

# GM 59209

GEOLOGICAL REPORT ON THE SPRING 2000 SAMPLING PROGRAM, TORNGAT PROJECT, ALLUVIAQ FJORD AREA

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GM 59209

14 JUN 2000

**Twin Mining Corp.**

Bureau Régional Val-d'Or

**Geological Report on the Spring 2000 Sampling Program  
Torngat Project  
Alluviaq Fjord Area**

**INTRODUCTION:**

Following a successful sampling program by Twin Mining Corp during the summer of 1999 on it's Torngat Project, it was decided to conduct a mini-bulk sampling program on the known diamondiferous part of the dyke and on other parts of the structure. The company applied for a financial aide from the Quebec Government through their "Programme d'assistance à l'exploration minière du Québec". Agreement No. 1999-B-322 was signed in April 2000 and only the exploration expenses incurred in March 2000 were applicable to the agreement conditions.

The work completed between March 1<sup>st</sup> and 31<sup>st</sup> 2000 involved principally preparatory work, crew mobilization and site planning. Nonetheless, the following provides a description of the entire sampling program held between the months of March, April and May 2000. Results of the sampling processing part of the program remain unavailable and therefore are not part of this report.

**LOCATION AND ACCESS:**

The Abloviak Area is located along the east shore of the Ungava Bay at 59°30'N and 65°00'W. The fjord enters the mainland of Québec in an ESE direction over a distance of 20 kilometers. The original discovery is located along the northeastern ridge of the Fjord, 10-km inland which is located in the center of the first permit (PEM 1459) staked by Twin Mining on June 30<sup>th</sup> 1999. The topography of the Alluviaq area is characterized by a series of ESE trending rivers and fjords along the shore which enter mainland, carving tall cliff faces measuring close to 600 meters. Being 100 km north of the tree line, the area contains mainly grasses and lichens as vegetation.

Among the local Inuit communities found in the area are Kangiqsualujjuaq (George River) located 100 km to the southwest, and Kujjuaq located 200-km southwest. The latter

provides daily commercial flights through First Air to Montreal and to Kangiqsualujjuaq 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 George River, during the months of July and August.

#### **PREVIOUS WORK HISTORY – ABLOVIK FJORD AREA:**

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 some reconnaissance work was completed by Bell (1885), Low (1896), Daly (1902), and much later Wheeler (at least nine different references between 1933 to 1968), 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 km<sup>2</sup> 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 significantly helps establish the history of the area, more particularly of the later intrusives. Of importance here is a determination of 524 +/- 78 Ma (Cambrian) 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 organized 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 contained mica, olivine and garnets which indicated a resemblance with kimberlites. 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 coordinates 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. The report also discusses the work done by Digonnet and states that "*Twelve ultramafic dykes have been identified in the eastern part of the Ungava Bay area during a mapping program completed in the summer of 1991 by S. Digonnet et al. for the GSC. These dykes occur in the NW part of the permit under study*". It remains unknown if the dykes located "NW" is a typographic error (should be SE) or suggests that similar dykes actually occur in the "NW" part of the permit.

Following the publication of the Thesis by Digonnet, Fjordland Minerals Ltd. obtained a permit covering 400 km<sup>2</sup> 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 SiO<sub>2</sub> 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.

As shown on the geological compilation map provided, other companies have acquired ground following Twin Mining's 1999 Discovery in the Torngat including Noranda Inc., Trivalence Mining Corp., Dumont Nickel Inc., Marum Resources, International Tower Mines Ltd., Ayrex Resources Ltd and Band-Ore Resources Ltd. On April 3<sup>rd</sup> 2000, Marum and three other companies (Dumont, Southern Era, Band Ore) announced the commencement of a fixed wing airborne survey on a group of permits surrounding the Twin Mining block. As of the end of May, the survey was still in progress.

Finally, Copper Hill Corporation announced in a release dated November 5<sup>th</sup> 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 clinopyroxene and orthopyroxene, calculated temperatures and pressures of crystallization are compatible with the diamond stability field.

## **GEOLOGICAL ENVIRONMENT:**

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 senestral 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 senestral 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 serpentized 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 characterized by low silica (<35% SiO<sub>2</sub>) and are ultrapotassic (K<sub>2</sub>O/Na<sub>2</sub>O>4.4 but generally greater than 10). Among the other major elements, the Al<sub>2</sub>O<sub>3</sub> (<4.0%), MgO (>22%), and TiO<sub>2</sub> (>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), reaching 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).

