A GUIDE TO MINERAL DEPOSITS
NORTHWEST TERRITORIES 2016

Government of Northwest Territories
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>INTRODUCTION</th>
<th>2</th>
<th>SELWYN PROJECT</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLD PROPERTIES</td>
<td>6</td>
<td>SUE-DIANNE</td>
<td>107</td>
</tr>
<tr>
<td>BBB Claims</td>
<td>8</td>
<td>SUNRISE</td>
<td>109</td>
</tr>
<tr>
<td>BEAULIEU</td>
<td>10</td>
<td>TERRA</td>
<td>111</td>
</tr>
<tr>
<td>BUGOW</td>
<td>12</td>
<td>THYE LAKE (NICKEL KING)</td>
<td>113</td>
</tr>
<tr>
<td>BURNT ISLAND DEPOSIT</td>
<td>14</td>
<td>TURNBACK LAKE</td>
<td>115</td>
</tr>
<tr>
<td>CAMLAREN</td>
<td>16</td>
<td>WРИGLEY PROJECT</td>
<td>117</td>
</tr>
<tr>
<td>CAMP LAKE</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLOMAC</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON MINE</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COURAGEOUS LAKE (formerly TUNDRA (FAT deposit))</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRESTAURUM</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAF</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAMOTI LAKE</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISCOVERY MINE</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAB</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIANT MINE</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDIN LAKE</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAX LAKE</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIM AND CASS</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAHE</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MON GOLD MINE</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOSHER LAKE</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NICHOLAS LAKE</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORMSBY ZONE</td>
<td>57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTARMIGAN MINE</td>
<td>59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REN</td>
<td>61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUTH</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLEMON</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUNSET LAKE</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TREASURE ISLAND</td>
<td>69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WT</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SILVER AND BASE METAL PROPERTIES</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEAR</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEAR-TWIT</td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COATES LAKE / REDSTONE</td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREST</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEB</td>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECHO BAY (PORT RADIUM)</td>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAYNA RIVER</td>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GREAT SLAVE REEF</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDIAN MOUNTAIN LAKE (KENNEDY LAKE AND BB ZONE)</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAY</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NICO</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PINE POINT</td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRAIRIE CREEK</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SALKel</td>
<td>102</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| STRATEGIC MINERAL PROPERTIES | 119 | | |
| BIG (MURPHY) | 121 | | |
| CANTUNG MINE | 122 | | |
| LENED | 125 | | |
| MACTUNG | 127 | | |
| NECHALACHO | 130 | | |
| RAYROCK MINE | 134 | | |

| DIAMOND PROPERTIES | 136 | | |
| DIAVIK MINE | 138 | | |
| EKATI DIAMOND MINE | 141 | | |
| GAHCHO KUÉ MINE | 145 | | |
| AFRIDI LAKE | 149 | | |
| BLUE ICE / VICTORIA ISLAND | 151 | | |
| CL 25 (CAMSELL LAKE) | 153 | | |
| CROSS PROPERTY | 155 | | |
| DARNLEY BAY | 157 | | |
| DOYLE LAKE PROPERTIES | 159 | | |
| DRYBONES BAY / MUD LAKE KIMBERLITES | 161 | | |
| HOAM Project | 164 | | |
| KENNADY NORTH | 166 | | |
| MUNN LAKE / MACKAY LAKE | 168 | | |
| NICHOLAS BAY | 170 | | |
| ROUNDROCK | 172 | | |
| SNAP LAKE | 174 | | |
| WØ Property and DO-27 | 177 | | |
| YAMBA LAKE / TORRIE / TRICERATOPs | 179 | | |

| APPENDICES | | | |
| OTHER MINERAL DEPOSITS OF THE NWT | 182 | | |
| GLOSSARY OF ACRONYMS | 183 | | |
| LIST OF GOVERNMENT CONTACTS | 184 | | |
| SETTLEMENT AREAS AND ASSERTED TERRITORIES | 185 | | |

| LIST OF MAPS IN THE NWT | | | |
| MAP OF GOLD PROPERTIES | 7 | | |
| MAP OF BASE METAL AND SILVER PROPERTIES | 74 | | |
| MAP OF STRATEGIC MINERAL PROPERTIES | 120 | | |
| MAP OF DIAMOND PROPERTIES | 137 | | |
INTRODUCTION

The Northwest Territories (NWT) constitutes 13.5% of Canada’s total landmass and the geology of the NWT spans over four billion years of the earth’s geologic history. Diamond production became the driving force of the NWT economy following the discovery of mineable reserves in the early 1990’s. Prior to that gold and base metal production lead the economy. Canada ranks third in the world for diamond production (by value) and the great majority of that production is from the NWT.

Diamonds, gold and base metals are the primary focus of exploration in the NWT. Numerous advanced precious and base metal projects are currently in the permitting and financing phases of mine development.

As of July 2016, there are four operating diamond mines at various stages of operation in the NWT, namely Ekati, Diavik, Gahcho Kué and Snap Lake mines. The Gahcho Kué Diamond Mine has commenced commissioning and is set to begin full commercial production in the first quarter of 2017. Snap Lake Mine ceased full production in 2015 and has been relegated to a status of care and maintenance, and a sales process is underway. The NWT has one tungsten mine, Cantung Mine, which is on care and maintenance since the fall of 2015.

The NWT’s mining history began in earnest with the Eldorado Mine, which opened in 1933. It produced radium, then uranium, and many years later, silver. The Con and Giant gold mines in Yellowknife began gold production in 1938 and 1948 respectively. Gold mining in the Yellowknife area continued for 66 years and ceased in late November 2003. The Yellowknife area gold mines, including the Discovery Mine, produced approximately 15 million ounces of gold.

With the commencement of operations at Cantung Mine and Pine Point Mine in 1962 and 1964, respectively, the NWT became a significant exporter of tungsten and base metals. Cantung Mine has seen discontinuous production over its mine-life due to various factors (predominant amongst those are tungsten price fluctuations). Pine Point Mine closed in 1987 however significant deposits still remain in the area.

The NWT, and Canada, entered a new era of mining with the opening of the Ekati Diamond Mine near Lac De Gras on October 14, 1998. During its first full year of production, the total diamond output reached 2.5 million carats. Northwest Territories’ second diamond mine, Diavik Diamond Mine, commenced production in December 2002. Snap Lake Mine commenced commercial production in January, 2008 and was placed on care and maintenance in December, 2015. The official Gahcho Kué Mine opening is scheduled for September 20, 2016.

Employment at the NWT’s operating mines in 2014 totaled about 3,250 person-years (complete data for 2015 has not yet been made public). These direct positions induced indirect spin-off jobs as well as procurement opportunities. Additional jobs were also created from exploration activities and mine construction.

The current diamond mining industry plays a significant role in the economic success of the NWT. It accounts for nearly 40% of the territory’s Growth Domestic Product. Diamond mines have spent over $11 billion to date, procuring goods and services from NWT businesses, many of which are aboriginal and northern-owned. Over 22,000 person-years of employment have been created by diamond extraction, and half of that has been held by aboriginal residents of the NWT. Diamond mining companies have contributed over $100 million to NWT communities through scholarships, benefit participation agreements, and donations.

Historically, deposits located within the present geographic boundaries of the NWT have produced 579,717 kg gold, 1,640,212 kg silver, 1,819,476 tonnes lead, 4,717,259 tonnes zinc, 7,846 tonnes copper, 5,886,672 MTUs tungsten (to the end of June 2015), and 6,434,400 kg uranium. Since the start of diamond production in 1998, to the end of 2015 the NWT has produced over 165 million carats of diamonds. Diavik alone reached a production milestone of 100 million carats in May 2016.

The majority of the deposits in this publication host undeveloped mineral resources. Most deposits have had advanced exploration programs performed on them. Several sites were mined and the remaining resources, if reported, are listed. An exhaustive study of abandoned mine sites in the Yellowknife area is available for viewing at the Government of the Northwest Territories’ Northwest Territories Geological Survey (NTGS).
Mineral Deposit Types in the Northwest Territories

This report examines 75 selected deposits of note that host significant mineralization, which are distributed throughout the NWT. This selection is not comprehensive of all the mineral deposits or mineral occurrences in the NWT. The majority of these host undeveloped mineral resources, which have been located from public documents. It is important to note that the vast majority of these property resources are not National Instrument 43-101 compliant (i.e., would not stand up to the economic term “reserves” within the terms of reserves and resources).

The variety and style of metallic deposits and showings found in the NWT is as vast as the territory itself. Not included in this publication are the extensive deposits of oil and gas found along the Mackenzie River and Delta area, or the coal deposits and showings along the Grizzly Bear Mountains in the Great Bear Lake area. Discussion of these deposits is beyond the scope of this publication, and information on these can be obtained from the NTGS (website www.nwtgeoscience.ca), Department of Industry, Tourism and Investment (ITI) of the Government of the Northwest Territories (GNWT).

About This Publication

This publication has been divided into four sections: gold; silver and base metals; strategic minerals (i.e. lithium, tungsten, rare earth elements and uranium); and diamonds. Each deposit is described by location, current ownership, a brief history of the deposit, and geology, along with documented exploration or production details. Information for each deposit is referenced, and is publicly available. Any dollar amounts quoted are Canadian dollars unless otherwise stated. For the sake of clarity, and precision this publication has an effective date of July 31, 2016.

Corrections and Updates

Corrections, updates, and comments for the mineral deposits listed are welcomed by the Mineral Resources Division (MRD) of ITI (GNWT). The accuracy of the corporate information listed with each deposit is as current as could be reasonably obtained during the editing of this publication and has been verified as of July, 2016. Deposits for which no current ownership could be found are listed as such, but this does not mean that the area surrounding such deposits is open for staking. Such information can only be obtained by contacting the Mining Recorder’s Office. This information, along with other contact information, is found in Annex 3.

Electronic Information and Disclaimer

Some of the information in this publication is from company websites (listed with each deposit). To the best of the editor’s ability these links have been checked for validity, content, and information. The website www.sedar.com has also been used to research public securities documents and information filed by public companies. However, no responsibility is taken or accepted by the editor, publisher, or Mineral Resources Division of ITI, for the content, information, or accuracy, of these web sites.

1  http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys01-eng.htm
INTRODUCTION


Les diamants, de l’or et des métaux de bases sont les minéraux de choix de la plupart des explorateurs dans les T.N-O. En ce temps-ci plusieurs compagnies qui possèdent des projets d’exploration pour de l’or et des métaux de bases se trouvent dans le processus réglementaire de demande de permis ou ils ont passé ce stage et ils sont à la recherche de fonds pour développer une mine.

A partir du mois de juillet 2016 il y a quatre mines de diamants qui opèrent aux étages particuliers d’opération dans les T.N-O. à savoir Ekati, Diavik, Gahcho Kué et Snap Lake. La mine Gahcho Kué est en train de commencer la récupération des diamants et vise l’exploitation à pleine voie durant les prochains mois. La production commerciale est visée pour la première période fiscale de l’année 2017. La mine des diamants Snap Lake a terminé d’exploiter des diamants pendant l’année 2015 et s’est reléguée à un état de maintien et de surveillance environnementale. La mine est actuellement à vendre. Les T.N-O. sont l’hôte d’une mine de tungstène, soit la Mine Cantung, qui s’est aussi reléguée à un état de maintien et de surveillance environnementale depuis l’automne de 2015.

L’histoire minière des T. N-O. s’est commencée de rigueur en 1933 avec l’ouverture de la Mine Eldorado. Cette mine a produit le radium, et ensuite de l’uranium, et plusieurs années plus tard, de l’argent. Les mines d’or de la région de Yellowknife, Con et Giant en particulier, se sont commencées à produire de l’or en 1938 et 1948 respectivement. La production de l’or dans la région de Yellowknife se déroulait pendant les 66 ans de suite jusqu’à sa fin durant les derniers jours de novembre 2003. Les mines de la région de Yellowknife, incluant la Mine Discovery, ont produit à peu près 15 millions onces d’or.


Les T. N-O. et le Canada ont commencé une ère nouvelle dans l’histoire des mines avec l’ouverture officielle de la mine Ekati, près de Lac de Gras, le 14 octobre, 1998. Pendant sa première année de la production commerciale la mine a produit une totale de 2,6 millions de carats de diamants. La Mine Diavik, la deuxième mine de diamants dans les T.N-O., s’est ouvert au mois de décembre 2002. La Mine Snap Lake a commencé à produire des diamants au mois de janvier, 2008 et s’est reléguée à un état de maintien et de surveillance environnementale au mois de décembre 2015. L’ouverture officielle de la Mine Gahcho Kué va se dérouler le 20 septembre 2016.


Historiquement, des mines qui se trouvent à l’intérieur des bornes géographiques actuelles des T. N-O. ont produisaient 579,717 kg d’or, 1,640,212 kg d’argent, 1,819,476 tonnes de plomb, 4,717,259 tonnes de zinc, 7,846 tonnes de cuivre,
5,886,672 UMT de tungstène (jusqu’à la fin du mois de juin 2015), et 6,434,400 kg d’uranium. Depuis le commencement de production de diamants en 1998, jusqu’à la fin de l’année 2015 les mines de diamants des T.N-O. ont produit plus que 165 million carats de diamants. En mai 2016, la compagnie qui opère la mine Diavik a annoncé que la mine a achevé une production totale pendant toute la durée de la mine, jusqu’à date de 100 million carats de diamants.

La majorité des gisements qui sont décrites dans cette publication contiennent des ressources minérales non-développées. La plupart de ces dépôts ont été la cible d’exploration avancée dans le passé. Plusieurs locales ont été producteurs de minerai et les ressources qui en restent, si reportées, sont citées. Une étude extenuée des lieux où on se trouve des sites de mines abandonnés dans la région de Yellowknife est disponible à lire chez le bureau de la commission géologique des T.N-O. (CGTNO) (Gouvernement des T. N-O.) à Yellowknife.

**Types de gisement minéral dans les Territoires du Nord-Ouest**

Ce rapport examine 75 gisements qui se trouvent dans les T.N-O., sélectionnés surtout parce qu’ils ont reçu des travaux significatifs dans le passé. Cette sélection n’est pas exhaustive de tous les gisements de minéraux ou des occurrences minérales qui sont connus dans les Territoires. La majorité de ces gisements contiennent des ressources minérales qui ont été calculées mais qui n’ont pas été exploités; les données se trouvent dans des documents publics. C’est important à noter que la plupart des ressources citées sont historiques et ne se conforme pas au Règlement (NI) 43-101 concernant la définition des ressources minérales indiquées ou inférées.


**A propos de cette publication**

Cette publication est divisée en quatre parties : de l’or; de l’argent et métaux de bases; des minéraux stratégiques (i.e. le lithium, le tungstène, les éléments de terres rares et l’uranium); et les diamants. Chaque gisement est décrit par son location, la possession actuelle, une histoire courte du gisement, un sommaire de la géologie et quelques détails concernant l’exploration ou si applicable des détails de la production minière. Des références sont fournies et le matériel est disponible dans le secteur public. Si une valeur quelconque est citée, le montant est en dollars canadiens (sauf si autre monnaie est stipulée). Pour se rendre à la clarté et la précision de cette publication, une date effective de l’information a été fixée au 31 juillet 2016.

**Avis de corrections ou de mises à jour**

La division de ressources minérales du ministère de l’industrie, du tourisme et de l’investissement (ITI) du Gouvernement des Territoires du Nord-Ouest (GTNO) sera reconnaissante de recevoir des commentaires, des corrections ou des mises à jour concernant les gisements qui sont décrit dans cette publication. L’exactitude des données d’entreprises (qui est fourni pour chaque gisement) est aussi exacte que possible et a été vérifié pour le mois de juillet 2016. Il y a quelques gisements pour lesquels un propriétaire gouvernementale est stipulé, ceci ne signifie pas que le terrain est disponible pour le jalonnement, il faut vérifier cet information avec le bureau du registraire minier. Les coordonnées pour ce bureau et pour autres contacts significatifs liés à l’information trouvé dans cette publication, veillez voir l’annexe 3.

**Information électronique et avertissement**

Une partie de l’information citée dans cette publication vienne des sites web (donné dans la plupart des cas pour chaque gisement). L’éditeur a fait son possible à vérifier l’information pour la précision et la validité des données. Le site web www.sedar.com a été utilisé pour faire de la recherche des documents publics et des renseignements déposés par les compagnies publics. Ni l’éditeur, ni la division de ressources minérales du ministère de l’industrie, du tourisme et de l’investissement (ITI) prenne de la responsabilité pour la validité des renseignements déposés sur les sites web.
There are dozens of known gold deposits in the Northwest Territories. Known gold deposits are primarily located within the Archean Slave Structural Province.

The Slave Province contains granitic gneiss that has been dated at 4 billion years old. Metasediments and metavolcanic rocks are between 2.6 and 2.7 billion years old and these have been intruded by younger granitic plutons approximately 2.6 to 2.5 billion years ago. The Proterozoic Mackenzie diabase dykes trend northwest and crosscut most rock types.

Most of the gold is hosted in quartz veins associated with shear zones that intersect metasediments and metavolcanic rocks. Other deposit types include folded, Archean, banded iron formation with crosscutting auriferous quartz veins (such as at Damoti Lake) and auriferous quartz-sulphide veins within a granodiorite plug that intruded metasediments (as seen at Nicholas Lake).

The two most prolific gold mines, Con and Giant, which were hosted by auriferous quartz veins associated with shear zones, ceased operations on November 28, 2003, and July 7, 2004, respectively. The two mines combined, produced over 13 million ounces (368,544 kg) of gold over their 66 years of production in Yellowknife.
Viking Gold Exploration Inc.

**TSXV:**
VGC

**PRESIDENT AND CEO:**
Mark Edwards

**CORPORATE HEADQUARTERS:**
Viking Gold Exploration
Ste. 2B – 2900 John Street
MARKHAM, ON L3R 5G3

**PHONE:** (905) 752-2008
**FAX:** (416) 752-2298

www.vikinggold.ca

**LOCATION:**
72 kilometres north of Yellowknife

**NTS AREA:**
085O/01

**LATITUDE/LONGITUDE:**
63.0942°N 114.0825°W

**RESOURCE ESTIMATION:**
Historic NI 43-101 non-compliant 635 tonnes per vertical metre @ 20.6 g/t Au

**ACCESS:**
Float or ski equipped aircraft, seasonal ice road

**ALIAS(ES):**
MAX and OLA

**PROJECT STATUS:**
Leases are available for option.

---

**History**

BBB and OLA were originally staked by Viking Yellowknife Gold Mines Limited in 1945, and then optioned to Athona Mines (1937) Limited. In 1946, extensive work was conducted on the OLA claims. A total of 260 metres of trenching, 35 diamond drill holes totaling 4000 metres, and 150 metres of shaft sinking was completed (Lord, 1951). In 1968, Discovery Mines Limited optioned the property. Reserves were calculated to be 635 tonnes per vertical metre of rock at a grade of 20.6 grams per tonne (Thorpe, 1971). The option was dropped in 1977, and the property returned to Viking Yellowknife Gold Mines Limited.

There is no publicly recorded work on the claims between 1977 and 1987. In 1987, Cinemax Resources Incorporated staked MAX 4-7, and performed prospecting and geological mapping over these claims, as well as BBB 1 and OLA 8 (these were claims which were part of the original Viking Yellowknife Gold Mines property). Five holes were drilled in 1988 (totaling 633.3m) and twelve holes were drilled in 1989, totaling 1,520 metres. Two of these holes were drilled two kilometres southwest of the Viking headframe on the western boundary of the MAX 4 claim and at the south boundary of BBB 6 (AR 082920).

In 1995, Aur Resources Incorporated explored claims adjacent to the Viking lease. Ground magnetometer and HLEM surveys were carried out (the maps show 100 – 300 metres of overlap onto the lease (AR 083594)). Two of the Canamax DDHs had tested one anomaly at the southern end of the lease (within 100 metres of the lease boundary) and assays up to 16.87 g/t Au over 1.5 metres were intersected (AR 083594).

Yellowknife Gold Exploration Inc. optioned the original Yellowknife Gold Mines Ltd. BBB and Ola leases in 2003 and purchased the Max leases from Aur Resources in 2004. In June 2003, Copper Hill Corporation, now named Viking Gold Exploration Inc., optioned the property from Lakota Resources. Viking Gold Exploration commenced field exploration in August 2004 (geological mapping and surface sampling), and in the first quarter of 2005 drilled 18 holes, totaling 2848 metres. Additional mapping and geochemical surveys were completed in 2005.
Viking Gold conducted an airborne geophysical survey in 2006 and detailed biogeochemical sampling. The following year they followed up on conductive anomalies by drilling 13 holes (2426.5 metres) on their Morris Lake property. Further mapping and sampling was undertaken that summer and an additional twelve holes (2689 metres) were drilled in 2008 (Exploration Overviews).

In 2009 and 2010, three targets were tested on five claims optioned from Peregrine Diamonds Ltd. in an attempt to find the extension to Tyhee Gold Corp’s Ormsby Zone. During the summer of 2009, three holes totaling 604 metres were drilled. The following year, nine diamond drillholes totaling 1,935 metres resulted in low grade gold assays, highlighted by Hole VP10-06 that cut 2.65 g/t Au over 1.5 metres (AR 085609). No exploration has been reported on this property since 2011.

Viking Gold Exploration held a 60% undivided working interest in the Viking Yellowknife property as of 2013. The property was cleaned up in 2012. As of July 2016, the leases are still active.

Bedrock and Mineral Deposit Geology

The claims are underlain by argillite and locally arenaceous greywacke and carbonatized and/or silicified mafic volcanic rocks. Mapping by Viking Gold in 2004 identified the gold mineralization to be contained within the volcanic rocks (Ginn, R.M., personal communication 2005). The mafic volcanics have previously been mapped as diorite (Gold Volume, MIR 1988-1989).

The volcanic unit and adjacent sediments are quartz veined. Veins contain minor sphalerite, galena, pyrrhotite, scheelite, and rarely, coarse gold (Mineral Deposits Not Being Mined in 1989). The main zone can be traced by drilling for 1000 metres along strike (R.M.Ginn, Viking Gold, 2005), and ranges in width from 4.5 to 18 metres.

References


NORMIN.DB (www.nwtgeoscience.ca) 085OSE0007

NTGS Assessment Reports 082920, 083594, 085609


BEAULIEU
Crown Land

FOR MINERAL TENURE INFO, CONTACT:
Government of Canada, Aboriginal Affairs and Northern Development Canada (AANDC), Resources and Land Management Division

REBECCA LEIGHFIELD
NWT Region (Federal Resources and Land Management) Mining Recorder

NWT Region, Northern Affairs Program
Aboriginal Affairs and Northern Development Canada

1st Floor, Gallery Building
Yellowknife, NT X1A 2R3

PHONE: (867) 669-2449
FAX: (867) 669-2702
E-MAIL: Rebecca.Leighfield@aandc-aadnc.gc.ca

OWNERSHIP:
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development

LOCATION:
72 kilometres east of Yellowknife, near Strike Lake

NTS AREA:
0851/07

LATITUDE/LONGITUDE:
62.4178°N 112.9078°W

RESOURCE ESTIMATION:
1,087 tonnes @ 22.3 g/t Au

ACCESS:
Float or ski equipped aircraft

ALIAS(ES):
NORMA, BRANDY, IRENE

PROJECT STATUS:
The area is being remediated by AANDC Contaminants and Remediation Directorate.

History

S. Hanson and Associates were the first to stake the property in 1939, as the NORMA 1 to 12 claims. Limited surface work was conducted by Norma Tungsten and Gold Mines Limited. In 1942, 15 tonnes of ore were treated in a Gibson-type mill from the “A” and “B” pits on the Norma vein. During 1945 and 1946, the claims were optioned to E. Schnee and limited exploration work was completed by Beaulieu Yellowknife Mines Limited. Drill-indicated resources were estimated to be 12,700 tonnes at a grade of 34 grams per tonne to 70 metres depth in the “A” zone. In 1947, a shaft was sunk to 100 metres vertical depth and a small mill (45 tonnes per day) was constructed. A total of 242 tonnes of vein material was milled, producing 257 grams of gold bullion. In 1949, Beaulieu Yellowknife Mines Limited changed its name to Consolidated Beaulieu Mines Limited and optioned the property to the Treasure Island Corporation.

The property remained dormant until 1983 when it was optioned by Genesis Resources Corporation. In March 1984, two holes were drilled totaling 183 metres, with the best intersections ranging from 0.6 g/t Au over 1.2 metres to 2.8 grams per tonne over 0.9 metres.

In 1985, Taiga Consultants Limited, on behalf of Genesis Resources Corporation, prospected the claims. Existing trenches were mapped at 1:250 scale and chip sampled. Assays ranged from 11.04 to 256.63 grams of gold per tonne and 15.86 to 32.66 grams of silver per tonne, over narrow widths. Soil geochemical, magnetometer, and VLF-EM surveys were conducted over four separate flag-and-compass grids. Three anomalous gold assays were recorded. The VLF-EM survey delineated four conductors, one of which corresponded to a magnetic low, and the magnetometer survey defined a number of narrow magnetic zones (AR 082086). The property was allowed to lapse in 1989.

The property was re-staked as the IRENE claim in 1992, however no assessment work was filed for this claim, and it was allowed to lapse in 1998.
Bedrock and Mineral Deposit Geology

The deposit is hosted by quartz veins enclosed in Burwash sediments of the Yellowknife Supergroup. The sediments include medium grained greywackes interbedded with argillites and phyllites. The beds are strongly folded with fold axes plunging steeply northeast.

The vein itself has been reported to be 550 metres long by up to 0.5 metres wide, and averages 15 centimetres in width. Two main “shoots” of higher grade mineralization were discovered and mined. These were found to be narrow and limited in strike, with gold grades reported to be in the 18.8 to 56.2 grams per tonne range.

Significant Results

A total of 242 tonnes of material were milled by the operation, which produced approximately 257 grams of gold. Property resources were calculated in 1984 to be 1,089 tonnes at an average grade of 22.3 gram per tonne. No method of calculation for these resources could be found.

References


NTGS Assessment Report 082086
BUGOW
Aurora Geosciences (pending)

GOLD
Banded Iron Formation

TSXV:
SNG

PRESIDENT AND CEO:
Mike Power

OWNERSHIP: 100%

CORPORATE HEADQUARTERS:
Suite 1016 – 510 Hastings Street
VANCOUVER, BC V6B 1L8

PHONE: (604) 687-2522
FAX: (604) 688-2578

www.silverrangeresources.com

LOCATION:
110 kilometres northwest of Yellowknife, at the north end of Russell Lake

NTS AREA:
085O/04

LATITUDE/LONGITUDE:
63.1811°N 115.8250°W

ORE TYPE:
Gold

RESOURCE ESTIMATION:
Historic NI 43-101 non-compliant 70,000 tonnes @ 10.29 grams per tonne gold

ACCESS:
Float or ski equipped aircraft, helicopter

ALIAS(ES):
NORMA, BRANDY, IRENE

PROJECT STATUS:
Available for Option

History
The property was first staked in 1939, by M.F. Thompson, then re-staked in 1945 by Andy Bugow. In 1946, the property was acquired by Andrew Yellowknife Mines Limited; seven zones were tested by drilling 39 holes totaling 2,267 metres (AR 082286).

In 1962, ownership of the claims was transferred to Rio Algoma Limited. In 1982, Highwood Resources Limited acquired the claims and in 1984, ownership was transferred to Cominco Limited. They performed geological mapping, sampled old trenches, and performed magnetic surveys (AR 081839). In 1985, Cominco drilled six holes on the property, then cancelled their option; ownership was returned to Highwood Resources Limited in 1986.

In 1986 and 1987, Aber Resources Limited conducted a program of drilling and detailed mapping. Aber was successful in outlining a high-grade zone of about 70,000 tonnes at a grade of 10.29 g/t Au. In early 1987, Freeport-McMoRan Gold Company acquired the option to earn 51% interest in the BUGOW property. Freeport-McMoRan completed an airborne geophysical survey (electromagnetic, resistivity, magnetic and VLF-EM) (AR 082555) and an extensive ground geophysical survey (magnetic, VLF-EM, HLEM and IP/ resistivity) (AR 082556). Other work included bedrock trenching, rock-chip sampling, and 68 metres of diamond drilling. This work did not result in the discovery of new zones or the expansion of previously known zones.

Navigator Exploration Corporation acquired a 100% interest in the 1,305 acre property from Aber Resources Limited in February 2000. Aber Diamond Corporation retained a 2% royalty and the right to market any diamonds produced from the property.

In May 2004, Navigator Exploration Corp. and Strongbow Resources Inc. merged to become Strongbow Exploration Inc. and in May 2007, Strongbow Resources Inc.’s spinout company,
North Arrow Minerals Inc. became the property owner. No assessment reports have been filed on any subsequent work. The BUGOW 1 mineral claim was dropped by North Arrow Minerals Inc. and re-staked by DEMCo Ltd. in September 2013. DEMCo made a corporate decision to allow the claim to lapse and the claim was subsequently staked by Aurora Geosciences (the claim was issued July 12, 2016 and is pending as of July 31, 2016).

**Bedrock and Mineral Deposit Geology**

The claims are underlain by an Archean sedimentary sequence of interbedded greywacke and argillite, which have been metamorphosed to cordierite and/or andalusite grade. Amphibolitic iron formation and garnetiferous schist are interbedded within the sediments. In the northern part of the claim group the sedimentary package is intruded by granite. South of Cabin Lake, the sediments are intruded by a small granitic pluton. Pegmatitic, granitic - felsic porphyry and mafic dykes intrude the metasedimentary rocks. Proterozoic diabase dykes intrude all Archean lithologies.

Detailed structural mapping has been completed on the BUGOW property. First phase isoclinal folds (F1) are northwesterly-oriented, refolded by a second (northeasterly) phase, and possibly a third (northeasterly) phase (F2, F3). The most prominent cleavage is northwesterly trending, oriented from 5° to 15° clockwise from bedding and is axial planar to minor folds that post-date F1 (Brophy, Sept. 1986 Property Visit Report).

An east-trending regional metamorphic isograd to the south of the property marks the boundary between low-grade rocks to the south and medium-grade (cordierite-andalusite-bearing) rocks to the north.

Gold is associated with amphibolite (silicate facies) iron formation beds that vary in width from several centimetres to over 10 metres and are discontinuous along strike. Several distinct iron formation units have been identified on the property. Amphibolitic iron formation locally contains siliceous nodules, garnets, and up to 25% sulphides. Pyrite, pyrrhotite, and arsenopyrite, the main sulphides, vary from semi-massive laminated or bedded, to disseminated.

**Significant Results**

In 1987 a high-grade resource of approximately 70,000 tonnes at a grade of 10.29 g/t Au was delineated.

**References**


Jackson, V.A., (2001), Report on the Geology of the Northern Russell Lake Area (85O/4), EGS Open File 2001-03, Department of Indian Affairs and Northern Development, NWT Geology Division, Yellowknife, 90 p.


NORMIN.DB (www.nwtgeoscience.ca) 085OSW0001

NTGS Assessment Reports 081839, 082286, 082555, 082556


www.sedar.com Silver Range Resources

www.silverrangeresources.com
BURNT ISLAND DEPOSIT
Crown Land
Vein-hosted

FOR MINERAL TENURE INFO, CONTACT:
Government of Canada, Aboriginal Affairs and Northern Development Canada (AANDC), Resources and Land Management Division

REBECCA LEIGHFIELD
NWT Region (Federal Resources and Land Management)
Mining Recorder
Resources and Land Management

NWT Region, Northern Affairs Program
Aboriginal Affairs and Northern Development Canada

1st Floor, Gallery Building
Yellowknife, NT X1A 2R3

PHONE: (867) 669-2449
FAX: (867) 669-2702
E-MAIL: Rebecca.Leighfield@aandc-aadnc.gc.ca

OWNERSHIP:
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development Canada Contaminants and Remediation Directorate (CARD) Site

LOCATION:
80 kilometres north of Yellowknife

NTS AREA:
85P/03

LATITUDE/LONGITUDE:
63.0617°N 113.1611°W

DEPOSIT TYPE:
Quartz vein

RESOURCE ESTIMATION:
To be determined

HISTORIC PRODUCTION:
~ 50 kg Au

ACCESS:
Float or ski equipped aircraft; winter road in season to within two kilometres

PROJECT STATUS:
The property is available for staking.

History
The property was initially staked in 1939 by the Mining Corporation of Canada Limited. A limited exploration program, which included trenching and sampling, was carried out. In the early 1940s, Zolota Yellowknife Mines Limited re-staked the property, and drilled a total of 368 metres in 17 holes. These holes are reported to have tested sulphide rich quartz veins. The best reported result from this drilling was 6.2 grams per tonne over 3.3 metres. Evidence of this work was filed for assessment purposes in 1947. In 1945, a 2.7 metre by 2.7 metre inclined shaft was sunk 13 m. Quartz veining with visible gold was stockpiled.

In 1982, Burnt Island Gold Limited drilled nineteen holes on Burnt Island. In 1989, Cameron Mining Limited put in a decline to the 30 metre level and took an approximately 2,000 tonne bulk sample of mineralized material with a grade of 25.7 grams per tonne from the No. 1 vein (AR 083670). In 1998, prospecting and sampling were performed by W. Humphries. A sample from the lake bottom, near the original mill, assayed 36 g/t Au (AR 084211).

Triple Dragon Resources Inc. optioned the property in August, 2009. Regional prospecting and sampling was carried out over historic deposits and showings in the area. The following year one of the claims was brought to lease. Triple Dragon Resources changed its name to Pasinex Resources Ltd. at the end of March, 2012 and began to focus on Turkish exploration projects. The property reverted to W. Humphries in early 2013. The claims were allowed to lapse.

Bedrock and Mineral Deposit Geology
The deposit is hosted by a quartz vein within the Burwash Formation, a sequence of slate, siltstone, and greywacke of the Yellowknife Supergroup (Lord, 1951). The quartz vein has a surface expression of approximately 30 metres and...
varies from 1.0 to 1.5 metres in width. It is located at the nose of a plunging fold. Gold occurs as thin flakes in chlorite-sericite seams in quartz. Pyrite, chalcopyrite, galena, and sphalerite occur in minor amounts.

**Exploration**

Prospecting and sampling was performed over the entire island in an effort to discover other auriferous quartz veins and a land use permit was in place to allow for drilling, but funds were not available to test the deposit at depth.

**Significant Results**

Approximately 46 kilograms of gold was mined from the deposit in the 1980’s. Remaining resources for the property are not known, however drilling in the 1980’s indicated that the mineralization is open at depth.

**References**

Atkinson, D., (1989), ‘South Slave Structural Province’ in Exploration Overview 1989 Northwest Territories, Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p.15


NORMIN.DB (www.nwtgeoscience.ca) 085PSW0076

NTGS Assessment Reports 083670, 084211

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


Sedar.com Pasinex Resources Ltd. Triple Dragon News Releases and MD&A, Feb.27, 2012; April 26, 2013
**CAMLAREN**  
*Crown Land*  
**GOLD**  
*Vein-hosted*

**FOR MINERAL TENURE INFO, CONTACT:**  
Government of Canada, Aboriginal Affairs and Northern Development Canada (AANDC), Resources and Land Management Division  
REBECCA LEIGHFIELD  
NWT Region (Federal Resources and Land Management)  
Mining Recorder  
Resources and Land Management  
NWT Region, Northern Affairs Program  
Aboriginal Affairs and Northern Development Canada  
1st Floor, Gallery Building  
Yellowknife, NT X1A 2R3  
PHONE: (867) 669-2449  
FAX: (867) 669-2702  
E-MAIL: Rebecca.Leighfield@aandc-aadnc.gc.ca  

**OWNERSHIP:**  
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development

**LOCATION:**  
85 kilometres northeast of Yellowknife, on an island in Gordon Lake

**NTS AREA:**  
085I/14

**LATITUDE/LONGITUDE:**  
62.9847°N 113.2042°W

**ORE TYPE:**  
Free milling

**RESOURCE ESTIMATION:**  
Historic NI 43-101 non-compliant 9,979 tonnes @ 19.8 g/t Au

**ACCESS:**  
Float or ski equipped aircraft; winter road in season to within 5-km

**ALIAS:**  
Hump Vein

**PROJECT STATUS:**  
The property is being managed by AANDC.

---

**History**

Initial work on the property began in 1936, which included staking and shaft sinking on the Hump Vein in 1937. By the end of 1938, two head frames had been erected, and after extensive underground development and diamond drilling, reserves were reported to be 11,793 tonnes at an average grade of 21.2 grams per tonne gold. Little evidence of work exists between 1938 and 1958, when Consolidated Northland Mines conducted exploration on the site. This work resulted in the calculation of a property resource of 13,607 tonnes at a grade of 30.9 g/t Au.

During the period 1962 to 1964, ore from Camlaren was transported to Discovery Mine for processing. It was reported that approximately 10,886 tonnes of ore, was shipped 40 kilometres north to Discovery Mine and milled. In 1974, Discovery Mines acquired the property. The shaft was deepened to 255 metres, and two new levels were developed.

In 1977, the property was leased to Noranda Incorporated and Pamour Porcupine Mines. The shaft was deepened, and beginning in July 1980, stockpiles were milled while the shaft work was conducted. Mining took place on three levels above the 300-m level. Milling took place on site, until September 1981, when the mine and mill were shut down. Significant gold intersections at depth were not accessed due to dilution “resulted from mechanized raising” and by the presence of a barren dyke that cut the vein unexpectedly at depth. The mill recovered 586 kg Au and 187 kg Ag from approximately 51,000 tonnes of ore (NMI, NTS 85I/14, Ref Au 9 and MIR 1980-81). During its two operational periods, the Camlaren Mine reportedly produced over 992 kilograms of gold from ore with an average grade of 19.54 g/t Au (Triple Dragon MD&A June 30, 2009).
In the 1990’s, W. Humphries took six samples from the tailings pond; three of these assayed greater than 4.1 g/t Au (AR 084211). There are several old waste-rock (muck/fine gravel) deposits which have had minimal sampling and have returned significant gold values (W. Humphries, pers. comm.).

