

REPORT ON THE TORNGAT PROPERTY
NUNAVIK
QUÉBEC, CANADA

FOR
TWIN MINING CORP.

February 2003

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TABLE OF CONTENTS

1.0	TITLE PAGE	1
2.0	TABLE OF CONTENTS	2
3.0	SUMMARY	3
4.0	INTRODUCTION AND TERMS OF REFERENCE	4
5.0	DISCLAIMER	4
6.0	PROPERTY DESCRIPTION AND LOCATION	4
7.0	ACCESSIBILITY, LOCAL INFRASTRUCTURE, CLIMATE, AND PHYSIOGRAPHY	5
8.0	HISTORY OF EXPLORATION	5
9.0	GEOLOGICAL SETTING	11
10.0	DEPOSIT TYPE	12
11.0	MINERALIZATION	12
12.0	ANALYTICAL RESULTS	13
13.0	DRILLING	15
14.0	SAMPLING METHOD AND APPROACH	15
15.0	SAMPLE PREPERATION, ANALYSIS AND SECURITY	16
16.0	DATA VERIFICATION, QUALITY CONTROL AND QUALITY ASSURANCE POLICIES AND PROCEEDURES	18
17.0	ADJACENT PROPERTIES	19
18.0	MINERAL PROCESSING AND METALLURGICAL TESTING	19
19.0	MINERAL RESOURCE AND MINERAL RESERVE ESTIMATE	19
20.0	OTHER RELEVANT DATA	19
21.0	INTERPRETATION AND CONCLUSIONS	19
22.0	RECOMMENDATIONS	20
23.0	REFERENCES	21
24.0	DATE AND SIGNATURE	24

APPENDIX A: CLAIM LIST

LIST OF FIGURES

	Page
Figure 1. Location map	26
Figure 2. Claim Map	27
Figure 3. Geology Map	28
Figure 4. Torngat North Area – Sampling Results	29

3.0 Summary

Following the discovery of a 1.5 mm diamond in a kimberlitic dyke by a researcher in 1997, junior mining companies were subsequently attracted to the Ablöviak Fjord area for its diamond potential. Nevertheless, it wasn't until 1999 when Twin Mining sampled the diamondiferous dykes and recovered significant amounts of diamonds that the area obtained widespread attention in the mining communities around the country.

Since then, Twin Mining acquired additional ground and delineated a series of diamondiferous kimberlitic dykes over an aggregate strike length of 37 kilometres. Samples of dyke material, where exposed, were obtained at a 400 metre interval. In addition, some parts of the dykes were sampled more extensively. Among these, a 341.6 tonne-sample was taken from the AD Site located in the centre of PEM 1459, returning a 0.685 carat stone. The AD Site corresponds to one of the original sites studied in 1997.

Further sampling in 2000 and 2001 was completed based on data obtained from previous years which identified a 4.5 kilometre-long favourable area (dubbed the Torngat North) located north of the AD Site. These samples were processed in 2002 and results suggested that two dyke segments of 900m and 400m contained higher numbers of stones per tonne of kimberlite than surrounding areas.

Current data on the Torngat dykes suggests that the kimberlitic dykes are significantly diamondiferous, and that the diamond population within the dykes locally includes stones above 0.5 carat. The relatively small samples taken so far do not permit an accurate estimate of the diamond grades, however preliminary data suggests a relatively higher stone density at the east and west portions of the 4.5 km section of the dyke, with a relatively lower stone density in the centre area. Further sampling, including drilling will be required to determine an accurate grade, tonnage, and average value per carat.

4.0 Introduction and terms of reference

Twin Mining has completed some analytical work on some of its samples taken in previous years on their Torngat Project in the Abloviak Fjord of Quebec. The analytical work concentrated on an area identified by Twin Mining Corp. as prospective based on sampling completed between 1999 and 2001.

This report was prepared by Richard Roy, P.Geo., the senior author, at the request of the management of Twin Mining Corp. The purpose of the report is to provide a complete description of the land tenure, regional geologic setting, history of exploration, and nature and distribution of diamondiferous bodies of the property. Conclusions and recommendations are made at the end of the report. The report conforms to the headings and content described in National Instrument 43-101 – Standards of Disclosure for Mineral Projects.

Section 16.0 of this report was completed by Mr. John Lindsay, P.Eng., who in his capacity as a designated Qualified Person established and monitored data verification, quality control and quality assurance policies and procedures with respect to caustic fusion, dense media separation and diamond recovery work conducted by SGS Lakefield for the Torngat project. Mr. Lindsay's QP Certificate accompanies this report.

5.0 Disclaimer

The senior author of this report has been conducting diamond exploration work as Project Manager for Twin Mining Corp. for the last three years, Including on their Torngat Project in Québec, Canada.

Most of the relevant geological data concerning the diamond exploration programs is based on Twin Mining's work along with analytical, and petrographic work completed by Lakefield Research of Lakefield, Ontario.

6.0 Property description and location

The Abloviak Area is located along the east shore of the Ungava Bay at 59°30'N and 65°00'W (figure 1). The fjord enters the mainland of Québec in an ESE direction over a distance of 20 kilometres. The original discovery is located along the northeastern ridge of the Fjord, 10-km inland which is located in the centre of the first permit (PEM 1459) staked by Twin Mining on June 30th 1999.

Between 1999 and 2000, Twin Mining staked 5 different permits (figure 2), all but one (1557) are contiguous and centred on the original discovery.

<u>Permit No.</u>	<u>Area (sq. km)</u>	<u>Anniversary Date</u>	<u>Year Staked</u>
1459	50	21 st July	1999
1462	101	9 th September	1999
1464	176	6 th October	1999
1474	117	26 th October	1999
1557	62.85	9 th August	2000
5	506.85		

Since then, permits 1557 and 1474 were returned to the Crown. The total landholdings therefore includes three permits totalling 327 sq. km.

The property has not been surveyed. Since these permits are obtained via map staking, exact NAD co-ordinates determine the limits of the property. There are no known environmental issues pending with the Torngat Property.

7.0 Accessibility, climate, local resources, infrastructure, and physiography

The topography of the Alluviaq area is characterised by a series of ESE trending rivers and fjords with steep to vertical valley walls measuring up to 600 metres in height. The area is 100 km north of the tree line and vegetation largely consists of grasses and lichens.

Inuit communities in the area are Kanjiksualujjuaq (George River) located 100 km to the southwest, and Kuujjuaq located 200-km southwest. The latter provides daily commercial flights through First Air to Montreal and to Kanjiksualujjuaq by Air Inuit's Twin Otter. The closest ground access is located at Schefferville, 500 km to the south. In addition, a series of ships transport material from Montreal to all northern Inuit communities including Kanjiksualujjuaq, during the months of July and August.

The property is above the tree line and has short, cool summers with temperatures of 10 to 20°C and long cold winters with temperatures of -25 to -30°C. Freeze-up is usually in October and break-up is in late May.

Due to harsh winter conditions, the property can more efficiently be explored between the months of June and September although with a more complete infrastructure, exploration and development could be carried out over longer periods of time.

8.0 History of exploration

Prior to Taylor's mapping programs held in 1968, 1969 and 1971, the interior region of northeastern Quebec and Labrador was virtually unknown geologically. The coastal areas of Labrador have been settled for several centuries and many rock samples have been collected by seamen and missionaries before any formal study was done. Although Bell (1885), Low (1896), Daly (1902), and much later Wheeler (at least nine different references between 1933 to 1968) completed some reconnaissance work, most of it was in the Nain Province along the Labrador Coast. British Newfoundland Explorations Ltd. is among the rare private companies previously active in the area. They completed a reconnaissance mapping of the Labrador portion of the map area but the Quebec side was not studied.

