

WEST VIRGINIA UNIVERSITY BOARD
OF GOVERNORS

April 21, 2023

The two hundred eighth meeting of the West Virginia University Board of Governors was held on April 21, 2023 in Morgantown, WV in person and via zoom. Board members in attendance/participating via zoom included Marty Becker, Charles Capito, Bray Cary, Elmer Coppoolse, Kevin Craig, J. Thomas Jones, Dr. Patrice Harris, Chloe Hernandez, Dr. Stanley Hileman, Alan Larrick, Susan Lavenski, Lisa A. Martin, Dr. Ashley Martucci, Paul Mattox, Taunja Willis Miller, Richard Pill, and Benjamin Statler.

Note: With this meeting being conducted in person and via zoom, there was no way to ascertain all attendees but the following WVU officers, divisional campus officers, representatives (and others) participated:

President, E. Gordon Gee;
Vice President for Strategic Initiatives, Rob Alsop;
Provost and Vice President for Academic Affairs, Maryanne Reed;
General Counsel, Stephanie Taylor;
Vice President for University Relations, Sharon Martin;
Vice President for Diversity, Equity & Inclusion, Meshea Poore;
Chancellor & Executive Dean for Health Sciences, Clay Marsh;
Dean of Students, Corey Farris;
WVU Tech President, T. Ramon Stuart;
Vice Provost, Paul Kreider;
Associate Provost for Budget, Facilities and Strategic Initiatives, Mark Gavin;
Vice President and Chief Financial Officer, Paula Congelio;
Senior Associate Vice President for Finance, Barbara Weiss;
Associate Vice President and Executive Director of the Office of Global Affairs, Amber Brugnoli;
Director, West Virginia Water Research Institute at WVU, Dr. Paul Ziemkiewicz;
Deputy General Counsel, Gary G. Furbee, II;
Associate General Counsel, Kylie Barnhart;
Senior Associate General Counsel, Ryan Watson;
Assistant Vice President for Strategic Initiatives, Erin Newmeyer;
Associate Vice President, Institutional Data and Analytics, Office of the Provost, Lisa Castellino-Gergich;
Associate Provost for Faculty Development and Culture, Melissa Latimer;
Associate Provost for Undergraduate Education, Evan Widders;
Associate Provost for Curriculum and Assessment, Louis Slimak;
Assistant Vice President of Enrollment Management, George Zimmerman;
Assistant Vice President for Academic Planning and Implementation, Amanda DeBastiani;
Interim Associate Provost of Graduate Academic Affairs, Richard Thomas;
Associate Vice President for Academic Affairs, WVU Health Sciences Center, Louise Veselicky;
WVU's 26th Truman Scholar, Azeem Khan;

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The following members of WVU's Student Government Association,
Emma Coiner, Sophia Flower, Sohan Daniel and Madison Santmyer;
Executive Officer and Assistant Board Secretary, Jennifer Fisher;
Director of News Communications, Shauna Johnson;
Executive Director of Communications, University Relations,
April Kaul; and,
Special Assistant to the Board of Governors, Valerie Lopez.

Members of the Press also participated.

CALL TO ORDER

The meeting was called to order by Chairman J. Thomas Jones at 9:00 a.m.
A roll call was taken to determine who was in attendance and a quorum established.

ACADEMIC AFFAIRS UPDATES

Provost Maryanne Reed provided the following Academic Affairs Updates:

In today's report intend to talk about just a few key items. These include:

- An update on faculty recognition and the spring awards season;
- An Academic Transformation update;
- An overview of the University's ChatGPT task force;
- Our recent visit with the Big 12 Provosts; and
- A brief introduction of our guest speaker, Dr. Paul Ziemkiewicz.

AWARDS SEASON

As I mentioned at our last meeting, spring is awards season at WVU – and the last two months have made several announcements honoring our faculty for their teaching, research and service.

My office has had the distinct honor of selecting and announcing some of the most distinguished faculty honors on campus, including:

- The Nicholas Evans Awards for Advising Excellence
- The Caperton Award for Excellence in the Teaching of Writing
- The Ethel and Gerry Heebink Awards for Distinguished State Service
- The James and Karen Caveney Alumni Association Faculty Excellence Award
- The WVU Foundation Awards for Outstanding Teaching
- And the Benedum Distinguished Scholar Awards

The recipients of these awards and many others from across the University will be recognized next Wednesday at the Faculty and Staff Awards program at Blaney House.

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And as a reminder, next week (on Tuesday) is our official WVU Adviser Appreciation Day! Of course, we appreciate these critical team members all year round, but we set aside a special day to honor them each spring. Students and colleagues can send a note of thanks at one of several “appreciation stations” on all three campuses or the virtual Kudo-board.

In the coming weeks, we will set our sights on May commencement and begin to celebrate the success stories of newest graduates. We will be announcing the Order of Augusta, as well as the WVU Foundation Outstanding Seniors.

ACADEMIC TRANSFORMATION UPDATE

Year three of Academic Transformation continues, and we have recently completed important steps with our graduate program portfolio review. As part of our original Academic Transformation timeline and process, we have conducted a review of our non-terminal master’s and PhD programs using data focused primarily on enrollment trends, market demand and research productivity.