Triple Dragon Resources Inc. staked two claims over the historical Camlaren Gold Mine property, and nearby showings, in 2009. During the summer 192 samples were collected from various trenches, stockpiles, muck piles and tailings ponds, as well as outcropping quartz veins. A National Instrument 43-101 technical report was subsequently prepared on the CAM Claims by John Gorham, of Dahrouge Geological Consulting Ltd. Triple Dragon sold the property the following year, in August, to Cats Eye Capital Corp. (later named Lakeland Resources Inc.). Lakeland paid for the property in shares of the company (Triple Dragon MD&A Mar. 31, 2012).

Triple Dragon Resources Inc. changed its name to Pasinex Resources Ltd. at the end of March, 2012. Lakeland Resources Inc. merged with Alpha Exploration Inc. in September 2015 and formed ALX Uranium Corp. (ALX) which commenced trading on Sept. 25, 2015. The ALX Uranium MD&A for the year ended December 31, 2015 stated that the property had been impaired during the year.

**Bedrock and Mineral Deposit Geology**

Mineralization is hosted in white quartz veins within north-easterly striking, steeply dipping, sediments of the Archean Yellowknife Supergroup. The deposit is located at the nose of an anticlinal fold, which plunges approximately 50° to the north. Sulphides are present in low quantities, and include pyrite, pyrhotite, marcasite, arsenopyrite, galena, and sphalerite. There is little, if any, surface expression of the vein left.

**Significant Results**

A property resource of 9,979 tonnes at a grade of 19.8 g/t Au is reported (Discovery West Corporation Annual Report 1986). This resource is assumed to be at or near the bottom of the old mine workings (W. Humphries, pers. comm.).

**References**


Discovery West Corp. Annual Report 1986


Humphries, W., (2003), personal communication, September 2003


NORMIN.DB (www.nwtgeoscience.ca) 085INW0132, 085INW0133

NTGS Assessment Reports 084211, 015601

Silke, R., (1999), Report on Mine sites in the Yellowknife Region, Open Report #1999-001, Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife

Silke, R. (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


www.sedar.com ALX Uranium Corp. Lakeland Resources MD&A Nov. 26, 2014; April 29, 2015; ALX Uranium Corp. MD&A Nov. 25, 2015; Dec. 31, 2015
**CAMP LAKE**

*Wek’èzhìi Resource Management Area*  
*(COPPER, LEAD, ZINC)*  
*Quartz / Shear*

**CONTACT:**
Mining Recorder’s Office  
Department of Industry, Tourism and Investment  
Government of the Northwest Territories  
1st Floor, Gallery Building  
Yellowknife, NT X1A 2L9

**PHONE:** (867) 765 6724  
**FAX:** (867) 669 2714  
**E-MAIL:** miners@gov.nt.ca

**LOCATION:**  
East side of Snare River, 131 kilometres northwest of Yellowknife

**NTS AREA:**  
08SN/08

**LATITUDE/LONGITUDE:**  
63.3514°N 116.3042°W

**RESOURCE ESTIMATION:**  
Historic NI 43-101 non-compliant 46,400 t @ 13.7 g/t (North Zone); 11,840 t @ 12 g/t (South Zone)

**ACCESS:**  
Float or ski equipped aircraft

**ALIAS(ES):**  
DELORO, CEO, IO, CJ

**PROJECT STATUS:**  
The property is available for staking.

---

**History**

The area surrounding the Camp Lake deposit was first staked in 1938 by the B and M Syndicate of Winnipeg. They carried out trenching on the east shore of Camp Lake, but then allowed the claims to lapse. The area was re-staked in 1944 and 1945, and the claims were purchased by American Yellowknife Gold Mines in 1945. A 20-hole (614 metre) drill program was carried out with encouraging results; Snare River Mines was formed to develop the property.

In 1954, Tarbell Mines purchased the assets of Snare River Gold Mines, which included the Camp Lake claims (in June of 1954). Tarbell Mines re-examined the core. The claims were eventually controlled by Anglo United Development Corporation, who, in 1965, drilled a total of 44 holes totaling 4,370 metres. The results of this drilling, along with earlier work, resulted in a published reserve of 101,600 tonnes at an average grade of 22.3 g/t Au.

In 1974, eighteen holes totaling 1,473 metres were drilled on the property and this reduced the reported reserve to 39,689 tonnes at an average grade of 15.8 g/t Au. In 1975, part of the area was flooded for a power project, and this resulted in a further reduction in the published reserve by over 18,288 tonnes.

The leases surrounding the deposit expired in 1995, and the area was re-staked at that time as the CEO claims by Hawkeye Gold International Incorporated. In 1996, additional geological mapping and geophysical surveys were carried out (AR 083831).

During 1997, a 179 line-km airborne magnetic and EM survey, geological mapping, and prospecting were completed. One chip sample assayed 45.3 g/t Au over a width of 0.6 metres; ten samples out of 198 assayed greater than 0.5 g/t Au (AR 084006). Two previously unknown areas of mineralization were discovered.

The claims lapsed in 2006, and the property reverted back to the Crown.
Bedrock and Mineral Deposit Geology

The deposit lies on the southwest margin of the Slave Geological Province, and is within a few kilometers of the boundary between the Slave and Bear geological provinces. The Slave province is dominated by a series of sediments, which have been tightly folded, and faulted. These sediments are intruded by plutons ranging in composition from gabbro to granite, along with dykes of mafic to felsic composition. Volcanic rocks, again of mafic to felsic composition, are common throughout the area.

The Camp Lake deposit is divided into two areas. The northern area is made up of three distinct zones, while the southern area is one zone.

The major rock types in the deposit area are metasediments, mainly coarse grained to argillitic greywackes, with minor intrusive plugs, and dykes. Foliation is reported to be roughly parallel to bedding in a northwesterly direction and dipping 60 to 70 degrees east. Small faults run northeasterly, and dip approximately 50 degrees, with small horizontal displacements. Shear zones, when present, are roughly parallel to bedding. Quartz veining is significant in the shear zones, however they are generally narrow, with limited strike extension. Mineralization is generally restricted to the quartz veins in shears, and consists of pyrite, arsenopyrite, galena, and minor sphalerite. Silicification with minor carbonatization, and sericitization are the predominant forms of alteration within the shears and in proximity to them.

Significant Results

The last reported resource for the property is 46,400 tonnes at an average grade of 13.7 g/t gold for the North Zone, and 11,840 tonnes at an average grade of 12 g/t Au for the South Zone (EMR MR223). The calculation method for these resources is unknown.

References


NORMIN.DB (www.nwtgeoscience.ca) 085NSE0043

NTGS Assessment Reports 083831, 082840, 084006

A GUIDE TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES

History

Gold was initially discovered in the vicinity of Colomac in 1945. Colomac Mines Limited and Indian Lake Gold Mines Limited, in joint venture, traced the dyke for six kilometres along strike and drilled 155 holes; they developed an adit with drifts and cross-cuts to extract a bulk sample (4,545 tonnes). The sample was low grade. In 1971 Discovery Mines optioned the property; they amalgamated with Hydra Exploration to form Johnsby Mines Ltd. Cominco optioned the property from Johnsby Mines in 1974. They drilled holes near the old underground workings and along strike for 600 metres. Cominco performed a heap leach test, which resulted in poor recovery. Cominco dropped its option in 1976. A few property reviews were carried out in the following years, highlighted by tests carried out by Newmont in 1980 that achieved 93% gold recovery from metallurgical tests that used colour and gravity sorting, and flotation.

In 1986, Neptune Resources Corporation optioned the property from Johnsby Mines. They did extensive work and began mine construction (in collaboration with Northgate Exploration Ltd.) in 1988 and 1989. Mining took place intermittently over the years from 1990 to 1997. Five open-pit zones formed the mine plan. The initial open pit site (Zone 2) was estimated to contain 15.8 million tonnes grading 2.09 g/t gold. The first gold bar was poured in late May 1990. Operations ceased in June 1991. The mine had produced 146,400 ounces of gold at a grade of 2.03 g/t Au. Three open pits had been excavated at that time.

Neptune Resources was purchased by Royal Oak Mines Incorporated (Royal Oak) in April 1993. Mining recommenced in 1994. From 1990-1997 the average grade mined from Zone 2.0 was 1.66 g/t Au and approximately 527,900 ounces of gold were produced. Royal Oak ceased mining at Colomac in September 1997 and the mine closed in December of that year. Royal Oak Mines became bankrupt in 1999 and the property reverted to the Federal Government (Aboriginal Affairs and Northern Development). The property underwent extensive reclamation over the ensuing decade.

In January 2012 Merc International Minerals Inc. acquired the past-producing Colomac Gold Mine property from the Federal government. Historic open-pit mining at Colomac reached a maximum vertical depth of 200 metres. In April 2012, Merc International Minerals Inc. changed its name to Nighthawk Gold Inc. Nighthawk released a revised resource estimate for Colomac in
2013; it incorporated 916 historic holes and 30 holes that Nighthawk drilled in 2012.

The Colomac Sill (North, Central and South zones) comprises 93% of the resource and contains an estimated 36.973 million tonnes with an average grade of 1.66 g/t Au, calculated using a 0.6 g/t Au cut-off (a cut-off grade sensitivity table indicates that even with a cut-off grade of 1.5 g/t Au the resource contains over one million ounces). In 2014 Nighthawk drilled 3,643 metres at Colomac Main.

The Colomac Gold Project envisioned in the 2013 resource estimate is comprised of four additional zones (Goldcrest, Grizzly Bear, 27 and 24) that account for the remaining 7% of the resource.

In 2014, Nighthawk drilled 6,038 metres on the Goldcrest target, a mafic sill 400 metres east of the Colomac Sill. This drilling served to expand the resource.

Drilling during the summer of 2015 further tested the higher grade results that were returned from Zone 1.5 in 2014; 2015 drilling was highlighted by hole C15-04 that intersected 78 metres grading 2.63 g/t Au, including 33 metres of 4.2 g/t Au and including 12.3 metres that graded 7.77 g/t Au. In addition Zone 1.0 was drilled for the first time and significant gold was intersected (news release, Oct. 26, 2015).

Nighthawk commenced a 10,000-metre drill program in early July 2016, some of which will test various zones along the Colomac sill.

Bedrock and Mineral Deposit Geology

The Colomac Project lies within the Indin Lake Supracrustal Belt in the western part of the Slave Structural Province. Metasediments and metavolcanics lie within a north-northeast trending belt. Syngnevolcanic quartz-diorite/quartz-gabbro sills, such as the “Colomac sill”, have intruded a four- to five-km thick belt of metavolcanic rocks that overlie turbiditic metasediments. Ultramafic rocks, metamorphosed to talc-chlorite-carbonate schist are also found on the property.

The “Colomac sill” varies from 40 to 200 metres in width (with an average-width of 100 metres), and a strike length of at least six kilometres. The quartz-diorite portion of the sill varies from 9-60 metres in width. Detailed lithogeochemical sampling of the dyke performed in 2012 indicates that the intrusion is a differentiated tonalite-trondhjemite sill, which tops towards the east. The sills in the project area intruded mafic volcanic rock; both the volcanics and the sills were subsequently folded. In the north the Colomac sill is oriented at 010 degrees, whereas in the south it runs 023 degrees. It dips at 80 degrees towards the east. The “Colomac sill” is the largest of a few gold deposits in the area where quartz veins are found within competent, fractured quartz diorite.

Gold is preferentially associated with increased silica in the upper two thirds of the sill. The upper part of the sill is fine to medium grained and felsic to intermediate in composition whereas the lower part is medium to coarse grained and mafic in composition. Higher grade gold-mineralized shoots intersect the low grade mineralization. Gold is primarily found associated with sulphides at the margins of 1-5-cm wide quartz veins and within altered quartz vein selvages. At depth the rock is less altered and hosts native gold-bearing quartz veins (2013 Technical Report).

Significant Results

In 2014, Nighthawk drilled into the Colomac sill, north of Zone 2.0 (within Zone 1.5); one hole intersected 52.5 metres that assayed an average 7.78 g/t Au (which includes 21 metres that assayed 16.73 g/t Au).

References


CON MINE
Miramar Northern Mining Limited

Miramar Northern Mining Ltd. (subsidiary of Newmont Mining Corporation)

NYSE: NEM

GENERAL MANAGER: Mr. Scott Stringer

OWNERSHIP: Miramar Northern Mining Limited (MNML) is a wholly owned subsidiary of Newmont Mining Corporation.

OPERATIONAL HEADQUARTERS: Miramar Northern Mining Limited
Box 2000, YELLOWKNIFE
NT X1A 2M1

PHONE: (867) 766-5311
FAX: (867) 873-6357
www.newmont.com

LOCATION: Yellowknife

NTS AREA: 08S/08

LATITUDE/LONGITUDE: Con Shaft: 62.4394°N 114.3689°W

ORE TYPE: Free milling and refractory

DEPOSIT TYPE: Vein/Shear

TOTAL ORE MILLED (INCLUDING NEGUS, RYCON, CON): 11,466,421 tonnes at 15.6 gram per tonne

CURRENT MINE LIFE: Mine closed


History

In 1935, a Cominco field party staked the Con Mine property following the discovery of gold by N. Jennejohn of the Geological Society of Canada. Beginning in 1937, the C-1 Shaft development began on Vein-10, a small high-grade quartz vein in the hanging wall of the Con Shear. A 90 tonne per day mill was built and the first gold brick was poured in September 1938. Ore from the adjacent Rycon Mine (Cominco purchased a 60% interest in the Rycon mine from Tom Payne’s Ryan Gold Mines Ltd.) was also treated at the Con mill. The mill was expanded to 136 tonnes per day in the fall of 1939. The nearby Negus Mine, the NWT’s second standalone gold mine and mill began production in February 1939.

Power for the mine was generated in the early 1940’s by the newly constructed Bluefish hydroelectric power plant, located some 30 kilometres north of Yellowknife. Prior to that power was supplied by diesel generators.

The mine ceased production in 1943 due to the Second World War however production recommenced in 1946. That year, a wide shear zone, the Campbell Shear, was discovered when the Con and Negus mines jointly drilled an exploration hole. The C-1 shaft was deepened and drifting and sinking of the B-3 winze followed. Cominco acquired the Negus claims in 1953 and by 1958 almost all gold production from the mine had shifted to the Campbell Shear.

In 1974, the Robertson Shaft was sunk to access the lower levels of the mine. Three years later the shaft reached the 1653-metre level. The shaft was further deepened during 1984 and 1985 to the 1860-metre level. In December 1986, NERCO Minerals Corporation purchased the Con Mine. By 1990, the main production shaft extended to a depth of 1,902 metres; the mine had 14 levels, 129 kilometres of underground workings, and a workforce of 400. Milling capacity was 1043 tonnes per day.

An autoclave to treat refractory ore from the upper levels of the Campbell shear zone, as well as arsenic sludge and calcine wastes, began operation in August of 1992. In 1993, Miramar Mining Corporation acquired the Con Mine. At that time Miramar controlled more than 64.7 square kilometres of...
exploration rights in the immediate vicinity of the mine. An exploration program was launched in 1994 to evaluate these areas.

In May 1998, the Con Mine was closed due to a labour dispute; operations resumed in July 1999. The Con Mine began processing ore from Giant Mine in 2000. During 2000, 488 metres of exploration drifting on the 5900 and 4500 levels were completed. Diamond drilling during the second half of 2000, and early 2001, concentrated on testing the deep extension of the Campbell Shear below the 5900 level in the northern part of the mine workings.

In 2003, the Bluefish Hydroelectric Power Plant was sold to the NWT Power Corporation. The proceeds of this sale were used as a bond towards reclamation and abandonment of the Con Mine.

Con Mine stopped production on November 28, 2003, in part due to lower than expected volumes of ore from the refractory AW trend. During 2003 both free-milling and refractory ore and arsenic tailings were processed. This resulted in the recovery of 1700 kg of gold (MD&A May 2004). The mill continued to process ore from Giant Mine until its closure on July 7, 2004. Full mine closure activities commenced in 2005.

**Bedrock and Mineral Deposit Geology**

The Con Mine is in the upper portion of the Kam Group, which is a 10 to 12 kilometre-wide band of Archean mafic flows, and tuffs. Several dykes, sills, and irregular shaped gabbros intrude the volcanic rocks. Metamorphic grade ranges from upper greenschist in the east of the volcanic belt to lower amphibolite in the west next to the Western Granitic Complex.

Shear zones, in the mafic volcanics of the Yellowknife Bay Formation, host gold in the mine. The most productive of these shears on the property is the Campbell shear, which strikes in a north to northeast direction, and dips steeply to the west. This shear has been traced along strike for over ten kilometres, and is locally up to 300 metres wide at surface. The Campbell shear decreases in width with depth. The shear has been identified to the south under Great Slave Lake, and is cut off to the north by the West Bay Fault.

The Con shear is another shear, which also hosts significant gold mineralization. The Con shear displays similar geometry and is characterised by chlorite-carbonate and sericite-chlorite-carbonate schists similar to the Campbell shear. The portion of the shear that was mined was defined by a series of anastomosing shears that varied from two to ten metres wide and contained gold-bearing quartz-carbonate and quartz-carbonate-sericite veins.

The Rycon and Negus veins and shears extended diagonally between the Con and Campbell shears. The ore shoots comprised sulphide and native gold-bearing quartz veins that were generally less than two metres wide and averaged 30 metres in strike length.

Alteration surrounding the veins decreased in intensity and size with depth. Ore zones within the Campbell and Con shear zones were commonly steeply plunging, with vertical extensions of over 300 metres and horizontal dimensions of less than 100 metres. Ore from the Con shear and the upper portion of the Campbell shear was refractory, while the ore from the hanging wall veins and lower portions of the Campbell shear was largely free milling.

Structural studies indicate the Con and Giant deposits formed during the same initial deformation that caused the brittle-ductile faults. Further gold was subsequently introduced and the deposits were then offset by the West Bay Fault (Hauser et al., 2006).

**Milling**

Milling of the Con Mine ores occurred, in two circuits. The major circuit treated the free milling ores, and used conventional cyanidation and carbon-in-pulp technology. Gold recovery from the refractory ore using conventional cyanidation was less than 70%, but it was greater than 90% for the free milling variety. Refractory ore was treated by a separate on-site autoclave, resulting in a gold recovery between 85 and 90%. Mining of the two styles of ore was selective. Con ore contributed approximately 800 tonnes of ore per day to the mill; in later years ore from Giant Mine was added, for a total mill throughput of approximately 1,080 tonnes daily.

**Environmental Status and Mine Reclamation**

During 2002, Miramar Mining Inc. worked on concurrent reclamation, removing obsolete oil tanks and re-contouring the Negus tailing pond, as well as general site cleanup. Reclamation of arsenic tailings ponds was completed in 2003. Final closure of the tailings ponds occurred in 2004. Shutdown of the Robertson Shaft occurred in the third quarter of 2003. Arsenic waste material generated by Con Mine was processed over several years and all operations...
ceased by October 2007. A water treatment plant is available on-site to remove contaminants from surface water that may accumulate as a result of precipitation.

Miramar Northern Mining Ltd. (a subsidiary of Newmont, which acquired Miramar Mining in December 2007) is still in the process of implementing its remediation plans. The term of the Water Licence was extended and now expires in November, 2018.

Production

Con Mine began operating in 1938 and produced 5.5 million ounces (155,922 kg) of gold. The mine ceased operations on November 28, 2003 due to the exhaustion of reserves.

References


NORMIN.DB (www.nwtgeoscience.ca) 085JSE0056

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.mvlwb.ca


www.sedar.com Newmont Mining Corporation of Canada Ltd.
COURAGEOUS LAKE (FORMERLY TUNDRA (FAT DEPOSIT))

Seabridge Gold Incorporated

GOLD
Shear-hosted

TSXV: SEA

PRESIDENT: Jay S. Layman

OWNERSHIP: 100%

CORPORATE HEADQUARTERS: 106 Front Street E. TORONTO ON M5A 1E1

PHONE: (416) 367-9292 FAX: (416) 367-2711 E-MAIL: info@seabridgegold.net
www.seabridgegold.net

LOCATION: 230 kilometres northeast of Yellowknife

NTS AREA: 076D/03

LATITUDE/LONGITUDE: 64.1178°N 111.2706°W

RESOURCE ESTIMATION: proven and probable reserves of 6.5 million oz Au (see Mineral Reserves / Resources below)

ACCESS: Tibbitt to Contwoyto winter road; 1350 m airstrip at the former Salmita Mine

PROJECT STATUS: Active.

History

Exploration in the Courageous lake area has been ongoing since the early 1940’s. The Tundra (Fat) deposit was explored extensively by joint-venture partners Noranda Exploration (with a 51% interest) and Getty Canadian Metals (later Getty Resources) in the 1980’s (MIR 1986-87, AR 081139).

The Fat deposit was discovered in 1982, when two holes totaling 290 metres intersected the Main Zone. One hole intersected four metres averaging 8 g/t Au (AR 081689). In 1983, nine holes totaling 1,090 metres tested the Main Zone. The Carbonate Zone was discovered in 1984 when 36 holes totaling 6,243 metres were drilled (MIR 1986-87, AR 081894). Three deep holes were drilled in 1985; the best intersection was 19.2 g/t Au over a 6.1-metre true width (MIR 1986-87).

In 1987, Getty Resources was acquired by Total Erickson Resources (which later became Total Energold Corp.). That year, more than 36,000 metres were drilled and a preliminary resource estimate was completed. In 1988 and 1989 a $35 million underground exploration program resulted in a two-compartment shaft being sunk on the deposit, and 2,000 metres of underground drifting was completed on the 425-metre level. By autumn 1989, only 20% of the deposit had been tested, however the gold grade determined from this work was considered to be too low to be economic (MIR 1988-89, AR 082816).

Battle Mountain (Canada) Inc. entered into an option agreement to earn an 80% interest in the Courageous Lake property in 1990. Mill City Gold Mining and Gunnar Gold Mining each held a 10% interest (Canadian Mines Handbook 1989-1990).

Exploration for diamonds was undertaken on the property during the early 1990’s; no kimberlite was found.

Placer Dome Inc. optioned the property in late 1997 and entered into a joint venture agreement with Battle Mountain Canada and Total Energold Corporation. In 1998, extensive geochemical sampling, mapping, and drilling (92 holes totaling approximately 96,000 metres) were performed, as well as an eighty line-km ground magnetometer survey. After a preliminary economic assessment based on this work Placer Dome terminated the option agreement in 1999 and the property reverted to its owners.

In January 2001, Battle Mountain Canada and Battle Mountain Gold agreed to become wholly owned subsidiaries of Newmont Mining Corporation. In July 2002, Seabridge Gold Incorporated (Seabridge) bought a 100% interest in the project from Newmont Canada Ltd. and Total Resources Canada Ltd. (subject to a 2% NSR).
During 2003, Seabridge performed geological mapping and sampling in the area of old showings and re-examined core from previous drilling along the belt. Some core was re-sampled, and re-logged and some samples were sent for metallurgical testing. Seabridge identified 12 gold targets on the property with FAT-type characteristics that had been drill-tested by past operators. Nine of the 12 targets had the potential to host bulk minable deposits similar to the FAT (AR 084703).

During 2004, Seabridge tested two of nine new bulk-mineable gold targets in order to upgrade the resource model for the FAT deposit. A 7,500-metre drill program in 2005 extended the FAT deposit by an additional 850 metres to the south and 600 metres to the north.

The following year, Seabridge completed drill programs designed to extend the projected 8.5 year mine-life that was calculated in the 2005 Preliminary Assessment. The winter program successfully tested: (1) higher grade structures within the FAT deposit which had not been intersected in previous drilling; (2) two new structures to the west of the known deposit, but within the projected open pit; and (3) a northern extension of the FAT deposit.

The 2006 summer drill program primarily tested several gold zones west of the FAT deposit. Ten drill holes totaling approximately 2,900 metres were located to off-set previous drillhole intersections that had not been incorporated into the 2004 resource model. Following the 2006 drill programs, a new resource estimate was prepared.

During 2010, 49 diamond drillholes and ten auger holes, totaling 24,000 metres were drilled and, the following year 52 holes, totaling 15,000 metres were completed; the data from this work was incorporated into a preliminary feasibility study (PFS) released in 2012 (Seabridge website, 2012 Technical Report).

The PFS study envisioned a single open pit mine that would have a 15-year mine-life. Further exploration was carried out in 2012 in order to improve the economics of the project through the discovery of a separate major deposit in the vicinity.

The Walsh Lake deposit was discovered in 2012, ten kilometres south of the FAT deposit, on the Courageous Lake property and an inferred resource estimate for the deposit was released in 2014 (see Mineral Resources below).

**Bedrock and Mineral Deposit Geology**

The deposit lies within the Courageous-Mackay Greenstone Belt (CMGB), a three- to seven-km wide and approximately 70 km-long, north to northwest trending, metavolcanic and metasedimentary belt within the Slave Structural Province.

The main zone of the Tundra (Fat) deposit is an approximately 800-metre wide mineralized, felsic tuff sequence. Sericite and silici alteration are the dominant alteration types with minor chlorite and garnet. A separate auriferous zone stratigraphically below the felsic volcanic rocks is carbonate-rich. The mineralized zone has a strike length of two kilometres, and a vertical depth of at least 500 metres.

Seabridge introduced a revised geological interpretation of the deposit in 2003, moving away from a structurally controlled model of deposition of the gold mineralization to a hydrothermal origin during the deposition of the felsic volcanic rocks (Bill Threlkeld, personal communication).

A complex ore structure is indicated from more than 170,000 metres of diamond drilling performed by various companies over several decades from both surface and underground. A strataform series of lenticular ore domains is hosted in tuffaceous rock. The gold is primarily found within fractures in arsenopyrite, but there is also fine free gold; visible gold is rare (Seabridge Technical Report, 2012).

Two past producers (the Salmita and Tundra mines) are found along the CMGB. The Tundra Mine, which lies approximately 10 km south of the Tundra (Fat) deposit was in production from 1964 to 1968, while the past-producing Salmita Mine (1983-1987) lies four km south-southeast of the deposit.

**Production and Development Plans**

The Noranda/Getty underground workings were allowed to flood in 1989. Due to the deposit’s location close to two past gold producers, there is a historic airstrip and a local road that connects the airstrip to the site. Both would require upgrades. The 2012 preliminary feasibility study (the most up-to-date as of July 2016) featured development of an open pit mine.

**Mineral Reserves / Resources:**

A proven reserve of 12.3 million tonnes with a grade of 2.41 g/t gold, in addition to a probable reserve of 78.8 million
tonnes grading 2.17 g/t gold was calculated. The estimate used a gold price of US$1,244 and a 0.83 g/t gold cut-off.

Proven and probable reserves were calculated from estimated total undiluted measured and indicated resources of 107 million tonnes with an average grade of 2.31 grams of gold per tonne (Seabridge Gold News Release July 24, 2012).

A NI 43-101-compliant inferred resource for the Walsh Lake deposit was estimated to be 4.62 million tonnes grading 3.24 g/t gold, using a 0.6 g/t gold cut-off (Seabridge Gold News Release March 11, 2014).

References


Bill Threlkeld, (Seabridge Gold), personal communication, Sept. 2003

DIAND NWT Geology Division Staff, (1999) ‘Slave Province – Gold and Base Metals’ in Exploration Overview 1998 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-8


NORMIN.DB (www.nwtgeoscience.ca) 076BSW0003 NTG5 Assessment Reports 081139, 081689, 081894, 082816, 084703

Robertson Info-Data Inc. property search - Tundra Gold (Courageous Lake, 2000) - http://www.info-mine.com


www.seabridgegold.net


**CRESTAURUM**  
*TerraX Minerals Inc.*  
**GOLD**  
*Vein hosted*

**TSXV:**  
TXR  
**PRESIDENT:**  
Joseph Campbell  
**OWNERSHIP:**  
100%  
**CORPORATE HEADQUARTERS:**  
2300 - 1066 West Hastings Street  
VANCOUVER, BC V6E 3X2  
**PHONE:**  
(604) 689-1749  
**FAX:**  
(604) 648-8665  
www.terraxminerals.com

**LOCATION:**  
15 kilometres north of Yellowknife  
**NTS AREA:**  
085I/09  
**LATITUDE/LONGITUDE:**  
62.5806°N 114.3614°W  
**RESOURCE ESTIMATION:**  
Historic NI 43-101 non-compliant indicated and inferred 145,150 tonnes @ 7.54 g/t Au  
**PROJECT STATUS:**  
Active.

---

**History**

Two prospectors, Harry Weaver and C. Duncan Campbell, discovered the #1 shear zone in 1944. Shortly thereafter Jimmy Mason acquired the property and more work was carried out. Crestaurum Mines Ltd. was formed and over the next few years a 128-metre shaft was sunk with two crosscuts. In addition, the Vee Lake road was built from Giant Mine to the Crestaurum mine site. Work was put on hold in 1947 and ten years later, in 1957, the mine buildings were gutted by fire.

The property passed from Crestaurum Mines to Transcontinental Resources, who partnered with Falconbridge Nickel Mines Ltd. and formed Northbelt Yellowknife Mines Ltd. in 1964 (Canadian Mines Handbook, 1965). The property then passed to Giant Yellowknife Mines Ltd., a subsidiary of Falconbridge Ltd. A lot of drilling was carried out by Giant Yellowknife in the 1970s and 1980s (187 holes were drilled that cut mineralization at less than 150 metres vertical depth). In 1985 alone, 74 holes (7,800 metres) were drilled. However in 1989, Giant Yellowknife Mines optioned the property to Treminco Resources Ltd. operators of the nearby Ptarmigan Mine.

In early 2013, TerraX Minerals Inc. acquired the Northbelt gold property that overlies Crestaurum (a portion of TerraX’s Yellowknife City Gold Project). That year, airborne geophysics, prospecting, mapping and re-sampling of historic drill core was conducted. One hole intersected five metres with a grade of 62.9 g/t Au. Sampling indicated that the Crestaurum shear could be traced for 650 metres to the southwest and two kilometres along strike to the northeast of the historically defined Crestaurum deposit.

TerraX drilled nine holes, totaling 810 metres on the Crestaurum deposit in 2014. Highlights of that drilling included, a three-metre interval that graded 13.84 g/t Au in one hole and a five-metre intercept grading 7 g/t Au in another hole.

In early 2015, drilling cut the South Shoot of the Crestaurum zone. This drilling was highlighted by a hole that cut seven metres grading 10.2 g/t Au inclusive of a three-metre interval that graded 23.7 g/t Au. By March 2015 TerraX had drilled 27 holes to test the Crestaurum shear and expand the deposit. Highlights of this drilling include an eight- metre intercept that graded 6.83 g/t Au, inclusive of a two-metre intercept that ran 23.9 g/t Au.

TerraX drilled a new area in 2015, north of the North Extension shoot; assay results included an 8.86- metre intersection that graded 2.86 g/t Au, inclusive of a two-metre intercept that graded 10.24 g/t Au (Hole TCR15-025). In addition, drilling tested an area between the south and central shoots.
In summer 2015, drilling resumed for a total of 5,775 metres in 41 holes. Definition and extension drilling tested the South Shoot of the Crestaurum zone. The results at Crestaurum included 4.2 metres grading 12.3 g/t Au inclusive of 2.5 metres grading 19.43 g/t Au and 10.8 metres grading 3.5 g/t Au inclusive of 2.4 metres grading 8.13 g/t Au and 4.4 metres grading 3.5 g/t Au (Dec. 8, 2015).

The South Shoot hanging wall intersections included 0.5 metre grading 15.65 g/t Au, one metre grading 5.6 g/t Au and one metre grading 5.26 g/t Au.

TerraX drilled two holes totaling 203 metres on Crestaurum during a drill program in the first quarter of 2016.

**Bedrock and Mineral Deposit Geology**

The Crestaurum deposit lies within the Yellowknife Greenstone Belt, an area composed of Archean-aged metavolcanic and metasedimentary rocks that strike in a north-northeasterly direction.

The Crestaurum Formation is composed primarily of mafic volcanics with minor intermediate volcanics and tuffaceous sediments. The volcanic rock has been intruded by mafic dykes and sills, as well as quartz-feldspar porphyritic dykes. The mineralized Crestaurum shear can be traced for approximately four kilometres in a northeasterly direction and dips steeply to the southeast. High-grade gold shoots are associated with quartz veins and minor sulphide within the shear.

The most important mineralization style within the Crestaurum shear zone is comprised of visible gold associated with arsenopyrite and pyrite mineralization in altered wall-rock; this has been overprinted by a carbonate-vein hosted different and more complex sulphide assemblage, also with visible gold (Ootes et al, 2006).

**Significant Results**

TerraX has drilled holes to help define a resource at Crestaurum and to explore for other gold deposits on the Yellowknife City Gold Project. Treminco Resources Ltd. estimated a non-NI 43-101 resource at Crestaurum contained an indicated and inferred resource of 145,150 tonnes grading 7.54 g/t Au (1990 Treminco Resources Annual Report).

**Yellowknife City Gold Project**

TerraX is actively exploring a large area in the vicinity of Yellowknife. Apart from the Crestaurum drilling in early 2016, 55 holes totaling 7,100 metres were drilled during a winter drill program that was completed at the end of March. Nine holes tested the Mispickel target, and nine were drilled at Sam Otto. The Mispickel drilling was highlighted by an eight-metre intercept that graded 60.60 g/t Au that included 2.25 metres with a grade of 212.48 g/t Au (June 6, 2016). At Sam Otto 1,510 metres were drilled highlighted by three holes that cut 30 to 50-metre wide intervals that graded from one to 1.3 g/t Au. Other holes tested targets at Homer Lake, the Hébert-Brent area, the AES, the Pinto and the Barney zone (MD&A June 20, 2016).

**References**


NORMIN.DB (nwtgeoscience.ca) 085JNE0014

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.sedar.com TerraX Minerals Inc. MD&A posted June 20, 2016


## Gold

**DAF**

**Walter Humphries**

**Vein hosted**

### Ownership:
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development Contaminants and Remediation Directorate (CARD) Site.

### Address:
Walter Humphries
Box 1856
YELLOWKNIFE, NT X1A 2P4

### Phone:
(867) 873-5486

### E-mail:
walth@internorth.com

### Location:
77 kilometres northeast of Yellowknife, on the east shore of Gordon Lake

### NTS Area:
085I/14

### Latitude/Longitude:
62.9058°N 113.2328°W

### Ore Type:
Free milling

### Deposit Type:
Vein

### Resource Estimation:
Historic NI 43-101 non-compliant 3,500 tonnes @ 30.4 g/t Au

### Access:
Float or ski equipped aircraft; winter road in season along Gordon Lake

### Alias(es):
MQ

### Project Status:
The property is available for option.

---

### History

Yellowknife prospectors J. Woolgar and G. Wonnacott first staked the property in 1946. Zolota Yellowknife Mines Limited optioned the property, and performed trenching and diamond drilling before relinquishing it in April 1947. In 1947, the owners and J. McAvoy installed a small mill, and hand cobbed the vein material, to produce 1.5 kilograms of gold. West-Bay Yellowknife Mines Limited acquired the property in 1948 and a larger mill was brought on to the property. Further trenching and hand cobbing of the vein material produced an additional 6.8 kilograms of gold. Between 1946 and 1948, trenching, diamond drilling, and milling produced 9.6 kilograms of gold and 980 grams of silver from 278 tonnes of ore. The original claims lapsed in 1966, however J. Woolgar re-staked the No. 1 Zone showing and kept it until 1977 (AR 017981).

There is no record of work on the property until 1977, when the ground was staked again. Allan Reed and John Doucette staked the showing and hand cobbled and milled some ore, recovering approximately 840 grams of gold (AR 082258).

Black Ridge Gold Limited acquired the claims in 1981, and carried out exploration in the area until the end of 1984. In 1982, twenty holes totaling 420 metres of BQ core was drilled (AR 081574). Cruiser Minerals Limited carried out the 1984 program, under an option agreement. Between 1982 and 1984 trenching and diamond drilling were performed. Through this period 44 holes were drilled for a total of 1,635.7 metres. At the end of the 1984 program, the project operator published a resource for the DAF of 5,000 tonnes at a grade of 30.4 grams per tonne. During 1985 further geological mapping, geochemical sampling and ground magnetic and VLF EM surveys were completed (AR 081939). In 1987, Black Ridge Gold and Cruiser Minerals drilled 400m (Exploration Overview 1987).
In 1990, New Era Development Limited had Cameron Mining Limited mine a 1900 (possibly closer to 1500) tonne bulk sample in February and March, and transport it to Burnt Island. It was transported from Burnt Island via the ice road to the Ptarmigan mill for processing in 1991. The grade of the ore was 19 g/t Au (Exploration Overview 1990, 1991). In 1997, the DAF deposit was held by J. McBryan. Trevor Teed staked the DAF property in January, 2003 (adjacent to the WT claims). The claim lapsed and prospector, Walter Humphries, staked it. He has taken the claim to lease.

**Bedrock and Mineral Deposit Geology**

Greywacke and slate interbeds of the Archean Yellowknife Supergroup host gold-bearing quartz veins. The veins strike north 10° to 40° east and dip 55° to 75° southeast and follow along the axis of a syncline. The main vein averages approximately 1.4 metres in width (the width can vary from 0.5 to 3.2 metres); it is exposed for approximately 100 metres. There is a wide portion of the vein on the east flank, called the “Hump” which is up to 10.7 metres wide. Sulphides found in the vein are reported to include pyrite, galena, chalcopyrite, and sphalerite. Visible gold is present.

**Significant Results**

A property resource of 5,000 tonnes at a grade of 30.4 g/t Au was reported after the drilling program in 1984. The method of calculation of this resource is not known. This resource was partially mined by Cameron Mining Limited in 1990.

**References**


NORMIN.DB (www.nwtgeoscience.ca) 085INW0133

NTGS Assessment Reports 082258, 081939, 081574, 017981, 084211

DAMOTI LAKE
Nighthawk Gold Corp.

GOLD
Banded Iron Formation

TSXV:
NHK

PRESIDENT AND CEO:
Dr. Michael J. Byron

OWNERSHIP:
100%

CORPORATE HEADQUARTERS:
141 Adelaide St. W., Ste. 301
TORONTO, ON M5H 3L5

PHONE: (647) 260-1247
FAX: (416) 628-5911
E-MAIL: info@nighthawkgold.com

www.nighthawkgold.com

LOCATION:
210 kilometres north - northwest of Yellowknife; 12 kilometres southwest of the past-producing Colomac Mine

NTS AREA:
086B/03

LATITUDE/LONGITUDE:
64.1686°N 115.0817°W

RESOURCE ESTIMATION:
461,655 tonnes grading 15.059 grams of gold per tonne in the Horseshoe Zone (Russell, 2003)

ACCESS:
Float or ski equipped aircraft. The Colomac minesite is 12 kilometres to the north

ALIAS(ES):
BIF Island, Horseshoe zone

PROJECT STATUS:
The Damoti Lake deposit is part of a large land package held by Nighthawk Gold Corporation.

