

NORTHWEST TERRITORIES MINERAL EXPLORATION OVERVIEW



Updated November 2017

Prepared by:

Northwest Territories Geological Survey
S. Cairns, B. Elliott, H. Falck, and L. Powell

TERRITOIRES DU NORD-OUEST RAPPORT SUR LES ACTIVITÉS D'EXPLORATION MINIÈRE

Mis à jour en novembre 2017

Préparé par:

Commission géologique des Territoires du Nord-Ouest
S. Cairns, B. Elliott, H. Falck et L. Powell



© 2017 Northwest Territories Geological Survey

This document contains information provided to the Northwest Territories Geological Survey (NTGS) by third parties. All information is provided "as is" without warranty of any kind. The Government of the Northwest Territories (GNWT) and its agents do not accept any responsibility or liability for the accuracy, timeliness, completeness, or reliability of the information contained in this document. Mineral exploration and extraction are inherently risky ventures and the GNWT and its agents will not be held liable for any loss or damage resulting directly or indirectly from reliance on any information or representations contained in this document.

Distributed by

Northwest Territories Geological Survey
Department of Industry, Tourism and Investment
Government of Northwest Territories
P.O. Box 1320, 4601-B 52nd Avenue
Yellowknife, Northwest Territories
Canada
X1A 2L9
867-767-9211
www.nwtgeoscience.ca

Authors

H. Falck, S. Cairns, M. Robb , and
L. Powell
Northwest Territories Geological Survey

Corresponding author

H. Falck
Northwest Territories Geological Survey
Hendrik_falck@gov.nt.ca

Recommended citation

Falck, H., Cairns, S., Robb, M. and Powell, L., 2017. 2017 Northwest Territories Mineral Exploration Overview: November 2017; Northwest Territories Geological Survey. 19 pages

Executive Summary

An increase in claim staking combined with a decrease in the rate of claims lapsing provides hints of an upswing for the mineral industry in the Northwest Territories (NWT) in 2017.

As diamonds are the only commodity currently mined in the NWT, global changes in diamond markets can have appreciable impacts in the North. In November 2016, the Indian Government enacted a demonetization program for 500 and 1000 Rupee banknotes.

While the rationale for the action was to curtail the shadow economy and crack down on the use of illicit and counterfeit cash to fund illegal activity and terrorism, it severely impacted Indian diamantaires in the pursuit of their diamond trading activities. The result was an immediate drop in the demand and price of smaller diamonds. Over the summer, this disruption to diamond trading had abated and full activity returned to all segments of the diamond market. The weaker Canadian dollar has also strengthened the projections of the mines whose products are quoted in US dollars.

Despite tough market conditions, NWT mineral producers continued to advance projects in 2017. In mining news, De Beers and Mountain Province completed the first year of operation at Gahcho Kué Mine in September. Both Diavik and Ekati mines are proceeding with major mine expansions, which will increase their longevity. An estimated 10.5 million carats worth \$1.27 billion of diamonds were produced in the NWT in 2016. Production for 2017 should be significantly higher as Ekati is mining the high-grade Misery Pipe and the Gahcho Kué mine will report its first full year of production. Based on reported production of 7.5 million carats to June 30, 2017, total diamond production should exceed 15 million carats in 2017.

Outlooks for other commodities have improved throughout 2017. Copper prices have steadily increased through the summer of 2017 and zinc prices have been steadily increasing. Gold prices have held relatively constant. Overall, this has translated into an increase in staking activity in the NWT. While 85 claims covering 42,000 hectares were staked in 2016, over 199 claims covering 150,000 hectares have been added in the first three quarters of 2017 (October 31, 2017; NWT Mining Recorder). The enthusiasm must be tempered by the number of cancelled claims (437 covering 393,000 hectare), which exceeds the staked claims (Figure 1). Much of this can be attributed to the release of uranium prospects located west of the Thelon Game Sanctuary.

Explorers have seen the investment landscape gradually improve. The territory saw activity at several diamond, gold, base metal and lithium exploration projects. Canadian Zinc published a positive feasibility study for Prairie Creek. Kennady Diamonds received promising new results on their Kennady North property.

Nighthawk completed work to expand the resources at Colomac with an extensive drill program. Closer to Yellowknife, TerraX continued drilling gold and base metal targets on their enlarged Yellowknife Gold Project with good results.

In 2016-2017, the Government of Northwest Territories Mining Incentive Program provided \$400,000 to ten exploration projects. Fiscal year 2017-2018 saw the program budget increased to \$1 million; this funding has been dispersed to 14 exploration projects.

Résumé

L'augmentation des jalonnements de claims et la diminution du nombre de claims devenant caducs sont des indicateurs du regain économique du secteur minier aux Territoires du Nord-Ouest (TNO) en 2017.

Les diamants étant les seules ressources actuellement exploitées aux TNO, les variations du cours du diamant ont de sérieuses répercussions dans le Nord. En novembre 2016, le gouvernement indien a mis en œuvre un programme de démonétisation pour les billets de 500 et de 1 000 roupies. L'objectif initial était de contrer l'économie parallèle et de sévir contre le recours aux espèces illicites ou contrefaites qui servaient à financer des activités illégales ou terroristes. Toutefois, cette mesure a durement touché les diamantaires indiens dans le cadre de leurs activités commerciales, ce qui a provoqué une baisse immédiate de la demande et du prix des petits diamants. Les perturbations du marché du diamant se sont estompées au cours de l'été, et les activités commerciales ont repris dans tous les secteurs du marché du diamant. La faible valeur du dollar canadien a aussi permis de renforcer les prévisions économiques des mines dont les produits sont cotés en dollars américains.

En dépit des conditions difficiles du marché financier, les producteurs miniers des TNO continuent sur leur lancée en 2017. Au chapitre des nouvelles du secteur minier, De Beers et Mountain Province ont franchi le cap de la première année d'exploitation de la mine Gahcho Kué en septembre. Les mines Diavik et Ekati continuent leurs importants travaux d'expansion qui visent à prolonger la durée de vie de ces mines. En 2016, les TNO ont produit environ 10,5 millions de carats, ce qui représente une valeur de 1,27 milliard de dollars au total. La production de 2017 devrait s'avérer encore plus importante, étant donné que la mine Ekati exploite le puits Misery – de grande qualité – et que Gahcho Kué termine sa première année d'exploitation. D'après les estimations basées sur les chiffres du 30 juin 2017, date à laquelle nous avons atteint les 7,5 millions de carats, la production totale de diamants en 2017 devrait dépasser les 15 millions de carats.

