GM 60871

REPORT OF ACTIVITIES ON DIAMOND DISCOVERIES INTERNATIONAL PROPERTY DDI-1 & 2 IN THE TORNGAT MOUNTAINS

Year 2001

REPORT OF ACTIVITIES ON DIAMOND DISCOVERIES INTERNATIONAL PROPERTY DDI - 1 & 2

CLAIM LICENCE NO.
P.E.M. 0001473 & 0001499

NTS Sheet 24P/07
IN
THE TORNGAT MOUNTAINS
OF
NORTH-EASTERN QUEBEC

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SUMMARY

The work on the DDI-2 property consisted solely of taking two stream sediment check samples there. (FIG 1) and (FIG 2)

Geological, ground magnetic and geochemical stream sediment surveys were conducted over the Diamond Discoveries International mineral exploration licence number 0001473 during July, August and September of the year 2001. (FIG 1)

Geological work consisted of foot traverses aimed at mapping the rock types in a broad way and recording their relationships and structures. The primary goal was to locate kimberlite dykes and obtain samples of them for laboratory analyses. There were seven proven kimberlite dykes on this property prior to this field season. They are numbered "A" through "G" inclusive. The year 2001 saw the discovery of the "F' cross dyke, the "R" cross dyke and the "Y dyke. The Cross-dykes both cross the north trending "F" dyke. These structures were trenched by hand some to a depth of 2.5 metres and all yielded kimberlite rock, which was sent for assay. In addition GPS positions were obtained on a number of dykes that may trend onto the property. None were observed from the air to enter the licence.

The most notable discovery in the 2001 field season is that the dykes are very difficult to trace on foot in the higher rock covered areas. The Magnetometer was used to good effect in following the "F" dyke across the valley at the 0+00 point in that base line. It is an invaluable tool in tracing known kimberlite dykes. The assay results in 2001from both the one ton samples taken from the "A" and "B" dykes (both had reported diamonds in 2000) were negative.

In an effort to evaluate the diamond potential of other parts of the property. A series of twelve- (12) stream sediment samples were taken from the streams draining those portions of the licence. Sites were selected that would maximize the natural concentrating power of the stream. This should give a sample representing years of concentrating by nature of the heavy minerals and diamonds moving down the stream. Twelve samples, each in excess of 25 kilograms of -5 mm sediment was collected, concentrated by jigging and sent to Robert Dillman to select indicator mineral grains and diamonds.

Ground magnetic survey was completed on grids constructed on the "A", "B", "C", "D" and "F" dykes. The contour and profiles of the part of the "B" dyke completed is found on (FIG 5, 6) contour and profile maps. The magnetometer is useful in evaluating the kimberlite potential in the part of the

valley that is covered with overburden and talus. Winter arrived at the first of September and precluded the completion of work on "B" dyke as well as the "G" dyke. The unpacked early snow over deep narrow cracks in smooth outcrop made work too dangerous. The "E" dyke cuts a very steep east - west slope and is found in a cleft cutting this face. Grid construction and magnetometer survey would only be warranted if there are significant indicator minerals in the sediments from this brook.

The geology was completed over the "A" through "F" dykes. This work was done on a scale of 1:5000. (FIG 4a - 4d)

In the **Stream Sediment Sampling** work twelve- (12) samples having a mass of from twenty five to thirty five kilogram were collected on key drainage sites on the property. These samples were further processed in camp to obtain a fine and a coarse concentrate of the heavy minerals found in that sample. The concentrate vials were then shipped to Robert Dillman of Arjadee Prospecting, of Mount Brydges, Ontario for microscope examination of the grains in order to identify Diamond Indicator Minerals (or diamonds) contained in the samples. The mineral grains selected by Bob Dillman were then sent for microprobe analysis. R. L. Barnett, Geological Consultant Inc., 9684 Longwood Road, RR32 London, Ontario, N6P 1P2 did this microprobe work. The results for this work are pending. In addition soil samples were collected over some of the dykes and concentrates sent to Mr. Dillman for examination

Using this process of silt sampling, the kimberlite indicator minerals found in the samples will indicate the presence of kimberlite dykes or pipes in the watershed drained by that portion of a stream.

In the process of collecting these stream sediments it is possible that an experienced crew might visually locate a kimberlite dyke or pipe. This happened on numerous occasions. The crews were well instructed that sampling was not the only goal of the project. The true goal was to locate kimberlite pipes or dykes. All crewmembers were very active in searching for kimberlite rock, or dykes or pipes. For example the "R" and "Y" dykes were found in transit to work at other locations.

The property covers elevations from sea level to +2600 feet. The DDI-2 property ranges from 2000 -2600 feet. The Abloviak Fiord cuts the southern portion of the DDI-1 claims. The Abloviak valley rises rapidly to 1800 feet on the south but 2500 feet on the North side. Work in these high country plateaus is restricted by the frequency of low cloud cover and fog.

PREVIOUS WORK

Previous geological work done in the area consists of regional scale geological mapping by the Geological Survey of Canada.

1 The map 24P/04 by: Van Kranendonk, M. J. 1993,
Geology Mount Jacques Rousseau
GSC Open File 2738, Scale 1:50,000.

2 The Quebec Department of Mines has just released map sheet 24P07 in October 2001. It is a compilation by Chantel Belodeau and Serge Perreault and numbered SI-24P07-C3G-01H. The coloured map has a slightly different underlined code. The map is called Mount Jacques Rousseau and its' scale is 1:50 000.

3 There is also map 1429A at 1:250,000 scale called Point Le Droit compiled by F. C. Taylor in 1975. It is published by the Geological Survey of Canada and has the map legend printed separately as "map 1462A".

1.0 INTRODUCTION

This paper reports on the fieldwork completed on the Diamond Discoveries International mineral licence PEM 0001473 & 1499 in the TORNGAT Mountains of Northeastern Quebec during the 2001-field season.

Stream Sediment Samples were collected from the first and second order river drainages in an attempt to find Diamond Indicator Minerals in the Heavy Mineral Concentrates (HMC) of those samples.

The concentrates were sent to Robert Dillman of Arjadee Prospecting for microscope examination of the individual grains. Selected suspect grains, from the sample, are then sent for detailed microprobe identification.

The analytical results for this work are pending.

The DDI-2 claims was largely prospected and mapped in 2000, as was the high country that adjoins it on the DDI-1 licence. The geological work consisted of fill in mapping in some areas and in mapping the known dykes and their environments in more detail. (FIG 7) and (FIG 4a,b,c,d)
There is an unusual rock located on the southeast side of a lake at UTM 395100E and 6589300N. It is about 60-70% garnet in massive dark green - matrix. (eclogite?)

The "R" dyke narrows to the NW and trends toward the "E" dyke to the SE. The "Y" dyke is about 8 cm wide and may be the "F" cross or the "R" dyke's western (northern) extension. The "F" cross dyke is reported to contain natural corundum. (Peter Ferdeber)

The Dumont Nickel assessment reports a dyke on the DDI-1 claims at 397800E 6586700N. This is a new structure.

2.0 LOCATION AND ACCESS

The Diamond Discoveries International Torngat Mountain properties (licence 0001473 and 1499) are located in the northwest quadrant of 1:50,000 NTS map sheet 24P/07.

The nearest community, George River - KANGIQSUALUJJUAQ, Quebec is about 65 kilometres to the southwest of the centre of the claim groups. George River gives access to shipping and airline facilities as well as food and other supplies. Float equipped air craft can land and depart from Lakes there. At least two of these lakes now have roads connecting them with George River.