As I mentioned in our February Board meeting, we had been meeting with the college leaders and the Office of Research to share data and to determine what information may have been missing. We have completed the process and have now made our preliminary recommendations to the colleges regarding their “programs of concern,” meaning programs that were lower-performing, based on measures such as enrollment trends.

The formal review process, as outlined in BOG rule 2.2, is underway, and it is likely that we will be presenting several programs for Board decision at our June meeting.

Our focus on student success –another key priority of Academic Transformation – remains steadfast, and we continue to make progress in this area. I highlighted our increased focus on graduate student success in December with the hiring of a dedicated mental health counselor.

Since then, we have also appointed the University’s first-ever graduate student ombudsperson to offer impartial conflict-resolution advice, specifically for our graduate student population. Kayla Follmer, associate professor of management in the Chambers College of Business and Economics, will serve in this new part-time role for a three-year term beginning next fall semester.

The Office of Graduate Education and Life has also established a Wellness Steering Committee with representatives from their office, the Carruth Center, Global Affairs, Health Science’s Graduate and Research Office, and Wellness WV. This committee meets regularly to identify areas of need, identify possible solutions and share resources that address graduate student wellness issues.

This committee will be expanded next fall to incorporate representatives from a wider range of units across campus, such as Student Life, Well WVU, the LGBTQ+ Center, student advisory groups, and more. This Wellness Council will continue efforts to advocate for policies and

practices to better serve our graduate and professional students at the individual, family, institutional and community level.

Another exciting student success program beginning this fall will focus on providing wrap-around support for our most vulnerable undergraduate students, including Pell-eligible, first-generation, minority and rural West Virginia students.

The REACH program – which stands for Respond, Engage, And Climb Higher – will support students who have been accepted to WVU but have not yet begun classes. Participants will receive success coaching, additional tutoring, and financial literacy training. Once REACH students start class in the fall, they will have a secondary adviser to help them balance the competing demands of academics, work, and socialization on campus and help them utilize our existing student support infrastructure.

Looking Ahead (Academic Transformation)...

As we look ahead, our overarching goal for Academic Transformation will remain the same: to “improve quality while we decrease costs” – as President Gee said in his original charge in December 2020.

However, to meet our current budget challenges, we will need to accelerate our efforts. We will need to dive even deeper into our portfolio of academic programs to determine additional changes that will allow us to reduce costs while maintaining quality, and we will continue to look at potential mergers and consolidations across academic units. We’ll dig deeper into instructional practices and our academic support services to ensure we are working efficiently and doing our best to serve the needs of our students.

Over the next several weeks, we will be sharing more details about our process and timeline with the campus community.

CHATGPT

Higher education is facing a new threat – or opportunity – that all universities are grappling with right now.

ChatGPT is the language-based generative AI that is able to perform a large number of tasks by synthesizing information from the web.

ChatGPT poses challenges for higher education because students can use it to cheat by generating academic content that is difficult to detect. But A-I it can also be a powerful tool for learning. For example, students can use ChatGPT to help them learn to write better, generate essay outlines, proofread, do research, do coding, and solve math and science problems. In some disciplines (computer science or law for instance), it will be critical that our students know how to use a tool like ChatGPT to make them more marketable.

To help our faculty and other members of the University community navigate this new reality,

we've brought together a new AI Task Force to investigate the best practices for using ChatGPT (and similar products).

So far, the committee has reviewed academic and journalistic publications on ChatGPT and is now in the process of writing guidance for courses and syllabi. They will be providing separate guidance for instructors who want to ban the A-I tool, allow ChatGPT with proper academic citations, or fully integrate this powerful new technology in their course.

BIG 12 PROVOSTS

Earlier this week, I hosted the Big 12 Provosts in Morgantown for our first in-person meeting in five years. It was a very productive gathering in which my colleagues and I shared the challenges and opportunities each of us face at our respective campuses (lot in common) and the group shared practical solutions as well.

We gave them a tour of the new Reynolds Hall and the Rockefeller Neurosciences Institute facility, and they were incredibly impressed by the quality of work and innovation taking place at WVU.

DR. PAUL ZIEMKIEWICZ

And finally, I am honored to introduce to you our guest speaker today. If you follow the news, I imagine you heard about the 8-million-dollar grant from the US Department of Energy that Dr. Paul Ziemkiewicz and his team were recently awarded for their research on rare earth minerals.

The grant, part of President Joe Biden's Investing in America agenda, will lead to the design, construction and operation of a pre-commercial demonstration facility for separating and refining rare earth elements and critical minerals from acid mine drainage and coal waste.

These technologies power everything from our smartphones to our country's missile guidance system and could serve as a game changer for the environment and economy in West Virginia and beyond. Not only will their work help address acid mine drainage issues across the Mountain State, but the construction and operation of this facility will also create much needed jobs in areas that can no longer rely on fossil fuels.

Dr. Ziemkiewicz is project lead and director of the West Virginia Water Research Institute at WVU. He is a native of Pittsburgh and received his Ph.D. from the University of British Columbia and his bachelor's and master's degrees from Utah State University in the biological sciences.