Les perspectives économiques pour d'autres produits miniers s'avèrent de plus en plus intéressantes au fur et à mesure que l'année avance. Le prix du cuivre a régulièrement augmenté au cours de l'été 2017, à l'instar du prix du zinc, et le prix de l'or reste relativement stable. Dans l'ensemble, cela s'est traduit par une augmentation des jalonnements aux TNO. Alors qu'en 2016, nous comptions 85 claims jalonnés pour 42 000 hectares, nous sommes arrivés à 199 claims pour 150 000 hectares dans les trois premiers trimestres de 2017 (chiffres fournis par le Bureau du registraire des mines le 31 octobre 2017). Ces constatations doivent être tempérées par le nombre de claims annulés (437 pour 393 000 hectares) qui dépasse largement les jalonnements de claims (voir figure 1). La plupart des zones libérées concernent la prospection d'uranium, à l'ouest du refuge faunique Thelon.

Les prospecteurs ont réussi à rassembler de plus en plus de fonds pour mener leurs activités. Des projets d'exploration ont été menés pour trouver des diamants, de l'or, du métal de base et du lithium sur tout le territoire. Canadian Zinc a publié une étude de faisabilité positive pour la mine Prairie Creek. Kennedy Diamonds a reçu de nouveaux résultats prometteurs pour sa propriété dans le Nord. Nighthawk a terminé des travaux, notamment un important programme de forage, pour augmenter ses ressources à Colomac. Plus près de Yellowknife, TerraX a poursuivi ses forages à la recherche d'or et de métal de base dans le cadre du projet élargi Yellowknife Gold, et les résultats sont concluants.

En 2016-2017, le programme de mesures incitatives visant les activités minières du gouvernement des Territoires du Nord-Ouest a dégagé 400 000 \$ pour financer dix projets d'exploration. L'exercice financier 2017-2018 a vu son budget augmenter d'un million de dollars, et ces fonds ont été reversés pour financer 14 projets d'exploration (sept projets menés par des prospecteurs individuels et sept projets menés par des entreprises).

Northwest Territories Mining

2017 saw major changes in the Ekati and Diavik diamond mines, culminating in the sale of Dominion Diamond Corporation to Northwest Acquisitions ULC, an entity affiliated with The Washington Companies.

The sale to the Washington Companies, a privately held group of North American mining, industrial and transportation businesses founded by Dennis R. Washington, is expected to be concluded in November 2017, and many changes have already been initiated. Dominion's corporate headquarters has moved from Yellowknife to Calgary and Patrick Evans has been announced as the new CEO for the company.

Ekati Diamond Mine

The Core Zone at the Ekati mine, in which Dominion Diamond has an 88.9% participating interest, encompasses 175 mining leases totalling 172,992 hectares.

These leases host the Koala, Fox, Misery Main, Misery South, Misery SW Extension, Pigeon and Sable pipes, as well as the Leslie and Kodiak pipes. Dominion Diamond increased its ownership of the Buffer Zone that surrounds the Core Zone from 72% to 100%. Archon Minerals' participating interest was converted to a royalty equal to 2.3% of all future gross revenue produced from the 89,000-hectare Buffer Zone including the Jay Project and Lynx Pipe.



Ekati Diamond Mine from the sky (Dave Broska)

The Ekati mine produced a total of 3.2 million carats from 1.89 million tonnes during the first six months of 2017, compared to 1.9 million carats from 1.5 million tonnes during the same period in 2016. This major improvement reflects the mine's recovery from the late June 2016 plant fire and subsequent three-month shut down.

The Jay Project contains an estimated 79 million carats in 44.7 million tonnes of kimberlite. Jay received approval for a water license in late May, one of the final regulatory steps before construction and production. Due to a revision of the life-of-mine plan to allow for underground mining of the lower part of the Misery kimberlite, the schedule for the Jay Project has been extended by one year. Dike construction is scheduled to begin in July 2019 and continue till 2022, when dewatering and stripping will begin.

A positive pre-feasibility study of the Misery Deep Project at Ekati was followed by the decision by the company to extend the mining of the Misery pipe. The Probable Mineral Reserves contain 8.7 million carats in 1.8 million tonnes. Based on a similar approach to that for the Misery Deep Project, a preliminary economic assessment on Fox Deep Project using underground incline caving mining is projected to produce 31.3 million tonnes and recover 11.0 million carats. The modified production plan, which includes the defined Jay, Misery and Fox resources, has extended Ekati's current estimated mine life to 2041.

In May, Dominion Diamonds announced an Inferred Mineral Resource estimation for the Leslie kimberlite comprising 51 million tonnes of kimberlite containing 16 million carats of diamond, or 0.3 carats per tonne. The Leslie pipe was originally included in the Ekati mine plan that was reviewed as part of the environmental assessment in the 1990s. The Leslie kimberlite was replaced by the Sable, Pigeon and Beartooth kimberlites shortly after production commenced in 1998.

Summer exploration on the Ekati leases included ground geophysics, airborne magnetic surveys using an Unmanned Aerial Vehicle and diamond drilling. One drill hole on the Kodiak pipe recovered 530 kilograms of kimberlite which has been submitted for microdiamond analysis. Two other exploration targets were drilled but failed to intersect kimberlite.

Diavik Diamond Mine

At the Diavik Diamond Mine, —60% owned by Rio Tinto and 40% by Dominion Diamond Corporation — production continued from the A-154 South, A-154 North and A-418 underground operations. A larger proportion of higher-grade A-418 ore resulted in increased production of 3.75 million carats recovered from 1.1 million tonnes of kimberlite in the first six months of 2017.

Development of the A-21 pipe continues with the completion of the dike anticipated by late 2017. Ore processing is expected to commence by 2018. On the Diavik lease block, Dominion drilled three kimberlites: C42, T29 and A61. Samples from these pipes have been submitted for microdiamond analysis.

On the LDG (Lac de Gras) joint venture between Dominion Diamond Corporation and North Arrow Minerals, Dominion completed a 5,567 line-kilometre helicopter-borne magnetic/electromagnetic survey in addition to 22 ground geophysical grids. Follow-up drilling is planned during 2018.