There is no lakes of suitable sized on the DDI-1 property that could be used as a floatplane serviced base camp. There is a Camp on the property in the Fiord. It could be serviced by boat from George River at high tides. The nearest large lake is Russy Lake used as a campsite in 2000. The disadvantage here is the elevation. 2100 feet limits the access because of cloud cover and fog.

The 2001 field crew was serviced out of a camp at the West End of Pangia Lake at a Latitude 59°36'N and Longitude 065°15'W. The camp was about 30 to 45 minuets flying time from George River. The camp was about 35 kms northwest of the centre of the DDI 1 claim group. The bulk of the work in 2002 will be on the DDI-1 and DDI-3 property as well as on the newly acquired claims. A base camp closer to work is needed to increase the time worked on the properties and reduce flying costs.

The Abloviak Fiord is pleasant with fluvial deposits and till covering the low ground, some outcrop does occur in scattered locations. Water in the form of ponds and small lakes are locally numerous. At low elevations, usually in the valleys or cracks in the rocks, vegetation such as grasses can be found. Some shrubs were observed in the Abloviak Fiord valley near sea level. The high portion of the licence is rock covered, barren and bleak with a number of small glaciers on sheltered hill faces. Rock outcrops are small, scattered and not numerous in the rock debris fields. Large areas of massive outcrop do occur in this high country.

3.0 LICENCE INFORMATION

The Diamond Discoveries International Torngat Mountain property (licence 0001473 & 1499) are located in the northwest quadrant of 1:50,000 NTS map sheet 24P/07. There are about 6580 hectares (HA) making up the area of the DDI-1 claim group. The DDI-2 group occupies an area of 2201HA. The centre of the combined properties is about UTM 394000E and 6586000 N. They have a maximum east to west extent of 14 Kms and a 16 kilometres maximum north to south length. (Fig 1)

4.0 2001 EXPLORATION PROGRAM

4.1 Heavy Mineral Concentrates of Stream Sediment

The program was designed to collect twelve- (12) stream sediment samples then concentrate the heavy minerals from the samples by panning and mechanical jigging. Concentrates were then examined for the presence of any diamond indicator minerals in them. The presence of kimberlite indicator mineral grains would reveal the presence of kimberlite rock in that part of the drainage basin. Twelve sample sites were visited and twelve samples were taken (Fig 2). The samples were panned and jugged in facilities installed at the camp on Pangia Lake. The concentrates obtained after mechanical jigging were sent to Robert Dillman for microscope selection of suspected indicator mineral grains. These selected grains were then sent to a R. L. Barnet for microprobe identification of these mineral grains. The results of this work are pending. A separate report will be compiled and submitted by Robert Dillman covering this aspect of the program.

Stream sediment samples were taken immediately down stream from high energy sites were stream energy was seen to drop rapidly. The site should have at least 5cm-diameter gravel. This size material moves only in the flood stage and permits the winnowing of light material out of the spaces around the larger stones as the flood stage dissipates. This process should concentrate the garnets, magnetite, chrome diopside and other kimberlite indicator minerals. The initial field screen had openings of 5mm. More than 20 kilograms of the material that passed through this screen was de-slimed. This involved stirring with lots of water so that the clay and organic portion became suspended. This was followed quickly by carefully decanting the dirty liquid. This process was repeated until the residue was largely clear of clay and organic matter. The sample site was marked with a sample ribbon (ex DDI-1 #10). The GPS location of the sample site was taken and written in the field notes of the sample team. This original record of the sample location was kept on file. That crew later transferred the location information to a master logbook kept at camp. If the next sample was to be collected nearby (100's of metres) the first bucket was carried to the next site. This is a difficult task in rough country. A helicopter returned crew and samples to camp as required.

At camp on rain days or foggy early mornings the 40 - 60 pound samples were screened and panned in the lake. Each screen was jigged by hand and the eye that resulted was examined for diamonds or indicator minerals. The eye of the material that remained on the Milner diamond screen (1mm openings) was collected into an appropriately labelled vial. (The previous screen has openings of 2mm). The material on this screen constituted the "coarse" sample for that location site. The material that passed through the Miller Diamond screen was panned to remove some of the lightest fraction and further de-slimed. The remaining material was collected in a clean properly labelled polyethylene sample bag. This process continued until all the material from that sample site was processed. It required from three to six "pans" to completely process the sample at this stage. The "coarse" fraction (+1 to 2 mm) was filed for future reference in case indicator minerals are found in the fine fraction. The last step was to have the fine material from the polly bags jigged mechanically. A trained operator using a motorized jig designed for concentrating heavy minerals completed the extraction process. The eye from this final stage was collected and placed in a properly labelled vial. These vials were shipped to Robert Dillman for examination of their kimberlite indicator mineral content.

4.2 Improvements

Use screen sizes in the field that will allow the direct collection of 1-1.5 litres of de-slimed sand (-1mm). Pan and bottle the coarse fraction (+1 to 2mm) of the sample in the field. This will permit the easy transport of the sample to the next site. It should be possible in this way for one crew to collect up to 6-8 samples per day. This could only be done last year with direct helicopter support. This process will also reduce panning at camp. It will also standardize the sample size taken from one site to the next. The amount of time walking the ground by the crew will increase and allow for the increased chance of locating dykes or pipes. The helicopter is vital but in some terrain, eyes on the ground are more effective in locating dykes. This is especially true in the high elevations where grass does not grow.

5.0 REGIONAL GEOLOGICAL SETTING (FIG 3)

The rocks underlying the Diamond Discoveries International Licence - 1473 and 1499 are part of the Canadian Shield. The Canadian Shield is the largest single block of ancient (Archean) rock in the world. It is with these Shield areas that all the commercial diamond mines of the world are associated. The Canadian Shield has only recently received the attention of the diamond exploration community over the last fifteen years. This is the first year (2002) that DeBeers has committed the majority of its diamond exploration money to the search for diamonds in Canada (38 million dollars).

TIME SCALE

EON	ERA		SUB-ERA or PERIOD	
PHANERO-ZOIC			Tertiary (T) Neoproterozoic-Cambrian (NC)	
545				
PROTEROZOIC	NEOPROTEROZOIC	(N)		
	900			
	MESOPROTEROZOIC	(M)	Late Mesoproterozoic	(M3)
			1200	
			Middle Mesoproterozoic	(M2)
			1350	
			Early Mesoproterozoic	(M1)
	1600			
	PALEO- AND/OR MESOPROTEROZOIC	(P-M)		
	1600			
	PALEOPROTEROZOIC	(P)	Late Paleoproterozoic	(P3)
			1800	
			Middle Paleoproterozoic	(P2)
			2100	
			Early Paleoproterozoic	(P1)
2500				
	ARCHEAN AND/OR PALEOPROTEROZOIC	(A-P)		
2500				
ARCHEAN (A)	UNDIVIDED ARCHEAN	(A)		
	NEOARCHEAN	(A_N)		
	2800			
	MESOARCHEAN	(A_M)		
	3400			
	EO to PALEOARCHEAN	(A_P)		
4000				

In more detail the DDI - 1 &2 ground is situated near the margin of the suture line that separates the Nain Geological Province rocks of Labrador and the eastern most rocks of the Churchill or Rae Province rocks. The suture line is probably located a few kilometres north of the DDI - 2 claims inside Labrador. It is along this line across which two continents collided over 1800 million years ago. This collision suture and the deformation and metamorphism that occurred as a result of it is what is known as the Torngat Orogen. To the northeast of the suture are Archean age gneisses of the Nain Province and to the west are reworked (metamorphosed) Archean gneisses and slightly younger Paleoproterozoic intrusive and supracrustal rocks of the Eastern Churchill or Rae province. The rocks to the southwest on the DDI claim groups are rocks known as Tasuyiak gneisses. This Tasuyiak gneiss is mainly a garnet sillimanite bearing paragneiss that is white weathering and often rusty locally it may contain minor graphite and sulphide minerals.