History

The showing was sampled in 1992 by J. Brophy (DIAND District Geologist), who sampled the iron formation on BIF Island, during a property visit, as part of a study to investigate iron formation-hosted gold deposits. Anomalous gold was found in several of the grab samples (up to 26.8 g/t gold). Following the announcement of the auriferous iron formation, the area surrounding BIF Island was quickly staked by Covello, Bryan and Associates Limited, then later acquired by Athabaska Gold Resources Limited in joint venture with Gitennes Exploration Incorporated and Consolidated Ramrod Gold Corporation.

Between 1993 and 1997, the area of the showing was extensively diamond drilled, and ground geophysics (magnetic and electromagnetic) and airborne geophysics (magnetic, electromagnetic, resistivity and VLF) were performed. Mapping and sampling on the islands were also completed in the earlier work programs. In 1994, one hundred holes were drilled totaling 11,151 metres. The best intersection was 14.6 metres grading 68.58 g/t Au (AR 083396). In September 1995, Consolidated Ramrod Gold Corp. bought out the other owners’ stake in the project and became sole owner of the property. Consolidated Ramrod Gold Corporation became Quest International Resources Corporation in 1995, and continued to operate the project. In 1996, Quest completed an underground exploration program consisting of a decline and drifting at the 275-metre level. Quest continued exploration on the deposit throughout 1997, drilling several zones along the host iron formation (see Exploration Overviews 1997-1998). During the 1997 underground exploration program, 4,064 tonnes of “ore” were stockpiled on surface with an estimated grade of 20.6 g/t Au (George Cross Newsletter, Feb. 1997, No. 28).

In May 1999, Quest International Resources Corporation changed its name to Standard Mining Corporation; the Damoti property was subject to a 2% net smelter royalty retained by Covello, Bryan & Associates. In November 2001, Standard Mining Corporation was replaced by Doublestar Resources Limited. In July 2003, Anaconda Gold Corporation (Anaconda) optioned the property. In July 2004, September 2004, and February 2005 exploration drilling was conducted on the Horseshoe Zone; this was incorporated into a new resource estimate. In April 2007, Anaconda Gold changed its name to Anaconda Mining Incorporated.

Anaconda released a National Instrument 43-101 compliant resource estimate for the Horseshoe Gold Deposit in November

A GUIDE TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES
2005; an estimated measured and indicated mineral resource of 40,600 tonnes of ore grading 26.17 g/t Au was calculated based on an 8 g/t Au cut-off and a gold price of US$400 an ounce. Inferred resources total 17,800 tonnes grading 16.38 g/t Au.

In August 2008, Anaconda sold its interest in the Damoti Lake gold project to Merc International Minerals Incorporated (Merc). Merc carried out a drill program in 2009 consisting of 27 drill holes totaling 5,670 metres. In 2010 Merc expanded its land package and in 2011 Land Use permits were issued to allow for drilling over its entire land position within the Indin Lake Gold Camp.

During 2010 Merc completed geophysical surveys and followed up on the results by drilling 42 holes totaling 7,985 metres, with the primary objective of increasing the historic resources of the Horseshoe Zone, BIF Island and Red Mountain Zones. In addition 19 holes tested the BIF Zone (3.5 km southwest along strike of Horseshoe).

Merc holds the rights to a land package that covers the entire area between Damoti Lake and Colomac and prospective zones over the entire Indin Lake Greenstone Belt. Merc International Minerals Inc. changed its name to Nighthawk Gold Corp. on April 30, 2012.

A 2013 “Technical Report and Mineral Resource Estimate Update on the Colomac Property of the Indin Lake Belt Northwest Territories, Canada for Nighthawk Gold Corp.” provides detailed logistic and exploration results of the 2009 and 2010 Damoti Lake exploration programs, including numerous significant gold intercepts, such as 38.5 metres grading 3.24 grams of gold per tonne (in Hole D10-394C). However, no updated resource for Damoti Lake has been released since late 2005.

**Bedrock and Mineral Deposit Geology**

The deposit is hosted in banded iron formation (BIF) within sediments of the Indin Lake Supracrustal Belt. Both the BIF Island and Horseshoe zones are contained in a greywacke-argillite sequence, and are in the order of one centimetre to tens of metres thick. Six facies of iron formation have been noted in the area, and include, silicate-oxide, silicate-amphibole, silicate-sulfide, silicate-chlorite, and cherty exhalative facies. The host unit is strongly folded and is conformable with the enclosing sediments. Mineralization includes pyrite, pyrrhotite, and magnetite rich sections. Visible gold is common in the drill core and is generally more abundant in quartz veins which cut the iron formation and are concentrated in fold noses.

**Mineral Resource Estimate**

The November 2005 resource estimate, as stated above, is the most recent estimate to be released (as of July 2016).

**References**


George Cross Newsletter No. 28 (February 10, 1997) page 4
George Cross Newsletter No. 25 (February 5, 1998) page 5


NORMIN.DB (www.nwtgeoscience.ca) 085BSW0050, NORMIN.DB 085BSW0001

NTGS Assessment Report 083396

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

DISCOVERY MINE
Tyhee N.W.T. Corp.

GOLD
Vein/Shear hosted

TSXV; NEX:
TDC.H

OWNERSHIP:
100%

Surface is Crown Land, Federally
Managed; Aboriginal Affairs and Northern
Development Contaminants and
Remediation Directorate (CARD) Site

PRESIDENT:
Brian K Briggs

CORPORATE HEADQUARTERS:
Suite 401
675 WEST HASTINGS STREET VANCOUVER
BC  V6B 1N2

PHONE: (604) 681-2877
FAX: (604) 681-2879
E-MAIL: info@tyhee.com

www.tyhee.com

LOCATION:
84 kilometres north- northeast of Yellowknife

NTS AREA:
085P/04

LATITUDE/LONGITUDE:
63.1867°N 113.8917°W

HISTORIC PRODUCTION:
31,837 kg gold from 31,688 kg of ore

RESOURCE ESTIMATION:
Ore reserves remain in un-mined pillars and within stopes (see
below).

ACCESS:
Air; dirt airstrip; winter road

PROJECT STATUS:
The property is also host to the Ormsby deposit (see Ormsby Zone
deposit description).

History
The Discovery property was first staked in 1944 by A.V. Giauque and sons. Discovery Yellowknife Mines was formed in 1945, to explore the property. After extensive exploration in 1946, a shaft was sunk and in late 1949 a 90 tonne per day mill was installed. Discovery Mine operated between 1950 and 1969. Several auriferous quartz veins were mined. Mining was completed to the 1,200-metre level. A fire in 1969, coupled with the exhaustion of developed resources prompted the mine closure.

Between March 1969 and 1980, there was no further work carried out. In December 1980, Newmont Exploration Limited optioned the property. They carried out ground geophysics, mapping and geochemical studies. During the summer of 1981, ground geophysical surveys (magnetic, VLF EM, HLEM) were carried out over a 60 line-km grid, and IP and resistivity surveys were performed over a more restricted area (covering the volcanic rocks) (AR 081611). In 1987, Canamax Resources optioned the property and explored claims in the vicinity of Discovery Mine (Exploration Overview 1987).

The property was allowed to lapse and Dave Webb and Gerry Hess staked it in 1992. They formed New Discovery Mines Limited to develop the property. In 1994, they drilled six holes totaling 915 metres. In 1995, GMD Resource Corporation optioned the property. A resource was calculated to estimate the remaining ore reserves within un-mined stope pillars and the broken ore remaining within stopes (AR 083411).

Tyhee Development Corporation Ltd. acquired the property in 2000. They focused their efforts on the Ormsby Zone. Two thousand metres of diamond drilling was completed on the southern and depth extensions of the West Zone in 2002.

In 2005, the Federal Government (Aboriginal Affairs and Northern Development Canada) Contaminants and Remediation Directorate (CARD) commenced clean-up of the Discovery Mine site and removed all historic buildings and surface facilities. Tyhee completed a high–resolution helicopter-borne aeromagnetic survey that year. Tyhee submitted a Project Description Report to the Mackenzie Valley Land and Water Board (MVLWB) in March 2005, seeking a water license and land use permit to start construction of a mine and mill, together with all the processing and support facilities and waste storage sites at the Yellowknife Gold Project. The project was referred to Environmental

A GUIDE TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES
Assessment later that year. Tyhee later changed its development plans (and a new project description was filed in July, 2008).

Tyhee drilled more step-out holes from surface set-ups in 2006, outside of the Ormsby Zone, over a 300 metre strike length, to identify additional resources; each intersected significant gold mineralization.

In January, 2007, Tyhee acquired more ground in the project area, and carried out drilling on the West Zone, Ormsby South and North, and the newly discovered Typhoon Zone. A 3,400 tonne bulk sample was extracted, crushed and stockpiled and ten tonnes were shipped out for metallurgical testing.

As part of the Environmental Assessment process, Tyhee was required to file a Developer’s Assessment Report (DAR). In 2009 Tyhee was working concurrently on a pre-feasibility study. The company decided to focus on that, and the DAR was put on hold. The DAR was filed in May 2011 and following multiple information requests and changes envisioned by the 2012 Feasibility Study, Tyhee delayed and then in August 2013, suspended the process. Since August 2014 Tyhee has investigated merger and acquisition opportunities. A US$5 million loan from RMB Australia was obtained using the Yellowknife Gold Project as security and extensions to the loan were approved up to January 29, 2016.

Exploration

No exploration has been carried out for several years and Tyhee Gold Corporation is inactive at this time (March 31, 2016).

Significant Results

In 1994 (prior to National Instrument 43-101) a historic estimate of probable remaining reserves for the Discovery Mine proper totaled 206,897 tonnes at 22.62 g/t Au with calculations based on assays cut to 103 g/t Au, using a 0.9-metre minimum mining width and a gold cut-off of 6.85 g/t Au.

Bedrock and Mineral Deposit Geology

The deposit consists of auriferous quartz veins located in Archean metasediments and volcanic rocks of the Yellowknife Supergroup in the Slave Geological Province. Schistose argillites, greywackes and phyllites host the largest vein that was exploited. The largest vein (the North vein) is located within approximately 100 metres of a contact between sediments and volcanic rocks, and lies within the northeast-trending Discovery shear zone. On the 38-metre level this vein was consistently 1.7 to 2 metres wide, with a grade of approximately 45 g/t Au for a distance of 30 metres. The vein is an antiform with the axis plunging 80 degrees north; the limbs trend south and dip steeply west. The original gold discovery was in hydrothermally brecciated metavolcanics rocks. This was referred to as the West Zone and was exploited to a depth of 170 metres below surface.

References


NORMIN.DB (www.nwtgeoscience.ca) 085PSW0032

NTGS Assessment Reports 081611, 083411

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


www.sedar.com Tyhee Gold Corp. news releases and MD&A reports

www.tyhee.com Tyhee Development Corp. and Tyhee Gold Corp. news releases
Gold was first discovered on the GAB property in 1947. Discovery was followed by the drilling of 18 shallow holes, 12 of which returned gold values over widths of 0.6 to 1.8 metres. The property was then optioned to Goldcrest Mines Limited, who drilled 396 metres in 23 holes and then dropped the option.

In 1950, Garskie Gold Mines Limited acquired the claims and drilled 1,024 metres in 13 holes. Visible gold with pyrite and galena were reported in two of the holes. Maps showing the location of drill holes and trenches are available from NTGS (AR 015228).

In 1969, the claims were re-staked by G.B. Brown and Precambrian Mining Services was hired to evaluate the claims (AR 060410). Drilling did not produce significant results (Brown, 1969; Padgham et al., 1974).

In 1973 and 1974, trenching was carried out by Precambrian Mining Services. No results of this work could be located.

In 1986, Treminco Resources Limited optioned the GAB leases (and staked adjacent claims). In 1987, they drilled 27 holes, totaling 877 metres. A program of detailed mapping, trenching and examination of old drill core was also conducted (AR 082647). Treminco Resources changed its name to Elkhorn Gold Mining Corporation in 1999.

The property was staked in 2003 by Max Braden (as the Tryme claim). For a day in 2003 and 2005 prospecting was performed and seven representative samples were taken from historic trenches along a northwesterly strike length of about 120 metres (north of the former shaft). Six of the seven samples resulted in assays ranging from 1.4 g/t Au to 17.8 g/t Au (AR 084887).
Bedrock and Mineral Deposit Geology

The property is underlain by Archean Yellowknife Supergroup sediments of the Burwash Formation, which consists of interbedded greywacke, shale arkose and quartzite, meta-morphosed to knotted quartz-mica schist and hornfels. Visible gold is associated with pyrite, pyrrhotite, arsenopyrite, chalcopyrite, sphalerite, and galena in quartz veins, within a shear zone, cutting the knotted quartz mica schist. The quartz vein system is bedding parallel within a deformed mafic-rich unit.

There is a granitic intrusive / metasedimentary rock contact which appears to be buried beneath the nearby lake.

Significant Results

Treminco (Elkhorn) reported a property resource of 27,215 tonnes at an average grade of 10.63 grams of gold per tonne after the 1987 exploration program (AR 082647).

References


NORMIN.DB (www.nwtgeoscience.ca) 085PSW0037

NTGS Assessment Reports 015228, 060410, 082647, 084887

GIANT MINE

Federal Government; Department of Aboriginal Affairs and Northern Development

OWNERSHIP:
The Federal Government is the current owner and is responsible for remediation of the site.

MINE MANAGER:
Giant Mine Remediation Project Team

PHONE: 867-669-2426
E-MAIL: giantmine@aandc-aadnc.gc.ca

LOCATION:
5 kilometres north of Yellowknife

NTS AREA:
085J/8, 085J/9

LATITUDE/LONGITUDE:
"C" shaft: 62.4964°N 114.3658°W

TOTAL ORE MILLED (INCLUDES SUPERCREST):
16.5 million tonnes at 12.3 g/t Au

CURRENT MINE LIFE:
Closed

PROJECT STATUS:
The mine is closed and is undergoing remediation and maintenance to ensure compliance with environmental requirements.

History

Prospectors C.J. Baker and H. Muir, on behalf of Burwash Yellowknife Gold Mines Limited (Burwash Yellowknife), first staked the property in 1935. Burwash Yellowknife was a subsidiary of Bear Exploration and Radium Ltd. (B.E.A.R.). Giant Yellowknife Gold Mines Limited was incorporated in 1937 and shortly thereafter optioned the Giant Claims. In 1938, D.W. Cameron discovered a gold bearing schist outcrop at the south end of the mine property referred to as the DWC zone. Although a few shafts were sunk on the property in 1937, the first production was from a shaft on the Brock vein; during 1939 and 1940 ore from the Brock veins was hand sorted and sent to Trail B.C. for processing (MIR 1988-89).

Frobisher Explorations, a subsidiary of Ventures Ltd., optioned the property in 1941. Surface exploration continued through until 1943 and located a number of other zones. Frobisher Explorations took control of Giant Yellowknife Gold Mines Ltd. in 1943. A.S. Dadson’s examination of the property that year resulted in a surface diamond drill program. From 1944 to 1946, approximately 200 diamond drill holes were completed for a total of 25,580 metres. This program resulted in the location of the subsurface extensions of the zones previously mapped on surface. The original resource estimation from this drill program indicated 2,753,329 tonnes at a cutoff grade of 11.3 grams of gold per tonne. Development began in 1946 with the sinking of A shaft to a depth of 159 metres from surface. In 1948, B Shaft was completed to a depth of 238 metres and the mine went into full production. In 1951, C shaft was completed to a depth of 313.6 metres and later deepened to 466 metres in 1954 and to 609.6 metres in 1959. All shafts are connected at the 750 level.

Giant Yellowknife Gold Mines Ltd. amalgamated with Consolidated Sudbury Basin Mines Ltd. on a share for share basis to form Giant Yellowknife Mines Ltd. in 1960 (Canadian Mines Handbook 1960).

During the first 15 years of the mine’s life, extensive exploration programs were carried out, both from underground and on surface. Near the end of this period, the focus of exploration activities was on the 2000 Level program. In 1962 Ventures Ltd. merged with Falconbridge Ltd. The 2000 Level work proved to be discouraging, gold values were not continuous at depth and by the end of 1963 exploration ceased. The last major ore zone to be discovered on the Giant mine property (the LAW) was discovered in 1962.

Ore reserves at the end of this period totaled 2,095,586 tonnes, with an average grade of 25.4 grams per tonne representing a total of 53,227 kilograms of gold.
In 1965, Giant Yellowknife Gold Mines Limited and Akaitcho Gold Mines formed Supercrest Gold Mines Limited. The Supercrest deposit was on an adjoining property.

A number of key events occurred that allowed the mine to remain in operation for decades.

These events included:
- The release of the fixed gold price of US$35 by the United States in the early 1970’s;
- The introduction in the mid-1970s of mechanized equipment, such as drill jumbos and scoop trams;
- Development of lower cost open pits (from 1974 to 1990);
- In later years, the development and exploitation of easily accessible orebodies, and cost effective extraction of these orebodies; and
- Continued close geologic controls on mining dilution and methods (Canam, 2006).

Giant Mine poured its 10,000th gold brick in November 1985. In 1986, Pamour Incorporated acquired Falconbridge Limited’s 19.2% share in Giant Yellowknife Mines Limited; Pamour’s interest increased to 50.2% in January 1987, and then declined to 41.8% in September 1987. In April 1988, Giant Resources Limited of Australia bought outstanding shares of Pamour Incorporated, thereby increasing its interest in Giant Yellowknife Mines Limited to 45%.

In 1989, Giant Resources Limited announced that its Canadian assets were for sale and on November 2, 1990, Royal Oak Resources Limited acquired Giant Mine. A review of mining methods led to changes; production once again focused on underground development.

A strike, which extended from May 23, 1992 until December 1, 1993, did not greatly affect production because replacement workers were used. Production was 2975 kg gold in 1992 and 2890 kg gold in 1993 (the production in 1991 and 1994 was approximately 3150 kg gold).

In 1995, production began from the Supercrest Mine adjacent to Giant Mine. The mineable reserves from Supercrest added approximately seven to eight years mine-life to Giant. A number of exploration programs were completed in 1998 and 1999. These programs were designed to find orebodies in close proximity to existing infrastructure within the mine. Although limited in scope, these programs were successful in identifying new reserves (however the orebodies were limited in size). The exploration programs included drifting and drilling in the upper Supercrest area, upper 1100 complex area, and track drift extension on the 1500 level south of the main C shaft.

Estimated reserves quoted by Royal Oak Mines Inc. at the end of 1998 for the whole Giant deposit were 451,776 tonnes at an average grade of 12.4 grams of gold per tonne. These reserves were in the proven and probable category, and included the Supercrest area. In April 1999, Royal Oak Mines Inc. went into receivership. Miramar Mining Corp. acquired Giant Mine from the Federal Government in December 1999 and began trucking and processing ore from Giant at its Con Mine mill beginning in 2000. The Federal Government indemnified Miramar Giant Mine Limited a wholly owned subsidiary of Miramar Mining Corp. from assuming liability for historic contamination of the mine site.

In 2002, additional ore was discovered on the 776 level in the Supercrest area, expanding reserves. Ore from Giant Mine was trucked to the mill at Con Mine up until mining ceased in July 2004. Stockpiled ore continued to be processed during the summer. Giant Mine was brought into production in 1948 and ceased operations on July 10, 2004; during that time the mine produced over 7 million ounces (198,447 kg) of gold.

Bedrock and Mineral Deposit Geology

The Giant Mine gold deposits occur within the Yellowknife Greenstone Belt. The belt consists of a steeply dipping homoclinal succession of tholeiitic massive and pillow flows, calc-alkaline tuffs and flows, intercalated volcanogenic sediments, and multiple and sheeted gabbroic dykes.

The Giant ore bodies are bound to the south and west by the West Bay fault, to the north by the Akaitcho fault, and to the east by the angular unconformity, with the Jackson Lake Formation sediments along the Yellowknife Bay shoreline.

Mineralization in the south and central portions of the mine was generally recognizable as broad zones of silicification and/or quartz-carbonate veining with disseminated sulphide mineralization, bounded by sericite to chlorite schist. In the northern portion of the mine, gold was located within generally shallowly dipping shear zones in relatively narrow (one to five-metre wide), commonly folded or boudinaged, composite quartz-carbonate veins.

The quartz veins contain pyrite, arsenopyrite, sphalerite, chalcopyrite, stibnite, sulphosalts, and pyrrhotite. Gold is most commonly associated with arsenopyrite and pyrite. Ore zones tend to be broadly linear within the plane of the shear zones and to occur at shear zone bends, or where branches of a shear system intersect. These linear zones most commonly either have a gentle, or steep, plunge and are characterized by the presence of complex folds and contortions in the schistosity and in the quartz orebodies.
Milling

Ore processing was modified over the mine’s history to accommodate specific types of ore (free-milling and refractory) and to improve gold recovery through the implementation of new technologies. Ore from the Giant orebodies was primarily milled at the Giant site, using conventional carbon-in-pulp (CIP) technology, and a sulphide roaster was used to extract gold from the arsenic-rich ore. Following Miramar Mining’s purchase of the Giant property in December 1999, milling of the refractory ore from Giant Mine took place at the Con Mine Facility in its autoclave processor. Gold recovery in 2001 and 2002 was reported to be 88%.

Infrastructure

The underground mining areas and arsenic storage vaults, as well as the surface facilities and structures are currently the responsibility of the Department of Aboriginal Affairs and Northern Development Canada (AANDC). There is one main shaft, which services all underground levels to the 2000 level, and two ramps, one in the centre of the mine, and one in the Supercrest area.

Environmental Status

Due to the bankruptcy of Royal Oak Mines Inc., the environmental liability of the Giant property is the responsibility of the Federal Government. The envisioned cleanup at Giant will take many years to accomplish.

Status of Mine Reclamation

To ensure that Giant Mine was managed safely, DIAND created the Giant Mine Remediation Project (GMRP). This project has two main tasks; working on a long-term remediation plan for securing the arsenic trioxide dust stored underground at the site, as well as ensuring that the entire site is managed safely to protect northerners and the environment.

The Giant Mine Remediation Project has commenced with a plan to freeze the toxic arsenic trioxide dust stored underground on-site. Rock surrounding the chambers and the dust contained within them will be frozen to create solid, impenetrable, frozen blocks that will contain the arsenic trioxide indefinitely and isolate it from the environment.

References


NORMIN .DB (www.nwtgeoscience.ca) 08SJSE0012


Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.nwtarchives.ca


The Indin Lake property consists of 38 leases, which encompass at least two deposits.

In early 1945, Lintex staked the ARSENO claims and the RA group. Diversified Mining Interests (Canada) Limited acquired this property in 1945. Work on the Indigo Zone was initially conducted in the period from 1945 to 1951. In 1945, Diversified Mining Interests (Canada) Limited, drilled seven holes totaling 325 metres, which resulted in assays as high as 25.7 g/t Au over a width of four metres (AR 015175). Exploration from 1945 to 1951 comprised 6,700 metres of surface and 2,670 metres of underground diamond drilling, sinking a shaft 160 metres deep (Diversified shaft), 970 metres of lateral development on two levels, and 40 metres of raising. No work was done during 1948. Indigo Consolidated Gold Mines was formed in 1949 to develop the Diversified property; they deepened the shaft from 61.5 metres to 160 metres and defined 107,000 tonnes at 15.4 g/t Au. The underground development was concentrated on one structure called the "A" Vein. Work ceased in July 1951.

Activity on this zone resumed in 1979. Approximately $1 million was spent during a six-month period; work included a prefeasibility study by Kilborn Engineering Limited. In 1980, Paulson and Assoc. dewatered the Diversified shaft and in 1981 conducted underground exploration.

From 1946 until 1949, North Inca Gold Mines Limited worked the Inca Zone on their property completing 9,740 metres of surface drilling and 2,800 metres of underground diamond drilling, shaft sinking to a depth of 97.5 metres and 595 metres of lateral development on two levels at the North Inca shaft. The North Inca shaft is located 1.2 kilometres south of the Diversified shaft and the Lexindin deposit lies 1.2 kilometres north of Diversified.
In 1987, Indigo Gold Mines optioned the property from New Lintex Minerals Limited. In 1988, Manson Creek Resources Incorporated took over one half of that option and a geophysical survey as well as a diamond drill program, were completed. Ten holes totaling 1,466 metres, focused on the Indigo (six holes at Diversified) and Inca (four holes at North Inca) Zones.

Work in 1989 included geological mapping, prospecting, and ground geophysics (AR 082843). In 1990, detailed mapping and sampling were performed, resulting in assays up to 7705 ppb Au (AR 083015).

In 1993, Globaltex Industries Incorporated began work to assess the feasibility of reopening the mines. Etruscan Enterprises Limited completed an airborne magnetic and electromagnetic survey over some of the INCA and INDIN claims (AR 083196). In 1994, fuel supplies and an analytical lab were transported by winter road to the property and prospecting was carried out over the FLOAT claim. Globaltex Industries optioned the property to Silverspar Minerals Incorporated in 1997, however no work was completed.

Globaltex Industries Incorporated changed its name to Pine Valley Mining Corporation in May, 2003. Pine Valley Mining performed geological mapping, prospecting, and sampling. Geophysical anomalies were ground-checked to prioritize targets for further work. In 2007 Pine Valley sold the mineral lease rights covering Diversified to George Stephenson of Calgary Alberta. Pine Valley was delisted in 2009.

In early 2011, Merc International Minerals Inc. (renamed Nighthawk Gold in 2012) optioned the Indin Lake property from Ursa Polaris Developments Corporation; Merc prospected 14 target areas in the Leta Arm Corridor and subsequently drilled five holes on three set-ups below Indin Lake. Several holes cut high grade gold (i.e. Hole NI11-02 cut 26 metres grading 6.86 g/t Au which included 0.5 metre grading 294 g/t Au). In addition visible gold was cut north of North Inca. Seven holes tested the Diversified target. High grade assays such as 100.5 g/t Au over 0.65 metre were cut in Hole DV11-02C.

During the summer of 2011, another 26 holes totaling 7,610 metres (16 of which were drilled at North Inca) tested the zones. Over one half of the holes cut visible gold. One of the holes tested the Lexinden deposit.

In April 2012, Merc International Minerals Inc. changed its name to Nighthawk Gold Inc. The company focused most of its work from 2012-2016 on the Colomac deposit (see Colomac description) and the Cass and Kim deposits (see Kim and Cass deposit description).

**Bedrock and Mineral Deposit Geology**

The Indin Lake property lies within the north-northeast trending Indin Lake Supracrustal Belt within the Slave Structural Province.

Both the historic North Inca and Diversified Mines lie within a 400- to 500-metre wide highly altered deformation zone along the Leta Arm fault corridor.

Zones of auriferous quartz veins and stringers are offset by NNW trending faults in Archean Yellowknife Supergroup schistose greywackes and argillites. The quartz veins contain approximately 1% sulphides, which may include pyrite, arsenopyrite, and rarely pyrrhotite, galena, chalcopyrite, sphalerite, and jamesonite. Visible gold is associated with tensile quartz veins.

The North Inca deposit comprises at least three parallel silicified zones of variable widths, with en echelon quartz veining.

**Production and Development Plans**

The property included two deposits that hosted shafts with head frames (North Inca and Diversified), and 1,500 metres of underground workings. The North Inca site was remediated by Aboriginal Affairs and Northern Development Canada (AANDC) Contaminants and Remediation Directorate (CARD) in 2009.

Nighthawk negotiated an agreement with AANDC when it acquired the Colomac property to reclaim the Diversified Mine site (as well as two other sites). During the year ended July 31, 2012 a majority of the structures were removed and hazardous and non-hazardous waste was removed from the site however the site remediation is not complete (MD&A 2016).

**Significant Results**

The Canadian Mines Handbook 1999-2000 states that as of January 1999, the drill indicated resource is 214,000 tonnes averaging 16.46 g/t Au. The calculation of this resource was made prior to the establishment of National Instrument 43-101, and more work is required before a resource estimate can be calculated using this standard.
References


DIAND staff, (1981), ‘Bear Province’ in Mining and Mineral Exploration Northwest Territories 1981, Department of Indian Affairs and Northern Development, NWT Geology Division, Yellowknife, p. 11

DIAND staff, (1981), ‘Bear Province’ in Mineral Exploration Northwest Territories 1980, Department of Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 7


NORMIN.DB (www.nwtgeoscience.ca) 0868SW0029, 0868SW0035

NTGS Assessment Reports 015175, 015176, 082843, 083015, 083196


Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.nighthawkgold.com

JAX LAKE
Pelican Minerals Inc.

LOCATION:
250 kilometres northeast of Yellowknife in the Courageous Lake - MacKay Lake greenstone belt

NTS AREA:
076D/06

LATITUDE/LONGITUDE:
64.3081°N 111.4128°W

DEPOSIT TYPE:
Vein/shear

ESTIMATED RESOURCE:
Historic NI 43-101 non-compliant 36,287 tonnes @ 14.1 g/t Au

ACCESS:
Float or ski-equipped plane; seasonal Lupin ice road in winter

ALIAS:
CG - 14, CG - 11

PROJECT STATUS:
Available for option.

History

In 1945, the property was acquired by Newnorth Gold Mines Limited. Trenching, which resulted in assay values as high as 49.4 g/t Au over 0.6 metres, was followed by 725 metres of drilling (AR 082385, 082455).

The claims were allowed to lapse in 1959 and the ground was re-staked in 1960, by the Big Four Syndicate (Discovery Mines Limited, Crestland Mines Limited, Rayrock Mines Limited, and Radiore Uranium Mines Limited). Twelve holes were drilled in the Jax 1 (totaling 738 metres) and eight holes (totaling 519 metres) in the Jax 2 zones, and other showings, including the Jax 3 and Jax 4, were trencled (AR 017118). Geological mapping was also performed at a scale of 1:4,800. In 1961, a further 1,263 metres were drilled. The JAX and FIX groups were brought to lease, but the lease was allowed to lapse.

In 1972, the area was re-staked as the DW claims by Knud Rasmussen and Anthony Shearcroft who, in 1973, made an agreement with Savanna Creek Gas and Oil Limited. In 1973, the claims were transferred to Golden Ram Resources Limited. Overburden stripping, trenching, and sampling by Golden Ram in 1974 revealed gold concentrations in the Jax 1 and Jax 2 zones were less erratic at depth than at surface (AR 061458, AR 080162). A program of diamond drilling on the Jax 1 and Jax 2 zones outlined 36,000 tonnes of material at a grade of 13.7 g/t gold. Most of the diamond drill holes reported visible gold, but assays did not always reflect this.

Perry River Nickel Mines optioned the property in 1980, and a prospectus was written (AR 062023). In 1981, the claims were transferred to American Chromium Limited (then Perry River Nickel Mines Limited). This group acquired additional claims, some of which were subsequently taken to lease in 1982. In 1983, more claims were staked and, during the winter of 1985, a 150 line-km grid was established over the Jax property.

Highwood Resources Limited and Aber Resources Limited optioned the property in 1986, and the grid that was cut in 1985 was extended to the north, and a regional magnetometer survey was conducted. This helped to define major lithological units, including a zone of felsic rocks, which has a distinctly flat magnetic signature, and the mafic volcanics which were divided into two cycles based on their magnetic signatures. Select areas were surveyed for detailed magnetometer, VLF-EM and SP
responses. Three separate VLF-EM conductors were defined, which were related to silicate-facies iron formation, graphite and pyritic felsic tuffs. Reconnaissance geological mapping was completed to complement 1:4800-scale mapping done by the Big Four Syndicate. Geophysical anomalies were ground checked.

During 1996, Rhonda Mining Corporation performed till and rock sampling, ground magnetic and IP surveys and drilled 14 holes totaling 975 metres. The gold zones were confirmed to a depth of 60 vertical metres (Exploration Overview 1996). Between 1996 and 2003 Rhonda Corp. did not carry out any exploration on the property (Rhonda Corp. Annual Reports). In early 2004, Hansa Corporation acquired the Jax leases (subsequent to this Rhonda Corp. held a 63% interest in Hansa Corp.). The sale was announced on Feb. 21, 2003. At the end of 2003 Rhonda Corporation and Hansa Corporation prepared a technical report on their Courageous Lake mineral leases.

Rhonda Corp. was de-listed from the Alberta stock exchange in October 2005. Hansa Corporation returned the Courageous Lake property to Rhonda Corp. at the end of December 2005 (MD&A May 1 2006).

Pelican Minerals carried out sampling in 2013. Pelican Minerals is a private company and results of that work were not released to the general public.

**Bedrock and Mineral Deposit Geology**

The Jax Lake property occurs at the western margin of the Courageous Lake – MacKay Lake volcano sedimentary belt. The volcanic sequence in the area consists of pillowed and massive mafic volcanic flows in the west, overlain by intermediate volcanics, which are conformably overlain to the east by sediments including greywacke, argillite, and metamorphosed equivalents. Massive felsic flows and pyroclastic units occupy several stratigraphic levels. An extensive exposure of massive, fine-grained, and commonly quartz-feldspar-porphrytic flows, found 1 km west of Jax Lake, can be traced the length of the property. Volcanic rocks form a north-trending valley and ridge system. Two north-northwesterly trending Proterozoic diabase dykes intrude all rocks on the property.

The Jax 1 and Jax 2 zones occur at the contact between the massive mafic volcanics and schistose volcanic rocks. The Jax 1 zone can be traced over a 250-m strike length and consists of two major, sub-parallel quartz veins, and associated stringers up to 1.8m wide. Sulphides comprise up to 10% of the wallrock and 2% of the quartz veins, and include pyrrhotite, arsenopyrite, pyrite, chalcopyrite and sphalerite. Native gold and associated sulphides occur in fractures within the quartz veining. The Jax 2 zone has similar characteristics (e.g. quartz veining and mineralogy) to the Jax 1 zone and has been traced over 60 metres by diamond drilling. The Jax 1 and 2 zones are flanked by two strong formation conductors. The Jax 2 zone has a weak coincident magnetic anomaly with several weak, positive south-trending anomalies flanking the gold zones. The self-potential survey over the Jax 2 zone defined a weakly conductive anomaly extending about 80 metres.

The Jax 3 zone occurs as three parallel vein systems within shear zones cutting massive mafic volcanics. There is no VLF EM anomaly associated with the zone, however, it is flanked by a major VLF EM anomaly and is proximal to a discontinuity in that anomaly. The self-potential survey defined several continuous narrow structures in proximity to a large graphitic zone. The Jax 3 trench is situated on this graphitic zone and indicates possibilities of extension of the zone to the north.

The Jax 4 zone consists of quartz stringers with minor arsenopyrite and pyrrhotite within schistose volcanic rocks. According to information found in the past posted on Rhonda Corporation’s website the Sour Lake Zone may also be the Jax 4 zone.

**Significant Results**

A property resource of 36,287 tonnes at an average grade of 14.1 g/t Au was published in 1986. This was determined from drilling performed between 1974 and 1981. It is not known what methods were used to determine the resource.

**References**


NORMIN.DB (www.nwtgeoscience.ca) 076DSW0004

NTGS Assessment Reports 017118, 061458, 080162, 062023, 082385, 082455


www.pelicanminerals.com

**History**

The Kim claims cover property had trenching and drilling performed on it during the 1940's (MIR 1980-81). In 1981, Comaplex Resources International Limited staked the Kim claims and performed geological mapping, prospecting, and trenching (AR 081586). In 1982, Petromet Resources Limited entered into a joint venture to explore the property. Ground geophysical surveys (magnetic, VLF EM and HLEM) were conducted over Lex Lake in order to delineate strike extensions to the known mineralized zone (AR 081698). Echo Bay Mines Limited joined the joint venture in 1984. Four holes totaling 304 metres were drilled and the Main Zone was discovered (AR 081836). Further claims were staked in response to the drilling results.

In 1985, Nigel Cozens, a prospector working for Comaplex Minerals, discovered the Cass gold zone, three kilometres south of Lex Lake, in mineralized gabbro. During 1986 and 1987, geological mapping, prospecting, and ground geophysics were performed, as well as three drill programs (AR 081898, 082061, 082076, 082083, 082100). The Main Zone was drilled over a strike length of 730 metres (6 holes totaling 10,512 metres) and to a depth of 360 metres. The Cass Zone was drilled to a vertical depth of 210 metres and along strike for 360 metres. It had an average width of 5 metres. Visible gold was found in 21 out of 28 holes in the first drill program. Sixty-five holes totaling 10,500 metres were completed in the Cass and adjacent areas (AR 082531). A three tonne bulk surface sample was collected from each of the Kim and Cass deposits for metallurgical tests.

During 1990, detailed structural mapping and IP geophysical surveys were performed over the deposits. During 1994, the claims were brought to lease, as part of an option agreement with Royal Oak Mines. In 1995, Royal Oak Mines drilled thirty-four holes totaling 4,673 metres; 22 holes totaling 3,847 metres were drilled on the Cass deposit and 12 holes totaling 826 metres were drilled on the Main Zone (AR 083663). The deposits had an indicated resource of 3,700,000 tonnes grading 2.67 g/t Au (Exploration Overview 1995).

During 1996, Royal Oak Mines carried out work related to permitting the development of the deposits. Royal Oak Mines’ Colomac Mine was producing gold twelve kilometres northeast of the deposit. Colomac Mine closed in late 1997,
due to low gold prices and depleted ore reserves; plans for developing Kim and Cass (and processing ore at the Colomac site) were therefore abandoned. Royal Oak Mines filed for bankruptcy in April 1999.

Geomark Exploration, a subsidiary of Pine Cliff Energy, and a 2010 spin-off of Comaplex Minerals, optioned the mining leases covering Kim and Cass to Nighthawk Gold in December 2013 (Geomark retains a 2.5% net smelter royalty). In 2014 Nighthawk detail mapped and sampled trenches and completed 2,926 metres of drilling at Cass. Hole CM14-02 cut 51 metres that graded 2.25 g/t Au, including 9 metres that graded 4.72 g/t Au, while hole CM14-04 cut a high grade zone that assayed 38.9 g/t Au over 4.4 metres, including 2.6 metres that graded 65.58 g/t Au. Three holes extended the strike length of the mineralized corridor by 700 metres.

