

# **Nunavut**

## **Mining and Exploration Overview 2001**

**November 2001**

**Nunavut Mineral Resources Section  
Department of Indian Affairs and Northern Development  
Box 100, Iqaluit, Nunavut, X0A 0H0**

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### **A Note About the Overview**

This edition of the overview captures information on exploration and mining conducted in 2001, with a news cut-off date of November 1, 2001. There are some projects active in Nunavut for which no data has been made public, such as grass-roots exploration programs; these will not be discussed in this edition, and are not included in any statistical counts.

The overview is organized according to the three administrative districts that comprise Nunavut - the Kivalliq, Kitikmeot, and Qikiqtaani.

Prospectors and mining companies are welcome to submit information on their programs at any time, for inclusion in the next overview to be released. We thank the many companies that submitted information to us for this year's edition.

Feedback and comments are also appreciated.

## **DIAND Activities**

The Nunavut Regional Office became fully operational on 1 April 2001, at which time most staff had been hired. Both the Mineral Resources and Land Administration sections are located in the District Office Building, kitty-corner to the Qimugjuk Building in downtown Iqaluit.

Jason Sharp's field activities were limited to property visits - Noranda's Storm camp on Somerset Island, the Polaris mine, and NASA's Haughton-Mars camp on Devon Island in the Qikiqtaani. Sharp also had brief visits at the Jericho, Izok Lake, and George Lake projects and surface workings at the Lupin mine. Sharp has also participated in the Jericho environmental assessment process, the Polaris pre-closure hearings, and the Industry-Government Overview Committee.

Robert Carpenter spent several weeks studying the host rocks of the Naartok gold deposit in the Hope Bay greenstone belt, in collaboration with the Hope Bay Joint Venture and Ross Sherlock of the Canada-Nunavut Geoscience Office. Carpenter's objectives were to identify protoliths of the extensively altered hosts rocks and attempt to identify controls on the mineralization. His results will be presented at the Yellowknife Geoscience Forum and subsequent conferences. Carpenter also visited the ORO claims north of the joint venture, the George Lake/Goose Lake project, the Muskox project, and Lupin.

Jurate Gertzbein visited the Ferguson Lake, Meliadine West, and Kazan projects in the Kivalliq. Several projects were undertaken, including core retrieval from the Cullaton Lake mine and PGE sampling of several nickel-copper showings. Gertzbein also conducted preliminary examinations of the geo-tourism potential of Wager Bay and Marble Island. Gertzbein's PGE results will be presented in poster form at the Geoscience Forum and will also be available directly from her.

Assessment reports were reviewed by Sharp (Qikiqtaani), Carpenter (Kitikmeot), and Gertzbein (Kivalliq). We welcome inquiries about filing requirements or other regulatory matters.

Natalie Ham was able to visit the Lupin and Nanisivik mines and the Jackson Inlet project, but her time was primarily spent setting up the Archives. The assessment reports are now available for viewing, with a second copy remaining in Yellowknife for viewing there. Ham took over the task of supplying client orders for assessment data, and the arrival of a map scanner in August has allowed some orders to be delivered in .pdf format. Other assessment reports will be scanned as time permits.

Our colleagues in the NWT Regional Office are completing two projects initiated prior to the establishment of the Nunavut Regional Office. As part of the Mineral Potential Series, Chris Bianchi and Karen MacFarlane have created a CD ROM containing bedrock geology, airborne magnetics, and mineral showings in three subareas within the Western Churchill NATMAP Project area. The CD contains an ArcView project, shape files, links to the on-line NORMIN database, a series of maps in \*.pdf format, and a cladogram comparing geologic events in the three areas.

Steve Goff is editing a digital bedrock geology map of the Pistol Bay area in the Churchill Province. The map will be released this spring on CD ROM.

DIAND continues to be a partner in the Canada-Nunavut Geoscience Office. Based in Iqaluit, the office is co-funded by DIAND, Natural Resources Canada, and the Government of Nunavut's Department of Sustainable Development. The office continued its three major projects during the year - the mapping projects on central Baffin Island and in the Committee Bay greenstone belt area, northeast of Baker Lake, and the study of lead-zinc mineralization in the Polaris area.

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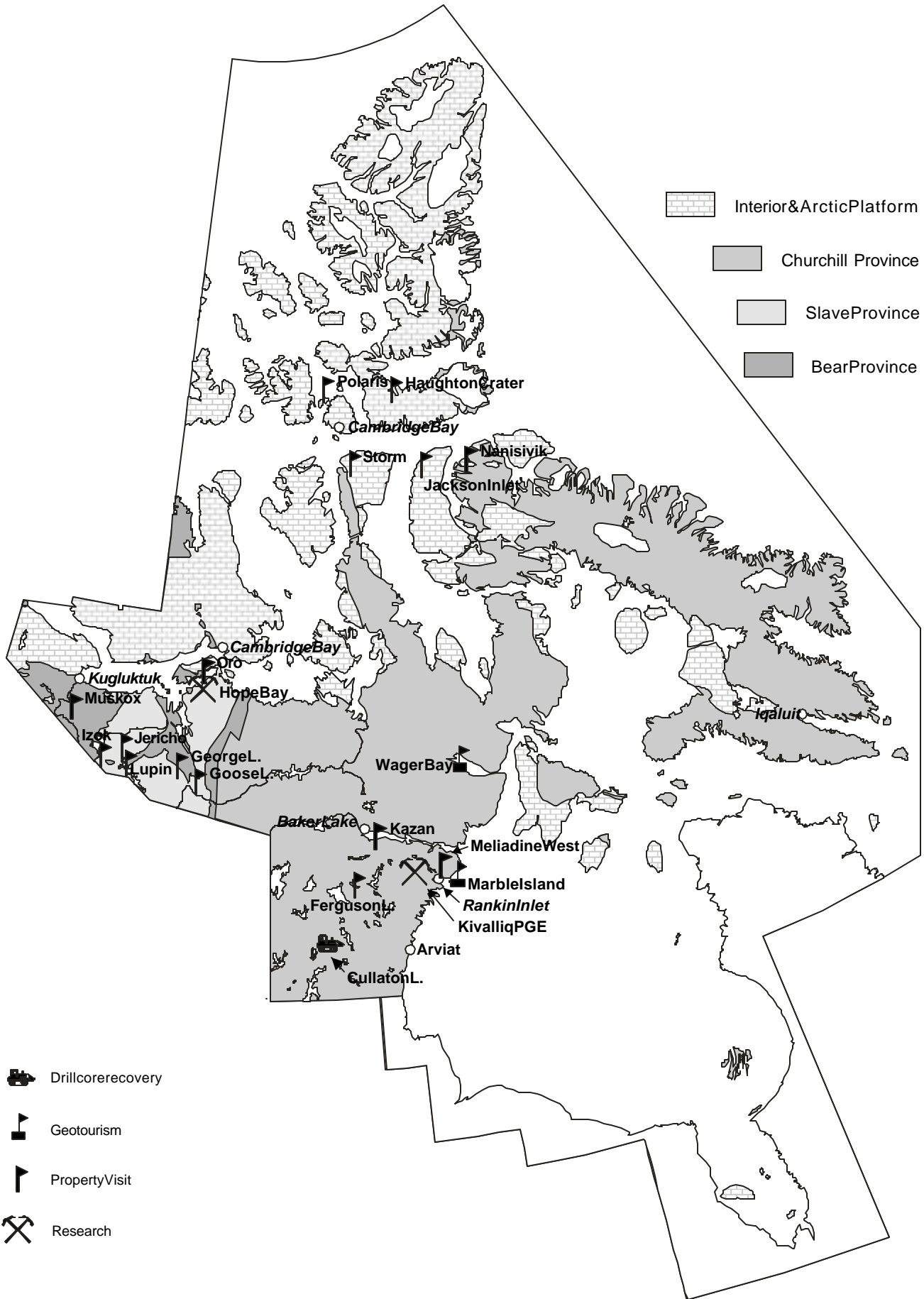
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**Figure 1: DIAND Property Visits and Research in 2001**



## **Summary of Mining and Exploration**

The Kitikmeot remained the hotbed of exploration in 2001. The Hope Bay joint venture remained the single largest project in the territory, expending C\$15 million in its search for gold mineralization east of Bathurst Inlet. Two new zones of interest, Suluk and Naartok, were the focus of drilling. To the south, Kinross worked on the Goose Lake deposit in an effort to add ounces there.

Diamond exploration in the Rockinghorse-Kikerk lakes area resulted in the discovery of at least eight new kimberlites. Four of these - Anuri, Anuri East, Potentilla, and Artemisia - produced encouraging microdiamond counts from initial sampling.

Base metals are back in the picture. The High Lake deposit was tested for the first time in years by new owner Wolfden Resources. Drilling found evidence that mineralization may exist beyond an intrusive body that was previously thought to cut it off. Meanwhile, Inmet's Izok Lake deposit west of Lupin is being linked with the Bathurst road and port, should that infrastructure project produce a positive scoping study.

In the Qikiqtaani, unfortunate news came with word of Nanisivik's early closure. The closure of both Nanisivik and Polaris will have a significant economic impact on the region and at this time there are no projects ready to take their place. However, companies like Noranda and Cominco continue to search for new base metal deposits across the High Arctic.

Twin Mining's Jackson Inlet diamond project has resulted in a second discovery and results from a mini-bulk sample should come in the next few months. Kennecott Canada has acquired ground in the area now.

Three companies acquired three dozen prospecting permits in the Central Baffin area, where the Canada-Nunavut Geoscience Office is undertaking thematic geoscience studies, including bedrock mapping. The region is considered prospective for both zinc-lead and nickel-copper mineralization.

The Kivalliq region was relatively quiet, with gold exploration declining somewhat. WMC undertook very little work at Meliadine West, preferring instead to offer its interest for sale. No deal has been struck yet.

Starfield Resources has not only expanded its Ferguson Lake deposit, it also discovered a new high-grade palladium-platinum zone that has its geologists re-logging core.

Several prospecting programs were underway. Hudson Bay and Tri-Origin were out looking for base metals, while BHP Billiton and Comaplex sought precious metals.

## **Looking at the Numbers**

The following tables provide information on the distribution of projects by maturity, target commodities, geographical location, and tallies diamond drilling meterages. Natural Resources Canada (<http://www.nrcan.gc.ca/mms/efab/mmsd/exploration/byprov2001.htm>) forecasts that mineral exploration and deposit appraisal expenditures will total \$54.2 million this year, compared to \$62.4 million in 2000 and \$37.4 million in 1999. About half of this figure will be spent at the five advanced exploration projects.

### Active Projects

Region/Commodity	Gold	Nickel/PGE	Base Metal	Diamonds	Totals
Kivalliq:	4	1	2	0	7
Kitikmeot:	4	2	2	10	18
Qikiqtaani:	0	0	8	3	11
Totals:	8	3	12	13	36
Estimated 2000 Figures	11*	4	5	16	36

\*In the 2000 overview, major drilling projects at the Doris and Boston deposits were considered separate projects from the Hope Bay reconnaissance work, and work at the Vault showing was similarly considered separate from the Meadowbank deposit. This year the distinction has not been made, and the estimated totals for both 2000 and 2001 presented here reflect the lack of distinction. Active mines are included in the total.