After graduation, he worked for 10 years with the Alberta Department of Energy before coming to West Virginia University in 1988 to serve as the Water Research Institute director.

- The Institute develops and carries out environmental research projects both in the region and nationally with a focus on managing and treating waste streams from coal mining and oil and gas development.

Dr. Ziemkiewicz has led the Institute for nearly 25 years with a spirit of innovation and collaboration and deep dedication to our land-grant mission. Please welcome to the podium, Dr. Paul Ziemkiewicz

The presentation from Dr. Ziemkiewicz, entitled “Pre-Commercial Demonstration Integrated Acid Mine Drainage Treatment and REE/CM Recovery – USDOE Project DE FE00 31834” is attached hereto and made a part hereof by reference..

ANNUAL REPORT OF THE STUDENT GOVERNMENT ASSOCIATION REPRESENTATIVE TO THE BOARD OF GOVERNORS

Chloe Hernandez, the board’s student government representative, along with members of her administration, provided a summary of the Hernandez-Uqaily 2022-2023 Administration. Chloe first introduced members of her administration, namely, Pareera Quaily, Student Body Vice President, Emma Coiner, Chief of Staff, External Affairs, Sophia Flower, Chief of Staff, Internal Affairs, and Sohan Daniel, Treasurer.

Highlights of this administration included the following:

Administrative Goals, Including:

Legislative Priorities:

- Mental Health
- Student Experience
- Sexual Assault Prevention
- College Affordability
- Government Relations

AND

Administrative Priorities:

- Internal organization
- Communication
- Transparency
- Outreach

Open Syllabi

- Having previous versions of class syllabi available prior to/at registration to give students a feel for the pace and expectations of a course
- UNC, Harvard, Texas Tech, and Oklahoma State have this policy
- Collaborate with provost office, faculty senate, and president’s office to gauge feasibility
- Met with Faculty Senate’s committee on Academic Affairs and Technology
- Next SGA administration and Student Academic Advisory Board will push this initiative to help with student success and retention

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Active Study Spaces

- Collaboration with HSC, Downtown and Evansdale
- Campus Recreation and WVU Libraries partnership
- Data from campus recreation has shown that students who are active typically have higher completion rates
- Improves student retention

Outreach Across Campus (Results Included):

- SOLD and SGA Presidents Forums
- Tabling Events (share swipes—donate swipes to students in need)
- Student Org Fairs
- 40 student org approvals
- Many different newsletters
- Co-sponsorships with departments and organizations such as the Carruth Center, OAS, WVU Libraries, etc.

Inclusion

- Passed legislation on Braille Signage
- Safety Accessibility Walks – One in spring and one in fall – walk around campus locations to determine needs of students
- Office of Accessibility Services Student Advisory Board
- DEI Grants
- Encourage Benches and Coverings at all Office of Accessibility Services Shuttle Stops

Elections Code Results

- Voting Format
 - Moved to in-person polling places at the Mountainlair, Student Recreation Center & HSC Pylons
 - Online absentee voting option
- Finances
 - Financial statements made public via the SGA website to increase transparency
- Candidate Education Period
 - Before active campaigning, candidates can advertise the election and general platforms at SGA events
- Ticket System
 - Senators no longer run under Presidential & Vice Presidential candidates on tickets
 - All candidates are independent

Bureau of Finance

- 166 grant applications requesting \$266,104.88
- 130 grants awarded to 111 student organizations totaling \$120,214.88

Finally, Madison introduced the incoming 2023-2024 SGA Administration consisting of Madison Santmyer, Student Body President, and Brogan Dozier, Student Body Vice President.

PRESIDENT'S REPORT

President Gee offered the following remarks:

In my State of the University address last month, I renewed our commitment to putting our students first and embracing our land-grant mission for the people we serve.

Provost Reed has already provided an update about the initiatives we are launching to help all students succeed.

I would like to recognize one student in particular who symbolizes our ability to nurture future leaders. Azeem Khan has been named our University's 26th Truman Scholar, earning the nation's top graduate fellowship award for aspiring public service leaders. Azeem blends a demonstrated commitment to service with a fierce passion for problem solving, which is an unbeatable combination when facing challenges ranging from mental health to opioid abuse.

A native of Charleston, the political science major with dual minors in business cybersecurity and philosophy is acutely aware of the challenges his home state faces, especially with respect to the opioid epidemic. As co-chair of the Mountaineer Fentanyl Education Task Force, he has led efforts to educate WVU students about the dangers of fentanyl, a synthetic opioid drug.

As president pro tempore of the WVU Student Government Association, Azeem has also led efforts to engage with state lawmakers about the importance of student mental health.

I am pleased that Azeem Khan was able to join us this morning. Azeem, you embody what it means to be a Mountaineer. On behalf of the University and the Board of Governors, congratulations on your achievements.