Nighthawk terminated its option on the Kim and Cass mining leases on December 29, 2015 and the property reverted to Pine Cliff Energy.

Bedrock and Mineral Deposit Geology
The property lies within the Indin Lake volcanic Belt in the Slave Geological Province. The Kim Main Zone is hosted by fractured, silicified, northerly striking, steeply west-dipping, basalt flows intersected by gold-bearing quartz-carbonate veins. The basalt is sulphide-enriched and faulted. Arsenopyrite and pyrrhotite are present within the veins and in haloes to the veins.

The Cass Zone lies within gabbro and comprises stockwork sulphide-bearing quartz-carbonate veins with an arsenopyrite-rich halo. The veins are steeply dipping and are generally less than or equal to 0.5 metres wide and contain pyrrhotite, pyrite, arsenopyrite and visible gold. Gold is found within sulphides and as free gold within the veins.

Significant Results
In the early 1990's, Echo Bay Mines Limited calculated a geological resource of 448,950 tonnes @ 7.37 g/t Au, using 10m X 10m X 5m blocks, a 3-metre minimum mining width, and a 4.0 g/t Au cut-off grade (historic reporting Comaplex web-site).

References
DIAND NWT Geology Division Staff, (1998) ‘Slave Province Gold and Base Metals’, in Exploration Overview 1997 Northwest Territories, Department of Indian Affairs and Northern Development, NWT Geology Division, Yellowknife, p. 2-8
NORMIN.DB (www.nwtgeoscience.ca) 086BSW0002 (Kim deposit), 086BSW0003 (Cass deposit)
NTGS Assessment Reports 081586, 081698, 081836, 081898, 082061, 082076, 082083, 082100, 082531
MAHE
Silver Pursuit Resources Ltd.

OWNERSHIP:
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development Contaminants and Remediation Directorate (CARD) Site

TSXV:
SPF

DIRECTOR:
Brian A. McClay

OWNERSHIP:
100%

CORPORATE HEADQUARTERS:
652 Millbank
VANCOUVER BC V5Z 4B7

PHONE:
(604) 682-730-6982

FAX:
(604) 685-6905

E-MAIL: ir@SilverPursuit.ca

www.silverpursuit.ca

LOCATION:
80 kilometres northeast of Yellowknife, on the southwest shore of Gordon Lake

NTS AREA:
085I/14

LATITUDE/LONGITUDE:
62.9625°N 113.3483°W

ORE TYPE:
Free milling

DEVELOPMENT:
490m decline to 61m depth

RESOURCE ESTIMATION:
Historic NI 43-101 non-compliant 156,840 tonnes at 17.28 g/t Au

ACCESS:
Float plane in summer, Lupin ice road in winter

ALIASES:
Kidney Pond

PROJECT STATUS:
Available for option. Lease 3248 and Lease 2450 are in good standing.

History
The property was first staked in 1937 by the Borealis Company Limited and prospected extensively between 1938 and 1944. Extensive surface work, including trenching, sampling, and diamond drilling was carried out by Sentinel Mines Limited. The claims were allowed to lapse in 1947.

The MAHE claim was staked in 1978, and, in 1981, the vein was drill tested with 46 holes, each 1 metre in length, and 26 trenches. Assays ranged from trace to 32.64 g/t Au (AR 081644). In 1983, Giant Bay Resources Limited acquired a majority interest in the claim group. They performed line cutting, mapping, prospecting, trenching, and diamond drilling. Nine drill holes were completed for a total of 852 metres (AR 082129). Surface sampling delineated a zone 12 metres in length grading 20.6 grams per tonne over a three metre width (National Mineral Inventory files). In 1984, an additional 25 holes were drilled totaling 498.7 metres. These outlined a geological reserve for the Kidney Pond zone of 500,000 tonnes grading 5.0 grams per tonne over an average width of nine metres to a depth of 121 metres (GCNL 28/6/84 and 10/7/84). Intersections were characterized by a high nugget effect making grade determination difficult.

In 1985, 11 holes were drilled totaling 1,587 metres. This drilling formed the basis for underground exploration the following year. The following year, Tonto Mine Development Limited, completed 818 metres of underground development including, a 488 metre decline, and two, 3-metre by 4.27-metre drifts on the 61 metre level, totaling 165 metres each, to test the No. 1 or Kidney Pond Zone. In 1986, Giant Bay Resources Limited drilled 2,633 metres from underground, and 791 metres in two holes from surface. A resource estimate was calculated at the end of the underground program (see below), however, a high nugget effect made grade determination difficult (AR 082129). In January of 1988, Giant Bay Resources decided they wouldn’t proceed with further development, and sought to farm out the property.
In March 1996, Bishop Resources completed the acquisition of the Gordon Lake property from Kafus Capital Corp (formerly Giant Bay Resources). In 1996, a property examination and data review was undertaken. Included in this work was identification of future exploration targets, and examination of bulk mining opportunities. No further work has been undertaken since 1996.

Bishop Resources announced in 1998 that a reclamation program would be undertaken; no subsequent work was done. Two years later in 2000, Bishop Resources planned to conduct a reclamation program on the property. Apogee Minerals Incorporated optioned the property in May 2003, but dropped the option in October of that year.

In 2004, Bishop Resources Inc. changed its name to Bishop Gold Inc. This was followed by a name change to First Pursuit Ventures Ltd. in 2007 and Silver Pursuit Resources Ltd. in June 2011. As at March 31, 2016 Silver Pursuit continues to hold the Gordon Lake lease however the company is focused on properties in Nevada (Silver Pursuit MD&A).

**Bedrock and Mineral Deposit Geology**

The MAHE and Kidney Pond showings occur within the Burwash Formation. The Burwash Formation consists of interbedded carbonaceous siltstone or argillite, slate and phyllite, which are isoclinally folded about northwest to west-northwest axis. In the Kidney Pond zone, auriferous quartz breccias are stratabound within thin-bedded alternating greywackes and carbonaceous siltstones. These stratabound breccias were formed by intense, dextral, bedding-parallel shears and complex, repeated, en echelon veining, induced by asymmetrical tightening of the east limb of the Gordon Lake refold. The breccias are associated with distinct crenulation cleavage (Stokes et al., 1989).

The west-northwest-striking mineralized zone has been traced along strike for 305 metres. It is open at depth and to the northwest, and varies in thickness from 6 metres to greater than 30 metres, both along strike and at depth. Sulphide content is generally 2 to 3% and includes, in decreasing order of abundance, arsenopyrite, pyrrhotite, pyrite, chalcopyrite, and galena.

**Significant Results**

A preliminary resource estimate by Giant Bay Resources, after the 1988 underground program, was estimated at 156,840 tonnes grading 17.28 g/t Au. This resource was calculated using a 6.86 g/t Au cut off, a 1.2 metre minimum width and a specific gravity of 2.8 for assays cut to 69 g/t Au (AR 082129).

A 1995 valuation report on the Gordon Lake property resulted in a smaller, but higher grade deposit (the resource has not been updated to NI 43-101 standard).

**References**


George Cross Newsletter 28/6/84 and 10/7/84


NORMIN.DB (www.nwtgeoscience.ca) 085INW0104

NTGS Assessment Reports 081644, 082129

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


www.silverpursuit.ca

**MON GOLD MINE**  
*New Discovery Mines Ltd.*

**LOCATION:**
50 kilometres north of Yellowknife on the northwest shore of Discovery Lake; ice-road to diamond mines within three km of the mine-site

**NTS AREA:**
85J/16

**LATITUDE/LONGITUDE:**
62.8972°N 114.3283°W

**ORE TYPE:**
Free milling

**RESOURCE ESTIMATION:**
to be determined

**ACCESS:**
Float or ski equipped aircraft.

**PROJECT STATUS:**
Past producer: Permitted to recommence operation.  
The property is being financed and developed privately.

---

**History**

The MON claims were initially staked in 1937 by G.A. Moberly and L.W. Nelson. Cominco acquired the property in 1939 and developed a 19.5-metre exploration shaft and completed 47 metres of drifting. Between 1947 and 1963 further drilling was carried out and in 1965, through until 1975 a small mining operation resulted in approximately 200 tonnes of ore being mined and milled on-site.

During 1986 Troymin Resources Ltd. optioned the property and carried out diamond drilling and the following year Coronado Resources Inc. entered the joint venture and more drilling was completed. Dave Webb and Can-Mac Exploration and Contracting optioned the property in 1988 and began mine development the following year. In 1989, a 2,086-tonne sample was extracted; this was stockpiled, and transported via ice-road the following winter to Ptarmigan Mine near Yellowknife for milling. The ore averaged 25 grams of gold per tonne of rock (Treminco Resources Ltd., 1990 Ptarmigan Mine production records, 1990). Ger-Mac Contracting further developed the mine and in 1992 set up a small mill on the property and processed approximately 1,360 tonnes of ore. The Mon Mine saw seasonal production of up to 100 tons per day between 1989 and 1997. Up until 1996, gold concentrate was refined in Yellowknife. Albert Eggenberger of Yellowknife, purchased the operation in 1993 however Ger-Mac Contracting Ltd. continued directing the operations. A concentrator was installed in the mill circuit in 1996; the mine shut down in 1997 due to low gold prices.

Since then, the property has been held on a care and maintenance basis. The estimated total gold production of the mine up until closure in 1997 is approximately 100 kilograms of gold from 10,070 tonnes of ore.

New Discovery Mines was granted a Land Use Permit in mid-2014 enabling it to work within the mine to extract a bulk sample. A Land Use Permit and Water Licence, to allow the processing of gold ore and to deposit tailings in a dry stack, were approved by the Mackenzie Valley Land and Water Board (MVLWB) on October 21, 2015.
**Bedrock and Mineral Deposit Geology**

The gold is hosted by low-sulphide auriferous quartz veins that cut Burwash Group metaturbidites and metavolcanic rocks adjacent to a gabbro intrusion. Amphibolite grade metasediments are silicified and exhibit potassic alteration. The quartz veins contain 10-15% ragged xenoliths of the silicified wallrock and 1-5% sulphide is locally concentrated within the xenoliths.

The A-Zone is an antiformally folded vein system plunging moderately to the south. The zone is greater than 200 metres in length and up to 4 metres wide. The limbs are spaced 40 metres apart. The quartz veins are primarily associated with less than 2% sulphides. The highest gold grades (up to 121.7 grams of gold per tonne over 1.5 metres) were found in the hinge of the fold. Visible gold is present.

**Significant Results**

The gold is distributed erratically; visible gold is common in high grade areas. Past production is estimated to be approximately 107 kilograms of gold (mining inclusive of bulk sample taken in 1989).

**Production**

The 2014 Mackenzie Valley Land and Water Board application estimates a 2-5 year exploration program. Production is estimated to be less than 5,000 tonnes and mining would be at a rate of less than 100 tonnes per day. Development is estimated to include less than 200 metres of ramp development. Mining in the past was entirely in permafrost and it is anticipated that there will be no need to pump groundwater.

**References**

NORMIN.DB (www.nwtgeoscience.ca) 085JNE0070

NTGS Assessment Report 082922

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.mvlwb.ca
MOSHER LAKE
Lane Dewar / Mike Magrum / Trevor Teed (Privately Held)

GOLD
Archean Lode

LOCATION:
85 kilometres northwest of Yellowknife;
on the southwest shore of Mosher Lake.

NTS AREA:
0850/04

LATITUDE/LONGITUDE:
63.0375°N 115.518°W

ORE TYPE:
Free milling

RESOURCE ESTIMATION:
Historic NI 43-101 non-compliant 500,765
toones @ 2.81 g/t Au

ACCESS:
Float or ski equipped aircraft.

PROJECT STATUS:
Available for option

History

The Mosher Lake property was initially staked in 1944, by prospectors working water routes north from Yellowknife. Between 1944 and 1947, exploration by the Yellowknife Syndicate, consisted of trenching, diamond drilling, and prospecting. In 1947, sixteen x-ray holes totaling 281 metres were drilled; the best assay was 5.38 g/t Au. The grade was considered to be too low, and exploration ended.

In 1960, the ground was re-staked as the JST claims. Giant Yellowknife Mines Limited excavated 24 trenches; the best result from this sampling was 7.88 g/t Au. The grade was considered to be too low, and exploration ended.

In 1982, Roxwell Gold Mines Limited purchased the property and calculated a property resource (AR 062166). The Main Zone had a proven reserve of 544,310 tonnes at a grade of 2.74 g/t Au. There has not been any assessment work filed on the property since that time, however, according to Roxwell Gold Mines company data in 1983, Canamax optioned the property and completed nine diamond drill holes totaling 914 metres. Roxwell Gold Mines Ltd. became a private company in July 2004. The mining lease surrounding the deposit was allowed to lapse and a new claim, AU2, was staked over the resource. Lane Dewar carried out sampling (results of this work have been filed with the GNWT, but are not public as at July 8, 2016.

Bedrock and Mineral Deposit Geology

The property is at the south end of a narrow belt of Yellowknife Supergroup volcanic rocks and metasedimentary rocks, the Russell Lake - Slemon Lake Supracrustal Belt. The volcanic rocks are massive to pillowed andesite and basalt flows. These rocks strike north to northeast throughout the property. The metasediments are isoclinically folded about northeast trending anticlinal and synclinal axes with steep axial planes. Greywackes and slates are located on either side of the volcanic rocks. Gold mineralization is
restricted to irregular quartz lenses, and stringers, which 
are parallel to sub-parallel to the schistosity. Minor quartz 
veins occupy gash, or crosscutting structures. The main 
mineralized horizon lies between schistose and massive 
basic volcanic flows. The south end of the mineralized hori-
zon is terminated by a tourmaline pegmatite.

**Significant Results**

A property resource of 500,765 tonnes at a grade of 2.81 g/t 
Au was calculated by Roxwell Gold Mines Limited in 1983 (AR 
062166). This resource was based on drill intersections to a 
depth of 52 metres, and historic trenching results.

**References**

Energy, Mines and Resources Canada (1989), ‘NWT 95’ in 
Canadian Mineral Deposits Not Being Mined in 1989, Mineral 
Bulletin MR 223, National Mineral Inventory, Mineral Policy 
Sector, Ottawa, Canada.

Russell Lake Area (85Q/4), DIAND NWT, Economic Geology 
Series, Open File 2001-03, DIAND, Yellowknife, 90 p.

Deposits of the Northwest Territories, Minerals, Oil and Gas 
Division, Resources, Wildlife and Economic Development, 
GNWT, p. 41-42

Lord, C.S., (1951), Mineral Industry of District of Mackenzie, 
Northwest Territories, Geological Survey of Canada Memoir 
261, Canada Department of Mines and Technical Surveys, 
Ottawa, 336 p.

NORMIN.DB (www.nwtgeoscience.ca) 085OSW0013 
NTGS Assessment Reports 062166, 080774, 061464 
Roxwell Gold Mines company data

Seaton, J.B., (1977), ‘MAG Claims, MOS Claims, Gold 
Exploration in the Slave Province’, in Mineral Industry Report 
1974, Northwest Territories, EGS 1977-5, Indian and Northern 
Affairs, Yellowknife, NWT, p. 122-123.
History

Gold was first discovered in the Nicholas Lake area in 1941. Prospecting and trenching was carried out during 1941, and further trenching work was carried out in 1942. There was no recorded exploration work on the property from 1943 to 1945. In 1947, Consolidated Mining and Smelting Company (Cominco) of Canada drilled 10 holes on the property. The claims lapsed in 1952. The area was re-staked numerous times throughout the 1970’s. A number of trenches were excavated, but no other drilling was recorded on the claims.

The claims were re-staked by D. Webb in 1986; he optioned them to Chevron Minerals, who undertook a small exploration program consisting of mapping, geophysics, and trenching (AR 082655). In April 1988, Athabaska Gold Resources Limited (Athabaska Gold) entered into a joint venture agreement with Chevron to earn a 60% interest in the property, by spending up to $750,000 in exploration. Athabaska Gold drilled a total of 67 holes and a preliminary reserve of 537,300 tonnes at a grade of 12.16 g/t Au was calculated after the 1989 program (AR 082897).

In 1990, a pre-feasibility study was completed on the project. Between July 1991 and February 1992, a program of mapping, sampling, ground geophysics, and drilling (2,597 metres in total) was completed. The best assay from drill core was 7.98 g/t Au over 0.74 metre (AR 083257). In November 1991, Chevron Minerals sold its remaining interest in the Nicholas Lake property to Athabaska Gold. In 1992 Athabaska Gold drilled 22 holes.

Athabaska Gold continued exploration on the property in 1994, and completed a 615-metre decline to a vertical depth of 80 metres and 210 metres of cross cutting and drilling, as well as detailed underground mapping and sampling. They drilled 36 holes totaling 2,225 metres from underground.

In December 1994, Athabaska Gold reported a property resource of 307,200 tonnes at 15.16 g/t Au (AR 083462). From January to April 1995, 14.8 line-km of ground magnetometer and HLEM surveys were performed and one hole was drilled totaling 116 metres (AR 083514). Athabaska Gold sold the Nicholas Lake property to Royal Oak
Mines Incorporated in 1995. Royal Oak undertook several studies on the property to find the most cost-effective method of mining and processing the ore.

In February 1999, Royal Oak Mines filed for bankruptcy. The property and all data from the property reverted to Dr. D. Webb in 2000 as ordered by the Superior Court of Ontario. In January 2001, Tyhee Development Corporation entered into an agreement to purchase the Nicholas Lake Deposit. There were seven holes drilled in 2002 totaling 1,821 metres.

In 2005, Tyhee’s website reported that the Main Zone had been drilled (111 holes) to a depth of 475 metres below surface. Fourteen principal veins had been identified that hosted substantially all of the mineralization. The deposit was open along strike in both directions and at depth.

Tyhee submitted a Project Description Report to the Mackenzie Valley Land and Water Board (MVLWB) in March 2005, seeking a water licence and land use permit to start construction of a mine and mill together with all the processing and support facilities and waste storage sites at the Yellowknife Gold Project. The project was referred to Environmental Assessment (EA) and is currently under review by the MVEIRB. As part of the EA, Tyhee was required to file a Developer’s Assessment Report (DAR).

During 2007 four historic Nicholas Lake drill holes were resampled, and the granodiorite intervals were found to host significant gold values. A potential bulk mineable target was recognized and a sampling program was initiated.

In 2009 Tyhee was working concurrently on a pre-feasibility study. The company decided to focus on that, and the DAR was put on hold. The DAR was filed in May 2011 and following multiple information requests and changes envisioned by the 2012 Feasibility Study, Tyhee delayed and then in August 2013, suspended the process. Since August 2014 Tyhee has investigated merger and acquisition opportunities. A US$5 million loan from RMB Australia was obtained using the Yellowknife Gold Project as security and extensions to the loan were approved up to January 29, 2016. In May 2016 Tyhee announced that it was continuing to try to raise funds. The mining leases surrounding the deposit are in good standing.

**Bedrock and Mineral Deposit Geology**

The Nicholas Lake property lies at the northern end of the Yellowknife Basin, within the Slave Geological Province. Sediments of the Burwash Formation have been intruded by granites and granodiorites, and numerous dykes. The deposit is hosted in the intrusives, at or near sheared and brecciated contacts with Burwash sediments.

The Nicholas Lake deposit is hosted in vertical to near vertical quartz and quartz-sulphide veins. Intense shearing is accompanied by sericitization and silicification. Gold is reported to occur in three common associations: fine-grained massive pyrrhotite accompanied with minor arsenopyrite; massive arsenopyrite and pyrite, with lesser amounts of sphalerite and galena; and as free gold in quartz, with minor pyrite. The Nicholas Main Zone hosts at least 15 auriferous quartz sulphide veins that range from approximately one to several metres in width, and 50 to 100 metres in length. These quartz veins are concentrated within the southern 100 metres of the Nicholas Lake Granodiorite.

The gold resource has been calculated using drill holes from surface and underground, as well as mapping and sampling information from underground.

**Exploration**

The diamond potential of the property was investigated through an option agreement with Majescor Resources Incorporated. One kimberlite target, a geophysical anomaly covered by a shallow circular lake approximately 110 metres in diameter, was drill tested in early October 2003 (Tyhee Dev. Corp. News Release Sept. 26, 2003).

**Significant Results**

In March 2007, Tyhee Development released a revised resource estimate for the Nicholas Main deposit. The resource estimate was calculated by D.G. Dupre and G.H. Giroux (independent consultants). A measured and indicated gold resource of 1,109,000 tonnes, with an average grade of 6.87 g/t Au was calculated using a cut-off grade of 2.50 g/t Au.

SRK Consulting calculated that the Nicholas Lake deposit contained an estimated underground indicated resource of 2,255,000 tonnes at a grade of 3.91 g/t Au for a total contained metal return of 283,000 oz of gold, as at July 1, 2012 (this estimate utilized a gold price of US$1,400 per ounce and a 1.5 g/t Au cut-off).
References


NORMIN.DB (www.nwtgeoscience.ca) 085PSW0001 NTGS Assessment Reports 015033, 062301, 082655, 082897, 083257, 083462

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada A Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


www.sedar.com Tyhee Gold Corp. news releases and MD&A reports

www.tyhee.com Tyhee Development Corp. and Tyhee Gold Corp. news releases
ORMSBY ZONE

Tyhee Gold Corporation

LOCATION:
84 kilometres north-east of Yellowknife, 2 km south of Discovery Mine

OWNER(SHIP:
100%

PRESEIDENT:
Brian K Briggs

CORPORATE HEADQUARTERS:
Suite 401
675 WEST HASTINGS STREET
VANCOUVER BC V6B 1N2

PHONE: (604) 681-2877
PHONE: (604) 681-2879
E-MAIL: info@tyhee.com
www.tyhee.com

GYD TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES

History

The Discovery property was first staked in 1944 by A.V. Giauque and sons. Discovery Yellowknife Mines was formed in 1945, to explore the property. The Ormsby Zone, approximately two kilometres south of what would become Discovery Mine, was also discovered at this time and Ormsby Mines Ltd. was formed to further investigate and develop the deposit. During 1955 and 1956 numerous diamond drill holes were completed that resulted in a defined resource.

Discovery Mine operated between 1950 and 1969. During that time, Discovery Mines Ltd. acquired the property and drove a drift towards the south on the 290-metre level, in order to test the rocks at the sedimentary / volcanic contact at this depth.

Newmont Exploration Limited optioned the property in late 1980 and carried out ground geophysical surveys (magnetic, VLF EM, HLEM) in 1981 (AR 081611). In 1987, Canamax Resources optioned the property and explored claims in the vicinity of Discovery Mine (Exploration Overview 1987).

leases and claims lapsed and Dave Webb and Gerry Hess staked the property in 1992 and formed New Discovery Mines Limited to develop the property. In 1994, six holes totaling 915 metres were drilled. The following year GMD Resource Corporation optioned the property.

GMD developed a decline to test the Ormsby Zone from underground. In 1996, approximately 100 diamond drill holes, totaling 22,769 metres, tested the Ormsby and Discovery areas. A further 80,000 metres were drilled in 1997 and the data from these was used to calculate a new resource for the Ormsby Zone.

Tyhee Development Corporation Ltd. acquired the property in 2000 and focused their efforts on the Ormsby Zone. During 2002, 12 diamond drill holes tested the Discovery Mine area. A total of 3,843 metres were drilled resulting in assays up to 72.4 g/t Au over 1.5 metres (Ormsby Zone). The following year, in June, a two-thousand metre diamond drilling program commenced in the higher-grade portion of the Ormsby Zone with the objective of increasing the size and definition of the zone. An additional two thousand metres of diamond drilling was completed on the southern and depth extensions of the West Zone.

In 2004, a detailed geological mapping program was initiated that identified favourable rock types (mafic volcanic rocks) and structures along a northeast trending corridor between the Ormsby Zone and the Nicholas Lake Main Zone. Environmental baseline studies commenced.

Tyhee completed a high-resolution helicopter-borne aeromagnetic survey in 2005. In addition new information from the underground program enabled Tyhee to develop continuous three-dimensional access to a portion of the Ormsby Zone mineralization.

Tyhee submitted a Project Description Report to the Mackenzie Valley Land and Water Board (MVLWB) in March 2005, seeking a water license and land use permit to start construction of a mine and mill, together with all the processing and support facilities and waste storage sites at the Yellowknife Gold Project. The project was referred to Environmental Assessment later that year. Tyhee later changed its development plans (and a new project description was filed in July, 2008). More step-out holes were drilled from surface in 2006.
Tyhee acquired more ground in the project area in 2007, and carried out drilling on the West Zone, Ormsby South and North, and the newly discovered Typhoon Zone. A 3,400 tonne bulk sample was extracted, crushed and stockpiled and ten tonnes were shipped out for metallurgical testing.

Sixteen drillholes, totaling 5,500 metres further tested the Ormsby zone in 2008, prior to recalculating a resource estimate in 2008.

As part of the Environmental Assessment, Tyhee was required to file a Developer’s Assessment Report (DAR). In 2009 Tyhee was working concurrently on a pre-feasibility study. The company decided to focus on that, and the DAR was put on hold. The DAR was filed in May 2011 and following multiple information requests and changes envisioned by the 2012 Feasibility Study, Tyhee delayed and then in August 2013, suspended the process. Since August 2014 Tyhee has investigated merger and acquisition opportunities. A US$5 million loan from RMB Australia was obtained using the Yellowknife Gold Project as security and extensions to the loan were approved up to January 29, 2016. In May 2016 Tyhee announced that it was continuing to try to raise funds.

Bedrock and Mineral Deposit Geology

The deposit consists of auriferous quartz veins located in Archean metasediments and volcanic rocks of the Yellowknife Supergroup in the Slave Geological Province. Intercalated mafic volcanic rocks and metasediments are strongly folded and faulted.

The original gold discovery was in hydrothermally brecciated metavolcanics rocks. This was referred to as the West Zone and exploited to a depth of 170 metres below surface.

The Ormsby Zone is hosted entirely within hydrothermally brecciated mafic metavolcanic rocks. The quartz-veined brecciated metavolcanic rock contains variable amounts of gold, carbonate, biotite, garnet, and sulphides. A number of these zones contain disseminated gold. Some sub-parallel mineralized zones coalesce to form larger zones. A bulk-minable lower-grade resource has been identified within the Ormsby Zone. The lower-grade gold mineralization incorporates some discontinuous higher-grade auriferous quartz veins. Similar mineralization has been identified at the West and Bruce Lake Zones.

Exploration

As of July 2016, no exploration has been carried out for several years.

Significant Results

The most recent inferred resource estimate (July 1, 2012) of the Yellowknife Gold Project calculated a gold resource for the Ormsby, Bruce, Nicholas Lake, Clan Lake and Goodwin Lake deposits.

The Ormsby zone contained an estimated measured open-pit resource of 7,339,000 tonnes grading 1.59 grams of gold per tonne (with a 0.5 g/t Au cut-off and an assumed gold price of US$1,500). The Ormsby open pit also contains an indicated 13,295,000 tonnes with a grade of 1.68 g/t Au and an underground indicated resource estimate of 1,662,000 tonnes grading 3.30 g/t gold (1.5 g/t Au cut-off).

The nearby Bruce zone was estimated to contain an indicated underground resource of 440,000 tonnes grading 3.17 g/t Au and an indicated open pit resource of 749,000 tonnes with a grade of 1.59 g/t Au.

References


Geoscience Office, 16 p.

NORMIN.D8 (www.nwtgeoscience.ca) 085PSW0035

NTGS Assessment Reports 061613, 081611, 083411

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


www.sedar.com Tyhee Gold Corp. news releases and MD&A reports

www.tyhee.com Tyhee Development Corp. and Tyhee Gold Corp. news releases
PTARMIGAN MINE
Robert Carroll

Robert Carroll (privately held)

OWNERSHIP:
100%
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development Contaminants and Remediation Directorate (CARD) Site

ADDRESS:
6 Rycon Drive
YELLOWKNIFE NT X1A 2N9

PHONE: (867) 446-0990 (cell)
(867) 920-7252 (h)
E-MAIL: Robertc@TheEdge.ca

LOCATION:
12 km northeast of Yellowknife (19 kilometres from Yellowknife along the Ingraham Trail)

NTS AREA:
085J/09

LATITUDE/LONGITUDE:
62.5912°N 114.1972°W

ORE TYPE:
Free milling

RESOURCE ESTIMATION:
To be determined

PAST PRODUCTION:
3,207 kg Au

MINING METHOD:
Underground

POWER:
Grid power from Yellowknife/Snare River

PROJECT STATUS:
Available for option.

History
In 1936, J.A. Morie, J. Stevens and W.G. Matthews staked the Jack and Lily claims. In 1938, the claims were transferred to Consolidated Mining and Smelting Company (Cominco). Work completed during that year included trenching and diamond drilling. Ptarmigan Mines Limited was incorporated in October 1938 to develop the mine. A three-compartment shaft was collared in October of 1938 and was sunk to a depth of 280 metres with six levels established at 45 metre intervals.

In 1941, an 82 tonne per day mill was constructed and operation commenced in November. The first gold bar was poured in January of 1942. Milling operations were suspended in August 1942, and the property was closed because of labour shortages due to the Second World War. During 1941 and 1942, 371 kg of gold and 79 kg of silver were recovered from 31,233 tonnes of ore. The property remained dormant from 1942 to 1980.

Cominco drilled nine diamond drill holes into the Ptarmigan vein in 1980, and two years later, drilled 16 percussion holes. A decline was collared and, by the end of 1982, had been driven to the top of the ore reserve block and a 1,673 tonne bulk sample had been extracted. The intent of the exercise was to test various sampling techniques to determine which technique best estimated the grade of the deposit. Forty-three kilograms of gold were recovered from the sample. Little work was done between 1982 and 1987 when Treminco Resources Limited acquired the property.

In 1987, Treminco drove a decline to access the upper two levels of the Ptarmigan Mine. That year, a total of 16,329 tonnes of ore were mined at a grade of 8.2 g/t Au, producing a total of 150 kilograms of gold. The ore was custom milled at Giant Mine.

Treminco began new infrastructure construction in 1988. This included the installation of a new head frame and hoisting plant, and the construction of a concentrator. Rehabilitation of the shaft was completed to the second level. In the fall of 1988, Treminco began construction of a 163 tonne per day mill. The mill was officially opened on July 21, 1989.

Ptarmigan Mine was de-watered in 1991 to the 900-foot level and the old workings below the 750-foot level were rehabilitated. In 1992, short drill holes tested the potential below the 750-foot level; this did not result in a great increase in reserves, however, 5,000 tonnes of ore were added to the reserves over the course of the year.
During 1993, the mine operated for most of the year. Total production from all zones (Ptarmigan, C vein, and Tom) amounted to 32,659 tonnes at a recovered grade of 6.59 g/t Au. Reserves as of July 31, 1993 stood at 55,000 tonnes at a grade of 8.57 g/t Au.

The mine operated for 328 days in 1994, with a workforce of 28. Down time was caused by mill and crushing plant breakdowns. Total production was 26,309 tonnes at a recovered grade of 7.91 g/t Au. Reserves as at July 31, 1994, stood at 30,000 tonnes at a grade of 8.2 g/t Au.

During 1995, the mine operated for 216 days with a workforce of 12. Reserves as at September 30, 1995, stood at 68,905 tonnes with a grade of 8.33 g/t Au.

The mine operated for 240 days in 1996, utilizing a workforce of 15. Total production was 544 tonnes of gold flotation concentrate from 11,793 tonnes of ore. Reserves in 1996 stood at 2,631 tonnes with a grade of less than 6.9 g/t Au. The mine was placed on care and maintenance in 1997 (DIAND Exploration Overview 1997). No significant exploration or development has taken place on the property since.

On February 22, 1999, Treminco Resources Limited announced that it would change the company’s name to Elkhorn Gold Mining Corporation. Elkhorn reported that it had sold both the Ptarmigan and Tom Mines as at July 31, 2000. The infrastructure on site became the property of the government due to Elkhorn not having paid back-taxes and in 2005, a public auction dispersed the remaining buildings and equipment.

Robert Carroll, a Yellowknife prospector and driller, staked a claim over the Ptarmigan mine site in 2000 and prospected the property. The property is covered by mining lease 5217.

Environmental (Reclamation) Status: Mine infrastructure is still on-site.

**Bedrock and Mineral Deposit Geology**

The Ptarmigan mine is situated on the eastern margin of the Yellowknife Greenstone Belt, part of the Yellowknife supracrustal basin. The gold-bearing quartz veins are hosted in amphibolite-grade turbidites of the Burwash formation. The quartz veins fill tension fractures and are between the Hay-Duck Fault and the Ptarmigan Fault.

There are five parallel veins on the west side of the Ptarmigan Fault, three of which are gold-bearing and two of which have been mined. The veins strike 115° to 130° and vary in thickness from 1 to 10 metres. The Ptarmigan vein has been traced for 400 metres and averages 3.6 metres in width. The Tom vein has been traced for 365 metres and is discontinuous, but locally up to 8 metres in width.

The veins are of two types: blush-grey quartz and white quartz. The blush-grey quartz is mottled to ribbed and carries most of the gold. The white quartz forms discrete large masses adjacent to the darker quartz and is present as small veinlets in the darker quartz.

The auriferous quartz veins contain about 3 to 5% sulphides, including pyrite, sphalerite, arsenopyrite, galena, pyrrhotite, chalcopyrite, and minor amounts of biotite, scheelite, and tourmaline. Gold is in the form of irregular nuggets and smeared along sericite-coated fractures. Galena and sphalerite are the best indicators of high-grade ore.

**References**


NORMIN.DB (www.nwtgeoscience.ca) 085JNE0009 and 085JNE0010

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


Treminco Resources Ltd. 1988 – 1996 Annual Reports
History

Two gold showings were discovered in the REN claims area in 1964 by Point Lake prospecting Syndicate (AR 017346, 017348). Ten years later another two gold showings were found by Texas Gulf Incorporated (AR 080527). Twenty-six holes were drilled totaling 3,145 metres. The claims lapsed in 1986, and Cominco acquired them in 1987. They entered into a joint venture with Westview Resources Incorporated. In 1988, a 240 line-km airborne magnetic and EM survey was completed and ground geophysics, and geological mapping and sampling followed up on anomalies. Eleven BQ-sized holes totaling 1,280 metres tested seven conductors (AR 082743). In 1989, four holes totaling 1,372 metres tested the Main Zone. One hole intersected 9.3 g/t Au over 6 metres (MIR 1988-89).

The Banner Zone was discovered in 1989. Chip samples assayed up to 198 g/t Au and the zone was traced by magnetometer for 600 metres. Westview Resources Incorporated reported in 1990 that the Main Zone indicates the potential for a 1.8 to 2.7 million tonne deposit in the 10 g/t Au range.

In 1990, 200 line-km of HLEM, magnetic, and gradiometric surveys were completed (AR 082944) and eighteen diamond drill holes, totaling 2,396 metres, tested eleven conductors. Six holes were drilled in the Main Zone and its north strike extension. A new showing (Grizz) was tested by three holes. It may be an extension of the Main Zone iron formation.

Lane Dewar staked the REN claim in 2001. The property is currently owned by Lane and Mike Magrum. One day was spent on the property in 2006, verifying the location of 16 historic drillhole locations (and identifying their coordinates with a GPS) and prospecting. Fifteen samples were taken in the vicinity of past work; results of analyses are highlighted by four samples that assayed from 0.49 g/t Au to up to 5.21 g/t Au (AR 085082).

The REN property was expanded to cover an area 18 km long by 5 km wide and optioned by Novus Gold Corp. in 2009. An 11,210 line-km airborne VTEM and magnetometer survey was completed and, in joint venture with Terra Ventures Inc., nine holes were drilled totaling 1,645 metres. Historic drill-core was examined and some was resampled; this resulted in over 19 historic holes with significant intercepts greater than 1 g/t Au to 2.8 g/t Au over widths of three to 92 metres (Novus Gold Corp. REN Gold Project Summary Report, July 2010 and AR 085592).
In January 2012 the REN property reverted back to Mike Magrum and Lane Dewar. PanTerra Gold Ltd. acquired Novus Gold in April 2012 (Novus Gold MIC, Feb. 1, 2012).

**Bedrock and Mineral Deposit Geology**

The area is within the Slave Geological Province and is underlain by sedimentary and volcanic rocks. Greywacke and mudstone turbidites are interbedded with iron formation; these rocks are north trending and steeply dipping. Intermediate to felsic volcanic rocks outcrop on the claims. Mackenzie diabase dykes crosscut all rock types.

In the Main Zone, drilled in the 1980’s and 1990, four zones of auriferous iron formation between 10 and 35 metres thick were intersected to a depth of 290 metres. The iron formation lies within metasedimentary rocks and commonly overlies carbonate-sulphide and graphite facies exhalite. All rocks have been folded. The Main zone aligns with other gold occurrences in a north-northwesterly trend that extends over 10 kilometres.

**Significant Results**

The work carried out in 2009 indicated that the property has excellent potential to host a high tonnage, low grade deposit due to the presence of multiple zones of gold-bearing amphibolic iron formation.

Resampling of a historic drillhole on the Grizzly occurrence resulted in an intercept that assayed 2.22 g/t Au over 18 metres. A Main Zone hole (REN-09-08) cut 2.91 g/t Au over a down-hole length of 32.77 metres. This intercept included 0.54 metre with a grade of 16.25 g/t Au.

**References**


NORMIN.DB (www.nwtgeoscience.ca) 086HSE0032

NTGS Assessment Reports 017346, 017348, 080527, 082743, 082944, 085082, 085592


**RUTH**  
Gerry Avery (privately held)

**OWNERSHIP:**
100%  
Surface is Crown Land, Federally Managed; Aboriginal Affairs and Northern Development Contaminants and Remediation Directorate (CARD) Site

**CORPORATE HEADQUARTERS:**
c/o Avery, Cooper and Co.  
P.O. BOX 1620  
YELLOWKNIFE NT X1A 2P2

**PHONE:** (867) 873-3441  
**FAX:** (867) 873-2353  
**E-MAIL:** gerry.avery@averycooper.com

**LOCATION:**
96 kilometres east of Yellowknife  
NTS Area:  
085I/07

**LATITUDE/LONGITUDE:**
62.4653° N 112.5733° W

**ORE TYPE:**
Refractory and free-milling

**PAST PRODUCTION:**
17 kg Au, 3 kg Ag

**RESOURCE ESTIMATION:**
Historic NI 43-101 non-compliant No. 2 vein: 2447 tonnes @ 76.1 grams per tonne

**ACCESS:**
Float or ski equipped aircraft; gravel runway five kilometres to southeast- condition unknown

**PROJECT STATUS:**
Available for option

---

**History**

The Ruth veins were discovered in 1940, by the Consolidated Mining and Smelting Company (COMINCO) of Canada, and by mid-1942, were being mined using an inclined, two-compartment shaft to 70 metres. The mine shaft was sunk on an ore shoot reported to have graded 126.5 g/t Au (uncut) over a strike length of 100 metres with an average width of 0.18 m. This portion of the vein graded about 0.1% WO3. A total of 172 tonnes of ore were milled with the production of 4.73 kg of gold and 5.23 kg of silver.