### Project Maturity

Region/Commodity	Recce	Advanced*	Mines	Totals
Kivalliq:	5	2	0	7
Kitikmeot:	14	3	1	18
Qikiqtaani:	9	0	2	11
Totals:	28	5	3	36
Estimated 2000 Figures	27	6	3	36

\*Defined as projects that included (but are not limited to) drilling or bulk sampling for resource calculations, or projects undergoing environmental assessment

### Drilling

#### Preliminary Diamond Drilling Meterage Statistics

Region/Commodity	Gold	Nickel/PGE	Base Metal	Diamonds	Totals
Kivalliq:	4,044	40,000			
Kitikmeot:	36,907	5,900	3,148	5,323*	
Qikiqtaani:			4,153*	1,566	
Totals:	40,951	45,900	7,301*	6,888*	101,041
Estimated 2000 Figures	73,912	24,384	7,707	375****	106,002

\*Estimated; not all data has been collected

\*\*Diamond data for 2000 was particularly sketchy, and was more likely in the 4,000 to 6,000 meter range.

## Kivalliq Region

The Kivalliq region includes the eastern mainland, Southampton Island, and several smaller islands. The largest communities - Rankin Inlet, Arviat, and Baker Lake - are the primary staging points for exploration projects in-land and offer expediting services.

The Kivalliq is underlain primarily by the Churchill geological province, which is Archean-Proterozoic in age. Sedimentary rocks of the Hudson Platform are found covering most of the islands.

Past-producing mines in the region have included the North Rankin Nickel mine, at Rankin Inlet, and the Cullaton Lake/Shear Lake operation north of Nueltin Lake. Exploration has primarily been for lode and iron formation gold, volcanogenic massive sulphide, unconformity-hosted gold, and mafic-ultramafic nickel-copper deposits. The presence of other deposits, such as epithermal gold and diamondiferous lamprophyres, has also been demonstrated.

The Ferguson Lake project was the largest program underway in the region in 2001, followed by the Meadowbank project and several smaller reconnaissance projects.

Ferguson Lake Project	
<b>Operator, Owners</b>	Starfield Resources
<b>Commodities</b>	Nickel, copper, cobalt, palladium, platinum
<b>Coordinates</b>	96° 51' W, 62° 52' N
<b>NTS</b>	65I/14,15
<b>Location</b>	230 km west of Rankin Inlet

Starfield holds 57,304 acres in the Ferguson Lake area. INCO first discovered nickel-copper mineralization here in 1950-55, completing 38,000 metres of diamond drilling to outline a resource of 6.354 Mt grading 0.75% nickel and 0.87% copper.

Starfield acquired the ground in March 1999 and began diamond drilling and geophysical work.

Mineralization occurs as chalcopyrite-pyrite-pyrrhotite stringers and massive pyrrhotite in zones up to ten metres thick. These are hosted by an hornblende sill or laccolith that can be traced for 9 km on surface and for 18 km using airborne geophysical data. The hornblende is bounded on either side by amphibolite, which in turn is bounded by hornblende gneiss to the north and south. The entire sequence is folded in northeast trending folds and is repeated to north and south. A syenite intrusion is located just to the northeast of the deposit.

Starfield embarked on two phases of exploration in 2000. During the winter and spring, 5000 metres of diamond drilling, magnetic surveys, and about 71 line-kilometers of UTEM surveys were completed. A 12,500 meter drill program was begun in the late summer. As of January 2001, Ferguson Lake's global resource was estimated at 32.4 Mt @ 0.86% copper, 0.59% nickel, and 1.26 g/t palladium and platinum. Approximately 1.31 million ounces of platinum group metals - primarily palladium - have been outlined.

Starfield began a planned 40,000 meter diamond drill program in early March, using three drill rigs. Three holes tested the M and East zones, but most activity was aimed at expanding known mineralization in the West Zone. This produced intersections such as 45.95 meters grading 1.34% copper, 0.76% nickel, 0.089% cobalt, 1.99 g/t palladium, and 0.32 g/t platinum in hole FL01-91. A new discovery was made in hole FL01-101, where a low sulphide interval above the massive sulphide body proved to contain high palladium-platinum values: 0.35 meters at 103 g/t palladium and 26.7 g/t platinum. Subsequently, Starfield began re-logging other holes and began sampling intervals similar in appearance to the high grade interval in hole 101.

As a result of the year's drilling, Starfield boosted its inferred resource for the property to 51.7 million tonnes grading 0.92% copper, 0.58% nickel, and 1.44 g/t palladium and platinum. This includes a higher-grade resource of 9.3 million tonnes grading



1.37% copper, 0.87% nickel, and 2.06 g/t palladium and platinum. Palladium is the dominant of the two precious metals in both cases.

<b>Fox</b>	
<b>Operator, Owners</b>	Comaplex Minerals
<b>Commodities</b>	Gold, silver
<b>Coordinates</b>	93° 20' W, 63° 16' N
<b>NTS</b>	55N/6
<b>Location</b>	100 km NW of Rankin Inlet

The three Fox claims cover an area of amphibolitized mafic volcanic and lesser sedimentary rocks and basal ortho- and para-gneiss. These are intruded by Hudson-age (1.84 Ga) granitic intrusions and are cut by regionally extensive east-west and northeast oriented structures. Mineralization occurs as thin, auriferous quartz veins in and near lean iron formation.

Comaplex prospected the property, collecting 41 grab samples. The auriferous veins were found to be spatially restricted to the iron formation horizons and appear to be pre-deformational. Gold values were of low grade and had poor continuity along strike.

<b>Kaminak Project</b>	
<b>Operator, Owners</b>	Hudson Bay Exploration and Development
<b>Commodities</b>	Copper, zinc, lead
<b>Coordinates</b>	96° 00' W, 62° 30' N
<b>NTS</b>	55K, 55L, 65H, 65I
<b>Location</b>	150 km southwest of Rankin Inlet

Regional prospecting for volcanogenic massive sulphide mineralization took place in the Kaminak

greenstone belt. A total of 1014 whole-rock, till, and other samples were collected for analysis.

<b>Kazan Project</b>	
<b>Operator, Owners</b>	Tri-Origin Exploration
<b>Commodities</b>	Copper, gold
<b>Coordinates</b>	95° 30' W, 63° 45' N
<b>NTS</b>	55M/12-14
<b>Location</b>	70 km south of Baker Lake

Tri-Origin acquired Prospecting Permits 2400-2403 in 2001 to explore for Olympic Dam-style mineralization. BHP-Billiton has the right to incur a 50% interest by incurring work expenditures of C\$1.6 million.

Most of the property is covered by arkose, conglomerate, siltstone, and mafic trachyte of the Proterozoic Baker Lake Basin, with some later. Intrusions of the Martell syenite. The southern part of the property is underlain by Archean quartz monzonite and volcanic rocks of the Parker-McQuoid greenstone belt. Copper, gold, and uranium occurrences are associated with zones of brecciation and veining, with hematite, chlorite, siderite, and/or albite alteration.

Interest in the Bissett Lake area was first peaked by the potential for uranium deposits in the 1970s. Pan Ocean Oil, New Continental Oil, Esperanza Oil, Cominco, and Noranda were active in the early up until the mid-1980s. Modest diamond exploration in the area in 1993 included the recovery of G-5 garnets, clinopyroxenes, and a chrome diopside from about ten till and esker samples. Exploration for Olympic Dam-style mineralization during the mid to late 1990s has been attributed to several companies but little exists in the way of hard data.

Tri-Origin began its work with an approximately 6,000 line-kilometer combined airborne magnetic and gravimetric survey, followed by ground-truthing

and prospecting. Ninety-seven grab samples were collected.

<b>Kivalliq Reconnaissance</b>	
<b>Operator, Owners</b>	BHP Billiton
<b>Commodities</b>	Unspecified
<b>Coordinates</b>	
<b>NTS</b>	
<b>Location</b>	

BHP Billiton collected 660 till samples on open ground in the Kivalliq. No results were available.

<b>Meadowbank Project (Vault Zone)</b>	
<b>Operator, Owners</b>	Cumberland Resources
<b>Commodities</b>	Gold
<b>Coordinates</b>	96° 00' W, 65° 04' N
<b>NTS</b>	66H/1, 56E/4
<b>Location</b>	75 km north of Baker Lake

In 1999, Cumberland acquired exploration rights to a 74,000 acre area northeast of the Meadowbank project. Nunavut Tunngavik Inc, which administers mineral rights on Inuit-owned land such as this area, has retained a 12% net profits interest royalty.

The general geology of the Vault area consists of northeast-trending, Archean intermediate volcanic rocks, bounded to the northwest by mixed sedimentary and volcanic rocks, and to the southeast by younger granite intrusions. Several showings, including the Wally World, PDF, Longroot, and Lakeshore showings, have been found but Cumberland's initial work has focused on the Vault Zone.

The Meadowbank gold deposits are located within rocks of the Archean Woodburn Lake greenstone belt. Mineralization is hosted by interbedded iron formation and felsic to intermediate tuff which are associated with lesser quantities of orthoquartzite and ultramafic schist. The supracrustal package is folded into a northwest trending, isoclinal, recumbent anticline and is sandwiched between two large granitoid intrusions.

At the Vault Zone, mineralization occurs as a northeast-trending, shallow, slightly dipping zone of quartz-sericite-carbonate-pyrite altered volcanics associated with an early isoclinal fold event. A 27 hole, 2853 meter drill program in 2000 intersected significant mineralization, including 11.63 g/t over 5.0 meters and 5.20 g/t over 4.15 meters, in separate intervals within hold VLT-008, and 7.02 g/t over 8.75 meters in VLT-024. A preliminary resource of 3.365 Mt grading 3.9 g/t gold (0.422 million ounces) was reported in December 2000.

A second year of drilling consisted of nineteen holes totaling 4,044 meters. Intersections of up to 8.93 g/t gold over a 4.00 meter interval in hole VLT-046. The deposit remains open at depth and along strike, with the deposit now extended to 850 meters long, 300 meters wide, and up to 120 meters below surface. A 1450 line-kilometer airborne geophysical was also completed, between the four original Meadowbank deposits and the Vault Zone.

In October 2001, the inferred resource for the deposit was updated to 7.47 million tonnes grading 3.90 g/t gold, for 936,700 ounces. Overall, the project has a measured/indicated resource of 7.775 million tonnes grading 5.79 g/t and an inferred resource of 10.937 million tonnes grading 4.44 g/t, for a total of 3.009 million ounces gold.

<b>Meliadine West</b>	
<b>Operator, Owners</b>	WMC International (56%) Cumberland Resources (22%) Comaplex Minerals (22%)
<b>Commodities</b>	Gold
<b>Coordinates</b>	92° 11' W, 63° 01' N
<b>NTS</b>	55J/13, 55K/16, 55N/1
<b>Location</b>	30 km north of Rankin Inlet

The Meliadine West deposits are hosted within the Archean Rankin Inlet Group, in the hanging wall of the Pyke Break Deformation Zone. Stratigraphy in the area strikes east-southeast and is overturned with south-facing tops. The stratigraphy, from north to south (oldest to youngest) is the Sam Formation (metaturbidites), Upper Oxide Iron Formation and Tiriganiaq Formation wackes and siltstones. These structurally overlie, but stratigraphically underlie, Wolf-Wesmeg Formation mafic and ultramafic rocks with the interlayered Lean and Lower Lean Iron Formations, and the Falcon Formation variolitic flows. South of the Pyke Break, stratigraphy is dominated by Sandhill Formation siltstones and wackes, and Sic Sic Formation polymictic conglomerates.

Mineralization is hosted primarily within the iron formation and associated metasediments and zones of high strain at volcanic/sedimentary contacts. Mineralization generally consists of quartz±iron carbonate±arsenopyrite±pyrrhotite veins and sericitic alteration. Four main deposits are known - Tiriganiaq (or Tiriruniak, in Upper Oxide IF and at the volcanic/sedimentary contact), Pump (Upper Oxide IF), F Zone (Lower Lean IF), and Wolf (Lower Lean IF).