Gahcho Kué Diamond Mine

September 2017 marked the end of the first full year of operations at the Gahcho Kué Diamond Mine. The mine is operated by the De Beers Group of Companies (51%) and Mountain Province Diamonds (49%). It opened two months ahead of schedule and during 2016, produced 847,000 carats from 515,000 tonnes of kimberlite. The declaration of commercial production was made at the beginning of March 2017 with mine operations performing well and the diamond recovery plant running at nameplate capacity.



Mine operations at Gahcho Kué Diamond Mine (Courtesy De Beers Group)

By the end of August, the total production for 2017 was 3.77 million carats from 1.84 million tonnes of kimberlite. Gahcho Kué is well on its way to achieving the projected production of 4.5 million carats a year over a 12 year mine life and proving its reputation as the world's largest new diamond mine.

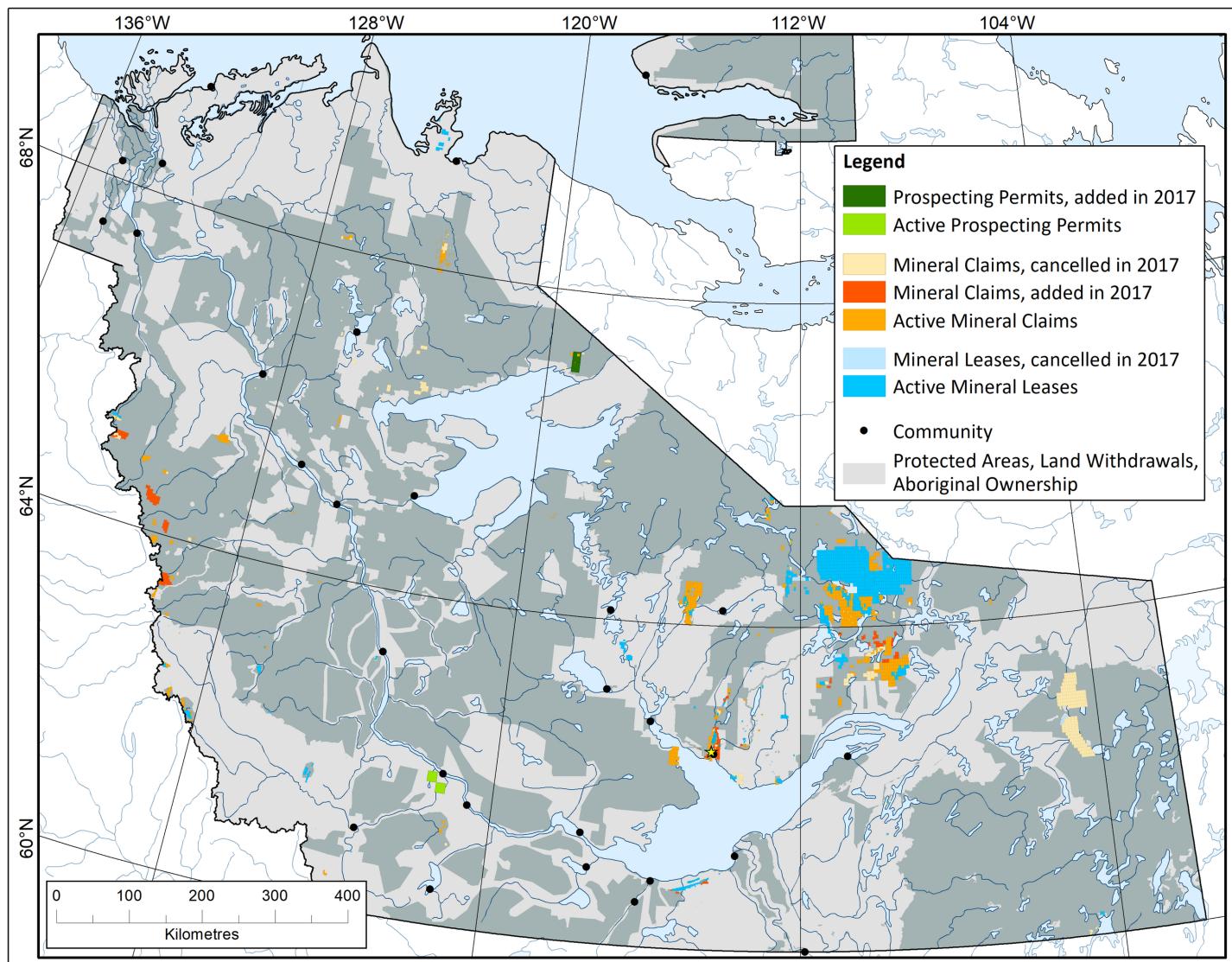
The Gahcho Kué mine plan includes a cluster of four diamondiferous kimberlites, three of which have Probable Mineral Reserves of 34.3 million tonnes grading 1.57 carats per tonne for total diamond content of 53.7 million carats. A fall 2017 exploration program focused on an area between the 5034 and Hearne pipes, referred to as the Southwest Corridor. An extension of diamondiferous kimberlite, which had not been included in resource statements, was found in the area during waste stripping operations.

Geophysical work to delineate the kimberlite extension has commenced and will be followed up with diamond drilling later in the fall.

Snap Lake Diamond Mine

Production at De Beers Canada's Snap Lake Mine ceased in December 2015. After efforts to find a buyer failed, flooding of the mine commenced in January 2017. The now-completed flooding was undertaken to minimise holding costs while preserving the long-term viability of the remaining orebody. Approximately \$30 million of mining and construction equipment was auctioned off in August.

Figure 1: Northwest Territories Mineral Tenure acquisition and lapsing for 2017.



Northwest Territories Exploration

Diamond and mineral exploration projects are summarized in Table 1 locations are shown in Figure 2.