In 1959, Ruth Gold Mines Limited leased the property, and dewatered the mine to below the 30m level. They mined and milled 544 tonnes of rock from the original workings, between the 30m level and surface, producing 12.4 kg of gold.

In 1973, Ice Station Resources drilled 17 holes totaling 1,191 metres. The estimated resource for the property at that time was reported to be 18,144 tonnes, with an unknown grade. During the 1980’s, Roxwell Gold Mines carried out exploration on the property. A failed attempt at de-watering the shaft, and exploring underground was made, however surface exploration and sampling estimated a resource of 171,430 grams of gold.

Hidden Lake Gold Mines acquired the property in 1984 from Cominco. In 1986, Hidden Lake Gold Mines obtained the mining lease(s) surrounding the deposit, and successfully de-watered the underground workings. A minor amount of sampling took place at the time. No public record of this work could be found.

Reconnaissance mapping and sampling were carried out in 1987, with more extensive trenching and sampling performed the following year (AR 082728). A channel sample at the CHRISTINA – RUTH claim boundary averaged 37.7 g/t Au over 1.9 metres (MIR 1988-89, AR 082774). In 1989, further trenches were blasted and sampled.

A government mapping and sampling project in 1994 was highlighted by a sample taken from the #2 vein that assayed...
Quartz veins were prospected and sampled in the vicinity of the mine in 1996; the highest assay was 5 ppb Au (AR 083746).

**Bedrock and Mineral Deposit Geology**

The Ruth gold deposit is situated in the Yellowknife metasedimentary basin. The turbiditic sediments are tightly folded and in the area of the No. 2 vein, the fold axis runs north 10 degrees east with a sub-vertical dip and plunge. Gold occurs in irregular veins of glassy quartz, some containing minor arsenopyrite, pyrite and scheelite. Minor dykes and sills of quartz-feldspar porphyry cut the area (NMI files).

Three main auriferous quartz veins are present in the immediate vicinity of the old Ruth Mine. The fourth (No. 3 vein) is located about 1.6 kilometres to the north. The main deposit occurs in the No. 2 vein, exposed over a 380-metre strike length by trenching and has an average width of 0.4 metres. A historic resource estimation for the No. 2 vein is 2,447 tonnes containing 170,161 grams of gold between the 45 and 80 metre depth levels.

The No. 1 vein is located immediately east of the No. 2 and is more or less restricted to an argillite bed in the sediments. It was exposed by trenching over a strike length of 100 metres and has an average width of about 0.7 metres in that area. The vein is reported to contain a shoot 15 metres long, and 0.5 metres wide with an average grade of 17.1 g/t Au.

The No. 4 vein is located about 50 metres west of the No. 1, and was exposed over a strike length of 200 metres by trenching and was reported to contain some gold and scheelite.

**Significant Results**

The No. 2 Vein is estimated to contain a resource of approximately 2,447 tonnes at an average grade of 76.11 g/t Au (AR 082774).

**References**


Brophy, J.A., (1994), Structure and geochemistry of vein-hosted gold deposits in the Burwash Formation, Yellowknife Domain; parts of NTS Areas 85 I/6,7,11, 14; 85 I/8,9; 85 O/3, DIAND NWT, Economic Geology Series Open File 1994-09, NWT Geology Division, Yellowknife


NORMIN.DB (www.nwtgeoscience.ca) 085ISE0020

NTGS Assessment Reports 083746, 082774, 082728, 015081


Silke R., (1999), Report on Mine sites in the Yellowknife Region, Open Report #1999-001, Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife

SLEMON
Crown Land

FOR MINERAL TENURE INFORMATION CONTACT:
Mining Recorders Office
1st Floor, Gallery Building,
YELLOWKNIFE

PHONE: (867) 767-9210
E-MAIL: miners@gov.nt.ca

LOCATION:
125 kilometres northwest of Yellowknife; 4 kilometres northeast of Slehem Lake

NTS AREA:
085N/08

LATITUDE/LONGITUDE:
63.2675°N 116.1106°W

RESOURCE ESTIMATION:
Historic NI 43-101 non-compliant 31,751 tonnes @ 6.8 grams per tonne (drill core)

ACCESS:
Float or ski equipped aircraft

ALIAS(ES):
DON, AU, Zone 1, Zone 5

PROJECT STATUS:
Available for staking.

History
Sporadic exploration has been undertaken in the area since 1939. At some time in the exploration history two small exploration adits were driven into gold bearing quartz stockworks and breccias. The north shaft averaged 7.2 g/t Au across 0.98 metres and had a depth of 4.6 metres. The south shaft had a depth of 8 metres, and averaged 63.1 g/t Au over 0.24 metres. There is no record of any “production” from these adits. Drilling by various operators (44 diamond drill holes totaling 1,546 metres) has determined the veins extend to at least a depth of 45 metres, with a maximum reported strike length of 30 metres.

Noranda Exploration held property in the area, and performed several exploration programs. In 1987, they drilled one hole (125 metres) to test the southern extension of the intersection of Zones 1 and 5. This, and other work, failed to produce any extensions to the known mineralization (AR 082638). Comaplex Minerals Inc. and Tyler Resources Inc. briefly explored in the area during the 1988 and 1989 season. A semi-regional lake bottom sediment survey was performed, and an anomalous area was identified (AR 082767).

The claims surrounding the Slehem Lake deposit were recorded by Lane Dewar in April and August of 1999. Prospecting that year resulted in high grade assays that include 24 g/t Au from a pyritic quartz vein (#1 zone) and 40 g/t Au from a marcasite-bearing quartz stockwork/breccia from the #3 zone (AR 084333).

Bedrock and Mineral Deposit Geology
The property is located in the Russell Lake - Slehem Lake sub-domain of the Archean Yellowknife Supergroup. The Slehem Lake deposit/showing occurs within quartz veins in sheared greywackes and slates, and in quartz stockworks and breccias, associated with quartz porphyry sills, which have intruded the sediments. So far, these areas seem to be of limited extent, however, gold values over 102 g/t have been reported.

The quartz veins strike variably, but generally in a northwest direction, and dip sub-horizontally to near vertical in several areas. The stockwork/breccia zones strike variably, with the
zone reported to be approximately 45 metres in diameter. The stockwork has been interpreted, by Noranda geologists, to be within iron formation.

**Significant Results**

Prior to NI 43-101 an estimated property resource of 31,751 tonnes with an average grade of 6.9 g/t Au was calculated using drill core. A separate inferred resource of 54,431 tonnes at an average grade of 13.7 grams per tonne using drill sludge samples has also been reported. The calculation methods for these resources are not known (MR 223).

**References**

DIAND NWT Geology Division Staff, (2000) ‘Metals Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 12


NORMIN.DB (www.nwtgeoscience.ca) 085NSE0044

NTGS Assessment Reports 081786, 082638, 082767, 084333
History

The Sunset Lake deposit is located immediately south of the Sunrise VMS deposit, 110 kilometres east of Yellowknife, in the Beaulieu River Greenstone Belt. In 1938, the Thompson Prospecting Syndicate staked the first claim in the area after discovering gold in the Alice Shear Zone. In 1945, Sunset Yellowknife Mines Limited acquired the ALICE claims, and completed over 900 metres of diamond drilling and underground exploration on the property.

Underground development consisted of a two-compartment shaft to a depth of 8.5 metres. During the summer of 1947, the shaft was deepened to 44 metres, and a drift was completed at the 38-metre level. Mining was stopped in the fall of 1947, due to the erratic nature of ore grade material. Sampling returned assays varying from 7.5 – 190 grams of gold per tonne of rock over a width of 0.49 metre (Lord, 1951).

Giant Yellowknife Mines Limited optioned the property in 1966, and conducted further exploration. In 1971, electromagnetic surveys were flown over the area by Teck Corporation and Great Plains Development. Geophysical surveys were conducted by United Cambridge Mines Limited who acquired the property in 1976. In 1981, Mr. J. Arden restaked the area around the Alice Shear Zone (LUCKY claim) and optioned the property in 1985 to Ark la Tex Industries Ltd (AR 081654, 081675, 081794).

In 1980, All Gold Mines staked the SUN claims surrounding LUCKY. In 1984, Noranda Exploration Limited staked the FIR claims slightly further to the south.

In 1988, Aber Resources optioned the claims from Allgold Mines Ltd. and the area was explored (mapping, sampling and HLEM surveys were performed) under a joint venture agreement with Noranda Exploration and Hemisphere Development Corp. (AR 081654).

In 1999, Hemisphere Development Corporation staked the HEM claims. A compilation and evaluation of previous work was done in 1999, as well as some detailed mapping and
sampling in the southern Sunset Lake area (AR 084254). In January 2000, Hemisphere Development Corporation changed its name to Northern Hemisphere Development Corporation.

Solid Resources drilled three holes west of the Sunrise deposit (north of the Sunset deposit) in 2001. Bearing Gold Resources Corp. staked the Sunset West property (along the western shore of Sunset Lake) in May, 2006; one day was spent evaluating the claim, and prospecting in July 2006. Seven samples were analyzed. Less than 1.5 km south of the claim, a sulphide-rich sample taken from a recessive shear on the shore of a small lake assayed 11 g/t silver and 0.16% lead confirming significant silver in the area. The property was acquired by Solid Resources in 2009.

Solid Resources Ltd. changed its name to Silver Bear Mines in 2011. A Land Use Permit for mineral exploration is valid until mid-2016 and Silver Bear is in the process of applying for a new permit to support a planned winter drill program in early 2017.

**Bedrock and Mineral Deposit Geology**

The deposit is in the Beaulieu Greenstone belt within the Slave Geological Province. The greenstone belt in this area is made up of mafic flows and fragmentals, felsic volcanics, and volcanically derived sediments.

The Alice shear itself is a zone of sericite - chlorite - schist, with scattered veinlets, and lenses of quartz reported to be over one metre wide. The surface expression of the shear is reported to be 150 metres long.

**Significant Results**

Gold values of samples from the Alice shear are reported to be as high as 190 g/t Au. The highest reported drill intersection was 41 g/t Au over 0.5 metres (Lord, 1951).

---

**References**


NORMIN.DB (www.nwtgeoscience.ca) 0851NE0157

NTGS Assessment Reports 084095, 084254, 085182

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM
History

Gold was first discovered in the Spider Lake area in 1945. The first two claims (FLY No. 1 and FLY No. 2) were staked by Trans-American Mining Corporation Limited and the adjacent claim groups for Springer Sturgeon Gold Mines Limited. In the fall of 1945, both companies completed trenching and sampling (AR 017382, AR 062065). In 1946, Spinet Mining Company Limited acquired the claims of both companies. Between 1946 and 1947, Spinet Gold Mines Limited completed 5,550 metres of diamond drilling on the south shore of Treasure Island. This exploration program outlined the North, South, and East zones on Treasure Island. The claims were subsequently allowed to lapse.

In 1960, a group of claims on, and south of, Treasure Island was staked. An airborne radiometric survey of selected claims was conducted in 1969 (AR 060413). In 1967, Giant Yellowknife Mines Limited staked 18 claims west of Treasure Island and contiguous with the DAN claim group. Giant Yellowknife Mines mapped and sampled the peninsula east of Laurie Lake (AR 017734) and an area at the eastern end of Laurie Lake.

In 1970, Seigel Associates Limited flew a geophysical survey of the Damoti-Indin-Spider lakes area for Freeport Oil Company (Alberta) Limited (AR 060412). Freeport was to use the survey as the basis for ground acquisition for volcanogenic massive sulphide targets. Subsequent staking included claims at the south end of Spider Lake. A program of diamond drilling was completed, in which one diamond drill hole intersected chalcopyrite and sphalerite in a graphitic argillite, that assayed 0.45% Zn, 0.4% Cu and 2.1 g/t Ag over 4.4 m, and 0.5% Zn, 0.06% Cu and 2.4 g/t Ag over 3 metres (Padgham et al., 1978; AR 019699).

In 1972, DAN 9, 13, 14, and DAN 19 were converted to a mining lease.

Between 1978 and 1983, Treasure Island Resources Corporation staked a total of 6 claims and optioned 4 claims from the DAN group and YAK 1 and YAK 2. In 1980, Treasure Island Resources Limited calculated reserves based on 1946 and 1947 diamond drilling (AR 062141).
During 1983, Treasure Island Resources Corporation conducted reconnaissance of their claims and drilled eight diamond drill holes into the showings on Treasure Island. A total of 920 metres of drilling was completed. A reserve was estimated to be 105,646 tonnes at a grade of 14.1 g/t Au with an additional 30,819 tonnes at a grade of 4.4 g/t Au (AR 062217).

In May of 1985, Suncor Incorporated optioned the property and staked the POLLY, MIDAS 1 through 4, KEN 1 and RON 1 claims. Suncor conducted extensive prospecting, sampling, geological mapping, and VLF EM and magnetometer surveying in 1985. The highest assay, obtained from old trenches, was 2.1 oz/T Au over 1.8 metres (AR 081928). In 1986 detailed geophysics was performed over a 79 line-km grid and several smaller grids. Geological mapping and sampling were also carried out (AR 082107). A 700 line-km airborne EM and magnetic survey was also completed.

In 1987, Suncor Incorporated withdrew from exploration and International Mahogany Corporation optioned the property. 1987-88 drilling (22 holes totaling approximately 4,000 metres of BQ drilling) defined five mineralized zones on the south shore of Treasure Island and included intersections of 58.28 g/t Au over 0.52 metre and 20.6 g/t Au over 1.7 metres (AR 082604).

Treasure Island Resources delisted in March 1991. The claims passed from Josephine Mason to Ursa Polaris Developments Corp. who optioned the property to Merc International Minerals Inc. in January 2011.

During the spring of 2011, five holes tested the Treasure Island gold system; a couple of holes cut 0.7 g/t Au over widths of 215 to 238 metres. These intersections include narrow high grade intervals. The gold is found within the volcanic rock and the altered sedimentary rocks (AR 085704). Merc International Minerals Inc. changed its name to Nighthawk Gold Corp. on April 30, 2012.

Bedrock and Mineral Deposit Geology
The property is within the Slave Structural Province and is underlain by volcanic and sedimentary rocks intruded by granitic plutons. The gold mineralization is found within silicified sediments of the Yellowknife Supergroup at, or near the contact with silicified sediments. A 6-12 metre wide ENE striking felsite dyke crosscuts the area. Gold is also finely disseminated within quartz veins in mafic volcanic rock within 75 metres of either side of the quartz-feldspar dyke.

Significant Results
2011 drilling confirmed low grade gold over widths in excess of 200 metres; stacked higher grade zones (up to 73 g/t Au over 0.87 metre) were cut along a 200 metre strike-length. The zone remains open, both along strike and at depth.

References


NORMIN.DB (www.nwtgeoscience.ca) 086BSW0028

NTGS Assessment Reports 017382, 017734, 019699, 060412, 060413, 062065, 062141, 081928, 082107, 082604, 085704


WT
Mike Magrum

GOLD (LEAD, ZINC, COPPER)
Lode

Mike Magrum (privately held)

ADDRESS:
142 – 757 West Hastings Street
VANCOUVER, BC  V6C 1A1

PHONE: (604) 657-8757
FAX: (604) 608-3146
E-MAIL: mike.magrum@gmail.com

FOR MINERAL TENURE INFO, CONTACT:
Government of Canada, Aboriginal Affairs and Northern Development Canada (AANDC), Resources and Land Management Division

Rebecca Leighfield
NWT Region (Federal Resources and Land Management) Mining Recorder

LOCATION:
Approximately 70 kilometres northeast of Yellowknife, on the Cameron River east of Myrt Lake

NTS AREA:
085I/14

LATITUDE/LONGITUDE:
62.7883°N 113.2381°W

ORE TYPE:
Polymetallic

RESOURCE ESTIMATION:
Historic NI 43-101 non-compliant 58,299 tonnes @ 5.3 g/t Au

ACCESS:
Float or ski equipped aircraft; winter road

ALIASES:
MYRT, AP, RED, Dome #1

PROJECT STATUS:
Within Land Withdrawal Area (as of July 2016)

History

Dome Mines Limited discovered the WT gold showings west of the AP claims in 1938. The WT gold deposit was outlined in 1939 and estimated to contain 25,400 tonnes grading 9.8 g/t Au. It was located one kilometre west of the AP 3 claim. In 1945, the Prospect Street Syndicate staked a large block of claims in the area.

In 1960, W. Ternowski staked the WT claims. In 1961, Giant Yellowknife Mines Limited optioned the claims, and performed geological mapping and sampling. During 1962-63 Consolidated Discovery Yellowknife Mines optioned the property and drilled 40 holes totaling 1,200 metres on the WT claims. They outlined the No. 1 Zone deposit. Little work was done in the following years.

The WT 1-3 property was recorded as a mining lease in 1972; the leases lapsed in 1998.

In the 1970s, work included prospecting and sampling of arsenopyrite-rich quartz veins (AR 019193; AR 080017, AP claims; AR 015146, WT claims). In 1974, Precambrian Shield Resources Limited optioned the property and completed additional sampling (AR 080167, AP Group). In 1974, a 142 metre long decline and 125 metres of drifting and cross-cutting were carried out, along with underground diamond drilling (Mineral Industry Report 1974). The following year, detailed geological mapping, and ground EM and magnetometer surveys outlined a moderate conductor flanked by a magnetic anomaly. Four diamond drill holes were completed totaling 444.7 metres. Giant Yellowknife Mines Limited (GYML) optioned the property from Precambrian Shield Resources Limited in 1979.

In 1980, GYML drilled four holes totaling 472 metres. Assays from 0.34 to 0.68 g/t Au were common throughout the holes. GYML also completed lithogeochemical and gossan sampling to outline alteration zones. In 1981, GYML drilled 415 metres in three holes based on their interpretation of the chemical data. Discouragingly low gold assays were returned and GYML dropped the option.
Ryan Energy Corporation optioned the property in 1984 and drilled ten holes totaling 5,585 feet. Several high grade intervals were cut over significant widths (AR 015272).

Aber Resources Limited optioned the adjacent property in 1985, established a new grid on 20-metre line and station spacing and conducted geological mapping, sampling, and ground EM and magnetic surveys. Three holes, totaling 315 metres were drilled on the AP-3 claim, southeast of Myrt Lake. The best intersection assayed 1.99 g/t Au over 12 metres (AR 082059).

In 1987, Tanqueray Resources Limited optioned the property and completed mapping, prospecting, and airborne geophysical surveys. Four diamond drill holes totaling 469.3 metres were completed to test geophysical conductors; the best assay was 0.75 g/t Au over 1.5 metres.

In 1989, Pamorex Minerals Incorporated optioned the claims and conducted detailed geological mapping, sampling, and ground geophysical surveys. The geophysics helped to define a shear zone in iron formation and a separate sulphide zone (AR 082923).

The mineral leases surrounding the deposit lapsed in 1998. Trevor Teed staked the WT claim in 2003. The claim was allowed to lapse. The deposit was restaked in 2015 by Mike Magrum.

**Bedrock and Mineral Deposit Geology**

Mafic to felsic flows and agglomerates of the Cameron River volcanic belt and conformably overlying metasediments, predominantly turbiditic sediments, form a north-trending east-dipping homocline. Silicate iron formation, containing amphibole, garnet, and minor sulphides at the contact between the volcanics and the sediments, is sheared and crosscut by quartz veins. The contact between mafic-intermediate and felsic volcanics is characterized by carbonate alteration, sulphides and quartz veining, and is called the Sulphide Zone. Drilling intercepted altered volcanics and sediments, crosscut by quartz veins and stockworks containing pyrrhotite, arsenopyrite, pyrite, chalcopyrite, sphalerite and trace galena.

**Significant Results**

A resource of 58,299 tonnes at an average grade of 5.3 g/t Au was reported after the 1974 exploration program.

---

**References**


NORMIN.DB (www.nwtgeoscience.ca) 085INW0105

NTGS Assessment Reports 019193, 015146, 015272 (WT claims), 080017 (AP claims), 080167 (AP Group), 082059 (AP claims), 082923


SILVER AND BASE METAL PROPERTIES

There are currently no producing silver or base metal mines in the Northwest Territories. The properties listed in this publication indicate that a number of areas host significant accumulations of base metals.

Three properties in the Mackenzie Mountains are in advanced stages of exploration. The Prairie Creek Project received its Land Use Permit and Water License for mining and milling operations in 2014. Several deposits underlie the NWT / Yukon border and improvements to infrastructure, such as the upgrading of roads, will help to improve the economic viability of these deposits.

The Pine Point Mine was a world-class lead-zinc producer in its time and the property still hosts significant deposits, although the mine itself ceased production in 1988, after 24 years of production.

An increase in base metal and silver prices will enhance the interest in deposits and showings in the NWT and facilitate financing options for both exploration and mine development.
Base Metal and Silver Properties in the Northwest Territories
Between 1964 and 1966, numerous claims were staked by G. Avery to cover airborne magnetic anomalies; however, there is no report of further follow-up work. Giant Yellowknife Mines performed minor geological mapping and prospecting on the GOOD 1-3 claims in 1979. In 1984, Silver Hart Mines drilled 10 holes totaling 819 metres (AR 081902).

In 1986, Silver Hart Mines continued mapping, geochemical sampling, and prospecting. An exhalite zone with a coincident Pb / Zn soil anomaly was located (AR 082181). Also in 1986, a joint venture group consisting of Giant Mines, Asamera Resources, and Kelmet Minerals worked on claims (Giver 1-2) in the area, focusing on the gold potential of a folded banded iron formation (AR 082551).

During 1987 and 1988, geological mapping and sampling were carried out, and 29 holes were drilled totaling 4,890 metres. A lower and an upper massive sulphide zone were intersected at the “M” zone, where fourteen of the holes were drilled (AR 082814).

Solid Resources optioned the property in 1995 and drilled gold prospects (EO 1995). In 1996, holes were drilled in the “M” zone (EO 1996). In 1997, further geological mapping, geochemistry, and ground geophysics were performed (AR 083937). A resource estimate of over a million tonnes was given for the “M” zone (EO 1999).

During 1998, detailed mapping, rock and soil sampling were performed and five holes totaling 842 metres were drilled (EO 1998). In 1999, Solid Resources (49%) and Tri-Star Syndicate (51%) re-examined and re-sampled core and data. The “M” and the “R” zones were drilled. During 2000, thirteen holes totaling 5,073 metres were completed; eight holes (2,606 m) tested the M-zone. A three line-km downhole UTEM geophysical survey tested the “M” zone. Solid Resources drilled three holes, totaling 1605 metres the following year (EO 2001). In March, 2005, an airborne geophysical survey was completed which located several significant anomalies; prospecting, sampling and ground geophysics was carried out over these in 2006 (AR 085203).

Silver Bear Mines acquired the Bear property in early 2011. A 58 line-km SQUID EM geophysical survey was carried out that year. Two years later Silver Bear drilled one hole totaling 492 metres.
No work was carried out in 2014 however the company put in a request to the Mackenzie Valley Land and Water Board to extend the term of their Land Use permit by two years to enable further work. The term of the Land Use Permit was extended and is in good standing until mid-2016; Silver Bear is in the process of applying for a new permit to support a planned winter drill program in early 2017.

**Bedrock and Mineral Deposit Geology**

The property lies within the Slave Geological Province and the Beaulieu River Greenstone Belt. The supracrustal rocks are amphibolite-grade and form a part of the Yellowknife Supergroup.

Mineralized zones are located along the contact between gneisses and north northeast trending amphibolite facies, massive and pillowsed metavolcanic basalt-andesite. Banded Iron Formation (BIF), consisting mainly of fine-grained magnetite, is on the footwall side of the zones. BIF and arsenopyrite-bearing silicified zones were intersected by drill holes. The property covers the northern contact of a quartz monzonite intrusion 14.5 by 4 kilometres in size.

**References**


DIAND NWT Geology Division Staff, (1999) ‘Slave Province – Gold and Base Metals’ in Exploration Overview 1998 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-8

DIAND NWT Geology Division Staff, (2000) ‘Metals Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 13


DIAND NWT Geology Division Staff, (2002) ‘Metals Exploration’ in Exploration Overview 2001 Northwest Territories Part 2: Metals Exploration, Department of Indian and Northern Affairs Canada, Yellowknife, p. 25

NORMIN.DB (WWW.NWTGEOSCIENCE.CA) 08SINE0087

NTGS Assessment Reports 081902, 083937, 082181, 082551, 082814, 085203, 085720


www.mvlwb.ca
Eagle Plains Resources Limited

TSXV:
EPL

PRESIDENT AND CHIEF EXECUTIVE OFFICER:
Tim Termuende

CORPORATE HEADQUARTERS:
STE 200, 44 - 12th Avenue South
CRANBROOK BC V1C 2R7

PHONE: (250) 426-0749
TOLL FREE: 1-866-HUNT-ORE
FAX: (250) 426-6899
E-MAIL: info@eagleplains.com

www.eagleplains.com

Location:
185 km southwest of Norman Wells, NT

NTS AREA:
106A/03

LATITUDE/LONGITUDE:
64.0472°N 129.4167°W

RESOURCE ESTIMATE:
Historic NI 43-101 non-compliant 7.26 to 9.07 million tonnes @ 5.4% Zn, 2.6% Pb, 17.1 g/t Ag

ACCESS:
Float or ski equipped aircraft

PROJECT STATUS:
Available for option

History
North Mines Limited originally staked the deposit in 1972. Cominco optioned the property and performed geochemical surveys in 1973 (AR 060058). That same year Cominco drilled 14 holes (285 metres in total). In 1974, Cominco drilled four holes totaling 595 metres (AR 080367). Cominco estimated an inferred resource for the Bear deposit of 7.26 to 9.07 million tonnes at 5.4% zinc, 2.6% lead, and 17.1 g/t silver. In 1976, Bethlehem Copper Corporation performed several geochemical surveys and drilled six holes totaling 885 metres (AR 080594). The Bear-Twit deposit was determined to be sub-economic at that time.

In February 2005, a prospecting permit was issued to Eagle Plains Resources Ltd covering the southwest quadrant of NTS area 106 A/3. During 2005 and 2006 prospecting was carried out; historic trenches were chip sampled and returned assays up to 10.6% zinc and 1.1% lead (AR085013 and AR 085164). The following year Eagle Plains identified a distinct trend of mineralization along a 1.8 km strike-length between the Main showing and lead/zinc anomalies to the southeast. In addition an area across the valley from Bear-Twit returned highly anomalous silt samples (AR 085238).

Bedrock and Mineral Deposit Geology
The deposit lies within the Cordilleran Orogen. It is hosted by Silurian to Devonian brecciated dolomites. Mineralization fills crosscutting fractures, breccia matrix, and fossil replacement. Galena, sphalerite, and minor tetrahedrite are the main sulphide minerals.

References
Canadian Mining Journal, April 1977, p.67


Martel E, Turner EC, Fischer BJ, (2012), Geology of the central Mackenzie Mountains of the northern Canadian Cordillera, Sekwi Mountain (105P), Mount Eduni (106A), and northwestern Wrigley (95M) Lake map-areas, Northwest Territories, NWT Special Volume 1, Northwest Territories Geoscience Office, 423 p.

NORMIN.DB (www.nwtgeoscience.ca) 106ASW0002

NTGS Assessment Reports 060058, 80367, 080338, 080594, 085013, 085164, 085238

www.eagleplains.com

www.sedar.com Eagle Plains Resources MD&A April 22, 2016
History

Copper was first discovered on the Coates Lake property in 1961, during a regional prospecting program. Reconnaissance geologic mapping and sampling was carried out during 1962, after a large number of claims were staked in the area. Redstone Mines Limited acquired all the claims and equipment in 1963. During that year, detailed mapping and sampling was undertaken, along with an 18-hole drill program (AR 017619). In subsequent years, more drilling and sampling took place on the property. A total of 5,283 metres of drilling, in 27 holes, was completed in 1964.

In 1970, the property was optioned to Cerro Mining Company of Canada Limited, who carried out additional mapping and sampling (AR 060576). In 1971, Cerro drilled three holes and then returned the claims to Redstone.

During 1975 and 1976, Shell Canada Limited explored the property through an option agreement with Redstone (AR 080570). Two diamond drill programs were carried out by Shell, and these totaled over 8,200 metres. After the last drill program in 1977, Shell Canada Limited calculated a resource for the property. Eight holes, totaling 7,253 metres had been drilled over a strike-length of approximately 6.5 kilometres. An estimated inferred resource of 33 million tonnes, at an average grade of 3.92% copper and 8 grams silver per tonne of ore, was calculated by Shell Canada using the widely spaced holes (Kilborn Ltd., Mar. 1989). In 1982, Shell Canada withdrew from all mineral exploration and the claims were once again returned to Redstone Resources.

Redstone resources commissioned Kilborn Ltd. to complete a data review and economic assessment of the Coates Lake deposit. The Kilborn study, completed in 1989, concluded that the resource should be considered inferred only, and that further drilling and underground exploration would be required to elevate the resource to a reserve.

A 1990 field program, consisted of geological mapping to assess the potential for thicker zones of mineralization within the deposit and the identification of drill targets (Redstone Resources Annual Report 1990 and Corporate Internal File 082998). In 1996, Redstone Resources Limited became a wholly owned subsidiary of Franco Nevada Mining Corporation Limited. The property is not mentioned in any of Franco Nevada’s public information; Redstone Resources maintains ownership of the mining leases surrounding the deposit. The leases were due to lapse in 2013.

In 2002 Franco-Nevada Mining Corporation became a wholly-owned subsidiary of Newmont Mining Corporation and changed its name to Newmont Mining Corporation of Canada Ltd. Lumina Copper Corporation purchased the property that year from Newmont Mining Corporation of Canada Ltd.

In 2005, Lumina Resources completed an exploration program that included a semi-regional, GIS-based compilation of all available geological, geochemical, geophysical, and topographical data, as well as satellite, mineralogical, and metallogenic data pertaining to the Redstone copper belt, and specifically the mining leases at Coates Lake. This was followed by an Induced Polarization orientation survey over areas underlain by known copper mineralization. Once the characteristics of the mineralized units had been identified, a follow-up IP survey
was carried out to determine the location and attitude of copper mineralization in areas outside of the known resource at Coates Lake (AR 085362).

In addition, Lumina Resources completed a regional, geological evaluation of the Redstone copper belt. Work included a structural and stratigraphic assessment of the broader Coates Lake area and sampling of the copper-bearing bed from Coates Lake north to Keele River. This work culminated in the staking of 55 new claims (73,000 acres) in late 2005 and early 2006.

In September 2006, Lumina Resources Corporation was bought out by Western Copper Corporation.

Western Copper Resources carried out geological mapping and sampling in 2009 (AR 085533). Copper North Mining Corp. was spun out from Western Copper in October 2011; Redbed Resources Corp. is a wholly-owned subsidiary of Copper North Mining Corp.

During 2012 Redbed Resources Ltd. conducted geological mapping, ground geophysics (21 line-km of induced polarisation (IP) and 41 line-km of Extremely Low Frequency (ELF) EM surveying), as well as geochemical sampling (Copper North Mining Corp. News Release).

### Bedrock and Mineral Deposit Geology

The regional geology of the area is comprised mainly of the late Proterozoic Mackenzie Mountain Supergroup, which has been thrust eastward over Paleozoic carbonates, and shales. The copper-bearing strata are essentially unmetamorphosed, and extend for approximately 300 kilometres in length, and are up to 15 kilometres wide.

The copper-bearing beds are hosted in a transition zone of the Coates Lake Group, which overlies the Little Dal Group. The Little Dal group is a sequence of continental clastics and carbonates. The Rapitan Group of marine siltstones, and debris flows, unconformity overlies the Coates and Little Dal Groups.

On a property scale, the area is part of a broad syncline, which has been thrust eastward along the Coates Lake fault. Faulting cuts off the broad syncline, which forms the basin in which the Coates Lake deposit sits. These faults can have over 600 metres of displacement. Bedding in the transition zone ranges from 60° in the west to an average of 45° to 55° close to the eastern border.

The Redstone River Formation is a sequence of continental redbeds, with interbeds of fanglomerate, and evaporites. This formation gradationally overlies the Thundercloud Formation, and ranges in thickness from being absent, to over 1200 metres.

The transition zone marks the zone between the Redstone River and Coppercap Formations. The zone consists of red, green, and tan coloured near-shore coastal deposits. The copper showings are hosted in upward-fining clastic beds, capped by laminated carbonates. The transition zone also marks the separation of marine and non-marine sedimentation. The Coppercap Formation lies above the Redstone River Formation, and is a sequence of detrital limestones, and dolostones.

Mineralization, although disseminated throughout all formations in the area, is concentrated in the Transition Zone. It is reported to be in eight beds, each with distinctive concentrations of copper mineralization. The lowermost of the beds is reported to have the largest concentrations of copper minerals, but the third bed is the thickest. The total known strike length of the zone is in excess of six kilometres, the mineralization averages approximately one metre in width and down-dip extensions of this zone are reported to be over two kilometres. Copper minerals consist mainly of chalcopyrite in the south and bornite concentrations are reported in the northwest or east portions of the transition zone, and increased chalcocite and bornite concentrations are reported in the northwest or central portion of the basin (see GSA Vol. D-1 and AR 082998).

### Significant Results

The inferred resource utilized eight drill holes. One of these holes cut a 0.67 metre interval that graded 6.28% copper and 9.6 g/t silver, while another cut 5.15% copper and 13.72 g/t silver over a true thickness of 0.74 metre. Details of the resource calculation are provided in the Kilborn data review (March 1989).

### References


NORMIN.DB (www.nwtgeoscience.ca) 095LNE0007

NTGS Assessment Reports 082998, 017619, 060576, 080570, 085362, 085533

Redstone Resources Inc. Annual Report 1990

Robertson Info-Data Inc. property search – Coates Lake Lease – http://www.infomine.com


www.sedar.com Copper North Mining Corp. MD&A Nov. 28 2012, news release Feb. 19 2013


www.luminaresources.com
History

California Standard Company discovered the hematite-rich iron deposit in August 1961. They staked 833 claims to cover the area. The deposit has a 52 kilometre strike-length and is 150 metres thick. In 1962, Crest Exploration Ltd. acquired the claims. During 1963 geological mapping, sampling, and geophysical surveys were completed and a preliminary feasibility was conducted. Seven diamond drill holes (560 metres in total) were completed on the NWT claim block (AR 062267).

Between July 1964 and March 1965, jig concentration and iron recovery tests were performed (AR 019060). Results of a flotation test are given in another report (AR 019093). Numerous reports summarize exploration activities between 1964 and 1965 and development scenarios were studied (AR 062267).

Since 1972, a mineral lease has overlain the strike length of the deposit that lies in the Northwest Territories. In 2005, Crest Exploration Ltd. amalgamated with Chevron Canada Ltd. Metallis Resources Inc. (formerly Colstar Ventures Inc.) staked claims in 2010 and 2011, entirely surrounding the Chevron lease. In 2011, a 4400 line-km airborne geophysical survey was flown over their property. This was followed up by geological mapping and sampling and local ground magnetic surveys. Karsten Energy Corp. has optioned the Metallis Resources Mackenzie Mountains Iron-Copper Project.

In 2014 the Northwest Territories Geological Survey released results of a stream sediment sampling program that was conducted in parts of NTS area 106F in the Cranswick River area. The Crest deposit falls within the study area.

Bedrock and Mineral Deposit Geology

The Crest deposit lies within the Cordilleran Orogen, and is hosted by Rapitan Group sediments, a glacial-marine clastic sequence (Yeo, G., 1984). The oldest rocks in the area are Lower Cambrian in age. The iron-bearing formation consists of hematite and jasper interlayered with conglomerate, sandstone, siltstone, and shale. Conglomerate beds range in thickness from a few centimetres to approximately 10 metres. Most of the iron formation is located within a horizon between 150 and 300 metres above an unconformity marking the base of hematitic conglomerate (AR
015106). The ore zone averages 30.5 metres in width in the Northwest Territories, and varies from 24 to 107 metres wide in the Yukon. In the NWT, the iron content averages 42.27% and the phosphorus content 0.28%. The iron formation is locally banded hematite and jasper, interbedded with nodular iron formation. The beds dip approximately 10° to the south (AR 062267).

**Significant Results**

Within one 16 square km area in the Yukon, it was calculated that there are more than 5.44 billion tonnes of ore with a grade of 47.2% iron. In 1963 a resource estimate of 18 to 27 billion tonnes of iron ore was made, which was calculated taking into account the iron deposit area covered by Crest Exploration’s claims (AR 062267). At that time the deposit was estimated to be the third-largest iron resource in North America.

**References**


NORMIN.DB (www.nwtgeoscience.ca) 106FSE0002

NTGS Assessment Reports 019060, 019093, 062267


DEB
Seabridge Gold Incorporated

COPPER, ZINC (SILVER)
Volcanogenic Massive Sulphide

LOCATION: Mackay Lake
NTS AREA: 076D/03, 075M/14
LATITUDE/LONGITUDE: 64.0017°N 111.2325°W
RESOURCE ESTIMATE: Historic NI 43-101 non-compliant 1,015,000 tonnes @ 0.83% Cu, 2.96% Zn, 21.9 g/t Ag
ACCESS: Float or ski-equipped aircraft
PROJECT STATUS: Available for option

History
In 1976, Noranda Exploration staked the claims as follow-up to an airborne magnetic and EM survey flown in the area. The DEB deposit was discovered in 1977 by drilling an anomaly identified by the geophysics (AR 080677 and AR 080903). The following year, further ground geophysics and mapping were performed and 272 metres were drilled (AR 080906). In 1979, seven holes totaling 884 metres were drilled to delineate the deposit (AR 081299). A further three holes were drilled in 1980; a large gabbro body which had manifested itself as a gravity anomaly, was intersected below the DEB deposit in one area (AR 081121). In 1989, one hole was drilled on DEB 10 to test an IP and mag anomaly; this resulted in local intersections of up to 1-15% disseminated pyrrhotite and pyrite (AR 082816).