Public service is a priority for our entire community—for faculty, staff and students like Azeem. Several current initiatives focus on critical statewide issues, including infrastructure, mental health and education. For example, the upcoming launch of the SMARTER center in the Benjamin M. Statler College of Engineering and Mineral Resources will direct \$1.5 million in federal funding toward improving transportation for rural residents. Knowing that public buses make little financial sense in rural areas and that many low-income residents cannot afford vehicles for transportation, Assistant Professor Kakan Dey believes emerging technologies like self-driving, electric cars and ride-sharing services will improve lives substantially. Beginning this summer, the center will position the state to begin taking advantage of these cutting-edge technologies within the next decade to ensure the most remote, economically distressed communities have equitable access to mobility.

Mental health is another critical issue in West Virginia. And experts from our College of Applied Human Sciences will be going into public schools to address growing mental health needs among children. Assistant Professor Rawn Boulden, Associate Professor Christine Schimmel and Associate Professor Kim Floyd will guide the rollout of a new program designed to put more counselors in schools across West Virginia, starting in Harrison County, which has some of the greatest needs for mental health providers in the state. Over the next five years, the Mountaineer School-Based Mental Health Fellows Program will receive \$5.2 million in funding from the U.S. Department of Education. West Virginia, unfortunately, is among the nation's leaders in adverse childhood experiences including suicidal thoughts, depression, anxiety and loneliness. The Fellows Program will address shortages by placing six advanced counseling program graduate students in Harrison County schools each year. They will work in the school system during their studies and for two years after graduation as part of a built-in service obligation.

Professors Boulden and Schimmel are also working to train 625 personnel in 20 West Virginia public

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schools in Youth Mental Health First Aid. Their outreach efforts teach adults how to help adolescents experiencing mental health or addiction crises.

And finally, as we face budgetary challenges, our University values more than ever the private giving that supports our work for students and citizens. Recently, our sixth Day of Giving raised \$18.1 million from 8,200 gifts made by alumni and friends – once again beating the previous year’s records. I am grateful to everyone who supported our University on the Day of Giving. It demonstrates the commitment our alumni and friends have to this great University. And we will follow through on that commitment by investing those programs that serve our students and our state.

EXECUTIVE SESSION

Chairman Jones requested a motion to move Executive Session, under authority in West Virginia Code §§ 6-9A-4(b)(2)(A), (b)(9), and (b)(12) to discuss:

- a. Potential strategic initiatives relating to academic and administrative priorities; personnel matters; corporate collaborations and financial matters relating to public private partnerships; the purchase, sale or lease of property; and other deliberative matters involving commercial competition which, if made public, might adversely affect the financial or other interest of the University; and
- b. Confidential and privileged report by General Counsel

The motion was made by Paul Mattox, seconded by Charles Capito, and passed. Following Executive Session Kevin Craig moved that the board rise from Executive Session. The motion was seconded by Marty Becker and passed. Chairman Jones stated that no actions were taken as a result of today’s Executive Session discussions.

PROPOSED FINAL AMENDED RULES AND OFFICIAL COMMENTS SUMMARY

Associate General Counsel Kylie Barnhart presented this agenda item for the Proposed Final Amended Rules and Official Comments Summary for the following:

- West Virginia University Board of Governors Governance Rule 1.2 – Administration
- West Virginia University Board of Governors Academics Rule 2.2 – Program Creation and Review
- West Virginia University Board of Governors Academics Rule 2.3 – Undergraduate Admissions
- West Virginia University Board of Governors Academics Rule 2.4 – Residency Status for Admission, Tuition, and Fee Purposes
- West Virginia University Board of Governors Talent & Culture Rule 3.5 – Employee

Leave

At the Board's February 17, 2023 meeting, it issued a Notice of Proposed Rulemaking for amendment of the Rules identified above.

The proposed changes are to amend current BOG Rules to clarify certain provisions and update the Rules to reflect changes and situations that have occurred since their adoption. First, the change to BOG Governance Rule 1.2 seeks to document the current practices between the University management and the Foundation in the Foundation recommending a naming opportunity for a facility or academic unit in exchange for a monetary donation.

Second, changes are proposed to the BOG Academics Rules to expand upon the test optional policies available in the Rules, update academic criteria necessary for admission, and give the University discretion to recalculate GPAs to ensure academic consistency across the applicant pool. Additionally, changes are proposed to add additional categories of international students that may be eligible to receive in-state tuition if they have already established domicile in West Virginia. Finally, a change is proposed to BOG Talent & Culture Rule 3.5 – Employee Leave to provide that residents and fellows will receive leave in accordance with any applicable accreditation requirements.

Substantively, the proposed changes to the Rules above will result in amendments that were set forth in detail in the table located in the Notice of Proposed Rulemaking, as well as in the attached redlines, all part of the board's public meeting materials.

The proposed changes to the Rules were posted for the required thirty (30) day public comment period. A total of three (3) comments were received. Those comments and the University's responses were posted on the University's website for at least ten (10) days in advance of this Board meeting. No changes were made to these Rules as a result of comments received. Accordingly, the Board of Governors is asked to approve the final amended Rules as presented. If approved, the amended Rules will be effective in 15 business days, in accordance with our rulemaking procedures.