A quote from a report on the ECSOOT Project in the area by the GSC follows
"South-eastern Churchill Province (SECP)
This developed by oblique collision of the Nain and Superior cratons between 1860 and 1740 Ma, and has a tripartite division. The western division of the SECP is the ca. 2100 to 1840 Ma New Quebec Orogen (formerly Labrador Trough). It is a west-verging fold and thrust belt composed of low-grade shallow to deep water sedimentary rocks (Schefferville zone) and thick allochthonous sequences of rift-related mafic volcanic rock and associated gabbro to ultramafic sills (e.g. Howse zone and Doublet terrane). The easternmost component of the orogen is the metagreywacke Laporte terrane. The central SECP, the core zone, is underlain mainly by reworked Archean gneisses, locally overlain by supracrustal rocks (Lake Harbour Group), and is intruded by Paleoproterozoic granitic plutons such as the De Pas batholith (ca. 1840 to 1810 Ma). Also, it is cut by a number of major transcurrent ductile shear zones. The eastern division of the SECP is the Torngat Orogen, a doubly vergent transpressional orogen, the axis of which is the metasedimentary Tasiuyak domain. This is flanked to the west by the Lac Lomier complex (mixed Paleoproterozoic orthogneiss, metasedimentary gneiss and ca. 1840 to 1830 Ma granitoid plutons) and to the east, in northernmost Labrador, by the Burwell domain (ca. 1895 to 1860 Ma calc-alkalic plutonic rocks and Nain[?] Archean gneisses), both representing the roots of magmatic arcs. **The Tasiuyak domain, together with the Abloviak shear zone, marks the collisional suture with the Nain craton** and can be traced north across the Hudson Strait by virtue of its distinctive, low aeromagnetic expression. Archean gneisses and Paleoproterozoic cover rocks (Ramah Group) of the Four Peaks domain extend into the eastern part of the Torngat Orogen where they have been reworked and deformed in a series of east-verging thrust blocks. These rocks are equivalent to those of the Saglek block, Nain Province."

GSC Ecsoott project.

Prior to the collision of the Torngat Orogen, slabs of ocean crustal rocks were bent and shoved under the Rae Province along the collision line. Sometimes a piece would break off and as the pushing continued a second portion of the oceanic slab would be subducted along with its predecessor. Pieces of crust stacked on edge dipping steeply westward would be piling up in front of the approaching Nain Province landmass. The underside of these slabs provides the peridotite pods and lenses scattered in thin discontinuous lines on the present day surface. They often are spaced 5-10 km's apart.

At some time after the Torngat Orogen the crust in the region was put under tension. At least one such event was the rifting when Greenland was torn away from Labrador. Such tension could weaken the crust and allow molten kimberlite and other lavas to rise from great depths along the numerous dykes found in Torngat Mountains of Northern Quebec and Labrador. B. Ryan, R Wardle ET. El. in report 95-1 on Labrador state on page 179 that the igneous rocks of the Nain Plutonic Suite along the suture line "is ...believed to be emplaced in an intracontinental extensional zone above a mantle hot spot, much younger than the preceding Torngat Orogen and unaffected by younger tectonism." The Hutton Anorthosite Suite marks one such tensional area running north to South about 25 km's east of the property. The Alluviaq River Valley branching south of Abloviak Fiord valley may be an ancient tensional valley parallel to it. It may mark the western side of the ancient rift valley.

The western part of the Nain geological province was affected by the Torngat Orogen that took place (2 to 1.9 billion years ago). The Rae Province rocks were pushed into folds with about 1 kilometre between fold planes axis. Folds plunge from eight to about 60 degrees but usually about 30 degrees to the NW. The Kimberlite dykes probably cut across all the rock types. The diabase kimberlite emplacement relationship was not observed.

Most of the rock on the property is Tasuyiak gneiss. There is a belt of brittle deformation mapped running east to west through the claims and is called the Abloviak Sheer Zone (ABZ). The weakened crust here was thought to provide the only route for the emplacement of kimberlite rocks.

James Moorhead et el in the Quebec Government publication "Kimberlites and Diamonds In Northern Quebec" places the northern limits of the E-W trending Abloviak Shear Zone (ABZ) (his Fig 8) through the centre of the DDI-2 licence. The Kimberlite dykes in the ABZ discussed in his document are all in the Tasuyaik gneiss in this Abloviak Shear Zone. We have observed kimberlitic rock that cut older rocks north of the ABZ and not considered part of the ABZ.

It has been learned in 2001 that there is Kimberlite dykes north of the Tasuyaik gneisses and therefore out of the proposed Abloviak Shear Zone (ABZ). It is clear that it is possible to have Kimberlite magma intruding rocks of **any** of the three ages associated with brittle-ductile deformation events in the region. James Moorhead ET El P.4 in "Kimberlites and Diamonds in Northern Quebec" says: "At least three crustal extension events are known in the area occurring in Middle Proterozoic in Lower Proterozoic and in Mesozoic" (time). It should therefore be possible to find Kimberlitic rocks outside the boundaries of the ABZ and in rocks both older and younger than the Tasuyiak gneiss.

Twin Mining reports that kimberlite dykes have been found in the oldest member of the Lake Harbour Group on the Beaufremont River in rocks of the Far North (RAE) Craton itself. These dykes trend east-southeast. Kimberlite dykes in the ABZ trend NNW through NNE. Other kimberlite dykes on Diamond Discoveries International ground DDI-3 are also in metasediments that are older than the Tasuyiak unit and are located north of the Abloviak Shear Zone as are the "S", T2", and "M" dykes on Tandem resources ground 30 kilometres to the northwest. Furthermore Moorhead ET. El (page 4) states that "Post-tectonic ultramafic lamprophyres, some of which are kimberlites, have been identified in the northernmost portion of Labrador, approximately 75 km NE of the Abloviak Fiord dykes (Wardel et el., 1994)." We conclude therefore that exploration efforts for kimberlite rock need not be restricted to the area of the Abloviak Fiord or the ABZ.

5.1 LOCAL GEOLOGY

The rock foliation on the property strikes northwest to southeast. The rocks are folded and plunge NE from about 10 to 45° (FIG 3) There are a number of belts of massive blocky charnockite that cross the DDI-1 licence and compose the bulk of the high country rocks north of the Abloviak Fiord. The distance between axial planes of the F1 folds is from 1 to 1.5 km's. Usually the dip on the limbs of the folds is nearly vertical. This is the pattern in the Tasuyiak gneiss in the Abloviak Shear Zone that marks the collision front of the Torngat Orogen. This therefore is consistent with the position of the rocks on the property in relation to the Torngat Mountain building event.

The Torngat Orogen collision front has a major bend from NNW to WNW that is located 14 kilometres east on the DDI - 3 property. This structural feature could create stresses and strains in the region that would help to create crustal weaknesses up which Kimberlite magma could intrude to the surface. There are a number of NE trending rivers that may reflect faults or weaknesses in the crust. James Moorhead ET. El. in PRO 99-09 Figure 8, show Early & Late Proterozoic brittle faults in the south that if extended, would pass around four kilometres east of the property. The author believes this is one of the key components involved in localizing the emplacement of the kimberlite dykes in the region.

The Abloviak Shear Zone would be the second cross structure that would provide the second level of weakness in the crust that would facilitate the entry of rising kimberlitic magma.

