ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
February 28, 2022
3:34 p.m.

MEMBERS PRESENT

Senator Joshua Revak, Chair
Senator Click Bishop
Senator Gary Stevens
Senator Jesse Kiehl

MEMBERS ABSENT

Senator Peter Micciche, Vice Chair
Senator Natasha von Imhof
Senator Scott Kawasaki

COMMITTEE CALENDAR

Mining Industry Update

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record.

WITNESS REGISTER

DEANTHA SKIBINSKI, Executive Director
Alaska Miners Association
Anchorage, Alaska
POSITION STATEMENT: One of three mining industry slideshow presenters.

KAREN MATTHIAS
Executive Director
Council of Alaska Producers
Anchorage, Alaska
POSITION STATEMENT: One of three mining industry slideshow presenters.

WAYNE HALL
Manager, Community and Public Relations
Teck Alaska - Red Dog Mine

Juneau, Alaska
POSITION STATEMENT: One of three mining industry slideshow presenters.

ACTION NARRATIVE

3:34:52 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 Kiehl, Stevens, Bishop, and Chair Revak.

^Mining Industry Update

MINING INDUSTRY UPDATE

3:35:32 PM
CHAIR REVAK announced a mining industry update presented by the Alaska Miners Association, the Council of Alaska Producers, and Teck Red Dog Mine.

[The slideshow presenters introduced themselves and are identified in the minutes below.]

3:36:49 PM
DEANTHA SKIBINSKI, Executive Director, Alaska Miners Association, Anchorage, Alaska, one of three presenters began the mining industry slideshow, stating the association represents all aspects of the mining industry from large scale mines and projects, Alaska's coal mine, the individual small placer operations, sand and gravel, and the vendors and contractors that do business with the mining industry.

MS. SKIBINSKI began the Mining Industry Update with slide 2:

[Original punctuation provided.]

Overview

- Global Factors: Growing Demand
- US Policy: Increase Domestic Production
- Alaska’s Advantage
- Benefits for Alaska and Alaskans

MS. SKIBINSKI said that during this presentation she intends to discuss the existing and predicted significant increase in demand for minerals worldwide; the nation's reliance on foreign sources of minerals and the policies needed to produce more minerals here at home; and satisfying the mineral needs of the nation by focusing on Alaska to produce them. Finally, the presentation will spotlight the benefits of mining for Alaska and Alaskans.

MS. SKIBINSKI recited a mining adage saying mining underpins everything that we do, from the airbags in cars, to X-rays in medical devices, to the fact that a person can walk into this room and turn on the light. Modern lifestyles would be impossible without mining. The global dependency on mine products requires the steady production of minerals worldwide.

3:37:40 PM
MS. SKIBINSKI said that in terms of obtaining and satisfying the world's need for minerals, this is just the beginning. The pursuit of renewable technology and energy storage has sent and will continue to send the demand surging. Subsequently, the production of these minerals needs to surge as well. The World Bank, the International Energy Agency, and other entities have studied the global energy goals and project a massive increase in mineral needs moving forward. The following slides address how the growing demand for minerals can be satisfied.

MS. SKIBINSKI advanced to slides 3 and 4:

Global Factors: Growing Demand for Minerals

Mineral Production to Soar as Demand for Clean Energy Increases

Washington, May 11, 2020 - A new World Bank Group report finds that the production of minerals, such as graphite, lithium and cobalt, could increase by nearly 500% by 2050, to meet the growing demand for clean energy technologies. It estimates that over 3 billion tons of minerals and metals will be needed to deploy wind, solar and geothermal power, as well as energy storage, required for achieving a below 2-degree Celsius future.

The report **"Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition"** also finds

> that even though clean energy technologies will require more minerals, the carbon footprint of their production - from extraction to end use - will account for only 6 percent of the greenhouse gas emissions generated by fossil fuel technologies. The report underscores the important role that recycling and reuse of minerals will play in meeting increasing mineral demand. It also notes that even if we scale up recycling rates for minerals like copper and aluminum by 100%, recycling and reuse would still not be enough to meet the demand for renewable energy technologies and energy storage. (*The World Bank)*
>
> "Over 3 billion tons of minerals and metals will be needed to deploy wind, solar and geothermal power, as well as energy storage, required for achieving a below 2°C future."
>
> "Even though clean energy technologies will require more minerals, the carbon footprint of their production—from extraction to end use—will account for only 6% of the greenhouse gas emissions generated by fossil fuel technologies."
>
> "...even if we scale up recycling rates for minerals like copper and aluminum by 100%, recycling and reuse would still not be enough to meet the demand for renewable energy technologies and energy storage."

MS. SKIBINSKI began the discussion of how to satisfy the growing demand for minerals by addressing recycling. As part of a mineral strategy, the pursuit of mineral recycling must continue as well as investing in technology to improve its efficacy. Understand that recycling alone will not be enough to satisfy the world's mineral needs. She cited a projection from The World Bank and explained that even if base metal recycling rates like copper and aluminum doubled, it would still not be enough. The nation must broaden its approach to satisfy its mineral needs.

3:38:47 PM

MS. SKIBINSKI advanced to slide 5, Where Our Critical Minerals are Coming From. She asked the committee where they want mining to occur knowing that mining must increase to meet global needs. Slide 5 contained headlines which indicate the U.S. is losing ground to China in the contest for clean energy and dominance in rare earth production. The world has watched political instability unfold over the last few days. The United States is

reliant on minerals that are mined in unfriendly countries; countries with the ability to hold the U.S. economy hostage. The U.S. is importing 90 percent of its rare earth needs from China. The majority of the world's cobalt is produced in the Congo with operations employing young children in poor conditions; it is better for mining to occur in a country with strong safety and environmental laws.

