Miami, Arizona. She absolutely loved the industry and people, describing the experience as "coming home".

Ms. Strunk has served on the Board of the Arizona Mining Association. She has been a long-time trustee of the Rocky Mountain Mineral Law Foundation (RMMLF), was the Mining Co-Chair for an Annual Institute and currently serves on their Investment and International Committees and acts as the regional annual institute program co-chair for Arizona. She has presented papers at RMMLF special and annual institutes, including on Corporate Audits and Investigations and International Mining Due Diligence.

Ms. Strunk was the Chair of the Board of Brio Gold, now part of Equinox Gold and a member of the Audit, Compensation and Governance Committees.

She is been consistently recognized in the International Who's Who Legal®, Mining Law (2011-2021), Chambers USA®, leading lawyers for business (2005-2021), Best Lawyers in America® for Corporate and Mining law (2011-2021), Best Lawyers in America®, Lawyer of the Year, Securities/Capital Markets Law (2016) and Mergers and Acquisitions Law (2017), Southwest Super Lawyers®, for Mergers and Acquisitions (2007-2021) and their Top 25 Women in 2017, listed as one of the Top 100 Lawyers (AZ Business Magazine, 2018), Outstanding Women in Business (Phoenix Business Journal, 2019) and 50 Most Influential Women in Arizona Business (AZ Business Magazine, 2014).

When she is not working or speaking, Sarah enjoys gardening, cooking and entertaining at home with her husband of 30+ years and their English Labrador dog, Wyatt, a/k/a "The Marshal." Both Sarah and her husband are avid scuba divers, having been all over the world. Some of their favorite dive spots are the Fiji Islands and Palau.

FENNEMORE.

Angela Watt

Manager, Underground Engineering

South32

2021 Medal of Merit Young Professional Recipient



Angela Watt holds a Bachelor of Science Degree in Mining Engineering from The University of Arizona. While seeking her degree, Angela helped establish and lead the university's Engineers Without Borders student organization.

Watt received a Rio Tinto scholarship while attending university which lead her to start her career with Rio Tinto's Resolution Copper project in Arizona as a mining engineer. She was responsible for the study team's block caving design and mining schedule, and using lessons shared by operations groups, she created a blueprint for extraction level construction scheduling.

Wanting to put her experience into action at a developing mine, Angela transferred to Western Australia to work at Argyle Diamonds with a data-focused approach to resolving underground construction bottlenecks. Watt subsequently returned to Resolution Copper's No. 9 Shaft Deepening Project. With an eye for capitalizing on project schedule opportunities, she worked alongside shaft crew members and engineers to implement risk-mitigated designs and execution strategies for dewatering systems, deep-shaft ventilation and refrigeration changeovers, and a unique "bucket-in-a-bucket" mid-shaft loading arrangement.

In 2018, excited by the prospect of building a greenfield multi-generational underground mining project in her home county, she joined South32's Hermosa Project in Southern Arizona as Chief Mining Engineer. In May 2020 she was promoted to Manager Underground Engineering and is now responsible for the team performing Hermosa's mining study work and overseeing technical input to construction projects.

Watt grew up on a cattle ranch in Southern Arizona and developed an early passion for rock-collecting. She graduated from Nogales High School, excelling in academics, competing in school sports and embracing leadership roles including being elected to serve as the Arizona State President for the Future Business Leaders of America organization.

Guided by her enjoyment of math and science, she joined The University of Arizona's Engineering College. However, it was a visit to the university's San Xavier Mining Laboratory, a student-run underground mine, where she found her calling to underground mining.

Watt attributes a lot of her success to her wide-ranging interests, continuous curiosity and love of learning. She strives to influence the younger generation with her knowledge and experiences, as so many generous professionals within the mining community have done for her. She is an active SME member and resides with her husband, Mathew, in Tucson, Arizona.