6.0 DYKES

6.1 The "C - D" Dykes (FIG 4b, 4c)

These dykes are probably the same dyke but on either side of the Abloviak Fiord. The "C" dyke is on the south side. I am discussing the dykes starting from the west going east. The "C" portion is from 1-2 metres wide somewhat rusty weathering with about 20-40% carbonate. It is locally knobby weathering. The "D" portion is composed of two or more narrower dykes usually fine-grained phlogophite rich with high carbonate content. The trenched dyke at the north boundary is like a gossan in colour and texture. These samples contain numerous natural pink and red corundum. The dyke at this location is about 20-30 cms wide. This dyke extends off of the property to the north.

6.2 The "A" and "F" group DYKES (FIG 4a,FIG 4d, FIG 7)

The "A" dyke is on the south side of the Abloviak while the "F", F-cross R-cross and "Y" dykes are probably its' extension north of the Fiord. It is the usual hypabissal kimberlite but abundant phlogophite mica. The "A" portion is up to 2.4metres wide while the "F" dyke is nowhere wider than 1.3 metres. The associated dykes are also narrow. The eastern end of the "F"-cross dyke has about the same width but narrows rapidly to the west uphill. The wider eastern trace could not be followed. The magnetometer would be effective here. The "F"-cross also contains pink and red corundum. The "Y" dyke descends the hill in the vicinity of the West End of the "F"-cross. The "Y" is only about 10 cms wide for its full observed length. The "R"ay dyke is narrowest at the top of the same hill and trends to the southeast towards the Abloviak valley floor and the known end of the "E" dyke. It is possible that the "E" dyke bends to the NW and becomes the "R" dyke.

The "A" dyke returned diamonds in the 2000 sampling but the 800kilos taken in 2001 did not return any diamonds. (Personal communication Peter Ferdeber) The "A" dyke samples were from numerous locations along the dyke whereas other dykes were sampled at fewer locations but with larger samples.

6.3 **THE "B" DYKE**

The "B" dyke intrudes the charnockite rocks of the high plateau. It strikes WNW and terminates or turns abruptly north just west of a small lake. On the East Side a gully trends northward and contains some hypabissal kimberlite float. This is the area that returned diamonds in 2000 but the 2001 samples of more than 800 kgs had no reported diamonds. A branch may extend north from this point. The main dyke is seen to cross the lake to the west. Further to the southeast (.5 kms) the dyke makes an abrupt change in direction and is lost to view. The widest gully gives no notable magnetic response however a 10-20 cm crack to the west does respond magnetically. The "B" dyke is probably faulted with left displacement just south of a lake on the east boundary of the property. (FIG 5, FIG 6). The "B" dyke was traced by helicopter to the south for more than two kilometres. It is the K15 or MMU02 dyke from the Dumont Nickel assessment report.

6.4 **THE "G" DYKE**

The "G" dyke was sampled at two locations and buried by snow on the 28 August. It is about 1.3 metres wide and contains some granitic gneiss xenoliths. It is extremely hard to trace by foot. The plateau is rubble and till covered. The magnetometer will be needed to follow this structure effectively.

6.5 **OTHER DYKES** (FIG 7)

Dumont Nickel's assessment report shows two other dykes near the east property boundary that may enter the group. They are the K8 and K9 dykes. Dumont project the K8 dyke to enter the property 1.5kms SE of the "G" dyke however Mazerolle from helicopter observation had the K8 and K9 dykes as being one and the same running parallel to the east boundary. Since this ground has recently been acquired by DDI this matter can be investigated on the ground.

There are a number of lakes in this high country crossed by known dykes or the dykes pass very near them. The use of a canoe or dinghy with the magnetometer could be useful in determining if these are kimberlite pipes. Other dykes on adjoining ground now owned by DDI are K20, 5 kms east of "B", K18 the extension of "D" K1 about 100 metres west of the "D". On the south of DDI-1 the "A" extension K5 and the "C" extension K6. Dumont does not appear to have investigated these dykes for their full length.

7.0 Observations from the Champagne Pipe

The salient features for discovery of other pipes are likely to be one or some of the following features.

1. A lake probably with a diameter of 20 metres or greater (the side blow is this size).
2. The lake may not have a stream shown as draining it on the topographic map. The kimberlite may have weathered leaving the cleft filled with mica dominant sand through which the water moves without being seen on the surface.
3. There will likely be a cliff facing up ice on the lake. Usually Ice rides smoothly up and plucks rock on the down ice side. The soft kimberlite causes the formation of a cliff facing the ice flow, as at the Champagne Pipe and Lake.
4. Sharp "V" shaped contours pointing up hill with no creek marked on the topographic map flowing in them are probably dykes.
5. Such contours pointing to lakes with no marked outlets should receive priority scrutiny of the Lake and the cleft.
6. Salmon pink "granite" could be potassium alteration and closer examination is called for.
7. If the goal is to locate dykes as the roads to pipes. Traverses made following the strike of continuous outcrop should not be avoided.
8. Lakes occurring in topographic depressions must be investigated.
9. A lake with glacial ice that is in the water of the lake year round indicates a cold and possibly deep lake because of the erosion of the softer kimberlite. These need to be investigated.
10. Grasses on the shores of lakes should be taller than normal as is the grass over the kimberlite dykes. This clue will only be useful up to elevations of about 1500 feet.

8.0 Ground Magnetic Survey

A picket grid was constructed on the known length of the "B", "A", "C" and "D" dykes. The profiles of the magnetic survey for the southern portion of the "B" dyke are plotted on (FIG 5, FIG6). The profile pattern is most helpful in locating the trace of the dyke. The dyke is seen to be faulted westward just after it enters the claims on the east boundary. It is also seen to angle off of the grid about 2400 feet further north. The contoured data is less revealing since the magnetic character of the rock layers trend in a different direction than the dykes. The automatic computer generated contours can be highjacked by similar valued nearby magnetic responses in the rock layers.

The use of the base line pickets as correction points for the diurnal magnetic variation was an error. The hypabissal kimberlite is strongly magnetic and station correction values are very erratic since the base lines are placed to follow the magnetic dykes. There were no magnetic sun storms during the survey so the data is plotted as raw uncorrected data. A very good picture of the magnetic characteristics of the rock in the dykes is given by the resulting magnetic profiling and contouring of the uncorrected Total Magnetic Field.

The profiling of the magnetic response (Fig 5) in conjunction with the geological map (Fig 7) showing the known kimberlite dykes is an excellent way to trace those dykes under sacrificial deposits from one grid line to the next since most dykes have a unique profile pattern.

9.0 Airborne Magnetic Maps

Of all the filtering done to the airborne magnetic data done in the year 2000 the most useful is the gradient. This portrays the rate of change of the magnetic intensity at a given location. The sensitivity of that work was not sufficient to detect dykes or pipes. There are no magnetic features on that airborne work that fits the expected magnetic pattern of a kimberlite pipe. The dyke once found may sometimes be seen reflected by a slight inflection in the magnetic contour line at that location. The airborne magnetic survey of the year 2000 was not sensitive enough to be used as a prospecting tool in the location of dykes or pipes.

10.0 DIFFICULTIES

It is difficult to locate kimberlite dykes on this property because of the extensive boulder-fields covering the high elevation plateaus and the extensive glacial deposits in the valleys can hide small features such as dykes. Additionally there is also mush less vegetation at the high elevations which removes the use of grass as a clue for locating kimberlite rocks.

It is difficult to get a continuous stretch of good weather in this high country. The fog at high elevations or rain restricts access and makes it impossible to work continuously on these properties at high elevations. The field crew returned to the high country when weather permitted.

