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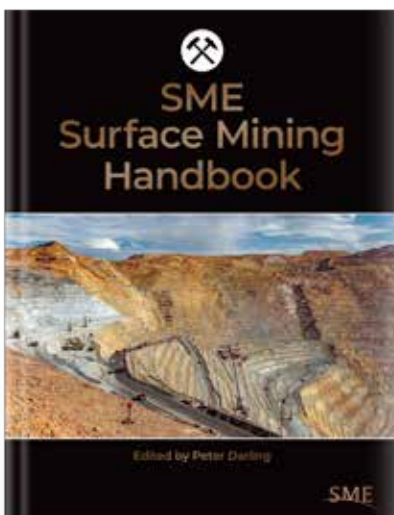
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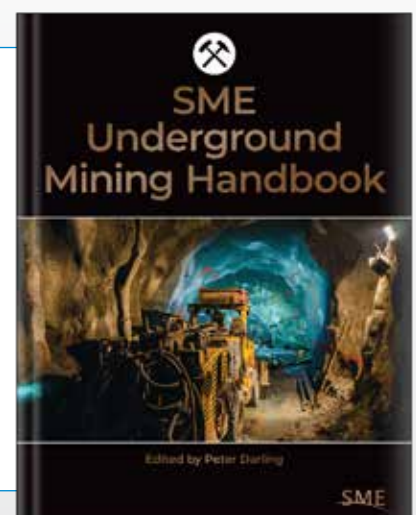
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Recent coal and nuclear plant retirements along with supply chain concerns and increased reliance on intermittent or variable generation and the dependence on natural gas as fuel for electricity generation have created challenges with the reliability of the wholesale electricity markets. On page 16 Talina R. Mathews provides an overview of the reliability of regional electricity markets. Cover photo: rail cars loaded with coal being transported from nearby mines to power plants in Wyoming. Photo credit: Shutterstock. Design by Ted Robertson.



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Reflections of my year as President; After a busy term my involvement in SME will continue



Ronald Parratt
2022 SME President

At the conclusion of the MINEXCHANGE 2023 SME Annual Conference & Expo in Denver, CO my term as SME President will come to a close, but it will not, by any means, bring an end to my support for SME. It has been an enormous honor and a wonderful experience to be so involved in our Society this past year and to help keep the Society moving forward in its role as one of the best, if not the best, mining professional society in the world. Throughout this year I have had the opportunity to gain a broader understanding of why our Society is so strong and commands

the worldwide respect it does. It starts with the strong Colorado-based management teams that participate in all we do and who effectively manage not only MINEXCHANGE, but numerous other specialty meetings as well as frequent meetings held by our Sections. However, the quality of our meetings and the major strength of SME are the hundreds of members who volunteer their time and share their expertise. I attended many of these meetings this past year and the collective body of knowledge presented regarding our industry was amazing. Volunteer members are also the backbone of the management of our sections, standing committees, divisions, and the board of directors. They commit their time and skills to ensure each of these groups advance their areas of responsibility and in so doing advance SME. Their dedication to SME is outstanding. Over the years, I have attended SME Section meetings in many states and have benefitted from presentations and mine tours. But what really stood out for me this past year after visiting several more sections, was the recognition that SME's sections, which of course are commonly located in areas of mining that provide the foundations of modern living, are the face of mining to the nearby communities. With the growing importance of ESG, stated another way, our sections are the face of mining to our stakeholders.

During this past year, one of my goals was to reinvigorate economic geology/exploration programming and activities at MINEXCHANGE. This is not to say that geologic programming does not exist — it does, and it is exceptional. But programming dealing specifically with the exploration for, and the discovery of mineral deposits has

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Rebecca Ray
Mining Engineer
MES Mining - Division of Mining & Environmental Services LLC

declined in recent years. We all appreciate the good-natured banter that exists in mining between the engineers and geologists, but being an explorationist, it is clear to me that to build and operate new mines, we need to make new discoveries. And at SME we need to increase programming in this area to draw the explorationists back to SME. As part of this, many of you will remember that in the past, mine tours were held pre or post the annual meeting. These tours were well attended and importantly attracted not just geologists but also engineers and other mining professionals. Planning for a mine tour at the MINEXCHANGE 2024 in Phoenix, AZ is underway. This year, SME signed an MOU with AIPG, the American Institute of Professional Geologists, which has a considerable number of members who are economic geologists. Economic geology programming at the upcoming MINEXCHANGE meeting in Denver will be a collaborative effort between SME and AIPG. Similarly, collaborative efforts between SME and AIPG are planned for the 2023 AIPG Annual Meeting in September in Covington, KY. Furthermore, these efforts by SME and AIPG are expected in 2024 for both programming and additional mines tours as possible.

(continued on page 10)

Why I SME

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“The networking opportunity SME presents is massive. SME has formed an enormous pool of like-minded people with diversity as a community over its long-standing history, and I have learned a lot from the interactions with other SME members through multiple SME events in the past years.”

– Fangyu Liu, Ph.D. SME Member

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Energy Department to loan \$700 million to Ioneer

THE U.S. ENERGY

Department will lend Ioneer Ltd. \$700 million to build the Rhyolite Ridge lithium mine in Nevada.

The loan was approved by Energy Secretary Jennifer Granholm. It is the first loan by the U.S. government for a lithium mining project and represents a major step forward in President Joe Biden's ambitions to create a domestic supply chain for electric battery materials.

"The government is sending a strong signal that it's time to let us go build this mine," James Calaway, Ioneer's executive chairman, told *Reuters*. "We now have the capital to build a very important facility to supply lithium for the United States."

Reuters reported that the loan

was in review for more than two years by the department's Advanced Technology Vehicles Manufacturing program office and is conditional on permitting and other factors. The funds would be used to build a lithium carbonate processing facility at the Rhyolite Ridge site near an existing lithium operation run by Albemarle Corp.

A 2020 study had estimated the mine's cost at about \$785 million. Calaway said Australia-based Ioneer would need to update that amount in light of recent inflation.

The mine would produce enough lithium to build 370,000 electric vehicles each year and reduce annual gasoline consumption by nearly 145 million gallons, the Energy Department said.

Ford Motor Co. and Prime

Planet Energy & Solutions, a joint venture of Toyota Motor Corp. and Panasonic Corp., have agreed to buy lithium from the project.

The formal stage of the project's permitting process began last month after the U.S. Fish and Wildlife Service declared Tiehm's buckwheat, a rare flower at the project site, an endangered species. The company has said it believes it can develop the mine while protecting the flower. The Energy Department said the loan is contingent on Ioneer completing the environmental review process. It also noted that Ioneer changed its mine plan to avoid the buckwheat and has spent more than \$1 million on botanists, greenhouses and related studies. "The plant's best chance is with us taking care of it," Calaway said. ■

Mining royalty bill approved by Chilean committee

A **CONTROVERSIAL** mining royalty bill was approved by a Chilean congressional committee, putting it a step closer to final approval as part of the government's sweeping tax reform.

Reuters reported that the proposal, strongly criticized by the industry, was presented in the middle of 2022 by the government to increase royalties on copper sales in Chile, the world's largest producer of the metal.

In October, an amended proposal was announced by the finance and mining ministers. It would impose a flat-rate ad valorem tax of 1 percent on large-scale copper miners that extract more than 50 kt/a (55,000 stpy). The ad valorem tax would not be assessed if operating margins are negative.

Additional royalties would be assessed at rates fluctuating from 8 percent to 26 percent based on miners' operating margin, rather than being adjusted according to the price of copper as was originally proposed in the bill that was proposed in July.

In the original proposal two components for royalty payments were established. The first was an ad valorem tax ranging from 1 percent to 2 percent for producers of between 50

and 200 kt (55,000 and 220,000 st) of fine copper, and from 1 percent to 4 percent for those over that range.

Following approval on Jan. 4 by the mining and energy commission, the bill passes to a Treasury commission, where it will again be reviewed and need approval before it goes to a final vote.

Nonetheless, there continues to be disagreement over some aspects of the bill.

"The tax rate is a formula that has not convinced all of us," said Senator Loreto Carvajal, president of the mining commission, during the session. "The issue of our future competitiveness in relation to nearby countries and others is still pending," she added.

The government modified the bill in October, proposing a fixed sales royalty of 1 percent for large miners and removing provisions that linked payments to copper prices. The mining industry welcomed the change, but said the tax burden remained too high.

In other news from Chile, Andes Iron's proposed \$2.5 billion Dominga copper and iron mining project was killed by Chile's committee of ministers.

The project was to be built near the National Humboldt Penguin Reserve with a proposed openpit mine and project. The committee of ministers, which is headed by the environment minister, unanimously rejected the project.

Speaking at a press conference at the environment ministry in Santiago, Maisa Rojas, the environment minister said the committee voted unanimously to reject the project after considering impacts on wildlife, water sources, air quality and marine-protected areas.

"The evaluation was made considering multiple aspects that had to be evaluated, multiple reports that had to be considered," Rojas said. "It was a robust decision."

Reuters reported that the project aimed to extract millions of tons of iron ore and thousands of tons of copper in an impoverished area of northern Chile around 450 km (280 miles) from Santiago, the capital.

But the area comprises a nature reserve encompassing three islands that are home to 80 percent of the world's Humboldt penguins, which are an endangered species, as well as whales, sea lions and the world's smallest otter species. ■



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LKAB identifies largest rare earth deposit in Europe; Permitting issues remain before mining can commence

SWEDISH MINING firm LKAB announced that the largest known deposit of rare earth minerals in Europe has been discovered in northern Sweden. The company said in a statement that the deposit contains more than 1 Mt (1.1 million st) of rare earth oxides.

"This is good news, not only for LKAB, the region and the Swedish people, but also for Europe and the climate. This is the largest known deposit of rare earth elements in our part of the world, and it could become a significant building block for producing the critical raw materials that are absolutely crucial to enable the green transition. We face a supply problem. Without mines, there can be no electric vehicles," said Jan Moström, LKAB's president and group chief executive officer.

No rare earth elements are currently mined in Europe. At the same time, demand is expected to increase dramatically as a result of electrification, which will lead to a global undersupply, all during a time of increasing geopolitical tensions. According to the European Commission's assessment, the demand

for rare earth elements for electric cars and wind turbines, among other uses, is expected to increase more than fivefold by 2030. Europe is also dependent on imports of these minerals, where China dominates the market, a factor which increases the vulnerability of European industry.

"Electrification, the EU's self-sufficiency and independence from Russia and China will begin in the mine. We need to strengthen industrial value chains in Europe and create real opportunities for the electrification of our societies. Politics must give the industry the conditions to switch to green and fossil-free production. Here, the Swedish mining industry have a lot to offer. The need for minerals to carry out the transition is great," said Sweden's minister for energy, business and industry Ebba Busch.

While the discovery is exciting news, there are a number of steps that must be completed before mining begins.

In a release, LKAB said, "The first step is an application for an exploitation concession for the Per Geijer deposit in order to be able to investigate it further at depth and investigate the conditions for mining.

The plan is to be able to submit an application for an exploitation concession in 2023."

LKAB has already started to prepare a drift, several kilometers long, at a depth of approximately 700 m (2,300 ft) in the existing Kiruna Mine toward the new deposit to be able to investigate it at depth and in detail.

"We are already investing heavily to move forward, and we expect that it will take several years to investigate the deposit and the conditions for profitably and sustainably mining it. We are humbled by the challenges surrounding land use and impacts that exist to develop this into a mine and that will need to be analyzed to see how to avoid, minimize and compensate for it. Only then can we proceed with an environmental review application and apply for a permit," said Moström.

"If we look at how other permit processes have worked within our industry, it will be at least 10 to 15 years before we can actually begin mining and deliver raw materials to the market. And then we are talking about Kiruna, where LKAB has been

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Rio Tinto completes first test of renewable diesel

Ruling on Thacker Pass Mine expected to be delivered within months

REUTERS REPORTED that U.S. Chief Judge Miranda Du of the federal court in Reno, NV said she would rule "in the next couple of months" about whether former U.S. President Donald Trump erred in 2021 when he approved Lithium Americas Corp's plan to build North America's largest lithium mine.

Du held a hearing to review the contention from ranchers, environmentalists and Indigenous groups that the Thacker Pass lithium mine would permanently scar a region in northern Nevada that is home to wildlife and key water sources.

The long-winding case comes amid rising global demand for lithium, a key

component of electric-vehicle batteries.

The initial phase 1 targeted capacity has been increased from 30-35 kta (33,000 to 38,500 stpy) to reflect the optimized mine plan and leaching efficiencies, with the proposed 3-kt/d (3,300-stpd) sulfuric acid plant unchanged, the company said.

A feasibility study for a second phase to target an additional 40 kt/a (44,000 stpy) capacity is also being done to target a total capacity of 80 kt/a (88,000 stpy) to meet potential demand. The company expected to provide an update on the timing of the feasibility study by early 2022 to align with the strategic partnership process and ongoing engineering work. ■

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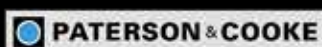
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Roy Hill partners with Epiroc and ASI; Autonomous haulage system will expand to 96 haul trucks

ROY HILL ANNOUNCED that it will expand its autonomous haulage system (AHS) by converting its mixed fleet of 96 haul trucks to driverless operation, creating the largest autonomous mine in the world.

Epiroc, together with automation specialist ASI Mining have worked with Roy Hill since 2020 to develop an autonomous haul truck solution that is interoperable and scalable regardless of original equipment manufacturer.

In a press release, Epiroc wrote the project's production verification phase is complete, and 10 haul trucks have been converted to driverless operation using ASI Mining's Mobius traffic management and on-board automation systems to navigate the mine's virtual map and communicate with other vehicles and with the Remote Operations Centre (ROC) in Perth. The

AHS fleet is meeting the desired safety and productivity metrics and achieving higher productivity rates than the conventional haul truck fleet, which was a key objective of the program over the past two years.

The autonomous haul trucks are running 24/7 in a dedicated autonomous operating zone, interacting safely with two excavators and numerous ancillary vehicles at intersections, waste dumps and load areas.

The project's progressive expansion will see autonomous haul truck numbers grow steadily from March 2023 and throughout 2023. The fleet will comprise 54 Caterpillar trucks and 42 Hitachi trucks. In addition, more than 200 ancillary vehicles will interact with the autonomous haul trucks.

"The ground-breaking automation work together with Roy Hill and ASI

Mining over the past couple of years has been successful and very exciting," said Epiroc's president and chief executive officer Helena Hedblom. "The team working on this is doing a fantastic job, and we are now looking forward to collaborating with Roy Hill in ultimately achieving the world's largest autonomous mine. This will bring significant benefits for both safety and productivity."

Roy Hill is an iron ore mining project in the Pilbara region of Western Australia. Its ROC in Perth provides end-to-end integration of operations.

"Roy Hill is in a strong position to continue its transition to autonomous haulage early this year with our teams on site and at the ROC in Perth now skilled in autonomous operations," said Roy Hill chief executive Gerhard Veldsman. ■

Thieves pull off brazen copper theft in Chile; Copper plates valued at an estimated \$4.4 million

AS MANY AS 10 armed men attacked workers at Chile's main seaport and stole 13 containers, 12 of which contained copper, according to Chilean authorities.

Reuters reported that the copper belonged to state-owned mining company Codelco and the copper plates were worth an estimated \$4.4 million.

Juan Carlos Catalan, the local prosecutor, said in a statement that 10 armed men entered the San Antonio port early on Jan. 10, attacked the workers and stole the 13 containers.

"There was one guard and four workers that (the assailants) tied up and beat and left locked up," Catalan

said, adding that workers alerted authorities after they freed themselves.

Catalan said authorities are investigating and reviewing security footage but have not detained any suspects.

In a statement to *Reuters*, Codelco said the copper was scheduled to be exported and was insured.

The heist is the largest copper theft since a spate of gangster heists in northern Chile last October forced the government to tighten security on trains carrying copper cathodes.

The violent robbery adds pressure over shipment security in the world's largest copper producer. Mining companies in Chile have repeatedly

complained about copper thefts by specialized gangs.

Authorities blamed the train heists on international crime groups while police said Wednesday's heist could be a local group.

"It is a gang that may be working in San Antonio because we have other crimes with similar characteristics," local police captain Gonzalo Garcia told *Radio Cooperativa*, adding that it was a well-planned heist that involved multiple trucks.

"They cut off the security cameras and once the cameras were cut off, the other part of the gang went in to intimidate the guards and the workers." ■

President's Page: Thank you to all who helped me

(continued from page 4)

This past year has been incredible, and a tremendous honor and I want to thank Dave Kanagy, the SME staff, the SME Board and numerous colleagues for their guidance and support. I do not

know how Kanagy takes care of all the things he does year after year. During my years of membership and committee membership, I have had the privilege and opportunity to interface with and learn from many incredible people. Thank you. SME is strong and

growing, and I am fortunate to have been a member and involved during all my many years of membership. Like others before me and those to come, it has been a great benefit to me personally and professionally, and an experience I will never forget. ■

High-grade nickel mineralization found by Talon; Discovery is 3.2 km from Tamarack Nickel project

TALON METALS reported that it has intercepted new high-grade nickel-copper mineralization near its Tamarack nickel-copper-cobalt project in central Minnesota.

The company said the mineralization was discovered in six of nine holes 3.2 km (2 miles) from the current resource area. In a press release, Talon Metals said it, “believes it has confirmed a brand new “system” of high-grade nickel-copper mineralization within the Tamarack Intrusive Complex.”

“New drilling shows us that the Tamarack Intrusive Complex can be a district-scale nickel-copper resource right here in the United States. We’ve moved nearly 3.2 km (2 miles) outside of the company’s current nickel-copper resource area and successfully intercepted high-grade nickel-copper in a different intrusion (new system) as compared to the current resource

area,” Brian Goldner, chief exploration and operations officer of Talon said in a statement. “While still early in the process, these preliminary results provide definitive evidence that the Tamarack Intrusive Complex has district-scale potential, and as a consequence of these exciting initial results, we intend to make further exploration along the Tamarack Intrusive Complex a priority in 2023.”

Talon Metals previously signed an agreement with Tesla Inc. to supply the automaker with nickel for its battery factories in Texas and Nevada.

Talon said its Minnesota project, slated to open by 2026, is a joint venture with global miner Rio Tinto.

“Last year’s discovery of the shallow high-grade nickel mineralization in the CGO West area started with only a small 1.3-m intercept of high-grade nickel massive sulfide – that mineralization

ultimately grew to nearly 14 m thick only 25 m away. I expect this same thickening could occur in the new area called the “Raptor Zone,” especially with the amount of unexplored space we have to work with,” Goldner said.

Todd Malan, chief external affairs officer and head of climate strategy at Talon added: “The prospect that the United States may host more high-grade nickel mineralization within its domestic mineral endowment is very timely. In the last year, over \$30 billion in investment has been committed for new nickel battery manufacturing in the US. We have more exploration drilling to undertake with our in-house team to understand if these new areas have a resource that is of the size and quality to represent an economic and mineable resource, but these results show where we need to target our drilling teams. ■



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Ivanhoe Electric partners with Ma'aden; Joint venture will explore for minerals in Saudi Arabia

IVANHOE ELECTRIC announced that it has formed a joint venture with Ma'aden, the Saudi Arabian mining company, to explore for copper, gold, silver, and battery and electric metals in Saudi Arabia.

Ma'aden is among the fastest-growing mining companies in the world and the largest multicommodity mining and metals company in the Middle East, with a vision of being a sustainable mining champion with a global presence. Ma'aden explores for, and mines, minerals within Saudi Arabia including gold, silver, copper, zinc, phosphate and other industrial minerals, and has a market capitalization of approximately \$48 billion.

Ivanhoe Electric said in a press release that the agreement sets out the binding framework for a strategic investment of \$126.4 million by Ma'aden into the common stock of Ivanhoe Electric and the concurrent establishment of a 50/50 exploration joint venture in Saudi Arabia. The agreement was signed at the Future Minerals Forum that took place Jan. 10-12 in Riyadh, Saudi Arabia, and is expected to be completed by the end of the first quarter of 2023.

Ivanhoe Electric will issue approximately 10.2 million new common shares to Ma'aden at a price

of \$12.38 per share for gross proceeds of \$126.4 million, resulting in Ma'aden becoming a 9.9 percent shareholder. Ma'aden will have antidilution rights to allow it to maintain its 9.9 percent ownership.

Of the gross proceeds, \$60 million are to be retained by Ivanhoe Electric for use in advancing its U.S. mineral projects, and for working capital and general corporate purposes.

Ma'aden will obtain the right to appoint one independent director to the Ivanhoe Electric board of directors, bringing the company's board size to nine members.

The joint venture will be owned 50/50 and established for an initial term of five years. It may be extended up to 10 years upon mutual agreement.

Ma'aden will make available approximately 48,500 km² of land under exploration license or license application within Saudi Arabia for exploration by the joint venture.

Ivanhoe Electric will contribute approximately \$66 million to the joint venture, of which up to \$13 million will be used to fund the purchase of three new-generation Typhoon machines. Ivanhoe Electric will provide the joint venture with a royalty-free license to use Typhoon within Saudi Arabia for the purpose of mineral exploration.

The license will remain exclusive to the joint venture in Saudi Arabia and effective while it continues.

Typhoon is the brand name for Ivanhoe Electric's proprietary electrical geophysical surveying transmitter, which can detect the presence of sulfide minerals containing copper, nickel, gold and silver as well as water and oil.

"The deal combines a conventional corporate-level investment with a groundbreaking exploration joint venture centered around the application of Ivanhoe Electric's disruptive Typhoon technology in the Kingdom of Saudi Arabia," said Ivanhoe Electric's chief executive officer Robert Friedland.

"Ma'aden's announced investment is a clear vote of confidence by a major mining company in our U.S. projects and in our vision to reinvent mining for the electrification of everything, by agreeing to become one of our largest shareholders," Friedland added.

Ma'aden's chief executive officer Robert Wilt said, "Ma'aden's strategic investment in Ivanhoe Electric is a critically important moment in our journey to becoming a leading supplier of strategic minerals, which will fuel global economic growth over the coming decade." ■

LKAB: Exploration near Kiruna Mine in Sweden

(continued from page 8)

mining ore for more than 130 years. Here, the European Commission's focus on this issue, to secure access to critical materials, and the Critical Raw Materials Act the commission is now working on, is decisive. We must change the permit processes to ensure increased mining of this type of raw material in Europe. Access is today a crucial risk factor for both the competitiveness of European industry and the climate transition," Moström added.

Promising results from LKAB's ongoing exploration in Kiruna and Gällivare were presented last spring.

The Per Geijer deposit is in close proximity to existing operations in Kiruna. More extensive studies show an increase from 400 Mt (440 million st) of mineral resources with high iron content to more than 500 Mt (550 million st), and that the Per Geijer deposit contains up to seven times the grade of phosphorus as the ore bodies that LKAB mines in Kiruna today. Phosphorus is one of three nutrients in mineral fertilizers necessary for food production and is on the EU's list of critical minerals.

The rare earth elements in Per Geijer occur together with phosphorus in the mineral apatite, in what is mainly

an iron ore deposit and which may therefore be produced as by-products. It also creates completely different opportunities for possible competitive mining.

"LKAB is already planning a circular industrial park in Luleå with new technology for the extraction and processing of phosphorus, rare earth elements and fluorine based on today's existing mining production. There, instead of landfilling the material, it can be used to create new, sustainable products. A production start is planned for 2027," said Leif Boström, senior vice president, business area special products, LKAB. ■

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BRAD DUNN

The Mining and Exploration division is looking into creating a new scholarship fund for students at trade schools – with a focus on mechanical and electrical engineering.



NICK GOW

I have selected the Minerals Education Coalition for my fundraising efforts to support them in their efforts to find more and engaging ways to ensure the future of mining in this country.



DAVE KANAGY

Help me support the SME Foundation's mission to "attract and leverage resources for a sustainable mining industry."



TOM RAUCH

While I love pie, I'd never miss a chance to support the Foundation's PhD Fellowship and Career Development Grant program.



KAT TEW

SME's latest fund "Miner's Give Back" (MGB) is the branch between local sections' community service and SME Global.



James Bay lithium project approved; Allkem will be required to meet 271 conditions for the mine

CANADA APPROVED

Allkem Galaxy Resources' James Bay lithium project in northern Quebec, but the project must adhere to 271 conditions including measures designed to protect wildlife and other natural resources used by the Cree First Nation.

The *Financial Post* reported that Canadian environment minister Steven Guilbeault announced that the company and the Eastmain Cree agreed to the terms. Among those, Galaxy Lithium will need to ensure that traditional food sources for the communities living in the region remain safe by conducting regular tests.

The James Bay Mine must also pass an environmental assessment by the provincial government, which is ongoing.

"Critical minerals are one of the keys to building Canada's low-carbon economy," Guilbeault said in a press release. "We can

only develop those resources by designing from the outset with strong mitigation measures to protect the environment and working in true partnership with Indigenous Peoples."

Prime Minister Justin Trudeau and several of his provincial counterparts have been selling Canada as an important node in the shift to electric vehicles, boasting that the country's mineral wealth will be a competitive advantage.

Canada, the United States and other nations are looking to wean themselves off supply chains of critical minerals from China.

In its critical minerals strategy released in December, Canada listed lithium as one of the top six critical minerals, along with graphite, nickel, cobalt, copper and rare earth elements, due to their importance in the clean technology sector.

The environmental assessment of the James Bay project began in

2017 and was conducted by a joint committee including the Impact Assessment Agency of Canada and the Cree Nation government.

In the executive summary of the report, the committee said that while the project "could lead to cumulative residual effects on the current use of lands and resources for traditional purposes, including effects on navigation, which may have cumulative effects on access to the practice of rights," the effects would not be significant considering the mitigation measures.

The mine is expected to run for approximately 15 to 20 years and produce more than 5 kt/d (5,500 stpd) of ore. It will include an openpit mine, tailings, waste rock and a concentrator. The project is expected to employ about 280 workers during construction and an average of 170 workers during the mine's operation, according to the government. ■

Caterpillar invests in battery-pack manufacturer; Investment expected to advance electric-vehicle plans

CATERPILLAR INC.

announced that it is investing in Lithos Energy Inc., a U.S.-based battery technology company that produces lithium-ion battery packs.

"Caterpillar's collaboration with Lithos supports our commitment to delivering robust electrified products and solutions for our customers," said Joe Creed, group president of Caterpillar's Energy & Transportation segment. "Cat equipment — regardless of its power source — is designed to operate in the most demanding conditions. Lithos' experience manufacturing battery packs for similarly demanding environments will be an asset as we continue our electrified product development."

Headquartered in San Rafael, CA, Lithos specializes in designing, engineering and manufacturing

shock-resistant and high-performance battery solutions for applications including off-road and marine.

"We are extremely excited to be working with Caterpillar, especially at a time when the leading construction machinery and equipment manufacturer is entering a new age of efficiency and reduced emission operation," said James Meredith, chief executive officer of Lithos. "Caterpillar's forward thinking, commitment to electrification and leadership position on the global stage for equipment manufacturers make this an ideal match. This funding will enable Lithos to accelerate technology development and scale up manufacturing capacity as we look forward to providing increasingly advanced product offerings to our

new and existing customers."

Caterpillar's investment in Lithos further demonstrates Caterpillar's commitment to support customers in the energy transition with lower-carbon, advanced power technologies for its hybrid- and full-electric machines and power generation products. The company recently displayed four electric construction machine prototypes, including battery prototypes, at bauma 2022 in Munich, Germany and successfully demonstrated its first battery-electric 793 large mining truck at its Tucson Proving Ground in Arizona. ■

Correction: In the January issue of *Mining Engineering* John O. Voigt's name was misspelled on page 68. We apologize for the error.

Rio Tinto completes first test of renewable diesel; Testing to continue at Kennecott operations in Utah

RIO TINTO announced that it is progressing plans to swap conventional diesel for renewable fuel in haul trucks at its U.S. operations to reduce the carbon footprint of its fleet.

The company successfully completed a renewable diesel trial at its U.S. borax mine in Boron, CA, and is now conducting a second trial at its Kennecott copper operations in Salt Lake City, UT, to determine the suitability of renewable diesel for openpit haulage.

“The renewable diesel trials at our U.S. borax and Kennecott operations could pave the way for Rio Tinto to be the first mining company in the U.S. to operate a fully renewable fleet,” Rio Tinto’s vice president of global procurement Simon Richmond said. “It’s a very exciting step towards reducing the carbon footprint of our U.S. operations.”

The first trial was conducted through 2022 in partnership with Neste and Rolls-Royce. Rio Tinto U.S. Borax used Neste MY Renewable Diesel, a hydrotreated vegetable oil made from sustainably sourced renewable raw materials such as those used in cooking oil and from animal fat in food industry waste. Results showed that a truck running on renewable diesel delivered similar performance and reliability as trucks running on conventional diesel.

Based on these positive results, Rio Tinto U.S. Borax will continue to work with the U.S. Environmental Protection Agency, the state of California and engine manufacturers with a goal of having a full transition of the heavy machinery fleet onsite to renewable diesel by 2024, representing an anticipated carbon dioxide equivalent reduction of up to 45 kt/a (50,000 stpy).

A second trial has also launched at Rio Tinto Kennecott’s Bingham Canyon Mine in collaboration with Cummins to test renewable diesel in a different operational environment and on different mining equipment. The seven-month trial, which started in October 2022, will compare acceleration, speed, cycle times, fuel usage and engine inspection reports for two trucks running on renewable diesel versus two trucks running on conventional diesel, complementing the data collected in California.

Both trials support Rio Tinto’s global decarbonization objectives, which include a 50 percent reduction in Scope 1 and 2 emissions by 2030, and a commitment to reach net zero by 2050. The company estimates carbon emissions from the use of diesel in its mobile fleet and rail account for 13 percent of its Scope 1 and 2 emissions. ■

Barrick looks to first production at Reko Diq in 2028; Copper and gold mine in Pakistan back on track after legal hurdles

BARRICK GOLD plans to finish the feasibility study update of the Reko Diq project in Pakistan by the end of 2024 with a target of first production by 2028. Barrick’s president and chief executive Mark Bristow informed the Pakistan federal and Balochistan provincial government about the target dates. The news comes following the completion of the legal processes and definitive transaction agreements that occurred in December.

Reko Diq will be operated by Barrick, which owns 50 percent of the project, with Balochistan holding 25 percent and three Pakistani state-owned enterprises sharing the remaining 25 percent. The shareholding structure is in line with Barrick’s policy of benefit-sharing partnerships with its host countries.

In a statement, the company said Bristow and other senior executives met with Balochistan chief minister

Abdul Quddus Bizenjo and other provincial leaders as part of a three-day project review that started in Quetta. The Barrick team briefed them on the extensive social and economic development opportunities that would be generated by the mine, which is expected to have a life of at least 40 years. The meeting was attended by a wide spectrum of provincial stakeholders and leaders, including opposition leader Malik Sikandar Khan and leaders of the Balochistan Awami party, Jamiat Ullema Islam, Pakistan Tehreek-e-Insaf and Awami national party.

After the meeting, Bristow and the chief minister signed a memorandum of agreement that specifies the timetable for the disbursement of committed funds to the province including advance royalties and social development funds, ensuring that the people of Balochistan start earning benefits

from the project well before the mine goes into production. The agreement provides for an initial payment of \$3 million this month.

Barrick is working to set up community development committees to identify priority projects focused on food security, environmental management and access to education, healthcare and potable water.

In Islamabad, Bristow met with minister of state (petroleum division) Musadik Masood Malik and reaffirmed Barrick’s goal to be a partner to Pakistan for decades to come and to contribute meaningfully to the development of the country’s highly prospective mining sector.

The minister welcomed the Reko Diq project as the type of long-term, employment-creating investment by a leading multinational that the country needs more of and that could help in the reform of the Pakistan and Balochistan economies. ■

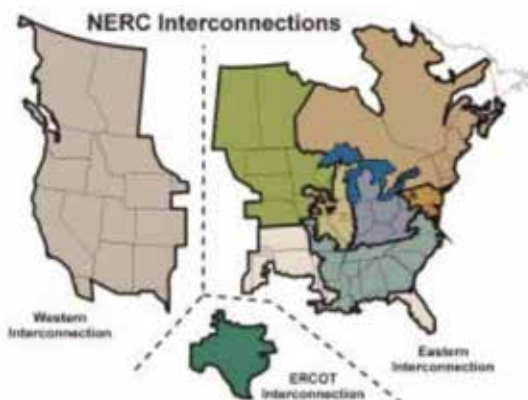
Reliability of regional electricity markets in light of recent and announced fossil generation retirements

by Talina R. Mathews

The national bulk power network, or what some would call the electricity grid, is not a grid but is instead composed of three electrically separate systems. These include the Eastern Interconnection, the Western Interconnection and the Electric Reliability Council of Texas (ERCOT). The system has to be in balance; generation and usage have to be exactly equal at all times within each of the systems or interconnections.

Regional electricity markets

These systems are a series of connected transmission lines that are owned and maintained by electric utilities and the federal government (in the case of federal power authorities, such as Bonneville Power Authority and the Tennessee Valley Authority). These



North American Electric Reliability Council (NERC) interconnections.
(Source: FERC)

transmission lines are designed to move power from the generation source to the local distribution network. It might be helpful to think of transmission assets as federal highways, and the local distribution network as state and local roads. The transmission lines vary in length and differ in the amount of power that can be moved through them.

Historically, transmission lines were constructed by vertically integrated utilities that owned the generation, transmission and distribution system, and had exclusive rights to serve customers in a given area. These wires were designed to move electricity from large central generators

to a utility's ultimate customers. With time, neighboring utilities were connected so that power could flow from one utility to another to serve as back-up in case of an outage. The North American Electric Reliability Council (NERC) established planning and operating standards, but each utility was in control of its own network, under the jurisdiction of the Federal Energy Regulatory Commission (FERC), their state utility commission, and a local power authority or a municipal government, depending upon the structure or governance of each utility.

In the late 1990s, FERC changed this model significantly. The FERC ordered that the transmission system would be opened to nonutilities or independent power producers, often called merchant generators, and that utilities could not favor their own generators in the planning or operation of their transmission system. Independent companies that owned and operated transmission networks also evolved as a result of these changes implemented by FERC, whose goal was to facilitate wholesale electricity markets. FERC has been somewhat successful in reaching that goal in that today much of the electricity generated and used is being sold in some form of a regional market.

These regional markets are operated by a regional transmission operator or independent system operator (RTO/ISO) that covers much of the country and some of Canada, with the exceptions of the Southeast, and most of the Western United States, except for California. In addition to the significant changes in the late 1990s, the Energy Policy Act of 2005 gave FERC, NERC and the RTO/ISOs more control over the transmission system and the wholesale markets (except for ERCOT, because it is not electrically connected to the rest of the country and is therefore not subject to FERC jurisdiction). This legislative action was largely in response to the blackout that occurred in the Eastern United States in the summer of 2003.

There are markets in the non-RTO West that are operated by RTOs on a limited basis, but the utilities have not given up their rights to plan their own transmission system in these areas. Inside the RTO/ISOs, the transmission planning function is no longer done by the utility; rather, centralized planning of retirements, construction

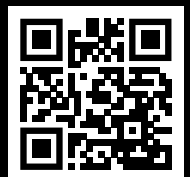
Talina R. Mathews, Ph.D., is chief financial officer, Big Rivers Electric Corp., Henderson, KY. Email: talina.mathews7@gmail.com.

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Regional Electricity markets.
(Source: FERC)

and upgrades of transmission lines is done to facilitate efficient wholesale markets and reliable transmission of the electricity to the consumer. Utilities that are members of RTOs usually give over the dispatch of their resources to the RTO. This gives both an air traffic controller-like aspect to the RTO and a commodity-market aspect. In real time, the RTO directs the flow of electricity, and the price is determined by security-constrained economic dispatch, or the lowest bid power deliverable to a location.

To further complicate matters, about half of the states in the country have restructured their utility regulation and allowed or required their utilities to sell or divest generation and/or transmission assets, thus making their utilities reliant on the wholesale market for the procurement of electricity to serve their customers. These utilities do not serve their customers with their own generation using their own transmission assets. These “restructured” states are primarily in the Northeast, mid-Atlantic and California. The states that have not taken this action remain subject to tighter state regulation of their utilities’ decisions on rates and service, in particular, the state regulators have more oversight in ensuring that their utilities have adequate generation resources to serve their customers.

In addition to concerns about having adequate supply to serve customers, many states and local governments have instituted requirements about how the power is generated to serve their customers. Since power flows are not separable, it is impossible to determine the exact source of power, leading many states to require their utilities to generate or procure percentages of their total demand by nonfossil or noncarbon-emitting sources. Several states have further mandated closure of certain generators. This has resulted in a patchwork of requirements across the country and within multistate wholesale markets. As the U.S. Environmental Protection Agency (EPA) has further restricted the use of fossil fuel-generated electricity via multiple air, water and waste regulations, the amount of predictable generation that is

available on the system has been reduced. These units, fueled by coal, natural gas and oil have been retired because the cost of compliance with the more stringent regulations is prohibitive.

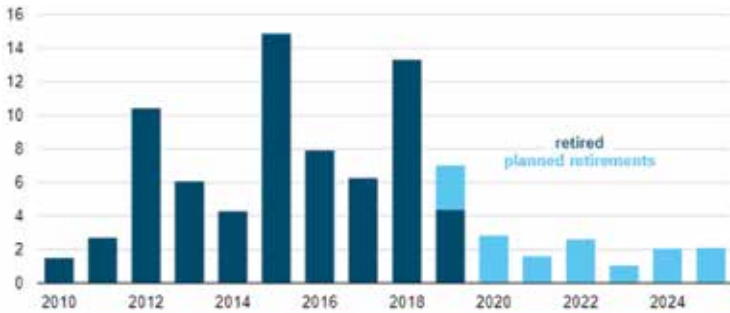
Capacity and energy markets

An outcome of these myriad state and local actions is that the wholesale markets are often being asked to address the adequacy of generation to meet customer needs and also the characteristics of that generation. Given that these characteristics vary state by state, and often municipality by municipality, this at the least creates uncertainty, but even more so, creates market distortions that impact reliability. In some RTOs or regional markets, the question of adequacy of generation is wholly determined by the capacity market. (Capacity markets refer to the amount of generation that is in place and is measured in megawatts, while energy markets refer to the power that is generated by these units and is measured in megawatt-hours.)

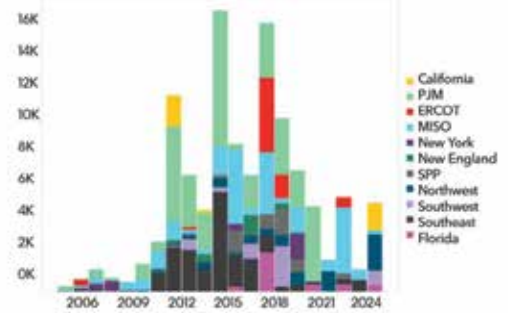
For example, PJM, an RTO that sits in the Midwest and mid-Atlantic regions, consists of a portion of states that have vertically integrated utilities and other states that are more dependent on the wholesale market. Among these are states such as West Virginia with policies that encourage the use of fossil fuels, primarily coal, and states such as New Jersey that have aggressive timelines for the elimination of greenhouse gases from all sources.

The federal government, in addition to the regulation of emissions by the EPA, has financial incentives in the form of production tax credits (PTC) and investment tax credits (ITC) for some forms of generation, primarily solar, wind and electricity storage. The markets, both capacity and energy, set the price and amount of electricity available based upon the lowest bidder. (Markets are monitored to ensure fair bidding practices and to eliminate anticompetitive behavior.)

Energy markets are impacted by the PTC because the resource owner can only collect the tax credit if they generate power. In the case of wind power, the PTC is \$30/MWh, therefore the owner of the generation will bid below zero for certain hours because the collection of the PTC still ensures profitability. (A bid of negative \$27/MWh is worth a positive \$3/MWh.) This is especially true in the Midcontinent Independent System Operator (MISO) and Southwest Power Pool (SPP) markets, which have vast wind resources in states such as Kansas, North Dakota, Iowa and Oklahoma. This impacts the security-constrained economic dispatch, and units that cannot respond by turning off their generation



Total net summer capacity of retired and retiring coal units (2010-2025), in gigawatts. (Source: US Energy Information Administration, EIA)



Historic and planned U.S. coal retirements, in megawatts. (Source: BloombergNEF)

at a minimum make no money; at a maximum they pay to run, as they are facing negative prices.

In a typical competitive market, suppliers respond to low and negative prices by reducing their production. In the electricity energy market, not all suppliers can respond to these price signals. Coal-fired generators can reduce their output to a certain level, but they cannot shut down because there is a lengthy lead time necessary to come back online and provide generation when needed. Nuclear units are also not responsive to price signals because they are incapable of increasing or decreasing output. What are the results of not being able to respond? In states that have remained rate regulated and where the state utility commission retains the ability to set rates, these generators will recoup their costs from consumers, but there may be a delay due to the process of ratemaking. The generators and consumers also do not benefit from the ability to sell excess generation in the market to reduce their costs to serve their customers. In states that have divested their generation, relying on independent power producers that are subject to market forces, there is no ability to recoup costs outside the market. Coal and nuclear plants, especially those that are owned by these independent power producers, have closed because of lack of profitability.

In RTOs that have a capacity market, generators are paid to be available and ready to generate energy when the RTO dispatches their resource. The RTO determines the amount of resources needed by forecasting demand (load) and runs a market to find generation resources

to meet that load plus an additional amount in case of high demand or generator unavailability (known as a reserve margin). This interaction of supply and demand sets a capacity price for the generation. In cases where there is no capacity market, the RTO requires utilities that have the obligation to serve customers to have capacity, either by owning generation or by contractual arrangement, to meet their expected demand plus the reserve margin. Investment tax credits reduced the cost to construct generation and these generators bid their capacity into the market based upon this lower cost to receive the tax credits. This resulted in some existing, more expensive traditional generators (primarily coal and nuclear generators) not

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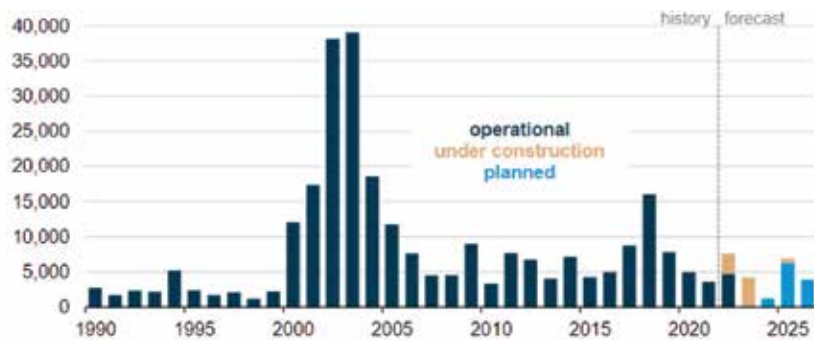
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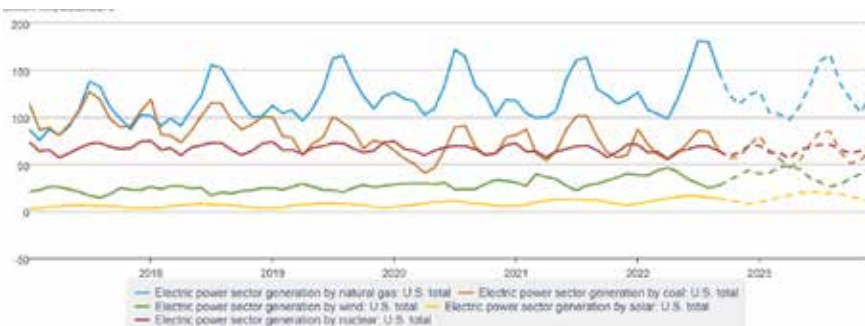
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U.S. annual capacity additions from combined-cycle natural-gas turbine plants (1990-2026), in megawatts. (Source: EIA)



Electric power generation in the United States (2017–2023), estimated, in billion kWh. (Source: EIA)

new units under construction in the United States for decades. These units at Georgia Power Co.'s Plant Vogtle are expected to open in 2023/24.

There has been a marked increase in the amount of renewable capacity being built and proposed in the United States, driven in part by renewable requirements imposed by states, concerns about greenhouse gas emissions, and ITCs and PTCs, but also technological innovations that have reduced the price and increased the efficiency of renewable resources. Other than hydro and storage, these renewable generators are not predictable, and other than storage, these resources are not responsive to energy prices. Wind and solar are referred to as intermittent resources or nondispatchable resources. Because the supply and demand of electricity must be exactly equal at all times in each of the three interconnections, the lack of predictability and responsiveness creates concern, especially in the regions where power is dispatched according to market signals.

Both vertically integrated utilities and independent power producers have turned to natural-gas combined-cycle (NGCC) generators to replace retiring generation. Advantages such as historically low natural-gas prices, lower emissions, lower construction costs, a shorter construction period, predictability and the ability to respond to price signals in the energy markets have led to a significant increase in NGCC plants in the United States since 2000. According to the EIA, natural-gas-fired generators represented 24 percent of U.S. generating capacity and 32 percent of electricity generated in 2021, surpassing both coal and nuclear.

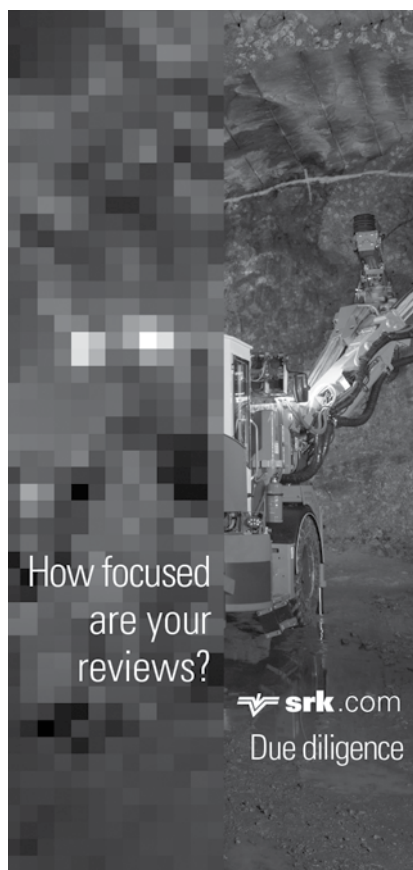
With the increase in natural-gas generation, there are concerns about the volatility of natural-gas prices. Natural-gas prices have historically been more volatile and higher than coal prices for electricity generation.

This price volatility and higher cost of natural gas is exacerbated by the expansion of liquefied natural gas (LNG) facilities to export U.S. natural gas to other countries. According to the EIA, U.S. exports of LNG averaged 11.2 billion cu ft per day (Bcf/d) during the first six months of 2022. By comparison, the consumption of natural gas by the electric power sector is expected to reach 32.1 Bcf/d in the same period. EIA predicts that for 2023, production of natural gas will be approximately 100 Bcf/d. Prices are

being competitive with the generation subsidized by the ITC and thereby closing. By the end of 2021, approximately 5,000 MW of nuclear generating capacity had closed. In reports published Nov. 7, 2022, by the Energy Information Administration (EIA), a wave of retirements for U.S. coal-fired power plants continues, with almost a quarter of the nation's remaining facilities potentially shuttered by the end of 2029.

Replacement generation

What generation has been built to replace these retiring generators? Because of the EPA emissions limits, coal-fired generation with today's technology would be nearly impossible to build. The cost of nuclear power plants coupled with the extremely long lead time necessary for a license has led to only two



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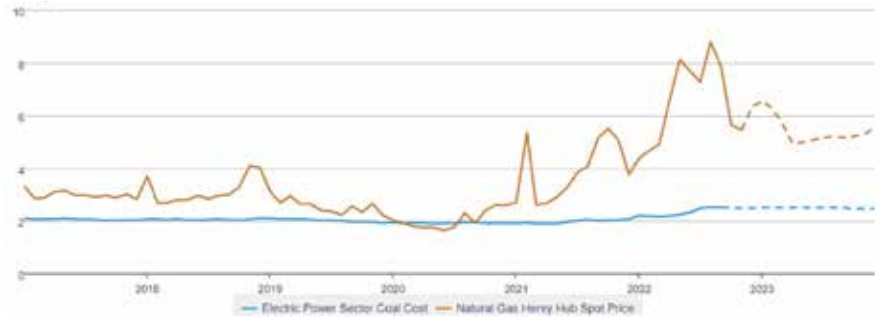
not expected to reach the levels seen in 2020 of less than \$2/MMBtu. With the increase in installed electricity generation, this increase in demand, flattened production increase leads to increased volatility and higher prices of wholesale electricity in regional energy markets.

Natural-gas production and delivery is dependent upon the interstate pipeline system and is vulnerable to interruptions such as those caused by severe weather and by cyber and physical attacks. Also, hurricanes are prolific in the natural-gas-producing Gulf of Mexico. In February 2021, the winter storm Yuri highlighted the lack of weatherization of NGCC plants and the natural-gas delivery system in the traditionally warmer regions of the United States. With Yuri, this combination proved deadly and costly. NGCC units unprepared for the extreme temperatures failed in large numbers, and the natural-gas fuel supply struggled to meet residential heating demands and the demand for natural-gas for electricity generation. Many generators did not have firm contracts for natural-gas delivery from the pipelines, instead having interruptible contracts. During this event, ERCOT averaged 34,000 MW of generation outages. SPP and MISO South averaged 20,000 MW and 14,500 MW of unavailable generation, respectively. Prices for natural gas and electricity soared and consumers that were exposed to market prices paid exorbitant prices for both.

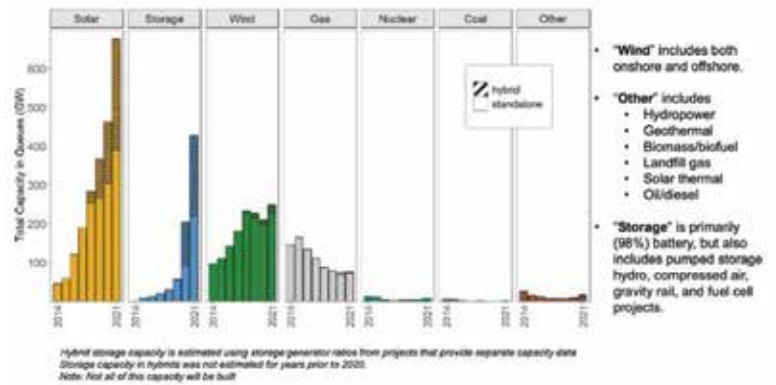
Complicating the replacement of retiring coal and nuclear plants is the fact that RTO/ISOs perform impact analyses before new generation can be built to determine if new transmission equipment or upgrades may be needed. This process also estimates the cost of any necessary upgrades and requires that the generator seeking to interconnect to the transmission system be assigned the costs of that equipment. Each RTO/ISO has a list of these projects that have studies in process known as "interconnection queues." The amount of new electric capacity in these queues is growing dramatically, with more than 1,400 GW of total generation and storage capacity now seeking connection. This means that as generators are retiring in regional markets, there is a delay in building and interconnecting new generators to replace them. This is true for all categories of generators, both dispatchable and intermittent.

Conclusion

The combination of coal and nuclear plant retirements, along with delays associated with



Prices of coal and natural gas in the United States (2017-2023), estimated, in \$/MMBtu. (Source: EIA)



Interconnection queue totals by resource type, 2014–2021. (Source: Berkeley Lab)

the RTO/ISO interconnection queue, supply chain concerns, as well as increased reliance on intermittent or variable generation and the dependence on natural gas as fuel for electricity generation has created challenges with the reliability of the wholesale electricity markets. It has also shown increased prices and volatility in these markets.

The electricity transmission system and wholesale markets will struggle to maintain affordability and ensure reliability. The lack of coordination of retirements of coal and nuclear plants and their reliable, predictable and dispatchable replacements will lead to increased strain on the system. To date, processes have been in place to prevent widescale failures of the grid because the RTOs/ISOs and utilities have shed load to balance available supply and demand in times of stress, but this is an imperfect tool and one not without cost. While price caps are in place in most electricity markets, the generators will still face increased costs of natural gas, and those costs will result in more retirements and bankruptcies, further reducing generation resources.

(Note: The comments contained do not reflect the views of the Big Rivers Electric Corp. but are those of the author alone.) ■

Improving mine health and safety training through the development of Montana Technological University's mine health and safety training program

by Robert A. Hogan, Paul W. Conrad, Julie Hart and Scott Rosenthal

The Mining Engineering Department at Montana Technological University (Montana Tech) has a new U.S. Mine Safety and Health Administration (MSHA)-approved program for Part 46 and Part 48 of mine health and safety training. The training program will use the facilities and faculty from Montana Tech's Mining Engineering Department and Safety, Health and Industrial Hygiene (SHIH) Department to provide superior mine health and safety training to the mining industry. The faculty of each department includes professionals with experience in safety training and the mining industry. The training program incorporates adult learning techniques and extensive hands-on activities in all training modules. Instruction will exceed MSHA requirements. The resources available on Montana Tech's campus will be used to strengthen the training program, providing the mining industry with a world-class mine health and safety training program.

Introduction

The challenge of having meaningful MSHA-approved training that successfully educates and captivates miners while instilling a sustainable safety mindset into the workforce is one many industry professionals can relate to as mandatory training, and is often viewed as a "necessary

evil" by management and workers. New-hire training programs are tasked with teaching mandatory training topics while educating new miners on mining equipment, systems and procedures that are completely foreign compared to their past experiences. Changes in technology, generational dynamics and urbanization all contribute to the challenges faced by miner training programs.

The Montana Tech MSHA-approved training program combines small class size,

frequent hands-on activities and the resources and experiences of the campus and faculty to overcome many of the training challenges faced by the mining industry today. This new program provides training modules for new hire, experienced miner and annual refresher training for 30 CFR Part 46 and Part 48 training plans. The program also offers elective training modules for clients seeking more advanced training for their workforces. These elective training modules will challenge miners while building upon the miners experience and the safety values learned in other training modules.

Literature search

There exists a plethora of resources available for those seeking information on miner training requirements and the best methods of instruction for training miners. This review focuses on the standards set forth in 30 CFR, which are the standards by which MSHA approves and enforces miner training.

Readers are encouraged to consider the information presented and complete independent research to formulate their own opinion on the best training methods for their organization.

Mine operators using 30 CFR Part 46 training plans enjoy a more flexible new-hire training schedule as compared with 30 CFR Part 48 training plans, given new miner training may be completed over a 90-day timeframe, so long as the new employee receives four hours of initial training plus the required site-specific and hazard training (30 CFR Part 46, 2020).

Training timeframes are more stringent under 30 CFR Part 48, which requires all new hires receive the entirety of the 40-hour new-miner training before beginning work. Experienced miners covered under 30 CFR Part 48 must receive a minimum of eight hours of retraining plus site-specific and hazard training before beginning work. New-miner and experienced-miner training cannot be disseminated under Part 48 training plans (40 CFR Part 48, 2020).

The Montana Tech mine health and safety

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Figure 1

Montana Tech Safety, Health and Industrial Hygiene (SHIH) Department's Safety Laboratory.



Figure 2

Montana Tech SHIH Department's Safety Laboratory, mezzanine.



Figure 3

Montana Tech SHIH Department's Safety Laboratory.



training program includes Part 46 and Part 48 training plans for all mining operations including coal. All training will be completed in mass; disseminated or periodic training packages will not be offered.

The Montana Tech training program will use adult learning theory. Such theory, as it is known today, is rooted in the work of Malcolm Knowles, who first introduced the concept of andragogy, which is the practice of teaching adults (Fairbanks, 2022). Adult learning theory builds upon the life experiences of the students and directs them to apply new knowledge to solve the challenges that they face in life and in the workplace. Taking the initiative to solve problems, fostering a desire to learn and encouraging their desire to learn are also fundamentals of adult learning.

Making full use of the students' experiences will be beneficial for the training program and for the students.

The Montana Tech mine health and safety training program will integrate transformative learning techniques, developed by sociologist Jack Mezirow (Bouchrika, 2002). Transformative learning theory identifies how learning can alter an individual's view of themselves and the world around them. Transformative learning will result in the students questioning many of their perspectives while encouraging critical thinking. Adult learning techniques will be applied, thereby instilling core safety values into the miners and helping them establish and sustain a safe work culture at their operation.

The National Mining Association's CORESafety Handbook identifies the importance of education, which it defines as knowledge and training. Training is defined as knowing how to apply knowledge and to instill competence into the workforce (NMA, 2022). Three necessities identified by the CORESafety Handbook for training and competence are verification, training needs assessment and quality of instruction. Verification is completed by having the students demonstrate their ability to use their new knowledge or skills. Training needs assessment is a process to determine the extent of knowledge and/or skills that should be learned. Quality of instruction is specifically identified as training that uses adult learning methods while emphasizing the quality of instruction. The Montana Tech mine health and safety training program will follow these guidelines with frequent class exercises and direct training, exceeding the MSHA training standards, and providing the highest-quality instruction from MSHA-certified instructors with industry experience.

The CORESafety Handbook also identifies the need for excellent emergency management. It lists the key attributes of emergency management as emergency prevention, planning, emergency resources, training, coordination and communication and recovery (NMA, 2022). The Montana Tech program includes general training

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Figure 4

Montana Tech's Underground Mine Education Center (UMEC), material storage area.



on emergency action plans. Training modules can be adapted to educate the miners on the specifics of their employer's emergency action plans and mine evacuation procedures. New-miner training will include the presentation and discussion of historic mine emergencies and why it is essential for miners to remain calm and follow their company's emergency response plans during all mine emergencies.

Advantages

The Montana Tech mine health and safety training program incorporates adult learning and transformational teaching techniques that have proven successful for nontraditional students. The program is designed to instill knowledge while securing the attention of students, resulting in a high level of knowledge retention. Microsoft PowerPoint is used to present the material; however, the program incorporates hands-on activities into most modules of training. Class participants will engage in a variety of hands-on activities, thereby keeping the students engaged in discussion and class activities while encouraging them to ask questions, all of which requires students to repeatedly think, act and speak on the material.

The training program also stresses class interaction. Students will be required to participate through oral discussion and daily questionnaires. The questionnaires will test their knowledge of the topics discussed each day to determine to what extent their knowledge and understanding of each topic has improved after the day's lectures and activities. The instructors will use the results of the questionnaires to gauge student progress and program success while simultaneously directing continuous improvement.

Hands-on training is one of the cornerstones

of the program. Thirteen of the 18 training modules in the new-miner training program include hands-on activities. Examples of hands-on training activities include field exercises requiring students to identify hazards in a simulated workplace, use of a mine phone system to communicate messages to other students, first aid and cardiopulmonary resuscitation (CPR) training, mine evacuation, and the proper selection, fit, storage, use and inspection of fall protection equipment.

Montana Tech has partnered with Yoy Simulators to provide students with the ability to use a virtual-reality system to complete preoperational inspections of mining equipment, use fire extinguishers to combat virtual fires, and complete other safety-related virtual-reality training programs. The introduction of virtual-reality training will augment the extensive capability of the facilities available on the Montana Tech campus and bolster the training programs capabilities. Montana Tech's Underground Mine Education Center (UMEC) will also be used to give students first-aid and rescue experience in simulated real-world mining accidents.

The maximum class size of the Montana Tech training program will be 15 students. This is a far smaller class size than many training class size examples in industry or other mine health and safety training programs. The value gained from the smaller class size was derived from the authors' professional experience, from the experience of Montana Tech instructors, and from the recommendation of mining professionals. A class of no more than 15 students will allow for frequent student participation in a reasonable timeframe for each training module.

It is anticipated that some students will be reluctant to speak in front of the class. These students' fears or reservations with public speaking will be mitigated due to the smaller number of students and the establishment of a friendly and informal class atmosphere.

Smaller class sizes also facilitate activities, require less equipment and allow instructors to allocate sufficient time to assist each student. Student assistance with, and participation in, impromptu demonstrations will also be possible due to the smaller class size. Finally, the smaller number of students will allow every student to actively participate in each of the numerous class exercises, most of which will occur outside of the classroom.

Another significant benefit of the Montana Tech training program is the abundant resources available on campus. Classes will

Figure 5

Montana Tech's UMEC, secondary escapeway.



take place in classrooms with the latest audio, video and computer equipment while most class activities will occur on campus using the resources available therein. These resources currently include the SHIH Department's Safety Laboratory, where students may witness a demonstration of the effects of unintended falls in the workplace while also learning how to properly select, wear, use, store and inspect fall protection equipment (Figs. 1–3).

Students will venture into the UMEC to see various ground control methods and participate in an underground mine evacuation exercise (Figs. 4–6). Returning to the surface, students will participate in emergency action drills simulating injuries to miners, they will seek out hazards in the UMEC shop (Fig. 7), and they will use the Yoy virtual-reality simulator to complete preoperational inspections of mine equipment and fight virtual fires with handheld fire extinguishers. Certified instructors will also provide CPR and first-aid training. Every training module will integrate some type of class exercise or hands-on training activity. All training will be located on the Montana Tech campus.

The Mining Engineering Department at Montana Tech is the only mining engineering department in the United States that has an underground mine on campus. The UMEC was created thanks to a land gift from BP/ARCO in 2010 (Knudsen and Rosenthal, 2018). The land donation included two Anaconda mine sites, the Orphan Boy and the Orphan Girl, which were operating underground mines until 1956. Construction of a new decline began in April 2012 and by November that year the decline was more than 213 m (700 ft) in length and had reached the shaft of the Orphan Boy mine. Shaft stabilization and rehabilitation work was completed shortly thereafter. Ventilation is provided by a 50-hp reversible fan. Communication is provided by a mine phone system to the surface, a phone capable of dialing off campus and Wi-Fi connectivity.

Additional development of the UMEC occurred when a drive more than 152 m (500 ft) in length was driven connecting the 30-m (100-ft) levels of the UMEC (Orphan Boy) to the neighboring Orphan Girl, which is now a centerpiece of the World Museum of Mining. The UMEC expands every year as students in the Mining Engineering Department work to improve the facility. The UMEC is just one example of the excellent resources on the Montana Tech campus that will serve to support the mine health and safety training program.

In 2018 Montana Tech completed an extensive expansion of the then-titled

Engineering Learning Classroom Building, which is now called the Natural Resource Research Center (NRRC) (Hart, 2002). The SHIH Department's Safety Laboratory occupies a significant portion of the NRRC building. This laboratory contains multiple assets that can be used by the mine health and safety training program. These include a mezzanine that can be used to demonstrate handrail design, portable ladder safety, fixed ladder safety, fall protection and fall arrest techniques and systems. The SHIH Department's Safety Laboratory can effectively demonstrate proper lock out, tag out, test out (LOTOTO) and confined-space entry. The laboratory possesses the latest audio and video equipment and contains adequate space for the classroom portions of the training program. Despite normally being used to address the requirements of the Occupational Safety and Health Administration (OSHA), the laboratory can easily be adapted to instruct and demonstrate MSHA requirements. The SHIH Department's Safety Laboratory will be an integral component of the mine health and safety training program.

The experience of the instructors will be beneficial to all students and mine operators who use the Montana Tech mine health and safety training program. The program builds upon the MSHA requirements through the experience of the creator, the experience of the instructors in Montana Tech's Mining Engineering Department and SHIH Department, and upon the experiences of industry professionals who have managed surface and underground mine operations. Simply stated, there is no substitute for experience. The MSHA-certified instructors will present the material and emphasize the hazards students will face in the mining workplace. The training program is designed to be presented by multiple instructors, allowing

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Figure 6

Montana Tech's UMEC, entrance to electrical and information technology area.



each instructor to present the topics in which they are most experienced. As a result, the students will have various instructors fostering a more diverse instructor profile. Each instructor will follow the outlines and lesson plans created while stressing real-world concepts learned through their own experience in industry.

The elective training modules are another attribute that makes the Montana Tech program unique and better than other training programs currently available. These modules will give mine operators the ability to have their employees attain a higher standard of training. The electives consist of four separate training modules that build upon skills learned in new-miner, experienced-miner and annual refresher training.

One elective module is an eight-hour CPR and first-aid training module that will be taught by a certified instructor. This will allow mine operators to have employees complete experienced-miner and annual refresher training one day with subsequent CPR and first-aid training on a second day. Operators would therefore be able to have all miners currently trained in first aid and CPR.

The second elective training module is a four-hour program that will simulate a mine accident and require the class to administer first aid to the injured miner, then transport the injured miner to a safe location. This elective training can occur underground in the UMEC or on the surface, depending upon the mine operator's needs.

The third elective training module will simulate an underground mine fire requiring the class to erect barricades, check for hazardous gasses and evacuate the underground mine.

The fourth elective training module will be an on-site tour of an operating mine neighboring the Montana Tech campus. The primary purpose of the tour will be to familiarize miners with modern mining techniques so they may better grasp the scope of modern mining operations. This module is best suited for new miners who are not familiar with modern mining operations.

The elective training modules are not mine rescue training, but they go beyond the training requirements set forth by MSHA. Elective training modules will be optional and may be tailored to the specific needs of the mine operator. Additional elective training modules may be added to the program in the future to best meet the needs of participating mine operators.

There exist numerous reasons the mining industry will benefit from the Montana Tech mine health and safety training program. The mining industry faces a plethora of challenges when balancing professional staffing requirements, the need for MSHA training, new-employee onboarding and operational needs. The Montana Tech program will provide an excellent and up-to-date MSHA training program exceeding the requirements set forth in the 30 CFR training and retraining of miners. Mining companies will quickly realize the advantages of using the program for their health and safety training needs. Health and safety managers of mining companies who use the Montana Tech training program will have more time to focus on site compliance and inspections because they will be spending less time conducting employee training. Hiring managers will appreciate the flexible schedule of the training program, as students from multiple mining companies could be trained together, facilitating their rapid entry into the mining workforce. Once mining companies begin using these training services, they will come to rely upon the program for their mine health and safety training needs.

Future recommendations

The mining industry is one of constant change. The changes in best practices, mining equipment, MSHA regulations and technology must be reflected in mine health and safety training programs. Montana Tech will continue its close collaborative relationships with various companies in the mining industry to understand industry training needs. This collaboration will encourage discussion and knowledge transfer among all parties while ensuring the material

Figure 7

Montana Tech's UMEC, surface shop.



presented is up to date on all topics. Inadequate or outdated training has resulted in disaster far too many times, and therefore it should remain an ever-present goal of trainers to provide the most accurate and up-to-date training possible.

MSHA has many resources that the Montana Tech mine health and safety training program can use. It is also recommended that trainers form a professional working relationship with MSHA to foster discussions on how MSHA training can be improved to best meet the needs of all members of the mining industry. As technology continues to evolve, MSHA and Montana Tech can work together to improve mine safety training. Such collaboration will positively impact the industry, MSHA, Montana Tech and, most importantly, miners.

Technological improvements in training aids and virtual-reality (VR) systems will play a significant role in the Montana Tech program. The use of VR allows exposure to everyday mining activities such as preoperational inspections and workplace examinations of various types of equipment in different mining environments. The real-time data capabilities and interaction of VR systems will allow the instructor to critique students' actions while providing guidance on how to improve. VR systems may allow the program to expand in the future by providing training on specific models of equipment or in unique mining environments. Finally, the use of VR can be tailored to facilitate training of more serious emergencies in the safety of the classroom at much lower cost and lower risk as compared to on-site training. Use of VR and other technology-based simulators will be a component of the Montana Tech training program.

Once the Montana Tech program is well established it would be beneficial to the school and the mining industry to expand the services provided and begin a miner training program as well as a mine rescue training program. Throughout the nation, the mining industry struggles to hire individuals with adequate training and/or previous mining experience. The creation of miner training and mine rescue training programs are possible given Montana Tech's on-campus facilities, industry and MSHA partnerships, experiences of the faculty and the need for qualified miners and mine rescue team members. The creation of such programs would be a tremendous asset to the mining industry. New miners could attend Montana Tech's world class mine health and safety training program with follow-on miner training instilling skills and abilities few new hires currently possess. It is the sincere hope of the authors that such training

courses will be available within the next few years.

Summary

The Montana Tech mine health and safety training program will provide the mining industry with a world-class training program offering new-miner, experienced-miner, annual refresher and elective training for miners working in all sectors of the mining industry. The program will use the extensive facilities on the Montana Tech campus including classrooms, the UMEC and SHIH Safety Laboratory. Professional instructors will facilitate frequent discussion while guiding miners through an array of hands-on activities, thereby giving miners the best possible training available while ensuring high knowledge retention. Mining companies will come to rely on the professional training standards created and sustained by the Montana Tech mine health and safety training program. ■

References

- 30 CFR Part 46 (2020). In MSHA, 30 CFR Metal and Nonmetal Edition (pp. 224-232). Prince UT: Mine Safety Associates.
- 30 CFR Part 48 (2020). In MSHA, 30 CFR Metal and Nonmetal Edition (pp. 240 – 260). Price UT: Mine Safety Associates.
- Fairbanks, Brian (2022, August 27). 7 Adult learning theories and principles to enhance your education. Retrieved from University of Phoenix: https://www.phoenix.edu/blog/adult-learning-theories-principles.html?_tt=6023996f-81f0-46ce-88ed-09cd175a87b2
- Bouchrika, Imed. (2002, August 27). Adult Learning Theory: Methods and Techniques of Teaching Adults. Retrieved from Research.com: <https://research.com/education/adult-learning-theory>
- National Mining Association. (2022, August 27). National Mining Association. Retrieved from CORESafety Handbook: <https://coresafety.org/wp-content/uploads/2021/08/CORESafety-Handbook-2021-V3.pdf>
- Knudsen, P. & Rosenthal, S. (2018). Montana Tech's Underground Mine Education Center. *Mining Engineering*, 1-6.
- Hart, Julie. (2002, August 26). SHIH Safety Laboratory. Butte, Montana, United States.

Environment, automation and new mining projects are topics covered in Arizona Conference

by Nancy Profera, Associate Editor

The SME Arizona Conference is a gathering that brings together new and seasoned mining professionals to share the latest in industry efforts in the Southwest. It was held Dec. 4-5 in Tucson, AZ at the JW Marriott Tucson Starr Pass Resort & Spa, a resort in a picturesque location, nestled in hills lined with saguaro cacti. These quiet giants are native only to that part of the world and are a defining plant

that weekend, but they did not deter the 515 attendees who made it to the conference. The total attendance number is greater than prepandemic numbers for the event.

The SME Arizona Conference is designed as a forum for professional development in the mining industry. On the first day, long-time employees of the mining industry gathered for a National Institute for Occupational Safety and Health (NIOSH) workshop to create a framework for discussions over the next two years as SME begins work on a newly awarded two-year, approximately \$430,000 contract from the Centers for Disease Control and Prevention (CDC)/NIOSH to study and make recommendations on eliminating barriers for the implementation of automation in the mining industry. The day also featured a workshop on developing diversity and inclusion in mining, the board of directors meeting, and an AMIGOS mining industry casino night.

The opening keynote speaker on the second day was Kate Sommerville, general manager at BHP Legacy Assets with a talk on “Let’s Reimagine our Legacy in Mining.” She shared insights and case studies from BHP’s portfolio, comparing short- and long-term closure activity, and showcasing aspects of closing a mine and the importance of integrating these functions to include technical closure, water, social closure, stakeholder management, innovation, climate change, operational integration and change. Sommerville has responsibility for 24 closed mines across the United States and Canada, including 108 dams in 24 different facilities.

The distinguished lecturer and luncheon speaker was Steve Holmes, chief operating officer of First Majestic Silver Corp. and president of the SME Foundation. Holmes talk on “Mining in Mexico — the Good, the Bad and



Top: Sunrise after weekend storms passed through Tucson.

Right: Saguaro cacti line the hills around the resort in Tucson Mountain Park. Some conference attendees joined in a guided hike of the park.



of the Sonoran Desert that can grow to 12 m (40 ft) tall and have lifespans often exceeding 150 years.

Rain, fog and overcast desert skies were unusual features of the weather for Tucson

the Complicated” centered on his experiences working in Mexico with First Majestic, a mid-tier Canadian gold and silver miner with seven operations in Mexico and one in Nevada. While there are many similarities in mining in the two jurisdictions, there are also stark differences between conducting business in Mexico, Canada and the United States. Holmes discussed them, including differences in regulatory, legal, workforce and security issues. He also stressed the importance of learning about and understanding the local community, business practices and norms as well as government requirements and the social license to operate.

Technical talks

Trika Graham of Freeport-McMoRan Inc. was the technical program chair, and CGG, a global technology and high-performance computing leader that provides data, products, services and solutions in Earth science, data science, sensing and monitoring was the overall conference sponsor.

Gabriel Castillo of Ausenco Engineering gave a presentation on mine closure planning with “The Social-Ecological System in the Climate Risk Assessment: Considerations for Mine Closure Design.” Beyond awareness of the mine site effects, Castillo explained that it is critical to consider the climate hazards, vulnerabilities and exposures within a social-ecological system to integrate human and ecosystem components at the scale of the watershed surrounding an operation. He explained the necessity of considering climate change and how extreme climate events may affect mine sites, including potential forest fires, floods, run-off from mines into rivers and how that affects fish and local fishing communities, especially as habitats shift in an attempt to deal with climate change. “Mine closure planning requires understanding the potential impacts of extreme events for different future scenarios,” said Castillo.

Doug Anderson of Arcadis chaired the environmental session with presentations and discussions on topics including climate risk assessments, remediation of the former ASARCO smelter site in El Paso, TX and mine waste reclamation. A panel discussion centered on the current status of the law related to waterways in the United States. Michelle



Top: Doug Anderson of Arcadis chaired the environmental talks and a panel discussion on legal issues surrounding waterways in the United States.



Center: Conference attendees listen to legal scholars share some of the history around changing laws regarding waterways in the United States.

DeBlasi, a Phoenix-area environmental, natural resources and energy attorney led the panel discussion and gave a summary of the long history of protecting U.S. waterways, and the back and forth of related laws

that change with different U.S. administrations. In a nutshell, the panelists suggested following whatever the current status of the law is when establishing policy regarding water and mines.

Additional technical tracks included geotechnical, chaired by Brad Ross, University of Arizona; mineral processing, chaired by Amado Guzman, HydroGeoSense Inc.; mining, chaired by David McLane, Burns & McDonnell; Mexico, chaired by Alejandro Diaz, Ausenco Engineering; geology, chaired by Joshua Cobb, Freeport-McMoRan and new projects, chaired by Brittany Meucci, Langan Engineering & Environmental Sciences. ■



Bottom: Katie Elizabeth Slaughter, SME student chapter president in the Mines and Metallurgy Building of the University of Arizona.

Academic-career and Ph.D. grant recipients share roads to success and future plans

by Nancy Profera, Associate Editor



The University of Arizona campus. SME implemented these grant programs to address long-term challenges in academia for mining and minerals processing/extractive metallurgy.

The SME Academic Career Development Grant and Ph.D. Fellowship Grant programs were established in 2015 by the SME Foundation and the SME Board of Directors. The programs are designed to provide grants to assist new faculty to achieve tenure and promotion, and as graduate fellowships for Ph.D. students who are committed to pursuing academic careers in the mining and minerals field. SME implemented these programs to address the long-term challenges that threaten the sustainability of U.S. mining as well as mineral processing and extractive metallurgy academic degree-granting programs, as well as the looming future labor deficiencies associated with retirements over the next two decades.

The Academic Career Development Grant is intended to provide newly employed, nontenured assistant or associate professors with the financial support needed to better participate in activities such as research, publication and professional service that are necessary to achieve tenure and promotion. To download guidelines and for more information, visit www.smenet.org/Professional-Development/Academic-Career-Development-Program.

The Ph.D. Fellowship Grant is available to qualified candidates with professional experience and a desire to pursue an academic career, who have the means of acquiring a doctoral degree in the field of mining or extractive metallurgy/mineral processing at a U.S. accredited university. To download guidelines and for more information, visit www.smenet.org/Professional-Development/PhD-Fellowship-Program.

Grant recipients

Since 2017, the academic-career development grant award has been named the Freeport-McMoRan, Inc. Career Development Grant. The

2022 recipients are Angelina Anani, associate professor with the Department of Mining and Geological Engineering at the University of Arizona and Taghi Sherizadeh from Missouri University of Science and Technology.

