

Presented By:
Councilman M. Johnson

Action Taken:
Yes 6
No 0
Abstain 0

CITY OF NOME, ALASKA

RESOLUTION NO. R-18-04-01 (Amended)

**A RESOLUTION SUPPORTING THE GRAPHITE CREEK PROJECT ON THE SEWARD
PENINSULA IN NORTHWEST ALASKA**

WHEREAS, the City of Nome owes much of its recent history, including its incorporation as a first class city, to the success of the mining industry; and,

WHEREAS, graphite is among the 23 metals and minerals the United States Geological Survey has deemed critical to the national economy and national security; and,

WHEREAS, currently the United States is reliant on foreign countries for its graphite supplies; and,

WHEREAS, the graphite deposits in the Kigluaik Mountains on the Seward Peninsula north of Nome represent the largest yet discovered graphite resource in the United States; and,

WHEREAS, a 2017 study showed that the Graphite Creek Project has the potential to produce a significant portion of the projected domestic demand for graphite for decades; and,

WHEREAS, the Graphite Creek Project has the potential to provide economic development through increased local employment, infrastructure development, and wharfage fees; and

WHEREAS, Graphite One Resources is seeking support for its project in the critical stage of financing the development of mining and transportation infrastructure.

NOW, THEREFORE, BE IT RESOLVED that the Nome Common Council supports Graphite One Resources' Graphite Creek Project.

APPROVED and SIGNED this 23rd day of April, 2018.


RICHARD BENEVILLE, Mayor

ATTEST:


BRYANT HAMMOND, Clerk



SB203 Overview
Sponsored by Senator Donny Olson

Graphite One Resources Inc. ("Company") is proposing to develop its Graphite One Project as a vertically integrated enterprise to mine graphite mineralization, process it into concentrate, and from the concentrate, manufacture high grade Coated Spherical Graphite (CSG) for the electric vehicle lithium-ion battery and energy storage markets. The graphite mineralization would be mined from the Company's Graphite Creek deposit located about 37 miles north of Nome.

SB 203 PURPOSE

This legislation would authorize, but not commit, AIDEA to provide supplemental financing for surface transportation corridor and related infrastructure that contributes to access and development of the Graphite Creek Project. The decision on whether or not to issue the authorized bonds would be made by the AIDEA Board. This type of project financing is precisely why AIDEA was formed.

The Project's Preliminary Economic Analysis, dated June 30, 2017, estimates the total Project cost at \$363 million. Our goal is to enable AIDEA to utilize their financing mechanisms to issue revenue bonds to finance the basic infrastructure that will be needed to facilitate the development of the mine. This infrastructure might include, for example, a road to the mine site that would be financed by AIDEA, in a fashion similar to the financing of the Delong Mountain Transportation System, which is the road and port that support the Red Dog Mine.

As Governor Walker noted in his recent State of the State speech, " The model today is for the state to provide the infrastructure to develop our resources. This is the customary role of government." (2018)

The proposed bill is consistent with this customary role of government to provide infrastructure, but this request uses the mechanism of revenue bonds, and not general funds, to effectuate that goal.

We are modeling this legislation after the Niblack/Bokan project financing bill (SB 99) in 2014 which authorized AIDEA to provide up to \$270 million in revenue bonds for infrastructure and construction costs. This proposed legislation will utilize revenue bonds as well.

PROPOSED BOND AUTHORIZATION

Construction of a 22-mile access road and related infrastructure

Port improvements

Power generation and related infrastructure

Revenue bond contingency

Total \$80 million

WHY SHOULD AIDEA INVEST IN THIS PROJECT?

This is not a request for a grant. AIDEA would be providing low-cost financing through use of the bond markets which will be repaid with interest over the life of the project, much like the DeLong Mountain Transportation System where AIDEA has issued over a billion dollars in revenue bonds. Another recent example is a revenue bond issuance on behalf of the expansion of the Alaska Brewing Company here in Juneau.