Table 1: Summary of Northwest Territories Mineral and Diamond Exploration Projects for 2017

Operator / Partners	Property	Commodity	Drilling	Geophysics	Sampling and Other Work
Arctic Star Exploration Corp. / Margaret Lake Diamonds	Diagras	Diamond		Ground mag 129 line-km; 23 line-km gravity, 22 line-km EM	
BNT Resources	Fox Lake	Gold / Diamond			836 soil, 6 till samples
Canada Zinc Corporation	Prairie Creek	Zn-Pb-Ag			
De Beers Group of Companies, Mountain Province Diamonds	Gahcho Kué	Diamond		Ground geophysics between 5034/Hearne	
Dominion Diamond Corporation	Diavik	Diamond	3 holes on kimberlite		Microdiamond analysis C42, T29 and A61 kimberlites
Dominion Diamond Corporation	Ekati	Diamond	3 holes on three targets	Ground geophysics, airborne magnetics via UAV	Microdiamond analysis
Dominion Diamond Corporation	LDG	Diamond		5,567 line-km heli-borne mag/EM survey, 22 ground geophysical grids	Microdiamond analysis
Equitorial Exploration Corp.	LNPG	Li, Cs, Ta			Mapping, Prospecting, Channel sampling

Table 1: Summary of Northwest Territories Mineral and Diamond Exploration Projects for 2017 (continued)

Operator / Partners	Property	Commodity	Drilling	Geophysics	Sampling and Other Work
Kendrick	Hangstone	Au			Grab samples
Kennady North	Kennady North	Diamond	75 large diameter holes for 565.4 tonne samples; 9 HQ holes for 2766 m		
Nighthawk Gold Corp	Indin Lake	Au	27,168 m in ca. 80 holes	Lidar survey of property, ground mag and IP	
Pine Point Mining Ltd.	Pine Point	Zn, Pb	111 holes	50.7 line-km ground gravity, 709 line-km heli-bourne gravity	
Nickerson	Aye 1 / Handle 1	Au	Trenching, mini bulk sample		
Ninety Two Resource Ltd.	Hidden Lake	Li			Prospecting, grab and channel sampling
North Arrow Minerals	Loki	Diamond		Heli-bourne VTEM, TDEM, mag; four ground mag grids	
Rover Metals Corp	Up Town Gold	Au	9 holes		
Strategic Metals Ltd.	LNPG	Li-Ce-Ta			Grab and channel sampling
TerraX Minerals Inc.	Yellowknife Gold	Au	43 holes 14,689 m	350 km ² Lidar, 3200 airborne Mag, EM, Radiometric survey	Prospecting, sampling (5600+ samples), till and lake sediment sampling

Diamonds

Kennady North Diamond Project

Kennady Diamonds carried out significant work to advance their Kennady North Diamond Project. In January, Kennady reported an initial resource estimate for the Kelvin kimberlite, reporting 8.5 million tonnes of kimberlite grading 1.6 carat diamond per tonne, with a diamond valuation of US\$63 per carat.

Following up on promising microdiamond results from 2016 diamond drilling on the Faraday 1, 2 and 3 kimberlites, Kennady commissioned a large diameter drilling project to collect mini-bulk samples of each body. Seventy-five large diameter holes were used to collect 565.4 tonnes of kimberlite. Results are summarised in Table 2 below.

Table 2: Summary of 2017 Faraday Large Diameter Drilling

Body	Number of Holes	Tonnes *	Total Carats (+0.85mm)**	Sample Grade (ct/T)	Valuation (US\$/ct)
Faraday 1	4	26.37	76.04	2.91	\$ 144
Faraday 2	29	262.6	726.47	2.81	\$ 75
Faraday 3	42	276.4	456.65	1.67	\$ 159

* Sample tonnage is calculated from caliper measurement of drill hole and model of bulk kimberlite density.

** Total carats as reported from diamond valuation parcel.

Several large stones were recovered in the sampling including a 7.78 carat sawable octahedron valued at US\$2,967 per carat from Faraday 3, and a 4.72 carat sawable octahedron valued at US\$1,667 per carat from Faraday 2.

Summer drilling on the property saw the completion of nine HQ diameter holes totalling 2,766 metres. The drilling extended the strike length of the Faraday 2 kimberlite body by 150 metres to approximately 600 metres. The drilling also revealed that the Faraday 1 and 3 kimberlites are connected at depth.

In early October, Kennady released an initial Inferred Mineral Resource for the Faraday kimberlites of 3.27 million tonnes grading 1.54 carats per tonne with an estimated value of US\$98 per carat. Details are summarised in Table 3.

Table 3: October 2017 Faraday maiden Inferred Mineral Resource estimate

Kimberlite	Tonnes (million)	Grade (carats per tonne)	Carats (million carats)	Value (US\$ per carat)
Faraday 2	1.39	2.24	3.13	112
Faraday 3	1.87	1.01	1.90	75
Total Inferred	3.27	1.54	5.02	98

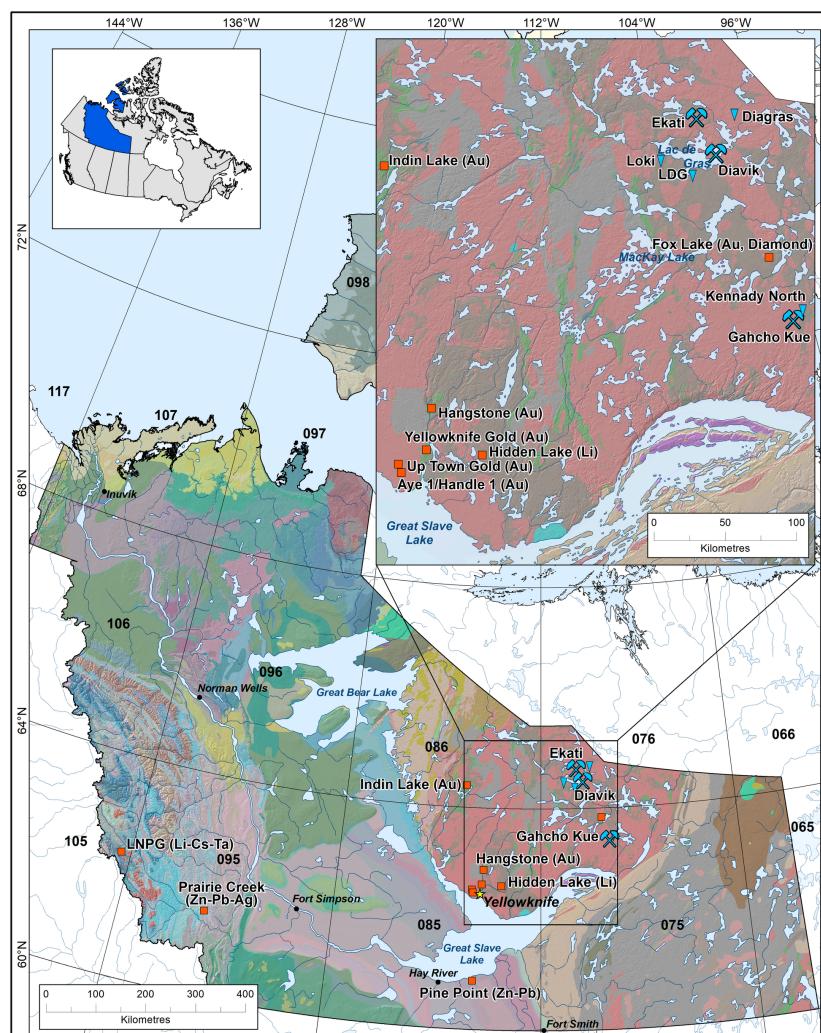
Loki Project

The Loki Project, operated by North Arrow Minerals Inc., is located southwest of the Diavik and Ekati diamond mines and consists of two claims (Loki South and Loki East) totalling 8,607 hectares. Loki East has five known kimberlites: EG01N, EG01S, EG02, EG05 and EG130.

