# Northwest Territories Mineral Exploration Overview Updated March 2020

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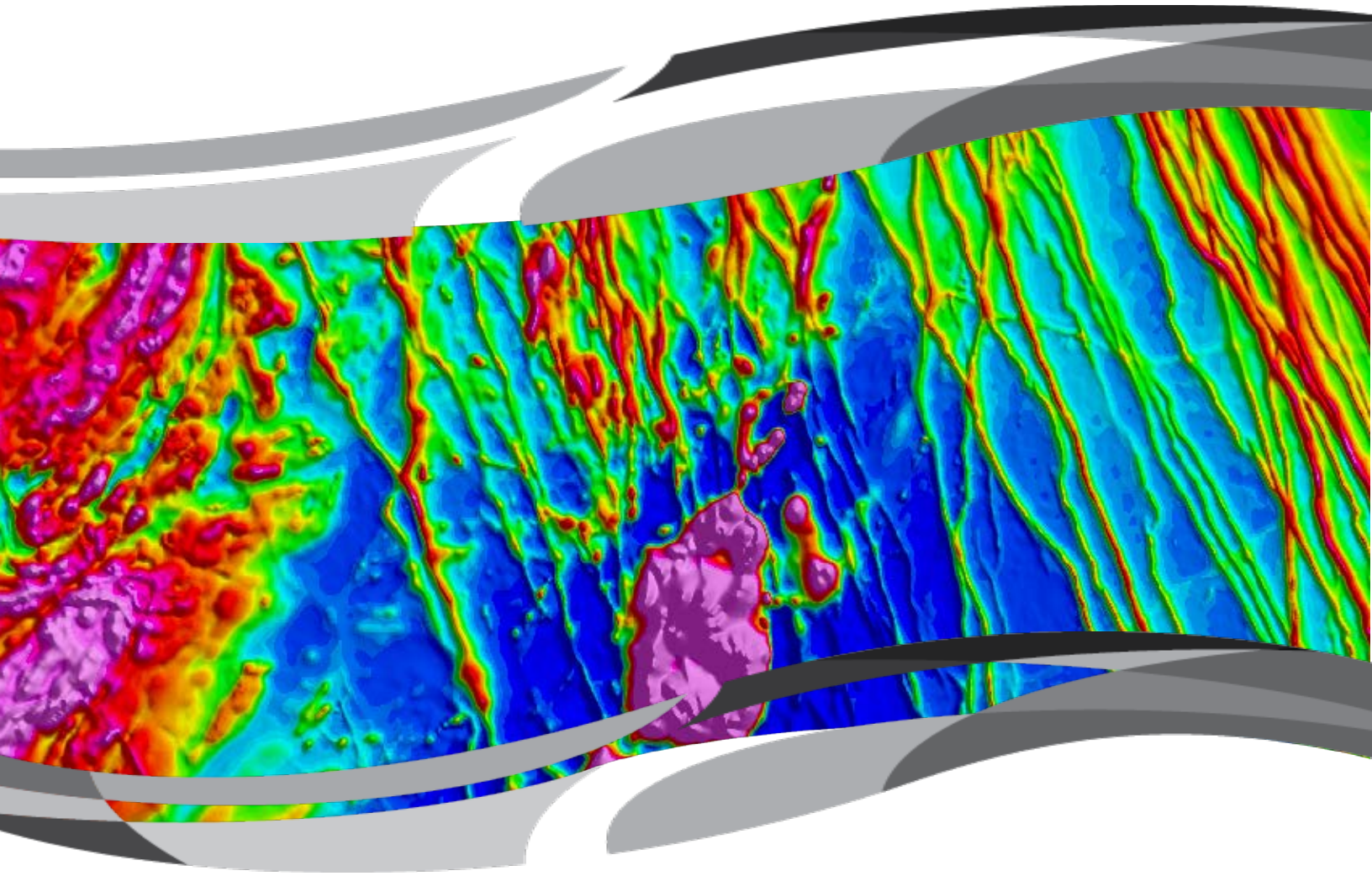

H. Falck, B. Elliott, S. Cairns, and L. Powell

NORTHWEST TERRITORIES
GEOLOGICAL SURVEY

Government of
Northwest Territories

*Cover image:*
*A total magnetic field image taken from a recent airborne geophysical survey released by the Northwest Territories Geological Survey (Open File Report 2019-003), the image is 40 kilometres across. This aeromagnetic survey was flown in the Itchen Lake-Point Lake area, approximately 130 kilometres northwest of the Ekati Diamond Mine. The region is prospective for diamond, gold, and base metal deposits. The approximately 65,000 line-kilometre survey covers parts of National Topographic System (NTS) map sheets 086H, 086A, and 076E. Flight line spacing was 100 metres. The work was funded by the Canadian Northern Economic Development Agency and the Northwest Territories Geological Survey to inform a variety of mineral exploration and geological research objectives. EON Geosciences Inc. of Montreal, Quebec conducted the survey.*

*Mirza, A.M., and Elliott, B., 2019. Aeromagnetic survey of the Itchen Lake and Point Lake area, Northwest Territories, parts of NTS 086H, 086A, and 076E; Northwest Territories Geological Survey, NWT Open Report 2019-003.*

*Image de couverture :*
*Cette vue intégrale d'un champ magnétique est tirée d'un levé aéromagnétique récemment publié par la Commission géologique des Territoires du Nord-Ouest (CGTNO) dans son rapport public 2019-003. L'image couvre une zone large de 40 kilomètres. Ce levé aéromagnétique a été effectué dans la région d'Itchen Lake et de Point Lake, à environ 130 kilomètres au nord-ouest de la mine de diamants Ekati. La région possède un potentiel en diamants, en or et en métaux communs. Ce levé d'environ 65 000 kilomètres linéaires couvre les parties 086H, 086A et 076E des feuilles de la carte du SNRC avec des lignes de vol espacées de 100 mètres. Financée par la CGTNO et l'Agence canadienne de développement économique du Nord, l'étude vise divers objectifs d'exploration minière et de recherche géologique. Elle a été réalisée par EON Geosciences inc. de Montréal, au Québec.*

*Mirza, A.M., et Elliott, B., 2019. Levé aéromagnétique de la région d'Itchen Lake et de Point Lake, Territoires du Nord-Ouest (TNO), parties 086H, 086A et 076E des feuilles de la carte du SNRC; Commission géologique des Territoires du Nord-Ouest, Rapport public 2019-003.*

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English

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French

Kīspin ki nitawihtīn ē nīhīyawihk ōma ācimōwin, tipwāsinān.

Cree

Tłıchǫ yatı k'ee. Dı wegodı newǫ de, gots'o gonede.

Tłıchǫ

Ɂerıhtł'ı s Dëne Sų łıné yatı t'a huts'elkër xa beyá yatı theɂą ɂat'e, nuwe ts'ën yołtı.

Chipewyan

Edı gondı dehgah got'ıe zhatıé k'eę́ edatł'eh enahddhę nıde naxets'e'edahłı.

South Slavey

K'ahshó got'ıne xədə k'é hederı ɂedıhtl'é yerınıwę nıdé dule.

North Slavey

Jii gwandak izhii ginjì k vat'atr'ijąʔ hch'uu zhit yinohthan ji', diits'at ginohkhii.

Gwich'in

Uvanittuaq ilitchurisukupku Inuvialuktun, ququaqluta.

Inuvialuktun

Ċᖏժ◁ ᑎᑎᕃᖏᐃᑦ ᐱᓯᒪᔪᐱᒋᑦ ᐃᓄᖏᑎᑐᓕᕃᖏᒪᓗᑎᖏ, ᐅᕐᑦᑎᓐᓄᓄᑦ ᐅᕃᖏᓪᓕᐊᓐᓇᕃᑐᑎᑦ.

Inuktitut

Hapkua titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarlutit.

Inuinnaqtun

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Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

# Northwest Territories Mineral Exploration Overview Updated March 2020

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# Executive summary

Despite a poor year for rough diamond sales globally, diamond mining continues to provide a foundation for the Northwest Territories (NWT) economy. The Gahcho Kué Mine, which has been operating at better than forecast production levels, announced the discovery of the diamondiferous Wilson kimberlite within the current mine plan area. Consistently high predictions for zinc demand have encouraged the rejuvenation of Pine Point by Osisko Metals Inc. and Norzinc Ltd. and the on-going efforts to bring Prairie Creek into production. Gold prices have been buoyed by a safe-haven sentiment due to concerns over lagging economic growth, tariffs and trade wars with China. Advanced projects have benefitted from an improving investment climate encouraging on-going exploration by Nighthawk Gold Corp. and TerraX Minerals Inc. (Figure 1).

