

GM 59174

ASSESSMENT REPORT FOR PERMIT 1467, ABLOVIAK FJORD

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ASSESSMENT REPORT
FOR PERMIT 1467
ABLOVIK FJORD, QUEBEC

Company Name: International Tower Hill Mines Ltd.
Permit: 1467
Nature of Report: Prospecting and Sampling
Work Conducted During: June to November 2000
Location of Permits: Abloviak Fjord, Northeastern Quebec
NTS 24P11/12

MRN-GÉOINFORMATION 2002

GM 59174

APEX Geoscience Ltd.

November, 2001

D.J. BESSERER

ASSESSMENT REPORT
FOR PERMIT 1467
ABLOVIAK FJORD, QUEBEC

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EXECUTIVE SUMMARY

Recently, diamond-bearing ultramafic dykes have been discovered within the Abloviak Fjord region prompting much exploration in northeastern Quebec. APEX Geoscience Ltd. conducted exploration within permit 1467 which is held by International Tower Hill Mines Ltd. As a result, one ultramafic dyke was discovered within the permit area (K2). The dyke was sampled for caustic fusion for diamonds, diamond indicator minerals and thin section studies. The sample was submitted to the Saskatchewan Research Council in Saskatoon, Saskatchewan for analyses. Analysis for diamonds by caustic fusion of about 51.4 kg of sample, from the K2 dyke, yielded no microdiamonds.

Further exploration is recommended at this time, to target sampling of known dykes and to continue exploration for new dykes. The proposed exploration program should consist of three stages premised on the success of the 2000 exploration season and discovery of diamonds in samples already collected. **Stage 1:** a) follow-up exploration program consisting of about 21 days utilizing 4 geologists in the 2001 season. The exploration program should include collecting systematic samples of ultramafic dyke rock discovered in the 2000 season, ground geophysical surveying and mapping the extensions of the known dyke; and c) continue exploration for new dykes within the permit. **Stage 2:** analyse samples from the 2002 exploration season for caustic fusion for diamonds, diamond indicator mineral analyses and thin section study. **Stage 3:** report writing and compilation of data from both the 2000 and 2002 exploration programs. The preliminary budget for the exploration program is approximately \$187, 500, not including GST or QST.

INTRODUCTION

Terms of Reference

APEX Geoscience Ltd. (APEX), was retained during the summer and fall of 2000 as consultants for International Tower Hill to conduct and manage their exploration program at the Abloviak Fjord region permits. The permit area is located in the Torngat Mountains of northeastern Quebec and comprises permit 1467. The author has personally visited the permits and conducted exploration thereon (Figure 1).

Permit Location and Description

The International Tower Hill (ITH) permit 1467 encompasses 58 km². The permit is located in the Torngat Mountains of northeastern Quebec (Figure 1) and a legal description of the permit held by ITH is provided in Table 1. The permit is within the 1:250,000 scale National Topographic System (NTS) map area 24P. The nearest communities are Kuujuaq and George River, which are approximately 250 km and 125 km, respectively, south west of the Abloviak Fjord region. The location of the permits are shown on Figures 1 and 2.

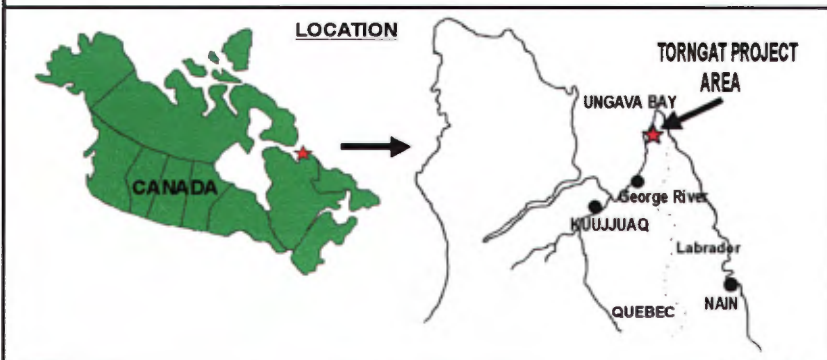
Topographic relief within the Torngat Mountains range from sea level to approximately 3200 feet. Extensive outcrop, felsenmeer and fracture patterns are all characteristic of the terrain within the permit held by ITH.



Legend



Permits Held by International Tower Hill; Identifier



International Tower Hill Mines Ltd.

LOCATION

Scale 0 10 20 Km

NTS 24P

APEX Geoscience Ltd.

