ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
February 5, 2021
3:34 p.m.

MEMBERS PRESENT

Senator Joshua Revak, Chair
Senator Peter Micciche, Vice Chair
Senator Click Bishop
Senator Gary Stevens
Senator Jesse Kiehl
Senator Scott Kawasaki

MEMBERS ABSENT

Senator Natasha von Imhof

CALENDAR

OVERVIEW: MINING—ALASKA DEPARTMENT OF NATURAL RESOURCES

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

CORRI FEIGI, Commissioner
Department of Natural Resources
Anchorage, Alaska
POSITION STATEMENT: Provided an update on the Alaska mineral industry.

STEVEN S. MASTERMAN, State Geologist/Director
Division of Geological and Geophysical Surveys
Department of Natural Resources
Fairbanks, Alaska
POSITION STATEMENT: Provided an update on the Alaska mineral industry.

ACTION NARRATIVE

3:34:56 PM
CHAIR JOSHUA REVAK called the Senate Resources Standing Committee meeting to order at 3:34 p.m. Present at the call to order were Senators Bishop, Kawasaki, Kiehl, Stevens, and Chair Revak.

OVERVIEW: MINING - Department of Natural Resources

3:35:39 PM
CHAIR REVAK announced the committee will hear an update about the mineral industry from the Department of Natural Resources (DNR).

3:36:27 PM
CORRI FEIGI, Commissioner, Department of Natural Resources, Anchorage, Alaska, noted 2020 for the mineral industry due to COVID-19 was different than it was for the oil and gas operations. Although COVID-19 had significant impacts on global oil prices and production, the mineral sector was far less impacted, especially from a price and market perspective.

She said the mining industry focused on managing its very labor-intensive operations to ensure keeping the workforce and local communities safe, noting many are remote mining operations.

She noted overall production in the mining industry ended up staying level and on par. However, the greatest impact and challenge was in the deferral of exploration activities during the summer of 2020. Companies deferred a lot of their exploration work to prevent the spread of COVID-19.

3:38:25 PM
She referenced slide 2 regarding companies that reduced or deferred exploration work to prevent COVID-19 spread and detailed as follows:

- Ambler Metals canceled a $23 million field program to protect local workforce
- Peak Gold's Tetlin Project canceled their field program, but saw Kinross invest over $93 million to acquire a 70 percent share of the project.
- Donlin stopped exploration in early summer, but later completed more than 23,000 meters of exploration drilling program without COVID-19 cases or loss time injuries.

- Kensington doubled shift lengths but met expected production targets for 2020 and completed a multi-million-dollar exploration drilling program.

COMMISSIONER FEIGI noted the Red Dog, Kensington, and Greens Creek mines adopted an approach of extending their workforce shifts. For example, rather than individuals working a two-weeks-on, two-weeks-off shift, individuals worked a four-weeks-on, four-weeks-off shift. The shift changes went hand in hand with COVID-19 protocols to ensure there was no viral spread in remote communities.

She summarized 2020 was a huge success for the minerals industry. Companies deferred work but kept communities safe. The workforce is highly motivated to work hard in the summer of 2021.

3:40:38 PM
She noted from a commodity pricing perspective—where oil and gas took a real hit—the minerals industry prices started 2020 strong with increases over the course of the year for gold, silver, copper, and zinc. Metals are the cornerstone of digital communications and digital device manufacturing.

She detailed metals price increases for 2020 as follows:

- Silver: 59 percent
- Copper: 32 percent
- Gold: 25 percent

She detailed gold closed the previous day at approximately $1,761 per ounce and continues a robust pricing pace that should continue in 2021. The mining industry added acreage taken under claim in 2020 even though the industry could not get "out on the ground."

She noted Steve Masterman will continue the DNR overview and will provide specifics on various projects, but she will address the implications from the Biden Administration's policy direction and its possible impact on Alaska's mining sector at the end of the overview.

3:42:34 PM
SENATOR BISHOP asked her to confirm that due to the COVID-19 challenges, the department put out a letter to forgo claim rentals for a year.

COMMISSIONER FEIGE answered yes, the department placed a hold on lease rental payments until September 2021. Similar to the department assisting the oil companies with delayed rentals on some leases, the department did the same thing to help support the mining industry.