However, many smaller projects were suspended as the companies were not able to raise sufficient funds in the investment market. Lack of exploration capital was particularly true for projects targeting green energy and battery technologies. Most of the projects focusing on lithium, cobalt, and vanadium started the year strong but were dormant by the summer. A notable exception was the reactivation of Avalon's Nechalacho project with an infusion of resources from Cheetah Resources and Vital Metals of Australia.

One of the indicators of exploration activity – claims staked *vs* lapsed – displayed a pessimistic trend (Figure 2). In 2018, a total of 268 claims covering 184,985 hectares were added and 70 claims covering 58,876 hectares were released. In 2019, 121 claims covering 46,222 hectares were added, but an area of 69,957 hectares in 219 claims and leases were cancelled. There are 37 active Prospecting Permits this year. New staking included areas in the Mackenzie Mountains, additional ground at Pine Point, re-staking of claims in the Lac de Gras region, and an expansion of claims in the Yellowknife area.

In 2019-2020, the Government of Northwest Territories (GNWT) invested nearly $1 million in grassroots mineral exploration through the Mining Incentive Program. The funding was dispersed to 19 exploration projects comprising twelve prospectors and seven companies. The Mineral Resources Act passed the legislature marking the NWT's first-ever stand-alone Act governing mining in the territory.

# Sommaire

Malgré une année décevante pour la vente de diamants bruts à l'échelle mondiale, l'extraction de diamants continue d'être un pilier de l'économie ténoise. La mine Gahcho Kué, en activité à un niveau de production supérieur aux prévisions, a annoncé la découverte de la cheminée de kimberlite diamantifère « Wilson » à l'intérieur des limites du plan minier actuel. Les prévisions de demande de zinc constamment élevées ont encouragé à la fois la relance de la mine Pine Point par Osisko Metals inc. et les efforts continus de Norzinc ltd. pour commencer l'extraction au projet minier Prairie Creek. L'or, perçu comme une valeur refuge, a vu ses cours dopés en raison des inquiétudes suscitées par une croissance économique anémique, les droits de douane et les guerres commerciales avec la Chine. Les projets à un stade avancé ont bénéficié de l'amélioration du climat d'investissement qui encourage les activités d'exploration en cours par Nighthawk Gold Corp. et TerraX Minerals inc. (figure 1).

Toutefois, de nombreux projets de moindre envergure ont été suspendus, car les sociétés responsables n'ont pas été en mesure d'assurer un financement suffisant. Le manque de capitaux nécessaires à l'exploration est particulièrement criant pour les projets en lien avec les technologies d'énergie verte et les technologies de batteries. La plupart des projets axés sur le lithium, le cobalt et le vanadium ont commencé l'année en force, mais étaient en dormance l'été venu. La relance du projet Nechalacho d'Avalon constitue une exception notable avec l'apport des sociétés australiennes Cheetah Resources et Vital Metals.

Le nombre de claims jalonnés par rapport au nombre de claims abandonnés, un des indicateurs de l'activité d'exploration, a affiché une tendance pessimiste (figure 2). En 2018, un total de 268 claims couvrant 184 985 hectares ont été ajoutés, et 70 claims couvrant 58 876 hectares ont été abandonnés. En 2019, 121 claims couvrant 46 222 hectares ont été ajoutés, mais 219 demandes et baux couvrant une superficie de 69 957 hectares ont été annulés. Cette année, 37 permis de prospection sont actifs : parmi les activités d'exploration en cours, mentionnons de nouveaux claims dans le secteur des monts Mackenzie et dans le secteur de Pine Point, la reprise d'exploration de claims dans la région du lac de Gras et l'agrandissement de claims dans la région de Yellowknife.

En 2019-2020, le gouvernement des Territoires du Nord-Ouest (GTNO) a investi près d'un million de dollars dans la prospection minière locale par l'intermédiaire du Programme d'encouragement aux activités minières. Ce financement a été versé à 19 projets d'exploration menés par 12 prospecteurs et 7 entreprises. La Loi sur les ressources minérales, adoptée par le GTNO, est la première loi ténoise distincte ayant pour objet de régir le secteur minier aux TNO.


Figure 1. 2019 Mining and Exploration Projects.

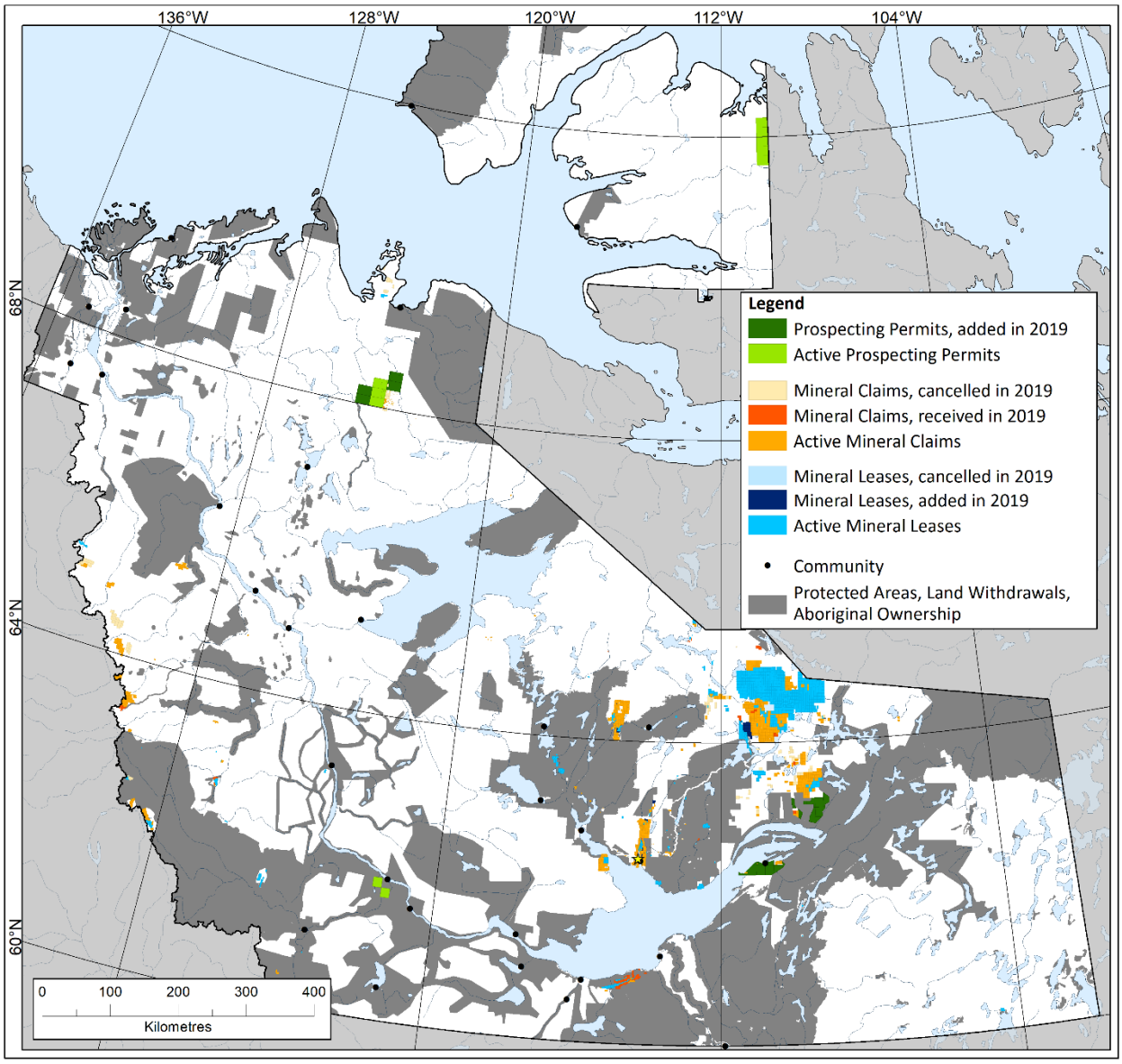


Figure 2. 2019 Mineral Tenure.