3:39:29 PM
MS. SKIBINSKI advanced to slide 6, stating this quote from U.S. Senator Lisa Murkowski summed up America's predicament best:

Mined in America: US Policy Needed

> "America's reliance on foreign countries for the production and recycling of our critical minerals is a vulnerability to our national security, a disadvantage to our economy, and a hindrance to our global competitiveness. Unfortunately, the current Federal permitting and review process is painfully inefficient."
> - Senator Lisa Murkowski

MS. SKIBINSKI said that the permitting system must change to turnaround the nation's vulnerable position. America's laws are among the strongest and most stringent in the world. However, the federal government's implementation of these laws has resulted in a negative impact on investment with no added benefit to the environment or safety. She enjoyed making these same points in the previous three administrations, possibly longer, about the fundamental policies that are needed to grow mining in the U.S. To varying degrees these are the building blocks of what it takes to get more mining investments in our country. It is unfortunate that the nation has taken major steps backwards in these fundamentals in the last year. While the current federal administration touts a desire to achieve its climate goals, acknowledges more mining has to take place, and purports more mining needs to happen domestically, it has not acted accordingly.

MS. SKIBINSKI reviewed the following bullet points, stating that to produce more minerals here at home the mining industry needs:

- Access to lands

MS. SKIBINSKI discussed the nations need to have access to mineral deposits; this is particularly true in Alaska where

known mineral potential is mostly in remote locations. The patchwork of land ownership in Alaska means exploring mineral deposits on federal lands will be more challenging. Working on state or private land still requires access across federal lands in most cases. Instead of multiple use management and access to deposits, the Biden administration has instigated significant changes with land management. One example of this is the recent reimposition of the roadless rule in the Tongass National Forest. Previously, the roadless rule had an exemption which facilitated mineral development, hydropower projects, and other economic development in the Tongass National Forest. This exemption is no longer in place.

- NEPA process scope and timelines

MS. SKIBINSKI said the industry was affected by the cancellation of improvements made under the National Environmental Policy Act (NEPA), the nation's permitting process created alongside the nation's environmental laws. The NEPA process has swelled to result in documents where thousands of pages have limitless topic areas, and it can take years to pull one of these documents together. It has become difficult for agencies and project proponents to manage and even more difficult for the public to engage in and track. Recent attempts to make the process more thorough and efficiently managed, have been rolled back. Previous collaborations between agencies has suffered as a result.

- Collaboration amongst agencies

- Decrease risk of litigation

3:42:07 PM
MS. SKIBINSKI said that regulatory changes that swing on a pendulum can result in regulation processes that lack clarity, and in turn, can open projects and permit decisions up to the risk of litigation. It is fair to assume that all types of resource development in the U.S. will encounter litigation at some point, but the cost of litigation and delays is especially detrimental to Alaska in terms of attracting investment.

- Public comment improves project; increases support

MS. SKIBINSKI said the mining industry believes that engaging with the public early and often has a two-fold benefit:

1) Working with local, public stakeholders improves the proposal, and

2) It demonstrates that the industry is working with local communities and helps to gain support for the proposals.

- Spotlight on Ambler Road decision

MS. SKIBINSKI recapped a White House announcement which introduced the next steps to a mineral strategy, titled "Securing a Made in America Supply Chain for Critical Minerals." She asked the committee to consider how mining in America could be improved based on the following events. A White House announcement emphasized the importance of critical minerals, yet the actual details instruct the Department of the Interior to evaluate the need to reform mining laws with an insinuation that domestic mining is not done responsibly. That same day, the Department of the Interior announced that it had asked the federal court to vacate the permit that was obtained for Ambler Road and to reopen the environmental analysis alleging there were deficiencies in the process. This was a process that spanned three federal administrations and it had dozens of public meetings throughout Alaska, particularly along the road corridor, with multiple opportunities for public comment in a transparent process.

MS. SKIBINSKI admitted that she talked at length on slide 6, but it paints a picture of the magnitude of industry challenges with the federal administration. She thanked the chair and the committee for their efforts to defend Alaska against federal difficulties.

3:44:17 PM
KAREN MATTHIAS, Executive Director, Council of Alaska Producers, Anchorage, Alaska, one of three presenters continued the mining industry slideshow, stating the Council of Alaska Producers is the trade association for five large metal mines and several advanced development projects in Alaska. The soaring demand for minerals was just covered. Increasing production is good for the nation's economy, and security. The state must ensure Alaska gets its fair share of investments, not only to be part of the national solution but to grow Alaska's economy.

MS. MATTHIAS highlighted Alaska's advantages listed on slide 7:

Alaska's Advantage

- Mineral potential
- Strict environmental regulations
- Excellent track record

MS. MATTHIAS advanced to slide 8, stating that the Fraser Institute annual global survey of mining companies consistently ranks Alaska in the top five jurisdictions for its pure mineral potential. The map on slide 8 shows that Alaska is so abundantly rich in minerals, that it was hard to fit all mineral data on just one map to illustrate the enormous mineral potential in Alaska. The map depicts the minerals Alaska is currently producing. Six stars mark large mines. Diamonds indicate 44 statewide projects, ranging from early-stage exploration to advanced development. Circles on the map indicate prospects, all the sites known to have mineral potential. The map emphasizes the contrast between the sizeable number of projects and prospects compared to the small number of mines. This is due to the challenges of developing a mine in Alaska. Remote locations, lack of infrastructure, and high cost of energy add to the cost of developing mines in the state. Labor shortages and supply chain delays are also development hindrances, which are currently being experienced by all industries across the board. Lastly, unpredictable political interference with federal permitting sends a negative message to investors and companies.

3:46:33 PM
MS. MATTHIAS advanced to slide 9, Mining Development Takes Time, stating that it is a long process to bring a mine into production even in the best of circumstances. The graphic on slide 9 shows a mine timeline, depicting the stages of development, from its infancy to operational maturity. In a perfect world, the feasibility and permitting stages would take ten years, but recently these stages have taken longer. As global demand for minerals increases, commodity prices are expected to stay robust, and projects are progressing. The state is on the cusp of realizing Alaska's potential. The state's large mines have been in production for many years, and are still going strong. They are exploring and permitting expansion to continue operating in years ahead.