Three candidates are awarded the 2022 Shoemaker Ph.D. Fellowship Grant: Lynette Hutson of the University of Arizona, Amy McBryer of South Dakota School of Mines and Elham Rahimi of Pennsylvania State University.

The following are excerpts from interviews *Mining Engineering* conducted with the grant recipients:

Angelina Anani

University of Arizona, 2022 Freeport-McMoRan, Inc. Career Development Grant

ME: How has the grant helped your career?

Anani: It will support activities such as research, publications, teaching and professional service — all necessary to achieve tenure and promotion.

ME: What are your plans for the future?

Anani: I hope to help develop technologies that contribute to sustainable and zero-entry mining in the future. I pursued mining because it gave me the opportunity to make a difference in the lives of others by providing resources that are essential to human survival.

ME: What are your areas of research?

Anani: My research areas are in mine planning, production schedule optimization, immersive analytics, automation, mine sustainability and safety.

ME: What do you teach?

Anani: I teach surface mine planning and design, underground mine design, and a course on the application of discrete event simulation in mining. I am also developing new courses.

ME: What is unique or special about the program at your university?

Anani: Unlike other engineering fields, the



Angelina Anani

uncertainties in mining make it challenging and intriguing. The mining program at the University of Arizona is unique because it offers students the opportunity to learn directly from the field, and provides learning opportunities in other fields through the new school of mining and mineral resources.

Taghi Sherizadeh

*Missouri University of Science & Technology, 2022
Freeport-McMoRan, Inc. Career Development Grant*

ME: What drew you to the field of mining? What kind of work do you do and hope to do in the future?

Sherizadeh: My hometown has many views of exposed rock and mountains in the distance, and I have many memories from an early age of examining rock outcrops in the fields there. I have always found mining and tunneling fascinating, and as an adventure to further explore new rocks and new places that no one has ever seen before. That's



Taghi Sherizadeh

what started my career in mining and geomechanics. Currently, I'm focusing on geomechanical modeling and working to develop new ways to monitor rock mass during the mining process. In the future, I aim to study rock mass on a deeper, more fundamental level through the development of new constitutive models and an enhanced ability to measure rock mass in the field.

ME: What do you teach?

Sherizadeh: I teach several courses, for undergraduate students (surveying and rock mechanics) as well as for graduate students (computational geomechanics). In addition, I work side by side with my students on their research projects and mentor them. My aim in any teaching is not to give away the answer too quickly; sometimes the best learning happens when we struggle.

ME: What has surprised you about mining? What is something new that you are learning about that has intrigued you?

Sherizadeh: I've always been surprised by the people in mining and how much pride they take in their work. When I have a chance to visit a new mine site and meet the people there, they

usually share a story about what makes their mine different from the rest. Maybe it is a unique ground condition, a problem area, or a checkered mining history, but there is always something new. What I've learned is that no two mines are the same, and each project may require some unique solution that hasn't been thought of before.

ME: What is unique or special about the study program at your university?

Sherizadeh: Missouri S&T is a great place for research. We take special care to ensure that students from all levels are involved in our ongoing research projects. I like to expose students to new topics and allow them to discover what their interests are for themselves. Students at Missouri S&T are engaged and enthusiastic, and the industry takes notice.

Lynnette Leila Hutson

*University of Arizona, 2022 Shoemaker Ph.D.
Fellowship Grant*

ME: What drew you to the field of mining? What kind of work do you do and hope to do in the future?

Hutson: I initially started working in the industry after pursuing a master's of geoscience degree at the University of Arizona. It was the start of a mining super cycle and a great time to enter the industry because there were so many job opportunities. I knew just enough about economic geology to know it was a really interesting subfield of geology.

My work now relates to data analytics and mining, with a focus on developing tools that can assist with the long-term strategic decisions companies face. This can involve either the technical or business aspects of a mine. For my current research, I am working on a geometallurgy data mining project at a large copper porphyry operation.

In the future I hope to be able to give back by teaching

students in mining-related fields to understand the mining operation as an integrated system, and to give them solid technical skills, including how to use and interact with big data in a way that is practical and drives results.

ME: When do



Lynnette Leila Hutson

Academic Career/Ph.D. Fellowship Grants

you expect to complete your Ph.D. and what is the focus of your dissertation?

Hutson: My main area of research is a geometallurgy data mining project, and I am working with staff at a large copper porphyry deposit. The idea is that by linking the available data on the geologic characteristics of the ore to the eventual processing outcomes, we can investigate the performance of the operation in more detail than was previously possible. This will in turn lead to other opportunities for further investigation, experimentation and performance optimization, although much of that follow-up work may be out of scope for my own dissertation. I expect to complete it in May 2024.

ME: What has surprised you during your studies? What is something new that you are learning about that has intrigued you?

Hutson: This is the first chance I have had to really learn metallurgy in any degree of detail. It is great to know more about the specific chemical processes involved rather than just being aware of the production metrics associated with the plant, for example. It is another layer of depth to my understanding.

ME: What is unique or special about the study program at your university?

Hutson: One of the great things about the University of Arizona is the quality of faculty across a number of departments and colleges and the range of mining-related options available. There are several environmental and sustainability-related majors, for example, that smaller schools may not offer. Another example is that some of the mining and geoscience faculty have research collaborations with professors in the anthropology department, which I think is really cool. I am working on a minor in management information systems for my own research. I think this breadth is one of the key aspects that the new School of Mining and Mineral Resources is able to build on, and that work is exciting as well.

Amy McBrayer

South Dakota School of Mines, 2022 Stantec/McIntosh Ph.D. Fellowship Grant

ME: What drew you to the field of mining? What kind of work do you do and hope to do in future?

McBrayer: I was drawn to mining in high school after completing a report on the field of mining engineering. I was attracted by the diverse opportunities for mining engineers in the United States and abroad. I initially was interested in reclamation and remediation but found a passion for mine design and planning, as well as operations management, through internships

during my undergraduate years. Prior to returning to academia, I gained experience in engineering, logistics and operations management. This led to my interest in mine planning and production scheduling optimization and has fueled my research. I hope to continue developing scheduling tools for the industry, publish journal articles and teach the next generation of mining engineers after graduation.

ME: When do you expect to complete your Ph.D. and what is the focus of your dissertation?

McBrayer: I anticipate the completion of the requirements for my Ph.D. in May 2023. My dissertation focus is mine planning and production schedule optimization for large-area mines.

ME: What has surprised you during your studies? What is something new that you are learning about that has intrigued you?

McBrayer: The transition back to academia was more difficult than I anticipated. Recalling knowledge from nearly a decade prior and reintegrating into academia challenged me early on in my Ph.D. I have been able to develop a more global understanding of the mining industry and expanded my knowledge of mining techniques through my time at South Dakota School of Mines. Understanding the implications of culture, environmental, social and governance demands, and the variety of challenges miners are impacted by globally has intrigued me. I am also enjoying learning more about the history of the Powder River Basin in the United States and the challenges surrounding mine planning and production scheduling for this region.

ME: What is unique or special about the study program at your school?

McBrayer: I have found many of my colleagues and professors at South Dakota Mines have significant industry experience and strong relationships with industry. From chief executive officers of junior mining companies to engineers working in a variety of underground and surface mining roles, I have been challenged by other students with experiences in the United States and abroad.

Professors with experience in both industry



Amy McBrayer

and academia have been crucial to my successful transition back to academia. They have helped me to understand the theory behind the practical application I experienced throughout my career, and rounded out my knowledge of the mining industry. South Dakota Mines has provided me with significant opportunities to teach and develop a research focus that differs from those I have seen at other universities, as well as the opportunity to work with professors recognized by SME, industry and academia.

Elham Rahimi

Pennsylvania State University, 2022 SME Ph.D. Fellowship Grant

ME: What drew you to the field of mining? What kind of work do you do and hope to do in future?

Rahimi: I believe mining is one of the most fascinating and dynamic majors that embraces new technologies. I was inspired to study mining engineering when I had a geology class in high school, which helped me to understand the role of minerals in industries and downstream. I decided to play a role in this field and my desire to become an innovative researcher as well as a model in education led me to the point where I could do research on a broad spectrum of challenges in the mining industry.

I worked on challenges of rare earth elements (REE) enrichment from iron-apatite deposit. Currently, the United States is heavily reliant on imports of these elements. Thus, it is important to prospect all viable resources of these elements from primary and secondary resources. I also had a chance to do research on the challenge of respirable coal/silica mine dust to investigate the effects of various factors contributing to coal worker's lung diseases. For my Ph.D. research, I am focusing on biocoal conversion in the United States, lower-coal-rank resources to produce methane as a source of energy and potentially carbon sequestration.

ME: When do you expect to complete your Ph.D. and what is the focus of your dissertation?

Rahimi: My Ph.D. program started in the spring

of 2021 and is expected to be completed in four to five years. Currently, I am working on methane production as a source of energy from low- to medium-quality coal reservoirs using bacteria (biocoal conversion), and potentially carbon sequestering to enhance methane recovery from coal beds, which eventually reduces greenhouse gases. To this aim, a preliminary step is conducting laboratory experiments using coal powder, wastewater (sludge) and chemicals to produce methane and monitor carbon dioxide release. The short-term objectives in my research are to develop more ex situ experiments to find a reliable, optimal solution, then apply this knowledge to in situ conditions for enhancement of coal-bed methane recovery.

ME: What has surprised you during your studies? What is something new that you are learning about that has intrigued you?

Rahimi: While the academic courses helped me to understand the fundamentals of the research and build my scientific background, the technical and analytical training in unconventional geomechanics laboratory and bioengineering research laboratory surprised me in my learning and helped widen my perspective on the available techniques/methods for the long-term objectives and challenges.

This Ph.D. research project was a big step for me in terms of scientific background to understand innovative techniques of bioconversion and apply them in the mining industry. I first needed to learn multiscale rock characterization techniques under replicated in situ pressure and temperature conditions, then narrated down my studies on methanogens to build a bridge with mining engineering, and how to increase methane release from immature coal by developing nutrient solution-containing methanogens.

ME: What is unique or special about the study program at your university?

Rahimi: The Energy and Mineral Engineering Department at Penn State has a unique multidisciplinary program in which great professors and mentors provide exceptional opportunities to prepare students for their future. Collaboration with a variety of research groups helps students to broaden their horizons to venture into wide areas of the profession in this field.

I was impressed by Shimin Liu, a motivated academic who enthusiastically teaches theoretical and practical experiences, and established a broad multidisciplinary research group where we can collaborate efficiently by sharing knowledge and cooperating by providing services/facilities to proceed with the speed of the research. The department provides cutting-edge research from a variety of disciplines that help students flourish in their areas of interest. ■



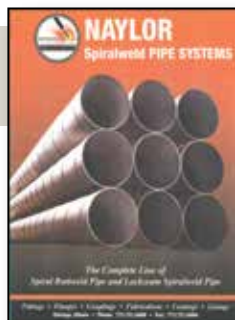
Elham Rahimi



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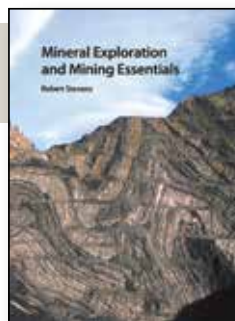
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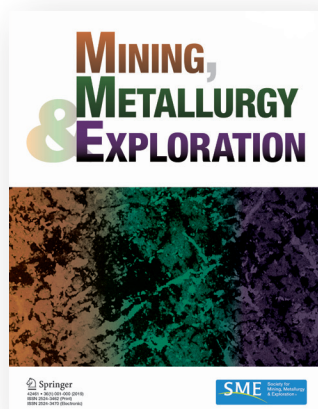
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Winner of Arthur F. Taggart Award

Novel methods for bastnaesite concentrate leaching

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Full-text paper:

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Keywords: Bastnaesite, Rare earth elements, Leach-crack system

With the world's ever-growing push to expand technological capabilities, the need for specialized materials including rare earth elements has exploded. One source of rare earths found in the United States is bastnaesite, a rare-earth-bearing fluorocarbonate, mined at the Mountain Pass Mine in California. To increase production, it has been essential to optimize existing processes and create new ones to capture current reserves. This paper presents the results of a research program conducted to expand the understanding of the bastnaesite leaching system. With the help of prior knowledge and thermodynamic calculations, a novel single-stage hydrochloric acid leach system was created to optimize the extraction of rare earths from bastnaesite. Historically, this extraction has entailed the use of a two-stage leach system involving a high-temperature hydrochloric acid leach followed by a caustic crack. We ran a series of single-stage leach experiments by reacting locked-cycle flotation concentrate with hydrochloric

acid to test common leaching parameters. The results of these single-stage tests showed significantly higher rare-earth recoveries than the reported recoveries of the historic two-stage caustic crack processes, all while decreasing the number and amount of reagents needed.

Introduction

With the need to grow the production of rare earth elements to meet ever-expanding demand, it has become necessary to have a production process that produces these materials in the best possible way. A significant part of the production of rare earth elements is the leaching of bastnaesite, a rare earth fluorocarbonate, which puts the rare earth elements in an aqueous form that allows for separation into individual elements downstream. The modern process for this is a hydrochloric acid leach followed by a caustic crack used at the Mountain Pass Mine in California. This two-stage

leach crack process has been inefficient, however, with the first leach step only producing a leach solution with 55 to 60 percent rare earth recovery [1]. The remaining rare earth elements must then be separated from the leach solution and sent to a caustic crack to recover the remaining rare earth elements from the feed solids. The inefficiency of this process, along with a push to reduce the cost and limit the number of reagents needed to perform this leach, led to an investigation on possible changes to this leach process [2].

Method

Initial hypothesis. This investigation began with the hypothesis that the efficiency of the initial leach in the leach-crack process could be optimized by increasing the surface area of the feed particles through ultrafine grinding. Using this as a starting point, a research plan was developed to see how changing parameters that may alter the kinetics of the leach system would affect the rare earth element recovery.

Testing procedures. The material used in this study was flotation concentrate created from run-of-mine ore from the Mountain Pass Mine [3]. The bulk of the testing done is contained within two main design-of-experiments (DOE) matrices produced using the statistical software MiniTab. The first DOE matrix developed for testing, called DOE1

for this research, was created to test a series of parameters that should alter the kinetics of the system measured against recovery of rare earth elements dissolved. The parameters tested in DOE1 are the p80 particle size of flotation concentrate solid feed, time of leach, acid normality and calcite concentration.

After analyzing the results of DOE1, the second DOE matrix, denoted as DOE2, was developed and used to further investigate the leach interactions. The focus of DOE2 was to look at the interaction between the rare earth recovery and the slurry density of the leach. DOE2 then was tested over the same particle size ranges as DOE1, along with the flotation concentrate feeds of 15, 50, 100 and 200 g/L of solution.

Results

Leach testing results. The first batch of testing was the testing done within the DOE1 (Fig. 1). The results of all the DOE1 tests indicated there were more optimal parameters for the leach. Some tests showed rare earth recovery around 95 percent, as determined by X-ray fluorescence (XRF) analysis of the feed and solid tails. This 95 percent recovery is significantly higher than the 70 percent maximum shown to be the recovery limited by rare earth fluoride. This indicates this process of a single leach can dissolve most, if not all, the bastnaesite and keep the rare earths in solution.

The results of DOE1 rejected the initial hypothesis that altering the particle size of the feed would increase the rare earth recovery of the leach but indicated the leach could have recoveries up to 95 percent with a low slurry density of 15 g/L high-temperature, high-normality leach. Therefore, a second DOE was developed to understand how an increase in slurry density would affect the rare earth element recovery. The results, presented in Fig. 2, show that as the slurry density increases, the rare earth recovery of the leach decreases dramatically. The results also show that over the entire range of slurry densities, the recovery difference of the three particle sizes are relatively small compared to the difference seen by changing the slurry density.

Conclusions

A research program was performed to expand the ability to extract necessary rare earth elements from bastnaesite ore. Through a series of experiments, a single-stage hydrochloric acid leach is indicated to outperform the two-stage leach-crack system, decreasing the complexity of the rare earth dissolution. These single-stage leaches showed rare earth recovery up to 95 percent, indicating there is a possibility to leach bastnaesite and recover up to all available rare earth elements. This novel leaching procedure allows for leaching without producing the rare earth fluoride that is seen to limit the recovery of historic processes to 70 percent. This leads to a new leaching chemistry, a representation of which is shown below:



This reaction shows how complete reaction could occur in the leach conditions, leading to recoveries up to 100 percent. In order to better understand the leach reaction and what is causing the higher recovery in the single-stage, low-slurry-density leach, future work must be done to understand how the fluorine is interacting with the system. To bring this

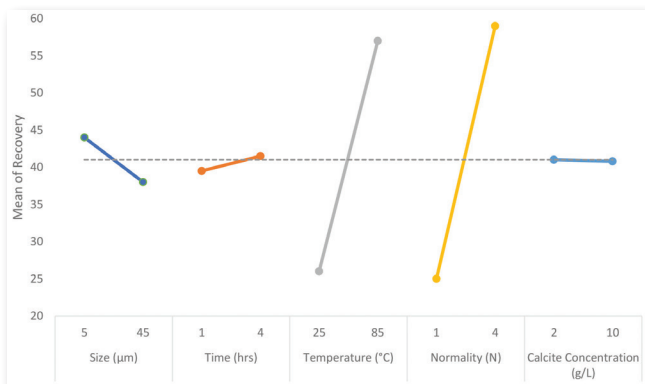


Fig. 1 Main effect results of the DOE1 testing parameters.

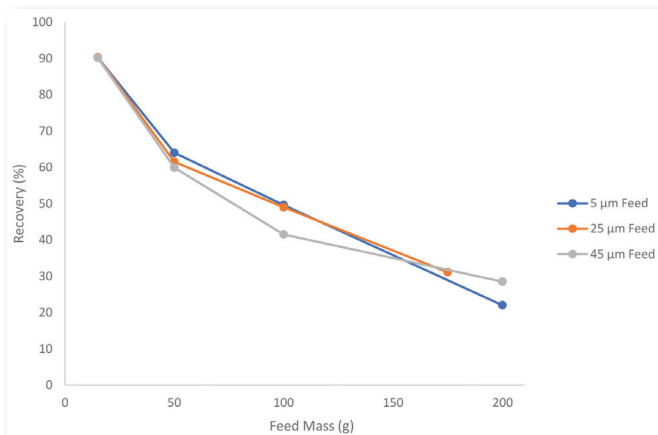


Fig. 2 Results of the slurry density DOE2 testing.

novel process to an industrial scale, the system needs to be optimized for acid use, solid-liquid separation after leaching, and the ability for the individual rare earth elements to be separated after the leach. ■

Selected references

1. Gupta NKCK (2005) Extractive metallurgy of rare earths. CRC Press, Boca Raton
2. Kruesi D (1965) Production of rare earth chloride from bastnaesite. *Metals* 17:847–849
3. Keller A (2020) Advanced froth flotation of bastnaesite using novel collectors. In Colorado School of Mines, Golden, Colorado

Coarse beneficiation of trona ore by sensor-based sorting

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Full-text paper:

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Keywords: Trona, Soda ash, Beneficiation, Sensor-based sorting

Most of the world's production of natural soda ash comes from the mining and processing of trona found near Green River, WY. The processing of trona ores to ultimately yield a high-quality dense soda ash product and reject the insoluble gangue species, primarily in the form of oil shale, is water and energy intensive. It is speculated, however, that the glass-manufacturing industry, which is the largest consumer of soda ash, may be able to use product of a lower grade and consistent level of the insoluble constituents. Thus, the viability of using sensor-based sorting to produce a beneficiated trona stream that would be fed to calcination was investigated. The study encompassed the preparation of a run-of-mine (ROM) Green River ore sample; selection of specimens sized 25 to 75 mm; imaging of the specimens by sensors based on X-ray transmission (XRT), color and laser-induced fluorescence (LIF); insolubles analysis of the specimens; and a bench-scale sorting test. Results of the study established that a correlation between the color of the individual ore particles and their insoluble content exists, and that a surface-detection-based sensor, particularly LIF, is apparently more suitable than XRT to produce a beneficiated trona stream. The bench-scale sorting test demonstrated that a 65 percent separation efficiency and a 70 percent recovery of trona could be achieved.

Background

Trona ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$) is the primary ore mineral that is mined and processed into natural soda ash, which accounts for approximately 30 percent of the world's total soda ash production [1]. The largest reserves of trona are located in the Green River Basin, covering the southwestern portion of Wyoming.

Conventional processing of trona ores in Green River entails a sequence of water- and energy-intensive chemical-processing unit operations, which are particularly exacerbated by the presence

of insoluble gangue species that are inevitably mined with the trona. Such insolubles are either finely disseminated in oil shale or as impurities encapsulated within the trona mineralization.

It is believed that the glass manufacturing industry, the largest consumer of soda ash, may not require a product of very high purity, but one that is merely of sufficient bulk density, particle size, and containing a consistent amount of insoluble impurities [2]. Thus, the use of a coarse separation technique, such as sensor-based sorting, prior to a single calcination stage can potentially not only produce a lower-grade (but consistent and usable) soda ash product, but also reduce the overall water and energy process signatures.

The objective of this study was to gain a preliminary assessment of the viability of using sensor-based sorting to reject low-grade trona and barren oil shale from high-grade trona at coarse size to produce a beneficiated stream that would be suitable calciner feed for producing a soda ash product of acceptable purity and consistency.

Method

For use in the study, an approximately 300-kg sample of larger-than-75 mm ROM trona ore from a Green River operation was collected from three bore miner panels and two continuous miner panels. The sample was carefully impact-crushed by hand to smaller than 75 mm and then screened to separate material sized 25 to 75 mm from the finer-size frac-

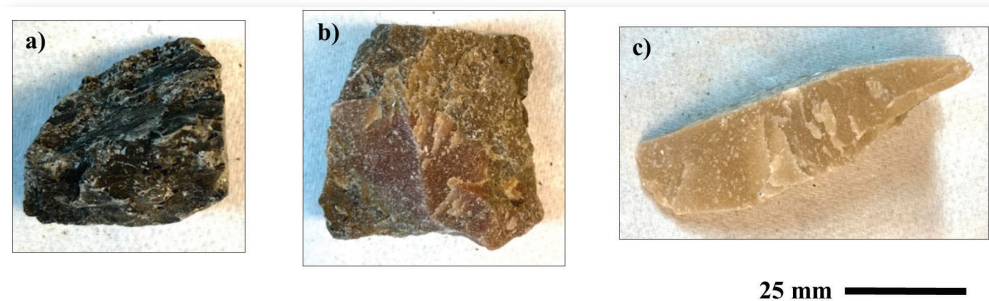


Fig. 1 Selected specimens, sized 25 to 75 mm, from panel EA-15: (a) dark-color oil shale, (b) medium-color, low-grade trona and (c) light-color, high-grade trona.

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tions generated. Specimens were selected from the fractions sized from 25 to 75 mm of the two bore miner panels, denoted as SC-11 and EA-15, and one continuous miner panel, denoted as SD-17. The specimens were segregated into “light,” “medium” and “dark” color fractions. Figure 1 depicts three example specimens selected from panel EA-15.

The specimens selected from panels SC-11, EA-15 and SD-17 were sent to TOMRA Sorting Solutions and imaged by noncommercial XRT, color and LIF sensors. After imaging, the specimens were individually subjected to analysis for their weight-percent insoluble content. A preliminary bench-scale sorting test (also conducted by TOMRA) using LIF technology was conducted on an approximately 13-kg sample of material sized 25 to 75 mm from panel SC-11.

Results and discussion

It was observed that the XRT-based sorter could differentiate dark-color oil shale of high atomic density from light- and medium-color trona of low atomic density. However, it could not clearly distinguish between light- and me-

dium-color tronas, which are presumably of high and low grade, respectively. As such, XRT is not believed to be a suitable sensing technology for the purpose of this study. Color and LIF sensors achieved better differentiation among the light-, medium- and dark-color specimens. For LIF in particular, the dark-color oil shale specimens had essentially no fluorescent response, but the trona particles of light and medium color demonstrated differential fluorescent intensities. Figure 2 depicts the raw and processed LIF images of light-, medium- and dark-color specimens from panel SD-17.

Insolubles analyses demonstrated clear differences in the weight-percent insoluble content between the various color specimens, with approximately 1 to 2 percent insolubles for the light-color, 5 to 15 percent insolubles for the medium-color, and 80 to 95 percent insolubles for the dark-color specimens.

The accept and reject fractions generated from the bench-scale sorting test were weighed and analyzed for weight-percent insoluble matter. The assays and weight fractions were then used to calculate feed assay, percent separation efficiency (percent reduction in insoluble matter), and percent recovery of trona. The weights, assays and calculated metallurgical performance results are shown in Table 1.

The sorting test demonstrated that LIF can achieve 70 percent recovery of trona while separating low-grade material, which contributes to product inconsistencies (and evidently oil shale waste), from high-grade trona, which can effectively be further milled and calcined into a quality-consistent soda ash substitute for glass manufacturing.

Conclusions

A study was conducted to investigate the viability of using sensor-based sorting to beneficiate coarse trona ore from Green River, WY, which could be used to produce a lower-purity but consistent soda ash product that could be attractive to the glass manufacturing industry. Imaging of light-, medium- and dark-color specimens, sized 25 to 75 mm, by TOMRA found that a surface-detection-based technology, especially LIF, is preferred over XRT. Analyses of each of the specimens for their insoluble content indicate that a correlation exists between the surface color of the particles and their constituents. The bench-scale LIF

sorting test demonstrated that high-grade trona could be separated from both low-grade trona and oil-shale gangue, and a separation efficiency of 65 percent and trona recovery of 70 percent could be achieved. ■

Selected references

1. Graves CA, Sopchak P (1974) Process for the preparation of soda ash from trona ore. Application: US 3819:805
2. U.S. Geological Survey (2022) Soda Ash. In: Mineral commodity summaries 2022 U.S. Geol Surv 202:154–155

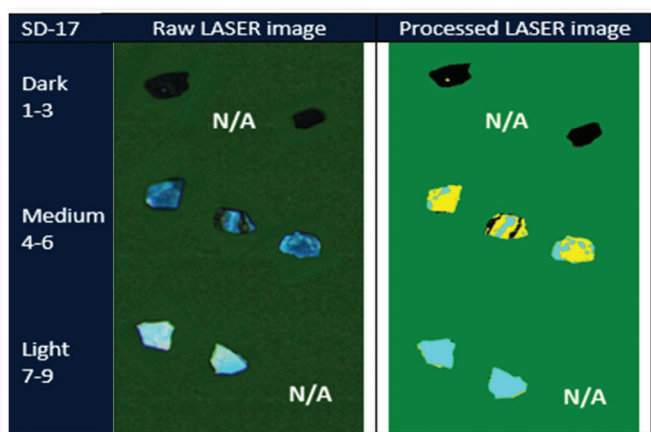


Fig. 2 LIF raw and processed images of SD-17 specimens. For false color classification for the processed image, black indicates no, yellow indicates low, and blue indicates high fluorescent response. Specimens lost during imaging are labeled as N/A.

Table 1 – Weights, assays and metallurgical performance results of bench-scale sorting test.

	Weight (kg)	Weight % distribution	Weight % insolubles
Feed	13.3	100.0	5.8
Accept	9.1	68.4	3.0
Reject	4.2	31.6	12.0
% separation efficiency		65.0	
% trona recovery		70.4	

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A discrete fracture network model for prediction of longwall-induced permeability

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Full-text paper:

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Keywords: Shale gas well, Discrete fracture network, Longwall mining

A stochastic discrete fracture network (DFN) model is developed based on mine site core log data to predict the horizontal and vertical permeabilities from the surface to the top of the caved zone at a longwall mining site in southwestern Pennsylvania. One hundred DFN realizations were generated to determine permeabilities for the isolated zone over an abutment pillar after mining the second panel. The results from this study show that the vertical and horizontal permeabilities from the DFN model agree closely with field measurements, which indicates that the resultant permeability obtained from the field measurements is representative of the predicted permeabilities. With this agreement, the aperture data for other zones of the mine could be obtained from the geomechanical model — specifically, for the fractured zone over the gob. Based on the successful validation of this model, this model could be further developed to predict the permeability of the fractured zone over the gob with fracture aperture obtained from the geomechanical analysis. This will complete the fracture characterization of the overburden, which could be used to predict potential shale gas flow to the mine in the event of a breach. This prediction could provide information on the associated risk of a casing breach and determination of methods to proactively prevent such an occurrence.

Introduction

This study is motivated by the increasing concerns related to the safety of underground longwall mining operations in proximity to shale gas wells. Recently, shale gas wells in Pennsylvania, West Virginia, Ohio, Virginia and Tennessee have been drilled through current or future longwall mines [1]. Figure 1 shows a schematic elevation view of two adjacent panels with a shale gas well located over the abutment pillar at a study site in the Pittsburgh coal bed. This presents a new challenge as longwall-induced deformations could jeopardize the mechanical integrity of the shale gas well casing, which would create safety concerns for the mines [1]. Consequently, this study by the National Institute for Occupational Safety and Health (NIOSH) developed a DFN model to characterize fractures in the overburden based on geomechanical analyses of mining-induced fracture apertures at a study site in southwestern Pennsylvania.

Method

The study was conducted in the Northern Appalachian

Basin at a site mining the Pittsburgh coal bed using the longwall mining method. The deformation and fracturing induced in the associated stratigraphy of the Pittsburgh formation, upper Pennsylvanian system, due to mining are important to the integrity of wells in the abutment pillars. Three boreholes — FEB 1, FEB 2 and FEB 3 — were drilled at the test site to monitor permeability changes at three horizons during and after undermining (Fig. 1).

The overburden depth considered is 147 m (482 ft) with multiple weak to strong rock interfaces and a longwall panel width of 457 m (1,500 ft). FEB 1 monitored a 125-m (410-ft) depth, which targets the Sewickley Coal horizon; FEB 2 monitored a 79-m (260-ft) depth, which targets the Uniontown Coal horizon; and FEB 3 monitored a 41-m (135-ft) depth, which targets the projected top of the fractured zone. Maximum field measurements of $5.03 \times 10^{-12} \text{ m}^2$ (5,080 mD) and $3.82 \times 10^{-13} \text{ m}^2$ (386 mD) were estimated over the abutment pillar at the Sewickley and Uniontown horizons, respectively [2].

In addition to these three boreholes, a fourth borehole was drilled to monitor the horizontal displacement of strata during mining. The surface subsidence measurement data are compared with the results of the geomechanical model developed for the test site in 3DEC, considering in situ and

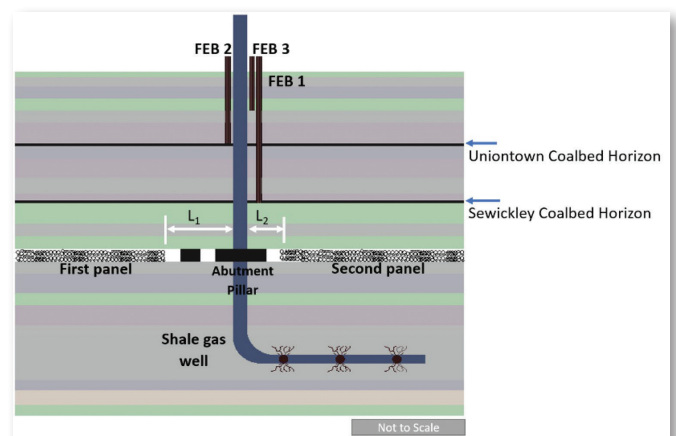


Fig. 1 Schematic of shale gas well through the abutment pillar of a longwall mine. L1 and L2 are the distances of the first and second panels from the gas well casing, respectively.

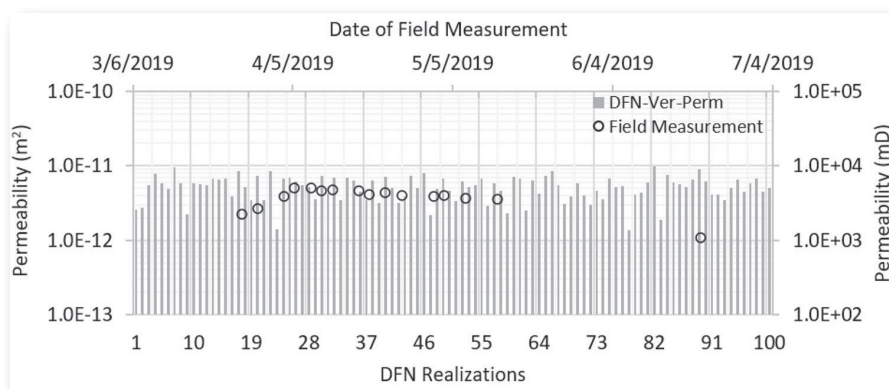


Fig. 2 Permeability at the Sewickley horizon during second panel mining. Comparison of field permeability measurements with results from 100 DFN realizations for vertical permeability.

mining-induced stresses. The code 3DEC, a three-dimensional distinct element code by Itasca [3], is used for geomechanical analyses of the mining-induced fracture aperture variations. With reasonable agreement established between the geomechanical model and the field subsidence data, the fracture apertures for each stratum in the overburden are obtained from 3DEC. The apertures from the geomechanical model are used to develop a stochastic DFN model of the site in fracture flow code (FFC) developed for this study.

Results

Multiple realizations of the stochastic DFN model that replicate potential fracture geometries are simulated, and

the fracture permeability is compared with field measurements. For the projected Sewickley horizon, Fig. 2 shows the complete 100 realization results for the vertical permeabilities over the abutment pillar, along with the data obtained from the field study for the projected Sewickley horizon. The predicted vertical permeabilities are within the same order of magnitude as the field measurements obtained from March 26 to June 20, 2019.

Conclusion

The results indicate that the apertures predicted from the geomechanical studies are representative of the mine condition over the abutment pillar. Based on this agreement, it is assumed

that the fracture characterization from the geomechanical model could be used to define the properties of the other locations where field measurements were not conducted, including fractures over the gob region. ■

Selected references

1. Su DW, Zhang P, Van Dyke M, Minoski T (2019) Effect of longwall-induced subsurface deformations on shale gas well casing stability under deep covers. *Int J Min Sci Technol* 29(1):3–8
2. Watkins E, Karacan CÖ, Gangrade V, Schatzel S (2021) Assessing gas leakage potential into coal mines from shale gas well failures: Inference from field determination of strata permeability responses to longwall-induced deformations. *Natural Resources Research* 1–14
3. Itasca U (2013) 3DEC—3 Dimensional distinct element code. Itasca Consulting Group Inc., Minneapolis

Time series modeling of methane gas in underground mines

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Full-text paper:

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Keywords: Methane gas concentration, Atmospheric monitoring systems, Time series modeling, ARIMA forecasting

Explosions in underground mining due to methane gas have been the leading cause of incidents and fatalities in the mining industry. The main objective of this research is to develop a forecasting methodology for methane gas emissions based on time series analysis. Methane time series data were retrieved from atmospheric monitoring systems (AMS) of

three underground coal mines in the United States. The AMS data were preprocessed and statistically evaluated to explore the potential autocorrelation of methane gas. It was concluded that the autoregressive integrated moving average (ARIMA) time series model used in the one-step-ahead forecasting mode provides accurate estimates that match the increase or

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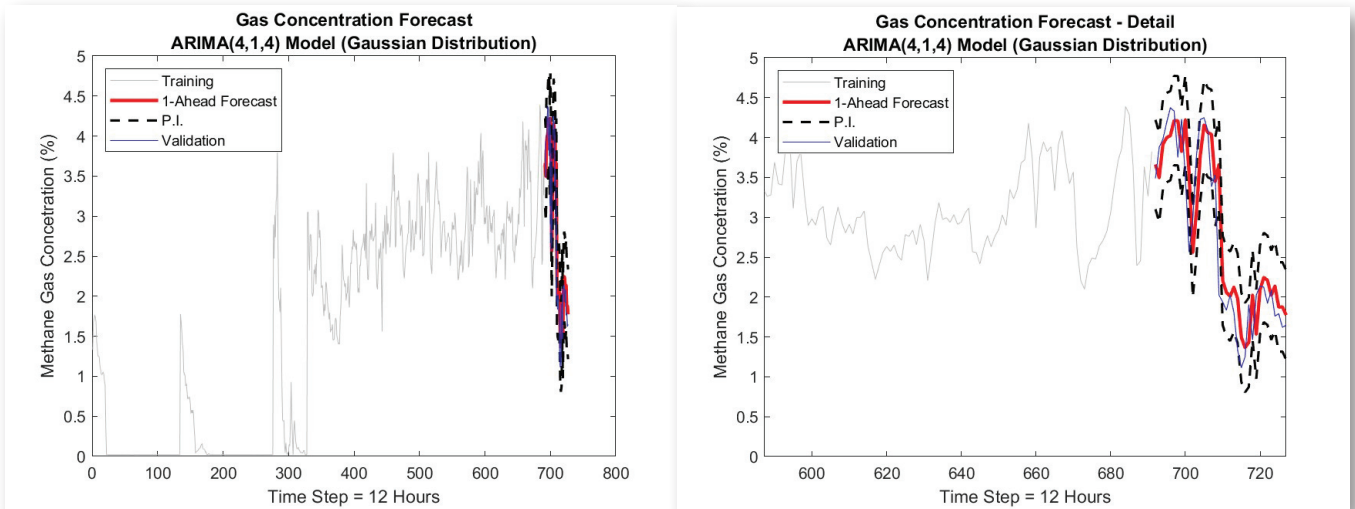


Fig. 1 ARIMA (4,1,4) one-step-ahead methane concentration forecast using a daily average time step: (a) forecast 1 and (b) detailed view of forecast 1.

decrease of the methane gas emission data.

Introduction

Explosions in underground mining due to methane gas have been the leading cause of incidents and fatalities in the mining industry. Since 1900, approximately 12,000 underground coal mine workers have been killed in over 500 mining accidents in the United States. Around 80 percent of the accidents and 90 percent of the fatalities were related to methane gas explosions [1]. As a result, the study and implementation of forecasting methodologies to predict the concentration of methane gas in underground coal mines have been a topic of interest for many decades [2]. Subsequently, different approaches, including empirical, numerical and statistical techniques, have been implemented to tackle this problem. The investigation presented in this paper utilizes statistical techniques mainly due to their advantages over

other methods as the time series processing methodology is considered less time consuming and less expensive [3].

Materials and methods

The first step consisted of collecting gas concentration data from the mine monitoring systems. The data were then stored in a custom relational database designed to manage AMS data called AMANDA, for Atmospheric Monitoring Analysis and Database mAnagement [4]. The second step involved data preprocessing, which included data cleaning and filtering. The third step consisted of data homogenization and ensured that data points from different time series share a common date/time stamp. The final step encompassed a statistical analysis of the homogenized data, including the estimation of correlations and the construction of suitable ARIMA models.

Datasets were split into training and validation sub-

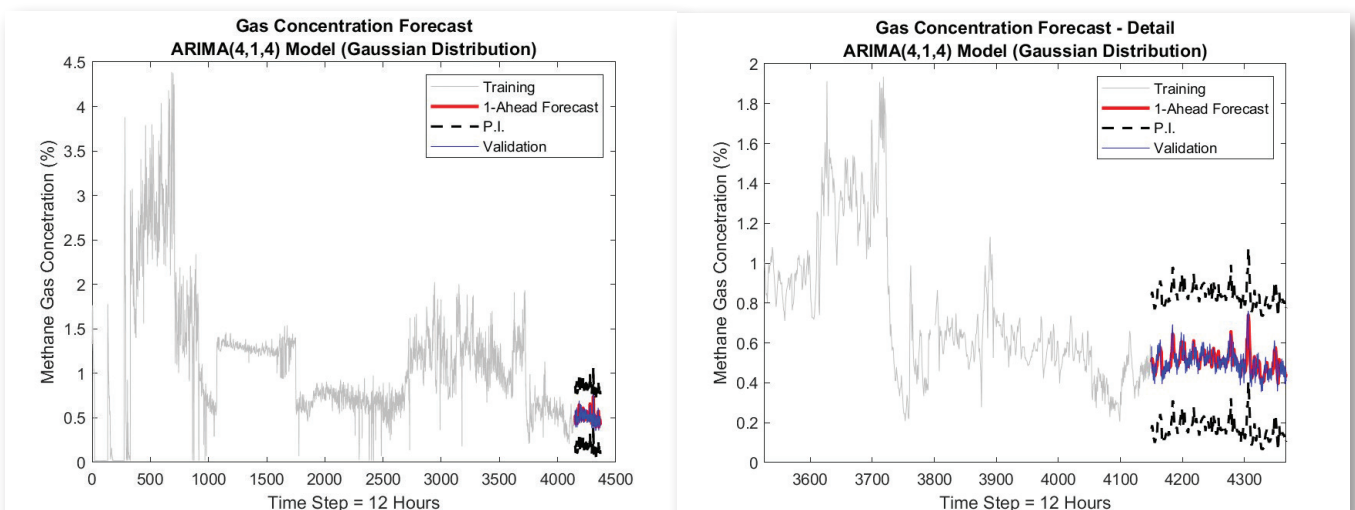


Fig. 1 ARIMA (4,1,4) one-step-ahead methane concentration forecast using a daily average time step: (a) forecast 2 and (b) detailed view of forecast 2.

sets, and ARIMA models were applied using the one-step-ahead forecasting technique. The performance of the ARIMA models was assessed by comparing the forecasts with the measured values using cross-validation and validation metrics such as linear correlation coefficient (R) and root-mean-square error (RMSE). The optimal ARIMA model was determined based on the lowest value of the Akaike information criterion (AIC). Finally, the standard deviation of the forecasts was used to generate 95 percent prediction intervals (PI) for the forecasts.

Results and discussion

Figures 1 and 2 show forecasts for two different time series. Both forecasts were obtained using the ARIMA(p,d,q) one-step-ahead forecasting model. The gray line represents the training data (methane gas time series), the upper and lower black dashed lines signify the boundaries of the 95 percent PI, the blue line indicates the time series in the validation set, and the red line represents the forecast. The validation period contains five percent of points used in the training time series.

Figure 1a shows the forecast for a time series of methane gas concentrations spanning 360 days using a 12-h average time step. Figure 1b provides a detailed view of Fig. 1a. The best model corresponds to the ARIMA(4,1,4) model (selected based on the lowest AIC value). Thus, the autoregressive order of the autoregressive term is 4 ($p = 4$), the order of the differencing is 1 ($d = 1$), and the order of the moving average term is 4 ($q = 4$). The one-step-ahead forecast values (red line) are close to the measured values in the validation period (blue line) with a correlation coefficient of $R = 0.90$. Moreover, the observed values lie within the 95 percent prediction interval.

Figure 2a presents the one-step-ahead forecast for a time series of methane gas concentrations spanning about 2200 days (six years) with a 12-h average time step. Figure 2b provides a detailed view of Fig. 2a. As before, the ARIMA(4,1,4) model was selected as the optimum model. The correlation coefficient between the forecast and the measured values is $R = 0.71$. This value is considered satisfactory as the training data are far from ideal (for example, they include sharp fluctuations), as shown in Fig. 2a. Nonetheless, the ARIMA(4,1,4) one-step-ahead forecasting model tracks the peaks of the validation data reasonably accurately. Furthermore, the validation data lie within the 95 percent prediction interval.

Conclusion

This research identified the presence of autocorrelations in the methane gas time series with a 12-h time step, and ARIMA(p,d,q) models were developed to forecast methane gas concentrations. Accurate one-step-ahead forecasts for different datasets (with varying length and from different mines) were obtained. The forecasting accuracy was demonstrated using cross-validation analysis. The ARIMA one-step-ahead forecasting method presented in this paper, coupled with an atmospheric monitoring system, provides a robust solution for methane gas concentration forecasting. ■

Selected references

1. National Institute for Occupational Safety and Health (NIOSH) (2020) NIOSH data and statistics (link available in full paper) Accessed September 21, 2022
2. Dixon DW (1992) A statistical analysis of monitored data for methane prediction. PhD Dissertation, University of Nottingham. Nottingham, United Kingdom
3. Shumway RH, Stoffer DS (2017) Time series analysis and its applications (4th ed). Springer International Publishing. Cham, Switzerland
4. Diaz J, Agioutantis Z, Hristopoulos DT, Schafrik S (2021) Managing and utilizing big data in atmospheric monitoring systems for underground coal mines. Mater Proc 2021

Experimental and CFD simulation techniques for coal dust explosibility study – A review

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Keywords: Hazard, Coal dust explosion, Secondary explosion, Explosion characteristics, CFD simulation, Explosion severity

Coal is a low-cost fuel with high calorific value. Statistically, the global coal mining industry suffered 12,489 fatalities in 104 reported mining accidents from coal dust explosions during 1900 to 2020. This review article discusses the occurrence, mechanism and explosibility parameters of coal dust explosions and presents a literature survey of the laboratory and computational fluid dynamics (CFD) simulation methods of studying them, as well as a comparison of the two methods.

Introduction

An amalgamation of various parameters are responsible

for coal dust explosions, and their categorization is important. Real-time explosion tests in working mines are not possible due to their danger to mineworkers and mine infrastructure, leading to the development of experimental mines to study coal dust explosions, with promising results. These specially designed facilities are large-scale setups, however, with huge investment and maintenance requirements, so researchers focused on small-scale laboratory setups in the 1980s. They include the U.S. Bureau of Mines (USBM) 20-L explosion chamber [1], Siwek 20-L explosion chamber [2], 1-m³ explosion chamber [3], 200-m Kloppebos explosion

Table 1 – Comparison of CFD and laboratory study.

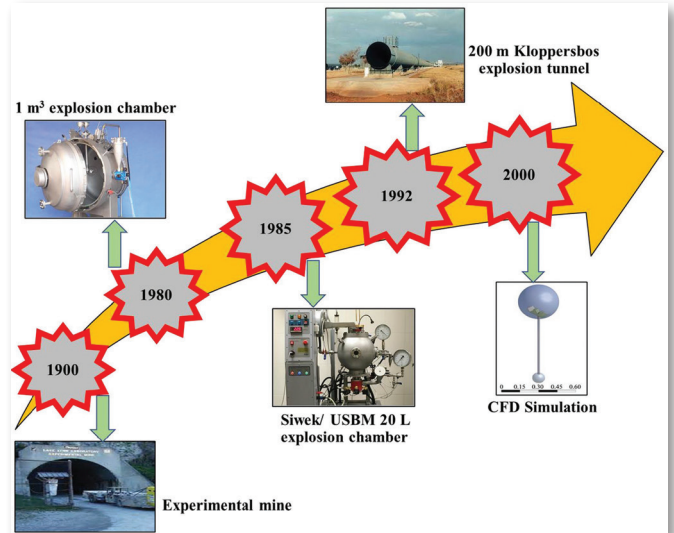
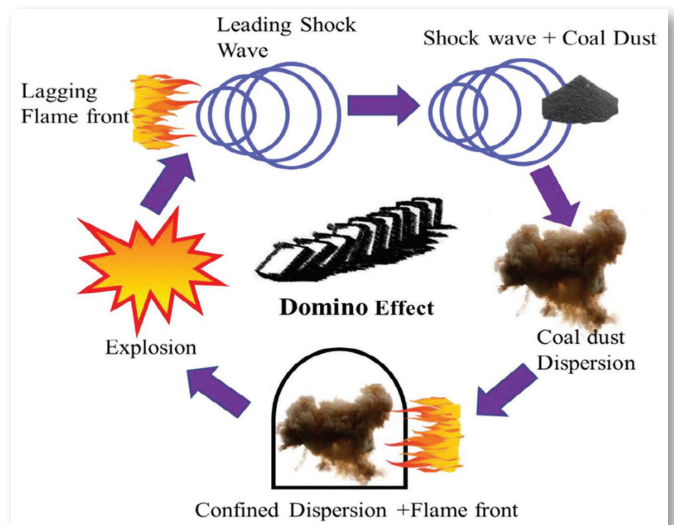
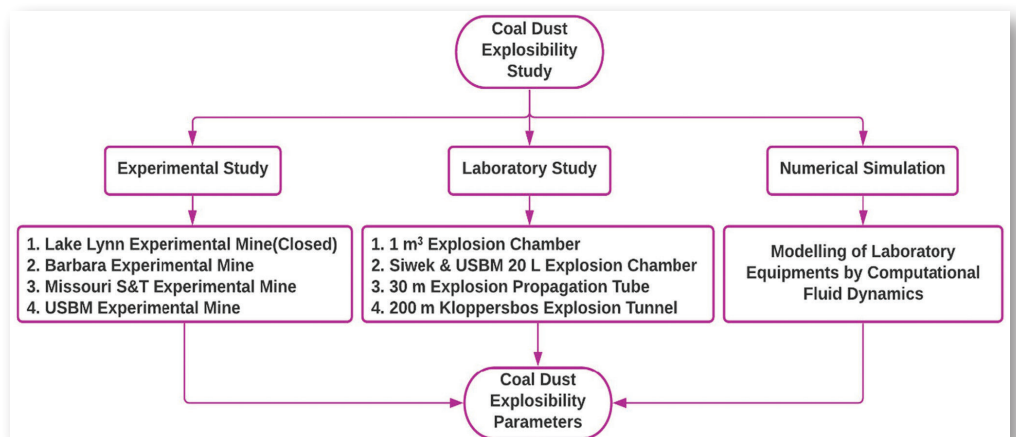
Parameter	CFD study	Laboratory study
Economics	One-time investment	Big infrastructure Safety devices Costly equipment Recurring costs, such as igniters and fuels
Safety	Safe and nonhazardous	Safety protocols
Space	Office room	Dedicated laboratory
Maintenance and servicing	No maintenance other than rare occasions of software update	Maintenance and servicing to be done by OEM Cleaning needed after every test
Samples	No physical sample	Sample prone to damage
Additional factors	Minutest of details of the result can be observed Dispersion and flame propagation can be viewed easily	Additional equipment required, such as a Doppler anemometer and a high-end camera, increasing the cost
Time	Added time needed to solve the PDE	Much less time needed

tunnel in South Africa [4], and 30-m Simtars explosion propagation tube in Australia [5].

As these equipment and experimental setups are also costly and require high expertise to operate in isolated areas, researchers have been turning to numerical simulations as an alternative method of study. Among them, CFD is a promising technique to study coal dust explosibility parameters. Simulations have evolved substantially in the past 20 years as an effective tool for the prediction of results in the most complex or hazardous scenarios where experimentation is not feasible. We discuss them in detail and present CFD modeling as a viable option for studying and evaluating coal dust explosibility. Figure 1 shows the history of development in the study of coal dust explosions.

Discussion

Mechanism of coal dust explosions. Coal dust explosions are dependent on five parameters: coal dust, air, ignition source, confinement, and dispersion of coal dust [6]. The mechanism is often referred to as a domino effect (Fig. 2), with one event leading to another and becoming a chain reaction event. A primary explosion leads to secondary explosions, which are the most common reason for damage due to coal dust explosions [7].


Fig. 1 Timeline for the development of technologies for coal dust explosion study.

Fig. 2 Coal dust explosion mechanism.

Fig. 3 Flowchart for coal dust explosibility study.

Explosibility characteristics of coal dust. Coal explosibility can be studied in an experimental mine, in a laboratory or by simulation (Fig. 3). Studies in experimental mines can be performed in a controlled manner, but experimental mine facilities are limited in number owing to their large size and the vast array of precautions and safety measures involved. For laboratory studies, a variety of equipment has been developed (Fig. 1). For study by simulation, the model needs to be validated with the literature, standards or experimental data for optimal results.

CFD simulation study. CFD has become a powerful and cost-effective tool for obtaining explosion characteristics once the simulation results are validated with experimental results or standards, and it can be combined with artificial intelligence, machine learning and virtual reality to minimize losses in the process industry [8]. Some researchers found good consensus between their simulation and experimen-

tal results, indicating that simulation study can be a strong option for studying coal dust explosibility. Although there are some differences in laboratory and simulation values, they can be corrected by geometry improvement, detailed chemical reactions, improved meshing, uniform distribution of dust clouds, and the presence of homogenous turbulence. Figure 4 shows the flowchart for a CFD simulation study of coal dust explosion in a 20-L explosion chamber.

Laboratory study and simulation study are currently the most feasible methods to determine coal dust explosibility parameters. A comparison of the two methods is outlined in Table 1.

Conclusions

- Due to increased demand to meet energy requirements, technologies had been upgraded to increase coal production but this had led to an escalation in the number of fatalities.
- A coal dust explosion is followed by many subsequent secondary explosions in a chain reaction or domino effect, which is dangerous as any safety device present may have already been damaged.
- Coal dust explosibility study began in experimental mines at the beginning of the 19th century, which eventually shifted to laboratory study in the 1980s with the 1-m³ explosion chamber and then the smaller 20-L explosion chamber.
- Computers have evolved with faster processing speeds, enabling faster and more reliable simulation results. In the past 20 years, CFD study has emerged as a better option for studying coal dust explosions. The design of the 20-L explosion chamber makes it a relevant choice for CFD study compared to other explosion laboratory equipment. Smaller design requires less meshing volume and saves valuable computational time.
- There is a need to shift from laboratory study to the more feasible simulation study. Although the time factor involved can be a disadvantage, taking into account risk, cost, workplace safety, manpower safety, service and maintenance, and costly spare parts, simulation study can be considered as a better option. ■

Selected references

1. Cashdollar KL, Hertzberg M (1985) 20-L explosibility test chamber for dusts and gases. *Rev Sci Instrum* 56:596–602
2. Siwek R (1985) Development of a 20 L laboratory apparatus und its application for the investigation of combustible dusts. Ciba Geigy AG, Basel, Switzerland
3. Bartknecht W (1981). Explosions: course, prevention, protection. Springer, Berlin
4. du Plessis, JJJ (2015) Active explosion barrier performance against methane and coal dust explosions. *Int J Coal Sci Technol* 2: 261–268
5. Wu HW et al. (2009) Australian Sealing Practice and Use of Risk Assessment Criteria - ACARP Project C17015, Queensland Mining Industry Health and Safety Conference 2009, Queensland Mining Industry, August 2009
6. Amyotte PR, Eckhoff RK (2010) Dust explosion causation, prevention and mitigation: An overview. *J Chem Health Saf* 17(1):15–28
7. Vahid E (2010) Dust explosion hazard assessment. *J Loss Prev Process Ind* 23(6):907–912
8. Shen R, Jiao Z, Parker T, Sun Y, Wang Q (2020) Recent application of computational fluid dynamics (CFD) in process safety and loss prevention: A review. *J Loss Prev Process Ind* 67:104252

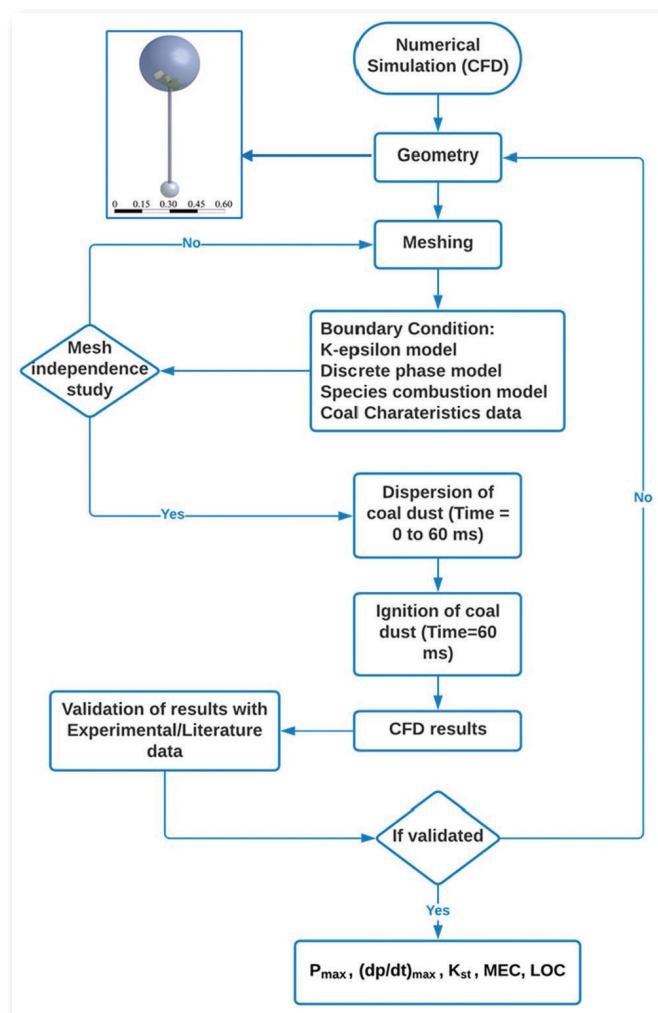


Fig. 4 Flowchart for a CFD simulation study of coal dust explosion in a 20-L explosion chamber.

Parental support concerns everyone whether or not you are a parent

by Malyree Raymond, SME Young Leaders Committee member, Philanthropy & Community Outreach (PCO) Subcommittee chair

As young professionals, we are focused on our careers, but starting a family might come not too long after, and it is important to think about how the two will intertwine as we make career decisions on matters such as maternity/paternity leave, sick days, flexible schedules, and mental health programs and benefits. On a personal note, these topics are a major emphasis for me right now as a mother of a two-year-old and expecting my second baby in February.

The SME Young Leaders Committee recently hosted a coffee-break session on parental support in the industry, where we discussed some of these topics and the difficulties and/or successes that have resulted from them. This article presents my thoughts on these topics, which were echoed by others' experiences based on what I heard in the coffee-break session.

Maternity/paternity leave

The statistics for number of weeks off with pay for parents around the world, and how the United States compares is shocking. On BBC.com, Christine Ro said, "The U.S. is the only high-income country in the world that doesn't offer even a single day of maternity leave." (Source: Christine Ro, 2019, "Parental leave: How rich countries compare," BBC, www.bbc.com/worklife/article/20190615-parental-leave-how-rich-countries-compare. Accessed 15 Dec. 2022.)

Companies may offer some kind of leave, but none is required at a full-pay equivalent. For my first pregnancy, I received eight weeks for maternity at 80 percent pay for a portion, bumped down to 60 percent for the second portion. I received eight weeks only because I had a caesarean delivery; if it had been a natural birth, I would have only received six weeks. My husband was provided three weeks at a percentage of his pay as well. If you do not already know this – Kids cost money, a lot of money. They provide

an extreme level of happiness and love that is hard to describe, but there are high revolving costs involved, such as on diapers, clothes, daycare and doctor visits. Some families have no other option but to get back to work to receive a full paycheck again to provide for the newborn child. When you have to return and leave an eight-week-old child in the arms of someone else, it is hard. There may never be enough

maternity/paternity time, but I know, if I had the choice, I would be much happier with more than just two months.

Sick days/flexibility

I became a parent amid the COVID-19 pandemic, and I think we all know how much of an impact COVID-19 had on the way we work, in some bad ways and some good. Workers and children were getting sick left, right and center. Even if one has the flexibility of working from home, it is nearly impossible to do if one is sick or having to take care of a sick child. Inevitably, you use up all your sick days before the year is even halfway done. I only have five days for an entire year to take off as sick days. I could use a sick day on the first day and then need to use my paid time off the rest of the week, or however long it takes for the sickness to spread and circulate around the family. The fact is the number of sick days provided is not geared toward working parents, and this should change.

On the bright side, COVID-19 opened the opportunity for flexible or remote positions. It allowed people to have a different way of working than the previous norm. Some companies, in fact, switched to remote work completely on the basis that people could be trusted to get their work done even if they are not on site or in the office. This flexibility helps alleviate stress and create workarounds when situations arise. This is something that nonparents can push for as well. If you need more sick days or want to have a more flexible schedule so that you can plan trips or go visit family and friends out of town, ask about different hours or working at least one to two days a week remotely. Flexibility helps retain young talent, and all of this can potentially improve mental health as well as the odds of realizing that ideal work-life balance.

Mental health/supportive community and coworkers

Parenting is tough, not just physically but from the emotional aspect as well, and it is hard to prepare for. You really, truly do not understand parenthood until you are in it. There is so much extra work and responsibility that happen on top of the work and responsibility you have in your career. It can be exhausting and difficult to navigate, so it is important to have a safe space and a supportive community to lean on, including having supportive coworkers.

This brings us to another theme that emerged from the coffee-break session. Those who are not parents said they want to be able to help but are sometimes not sure how to do so. I would say, just ask what you can do. For example, say, "If you need anything or want any help, I am here for you." If anyone offers to babysit for my husband and me to have a date night, I would agree to it immediately. Something smaller, such as a "thinking of you" cup of coffee, also goes a long way. You can just enjoy coffee together

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Reflections from the overstuffed chair on the question: How should you MPD?

by Ronel Kappes, Chair, 2022-2023 MPD Executive Committee

It has been my honor to serve as the 75th chair of the Mineral & Metallurgical Processing Division (MPD) Executive Committee. To be a part of such an illustrious group of prior chairs, many of whom are distinguished engineers, professors and industry professionals, is an incredible privilege.

As my term as MPD chair concludes, I have had the opportunity to reflect on how I came to be in this role. It all started with volunteering at my local SME section and getting involved with the local section board. The next step was volunteering at the national level. Being passionate about technical content and programming, I knew I wanted to be involved in the programming planned by the MPD unit committees. I still remember when Rong-Yu Wan, a great mentor and metallurgist, encouraged me to attend my first unit committee meeting at an annual conference. Many years later, after participating in MPD programming, MPD committees and being a member of the SME Strategic Committee on Education and Professional Development, I was nominated to the MPD Executive Committee by my peers, and I started on what was ultimately an eight-year commitment to MPD and the executive committee.

One of the things that I have come to appreciate is the teamwork and succession planning process that is the foundation of the MPD Executive Committee. Every nomination is carefully considered, and evaluated, to ensure that the team is the best we can put forward, encompassing a range of skills, knowledge and personalities as well as endeavoring to represent our membership (operating and vendor companies, academia, and so on). Diversity of thought and personality forms the basis of a strong team, whose members can challenge each other but also work well together.

I would also be remiss if I did not reflect on the fact

that I am the first female chair of the MPD in the 75 years of its existence, and I would imagine the first of many more female chairs of the MPD. As Corale Brierley, our MPD Luncheon speaker at the MINEXCHANGE 2022 SME Annual Conference & Expo advised, all of us have a responsibility to ensure that when we are in a position of influence or positional authority, that we have thoughtfully considered a wide array of candidates for the activities being evaluated, whether it be with regard to nominating an individual for a committee, or for consideration of an award. We need to make sure that we haven't inadvertently missed the opportunity to recognize and/or leverage talent in our organization because of our unintended biases.

How should you MPD? Be willing to get involved anywhere you can, and seek those areas about which you are passionate and where you can contribute. Invite a friend, or encourage a friend to get involved. Be truly engaged in the conversation in our industry.

Through my involvement in the MPD, I have had opportunities not only to contribute to the organization and shape the future for the next generation, but I have also been able to grow as a leader and mineral-processing advocate. I hope that you are, as I am, excited and inspired for what the future in mineral and metallurgical processing holds. ■

***Fine Grind* serves as a forum for the presentation and discussion of facts, ideas and opinions pertaining to the interests and technology of the Mineral & Metallurgical Processing Division. Accordingly, all material published herein is signed and reflects the individual views of the authors. It is not an official position of SME or the division. Comments by readers will be referred to the division for response. The division chair in 2022 is Ronel Kappes.**

Parental support

(continued from page 45)

while talking about the ups and downs of parenthood; being able to vent or talk through some emotions can be therapeutic. I realize nothing compares to a professional therapy session, but it is a simple way of letting someone know you care and that you are thinking of them.

Therapy and other means of professional help that may be provided by an employee assistance program through work are benefits to take advantage of. I used my five free sessions of therapy during postpartum, which really helped, and knowing that it wasn't costing me anything was a huge benefit. These types of benefits can be used for any mental health focus, meaning they are for nonparents as well. We all have stressors in our lives and can better take care of ourselves if we know what resources are available.

So, what are we going to do about it? We should all know what is provided through our companies and push

for any changes we want to see. Times have changed, and if companies want greater retention, we need to raise our voices as the younger workforce. You can prioritize having conversations with your company about maternity/paternity leave, or options for flexible schedule or more sick days. Ask those questions, and see what can be improved. Both parents and nonparents should know the types of benefits and services that are available through their companies, as life changes occur. We have an opportunity to build relationships within our companies, within SME, and wherever we can provide support.

When it comes to children, people say, "It takes a village." Let us go create a village that works for everyone. The perfect start to this village is to attend the technical session on "Parental Leave and Flexibility in Mining" starting 9 a.m. on Feb. 28 at the MINEXCHANGE 2023 SME Annual Conference & Expo in Denver, CO. ■

ED sponsoring 10 technical sessions and student poster contest at MINEXCHANGE 2023

by Julie Neilson, associate research professor, University of Arizona

The SME Environmental Division (ED) welcomes you to attend the Environmental Division technical sessions at the MINEXCHANGE 2023 SME Annual Conference & Expo to be held in Denver, CO Feb. 26 to March 1. The ED is sponsoring 10 sessions with a total of 69 presentations. The session titles and meeting times are:

- Feb. 27, 2 p.m. — Solutions to Protect the Environment: 8 presentations; Green Mining: 6 presentations.
- Feb. 28, 9 a.m. — Mine Water Management: 6 presentations; Technology's Road to Compliance: 6 presentations.
- Feb. 28, 2 p.m. — Green Mining II: 7 presentations; Sustainability and ESG Disclosures: 6 presentations.
- March 1, 9 a.m. — Mine Closure and Reclamation: 7 presentations; Mine Water Treatment: 7 presentations.
- March 1, 2 p.m. — Critical Metals, REE, and Environmental Innovation: 7 presentations; Geosynthetics Applications: 6 presentations.

We also encourage you to come visit the Environmental Division Student Poster Session on Feb. 28, 9 a.m. to 12 p.m. to learn about the exciting research being done by ED students. In 2022, the MINEXCHANGE 2022 ED Student Poster chair was Omar Smith of WSP and the contest winners were Younes Shekarian, first place, Penn State;



From left to right: Omar Smith, Younes Shekarian, Elham Rahimi and Saeede Kadivar.

Elham Rahimi, second place, Penn State; Saeede Kadivar, third place, University of Nevada, Reno. ■

The **Environmental Division** page serves as a forum for the presentation and discussion of facts, ideas and opinions pertaining to the interests and technology of the Environmental Division. Accordingly, all material published herein is signed and reflects the individual views of the authors. It is not an official position of SME or the division. Comments by readers will be referred to the division for response. The division chair in 2022 is Lisa Gonzales.

SME IIT ISM Student Chapter hosts KHANAN'22 mining tech fest

begun in 2016 by the SME IIT ISM Student Chapter, KHANAN has become one of the biggest annual geology-mining festivals among the technical institutions



Coal India chairman and managing director Pramod Agrawal sharing his experiences with attendees.

and universities in India and the pride of the Indian Institute of Technology (Indian School of Mines), or IIT (ISM), Dhanbad.

Over the last seven years, it has evolved into the biggest technical festival and a prestigious platform for technical institutions in India providing education and training in the mining industry. KHANAN serves as a prime destination for educators, learners and researchers to explore and experience mining engineering. It has also become the event for displaying cutting-edge technology and participation in hard-nosed competition in the mining industry in India.

Mining the way to an automated future

After two years, this year's KHANAN'22 was organized by the SME IIT ISM Student Chapter as an in-person technical festival in collaboration with the Department of Mining Engineering, IIT (ISM), Dhanbad, and TEXMiN, the technology innovation hub of IIT (ISM), Dhanbad. The event took place Nov. 4-6, 2022, with participants coming from various parts of India and a theme of "Let's

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Support the SMEF/SME divisions by participating in the silent auction at MINEXCHANGE

by Megan Martin, SME Foundation manager

Support the SME Foundation (SMEF) and SME Divisions by participating in the online silent auction at the MINEXCHANGE 2023 SME Annual Conference & Expo.

The online auction will open Feb. 22 at noon (MST) and close March 3 at noon (MST). The auction is open to the general public and may be accessed by visiting [accelevents.com/e/smeauction2023](https://www.accelevents.com/e/smeauction2023). There are many wonderful items available, including scale models of mining equipment, historical mining equipment and memorabilia, mineral and fossil specimens, jewelry and gems, tickets to attractions/experiences, gift baskets and much, much more. It is free to browse, so come check it out.

There is still time to contribute items to the auction or donate cash. Cash donations in particular are greatly appreciated because they help to purchase additional items for the auction. As an auction contributor, donors receive recognition in the April issue of the *SME Mining Engineering* magazine as well as on the online auction website. All donations are tax deductible.

Funds raised from the online auction will support

SMEF programs and division scholarship funds. If you and/or your company would like to make a tax-deductible donation (items or cash) or learn about auction sponsorship opportunities, please contact Megan Martin at martin@smenet.org. ■



SME Silent Auction
Supporting the SME Foundation Programs and SME Division Scholarships

DONATE TO THE AUCTION AND MAKE A DIFFERENCE

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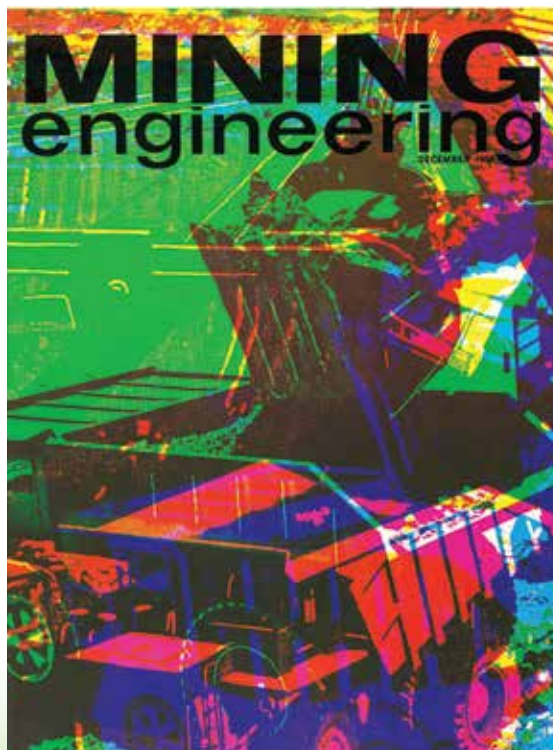
- Historical mining equipment and memorabilia
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- Jewelry and gems
- Private rail tours of mines
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- Sports tickets
- Electronic and technology items
- Professional services
- Gift baskets
- Artwork
- Monetary gifts also welcome

To make a tax-deductible donation (items or cash) visit:

- community.smenet.org/sme/foundation/events/silent-auction
- contact Megan Martin at martin@smenet.org or
- mail your donation to your division liaison.

Donations will be accepted until February 4, 2023.

Contact sme.foundation@smenet.org to donate or learn more.



For 75 years *Mining Engineering* has been delivering the best technical information and news of the Society to the global mining industry. During MINEXCHANGE 2023 SME Annual Conference & Expo, we invite current and past editors, writers, contributors and advertisers to join us to celebrate this impressive milestone.



When: Tuesday, Feb. 28 at the Connection in the Exhibit Hall of the Colorado Convention Center from 4-5:30 pm.



2023 BSA National Jamboree – A call for sponsorships

Planning is underway for the 2023 BSA National Jamboree happening July 19-28, and we are looking for sponsors to help fund the Minerals Education Coalition's (MEC) Mining in Society Merit Badge booth. Since 2013, MEC has participated in the National Jamboree by providing a booth to introduce Scouts to this merit badge.



The 2023 quadrennial two-week encampment for boys and girls ages 12 to 18 in the Scouts BSA program will be held at the Summit Bechtel Reserve in West Virginia. With the theme of "Mining in Our Modern World: Journey to the Middle of Your Mobile," the MEC exhibit booth will emphasize messages embodied

in the Mining in Society Merit Badge while helping Scouts make a personal, direct connection to the importance of mining in their lives.

Sponsoring the MEC booth at the 2023 BSA National Jamboree provides the opportunity for you and/or your organization to join MEC and SME in our efforts to introduce Scouts to the Mining in Society Merit Badge and educate participants from around the country on the importance of mining and minerals in everyday life.

Please consider sponsoring in any of the following ways:

Premier Sponsor: CONSOL ENERGY

Diamond Sponsor: \$7,500

- Logo placement on lunch bags and shirts given to Mining in Society Merit Badge Booth volunteers.
- Logo placement on Jamboree-specific swag given to Scouts.

**MEC thanks the 2023 BSA National Jamboree
MEC Booth Premier Sponsor:**



- Logo placement on booth signage and banners.
- Recognition in the SME *Mining Engineering* magazine, SMEF newsletter, The Drift SME eNews, MEC website, SMEF website and Mining in Society Merit Badge web page as Jamboree Sponsor.

Gold Sponsor: \$3,500

- Company name on Jamboree-specific swag given to Scouts.
- Logo placement on booth signage and banners.
- Recognition in the SME *Mining Engineering* magazine, SMEF newsletter, The Drift SME eNews, MEC website, SMEF website and Mining in Society Merit Badge web page as Jamboree Sponsor.

Silver Sponsor: \$1,500

- Logo placement on booth signage and banners.
- Recognition in the SME *Mining Engineering* magazine, SMEF newsletter, The Drift SME eNews, MEC website, SMEF website and Mining in Society Merit Badge web page as Jamboree Sponsor.

To discuss any of the above sponsorship levels, or a customized amount, please contact Megan Martin at martin@smenet.org. Thank you in advance for your sponsorship. ■

KHANAN'22

(continued from page 47)



Students participating in one of the hands-on workshops.

mine the way to an Automated Future!" The three days were filled with workshops, technical presentations, technology displays, technology demonstrations, quizzes and other competitions. The workshops

included augmented reality and virtual reality (AR VR) technology in the VR lab, mine planning, drone designing and aeromodelling. Many industry leaders participated in panel discussions and guest lectures. In addition to the heavy technological events, the festival included comedy and cultural events.

The closing ceremony featured an address by Rajiv Shekhar, director of IIT (ISM), Dhanbad, in which he lauded the efforts of the event's participants and organizers and inspired them to perform well in the future.

Overall, the 2022 edition of this technological festival successfully met its aim to have students and researchers realize the importance of automation in the mining industry in a fun and joyful manner, thus carrying forward the proud legacy of IIT (ISM). ■

MEC Central Wyoming Section making a positive impact in the community

Making a positive impact or contributing to mining and minerals education does not necessarily mean starting big or taking on huge projects. You can start right where you are. All it takes is knowing your community, showing up, attending education conferences, purchasing educational materials for local teachers, conducting presentations in your local schools and sharing your stories to shed a positive light on the industry, as Greg Kruse and his local officers have done in the Central Wyoming section.

Kruse has been the Minerals Education Coalition (MEC) chair for the Central Wyoming Section for about nine years, contributing immensely to mining and minerals education through outreach efforts. Over these years, Kruse and several officers have developed and maintained professional relationships with some of the seventh-grade teachers in the Casper area and have continued to award scholarships to students through the Coates, Russel, Wolf & Swank Scholarships, while making donations to Science Zone Casper, a local not-for-profit group in Casper. As a geologist, Kruse shares his experiences while visiting classrooms and helping teachers reinforce some of the concepts from their earth-science curriculum.

Outreach activities

The Central Wyoming Section conducts different outreach activities throughout the year to inform and educate students and the general public about the importance of mining in their everyday lives. The section has coordinated with the Tate Geological Museum, a local Casper College earth-science museum, on changing out one of their quartz displays to a new display on collecting rocks, minerals and fossils in the Casper area. The display is located at Verda James Elementary School, and the plan is to change it out with other relevant science-related topics every six months.

In April 2022, the Central Wyoming Section donated \$132,000 to Casper College to purchase much-needed equipment for the geography (Geographic Information Systems – GIS) and geology

departments, and to fund a part-time position at the Tate Geological Museum. The person hired will help the museum create a program to showcase the value of mining to students and the community through guest speakers and field trips. The Central Wyoming membership is motivated to advance their objectives in promoting the value of careers in the mineral extraction industry by supporting Casper College to strengthen their geology and geography program offerings.