Southwest Energy

2021 Industry Partnership Award Recipient



Southwest Energy was founded in May 1973 by James D. Toole in Tucson, Arizona. Soon thereafter, Southwest Energy purchased the Arizona manufacturing operations of Hercules, Inc. and immediately expanded throughout the Southwest. This was followed by taking an equity position in Apache Powder Company, now known as Apache Nitrogen Products Inc. in Benson, Arizona in the early 1980's.

Throughout the 1980s and 1990s Southwest Energy continued to expand its explosive manufacturing and distribution footprint. The company further expanded into blast hole drilling and in the year 2000, Southwest Energy formed a joint venture with SASOL, a South African chemical and energy company. As a result of this joint venture, Southwest Energy gained access to explosive technologies, electronic detonators, and a unique form of ammonium nitrate prill called EXPAN. After three years, the joint venture dissolved when SASOL exited the global explosives market.

In 2008 Southwest Energy created a new joint venture with Orica, the largest explosives company in the world based in Melbourne, Australia. With the innovative explosive's technologies and strong manufacturing base of Orica, Southwest Energy continues to provide even greater value to its mining customers. Today, Southwest Energy has multiple facilities, distribution sites, and blasting operations across the western United States.

Southwest Energy safely manufactures and loads hundreds of millions of pounds of blasting agents every year, working closely with their customers to optimize the explosive products, equipment and services to their specific applications. Southwest Energy's mission has always been and continues to be the creation of opportunity for its employees by bringing ever increasing value to its customers.



A SOUTHWEST ENERGY / ORICA JOINT VENTURE

AIME

2021 Special Citation



In 1871, 23 mining engineers in Pennsylvania had an idea: preserve their collective knowledge and experiences for the benefit of future engineers through a Society of similar professionals. The American Institute of Mining Engineers was born. AIME was one of the first national engineering societies established in the United States, along with ASCE (civil), ASME (mechanical), IEEE (electrical), and AIChE (chemical).

AIME created a Petroleum Division in 1922, an Iron and Steel Division in 1928, and an Institute of Metals Division in 1933. And, so, in 1957, the organization changed its name to the American Institute of Mining, Metallurgical and Petroleum Engineers, and, the current Member Societies, SME (the Society for Mining, Metallurgy, and Exploration), TMS (The Minerals, Metals, and Materials Society), and SPE (the Society of Petroleum Engineers), were formed from the branches of AIME.

In 1974, a fourth Member Society, the Iron and Steel Society (ISS), was added. A further evolution occurred in 1984 when the four AIME Member Societies became separately incorporated 501(c)3 organizations, like AIME. In 2004, ISS merged with AISE (Association of Iron and Steel Engineers) to form AIST (Association for Iron & Steel Technology), which remained under the AIME umbrella.

AIME's proud history includes the efforts of the foremost leaders in mineral and energy engineering: Henry Krumb, Seeley Mudd, James Douglas, Daniel Jackling, Anthony Lucas, Everette DeGolyer, Henry Doherty, and many others. Herbert Hoover, thirty-first president of the United States, was President of AIME in 1920.

Today, the AIME organizations include nearly 200,000 of the most influential and innovative figures in engineering and science. AIME's mission is to support its Member Societies. AIME activities are supported primarily by the return on investment of forty endowment funds. These funds provide support for forward-reaching programs including interdisciplinary projects and forums, awards of excellence, scholarships, and grants.

Through its Member Societies, Board of Trustees, and Staff, AIME is committed to sharing best practices and participating in collaborative opportunities to enhance the profession and society. To learn more, visit www.aimehq.org.





Hall of Fame Chairman

Amanda Best, Westland Resources
Westland Resources



The 39th annual American Mining Hall of Fame Banquet is less than 5 months away, and the Hall of Fame Committee is looking forward to seeing everyone there on December 4 at the JW Marriott Tucson Star Pass Resort & Spa. I want to express my appreciation to the many organizations and individuals who have contributed so far towards our fundraising efforts. As Chris Earnest has reported in this newsletter, the Education Outreach Team has just finished up this year's Summer Engineering Academy and is working hard getting video scripts, presentation materials, and lesson plans ready for the new school year. Thank you for your support!