#### **TORNGAT PROPERTY – 1999 PROGRAM:**

Twin Mining Corporation (formerly Twin Gold Corp.) obtained the permits in 1999 and initiated a preliminary sampling program on the kimberlite dykes during the summer months. In August of that year, a dyke of more than 2.5m wide, traceable over 1.5 km was observed and sampled. Three other dykes were also identified. New permits were obtained for a total of 101 km<sup>2</sup>. In addition, a photo-interpretation study and a visit on September 6<sup>th</sup> identified other lineaments parallel to the known kimberlites. Other land was secured for a total of 331 km<sup>2</sup>. A new series of dykes (Torngat South) was later identified to the south west of the original discovery. The South dykes are located southwest of the Abloviak Shear, within the Rae Province. In the fall of 1999, a new permit was obtained from the Quebec Government. Total land holding controlled by the company amounts to 444 km<sup>2</sup>.

The preliminary sampling program completed 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. Most of the diamonds are of high quality, and are white and transparent. The following is a detailed description of some selected results:

<u>Sample No.</u>	<u>Weight (kg)</u>	<u>No. Diam.</u>	<u>No. Marco.</u>	<u>Description</u>
<b>TORNGAT 1</b>				
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.
<b>TORNGAT 2/3</b>				
AD6-14	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	
<b>TORNGAT South</b>				
AD10	27.48	7	0	Float grab samples from a 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 km<sup>2</sup>). 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. Some of these are not only much stronger and continuous than those associated with the known dykes, but are also associated with subtle linear trends observed on the air photos. The most important of these coincident magnetic anomaly/air photo lineament features are presented on the attached compilation map.

#### **SPRING 2000 MINI-BULK PROGRAM:**

A mini-bulk sampling program was completed during the months of March, April and May 2000 and consisted of collecting five 10-ton samples taken along the main dyke systems

including along a strong magnetic anomaly located south of, and along strike with the main showing (see map attached). 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 to be sampled were dependent on snow cover, topography and overburden cover.



As described in the sample records (figure 1 to 5), overburden cover was about 0.5 meter in general and was removed quite quickly. On a few occasions, dynamite was used to blow and/or dislodge the compact snow atop the soil. The topsoil was generally removed by normal drilling and

blasting. The permafrost conditions enables us to treat the overburden virtually as rock and therefore the holes drilled remain open during loading with dynamite and backfill. Drilling was done with Pionjar drills and 0.6 to 1 meter long rods. An approximate 0.5 meter hole-spacing was generally used. The material underneath the topsoil consisted of weathered kimberlite material and fresh kimberlite rock. The thickness of the weathered material varied from 0.3 to 1 meter. Below 0.6 meter, fresh kimberlite becomes more and more present as large angular boulders. In order to reduce the amount of fly-rocks, the holes drilled in fresh bedrock was filled with only a half stick of dynamite followed by backfill. Again, the hole spacing in fresh rock was in the order of 0.5 meter. The dust return from the hole while drilling drilled in kimberlite is dark gray to black in color and differs greatly from the light brownish gray color of the host gneissic rock. This enabled us to blast only the holes drilled completely within kimberlite and therefore reduced dilution to a minimum.

The blasted material was manually picked and put in 5-gallon plastic pails.