3:43:48 PM
STEVEN S. MASTERMAN, State Geologist/Director, Alaska Division of Geological and Geophysical Surveys (DGGS), Department of Natural Resources, Fairbanks, Alaska, referenced slide 3, 2019 Industry Summary, and addressed production and commodity prices.

He said 2019 saw robust growth in exploration and development expenditures, the value of the materials produced, and the industry's revenue were all stable. Metals commodity prices—like oil prices and the stock market—performed well in 2020. Metals prices took a substantial dip in March-April 2020 when there was a lot of economic uncertainty. However, metals prices have rallied strongly during the remainder of 2020. 2019 metals production placed Alaska first nationally in terms of zinc and lead production.

He noted COVID-19 impacted exploration and development expenditures, particularly earlier in the summer when people were still coming to grips with how to work around the virus. However, exploration and development activity picked up throughout the summer. The department anticipates a drop in exploration expenditures from the $171 million in 2019.

3:46:28 PM
SENATOR STEVENS asked him to translate the list of metals and their periodic table symbols.

MR. MASTERMAN replied the symbols are zinc (Zn), lead (Pb), gold (Au), silver (Ag), and copper (Cu). Alaska does not produce copper, but he included its prices because there are a lot of significant copper prospects in the state that are looking economically better with the higher copper prices.

3:47:34 PM
At ease.

3:49:54 PM
CHAIR REVAK called the committee back to order.

3:50:03 PM

MR. MASTERMAN referenced slide 4, 2019 Fraser Institute Report. He explained the institute annually compiles a report of the global mining industry to see which jurisdictions the industry considers more attractive for mining via a questionnaire sent to 2,600 individuals and companies. Alaska typically does well in the report, and he referenced the most recent report from 2019, shown on slide 4 as follows:

- World's fourth most attractive development area.
- Top U.S. state for mineral potential.
- Top U.S. state for mining-friendly regulatory and fiscal policies.
- U.S. state best able to meet its own permit timelines.

He noted the state's fourth most attractive development area ranking is out of 83 jurisdictions. The state's ranking for permit timelines is no small measure due to the division's Office of Project Management and Permits.

He said there a couple of areas that Alaska did not shine particularly well in. One area is the quality of Alaska's infrastructure where the state ranked 67th out of 83 jurisdictions; that is reflective of the lack of roads into remote parts of the state where many of the state's resources occur.

He said the one part of the survey that the division likes to track is the quality of the geological database. The state ranked 13th out of 83 jurisdictions, a ranking that continues to improve.

3:52:40 PM
SENATOR BISHOP pointed out the third bullet point on slide 4 shows Alaska as the top state for mining-friendly regulatory and fiscal policies, noting Alaska is also the most comprehensive as far as protecting its environment.

He explained to protect the state's natural resources and the environment, he must go through a comprehensive permitting system, [as a miner], as well as the agencies that have to checkoff on one another—that includes the Alaska Department of Fish and Game, Department of Environmental Conservation, DNR, and the U.S. Army Corps of Engineers.

SENATOR STEVENS asked him what the division must to do to improve its database.

3:53:54 PM
MR. MASTERMAN said Senator Bishop's comment on the intricacies and the difficulty of permitting large mines is a good point.

He explained the division is working to produce information annually that is digitally available with modern data on geophysics, geology, and geochemical information. The bottom line for the database is the amount of resources available in comparison to the size of the state. Alaska is roughly 20 percent geologically mapped to the usable scale, roughly 15 percent surveyed with airborne magnetics, and far less than that with other geophysical techniques.

He explained the state's geochemical and analytical database is roughly 15 percent complete, so there is a lot of work left to do. Alaska is a big state and working in its outdoors is not cheap. A lot of other jurisdictions have completed their basic data layers and that information is available to attract companies to explore and develop resources.

3:55:51 PM
He addressed a map on slide 5 that shows where the mines are in Alaska. The department forecasts 2020 production is in line with the 2019 production and there are no huge changes anticipated.

He noted some of the [mining] developments will change the production numbers in a matter of a few years. For example, Fort Knox's production will start to increase as they develop the Peak Gold Prospect by Tok, they anticipate an additional 220,000 ounces a year of gold to add to their annual total of 240,000 ounces. Pogo Mine is currently upgrading its mill and changing some of its mining equipment and mining method to increase its production to roughly 300,000 ounces of gold per year. The state will start to see the Pogo and Fort Knox gold production numbers increase when their new measures take effect.