# Mining

## Gahcho Kué Mine

In 2019, the Gahcho Kué Mine, a joint venture between De Beers Canada and Mountain Province Diamonds, recovered a total of 6,820,631 carats from 3,580,551 tonnes of ore (Table 1). The total carats recovered for 2019 was higher than the anticipated 6.7 – 6.8 million carats, which has been attributed to recent plant modifications that increased throughput in the fourth quarter. The fourth-quarter of 2019 production was a record 3.58 million tonnes of ore recovering 1.98 million carats of diamond.

The plant modifications also reduced the cost guidance to $95 - $105 from $110 - $120 per tonne of ore processed.

Mountain Province reports they sold 3,284,520 carats (from their share of the production) in 2019 with an average price of $84 per carat (US$63 per carat) for a total of $276.3 million (US$208.2 million).

Table 1: Gahcho Kué fourth quarter and 2019 fiscal year production statistics.

| | 2019 Q4 | 2018 Q4 | 2018 to 2019 Variance | FY 2019 | FY 2018 | 2018 to 2019 Variance |
|---|---|---|---|---|---|---|
| Total tonnes mined (ore and waste) | 11,089,408 | 11,365,990 | -2% | 43,224,827 | 41,444,057 | 4% |
| Ore tonnes mined | 890,886 | 670,707 | 33% | 3,247,324 | 2,908,184 | 12% |
| Ore tonnes treated | 936,903 | 751,448 | 25% | 3,580,551 | 3,194,360 | 12% |
| Carats recovered | 1,977,438 | 1,545,786 | 28% | 6,820,631 | 6,936,894 | -2% |

On December 23rd, Mountain Province reported microdiamond results from 1702 kilograms of kimberlite recovered from two drillholes from the Wilson Kimberlite. The Wilson kimberlite was recently discovered within the planned open pit shell for the Tuzo kimberlite. These two drillholes yielded 5560 diamonds in the +0.075 millimetre size classes. A total of eighty-six +0.85 millimetre diamonds recovered weighed 2.33 carats. These results are summarised below, including those previously reported in June of 2019. Ten drillholes intersected 409 metres of kimberlite over a 2897 metre delineation drilling program on Wilson (Table 2).

Table 2: Microdiamond results for Wilson, including results reported on 11 June 2019 from drillhole MPV-19-496C.

| Total weight | Number of diamonds according to sieve size fraction (mm) | | | | | | | | | | | Total of +0.075 stones |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kg | +0.075 -0.106 | +0.106 -0.150 | +0.150 -0.212 | +0.212 -0.300 | +0.300 -0.425 | +0.425 -0.600 | +0.600 -0.850 | +0.850 -1.180 | +1.180 -1.700 | +1.700 -2.360 | +2.360 -3.350 | |
| 1702 | 2066 | 1372 | 863 | 532 | 333 | 200 | 108 | 61 | 16 | 5 | 4 | 5560 |

## Diavik Diamond Mine

Diavik Diamond Mine, 60% Rio Tinto and 40% Dominion Diamonds Mines (a part of the Washington Companies), processed 2,435,000 tonnes of ore and recovered 6,719,000 carats of diamond during 2019. Carat production was 8% lower in 2019 than the previous year due to lower ore availability and lower grade from the underground operations. The drop in production was partly offset by higher tonnage and grade realised from the A21 open pit. Rio Tinto's Fourth Quarter Operations Review indicates that brownfields exploration was undertaken on the Diavik Diamond Mine leases.

## Ekati Diamond Mine

The Ekati Diamond Mine is owned and operated by Dominion Diamond Mines (a part of the Washington Companies). The Ekati Diamond Mine consists of the Core Zone, which hosts the current mining operations and the adjacent Buffer Zone. The Core Zone at the Ekati Diamond Mine, in which Dominion Diamond Mines has an 88.9% participating interest, the balance held by Stu Blusson, encompasses 175 mining leases totalling almost 173,000 hectares. Dominion Diamond Mine has 100% ownership of the Buffer Zone comprising 106 mining leases totalling approximately 89,000 hectares. Both the Core and Buffer Zones are the focus of new development and exploration work.

Current operations at the mine include the Pigeon and Sable open pits and underground mining of the Misery pipe. The Lynx open pit was completed in September 2019.

Summer exploration on the Ekati Diamond Mine property included airborne magnetic surveys and reverse circulation and diamond drilling. Eleven kimberlite discoveries were made in 2019, of which six are in the Core Zone and five in the Buffer Zone. The new kimberlites are currently being evaluated for diamond potential.

As indicated in a summary environmental impact statement submitted to the Mackenzie Valley Land and Water Board (MVLWB), a sampling program for the Point Lake kimberlite consisted of twelve large-diameter bulk sample holes along with twelve diamond drillholes. A total of 60 reverse circulation holes and four diamond drillholes were completed as part of an exploration program. The exploration program also included 17,000 line-kilometres of airborne geophysical surveys flown by drone.

# Exploration

## Diamonds

### Lac de Gras Joint Venture

The Lac de Gras project, a joint venture between Dominion Diamonds Mines (79%) and North Arrow Minerals Inc. (21%), covers 147,200 hectares south of Lac de Gras. In spring of 2019, a ground geophysics program consisting of three survey methods, including magnetic (11 grids; 465 line-kilometres), gravity (9 grids; 2100 stations), and OhmMapper resistivity (5 grids; 90 line-kilometres) was carried out. All of the surveyed areas were associated with anomalous kimberlite indicator mineral results from till samples collected during earlier reverse circulation overburden drilling programs.

Following up the geophysical program, drilling discovered the Anchor kimberlite on the first drillhole at a depth of approximately 40 metres. Kimberlite was encountered in 6 of 7 drillholes that tested the Anchor target area. Anchor is described as a dark grey to black, fine-grained, macrocryst-

poor, monticellite to carbonate coherent kimberlite. The drilling was part of a summer work program, which also included LIDAR surveying, prospecting, till suitability mapping and sampling.

Micro-diamond results from caustic fusion on the Anchor Kimberlite were reported by North Arrow on 15 January 2020 (Table 3).

A $3.5 million exploration program is planned for 2020 to continue with the systematic exploration of the Lac de Gras joint venture, including at least 2000 metres of drilling to test new targets. The 2020 exploration is anticipated to start in late February or early March with ground geophysical surveys followed by exploration drilling in late spring or summer.

Table 3: Micro-diamond results from caustic fusion, Anchor Kimberlite.

| | | Number of diamonds per sieve size (mm square mesh sieve) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Kimberlite | Sample weight Kg | 0.075 to 0.106 | 0.106 to 0.15 | 0.15 to 0.212 | 0.212 to 0.3 | 0.3 to 0.425 | 0.425 to 0.6 | 0.6 to 0.85 | Total stones |
| Anchor | 388.15 | 153 | 56 | 20 | 3 | 0 | 0 | 0 | 232 |

## Loki Project

The Loki project, wholly owned by North Arrow Minerals Inc., is located in the Lac de Gras region of the NWT, approximately 30 kilometres southwest of the Ekati Diamond Mine and immediately adjacent to the west of North Arrow's LDG Joint Venture Diamond Project with Dominion Diamond Mines. The exploration work in 2018 led to the discovery of a new kimberlite on the Loki property.

This summer, a three-week exploration program consisting of prospecting, till sampling, and ground geophysics was carried out to confirm and prioritise targets for follow up exploration drilling in the winter of 2020. This exploration is supported, in part, by a grant from the Government of the Northwest Territories Mining Incentive Program.

## Diagras Property

The Diagras property is a joint venture between Margret Lake Diamonds (60%) and Arctic Star Exploration Corp. (40%) in the Lac de Gras region of the NWT. Land tenure at Diagras totals 22,595 hectares within 31 mineral claims with a total of 23 known kimberlites.