**Twin Mining Corp.**  
**Tornqat Project: Alluviaq Fjord, Quebec**

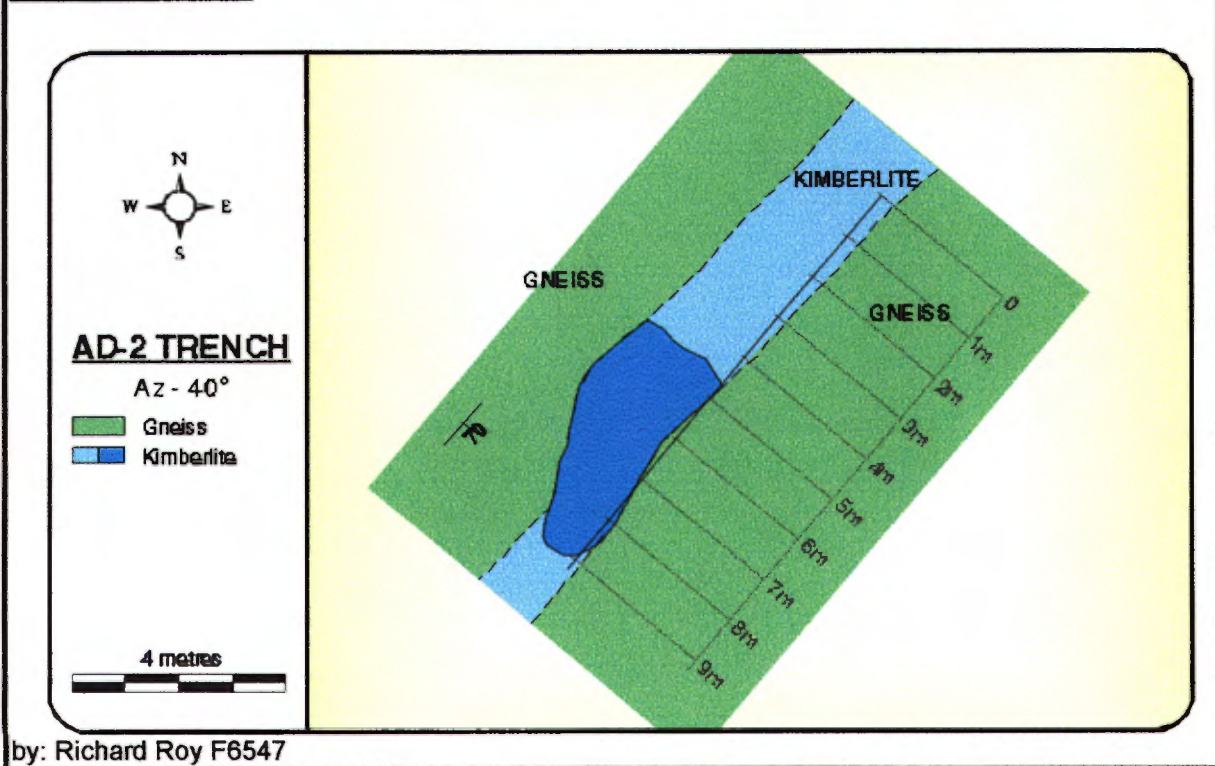
**Sample Site Record**

<u>Site:</u> AD-2	<u>Date Started:</u> April 05th 2000
<u>Easting:</u> 379165mE	<u>Date Completed:</u> April 15th 2000
<u>Northing:</u> 6594029mN	<u>Elevation:</u> 396.2m

Blasting Contractor: GL Geoservices  
Sampling Qualified Person: Richard Roy and Dallas Davis

**Site Description:** Site characterized by heavy snow cover (0.3 to 1.5 m) followed by 0.3 to 1 m of overburden. The latter is composed of altered kimberlite. In the kimberlite soil, the calcite is partly dissolved while the phlogopite seems somewhat altered to talc. The massive kimberlite varies from fine to medium grained, and dark black. It contains a matrix of phlogopite and carbonate and phenocrysts of phlogopite, garnets, diopside. Minor garnet bearing xenoliths(?) are also seen. The contacts are not seen due to heavy deep weathering at the contacts. Nevertheless, approaching the contacts, the rock is more sheared (040\70) and fractured.

**Geological Sketch:**



**Twin Mining Corp.**  
**Tornqat Project: Alluviaq Fjord, Quebec**

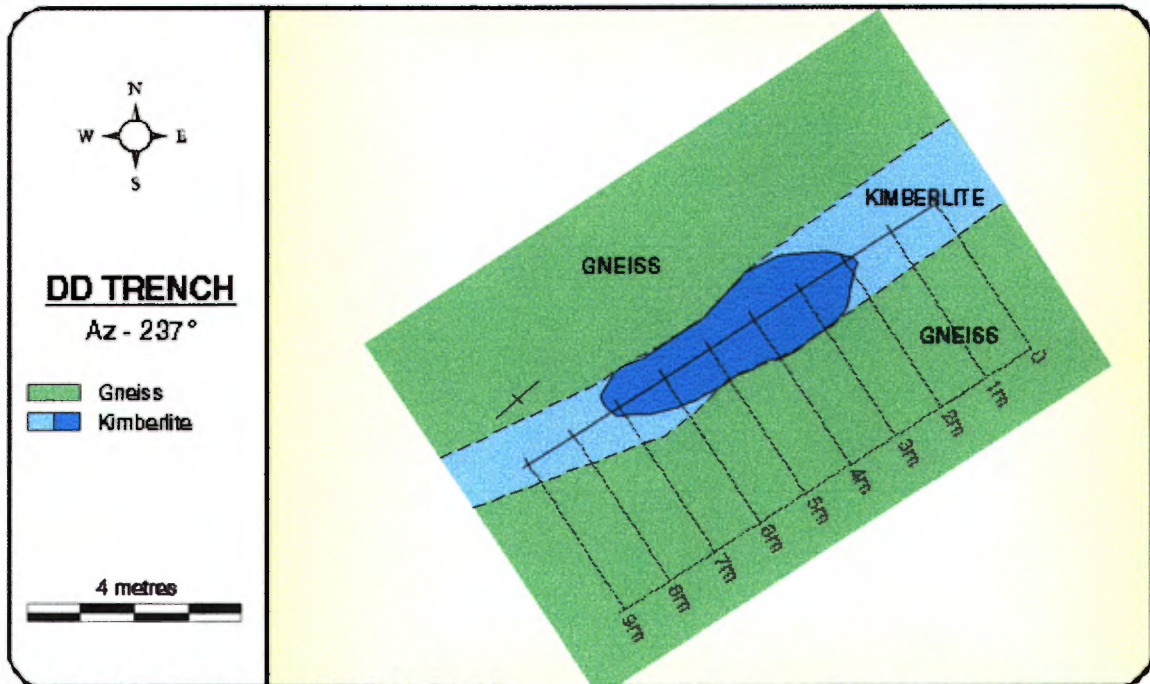
**Sample Site Record**

<u>Site:</u> DD	<u>Date Started:</u> April 16th 2000
<u>Easting:</u> 378722mE	<u>Date Completed:</u> April 20th 2000
<u>Northing:</u> 6594341mN	<u>Elevation:</u> 381m