Taylor (1979)'s work covers an area of more than 168 000 km² and includes NTS map sheets 13O to 13M, 14C to 14F, 14L, 14M, 23P, 24A, 24B, 24G to 24J, 24P, and 25A. Mapping was completed using a 6.4 km line-interval throughout the map area. Taylor's contribution to the understanding of the area includes principally the establishment of a relatively detailed group of units based on mineralogy and metamorphic facies. In addition, well over 100 samples were taken by Taylor for age determination which has

helped establish the geological history of the area, particularly the age of the later intrusives. Significantly, a determination of 524 +/- 78 Ma (Cambrian) was obtained from a subophitic, medium grained diabase dyke located approximately 60 km northwest of the Torngat 1, 2, and 3 dykes.

In 1990, Goulet and Cieselski (1990) completed a more detailed mapping of the area more particularly the Abloviak Shear Zone located at the junction of two geological provinces. The ultramafic dykes currently known as the Torngat 1 and 2 were then identified and sampled. Goulet and Cieselski (1990) also identified a series of sulphide showings near the mouth of the Abloviak Fjord. In 1993, Falconbridge participated in a field trip organised by Goulet that was focused on the nickel-bearing graphitic sediments identified by Goulet in 1990 and later sampled and studied in greater detail by Bodycomb (1992, 1993 and 1994). Mrs. Bodycomb's work identifies five different types of mineral targets as follows:

- 1) massive sulphides and graphite
- 2) disseminated sulphides in paragneiss
- 3) disseminated sulphides in deformed mafic intrusions
- 4) sulphide stringers and graphite in brittle fault zones
- 5) lamprophyre dykes (analysis not permitted for publication)

Anomalous base metal and tungsten values were returned from the first three types. The first type revealed anomalous nickel (up to 1100 PPM) and zinc (up to 7300 PPM) values while Type 3 returned low nickel (up to 206 PPM) and anomalous copper (1900 PPM) values.

The Falconbridge field trip also included a visit of a late mafic dyke located at 59°26'24" N and 65°10'73" W. The dyke contains mica, olivine and garnets which at the time suggested that the late mafic and kimberlite dykes were related. Subsequently, two samples (1.7 and 2.5 kg) were taken and sent to Lakefield Research for analysis. Lakefield's results confirmed the kimberlitic affinity of the dyke but all indicator minerals identified (garnet and chromites) plotted outside the field of diamondiferous kimberlites. It is important to note here that the co-ordinates given to Moorhead et al. (1999) by Falconbridge point to a location southwest of the fjord, roughly halfway between Torngat 1, 2, and 3 and Torngat South.

Meanwhile, a mapping program completed in 1991 to 1993 by Wardle, Ryan, and Ermanovics on the Labrador side of the Abloviak area identified a group of ultramafic lamprophyre dykes. The description provided is very similar to that of the Torngat dykes (olivine-phlogopite-carbonate-perovskite) and the orientation of the dykes is said to be towards the east or northeast.

In 1994, Digonnet studied and resampled the kimberlite dykes identified by Goulet in 1991 as part of his Master's Thesis at the U.Q.A.M. The Thesis published in 1997 provides a detailed petrological study of the dykes but only a general overview of their geometry in the host gneiss. Nonetheless, the detailed work provides important new information regarding the dykes. Firstly, a 1.5mm gem quality diamond was observed within the dyke along with both G9 and G10 garnets. Secondly, the dyke was dated at 544 +/- 12 Ma (Cambrian). Finally, an interpretation is provided regarding the mode of emplacement of the dykes. Digonnet (1997) suggests that the magma has intruded the

open fractures during the reactivation of the major fault structures (Abloviak Shear) at the opening of the Iapetus Ocean.

During the summer of 1997, Gaudreault (1997) mapped permit 1197 for Heron Exploration Inc. The permit is located immediately northwest of the Torngat dykes and covers most of the base metal showings identified by Bodycomb (1994). All showings, including the Little Balls, Pointe Verte, and Char Bay showings were sampled and compared to the results obtained by Bodycomb but unfortunately, all values obtained are lower or similar to those obtained by Bodycomb.

Following the publication of the Thesis by Digonnet, Fjordland Minerals Ltd. obtained a permit covering 400 km² centered on the diamondiferous dykes. Photo-interpretation and till sampling was completed (41 samples) but the known kimberlite dykes were not sampled (Moorhead et al., 1999). Indicator minerals found in the till samples were considered disappointing and no further work was completed. The permits were abandoned and no report was filed for assessment.

In 1998, the government commenced a mapping program of the NTS map sheet 24I immediately south of the Alluviaq area. Lineaments similar to those associated with the Torngat dykes and lamprophyre dykes similar to those described by Digonnet were identified throughout the map sheet.

Also in 1998, SOQUEM, Mine d'Or Virginia and Cambior completed a geophysical and geological program on their permits in northeastern Quebec including the Le Droit Permit (PEM 1331). Following an airborne survey completed in June 1998, a team composed of geologists from all three companies spent two weeks exploring the EM anomalies identified as priority on the AEM survey. The assessment reports (#56596 and #56597) reviews the results of the airborne survey and mentions the presence of crosscutting linear thin magnetic features, which are believed to represent late mafic dykes. Most AEM anomalies visited by the geologists were explained by the presence of graphitic and sulphidic metasediments. Nevertheless, some mafic and ultramafic rocks were identified on the property; some of which returned weak nickel values (highest are 750, 770, 860, and 990 PPM). Whole rock assays from these samples returned SiO₂ above 45% and MgO values below 22%. In addition to these results, a single sample of silicified anorthosite returned 220 ppb Au. The authors recommend dropping the permit.

Finally, Copper Hill Corporation announced in a release dated November 5th 1999 that ultramafic dykes occurring on their claims (owned since 1996-97) located on the Labrador side of the Alluviaq area, were identified as kimberlites. These dykes were originally identified by Wardle et al. (1994) as lamprophyres. Based on the composition of the clino- and orthopyroxene, calculated temperatures and pressures of crystallisation are compatible with the diamond stability field.

The preliminary sampling program completed by Twin Mining in the summer of 1999 returned promising results. The kimberlite samples from TORNGAT dykes 1, 2 & 3 and TORNGAT South, have produced 475 diamonds of which 80 are macro diamonds (a macro-diamond is defined as a diamond greater than 0.5mm in at least one dimension). Most of the diamonds are of high quality, and are white and transparent. The following is a detailed description of some selected results:

Sample No.	Weight (kg)	No. Of Diamonds >0.10mm	No. Of Diamonds >0.5mm	Description
TORNGAT 1				
AD1 Coarse	109.8	214	44	Float grab sample, coarse grained part of dyke.
AD1 Fine	244.8	17	2	Float grab sample, Fine grained part (contacts?) of dyke.
AD2	39.61	62	3	Mixed medium and fine grained material of subcropping kimberlite.
TORNGAT 2/3				
AD6-14 base	10.804	26	4	Float grab samples at the base of the cliff where dykes 2 and three are located.
AD6	26.94	16	5	
TORNGAT South				
AD10	27.48	7	0	Float grab samples from linear depression above weathered dyke at top of cliff overlooking Beaufremont River estuary.

During the winter 1999-2000, a fixed wing magnetic survey was completed across the entire group (444 km²). Clearly, the known dykes appear as moderate linear magnetic anomalies trending 040° to 060° Az., virtually perpendicular to the gneissosity and the general magnetic trend across the entire property. In addition, other continuous and parallel magnetic anomalies are identified throughout the property.