Comaplex Minerals and Asamera Minerals staked the Nat claim in 1987. The Discovery Zone, on the Meliadine East property, was discovered in 1989 by prospectors working for Asamera Minerals and Comaplex Minerals, prompting additional staking. Rio Algom optioned the Meliadine West property in 1991 but terminated the option in 1992 despite

intersecting high-grade gold intervals during a drill program. Cumberland acquired Asamera's interest in 1993. With Comaplex as operator, the F Zone was discovered in 1993 and the Pump Zone in 1995. WMC International began earning an interest in the property in 1995, with the Tiriruniak (or Tiriganiaq) and Wolf Zones being discovered. Total drilling by the partners, including 2000, is approximately 135,000 metres. The indicated and inferred resource is 22.1 million tonnes grading 6.33 g/t gold, for 4.5 million ounces with a 3 g/t cut-off. This compares with the previous estimate of 23.7 million tonnes grading 8.5 g/t, for 6.5 million ounces.

Work this year was limited to an 800 line-kilometer airborne geophysical survey over part of the claim block. Prospecting on the CWM claims produced gram-level gold values from boulders and outcrops.

WMC has placed its interest in the project up for sale, but as of November, no buyer had been identified.

<b>Melville Peninsula Project</b>	
<b>Operator, Owners</b>	Falconbridge Ltd
<b>Commodities</b>	Nickel, copper, palladium, platinum
<b>Coordinates</b>	84° 15' W, 67° 08' N
<b>NTS</b>	46K/15,16, 46O/5, 46N/1,2
<b>Location</b>	110 km northeast of Repulse Bay

Prospecting Permits 2356-2360 were acquired in 2001 and cover 187,950 acres on the Melville Peninsula. The permits are underlain by Proterozoic Penrhyn Group metasedimentary rocks and mafic and ultramafic intrusions. Mineralization occurs in numerous sulphidic gossans in the metasediments, but little sulphide has been noted in the intrusions.

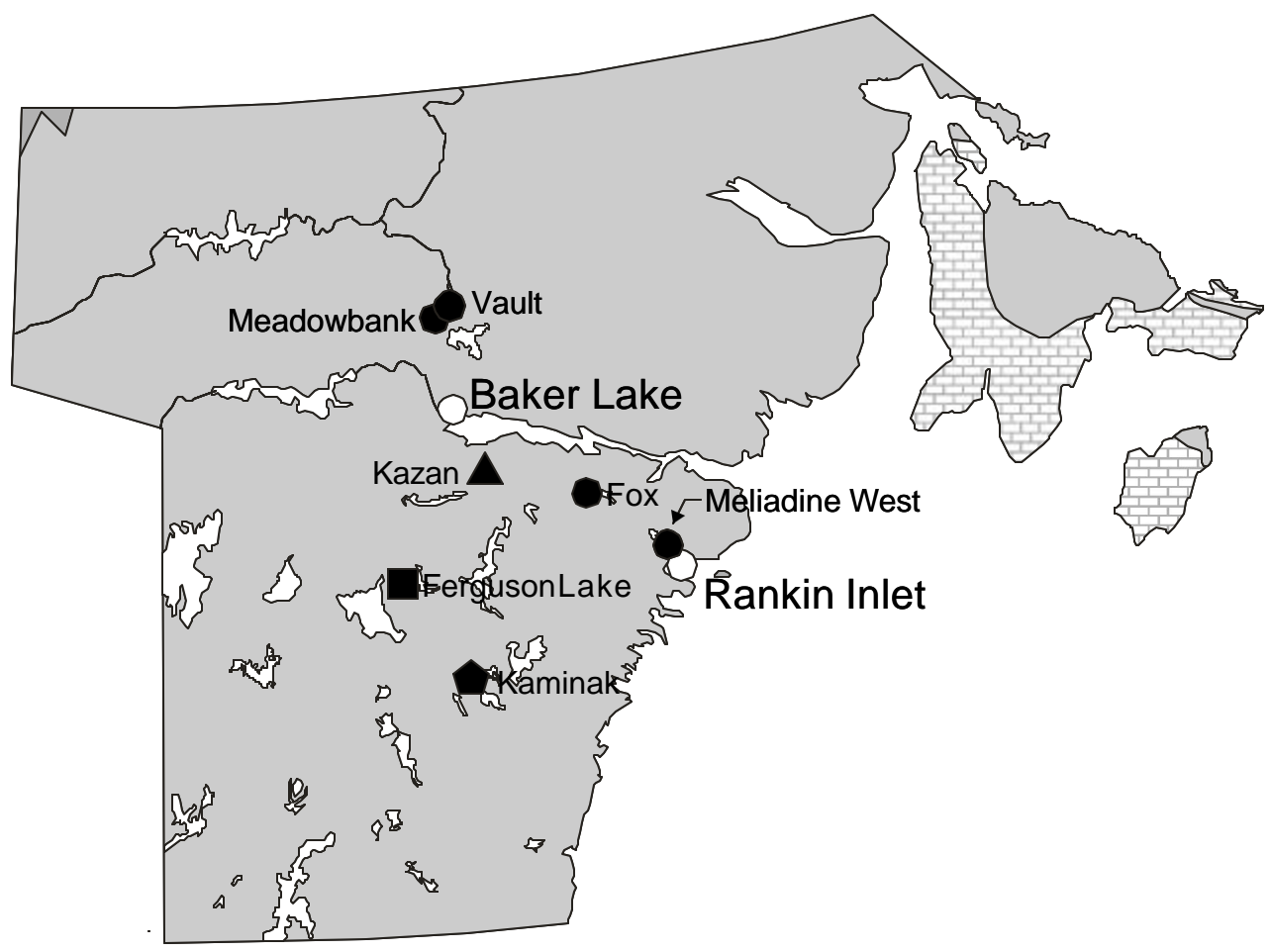
Aquitaine Company of Canada explored the area for its base metal potential between 1970 and 1972, followed by Borealis Exploration in 1975. Between





them, the companies generated a number of anomalies, including the metasediment-hosted copper-nickel Bil and Duc zinc-copper-nickel-molybdenum showings. BHP and Noranda further examined the base metal potential between 1994 and 1998.

Falconbridge's program included prospecting across all five permits. Five float, 125 grab, and 125 whole-rock samples were collected

**Figure 2: Mining and Exploration in the Kivalliq Region**

- ◆ Copper-zinc-lead-gold-silver
- Gold
- Nickel-Copper-Platinum-Palladium
- ▲ Copper-gold



-  Interior & Arctic Platform
-  Churchill Province
-  Slave Province
-  Bear Province



## Kitikmeot Region

The Kitikmeot region spans the western and northern mainland, and parts of Victoria, Prince of Wales, King William, and Somerset islands. Kugluktuk and Cambridge Bay are the largest communities in the region and often provide services to camps in the area; Yellowknife, to the south, is also an important logistical center.

The Kitikmeot is geologically diverse. The Archean Slave Province occupies part of the western mainland and is bounded to the west and east by the Proterozoic Bear Province. Inliers of the Bear are also found on Victoria Island, surrounded by the younger Arctic Platform sedimentary rocks that cover most of the islands. The Archean Churchill Province underlies most of the northern mainland.

The small mines at Roberts Bay, Ida Bay, and Ida Point, south of Elu Inlet, are the only past producers in the region. The Lupin gold mine is active, having been in production since 1982. Mining has been proposed at the nearby Jericho diamond project; the project is in the initial stages of regulatory review.

Traditional exploration targets have included massive sulphide-hosted base metals and lode and iron formation gold in the Slave. Extensive nickel-copper exploration has taken place at the Muskox Intrusion in the Bear province, along with vein copper and sedimentary-hosted massive sulphides. Recent diamond exploration has covered virtually the entire western mainland and parts of Victoria and Somerset islands.

Diamonds and gold were the two primary commodities sought by companies in the Kitikmeot this year. Nickel-copper-platinum mineralization programs around the Muskox did produce some interesting results as well.

Elu	
<b>Operator, Owners</b>	Sherwood Petroleum Corporation
<b>Commodities</b>	Gold, base metals
<b>Coordinates</b>	105° 45' W, 68° 20' N
<b>NTS</b>	77A/2,3,7,10
<b>Location</b>	90 km southwest of Cambridge Bay

The Elu property consists of 34 claims totaling 82,500 acres northeast of the Hope Bay greenstone belt. The belt consists of felsic and mafic volcanic rocks with lesser sedimentary rocks. A major north-trending, iron carbonate-altered shear zone cuts the belt and is considered analogous to the Hope Bay belt. A mafic plutonic complex separates the two belts but it is thought that the two belts may be related.

Little exploration work has been reported in the belt apart from prospecting. The Hope Bay Joint Venture prospected the area in 2000, discovering six gold targets and one platinum-group element target. Most of the gold targets were found in association with quartz vein systems near shear zones, fold structures, and lithological contrasts.

In 2001 the joint venture sold the property to Sherwood Petroleum for a total of ten million units (one share, one warrant) in the company. The joint venture conducted exploration on Sherwood's behalf. Sulphide-bearing gossans were discovered along a twelve kilometer long zone in felsic volcanic rocks, including massive and semi-massive sulphides in two locations eight kilometers apart. The more northerly Peninsula showing yielded grab samples of up to 10.3% copper, 5.2 g/t gold, and 150 g/t silver, but subsequent channel samples in trenches returned maximum values of 0.51% copper over two meters, and up to 0.34 g/t gold and 28 g/t silver. Channel samples from the southerly Elu 1 showing assayed 0.45% copper over a meter and 0.23% copper over four meters. A second trend of felsic volcanic rocks to the east was found to host anomalous copper occurrences as well.

<b>George Lake/Goose Lake</b>	
<b>Operator, Owners</b>	Kinross Gold
<b>Commodities</b>	Gold
<b>Coordinates</b>	107° 26' W, 63° 56' N
<b>NTS</b>	76G/13
<b>Location</b>	100 km south of Bathurst Inlet

The area is underlain by greywacke with units of iron formation. Granitic intrusions and thin quartz-feldspar porphyry dykes are locally present. The rocks are folded along north-northwest and northeast trends, and faults cut the property along northwest and northeast trends. Mineralization occurs in close association with iron formation and seems specifically localized at the intersection of thickened iron formation and late folds, faults, and dykes. Gold is found in free form along with pyrite, pyrrhotite, and arsenopyrite.

Gold exploration in the George Lake area began in 1982 with the formation of the George Lake and Back River joint ventures consisting of Homestake Mining, Kerr-McGee Corporation, and the Mac Lab Group. Drilling at George Lake began in 1985, and continued to 1994. Arauco Resources purchased the property in 1996, conducting a major drilling program in 1997. Later that same year, Arauco changed its name to Kit Resources.

The property remained idle until 1999, when Kit was merged into Wheaton River Minerals. Kinross acquired the option to earn a 70% interest by spending \$20 million before November 2004. The new joint venture began exploration with a limited field program in 1999. In 2000, Kinross completed a 40 hole, 11,000 meter diamond drill program on the Goose Lake deposit, increasing its resource to 3.897 Mt @ 12.51 g/t gold, or 1.567 million ounces. Total indicated and inferred resources at the project stood at 7.806 Mt grading 11.25 g/t, for 2.8 million ounces.

This year, Kinross completed a 38 hole, 10,000 meter drill program, again focussed on the Goose Lake deposit. Some reported intersections included 7.0 meters grading 38.6 g/t gold (Hole 01GO-59) and 17.45 meters of 11.8 g/t (01GO-65). The deposit has been outlined over a 600 meter strike length and to depths of 300 meters, but remains open. Fifty-six grab samples, 450 till samples, and 200 bedrock channel samples were collected. In September Kinross entered into a letter of intent to purchase the property outright in return for four million shares.

