

# 29. MINERALS

Although all the surface rocks of Florida are relatively new sediments, the state has a considerable mineral industry. The most important rock products are sand and gravel, which are used in the construction of roads and buildings. Large deposits of sand and clay are also valuable. In

Sources: Florida Geological Survey, Tallahassee; L. E. Shirley and R. O. Vernon, *The Mineral Industry of Florida*, Washington, D. C., 1960; U. S. Bureau of Mines, *Minerals Yearbook*, 1960, Washington, D. C.; Florida State Chamber of Commerce, *Directory of Florida Industries*, Jacksonville, 1961. Map modified from J. L. Calves.

1961 mineral production was valued at more than \$185 million at the mine or quarry. The mineral industry is one of the most important in the state. Florida's many mines and quarries employ over 9,000 people.

## PHOSPHATE

Florida produces three-fourths of our nation's phosphate. Most production comes from "pebbles" embedded in sediments. Polk and Hillsborough Counties are the major producers. Most is used for fertilizer; some of it is added to livestock feed. The remainder is used in chemical industries, generally as phosphoric acid. Some uranium is found in the phosphate formations.



## CLAYS

Common clays are used for bricks, tiles, sewer pipes, and pottery. When burned, they form a lightweight concrete aggregate. Kaolin is mined and milled in Putnam County. Kaolin is a fine white clay used for refractory lining, filler in rubber and linoleum, cement, and bricks. High-grade kaolin is used in the paper industry. The Florida Geological Survey is conducting a study of the state's clay resources.

## PEAT

Large areas of Florida have this consolidated humus material, and the state ranks second in the nation. Peat is used as a soil conditioner. Nurseries are the principal users.

## SAND and GRAVEL

Pure silica sand occurs at many places in central Florida. Coastal sands have some shell intermixture. Some glass sand is obtained as a by-product in kaolin processing. Most sand goes into concrete for roads and buildings. Sand is valued at only about one dollar per ton at the pit, but consumer price depends upon transportation cost. Crushed stone is obtained from lime rock. The supply is abundant and is used for road building and concrete. Hard rock and quartz pebbles must be imported.

## HEAVY MINERALS

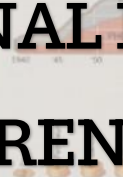
In some areas, especially along Trail Ridge and on the Atlantic beaches, small amounts of "heavy" minerals are mixed with the silica sands. Florida is the second largest producer in the United States. The major heavy minerals are ilmenite and rutile (titanium ores used in paints and jet engines); zircon (used in foundries, gas engines, and atomic reactors); monazite, which contains thorium (used in atomic reactors); cerium (used in sparking flints); staurolite (used in cement plants); and garnet sand (used in abrasives).



HEAVY-MINERAL PRODUCTION

## VALUE OF MINERAL PRODUCTION

at mine or quarry



## LIMESTONE

Florida limestone is used in three ways. Crushed, it serves as road surfacing material. Pulverized, it is used in cement manufacture and fertilizers. As cut stone, it is used for buildings. Crushed stone is quarried in many areas. Eighty-four per cent of the state's production was used for roads and building concrete in 1960.

## OIL and GAS

Although Florida has a sedimentary geology, petroleum discoveries have thus far been small. A pipe line from McAllen, Texas, was constructed recently. Capacity is about 280 million cubic feet of gas per day delivered by 1,477 miles of 24-inch trunk line.

## CEMENT

Cement plants at Bunnell, Tampa, and Miami are able to supply most of Florida's needs. Florida has all the necessary ingredients for cement: lime, sand, and clay. Coquina rock supplies the lime in the new Miami plants.



# 39<sup>TH</sup> ANNUAL FLORIDA SME REGIONAL MINING CONFERENCE

Trinkle Center at HCC  
Plant City, Florida

October 14<sup>th</sup> & 15<sup>th</sup>, 2026



FLSME | AFPC | FAPG | AIPG | AICHe

The background of the advertisement is a photograph of a construction or quarry site. Two workers, a man and a woman, are in the foreground. They are both wearing white hard hats, safety glasses, and bright yellow high-visibility shirts. They are holding and looking at a large set of blueprints. Behind them is a large yellow bulldozer. In the far background, there are large piles of grey material, likely gravel or crushed stone, and a tall conveyor belt structure against a cloudy sky.

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# WELCOME AND OVERVIEW



**The Florida Section of the Society for Mining, Metallurgy & Exploration (FLSME)**

**welcomes you to the 38th Annual Regional Mining Conference co-sponsored by the FLSME, the American Institute for Chemical Engineers (AIChE), the**

**Florida Association of Professional Geologists (FAPG - AIPG), and the Association of Fertilizer and Phosphate Chemists (AFPC).**

Everything consumed, processed and/or manufactured in our society initially comes from the ground. Mined materials are critical to the everyday lives of virtually every human on the planet. Everything from the basics of food, clothing, and housing to the modern necessities of technology, jewelry, and automobiles all depend on mined materials.

Over the next few days explore industry best practices, learn from new research and cutting-edge processes. Hear from mining, chemical processing, reclamation, and environmental experts from around the world and exchange technical information and ideas.

As ambassadors of the mining industry, it is our responsibility to educate our communities on the benefits of mining, the everyday products mining supports and the environmental care the industry takes in restoring the land. Network, grow, and spread the word from the ground up.

# THANK YOU TO OUR GENEROUS CONFERENCE SPONSORS

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# 2026 CONFERENCE COMMITTEE MEMBERS

|                                      |                                                                            |                                                                       |
|--------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Conference Chairman                  | Todd Parker                                                                |                                                                       |
| Venue Arrangements and Catering      | Mining Chemicals Development<br>Arkema ArrMaz Products Inc.                |                                                                       |
| Conference Co-Chairman               | Zachary R. Bauer                                                           |                                                                       |
| Technical Session Co-Chairman        | Research Chemist<br>Arkema ArrMaz Products Inc.                            |                                                                       |
| Technical Session Co-Chairman        | Jennifer B. Lee, P.E.                                                      |                                                                       |
| Exhibit and Sponsors                 | Sr. Process Engineer                                                       |                                                                       |
| Conference Program                   | PENN PRO Engineering                                                       |                                                                       |
| General Session                      | Russell Schweiss<br>Sr. Director, Land & Resource Management<br>Mosaic     |                                                                       |
| Chemical Processing                  | Todd Parker<br>Mining Chemicals Development<br>Arkema ArrMaz Products Inc. |                                                                       |
| General Interest                     | Tony Hoffman<br>Remediation Project Director<br>GHD USA                    |                                                                       |
| Geology                              | Matthew Lewis<br>Director of Aggregate Resources<br>CEMEX                  | Chuck Drake<br>Director Water Resources<br>Bio-Tech Consulting        |
| Health, Safety & Environmental       | Ken Cellupica, CRM, CSP<br>Safety Manager<br>SurvTech Solutions, Inc.      |                                                                       |
| Innovation / Technology / AI         | Harry Helmrich<br>President<br>Monomer Software                            |                                                                       |
| Mineral Processing                   | Zak Tollefson<br>Process Engineering Superintendent<br>Mosaic              |                                                                       |
| Mining & Mine Planning               | Brian Ball<br>Sr. Manager, Mine Engineering<br>Mosaic                      |                                                                       |
| Reclamation, Regulatory & Permitting | Bart Davis<br>Senior Geologist<br>The Chemours Company                     |                                                                       |
| Finance Chair                        | David O'Brien, SM, CFedS, CFS<br>SurvTech Solutions, Inc.                  |                                                                       |
| Professional Development Hours       | Frank Foreback, P.E.                                                       |                                                                       |
| Golf Extravaganza                    | George Opderbeck<br>Reclamation Field Coordinator<br>The Mosaic Company    | Jennifer B. Lee, P.E.<br>Sr. Process Engineer<br>PENN PRO Engineering |



# KEYNOTE SPEAKER

Thursday, October 15<sup>th</sup>, 2026

Lunch, Room 100

Noon - 1:15pm

## My Brain Made Me Do It: Psychological Drivers of Employee Behavior

**Presented by Stephen Peterson | Caterpillar Safety Services**

Every day, employees make thousands of decisions influenced by experience, habits, emotions, social pressures, and subconscious brain processes. When leaders understand *why* people behave the way they do, they gain a powerful advantage in improving safety, performance, and culture.

Join Stephen Peterson for an engaging, thought-provoking session that explores the hidden psychological and biological factors behind employee behavior. Through real-world stories, practical examples, and actionable insights, this session will help you achieve an understanding of the psychological mechanics behind risk assessment, human reaction, and communicating in a way people will pay attention.