In 2020, the Central Wyoming Section funded the creation of the Uranium Guidebook to help showcase the commodity for the citizens of Wyoming. The project was coordinated by the Wyoming Mining Association but was channeled through MEC funds as it serves as an educational tool of fact-based information for anyone or any entity interested in Wyoming uranium.

Plans for the future

Other outreach ideas and opportunities that the section is currently exploring are:

- Posting long-term permanent road signs along the highway to describe economic deposits found within the formations in the drive up Casper Mountain.
- Placing permanent displays/billboards at schools, libraries and around the local Casper airport.
- Providing Wyoming schools with MEC-related

(continued on page 53)



Display on collecting rocks, minerals and fossils in the Casper area.



MEC Central Wyoming Section presenting a \$132,000 check to Casper College.



MEC Central Wyoming Section chair Greg Kruse and Colleen Burrridge with the Science Zone, Casper, WY.

SME Pittsburgh/PCMIA hosts third year of student short presentation contest

by Deniz Talan, assistant professor, Department of Mining Engineering, West Virginia University

For the third year, the Pittsburgh Coal Mining Institute of America (PCMIA) and SME Pittsburgh Section held a student short presentation contest to recognize the successful research projects conducted in regional universities. The contest provided an opportunity for graduate and undergraduate students to showcase their work in a visible setting and to compete for an award based on the quality of their presentations as determined by a team of judges. The organizing committee — Sikandar Azam, Deniz Talan and Deniz Tuncay — would like to express their gratitude to Vasu Gangrade, Hua Jiang and Dogukan Guner for their service as judges.

First place

“Ion-Exchange Leaching of Rare Earth Elements from Synthetic Ion-Adsorption Clays,” by Oznur Onel and Roe-Hoan Yoon, Department of Mining and Minerals Engineering, Virginia Tech.



Oznur Onel

Abstract: Ion-adsorption clays (IACs) mined in south China account for approximately 80 percent of the global supply of heavy rare earth elements (HREEs) used in various high-tech industries. Recent studies conducted by the U.S. Geological Survey show that the climate and

geological conditions of the southeastern United States are also conducive to the formation of IACs. It has been difficult, however, to extract REEs from the clay minerals found in coal byproducts using conventional lixiviants such as $(\text{NH}_4)_2\text{SO}_4$. In the present work, we studied the factors affecting the ion-exchange leaching process by synthesizing IACs under different conditions and subjecting them to a series of extraction tests using novel lixiviants. The results show that REEs can be readily extracted from the synthetic IACs prepared in the present work using novel lixiviants.

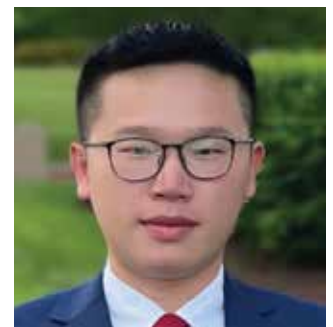
Onel is a graduate research assistant pursuing her second Ph.D. at Virginia Tech since 2021. She was awarded a scholarship by the Scientific and Technological Research Council of Turkey, which gave her an opportunity to work with Roe-Hoan Yoon on rare earth element extraction at Virginia Tech as a visiting scholar in 2017 before becoming a full-time Ph.D. student under his supervision. During her Ph.D. studies, she was selected for the Pratt Fellowship as an outstanding graduate student by Virginia Tech and also received the SME Mineral & Metallurgical Processing Division (MPD) Richard Klimpel Memorial Scholarship. Before that, Oznur received her B.S. (2008), M.S. (2011)

and first Ph.D. (2020) degrees in mining and minerals engineering from Dokuz Eylul University (DEU) in Turkey. While pursuing her M.Sc. degree, she studied processing methods for gold enrichments and was involved in more than seven projects. Her first Ph.D. from DEU was on coal cleaning methods to produce super-clean coal. She also worked as a research and teaching assistant at Middle East Technical University (METU) for four years. Besides her graduate studies, she was an editor and a member of the executive board of the International Mining Congress and Exhibition of Turkey in 2015 and 2017. Onel also has two years of industry experience, working at Eldorado Gold (TUPRAG Efemcukuru Gold Mine) as a process engineer.

Second place

“Characteristics of abutment pressures and bolt loads in the U.S. longwall system,” by Gaobo Zhao, West Virginia University.

Abstract: The International Conference on Ground Control in Mining (ICGCM) started in 1981, and since then there have been 32 papers presented on stress/load measurements of the U.S. longwall system. These measurements not only provided critical guidance for the design of gateroad chain pillars and roof bolting, but also have been convincing and recognized as the best way to calibrate numerical models. The focus of this work is on summarizing the characteristics of abutment pressures and bolt loads based on the data published in previous papers. The data show that there exists a rough trend of stress/load increase as the face advances, generally consisting of three stages: the stress/load (1) initially increases steadily or slowly, (2) increases rapidly and (3) increases, reaching the peaks and dropping slowly or sharply. However, all key features of each stage varied considerably, such as the starting point, the rate of pressure increase or decrease, and the peak load. Therefore, these measurements are mostly useful for instrumented locations, while the observed general trends can be valuable for comparison for similar projects.



Gaobo Zhao

Zhao received his bachelor's and master's degrees from Henan Polytechnic University in 2017 and 2020. Before graduating with his master's degree, he attended

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Stuart Avarð Sanderson

Stuart Avarð Sanderson passed away on Dec. 10, 2022 at the age of 71. After suffering an unexpected brain hemorrhage in September, Sanderson was later diagnosed with a malignant brain tumor. Though he fought hard to recover from the damage caused by the initial bleed, he passed away just after midnight, on the same day that his father died 24 years earlier. He was surrounded by his family and the caring, compassionate staff of Littleton Adventist Hospital.

Sanderson, an only child, was born to Harold and Mabel Sanderson in Arlington, VA in September 1951. He earned his bachelor's degree in political science from the University of Rochester in New York, and his juris doctor from American University in Washington, D.C.

In September 1988, while working in Denver as a solicitor for the U.S. Department of the Interior, Sanderson met Janice. By January 1989, he and Janice had moved back to the Washington, D.C. area, and he was working for the American Mining Congress. They were married on Oct. 7, 1989. Soon after, they welcomed a daughter, Jessica, in the fall of 1990 and later a son, Timothy, in the summer of 1993.

In October 1994, Sanderson accepted the position of president and chief executive officer of the Colorado Mining Association, an organization that he led for more than 20 years. Sanderson rarely had idle hands. Even in retirement, he continued his advocacy for the mining industry through his work at SME. "Stuart was the voice of mining in Colorado for more than two decades," said David Kanagy, SME executive director and chief executive officer. "His work with CMA and SME will have lasting effects as the industry continues to push forward to ensure that the public understands the importance and value of mining. I will miss working with Stuart and am deeply in debt to him for all that he did for our industry."

Sanderson was passionate about travel. His journeys brought him to all 50 U.S. states and many different countries, often bringing his family with him so they, too, could see and enjoy the world.

Throughout his life, Sanderson loved the outdoors. In his younger years, he was an Eagle Scout and he enjoyed hiking and camping. His connection with nature did not wane but rather evolved as he aged. While he found hiking mountains more difficult, he still experienced nature through daily walks with his wife and beloved dog Draco, the occasional journey to the bluffs by his home, and through his many golf games with friends. He was known for his friendliness, dry wit and goofy humor. He would often take excessive advantage of mulligans while golfing, which led to his friends joking that taking a mulligan was "taking a Sanderson."

While Sanderson was an outgoing individual who was at ease delivering speeches to a crowd, he felt the most comfortable at home with his wife, reading a book or the newspaper with his dog on the ottoman, keeping his feet warm. His appreciation for the small moments in life was great. Almost every day, he would stand outside on the deck, pause for a few moments and admire the view of the mountains. When traveling by car, he would always comment on the beautiful scenery, no matter the location.

Sanderson was a loving father and dedicated husband throughout his life and will be sorely missed. He is succeeded by his wife Janice, daughter Jessica and son-in-law Bryce, and son Tim. In lieu of flowers, please send donations to the Littleton Adventist Hospital or to the American Red Cross. A memorial service was held on Jan. 7, 2023 at 2 p.m. at Horan & McConaty in Centennial, CO. ■



Stuart Avarð Sanderson

Pittsburgh/PCMA contest

(continued from page 51)

West Virginia University (WVU) as a visiting scholar from January to May 2019. In August 2021, he joined WVU as a graduate research assistant and started studying for his Ph.D. He has authored or coauthored more than 30 technical papers in journals and conference proceedings, as well as three book chapters. His papers cover various topics of ground control, including longwall mining, surface subsidence and mitigation, overburden movements, pillar stability, rock mass behavior, instrumentation, and numerical modeling. For his work, he received numerous awards and scholarships, including the SME Syd S. and Felicia F. Peng Ground Control Mining Scholarship, Henan Province Outstanding Graduates Award, China

Undergraduate National Encouragement Scholarship, and China Postgraduate National Scholarship. He is currently focusing on researching roof support systems under the supervision of Ihsan Berk Tulu.

Third place

"Collecting Mine Dust Particles with Vibrating Meshes," by M. Esad Uluer and Aaron Noble, Virginia Tech.

Abstract: Airborne coal mine dust in the continuous mining environment is an unavoidable result of coal extraction operations that raises notable health and safety

(continued on page 61)

Two new SME books provide insights into royalty companies and aggregates

SME has introduced two new books: *Rise of the Mining Royalty Companies* edited by Douglas Silver and *In the Aggregates — Forty-two Years in the Sandbox* by Andrew F. Haumesser. For more information or to place an order, visit smenet.org/smestore, send an email to books@smenet.org or call 303-948-4237 or 1-800-763-3132.

Rise of the Mining Royalty Companies

The modern public mining royalty and streaming industry began in 1986 with the conversion of Franco-Nevada Mining Corp. from an exploration into a royalty company. Collectively, this industry has since grown to more than 35 companies and approximately \$66 billion in market capitalization.

The royalty and streaming industry offers two important services: it is a major funding source to large and small companies, and its public companies command some of the higher price-to-net-asset-value ratios of any industry.

Told by titans in the industry, this entertaining book shows readers what the founders were thinking

about the industry at the time of their corporate formation and the innovative methods that kept the market active and

moving in new directions.

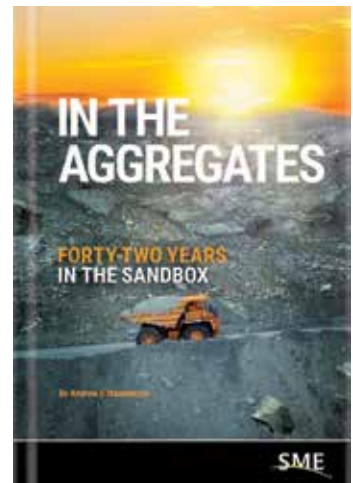
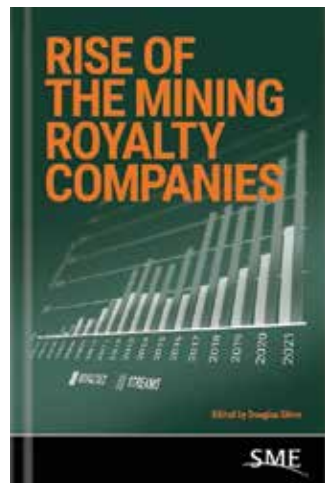
Many of the founders of the largest companies are now retired, and this book captures their stories for future generations. Their intimate knowledge and leadership provide current and future royalty holders and investors with unique knowledge, detailing how this industry has developed, evolved and thrived.

In the Aggregates

In the Aggregates is an accessible and informative volume that discusses the importance of the aggregates industry to the economy and to modern society.

It describes exploration techniques, real estate acquisition, permitting, mining and production methodology, management philosophy, and sustainability.

The author, an expert in this field, adds humor and personal experiences to enhance the readability beyond just the technical issues, graphs and formulas. This reference will help individuals in the aggregate business learn more about the detailed workings of the industry and will prove invaluable to those new to the aggregates field. ■



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Central Wyoming Section

(continued from page 50)

- teaching materials.
- Providing Wyoming mining samples (coal, trona and bentonite) to the Science Zone and to Wyoming Ag in the Classroom, which is a Wyoming group focusing on agriculture including a division on mining.

How can your section join the mining and minerals

education outreach effort? MEC relies on SME members to help spread the word about the importance of mining and minerals. Your section can join this outreach effort by sharing educational resources and materials found at MineralsEducationCoalition.org with local educators and communities. For answers to questions on how you can get involved in local outreach activities or to share the outreach-related activities your sections conducted in 2022 or plan to conduct in 2023, please email Akudo Nwokeukwu at Nwokeukwu@smenet.org. ■

SME Division Awards

Coal & Energy Division Awards

COAL & ENERGY DIVISION DISTINGUISHED

SERVICE AWARD TO BENJAMIN R. HARDMAN

The Distinguished Service Award is presented to Benjamin R. Hardman “for his passion and individual achievements in the coal mining industry, his employee-customer relationships necessary for successful business, and his support to SME.”



BENJAMIN R. HARDMAN

Ben Hardman is vice president of sales at J.H. Fletcher & Co. He received a mining engineering degree from West Virginia University in 1995 and a master’s in business administration from Marshall University in 2009.

He began his career with Consol as a project engineer. In 1996, he accepted a position as a service technician with J.H. Fletcher & Co. in the southern West Virginia region. He subsequently advanced to the position of service manager for this region. He has held a number of positions with J.H. Fletcher before his current role as vice president of sales. He is a member of the executive committee and a board member at J.H. Fletcher & Co.

J.W. WOOMER YOUNG ENGINEER AWARD TO THOMAS C. RAUCH

The J.W. Woomer Young Engineer Award is presented to Thomas C. Rauch “for his professionalism in engineering in the mining and minerals processing industries.”



THOMAS C. RAUCH

Tom Rauch is president of McCarl’s Technical Services, the professional services business unit of McCarl’s, a 76-year-old heavy industrial construction company. He is also a partner with ARC Performance Group, a diversified industrial services consulting and investment company. Rauch holds a B.S. degree in mining engineering (focused on mineral processing) and a second B.S. degree in energy business and finance (focused on commodity finance), both from Pennsylvania State University. Prior to joining

McCarl’s and ARC in 2020, Rauch worked in engineering and finance positions at Black Mountain, Kappes Cassiday & Associates, Jacobs, and Taggart Global (now DRA Minerals). Rauch’s career has focused on engineering, procurement and construction (EPC) project delivery in the mining, metals and chemical sectors with specific focus on process design

and taking projects from late-stage engineering through construction, startup and performance guarantee. Rauch continues to focus on high-risk project delivery, tying late-stage project lessons into project execution planning and preliminary engineering. He is proud to serve the SME Foundation as President-Elect.

ROCK MECHANICS AWARD TO ZACHARIAS G. AGIOUTANTIS

The Rock Mechanics Award is presented to Zacharias G. Agioutantis “for distinguished service to the rock mechanics profession through education, applied research, and development of practical software for coal mine ground control.”

Zach Agioutantis is the Mining Engineering Foundation Professor and chair of the Department of Mining Engineering at the University of Kentucky. Prior to that he was a professor and the director of the Rock Mechanics Laboratory at the Technical University of Crete in Greece for more than 25 years.

He has authored or co-authored more than 80 peer-reviewed journal papers and more than 300 conference papers in subjects related to topics including subsidence, applied and theoretical rock mechanics, soil mechanics and slope stability, computer applications in mining and geotechnical engineering, mining systems and mining systems simulation.

He has led and participated in numerous research projects in Greece, the European Union and the United States, mostly in the areas of ground control, geomechanics, automation and sustainable development.

He is active in research related to rock mechanics and computer applications for the mining and geotechnical industry.



ZACHARIAS G. AGIOUTANTIS

STEFANKO BEST PAPER AWARD TO NANA A. AMOAH, ASHISH R. KUMAR AND GUANG XU

The Stefanko Best Paper Award is presented to Nana A. Amoah, Ashish Kumar and Guang Xu for their paper titled “Calibration of low-cost particulate matter sensors for coal dust monitoring,” presented at the MINEXCHANGE 2022 SME Annual Conference & Expo.

Amoah is a mining



NANA A. AMOAH



ASHISH R. KUMAR

engineering Ph.D. student at the Missouri University of Science and Technology. His research focuses on the development of low-cost particulate matter (PM) sensors for air quality monitoring in mines. He aims to use the outcome of his research to help improve mine air quality.

Kumar is assistant professor of mining engineering in the Department of Energy and Mineral Engineering at Pennsylvania State University. Previously, he was an assistant research professor at the

University of Missouri-Rolla in the Department of Mining and Explosives Engineering. He also held a postdoctoral scholar position at the University of Kentucky. He obtained his M.S. and Ph.D. degrees from the University of Kentucky and his undergraduate degree from the Indian School of Mines. His research interests include mining process automation and



GUANG XU

control, in situ resource utilization including extraterrestrial mining, and computational fluid dynamics applications in mining engineering. He is a registered professional engineer in Kentucky and holds two U.S. patents on nonclogging dust filters. He was a member of the SME Young Leaders Committee and the Membership and Mine Operations Unit Committees of the Coal & Energy Division.

Xu is an associate professor in the Department of Mining and Explosives Engineering of

Missouri University of Science and Technology. He is an expert on fire safety and particulate matter control and monitoring. He has published more than 70 peer-reviewed journal papers and secured more than \$1 million in research funding from the National Science Foundation, National Institute for Occupational Safety and Health, U.S. Environmental Protection Agency and U.S. Department of Education. His

battery-electric vehicle fire research was featured as the top story of a newsletter by the American Society for Engineering Education.

HOWARD L. HARTMAN AWARD TO BHARATH K. BELLE

The Howard L. Hartman Award is presented to Bharath K. Belle “for his outstanding contributions to mine ventilation enhancing health and safety in underground mines.”

Belle is technical lead/principal manager at Anglo American Coal Business in Australia. He has wide and in-



BHARATH K. BELLE

depth global multicommodity (diamond, coal, platinum, gold) underground mining exposure over 25 years in life-of-mine (LOM) strategy and design, consultancy and operational and project reviews of high-performance safe production environments, international regulatory aspects of health and safety risks of dust/diesel particulate matter (DPM) exposure monitoring and controls, and major safety risk critical technology (ventilation, gas, cooling and sponcom)

control system development in surface and underground environments. He has in-depth lead auditor experience of business and safety-critical governance and assurance risk reviews.

Belle is a registered professional mining engineer with B.E. and M.Sc. degrees from Pennsylvania State University and a Ph.D. degree from the University of the Witwatersrand (Wits). He completed the Management Development Programme at University of Stellenbosch and University of Cambridge (UK) and the University of Queensland Sustainability Programme and is expecting a graduate certificate in applied statistics (2022) from Pennsylvania State University. He serves as adjunct professor of mining engineering at University of New South Wales (Sydney), University of Queensland, and University of Pretoria, South Africa.

Environmental Division Awards

ENVIRONMENTAL DIVISION STEWARDSHIP DISTINGUISHED SERVICE AWARD TO KWAME AWUAH-OFFEI

The Environmental Division Stewardship Distinguished Service Award is presented to Kwame Awuah-Offei for “the recognition of his valuable contribution to mining knowledge and his encouragement and teaching of all levels of mining

professionals.”

Awuah-Offei is currently the Union Pacific/Rocky Mountain Energy Professor in Mining Engineering and chair of the Department of Mining and Explosives Engineering at Missouri University of Science and Technology (Missouri S&T). He holds a Ph.D. degree in mining engineering from Missouri S&T. He has more than 20 years of research, teaching and industry experience, and his research interests include modeling and optimization of mining systems, and design and management of sustainable mining systems. Awuah-Offei has conducted nearly \$4 million in funded


KWAME AWUAH-OFFEI

research and published more than 100 papers. He has graduated six Ph.D. and five M.S. students. He is a member of SME, member of the Society of Mining Professors, and fellow of the West African Institute of Mining, Metallurgy & Petroleum. He served as mining engineering academic fellow for the U.S. Securities & Exchange Commission (2015-2016) and as Henry Krumb lecturer (2019-2020).

Health & Safety Division Awards

RESEARCH AND EDUCATIONAL EXCELLENCE AWARD TO PURUSHOTHAM TUKKARAJA

The Research and Educational Excellence Award is presented to Purushotham Tukkaraja “for his work as a dedicated professor, researcher, and a pioneer for mine ventilation and health and safety.”

Tukkaraja is an associate professor of mining engineering and the director of the South Dakota MSHA State Grants Program at South Dakota Mines. He is an ABET program evaluator and a qualified professional member of the Mining and Metallurgical Society of America (MMSA). He organized the 2021 North American Mine Ventilation Symposium. He serves on the SME’s Underground Ventilation Committee executive board. He is the advisor for the South Dakota Mines student chapter of the International Society of Explosives Engineers (ISEE). He is also an associate editor, editorial board member, and reviewer for several mining engineering journals. He served


PURUSHOTHAM TUKKARAJA

as the president of the Black Hills Chapter of ISEE. He is an active member of SME, MMSA, BHISEE and ISEE.

INDIVIDUAL EXCELLENCE AWARD TO THOMAS A. HETHMON

The Individual Excellence Award is presented to Thomas A. Hethmon “for his dedicated, innovative leadership in developing and implementing safety processes that suit the climate and culture of the industry and for his service to the Health & Safety Division and SME.”

Tom Hethmon’s (MS, CMSP, FAIHA) career in the mining industry spans 31 years across 35 countries. He is currently senior manager for Risk and Safety Assurance with Anglo American. He previously held health and safety executive (HSE) and risk management positions with SSR Mining, KGHM International, Dyno Nobel, Rinker Materials and Phelps Dodge. As a consultant, he was co-creator of the National Mining Association’s (NMA) CORESafety and developer of the “Whole Systems Safety” concept.

He was the Western Mining Presidential Endowed Chair in Mine Safety and associate professor at the University of Utah from 2010 to 2015 and is currently adjunct professor at the University of British Columbia. He is a subject-matter expert in mine safety and health, risk management and management systems.

Hethmon earned a B.S. in kinesiology from University of California Los Angeles, an M.S. in health science from CSU Northridge, is a Certified Mine Safety Professional (CMSP) through SME, and is a fellow of the AIHA. His publications include multiple textbook chapters and peer-reviewed articles. His appointments include chair of the International Academy of Mine Safety & Health (IAMSH) and SME’s Health & Safety Division, and he served on the National Institute for Occupational Safety and Health’s (NIOSH) Mine Safety and Health Research Advisory Committee (MSHRAC) and the board of SAFEX International, among others.


THOMAS A. HETHMON

Industrial Minerals & Aggregates Division Awards

A. FRANK ALSOBROOK INDUSTRIAL MINERALS & AGGREGATES DIVISION DISTINGUISHED SERVICE AWARD TO RUSSELL T. WINN

The A. Frank Alsobrook Industrial Minerals & Aggregates Division Distinguished Service Award is presented to Russell T. Winn “in recognition of service, dedication, professionalism and ongoing commitment and inclusiveness to the Industrial


RUSSELL T. WINN

Minerals & Aggregates Division, SME and his scientific community.”

Rusty Winn is an industrial minerals and aggregates geologist with more than 20 years of experience in the field. He has had the pleasure of serving in multiple positions throughout SME for the past 15 years. Currently, he is employed as engineering manager with Permian Basin Materials in Texas. Some of his oversight includes exploration, environmental compliance and project management across 32 aggregate and ready-mix operations. He is driven by an admiration for the mining industry and has strived to serve and promote the hard-working and amazing people within it. Winn is thankful for the support and opportunities of the Industrial Minerals & Aggregate Division and SME.

INDUSTRIAL MINERALS & AGGREGATES OUTSTANDING YOUNG SCIENTIST AWARD TO RIDDHIKA JAIN

The Industrial Minerals & Aggregates Division Outstanding Young Scientist Award is presented to Riddhika Jain “for consistently contributing to technology development of fine particles separation or concentration by novel means that has application in many fields including industrial minerals.”

Jain specializes in the energy-efficient beneficiation of minerals and is working as product support engineer, stirred mills with Metso Outotec. Her current research interests include ultrafine grinding of battery and

precious metals. Her past 10 years of work experience include various roles such as product manager, product development manager and sales engineer with Metso Outotec, Outotec and Sandvik.

Jain has served SME in various capacities within the Industrial Minerals & Aggregate Division, recently as division vice chair and in the past as program chair and technical committee chair. She has also served on various awards and scholarship committees.

Jain received her M.S. from Virginia Tech and a bachelor of technology from the Indian Institute of Technology, Dhanbad. She received the Young Authors Award at the International Mineral Processing Congress (IMPC) in 2016 and a scholarship from CAMEO in 2013. Jain has led creative and innovative efforts in mineral beneficiation, such as magnetic separation, flotation and tailings treatment and ultrafine milling. She has also published a patent to improve ultrafine recovery in traditional flotation cells and developed a novel HHS process for precious metals. She will continue to advocate for energy-efficient equipment that will lower the total cost of ownership while reducing the carbon footprint.



RIDDHIKA JAIN

Mineral & Metallurgical Processing Division Awards

ANTOINE M. GAUDIN AWARD TO CYRIL T. O'CONNOR

The Antoine M. Gaudin Award is presented to Cyril T. O'Connor “for outstanding scientific, technical, and outreach contributions that have advanced the engineering practice of mineral processing.”



CYRIL T. O'CONNOR

O'Connor is a chemical engineer with a Ph.D. from the University of Cape Town, South Africa and a senior doctorate in metallurgical engineering from Stellenbosch University, and he is a registered professional engineer. He is the founder director of the Centre for Minerals Research at the University of Cape Town. He was the president of the International Mineral Processing Council (2006-2020),

held the Anglo-Platinum Chair in Minerals Processing from 2008 until retirement and was a member of the Executive of the South African Academy of Engineering (2012-2020). He has published more than 300 papers in international journals and refereed conference proceedings and has supervised more than 80 Ph.D./MSc graduates. He is honorary fellow of the South African Institute of Mining and Metallurgy, is a fellow of, respectively, Royal Society of South Africa, University of Cape Town, South African Academy of Engineering, South African Institution of Chemical Engineering, is a founder member of the Academy of Science of South Africa and is an international member of the U.S. National Academy of Engineering (NAE).

MILTON E. WADSWORTH AWARD TO YEONUK CHOI

The Milton E. Wadsworth Award is presented to Yeonuk Choi “for his dedication and contributions to the development and implementation of technologies in the



YEONUK CHOI

field of extractive metallurgy from the idea generation stage through commercialization.”

Born in Seoul, South Korea, Choi obtained B.Sc. and M.Sc. degrees from Yonsei University, Seoul, South Korea and a Ph.D. from South Dakota School of Mines and Technology.

He worked as a research fellow in the University of Idaho and Delft University and worked for Korea Zinc, Noranda and Falconbridge.

His last job was as technology director at Barrick Gold Corp. He has been president of Yakum Consulting Inc. since 2018. He is also adjunct professor at the Mining Department of Queen’s University. He has more than 30 years of experience in base and precious metals including zinc, copper, manganese and nickel. He has published more than 15 patents as well as numerous papers and presentations.

MPD OUTSTANDING YOUNG ENGINEER AWARD TO THOMAS C. RAUCH

The MPD Outstanding Young Engineer Award is presented to Thomas C. Rauch “for his work in advancing the practice of mineral processing applied to capital projects and support of the industry through philanthropy and development of young professionals.”

For Rauch’s profile, see page 54.

ARTHUR F. TAGGART AWARD TO GRANT COLLIGAN, BROCK O’KELLEY AND CORBY G. ANDERSON

The Arthur F. Taggart Award is presented to Grant Colligan, Brock O’Kelley and Corby G. Anderson for their paper titled “Novel Methods for Bastnaesite Concentrate Leaching,” published in *Mining, Metallurgy & Exploration* (2022) Vol. 39, pp. 31–38.



GRANT COLLIGAN

Colligan is a graduate of the Colorado School of Mines with a dual master’s degree in metallurgical and materials engineering and mineral economics. He currently works as a metallurgist at USA Rare Earth, focusing on the hydrometallurgical extraction of rare earth elements and lithium, working to expand the ability of domestic U.S.

companies to produce rare earth elements. Outside of extractive metallurgy you can find Colligan coaching,

training and competing in running races across the country.

O’Kelley graduated from the Colorado School of Mines in 1974 with a B.S. in mineral processing and extractive metallurgy. He has experience in the lead belt of Missouri, iron and steel in East Chicago, IN and oil shale in Colorado but found his calling with rare earths located in California, which expanded to include sources worldwide.

O’Kelley’s career in the rare earth industry has spanned 37 years. He began with Molycorp in 1985 at the Louviers, CO separations facility as a process engineer. In 1990, he was transferred to the Mountain Pass, CA mine as superintendent of the Rare Earth Separations plant. Over the years, he held a variety of positions at Mountain Pass including operations manager, technology manager and director of technology. As a result of his work with young engineers and scientists, he was appointed Molycorp’s first technology fellow and vice president of technology. He was responsible for corporate geology/exploration programs and for the development of processes and process improvements being utilized in Molycorp’s Project Phoenix, a \$1.5 billion rebuild of the Mountain Pass production facilities.



BROCK O’KELLEY

Since his retirement in 2015, he joined the Colorado School of Mines’ Kroll Institute for Extractive Metallurgy team and has been transferring his knowledge in rare earths to graduate students working on projects related to rare earths. He is also actively engaged with his consulting firm, providing technical expertise and guidance in rare earths.

Anderson is a licensed professional chemical engineer with more than 40 years of global experience in industrial operations, corporate-level management, engineering, design, consulting, teaching, research and professional services. He is a native of Butte, MT.

His career includes positions with Thiokol Chemical Corp., Key Tronic Corp., Sunshine Mining and Refining Co., H.A. Simons Ltd. and at CAMP-Montana Tech. He holds a B.Sc. in chemical engineering from Montana State University, an M.Sc. in metallurgical engineering from Montana Tech and a Ph.D. in mining engineering–metallurgy from the University of Idaho. He is a fellow of both the Institution of Chemical Engineers and of the Institute of Materials, Minerals and Mining. He has directed or co-directed more than 40 graduate students. He shares 16 international patents and three new patent applications covering several innovative technologies, six of which were successfully reduced to industrial practice.

Anderson currently directs the Kroll Institute for Extractive Metallurgy and serves as the Harrison Western Professor as part of both the Mining Engineering

**CORBY G. ANDERSON**

Department and the George S. Ansell Department of Metallurgical and Materials Engineering at the Colorado School of Mines. He is also the Colorado School of Mines director for the Center for Resource Recovery and Recycling.

He has won the SME Milton E. Wadsworth Extractive Metallurgy Award, the International Precious Metals Institute's Tanaka Distinguished Achievement Award, the

SME Distinguished Member Award and became a distinguished member of the University of Idaho Academy

of Engineering. In 2017 he received the Extraction & Processing Division (EPD) Distinguished Lecturer Award from The Minerals, Metals and Materials Society (TMS). In 2019 he was named a Henry Krumb Distinguished SME Lecturer.

In 2019 Anderson was appointed and serves now as a visiting faculty within the Minerals Engineering Department of Central South University in China, the largest program of mineral processing and extractive metallurgy in the world. In both 2016 and in 2021 he received an Outstanding Faculty Award from the Colorado School of Mines. He was also elected in 2021 to the Sigma Xi Scientific Research Honor Society. In 2022 he received the TMS EPD Distinguished Service Award for his career contributions. That same year, he and his co-authors received the SME Arthur F. Taggart Award for a notable contribution to the science of mineral processing.

Mining & Exploration Division Awards

BEN F. DICKERSON III AWARD TO SCOTT P. LAWSON

The Ben F. Dickerson III Award is presented to Scott P. Lawson "for his passion and commitment to improving the mining industry through innovation, continuous improvement, value engineering, and community engagement."

Lawson is an independent nonexecutive director with AngloGold Ashanti. With more than 35 years in the mining industry, he is an experienced global mining executive who has served in a broad range of roles with expertise in international operations, technology and innovation, project development and delivery, supply-chain management and information technology. He was the executive vice president and chief integration officer of Newmont Corp. until January 2020. Prior to that, Lawson served as executive vice president and chief technology officer and in other executive technical roles at Newmont Corp. from 2012.

Lawson spent 22 years at Rio Tinto in executive roles with Rio Tinto Alcan, Rio Tinto Technology and Innovation and Rio Tinto Kennecott. He is the former senior vice president for engineering services at Peabody Energy, responsible for global engineering and technical services support.

**SCOTT P. LAWSON**

MINING & EXPLORATION DIVISION DISTINGUISHED SERVICE AWARD TO ANDREA J. BRICKEY

The Distinguished Service Award is presented to Andrea Brickey "for her tireless dedication and service to the local sections and the Mining & Exploration Division."

Brickey is an associate professor at the South Dakota School of Mines and Technology. Prior to her career in academia, she was a principal consultant for Pincock, Allen and Holt. Her industry experience has focused primarily on mine feasibility and design at numerous operations and projects around the world for a variety of commodities. She has a B.S. in mining engineering from South Dakota School of Mines and Technology, a post-graduate diploma in management practices from the University of Cape Town, Graduate School of Business, and a Ph.D. in mining and earth systems engineering from the Colorado School of Mines.

Brickey has proudly served SME both locally and nationally. She is currently serving on the Education Sustainability Committee and as an associate editor on the Editorial Board of the *Mining, Metallurgy & Exploration* journal. She has previously served on the Accreditation & Curricular Issues Subcommittee, the Minerals Industry Education Award Committee and spent 10 years as a

**ANDREA J. BRICKEY**

member of the Professional Engineers Exam Committee. Until recently, she was the SME South Dakota Mines Student Chapter advisor.

Brickey is a recipient of the Seeley W. Mudd Memorial Ph.D. Fellowship and the SME Academic Career Grant. In 2019, she received the Tim Shaw award for innovations in teaching and learning from the Society of Mining Professors. She also serves on the NIOSH Mine Safety and Health Research Advisory Board and is on the executive council for the Mining and Metallurgical Society of America. She is a licensed professional engineer in Colorado and South Dakota.

HARRY M. PARKER EXCELLENCE AWARD TO GEORGES W. VERLY

The Harry M. Parker Excellence Award is presented to Georges W. Verly “for outstanding teaching and applied research, particularly in the fields of mathematical geology, conditional simulation, and the geological processes supporting mineral resource and reserve estimation.”

Verly is chief geostatistician at Wood Mining and Minerals Consulting, with 40 years of consulting, operations and academic experience. His areas of specialization

include geostatistics, conditional simulation of geological and grade models, mineral resource estimation, grade control, reconciliation, mineral resource audits, geostatistical training and software development.

Verly obtained his degree in geological engineering from Ecole Polytechnique de Montréal in 1977, where he was first introduced to geostatistics with Michel David. He completed his Ph.D. at Stanford University under Andre Journel. He is the

recipient of several awards including the President Prize of the International Association for Mathematical Geology, the SME/AIME Robert Peeles Memorial Award, and the Mathematical Geology Best Paper Award. He has taught practical geostatistics courses on more than 60 occasions in 12 different countries and has coauthored more than 20 technical papers in the field.

OUTSTANDING YOUNG PROFESSIONAL AWARD TO KATHLEEN M. TEW

The Outstanding Young Professional Award is presented to Kathleen M. Tew “in recognition of her passion and leadership in the SME Young Leaders.”

Tew is a mining engineer with six years of professional underground mining experience. She started her professional career in 2016 as a mine planner in the Missouri room-and-pillar lead mines. In 2018, she started

as an underground mine contractor working in both shaft and underground development operations. Outside of her professional work, she has been very active with the SME. Most recently, she was chair of the SME Young Leaders Committee (YLC). In addition to her projects with Young Leaders, she also worked on creating SME’s latest committee, the ESG Toolkit. She was recently appointed to the SME Foundation Board of Trustees, where she is currently the youngest trustee, with the goal of helping to raise money for all the efforts the SME Foundation supports. She also is the current vice chair for the Student Member’s Affairs Committee, a representative on the Association Growth Strategic Committee, a member of the Miner’s Give Back Committee, and a chair for the M&E Division’s technical sessions. In the last year, she has become an avid supporter for mental health in the industry. She created a survey within the YLC to help normalize the discussion.



KATHLEEN M. TEW

MINER OF THE YEAR AWARD TO MELISSA HARMON

The Miner of the Year Award is presented to Melissa Harmon, “in recognition of her inspirational leadership, quality mentorship, and outstanding commitment to building safe, inclusive, and diverse mine sites.”

Harmon has worked at Newmont for 22 years in various technical and operational leadership roles at five different mine sites in Nevada, Colorado and Ghana and has also held both corporate and regional roles. She is currently the vice president of productivity for Newmont’s North America region, which includes five mines in the United States, Canada and Mexico.

Harmon received her degree in mine engineering from the University of Nevada. She also holds an MBA from Auburn University, a professional engineer (PE) license in Nevada and is a registered member of SME. She is proud to have received awards for safety leadership from the Nevada Mining Association and the Mine Safety and Health Administration and to have been named Alumni of the Year in 2020 for the Mackay School at the University of Nevada. She gives back to the mining industry by sharing her passion for safety as well as inclusion and diversity.



MELISSA HARMON

WAAIME Division Award

WAAIME FOUNDERS AWARD TO PATRICIA ANN MCWHORTER

The WAAIME Founders Award is presented to Patricia Ann McWhorter “in recognition of her exemplary and continuous service to WAAIME by assisting in revitalizing the West Virginia-Southern Section, helping to raise scholarship funds for the Bluefield State College Mining Department, composing and editing the WAAIME Newsletter for many years, participating on the WAAIME Board of Directors in various offices, and spending countless hours on reviewing the wills and legal documents concerning the WAAIME endowments to clarify and verify the criteria, amounts and additional requirements of said endowments, for the WAAIME Board of Directors.”

A resident of Penny Farms, FL, McWhorter received a biology degree from Wesleyan College in Macon, GA and did research on lung cancer in uranium miners on the Colorado Plateau. In 1965 she married Purnal

“Judge” McWhorter, who was active in the mining community. Upon their move to Beckley, WV, she worked with other ladies to revitalize the WV Southern WAAIME Section. They sponsored many activities to raise money for local scholarships. McWhorter served in numerous capacities on the local and national levels. She single-handedly identified and classified WAAIME’s endowments, encouraged students to apply, helped them submit applications, and arranged interviews by getting interview rooms, setting interview times and encouraging other WAAIME members to help, even making cookies to share with the interviewees. She then prepared notes from the interviews and submitted the applications to the national WAAIMES. Over the years, she helped distribute as much as \$500,000 from WAAIME to students. ■



**PATRICIA ANN
MCWHORTER**

Pittsburgh/PCMA contest

(continued from page 52)

concerns. The flooded-bed scrubber, which is mounted on a continuous miner, has been widely used as a preventative



M. Esad Uluer

dust remover in underground mining operations. The conventional static panel filter in the scrubber is fundamentally limited in collection efficiencies and causes numerous operational challenges. The overall goal of this study is to introduce an improved flooded-bed dust scrubber with a vibrating mesh panel as an alternative to the conventional static mesh panel that will mitigate filter panel clogging and other operational issues while enhancing dust collection efficiency. Bench-scale data show that under the optimal test condition, the collection efficiency of the

vibrating mesh greatly exceeds that of the static mesh. Additionally, the same vibrating mesh conditions produced a significant amount of reduction in pressure drop across the mesh and in dust accumulation within the filter over the same time period. The proposed design provides stable performance over a prolonged period of time with less frequent maintenance and significantly improves health, safety and operational outcomes through improved dust capture and reduced mesh clogging compared to that of the traditional flooded-bed scrubber with a static mesh filter. The final result from this study can also be a detailed technical design for a mine-worthy unit.

Uluer has been a graduate student as well as a graduate research assistant in mining and minerals engineering at Virginia Tech since 2020. He has also worked with the Turkish Energy Department’s natural resources and energy politics team for four years in the past. His research is focused on improving coal dust collection activity in underground coal mines where continuous miners are used. Uluer specializes in health and safety applications and mining ventilation. ■

Upcoming SME Events

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April 17-19, 2023
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APCOM — Intelligent Mining:
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June 25-28, 2023
Rapid City, SD

Hydrometallurgy
August 27-30, 2023
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SME continues its mission with four new books



William Gleason
Editor

During the MINEXCHANGE 2023 SME Annual Conference & Expo in Denver, CO Feb. 26 to March 1, veterans of the mining industry, many of whom have earned praise, awards and respect for career accomplishments will intermingle with students and young professionals looking to either enter or begin their careers in the industry. Together, they will attend and give presentations about the most pressing issues for the mining industry, learning from one another throughout the week.

MINEXCHANGE is the largest and most comprehensive annual opportunity for the in-person exchange of technical information among peers in the mining industry. And in a time when the mining industry desperately needs new talent to join its ranks, the conference plays a crucial role in connecting generations. Finding ways to recruit and retain young professionals to the mining industry is one of SME's top priorities.

And while these efforts to find new talent are important, much like exploration efforts to find a new deposit, the transfer of knowledge from one generation to the next is equally important.

At its core, SME has long been the world leader in the dissemination of technical information in the mining industry through its conferences, periodicals and books. This year, SME will present four new book titles that help fulfill this important mission — *In the Aggregates*, *Forty-Two Years in the Sand Box*, by Andrew F. Haumesser, *Rise of the Mining Royalties Companies*, edited by Douglas Silver and the *SME Surface Mining Handbook* and *SME Underground Mining Handbook*, both edited by Peter Darling.

Darling, who also edited SME's *Mining Engineering Handbook, Third Edition* in 2011 spoke about the role of his books.

"Despite positive and progressive factors, the industry still suffers from a manpower issue since the majority of its personnel are within a decade of reaching retirement age," Darling said. "As such, the alarming loss of knowledge and skills is a serious issue and one which cannot only be addressed by short-term employment contracts, "borrowing" expertise from other industries, generous remuneration packages, etc. ... Nor indeed can it be rectified by "persuading" those who have recently retired to return as advisers/consultants/troubleshooters/mentors.

As such, these two books (*SME Surface Mining Handbook* and *SME Underground Mining Handbook*) are an attempt to capture the collective mining engineering knowledge of those "grey beards" on the cusp of leaving our industry, thereby ensuring that the skills, knowledge and expertise that they have perfected over decades are not lost ... which would require them to be learnt anew, with all the mistakes, inefficiencies and accidents that this would invariably involve."

The *SME Surface Mining Handbook* and *SME Underground Mining Handbook* were compiled over the course of two years with contributions from more than 130 authors and more than 160 editors providing peer review.

The *Rise of the Mining Royalties Companies* tells the story of the creation of the modern public mining royalty and streaming industry. Silver, one of the most respected players in this sector, gathered the stories from titans in the industry so that they will be preserved for future generations. And in his book *In the Aggregates*, Haumesser shares personal experiences along with valuable technical information.

For more than 25 years Jane Olivier brought these and dozens more titles from idea to your bookshelf. *The Rise of the Mining Royalty Companies* is the last book she will oversee from start to finish for SME as she heads into a well-earned retirement. "Having already worked with Jane, it was a great asset and comfort to me to have her as my publisher on these two new books," said Darling. "Her patience, wise advice and encouragement are not attributes that can be underestimated in their ability to take the spark of an idea, fan it into a flame of enthusiasm, and end up publishing a technical book of worth."

I would like to thank Jane for her many years of outstanding service to SME. I will miss setting up the bookstore with her at the MINEXCHANGE and MINExpo while at the same time, I wish her many happy and healthy years in retirement with her family and friends. ■ ■ ■

For 75 years, *Mining Engineering* has published technical information, industry news and news of the Society every month. On Tuesday, Feb. 28, we will celebrate 75 years of *Mining Engineering* at the SME Connection in the Exhibit Hall at the Colorado Convention Center. I invite former editors, authors, contributors and advertisers to celebrate the 75h Anniversary with us from 4 to 5:30 p.m. In August we will celebrate in print. ■



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SME Keynote Session: Embracing ESG to Build Trust in Mining Investments – A Panel Discussion

Moderators: Kelly Ward, Marsh and Kim Morrison, Newmont

Panelists: **Ryan Bond**, Head of Climate and Sustainability Insurance Initiative, Marsh
Aidan Davy, Chief Operating Officer, International Council on Mining and Metals (ICMM)
Daniele La Porta, Global Head of Sustainability and ESG, Gerald Group
Casey Nault, Senior Vice President, General Counsel and Chief ESG Officer, Coeur Mining, Inc.

ESG – environmental, social, governance – and the issues it encompasses has come to the forefront of the mining industry. External influencers such as institutional investors are demanding increased attention on ESG drivers and looking beyond financial performance, while insurance companies also consider ESG performance in their coverage pricing and terms. Further, new standards and frameworks have been introduced against which mining companies are being measured. Against this background it can be difficult

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Hecla Mining Company (NYSE:HL) is the largest silver producer in the United States. In addition to operating mines in Alaska, Idaho, and Quebec, Hecla owns exploration and pre-development properties in world-class silver and gold districts throughout North America. Founded in 1891, our common stock has been traded on the New York Stock Exchange for over 50 years. Our philosophy is to operate mines safely using a deep-rooted value-based culture and leveraging innovative mining skills developed over our long history. Learn about Hecla's responsibility to the safety and health of our people, our local communities, and the environment at www.hecla-mining.com.

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Title Sponsor, MPD Luncheon

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Aspen Technology, Inc.

The EXCHANGE: MXC 2023

Conference Daily e-Newsletter

AspenTech is a global leader in asset optimization software helping organizations run their assets safer, greener, longer, and faster. Its solutions address complex, industrial environments like metals and mining, where it is critical to optimize the asset design, operation, and maintenance lifecycle. In the path to the digital mine, AspenTech can help enable machine learning solutions, pit to port, to support your automation journey.

National Sand, Stone & Gravel Association (NSSGA)

SME/NSSGA 2022-2023 Student

Design Competition Platinum

Sponsor

NSSGA is the leading voice and advocate for the aggregates industry. Our members include stone, sand and gravel producers and the equipment manufacturers and service providers who support them. NSSGA advances public policies that protect and expand the safe, environmentally responsible use of aggregates that build America's infrastructure and economy. NSSGA advocates for members' interests on health, safety and environmental issues. In addition, NSSGA offers its members many opportunities to participate in education and tradeshow events that include CONEXPO-CON/AGG, AGG1 Academy & Expo, Young Leaders and the NSSGA Annual Convention.

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MineSense is a pioneer in digital mining solutions, supplying real-time, sensor-based ore sorting for mines. Our signature solution is ShovelSense, a robust sensor installed on mining equipment to scan and measure the grade of the material in every shovel and bucket. The increased real-time visibility of your orebody provided by ShovelSense drives improvements in your mine's efficiency, profitability and sustainability.

Burgex Mining Consultants

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*Colorado Mining Association (CMA)
Reclamation & Safety Awards
Luncheon, EXPO Hall Entrance
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For more than 125 years Steinert has revolutionized magnetic separation and sensor sorting technology. We think of our equipment as Resource Search Engines — high-performance machinery that solves sorting tasks to keep increasingly scarce resources in circulation. By identifying and preserving natural resources we help you increase your profitability and help your company contribute to global resource sustainability. We work closely with you to create unexpected solutions to your resource challenges. With sorting equipment that's quick to install and easy to use, your most direct route to increased recovery, purity and profitability runs through Steinert, the global leader in sorting technology.



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*Mineral & Metallurgical Processing
Division Luncheon Title Sponsor*

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Vulcan Materials

*SME/NSSGA Student Design
Competition Title Sponsor*

Vulcan Materials Company is the nation's largest producer of construction aggregates—primarily crushed stone, sand and gravel—and a major producer of

aggregates-based construction materials, including asphalt and ready-mixed concrete. Our coast-to-coast footprint and strategic distribution network align with and serve the nation's growth centers.

Nalco Water, a Ecolab Company

Women of SME Breakfast

A global leader in water and process management solutions, Nalco Water, an Ecolab company, works with customers across the mining and mineral processing industries to help maximize outcomes and minimize water and climate impacts at an optimized total cost. Leveraging a global network of technical experts, research and development laboratories, and world-class training programs, we deliver unparalleled service to our customers.

Main Office

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Naperville, IL 60563 USA
<https://www.ecolab.com/about/industries-we-serve/mining-and-mineral-processing>

ARCADIS

*Environmental Division Poster
Contest, Monday Night Social*

Arcadis is the leading global natural and built asset design and consultancy firm. Our deep knowledge of the unique and multifaceted mining industry, combined with our extensive global network and decades of experience, uniquely position us to help you manage your asset portfolio while minimizing your operational costs, bringing world-class expertise to support local teams who understand your concerns. Our expertise includes environmental studies, mitigation strategies, planning, engineering, procurement, project and construction management, operations support and improvement. We offer unique services tailored to all areas and disciplines from Pit to Port for the entire mine and project life cycles.

Main Office

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Highlands Ranch, CO 80129 USA
Phone: (720) 344-3500
www.arcadis.com

Hatch

*Young Leaders Professional
Development Luncheon
Entrepreneurs with a technical soul*

Our organization is passionately committed to the pursuit of a better world through positive change. We embrace your visions as our own and partner with you to develop better ideas that are smarter, more efficient, and innovative. Our global network of 9,000 professionals work on the world's toughest challenges. Our experience spans over 150 countries around the world in the metals, energy, infrastructure, digital, and investments market sectors. We are employee-owned and independent—free to bring our best thinking to your business. Our exceptional, diverse teams combine vast engineering and business knowledge, working in partnership with our clients to develop market strategies, manage and optimize production, develop new game-changing technologies, and design and deliver

complex capital projects. We work closely with the communities in which we serve to ensure that our solutions optimize environmental protection, economic prosperity, social justice, and cultural vibrancy. We want their businesses, ecosystems, and communities to thrive, both now and into the future.

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We are GMS and we've been serving the Mining Industry for nearly 40 Years. Our deep experience and broad range of specialized services and products allow us to serve the customer with unmatched efficiency and scale as we continue to grow and adapt to constantly changing markets. We offer Underground and Surface Mining contract labor and specialized services supported by our own custom engineering and fabrication facilities. We're prepared to tackle even the most demanding jobs and you can be confident that it's done right.

Main Office

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Oakland, MD 21550 USA
Phone: (301) 334-8186
www.gmsminerepair.com

American Consolidated Natural Resources, Inc.

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Title Sponsor*

American Consolidated Natural Resources is the Largest Underground Coal Mining Company in America. We are proud to state that American Consolidated Natural Resources and its Subsidiary Companies employ and manage nearly 5,000 employees and currently manages 9 active coal mines, consisting of 9 underground longwall mining systems and 25 continuous mining units in 5 regions. Most importantly, American Consolidated Natural Resources operates among the safest underground coal mines in the world.

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www.safeai.ai

Getman Corporation

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Getman Corporation provides application-specific solutions for production and production support equipment to underground mines all over the world. With over 65 years of experience serving the underground mining industry, Getman machines are as functional and durable as they are safe. Getman's network of dealers and distributors allows us to sell and support our products worldwide. We are proud to be the preferred supplier for underground mining equipment by offering customer-specific, value-driven, and long-lasting product solutions with world-class aftermarket support.

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*Mineral & Metallurgical
Processing Division (MPD)
Luncheon Title Sponsor*

Our engineering group is a full-service engineering company with a complete menu of engineering capabilities and extensive expertise. We take Hands-On, On-site responsibility for the entire facility delivery process, from conceptual design through detailed engineering, construction management, commissioning, and operator training. With our understanding of our client's needs coupled with effective management corporate structure, allows us to provide an excellent and highly competitive service to the mining and heavy industrial sectors. We are highly skilled in a variety of areas, extending these skills to solving, Mechanical Engineering, Conveyor Design, Structural/Civil Engineering, Electrical and Instrumentation, Process Engineering, Rail and Track Engineering.

Main Office

1011 Murray-Holladay Rd, Ste 200
Salt Lake City, UT 84117 USA
Phone: (801) 456-8163
Email: kevinm@millcreekeng.com
www.millcreekeng.com

Flottweg Separation Technology, Inc

*Mineral & Metallurgical
Processing Division (MPD)
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Flottweg provides liquid solid separation equipment for mining applications. Their 2 and 3 phase decanter centrifuges and separator centrifuges are used in CRUD separation, gravel washing, drilling mud recovery, solvent extraction, oily water solids separation, solids sorting, and wastewater treatment. Skid mounted and containerized systems are also available. Contact us today for a trial.

Main Office

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Independence, KY 41051 USA
Phone: (859) 448-2300
www.flottweg.com

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Providing architecture, engineering, and construction management services on projects across the globe for thirty-five years, M3 brings to each project an experienced staff serving with leadership and expertise, partnering with our clients for the lasting benefit of their capital improvement projects. M3 provides single-source design and engineering services allowing us to establish long-term relationships with clients often spanning multiple projects, both large and small, as each client's needs arise and change.

Polydeck

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Division (MPD) Scotch Nightcap
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Since 1978, Polydeck has been the leading provider of the most dependable synthetic screen media in the aggregate, coal, and mining industries across North and South America. We are pioneers, inventors and we take pride in putting our customers first and providing custom solutions for any of your screening needs. We love the work but your success is our reward. To know that you have the screens you need to keep your plant running, producing faster and producing more, is what we call Together Strong.

Main Office

1790 Dewberry Rd
Spartanburg, SC 29307 USA
Phone: (864) 579-4594
Email: info@polydeck.com
www.polydeck.com

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Main Office

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Princeton, NJ 08540 USA
Phone: (609) 860-4000
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Supporting Sponsor*

Paterson & Cooke is a recognized leader in the design and implementation of slurry systems and associated processes. Since our formation in 1991, we have consistently provided technologically superior slurry systems for projects located throughout the world. Our key areas of expertise include: Laboratory Testing, Dewatering Circuit Design, Tailings System Engineering (conventional, cycloning, high density paste, thickened and filtered), Long Distance Slurry Pipeline Systems, Leak Detection Systems, Mine Backfill Systems, Optimization Services, Process Engineering, Process Control, Pilot Plants and Specialized Training Courses.

Main Office

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Golden, CO 80401 USA
Phone: (303) 800-6343
www.patersoncooke.com

Bechtel

*Mineral & Metallurgical Processing
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*Mineral & Metallurgical Processing
Division (MPD) Scotch Nightcap
Supporting Sponsor, Colorado Mining Association Technical Sessions*

The P&C Recruiting and HR team, founded by Dana Pray and Rhonda Zuraff, has over a dozen full-time and part-time employees located throughout North America who bring experience and knowledge within the mining and alternative energy sectors. P&C, formerly known as Pray & Company, has diversified and grown; now providing the following services throughout the America's - in mining (precious metals, base metals, industrial minerals) and alternative energy:

- Technical and Professional Recruiting
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Many of our client employers and placed candidates are thrilled to offer references to you!

Contact Information:

www.pandcrecruiting.com
toll-free: 833-775-7729

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Luncheon Title Sponsor*

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Main Office

1850 N Central Ave, Ste 800
Phoenix, AZ 85004 USA
Phone: (602) 977-2623
www.burnsmcd.com/

WSP

*Mining & Exploration Division
Luncheon Supporting Sponsor, Environmental Division Poster Contest,
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Main Office

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Lakewood, CO 80226 USA
Phone: (303) 980-0540
https://www.wsp.com/en-gl/sectors/mining

Nevada Mining Association

Mobile App Banner Ad

The Nevada Mining Association has existed for more than 100 years—first established in 1913 as the Nevada Mine Operators Association and changed to the Nevada Mining Association in 1952. From debating policy matters in the state legislature and local governments to uniting the voice of the industry in public relations, the Nevada Mining Association can be seen in all corners of the state. The mission of the Nevada Mining Association is to unite, educate, advocate, and serve as the public voice of Nevada's modern mining industry.

J.H.Fletcher

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Since 1937, Fletcher has been engineering and manufacturing custom solutions for underground mining.

Today, Fletcher products expand into a variety of industries. Through the decades, Fletcher has operated with a singular vision: to work with a vigilant focus on finding ways to improve mining and industrial processes and reducing risk for the people who work in those industries.

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Website: www.mccarlstech.com

Energy Fuels

*Colorado Mining Association (CMA)
Reception in EXPO Colorado
Pavillion*

Energy Fuels is the leading U.S. producer of uranium – the fuel for carbon- and emission-free nuclear energy. Nuclear energy is expected to see strong growth in the coming years, as nations around the world work to provide plentiful and affordable energy, while combating climate change and air pollution. With a truly unique portfolio, Energy Fuels has more production capacity, licensed mines and processing facilities, and in-ground uranium resources than any other U.S. producer. It boasts diverse cashflow-generating opportunities, including vanadium production, uranium recycling and rare earth processing.

Haynes and Boone, LLP

*Colorado Mining Association (CMA)
Technical Sessions*

Haynes and Boone, LLP is an international corporate law firm with 18 offices in Texas, New York, California, Charlotte, Chicago, Denver, Washington, D.C., London, Mexico City and Shanghai, providing a full spectrum of legal services in energy, technology, financial services and private equity. With 600 lawyers, Haynes Boone is ranked among the largest U.S.-based firms by The National Law Journal, The American Lawyer and The Lawyer. It was recognized in the BTI Consulting Group's 2022 "A-Team" report, which identifies the law firms that in-house counsel commend for providing superior client service.

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Foth Infrastructure & Environment

*Environmental Division Luncheon
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Foth empowers clients to unlock the potential of their mining projects. Our firm provides a unique strategic and holistic approach to project development that is business enabling and supports optimization and leverages the long-term economics of your mining assets. Our team of mining professionals offers a combination of expertise to strategically manage projects from concept, through sustainable operations, to closure. Since 1938 the firm has thrived in a dynamic and demanding marketplace by solving our clients' toughest science and engineering challenges. Our 600-member, employee-owned firm operates out of 27 locations across the United States and Canada.

Luck Stone

*SME/NSSGA Student Design Comp
Title Sponsor*

Through three generations of family leadership, Luck Stone has been building strong communities for 100 years. Luck Stone, a division of Luck Companies, is the nation's largest family-owned and operated producer of crushed stone, sand, and gravel. A partner to the construction, civil engineering and environmental industries, Luck Stone provides consistent, quality aggregate materials and services that serve as the foundation of roads, bridges, and buildings. With 29 operating locations and over 900 associates, Luck Companies is headquartered in Richmond, Virginia, where it was founded by Charles Luck Jr. in 1923. Charlie Luck IV leads the company today.

SRK Consulting

*Young Leaders Professional
Development Luncheon, single
Technical Sessions Sponsor*

SRK Consulting is an independent, international consulting practice that provides focused advice and solutions to clients, mainly in the earth and water resource industries. For mining projects, SRK offers services from exploration to mine closure, including feasibility studies, due diligence reviews, and production optimization. Established in 1974,



SRK now employs more than 1,600 professionals internationally in over 45 offices on 6 continents.

Granite Construction Co.

SME/NSSGA Student Design Comp Title Sponsor

Great Basin Industrial

Industrial Minerals & Aggregates Division Luncheon Title Sponsor

Founded in the early 2000s by plate steel industry leaders Great Basin Industrial (GBI) has developed into an exceptionally competent and diverse General Contractor. GBI continues to deliver Turnkey Industrial Construction, Commissioning, Maintenance and Shutdown Services. Our customers include many of the world's leading companies in the Petro-Chemical, Power, Mining, Water & Other industries throughout the U.S. and Canada. GBI works closely with our partners in the industry whether they be engineering firms or end users to provide Tanks & Plate Steel, Instrumentation & Electrical (I&E), Structural/Mechanical/Pipe (SMP), Civil/Concrete, Coatings and Railroad solutions.

Eclipse Mining

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New Enterprise Stone & Lime Co., Inc.

SME/NSSGA 2022-2023 Student Design Comp Full Sponsor

NESL was founded in 1924 as a partnership by J.S. Detwiler and his son, Paul I. Detwiler. The initial operations consisted of a quarry and facilities to crush stone and burn lime, products used in highway construction. Today, NESL continues to be a family owned business and has grown into one of the top 15 aggregate producers in the US, one of the largest aggregate producers in Pennsylvania and one of the largest employers in the region, with construction material locations throughout Pennsylvania and western New York.

Cedar Mountain Stone

SME/NSSGA 2022-2023 Student Design Competition Full Sponsor

Established in 1994 by Dalrymple Holding Corp., Cedar Mountain Stone has become a major supplier of quality crushed stone and related products in the piedmont region of Virginia. The Dalrymple's have been in the heavy and highway construction and construction materials industry since 1902. In an effort to expand their markets, Cedar Mountain Stone was founded. Cedar Mountain Stone quickly grew into a full service aggregate supplier providing all sizes of VDOT approved aggregates. Over the years Cedar Mountain Stone has expanded their product lines to include specialized

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Carter Machinery

SME/NSSGA 2022-2023 Student Design Competition Full Sponsor

SSR Mining – Marigold

Mining & Exploration Division Luncheon Supporting Sponsor

SSR Mining Inc. is a leading, free cash flow focused intermediate gold company with four producing assets located in the USA, Turkey, Canada, and Argentina, combined with a global pipeline of high-quality development and exploration assets in the USA, Turkey, Mexico, Peru, and Canada. We have an experienced leadership team with a proven track record of value creation. The Company intends to leverage its strong balance sheet and its proven track record of free cash flow generation as foundations to organically fund growth across our district scale land packages and to facilitate superior returns to our shareholders. SSR Mining Inc. is listed under the ticker symbol SSRM on the NASDAQ Capital Markets and the Toronto Stock Exchange, and SSR on the Australian Stock Exchange. Learn more at www.ssrmining.com

Metso Outotec

Industrial Minerals & Aggregates Division Luncheon Supporting Sponsor

Metso Outotec is a frontrunner in sustainable technologies, end-to-end solutions and services for mining, metals refining, aggregates production, and recycling. We help our customers improve efficiency, increase productivity and reduce environmental and economic risks. Metso Outotec has a complete portfolio of process solutions, equipment and services, as well as plant delivery capability for mining operations.

Main Office

20965 Crossroads Cir
Waukesha, WI 53186 USA
Phone: (262) 717-2500
www.mogroup.com

Martin Engineering

2023 SME Media Contest Sponsor

Martin Engineering, founded in 1944, manufactures products and provides services to make bulk material handling cleaner, safer, and more productive. Specializing in conveyor products and flow aids, Martin Engineering aims to reduce carryback, properly seal, align, and support conveyor belts, improve material flow, reduce dust, and improve safety. Whether new construction or conveyor redesigns, Martin's Engineered Projects Sales and Support team provides comprehensive, full-service assistance. This highly-experienced group focuses on design consultation, sharing extensive system-level knowledge and experience to ensure deadlines are met throughout your entire project.

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Mineral Processing Division Lunch Supporting Sponsor

Ausenco is a global company providing innovative consulting, project delivery and engineering solutions to the minerals & metals sectors. We combine deep technical expertise and efficient design with a focus on sustainability. We are redefining what's possible.

PENTA Engineering

Session Sponsor

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Blue Water Industries

SME/NSSGA 2022-2023 Student Design Comp Full Sponsor

Blue Water Industries is a southeastern United States based supplier of basic building materials including crushed stone and sand. Its operations serve Alabama, Florida, Mississippi, South Carolina, Tennessee, North Carolina, and Virginia.

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Automator Sponsor

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1156

SME Connection

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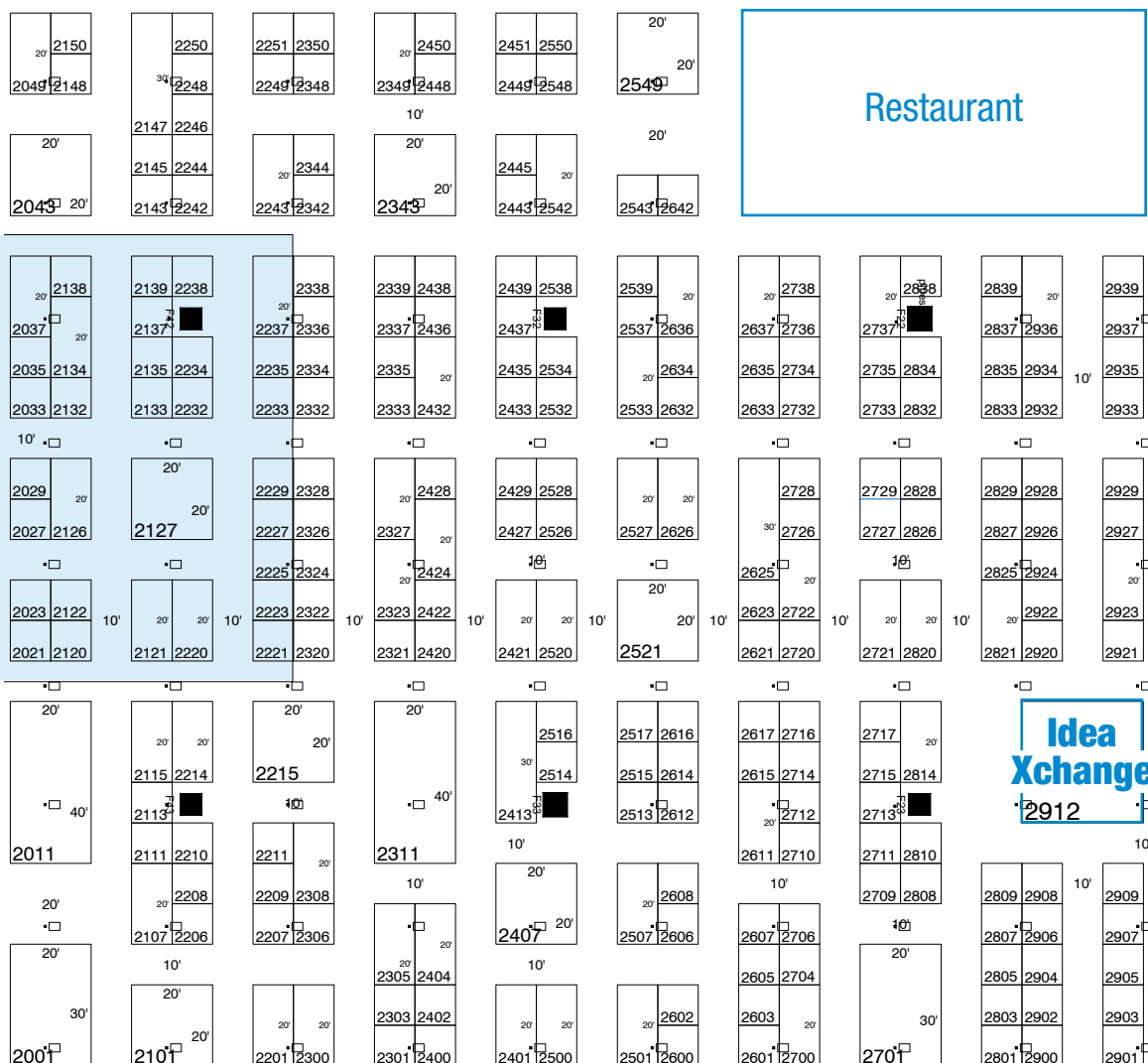


MINEXCHANGE

2023 SME ANNUAL CONFERENCE & EXPO

CMA 125th National Western Mining Conference

FEBRUARY 26 - MARCH 1 | DENVER, COLORADO



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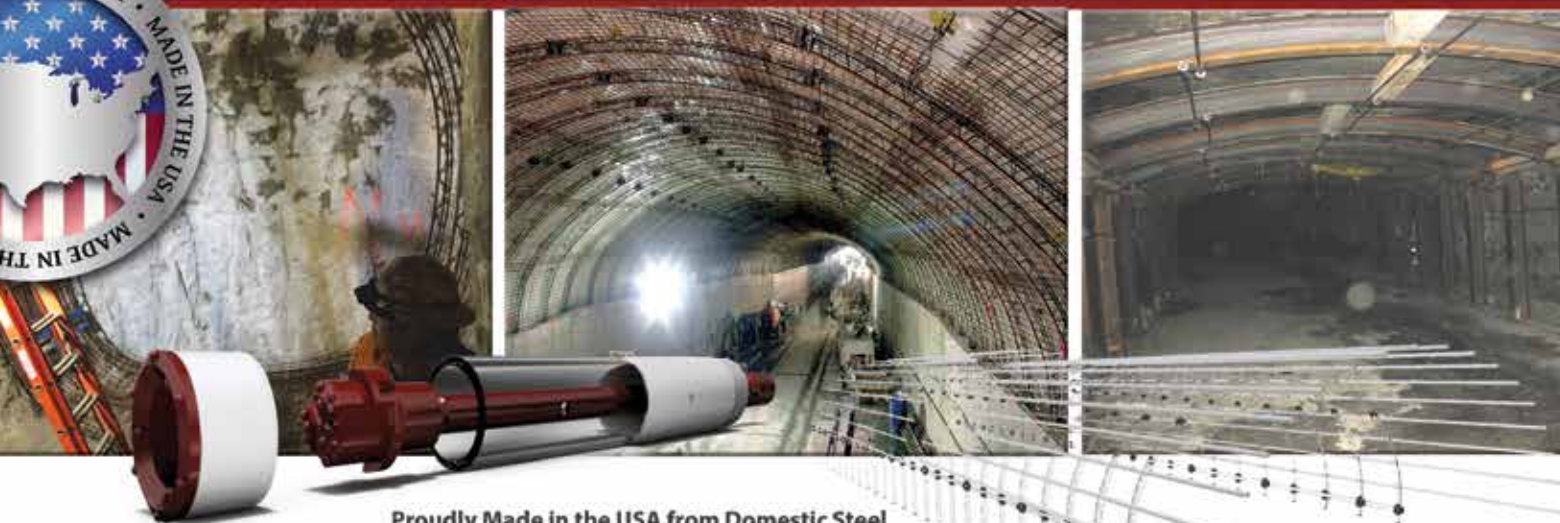


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Since 1988, Georgetown, SC-based AGRU America, Inc. has been on a mission to build a better future through the development of innovative plastics solutions and fostering strong relationships built upon the highest standards of quality, service, and dependability. AGRU America is a subsidiary of AGRU GmbH, an Austrian family-owned business since 1948 with production facilities in Austria, the United States, Germany, and China. AGRU solutions, which include state-of-the-art products such as AGRU geosynthetics, concrete protective liners, pipes and fittings, and semi-finished products, are distributed in over 80 countries worldwide. Visit our website to learn more.

Products & Services

Concrete Reinforcement and Equipment
Geological-Physical-Technical Services and Equip
Linings and Claddings
Pipes
Sediment & Erosion Control

Main Office

500 Garrison Rd
Georgetown, SC 29440 USA
Phone: (800) 373-2478
Email: salesmkg@agruamerica.com
www.agruamerica.com

AIL Mining

Booth 2736

AIL Mining designs and supplies value-engineered structural plate solutions for haul road arches, portals, canopies, stockpile and conveyor tunnels, escape ways, shaft liners, vent raises, drainage culverts; and more. We also provide temporary or permanent prefabricated steel bridges, crusher walls, ramps and abutments.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Pipes
Steel Pipe
Temporary Structures
Tunnel Lining and Support Materials
Underground - Construction and Structures

Main Office

32 York St
Sackville, NB E4L 4R4 Canada
Phone: (514) 347-6355
Email: sgauthier@ailmining.com
www.ailmining.com

AIMC

Booth 2924

The AIMC is an association of professionals from the mining sector in Colombia, to exercise their representation, aiming for the updating of their skills and the ethical exercise of their professions. It acts as a promoter of best mining practices and as a consultant and advisor on mining issues before the competent authorities, the productive sector, territorial entities and other actors in the mining industry.

Products & Services

Professional Society or Association
Training Services

Main Office

Carrera 80 65-223 Bloque M6 Oficina 101, Edificio Dos Maderos Apto 1001
Medellin 13114 Colombia
Phone: +57 3167411387
www.aimcolombia.org

airth.io

Booth 1211

Airth.io is a customer focused global mining technology company that provides solutions for miners by miners. The vendor-agnostic ecosystem of data-driven products connects planning, operations, mineral processing and finance on an integrated easy-to-use platform. Execute a profitable mine plan, reconcile against operational KPIs, leverage predictive intelligence with machine learning for improved forecasting, minimize operational variance through short interval control, and understand the financial impacts before it is too late. Airth.io solutions improve the business value chain by closing the gap between planned and actual.

Products & Services

Computer - Software and Services



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Please contact:

Allan Crumbaker, SVP, SBU Manager

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4582 S. Ulster St., Suite 600, Denver, CO 80237

Allan.crumbaker@assuredpartners.com

www.assuredpartners.com

POWER through Partnership

Main Office

PO Box 35242
Tucson, AZ 85740 USA
Phone: 5204972780
Email: contact@airth.io
airth.io

Aletek**Booth 2835**

Our mission is to increase your mobile mining fleets' safety, reliability, and productivity. Mining fleets across the globe depend on us for a suite of highly specialized products including thermal insulation blankets, exhaust systems, diesel particulate filters, and sound suppression solutions. Our thermal blankets offer unmatched performance for fire mitigation and safety around hot exhaust parts. With Aletek OEM replacement exhaust you will get a lower TCO and longer life. Our DPFs provide the highest performance in the industry and are fully OEM-compatible. The hallmark of Aletek products is quality, unsurpassed performance, and long-term value.

Products & Services

Diesel Particulate Control Systems
Emissions Control
Fire Protection
Maintenance Equipment and Supplies
Parts - Mining Machinery
Pollution Control Equipment
Safety Equipment

Main Office

2285 Davis Ct
Hayward, CA 94545 USA
Phone: (833) 232-2073
Email: sales@aletek-usa.com
www.aletek.com

Alfa Laval**Booth 2728**

Alfa Laval offers the most extensive range of equipment and expertise to help you with tailings dewatering and optimizing key processes in mineral beneficiation and extraction. Our robustly designed solid-bowl decanter centrifuges are an effective, high capacity solution for dewatering tailings and mine wastewater.

The goal is to help you avoid tailings dams, produce stackable solids, recover process water and ensure operational safety – all while reducing your total cost. Stop by our booth to learn more about the new era in tailings management ushered in by Alfa Laval for the Mining industry. Please visit our website for more information.

Products & Services

Centrifuges
Dewatering Equipment
Dust and Fume Control Technology
Reclamation Equipment and Services
Remediation
Separators and Concentrators
Thickeners
Tunnel Boring Equipment
Water Clarification and Treatment

Main Office

5400 International Trade Dr
Richmond, VA 23231 USA
Phone: (804) 536-0869
<https://www.alfalaval.us/industries/mining-minerals-and-pigment/base-minerals-and-mining/>

All Weather Air**Booth 2828**

All Weather Air manufactures outdoor enclosures for you air compressors, nitrogen generators, dryers, or accessories.

These units are outdoor rated from -40F to 120F, mobile, can be moved from site to site via fork pockets or crane lifting lugs. Unit arrive ready to run, we do all the installation of the equipment, piping and electrical.

Products & Services

Air Compressors
Temporary Structures

Main Office

3250 Union Rd
Buffalo, NY 14227 USA
Phone: (716) 345-2666
Email: info@allweather-air.com
www.allweather-air.com

American Exploration & Mining Association**Booth 2113**

AEMA is an effective and proactive advocate for the North American mining community, successfully influencing the outcome of political dialogue, building effective working strategies with key elected officials, developing and coordinating industry's response to legislative and regulatory issues, and galvanizing the grassroots.

The American Exploration & Mining Association's Annual Meeting and Exposition, held the first week of December, is the second largest annual mining convention in the U.S. Our convention consists of short courses, technical sessions, and a 250 booth trade exposition.

Products & Services

Professional Society or Association

Main Office

16201 E Indiana Ave, Ste 3280
Spokane Valley, WA 99216 USA
Phone: (509) 624-1158
www.miningamerica.org

American Institute of Professional Geologists**Booth 1823**

The American Institute of Professional Geologists was founded in 1963 to promote the profession of geology and to provide a framework for establishing standards of excellence. AIPG emphasizes competency, integrity and ethics. Its advocacy efforts are focused on the promotion of the role of geology and geologists in society.