He detailed the Red Dog and Greens Creek mines have been in operation since 1989 and they are mature operations. The department sees their productions staying stable. Typically, mining production goes up and down as the mines move from one area of an ore body to another where ore grades may change slightly.

3:57:56 PM
He referenced slide 6 and noted [Kinross Gold Corporation] has purchased an interest in a project near Tok, the [Peak Gold] Project, a gold prospect that contains about 1.3 million ounces.

Kinross purchased a 70 percent interest for $93.7 million. The plans are to truck the ore from the Peak Gold Project to the Fort Knox mill outside of Fairbanks, so the Peak Gold Project will not have a processing facility. Kinross is working to conduct feasibility and initial permitting by the end of 2022 and hopes to be in production by 2024 for approximately five years. The project will provide good jobs in the Tok area and for Kinross employees at Fort Knox.

3:59:31 PM
MR. MASTERMAN referenced slide 7 and noted a discovery [Pogo-Northern Star] made a couple of years ago—northwest of the Pogo Mine site—called the Goodpaster Discovery. The discovery's drillhole was 17.5 feet at 54.3 grams per-ton gold, which means high-grade material. The current ore grade at Pogo Mine is about a sixth of the Goodpaster Discovery, so Goodpaster is a major discovery—it is what happens when people understand the geology. He said "hats should go off" to the geologists at Pogo, they have started to unravel the geologic story and are now making discoveries like Goodpaster as a result.

He detailed the Goodpaster Deposit is about 2,300 meters long, 500 meters in depth, and is open in all directions. The Pogo team had a number of drills working on the site at the surface, converting some of the mineralization into resource and the understanding is at some point the Pogo underground mining will move in that direction. The Goodpaster Discovery is exciting, it speaks to the future of the Pogo Mine, and it is going to be there for a long time.

4:01:17 PM
He referenced slide 8, Red Dog Exploration, noting the Red Dog mine—as well as Pogo—had some exploration success over the past few years. The discoveries are the Aktigiruq and the Anarraaq deposits, about 12 kilometers northwest of the Red Dog Deposit.

He explained the two discoveries are of interest for several reasons. They occur on State land—so the State would benefit financially—and they are also underground mines due to its mining depth. The discoveries are very similar in grade and style of mineralization to the Red Dog Deposit, so the assumption is Red Dog will truck the ore from the discoveries to its mill and then off to the coast for shipment.

He stated the two Red Dog discoveries are big. Anarraaq currently has a resource of 19 million tons of roughly the same grade as the Red Dog Deposit. However, Aktigiruq is a massive

deposit with the potential to hold as many tons as all of ore that the Red Dog Deposit has mined, and all the resources currently identified in the Red Dog area—potentially up to 150 million tons—a massive deposit. As with Pogo, the department is encouraged by the Red Dog events and foresees mining occurring in the Red Dog area for many years to come.

4:03:18 PM
MR. MASTERMAN detailed slide 9 shows a map of mining claims. The noted blue areas on the map represent where the State's mining claims are on State land. The red areas identify the federal mining claims.

He summarized Alaska's mining claims as follows:

- State claims: approximately 3,400,000 acres
- Federal claims: approximately 125,000 acres
- 96 percent on State lands

He noted 96 percent of all mineral claims are State of Alaska claims, which speaks to the State's ability to select lands with high mineral potential for resource development on State land versus federal land.

He noted there was a considerable amount of staking [claims] in 2020. One of the large blue areas on the map is in the Ambler and the southern Brooks Range area [represents a claim staked] in 2020. The 200,000-acres claim is on State land located on an extension of the rock unit that occurs in the Ambler Mining District that goes along the flank of the Brooks Range.

4:05:35 PM
SENATOR KIEHL asked him what the green and orange areas on the map indicate.

MR. MASTERMAN answered he is not sure and will verify. He noted one orange area is a federal claim, but he is not seeing a green area.

SENATOR KIEHL pointed out the location indicated on the map for the Palmer Prospect is in the Yakutat area, to the west of Haines.

MR. MASTERMAN replied, the location may have moved on his end. The Palmer Project is located northwest of Haines.

4:06:49 PM

MR. MASTERMAN noted a map on slide 10 indicates active exploration projects across the state by the type of mineral deposit and the metals that it contains.

