REPORT ON THE
WALKINSHAW CREEK AMETHYST PROPERTY
THUNDER BAY ONTARIO
NTS 52 A/10
OPAP 1993

THUNDER BAY, ONTARIO
JANUARY 17, 1994

TIMOTHY J. TWOMEY
B.Sc.(Hons) GEOLOGY
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SUMMARY

The property is located within a new area of amethyst discoveries that has been recently opened up by logging roads. This new area is hereby called the "Penassen Window" of amethyst deposits which may be enlarged with continued exploration. The property contains an amethyst showing which has been stripped and trenched for a short length. That work has exposed an amethyst vein system in a 3 metre wide fracture/breccia zone striking at 120°, within the Penassen Lake Granite stock. This zone can be traced for 1 km westward where it is associated with other amethyst showings. Further west, on open ground, the zone may intersect the north extension of the Walkinshaw Creek Fault. This intersection may have created large dilational zones which are excellent sites for amethyst formation. That area should be staked and prospected. The amethyst showing on the property should be stripped further westward to continue evaluating this fracture zone. About 15 tons of amethyst-bearing rock has been mined at the showing. This work has shown that the Walkinshaw Creek property contains good quality amethyst which could be faceted into gemstones. This amethyst could also produce raw specimens, tumbling stone, slabbing stone and possibly building stone. According to Richard Pohler, Thunder Bay Economic Development Corp., the local amethyst industry contributes $1.5 million to $2.0 million annually to the region's economy and provides about 30 jobs. This new area of amethyst exploration promises to increase the industry's contribution.
INTRODUCTION

This report is a consolidation of data gathered by Basil A. Smith, Dave Gliddon and the author funded by an OPAP grant to Mr. Smith in 1993. Recommendations by the author are based on personal experience since 1984 in exploring and mining Thunder Bay type amethyst deposits.

The property is part of a new area being opened up for good quality amethyst. According to Richard Pohler, Thunder Bay Economic Development Corp., the local amethyst industry contributes $1.5 million to $2 million annually to the region's economy and provides about 30 jobs. This new area of amethyst exploration promises to increase the industry's contribution.

PROPERTY DESCRIPTION

The property consists of one unpatented mining claim, TB.1194817, of approximately 16 hectares in the Thunder Bay Mining Division. It was recorded on July 24, 1992 and requires $400 assessment work by July 24, 1994 to remain in good standing.

LOCATION AND ACCESS

The property is located at latitude 48°37'40", longitude 89°01'15" within the Onion Lake claim map G-747 (see Figure 2). It is approximately 25 km northeast of the City of Thunder Bay, Ontario. Access is provided by a logging road to the property via Highway 11-17, then north on Highway 527 for 10 km, then east on the Magone Lake (Camp 46) gravel road for 4 km, then northerly at the set of log rollers for 3.5 km on a winding logging access road to the amethyst showing.

HISTORY

The first recorded amethyst mines in the Thunder Bay area began operating in 1862, with the amethyst being sold in Toronto and Montreal. Interest in amethyst died out at the turn of the century when good quality, inexpensive amethyst was discovered in Brazil.

The amethyst industry in the area today was started with the Thunder Bay Amethyst Mine, whose charter was issued in 1965. Other amethyst mines began opening up in the north half of McTavish Township in the 1970's. The industry is largely supplied by 5 producers in that area. However, since the late 1980's with a new logging road system accessing the area west of McTavish Township, an new area is now being developed by new miners. No assessment work has ever been filed in the area prior to the construction of the Magone Lake Road in the last 5 years which is the first time that good access exists in that area.

The property was prospected by Mr. Smith in 1992, who found a fracture zone containing amethyst stringers adjacent to the road. Trenching, prospecting and geological mapping have taken place during the 1993 field season.
ONION LAKE

ONION LAKE

THUNDER BAY

MINING DIVISION

THUNDER BAY

MINING DIVISION

ONION LAKE

MINISTRY OF NATURAL MANAGEMENT

IN SERVICE JUNE 1992

JULY 1992

FIGURE 2
REGIONAL GEOLOGY

The area south of the property was mapped by J.F. Scott and J.M. Seguin, Ontario Geological Society, in 1984-85. Their map was published as "Precambrian Geology, MacGregor Township (East and West Half); 1990, O.G.S., Preliminary Map P.2984-85 (revised), scale 1:15,840. Their mapping shows the area south of the property to be dominantly underlain by a quartz monzonite (Penassen Lakes Granite) with minor mafic metavolcanic rocks. Their mapping also shows amethyst veinlets associated with north-south and east-west lineaments which may be due to faults.