A spring exploration program in 2019 consisted of ground Gravity, Magnetic, and Electromagnetic surveys focused around known kimberlites and airborne geophysical anomalies with kimberlite-like signatures. The application of detailed, modern ground geophysical techniques defined possible additional kimberlite(s) or kimberlite phases not identified by previous explorers. Follow-up drilling is planned for spring 2020. The work has been funded in part by a grant from the Government of the Northwest Territories Mining Incentive Program.

## Seahorse Project

The Seahorse Project is located approximately 775 kilometres northeast of Yellowknife and 190 kilometres north of Great Bear Lake. This project is a joint venture between Talmora Diamond Inc. with Olivut Resources Ltd. as the operator, Olivut can earn up to a 50% interest.

This spring, a helicopter-bourne magnetic survey was flown over multiple anomalies identified from regional geophysics. During the summer of 2019, six holes were drilled to test geophysical targets using a reverse circulation, heli-portable drill. These holes intersected varying depths of extremely fine-grained clays that do not appear to be derived from the dolomite country rock. Samples were collected from each of the holes and sent for to the Saskatchewan Research Council for heavy mineral analysis.

Whole-rock and multi-element geochemistry of the clay samples from the drilling show concentrations of heavy and light rare earth elements higher than, or consistent with, levels of rare earths detected in clays caps over kimberlites. Sulphides, including pyrite and sphalerite, as well as mafic minerals, were identified in many reverse circulation samples.

## Curiosity Property

Voyageur Exploration worked their Curiosity Property approximately 25 kilometres north of Dominion Diamond's mineral claims/leases consisting of three mineral claims and encompassing the LI-201 kimberlite discovered by Kennecott Canada in the late 90s.

During the 2019 field season, Voyageur Exploration collected geochemical samples in the vicinity of geophysical and Kimberlite Indicator Minerals (KIM) targets. These geochemical results depict several kimberlite pathfinder element anomalies that correlate to previously identified geophysical targets. Geochemical sampling did not detect a strongly anomalous signature down-ice of the LI-201 kimberlite, possibly mirroring the results from historical reports indicating LI-201 does not have a well-developed kimberlite indicator mineral till dispersal train.

In efforts to determine the footprint of LI-201, microbial sampling for bacterial species through genetic sequencing was employed over known drill intersections of kimberlite. Preliminary data suggest that the methodology successfully identified the kimberlite's known extent in addition to suggesting its presence further north, in an area that has not been the focus of historical exploration.

Fieldwork in 2020 aims to confirm geochemical anomalies and their correlation to geophysical anomalies with more targeted geochemical sampling. Additional microbial samples will be collected in the area around LI-201. Till samples will also be collected for microprobe analysis of KIMs to confirm the promising geochemistry suggested in historical reports.

## ZIP Diamond Project

Heavy mineral sampling took place on the 11,000 hectares ZIP project (wholly-owned by GGL Resources Corp.) roughly 250 kilometres north-northeast of Yellowknife. The Zip camp also hosted researchers from the Simon Fraser, Carleton Universities and the NTGS who carried out regional heavy mineral sampling and surficial geological mapping programs to better understand the diversity of indicator mineral transport systems and till sampling suitability in areas surrounding the Zip property.

## Kennady North Project

The Kennady North Project, located approximately 10 kilometres northeast of the Gahcho Kué Mine, is owned by Mountain Province Diamonds Inc. and includes the Faraday 2, Faraday 1-3, and Kelvin kimberlites. An updated mineral resource for the Faraday 2 kimberlite was provided, which is now deemed to contain 5.45 million carats in 2.07 million tonnes of kimberlite, with an overall grade of 2.63 carats per tonne and an average value of US$140 per carat. This represents a 49% increase in tonnage and a 74% increase in total carats from previous estimates.

The winter 2019 exploration program drill-tested exploration targets located three to four kilometres southwest of the Gahcho Kué Mine. The drilling of priority targets was hindered by flight-restrictive weather for the helicopter-supported drill program. Only five drillholes, totalling 917 metres of the planned 2000-metre program were completed, and no kimberlite was intersected. The untested targets will be reviewed for discovery potential and reprioritised along with other targets in the Kelvin-Faraday Corridor located northeast of Gahcho Kué Mine.

# Gold

## Indin Lake Gold Project

Initially, Nighthawk Resource Corp. announced 2019 plans of a $10 million budget to complete 25,000 metres of drilling at Colomac and satellite targets, and accompanying regional mapping and prospecting on its 899 square kilometre Indin Lake Gold Project. The budget was increased to $13 million to fund 35,000 metres of drilling. In total Nighthawk completed 110 holes for 40,834 metres in 2019. Assay results for the drilling continue to roll in.

At Colomac, the program tested deeper portions of Zones 1.5 and 3.5, as well as between Zone 3.5 and the southern part of Zone 2.0. Drilling was also completed at Treasure Island a nearby satellite deposit

### *Zone 1.5*

Initial results from Zone 1.5 were exciting, with hole C19-08 intersecting 56.00 metres of 13.49 grams per tonne gold, including 30.50 metres of 22.12 grams per tonne gold, and including 16.50 metres of 34.18 grams per tonne gold. Hole C19-35 tested an area to depth immediately north of the boundary between high-grade Zone 1.5 and Zone 2.0 and intersected 124.50 metres of 1.12 grams per tonne gold (70 metres true width), including 13.50 metres of 3.60 grams per tonne gold, and including 4.75 metres of 7.64 grams per tonne gold, extending mineralisation on this section to 530 metres depth where it remains open.

Holes C19-33 and C19-33B tested a region above the plunge of Zone 1.5 in an area that had never been drilled to depth, to determine if the top of the plunging zone extends closer to surface. Although both holes reported intersections, they were not typical of the zone's higher-grade nature, indicating that the well-mineralised zone is deeper on this section.

### *Zone 2.0*

Of note, drilling at Zone 2.0 returned 60.75 metres grading 2.61 grams per tonne gold (C19-19) and 56.25 metres of 2.76 grams per tonne gold (hole C19-24). Hole C19-37 undercut the previous hole C17-10B and intersected 35.75 metres of 1.26 grams per tonne gold (22 metres true width), including 12.60 metres of 2.29 grams per tonne gold, and including 8.00 metres of 2.70 grams per tonne gold, extending mineralisation in the section to a depth of 450 metres where it remains open.

C19-24 extended the domain an additional 40 metres to depth, intersecting 56.25 metres of 2.76 grams per tonne gold, including 13.00 metres of 3.51 grams per tonne gold, and including 4.25 metres of 14.89 grams per tonne gold. Hole C19-39 was collared 50 metres west of C19-24 to drill deeper on this section and intersected two broad gold intercepts; an upper section of 51.75 metres of 1.37 grams per tonne gold, including 10.00 metres of 2.35 grams per tonne gold, and an 8.25 metres of 2.43 grams per tonne gold, and a lower main section that returned 118.50 metres of 1.57 grams per tonne gold, including 32.50 metres of 2.62 grams per tonne gold, and including 7.75 metres of 5.10 grams per tonne gold.

C19-39 successfully extended mineralisation on this section to a vertical depth in excess of 550 metres, where it remains open.

The southern region of Zone 2.0 remains largely unexplored below 300 metres from the surface; however, drilling has shown that the sill is widening to depth, hosting large intercepts of relatively continuous mineralisation.

Drilling to-date within the gap region between Zones 1.5 and 2.0 shows continuity between the zones and has established that the collective domain extends upwards of 400 metres in strike to a depth of 570 metres and remains open.

### *Zone 3.0*

Zone 3.0 saw limited drilling designed to infill undrilled gaps in the resource. Hole C19-44 confirmed grades below historical near-surface holes and deeper previously drilled Nighthawk holes, intersecting 30.65 metres of 1.81 grams per tonne gold, including 16.95 metres of 2.33 grams per tonne gold, and including 5.85 metres of 3.64 grams per tonne gold.

### *Zone 3.5*

Drilling at Zone 3.5 illustrated higher-grade intercepts and broad regions of continuous mineralisation that show a distinctive widening of the mineralised portion of the Colomac main sill to depth. Highlights include hole C19-50 that intersected 105.00 metres (45-metre true width) of 1.35 grams per tonne gold, including 34.50 metres of 2.38 grams per tonne gold, and including 12.75 metres of 3.23 grams per tonne gold, extending mineralisation an additional 60 metres depth. Drilling documented an increase in width of Zone 3.5 mineralisation with depth, consistent with that observed at Zones 1.5 and 2.0.

