

Overview 2021

# Nunavut

Mineral Exploration, Mining,  
and Geoscience



Canada 

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## About Nunavut: Mineral Exploration, Mining, and Geoscience Overview 2021

This publication is a combined effort of four partners: Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), Government of Nunavut (GN), Nunavut Tunngavik Incorporated (NTI), and Canada-Nunavut Geoscience Office (CNGO). The intent is to capture information on exploration and mining activities in 2021 and to make this information available to the public and industry stakeholders.

We thank the many contributors who submitted data and photos for this edition. Prospectors and mining companies are welcome to submit information on their programs and photos for inclusion in next year's publication. Feedback and comments are always appreciated.

### Note to Readers

This document has been prepared based on information available at the time of writing. All resource and reserve figures quoted in this publication are derived from company news releases, websites, and technical reports filed with the Canadian Securities Administrators (CSA) through the System for Electronic Document Analysis and Retrieval (SEDAR) ([www.sedar.com](http://www.sedar.com)). Readers are directed to individual company websites for details on the reporting standards used. The authors make no guarantee of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

All exploration information was gathered prior to December 2021. Exploration work was completed and reported during 2020 or 2021 for all projects with active status in this publication. Projects with inactive status had exploration work last completed on them in 2018 or 2019, have active mineral tenure, and may have valid land use permits and/or water licences as issued by CIRNAC and the Nunavut Water Board.

The term National Instrument 43-101 (NI 43-101) refers to a standard for the disclosure of scientific and technical information about mineral projects. This standard is supervised

by the Canadian Securities Administrators (CSA), the regulatory body which oversees stock market and investment practices, and is intended to ensure that misleading, erroneous, or fraudulent information relating to mineral properties is not published and promoted to investors on the stock exchanges overseen by the CSA. Resource estimates reported by mineral exploration companies that are listed on Canadian stock exchanges must be NI 43-101 compliant.

### Acknowledgements

This publication was written by the Mineral Resources Division at CIRNAC's Nunavut Regional Office (Matthew Senkow, Alia Bigio, Samuel de Beer, Yann Bureau, and Steve Sharpe, who provided cartography). Contributions were received from Linda Ham and colleagues at the CNGO, Jorgan Aitaok and Laura Thompson at NTI, and Paul Budkewitsch at the GN.

Cover photo:

*Shift change at Sabina Gold & Silver's Goose project.* Courtesy of Sabina Gold & Silver Corp.

Back cover photo:

*Franklinian dike intruding between metasediments and a pegmatite dike, near Igloodik.* Courtesy of Moshi Kotierk.

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1-800-567-9604

TTY only 1-866-553-0554

Catalogue: R71-39E

ISSN: 2292-7751

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This publication is also available in French under the title: *Aperçu 2021 : Nunavut Activités d'exploration minérale, d'exploitation minière et de géoscience*

# Land Tenure in Nunavut

Spanning two million square kilometres (km<sup>2</sup>), Nunavut has 25 communities and an estimated population of 39,403. Inuit represent 84 per cent of the residents, creating the foundation of the territory's culture and values. With the exception of Baker Lake, communities are located on coasts, where hunting and fishing traditionally sustained Inuit. There is no road access to Nunavut, nor are there roads connecting communities within the territory. Access is mainly by air with ships delivering supplies during the open water season.



*Helicopter slinging a load for North Arrow's bulk sample of the Q1-4 kimberlite, near Naujaat. Courtesy of Dave Pickston/North Arrow Minerals Inc.*

## Land Tenure in Nunavut

As a modern day treaty, the Nunavut Agreement provides certainty and clarity of rights to ownership and use of lands and resources within Nunavut. Under the Agreement, Inuit have fee simple title to 356,000 km<sup>2</sup> of land, making it the largest Indigenous land settlement in Canadian history. There are 944 parcels of Inuit Owned Land (IOL) where Inuit hold surface title only. The Crown retains the mineral rights to these lands. Inuit also hold fee simple title including mineral rights to 150 parcels of IOL, which totals 38,000 km<sup>2</sup> and represent approximately two per cent of the territory. Surface title to all IOL is held in each of the three regions (Kitikmeot, Kivalliq, and Qikiqtani) by the respective Regional Inuit Association (RIA), while title to subsurface IOL is held and administered by Nunavut Tunngavik Incorporated (NTI). Exploration agreements and mineral production leases are negotiated by NTI on land where it owns the subsurface rights, while access permission and land use licences are granted by RIAs on all IOL.

The Government of Canada administers subsurface rights for the remaining 98 per cent of Nunavut. Mineral claims, and mineral leases are issued pursuant to the Nunavut Mining Regulations by Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC) Nunavut Regional Office. Surface rights for Crown land are administered according to the Territorial Lands Act and its regulations.

For more information on the location of IOL and Crown land in the territory, refer to the *Nunavut Mineral Exploration, Mining and Geoscience Projects 2021 Map*. For details on mineral tenure, visit the Nunavut Map Viewer at <https://services.aadnc-aandc.gc.ca/nms2-scn/gv/index.html>. The table on page 5 displays the number of prospecting permits, mineral claims and mineral leases held in good standing as of November 2021 and the accompanying figure illustrates the location and extent of this mineral tenure.

The Nunavut Planning Commission (NPC) is responsible for land use planning in Nunavut and is the entry point to the regulatory system. There are two approved land use plans covering portions of Nunavut, the Keewatin Regional Land Use Plan and the North Baffin Region Land Use Plan. NPC is developing a territory-wide plan to guide and direct resource use and development in Nunavut; the most recent draft of the plan was released in June 2021. Once the Nunavut Land Use Plan is approved, it will replace both existing regional plans.



Quartz vein with copper mineralization 'blooms' outcropping on the northern shore of Richards Bay (Bouverie Islands/Nuvuk&iqpaa); assays from this location included gold values above background. Courtesy of Moshi Kotierk.

### Mineral Tenure in Good Standing in Nunavut

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Prospecting Permits	259	196	110	132	124	78	147	137	129	112
Claims	6,066	5,562	4,278	4,279	3,335	3,699	2,855	2,588	2,454	2,373
Leases	627	701	492	461	477	487	470	519	519	568

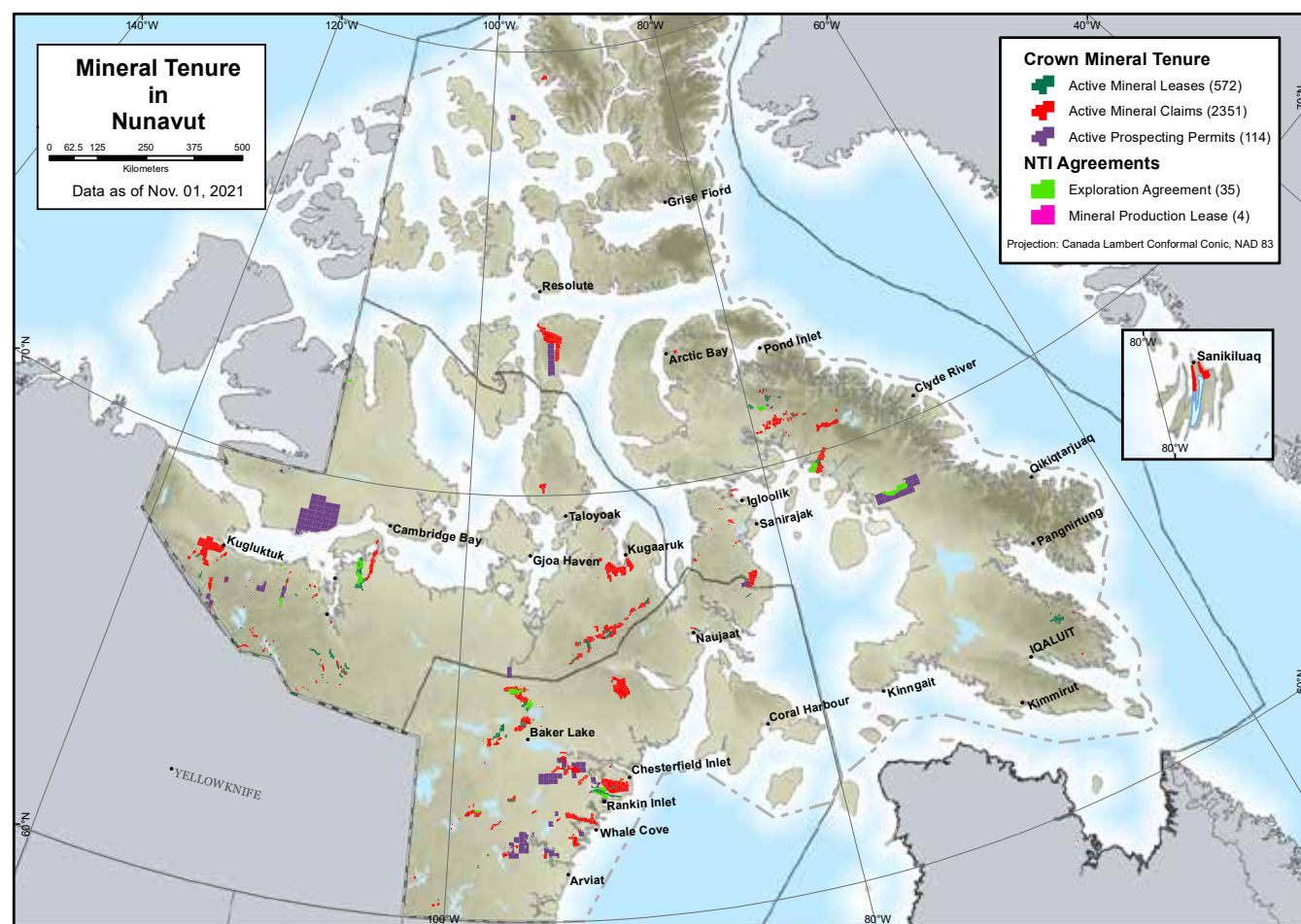
Source: CIRNAC

### Exploration and Deposit Appraisal Expenditures in Nunavut

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Juniors (Millions \$)	129.0	111.0	73.6	42.5	35.6	61.0	60.1	20.0	31.4	68.4
Seniors (Millions \$)	293.5	146.6	84.4	172.5	168.9	116.0	95.5	96.4	39.3	54.8
<b>Total</b>	<b>422.5</b>	<b>257.6</b>	<b>158.0</b>	<b>215.0</b>	<b>204.5</b>	<b>177.0</b>	<b>155.6</b>	<b>116.4</b>	<b>70.7</b>	<b>123.2</b>

Source: Natural Resources Canada

\*Revised spending intentions current to September 2021



# Government of Canada



## Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)

Representing one-fifth of Canada's land mass, Nunavut has tremendous resource potential and is a place of significant opportunity for Inuit, Northerners, and all Canadians. In 2021 the effects of the COVID-19 pandemic were still being felt by the mineral industry, but more proponents were able to move ahead with programs, following the Government of Nunavut's restrictions to prevent the spread of COVID-19 in the territory, than in 2020. This year CIRNAC once again offered relief of reporting requirements to prospecting permit and mineral claim holders under Section 16 of the former, and Section 51 of the current, Nunavut Mining Regulations in recognition of the challenges posed by the pandemic. Statistics released by Natural Resources Canada indicate that \$123.2 million was spent on mineral exploration and deposit appraisal in the territory in 2021. This number is higher than in 2020, but still significantly lower than the ten year average of approximately \$186.3 million.

CIRNAC's mandate related to mineral resource development in Nunavut includes the implementation of the Nunavut Agreement, the administration of surface and subsurface rights on Crown land, and the stewardship of land and water resources.

## Implementation of the Nunavut Agreement

Signed in 1993, the Nunavut Agreement guarantees the right of Inuit to participate in decision-making concerning the use, management, and conservation of land, water, and resources. To support this, the Nunavut Agreement created five institutions of public government:

- Nunavut Planning Commission (NPC) prepares and assesses compliance with land use plans;
- Nunavut Impact Review Board (NIRB) conducts environmental impact assessments;
- Nunavut Water Board (NWB) manages fresh water resources;
- Nunavut Surface Rights Tribunal manages disputes related to surface rights; and
- Nunavut Wildlife Management Board manages wildlife.

## Administration of Surface and Subsurface Rights

### Nunavut Devolution of Lands and Resources Management

Nunavut is the last jurisdiction in Canada where the Government of Canada, rather than the province or territory, administers federal Crown land. On August 15, 2019, the Minister of Crown-Indigenous Relations and Northern Affairs Canada, the Premier of Nunavut, and the President of Nunavut Tunngavik Incorporated (the Parties) signed an Agreement-in-Principle for the devolution of land, rights in respect of waters, and natural resource management in Nunavut. Devolution in Nunavut is an essential step in the political and economic development of the territory. The signing of the Agreement-in-Principle is a significant milestone towards placing decision-making power over lands and resources into the hands of Nunavut residents, while ensuring that economic and other benefits of resource development in the region are shared with the people of Nunavut. The Parties are currently negotiating a Final Devolution Agreement, which is expected to be completed in 2022. Once the Final Devolution Agreement is in place, collaborative work will continue towards the transfer date, targeted for April 1, 2025. Until such time, the Government of Canada continues to lead the administration of lands and resources in the territory (as described below) as per respective departmental authorities.

### Nunavut Map Selection and the Nunavut Mining Regulations

The amended *Nunavut Mining Regulations* came into force on November 1, 2020 to facilitate the replacement of ground staking on Crown lands in Nunavut with the selection of mineral claims on an online map. The Nunavut Map Selection system was successfully launched on January 30, 2021, and as of November, 2021, 245 claims have been selected covering 192,810 hectares. The impacts of the COVID-19 pandemic mean that 2020 is not a useful basis for comparison, but these numbers compare favourably with 2019, which had full-year staking of 141 claims covering 157,803 ha, and with 2018, which had 96 claims staked covering 79,818 ha. More information about the system can be found at <https://www.rcaanc-cirnac.gc.ca/eng/1100100027889/1614019040342>.



Radiating cluster of black tourmaline crystals in a pegmatite outcrop near Richards Bay.  
Courtesy of Moshi Kotierk.

### **Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)'s Nunavut Regional Office**

The Mining Recorder's Office administers subsurface rights on Crown land in the territory. As of November 2021, there are 112 active prospecting permits, 2,373 mineral claims, and 568 mineral leases.

The area held as mineral claims, prospecting permits, and mining leases, including those on Crown land and grandfathered leases on Inuit Owned Land, totals 5.32 million hectares as of November 2021.

The Mineral Resources Division reviews annual work reports that, under the Nunavut Mining Regulations, mineral rights-holders must file to show that they have met minimum annual work requirements. The reports are confidential for a period of three years, after which they are released to the public through NunavutGeoscience.ca (<https://nunavutgeoscience.ca/en/>). In 2021, 17 reports documenting \$7.06 million worth of work were released to the public.

Several divisions of CIRNAC's Nunavut Regional Office are involved in the stewardship of land and water resources. This includes participating in the regulatory process, the issuance of surface rights, enforcing authorizations and licences issued by Institutions of Public Government or CIRNAC, enabling water quality and quantity monitoring that informs decision-making, and co-development of water management strategies.

The Impact Assessment Division and Regional Socio-economic Analyst participate in the Nunavut Impact Review Board (NIRB)-led impact assessments processes that are administered pursuant to Article 12 of the Nunavut Agreement and Part 3 of the *Nunavut Planning and Project Assessment Act*. In 2021, the Impact Assessment Division and the Regional Socio-economic Analyst provided environmental and socio-economic expertise and technical review comments to the NIRB

in the form of written intervention and participation in public meetings related to two major project proposals, one project modification proposal and 38 smaller proposals. Reviews of five annual monitoring reports, submitted by proponents of major projects, were also conducted to ensure compliance with terms and conditions of existing NIRB project certificates and project monitoring programs.

The Water Resources Division participates in the co-management of water resources for responsible / sustainable development of natural resources in Nunavut in alignment with CIRNAC mandate which addresses; (a) Responsible use and protection of freshwater resources in Nunavut; (b) Support for water allocation and waste management through intervention in the Nunavut Water Board, water licence processes; (c) Water quality and quantity monitoring; (d) Water information management and awareness.

From January through September 2021, the Water Resources Division has provided technical advice and comments on about 36 Nunavut Water Board processes including water licence amendments, renewals, cancellations, management plans and annual report reviews for major mining projects and municipal water licences.

The Water Resources division works in partnership with Environment and Climate Change Canada to monitor water quantity through 25 hydrometric stations across Nunavut. Water quality is monitored through the review of water quality monitoring reports and participation in water quality monitoring initiatives. One of these initiatives is part of a Memorandum of Agreement with the Kivalliq Inuit Association that involves the monitoring of water quality around mining and exploration activities in the Kivalliq Region. Another water quality monitoring initiative involves water sampling and analysis in and around the City of Iqaluit, and is conducted solely by the Water Resources Division. The Water Resources Division is also working towards the implementation of a collaborative initiative for a cumulative effects water monitoring program termed Inuu'tuti. The Inuu'tuti is a watershed-based monitoring program for the Baker Lake Basin through collaboration between CIRNAC's Water Resources Division, NGMP, the Kivalliq Inuit Association, and the Nunavut Water Board.

The Water Resources division is also supporting the co-development of a Nunavut Water Management Strategy through collaboration with the Nunavut Water Board, Nunavut Tunngavik Incorporated, Government of Nunavut, Nunavut Planning Commission and Nunavummiut.

The Field Operations division ensures compliance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, the *Territorial Lands Act*, the *Nunavut Planning and Project Assessment Act*, aspects of the *Arctic Waters Pollution Prevention Act*, and related regulations. They also conduct inspections of sites that hold land-use permits, leases, and water licences to ensure compliance with the terms and conditions contained in these authorizations.

The Land Administration division is responsible for the issuance and management of surface rights on Crown land under the authority of the *Territorial Lands Act* and its Regulations. They also support the licensing and environmental assessment processes by incorporating terms and conditions of project certificates screening decisions issued by the Nunavut Impact Review Board into the authorizations they issue.

In addition to the monitoring noted above, CIRNAC hosts the Nunavut General Monitoring Plan (NGMP) Secretariat. NGMP is mandated under Article 12.7.6 of the Nunavut Agreement and the Nunavut Project Planning Assessment Act to monitor

socio-economic and ecosystemic conditions within the Nunavut Settlement Area and to periodically report on findings. NGMP, through targeted investments, funds research initiatives that complement or build on existing knowledge and priorities. The purpose of this monitoring is to increase public access to important ecosystemic and socio-economic information and to inform decision-making. The NGMP is a partnership overseen by a steering committee comprised of CIRNAC, on behalf of the Government of Canada, the Nunavut Planning Commission, the Government of Nunavut, and Nunavut Tunngavik Incorporated.

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# Government of Nunavut

The Government of Nunavut (GN) is committed to supporting a strong and diversified minerals industry based on best practices of sustainable development and partnerships between Nunavummiut and industry. Responsible development of our abundant natural resources contributes significantly to the economic foundation of Nunavut and is important for ensuring long-term prosperity of Nunavummiut.

Four mines have been established over the past decade: the Meadowbank, Hope Bay and Meliadine gold mine complexes and the Mary River iron mine. Mineral production in each region is enabling Nunavummiut from across the territory to gain employment, learn new trades and skills, and develop careers. The GN is committed to support further participation of Nunavummiut as new projects emerge, such as the Sabina Gold & Silver Back River gold project.

The on-going COVID-19 pandemic continues to impact numerous enterprises in Nunavut and the exploration sector and mining companies were not spared significant disruptions again in 2021. With precautionary health and safety measures as well as exposure testing and isolation protocols in effect, all mines continued to function albeit with a reduced number of employees from southern Canada. In the latter half of 2021, the local workforce was gradually phased back into the workplace at the mine sites. Mineral production, particularly for gold, improved significantly over the previous year as operations returned to more normal levels.