3:47:16 PM
MS. MATTHIAS explained that the map on slide 10 takes a closer look at mines in the state. While the industry is proud of its contribution to state revenue, it could increase the contribution by bringing more mines into operation. The map illustrates the regional impact of mining. The red stars show large producing mines, which operate 24/7 throughout the year. Large mines employed 3,000 miners and onsite contractors in 2020. Moving from north to south, the large mines are:

- Red Dog, the world's largest zinc concentrate producer. It is an open pit mine on Northwest Alaska Native Association (NANA) land.

- Fort Knox, the largest producing gold mine in Alaska. It is located outside Fairbanks. The employees are able to live in the Fairbanks North Star Borough and commute to work.

- Pogo is an underground gold mine near Delta Junction. Pogo built and maintains a 50-mile road to access the mine from the road system.

- Usibelli Coal Mine is immediately adjacent to Denali National Park. It has been in operation since 1943 and has been family owned the entire time. A report has been distributed to the committee that provides more detail about Usibelli.

- Greens Creek and Kensington are both underground mines in Southeast Alaska and their workers commute to work by boat. Greens Creek is the top silver producer in the United States, producing 30 percent of the nation's domestic supply of silver.

The industry has two projects in permitting: Donlin Gold in Western Alaska and Pebble in Southwest Alaska.

This map also highlights the industry's current advanced exploration projects with green circles. Moving from north to south these projects are:

- Upper Kobuk in the Ambler Mining District, Northwest Alaska.
- Graphite Creek near Nome
- Livengood near Fairbanks
- Manh Choh in Tetlin
- Palmer near Haines
- Niblack on Prince of Wales Island

MS. MATTHIAS said there are dozens more projects and deposits:

- Dawson which is a small underground gold mine
- Bokan Mountain which is a rare earth project

Both of these projects are on Prince of Wales Island. The wide distribution of yellow circles on the map represents one of the over 90 communities in Alaska where a mining industry employee lives.

3:49:58 PM
MS. SKIBINSKI advanced to slide 11, stating placer mines are commonly referred to as the state's seventh large mine. There are approximately 170 active placer mining operations across Alaska. The slide depicts a variety of different placer mining methods. Placer mining is generally small-scale. Gold is recovered from dirt using water and gravity. These mines resemble a neighborhood construction project that has a small footprint and an average of four employees. Many of these operations are family owned and operate seasonally when the ground is not frozen.

3:50:45 PM
SENATOR BISHOP directed attention to the bullet point about rigorous permitting on slide 12 and posited that more should be done to highlight that Alaska does it right. He shared a story about giving two regulators from the Army Corps of Engineers a tour of a site that was placer mined 15 years ago. They commented on the pristine wilderness and were surprised to see the regrowth and habitat that had flourished since the mine shut down. He also pointed to a representative sitting in the back of the room who was doing reclamation before it was a federal law. He apologized for the interruption.

MS. SKIBINSKI commented that Senator Bishop is right. The presenters have photos of interior projects, dozens of placer mines, and a coal mine, illustrating Senator Bishop's point, not to mention regulators who have voiced similar praise. The mining industry has received many national awards for its reclamation work from the Bureau of Land Management (BLM) and the Department of the Interior. The industry is proud of the work miners do.

3:52:50 PM
MS. SKIBINSKI advanced to slide 12, Doing it Right: Environmental Safeguards. She said that Alaska miners have to work within an environmental regime. The industry maintains that the state's mining operations and the agencies that regulate them account for what is a world class regulatory system. Mine

permits protect all aspects of the environment, including air, land, water, fish and wildlife, and public health. The industry strives to reduce emissions, energy, and water consumption by continually seeking efficiencies and improvements. Throughout its lifespan a mine has strict regulatory oversight, including reclamation and restoration of the site after closure. The mine must have tailored financial assurance prior to operation, so that the public does not bear the burden if the cost of reclamation falls to the state.

- Rigorous permitting regulations
- Strict operational oversight
- Reducing emissions and increasing efficiency
- Closure/Reclamation
- Financial Assurance prior to operating

3:53:51 PM
MS. SKIBINSKI advanced to slide 13 which shows the scope of mining permits. This list was supplied by the Department of Natural Resources (DNR).

No Single Permit to Mine: there are many permits & authorizations

Mine permitting is a mixture of State, Federal and local permitting requirements. Each project is unique.

STATE

- Plan of Operations (DNR)
- Reclamation and Bonding (DNR)
- Waste Management Permits and Bonding (ADEC)
- CWA Section 402 APDES Water Discharge Permit
- Certification of ACOE Permits (ADEC)
- Sewage Treatment System Approval (ADEC)
- Air Quality Permits (ADEC)
- Fish Habitat and Fishway Permits (ADF&G)
- Water Rights (DNR)
- Right of Way/Access (DNR/DOT)
- Tidelands Leases (DNR)
- Dam Safety Certification (DNR)
- Cultural Resource Protection (DNR)
- Monitoring Plan
(Surface/Groundwater/Wildlife)
(DNR/DEC/DFG)

FEDERAL

- US EPA Air Quality Permit review
- US EPA Safe Drinking Water Act (UIC Permit)
- US ACOE S. 404 Dredge and Fill Permit
- US ACOE S. 10 Rivers and Harbors Act
- US ACOE S. 106 Historical & Cultural Resources Protection
- NMFS Threatened & Endangered Species Act Consultation
- NMFS Marine Mammal Protection Act
- NMFS Essential Fish Habitat
- NMFS Fish and Wildlife Coordination Act
- USFWS Threatened & Endangered Species Act Consultation
- USFWS Bald Eagle Protection Act Clearance
- USFWS Migratory Bird Protection
- USFWS Fish & Wildlife Coordination Act

These are only some of the permits required!

Permitting a mine in Alaska takes many years from start to finish. The process includes planning, an environmental study, review, testing, and approval. Dozens of local, state, and federal government agencies are involved in the process. The permits listed above are typical for a large mine on state- or privately-owned land and would still require a significant amount of federal authorization. By comparison, a mine permitted on federally owned land requires many additional permits like those under the Bureau of Land Management and-or U.S. Forest Service regulations. These permits contain multiple stipulations that agencies can and do prescribe. The stipulations are either outside of or in addition to governing laws and mines must perform on them.