### *Treasure Island*

Nineteen holes for 5816 metres were drilled on the Treasure Island satellite prospect. All nineteen holes hit mineralisation. The 2019 program expanded on the exploration at the Main Zone and East Zone of Treasure Island. The best intersections include T19-11, which recorded 12.70 metres of 8.51 grams per tonne gold. T19-12 intersected 20.70 metres of 2.57 grams per tonne gold, and T19-10B intersected 7.00 metres of 6.35 grams per tonne gold, including 2.00 metres of 21.02 grams per tonne gold.

Collectively the drilling has defined a broad envelope of mineralisation up to 200 metres wide that spans a 750-metre long section of the regional metavolcanic/metasedimentary contact within the eastern part of the Treasure Island – Laurie Lake Mineralised Corridor, a 7-kilometre long feature known from historical surface mineralisation. The mineralisation is hosted by a series of sub-vertical stacked "en echelon" gold zones, which form a broad mineralised domain overlapping stratigraphy. The Main Zone mineralised system has an average horizontal width of 200 metres, the East Zone a width of approximately 100 metres. The zone of mineralisation is open along strike to the east and west with more than 90% of this Treasure Island – Laurie Lake corridor unexplored.

Nighthawk is in the process of finalising the logistics for the start-up of its 2020 drill season and is fully funded to complete the work.

## Yellowknife City Project

**TerraX Minerals Inc.** expanded its land holdings on the Yellowknife City Gold Project to over 783 square kilometres by claim staking and property acquisitions surrounding the city of Yellowknife. A review of historical data and 2019 re-assays of historical core, has led to a concentrated effort to expand the deposits at Crestaurum and Sam Otto, as well as advancing the North Giant Extension within the Barney Deformation Corridor. A first 43-101 compliant mineral resource estimate was announced, which includes four gold deposits: Sam Otto, Crestaurum, Barney, and Mispickel, all within a three-kilometre radius of each other. The resource estimate utilised 463 drillholes (90,751 metres), of which 201 drillholes (42,447 metres) were completed by TerraX from 2014 to 2019 to define pit and underground inferred resources (Table 4).

The Sam Otto deposit is the largest deposit of the four, containing a pit-constrained inferred mineral resource of 426,000 troy ounces gold (10,794,000 tonnes ore averaging 1.23 grams per tonne gold) to a maximum depth of 200 metres. The shear-hosted gold mineralisation has been defined over a strike length of 4.5 kilometres. The associated quartz vein system has a width ranging from 15 metres to more than 25 metres. The deposit remains open along the north-south strike direction and at depth.

The drilling of six holes (1182 metres) in Sam Otto resulted in an extension of gold mineralisation by an additional 600 metres of strike. Highlights from the Sam Otto South zone include 7 metres of 2.93 grams per tonne gold (within a broader interval of 40 metres of 0.6 grams per tonne gold), 14 metres of 1.36 grams per tonne gold (within a broader interval of 34 metres of 0.64 grams per tonne gold), 11 metres of 1.24 grams per tonne gold, and 9 metres of 1.2 grams per tonne gold. Phase 2 drill highlights from the Sam Otto South zone include 25.5 metres of 1.26 grams per tonne gold, including 10.0 metres of 1.76 grams per tonne gold. Following the Sam Otto drilling, the Berry

Hill zone, within the Barney Deformation Corridor was drill-tested to follow up on historical drill results and surface sampling.

The Crestaurum deposit, located three kilometres southwest of Sam Otto, includes mineralisation at surface modelled for a shallow pit and a potential underground operation. The estimates suggest a pit-constrained inferred mineral resource of 38,000 troy ounces gold (127,000 tonnes averaging 9.41 grams per tonne gold) to a depth of 45 metres and an underground inferred mineral resource of 153,000 troy ounces gold (723,000 tonnes averaging 6.56 grams per tonne gold). The deposit remains open in all directions, and all underground zones defined to date remain open along strike and down plunge. The results from the 2019 summer drilling project have not been released yet.

In January 2020 drilling was initiated with 1916 metres drilled in seven holes at Sam Otto and the Sam Otto connector by the end of March 2020.

Table 4. Pit constrained and underground inferred mineral resources Sam Otto, Crestaurum, Barney, and Mispickel, Yellowknife City Project.

| Inferred mineral resources | Deposit | Tonnes | Grade (g/t Au) | Contained gold ounces |
|---|---|---|---|---|
| Pit constrained | Crestaurum (Starter) | 127000 | 9.41 | 38000 |
| | Mispickel | 696000 | 2.62 | 59000 |
| | Sam Otto | 10794000 | 1.23 | 426000 |
| | Total | 11617000 | 1.4 | 523000 |
| Underground | Crestaurum | 723000 | 6.56 | 153000 |
| | Barney | 214000 | 4.67 | 32000 |
| | Mispickel | 30000 | 4.99 | 5000 |
| | Sam Otto | 185000 | 3.65 | 22000 |
| | Total | 1152000 | 5.7 | 212000 |
| Total inferred mineral resources | | 12769000 | 1.79 | 735000 |

## Courageous Lake Project

**Seabridge Gold** had no fieldwork planned for 2019 at Courageous Lake. However, the company continues to evaluate the results of the 2018 exploration and drilling program. The 2018 program identified two new gold zones, Olsen and Marsh Pond, and also found two other target zones that could potentially contribute to the resource base at the Courageous Lake Project.

## Mon Project

**Sixty North Gold Mining** trenched their Mon Gold property located 45 kilometres north of Yellowknife. Six 0.5 metre to 1.0 metre-deep trenches were blasted into the rocks on the 5656 zone, which had been discovered by prospectors following up a biogeochemical anomaly (Table 5). The trenches contained massive, semi-massive and disseminated sulphides dominated by pyrrhotite, tetrahedrite, sphalerite, galena, and pyrite in altered tuffs. The zone has a known strike length of 120 metres and is open to the north and south. An additional trench was blasted on the West Mafic trend, into a rusty felsic volcanic unit containing irregular minor quartz veining.

All base and precious metal grades appear to be improving towards the south with the southern-most trench (TrA) returning the best grades before exposure is lost. The stratabound mineralisation is hosted within mafic to intermediate volcanic rocks with significant localised silicification and carbonate alteration. Minor felsic units occur proximal to some zones to stronger isolated conductors, many with coincident magnetic responses. The potential expansion of these and other zones requires diamond drilling.

Table 5. Analytical results from September 2019 trenching program on the 5656 VMS Zone.

| Trench | Width (m) | Ag (g/t) | Au (g/t) | Cu % | Pb % | Zn % |
|---|---|---|---|---|---|---|
| TrA | 0.45 | 203.0 | 1.0 | 0.06 | 0.59 | 0.96 |
| TrB | 0.95 | 82.0 | 1.2 | 0.02 | 0.26 | 0.02 |
| TrB | 1.00 | 19.6 | bdl | 0.04 | 0.07 | 0.01 |
| TrD | 0.40 | 99.0 | 1.0 | 0.04 | 0.32 | 0.17 |
| TrE | 1.00 | bdl | 0.7 | 0.00 | 0.01 | 0.00 |
| TrF | 1.00 | 29.0 | bdl | 0.06 | 0.27 | 0.35 |
| TrG | 1.35 | 6.7 | bdl | 0.00 | 0.05 | 0.05 |

* bdl – below the detection limit.

## Astro Project

**Evrim Resources Corp.** announced exploration results from their Astro project, a new gold discovery within a 10-kilometre-long structural corridor along the Yukon-NWT border. Work started in June and included a helicopter-bourne magnetic / Versatile Time Domain Electromagnetic (VTEM) survey, detailed geologic mapping, chip-channel and talus-fines sampling and an eleven-hole reverse-circulation drilling program.

The helicopter magnetic/VTEM survey outlined structurally controlled magnetic anomalies coinciding with surface showings and gold-in-soil anomalies over a strike length of 9.5 kilometres. Results demonstrate a strong spatial relationship between northwest-striking structures, favourable host rocks and elongate magnetic highs flanking the contact metamorphic aureole of the Border pluton. The work at Astro demonstrated a structural corridor containing gold prospects (Radio, UV, Gamma, Microwave) extending for
10 kilometres.