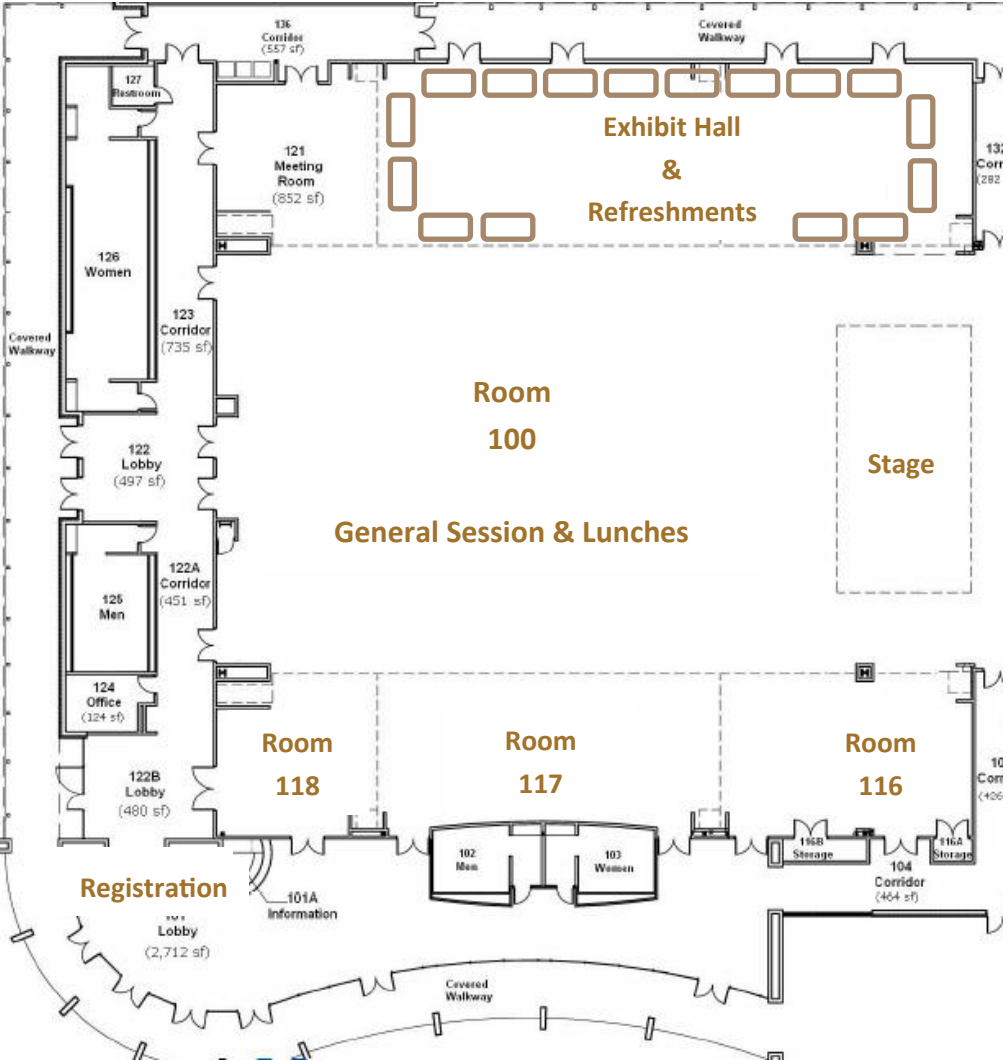
### In This Session You'll Learn:

- Why people assess risk differently than leaders expect
- How culture, experience, and psychology shape decision-making
- Ways to communicate that capture attention and inspire action
- Practical strategies to improve safety performance and engagement

**One insight could change how you view human behavior forever.**

*"The next incident investigation may not start with asking what went wrong... but understanding why it made sense at the time."*

# CONFERENCE LAYOUT



Parking Lot

# CONFERENCE AGENDA

## Tuesday, October 13th, 2026

|                  |                   |                         |
|------------------|-------------------|-------------------------|
| 11:30am – 7:00pm | GOLF EXTRAVAGANZA | The Club at Eaglebrooke |
|------------------|-------------------|-------------------------|

## Wednesday, October 14th, 2026

|                 |              |                      |
|-----------------|--------------|----------------------|
| 7:30am – 1:00pm | REGISTRATION | Trinkle Center Lobby |
|-----------------|--------------|----------------------|

|        |                    |  |
|--------|--------------------|--|
| 7:30am | EXHIBIT HALL OPENS |  |
|--------|--------------------|--|

|               |                 |          |
|---------------|-----------------|----------|
| 8:00am – Noon | GENERAL SESSION | Room 100 |
|---------------|-----------------|----------|

|               |                                       |          |
|---------------|---------------------------------------|----------|
| Noon - 1:30pm | 2026 HERO OF THE INDUSTRY<br>LUNCHEON | Room 100 |
|---------------|---------------------------------------|----------|

Recognizing the 2026 Heroes of the Industry from the sponsoring societies

|                 |                                      |          |
|-----------------|--------------------------------------|----------|
| 1:30pm - 4:25pm | TECHNICAL SESSIONS                   |          |
|                 | Reclamation, Regulatory & Permitting | Room 116 |
|                 | Geology                              | Room 117 |
|                 | General Interest                     | Room 118 |

|                 |                                 |  |
|-----------------|---------------------------------|--|
| 2:35pm - 3:20pm | AFTERNOON BREAK IN EXHIBIT HALL |  |
|-----------------|---------------------------------|--|

|                 |                                  |  |
|-----------------|----------------------------------|--|
| 4:30pm - 5:00pm | ICE CREAM SOCIAL IN EXHIBIT HALL |  |
|-----------------|----------------------------------|--|

# CONFERENCE AGENDA

Thursday, October 15th, 2026

|                  |                                 |                      |
|------------------|---------------------------------|----------------------|
| 7:30am – 11:00am | REGISTRATION                    | Trinkle Center Lobby |
| 7:30am           | EXHIBIT HALL OPENS              |                      |
| 8:00am – 11:30am | TECHNICAL SESSIONS              |                      |
|                  | Mineral Processing              | Room 116             |
|                  | Mining & Mine Planning          | Room 117             |
|                  | Health, Safety & Environmental  | Room 118             |
| 9:35am- 10:25am  | MORNING BREAK IN EXHIBIT HALL   |                      |
| 11:30am - 1:15pm | KEYNOTE LUNCHEON                | Room 100             |
| 1:15pm - 3:50pm  | TECHNICAL SESSIONS              |                      |
|                  | Chemical Processing             | Room 116             |
|                  | Innovation & Technology         | Room 117             |
| 2:20pm - 2:45pm  | AFTERNOON BREAK IN EXHIBIT HALL |                      |

## GENERAL SESSION PROGRAM

|       |                                                                    |                    |                                                      |                                                           |
|-------|--------------------------------------------------------------------|--------------------|------------------------------------------------------|-----------------------------------------------------------|
| 8:00  | Conference Opening Remarks                                         | Zach Bauer         | Research Chemist                                     | Arkema ArrMaz Products Inc.                               |
| 8:05  | General Session Welcome                                            | Russell Schweiss   | Sr. Director, Land & Resource Management             | Mosaic                                                    |
| 8:15  | Chemours Trail Ridge South Mine – Critical and Industrial Minerals | Bart Davis         | Senior Geologist                                     | The Chemours Company                                      |
| 8:40  | Automation AI & Vision Systems for Improving Phosphate Production  | Ethan Hull         | Sr Director Enterprise Operations Technology         | Mosaic                                                    |
| 9:05  | US Phosphate Market Update                                         | Taylor Zavala      | North American Fertilizer Deputy Editor              | Argus Media                                               |
| 9:55  | Mosaic Maintenance Training and Campus                             | Tonk Chester       | Enterprise Training Manager - Industrial Maintenance | Mosaic                                                    |
| 10:20 | Shifting Ground: Legislative and Regulatory Developments           | Felicia Kitzmiller | Shareholder                                          | Stearns Weaver Miller Weissler Alhadeff & Sitterson, P.A. |
| 10:45 | Lessons Learned: Permitting Processes                              | Stan Posey         | Senior Manager, Environment/ Land                    | Nutrien                                                   |
| 11:10 | Questions and Answers                                              | Russell Schweiss   | Sr. Director, Land & Resource Management             | Mosaic                                                    |