Products & Services

Educational
Professional Society or Association

Main Office

1333 W 120th Ave, Ste 211
Westminster, CO 80234 USA
Phone: (303) 412-6205
www.aipg.org

American Rock Mechanics Association (ARMA)**Booth 2735**

The American Rock Mechanics Association (ARMA) is a professional and international engineering and scientific society, which promotes interaction among specialists, practitioners, scholars, and educators in rock mechanics and geomechanics. We advocate for individuals and firms in all aspects of rock mechanics and geomechanics, including multi-disciplinary rock physics and rock engineering technology advancement and technological applications for civil engineering, mining engineering and tunneling, oil and gas recovery, and geo-related socioeconomic problem-solving.

Products & Services

Professional Society or Association

Main Office

600 Woodland Ter
Alexandria, VA 22302 USA
Phone: (703) 683-1808
armarocks.org



barnard-inc.com

EXHIBITORS

American Underwater Services LLC

Booth 1483

Products & Services

Dredges

Main Office

18911 us s 377
Cresson, TX 76035 USA
Phone: (817) 377-8512
www.americanunderwaterservices.com

American Water Chemicals

Booth 1579

Products & Services

Reagents - Chemical and Flocculants

Main Office

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Plant City, FL 33563 USA
Phone: (813) 246-5448
www.membranechemicals.com

American-Biltrite

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Products & Services

Conveyor Belting - Accessories and Equipment
Linings and Claddings

Main Office

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Phone: (819) 829-3300
www.american-biltrite.com

ANDRITZ

Booth 1412

ANDRITZ Automation: is a leading supplier of machine and plant control systems with 110 company locations worldwide. ANDRITZ provides automation services and tools for a wide range of process industries, including pulp and paper, mining, lime and cement, power, and oil and gas.

As a technology leader with extensive and over 30 years of experience in supplying industrial measurement, control, and optimization solutions for various industries, ANDRITZ is combining its process and equipment expertise with the latest advancements in the digital era. The result of this powerful combination is Metris: a portfolio of ANDRITZ Digital Solutions.

Products & Services

Automation
Filters, Filter Cloth and Accessories
Furnaces - Industrial Process
Mine Operators

Process Controls and Instruments
Pumps
Separators and Concentrators
Training Services
Water Clarification and Treatment

Main Office

13560 Morris Rd, Ste 1250
Alpharetta, GA 30004 USA
Phone: (604) 214-9248
www.andritz.com

Antraquip Corporation

See our ad on p. 17

Booth 2332

North American based Antraquip Corp., continues to be a leading manufacturer/supplier of mining/construction equipment worldwide. With 40+ year history of supplying roadheaders, hydraulic rock cutters (ie. drum cutters) and saw attachments, mine/tunnel support systems, their products have become synonymous for quality, reliability and durability for the most challenging underground mining conditions. Whether it is the AQ roadheader line, which is used predominantly for mine development and tunneling operations, or the versatile AQ cutting attachments (scaling, mine development, production in soft rock, etc.), Antraquip Corp is your reliable partner.

Products & Services

Boring Equipment
Concrete Reinforcement and Equipment
Continuous Mining Machines
Remediation
Roadheaders
Roof - Ground Supports
Tunnel Boring Equipment
Tunnel Lining and Support Materials
Underground - Construction and Structures
Underground Excavation Services and Equipment

Main Office

758 Bowman Ave
Hagerstown, MD 21740 USA
Phone: (301) 665-1165
www.antraquip.net

Apollo Valves

Booth 2738

Products & Services

Automation
Valves

Main Office

7913 S Datura Cir E
Littleton, CO 80120 USA
Phone: (720) 312-0384
www.apollovalves.com

Applied Specialties Inc

Booth 2727

LimeCure™ and UltraLime™ are patented technologies designed for every lime user who desires to Simplify Operations & Maintenance, Improve Safety, Attain Better Results, and Reduce Total Cost of Operation. Both programs dramatically reduce maintenance costs

by eliminating lime scale formation (also removes existing lime scale), and in virtually all cases - significantly reduces lime consumption.

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Products & Services

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Environmental Control Equipment and Supplies
Maintenance Equipment and Supplies
Maintenance Services
Reagents - Chemical and Flocculants
Safety Awards

Main Office

33555 Pin Oak Pkwy
Avon Lake, OH 44012 USA
Phone: (440) 933-9442
www.AppliedSpecialties.com

APS Lighting & Safety

Booth 1676

Products & Services

Lighting Systems and Lamps

Main Office

610 Gateway Ctr Way, Suites J & K
San Diego, CA 92102 USA
Phone: (619) 263-4164
<https://www.aps-supply.com/>

Aquatech International

Booth 1570

Aquatech International is a global leader in water technology and services for industrial and infrastructure markets. With a focus on solving water scarcity through desalination, water reuse, and zero liquid discharge (ZLD), Aquatech has executed over 2,000 projects across 60 countries. Leveraging the experience and know-how gained over 40 years handling some of the most difficult-to-treat waters, Aquatech helps the world's most recognized companies solve their complex water-related challenges, including water scarcity, carbon and water footprint reduction, and sustainable water operations.

Products & Services

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Ion Exchange Equipment and Resins
Pollution Control Equipment
Thickeners
Water Clarification and Treatment

Main Office

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Tru-Trainer® Dual
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EXHIBITORS

ARCADIS

Booth 1614

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Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management
Remediation
Water Clarification and Treatment

Main Office

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www.arcadis.com

Arsenal Tire Performance Tech

Booth 1259

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Sensors
Transportation
Underground Excavation Services and Equipment

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Austin, TX 78731 USA
Phone: +1 (956) 662-9652
www.arsenal.mx

ASC Engineered Solutions

Booth 1820

ASC Engineered Solutions is defined by quality—in its products, services and support. With more than 1,400 employees, the company's portfolio of precision-engineered piping support, valves and connections provides products to more than 4,000 customers across industries, such as mechanical, industrial, fire protection, oil and gas, and commercial and residential construction. Its portfolio of leading brands includes ABZ Valve®, AFCON®, Anvil®, Anvil EPS, Anvil Services, Basic-PSA, Beck®, Catawissa, Cooplet®, FlexHead®, FPPI®, Gruvlok®, J.B. Smith, Merit®, North Alabama Pipe, Quadrant®, SCI®, Sharpe®, SlideLOK®, SPF® and SprinkFLEX® with headquarters in Oak Brook, IL.

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Couplings - Mechanical, Flexible and Rigid
Fire Protection
Pipes
Training Services
Valves
Welding Equipment and Supplies

Main Office

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Portsmouth, NH 03801 USA
Phone: (800) 301-2701
www.asc-es.com

ASGCO Complete Conveyor Solutions

See our ad on p. 23

Booth 1615

ASGCO "Complete Conveyor Solutions" Since 1971, we have used engineered products and services to provide our customers with the best solutions to their conveyor material handling applications by eliminating carry-back, material spillage and dust in the transfer points and insuring proper conveyor belt tracking throughout the conveyor system. Combined with our national network of distributors, we can provide you with custom engineering and design to meet your specific conveyor needs, along with installation and maintenance programs that will streamline your operation by increasing production up time and lowering costs.

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Products & Services

Conveyor Belting - Accessories and Equipment
Conveyor Systems
Safety Equipment

Main Office

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Email: info@asgco.com
www.asgco.com

ASI Mining

Booth 1358

Products & Services

Automation
Autonomous Vehicles
Blasting Accessories, Equipment and Agents
Computer - Hardware and Services
Computer - Software and Services
Information Technology Products
Measurement and Monitoring Systems
Safety Equipment
Sensors
Trucks and Haulage Units

Main Office

990 N 8000 W
Petersboro, UT 84325 USA
Phone: (435) 755-2980
www.asirobots.com/mining/

Assured Partners

See our ad on p. 20

Booth 2450

Assured Partners of Colorado is the SME endorsed broker for professional liability insurance. With over 20 years of experience, Assured Partners provides complete risk management solutions for all lines of insurance including: general liability, workers comp, professional liability, directors and officers liability, inland marine, commercial auto, and employee benefit packages. We insure Mining!

Products & Services

Insurance

Main Office

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www.assuredpartnerscolorado.com

Atlas Electric, Inc

Booth 1147

Products & Services

Electrical Equipment and Supplies
Feeder Breakers
Hoists - Controls and Accessories
Maintenance Equipment and Supplies
Parts - Mining Machinery
Shortwall Mining Equipment
Temporary Structures
Tunnel Boring Equipment

Main Office

1203 N Havana St
Spokane, WA 99202 USA
Phone: (509) 534-8389
<https://atlaselectricinc.com/>



AUSTIN POWDER

Austin Powder

Booth 2820

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Products & Services

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EXHIBITORS

Main Office

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www.austinpowder.com

Avanti International

Booth 2517

Avanti International is an American owned and operated injection grout producer located near Houston, TX. Avanti's injection grouts are used in municipal, industrial and geotechnical applications to stop leaks, stabilize soil and rock, and control groundwater - permanently. We have a comprehensive product line of acrylics, polyurethanes, cements, epoxies, pump, injectors, and more. Visit our website or call for more information.

Products & Services

Grouting Services, Equipment and Materials
Pumps
Sediment & Erosion Control

Main Office

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Phone: (800) 877-2570
www.avantigrout.com

Baker Hughes - Flexible Pipe Solutions

Booth 1737

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Products & Services

Cyanide Process Equipment
Dewatering Equipment
Hoses - Valves and Fittings
Linings and Claddings
Pipes
Sediment & Erosion Control
Washing Plants
Water Clarification and Treatment

Main Office

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Aurora, CO 80202 USA
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www.bakerhughes.com

BARNARD

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Barnard Construction Company, Inc

See our ad on p. 21

Booth 1145

Founded in 1975, Barnard Construction Company, Inc. (Barnard) is a privately held, debt-free heavy civil contractor headquartered in Bozeman, Montana. Over the last 48 years, Barnard has built a respected resume, tackling some of the most complex, logistically challenging construction projects in North America. Barnard specializes in tunneling; oil, gas, utility, sewer, and water pipeline projects; dam, reservoir, and hydropower construction and rehabilitation; and power transmission. Our respected tunneling and underground construction experts set the standard for safety and excellence, whether they are building an intake tunnel in remote British Columbia or a gravity pipeline in urban Redwood City, California.

Products & Services

Construction - Contracting Services

Main Office

701 Gold Ave
Bozeman, MT 59715 USA
Phone: (406) 586-1995
www.barnard-inc.com

Baroid Industrial Drilling Products

Booth 1439

Products & Services

Drilling Equipment
Exploration Equipment and Services
Water Clarification and Treatment

Main Office

3000 N Sam Houston Pkwy E
Houston, TX 77032 USA
Phone: (605) 892-5253
www.baroididp.com

Barr Engineering Co

Booth 1400

For 50 over years, Barr has been assisting national and international mining clients with complex, large-scale projects. We offer a single source for the technical and regulatory services needed to take projects from conceptual studies and environmental assessments through facility construction, operations, and closure. Barr's services include environmental review, permitting, and compliance; reserve estimation and resource reporting; mine planning; mineral processing; facility and site design; electrical and process controls; tailings and water management; and mine-site remediation and reclamation. Headquartered in Minneapolis, MN, Barr also has offices in Colorado, Minnesota, Michigan, Missouri, Nevada, North Dakota, Utah, Alberta, and Saskatchewan.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental

Main Office

4300 MarketPoint Dr, Ste 200
Minneapolis, MN 55435 USA
Phone: (952) 832-2600
www.barr.com

BBE Consulting Canada

Booth 1102

BBE Consulting specialize in the design of mine ventilation and mine refrigeration systems and has provided solutions to underground mines worldwide for over 30 years. Our services offered cover the full range of initial conceptual studies through to final turn-key system delivery. BBE's designs, based upon our expert analysis of ventilation and cooling requirements, as carried through technical feasibility studies, detailed design and project execution focus on providing fit-for-purpose solutions for underground mines. BBE's capabilities and services also include: occupational hygiene, fire modelling, computational fluid dynamics, pollutant control, audits, training, automation, energy managements as applied to mine ventilation systems.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Coolers
Fans and Blowers
Ventilation Systems, Materials and Equipment

Main Office

1984 Regent St, Ste 101
Sudbury, ON P3E 3C4 Canada
Phone: (705) 682-9600
Email: enquiries@bbegroup.ca
www.bbegroup.ca

beadedstream inc.

Booth 2903

beadedstream manufactures digital temperature cables and temperature data loggers for the infrastructure, mining, ice roads, environment and renewable energy monitoring industries around the globe.

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Our beadedcloud software makes remote temperature monitoring easy and cost-efficient, as our data loggers are designed with solar power to recharge the battery and direct to satellite data transmission from pole to pole. With beadedcloud, you can access your data from remote locations anytime and anywhere.

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EXHIBITORS

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Email: contact@beadedstream.com
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Bekaert

See our ad on p. 25

Booth 2208

Bekaert, your global partner for smart fiber reinforcement of concrete for your Mining operations. We offer a high quality and value adding service with both our steel & synthetic fiber products. We have professionals on staff, to offer solutions for your commercial & technical needs. Safety & production are critically important in the mining industry & requires a continuous effort to optimize the mining process safely without loss of production. We specialize in temporary & permanent support applications, such as shotcrete and shaft lining applications. We offer a selection of bolting options & wire mesh through our subsidiary Prodimin.

Products & Services

Concrete Reinforcement and Equipment
Shotcrete Equipment, Supplies and Services
Steel Wire Ropes/Cables
Tunnel Lining and Support Materials
Underground - Construction and Structures

Main Office

1395 S Marietta Pkwy, Bldg 500, Ste 120
Marietta, GA 30067-4440 USA
Phone: (800) 241-4126
www.bekaert.com/underground

Bentley Systems

Booth 1359

Bentley Systems (Nasdaq: BSY) is the infrastructure engineering software company. We provide innovative software to advance the world's infrastructure – sustaining both the global economy and environment. Our industry-leading software solutions are used by professionals, and organizations of every size, for the design, construction, and operation of roads and bridges, rail and transit, water and wastewater, public works and utilities, buildings and campuses, and mining. Our Infrastructure IoT platform provides secure and scalable tools for cost-effective condition monitoring of critical assets, providing operational insights that inform owners and operators, and power connected workflows leveraging our infrastructure digital twin platform, iTwin.

Products & Services

Computer - Software and Services

Main Office

685 Stockton Dr
Exton, PA 19341 USA
Phone: (800) 236-8539
Email: info@infrastructureiot.com
<https://www.infrastructureiot.com>

BEUMER Group

See our ad on p. 27

Booth 2343

For material handling between mine, processing plant and beyond, BEUMER offers complete tailor made-solutions. With our research and development efforts we can guarantee that our solutions will fit your requirements now and in the future. FAM Minerals & Mining GmbH, is also now a part of the BEUMER Group and one of the leading suppliers which offers machines along the complete transport chain for bulk materials. From extraction, conveying, loading and storage to the processing of various raw materials.

Products & Services

Blending Systems
Continuous Mining Machines
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Transportation

Main Office

6430 S Fiddlers Green Cir, Ste 250
Greenwood village, CO 80111 USA
Phone: (816) 284-9230
www.beumergroup.com

BGC Engineering

Booth 2805

BGC Engineering Inc. (BGC) is an international consulting firm that provides professional services in applied earth sciences.

Our practice was established in 1990 based on a passion and appreciation for the impacts of geology on engineered structures. This appreciation continues to serve as our foundation today as we work to address a broad range of engineering and environmental issues related to challenging terrain and ground conditions.

BGC provides specialized engineering and geoscience services for all phases of projects, from pre-feasibility and design, to construction, operation and closure.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Laboratory and Scientific Services
Remediation

Main Office

600 12th St, Ste 300
Golden, CO 80401 USA
Phone: (720) 598-5982
<https://www.bgcengineering.ca>

BICO Inc

Booth 2427

Sample prep equipment has been our focus since 1888. Known worldwide as an industry leader of laboratory sized Jaw Crushers and Pulverizers, we will be showcasing some of our top models used in the fields

of geosciences and sample preparation.

Products & Services

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Crushers and Pulverizers
Furnaces - Industrial Process
Grinding Mills
Laboratory Equipment and Supplies
Pollution Control Equipment

Main Office

3116 W Valhalla Dr
Burbank, CA 91505 USA
Phone: (818) 842-7170
www.bicoinc.com

Binder+Co USA Inc

Booth 1935

Binder+Co USA is the US based subsidiary of Binder+Co AG out of Austria. We are providing processing equipment in the areas of screening, drying/cooling and sensor-based sorting for a variety of materials in mining, minerals and aggregates as well as recycling.

Products & Services

Coolers
Dryers
Screens
Sensors
Separators and Concentrators

Main Office

357 S McCaslin Blvd, Ste 200
Louisville, CO 80027 USA
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Blair Rubber Company

See our ad on p. 29

Booth 1064

Products & Services

Linings and Claddings
Rail Systems and Supplies

Main Office

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www.blairrubber.com

Blue Coast Research

Booth 1037

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Blue Star Steel

Booth 2928

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Email: damion@bluestarsteel.com
www.bluestarsteel.com

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Booth 1044

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www.bws.net

Boart Longyear

Booth 2002

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The Global Products division manufactures, markets, and services drill rigs, drill string products, performance tooling, drilling consumables, and quality parts for customers worldwide.

The Geological Data Services division utilizes innovative scanning technology and down-hole instrumentation tools to capture detailed geological data from drilled core and chip samples.

Products & Services

Dewatering Equipment
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Drilling Equipment

Exploration Equipment and Services
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Pumps

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www.boartlongyear.com



Bosch Rexroth - Häggglunds Drives

See our ad on p. 31

Booth 2043

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Häggglunds is a brand of Bosch Rexroth, a leading global supplier of drive and control technologies. To learn more about Häggglunds solutions, visit our website.

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Main Office

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www.boschrexroth-us.com

Bowman Consulting Group

Booth 2348

Bowman has a well networked and highly collaborative team of more than 1200 engineering, land survey and geoscience professionals that provide exceptional mining services, which include Mineral Process Plant, Mine Facility and Mine Infrastructure design, Survey, Capital Project Controls and Mine Water & Environment services. In 2020, Bowman was ranked #9 by ENR for Mining. In every aspect of a mining project's lifecycle, Bowman is committed to delivering "fit for purpose" solutions with a sense of urgency and a strong commitment to client service and quality.

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Bradken

Booth 1214

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Linings and Claddings
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Bray Controls

Booth 2229

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Valves

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www.bray.com

Brelko Conveyor Products

Booth 1727

Products & Services

Conveyor Belting - Accessories and Equipment
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Products & Services

Transportation

Main Office

200 4th Ave S
Nashville, TN 37201 USA
Phone: 615-937-1000
<https://www.bridgestoneamericas.com/en/index>



Brookville Equipment Corp

See our ad on p. 32

Booth 1610

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Visit our website for information.

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Main Office

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EXHIBITORS

Bureau of Land Management Colorado

Booth 1460

Products & Services

Government Agency - Entity

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Burgex Inc

Booth 1116

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Burns & McDonnell Engineering Company, Inc

Booth 2237

Burns & McDonnell is a full-service engineering, architecture, construction, environmental and consulting firm. Our over 10,000 employee-owners are comprised of engineers, architects, construction experts, planners, estimators, technicians and scientists. We plan, design, permit, construct and manage facilities all over the world, with one mission in mind: Make our clients successful.

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Byrnegroup

Booth 2934

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CAB

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Booth 1533

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CAID Industries

See our ad on p. 36

Booth 1587

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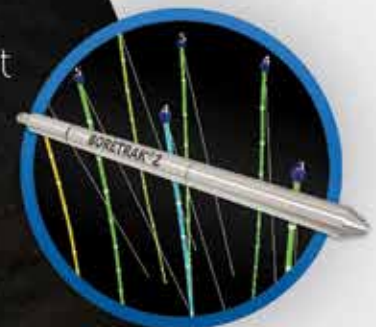
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Cambelt PROUDLY designs, engineers, manufactures, and assembles all our products in the USA.

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Canadian Institute of Mining, Metallurgy & Petroleum (CIM)

Booth 2301

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www.cim.org

Canadian Mining Journal

Booth 2711

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Publishers

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Canary Systems, Inc

See our ad on p. 34

Booth 1232

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Email: info@canarysystems.com
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Cancha Geometallurgy

Booth 2933

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CANTY

Booth 1521

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www.carboceramics.com



Carlson Software

See our ad on p. 35

Booth 2413

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Carrier Process Equipment Group (CPEG)

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Booth 1108

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Caterpillar

Booth 2701

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www.cat.com/mining

CCC Group, Inc

Booth 2632

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Construction - Contracting Services
Conveyor Systems
Draglines
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Mining Contractors

Main Office

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Email: info@cccgroupinc.com
www.cccgroupinc.com

Cell-Crete

Booth 2435

Main Office

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Cementation USA Inc

Booth 2243

Products & Services

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Underground - Construction and Structures
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Main Office

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Phone: (801) 937-4120
www.cementation.com

Cemvita

Booth 2445

Cemvita is a biotechnology company with a design platform focused on microbial solutions for heavy industries including chemical manufacturing, mining, oil and gas. The use of microbes in mining is not new, 20% of the world's copper is bioleached, and these processes have been proven at scale over the last 40 years. However, recent biotech developments that have revolutionized pharma, agriculture, and food are still nascent in the mining industry. We partner with industrial companies to apply biotechnology, synthetic biology, and interdisciplinary thinking to lower the footprint of mining and provide the metals needed for our renewable energy future.

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Remediation
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Main Office

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Email: info@cemvita.com
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Certech USA Inc

Booth 2326

Products & Services

Linings and Claddings

Main Office

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Email: info@certechusainc.com
www.certechusainc.com

CETCO

Booth 1013

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Linings and Claddings
Remediation
Tunnel Lining and Support Materials

Main Office

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Check-6/Biz X Group

Booth 1165

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Main Office

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ChemGrout, Inc

Booth 2513

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Products & Services

Grouting Services, Equipment and Materials
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Remediation

Main Office

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ChemQuest Chemicals, LLC

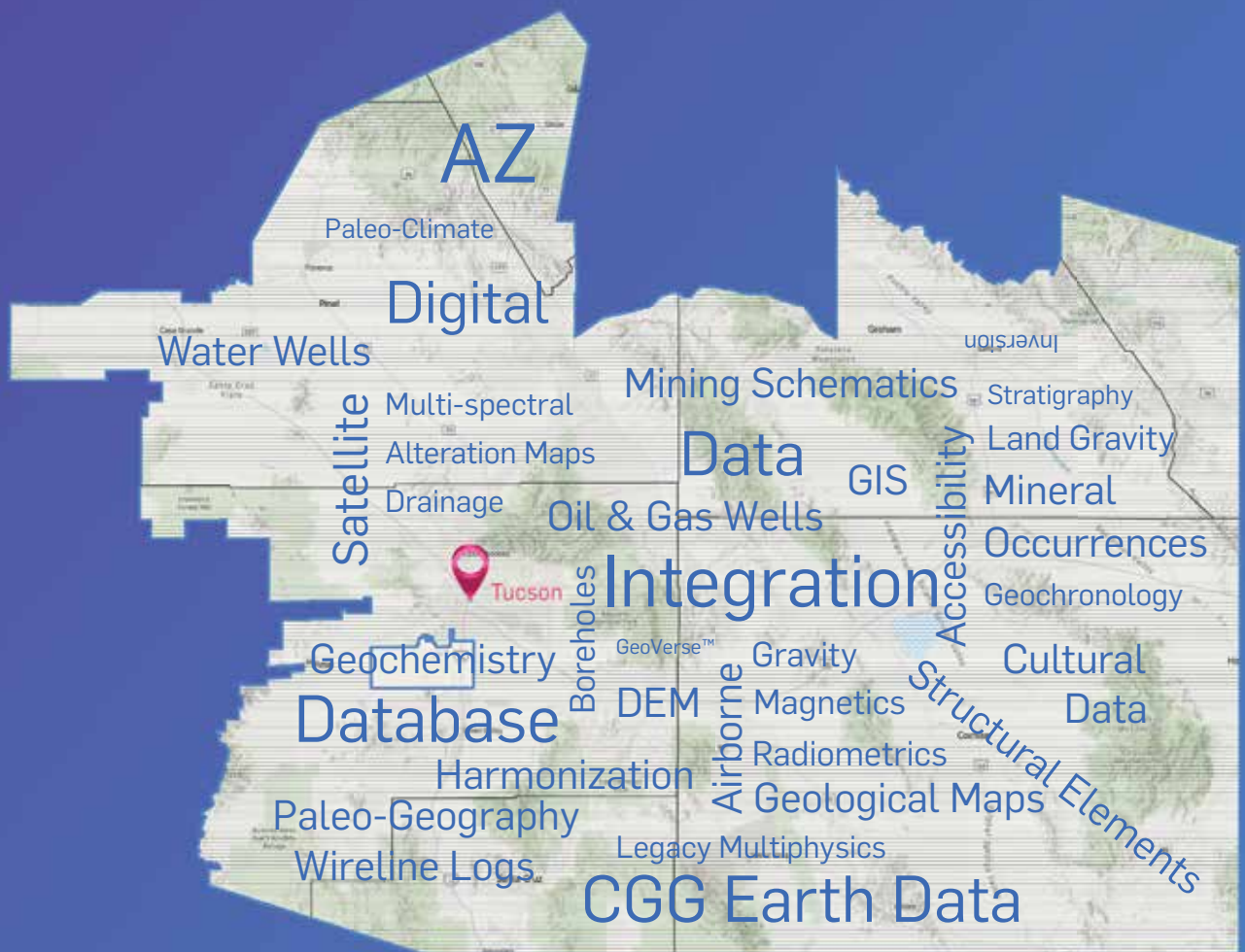
Booth 2634

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EXHIBITORS

onsite with stand alone Flammables unit. Dry to liquid conversions as well. Our only business is Contract Manufacturing.

Products & Services

Coatings (does not include Linings and Claddings)
Reagents - Chemical and Flocculants
Solvents - Extraction, Mixer and Settlers
Water Clarification and Treatment

Main Office

9730 Bay Area Blvd
Pasadena, TX 77507 USA
Phone: (281) 291-9966
www.chemquestchemicals.com/

Chevron Phillips Chemical

Booth 1706

Chevron Phillips Chemical - Mining Chemicals division provides a complete range of Orfom® solvent extraction diluents, Orfom® collectors for copper-molybdenum-gold/silver sulfide mineral flotation, Orfom® D8 depressant as a complete replacement for NaSH in copper-molybdenum separation, and Philflo® flotation oils for fertilizer minerals.

Products & Services

Reagents - Chemical and Flocculants
Solvents - Extraction, Mixer and Settlers

Main Office

10001 Six Pines Dr
The Woodlands, TX 77380 USA
Phone: (800) 858-4327
www.cpchem.com

CiDRA Minerals Processing Inc

Booth 1606

CiDRA Minerals Processing is a leading supplier of process optimization products including the CYCLON-Etrac™ and SONARtrac® systems. CiDRA's CYCLON-Etrac™ systems are innovative turnkey solutions that provide reliable operation and optimized classification and grind control, identifying events of low efficiency, at the level of a single hydrocyclone. SONARtrac systems are clamp-on, non-contact systems capable of providing multi-variable measurements, such as volumetric flow, speed of sound, and entrained air, in a wide variety of applications - liquids, gases, slurries, and multiphase fluids. CiDRA products and services are being used at more than 400 customer locations in over 45 countries.

Products & Services

Measurement and Monitoring Systems
Meters and Gauges
Process Controls and Instruments
Sensors

Main Office

50 Barnes Park N
Wallingford, CT 06492 USA
Phone: (203) 265-0035
www.cidra.com

Civil & Environmental Consultants, Inc (CEC)

Booth 1510

CEC provides innovative design solutions and integrated expertise to all sectors of the mining industry. We strategically focus on the industry's business drivers and challenges, offering solutions related to air quality, civil engineering, ecological sciences, environmental engineering and sciences, manufacturing infrastructure services, survey/geospatial, waste management, and water resources needs. With deep bench strength to tackle tough problems, CEC has successfully completed projects for the mining industry ranging from the design and permitting of coal refuse disposal areas, to water treatment projects, to large-scale post-mining land-use changes, to ecological resource impact assessments, and to mine reclamation/closure.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Emissions Control
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control

Main Office

333 Baldwin Rd
Pittsburgh, PA 15205 USA
Phone: (800) 365-2324
www.cecinc.com

Clariant Corporation

Booth 1433

Clariant Mining Solutions is a trusted provider of specialty chemicals to improve the sustainability and metallurgical performance of mines. Our global network of local application and development centers coupled with our rapid response to customer requirements allow us to deliver customized high performing products. We have several programs and products dedicated to improving sustainability such as: Tailings Management Program, lower toxicity replacements for xanthates and NaSH, advanced pelletizing technology to reduce energy consumption, and our Decarbonization Minerals Program, which focuses on reagents for the processing of the main decarbonization minerals, including lithium, nickel, cobalt, rare earths, and alumina.

Products & Services

Reagents - Chemical and Flocculants
Reduction Technologies - Iron Ore, Steel, Mineral
Remediation
Solvents - Extraction, Mixer and Settlers

Main Office

2750 Technology Forest Blvd
The Woodlands, TX 77381 USA
Phone: (281) 465-9100
www.clariant.com/mining

Clear Edge Filtration

Booth 1143

Clear Edge Filtration is a global leader in supplying filtration products and filter media to customers worldwide. With over 200 years of filtration legacy, we have adapted filter media for applications such as liquid/solids dewatering, dust collection, beneficiation, filtering and purifying hot gases as well as other industrial processes. With specific products designed for mining applications we can supply every filtration position within the mining flow sheet from Filter Press to Vacuum Belt Filter to Disc Filter to Pan Filter to improve performance and extend life. We also supply replacement hardware such as Filter Plates, Cages, Sectors and Stainless Leafs.

Products & Services

Filters, Filter Cloth and Accessories

Main Office

7160 Northland Cir
Minneapolis, MN 55428 USA
Phone: 1 (763) 535-3220
Email: clearedge@filtrationgroup.com
www.clear-edge.com

ClearSpan Structures

Booth 2342

ClearSpan Structures has been providing custom and turnkey fabric and metal buildings to businesses for over 40 years. ClearSpan's structures can be built almost anywhere and can be highly customized to meet the needs of any operation.

Products & Services

Temporary Structures

Main Office

1395 John Fitch Blvd
South Windsor, CT 06074 USA
Phone: (866) 643-1010
www.clearspan.com

CLEER

Booth 1332

We are a 501(c)3 non-profit organization contracted with the State of Colorado to administer grant funds to help transition Colorado companies from diesel vehicles and machines to zero-emissions equivalents. Grants are up to 45% of total project costs, with no maximum! Be at the leading edge of innovation in Colorado.

Products & Services

Government Agency - Entity

Main Office

PO Box 428
Carbondale, CO 81623 USA
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www.cocleandiesel.org



COGEP Maintenance Software**Booth 2543**

COGEP is a rapidly growing leader in Computerized Maintenance Management Systems. For over 30 years, COGEP has been developing and implementing Guide Ti, a powerful world-class CMMS/EAM and procurement software. Our tools and expertise have been helping private and public organizations to plan, organize and control maintenance activities involving their strategic assets.

Products & Services

Computer - Software and Services
Information Technology Products
Maintenance Equipment and Supplies
Maintenance Services
Measurement and Monitoring Systems

Main Office

825 boul Lebourgneuf, Ste 400
Quebec City, QC G2J 0B9 Canada
Phone: (418) 626-2503
www.cogep.com

COLAS SA**Booth 2515**

Dust-A-Side Canada, a Subsidiary of Colas Group, is an international company which has more than 40 years' experience in Total Dust Management. The company's global presence is in South Africa, Zambia, Namibia,

Botswana, Ghana, Mozambique, Morocco, Canada, Australia and Chile. In excess of 650 employees and managing over 70 mines globally, Dust-A-Side is treating in excess of 13 000 000m² of Permanent haul roads both opencast and underground mines globally. DAS's exclusive bitumen and polymer products are specifically designed to bind and stabilize in-situ wearing course materials. Dust-A-Side is at the forefront of dust suppression and prevention systems worldwide.

Products & Services

Dust and Fume Control Technology
Environmental Control Equipment and Supplies

Main Office

4950 Yonge St
Toronto, ON M2N 6K1 Canada
Phone: +33 608547069
<https://dustaside.com/>

Colorado Division of Reclamation, Mining and Safety**Booth 2436****Products & Services**

Government Agency - Entity

Main Office

1313 Sherman St, Rm 215
Denver, CO 80203 USA
Phone: (303) 866-3567
www.mining.state.co.us

Colorado School of Mines - Department of Mining Engineering

See our ad on p. 41

Booth 2023

Ranked as the #1 mining school in the world since 2016 by the QS World University Rankings, the Mining Engineering Department at Colorado School of Mines has distinguished itself by developing curriculum and research programs geared toward responsible stewardship of the earth and its resources.

Through collaborations with other Mines departments, academic institutions, government agencies, and industry, we are committed to expanding the international reputation of the department for excellence in education, research, industry service, and community outreach.

Products & Services

Consulting - Engineering
Consulting - Research
Educational

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COLORADOSCHOOL OF MINES

EXHIBITORS

Main Office

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Golden, CO 80401 USA
Phone: (303) 273-3700
mining.mines.edu/

Colorado State Land Board

Booth 1937

The State Land Board earns money for Colorado public schools by leasing trust land and minerals. 95% of lease payments support Colorado schools. We offer solid mineral leases through direct negotiation or competitive sealed bid.

Products & Services

Government Agency - Entity
Mineral Prospecting

Main Office

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Phone: (303) 866-3454
slb.colorado.gov

Concrete Canvas US

Booth 2148

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Products & Services

Concrete Reinforcement and Equipment
Sediment & Erosion Control

Main Office

1350 E Nasa Pkwy, Ste 120
Houston, TX 77058 USA
Phone: (832) 864-2946
Email: lisa.tropea@concretecanvas.us
www.concretecanvas.us

ConeTec Inc

Booth 1535

ConeTec is an international full-service mining, geoenvironmental, and geotechnical site investigation contractor. ConeTec offers clients superior project management and site investigation services across the globe, with a large presence in North and South America. ConeTec is able to provide in-depth geophysics, CPTu, in-situ testing, drilling, instrumentation, and final data reporting and analysis services.

All field investigations are performed by specially trained personnel and supported by experienced site investigation professionals in order to provide the highest quality site investigation. This is the ConeTec difference—better information, better decisions.

Products & Services

Consulting - Environmental
Drilling Contractors
Geological-Physical-Technical Services and Equip

Measurement and Monitoring Systems
Remediation

Main Office

PO Box 22082
Salt Lake City, UT 84122 USA
Phone: (801) 973-3801
www.conetec.com

Conifer Systems

Booth 1009

Conifer Systems provides innovative emissions control systems that enable companies to meet regulatory emissions standards, maximize uptime and minimize cost. Through reliable environmental solutions, our commitment to clean energy and creating industrial efficiencies, we strive to be the partner you can rely on for years to come.

Our standardized solutions enable us to provide high quality, reliable systems with shorter project timelines and lower costs. Conifer Systems delivers solutions that meet your emissions control needs while prioritizing your business objectives and environmental and compliance obligations. Our technical expertise has been honed supplying systems to various industries for nearly two decades.

Products & Services

Emissions Control
Environmental Control Equipment and Supplies
Pollution Control Equipment
Ventilation Systems, Materials and Equipment

Main Office

6515 Willowbrook Park
Houston, TX 77066 USA
Phone: +1 (832) 476-9024
Email: sales@conifersystems.com
conifersystems.com

Conspec Controls

Booth 1052

Manufacturer of gas detection/AMS equipment. We provide safety for your personnel and environment while limiting downtime.

Products & Services

Safety Equipment

Main Office

6 Guttman Blvd
Charleroi, PA 15022 USA
Phone: (724) 489-8450
Email: sales.usa@conspec-controls.com
www.conspec-controls.com

Contech Engineered Solutions

Booth 2029

Contech® Engineered Solutions LLC is a leading civil engineering site solutions products and services company. Contech is the only company that can provide bridge, drainage, erosion control, retaining wall, sanitary, soil stabilization, and stormwater solutions on a national scale. Our product offering includes corrugated metal and plastic pipe; steel truss, metal plate and concrete arch bridges and structures; hard armor, geog-

rid, geotextiles, block and retaining wall systems; and stormwater detention/retention, filtration and treatment systems. Our product portfolio is based on more than a century of research and practical field experience serving the highway, drainage, sewage and site-improvement markets.

Products & Services

Consulting - Engineering
Pipes
Steel Pipe
Tunnel Lining and Support Materials
Underground - Construction and Structures
Water Clarification and Treatment

Main Office

9100 Centre Pointe Dr, Ste 400
West Chester, OH 45369 USA
Phone: (800) 338-1122
Email: info@conteches.com
www.conteches.com

Continental

Booth 2215

Continental develops pioneering technologies and services for sustainable and connected mobility of people and their goods. Founded in 1871, the technology company offers safe, efficient, intelligent and affordable solutions for vehicles, machines, traffic and transportation. In 2020, Continental generated sales of €37.7 billion and currently employs around 235,000 people in 58 countries and markets. In 2021, the company celebrates its 150th anniversary.

Products & Services

Belts - Power Transmission
Conveyor Belting - Accessories and Equipment
Hoses - Valves and Fittings
Hydraulic System Components

Main Office

703 S Cleveland-Massillon Rd
Fairlawn, OH 44333 USA
Phone: (330) 664-7055
www.continental-industry.com

Control Station, Inc

Booth 1148

Control Station makes process optimization simple, thereby empowering manufacturers to increase production efficiency and throughput. The company's software-based solutions actively monitor and optimize plant-wide control loop performance.

Control Station's solutions are licensed to leading process manufacturers worldwide and they are available direct from Control Station and through the company's network of distribution partners. The company is headquartered in the United States.

Products & Services

Automation
Computer - Software and Services
Consulting - Engineering
Information Technology Products
Measurement and Monitoring Systems
Process Controls and Instruments
Quality Improvement





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Copper State Bolt & Nut Co

Booth 1634

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Products & Services

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Grinding Media and Liners
Grinding Mills
Hoses - Valves and Fittings
Linings and Claddings
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Parts - Mining Machinery
Safety Equipment
Training Services

Main Office

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Phoenix, AZ 85017 USA
Phone: (602) 352-4815
Email: mining@copperstate.com
copperstate.com

CoreLift

Booth 2248

CoreLift™ is a novel Canadian equipment provider for modern core logging facilities based in Sudbury, Ontario. Our flagship product is the fully adjustable logging table that removes risks towards repetitive strain injuries, allows for physical diversity and improves productivity for core logging personnel. We provide consulting expertise as well as robust, innovative equipment to go from core shack to modernized facilities.

Products & Services

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Consulting - Design and Planning
Consulting - Engineering
Conveyor Systems
Geological-Physical-Technical Services and Equip
Laboratory Equipment and Supplies
Safety Equipment
Sampling Devices

Main Office

Unit 6, 2140 Regent St
Sudbury, ON P3E5S8 Canada
Phone: (705) 507-1266
www.corelift.ca

Cornell Pump Co

Booth 2300

Engineered to be durable, dependable, and efficient, Cornell pumps are found hard-at-work in the mining and aggregates industries handling water intake, mine dewatering, washing & screening, sumps, cyclone feed, mill circuits, and tailings transfer applications. MP, SM, and SP series pumps cover the complete range of slurries. MX series produce heads up to 850ft. Cycloseal® provides long seal-life without flush water—saving up to \$50,000 per pump annually. The Cornell Co-Pilot® allows remote monitoring of vibration, temperature, location, engine rpm, flow, remote operation, and pressure.

Products & Services

Continuous Mining Machines
Dewatering Equipment
Pumps

Main Office

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Clackamas, OR 97015 USA
Phone: (503) 653-0330
www.cornellpump.com

Costmine

Booth 1817

Cost estimating data you can count on. Costmine provides up-to-date mine cost estimating tools for feasibility studies, exploration decisions and economic analysis. Mining Cost Service and Mine & Mill Equipment Costs Guide have been a trusted source for cost estimating data for over 40 years. Our Sherpa software suite of engineering-based cost estimating tools can help you to quickly and accurately determine capital and operating costs. Costmine is a valuable resource for investors, geologists, engineers, financiers, teachers, consultants and suppliers.

Products & Services

Computer - Software and Services
Consulting - Engineering
Educational
Geological-Physical-Technical Services and Equip
Information Technology Products
Mine Evaluations - Surface and Underground
Publishers
Reclamation Equipment and Services

Main Office

100 N Mullan Rd, Ste 102
Spokane Valley, WA 99206 USA
Phone: (509) 328-8023
www.costmine.com

Cotton Logistics

Booth 2923

Main Office

5443 Katy Hockley Cutoff Rd
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Cowin & Company/Raisebor

Booth 2717

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Products & Services

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Drilling Contractors
Mining Contractors
Underground - Construction and Structures
Underground Excavation Services and Equipment

Main Office

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www.cowin-co.com

Coyne Chemical

Booth 1325

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Products & Services

Reagents - Chemical and Flocculants
Remediation
Solvents - Extraction, Mixer and Settlers
Water Clarification and Treatment

Main Office

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CPM Roskamp Champion

Booth 1000

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Products & Services

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Crushers and Pulverizers
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EXHIBITORS

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CR

Booth 1250

CR Mining is on a mission to revolutionize mining productivity. We engineer the most advanced surface, underground, and digital mining solutions so miners across the globe can boost productivity, enhance safety and reduce maintenance requirements. Backed by a meticulous design process, data-based testing protocol, and passionate engineers, our mining equipment sets new standards for performance. Headquartered in Australia, CR has a presence in the US, Canada, Chile, China and 11+ other global locations.

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Products & Services

Castings
Drilling Equipment
Excavators
Loaders
Measurement and Monitoring Systems
Parts - Mining Machinery
Safety Equipment
Underground Excavation Services and Equipment

Main Office

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CR, OR 97223 USA
Phone: (866) 276-4637
www.crmining.com

Custom Linings, Inc

Booth 2133

Products & Services

Coatings (does not include Linings and Claddings)
Linings and Claddings
Maintenance Services
Mining Contractors
Reclamation Equipment and Services
Remediation
Shotcrete Equipment, Supplies and Services
Tunnel Lining and Support Materials

Main Office

1960 Victor Pl
Colorado Springs, CO 80915 USA
Phone: (719) 374-8785
www.customlinings.com

Dahrouge Geological Consulting Ltd

Booth 2837

Products & Services

Geological-Physical-Technical Services and Equip

Main Office

7000 S. Yosemite St, Ste 115
Centennial, CO 80112 USA
Phone: (719) 649-4210
www.dahrouge.com

Datamine North America Inc

Booth 2220

Datamine is a world leading provider of the technology and services required to seamlessly plan and manage mining operations. With operations in thirteen countries, Datamine provides solutions ranging from exploration data management and orebody modelling to mine planning and operations to over 1,400 companies worldwide. Our software solutions integrate with our consulting and training services to ensure that we provide our clients with industry-leading support and expertise.

Products & Services

Aerial Mapping and Surveying
Blending Systems
Computer - Software and Services
Consulting - Design and Planning
Exploration Equipment and Services
Information Technology Products
Laboratory and Scientific Services
Mining Contractors
Training Services
Transportation

Main Office

7900 E Union Ave, Ste 1007
Denver, CO 80237 USA
Phone: (303) 985-7713
www.dataminesoftware.com/

DEA Incorporated

Booth 1567

Experts in Mine Power Distribution & Industrial Control Systems. Founded in 1984 by an Electrical Engineer with extensive mining experience, DEA Incorporated understands heavy industrial conditions. We continue to design & manufacture a complete line of rugged electrical distribution equipment specially created for the harsh mining environment. DEA Inc is an experienced UL508A Industrial Control Panel builder that offers engineering support, design, programming and commissioning for various projects throughout many industries. Proudly built Rugged Tough in the USA. Veteran Owned Business.

Products & Services

Controls - Electrical and Electronic
Electrical Equipment and Supplies
Maintenance Services
Power Transmission Equipment
Process Controls and Instruments

Main Office

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Phone: (509) 214-1498
www.deainc.net

Deister Concentrator, LLC

Booth 2808

Deister Concentrator manufactures single, double and triple-deck mineral concentrating shaking tables along with a complete line of heavy media and classifying cyclones, sieve bends, heated screens and revolving slurry distributors.

Products & Services

Dewatering Equipment
Laboratory Equipment and Supplies
Separators and Concentrators

Main Office

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Denver Machine Shop

Booth 1208

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Products & Services

Crushers and Pulverizers
Maintenance Equipment and Supplies
Maintenance Services

Main Office

9762 Hanover Ct E
Henderson, CO 80640 USA
Phone: (303) 295-6000
www.denvermachine.com

Department of Energy, OCED

Booth 1669

OCED's \$500 million Clean Energy Demonstration Program on Current and Former Mine Land is designed to demonstrate the technical and economic viability of carrying out clean energy projects on current and former mine land.

Products & Services

Government Agency - Entity

Main Office

1000 Independence Avenue SW
Washington, DC 20585 USA
Phone: (540) 320-4494
<https://www.energy.gov/oced/office-clean-energy-demonstrations>





Derrick Corporation

See our ad on p. 43

Booth 1715

Derrick has pioneered the development of wet and dry fine screening solutions to serve diverse industries throughout the world for more than 70 years. Derrick offers its clients leading-edge solutions to maximize separation efficiency. Using this patented equipment and innovative screen surface technology, offers unmatched performance – increased product recovery and reduced power consumption. Derrick equipment symbolizes rugged reliability, and remains committed to providing the latest technological enhancements that evolve alongside industry best practices and market developments. Derrick's latest patented products – the SuperStack® 8-Deck fine wet screening machine, and G-Vault® urethane interstage screen coupled Trilogy™ Surface Technology.

Products & Services

Centrifuges
Classifiers
Cyanide Process Equipment
Dewatering Equipment
Screens
Separators and Concentrators

Main Office

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Buffalo, NY 14225 USA
Phone: (716) 683-9010
www.derrick.com

Deswik

Booth 2612

Products & Services

Computer - Software and Services
Consulting - Engineering

Main Office

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Booth 1017

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Products & Services

Construction - Contracting Services
Dewatering Equipment
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control
Underground - Construction and Structures

Main Office

9150 96th Ave
Zeeland, MI 49464 USA
Phone: (616) 875-7580
www.dewindonepass.com

DHI Water & Environment, Inc

Booth 2232

DHI provides independent and trusted advisory and software solutions to solve the world's toughest challenges in water environments. Our knowledge of water environments is second-to-none. It represents 50 years of dedicated research and real-life experience from more than 140 countries.

DHI is an independent, private and not-for-profit organization with over 1,000 dedicated employees worldwide. We are the first people you should call when you have a tough challenge to solve in a water environment – be it a mine, river, a reservoir, an ocean, a coastline, within a city or a factory.

Products & Services

Computer - Software and Services
Consulting - Engineering
Consulting - Environmental
Information Technology Products

Main Office

141 Union Blvd, Ste 320
Lakewood, CO 80304 USA
Phone: (720) 506-5282
Email: chda@dhigroup.com
www.dhigroup.com

Diemme Filtration SRL

Booth 1200

In the solid-liquid separation segment Diemme Filtration has succeeded in conquering a notable portion of the market thanks to its skill in extreme customization of plants, designed to specific customers needs. With our brand Diemme® Filtration we are one of the leading specialists in solid/liquid separation for industrial processes and offer the widest range of filter presses and thickeners currently available in the global market.

Products & Services

Dewatering Equipment
Environmental Control Equipment and Supplies
Filters, Filter Cloth and Accessories
Pumps
Remediation
Thickeners
Water Clarification and Treatment

Main Office

Via Gessi 16, Tax ID #02416280390
Lugo 48022 Italy
Phone: +39 054520611
https://www.diemmefiltration.com

Diesel Laptops

Booth 1101

Diesel Laptops provides diagnostic tools, training, and parts and repair information

Products & Services

Computer - Hardware and Services
Computer - Software and Services
Information Technology Products

Main Office

7440 Broad River Rd
Irmo, SC 29063 USA
Phone: (888) 983-1975
www.DieselLaptops.com

Disa Technologies, Inc.

Booth 1575

Disa is an innovative materials liberation company providing solutions that optimize the world's use of resources and radically disrupt best practices in the mining and reclamation industries. Disa utilizes patented liberation technology and other equipment to isolate targeted materials in order to deliver efficiencies, reduce costs, and mitigate environmental impacts to its users. Disa platforms isolate a vast array of geologic material ranging from precious and industrial metals, to hydrocarbons and abandoned uranium mine material.

Products & Services

Grinding Mills
Laboratory and Scientific Services

Main Office

1653 English Avenue
Casper, WY 82601 USA
Phone: (307) 871-7291

DistributionNOW - Pexgol Distributor

Booth 1133

DistributionNOW is a leading global supplier of industrial products and is a North American distributor of heavy duty Pexgol cross-linked polyethylene (PE-Xa) pipe for mining and other industries. Available in sizes up to 28" diameter and in long spool lengths, Pexgol has some unique benefits for the mining industry including corrosion resistance, excellent abrasion resistance, high and low temperature capabilities, outstanding anti-scaling properties, exceptional durability and resistance to impact, scratching & point loads. It can be used for transportation of slurries, brine transfer, de-watering, water supply, compressed air and other mine applications, as well as for mineral processing.

Products & Services

Pipes

EXHIBITORS

Main Office

1303 E Hwy 350
Big Spring, TX 79720 USA
Phone: (403) 831-9952
<https://www.dnow.com/pipe-and-tube/pexgol-pe-xa-pipe>

Dodge Industrial, Inc

Booth 1336

Dodge, an RBC Bearings company, designs, manufactures, and supplies reliable mechanical power transmission products and solutions for a wide range of industries and markets across the globe. The industry and application experts at Dodge examine complete systems and provide solutions and services that improve operations and increase safety and efficiency for all stakeholders. Dodge has continuously built upon its reputation of leadership, innovation, and best-in-class service for over 140 years—a legacy that will carry on for years to come.

Products & Services

Belts - Power Transmission
Conveyor Belting - Accessories and Equipment
Couplings - Mechanical, Flexible and Rigid
Drives - Belt, Chain, Fluid and Gear
Gears - Pullers, Reducers and Pinions

Main Office

1061 Holland Rd
Simpsonville, SC 29681 USA
Phone: (864) 297-4800
<https://dodgeindustrial.com/>

Drill Tech Drilling & Shoring Inc

Booth 1626

Products & Services

Construction - Contracting Services

Main Office

2200 Wymore Wy
Antioch, CA 94509 USA
Phone: (925) 978-2060
www.drilltechdrilling.com

Driver Industrial Safety

Booth 1132

Driver Industrial Safety™ is a quality manufacturer of market-driven Safety Products for industrial and commercial industries. We are headquartered in Phoenix, Arizona (USA) with manufacturing and warehouse facilities in the US & Canada and sell through our global distribution channels. We were originally founded in 2004 under our former recognized name SafetyWhips®. Driver was founded on the basis that there is a critical need for well-engineered and dependable products for work site safety. Clients depend on us to keep their worksite safe. Our combined 100+ years in LED and electronics manufacturing provides the best engineered products available for worksite safety.

Products & Services

Construction - Contracting Services
Drilling Contractors
Drilling Equipment
Loaders
Mine Operators
Mining Contractors
Safety Equipment
Scales
Transportation
Trucks and Haulage Units

Main Office

2115 W Mountain View Rd
Phoenix, AZ 85021 USA
Phone: (602) 424-2500
Email: sales@driverindustrial.com
www.driverindustrialsafety.com



DSI Underground LLC

Booth 2626

DSI Underground, a Sandvik company, is back in the US mining ground support and ready to serve you. We once again provide high quality roof support including solid rebar, inflatable and friction bolts, resin and other chemicals, as well as cable bolts and four different dynamic (seismic) bolts including the Sandvik MDX. In addition, we continue to design and manufacture our cold form standing supports, ribs and liner plate, customized for your shafts and slopes as well as continuous threadbar for bolting and slip lining shafts (hanging rods). Come see us!

Products & Services

Backfilling
Drill Bits - Rock
Drilling Equipment
Grouting Services, Equipment and Materials
Inflatable and Mechanical Packers
Roof - Ground Supports
Safety Equipment
Tunnel Lining and Support Materials
Underground - Construction and Structures

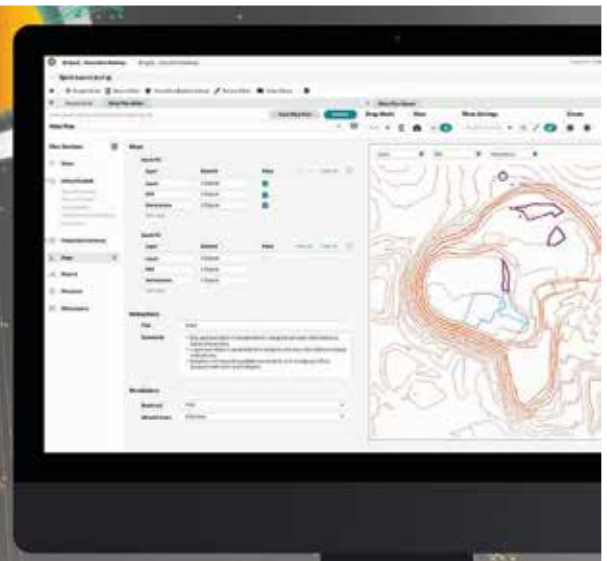
Main Office

1032 E Chestnut
Louisville, KY 40204 USA
Phone: (502) 473-1010
www.dsiunderground.com

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SourceOne® EKPS is a data transformation tool that **delivers the right data to the right people whenever they need it**. With the SourceOne system, your disconnected data evolves into **valuable information**, allowing you to gain insights into your business.



 Eclipse Mining Technologies

eclipsemining.com

EXHIBITORS

DYNO[®]

Dyno Nobel

Dyno Nobel

See our ad on p. 45

Booth 1621

Customers in the mining industry choose Dyno Nobel for quality products, reliable service and technical expertise. Dyno Nobel is the market leader in North America with facilities in Australia, Canada, the United States, Indonesia, Mexico, South America and Papua New Guinea. With a customer driven focus, Dyno Nobel develops practical products that will benefit customers in real time. Customers can count on real solutions to their pain points of today, helping them to reduce costs and increase production. Renowned for excellent safety performance and innovative explosive products and services, Dyno Nobel continuously delivers ground-breaking performance through practical innovation.

Products & Services

Blasting Accessories, Equipment and Agents
Consulting - Design and Planning
Consulting - Engineering
Explosive Materials and Services
Laboratory and Scientific Services
Mine Evaluations - Surface and Underground

Main Office

6440 S Millrock Dr, Ste 150
Salt Lake City, UT 84121 USA
Phone: (385) 347-2679
www.dynonobel.com

Eagle Mine LLC

Booth 1576

Products & Services

Mine Operators

Main Office

4547 County Rd 601
Champion 49814 USA
Phone: 1 (906) 339-7064
<https://www.eaglemine.com/>

easyXAFS, LLC

Booth 2350

easyXAFS is the global leader in laboratory XAFS and XES instrumentation. This bulk sensitive, element specific measurement can show changes in oxidation state and local structure. Imagine what you can do with reliable, every day access to advanced x-ray spectroscopy. Our proven laboratory x-ray spectrometers give synchrotron-quality spectra and game-changing scientific freedom.

Products & Services

Laboratory Equipment and Supplies

Main Office

879 Rainier Ave N, Ste A103
Renton, WA 98057 USA
Phone: (253) 347-4480
Email: sales@easyxafs.com
easyxafs.com

EcoMister Evaporator

Booth 2402

The EcoMister Evaporator offers the most durable, cost effective wastewater disposal solution available to the mining industry today. Our NEW HDXL system will extend the life and value of a tailings pond and maintain adequate freeboard. We dramatically accelerate the evaporation process. The EcoMister Evaporator offers the potential to save millions of dollars in water management over the life of a mine.

Products & Services

Aerators
Automation
Dewatering Equipment
Dust and Fume Control Technology
Environmental Control Equipment and Supplies
Fans and Blowers
Pollution Control Equipment
Reclamation Equipment and Services
Remediation
Water Clarification and Treatment

Main Office

559 Okanagan Ave E
Penticton, BC V2A 3K4 Canada
Phone: (778) 476-8432
www.ecomister.ca

Eirich Machines, Inc

Booth 2404

Eirich Machines, part of worldwide Eirich Group, is an international supplier of innovative material processing technology and solutions. Our EIRICH product line includes grinders and mixers with peripheral equipment for complete systems. EIRICH's cost- and energy effective grinding mills are for dry and wet grinding of brittle materials. You can reduce power consumption by 30-35% and have media consumption rates that are 45% of what conventional mills do. Visit booth 2404 to learn more!

Products & Services

Agitators, Vibrators and Mixers
Bins, Hoppers, Silos and Storage
Dryers
Grinding Mills
Process Controls and Instruments

Main Office

4033 Ryan Rd
Gurnee, IL 60031 USA
Phone: (847) 336-2444
Email: grindingsolutions@eirichusa.com
www.eirichusa.com



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BOOTH #2134



emesent



EXHIBITORS

Emerson

Booth 1633

Emerson is a global solutions provider focused on helping Miners exceed key performance indicators: Safety, Production, Cybersecurity, Environmental Stewardship, and Sustainability. A long-time supplier of valves, instrumentation, and control systems, today's Emerson leverages OT expertise into enterprise-wide data solutions which leverage machine learning to manage asset performance, optimize mineral recovery, and provide autonomous control solutions.

Products & Services

Analyzers
Automation
Consulting - Engineering
Controls - Electrical and Electronic
Information Technology Products
Measurement and Monitoring Systems
Process Controls and Instruments
Sensors
Training Services
Valves

Main Office

8200 Market Blvd
Chanhassen, MN 55317 USA
Phone: (952) 949-7126
www.emerson.com/mining



Emesent

See our ad on p. 49

Booth 2134

Emesent is a world-leader in drone autonomy, LiDAR mapping, and data analytics. Founded in 2018, Emesent has since built a reputation for delivering high-quality data capture in the mining, infrastructure, survey and mapping industries. Our flagship product, Hovermap, is a smart mobile scanning unit that combines advanced collision avoidance and autonomous flight technologies to map hazardous and GPS-denied environments. Hovermap is uniquely versatile, it can be mounted to a drone, cage, backpack or vehicle to map challenging, inaccessible areas. With a wide range of applications, Hovermap is being used by customers around the world.

Products & Services

Aerial Mapping and Surveying
Automation
Exploration Equipment and Services
Information Technology Products
Measurement and Monitoring Systems

Main Office

9200 E Mineral Ave, Ste 100
Centennial, CO 80112 USA
Phone: (972) 679-1587
www.emesent.com

EMFluids Ltd

Booth 1058

New Evaporation Technology for brine ponds and tailing ponds.

Products & Services

Dewatering Equipment
Pollution Control Equipment
Quality Improvement
Remediation

Main Office

7670 Mayfield St
Burnaby, BC V5E2J4 Canada
Phone: (604) 813-7331
www.emfluids.com

Endurance Belting

Booth 2611

Endurance Belting is a leading supplier of heavy-duty conveyor belting to the mining industry around the globe. Our success is a result of taking practical real-world insights from the field, translating them into belt design and building a high-quality product. We offer a wide range of belting options and innovative belting solutions that can address the material handling needs of your next project. We encourage you to visit our booth (2611) to learn more about the Endurance Belting approach and the successes we have had supplying heavy-duty belting to the mining sector.

Products & Services

Conveyor Belting - Accessories and Equipment
Conveyor Systems

Main Office

828 Ritson Rd S
Oshawa, ON L1H 5L4 Canada
Phone: (905) 443-0150
www.endurancebelting.com

Englo, Inc

Booth 2336

Products & Services

Consulting - Engineering
Dust and Fume Control Technology
Environmental Control Equipment and Supplies
Fans and Blowers
Fire Protection
Ventilation Systems, Materials and Equipment

Main Office

PO Box 1124
Beckley, WV 25802 USA
Phone: (304) 253-0777
www.engloinc.com

ENTACT

Booth 1838

ENTACT is a nationally recognized environmental, geotechnical, and civil contractor that provides solutions to the mining industry. For over 31 years, we have provided technical expertise and geotechnical and civil construction services for operating and decommissioned mine sites, mills, and smelters. The ENTACT team delivers mine remediation, reclamation, demoli-

tion, wetlands restoration, and RAD / NORM services across the country. We were founded on the belief that safety, technical excellence, field expertise, and sound business practices are critical to delivering outstanding service.

Products & Services

Construction - Contracting Services
Dredges
Excavators
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control

Main Office

63 Inverness Drive, East, Suite 101
Englewood, CO 80112 USA
Phone: (630) 986-2900
Email: office@entact.com
www.entact.com

ENVECO Environmental Solutions, LLC

Booth 2050

ENVECO Environmental Solutions, LLC provides equipment and personnel services for processing, remediation, and associated waste disposal activities for Mining Operations, Deep Foundations, Slurry Wall Installations, Soil Stabilization, Tunneling, Heavy Civil Work, Ground Improvement, and Earth Retention Processes. We specialize in Liquid and Solid Separation, Water Treatment, Dewatering and Disposal! ENVECO also provides environmental consulting, process planning, and remediation oversight.

Our experienced staff will assist you with development of an all-encompassing plan for sludge and slurry processing, tailings, and waste pond processing. We recommend and apply methods and equipment for an economical and effective waste treatment, processing, and disposal execution plan.

Products & Services

Centrifuges
Consulting - Environmental
Dewatering Equipment
Dredges
Environmental Control Equipment and Supplies
Ion Exchange Equipment and Resins
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control
Water Clarification and Treatment

Main Office

103 MANOR LAKE ESTATES DR, ESTATES DR
Spring, TX 77379 USA
Phone: 7138182930
Email: sales@envecoenvironmental.com
www.envecoenvironmental.com

Envirocon, Inc

Booth 1709

Envirocon safely and reliably delivers projects that protect, remediate, and restore our environment for commercial and government clients nationwide. Helping our clients meet their goals and objectives with innovative approaches in environmental remediation, ecological restoration, and decommissioning & dem-



Eriez Concentration & Separation Equipment for Minerals Processing



Eriez offers wet and dry, low-, medium- and high-intensity magnetic separators to concentrate magnetic ores or remove metallic contaminants and industrial minerals.

- High Intensity Magnetic Filters
- Magnetic Flocculators
- LIMS and MIMS Wet Drum Separators
- WHIMS Wet High Intensity Magnetic Separator
- Dry Vibrating Magnetic Filters
- Cross Belt Magnetic Separators
- Magnetic Mill Liner
- Trunnion Magnet System
- Demagnetizing Coils

Eriez designs and manufactures specialty flotation equipment, with more than 1,000 flotation column systems installed worldwide for cleaning, roughing and scavenging applications in base metals, gold, industrial minerals, coal and oil sands, phosphate and potash. Eriez also offers hydraulic separators, slurry distributors, spargers and an array of laboratory and pilot-scale equipment.

- HydroFloat® Coarse Particle Flotation
- StackCell® Small Footprint Flotation
- Column Flotation
- CrossFlow Classifier
- SlamJet™ Spargers
- CavTube Sparging

ERIEZ

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EXHIBITORS

olution is what we do. Envirocon offers proven safety performance, project delivery, and financial strength and stability unmatched in our industry. We serve our clients with integrity and provide reliable, safe, and high-quality results.

Products & Services

Construction - Contracting Services
Dewatering Equipment
Excavators
Loaders
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control

Main Office

101 International Dr
Missoula, MT 59808 USA
Phone: (406) 523-1150
www.envirocon.com

Environmental Products & Applications, Inc

Booth 2528

Products & Services

Dust and Fume Control Technology

Main Office

78-900 Ave 47, Ste 106
La Quinta, CA 92253 USA
Phone: (760) 777-8035
www.eparhino.com

Epiroc

Booth 1921

Epiroc is a leading productivity partner for the mining, infrastructure and natural resources industries. With cutting-edge technology, Epiroc develops and produces innovative drill rigs, rock excavation and construction equipment, and provides world-class service and consumables. The company was founded in Stockholm, Sweden, and has passionate people supporting and collaborating with customers in more than 150 countries.

Products & Services

Automation
Autonomous Vehicles
Drill Bits - Rock
Drilling Equipment
Loaders
Parts - Mining Machinery
Roof - Ground Supports
Trucks and Haulage Units

Main Office

8001 Arista Pl, Ste 400
Broomfield, CO 80021 USA
Phone: (844) 437-4762
Email: inquiries@epirocmarketing.com
www.epiroc.com



ERIEZ

See our ad on p. 51

Booth 2214

Eriez offers magnetic separation, magnetic purification and vibratory conveying solutions for the mining industry. Founded in 1942, Eriez' metal removal, wet and dry mineral processing technologies protect downstream equipment, product purity and the efficiencies of mineral processing and mining operations.

Eriez Flotation is a world leader in advanced flotation technology and is a wholly owned subsidiary of Eriez Manufacturing Co. Eriez Flotation provides advanced testing and engineering services, sparging and column flotation equipment, and game changing innovations in process technology such as HydroFloat® and Stack-Cell® for the mining and mineral processing industries.

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www.frontierkemper.com

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Products & Services

Feeders
Flotation Machines and Equipment
Gravity Separators
Heavy Media Recovery Units
Magnetic Separators

Main Office

2200 Asbury Rd
Erie, PA 16506 USA
Phone: (814) 835-6000
Email: eriez@eriez.com
www.eriez.com

Esri**Booth 1142**

Esri, the global leader in GIS software and location intelligence, helps customers unlock the full potential of data to improve operational and business results

Products & Services

Aerial Mapping and Surveying
Autonomous Vehicles
Computer - Software and Services
Consulting - Environmental
Exploration Equipment and Services
Geological-Physical-Technical Services and Equip
Information Technology Products
Mine Operators
Mineral Prospecting
Surveying Equipment and Supplies

Main Office

380 New York St
Redlands, CA 92374 USA
Phone: (909) 369-2953
<https://www.esri.com/en-us/industries/mining/overview>

Eurofins QTA**Booth 1135**

Eurofins QTA, Inc. combines infrared (IR) technology, advanced modeling techniques, and a simple user interface to provide detailed results—on site, in real time. The analysis is non-destructive, reagent-free, and requires no technical expertise to perform. In just a 60-second test cycle, limestone and dolomite producers can test both raw materials headed to the kiln and finished product. Eurofins QTA offers bench-top units, emission heads and mobile probe units that can test your un-mined, raw and finished material with the flash of a light!

Products & Services

Laboratory and Scientific Services

Main Office

8900 Beckett Rd
West Chester Township, OH 45069 USA
Phone: (216) 213-3736
Email: qtahelp@eurofinsus.com
www.qta.com

Evoqua Water Technologies**Booth 2238**

Evoqua Water Technologies is THE global leader in helping municipalities and industrial customers protect and improve the world's most fundamental resource: water. We have a more than 100-year heritage of innovation and industry first, market-leading expertise, and unmatched customer service. From activated carbon, reverse osmosis, and mobile water solutions to membrane ultrafiltration and biological wastewater treatment, our industrial water, industrial wastewater, drinking water and municipal wastewater treatment products and services will provide the solution to meet your water treatment needs.

Products & Services

Controls - Electrical and Electronic
Dewatering Equipment
Fans and Blowers
Hoses - Valves and Fittings
Ion Exchange Equipment and Resins
Pumps
Reagents - Chemical and Flocculants
Valves
Water Clarification and Treatment

Main Office

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EXHIBITORS

ExcelSense Technologies

Booth 2801

ExcelSense Technologies designs and manufactures rugged, maintenance-free, self-cleaning cameras and lidars for equipment situational awareness, autonomous mining, and remote material process monitoring in dirty and harsh industrial environments.

Uniquely, ExcelSense's patented and award-winning technologies self-clean against abrasive dust, mud, oil, bitumen, potash, salt, and potash without requiring any fluid top-ups, compressed air, or maintenance for many years.

Products & Services

Autonomous Vehicles
Continuous Mining Machines
Conveyor Systems
Crushers and Pulverizers
Drilling Equipment
Electrical Equipment and Supplies
Excavators
Flotation Machines and Equipment
Safety Equipment
Trucks and Haulage Units

Main Office

109-3231 No.6 Road
Richmond, BC V6V 1Z1 Canada
Phone: (800) 914-3193
Email: golareh@excelsensetechnologies.com
www.excelsensetechnologies.com

Exyn Technologies

Booth 1205

Exyn Technologies is pioneering multi-platform robotic autonomy for complex, GPS-denied environments. For the first time, industries like mining, logistics, and construction can benefit from a single, integrated solution to capture critical and time-sensitive data in a safer, more affordable, and more efficient way. Exyn is powered by a team of experts in autonomous systems, robotics, and industrial engineering, and has drawn talent from Penn's world-renowned GRASP Laboratory as well as other storied research institutions. The company is VC-backed and privately held, with headquarters in Philadelphia.

Products & Services

Aerial Mapping and Surveying
Autonomous Vehicles
Computer - Software and Services
Mine Evaluations - Surface and Underground
Safety Equipment
Surveying Equipment and Supplies

Main Office

2118 Washington Ave, Ste 1000
Philadelphia, PA 19146 USA
Phone: (215) 999-0225
Email: hello@exyntechologies.com
www.exyn.com

FC Mill Liners, Inc

Booth 1264

FC Mill Liners, Inc. is the North American distribution operation of Fundidora de Cananea, S.A. (FUCASA), specializing in the design and manufacturing of

high-quality mill liners. Founded in 1970, FUCASA has been producing mill liners since 1980 and has become a principal supplier of cast iron and steel mill liners for AG, SAG, ball and rod mill liners in North America. As we celebrate FUCASA's 52nd year in business, we are building on our history as a proven supplier through innovations that offer our customers the highest-value, easiest and most reliable supply of custom mill liners, period.

Products & Services

Castings
Grinding Media and Liners
Grinding Mills

Main Office

4729 E Sunrise Dr, #502
Tucson, AZ 85718 USA
Phone: (480) 622-1263
www.fcmillliners.com

Federal Screen Products, Inc

Booth 1051

Federal Screen is a custom manufacturer and fabricator of wedge wire screens, delivering high-quality products and unmatched customer service. With over 25 years of experience, we provide filtration solutions that help lower operational costs and maximize systems efficiency for mineral processors. Through advanced manufacturing capabilities and exceptional engineering, we produce screens in a variety of configurations and slot sizes to meet your specific application needs. We specialize in media retention nozzles, vessel internals, strainer baskets, support grids, resin traps, intake screens, flat panels, sieve bends, wastewater screens, MBBR system screens as well as custom designs.

Products & Services

Screens

Main Office

7524 Bath Rd
Mississauga, ON L4T 1L2 Canada
Phone: (905) 677-4171
federalscreen.com

FEECO International, Inc

Booth 1006

FEECO International, Inc. was founded in 1951 as an engineering and equipment manufacturer. Today, we provide an array of process solutions, equipment, and services to companies looking to solve material problems, develop advanced processes, and streamline production. We've built a reputation on custom, quality work that has allowed us to serve thousands of companies around the world with the best in agglomeration, thermal processing, and material handling equipment for the mining and mineral processing industries.

Products & Services

Dryers
Kilns
Maintenance Services

Main Office

3913 Algoma Rd
Green Bay, WI 54311 USA
Phone: (920) 468-1000
Email: sales@feeco.com
FEECO.com

FGX SepTech, LLC

Booth 2400

FGX Septech, LLC is the world leader in supplying the dry coal (pneumatic) separators. The FGX technology uses air rather than water to beneficiate the run-of-mine coal, as well as other minerals. There are more than 2200 FGX pneumatic coal processing units operating through out the world. FGX have machines capable of processing from 10tph to 500tph of the ROM coal. Pilot-scale testing provided free of charge, at the client site for feasibility study. Currently there are three commercial scale units operating in the USA. It is one of the most economical and environment friendly Green technology.

Products & Services

Coal Preparation Plants
Gravity Separators
Mineral Prospecting

Main Office

289 Blue Sky Pkwy
Lexington, KY 40509 USA
Phone: (859) 263-8300
www.fgxseptechnllc.com

Fibracan LLC

Booth 2603

Products & Services

Conveyor Systems

Main Office

2925 E Ganley Rd
Tucson, AZ 85706 USA
Phone: (520) 294-0123
www.fibracan.com



FKC-Lake Shore

See our ads on p. 52 & 53

Booth 1504

FKC-Lake Shore offers design-build-install services for innovative hoisting and vertical conveyance systems used to transport personnel and material. Our Field Services Division provides 24/7 emergency repair of electrical and mechanical systems. Products & Services: Vertical Conveyors, Skips, Hoists, Sheaves, Cages, Headframes, Brakeman Cars, Controls, Field Services, and Wire Rope NDT. FKC's Mine Development Division provides comprehensive, mine development services to our owners and partners with techniques such as Blind Drilling, Raise Boring, Conventional Shaft Sinking, and Slope/Decline Tunnel Construction. Frontier-Kemper also provides services for shaft repair and grouting for ground stability and water control as well as full-service production mining.



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more, please
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EXHIBITORS

Products & Services

Construction - Contracting Services
Controls - Electrical and Electronic
Conveyor Systems
Drilling Contractors
Hoists - Controls and Accessories
Maintenance Services
Underground - Construction and Structures

Main Office

1695 Allen Rd
Evansville, IN 47710 USA
Phone: (812) 426-2741
www.fkc-lakeshore.com

Flender Corporation

Booth 2424

Products & Services

Brakes - Dynamic, Friction Disk - Block, Magnetic
Clutches - Fluid, Friction and Magnetic
Conveyor Systems
Couplings - Mechanical, Flexible and Rigid
Drives - Belt, Chain, Fluid and Gear
Gears - Pullers, Reducers and Pinions
Grinding Mills
Maintenance Equipment and Supplies
Power Transmission Equipment

Main Office

1401 Madeline Ln
Elgin, IL 60124 USA
Phone: (224) 517-5604
www.flender.com

Flexco

Booth 1321

Whether you are a small farm in the Midwestern United States, or a large mine in eastern Europe, or a global parcel handling operation with facilities around the world, we are focused on becoming your number one resource for products and services that maximize your belt conveyor uptime, productivity, and safety. Visit Flexco at booth 1321 to learn more!

Products & Services

Parts - Mining Machinery
Safety Equipment

Main Office

2525 Wisconsin Ave
Downers Grove, IL 60515 USA
Phone: (800) 541-8028
www.flexco.com

Flottweg Separation Technology, Inc

See our ad on p. 55

Booth 1415

Flottweg provides liquid solid separation equipment for mining applications. Their 2 and 3 phase decanter centrifuges and separator centrifuges are used in CRUD separation, gravel washing, drilling mud recovery, solvent extraction, oily water solids separation, solids sorting, and wastewater treatment. Skid mounted and containerized systems are also available. Contact us today for a trial.

Products & Services

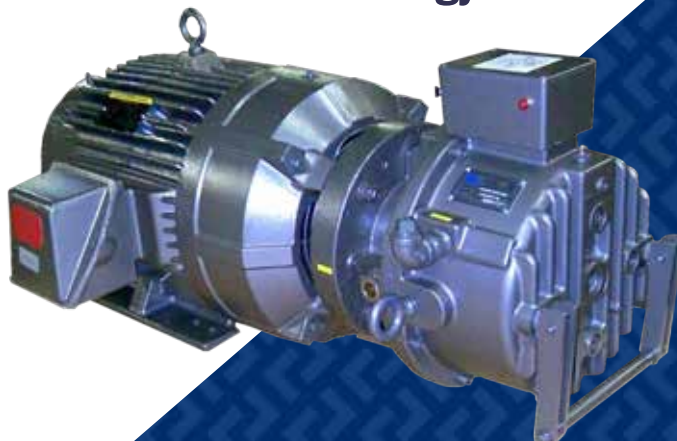
Centrifuges
Dewatering Equipment
Environmental Control Equipment and Supplies
Pollution Control Equipment
Separators and Concentrators
Solvents - Extraction, Mixer and Settlers

Main Office

10700 Toebben Dr
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Barge-Spotters
Rail Car-Spotters
Ship-Loaders

Cranes **Hoists**
Winches **Trippers**

Learn More
Booth #2720



Force Control Industries, Inc. Fairfield, Ohio USA
Phone: 513-868-0900 - 800-829-3244
info@forcecontrol.com www.forcecontrol.com

FLSmidth A/S

Booth 1801

FLSmidth provides sustainable productivity to the global mining and cement industries. We deliver market-leading engineering, equipment and service solutions that enable our customers to improve performance, drive down costs and reduce environmental impact. Our operations span the globe and we are 12,000+ employees, present in more than 60 countries. In 2021, FLSmidth generated revenue of DKK 17.6 billion. MissionZero is our sustainability ambition towards zero emissions in mining and cement by 2030.