In July 2002, the property was acquired by Seabridge Gold Inc. The deposit forms part of a large land-package that defines the Courageous Lake Project. During 2003 historic drill core was re-logged and sampled. In addition 3.3 line-km (in four lines spaced 200 metres apart) of radiometric surveying was carried out over the Deb deposit (AR 084703). Seabridge continues to hold the lease but has been focusing on other deposits in the region.

Bedrock and Mineral Deposit Geology
The deposit is in the Slave Geological Province and part of the Courageous Lake Volcanic Belt. Intensely hydrothermally altered, intermediate meta-volcanic, and chemical sedimentary rocks are host to the deposit, in a structural complex zone near the margin of a gabbroic stock. Disseminated and semi-massive chalcopyrite and sphalerite form the mineralized horizon and are found over an average width of 3.8 metres and a strike length of 800 metres. The horizon has been drilled to a depth of 230 metres.

Exploration
Seabridge has been focusing on other deposits (see Courageous (FAT) deposit description) in the region.

References
NORMIN.DB (WWW.NWTGEOLOGY.CA) 076D5W0001
NTGS Assessment Reports 080677, 080903, 080906, 081299, 081121, 082816, 084703
www.sedar.com Seabridge Gold

A GUIDE TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES
**ECHO BAY (PORT RADIUM)**

### SILVER, COPPER

**Vein-hosted**

**LEASE HOLDERS:**
Trevor Teed, Michael Magrum, Lane Dewar, Colin Bowdidge (privately held)

**PRESIDENT:**
Mountain Island Exploration Ltd.
3912 Ragged Ass Road
YELLOWKNIFE, NT X1A 2T4

**PHONE:** (867) 765-8998
**E-MAIL:** trevorreginaldteed@gmail.com

**FOR MINERAL TENURE INFO, CONTACT:**
Government of Canada, Aboriginal Affairs and Northern Development Canada (AANDC), Resources and Land Management Division
Rebecca Leighfield
NWT Region (Federal Resources and Land Management) Mining Recorder

**LOCATION:**
400 kilometres northwest of Yellowknife on the east shore of Great Bear Lake

**NTS AREA:**
086K/04

**LATITUDE/LONGITUDE:**
66.0917°N 117.9972°W

**RESOURCE ESTIMATE:**
To be determined.

**ACCESS:**
Float or ski-equipped aircraft; gravel airstrip within 5 kilometres able to handle large aircraft

**PROJECT STATUS:**
Past producing mine.

---

**History**

The Echo Bay Group of claims lay approximately two kilometres east-northeast of Port Radium, adjoining the eastern boundary of the past producing Eldorado Mine (Eldorado Mine was originally brought into production in 1933). The claims were staked in 1930 for the Consolidated Mining and Smelting Company of Canada Ltd. Some diamond drilling was done in 1932, and two parallel adits were developed in 1934. Geological Survey of Canada parties mapped the area from 1944 to 1946. Cominco carried out some more exploration in 1948. In 1963, Northwest Explorers optioned the property and drilled eleven holes. Echo Bay Mines was incorporated and acquired the mining lease.

Production of silver and copper began in 1964. The ore was milled initially using the infrastructure from the Eldorado Mine, 1.6 kilometres to the southwest. In 1966, Echo Bay Mines bought the mill and surface plants from Eldorado Mining and Smelting. An evaluation of the property was carried out in 1969, as background information to the company’s application to lengthen the airstrip (AR 062236). By 1972, the mine had six levels and the mill was operating at 90 tonnes per day. During 1971 and 1972, the average ore grade was 2,331 g/t Ag and 0.92% Cu (MIR 1970-1971). The Eldorado Mine produced 15 million pounds (6,803.89 t) of uranium, and 8 million ounces (226.8 t) of silver. In Contact Lake North, the Echo Bay Mine produced 23,779,178 ounces (674.128 t) of silver, and 6900 lbs. (3.130 t) of uranium.

In 1974, Echo Bay Mines Limited reached an agreement with Eldorado Mining and Smelting to exploit the silver ore from the Eldorado Mine. Eldorado Mine was re-opened as a silver mine in 1976 and exploited by Echo Bay Mines until 1982. The Echo Bay Mine produced 383,409 tonnes of ore and 792.89 tonnes of silver and 4,935 tonnes of copper were recovered. The last reported production from the mine was in 1981, when the last silver was mined, and the reserves were essentially exhausted.

In 1996, Trevor Teed and Kalvik Mining Services carried out geological mapping, prospecting, and sampling on claims covering the area. Old pits and trenches were re-examined and sampled. In addition, six new trenches were blasted; the highest gold assay was 88 grams of gold per tonne, from a north trending quartz vein (AR 083965).

Alberta Star optioned the property in 2005, from prospector, Trevor Teed. In 2006, Alberta Star drilled nine holes. Assays...
were highlighted by one 5-metre intersection that graded 0.22% U₃O₈ at Eldorado. Another hole cut a 1.5 metre-interval of high grade (514.0 g/t) silver and 0.81% copper. Seven of the drill holes intersected multiple zones of intensely altered and mineralized polymetallic breccias, with disseminated and vein-hosted mineralization (AR 085178).

In 2007, Alberta Star carried out a large drilling program (73 holes totaling 19,600 metres) in both the Eldorado and Contact Lake areas targeting IOCG and uranium targets. A highlight of the Eldorado drilling came from one hole which cut a 4.5-metre interval that graded 0.5% copper, 8.38% lead, 0.68% zinc and 34.4 g/t silver (EO 2007). The following year drilling focused on other targets at least 5 km from the past-producing Echo Bay mine.

At the end of November 2014, Alberta Star Development Corp. did not renew the lease over the Echo Bay Mine (Alberta Star Development Corp. changed its name to Elysee Development Corp. in mid-July 2015).

Alberta Star entered into an agreement with Mike Magrum and partners, and the leases were transferred into their names. No work has been carried out on the property to the end of July, 2016.

**Bedrock and Mineral Deposit Geology**

The deposit lies within the Bear Geological Province, near its western margin. Crystalline tuffs and volcanosedimentary rocks belong to the Echo Bay Group. The sediments and volcanics dip gently to the southeast, and are intruded by feldspar porphyries and younger diabase dykes. The mineralization, which was mined, was hosted by quartz and quartz-carbonate veins in the sediments. These veins are within steeply dipping shears zones, generally found near the feldspar porphyries. Economic mineralization is found in northeast trending, north dipping faults, principally within tuffs which have strikes generally northwest to northeast and dips of less than 45°.

Previous mining in the Eldorado-Echo Bay district (1933-1960) exploited high-grade uranium, silver, and copper mineralization that occurred locally as complex polymetallic arsenide and sulfide assemblages in quartz-carbonate veins. The arsenide-sulfide veins are typically enriched in one or more metals including silver, uranium, nickel, cobalt, bismuth, gold, zinc, lead, and radium.

**Exploration and Significant Results**

Production from the Echo Bay Mine totaled 792,888 kilograms of silver and 4,935 tonnes of copper from 383,409 tonnes of ore.

---

**References**


NORMIN.DB (www.nwtgeoscience.ca) 086KSW0048

NTGS Assessment Reports 062236, 083965, 084222, 085178


Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

History

In 1974, the RT claims were staked on behalf of Rio Tinto Canadian Exploration Limited, after reconnaissance exploration discovered some interesting Zn showings. In 1975, further mapping, prospecting, geochemical surveys, and local IP and magnetic surveys were performed and 17 holes totaling 2,137 metres were drilled (AR 080568). During 1976, further mapping, sampling, prospecting, and drilling were completed; one hole intersected up to 11.25% Zn over 6.1 metres (AR 080567). During 1977, an additional 48 claims were staked, prospecting was performed, and 2 holes were completed (AR 080724). In total, Rio Tinto completed some 27,000 metres of drilling (Eagle Plains Resources Annual Information Form 2002). In 1979 twenty two holes, totaling 3034 metres, tested one single large target (Hardy, 1979).

Eagle Plains Resources Limited staked the central part of the historical Gayna River property in 1999. The 49 unit claim block covers six of the most significant Pb-Zn showings discovered by Rio Tinto. The company performed geological mapping and sampling in 2001. A total of seven rock samples, from selected showing areas, were collected and analyzed, highlighted by one sample that returned assay values of 34.3 g/t Ag, >10000 ppm Pb, >20000 ppm Zn, and 1051 ppm W. Two of the seven samples contained high gallium values of 61 and 68 ppm Ga (AR 084410).

The 2003 field program included advanced laboratory research work, following a property visit to re-sample historic showings and drill core. In conjunction with the visit, sampling, prospecting, and mapping were carried out, including resampling of drill core for bitumen analyses (AR 084713). Based on the recommendations from the 2004 report, Eagle Plains acquired six prospecting permits thought to cover prospective carbonate hosted mineralization in the Gayna River – Arctic Red River area.

Eagle Plains continued work on the Gayna River Project as part of a larger program designed to evaluate a number of carbonate hosted base metal showings, covered by prospecting permits issued to the company in February 2005. A number of samples were collected for specialized analytical techniques, including age-dating, thermal maturation, thin section, and fluid inclusion work (AR 085334).

Eagle Plains optioned the property to Teck Cominco in 2007. Teck Cominco’s predecessor, Cominco, also explored parts
of the area in the 1970s and kicked in its proprietary data to the partnership. A large regional program was carried out in 2008; this entailed the collection of 529 rock samples, 869 stream-sediment samples and 3442 soil samples (AR 085396). The company has not reported work on the Gayna River property since 2008.


**Bedrock and Mineral Deposit Geology**

The deposit is hosted by the Little Dal Group, a Neoproterozoic sequence of carbonate rocks, shales, and evaporites, three kilometres thick. Lead-zinc mineralization is preferentially found within discontinuous cemented breccias (disaggregated stromatolite reefs) within a 160 metre thick dolomite, which is found along a 30 kilometre strike length.

Sphalerite is locally pale green or orange-red; it fills fractures or is locally in structurally-controlled massive beds, or is disseminated within the dolomite (MIR 1976).

The mineralization at Gayna River contains high amounts of gallium, a metal that is being used extensively in the manufacture of wireless communication devices and other high-tech applications.

**Significant Results**

The best intersection assayed 20% combined Zn-Pb over 6 metres (Hardy, 1979). One deposit is 1,066,800 tonnes at a grade of 4.51% Zn-Pb (MR223). There are smaller individual deposits with higher grades, such as 56,300 tonnes grading 14.52% Zn-Pb and 86,180 tonnes grading 9.85% Zn-Pb.

**Exploration**

As at July 31, 2015 Eagle Plains holds the Gayna 2 and 3 claims which have an anniversary date of April 7 2016. Eagle Plains’ website does not refer to this property.

---

**References**


C. Downie (Exploration Manager, Eagle Plains Resources), personal communication, Sept. 2003


NORMIN.DB (www.nwtgeoscience.ca) 106BNE0014

NTGS Assessment Reports 080567, 080568, 080724, 084713, 085334, 085396

www.eagleplains.com

www.sedar.com Eagle Plains Resources AIF 2002
History

The Great Slave Reef area is the western extension of the Pine Point property. It was staked in the mid-1960’s, but the mineralization does not outcrop, so the claims were allowed to lapse. In 1975, Western Mining Limited acquired the claims and entered into a joint venture with Dupont of Canada Exploration Limited. Between 1975 and 1986, 947 diamond drill holes totaling 59,619 metres were completed. The main mineralized reef was traced at depths of 137 to 220 metres (MIR 1980/81).

In total, Westmin defined nine blind (non-outcropping) lead and zinc deposits (O-555, O-556, P-499, R-190, T-799, V-46, W-19, X-25, and Z-155); none were put into production. Westmin was taken over by Boliden, and the Boliden/Dupont Joint Venture dropped the claims in 2001. The area was then staked by Ross Burns (along with the Pine Point Deposit area).

In October 2004, Tamerlane Ventures Inc. optioned the property from Kent Burns Group. Tamerlane drilled three of the unmined mineral deposits in 2005; one of these (R190) is located in the area Westmin referred to as the Great Slave Reef property. Seven holes tested the deposit. Assay results for the holes were within ranges that confirmed the deposits’ historic grades (AR 084989).

Tamerlane had plans to develop an underground mine, a vertical shaft, and a vertical conveyor to hoist ore to the surface. They planned to install a freeze curtain, around the entire R-190 deposit and underground infrastructure, to a depth of 185 metres, in order to prevent aquifer water from entering the underground workings.

During 2007 and 2008, thirty-five holes totaling 5390 metres tested eight deposits (AR 085360). In addition an updated feasibility study was released in September 2008.

The leases, issued in 2007 and 2011, are held in the name of Pine Point Holding Corp. (a wholly-owned subsidiary of Tamerlane Ventures). Karst Investments LLC (formerly Kent Burns LLC) holds a 3% royalty on the property. Since August 2013, Tamerlane is under Companies’ Creditors’ Arrangement Act protection. At the end of January 2014 an application for the termination of proceedings of Tamerlane Ventures was filed.
and Pine Point Holding Corp. and a receivership order were filed. An NI 43-101 compliant Summary Technical Report Update of the Pine Point Mine Development Project, was released in March 2014.

A Type A Water License and Type A Land Use Permit are in good standing until July 2016. These permits allow for a bulk sample of up to 1,005,000 tonnes from the R-190 deposit. Tamerlane proposed that the main minesite infrastructure, including the mill, would be situated above the R-190 deposit and anticipated a start-up at R-190 within 24 months of receiving project financing.

**Bedrock and Mineral Deposit Geology**

The mineralization is found within the Devonian Pine Point barrier reef complex, and is the down-plunge extension of the barrier reef from the Pine Point property which abuts it on the east side. The barrier complex plunges gently at 1.9 metres per kilometre to the west from Pine Point, and therefore the deposits are found at a greater depth in the Great Slave Reef property area. The property hosts at least nine blind (non-outcropping) lead and zinc deposits. R-190 is a high grade deposit 37 km east-southeast of the town of Hay River, just north of Highway No. 5 (NORMIN.DB).

**Significant Results**

Tamerlane released a Technical Report Update of the Pine Point Mine Development Project in March 2014 that stated reserves for ten individual deposits. The R-190 deposit could be mined using underground methods while the other nine deposits (see Pine Point deposit for other deposit details) would be open pits.

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Classification (Diluted and Recovered)</th>
<th>Tonnes</th>
<th>%Zn</th>
<th>%Pb</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-190</td>
<td>Proven Reserve</td>
<td>647,000</td>
<td>12.47</td>
<td>6.10</td>
</tr>
<tr>
<td></td>
<td>Probable Reserve</td>
<td>357,000</td>
<td>8.27</td>
<td>3.79</td>
</tr>
</tbody>
</table>

The reserves were estimated using metal prices of US$0.95 zinc and US$1.00 lead.

**References**


NORMIN.DB (www.nwtgeoscience.ca) 085BNW0009, 085BNW0011

NTGS Assessment Reports 080001, 080493, 080696, 080841, 081032, 081248, 084989, 085360


History

Work on the BB showing began in 1948 with the initial staking of the claims for James McAvoy, and exploration conducted by Hollinger Consolidated Gold Mines who optioned the property. Diamond drilling began in 1949. Over 4,800 metres were drilled and reserves were calculated to a depth of 122 metres. In 1951, under the ownership of Indian Mountain Metal Mines Limited, drilling was performed to the 245-metre horizon and reserves were re-calculated. Drilling continued in 1952, and the BB zone was found to extend over a strike length of greater than 7,000 metres (AR 061728). In 1953, plans were being considered for underground development and mill construction, but they were not implemented. In 1957, one thousand six hundred and seventy-six metres of drilling was performed in the same horizon as the BB Zone, but five hundred metres to the west.

The property remained idle until 1965 when extensive electromagnetic and magnetic surveys were done by Indian Mountain Metals Mines Limited to re-examine the entire volcanic belt (AR 017124). In 1966, six diamond drill holes, totaling 1,181 metres, tested anomalies that were outlined the previous year (AR 061733). After 1966, no assessment work on the BB zone has been recorded.

The property went to lease in 1974, and in 1979 the property was optioned to Ego Resources. Ego Resources has since changed its name to Asquith Resources Incorporated, and in December 2001, Asquith Resources Incorporated changed its name to AXMIN Incorporated.

Drilling on the property during 1989 (3,600 metres) and 1990 (7,000 metres) resulted in several high-grade zinc and silver intersections. The program tested down dip and lateral extensions to the known mineralization. Program highlights included a 23-metre intersection grading 16.7% Zn and 160 g/t Ag, at a vertical depth of 335 metres (Asquith annual report).

The leases lapsed in 2011 and Panarc Resources Ltd. staked claims to cover that area and nearby areas with similar stratigraphy. In 2014 Panarc received funding from the Government of the Northwest Territories Mining Incentive Program (MIP) and conducted geological mapping and sampling on the claims.

LOCATION:
180 kilometres east-northeast of Yellowknife, 16 km north of the East Arm of Great Slave Lake

NTS AREA:
075M/2

LATITUDE/LONGITUDE:
63.0322°N 110.9483°W

RESOURCE ESTIMATE:
BB Zone: Historic NI 43-101 non-compliant 879,964 tonnes @ 9.5% Zn, 0.7% Pb, 116.5 g/t Ag
Kennedy Zone: Historic NI 43-101 non-compliant 39,000 tonnes @ 7.3% Zn 1.1% Pb, 137 g/t Ag

ACCESS:
Float or ski equipped aircraft

PROJECT STATUS:
Available for option.
**Bedrock and Mineral Deposit Geology**

The Indian Mountain Lake deposit consists of three sulphide zones: the BB, the Kennedy Lake stratiform lenses, and the Kennedy Lake West stringer zone. The sediments and volcanics form a part of the Archean Yellowknife Supergroup. The base of the stratigraphic sequence in the vicinity of the deposits comprises a series of mafic tuffs with minor, massive, and pillow flows. The bottom of this unit is migmatized. Overlying this mafic base are intermediate tuffs and flows and then a felsic unit, including massive rhyolite, intermediate to felsic coarse pyroclastics, tuff, lapilli tuff, and tuff breccia. Overlying or near the top of the felsic unit, is a 1 to 10 metre thick unit of carbonate-rich exhalite and pyritic cherty tuff, hosting the sulphide deposits. Greywackes and argillites complete the stratigraphic succession. All stratified rocks have been metamorphosed to middle amphibolite facies.

The BB massive sulphide deposit consists of a series of closely spaced lenses interbedded with, and grading into, “highly altered siliceous limestone” which is interpreted to be a carbonate-rich exhalite. Layers of coarse-grained pyrite and sphalerite are interbedded with layers of coarse-grained pyrite and bands of massive, fine-grained, sphalerite. Galena occurs as small grains and blebs within massive pyrite and sphalerite and as rims on host rock fragments in the latter. Small blebs of chalcopyrite are scattered throughout the deposit.

The Kennedy Lake Zone, which lies under Kennedy Lake, is the western extension of the BB zone (AR 061728), although a barren zone separates it from the latter. The zone is not exposed at the surface, although drilling has outlined it to be over 36 metres long with a maximum width of 6.4 metres. The ore is similar in all respects to that of the BB zone. The Kennedy Lake West (Kennedy Lake Copper) zone is situated within a discordant alteration pipe/stringer zone underlying the BB and Kennedy Lake stratiform mineralization. Chalcopyrite and pyrrhotite occur as stringers, “layers” and seams in two bands 7.5 to 12 metres wide, and approximately 200 metres long. The alteration pipe within which this stringer mineralization is located is zoned. An inner, intensely altered zone consists of garnet, anthophyllite, cummingtonite, cordierite, sericite, and sillimanite in a less intensely altered envelope which is characterized more by biotite, quartz, and chlorite.

**Significant Results**

All ‘reserves’ are historic non-NI 43-101 compliant resource estimates. By the end of 1952, over 7000 metres of drilling had been completed on the property, and reserves were calculated at 838,234 tonnes grading 10.3% Zn, 0.85% Pb and 118 g/t Ag.

In 1990, reserves were once again calculated. Reserves for the Kennedy Lake zone were estimated to be 39,000 tonnes grading 7.3% Zn, 1.1% Pb, and 137 g/t Ag. No information could be located as to how the resource was calculated.

Reserves for Kennedy Lake Copper (Kennedy Lake West) are 555,000 tonnes grading 1.12% Cu (with some silver values) to 122 metres.

**References**

Asquith Resources 1989 Annual Report


NORMIN.DB (www.nwtgeoscience.ca) 075MSE0002, 075MSE0039

NTGS Assessment Reports 061728, 017098, 017124, 061733

www.panarc-resources.com

Indian Mountain Lake Property brochure
**History**

The JAY showing was discovered in 1969 (GAC SP25). In 1975, Shell Canada Limited mapped in their permit area (PP361) which covered the showing (AR 061543). During 1976, 32 diamond drill holes totaling 6,839 metres were completed (AR 061543). In 1979 the 1-450 KEE claims were staked by Shell Canada Resources Limited; local detailed stratigraphic and structural studies were carried out, but the claims were allowed to lapse.

Andesite Capital LLC (a private company) holds the Risby property that has the Keele claims, issued in 2005, that cover the Jay copper showing. In 2007, a drill program was carried out by Kaska Minerals (a First Nation-owned company). Following that the Land Use permit was assigned to 7606 Yukon Ltd. and this was transferred to Andesite Capital LLC in August 2011. No field work was carried out after 2007. The land use permit expired in 2013. The claim was cancelled at the end of October, 2015. The deposit lies within a Sahtu Conservation Zone.

**Bedrock and Mineral Deposit Geology**

The deposit lies within the Redstone copper belt of the Cordilleran Geological Orogen. Copper showings are in dolomites of the Lower Coppercap Formation at the top of the Hadrynian Coates Lake Group.

A lens approximately 12.5 metres wide contains disseminated pyrite, chalcopyrite, bornite, digenite, chalcocite, and covellite (bornite predominates). The showings are related to mound-like lenses and sheets of algal laminated dolostone (MIR 1976). Away from the mineralization the host Formation is dominantly limestone (GAC SP 25).

**Significant Results**

Samples contain up to 11% Cu with 8.57 g/t Ag (MIR 1976). A non-National Instrument 43-101 compliant drill-indicated inferred resource is estimated at 1.2 Mt at a grade of 2.7% Cu (GAC SP 25).

### References

- NORMIN.DB (www.nwtgeoscience.ca) 095MNW0001
- NTGS Assessment Reports 061398, 061543
- www.mvlwb.ca/Boards/slwb
- www.sedar.com Wolfeye Resource Corp. MD&A posted March 1 2012
History

The Geological Survey of Canada (GSC) first mapped the area in 1936, as part of a regional mapping program. Initial exploration work in the area started in 1968, when New Athona Mines Limited optioned a number of claims covering cobalt, bismuth, arsenic, and copper showings. New Athona carried out ground geophysical surveys, mapping and sampling programs focused on near-surface veins of cobaltian arsenopyrite, with minor bismuthinite and chalcopyrite. According to assessment reports, a total of 1,387 metres were drilled in 21 holes over two years. New Athona Mines published a resource of 194,626 tonnes at a grade of 0.162% bismuth (AR 060406). A follow up program was considered, however, there is no evidence that any additional work by New Athona was done.

Eldorado Nuclear Limited conducted exploration in the area during the period 1976 to 1978. The programs were focused mainly on uranium, and few showings were located.

In 1978, Noranda Exploration Company re-staked the area as part of a regional exploration program. During the 1981 season they mapped and re-sampled areas previously explored by New Athona, and assay results were reportedly similar to New Athona’s, except for a few higher grade trench assays. The claims were subsequently allowed to lapse.

In 1994, Fortune Minerals acquired the NICO 1 and 2 claims in the vicinity of the New Athona showings and an additional 10 contiguous claim groups were staked in 1994 and 1995. After an initial promising exploration program, the Company began systematic exploration of the area (AR 083509). Geological mapping at 1:1000 scale, prospecting, and sampling were performed in 1994 (Exploration Overview 1994). In 1995, an airborne survey was flown, in addition to further mapping, ground geophysics, and geochemical sampling (Exploration Overview 1995, AR 083713). As a result of this work a number of mineral occurrences were discovered, including the “Bowl Zone”.

Beginning in 1996 and continuing through until the end of 1998, over 38,000 metres of drilling were completed (see Exploration Overviews). The 1998 exploration program included drilling 114 diamond drillholes. Of these, several intersected significant mineralization; the highlight of the
A GUIDE TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES

Program was an intersection of 19.2 metres, which ran 18.07 g/t Au, 0.110 % cobalt, and 0.072% bismuth; this included a three metre section of 61.58 g/t Au (Exploration Overview 1998 and Fortune news release Jan. 1999). A resource estimate was also prepared by A.H. Mumin, P.Eng. The first environmental baseline studies were also conducted in 1998.

In 1999, SNC Lavalin Engineers and Constructors carried out a resource audit, and an updated resource estimate was prepared based on 43,191 metres of drilling.

During 2000, thirty-five additional holes totaling 6,000 metres were completed. Drilling was highlighted by one hole that cut 23.9 metres grading 0.22% cobalt, 2.6 g/t Au, and 0.02 % bismuth; this included a 0.6 metre section of 2.8% cobalt, 31.9 g/t Au, and 0.04% bismuth (Fortune press release June 2000). In 2002, Strathcona completed a scoping study of the project’s economics based on an open pit mining scenario.

Additional drilling was carried out in 2003 focusing on better definition of the high-grade gold intersections at the core of the deposit. More than 300 holes had been drilled into the NICO deposit by 2004 and Micon International Limited (Micon) was contracted to prepare an updated mineral resource estimate to be used in a comprehensive economic feasibility study. Significant metallurgical test work was also done on composite core samples, including a mini-pilot plant test at SGS Lakefield Research Limited. Five diamond drill holes tested the deposit in 2006, and several holes were drilled for geotechnical evaluations of the proposed plant site and tailings dam areas.

In September 2006, Fortune acquired the Golden Giant Mine mill, equipment and spare parts inventory at Hemlo, Ontario for relocation to NICO. In 2006 and 2007, two test mining programs were conducted to assess the mining conditions, verify grades, and collect a 200 tonne sample for larger-scale pilot plant test. The underground test mining consisted of driving a 5x5 metre decline ramp to a vertical depth of 200 metres below surface with lateral development work on two levels and the driving of a ventilation raise to surface.

A bankable feasibility study was released in January 2007. In August 2007, Fortune completed the purchase of the minority (8%) interest that had been held by Candou Industries Inc., resulting in Fortune owning a 100% interest in NICO.

Fortune Minerals has conducted environmental baseline studies and socioeconomic and First Nation traditional use studies; a milestone was reached in July 2013 when it received a Tłįchǫ land access permit and the environmental assessment for the proposed mine was approved.

Procon Resources Inc., a mining contracting company, became a significant partner in the project in June 2013 when it acquired a 19.4% stake in Fortune Minerals. A water licence and land use permit, covering mining and milling activities, were issued in mid-2014.

In addition to securing financing for the mine, Fortune has to post a security deposit prior to commencing work. Meetings with various entities are on-going in an attempt to trim pre-production and ensuing production costs (Fortune Minerals website, 2015).

**Bedrock and Mineral Deposit Geology**

The NICO claims are located in the southern part of the Great Bear Magmatic Zone, within the Bear Structural Province of the Canadian Shield. Within the claim block there is a northwest-trending basement discontinuity, consisting of Early Proterozoic Snare Group greywackes and siltstones unconformity overlain by Faber Group felsic volcanics. The volcanics are intruded by synvolcanic quartz-feldspar and feldspar porphyry dykes. The suite is cut by a series of late, northeast striking transverse faults, related to the nearby Wopmay Fault. Mineralization is attributed to a near-surface explosive outgassing of fluids within the roof of anorogenic granitoid plutons (Fortune 1997 annual report).

Mineralization is associated with faulting and with diatreme and maar facies breccias at, and predominantly below, the Faber Group volcanic unconformity. Here, the host sediments are altered to ironstone and breccia, consisting of a biotite-magnetite-hematite-amphibole-potassium feldspar assemblage referred to as “black rock” mineralization. The overlying volcanic rocks are metasomatised to microcline-magnettite banded “red rock” alteration.

Economic minerals are predominantly sulphides, including cobaltian arsenopyrite, cobaltite, cobaltian loellingite, bismuthinite, bismuth, bismuth tellurides, chalcopyrite, pyrrhotite, scheelite and gold.

The main zone of mineralization is the Bowl Zone. Mineralization within the Bowl Zone is found in a series of closely stacked stratabound ironstone lenses. The deposit is defined over an area 1.4 kilometres in length by 700 metres wide, and 300 metres thick, and is locally open along strike and at depth (EO 1999).
Production and Development Plans

Fortune retained Micon International Limited and Met-Chem Canada Inc. to direct a full bankable feasibility study of the NICO development. The study was completed in January, 2007 and an updated technical report was released in May 2014. The mine design is based on a combined underground and open pit operation. The process plant is designed to employ conventional crushing and grinding followed by simple flotation to generate a gold-bearing cobalt, bismuth and copper concentrate.

The mine is estimated to have a 20-year mine-life. Fortune plans to truck the concentrate to Hay River and use the established train network to carry the concentrate to a processing plant that will be built near Saskatoon, Saskatchewan.

The proposed mine is 85 km north of Highway 3. Fortune Minerals is proposing to build a road from Whati to the mine site. In April 2016 the Department of Transportation of the Government of the Northwest Territories submitted an application to the Wek’eezhìi Land and Water Board to build an all-weather road to Whati (Fortune Minerals News Release, April 11, 2016).

Significant Results

Updated reserves for the NICO Project were released in April 2014. The reserves formed part of an updated Feasibility Study. The estimated combined open pit and underground proven and probable mineral reserves total 33 million tonnes of ore with a grade of 1.03 g/t gold, 0.11% cobalt, 0.14% bismuth and 0.04% copper.

The open pit mineral resources used a C$46 per tonne net smelter return (NSR) cut-off, whereas underground resources were calculated using a cut-off of C$80 per tonne. These cut-offs correlated with US$ 1350/troy ounce for gold, US$16.00 cobalt/pound (US$19.04 cobalt/pound in sulphate), US$10.50/lb bismuth (US$12.64/lb bismuth in average production of combined ingot, needles and oxide), and US$2.38/lb of copper at an exchange rate of C$1 =US$0.88. The resource incorporated underground reserves that had not figured in the 2012 open-pit design estimate.

References


DIAND NWT Geology Division Staff, (1999) ‘Bear District’ in Exploration Overview 1998 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-16

DIAND NWT Geology Division Staff, (2000) ‘Metals Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 12


Mulligan D.L., (1995), Proterozoic Iron Oxide and As-Co-Bi-Cu vein Mineralization at the NICO property, NWT; Bachelor of Science Honours Thesis – University of Western Ontario

NORMIN.DB (www.nwtgeoscience.ca) 085NNE0045

NTGS Assessment Reports 060406, 083509, 083713, 084202

www.fortuneminerals.com

**History**

Claims were first staked in the area by prospectors heading for the Klondike in 1898. The prospectors were focused on precious metals and allowed the claims to lapse. Cominco Limited performed exploration work in the area as early as 1929, and formed a company called Pine Point Mines Limited in 1951 to acquire property and conduct further exploration. Construction of a railway from Roma, Alberta, began in 1962 and the town of Pine Point was built between 1963 and 1965. Open pit mining began in 1964 and continued through until 1986. Approximately forty pits were mined; their size varied from 100,000 tonnes to 14 million tonnes. It took until 1981 to find the N81 deposit, which turned out to be the third largest deposit found on the Pine Point property (consisting of 2.7 million tonnes grading 21% combined lead-zinc). Underground mining was carried out on the M-40 deposit in 1973 and a deposit in the western part of the North Hinge in 1986 (MIR 1986-87).

Pine Point Mines Limited implemented its abandonment plan and restoration was completed in 1991 (including removal of the townsite and railway). In 2001, the mining leases expired and Ross Burns staked a large part of the property plus the down plunge extension to the west (Great Slave Reef property), formerly held by Westmin/Dupont/Boliden. Shortly thereafter the property was optioned to Terrastar Incorporated (which became Pine Point Mines Incorporated). The property was taken back by Kent Burns Group L.L.C. in 2003. The property includes thirty-four known deposits that were drilled but not mined previously (Pine Point Mines Inc. engineering report dated February 5, 2002 – www.sedar.com). Studies by Kent Burns indicate that the historical water problems, which caused problems in the past at Pine Point, can be overcome by new mining methods that have been developed since the closure of the Pine Point mine.

---

**PINE POINT**

**Pine Point Holdings**

(a wholly-owned subsidiary of Tamerlane Ventures Inc.)

**OWNERSHIP:**
100% Tamerlane (contact KSV Advisory)

**CORPORATE ADDRESS:**
c/o KSV Advisory Inc.
(formerly Duff & Phelps Canada Restructuring Inc.)
150 King St. West, Ste. 2308
TORONTO, ON M5H 1J9

**PHONE:** (416) 932-6262
**EMAIL:** E-Mail: info@ksadvisor.com

www.ksadvisor.com

---

**ZINC, LEAD**

**Mississippi Valley Type**

**LOCATION:**
South shore of Great Slave Lake, approx. 45 kilometres east-southeast of Hay River

**NTS AREA:**
085B/15,16

**LATITUDE/LONGITUDE:**
60.8514°N 114.4417°W

**DEPOSIT TYPE:**
MVT

**RESOURCE ESTIMATE:**
70 million tonnes delineated but unmined

**PAST PRODUCTION:**
68.8 million tonnes @ 6.7%Zn and 2.9% Pb

**ACCESS:**
All weather road

**PROJECT STATUS:**
In October 2004, Tamerlane Ventures Inc. optioned the property from Kent Burns Group; subsequently Tamerlane acquired 100% of the property. A 3,050 line-km airborne EM and magnetic survey was flown at a flight line spacing of 200 metres over 40 claims. The airborne geophysical data indicated that 36 targets warranted follow-up work (AR 084743).

Tamerlane drilled three deposits during 2005, two of which (W85 and G03) are located in the historic Pine Point Mine area. Eight holes were completed within the W85 deposit, and three within the G03 deposit. Assay results confirmed the deposits’ historic grades (AR 084989). During 2007 and 2008, thirty-five holes totaling 5390 metres tested eight deposits (AR 085360). In addition an updated feasibility study was released in September 2008.

A total of 1433 metres in 23 holes was completed in the N204 deposit in 2010, allowing the resource to become NI 43-101 compliant (AR 085563).

The leases, issued in 2007 and 2011, are held in the name of Pine Point Holding Corp. (a wholly-owned subsidiary of Tamerlane Ventures). Karst Investments LLC (formerly Kent Burns LLC) holds a 3% royalty on the property. Since August 2013, Tamerlane is under Companies’ Creditors’ Arrangement Act protection. At the end of January 2014 an application for the termination of proceedings of Tamerlane Ventures and Pine Point Holding Corp. and a receivership order were filed. An NI 43-101 compliant Summary Technical Report Update of the Pine Point Mine Development Project, was released in March 2014.

**Bedrock and Mineral Deposit Geology**

Sedimentary rocks of the Interior Platform underlie the area. Carbonate muds and sands and dolomitized limestones predominate. The ore is found in a middle Devonian reef complex. Karst networks in the area developed along two main trends, the North and the Main trend. The Pine Point Barrier Reef Complex, which hosts the Pine Point orebodies, plunges gently westward from its erosional edge, 20 kilometres east of the Pine Point townsite, to the mountains. Ore minerals are sphalerite and galena.

There are two types of orebodies, tabular deposits mainly at the base of the coarsely dolomitized (“Presqu’lized”) Sulphur Point Formation, and prismatic deposits (vertically elongate deposits – found in areas of intense karstification).

Bedrock at Pine Point is almost entirely covered by glacial till and exploration used IP surveys and drilling to locate orebodies.

**Infrastructure**

A paved road connects Edmonton to the old Pine Point townsite. The townsite has been removed, along with the railway line to Hay River however, the rail line still exists to Hay River. There is electric power to the property from the Taltson River dam, which was built for Pine Point, and has a 20 megawatt capacity. As per Teck Metals Ltd.’s (formerly Cominco) Water License Teck continues (in 2016) to monitor Pine Point and report on water and geotechnical quality of the tailings.

**Significant Results**

Over 34 drill-defined, unmined lead-zinc deposits exist on the ground previously held by Pine Point Mines and Westmin-Dupont. At the end of 1985, reserves at Pine Point were estimated to be 13.6 Mt grading 6.3% Zn and 2.5% Pb, however, at the end of December 1986, approximately 8.3 Mt was removed from ore category due to revised calculations using a reduced metal-price forecast for 1987 (MIR 1986-87). The use of modern day mining methods will move these defined resources into the mineable category according to a study completed by Kent Burns Group.

Tamerlane released a Technical Report Update of the Pine Point Mine Development Project in March 2014 that stated reserves for ten individual deposits (see Great Slave Reef deposit for the R-190 deposit).
### Deposit Classification (Diluted and Recovered)

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Classification</th>
<th>Tonnes</th>
<th>%Zn</th>
<th>%Pb</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-68</td>
<td>Proven Reserve</td>
<td>265,516</td>
<td>5.80</td>
<td>2.68</td>
</tr>
<tr>
<td></td>
<td>Probable Reserve</td>
<td>2,780</td>
<td>2.34</td>
<td>0.63</td>
</tr>
<tr>
<td>HZ</td>
<td>Proven Reserve</td>
<td>911,600</td>
<td>3.65</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>Probable Reserve</td>
<td>773,796</td>
<td>3.67</td>
<td>2.21</td>
</tr>
<tr>
<td>W-85</td>
<td>Proven Reserve</td>
<td>2,326,514</td>
<td>4.58</td>
<td>2.82</td>
</tr>
<tr>
<td></td>
<td>Probable Reserve</td>
<td>1,125,598</td>
<td>3.14</td>
<td>1.47</td>
</tr>
<tr>
<td>X-65</td>
<td>Proven Reserve</td>
<td>2,510,470</td>
<td>3.65</td>
<td>1.45</td>
</tr>
<tr>
<td>M-67</td>
<td>Proven Reserve</td>
<td>473,465</td>
<td>4.57</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Probable Reserve</td>
<td>210,419</td>
<td>5.20</td>
<td>0.89</td>
</tr>
<tr>
<td>K-68</td>
<td>Proven Reserve</td>
<td>262,800</td>
<td>3.27</td>
<td>1.09</td>
</tr>
<tr>
<td></td>
<td>Probable Reserve</td>
<td>769,126</td>
<td>2.61</td>
<td>0.76</td>
</tr>
<tr>
<td>M-62/63</td>
<td>Proven Reserve</td>
<td>803,721</td>
<td>2.25</td>
<td>1.01</td>
</tr>
<tr>
<td>O-53</td>
<td>Probable Reserve</td>
<td>274,812</td>
<td>2.71</td>
<td>0.83</td>
</tr>
<tr>
<td>N-204</td>
<td>Probable Reserve</td>
<td>12,800,000</td>
<td>2.60</td>
<td>0.70</td>
</tr>
</tbody>
</table>

The reserves were estimated using metal prices of US$0.95 zinc and US$1.00 lead.