The GN Department of Economic Development and Transportation (EDT) provides guidance and economic support to prospectors, the junior exploration sector, and the mining industry. Programs through the Minerals and Petroleum Resources Division prioritises geoscience information, resource management, prospector skills development, building community education and awareness, as well as investor confidence, and socio-economic monitoring. The Division has its headquarters in Iqaluit, with resident geologists and community mining awareness staff located in Arviat and Cambridge Bay. EDT also has regional offices in Kugluktuk, Rankin Inlet, Pond Inlet, and Pangnirtung.





*Construction on Iqaluit's new deep-water port facility continues. Courtesy of the Government of Nunavut.*

## Department Strategies

Parnautit: A foundation for the future (2007) and Ingirrasiliqta: Let's Get Moving (2009), are two key strategies outlining the priorities for the GN in support of natural resource development ([www.gov.nu.ca/edt/information/strategies](http://www.gov.nu.ca/edt/information/strategies)).

Parnautit, Nunavut's mineral exploration and mining strategy, describes the vision for mineral exploration and mining in the territory and aims to create an attractive environment for the minerals industry sector that ultimately contributes to an improved quality of life for Nunavummiut.

Ingirrasiliqta, Nunavut's Transportation Strategy, guides projects that focus on developing new infrastructure across the north. EDT is advancing several important projects covering air, land and marine transportation modes. The Iqaluit deep water port project is entering its final year of construction, with operations to begin in 2022. The department has secured funding under the federal Oceans Protection Plan for improvements to sealift barge ramps and laydown areas in various other communities, including Rankin Inlet, Arviat, Chesterfield Inlet, Baker Lake, Kugaaruk and Cambridge Bay.

Funding has been secured and design is underway for air terminal building replacements in Kugluktuk, Nauyasat, Chesterfield Inlet, Whale Cove and Kimmirut. Construction will begin in 2022 of a new airport terminal building in Rankin Inlet. Community consultations on the project were completed in August 2021. The \$60 million investment will provide more than triple the area of the existing terminal and expected to be completed in 2025.

The department initiated a major study on route selection, engineering, and environmental assessment for an intercommunity road network in the Kivalliq region, connecting Arviat, Whale Cove, Rankin Inlet, Chesterfield Inlet and Baker Lake.

These strategic visions are shared between several partners, including various Canadian industry associations, Nunavut Tunngavik Incorporated and the Government of Canada.

## Impact Assessment and Monitoring

EDT is the lead department for the GN on the assessment and management of socio-economic impacts and benefits associated with mineral development. EDT participates in environmental assessment processes for the GN through the Environmental Assessment Review Team (EART).

Focused on both environmental and socio-economic impacts and comprising two committees and a lead coordinator, the EART ensures resource development projects are carried out responsibly. Between the Socio-Economic Assessment Committee (SEAC), led by EDT and the Environmental and Human Health Assessment Committee (EHHAC), led by the Department of Environment, these sub-committees of EART review Proponent's environmental impact statements

submitted to the Nunavut Impact Review Board (NIRB) and actively participate in technical meetings, hearings, and regulatory workshops.

Since the inception of the EART in 2012, the GN has participated in all NIRB processes for the review of major development projects. For 2020-21, the GN participated in the ongoing NIRB review of Baffinland's Mary River Phase 2 Development Project and Agnico-Eagle's Saline Effluent Discharge expansion Project. Due to the COVID-19 pandemic, the assessment of the Phase 2 Development Proposal assessment process was put on hold for parts of 2020. However, technical meetings, a community roundtable, and pre-hearing conference resumed in Pond Inlet in October 2020, with video and teleconferencing options available to accommodate stakeholders from outside of the territory. In November 2021, the GN participated in the continuation of the Public Hearing on the Phase 2 Development Proposal.

In addition to responsibilities for impact assessment, EDT assumes a leading role in ongoing socio-economic monitoring of approved projects. The department leads three regional socio-economic monitoring committees in Nunavut.

Each regional committee monitors the socio-economic impacts and benefits associated with major resource development projects and determine if they are performing according to forecasts in the environmental impact statement for the project. In addition to the impact assessment process facilitated by the NIRB, the monitoring committees provide a venue for stakeholders to take part in meaningful discussions surrounding resource development.

In 2018 the department took the first step towards a comprehensive territory-wide mineral monitoring framework and published the first Nunavut Socio-Economic Monitoring Report — "Tunngavia: Foundations for Development". The report tracks several valuable socio-economic components and associated indicator data to provide more detailed overview of the impacts of mining and mineral development on Nunavummiut. Subsequent reports will be produced annually using data from projects' socio-economic monitoring programs, the Nunavut Bureau of Statistics, and Statistics Canada to be the definitive guide to the relationship between Nunavut and the mining industry. The 2019 and 2020 reports will be released in 2022.

## Community Engagement Support Program

In 2019, EDT initiated the Community Engagement Support Program (CESP) which replaced the Fuel Tax Rebate and Development Partnership Agreement Policy. The CESP is designed to support exploration and junior mining companies to complete community engagement and consultation work in the early phases of project development when community support and buy-in are critical. Effective stakeholder engagement can lead to increased valuations for junior mining and exploration

companies, making the territory a more economically viable and attractive jurisdiction in which to operate.

Under the program, companies are eligible to apply for up to \$100,000 in funding annually to support engagement work in Nunavut communities near their project sites. Eligible expenses under the program include costs associated with direct engagement activities, including travel, document preparation, translation services, and facility rentals, as well as salaries to hire a project liaison employee or employees from within the potentially impacted community. To qualify for funding, the applicant must provide a draft Community Engagement Plan that considers the communities closest to the project location, identifies potential concerns and benefits, and endeavours to meaningfully engage communities in project planning, monitoring, and reporting. Additionally, the applicant must have a signed authorization from a community organization in a potentially impacted community indicating that the organization has reviewed and approved of the plan.

During the on-going COVID-19 pandemic, EDT recognizes that face-to-face meetings may not be possible in the 2021-22 application year. Potential applicants are encouraged to contact program staff to discuss options for alternative engagement initiatives that are of mutual benefit to Nunavummiut, communities, and project proponents.

For application materials and further information, please visit the program website: [www.gov.nu.ca/economic-development-and-transportation/programs-services/community-engagement-support-program](http://www.gov.nu.ca/economic-development-and-transportation/programs-services/community-engagement-support-program).

## Community Education and Training

EDT works with various stakeholders, such as the Department of Education, Nunavut Arctic College, Government of Canada, regional Inuit associations and industry partners to coordinate mining-related education and training programs and provides support to partners in community engagement activities. The Nunavut Mine Training Fund provides our training partners with leverage funding to develop, coordinate and execute mining training programs for Nunavummiut that will give them specific skills needed by mining companies and leading to employment opportunities. EDT contributes up to \$200,000 per year and an external panel, the Nunavut Mine Training Roundtable, review applications and recommends funding. Projects completed in 2020/21 included a new collaboration of Mining North Works! with the NWT and Nunavut Chamber of Mines ([www.miningnorthworks.com](http://www.miningnorthworks.com)), Heavy Equipment Operator Training in the Hamlet of Arviat ([www.arviat.ca/hamlet-office/departments/economic-development](http://www.arviat.ca/hamlet-office/departments/economic-development)), the Kitikmeot Inuit Employment Strategy with the Kitikmeot Corporation ([www.kitikmeotcorp.ca](http://www.kitikmeotcorp.ca)), and Qikiqtani Skills and Training for Employment Partnership (Q-STEP) ([www.tuttarvik.qja.ca](http://www.tuttarvik.qja.ca)).

The Science Education Enabling Program (SEEP) provides grants and awards to Nunavut students interested in science, technology, engineering, and mathematics. The two components of SEEP are the Math and Science Awards Fund and the Independent Science Programs for Youth. EDT recognizes that a solid foundation in math and science helps Nunavummiut to pursue further education in science and technology related fields.



*Introduction to Prospecting students examining a limestone boulder in an outcrop of granitic gneiss, near Taloyoak, in August 2021. Courtesy of the Government of Nunavut.*

## Nunavut Geoscience

The GN remains strongly committed to improving public geoscience as a means of sustaining exploration investment. EDT provides core funding and additional program support for geological work carried out by the Canada-Nunavut Geoscience Office (CNGO). Digital geoscience data is available for download through <https://nunavutgeoscience.ca/en/>, an open-access data portal that provides access and search functions to public geoscience information. The Nunavut MINeral (NUMIN) database contains over 2,700 mineral showings, exploration assessment reports as well as other government Open File reports and publications.

## Prospector Development

Since 1999, EDT geologists have offered a one-week Introduction to Prospecting Course (IPC) to interested residents. Over the past 23 years, more than 1,300 participants have completed the course. The course has been delivered 132 times in total, reaching every community throughout the territory. This year the IPC resumed and was given in Arctic Bay, Qikiqtarjuaq and Taloyoak. Total participation averages 59 people each year and interest remains strong. The department is exploring ideas for novel course delivery and is updating the course. IPC outlines basic principles of geology and practical field skills to encourage an interest in prospecting and to apply Inuit Qaujimajatuqangit of the land to mineral exploration.

## Nunavut Prospectors Program

The Nunavut Prospectors Program (NPP) provides support to individuals to encourage exploration and prospecting for minerals in Nunavut. Many participants who have successfully completed IPC have subsequently applied to the NPP to start their own projects. Successful applicants qualify for a financial contribution of up to \$8,000 (per recipient, per year) towards expenses to carry out their own work. Applicants must be a resident of Nunavut, hold a valid Prospector's License, and have demonstrated prospecting experience or completion of the IPC. Contributions are awarded based on the project proposal and past performance of the applicant in the program. In 2021, three projects were awarded funding through the program.

## Petroleum Resources

Nunavut is estimated to hold 25 to 30 per cent of Canada's petroleum resource endowment. Estimates of undiscovered and discovered conventional resources range from 18 to 267 billion barrels of oil and 180 to 1228 trillion cubic feet of natural gas in the Sverdrup basin, with most of the potential in offshore areas. Nunavut's natural gas has the potential to contribute to the global shift towards a greener lower carbon economy.

On December 20, 2016, in a joint US-Canada Arctic leadership statement the Government of Canada announced a moratorium on all oil and gas activity in Canadian Arctic waters. The



*Design of the planned new airport terminal building for Rankin Inlet. Courtesy of the Government of Nunavut.*



*Sampling at a copper occurrence on the northern shore of Richards Bay (Bouverie Islands/Nuvuk&iqpaa). Courtesy of Moshi Kotierk.*

government of Canada committed to review this decision every five years through a science-based review. A decision by the federal Minister was expected by the end of 2021. The GN continues to actively participate in discussions with partners on the next steps regarding the energy future of the territory.

Between 2017 and 2019, the Nunavut Impact Review Board lead a Strategic Environmental Assessment for Baffin Bay and Davis Strait. During that time, extensive community consultations took place. Based on what we heard during community engagement sessions, the GN drafted the following policy statement:

The Government of Nunavut regards oil and gas development as an important potential source of revenues for the territory. In addition to employment and training opportunities, economic benefits from oil and gas could generate significant investments in health care services, housing, education, and infrastructure for Nunavut. The exploration and development of oil and gas potentially present significant benefits for the territory but could also present potential risks to human health

and the environment that must be mitigated to the highest international standards. The Government of Nunavut strives for a balanced approach between economic benefits and environmental protection.

The Government of Nunavut will support the exploration and production of oil and gas under the following conditions and principles:

1. The GN supports oil and gas development that provides for economic development and sound investment opportunities in the best interests for Nunavummiut. Before the GN supports a project, proponents must demonstrate proven benefits for Nunavummiut, such as employment and training opportunity for Inuit, as well as financial benefits such as taxes and royalties for the territory.
2. The GN supports responsible and sustainable development to ensure wildlife and environmental protection. The GN will only support the development of oil and gas projects showing that environmental impacts can be managed

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or mitigated. Any drilling operations in Arctic waters must focus heavily on spill prevention and have in place robust and redundant safety mechanisms and procedures to prevent catastrophic events. For any drilling operations in waters near Nunavut, the proponents must be in a position to effectively and quickly respond to a spill and be able to minimize adverse impacts to the environment and wildlife.

3. The GN supports building the best knowledge base with regards to oil and gas development for Nunavummiut that employs both Inuit Qaujimajatuqangit and science. The GN will continue to support research and the gathering of knowledge with regards to oil and gas to ensure informed decision-making.
4. The GN supports maximizing public awareness and engagement with regards to oil and gas development. Before a project can be authorized in Nunavut, communities must be meaningfully engaged and informed about benefits and impacts specific exploration or development projects may entail. Communities must be able to access information in Inuktitut and participate in the permitting process.

## Uranium Policy Statement

In 2012, the GN released a uranium policy statement ([www.uranium.gov.nu.ca](http://www.uranium.gov.nu.ca)) to highlight the importance of safe and responsible development of uranium mineral resources. Uranium mined in Nunavut shall be used only for peaceful and environmentally responsible purposes and be subject to international agreements and national law; however, any proposed mine must also have the support of Nunavummiut, especially in communities close to development projects. The GN supports the mandate and responsibilities of the Canadian Nuclear Safety Commission and recognizes the jurisdiction and important roles of the Nunavut Impact Review Board and the Nunavut Water Board as established by the Nunavut Land Claims Agreement in the regulation of uranium exploration and mining.

## RV Nulijuk

The RV (Research Vessel) Nulijuk is a Canadian-built, state-of-the-art, research vessel. Completed in 2011, it is owned and operated by the Government of Nunavut. The vessel conducts fisheries, oceanographic, hydrographic, environmental, and other scientific research in the Arctic. For researchers, it serves as a built-for-purpose platform for Arctic research. The vessel boasts a wide variety of scientific equipment, an experienced crew, and many safety features.

This year the vessel supported research for Baffinland Iron Mines who utilized the RV Nulijuk to conduct environmental surveys of freshwater and marine ecosystems in Steensby Inlet. The Government of Nunavut has also used the vessel to investigate known and potential oil seeps in Baffin Bay and Foxe Basin. Overall, the RV Nulijuk provides a unique and valuable resource that supports various kinds of scientific research for the territorial government departments, universities, federal agencies and under contract to the private sector.

# Nunavut Tunngavik Incorporated



Nunavut Tunngavik Incorporated (NTI) is the Inuit organization responsible for overseeing the *Nunavut Agreement's* implementation. NTI's mandate includes safeguarding, administering and advancing the rights and benefits of the Inuit of Nunavut to promote their economic, social and cultural well-being through succeeding generations.

Drilling at the Sheba target, 10 km northwest of the Meadowbank Complex. Agnico Eagle has a Mineral Exploration Agreement with NTI on parts of the Meadowbank property. Courtesy of Agnico Eagle Mines Ltd.



*Pitsi (dried char) on drying racks, Nauyasat. Courtesy of Dave Pickston/North Arrow Minerals Inc.*

As a modern-day treaty, the *Nunavut Agreement* provides certainty and clarity of rights to ownership and use of lands and resources within Nunavut. It gave Inuit fee simple title to 356,528 km<sup>2</sup> of land, making the *Nunavut Agreement* the largest Indigenous land settlement in Canadian history. There are 950 parcels of Inuit Owned Land (IOL) where Inuit hold surface title only. The Crown retains the mineral rights to these lands. Inuit also hold fee simple title, including mineral rights to 152 parcels of IOL, which totals 37,646 km<sup>2</sup> and represents approximately two per cent of the Nunavut Territory.

NTI's Department of Lands and Resources, in cooperation with the three Regional Inuit Associations (RIAs) – the Kitikmeot, Kivalliq and Qikiqtani, who are the surface owners of the IOL parcels is responsible for the implementation of Inuit responsibilities related to the management of IOL, minerals, oil and gas.

NTI holds the title to the minerals in, on or under IOL. The Land Title (surface) and Mineral Title (sub-surface) are severed and co-managed between NTI and the three Regional Inuit Associations in Nunavut. Each RIA holds the land title to all IOL in their respective region.

For these minerals, NTI issues mineral rights through a negotiated Mineral Exploration Agreement (MEA) that provides a holder with the right, if it meets the terms of the MEA, to receive a mineral production lease that allows for mining a discovered resource.

The respective Regional Inuit Association is the holder of the Inuit Owned Lands including all specified substances and excluding the mines and minerals that may be found to exist within, upon or under such lands, together with the right to work the same (as per Nunavut Agreement, 2018). RIAs issue land use permits,

licenses, rights of way and leases (including quarry permits and concessions). They collect the appropriate application fees and set or negotiate land rental and Quarry royalty.

NTI only enters into Mineral Exploration Agreements (MEAs) with companies where the IOL have been opened to exploration and mining by the appropriate RIA in writing, after consultation with either their Community Lands and Resources Committee (CLARC) or Community Beneficiary Committee (CBC). NTI also obtains approval or the RIA's consent before entering into an MEA with a company.

NTI cannot enter a Land Access Agreement that grants surface (land use) access. For land use access to IOL, a land-use right must be obtained from the respective RIA.

NTI uses a map staking process for the acquisition of mineral rights. Interested parties submit to NTI an expression of interest, including a map of the proposed exploration area. Expressions of Interest and subsequent correspondence and negotiation are kept confidential by NTI and the applicable RIA until required to be made public, typically upon signing an MEA between NTI and the applicant.

Under the standard terms, successful applicants—upon executing the MEA and submitting the first year's annual fees—will be granted the exclusive right to explore for minerals throughout the exploration area. However, to gain access to the land, the applicant must first obtain a surface right, such as an RIA land-use license.

Holders of MEAs are required to submit annual exploration work reports to NTI that remain confidential for a period of up to three years.

Although the process described above normally applies, NTI, as a private organization, has complete discretion as to whether it will issue an MEA (or other agreement), what the process will be to obtain an agreement, as well as the terms of the agreement. The terms may include, for example, NTI holding a direct interest option in a project or additional benefits such as shares or milestone payments.

The Department of Lands and Resources staff in Cambridge Bay promotes Inuit Owned Land by attending annual events in Yellowknife (Geoscience Forum), Vancouver (Annual Mineral Exploration Roundup), Toronto (Prospectors and Developers Association of Canada - PDAC), and Iqaluit (Nunavut Mining Symposium). NTI also invites members from each RIA to PDAC promoting themselves in the NTI booth space at one of the largest and longest-running mining conferences in the world. This co-management system on display to all conference delegates illustrates NTI Lands' staff and RIA representatives availability to interact with attendees, be it industry representatives, politicians, educators, students, potential investors, and to anyone with an interest in Nunavut.

Due to the prolonged COVID-19 pandemic, 2021 has not seen many tradeshow to promote Inuit Owned Lands and projects. Of note, TMAC Resources Inc. sold the Hope Bay Mining Project to Agnico Eagle Mines Limited. Also, most of the exploration in

and around Nunavut was slow; some Inuit Owned Lands Mineral Exploration Agreements were dropped altogether. NTI is hopeful that the pandemic-hit mining and exploration sector will continue to overcome challenges and evolve in a world of uncertainty.

NTI believes that we garner the most interest in Inuit Owned Lands when everyone involved works together to find common ground. Together, we can forge a prosperous future.

## Uranium, Mining and Reclamation Policies

NTI has developed a series of policies applicable to exploration and mining, specifically a general Mining Policy, a Uranium Policy, and a Reclamation Policy. The policies specify that NTI will support exploration and mining provided that:

- There are minimal negative environmental and socio-economic impacts
- Inuit cultural and social needs are respected
- Investment in Nunavut is encouraged
- Land-use conflicts are resolved equitably
- Inuit economic opportunities are maximized

The texts of all the policies are available from NTI.



Master carver Paul Malliki working on a sculpture, in Naujaat.  
Courtesy of Dave Pickston/North Arrow Minerals Inc.

## Projects on Inuit Owned Lands (IOL)

Many of the advanced exploration projects in Nunavut fall on IOL parcels for which NTI is the mineral title owner. The table summarizes the current active MEAs and their locations.

**Grandfathered Leases** are Mineral Leases established on Crown land that became IOL after the *Nunavut Agreement* was signed. The leases continue to be managed by the Crown, although the leases' rental fees and royalty are transferred to NTI.