Accordingly, Paul Mattox moved that the board approves the final amended Rules as presented, pursuant to BOG Governance Rule 1.1..This motion was seconded by Dr. Stanley Hileman, and passed.

APPROVAL OF MINUTES

Charles Capito moved that the minutes of the February 17, 2023 and March 17, 2023

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board meetings be approved. The motion was seconded by Lisa A. Martin and passed.

COMMITTEE REPORTS

April 20, 2023 Audit Committee Meeting: Taunja Willis Miller, Audit Committee Chairman, reported as follows:

Thank you, Mr. Chairman. Yesterday, there was a meeting of the Audit Committee.

First, we heard a report from Vice President and Chief Financial Officer Paula Congelio, who reported that CLA has completed their mid-year review of the 12/31/2022 financial statements for the University. There is no opinion expressed since this is not an audit, however their final report indicated that they found no exceptions.

In addition, FORVIS has been engaged to audit the retirement plan for WVU Research Corp. This work started on March 23 and is ongoing.

Second, we met in Executive Session. During Executive Session, we received a confidential and privileged report regarding legal matters from the University's General Counsel. As part of the legal report, we also heard a confidential and privileged report regarding some of the University's compliance and risk assessment efforts associated with export control and foreign influence. Next, we received a report from the Director of Internal Audit discussing confidential and ongoing audit investigations and reports. No votes or actions were taken during Executive Session.

Mr. Chairman, this concludes my report.

April 20, 2023 Joint Finance and Facilities and Revitalization/Strategic Plans and Initiatives Committee Meeting: Marty Becker, who chaired this joint committee meeting, reported as follows:

Thank you, Mr. Chairman. Yesterday afternoon, your committee on Strategic Initiatives met in joint session with the Finance and Facilities and Revitalization Committee.

During the public session discussions included PEIA premium increases and health insurance plan options, as well as WVU's financial future. We met in Executive Session where additional discussions continued on both these topics and the joint committee also discussed confidential and preliminary matters involving or affecting the University's budget for the current and upcoming academic year, including retention and enrollment were also discussed. No actions or votes were taken during executive session.

That concludes my report, Mr. Chairman. Thank you.

INFORMATION ITEMS

There were no questions or concerns expressed by any board member pertaining to the Information Items contained within today's agenda.

CONSENT AGENDA

Chairman Jones called for any discussion of today's Consent Agenda items and asked whether any items needed to be pulled for a separate discussion/vote. It was determined that the following agenda item "**2016 Series A. Bonds Variable Interest Rate Index Modification**" be pulled to be voted upon separately. Kevin Craig then moved that the balance of today's Consent Agenda be approved. This motion was seconded by Lisa A. Martin and passed.

Thereupon, the following Consent Agenda items were approved:

- 1. Discontinuation of Undergraduate Certificate: Global Engagement, in the Eberly College of Arts and Sciences**
Resolved: That the West Virginia University Board of Governors approves the discontinuation of the aforementioned undergraduate certificate.
- 2. Approval of New Program: BA in Esports Business and Entertainment, in the College of Intercollegiate Programs**
Resolved: That the West Virginia University Board of Governors approves the creation of a new BA degree in the College of Intercollegiate Programs
- 3. Approval of New Program: BA in Sustainability Studies, in the Eberly College of Arts and Sciences**
Resolved: That the West Virginia University Board of Governors approves the creation of a new BA degree in the Eberly College of Arts and Sciences
- 4. Approval of New Program: BS in Earth and Environmental Science, in the Eberly College of Arts and Sciences**
Resolved: That the West Virginia University Board of Governors approves the creation of a new BS degree in the Eberly College of Arts and Sciences
- 5. Termination of Master of Science (MS) degree in Reproductive Physiology at the Davis College of Agriculture, Natural Resources and Design.**
Resolved: That the West Virginia University Board of Governors approves the termination of the Master of Science (MS) degree program in Reproductive Physiology at the Davis College of Agriculture, Natural Resources and Design.

6. Termination of the Doctor of Philosophy (Ph.D.) degree in Psychology: Clinical Child at the Eberly College of Arts and Sciences.

Resolved: That the West Virginia University Board of Governors the termination Doctor of Philosophy degree in Psychology: Clinical Child at the Eberly College of Arts and Sciences.

7. Termination of the Doctor of Philosophy (Ph.D.) degree in Counseling Psychology at the College of Applied Human Sciences.

Resolved: That the West Virginia University Board of Governors approves the termination Doctor of Philosophy degree in Counseling Psychology at the College of Applied Human Sciences.

8. Termination of Master of Science (MS) degree in Reproductive Physiology at the Davis College of Agriculture, Natural Resources and Design.

Resolved: That the West Virginia University Board of Governors approves the termination of the Master of Science (MS) degree program in Reproductive Physiology at the Davis College of Agriculture, Natural Resources and Design.

9. Appointment to County Extension Committees

Resolved: That the West Virginia University Board of Governors approves the nominees and alternates for positions on the County Extension Service Committees in West Virginia, as presented.

10. HSC Surgical Skills and Fresh Tissue Laboratory Renovation

Resolved: That the West Virginia University Board of Governors approves the renovation of this project.