A mini-bulk sampling program was completed during the months of March, April and May 2000. It consisted of collecting five samples (approximately 10 tonnes each) taken along the main dyke systems including two along a strong magnetic anomaly located south of, and along strike with, the main showing. The sample locations were selected based on results obtained in 1999 (e.g. AD-2 on Torngat 1 and DD from Torngat 2), or on the presence of intriguing anomalies as observed on the airborne magnetic survey maps (e.g. DU, RRR-2, and RRR-4). The exact sites sampled were dependent on snow cover, topography and overburden cover. Sites AD-2 and DU yielded the most promising results, with 77 and 99 diamonds greater than 0.85 mm square mesh screen recovered from the AD-2 and DU samples, respectively. The largest diamond came from

site AD-2 (3.8 x 3.6 x 3.2 mm) although the highest grade was calculated from the DU site (15.7 CPHT.). Both samples weighed 8.7 dry tonnes each. A total of 66 diamonds greater than 0.85 mm square mesh screen were recovered from all three other samples. The diamond population contained 17% of stones larger than 2 mm, the largest of which measured 2.70 x 1.96 x 1.46 mm. MRDI Canada (now AMEC) recommended that the AD-2 site be selected for the extraction of a 500 tonne sample, as results indicated a coarser diamond size distribution from the AD-2 site, compared with the DU site.

As the property was, at the time, characterised by both advanced and grass-root targets the 2000 Program was designed to produce an inventory of all ultramafic dykes on the 444 sq. km property as well as provide more details on the most interesting areas known based on the geophysics maps. In addition, plans were made to obtain a bulk-sample of 300 to 500 tonnes from the AD-2 Site in order to obtain a larger number of diamonds for evaluation and grade estimate of the site.

The prospecting program established a total of 17 dykes along 5 different corridors. As shown on Map 1 systems are located as follows:

- 1) **The West System:** includes the West Dyke and the SD Dyke and follows the northwest property boundary. Both dykes together total approximately 2.5 kilometers. The SD Dyke is known to cross the property boundary towards the northeast but not for a great strike length (Dean Besserer, personal communication),
- 2) **The Dallas System:** includes only the Dallas Dyke. Although it could be part of the Main System (see below), it appears to follow a separate structural corridor based on structural features observed in the field along the system to the southwest. No other dykes were observed but further investigations will probably reveal new finds along this system. The Dallas Dyke measures 3.0 km long,
- 3) **The Main System:** is the most significant system on the property. It includes the Pita dykes, all the Pita branches (K-A, to K-G), the Torngat 1 and the Torngat 2 dykes. Kimberlite dykes were found to outcrop consistently along the 20 kilometers of strike length of the corridor. The total collective strike length of all these dykes is 23.2 kilometers. Both ends of the system end inside the property boundary and are characterized by intense en-echelon features in the north and the occurrence of a different crosscutting structural regime in the south.
- 4) **The East System:** it includes all the NG dykes, and the Richard dykes. The total strike length of all the dykes is 4.9 kilometers. This system seems somewhat oblique to the other systems. It's strike (040°) is different from the other systems (060°) but is compatible with the fact that the dykes on Dumont ground to the east are much closer to north-south, and even NNW in some instances (Dean Bresserer – personal communication). In other words, the dykes seem to shift from NE to N-S from west to east.
- 5) **The South System:** is very different from the four other systems, as it strikes perpendicular to them and parallel to the gneissosity. It includes 2 dykes, the Torngat South 1 and 2, which were traced over a total strike length of 2.4

kilometers. The northwest end of the dyke corresponds to the southwest end of the Pita 1 Dyke. Although these dykes are outside the interpreted limit of the Abloviak Shear, this structure alone does not explain the change in dyke direction. Indeed, other northeast trending dykes to the SW of the fault were observed by at least two neighbors.

A total of ninety-seven 50-kilogram samples were taken along all of the outcropping sections of all the dykes. On average, the 37 kilometres of defined dykes were sampled every 400 meters; additional 300-kilogram samples were obtained at 29 of the aforementioned sites. The site selection of the 300 kilograms sample was made to ensure a complete coverage of the main Torngat 1 and Pita dykes along a strike length of more than 15 kilometres

On August 9th 2000, a crew of three men (a miner, a shovel operator and a blaster) arrived at the site in preparation for the bulk sampling program. The AD Site was mined in two different trenches, separated by a 6 meters long section of very narrow kimberlite dyke. The northeast trench covers the area where the 8.7 tonnes were collected. The Kubota was used to remove all overburden and altered kimberlite sitting on top of the fresh rock. Once this was completed, an area of approximately 21.0 m x 1.2 m was excavated to a depth of 1 to 3 meters deep. While drilling this area, it was noticed that layers of altered kimberlite were present below the fresh material. In addition, while mucking the ore, the south walls started to collapse. It was therefore decided not to proceed with this side of the trench. It is estimated that approximately 50 tonnes were recovered from this trench. The remaining estimated 310 tonnes were recovered from the south trench, which measures (after overburden is removed) 33 meters long, up to 5 meters deep and 1.0 to 2.5 meters wide. The south trench is vertical, very regular and flanked by relatively competent rock. Although the trench is 7 meters deep (with overburden), both walls have held up well. In addition, both walls of the trench contain between 5 to 20 cm of fine-grained contact kimberlitic material. This is indicative that a minimal amount of dilution was included in the sample and that much of the diamond-poor contact zone was left in place. This excellent selective mining was achieved by determining the best drill hole pattern and charge quantity during the mining operation. Loading was usually light and tightly packed with dust and soil while a "V-shape" drill-hole configuration enabled to reduce pressure on the walls during the blasting.

MRDI Canada (now AMEC), Twin Mining's Diamond Processing Consultants, stated that: "the samples, processed at Lakefield Research, produced diamonds that were significantly larger than those recovered from the smaller samples, processed in spring of 2000". Two diamonds in excess of 0.5 carat each were recovered. Their recommendation was "that exploration-work continue in the field to identify prospective areas of potential economic interest".

A total of 1,548 diamonds above a bottom cut-off size of 1 mm were recovered from the mini-bulk samples "A", "C" and "NN" (total 342 tonnes) as shown below. As part of the Quality Assurance procedures developed for the project, 10 tonnes of dense media separation (DMS) tails were retreated and ten (10) diamonds greater than 1 mm were recovered (AD Site, figure 3).

Sample	Sample weight (Tonnes)	Diamonds (Number)	Diamonds (Carat)
"A"	90.7	250	4.836
"C"	57.7	312	2.405
"NN"	193.2	986	5.879
Grand Total	341.6	1,548	13.120

Three (3) diamonds measured between 4 and 5 mm, eight (8) between 3 and 4 mm, and 125 between 2 and 3 mm. The remaining macro-diamonds measured between 1 and 2 mm. The largest diamonds weighed 0.685, 0.566, 0.279, 0.271 and 0.199 carats.

Between September 16th and 20th, a total of 9 samples totalling 2,591 kilograms were collected from the DU Area (figure 3). The position of the samples ensures a complete coverage of the area with 300-kilogram samples at an interval of 100 to 400 meters. Particular attention was made to obtain a 300-kilogram sample from the different sites where previous 24-kilogram samples had returned high diamond counts (figure 4).

Sample Number	Weight (kg)
DB-1	300
DB-2	282
DB-3	318
DB-4	286
DB-5	305
DB-6	273
DB-7	255
DB-8	227
DB-9	345

All samples were transported from the site to George River via an AS350D of Nunavik Rotors and then airlifted to Val d'Or via Aviation Boreal's DC-3. From Val d'Or, a sealed truck carried the samples to Lakefield Research on September 20th 2001.

There is no record of production from the property.