# TECHNICAL SESSION SCHEDULE

Wednesday, October 14th, 2026

|                                                     |                                                                                                                                                                                                       |                                                                                                                                                                     |                                                                                                                                   |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Schedule</b>                                     |                                                                                                                                                                                                       |                                                                                                                                                                     |                                                                                                                                   |
| <b>Wednesday AM<br/>October 14<br/>8:00 - 12:00</b> | <u>General Session</u><br><br>Room 100                                                                                                                                                                |                                                                                                                                                                     |                                                                                                                                   |
| <b>Schedule</b>                                     | <b>Room 116</b>                                                                                                                                                                                       | <b>Room 117</b>                                                                                                                                                     | <b>Room 118</b>                                                                                                                   |
| <b>Wednesday PM<br/>October 14</b>                  | <u>Reclamation, Regulatory &amp; Permitting</u>                                                                                                                                                       | <u>Geology</u>                                                                                                                                                      | <u>General Interest</u>                                                                                                           |
| 1:30 - 2:00                                         | Ed Murawski - Mining Market Leader, Southeast - Kleinfelder<br><u>Design and Application of Bottomless Culverts in Quarry Environments</u>                                                            | Scott Nyhof, PG - Prospect & Exploration Geologist - Mosaic<br><u>Changes in Prospect Drilling: Tracking in Real-Time with Enhanced GIS Tools</u>                   | Vaughn Astley - President - Dr Phosphate Inc<br><u>The Occurrence of Serendipity in my 50 Years of R&amp;D</u>                    |
| 2:05 - 2:35                                         | Robert Chance - Associate Geologist - WSP<br><u>How Many Piezometers Are Too Many? Lessons from Statistical and Machine Learning Evaluation of Groundwater Monitoring Networks</u>                    | Corey Dobson, PG - Senior Hydrogeologist - Mosaic<br><u>Efficient Use of Mobile GIS Capabilities for Efficient Planning And Management of Mine Dewatering Wells</u> | Dan Jenkins - Technology Officer - Steel Camel<br><u>Preventing and Mitigating Condensation in Enclosures to Reduce Corrosion</u> |
| <b>Break</b>                                        |                                                                                                                                                                                                       |                                                                                                                                                                     |                                                                                                                                   |
| 3:20 - 3:50                                         | Lauren Deaner - Sr. Ecologist II - Verdantas, Dr. Raoul Boughton - Sr. Ecologist - Mosaic<br><u>From Mitigation to Genetic Rescue: Early Outcomes of a Florida Scrub-Jay Translocation Initiative</u> | Douglas P. Dufresne, PG - Project Director/Senior Hydrogeologist - Ardaman & Associates, Inc.<br><u>Refining the Zone</u>                                           |                                                                                                                                   |
| 3:55 - 4:25                                         | Brian Studiale, PG, PMP - Senior Project Coordinator - Mosaic<br><u>Creative Solutions When Insufficient Mitigation Credits are Available for Purchase</u>                                            | Bart Weiss, PG - Chief Officer for Innovation, Resiliency, and Sustainability - Hillsborough County, Florida<br><u>South Hillsborough Aquifer Recharge Program</u>  |                                                                                                                                   |
| <b>Wednesday PM<br/>October 14<br/>4:30 - 5:00</b>  | <u>Ice Cream Social</u><br><br>Exhibit Hall / Room 100                                                                                                                                                |                                                                                                                                                                     |                                                                                                                                   |

# TECHNICAL SESSION SCHEDULE

Thursday, October 15th, 2026

| Schedule                  | Room 116                                                                                                                                                                                                                          | Room 117                                                                                                                                                                                                                                      | Room 118                                                                                                                                                                                                           |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thursday AM<br>October 15 | <b><u>Mineral Processing</u></b>                                                                                                                                                                                                  | <b><u>Mining &amp; Mine Planning</u></b>                                                                                                                                                                                                      | <b><u>Health, Safety &amp; Environmental</u></b>                                                                                                                                                                   |
| 8:30 - 9:00               | Maoming Fan - Senior Process Engineer,<br>Dual PhD. - Eriez Magnetics<br><br><u>Fine And Ultrafine Phosphate And Lithium<br/>Ore Direct Or Reverse Flotation Using<br/>Eriez' Cavtube Column Flotation<br/>Technology</u>         | Mathew Lipman, P.E. - Senior Geotechnical<br>Engineer -<br>Black & Veatch<br><br><u>Application of Integrated Geotechnical and<br/>Hydrogeologic Characterization to Dragline<br/>Slope Stability Assessment in Deep<br/>Phosphate Mining</u> | Ashley Shive - Director of Emergency<br>Response and Waste Management -<br>A-C-T Environmental & Infrastructure<br><br><u>Lithium-Ion Batteries: Understanding the<br/>Risks, Hazards, and Response Challenges</u> |
| 9:05 - 9:35               | Dr. Richard Bishop - Professor of Practice<br>Mining Engineering -<br>Virginia Tech<br><br><u>Monazite-Bearing Heavy Mineral Sands: A<br/>Rare Earth Resource for the Eastern<br/>United States</u>                               | Christopher Naber & Thomas Rodriguez -<br>Geologists - Mosaic<br><br><u>South Fort Meade Bench Mining Planning,<br/>Execution, and Adjustment</u>                                                                                             | Darrell L. Smith - Cultural Safety Consultant<br>DL Smith Ignites, LLC<br><br><u>Trust: The Missing PPE</u>                                                                                                        |
| Break                     |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                    |
| 10:25 - 10:55             | Mike Nascarella, P.E. - Principal Engineer<br>Taurus Industrial Services<br><br><u>Combustion Systems in Mineral<br/>Processing</u>                                                                                               | Karl Foelsche - Infrastructure Engineer -<br>Mosaic<br><br><u>Mosaic South Fort Meade Mine:<br/>Infrastructure Overview and new<br/>technologies employed in the Eastern<br/>Extension Mining Area</u>                                        |                                                                                                                                                                                                                    |
| 11:00 - 11:30             | Gregory Bundy - Hydrocyclone Product<br>Manager- Weir<br><br><u>Hydrocyclones 101: Components,<br/>Operation, and Optimization</u>                                                                                                | Luciano Vera - Mining Engineer I - Mosaic<br><br><u>The AI Mining Engineer: Using Digital<br/>Intelligence to Transform Dragline Planning<br/>and Forecasting</u>                                                                             |                                                                                                                                                                                                                    |
| Thursday PM<br>October 15 | <b><u>Chemical Processing</u></b>                                                                                                                                                                                                 | <b><u>Innovation &amp; Technology</u></b>                                                                                                                                                                                                     |                                                                                                                                                                                                                    |
| 1:15 - 1:45               | Robert Karas - Founder - Rowow LLC<br><br><u>Ion Exchange Membrane Electrolysis for<br/>Acid Regeneration and Selective Metal<br/>Recovery in Mineral Processing</u>                                                              | Devin Martello - Short Range Operations<br>Coordinator - Mosaic<br><br><u>Implementation of Pegasys Dragline<br/>Monitoring Systems at Mosaic's Florida<br/>Phosphate Mines</u>                                                               |                                                                                                                                                                                                                    |
| 1:50 - 2:20               | David Ivell - President -<br>Ivell Fertilizer Consulting<br><br><u>The Next Generation of JT Granulation<br/>Plants(NGGP)</u>                                                                                                     | David O'Brien - President -<br>SurvTech Solutions, Inc.<br><br><u>Innovation and Technology in Surveying<br/>and Mapping</u>                                                                                                                  |                                                                                                                                                                                                                    |
| Break                     |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                    |
| 2:45 - 3:15               | Jake Kenny, Ph.D. - Lead Process<br>Engineer - Travertine Tech<br><br><u>The Travertine Process: Phosphoric Acid<br/>Without Phosphogypsum</u>                                                                                    | Yara Kecojevic - Process Engineer -<br>CEMEX<br><br><u>Taleo Semi Autonomous Trucks</u>                                                                                                                                                       |                                                                                                                                                                                                                    |
| 3:20 - 3:50               | Emanuele Dal Pos / Marcus Hauptmann -<br>Product Manager - Crystallization -<br>SULZER AG<br><br><u>Advanced Purification of Electronics-<br/>Grade Phosphoric Acid through Liquid-<br/>Liquid Extraction and Crystallization</u> | Kyle Ulmer, P.E. - CEO -<br>Altamus, Inc.<br><br><u>Best Practices for Quality Assuring Data<br/>from Permanently Installed LiDAR Systems</u>                                                                                                 |                                                                                                                                                                                                                    |
| Thursday PM<br>3:55       |                                                                                                                                                                                                                                   | <u>Door Prize Drawings</u><br>Room 100                                                                                                                                                                                                        |                                                                                                                                                                                                                    |

# TECHNICAL PROGRAM

Wednesday, October 14th, 2026

Afternoon, Room 116

1:30 - 4:25 pm

## RECLAMATION, REGULATORY & PERMITTING

Session Chair:

Bart Davis - Senior Geologist - The Chemours Company

**1:30 - 2:00**

### **Design and Application of Bottomless Culverts in Quarry Environments**

Ed Murawski - Mining Market Leader, Southeast - Kleinfelder

Bottomless culverts are an increasingly effective solution for stream crossings in quarry settings, offering a way to maintain natural channel conditions while supporting industrial access needs. Unlike traditional culverts, they preserve the streambed and allow for unimpeded movement of water, sediment, and aquatic organisms. This approach helps quarries meet environmental regulations, reduce impacts on habitat and hydrology, and improve long-term site sustainability. The topic explores design considerations, permitting advantages, and real-world applications demonstrating how bottomless culverts can balance operational efficiency with environmental stewardship.