Blasting Contractor: GL Geoservices  
Sampling Qualified Person: Richard Roy and Dallas Davis

**Site Description:** Site characterized by moderate snow cover (0.2 to 1 meter) followed by 0.3 to 0.6 meters of overburden. The latter is composed of altered kimberlite. In the kimberlite soil, the calcite appears as dissolved while the phlogopite seems somewhat altered to talc partially. The massive kimberlite varies from medium to coarse grained, and is dark black in color. It contains a matrix of mica and carbonate and many phenocrysts of phlogopite, garnets, diopside, and coarse euhedral olivine. Abundant garnet bearing xenoliths(?) are also seen. The NW contacts was observed as sharp, and unsheared. At the contact (47/90) the kimberlite is coarse grained. Approaching the contacts, the rock is fractured.

**Geological Sketch:**



by: Richard Roy F6547

**Twin Mining Corp.**  
**Tornqat Project: Alluviaq Fjord, Quebec**

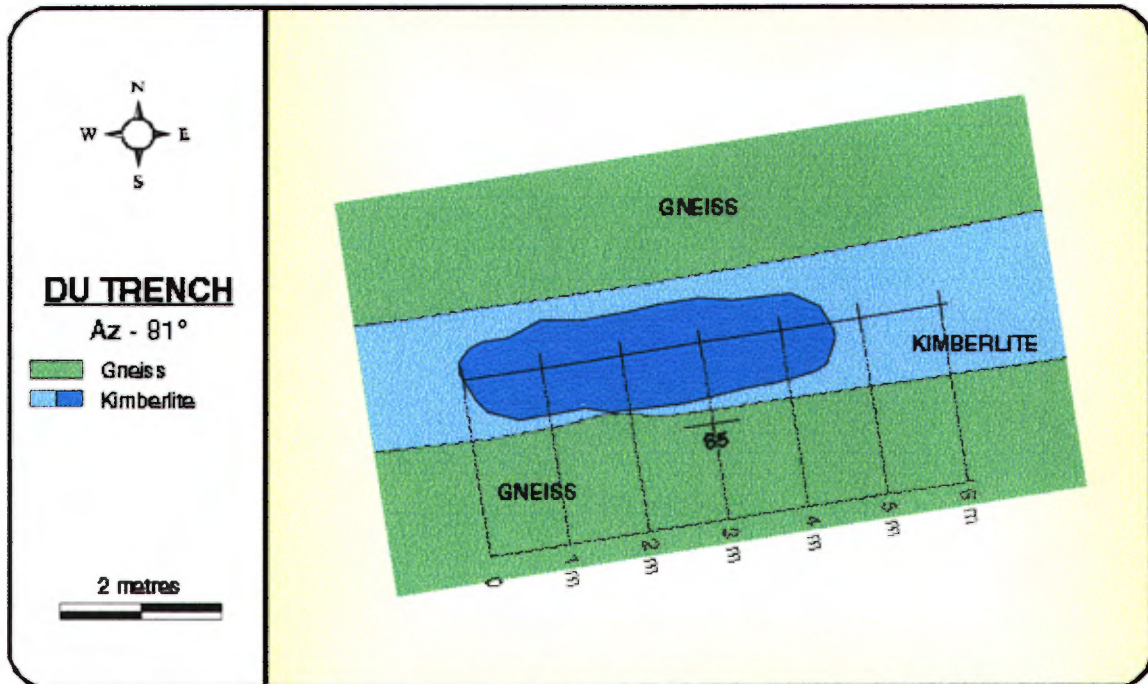
**Sample Site Record**

<u>Site:</u> <u>DU</u>	<u>Date Started:</u> <u>April 21th 2000</u>
<u>Easting:</u> <u>382775mE</u>	<u>Date Completed:</u> <u>April 24th 2000</u>
<u>Northing:</u> <u>6596860mN</u>	<u>Elevation:</u> <u>457.2m</u>

Blasting Contractor: GL Geoservices  
Sampling Qualifying Person: Richard Roy and Dallas Davis

**Site Description:** Site characterized by little snow cover (less than 0.6 meter) and minimal overburden cover. The soil is underlain by weathered kimberlite (0.6 meter) followed by massive bedrock. The kimberlite is fine to medium grained, and contains phenocrysts of phlogopite, pyroxenes and minor garnets in a matrix of pyroxene, calcite, and phlogopite. Magnetite is very fine grained but abundant. The contacts are finer grained generally although some fine grain "pods" are observed within the generally medium grain dyke. Contacts at 081/065 but only because the trench is located where the dyke sways and where two smaller dykes join up. Elsewhere, the dyke is more NE.

