



Mining and Metallurgical Society of America

P.O. Box 8383, Pueblo, CO 81008-8383

Phone: (303) 726-6431

Web site: <http://www.mmsa.net>

OFFICERS:

*President, Amy Jacobsen
Vice President, Mick Gavrilovic
Secretary, Jack McPartland
Treasurer, Chris Wyatt
Ex-Officio, Michael Blois*

COUNCILORS:

At-Large

*Dayan Anderson
Tim Arnold
Barney Guarnera
John Head
Xavier Ochoa
Curtis Clarke*

Colorado Section

*Jurgen Brune
Michael Gingles
Steve Hearn
Betty Gibbs
Bill Wilson*

Nevada Section

Jack McPartland

Utah Section

Mick McCaslin

SECTION CHAIRS/CONTACTS

*Arizona: Tony Troutman
Colorado: Robert Cameron
Nevada: Jack McPartland
Utah: Mick McCaslin*

EXECUTIVE DIRECTOR:

*Susan R. Wager
contactmmsa@mmsa.net*

President's Message Metallurgy 101: IN equals OUT – Part 2, Critical Minerals

Metallurgy 101: IN equals OUT – Part 2, Critical Minerals

A while back my quarterly article dealt with the green economy, the need for separation of science from policy and the need for liberals and conservatives who value working together to reach solutions (versus radicals and reactionaries and the win or die mentality).

Much of this sounds a bit “unicorns and rainbows” in today’s environment of the upcoming election, protests and the pandemic, but I still contend that as engineers, scientists and professionals, we have the responsibility to present non-reactionary, science-based information to policy makers and the public.

MMSA is launching a series of webinars designed to help inform the industry, public and policy makers about the Nation’s reliance on imports of the critical minerals needed for domestic manufacturing and technology sectors as well as the conventional and renewable energy infrastructure. On August 19, 2020, MMSA hosted its first webinar titled “Evaluating Critical Mineral Commodity Supply Chains” that was presented by Dr. Nedal Nassar of the U.S. Geological Survey.

In his presentation and a paper titled “Evaluating the mineral commodity supply risk of the U.S. manufacturing sector,” Dr. Nassar and his team used a conventional risk-modeling framework to develop and apply a methodology for assessing the supply risk to the U.S. manufacturing sector. His premise is that supply risk is defined as the confluence of the likelihood of a foreign supply dis-



Amy E Jacobsen
MMSA President, 2019-2020

NEWS AT A GLANCE

2020 DUES

Regular Member—\$150

QP Member—\$250

+ \$50 for each QP category

Retired Members—\$50

for Regular

\$100 for QP

Still time to get your 2020 dues paid!

ruption, the dependency of U.S. manufacturers on foreign supplies and the ability of U.S. manufacturers to withstand a supply disruption. There is no surprise to most of us that the commodities that pose the greatest supply risk are cobalt, niobium, rare earth elements and tungsten. In total, 23 high risk commodities were identified out of the 52 analyzed.

Admittedly, this study was not entirely separated from public policy as it was prepared by the USGS; however, the study relies on information from other non-related organizations such as the Frasier Institute and the U.S. Census Bureau among others. The study was done in support of the President issued Executive Order 13817 (December 2017) which highlighted the U.S. foreign reliance on critical minerals as a strategic vulnerability. If you haven't read this Executive Order, in a nutshell the order has 6 calls to action:

- Advance transformational research, development and deployment across critical mineral supply chains
- Strengthen America's critical mineral supply chains and defense industrial base
- Enhance international trade and cooperation related to critical minerals
- Improve understanding of domestic critical mineral resources
- Improve access to domestic critical mineral resources on Federal Land and reduce Federal permitting timeframes
- Grow the American critical mineral workforce.

MMSA can play a role in this discussion by helping to provide opportunities to further educate and inform our industry, the public (not just the U.S. public, but the global public), and policy makers through programs such as our webinar series and our support of other organizations such as the American Mining & Exploration Associates (AEMA), the Colorado Mining Association (CMA),

the Society of Mining, Metallurgy and Exploration (SME) and the Women's Mining Coalition (WMC). I would like to highlight the efforts of WMC in putting together quality documents to be sent to congressional offices that provide unbiased information regarding key minerals and their benefits to society.

If you are interested in helping with the efforts of our Government Committee or if you have ideas for other webinar topics, please contact either Susan Wager or me. Also, the WMC is continually looking for professionals who can provide information or assist in preparing their informational bulletins for distribution on Capitol Hill.

Going back to the Law of Conservation – IN must equal OUT...period. The trade of minerals and raw materials and the effect of that trade on national reliance and independence will continue to grow in importance. We simply cannot keep moving forward in technology, a green economy and efforts to eliminate poverty without understanding and communicating how minerals and metals contribute to our society and way of life.

As a sidebar – in the past few weeks, California has experienced the Law of Conservation. By replacing baseload power sources with renewable sources dependent on weather and climate, California simply hasn't had enough power to keep the lights on. Many solutions have been posed for this problem, including increasing solar-battery home systems and utility-scale battery systems. These solutions are highly dependent on critical minerals. The time seems right for us to bring the dialogue back to a place of logic and scientific fact...