Products & Services

Conveyor Systems
Dewatering Equipment
Flotation Machines and Equipment
Grinding Mills
Pumps
Separators and Concentrators
Thickeners

Main Office

7158 S FLSmidth Dr, PO 2876006893-IP
Midvale, UT 84047 USA
Phone: (801) 871-7000
www.flsmidth.com

Fluid Life

Booth 2246

As a leading provider of asset management solutions and lubrication analysis, Fluid Life uses its cutting edge software, training, tools and supported programs to improve customers' bottom line, lower maintenance costs and improve equipment availability. What's more, Fluid Life is the only company of its kind to offer reliability services backed by its in-house labs. Over the past 40 years, Fluid Life has established a great reputation and long-standing partnerships with customers in the mining, construction, industrial plant, oil and gas and transportation industries.

Products & Services

Analyzers
Lubricants and Equipment
Measurement and Monitoring Systems
Sensors
Training Services

Main Office

3710 W Royal Ln, Unit 145
Irving, TX 75063 USA
Phone: (877) 962-2400
www.fluidlife.com



Fluid Systems, Inc

Booth 1251

Fluid Systems is a worldwide provider of process technology to the Mining, Industrial, Environmental, Oil and Gas Industries. Fluid Systems has manufactured its own line of equipment in Houston, TX for more than 40 years. We continue to be innovative with new technologies and make quality improvements to our own line of equipment. Our focus is on process design and process improvement. We pride ourselves on being able to take a customer's vision and turn it into a reality. We can customize your needs on zero discharge systems, solids/liquid separation systems, dewatering systems, tank packages and trailer packages.

Products & Services

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Classifiers
Dewatering Equipment

Quality Improvement
Screens
Water Clarification and Treatment

Main Office

18703 Intercontinental Crossing Dr
Houston, TX 47882 USA
Phone: (832) 467-9898
www.fluidsystems.com/

FM Technologies

Booth 2251

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Products & Services

Backfilling
Continuous Mining Machines
Dewatering Equipment
Filters, Filter Cloth and Accessories
Laboratory and Scientific Services
Separators and Concentrators

Main Office

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Novato, CA 94945 USA
Phone: (510) 932-5552
www.fmtechnologies.com

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EXHIBITORS

Foam Concepts LLC

Booth 1450

Products & Services

Reclamation Equipment and Services

Main Office

4255 S Eagleson Rd
Boise, ID 83705 USA
Phone: (800) 556-9641
www.foamconceptsllc.com



Force Control Industries, Inc

See our ad on p. 56

Booth 2720

Force Control Industries, Inc. manufactures superior quality, uniquely designed industrial clutches and brakes. Based on oil shear technology, our industrial clutch and brake products provide superior life, as well

as smooth operation and quicker response.

Force Control clutch and brake products are used on many types of machinery in the manufacturing of steel, coal, paper, concrete, brick, lumber, fiberglass, tires, automotive, wire, and many more. Please see our list of application bulletins for more information.

Products & Services

Automation

Brakes - Dynamic, Friction Disk - Block, Magnetic
Clutches - Fluid, Friction and Magnetic
Power Transmission Equipment

Main Office

3660 Dixie Hwy
Fairfield, OH 45014 USA
Phone: (513) 868-0900
Email: sales@forcecontrol.com
www.forcecontrol.com

Forgen

Booth 2526

At Forgen, we deliver even the most complex mine reclamation and remediation projects. We've successfully delivered large, multi-disciplinary projects for public and private sector clients across the nation for more than a decade, safely resolving complex challenges for the mining industry.

Our services include mine reclamation and remediation, in situ/ex situ soil stabilization, cutoff wall construction, pond closure/construction, site development and mass grading, dam and levee rehabilitation, habitat/wetland restoration, waste repository construction and capping, and other large environmental, geotechnical, and civil earthwork services.

Products & Services

Construction - Contracting Services
Reclamation Equipment and Services
Remediation

Main Office

6025 S Quebec St, Ste 300
Centennial, CO 80111 USA
Phone: (720) 221-1119
Email: info@forgen.com
www.forgen.com

Formsprag & Marland Clutch

Booth 1421

Formsprag Clutch & Marland Clutch are world leaders in the design and manufacture of backstopping and overrunning clutches with combined 155 years of experience. Formsprag and Marland solutions are hard at work on mine conveyors worldwide. Marland backstop designs, with torque capacities up to 2,100,000 Lb. ft. (2,847,222 Nm), are available in more than 200 models. Formsprag provides the broadest range of overrunning clutches in the world, including Sprag and Ramp/Roller Technology with no back lash, Free-Action Retainers for greater eccentricity, PCE Sprag design for higher torque capacity and Formchrome Sprags for longer wear.

Products & Services

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Clutches - Fluid, Friction and Magnetic
Conveyor Belting - Accessories and Equipment
Conveyor Systems

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quantum
systems



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emesent

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EXHIBITORS

Fans and Blowers
Power Transmission Equipment

Main Office

23601 Hoover
Warren, MI 48089 USA
Phone: (815) 389-6244
www.formsprag.com; www.marland.com

Forte Dynamics

Booth 2733

Forte Dynamics is a consulting and engineering firm that specializes in all aspects from mining to production, taking your project from exploration through feasibility. This includes open pit resource and reserve modeling, mine planning, blasting analysis, metallurgical testing, process design, recovery modeling, detailed engineering, NI 43-101 reporting, and EPCM services. It's not only what we bring to the table - deep expertise and cutting-edge innovation in engineering, metallurgy, and systems performance modeling. It's what we bring to the relationship - collaboration, trusted advice, and a commitment to increase mining production and maximize project return.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management
Consulting - Research
Laboratory and Scientific Services
Laboratory Equipment and Supplies
Mine Evaluations - Surface and Underground
Process Controls and Instruments

Main Office

120 Commerce Dr, Unit 3 & 4
Fort Collins, CO 80524 USA
Phone: (720) 642-9359
www.fortedynamics.com

Foth Infrastructure & Environment, LLC

Booth 2432

Foth empowers clients to unlock the potential of their key mining projects. Our firm provides a unique and wholistic approach to project development that is business enabling and supports optimization and leverages the long-term economics of your mining assets. Our team of mining professionals offers a combination of expertise to strategically manage projects from concept, through sustainable operations, to closure. Since 1938 the firm has thrived in a dynamic and demanding marketplace by solving our clients' toughest science and engineering challenges. Our 600-member, employee-owned firm operates out of 27 locations across the United States and Canada.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management

Main Office

2121 Innovation Ct, Ste 100
De Pere, WI 54115 USA
Phone: (920) 497-2500
www.foth.com



Freeport-McMoRan Inc

See our ad on p. 57

Booth 1343

Freeport-McMoRan is an international mining company that operates large, long-lived, geographically diverse assets with significant proven and probable reserves of copper, gold and molybdenum. One of the world's largest publicly traded copper producers. Freeport-McMoRan's portfolio of assets includes the Grasberg minerals district in Indonesia, one of the world's largest copper and gold deposits; and significant mining operations in North America and South America, including the large-scale Morenci minerals district in Arizona and the Cerro Verde operation in Peru. By supplying responsibly produced copper, the company is proud to be a positive contributor to the world well beyond its operational boundaries.

Products & Services

Mine Operators
Mineral Prospecting
Recruiting/Staffing

Main Office

333 N Central Ave
Phoenix, AZ 85004 USA
Phone: (602) 366-8100
www.fcx.com



Frontier Precision Geospatial/Unmanned

See our ad on p. 59

Booth 1110

Frontier Precision is a distributor of geospatial survey and mapping products, unmanned aerial and ROV products, as well high precision satellite imagery and software - we have over 34+ years of experience working in mining environments.

Products & Services

Aerial Mapping and Surveying
Autonomous Vehicles
Information Technology Products
Measurement and Monitoring Systems
Surveying Equipment and Supplies

Main Office

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Bismarck, ND 58554 USA
Phone: (701) 222-2030
www.frontierprecision.com

FUCHS LUBRICANTS CO

Booth 1564

Products & Services

Lubricants and Equipment
Maintenance Equipment and Supplies

Main Office

17050 Lathrop Ave
Harvey, IL 60426 USA
Phone: (708) 333-8900
www.fuchs.com/us



G+ Plastics

See our ad on p. 58

Booth 2548

G+ Plastics is a family-owned business founded in 1995 in Rouyn-Noranda, Canada, in the heart of the Abitibi Gold Belt. We have pioneered the use of heavy-duty and long-lasting plastic products in the mining industry; our unique expertise of industrial polymers eventually helped to create the G+ Speed Air Duct, a complete product line designed to meet all auxiliary ventilation needs. It is a nearly frictionless plastic duct with airtight junctions that can forward airflow farther with up to 50% less fan power.

Products & Services

Ventilation Systems, Materials and Equipment

Main Office

180 rue d'Évain
Rouyn-Noranda, QC J0Z 1Y0 Canada
Phone: (819) 768-8888
plasticminer.com

Garmin International

Booth 2337

Engineered on the inside for life on the outside, Garmin products have revolutionized life for adventurers, athletes, and outdoor enthusiasts everywhere. Committed to developing products and services that enhance experiences and provide peace of mind, Garmin believes every day is an opportunity to innovate and a chance to beat yesterday. For more information, visit Garmin's virtual Newsroom, email our press team, connect with @garminoutdoor on social media.

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EXHIBITORS

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www.garmin.com

GEA Systems North America LLC

Booth 1470

GEA offers an unparalleled range of equipment, technologies, and process solutions to the mining, metallurgy, and mineral industries.

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Not sure where to start? Just contact us at www.gea.com/contact, as we are happy to support you throughout the entire process.

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Products & Services

Centrifuges
Consulting - Engineering
Dryers
Filters, Filter Cloth and Accessories

Main Office

9165 Rumsey Rd
Columbia, MD 21045 USA
Phone: (410) 428-4063
Email: sales.UnitedStates@gea.com
<https://www.gea.com/en/index.jsp>



General Kinematics

See our ad on p. 61

Booth 1429

For more than sixty years, General Kinematics has led the Mining industry to innovate vibratory process equipment.

General Kinematics is one of the world's largest suppliers of vibratory processing equipment. GK is a significant contributor to the technical advancement of equipment design and application in the mining industry. GK serves a worldwide customer base through engineering-oriented sales representatives who cover industrial markets throughout the United States. International markets are serviced from subsidiary operations and through a combination of representatives, manufacturers, and strategic alliances with industry-specific organizations in other strategic locations. Today, over 50,000 General Kinematics units have been installed.

Products & Services

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Conveyor Systems
Dewatering Equipment
Feeders
Grinding Mills
Screens

Main Office

5050 Rickert Rd
Crystal Lake, IL 60014 USA
Phone: (815) 455-3222
www.gkmining.com

Geobrugg North America, LLC

Booth 2443

Geobrugg manufactures tested and proven steel wire meshes and protection systems for ground support, rockfall protection and slope stabilization to improve safety and productivity for mining operations. Systems include rolled mesh from high-tensile strength steel wire, the MESH@ mesh-unrolling device for bolting machines, rockfall barriers and attenuators, slope drapes, and anchored mesh for slopes. With representatives throughout the USA, Canada, Mexico and the world, and manufacturing at our Algodones, New Mexico factory, we provide solutions and support tailored to the needs of today's open pit and underground mines in a fast and dependable manner.

Products & Services

Roof - Ground Supports
Safety Equipment
Sediment & Erosion Control
Tunnel Lining and Support Materials

Main Office

22 Centro Algodones
Algodones, NM 87001 USA
Phone: (505) 771-4080
www.geobrugg.com

GEO-Instruments

Booth 1714

GEO-Instruments provides automated solutions for monitoring the safety and stability of buildings, excavations, bridges, railways, roads, tunnels, dams, embankments, and slopes. We help clients manage risk by installing advanced monitoring systems and automating the collection, processing, and delivery of alarms, data, and reports. Established in 2003, GEO-Instruments has acquired a reputation for getting results and providing excellent customer service. Our team has extensive experience in instrumentation, information technology, civil engineering, and construction. GEO-Instruments also maintains a large inventory of rental equipment and specializes in sales, rentals, calibrations, and repair of Instantel vibration monitors and seismographs.

Products & Services

Dust and Fume Control Technology
Measurement and Monitoring Systems
Sensors
Surveying Equipment and Supplies

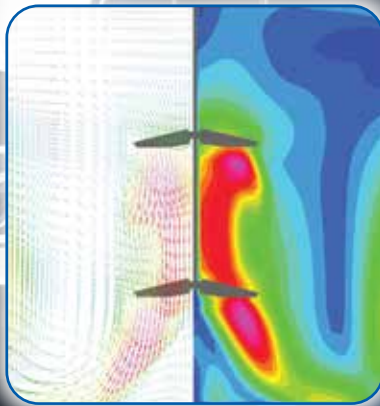


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EXHIBITORS

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Phone: (800) 477-2506
www.geo-instruments.com

GEOKON

Booth 1710

GEOKON is a recognized world leader in the manufacture of structural and geotechnical instrumentation. Founded in 1979, GEOKON has grown to more than 130 associates and offers a full complement of instrumentation for a wide range of industries including tunnels, dams, mines, piles, bridges, pipelines, landfills, embankments, transportation and wind turbines. GEOKON incorporates state-of-the-art manufacturing processes and equipment to produce the highest quality and performing products on the market. Mechanical, electrical and software engineering teams collaborate to develop the most innovative, accurate and reliable instrumentation in the industry. For more information, visit our website, email or call.

Products & Services

Geological-Physical-Technical Services and Equip
Measurement and Monitoring Systems
Sensors

Main Office

48 Spencer St
Lebanon, NH 03766 USA
Phone: (603) 448-1562
Email: info@geokon.com
www.geokon.com

Geo-Logic Associates

Booth 1728

Products & Services

Consulting - Engineering
Consulting - Environmental

Main Office

2777 E Guasti Rd, Ste 1
Ontario, CA 91761 USA
Phone: (909) 626-2282
www.geo-logic.com



Geopyörä

Booth 2932

Geopyörä is a start-up company on a mission to bring mining into a new era of big data. Our state-of-the-art rock breakage characterization technology allows mining companies to rapidly test several samples at low cost and generate a large amount of high quality data, which can be used to better assess the ore hardness variability, reduce risks and add value to projects.

Products & Services

Laboratory and Scientific Services

Main Office

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Phone: +358505011458
www.geopyora.com

GeoStabilization International

Booth 1681

Our passion is to develop and install innovative solutions that protect people and infrastructure from the dangers of geohazards. We specialize in emergency landslide repairs, rockfall mitigation, and grouting using design/build or design/build/warranty contracting. GeoStabilization's team includes some of the brightest and most dedicated professionals in the geohazard mitigation industry. Our expertise, proprietary tools, and worldwide partnerships allow us to repair virtually any slope stability or foundation problem in any geologic setting.

Products & Services

Consulting - Engineering

Main Office

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Commerce City, CO 80222 USA
Phone: (855) 579-0536
www.geostabilization.com

Geosyntec Consultants

Booth 2225

Products & Services

Consulting - Engineering
Consulting - Environmental
Mine Evaluations - Surface and Underground
Remediation
Sediment & Erosion Control
Water Clarification and Treatment

Main Office

215 South St, Ste 500
Salt Lake City, UT, UT 84111 USA
Phone: (786) 312-6015
https://www.geosyntec.com/

Geotech Environmental Equipment, Inc

Booth 1624

Geotech is an environmental equipment manufacturer who supplies field equipment used to collect and produce high-quality and repeatable analytical data. When remedial action is needed, Geotech offers a complete line of remediation technologies that range from passive to automated active recovery systems. Geotech will feature and demonstrate SiteView - a centralized project management cloud-based application that provides real-time remote access to data being collected at one or multiple sites. SiteView features secure log-in credentials with administrative or user permissions to efficiently share information and alerts across all stakeholders. Learn more. Buy, Rent, and Service your environmental equipment from Geotech.

Products & Services

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Controls - Hydraulic and Pneumatic

Drilling Equipment
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Pumps
Remediation

Main Office

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Denver, CO 80205 USA
Phone: (303) 320-4764
www.geotechenv.com

Geovert LLC

Booth 2642

Geovert is a world-leading contractor providing ground support services. Since our inception, we have grown to become an internationally recognized leader in ground support, slope stabilization, and rockfall protection using rope access techniques. Our success is due to our innovative approach to design and construction while providing superior customer service.

Products & Services

Construction - Contracting Services

Main Office

2780a Industrial In
Broomfield, CO 80020 USA
Phone: (720) 452-1191
www.geovert.com

GHD

Booth 2150

GHD is a global professional services company committed to solving the world's biggest challenges in the areas of water, energy and urbanization. As a global company leading through engineering, construction and architectural expertise, our innovative approaches connect and sustain communities. Delivering extraordinary social and economic outcomes, our focus is building lasting relationships with our partners and clients.

Products & Services

Construction - Contracting Services
Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Geological-Physical-Technical Services and Equip
Laboratory and Scientific Services
Remediation
Water Clarification and Treatment

Main Office

4747 N 22nd St, Ste 200
Phoenix, AZ 85016 USA
Phone: (602) 216-7200
www.ghd.com

Global Mining Guidelines Group

Booth 2602

The Global Mining Guidelines Group (GMG) is a network of representatives from mining companies, original equipment manufacturers (OEMs), original technology manufacturers (OTMs), research organizations, academia, regulatory agencies, consultancies, and industry associations who collaborate to tackle the challenges facing our industry. GMG aims to accelerate the improvement of mining performance, safety and

sustainability by creating guidelines and white papers that address common industry challenges, facilitating collaboration and expanding the industry's knowledge base. GMG also hosts and supports events that bring mining stakeholders together along with external industries to address the industry's challenges, successes and innovations. Visit our website to learn more.

Products & Services

Educational
Professional Society or Association

Main Office

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www.GMGgroup.org

Global Mining Review

Booth 1523

A premier source of technical and analytical information, Global Mining Review is essential reading for all mining professionals. Each issue provides unparalleled coverage of the mining industry – including regional and special commodity reports, as well as detailed technical articles and case studies.

Products & Services

Publishers

Main Office

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GMS Mine Repair & Maintenance

Booth 1620

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Maintenance Services
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Underground - Construction and Structures

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GNB Global Inc

Booth 2147

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Temporary Structures

Main Office

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Phone: (204) 541-0300
www.gnb.group

Great Basin College

Booth 2927

I have a new position at GBC but start in January so my e mail will change (in the interim ajsspearing@yahoo.com will work if UNR stops then). We offer CTE and mining training in Nevada.

Products & Services

Educational

Main Office

1500 College Parkway
Elko, NV 89801 USA
Phone: (865) 333-1023
www.gbncv.edu

Great Basin Industrial, LLC

Booth 1104

Products & Services

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Main Office

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Phone: (307) 321-5599
www.mygbi.com

GroundProbe NA LLC

Booth 2126

Products & Services

Measurement and Monitoring Systems

Main Office

2470 W Majestic Park Wy
Tucson, AZ 85705 USA
Phone: (520) 393-8287
www.groundprobe.com

Guardian Traxol Chemicals Inc

Booth 1210

Guardian Chemicals Inc has been formulating and manufacturing specialty chemicals for over 50 years and is well known and respected world wide in the mining industry for providing the fastest, safest, and most cost efficient solution to Gear cleaning . Their proprietary formulations of Traxol EP3 and HiTrax gear clean on the fly products , along with other specialty chemicals for a variety of heavy industry application's provide leading edge, constantly improving technology. Our USA distributors , Copper State Specialties and Jasper Engineering provide on site Gear cleaning services as well as products and support to clients across the USA.

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Coolers
Fire Protection
Gears - Pullers, Reducers and Pinions
Grinding Mills
Kilns
Lubricants and Equipment
Maintenance Equipment and Supplies
Maintenance Services
Solvents - Extraction, Mixer and Settlers

Main Office

155 55202 SH825
Sturgeon county, AB T8L5C1 Canada
Phone: 4033186592
Email: gpecharsky@guardianchem.com
www.guardianchem.com

Guideline Geo Americas – Reutech

Booth 1723

Products & Services

Mine Operators

Main Office

1270 Drop Off Dr
Summerville, SC 29486 USA
Phone: (843) 852-5021
www.guidelinegeo.com/

H2E Inc

Booth 1238

Products & Services

Consulting - Engineering

Main Office

23305 E Knox Ave
Liberty Lake, WA 99019 USA
Phone: (509) 927-2424
www.h2einc.com

EXHIBITORS

Harrison Western Construction Corporation, Inc

Booth 2233

Harrison Western is an American owned and operated Heavy Civil, Tunneling and Mining Contractor, in operation since 1968. In that time, our firm has consistently delivered in some of the most complex, challenging environments, while prioritizing safety, performance and effectiveness. Our work includes development mining, portal construction, underground utilities, ventilation, drill & blast operations, ground support design and construction, grouting & shotcrete application, conventional shaft sinking, hoist infrastructure, crusher & conveyors, bulkheads, highwall stabilization, rockfall mitigation, and a variety of other surface and underground geotechnical services.

Products & Services

Construction - Contracting Services
Explosive Materials and Services
Grouting Services, Equipment and Materials
Mining Contractors
Reclamation Equipment and Services
Remediation
Roof - Ground Supports
Shotcrete Equipment, Supplies and Services
Underground - Construction and Structures
Underground Excavation Services and Equipment

Main Office

1208 Quail St
Lakewood, CO 80215 USA
Phone: (303) 234-0273
Email: info@harwest.com
www.harrisonwestern.com

Hatch

Booth 1334

Whatever our clients envision, our engineers can design and build. With over six decades of business and technical experience in the mining, energy, and infrastructure sectors, we know your business and understand that your challenges are changing rapidly. We respond quickly with solutions that are smarter, more efficient, and innovative. We draw upon our 9,000 staff with experience in over 150 countries to challenge the status quo and create positive change for our clients, our employees, and the communities we serve.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Management
Maintenance Services
Mine Evaluations - Surface and Underground
Mining Contractors
Training Services
Underground - Construction and Structures
Underground Excavation Services and Equipment

Main Office

170 S Main St, Ste 510
Salt Lake City, UT 84101 USA
Phone: (385) 500-3226
www.hatch.com

Haver & Boecker Niagara

Booth 2250

Haver & Boecker Niagara is a leading provider in screening, pelletizing and mineral processing plants and systems. The company's mission is to deliver the best of these technologies to customers in the mining, minerals, aggregates, cement, building products, fertilizer and salt industries.

Products & Services

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Laboratory Equipment and Supplies
Measurement and Monitoring Systems
Screens
Urethane Cast Parts
Washing Plants

Main Office

225 Ontario St
St Catharines, ON L2R 7B6 Canada
Phone: (905) 688-2644
www.haverniagara.com



Hayward Gordon ULC

See our ad on p. 63

Booth 1536

The mining and mineral processing industry are among the most demanding in the world. With mine sites typically located in remote locations, Hayward Gordon has gained the reputation of providing heavy-duty equipment built to last. With over 60 years of partnering with our clients, we can offer unparalleled technical expertise for your applications.

The Hayward Gordon Group designs, develops, and delivers durable, reliable pumps and mixers ideal for the mining industry. Our pumps effortlessly move thick, heavy slurries and withstand corrosive and toxic chemicals. Our mixers and agitator systems efficiently help separate metal from ore and handle backfill and wastewater.

Products & Services

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Flotation Machines and Equipment
Gears - Pullers, Reducers and Pinions
Pumps
Solvents - Extraction, Mixer and Settlers

Main Office

5 Brigden Gate
Halton Hills, ON L7G 0A3 Canada
Phone: (905) 693-8595
Email: info@haywardgordon.com
www.haywardgordon.com



Hazen Research

Booth 1327

Products & Services

Consulting - Design and Planning

Main Office

4601 Indiana St
Golden, CO 80403 USA
Phone: (303) 279-4501
www.hazenresearch.com



Headwater Technologies

Booth 2729

Products & Services

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Cyanide Process Equipment
Ion Exchange Equipment and Resins
Remediation
Water Clarification and Treatment

Main Office

36203 350th Ave
Aitkin, MN 56431 USA
Phone: (218) 740-5462
www.headwatertech.com

Heath & Sherwood (1964) Limited

Booth 1467

Born and raised on Kirkland Lake's legendary Mile of Gold, Heath & Sherwood develops and manufactures specialized equipment for the world's mineral processing and smelter industries. Known for highest quality samplers and sampling systems with installations in over 65 countries, and the leading designer/manufacturer of tuyère line management products for the copper, nickel and lead smelters. We also have installed over 50 Rod Mill Chargers to various industries, with a recent surge in Lithium projects resulting in renewed interest and use of rod mills in their grinding circuits. If you have existing H&S equipment, contact us for a Health Check!

Products & Services

Grinding Mills
Pyrometallurgical Processing
Sampling Devices

Main Office

PO Box 340, 512 Government Road West
Kirkland Lake, ON P2N3J2 Canada
Phone: (705) 567-5313
Email: sales@heathandsherwood64.com
www.heathandsherwood64.com



Hecla Mining Company

Booth 1459

Hecla Mining Company is the largest primary silver producer in the U.S. – and the oldest NYSE-listed precious metals mining company in North America. Our business is to create value for our shareholders by discovering, acquiring, developing, producing, and marketing mineral resources at a profit. Our mission is to create long-term value for shareholders from mining silver, gold and associated base metals.

Products & Services

Mine Operators

Main Office

6500 N Mineral Dr, Ste 200
Coeur d'Alene, ID 83815 USA
Phone: (208) 769-4100
www.hecla-mining.com

HEICO Fastening Systems

Booth 2803

Main Office

PO Box 2905
Hickory, NC 28603 USA
Phone: (828) 261-0184
www.heico-lock.us

Hepburn Engineering Inc

Booth 2538

Hepburn Engineering designs and supplies complete mine hoisting systems with fully integrated electrical controls, digital drives, including our state of the art Hepburn Hoist Manager software and digital safety monitors. Our mechanical hoist designs range from shaft sinking up to the largest production requirements: single and double drum, Blair and friction (Koepe)

hoisting plants. HEI provides efficient and robust designs and fully integrated hoisting solutions with single source responsibility. Additional services include the design and supply of stage winches, sheaves, automated weighing systems, new braking systems, hoist rebuilding & electrical refits including drives, motors and hoist operator consoles.

Products & Services

Controls - Electrical and Electronic
Controls - Hydraulic and Pneumatic
Hoists - Controls and Accessories
Hydraulic System Components

Main Office

73 Six Point Rd
Toronto, ON M8Z 2X3 Canada
Phone: (416) 638-4425
Email: sales@hepeng.com
www.hepeng.com

Herding Filtration LLC

Booth 1050

For over forty (40) years Herding has been known for its durable, high efficiency, sinter plate dust collection systems for all types of industrial applications. Herding technology provides safe and efficient solutions for dusts/powders for disposal or product reclamation without contamination.

Our customers also realize the benefits of:

- Rigid filters provide HEPA quality filtration with an extended filter life even with abrasive dusts.
- The system provides a stable operating pressure over high loading conditions. This minimizes production downtime and handling.
- The media is washable and need not be disposed of if wetted like paper/cloth media.

Products & Services

Dust and Fume Control Technology

Main Office

1391 Wheaton Dr., Ste 100
Troy, MI 48083 USA
Phone: (248) 673-4514
www.herding.us

HERRENKNECHT



Tunnelling Systems

Herrenknecht Tunneling Systems USA, Inc

Booth 2206

Herrenknecht is a technology and market leader in the area of mechanized tunnelling systems. As the only company worldwide, Herrenknecht delivers cutting-edge tunnel boring machines for all ground conditions and in all diameters – ranging from 0.10 to 19 meters. Herrenknecht develops innovative technical solutions to sink vertical shafts down to great depths as well as to successfully excavate sloping shafts. The company also produces state-of-the-art deep drilling rigs that drill down to depths of 8,000 meters.

Products & Services

Boring Equipment
Conveyor Systems

INDEPENDENT MINING CONSULTANTS, INC.

- Mine Design, Planning and Scheduling
- Mining Feasibility Studies and Technical Reporting
Documents: (S-K 1300, NI 43-101, JORC)
- Exploration Guidance
- Contract Mine Engineering & Management
- Resource Modeling / Reserve Estimation
- Due Diligence & Technical Advisory
- Surface and Underground Mine Evaluation
- Production Scheduling and Strategic Planning

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www.imctucson.com

Tel: +1 (520) 294-9861

EXHIBITORS

Drilling Equipment
Tunnel Boring Equipment

Main Office

1613 132nd Ave E, Ste 200
Sumner, WA 98390 USA
Phone: (253) 447-2300
Email: pr@herrenknecht.com
www.herrenknecht.com

Hexagon's Mining division

Booth 2001

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future. Hexagon's Mining division solves surface and underground mine challenges with proven technologies for planning, operations and safety. Hexagon (Nasdaq Stockholm: HEXA B) has 21,000 employees in 50 countries and net sales of approximately 4.6bn USD. Visit our website to learn more.

Products & Services

Aerial Mapping and Surveying
Autonomous Vehicles
Blasting Accessories, Equipment and Agents
Computer - Software and Services
Consulting - Design and Planning
Drilling Equipment
Explosive Materials and Services
Flotation Machines and Equipment
Measurement and Monitoring Systems

Main Office

40 E Congress St, Ste 150
Tucson, AZ 85701 USA
Phone: (520) 440-6418
www.hexagonmining.com

Hexion Inc

Booth 1153

Hexion is a specialty chemical company that has been in business for over 100 years and offers products for the mining industry. Hexion's Hexafloat is a low viscosity, anionic collector for froth flotation/mineral separation. Hexion's Convirj is low viscosity, water soluble depressants for ash and iron sulfide minerals.

Products & Services

Reagents - Chemical and Flocculants

Main Office

180 E Broad St
Columbus, OH 43215 USA
Phone: (281) 796-7964
https://www.hexion.com/

Hilfiker Retaining Walls

Booth 2210

Hilfiker Retaining Walls is a fourth-generation, family-owned business operating in Eureka, California since 1902, and produces a full line of high quality retaining

wall systems that have been utilized in projects worldwide. The Welded Wire Wall system is the industry leader for wire-faced MSE walls, used for crusher or truck dump applications and haul road support, regardless of height and loading. Spiralnails are the latest innovations and used to extend the life of existing structures, accommodate emergency situations, construction shoring, and foundation improvement. The company also offers engineering services and on-site technical assistance to aid in construction.

Products & Services

Consulting - Design and Planning
Conveyor Systems
Geological-Physical-Technical Services and Equip
Rail Systems and Supplies
Temporary Structures
Trucks and Haulage Units
Underground - Construction and Structures

Main Office

1902 Hilfiker Ln
Eureka, CA 95503 USA
Phone: (800) 762-8962
www.hilfiker.com

Hilliard Brake Systems

Booth 2327

Founded in 1905, The Hilliard Corp. has evolved from a one-product business into a special applications engineering company serving customers worldwide. Independently owned for four generations, the company has grown and prospered for nearly a century. Hilliard offers a broad line of motion control products including caliper brakes for conveyors, brake systems for draglines, as well as the New Brake Boss brake control system. Additionally, it manufactures filtration systems, reclaiming equipment, and cartridges under the Hilco brand name. Hilliard products are designed, manufactured, and sold according to the customers' applications. Hilliard Brake Systems, Made in America, Built for the World.

Products & Services

Brakes - Dynamic, Friction Disk - Block, Magnetic

Main Office

100 W Fourth St
Elmira, NY 14901 USA
Phone: (607) 733-7121
www.hilliardcorp.com

Hoffman Manufacturing, Inc

Booth 1246

HMFG manufactures versatile Mine Door & Bulkhead Systems for mining companies, contractors, & engineering firms around the world. Superior quality, robust design elements, and integrated safety features make our Mine Door & Bulkhead Systems Better, Stronger, & Safer than any others on the market. Additionally, HMFG provides design/build fabrication solutions with industry leading quality & lead times. All of our products are designed and manufactured in-house in the USA!

Products & Services

Construction - Contracting Services
Consulting - Design and Planning

Consulting - Engineering
Controls - Hydraulic and Pneumatic
Conveyor Systems
Fans and Blowers
Hydraulic System Components
Mining Contractors
Underground - Construction and Structures
Ventilation Systems, Materials and Equipment

Main Office

602 W Spring Valley Rd
Latah, WA 99018 USA
Phone: (509) 286-3200
www.hoffman-mfg.com

Honeywell

Booth 2037

Honeywell is a Fortune 500 company that delivers industry specific solutions that include control technologies, products and services for buildings and industrial sites. Our technologies help mines and mills, supply chains, and workers become more connected to make our world smarter, safer, and more sustainable. Honeywell provides solutions for digital transformation of operations, including a mix of software products and enabling services that help mining and minerals companies use operational data to drive insights that improve processes and empower workers. We help to profitably improve safety, sustainability and productivity with intelligent, autonomous operations advancing digital transformation to the next level.

Products & Services

Alarm Systems
Analyzers
Automation
Computer - Software and Services
Information Technology Products
Measurement and Monitoring Systems
Process Controls and Instruments

Main Office

715 Peachtree St
Atlanta, GA 30308 USA
Phone: (470) 760-7795
www.honeywellforge.ai

Hose Solutions Inc

Booth 2338

Products & Services

Dewatering Equipment
Hoses - Valves and Fittings
Pipes

Main Office

9419 E San Salvador Dr, #104
Scottsdale, AZ 85258 USA
Phone: (480) 607-1507
Email: Sales@HoseSolutions.com
www.HoseSolutions.com

Howden Canada Inc

Booth 1515

For more than a century, Howden has supplied ventilation fans and equipment to every major mining company in the world. Today, Howden's Total Mine Venti-



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and the next day
and next year
and the year after that....



Clear voice communication that you can actually HEAR in a noisy environment is just one of the many capabilities of an IWT *SENTINEL*™ System.

And, because IWT is a trusted partner to the mining industry, we are committed to providing innovative solutions both today and well into the future.



SME MINEXCHANGE Booth 1526 iwtwireless.com

EXHIBITORS

lation Solutions (TMVS) is a fully integrated approach to mine ventilation and air quality control. By reducing blast-clearing downtime, Howden can improve energy savings by up to 50%. Howden is able to provide all necessary equipment, services, and Ventsim solutions mine sites require in a fully customizable and integrated product offering: Main and Auxiliary Fans, Mine Heaters, Mine Cooling, VOD, and Turnkey solutions.

Products & Services

Automation
Computer - Software and Services
Construction - Contracting Services
Consulting - Engineering
Controls - Electrical and Electronic
Coolers
Environmental Control Equipment and Supplies
Fans and Blowers
Sensors
Ventilation Systems, Materials and Equipment

Main Office

1381 Rue Hocquart
Saint-Bruno-de-Montarville, QC J3V 6B5 Canada
Phone: (450) 500-5947
<https://www.howden.com/en-us/industries/mining/mine-ventilation>

HUESKER Inc

Booth 1815

HUESKER Minegrid® was developed to help mine operators maximize safety, production and profits, by speeding up longwall recoveries and by providing stronger and more workable grids for rib- and roof mesh and highwall support. HUESKER Minegrid® provides safer and faster methods to increase safety and profits in all mining operations worldwide. HUESKER offers the most complete product line of geogrids, geocomposites and geotextiles that deliver cost effective engineering solutions.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Dewatering Equipment
Longwall Mining Equipment
Roof - Ground Supports

Main Office

P.O. Box 411529
Charlotte, NC 28241 USA
Phone: (704) 588-5500
www.huesker.com

Hydro, Inc

Booth 2909

Hydro's mission is to work hand-in-hand with our valued customers to optimize the performance and reliability of their pumping systems by evaluating and understanding root causes of pump degradation or failure and by providing unbiased engineering analysis, quality workmanship, and responsive field service for improved plant operation.

Products & Services

Pumps
Sensors
Training Services

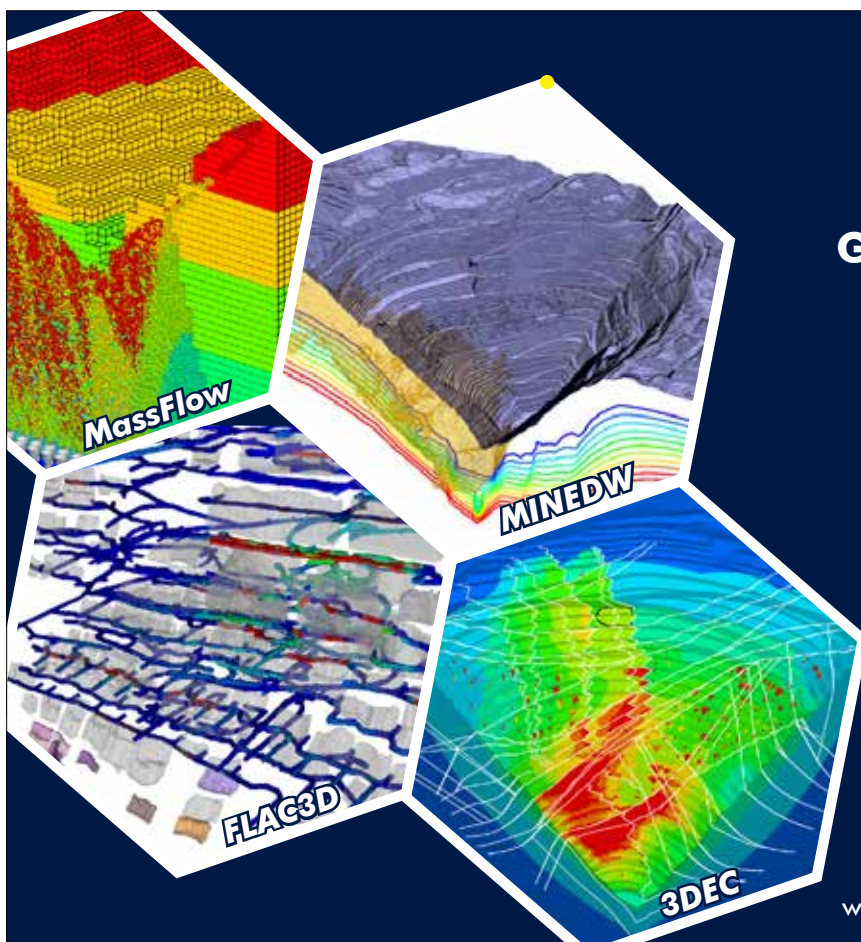
Main Office

834 W Madison
Chicago, IL 60607 USA
Phone: (773) 590-6736
<https://hydroinc.com/>

hydroGEOPHYSICS Inc

Booth 2339

HGI is an innovative, solutions oriented geophysical consulting and service provider to the environmental, engineering, groundwater, mining, oil & gas, and natural resource exploration industries. We specialize in the application of 3D geophysical methods for time lapse subsurface characterization and monitoring of fluid



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JENNMAR has been the innovative leader in ground control for the mining industry for more than forty years. Over the past decade, our growth has led us to structural support in tunneling and civil construction projects, implementing the same vigor and detailed processes. Because we understand the ever changing and demanding conditions above and below ground we have built the richest portfolio of diverse and complementary brands.

JENNMAR sets the bar in every industry we serve and as we continue to grow, our focus will always be on the customer. Our products are made in the U.S.A. and backed by experienced engineers and technicians who are with you every step of the way, from initial consultation to qualified instruction and on-going technical support. We support and are dedicated to rebuilding infrastructure worldwide.

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EXHIBITORS

flow through geological materials. Additionally, HGI is a leader in providing Leak Location and Leak Detection & Monitoring in geosynthetic lined ponds, landfills, and heap leaches using electrical methods.

Products & Services

Consulting - Engineering
Consulting - Environmental
Consulting - Research
Geological-Physical-Technical Services and Equip
Laboratory and Scientific Services
Linings and Claddings

Main Office

3450 S Broadmont Dr, Ste 100
Tucson, AZ 85713 USA
Phone: (520) 647-3315
www.hgiworld.com/

HydroTech Mining

Booth 1169

Hydrotech Mining is clearly distinguishable in the mining market. The focus of our operations and expertise is based specifically for moving water. The great versatility of our company lies in the fact that we can offer solutions for pumping dirty water as well as for clean water, unlike others that provide only pumping solutions for clean water. HTM is therefore not limited by the type of mining operations.

Products & Services

Dewatering Equipment
Pumps
Water Clarification and Treatment

Main Office

297, 7e Rue
Val-d'Or, QC J9P 0G5 Canada
Phone: (819) 874-4499
www.hydrotechmining.com

HYTORC, Division of UNEX Corp

Booth 1357

HYTORC makes industrial bolting safer and simpler. With 50 years of experience focused entirely on developing the highest quality industrial bolting systems, HYTORC is the most trusted name in the industry. From steel mills and mining equipment to refineries, power plants, wind turbines, and transportation vehicles; we have developed solutions for every bolting application imaginable. For custom projects, our highly experienced engineering team is at your service to design the most efficient solution for your job with simple operation and economical pricing in mind.

Products & Services

Fasteners - Industrial
Maintenance Equipment and Supplies
Transportation

Main Office

333 Route 17 N
Mahwah, NJ 07430 USA
Phone: (201) 512-9500
Email: info@hytorc.com
www.hytorc.com

Immersive Technologies

Booth 1509

As a global technology leader in the mining industry, Immersive Technologies' mission is to increase your site's profitability by optimizing the safety and productivity of your operators through our workforce optimization strategy - aligning People, Process & Technology. With the largest deployment of mining simulators in surface and underground, a global customer base, industry endorsement, proven real results and engineering expertise, Immersive Technologies is the recognized and trusted leader in mining training solutions. We are the only worldwide equipment simulator supplier with a proven track record of delivering significant and measurable in pit cost reductions, productivity gains and safety improvements.

Products & Services

Autonomous Vehicles
Draglines
Excavators
Information Technology Products
Loaders
Mine Evaluations - Surface and Underground
Mine Operators
Safety Equipment
Training Services
Trucks and Haulage Units

Main Office

1486 S Distribution Dr
Salt Lake City, UT 84104 USA
Phone: (801) 748-0844
www.immersivetechologies.com



Independent Mining Consultants, Inc

See our ad on p. 67

Booth 2115

Since 1983 IMC has earned and gained the reputation as one of the most reliable and cost effective sources of consulting services for the base and precious metals, and industrial minerals marketplaces. IMC not only authors mine feasibility studies but mining studies of all levels with experience in NI 43-101, JORC, and Regulation S-K 1300/ SEC 10K documents. Our Clients include major and minor commodity producers, junior exploration firms, public sector entities, and financial institutions. IMC has served the mining industry by working for more than 250+ Mining Companies on 500+ Mining Projects across the globe.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Financial Services
Consulting - Management
Exploration Equipment and Services
Geological-Physical-Technical Services and Equip
Mine Evaluations - Surface and Underground
Mine Operators
Quality Improvement

Main Office

3560 E Gas Rd
Tucson, AZ 85714 USA
Phone: (520) 294-9861
www.imctucson.com

InduMar Products Inc

Booth 1437

InduMar has provided innovative solutions for pipe leaks, repair and protection to a range of industrial sectors since 1986. Our products are designed to address pipe and tank leaks, corrosion control, and mechanical pipe rehabilitation, with an emphasis on ease of installation, high performance, and longevity. Our products include Stop It® Pipe Repair System, BoreShield™ line of abrasion resistant outerwraps (AROs), XCorr™ suite of epoxy repair products, and StopCorr™ line of polyolefinic wraps, pastes, and sealants. Contact us at +713-977-4100 in Houston, TX to discuss potential solutions to your repair and remediation needs.

Products & Services

Coatings (does not include Linings and Claddings)
Maintenance Equipment and Supplies

Main Office

2230 W Governors Cir
Houston, TX 77092 USA
Phone: (713) 977-4100
www.indumar.com

Industrial info Resources

Booth 2905

Market Research company based out of Sugar Land Texas. Provide Global market intelligence, labor demand, analytics, database, projects, spending, plants, construction, forecast, turbines, boilers, maintenance, power equipment, outages, PEC Reports, PEC

Products & Services

Aerators
Castings
Hydraulic System Components
Mine Operators
Pumps
Safety Equipment
Solar Electric Power System
Steel Pipe
Transportation
Valves

Main Office

2277 Plaza Dr, Ste 300
Sugar Land, TX 77479 USA
Phone: (713) 783-5147
www.industrialinfo.com

Industrial Scientific

Booth 1144

As the global leader in gas detection, Industrial Scientific provides gas detection products and services that keep workers safe in hazardous environments. The company's more than 1200 employees in 25 countries are committed to preserving human life and have dedicated their careers to eliminating death on the job by the year 2050.



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J.H. Fletcher & Co. cannot anticipate every mine hazard that may develop during use of these products. Follow your mine plan and/or roof control plan prior to use of the product. Proper use, maintenance and continued use of (OEM) original equipment parts will be essential for maximum operating results. 2022 J.H. Fletcher & Co. All Rights reserved.

EXHIBITORS

Products & Services

Alarm Systems
Analyzers
Fire Protection
Measurement and Monitoring Systems
Safety Equipment
Sampling Devices
Sensors
Training Services

Main Office

One Life Way
Pittsburgh, PA 15205 USA
Phone: (412) 788-4353
www.indsci.com

Information Alignment Pty Ltd

Booth 1668

Information alignment has been a major developer and supplier of software for the mining industry since the early 2000's. Recognised as a market leader in this key area of software for mining operations and our products are installed at operations across Australia, North America, South America, Africa and Asia and more recently licensed to Caterpillar globally as their reporting platform. We continue to invest heavily in research and development activities, to meet new requirements in the mining and extractive industries including functionality to support autonomous haulage, autonomous drilling, underground fleet systems, Processing Plant data flow and geo-spatial intelligence and visualization.

Products & Services

Computer - Software and Services
Consulting - Management
Information Technology Products
Measurement and Monitoring Systems

Main Office

1/7 Gympie Way
Willetton 6155 Australia
Phone: +61407464357
www.inapl.com

Inland Tarp & Liner

Booth 1360

Founded 40 years ago, Inland Tarp & Liner grew primarily from the manufacture, sale, and installation of agriculture covers. By 2005, Inland Tarp & Liner ventured into the oil and gas industries becoming a recognized leader in geomembrane fabrication and anti-slip geotextile surfaces with the 40X and 40XGL (both trademarked) product lines in 2014. More recently in 2020, Inland Tarp & Liner rolled out the ITL Reinforced Concrete Roll®, a disruptive new technology reinventing concrete for erosion control, channel, and pond lining. Follow us on Facebook, LinkedIn, and Twitter to learn more about the #ITLAdvantage.

Products & Services

Concrete Reinforcement and Equipment
Linings and Claddings
Sediment & Erosion Control
Tunnel Lining and Support Materials
Underground - Construction and Structures
Well Completion Equipment

Main Office

4172 N Frontage Rd E
Moses Lake, WA 98837 USA
Phone: (800) 346-7744
www.itlrcr.com

INR Consulting and Engineering Inc

Booth 2448

INR provides worldwide consulting and engineering services, especially in mining projects mainly associated with geological, geotechnical, and hydraulic engineering disciplines.

Products & Services

Consulting - Engineering

Main Office

Guzeltepe Mh Sedat Simavi Sk 60/2 Cankaya
Ankara 06690 Turkey
Phone: +90 (312) 447-4715
Email: inr@inr.com.tr
inr.com.tr

Instituto de Ingenieros de Minas del Peru (IIMP)

Booth 2926

The Peruvian Institute of Mining Engineers-IIMP, a private non-profit association created in 1943, that stands as one of the most important organizations of the Peruvian mining sector, building its success and prestige on the technical contribution offered throughout more than seven decades.

The IIMP integrates best mining professionals in order to meet the great challenges faced by the industry in an environment of constant changes and its key aim is to promote competitive and innovative development in/of the Peruvian mining sector.

Organizes PERUMIN Mining Convention, the International Congress of Prospectors and Explorers-ProEXP-LO, the Congress of Mining Competitiveness and Social Sustainability.

Products & Services

Educational

Main Office

Los Canarios 155 - 157, Urb San Cesar, La Molina
Lima Lima-12 Peru
Phone: (511) 313-4160
www.iimp.org.pe/

Integrated Power Services

Booth 2623

Products & Services

Electric Motors and Generators
Maintenance Services
Pumps

Main Office

250 Executive Center Dr, Ste 201
Greenville, SC 29615 USA
Phone: (864) 451-4500
www.ips.us

International Metallurgical Consultants SAC

Booth 2607

InterMet is the leader in mining training, conferences and trade shows. It has 12 years of experience bringing knowledge and best practices to the mining industry in Peru and the Americas and fostering the encounter between mining companies and technology solution providers. Our next activities are: Copper 2023 (MegaEvent with conferences and international mining fair), Mining 4.0 (July 20 & 21), Flotation 2023 (September 6-8) and a dozen courses and diploma courses with experts from 5 continents. Your company can rely on our B2B services as an efficient means to achieve your technical and commercial objectives.

Products & Services

Automation
Educational
Flotation Machines and Equipment
Grinding Media and Liners
Grinding Mills
Laboratory Equipment and Supplies
Reagents - Chemical and Flocculants
Sampling Devices
Thickeners
Training Services

Main Office

Av. Mariscal Ramón Castilla N° 889 Santiago de Surco
Lima 15048 Peru
Phone: +51 987 975959
Email: informes@encuentrometalurgia.com
www.intermetperu.com

International Mining

Booth 2143

International Mining (IM) is the leading global technical publication for mining industry management. It covers the full spectrum of the world's extractive industries from exploration through mining and processing to metallurgy and the finished products. It covers the techniques and technologies required to recover all metals, coal, diamonds and industrial minerals. With this technical focus it brings readers important news of new technologies, methods and thinking. The magazine also provides a global overview of which mining company large or small is doing what where.

Products & Services

Publishers

Main Office

2 Claridge Ct, Lower Kings Rd
Berkhamsted HP4 2AF United Kingdom
Phone: +44 144 287 0829
www.im-mining.com

IoT Automation

Booth 2542

The FireFly and DragonFly Smart Lighting Systems by IoT Automation address safety and productivity requirements in underground mining and tunnelling operations. These systems enable Real-Time Situational Awareness and offer mine- and tunnel-wide emergency communications through their customisable colour options and multiple modes of operation.

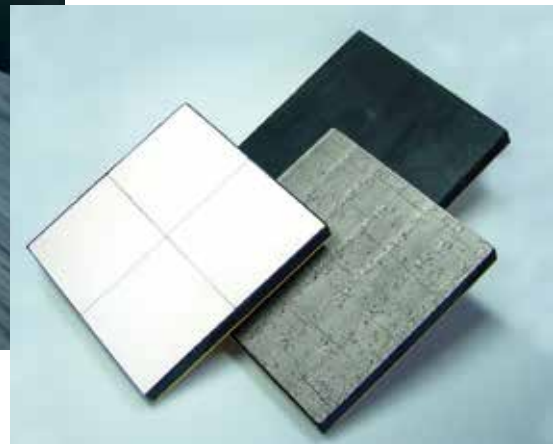
KALIMPACT® Wear Protection Systems

A HARD MATERIAL RUBBER COMPOSITE FOR HEAVY IMPACT AND ABRASIVE RESISTANCE



(left) KALIMPACT lining fitted to a bunker in a loading and unloading plant

(below) KALIMPACT ABRESIST, KALOCER and KALMETALL systems



KALIMPACT combines specific material strengths regarding resistance to wear and against destruction due to impacts. This results in individually tailored and particularly cost-effective solutions to guard against wear.

KALIMPACT is also advantageous in applications where the material being conveyed should not be subjected to additional breakage. Lined plant components provide environmentally friendly noise and vibration insulation. Examples of this include discharge chutes for coal and iron ore in a port transshipment operation. Suitable design ensures that the elements can be replaced. Maintenance can be carried out rapidly.

Depending on the specific abrasion and impact resistance requirements, KALIMPACT comprises either ABRESIST fused cast basalt, KALOCER oxide ceramics or with KALMETALL hard overlay welded plates. Each of the different material variations is formed into a vulcanised composite rubber sheet. KALIMPACT is primarily used where heavy abrasion occurs in combination with high impact loading. Depending on the version, the sheet is fastened with thinbed adhesive, mechanically via a carrier steel plate or with magnets.

KALIMPACT benefits:

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- Hard, wear-resistant surface
- Impact-dampening characteristics of the rubber
- Easy, secure installation by mechanical, adhesive or magnetic means
- Easy replacement of the elements
- Optimal adaptation to specific needs through different sizes, thicknesses and configurations
- Good insulation against noise and vibration



Kalenborn Abresist Corp.
Wear Protection Solutions

5541 North State Road 13, Urbana, IN 46990
Phone: 260-774-3327 • Toll Free: 800-348-0717
www.kalenborn.us

EXHIBITORS

FireFly and DragonFly feature Wi-Fi and Bluetooth Smart Connectivity and can be integrated with environmental monitoring systems and programmable devices for vehicle awareness along underground declines.

Enhancing productivity and safety, the FireFly and DragonFly Smart Lighting Systems are low-cost and easy-to-deploy solutions for asset tracking, communications and primary, emergency and evacuation lighting—in just one system.

Products & Services

Alarm Systems
Automation
Communications Equipment
Controls - Electrical and Electronic
Environmental Control Equipment and Supplies
Geological-Physical-Technical Services and Equip
Lighting Systems and Lamps
Measurement and Monitoring Systems
Safety Equipment

Main Office

1624 Market St, Ste 202
Denver, CO 80202 USA
Phone: (720) 446-6603
www.iotaautomation.com.au

IPI Packers

Booth 2721

Products & Services

Dewatering Equipment
Exploration Equipment and Services
Geological-Physical-Technical Services and Equip
Grouting Services, Equipment and Materials
Inflatable and Mechanical Packers
Underground - Construction and Structures
Well Completion Equipment

Main Office

18 Pepsi Dr
Red Lodge, MT 59068 USA
Phone: (406) 446-9940
www.ipipackers.com

Iracore/Irathane Systems Inc

Booth 1317

Products & Services

Classifiers
Flotation Machines and Equipment
Pipes
Pumps
Screens
Urethane Cast Parts

Main Office

3516 E 13th Ave
Hibbing, MN 55746 USA
Phone: (218) 969-4411
www.iracore.com

Iron Woman Mining Services

Booth 1934

Founded as a Native American-owned company in 1999, Iron Woman is an employee-owned general civil contractor with more than 300 employees, 15 crews,

and more than 300 pieces of rolling equipment, including trucks, trailers, and yellow iron. Iron Woman Mining Services, LLC employs a proven staff of mining professionals who have first-hand knowledge of mining challenges and a collective pool of expertise that covers mine operations from hard to soft rock mining using both open pit and underground techniques.

Products & Services

Backfilling
Concrete Reinforcement and Equipment
Construction - Contracting Services
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control
Temporary Structures
Transportation
Underground - Construction and Structures
Underground Excavation Services and Equipment

Main Office

5680 Emerson St
Denver, CO 80216 USA
Phone: (720) 357-6826
www.ironwomancon.com

Itasca International, Inc

See our ad on p. 70

Booth 1832

Itasca is a global, employee-owned, engineering consulting and software firm, focusing on geomechanical and hydrogeological projects. Our consultants solve complex problems in the fields of mining, civil, and energy. Itasca combines practical engineering and field experience with expert knowledge of numerical simulation and analysis. Itasca's software (3DEC, FLAC2D, FLAC3D, Griddle, KATS, MassFlow, MINEDW, PFC, UDEC, and XSite) are the software of choice for solving complex geotechnical problems where the only limitation is your imagination. Our consulting and research activities focus on analyzing the behavior of excavations and engineered structures in soil and rock, including groundwater, thermal, creep, and dynamic effects.

Products & Services

Computer - Software and Services
Consulting - Engineering
Consulting - Environmental
Consulting - Research

Main Office

111 3rd Avenue S, Ste 450
Minneapolis, MN 55401 USA
Phone: (612) 371-4711
www.itscainternational.com



IWT

See our ad on p. 69

Booth 1526

Innovative Wireless Technologies (IWT) is the leading supplier of underground wireless networks for communication, tracking, and sensor data. Our revolutionary

high-data rate protocol fixes the data retrieval issues facing underground operations today, bringing reliable, real-time data from working areas to the people who need it -- wirelessly. IWT provides cohesive, integrated, scalable solutions for enhanced safety, increased productivity, and low maintenance for the lowest total cost of ownership solutions available.

Products & Services

Communications Equipment
Environmental Control Equipment and Supplies
Measurement and Monitoring Systems
Safety Equipment

Main Office

1100 Main St
Lynchburg, VA 24504 USA
Phone: (434) 316-5230
www.iwtwireless.com



J.H. Fletcher & Co

See our ad on p. 73

Booth 1213

Since 1937, Fletcher has been engineering and manufacturing custom solutions for underground mining. Today, Fletcher products expand into a variety of industries. Through the decades, Fletcher has operated with a singular vision: to work with a vigilant focus on finding ways to improve mining and industrial processes and reducing risk for the people who work in those industries.

Products & Services

Diesel Mining Equipment Manufacturers
Drilling Equipment
Longwall Mining Equipment
Roof - Ground Supports
Shortwall Mining Equipment
Training Services

Main Office

402 High St
Huntington, WV 25705 USA
Phone: (304) 525-7811
Email: sales@jhffletcher.com
www.jhffletcher.com

Jacobi Group

Booth 2827

Jacobi Carbons, a division of Jacobi Group, is the largest manufacturer of coconut-shell activated GAC & PAC and carries a full line of coal & wood-based activated carbons. Jacobi Group also has a division of Resins which offers a complete portfolio of high quality ion exchange resins. This includes many different ion exchange, adsorbent, and catalyst type products for a variety of applications. Jacobi Services is available for small and large scale changeouts.





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The leading geotechnical specialty contractor



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commitment

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Ground improvement
Groundwater control
Instrumentation & monitoring
Liquefaction mitigation
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Slope stabilization
Support of excavation
Underpinning
Design-build

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EXHIBITORS

Main Office

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Columbus, OH 43213 USA
Phone: (412) 260-1012
Email: infous@jacobi.net
<https://www.jacobi.net>

JAMAR Company

Booth 1014

Products & Services

Construction - Contracting Services

Main Office

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Duluth 55807 USA
Phone: (218) 628-6202

JBW Consulting Engineers

Booth 1015

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Products & Services

Consulting - Engineering
Dust and Fume Control Technology

Main Office

345 Sinclair St, Ste 4
Gillette, WY 82718 USA
Phone: (218) 402-5515
Email: jamie.lepage@jbwconsult.com
jbwconsult.com

Jenike & Johanson

Booth 2605

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Products & Services

Bins, Hoppers, Silos and Storage
Blending Systems
Consulting - Design and Planning
Consulting - Engineering
Conveyor Systems
Educational
Feeders
Laboratory and Scientific Services
Training Services

Main Office

400 Business Park Dr
Tyngsboro, MA 01879 USA
Phone: (978) 649-3300
Email: info@jenike.com
www.jenike.com



JENNMAR

See our ads on p. 71 & Inside Back Cover

Booth 1913

We are diversified manufacturer and services provider for above and below ground infrastructure that sets the standards in terms of quality and safety for our stakeholders. Our mission is total customer support and satisfaction. Our portfolio of brands are rebuilding America's infrastructure. Because we understand the ever changing and demanding conditions above and below ground we have built the richest portfolio of diverse and complementary brands. From engineering to resin manufacturing, rolled-steel and drill-steel manufacturing, custom steel fabrication, precision wear parts, tools and bits, chemical roof support and sealing products, staffing solutions, transportation and more.

Products & Services

Conveyor Systems
Hydraulic System Components
Inflatable and Mechanical Packers
Longwall Mining Equipment
Pumps
Rail Systems and Supplies
Roof - Ground Supports
Seals
Shotcrete Equipment, Supplies and Services
Ventilation Systems, Materials and Equipment

Main Office

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Pittsburgh, PA 15238 USA
Phone: (412) 963-9071
www.jennmar.com

JHL Constructors

Booth 2137

JHL Constructors is a 100% employee-owned builder with over 35 years in business. We are a fully integrated, Colorado-based and Colorado-focused construction firm, serving our clients in the markets of Infrastructure and Vertical Building. Within Infrastructure, JHL's Mining work program specializes in: Reclamation, Expansion, Decommissioning, and Environmental Controls.

Products & Services

Construction - Contracting Services
Mining Contractors

Main Office

9100 E Panorama Dr, Ste 300
Englewood, CO 80112 USA
Phone: (303) 741-6116
Email: jhlinfo@jhlconstructors.com
www.jhlconstructors.com

Joest Inc

Booth 1350

Joest Inc, a US company, is part of the Germany headquartered Joest Global group, an OEM with 100+ years' experience with the design, manufacturing and deploying of vibratory screens, feeders, conveyors, fluidized bed dryers/coolers. Joest provides precision engineered reliability centric robust machines that are engineered, manufactured and factory tested in for example the USA or Australia depending on the project location.

Products & Services

Agitators, Vibrators and Mixers
Classifiers
Dewatering Equipment
Drives - Magnetic and Variable
Dryers
Feeders
Gravity Separators
Grizzlies - Feeding, Moving and Stationary
Screens
Separators and Concentrators

Main Office

800 Roosevelt Rd, Unit B400
Glen Ellyn, IL 60137 USA
Phone: (630) 469-0900
www.joest-us.com

Johnson Industries Ltd

Booth 2516

Johnson designs and manufactures a range hydraulic, pneumatic, spring set and manually applied caliper and drum brakes systems for use on hoists, conveyors, SAG and Ball Mills, ship loaders, and other rotating equipment. Johnson also produces electro-magnetic and electro-hydraulic thruster drum and disc brakes, which are in service around the world on cranes, hoists, and other material handling and power transmission equipment. We also designs and manufactures storm brakes and systems, including; automatic and manual rail clamps, rail brakes, and wheel clamps for use on cranes, stacker-reclaimers, trippers, and other rail mounted equipment.

Products & Services

Brakes - Dynamic, Friction Disk - Block, Magnetic
Controls - Hydraulic and Pneumatic
Hydraulic System Components

Main Office

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Delta, BC V4G 1N4 Canada
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www.brakes.ca





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RECLAMATION
EQUIPMENT MANAGEMENT
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**PROJECT DEVELOPMENT
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EXHIBITORS

Johnson Screens

Booth 1202

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www.johnsonscreens.com

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Booth 1667

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Products & Services

Mining Contractors

Main Office

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www.justrefiners.com

K&M Industrial Valve Supply

Booth 1170

K&M re-manufactures Clarkson knife-gate valves. K&M buys used core valves and then sandblasts and paints them prior to installing new OEM parts. K&M offers a 12 month warranty.

Products & Services

Valves

Main Office

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Phone: (218) 428-5352
Email: kandmptg@hotmail.com
www.kandmvalves.com

K2fly

Booth 1469

K2fly started back in 2016 with a focus on delivering software and services to Tier 1 clients working in the asset-intensive sectors of Mining, Utilities, Oil & Gas, and Rail. As gaps in the market were identified, particularly around integrated reporting solutions, K2fly developed proprietary software solutions to answer those client needs. Our offering has now expanded to cover key ESG challenges for our customers, making K2fly the leading global provider of reporting software solutions.

Products & Services

Computer - Software and Services

Main Office

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Subiaco 6008 Australia
Phone: +61432401318
Email: info@k2fly.com
k2fly.com

Kalenborn Abresist Corporation

See our ad on p. 75

Booth 2323

Kalenborn Abresist USA is a leader in wear solution engineering. Kalenborn supports its claim to be a total piping solution provider. With 3D scanning capability and full line of ceramic and metal solutions it can solve all wear and corrosion challenges related to mining.

Products & Services

Pipes
Steel Pipe

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www.kalenborn.us

Kamengo

Booth 2908

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Products & Services

Bins, Hoppers, Silos and Storage
Feeders

Main Office

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Vancouver, BC V5Y 1K7 Canada
Phone: (604) 2709995
www.kamengo.com



Keller

See our ad on p. 77

Booth 1716

Keller develops innovative, practical, and cost-effective solutions to geotechnical challenges including deep foundations, ground improvement, groundwater control, liquefaction mitigation, releveling structures, slope stabilization, support of excavation, underpinning, and instrumentation and monitoring. Keller is the largest geotechnical specialty contractor in the world with over 60 offices throughout the US and Canada.

Products & Services

Construction - Contracting Services
Drilling Contractors
Grouting Services, Equipment and Materials
Remediation
Underground - Construction and Structures

Main Office

7550 Teague Rd, Ste 300
Hanover, MD 21076 USA
Phone: (410) 551-8200
www.keller-na.com



Kiewit

Kiewit

See our ad on p. 79

Booth 1827

Kiewit specializes in mine management, production, infrastructure construction, maintenance and contract mining ventures, offering some of the most highly-skilled and experienced professionals in the industry.

Products & Services

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Consulting - Management
Conveyor Systems
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Mining Contractors
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Underground - Construction and Structures

Main Office

8900 Renner Blvd
Lenexa, KS 66219 USA
Phone: (612) 741-0130
www.kiewit.com

Knight Piésold and Co

Booth 2207

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Consulting - Environmental
Laboratory and Scientific Services
Remediation

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www.knightpiesold.com

KnightHawk Engineering, Inc

Booth 1111

KnightHawk Engineering is a technology-based specialty engineering company that performs consulting, field services, customized testing and metallurgical and materials testing work worldwide. KnightHawk has provided engineering solutions in the copper and gold mining industry, one case was at a copper smelting plant in Indonesia where the project was completely shut down due to a major turbine failure. Another RCFA project was at a copper and gold mine operating in Mongolia's Gobi Desert. The entire operation was shut down due to catastrophic equipment failures. In addition, KnightHawk designs, fabricates, and delivers high pressure/high temperature sealed crushers for custom applications in industry.

Products & Services

Consulting - Engineering
Crushers and Pulverizers
Laboratory and Scientific Services

Main Office

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www.knighthawk.com



Kobel Manufacturing Co Ltd

Booth 2437

Products & Services

Brakes - Dynamic, Friction Disk - Block, Magnetic
Castings
Controls - Electrical and Electronic
Controls - Hydraulic and Pneumatic
Hydraulic System Components

Main Office

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Surrey, BC V3W 0A6 Canada
Phone: (604) 572-3935
www.kobel.com

Komatsu

See our ad on p. 81

Booth 1914

Mining operations need collaborative partners they can trust who will empower them with quality, innovative insights and offerings that leverage automation and electrification while providing the freedom of interoperability on an open platform. Komatsu is here to partner with you to deliver the equipment, technologies and solutions needed to help you reach their goals and help position the mining industry to meet the world's need for minerals in increasingly sustainable ways. Learn how we can work with you to create lasting value for your operation by visiting our website.

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Conveyor Systems
Draglines
Drilling Equipment
Excavators
Feeder Breakers
Loaders
Longwall Mining Equipment
Parts - Mining Machinery
Trucks and Haulage Units

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Booth 1100

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Drilling Contractors

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Kraft Power Corp

Booth 1237

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Products & Services

Clutches - Fluid, Friction and Magnetic
Controls - Electrical and Electronic
Controls - Hydraulic and Pneumatic
Couplings - Mechanical, Flexible and Rigid
Drives - Belt, Chain, Fluid and Gear
Drives - Magnetic and Variable
Electric Motors and Generators
Gears - Pullers, Reducers and Pinions
Hydraulic System Components
Power Transmission Equipment

Main Office

1000B Northbrook Pkwy
Suwanee, GA 30024 USA
Phone: (800) 394-0078
www.kraftpower.com

Kurita America Inc

Booth 1371

Kurita America offers water system harmonization that incorporates chemical, mechanical, and operational components. We identify the root causes of our customers' water challenges and develop mutually beneficial long-term partnerships that enable us to deliver optimal results and overall lower cost of ownership while conserving natural resources for a better, more sustainable world. These water treatment solutions prevent unscheduled downtime and improve system efficiency.

Kurita America's extensive line of pre-treatment equipment is designed to improve water quality by removing impurities that can cause fouling, corrosion, and scale. Coupled with our automation programs, we help reduce excess water and energy consumption.

Products & Services

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Dewatering Equipment
Filters, Filter Cloth and Accessories
Ion Exchange Equipment and Resins
Maintenance Services
Process Controls and Instruments
Pumps
Reagents - Chemical and Flocculants
Valves
Water Clarification and Treatment


Main Office

6600 94th Ave N
Minneapolis, MN 55445 USA
Phone: (866) 663-7633
<https://www.kuritaamerica.com>

Landry Filtration Products Inc.

Booth 1105


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baghouse filter tubes. With access to over 4,000 different types of industrial textiles, we provide a broad array of high performance filtration options suitable for the processing of all mined commodities.

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Dust and Fume Control Technology
Filters, Filter Cloth and Accessories

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Phone: (905) 660-1900
Email: office@landryfiltration.com
http://www.landryfiltration.com/

Laser Tech

Booth 2235

Laser Tech's laser-based face profiling solution calculates accurate bench heights, minimum and optimum burdens, drill hole angles, offsets, and depths. Our volume solution makes it completely safe and efficient to calculate stockpile volumes without the need of occupying the pile. The software is intuitive to use and has advanced calculation capabilities. The laser system is rugged, completely waterproof and offers an LED in-scope display that adjusts to any lighting condition. See the system first-hand and test it against what you

currently use to design a blast with an onsite demonstration of our laser profiling system at no cost to you.

Products & Services

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Computer - Software and Services
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Measurement and Monitoring Systems
Process Controls and Instruments
Sensors

Main Office

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Leister Technologies, LLC

Booth 1034

For over 70 years, Leister has been the global leader in plastic welding and industrial hot-air applications. Our products include hot air welding machines, automatic welders, and extruders. Everything a tunnel waterproofing membrane installer might need. In civil engineering, e.g., in tunnel and landfill construction, the quality of the welded seam is a top priority since leaks can have fatal consequences. Therefore, it is essential for the quality of workmanship to use welding equipment of the highest standards.

Products & Services

Welding Equipment and Supplies

Main Office

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Itasca, IL 60143 USA
Phone: (630) 760-1000
Email: info@leister.com
www.leister.com

LGC Standards

Booth 1071

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Measurement and Monitoring Systems
Process Controls and Instruments
Quality Improvement
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Liebherr

Booth 1678

Products & Services

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Linkan Engineering

Booth 1426

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Water Clarification and Treatment

Main Office

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Elko, NV 89801 USA
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Louisville Dryer Company

Booth 2608

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Products & Services

Coolers
Dryers
Kilns

Main Office

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Louisville, KY 40219 USA
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LouisvilleDryer.com



Luff Industries Ltd

See our ad on p. 82

Booth 2527

Luff Industries manufactures quality conveyor components, including idlers with patented polymer end caps and pulleys with an industry leading rim thickness to

an international market. Using Luff components, companies have been increasing the performance of their conveyor systems for over 42 years. Recognized for innovative products, quick turnaround times and industry leading warranty, Luff products can be found in a variety of heavy industrial material handling applications. These industries include aggregate, mining, forestry, original equipment manufacturers, construction and recycling. Luff manufactures one of the most complete product lines due to these different application requirements.

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Conveyor Belting - Accessories and Equipment
Conveyor Systems

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Phone: (403) 279-3555
www.luffindustries.com

Maccaferri, Inc

Booth 2335

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Dredges
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control

Main Office

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Williamsport, MD 21795 USA
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Mackay School of Earth Sciences and Engineering

Booth 1342

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Booth 2107

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Mavrik

Booth 2035

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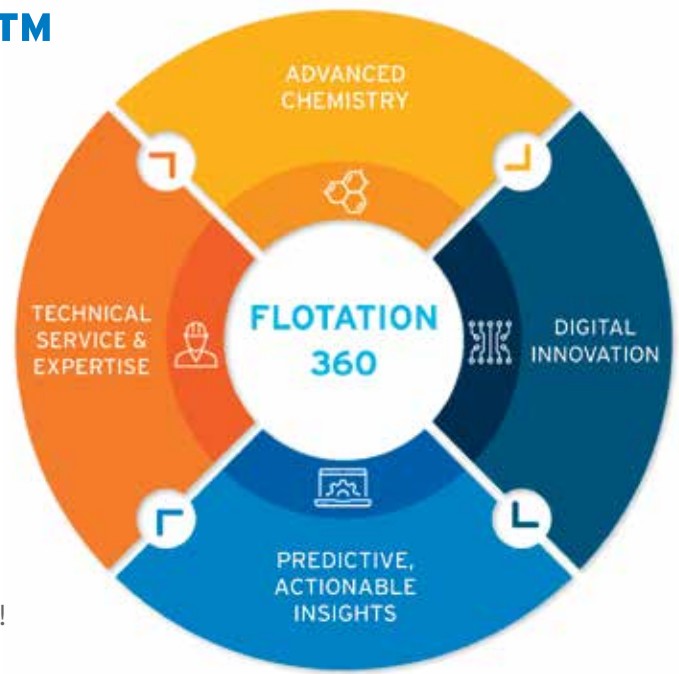
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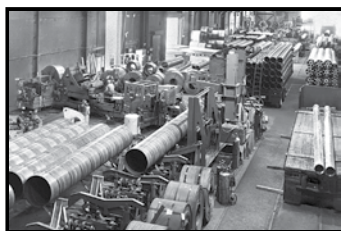
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MINETEK

Booth 1026

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Mining & Metallurgical Society of America (MMSA)

Booth 1603

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Mining Equipment, Ltd

Booth 1927

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Booth 2333

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Other titles/brands in the Aspermont stable include Future of Mining (365 and live events), Mining Journal, Australia's Mining Monthly and GeoDrilling International.

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Mining Media International

Booth 2111

Mining Media International (MMI) publishes Engineering & Mining Journal (E&MJ), Coal Age and Equipo Minero. E&MJ is the gold standard among trade journals for the mining and mineral processing sector. Coal Age is the voice of authority throughout the coalfields. Equipo Minero, E&MJ's Spanish language quarterly, is a respected source for technical information throughout Latin America. MMI also publishes a free weekly e-Newsletter. Through its print and digital products, which includes Email campaigns and webinars, MMI provides a means for suppliers to market to decision makers in the mining business.

Products & Services

Publishers

Main Office

11655 Central Pkwy, Ste 306
Jacksonville, FL 32224 USA
Phone: (904) 721-2925
www.mining-media.com

Mining People Magazine

Booth 2825

Mining People Magazine reports on People, Places, and Products related to all mining sectors, including aggregates.



**Nevada Gold Mines
strives to be among
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century companies,
not just in our industry,
but in any industry. If
you thrive on challenge
and collaboration, we
offer opportunities on
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A career at NGM means:

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- Company match share purchase program

EXHIBITORS

Whether you want to kick up your feet and read a relaxing article, or be updated on the latest news and innovations, Mining People is your magazine! Available in-print and on-line to suit any reader's preference.

Our format is unique, informative and entertaining, focusing on personalities and news, highlighting present issues and events, business profile articles, future forecasts, new product and service technology, and historical articles and human interest features.

Products & Services

Publishers

Main Office

PO Box 6247
Charleston, WV 25362 USA
Phone: (864) 278-8227
Email: lisa.ropar@charter.net
www.miningpeople.org

Mining Plus US

Booth 1422

Mining Plus is a mining technical services provider, consisting of professionals specialising in geology, mining engineering (surface and underground), geo-technical engineering, mine ventilation, and operational management.

Products & Services

Consulting - Engineering
Consulting - Management
Geological-Physical-Technical Services and Equip

Main Office

10185 Park Meadows Dr, Flr 3, Ste 211
Lone Tree, CO 80124 USA
Phone: (303) 668-5925
Email: info@mining-plus.com
www.mining-plus.com

Minova

Booth 2533

137 years of development and innovation Minova is known for high quality products, technical expertise and problem solving. Unstable and changing environments is one of the greatest challenges. Our expert technical services teams work to find the perfect solution. Minova has over 200 patents but our work is far from over. Our laboratories and manufacturing plants work tirelessly to develop new chemical formulations and bolting technologies to help improve safety, cost savings and increase efficiencies. Our engineers and chemists, use their vast expertise and experience to provide you the best solutions.