**Geological Sketch:**



by: Richard Roy F6547

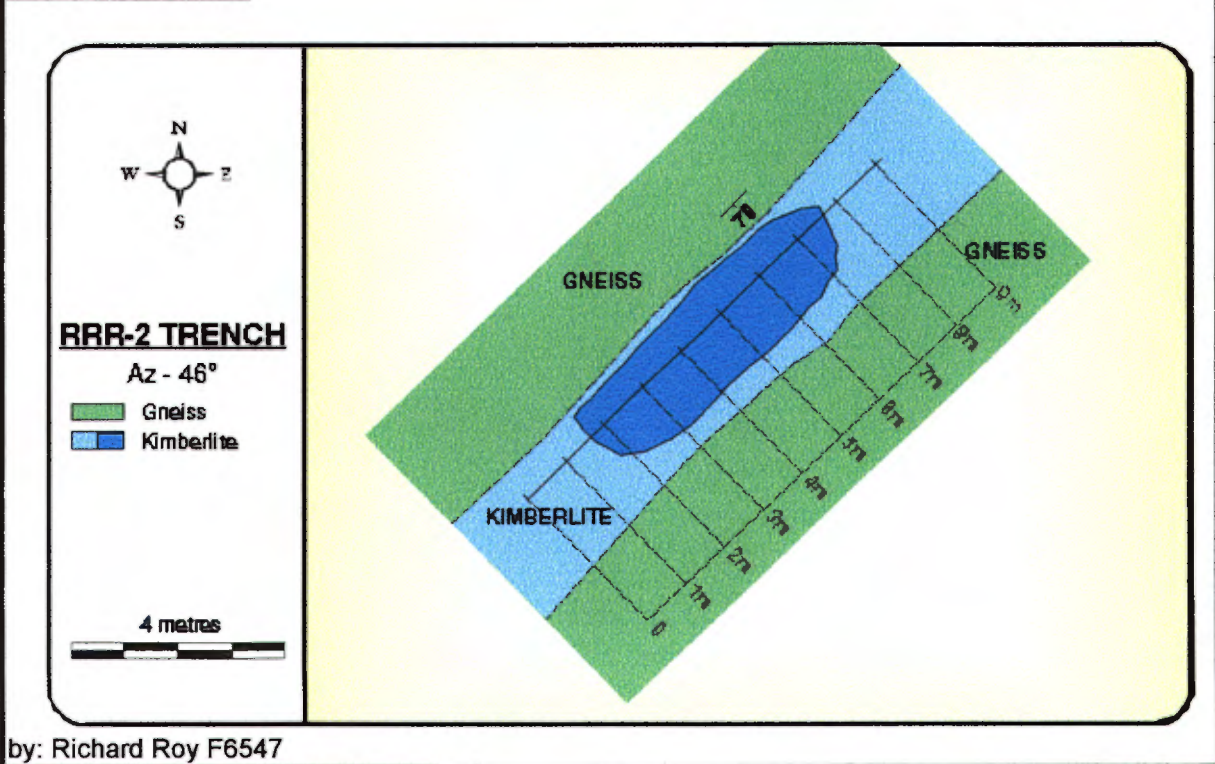
**Twin Mining Corp.**  
**Tornqat Project: Alluviaq Fjord, Quebec**

**Sample Site Record**

<u>Site:</u> RRR-2	<u>Date Started:</u> April 25th 2000
<u>Easting:</u> 374570mE	<u>Date Completed:</u> April 28th 2000
<u>Northing:</u> 6592650mN	<u>Elevation:</u> 259.1m
 <u>Blasting Contractor:</u> GL Geoservices	
<u>Sampling Qualifying Person:</u> Richard Roy and Dallas Davis	

**Site Description:** Site characterized by moderate snow cover ( 0.6 to 1 meter) and minimal overburden cover. The soil is underlain by weathered kimberlite (0.75 meter) followed by mixed bedrock and weathered dyke to a depth of 1.2 meters. The kimberlite is fine to coarse grained, and contains phenocrysts of phlogopite and minor garnets. Contacts are more fractured but not necessarily finer grained. In fact, some of the coarse grained sections are near the contacts. The grain size is quite patchy in its distribution. Contacts are at 046/70.  
A 10 cm. silicified zone was seen crossing the center of the dyke. Could be contact of two contiguous dykes.