<b>High Lake</b>	
<b>Operator, Owners</b>	Wolfden Resources
<b>Commodities</b>	Copper, zinc, gold, silver
<b>Coordinates</b>	110° 51' W, 67° 23' N
<b>NTS</b>	76M/7
<b>Location</b>	150 km west of Bathurst Inlet

The High Lake property is underlain by north-trending Archean basaltic to rhyolitic flows and fragmented volcanic rocks. Lesser amounts of argillite and greywacke form the easternmost portion of the property. Late Archean plutonic rocks intrude the supracrustal rocks in the western part of the property with Proterozoic diabase dykes intruding all units.

Mineralization on the property is primarily related to volcanogenic processes, with minor remobilization due to later igneous and structural processes. Numerous gossans host copper-zinc-gold-silver mineralization, including the A-B and D zones. The former consists of stringers and massive lenses of chalcopyrite, pyrite, pyrrhotite, sphalerite, and magnetite, while the D zone consists mostly of sphalerite, pyrite, and lesser chalcopyrite.

The deposit was discovered in 1955 by Kennarctic Explorations. Drilling took place between 1956 and 1959, with resource calculations following some time later in 1973. The deposit remained idle until



Kennco Explorations Canada (same company, different name) completed limited geophysical and geochemical work on the property in 1991. Aber Resources acquired an option to earn up to 60% in 1993 and completed several thousand meters of drilling. Wolfden signed a letter of intent to acquire the property in 2000 and completed the deal in April 2001.

Wolfden completed sixteen holes totaling 3148 meters, all testing the A-B zone except for a single hole on the D zone. The program extended B-zone mineralization down-dip, where it was previously thought to be cut off by the intrusive rocks. The drilling now suggests that the intrusives are dipping with the volcanics and that mineralization may be continuing at depth. Two notable intersections were 14.35 meters at 12.53% copper, 0.44% zinc, 0.78 g/t gold, and 40.01 g/t silver in HLW-01, and 80.60 meters of 5.75% copper, 0.2% zinc, 0.74 g/t gold, and 26.39 g/t silver in HLW-03.

<b>Hope Bay Project</b>	
<b>Operator, Owners</b>	Miramar Mining (50%) Hope Bay Gold Corporation (50%)
<b>Commodities</b>	Gold
<b>Coordinates</b>	106° 30' W, 68° 00' N
<b>NTS</b>	76O/9,10,15,16, 77A/2,3,6,7,10
<b>Location</b>	160 km southwest of Cambridge Bay

The Hope Bay project was again the largest exploration project in Nunavut, with C\$15 million spent in 2001. The joint venture controls most of the Hope Bay greenstone belt (approximately 250,000 acres), large portions of which are Inuit-owned ground administered by Nunavut Tunngavik Inc. The Hope Bay belt comprises mafic metavolcanic and metasedimentary rocks that extend over 80 km in a north-south direction and are bound by Archean granite intrusives and gneisses. The greenstone package has been deformed during multiple deformation events and is transected by major north-

south trending shear zones that appear to exert control on the occurrence of mineralization, particularly where major flexures are apparent. Second-order shears branching off the major shear also host significant gold mineralization.

The Boston deposit is located near the south end of the belt and is associated with a flexure in the Hope Bay regional structure. The Doris deposit consists of a steeply dipping, four kilometer long quartz vein system in folded and metamorphosed pillow basalts and is situated on an inferred inflexion in the regional Hope Bay Break. The Madrid deposit is lower grade, and consists of three styles of veining and brecciation specific to the Matrim, Perrin, and Rand zones.

Sporadic exploration in the Hope Bay area began in 1964 and resulted in several gold and silver showings (Discovery, Ida Point, Ida Bay, Rad, Roberts Lake, Lahti). Noranda began exploring for volcanogenic massive sulphide deposits in 1977 but left the belt in 1990. BHP Minerals Canada began staking that same year and commenced drilling in 1992 at the Boston property. After spending \$85 million over nine years, BHP sold the property to Cambiex Exploration in late 1999 for US\$18.5 million. Cambiex sold a 50% interest to Miramar a few days later for \$20.6 million. Cambiex changed its name to Hope Bay Gold Corporation in June of 2000.

The joint venture's operations in 2000 included reconnaissance drilling of several showings and deposits, prospecting, mapping. Major drilling projects were completed at the Boston, Doris and Madrid deposits and the South Patch showing. Mapping and prospecting were completed at Dinger, Wolverine, Jeffe, East Patch, and Kamik.

The most recent global resource estimates for the project were released in November 2000. The Madrid deposit totals 1.072 million tonnes grading 8.7 g/t gold, for 0.299 million ounces. Boston is estimated at 3.899 million tonnes grading 12.4 g/t, for 1.546 million ounces. Doris is calculated at 2.406 million tonnes, grading 18.3 g/t gold, for 1.412 million ounces.



The joint venture's 2001 program included prospecting and mapping at 1:5000 on the Boston 2 and 13, Quito 2, Akungani 1, Kamik 1, Amarok 1-3, Tok 1 and 3, and Madrid 1 and 2 claims, and mining leases 3548 and 3549. Less detailed 1:10,000 mapping and prospecting was also completed over the Chicago 1 and 4, Heku 1-5, and Boston 18-20 claims. A total of 750 grab, 300 till, 40 soil, and 15 whole-rock samples were collected during this program.

Drilling amounted to 24,907 meters in 116 holes. Three to four holes tested each of the Perrin Bulge, Penn Zone, South Patch, and Wolverine showings. Seven holes tested the Doris Connector zone and six more were completed at in the P112 area.

Half the drilling (66 holes, 12,461 meters) was completed at the newly found Naartok zone, west of Madrid. Naartok is characterized by a west-trending, steeply north dipping zone of disseminated, stockwork, and breccia-style gold-pyrite mineralization associated with dolomite-sericite-silica-albite alteration within mafic volcanic rocks. Significant intersections included 13.6 meters at 19.8 g/t (hole M126) and 2.1 meters grading 30.4 g/t (hole M192).

The Suluk-Patch Lake area, southeast of Naartok, was targeted by the remaining 24 holes, which totaled 6,846 meters. Gold mineralization here is associated with brecciated, silicified, and sulphidized mafic to ultramafic volcanic rocks and intercalated carbonaceous and/or graphitic argillite. Among the better intersections was a 19.4 meter interval grading 15.6 g/t gold in hole M148.

The joint venture has initiated a scoping study and expects to have updated resource estimates available shortly.

<b>Jericho</b>	
<b>Operator, Owners</b>	Tahera Corporation
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	111 <sup>0</sup> 29' W, 66 <sup>0</sup> 00' N
<b>NTS</b>	76E/14
<b>Location</b>	350 km southwest of Cambridge Bay

In 1992-93, Lytton Minerals and New Indigo Resources staked the Jericho, Contwoyto, and Burnside claim group (437,000 acres), around the northern end of Contwoyto Lake. Extensive airborne geophysical surveys were flown and thousands of till samples were collected by contractor Canamera Geological between 1993 and 1995. Drilling in February 1995 resulted in the discovery of the JD/OD-1 kimberlite. A month later, the JD/OD-2 kimberlite was found 350 meters north-northwest of the original discovery. The JD/OD-1, or Jericho, pipe was outlined by 28,000 meters of drilling in 1996, and a third pipe, JD/OD-3, also known as Nazareth, was discovered, but neither it nor the JD/OD-2 pipe were of sufficient grade to warrant advanced exploration. A decline was driven into the Jericho pipe in 1997 and 14,555 tonnes of kimberlite was mined for bulk sampling. About 9435 tonnes were processed at a diamond pilot plant on the Lupin mine-site, and 10,535 carats were recovered. The diamonds were assigned an average value of US\$69.65 per carat by HIM Laboratories in 1998, and were re-valued at an average of US\$74 per carat in 1999. The Contwoyto-1 kimberlite was found on the Contwoyto claim group in 1999 but produced a grade of only 0.27 carats per tonne.

The Jericho pipe has an indicated resource of 3.667 million tonnes grading 1.14 carats per tonne. The pipe's inferred resource amounts to 3.401 million tonnes at 0.52 carats per tonne. The study proposes an eight year mine life, with total production in excess of three million carats. Tahera entered the environmental review process in summer of 2000.

In fall of 2001, Tahera's exploration staff discovered a new kimberlite about six kilometers west of the Jericho kimberlite. A 100.4 kilogram sample was found to contain two diamonds, one of which exceeded a millimeter in two dimensions. Prospecting and till sampling continued during the summer.

In September, Tahera and Kennecott signed an agreement by which the latter can earn a 62.5% interest in the property, effectively incorporating the claim group into the existing Rockinghorse/Hood River joint venture.

In the short term, Kennecott is obligated to spend C\$1 million on exploration, including drill-testing of 20 targets, within twelve months. Kennecott began with prospecting and ground gravity surveys at the heads of several indicator mineral trains. Four float trains were found to coincide with mineral indicator trains. Float similar to the Jericho pipe was found at the southern end of a mineral indicator train 900 meters west of the Jericho pipe.

Despite the Kennecott deal, Tahera remains the sole official proponent of the Jericho project for now. The environmental review continued in 2001, with an environmental impact statement being prepared in the later part of the year.

<b>JH Claims</b>	
<b>Operator, Owners</b>	Tahera Corporation (earning 51%), Navigator Explorations
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	111° 01' W, 65° 48' N
<b>NTS</b>	76E/14,15
<b>Location</b>	350 km southwest of Cambridge Bay

The JH-1 and JH-1A claims cover 914 acres south of the Jericho project. Much of the property is under Contwoyto Lake, but where exposed, the geology consists mostly of Contwoyto Formation turbidites.

The area has a lengthy history of exploration, starting with the discovery of what is now the Lupin gold deposit to the southwest in the early sixties. With the beginning of mining operations at Lupin, considerable exploration for iron formation-hosted gold deposits took place between 1981 and 1990. Diamond exploration in the area started in 1992 and has continued to the present. Navigator acquired JH-1 and JH-1A in 1999 and 2000 respectively, and optioned the property to Tahera in 2001.

Tahera completed ground magnetic and electromagnetic surveys over two previously identified kimberlite targets in 2001.

<b>Kikerk Lake</b>	
<b>Operator, Owners</b>	Ashton Mining of Canada, Caledonia Mining Corporation, Northern Empire Minerals Ltd.
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	112° 37' W, 67° 15' N
<b>NTS</b>	86P/2,7
<b>Location</b>	130 km southeast of Kugluktuk

The 15 claim, 37,000 acre Kikerk Lake property is underlain by rocks of the Proterozoic Epworth and Recluse Groups. The former consists of dolomite, shale, and quartzite, while the latter is primarily shale.

The fifteen claims are among a larger property acquired in 1993 by Caledonia, who collected alluvial and beach gravel samples; till sampling began in 1994. Portree Inc. acquired the option to earn a 50% interest in 1997 and ran geophysical surveys over five targets. These were drilled without success. Condor International Resources acquired the option from Portree in 1998 and collected till samples. Eleven shallow drill holes did not locate any kimberlite.

Ashton acquired the option to earn a 52.5% in the property in 2000 and completed a till sampling

program intended to locate the source of an indicator mineral train identified by earlier work.

In 2001, a geophysical survey completed in spring identified five anomalies. Two holes totaling 346 meters tested a 140 x 60 meter magnetic anomaly and intersected the Potentilla kimberlite. Two hundred and eight kilograms of kimberlite yielded 230 microdiamonds and 22 macrodiamonds (exceeding 0.5 mm in one dimension). The largest diamond was 2.13 x 1.94 x 0.87 millimeters in size and was recovered from diatreme facies material.

Two additional holes totaling 193 meters encountered narrow kimberlite dykes coincident with a linear feature 1 km east of Potentilla. Preliminary analysis suggests these dykes are not the source.