He detailed the circles on the map indicate prospects as follows:

- Yellow: gold
- Green: copper, gold, and molybdenum
- Red: polymetallic, like the Palmer Project and the Greens Creek mine for lead, zinc, silver, and gold.
- Purple triangles: "oddball" prospects with silver and tin on the Seward Peninsula.
- [Black pentagon]: Granite Creek, a graphite deposit on the Seward Peninsula.
- [Brown triangle]: rare earth element deposit at Bokan Mountain in Southeast Alaska.

SENATOR STEVENS noted from national news reports that China is producing most of the rare earth elements the United State uses. He asked him to identify where rare earth elements are in Alaska.

MR. MASTERMAN replied he will address rare earth elements later in his overview.

4:09:07 PM
He noted slide 11, Executive Order 13817—a directive issued by President Trump in December 2017. The executive order (EO) identifies the fact the United States is critically reliant on foreign sources for a number of critical minerals.

He detailed the EO established objectives to meet the policy goal of reducing the nation's dependance on foreign minerals. The EO asked the Secretary of Commerce to produce a report to address the nation's reliance on critical minerals, to assess the nation's progress towards developing critical minerals in recycling and reprocessing, to develop options for accessing and developing critical minerals through trade with partners, and [create] a plan to improve topographic geological and geophysical mapping of the United States to support private sector mineral development—that is in part of where DGGS comes in.

He said in concert with the EO, the U.S. Geological Survey (USGS) produced a list of critical minerals. Also, because of

the EO, the USGS budget increased by almost $11 million to form the Earth MRI Project to addresses the geological and geophysical mapping of the nation, and Alaska is benefitting substantially from the project.

4:11:19 PM
MR. MASTERMAN referenced slide 12, Critical Minerals, and noted his intent to define the differences between "strategic" and "critical" minerals. Critical minerals are minerals that the nation has for the function of its economy—automobile production, copper wires, or cellphones—and strategic minerals are minerals that the nation does not have.

He noted the chart on slide 12 and explained critical minerals are to the right and strategic minerals are to the left—the chart shows the import reliance for those minerals. The nation is 100 percent reliant on the minerals listed to the left on the chart, and the nation is less reliant on the minerals listed to the right on the chart.

He pointed out the [red] shaded bars on the chart indicates which of the critical minerals Alaska is currently producing, which are: germanium and indium from the Red Dog Deposit—recovered as byproducts. The green shaded bars show what critical minerals Alaska has produced in the past: tungsten, platinum, chromium, tin, antimony, barite, graphite. The blue shaded bars are commodities that Alaska has the potential to produce but are not yet producing. The gray bars are critical minerals DGGS feels that geologically Alaska does not have a great deal of potential: aluminum, bauxite, potash, helium.

4:13:23 PM
SENATOR STEVENS asked him if Alaska is in a good spot compared to the rest of the nation for providing rare earth minerals; for example, are there other production areas in the country that are producing lithium and is Alaska one of the few states that could produce lithium.

MR. MASTERMAN explained the major lithium deposits in the nation are in Nevada's Basin Range country, an area better positioned to produce lithium. Alaska has favorable positioning to produce palladium, tungsten, platinum, tin, cobalt, rhenium, vanadium, bismuth, rare earth elements, platinum group metals (PGMs), indium, germanium, gallium, graphite, fluorspar, arsenic, and antimony. Alaska has a lot of critical minerals, but there are some that the state is less likely to produce, a topic he will provide additional detail on in his overview.

4:14:47 PM
MR. MASTERMAN noted an illustration on slide 13 that shows some of the basic uses for critical minerals. The boxes in the illustration indicate the elements that Alaska has potential to produce. The areas highlighted in green specify minerals that he believes has potential for significant contribution towards mining development.

He noted usage for some critical mineral commodities within the country is in very small quantities. For example, the total domestic usage for beryllium is a matter of hundreds of tons. There are some critical minerals that are not going to be very significant economically, but some of them are.

4:16:07 PM
He specified critical minerals that Alaska potentially has in Alaska as follows:

- Uranium: Seward Peninsula
- Rare earth elements: Southeast Alaska, Interior, Seward Peninsula
- Tungsten: Interior
- Platinum group metals (PGMs): Alaska Range
- Barite: Southeast Alaska, Brooks Range

He explained PGMs is a group of six platinum group metals which includes platinum and palladium.