There was not sufficient time to do more on the DDI-1 property in 2001 because of the lateness if the season. Snow first arrived on 28 August and remained at elevations above 2000 feet. Much of the scree is two metres or larger and snow covered openings between boulders makes work in the snow in these areas too dangerous. A project on the DDI-1 high country should go ahead in conjunction with work on the property at lower elevations. This will avoid excessive lost time. An alternative would be to place a crew in a camp on the property at the point where work needs to be done. This will eliminate lost time because the helicopter could not access the high country because of fog or poor visibility. The question needing consideration would be, is it wise to work the high country with no helicopter support in case of an accident?

11.0 RESULTS

The results of the stream sediment sample work - <u>are pending</u>. Robert Dillman will submit the mineral grain data under a separate report. The silt sample locations are plotted and printed on the Sample Location Map DDI-1 & 2 (Fig 2) and are listed with their UTM NAD 27 co-ordinates as a table in Appendix II.

The use of prospecting alone in the locating of kimberlite dykes and pipes has been well demonstrated by the number of dykes located by the DDI field crew in 2001. About ten other companies report on a total of 56 dykes in the Quebec assessment for the Abloviak Fiord region. The DDI field crew counted an additional 26 up to the discovery of the "Harry Johnny" - Champagne Complex. Dykes in unclaimed ground and seen from the air in other places pushes the number located by the DDI crew to more than fifty dykes one pipe and four blows.

The efforts of this crew deserve to be cited in this report. Thanks to R. Grenier, D. St-Pierre, M. Tennier, J. Annatok Sr., D. Ferdeber, H.Ferdeber, T. Taqulik, T. Assevak, D. Henrix, Y. Champagne, and G. Mazerolle.

There may not be any other area in the world where kimberlite dykes and pipes can be readily located by surface prospecting or identified from the air by helicopter. Glacial till cover is light. Bare cliff faces and continuous outcrop in places provides locations that dykes must cross in plane sight. Greener, taller grassy strips mark their location in low country. Dykes are the road to locating pipes find and follow them to lakes.

12.0 CONCLUSIONS

The geology of this property is not complex. Using the features associated with the known lake over the Champagne pipe emphasis should be on visiting all lakes and ponds on the claim group for similar features. A concealed kimberlite pipe could lie under any of the dozen or so lakes in the area.

It is fortunate that the Quebec department of mines has published their geology map of this area in October 2001. The information contained on it will be valuable in interpreting the distribution of indicator minerals in the drainage systems on the property and in aiding with putting the discoveries into a regional context.

The rock sampling in 2001 was too ambitious. The presence of diamonds in the "A" and "B" dykes is not wide spread. More attention to the presence of indicator minerals at a site should be used to help determine the site's sampling value. Initially samples of 20 kgs should be enough to indicate the presence of diamonds in the dyke or pipe. Heavy mineral concentrated from fixed intervals along a dyke would also be of value in assessing the potential of that dyke.

Soil samples should also be taken in areas where the ground magnetic survey indicates there may be a "blow". Till samples in the valley floor would indicate the near presence of buried kimberlite bodies.

Since one of the key signs of the presence of the kimberlite dykes is the grassy cleft in the rocks, exploration above an elevation of about 1500 feet needs to be done on the ground. Kimberlite rock could be found by taking systematic till samples or by using a ground magnetometer as described below in areas with no grass growth.

The magnetometer used in walking mode is a very good tool in following invisible kimberlitic dykes once they disappear under the extensive boulder fields at these higher elevations. It should be used to follow the extensions of the known kimberlite dyke. It can also be used to locate narrow steep gradient magnetic features that are magnetic dykes but may be diabase dykes. An experienced operator should be able to find the more resistant diabase as float on the surface and enter this fact in his field notes.

It is possible to rent a magnetometer that has a built in GPS. If this machine is used along with its base station magnetometer, collected data can be correction for its position and diurnal magnetic variation at the same time. The precision of data and location are top quality and are completed in minutes rather than days. Such a dedicated base station magnetometer also has a base station GPS capability. This corrects the GPS field points to accuracy in the meter range. This would eliminate the need to construct extensive grids in the field.

Grid construction in this region takes three times longer than below the tree line. The savings in detailed grid construction costs will easily justify the rental and use of such equipment. Grids can be reduced to witness markers done in paint or with ribbons. In areas of snow, pickets could still be used.

A computer with appropriate software and an operator familiar with the system will be needed to give daily feedback on likely targets for the crew to focus on the next day.

13.0 RECOMMENDATIONS

13.1 Till

Systematic till samples should be taken in the wide magnetic response areas along "A" dyke. The use of a magnetometer and a zodiac or other inflatable boat should be used to obtain magnetic profiles in a number of directions across the lakes having pipe like characteristics. Consideration should be given to using a bottom sounder to profile the depth to the bottom of these lakes. Sampling the lake bottom sediments would be a valuable addition to information on the distribution of diamond indicator mineral grains under a highly suspected lake.

Extensive use of a ground magnetometer with correcting base station should be used to survey all the drift covered areas accessible by foot in areas of unexposed bedrock in areas of interest.

13.2 Stream Sediment Sampling

Research by the author indicates that it is possible and preferable to take smaller silt samples in the field. Efficiencies would be increased by first screening the material to the required mesh sizes in the field and returning to camp with 1 to 2 litres of stream sediment to be jigged. The field crew could jig the coarse fraction on the 1mm screen in the field. They would fill and label this coarse vile and return them to camp. This would speed up movement from one sample site to another. It would not be necessary to carry 20 to 30 Kg samples to the next location or have an expensive helicopter land at three or more sites to recover the buckets.

It may be warranted to collect additional silt samples to narrow the target areas in places where kimberlite indicator minerals were found in 2001 and indicated in Mr R. Dillman's report.

13.3 Ground Magnetometer

There are large areas in the high country that should be delineated by a ground magnetometer survey. The area north of and including "B" and "G" dykes would be an ideal test area. Since the magnetic bodies sought are steep the gradient component of the magnetic field will best reveal vertical kimberlite dykes and pipes.

The Gem 19 GPS recording magnetometer used in walking mode at 2-second intervals is suggested for this work. Line spacing should be no more than about 120 metres. Since the rock units strike across the dyke direction wider spacing will allow the automatic contouring algorithms in contouring programs to confuse some high magnetic rock strata signals with the kimberlite signal with the same value. Some cross strata magnetic lines will be needed to define belts of strata with high magnetic response. In such areas the dyke would be traced as depression with a steep magnetic gradient.

APPENDIX I

14.0 MAN DAYS OF WORK **DDI - 1**

12 samples collected	8 man-days
12 samples panned & jigged	10 man days
Concentrates Examined R. Dillman	
In process...	
Microprobe work...	
Grid construction	62 man-days
General prospecting	12 man-days
Magnetometer Survey	12 man-days
Geology	16 man-days
Share of mobilization and demobilization...	15 man-days
reports	2 man days
TOTAL **more than**	**137 man days**

DDI-2

2 samples collected	1 man-days
2 samples panned & jigged	1 man days
Concentrates Examined R. Dillman	
In process...	
Microprobe work...	
Share of mobilization and demobilization...	1 man-days
Report	0 man-days
TOTAL **more than**	**3 man days**

APPENDIX II

14.1 SAMPLE LOCATIONS
Stream Sediment Heavy Mineral Concentrates

Sample ID	No of fine vials	No. of coarse vials	UTM Coordinates
DDI1- 01	1	1	391723E 6579625N
DDI1- 02	1	1	394924E 6583446N
DDI1- 03	1	1	393831E 6584239N
DDI1- 04	1	1	394318E 6585546N
DDI1- 05	1	1	396100E 6585866N
DDI1- 06	1	1	395531E 6588486N
DDI1- 07	1	1	395145E 6589231N
DDI1- 08	1	1	395087E 6589373N
DDI1- 09	1	1	395090E 6589765N
DDI1- 10	1	1	395088E 6590387N
DDI1- 11	1	1	395433E 6589437N
DDI1- 12	no sample		
DDI1- 13	1	1	394254E 6587270N

Stream Sediment Heavy Mineral Concentrates **DDI**-2

DDI2- 1	1	1	397722E 6591428N
DDI2- 2	1	1	399392E 6594622N

DYKE SOILS All DDI-1

ARX6	1	1	390360E 6581750N
F-cross	1	1	390678E 6585032N
F (H2RX10)	1	1	390470E 6584020N
5265 A	1	1	390187E 6581694N
5262 (H2RX3)	1	1	389912E 6580857N
ERX1 (H2RX16)	1	1	391686E 6580466N
ARX4	1	1	390037E 6581033N

15.0 DISCLAIMER

I, Gerard J Mazerolle of 88 Brookland Street, Antigonish, Nova Scotia; have been a professional Geologist for more than 32 years. I declare that I have never, nor do I hold any interest, monetary or otherwise, in any of the Diamond Discoveries International properties or in the company itself.