Slide 13 points out that there is no one decision to approve one single permit for a mine in Alaska. None of the steps within a mine permitting process guarantee approval. There is no automatic yes, no rubber stamp. Every mine is different, and each requires a tailor-made environmental mitigation plan discussed and altered at length by both the agency and the project proponent before advancing a stage forward.

3:55:25 PM
MS. SKIBINSKI advanced to slide 14, Permitting Flow Chart. DNR supplied this chart dissecting Alaska's specific environmental management. It provides an overview of how many agencies and

departments are involved in evaluating mining proposals and their monitoring goals through all the mine stages. It is important to understand that multiple opportunities for public participation continuously occur throughout the permitting process. The importance of public participation is on par with "no automatic approvals" in the permitting process. The chart shows that a large mine permit requires thirteen public notices, and the state sponsors an additional four as a courtesy. The process is transparent and designed to ensure the public has a voice in state mining activity.

3:56:12 PM
MS. MATTHIAS advanced to slide 15, stating that the strict oversight in permitting also continues through the operational life of the mine:

Strict Operational Oversight

Alaska: the best mine monitoring system in the world

- Water quality monitoring
- Bottom-to-top comprehensive biomonitoring
- Third-party of both the mine and the regulatory agencies

Alaska has one of the best water quality monitoring systems in the world with respect to mines. It has two distinct parts:

First, water quality monitoring. This is fairly standard globally, but Alaska's system is more comprehensive than many.

Second, Alaska goes further and does biomonitoring, which is less common in other jurisdictions. The Alaska Department of Fish and Game (ADF&G) oversees the monitoring of algae, the benthic zone, and fish, including metals uptake, habitat, and population. Alaska does more and better monitoring than most of the world, and it is a system of which to be proud.

MS. MATTHIAS advanced to slide 16, Reclamation and Closure, which clarifies misunderstood reclamation laws with these key points:

- Alaska law (AS 27.19) requires that a mine site must be returned to a stable condition compatible with the post-mining land use

- Plan must be approved by DNR Commissioner before operations begin

- Financial assurance applies to all companies

A mining company must provide financial assurance at the outset and may not use the funds for reclamation work. Financial assurance funds are guaranteed to the state so that if the company cannot perform the reclamation, the state can step in without tapping its treasury. It does not matter where a company is headquartered or who owns the land; financial assurance applies to all companies mining in Alaska.

- Reviewed every 5 years or earlier if necessary

Finally, the financial assurance amount is not set then forgotten. The guarantees are reviewed every five years or whenever a significant change requires review.

3:58:17 PM
MS. MATTHIAS advanced to slide 17, Poker Flats - Usibelli Coal Mine, stating a couple of good reclamation examples follow:

> DNR Commissioner Corri Feige: "In successfully achieving Phase III bond release, Usibelli has demonstrated the fundamental strength of our state's mineral development system. We can develop our land to produce resources to meet the state's energy and economic needs, then restore the land to provide healthy habitat for people and wildlife."
> September 2021

Alaska's coal mines require a three-phase bonding process. Phase I includes backhoeing and regrading to restore or approximate the original contour; this may occur within the first year of mining. Phase II requires planting native vegetation and establishing drainages; this can take several years. Phase III requires successful completion of the first two stages plus:

-a minimum of ten years after the completion of Phase II, plus
-two years of vegetation studies to validate sufficient vegetative cover and diversity.

Phase III is a fairly involved, multi-step process. When Usibelli Coal Mine began its operation in the Poker Flats area near Denali National Park almost forty years ago, it committed to restoring the land and posted a bond backing that promise. As

Senator Bishop mentioned earlier, this was before reclamation was required. The company did it because it was the right thing to do. DNR declared that Usibelli had achieved top tier, Phase III status last September. Alaska can and does develop land to produce resources to meet the state's energy and economic needs, then restores the land to provide healthy land for people and wildlife. Usibelli is right to be proud of its achievement.

3:59:56 PM
CHAIR REVAK agreed, saying that sometimes the worst is heard about the interface of mining and the environment, but it is important to note, again and again, that Usibelli was restoring the site before it was the law because it was the right thing to do. There are many miners and organizations that go to great lengths to be good stewards. Television ads show an opposing message from time to time, but in many cases, the land is left better than it was found.

4:00:40 PM
MS. MATTHIAS stated that Alaska does not have a lot of reclamation examples because most of the mines that started in the modern mining era are still operating. Alaska's oldest mines are Red Dog and Greens Creek, both mines began operating in 1989, and both are still in operation. While reclamation is ongoing during operations, a full closure simply has not happened at most mines in the state. One exception is True North Mine.

MS. MATTHIAS advanced to slide 18, quoting Commissioner Feige's acclaim for the full reclamation of True North Mine:

True North - Kinross Alaska

> DNR Commissioner Corri Feige: "The developers leased state land, produced a valuable commodity to serve global markets, employed Alaskans, and paid state taxes and royalties. When they were done, they remediated the effects of their work and returned the land to the state for its next use. The system works." October 27, 2020

4:01:51 PM
MS. MATTHIAS advanced to slide 19, Benefits for Alaska and Alaskans which pictures the roots, trunk and leaves of a tree planted in soil. The soil represents state land, federal land, and Alaska Native corporation land; the roots represent science-based policy and regulations; the trunk represents mining

companies and landowners; and the leaves represent how all parts benefit each other when properly nurtured. These benefits are not limited to job opportunities and contributions to state and local tax. Other benefits include vocational training and scholarships, supporting local goods and service industries, supporting Alaska nonprofits, and promoting a safety culture learned on-the-job and passed on at home and to the community. The following mine example delves deep to illustrate how mines and projects collaborate with different communities and what that partnership looks like at the Red Dog Mine.

4:02:39 PM
WAYNE HALL, Manager, Community and Public Relations, Teck Alaska-Red Dog Mine, Juneau, Alaska, a mining industry slideshow presenter added the following personal touch to show how the mining industry benefits people. He moved to Juneau in 1971. Juneau is a town built on mining. It is a town that still utilizes infrastructure from those mining days, like a hydroelectric facility. He left Juneau to obtain a degree in environmental science, returned to work at the Greens Creek Mine, and now works at the Red Dog Mine. Working in the mining industry benefitted himself, his family, a lot of friends in Juneau and in Northwest Alaska.