9.0 Geological setting

According to work completed by Taylor (GSC) and Digonnet (UQAM MSc Thesis directed by N. Goulet and J. Bourne), the Abloviak Shear represents the tectonic contact zone between Rae and the Nain Province of the Canadian Shield. Basement rock is composed principally of amphibolite to granulite facies metamorphosed sediments of paleoproterozoic age. The Abloviak Shear is a major regional structure of sinistral displacement oriented WNW near the Fjord area and NNW further south.

The kimberlite dykes intruded the area during the Cambrian age (544+/- 12 Ma). The orientation of the dykes (N030 to N060) and related late fractures appear to correspond to the Riedel system associated with the regional sinistral Shear Zone. It is therefore

thought that the magma has intruded the open fractures during the reactivation of the major fault structures at the opening of the Iapetus Ocean.

The dykes are composed of frequently serpentinised olivine macrocrysts and phlogopite in a matrix of phlogopite, olivine, spinels, perovskite, and interstitial carbonate. The geochemical work recently done on these rocks classifies the Torngat dykes as being hypabyssal phlogopite kimberlites of Group I.

Geochemically, the kimberlites are quite homogeneous as to their content in major elements (Digonnet, 1997). They are characterised by low silica (<35% SiO₂) and are ultrapotassic (K₂O/Na₂O > 4.4 but generally greater than 10). Among the other major elements, the Al₂O₃ (<4.0%), MgO (>22%), and TiO₂ (>1.9%) are also good indicators of their kimberlitic affinity. The compatible element results (Sc, V, Cr, Co, and Ni) obtained by Digonnet (1997) all indicate a kimberlitic affinity based on results presented by Mitchell (1986). The kimberlite dykes in Abloviak are also enriched in LREE (La = 55 – 120 PPM), reached values of up to 450 times chondrites. On the other hand, the HREE do not show such a high enrichment compared to chondrites (only 3x to 15x).

10.0 Deposit Types

Current models for the formation of primary diamond deposits generally include the presence of a stable ancient craton such as the Canadian Shield, which has suffered little or no deformation for billions of years. It is generally accepted that diamonds form at pressures equivalent to 150 km to 300 km below the Earth's surface, and at temperatures less than 1,200 degrees Celsius (°C). These conditions occur within cool lithospheric roots beneath thick cratons, where the downward deflection of isotherms causes a corresponding upward expansion of the diamond stability field in the upper mantle.

Kimberlite is the most common diamond-bearing host rock. Although kimberlites are believed to have formed at great depths, only a small percentage of them have formed below the diamond stability field and consequently sampled the “diamond horizon” on their ascent to surface. It is generally believed that a kimberlite approaches the earth's surface relatively quickly, following existing deep fractures (hypabyssal facies) and then forming a pipe-like body as the molten rock reacts explosively to the decrease in pressure and the presence of groundwater (diatreme facies). Finally, these magmatic bodies reach the surface and form volcanic craters (crater facies).

11.0 Mineralisation

Diamonds are extremely rare, even within the richest diamond deposits in the world. Generally, the average diamond content within a deposit is calculated in carats per tonne, or carats per 100 tonnes (CPHT). Considering that 1 carat corresponds to one fifth of a gram in weight, a relatively rich deposit (e.g. 100 CPHT) would still contain relatively small amounts of diamonds (e.g. 0.20 grams per tonne, or one fifth of one part per million). Adding to the problematic of evaluating a diamond deposit is the need to determine the average value of the diamonds within the deposit. Unlike other elements where the value per unit weight is independent of the physical characteristics of the mineral, each diamond deposit has its own average value per carat which can vary from

only a few dollars to a few hundreds of dollars. The average value per carat is therefore dependent on the physical characteristics of each diamond (colour, clarity, and shape), and also on the size distribution of the diamonds within the population. Both these values (CPHT and average value per carat) are required to determine the average dollar value per tonne within the deposit and therefore, the total in-situ value of the deposit. In order to obtain a statistically representative sample of the diamond population within a deposit, it is therefore required to obtain a very large sample of kimberlite material.

Diamonds are classified as either Peridotitic or Eclogitic in origin, depending on the type of mantle rock from which they have been formed at depth. Kimberlite incorporates fragments of these mantle peridotite and eclogite in greater abundance than diamonds and therefore minerals characteristic of these mantle rocks (KIM or kimberlite indicator minerals) can be used to indicate the presence of kimberlite. Since the pressure and temperature history is often preserved in the chemistry of these minerals, it is also possible to establish the diamond-bearing potential of these undiscovered kimberlites, and help establish priority areas.

12.0 Analytical Results

Results from the nine samples taken in 2001 are presented in the following table.

Sample	Width	Weight	Diamonds Recovered (>0.100 mm)			
		Processed	>0.5mm one dimension	< 0.5mm one dimension	Total	Carats
DB-1	1.30	100.00	12	51	63	0.0300
DB-2	1.50	100.00	1	16	17	0.0011
DB-3	1.30	100.00	9	34	43	0.0150
DB-4	1.30	100.00	7	29	36	0.0216
DB-5	1.30	100.00	4	41	45	0.0128
DB-6	2.50	100.00	9	44	53	0.0115
DB-7	1.75	100.00	6	31	37	0.0070
DB-8	1.80	100.00	2	35	37	0.0057
DB-9	1.80	100.00	10	50	60	0.0176

Analysis of the diamond results, when combined with previously reported results identified two dyke segments of 900 meters and 400 meters respectively (figure 4), with higher stone densities than other sampled parts of the dyke.

900 meter TORNGAT North dyke segment

Samples listed in this table make up the 900-meter TORNGAT North dyke segment

Sample No.	Sample Weight (Kg)	Diamonds Recovered (>0.100 mm)	
		<u>Number</u>	<u>Weight (carats)</u>
887573	24.00	32	0.006175
DB09	100.00	60	0.017590
GL09	72.52	47	0.030285
887574	24.00	14	0.002190
DB03	100.00	43	0.015010
GL08	81.25	20	0.032385
887575	24.00	2	0.000060
DU character	50.95	32	0.043387
TOTAL	578.52	349	0.173917

Notes:

- 1, 13 diamonds measure greater than 0.5 mm in three dimensions and
2. 41 diamonds measure greater than 0.5 mm in two dimensions.

400 meter TORNGAT North dyke segment

Samples listed in this table make up the 400-meter TORNGAT North dyke segment

Sample No.	Sample Weight Kg	Diamonds Recovered (>0.100 mm)	
		Number	Weight (carats)
DB04	100.00	36	0.021595
DB01	100.00	63	0.029975
887587	24.00	15	0.021265
DB06	100.00	53	0.011465
GL07	84.00	29	0.042070
887588	24.00	1	0.002570
TOTAL	432.00	197	0.128940

Notes:

1. 12 diamonds measure greater than 0.5 mm in three dimensions and
2. 28 diamonds measure greater than 0.5 mm in two dimensions.

On the 400 meter dyke section the largest stone recovered to date measures 1.85 x 1.25 x 1.07mm (0.0142 ct).

The results of the analysis of diamonds appeared to be consistent with the results of the mini bulk sample taken in the fall 2000 and indicated there is no need for a further large sample from this location. AMEC recommended that Twin Mining conduct a desktop study of existing indicator mineral chemistry data to identify any area of the dyke system which has favourable indicator mineral chemistry and that any prospective areas identified through this analysis be sampled to determine micro-diamond counts. It was

further recommended that any future sampling program incorporate a core-drilling component to investigate potential grade variations at depth.

13.0 Drilling

No drilling has ever been done on the Torngat Property. The dykes are easily accessible on surface and efforts have been focused on evaluating the dykes along their strike lengths prior to drilling their depth extensions.