### Projects on Subsurface Inuit Owned Land

Kitikmeot Region	
High Lake <sup>1</sup>	MMG Canada Ltd.
Hope Bay <sup>2</sup>	TMAC Resources Inc.
Kivalliq Region	
Angilak/Lac Cinquante	ValOre Metals Corp.
Amaruk	Agnico-Eagle Mines Limited
Meadowbank <sup>3</sup>	Agnico-Eagle Mines Limited
Meliadine <sup>4</sup>	Agnico-Eagle Mines Limited
Huckleberry-0001	Agnico-Eagle Mines Limited
Peter Lake	Glen Dickson
Huckleberry-0002	Agnico-Eagle Mines Limited
Heninga Lake	John Tugak <sup>6</sup>
Qikiqtani Region	
Foxe	ValOre Metals Corp.
Baffin Gold	Commander Resources Ltd.
Haig Inlet Iron	Hemlo Explorers Inc.
Mary River <sup>5</sup>	Baffinland Iron Mines Corporation

1. The project involves Crown land and land held under NTI MEAs and grandfathered leases.
2. The Boston deposit is located on surface IOL, while the Doris, Madrid, South Patch, Naartok, and Suluk deposits are on subsurface IOL, distributed among grandfathered leases and NTI MEAs. A potential extension of the Boston deposit down-dip or along strike to the north will also be on subsurface IOL.
3. The project involves land held under NTI MEAs, grandfathered leases, and the Vault Mineral Production Lease issued by NTI.
4. The project involves land held under NTI MEAs as well as grandfathered claims and leases.
5. The Mary River mine is located on a grandfathered lease. Additional showings and deposits in the area are located on a mixture of subsurface IOL and Crown land.
6. John Tugak was the first Inuit Prospector to acquire IOL Subsurface.

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# Canada-Nunavut Geoscience Office

The Canada-Nunavut Geoscience Office (CNGO) is located in Iqaluit and supplies geoscience information and expertise in Nunavut to all stakeholders (i.e., governments, NGO's, communities etc.) in support of responsible exploration and development of mineral and energy resources. The CNGO is Nunavut's de-facto geological survey. Information supplied by this office may be used to make decisions about activities that could affect Nunavut's land and environment, and natural resource development and extraction.

The CNGO has a total of six professionals; four geologists – Chief Geologist, Paleozoic stratigrapher, surficial geoscientist and bedrock mapper – have expertise and capabilities to deliver on bedrock and surficial mapping, and two professionals, a GIS Specialist and Geotechnology Analyst, deliver products related to IT, map-making and data dissemination.

*Ptygmatic folding of a vein in a highly migmatized orthogneiss, from CNGO's Fury and Hecla Geoscience Project. Courtesy of CNGO.*

## Devolution and AIP

The Agreement-in-Principle (AIP) between the governments of Canada and Nunavut (both the Government of Nunavut (GN) and Nunavut Tunngavik Incorporated [NTI]) was signed in August 2019. This agreement is the initial step for improving governance in Nunavut with Nunavut assuming control over its Crown lands and natural resources. The AIP directly affects the federal government (i.e., Crown-Indigenous Relations and Northern Affairs Canada [CIRNAC]-Nunavut Regional Office) and the CNGO, in that both organizations and their staff will be devolved to the GN. It is likely that CNGO staff will amalgamate with some GN and CIRNAC staff (i.e., the geologists and other professionals related to land and resource management) and the collective group will form the Nunavut Geological Survey. The Parties are currently negotiating a Final Devolution Agreement set to be completed in 2022; collaborative work will continue towards the actual transfer date, targeted for April 1, 2025.

## COVID-19

In 2020, the COVID-19 pandemic changed the way that the world, and Canada, operated. The CNGO office closed starting in mid-March 2020, like many offices, schools and other government organizations. All CNGO employees continue to work remotely. Field travel did not occur in 2020 and 2021, and projects requiring fieldwork were postponed. During this period, professionals in the CNGO focused on planning future work and writing up past research. It is hoped that conditions will allow fieldwork to resume in 2022.

## Critical Minerals

Natural Resources Canada (NRCan), in consultation with the provinces and territories, and exploration, mining and manufacturing industries and associations, prepared Canada's critical minerals list for the Government of Canada. A list



*Flying over a waterfall on the Brodeur Peninsula, on the CNGO's Fury and Hecla Geoscience Project. Courtesy of CNGO.*

of 31 minerals and metals was developed – and includes aluminum, antimony, bismuth, cesium, chromium, cobalt, copper, fluor spar, gallium, germanium, graphite, helium, indium, lithium, magnesium, manganese, molybdenum, nickel, niobium, platinum group elements (PGEs), potash, rare earth elements (REEs), scandium, tantalum, tellurium, tin, titanium, tungsten, uranium, vanadium, and zinc. These minerals and metals are considered critical for the sustainable economic success of Canada and its partners and allies, and to position Canada as the leading mining nation, as set out in the Canadian Minerals and Metals Plan (CMMP) also developed by NRCan, the provinces and the territories.

Nunavut has known occurrences of eight of these commodities (copper, graphite, lithium, manganese, PGE, REEs, uranium and zinc) with showings of many others (aluminum, antimony, bismuth, cesium, chromium, cobalt, fluorite/fluorine minerals, lithium, niobium, tantalum, tellurium, titanium, tungsten, and vanadium). CNGO continues to work with the other jurisdictions and NRCan on these critical minerals and their abundances.

## GeoTour of Iqaluit

In 2019-2020, the CNGO hired an Inuit Learning and Development Program (ILDLP) participant (Shauna Seeteenak) as part of Pilimmaksaivik's (Federal Centre of Excellence for Inuit Employment in Nunavut) programming. Pilimmaksaivik's mandate is to ensure the coordination of a federal government-wide approach to building a representative public service in Nunavut across all groups and levels. Shauna's main job with CNGO was to work with the geologists to produce a Geological Tour of Iqaluit. This work built on earlier works of 1) Michael Hine, deceased, a former Iqaluit businessman and geologist who informally developed and led walking tours of downtown Iqaluit, and 2) Dr. Joyia Chakungal, a former employee of CNGO, who worked with summer students in 2008 to produce a geological walking tour brochure that was never finalized. Although Shauna had moved on to ECCC before this brochure was produced, it was recently finished and is currently in the production stages.

## Paleozoic Stratigraphy

Research continues on determining the stratigraphy of the Ordovician rocks of northern Baffin Island and their corresponding petroleum potential. This project was a sub-activity of the Fury and Hecla geoscience project (2017-2019) and evaluated the Ordovician stratigraphy in the NTS map areas 37F and 37C. This work will provide essential data for more detailed stratigraphic divisions, evaluate the ages of different stratigraphic units, assess the petroleum potential in the studied area, and make stratigraphic correlations with other areas in Foxe Basin.

Similarly, Paleozoic stratigraphic research continues on the Late Ordovician (Katian) conodont (microfossil) community analysis and anoxic shallow water origin of organic-rich black shales of

Southampton Island. During the Late Ordovician, the Laurentian craton, characterized by extensive carbonate facies marking a major Katian transgression, was overlain by carbonates and evaporites associated with a Hirnantian/Gamachian regression and sea level drawdown in response to the Gondwana glaciation.

Regionally, the Late Ordovician was also marked by periods of organic-rich black shale deposition indicating an anoxic environment, interpreted by many scientists as being linked to a transgression. Dr. Shunxin Zhang examined three organic-rich black shale intervals (lower, middle and upper) in the lower Red Head Rapids Formation on Southampton Island; these shales were deposited in the restricted Hudson Bay Basin during the late Katian and represent important hydrocarbon source rocks in the basin. The rocks are best exposed on Southampton Island, the northern margin of the basin during the early Paleozoic.

Using statistical analyses of conodont data from five stratigraphic sections on Southampton Island – covering the three organic-rich black shale intervals and the strata below and above – patterns of conodont communities were established, before, during and after the deposition of these black shale intervals. The patterns reveal that all three shale intervals were deposited during a phase of regression. Although the conodont community in the lower organic-rich black shale interval reveals a short-lived sea-level rise with an influx of Iapetus Ocean waters during this major regression, those in the middle and upper organic-rich intervals are also linked to a regression.

Therefore, the three organic-rich black shale intervals of late Katian age on Southampton Island provide a definitive example of shallow water anoxia, rather than deposition within transgression as has been previously interpreted.

## Surficial Work

Tommy Tremblay (Surficial geologist) continues to develop and increase the regional surficial geology knowledge in areas of Nunavut. The understanding of glacial erosion and transport in Nunavut is key to the application of glacial sediment data to improve geological knowledge and for mineral exploration efforts. A project over central Nunavut (Melville Peninsula, northwestern Baffin Island and Boothia Peninsula) is gathering information on glacial transport and erosion from petrographic counts of till and obtaining cosmogenic isotope data. All of this information will be processed with models to extract useful data applicable in different glacial land systems in Nunavut. These same models will be applied to similar data in the Kivalliq region, where Dr. Isabelle McMartin (GSC-Ottawa) is conducting a GEM-GeoNorth project with similar objectives.

On northeastern and central Baffin Island, regional surficial geological knowledge is being developed relative to earthquakes and tsunamis for work with the ULINNIQ project (Underwater Listening Network for Novel Investigations of Quakes) of Dalhousie University and funded by MEOPAR (Marine Environmental Observation, Prediction and Response Network; a national network of Centres of Excellence). In 2021, drone

work was completed around Clyde River as part of this project. Samples from 2019 were submitted for heavy minerals and geochemistry analysis (for till samples; results received), and TCN (terrestrial in situ cosmogenic nuclides; results pending) in till and IRSL (Infrared Stimulated Luminescence) dating (for LGM and pre-LGM moraines dating; results received).

Drafting of new surficial geology maps to augment the overall surficial geology map coverage on Southampton Island and Foxe Peninsula continued with the efforts of Celine Gilbert (GIS Specialist) and Tommy Tremblay. External researchers interpreted these maps; two maps are nearing completion and four additional maps will be complete by fiscal year-end.

Compilation of geochemical and mineralogical surficial data for Nunavut continued by both Serge Basso (Geotechnology Analyst) and Tommy Tremblay. A number of standards are developed for the database structures, and future plans include developing a method to prepare the data for compilation, undertaking the first compilation of geochemical data, and working with GSC scientists to match the CNGO and GSC databases.

## Bedrock Geology

Nunavut has surpassed the NWT in terms of the value of mineral production. This is largely due to the increase of banded iron formation- (BIF) hosted gold production, namely by the opening of Agnico Eagle Mines Limited's Meliadine and Amaruq mines in 2019 and their continued production. In addition, BIF-hosted gold is projected to become increasingly important for Nunavut with the opening of Sabina Gold & Silver's Back River soon-to-be mine. To quantify the importance of BIF-hosted gold in Nunavut, NRCan estimates the 2020 mineral production (mainly gold) in Nunavut to increase by 27% over 2019, which builds on an increase of 57% in 2018.

Although there are many types of gold deposits, the BIF-hosted gold deposit is perhaps one of the most highly sought-after because of its potential for high-grade, high-tonnage, and long lasting mines. All three regions of Nunavut (i.e., Kitikmeot, Kivalliq, and Qikiqtaaluk) contain BIF-hosted gold deposits, some of which are considered world class. In 2020 and 2021, Lorraine Lebeau (Bedrock mapper; CNGO) and Dr. Patrick Mercier-Langevin (GSC-Quebec) reviewed two of Nunavut's mines and four exploration properties, building off earlier work of the latter scientist. The mines include Agnico Eagle's Meadowbank complex (Portage, Goose and Amaruq deposits) and the Meliadine mine district of the Kivalliq region. Exploration projects include: Fury Gold Mines Limited's Three Bluffs project, Mandalay Resources Corporation's past-producing Lupin mine, and Sabina Gold & Silver Corporation's Back River project (all of the Kitikmeot region), and ValOre Metals Corporation's Baffin Gold project (Qikiqtaaluk region).

Upon their review, recurring characteristics emerged that could be useful for future exploration in Nunavut and worldwide. These characteristics include a thick BIF unit (oxide and

silicate facies, thicknesses of decametres); strong deformation and dominant structural controls (faults and folds) on ore; greenschist- to amphibolite-facies metamorphism; and a sulphide-mineral assemblage dominated by pyrrhotite, with possible arsenopyrite, fersite and lesser chalcopyrite and pyrite along quartz-carbonate veins and/or as stratabound replacements.

During the 2019 fieldwork for the Fury and Hecla geoscience project (2017-2019) led by the CNGO, a previously unknown, deformed BIF unit of significant thickness and lateral extent was discovered on northwest Baffin Island. Although this work is preliminary, further exploration of this BIF may be warranted.

## Adapting to Climate Change and Permafrost Degradation

CNGO, CIRNAC and the GN (Economic Development and Transportation [EDT] – Transportation) have a current collaboration, using the strengths of a CIRNAC professional with expertise in permafrost. This collaboration involves the GN-EDT receiving funding until March 2022, from Transport Canada (TC) under its Northern Transportation Adaptation Initiative (NTAI) former program. This funding arrangement allows GN-EDT (Transportation) and Department of Environment (DoE; Climate Change Secretariat), to obtain permafrost information for infrastructure projects (e.g., airport upgrading, community infrastructure) in Nunavut.

## NunavutGeoscience.ca and Other Databases

The world depends on natural resources and their development, with mineral and energy resources being essential components of advanced societies and economies. Governmental geological surveys ensure that geoscience information is available when required. Moreover, with appropriate oversight and handling, such information (e.g., digital and paper products, sample materials) will be useful for many years. The preservation and dissemination of this information is a core function of virtually every geological survey organization.

NunavutGeoscience.ca is a project of CNGO, CIRNAC and the GN aimed at disseminating geoscience information about Nunavut. Contributions (in-kind) to the project have come from NRCan and NTI. This website disseminates geoscience data about Nunavut; this data includes a database of mineral showings and references, and a repository containing assessment reports, open file reports and other publications. NunavutGeoscience.ca is continually evolving.

At the current time, the partners are revising and updating the website to ensure there will be an improved user interface with a single new application using modern technologies to provide visitors a more efficient and easier experience.



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*Photo above: Highly deformed orthogneiss outcrop, CNGO's Fury and Hecla Geoscience Project. Courtesy of CNGO.*

# Kitikmeot Region

The Kitikmeot region encompasses most of the Canadian western Arctic, including the western and northern portions of the Nunavut mainland, the King William and Stefansson islands, the Boothia Peninsula, and portions of Victoria, Prince of Wales, and Somerset islands. At 443,277 square kilometres (km<sup>2</sup>), it is the smallest of Nunavut's three regions and has an estimated total population of just over 7,000 people living in five permanent communities.

Cambridge Bay (Ikaluktuuttiaq), located on Victoria Island, is the largest community in the Kitikmeot. Gjoa Haven (Uqsuqtuuq) is located on King William Island. The other communities, Kugaaruk, Kugluktuk, and Taloyoak, are all located on the mainland. Yellowknife, the capital of the Northwest Territories, is the main logistical and supply center for the region.

The Grays Bay Road and Port Project is a proposed transportation corridor led by the Kitikmeot Inuit Association that is intended to connect potential mines within the geological Slave Province in Nunavut to Arctic shipping routes. The project components include a 227 km all-weather road and a deep-sea port at Grays Bay on the Coronation Gulf; this road would connect to the Tibbitt-Contwoyto winter road and the Government of Northwest Territories' proposed Slave Access Corridor. Financial support from the federal government's National Trade Corridors Fund and a loan from Nunavut Tunngavik Incorporated have been secured to support pre-construction work to make the project shovel ready.

The geology of the Kitikmeot region is dominated by Archean and Proterozoic aged rocks of the Bear, Slave, and Churchill provinces, and by the Paleozoic Arctic Platform in the north. This region has been explored historically for gold, base metals, uranium, platinum group elements, and diamonds. As of November 2021, the Kitikmeot region had a total of 795 mineral claims, 44 prospecting permits, and 271 mineral leases covering a combined 2.13 million hectares (ha).

Four past-producing mines are located in the Kitikmeot region: the Roberts Bay and Ida Bay silver mines located in the Hope Bay area, and the Lupin gold mine and Jericho diamond mine located near the Northwest Territories border. The Doris gold mine is currently the region's only operating mine.

In early 2021, Agnico Eagle Mines Limited purchased TMAC Resources Inc., then-owner of the Doris gold mine and surrounding Hope Bay greenstone belt. The last mineral resource released by TMAC in 2020 included 5.17 million ounces of measured and indicated resources grading 7.4 grams of gold per tonne (g/t), of which 3.51 million ounces were classified within proven and probable reserves at 6.5 g/t Au. Inferred resources were estimated at 2.13 million ounces grading 6.1 g/t Au.

In 2021, Agnico Eagle completed more than 71,000 metres of exploration and infill diamond drilling at the Doris and Madrid deposits. Results confirm that the BTB and West Valley zones within the Doris deposit remain open. A new mineralized zone was discovered in the Madrid deposit's Naartok west zone, with results of up to 10.3 g/t Au over 5.9 metres.



The Hope Bay project faced outbreaks of COVID-19 at the mine site in both September and October of 2021, echoing a similar outbreak a year earlier. In response, all operations were scaled down to only a small crew of essential workers. After implementing improved health and safety protocols, workers were reintroduced to the site starting in November, 2021.

Sabina Gold & Silver Corp. carried out exploration and project development work at its Back River gold project in 2021 in preparation for a production decision expected in late 2021. An updated resource estimate and a feasibility study were released early in the year. The resources for the project include 6.32 million ounces of measured and indicated resources grading 5.88 g/t Au, of which 3.59 million ounces grading 5.97 g/t Au are included in proven and probable reserves. Inferred resources total 2.86 million ounces grading 6.44 g/t Au. The feasibility study forecasts an average production of 233,000 ounces per year at 6.0 g/t Au over a 15 year mine life.

Exploration on the Goose Lake property focused on the Hook target and testing four early stage targets, resulting in the discovery a new mineralizing structure and a previously unknown iron formation horizon. Mapping and rock sampling were also carried out at the George Lake property to identify drill targets outside that deposit's current resource.

Blue Star Gold Corp. completed an exploration program at its Hood River and Ulu projects in 2021 consisting of diamond drilling, an airborne magnetometer geophysical survey, and remediation activities. The work resulted in the discovery of a new vein system northeast of the Flood zone at Ulu. The company also acquired a new project, Roma, in the northern part of the High Lake Greenstone Belt.

Fury Gold Mines Ltd. carried out drilling at the Raven prospect and Three Bluffs deposit at its Committee Bay project in the eastern Kitikmeot. Till sampling was completed at Raven to define new drill targets, and mapping, prospecting, and sampling were done to convert other targets to being drill-ready.