11. Acquisition of Real Property in Beckley

Resolved: That pursuant to BOG Governance Rule 5.1, the West Virginia University Board of Governors authorizes the acquisition of 107 West Virginia Street, Beckley, West Virginia.

12. Board of Governors Nominating Committee Appointments

Resolved: That the West Virginia University Board of Governors approves the following composition for a nominating committee to formulate/present a slate of officers for vote by the full board during the June 23, 2023 regular meeting: Marty Becker as chair with the following members: Charles Capito, Kevin Craig, Dr. Stanley Hileman and Lisa A. Martin .

The pulled agenda item “**2016 Series A Bonds Variable Interest Rate Index Modification**” was then voted on separately. Dr. Ashley Martucci moved that the board approve the modification of the variable interest rate index for the 2016 Series A Bonds from One-Month LIBOR to One-Month Term SOFR and grants authority to the President or the Vice President for Strategic Initiatives to negotiate and finalize any documentation necessary to carry out such modification. The motion was seconded by Bray Cary and passed. It is noted that board members Charles Capito and Dr. Patrice Harris recused themselves from the vote on this agenda item.

**GENERAL DISCUSSION AND
ADJOURNMENT**

Chairman Jones announced that the Board will conduct its next regular meeting on June 23, 2023. There being no further business to come before the board, Paul Mattox moved to adjourn the meeting. The motion was seconded by Charles Capito and passed. The meeting was adjourned at 11:30 a.m.

Richard Pill, Secretary

Pre-Commercial Demonstration Integrated Acid Mine Drainage treatment and REE/CM Recovery

USDOE Project DE FE00 31834

Project Leadership:

West Virginia University

Paul Ziemkiewicz, Jim Constant, Harry Finklea,
David Hoffman, John Quaranta

Virginia Tech

Aaron Noble

State:

WVDEP-Office of Special Reclamation

Industry:

Rockwell Automation
TenCate Corporation
L3 Eng



Rare earth prices: 2020- coal is \$0.20/kg

Table 1: Simplified Estimated Market Prices (Jan. 2020)

LIGHT RARE EARTH METALS		grade	price /kg
Praseodymium	metal	99.0%	\$ 93.00
Neodymium	metal	99.5%	\$ 55.00
Praseodymium	Oxide	99.5%	\$ 50.00
Neodymium	Oxide	99.5%	\$ 42.00
Mischmetal	metal	99.0%	\$ 18.00
Samarium	metal	99.9%	\$ 17.00
Lanthanum	metal	99.0%	\$ 5.00
Cerium	metal	99.0%	\$ 5.00
Lanthanum	Oxide	99.5%	\$ 2.00
Cerium	Oxide	99.5%	\$ 2.00