A reverse circular drilling program was initiated to test the mineralisation near the prospects. It was successful in identifying several new gold-bearing zones, including an interval of mineralised granodiorite east of Radio and silicified siltstone in a range-bounding fault at Gamma.

### *Radio Prospect*

The Radio prospect consists of a partially oxidised magnetite-pyrite skarn hosted in carbonaceous siltstone with calcareous lenses. Three sets of horizontal chip-channel samples (sub-parallel to bedding) and a vertical trench (perpendicular to bedding) were completed to follow up the 2018 exploration program. Chip-channel samples were also obtained from an area on the west side of a fault separating the two showings.

Drillhole RAD19-01 was completed above the showing and intercepted 1.36 grams per tonne gold over 10.7 metres, including 3.13 grams per tonne gold over 3.0 metres. Hole RAD19-04, collared 180 metres northeast of the Radio showing, encountered a similar section to RAD19-01 and returned 0.67 grams per tonne gold over 7.6 metres from an intrusive rock near the bottom of the hole.

### *UV Prospect*

The UV prospect is also a magnetite-pyrite skarn within a sequence of grey limestone. Chip-channel sampling returned 6.1 grams per tonne gold over four metres from channels oriented perpendicular to bedding, and sampling talus fines downslope from UV record values up to 3.5 grams per tonne gold. Hole ULV19-01 returned no significant gold values. The mapping and sampling of rock and talus fines outlined several gold zones within the limestone and skarn at UV, suggesting primary control along northwest-striking faults.

### *Gamma Prospect*

The Gamma prospect is a 1.2-kilometre-long gold-in-soil anomaly overlying a magnetic anomaly located 2.5 kilometres southeast of the UV prospect. Inclined drillhole GAM19-01 intersected 1.04 grams per tonne gold over 6.0 metres, including 2.65 grams per tonne gold over 1.5 metres. The GAM19-01 target remains open along a range-bounding fault that juxtaposes hornfelsed sedimentary rocks and granodiorite against carbonaceous silty limestone.

### *Microwave Prospect*

Horizontal chip-channel sampling and drilling were conducted at the Microwave prospect. Drillholes MIC19-01 and -02 returned nominal values, suggesting the surface showing is localised along high-angle structures parallel to the azimuth of the reverse circular holes. The sampling of talus fines identified two new showings 300 and 800 metres southwest of the Microwave prospect with gold values up to 1.95 grams per tonne gold.

## Circles Project

In the summer of 2019, prospector Dave Nickerson undertook an exploration program targeting several circular structures with diameters of 2 to 6 kilometres and located in the plutonic rocks 15 kilometres north of the Yellowknife airport. The structures, with radiating lineaments and proximal to major fault systems, were considered potential hosts for granophile mineral deposits or gold deposits.

The project was based on research that incorporated satellite imagery, geophysical analysis, and a wide range of literature. Fieldwork included helicopter and fixed-wing reconnaissance and airborne photography. Conventional prospecting followed up the reconnaissance and samples were collected for geochemistry.

While assays were not encouraging, the intrusions within the structures were found to be of different composition and genetic history. Dave Nickerson notes that petrological work remains to be done and suggests that the assembled project data should be studied in greater detail.

### BD Claim Project

Between August and September of 2019, Christopher Schott prospected for gold and lithium in the Bliss Lake area, approximately 41 kilometres northeast of Yellowknife. Grab samples were taken throughout the project area with a focus on several local scale shear zones. Assays did not indicate mineralisation. Christopher Schott is planning follow-up work for the summer of 2020 based on structural observations from his 2019 fieldwork.

## Lithium

### Hidden Lake Project

**Far Resources** signed an option agreement with 92 Resources (now Gaia Metals Corporation) on the Hidden Lake Project and drilled 1079 metres in ten holes on four lithium-bearing spodumene pegmatites. Results indicate each of the pegmatite dykes, HL-001 through HL-003 and D-12, included high-grade $Li_2O$ assays of 1.0% to 2.0% over widths between 2.0 metres and 9.2 metres. While this program tested four dykes, the Hidden Lake project itself hosts a swarm of at least ten pegmatite dykes which have not received recent attention. Mineralogical evaluation and metallurgical testing of samples from the Hidden Lake pegmatites by SGS Mineral Services (Vancouver) indicates a lithium concentrate of greater than 6% $Li_2O$ with a recovery of greater than 80% are achievable. These results indicate that the Hidden Lake pegmatites can be treated using standard industry practices for spodumene beneficiation.

## Zinc and Lead

### Pine Point Project

**Osisko Metals** had a substantive exploration program at their Pine Point project this year. The main activities were centred on an airborne gravity gradiometry survey, exploration drilling, and the continued examination of the historical core collection.

The new insights prompted a need to expand the property and Osisko Metals has more than doubled its mineral claim holdings for the Pine Point Project. A total of 84 claims were staked, covering a surface area of 24,340 hectares and increasing the property to 46,553 hectares.

Compilation of the historical drillhole data into a new database was another important effort. The compilation identified over 100 drillholes with significant mineralisation, indicative of near-surface mineralising systems that were not pursued by previous operators. Osisko Metals is re-logging and assaying drill core from an extensive core farm (10,893 drillholes with over 702,300 metres of available core).

The results of re-assaying and re-logging 22 historical holes from the Cominco Limited were also reported. Historical drillhole N204-240, which was not previously sampled, included an intersection of 4.08% zinc and 1.13% lead over 9.15 metres and it is located approximately 100 metres outside of

previously modelled resources. The N204 intersections are of tabular mineralisation hosted within laterally continuous, stratabound layers between 8 to 50 metres vertical depth.

In addition to following up on historical potential in the camp, Osisko Metals has launched a 5000-metre drill program. This program will test some of the new targets as well as examine the potential for mineralisation in the deeper underlying Pine Point Formation. The aim is to identify additional high grade "Prismatic" mineralisation which manifests as vertically continuous breccia pipes associated with regional and secondary faults, in contrast to horizontal "Tabular" deposits that are stratiform and controlled by more permeable geological formations.

In the fall of 2019, 26 exploration drillholes were completed in the L-37 and N-38 areas within the East Mill Zone. Prominent intersections include drillhole L37-19-PP-001 that encountered 8.68% zinc and 2.45% lead over 6.40 metres and drillhole L37-19-PP-011 that intersected 6.43% zinc and 0.87% lead over 14 metres (Table 6). The East Mill deposits belong to the flat-lying tabular-style mineralisation and are located between 7 to 36 metres vertical depth.

Table 6: Selected Drill Highlights for East Mill Pine Point.

| Hole Name | Zone | Area | From (m) | To (m) | Drilled Width (m) | Zinc (%) | Lead (%) | Lead + Zinc (%) |
|---|---|---|---|---|---|---|---|---|
| L37-19-PP-001 | East Mill | L-37 | 7.50 | 13.90 | 6.40 | 8.68 | 2.45 | 11.13 |
| L37-19-PP-011 | East Mill | L-37 | 21.23 | 35.23 | 14.00 | 6.43 | 0.87 | 7.31 |
| L37-19-PP-013 | East Mill | L-37 | 21.61 | 28.61 | 7.00 | 5.09 | 1.47 | 6.55 |
| L38-19-PP-007 | East Mill | N-38 | 25.48 | 26.95 | 1.47 | 4.72 | 2.07 | 6.79 |

Additional results were also announced from eight drillholes in the N204 zone, the easternmost deposit. Particularly good results were from drillhole N204-19-PP-008, which intersected 5.78% zinc and 2.08% lead over 9.00 metres and hole N204-19-PP-001 that intersected 6.73% zinc and 1.57% lead over 3.00 metres (Table 7).