14.0 Sampling method and approach

Twin Mining conducted a follow-up microdiamond sampling program in the DU area over a 4 day period from September 16th to 19th, 2001. A total of 9 samples each weighing about 300 kilograms were obtained including 7 samples from new sites and 2 where 50 kilogram samples were previously collected. The dyke samples were submitted to SGS Lakefield Research Limited where diamonds are recovered by caustic dissolution.

The sample sites were selected to provide as many new infill sites as possible along the previously sampled 4.5 kilometre dyke section. The sample identification numbers and gross shipping weights for the individual sites are as follows (refer to figure for locations?):

- DB-01: 300 kilograms.
- DB-02: 282 kilograms.
- DB-03: 318 kilograms.
- DB-04: 286 kilograms.
- DB-05: 305 kilograms.
- DB-06: 273 kilograms.
- DB-07: 255 kilograms.
- DB-08: 227 kilograms.
- DB-09: 345 kilograms.

A total of 2591 gross kilograms of dyke material was collected.

The sample sites were located/relocated by topographic features and UTM coordinates using GPS methodology. The samples were collected by a two man crew using a pionjar drill, scaling bars and shovels for the most part. Only one blast was required. The kimberlitic dyke material was placed into 1000 kilogram capacity 35"x35"x29" plastic fibre bulk bags manufactured for Twin Mining by Endurapak Inc. of Sudbury, Ontario. The samples were individually bagged with the sample number painted on the outside and duplicated on a sheet inside a plastic bag inside the bulk bag. Once filled the bags were tied and left at the site until they could be transported to Kangiqsualujjuaq by helicopter.

All bags were placed in a DC-3 aircraft in Kangiqsualujjuaq and transported to Val d'Or, Quebec. The senior author was on-board the aircraft to Val d'Or. The bags were immediately placed in a closed and sealed truck to Lakefield where the seal was broken and cross-checked with the senior author by a Lakefield representative.

15.0 Sample prep, analyses, security

Rock samples larger than double fist-sized are broken by jaw crusher into fist-sized pieces.

Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process takes advantage of diamond's property of high resistance to caustic soda (NaOH), eliminating diamond size reduction and loss that often occurs during extraction procedures that rely on crushing and attrition milling.

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals, which are vigorously reactive with NaOH (the carbonate content is evaluated by an acid test prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required for an effective dissolution, or the length of the dissolution process may be increased. Client consultation and approval is necessary before any size reduction of the sample is initiated.

After digestion in molten caustic soda, the sample is poured onto a large-diameter 150 mesh (100 μ m) screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If a significant amount of +6 mesh remains, or if the material consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the -6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilising a permanent magnet and a Frantz Barrier Magnetic Separator.

The magnetically characterised residue is then submitted for microscopic examination and diamond selection. In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite. Each of the magnetic fractions is examined at a magnification of 40x using a binocular microscope. Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterised fraction is examined, particular emphasis is given to the diamagnetic portion.

The X, Y and Z dimensions of selected microdiamonds are measured in millimetres. Macrodiamonds are weighed individually while microdiamonds are weighed in groups of 20 or 30, with the milligram weight, in each case, converted to carats. The colour, clarity and morphology of each diamond are determined and all observations reported in a Certificate of Analysis. Synthetic diamonds released into a sample by diamond drill bits are selected and reported as "syndites" on the diamond description sheet.

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique, both by spiking client samples with a variety of natural diamonds ("Congo Rounds") and synthetic diamonds (easily identifiable, colour treated

diamond fragments), and running spiked blank samples which are later investigated for diamond spikes and indicator mineral contamination. Recovery of the diamond spikes typically ranges from 97 to 100%, and for 2002 was 98.2%. Further 2002 statistics showed that an average of 1.18 indicator mineral grains (73% of which were oxides, 27% silicates) were carried over into the caustic soda blanks run between different client's samples.

Each caustic dissolution residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification.

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.
- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot between clients projects to ensure the removal of any microdiamonds or indicator minerals.

Customized flowsheets for sample processing utilising caustic dissolution and other sample preparation techniques (magnetic, gravity, flotation, acid leaching, etc.) can be developed, in consultation with the client, to meet specialised requirements.

Upon arrival at the SGS Lakefield plant site, samples only by authorised personnel who note, in writing, and in a computer database the name of the company that shipped the sample, the transporting company, the number and type of pieces and whether the shipping containers have been received in good order without signs of tampering.

Shipping documents are immediately sent to Mineralogy Sample Tracking whereupon the Project Manager is notified and arrangements are made to inventory the samples. Inventorying of the samples includes noting number and type of pieces and identification and condition of security seals. This information forms the basis for the generation of a Work Order using LIMS (Laboratory Information Management System).

Work Orders, which map the sample processing history of the sample, identify ownership of the samples by company-specific project number (e.g. 8901-221) and LIMS# (MI0009-JAN03), the latter identifying the general type of work that will be performed on the sample as well as the month and year that the sample was logged into LIMS. Access to LIMS is password protected and not all employees have access to LIMS.

Paper copies of Work Orders generated by LIMS may or may not identify ownership of the samples, in the case of potentially diamond-bearing samples being processed by caustic dissolution, sample ownership is identified only by Project Number.

Containers secured with security seals that are part of sample shipments received for microdiamond analysis are opened only on an as-needed basis. Residues resulting from the processing of such samples are identified only by Project Number. Once processing has been completed, residues are stored in a locked storage cabinet during the course of mineral selection and prior to return to the client by secure transport, if requested by the client.

Paper copies of reports resulting from microdiamond analysis are retained in locked storage while electronic copies are password restricted.

All employees engaged by SGS Lakefield Research sign confidentiality agreements with severe penalties for security breaches.

16.0 Data verification and Quality Control Assurance Policies and Procedures

All caustic dissolution and diamond recovery work conducted in 2001 and 2002 relating to the Torngat Project has been conducted by SGS Lakefield Research, Lakefield, Ontario (SGS Lakefield). SGS Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025.

QA/QC programmes for the caustic fusion and diamond recovery processes have been designed by SGS Lakefield to maximise diamond recovery and minimise sample contamination or loss of sample integrity. All work in the caustic dissolution and diamond recovery facilities is conducted in accordance with a comprehensive series of detailed written operational procedures, which have been reviewed and audited by AMEC E&C Services (AMEC). During the course of the various sample treatment programmes, AMEC made several visits to SGS Lakefield to witness the work, and to audit compliance with SGS Lakefield's operational procedures.

All work is conducted under the direct supervision of the Laboratory Foreman and Project Leader – Diamond Services, and is overseen by the Manager, Mineralogical Services. All results are reviewed by the Manager, Mineralogical Services prior to their release.

Specific QA/QC elements incorporated into SGS Lakefield's procedures include:

- a) Blank samples are used to identify cross contamination between samples,
- b) "Spiked" blank samples are used to monitor diamond recovery using known natural and synthetic diamonds,
- c) Blank residues are evaluated to determine dissolution characteristics,
- d) A comprehensive and auditable sample tracking and logging system, which includes procedures for data archiving, is in place
- e) Caustic residues are picked by twice by two different people,
- f) Screens used to capture undigested material from caustic residues are replaced between individual pours,

- g) Screens used to capture washings and scrapings from the pouring pots are inspected by microscope after each pour,
- h) Each kiln pot is sandblasted once a month to remove any scale build-up that might entrap microdiamonds or indicator minerals
- i) Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser
- j) Gravity separation processes are checked and calibrated using density tracers of a known specific gravity,
- k) Grease recovery circuits are checked and calibrated using known natural and synthetic diamonds.

In AMEC's opinion, the caustic dissolution and diamond recovery work conducted by SGS Lakefield for the Torngat project during 2001 and 2002 is in accordance with accepted industry standards.