I declare that I performed and supervised the performance of all the fieldwork declared in this report for Peter Ferdeber (Prospecting Geophysics Ltd.) on behalf of Diamond Discoveries International.

Gerard J Mazerolle

15.0 QUALIFICATIONS

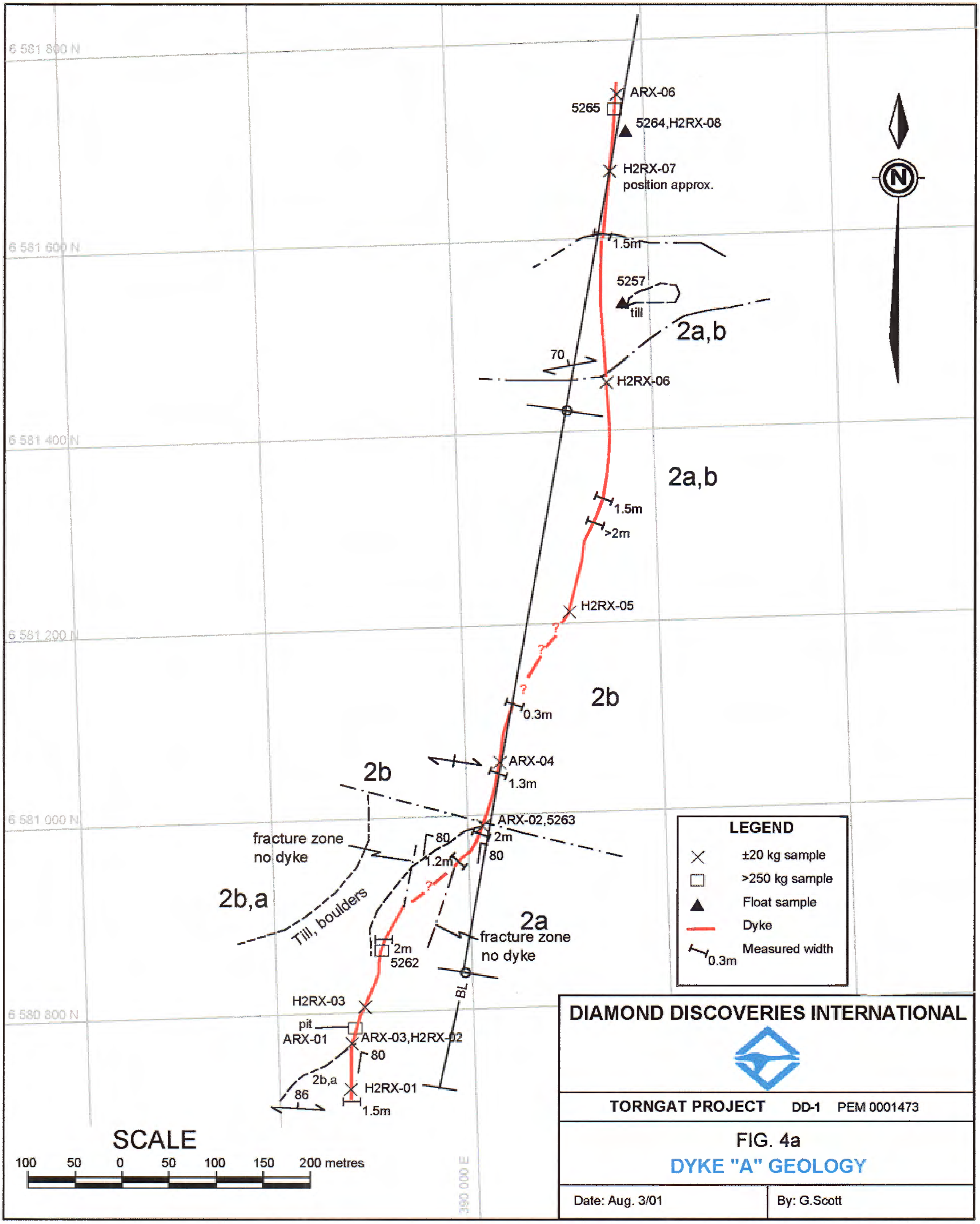
I, Gerard J. Mazerolle, declare I am a graduate geologist. I received my B.Sc. degree in Geology from St. Francis Xavier University in 1969.

I have practiced my profession in Canada and the United States over the last 32 years. I am a member of the Prospectors and Developers Association of Canada.

I have performed or supervised all the work declared in this report.

YOURS TRULY

Gerard J. Mazerolle BSc.


6 581 800 N
6 581 600 N
6 581 400 N
6 581 200 N
6 581 000 N
6 580 800 N
390 000 E
ARX-06
5265
5264,H2RX-08
H2RX-07
position approx.
1.5m
5257
till
2a,b
70
H2RX-06
2a,b
1.5m
>2m
H2RX-05
2b
0.3m
ARX-04
1.3m
2b
ARX-02,5263
2m
80
80
1.2m
fracture zone
no dyke
2b,a
Till, boulders
2a
fracture zone
no dyke
2m
5262
BL
H2RX-03
pit
ARX-01
ARX-03,H2RX-02
80
2b,a
86
H2RX-01
1.5m
SCALE
100 50 0 50 100 150 200 metres
LEGEND
±20 kg sample
>250 kg sample
Float sample
Dyke
Measured width
0.3m
DIAMOND DISCOVERIES INTERNATIONAL
TORNGAT PROJECT
DD-1
PEM 0001473
FIG. 4a
DYKE "A" GEOLOGY
Date: Aug. 3/01
By: G.Scott