EDMONTON, ALBERTA NOVEMBER, 2001

FIGURE 1

Microfilm

PAGE DE DIMENSION HORS STANDARD

**MICROFILMÉE SUR 35 MM ET
POSITIONNÉE À LA SUITE DES
PRÉSENTES PAGES STANDARDS**

Numérique

PAGE DE DIMENSION HORS STANDARD

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TABLE 1
Legal Permit Description, Abloviak Fjord Permits*

Permit Number	Issue Date	Permit Holder	Map Area	Area in km ²
1467	October 18 th , 1999	International Tower Hill	24P/11/12	58.0

*Provided by International Tower Hill

Accessibility and Climate

The Abloviak Fjord region is accessible from both George River and Kuujjuaq by float and wheel equipped fixed-wing aircraft. A natural grass airstrip exists at the Torngat Mountain Outfitter's camp. The area is also accessible by helicopter and by barge from George River. Accessibility by float equipped fixed-wing aircraft and boat are dependent on tide levels within Abloviak Fjord and River. All accommodation and food at the Abloviak Fjord camp was provided by Torngat Mountain Outfitter's Ltd. (Besserer and Noyes, 2000).

The Abloviak Fjord region is north of the projected tree line and is susceptible to rapidly changing weather. Poor weather typically arrives from the coast of Ungava Bay and there is a constant threat of fog. Summer months range from mid-June to September with temperatures sometimes exceeding 20°C. Snow accumulation begins about the end of September and lasts till about May with temperatures during the winter months of about -40°C (Besserer and Noyes, 2000).

GEOLOGY

Regional Geology

The Abloviak Fjord region is located within the southeastern arm of the Rae Structural Province situated between the Superior and Nain Structural Provinces. The eastern side of the Rae Province is bounded by the Torngat Orogen that formed as a result of the subduction of the Rae Province beneath the Nain Province between 1840 and 1825 Ma (Scott, 1998; Digonnet *et al.*, 2000). The Tasiuyak Gneiss, which lies between the Nain and Rae Provinces, formed as an accretionary prism during the Torngat Orogen (Figure 3). It is predominantly a homogenous, Paleoproterozoic, metasedimentary unit which extends >1300 km (Scott, 1998) along strike and is exposed for 450 km (Digonnet *et al.*, 2000). The Tasiuyak Gneiss is amphibolite to granulite facies in composition comprised of garnet-quartz-feldspar-biotite ± sillimanite paragneiss (Van Kranendonk, 1996). Two Paleoproterozoic structures are present within the high-grade Torngat Orogen. The first being the Abloviak shear zone, centered on the Tasiuyak Gneiss, is a 10-15 km wide belt with subvertical mylonitic schistosity (Van Kranendonk, 1996) (Figure 3). The second structure is the Komaktorvik shear zone exhibiting intense deformation and has a north-south strike joining the Abloviak shear zone where it veers south (Scott and Machado, 1995). Figure 3 is the generalized regional geology specific to the project area (Besserer and Noyes, 2000).

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Abloviak Fjord Geology

The Abloviak Fjord region is host to a swarm of ultramafic dykes and their recent discovery is the cause of much exploration in this area. The dykes are hosted in the amphibolite to granulite facies gneisses and were emplaced within brittle fractures which typically crosscut the direction of gneissosity (Digonet *et al.*, 2000). The dykes generally range in strike from 0° to 60° and are typically discontinuous often containing 'pinch and swell' and horsetail structures. The range in thickness of the ultramafic dykes is from 5 cm up to 2m and can extend from a few meters to several kilometers. Digonet *et al.* (2000) obtained an ⁴⁰Ar/³⁹Ar phlogopite age of approximately 550 Ma which is significantly younger than the tectonic events surrounding the Torngat Orogen and coincides with the opening of the Iapetus Ocean during the Cambrian. Dr. Larry Heaman from the University of Alberta, Edmonton obtained samples from ITH's K2 dyke and is working on confirming an age date for the emplacement of the dyke (Besserer and Noyes, 2000).

Mineralogy of the ultramafic dykes as described by Digonet *et al.* (2000) is as follows: anhedral macrocrysts of olivine, garnet, phlogopite, chromite, magnetite and rare ilmenite set in fine grained matrix of olivine, phlogopite, serpentine and calcite. Olivine and phlogopite are occasionally fresh however most often they are heavily altered by serpentine and chlorite, respectively (Besserer and Noyes, 2000).

SUMMARY OF PREVIOUS EXPLORATION

Numerous ultramafic dykes have been discovered in northeastern North America and Greenland which are documented in literature as early as 1968 (Digonet *et al.*, 2000). Exploration for ultramafic dykes in northeastern Quebec was initiated by the discovery of several diamond-bearing dykes in 1994. As partial fulfillment of a Masters degree at the Université du Québec à Montréal in 1997, Digonet *et al.* (2000) characterized the mineralogy, geochemistry and geochronology of these dykes (Besserer and Noyes, 2000).