*Photo above: Drill core showing sulphide mineralization, from Blue Star's Hood River project. Courtesy of Blue Star Gold Corp.*

# LEGEND

## Commodity (Number of Properties)

- Base Metals, Active (3)
- Gold, Active (17)
- ◊ Diamond, Active (1)
- ◊ Diamond, Inactive (1)
- ✕ Mine, Active (1)
- ✕ Mine, Inactive (2)

## Areas with Surface and/or Subsurface Restrictions

- CPMA Caribou Protection Measures Apply
- MBS Migratory Bird Sanctuary
- NP National Park
- NWA National Wildlife Area
- TP Territorial Park
- WP Wildlife Preserve
- WS Wildlife Sanctuary

## Inuit Owned Lands (Fee simple title)

- Surface Only
- Surface and Subsurface

## Geological Mapping Programs

- Canada-Nunavut Geoscience Office

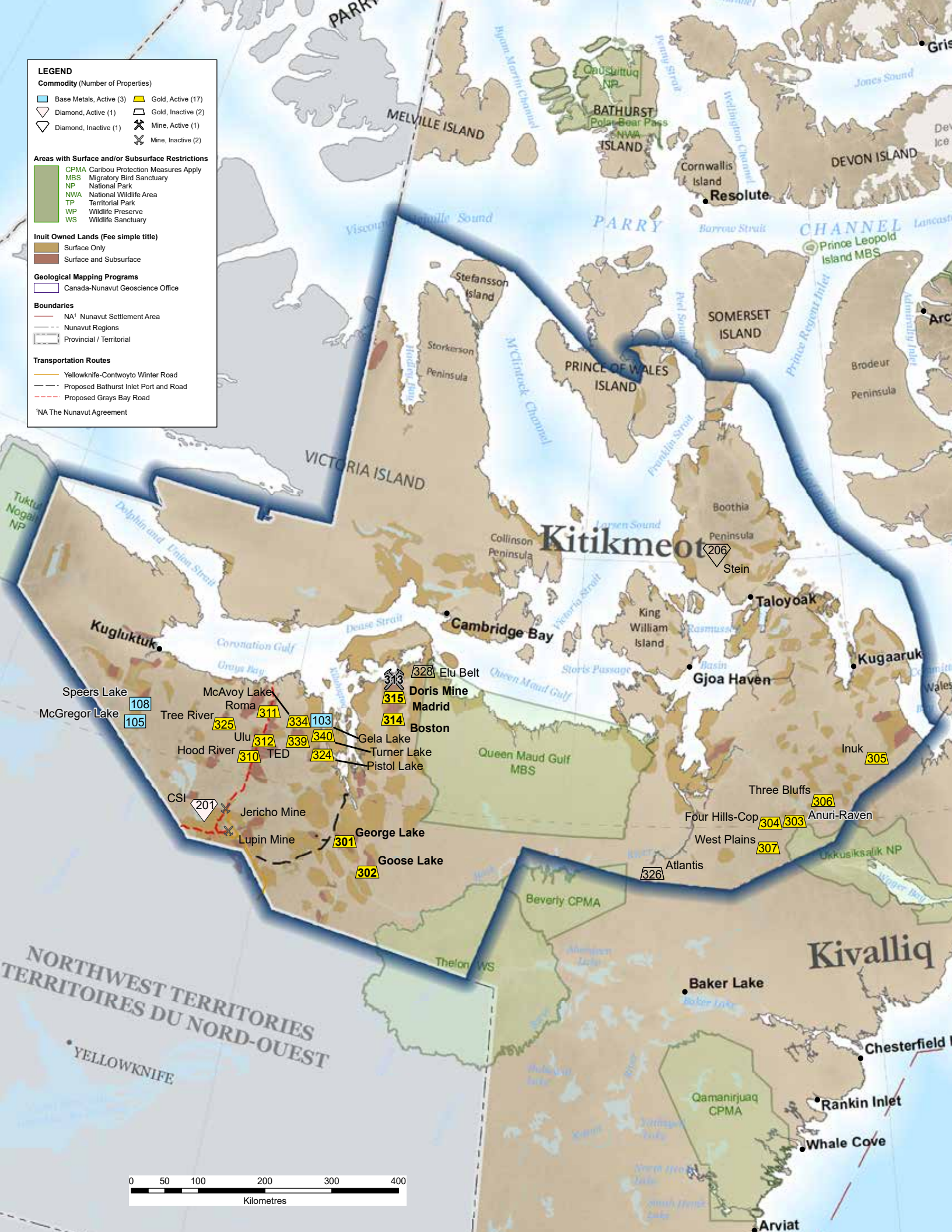
## Boundaries

- NA<sup>1</sup> Nunavut Settlement Area
- Nunavut Regions
- Provincial / Territorial

## Transportation Routes

- Yellowknife-Contwoyto Winter Road
- Proposed Bathurst Inlet Port and Road
- Proposed Grays Bay Road

<sup>1</sup>NA The Nunavut Agreement



# Kivalliq Region

The 445,109 km<sup>2</sup> Kivalliq region makes up the central portion of Nunavut, including Southampton and Coats islands and the western coast of Hudson Bay. This region is bounded to the south by Manitoba and to the west by both the Kitikmeot region and the Northwest Territories. The key gateways for exploration and mining in this region are Rankin Inlet (Kangiqliniq), the regional hub, and Baker Lake (Qamani'tuaq), the territory's only inland community. The Kivalliq's other communities are Arviat, Whale Cove (Tikirarjuaq), Chesterfield Inlet (Igluligaarjuk), Coral Harbour (Salliq), and Nauyasat. The past-producing North Rankin nickel mine and the Cullaton-Shear Lake gold mine west of Arviat were two of Canada's earliest mines to operate above 60° latitude. The population of the Kivalliq region was estimated at 11,673 in 2020, with more than half of those inhabitants in Rankin Inlet and Arviat.

The Kivalliq region's bedrock geology is composed of Archean and Proterozoic plutonic rocks, extensive Paleoproterozoic sedimentary basins, and metasedimentary and greenstone belts of the Rae and Hearne domains of the Western Churchill Province. Paleozoic-age strata of the Hudson Bay Lowlands are found in the east on Southampton and Coats islands. The region's economic geology is diverse and includes a number of significant mineral occurrences and deposits, including historical and current resources in gold, uranium, diamonds, nickel, and platinum-group and rare earth elements.

As of November 2021, the area held under mineral tenure in the region increased modestly to 1.98 million ha as compared to 1.85 million ha in 2020. There are 1,036 mineral claims, 192 mineral leases and 48 prospecting permits. Gold continues to be the main exploration target in the region, although diamond exploration also saw activity, and there has been renewed interest in Ni-Cu-Co-PGE exploration.

At Agnico Eagle Mines Limited's operations in the Kivalliq, work continued during the COVID-19 pandemic, with occasional stoppages due to outbreaks at its sites. Between June and October 2021, the company worked to reintegrate Nunavummiut who were employed at the Meadowbank Complex and Meliadine mines but idled due to the pandemic. At Meadowbank, open-pit operations at the Amaruq deposit continued, and work progressed on advancing the underground infrastructure at Amaruq toward expected production in 2022. Gold production at the Meadowbank Complex totaled 255,222 ounces of gold for the first nine months of 2021 – a significant increase over 2020's COVID-19-impacted 140,679 ounces of gold produced over the same time period. On the exploration side, the company also completed drilling that focused on testing extensions of the IVR and Whale Tail deposits, and regional exploration drilling, which together totaled 17,000 m drilled in the first nine months of 2021.

At Meliadine, Agnico Eagle made progress on its conversion-drilling program at the Tiriganiaq, Wesmeg, and Normeg deposits. Regional exploration continued at the Discovery deposit, which is structurally similar to Tiriganiaq and the other deposits in the area. The company budgeted \$8.3 million dollars for exploration at Meliadine, including 44,000 metres of drilling, and later added an additional \$1.5 million for a further 7,000 metres of regional exploration drilling in the area. Year-to-date gold production at Meliadine at the end of September 2021 totalled 265,787 ounces of gold.

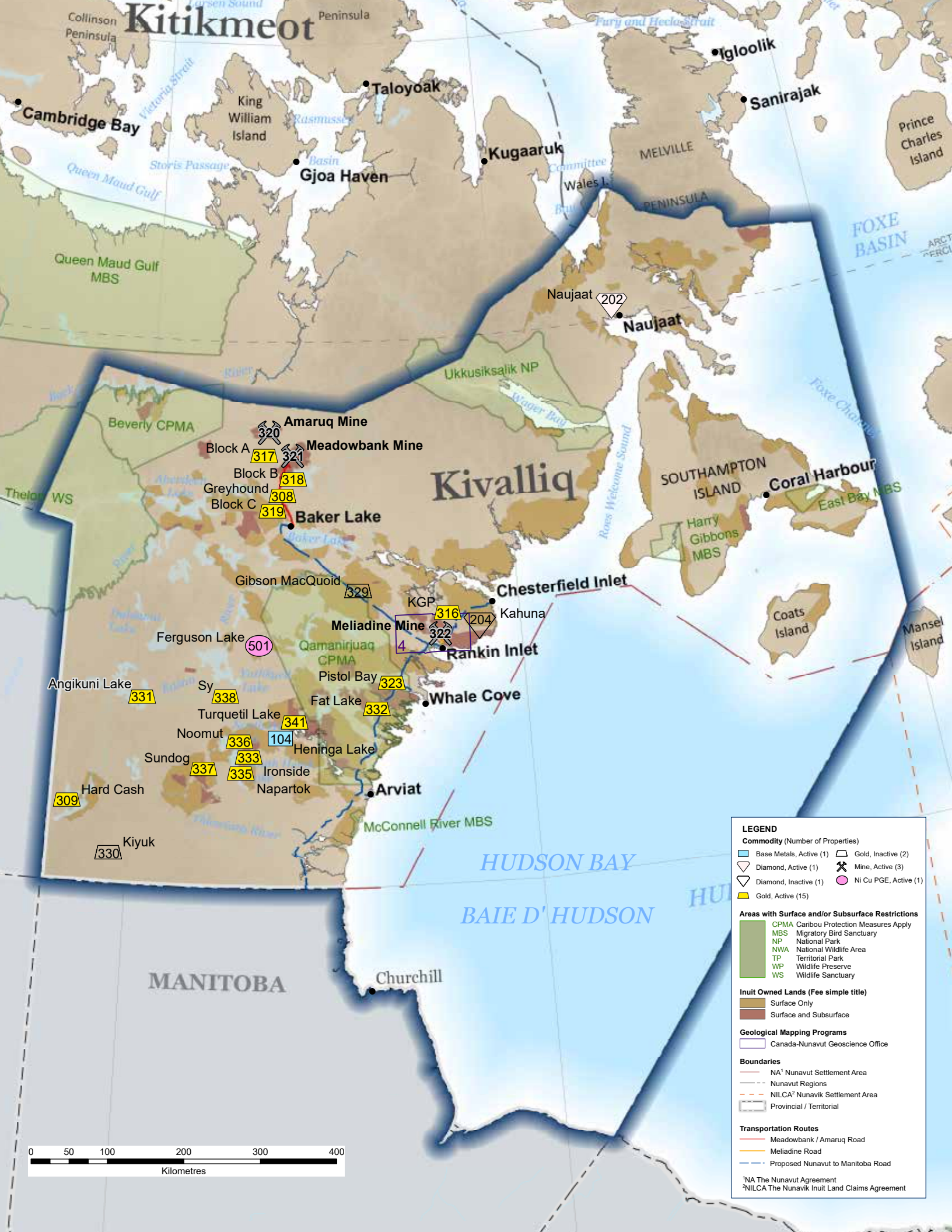
After Western Atlas Resources Inc.'s Meadowbank gold exploration project saw its first drill program in 2020, the company spent the winter on a detailed logging and sampling program to assist in targeting work for the summer of 2021. The property has polymetallic potential, including one target in Block B returning intervals of 0.14% Ni over 95 metres. Western Atlas was also able to amend its permits to allow increased camp capacity and increased drilling.



*Geologists quick-logging drill core at Western Atlas' Meadowbank project. Courtesy of Western Atlas Resources Inc.*

Exploration continued in 2021 at the Greyhound gold and base metal property, which is controlled by a joint venture between Agnico Eagle and Gold79 Mines Ltd. The property's geology is interpreted as a volcanogenic massive sulphide system. Agnico Eagle completed a 1,815 metre diamond drill program over nine holes on the Aura and Dingo gold targets, and the Outstanding Lake volcanogenic massive sulphide target area.

North Arrow Minerals Inc. was able to complete its bulk sample on the Nauyasat project, with \$5.6 million dollars in funding from Burgundy Diamond Mines (formerly EHR Resources Ltd.), as part of the option agreement on the property which was signed in 2020. The bulk sample of approximately 2,000 tonnes was completed in August 2021, and sample processing and diamond recovery were expected to begin in Q4 of 2021.



**LEGEND**

**Commodity (Number of Properties)**

- Base Metals, Active (1)
- Diamond, Active (1)
- Diamond, Inactive (1)
- Gold, Active (15)
- Gold, Inactive (2)
- Mine, Active (3)
- Ni Cu PGE, Active (1)

**Areas with Surface and/or Subsurface Restrictions**

- CPMA Caribou Protection Measures Apply
- MBS Migratory Bird Sanctuary
- NP National Park
- NWA National Wildlife Area
- TP Territorial Park
- WP Wildlife Preserve
- WS Wildlife Sanctuary

**Inuit Owned Lands (Fee simple title)**

- Surface Only
- Surface and Subsurface

**Geological Mapping Programs**

- Canada-Nunavut Geoscience Office

**Boundaries**

- NA<sup>1</sup> Nunavut Settlement Area
- Nunavut Regions
- NILCA<sup>2</sup> Nunavut Settlement Area
- Provincial / Territorial

**Transportation Routes**

- Meadowbank / Amaruq Road
- Meliadine Road
- Proposed Nunavut to Manitoba Road

<sup>1</sup>NA The Nunavut Agreement  
<sup>2</sup>NILCA The Nunavut Inuit Land Claims Agreement

# Qikiqtani Region



Exploration infill drilling at Deposit No.1 (North Limb) at the Mary River Mine, north Baffin Island. Courtesy of Baffinland Iron Mines Corp.

The Qikiqtani region is primarily comprised of six larger islands, Axel Heiberg, Baffin, Bathurst, Devon, Ellesmere, and Somerset of the Canadian Arctic Archipelago. Cornwallis, Prince Charles, Bylot, Amund Ringnes and Ellef Ringnes islands are some of the smaller islands in the Qikiqtani region. The Belcher Islands in southeastern Hudson Bay and the northern portion of the Melville Peninsula of mainland Nunavut are also included in the region. At 1,040,418 km<sup>2</sup>, the Qikiqtani is the largest of Nunavut's three administrative districts.

Archean and Proterozoic rocks of the Churchill Province (Rae Domain) and Paleozoic rocks of the Arctic Platform and Innuitian Belt underlie the region. Mineral deposits and occurrences found in the Qikiqtani include iron, diamonds, gold, base metals, platinum group elements, and sapphires. Two past producing mines in the region were the Nanisivik zinc lead silver mine near Arctic Bay on northern Baffin Island, and Polaris, a zinc lead mine on Little Cornwallis Island. Both ceased production in 2002. The only current producing mine in the Qikiqtani region is Baffinland's Mary River iron mine.

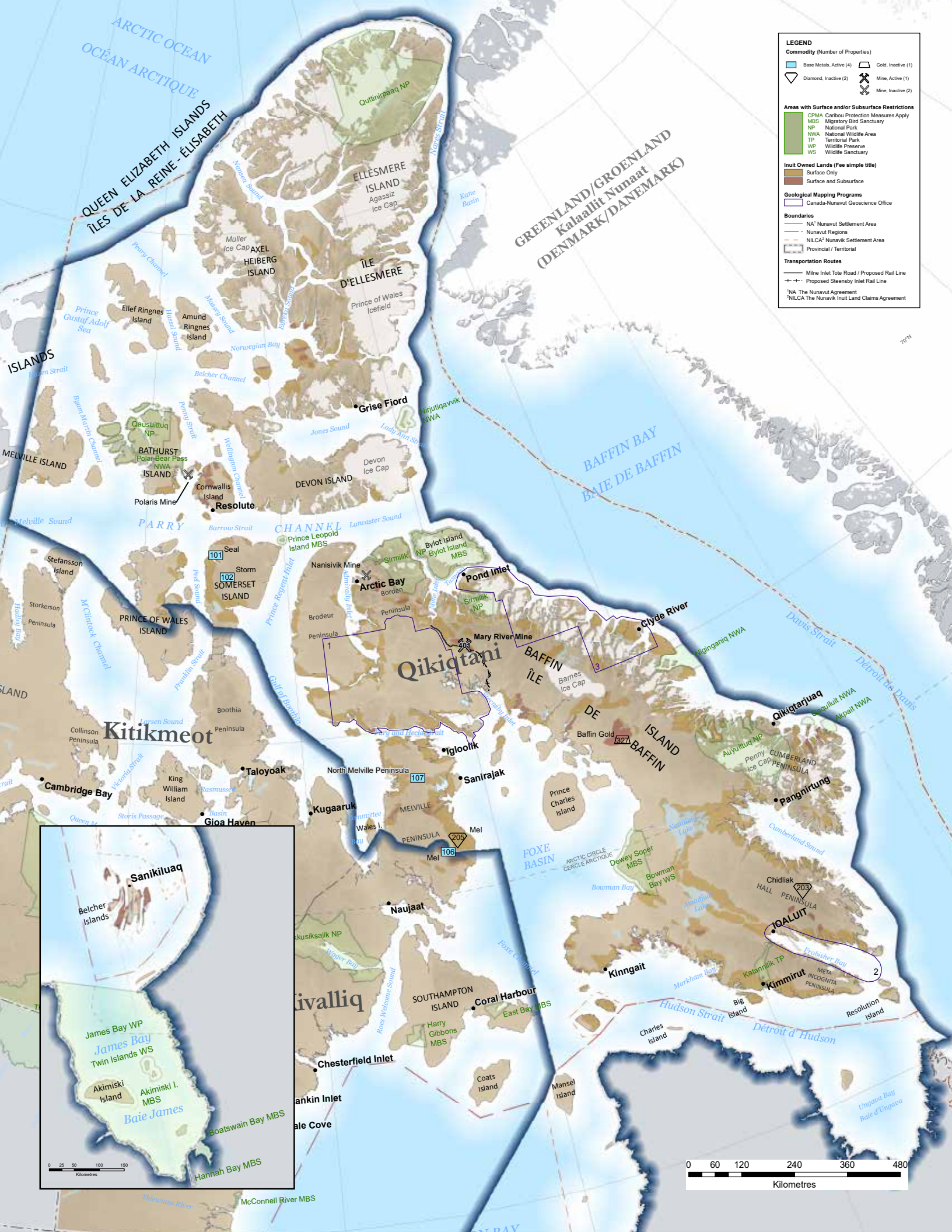
Approximately 20,000 people inhabit the Qikiqtani region, making it the most populous of the three regions. Iqaluit, located on southern Baffin Island and the territorial capital, is the centre for supplies and support services for the region and has a population of around 8,300. The region includes 12 communities: Arctic Bay (Ikpiarjuk), Kinngait (Cape Dorset), Clyde River (Kangiqtuqaapik), Kimmirut, Pangnirtung, Pond Inlet (Mittimatalik), and Qikiqtarjuaq on Baffin Island; Sanikiluaq on Flaherty Island, one of the Belcher Islands in Hudson Bay; Igloodik and Sanirajak (Hall Beach) on the Melville Peninsula; and Resolute (Qausuittuq) and Grise Fiord (Ajujituq) in the High Arctic. Several of these communities, notably Pond Inlet, Igloodik, Sanirajak, and Iqaluit, provide services, supplies, and workers to exploration and mining projects.

Only two companies carried out work in the Qikiqtani region in 2021: Baffinland Iron Mines at its Mary River iron mine on northern Baffin Island and American West Metals Limited at the Storm and Seal properties on Somerset Island, under option from Aston Bay Holdings. Mineral claims, prospecting permits and mining leases covering a total of 1.21 million ha were held as of November 2021, virtually the same as was held in November 2020.

Exploration at the Mary River iron ore mine consisted of helicopter supported infill and exploration drilling in a \$8.7 million program that focused on Baffinland's mining leases. Infill drilling totaling 5,460 metres in 19 holes was carried out on Deposits 1 and 3. Just over a thousand core samples were taken. A further 564 metres of drilling in two holes was completed as part of an ongoing geotechnical investigation. All infill holes drilled in 2021 intersected significant intervals of high-grade iron formation. The regional exploration program was suspended due to the COVID 19 pandemic.

Baffinland is seeking permit amendments to increase the allowed annual ore extraction and transportation from the current six million tonnes to 12 million tonnes from the mine to Milne Inlet, and the construction of a railway linking the mine site to the port. To accommodate this proposed increased shipping from the Milne Inlet port, infrastructure at the mine would need to be re designed and upgraded. An in person regulatory public hearing for this proposal planned to be held in Pond Inlet in January 2021 could not be completed and the meeting took place in Iqaluit in November 2021. Baffinland's production for the Mary River mine for 2021 was 5.61 million tonnes of iron ore shipped in 73 loads from Milne Inlet, up from the 5.45 million tonnes shipped in 2020.