MR. HALL advanced to slide 20, NANA, Red Dog Mine, Teck, stating this is an opportunity to brag on the mining industry. It shows some of the different compartmental areas of how mines produce benefits. In the case of the Red Dog Mine, NANA Regional Corporation owns the land and the resource. Red Dog is fortunate to have a great partnership with NANA.

MR. HALL pointed out a couple of areas of focus that people do not think about often. One is local control. When the Red Dog Mine development was proposed, the Northwest Arctic Borough (NAB) was formed. The borough created an opportunity:
- for the region to make decisions for themselves,
- to decide how to generate revenue from the mine, and
- for local control of schools and the school district. In a related sense, mining helped expand educational opportunities with the magnet school, GeoForce, scholarships and internships, and participation in the Alaska Native Science and Engineering Program (ANSEP). Mining also generated opportunities in the trades and post-secondary education.

4:05:27 PM
MR. Hall stated that many people do not realize that monies from the resource mined at Red Dog are reaching every corner of the

state. He reviewed slide 21, a bar graph with stacks of dollar bills representing the mine dollars that are circulating in the Alaska economy:

Broad Benefits of Development

~75 percent U.S. zinc
production & largest zinc
mine in the world (2019)

Red Dog Mine

$2.65 BILLION proceeds paid to NANA since mining began (thru FY 2021)

MR. Hall stated that NANA shared 70 percent of its proceeds through the 7(i) and 7(j) sections of the Alaska Native Claims Settlement Act (ANCSA).

$1.6 BILLION in total 7(i) payments (thru FY 2021)

MR. Hall stated that $1.6 billion has been paid out to all the other Alaska Native Corporations and most of the Alaska Village Corporations as well.

$1.4 BILLION Payments to State of Alaska, AIDEA (thru 2021)

MR. Hall stated that the State of Alaska has received $1.4 billion over the years thru corporate taxes, Alaska mining license taxing, and shipping containers through the state-owned Alaska Industrial Development and Export Authority (AIDEA) facility. Red Dog ships its concentrates out through the AIDEA facility;

$318 MILLION to NAB since mining began (thru 2021)
$270 MILLION Spent on goods in Alaska in 2021
~$80 MILLION Annual wages (2021)

4:06:44 PM
SENATOR BISHOP pointed out that $318 million was contributed to the borough thru 2021, $270 million was spent on goods in Alaska in 2021, and $80 million was paid-out in annual wages in 2021. These numbers show the economic impact Red Dog has on the state. Alaska needs more mining to drive the state's gross domestic product and bend the economic curve upwards, which is not the trajectory the state is on now.

4:07:33 PM
MR. HALL advanced to slide 22:

Broad Benefits of Development

Organization	Project	Amount
City of Kivalina	Evacuation Road	$1,000,000
City of Kivalina	Electrical Intertie	$3,500,000
City of Selawik	Water & Sewer	$1,000,000
Native Village of Selawik	Wellness Program	$378,872
Ipnatchiaq Electric Co	New Generator	$147,750
Native Village of Deering	On-demand Water Heaters	$166,049
Native Village of Buckland	Water & Sewer	$579,331

MR. HALL stated that Red Dog has two primary mechanisms for providing funding specific to some of the NAB projects:

1. Payment in lieu of taxes, which generates 90 percent of the borough's revenue.

2. The Village Improvement Fund. The balance is between $4 and $8 million, having a floor of $4 million and a ceiling of $8 million. It is based on mine profits, so even in bad times the fund balance will be no less than $4 million. Since the beginning, the fund has made significant payouts.

MR. HALL pointed out that a 7-mile evacuation road was built on a spit from Kivalina inland. The road had erosion problems, so $1 million in NAB project funds helped with repairs to the road. Additionally, NAB used $3.5 million in project funds for the electrical intertie at the end of the new road, which is the location for the new Kivalina school and proposed townsite. The amount of money is significant. These funds can be leveraged for grants, other opportunities, and other funding because seed money is available.

MR. HALL expressed industry pride in this program. The people from these communities decide how to use the infrastructure funds. A commission meets to make decisions on applications received from all the communities. So, all eleven communities decide how to use the funding. It is quite a unique model.

4:09:34 PM
MR. HALL advanced to slide 23, Jobs and Livelihoods:

Teck Alaska Persons on Roster as of September 2021

- Regular – 527
  (56.4% NANA Shareholder)

- Seasonal & Temp - 92
  (96.7% NANA Shareholder)

73% of employees live in Alaska

MR. HALL explained the difference between a job and a livelihood. Red Dog Mine has jobs, but it also offers livelihoods. Many employees enjoy working four months out of the year during the shipping season, spending the balance of the year enjoying a subsistence lifestyle. Red Dog sees itself as a steppingstone. Between 1300 and 1500 NANA shareholders have worked at the mine and progressed into other areas throughout the state. Red Dog is part of the path, offering on-the-job training, which employees carry to the next opportunity. Red Dog tries to improve NANA shareholder numbers and is proud that 73 percent of its workforce lives in Alaska.

4:10:48 PM
MR. HALL advanced to slide 24, Jobs and Livelihood, In-House Apprenticeship Program:

Training
8,500 hrs avg/yr

Trades Apprentices

- Powerhouse, Electrical, Millwright
  Heavy Equipment & Light Vehicle
  Mechanic
- Apprentices are 25 percent of the total trades

Mill Operator Apprentice Program

- Commenced in 2016
- First Mine in North America

Red Dog Mine has a trades and apprenticeship program, and the programs are listed on the slide above. Red Dog is the first mine in North America to work with the U.S. Department of Labor to develop a federally recognized apprenticeship program, the Mill Operator Apprenticeship Program. Highly trained individuals

are coming out of these programs. These achievements are significant.