Map 2065, Atikokan-Lakehead Sheet of O.G.S. Geological Compilation Series, scale 1 inch to 4 miles, shows the Magone Lake and north area to be underlain by Archean-aged metasediments and gneisses and south of this area is underlain by the Penassen Lakes granite, also Archean-aged. The contact of these two rock types is located near the north boundary of MacGregor Township and roughly parallel to it (east-west).

A few kilometres east of the property and also south of it are located a number of properties whose owners are stripping and trenching on amethyst veins. These veins are located within east-west or north-south fracture zones in granite.

PROPERTY GEOLOGY

The property is underlain by granite of the north part Penassen Lakes stock. This granite is composed of medium-grained feldspar, quartz and minor biotite. It is pink to white in colour. The granite is well jointed with dominant joint sets at 005°, 065° and 140°. The stock is dissected by a number of north-striking, steep walled valleys.

Numerous xenoliths of metasedimentary rocks are found in the granite within the property. These xenoliths range in size from several centimetres to a couple hundred metres in diameter. They are composed of variable amounts of fine to medium-grained feldspar, quartz and biotite. They are grey to brownish grey in colour, are often laminated and generally dip steeply south. The metasediments are derived from arenites, wackes and mudstones. The Penassen Lakes granite intruded a package of Quetico-type metasediments to the north of the property and the xenoliths are evidence of this. The strike of the metasedimentary rocks is parallel to the dominant foliation direction within the property at about 105°. The amethyst veining has also been emplaced within that foliation direction.

ECONOMIC GEOLOGY

Amethyst veins in the Thunder Bay area are associated with granite nearby to the Archean/Proterozoic unconformity. The purple colour that is developed in quartz is regarded to be caused by trace amounts of iron within the crystal structure which is activated by radiation. The source of iron is from the Proterozoic-aged sedimentary rocks which lie near flat on top of the older Archean-aged granite basement rocks. The source of the radiation is from the granites
and radioactive minerals are typically concentrated at that unconformity or ancient weathered surface between the granites and overlying sedimentary rocks. Therefore, the best colour is developed in veins in regions where these conditions occur.

In the north part of McTavish Township there is an elongate east-west "window" where these conditions are found on surface (see Figure 3). The amethyst veins are found in faults and fracture zones that are generally parallel to the regional foliation at 070°. The veins are hosted by granite or Sibley sandstone or at the contact of both. Vein openings or vugs occupy 5% to 40% of the zones and are formed in 2 ways: as voids between the breccia fragments, which is the most common; and as dilational veins where amethyst forms as a simple coating on each wall. Often 3 or 4 different episodes of vein formation are recognised in one amethyst deposit.

Another "window" of amethyst deposits is now known to the west-southwest of the "McTavish Window". The "Penassen Window" occurs north of MacGregor Township and may be enlarged with continued exploration. These amethyst deposits are found in granite and are further away from the Archean/Proterozoic unconformity. Therefore, they are deeper "roots" of the same system that formed the McTavish Window amethyst deposits to the east. The Penassen Window amethyst deposits are generally tighter and more focused vein systems where vug formation is dominantly due to dilational opening. Crystal quality and colour are typically very good.

The amethyst showing on the property was stripped by bulldozer for 32 metres and is open at both ends. The showing consists of a 3 metre wide fractured and brecciated zone within medium-grained pink granite. Numerous angular fragments of granite and biotite schist up to 10 cm in diameter are found in this zone. It strikes at 120° and dips steeply north to vertical. The veins within the zone contain amethyst, quartz, calcite and minor barite. The fracture zone is parallel to and just north of a large xenolith of metasedimentary rocks. This zone can be traced for 1 km to the west where it is associated with other amethyst showings.

The amethyst showing on the property was opened up by trenching in the summer of 1993. The trench measures 15.2 m long by 2.7 m wide and up to 3.0 m deep. The largest vein within the trench is approximately 20 cm wide with numerous smaller veins adjacent to it. Vugs up to 20 cm by 10 cm occur in the brecciated zone. There are 2 fracture directions of 005° and 130° within the zone and amethyst veins are seen to crosscut earlier dark purple quartz stringers. This clearly indicates at least 2 episodes of amethyst deposition. About 15 tons of amethyst-bearing rock has been stockpiled beside the trench and is estimated to contain 60% vein and 40% granite.