American West Metals Limited carried out an electromagnetic geophysical survey at both the Storm Copper and Seal Zinc properties. The surveys were designed to test for extensions of known mineralization and delineate targets for a proposed 2022 drill program. This was the first time these techniques have been used at Seal, where other techniques have been unsuccessful at detecting the mineralization.



**LEGEND**

**Commodity (Number of Properties)**

- Base Metals, Active (4)
- Gold, Inactive (1)
- Diamond, Inactive (2)
- Mine, Active (1)
- Mine, Inactive (2)

**Areas with Surface and/or Subsurface Restrictions**

- CPMA Caribou Protection Measures Apply
- MBS Migratory Bird Sanctuary
- NP National Park
- NWA National Wildlife Area
- TP Territorial Park
- WP Wildlife Preserve
- WS Wildlife Sanctuary

**Inuit Owned Lands (Fee simple title)**

- Surface Only
- Surface and Subsurface

**Geological Mapping Programs**

- Canada-Nunavut Geoscience Office

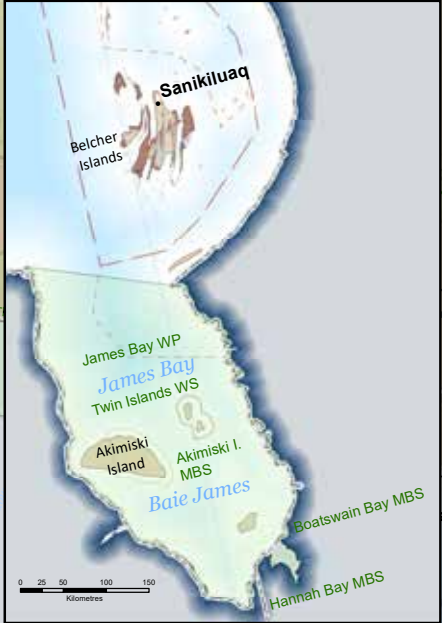
**Boundaries**

- NA<sup>1</sup> Nunavut Settlement Area
- Nunavut Regions
- NILCA<sup>2</sup> Nunavut Settlement Area
- Provincial / Territorial

**Transportation Routes**

- Mine Inlet Tote Road / Proposed Rail Line
- Proposed Steensby Inlet Rail Line

<sup>1</sup>NA The Nunavut Agreement  
<sup>2</sup>NILCA The Nunavut Inuit Land Claims Agreement



## New Projects

Bathurst Metals Corp., formerly Pacific Cascade Minerals Inc., has assembled a portfolio of gold, base metal, and Ni-Cu-PGE projects in the central and western Kitikmeot in 2020 and 2021. The **Turner Lake** gold project is west of Bathurst Inlet and includes 3,500 hectares (ha) of claims over Archean-aged rocks where gold mineralization has been identified in quartz veins in fractured greywacke at the contact between the greywacke and iron and magnesium tholeiite units. The project's Main Gold Zone was discovered in the 1960s and exploration has been sporadic since that time. Diamond drilling and surface sampling were completed between 1986 and 1989; later drilling in 2008 and 2009 returned results of up to of 22.54 grams of gold per tonne (g/t) over 12.00 metres. Historical drill results from the property's polymetallic Nickel Knob target intersected massive sulphide mineralization, with highlights including 4.19% Ni and 1.19% Cu over 3.00 m and 0.79% Cu and 0.94% Ni over 7.00 metres. A diamond-drilling program to test the Main Gold Zone on a 50 m by 50 m pattern is proposed to generate a resource for the project. The adjacent **TED** claims covering 2,644 ha were acquired in February 2021, and include an 8-km strike length of iron formation within which four zones of gold mineralization were previously located by exploration in the mid-1980s.

The **McAvoy Lake** gold project is located northwest of Turner Lake, and includes 2,700 ha over a known 4 km-long, north-south trend of gold mineralization. Grab and channel sampling with results in excess of 50 g/t Au took place on the property in the 1980s but no further work is known.

The **Gela Lake** base metal project is located north of the Turner Lake property and up-trend from Turner Lake along the Bathurst Fault. Mineralization appears to be structurally controlled and occurs in a Proterozoic-age monzogabbro intrusion, and includes nickel-cobalt-copper, silver, gold, and lead-zinc occurrences. Limited previous work done in 1975 indicated a strong correlation between nickel and cobalt.

The **McGregor Lake** and **Speers Lake** projects total 17,840 ha in two claim blocks, located over the southern Muskox layered mafic intrusion. The company planned a 2021 program including geological mapping and sampling and locating historical drill holes, to follow up on historical base and precious metal results. No results have been released.

StrategX Elements Corp. acquired 13 mineral claims on the Melville Peninsula between February and April, 2021. Seven claims are adjacent to the **Mel** project owned by North Arrow

Minerals Inc., with whom StrategX signed an agreement in February giving StrategX non-diamond mineral rights within North Arrow's 56,000 ha property, as well as a royalty on diamond production. Under this agreement, North Arrow received diamond rights on any of StrategX's claims acquired within the area of interest, and a royalty on non-diamond production. The agreement also allows StrategX to use North Arrow's existing camp at Mel. The other six **North Melville** claims on the northern Melville Peninsula are in four non-contiguous parcels, two near Sanirajak and two near the western coast of the peninsula. StrategX is primarily interested in nickel, cobalt, vanadium, copper, and precious metals, and proposed a two-week program of mapping, prospecting, and sampling on its newly acquired tenure. No further information on this proposed work has been released.

New Break Resources Ltd. acquired four gold projects within the Churchill Province in the central Kivalliq region in 2021. The company was one of the more active users of the new Nunavut Map Selection system introduced by CIRNAC in January 2021; New Break acquired 44 claims with an area of 21,960 ha between January and July of 2021 over the **Angikuni Lake**, **Noomut**, and **Sy** projects. The company also signed a 9,415 ha Mineral Exploration Agreement with Nunavut Tunngavik Incorporated for the **Sundog** project within subsurface Inuit Owned Land parcel AR-35. The Angikuni Lake project includes three previously explored zones, Robin, AN, and F-13. Grab samples collected in 2010 returned high gold, silver, and copper values from each zone. The Noomut project is located on the eastern shoreline of South Henik Lake and includes the Esker gold occurrence in the north claim block and the Ironside and Naportok occurrences in the south. Historical drilling at all three occurrences returned favourable gold values. Sy is within the Yathkyed Lake greenstone belt, and has been explored intermittently since the 1960s for its gold and base metal potential. Sundog was discovered in 1961 and has returned high grade surface gold from trench samples and panned concentrates samples collected from a 2,500 m by 500 m area. New Break purchased historical exploration data in October 2021 pertaining to Angikuni Lake, Sundog, and Sy, as well as data from the Hurwitz Proterozoic basins east and west of Sundog.

Arviat-based prospector John Tugak has been active on a number of properties in the Kivalliq for the last several years and has optioned or sold projects to multiple companies. He



discovered gold in 2016 on the **Fat Lake** claims, located about 50 km west of Whale Cove, and optioned the property to Agnico Eagle Mines Limited in 2017. Four other prospects, **Turquetil Lake, Heninga Lake, Ironside** and **Napartok** are under mineral purchase agreements with Zimtu Capital Corporation. Turquetil Lake is about 100 km further inland from Fat Lake, prospecting

and mapping resulted in the discovery of a 100 m-wide alteration zone with gold, pyrite, and arsenopyrite mineralization. Northwest of Arviat, the Heninga Lake base metals property has returned significant results from re-sampled historical core of up to 13% Cu, 7% Zn, and 92 g/t Ag. The Ironside and Napartok prospects are jointly owned by Tugak and Travis Kalluak.

Number	Project	Operator
 <b>Base Metals</b>		
103	Gela Lake	Bathurst Metals Corp.
104	Heninga Lake	Zimtu Capital Corporation, John Tugak
105	McGregor Lake	Bathurst Metals Corp.
106	Mel	StrategX Elements Corporation
107	North Melville Peninsula	StrategX Elements Corporation
108	Speers Lake	Bathurst Metals Corp.
 <b>Gold</b>		
331	Angikuni Lake	New Break Resources Ltd.
332	Fat Lake	Agnico Eagle Mines Ltd., John Tugak
333	Ironside	Zimtu Capital Corporation, John Tugak
334	McAvoy Lake	Bathurst Metals Corp.
335	Napartok	Zimtu Capital Corporation, John Tugak, Travis Kalluak
336	Noomut	New Break Resources Ltd.
337	Sundog	New Break Resources Ltd.
338	Sy	New Break Resources Ltd.
339	TED	Bathurst Metals Corp.
340	Turner Lake	Bathurst Metals Corp.
341	Turquetil Lake	Zimtu Capital Corporation, John Tugak
341	Yandle	Silver Range Resources Ltd.

*Bedrock mapping on the Fury-Hecla project. Courtesy of CNGO.*

## Base Metals

101	102	Nunavut Property (Seal <sup>1</sup> , Storm <sup>2</sup> )
<b>Operator/Partner</b>	American West Metals Limited, Aston Bay Holdings Ltd.	
<b>Commodity</b>	Copper <sup>1</sup> , Zinc <sup>2</sup> , Silver <sup>2</sup>	
<b>NTS</b>	058B11 <sup>2</sup> , 058B14 <sup>2</sup> , 058B15 <sup>2</sup> , 058C022 <sup>1</sup> , 058C03 <sup>2</sup> , 058C06 <sup>2</sup> , 058C07 <sup>2</sup> , 058C10 <sup>2</sup> , 058C11 <sup>1,2</sup> , 058C12 <sup>1</sup> , 058C13 <sup>1</sup> , 058C14 <sup>1,2</sup>	
<b>Land Tenure</b>	Crown <sup>1,2</sup> , Surface IOL <sup>2</sup>	
<b>Location</b>	99 km south of Resolute <sup>1</sup> , 153 km south of Resolute <sup>2</sup>	

The Nunavut Property consists of 117 contiguous mineral claims and six prospecting permits covering an area of approximately 302,725 hectares on the northwestern portion of Somerset Island. The property includes the Storm Copper project, a high-grade sediment-hosted copper discovery, and the Seal Zinc deposit, the host rocks of which are considered analogous to those found at the past-producing Polaris mine, located on Little Cornwallis Island about 200 km to the north. Numerous other underexplored targets have been identified within the 120 km strike-length of the mineralized trend.

Copper mineralization, consisting of malachite, azurite, chalcocite, bornite and chalcopyrite, at Storm is strata-bound and hosted in brecciated zones within dolomitic sediments from the Allen Bay formation. Zinc mineralization at Seal occurs as massive sphalerite and pyrite, found in permeable quartz-sandstones interbedded with dolostone.

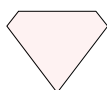
Historical work by previous operators at the Storm Copper prospect includes over 9,000 metres of diamond drilling, geological mapping, prospecting, and magnetic and electromagnetic geophysical surveys. Aston Bay acquired and re-evaluated this data in 2015, identifying several high-priority targets for geophysical work and drill testing. Programs carried out from 2016 through 2018 included further drilling, prospecting, and a property-wide airborne gravity geophysical survey. In 2017, a NI 43-101 inferred resource was released for Seal, estimating it contains 1.01 million tonnes of ore averaging 10.24% Zn and 46.5 grams of silver per tonne, with a cut-off of 4.0% Zn. No work was done in 2019 and 2020.

In March 2021, Aston Bay Holdings signed an option agreement with American West Metals Limited, under which the latter may earn an 80 per cent interest in the Nunavut Property by spending a minimum of \$10 million on qualifying exploration expenditures over a period of up to nine years.

In August 2021, American West Metals commenced work on a three-week ground electromagnetic geophysical survey at Storm and Seal. The surveys were designed to test for extensions along strike and at depth of known mineralization, and to follow up on previously identified gravity and other geophysical anomalies in anticipation of a proposed 2022 drilling campaign. The 2021 program at Storm was designed to build upon historical work that identified strong anomalies associated with known copper mineralization by expanding the electromagnetic footprint and using the latest in high power and low noise system technology to refine existing targets and generate new targets for follow-up exploration in 2022.



Copper-mineralized rock fragments at the Storm prospect, at the joint-ventured Nunavut project. Courtesy of CIRNAC.



## Diamonds

201	CSI
<b>Operator/Owner</b>	North Arrow Minerals Inc.
<b>Commodity</b>	Diamonds
<b>NTS</b>	076E13, 086H16
<b>Land Tenure</b>	Crown, Surface IOL
<b>Location</b>	244 km south of Kugluktuk

North Arrow Minerals Inc. selected 4,540 hectares (ha) of claims on a new property, CSI, in early 2021. The claims are located west of the diamondiferous Muskox and Jericho kimberlites.

The company completed a short till sampling program on the property in June 2021, collecting 30 till samples. Results of the sampling will be used to test reinterpretations of the surficial geology in the area and identify a bedrock source for the anomalous kimberlite indicator minerals that have been identified in the preliminary sample results. Electron microprobe analyses are in progress on recovered kimberlite indicator minerals to further evaluate their mineral chemistry.

202	Naujaat
<b>Operator/Partner</b>	North Arrow Minerals Inc., Burgundy Diamond Mines Ltd.
<b>Commodity</b>	Diamonds
<b>NTS</b>	046K12, 046L09
<b>Land Tenure</b>	Crown
<b>Location</b>	8 km northeast of Naujaat

North Arrow Minerals Inc. reactivated its Naujaat diamond project that had been dormant since 2018 for the 2021 field season. The property is located 7 km from tidewater and covers 10,472 ha of mineral claims and leases. Naujaat has a NI 43-101 inferred resource of 26.1 million carats in 48.8 million tonnes of kimberlite from the Q1-4 kimberlite complex, that has a surface exposure of approximately 12.5 ha and remains open at depth past 305 metres. Eight kimberlite pipes have been identified on the property.

In June 2020, North Arrow signed an option agreement with Burgundy Diamond Mines (formerly EHR Resources Ltd.). The agreement allows Burgundy to earn a 40 per cent interest in the project by funding the preliminary bulk sample, and a further 20 per cent interest by funding a 10,000 tonne bulk sample dependent on the results of the preliminary sample.

Analyses of previous samples from the property have identified two separate populations of diamonds, one of which is made up of rare Type Ib diamonds that commonly occur in shades

of orange and yellow. The Q1-4 kimberlite consists of two distinct units: the 'green kimberlite' unit, which is xenolith-poor, olivine-rich, and coherent, and the 'blue kimberlite' unit, which is massive, poorly sorted, and volcanoclastic. Most of the coloured diamonds recovered to date have been found in the 'blue kimberlite' material. The February 2018 206-tonne bulk sample resulted in a parcel of 1,991 diamonds greater than 0.85 mm in size, with a total weight of 64.25 carats. Fancy-coloured diamonds made up 21.2% by weight of the total recovery, with the largest diamonds recovered weighing 5.25, 2.09, and 1.06 carats.

North Arrow has been working with the community of Naujaat on expanding an existing ATV trail outside the hamlet into an access road to the Q1-4 kimberlite. This proposed 15-km access road would facilitate the collection of much larger bulk samples and minimize helicopter traffic related to the project. The proposed road would also provide improved access to the land for Naujaat residents. The proposal has received a positive recommendation from the Nunavut Impact Review Board. North Arrow is also evaluating the use of a small-scale mobile diamond recovery plant for the project; this would allow the production of easily sortable ore concentrate for shipment and further processing.



Preparing to sling megabags of Q1-4 kimberlite material to the laydown area at Naujaat.  
Courtesy of North Arrow Minerals Inc.

Work at Naujaat in 2021 began in June and Burgundy funded the program budgeted at \$5.6 million dollars under the terms of the option agreement. The program operated out of Naujaat and employed approximately 25 local employees, with bulk sample collection occurring between early July and mid-August. A total of 2,500 bags, totaling approximately 2,000 tonnes of kimberlite material, were transported via helicopter to the tidewater laydown area and shipped south on the annual sealift from Naujaat to Montreal in late September. Transport of the sample to Saskatoon for analysis is in progress, and processing of the initial shipment has begun. Results from the bulk sample are expected to be reported in stages beginning in early 2022.

## Gold

301	302	Back River (George Lake <sup>1</sup> , Goose Lake <sup>2</sup> )
<b>Operator/Owner</b>	Sabina Gold & Silver Corp.	
<b>Commodity</b>	Gold	
<b>NTS</b>	076G09 <sup>2</sup> , 076G10 <sup>2</sup> , 076G13 <sup>1</sup> , 076G14 <sup>1</sup> , 076J03 <sup>1</sup> , 076J04 <sup>1</sup>	
<b>Land Tenure</b>	Crown <sup>1,2</sup> , Subsurface IOL <sup>1,2</sup> , Surface IOL <sup>1</sup>	
<b>Location</b>	362 km southwest of Cambridge Bay <sup>1</sup> , 391 km south of Cambridge Bay <sup>2</sup>	

The Back River gold project includes a series of gold deposits in banded iron formation, located in the southern Kitikmeot region near the Northwest Territories border and approximately 520 km northeast of Yellowknife. The project also includes a port facility established at Bathurst Inlet to enable supply of the site via sealift and a winter ice road.

The Back River property is located in the central part of the Slave Structural Province and is underlain by sedimentary rocks of the Beechey Lake Group consisting of oxide and silicate banded iron formation rocks hosted in turbidites with lesser amounts of greywacke and mudstone. The sequence is cut by gabbroic and felsic dykes, with the latter ranging in thicknesses from 0.5 to 5 metres. The bulk of gold mineralization present at the Goose Lake property is structurally controlled, and associated with quartz and quartz carbonate veining associated with shearing and accompanied by silicification within banded iron formation rocks and the interbedded sedimentary rocks. Gold is usually associated with pyrite, arsenopyrite and pyrrhotite with free gold present in quartz and quartz carbonate veining. Gold mineralization is also found in porphyritic quartz and quartz feldspar dykes but not found in the younger gabbro dykes that post date mineralization.

Sabina sent its Nunavut-based workforce home in March 2020 due to risks associated with the COVID-19 pandemic. The company also reported that, as of November 2021, these employees were being reintegrated into the work rotations at site, and that there have been zero cases of COVID-19 identified at any of its work sites.

An updated mineral resource and reserve estimate for the Goose and George Lake properties project was released in January 2021. Measured and indicated resources total 6.32 million ounces of gold in 33.45 million tonnes of ore grading 5.88 grams per tonne gold (g/t). Inferred resources total 2.86 million ounces of gold in 13.79 million tonnes of ore grading 6.44 g/t Au. The updated proven and probable mineral reserve estimate includes only deposits within the Goose property, and has a combined total of 18.69 million tonnes of ore grading 5.97 g/t Au for 3.59 million ounces.

An updated feasibility study was also released that forecasts a 15-year mine life with average gold production of

223,000 ounces of gold per year and life-of-mine average grade of 6.0 g/t Au.

Project development work in 2021 included the advancement of the engineering of the fuel farm, process plant and power plant. Additionally, work involved procuring and sealifting construction equipment to the port facility in preparation for transporting this equipment in 2022 via the winter ice road. The portal for the Umwelt exploration ramp was collared and about 300 metres of ramp development completed as of the end of Q3, 2021, with 700 metres forecast to be completed by the end of the year. Pre-development construction readiness activities also took place at both the Goose site and the port facility.



Work is complete on the laydown area at the Goose site, where mine development construction materials will be stored once the winter road from tidewater is complete. Courtesy Sabina Gold & Silver Corp.