Products & Services

Concrete Reinforcement and Equipment
Consulting - Engineering
Roof - Ground Supports
Seals
Sediment & Erosion Control
Shotcrete Equipment, Supplies and Services
Steel Wire Ropes/Cables
Training Services
Tunnel Lining and Support Materials
Underground - Construction and Structures

Main Office

150 Summer Ct
Georgetown, KY 40324 USA
Phone: (502) 868-6251
www.minovaglobal.com

MinTech

Booth 1675

MinTech is a full-service mineral handling solution provider specializing in process application systems, surface application programs, and specialty chemical treatments. From start to finish, our team of experts provide on-site assessments, conceptualize, design, and install application equipment, apply products, and provide on-going service and maintenance to custom tailor our services to exceed our customer's expectations.

Main Office

1830 Ellsworth Industrial Dr NW
Atlanta, GA 30318 USA
Phone: (404) 355-4580 ext 320
mintech.com

Missouri S&T

Booth 1457

Missouri University of Science and Technology (S&T) is a STEM-focused research university of over 7,200 students and is part of the four-campus University of Missouri System. Located in Rolla, Missouri, Missouri S&T offers 101 different degree programs in 40 areas of study and is ranked by CollegeFactual as the best public university to study engineering. For more information about Missouri S&T, visit our website.

Products & Services

Educational

Main Office

1400 N Bishop St, 230 McNutt Hall
Rolla, MO 65409 USA
Phone: (573) 341-6303
mee.mst.edu

Mitsubishi Materials USA Corp

Booth 2706

Products & Services

Drill Bits - Rock
Drilling Equipment
Underground - Construction and Structures
Well Completion Equipment

Main Office

105 Corporate Center Dr, Ste A
 Mooresville, NC 28117 USA
Phone: (980) 312-3150
mmus.com

Mixtec North America

Booth 1432

Mixtec North America has over 4,000 agitator installations in 15 countries. Built on Mixtec's global install base of 50,000+ agitators, we have the experience to meet the most demanding mixing requirements. By working with the other Mixtec global entities, we are

able to find the most efficient and economical way to design, fabricate, and deliver your mixing system anywhere in the world.

Products & Services

Agitators, Vibrators and Mixers

Main Office

454 W 600 N
Salt Lake City, UT 84103 USA
Phone: (801) 290-3770
www.mixteca.com

MMD Mineral Sizing (America) Inc

Booth 1532

Products & Services

Crushers and Pulverizers
Feeders

Main Office

41 Excellence Wy
Vonore, TN 37885 USA
Phone: (423) 884-6100
www.mmdsizers.com

MOGAS Industries, Inc

Booth 2737

MOGAS Industries is the dominant severe service technology company offering severe service valves, surface engineering, coating and modular process units.

Products & Services

Agitators, Vibrators and Mixers
Coatings (does not include Linings and Claddings)
Consulting - Design and Planning
Consulting - Engineering
Linings and Claddings
Maintenance Services
Measurement and Monitoring Systems
Quality Improvement
Valves

Main Office

14204 E Hardy Rd
Houston, TX 77039 USA
Phone: (281) 810-5952
<https://www.mogas.com/en-us>

Monico Monitoring, Inc

Booth 1537

Products & Services

Communications Equipment
Electrical Equipment and Supplies
Information Technology Products
Measurement and Monitoring Systems

Main Office

18530 Klein Church Rd
Spring, TX 77379 USA
Phone: (281) 350-8751
www.monicoinc.com





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DEWATERING SYSTEM DESIGN

OPEN PIT MINE DESIGN



www.piteau.com

info@piteau.com

EXHIBITORS

Montana Technological University - School of Mines & Engineering

Booth 1338

Products & Services

Educational

Main Office

1300 W Park St
Butte, MT 59701 USA
Phone: (406) 496-4262
www.mtech.edu

Montgomery & Associates

Booth 1835

Products & Services

Consulting - Design and Planning
Consulting - Environmental
Consulting - Research
Geological-Physical-Technical Services and Equip
Measurement and Monitoring Systems
Remediation

Main Office

1550 E Prince Rd
Tucson, AZ 85719 USA
Phone: (520) 881-4912
www.elmontgomery.com

Montrose Environmental

Booth 2249

Montrose is a leading environmental services company focused on supporting commercial and government organizations as they deal with the challenges of today, and prepare for what's coming tomorrow. With more than 2,000 employees and 70+ locations around the world, Montrose combines deep local knowledge with an integrated approach to design, engineering, and operations, enabling effective and efficient responses to unique requirements of each project. From comprehensive air measurement and laboratory services to regulatory compliance, emergency response, permitting, engineering, and remediation.

Products & Services

Aerial Mapping and Surveying
Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management
Consulting - Research
Emissions Control
Laboratory and Scientific Services
Measurement and Monitoring Systems
Remediation

Main Office

5120 Northshore Dr
North Little Rock, AR 72118 USA
Phone: (501) 900-6400
www.montrose-env.com

MP Materials

Booth 1674

Products & Services

Mine Operators

Main Office

6720 Via Austi Parkway, Suite 450
Las Vegas, NV 89141 USA
Phone: (702) 449-6271
<https://mpmaterials.com/>

MST Global

Booth 1045

Products & Services

Information Technology Products

Main Office

13301 W 43rd Dr, Unit 15
Golden, CO 80403 USA
Phone: (303) 524-5167
mstglobal.com

Mudwizard

Booth 2244

At Mudwizard, we simplify the management of mining and industrial water through accessible and eco-responsible processes and are driven by the desire to create a positive impact on water. We create simple and robust mud treatment system that works with 100% organic polymer clarification tablets, easy to operate by non-experienced workers.

Products & Services

Dewatering Equipment
Maintenance Equipment and Supplies
Pumps
Water Clarification and Treatment

Main Office

1156 Av Larivière
Rouyn-Noranda, QC J9X 4K8 Canada
Phone: (819) 797-3300
Email: info@technosub.net
www.mudwizard.com

NALCO Water
An Ecolab Company

Nalco Water, an Ecolab Company

See our ad on p. 89

Booth 1242

A global leader in water and process management solutions, Nalco Water, an Ecolab company, works with customers across the mining and mineral processing industries to help maximize outcomes and minimize water and climate impacts at an optimized total cost. Leveraging a global network of technical experts, research and development laboratories, and world-class training programs, we deliver unparalleled service to our customers.

Products & Services

Automation
Dewatering Equipment
Flotation Machines and Equipment
Reagents - Chemical and Flocculants
Thickeners
Water Clarification and Treatment

Main Office

1601 W Diehl Rd
Naperville, IL 60563 USA
<https://www.ecolab.com/about/industries-we-serve/mining-and-mineral-processing>

Narmer-engsim LLC

Booth 1679

Narmer develop and provide CFD models for flotation devices, hydrocyclones and mine ventilation systems. We provide training services as well. We have a new fast flotation hydrocyclones for fine and ultrafine minerals recovery. Also, we provide Ceramic hydrocyclones for classification of ultrafine slime of dp 10 microns and dp 30 microns

Products & Services

Classifiers
Coal Preparation Plants
Computer - Software and Services
Consulting - Research
Educational
Flotation Machines and Equipment
Training Services

Main Office

306 Woodbine Dr
Blacksburg, VA 24060 USA
Phone: (540) 385-1656
www.narmer-engsim.com

National Institute for Occupational Safety & Health

Booth 2011

The NIOSH Mining Program's mission is to eliminate mining fatalities, injuries, and illnesses through relevant research and impactful solutions. In our current research, we are working hard to reduce miner overexposure to hazardous dust and diesel contaminants, reduce miner overexposure to noise, remediate risk factors for musculoskeletal disorders, eliminate fatalities and injuries caused by mobile and stationary equipment, eliminate fatalities and injuries caused by rock falls and damaged ribs, and reduce the risk of mine disasters. We value relevance, impact, excellence, integrity, innovation, and collaboration as we join our stakeholders in fostering an industry of safe mines and healthy workers.

Products & Services

Government Agency - Entity

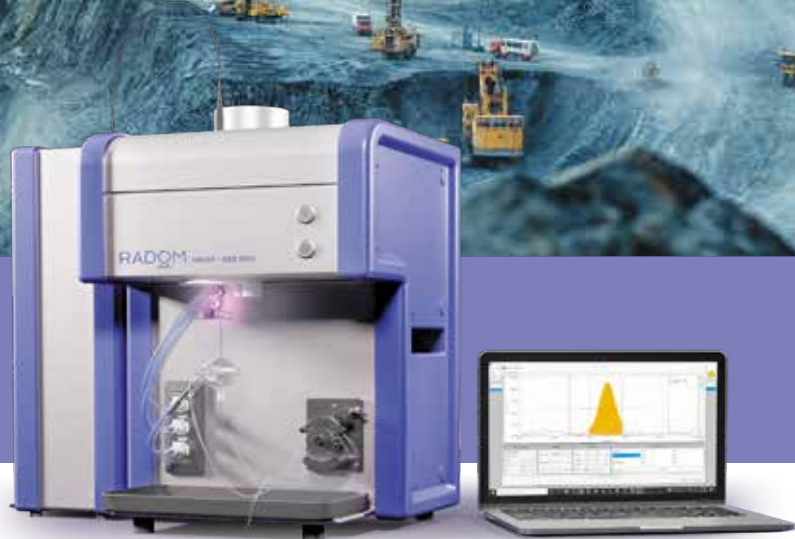
Main Office

626 Cochran Mill Rd
Pittsburgh, PA 15236 USA
Phone: (412) 386-6649
www.cdc.gov/niosh/mining



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Mobility possibility

- ★ Exploration – setup for evaluation
- ★ Production
- ★ Remediation
- ★ Heavy machinery maintenance



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Radom's proprietary Cerawave™ technology sets a new standard for productivity. Cerawave, an advanced ceramic ring, replaces water cooled coils and traditional RF generators. MICAP-OES 1000 is a powerful analytical instrument with a simple design eliminating the need for a chiller and permanent installation location.



Nitrogen technology

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- ★ Readily available
- ★ Safe to use
- ★ Can be generated from air

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EXHIBITORS

National Mine Map Repository

Booth 1049

The National Mine Map Repository (NMMR) collects and maintains mine map information for the entire country. Our archive contains over 150,000 mine maps representing 47 states and 88 commodities. We are equipped with world class scanning tables that produce high resolution scans of even the largest maps. We provide access to our data and scans free of charge, and maps are either disposed of or returned according to the donor's preference. If you would like to request information or donate maps, please contact nmmr@osmre.gov.

Products & Services

Geological-Physical-Technical Services and Equip

Main Office

3 Parkway Center Dr
Pittsburgh, PA 15220 USA
Phone: (412) 937-2833
Email: nmmr@osmre.gov
www.osmre.gov/nmmr

National Stone, Sand & Gravel Association (NSSGA)

Booth 1307

NSSGA is the leading voice and advocate for the aggregates industry. Our members include crushed stone, sand & gravel producers, industrial sand producers and the equipment manufacturers & service providers who support them.

NSSGA advances public policies that protect and expand the safe, environmentally responsible use of aggregates that build America's infrastructure and economy. NSSGA advocates for members' interests on health, safety and environmental issues. In addition, NSSGA offers its members opportunities to participate in education and trade-shows that include CONEXPO-CON/AGG, AGG1 Academy & Expo, Young Leaders and the NSSGA Annual Convention.

Products & Services

Professional Society or Association

Main Office

66 Canal Center Plz, Ste 300
Alexandria, VA 22314 USA
Phone: (703) 525-8788
www.nssga.org

Naylor Pipe Co

See our ad on p. 91

Booth 1910

Naylor spiralweld steel pipe is manufactured in accordance with ASTM A-139, ASTM A-252, and ASTM A-211. Applications for Naylor spiralweld in mining service include water, high and low pressure air, ventilation, tailings or slurry lines and shaft casing. It is available in carbon and abrasion-resistant steel in diameters from 4 in. to 96 in. and thicknesses from 1/16 in. to 1/2 in. Also available are the necessary fittings and couplings, including the exclusive Naylor heavy duty wedgelock coupling, coatings and linings to complete your pipe systems.

Products & Services

Couplings - Mechanical, Flexible and Rigid
Dewatering Equipment
Pipes
Steel Pipe

Main Office

1230 E 92nd St
Chicago, IL 60619 USA
Phone: (773) 721-9400
www.naylorpipe.com

Neo Solutions Inc

Booth 1403

Delivering solutions to your mineral processing, industrial, and water use challenges. We are skilled in both the art and science of mineral processing.

Products & Services

Reagents - Chemical and Flocculants

Main Office

1340 Brighton Rd
Beaver, PA 15009 USA
Phone: (724) 728-1847
Email: info@neosolutionsinc.com
www.neosolutionsinc.com

Netafim USA

Booth 1607

Founded in 1965, Netafim pioneered the drip revolution. Today, Netafim is the global leader in precision irrigation offering a diverse array of irrigation solutions for agriculture, landscape & turf, greenhouse & nursery, mining, and wastewater industries. Recognizing the evolving needs of these varied and dynamic industries, Netafim created a complete line of technologically advanced, environmentally sound, drip irrigation and water conservation products that maximize efficiency of precious metal recovery through the heap leaching process. Together, we can create a more sustainable future and grow more with less.

Products & Services

Couplings - Mechanical, Flexible and Rigid
Dewatering Equipment
Filters, Filter Cloth and Accessories
Leaching Sprinklers
Meters and Gauges
Pipes
Valves
Water Clarification and Treatment

Main Office

5470 E Home Ave
Fresno, CA 93727 USA
Phone: (559) 453-6800
<https://www.netafimusa.com/mining/>

NETZSCH Pumps North America, LLC

Booth 2625

NETZSCH Pumps North America, LLC is the North American subsidiary of the globally operating group of NETZSCH companies. For over six decades NETZSCH has been manufacturing and supplying NEMO® Progressing Cavity Pumps and TORNADO® Rotary Lobe

Pumps (the Classic T1 version and now the most technologically advanced RLP on the market – the T2), NOTOS® Multiple Screw pumps, N.Mac® grinders, macerators, metering systems, mobile pumps and accessory equipment for custom built and challenging solutions to meet your mining application requirements. NETZSCH supplies pumps into a broad range of markets including Mining. Our innovative and premium quality products are valued worldwide.

Products & Services

Pumps

Main Office

119 Pickering Wy
Exton, PA 19341 USA
Phone: (610) 363-8010
www.netzsch.com

Nevada Gold Mines

See our ad on p. 95

Booth 2700

Our mission is to be the world's most valued gold and copper mining business by finding, developing, and owning the best assets, with the best people, to deliver sustainable returns for our owners and partners.

Products & Services

Mine Operators

Main Office

1655 Mountain City Hwy
Elko, NV 89801 USA
Phone: (775) 213-3452
www.nevadagoldmines.com

New Mexico Institute of Mining & Technology

Booth 1444

Products & Services

Educational

Main Office

801 Leroy Pl, Mineral Engr Dept
Socorro, NM 87801 USA
Phone: (575) 835-5836
www.nmt.edu



NewFields

See our ad on p. 90

Booth 1839

NewFields staff has over 25 years of experience in the design, permitting and construction of mining projects around the world. These projects include dams/ponds; heap leach facilities; waste rock disposal facilities; tailing storage facilities; storm water management infrastructure; haul roads; process plants and material handling infrastructure; and the closure and decommissioning of these mine components. NewFields has the ability to coordinate design development with environmental and social requirements to ensure that existing environmental conditions are accounted for in

the selection of facility location, design, operation, and closure.

Products & Services

Construction - Contracting Services
Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management
Geological-Physical-Technical Services and Equip
Laboratory and Scientific Services
Mine Evaluations - Surface and Underground
Sediment & Erosion Control

Main Office

9540 Maroon Cir, Ste 300
Englewood, CO 80112 USA
Phone: (720) 508-3300
www.newfields.com

Newmont

Booth 1243

Newmont is the world's leading gold company and a producer of copper, silver, zinc and lead. The Company's world-class portfolio of assets, prospects and talent is anchored in favorable mining jurisdictions in North America, South America, Australia and Africa. Newmont is the only gold producer listed in the S&P500 Index and is widely recognized for its principled environmental, social and governance practices. The Company is an industry leader in value creation, supported by robust safety standards, technical expertise and superior execution. Our purpose is to create value and improve lives through sustainable and responsible mining. Newmont was founded in 1921.

Products & Services

Mine Operators
Recruiting/Staffing

Main Office

6900 E Layton Ave, Ste 700
Denver, CO 80237 USA
Phone: (303) 863-7414
www.newmont.com

Nightstick

Booth 2428

NIGHTSTICK® – Performance, Quality and Value

Nightstick is a global brand of professional lighting products including flashlights, headlamps and Intrinsically Safe lighting solutions that exceed the industry standards in performance, quality, user-safety and value.

Products & Services

Lighting Systems and Lamps

Main Office

640 S Sanden Blvd
Wylie, TX 75098 USA
Phone: (469) 326-9400
https://www.nightstick.com

Nilex Inc

Booth 1033

Since 1977 Nilex has been a leader in the geosynthetic industry, providing Geosynthetic Solutions for Civil and Environmental projects, including Economic Alternatives for access Roads Construction, MSE Walls & Slopes (ECOTech Systems), Erosion & Sediment Control, Water Management, Mining & Pipeline Solutions and Contaminated Material Management, providing customers with smart choices and proven to conventional construction practices for less money.

Products & Services

Environmental Control Equipment and Supplies

Main Office

15354 E Hinsdale Cir
Centennial, CO 80112 USA
Phone: (720) 737-8778
Email: info@nilex.com
www.nilex.com

NobleMEIR, Inc

Booth 1234

Physical Separation and Filtration equipment. Home of the CRYO-HGMS 5T, North America's strongest High Gradient Magnetic Separating mineral processing magnet. NobleMEIR, Inc. specializes in advanced mineral separation equipment, components, and service. With an experienced staff of over 100 years experience - our PhySep brand is celebrating it's 10th year 2012 - 2022. Magnetic, Gravity - Classifiers, and concentrators, lab - pilot plant - and industrial sizes. NobleMEIR, Inc. also provides laboratory testing and analysis, annual service contracts and preventative maintenance.

Products & Services

Separators and Concentrators

Main Office

9775 Mining Dr
Jacksonville, FL 32257 USA
Phone: (904) 693-1090
Email: sales@noblemeir.com
www.noblemeir.com

Normet Americas, Inc

Booth 2433

Normet is an industry-leading technology company offering continuous improvement to underground mining and tunnelling processes for increased safety, productivity, and profitability. We work in close collaboration with customers and utilise our process expertise amassed over thousands of mine and tunnel projects all over the globe.

We have a broad underground equipment offering; concrete spraying and transport, explosives charging, scaling, lifting, installation, and logistics. Our services are to ensure safety and productivity for our customers throughout the lifecycle this includes the supply of spare parts, rental equipment, remanufacturing and upgrades, field services, and training.

Products & Services

Diesel Mining Equipment Manufacturers
Maintenance Services
Parts - Mining Machinery
Shotcrete Equipment, Supplies and Services

Training Services

Underground - Construction and Structures

Main Office

1414 S Gladiola St, Ste 100
Salt Lake City, UT 84104 USA
Phone: (216) 780-4627
Email: erik.hopperton@normet.com
www.normet.com

Norseman Structures

Booth 2829

Norseman Structures offers ShelterSolutions in the pre-engineered building industry, specializing in steel framed fabric covered buildings. We offer turnkey solutions with fully integrated services including design and engineering, manufacturing, construction, financing, and documentation. Norseman Structures is a leading provider of pre-engineered buildings for mining companies around the world. Our solutions include truck shops, wash bays, warehouses, bulk material handling facilities, core cutting and processing facilities, water treatment plants, gymnasiums, and more. Norseman has been delivering Fiercely Reliable ShelterSolutions for over 100 years, and has designed solutions fit for the needs of some of the world's most advanced mining companies.

Products & Services

Linings and Claddings
Temporary Structures

Main Office

3815 Wanuskewin Rd
Saskatoon, SK S7P 1A4 Canada
Phone: (306) 385-2888
www.norsemanstructures.com

Northwest Towers

Booth 2549

Industrial communications infrastructure, design, deployment, and maintenance. Northwest Towers provides LTE, WIFI, millimeter wave, and all other forms of wireless communication. In addition to the active wireless components, we design, and construct the infrastructure necessary to support a cohesive, resilient network. This includes tower construction, component installation, and complete commissioning that includes in depth training.

Products & Services

Automation
Communications Equipment
Computer - Hardware and Services
Computer - Software and Services
Construction - Contracting Services
Consulting - Design and Planning
Consulting - Engineering
Controls - Electrical and Electronic
Maintenance Services
Training Services

Main Office

12119 NE 99th Ave, Ste 2000
Vancouver, WA 98682 USA
Phone: (503) 548-2005
www.nwtowers.com

EXHIBITORS

Nouryon

Booth 1525

You need to deliver high-grade mineral concentrate for your customers, and we're here to help. Our flotation reagents, depressants (CMC), binders, dewatering and anticaking processing aids, sulfidizing agents (NaSH), oxidizing agents, and explosive sensitizers are designed to help you improve the recovery and grade of valuable minerals.

We collaborate with you to improve your performance while lowering your ecotoxic profile – without compromising on quality. Our commitment to deliver sustainable products and processes has earned Nouryon an EcoVadis Platinum rating in 2022.

Find our experts in booth #1525 and ask us which solutions are right for you.

Products & Services

Blasting Accessories, Equipment and Agents
Reagents - Chemical and Flocculants
Thickeners
Water Clarification and Treatment

Main Office

100 Matsonford Rd, Bldg 1, Ste 500
Radnor, PA 19087 USA
Phone: (312) 544-7000
Email: mining@nouryon.com
<https://www.nouryon.com/markets/mining/>

NSS Canada

Booth 1204

NSS Canada is a mining technology company that provides reliable, accurate and innovative mining & survey equipment solutions.

Developer of MOSS (Miner Operated Survey System), NSS Canada is also a Leica Geosystems, Exyn Technologies and Hexagon Mining Authorized Reseller.

Products & Services

Surveying Equipment and Supplies

Main Office

1351 E Kelly Lake Rd, Unit 10
Sudbury, ON P3E 5P5 Canada
Phone: (705) 744-3246
<https://www.nsscanada.com/>

Odin Construction Solutions

Booth 1150

Odin is an award-winning contractor specializing in turnkey environmental remediation, geotechnical, and heavy civil construction projects nationwide. We became a communal ally through our commitment to safety, quality, collaboration, and community. Through initial project development and engineering design, field construction, and remedial action implementation, we ensure that the impact of every step forward results in enhancing the balance between site construction requirements and the surrounding communities through protection and preservation. Our team specializes in working alongside public and private sector clients on diverse Environmental Remediation, Heavy Civil Construction, Geotechnical Construction, Habitat & Wetland Construction, and Emergency & Disaster Service projects.

Products & Services

Backfilling
Mining Contractors
Reclamation Equipment and Services
Remediation
Underground - Construction and Structures

Main Office

4740 Rocklin Rd
Rocklin, CA 95677 USA
Phone: (916) 251-5500
odinconstruction.com

Oklo

Booth 1683

Oklo delivers reliable low-cost clean energy 24/7. Small modular nuclear reactors provide electricity and heat through a power purchase agreement at costs equal to or less than other energy sources.

Products & Services

DC Power
Electric Motors and Generators
Electrical Equipment and Supplies
Emissions Control
Environmental Control Equipment and Supplies
Power Transmission Equipment
Solar Electric Power System

Main Office

3190 Coronado Dr
Santa Clara, CA 95054 USA
Phone: (415) 385-9481
<https://oklo.com/>

Open Loop Energy, Inc

See our ad on p. 92

Booth 1329

Open Loop Energy, Inc. was founded in 1992 as an Arizona corporation. It began operations in Safford, Arizona to serve the Southwestern mining and construction industries. Our core business is centered on hydraulic component repair and reclamation. Open Loop expanded its capabilities to Winnemucca, Nevada in 1998, Cedar Fort, Utah in 2012, and Farmington, New Mexico in 2016. Open Loop is now positioned far beyond any other hydraulic repair facility in the West and is known for providing solutions to customers' problems with quality customer care.

Products & Services

Dust and Fume Control Technology
Environmental Control Equipment and Supplies
Hydraulic System Components
Mine Operators

Main Office

1722 N 8th Ave
Safford, AZ 85546 USA
Phone: (575) 644-2907
www.openloop.net

O-Pitblast S.A.

Booth 1471

Products & Services

Computer - Software and Services
Consulting - Engineering

Main Office

Rua Prof Manuel Baganha, 249/257
Porto 4350-009 Portugal
Phone: +351910094304
<https://www.o-pitblast.com/pt-pt/>

ORE-MAX

Booth 1500

Ore-Max's emitterline (drip line) is made with plug-resistant emitters (drippers) specifically designed for heap leaching. Because Ore-Max's emitter has more screen area and wider flow paths than any other emitter available, it will operate longer without plugging, ensuring ongoing mineral recovery. Ore-Max supplies a full range of lay flat hose, valves, fittings, sprinklers and drainage piping, and our experienced engineers can design your heap leach system from the ground up.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Cyanide Process Equipment
Filters, Filter Cloth and Accessories
Hoses - Valves and Fittings
Leaching Sprinklers
Meters and Gauges
Pipes
Valves

Main Office

PO Box 23666
Portland, OR 97281 USA
Phone: (503) 692-5353
www.ore-max.com

Orica USA

Booth 2122

Products & Services

Blasting Accessories, Equipment and Agents
Computer - Software and Services
Consulting - Design and Planning
Consulting - Engineering
Conveyor Belting - Accessories and Equipment
Explosive Materials and Services
Information Technology Products
Measurement and Monitoring Systems
Sensors

Main Office

33101 E Quincy Ave
Watkins, CO 80137 USA
Phone: (303) 883-7438
<https://www.orica.com/Products---Services/Blasting/>

Original Creations Inc

Booth 2500

The world's largest collection of mining related bronze sculptures.

Founded in 1980 by Gary Prazen, Original Creations provides high-quality artwork. It is still family-owned by Danny Blanton (Gary's son-in-law), and Original Creations has a lot to offer you.

Our services and products include bronze statues, metal and one-of-a-kind sculptures, engravings, trophies, plaques, belt buckles, and metalwork. We focus on mining, wildlife, eagles, western, Christmas, and golf



sculptures. We also pay special attention to our welded metal sculptures, bronze plaques, belt buckles, and custom trophies. We specialize in retirement gifts, mining art, safety awards, mine rescue trophies, and so much more.

Products & Services

Mining Gifts
Safety Awards

Main Office

1310 W 2060 N
Helper, UT 84526 USA
Phone: (435) 637-0159
www.prazenart.com

OXO VALVE

Booth 1038

Pinch valve Canadian manufacturer.
Replace your sleeves with valve still on pipe in a matter of minutes!
Best valve for slurry application.
Very robust.
Safest valve to handle and maintain.

Products & Services

Valves

Main Office

530 Des Actionnaires
Chicoutimi, QC G7J5A9 Canada
Phone: (438) 502-2881
www.oxovalve.com

Parkland USA

Booth 2726

Parkland is an independent supplier and marketer of fuel and petroleum products and leading convenience store operator. Parkland services customers across Canada, the United States, the Caribbean region and the Americas through three channels: Retail, Commercial and Wholesale. Parkland optimizes its fuel supply across these three channels by operating and leveraging a growing portfolio of supply relationships and storage infrastructure. Parkland provides trusted and locally relevant fuel brands and convenience store offerings in the communities it serves.

Products & Services

Lubricants and Equipment

Main Office

1800, 240-4 Ave SW
Calgary, AB T2P 4H4 Canada
Phone: (403) 567-2500
www.parkland.ca



Paterson & Cooke USA, Ltd

See our ad on p. 103

Booth 2138

Paterson & Cooke is a recognized leader in the design and implementation of slurry systems and associated processes. Since our formation in 1991, we have

consistently provided technologically superior slurry systems for projects located through out the world. Our key areas of expertise include: Laboratory Testing, Dewatering Circuit Design, Tailings System Engineering (conventional, cycloning, high density paste, thickened and filtered), Long Distance Slurry Pipeline Systems, Leak Detection Systems, Mine Backfill Systems, Optimization Services, Process Engineering, Process Control, Pilot Plants and Specialized Training Courses.

Products & Services

Backfilling
Consulting - Engineering
Laboratory and Scientific Services

Main Office

221 Corporate Cir, Ste D
Golden, CO 80401 USA
Phone: (303) 800-6343
www.patersoncooke.com

Penn State University

Booth 1583

Penn State's Mining Engineering program is one of the oldest in the country and has proudly offered many engineers, researchers, and leaders to the global mineral industry. The program is housed in the John and Willie Leone Family Department of Energy and Mineral Engineering, which offers a range of degree programs addressing the effective production, conversion, use and management of mineral resources. Its mission is to educate engineers, scientists, and professionals who will help provide society with an affordable supply of energy and minerals; work to ensure human health and safety; and protect and maintain the quality of the environment.

Products & Services

Educational

Main Office

110 Hosler Bldg
University Park, PA 16802 USA
Phone: (814) 865-3437
www.eme.psu.edu

PETRA

Booth 1666

Hello, we're PETRA. We build mining software that's used by mines sites worldwide. We're serious about creating reliable predictions, optimisations and decision support tools for mining professionals. Our geological model digital twin software enables mining operations to increase productivity, efficiency and yield by providing operational decision support tools that show engineers how to achieve their 'best performance' 24 hours a day, seven days a week. We empower mining professionals to analyse, design and make better operational decisions. Discover how our implementations can help with higher recovery rates and increased profit.

Products & Services

Computer - Software and Services
Geological-Physical-Technical Services and Equip
Information Technology Products
Quality Improvement

Main Office

9 Sherwood Rd, Offices First, Level 1, Toowong Village
Brisbane 4066 Australia
Phone: +61 7 3310 8774
www.petradatascience.com

Petroleum Solids Control, Inc

Booth 2832

Products & Services

Centrifuges

Main Office

1320 E Hill St
Signal Hill, CA 90755 USA
Phone: (562) 424-0254
www.petroleumsolids.com

Philippi-Hagenbuch, Inc

Booth 1949

We make haul trucks better. By adding our tailgates, truck bodies, rear eject bodies, water tanks, bottom dump trailers, and lowboy trailers to your off-highway haul trucks, we help your fleet achieve the greatest efficiency possible. At PHIL, you don't work with a mindless corporation, you work with the team that's led by the Hagenbuch family. PHIL's innovative commitment to meeting our clients exacting needs is what has set us apart since 1969. Our engineering and manufacturing capabilities, along with our global product support, reinforce our commitment to quality products. Visit our website for more information.

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Slurry Pipeline Systems

Mine Backfill Systems

Mineral Processing

Mine Services

Offshore Engineering

Laboratory Services

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- CANADA (Sudbury, Calgary)
- CHILE (Santiago)
- SOUTH AFRICA (Cape Town, Johannesburg)
- SPAIN (Madrid)
- SWEDEN (Stockholm)
- UNITED KINGDOM (Cornwall)
- USA (Denver)

www.patersoncooke.com



EXHIBITORS

Products & Services

Dust and Fume Control Technology
Explosive Materials and Services
Grizzlies - Feeding, Moving and Stationary
Transportation
Trucks and Haulage Units

Main Office

7424 W Plank Rd
Peoria, IL 61604 USA
Phone: +1 (309) 697-9200
Email: sales@philsystems.com
<https://www.philsystems.com>

Phillips & Jordan, Inc

Booth 1834

Phillips & Jordan, Inc. (P&J) is a woman-owned, heavy civil and infrastructure contractor established in 1952. Our Core Values and Priorities – Integrity, Safety, Quality, and Production – guide our daily business practices. We hold safety as imperative above all other objectives. P&J works closely with mine owners, developers, engineers, and designers to deliver turnkey site development packages for a variety of mining project types that have included new dam and tailings construction and expansions; commercial and industrial; rail and roadway construction; HDPE pipe and liner construction; unloading & loading facilities; contract mining; and reclamation and remediation.

Products & Services

Construction - Contracting Services

Main Office

10901 W 120th Ave, Ste 300
Broomfield, CO 80021 USA
Phone: (865) 228-2722
www.pandj.com

Phoenix Industrial

Booth 1311

Phoenix Industrial is a mid-sized heavy industrial general contractor headquartered in Vancouver, WA. We are a wholly – owned subsidiary of MasTec, Inc., a minority controlled \$8 billion Fortune 500 Company. Our well-trained, motivated employees are our greatest asset, allowing us to excel at self-performing complex projects.

Within the industrial industry we are known for our excellent safety record and ability to complete tough jobs in remote locations. Each project receives the full attention of everyone on our team, from the skilled craftsmen on the ground all the way up to the company president.

Products & Services

Construction - Contracting Services
Mining Contractors

Main Office

2111 SE Columbia Wy, Bldg 7, Ste 120
Vancouver, WA 98661 USA
Phone: (360) 601-7143
www.phxind.com

Phoenix Lighting

Booth 2732

Phoenix Lighting designs and manufactures heavy-duty lighting for the mining industry's harshest environments. The US-based company provides innovative, durable products that are built to last and supports them with technical expertise and outstanding customer service. Mine operators take advantage of Phoenix's 78 years of industry experience to decrease maintenance costs, extend safety initiatives and achieve greater productivity. Phoenix offers OEM partner programs for equipment manufacturers and engineering firms. Phoenix's new technologies for better visibility are made for the entire mine site. You'll find Phoenix lights on large AC equipment, mobile DC equipment, hazardous locations, haul roads, conveyor belts and infrastructure.

Products & Services

Blasting Accessories, Equipment and Agents
Conveyor Belting - Accessories and Equipment
DC Power
Diesel Equipment Lighting Systems
Electrical Equipment and Supplies
Lighting Systems and Lamps
Parts - Mining Machinery
Safety Equipment
Underground Excavation Services and Equipment

Main Office

8711 W Port Ave
Milwaukee, WI 53224 USA
Phone: (414) 973-3330
www.phoenixlighting.com/mining

PHOENIX Process Equipment

Booth 2616

PHOENIX provides systems for sand and mining minerals classification; fines slurry separation, thickening, and dewatering; separating lightweight, deleterious materials from aggregate and minerals products; and for dewatering tailings slurries from aggregate and minerals processing plants. Equipment includes: HS HYDROSORT™ hindered settling classifiers for sand classification and/or deleterious material separation, PHOENIX/KISA Bucket Wheels for sand classification and dewatering, HiFlo™ and AltaFlo™ Thickeners for slurry thickening, volume reduction, and water clarification, Paste Thickeners for high density dry stack tailings disposal and PHOENIX Belt Filter Presses, Recessed Chamber Filter Presses and Membrane Filter Press for tailings dewatering and water recovery.

Products & Services

Centrifuges
Classifiers
Dewatering Equipment
Filters, Filter Cloth and Accessories
Laboratory and Scientific Services
Screens
Separators and Concentrators
Thickeners
Washing Plants
Water Clarification and Treatment

Main Office

2402 Watterson Trl
Louisville, KY 40299 USA
Phone: (502) 499-6198
www.dewater.com

PhotoSat

Booth 1349

Founded in 1993, PhotoSat is a technology company committed to providing better data for better decisions. Using deep learning algorithms, we produce engineering grade surveys from satellite imagery. Each elevation survey is equivalent to a DTM/DEM and produced without site access. With PhotoSat, engineers get quality elevation data that can be used for development, tailings management, mine site operations, and more. We work with operating mines, exploration companies, and engineering consultants around the world and have delivered more than 1,300 mine site surveys in over 75 countries.

Products & Services

Aerial Mapping and Surveying

Main Office

1188 W Georgia St, Ste #580
Vancouver, BC V6E 4A2 Canada
Phone: (604) 681-9770
<https://www.photosat.ca/>

Pinnacle Drilling Products

Booth 1020

Pinnacle Drilling Products is dedicated to providing outstanding service, product selection, and custom manufacture, guiding you to the products you need, supported by knowledgeable and experienced drilling industry expertise so that your projects run smoothly.

Products & Services

Drill Bits - Rock
Grouting Services, Equipment and Materials

Main Office

72 Technology Way SE
Calgary, AB T3S 0B9 Canada
Phone: (403) 236-3393
Email: sales@pinnacledrilling.ca
pinnacledrilling.ca

Pioneering the Field: Women in Mining

Booth 1658

The National Mining Hall of Fame and Museum is a monument to the memory of the men and women who pioneered the discovery, development, and processing of our nation's natural resources. The National Mining Hall of Fame and Museum is dedicated to educating the public on the vast contributions mining makes to their everyday lives and the sustainability of the world's future economic development, technology, diverse and green energy sources, and the advancement of civilization. The National Mining Hall of Fame and museum is the only Congressionally chartered mining museum in the country.

Products & Services

Educational
Mine Evaluations - Surface and Underground
Mine Operators
Mineral Prospecting
Mining Gifts



Main Office

120 W 9th St
Leadville, CO 80461 USA
Phone: (719) 486-1229
<https://www.mininghalloffame.org/>



PITEAU ASSOCIATES
GEOTECHNICAL AND WATER MANAGEMENT CONSULTANTS
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Piteau Associates Engineering Ltd

See our ad on p. 97

Booth 2344

Products & Services

Consulting - Engineering

Main Office

9090 Double Diamond Pkwy
Reno, NV 89521 USA
Phone: (775) 324-8881
www.piteau.com

Pocock Industrial, Inc

Booth 1712

Products & Services

Centrifuges
Consulting - Engineering
Consulting - Research
Dewatering Equipment
Filters, Filter Cloth and Accessories
Ion Exchange Equipment and Resins
Laboratory and Scientific Services
Reagents - Chemical and Flocculants
Thickeners
Water Clarification and Treatment

Main Office

6188 S 300 W
Salt Lake City, UT 84107 USA
Phone: (801) 703-8055
www.pocockindustrial.com

Polydeck

Booth 2429

Since 1978, Polydeck has been the leading provider of the most dependable synthetic screen media in the aggregate, coal, and mining industries across North and South America. We are pioneers, inventors and we take pride in putting our customers first and providing custom solutions for any of your screening needs.

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Products & Services

Screens

Main Office

1790 Dewberry Rd
Spartanburg, SC 29307 USA
Phone: (864) 579-4594
Email: info@polydeck.com
www.polydeck.com

Polymathian

Booth 2921

We are industrial mathematics experts. Polymathian adds significant value by solving complex planning and scheduling problems for the resources industry by developing advanced industrial mathematics software solutions. We are an Australian-owned team of innovators, software engineers and mathematicians who are transforming how the mining industry makes decisions.

Products & Services

Computer - Software and Services

Main Office

76 Ernest St
South Brisbane, QLD 4101 Australia
Phone: +61 1800 951 252
www.polymathian.com



Precision Pulley & Idler

Booth 1711

Products & Services

Conveyor Belting - Accessories and Equipment

Main Office

300 SE 14th St
Pella, IA 50219 USA
Phone: (641) 628-3115
www.ppi-global.com

Predictive Compliance

Booth 2032

Predictive Compliance creates citation management and analytics programs. Simply scan in your MSHA citation to gain access to a trove of analytics. Our system allows users to calculate and track citation modifications as part of a data-driven MSHA compliance program. Track, evaluate and determine how to proceed with all your citations from one platform. Use our analytics to get ahead of your citations with a preemptive mitigation plan that will save you time and money. The new Operator Analytics Dashboard allows for real time MSHA reporting across all of a company's operations. It can automatically generate all your MSHA reports.

Products & Services

Computer - Software and Services
Consulting - Management
Information Technology Products
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EXHIBITORS

Main Office

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Phone: (202) 262-4081
www.predictivecompliance.com

Premier Pressure Control

Booth 1066

Premier Pressure Control specializes in underground and surface drilling systems. We manufacture light-weight drilling equipment including blowout preventers, valves, diverter spools, relief valves, custom built drilling systems with automation and dewatering manifolds. All equipment is rated to 3,000 psi constant working pressure from 3" bore to 13 5/8" bore and all are Made In U.S.A.

Products & Services

Boring Equipment
Dewatering Equipment
Drilling Equipment
Exploration Equipment and Services
Grouting Services, Equipment and Materials
Safety Equipment
Tunnel Boring Equipment
Underground Excavation Services and Equipment
Valves
Well Completion Equipment

Main Office

1715 S Lowery St
Oklahoma City, OK 73129 USA
Phone: (405) 670-4456
www.premierpressurecontrol.com

Presto Geosystems

Booth 1452

Presto Geosystems® partners with engineers and owners to solve soil stability problems in all aspect

Products & Services

Consulting - Environmental
Environmental Control Equipment and Supplies
Geological-Physical-Technical Services and Equip
Linings and Claddings
Pollution Control Equipment
Rail Systems and Supplies
Reclamation Equipment and Services
Remediation
Sediment & Erosion Control
Underground - Construction and Structures

Main Office

670 N Perkins St
Appleton, WI 54914 USA
Phone: (920) 738-1328
www.prestogeo.com

Propeller Aero

Booth 1735

Propeller Aero unleashes the power of data for anyone moving or digging the earth to easily, accurately, and instantly track progress and make faster, safer, and more profitable decisions. Propeller empowers customers to collaborate better, regardless of technical knowledge, streamlining the entire process from bid and design through completion.

More than 2,400 customers in heavy civil construction and resource operations settings across more than 14,000 worksites in over 120 countries trust Propeller to track site progress accurately with 3D visual tools that everyone in the organization can use. For more information, visit our website.

Products & Services

Aerial Mapping and Surveying
Computer - Hardware and Services
Computer - Software and Services
Mine Operators
Surveying Equipment and Supplies

Main Office

3360 Walnut St
Denver, CO 80205 USA
Phone: (720) 336-9927
propelleraero.com

PROVIX

Booth 1353

PROVIX is well recognized for Vision Enhancement and Collision Avoidance Solutions in surface and underground mining. Provix supplies and installs Remote Control systems with IP and analog Video Systems on mobile and stationary equipment for remote operations and process monitoring that offer increased safety and productivity.

Provix supplies LVL 9 EMERST collision avoidance and safety systems. Provix cameras are deployed on bolters, jumbos, drills, scoops, haul trucks, loading chutes, breakers, bin, stope, borehole inspection, raised bore, ITH drills, back/paste fill, and more. Contact Provix for Cost-Effective custom video solutions for any application.

Products & Services

Alarm Systems
Communications Equipment
Controls - Electrical and Electronic
Lighting Systems and Lamps
Maintenance Equipment and Supplies
Process Controls and Instruments
Rail Systems and Supplies
Safety Equipment
Sensors
Tunnel Boring Equipment

Main Office

3 Greengage Rd
New Lowell, ON L0M 1N0 Canada
Phone: (519) 803-5805
Email: sales@provix.net
www.provix.net



MINE PRODUCTIVITY SYSTEMS AND EQUIPMENT

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R.M. WILSON CO. is a product specialist and partners with many of the leading longwall machinery and equipment manufacturers around the world to offer engineered optimum solutions to the special requirements of the customer.

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EMAIL: INFO@RMWILSON.COM

Pumpaction

Booth 2834

Welcome to the Pumpaction family, a company that focuses on innovation and performance, where every member of the team works hard to make a difference. As the undisputed leader in pumping and concreting systems, we offer a full range of services and products, and channel all of our expertise into delivering the best solutions, one project at a time.

Products & Services

Dewatering Equipment
Parts - Mining Machinery
Pumps
Shotcrete Equipment, Supplies and Services

Main Office

119 Hymus Blvd
Pointe-Claire, QC H9R 1E5 Canada
Phone: (514) 697-8600
Email: info@pumpaction.com
www.pumpaction.com

PumpEng

Booth 2920

PumpEng is an independent Australian company that designs, manufactures and services dewatering pumps for mining companies worldwide. With a 20-year track record, PumpEng uses state-of-the-art pump designs and materials to support modern mines and conditions.

Products & Services

Dewatering Equipment
Pumps

Main Office

PO Box 86
Buhl, ID 83316 USA
Phone: (208)749-7636
<https://www.pumpeng.com.au/>

Purolite, An Ecolab Company

Booth 1005

Purolite has supplied ion exchange and chelating resins to the hydrometallurgy industry for over 30 years. Advanced ion exchange technology is used for the primary recovery of metal or the removal of impurities to increase the value and purity of the final product

Products & Services

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Quality Improvement
Water Clarification and Treatment

Main Office

2201 Renaissance Blvd, Ste 400
King Of Prussia, PA, PA 19406 USA
Phone: 610 668 9090
Email: oliver.baumann@purolite.com
<https://www.purolite.com/index/core-technologies/industry/hydrometallurgy>

Putzmeister Shotcrete Technology

Booth 2621

Products & Services

Grouting Services, Equipment and Materials
Pumps
Shotcrete Equipment, Supplies and Services
Steel Pipe
Tunnel Lining and Support Materials
Underground - Construction and Structures

Main Office

1733 90th St
Sturtevant, WI 53177 USA
Phone: (262) 886-3200
www.putzmeister.com



Quadra Chemicals Inc

Booth 1016

Products & Services

Reagents - Chemical and Flocculants
Training Services
Water Clarification and Treatment

RockTech USA

EXPLORATION PRODUCTS

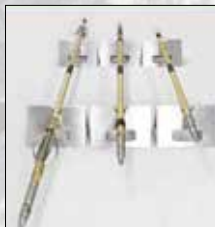
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- Safe and easy operation
- Durable
- High performance
- Easy maintenance



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EXHIBITORS

Main Office

21 Waterway Ave, Ste 200
The Woodlands, TX 77380 USA
Phone: (800) 681 2313
www.quadrausa.com

Quinn Process Equipment Co

Booth 1726

Quinn Process Equipment Company specializes in the design and manufacture of the free-standing FRP QPEC SX Mixer-Settler systems for a broad range of applications and sizes and are available in a wide range of FRP resins to cover just about any situation involving corrosives or temperature or both. Flowrates from a few liters per minute to 7.5 cubic meters per minute are within our range with simplex, duplex and even triplex mixers available. We ship all systems all over the world.

Products & Services

Solvents - Extraction, Mixer and Settlers

Main Office

PO Box 2589
Littleton, CO 80161 USA
Phone: (303) 295-2872
www.quinnprocess.com



Radom Corporation

See our ad on p. 99

Booth 1035

Radom Corporation developed the solution for onsite instrumentation with Microwave Indicatively Coupled Atmospheric Plasma – Optical Emission Spectrometer with 1000W power (MICAP-OES 1000). This innovative nitrogen-based plasma atomic spectroscopy instrument replaces the traditional argon generated plasma technology.

Products & Services

Laboratory Equipment and Supplies

Main Office

N27W23676 Paul Rd
Pewaukee, WI 53072 USA
Phone: (954) 592-7799
radomcorp.com

Rail-Veyor Technologies Global Inc

See our ad on p. 93

Booth 2407

Railveyor is a safe, clean and profitable material haulage system for the smarter, Net Zero mine of the future. Rail-veyor Technologies Global Inc. (RVTG) offers the low emission, fully-electric, battery-free and TrulyAutonomous solution to the mining and industrial materials sectors and more. The unique light rail system results in high energy efficiency, industry-leading OPEX and enhanced worker safety. The RVTG interna-

tional headquarters and John McCall Testing Facilities are located in Sudbury, Ontario. The Technology Center and United States regional office is located in Houghton, Michigan. Railveyor has installed eight systems globally.

Products & Services

Autonomous Vehicles
Conveyor Systems
Rail Systems and Supplies
Transportation
Trucks and Haulage Units

Main Office

40 Larch St, Unit 201
Sudbury, ON, ON P3E 5M7 Canada
Phone: 1 (844) 288-0450
Email: info@railveyor.com
www.railveyor.com

Rain for Rent

Booth 1833

Rain for Rent is a leading provider of temporary liquid handling solutions including pumps, tanks, filtration and spill containment. Projects range from flood relief to construction site dewatering, sewer bypasses and industrial plant turnarounds.

The company is known for its systems engineering expertise and its ability to tackle complex jobs cost effectively, providing an exceptionally high value. Family owned and operated since 1934, it serves all 50 states and Canada from over 60 locations.

Products & Services

Dewatering Equipment
Pipes
Pumps
Refinery Equipment
Safety Equipment

Main Office

5101 Office Park Dr, Ste 100
Bakersfield, CA 93309 USA
Phone: (800) 742-7246
www.rainforrent.com

RAM Enterprise, Inc

Booth 2507

RAM Enterprise provides specialized industrial services as well as manufacture and distribute products to the bulk material handling industry.

Products & Services

Coatings (does not include Linings and Claddings)
Construction - Contracting Services
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Crushers and Pulverizers
Feeders
Linings and Claddings
Parts - Mining Machinery
Pipes
Underground - Construction and Structures

Main Office

1225 W Main St
Elko, NV 89801 USA
Phone: (775) 738-3997
www.ram-enterprise.com

Ramboll

Booth 2038

A leading engineering, architecture and consultancy company, Ramboll employs more than 16,000 experts worldwide. We leverage local and global expertise to deliver sustainable, comprehensive and integrated solutions for our clients in both the public and private sector.

Our globally recognized Environment & Health practice has earned a reputation for technical and scientific excellence and innovation. We are trusted by clients to manage their most challenging environmental, health and social issues, and continually strive to achieve inspiring and exacting solutions that make a genuine difference to our clients, the environment and society as a whole.

Products & Services

Consulting - Engineering
Consulting - Environmental
Remediation

Main Office

1999 Broadway, Ste 2225
Denver, CO 80202 USA
Phone: (303) 382-5460
www.ramboll.com/environment-and-health

Rapat Corporation

Booth 2145

Rapat offers a full line of material handling equipment, including structural steel trussed, structural steel channel, and enclosed frame belt conveyors, bucket elevators, corrugated sidewall belt conveyors, chain conveyors, and distributors. These individual pieces of equipment can be customized and integrated into a material handling system with all the necessary structural steel support bents, towers, service platforms, stairs, ladders, and interconnecting chute work required for your specific application.

Products & Services

Conveyor Systems

Main Office

919 O'Donnell St
Hawley, MN 56549 USA
Phone: (218) 483-3344
Email: info@rapat.com
www.rapat.com

Rapid Fire Protection Inc

Booth 2826

Rapid Fire Protection Inc. is a full service fire protection and fire alarm company providing pre-construction, design, engineering, construction, management, service and inspection of all types of fire protection systems. In addition to these services Rapid Fire Protection provides specialty fire protection systems including clean agent, water mist, encapsulation technologies, and fire fighting foam solutions. We have offices located



throughout the United States and service Alaska, Hawaii, the Caribbean, Latin America and the North coast of South America.

Products & Services

Alarm Systems
Construction - Contracting Services
Consulting - Design and Planning
Consulting - Engineering
Fire Protection

Main Office

1530 Samco Rd
Rapid City, SD 57702 USA
Phone: (605) 348-2342
Email: sales@rapidfireinc.com
www.rapidfireinc.com

RCT

Booth 1068

RCT is the world's trusted technology partner, offering an array of genuinely interoperable machine solutions to revolutionise the mining and industrial sectors, reducing operational costs and improving bottom-line profit.

Our objective is to advance businesses by integrating our state-of-the-art automation, information and protection systems designed for any machine make or model.

An industry leader since 1972 and with clients in over 70 countries worldwide, RCT are continually evolving – investing heavily in research and development to remain at the forefront of the technologies of the future.

Products & Services

Alarm Systems
Automation
Autonomous Vehicles
Communications Equipment
Computer - Software and Services
Electrical Equipment and Supplies
Fire Protection
Information Technology Products
Safety Equipment
Training Services

Main Office

7174 S, 400 W, Ste 1 Midvale
Salt Lake City, UT 84047 USA
Phone: +61 8 6272 4112
rct-global.com

RDI Technologies

Booth 1569

RDI Technologies is pioneering the camera as the sensor of the future. Our proprietary Motion Amplification® technology enables users to see and measure motion that was previously not visible to the human eye and could only be measured by contact sensors. By providing both simple videos and in depth data, we enable our users to quickly, safely, and accurately solve their toughest problems.

Products & Services

Consulting - Engineering
Exploration Equipment and Services
Laboratory and Scientific Services
Laboratory Equipment and Supplies

Measurement and Monitoring Systems
Sensors

Main Office

10024 Investment Dr
Knoxville, TN 37932 USA
Phone: (239) 691-6980
https://rditechnologies.com/

RDO Integrated Controls

Booth 2936

RDO Integrated Controls is the exclusive dealer for Carlson Machine Control in the United States and industry-leading Wingtra UAS/UAV dealer, master Topcon dealer of GPS, lasers, survey, mobile mapping, GIS and LiDAR equipment, iVolve fleet management, as well as Rajant Wireless MESH.

Products & Services

Aerial Mapping and Surveying
Communications Equipment
Consulting - Engineering
Controls - Electrical and Electronic
Drilling Equipment
Information Technology Products
Maintenance Services
Process Controls and Instruments
Surveying Equipment and Supplies

Main Office

5221 Midland Rd
Billings, MT 59101 USA
Phone: (406) 259-5536
RDOIC.com

RECO Mining Solutions

Booth 1269

RECO is a family owned company that has been in business since 1995. We have an extensive inventory of parts and services that we are able to provide to our customers, and pride ourselves in the high quality of everything that we design, engineer and construct.

Our goal is to help our customers achieve their maximum productivity with minimum cost through the highest quality material and products we provide. With our state of the art technology and engineering equipment, we are able to reverse engineer and redesign products to solve problems in order to fit the needs of our customers.

Products & Services

Construction - Contracting Services
Conveyor Systems
Crushers and Pulverizers
Excavators
Feeders
Hydraulic System Components
Lubricants and Equipment
Maintenance Services
Parts - Mining Machinery
Water Clarification and Treatment

Main Office

4120 N Flowing Wells Rd
Tucson, AZ 85705 USA
Phone: (520) 887-2292
recomining.com

REESCO

Booth 2814

Reesco is a full-service provider of portable crushing services, screening plants, turnkey plants, and custom steel fabrication for mining, construction, and industrial projects.

In addition to designing and building much of the equipment we use in the field ourselves, we're able to manufacture equipment for our customers to meet the custom needs of a project. Our capabilities include equipment such as conveyors, feeders, fuel containers, generators, jetways, observation towers, rotors, screens, tunnels, and more. Whether you're looking to purchase or rent a piece of equipment for your upcoming job, we've got you covered.

Products & Services

Belts - Power Transmission
Bins, Hoppers, Silos and Storage
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Crushers and Pulverizers
Feeders
Maintenance Equipment and Supplies
Mining Contractors
Screens
Washing Plants

Main Office

1045 S Hoystville Rd
Coalville, UT 84017 USA
Phone: (435) 336-5345
www.reescoms.com

Regal Rexnord

Booth 1365

Regal Rexnord's comprehensive gearbox portfolio dependably supports mining operations' uptime and efficiency. Led by Falk V-Class and Rexnord Planetgear, our gearboxes are carefully designed to withstand shock loads in heavy-duty applications and torque loads exceeding one-million inch-pounds.

The Industrial Powertrain is end-to-end electromechanical solution based on level of need. More than just products, it utilizes custom-engineered assets to drive application efficiency, performance, and reliability.

Bundled - Simplify product acquisition with one source for power transmission need; Optimized - Collaborate with industry experts to engineer performance; Intelligent - Combine reliable products and optimized solutions with Perceptiv digital solutions to prevent failures

Products & Services

Belts - Power Transmission
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Couplings - Mechanical, Flexible and Rigid
Drives - Belt, Chain, Fluid and Gear
Electric Motors and Generators
Gears - Pullers, Reducers and Pinions
Measurement and Monitoring Systems
Power Transmission Equipment
Sensors

Main Office

111 W Michigan St
Milwaukee, WI 53203 USA
Phone: (414) 882-0300
www.regalrexnord.com

EXHIBITORS

REI Drilling, Inc

Booth 2633

REI Drilling, Inc. contracts a fleet of drills for various mining and civil applications, on the surface or from underground, including directional drilling for geologic exploration, water drainage or transfer, methane drainage, abandoned mine verification, solution mining, remediation, utilities installation, and gravity drainage of oil.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Dewatering Equipment
Drill Bits - Rock
Drilling Contractors
Drilling Equipment
Exploration Equipment and Services
Remediation
Steel Pipe

Main Office

250 W Berger Ln
Salt Lake City, UT 84107 USA
Phone: (801) 270-2140
www.reidrilling.com

Rema Tip Top

Booth 1301

We help our customers prevent, reduce or repair wear caused by abrasion, corrosion or impact. REMA TIP TOP is the leading manufacturer of rubber adhesives, conveyor belt repair materials, vulcanizing equipment, sheet rubber linings, skirt rubber, chute linings, rubber, ceramic pulley lagging and high quality protective coatings and industrial rubber products for wear and corrosion protection. REMA TIP TOP provides expert factory and field installation of rubber linings, tankage corrosion linings, coating systems (including secondary containment) and wear linings.

Products & Services

Belts - Power Transmission
Coatings (does not include Linings and Claddings)
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Fasteners - Industrial
Linings and Claddings
Maintenance Equipment and Supplies
Maintenance Services

Main Office

300 Tice Blvd, Ste 250
Woodcliff Lake, NJ 07677 USA
Phone: 5035773652
www.rematiptop.com

RESPEC

Booth 1811

Explore. Develop. Operate. Close & Reclaim. RESPEC's integrated solutions mean clients, worldwide, trust us to partner with them and propel their mines forward with innovative, clear vision. RESPEC unites applied sciences with technology to solve any challenge in any market. Metals. Salt. Potash. Aggregates. Storage. Oil & Gas. RESPEC does it all. We study, test, and report.

We plan and permit. We design roads and facilities. We monitor stability, creep, and water quality. We move data to dashboards. With RESPEC, clients get cutting-edge outcomes. RESPEC. Solving the Impossible.

Products & Services

Computer - Software and Services
Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Research
Geological-Physical-Technical Services and Equip
Information Technology Products
Laboratory and Scientific Services
Measurement and Monitoring Systems
Mine Evaluations - Surface and Underground

Main Office

3824 Jet Dr
Rapid City, SD 57703 USA
Phone: (605) 394-6400
www.respec.com

Richard Goettle, Inc

Booth 1024

Main Office

12071 Hamilton Ave
Cincinnati, OH 45231 USA
Phone: (513) 825-8100
www.goettle.com

Richwood

Booth 2838

Richwood designs innovative solutions for the worldwide bulk material handling industry. For over 40 years the busiest mines in the world have put their confidence in our problem solving expertise. Clean conveyors and sealed and protected load zones for site specific solutions mean lowered maintenance costs, safer work areas and more productive operations. Rely on Richwood for dependable conveyor accessories.

Products & Services

Conveyor Systems

Main Office

707 7th St W
Huntington, WV 25704 USA
Phone: (304) 525-5436
www.richwood.com



Rio Tinto

Booth 1137

We're a leading global mining group focusing on finding, mining and processing the Earth's mineral resources.

Finding better ways to provide materials the world needs is at the core of everything we do. For 150 years,

we've been looking for new and innovative ways of doing things.

Today, you'll find our teams around the world doing just that: seeking opportunities to reduce carbon footprint, partnering to develop new technologies to decarbonize steel and aluminum production, and creating new products from waste.

Visit our booth to learn more about what we do, how we do it, and possible career opportunities.

Products & Services

Mine Operators

Main Office

4700 W Daybreak Pkwy
South Jordan, UT 84009 USA
Phone: (801) 204-2000
Email: contactkennecott@riotinto.com
<https://www.riotinto.com/en>



Rite Choice Ducting, LLC

See our ad on p. 105

Booth 2537

Rite Choice Ducting is a US based Manufacturer and global supplier of flexible ducting for temporary climate control. We are recognized in dozens of industries as being the source of reliable industrial flexible ducting solutions. Thanks to our large inventory, meticulous quality control, and customer-centered service, our clients get exactly what they need, when they need it and with the highest quality.

Products & Services

Dust and Fume Control Technology

Main Office

7265 S 1st St
Oak Creek, WI 53154 USA
Phone: (414) 253-5008

rm wilson co

See our ad on p. 106

Booth 2709

R.M. WILSON CO., founded in 1966 by Richard M. Wilson, is a product specialist and partners with many of the leading longwall machinery and equipment manufacturers around the world to offer engineered optimum solutions to the special requirements of the customer. Headquartered in Wheeling, West Virginia and with locations throughout the United States, we not only supply our customers with the equipment they need when they need it, but also provide unparalleled service and product knowledge that sets us apart from other long-wall machinery distributors.

VISIT US AT BOOTH #1152

**And check out our presentation on the
IdeaExchange #1 on Monday, Feb 27 at 12:35pm**



MINEXCHANGE

2023 SME ANNUAL CONFERENCE & EXPO

CMA 125th National Western Mining Conference



SafeAI®



RETROFIT AUTONOMY BUILT FOR MINING

You shouldn't have to overhaul your infrastructure to get the benefits of autonomy.

We don't just retrofit your vehicles. Our after-market technology converts existing fleets — regardless of manufacturer or vehicle type — into autonomously operating assets, while keeping your existing infrastructure, data management, and day-to-day operations exactly the way you want them.

SafeAI is excited to be leading the charge in this new era of autonomous mining.

www.safeai.ai



EXHIBITORS

Products & Services

Longwall Mining Equipment

Main Office

3434 Market St, POB 6274

Wheeling, WV 26003 USA

Phone: (304) 232-5860

www.rmwillson.com

Robit Inc

Booth 2722

Robit is publicly listed growth company servicing global customers with drilling consumables for applications in underground and surface mining, construction, geotechnical and well drilling. The company's offering is divided into three product groups: Top Hammer, Down the Hole and Geotechnical.

Robit products are well known for exceptional value; i.e. high quality at competitive price. Let us create you a test plan to see it yourself!

Products & Services

Couplings - Mechanical, Flexible and Rigid

Drill Bits - Rock

Drilling Equipment

Longwall Mining Equipment

Parts - Mining Machinery

Tunnel Lining and Support Materials

Underground - Construction and Structures

Main Office

1522 Baker Rd

Sherman, TX 75090 USA

Phone: (903) 893-2300

Email: sales@robitgroup.com

www.robitgroup.com

Rock Flow Dynamics

Booth 1065

tNavigator, developed by Rock Flow Dynamics, is a fully integrated software solution that allows all domains through the resource life cycle to work seamlessly together. Our technology offers a comprehensive package for the resource industry by providing advanced 3D geological modelling, geological characterisation and production solutions. With our single solution platform, the user can utilise the full suite of geophysical & geological interpretation tools, where they can explore and make full use of all their data. Construct 3D models and characterise prospects by utilising our advanced geostatistical and machine learning capabilities.

Products & Services

Computer - Software and Services

Geological-Physical-Technical Services and Equip

Main Office

2200 Post Oak Blvd, Ste 1260

Houston, TX 77056 USA

Phone: (403) 998-9299

www.rfdyn.com

RockTech USA, Inc

See our ad on p. 107

Booth 1743

RockTech USA exploration products, formerly Hagby USA, is a supplier of Drillman surface and underground core drills.

We also offer: Inertial Sensing survey tools; Slimgyro, Twingyro, and magnetic survey instruments. Hayden Diamond Products, Alignment instruments for underground and surface equipment, CoreWise high performance automatic core saws, Wax impregnated and plastic Core Boxes, Service, maintenance & spare parts.

Products & Services

Drill Bits - Rock

Drilling Equipment

Exploration Equipment and Services

Parts - Mining Machinery

Surveying Equipment and Supplies

Main Office

4164 W Industrial Loop

Coeur d'Alene, ID 83815 USA

Phone: (208) 765-4231

www.rocktechusa.com

SmithCo
SIDE DUMP TRAILERS



Rocky Mountain Bio Products - A Division of Bowman Construction Supply

Booth 1109

Rocky Mountain Bio Products supplies organic bio-fertilizers, natural soil conditioners and soil amendments. BIOSOL FORTE is an organic fungal and bacterial bio-mass from the penicillin production, with a unique, stable, & long-lasting nutrient for rebuilding all types of soils for revegetation. MENELEE HUMATE is a natural soil conditioner for plant cell and root development. MYCOAPPLY MYCORRHIZAE fungus is the amendment that aids in expanding the plant's root mass 100 to 1000 times larger, helping plants be healthier and handle environmental stress. Our PERMAMATRIX BSA-Hydro is a Biotic Soil Amendment, that's a topsoil/compost, replacement/alternative. Visit: www.WEFIXDIRT.com for product and distributor information.

Products & Services

Reclamation Equipment and Services
Remediation
Sediment & Erosion Control

Main Office

10801 E. 54th Ave
Denver, CO 80239 USA
Phone: (303) 884-2733
www.WEFIXDIRT.COM

Rocvent Inc

Booth 2601

Products & Services

Automation
Consulting - Engineering
Diesel Equipment Lighting Systems
Dust and Fume Control Technology
Electrical Equipment and Supplies
Fans and Blowers
Process Controls and Instruments
Scrubbers
Tunnel Lining and Support Materials
Ventilation Systems, Materials and Equipment

Main Office

3696 Industrial Rd
Chelmsford, ON POM1L0 Canada
Phone: (705) 692-5854
www.rocvent.com

Roxia Inc

Booth 2715

Roxia delivers high-tech dewatering, industrial automation and environmental technologies. Specializing in mining, minerals, metallurgical and industrial industries, our team delivers best performing solutions for each specific need.

We offer our support from Australia, Chile, China, Fin-

land, Germany, Peru, South Africa, Sweden and the United States.

In the mining industry, our main competences are concentrate and tailings dewatering with our pressure filters and ceramic disc filter products. We also service competitor tower press and ceramic filters with high quality parts.

Products & Services

Aerators
Automation
Dewatering Equipment
Filters, Filter Cloth and Accessories
Water Clarification and Treatment

Main Office

3700 O'Donnell St, Ste 200
Baltimore, MD 21224 USA
Phone: (667) 500-2591
Email: sales-us@roxia.com
www.roxia.com

Roxsyle Systems LLC

Booth 2223

Roxsyle Systems is focused on designing and implementing electrical control systems for the mining industry. We are made up of professionals who have spent 22 years in the mining industry.

We have extensive experience with multiple PLC, HMI, and Drive systems and can determine what fits the application. Roxsyle has the expertise to design control systems for many systems including:

Lower Cost, Higher Returns

*Moving more efficiently in the most
challenging environments
for 20 years.*



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800-779-8099 sidedump.com/ce

EXHIBITORS

Mine Hoists, Conveyor Systems, Feeder Systems, Processing Plants, Loadouts, Ventilation Fans, E-Houses, and Power Distribution.

Products & Services

Automation
Consulting - Design and Planning
Consulting - Engineering
Controls - Electrical and Electronic
Electrical Equipment and Supplies
Parts - Mining Machinery

Main Office

11590 Black Forest Rd Ste 20
Colorado Springs, CO 80908 USA
Phone: (844) 476-9795
Email: info@roxstyle.com
Roxstyle.com

RSG Inc

Booth 1516

RSG Inc established in 1992 manufactures air classifiers and fine dry grinding mills. The company maintains a complete pilot plant and particle size laboratory, as well as toll production facilities

Products & Services

Classifiers
Crushers and Pulverizers
Dryers
Dust and Fume Control Technology
Grinding Mills
Separators and Concentrators

Main Office

119 Crews, PO Box 2158
Sylacauga, AL 35150 USA
Phone: (256) 378-3836
www.airclassify.com



RubberSource Inc

Booth 1671

RubberSource Inc. designs and manufactures natural and synthetic protective rubber linings for the protection of capital equipment in mining. With Rubber Technologists, Chemists, state-of-the-art laboratory, in house mixing and calendaring, we are equipped to handle any requirement.

RubberSource has set a new standard of partnering with Rubber Applicators, and Engineering Firms by being involved in the inception and early stages of projects by lending advice, technical experience, and expertise in the form of material recommendations and applicator qualification and training.

Products & Services

Coatings (does not include Linings and Claddings)
Linings and Claddings

Main Office

1-380 Sheldon Dr
Cambridge, ON N1T2C2 Canada
Phone: (519) 620-4440
www.rubbersource.ca

Ruen Drilling, Inc

Booth 1810

Products & Services

Drilling Contractors

Main Office

3441 Todd Ct
Modesto, CA 95350 USA
Phone: (209) 988-4261
www.ruendrilling.com/

Rulmeca Corporation

Booth 1316

Located in Wilmington, NC, Rulmeca Corporation is the designated Motorized Pulley Center of Excellence for Rulmeca Group. Rulmeca Corporation is responsible for sales, assembly and service of Rulmeca Motorized Pulleys for North and South America. Rulmeca Motorized Pulleys were first produced in 1953 to offer conveyor belt operators and designers a compact, hermetically sealed, highly efficient conveyor belt drive. The Rulmeca Motorized Pulley is quick and simple to install and requires almost no maintenance. This conveyor belt drive resists the effects of abrasive dust, water, oil, grease, and many other harmful substances.

Products & Services

Conveyor Systems
Drives - Belt, Chain, Fluid and Gear

Electric Motors and Generators
Gears - Pullers, Reducers and Pinions

Main Office

3200 Corporate Dr, Ste D
Wilmington, NC 28411 USA
Phone: (910) 794-9294
www.rulmecacorp.com

Rulmeca Limited

Booth 1312

Rulmeca is the forefront of technology, design and construction of a vast array of conveyor components. Rulmeca stands alone in its commitment to supply only the most robust conveyor products on the market today. From our engineering and quality control, to our technical sales and field service staff, Rulmeca's dedication to our clients remains as strong today as it did over 60 years ago.

Products & Services

Conveyor Belting - Accessories and Equipment
Conveyor Systems
Drives - Belt, Chain, Fluid and Gear
Parts - Mining Machinery

Main Office

75 Mason St
Wallaceburg, ON N8A 4L7 Canada
Phone: (519) 627-2277
www.rulmeca.ca



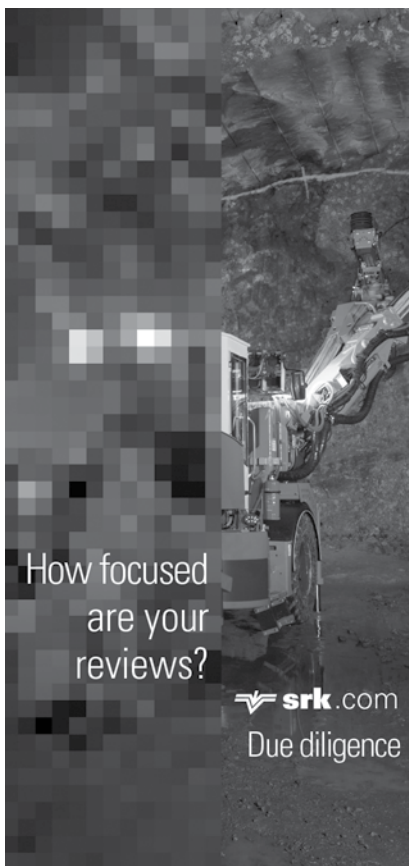
RWI Enhanced Evaporation Services

Booth 2026

RWI designs and manufactures wastewater evaporator systems. We engineer our systems to evaporate all types of impacted water including wastewater, produced water, storm water, and much more. We offer trajectory evaporators and downdraft floating evaporators. Our PittBoss evaporator doesn't require a pump or nozzles making it essentially maintenance free. The RWI 2.0 series evaporators are the most efficient on the market. Leading the industry with the lowest energy consumption available, the 2.0 evaporation series evaporates water much more efficiently and in a more environmentally safe manner than all other higher horsepower evaporators.

Products & Services

Consulting - Engineering
Dewatering Equipment
Dust and Fume Control Technology
Environmental Control Equipment and Supplies
Pollution Control Equipment
Reclamation Equipment and Services
Remediation
Water Clarification and Treatment



Main Office

2245 Colex Dr
Grand Junction, CO 81505 USA
Phone: (970) 245-7104
www.resourcewest.com

SABIA, Inc.**Booth 1680**

SABIA improves quality and process control through elemental PGNA analysis in the cement, coal, power, mining and metal & plastics recycling industries.

Products & Services

Analyzers
Automation

Main Office

10919 Technology Place
San Diego, CA 92127 USA
Phone: (858) 217-2213
www.sabiainc.com

SafeAI®

SafeAI

See our ad on p. 111

Booth 1152

SafeAI delivers next generation autonomous vehicle technology for off-road vehicles by retrofitting mining and construction equipment. SafeAI's solution converts existing fleets, regardless of manufacturer, with a scalable autonomous solution that delivers significant gains in increased worksite productivity, safety and cost savings. This interoperable approach is key to providing easier access and faster deployment of autonomous technology, and in reducing the barriers to entry to a wider swath of market participants.

Products & Services

Autonomous Vehicles

Main Office

5201 Great Americas Pkwy, Ste 332
Santa Clara, CA 95054 USA
Phone: (615) 881-9979
www.safeai.ai

Salem-Republic Rubber Co**Booth 2324****Products & Services**

Dredges
Hoses - Valves and Fittings
Linings and Claddings
Pumps

Main Office

475 W California Ave
Sebring, OH 44672 USA
Phone: (800) 686-4199
www.salem-republic.com

SAM Solutions

See our ad on p. 117

Booth 1837**Products & Services**

Consulting - Environmental
Dust and Fume Control Technology
Sediment & Erosion Control

Main Office

1745 Shea Center Dr, Ste 400
Highlands Ranch, CO 80129 USA
Phone: (720) 361-6420
www.samsolutionsint.com

Samuel Engineering, Inc**Booth 1733**

Samuel Engineering, Inc. (SE) is a full service, multi-discipline engineering, procurement, and construction management company (EPCM). SE's mining team provides solutions anywhere from studies/reports, to engineering, to project management.

Products & Services

Automation
Consulting - Design and Planning
Consulting - Engineering
Consulting - Management
Controls - Electrical and Electronic
Mine Evaluations - Surface and Underground
Quality Improvement

Main Office

8450 E Crescent Pkwy, Ste 200
Greenwood Village, CO 80111 USA
Phone: (303) 714-4840
www.samuelengineering.com

Sandvik**Booth 2521**

Sandvik Mining and Rock Solutions is a business area within the Sandvik Group and a global leading supplier of equipment and tools, parts, service and digital solutions and sustainability-driving technologies for the mining and construction industries. Application areas include rock drilling, rock cutting, loading and hauling, tunneling and quarrying.

Products & Services

Automation
Continuous Mining Machines
Crushers and Pulverizers
Drill Bits - Rock
Drilling Equipment
Screens



Pivot System - Always move forward
Hydraulic Auger Cutterhead
Remote Controlled

50 HP Electric
FLUMP
SME Booth 2716

CRISAFULLI
Sludge Removal Systems

Come to our booth to learn more about the FLUMP, and how Crisafulli's high-powered product line can help solve your dredging needs.

888-817-7011 www.crisafullipumps.com

EXHIBITORS

Trucks and Haulage Units
Underground Excavation Services and Equipment

Main Office

3200 Highlands Pkwy SE, Ste 200
Smyrna, GA 30082 USA
Phone: (470) 271-1000
ROCKTECHNOLOGY.SANDVIK

Satellogic

Booth 1008

Founded in 2010, Satellogic (NASDAQ: SATL) is the first vertically integrated geospatial company, driving real outcomes with planetary-scale insights. Satellogic is creating and continuously enhancing the first scalable, fully automated Earth Observation platform with the ability to remap the entire planet at both high frequency and high resolution, providing accessible and affordable solutions for customers.

With more than a decade of experience in space, Satellogic has proven technology and a strong track record of delivering satellites to orbit and high-resolution data to customers at the right price point. To learn more, visit our website.

Products & Services

Computer - Software and Services
Information Technology Products
Sensors

Main Office

210 Delburg St
Davidson, NC 28036 USA
Phone: (980) 213-0150
<https://satellogic.com/>

Sauls Seismic

Booth 1313

Sauls Seismic has been in the consulting and remote monitoring business for over four decades. Our team has gained a reputation in the industry for professionalism and excellence. As an unbiased third party, we specialize in a broad range of services designed to monitor compliance and optimize performance associated with ensuring environmentally responsible activities in the mining, aggregates, pipeline and construction industries.