**Geological Sketch:**



**Twin Mining Corp.**  
**Tornqat Project: Alluviaq Fjord, Quebec**

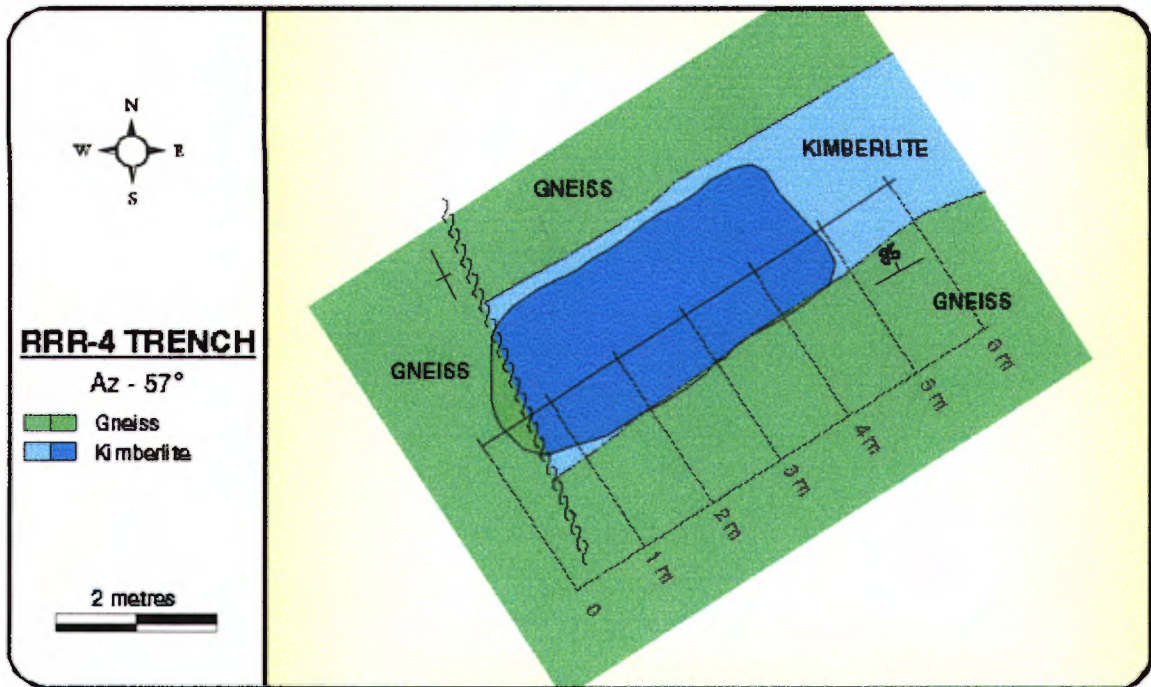
**Sample Site Record**

<u>Site:</u> RRR-4	<u>Date Started:</u> April 28th 2000
<u>Easting:</u> 374876mE	<u>Date Completed:</u> April 30th 2000
<u>Northing:</u> 6592805mN	<u>Elevation:</u> 243.4m

Blasting Contractor: GL Geoservices  
Sampling Qualifying Person: Richard Roy and Dallas Davis

**Site Description:** Site characterized by little snow cover (0.3 to 0.5 m) and moderate overburden cover. The soil is underlain by weathered kimberlite (0.75 to 1.2 m) followed by mixed bedrock and weathered dyke to a depth of 6 feet. The kimberlite is fine grained, and homogeneous and contains rare phenocrysts of phlogopite and minor garnets. Some calcite veinlets are observed parallel to dyke. Contacts are more fractured but not necessarily finer grained. Contacts are at 046/70. A fault (337/90) displaces the dyke at the south end of the trench. South extension was not seen but position based on Beepmat indicated dextral movement.

**Geological Sketch:**



by: Richard Roy F6547

Larger kimberlite blocks were broken with a sledgehammer. This was rarely necessary as the rock fractured quite easily in small (less than 0.3 meter) blocks. The weathered kimberlite showed signs of in-situ weathering (unaltered carbonate veinlets) and was considered as valid material for the sample. When thawed, the weathered material disintegrated to fine sand and dust.

Each pail was identified with a specific sample number and sealed by two numbered tight-wraps. Between 300 and 350 pails were filled per site. Each pail was weighed separately. The average weight per pail was approximately 30 kilos (67 pounds). The five samples were therefore anywhere between 9 and 10 tonnes each.