In early September, North Arrow engaged Geotech Ltd. to complete the helicopter-borne VTEM Plus time domain electromagnetic and magnetic survey over the known kimberlites and several additional targets. Four ground magnetic surveys were completed by North Arrow over six priority targets in the Loki South area.

The targets covered by the ground surveys are located at or near the interpreted termination of a KIM train. The results of the geophysical surveys will be used to plan a winter 2018 drill program to test the targets and delineate the EG05 kimberlite.

Figure 2: Locations of Mines and Mineral Exploration projects active in the Northwest Territories, 2017



Diagras Property

Arctic Star Exploration Corp. (40%) and Margaret Lake Diamonds Inc. (60%) completed ground geophysical surveys over their Diagras Property this summer.

The Diagras Property is located 22 kilometres NNE of the Diavik Diamond Mine. It consists of 23 contiguous claims covering 18,699 hectares that contain thirteen known kimberlites including the Jack Pine and Black Spruce kimberlites.

Field crews completed eleven ground magnetic (129 line-kilometres), ground gravity (23 line-kilometres), and ground electromagnetic (22 line-kilometres) surveys on several target areas. At the Jack Pine area, a new 500-metre long, north-trending anomaly referred to as Sequoia was outlined.

Gold

Indin Lake Property

Nighthawk Gold Corp. has continued its highly successful exploration efforts on the Indin Lake Property. The 899 square kilometre property contains numerous gold showings and five main deposits: Colomac (Zone 1.5 and 2.0), Goldcrest and Grizzly Bear (24 and 27) with a total inferred resource of 2.1 million ounces (ca. 60,000 kilograms) of gold in 39.8 million tonnes for an ore grade of 1.64 grams per tonne.

In 2017, 76 holes were drilled for a total of 26,168 metres to enhance the Colomac resource with a focus on Zone 1.5 and its possible connection to Zone 2.0. An additional 1,000 metres were drilled to test other regional targets on the property. Prospecting and mapping developed a drill target on the newly-identified Nice Lake Sill. Magnetic and induced polarization ground geophysics were performed and a LIDAR survey was flown over the entire property.

The Colomac Sill is a medium-grained quartz diorite/quartz gabbro of dioritic to trondhjemitic composition. The sill ranges in width from 40–200 metres and averages 100 metres wide along its six kilometres of drill-tested strike length. Of this, the quartz diorite portion is 9–60 metres wide. The sill is oriented 010/80° in the north and 023/80° in the south. Brittle deformation of the sill produced fracture stockworks and auriferous quartz-veined zones that are highly altered and carbonatized. The 2017 exploration drilling defined and expanded the high-grade portion of Zone 1.5 and identified additional gold mineralization between Zone 1.5 and Zone 2.0 to the south.

Together, these two zones outline a domain of continuous gold mineralization from surface to 600 metres depth and more than 400 metres in strike length. Drill hole C17-17B from the northern portion of Zone 2.0 returned 89.10 metres (50.00 metre true width) grading 1.52 grams of gold per tonne, including 12.00 metres of 5.02 grams per tonne and 6.40 metres of 8.61 grams per tonne.

Drilling has also extended the depth of Zone 1.0. Drill hole C17-19 from this zone returned 48.50 metres (45.00 metres true width) grading 1.88 grams of gold per tonne gold, including 20.00 metres of 3.07 grams per tonne and 9.85 metres of 5.08 grams per tonne.

The results from an additional 10,000 metres of drilling have yet to be released, including assays from Zone 1.5, Goldcrest and Grizzly Bear and from drilling and prospecting work completed on other targets within the land package. An updated NI 43-101-compliant resource estimate is anticipated in late 2017.

Aye 1 and Handle 1 Claims

Prospector Dave Nickerson continued to explore on his wholly-owned Aye 1 and Handle 1 claims near the Ingraham Trail turnoff (NWT Highway 3 and Highway 4 junction) in Yellowknife. Each claim hosts a narrow shear-zone cutting mafic volcanic rocks with a central quartz vein containing high-grade gold mineralization.

Over the summer and fall of 2017, Mr. Nickerson was able to remove material from a small trench on the Fox vein (located on the Aye 1 claim). During this time a mini-bulk sample of the No. 9 vein on the Handle Property was also completed.

Mr. Nickerson reports an average grade of 59.7 grams of gold per tonne for the Fox vein and 36.9 grams of gold per tonne (including some dilution) for the No. 9 vein. Mr. Nickerson is considering his options for milling based on these results and looks forwards to conducting further work in the spring of 2018.

Hangstone Claims

Prospector Wayne Kendrick continued to explore his Hangstone claims centered on Sito Lake, located 47 kilometres north of Yellowknife. Grab samples from his latest work continue to outline high-grade gold mineralization and included assays of 210, 26.5 and 23.5 grams of gold per tonne.

Mr. Kendrick plans to follow up this work with biogeochemical and magnetic surveys to be conducted during the winter of 2017-2018. If the results from these surveys are encouraging, Mr. Kendrick hopes to carry out a drill program on the property during the summer of 2018.

Yellowknife City Gold Project

TerraX Minerals Inc. continued a vigorous exploration program on its wholly-owned Yellowknife City Gold Project. The project was expanded and now consists of a 418 square kilometre property over 45 kilometres of strike length of the Yellowknife Volcanic Belt.

Many of the added claims focused on the sedimentary basin to the east of the belt, including the past-producing Burwash Mine. TerraX completed a winter and summer exploration program of diamond drilling, sampling, and other investigations.