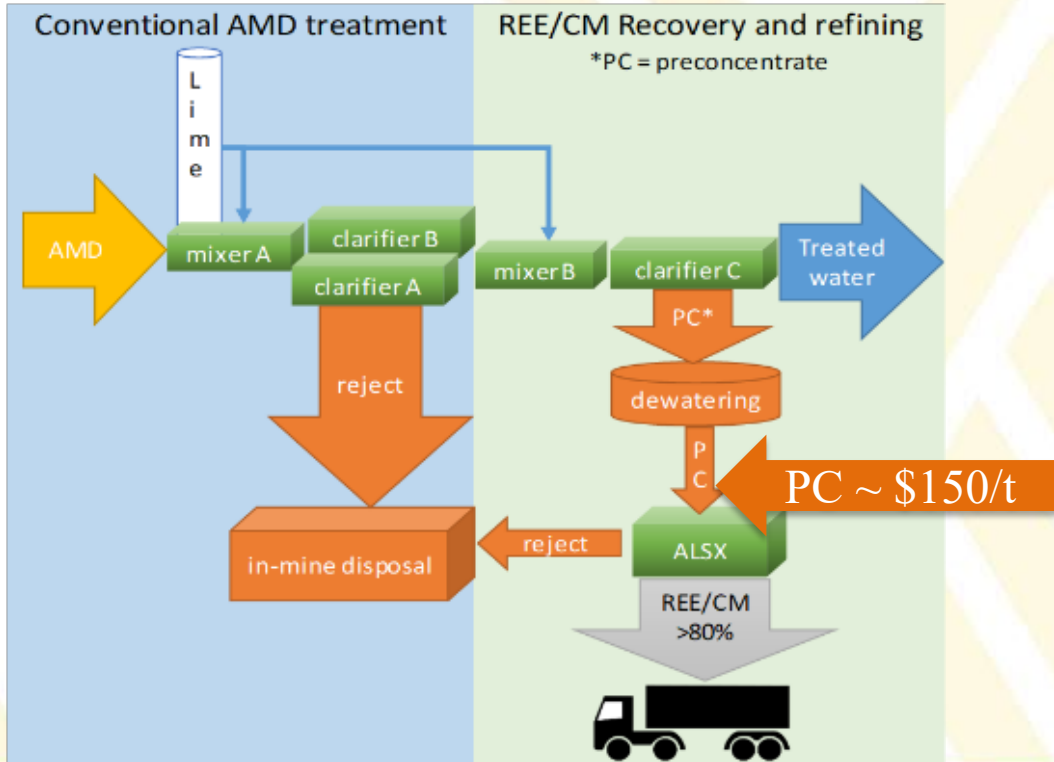
Source: mineralprices.com

HEAVY RARE EARTH METALS		grade	price /kg
Scandium	metal	99.9%	\$ 3,500.00
Scandium	Oxide	100.0%	\$ 1,000.00
Terbium	metal	99.9%	\$ 650.00
Terbium	Oxide	99.5%	\$ 500.00
Dysprosium	metal	99.0%	\$ 300.00
Dysprosium	Oxide	99.5%	\$ 250.00
Erbium	metal	99.9%	\$ 95.00
Gadolinium	metal	99.9%	\$ 50.00
Yttrium	metal	99.9%	\$ 35.00
Europium	Oxide	100.0%	\$ 30.00
Gadolinium	Oxide	99.5%	\$ 23.00
Erbium	Oxide	99.5%	\$ 22.00
Yttrium	Oxide	100.0%	\$ 6.00

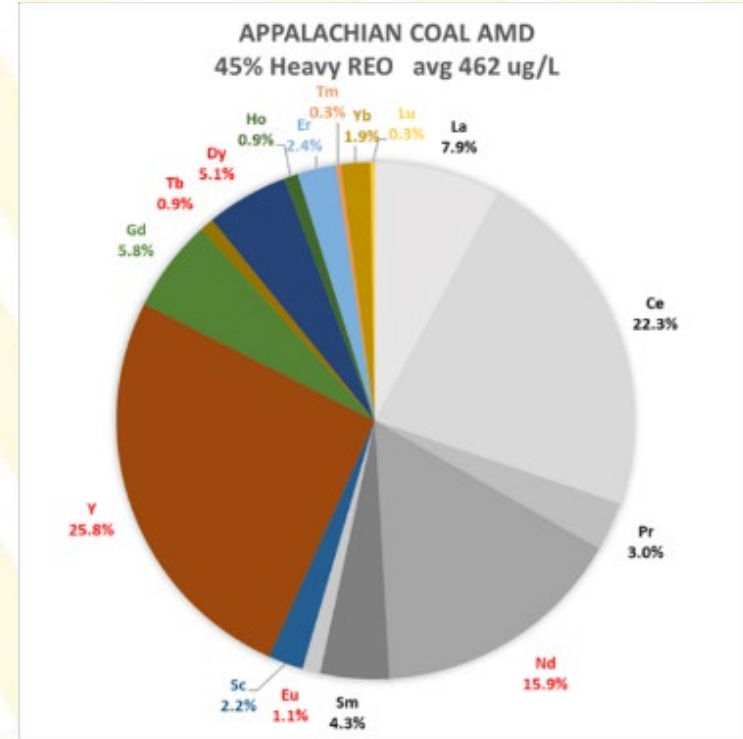


Integrated AMD treatment/REE/CM recovery

Patent US10954582B2



Consistent feedstock: average of 140 sites



Process:

1. Generate pre-concentrate (brown floc)
2. GeoTubes passively dewater to 40-85% solids
3. Transport to a central processing facility
4. Convert it to high-grade PLS (green), then MREO
5. Elemental oxide, reduction to metal

Pre-conc. TREE: 0.5%



0.1% solids

Brick TREE: 0.5-5.0%



Hi grade PLS

PLS TREE: 100-1,800 mg/L



MREO



MREO TREE:
90-99%



World's first AMD/REE production facility

Inside the Lime Silo



Three clarifiers



Scaleup from the laboratory

First Batch of Preconcentrate leaving A34
Pilot Plant **28 Sept 2022**



A34 components

Dewater/leach/precipitate



Preconcentrate for shipment



CENTRAL REFINERY CONFIGURATION, PRODUCT LINE, AND TECHNICAL FEASIBILITY

Class 4 Feasibility Study for USDOE



Conceptual supply chain: Concentrates move to central processing facilities

D. Iron Mt. CA



E. Butte MT



F. Iron Range MN



Potential source districts

- A: Northern/Central APP
- B: Southern APP/Illinois basin
- C: Southern Rockies metal belt
- D: Sierra metal belt
- E: Northern Rockies metal belt
- F: Minnesota iron range



C. Four Corners



B. Southern App Coal



A. Northern App Coal



Estimated REE/CM yields: USDOE requirements 1-3 tpd, >50% coal based

Estimated Yield	n	Source	Oxide				
			TREE t/yr	Co t/yr	Mn ² t/yr	REE+Co t/yr	REE+Co+Mn t/yr
measured	112	WVU samples 2017	17.8	20.3	180.0	38.1	218.1
measured	51	WVU samples 2021	36.0	40.0	417.9	75.9	493.8
measured	28	USGS PA ⁴	10.8	26.4	257.5	37.2	294.7
Inferred ^{1,3}	191	Measured coal AMD	64.6	86.6	855.4	151.2	1006.6
	132	TN, KY, WV, OH, PA, MD	72.4	81.6	857.3	154.0	1011.3
	323	Total Coal	137.0	168.2	1712.7	305.2	2018.0
	6	Measured Hard Rock	167.2	114.0	1644.6	281.3	1925.9
Total yield	329	Coal + Hard Rock	304.2	282.3	3357.4	586.5	3943.9
		Coal/Hard rock	0.82	1.48	1.04	1.09	1.05