17.0 Adjacent properties

Following Twin Mining's discovery in 1999, many companies have obtained ground in the Abloviak Fjord area. Although attention in the area has decreased considerably since then, some diamond exploration work is still being carried out.

18.0 Mineral processing and metallurgical testing

This section does not apply to this report.

19.0 Mineral resource estimate

No mineral resource estimate is reported with regards to this property. Further economic evaluation of the known dykes is required before a mineral resource estimate can be completed.

20.0 Other relevant data and information

This section does not apply to this report.

21.0 Interpretation and conclusions

The Abloviak Fjord has had only minimal amounts of exploration in the past. Nonetheless, Twin Mining's work in 1999, 2000, and 2001 revealed an extensive series of diamondiferous kimberlitic dykes across the entire property.

Current data on the Torngat dykes suggests that the kimberlitic bodies contain significant amounts of diamonds and that the diamond population within the dykes locally includes larger size stones. The small samples taken so far do not permit an accurate estimate of the diamond grades, however preliminary data suggests a relatively

higher stone density at the east and west portions of the 4.5 km section of the dyke, with a relatively lower stone density in the centre area. Further sampling, including drilling will be required to determine an accurate grade, tonnage, and average value per carat.

The upcoming programs should focus on evaluating the 4.5 kilometre section of the dyke by systematic drilling. The series of drill holes proposed will principally help establish the lateral and vertical continuity of the dyke.

22.0 Recommendations

Further work should focus primarily on identifying the geometry of the Torngat dyke at depth and along strike. Since the topography is primarily controlled by geology, the deeper valleys could be underlain by shear zones or faults where the dykes could have formed blows. These areas cannot be sampled on surface and further work would involve geophysical surveying followed up by drilling to evaluate those anomalies thought to be representative of dyke material.

Since the dykes are narrow compared to a pipe-like body, much meterage will be required to obtain a sizeable sample of kimberlite. Holes should therefore be placed at a steep angle to obtain a longer interval of kimberlite. The true widths should be calculated quite precisely based on contact core angles and hole-to-hole relationships.

Program objectives are as follows:

- 1) Diamond drill testing of the favourable section of the main dyke (900m and 400m). A minimum of 5,000 meters should be drilled (20 holes approximately).
- 2) Obtain geochemical and petrographic data from the core in an attempt to characterise the areas with most potential.

Recommended Program Budget – Torngat Project

Activity	Description	Estimate
Consumables and Camp Prep	Mob/demob, consumables, camp prep., and accomodations	\$420 000.00
Core Drilling	Approximately 5000 meters	\$1 000 000.00
Geochemistry	Sample characterization	\$60 000.00
Contingencies	Approximately 15%	\$150 000.00
TOTAL		\$1 630 000.00

23.0 References

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24.0 Date and signature

Certificate of Qualifications

I, **Richard Roy**, of 110 Curé Roy, Val d'Or, Quebec, since 1995, do hereby certify that:

1. I am the author of this Technical Report, and I am a qualified person for the purposes of NI 43-101.
2. I am a graduate of Concordia University, Montreal, QC, having received a BSc. Geol. in 1988.
3. I am a qualified geologist, engaged in mining exploration and production since 1988. I have held senior positions in each of the exploration and production areas of mining.
4. I am a member of the Ordre des Géologues du Québec (since 2002; No. 536).
5. I am engaged as a consultant for Twin Mining Corp. and have never been employed as an employee of Twin Mining Corp.
6. I testify that I thoroughly read and revised the report, and verified material facts. I am not aware of any omission or misquote that could mislead the reader. I have been on the Torngat property many times, the last being in the September 2001.
7. I have no direct or indirect interests in the mining property indirectly held by Twin Mining Corp. According to section 1.5 of NI 43-101, I am not considered an independent of the issuer for which this report was prepared.
8. I have read National Instrument 43-101, and to the best of my knowledge this Technical Report has been completed in compliance with it.
9. I consent to the use of this Technical Report by Twin Mining Corp. and the filing of same with applicable securities regulatory authorities.

Dated at Val d'Or, this 12th day of February 2003.

Richard Roy
110 Curé Roy
Val d'Or, Québec
J9P 3B5

CERTIFICATE OF AUTHOR

John Lindsay
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I, John Lindsay, am a Principal Metallurgist of AMEC Mining and Metals Consulting, of 2020 Winston Park Drive, Oakville, in the Province of Ontario.

I am a member of the Association of Professional Engineers Ontario (PEO). I graduated from the University of Strathclyde, Glasgow, UK with a Bachelor of Science degree in metallurgy in 1981.

I have practiced my profession continuously since 1981 and have been involved in diamond operations in South Africa and Botswana, gold operations in South Africa, evaluation and development of gold, base metals and diamond projects in Canada, South Africa, Angola, Namibia, Kazakhstan, Jamaica and New Caledonia.

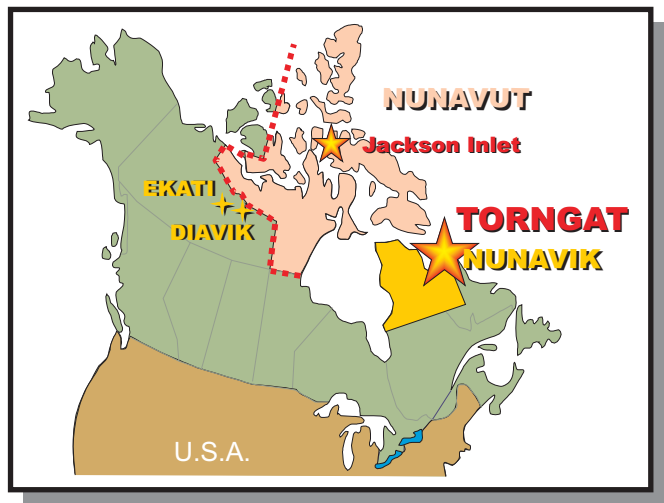
As a result of my experience and qualifications, I am a Qualified Person as defined in N.P. 43-101. I am currently a Consulting Engineer and have been so since August 1995.

I am the author of Section 16 of the Technical Report, which relates to the quality assurance and quality control aspects of caustic fusion treatment and diamond recovery performed on samples from the Torngat property. I am not aware of any material fact or material change with respect to the subject matter of this technical report that is not reflected in this report and that the omission to disclose would make this report misleading.

I am independent of Twin Mining Corporation in accordance with the application of Section 1.5 of National Instrument 43-101 I have read National Instrument 43-101 and Form 43-101F1 and section 16 of the Technical Report has been prepared in compliance with same.

Dated at Toronto, Ontario, this 18th day of February 2003.