Table 7: Selected Drill Highlights for N204 Pine Point.

| Hole Name | Zone | Area | From (m) | To (m) | Drilled Width (m) | True Width (m) | Zinc (%) | Lead (%) | Lead + Zinc (%) |
|---|---|---|---|---|---|---|---|---|---|
| N204-19-PP-001 | N204 | N204 | 47.00 | 50.00 | 3.00 | 3.00 | 6.73 | 1.57 | 8.29 |
| N204-19-PP-003 | N204 | N204 | 30.00 | 32.00 | 2.00 | 2.00 | 5.70 | 1.53 | 7.23 |
| N204-19-PP-004 | N204 | N204 | 43.45 | 49.44 | 5.99 | 5.99 | 4.16 | 1.41 | 5.57 |
| N204-19-PP-005 | N204 | N204 | 36.00 | 42.75 | 6.75 | 6.75 | 5.44 | 1.22 | 6.66 |
| N204-19-PP-008 | N204 | N204 | 33.00 | 42.00 | 9.00 | 9.00 | 5.78 | 2.08 | 7.86 |
| N204-11** | N204 | N204 | 18.16 | 21.16 | 3.00 | 3.00 | 4.97 | 1.70 | 6.67 |
| N204-234* | N204 | N204 | 39.00 | 43.00 | 4.00 | 4.00 | 4.86 | 1.85 | 6.72 |
| N204-240** | N204 | N204 | 35.06 | 44.20 | 9.15 | 9.15 | 4.08 | 1.13 | 5.21 |
| N204-376* | N204 | N204 | 33.10 | 37.60 | 4.50 | 4.50 | 6.79 | 1.86 | 8.66 |

* Re-assay of historical core drilled by Cominco Ltd.

** Mineralized core not previously assayed by Cominco Ltd.

Collectively this work led Osisko to publish a new NI 43-101 near-surface Inferred Mineral Resource Estimate (MRE) of 52.4 million tonnes grading 4.64% zinc and 1.83% lead (6.47% Zinc Equivalent) that contains 5.3 billion pounds of zinc and 2.1 billion pounds of lead in situ. This is a 36% increase over the previous 2018 MRE at a similar grade. Over 90% of the quoted resource base is pit-constrained. The company is now focussing on developing a preliminary economic assessment of the property.

Subsequent to the new MRE, Osisko released additional drilling assay results from the L37 deposit but outside of the current mineral resource boundary (Table 8).

Table 8. Selected drill highlights from L37 zone outside of the current mineral resource boundary.

| Hole Name | Zone | Area | From (m) | To (m) | Drilled Width (m) | Zinc (%) | Lead (%) | Lead + Zinc (%) |
|---|---|---|---|---|---|---|---|---|
| L37-19-PP-024 | East Mill | L37 | 28.50 | 29.30 | 0.80 | 6.44 | 13.65 | 20.09 |
| L37-19-PP-028 | East Mill | L37 | 15.70 | 27.55 | 11.85 | 9.46 | 0.79 | 10.24 |
| L37-19-PP-028 | East Mill | L37 | 38.50 | 42.50 | 4.00 | 5.92 | 0.67 | 6.60 |
| L37-19-PP-030 | East Mill | L37 | 23.80 | 24.80 | 1.00 | 9.14 | 1.81 | 10.95 |
| L37-19-PP-031 | East Mill | L37 | 20.15 | 24.15 | 4.00 | 5.23 | 0.74 | 5.97 |
| L37-19-PP-035 | East Mill | L37 | 27.17 | 31.85 | 4.68 | 14.83 | 4.45 | 19.28 |
| L37-19-PP-041B | East Mill | L37 | 22.75 | 27.30 | 4.55 | 8.81 | 0.91 | 9.72 |
| and | East Mill | L37 | 30.30 | 34.20 | 3.90 | 10.86 | 4.44 | 15.30 |
| L37-19-PP-042* | East Mill | L37 | 23.00 | 27.00 | 4.00 | 8.81 | 2.94 | 11.75 |

*inside of current L37 Mineral resource boundary

Late 2019 drilling is focussed on targets derived from the 2018 LIDAR high-resolution topographic survey in conjunction with gravity anomalies identified by the 2019 airborne gravity gradiometry survey. Osisko is testing undrilled targets with topographic and gravity signatures similar to known prismatic deposits on the property.

Osisko Metals has also entered into two separate Collaboration Agreements with the Deninu Kue First Nation and the Northwest Territory Metis Nation. The agreements are intended to ensure a cooperative relationship and to express the intention to work with each Indigenous community regarding education and training, employment, business and contracting opportunities, information sharing and site visits.

Osisko Metals acquired Karst Investments LLC who held a 3% net smelter returns royalty on the mineral leases. The purchase for US$8.5 million in cash and 2 million common shares, was partially funded by selling a 1.5% NSR on the property to Osisko Gold Royalties.

## Prairie Creek Project

**NorZinc Ltd.**, formerly Canadian Zinc, was granted permits to begin construction of an all-season road to the Prairie Creek Mine site, a permit was issued in November by the Mackenzie Valley Land and Water Board for work on land outside Nahanni National Park boundary. Parks Canada issued similar permits later in November for work along the road corridor within the National Park Boundary. The deposit has a proven and probable reserve of 8.1 million tonnes of 8.6% zinc, 8.1%

lead and 3.6 ounces per tonne silver. Norzinc also conducted pre-construction and cleanup work on the mine site. Resource Capital Fund (RCF VI CAD LLC) has agreed to purchase a 1% royalty on Prairie Creek Mine for C$8 million to provide funding through the completion of permitting of the project.

# Other Metals

## Nico Project

**Fortune Minerals** is continuing to work on refining the economic parameters on its NICO deposit. This work has concluded that a 4,650 tonne/day milling rate was optimum to produce the best balance between economies of scale and capital costs while focusing on a smaller open pit with higher cobalt and gold grades. Economic modelling has also confirmed that using a mining strategy of combined open pit and underground mining in the early years of the mine life will improve project economics.

## Van Project

**Regency Gold** entered into an agreement to Purchase Vanadium North Resources Inc. that holds the Valley of Vanadium project in the Northwest Territories. The 9,600-hectare project comprises wholly-owned claims in addition to an option to acquire 100% of mining claims owned by Strategic Metals Ltd. The property previously known as the Van project encompasses a major sediment-hosted vanadium prospect that has not seen focused exploration since 1985. The vanadium mineralisation is principally developed in a moderately to steeply dipping, sooty black, carbonaceous, siliceous mudstone unit. Vanadium North successfully obtained a land-use permit to initiate drilling on the property. An inability to raise capital as required under the Regency Gold agreement has scuttled the purchase.

## Nechalacho/T Zone Project

Improvements in the price of neodymium and praseodymium oxides prompted **Avalon Advanced Materials** to reactivate their postponed Nechalacho project southeast of Yellowknife. Fieldwork began in July through an agreement with **Cheetah Resources Pty Ltd.** to begin work on the T-Zone rare earth element (REE) resource. This project has the potential for a start-up operation exploiting high-grade, easily accessible near-surface mineralisation from the North T-Zone rather than focusing on the larger Upper Lake Zone.

Cheetah Resources has entered into an agreement with Avalon Advanced Materials to acquire a portion of the resources of the Thor Lake project; the company acquiring mineral rights to all mineralisation between the surface and a depth of 150 metres above sea level. **Vital Metals Limited** announced that it would acquire Cheetah Resources and provided a loan facility of up to Au$4,500,000 to fund Cheetah's obligations arising under the Avalon Agreement. Approximately $500,000 of the funds are to be utilised to accelerate the development of the Thor Lake project including the conversion of the existing 43-101 resource to on Joint Ore Reserves Committee (JORC) 2012 standards, additional exploration drilling on the North T Zone, and bench-scale test work on ore sorting and leaching. Vital Metals is an Australian company listed on the Australian

Stock Exchange (ASX) requiring them to report resource and reserve number based JORC compliance rather than North American 43-101 rules.

Avalon, which continues to manage the work, conducted a C$900,000 summer work program on the North T Zone deposit for Vital. This program included the re-logging and sampling of core previously drilled in the near-surface deposit, followed by an 800-metre, 19-hole diamond drill program completed in October.

Vital completed a maiden JORC 2012 compliant resource on the Upper Zone (above 150 metres) of the Nechalacho Project of 94.7 Mt at 1.46% Total Rare Earth Oxides (TREO) including 0.29% $Nd_2O_3$ at a cutoff of 0.1% $Nd_2O_3$ (Table 9).