### References


NORMIN.DB (www.nwtgeoscience.ca) 085BNE0004

NTGS Assessment Reports 084743, 084989, 085360, 085563


Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.ksvadvisory.com


www.tamerlaneventures.com
Mineralization was first discovered at Prairie Creek in 1928. Limited exploration was done on the property until 1966, when Cadillac Explorations Limited optioned the property and explored the mineralized zones, which now make up the bulk of the resource on the property (AR 018674). Drilling was also carried out in 1968 and 1969 (AR 060570, AR 061947).

In 1970, the property was optioned to Penarroya Canada Limited. They carried out extensive surface and underground exploration on Zones 3, 6, 7, and 9. Cadillac Explorations Limited terminated their option in late 1980. From 1970 to 1980, extensive underground exploration took place on Zone 3.

In 1980, brothers Nelson Bunker Hunt and William Hunt agreed to finance the mine into production. The 170-km long road to the Prairie Creek Mine was first constructed in 1980, and was operational for two years, during which time in excess of 700 loads of material, plant, machinery, equipment, and supplies were successfully transported to site. A mineral concentrator was purchased and brought to the site, and mine and milling facilities were constructed. In May 1982, the mine facility was 90 to 95% complete, when the price of silver dropped and Cadillac Explorations was forced into bankruptcy. A total of $64,000,000 had been spent on the property up to that point.

The property was tied up in litigation resulting from the bankruptcy until 1990. In 1991, Conwest Exploration Limited acquired the property, and granted an option to San Andreas Resources Corporation to earn a 60% interest in the property. Since 1991, San Andreas Resources has completed over 40,000 metres of diamond drilling, and expanded the geological resource of the deposit. During 1992, San Andreas Resources discovered stratabound-style mineralization.
opening up the possibility of multiple exploration targets within the deposit. In 1992 and 1993, after exercise of the option agreement, additional drilling took place and baseline environmental studies were initiated. During 1995, additional step-out holes extended the known mineralized zones to a 2.1 kilometre strike length, which remains open at depth and along strike (AR 083589).

In 1996, San Andreas Resources negotiated an Impact Benefits Agreement (IBA) with the Nahanni Butte Dene Band. This was followed by a program of mine rehabilitation, re-sampling and resource estimation; an independent resource estimate for Zone 3 was calculated (EO 1997). In September 1999, San Andreas Resources Corporation changed its name to Canadian Zinc Corporation.

New vein-type mineralization was discovered in 1999 on the Gate Claims staked adjacent to the Prairie Creek deposit. Soil sampling was also conducted over portions of the claims; this outlined a zinc anomaly (greater than 1000 ppm) 800 metres long by 500 metres wide, open along strike (Canadian Zinc news release Jan. 2000). During 2000, a reconnaissance prospecting and stream sediment sampling program was carried out over the GATE claims and in the vicinity of the mine site (AR 084382). In 2001 additional drilling was performed and this indicated a potential for higher-grade areas of mineralization being defined with further drilling within the deposit. By 2001 Canadian Zinc had completed a preliminary Scoping Study to outline and guide the re-development of the existing mine and mill on site.

In 2004, Canadian Zinc drilled 27 holes, comprising 5,936 metres, directed at three different targets. At the same time the underground workings were rehabilitated in preparation for the planned decline and underground drilling program. Further metallurgical testing was also carried out.

Access to underground drilling was established from a 400-metre decline tunnel driven from the existing lower 870 level underground workings. The decline reached its 2006 targeted length in December and six new drill stations were established. Over 40 drill holes, 8,000 metres of drilling, were completed from the ramp in the first half of 2007.

The underground program helped to define Main Zone mineralization to upgrade the inferred resource. A new 43-101 compliant resource estimate was released following this. In addition, some deeper exploration drilling was carried out. To do this, a 250-metre extension to the underground decline was developed and drill stations were created. In addition to the underground program, a surface diamond drill program was also completed in some of the peripheral zones on the property, such as the Gate claims and Zones 11 and 9 (AR 085350). Further metallurgical, engineering and baseline studies were also carried out.

A Preliminary Feasibility Study was released in June 2012 and a Technical Report followed.

Canadian Zinc received its Land Use Permit and Water License (WL) for mining and milling operations in 2014 and the company is trying to secure financing (approximately $200 million) to complete the development and construction of the Prairie Creek Mine.

In 2014, CZN applied to change the scope of its LUP to allow the development of an all season access road and an additional airstrip. An Environmental Assessment (EA) of the proposal is underway.

In June 2015, the Mackenzie Valley Land and Water Board (MVlwB) approved Canadian Zinc’s application to hold the WL in abeyance until more certainty develops around the actual commencement of construction and mine development. The Board also approved applications for amendments to the timing schedules of the various required reclamation security deposits. Security deposits, totaling $1.55 million were posted with the GNWT in September 2015 as required by the MVlwB; the balance of reclamation security deposits is to be paid prior to commencement of production.

Canadian Zinc released an updated prefeasibility technical report for the Prairie Creek property as at March 31, 2016.
Bedrock and Mineral Deposit Geology

The project is located in the Cordillera of the western Northwest Territories. The rocks are composed mainly of Lower Ordovician age dolostones of the Whittaker Formation, which are overlain by Silurian aged Road River Formation cherty shales and thinly bedded dolostone of the Cadillac Formation. Lower to Middle Devonian Arnica and Funeral Formation dolostones and limestones overlie this unit at the north end of the property. Faulting and folding trends are approximately north-south, and expose “windows” of Road River and Whittaker Formations. Most of the Prairie Creek mineralized zones occur within the shale members of the Road River Formation.

Mineralization on the property is of three types. Vein-style mineralization occurs over a ten-kilometre section of the north-south trending Prairie Creek fault; twelve separate zones of appreciable vein style mineralization have been located. Mineralization within these veins consists of zinc-lead-copper, with significant associated silver grades. The most extensive of the vein style mineralization is known as Zone 3, and has been the focus of most of the surface and underground work to date. The Main Quartz Vein (MQV) hosts the majority of the estimated defined reserves and resources and is a high-grade, steeply dipping, fault structure.

Stratabound massive sulphide (SMS) mineralization occurs within the Upper Whittaker Formation and is closely associated with the higher grade vein-style mineralization. The main economic minerals in the stratabound style of mineralization are zinc, and lead, with moderate amounts of copper, and silver. The SMS is a pyrite-rich replacement-type deposit. This style of mineralization occurs in Zones 3, 4, 5, and 6 over a strike length of three kilometres and has a reported thickness of 28 metres locally.

The third style of mineralization is a stockwork zone (STK) comprising a series of narrow, high grade veins oblique to the MQV.

Production and Development Plans

Based on Canadian Zinc’s 2016 Prefeasibility Study, Prairie Creek has an estimated 17 year mine-life; this was based on a defined proven and probable mineral reserve of 7.6 million tonnes and milling rate of 1,350 tonnes per day. Underground mining will use longhole open stoping with paste backfill. Lesser mechanized drift and fill will be used at deeper levels.

Exploration

Underground exploration drilling in 2015 continued to define and expand the resource. This drilling resulted in a newly discovered highly mineralized quartz vein fault structure that was intersected 75m into the footwall of the Main Quartz Vein structure.

The northernmost hole was highlighted by a 7.5-metre intercept (estimated true width) that graded 17.77% lead, 33.67% zinc and 247 grams silver per tonne followed by a 24-metre interval that assayed a total 18.9% combined lead/zinc and 116 g/t silver (CZN news release Aug. 2015).

Significant Results

An updated resource estimate was released in September 2015: the total measured and indicated resource is estimated to be 8.7 million tonnes with an average grade of 9.5% zinc, 8.9% lead and 136 grams of silver per tonne of ore. This resource was calculated using an 8% zinc-equivalent cut-off and forecast prices of US$1 per pound of zinc, US$1 per pound for lead, and US$20/ounce silver and an exchange rate equivalent to $1CDN = $1US.

Overall Resource Estimate: September 2015

<table>
<thead>
<tr>
<th></th>
<th>TONNES</th>
<th>Zinc %</th>
<th>Lead %</th>
<th>Silver (g/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEASURED MQV+STK+SMS</td>
<td>1,482,000</td>
<td>13.2</td>
<td>10.8</td>
<td>200</td>
</tr>
<tr>
<td>INDICATED MQV+STK+SMS</td>
<td>7,222,000</td>
<td>8.5</td>
<td>8.7</td>
<td>123</td>
</tr>
<tr>
<td>TOTAL (MEASURED &amp; INDICATED) MQV+STK+SMS</td>
<td>8,704,000</td>
<td>9.5</td>
<td>8.9</td>
<td>136</td>
</tr>
<tr>
<td>INFERRED MQV+STK+SMS</td>
<td>7,049,000</td>
<td>11.3</td>
<td>7.7</td>
<td>166</td>
</tr>
</tbody>
</table>

Mineral reserves were re-calculated using this data and an updated reserve statement was released as at March 31, 2016. Total reserves stood at 7.6 million tonnes at a grade of 23.5% zinc equivalent (an exchange rate of C $1.25 = US $ 1.00 was used and a silver price of $17/oz).
References


DIAND NWT Geology Division Staff, (2001) ‘Metals Exploration’ in Exploration Overview 2000 Northwest Territories Part 1: Minerals, Department of Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 11

DIAND NWT Geology Division Staff, (2000) ‘Metals Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 10


Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


NORMIN.DB (www.nwtgeoscience.ca) 095FNE0013
NTGS Assessment Reports 018674, 060570, 061947, 083589, 084382, 085350

Robertson Info-Data Inc. property search – Prairie Creek Mine - http://www.infomine.com
History

The area surrounding the property was initially explored for uranium in the early 1950's. Exploration efforts during this time resulted in the discovery of silver and base metal mineralization in the Salkeld Lake area.

During 1952, Frobisher Limited discovered high-grade silver, copper, lead, and zinc mineralization in the area. This zone was reported to be 24 metres long by 4.6 metres wide. There is no evidence that Frobisher undertook further exploration on this showing.

In 1956, McPhar Geophysics Incorporated conducted prospecting and geophysical surveys over the showing. The geophysics failed to detect extensions to the showing, however, samples returned values of up to 12% copper and 274 grams per tonne silver. Drilling was carried out in the area although it is unclear as to whether or not the high-grade showing was drilled. Wide intersections of up to 12 metres of over 2% copper were reported.

In 1961, International Nickel Company of Canada Limited (Inco) drilled one hole in the area (AR 017027). This drilling failed to intersect any high-grade mineralization, however, a broad intersection of low-grade copper and nickel mineralization was reported.

During 1967, Jason Explorers Limited performed trenching, prospecting, and diamond drilling on the property. The Main high-grade showing was extended to 183 metres of strike, by 9 metres in width. A composite sample from the trenching was reported to grade 12% copper, 1.5% lead, 4.7% zinc, 685 grams per tonne silver, and 2.7 g/t Au. Drilling in the area produced similar grades over fairly long intersections (AR 019975).

There is little evidence of work on the property between 1967 and 1988. The area was covered by at least two airborne geophysical surveys, during uranium exploration in the area during the 1970's.
Fortune Minerals optioned the property in 1988 and 1989, and conducted a preliminary property review and examination. Two known areas of mineralization were evaluated, and two distinct styles of mineralization were noted. G.Y. Claims Ltd drilled a 50 metre wide section of the Stockwork Zone at 15-metre centres. The resource calculation is based on results from previous drilling and trenching; a significant amount of work would be needed to elevate the confidence of the reported resource (AR 082821).

In 1993, Teck Corporation entered into a joint venture with Fortune Minerals and mapped and prospected in the Salkeld Lake area. An IP survey tested the extent of the mineralization. Fortune Minerals Limited maintains ownership of a lease, which is in good standing until 2034. There has been no exploration carried out since 1993.

During the winter of 2006-2007 the Northwest Territories Geological Survey had an aeromagnetic survey flown over the Nonacho Basin region using a 400-metre nominal line-spacing.

**Bedrock and Mineral Deposit Geology**

The deposit sits in the Churchill Structural Province of the Canadian Shield. The area is referred to as the Nonacho Basin, which is a sequence of fresh water sediments deposited in an intermontain basin. Felsic to intermediate intrusions surround the sediments of the Nonacho Group. The Nonacho Group of sediments occupies a belt 33 kilometres wide, by 150 kilometres long. The Nonacho Group sediments generally strike northeast and dip variably to the southeast or northwest. The area surrounding the property is intensively folded and faulted. Major regional faults strike northeast along the strike of the sediments, with shorter cross cutting faults striking north to northwest.

There are two types of mineralization on the property. The stockwork style of mineralization occurs at the intrusive/sedimentary contact, and consists of finely disseminated and fracture filled bornite and chalcopyrite. The dimensions of this style of mineralization are not reported. The second style of mineralization is shear hosted. The strike of the shear-hosted mineralization is in excess of 200 metres, while the width is greater than 40 metres. The mineralization occurs at, or near, the contact of deformed granite and sediments. Mineralization is greatest where the silica flooding and quartz veining crosscut the contact, presumably in wrench type features.

**Significant Results**

A non-compliant property resource (pre-NI 43-101) was calculated by Fortune Minerals using reported values from drill holes and trenches found on the property. Only intersections which were greater than 4.6 metres (true thickness) and copper grades greater than 0.5 % Cu were used. No dilution or allowance for mining methods was factored into the resource. A resource of 58,426 tonnes at an average grade of 0.63% Cu was reported for the stockwork-hosted mineralization. Using slightly different criteria for the shear-hosted mineralization, a resource of 53,524 tonnes of 59.65 g/t Ag, and 1.42% Cu were reported. Again no allowance for dilution or mining methods is factored into the resource (AR 082821).

**References**


NORMIN.DB (www.nwtgeoscience.ca) 07SF5W0001

NTGS Assessment Reports 017027, 019975, 082821


www.fortuneminerals.com
History

Mineralization was first discovered in the Howard’s Pass area during Placer Development Limited’s initial exploration work in 1968. Exploration work included regional stream sediment sampling and prospecting. During 1972, claims were staked to cover areas identified as geochemically anomalous. Detailed prospecting of the claims resulted in the discovery of several sulphide showings, including the Howard’s Pass (XY) Deposit.

Drilling of the XY deposit commenced in 1978, and continued in 1979. In 1980, Placer completed 550 metres of underground development on the deposit (Yukon EO 1980). During 1981, a total of 457 metres of underground drifting and 256 metres of crosscuts were driven into the deposit. In addition, 960 metres of underground diamond drilling were completed (Yukon EO 1981). After completion of the underground sampling program in 1981, the property remained idle. The lack of infrastructure (power and road access), and the high cost of traditional mining methods were cited as the main hurdles to mining the deposit. The property straddles the Northwest Territories/ Yukon Territory border.

In June 2000, Copper Ridge Explorations Incorporated entered into an agreement to purchase the property from Placer Dome Incorporated and Cygnus Mines Incorporated. In early September 2000, an agreement was reached between Copper Ridge Explorations Incorporated and Billiton Metals Canada Incorporated to jointly evaluate and develop the property. Copper Ridge Explorations reviewed all information and in October 2000, drilled eight holes as part of a due diligence review. This resulted in encouraging intersections, such as 10.56% Zn over 8 metres within an interval of 19.6 metres grading 6.14% Zn (Anniv Central area). Copper Ridge Explorations Incorporated announced in December 2000, that they were not able to make the initial payment toward purchase of the project from Placer Dome Incorporated and Cygnus Mines Limited, as Billiton Metals had decided not to participate in the development.

with Placer Dome (CLA) Ltd. based on a seven-year option to purchase 100% of the property.

During the summers of 2005 and 2006, Pacifica Resources Ltd. tested areas with potential for shallow mineralization amenable to open-pit mining. Between July and October 2005, Pacifica carried out regional mapping, soil geochemical surveys, and diamond drilling. A total of 1,695 geochemical samples were collected over seven grids. Evaluation of the results revealed several anomalous lead and zinc zones suitable for follow up work in 2006.

The 2005 exploration program tested the lead-zinc mineralized Active Member of the Selwyn Project over a distance of 30 kilometres. Four main zones, the XY, Brodel, Anniv Central, & Anniv East, were further defined by the 2005 drilling; in addition, the Don Zone was discovered.

Zones that were drilled included (from northwest to southeast): four drill holes (668 metres in total) in the OP area (extending known mineralization by 300 metres); twelve holes (totaling 961 metres) in the Anniv Central Zone; ten drill holes (1,396 metres in total) on the Anniv East Zone; eight holes (2,156 metres) in the Don Valley area (between the Anniv and XY Deposits) where just one hole intersected significant mineralization; ten drill holes (1,949 metres) on the Brodel zone, where a one-kilometre mineralized zone was defined; and, six infill drill holes (totaling 785 metres) were completed on the XY Deposit.

Pacifica completed 41,000 metres of drilling in 191 drill holes in 2006. Other work included baseline environmental and preliminary engineering surveys and addition of camp and other exploration infrastructure. The 2006 program resulted in the discovery of the OP17 and Pelly North zones in the northwest end of the district and the Don East, HC, and HC west zones in Don Valley. This demonstrated the continuity of the deposit over a strike length of at least 38 kilometres. Also, deeper drill holes often cut higher zinc-lead grades. Pacifica recommenced drilling in April 2007, following the release of a resource estimate for the property that totaled an indicated 86.6 million tonnes with an average grade of 4.93% zinc and 1.73% lead. Pacifica Resources Ltd. changed its name to Selwyn Resources Inc. as at 31 May 2007. That year 107 holes, totaling 37,006 metres, were drilled. During 2008 and 2009 an additional 22 holes, totaling 8,070 metres, were drilled.

Selwyn Resources formed a joint venture operating company with Chihong Canada Mining Ltd. (Chihong) in 2010. Chihong Canada Mining Ltd. is a wholly-owned subsidiary of Yunnan Chihong Zinc & Germanium Co., Ltd. The operating company’s goal was to advance the Selwyn Project by financing a bankable feasibility study and, if possible, bring the project into production. Selwyn and Chihong incorporated to form Selwyn Chihong Mining Ltd. (SCML), owned equally by both parties, and operator of the new joint venture. Chihong initially earned a 1% interest in the property for each $2 million spent.

In 2010 and 2011, surface drilling (195 holes totaling 68,155 metres) focused on the XY Central and Don Deposits. The XY West deposit is 800 metres northwest of the XY Central deposit. During the same period, the XY West Deposit was also defined by drilling 58 holes, totaling 22,878 metres (2012 Selwyn Technical Report).

Selwyn Resources released an updated resource estimate for the XY West deposit as at May 15, 2012. Selwyn Resources sold its 50%-share of the project to Selwyn Chihong Mining Ltd. in 2013. A preliminary economic assessment was completed and a pre-feasibility study is underway.

During 2014 Selwyn Chihong completed upgrades to the Howard’s Pass Access Road (HPAR), whose 79-kilometre route lies within the Sahtu Dene and Metis Comprehensive Land Claim Settlement area in the Northwest Territories, to allow year-round access to the property. In addition Selwyn Chihong completed 55,000 metres of drilling. The company spent about $7.4 million on exploration in 2015. 2015 saw socio-economic agreements being negotiated with the Kaska Nation, and communities most effected by the project were being notified of the company’s plans and receiving feedback from them. Selwyn Chihong applied to widen the access road so that it is capable of accommodating mine haul trucks and the Howard’s Pass Access Road (HPAR) upgrade project was referred to the Mackenzie Valley Environmental Impact Review Board (MVEIRB). The scope of the Environmental Assessment is under review and in May 2016 the MVEIRB met with Selwyn Chihong Mining.

In 2016 Selwyn Chihong continues to prepare a submission for the proposed mine to the Yukon Environmental and Socio-economic Assessment Board (YESAB). In late 2015 Selwyn Chihong decided to delay development of the mine for at least a year and therefor to delay the application to regulators.
Bedrock and Mineral Deposit Geology

The Howard’s Pass Deposit lies in the Selwyn Mountains along the Northwest Territories/Yukon Territory border. The mountain range is formed from northwest striking Proterozoic and Paleozoic sediments intruded by Cretaceous quartz monzonite and granitic stocks. The sediments have been folded along northwesterly trending axes into a series of anticlines and synclines cut by northeasterly trending thrust faults.

The main mineralized zone is on the southwest-facing slope of a rounded northwest trending ridge. Trenches along this ridge have exposed deeply weathered graptolitic shales of Silurian age. The deep weathering of the mineralized horizon results in areas marked by faint gossans and few sulphides.

Drilling and geological studies have confirmed the regional geological structure of a large synclinal structure, truncated by both low angle, thrust faults, and steeper dipping younger tear faults that offset the mineralized zones. All zones excepting the XY deposits are on the northeast limb of the apparent northwest trending synclinal structure.

The Howard’s Pass deposit is recognized as a sedimentary exhalative (SEDEX) deposit. The stratiform deposit lies in a zone of carbonaceous chert and mudstone, up to 50 metres thick by several kilometres long. The main sulphides in the host sequence, locally known as the Active Member of the Road River Formation, are galena, sphalerite, pyrite, with minor amounts of chalcopyrite, and molybdenum. Sulphides in the deposit are thought to have been precipitated from an anoxic fluid within a restricted marine basin. Little evidence of rifting can be found in the deposit area (MacIntyre, D.G., 1990). Property-scale mapping carried out by Selwyn Resources and the NWT Geological Survey between 2005 and 2012 resulted in a new structural model for the area. In this model, sulphides were concentrated and remobilized along pressure solution cleavage within areas of high strain. This occurred 250-300 million years after deposition of the sediments when a system of imbricate thrust faults developed above a decollement surface (Martel, 2015).

Drilling by Selwyn appears to validate an interpretation that the deposits were formed in one large basin that later underwent structural disruption, causing the formation of individual deposits. The mineralized horizon is generally 20-30 metres thick (2012 Selwyn Technical Report).

Exploration

Selwyn Chihong commenced drilling in June 2015 and planned to drill 10,000 metres during the year. Another drill program is planned for 2016.

Mineral Resource Estimate

A NI 43-101 compliant resource estimate completed in 2012, concluded that the mine hosts an indicated resource of 9.7 million tonnes of zinc and 3.3 million tonnes of lead within 185.6 million tonnes of ore with an average grade of 5.20% zinc and 1.79% lead and an additional 238 million tonnes of inferred resources based on a 2% zinc cut-off (as at August 7, 2012).

References


DianD Yukon Geology Staff, (1981), Yukon’s Mineral Industry 1981 – An Overview, Indian and Northern Affairs Canada, Northern Affairs Program


NORMIN.DB (www.nwtgeoscience.ca) 105ISW0018

NTGS Assessment Reports 061421, 062136, 085640


www.selwynchihong.com
History

The Sue-Dianne claims were staked in 1974 and optioned to Noranda Exploration Company Limited. Noranda drilled four holes totaling 573 metres on the property in 1975, following geological mapping and airborne and ground geophysical surveys that identified uranium, magnetic, and induced polarization anomalies (AR 080230). In 1976, four holes totaling 570 metres intersected a laterally zoned breccia pipe (MIR 1976, AR 080524). Subsequent to further geophysics and sampling (AR 080635), Noranda drilled an additional 14 holes in 1977, and identified a resource of 8.16 million tonnes, grading 0.8% copper and 5.52 grams per tonne silver. One hole was drilled in 1978 (AR 081030).

In 1996, after optioning the property from Noranda, Fortune Minerals had a 299 line-km airborne geophysical survey flown and carried out ground geophysical surveys and detailed geological mapping (EO 1996, AR 084024). In 1997, 16 holes totaling 5,000 m were drilled and in 1998, 32 holes totaling 7,267 metres assisted with resources delineation. In February of 1999 Fortune completed the terms of their earn-in agreement with Noranda, and held a 50% interest in the Sue-Dianne property (Fortune Minerals news release Mar. 1999).

In 1998, Fortune contracted Golder Associates Limited to undertake geotechnical engineering studies on both the NICO and Sue-Dianne deposits. Results from the engineering studies were to be used to determine pit-slope stability for open pit mining and for pre-feasibility studies.

Fortune increased its interest in Sue-Dianne to 100% (subject to a 1.5% NSR payable to Noranda); the original vendor holds a 15% net profits interest.

Bedrock and Mineral Deposit Geology

The Sue-Dianne deposit is located in the southern Great Bear Magmatic Zone, in the Bear Structural Province of the Canadian Shield. The deposit is hosted in Proterozoic Faber Group rhyo-dacite ash flow tuffs (ignimbrites) located on the south flank of a rapikivi granite pluton with associated feldspar porphyries. Two prominent faults intersect at the deposit location. An elliptical diatreme complex with dimensions of approximately 600 by 500 metres, and a minimum depth of 350 metres hosts the mineralization. The outer zone of the diatreme shows silicification, quartz-epidote veins, stockworks and breccias. This zone grades into a brecciated...
zone with hematite and potassium feldspar alteration. Mineralization is found within an inner core of potassic and hematite-rich breccias and microbreccias. Mineral assemblages change from hematite-bornite-chalcopyrite near the top of the deposit, to magnetite-chalcopyrite-pyrite at depth. Copper minerals occur in veinlets or disseminated within the breccia matrices (Fortune Minerals Annual Report 1997).

**Production and Development Plans**

Composite core samples from Sue-Dianne mineralization have undergone metallurgical testing by Lakefield Research. Copper recovery rates of over 90% have been demonstrated. One sample of chalcopyrite-bornite mineralization yielded recoveries of 93% for copper, 81% for gold, and 77% for silver in a preliminary flotation test (Northern Miner (NM) July 1998).

The past-producing Rayrock Yellowknife Uranium Mine, located a few kilometres away, is connected to the NWT all-weather highway network by a disused road. The Snare River hydroelectric power system is located 45 kilometres southeast of the property.

**Significant Results**

Revised resource estimates were calculated in 2008. The drill-indicated mineral resource for the Sue-Dianne deposit stood at 8,444,000 tonnes grading 0.8% copper, 3.2 grams per tonne silver, and 0.07 g/t Au calculated using a cut-off grade of 0.40% copper. In addition there is an inferred resource of 1,620,000 tonnes with a grade of 0.79% copper and 2.4 grams silver per tonne and 0.07 g/t Au of ore (Fortune Minerals 2014 Annual Information Form).

**References**


DIAND NWT Geology Division Staff, (1999) ‘Bear District’ in Exploration Overview 1998 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-16

DIAND NWT Geology Division Staff, (2000) ‘Metals Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-16


Fortune Minerals Limited 1997 Annual Report to Shareholders


NORMIN.DB (www.nwtgeoscience.ca) 085NNE0035


NTGS Assessment Reports 080230, 080524, 080635, 084024


www.fortuneminerals.com

History

The claims were recorded in 1987 and are held under a joint-venture agreement between Aber Resources Limited (now Aber Diamond Corp.) and Hemisphere Development Corporation. Hemisphere Development Corporation was the operator. Grids were established, over which magnetometer, VLF-EM, and HLEM geophysical surveys were conducted. The survey detected an overburden-covered conductor having no magnetic expression. The conductor corresponded with an interpreted rhyolite-andesite contact. By the end of 1987, fifteen drill holes totaling 1,698 metres had tested this anomaly. By the end of 1988, sixty-five holes totaling 18,951 metres outlined the ore zone.

In August 1988, the joint venture reported a probable and possible reserve of over 1.8 million tonnes at a grade of 496 grams per tonne silver, 10.0% zinc, 4.2% lead, and 1.09 g/t Au. Drilling was reported to have extended the depth of the deposit to over 500 metres (NM Aug. 1988).

In 1989, a combined EM, total field magnetic and VLF EM survey was flown over the Sunset Lake deposit and 14 diamond drill holes, totaling 2,630 metres, tested the strike extension of the felsic volcanic rocks (AR 082865 & AR 082863).

In 1990, Noranda Exploration Company Limited drilled 5,000 metres in the Sunrise and Sunset deposit areas (AR 082955). In the fall of 1990, they dropped their option and returned the claims to Aber and Hemisphere (EO 1990). No work was reported following this, until 1998.

Drilling on the property in 1998 (seven holes totaling 1,543 metres) was focused on the lower sulphide zone. This zone continued to yield encouraging results of up to 328 g/t Au, 0.26% copper, 1.64% lead, and 4.08% zinc over 7.54 metres. In conjunction with the drilling program, the operator was completing downhole geophysics on previously drilled holes (NM May 1988).

At the conclusion of the 1998 spring drilling program, Aber reported that the property resource had more than doubled to indicated and inferred resources of 4.9 million tonnes grading 5.0% zinc, 1.96% lead, 171.96 grams per tonne silver, 0.08% copper, and 0.54 g/t Au. An independent scoping study was underway to assess the viability of the project (Aber press release Sept. 1998).
In 1999, further mapping and sampling were performed south of the Sunrise deposit. Silver Standard Resources Incorporated acquired the Sunrise Lake deposit in June 2003. Later that year, an independent report provided a NI 43-101 compliant resource estimate.

**Bedrock and Mineral Deposit Geology**

The property is situated on a 32-kilometre segment of the Archean Beaulieu River Volcanic Belt of the Yellowknife Supergroup. The claims are underlain by mafic volcanics (Sunset Lake Basalt), lesser dacitic to andesitic volcanics (the Alice Formation) and, just north of Sunset Lake, by rhyolite flows, tuffs, and volcaniclastics.

The Sunrise deposit is an Archean polymetallic zinc-lead-copper-silver-gold volcanogenic massive sulphide hosted by a brecciated rhyolite tuff. The lens is conformable with stratigraphy, dips at 60° to 65° to the east and plunges 60° to the north. The metallic mineral suite consists of pyrite, sphalerite, galena, tetrahedrite, arsenopyrite, pyrrhotite, chalcopyrite, pyargrite, boulangerite, native silver, native gold, gudmundite, and stannite. The deposit appears to have been deformed by a prominent block fault, indicative of a caldera-type setting.

The deposit has an average thickness of three to four metres, with sections up to 16 metres thick, a strike length of 240 metres, and a depth of at least 700 metres.

**Exploration**

Silver Standard Resources continues to hold the property, on a care and maintenance basis.

**Significant Results**

In September 2003 an independent NI 43-101-compliant un-cut resource estimate was calculated with the following results:

<table>
<thead>
<tr>
<th>Category</th>
<th>Tonnes (thousands)</th>
<th>Silver g/t</th>
<th>% Copper</th>
<th>% Lead</th>
<th>% Zinc</th>
<th>Gold g/t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>1,522</td>
<td>262</td>
<td>0.08</td>
<td>2.39</td>
<td>5.99</td>
<td>0.67</td>
</tr>
<tr>
<td>Inferred</td>
<td>2,555</td>
<td>169</td>
<td>0.07</td>
<td>1.92</td>
<td>4.42</td>
<td>0.51</td>
</tr>
</tbody>
</table>

This used a 30 g/t silver cut-off. The gold price was set at US$400 per ounce, silver was at US$5.50 per ounce, zinc at US$0.45 per pound, lead at US$0.25 per pound and copper at US$0.80 per pound and an exchange rate of CDN$1.45: US$1.00.

**References**


DIAND NWT Geology Division Staff, (1999) ‘Slave Province – Gold and Base Metals’ in Exploration Overview 1998 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-7, 2-8


George Cross Newsletter No. 48 (1999), ‘Sunrise Scoping Study Completed’, March 10, 1999


NORMIN.DB (www.nwtgeoscience.ca) 085IN0086


NTGS Assessment Reports 082863, 082865, 082955


www.silverstandard.com
DEMCo Ltd. is a subsidiary of Denendeh Investments Inc.

DENENDEH INVESTMENTS INC.
PRESIDENT:
Darrell K. Beaulieu

VICE PRESIDENT (DEMCO LTD.):
Trevor Teed

OWNERSHIP:
100%

CORPORATE HEADQUARTERS:
Suite 401 & 402, 4504 – 49th Avenue
Denendeh Manor
PO Box 2725
YELLOWKNIFE, NT X1A 2R1

PHONE: (867) 920-2764
FAX: (867) 669-7525
EMAIL: demco@denendeh.ca
www.denendehinvestments.ca

LOCATION:
400 kilometres north-northwest of Yellowknife.

NTS AREA:
086E/09

LATITUDE/LONGITUDE:
65.6042°N 118.1153°W

ORE TYPE:
Vein-hosted; IOCG

RESOURCE ESTIMATION:
Historic NI 43-101 non-compliant 27,769 tonnes @ 1,028 g/t Ag
(plus 453,592 tonnes @ 0.5% Ni and 0.5% Cu in tailings)

ACCESS:
Gravel airstrip. A historic all-weather gravel road connected
terra Mine with Smallwood, Norex and Silver Bear Mines.

ALIAS(ES):
Silver Bear; North Mine

PROJECT STATUS:
Available for option

History

The Terra Mine showing was originally staked in the 1940’s
under the claim name Yaw. During 1960, Eldorado Mining
and Refining Limited drilled 4 holes totaling 942 feet on what
is later called the Silver Bear zone. In 1963 Echo Bay Mines
Limited optioned the property and performed additional drilling.
Three years later the ground was staked by Carl Sutton as the ‘X’ claims and Silver Bear Mines Limited was formed later
that year to option and acquire the ground. The property
was taken over by Terra Mining and Exploration Limited and
during 1967-68 thirty-one diamond drill holes totaling 2836
metres tested silver-copper-bismuth-cobalt mineralization.

A 365-metre adit was driven to reach the Silver Bear zone in
1969. By late October 1969, production at a rate of 150 tons
per day had begun. Silver-bismuth and copper-silver concen-
trates were produced. Terra sold its concentrate to Cominco’s
smelter at Trail, British Columbia. In 1973, surface work
included trenching, drilling, and geophysical surveys.

Deep drilling in 1976 discovered a new zone, which later
became the North Mine. Access to the North Mine was
established in 1978 through a 460-metre crosscut from the
600 level of the Silver Bear Mine. Milling of ore from the
North Mine began in 1979; during its first year, 64,986 oz
of silver was produced from 4982 tons of ore (equivalent to
13.04 oz/T Ag). The mill closed in January 1981, but was later
recommissioned. Two years later, the mill throughput capac-
ity was doubled to 400 tons per day.

The Silver Bear Mine open pit was developed and commenced
production in mid-1984 and a new portal was established for
development of the 50 foot level. Production was cut back in
1984 and the mill suspended production in April 1985 due to
low silver prices. Three years later the property and installa-
tions were sold to Octan Resources Incorporated.

A private NWT company staked claims over the Silver Bear,
North and Smallwood Mines in 1997 and expanded their
landholdings to include Norex the following year. Mongolia
Gold Resources Ltd. assessed the property in 1997 and 1998
and prospecting and sampling were carried out. Bags of floa-
tation concentrate were also sampled (AR 084204).
Because the area covers historic mines, the surface rights are federally-managed by Aboriginal Affairs and Northern Development and remediation is being managed by Contaminants and Remediation Directorate (CARD).

DEMCo acquired mineral claims from Cooper Minerals Inc. and also purchased two mineral leases and one other claim in the Terra Mine site area, so that their landholdings in the vicinity of the Camsell River, as of 2013, covered the past-producing Terra, Smallwood, Norex and Silver Bear Mines (www.denendehinvestments.ca). During 2014 DEMCo carried out geological mapping and prospecting and diamond drilling (ten holes from seven set-ups) on their Camsell River Project. Part of the work was funded by the Government of the Northwest Territories Mining Incentive Program (MIP). DEMCo also re-sampled some historic drill core (DEMCo news release December 2 2014). At the same time DEMCo performed rehabilitation work at former exploration and mining sites.

Channel sampling was performed on a couple of mineralized zones near the historic Smallwood Mine in 2015. Resultant assays were highlighted by a 24-metre intercept that graded 0.15 g/t Au, 0.51% Cu, and 3.4 g/t Ag, as well as less than 0.1% lead plus zinc (DEMCo Camsell River Project Information Circular December 2015).

**Bedrock Geology**

The property lies within the Bear Geological Province, within the Proterozoic Great Bear Magmatic Zone. The Camsell River silver deposits are hosted by quartz-carbonate veins in volcanic and sedimentary rocks of the Labine Group. Quartz monzonite to monzodiorite bodies intruded and altered the adjacent wallrock (to distances of greater than one kilometre). A major northwest-trending, gently northwest-plunging syncline is cut by abundant northeast-trending, right-lateral strike-slip faults. These faults acted as conduits for the quartz-carbonate veining and subsequent mineralization of the area. Vein-mineralization comprises silver, copper and occasionally cobalt and uranium. This area east of Great Bear Lake is recognized as having IOCG (iron oxide copper gold) potential.

Terra Mine was located on a peninsula in the Camsell River, approximately eight kilometres southeast of Great Bear Lake (at Conjuror Bay). The Terra (Silver Bear) Mine is on the southwest limb of the Norex syncline near the north boundary of the Rainy Lake intrusion. The mineralized veins are hosted primarily by sediments.

Banded and disseminated sulphides (pyrite, pyrrhotite, and chalcopyrite, but also argentite, cobalt-bismuth arsenides, native silver, and native bismuth) comprise 10% of the wallrock, adjacent to the silver-bearing veins. The ore is concentrated in steeply to moderately south-dipping, northeast-striking quartz-carbonate-hematite vein systems that cut the banded sulphides. The veins are usually less than one meter wide, and are related to an east-northeast-trending splay from a major northeast-trending fault to the west (Badham, 1975 from NORMIN.DB).