Drilling coincided with additional geophysical work and till sampling.

<b>Kikerk Lake/Knife Lake</b>	
<b>Operator, Owners</b>	De Beers (earning 70%), Rhonda Corporation
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	~113° 30' W, 67° 00' N
<b>NTS</b>	86P/3
<b>Location</b>	100 km southeast of Kugluktuk

\*Identified as “Epworth Project” in 2000 Overview

The Tree-1 and KL claims cover 11,428 acres north of Napaktulik Lake. The property’s geology consists of Coronation Supergroup carbonate and clastic sedimentary rocks of Proterozoic age. Diabase dykes cut the property and trend north-northwest and east-northeast. Zinc-lead-silver mineralization has been found primarily within the Rocknest Formation, which consists of inner-shelf facies dolomite and argillite.

Rhonda and Noranda began a joint venture on the property in 1993, initially exploring for stratabound copper and zinc. Several zinc-lead-silver showings,

including the Esker, Muskox, Zinc Lake, O’Seim, South, North, and Far Out zones, were discovered between 1995 and 1997. The Harley copper-silver showing was examined between 1996 and 1997. Till samples were collected from 1994 onward. In January 2000, Noranda relinquished its interest in the joint venture. De Beers (then Monopros) acquired the right to explore for diamonds in May, and discovered the Knife kimberlite pipe.

This year De Beers’ reconnaissance work included the collection of ten till samples and one ground magnetic and electromagnetic survey totaling 49 line-kilometers. The Knife kimberlite was further tested by 1,278 meters of diamond drilling in seven holes.

<b>Kim</b>	
<b>Operator, Owners</b>	Ashton Mining of Canada (89.7%), Pure Gold Resources (10.3%)
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	113° 02' W, 67° 15' N
<b>NTS</b>	86P/2,3,6,7
<b>Location</b>	120 km southeast of Kugluktuk

The 130,900 acre Kim project is located just west of the Kikerk Lake property. Like Kikerk, the property is underlain by the Proterozoic Epworth and Recluse Groups.

Ashton staked the property in 2000 and collected a first set of till samples on the property.

Further till sampling took place in 2001. The Artemisia kimberlite was discovered in September; a 103.2 kg sample of kimberlite core was analyzed by caustic fusion and returned 342 micro- and 38 macrodiamonds (exceeding 0.5 mm in one dimension), the largest of which was 1.23 x 1.15 x 1.10 mm. A further tonne of the kimberlite was collected from outcrop for caustic fusion.

<b>Lupin</b>	
<b>Operator, Owners</b>	Echo Bay Mines Ltd
<b>Commodities</b>	Gold
<b>Coordinates</b>	111° 14' W, 65° 46' N
<b>NTS</b>	76E/11,14
<b>Location</b>	402 km north of Yellowknife

The Lupin area is underlain by metaturbidites of the Contwoyto Formation, which contains a silicate and sulphide-facies iron formation. The rocks have been repeatedly deformed, such that the mine site stratigraphy consists of two steeply plunging, steeply dipping anticlines separated by a syncline. Where mineralized, the iron formation is well laminated and contains disseminated to massive pyrrhotite, arsenopyrite, loellingite and pyrite. Arsenopyrite is typically found in the iron formation adjacent to steeply dipping quartz veins. The three primary ore zones are the West (in the west limb of the western anticline), Central and East zones (on the west and east limbs of the syncline). Two other ore bodies, McPherson 1 and 2, occur in different iron formation lenses several dozen meters west of the West Zone.

The Canadian Nickel Company (Canico) discovered gold here in 1961. By 1964, trenching, geophysics and diamond drilling had outlined a resource of 1.2 Mt grading 17.14 g/t gold. In 1979, Canico optioned the property to Echo Bay Mines, who bought it outright the following year. Underground exploration and mine construction shortly afterward and the mill was commissioned in April 1982. Production continued until low gold prices caused the mine to be placed on care and maintenance in January 1998. In this period, the mine milled 10.46 Mt with an average grade of 9.9 g/t, producing 2.84 million ounces. The mine re-opened in April 2000 and produced 117,720 ounces by the end of the year, at a cash cost of US\$214/ounce.

At the end of 2000, proven and probable reserves were estimated at 1.652 Mt grading 8.9 g/t. The Center, West and McPherson zones remain open at depth.

The mine reached a milestone in 2001 by pouring its three millionth ounce in May. Lupin is on track to produce 150,000 ounces, having extracted 0.329 Mt grading 8.0 g/t in the first half of the year. Cash operating costs were US\$223 per ounce, with total production costs (including depreciation, amortization, and ongoing reclamation) equalling US\$273 per ounce.

Exploration at the site included a 255 meter drift drive on the West Zone south of the shaft on the 890 meter level. Approximately 2000 meters of drilling began testing this portion of the Lupin Ore Unit in September.

<b>Muskox Project</b>	
<b>Operator, Owners</b>	Muskox Minerals
<b>Commodities</b>	Nickel, copper, cobalt, platinum, palladium, gold
<b>Coordinates</b>	115° 15' W, 67° 00' N
<b>NTS</b>	86J/11,14, 86O/3
<b>Location</b>	90 km south of Kugluktuk

The Muskox Intrusion is a layered mafic/ultramafic complex intruding the Early Proterozoic Coronation Supergroup. The intrusion is flanked by metasedimentary rocks of the Fontano, Odjick, and Drill formations. The intrusion has a funnel-like shape that is up to 11 km wide and is exposed for 125 km in a north-south direction. Geophysical data suggests the intrusion continues stretches for another 250 km under cover rocks. Regional tilting of the Coppermine Homocline has resulted in the intrusion dipping to the north, exposing the entire sequence from base to roof.

The intrusion consists of four main units. The Feeder, or Keel, Dyke consists of bronzite gabbro, and picrite, in the southern part of the intrusion, south of the Coppermine River. The Marginal Zone has a similar composition and lies along the eastern and western flanks of the intrusion. The Layered Series, making up the main body of the intrusion,

consists of rhythmically layered mafic and ultramafic cumulate rocks. This varies from dunite, olivine clinopyroxenite, and olivine gabbro in the south, to orthopyroxenite, websterite, peridotite, and dunite in the centre, and gabbro with feldspathic and picritic websterite in the north. Finally, the Roof (or Upper Border) Zone, lies to the north and is composed of granophyric gabbro with inclusions of Hornby Bay Formation. The Coppermine River basalts, further to the north, are known to have originated from the same magmatic event that generated the Muskox complex.

Mineralization occurs as semi-massive and massive sulphide pods, located within the Marginal Series and the adjacent country rocks.

The Muskox Intrusion was first discovered in 1956 by INCO, who spent three years exploring and drilling for nickel-copper mineralization. Numerous companies examined the intrusion between 1969 and 1988 but no significant deposits were outlined.

Muskox Minerals staked and negotiated Inuit Exploration Agreements in 1995-7, allowing them to acquire the entire intrusion. Initial work included geophysical and geochemical surveys and geological mapping of the Marginal Series near McGregor Lake. Property-wide geophysical work in 1996 included VLF, magnetics, gravity, UTEM, and HLEM. Further surveys, including Controlled Source Audiomagnetotelluric, were completed in 1997-1999. Numerous, highly anomalous grab samples were collected from the Pyrrhotite Lake, Southeast Speers Lake, Sulphide Breccia, Trench 87-1, Chalco Cliffs, and Chromite Reef areas. Work in 2000 included a Controlled Source Audio Magnetotelluric survey and drilling of the Southeast Speers Lake, Pyrrhotite Lake, and Keel-1 targets.

This year's drill targets were Keel 1 West and East, Keel 2, Pyrrhotite Lake, SE McGregor, and the Far West Margin. At Keel 2, hole MU-33 cut four highly anomalous intervals between 1 and 6 meters thick. Based on results of downhole electrical conductivity surveying in this hole, hole MU-35 was drilled to the east, cutting 21 meters of massive sulphides. The best of three intervals in MU-35 was

15 meters grading 1.28% copper, 0.45% nickel, 1.20 g/t palladium, and 0.18 g/t platinum.

<b>Muskox North Project</b>	
<b>Operator, Owners</b>	Trilogy Metals
<b>Commodities</b>	Nickel, copper, cobalt, platinum, palladium, gold
<b>Coordinates</b>	115 <sup>0</sup> 15' W, 67 <sup>0</sup> 00' N
<b>NTS</b>	86J/11,14, 86O/3
<b>Location</b>	90 km south of Kugluktuk

Trilogy picked up the project area through staking and acquisition of Inuit-owned lands. The company is exploring for a possible unexposed northern extension of the Muskox Intrusion, inferred on the basis of gravity readings collected by the Geological Survey of Canada in the sixties.

Last year's work in the southeastern portion of the property included 94 line-kilometers of gravity surveys and about 250 line-kilometers of magnetic surveys. Bedrock mapping of the area was also initiated.

Work for 2001 included processing of last year's geophysical data. The presence of two inter-connecting magma chambers has been interpreted from the data, along with a possible stock that is thought to rise to within 350 meters of the surface. Satellite bodies have been inferred at the suggested contact between the intrusion and the overlying sedimentary rocks. The company also reported possibly kimberlite-like targets from gravity data in the eastern and western parts of the property.

The company reported plans to follow up these results with till sampling, additional geophysics, and exploration drilling but no additional results had been reported by press time.



<b>Oro Claims</b>	
<b>Operator, Owners</b>	Navigator Exploration Corp
<b>Commodities</b>	Gold
<b>Coordinates</b>	106° 01' W, 68° 14' N
<b>NTS</b>	77A/3
<b>Location</b>	125 km southwest of Cambridge Bay

The Oro Claims cover 10,183 acres at the north end of the Hope Bay greenstone belt, just north of Miramar/Hope Bay Gold's Doris deposit.

Past exploration of the area resulted in the discovery of the Ida Point and Wombat (Granite) gold showings and the Ida Bay and Roberts Lake silver deposits in 1966-67. Then-owner Roberts Mining Company carried out limited mining of the high-grade silver ore at Roberts Lake and carried out underground exploration of the Ida Point Showing. Ida Point is a carbonate-altered shear within mafic volcanic rocks, while the Wombat showing occurs as quartz veins in sheared granite along the eastern edge of the greenstone belt.

Navigator acquired an option on the property in 1998. Drilling and channel sampling that summer produced intersections of up to 5.96 meters grading 5.48 g/t gold at the Ida Point. In 2000, grab samples collected on the Oro 5 claim assayed up to 9.54 g/t gold, and evidence for a shear was found in a northeast-trending valley. A heliborne magnetic and electromagnetic survey was flown over the entire property in September, with additional lines over the suspected shear.

This summer the property was mapped at 1:10,000 to provide a framework in which to focus further exploration. Thirty-two whole-rock samples were collected. Eighty-eight grab samples were also collected; ten samples from seven locations assayed greater than 1 g/t gold.

<b>Ric</b>	
<b>Operator, Owners</b>	Ashton Mining of Canada (87.5%) Pure Gold Resources (12.5%)
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	113° 00' W, 66° 45' N
<b>NTS</b>	86I/10,11,14-16
<b>Location</b>	460 km north of Yellowknife

Covering 126,000 acres, the Ric property is primarily underlain by Archean granitoids and gneissic rocks. Proterozoic carbonates and clastic rocks cover the northwestern corner of the property.

The Ric property has been explored by the Ashton/Pure Gold joint venture since 1993. Till sampling and ground and airborne geophysical surveys were completed over several seasons, and prospecting of an indicator mineral train resulted in the discovery of the Hydra kimberlite in 1999. The Perseus kimberlite, inferred to be a 10 meter wide sill, was discovered in 2000.