Meanwhile, the committee continues to collaborate with stakeholders, sponsors, honorees, and staff of the JW Marriott in planning for the event. Sponsorship commitments are coming in and event tickets are being sold. If you have not done so already, please purchase your tickets and consider us in your charitable contributions portfolio this year! The banquet is a super-fun event, a great networking opportunity and the educational outreach that is realized through your contributions are worthy and important to the mining industry and society.



PRESIDENT'S CORNER

Message From the President, Andrew Soderman, Freeport-McMoRan



OUR FUTURE....

I joined the Mining Foundation of the Southwest in 2016. Like many of you I was introduced to the MFSW through a colleague at work. The main reason I joined the Foundation was for its mission of educating the youth of our community and positively influencing the public's opinion about the Mining Industry. I was further impressed by the method in which the Foundation carries out this mission by funding a fulltime coordinator position that goes into schools and educates students, face to face with hands on learning. After joining I discovered an additional benefit of being active with the MFSW is the people you meet. We have a diverse membership with different backgrounds and from different generations that are all willing to share their knowledge with others.

Reflecting on my story leads me to believe that if more mining professionals knew about the mission of the foundation, we would have an increase in new membership. I challenge all members to tell someone about the MFSW, send out a link to the website, or forward this newsletter. Also, if you have any ideas for promoting the MFSW let us know. Thank you to all our members for your continued support.

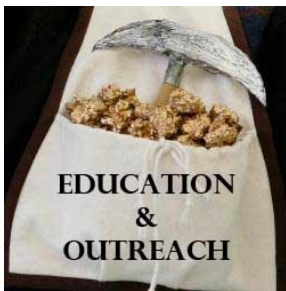




LOWELL INSTITUTE FOR MINERAL RESOURCES



OUTREACH CORNER BY CHRIS EARNEST



Summer is in full force in Arizona while the monsoons tease us with minute long spits of rain that evaporate by the time one looks out the window. Those who can take the time have left for cooler climates, while the rest dream of enough rain to plump the cacti up once more. The Education Outreach Team has just finished up this year's Summer Engineering Academy and is working hard getting video scripts, presentation materials, and lesson plans ready for the new school year.

Livestreaming an Engineering Camp

"I learned about a lot of the behind-the-scenes processes that go on at mining sites, which were quite enlightening" – SEA 2021 MGE day participant.



Mario Muñoz Explains the role of mineral resources in fulfilling Sustainable Development Goals



SEA 2021 Livestream setup

The "livestream" broadcast of the virtual Summer Engineering Academy Mining and Geological Engineering Day on June 28th was a huge success. Mario Muñoz and Chris Earnest were our presenters with outreach intern John Gengler serving as cameraman, grip, gaffer, and livestream director. Using the hands-on experiment kits mailed out to them in May, students explored how we use and obtain minerals, the University of Arizona San Xavier Mining Laboratory, mine design engineering, geotechnical engineering, metallurgy, and environmental reclamation.



Outreach Cont.

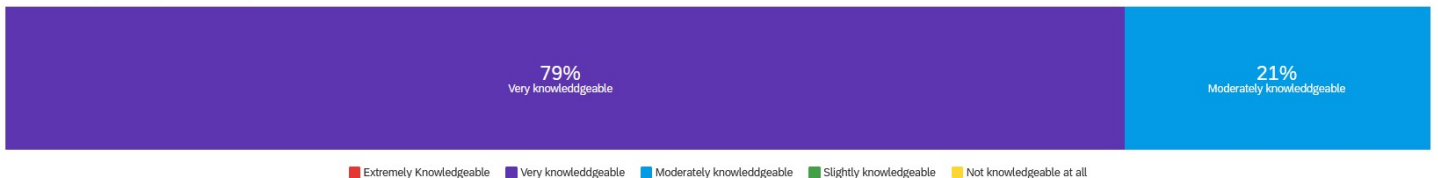


Student feedback from the event was overwhelmingly positive and when asked to rate their knowledge of mining before and after the event students responded that their knowledge had improved drastically.