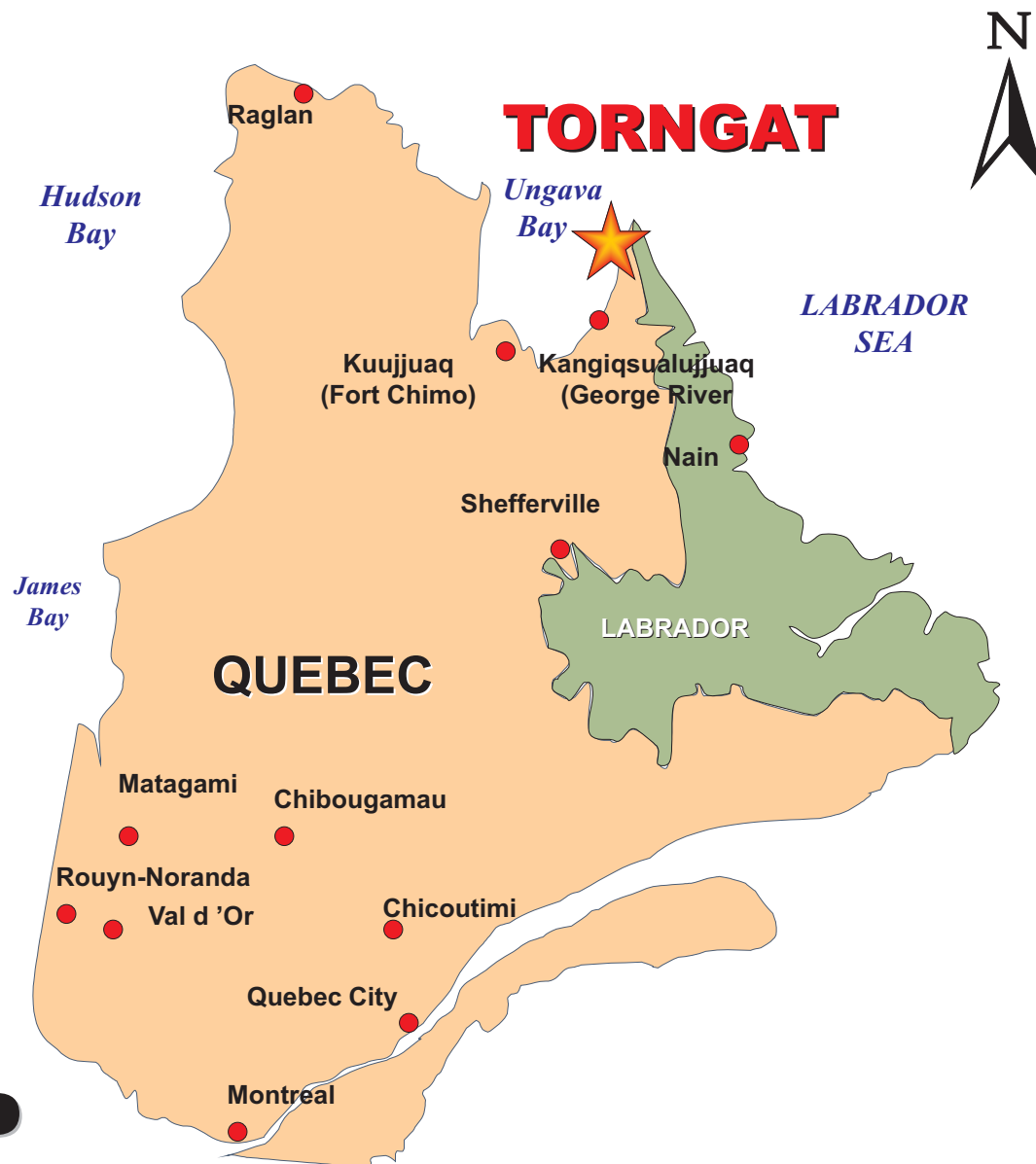
John Lindsay, P. Eng.
PEO# 90442344



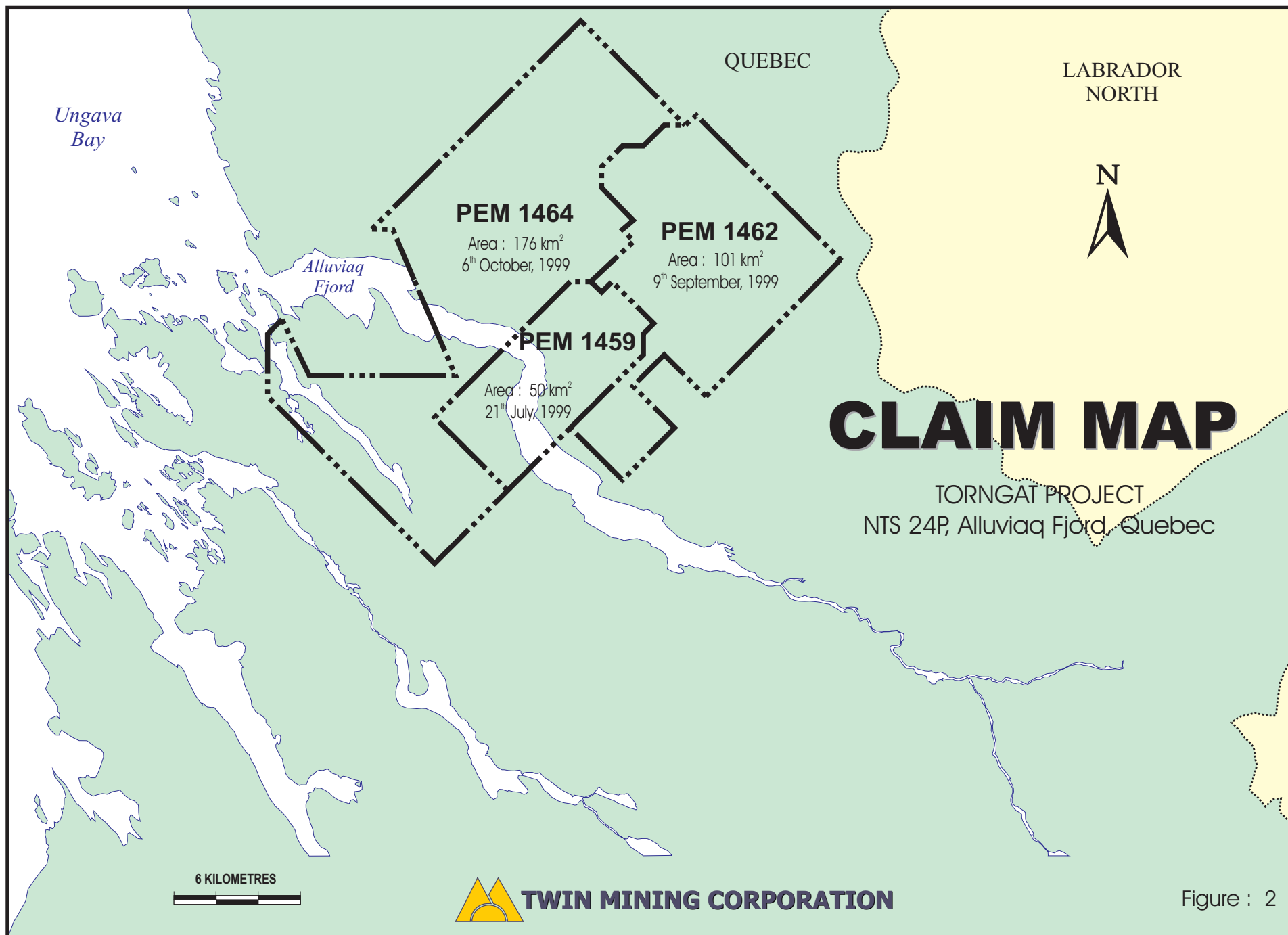
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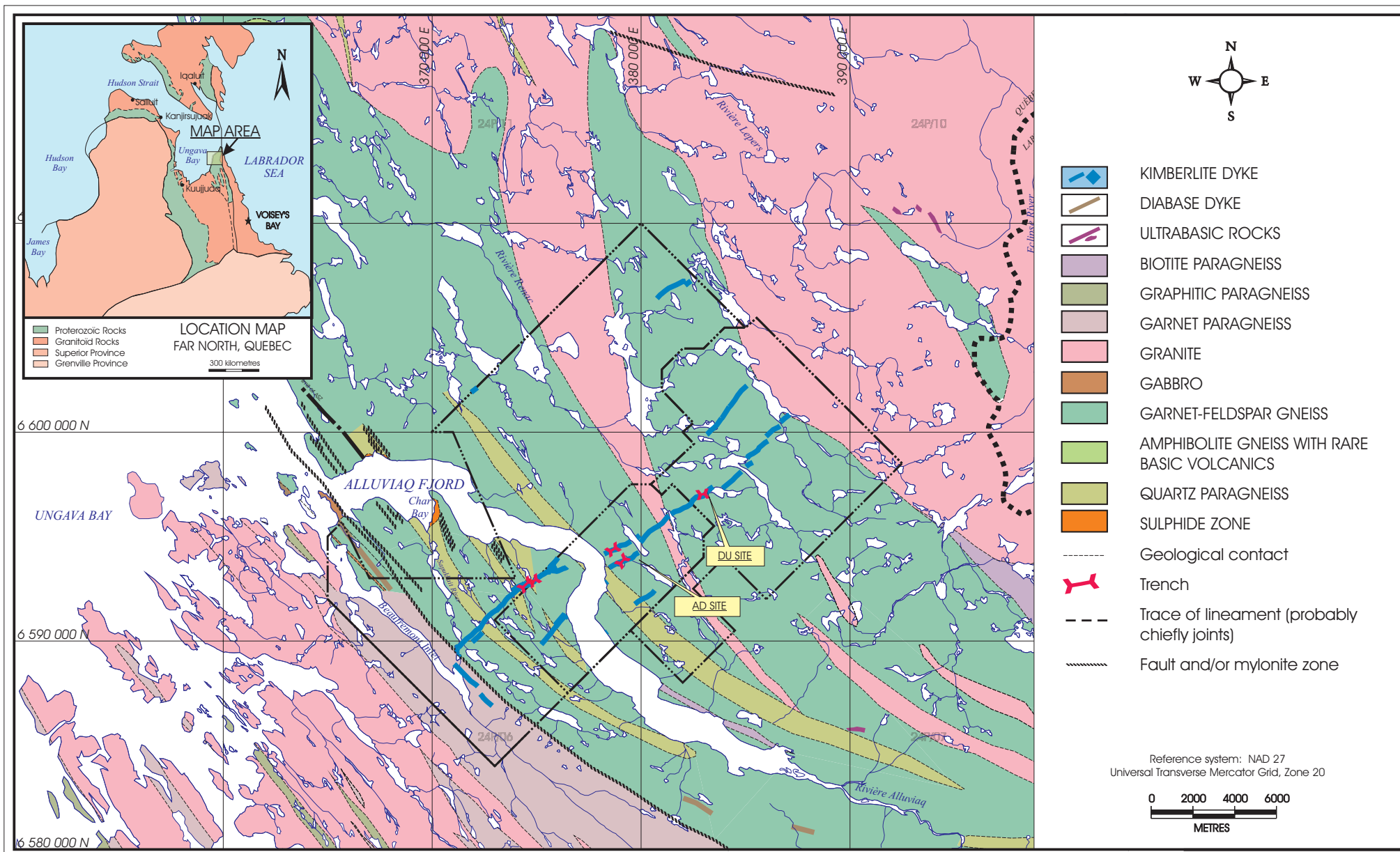
LOCATION MAP