Ground geophysical surveys were completed along a 1.4 km length along strike with the dyke, and detected several anomalies. Drilling on two anomalies, 290 and 420 meters along strike from the discovery holes, also intersected kimberlite. The thickness and dip of the intersections suggests both holes cut the Perseus dyke along strike. Ashton also completed grid and reconnaissance till sampling on the property.

<b>Rockinghorse</b>	
<b>Operator, Owners</b>	Kennecott Canada Exploration (50%) Tahera Corporation (50%)
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	113 <sup>0</sup> 10' W, 66 <sup>0</sup> 40' N
<b>NTS</b>	86I/2,3,6-12,14,15
<b>Location</b>	450 km north of Yellowknife

The Rocking horse property covers approximately 1.1 million acres north of Takiyuak Lake. The eastern half of the property is underlain by Archean intrusive rocks, with some mafic to intermediate volcanic and gabbroic rocks in the northeast. The Proterozoic Epworth Group underlies the west part of the claims.

Tahera Corporation, and its predecessors, Lytton Minerals and New Indigo Resources, have held the ground since the early nineties. Till sampling and geophysical surveys were conducted by contractor Canamera Geological until 1997, at which time the property was optioned to Kennecott, who became the operator. In 1999, Kennecott drilled the Altair pipe in the northwestern corner of the property, but caustic fusion results from drill core did not return encouraging diamond counts. The Nanurjuk kimberlite was discovered in May of 2000.

Kennecott's 2001 program included the collection of 275 till and 5 water samples. Three ground gravity surveys totaling 50 line-kilometers were completed over the Tak Bay, Amaruq, and Nap A grids, and a 4050 line-kilometer magnetic and electromagnetic survey was flown over the Napaktulik grid.

Eight holes totaling 1580 meters were completed, with four new kimberlites being discovered: Amaruq, Qamattiq, Anuri, and Anuri East. Caustic fusion of 656 kg from Anuri yielded 937 diamonds, 337 of them exceeding 0.5 millimeters in one dimension. The largest stone recovered was 0.75 carat. A 78 kg sample from Anuri East contained 68 diamonds, of which 18 exceeded 0.5 millimeters in one dimension.

<b>Rockinghorse/Hood</b>	
<b>Operator, Owners</b>	De Beers Canada Exploration Inmet Mining Corp
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	112 <sup>0</sup> 15' W, 66 <sup>0</sup> 10' N
<b>NTS</b>	76E/13, 76L/04, 86H/15, 86I/1
<b>Location</b>	230 km southeast of Kugluktuk

The 292,479 acre TK and MOR claim groups are located within the Slave Geological Province. Metasedimentary and metavolcanic rocks underlie the majority of the property, along with granite, granodiorite, and granitic gneiss. Diabase dykes are common in the area and trend north-northwest.

Inmet has previously explored the property for massive-sulphide base metal deposits. More recently the focus has shifted to diamonds, with De Beers having discovered the Muskox, Rush, Voyageur, and Peregrine kimberlites.

De Beers collected 472 till samples this year, and completed ground magnetic and electromagnetic surveys over eight grids for a total of 294 line-kilometers. Ten drill holes totaling 1,157 meters were completed over nine targets and one previously known kimberlite. Two new discoveries, Troll and Unicorn, were reported.

<b>Washburn Diamond Project*</b>	
<b>Operator, Owners</b>	Major General Resources (52%) Ascot Resources (48%)
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	109 <sup>0</sup> 20' W, 70 <sup>0</sup> 10' N
<b>NTS</b>	77F/2 (main claim group), 77D/12,13, 77C/9,10,15,16
<b>Location</b>	190 km northwest of Cambridge Bay

\*Identified as “Homerun Project (Victoria Island Property)” in 2000 Overview

Major General and Ascot’s 175,765 acre Washburn project is the approximate geographic center of the Victoria Island diamond play. Most of the play, some 1.4 million acres, is collectively known as the “Homerun Project”. There are three other joint ventures within the project: the 90,000 acre Yankee project (Hawkeye earning an interest from Major General) is reported here separately. The 988,800 acre Tahoe Lake property is a joint venture of Major General and Dia Met Minerals, while the 160,822 acre Mariner property is a Major General/Ascot/Dia Met venture. No 2001 exploration results have been reported for the Dia Met joint ventures, probably due to its summer acquisition by BHP Canadian Diamonds, a subsidiary of BHP-Billiton.

The property’s geology consists of an Ordovician age carbonate platform overlying the Proterozoic Shaler Group shale and Elice Formation sandstone. Diabase dykes cut the Proterozoic rocks but not the platform. To date, sixteen kimberlites have been reported on the island, fourteen of which are diamondiferous. Kimberlite dykes totaling 25 km in length have been inferred from geophysics and limited drilling.

The Major General/Ascot joint venture began exploring for diamonds on Victoria Island in 1994. Airborne and heliborne magnetic surveys, combined with positive till sample results, led to the location of several high priority targets by 1995. Further work was delayed until a positive consultant report led to a joint venture between the existing partners

and Monopros (now De Beers Canada) in 1998. Further till sampling and geophysical work took place in 1998. Monopros drilled eight targets in 1998, five of which were found to be kimberlites. Two additional kimberlites were discovered in 1999, and geophysical surveys indicated the presence of several kimberlite dykes over a 15 km strike length. Despite high microdiamond counts in samples from some of the pipes, Monopros chose not to renew its option. During the summer of 2000, Major General completed a 1400 line-kilometer heliborne magnetic survey. Ground-based magnetic surveys, prospecting, and till sampling were concentrated around previously identified targets.

The 2001 season saw the joint venture collect 149 till samples, from which 361 indicator minerals were collected. Although 155 of these are thought to be derived from the Snowy Owl kimberlite, the remainder appear to represent new targets. A 900 line-kilometer magnetic survey over the northern part of the property revealed a dozen new targets for further examination.

<b>Yankee Property*</b>	
<b>Operator, Owners</b>	Hawkeye Gold International Inc. (earning 50%), Major General Resources
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	109 <sup>0</sup> 52' W, 70 <sup>0</sup> 06' N
<b>NTS</b>	77F/2
<b>Location</b>	220 km northwest of Cambridge Bay

\*Identified as “Homerun Project (Yankee Property)” in 2000 Overview

The 90,000 acre Yankee project lies directly west of the Washburn project.

The property’s geology consists of an Ordovician age carbonate platform overlying the Proterozoic Shaler Group shale and Elice Formation sandstone. Diabase dykes cut the Proterozoic rocks but not the platform. To date, sixteen kimberlites have been



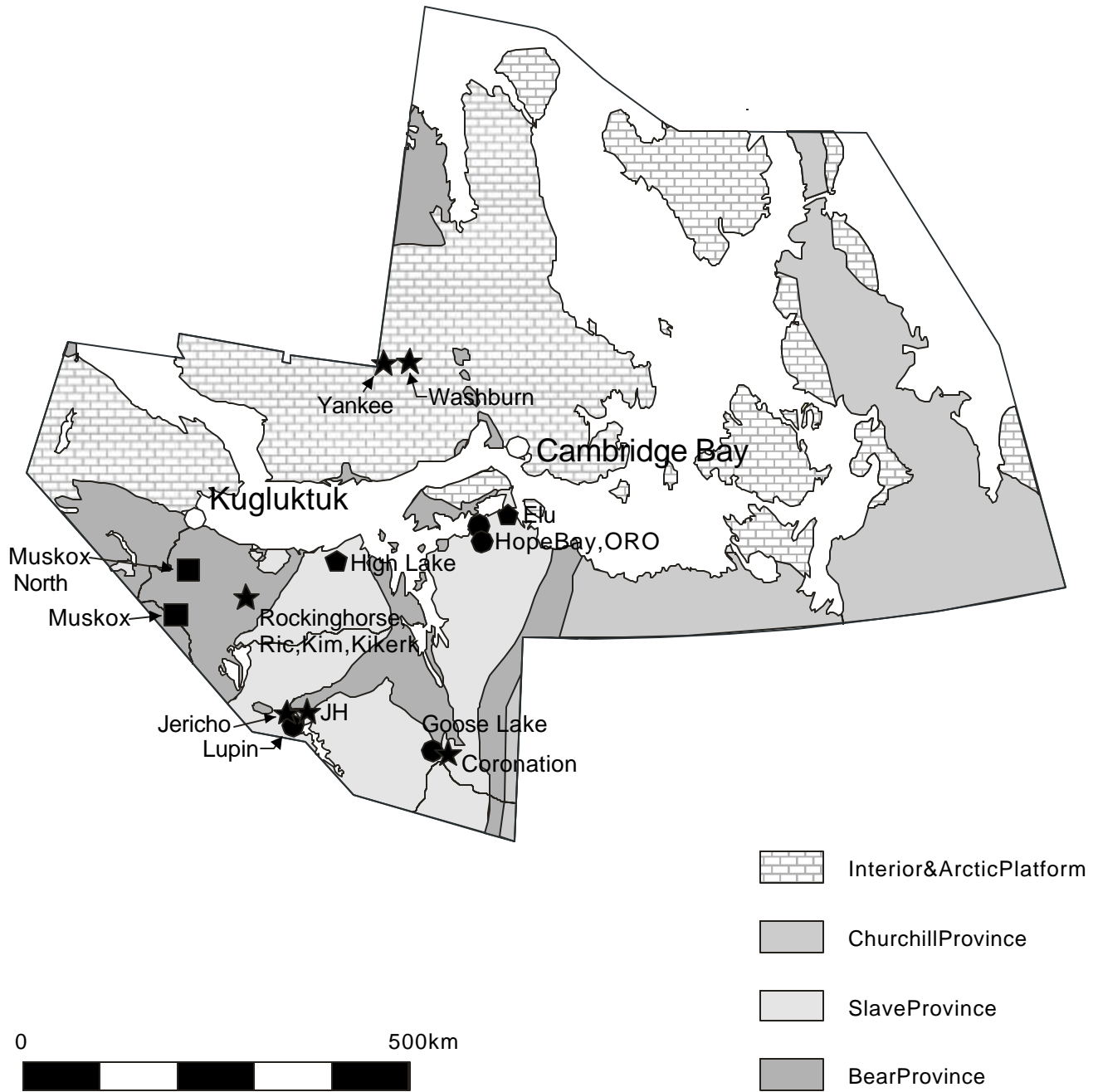
reported on the island, fourteen of which are diamondiferous. Kimberlite dykes totaling 25 km in length have been inferred from geophysics and limited drilling. Major General began exploration on Victoria Island in 1994 and culminated with several kimberlite discoveries on the Victoria Island property by the Monopros/Major General/Ascot Minerals joint venture in 1998-9. Major General secured the 90,000 acre Yankee property, located to the west of the Victoria Island kimberlites, via prospecting permits in 1998. Hawkeye Gold entered into an option agreement in June 1999. The following year, Hawkeye completed a 750 line-kilometer airborne geophysical survey. Ground magnetic surveys and till sampling were completed over nine anomalies generated by previous geophysical surveys.

During 2001, ground magnetic surveys were completed over three land-based targets. The results suggest two kimberlite-like signatures, with indecisive results for the third. Five additional targets under lakes were to be surveyed but hazardous ice conditions forced a deferment. Till samples collected down-ice from each of the targets in 2000 are reported to contain up to eleven kimberlitic garnets.