MR. HALL advanced to slide 25, Alaska Built and Alaska Infrastructure. The slide shows two building modules. One photo shows a heavy piece of equipment transporting a mammoth-sized, prefabricated powerhouse module; it was built in the Port of Anchorage. The other photos are of the expanded personnel accommodations complex. All of the accommodation modules were built in a facility located in Big Lake, then transported to and assembled at the mine site. He reiterated that the modules were built in Alaska and employed Alaskans.

4:12:16 PM
MR. HALL advanced to slide 26, Alaska Built and Alaska Infrastructure. Pictured in the slide are the DeLong Mountain Regional Transportation Port Facility and associated road. The facility is a state asset and a great example of the financing work done by AIDEA. He expressed his belief that two of Alaska's largest buildings, by square footage, are located in this complex. Red Dog stores its concentrates all winter long here while waiting for the Chukchi Sea's spring thaw. Also pictured on slide 26 is the Kiana Junior High School. Eleven communities qualified themselves to tap into the bond market when they formed a borough. All but one of the eleven communities have used the bond market to build a new school; the eleventh is yet to be built.

4:13:31 PM
SENATOR BISHOP commented on slide 24, Jobs and Livelihoods, In-House Apprenticeship Program. He noted that apprentices are employed in 25 percent of the total trade positions in the mine. The mine does not have to look as hard to find its workforce when this model is embraced. When recruitment starts from day 1, employees are indoctrinated into the model. It makes recruiting easier for the Human Resources Office and it is the right thing to do.

MR. HALL commented that having a ready work horse that wants to embrace a lot those trades has been a successful model.

4:14:31 PM
CHAIR REVAK asked whether Red Dog Mine produces 75 percent of the nation's zinc consumption.

MR. HALL answered not consumption. Out of all the zinc producers in the United States, Red Dog Mine produces 75 percent of the nation's output.

CHAIR REVAK asked whether any of that zinc is used for dietary supplement.

MR. HALL answered yes. The United Nations Children's Fund (UNICEF) has a program that combines salts with zinc, the Zinc Association is involved with this program. In developing nations, a lot of youth and babies die from dehydration due to diarrhea. The hydration salts have been incredibly successful in reducing child mortality due to dehydration. A very small portion of production is used in rehydration tablets; but yes, zinc is used as a dietary supplement.

CHAIR REVAK said that is fantastic. He has become more familiar with zinc's immune system benefits over the last couple of years. To think that a mine in the NAB could be benefiting, even saving lives by improving the immune system is interesting.

4:16:02 PM
SENATOR STEVENS asked for more information about the state reclamation fund; where the money comes from; where it is right now; and can Alaskans be assured that sufficient funds have been set aside.

MS. MATTHIAS answered that a company must set up financial reassurance before completing much work and start-up. Some financial instruments are available, like bonding, and she expressed surprise that the law still allows a company to put up gold. Financial reassurance is like an insurance policy.

MS. MATTHIAS said that the longer a mine is in operation, the greater the reclamation effort required. The opposite is also true. A shorter-lived mine requires less habitat restoration effort. It is more economical and in its interest for a mine to complete the work while staff and equipment are still on-site before the mine ceases operations. If the mine fails to do the reclamation work, the state will assess the reclamation cost based on using third-party contractors, and third-party audits will oversee the work. A company that uses its own on-site staff and equipment is a more cost-effective reclamation strategy than walking away, letting the state take hold of the financial instrument, and hiring third-party contractors to do the job. Each mine has its own individual financial assurance; money is not pooled. Small mine reclamation works differently, but a

specific amount is set aside for large mines. The amount is periodically updated so that the state can step in at any stage of operation and take care of reclamation using third-party contractors.

4:18:21 PM
CHAIR REVAK drew attention to the map with many projects and prospects and the disproportionate number of mines, commenting that it would seem the number of mines should be more significant. He questioned the ratio of projects and prospects to the number of large mines. He asked whether permitting complicates the process of developing a mine and what the legislature could do to help the process.

MS. SKIBINSKI replied that the ratio of mines is disproportionately low to the number of projects and prospects. She pointed out that the geographic distribution of deposits, stating they are far from infrastructure, roads, ports, and energy sources. If some of these deposits were in Nevada, on a road system, they would already be developed. Available infrastructure makes development tremendously cheaper. However, a lack of infrastructure does prevent development, and the state has good examples of companies that successfully developed mines in challenging areas. Mr. Hall could give statistics on AIDEA funding which helped make the DeLong Mountain transportation system a reality. Using AIDEA to invest in the development of infrastructure is a good step towards getting a mine online. The legislature could help by finding ways to incentivize infrastructure, large company investment in Alaska, and encourage companies that want to invest significant capital for a mine. Slide 9 shows the timeline for the development of a mine but does not show the 100s of millions if not billions of dollars spent on exploring, permitting, and ultimately constructing a project.

MS. SKIBINSKI said the legislature could send the message that Alaska is a secure place to spend your big dollars, and as long as the regulatory tests of our nation's permitting system are met, your mine will be permitted and constructed. Regulatory certainty, the cost of infrastructure, and building in Alaska are the biggest factors investors consider.

MS. MATTHIAS drew attention to the diamonds on the map of mines, projects, and prospects. The diamonds are projects somewhere in between early exploration and advanced development. These projects have invested a significant amount of money to determine:

- if what they think is there is in enough quantity, and
- if the grade is high enough
to be economically feasible to build a mine.

MS. MATTHIAS said the circles are prospects. Circles indicate geologists have a good indication of potential, but the significant drilling required to determine what is actually there has not been completed. Do not assume the circles could be a mine tomorrow; they are at the very beginning of a long process. Circles must explore, drill, and assess results before looking at a preliminary economic assessment to determine mine feasibility. Then, they drill some more, explore some more, and work some more while simultaneously launching environmental studies, all in an effort to get closer to making a decision on whether or not to build. A lot of holes are drilled that do not immediately result in a mine.

4:23:16 PM
CHAIR REVAK expressed uncertainty whether the Ambler Mining District is a diamond or a circle but expects a lot of money was spent to get where they are in the process. The discussion today mentioned permitting, but access is also another challenge for mines. It is upsetting to see that the carpet was pulled-out from under the Ambler project, and he asked what kind of message this sends to the industry. He inquired about the status of moving forward to deliver needed minerals to the world.