The amethyst from this trench varies in colour from pink to purple, dark purple and black. The size of the crystals vary up to 78mm x 57m x 47mm. An appraisal of a large crystal by Opaski Gem Appraisers indicates that it has a value of $0.54/gm or $15.00/ounce in raw form. The top part of the crystal terminations have good potential for cutting gemstones from this amethyst.
PROSPECTING

80% of mining claim 1194817 was clearcut 2 to 3 years ago. Prospecting of the property in 1993 revealed several amethyst-bearing boulders, especially west of the showing. The boulders are angular to sub-rounded and most likely originated from the west extension of the same fracture zone that hosts the showing. Other amethyst-bearing boulders were found in the northeast quarter of the claim but no other amethyst veins were seen on the property.

A large area of ground open for staking to the south and east of the property was also prospected in 1993. That area has largely been clearcut 3 years ago and minor underbrush up to 1 m high has grown back. The remaining area is covered with a thick growth of black spruce, jack pine and poplar. The terrain is partly very rugged with an elevation range of 65 m. Tributaries of Walkinshaw Creek which mostly occupy low, swampy ground, bisect the area. Other intermittent creeks occupy numerous boulder strewn gullies and may be localized by zones of fracturing in the bedrock. The area prospected is bounded by Walkinshaw Creek to the west which is interpreted by Scott (1990) to be occupying a fault zone striking at 010°. No evidence of this was seen. Most of the clearcut area is underlain by boulder till with a few outcrops of granite observed. No other mineralization was observed by prospecting.

CONCLUSIONS AND RECOMMENDATIONS

The showing located on the property hosts good quality amethyst within a fracture zone that is known to extend for 1 km to the west. This zone disappears underneath Walkinshaw Creek on both sides of the property and probably extends further east and west. The west extension on open ground is located in an area that has been interpreted to be the extension of the Walkinshaw Creek Fault. This area should be staked and prospected as the intersection of these two structures may have created large dilational zones which are excellent sites for amethyst formation. For example, the Thunder Bay Panorama Mine hosts the largest known amethyst deposit in the region because it is located at the intersection of a fracture/breccia zone striking at 100° with 4 faults striking at 010°. It is also recommended that the amethyst showing on the property be stripped further westward to evaluate the zone for width and continuity of the amethyst veining.

The Walkinshaw Creek Amethyst Property contains good quality amethyst which could be faceted into gemstones. It also contains amethyst that could be manufactured into various products and could be sorted as raw specimens, tumbling stone, slabbing stone and possibly building stone. It is recommended that these markets be investigated while stripping and trenching be continued.
CERTIFICATE OF QUALIFICATIONS

I, Timothy J. Twomey, of 208 Huron Crescent, Thunder Bay Ontario, P7A 3K4, do hereby certify as follows concerning my Report on the Walkinshaw Creek Amethyst Property, dated January 17, 1994:

1. I am a 1983 graduate of Lakehead University, Thunder Bay, Ontario, holding a Bachelor of Science (Honours) degree in Geology.

2. I am the Secretary of the Amethyst Miners Association of Ontario.

3. I am an independent consulting geologist and am the owner/operator of Breezy Mountain Amethyst Mines Ltd.

4. I do not have, nor do I expect to receive either directly or indirectly any interest in this property.

Thunder Bay, Ontario
January 17, 1994

Timothy J. Twomey
B.Sc. (Hons) Geology
BIBLIOGRAPHY

Assessment Files, Resident Geologist's Office, Ministry of Northern Development and Mines, Thunder Bay, Ontario

Garland, M.I.

Patterson, G.C.

Scott, J.

MAPS

Claim map G-747, Onion Lake Map Sheet, Mining Recorders Office, Thunder Bay.

Map 2065 Atikokan-Lakehead Sheet, Geological Compilation Series by E.G. Pye, scale 1 inch to 4 miles (1962-1963)

Report of Work Conducted
After Recording Claim

Ministry of Northern Development and Mines
Ontario

Instructions:
- Please type or print and submit this form in duplicate.
- Refer to the Mining Act and Regulations for details.
- A separate copy of this form must accompany any copies of reports or plans.
- Technical reports and maps must accompany this form.
- A sketch, showing the claims the work is to be done on, should be included.