Products & Services

Consulting - Environmental
Environmental Control Equipment and Supplies
Measurement and Monitoring Systems
Meters and Gauges

Main Office

2879 Alton Way
Birmingham, AL 35210 USA
Phone: (205) 592-2466
Email: sales@saulsseismic.com
www.saulsseismic.com

Savage Services

Booth 2821

Savage is a global supply chain, material management & logistics company that provides OSBL EPC services related to logistics & material handling assets.

Products & Services

Bins, Hoppers, Silos and Storage
Consulting - Design and Planning
Consulting - Engineering
Consulting - Management
Conveyor Systems
Crushers and Pulverizers
Feeder Breakers
Rail Systems and Supplies
Transportation
Trucks and Haulage Units

Main Office

901 W Legacy Center Wy
Midvale, UT 84047 USA
Phone: (801) 944-6546
www.savageservices.com

Scantech International Pty Ltd

Booth 1407

Scantech International is the leading supplier of high specification analyzers to the global minerals market for real time, representative, elemental and moisture analysis of conveyed flows. GEOSCAN GOLD is the only analyzer that representatively measures gold ore grade in primary crushed ore in plant feed. TBM 200 series moisture analyzers consistently outperform other systems and are used by leading resource companies. Scantech has over 35 years experience in bulk ore sorting where proven measurement precision provides unmatched outcomes. SizeScan, COALSCAN and GEO-SCAN are our main brands. They provide high quality real time data for improved quality management and process control.

Products & Services

Analyzers
Blending Systems
Coal Preparation Plants
Measurement and Monitoring Systems
Process Controls and Instruments
Sampling Devices

Main Office

Unit 14 / 2994 Logan Rd
Underwood 4119 Australia
Phone: +61 400 076 090
Email: sales@scantech.com.au
www.scantech.com.au

Schauenburg Flexadux

Booth 2139

Optimizing Mining, Tunneling & Construction through Engineered Turn-key Solutions.
Schauenburg Flexadux Corp. is dedicated to providing best-in-class design, products, sales and service. Originally a ventilation manufacturer; now also turn-key solutions provider for multitudes of industrial/commercial applications. Over the years, we expanded into a multifaceted manufacturing and distributing company providing flexible lay flat, spiral, K-MAX fiberglass and steel ducting, pumpable crib bags, dust collectors, mine chutes, doors and other custom fabricated equipment for the mining, tunneling and oil industries. With manufacturing locations in Grand Junction, Colorado and Fairmont,

West Virginia, Schauenburg provides custom products quickly throughout the continental USA and beyond.

Products & Services

Ventilation Systems, Materials and Equipment

Main Office

2233 Sanford Dr
Grand Junction, CO 81505 USA
Phone: (314) 560-9353
www.schauenburg-us.com

Schwing Bioset Inc

Booth 2617

Schwing Bioset, Inc., provides Mining Pumps designed for paste, thickened tailings, slimes, & other high solids slurries, pumping applications, as well as paste plant equipment including twin shaft batch mixers & design services. Delivering dependable service day after day in underground and surface operations, Schwing Bioset pumps are known to stand up to the harshest of site conditions, proven by the many years of reliable operation in surface and underground mines around the world. In addition, we offer dewatering screw presses, fluid bed dryers, membrane bioreactors, conveyors, storage, and more.

Products & Services

Backfilling
Bins, Hoppers, Silos and Storage
Conveyor Systems
Dewatering Equipment
Dryers
Feeders
Filters, Filter Cloth and Accessories
Pumps
Thickeners
Tunnel Boring Equipment

Main Office

350 SMC Dr
Somerset, WI 54025 USA
Phone: (715) 247-3433
Email: marketing@schwingbioset.com
www.schwingbioset.com

Seametrics

Booth 1039

Main Office

19026 72nd Ave S
Kent, WA 98032 USA
Phone: (253) 872-0284
Email: info@seametrics.com
seametrics.com

Seeq

Booth 1580

Accelerated Insights, Improved Outcomes.

In the current hype around predictive analytics, machine learning, and data science, what's missing are solutions to the real challenges to an data-driven organization. Tapping the expertise of your current employees. Support for collaboration and knowledge capture to foster sharing and reuse of analytics efforts. And the ability to rapidly distribute insights to the people who need them to quickly improve outcomes.





SAM
SOLUTIONS INC
ENVIRONMENTALLY FRIENDLY

WWW.SAMSOLUTIONSINT.COM



JORGE RODRIGUEZ
CEO

LOCATION

SAM Solutions INC.
1745 Shea Center drive
Suite 400 Highlands
Ranch, CO. 80129
SME Booth # 1837



SAM
ENVIRONMENTAL RESPONSIBILITY

We are an eco-friendly company that offers comprehensive and sustainable solutions for dust, water and soil control in mining, construction, oil, gas and railroad industries

DUST CONTROL

It's not only about having a dust-free roads, it is also about controlling direct cost caused by dust, mainly the health and safety of workers.

ROADS STABILITY

With our products the surface tension of the water decreases, which manages to penetrate the porosity of the road.

WATER MANAGEMENT

SAM Solutions products in combination with water agglomerate the ground material, which results in the reduction of dust and considerable water savings.

With over 60 years of combined experience, industry research and development programs, SAM evaluates and analyzes customer needs to develop a product and process program to achieve the most efficient and cost effective solution.



EXHIBITORS

Seeq addresses all of these issues, and more, for your organization. Seeq enables the complete lifecycle of advanced analytics, from first connecting to data to landing insights in improved business and production results.

Products & Services

Computer - Software and Services

Main Office

113 Cherry St, PMB 78762
Seattle, WA 98104 USA
Phone: (206) 801 9339
Email: info@seeq.com
www.seeq.com

Sefar Inc

Booth 1305

Products & Services

Belts - Power Transmission
Centrifuges
Consulting - Engineering
Filters, Filter Cloth and Accessories

Main Office

111 Calumet St
Depew, NY 14043 USA
Phone: (716) 601-3118
www.sefar.us

SEMCO Publishing

Booth 1821

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Booth 2121

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Booth 2716

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Steinert US

Booth 2048

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Supreme Manufacturing, Inc

Booth 1687

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Underground Excavation Services and Equipment
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Main Office

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Booth 2049

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Deer Park, TX 77536 USA
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Email: info@techstar.com
https://techstar.com

Telemark Energy Services

Booth 2810

Telemark Energy Services provides geophysical field operations, data collection, and support across the full geophysical spectrum.

Products & Services

Exploration Equipment and Services
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TEMA ISENMANN Inc

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Screens
Urethane Cast Parts

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Email: Ayell@temaisenmann.com
www.temaisenmann.com

Terahertz Ventures LLC

Booth 1638

Terahertz Ventures is pioneering a new form of geo exploration that utilizes new discoveries in resonance technology to provide depths of ore bodies and ore grades, hydrocarbons and flow rates for water. Our patent-pending technology is reducing the cost of drilling through passive monitoring and providing precise locations and depths for drilling.

Products & Services

Exploration Equipment and Services

Main Office

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https://terahertzllc.com/

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Booth 1481

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Products & Services

Drill Bits - Rock

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www.terelion.com

TerraSource Global

See our ad on p. 119

Booth 2712

Whether it's mining of gypsum, potash, salt, limestone, coal, or potash, the three flagship brands of TerraSource Global are high-performing and tough. Their rugged design and ability to maximize the necessary product yield is why they are heavily relied upon all over the globe. The Gundlach Crushers, Jeffrey Rader, and Pennsylvania Crusher equipment brands are extensively used in mining, and process a variety of materials, regardless of type, abrasiveness, or grade. We help facilities handle crushing and feeding needs. Major coal companies like Arch Coal, Peabody, Drummond, Consol, and Teck use our equipment.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Crushers and Pulverizers
Feeders
Grinding Mills
Maintenance Services
Parts - Mining Machinery
Reduction Technologies - Iron Ore, Steel, Mineral

Main Office

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www.terrasource.com

Tessenderlo Kerley, Inc. – moleko

Booth 1514

Moleko is a business unit of Tessenderlo Kerley, Inc. and offers customer focused solutions to the global industrial and mining markets, backed by experienced technical service.

Tessenderlo Kerley, headquartered in Phoenix, Arizona, is a leading manufacturer and marketer of specialty Sulfur based derivative chemistry.

Tessenderlo Kerley operates 13 manufacturing facilities in North America, in addition to an extensive supply chain network and is part of Tessenderlo Group.

Products & Services

Reagents - Chemical and Flocculants

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www.moleko.com



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Booth 1632

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Consulting - Engineering
Consulting - Environmental
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Remediation

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www.tetrattech.com/mining

The Koeppern Group

Booth 2328

Specializing in briquetting, compaction, and comminution, the Koeppern Group in the US consists of Kopperrn Equipment and Komarek which are owned by Maschinenfabrik Koeppern GmbH in Germany. With the combined force of these industry pioneers, we offer cutting-edge solutions to the chemical, mineral, metal, agricultural, waste, energy, recycling, cement, and mining industries, from small-scale pilot machines to large-scale production systems. At the forefront of briquetting and compaction for over a century, Komarek and Kopperrn Equipment operate out of Wood Dale, IL, where the main manufacturing and full-scale research and testing labs are located.

Products & Services

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Compactors
Grinding Mills

Main Office

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Wood Dale, IL 60191 USA
Phone: (847) 956-0060
www.koeppern-international.com

The Mineral Lab, Inc

Booth 2135

The Mineral Lab has been providing the domestic and international mining, production and environmental industries with quick, accurate analyses at competitive prices since 1987. We provide chemical, mineralogical and structural analytical data to aid in mineral exploration, process development, product quality control, failure analysis and environmental control.

The lab is staffed by a group of professionals with experience in x-ray spectroscopy (XRF, XRD, SEM), mineralogy, chemistry, and biology.

Products & Services

Laboratory and Scientific Services

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Golden, CO 80401 USA
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Email: tmlco@themineralab.com
www.themineralab.com

The Mining Record

Booth 1806

The Mining Record has been in continuous publication for 134 years and is recognized as the industry's leading newspaper. The Mining Record has an international readership. It focuses on timely and credible news reporting on exploration, discovery, development, production, joint ventures, acquisitions, operating results, legislation, government reports and metals prices. Its readership is concentrated in the mining industry proper - mining companies, engineers, geologists, mine supervisory personnel, company officers and individuals engaged in exploration and large or small mine production. Every year, The Mining Record devotes an issue to the major conventions for the industry.

Products & Services

Publishers

Main Office

PO Box 1630
Castle Rock, CO 80104 USA
Phone: (303) 663-7820
Email: questions@miningrecord.com
www.miningrecord.com

The Okonite Company

Booth 1206

The Okonite Company manufactures Hi-Tensile Verlok cable for United Wire & Cable, which is sold throughout North America in the mining industry.

Products & Services

Electric Wire and Cable

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THIESS Mining USA Inc

Booth 2833

Thiess is a global mining services provider. We work with our clients to deliver mining excellence in Australia, Asia and the Americas. For more than 85 years, we've operated in diverse commodities, geologies, environments and cultures. Our people channel that global experience and insight to create advantages for each project. A mine plan that optimizes operations. A smarter fleet. A sharper operations culture. An upskilled and mobile team. A community engaged and empowered.

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<https://broadbent.co.uk>

Thyssen Mining Group of Companies

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Underground Excavation Services and Equipment
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Main Office

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www.thyssenmining.com

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Email: sales@tewinch.com
www.timberlandequipment.com

Timberline Drilling, Inc

Booth 1842

Products & Services

Drilling Contractors

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www.timberline-drilling.com

TIMINING

Booth 1682

TIMining provides real-time performance monitoring capabilities, including descriptive and predictive spatial analytics, for informed, timely decision-making.

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Main Office

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Email: contact@timining.com
www.timining.com

Titan Environmental USA

Booth 1233

Based out of Houston, Texas, Titan Environmental USA supplies geosynthetics and specialty construction products used in civil, environmental, and geotechnical construction projects across the United States, and abroad. With a focus on geosynthetics fabrication, we operate a 36,000 SF fabrication facility that specializes in custom-order prefabricated geomembrane and geotextile panels for environmental applications and civil projects. We translate our product mix and expertise in reliable and environmentally sound solutions for construction projects in sectors that support essential infrastructure, community, and economic growth.

Products & Services

Construction - Contracting Services

Main Office

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www.titanenviro.com

TLT-Turbo, Inc

Booth 1310

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Products & Services

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Main Office

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TOMRA Sorting

Booth 1938

Sensor-based ore sorting technology for the mineral processing industry. A more efficient way to process global resources. TOMRA Sorting Mining provides proven sensor-based sorting technology for efficient material separation in various mineral and ore applications such as in the pro-

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Products & Services

Sensors
Separators and Concentrators

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TopVu

Booth 2935

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Toray Membrane USA

Booth 1235

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Townley Engineering & Manufacturing, Co. Inc

Booth 2900

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Tracerco

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Process Controls and Instruments

Main Office

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www.tracerco.com

Tsurumi Pump

Booth 2421

Tsurumi Pump is a submersible pump manufacturer that supplies pumps worldwide for underground and open pit mine operations. Tsurumi pumps are capable of handling flows from 50 to 5000 gpm @ heads up to 750 feet. Parts are made of wear resistant materials capable of handling entrained solids commonly found in run of mine dewatering applications. Pump features such as dual inside mechanical seals (which do not require cooling from or come in contact with the abrasive liquid being pumped) is just one of the reasons Tsurumi Pump has become the pump of choice in mines throughout the world.

Products & Services

Pumps

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www.tsurumipump.com

Tunnel Radio of America, Inc

Booth 1364

Products & Services

Communications Equipment
Safety Equipment

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www.tunnelradio.com

Turner Mining Group

Booth 1042

Turner Mining Group is a full-service provider to the mining sector with operations throughout the United States. A people company performing mining services, Turner finds success with turnkey solutions for enterprise clients and a values-based culture. The company supplies innovative fleet solutions, continuous engineering services, and sustainable mining practices through final reclamation. Headquartered in Utah and Indiana, Turner Mining Group is a true mining partner.

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Twiflex

Booth 1423

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Phone: (940) 723-3483
Email: twiflex.info@twiflex.com
www.twiflex.com

U.S. Geological Survey (USGS), Mineral Resources Program (MRP)

Booth 1236

Products & Services

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Government Agency - Entity
Information Technology Products



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<https://www.usgs.gov/energy-and-minerals/mineral-resources-program>

UCL Swift Americas**Booth 2906**

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Main Office

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Products & Services

Sensors

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Ultra Tech Pipe**Booth 2635**

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Pipes
Steel Pipe
Valves

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www.ultratechpipe.com

United Central Industrial Supply**Booth 1933****Products & Services**

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Mine Evaluations - Surface and Underground

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Phone: (602) 525-9874

University of Arizona Mining and Geological Engineering

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Booth 2305

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University of Kentucky Department of Mining Engineering

Booth 1347

Products & Services

Educational

Main Office

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University of Utah, Mining Engineering Department

Booth 1239

Products & Services

Educational

Main Office

135 S 1460 E, #313
Salt Lake City, UT 84112 USA
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www.mining.utah.edu

Unmanned Aerial Services Inc

Booth 1265

Unmanned Aerial Services Inc. is an underground mining focused remote vehicle, LiDAR mapping and visual inspection service company with a proven track record of safe, efficient onsite work and quality data deliverables.

Our team consists of highly skilled geospatial data specialists, drone pilots and field technicians, with strong mine site backgrounds and extensive knowledge of the mobile scanner and drone industry

We are pleased to have Flyability join us at our booth. Flyability makes safe drones for inaccessible places. They just launched the Elios 3, a LiDAR-equipped collision tolerant drone: <http://flyability.com/elios-3>

Products & Services

Aerial Mapping and Surveying
Measurement and Monitoring Systems
Sensors

Main Office

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Butte, MT 59701 USA
Phone: (406) 299-0414
Email: info@uasmining.com
<https://www.uasmining.com>

US Department of Labor/MSHA

Booth 2422

The U.S. Department of Labor's Mine Safety and Health Administration (MSHA) works to prevent death, illness, and injury from mining and promote safe and healthful workplaces for U.S. miners. The agency develops and enforces safety and health rules for all U.S. mines regardless of size, number of employees, commodity mined, or method of extraction. MSHA also provides technical, educational and other types of assistance to mine operators. We work cooperatively with industry, labor, and other federal and state agencies to improve safety and health conditions for all miners in the United States.

Products & Services

Government Agency - Entity

Main Office

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www.msha.gov

Vaisala Inc.

Booth 2550

Products & Services

Emissions Control
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Main Office

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www.vaisala.com

Valley Forge & Bolt Mfg Co

Booth 2306

VF is a domestic manufacturer of fasteners supplying the mining industry for the last 45+ years with innovative products that save installation time, downtime, and help achieve near perfect loading on a customer's fasteners in any application. Our line of mill fasteners include the Ridgeback®, Sealing Ridgeback®, and regular liner bolts. Our line of Load Indicating fasteners will let you track bolt load data visually with our Maxbolt®, electronically with our SPC4® fasteners or wirelessly with our 700 series of probes using Wi-Fi or Radio Frequency to transmit bolt load data while in service.

Products & Services

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Meters and Gauges
Parts - Mining Machinery

Main Office

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Phone: (602) 269-5748
Email: Sales@VFBolts.com
www.vfbolts.com

Valmet Flow Control

Booth 2006

The merger of Neles and Valmet was completed on April 1, 2022 and going forward, Flowrox brand will continue as the Flow Control Business Line within Valmet.

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Environmental Control Equipment and Supplies
Pumps
Transportation
Valves
Water Clarification and Treatment

Main Office

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Linthicum, MD 21090 USA
Phone: (410) 636-2250
www.valmet.com

Van Gorp Corporation

Booth 1556

Products & Services

Conveyor Systems
Feeders
Parts - Mining Machinery

Main Office

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VDG (Van der Graaf)

Booth 2311

VDG designs and manufactures drum motors for belt conveyors with a strong focus on addressing safety, reliability, and longevity. With over 35 years of experience, continuous R&D investments, and in-house manufacturing in USA using cutting-edge production technology and automation, VDG ensures product quality, fast delivery, and after sales support. The GrizzlyDrive® Drum Motor is a robust and reliable belt drive solution for heavy industry conveyor applications operating in demanding, dusty, and abrasive environments. The all-enclosed design and robust construction of the GrizzlyDrive® reduces cost of ownership, and provides belt conveyors with reliability, longevity, and performance in the harshest of conditions.

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Conveyor Belting - Accessories and Equipment
Conveyor Systems
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Main Office

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**VEGA Americas, Inc**

See our ad on p. 123

Booth 1032

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Process Controls and Instruments

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Cincinnati, OH 45306 USA
Phone: (513) 515-6465
www.vega.com

Veolia Water Technologies**Booth 1611**

Veolia Water Technologies partners with exploration, engineering, and mining companies to solve even the most difficult mine water challenges. We provide a full range of mine water treatment services including preliminary and detailed engineering, standard and custom water treatment equipment, maintenance support and mobile water treatment options. We understand the unique requirements of mining operations and our worldwide expertise in mine water issues allows us to offer specialized water treatment solutions that treat water and efficiently remove a wide range of contaminants in order to help comply with discharge requirements and stringent regulations.

Products & Services

Filters, Filter Cloth and Accessories
Ion Exchange Equipment and Resins
Remediation
Water Clarification and Treatment

Main Office

4001 Weston Pkwy
Cary, NC 27513 USA
Phone: (919) 653-4544
www.veoliawatertech.com

**Vermeer Corp****Booth 1513**

Vermeer Corporation delivers a real impact on the way important work gets done through the design, manufacture and support of high-quality industrial and agricultural equipment that helps connect people to the necessities of life, manage natural resources and fuel communities. With a reputation for being built tough and built a better way, that equipment is backed by localized customer service and support provided by independent dealers around the world. To learn about Vermeer Corporation, products, the dealer network, financing options and careers, visit vermeer.com.

Products & Services

Dewatering Equipment
Diesel Mining Equipment Manufacturers
Drilling Equipment
Environmental Control Equipment and Supplies

Main Office

1210 Vermeer Rd
Pella, IA 50219 USA
Phone: (641) 621-7541
www.vermeer.com

Victaulic**Booth 2320****Products & Services**

Backfilling
Coal Preparation Plants
Couplings - Mechanical, Flexible and Rigid
Dewatering Equipment
Fire Protection
Pipes
Valves

Main Office

4901 Kesslersville Rd
Easton, PA 18040 USA
Phone: (610) 559-3300
www.victaulic.com

**Virginia Tech Department of Mining & Minerals Engineering**

See our ad on p. 130

Booth 1348

The Virginia Tech Department of Mining and Minerals Engineering is one of the largest minerals and energy related programs in North America, with a strong international reputation for its academic (undergraduate and graduate), research, and public service programs. Housed within a nationally ranked College of Engineering at Virginia's public land-grant research university, the department engages in broad research efforts, to include sustainable mineral and energy resource development, occupational health and safety, optimized

separation processes, and coalbed methane recovery. It is home to two research centers: the Virginia Center for Coal and Energy Research and the Center for Advanced Separation Technologies.

Products & Services

Consulting - Research
Educational

Main Office

118A Surge Bldg, 400 Stanger St
Blacksburg, VA 24061 USA
Phone: (540) 231-6671
www.mining.vt.edu

Virta Inc**Booth 2451**

Virta designs and supplies capital efficient, innovative and complete systems for bulk material handling, including overland conveyors, plant conveyors, feeders, stockpile and reclaim systems and complete integrated projects. Our design and execution expertise runs deep in mining, minerals processing, bulk handling terminals, power plants and chemical facilities. We offer our expertise worldwide with strategically located supply chain.

Products & Services

Bins, Hoppers, Silos and Storage
Consulting - Design and Planning
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Feeders

Main Office

5909 Sea Lion Pl, Ste B
Carlsbad, CA 92010 USA
Phone: (949) 349-7070
Email: info@virtainc.com
www.virtainc.com

Vision X USA**Booth 1261**

Established in 1997, Vision X Lighting's products have consistently astounded customers with their lighting's ability to perform in harsh environments and unbeatable light output. The engineering, product development, and marketing are conducted from the Vision X USA office, while Vision X Asia is home to the manufacturing, testing, and inventory logistics departments of Vision X Global Lighting. Today, Vision X Lighting has strong partnerships spanning across the globe where they continue to develop the most advanced lighting products in the world.

Products & Services

Lighting Systems and Lamps
Safety Equipment

Main Office

1601 Boundary Blvd
Auburn, WA 98001 USA
Phone: (888) 489-9820
Email: info@visionxusa.com
www.visionxusa.com

EXHIBITORS

Voith Group

Booth 2211

With over 150 years of experience, Voith has the solution for your drive problems. Whether it be our new-est-Belt Genius, Elin Motors, Hese pullies or the conventional products you've known for years. Voith will display a working model of a Turbo coupling, which is a mechanical soft start device for belt conveyors, crushers, centrifuges as well as AFC drives. We will also exhibit our Safeset torque limiting coupling used on crushers and AFC's for overload protection. Come see and download our newest mobile app Turbo-Guide. It will simplify your filling and technical questions for turbo couplings.

Products & Services

Clutches - Fluid, Friction and Magnetic
Consulting - Engineering
Conveyor Systems
Couplings - Mechanical, Flexible and Rigid
Drives - Belt, Chain, Fluid and Gear
Drives - Magnetic and Variable
Electric Motors and Generators
Longwall Mining Equipment
Power Transmission Equipment

Main Office

25 Winship Rd
York, PA 17406 USA
Phone: (717) 767-3200
<https://voith.com/corp-en/industry-solutions.html>

WAAIME

Booth 1446

For over 100 years, WAAIME volunteers have been rendering service to the USA and the World itself, by focusing on the professions of Mining, Metallurgical, Petroleum Engineering and related Earth Sciences, and maintaining a scholarship fund to assist young men and women obtain a technical college education in these fields, as well as promoting the interchange of ideas/work among our members. WAAIME proudly has spent millions throughout the years assisting students, and is a division of SME with 13 Sections throughout the USA, Peru, Mexico, and Chile.

Products & Services

Educational

Main Office

12999 E Adam Aircraft Cir
Englewood, CO 80112 USA
Phone: (303) 948-4211
www.waaime.org

Watson-Marlow Fluid Technology Group

Booth 2734

Processing equipment in the mining industry
Modern mining operations and processing plants must be sustainable to meet stringent environmental regulations. Metallic oxide, sulphide and carbon-based ore extraction, along with tailings reprocessing, demand pump and hose technologies that withstand heavy-duty applications.

Our peristaltic pumps can be installed in remote environments for abrasive slurry transfer without fresh-water sources for seal or gland flushing. At chemical metering stations, our pumps can be employed without pressure or flow control ancillaries, bunding or screening equipment normally required to achieve safe, accurate results.

Products & Services

Pumps

Main Office

37 Upton Technology Park
Wilmington, MA 01887 USA
Phone: (978) 804-6955
www.wmftg.com

WEG Electric Corp

Booth 1427

Founded in 1961, WEG has grown into a global solutions provider of industrial electrical technologies. WEG is the largest industrial electric motor manufacturer in the Americas and one of the largest manufacturers of electric motors in the world producing more than 10 million units annually. Committed to growth on a global scale, WEG continually invests in state-of-the-art manufacturing facilities and processes, and the development of new and improved industrial electrical solutions. WEG offers a diverse and integrated product line that includes motors, drives, controls, transformers, and generators. WEG has committed to an R&D investment of 3% of annual global sales.

Products & Services

Automation
Controls - Electrical and Electronic
Drives - Magnetic and Variable
Electric Motors and Generators
Gears - Pullers, Reducers and Pinions

Main Office

6655 Sugarloaf Pkwy
Duluth, GA 30097 USA
Phone: (678) 249-2000
www.weg.net/us

WEIR Motion Metrics

Booth 1843

Weir Motion Metrics is the WEIR ESCO Canadian based AI centre of excellence. Our artificial intelligence and computer vision expertise inspire a new generation of safe, smart, and sustainable mining.
Weir Motion Metrics has been creating and deploying innovative technology for data-driven and responsible extraction of resources since 1999. Our mine-to-mill optimization technology analyzes particle size data on shovels, haul trucks and conveyor belts without interrupting productivity.
Our monitoring systems for shovels, loaders, and haul trucks also improve worker safety and equipment productivity. We offer missing tooth detection, tooth wear monitoring, particle size analysis, volume monitoring, and boulder detection.

Products & Services

Computer - Software and Services
Conveyor Belting - Accessories and Equipment
Excavators

Information Technology Products
Loaders
Measurement and Monitoring Systems
Safety Equipment
Sensors

Main Office

101-2389 Health Sciences Mall
Vancouver, BC V6T 1Z3 Canada
Phone: (604) 822-5842
Email: Sales@motionmetrics.com
www.motionmetrics.com

Wenco International Mining Systems

Booth 1134

For over 30 years, Wenco International Mining Systems has partnered with mining companies to extract unrealized value from their sites and equipment. With this focus, Wenco has developed an integrated suite of solutions to support the digital transformation of the mining industry. Proven fleet management, machine guidance, safety solutions, and asset health technologies join industry-leading open autonomy and machine learning to raise mine productivity, and lower costs, to establish a safe and effective mining operation. Wenco is a wholly owned subsidiary of Hitachi Construction Machinery headquartered in Vancouver, Canada.

Products & Services

Automation
Autonomous Vehicles
Computer - Hardware and Services
Computer - Software and Services
Safety Equipment
Trucks and Haulage Units

Main Office

100-13777 Commerce Pkwy
Richmond, BC V6V 2X3 Canada
Phone: (604) 270-8277
Email: info@wecomine.com
www.wecomine.com

West River Conveyors & Machinery Co

See our ad on p. 131

Booth 1456

West River Conveyors manufactures underground and overland conveyor systems including conveyors, tail sections, take up units, belt storage units, winches, discharge/transfer stations, chutes, starters, power packs and their own line of both underground and above ground conveyor structure. In addition to new conveyors, West River also sells conveyor belt, conveyor components and new and used conveyor parts. West River has surplus new inventory that can be used in many ways to suit your budgetary needs from parts to complete conveyors.

Products & Services

Belts - Power Transmission
Conveyor Belting - Accessories and Equipment
Conveyor Systems
Drives - Belt, Chain, Fluid and Gear
Gears - Pullers, Reducers and Pinions
Parts - Mining Machinery



Main Office

8936 Dismal River Rd
Oakwood, VA 24631 USA
Phone: (276) 991-4450
Email: westriver@westriverconveyors.com
www.westriverconveyors.com

West Virginia Univ Dept of Mining Engineering

Booth 1442

Products & Services

Educational

Main Office

1374 Evansdale Dr, 365 Mineral Resources Bldg
Morgantown, WV 26506 USA
Phone: (304) 293-7680



MINING EXTENSION

West Virginia University - Mining Extension

Booth 1249

Products & Services

Educational

Main Office

PO Box 6070, Mineral Resources Bldg
Morgantown, WV 26506 USA
Phone: (304) 293-9810
mindest.statler.wvu.edu

WesTech Engineering, LLC

Booth 1411

Committed to meeting the global need for clean water through technology treatment solutions since 1973, WesTech Engineering provides industry expertise in equipment and process design for treating mine and minerals processing waters. Our tailored liquid/solids separation, water-treatment, sedimentation, filtration, and thickening solutions meet customers' needs, providing seamless integration and saving operational costs and time. We specialize in retrofits, replacements, and upgrades of all equipment. Our newest innovations include the patented MudMax™ bed-level monitoring system and the revolutionary EvenFlo® feedwell.

We stand behind our equipment, ensuring quick, reliable, and continued support. With over 500 employees, we are ISO 9001 certified.

Products & Services

Coal Preparation Plants
Dewatering Equipment
Filters, Filter Cloth and Accessories
Gravity Separators
Liquid Level Indicators and Switches
Pollution Control Equipment
Screens
Separators and Concentrators
Thickeners
Water Clarification and Treatment

Main Office

3665 S W Temple
Salt Lake City, UT 84115 USA
Phone: (801) 265-1000
Email: info@westech-inc.com
www.westech-inc.com

Western Environmental Testing Lab (WETLAB)

Booth 1428

Products & Services

Laboratory and Scientific Services

Main Office

475 E Greg St, Ste 119
Sparks, NV 89431 USA
Phone: (775) 355-0202
www.wetlaboratory.com

WestLand Engineering and Environmental Services

Booth 1107

WestLand was established in 1997 to provide an innovative and collaborative approach to engineering and environmental consulting services. Our work is based on sound scientific and engineering principals that are characterized by integrity and quality. Our multi-disciplinary teams are experts in biology, cultural resources, water and waste-water engineering, and landscape architecture. Westland works with federal, state, county, municipal, and tribal regulatory partners to monitor and ensure compliance with the Clean Water Act, Endangered Species Act, National Environmental Policy Act, National Historic Preservation Act, and related regulations and statutes.

Products & Services

Consulting - Engineering
Consulting - Environmental

Main Office

4001 E Paradise Falls Dr
Tucson, AZ 85712 USA
Phone: (520) 206-9585
WestLandResources.com

Westpro Machinery Inc

Booth 2322

Westpro Machinery Inc. is an innovative Canadian company with an experienced engineering team that designs and manufactures mineral processing equipment. We have a global presence and over 35 years of experience in the mining industry with worldwide manufacturing capabilities and equipment installations in over 25 countries.

Products & Services

Bins, Hoppers, Silos and Storage
Crushers and Pulverizers
Dryers
Flotation Machines and Equipment
Grinding Mills
Reagents - Chemical and Flocculants
Scrubbers
Separators and Concentrators
Thickeners
Washing Plants

Main Office

910 - 1111 W Hastings St
Vancouver, BC V6E 2J3 Canada
Phone: (250) 549-6710
www.westpromachinery.com

Wichita Clutch

Booth 1522

Wichita Clutch & Industrial Clutch are leading global designers and manufacturers of heavy-duty clutches and brakes that are essential components in industrial process equipment, including mine operations. A full range of solutions are offered, including hydraulic clutches and brakes, air clutches, air brakes, water-cooled clutches and brakes, and fluid couplings. These products are utilized extensively around the world by major mining OEMs and operators. Wichita Clutch provides solutions for starting large equipment such as SAG or ball mills, while Industrial Clutch manufacturers braking packages for shovels and dragline applications.

Products & Services

Belts - Power Transmission
Clutches - Fluid, Friction and Magnetic
Conveyor Belting - Accessories and Equipment
Fans and Blowers
Power Transmission Equipment

Main Office

2800 Fisher Rd
Wichita Falls, TX 76302 USA
Phone: (800) 964-3262
Email: wichita.info@wichitaclutch.com
www.wichitaclutch.com

Williams Form Engineering Corp

Booth 2234

Williams Form Engineering Corporation has been providing threaded steel bars and accessories for rock, soil and concrete anchors, post-tensioning systems, and concrete forming hardware systems in the construction industry for over 100 years. Our rock and soil anchor product line includes our Spin-Lock mechanical rock anchors, polyester resin anchors,

EXHIBITORS

multiple corrosion protection anchors, soil nails, strand anchors, Manta Ray soil anchors, Geo-Drill Hollow-Bar anchors, and micropiles. For concrete anchoring we offer Spin-Lock anchors, undercut anchors, reusable anchors and cast-in-place anchors. We also have a full line of All-Thread Rebar for tiebacks, micropiles and post-tensioning.

Products & Services

Concrete Reinforcement and Equipment
Couplings - Mechanical, Flexible and Rigid
Drill Bits - Rock
Fasteners - Industrial
Roof - Ground Supports

Main Office

251 Rooney Rd
Golden, CO 80401 USA
Phone: (303) 216-9300
Email: williams@williamsform.com
www.williamsform.com

Willowstick Technologies LLC

Booth 1002

Willowstick specializes in the identification and characterization of groundwater flow paths and patterns in three dimensions. We provide quick and noninvasive geophysics techniques that identify the exact location and depth of groundwater flow paths. Mining clients have used our geophysics techniques for mapping and modeling preferential groundwater flow paths at tailings impoundments, pits, dams, waste rock dumps, etc. In 18 years, the Willowstick method has been successful in over 500 projects around the world.

Products & Services

Consulting - Engineering

Main Office

P.O. Box 754
Spanish Fork, UT 84660 USA
Phone: (801) 984-9850
www.willowstick.com

WINFAB

Booth 1043

WINFAB® is a premier manufacturer in the USA of geotextile fabrics specifically designed for civil engineering and environmental applications. As one of the top fabric manufacturers in the USA, our product lines of silt fence fabric, geotextile fabric, polypropylene fabric, nonwoven fabric and fabric stabilizers exceed the industry standards for separation, filtration, erosion control and reinforcement applications in construction, agricultural and engineering environments.

Products & Services

Sediment & Erosion Control

Main Office

6857 HWY 135
Nashville, GA 31639 USA
Phone: (229) 237-0512
www.winfab.com

Wingfield Scale & Measure

Booth 1115

Wingfield Scale & Measure specializes in inventory and measurement services. Consisting of four departments we develop, track, maintain, and optimize your site. Scale— Custom design, maintenance/repair, sales, and certification of laboratory scales, belt scales, haul truck scales, including rail scales. Rental— Wingfield has the largest rental scale fleets. Measure— Specializing in LiDAR & UAV stockpile inventories, underground, and quarry work, Wingfield uses the latest technology to safely map and inventory mines. Wingscan— Real time LiDAR measurements for conveyor haul trucks and rail. Systems are installed at site and help manage inventories and bring true insight to production and stripping operations.

Products & Services

Aerial Mapping and Surveying
Automation
Computer - Hardware and Services
Computer - Software and Services
Consulting - Engineering
Conveyor Belting - Accessories and Equipment
Measurement and Monitoring Systems
Rail Systems and Supplies
Scales
Surveying Equipment and Supplies

Main Office

2205 S Holtzclaw Ave
Chattanooga, TN 37404 USA
Phone: (423) 698-0100
www.wingfieldscale.com



Wingtra AG

Booth 1136

Headquartered in Switzerland, Wingtra is the world's leading VTOL drone producer for mapping, survey and mining industry professionals. Since its market entry in early 2017, Wingtra has partnered with more than 70 of the biggest equipment dealers and has been selling mapping drones globally ever since.

The WingtraOne drone is rooted in years of robotics research at the Autonomous Systems Lab (ETH Zurich) — one of the world's best drone laboratories. Several of Wingtra's employees have based their doctoral and master projects on VTOL technology and now pursue research and development at Wingtra.

Products & Services

Aerial Mapping and Surveying
Autonomous Vehicles
Surveying Equipment and Supplies

Main Office

Giesshübelstrasse 40
Zurich 8045 Switzerland
Email: sales@wingtra.com
www.wingtra.com

W WIRTGEN GROUP

Wirtgen America

See our ad on p. 129

Booth 1420

The Wirtgen Group is a group of companies active in the global construction machinery industry that encompasses the products brands WIRTGEN, VÖGELE, HAMM, KLEEMANN, and BENNINGHOVEN, each with their own unique history. As the technology leader, we offer our customers machines for road construction and rehabilitation, systems for mining and processing recycled materials, and for asphalt production.

Products & Services

Continuous Mining Machines

Main Office

6030 Dana Wy
Antioch, TN 37013 USA
Phone: (615) 501-0600
www.wirtgenamerica.com

Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc

Booth 1404

Wolf Point Engineers & Contractors is an EPC firm specializing in the design, supply and installation of bulk material handling facilities for a wide variety of industries. NAFCO is a leading structural steel & platework fabricator with over 350,000 square feet of shop space. WPE is a division of NAFCO.

Products & Services

Bins, Hoppers, Silos and Storage
Blending Systems
Coal Preparation Plants
Construction - Contracting Services
Consulting - Design and Planning
Consulting - Engineering
Conveyor Systems

Main Office

One N LaSalle St, Ste 4000
Chicago, IL 60602 USA
Phone: (312) 508-5543
www.wolfpointengineers.com

Women's Mining Coalition

Booth 1605

Since 1993, the Womens Mining Coalition (WMC) has advocated for today's modern domestic mining industry which is essential to our Nation. WMC communicates that US jobs depend on mining, and that today's industry uses effective environmental and safety protection. We are an organization with nationwide representation, with members working as scientists, engineers, miners, and administrators. WMC members work in all sectors, including industrial minerals, metals, and coal mining; energy generation and distribution; manufacturing and transportation; and in the service industries.

Products & Services

Educational
Professional Society or Association

Main Office

PO Box 10101
Reno, NV 89510 USA
Phone: (307) 281-0148
Email: wearewmc@wmc-usa.org
www.wmc-usa.org

Wood**Booth 1538**

For over 60 years, we have been trusted to deliver some of the world's most logistically and technically challenging projects. We add value from concept through closure across a diverse range of commodities with capabilities that support mines of the future.

Products & Services

Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management
Laboratory and Scientific Services
Mine Evaluations - Surface and Underground
Remediation
Training Services
Transportation
Water Clarification and Treatment

Main Office

111 Dunsmuir St
Vancouver, BC V6B 5W3 Canada
Phone: (604) 664-4778
<https://www.woodplc.com/solutions/key-markets/energy/mining>

Woodgrove Technologies**Booth 2539**

Woodgrove Technologies is the world leader in Flotation Technology and Advanced Process Control. The Direct Flotation Reactor is a paradigm shift and has taken flotation technology to a new level with an order of magnitude savings for clients on installation and operation and our Progressive Control solution will result in a significantly more stable and efficient circuit.

Products & Services

Analyzers
Automation
Flotation Machines and Equipment
Process Controls and Instruments

Main Office

3737 Chesswood Dr
Toronto, ON M3J 2P6 Canada
Phone: (416) 751-4848
www.woodgrovetech.com

Worldsensing**Booth 1138**

The solution by IoT pioneer Worldsensing is used in more than 130 mines across 20+ countries to acquire real-time data from geotechnical, geospatial and structural sensors as well as to perform remote device, data and network management.

Mining operators can now connect their instrumentation and monitoring equipment and wirelessly monitor risk points across underground operations, tailings dams and excavations through IoT remote monitoring.

Products & Services

Measurement and Monitoring Systems
Sensors

Main Office

1900 Avenue of the Stars, Ste 2430
Los Angeles, CA 90067 USA
Phone: (323) 395-5120
Email: connect@worldsensing.com
www.worldsensing.com

**WSP**

See our ad on p. 62

Booth 2021

WSP is one of the world's leading engineering, environmental and professional services firm. With over 3,000 people focused on the mining industry, our experts in Mine Water, Mine Waste, Environment, Mine Infrastructure, Mineral Processing and Mine Engineering & Stability, and Geology have a long history of delivering excellence to our clients across North America and the world. Our global team partners with clients to help them tackle their toughest challenges, meeting the needs of today and preparing for a sustainable and resilient future.

Products & Services

Backfilling
Consulting - Design and Planning
Consulting - Engineering
Consulting - Environmental
Consulting - Management
Grouting Services, Equipment and Materials
Laboratory and Scientific Services
Mine Evaluations - Surface and Underground
Remediation
Transportation

Main Office

7245 W Alaska Dr, Ste 200
Lakewood, CO 80226 USA
Phone: (303) 980-0540
<https://www.wsp.com/en-gl/sectors/mining>

x-Glo North America Inc**Booth 1351**

x-Glo North America Inc, distributor of industrial grade LED lighting solutions and is committed to developing and supplying high quality x-Glo LED lighting products and systems that are purpose built for mining, tunneling, oil & gas and other industrial applications.

Products & Services

Alarm Systems
Communications Equipment
Controls - Electrical and Electronic
Lighting Systems and Lamps
Safety Equipment

Main Office

15 Rita St
Markstay, ON P0M 2G0 Canada
Phone: (705) 698-0441
Email: sales@x-glo-na.com
www.x-glo-na.com

Xylem Inc**Booth 1566****Products & Services**

Consulting - Engineering
Controls - Electrical and Electronic
Measurement and Monitoring Systems
Pumps
Water Clarification and Treatment

Main Office

84 Floodgate Rd
Bridgeport, NJ 08014 USA
Phone: (469) 416-0347
www.xylem.com

Zitron USA, LLC**Booth 2334****Products & Services**

Ventilation Systems, Materials and Equipment

Main Office

4986 John F Nash Blvd
Bluefield, WV 24701 USA
Phone: (304) 222-4178
Zitron.com



PRODUCTS & SERVICES

Aerators

EcoMister Evaporator – Booth 2402
Hayward Gordon ULC – Booth 1536
Industrial info Resources – Booth 2905
Kurita America Inc – Booth 1371
Roxia Inc – Booth 2715
Valmet Flow Control – Booth 2006

Aerial Mapping and Surveying

Call & Nicholas Inc - Call & Nicholas Instruments – Booth 1410
Carlson Software – Booth 2413
Datamine North America Inc – Booth 2220
Emesent – Booth 2134
Esri – Booth 1142
Exyn Technologies – Booth 1205
Frontier Precision Geospatial/Unmanned – Booth 1110
Hexagon's Mining division – Booth 2001
Maptek – Booth 1501
Montrose Environmental – Booth 2249
PhotoSat – Booth 1349
Propeller Aero – Booth 1735
RDO Integrated Controls – Booth 2936
Strayos – Booth 1004
Unmanned Aerial Services Inc – Booth 1265
Wingfield Scale & Measure – Booth 1115
Wingtra AG – Booth 1136

Agitators, Vibrators and Mixers

Eirich Machines, Inc – Booth 2404
Fluid Systems, Inc – Booth 1251
Hayward Gordon ULC – Booth 1536
Joest Inc – Booth 1350
Mixtec North America – Booth 1432
MOGAS Industries, Inc – Booth 2737

Air Compressors

All Weather Air – Booth 2828

Alarm Systems

Honeywell – Booth 2037
Industrial Scientific – Booth 1144
IoT Automation – Booth 2542
PROVIX – Booth 1353
Rapid Fire Protection Inc – Booth 2826
RCT – Booth 1068
Tracerco – Booth 2901
x-Glo North America Inc – Booth 1351

Analyzers

CANTY – Booth 1521
Emerson – Booth 1633
Fluid Life – Booth 2246
Honeywell – Booth 2037
Industrial Scientific – Booth 1144
Maintenance Technology Systems, LLC (MTS) – Booth 2902
Malvern Panalytical – Booth 1502
SABIA, Inc. – Booth 1680
Scantech International Pty Ltd – Booth 1407
Sympatec – Booth 2439
TechStar – Booth 2049
Thermo Fisher Scientific – Booth 1003
Woodgrove Technologies – Booth 2539

Assay Equipment

BICO Inc – Booth 2427
CoreLift – Booth 2248
Sunset Manufacturing – Booth 2637
Thermo Fisher Scientific – Booth 1003

Automation

Ackcio – Booth 2939
ANDRITZ – Booth 1412
Apollo Valves – Booth 2738
Arsenal Tire Performance Tech – Booth 1259
ASI Mining – Booth 1358
Caterpillar – Booth 2701
Control Station, Inc – Booth 1148
CPM Roskamp Champion – Booth 1000
EcoMister Evaporator – Booth 2402
Emerson – Booth 1633

Emesent – Booth 2134
Epiroc – Booth 1921
Force Control Industries, Inc – Booth 2720
Honeywell – Booth 2037
Howden Canada Inc – Booth 1515
International Metallurgical Consultants SAC – Booth 2607
IoT Automation – Booth 2542
Maestro Digital Mine – Booth 1304
Malvern Panalytical – Booth 1502
Matrix Service Company – Booth 2532
Micromine – Booth 1627
Mine Vision Systems – Booth 1574
Nalco Water, an Ecolab Company – Booth 1242
Northwest Towers – Booth 2549
RCT – Booth 1068
Rocvent Inc – Booth 2601
Roxia Inc – Booth 2715
Roxsyle Systems LLC – Booth 2223
SABIA, Inc. – Booth 1680
Samuel Engineering, Inc – Booth 1733
Sandvik – Booth 2521
Simem Underground Solutions, Inc – Booth 1617
Southwestern Scale Co, Inc – Booth 2807
Strata Products Worldwide, LLC – Booth 2520
TAKRAF USA Inc – Booth 2127
TechStar – Booth 2049
Thermo Fisher Scientific – Booth 1003
TopVu – Booth 2935
Valmet Flow Control – Booth 2006
WEG Electric Corp – Booth 1427
Wenco International Mining Systems – Booth 1134
Wingfield Scale & Measure – Booth 1115
Woodgrove Technologies – Booth 2539

Autonomous Vehicles

ASI Mining – Booth 1358
Caterpillar – Booth 2701
Epiroc – Booth 1921
Esri – Booth 1142



ExcelSense Technologies – Booth 2801
 Exyn Technologies – Booth 1205
 Frontier Precision Geospatial/Unmanned – Booth 1110
 Hexagon's Mining division – Booth 2001
 Immersive Technologies – Booth 1509
 Rail-Veyor Technologies Global Inc – Booth 2407
 RCT – Booth 1068
 SafeAI – Booth 1152
 Wenco International Mining Systems – Booth 1134
 Wingtra AG – Booth 1136

Backfilling

Aerix Industries – Booth 1721
 DSI Underground LLC – Booth 2626
 FM Technologies – Booth 2251
 GMS Mine Repair & Maintenance – Booth 1620
 Iron Woman Mining Services – Booth 1934
 Master Builders Solutions – Booth 2107
 Odin Construction Solutions – Booth 1150
 Paterson & Cooke USA, Ltd – Booth 2138
 Schwing Bioset Inc – Booth 2617
 Simem Underground Solutions, Inc – Booth 1617
 Victaulic – Booth 2320
 WSP – Booth 2021

Belts - Power Transmission

Continental – Booth 2215
 Dodge Industrial, Inc – Booth 1336
 Formsprag & Marland Clutch – Booth 1421
 REESCO – Booth 2814
 Regal Rexnord – Booth 1365
 Rema Tip Top – Booth 1301
 Sefar Inc – Booth 1305
 Twiflex – Booth 1423
 VDG (Van der Graaf) – Booth 2311
 West River Conveyors & Machinery Co – Booth 1456

Wichita Clutch – Booth 1522

Bins, Hoppers, Silos and Storage

Applied Specialties Inc – Booth 2727
 Blue Star Steel – Booth 2928
 Eirich Machines, Inc – Booth 2404
 Great Basin Industrial, LLC – Booth 1104
 Jenike & Johanson – Booth 2605
 Kamengo – Booth 2908
 Marietta Silos, LLC – Booth 2615
 Matrix Service Company – Booth 2532
 Mechanical & Ceramic Solutions, Inc – Booth 1582
 REESCO – Booth 2814
 Savage Services – Booth 2821
 Schwing Bioset Inc – Booth 2617
 Simem Underground Solutions, Inc – Booth 1617
 Structural Steel & Plate Fabrication – Booth 2534
 Tank Connection – Booth 1053
 Virta Inc – Booth 2451
 Westpro Machinery Inc – Booth 2322
 Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404

Blasting Accessories, Equipment and Agents

ASI Mining – Booth 1358
 Carlson Software – Booth 2413
 Dyno Nobel – Booth 1621
 Hexagon's Mining division – Booth 2001
 Laser Tech – Booth 2235
 Nouryon – Booth 1525
 Orica USA – Booth 2122
 Phoenix Lighting – Booth 2732

Blending Systems

BEUMER Group – Booth 2343
 Carrier Process Equipment Group (CPEG) – Booth 1108
 Datamine North America Inc – Booth 2220
 Hayward Gordon ULC – Booth 1536

Jenike & Johanson – Booth 2605
 Scantech International Pty Ltd – Booth 1407
 Univar Solutions – Booth 1074
 Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404

Boring Equipment

Antraquip Corporation – Booth 2332
 Carlson Software – Booth 2413
 Herrenknecht Tunneling Systems USA, Inc – Booth 2206
 MILLER – Booth 2501
 Premier Pressure Control – Booth 1066

Brakes - Dynamic, Friction Disk - Block, Magnetic

Brunel Corp – Booth 1401
 Flender Corporation – Booth 2424
 Force Control Industries, Inc – Booth 2720
 Hilliard Brake Systems – Booth 2327
 Johnson Industries Ltd – Booth 2516
 Kobelt Manufacturing Co Ltd – Booth 2437
 Svendborg Brakes USA, Inc – Booth 1520

Briquettters

The Koeppern Group – Booth 2328

Castings

ASC Engineered Solutions – Booth 1820
 Bradken – Booth 1214
 CR – Booth 1250
 FC Mill Liners, Inc – Booth 1264
 Industrial info Resources – Booth 2905
 Kobelt Manufacturing Co Ltd – Booth 2437
 ME Elecmetal – Booth 1701
 Ultra Tech Pipe – Booth 2635

Centrifuges

Alfa Laval – Booth 2728
 CANTY – Booth 1521
 Derrick Corporation – Booth 1715
 ENVECO Environmental Solutions,

PRODUCTS & SERVICES

LLC – Booth 2050
Flottweg Separation Technology, Inc – Booth 1415
Fluid Systems, Inc – Booth 1251
GEA Systems North America LLC – Booth 1470
Petroleum Solids Control, Inc – Booth 2832
PHOENIX Process Equipment – Booth 2616
Pocock Industrial, Inc – Booth 1712
Sefar Inc – Booth 1305
Somerset International – Booth 2929
Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581

Classifiers

Derrick Corporation – Booth 1715
Fluid Systems, Inc – Booth 1251
General Kinematics – Booth 1429
Iracore/Irathane Systems Inc – Booth 1317
Joest Inc – Booth 1350
Narmer-engsim LLC – Booth 1679
PHOENIX Process Equipment – Booth 2616
RSG Inc – Booth 1516
Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581
Univar Solutions – Booth 1074

Clutches - Fluid, Friction and Magnetic

Brunel Corp – Booth 1401
Flender Corporation – Booth 2424
Force Control Industries, Inc – Booth 2720
Formsprag & Marland Clutch – Booth 1421
Kraft Power Corp – Booth 1237
Twiflex – Booth 1423
Voith Group – Booth 2211
Wichita Clutch – Booth 1522

Coal Preparation Plants

FGX SepTech, LLC – Booth 2400
Mechanical & Ceramic Solutions, Inc. – Booth 1582
Narmer-engsim LLC – Booth 1679

Scantech International Pty Ltd – Booth 1407
Somerset International – Booth 2929
Steinert US – Booth 2048
Structural Steel & Plate Fabrication – Booth 2534
Victaulic – Booth 2320
WesTech Engineering, LLC – Booth 1411
Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404

Coatings (does not include Linings and Claddings)

A.W. Chesterton Company – Booth 1001
ChemQuest Chemicals, LLC – Booth 2634
Custom Linings, Inc – Booth 2133
Guardian Traxol Chemicals Inc – Booth 1210
InduMar Products Inc – Booth 1437
MOGAS Industries, Inc – Booth 2737
RAM Enterprise, Inc – Booth 2507
Rema Tip Top – Booth 1301
RubberSource Inc – Booth 1671
Structural Steel & Plate Fabrication – Booth 2534
Technogenia Lasercarb Oklahoma Inc – Booth 2714

Communications Equipment

3D-P – Booth 1560
Ackcio – Booth 2939
IoT Automation – Booth 2542
IWT – Booth 1526
Maestro Digital Mine – Booth 1304
Matrix Design Group – Booth 2401
Micromine – Booth 1627
Monico Monitoring, Inc – Booth 1537
Northwest Towers – Booth 2549
PROVIX – Booth 1353
RCT – Booth 1068
RDO Integrated Controls – Booth 2936
Strata Products Worldwide, LLC – Booth 2520
TopVu – Booth 2935

Tunnel Radio of America, Inc – Booth 1364
UCL Swift Americas – Booth 2906
x-Glo North America Inc – Booth 1351

Compactors

The Koeppern Group – Booth 2328

Computer - Hardware and Services

3D-P – Booth 1560
ASI Mining – Booth 1358
Diesel Laptops – Booth 1101
Maintenance Technology Systems, LLC (MTS) – Booth 2902
Micromine – Booth 1627
Northwest Towers – Booth 2549
Propeller Aero – Booth 1735
Symbioticware – Booth 2227
Wenco International Mining Systems – Booth 1134
Wingfield Scale & Measure – Booth 1115

Computer - Software and Services

3D-P – Booth 1560
Actenum – Booth 1151
airth.io – Booth 1211
ASI Mining – Booth 1358
beadedstream inc. – Booth 2903
Bentley Systems – Booth 1359
Canary Systems, Inc – Booth 1232
Cancha Geometallurgy – Booth 2933
Carlson Software – Booth 2413
COGEP Maintenance Software – Booth 2543
Control Station, Inc – Booth 1148
Costmine – Booth 1817
Datamine North America Inc – Booth 2220
Deswik – Booth 2612
DHI Water & Environment, Inc – Booth 2232
Diesel Laptops – Booth 1101
Esri – Booth 1142
Exyn Technologies – Booth 1205
Hexagon's Mining division – Booth 2001



Honeywell – Booth 2037
 Howden Canada Inc – Booth 1515
 Information Alignment Pty Ltd – Booth 1668
 Itasca International, Inc – Booth 1832
 K2fly – Booth 1469
 Laser Tech – Booth 2235
 Maintenance Technology Systems, LLC (MTS) – Booth 2902
 Maptek – Booth 1501
 Matrix Design Group – Booth 2401
 Metsim International – Booth 2614
 Micromine – Booth 1627
 Mine Vision Systems – Booth 1574
 Narmer-engsim LLC – Booth 1679
 Northwest Towers – Booth 2549
 O-Pitblast S.A. – Booth 1471
 Orica USA – Booth 2122
 PETRA – Booth 1666
 Polymathian – Booth 2921
 Predictive Compliance – Booth 2032
 Propeller Aero – Booth 1735
 RCT – Booth 1068
 RESPEC – Booth 1811
 Rock Flow Dynamics – Booth 1065
 Satellogic – Booth 1008
 Seeq – Booth 1580
 Strayos – Booth 1004
 Symbolicware – Booth 2227
 Sync Mine Safety – Booth 2839
 TIMINING – Booth 1682
 TopVu – Booth 2935
 WEIR Motion Metrics – Booth 1843
 Wenco International Mining Systems – Booth 1134
 Wingfield Scale & Measure – Booth 1115

Concrete Reinforcement and Equipment

Aerix Industries – Booth 1721
 AGRU America, Inc – Booth 1539
 Antraquip Corporation – Booth 2332
 Bekaert – Booth 2208
 Concrete Canvas US – Booth 2148
 Inland Tarp & Liner – Booth 1360
 Iron Woman Mining Services – Booth 1934
 Master Builders Solutions – Booth

2107
 Minova – Booth 2533
 SKAPS Industries – Booth 2713
 Strata Products Worldwide, LLC – Booth 2520
 Williams Form Engineering Corp – Booth 2234

Construction - Contracting Services

AECOM – Booth 1903
 Barnard Construction Company, Inc – Booth 1145
 Burns & McDonnell Engineering Company, Inc – Booth 2237
 Byrncut Group – Booth 2934
 CCC Group, Inc – Booth 2632
 Cementation USA Inc – Booth 2243
 Cowin & Company/Raisebor – Booth 2717
 DeWind One Pass Trenching LLC – Booth 1017
 Drill Tech Drilling & Shoring Inc – Booth 1626
 Driver Industrial Safety – Booth 1132
 ENTACT – Booth 1838
 Envirocon, Inc – Booth 1709
 FK-C-Lake Shore – Booth 1504
 Forgen – Booth 2526
 Geovert LLC – Booth 2642
 GHD – Booth 2150
 GMS Mine Repair & Maintenance – Booth 1620
 Harrison Western Construction Corporation, Inc – Booth 2233
 Hoffman Manufacturing, Inc – Booth 1246
 Howden Canada Inc – Booth 1515
 Iron Woman Mining Services – Booth 1934
 JAMAR Company – Booth 1014
 JHL Constructors – Booth 2137
 Keller – Booth 1716
 Kiewit – Booth 1827
 Matrix Service Company – Booth 2532
 MBA Energy and Industrial – Booth 1315
 MES Mining – Booth 1739
 MILLER – Booth 2501

NewFields – Booth 1839
 Northwest Towers – Booth 2549
 Phillips & Jordan, Inc – Booth 1834
 Phoenix Industrial – Booth 1311
 RAM Enterprise, Inc – Booth 2507
 Rapid Fire Protection Inc – Booth 2826
 RECO Mining Solutions – Booth 1269
 Sprung Structures – Booth 2606
 Stewart Brothers Drilling Co – Booth 1813
 Titan Environmental USA – Booth 1233
 Turner Mining Group – Booth 1042
 Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404

Consulting - Design and Planning

3D-P – Booth 1560
 AECOM – Booth 1903
 Agapito Associates Inc – Booth 2027
 AIL Mining – Booth 2736
 ARCADIS – Booth 1614
 ASC Engineered Solutions – Booth 1820
 Barr Engineering Co – Booth 1400
 BBE Consulting Canada – Booth 1102
 BGC Engineering – Booth 2805
 Bowman Consulting Group – Booth 2348
 Burgex Inc – Booth 1116
 Burns & McDonnell Engineering Company, Inc – Booth 2237
 Call & Nicholas Inc - Call & Nicholas Instruments – Booth 1410
 Cancha Geometallurgy – Booth 2933
 Cementation USA Inc – Booth 2243
 Check-6/Biz X Group – Booth 1165
 Civil & Environmental Consultants, Inc (CEC) – Booth 1510
 CoreLift – Booth 2248
 Datamine North America Inc – Booth 2220
 Dyno Nobel – Booth 1621
 Forte Dynamics – Booth 2733
 Foth Infrastructure & Environment,



PRODUCTS & SERVICES

LLC – Booth 2432
GHD – Booth 2150
Hatch – Booth 1334
Hazen Research – Booth 1327
Hexagon's Mining division – Booth 2001
Hilfiker Retaining Walls – Booth 2210
Hoffman Manufacturing, Inc – Booth 1246
HUESKER Inc – Booth 1815
Independent Mining Consultants, Inc – Booth 2115
Jenike & Johanson – Booth 2605
Linkan Engineering – Booth 1426
Maccaferri, Inc – Booth 2335
MAPEI Corporation – Booth 1702
Maptek – Booth 1501
Matrix Service Company – Booth 2532
Millcreek Engineering Co – Booth 1511
Mine Vision Systems – Booth 1574
Mineral Technologies – Booth 1416
MOGAS Industries, Inc – Booth 2737
Montgomery & Associates – Booth 1835
Montrose Environmental – Booth 2249
NewFields – Booth 1839
Northwest Towers – Booth 2549
ORE-MAX – Booth 1500
Orica USA – Booth 2122
Rapid Fire Protection Inc – Booth 2826
REI Drilling, Inc – Booth 2633
RESPEC – Booth 1811
Roxsyle Systems LLC – Booth 2223
Samuel Engineering, Inc – Booth 1733
Savage Services – Booth 2821
SLR International Corporation – Booth 2132
SNC-LAVALIN – Booth 2034
SRK Consulting (US), Inc – Booth 2121
Stantec Consulting – Booth 1920
TAKRAF USA Inc – Booth 2127
TerraSource Global – Booth 2712
Tetra Tech – Booth 1632

Turner Mining Group – Booth 1042
Virta Inc – Booth 2451
Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404
Wood – Booth 1538
WSP – Booth 2021

Consulting - Engineering

3D-P – Booth 1560
AECOM – Booth 1903
Agapito Associates Inc – Booth 2027
AIL Mining – Booth 2736
Aquatech International – Booth 1570
ARCADIS – Booth 1614
Barr Engineering Co – Booth 1400
BBE Consulting Canada – Booth 1102
BGC Engineering – Booth 2805
Bowman Consulting Group – Booth 2348
Burns & McDonnell Engineering Company, Inc – Booth 2237
Call & Nicholas Inc - Call & Nicholas Instruments – Booth 1410
Canary Systems, Inc – Booth 1232
Cancha Geometallurgy – Booth 2933
Cementation USA Inc – Booth 2243
Civil & Environmental Consultants, Inc (CEC) – Booth 1510
Colorado School of Mines - Department of Mining Engineering – Booth 2023
Contech Engineered Solutions – Booth 2029
Control Station, Inc – Booth 1148
CoreLift – Booth 2248
Costmine – Booth 1817
Deswik – Booth 2612
DHI Water & Environment, Inc – Booth 2232
Dyno Nobel – Booth 1621
Emerson – Booth 1633
Englo, Inc – Booth 2336
Forte Dynamics – Booth 2733
Foth Infrastructure & Environment, LLC – Booth 2432
GEA Systems North America LLC – Booth 1470

Geo-Logic Associates – Booth 1728
GeoStabilization International – Booth 1681
Geosyntec Consultants – Booth 2225
GHD – Booth 2150
GMS Mine Repair & Maintenance – Booth 1620
H2E Inc – Booth 1238
Hatch – Booth 1334
Hoffman Manufacturing, Inc – Booth 1246
Howden Canada Inc – Booth 1515
HUESKER Inc – Booth 1815
hydroGEOPHYSICS Inc – Booth 2339
Independent Mining Consultants, Inc – Booth 2115
INR Consulting and Engineering Inc – Booth 2448
Itasca International, Inc – Booth 1832
JBW Consulting Engineers – Booth 1015
Jenike & Johanson – Booth 2605
Knight Piésold and Co – Booth 2207
KnightHawk Engineering, Inc – Booth 1111
Linkan Engineering – Booth 1426
Maccaferri, Inc – Booth 2335
Maintenance Technology Systems, LLC (MTS) – Booth 2902
Maptek – Booth 1501
Matrix Service Company – Booth 2532
MBA Energy and Industrial – Booth 1315
MES Mining – Booth 1739
Metsim International – Booth 2614
Millcreek Engineering Co – Booth 1511
Mineral Technologies – Booth 1416
Mining Plus US – Booth 1422
Minova – Booth 2533
MOGAS Industries, Inc – Booth 2737
Montrose Environmental – Booth 2249
NewFields – Booth 1839
Northwest Towers – Booth 2549
O-Pitblast S.A. – Booth 1471



ORE-MAX – Booth 1500
 Orica USA – Booth 2122
 Paterson & Cooke USA, Ltd – Booth 2138
 Piteau Associates Engineering Ltd – Booth 2344
 Pocock Industrial, Inc – Booth 1712
 Ramboll – Booth 2038
 Rapid Fire Protection Inc – Booth 2826
 RDI Technologies – Booth 1569
 RDO Integrated Controls – Booth 2936
 REI Drilling, Inc – Booth 2633
 RESPEC – Booth 1811
 Rocvent Inc – Booth 2601
 Roxsyle Systems LLC – Booth 2223
 RWI Enhanced Evaporation Services – Booth 2026
 Samuel Engineering, Inc – Booth 1733
 Savage Services – Booth 2821
 Sefar Inc – Booth 1305
 Simem Underground Solutions, Inc – Booth 1617
 SLR International Corporation – Booth 2132
 SNC-LAVALIN – Booth 2034
 SRK Consulting (US), Inc – Booth 2121
 Stantec Consulting – Booth 1920
 Symboticware – Booth 2227
 TAKRAF USA Inc – Booth 2127
 Technogenia Lasercarb Oklahoma Inc – Booth 2714
 TerraSource Global – Booth 2712
 Tetra Tech – Booth 1632
 Turner Mining Group – Booth 1042
 Voith Group – Booth 2211
 WestLand Engineering and Environmental Services – Booth 1107
 Willowstick Technologies LLC – Booth 1002
 Wingfield Scale & Measure – Booth 1115
 Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404
 Wood – Booth 1538
 WSP – Booth 2021
 Xylem Inc – Booth 1566

Consulting - Environmental

AECOM – Booth 1903
 ARCADIS – Booth 1614
 Barr Engineering Co – Booth 1400
 BGC Engineering – Booth 2805
 Bowman Consulting Group – Booth 2348
 Burns & McDonnell Engineering Company, Inc – Booth 2237
 Civil & Environmental Consultants, Inc (CEC) – Booth 1510
 ConeTec Inc – Booth 1535
 DHI Water & Environment, Inc – Booth 2232
 ENVECO Environmental Solutions, LLC – Booth 2050
 Esri – Booth 1142
 Forte Dynamics – Booth 2733
 Foth Infrastructure & Environment, LLC – Booth 2432
 Geo-Logic Associates – Booth 1728
 Geosyntec Consultants – Booth 2225
 GHD – Booth 2150
 Headwater Technologies – Booth 2729
 HUESKER Inc – Booth 1815
 hydroGEOPHYSICS Inc – Booth 2339
 Itasca International, Inc – Booth 1832
 Knight Piésold and Co – Booth 2207
 Linkan Engineering – Booth 1426
 Montgomery & Associates – Booth 1835
 Montrose Environmental – Booth 2249
 NewFields – Booth 1839
 Presto Geosystems – Booth 1452
 Ramboll – Booth 2038
 RESPEC – Booth 1811
 SAM Solutions – Booth 1837
 Sauls Seismic – Booth 1313
 SLR International Corporation – Booth 2132
 SNC-LAVALIN – Booth 2034
 SOLMAX – Booth 1527
 SRK Consulting (US), Inc – Booth 2121
 Stantec Consulting – Booth 1920
 Tetra Tech – Booth 1632

WestLand Engineering and Environmental Services – Booth 1107
 Wood – Booth 1538
 WSP – Booth 2021

Consulting - Financial Services

Burns & McDonnell Engineering Company, Inc – Booth 2237
 Independent Mining Consultants, Inc – Booth 2115
 SLR International Corporation – Booth 2132
 SRK Consulting (US), Inc – Booth 2121

Consulting - Management

ARCADIS – Booth 1614
 Burns & McDonnell Engineering Company, Inc – Booth 2237
 Check-6/Biz X Group – Booth 1165
 Forte Dynamics – Booth 2733
 Foth Infrastructure & Environment, LLC – Booth 2432
 Hatch – Booth 1334
 Independent Mining Consultants, Inc – Booth 2115
 Information Alignment Pty Ltd – Booth 1668
 Kiewit – Booth 1827
 Matrix Service Company – Booth 2532
 MBA Energy and Industrial – Booth 1315
 Metsim International – Booth 2614
 Mining Plus US – Booth 1422
 Montrose Environmental – Booth 2249
 NewFields – Booth 1839
 Predictive Compliance – Booth 2032
 Samuel Engineering, Inc – Booth 1733
 Savage Services – Booth 2821
 SLR International Corporation – Booth 2132
 SRK Consulting (US), Inc – Booth 2121
 Stantec Consulting – Booth 1920
 Technical Translation Services – Booth 2449
 Tetra Tech – Booth 1632
 Wood – Booth 1538

PRODUCTS & SERVICES

WSP – Booth 2021

Consulting - Research

Blue Coast Research – Booth 1037
Cancha Geometallurgy – Booth 2933
Cemvita – Booth 2445
Colorado School of Mines - Department of Mining Engineering – Booth 2023
Forte Dynamics – Booth 2733
hydroGEOPHYSICS Inc – Booth 2339
Itasca International, Inc – Booth 1832
Metcom Technologies Inc – Booth 1608
Montgomery & Associates – Booth 1835
Montrose Environmental – Booth 2249
Narmer-engsim LLC – Booth 1679
Pocock Industrial, Inc – Booth 1712
RESPEC – Booth 1811
SLR International Corporation – Booth 2132
SRK Consulting (US), Inc – Booth 2121
Symboticware – Booth 2227
Virginia Tech Department of Mining & Minerals Engineering – Booth 1348

Continuous Mining Machines

Antraquip Corporation – Booth 2332
BEUMER Group – Booth 2343
Cornell Pump Co – Booth 2300
ExcelSense Technologies – Booth 2801
FM Technologies – Booth 2251
Komatsu – Booth 1914
Mine Vision Systems – Booth 1574
Miner Elastomer – Booth 1333
Mineral Technologies – Booth 1416
Sandvik – Booth 2521
Wirtgen America – Booth 1420

Controls - Electrical and Electronic

ABB – Booth 1943

CPM Roskamp Champion – Booth 1000
DEA Incorporated – Booth 1567
Emerson – Booth 1633
Evoqua Water Technologies – Booth 2238
FKC-Lake Shore – Booth 1504
Geotech Environmental Equipment, Inc – Booth 1624
Hepburn Engineering Inc – Booth 2538
Howden Canada Inc – Booth 1515
IoT Automation – Booth 2542
Kobelt Manufacturing Co Ltd – Booth 2437
Kraft Power Corp – Booth 1237
Northwest Towers – Booth 2549
PROVIX – Booth 1353
RDO Integrated Controls – Booth 2936
Roxsyle Systems LLC – Booth 2223
Samuel Engineering, Inc – Booth 1733
Southwestern Scale Co, Inc – Booth 2807
Svendborg Brakes USA, Inc – Booth 1520
Syntron Material Handling – Booth 2321
WEG Electric Corp – Booth 1427
x-Glo North America Inc – Booth 1351
Xylem Inc – Booth 1566

Controls - Hydraulic and Pneumatic

Bosch Rexroth - Häggglunds Drives – Booth 2043
Geotech Environmental Equipment, Inc – Booth 1624
Hepburn Engineering Inc – Booth 2538
Hoffman Manufacturing, Inc – Booth 1246
Johnson Industries Ltd – Booth 2516
Kobelt Manufacturing Co Ltd – Booth 2437
Kraft Power Corp – Booth 1237
Svendborg Brakes USA, Inc – Booth 1520

Valmet Flow Control – Booth 2006

Conveyor Belting - Accessories and Equipment

American-Biltrite – Booth 1217
ASGCO Complete Conveyor Solutions – Booth 1615
BEUMER Group – Booth 2343
Bosch Rexroth - Häggglunds Drives – Booth 2043
Brelko Conveyor Products – Booth 1727
CAB – Booth 1533
Cambelt International – Booth 2710
Continental – Booth 2215
Dodge Industrial, Inc – Booth 1336
Endurance Belting – Booth 2611
Formsprag & Marland Clutch – Booth 1421
Landry Filtration Products Inc. – Booth 1105
Luff Industries Ltd – Booth 2527
MANTIS By NHI – Booth 2904
Midwest Industrial Supply, Inc – Booth 2420
Orica USA – Booth 2122
Phoenix Lighting – Booth 2732
Precision Pulley & Idler – Booth 1711
RAM Enterprise, Inc – Booth 2507
REESCO – Booth 2814
Regal Rexnord – Booth 1365
Rema Tip Top – Booth 1301
Rulmeca Limited – Booth 1312
Sempertrans USA – Booth 2438
Thermo Fisher Scientific – Booth 1003
Twiflex – Booth 1423
United Central Industrial Supply – Booth 1933
VDG (Van der Graaf) – Booth 2311
Virta Inc – Booth 2451
WEIR Motion Metrics – Booth 1843
West River Conveyors & Machinery Co – Booth 1456
Wichita Clutch – Booth 1522
Wingfield Scale & Measure – Booth 1115

Conveyor Systems

ASGCO Complete Conveyor Solu-



tions – Booth 1615
 BEUMER Group – Booth 2343
 Brelko Conveyor Products – Booth 1727
 CAB – Booth 1533
 Cambelt International – Booth 2710
 Carrier Process Equipment Group (CPEG) – Booth 1108
 CCC Group, Inc – Booth 2632
 CoreLift – Booth 2248
 Endurance Belting – Booth 2611
 ExcelSense Technologies – Booth 2801
 Fibracan LLC – Booth 2603
 FKC-Lake Shore – Booth 1504
 Flender Corporation – Booth 2424
 FLSmidth A/S – Booth 1801
 Formsprag & Marland Clutch – Booth 1421
 General Kinematics – Booth 1429
 GMS Mine Repair & Maintenance – Booth 1620
 Herrenknecht Tunneling Systems USA, Inc – Booth 2206
 Hilfiker Retaining Walls – Booth 2210
 Hoffman Manufacturing, Inc – Booth 1246
 Jenike & Johanson – Booth 2605
 JENNMAR – Booth 1913
 Kiewit – Booth 1827
 Komatsu – Booth 1914
 Luff Industries Ltd – Booth 2527
 MANTIS By NHI – Booth 2904
 Masaba Inc – Booth 2514
 Matrix Service Company – Booth 2532
 Mechanical & Ceramic Solutions, Inc. – Booth 1582
 Miner Elastomer – Booth 1333
 Rail-Veyor Technologies Global Inc – Booth 2407
 RAM Enterprise, Inc – Booth 2507
 Rapat Corporation – Booth 2145
 RECO Mining Solutions – Booth 1269
 REESCO – Booth 2814
 Regal Rexnord – Booth 1365
 Rema Tip Top – Booth 1301
 Richwood – Booth 2838
 Rulmeca Corporation – Booth 1316

Rulmeca Limited – Booth 1312
 Savage Services – Booth 2821
 Schwing Bioset Inc – Booth 2617
 Sempertrans USA – Booth 2438
 Simem Underground Solutions, Inc – Booth 1617
 Superior Industries – Booth 2303
 Syntron Material Handling – Booth 2321
 TAKRAF USA Inc – Booth 2127
 Twiflex – Booth 1423
 Van Gorp Corporation – Booth 1556
 VDG (Van der Graaf) – Booth 2311
 Virta Inc – Booth 2451
 Voith Group – Booth 2211
 West River Conveyors & Machinery Co – Booth 1456
 Wolf Point Engineers & Contractors / North Alabama Fabricating Company, Inc – Booth 1404

Coolers

BBE Consulting Canada – Booth 1102
 Binder+Co USA Inc – Booth 1935
 Carrier Process Equipment Group (CPEG) – Booth 1108
 CPM Roskamp Champion – Booth 1000
 Guardian Traxol Chemicals Inc – Booth 1210
 Howden Canada Inc – Booth 1515
 Louisville Dryer Company – Booth 2608

Couplings - Mechanical, Flexible and Rigid

ASC Engineered Solutions – Booth 1820
 Brunel Corp – Booth 1401
 Dodge Industrial, Inc – Booth 1336
 Flender Corporation – Booth 2424
 Kraft Power Corp – Booth 1237
 Naylor Pipe Co – Booth 1910
 Netafim USA – Booth 1607
 Regal Rexnord – Booth 1365
 Robit Inc – Booth 2722
 Victaulic – Booth 2320
 Voith Group – Booth 2211
 Williams Form Engineering Corp – Booth 2234