Twin Mining Corporation began exploration in the Ungava Bay area during the summer of 1999 where they found G10 indicator minerals and gem quality diamonds in outcrop. As of February 2000 (Twin Mining press release) 475 gem quality diamonds were extracted from kimberlite dykes of which 80 were macrodiamonds some exceeding 3 mm in one dimension. To date they currently hold a total claim area of 507 km² (Twin Mining press release October 2000) (Besserer and Noyes, 2000).

Tandem Resources Ltd. have announced in their October 2000 press release that macrodiamonds were discovered in ultramafic dykes within their permits held along the Abloviak Fjord. A total of 10 diamonds were recovered from a dyke that could be traced for over 3.5 miles; six of the diamonds are microdiamonds and the remaining four are macrodiamonds. (Besserer and Noyes, 2000).

During August and September 2000, APEX conducted exploration throughout the area on behalf of numerous companies including Dumont Nickel Inc., Marum Resources Ltd., 737142 Alberta Ltd., CaribGold Resources Inc., and International Tower Hill Mines Ltd. A total of 14.6 man-days of exploration were conducted within the permits held by International Tower Hill. One ultramafic dyke, K2, was discovered within permit 1467. The K2 dyke extends from within Twin Mining's permit 1464, which is immediately south of ITH permit 1467. Diamond indicator

mineral results from ultramafic dyke K2 are summarized in Table 3. Microprobe results are reported by Besserer and Noyes, 2000.

Table 3
Results for Diamond Indicator Minerals from The K2 Dyke

Sample Name	Pyrope Garnet		Cr-Diopside		Eclogite	Olivine	Picroilmenite		Chromite	
	DEF	POS	DEF	POS	POS	POS	DEF	POS	DEF	POS
K2	6	0	50	0	0	50	0	11	0	0

DEF=definite; POS=possible

CAUSTIC FUSION RESULTS

A security sealed sample sent to the Saskatchewan Research Council in Saskatoon, SK was analyzed by caustic fusion of 51.4 kg of sample and yielded no microdiamonds. A 106 micron screen size was used as the lower screen size when pouring the sample. The SRC analytical report is in Appendix 1.

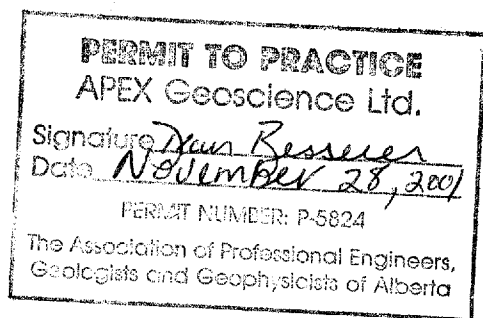
EXPLORATION EXPENDITURES

The total expenditures to be applied for this period to the permit from fall 2000 fieldwork and post fieldwork are \$12,171.53, excluding airborne geophysics. A summary of these expenditures and permit costs are in Appendix 2.

CONCLUSIONS AND RECOMMENDATIONS

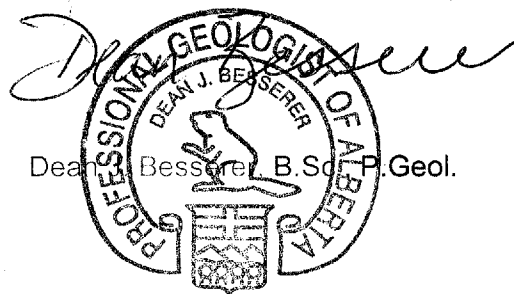
The results to date are favorable. The ultramafic dyke discussed in this study is mineralogically and chemically similar to dykes found by Twin Mining Corp. and as discussed by Digonnet *et al.* (2000). As well, diamond-bearing dykes are known to exist within the Abloviak Fjord region in close proximity to permits discussed in this report (Besserer and Noyes, 2000).

Further exploration is recommended at this time, to target sampling of known dykes and to continue exploration for new dykes. The proposed exploration program should consist of three stages premised on the success of the 2000 exploration season and discovery of diamonds in samples already collected. **Stage 1:** a) follow-up exploration program consisting of about 21 days utilizing 4 geologists in the 2001 season. The exploration program should include collecting systematic samples of ultramafic dyke rock discovered in the 2000 season, ground geophysical surveying and mapping the extensions of the known dyke; and c) continue exploration for new dykes within the permit. **Stage 2:** analyse samples from the 2002 exploration season for caustic fusion for diamonds, diamond indicator mineral analyses and thin section study. **Stage 3:** report writing and compilation of data from both the 2000 and 2002 exploration programs. The preliminary budget for the exploration program is approximately **\$187, 500**, not including GST or QST. A detailed breakdown of the proposed exploration budget is in Appendix 3.