**2:05 - 2:35**

### **Creative Solutions When Insufficient Mitigation Credits are Available for Purchase**

Brian Studiale, PG, PMP - Senior Project Coordinator - Mosaic

The South Fort Meade Eastern Extension permitting process required mitigation credits within the same watershed basin; however, sufficient credits were not available through existing mitigation banks. To address this shortfall, Mosaic identified three impaired sites for habitat restoration and mitigation credit generation. Restoration activities are progressing well across all three sites. Construction has been completed at one site, while the remaining two sites are more than 50% complete. This presentation provides an overview of the restoration program and highlights the progress achieved to date across the three projects.

# TECHNICAL PROGRAM

## RECLAMATION, REGULATORY & PERMITTING - Continued

**3:20 - 3:50**

### **From Mitigation to Genetic Rescue: Early Outcomes of a Florida Scrub-Jay Translocation Initiative**

Lauren Deaner, Dr. Raoul Boughton - Sr. Ecologist - Verdantas

The Florida Scrub-Jay (*Aphelocoma coerulescens*) is a federally threatened species endemic to Florida. This cooperatively breeding species is vulnerable to habitat loss and fragmentation which can result in genetic erosion and reduce long-term population viability. As part of conservation commitments associated with an Incidental Take Permit (ITP) issued to Mosaic, 51 Florida Scrub-Jays were translocated between 2003 and 2010 to consolidate a fragmented population and offset impacts from mining activities. The translocation was demographically successful, increasing population size ten-fold by 2021. However, subsequent genetic monitoring revealed declining heterozygosity and increasing inbreeding, indicating that additional intervention would be needed to ensure long-term population resilience.

Building upon the original mitigation effort, Mosaic initiated an experimental translocation to both increase the probability of long-term persistence of the population and to evaluate novel translocation methods that could accelerate population recovery.

This presentation provides an update on the first six months following release, including survival, territory establishment, social integration, and pair formation. Early results demonstrate how mitigation-driven conservation programs can evolve into proactive, science-based initiatives that advance species recovery while generating valuable insights for future translocation and genetic rescue efforts.

**3:55 - 4:25**

### **How Many Piezometers Are Too Many? Lessons from Statistical and Machine**

Robert Chance - Associate Geologist - WSP

Monitoring networks used for mining operations and other engineered systems often incorporate redundancy to support safe operations, improve reliability, and satisfy regulatory requirements. However, excessive overlap among monitoring locations can create unintended redundancy, resulting in additional capital, maintenance, and data management costs with limited gains in information value. As monitoring networks expand over time, opportunities may exist to optimize data collection while maintaining confidence in operational and regulatory decision-making.

This presentation presents a case study in which groundwater level measurements from a piezometer network were evaluated using machine learning techniques to predict water levels at nearby monitoring locations. Results demonstrated that water levels at a central piezometer could be estimated using data from three surrounding piezometers with an average error of approximately four inches. While the analysis identified significant redundancy within portions of the monitoring network, it also highlighted the importance of retaining sufficient monitoring density to detect localized hydraulic responses and verify model performance. The study demonstrates how statistical and machine learning approaches can be used to quantify information redundancy, support monitoring network optimization, and guide strategic reinvestment of monitoring resources toward areas with greater uncertainty or known data gaps.

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# TECHNICAL PROGRAM



Wednesday, October 14th, 2026

Afternoon, Room 117

1:30 - 4:25 pm

## GEOLOGY

### Session Chairs:

Matthew Lewis - Director of Aggregate Resources - CEMEX

Chuck Drake - Director Water Resources - Bio-Tech Consulting

**1:30 - 2:00**

### **Changes in Prospect Drilling; Tracking in Real-Time with Enhanced GIS Tools**

Scott Nyhof, PG - Prospect & Exploration Geologist - Mosaic

Access to Real-Time data in the field has improved and streamlined the prospect drilling program. The field geologist can now be more self-directed regarding where to drill based on the needs of the mine plan, and can adjust and document actual locations in the field. This updated process allows for improved safety along with more efficient coordination between the field geologist and resource geological staff.

**2:05 - 2:35**

### **Efficient Use of Mobile GIS Capabilities for Efficient Planning And Management of Mine Dewatering Wells**

Corey Dobson, PG - Senior Hydrogeologist - Mosaic

Mosaic's GIS database was expanded in 2026 to include dewatering wells and associated features. This new system creates an opportunity for our mine planning team to visualize the strategic placement of dewater wells and modifications, as necessary.

A cellular mapping app allows for real-time coordination between office and field personnel as each well's run status is updated. ArcGIS accesses our database for the instant creation of updated maps for distribution to operations personnel and contractors.

Other planned rollouts will increase efficiency via easier pump inventory management, better timing for pump de-energization and removal, mapping and automatic contouring of surficial groundwater flow via piezometer readings, and the formation of Key Performance Indicators associated with percentage well operation and compliance.

The Dewatering GIS database was created at the Four Corners Mine and has been successfully expanded to our other mines. The mine planning team members at South Fort Meade's Eastern Extension are able use these features to aid with additional bench mining considerations of pre-stripping, ramps, and increased traffic around the draglines.

# TECHNICAL PROGRAM

Wednesday, October 14th, 2026

Afternoon, Room 117

1:30 - 4:25 pm

## GEOLOGY - Continued

**3:20 - 3:50**

### Refining the Zone

Douglas P. Dufresne, PG - Project Director/Senior Hydrogeologist - Ardaman & Associates, Inc.

This study investigates the testing recommended for production wells and related distant monitor wells to determine similar monitoring zones are utilized for long term monitoring. Wells constructed in an area with similar cased depths and total depths may be influenced by differing land elevations, dipping geologic formations, and sloping fractures and cavity systems. Aquifer performance testing such as specific capacity testing, step-drawdown testing, and constant rate discharge testing can help define the hydrogeologic parameters in the aquifer at a production well and between monitoring locations. Geophysical logs including natural gamma ray, caliper, temperature, fluid conductivity, acoustic, and flow logs can help determine if the monitoring zones are representative of the production zones. Significant differences between wells may indicate that a well construction modification should be considered in an attempt to monitor similar zones. This study shows that modification of both production wells and monitor wells may result in a more representative long term monitoring program for the wells and wellfield involved.

**3:55 - 4:25**

### South Hillsborough Aquifer Recharge Program

Bart Weiss, PG - Chief Officer for Innovation, Resiliency, and Sustainability - Hillsborough County, Florida

The South Hillsborough Aquifer Recharge Program (SHARP) addresses critical groundwater declines and saltwater intrusion in West Central Florida's Southern Water Use Caution Area (SWUCA). This study evaluates the feasibility of direct aquifer recharge using high-quality reclaimed water (AWT/HLD) injected into highly mineralized zones (>10,000 mg/L TDS) of the Upper Floridan aquifer. The objective is to achieve 100% beneficial reuse of seasonally available reclaimed water while creating a coastal saltwater intrusion barrier. Findings suggest that recharge can provide significant water level mounding, allowing the utility to earn groundwater mitigation offset credits for future water supply development. The pilot project, initiated in partnership with regional regulators, demonstrates a cost-effective solution for meeting numeric nutrient criteria and enhancing environmental protection. Limitations include the need for extensive monitoring to ensure regulatory compliance. In conclusion, SHARP provides a scalable model for coastal regions to manage water resources and protect against salinity incursion sustainably.