TORNGAT PROJECT
Alluviaq Fjord, Quebec



TWIN MINING CORPORATION



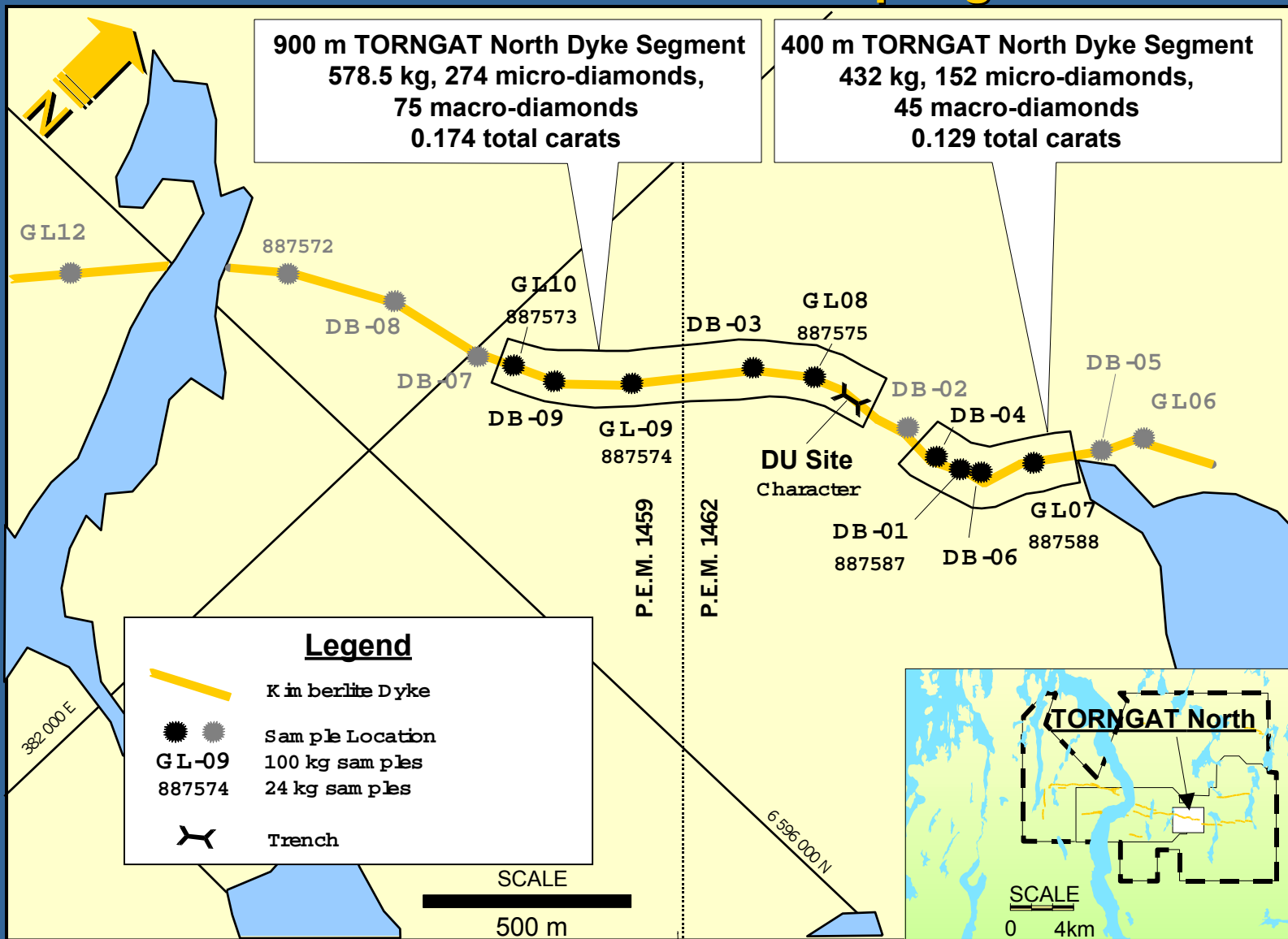


Sources of information:
Geological Survey of Canada; Map 1429A
Geologica; P.E.M. 11197; D. Gaudreault; October 1997
Drawn by: Claire Belzil - Tel: (819)825-9505 - Email: cbelzil@lino.com

TORNGAT PROJECT ALLUVIAQ FJORD AREA GENERAL GEOLOGY

NordQuest
Tel / Fax: (819)874-4446
Email: nordquest@cablevision.qc.ca
for

TORNGAT North Area - Sampling Results



TORNGAT Project
 TWIN MINING CORPORATION

APPENDIX A

Claim List

Claim No.	Hectares	Sq Km.
PEM 1459	5000.00	50.00
PEM 1462	10100.00	101.00
PEM 1464	17600.00	176.00
TOTAL	32700.00	327.00