The 2021 spring exploration program included 4,482 metres of drilling and was focused on the Hook target, thought to be a key link along the mineralized trend hosting the Goose Main and Nuvuyak deposits. Notable results from the five holes completed at Hook include 5.42 g/t Au over 28.05 metres, including 12.68 g/t Au over 5.30 metres, returning the highest gram-metre intercept within the target trend to date. Four early-stage targets were tested, resulting in the discovery of a new mineralizing structure associated with a previously undrilled electromagnetic anomaly at the Goose Lake EM 1 target and the identification of a previously unknown iron formation horizon location outside the main Lower Iron Formation horizon at the Goose Lake EM 2 target.

A summer field program was also carried out at the George Lake property, consisting of mapping and rock sampling for the evaluation and modeling of drill targets outside the current George resource.

Site operations are expected to continue year-round for the first time over the winter of 2021-2022 at both the Goose camp and the Bathurst Inlet port facility, as pre-development activities continue and a production decision is anticipated.

303	304	Committee Bay (Anuri-Raven <sup>1</sup> , Four Hills-Cop <sup>2</sup> , Inuk <sup>3</sup> , Three Bluffs <sup>4</sup> , West Plains <sup>5</sup> )
305	306	
307		
<b>Operator/Owner</b>		Fury Gold Mines Ltd.
<b>Commodity</b>		Gold
<b>NTS</b>		056J10 <sup>4</sup> – 056J16 <sup>4</sup> , 056K02 <sup>5</sup> – 056K04 <sup>5</sup> , 056K06 <sup>2,5</sup> , 056K07 <sup>1,2,5</sup> , 056K08 <sup>1</sup> , 056K09 <sup>1,4</sup> , 056K10 <sup>1,2</sup> , 056K11 <sup>2</sup> , 056K16 <sup>4</sup> , 056O01 <sup>3</sup> , 056P03 <sup>3</sup> – 056P07 <sup>3</sup>
<b>Land Tenure</b>		Crown <sup>1,2,3,4,5</sup> , Surface IOL <sup>1,3</sup>
<b>Location</b>		242 km southwest of Kugaaruk <sup>1</sup> , 266 km southwest of Kugaaruk <sup>2</sup> , 138 km south of Kugaaruk <sup>3</sup> , 199 km south of Kugaaruk <sup>4</sup> , 300 km southwest of Kugaaruk <sup>5</sup>

The Committee Bay project, located approximately 180 km northeast of Agnico Eagle's Meadowbank Complex project, covers over 300,000 hectares (ha) of the Committee Bay greenstone belt and extends a further 300 km to tidewater. The project is wholly owned by Fury Gold Mines Ltd. The Committee Bay greenstone belt can be traced along the entire property and varies in width from 5 km to 30 km. Rocks of the belt are poorly exposed due to an extensive sequence of thick till cover. Basalts, intermediate to felsic tuffs, komatiites, coarse grained metasedimentary rocks, and banded iron formations dominate the stratigraphy. Gold mineralization in the Committee Bay belt is commonly associated with quartz veining, silicification, and sulphidization within silicate, oxide, and/or sulphide facies banded iron formation rocks of the volcano sedimentary Archean Prince Albert Group. Gold mineralization is also found in quartz veins associated with shear zones in gabbroic, volcanic, and sedimentary rocks and is generally accompanied by arsenopyrite, pyrite, and pyrrhotite mineralization. The Geological Survey of Canada first mapped the rocks of the Committee Bay area in the 1960s.

The area was subsequently the focus of base metal, uranium, and gold exploration that led to the discovery of the Three Bluffs deposit in 2003. This deposit, located in the central part of the property, has a NI 43-101 compliant indicated mineral resource of 524,000 ounces of gold at 7.85 g/t Au and an inferred resource of 720,000 ounces of gold grading at 7.64 g/t Au with a cut-off of 3 g/t Au near surface and 4 g/t Au underground. The deposit remains open both along strike and at depth. More than 40 other gold prospects have been identified in the greenstone belt; recent targets for exploration include the Kaluliq-Aiviq corridor, and the Anuri-Raven and Shamrock targets, as well as the Three Bluffs deposit itself.

The 2021 exploration program was intended to expand the defined high-grade mineralization at the Raven prospect and

to test the potential mineralization below the current resource at the Three Bluffs deposit. Although 5,000 metres of drilling was originally proposed, only 2,587 metres in five holes was completed.

The Raven prospect is situated along an 8-km-long shear zone in which gold mineralization is strongly associated with arsenopyrite within sheared and altered gabbros and within quartz veins marking the gabbro-metasediment contact. All four holes completed at Raven in 2021 intersected the gold-bearing structure within a 20 to 30 metre alteration zone. Till sampling was also completed along the entire 8-km shear zone to define new targets.

The single drill hole completed at Three Bluffs successfully intersected a 600 m by 200 m conductive body at a vertical depth of 300 to 500 metres that is down-dip from high grade mineralization within the limbs of the anticline.

Mapping, prospecting, and sampling were also carried out to advance conceptual targets identified from desktop studies to being drill ready.

No analytical results from the drilling or geochemical sampling had been released at time of writing. A 2022 exploration program is proposed that would investigate regional targets and continue the work at Raven and Three Bluffs.



Geologist mapping at an outcrop on the Aiviq target of Fury Gold's Committee Bay gold project. Courtesy of Fury Gold Mines Ltd.

308	Greyhound
<b>Operator/Partner</b>	Agnico Eagle Mines Limited, Gold79 Mines Ltd.
<b>Commodity</b>	Gold, Silver, Zinc, Copper, Lead
<b>NTS</b>	056D12, 056D13, 066A09
<b>Land Tenure</b>	Crown
<b>Location</b>	40 km north of Baker Lake

The Greyhound project is located along the all-season road connecting the community of Baker Lake to the Meadowbank Complex, and consists of 13 mineral leases, covering 13,573 ha of Crown land, and two mineral claims with an area of 2,334.87 ha. The mineral leases making up the core of the property are managed by a joint venture between Agnico Eagle as the operator, with a 62.9 per cent interest, and Gold79 Mines with a 37.1 per cent interest. Gold79 retains 100 per cent ownership of the two claims. Agnico Eagle also holds adjacent claims that make up the White Hills property, but no work has been reported on that property since 2017.

Gold exploration at Greyhound is focused on the contact between a felsic sub volcanic intrusion and the mafic meta volcanic rocks of a greenstone belt, both part of the Woodburn Lake Group. Exploration has focused on two principal gold targets: a strongly silicified zone that extends approximately 9 km along the western margin of the greenstone belt, and a banded iron formation southwest of Aura Lake that caps the greenstone belt and has a known strike length of about 10 km.

Three holes drilled in 2019 intersected graphitic mudstone and intermediate volcanoclastic strata, strengthening the

volcanogenic massive sulphide (VMS) interpretation of Greyhound, with a best assay result of 1.09 g/t Au over 0.9 metres. In May 2020, Gold79 announced that re-examination of geophysical and soil geochemical data, along with a review of surface sample results for the entire project area, resulted in the definition of seven new gold target areas for the next exploratory drilling program at Greyhound.

In 2021 Agnico Eagle completed 1,815 metres of diamond drilling in nine holes focused on the Aura, Dingo, and Outstanding Lake targets. The South-East Aura Lake gold target had the strongest induced polarization anomaly from a 2018 geophysical survey, and is proximal to a number of historical high grade, locally-transported rock samples containing up to 28 g/t Au. Drill holes were also designed to test two targets at the Dingo pluton. One target has gold in quartz veining at the margin of the pluton, focused on an isolated electromagnetic anomaly associated with gold-in-soil anomalies and surface samples grading up to 12.5 g/t Au. The other is a surface gold discovery at the north edge of the pluton with grab samples that assayed up to 12.4 g/t Au.

The Outstanding Lake VMS target area, identified during the 2018 program, was also tested for base metal mineralization. The target area includes numerous base metal anomalies, and an isolated gold anomaly, identified during a 2020 till survey. A strong electromagnetic conductor was defined from a survey completed on the ice of Outstanding Lake. This conductor is viewed as a probable source for the glacially-transported VMS-mineralized boulders that are found approximately 1 km to the west of the conductor and that have returned assays of up to 9.2% Cu and 18.4% Zn.

No results from the 2021 program have been released.

*Drilling on a geophysical anomaly at the Greyhound project, a joint venture between Gold79 Mines and Agnico Eagle. Courtesy of Agnico Eagle Mines Ltd.*

309	Hard Cash
<b>Operator/Owner</b>	Silver Range Resources Ltd.
<b>Commodity</b>	Gold
<b>NTS</b>	065C13, 065C14
<b>Land Tenure</b>	Crown
<b>Location</b>	392 km west of Arviat

The Hard Cash property, consisting of two mineral claims with an area of 2,511 ha, is located in the southwestern Kivalliq region on the shores of Ennadai Lake within the Ennadai Greenstone Belt. Since the initial discovery of gold on the property in 1946, additional showings have been discovered during exploration programs conducted by four different exploration companies. The Hard Cash property is underlain by a northeast-southwest trending assemblage of late Archean supracrustal rocks, comprised of mafic volcanic flows, lesser tuffs to lapilli tuffs and rare agglomerates. This showing is a typical Archean lode type of gold occurrence, in stratabound iron formation, and in graphic schists, with gold mineralization occurring in late, laminated quartz veins and associated with pyrite, galena, chalcopyrite, and tellurides mineralization. The target model is shear-hosted orogenic gold.

Canarc Resources Corporation optioned the property from Silver Range in 2018, and carried out a program in 2019, including geological mapping, soil sampling, and rock chip sampling, that resulted in the discovery of the Dryland zone. In 2020, the company carried out a seven-hole, 1,019-metre reverse circulation drilling program at Hard Cash to test the Swamp and Dryland showings. Assay results from the program indicated only narrow low grade intervals of gold. More significantly, Canarc concluded that Hard Cash likely does not contain a significant, shear zone-hosted, orogenic gold discovery. Based on these results, Canarc Resources terminated its option agreement with Silver Range in November 2020 for both the Hard Cash and the nearby Nigel properties.

No exploration work was conducted at Hard Cash in 2021.



Geologists examining an outcrop at Blue Star Gold's Hood River property. Courtesy of Blue Star Gold Corp.

310	311	Hood River <sup>1</sup> , Roma <sup>2</sup> , Ulu <sup>3</sup>
312		
<b>Operator/Owner</b>	Blue Star Gold Corp.	
<b>Commodity</b>	Gold	
<b>NTS</b>	076L14 <sup>1,3</sup> , 076L15 <sup>1,3</sup> , 076M02 <sup>2</sup> , 076M07 <sup>2</sup> , 076M10 <sup>2</sup>	
<b>Land Tenure</b>	Subsurface IOL <sup>1</sup> , Crown <sup>2,3</sup> , Surface IOL <sup>3</sup>	
<b>Location</b>	202 km southeast of Kugluktuk <sup>1</sup> , 184 km southeast of Kugluktuk <sup>2</sup> , 198 km southeast of Kugluktuk <sup>3</sup>	

Blue Star Gold Corp. operates the Hood River, Roma, and Ulu properties within the High Lake greenstone belt in the Slave structural province. Hood River and Ulu are contiguous and cover a combined area of 8,962 ha within a subsurface IOL parcel in the southern part of the belt; Blue Star holds a Mineral Exploration Agreement (MEA) with Nunavut Tunngavik Incorporated (NTI) for the former project, and the latter project consists of a single grandfathered mineral lease. Roma covers 7,693 ha in the northern portion of the High Lake belt.

Exploration has taken place intermittently in the area since 1969. Five different mineralization styles have been identified on the Ulu property, with gold present in silicified sediments, strata-bound massive sulphides, and three different types of gold-bearing polymetallic quartz veining. Ulu has an existing NI 43-101 resource in its Flood and Gnu zones of 605,000 ounces of gold in the measured and indicated categories at an average grade of 7.53 g/t Au, and 226,000 ounces of gold in the inferred category at an average grade of 5.57 g/t Au.

Blue Star acquired the Ulu gold property in 2020 from Mandalay Resources, through a cash payment, the posting of remediation securities with the Kitikmeot Inuit Association and the Nunavut Water Board, and the assumption of reclamation responsibilities for the property. A year later, in February 2021, the company announced that it had acquired the Roma Project claims, which were last explored by BHP in the early to mid-1990s and include the Cygnet, Grumpy, and Roma showings. Several high-grade gold occurrences are known at Roma, including an intersection from historical drilling of up 12.38 g/t Au over 2.31 metres including 64.0 g/t Au over 0.37 metres. Geologically speaking, the Roma property is structurally complex, with gold mineralization in the southwestern portion of the property found in an anticline made up of gabbro, intermediate tuff, and biotite schist units. The anticline is cut off on the western limb by the north-trending Kennarctic shear zone, which has been identified over 40 kilometres and separates the High Lake-area volcanic rocks from younger rocks to the east. The original showing is in the northern portion of the property, in a quartz-ankerite vein that varies between 30 cm and 3 m in width and can be traced over 2 kilometres, and cuts into an altered granodiorite body.

Gold

Historical chip sampling from this vein returned a highest result of 24.7 g/t Au over 1.5 metres.

The company received approval from the Government of Nunavut, following the COVID-19-related restrictions in place, to operate an exploration program at Hood River and Ulu in 2020. A two-rig diamond drill program was able to complete 7,624 metres over 38 holes on the Flood and Gnu zones at Ulu and the North Fold Nose (NFN) zone at Hood River. Highlights from this work included 7 metres grading 12.5 g/t Au at Flood, 2 metres grading 52.7 g/t Au at Gnu, and 3 metres grading 13.87 g/t Au at NFN.



Summer drilling in full swing at the Ulu property. Courtesy of Blue Star Gold Corp.

Prior to the start of the on-the-ground program for the 2021 season in June, the company contracted a 2,495 line-km airborne magnetometer survey to assist with refining targets for the drill program at Hood River and Ulu; the survey was later expanded to also cover the Roma Fold target. A total of 25 drill holes, using two rigs, was completed between June and September: two holes were drilled into the NFN zone at Hood River, and 23 holes across the Flood, Gnu, Central, East Limb, and Axis zones at Ulu, totaling 5,102 metres of core, from which 2,534 samples were submitted for assaying. Blue Star also completed remediation activities at the site, with over 5,000 cubic metres of historical solid waste material removed to an

approved landfill. Limited detailed mapping and sampling was carried out at the Roma Main and Roma Fold targets.

Results from the drill program to date include the discovery of a new vein system to the northeast of the Flood zone at Ulu, with a highlight of 8.15 metres at 20.8 g/t Au. Two other holes at the Flood Zone returned highlights of 4.91 metres at 19.1 g/t Au, 7.00 metres at 6.9 g/t Au, and 2.64 metres at 13.0 g/t Au. Mineralization similar to the style at Flood was intersected in holes on the Central and Axis Zone targets.

Further analytical results from this summer’s program are pending, and the company has not yet announced plans for 2022.

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Operator/Owner	Agnico Eagle Mines Limited
Commodity	Gold
NTS	076008 <sup>2</sup> , 076009 <sup>2,3</sup> , 076010 <sup>2,3</sup> , 076015 <sup>3</sup> , 076016 <sup>3</sup> , 077A03 <sup>1,3</sup>
Land Tenure	Crown <sup>1,2,3</sup> , Subsurface IOL <sup>1,2,3</sup> , Surface IOL <sup>2,3</sup>
Location	123 km southwest of Cambridge Bay <sup>1</sup> , 172 km southwest of Cambridge Bay <sup>2</sup> , 145 km southwest of Cambridge Bay <sup>3</sup>

In February, 2021, Agnico Eagle Mines Limited acquired TMAC Resources Inc. and its Hope Bay project, including the Doris gold mine. The project is located within the Slave structural province and includes the 80 km long and up to 20 km wide north-south trending Hope Bay greenstone belt. Archean mafic metavolcanic rocks and intermediate to felsic metavolcanic rocks with interbedded metasedimentary units dominate the belt, with lesser amounts of ultramafic rocks. Felsic intrusions along the eastern flank of the Hope Bay belt separate it from the adjacent Elu greenstone belt, over which Agnico Eagle also holds mineral tenure.

Gold mineralization is found along the entire length of the Hope Bay belt and is classified as Archean lode-gold type. At the Doris mine, located near the northern end of the belt, the gold mineralization is hosted in a steeply-dipping quartz vein system within a sequence of folded and metamorphosed pillow basalts, at the contact between iron-titanium tholeiite and magnesium tholeiite. At the Madrid Trend, centrally located in the belt, mineralization is associated with structural breaks and breccia zones, while at the Boston deposit, located in the southern end of the belt, mineralization is found within deformed quartz-carbonate veins hosted in a complex series of altered sedimentary-volcanic sequences.

Commercial production at Doris began in 2017 with the mill operating at 1,000 tonnes of ore per day, and by the end of 2018 this volume was increased to 2,000 tonnes per day. The most recent NI 43-101 resource estimate for Hope Bay was released by TMAC Resources in March 2020, and Agnico Eagle is treating it as a historical estimate while the company evaluates the deposit. The Doris, Boston, and Madrid deposits are estimated to include 21.82 million tonnes of measured plus indicated resources grading 7.2 g/t Au and 10.92 million tonnes of inferred resources grading 6.1 g/t Au. Proven and probable mineral resources, contained within the measured and indicated resources, totaled 16.88 million tonnes grading 6.5 g/t Au.

In 2021, Agnico Eagle continued mining at the Doris deposit and worked to optimize gold production and improve recovery. Total gold produced by the end of Q3 2021 was 55,524 ounces, in line with forecasts of 18,000 – 20,000 ounces per quarter but significantly lower than the 79,860 ounces and 114,860 ounces produced during the same periods in 2020 and 2019, respectively. The mill had strong performance with gold recoveries above 90%. The company signed a Memorandum of Understanding with TUGLIQ Energy Corp. and Hiqiniq Energy Corporation in July, 2021, to build and operate a wind turbine project to provide a lower-cost and more environmentally-friendly alternative to the current diesel generator power.

The company initiated a \$16.2 million exploration program with three underground drill rigs and one surface drill rig at the Doris mine, and three more surface rigs exploring at Madrid and other targets. As of Q3 2021, 71,453 m of drilling had been completed.

Underground drilling at Doris focused on extending the BTD zone and West Valley zone and initiating infill drilling in the DCN zone, while the surface rig was testing the northern extension of the BTD zone. This work confirmed the BTD extension zone remains open on strike to the north. Drilling in the West Valley zone also confirmed the extension of the deposit to the south and above the dike, with results up to 19.1 g/t Au over 8 metres. At the DCN zone, exploration was focused on delineation drilling and confirming thicknesses and grades, and highlights include 12.9 g/t Au over 12.6 metres in hole DCN21-50418.

Drilling at Madrid has also confirmed that the Naartok East zone extends to the north, and remains open at depth. At Naartok West, a new mineralized zone has been discovered, with grades up to 10.3 g/t Au over 5.9 metres and 6.6 g/t Au over 8.3 metres.

Hope Bay experienced outbreaks of COVID-19 on site in late September and again in October, 2021, that resulted in a ramp down of operations. The on-site workforce was scaled down to a crew of 30 to 40 essential workers, and the return-to-site plans for the Nunavummiut workforce were postponed. Agnico Eagle put improved health and safety protocols in place during this period and received permission in November 2021 to bring back reduced operation crews consistent with what it is been using since early 2020.

<b>316</b>	KGP
<b>Operator/Owner</b>	Solstice Gold Corp.
<b>Commodity</b>	Gold
<b>NTS</b>	055J13, 055J14, 055N01, 055N08, 055O03 – 055O06
<b>Land Tenure</b>	Crown, Surface IOL
<b>Location</b>	43 km northeast of Rankin Inlet

Solstice Gold Corp. owns the Kahuna Gold Project (KGP) near Rankin Inlet and Agnico Eagle's Meliadine gold mine. Solstice has primary title to 75 mineral claims with a combined area of 109,097 ha and a 50 per cent interest in an additional 19 claims. The company also has secondary rights to 47 mineral claims covering an area of 71,195 ha owned by Kodiak Copper Corp. Gold was discovered in the area in 1972 on what is now the Meliadine property, and additional exploration for gold took place on claims adjacent to KGP between 1990 and 2006.