Mineral Commodity Supply Risk
August 19, 2020
MMSA Webinar

The Covid-19 pandemic has increased awareness that our reliance on foreign products and minerals creates serious supply chain disruptions and vulnerabilities. To help inform the public policy dialogue about the Nation’s reliance on imports of the critical minerals needed for the domestic manufacturing and technology sectors and to develop conventional and renewable energy infrastructure, the MMSA Government Committee held a Webinar on August 19, 2020, featuring Nedal Nassar of the U. S. Geological Survey. He is the principal author of the report: *Evaluating the mineral commodity supply risk of the U.S. manufacturing sector*; published in Science Advances, February 2020. DR Nassar’s slide presentation was followed by an audience Q & A.

Nedal Nassar of the U. S. Geological Survey, Chief of the Materials Flow Analysis Section at the National Minerals Information Center, U.S. Geological Survey says: “Employing a systems perspective, my team and I examine the global stocks and flows of nonfuel mineral commodities at each stage of their life cycle to gain a more complete understanding of their status above ground. We analyze trends and examine concerns re-

garding foreign mineral dependency. We develop supply and demand scenarios to better anticipate potential shortfalls. We collaborate with other USGS Mission Areas to provide a more complete understanding of the mineral supply situation. We also collaborate with and provide analysis for other federal agencies to help them achieve their missions. In short, our work provides decision makers with the information necessary to ensure that the United States has a reliable supply of mineral resources.”

The presentation was well received by the attendees according to the webinar survey. Some people did have problems joining the webinar and the MMSA employed a different registration method for future webinars. Slides and the recorded presentation with audio available at: <http://www.mmsa.net> .

Committee News

The committees took a short break this summer due to COVID-19. The committees will be resuming regularly scheduled meetings in September. Look for upcoming news on MMSA committees. Contact Susan Wager if you are interested in a committee.
contactmmsa@mmsa.net

Membership Applications

New Regular and QP Member Applications:
 The following individual(s) have submitted membership applications and or changes to their membership status. They have either received approval of the Membership Committee as candidates or are currently under review:
 If any member of MMSA has good cause to believe that any of the applicant(s) should not be granted Regular membership or QP membership, as appropriate, you are requested to make known your objections, in writing, to **Susan Wager**, Executive Director, within 30 days from issue of this Newsletter. In the absence of any objections and after receiving approval of the various committees, the candidate members and those members requesting a change of status will be confirmed as Regular Members or QP Members, as provided by the By-Laws.

<u>Applicant</u>	<u>Endorsers</u>
Purushotham Tukkaraja	Jurgen Brune
	Mark Bowron
	Lance A. Roberts
<u>QP Applications</u>	<u>Area of Special Expertise</u>
Purushotham Tukkaraja	Mining

Professional Ethics - Part 2 Anti-Corruption and Bribery

This MMSA Ethics Webinar took place on August 28, 2020. (The first Ethics Webinar was presented on July 15.) The main topic of this follow-up webinar focused on how mining companies address corruption and bribery when working internationally. Often in other countries, payments to individuals or organizations are necessary to do business. In the U.S., a company is required to follow laws against bribery, so how can a company do business when ‘bribery’ is the only way to get things done.

Five panelists presented their ideas and experiences on this topic.

David Abbott, Consultant (experience in many countries and prolific writer on ethics topics)

Barney Guarnera, Broadlands Advisory LLC (worked on many international projects)

Michael Nees, Consultant (experience includes Bechtel, Newmont, and other companies)

Mark Jorgensen, Consultant

John Fognani, Attorney Haynes and Boone, LLP

The panelists each made a short presentation and then participants had a chance to ask questions. Thanks to all participants who made this event a success. The webinar was recorded and will be available on the MMSA website at <http://www.mmsa.net>. The July Ethics webinar video is available.

A letter from a scholarship recipient

My name is Cayley Hoffman and I was the recipient of the 2018/2019 MMSA/SMEF Presidential Scholarship. I recently graduated from the University of Arizona with a Master of Engineering in mining engineering, and my success in the program was largely thanks to the scholarships and other financial support that I received. Thank you to everyone who contributed to the MMSA/SMEF Presidential Scholarship fund!

After five years at school, it was a relief to finally have that piece of paper in hand, but also a little sad to say goodbye for now to the great friends I have made. The excitement of a new job post-graduation has made things a little easier. I was lucky enough to secure employment during these uncertain times, and was able to stay in the Tucson, Arizona area with my family. I am currently working as a mining engineer with South32 at the Hermosa project, after interning there during summer 2019. This position is a dream come true for me, as I have always wanted to work at an underground mine. Due to the COVID-19 outbreak I am currently working from home, but I look forward to getting on site in the near future.

Thank you to MMSA for all of your support in helping me get to where I am today!

Cayley Hoffman

Membership Update

Regular Member Additions:

Aaron Amoroso

QP Members Confirmed:

Aaron Amoroso Geology, Ore Reserves

Membership Deletions:

None

MMSA presently has a total of 336 members, **one in process**; two members are applying to add QP changes.. Currently, **202** members are QP members

Additions, deletions and routine changes to the Society’s data base and member biographies are accessible through the Members Only page in our web site, at www.mmsa.net. This data base is the best source for information on any particular member.