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# TECHNICAL PROGRAM



Wednesday, October 14th, 2026

Afternoon, Room 118

1:30 - 2:35 pm

## GENERAL INTEREST

Session Chair:

Tony Hoffman - Remediation Project Director - GHD USA

**1:30 - 2:00**

### **The Occurrence of Serendipity in my 50 Years of R&D**

Vaughn Astley - President - Dr Phosphate Inc

Well, I started on a Phosphorus Furnace at 17 years of age, and am now just incrementally just passed 80 years. I will cover several unusual topics. Some really cool projects:

- Quick history
- Removing carbonaceous matter from Frasch Sulphur. Iraq, 1990
- Sulphur Bleed-water recycle. Very hot, scaling, corrosive.....
- Removing carbonaceous matter from waste alky sulphuric acid
- FreePhos 58TM. Crystallized phosphoric acid
- PCS NC Un-Calcined 2x Flot + Florida rock tests @ PCS Pilot
- Phosacid slurry filtration at 25 T P2O5/ M2/D
- Fines destruction loop on OCP rock in a Phosacid plant
- also did 25 T P2O5 / M2 / D.... phenomenal
- Translates 10 to 14 T P2O5 / M2 per day with Tilt-Pan or Belt filters.

**2:05 - 2:35**

### **Preventing and Mitigating Condensation in Enclosures to Reduce Corrosion.**

Dan Jenkins - Technology Officer - Steel Camel

Condensation development in enclosures such as electrical junction boxes leads to corrosion which can cause shorts and or failures. This presentation will look at types of causes of corrosion, types of ionic contamination that lead to problems.

Additionally, the presentation will explore different types of methods to control condensation from desiccant to spraying clean dry air on surfaces.

# TECHNICAL PROGRAM



Thursday, October 15th, 2026

Morning, Room 116

8:30am – Noon

## MINERAL PROCESSING

Session Chair:

**Zak Tollefson - Process Engineering Superintendent - Mosaic**

**8:30 - 9:00**

### **Fine And Ultrafine Phosphate And Lithium Ore Direct Or Reverse Flotation Using Eriez' Cavtube Column Flotation Technology**

**Maoming Fan - Senior Process Engineer, Dual PhD. - Eriez Magnetics**

The surging adoption of Lithium Iron Phosphate (LFP) batteries for electric vehicles and grid storage has tied phosphate and lithium demands together. While lithium represents the high-profile scaling bottleneck due to extraction limits, high-purity phosphate constitutes over 60% of an LFP cathode and faces a shortfall as automotive requirements compete with traditional agriculture. In many phosphate and lithium mines, a significant amount of phosphate and lithium is discarded as a fine or ultrafine slime tailing due to technical and economic barriers using conventional flotation technology. The major issues associated with ultrafine particle flotation are the low probability of bubble-particle collision, low probability of bubble-particle adhesion, and high probability of unwanted gangue particles entrainment. Eriez' Cav-Tube generated ultrafine bubbles (nanobubbles) can significantly enhance ultrafine phosphate and lithium ore flotation. Various phosphate and lithium ores direct or reverse flotation results will be discussed in this presentation. For comparison, some benchtop mechanical cell and laboratory column flotation tests were performed at their optimal respective flotation conditions. Higher flotation product quality and recovery were achieved in Eriez Flotation column than using mechanical cell.

**9:05 - 9:35**

### **Monazite-Bearing Heavy Mineral Sands: A Rare Earth Resource for the Eastern**

**Dr. Richard Bishop - Professor of Practice - Mining Engineering -**

**Virginia Tech**

Monazite-bearing heavy mineral sands (HMS) represent an increasingly important potential source of rare earth elements (REEs) across the southeastern United States. These deposits occur within modern and ancient coastal, fluvial, and sedimentary systems where dense minerals such as ilmenite, rutile, zircon, and monazite become naturally concentrated. Historically, monazite has often been treated as a secondary or undesirable mineral because of its thorium content and the regulatory requirements associated with handling naturally occurring radioactive materials. Growing U.S. demand for secure supplies of neodymium, praseodymium, and other critical rare earth elements is changing the strategic value of these minerals. Existing and emerging HMS operations may provide opportunities to recover monazite as a coproduct while leveraging established mining, beneficiation, and mineral separation infrastructure. Advances in radiological management, mineral processing, cracking, separation, and domestic REE refining are also improving the potential for integrating monazite into U.S. critical mineral supply chains. This presentation examines the geological occurrence and beneficiation of monazite-bearing heavy mineral sands, their potential distribution and significance across Florida and the broader southeastern U.S., and emerging pathways for converting historically underutilized mineral resources into strategic domestic feedstocks for rare earth production.

# TECHNICAL PROGRAM



Thursday, October 15th, 2026

Morning, Room 116

8:30am – Noon

## MINERAL PROCESSING - Continued

**10:25 - 10:55**

### **Combustion Systems in Mineral Processing**

Mike Nascarella, P.E. - Principal Engineer - Taurus Industrial Services

Most minerals processing applications require heated processes to make the materials we use every day. In minerals and aggregates, we often see dryers, kilns, and other equipment that requires the application gas fired heat to make the product. This presentation explains the importance of this equipment and how to operate it safely and efficiently.

**11:00 - 11:30**

### **Hydrocyclones 101: Components, Operation, and Optimization**

Gregory Bundy - Hydrocyclone Product Manager- Weir

Hydrocyclones are among the simplest, yet often least understood pieces of process equipment used in mineral processing. Because they lack moving parts, plants often overlook them until performance degrades, leaving teams without clear troubleshooting levers to improve product quality or recovery. This practical presentation clarifies hydrocyclone performance for plant operators, mechanics, and process engineers.

Attendees will master the basic mechanical components, learn the effect of critical variables for efficient and optimized performance, and gain a systematic framework for troubleshooting common process issues. Finally, the session explores advanced hydrocyclone modifications, including dewatering style and two stage cyclones, to demonstrate how targeted equipment upgrades can directly improve application yields in specific applications. Participants will leave with actionable strategies to immediately evaluate and optimize cyclone performance on the plant floor.





## REACHING OUT TO OUR COMMUNITIES

The funds raised from the **FLSME Annual BBQ, FLSME Golf Extravaganza and the FLSME Regional Mining Conference** will help further educate students, communities and elected officials about the role regional mining has in the local communities and global economy. The support received in 2024 allowed the Florida SME to give to the community through various MEC programs and outreach initiatives.

The monies allowed FLSME to:

- Award 10 mini-grants to K-12 schools in our mining area to support science education projects totaling more than **\$6,000** collectively
- Present 26 awards to Junior and Senior High School Science Fair participants in Hardee, Hillsborough, DeSoto and Polk Counties, with an additional 3 awards presented to top mining-related projects: **\$5,000**
- Present 6 special awards at the Florida State Science Fair: **\$1,000**
- Award **\$16,000** academic scholarships to college-bound graduates from DeSoto, Hardee, Manatee and Polk Counties pursuing a degree in engineering, science or mathematics
- Supply awards, backboards and display materials, mentoring and judging to DeSoto, Hillsborough, Polk and Hardee County Junior and Senior High School Science Fair participants: **\$4,000**