In 2017, a total of 43 holes comprising 14,689 metres were drilled. Six holes (1,774 metres) were drilled at Dave's Pond to extend the known length of a high-grade shear zone. Sixteen holes (5,432 metres) were drilled on areas to the east, north and south of Mispickel to test a set of high-grade quartz veins. Fifteen holes were drilled on the Northbelt Property (Sam Otto, Banting Lake and Jackson Lake target areas), and six holes were drilled on the Southbelt Property to test the high-grade Con Shear and New Vein targets.

During the summer, TerraX completed a high-resolution airborne Lidar and ortho-photo survey covering approximately 350 square kilometres. Approximately 3,200 line kilometres of airborne geophysical surveys, comprising electromagnetic, magnetic and radiometric surveys, were conducted over areas of the project that had not previously been surveyed.

Fieldwork included comprehensive mapping and sampling of historic trenches in the newly-acquired Eastbelt Property, with over 400 samples collected from areas with known gold mineralization. This work was complimented by a till and lake sediment sampling program to extend mineralized trends in areas covered by overburden and water.

Prospecting extended the mineralized trace of the Sam Otto zone by five kilometres. Prospecting and lake sediments sampling also extended the total length of mineralization in the Walsh Lake zone to six kilometres. Grab samples from the zone, which includes the previously-drilled Mispickel showing, returned up to 22.3 grams of gold per tonne, and 17.9 grams of gold per tonne accompanied by 68.2 grams of silver per tonne, 2.0% lead and 1.3% zinc.

Additional work initiated in fall and expected to continue to the end of 2017 includes extensive ground magnetic and induced polarization surveys and comprehensive biogeochemical surveys over portions of the property covered by swamps and overburden. Surface exploration collected more than 5,600 samples this summer and results from a total of 1,006 samples have been reported to date.

TerraX Minerals Inc. also announced it had negotiated an option to acquire the historic Burwash Mine property (252 hectares), immediately adjacent to its Eastbelt property, east of Yellowknife. The Burwash mine, discovered in 1935, was the first gold producer in the Yellowknife district. A pit and shallow shaft (40 metres) were excavated to mine a gold bearing quartz vein in turbiditic metasediments. Approximately 450 ounces of gold were produced at a grade of 13.6 ounces per tonne (466 grams of gold per tonne). An initial sampling program consisting of 85 grab samples was completed.

Highlights of the sampling include 201 grams of gold per tonne and 23.2 grams of silver per tonne from a sample near the Burwash shaft, and 2.87 grams of gold per tonne, 16.2 grams of silver per tonne, 5.55% zinc and 0.68% lead from a grab sample collected 1.1 kilometres south of the shaft.

Up Town Gold Project

Rover Metals is evaluating the Up Town Gold Project, a high-grade Archean lode gold prospect adjoining the former Giant Mine in Yellowknife. The property consists of six claims covering 3,227 hectares. It is centred approximately 6 kilometres north of downtown Yellowknife and adjoins the Yellowknife City Gold Project (see above). Gold was discovered on the property in 1960 and two targets were explored intensively from 1963 to 1966. Small-scale mining was conducted at the Rod Vein in 1979.

In 2011, the property was restaked by Panarc Resources Ltd. and since then has been explored by Panarc, Manson Creek Resources Ltd. and North Sur Resources Ltd. who mapped, sampled, conducted geophysical surveys and drilled nine shallow (Winkie) drill holes into three of the targets. Silver Range Resources purchased the property in 2016 and recently completed systematic, property-wide lithogeochemical sampling, alteration mapping and airborne total magnetic field and radiometric surveys. The property was optioned to Rover Metals in late 2016.

The Up Town Gold Project covers eight gold showings, collectively defining two corridors of structurally-hosted high-grade gold mineralization that are subparallel to the shear zone hosting the Giant Mine deposit. The Fox South Shear consists of a reverse shear zone 10 to 70 metres wide mapped over a strike length of 400 metres.

To the west, seven showings define a 4.5 kilometre long, 500 metre wide corridor of structurally-hosted gold occurrences, including the Rod Vein. The Rod Vein is a laminated quartz vein carrying disseminated pyrite, galena, chalcopyrite and free gold hosted in a NNE-striking, moderately SSE-dipping reverse shear. The vein is 100 metres long at surface, up to 3 metres wide and rakes moderately NNE in the plane of the shear.

A drill program consisting of nine holes was announced in August 2017 to test the depth extents of the Rod Vein. Gold assay highlights from the Rod Zone include 3.3 metres averaging 3.73 grams of gold per tonne (including 0.3 metres of 35.00 grams of gold per tonne) where drilling intersected quartz veins. Intersections from the Fox South Zone included 7.1 metres averaging 0.62 grams of gold per tonne (including 0.3 metres of 5.12 grams per tonne) where drilling intersected a number of chloritic shear zones.

Fox Lake Property

A geochemical soil survey and a kimberlite indicator mineral till survey were conducted on the Fox Lake Property by BNT Gold Resources Ltd. The property is located approximately 290 kilometres northeast of Yellowknife and 45 kilometres northwest of the Gahcho Kué Mine. A total of 836 soil samples and 18 field duplicates were collected. The A/B horizon samples were submitted for 50-element ICP analysis by aqua regia digestion. Results are pending. Additionally, six till samples were collected for kimberlite indicator minerals in order to confirm historical results for kimberlite indicator minerals on the property, and to test two new locations identified in a recent NTGS aeromagnetic survey.

Lithium

LPNG Property

Equitorial Exploration Corp. continued to explore their LNPG property located near the Yukon border, 37 kilometres northwest of the Cantung Mine. Their 2016 program consisted of mapping, prospecting and channel sampling the Little Nahanni Pegmatite Group, a suite of lithium-cesium-tantalum pegmatite dykes that have been traced for over 13 kilometres. Grab samples from spodumene-bearing pegmatites assayed up to 3.77% Li₂O. Channel sampling from pegmatite boulders and outcrop have returned up to 10.35 metres of 1.13% Li₂O with significant tantalum and tin values.

The results of the channel sampling were summarized in an NI 43-101 report that was released in March 2017. Permitting efforts were successful in late June for a drill program that was scheduled to start in mid- to late July. The work, which was to be managed by Archer, Cathro & Associates (1981) Limited, was reported to include diamond drilling, channel sampling, resampling of 2007 drill core, and geological mapping and prospecting.