Table 9: Nechalacho Project Upper Mineralised Zone (<150 metres).

| Confidence Category | $Nd_2O_3$ cutoff (%) | Tonnage (Mt) | TREO (%) | LREO (%) | HREO (%) | $Nd_2O_3$ (%) | $Pr_6O_{11}$ (%) | NdPr:TREO (%) |
|---|---|---|---|---|---|---|---|---|
| Measured | 0.3 | 1.094 | 2.004 | 1.817 | 0.186 | 0.394 | 0.106 | 25.0 |
| | 0.1 | 2.914 | 1.468 | 1.326 | 0.142 | 0.288 | 0.077 | 24.9 |
| Indicated | 0.3 | 6.246 | 1.928 | 1.762 | 0.166 | 0.380 | 0.102 | 25.0 |
| | 0.1 | 14.662 | 1.508 | 1.372 | 0.137 | 0.295 | 0.080 | 24.9 |
| Inferred | 0.3 | 30.945 | 1.797 | 1.637 | 0.161 | 0.360 | 0.094 | 25.3 |
| | 0.1 | 77.159 | 1.456 | 1.323 | 0.133 | 0.291 | 0.077 | 25.3 |
| Measured, Indicated, and Inferred | 0.3 | 38.285 | 1.825 | 1.662 | 0.162 | 0.364 | 0.096 | 25.2 |
| | 0.1 | 94.735 | 1.464 | 1.330 | 0.134 | 0.291 | 0.078 | 25.2 |

TREO – total rare earth oxide, LREO – light rare earth oxide, HREO – heavy rare earth oxide.

Included in the Upper Zone resource, are some higher grade blocks, the Tardiff Zones, which were subject to a separate resource estimation (though included in the overall Upper Zone resource). The Tardiff Zones have measured, indicated and inferred JORC 2012 Resource estimated at 3.19 Mt at 2.4% TREO using a 0.3% $Nd_2O_3$ cutoff (Table 10).

Table 10. Tardiff Zone Resources, (4 near-surface high-grade subzones included in the Nechalacho Upper Mineralised Zone Resource) Nechalacho Deposit.

| Confidence Category | $Nd_2O_3$ cutoff (%) | Tonnage (t) | REO (%) | LREO (%) | HREO (%) | $Nd_2O_3$ (%) | $Pr_6O_{11}$ (%) | NdPr:TREO (%) |
|---|---|---|---|---|---|---|---|---|
| Measured | 0.3 | 286,563 | 2.729 | 2.518 | 0.211 | 0.515 | 0.144 | 24.1 |
| Indicated | 0.3 | 1,611,345 | 2.429 | 2.254 | 0.176 | 0.457 | 0.128 | 24.1 |
| Inferred | 0.3 | 1,297,073 | 2.237 | 2.085 | 0.152 | 0.423 | 0.119 | 24.2 |
| Measured + Indicated + Inferred Resource | 0.3 | 3,194,982 | 2.378 | 2.209 | 0.169 | 0.449 | 0.126 | 24.2 |

REO – rare earth oxide, LREO – light rare earth oxide, HREO – heavy rare earth oxide.

A preliminary Resource was estimated on the North T Zone located approximately two kilometres north of the Upper Zone. The North T Zone contains two distinct zones of REE mineralisation, the Bastnaesite zone at the surface and the underlying Xenotime subzone (Table 11).

Table 11. North T Zone mineral resource (bastnaesite and xenotime subzones) - Nechalacho Project (JORC 2012 compliant).

| Subzone | Cutoff condition* | Tonnage (t) | $Nd_2O_3$ (%) | $CeO_2$ (%) | $Y_2O_3$ (%) |
|---|---|---|---|---|---|
| Bastnaesite subzone | ($Nd_2O_3$ %) | | | | |
| Indicated | 0.3 | 36,813 | 1.711 | 3.615 | 0.036 |
| Inferred | 0.3 | 23,492 | 1.428 | 2.612 | 0.038 |
| Indicated + Inferred | 0.3 | 60,305 | 1.600 | 3.244 | 0.037 |
| Xenotime subzone | ($Y_2O_3$%) | | | | |
| Indicated | 0.1 | 346,270 | - | 0.156 | 0.271 |
| Inferred | 0.1 | 4,700 | - | 0.177 | 0.224 |
| Indicated + Inferred | 0.1 | 350,970 | - | 0.156 | 0.270 |

*cutoff conditions, by element and subzone, are preliminary at a pre-scoping study level.

Ore sorting testing was performed to investigate sorting Bastnaesite from gangue minerals using an X-ray Transmission optical sorter. The material was tested in three size fractions 8-20 millimetres, 20-30 millimetres and 30-60 millimetres. The oversize was re-crushed and the undersize fed into a gravity recovery circuit. Testwork on an initial 10.5% Rare Earth Oxide (REO) coarse feed produced a 36% REO product with an REO recovery of 70% with a single pass through the sorter. Optimisation, combined with re-sort steps and gravity recovery is expected to enhance these initial, encouraging, results.

Spiral and shaking table jigs were used on the fine less than 8 millimetres material. The gravity recovery upgraded this material to 40% REO, with an 80% recovery.

### Leach Testing

A 90% bastnaesite: 10% quartz blend was used to represent feed from the ore sorter for leach testing. Sulphuric acid leaching recovered 97% of neodynium, whereas hydrochloric acid leach recovered 93% neodynium from the charge samples. These results suggest a reasonably simple leach process may be able to selectively extract a variety of REO from the feed.

Vital has retained Det'on Cho Nahanni Construction for mining services. They expect to mobilise gear and mining equipment and the ore sorter to the site *via* the winter road in 2020.

# Other Highlights

The Mineral Resources Act has passed the legislature marking the NWT's first-ever stand-alone Act governing mining in the territory. The new Act allows the GNWT to encourage positive relationships between Indigenous governments and organisations, industry, communities, and the GNWT. This will be accomplished through efficiently regulated mineral interests in an effective and transparent manner to support the economy of the NWT.

In 2018-2019, the GNWT invested nearly $1 million in grassroots mineral exploration through the Mining Incentive Program (MIP). This funding was dispersed to 17 exploration projects comprising

nine prospectors and eight companies with a total of $936,090 paid out. The 2018-2019 MIP support resulted in significant additional exploration investment from MIP recipients ($2,965,700), as well as many encouraging advancements in the funded projects. Since the MIP was implemented in 2014, MIP recipients have invested over $11 million in NWT exploration projects.

For 2019-2020, $984,027 in MIP funding has been allocated to 19 exploration projects; 12 prospectors and seven companies – see tables 12 and 13 for the 2019 grant distribution.

Table 12. Government of Northwest Territories Mining Incentive Program – 2019-2020 recipients (Prospectors).

| Recipient and Project | Commodity | Funding Awarded |
|---|---|---|
| Brayden St. Pierre – Stratus | Gold | $19,245 |
| Christopher Schott – BD Claim | Gold, Lithium | $5,910 |
| Danny Yakeleya – Summer 2019 on the Moose Horn River | Gold | $17,500 |
| Dave Nickerson – Circles | Gold | $7,500 |
| Dave Smith – Drumlin Prospecting | Diamonds | $14,000 |
| Drake Hyden – Lighthouse | Gold | $18,392 |
| James Boylan – Eternity 2019 | Gold, Lithium | $3,367 |
| Jared Suchan – Curiosity - Local | Diamonds | $21,250 |
| Keith Hickling – Royal Mackenzie | Multiple Metals | $8,558 |
| Lane Dewar – Big | Gold | $18,437 |
| Ryan Bachynski – Curiosity - Regional | Diamonds | $21,250 |
| Wayne Kendrick – Hangstone | Gold | $25,000 |
| Total Funding | | $180,409 |

Table 13. Government of Northwest Territories Mining Incentive Program – 2019-2020 recipients (Corporate).

| Recipient and Project | Commodity | Funding Awarded |
|---|---|---|
| Evrim Resources – Keele South | Gold | $40,636 |
| Margaret Lake Diamonds – Diagras | Diamonds | $160,000 |
| North Arrow Minerals – Loki | Diamonds | $100,000 |
| Pine Point Mining – Pine Point Geophysics | Lead, Zinc | $200,000 |
| Strateg X Minerals – 939 | Cobalt, Diamonds | $100,000 |
| Strateg X Minerals – East Arm | Cobalt, Diamonds | $140,000 |
| TerraX Minerals – Qutya Bell | Gold | $62,982 |
| Total Funding | | $803,618 |

# More Information

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