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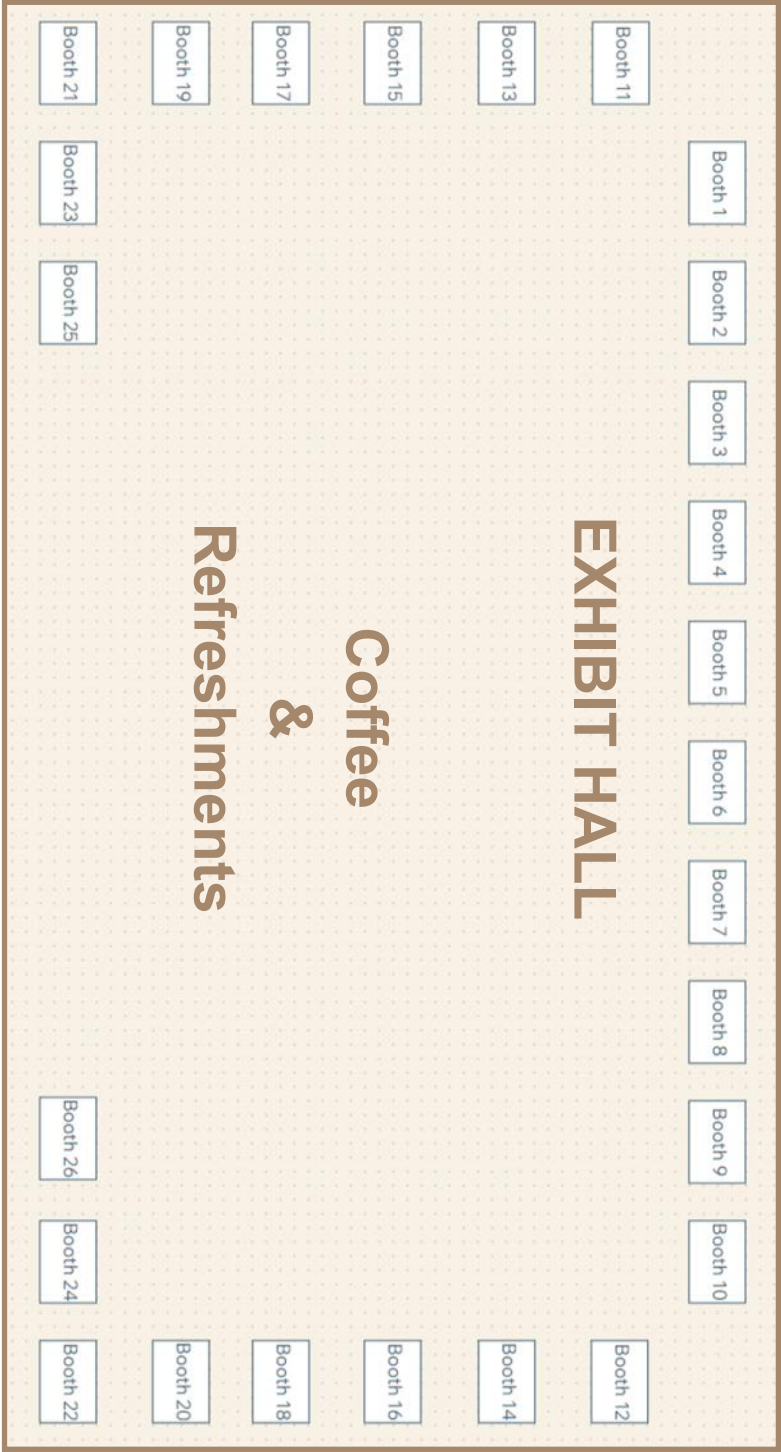
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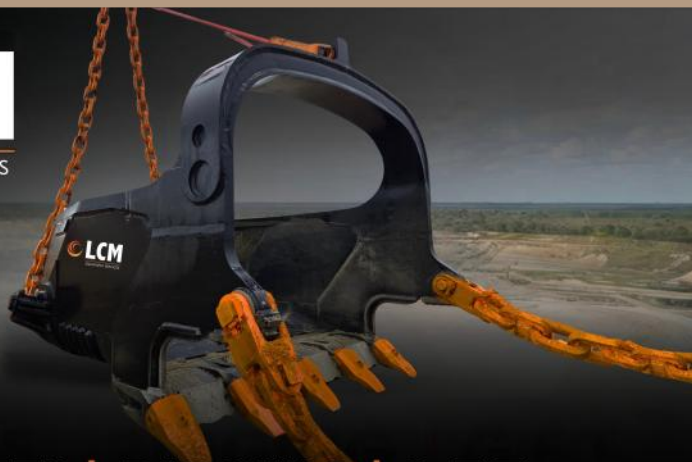


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# TECHNICAL PROGRAM

Thursday, October 15th, 2026

Morning, Room 117

8:30am – Noon



## MINING & MINE PLANNING

Session Chair:

Brian Ball - Sr Manager, Mine Engineering - The Mosaic Company

**8:30 - 9:00**

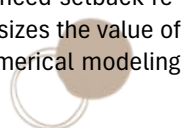
### **Application of Integrated Geotechnical and Hydrogeologic Characterization to Dragline Slope Stability Assessment in Deep Phosphate Mining**

Mathew Lipman, P.E. - Senior Geotechnical Engineer -  
Black & Veatch

Safe dragline operation in deep phosphate mine excavations requires a thorough understanding of subsurface conditions, groundwater behavior, and slope performance. At the South Fort Meade Eastern Extension (SFM-EE) mine of The Mosaic Company in Hardee County, Florida, an extensive geotechnical and hydrogeologic investigation was conducted to characterize site conditions and support mine development planning. The program included soil borings, sonic borings, rock coring, groundwater monitoring, hydraulic conductivity testing, and laboratory testing to characterize the site-specific subsurface conditions consisting of surficial sands, mineable matrix, limestone/dolostone, basal clay, and the underlying Intermediate Aquifer System. These data were used to develop representative geotechnical and hydrogeologic models for evaluating mine slope stability.

Two-dimensional seepage and limit-equilibrium analyses were performed to assess dragline setback requirements for mining excavations ranging from approximately 60 to 90 ft in depth. The evaluations considered anticipated dewatering conditions, mine pit water levels, dragline surcharge loading, and alternative benching configurations. Results indicate that excavation depth is the primary factor influencing slope stability and dragline setback requirements. For the evaluated conditions, setbacks of approximately 40 to 55 ft from the top of excavation slope were required to maintain a minimum factor of safety of 1.3 for slope stability. The incorporation of cutting down bench to 20-ft and 30-ft below existing grade significantly improved slope stability and reduced setback requirements by approximately 20% to 30%, while elevated mine-water levels generally increased the required offsets. Additional groundwater draw-down beyond the planned dewatering condition provided only marginal improvements in stability.

The results indicate that excavation geometry and strategic benching influenced setback requirements more strongly than additional groundwater lowering, and emphasizes the value of integrating geotechnical characterization, groundwater evaluations, and numerical modeling to establish site-specific dragline operating criteria.



# TECHNICAL PROGRAM

Thursday, October 15th, 2026

Morning, Room 117

8:30am – Noon

## MINING & MINE PLANNING - Continued

**9:05 - 9:35**

### **South Fort Meade Bench Mining Planning, Execution, and Adjustment**

Christopher Naber - Sr. Mine Engineer - Mosaic

Thomas Rodriguez - Geologist - Mosaic

This presentation explores the challenges of implementing bench mining from initial mine planning through field execution. It highlights key differences between planned designs and actual mining conditions, examines the factors that contributed to those variances, and discusses lessons learned to improve future bench mining at SFM.

**9:35 – 10:25**

**MORNING BREAK IN EXHIBIT HALL**

**10:25 - 10:55**

### **Mosaic South Fort Meade Mine: Infrastructure Overview and New Technologies Employed in the Eastern Extension Mining Area**

Karl Foelsche - Infrastructure Engineer - Mosaic

The Eastern Extension Mining area is connected to South Fort Meade beneficiation plant through an 11 mile corridor. Power, Matrix, Water Supply, and Stormwater systems required extensive design. Mosaic learned from lessons of the past; new strategies, more efficient allocation of resources, and automation systems are being utilized.

**11:00 - 11:30**

### **The AI Mining Engineer: Using Digital Intelligence to Transform Dragline Planning**

Luciano Vera - Mining Engineer I - Mosaic

As mining operations become increasingly complex, engineers are challenged to evaluate thousands of potential decisions across equipment, mine plans, operational constraints, and production targets. This presentation explores the development of Vera View, an AI-enabled dragline scheduling platform. By combining operational rules, spatial intelligence, simulation, and forecasting, Vera View demonstrates how artificial intelligence can augment engineering decision-making and unlock new opportunities for operational optimization in large-scale surface mining environments.



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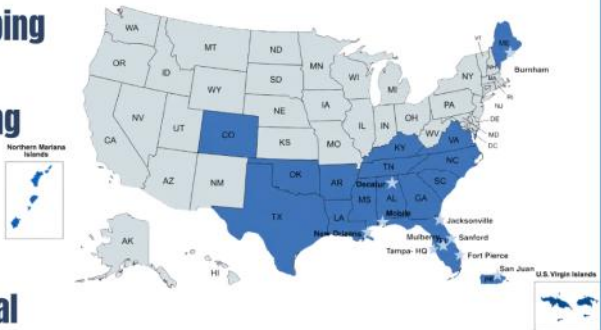
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# TECHNICAL PROGRAM

Thursday, October 15th, 2026

Morning, Room 118

8:30am – Noon

## HEALTH, SAFETY & ENVIRONMENTAL

### Session Chair:

Ken Cellupica, CRM, CSP - Safety Manager - SurvTech Solutions,

**8:30 - 9:00**

### **Lithium-Ion Batteries: Understanding the Risks, Hazards, and Response Challenges**

Ashley Shive - Director of Emergency Response and Waste Management -  
A-C-T Environmental & Infrastructure

**Lithium-Ion Batteries: Understanding the Risks, Hazards, and Response Challenges**  
Lithium-ion batteries are everywhere, powering everything from smartphones and laptops to electric vehicles and large-scale energy storage systems. As their use continues to expand, so do the challenges faced by emergency responders, environmental professionals, and incident managers when these batteries fail. This presentation explores the science behind lithium-ion batteries, the mechanisms that lead to battery failure, thermal runaway, off-gassing, and re-ignition, and the unique hazards these incidents present to responders and the public. Attendees will gain a practical understanding of battery construction, common battery chemistries, and why lithium-ion incidents require different response considerations than traditional fires.