The property is located in the Archean Rankin Inlet greenstone belt within the Hearne Domain of the Churchill structural province and is underlain by metasedimentary and granitic rocks of the Ennadai-Rankin granite-greenstone belt. Gold deposits in the belt occur either in arsenopyrite-rich rocks, associated with sulphidized iron formations, or hosted in metasedimentary rocks. The deposits are associated with splays and folds and display a complex structural history close to the Pyke Fault. These deposit types respond to magnetic and electromagnetic geophysical surveys.

A drill program consisting of six holes was completed in 2019 on the Megafold, Grizzly, Westshore Enterprise Lake, and South Enterprise targets; three of the six holes returned anomalous gold results. The 2020 exploration program consisted of regional surface mapping and boulder sampling over a 40 km<sup>2</sup> area, from which three well-constrained drill target areas were identified.

No work was reported in 2021.


<div>317</div> <div>318</div> <div>319</div>	Meadowbank (Area A <sup>1</sup> , Area B <sup>2</sup> , Area C <sup>3</sup> )
Operator/Owner	Western Atlas Resources Inc.
Commodity	Gold
NTS	056D12 <sup>2</sup> , 056D13 <sup>2</sup> , 066A09 <sup>2,3</sup> , 066A10 <sup>3</sup> , 066A16 <sup>2</sup> , 066H01 <sup>1</sup> , 066H08 <sup>1</sup>
Land Tenure	Crown
Location	97 km north of Baker Lake <sup>1</sup> , 48 km north of Baker Lake <sup>2</sup> , 31 km northwest of Baker Lake <sup>3</sup>

The Meadowbank area project consists of three non-contiguous blocks of claims that were staked adjacent to the all-weather road that connects Agnico Eagle's Amaruq gold mine and Meadowbank Complex to the community of Baker Lake. The properties are underlain by the supracrustal rocks of the Woodburn Lake Group, part of the Rae Domain of the Churchill Province. The property geology is comprised of strongly foliated intermediate to felsic metavolcanic rocks, epiclastic sedimentary rocks, ultramafic units, and magnetite-iron formation units; many of these units are intruded by large granitic plutons. Western Atlas has completed detailed mapping and sampling programs, over 3,800 km of airborne magnetic surveys, over 1,500 line-km of helicopter-borne VTEM and electromagnetic surveys, and 32 line-km of induced polarization ground geophysical surveys. Sampling has defined multiple drill targets with gold values of up to 13.3 g/t gold and 44.7 g/t silver.



Core from Western Atlas's winter drill program on its Meadowbank project, laid out for detailed logging and sampling. Courtesy of Western Atlas Resources Inc.

In 2020, Western Atlas Resources Inc. completed an initial drill program on Target B1 in Block B of its Meadowbank property. Thirteen drill holes were completed for a total of 3,545 metres. The drilling was focused on previously identified shear zones and banded iron formations spanning a strike length of 6 km and 15 km, respectively. Drill hole locations are mainly in proximity to rock samples with anomalous gold values. At the end of November, the company announced positive results from the drill program, including 0.30 m of 1.27 g/t Au and 12.30 g/t Ag and 2.23 m of 0.12% Ni and 0.27% Cr.

	320	321	<b>Meadowbank Complex (Amaruq Mine<sup>1</sup>, Meadowbank Mine<sup>2</sup>)</b>
<b>Operator/Owner</b>	Agnico Eagle Mines Limited		
<b>Commodity</b>	Gold		
<b>NTS</b>	056E04 <sup>2</sup> , 066A16 <sup>2</sup> , 066H01 <sup>2</sup> , 066H06 <sup>1</sup> – 066H10 <sup>1</sup>		
<b>Land Tenure</b>	Crown, Subsurface IOL		
<b>Location</b>	124 km north of Baker Lake <sup>1</sup> , 85 km north of Baker Lake <sup>2</sup>		

The Meadowbank Complex project is connected to Baker Lake by a 110 km-long road. The Complex includes the past producing Meadowbank mine and related infrastructure as well as the Amaruq satellite operation located 50 km to the northwest of the past-producing mine. Amaruq has extended the life of the Meadowbank Complex by supplying a new source of ore to the existing Meadowbank mill.

The Meadowbank mine produced 3.2 million ounces of gold from March 2010 through the end of 2019. The Amaruq mine reached commercial production from the Whale Tail pit in September 2019 and from the V Zone pit in December 2020. Production is expected to continue until 2026 based on current reserves, with a possibility for this to be extended depending on exploration results. The Amaruq underground project was approved for development in 2021 and the first gold production is expected in early 2022. The mine infrastructure and deposits are all located on Inuit Owned Land with grandfathered Crown mining leases, for a total of 100,775 ha of tenure.

The Amaruq property is underlain by Archean volcanic and sedimentary rocks of the Woodburn Lake Group, deposited in a continental rift setting and comprised of mafic to ultramafic volcanic rocks interlayered with carbon rich sedimentary rocks, which can be intruded by granitoids and lamprophyres. All of these formations have been affected by various deformational phases and are generally metamorphosed to greenschist facies.

There are nine mineralized zones identified to date at Amaruq – Whale Tail, Whale Tail North, I, V, R, Mammoth 1 and 2, Buffalo, and Tugak. Gold mineralization is found in quartz pyrite arsenopyrite veins in volcano-sedimentary rocks, similar to that found at the Goose and Portage deposits at the past producing

Meadowbank mine. Whale Tail, the largest deposit, has a strike length of 2.3 km, a known depth of 915 m, and remains open at depth and along strike.

Mining operations related to the Amaruq project use the existing infrastructure at the Meadowbank mine site. Additional infrastructure has been built at the Amaruq project site, consisting of a truck maintenance shop, warehouse, fuel storage, and a camp facility. Ore mined at Amaruq is transported by haul trucks along a 64 km-long all season road to the Meadowbank concentrator site for processing. In 2021, Agnico Eagle produced 255,222 ounces of gold in the first three quarters of the year, as compared to 140,679 ounces for the same period in 2020.



Mapping at the Sheba target near the Meadowbank Complex.  
Courtesy of Agnico Eagle Mines Ltd.


In March 2020, due to restrictions related to the COVID 19 pandemic, Agnico Eagle temporarily reduced its operations and workforce at the Meadowbank Complex, before resuming full production levels in June. Employees from Nunavut were sent home to prevent transmission of the virus from the mine site to the communities – reintegration of those employees began in June 2021 and was completed by October.

Exploration at Amaruq has focused on the area between the Whale Tail and IVR underground mineral resources, with highlights such as 26.6 g/t Au over 2.6 metres at 247 m depth, and 3.7 g/t Au over 5.4 metres at 239 m depth. These results demonstrate potential for mineral resources to be discovered between Whale Tail and IVR near the planned underground mine.

Drilling in the western extension of the Mammoth zone intersected 4.4 g/t Au over 36.4 metres at 264 metres depth and the zone remains open at depth beneath Mammoth

Lake. Twelve exploration drill holes were completed in the Mammoth zone, in a newly discovered oreshoot that remains open at depth. A follow-up drilling program was under way in November 2021 at the Mammoth zone focused on improving the understanding of the mineralization geometry as well as extending known mineralization. A program in this area in 2022 is planned to increase confidence in the continuity of the expanded mineralization as well as to extend any inferred mineral resources developed during the 2021 program.

In the first nine months of 2021, 45 drill holes totalling 7,870 metres were completed in regional exploration around Meadowbank and Amaruq. From this total, 28 holes totalling 5,087 metres were completed in the third quarter into the Sheeba target to test the continuity of the mineralization in proximity to the historical Sheeba showing at depth and along strike. Drilling indicated mineralization is hosted in quartz pyrite-sphalerite-galena veins that have returned high-grade values. Follow-up drilling along strike from Sheeba continued in late 2021, as did drilling near the Vault deposit to test the favourable stratigraphy along the Vault East occurrence.

 325	Meliadine Mine
<b>Operator/Owner</b>	Agnico Eagle Mines Limited
<b>Commodity</b>	Gold
<b>NTS</b>	055J13 – 055K16, 055N01, 055N02, 055O04
<b>Land Tenure</b>	Crown, Subsurface IOL
<b>Location</b>	19 km north of Rankin Inlet

Agnico Eagle Mines Limited's Meliadine mine is connected to the hamlet of Rankin Inlet by an all-weather road, and is located 290 km southeast of the Meadowbank Complex. The property consists of 111,358 ha of Crown mineral claims and grandfathered Crown mineral leases on IOL, and a MEA parcel with NTI. Surface rights for the grandfathered leases and the MEA are administered by the Kivalliq Inuit Association.

The Meliadine mine began commercial production in 2019 and is expected to remain in operation until 2032. At an average grade of 6.10 g/t Au, proven and probable reserves are estimated at 4.0 million ounces of gold. An additional 2.1 million ounces of gold occurs in measured and indicated mineral resources (18.8 million tonnes at 3.53 g/t Au) and 2.3 million ounces of gold are in inferred mineral resources (12.3 million tonnes at 5.82 g/t Au). Continuing exploration at Meliadine is likely to increase the mine's lifespan, as many of the seven known deposits on the property remain open at depth, and new targets have been identified for further evaluation. The company announced in December 2020 that results from exploration at the Discovery deposit resulted in an initial probable mineral reserve estimate of 363,000 ounces of gold; these ounces are included in the above numbers.

## Gold

Meliadine is located in the northern portion of the Archean-aged, west-northwest-trending Rankin Inlet greenstone belt. The belt is made up of deformed mafic volcanic rocks, felsic pyroclastic rocks, sedimentary rocks, and gabbro sills, and is locally metamorphosed from lower to middle greenschist grade. The deposits and known highly prospective areas within the Meliadine trend are mainly located along the Pyke Fault, a high-strain shear zone several kilometres wide and over 80 km in length. Gold mineralization occurs in association with quartz-carbonate shear zones and/or laminated quartz vein systems. The highest-grade ore is hosted in structurally controlled, multi-deformed and sulphidized iron formation units of the Tiriganiaq and Upper Oxide formations. Most of the major deposits at Meliadine – Normeg, Wesmeg, Wolf, Pump, and F Zone – occur within a five-kilometre radius of the main Tiriganiaq deposit, which extends over 3 kilometres at surface and to a known depth of 812 m. The Discovery deposit is located 17 km to the southeast of Tiriganiaq. All the deposits have open-pit potential, with mineralization occurring within 120 metres of surface.



Challenger mobilizing drilling supplies at the Discovery deposit, 20 km East of Meliadine mine. Courtesy of Agnico Eagle Mines Ltd.

Under Agnico Eagle's Phase 2 production plans for Meliadine, the company has increased production to 4,600 tonnes per day, and plans to produce 6,000 tonnes per day by 2025. Production from Meliadine in the first nine months of 2021 totaled 265,787 ounces of gold, including another quarterly record of 97,024 ounces achieved in the third quarter. The company declared the start of commercial production from the Tiriganiaq open pit ahead of schedule on August 15, 2021.

Once the COVID-19 vaccine became available in Nunavut, Agnico Eagle worked to reintegrate its Nunavut-based employees at Meliadine beginning in June and completed by October, 2021. Nunavummiut workers at the site had been at home with pay since the start of the COVID-19 pandemic, to prevent transmission of the virus into communities.

Exploration at Meliadine was budgeted at \$8.3 million dollars for 2021, including 44,000 metres of drilling. In the first nine months of 2021, a total of 5,313 metres over 19 holes was drilled for exploration at Tiriganiaq, with 14 infill holes totaling 3,002 metres at Normeg and Wesmeg. At Pump, 21 holes for deep exploration were completed, totaling 9,600 metres, and two exploration holes at Wolf were drilled for 1,235 metres. Highlights from this drill program include the identification of relatively shallow mineralization at Normeg, of 10.6 g/t Au from 158-161 metres depth, and in a separate hole of 8.3 g/t gold from 224-228 metres depth.

At the Discovery deposit that is interpreted as having potential to be a satellite deposit for the Meliadine mine and mill, 3,245 metres of exploration drilling targeted the Itiqlak-Aquarius target, which has similar structural geometry to Tiriganiaq and Discovery. A highlight result was returned from the target of 21.7 g/t Au, from 93-97.5 m; other holes at Itiqlak-Aquarius also intersected shallow mineralization, with one hole assaying at 3.6 g/t Au over 4.2 metres at 37 metres depth, and a separate hole returning up to 5.4 g/t Au over 4.2 metres at 97 m depth.

In August, 2020, Agnico Eagle applied for an amendment to its water license to allow an increase to the permissible total dissolved solids in discharged water at the site. The company also applied for permits to construct a permanent, seasonally operated water line from the Meliadine site that would discharge saline effluent at tidewater in Hudson Bay, in order to reduce truck transport. In January 2021, the Nunavut Planning Commission approved the continued discharge of 1,600 cubic metres of saline water per day, transported via truck to the discharge point. The discharge permit had originally been modified in June 2020 to increase the limit on saline water discharged from the Meliadine underground works from 800 to 1,600 cubic metres per day.

The regulatory technical meeting for the water licence amendment lasted two days and concluded on December 1, 2020, with the pre-hearing conference and community sessions completed on January 19, 2021. On June 30, 2021, the Nunavut Impact Review Board (NIRB) issued a positive recommendation for the amendment.

The NIRB technical hearings, in-person community round table and pre-hearing conference on the water line construction were postponed from November 2020 to January and February 2021, due to pandemic-related travel restrictions. The public hearing for the water line construction took place in June 2021. A decision from the federal Minister of Northern Affairs was delayed due to the federal election in October 2021; this decision is expected in early 2022.

<b>323</b>	Pistol Bay
<b>Operator/Owner</b>	Northquest Ltd.
<b>Commodity</b>	Gold
<b>NTS</b>	055K05 – 055K07, 055K12, 055L08, 055L09
<b>Land Tenure</b>	Crown, Surface IOL
<b>Location</b>	51 km northwest of Whale Cove

Northquest Ltd., a subsidiary of NordGold SE since 2016, is the owner of the Pistol Bay project, which covers an area of more than 78,000 ha west of Whale Cove.

The Pistol Bay project area is underlain by the Kaminak Group of the Rankin-Ennadai greenstone belt, part of the Hearne Domain of the Churchill Province. The Kaminak Group is made up of volcanic and volcanoclastic rocks, iron formations, mudstones, and siltstones. Numerous syn-volcanic to late tectonic igneous intrusions, dated at approximately 2.7 Ga, occur on the property. The geology is interpreted as a series of back-arc islands that were accreted to the Rae Craton. Minor Paleoproterozoic rocks of the Hurwitz Group also underlie the property.

Gold mineralization at the Vickers deposit is found primarily along the southeast-plunging northeastern contact of Kaminak Group bedrock with a gabbroic to quartz-dioritic body known as the Gereghty Plug, which intrudes into sub-vertical felsic and intermediate metavolcanic and metavolcaniclastic strata. Mineralization is found within and adjacent to the intrusion to at least 300 metres vertical depth below surface, and the deposit remains open at depth.

Numerous gold occurrences have been identified across the Pistol Bay property, but the majority of the work has focused on the Vickers gold deposit. Following the 2019 exploration program at Pistol Bay, which included over 4,600 metres of drilling, Nordgold released a revised resource estimate for Vickers in February 2020. This new estimate has increased the NI 43-101 inferred resource at Vickers to 1.58 million ounces of gold at an average grade of 2.2 g/t Au, doubling the previous estimate of 739,000 ounces of gold.

Northquest's 2020 exploration program was cancelled due to the COVID-19 pandemic, but the company was able to proceed with its plans for 2021 after the Nunavut government allowed fully-vaccinated individuals to travel to the territory. The goals of the summer program were to extend the known depth of the Vickers deposit, and to test the near-surface potential of mineralization west of the currently modeled Vickers open pit. The company has also applied to the NIRB for approval to relocate and expand its existing camp.



Night view of drill on the Vickers deposit at Northquest's Pistol Bay project.  
Courtesy of Northquest Ltd (Nordgold SE).

## Gold

<b>324</b>	Pistol Lake
<b>Operator/Owner</b>	Leeward Capital Corp.
<b>Commodity</b>	Gold
<b>NTS</b>	076N02
<b>Land Tenure</b>	Crown, Surface IOL
<b>Location</b>	271 km southwest of Cambridge Bay

The Pistol Lake property is located 14 km west of Portage Bay on Bathurst Inlet, and about 190 km northeast of the past-producing Lupin gold mine. The property is located within the Archean Yellowknife Supergroup in the Yellowknife greenstone belt and consists of two grandfathered mineral leases with a combined area of 700.63 ha within a subsurface IOL parcel. Mineralization at Pistol Lake is found in two layers of banded iron formation, within the same stratigraphic layer hosting the mesothermal gold deposits at the past-producing Lupin mine, and the George Lake and Goose Lake deposits. The gold bearing banded iron formation at Pistol Lake has had at least three phases of deformation resulting in faulting and recumbent isoclinal folds.

Work on the property has been sporadic since 1965. The last significant work was done by Qikiqtaaluk Corporation in 2000, consisting of a review of all previous work done on the property and an eight-hole diamond drill program. The exploration completed at Pistol Lake has defined silicate iron formation rocks hosting significant gold mineralization with the oxide facies cut by gold-bearing quartz veins. Gold mineralization is commonly associated with arsenopyrite and faulting, folding, and silicification.

A sampling program was carried out in September 2020 during which 13 samples were collected from trenches located at the Farney and Knutson showings, and four core samples were collected as duplicate checks to the core drilled in 2000 that is stored on the property. The trench samples were representative of the sulphide mineralization and silicification observed in each trench, and returned results of up to 22.5 g/t Au, with a mean of 13.0 g/t Au, from Farney and 150 g/t Au, with a mean of 52.4 g/t Au, from Knutson. The four core samples ranged between 3.25 g/t Au and 35.05 g/t Au over the relevant widths.

A NI 43-101 technical report for the property was prepared based on the 2020 site visit including recommendations for future work at Pistol Lake. Structural geologists have been working with all available data to produce a structural analysis of the property that would link known mineralization into the structural model. Detailed structural mapping and geochemical and geophysical surveys are planned for the next field season. This work is considered necessary to target and expand upon the historical data and bring to Pistol Lake to the resource estimation phase.


<b>325</b>	Tree River
<b>Operator/Owner</b>	Silver Range Resources Ltd.
<b>Commodity</b>	Gold
<b>NTS</b>	076L13, 076M04, 086I16, 086P01
<b>Land Tenure</b>	Crown, Surface IOL
<b>Location</b>	145 km southeast of Kugluktuk

The Tree River property comprises three prospecting permits owned by Silver Range Resources that cover a 39,250 ha area within which known gold mineralization is hosted in a monomictic, clast supported quartz pebble conglomerate. The conglomerate unit is similar to that found at Witwatersrand in South Africa and at Pilbara in Australia, and is of a similar age (about 2.9 Ga). The property is located in the northern portion of the Anialik greenstone belt. The quartz pebble conglomerate straddles the mafic volcanic sedimentary contact and is located within 80 metres up section from the contact. Two mineralized units occur in proximity to this contact. The Main Zone has had historic samples return values up to 142 g/t Au near Cracker Lake. In addition, chip samples collected by Silver Range returned up to 540 g/t Au over 20 centimetres. The Main Zone is exposed sporadically at surface over a strike length of 650 m. The West Zone, discovered by Silver Range, has a strike length of 300 m but remains open. Grab samples from the West Zone returned values up to 14.05 g/t Au. The Tree River Conglomerate (TRC) is traceable over a 4.8 km strike length, ranges between 15 and 20 metres in thickness and has a gold bearing horizon between 4 and 8 metres thick. Gold is associated with pyrite and to a lesser degree with arsenopyrite, chalcopyrite, stibnite, and sphalerite. The area was explored by BHP and Strongbow Exploration in the 1990s and early 2000s with prospecting, channel sampling, airborne magnetic surveys, geological mapping, and petrographical studies. BHP concentrated its exploration efforts on structurally controlled veins, but the Strongbow geologists recognized the Witwatersrand style mineralization.