Direct project benefits to the state include employment, workforce development, investments in the communities and region, and infrastructure development. Graphite One Resources has already contributed directly to nearby schools as well as NACTEC in Nome.

AIDEA requested a 7-year sunset clause. There will also be a reference to AIDEA statute 44.88.095(e), which states that AIDEA must have documented local approval for the location of their projects.

Mining Technology

Graphite One Resources' fully owned Graphite Creek Mine is located in Seward Peninsula, 59km north of Nome, Alaska, US. Touted as the biggest flake graphite deposit in the US, the project comprises 165 mineral claims spread over 18,080 acres.

The mine will produce high-grade coated spherical graphite (CSG), which is in high demand due to the adoption of lithium-ion batteries for electric vehicles.

The preliminary economic assessment (PEA) of the mine development project announced in January 2017 estimates an average annual production of 55,350t of CSG, once the mine reaches its full production in its sixth year, through its estimated life of 40 years.

In February 2017, Graphite One Resources signed a memorandum of understanding (MOU) with the Alaska Industrial Development and Export Authority (AIDEA) to collaborate on the development of the project. The collaboration will include activities comprising mining, processing and manufacturing of high-grade CSG.

Construction on the project is scheduled to begin in Q2 2019, upon completion of the necessary studies and obtaining the required approvals, and will continue until Q3 2021. Commissioning of the mineral processing plant and product manufacturing plant are scheduled for the second half of 2021.

Graphite Creek Mine geology and Mineralisation

The graphite deposit is located on the north side of the Kigluaik Mountains.

Mineralisation at the site occurs on the upslope and footwall surface trace of the reactivated Kigluaik normal fault.

The mine contains two distinctive graphite-bearing schist intervals, including sillimanite-garnet-biotite-quartz schist and biotite-quartz schist. The first schist contains coarse, massive and semi-massive graphite segregations and hosts higher grade graphite. The second schist hosts graphite as disseminated flakes.

Reserves at Graphite One's Flagship Mine

The Graphite Creek mine was estimated to contain total mineral resources of 81.56Mt, including 10.3Mt of indicated and 71.2Mt of inferred resources, both at 6% graphitic carbon mining cut-off grade as of January 2017.

“Construction on the project is scheduled to begin in Q2 2019, upon completion of the necessary studies and obtaining the required approvals, and will continue until Q3 2021.”

The minerals at the deposit are considered superior based on their high-graphite grade, overall size, percentage of large-flake graphite, near-surface mineralisation and other infrastructure availability factors.

Mining and processing at the vertically integrated mine

Surface mining techniques such as the truck and shovel method will be used to mine the project due to its significant length of outcrop and relatively shallow dip below the land surface.

The material of the mine will be [blasted](#) initially to loosen the ore and the blasted ore will be loaded in large trucks for transport to the ore treatment plant. The mining fleet will include four hydraulic shovels, eight rear dump trucks, six bull dozers and other supporting equipment.

Processing at the mine will take place in a proposed mineral processing plant, which is expected to receive 1.018Mt of graphite ore, 60,000t of which will be recovered with 95% graphitic carbon mining cut-off grade. The plant is anticipated to recover 80% of graphite from the ore under optimised conditions.

The processing plant will include equipment for crushing, milling and floatation, classification, filtration and drying.

The graphite concentrate recovered from the processing plant will be packed in one tonne super sacks, placed in shipping containers and trucked to the Port of Nome. The containers will then be loaded on to barges and delivered to the product manufacturing facility.

Infrastructure at Graphite Creek mine

The proposed major infrastructure for the project includes a processing plant, access, connecting and site roads, power supply, mining / processing water distribution / storage facilities, water treatment facility, accommodation camp and administration offices, sewage treatment facilities, [communication](#) equipment, and storage facilities. A 35km-long road connecting the mine site to the Teller highway has been proposed in the PEA. The road will be serviceable for 12 months and will connect the highway at the 54.6 milepost. The road will enable delivery of graphite mill product to Nome and to the processing plant through seagoing barge transport.