He said the slide shows there possibly are major commodities with significant economic value, but production of other critical minerals could occur as a byproduct from the production of more commercially significant commodities. For example, the Red Dog Deposit produces indium as a byproduct, but not at levels to solely mine indium. The federal government is focused on the aspect that production for many critical minerals will occur in small quantities as byproducts.

He noted of the 35 critical minerals, China is either the top supplier or the top producer of 22 of those for the United States. Other significant countries are Russia and the Democratic Republic of the Congo; that is the reason the nation has obviously concluded it is in the nation's best interest to source critical minerals domestically or from friendly countries.

4:18:02 PM
MR. MASTERMAN referenced slide 14; Solar, Wind, Batteries and [Electrical Vehicles] (EVs). He noted building components for President Biden's green energy initiative and his transition to EVs will require critical minerals.

He detailed the critical minerals—colored yellow on the slide—are important for solar panels and wind turbines. The commodities colored blue are necessary for production of batteries and some are necessary for EVs—colored green is for both batteries and EVs.

He said the potentially significant critical minerals in Alaska are rare earth elements, tungsten, PGMs, titanium, chromium, vanadium—potentially—cobalt, antimony, and graphite.

He noted the other commodities shown on the slide would be more likely produced as byproducts. For example, hafnium rare earth elements could come from the Bokan Mine Project in Southeast Alaska. Germanium, indium, and gallium could come from Red Dog or similar deposits. Zirconium could come from Bokan Mountain or the heavy mineral sands on Cape Yakutat. The previous list starts to point the way to which commodities Alaska has that could benefit under the Biden Administration.

4:20:32 PM
He explained the map on slide 15, Co-location of Minerals, shows a couple of different things, the first pertains to the color pattern on the map. The red areas may have a higher number of critical minerals present and those are the areas that DGGS is focusing its efforts on first.

He noted the map also shows some of the state's major mineral belts as follows:

- The Red Dog Deposit and the [Ambler Mining District] are located on the south flank of the Brooks Range.
- The gold systems are on the Seward Peninsula.
- The Tintina Gold Belt hosts the [Donlin Gold Project] in Western Alaska, and Fort Knox and the Pogo mines in the Interior.
- The Base Metals Belt in the Central Interior and Southeast Alaska.
- The Copper Belt hosts the Pebble Mine and a number of copper porphyry systems.

MR. MASTERMAN said the slide shows several different things, one is providing information to benefit critical minerals locations also benefits other minerals commodities that are present in the same area, especially when critical minerals are the byproduct of copper, gold, lead, zinc, and silver production.

He noted the map also shows which parts are hot in terms of critical minerals, which includes: Eastern Interior, Central Alaska Range, Western Alaska Range, and parts of the Seward Peninsula and Southeast Alaska.

4:22:48 PM
SENATOR BISHOP noted mapping of the state via airborne geological surveys is only 15 percent.

MR. MASTERMAN agreed and noted the DGGS report is a compilation with USGS that covers half of the critical minerals. The map shows where DGGS should go to find out what the areas may hold and prioritizes the need to increase geological mapping and geophysical surveys.

SENATOR STEVENS stated he appreciates his explanation, so everyone understands critical minerals. He asked him to explain the [byproduct mining process] where someone is looking for gold but not for rare earth elements. He asked him if looking for critical minerals is possible by reprocessing the leftover material after gold extraction. He noted fishing has bycatch and byproduct from mining sounds similar.

MR. MASTERMAN answered he hit the nail on the head regarded ore already mined to find additional minerals and there is a lot of work proceeding nationally to look at that very issue. The Department of Energy (DOE) is looking at by-production of minerals from current and old mine wastes; for example, coal ash, produced waters from oil and gas operations, and from mining operations. The federal government is placing significant emphasis on by-production—it is very recent and in the formative stages—and could benefit Alaska for current and future mining.

4:26:07 PM
He noted slide 16 references Senator Stevens' point and shows mines' primary commodity with minerals listed within parentheses shows the other minerals present. For example, Fort Knox also contains small amounts of tin, tungsten, tellurium, bismuth, arsenic, and antimony; however, currently none of those are economic for the mine operator to recover. Similarly, with the other mining operations, not many are recovering the smaller

quantity elements, but recovery could meaningfully impact the domestic supply of critical minerals.

