

Research and Mineral Mapping Subcommittee  
Draft Meeting Minutes  
April 20, 2021  
9:00 a.m.

**Roll Call**

Tim Eisele – present  
Steve Kesler – present  
Snehamoy Chatterjee – present  
Adam Wygant – present  
Sharon Schafer – present  
Mike Sweat – present  
Peter Rose – present  
John Yellich – present  
Bill Harrison – present

**Guests**

Dave Behrend  
Mike Cornelius

The meeting began at 9:09 a.m.

Bill put together a spreadsheet of critical minerals. Steve made changes to the initial document. Will will share what changes were made. He eliminated the section that would appear later in the document. Pretty much editorial comments. Didn't need that paragraph, because we said it farther down.

Are the highlighted parts what we need to expand? How do we want to integrate it in the text? Do any minerals taxes or funding come to the trust fund? Royalties from state leases on mineral rights do. The trust fund reached \$5 million which was provided in the constitution. Add a phrase, shows in the county. Money goes back to recreation in the state so organizations can apply for grants. Should we have a separate section that reviews this? We could have a short paragraph where money comes from and where it goes. It may show up in a couple places regarding trust fund and endowment. Early oil and gas royalties support recreation projects. I'll write something and send it to you. We can say as discussed further in the economic section. More examples now that we have the table.

Potash is huge. It covers more than 7-8 counties. We have the purest potash in the world, and less than one half percent of it is insolubles. We have a proven resource. We have high resolution mapping. Can you write a paragraph, Bill? Bill agreed. It's a

proven reserve but not developed. Commercial mining by Mosaic. The total area was 400 acres produced 200 tons per year for ten years. Why did they stop? It was a satellite thing they bought. They didn't want competition. It was a corporate decision, because they didn't want competition.

Solution mining is challenging. We need more information on potash. We have a paragraph about critical mineral potential. Michigan potash is still interested in developing. Capitol investment is huge. It would be nice to take over the existing plant. Potash has 99 percent purity, and softener salt is produced. There are different solids at different sites. Peter, were you suggesting it didn't fit in mineral production? Peter thought more research can be done on potash deposits. Adam agreed. They are raising capital and litigation and seeing renewed activity on deposits.

Mosaic did a study. To develop as a resource throughout the state, we need more research. There is a category I know of that exists or how many exists. I can write a quick paragraph on this. Few other critical minerals have potential in Michigan. We can mention it. Other areas like Eagle like cobalt and platinum group. We can go back and look at core whole data. John Yellich was involved in uranium. About a half dozen of 35 have potential in Michigan. I would like a table with those half dozen in it. Bill and John will talk about this. Steve thought a paragraph on this would be really good. We need to know geologically where things are and how to increase this by information.

We don't know the whole process once you get it out of the ground. Processing is a nightmare. Tim's statement on manganese can be expanded on. We can get data on the maximum knowns. A lot of analysis have been run. I have been working on scanning and digitizing borings. We have a lot scanned, but we need to go through and create tables. It needs to be organized and catalogued so people can find it.

We didn't get everything Rio Tinto had. They only had it for state property. Most were sent to Minnesota, and boxes were not protected. It was nice to see multi elements. A lot of metals are available but not in a place to extract from rock. We need to know the rock chemistry.

Including potential for critical elements in number 2 and expand to include critical element potential. It could be put into the objectives of mineral-related research and expand the information in the fourth paragraph. The table would go there. Critical minerals from the executive order and the mineral table. Rare earth elements are grouped together. Usually, people don't list them all. There are 17 elements that fall into the rare earth category. We could have an appendix. If you split it up, people will lose the meaning. The report will have information, and it won't be lost.

Put the details for manganese and other elements of potash in the GeoWebFace paragraph. Do we need more detail? We can weave it in more than one place. Some can be a detailed appendix.

People hear rare earth and don't work in the field might not know the meaning. We have to remember who our audience is. Maybe we need an appendix. We need to make sure we use element and mineral properly. Things listed as critical elements are minerals. In the 1940's, the State of Michigan and USGS published a document on strategic minerals. Now they are called critical minerals, but they're the same thing.

We could include people and operating costs. The estimated budget could be personnel and operating costs. We could remove it from above. Just say the estimated total cost is \$1.2 million. Asking if funding is coming from industry as well. Put it at the end of this paragraph. They had to upgrade pellets to keep the Tilden Mine operating. We could replace it with pellet grades. Change concentration elements then added to pellets for direct feed to furnace.

If research is related to the statement above, did they use electric arc furnaces? They are using taconite as something additional. They are mostly converting from blast furnaces. We need to say feed for steel making a continuing evolving situation. The raw material and recycle feed for steelmaking continues to evolve and requires continuing research to meet the quality need of the industry.

Rather than use taconite, they could use the current grade of pellet. We need to have continuously employed people. This would provide dedicated staff.

There are two funding sources we're aware of. It doesn't mention USGS. DOE is coming out with potential funding opportunities. John made a presentation in February about recycling with DOE. Unless we have USGS in there, you need to abbreviate it everywhere. In three months, DOE is looking at how to provide funding. DOE will have more money than USGS. DOE wanted to give us (Tim) money, but they couldn't figure out how to do it.

We need to split up this paragraph. The sentence is too long. Comments have been addressed. We want to add critical minerals. I think we have done enough for today. This is the information we have. A lot of things are happening in Washington. This is fine for now, but we may have additional points to add later. Be prepared; we'll have to add or change things as we go.

There are airborne physics in western UP. There is new geologic interest we haven't looked at before. At the end, we could have footnotes. Mining Methods is using footnotes. We could think up a few.

DOD is getting involved in this, too. We'll review this again. Bill and I will look at critical minerals.

We are trying to wrap things up in April so we can utilize Mike for the final report in May.

**Public Comments**

Mike from MOGA – On the EGLE calendar, the meeting information is wrong. The conference phone number information and the link doesn't work. This will be looked into.

**Adjournment**

The meeting adjourned at 10:15 a.m.