Transaction Number: W914-005

Transaction Number: 2.155 35

Recorded Holder(s):
SAUL A. SMITH

Address:
181 Phillips Sr, Thunder Bay, ON P7B 5G9

Mining Division:
THUNDER BAY

Township/Area:
ONION LAKE AREA

Date Work Performed:
From: AUGUST 1993
To: JAN. 17/94

Work Performed (Check One Work Group Only):

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<td>Geotechnical Survey</td>
<td>GEOL SURVEY</td>
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<tr>
<td>Physical Work, Including Drilling</td>
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<tr>
<td>Rehabilitation</td>
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<tr>
<td>Other Authorized Work</td>
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<td>Assays</td>
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<td>Assignment from Reserve</td>
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Total Assessment Work Claimed on the Attached Statement of Costs: $568

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report):

Name:
TIMOTHY J. TWOMEY

Address:
123 E. MAIN STREET, BAUMERTOWN, ONT., PVC 1CC

Certification of Beneficial Interest:

I certify that the time the work was performed, claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.

Date: May 14/94

Certification of Work Report:

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying:
TIMOTHY J. TWOMEY

Telephone No: 317-7732

Date of Certification: May 14/94

For Office Use Only:

Total Value Credit Recorded: $568

Received Date: May 14/94

Deemed Approval Date: May 22/94

Date of Record: May 22/94

Received By: MINING RECORDER

Deemed Approval Date: May 23/94

Received By: MINING RECORDER

Received By: MINING RECORDER
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Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to prioritize the deletion of credits. Please mark one of the following:

1. Credits are to be cut back starting with the claim issued last, working backwards.
2. Credits are to be cut back equally over all claims contained in this report of work.
3. Credits are to be cut back as prioritized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

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<th>Work Performed</th>
<th>Location</th>
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Signature Date: ____________________
### Statement of Costs for Assessment Credit

**État des coûts aux fins du crédit d'évaluation**

**Mining Act/Loi sur les mines**

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

#### 1. Direct Costs/Coûts directs

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<td>Contractor's Fee</td>
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**Total Direct Costs**

**568**

Note: The recorded holder will be required to verify expenditures claimed on this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

#### 2. Indirect Costs/Coûts indirects

**Note:** When claiming Rehabilitation work Indirect costs are not allowable as assessment work.

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<td>Sub Total of Indirect Costs</td>
<td>Total des coûts indirects</td>
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**Total Value of Assessment Credit**

**100% of the above Total Value of Assessment Credit.**

**Amount Allowable (not greater than 20% of Direct Costs)**

**Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)**

**Note:** La somme encaissée sera tenu de vérifier les dépenses demandées dans le présent état de coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

**Certification Verifying Statement of Costs**

I hereby certify that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

**Certification Verifying Statement of Costs**

I, the recorded holder, am authorized to make this certification.

**Signature**

---

**Remises pour dépôt**

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.

2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

**Attestation de l'état des coûts**

J'atteste par la présente que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation susmentionnés dans les terres indiquées dans la formule de rapport de travail ci-joint.

J'atteste par la présente que les montants indiqués sont les plus exacts possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation susmentionnés dans les terres indiquées dans la formule de rapport de travail ci-joint.
September 26, 1994

Mining Recorder
Ministry of Northern Development and Mines
435 James Street South
Suite B3000
Thunder Bay, Ontario
P7E 6E3

Dear Mr. Weirmeir:

RE: APPROVAL OF ASSESSMENT WORK ON MINING CLAIMS TB1194817 IN THE ONION LAKE AREA.

The assessment credits for Geology, Section 12 of the Mining Act Regulations, as listed on the original report of work, have been approved as of September 26, 1994.

Please indicate this approval on the claim record sheets.

If you have any questions concerning this submission please contact Dale Messenger at (705) 670-5858.

ORIGINAL SIGNED BY:

Ron C. Gashinski
Senior Manager, Mining Lands Section
Mining and Land Management Branch
Mines and Minerals Division

Enclosures:

cc: Assessment Files Office
    Sudbury, Ontario

Resident Geologist
Thunder Bay, Ontario