# Figure 3: Mining and Exploration in the Kitikmeot Region

## Projects by Commodity

- ★ Diamonds
- Gold
- Nickel-Copper-Platinum-Palladium
- ◆ Copper-zinc-lead-gold-silver

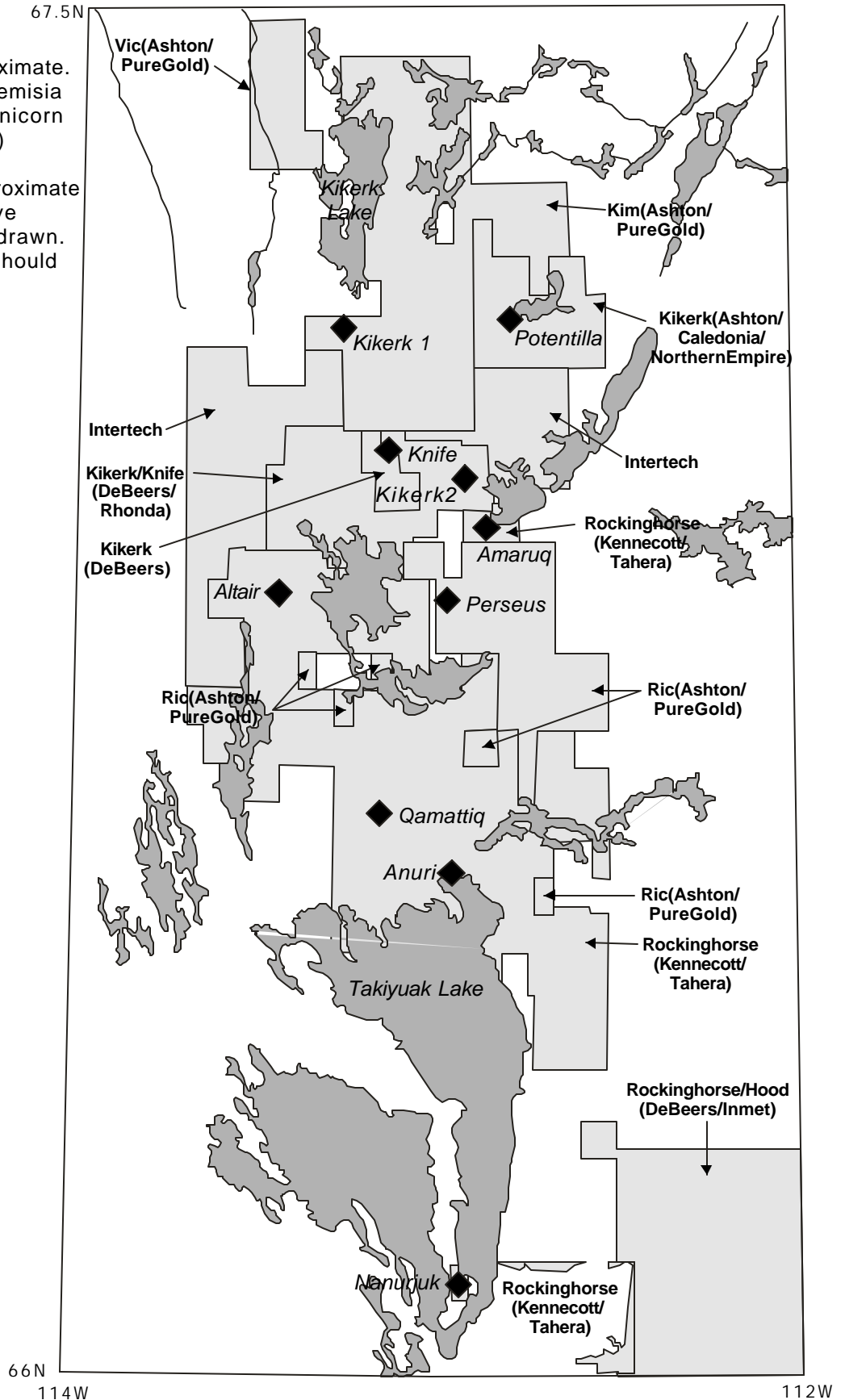


**Figure 4: Cartoon of the Rockinghorse-Kikerk Lakes Area (86I, 86P South)**

Notes:

Kimberlite locations are approximate. Locations are unknown for Artemisia (Kim property) and Troll and Unicorn (Rockinghorse/Hood property)

Claim block locations are approximate as of November 2001 and have probably changed since been drawn. The Mining Records Offices should be contacted for official claim ownership maps of the area.



## Qikiqtaani Region

The Qikiqtaani region includes Baffin Island and the northern Arctic archipelago. Most exploration crews work out of Resolute or Iqaluit, the territorial capital.

Most of Baffin Island, eastern Devon Island, and eastern Ellesmere islands are underlain by the Churchill province. The remaining islands are covered by Paleozoic sedimentary rocks of the Arctic Platform.

Most exploration in the islands has been for Mississippi Valley type deposits such as Polaris and Nanisivik. Nickel-copper deposits were a popular target on southern Baffin during the mid-1990s. Diamond activity is in an upswing, following initial phases of exploration in the sixties and eighties. Most kimberlites reported in the region are on Somerset or Baffin Island, though a diatreme of uncertain affinity has been reported on Bathurst Island.

Akimiski Island Project	
<b>Operator, Owners</b>	Navigator Exploration
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	81° 45' W, 53° 00' N
<b>NTS</b>	43A/13, 43H/04
<b>Location</b>	20 km east of Attawapiskat, Ontario.

Navigator acquired Prospecting Permits 2395-2399 in 2001, over the western third of Akimiski Island.

The permits' geology is poorly known, inferred to be Paleozoic to Mesozoic platform rocks similar to those found on the mainland. Diamondiferous kimberlites have been found to the west in Ontario by De Beers, leading to speculation that Akimiski may be a potential host for kimberlites as well.

Navigator's program in 2001 was an airborne magnetic survey. The results are still being

interpreted, with some modeling being done on discrete features.

Jackson Inlet	
<b>Operator, Owners</b>	Twin Mining Corporation
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	88° 16' W, 73° 15' N
<b>NTS</b>	58D/1,8
<b>Location</b>	120 km west of Nanisivik

Twin Gold's Jackson Inlet property covers seventy-nine claims on the Brodier Peninsula of Baffin Island. Three kimberlites were known to outcrop on the claim block prior to Twin's acquisition of the claims. The area is underlain primarily by Cambrian and Ordovician sediments and Silurian limestones.

Diamond exploration on northern Baffin Island dates back to the early seventies, when Diapros and Cominco uncovered kimberlites on both the Brodier Peninsula and to the west on Somerset Island. A second phase of exploration began shortly after the diamond rush arose in the N.W.T., with Lumina Investment and Cyclone Capital conducting work in the region.

Twin acquired the property from privately-held Helix Resources in June of 2000. A prospecting program in May collected a 94.5 kilogram sample from a previously known (but unspecified) kimberlite and was found to contain 40 microdiamonds and two macrodiamonds. Further prospecting and magnetic surveying began in the summer. Over a dozen new kimberlite occurrences were reported, four of which were trenched. Sample results included 0.196 carats from 887 kg of fresh and weathered kimberlite from Pipe 1. Pipe 2 yielded 1.049 carats from 560 kg of material, and 195 kg from Pipe 3 contained 0.156 carats.

Twin undertook a large program in 2001, including 6,641 line-kilometers of airborne magnetic and electromagnetic surveys and about fifty line-

kilometers of ground-based magnetics. Seventeen diamond drill holes totaling 1,566 meters were also completed. Eighty-seven soil samples were collected and detailed surficial geological mapping was completed on ten claims.

Fourteen of the holes were completed on the previously known kimberlite occurrences; the drilling and the geophysical data demonstrated that the occurrences were part of a single large kimberlite, Freightrain, approximately 500 meters in diameter. A mini-bulk sample of 320 tonnes of wet kimberlite was excavated and shipped for processing.

Exploration drilling resulted in the discovery of the Cargo-1 pipe. Sampling at another location, Cargo-2, resulted in the discovery of kimberlitic float.

<b>Nanisivik</b>	
<b>Operator, Owners</b>	Canzinc
<b>Commodities</b>	Zinc, silver
<b>Coordinates</b>	84° 25' W, 73° 03' N
<b>NTS</b>	48C/01
<b>Location</b>	On Baffin Island

The Nanisivik orebody is hosted by the dolomitic Society Cliffs Formation, near its upper contact with the overlying Victor Bay shale. The orebody lies upon a major west-northwest trending graben that underlies Strathcona Sound. The orebody originally consisted of the Main and Lower Lenses, with a vertical “keel” connecting the two, as well as several satellite orebodies. Mineralization consisted of layers of sphalerite, galena, pyrite and dolomite.

Mineralization in the Nanisivik area was first reported by the Bernier Expedition of 1910-11. Prospecting in 1937 led to some trenching, but no production. Texas Gulf Sulfur drilled the Nanisivik orebody between 1958 and 1969, and optioned the property to Mineral Resources International in 1972.

Nanisivik Mines Ltd was formed in 1974 to run the proposed mine, and start-up was achieved in 1977.

Nanisivik Mines became a wholly owned subsidiary of MRI after the other partners - Kidd Creek Mines, Metallgesellschaft Canada, Billiton Canada, and the Government of Canada - were bought out by 1986. MRI in turn was acquired in 1987 by Conwest Exploration Company, a wholly owned subsidiary of Alberta Energy Company. Breakwater Resources acquired the mine in 1996, and currently operates it through wholly owned subsidiary Canzinc.

Nanisivik is an underground mine, with mechanized room and pillar techniques being the primary method of mining. Post pillar mining was introduced in 1997. A substantial increase in the mine’s reserve was reported in 1999. As of December 31, 2000, proven and probable reserves totaled 2.868 million tonnes grading 6.9% zinc, 0.4% lead, and 28 grams per tonne silver. Additional measured and inferred resources are estimated at 4.152 million tonnes grading 6.3% zinc, 0.4% lead, and 24 grams per tonne silver.

Planned production for 2001 was 0.787 Mt grading 8.1% zinc and 32 g/t silver. Actual production was lower, with the first six month’s total being 0.385 Mt grading 6.4% zinc and 28 g/t silver. Total cash costs were US\$0.44, compared to US\$0.40 for the first half of 2000. The higher operating costs stemmed from start-up difficulties with the new Dense Media Separation plant and lower grades, resulting in a first half loss of C\$8.3 million.

Exploration on the minesite included a 25 line-kilometer airborne EM survey over the mine grid to re-evaluate previously flown surveys. Three holes totaling 551 meters were completed on targets on the Deb grid and seven holes totaling 1453 meters were completed on the mine grid. In addition, the Canada-Nunavut Geoscience Office conducted a mapping project to look for mapable facies and structural trends.

In October, Breakwater announced that Nanisivik would close in September 2002 as a result of anticipated low zinc prices.

<b>Oz Claims</b>	
<b>Operator, Owners</b>	Kennecott Canada Exploration
<b>Commodities</b>	Diamonds
<b>Coordinates</b>	87° 00' W, 73° 08' N
<b>NTS</b>	48C/4,5, 58D/8
<b>Location</b>	110 km west of Nanisivik

The Oz claims are found in seven blocks located east-southeast to north-northwest of Nanisivik, on the Brodier Peninsula. Some of the blocks are adjacent to Twin Mining's ground. The area is underlain primarily by Cambrian and Ordovician sediments and Silurian limestones.

Diamond exploration on northern Baffin Island dates back to the early seventies, when Diapros and Cominco uncovered kimberlites on both the Brodier Peninsula and to the west on Somerset Island. A second phase of exploration began shortly after the diamond rush arose in the N.W.T., with Lumina Investment and Cyclone Capital conducting work in the region. Twin Mining began exploration work in 2000 and renewed interest in the area.

Kennecott staked fifty-seven claims in the summer of 2001. Information on exploration activities was not available at the time of writing.