MR. MASTERMAN said DOE is focusing a considerable amount of their planning and research on [critical minerals recovery]. Perhaps DOE could work with Fort Knox to install a recovery system to recover bismuth, tellurium, and tungsten for meeting the domestic demand.

He explained an interesting conundrum exits between the metals that are present and the economic benefits achieved by the recovering the metals. If a mining company mines a deposit that contains a small amount of bismuth, the company will typically not recover the bismuth if doing so is not financially advantageous. However, that is where the federal government may step in and provide grants or subsidies to facilitate critical minerals recovery for the national effort.

He noted the slide contains a chart that shows the critical minerals list. The minerals shaded in an orange-like color are the minerals that DGGS believes are present for advanced projects. He pointed out the list contains the majority of the critical minerals.

He said having DOE conduct the research and development of [mineral recovery] could benefit Alaska's current and future mining operations.

4:29:15 PM
SENATOR KIEHL asked him if there are better or worse ways to retain some of the economic potential for the [critical minerals] when mines store their tailings.

MR. MASTERMAN explained the fewer times the mines handle the minerals the better and cheaper, recovering the metals the first time they go through the recovery plant is the best time since the metals are marginally economic commodities. Re-mining something does not economically pay after previous handling; that is why DOE is looking at developing projects to recover the metals as they go through the processing plant.

He added DOE is also looking at technologies to recover metals from any solutions or from re-mining of previously mined waste. For example, if a mine has an old stockpile that water gets in and runs through, the mine can treat the water prior to disposal to recover the critical minerals. DOE is paying a lot of

attention to the recovery of acid mine drainage and the waters of active mining operations.

4:31:49 PM
SENATOR KIEHL paraphrased his response that there is potential to adding [recovery technology] later, but the mines are not sitting on heaps of recoverable material that they did not get to the first time.

MR. MASTERMAN answered yes, generally speaking, that is the case.

He explained slide 17 speaks in part to Senator Stevens' question about what DGGS is doing to increase its geological database. The Earth MRI Project within USGS receives about $11 million a year, and Alaska is one of 4 regions in the country that is benefitting from those funds. From the $11 million, Alaska has been receiving between $1.2 million and $1.5 million a year for the last 3 years to conduct geophysical mapping, geological mapping, and geochemical analysis.

He said DGGS decided to first work the Eastern Interior, an area the division calls the Yukon Tanana Upland (YTU)—the uplands between the Yukon and Tanana Rivers. The map on slide 17 shows the coverage of the division's geophysical surveys. DGGS covered the areas colored in green on the map and the division contracted geophysical surveying for the other colored areas—yellow was under contract from 2019 funding and blue from 2020 funding. DGGS plans to contract surveying in 2021 for the light blue outlined area via the next round of funding from USGS.

4:34:45 PM
He explained the pink colored area on the map is an area around the Pogo District—a [survey] area flown over with a helicopter in the summer 2020—the division just published the results of those surveys. The survey received combined funding from a capital appropriation from the legislature and approximately $300,000 of industry money to fly over areas of interest for additional detail.

He said once DGGS completes other large surveys, the division will affectively have completed the flying of airborne geographics over YTU, then the division will move on to another part of the state. The next area DGGS is considering is likely the Seward Peninsula. However, the division will first meet with its advisory board and the mining industry for area confirmation.

MR. MASTERMAN noted one of the other exciting things DGGS is doing is reanalyzing all the stream sediment data USGS collected during their [National Uranium Resource Evaluation] (NURE) campaign in the 1970s. The division's stream sediment reanalysis from the area uses modern analytical techniques. The division expects to provide geology maps, sediment data, and geophysical data in 2021 via its website.

He said the division's sediment data is going to be a great tool for attracting industry because they will be able to see where the metal concentrations are. The data will also be a great tool for small prospectors who simply do not have the capacity to handle large datasets. A prospector will be able to get on the division's website to see where all the mineral values occur.

4:37:31 PM
He referenced slide 18 and explained the Trump Administration issued EO13953 in September 2020, a second EO to address critical minerals. The EO speaks to additional measures for incentivizing and supporting the domestic production of critical minerals. One of the interesting things about the EO is it declares a national emergency to deal with the nation's dependence on critical minerals and that freed up some capacity within the federal government to address this issue.

He detailed the EO requires the collective heads of federal agencies to report to the President every six months on the critical minerals threat and requires the heads of all relevant agencies to submit a report that details their strategy for using their authority and appropriations to meet the EO goals.