MR. HALL answered a message of frustration. He addressed a previously asked question about opportunities. One opportunity is to consider areas where Alaska can do the permitting in-house rather than through the federal government. When the state went through the process of obtaining primacy under the Clean Water Act for the APS program, the Red Dog Mine operations were greatly impacted. The permits are still rigorous and have to meet all the Clean Water Act requirements, but Alaskans understand the context, land, and water bodies, making the process smoother. The primary hurdle for mines is wetland permitting. He expressed his belief that wetland permitting is a key opportunity and encouraged the legislature to consider taking primacy over the wetlands program. Also, fund agencies well enough; the industry needs good people to get permits.

MS. SKIBINSKI added to Mr. Hall's comment regarding the frustrating Ambler Road decision. With the exception of ANCSA, the Alaska National Interest Lands Conservation Act (ANILCA) governs all state land ownership. ANILCA specifically granted Ambler access, through the area, to get to a known mineralized

region. This fact adds insult to injury in the case of the Ambler project and the Alaska Miners Association was dismayed by the decision.

4:26:32 PM
CHAIR REVAK agreed with Ms. Skibinski's statement, especially given the Russian hostilities in Ukraine and the focus on critical and strategic minerals. The federal government is also pushing green and renewable energy infrastructure, which is great, but the conversation with Alaska's regulatory partners has been frustrating. The fact is that every ounce of green energy infrastructure is mined from the ground. He asked whether Alaska's regulatory partners understand the connection between green energy infrastructure and mining.

MS. SKIBINSKI answered that on the federal level, officials indicate they understand the need for a huge increase in mineral production to meet the nation's alternative energy and technology goals. Unfortunately, their actions do not match their words.

CHAIR REVAK stated that Alaska has about every strategic mineral the nation might need. He asked how much progress has been made towards the production of strategic minerals in the state.

MS. SKIBINSKI defined the difference between critical minerals and strategic minerals. Critical means that you need it, and strategic means that you do not have it. A strategic mineral is available in the ground, but the country is not producing it and does not have access to it. She emphasized a mine can extract a strategic mineral from the ground and put it in production. Alaska has strategic rare earth minerals that are not produced domestically, for example, cobalt. The industry would like to pursue the production of domestic mineral deposits in Alaska.

CHAIR REVAK asked what the challenges for mining rare earth minerals are; the status of cobalt mining in Alaska; and the hurdles to strategic mineral production.

MS. SKIBINSKI answered that one of the most promising cobalt deposits was in the Ambler Mining District.

CHAIR REVAK commented that the nation has begged for rare earth mineral production to reduce reliance on aggressive foreign countries. He stressed the importance of talking about the lack of domestic production, especially as the war continues in Eastern Europe. The federal decision to roll-back on Ambler was

a blow. He asked whether there is hope for the production of strategic minerals.

MS. SKIBINSKI answered yes. The Department of the Interior (DOI) asked the court to vacate the lawsuit brought by environmental nongovernmental organizations (ENGOs). DOI announced its plan for more consultations with the region and reexamination of the environmental analysis. DOI did not veto nor use other mechanisms to take it off the table. She reiterated that the process was transparent and thorough and went through three different administrations. Unfortunately, the delay is costly. DOI plans to re-engage in the process, optimistically speaking, the reexamination might lead to an approval.

4:31:44 PM
MS. MATTHIAS cautioned members not to limit the focus to the list of critical and strategic minerals. The problem with making lists is that it leads to questioning why an item got left off or put on. DOI put zinc on the 2022 Final List of Critical Minerals this year, which is great because zinc is important. However, copper did not make the list because there is a sufficient supply domestically. Herein lies the problem. International organizations, like the International Energy Agency and the World Bank, have emphasized a huge increase in copper will be needed for renewable technologies and electrical transmission. This was discussed early in the presentation. America needs to produce more copper, and its development should not be ignored just because it is not on the list. Ambler and Pebble are among multiple sites in Alaska that have copper deposits. The state should look at all minerals that are currently produced, their use and need domestically and globally, and look at minerals that could be produced whether the minerals are on a list or not.

4:33:10 PM
SENATOR STEVENS asked the presenters to reflect on foreign ownership of mining in Alaska. He expressed concern about foreign ownership in the fishing industry, and assumed foreign ownership is also a concern in mining. He asked whether any mines are Chinese-owned and why so few American companies are involved in mining.

MS. MATTHIAS answered Alaska has six large mines. Three are U.S. owned companies, two are Canadian owned, and one is Australian owned. She argued that every industry in this state has benefitted from foreign investments, including fishing, tourism, mining, oil, and others. Mining requires huge sums of money for

exploration let alone bringing a mine into development. Access to a large amount of capital is imperative as well as access to expertise. It makes sense to reach out to an investment partner rather than putting all an organization's resources into one venture, consider NANA in this scenario. In the mining industry, it is standard to reach out to companies who have resources and expertise, choosing selectively to find the right fit. Attracting investors is not a bad thing for Alaska. In fact, most countries and jurisdictions compete to attract foreign investment. She summated that yes, mines in Alaska have foreign owners. They brought investment capital making it possible for the mine to produce. Mining stimulates the economy, increases the gross state product, and helps Alaskans buy items that are not produced here, whether it is cars, food or other items which come in on ships, barges, and planes.

4:35:34 PM
SENATOR STEVENS acknowledged the point then expressed concern about entangling alliances. He explained that it would not be in the best interest of Alaska to have large countries, like Russia and China, involved in the state's mining industry. He illustrated the concern by directing attention to the current affairs unfolding in Europe, Germany's reliance on Russian energy, and Germany's reluctance to take a hard stance. He expressed hope that the mining industry here is never entangled politically.

MS. MATTHIAS replied that she is not aware of Russian or Chinese investments at-scale in Alaska, and certainly not in the Council of Alaska Producers (CAP) membership.

MS. SKIBINSKI added that she is not aware of Russian or Chinese investments at any scale but will research it and get back to the committee.