Rated Knowledge of Mining Before Workshop



Rated Knowledge of Mining After Workshop



“This presentation ROCKS! I’m really digging it” – SEA 2021 MGE day participant.

Throughout the day students met and interacted with Mining and Geological Engineering faculty, staff, and students, completed hands-on experiments, worked as teams to design a mine and analyze thermal imaging data for rockfall detection, and discussed as a group how to manage a mine reclamation plan

The outreach team would like to thank all our faculty, staff, and student presenters as well as the Flandrau Planetarium and Science Center for providing “studio” space for the day. Thanks to everyone’s generous support and time contributions the Virtual camp went smoothly.

Preparing for a new year

The outreach program is looking forward to a return of in classroom presentations and in-person events in the fall semester. On July 15th we will be introducing 25 High School teachers who teach Engineering 102 HS – the dual credit high school engineering course run by the College of Engineering – to the outreach program and to a mineral processing module for them to use in their classrooms. We will also be integrating the virtual mining lessons created over the last year into the in-classroom lessons. Students will be able to enjoy an in-classroom presentation and then continue exploring mining through the virtual activities.

The education outreach team is looking forward to an exciting and busy school year. We hope that everyone can enjoy the rest of their summer and hopefully find a bit of cool respite from the heat



Chris Earnest instructs student on how to use their SXEW experiment kit while John Gengler controls the livestream camera view. A camera above Chris' head allowed students an up-close top-down view of the experiment.



Member Corner



We welcome our newest member's

Scott Knutson, Founder and Chief Serving Officer at Leading2Serve LLC

Knutson has been in the leadership and organizational development field for over 25 years. He has worked with multiple organizations in the U.S. and abroad, including Seagate Technologies, Freeport-McMoRan, Inc., CEA Study Abroad, Los Alamos National Laboratories, Climax Molybdenum, Sociedad Minerales Cerro Verde, and Carvana. For the last 10 years, he worked specifically in leadership and organizational development, working with individual leaders and teams to improve performance. Scott has an MBA with an emphasis in management and is currently working on his dissertation that focuses on servant leadership. He is a certified Six Sigma Black Belt and is a Certified Professional in Talent Development (CPTD).

James Norine Director, Minerals and Metals at Ausenco

In his role as Director, M&M Jim oversee and manage Ausenco's project delivery efforts in the Western US and Mexico. He brings over 21 years of experience in Project Delivery, Studies, Engineering, Procurement, and Construction Management experience primarily in the mining industry. In addition he has over 15 years of direct Project Management experience on capital projects from 150 million up to 1.3 Billion dollars in size. Jim has completed projects in Arizona, California, Illinois, Texas, Nevada, Michigan, Minnesota, New Mexico, Hawaii, Canada, Chile, Argentina, Mexico, Peru, and Anguilla.

December 4, 2021 Hall of Fame Awards Banquet Information



SPONSORSHIP OPPORTUNITY



Sponsorships are offered at 4 levels: Diamond (\$10,000), Platinum (\$5,000), Gold (\$2,500) & Silver (\$1,000). All sponsors are recognized on the Foundation's website, press releases, banquet program and during the banquet ceremony.

TICKET SALES

Voting, Silver and Gold members in good standing are extended 2 member pricing banquet tickets at \$200 per ticket. Non-member tickets are \$250.

HOTEL RESERVATION

Attendees will be extended a special room rate of \$146.00 + tax + a discounted Resort Fee of \$7.50 + tax per night; discounted \$90 golf rate and a 20% spa only discount. The contracted cutoff date for reservations at the group rate is Thursday, Nov. 4th. Reservations Link:

[SME Arizona Conference / MFSW / Summit 2021 - Learn about the event and search for hotels \(passkey.com\)](#)

or call 877-622-3140.