**9:05 - 9:35**

### **Trust: The Missing PPE**

Darrell L. Smith - Cultural Safety Consultant - DL Smith Ignites, LLC

Safety programs often focus on policies, procedures, compliance, and protective equipment. But even the strongest systems can fall short when employees do not feel comfortable speaking up, concerns are not fully understood, or follow-through is not visible.

This presentation explores trust as an essential, but often overlooked, part of workplace safety. Through personal experience, audience reflection, and practical discussion, Darrell L. Smith examines how silence, assumptions, rushed decisions, and communication breakdowns can create hidden risk before an incident occurs. Participants will be introduced to the C.A.R.E. Safety Loop System™—a culture-focused approach built around communication, action, respect, and engagement. The session challenges leaders and frontline employees to think differently about how concerns are raised, received, and resolved.

The goal is simple: strengthen trust, improve communication, and help organizations close safety gaps before they become greater risk exposures or injuries.

# TECHNICAL PROGRAM



Thursday, October 15th, 2026

Afternoon, Room 116

1:15 – 3:50pm

## CHEMICAL PROCESSING

Session Chair:

Todd Parker - Mining Chemicals Development - Arkema ArrMaz Products Inc.

**1:15 - 1:45**

### **Ion Exchange Membrane Electrolysis for Acid Regeneration and Selective Metal Recovery in Mineral Processing**

Robert Karas - Founder - Rowow LLC

Acid consumption and metal-bearing waste streams are two of the largest recurring costs in mineral and chemical processing. This presentation describes SEM TECH, an electrochemical platform built on membrane-divided electrolysis that regenerates acid and recovers dissolved metals in a continuous closed loop. Hydrochloric acid and chloride oxidizers are generated in situ from brine and electricity, so leach chemistry is reused rather than consumed and there is no consumable acid supply chain. The enabling component is a homogeneous ion exchange membrane cast from commodity water softener resin in a PVC matrix at a materials cost below one dollar per square foot, roughly two orders of magnitude below commercial membranes, durable for months in pH 0, strongly oxidizing service, with the recipe published as open hardware. Bench and prototype campaigns on raw ore, high-sulfide ore, tailings, and mine waste liquids have produced concentrated mixed-metal powders with confirmed rhodium recovery, reprocessed mercury-amalgamated ore while capturing the mercury into a controlled stream, and precipitated dissolved heavy metals from 255 gallons of mine waste liquid for under 33 kWh. Preliminary all-in economics span 30 to 400 dollars per ton depending on feedstock chemistry. The same architecture applies to acid regeneration and rare earth recovery from phosphate processing streams. The talk covers process architecture, membrane fabrication, demonstration results, current limits, and the path from prototype to pilot operation.

**1:50 - 2:20**

### **The Next Generation of JT Granulation Plants(NGGP)**

David Ivell - President -

Since 1970, JESA Technologies (JT) and its predecessor companies have designed and commissioned over 50 granulation plants, with each successive generation increasing in capacity and scale. Leveraging decades of experience and incorporating technologies not previously available, JT has developed the next-generation granulation plant. As part of this development, JT conducted a comprehensive review of its standard plant design with the objectives of optimizing the process, reducing overall building height and volume, simplifying and accelerating construction timelines, exploring opportunities for modular construction, lowering fuel consumption for drying, and maximizing plant capacity. This paper presents the outcomes of this design review, highlighting the key technical innovations and performance enhancements that define JT's latest granulation plant model.

# TECHNICAL PROGRAM

Thursday, October 15th, 2026

Afternoon, Room 116

1:15 – 3:50pm



## CHEMICAL PROCESSING - Continued

**2:45 - 3:15**

### **The Travertine Process: Phosphoric Acid Without Phosphogypsum**

Jake Kenny, Ph.D. - Lead Process Engineer - Travertine Tech

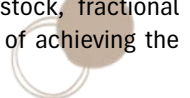
Cheap phosphoric acid is essential for fertilizer production, however current global supply suffers from two key vulnerabilities: elemental sulfur dependence and phosphogypsum waste accumulation. The Travertine Process™ recycles phosphogypsum produced in conventional wet phosphoric acid production processes into sulfuric acid and calcium carbonate (calcium hydroxide alternative also available), thereby solving the sulfur dependence and phosphogypsum waste problems. The process consists of two primary steps: the first is a metathesis reaction between solid calcium sulfate and sodium carbonate, producing calcium carbonate and sodium sulfate brine. The reaction occurs at ambient temperature and pressure, achieving >99% gypsum conversion and >95% sulfate recovery. The second step is electrochemical conversion of the sodium sulfate brine into sodium hydroxide, which is routed to direct air capture to reform the sodium carbonate, and sulfuric acid, which can be concentrated and fed to phosphate digestion. The process can also be adapted to reprocess alternative sulfate wastes into sulfuric acid, providing modular sulfur-free sulfuric acid production to other industries.

**3:20 - 3:50**

### **Advanced Purification of Electronics-Grade Phosphoric Acid through Liquid-Liquid Extraction and Crystallization**

Emanuele Dal Pos / Marcus Hauptmann - Product Manager - Crystallization - SULZER

Electronics-grade phosphoric acid has become increasingly strategic for semiconductor manufacturing, where it is used in critical cleaning and etching operations for advanced integrated circuits and microelectronic devices. As the industry continues to move toward smaller feature sizes and increasingly complex chip architectures, purity requirements have become exceptionally stringent. Trace contaminants, including metals, organics, and particulates at ppm, ppb, or even ppt levels, can negatively affect etch uniformity, induce micro-defects, and reduce manufacturing yield. Consequently, the industry is adopting more robust and controllable purification technologies capable of delivering ultra-high purity products. To meet these requirements, a combination of advanced separation technologies is often required. Liquid-liquid extraction (LLE) provides an effective first purification step by selectively removing metallic impurities such as arsenic and other dissolved contaminants from wet-process phosphoric acid. Building on this purified feedstock, fractional melt crystallization offers a highly selective polishing technology capable of achieving the ultra-low impurity levels required for semiconductor applications.



# TECHNICAL PROGRAM

Thursday, October 15th, 2026

Afternoon, Room 117

1:15 – 3:50pm



## INNOVATION & TECHNOLOGY

Session Chair:

Harry Helmrich - President - Monomer Software

**1:15 - 1:45**

### **Implementation of Pegasys Dragline Monitoring Systems at Mosaic's Florida Phosphate Mines**

Devin Martiello - Short Range Operations Coordinator - Mosaic

Increasingly complex geology and mining conditions has prompted Mosaic to seek a dragline performance monitoring solution that provides operations with the detailed information needed for concise, tactical decisions. The Pegasys system is integrated with the mineplan, allowing operator's realtime feedback on both dragline and bucket position in 3-dimensional space while accounting for downtime. This presentation will review Mosaic's dragline monitoring system implementation at South Fort Meade and Four Corners mines.

**1:50 - 2:20**

### **Efficient Use of Mobile GIS Capabilities for Efficient Planning And Management of Mine Dewatering Wells**

David O'Brien - President - SurvTech Solutions, Inc.

The presentation will cover advances in LiDAR, SONAR, Geophysics, and AI. It will include advances in topographic and bathymetric LiDAR from airplanes, UAVs (unmanned aerial vehicles), and helicopters, RGB NADIR and oblique imagery, multi-beam and single-beam sonar from boats and USVs (unmanned survey vessels), mobile and 3D GPR (ground penetrating radar), electrical resistivity, magnetometers, and metrology, and how this technology can be applied in the mining industry.



# TECHNICAL PROGRAM

Thursday, October 15th, 2026

Afternoon, Room 117

1:15 – 3:50pm



## INNOVATION & TECHNOLOGY - Continued

**2:45 - 3:15**

### **Taleo Semi Autonomous Trucks**

Tara Kecojevic - Process Engineer - CEMEX

This presentation outlines a field trial of a system that allows for semi-autonomous operation of a haul truck at a quarrying operation. Cameras, sensors, and AI software were retro-fitted to a 100-ton offroad haul truck in an effort to ascertain the feasibility of implementing the system in a specific operational setting.

**3:20 - 3:50**

### **Best Practices for Quality Assuring Data from Permanently Installed LiDAR Systems**

Kyle Ulmer, P.E. - CEO - Altamus, Inc.

This presentation will distill learnings from designing, manufacturing, and installing fixed-position LiDAR sensors in warehouses and stockpile yards. What are the shortcomings of the technology, and how do you spot them, prevent them, and importantly assure that the data presented is accurate?