The procedures for transporting the Torngat samples from a remote part of northern Quebec to Saskatchewan are necessarily complex. The shipping route begins by delivering sub-sample batches from the property to Kangiqsualujjuaq by light helicopter (A-Star 350D). Once a sufficient number of sub-samples are accumulated to constitute one half of



a sample (+/- 5 tonnes net) an Air Inuit HS-748 cargo aircraft was used to ferry same to the LG-2 airport (near the town of Radisson) on the eastern side of James Bay. From there the samples were transported by Kapa Transport truck to Val d'Or, Quebec, where they were consigned to Papineau Transport (and affiliates along the way) for shipment by truck to the SRC Laboratory in Saskatoon. A total of 10 cargo HS-748

trips to LG-2 and 5 truck shipments (one per sample) were required to bring all 1588 pails of rock to the laboratory.

The AD-2 Sample was taken from the Torngat 1 Dyke where 3 macrodiamonds in 39 kilos were obtained in 1999. The dyke measures close to 2 meters but quickly pinches to less than 0.5 meter to the southwest where it reaches the edge of the cliff face. Snow cover was thick at the northeast portion of the trench making it difficult to establish the width of the dyke in that direction. The kimberlite dyke at the AD-2 Site contains some common phlogopite and garnet phenocrysts along with the olivine.

The DD Sample was taken from Torngat 2 Dyke where analyzed float samples from 1999 work contained 4 macro diamonds out of only 10 kilos of rock. A somewhat narrower dyke but abundant coarse grained phenocrysts of phlogopite, garnet, and diopside characterizes this sample.

The DU Site was selected using topographical and geophysical data. It is located 5 km north of the AD-2 Site along what appears to be the same Torngat 1 Dyke based the airborne magnetic data. The exact location is at the top of a hill where the dyke seem to split into two branches. Although snow cover made it difficult to establish clearly the mode of occurrence here, the strike of the dyke at the trench (081° AZ), the indication of a second dyke to the north, and the swaying of the dyke to the northeast all suggest that the dyke splits into two. The sample is at the junction of this split and therefore the width (2 meters) is among the widest observed to date. Mineralogy and grain size at the DU Site was similar to that observed at the AD-2 Sample site.

The RRR-2 and RRR-4 Sample sites are south of the Alluviaq Fjord, along the Kakivuaq Zone represented by a very strong magnetic signature along strike with the Torngat 1, 2 and 3 Dyke system. Both are approximately 5 to 6 kilometers south of AD-2. Both Sites are quite similar in width, mineralogy and grain size. The kimberlite observed to date at the Kakivuaq Zone is finer grained than to the north, contains less phenocrysts of garnet and phlogopite but the width appears regularly above 1.5 meters. At the south end of the RRR-4 Site occurs a minor transverse fault which is believed to displace the dyke by less than 5 meters.

#### **PROPOSED PROGRAM FOR THE SUMMER 2000:**

The Torngat Property's potential was clearly established by the recent success at the Torngat 1 and Torngat 2 & 3 dykes. The upcoming results from Spring 2000 Sampling will not only provide a good indication of the presence and frequency of larger diamonds in the kimberlite dykes but also help in the understanding of their mode of occurrence.

The above work will also determine whether a larger bulk sample is needed to establish a preliminary grade and a value of the macro diamond population. Such a sample would preferably be much larger than those taken in the spring (at least 50 times) and therefore require a more mechanized set of procedures to complete. A larger Barge would probably be required near the sample site to transport the material to the selected laboratory. In addition, larger containers will be needed to carry the rock, to enable mechanical mucking of the broken rocks. Whether these containers will be emptied in larger bins on the ship or at the port will be determined following a detailed plan and schedule of the program.

While part of the property is at a more advanced stage of exploration, the bulk of the territory covered by the Torngat Project remains unexplored. Current knowledge of the geology, mineralogy, geophysical signature, and mode of occurrence of the dykes strongly suggests that other lineaments occurring on the property are probably also caused by kimberlite dykes. In addition, kimberlite dykes (e.g. Torngat South) also occur within the high magnetic domains, within which the magnetic anomalies associated with the kimberlite is very difficult to pinpoint. Considering that many known diamondiferous dykes such as the Bellsbank dykes of South Africa are only locally mineable for diamonds (Guilbert et. al. 1986), it is therefore essential to map and sample as many dykes as possible in order to determine which are of economic interest.

The 2000 Mapping and Prospecting Program is therefore planned in two parts as follows:

**PART I: Property-wide Prospecting and Mapping:**

The main objective of this phase is to locate, describe and sample as many new dykes as possible on the Torngat Property. The most obvious lineaments (magnetic anomaly/air photo lineaments) and some of the most conspicuous isolated circular features will be given the first priority. Because some of the known dykes (e.g. Torngat South) show only weak magnetic responses, it is also proposed to explore the entire property using a 3-km traverse spacing along a NW direction. Apart from major geological units and structural data (particularly NE trending faults and joints), the traverses will not dedicate any appreciable time to the gneissic country rock. The work will principally investigate the significant fractures that could host kimberlite dykes. A Beepmat is proposed to help investigate areas of thicker overburden cover.