The mine operations are expected to require 4MW of power, which would increase to 6MW after five years. The power will be initially generated through two 2MW diesel generators, while a third generator will be added in the fifth year.

Graphite manufacturing facility

A manufacturing facility to produce final spherical graphite product is also proposed in the PEA. The plant will be located at a brown-field industrial site in Washington, which is developed with road and rail infrastructure.

It will house processes and activities, including bag handling, pelletising, spheronising, carbonisation, powder milling and classifying, bagging and warehousing, and administration and control activities.

The plant will receive 60,000t a year of concentrate graphite grading 95% from the processing plant. The concentrate will be stored in silos and sent to pelletising equipment whenever needed. It will be subjected to high temperature and purified under an inert atmosphere to produce 99.95% graphite concentrate.

The output will then be heat-treated in kiln type furnaces to harden its coating and to finally produce spherical graphite product.

The spherical graphite product is usually produced by jet milling the purified natural graphite flake to produce a 20-micron, ground and spheronised flake.

Contractors involved

The preliminary economic assessment for the project was prepared by engineering firm TRU Group.

Critical Minerals Alaska – Graphite

By [Shane Lasley](#)
Mining News

Will Alaska be America's future source of this vital battery ingredient?



Tesla Inc.

The rising popularity of electric vehicles and stationary energy storage products are increasing the demand for graphite, which is used as an anode material in the lithium-ion batteries that power them.

Graphite is among the 23 metals and minerals the U.S. Geological Survey deemed critical to "the national economy and national security of the United States" in a December report, "Critical Mineral Resources of the United States – Economic and Environmental Geology and Prospects for Future Supply."

One of the reasons the USGS considers graphite critical is the growing demand of this mineral as anode material in the lithium-ion batteries that power electric vehicles and a rapidly expanding number of personal electronic devices.

The other major factor playing into graphite's criticality is that the U.S. is fully reliant on foreign countries for its supply of this battery ingredient.

According to USGS' annual report, "Mineral Commodity Summaries 2017," there are currently no domestic sources of the graphite used in the United States, which resulted in domestic manufacturers looking abroad for the roughly 39,500 metric tons of the carboniferous material used in the United States during 2016.

China is by far America's largest graphite supplier, followed by Canada, Brazil, Japan, Mexico and Madagascar.

USGS sees a major spike in U.S. demand for graphite when Tesla Motor's Gigafactory, an enormous lithium-ion battery facility being constructed in Nevada, is fully operational.

"The plant's completion was originally projected for 2020, but the project is about two years ahead of schedule," USGS penned in the early 2017 report. "When the plant is complete, it will require 93,000 tons of flake graphite to produce 35,200 tons of spherical graphite for use as anode material for lithium-ion batteries."

The Kigluaik Mountains on the Seward Peninsula in western Alaska hosts at least one deposit with the size and grade to meet America's growing need for graphite in lithium-ion batteries but there are questions as to whether it is too far off the grid to be economically viable.

"The graphite flake deposits in the Kigluaik Mountains graphite district, Alaska (Coats, 1944) represent the largest known domestic graphite resource, but are located in a rugged and remote area with high mining costs," USGS penned in its 2017 critical minerals report.

Vast Graphite Creek

The Graphite Creek property about 35 miles north of Nome hosts an enormous, surfacing deposit of graphite that spans some 11 miles of the Kigluaik Mountains.

Though [Graphite One Resources](#) Inc., the company working to develop a mine at Graphite Creek, has only systematically drilled a small section of the near-surface mineralization at this vast western Alaska graphite project, the Vancouver B.C.-based company has outlined a deposit that could provide a healthy domestic supply of this critical battery ingredient for decades.