Crushers and Pulverizers

BICO Inc – Booth 2427
 Bradken – Booth 1214
 CPM Roskamp Champion – Booth 1000
 Denver Machine Shop – Booth 1208
 ExcelSense Technologies – Booth 2801
 KnightHawk Engineering, Inc – Booth 1111
 Masaba Inc – Booth 2514
 McLanahan Corporation – Booth 2308
 ME Elecmetal – Booth 1701
 Mechanical & Ceramic Solutions, Inc. – Booth 1582
 Metso Outotec – Booth 2101
 MMD Mineral Sizing (America) Inc – Booth 1532
 RAM Enterprise, Inc – Booth 2507
 RECO Mining Solutions – Booth 1269
 REESCO – Booth 2814
 RSG Inc – Booth 1516
 Sandvik – Booth 2521
 Savage Services – Booth 2821
 Superior Industries – Booth 2303
 TAKRAF USA Inc – Booth 2127
 Technogenia Lasercarb Oklahoma Inc – Booth 2714
 TerraSource Global – Booth 2712
 Westpro Machinery Inc – Booth 2322

Cyanide Process Equipment

Baker Hughes - Flexible Pipe Solutions – Booth 1737
 Derrick Corporation – Booth 1715
 Headwater Technologies – Booth 2729
 ORE-MAX – Booth 1500

DC Power

Oklo – Booth 1683
 Phoenix Lighting – Booth 2732

Dewatering Equipment

Alfa Laval – Booth 2728
 Baker Hughes - Flexible Pipe Solutions – Booth 1737
 Boart Longyear – Booth 2002

PRODUCTS & SERVICES

Carrier Process Equipment Group (CPEG) – Booth 1108
Cornell Pump Co – Booth 2300
Deister Concentrator, LLC – Booth 2808
Derrick Corporation – Booth 1715
DeWind One Pass Trenching LLC – Booth 1017
Diemme Filtration SRL – Booth 1200
EcoMister Evaporator – Booth 2402
EMFluids Ltd – Booth 1058
ENVECO Environmental Solutions, LLC – Booth 2050
Envirocon, Inc – Booth 1709
Evoqua Water Technologies – Booth 2238
Flottweg Separation Technology, Inc – Booth 1415
FLSmidth A/S – Booth 1801
Fluid Systems, Inc – Booth 1251
FM Technologies – Booth 2251
General Kinematics – Booth 1429
Haver & Boecker Niagara – Booth 2250
Hose Solutions Inc – Booth 2338
HUESKER Inc – Booth 1815
HydroTech Mining – Booth 1169
IPI Packers – Booth 2721
Joest Inc – Booth 1350
Kurita America Inc – Booth 1371
Landry Filtration Products Inc. – Booth 1105
Megator-Pumps 2000 America – Booth 1465
Metso Outotec – Booth 2101
Miller Sales & Engineering Inc – Booth 2242
MINETEK – Booth 1026
Mudwizard – Booth 2244
Nalco Water, an Ecolab Company – Booth 1242
Naylor Pipe Co – Booth 1910
Netafim USA – Booth 1607
PHOENIX Process Equipment – Booth 2616
Pocock Industrial, Inc – Booth 1712
Premier Pressure Control – Booth 1066
Pumpaction – Booth 2834
PumpEng – Booth 2920

Rain for Rent – Booth 1833
REI Drilling, Inc – Booth 2633
Roxia Inc – Booth 2715
RWI Enhanced Evaporation Services – Booth 2026
Schwing Bioset Inc – Booth 2617
Somerset International – Booth 2929
SRS Crisafulli, Inc – Booth 2716
Superior Industries – Booth 2303
Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581
Vermeer Corp – Booth 1513
Victaulic – Booth 2320
WesTech Engineering, LLC – Booth 1411

Diesel Equipment Lighting Systems

Phoenix Lighting – Booth 2732
Rocvent Inc – Booth 2601

Diesel Mining Equipment Manufacturers

Brookville Equipment Corp – Booth 1610
J.H. Fletcher & Co – Booth 1213
Liebherr – Booth 1678
Normet Americas, Inc – Booth 2433
Timberland Equipment Limited – Booth 1677
Vermeer Corp – Booth 1513

Diesel Particulate Control Systems

ACCUTRON INSTRUMENTS INC – Booth 2937
Aletek – Booth 2835

Draglines

Bradken – Booth 1214
Caterpillar – Booth 2701
CCC Group, Inc – Booth 2632
Immersive Technologies – Booth 1509
Kiewit – Booth 1827
Komatsu – Booth 1914

Dredges

American Underwater Services LLC – Booth 1483

ENTACT – Booth 1838
ENVECO Environmental Solutions, LLC – Booth 2050
Maccaferri, Inc – Booth 2335
Salem-Republic Rubber Co – Booth 2324
SRS Crisafulli, Inc – Booth 2716
Supreme Manufacturing, Inc – Booth 1687
Technogenia Lasercarb Oklahoma Inc – Booth 2714
Ultra Tech Pipe – Booth 2635

Drill Bits - Rock

Boart Longyear – Booth 2002
DSI Underground LLC – Booth 2626
Epiroc – Booth 1921
Mitsubishi Materials USA Corp – Booth 2706
Pinnacle Drilling Products – Booth 1020
REI Drilling, Inc – Booth 2633
Robit Inc – Booth 2722
RockTech USA, Inc – Booth 1743
Sandvik – Booth 2521
Technogenia Lasercarb Oklahoma Inc – Booth 2714
Terelion, LLC – Booth 1481
Williams Form Engineering Corp – Booth 2234

Drilling Contractors

Boart Longyear – Booth 2002
Cascade Drilling L.P. – Booth 1939
ConeTec Inc – Booth 1535
Cowin & Company/Raisebor – Booth 2717
Driver Industrial Safety – Booth 1132
FKC-Lake Shore – Booth 1504
Keller – Booth 1716
KP Ventures Well Drilling & Pump Co LLC – Booth 1100
Major Drilling – Booth 1622
REI Drilling, Inc – Booth 2633
Ruen Drilling, Inc – Booth 1810
Shaft Drillers International – Booth 2209
Stewart Brothers Drilling Co – Booth 1813



Timberline Drilling, Inc – Booth 1842

Drilling Equipment

Baroid Industrial Drilling Products – Booth 1439
Boart Longyear – Booth 2002
Carlson Software – Booth 2413
Caterpillar – Booth 2701
CR – Booth 1250
Driver Industrial Safety – Booth 1132
DSI Underground LLC – Booth 2626
Epiroc – Booth 1921
ExcelSense Technologies – Booth 2801
Geotech Environmental Equipment, Inc – Booth 1624
Herrenknecht Tunneling Systems USA, Inc – Booth 2206
Hexagon's Mining division – Booth 2001
J.H. Fletcher & Co – Booth 1213
Komatsu – Booth 1914
Miner Elastomer – Booth 1333
Mitsubishi Materials USA Corp – Booth 2706
Premier Pressure Control – Booth 1066
RDO Integrated Controls – Booth 2936
REI Drilling, Inc – Booth 2633
Robit Inc – Booth 2722
RockTech USA, Inc – Booth 1743
Sandvik – Booth 2521
Thyssen Mining Group of Companies – Booth 1424
Vermeer Corp – Booth 1513

Drives - Belt, Chain, Fluid and Gear

Bosch Rexroth - Hägglunds Drives – Booth 2043
Dodge Industrial, Inc – Booth 1336
Flender Corporation – Booth 2424
Kraft Power Corp – Booth 1237
Regal Rexnord – Booth 1365
Rulmeca Corporation – Booth 1316
Rulmeca Limited – Booth 1312
VDG (Van der Graaf) – Booth 2311

Voith Group – Booth 2211
West River Conveyors & Machinery Co – Booth 1456

Drives - Magnetic and Variable

ABB – Booth 1943
Joest Inc – Booth 1350
Kraft Power Corp – Booth 1237
VDG (Van der Graaf) – Booth 2311
Voith Group – Booth 2211
WEG Electric Corp – Booth 1427

Dryers

Binder+Co USA Inc – Booth 1935
Carrier Process Equipment Group (CPEG) – Booth 1108
Eirich Machines, Inc – Booth 2404
FEECO International, Inc – Booth 1006
GEA Systems North America LLC – Booth 1470
Joest Inc – Booth 1350
Louisville Dryer Company – Booth 2608
RSG Inc – Booth 1516
Schwing Bioset Inc – Booth 2617
Westpro Machinery Inc – Booth 2322

Dust and Fume Control Technology

Alfa Laval – Booth 2728
COLAS SA – Booth 2515
EcoMister Evaporator – Booth 2402
Englo, Inc – Booth 2336
Environmental Products & Applications, Inc – Booth 2528
GEO-Instruments – Booth 1714
Herding Filtration LLC – Booth 1050
JBW Consulting Engineers – Booth 1015
Landry Filtration Products Inc. – Booth 1105
Midwest Industrial Supply, Inc – Booth 2420
Open Loop Energy, Inc – Booth 1329
Philippi-Hagenbuch, Inc – Booth 1949
Rite Choice Ducting, LLC – Booth

2537
Rocvent Inc – Booth 2601
RSG Inc – Booth 1516
RWI Enhanced Evaporation Services – Booth 2026
SAM Solutions – Booth 1837
Spendrup Fan Co – Booth 2201

Educational

American Institute of Professional Geologists – Booth 1823
Canadian Institute of Mining, Metallurgy & Petroleum (CIM) – Booth 2301
Colorado School of Mines - Department of Mining Engineering – Booth 2023
Costmine – Booth 1817
Global Mining Guidelines Group – Booth 2602
Great Basin College – Booth 2927
Instituto de Ingenieros de Minas del Peru (IIMP) – Booth 2926
International Metallurgical Consultants SAC – Booth 2607
Jenike & Johanson – Booth 2605
Mackay School of Earth Sciences and Engineering – Booth 1342
Mining & Metals - Information Sharing and Analysis Centre – Booth 2600
Missouri S&T – Booth 1457
Montana Technological University - School of Mines & Engineering – Booth 1338
Narmer-engsim LLC – Booth 1679
New Mexico Institute of Mining & Technology – Booth 1444
Penn State University – Booth 1583
Pioneering the Field: Women in Mining – Booth 1658
South Dakota School of Mines – Booth 1344
U.S. Geological Survey (USGS), Mineral Resources Program (MRP) – Booth 1236
University of Arizona Mining and Geological Engineering – Booth 2305
University of Kentucky Department of Mining Engineering – Booth 1347

PRODUCTS & SERVICES

University of Utah, Mining Engineering Department – Booth 1239
Virginia Tech Department of Mining & Minerals Engineering – Booth 1348
WAAIME – Booth 1446
West Virginia Univ Dept of Mining Engineering – Booth 1442
West Virginia University - Mining Extension – Booth 1249
Women's Mining Coalition – Booth 1605

Electric Motors and Generators

ABB – Booth 1943
Integrated Power Services – Booth 2623
Kraft Power Corp – Booth 1237
Oklo – Booth 1683
Regal Rexnord – Booth 1365
Rulmeca Corporation – Booth 1316
VDG (Van der Graaf) – Booth 2311
Voith Group – Booth 2211
WEG Electric Corp – Booth 1427

Electric Wire and Cable

The Okonite Company – Booth 1206

Electrical Equipment and Supplies

Atlas Electric, Inc – Booth 1147
CAB – Booth 1533
DEA Incorporated – Booth 1567
ExcelSense Technologies – Booth 2801
Line Power Manufacturing – Booth 1601
Monico Monitoring, Inc – Booth 1537
Oklo – Booth 1683
Phoenix Lighting – Booth 2732
RCT – Booth 1068
Rocvent Inc – Booth 2601
Roxsyle Systems LLC – Booth 2223

Emissions Control

Aletek – Booth 2835
Civil & Environmental Consultants, Inc (CEC) – Booth 1510
Conifer Systems – Booth 1009
Montrose Environmental – Booth 2249

Oklo – Booth 1683
Univar Solutions – Booth 1074
Vaisala Inc. – Booth 2550

Environmental Control Equipment and Supplies

ACCUTRON INSTRUMENTS INC – Booth 2937
Ackcio – Booth 2939
Applied Specialties Inc – Booth 2727
Aquatech International – Booth 1570
CARBO Industrial Technologies – Booth 1405
COLAS SA – Booth 2515
Conifer Systems – Booth 1009
Diemme Filtration SRL – Booth 1200
EcoMister Evaporator – Booth 2402
Englo, Inc – Booth 2336
ENVECO Environmental Solutions, LLC – Booth 2050
Flottweg Separation Technology, Inc – Booth 1415
Howden Canada Inc – Booth 1515
IoT Automation – Booth 2542
IWT – Booth 1526
Midwest Industrial Supply, Inc – Booth 2420
Nilex Inc – Booth 1033
Oklo – Booth 1683
Open Loop Energy, Inc – Booth 1329
Presto Geosystems – Booth 1452
RWI Enhanced Evaporation Services – Booth 2026
Sauls Seismic – Booth 1313
SRS Crisafulli, Inc – Booth 2716
Vaisala Inc. – Booth 2550
Valmet Flow Control – Booth 2006
Vermeer Corp – Booth 1513

Excavators

Bradken – Booth 1214
Caterpillar – Booth 2701
CR – Booth 1250
ENTACT – Booth 1838
Envirocon, Inc – Booth 1709
ExcelSense Technologies – Booth 2801
Immersive Technologies – Booth 1509

Komatsu – Booth 1914
Liebherr – Booth 1678
RECO Mining Solutions – Booth 1269
TAKRAF USA Inc – Booth 2127
Technogenia Lasercarb Oklahoma Inc – Booth 2714
WEIR Motion Metrics – Booth 1843

Exploration Equipment and Services

Agapito Associates Inc – Booth 2027
Baroid Industrial Drilling Products – Booth 1439
Boart Longyear – Booth 2002
Carlson Software – Booth 2413
Datamine North America Inc – Booth 2220
Emesent – Booth 2134
Esri – Booth 1142
Independent Mining Consultants, Inc – Booth 2115
IPI Packers – Booth 2721
Mavrik – Booth 2035
Micromine – Booth 1627
Premier Pressure Control – Booth 1066
RDI Technologies – Booth 1569
REI Drilling, Inc – Booth 2633
RockTech USA, Inc – Booth 1743
SRK Consulting (US), Inc – Booth 2121
Stewart Brothers Drilling Co – Booth 1813
Sunset Manufacturing – Booth 2637
Telemark Energy Services – Booth 2810
Terahertz Ventures LLC – Booth 1638

Explosive Materials and Services

Austin Powder – Booth 2820
Dyno Nobel – Booth 1621
GMS Mine Repair & Maintenance – Booth 1620
Harrison Western Construction Corporation, Inc – Booth 2233
Hexagon's Mining division – Booth 2001
Maptek – Booth 1501



Orica USA – Booth 2122
Philippi-Hagenbuch, Inc – Booth 1949

Fans and Blowers

BBE Consulting Canada – Booth 1102
EcoMister Evaporator – Booth 2402
Englo, Inc – Booth 2336
Evoqua Water Technologies – Booth 2238
Formsprag & Marland Clutch – Booth 1421
Hoffman Manufacturing, Inc – Booth 1246
Howden Canada Inc – Booth 1515
Mechanical & Ceramic Solutions, Inc. – Booth 1582
MINETEK – Booth 1026
Mining Equipment, Ltd – Booth 1927
Rocvent Inc – Booth 2601
Spendrup Fan Co – Booth 2201
TLT-Turbo, Inc – Booth 1310
Twiflex – Booth 1423
Wichita Clutch – Booth 1522

Fasteners - Industrial

Copper State Bolt & Nut Co – Booth 1634
HYTORC, Division of UNEX Corp – Booth 1357
ME Elecmetal – Booth 1701
Rema Tip Top – Booth 1301
Valley Forge & Bolt Mfg Co – Booth 2306
Williams Form Engineering Corp – Booth 2234

Feeder Breakers

Atlas Electric, Inc – Booth 1147
Komatsu – Booth 1914
McLanahan Corporation – Booth 2308
Savage Services – Booth 2821

Feeders

Bradken – Booth 1214
Carrier Process Equipment Group (CPEG) – Booth 1108
CPM Roskamp Champion – Booth 1000

ERIEZ – Booth 2214
General Kinematics – Booth 1429
Jenike & Johanson – Booth 2605
Joest Inc – Booth 1350
Kamengo – Booth 2908
McLanahan Corporation – Booth 2308
MMD Mineral Sizing (America) Inc – Booth 1532
RAM Enterprise, Inc – Booth 2507
RECO Mining Solutions – Booth 1269
REESCO – Booth 2814
Schwing Bioset Inc – Booth 2617
Structural Steel & Plate Fabrication – Booth 2534
Superior Industries – Booth 2303
Syntron Material Handling – Booth 2321
TAKRAF USA Inc – Booth 2127
TerraSource Global – Booth 2712
Van Gorp Corporation – Booth 1556
Virta Inc – Booth 2451

Filters, Filter Cloth and Accessories

ANDRITZ – Booth 1412
CANTY – Booth 1521
Clear Edge Filtration – Booth 1143
Diemme Filtration SRL – Booth 1200
FM Technologies – Booth 2251
GEA Systems North America LLC – Booth 1470
Johnson Screens – Booth 1202
Kurita America Inc – Booth 1371
Landry Filtration Products Inc. – Booth 1105
Metso Outotec – Booth 2101
Netafim USA – Booth 1607
ORE-MAX – Booth 1500
PHOENIX Process Equipment – Booth 2616
Pocock Industrial, Inc – Booth 1712
Purolite, An Ecolab Company – Booth 1005
Roxia Inc – Booth 2715
Schwing Bioset Inc – Booth 2617
Sefar Inc – Booth 1305
Veolia Water Technologies – Booth 1611

WesTech Engineering, LLC – Booth 1411

Fire Protection

Aletek – Booth 2835
ASC Engineered Solutions – Booth 1820
Englo, Inc – Booth 2336
Guardian Traxol Chemicals Inc – Booth 1210
Industrial Scientific – Booth 1144
Rapid Fire Protection Inc – Booth 2826
RCT – Booth 1068
Victaulic – Booth 2320

Flotation Machines and Equipment

CANTY – Booth 1521
ERIEZ – Booth 2214
ExcelSense Technologies – Booth 2801
FLSmidth A/S – Booth 1801
Hayward Gordon ULC – Booth 1536
Hexagon's Mining division – Booth 2001
International Metallurgical Consultants SAC – Booth 2607
Iracore/Irathane Systems Inc – Booth 1317
Metso Outotec – Booth 2101
Nalco Water, an Ecolab Company – Booth 1242
Narmer-engsim LLC – Booth 1679
SRS Crisafulli, Inc – Booth 2716
Structural Steel & Plate Fabrication – Booth 2534
TAKRAF USA Inc – Booth 2127
Thermo Fisher Scientific – Booth 1003
Townley Engineering & Manufacturing, Co. Inc – Booth 2900
Westpro Machinery Inc – Booth 2322
Woodgrove Technologies – Booth 2539

Furnaces - Industrial Process

ANDRITZ – Booth 1412
BICO Inc – Booth 2427

PRODUCTS & SERVICES

CANTY – Booth 1521
Carrier Process Equipment Group
(CPEG) – Booth 1108
Kiewit – Booth 1827

Gears - Pullers, Reducers and Pinions

Dodge Industrial, Inc – Booth 1336
Flender Corporation – Booth 2424
Guardian Traxol Chemicals Inc –
Booth 1210
Hayward Gordon ULC – Booth
1536
Kraft Power Corp – Booth 1237
Regal Rexnord – Booth 1365
Rulmeca Corporation – Booth 1316
WEG Electric Corp – Booth 1427
West River Conveyors & Machinery
Co – Booth 1456

Geological-Physical-Technical Services and Equip

Ackcio – Booth 2939
Agapito Associates Inc – Booth 2027
AGRU America, Inc – Booth 1539
Call & Nicholas Inc - Call & Nicho-
las Instruments – Booth 1410
Canary Systems, Inc – Booth 1232
ConeTec Inc – Booth 1535
CoreLift – Booth 2248
Costmine – Booth 1817
Dahrouge Geological Consulting
Ltd – Booth 2837
Esri – Booth 1142
GEOKON – Booth 1710
GHD – Booth 2150
Hilfiker Retaining Walls – Booth
2210
hydroGEOPHYSICS Inc – Booth
2339
Independent Mining Consultants,
Inc – Booth 2115
IoT Automation – Booth 2542
IPI Packers – Booth 2721
Maptek – Booth 1501
Micromine – Booth 1627
Mining Plus US – Booth 1422
Montgomery & Associates – Booth
1835
National Mine Map Repository –
Booth 1049

NewFields – Booth 1839
PETRA – Booth 1666
Presto Geosystems – Booth 1452
RESPEC – Booth 1811
Rock Flow Dynamics – Booth 1065
SKAPS Industries – Booth 2713
Telemark Energy Services – Booth
2810
TopVu – Booth 2935

Government Agency - Entity

Bureau of Land Management Colo-
rado – Booth 1460
CLEER – Booth 1332
Colorado Division of Reclamation,
Mining and Safety – Booth 2436
Colorado State Land Board – Booth
1937
Department of Energy, OCED –
Booth 1669
National Institute for Occupational
Safety & Health – Booth 2011
U.S. Geological Survey (USGS),
Mineral Resources Program (MRP)
– Booth 1236
US Department of Labor/MSHA –
Booth 2422

Gravity Separators

Bunting – Booth 1670
ERIEZ – Booth 2214
FGX SepTech, LLC – Booth 2400
Joest Inc – Booth 1350
Mineral Technologies – Booth 1416
WesTech Engineering, LLC – Booth
1411

Grinding Media and Liners

Bradken – Booth 1214
CARBO Industrial Technologies –
Booth 1405
Copper State Bolt & Nut Co – Booth
1634
FC Mill Liners, Inc – Booth 1264
International Metallurgical Consul-
tants SAC – Booth 2607
McLellan Industries, Inc – Booth
1707
ME Elecmetal – Booth 1701
Metso Outotec – Booth 2101
SKAPS Industries – Booth 2713

SOLMAX – Booth 1527
Univar Solutions – Booth 1074

Grinding Mills

BICO Inc – Booth 2427
Bradken – Booth 1214
Copper State Bolt & Nut Co – Booth
1634
CPM Roskamp Champion – Booth
1000
Disa Technologies, Inc. – Booth
1575
Eirich Machines, Inc – Booth 2404
FC Mill Liners, Inc – Booth 1264
Flender Corporation – Booth 2424
FLSmith A/S – Booth 1801
General Kinematics – Booth 1429
Guardian Traxol Chemicals Inc –
Booth 1210
Heath & Sherwood (1964) Limited –
Booth 1467
International Metallurgical Consul-
tants SAC – Booth 2607
Kiewit – Booth 1827
McLellan Industries, Inc – Booth
1707
ME Elecmetal – Booth 1701
Metso Outotec – Booth 2101
Mineral Technologies – Booth 1416
RSG Inc – Booth 1516
TerraSource Global – Booth 2712
The Koeppern Group – Booth 2328
Westpro Machinery Inc – Booth
2322

Grizzlies - Feeding, Moving and Stationary

Carrier Process Equipment Group
(CPEG) – Booth 1108
Haver & Boecker Niagara – Booth
2250
Joest Inc – Booth 1350
Philippi-Hagenbuch, Inc – Booth
1949
Structural Steel & Plate Fabrication
– Booth 2534
Superior Industries – Booth 2303

Ground Freezing

beadedstream inc. – Booth 2903



Thyssen Mining Group of Companies – Booth 1424

Grouting Services, Equipment and Materials

Aerix Industries – Booth 1721
 Avanti International – Booth 2517
 ChemGrout, Inc – Booth 2513
 DSI Underground LLC – Booth 2626
 GMS Mine Repair & Maintenance – Booth 1620
 Harrison Western Construction Corporation, Inc – Booth 2233
 IPI Packers – Booth 2721
 Keller – Booth 1716
 Master Builders Solutions – Booth 2107
 Pinnacle Drilling Products – Booth 1020
 Premier Pressure Control – Booth 1066
 Putzmeister Shotcrete Technology – Booth 2621
 Simem Underground Solutions, Inc – Booth 1617
 Strata Products Worldwide, LLC – Booth 2520
 Thyssen Mining Group of Companies – Booth 1424
 WSP – Booth 2021

Heavy Media Recovery Units

ERIEZ – Booth 2214

Hoists - Controls and Accessories

Atlas Electric, Inc – Booth 1147
 FKC-Lake Shore – Booth 1504
 Hepburn Engineering Inc – Booth 2538
 Matrix Design Group – Booth 2401
 MILLER – Booth 2501
 Timberland Equipment Limited – Booth 1677

Hoses - Valves and Fittings

Baker Hughes - Flexible Pipe Solutions – Booth 1737
 Continental – Booth 2215
 Copper State Bolt & Nut Co – Booth

1634
 Evoqua Water Technologies – Booth 2238
 Hose Solutions Inc – Booth 2338
 ORE-MAX – Booth 1500
 Salem-Republic Rubber Co – Booth 2324
 Ultra Tech Pipe – Booth 2635
 United Central Industrial Supply – Booth 1933

Hydraulic System Components

Bosch Rexroth - Hågglunds Drives – Booth 2043
 Continental – Booth 2215
 Hepburn Engineering Inc – Booth 2538
 Hoffman Manufacturing, Inc – Booth 1246
 Industrial info Resources – Booth 2905
 JENNMAR – Booth 1913
 Johnson Industries Ltd – Booth 2516
 Kobelt Manufacturing Co Ltd – Booth 2437
 Kraft Power Corp – Booth 1237
 Open Loop Energy, Inc – Booth 1329
 RECO Mining Solutions – Booth 1269

Inflatable and Mechanical Packers

DSI Underground LLC – Booth 2626
 IPI Packers – Booth 2721
 JENNMAR – Booth 1913

Information Technology Products

3D-P – Booth 1560
 6Harmonics – Booth 1060
 Actenum – Booth 1151
 ASI Mining – Booth 1358
 Canary Systems, Inc – Booth 1232
 Cancha Geometallurgy – Booth 2933
 COGEP Maintenance Software – Booth 2543
 Control Station, Inc – Booth 1148
 Costmine – Booth 1817

Datamine North America Inc – Booth 2220
 DHI Water & Environment, Inc – Booth 2232
 Diesel Laptops – Booth 1101
 Emerson – Booth 1633
 Emesent – Booth 2134
 Esri – Booth 1142
 Frontier Precision Geospatial/Unmanned – Booth 1110
 Honeywell – Booth 2037
 Immersive Technologies – Booth 1509
 Information Alignment Pty Ltd – Booth 1668
 Maintenance Technology Systems, LLC (MTS) – Booth 2902
 Matrix Design Group – Booth 2401
 Micromine – Booth 1627
 MineSense – Booth 1475
 Monico Monitoring, Inc – Booth 1537
 MST Global – Booth 1045
 Orica USA – Booth 2122
 PETRA – Booth 1666
 Predictive Compliance – Booth 2032
 RCT – Booth 1068
 RDO Integrated Controls – Booth 2936
 RESPEC – Booth 1811
 Satellogic – Booth 1008
 talpasolutions GmbH – Booth 1577
 TopVu – Booth 2935
 U.S. Geological Survey (USGS), Mineral Resources Program (MRP) – Booth 1236
 WEIR Motion Metrics – Booth 1843

Insurance

Assured Partners – Booth 2450
 Skyward Specialty Insurance – Booth 2221

Ion Exchange Equipment and Resins

Aquatech International – Booth 1570
 ENVECO Environmental Solutions, LLC – Booth 2050
 Evoqua Water Technologies – Booth 2238

PRODUCTS & SERVICES

Headwater Technologies – Booth 2729
Kurita America Inc – Booth 1371
Pocock Industrial, Inc – Booth 1712
Purolite, An Ecolab Company – Booth 1005
Univar Solutions – Booth 1074
Veolia Water Technologies – Booth 1611

Kilns

CANTY – Booth 1521
Carrier Process Equipment Group (CPEG) – Booth 1108
FEECO International, Inc – Booth 1006
Guardian Traxol Chemicals Inc – Booth 1210
Louisville Dryer Company – Booth 2608
Metso Outotec – Booth 2101

Laboratory and Scientific Services

ACZ Laboratories Inc – Booth 2120
Advanced Terra Testing Inc – Booth 1932
Agapito Associates Inc – Booth 2027
BGC Engineering – Booth 2805
Blue Coast Research – Booth 1037
Call & Nicholas Inc - Call & Nicholas Instruments – Booth 1410
Cemvita – Booth 2445
Datamine North America Inc – Booth 2220
Disa Technologies, Inc. – Booth 1575
Dyno Nobel – Booth 1621
Eurofins QTA – Booth 1135
FM Technologies – Booth 2251
Forte Dynamics – Booth 2733
Geopyörä – Booth 2932
GHD – Booth 2150
hydroGEOPHYSICS Inc – Booth 2339
Jenike & Johanson – Booth 2605
Knight Piésold and Co – Booth 2207
KnightHawk Engineering, Inc – Booth 1111
LGC Standards – Booth 1071
Metcom Technologies Inc – Booth 1608

Mineral Technologies – Booth 1416
Montrose Environmental – Booth 2249
NewFields – Booth 1839
Paterson & Cooke USA, Ltd – Booth 2138
PHOENIX Process Equipment – Booth 2616
Pocock Industrial, Inc – Booth 1712
RDI Technologies – Booth 1569
RESPEC – Booth 1811
SGS Minerals Services – Booth 1700
The Mineral Lab, Inc – Booth 2135
Thermo Fisher Scientific – Booth 1003
Western Environmental Testing Lab (WETLAB) – Booth 1428
Wood – Booth 1538
WSP – Booth 2021

Laboratory Equipment and Supplies

BICO Inc – Booth 2427
CANTY – Booth 1521
CoreLift – Booth 2248
Deister Concentrator, LLC – Booth 2808
easyXAFS, LLC – Booth 2350
Forte Dynamics – Booth 2733
Haver & Boecker Niagara – Booth 2250
International Metallurgical Consultants SAC – Booth 2607
Malvern Panalytical – Booth 1502
Radom Corporation – Booth 1035
RDI Technologies – Booth 1569
Sunset Manufacturing – Booth 2637
Thermo Fisher Scientific – Booth 1003
Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581

Leaching Sprinklers

Netafim USA – Booth 1607
ORE-MAX – Booth 1500

Lighting Systems and Lamps

APS Lighting & Safety – Booth 1676
IoT Automation – Booth 2542
Nightstick – Booth 2428

Phoenix Lighting – Booth 2732
PROVIX – Booth 1353
Vision X USA – Booth 1261
x-Glo North America Inc – Booth 1351

Linings and Claddings

AGRU America, Inc – Booth 1539
American-Biltrite – Booth 1217
Baker Hughes - Flexible Pipe Solutions – Booth 1737
Blair Rubber Company – Booth 1064
Bradken – Booth 1214
Certech USA Inc – Booth 2326
CETCO – Booth 1013
Copper State Bolt & Nut Co – Booth 1634
Custom Linings, Inc – Booth 2133
hydroGEOPHYSICS Inc – Booth 2339
Inland Tarp & Liner – Booth 1360
ME Elecmetal – Booth 1701
Mechanical & Ceramic Solutions, Inc. – Booth 1582
MOGAS Industries, Inc – Booth 2737
Norseman Structures – Booth 2829
Presto Geosystems – Booth 1452
RAM Enterprise, Inc – Booth 2507
Rema Tip Top – Booth 1301
RubberSource Inc – Booth 1671
Salem-Republic Rubber Co – Booth 2324
SKAPS Industries – Booth 2713
SOLMAX – Booth 1527

Liquid Level Indicators and Switches

Laser Tech – Booth 2235
TechStar – Booth 2049
WesTech Engineering, LLC – Booth 1411

Loaders

Bradken – Booth 1214
Caterpillar – Booth 2701
CR – Booth 1250
Driver Industrial Safety – Booth 1132
Envirocon, Inc – Booth 1709



Epiroc – Booth 1921
Immersive Technologies – Booth 1509
Komatsu – Booth 1914
WEIR Motion Metrics – Booth 1843

Longwall Mining Equipment

CAB – Booth 1533
HUESKER Inc – Booth 1815
J.H. Fletcher & Co – Booth 1213
JENNMAR – Booth 1913
Komatsu – Booth 1914
Line Power Manufacturing – Booth 1601
rm wilson co – Booth 2709
Robit Inc – Booth 2722
Voith Group – Booth 2211

Lubricants and Equipment

A.W. Chesterton Company – Booth 1001
Fluid Life – Booth 2246
FUCHS LUBRICANTS CO – Booth 1564
Guardian Traxol Chemicals Inc – Booth 1210
MAPEI Corporation – Booth 1702
Midwest Industrial Supply, Inc – Booth 2420
Parkland USA – Booth 2726
RECO Mining Solutions – Booth 1269

Magnetic Separators

Bunting – Booth 1670
ERIEZ – Booth 2214
Mineral Technologies – Booth 1416
Steinert US – Booth 2048

Maintenance Equipment and Supplies

Ackcio – Booth 2939
Aletek – Booth 2835
Applied Specialties Inc – Booth 2727
Arsenal Tire Performance Tech – Booth 1259
Atlas Electric, Inc – Booth 1147
Brookville Equipment Corp – Booth 1610
CAB – Booth 1533
COGEP Maintenance Software – Booth 2543

Copper State Bolt & Nut Co – Booth 1634
Denver Machine Shop – Booth 1208
Flender Corporation – Booth 2424
FUCHS LUBRICANTS CO – Booth 1564
Guardian Traxol Chemicals Inc – Booth 1210
HYTORC, Division of UNEX Corp – Booth 1357
InduMar Products Inc – Booth 1437
Mader Group – Booth 1458
McLellan Industries, Inc – Booth 1707
Mudwizard – Booth 2244
PROVIX – Booth 1353
REESCO – Booth 2814
Rema Tip Top – Booth 1301
Timberland Equipment Limited – Booth 1677

Maintenance Services

Actenum – Booth 1151
Applied Specialties Inc – Booth 2727
Bosch Rexroth - Hågglunds Drives – Booth 2043
CCC Group, Inc – Booth 2632
COGEP Maintenance Software – Booth 2543
Custom Linings, Inc – Booth 2133
DEA Incorporated – Booth 1567
Denver Machine Shop – Booth 1208
FEECO International, Inc – Booth 1006
FKC-Lake Shore – Booth 1504
GMS Mine Repair & Maintenance – Booth 1620
Guardian Traxol Chemicals Inc – Booth 1210
Hatch – Booth 1334
Integrated Power Services – Booth 2623
Kiewit – Booth 1827
Kurita America Inc – Booth 1371
Mader Group – Booth 1458
Maintenance Technology Systems, LLC (MTS) – Booth 2902
Matrix Service Company – Booth 2532
MBA Energy and Industrial – Booth 1315

Mechanical & Ceramic Solutions, Inc. – Booth 1582
Metso Outotec – Booth 2101
MOGAS Industries, Inc – Booth 2737
Normet Americas, Inc – Booth 2433
Northwest Towers – Booth 2549
RDO Integrated Controls – Booth 2936
RECO Mining Solutions – Booth 1269
Rema Tip Top – Booth 1301
Structural Steel & Plate Fabrication – Booth 2534
TerraSource Global – Booth 2712

Measurement and Monitoring Systems

3D-P – Booth 1560
ABB – Booth 1943
ACCUTRON INSTRUMENTS INC – Booth 2937
Ackcio – Booth 2939
Arsenal Tire Performance Tech – Booth 1259
ASI Mining – Booth 1358
beadedstream inc. – Booth 2903
Call & Nicholas Inc - Call & Nicholas Instruments – Booth 1410
Canary Systems, Inc – Booth 1232
CANTY – Booth 1521
Carlson Software – Booth 2413
CiDRA Minerals Processing Inc – Booth 1606
COGEP Maintenance Software – Booth 2543
ConeTec Inc – Booth 1535
Control Station, Inc – Booth 1148
CR – Booth 1250
Emerson – Booth 1633
Emesent – Booth 2134
Fluid Life – Booth 2246
Frontier Precision Geospatial/Unmanned – Booth 1110
GEO-Instruments – Booth 1714
GEOKON – Booth 1710
Geotech Environmental Equipment, Inc – Booth 1624
GroundProbe NA LLC – Booth 2126
Haver & Boecker Niagara – Booth 2250

PRODUCTS & SERVICES

Hexagon's Mining division – Booth 2001

Honeywell – Booth 2037

Industrial Scientific – Booth 1144

Information Alignment Pty Ltd – Booth 1668

IoT Automation – Booth 2542

IWT – Booth 1526

Laser Tech – Booth 2235

LGC Standards – Booth 1071

Maestro Digital Mine – Booth 1304

Maintenance Technology Systems, LLC (MTS) – Booth 2902

Malvern Panalytical – Booth 1502

Maptek – Booth 1501

McCrometer, Inc – Booth 1361

Mine Vision Systems – Booth 1574

MOGAS Industries, Inc – Booth 2737

Monico Monitoring, Inc – Booth 1537

Montgomery & Associates – Booth 1835

Montrose Environmental – Booth 2249

Orica USA – Booth 2122

RDI Technologies – Booth 1569

Regal Rexnord – Booth 1365

RESPEC – Booth 1811

Sauls Seismic – Booth 1313

Scantech International Pty Ltd – Booth 1407

Strata Products Worldwide, LLC – Booth 2520

Strayos – Booth 1004

Sympatec – Booth 2439

TechStar – Booth 2049

Thermo Fisher Scientific – Booth 1003

TopVu – Booth 2935

Tracerco – Booth 2901

Unmanned Aerial Services Inc – Booth 1265

Vaisala Inc. – Booth 2550

WEIR Motion Metrics – Booth 1843

Wingfield Scale & Measure – Booth 1115

Worldsensing – Booth 1138

Xylem Inc – Booth 1566

Meters and Gauges

Canary Systems, Inc – Booth 1232

CiDRA Minerals Processing Inc – Booth 1606

Netafim USA – Booth 1607

ORE-MAX – Booth 1500

Sauls Seismic – Booth 1313

TechStar – Booth 2049

Thermo Fisher Scientific – Booth 1003

Tracerco – Booth 2901

Valley Forge & Bolt Mfg Co – Booth 2306

Mine Evaluations - Surface and Underground

Agapito Associates Inc – Booth 2027

Costmine – Booth 1817

Dyno Nobel – Booth 1621

Exyn Technologies – Booth 1205

Forte Dynamics – Booth 2733

Geosyntec Consultants – Booth 2225

Hatch – Booth 1334

Immersive Technologies – Booth 1509

Independent Mining Consultants, Inc – Booth 2115

Micromine – Booth 1627

Midwest Industrial Supply, Inc – Booth 2420

Mine Vision Systems – Booth 1574

NewFields – Booth 1839

Pioneering the Field: Women in Mining – Booth 1658

RESPEC – Booth 1811

Samuel Engineering, Inc – Booth 1733

United Central Industrial Supply – Booth 1933

Wood – Booth 1538

WSP – Booth 2021

Mine Operators

Acrow Corp. of America (Acrow Bridges) – Booth 1836

AECOM – Booth 1903

ANDRITZ – Booth 1412

Byrncut Group – Booth 2934

Driver Industrial Safety – Booth 1132

Eagle Mine LLC – Booth 1576

Esri – Booth 1142

Freeport-McMoRan Inc – Booth 1343

Guideline Geo Americas – Reutech – Booth 1723

Hecla Mining Company – Booth 1459

Immersive Technologies – Booth 1509

Independent Mining Consultants, Inc – Booth 2115

Industrial info Resources – Booth 2905

Micromine – Booth 1627

MP Materials – Booth 1674

Nevada Gold Mines – Booth 2700

Newmont – Booth 1243

Open Loop Energy, Inc – Booth 1329

Pioneering the Field: Women in Mining – Booth 1658

Propeller Aero – Booth 1735

Rio Tinto – Booth 1137

Mineral Prospecting

Agapito Associates Inc – Booth 2027

Colorado State Land Board – Booth 1937

Esri – Booth 1142

FGX SepTech, LLC – Booth 2400

Freeport-McMoRan Inc – Booth 1343

Pioneering the Field: Women in Mining – Booth 1658

Stewart Brothers Drilling Co – Booth 1813

Mining Contractors

Acrow Corp. of America (Acrow Bridges) – Booth 1836

AECOM – Booth 1903

Boart Longyear – Booth 2002

CCC Group, Inc – Booth 2632

Cementation USA Inc – Booth 2243

Cowin & Company/Raisebor – Booth 2717

Custom Linings, Inc – Booth 2133

Datamine North America Inc – Booth 2220

Driver Industrial Safety – Booth 1132

GMS Mine Repair & Maintenance – Booth 1620
 Harrison Western Construction Corporation, Inc – Booth 2233
 Hatch – Booth 1334
 Hoffman Manufacturing, Inc – Booth 1246
 JHL Constructors – Booth 2137
 Just Refiners USA, Inc – Booth 1667
 Kiewit – Booth 1827
 Maintenance Technology Systems, LLC (MTS) – Booth 2902
 Matrix Service Company – Booth 2532
 MBA Energy and Industrial – Booth 1315
 MES Mining – Booth 1739
 Odin Construction Solutions – Booth 1150
 Phoenix Industrial – Booth 1311
 REESCO – Booth 2814
 Stewart Brothers Drilling Co – Booth 1813
 Sync Mine Safety – Booth 2839
 THIESS Mining USA Inc – Booth 2833
 Thyssen Mining Group of Companies – Booth 1424
 Turner Mining Group – Booth 1042

Mining Gifts

Original Creations Inc – Booth 2500
 Pioneering the Field: Women in Mining – Booth 1658

Oxygen - Gas Equipment and Suppliers

ACCUTRON INSTRUMENTS INC – Booth 2937

Parts - Mining Machinery

Aletek – Booth 2835
 Arsenal Tire Performance Tech – Booth 1259
 Atlas Electric, Inc – Booth 1147
 Brunel Corp – Booth 1401
 Caterpillar – Booth 2701
 Copper State Bolt & Nut Co – Booth 1634
 CR – Booth 1250
 Epiroc – Booth 1921

Flexco – Booth 1321
 Komatsu – Booth 1914
 ME Elecmetal – Booth 1701
 Metso Outotec – Booth 2101
 Miner Elastomer – Booth 1333
 MINETEK – Booth 1026
 Normet Americas, Inc – Booth 2433
 Phoenix Lighting – Booth 2732
 Pumpaction – Booth 2834
 RAM Enterprise, Inc – Booth 2507
 RECO Mining Solutions – Booth 1269
 Robit Inc – Booth 2722
 RockTech USA, Inc – Booth 1743
 Roxsyle Systems LLC – Booth 2223
 Rulmeca Limited – Booth 1312
 TAKRAF USA Inc – Booth 2127
 Technogenia Lasercarb Oklahoma Inc – Booth 2714
 TerraSource Global – Booth 2712
 Valley Forge & Bolt Mfg Co – Booth 2306
 Van Gorp Corporation – Booth 1556
 West River Conveyors & Machinery Co – Booth 1456

Pipes

AGRU America, Inc – Booth 1539
 AIL Mining – Booth 2736
 ASC Engineered Solutions – Booth 1820
 Baker Hughes - Flexible Pipe Solutions – Booth 1737
 Bradken – Booth 1214
 Contech Engineered Solutions – Booth 2029
 DistributionNOW - Pexgol Distributor – Booth 1133
 Hose Solutions Inc – Booth 2338
 Iracore/Irathane Systems Inc – Booth 1317
 Kalenborn Abresist Corporation – Booth 2323
 Mechanical & Ceramic Solutions, Inc. – Booth 1582
 Naylor Pipe Co – Booth 1910
 Netafim USA – Booth 1607
 ORE-MAX – Booth 1500
 Rain for Rent – Booth 1833
 RAM Enterprise, Inc – Booth 2507

Structural Steel & Plate Fabrication – Booth 2534
 Townley Engineering & Manufacturing, Co. Inc – Booth 2900
 Ultra Tech Pipe – Booth 2635
 Victaulic – Booth 2320

Pollution Control Equipment

Aletek – Booth 2835
 Aquatech International – Booth 1570
 BICO Inc – Booth 2427
 Conifer Systems – Booth 1009
 EcoMister Evaporator – Booth 2402
 EMFluids Ltd – Booth 1058
 Flottweg Separation Technology, Inc – Booth 1415
 Presto Geosystems – Booth 1452
 RWI Enhanced Evaporation Services – Booth 2026
 WesTech Engineering, LLC – Booth 1411

Power Transmission Equipment

Bosch Rexroth - Hägglunds Drives – Booth 2043
 Brunel Corp – Booth 1401
 DEA Incorporated – Booth 1567
 Flender Corporation – Booth 2424
 Force Control Industries, Inc – Booth 2720
 Formsprag & Marland Clutch – Booth 1421
 Kraft Power Corp – Booth 1237
 Oklo – Booth 1683
 Regal Rexnord – Booth 1365
 SEW-EURODRIVE, Inc – Booth 2349
 Twiflex – Booth 1423
 Voith Group – Booth 2211
 Wichita Clutch – Booth 1522

Process Controls and Instruments

ACCUTRON INSTRUMENTS INC – Booth 2937
 ANDRITZ – Booth 1412
 CiDRA Minerals Processing Inc – Booth 1606

PRODUCTS & SERVICES

Control Station, Inc – Booth 1148
DEA Incorporated – Booth 1567
Eirich Machines, Inc – Booth 2404
Emerson – Booth 1633
Forte Dynamics – Booth 2733
Honeywell – Booth 2037
Kurita America Inc – Booth 1371
Laser Tech – Booth 2235
LGC Standards – Booth 1071
Malvern Panalytical – Booth 1502
PROVIX – Booth 1353
RDO Integrated Controls – Booth 2936
Rocvent Inc – Booth 2601
Scantech International Pty Ltd – Booth 1407
Sympatec – Booth 2439
TechStar – Booth 2049
Thermo Fisher Scientific – Booth 1003
Tracerco – Booth 2901
VEGA Americas, Inc – Booth 1032
Woodgrove Technologies – Booth 2539

Professional Society or Association

AIMC – Booth 2924
American Exploration & Mining Association – Booth 2113
American Institute of Professional Geologists – Booth 1823
American Rock Mechanics Association (ARMA) – Booth 2735
Canadian Institute of Mining, Metallurgy & Petroleum (CIM) – Booth 2301
Global Mining Guidelines Group – Booth 2602
Mining & Metallurgical Society of America (MMSA) – Booth 1603
Mining & Metals - Information Sharing and Analysis Centre – Booth 2600
National Stone, Sand & Gravel Association (NSSGA) – Booth 1307
Women's Mining Coalition – Booth 1605

Publishers

Canadian Institute of Mining, Metallurgy & Petroleum (CIM) – Booth 2301
Canadian Mining Journal – Booth 2711
Costmine – Booth 1817
Global Mining Review – Booth 1523
International Mining – Booth 2143
Mining Magazine – Booth 2333
Mining Media International – Booth 2111
Mining People Magazine – Booth 2825
SEMCO Publishing – Booth 1821
Springer – Booth 1558
The Mining Record – Booth 1806

Pumps

A.W. Chesterton Company – Booth 1001
ANDRITZ – Booth 1412
Avanti International – Booth 2517
Boart Longyear – Booth 2002
ChemGrout, Inc – Booth 2513
Cornell Pump Co – Booth 2300
Diemme Filtration SRL – Booth 1200
Evoqua Water Technologies – Booth 2238
FLSmidth A/S – Booth 1801
Geotech Environmental Equipment, Inc – Booth 1624
Hayward Gordon ULC – Booth 1536
Hydro, Inc – Booth 2909
HydroTech Mining – Booth 1169
Industrial info Resources – Booth 2905
Integrated Power Services – Booth 2623
Iracore/Irathane Systems Inc – Booth 1317
JENNMAR – Booth 1913
Kurita America Inc – Booth 1371
Metso Outotec – Booth 2101
Miller Sales & Engineering Inc – Booth 2242
Mudwizard – Booth 2244
NETZSCH Pumps North America, LLC – Booth 2625

Pumpaction – Booth 2834
PumpEng – Booth 2920
Putzmeister Shotcrete Technology – Booth 2621
Rain for Rent – Booth 1833
Salem-Republic Rubber Co – Booth 2324
Schwing Bioset Inc – Booth 2617
Simem Underground Solutions, Inc – Booth 1617
SRS Crisafulli, Inc – Booth 2716
Strata Products Worldwide, LLC – Booth 2520
Sulzer – Booth 2907
Technogenia Lasercarb Oklahoma Inc – Booth 2714
Townley Engineering & Manufacturing, Co. Inc – Booth 2900
Tsurumi Pump – Booth 2421
Valmet Flow Control – Booth 2006
Watson-Marlow Fluid Technology Group – Booth 2734
Xylem Inc – Booth 1566

Pyrometallurgical Processing

Heath & Sherwood (1964) Limited – Booth 1467

Quality Improvement

CANTY – Booth 1521
Carlson Software – Booth 2413
Control Station, Inc – Booth 1148
EMFluids Ltd – Booth 1058
Fluid Systems, Inc – Booth 1251
Independent Mining Consultants, Inc – Booth 2115
LGC Standards – Booth 1071
MINETEK – Booth 1026
MOGAS Industries, Inc – Booth 2737
PETRA – Booth 1666
Purolite, An Ecolab Company – Booth 1005
Samuel Engineering, Inc – Booth 1733
Somerset International – Booth 2929

Rail Systems and Supplies

Ackcio – Booth 2939
Blair Rubber Company – Booth 1064



Caterpillar – Booth 2701
 Hilfiker Retaining Walls – Booth 2210
 JENNMAR – Booth 1913
 Presto Geosystems – Booth 1452
 PROVIX – Booth 1353
 Rail-Veyor Technologies Global Inc – Booth 2407
 Savage Services – Booth 2821
 Wingfield Scale & Measure – Booth 1115

Reagents - Chemical and Flocculants

American Water Chemicals – Booth 1579
 Applied Specialties Inc – Booth 2727
 Cemvita – Booth 2445
 ChemQuest Chemicals, LLC – Booth 2634
 Chevron Phillips Chemical – Booth 1706
 Clariant Corporation – Booth 1433
 Coyne Chemical – Booth 1325
 Evoqua Water Technologies – Booth 2238
 Hexion Inc – Booth 1153
 International Metallurgical Consultants SAC – Booth 2607
 Kurita America Inc – Booth 1371
 Nalco Water, an Ecolab Company – Booth 1242
 Neo Solutions Inc – Booth 1403
 Nouryon – Booth 1525
 Pocock Industrial, Inc – Booth 1712
 Quadra Chemicals Inc – Booth 1016
 Solvay – Booth 1907
 TDC, LLC – Booth 2809
 Tessengerlo Kerley, Inc. – moleko – Booth 1514
 Univar Solutions – Booth 1074
 Westpro Machinery Inc – Booth 2322

Reclamation Equipment and Services

Acrow Corp. of America (Acrow Bridges) – Booth 1836
 Aerix Industries – Booth 1721
 Alfa Laval – Booth 2728

Carlson Software – Booth 2413
 Civil & Environmental Consultants, Inc (CEC) – Booth 1510
 Costmine – Booth 1817
 Custom Linings, Inc – Booth 2133
 DeWind One Pass Trenching LLC – Booth 1017
 EcoMister Evaporator – Booth 2402
 ENTACT – Booth 1838
 ENVECO Environmental Solutions, LLC – Booth 2050
 Envirocon, Inc – Booth 1709
 Foam Concepts LLC – Booth 1450
 Forgen – Booth 2526
 Harrison Western Construction Corporation, Inc – Booth 2233
 Iron Woman Mining Services – Booth 1934
 Maccaferri, Inc – Booth 2335
 Maptek – Booth 1501
 Odin Construction Solutions – Booth 1150
 Presto Geosystems – Booth 1452
 Rocky Mountain Bio Products - A Division of Bowman Construction Supply – Booth 1109
 RWI Enhanced Evaporation Services – Booth 2026
 SKAPS Industries – Booth 2713
 SmithCo Mfg – Booth 2636
 SRK Consulting (US), Inc – Booth 2121
 SRS Crisafulli, Inc – Booth 2716

Recruiting/Staffing

Freeport-McMoRan Inc – Booth 1343
 Newmont – Booth 1243

Reduction Technologies - Iron Ore, Steel, Mineral

Cemvita – Booth 2445
 Clariant Corporation – Booth 1433
 Kiewit – Booth 1827
 TerraSource Global – Booth 2712

Refinery Equipment

Rain for Rent – Booth 1833
 Structural Steel & Plate Fabrication – Booth 2534

Remediation

Alfa Laval – Booth 2728
 Antraquip Corporation – Booth 2332
 ARCADIS – Booth 1614
 BGC Engineering – Booth 2805
 Cemvita – Booth 2445
 CETCO – Booth 1013
 ChemGrout, Inc – Booth 2513
 Civil & Environmental Consultants, Inc (CEC) – Booth 1510
 Clariant Corporation – Booth 1433
 ConeTec Inc – Booth 1535
 Coyne Chemical – Booth 1325
 Custom Linings, Inc – Booth 2133
 DeWind One Pass Trenching LLC – Booth 1017
 Diemme Filtration SRL – Booth 1200
 EcoMister Evaporator – Booth 2402
 EMFluids Ltd – Booth 1058
 ENTACT – Booth 1838
 ENVECO Environmental Solutions, LLC – Booth 2050
 Envirocon, Inc – Booth 1709
 Forgen – Booth 2526
 Geosyntec Consultants – Booth 2225
 Geotech Environmental Equipment, Inc – Booth 1624
 GHD – Booth 2150
 Harrison Western Construction Corporation, Inc – Booth 2233
 Headwater Technologies – Booth 2729
 Iron Woman Mining Services – Booth 1934
 Keller – Booth 1716
 Knight Piésold and Co – Booth 2207
 Maccaferri, Inc – Booth 2335
 Montgomery & Associates – Booth 1835
 Montrose Environmental – Booth 2249
 Odin Construction Solutions – Booth 1150
 Presto Geosystems – Booth 1452
 Ramboll – Booth 2038
 REI Drilling, Inc – Booth 2633
 Rocky Mountain Bio Products - A Division of Bowman Construction

PRODUCTS & SERVICES

Supply – Booth 1109
RWI Enhanced Evaporation Services – Booth 2026
SKAPS Industries – Booth 2713
SOLMAX – Booth 1527
Tetra Tech – Booth 1632
Veolia Water Technologies – Booth 1611
Wood – Booth 1538
WSP – Booth 2021

Roadheaders

Antraquip Corporation – Booth 2332

Roof - Ground Supports

Agapito Associates Inc – Booth 2027
Antraquip Corporation – Booth 2332
CAB – Booth 1533
DSI Underground LLC – Booth 2626
Epiroc – Booth 1921
Geobrugg North America, LLC – Booth 2443
Harrison Western Construction Corporation, Inc – Booth 2233
HUESKER Inc – Booth 1815
J.H. Fletcher & Co – Booth 1213
JENNMAR – Booth 1913
Master Builders Solutions – Booth 2107
Minova – Booth 2533
Strata Products Worldwide, LLC – Booth 2520
Williams Form Engineering Corp – Booth 2234

Safety Awards

Applied Specialties Inc – Booth 2727
Original Creations Inc – Booth 2500

Safety Equipment

ACCUTRON INSTRUMENTS INC – Booth 2937
Aletek – Booth 2835
ASGCO Complete Conveyor Solutions – Booth 1615
ASI Mining – Booth 1358
CAB – Booth 1533
Conspec Controls – Booth 1052

Copper State Bolt & Nut Co – Booth 1634
CoreLift – Booth 2248
CR – Booth 1250
Driver Industrial Safety – Booth 1132
DSI Underground LLC – Booth 2626
ExcelSense Technologies – Booth 2801
Exyn Technologies – Booth 1205
Flexco – Booth 1321
Garmin International – Booth 2337
Geobrugg North America, LLC – Booth 2443
Immersive Technologies – Booth 1509
Industrial info Resources – Booth 2905
Industrial Scientific – Booth 1144
IoT Automation – Booth 2542
IWT – Booth 1526
Matrix Design Group – Booth 2401
McLellan Industries, Inc – Booth 1707
ME Elecmetal – Booth 1701
MINETEK – Booth 1026
Phoenix Lighting – Booth 2732
Premier Pressure Control – Booth 1066
PROVIX – Booth 1353
Rain for Rent – Booth 1833
RCT – Booth 1068
Strata Products Worldwide, LLC – Booth 2520
Sunset Manufacturing – Booth 2637
Sync Mine Safety – Booth 2839
TopVu – Booth 2935
Tunnel Radio of America, Inc – Booth 1364
Vision X USA – Booth 1261
WEIR Motion Metrics – Booth 1843
Wenco International Mining Systems – Booth 1134
x-Glo North America Inc – Booth 1351

Sampling Devices

CoreLift – Booth 2248
Heath & Sherwood (1964) Limited – Booth 1467

Industrial Scientific – Booth 1144
International Metallurgical Consultants SAC – Booth 2607
LGC Standards – Booth 1071
McLanahan Corporation – Booth 2308
Scantech International Pty Ltd – Booth 1407
Sunset Manufacturing – Booth 2637

Scales

Driver Industrial Safety – Booth 1132
Southwestern Scale Co, Inc – Booth 2807
Wingfield Scale & Measure – Booth 1115

Screens

Binder+Co USA Inc – Booth 1935
Carrier Process Equipment Group (CPEG) – Booth 1108
Derrick Corporation – Booth 1715
Federal Screen Products, Inc – Booth 1051
Fluid Systems, Inc – Booth 1251
General Kinematics – Booth 1429
Haver & Boecker Niagara – Booth 2250
Iracore/Irathane Systems Inc – Booth 1317
Joest Inc – Booth 1350
Masaba Inc – Booth 2514
McLanahan Corporation – Booth 2308
PHOENIX Process Equipment – Booth 2616
Polydeck – Booth 2429
REESCO – Booth 2814
Sandvik – Booth 2521
Superior Industries – Booth 2303
TEMA ISENMANN Inc – Booth 1507
WesTech Engineering, LLC – Booth 1411

Scrubbers

McLanahan Corporation – Booth 2308
Rocvent Inc – Booth 2601
Spendrup Fan Co – Booth 2201

Westpro Machinery Inc – Booth 2322

Seals

A.W. Chesterton Company – Booth 1001
JENNMAR – Booth 1913
Minova – Booth 2533

Sediment & Erosion Control

AGRU America, Inc – Booth 1539
Avanti International – Booth 2517
Baker Hughes - Flexible Pipe Solutions – Booth 1737
Civil & Environmental Consultants, Inc (CEC) – Booth 1510
Concrete Canvas US – Booth 2148
DeWind One Pass Trenching LLC – Booth 1017
ENTACT – Booth 1838
ENVECO Environmental Solutions, LLC – Booth 2050
Envirocon, Inc – Booth 1709
Geobruigg North America, LLC – Booth 2443
Geosyntec Consultants – Booth 2225
Inland Tarp & Liner – Booth 1360
Iron Woman Mining Services – Booth 1934
Maccaferri, Inc – Booth 2335
MAPEI Corporation – Booth 1702
Master Builders Solutions – Booth 2107
Minova – Booth 2533
NewFields – Booth 1839
Presto Geosystems – Booth 1452
Rocky Mountain Bio Products - A Division of Bowman Construction Supply – Booth 1109
SAM Solutions – Booth 1837
SKAPS Industries – Booth 2713
SRS Crisafulli, Inc – Booth 2716
WINFAB – Booth 1043

Sensors

A.W. Chesterton Company – Booth 1001
ABB – Booth 1943
ACCUTRON INSTRUMENTS INC – Booth 2937

Arsenal Tire Performance Tech – Booth 1259
ASI Mining – Booth 1358
Binder+Co USA Inc – Booth 1935
Canary Systems, Inc – Booth 1232
CiDRA Minerals Processing Inc – Booth 1606
Emerson – Booth 1633
Fluid Life – Booth 2246
GEO-Instruments – Booth 1714
GEOKON – Booth 1710
Howden Canada Inc – Booth 1515
Hydro, Inc – Booth 2909
Industrial Scientific – Booth 1144
Laser Tech – Booth 2235
Maestro Digital Mine – Booth 1304
Maintenance Technology Systems, LLC (MTS) – Booth 2902
Matrix Design Group – Booth 2401
Mine Vision Systems – Booth 1574
Orica USA – Booth 2122
PROVIX – Booth 1353
RDI Technologies – Booth 1569
Regal Rexnord – Booth 1365
Satellogic – Booth 1008
Steinert US – Booth 2048
Sympatec – Booth 2439
TOMRA Sorting – Booth 1938
UE Systems, Inc – Booth 1461
Unmanned Aerial Services Inc – Booth 1265
WEIR Motion Metrics – Booth 1843
Worldsensing – Booth 1138

Separators and Concentrators

Alfa Laval – Booth 2728
ANDRITZ – Booth 1412
Binder+Co USA Inc – Booth 1935
Deister Concentrator, LLC – Booth 2808
Derrick Corporation – Booth 1715
Flottweg Separation Technology, Inc – Booth 1415
FLSmdith A/S – Booth 1801
FM Technologies – Booth 2251
Joest Inc – Booth 1350
Mineral Technologies – Booth 1416
NobleMEIR, Inc – Booth 1234
PHOENIX Process Equipment – Booth 2616

RSG Inc – Booth 1516
Somerset International – Booth 2929
Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581
TOMRA Sorting – Booth 1938
WesTech Engineering, LLC – Booth 1411
Westpro Machinery Inc – Booth 2322

Shortwall Mining Equipment

Atlas Electric, Inc – Booth 1147
J.H. Fletcher & Co – Booth 1213
SmithCo Mfg – Booth 2636

Shotcrete Equipment, Supplies and Services

Bekaert – Booth 2208
Byrncut Group – Booth 2934
Custom Linings, Inc – Booth 2133
GMS Mine Repair & Maintenance – Booth 1620
Harrison Western Construction Corporation, Inc – Booth 2233
JENNMAR – Booth 1913
MAPEI Corporation – Booth 1702
Master Builders Solutions – Booth 2107
Minova – Booth 2533
Normet Americas, Inc – Booth 2433
Pumpaction – Booth 2834
Putzmeister Shotcrete Technology – Booth 2621
Simem Underground Solutions, Inc – Booth 1617
Thyssen Mining Group of Companies – Booth 1424

Solar Electric Power System

3D-P – Booth 1560
Industrial info Resources – Booth 2905
Oklo – Booth 1683

Solvents - Extraction, Mixer and Settlers

Cemvita – Booth 2445
ChemQuest Chemicals, LLC – Booth 2634

PRODUCTS & SERVICES

Chevron Phillips Chemical – Booth 1706
Clariant Corporation – Booth 1433
Coyne Chemical – Booth 1325
Flottweg Separation Technology, Inc – Booth 1415
Guardian Traxol Chemicals Inc – Booth 1210
Hayward Gordon ULC – Booth 1536
Quinn Process Equipment Co – Booth 1726
Solvay – Booth 1907
Univar Solutions – Booth 1074

Steel Pipe

AIL Mining – Booth 2736
Contech Engineered Solutions – Booth 2029
Industrial info Resources – Booth 2905
Kalenborn Abresist Corporation – Booth 2323
Mechanical & Ceramic Solutions, Inc. – Booth 1582
Mill Man Steel, Inc – Booth 2033
Naylor Pipe Co – Booth 1910
Putzmeister Shotcrete Technology – Booth 2621
REI Drilling, Inc – Booth 2633
Structural Steel & Plate Fabrication – Booth 2534
Ultra Tech Pipe – Booth 2635

Steel Wire Ropes/Cables

Bekaert – Booth 2208
Minova – Booth 2533

Surveying Equipment and Supplies

Carlson Software – Booth 2413
Esri – Booth 1142
Exyn Technologies – Booth 1205
Frontier Precision Geospatial/Unmanned – Booth 1110
GEO-Instruments – Booth 1714
Maptek – Booth 1501
Mine Vision Systems – Booth 1574
NSS Canada – Booth 1204
Propeller Aero – Booth 1735

RDO Integrated Controls – Booth 2936
RockTech USA, Inc – Booth 1743
Sunset Manufacturing – Booth 2637
Wingfield Scale & Measure – Booth 1115
Wingtra AG – Booth 1136

Temporary Structures

Acrow Corp. of America (Acrow Bridges) – Booth 1836
AIL Mining – Booth 2736
All Weather Air – Booth 2828
Atlas Electric, Inc – Booth 1147
ClearSpan Structures – Booth 2342
GNB Global Inc – Booth 2147
Hilfiker Retaining Walls – Booth 2210
Iron Woman Mining Services – Booth 1934
Norseman Structures – Booth 2829

Thickeners

Alfa Laval – Booth 2728
Aquatech International – Booth 1570
Diemme Filtration SRL – Booth 1200
FLSmidth A/S – Booth 1801
International Metallurgical Consultants SAC – Booth 2607
McLanahan Corporation – Booth 2308
Nalco Water, an Ecolab Company – Booth 1242
Nouryon – Booth 1525
PHOENIX Process Equipment – Booth 2616
Pocock Industrial, Inc – Booth 1712
Schwing Bioset Inc – Booth 2617
TAKRAF USA Inc – Booth 2127
Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581
WesTech Engineering, LLC – Booth 1411
Westpro Machinery Inc – Booth 2322

Training Services

AIMC – Booth 2924
ANDRITZ – Booth 1412

ASC Engineered Solutions – Booth 1820
Check-6/Biz X Group – Booth 1165
Copper State Bolt & Nut Co – Booth 1634
Datamine North America Inc – Booth 2220
Emerson – Booth 1633
Fluid Life – Booth 2246
Hatch – Booth 1334
Hydro, Inc – Booth 2909
Immersive Technologies – Booth 1509
Industrial Scientific – Booth 1144
International Metallurgical Consultants SAC – Booth 2607
J.H. Fletcher & Co – Booth 1213
Jenike & Johanson – Booth 2605
Maptek – Booth 1501
Metcom Technologies Inc – Booth 1608
Metsim International – Booth 2614
Minova – Booth 2533
Narmer-engsim LLC – Booth 1679
Normet Americas, Inc – Booth 2433
Northwest Towers – Booth 2549
Predictive Compliance – Booth 2032
Quadra Chemicals Inc – Booth 1016
RCT – Booth 1068
Wood – Booth 1538

Transportation

Acrow Corp. of America (Acrow Bridges) – Booth 1836
Arsenal Tire Performance Tech – Booth 1259
BEUMER Group – Booth 2343
Bridgestone Americas Tire Operations – Booth 2704
Brookville Equipment Corp – Booth 1610
Datamine North America Inc – Booth 2220
Driver Industrial Safety – Booth 1132
HYTORC, Division of UNEX Corp – Booth 1357
Industrial info Resources – Booth 2905
Iron Woman Mining Services – Booth 1934

MBA Energy and Industrial – Booth 1315
 Philippi-Hagenbuch, Inc – Booth 1949
 Rail-Veyor Technologies Global Inc – Booth 2407
 Savage Services – Booth 2821
 TDC, LLC – Booth 2809
 Valmet Flow Control – Booth 2006
 Wood – Booth 1538
 WSP – Booth 2021

Trucks and Haulage Units

ASI Mining – Booth 1358
 Brookville Equipment Corp – Booth 1610
 Caterpillar – Booth 2701
 Driver Industrial Safety – Booth 1132
 Epiroc – Booth 1921
 ExcelSense Technologies – Booth 2801
 Hilfiker Retaining Walls – Booth 2210
 Immersive Technologies – Booth 1509
 Komatsu – Booth 1914
 Liebherr – Booth 1678
 McLellan Industries, Inc – Booth 1707
 Micromine – Booth 1627
 Miner Elastomer – Booth 1333
 Philippi-Hagenbuch, Inc – Booth 1949
 Rail-Veyor Technologies Global Inc – Booth 2407
 Sandvik – Booth 2521
 Savage Services – Booth 2821
 SmithCo Mfg – Booth 2636
 Wenco International Mining Systems – Booth 1134

Tunnel Boring Equipment

Alfa Laval – Booth 2728
 Antraquip Corporation – Booth 2332
 Atlas Electric, Inc – Booth 1147
 Brunel Corp – Booth 1401
 Herrenknecht Tunneling Systems USA, Inc – Booth 2206

Line Power Manufacturing – Booth 1601
 Premier Pressure Control – Booth 1066
 PROVIX – Booth 1353
 Schwing Bioset Inc – Booth 2617
 Simem Underground Solutions, Inc – Booth 1617
 Spendrup Fan Co – Booth 2201
 Thyssen Mining Group of Companies – Booth 1424

Tunnel Lining and Support Materials

AIL Mining – Booth 2736
 Antraquip Corporation – Booth 2332
 Bekaert – Booth 2208
 CAB – Booth 1533
 CETCO – Booth 1013
 Contech Engineered Solutions – Booth 2029
 Custom Linings, Inc – Booth 2133
 DSI Underground LLC – Booth 2626
 Geobrugg North America, LLC – Booth 2443
 Inland Tarp & Liner – Booth 1360
 MAPEI Corporation – Booth 1702
 Master Builders Solutions – Booth 2107
 Minova – Booth 2533
 Putzmeister Shotcrete Technology – Booth 2621
 Robit Inc – Booth 2722
 Rocvent Inc – Booth 2601
 SKAPS Industries – Booth 2713
 SOLMAX – Booth 1527
 Thyssen Mining Group of Companies – Booth 1424

Underground - Construction and Structures

Acrow Corp. of America (Acrow Bridges) – Booth 1836
 AIL Mining – Booth 2736
 Antraquip Corporation – Booth 2332
 Bekaert – Booth 2208
 Byrncut Group – Booth 2934
 CAB – Booth 1533

Cementation USA Inc – Booth 2243
 Contech Engineered Solutions – Booth 2029
 Cowin & Company/Raisebor – Booth 2717
 DeWind One Pass Trenching LLC – Booth 1017
 DSI Underground LLC – Booth 2626
 FKC-Lake Shore – Booth 1504
 GMS Mine Repair & Maintenance – Booth 1620
 Harrison Western Construction Corporation, Inc – Booth 2233
 Hatch – Booth 1334
 Hilfiker Retaining Walls – Booth 2210
 Hoffman Manufacturing, Inc – Booth 1246
 Inland Tarp & Liner – Booth 1360
 IPI Packers – Booth 2721
 Iron Woman Mining Services – Booth 1934
 Keller – Booth 1716
 Kiewit – Booth 1827
 MBA Energy and Industrial – Booth 1315
 MES Mining – Booth 1739
 MILLER – Booth 2501
 Mine Vision Systems – Booth 1574
 Minova – Booth 2533
 Mitsubishi Materials USA Corp – Booth 2706
 Normet Americas, Inc – Booth 2433
 Odin Construction Solutions – Booth 1150
 Presto Geosystems – Booth 1452
 Putzmeister Shotcrete Technology – Booth 2621
 RAM Enterprise, Inc – Booth 2507
 Robit Inc – Booth 2722
 Syntron Material Handling – Booth 2321
 Thyssen Mining Group of Companies – Booth 1424

Underground Excavation Services and Equipment

Antraquip Corporation – Booth 2332

PRODUCTS & SERVICES

Arsenal Tire Performance Tech – Booth 1259
Brookville Equipment Corp – Booth 1610
Caterpillar – Booth 2701
Cementation USA Inc – Booth 2243
Cowin & Company/Raisebor – Booth 2717
CR – Booth 1250
Harrison Western Construction Corporation, Inc – Booth 2233
Hatch – Booth 1334
Iron Woman Mining Services – Booth 1934
MAPEI Corporation – Booth 1702
Master Builders Solutions – Booth 2107
MES Mining – Booth 1739
Mine Vision Systems – Booth 1574
Miner Elastomer – Booth 1333
Mining Equipment, Ltd – Booth 1927
Phoenix Lighting – Booth 2732
Premier Pressure Control – Booth 1066
Sandvik – Booth 2521
Technogenia Lasercarb Oklahoma Inc – Booth 2714
Thyssen Mining Group of Companies – Booth 1424

Urethane Cast Parts

A.W. Chesterton Company – Booth 1001
Haver & Boecker Niagara – Booth 2250
Iracore/Irathane Systems Inc – Booth 1317
TEMA ISENMANN Inc – Booth 1507
Townley Engineering & Manufacturing, Co. Inc – Booth 2900

Valves

A.W. Chesterton Company – Booth 1001
Apollo Valves – Booth 2738
ASC Engineered Solutions – Booth 1820
Bray Controls – Booth 2229
Emerson – Booth 1633

Evoqua Water Technologies – Booth 2238
Industrial info Resources – Booth 2905
K&M Industrial Valve Supply – Booth 1170
Kurita America Inc – Booth 1371
MOGAS Industries, Inc – Booth 2737
Netafim USA – Booth 1607
ORE-MAX – Booth 1500
OXO VALVE – Booth 1038
Premier Pressure Control – Booth 1066
TechStar – Booth 2049
Townley Engineering & Manufacturing, Co. Inc – Booth 2900
Ultra Tech Pipe – Booth 2635
Valmet Flow Control – Booth 2006
Vitaulic – Booth 2320

Ventilation Systems, Materials and Equipment

ACCUTRON INSTRUMENTS INC – Booth 2937
Agapito Associates Inc – Booth 2027
BBE Consulting Canada – Booth 1102
CAB – Booth 1533
Conifer Systems – Booth 1009
Englo, Inc – Booth 2336
G+ Plastics – Booth 2548
Hoffman Manufacturing, Inc – Booth 1246
Howden Canada Inc – Booth 1515
JENNMAR – Booth 1913
Maestro Digital Mine – Booth 1304
MINETEK – Booth 1026
Mining Equipment, Ltd – Booth 1927
Rocvent Inc – Booth 2601
Schauenburg Flexadux – Booth 2139
Spendrup Fan Co – Booth 2201
SRK Consulting (US), Inc – Booth 2121
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Thyssen Mining Group of Companies – Booth 1424
TLT-Turbo, Inc – Booth 1310
Zitron USA, LLC – Booth 2334

Washing Plants

Baker Hughes - Flexible Pipe Solutions – Booth 1737
Haver & Boecker Niagara – Booth 2250
Masaba Inc – Booth 2514
McLanahan Corporation – Booth 2308
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REESCO – Booth 2814
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Superior Industries – Booth 2303
Westpro Machinery Inc – Booth 2322

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EcoMister Evaporator – Booth 2402
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Evoqua Water Technologies – Booth 2238
Fluid Systems, Inc – Booth 1251
Geosyntec Consultants – Booth 2225
GHD – Booth 2150
Headwater Technologies – Booth 2729
HydroTech Mining – Booth 1169
Kurita America Inc – Booth 1371
Linkan Engineering – Booth 1426



McLanahan Corporation – Booth 2308
 Mudwizard – Booth 2244
 Nalco Water, an Ecolab Company – Booth 1242
 Netafim USA – Booth 1607
 Nouryon – Booth 1525
 PHOENIX Process Equipment – Booth 2616
 Pocock Industrial, Inc – Booth 1712
 Purolite, An Ecolab Company – Booth 1005
 Quadra Chemicals Inc – Booth 1016
 RECO Mining Solutions – Booth 1269
 Roxia Inc – Booth 2715
 RWI Enhanced Evaporation Services – Booth 2026
 Simem Underground Solutions, Inc – Booth 1617

Somerset International – Booth 2929
 SRK Consulting (US), Inc – Booth 2121
 SRS Crisafulli, Inc – Booth 2716
 TDC, LLC – Booth 2809
 Thomas Broadbent & Sons Ltd, Industrial Process Division – Booth 1581
 Toray Membrane USA – Booth 1235
 Valmet Flow Control – Booth 2006
 Veolia Water Technologies – Booth 1611
 WesTech Engineering, LLC – Booth 1411
 Wood – Booth 1538
 Xylem Inc – Booth 1566

Welding Equipment and Supplies

ASC Engineered Solutions – Booth 1820
 Leister Technologies, LLC – Booth 1034
 Technogenia Lasercarb Oklahoma Inc – Booth 2714

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