In 1997, two diamonds were recovered while processing samples from the TRC to recover zircons for age dating. A University of Alberta research team followed up this discovery in 2018 and identified three alluvial, kimberlitic diamonds from two 10 kg samples of the TRC. The samples were collected on the CO-69 IOL parcel from the basal unit of the TRC that also contains anomalous gold. In 2020, Silver Range collected panel samples of the TRC from the Main Zone (49.5 kg) and West Zone (55.5 kg). No diamonds were recovered from the samples, but the metallic screen assays returned results of 36.3 g/t Au (Main Zone) and 0.29 g/t Au (West Zone).

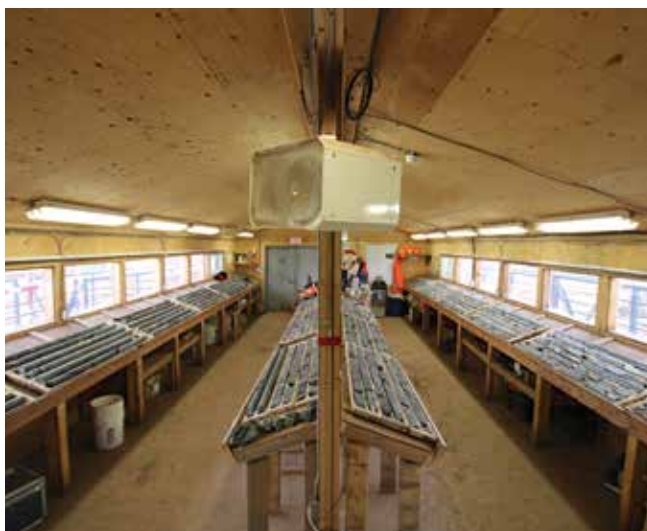
Silver Range proposed a program of systematic panel sampling, geological mapping, and focused prospecting at Tree River in 2021, to evaluate the large-scale gold and diamond potential of the TRC. No further information on the proposed program has been released.

# Iron

 401	Mary River Mine
<b>Operator/Owner</b>	Baffinland Iron Mines Corporation
<b>Commodity</b>	Iron
<b>NTS</b>	037C09, 037E06, 037E10 – 037E12, 037G02, 037G03, 037G05 – 037G07, 037G11, 047H08, 037C10, 037C16, 037D13, 037E04, 037E05, 037E14, 037E15, 037F01, 037F10, 037F13 – 037F16, 037G01
<b>Land Tenure</b>	Crown, Subsurface IOL, Surface IOL
<b>Location</b>	155 km south of Pond Inlet

Baffinland Iron Mines Corporation (BIMC) operates the Mary River iron mine on northern Baffin Island. The property consists of 411,949 hectares (ha) of tenure, including 363,323 ha of Crown mineral claims and three NTI Mineral Exploration Agreements covering 48,626 ha. The initial discovery of and early exploration for iron ore at Mary River took place from 1962 to 1965, but no further exploration was done in the area until BIMC acquired the property in 2004. Commercial production from the main deposit, Deposit 1, at Mary River began in late 2014. In 2021 BIMC shipped 5.61 million tonnes of iron ore in 73 shipments from the Milne Inlet port.

Nine known iron deposits and several prospects are hosted in the metasedimentary and metavolcanic rocks of the late Archean 2.76–2.71 Ga Mary River Group. The region which is now northern Baffin Island was impacted by three major tectonic events, the most significant being the Trans-Hudson Orogeny at 1.8 Ga. The lithological units of relevance to the project are a sequence of stratigraphically lower metavolcanic rocks and stratigraphically higher metasedimentary rocks, with an iron formation unit forming a prominent marker.



High-grade iron formation drill core from Deposit 1, laid out for logging in the core shack at the Mary River mine. Courtesy of Baffinland Iron Mines Corp.

In the Mary River area, the known high-grade iron mineralization is associated with large-scale fold structures along structural boundaries; two of the major structures are the Mary River Synform, which hosts Deposits 1 through 3, and the McOuat Synform, which hosts Deposits 4 and 5. Mineralization at Deposit No. 1, currently being mined, averages 64% Fe, with few deleterious elements. The high-grade iron ore is associated with the footwall chlorite schist, and occurs as hematite, magnetite, or specularite in banded iron formation.

Exploration at Mary River in 2021 was limited by the COVID-19 pandemic, with regional exploration cancelled for the season. However, deposit-scale exploration still occurred, with 5,460 metres of infill-drilling over 19 holes on Deposits 1 and 3. All 19 holes intersected high-grade iron formation. Results from the 2021 program will contribute to new geological and resource modeling, and the preparation of a revised NI 43-101 resource estimate and feasibility study for the mine. A multi-year geotechnical drill program, including a slope stability study, also began at the site in the summer season; the program is expected to include 9,500 metres of drilling. A helicopter-borne gravity survey and magnetic survey were also carried out over the Magnetite Hill claims, which were staked in 2019 and have high-grade ore potential.

BIMC has been working to amend its Phase 2 proposal with the Nunavut Impact Review Board (NIRB) for several years. The company is seeking to increase the quantity of ore it is allowed to ship through the Milne Inlet port to 12 million tonnes per year, and for approval to construct the 'North Railway', a 110-kilometre railway intended to parallel the existing tote road that connects the mine site to the port. Initial hearings on the proposed amendment began in 2019, but significant concerns expressed by the public resulted in NIRB adjourning the hearings planned for Iqaluit and postponing the public hearings in Pond Inlet. Following this adjournment, BIMC halted planned work related to Phase 2 of the project and laid off contract employees. Technical meetings that were planned for March 2020 in Iqaluit were pushed back to September, when the meetings were held in Pond Inlet, along with a pre-hearing conference and a community roundtable, using a combination of in-person and teleconferencing.

NIRB released its pre-hearing report in October 2020 and convened a public hearing in Pond Inlet in January and February, 2021. This hearing ran behind schedule, and while it was ongoing a group of demonstrators blocked the tote road and airstrip to protest the proposed Phase 2 amendments. BIMC obtained a court injunction to reopen the airstrip and resume crew changes and resupply flights to take place. The hearing was planned to continue in Iqaluit in April 2021, but was again re-scheduled after a COVID-19 outbreak in Iqaluit interrupted the proceedings. The hearing finally concluded in November 2021. NIRB was expected to release its recommendation on the Phase 2 amendment for final decision by the Minister of Northern Affairs by the end of 2021. BIMC has stated that if the Phase 2 amendment is not approved, the mine may be put into care and maintenance.

## Nickel-Copper-PGE

501	Ferguson Lake
<b>Operator/Owner</b>	Canadian North Resources Inc.
<b>Commodity</b>	Palladium, Platinum, Rhodium, Copper, Nickel, Cobalt
<b>NTS</b>	065I14, 065I15
<b>Land Tenure</b>	Crown, Surface IOL
<b>Location</b>	159 km south of Baker Lake

The Ferguson Lake property consists of 10 contiguous claims and 10 mineral leases with a combined area of 24,810 ha. The deposit is located in the northwestern part of the Hearne Domain of the Churchill Province, and overlies the northerly extension of the Yathkyed greenstone belt. Mineralized zones across the Ferguson Lake property are magmatic copper-nickel-cobalt with palladium and platinum mineralization, and are spatially related to mafic and ultramafic intrusions, mostly coarse-grained gabbros.



Geologists logging core at Canadian North Resources' Ferguson Lake project.  
Courtesy of Canadian North Resources Corp.

The main Ferguson Lake Deposit is divided into East, Centre, and West zones which are all spatially related to the same gabbro unit. A second type of mineralization consists of low-base metal sulphides with high-grade PGE situated beneath and along the footwall of massive sulphide lenses within the intrusions.

The deposit was discovered in the 1950 and explored intermittently by several companies, with the bulk of the work being done by Starfield Resources between 1999 and 2011. Canadian North Resources purchased the property in 2013, and carried out programs in 2013, 2015, and 2018.

The 2013 program involved re-sampling of historic core and re-interpretation of the deposit model. The 2015 program involved reconnaissance prospecting, a sampling program and a geophysical survey. A further program of rock sampling was carried out in 2018, during which 55 grab and chip samples were collected but returned generally low analytical results. The company also carried out metallurgical testing and evaluated different ore treatment processes between 2013 and 2016. An updated resource for the deposit includes 30.2 million tonnes of indicated resources grading 1% Cu, 0.67% Ni, 0.05% Co, 1.18 grams per tonne (g/t) Pd, and 0.19 g/t Pt. Inferred resources total 15.8 million tonnes grading 0.99% Cu, 0.65% Ni, 0.07% Co, 1.55g/t Pd, and 0.25 g/t Pt. Metallurgical recoveries of up to 99% Cu, 87% Ni, 90% Co and 90-95% for Pt-Pd are anticipated should the deposit go into production.

The one-month 2021 exploration program from August to September consisted of 2,400 metres of diamond drilling in nine holes on the Ferguson Lake mining leases. This program was to test the West zone of the Ferguson Lake deposit. All the holes intersected massive to semi-massive or stringers of Ni-Cu-Co-Pd-Pt sulphides; these intersections were sampled, but no results have been released. Drilling is planned to re-start in early March 2022 to continue into the fall with two drill rigs operating.

## Inactive projects

The **Chidliak** diamond project is owned by De Beers Group, and is located northeast of Iqaluit on the Hall Peninsula. Seventy-four kimberlites have been identified on the property, of which at least 41 are diamond-bearing. The CH-06 and CH-07 kimberlites were the subject of a preliminary economic assessment by Peregrine Diamonds Ltd. in 2018, before its acquisition by De Beers. Those two kimberlites have collective inferred resources of 22.2 million carats of diamonds. De Beers has only carried out one program, in 2019, since acquiring the project, consisting of 14 drill holes into CH-6 and environmental baseline monitoring. In 2020 and 2021 annual maintenance was done at site but no exploration was conducted.

Kodiak Copper Corp., formerly Dunnedin Ventures Inc., owns the **Kahuna** diamond project located between the hamlets of Chesterfield Inlet and Rankin Inlet. At least 88 kimberlites have been identified from historical work on the property, of which eight are significantly diamondiferous. An inferred resource of 4 million carats was published for the Kahuna and Notch kimberlites in 2015, and they remain open along strike and at depth. The most recent work on the property was in 2018 and resulted in discovery of a new kimberlite, as well as identification of a discrete target area for potential diamond sources at the head of a trend of diamond indicator mineral for which no source is known.

The **Mel** diamond project is owned by North Arrow Minerals Inc. and located on the Melville Peninsula. Three kimberlites were discovered during the 2017 and 2018 programs, and the property also includes multiple kimberlite indicator mineral trains with unresolved sources. No exploration has occurred at the project since 2018, but a data sharing and royalty agreement signed in 2021 between StrategX Elements Corp. and North Arrow for Mel and a surrounding area of interest provides North Arrow with diamond rights to any mineral claims acquired by StrategX and a royalty on non-diamond production within that area. StrategX in turn gains



*Glacial erratic on North Arrow's Mel claims. Courtesy of North Arrow Minerals Inc.*

non-diamond mineral rights within Mel, and a royalty on diamond production.

Located on the Boothia Peninsula, the **Stein** diamond project is under option to GGL Resources Corp. and is owned by Arctic Star Exploration Corp. In 2019, GGL conducted ground-based magnetic surveys over high-priority targets identified by historical detailed airborne magnetic surveys, and defined a range of kimberlite-like signatures. As part of the same program, the company staked 19 mineral claims within the area of four

contiguous prospecting permits which have now lapsed. The remaining work needed for GGL to earn a 60 per cent interest in the property is to discover in-situ kimberlite. No work was carried out in 2020 or 2021.

The **Atlantis** gold project is owned by Silver Range Resources Corp. and includes prospective Archean mafic volcanic rocks similar to those found at Agnico Eagle's Amaruq gold mine, located 55 km to the south. Silver Range acquired two prospecting permits over

## Inactive Projects

the property in 2019 and planned a summer program for that year from which no results have been released. No work was conducted in 2020 or 2021.

ValOre Metals Corp. owns the **Baffin Gold** project on central Baffin Island, covering the 160 km-long Foxe Fold greenstone belt. The property has been explored by several companies since gold was discovered there in 2001. ValOre optioned the project in 2017, consolidated ownership in 2018, and carried out programs in both of those years. No further work on the project has been reported.

As part of its acquisition of TMAC Resources Inc. in early 2021, Agnico Eagle Mines Limited gained ownership of the **Elu Belt** gold project and the 10-km-wide by 80-km-long Elu greenstone belt it covers. The last reported work was a 2018 airborne magnetic-electromagnetic survey over the "Elu Link", thought to be a stratigraphic link between the Hope Bay and Elu greenstone belts.

The **Gibson MacQuoid** gold project covers approximately 52 km of strike length of the greenstone belt of the same name, and is owned by Fury Gold Mines Limited. Sampling was carried out in 2017 and 2018, no further work has been done but a program is proposed for 2022.

Cache Exploration Inc. owns the **Kiyuk** gold project in the southwestern corner of the Kivalliq region. In 2019, while under option to Margaret Lake Diamonds Inc., a NI 43-101 technical report on the property was completed as well as a review of historic drill core and a field reconnaissance program. The option agreement was terminated in 2020. Cache announced plans for a 2021 winter drill program; no further information has been released.

Number	Project	Owner
<div>◆</div> <b>Diamonds</b>		
203	Chidliak	De Beers Group
204	Kahuna	Kodiak Copper Corp.
205	Mel	North Arrow Minerals Inc.
206	Stein	GGL Resources Corp., Arctic Star Exploration Corp.
<div>▭</div> <b>Gold</b>		
326	Atlantis	Silver Range Resources Ltd.
327	Baffin Gold	ValOre Metals Corp.
328	Elu Belt	Agnico Eagle Mines Limited
329	Gibson MacQuoid	Fury Gold Mines Ltd.
330	Kiyuk	Cache Exploration Inc.



Grab sample with glacial striations, from the ML-8 kimberlite at North Arrow's Mel project. Courtesy of Crown-Indigenous Relations and Northern Affairs Canada.

# Glossary

**base metal**

a metal that corrodes or oxidizes easily, such as iron, lead, copper, or zinc.

**breccia**

a type of rock made up of angular rock or mineral fragments that have been fractured by forces within the Earth and then cemented together. Breccias can be good hosts for mineral deposits because the fractures in the rock provide spaces for mineralization to occur.

**bulk sample**

the collection of a large amount of mineralized material from a deposit to determine its average metal or mineral content. Bulk samples are usually several hundred kilograms to several tonnes in size.

**carat**

a unit of weight used for diamonds and other gemstones. One carat is equivalent to 0.2 grams.

**deposit**

a natural concentration of a metal, gemstone or other mineral substance, which may be economically extracted but which needs more detailed study to be classified as a resource. Also known as a mineral deposit.

**drilling**

the extraction of a sample of bedrock or other surface material such as glacial till or clay, in order to examine the occurrence of rock types, understand an area's geological structure, or verify the presence or absence of ore minerals.

**element**

a pure substance that contains only one type of atom. Gold, copper, iron, and other metals are elements.

**fee simple**

a type of private land ownership in which the owner has the right to use, control access to, and transfer the land. Inuit hold fee simple title to Inuit Owned Land.

**geochemical survey**

the collection of rock, soil, or water samples from a defined area and their subsequent chemical analysis in a laboratory, to identify abnormal concentrations of chemical elements that indicate the presence of metals or gemstones. Also referred to as geochemical exploration.

**geophysical survey**

the collection of information associated with bedrock using sensing instruments. These surveys can be conducted from the air or the ground to detect physical properties of rocks such as magnetism, gravity or conductivity.

**grab sample**

a rock sample, collected by hand, that is examined for its physical characteristics and chemically analyzed to determine whether valuable minerals or metals are present.

**greenstone belt**

a linear zone or "belt" of metamorphosed volcanic rocks that often host deposits of gold and other valuable metals. Their characteristic colour comes from several different green minerals that make up the volcanic rocks. These belts can be tens to hundreds of kilometres in length and are found in several places across Nunavut.

**kimberlite**

a type of igneous rock that sometimes contains diamonds. Kimberlites can be composed of intrusive and/or extrusive rock. Kimberlite indicator minerals (KIMs) are minerals found in glacial or other sediments that suggest the nearby presence of a kimberlite.

**Mineral Exploration Agreement**

an agreement signed between Nunavut Tunngavik Incorporated and exploration companies, which allows exploration on Inuit Owned Lands.

**National Instrument 43-101 (NI 43-101)**

a set of rules and guidelines for reporting information related to mineral exploration projects that are listed on Canadian stock exchanges.

**ore**

a rock or mineral that contains an economically important metal, that can be mined and processed to produce that metal.

**platinum-group elements (PGE)**

a group of metals including iridium, osmium, palladium, platinum, rhenium, rhodium, and ruthenium, that are highly resistant to tarnishing and corrosion. They are used in both industrial applications and in jewellery.

**precious metal**

a metal such as gold or silver, which has high economic value and does not corrode.

**preliminary economic assessment**

an initial economic study done on a mineral deposit to determine whether or not the project can be profitable under current market conditions.

**reserve**

a published estimate of the amount of naturally occurring metal, gemstone, or other mineral substance in a deposit that can be economically extracted at the time of publication of the estimate. Classifying a deposit as a reserve indicates that a company has strong confidence in the quantity and quality of ore in that deposit. Mineral deposits must meet specific legal criteria to be classified as reserves.

**resource**

a published estimate of the amount of naturally occurring metal, gemstone, or other mineral substance in a deposit, which is present in an amount that could allow for economic extraction of the material in the future. Classifying a deposit as a resource indicates that a company has moderate confidence in the quantity and quality of ore in that deposit, but that more exploration is needed to consider it a reserve. Mineral deposits must meet specific legal criteria to be classified as resources.

**shear**

a type of deformation resulting from forces within the earth that cause parts of a rock mass to stretch, compress, or fracture. This deformation can form shear zones, bodies of rock with many parallel fractures that can be good hosts for hydrothermal mineral deposits.

**sulphide**

a group of minerals that contain the element sulphur, including a large number of metal-bearing minerals that are sources for metals such as gold, zinc, and copper. They are commonly referred to as economic minerals. Sulphide deposits can be massive (minerals are concentrated over small areas) or disseminated (minerals are distributed over large areas).

## GUIDE TO ABBREVIATIONS

<b>CIRNAC</b>	Crown-Indigenous Relations and Northern Affairs Canada	<b>MPR</b>	Minerals and Petroleum Resources Division, Department of Economic Development and Transportation, Government of Nunavut
<b>CNGO</b>	Canada-Nunavut Geoscience Office	<b>NI 43-101</b>	National Instrument 43-101
<b>EDT</b>	Department of Economic Development and Transportation, Government of Nunavut	<b>NIRB</b>	Nunavut Impact Review Board
<b>GN</b>	Government of Nunavut	<b>NTI</b>	Nunavut Tunngavik Incorporated
<b>IOL</b>	Inuit Owned Land	<b>PGE</b>	platinum-group elements
<b>MEA</b>	Mineral Exploration Agreement	<b>SEDAR</b>	System for Electronic Document Analysis and Retrieval



Double rainbow over Pistol Bay camp. Courtesy of Northquest Ltd (Nordgold SE).

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Moss campion (*Silene acaulis*) blooming on the tundra. Courtesy of CIRNAC.

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*Bold project number and name signifies an advanced or major project.*



*Night view of helicopter, moon & stars, Pistol Bay Project. Courtesy of Northquest Ltd (Nordgold SE).*

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## **Exploration Overview**

The online version of the annual publication of exploration activities throughout Nunavut

## **NUMIN References**

A downloadable library of scientific publications, maps, and data

## **NUMIN Showings**

For browsing the mineral occurrences database with links to supporting references

## **Nunavut Mineral Project Inventory**

An inventory of previously explored mineral projects categorized by commodity, mineral potential, and tenure availability



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