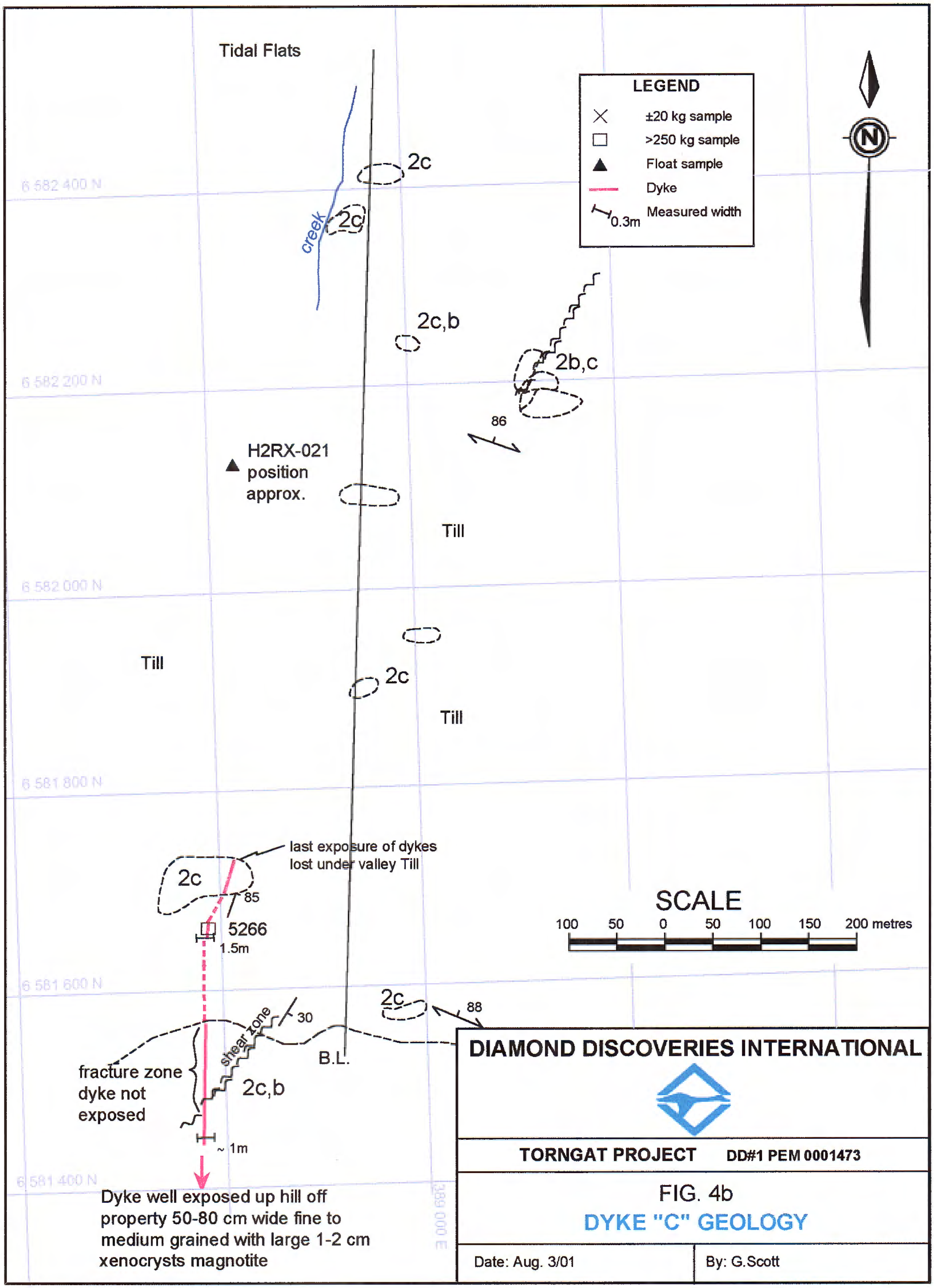
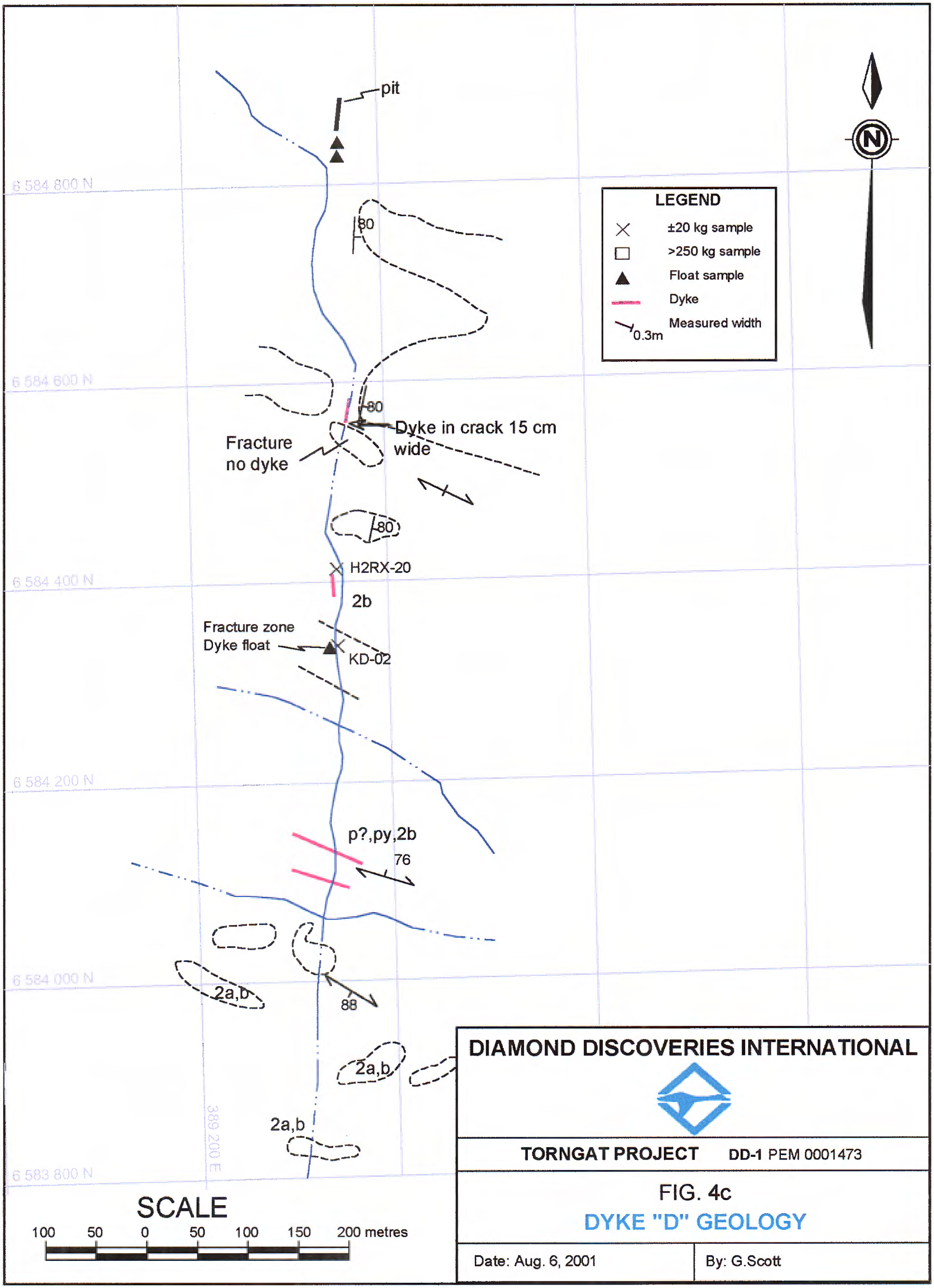