He explained the EO also calls for the determination whether a previous EO—National Defense Resource Preparedness—would allow for grants to fund equipment installation for production and processing of critical minerals in the United States. That is where—he believes—the EO ties directly into the mining operations and the recovery of critical minerals from those mining operations that are currently in production.

He added the EO also calls for the heads of all relevant agencies to use their authority to accelerate the issuance of permits and the completion of projects that could occur in connection with expanding and protecting the domestic supply of critical minerals. The EO also directs the [U.S. Department of Interior's] [Energy Management Program] and the [U.S. Environmental Protection Agency] (EPA) to look at accelerating

production of critical minerals from mine tailings and abandoned mine sites; that speaks to Senator Kiehl's question on whether someone is looking at [recoverable materials] and the EO is mandating that.

MR. MASTERMAN said there are a lot of good things from the EO, and there is something else that ties into permitting, the [Fixing America's Surface Transportation Act] (FAST-41). He said Commissioner Feige will provide additional information on FAST-41.

4:40:59 PM
COMMISSIONER FEIGE reiterated EO13953 focuses on streamlining mine development and especially for offsetting production from adversarial nations like China. The EO also ties into another action during the Trump Administration, the modernization of the National Environmental Policy Act (NEPA), as well as a federal statute established in 2015 for critical infrastructure permitting, FAST-41.

She explained via FAST-41, a mine—for example, Graphite One—can directly offset imports from China by achieving FAST-41 ranking status through federal programs, a program the department is monitoring under the Biden Administration.

She said from a policy standpoint, the department is not hearing whether the Biden Administration is significantly softening their approach to China or other adversarial nations that currently control the critical minerals market. There is a pro-mining group coming back into the [U.S. Department of the Interior], so she is cautiously optimistic about where the State will go with FAST-41 and a streamlined NEPA approach via Biden Administration policies.

4:44:36 PM
CHAIR REVAK announced Senator Micciche joined the committee meeting.

MR. MASTERMAN noted slide 19, the Department of Energy (DOE) has taken an aggressive move into the critical minerals sphere—some might think this is outside of their jurisdiction and perhaps it is—but they are a remarkable group of people working in a department with very deep pockets. DOE has made some very fundamental advances in other parts of the natural resource industry, particularly with fracking development.

MR. MASTERMAN said the engagement of DOE in critical minerals could be a very significant development. DOE is possibly moving into the realm formally occupied by the U.S. Bureau of Mines—disbanded [in 1996]. DOE is looking at technological changes, research and development into extractive technologies, innovative processing, and disruptive processing technologies to address the recovery of critical minerals from any and all possible sources.

He noted about six months ago, DOE put out a finding proposal to look at rare earth and critical minerals associated with carbon ores—first bullet point on slide 19, DOE CORE-CM funding opportunity. They are looking at the opportunities to produce critical minerals in conjunction with oil and gas.

He added DOE wants to assess several sedimentary basins around the country including one in Alaska. The assessment is a significant opportunity that involves DGGS and the University of Alaska (UA), ultimately leading to a phase-one application for almost $2 million to characterize the critical minerals associated with coal, oil, and gas fields across Alaska. If DGGS and UA are successful, there are future phases which then call for technological developments and research technologies for metals recovery identified in the first phase.

4:48:11 PM
He noted DOE issued a request for information after holding a workshop in November 2020—a workshop he attended. DOE sent him a copy of their request for information. The four main points DOE is looking for—noted on the second bullet point on slide 19—tells DGGS the direction they are looking at going with their research and development activities. He referenced the subpoints from the second bullet point as follows:

- Resource Characterization and Technology Development
- Sustainable Resource Extraction and Beneficiation Technology Development
- Extractive Metallurgy, Reduction and Alloying Technology Development
- International Engagements, Standards, and Supply Chain Development

He said resource characterization relates to technology development to speed up mapping of the country to better understand critical minerals deposits—that is definitely in the DGGS "wheelhouse."

MR. MASTERMAN explained sustainable resource extraction and beneficial technology development pertains to DOE looking at new technology deployment to assist with critical minerals extraction across all resource industries, whether oil, gas, or coal.