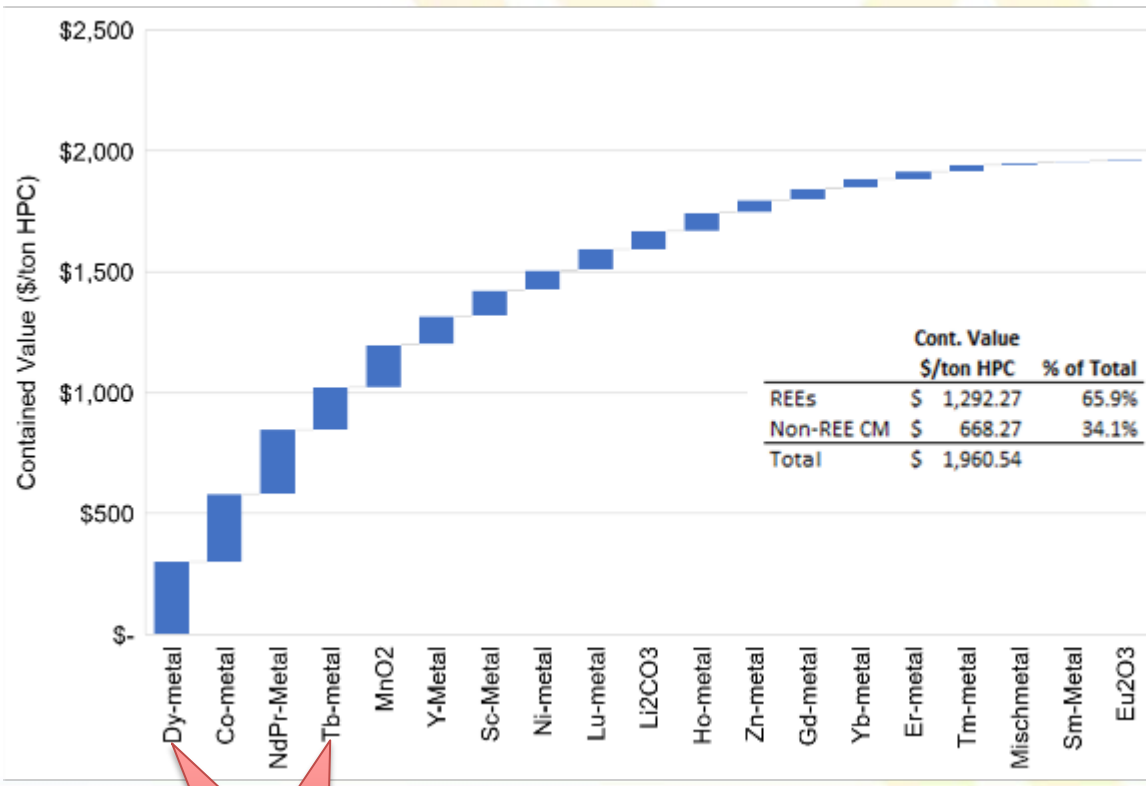


Recovery of REE+Co+Mn without mischmetal yields the most favorable economics

Parameter	REE + Co + Mn no MM
REE Production (t/y)	289.8
Total Production (t/y)	6,099.80
Net Present Value _{10%} (\$ mil)	\$248.38
Rate of Return	34.70%
Discounted Payback Period	6.5



Preconcentrate: Contained Value \$1,960



	Avg Conc mg/kg	% of TREE
Sc	32.3	0.3%
Y	2,908.4	30.7%
La	629.8	6.6%
Ce	1,572.2	16.6%
Pr	302.8	3.2%
Nd	1,592.2	16.8%
Sm	459.4	4.8%
Eu	115.0	1.2%
Gd	688.6	7.3%
Tb	95.6	1.0%
Dy	521.9	5.5%
Ho	96.3	1.0%
Er	250.4	2.6%
Tm	30.3	0.3%
Yb	166.6	1.8%
Lu	24.6	0.3%
TREE	9,486.4	

Non-REE CM

Co	4,765.9
Ni	4,730.1
Mn	56,124.3
Li	2,865.0
Zn	17,555.3

~80% of world supply



Disadvantages of sourcing REE/CM from AMD

- Low concentrations
- Requires collection from many sites
- Need to manage upstream supply chain
- Quality control: moisture, grade



Advantages of sourcing REE/CM from AMD

- Already permitted sites, no delays due to permitting
- Easy to quantify yield, minimal exploration cost
- Environmentally beneficial, byproduct is clean water
- Solid wastes are RCRA subtitle D, non hazardous
- Distributes jobs and benefits across broad areas
- Incentivizes treatment of legacy AMD discharges
- Uniform feedstock, across mines and sectors
- Attractive economics
- **No rads**