The diamond drilling was to target the pegmatite dyke swarms near the cirque floors in order to extend the vertical extent of these dykes. Results of the work have not yet been released.

Hidden Lake Property

92 Resources Ltd. has continued exploring granitic pegmatite dykes on its Hidden Lake property located approximately 40 kilometres east of Yellowknife. In the first beneficiation test on the pegmatites comprising the Hidden Lake Project, the company successfully produced a mineral concentrate of 6.16% Li₂O at 79% recovery.

The test was conducted on a composite sample that had been collected in 2016 and used a standard spodumene flotation flowsheet. To date, a total of five flotation tests have been completed and a peak spodumene concentrate grade of 6.85% Li₂O has been achieved.

These results support the favourable liberation characteristics of the Hidden Lake pegmatites and their amenability to conventional spodumene mineral-processing methods.

As follow-up to the beneficiation work, several lithium extraction scoping tests were completed, with an overall extraction of 97% indicating that industry-standard lithium extraction techniques can be applied to concentrates produced from the Hidden Lake pegmatites. Additional beneficiation work, including magnetic separation, heavy liquid separation and further flotation tests are planned.

A two-week fall field program included regional prospecting to identify additional pegmatite occurrences and detailed prospecting between the HL6 and D12 pegmatites. The extent of the HL6 pegmatite is not fully delineated and it may represent a 1.2 kilometre extension to the D12 pegmatite. Channel samples were also collected from HL1, HL3, HL4 and D12 pegmatites to support metallurgical testing.

Zinc

Pine Point Project

Darnley Bay Resources Limited, now renamed Pine Point Mining Ltd., acquired a 100% interest in the Pine Point zinc and lead project near Hay River in December 2016. The company staked an additional eight claims adjoining the property, adding 3,490 hectares to the approximately 18,000 hectare property. Currently there are 54 undeveloped lead-zinc deposits on the property, of which 15 have been defined to NI 43-101 standards and the rest classified as historical resources.

Pine Point Mining has opted to purchase a 50% undivided interest in the 3% net smelter return royalty held by Karst Investments LLC. on the project.

Pine Point has completed 111 drill holes thus far in 2017 to upgrade some of the historical resources to current standards. Additional targets were identified to explore for new deposits in several underexplored portions of the property. Some material was drilled to collect samples for metallurgical testing required for a feasibility study. The initial assay results for the first two holes confirmed high-grade zinc and lead mineralization with good continuity along with high gallium and germanium values at the W85 deposit.

Following the drilling on the W85 deposit, a total of 56 holes (5,906 metres) were completed by mid-August at L65 to compliment the 29 holes previously drilled by former operators Cominco and Tamerlane.

The new drill holes demonstrated an extension of the L65 deposit to the west towards the K68 and M67 deposits over a strike length of 1,300 metres. It appears the L65 zone mineralization is part of a continuous system connecting all four deposits (M62/63, M64, M67 and K68) with less concentrated weaker mineralization between deposits. Intersections include 7.50 metres containing 10.9% zinc and 1.03% lead which included 4.2 metres of 18.4% zinc and 1.80% lead and 10.6 metres with 3.44% zinc and 2.81% lead. Complete results for the L65 drilling have been released but other results from the 2017 summer program have not yet been made public.

On April 2017, Pine Point Mining released a Preliminary Economic Analysis (PEA) examining the economics of constructing a mine with a 13-year mine life based on: 25.8 million tonnes of Measured and Indicated Resources grading 2.94% zinc and 1.12% lead, and an additional 3.7 million tonnes of Inferred Resources grading 2.90% zinc and 0.77% lead.

The PEA shows a robust economic return with a relatively low capital cost compared to similar projects and an after-tax payback of 1.8 years. Table 4 shows the summary of resources reported in the study.

Table 4: Summary of Open Pit Resources included in 2017 Pine Point Mining Preliminary Economic Assessment

	Measured and Indicated					Inferred				
Pit	Feed (kt)	Pb (%)	Zn (%)	Pb (MLb)	Zn (MLb)	Feed (kt)	Pb (%)	Zn (%)	Pb (MLb)	Zn (MLb)
J68	304	2.25	4.9	15	33	-	-	-	-	-
HZ	1,549	2.76	3.58	94	122	-	-	-	-	-
W85	3,983	1.98	3.46	174	304	-	-	-	-	-
X65	5,430	0.8	2.41	95	288	56	0	3.6 7	0	5
O533	81	0.91	2.9	2	5	121	0.83	2.7 9	2	7
N204	10,005	0.8	2.98	177	657	3,527	0.78	2.8 9	61	224
M67	1,365	0.84	3.55	25	107	-	-	-	-	-
K68	1,193	0.81	2.77	21	73	-	-	-	-	-
L65	1,578	0.7	1.95	25	68	-	-	-	-	-
M62/ 63	352	1.42	2.13	11	16	-	-	-	-	-
Total	25,841	1.12	2.94	640	1674	3,703	0.77	2.9	63	236

Quantec Geoscience has completed 50.7 line-kilometres of ground gravity survey over several portions of the property. The survey is planned for a total of 97 line-kilometres at 100 metre line spacing, and a follow-up with 50 metre spaced lines over any identified anomalies. Two gravity anomalies have been identified along strike to the east of the N-42 deposit as well as a strong gravity response that requires further definition at the north end of the grid. An additional anomaly in the southeast corner of the grid shows a strike length of more than 400 metres and lies on strike with the past-producing South Trend X-15, W-17 and T-58 deposits.

In November, a helicopter-borne gravity gradiometer survey will be conducted in the western portion of the North Trend, covering an additional 709 line-kilometres at 50 metre line spacing. Pine Point Mining recently announced that a drill was mobilized to test some initial high priority targets identified to date by the ongoing survey.

Prairie Creek Project

Canadian Zinc Corp. focused efforts on completing a Feasibility Study (September 28, 2017) for the Prairie Creek Zinc-Lead-Silver Project in the Mackenzie Mountains northwest of Nahanni Butte. The study was led by AMC Mining Consultants (Canada) Inc. and Ausenco Engineering Canada Inc. The optimization work has suggested improvements to many aspects of the Prairie Creek Mine, resulting in only a modest increase in the capital cost over previous estimates. Key changes from the 2016 study were: an increased mining rate (+18.5% to 1,600 tonnes per day) and an increased mill throughput after dense media separation processing (+25% to 1,200 tonnes per day), resulting in a lower operating cost (-2.6% to \$223 per tonne mined, including transport).