<b>Piling Project</b>	
<b>Operator, Owners</b>	BHP Billiton
<b>Commodities</b>	Nickel, copper, zinc, lead
<b>Coordinates</b>	73° 00' W, 68° 38' N
<b>NTS</b>	37A/9,10
<b>Location</b>	300 km southwest of Clyde River

Prospecting permits 2329-2331 and the ten Qimmiq claims are underlain by the Proterozoic Piling

Group, consisting of clastic and carbonate rocks overlain by sulphidic black shales. Mafic to ultramafic flows and sills overlie the sediments.

Very little exploration has taken place in the project area. Petro-Canada Resources conducted lake sediment surveys and prospecting traverses across NTS sheets 27B, 37A and 37D in 1985.

BHP-Billiton's work consisted of 1:50,000 mapping and gossan prospecting. Nineteen stream sediment, 23 soil, 236 grab and 548 till samples were collected.

<b>Piling Project (Teck-Cominco)</b>	
<b>Operator, Owners</b>	Teck-Cominco
<b>Commodities</b>	Zinc, lead
<b>Coordinates</b>	74° 00' W, 69° 15' N
<b>NTS</b>	37D/2,3,6-8
<b>Location</b>	250 km southwest of Clyde River

Teck-Cominco's ground consists of Prospecting Permits 2336 to 2346, north of BHP's permit group. For geology and exploration history, refer to the BHP section above.

Exploration consisted of prospecting and reconnaissance mapping.

<b>Piling Project</b>	
<b>Operator, Owners</b>	Falconbridge
<b>Commodities</b>	Nickel, copper
<b>Coordinates</b>	71° 30' W, 68° 30' N
<b>NTS</b>	27B/5,6,11-14, 37A/7,8,10
<b>Location</b>	250 km southwest of Clyde River

Falconbridge holds Prospecting Permits 2361 to 2382 to the immediate south and east of BHP's permit group. For geology and exploration history, refer to the BHP section above.

Exploration consisted of prospecting and reconnaissance mapping.

<b>Polaris</b>	
<b>Operator, Owners</b>	Cominco Ltd (77.5%) Teck Corporation (22.5%)
<b>Commodities</b>	Zinc, lead
<b>Coordinates</b>	96° 56' W, 75° 23' N
<b>NTS</b>	68H/8
<b>Location</b>	100 km north-northwest of Resolute, on Little Cornwallis Island

The Polaris deposit occurs within dolomitized limestones of the Thumb Mountain Formation, which in turn is overlain calcareous shales of the Irene Bay Formation. The ore body consists of the Panhandle and Keel areas. The Panhandle is between five and forty meters thick, while the Keel is up to one hundred meters thick. Mineralization consists of colloform sphalerite, and moderate to coarse grained galena, marcasite, with sparry dolomite, calcite and ice as gangue.

Bankeno Mines Ltd discovered zinc-lead mineralization on Little Cornwallis island in 1960.

After a decade of exploration, Arvik Mines Ltd was formed by Cominco (75%) and Bankeno (25%) to develop the deposit. Underground exploration took place in 1972-73, outlining a reserve of 23.0 Mt grading 14.1% zinc and 4.3% lead.

Arvik Mines was dissolved in 1979 and Cominco took full ownership, with Bankeno retaining a royalty option. Production began in 1982 in the Panhandle area, and shifted to the Keel in 1985. Cominco sold a 45% interest to Pine Point Mines in 1988.

Polaris is an underground mine, with production via longhole open stoping. Pillar recovery accounts for a large part of production. Polaris is nearing the ends of its life and exploration programs have not defined additional mineable reserves. Ore reserves as of November 30, 2000 were estimated at 1.419 million tonnes grading 12.1% zinc and 2.9% lead.

In the first half of the 2001, production amounted to 0.497 Mt grading 12.89% zinc and 3.28% lead. Overall production for the year is expected to be 1.04 Mt at 12.15% zinc and 3.25% lead, slightly less than in 2000. The mine remains on track to close in the summer of 2002.

<b>Scoresby</b>	
<b>Operator, Owners</b>	Teck-Cominco, Noranda
<b>Commodities</b>	Zinc, lead
<b>Coordinates</b>	70° 00' W, 80° 30' N
<b>NTS</b>	29G/13, 39H/16, 120B/3,4,5,6,14,15, 120C/3,7,8,9
<b>Location</b>	450 km northeast of Grise Fiord

Prospecting permits 2217-2220, 2235-2239, 2245, 2247, 2250, 2252, 2296, 2297, 2316-2321, 2351 and 2352 are located along the northeastern shore of Ellesmere Island. This part of the island is underlain by Ordovician to Devonian carbonates with lesser sandstone, mudstone, siltstone and conglomerate.



Zinc and lead mineralization was noted by Great Plains Development in 1974 during its exploration of the area. Otherwise, work in the area has been minimal due to its remote nature.

Cominco and Noranda continued reconnaissance exploration of the area, but no data was available at press time.

Storm Claims	
<b>Operator, Owners</b>	Noranda (50%) Cominco Ltd (50%)
<b>Commodities</b>	Copper, zinc
<b>Coordinates</b>	94° 00' W, 73° 40' N
<b>NTS</b>	58C/3,6,10,11
<b>Location</b>	110 km south of Resolute

The Storm claims are located on northern Somerset Island. The Ordovician-Silurian Allen Bay Formation, a dolomitized limestone, covers much of the western property. This is overlain by the Silurian Cape Storm Formation limestones, which outcrop to the east. Copper mineralization occurs as chalcocite and bornite veins in limestone. Zinc mineralization includes the Typhoon showing and the Seal deposit, which has an inferred resource of 2 million tonnes grading 8% zinc and 25 g/t silver.

Cominco discovered base metal mineralization in the area in 1996. A geophysical survey was flown in 1997, and was followed by more detailed work including drilling between 1998 and 1999.

Noranda acquired an interest in the property and was the operator in 2000. Geophysical surveys, include hyperspectral surveys, were flown over the property. About 1900 meters of diamond drilling were completed on pre-existing targets. A new showing, Typhoon, was discovered by prospecting. The showing consists of sphalerite-bearing gossans found over a 1.2 kilometer strike length. In 2001, Noranda's efforts were concentrated on the zinc mineralization of the property. Three holes

tested the Typhoon showing, while about seven more targeted the Seal zinc deposit.

Wellington	
<b>Operator, Owners</b>	Noranda
<b>Commodities</b>	Zinc, lead
<b>Coordinates</b>	93° 30' W, 75° 08' N (Cornwallis Island permits)
<b>NTS</b>	59B/6,7,10,11
<b>Location</b>	200 km north of Resolute, on Devon Island

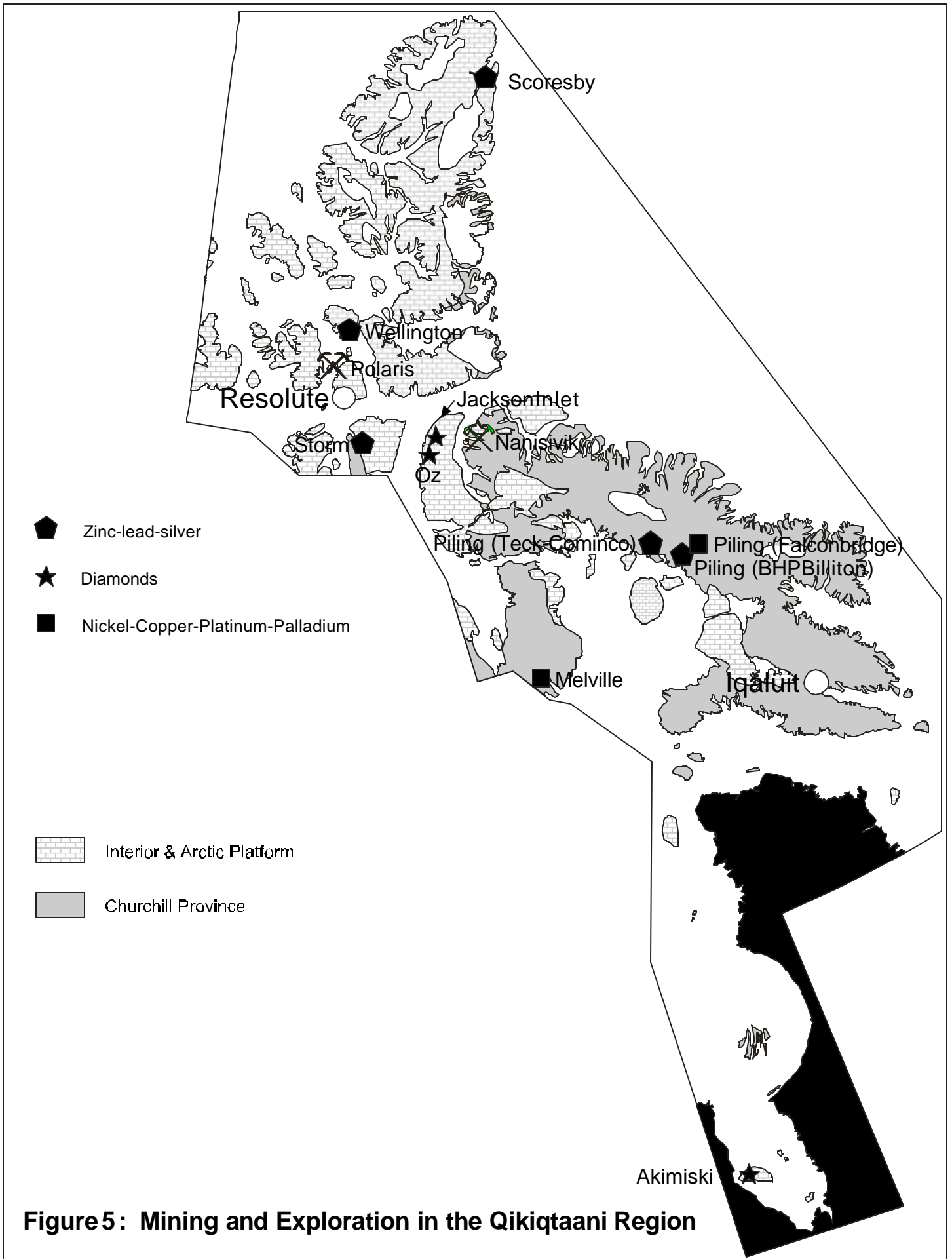
The Wellington property is located along the eastern margin of the Boothia Uplift, and is underlain by folded and faulted Cambrian to Silurian platform carbonates, unconformably overlain by Early to Middle Devonian clastics and carbonates deposited during the Boothia Disturbance-Ellesmerian Orogeny.

The property was previously explored by BHP from 1994 to 1996. Noranda completed an earn-in agreement with BHP early in 1998 and have been active on the property over the last two field seasons. In 1999, the program focused on the JG, BK, and Orion grid areas. Eight NQ diamond drill holes were completed for a total of 2350 m on the JG grid. Five hundred forty-four core and grab samples and 40 soil samples were collected in total, but results remain confidential. Geophysical surveying included 55 line-kilometers of induced polarization, 12 line-km of electromagnetics, 100 line-km of gravity, and down-hole surveys in four drill holes; a hyperspectral survey was also flown over the Grinnell Peninsula. In 2000, a further 5000 meters of diamond drilling were completed over established targets. Additional magnetic, electromagnetic, and hyperspectral surveys were flown. Some gravity work was also completed over the property.

Noranda's 2001 work included prospecting and the collection of 100 grab samples and 1100 soil samples. One hundred sixty line-kilometers of



gravity surveys were also completed. Seventeen drill holes totaling 2700 meters were completed over previously identified zinc showings. Additional indications of zinc mineralization were noted and are thought to warrant a follow-up.



**Figure 5: Mining and Exploration in the Qikiqtaani Region**