A resource estimate calculated early in 2017 outlines 744,000 metric tons of graphite in 10.32 million metric tons of indicated resource grading 7.2 percent graphitic carbon; plus 4.7 million metric tons of graphite in 71.24 million metric tons of inferred resource averaging 7 percent for the subsection of Graphite Creek being considered for initial mining.

In addition to size, the graphitic carbon at Graphite Creek has unique characteristics that make it ideally suited for being refined into the coated spherical graphite that is used in the lithium-ion batteries that power electric vehicles.

Carbon-coated spherical graphite is the finished product used in lithium-ion batteries. The spherical shape allows the graphite to be more efficiently packed into battery cells, while the coating extends the graphite's lifetime capacity.

TRU Group Inc. – a technology metals consultant with expertise along the entire graphite-graphene supply chain – identified characteristics of the Graphite Creek deposit that may make the material a good fit for many of the high-tech and green energy sectors that are driving a large part of the growing market for graphite.

The graphite specializing consultant postulated that these distinctive characteristics could lend to different specialized applications with minimal processing.

Graphite One has coined the acronym STAX to describe these unique and naturally occurring properties.

"From the time we identified the unique mineralization of our STAX graphite, we've observed a number of potential performance advantages," said Graphite One CEO Anthony Huston.

Domestic graphite producer

Establishing that the Graphite Creek deposit has both the size and graphite characteristics to be a domestic source of graphite for lithium-ion battery anodes, Graphite One completed a preliminary economic assessment for the project early in 2017.

This PEA outlines plans for a roughly 2,800-metric-ton processing facility at Graphite Creek that produces 60,000 metric tons per year of graphite concentrate. This concentrate would be shipped to an advanced material processing facility that is anticipated to refine these concentrates into 41,850 metric tons of coated spherical graphite and 13,500 metric tons of purified graphite powders annually.

Together, the mine and processing facility are known as the Graphite One project.

"This PEA shows the strong potential of our project as America's emerging producer of lithium-ion battery-grade coated spherical graphite," said Huston.

"With the prospect of a low-cost, 40-year mine life using half of the identified graphite mineral resources and, given our projected production costs and conservative pricing assumptions, we are confident that Graphite One has the potential to become a reliable provider of graphite materials critical to clean-tech, high-tech and national security applications," the Graphite One CEO added.

Tapping AIDEA's expertise

Graphite One is hoping to find a place in Alaska to set up the advanced material processing facility.

To help with this search, the company entered into a memorandum of understanding with the Alaska Industrial Development and Export Authority to find an Alaska locale with reasonable power costs and adequate supply, industrial zoned land, close to tidewater and port facilities, and infrastructure that allows easy access for the workers needed to operate the facility.

In a May report, AIDEA identified four Southcentral Alaska locations – Homer, Kenai, Port Mackenzie and Seward – that meet the criteria and "are very interested in discussing this project with Graphite One management."

The quasi-state-owned development said Alaska has advantages that could outweigh the high-cost of power at these sites, compared to sending the concentrates to the Lower 48 for further refinement.

"While Outside locations may provide cheaper power costs, Alaska is a mining and industrial friendly state that supports the development of value-added activities, and has a regulatory regime that supports responsible development while being less costly than other potential Northwest locations," AIDEA penned in the preliminary report.

Producing a significant portion of the coated spherical graphite needed for America's growing lithium-ion battery sector from Alaska mined ore would make the Far North state a domestic hub for this increasingly important critical mineral.

"Tapping AIDEA's expertise in helping us assess potential refinery sites is the first step towards making Alaska a key player in the clean-tech energy sector," said Huston. "The AIDEA report confirms the considerable interest Alaska localities have in serving as a base for our advanced-material spherical graphite refinery."

Critical executive order

The USGS report listing graphite among the metals and minerals critical to America's economy and security, coupled with President Donald Trump's issuance of an executive order calling on federal agencies to devise a strategy to ensure America has a reliable supply of critical minerals, is adding to the growing national awareness of the proposed Graphite One project.