The Feasibility Study included a new (August 2017) Mineral Reserve estimate of 8.1 million tonnes of Proven and Probable Reserves at a combined grade of 16.75% lead and zinc plus 124 grams of silver per tonne, which represents a 6% increase in reserve tonnage over the 2016 calculations. The estimate was prepared by H. A. Smith of AMC Mining Consultants (Canada) Ltd. and is based upon a Measured and Indicated Resource of 8.7 million tonnes grading 9.5% zinc, 8.9% lead and 136 grams of silver per tonne. An additional Inferred Mineral Resource of 7.0 million tonnes grading 11.3% zinc, 7.7% lead, and 166 grams of silver per tonne has the potential to be upgraded and to increase the current anticipated mine life of 15 years.



Prairie Creek site from above

The expanded mill throughput would result in an average annual metal production of 95x106 pound (43x106 kilograms) of zinc in 64,800 tonnes of zinc concentrates and 105x106 pounds (47x106 kilograms) of lead contained in 71,600 tonnes of lead concentrates. These concentrates would include 2.1 million ounces of silver. The Prairie Creek Mine will be an underground operation, based primarily on the Main Quartz Vein (MQV) and on mining an average of 1,600 tonnes per day over a 15 year mine life. During full production, approximately 584,000 tonnes of ore per year will be mined.

Mining will require the modification of the existing adits on all three levels (970, 930 and 883 metre levels). Access will be through an enlarged 883 metre level portal and adit with secondary access at the 930 metre level. Initial mining will be entirely from the MQV ore. As mining progresses, this will be supplemented by ore from the deeper Stratabound Massive Sulphide (SMS) deposit. Both deposits will be accessed by development of a common ramp. Mining of the MQV will be done by longhole open stoping with paste backfill. Mechanized drift-and-fill will be used for the SMS ore, also with paste fill using flotation tailings as backfill.

The Feasibility Study concludes that the cumulative net revenue over the life of the mine would be \$3 billion at a base case metal prices of zinc = US\$1.10 per pound (US\$2.20 per kilogram), lead = US\$1.00 per pound (US\$2.20 per kilogram), and silver = US\$19.00 per ounce. The pre-tax net present value (NPV), discounted at 8%, is \$344 million, with an internal rate of return (IRR) of 23.8%, while the post-tax NPV and royalties, discounted at 8%, would return \$188 million with an IRR of 18.4%.

The capital cost for the project is estimated at \$279 million including contingency, with a post-tax payback period of 4.6 years from mill start-up.

With the recent recommendations from the Mackenzie Valley Environmental Impact Review Board for approval of the all-season road, Canadian Zinc can now focus on financing the development and construction of the Prairie Creek Mine.

Other Highlights

During 2017, the NWT mineral exploration and development sectors witnessed several advancements. The Government of Northwest Territories investment in grassroots mineral exploration through the Mining Incentive Program more than doubled from \$400,000 to \$1 million annually. This funding has been dispersed to 14 exploration projects comprising seven prospectors and seven companies (Table 5.1, 5.2), with a total of \$991,054.53 paid out.

Table 5.1: Government of Northwest Territories Mining Incentive Program – 2017 recipients (Prospectors)

Recipient	Commodity	Funding Awarded
Danny Yakeleya	Gold	\$21,250
Dave Nickerson	Gold	\$22,300
Dave Webb	Gold	\$15,410
Ryan Bachynski (two projects)	Gold, Base Metals, Rare Earth Elements	\$28,900.95
Suhua Chen	Gold	\$17,500
Wayne Kendrick	Gold	\$25,000

Table 5.2: Government of Northwest Territories Mining Incentive Program – 2017 recipients (Corporate)

Recipient	Commodity	Funding Awarded
92 Resources	Gold	\$140,000
Evrim Resources	Gold	\$180,000
Margaret Lake Diamonds	Diamonds	\$36,601.25
North Arrow Minerals	Diamonds	\$170,000
BNT Gold Resources	Gold	\$58,187.33
TerraX Minerals	Gold	\$200,000
4763 NWT Ltd.	Gold	\$75,905

The territory experienced renewed staking in the Slave Geological Province and Mackenzie Mountains, sparked in part by the release of two airborne geophysical surveys of a high mineral potential area of the Slave Geological Province. The reports were released by the Northwest Territories Geological Survey (NTGS; Government of Northwest Territories).



All smiles at the opening of the Geological Materials Storage Facility in Yellowknife. From Left: Mohan Denetto of INAC; Prospector Dave Nickerson; Minister of Industry, Tourism and Investment Wally Schumann; Prospector Walt Humphries.

The NTGS also opened a Geological Materials Storage Facility in Yellowknife that houses an extensive mineral drill core collection for the NWT. More details about this facility can be obtained from the NTGS website (nwtgeoscience.ca)

More Information

Further information on mining and mineral exploration in the NWT can be obtained from:

Hendrik Falck, Mineral Deposits Geologist, Northwest Territories Geological Survey
Department of Industry, Tourism and Investment
Government of the Northwest Territories,
P.O. Box 1320, 4601-B 52nd Avenue, Yellowknife NT, X1A 2L9
867-767-9211 (Extension 63222)
hendrik_falck@gov.nt.ca

Barrett Elliott, Diamond Geologist,
Northwest Territories Geological Survey
Department of Industry, Tourism and Investment
Government of the Northwest Territories
P.O. Box 1320, 4601-B 52nd Avenue, Yellowknife NT, X1A 2L9
867-767-9211 (Extension 63210)
barrett_elliott@gov.nt.ca

Mining Recorder's Office
Mineral Resources Division
Department of Industry, Tourism and Investment,
Government of the Northwest Territories
P.O. Box 1320, 4923, 52nd Street (1st Floor, Gallery Building), Yellowknife, NT, X1A 2L9
867-767-9210
miners@gov.nt.ca

Menzie MacEachern, Director, Mineral Resources Division
Department of Industry, Tourism and Investment
Government of the Northwest Territories,
P.O. Box 1320, 800, 5102-50th Avenue (8th Floor, Scotia Building), Yellowknife, NT, X1A 2L9
867-767-9209 (Extension 63161)
Menzie_MacEachern@gov.nt.ca