November 2001
Edmonton, Alberta

APEX Geoscience Ltd.



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CERTIFICATION

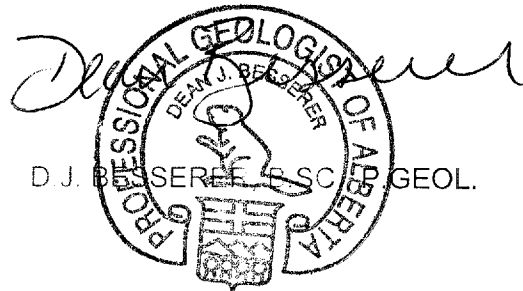
I, D.J. BESSERER OF 131 FOXBORO LANDING, EDMONTON, ALBERTA, CERTIFY AND DECLARE THAT I AM A GRADUATE OF THE UNIVERSITY OF WESTERN ONTARIO, LONDON WITH A B.SC. DEGREE IN GEOLOGY (1994). I AM REGISTERED AS A PROFESSIONAL GEOLOGIST WITH THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA.

MY EXPERIENCE INCLUDES SERVICE AS A CONTRACT GEOLOGICAL ASSISTANT WITH THE MINISTRY OF NORTHERN DEVELOPMENT AND MINES, ONTARIO, FROM 1991 TO 1992 AND THE GEOLOGICAL SURVEY OF CANADA, OTTAWA IN 1993. FROM 1994 TO 1999, I HAVE CONDUCTED AND DIRECTED PERMIT EXAMINATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A GEOLOGIST IN THE EMPLOY OF APEX GEOSCIENCE LTD. SINCE JANUARY 2000, I HAVE BEEN A PRINCIPAL OF APEX GEOSCIENCE LTD.

I HAVE NO INTEREST, DIRECT OR INDIRECT, IN THE PERMITS THAT ARE THE SUBJECT OF THIS REPORT OR SECURITIES OF INTERNATIONAL TOWER HILL NOR DO I EXPECT TO RECEIVE SUCH INTEREST. AS WELL, APEX GEOSCIENCE LTD. HAS NO INTEREST, DIRECT OR INDIRECT, IN THE PERMITS, OR SECURITIES OF INTERNATIONAL TOWER HILL, NOR DOES IT EXPECT TO RECEIVE SUCH INTEREST.

MY REPORT ENTITLED " ASSESSMENT REPORT FOR PERMIT 1467, ABLOVIAK FJORD, QUEBEC " IS BASED UPON THE STUDY OF PUBLISHED AND UNPUBLISHED DATA AND FIELD EXAMINATIONS CONDUCTED THEREON. I HAVE PERSONALLY VISITED THE PERMITS THAT ARE THE SUBJECT OF THIS REPORT.

I HEREBY GRANT INTERNATIONAL TOWER HILL OF VANCOUVER, BRITISH COLUMBIA, CANADA PERMISSION TO USE THIS REPORT.



NOVEMBER 2001
EDMONTON, ALBERTA

APPENDIX 1
CAUSTIC FUSION RESULTS



Saskatchewan Research Council
15 Innovation Blvd.
Saskatoon, SK Canada S7N 2Y8
Ph: 306-933-5400 Fax: 306-929-7441
Internet: <http://www.src.sk.ca>

Date September 29, 2000

TO: **Dean Besserer**
Apex

FROM: **AL HOLSTEN**
MANAGER, GEOANALYTICAL LABORATORIES
SASK. REASEARCH COUNCIL
PH: (306)933-5426
FAX: (306)933-5656

RE: **RESULTS FOR SAMPLE ITH 1 K2**

KG OF SAMPLE FUSED: 51.4kg. of sample fused

SIEVE SIZE: 106um

METHOD: Caustic fusion

RESULTS: 0 Microdiamond

Samples Collected at Permit 1467 - International Tower Hill Mines Ltd.

TORNGAT PROJECT

Sample Identifier*	Location		Dyke Name	Description
	Easting	Northing		
ITH-01	382970	6607899	K2	Carbonate veins and matrix. Clast supported bands. Clasts up to 10cm. 2 cm wide dyke cross-cuts main dyke. Strongly magnetic. Phlogopite rich with fresh and altered olivines. Main dyke 3-4m wide. Serpentinized along fractures.

*Note: at each sample site a sample was also collected for DIM's and one for thin section work.