"The report and President Trump's executive order track with the ongoing discussions our team has been having with key U.S. officials at the federal level and the state of Alaska, with interest far more intense now than our initial discussions five years ago," said Huston.

If future feasibility-level studies continue to show that developing the Graphite One mine and refinery are economically viable, critical mineral strategies ordered by President Trump could help the project developed quicker.



Graphite One Resources Inc.

This core is from a 2012 hole drilled through a lens of the large-flake graphite at the Graphite Creek project on the Seward Peninsula.

In particular, the order's call for federal agencies to come up with recommendations to streamline permitting and review processes in order to improve access, discovery, production and refining of critical minerals in the United States could help reduce the time it takes to bring Graphite One online.

"This executive order will prioritize reducing the Nation's vulnerability to disruptions in our supply of critical minerals safely and responsibly for the benefit of the American people," said Trump.

Editor's Note: "Critical Minerals Alaska – Graphite" is the first of a series of articles to be published in North of 60 Mining News that investigates Alaska's potential as a domestic source of minerals deemed critical to the United States. At least 15 of the 23 critical minerals identified by the U.S. Geological Survey – antimony, barite, beryllium, cobalt, fluorspar, gallium, germanium, graphite, indium, platinum group elements, rare earth elements, rhenium, tantalum, tellurium, tin and vanadium – are found in Alaska.

Resolution 18-04-04-01
of the
Nome Chamber of Commerce

A Resolution in support of SB203: AIDEA:Bonds for Graphite Creek Project

Whereas, SB203, “An act Authorizing the Alaska Industrial Development and Export Authority to issue bonds to finance the infrastructure and construction costs of the Graphite Creek graphite project” has been introduced in the Alaska Senate; and,

Whereas, Senate Bill 203 authorizes the Alaska Industrial Development and Export Authority to issue bonds to finance the infrastructure and construction costs of the Graphite Creek Project on the Seward Peninsula up to \$80,000,000; and,

Whereas, graphite is among 23 metals and minerals the United States Geological Survey has deemed critical to the national economy and national security of the United States; and,

Whereas, currently the US is totally reliant on foreign countries for a supply of this critical material, and,

Whereas, the Kigluaik Mountains’ vast flake graphite deposits on the Seward peninsula represent the largest known graphite resource in the US; and,

Whereas, a 2017 study shows that the Graphite Creek Project has the potential to produce a significant portion of projected domestic demand for graphite in the US for decades; and,

Whereas, Graphite One Resources (GOR) has signed a Memorandum of Understanding with the Alaska Industrial Development and Export Authority (AIDEA) reviewing

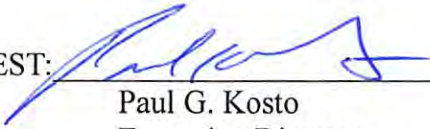
- 1) Strategies to maximize local economic benefits and job opportunities
- 2) Potential opportunities to locate the Manufacturing Plant in Alaska
- 3) Frameworks for AIDEA and GOR to engage cooperatively with stakeholders to incorporate their input via public meetings and consultations
- 4) Opportunities to work cooperatively to identify activities requiring federal, state, or local permitting
- 5) Options and opportunities for AIDEA to participate in funding some of the project facilities including the 22 mile access road and the power generating facility; and,

Whereas, the Nome Chamber of Commerce represents business organizations in the City of Nome and the surrounding Bering Straits Region many of whom may benefit from the long term development of this graphite resource.

NOW, THEREFORE, BE IT RESOLVED, that the Nome Chamber of Commerce hereby expresses it's support for SB203 and the Graphite One Resources project in the Kigluaik Mountains.

APPROVED and **SIGNED** this 4th day of April, 2018.

Signed: Kenneth A. Hughes III
Kenneth A. Hughes, III
President, Nome Chamber of Commerce

ATTEST: 
Paul G. Kosto
Executive Director
Nome Chamber of Commerce