4:36:45 PM
CHAIR REVAK agreed with Senator Stevens. Alaska relies on oil from Russian neighbors for mining hydrocarbons; Alaska spent $20 billion last year. He expressed interest in what percentage of the Russian GPD $20 billion totaled.

4:37:12 PM
SENATOR KIEHL redirected the discussion from international to inter-state. He repeated Mr. Hall's statistic that 73 percent of Teck-Alaska's employees live in-state, and the number of Alaskan employees varies among large mines. Certainly, the high apprentice utilization is a great step. He asked what additional

steps were taken to increase the number of Alaskans working in the Alaska mining industry.

MR. HALL answered that he cannot speak to other mines, but Teck-Alaska targets development opportunities, like the apprentice program. A program that has not been discussed is the Accelerated Development Program for Leadership which selects candidates according to their potential to become leaders and providing tools to help them. For instance, the program would target someone exhibiting good leadership skills over someone exhibiting good welding skills. The program focuses on leadership development and advancing the candidate to supervisory opportunities. Teck-Alaska targets where it puts money associated with bursary scholarships. The purpose is to recruit youth from the region to enter mining careers and direct them to postsecondary education degrees. It can be challenging and not everyone is cutout for a rotational job at Teck-Alaska. The idea is to support a young person through school, but that person may end up being very marketable in another place. For example, one young, great NANA shareholder with an environmental degree did a job for a year. It was not a good fit for him, which is fine, because the job is supposed to be a steppingstone. Now he works for Arctic Slope Regional Corporation (ASRC). Teck-Alaska tries to think of new ways to generate local jobs and develop people, focusing on education, youth, developing the people that you have, and being deliberate and purposeful.

MS. MATTHIAS added that each mine is different. Mines want to hire Alaskans, support vocational training, scholarships, and programs that prepare workers for the mining industry. The following programs demonstrate the industry's desire to reach out and provide opportunities for those with college degrees and high school diplomas alike:

- Delta Junction has an underground mine training center. Two Juneau mines use the Delta Mine Training Center to train new hires. Pogo is an underground mine in the Interior that also uses the training center.

- Both Juneau's mines collaborated with University of Alaska-Southeast (UAS) to offer the Pathway to Mining Careers program.

- The University of Alaska-Fairbanks has the mining engineering and geology programs.

A project is at an advantage when it can plan years ahead for its workforce needs. Donlin Mine reached out to middle school students years before start-up. The mine provided middle school students with information about job availability, emphasizing the mine's need for accountants, food service staff, human resources staff, logisticians, and miners. Mines located in remote sites are micro-communities. If you can think of a job, you can probably do it at a remote location.

4:42:38 PM
SENATOR BISHOP revisited the issue of permitting.

4:42:45 PM
SENATOR KIEHL asked about extending the life of a mine, significant expansions, and the permitting process involved.

MR. HALL replied that extending mine life falls into two main areas:

First, continued exploration of the mine. He gave the example of a potential opportunity under consideration about ten miles north of the Red Dog Mine, underground and on state land. Red Dog hopes to obtain the ore from that location and process it through its facility. Red Dog is currently in the middle of permitting a road, obtaining an air permit, and underground drilling, which is needed to get the data necessary to make a determination on project viability. Right now, it is only possible to drill in the summertime. By going underground, it is possible to drill year-round which will speed up the process of collecting data. A host of permits are required for housing, potable water, wetland permits, etcetera; permitting requires a significant amount of time and engagement. This is true for an advanced exploration project too. Once the exploration project is permitted and the company makes the decision to move forward, the mine has to go through another permitting process to extract the ore source. Extending mine life requires taking a long approach and questioning whether the mine can prove up and get permitted before running out of its present source of ore.

Second, mines find ways to make unprofitable ore, known as waste rock, profitable by using innovations and technology to improve mining processes. Here are some examples:

- Xray Fluorescence (XRF) technology mounted on the bucket of a loader can indicate whether the load is ore or waste rock.

- machines with optics examine pieces of crushed ore, separating the ore from the waste rock. The process results in the delivery of a richer ore to the milling facility.

- a host of other technology and innovation that allows a company to re-mine a previously mined area.

4:46:21 PM
SENATOR BISHOP reviewed the timeframes on the Mining Development Takes Time chart. He expressed his belief that it took about ten years from inception to initial drilling to constructing the Pogo Mine road. Pogo Mine was a relatively fast process compared to Kensington Mine, which took about 20 years. He referenced Senator Stevens' previous ownership question, stating Kensington needed a sizeable deposit and deep pockets to obtain the cash flow to stay in the game for 20 years. An independent operator probably would not have the resources to time value the money on the return for a project like Kensington.

SENATOR BISHOP directed the conversation to permitting, stating the legislature leaned into staffing to some degree last year and boosted DNR's permit personnel. There are a lot of fine required permits, but mining progress stalls without sufficient staff to execute them at DNR, ADF&G, and the Department of Environmental Conservation (DEC).

SENATOR BISHOP brought up the Section 404 wetlands program. As long as he has been at the Senate Finance Committee table, DNR has received budget allocations towards state wetlands primacy. Hopefully state wetlands primacy will happen someday. This jurisdictional argument goes back to ANILCA. Alaska cannot do anything about it, but Congress could hold the Army Corps of Engineers' feet to the fire on the 1987 definition of wetlands as well as its new 1994 interpretation. On the subject of permitting impediments, supporters of renewable energy are experiencing similar delays in permitting. The complaint is how hard it is to execute projects due to an arduous permitting system. Maybe the processing duration would speed up if the country joined forces to re-examine its permitting process.

4:50:10 PM
CHAIR REVAK stated that today's presentation and discussion were important. He expressed his belief that some of the hurdles and hindrances have less to do with environmentalism and more to do with stopping production. He hears and sees that the industry goal is good stewardship of the environment. The question is whether the goal is responsible development or halting

production. He warned that halting production is a dangerous position to take with all that is going on in the world.

4:51:29 PM
There being no further business to come before the committee, Chair Revak adjourned the Senate Resources Standing Committee meeting at 4:51 p.m.