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| 2025 - 40th | Patrick Zhang       | Chuck Drake        |                                    | Angel Hernandez  |
| 2024 - 39th | Todd Parker         | Elliot Mallard     | George Hebbard                     | Keith Rice       |
| 2023 - 38th | Thomas Wujcik       | Thomas Herbert     | Phong Vo                           | Joe Lammers      |
| 2022 - 37th | Kenny Miller        |                    | James Byrd                         | Kevin Sapp       |
| 2021 - 36th |                     |                    |                                    |                  |
| 2020 - 35th | George McQuien      |                    |                                    |                  |
| 2019 - 34th | John Keating        | Gary Gavie         | Paul Kucera                        | Patricia Walsh   |
| 2018 - 33rd | Tom Myers           |                    | Vaughn Astley                      | Joe Gliksman     |
| 2017 - 32nd | Leon Seale          | Fred Pirkle        | Neil Greenwood                     | Paul McAfee      |
| 2016 - 31st | Seng Yap            | Mike DeNeve        | John Ellington                     | Barbara James    |
| 2015 - 30th | Chaucer Hwang       | Matt Lewis         | Richard L. Davis                   | Mark Lynch       |
| 2014 - 29th | Nick Katzaras       | Allen T. Truesdell | Dave Sabatino                      | Dennis Sebastian |
| 2013 - 28th | Reab Berry          | Marc Hurst         | Andrea Williams                    | Hugh Rodrigues   |
| 2012 - 27th | James P. Morris     | Sam Upchurch       | Leroy E. Williams                  | Art Espinosa     |
| 2011 - 26th | Paul Clifford       | Tom Abel           | Paul S. Waters                     | Sanford Siegel   |
| 2010 - 25th | Don Tompkins        | Curt Simmons       | Sam Houghtaling<br>Roger Fernandez | John Gibson      |
| 2009 - 24th | R.C. Albritton      | Joe Alex III       | Robert W. Andrew                   | Lovie Hudson     |
| 2008 - 23rd | David Gossett       | Bonnie Dodson      | Joseph Schneider                   | Edward Linde     |
| 2007 - 22nd | Karen Swager        | William Stewart    | G. Michael Lloyd, Jr.              | William Hall     |
| 2006 - 21st | Ronald Hartung      | Wink Winkler       | Miguel DeJesus                     | John Jernigan    |
| 2005 - 20th | Jim Sampson         | Bob Goodrich       | Ron Delavan                        | Don Jernigan     |
| 2004 - 19th | Edmund Finch        |                    | Chris Earl                         | David Averitt    |
| 2003 - 18th | Glenn Gruber        |                    | Dick Fett                          | Harold Falls     |
| 2002 - 17th | John Garlanger      | John Maddry        | Frank Buzzanca                     | Ken Parks        |
| 2001 - 16th | George Weinman      |                    | Craig Pflaum                       | Charles Thornton |
| 2000 - 15th | John Paugh          | John R. Walter     | Dave Leyshon                       |                  |
| 1999 - 14th | Roy Duval           | Henry Lamb         | Randy Charlot                      |                  |
| 1998 - 13th | Lee Thurner         | Leonard Burnett    | Regis Stana                        |                  |
| 1997 - 12th | Tom Leto            | Jon Courtney       | William Cook                       |                  |
| 1996 - 11th | Ron Wiegel          | Eric Norman        | Don Clark                          |                  |
| 1995 - 10th | Maywood Chesson     | Walter Schmidt     | Frank Arroyo Sr.                   |                  |
| 1994 - 9th  | Clint Hollingsworth | Lonnie Engel       | Gerald Rubin                       |                  |
| 1993 - 8th  | Selwyn Presnel      | Don Crissinger     | Gordon Palm                        |                  |
| 1992 - 7th  | Fred Myers          | Tom Scott          | Edward Newburg                     |                  |
| 1991 - 6th  | Dan Lynch           | Rick Powers        | Les Bromwell                       |                  |
| 1990 - 5th  | Richard Hunter      | Richard Fountain   | Jim Williams                       |                  |
| 1989 - 4th  | A.L. Holmes         | Tom Patterson      | Don Chamberlain                    |                  |
| 1988 - 3rd  | Don Morrow          | John Paugh         | Arthur Hansen                      |                  |
| 1987 - 2nd  | Colin Campbell      | James Cathcart     | Ray Garcia                         |                  |
| 1986 - 1st  | Dave Raden          |                    |                                    |                  |



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& GRAVEL

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\*only partial use amount made public

**EVERY YEAR:** 38,016 pounds of new minerals must be provided for every person in the United States to make the things we use daily

**9,737 lbs.**

**Stone** is used to make roads, buildings, bridges, landscaping and other construction uses, and for numerous chemical uses.

**6,547 lbs.**

**Sand and Gravel** are used to make concrete, asphalt, roads, blocks and bricks.

**713 lbs.**

**Cement** is used to make roads, sidewalks, bridges, buildings, schools and houses.

**240 lbs.**

**Iron Ore** is used to make steel for buildings, cars, trucks, planes, trains, and for other construction and containers.

**331 lbs.**

**Salt** is used in various chemicals, for highway deicing, and in food and agriculture.

**149 lbs.**

**Phosphate Rock** is used to make fertilizers to grow food and in animal feed supplements.

**149 lbs.**

**Clays** are used to make floor and wall tile, dinnerware, kitty litter, bricks, cement and paper.

**12 lbs.**

**Aluminum (from bauxite)** is used to make buildings, beverage containers, autos and airplanes.

**0.02' lb.**

**Lithium** - 87% of lithium mined globally is used to make batteries, increasingly important in many technological devices and electric vehicles. \*Only partial use amount made public

**12 lbs.**

**Copper** is used in buildings, transportation, plumbing, electrical and electronic parts, and is integral in renewable energy production.

**9 lbs.**

**Lead** is primarily used in lead-acid batteries in vehicles and other power systems, such as in communications.

**5 lbs.**

**Zinc** is used to make metals rust-resistant, to make various metals and alloys, paints, rubber, and in skin creams, health care and nutritional supplements.

**30 lbs.**

**Soda Ash** is used in all kinds of glass, powdered detergents, medicines, as a food additive, and for water treatment.

**4 lbs.**

**Manganese** is used to make almost all steel for construction, and in machinery and transportation.

**645 lbs.**

**Other Nonmetals** are used in glass, chemicals, soaps, paper, computers, cell phones, and more.

**18 lbs.**

**Other Metals** are used in electronics, TV and video equipment, recreation equipment, and more.

**0.04 lb.**

**Silver** is used in cars, solar technology, batteries and medical equipment.

## Including These Energy Fuels

- 1,090 gallons of Petroleum
- 2,414 lbs. of Coal
- 96,314 cu. ft. of Natural Gas
- 0.15 lb. of Uranium

To generate the energy each person uses in one year.



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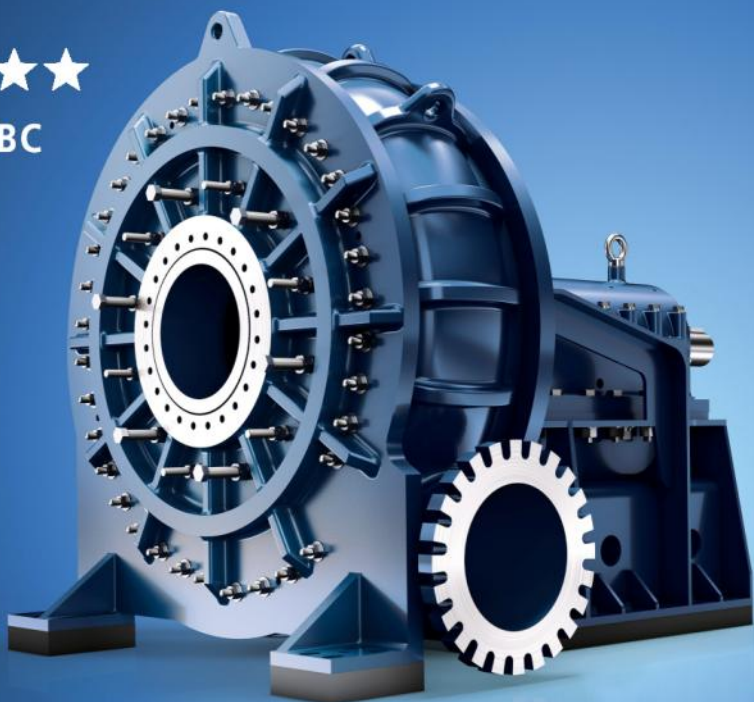
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