FIG. 4b
DYKE "C" GEOLOGY



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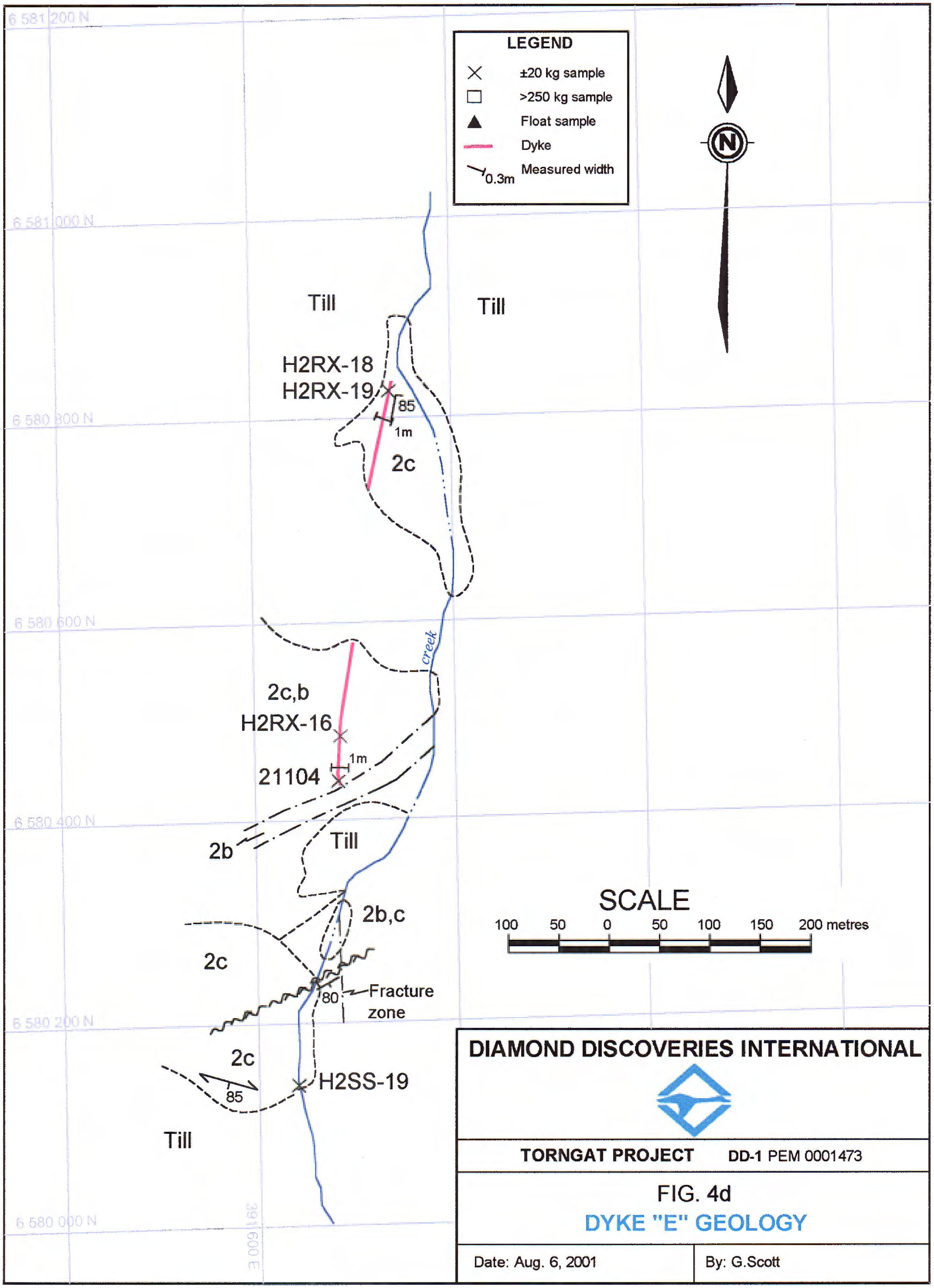
TORNGAT PROJECT **DD-1** PEM 0001473

FIG. 4c
DYKE "D" GEOLOGY

Date: Aug. 6, 2001	By: G.Scott



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TORNGAT PROJECT **DD-1** PEM 0001473

FIG. 4d

DYKE "E" GEOLOGY

Date: Aug. 6, 2001

By: G.Scott

DIAMOND DISCOVERIES INTERNATIONAL

FIG. 5
MAGNETOMETER PROFILES
"B" DYKE

NTS : 24P/7	DDI-1
Date: July 20,2002	

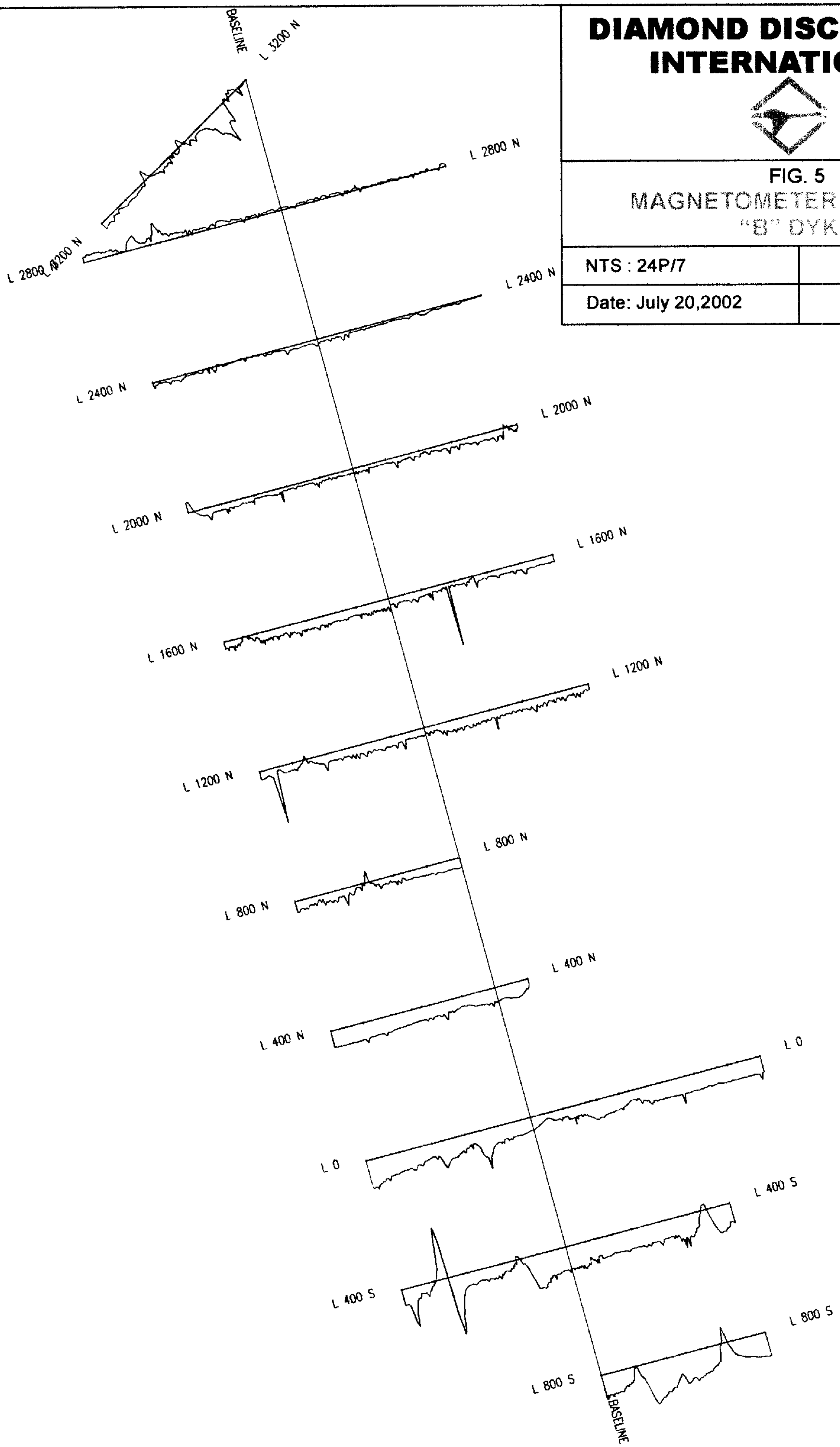

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FIG. 6

MAGNETOMETER CONTOURS "B" DYKE

NTS : 24P/7	DDI-1
Date: July 20,2002