He said DGGS is trying to respond to DOE by pulling together its personnel along with UA, [Alaska Miners Association] (AMA), [Resource Development Council] (RDC), [Ucore Rare Metals] (Ucore), Graphite One, and some of the other miners in the state to get their input to point DOE in the appropriate research and development direction that benefits Alaska and its mining and energy industries.

4:50:41 PM
SENATOR KIEHL said the DOE grant application to look for rare earth minerals in coal basins is interesting, noting previous slides referenced rare earths in hard rock.

He asked him if the grant is to look for a whole other set of rare earths found within coal in sedimentary basins because no one had the time to look for them.

MR. MASTERMAN explained sedimentary basins are a different geological environment for rare earths, most mineral deposits occur in igneous and metamorphic rocks in the uplands, like granites. Volcanoes put out rare earths within its ash that gets into streams and sedimentary basins—ultimately enriching clay, coal, and fine grain sediments. Typically, rare earths are not present in quantities that by themselves would be economic to mine, but as a by-production of coal or oil and gas—located within its associated water—there may be opportunities to recover critical minerals from environments that are atypical from a geological standpoint.

4:53:39 PM
He addressed the final bullet point on slide 19 and noted DOE established the [Division of Minerals Sustainability]—funded in the $800 million level—to conduct research into producing critical minerals from alternative methods. DGGS will focus its response to the Division of Minerals Sustainability and hopefully get DOE to aim some of its funding to UA and the State as well.

COMMISSIONER FEIGE referenced slide 20, Biden Administration Policy Goals. She said the Biden Administration's heavy focus on energy targets will have massive implications for critical

minerals and rare earth development for new technologies. The Made in America/Build Back Better initiatives—while it has not singled out mining—focuses on the domestic industry and manufacturing. Renewable infrastructure takes a tremendous amount of minerals to build the infrastructure for batteries, EVs, communications infrastructure, etcetera.

COMMISSIONER FEIGE noted DNR has not seen the same kind of anti-fossil-fuel rhetoric out of the Biden Administration as has unfortunately occurred on the oil and gas side. However, the Biden Administration's focus on its agenda towards massive investment to advance infrastructure and technology bodes well for Alaska and its mining industry.

4:56:55 PM
She addressed slide 21 and said there is a fair bit of uncertainty and some challenges ahead for Alaska with the Biden Administration, even where mining and minerals development is concerned. DNR will watch closely the resistance to NEPA streamlining, FAST-41 permitting reform, and the [30 by 30 (30x30) conservation initiative].

She stated the Biden Administration's 30x30 initiative—places 30 percent of the nation's land and 30 percent of the nation's water into conservation units by 2030—gives one great pause when considering Alaska already has more than 160 million acres tied up in conservation or park units. The State will be pointing to the [Alaska National Interest Lands Conservation Act] (ANILCA) and its "no more" clause at every turn to remind the federal government that Alaska has already paid its dues where conservation units are concerned.

She said DNR will watch the support for increased corporate taxes, potential new federal mining royalties, and other commercial challenges that could impact already high operating, production, and development costs for mining operators—[especially from a global perspective when considering Alaska's inherent lack of infrastructure with things like higher power costs].

She noted one thing that does bode well for Alaska is that "personnel is policy." Many of the leaders and staff in the Biden Administration have come back from the Obama Administration—even during that time there was historical support for mining. If the Biden Administration is going to meet its renewable energy and other modernization goals, they are going to rely very heavily on a domestic mining industry.

4:59:29 PM
SENATOR STEVENS said he appreciates her comments and the importance of reaching the Biden Administration's energy goals. He asked her if there are things the legislature should be doing in terms of credits or tax assistance.

COMMISSINER FEIGE replied while she has not contemplated credits or things of that nature, there are things that the legislature certainly can do. She said about the notion of "listening to science," Alaska must establish what it believes is acceptable in the way of good, robust science—the underpinning of federal permitting, rulemaking, and action decisions. Also, Alaska must lean in with its federal partners to let them know the state can contribute significantly to the modernization into the development and expansion of renewable resources, messaging that is very important.

CHAIR REVAK thanked the Commissioner Feige and Director Masterman for their overviews. He said the legislature will "lean in" and noted his appreciation that she brought up ANILCA and the "no more" clause. He noted the committee will receive an ANILCA overview on the following Monday.

5:02:03 PM
There being no further business to come before the Senate Resources Standing Committee, Chair Revak adjourned the meeting at 5:02 p.m.