**PART II: Detailed Mapping of Target Blocks**

This part is proposed to better define and accurately map the known dykes in an effort to a) better understand their mode of occurrence and b) attempt to identify wider parts of the dykes where larger crystals, including diamonds may have formed. To date, kimberlite dykes have been located in four different parts of the property: the *DU-Site Area*, the *AD-2/DD Sites Area*, the *RRR-2 and 4 Sites Area* and the *Torngat South Area*. Obviously, the upcoming results from the laboratory will establish the order of priority of these four areas but it is expected that a detail map of each area could better define the most promising sectors of the known dykes. The general mapping is also expected to produce new target areas which will also be covered by ground geophysics. An additional two blocks are included in the budget to account for these new discoveries.

It is proposed to establish a 100m line-spacing grid across each area followed by ground magnetic and geological surveys. Each areas are expected to be approximately 2km x 2km and therefore necessitate about 50 line-km of grid, magnetic survey, and geological mapping.



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## REFERENCES:

- Bell, R., 1885:** Observations on the Geology, Mineralogy, Zoology, and Botany of the Labrador Coast, Hudson Strait and Bay. GSC Rep. Progr. 1882-84, pt. VII.
- Bodycomb, V., 1993:** Graphitic and Base Metal (Ni, Zn, +/- Cu) Showings of the Abloviak Fjord, Eastern Ungava Bay, Quebec: Ideas on their Origin and the Metallogenic Implications for the Region. In: R.J. Wardle and J. Hall (eds.), Eastern Canadian Shield Onshore-Offshore Transect (ECSSOT), Report of Transect Meeting (Dec. 4-5, 1992), The University of British Columbia, LITHOPROBE Secretariat, Report No. 32, p. 74-82.
- Bodycomb, V., 1994:** Characterization and Metallogeny of Base Metal, Graphite, and Tungsten Showings, Paleoproterozoic Torngat Orogen, Eastern Ungava Bay, Quebec. MSc. Thesis presented at the Université du Québec à Montréal.
- Bodycomb, V., and Goulet N., 1992:** Metallogenic and Structural Study of Base Metal (Ni-Zn) Showings in the Tasiuyak Gneiss, Eastern Ungava Bay, Quebec. GAC/MAC Abstracts Volume 17, p. A10.
- Daly, R.A., 1902:** The Geology of Northeast Coast of Labrador, Harv. Univ., Mus. Comp. Zool., Bull., v. 38, p. 205-270.
- Digonnet, S., 1997:** Étude Pétrogéochimique de Kimberlites Dans Les Monts Torngats, Nouveau Québec. MSc Memoire presented at the Université du Québec à Montréal. Thesis directed by James Bourne and Norman Goulet.
- Gaudreault, D., 1997:** Field Work Report; Abloviak Fjord Property, PEM 1197 (Eastern Ungava Bay, Quebec) NTS 24P/06 and 24P/07. Assessment Report No. 55257
- Goulet, N. and Cieselski, A., 1990:** The Abloviak Shear Zone at the Northwest Torngat Orogen, Eastern Ungava Bay, Quebec. Geoscience Canada, 17, pp. 269-272.
- Guilbert J.M. and C.F. Park Jr., 1986:** The Geology of Ore Deposits, W.H. Freeman and Company ed., pp. 346-352.

- Low, A.P., 1896:** Report on Explorations in the Labrador Peninsula Along the East Main, Koksoak, Hamilton, Manicouagan, and Portions of Other Rivers in 1892, 93, 94, 95. GSC Annual Report 1895, v. VIII, pt. L, p. 221-222, 309-310.
- Mitchel, R.H., 1986:** Kimberlites: Mineralogy, Geochemistry, and Petrology. New-York: Plenum, 442 pp.
- Moorhead, J., Beaumier, M., Bernier, L., Lefebvre, D.L., Martel, D., 1999:** Kimberlite, Linéaments et Rifts Crustaux au Québec. Ministère des ressources naturels, MB 99-35.
- Taylor, F.C., 1979:** Reconnaissance Geology of a Part of the Precambrian Shield, Northeastern Quebec, Northern Labrador, and Northwest Territories. Geological Survey, Memoir 393.
- Wheeler, E.P., 1933:** A Study of Some Diabase Dykes on the Labrador Coast. Jour. Geol., v. 41, p. 418-431.
- Wheeler, E.P., 1942:** Anorthosite and Associated Rocks About Nain, Labrador., Jour. Geol., v. 50, p. 611-642.
- Wheeler, E.P., 1965:** Fayalitic Olivine in Northern Newfoundland-Labrador. Can. Min. J., v. 8, p. 339-346.
- Wheeler, E.P., 1968:** Minor Intrusives Associated with the Nain Anorthosite. In Isachsen, I. W., ed., NY State Mus. Sci. Serv., Mem. 18, p. 189-206.