The North Mine lies immediately north of the Silver Bear Mine and was accessed from it. Silver-bearing veins (with copper, cobalt and gold) cut volcanic rocks and are related to a fault that underlies the Camsell River. The veins strike easterly and dip 70 to 80 degrees south.

**Exploration**

Modelling of historic magnetic survey data acquired by DEMCo indicates the possibility of large buried magnetic bodies. DEMCo plans to follow up on this with a gravity survey.

**Significant Results**

In 1985, resources were estimated at 27,769 tonnes averaging 1028 g/t silver plus 453,592 tonnes of tailings containing up to 0.5% nickel and 0.5% copper (Octan Resources).

DEMCo resampled core from historic drill holes; one drill hole that was drilled in 1981 at the Smallwood silver mine contained a 42-metre intersection that averaged 0.49% copper-equivalent, followed eighty metres downhole, by a 65.5-metre intercept that graded 0.51% copper-equivalent (DEMCo news release December 2 2014).

**References**

Assessment Report 084204 (1999)


NORMIN.DB (nwtgeoscience.ca) 086ENE0012

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM

www.denendehinvestments.ca

History

The Canadian Nickel Company Limited worked on the property from 1952 to 1953. This consisted of geological mapping and diamond drilling of 3,522 metres in 18 holes. Thirteen holes were drilled on the Main Zone, one hole on the Gossan Zone, three holes on the Joe Island Zone, and one hole on the Central Zone.

The claims were allowed to lapse in 1975, and were re-staked by Highwood Resources Limited as the BANJO, NICKEL KING and MUCKSTICK claims. The showings were sampled, and results from work done by the Canadian Nickel Company were re-evaluated (AR 080543).

In 1987, the property was re-staked by W.W. Kizan as the ANKI claims. Prospecting and blasting were done on the Main and Central Zones. In 1988, the ANKI claims were optioned to Hartz Equities Ltd. Once again the data was re-evaluated and a program of grid refurbishing, geological mapping, and trenching was carried out. In 1989, an ore reserve calculation based on 1950's drilling (13 holes totaling 2,786 metres) resulted in an ore reserve estimate of 13,647,307 tonnes at a grade of .12% Cu and .45% Ni (AR 082812).

In 1995, ground magnetic and HLEM surveys and mapping were completed, as well as the drilling of thirteen holes totaling 2,430 metres. Five EM conductors were located, in addition to the known showing (AR 083489).

The property ownership changed from Aber Resources Limited to Navigator Exploration Corporation in February 2000. Aber Resources assigned its 100% interest in the property to Navigator Exploration Corporation for a 2% royalty and the right to market any diamonds produced from the property. Aber Resources Limited has subsequently changed its name to Aber Diamond Corporation.

In August 2000, Falconbridge Limited optioned the property. During 2000 and 2001, Falconbridge conducted geological mapping, prospecting, and sampling (AR 084336 and AR 084519); they terminated the option and returned the property to Navigator in late 2002. A new mineralized sill was discovered during the 2001 field program.

Strongbow optioned the Nickel King property in 2004 and carried out an airborne magnetic survey over the area (AR 084723). Two years later, an airborne EM and magnetic survey were flown. During 2007, geological mapping and sampling were carried out, as well as ground EM surveys (AR 085427).
In 2008, a detailed helicopter-borne VTEM geophysical survey was flown. The Main Zone of the Nickel King anomaly was easily identified over the 2.6-kilometre drill-defined extent of the deposit.

Strongbow completed three separate drill programs at Nickel King in 2007 and 2008. A total of 66 drill holes (13,480.9 metres) were completed on six general target areas. The bulk of the drilling focused on exploration of the Main Zone with the balance of the drilling on five other target areas.

An updated NI 43-101 Technical Report for the Nickel King, Main Zone Deposit was released in June 2010. The property was not explored between 2008 and 2015 however a Land Use Permit allowing mineral exploration was issued at the end of 2011 and is active until December 2016.

**Bedrock and Mineral Deposit Geology**

The property lies within the southern part of the Snowbird Tectonic Zone, an area that forms the boundary between the Archean Rae and Hearne geological provinces. The Main Zone of the Thye Lake deposit is associated with a mafic to ultramafic sill approximately 60 metres thick. The sill intrudes paragneisses containing granitoid and pegmatoid segregations. Nickel-copper sulphide mineralization is hosted within two arcuate, stacked south-dipping norite sills. The sills range from a minimum of about 10 metres to 100 metres or greater in thickness and are currently interpreted as two limbs of a westerly plunging synform. Typical thickness ranges between 40 and 60 metres.

The sill is tightly to isoclinally folded; the fold axis trends west-easterly and plunges westerly at about 15°. The two fold limbs dip to the south at 30° and 50°. Two northerly trending, west-side-down faults offset the limbs of the fold.

The sill is highly heterogeneous and includes norite, gabbro, olivine gabbro, and pyroxenite. There is local alteration to a fibrous amphibole (probably actinolite or cummingtonite) with chlorite and biotite. Sulphides occur as irregularly distributed disseminations to semi-massive segregations in the sill.

The sulphide content increases towards the nose of the fold. Sulphide minerals are mainly pyrrhotite and chalcopyrite. Pentlandite, often partly altered to a bravoite-series mineral, tends to occur as discrete grains and veinlets as well as inclusions, bands, and flame-like exsolutions in pyrrhotite. Copper and nickel grades tend to be higher in the lower limb.

Five significantly mineralized zones have been identified; these are named (from west to east): Joe Island Zone, Gossan Island Zone, Main Zone, Central Zone, and East Zone.

Mapping on the East Zone has shown that the norite continues for over 900 metres east of the East Fault. Rare Earth Element work suggests that the known sills are heavily contaminated through interaction with the country rock and may have acted as a long term conduit for larger intrusions in the area.

**Significant Results**

A NI 43-101-compliant indicated resource estimate for the Nickel King deposit (Main Zone) totals 11.1 million tonnes grading 0.40% Ni, 0.10% Cu and 0.018% Co. The total Inferred resource is 33.1 million tonnes with an average grade of 0.36% Ni, 0.09% Cu and 0.017% Co. The resource was calculated using a 0.2% Ni cut-off (Strongbow news release February 25, 2009 and Technical Report 2010).

**References**


NORMIN.DB (www.nwtgeoscience.ca) 075A5E0001

NTGS Assessment Reports 085427, 084723, 084519, 084336, 082812, 082372, 080543


www.mvlwb.ca

www.sedar.com Strongbow Exploration

www.strongbowexploration.com
History

Sulphide mineralization was detected in the Turnback Lake area in 1937, when the Aerial Exploration Syndicate staked the XL and OK claim groups. The claims were optioned and explored by Westfield Mining Company Ltd. Westfield mapped the area at 1:480, excavated 15 trenches, and drilled 14 holes totaling 745 metres. All but the XL-1 and 2 claims were allowed to lapse.

Cominco staked the area and conducted exploration work in 1951, including geological and geochemical surveys, diamond drilling and trenching through until 1953. In 1954, Cominco drilled 17 DDH's in the area and in 1961 four additional holes totaling 404 metres (AR 082172). In 1959, Cominco acquired an 80% interest in the original XL-1 and 2 claims (the leases are in good standing until 2024). In 1960 geological mapping was done and some exploration was performed in 1961 (Coates, 1990).

In 1970, the Yellowknife Syndicate staked claims in the area as part of the Victory Lake project. Cominco, however, retained an interest in a few claims that had not lapsed. The Yellowknife Syndicate was formed in 1970 to explore greenstone belts northeast of Yellowknife. The four equal partners in the syndicate were: Yellowknife Bear Mines Limited, Long Lac Mineral Exploration Limited, Hydra Exploration Limited, and Keevil Mining Group Limited. The following year, exploration work was carried out on the Turnback Lake deposit, including airborne EM surveys and sampling, but subsequently the claims were allowed to lapse.

In 1973, the land was re-staked again as the A and B claims, held by Worldwide Truck and Equipment Ltd. Prospecting and geophysical surveys were conducted through 1974 and 1975. Highwood Resources Ltd. acquired a 100% interest in
claims covering the deposit. In 1980, prior to starting work, Highwood reported that three zones on their property might host 2,000 tons per vertical foot grading 4 oz. silver per ton, 0.8% copper, 4.7% zinc and 1% lead. In the 1980’s, Aber Resources Limited worked in the area.

During 1989, Nanisivik Mines Ltd. optioned the property from Aber Resources, Kelmet Resources and Falconbridge Ltd. and carried out ground geological and geophysical surveys; in 1990, a drill program tested anomalies in the area. Further work was recommended in the vicinity of the XL deposit. Hole 90-8 and 90-31 were drilled immediately north of Cominco’s leases; chlorite alteration with minor chalcopyrite were cut near the end of the hole and a two-metre intercept assayed 0.2% copper and 3.9 g/t silver (AR 083020).

Cominco and Ventures Claims Ltd. (now Glencore Canada Corp.) continue to keep the leases on a care and maintenance basis. In July 2001, Cominco merged with Teck Corporation and in September 2001, the company’s name changed to Teck Cominco. In 2009 Cominco Mining Worldwide Holdings changed its name to Teck Mining Worldwide Holdings (however the mineral lease records in 2016 still show ownership assigned to Cominco and Glencore).

**Bedrock and Mineral Deposit Geology**

The deposit lies within the Beaulieu Volcanic Belt in metamorphosed Yellowknife Supergroup supracrustal rocks intruded by granodiorite, pegmatite, and diabase dykes. Mineralization occurs within silicified amphibolite, as zones of massive to disseminated sulphides parallel to bedding. Pyrrhotite and sphalerite appear to be concentrated in specific sedimentary horizons, with chalcopyrite, galena, and pyrite more irregularly distributed. Yellow gossan is noted at the outcrop of the mineralized zone.

Throughout the Turnback Lake area, mineralization is associated with amphibole gneiss, calc-silicate, and limestone, and it is suggested that the mineralization is exhalative and distal to a centre of intermediate to felsic volcanism (MIR 1988-89).

**Significant Results**

An inferred resource was calculated by averaging the data presented in Lord (1941); this resulted in an overall indicated tonnage of 910 tons per vertical foot at a grade of 2% copper, 6% zinc, 1.5% lead and 3 oz silver per ton (Coates, (1990)).

**References**


Highwood Resources Ltd. Annual Report 1980


NORMIN.DB (www.nwtgeoscience.ca) 085INE0023, 085INE0195

NTGS Assessment Reports 082172, 080172, 083020
**WRIGLEY PROJECT**  
_Devonian Metals Inc. (and Mackenzie Mountain Metals Inc.)_

**Leads, Zinc**  
_Mississippi Valley Type_

Mackenzie Mountain Metals Inc. is a private company, a subsidiary of Devonian Metals and its joint venture partner Alapa Resources

**PRESIDENT:**  
Ronald F McIntyre

**OWNERSHIP:**  
100%

**CORPORATE HEADQUARTERS:**  
100 – 631 Carnarvon St.  
New Westminster, BC V3M 1E3

**PHONE:** (604) 527-7996  
**FAX:** (604) 527-7991  
**EMAIL:** info@devonianmetals.com  
www.devonianmetals.com

**LOCATION:**  
10 km southwest of Wrigley

**NTS AREA:**  
095O/04

**LATITUDE/LONGITUDE:**  
63.1167°N 123.6292°W (Bourne deposit)

**RESOURCE ESTIMATE:**  
NI 43-101 compliant inferred resource of 3.978 million tonnes @ 7.34% Zn, 2.02% Pb and 12.71 g/t Ag

**ACCESS:**  
Aircraft or boat

**PROJECT STATUS:**  
Available for option.

**History**

Cominco carried out a regional reconnaissance program in 1971 and the Fry claims were staked in September. A Prospecting Permit, surrounding the claim group, was acquired the following spring. In 1972, Cominco discovered forty to fifty Pb-Zn showings on their prospecting permit, and drilled one hole totaling 26.8 metres (AR 015271). The Permit area was reduced after the 1972 fieldwork. During 1973, geological mapping, prospecting, stream sediment and soil sampling, ground EM and IP surveys, and ten diamond drill holes totaling 1,130 metres were completed. Drilling tested five targets. Five holes were drilled into the Bourne zone, and three into Sasquatch Hill, a couple of kilometres to the north of the Bourne zone (AR 061372).

In 1987, the property was optioned to Equinox Resources Ltd., which re-optioned 50% of its interest to Vortex Resources Ltd. who funded a prospecting and sampling program. The 1987 Equinox Resources Annual Report stated that Cominco estimated that the property could host a “reserve potential of 10 million tons grading 8% to 10% combined lead-zinc”.

No work was reported on this property from 1987 through until 2007. The leases closest to the town of Wrigley that were held by Cominco and then 1038530 Alberta Ltd. have expired. A 1999 prospector’s report described sphalerite and chalcopyrite in stream sediment samples taken east of the Mackenzie River near Wrigley (AR 015609). Two leases that were issued in 1984, about 10 km southwest of the Wrigley leases, are still active and are held by a private company, Mackenzie Mountain Metals Inc. Claims surrounding these leases are held by Devonian Metals (a private company that changed its name from Aurora Resources in 2009).

Aurora Resources acquired the leases covering the Bourne, and adjacent showings to the north on Sasquatch Hill from Cominco in 2003. The property was then transferred to a new joint venture company, Mackenzie Mountain Metals, co-owned by Alapa Resources Inc. That year, four reverse circulation holes, totaling 358.8 metres and 14 diamond drill holes totaling 1,885 metres tested various targets. Eleven of those holes tested the Bourne zone and seven the 12N zone.

Short field programs in 2008 and 2009 consisted of geochem surveys, and drill pad construction. During 2010 and 2011 Devonian Metals drilled 37 holes. During 2012, nineteen holes totaling 3,593 metres were drilled. A NI 43-101 compliant resource was estimated for the Wrigley...
zinc occurrence in June 2012. Metallurgical test results were released in early 2013 from a study of five oxide and sulphide-bearing composite samples.

The term of the Land Use Permit was extended to July 1, 2016, however no record of any further work has been filed to the end of July, 2016.

**Bedrock and Mineral Deposit Geology**

The Wrigley property lies within the Cordilleran Orogen, in Middle Devonian bitumen-bearing limestone. Mineralization is concentrated in breccia fillings and along fractures; disseminated sphalerite and minor galena are found within the limestone. Minor smithsonite, cerrusite, and hydrozincite are present.

The deposit contains approximately 34.28 grams of silver per tonne of mineralized rock. The silver is associated with galena (AR 061372).

Three main zones make up the Wrigley zinc occurrence, namely the Bourne Zone, Zone 12 and Zone 36 East (2012 Technical Report).

**Significant Results**

As at June 8, 2012 the Wrigley zinc occurrence, comprised of three zones, hosts an indicated resource of 728,000 tonnes grading 8.26% zinc, 2.11% lead, and 12.86 grams of silver per tonne of ore. The inferred resource is estimated to total 3.978 million tonnes with a grade of 7.34% zinc, 2.02% lead and 12.71 grams of silver per tonne of ore. This estimate used a 4% combined zinc plus lead cut-off (Devonian Metals 2012 Technical Report).

**References**


NORMIN.DB (www.nwtgeoscience.ca) 095OSW0006, 095OSW0003

NTGS Assessment Reports 015271, 061372, 015609

www.devonianmetals.com
There are no producing strategic mineral mines in the NWT in 2016. The CanTung Mine ceased milling ore in late 2015; historically, the mine has been in production and closed down on several occasions. As of July 2016 the mine is in care and maintenance mode.

Canadian tungsten reserves, represented primarily by CanTung Mine and the MacTung deposit, together represent about 20% of known tungsten reserves outside of China (China is host to almost 60% of world reserves)1.

Of the several tungsten properties listed in this section, Mactung, on the border with the Yukon Territory, is the most advanced in the exploration cycle. The mine permitting process had begun for this deposit but has been forestalled by a change in property ownership.

The Eldorado Mine on Great Bear Lake was the first mine to operate in the NWT; Eldorado started out mining radium in 1933, and later the same mine produced uranium and silver. Between 1969 and 1982 the Echo Bay Mine produced silver from the same site.

Since the days of mining on Great Bear Lake, the area around it has been sporadically explored, most recently the focus has been primarily for IOCG Style deposits; however, gold, silver and platinum-group metals are also being sought.

A positive feasibility study was completed for the Nechalacho rare earth element (REE) deposit, near the eastern shore of Great Slave Lake, in 2013.

REEs, such as yttrium, europium, and neodymium are used in a variety of electronics, such as flat panel televisions and computer disk drives. Neodymium and some heavy REEs are used to make high intensity “super-magnets”. Demand for such magnets is being driven primarily by the automotive industry, specifically for use in hybrid cars.

BIG (MURPHY)
Erex International Limited

DIRECTOR:
Volker Ahlborn

OWNERSHIP:
100% Erex International Limited (private company)

CORPORATE ADDRESS:
Erex International Ltd.
#2024 – 938 Smithe Street
VANCOUVER BC V6Z 3H8

PHONE:  (604) 687- 8338
EMAIL: thanhphambc@gmail.com

LOCATION:
21 kilometres east- northeast of Yellowknife; 5.4 kilometres south of Highway 4

NTS AREA:
085I/05, 085I/12

LATITUDE/LONGITUDE:
62.5036°N 113.9814°W

RESOURCE ESTIMATE:
Historic NI 43-101 non- compliant inferred resource of 7,155,900 tonnes @ 1.47% Li2O

ACCESS:
Float or ski-equipped aircraft

ALIAS(ES):
Bighill Lake, Big North

PROJECT STATUS:
Available for purchase and mine development

History
The pegmatite was first sampled in the 1950’s and numerous trenches were blasted (AR 082348). In 1975, trenches were resampled (AR 080273). In 1979, thirteen trenches were blasted and thirty-eight, approximately 10 lb., samples were analyzed (AR 080957).

The lease covering this deposit (NT-3197) has an expiry date in 2027. Erex International holds many lithium properties in the Yellowknife area and considers all to be part of a single package that a mining company would develop in the future (Volker Ahlborn, personal communication).

Bedrock and Mineral Deposit Geology
The deposit lies within the Archean Slave Geological Province. Nodular quartz-biotite schists of the Yellowknife Supergroup are intruded by spodumene-bearing pegmatite. The schists are metamorphosed greywacke and argillite turbidite beds belonging to the Burwash Formation. The pegmatite was intruded at the same time as cross folding occurred within the sediments.

The sediments strike generally 070° and are crosscut by the dykes, which strike approximately north-northeast.

The BIG (Murphy) showing is within a series of granitic pegmatite–aplite dykes, which are related to the Prosperous granite; the dykes vary from one to twenty-five metres in width (averaging five metres), dip steeply northwest and are found along a 220-metre strike length. A number of studies have been done of pegmatites in the Yellowknife area (Cerny, P., 1988). One of these was a PhD thesis by R.E. Meintzer published in 1987 studying the paragenesis and economic potential of Yellowknife pegmatites.

Significant Results
Sampling in 1975 and old drilling records from the 1950’s indicate the possible continuity of Li2O at depth. A possible resource of 1,360,780 tonnes at a grade of 1.5% Li2O may be located between surface and to a depth of 30 metres. It is possible this grade continues to 170 metres depth (AR 080273).

References


NORMIN.DB (www.nwtgeoscience.ca) 085INW0074

NTGS Assessment Reports 080273, 080957, 082348

Axel Berglund discovered and staked the CanTung deposit for Northwestern Explorations Limited in 1954 as a copper prospect. The property was mapped and sampled in 1955 and drilled by Kennecott Copper in 1956. It was found to be sub-economic for a copper deposit and the claims were allowed to lapse.

Prospectors working for the “Mackenzie Syndicate” (Leitch, Highland Belt, Area Exploration Limited, Dome Minerals Limited, Ventures Limited and Lake Expanse Gold Minerals Limited) discovered scheelite while panning in the Flat River in the late 1950’s. The Mackenzie Syndicate re-staked the property, as soon as the claims lapsed and the area became available, in the Fall of 1958. The Canada Tungsten Mining Corporation Limited (CanTung) was formed in 1959 to acquire and develop the property. CanTung drilled 11 holes in 1959 and 41 holes in 1960 (AR 015003, 017487). Ore reserves of 1.08 million tonnes grading 2.47% WO3 and 0.45% Cu were defined (AR 061894). In 1961, prospecting and geological studies were performed (AR 017574) and eight holes were drilled, totaling 126 metres (AR 060092). During 1962, geological mapping at a scale of 1:4,800 was carried out (AR 017572) and 262 metres of drilling was completed (AR 017573).

Production commenced in November 1962, financed by Falconbridge, Amax, and Dome. The Pit Zone orebody was open-pit mined from 1962 to 1973. Total production from the pit during this period was 1.69 million tonnes grading 1.75% WO3. Production was suspended during 1963-64 due to low tungsten prices, and was interrupted in 1967 due to a mill fire. Falconbridge sold its interest in the CanTung mine in 1966. In 1967, reserves were re-calculated and included only those mineable by open pit methods. Production from the pit continued until September 1973.

Deep drilling in 1971 discovered the “E Zone”. Surface and underground drilling in 1972 and 1973 identified mineable reserves in the zone. A decision was made to take only the higher-grade skarn ore from the open pit, then convert the mill to process E Zone ore. The E Zone has historically been mined from underground; milling of E Zone ore commenced in June 1974. The eastern part of the E Zone was mined using room and pillar methods, while the less competent western part was mined by bulk stoping, with large diameter blast holes (MIR 1986-87).

During the summer of 1974, an airborne EM and magnetic survey was flown (AR 080372). In 1975, eight anomalies were drilled totaling 1,189 metres (AR 080492). There are numerous assessment reports documenting soil and stream sediment sampling that was carried out between 1977 and 1980. Samples were analyzed for W, Cu, Zn, Pb, Mo, Mn, and V. Exploration continued through the 1980’s to 1984.
In 1979, production was increased to approximately 900 tonnes per day, following a mill expansion. Production was halted by a strike from November 1980 to May 1981, and for most of 1983 due to low tungsten prices. From 1983 to May 1986, the mine operated at 450 tonnes per day due to low metal prices. A flooding of the market with low-priced Chinese tungsten caused the tungsten price to drop from US$84/ Short Tonne Unit (STU) in 1984 to US$50/STU in 1986. A labour dispute halted production in May 1986. In August of that year operations were suspended indefinitely due to low tungsten prices.

Dome Minerals sold its interest in the Cantung Mine in 1985. That year, Amax transferred all tungsten assets, including CanTung and the MacTung project at Macmillan Pass, to Canada Tungsten Inc. but retained majority control. Aur Resources Inc. optioned the property in 1995 (EO 1995).

Canada Tungsten Incorporated and Aur Resources Incorporated merged in 1996. In 1997, North American Tungsten Corporation Limited purchased CanTung and related assets of the former Canada Tungsten, from Aur Resources Incorporated. Aur Resources retained a 3% (with an escalation clause to 4%) NSR royalty on the property. In 2007 Aur Resources was acquired by Teck Resources Limited (Teck), who thereby bought the Cantung royalty. North American Tungsten renegotiated the royalty with Teck, and as a result Teck held a 1% NSR royalty on the property.

Commencing in 1998, North American Tungsten Limited performed environmental monitoring and reclamation on the CanTung property.

On January 21, 2002, CanTung re-opened. In January 2003, the company reported that its tungsten production was 33% higher than anticipated by its mine plan. In December 2003, CanTung closure was announced and the property went on a care and maintenance schedule.

In 2005, due to a world shortage of tungsten the price rose significantly. Kaska Minerals Corp. agreed to invest 2.97 million in North American Tungsten Corporation Ltd. and CanTung reopened in September 2005. North American Tungsten began a program of surface and sub-surface exploration in 2007 that continued into 2015. The work included drilling, geophysical programs and soil sampling. Surface diamond drilling prior to 2007 (since the mine ceased production in 1986) was limited to a few drill holes within the Open Pit/PUG Zone (see 2014 Technical Report for exploration details).

CanTung mine suspended operations in October 2009 due to low metal prices. Production resumed one year later, on October 8, 2010. The Dakota zone (located a couple of hundred metres north of the eastern edge of the E zone) was discovered in the latter part of 2012. Follow-up in 2013 focused on expanding the zone (12 holes were drilled, totaling 3448 metres) and further drilling was completed in 2014.

North American Tungsten temporarily laid off 80 employees at the Cantung Mine in mid-2015 due to operating expenses and the low tungsten price affecting the company’s profitability. NATC experienced liquidity issues soon thereafter and filed for Court protection under the Companies’ Creditors Arrangement Act in early June; the company was successful in securing interim financing and received an extension of its court protection to October 31, 2015 and again until March 31, 2016.

NATC sold its undeveloped Mactung property (see Mactung deposit description) to the Government of the Northwest Territories in late 2015.

The Cantung mill shut down October 26, 2015 and the mine transitioned to a care and maintenance status. The Government of Canada took over responsibility for the environmental care and maintenance activities in late November 2015 (NATC website News Releases).

**Bedrock and Mineral Deposit Geology**

CanTung is one of a number of tungsten skarn deposits located along the eastern margin of the Selwyn Basin. The Selwyn Basin extends into the Yukon. The Tungsten area is underlain by a series of Cambrian sediments, including limestones, intruded by Cretaceous granites. Tungsten mineralization is found within scheelite-bearing skarn associated with the granitic intrusions.

The Cambrian sediments are folded into a northwest-trending syncline with small, tight folds on the overturned southwest limb. A quartz monzonite stock, known as the Mine Stock, intrudes the sedimentary sequence, altering the limestones to skarn. Two limestone units host ore-bearing skarn, these are the Swiss Cheese Limestone and the Ore Limestone. The older Swiss Cheese Limestone is a dolomitic siltstone containing pods of impure limestone, and hosts ‘chert ore’. The Ore Limestone is a finely laminated blue-grey recrystallized limestone or marble, and hosts ‘skarn ore’. The two main historic ore bodies lie within limestone units of the Sekwi Formation on the upper and lower limbs of a recumbent anticline.

The Pit Zone orebody is hosted in both limestone units and consists of diopside-hedenbergite-garnet skarn with quartz, calcite, scheelite, microcline, and local pyrrhotite. The northerly dipping Pit Zone is cut by a fault on its southern side and pinches out to the north. The main zone of the orebody hosted in the Ore Limestone, was originally 200 by 90 metres in size, and contained 1.2 million tonnes grading 2.47% WO3.
The chert zone, located beneath the main zone in Swiss Cheese Limestone, was originally defined as 3.56 million tonnes grading 0.65% WO₃. Part of the chert ore was not mined.

The E Zone is located closer to the quartz monzonite stock and has undergone more intense metasomatism. Mineralization occurs within an east-trending lens of approximate dimensions 820 by 150 by 12 metres within the Ore Limestone. The lens dips to the south at 20°. The zone contains less pyroxene-garnet skarn than the Pit Zone but contains abundant pyrrhotite. Biotite and amphibole are also present in the lower part of the zone.

Several extensions to the E Zone were identified (following the mine reopening in 2010); three major ore lens areas were identified, namely the West Extension, the Amber Zone and the West Extension below 3700.

Reserves

As at July 31, 2014, CanTung mine has a NI43-101 probable reserve of 1.65 million tonnes at 0.81% WO₃; indicated resource of approximately 3.48 million tonnes at 0.97% WO₃ (inclusive of reserves); and an inferred resource of 1.27 million tonnes at 0.80% WO₃.

Mineral resources and reserves for certain areas are based almost entirely upon results from underground drilling carried out between 2007 and 2014.

Production

CanTung was the Western world’s largest supplier of tungsten concentrate. During the first quarter of 2015 (Sept. 30-Dec. 31 2014) production totaled 83,549 MTUs (1MTU = 10kg) produced at a mill feed grade of 0.98% WO₃. However production from Jan. 1 to March 31, 2015 was 70,871 MTUs from a feed grade of 0.87% WO₃. Metallurgical recovery stood at 81.1% at the end of 2014.

At the end of May 2015, during a scheduled generator change-over, a generator failed, causing a production interruption that lasted several days.

Between 2013 and 2015, the mill throughput capacity was upgraded and the processed tonnage increased by 150 tons per day, to attain a rate of over 1,250 tons per day and up to 1,300 tons per day in the latter part of 2014. NATC upgraded the flotation circuit in 2014 adding cavitation style columns to optimize the recovery of fine grained scheelite.

The concentrate that is produced averages 65% WO₃ (gravity concentrate), 35% WO₃ (flotation concentrate) and a copper concentrate averaging 28%.

References


DIAND NWT Geology Division Staff, (1999) ‘Cordilleran Orogen and Interior Platform’ in Exploration Overview 1998 Northwest Territories, Department of Indian Affairs and Northern Development, NWT Geology Division, Yellowknife, p. 2-18


NORMIN.DB (www.nwtgeoscience.ca) 105HNE0001

NTGS Assessment Reports 015003, 017487, 061894, 017572, 017573, 017574, 060092, 080372, 080492

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM


LENED  
Sahtu Land  

TUNGSTEN  
Skarn  

Sahtu Dene and Metis Settlement Area Surface and Subsurface Land – Nááts’ihch’oh National Park Reserve  

FOR MINERAL TENURE INFORMATION, CONTACT:  
Mining Recorder’s Office  
Department of Industry, Tourism and Investment  
Government of the Northwest Territories  

1st Floor, Gallery Building  
Yellowknife, NT X1A 2L9  

PHONE:  (867) 765-6724  
FAX:  (867) 669-2714  
EMAIL:  miners@gov.nt.ca 

Sahtu Secretariat Incorporated  
EXECUTIVE DIRECTOR:  
David Little  

CORPORATE ADDRESS:  
P.O. Box 155  
DELINE, NT X0E 0G0  

PHONE:  (867) 589-4719  
FAX:  (867) 589-4908  

LOCATION:  
50 kilometres north-northeast of Tungsten, NT; a gravel road between Cantung and the Howard’s Pass lead-zinc deposit passes within 13 km of the Lened property.  

NTS AREA:  
105 I/07  

LATITUDE/LONGITUDE:  
62.3708°N 128.6167°W  

ORE TYPE:  
Oxide  

DEPOSIT TYPE:  
Tungsten skarn  

RESOURCE ESTIMATION:  
Historic NI 43-101 non-compliant 907,180 tonnes @ 1.0%WO3  

ACCESS:  
Float or ski equipped aircraft, or helicopter.  

PROJECT STATUS:  
The area has been set aside as Nááts’ihch’oh National Park Reserve however the Sahtu Land Use Plan may be revised following an approval process.  

History  
The LENE showing was originally discovered and staked in 1960, by Canex Aerial Exploration Limited. Mapping and trenching were carried out in 1960 (AR 017570). Mapping, drilling, and trenching were carried out in 1961. Two drill holes failed to intersect significant mineralization and the claims were allowed to lapse. In 1967, Atlas Explorations Limited, who carried out geological mapping, geochemical and geophysical surveys and trenching, re-staked the area as the NIP claims (AR 018612). In 1968, detailed ground magnetics identified a possible skarn (AR 018611) and geological mapping was performed (AR 018611).  

In 1973, Canex Placer carried out mapping and trenching (AR 080309), and in 1974, further trenching exposed three skarn zones northeast of the property (AR 080354). In 1977, Union Carbide Exploration Corporation purchased some of the claims and staked additional claims. They performed geological mapping, sampling, geophysics, and drilled seven holes totaling 577 metres (MIR 1977 and AR 080705). In 1978, a further 16 diamond drill holes totaling 1,525 metres were completed (MIR 1978), and in 1979, six holes totaling 1,006 metres (MIR 1979).  

In 1996 the claims surrounding the deposit were staked by Ron Berdahl and a reconnaissance program was carried out in 1997. A 20 cm wide, coarsely crystalline quartz–calcite–beryl vein hosting colourless to pale “common-green” beryl crystals and rare light emerald-green beryl was discovered within a skarn on the property (AR 084048).  

A Letter of Intent was signed by Liberty Mineral Exploration Inc. in March 1998. During 2000, historic drill core that had not previously been sampled from four holes was sampled and sent for assay (AR084391). In 2002, geologists studied the emerald occurrence. Most crystals are fractured and contain inclusions (AR 084577). Other sampling on the property returned gold values up to 1.023 g/t Au. In 2006 Playfair Mining Ltd. acquired an option to own a 100%-interest in the
Lened property. Playfair spent one day prospecting in 2010; 41 rock samples and five soil samples were collected (AR 085575).

Several Northwest Territories government and university studies were carried out in this area and results were published as NWT Open Files and NWT Open Reports between 2010 and 2015 by the Northwest Territories Geological Survey (formerly the Northwest Territories Geoscience Office).

Bedrock and Mineral Deposit Geology

The deposit is located on the east side of a broad area of moderately intense folding. The sedimentary sequence consists of Lower Cambrian slates, Cambrian limestones and siltstones, and Devonian black shales. The sequence is intruded by Cretaceous quartz monzonite.

Mineralization occurs in four separate lenses, located on both sides of a quartz monzonite sill. Scheelite and chalcopyrite occur in well-developed garnet-diopside skarns and in massive pyrrhotite skarns, located at the contact between the quartz monzonite and impure Lower Cambrian Rabbitkettle Formation limestones. The limestone contains silty lenses and is similar to the Swiss Cheese Limestone found at the CanTung Mine at Tungsten. Scheelite is more common in garnet-rich skarn, occurring in quartz veins and disseminated throughout the skarn.

Significant Results

In 1986, reserves were calculated to be approximately 750,000 tonnes at a grade of 1.2% WO3 (Glover and Burson, 1986).

References


NORMIN.DB (www.nwtgeoscience.ca) 105ISE0003, 105ISE0070

NTGS Assessment Reports 017570, 084048, 084391, 084577, 085575

www.nwtgeoscience.ca
J.F. Allan discovered and staked the scheelite showings at the MacTung site in 1962 for Southwest Potash Corporation, a subsidiary of American Metal Climax Incorporated (Amax). The discovery was made during the course of the Ogilvie Reconnaissance Project. Geology, prospecting, and a ground magnetic survey were completed in 1962-63 (AR 017468). Trenching and sampling were performed in 1964 (AR 017467). Further exploration in 1967 (AR 019045) led to surface diamond drilling in 1968. Prior to 1968, limited work was done because interest in tungsten was minor. Between 1968 and 1973, 10,782 two metres of surface diamond drilling, and 1,653 metres of underground diamond drilling were completed (i.e. AR 019625, AR 061461 etc.). The claims were transferred to Amax Exploration Limited, who became Amax Potash in 1971. The following year, the claims were transferred to Amax Northwest. During 1973, seven hundred and thirty-five metres of underground workings were driven and pilot mill tests were carried out on a 245-tonne bulk sample. That year, Amax published a resource of 27 million tonnes grading 0.90% WO3.

Between 1974 and 1978, engineering and environmental baseline studies were conducted at the MacTung site. A second bulk sample was taken in 1979.

A preliminary project description and baseline environmental report was submitted to DIAND and both territorial governments in 1983. Due to the location on the NWT/Yukon border, tailings containment sites were evaluated both east and west of the continental divide. Plans were to truck concentrate to Skagway, Alaska for shipping. A combination of open pit and underground mining was proposed. Amax shelved those plans as tungsten prices fell between 1984 and 1986.

Aur Resources Incorporated optioned the property in 1995. Canada Tungsten Incorporated and Aur Resources merged in 1996. The following year, North American Tungsten Corporation (NATC) purchased a number of tungsten assets from Aur Resources, including the MacTung property. During 2005, a 25-hole, six thousand-metre, drill program was carried out to prove up reserves from inferred to
indicated and extend the underground high-grade horizon. In addition to the drilling, the portal to the existing adit was reopened, rehabilitated, and an approximate one hundred tonne sample of the ore was mined for metallurgical testing. The main objectives of the program were to identify known mineralized areas open to the west end of the deposit, to extend the known mineralization down plunge to the west, and to verify grades previously reported over twenty years ago.

Also in 2005, EBA Engineering started environmental studies including breeding bird, wildlife, fish, and vegetation. These studies were part of an ongoing program to provide baseline data necessary for mine permit applications under the Mackenzie Valley Land and Water Board regulations. Extensive environmental survey data collected by Amax during the 1980’s was incorporated with the new baseline data.

The Northwest Territories Geoscience Office (renamed the Northwest Territories Geological Survey in 2015) and the Geological Survey of Canada collaborated on an airborne geophysical and multi-element sensor survey, as well as regional stream sediment and water surveys in the Macmillan Pass area, the results of which were released at the end of 2005 and in mid-2006.

In June 2007, Wardrop Engineering Inc. was engaged to review historical feasibility studies to produce an economic assessment for MacTung. North American Tungsten began the environmental assessment process in 2008. A feasibility study was completed in February 2009.

In 2014, North American Tungsten received a positive environmental assessment from The Yukon Environmental and Socio-economic Assessment Board (YESAB) whereby the MacTung project could proceed subject to specific terms and conditions. YESAB’s recommendations were confirmed in Decision Documents issued by the federal and territorial governments. The Decision Documents form the basis upon which the Yukon Water Board will regulate mining at MacTung.

NATC filed for Court protection under the Companies’ Creditors Arrangement Act in early June 2015. In November 2015, the Government of the Northwest Territories (GNWT) announced that it had bought the leasehold interests in the MacTung property after other bids to buy the property had been unacceptable. The GNWT intends to sell the property.

**Bedrock and Mineral Deposit Geology**

MacTung is hosted by a Late Proterozoic to Cambrian clastic-carbonate sequence at the facies boundary between the Mackenzie Platform and the Selwyn Basin. The sequence is intruded by a series of Cretaceous quartz monzonite stocks, altering the carbonate rocks to skarns. The Lower Ore Zone consists of a single massive tungsten-bearing horizon and the Upper Ore Zone consists of three lenses. The two zones are separated by 78 metres of barren hornfelsed shale.

The Lower Ore Zone lies within a brecciated limestone unit, which has been metasomatized to pyroxene- marble, pyroxene and pyrrhotite skarn and minor cherty/chloritic skarn. The high-grade ore is found in the pyrrhotite skarn. The limestone host to the Lower Ore Zone is folded into an S-shape, which is the focus for most of the mineralization. The three areas of the fold (north and south limbs, and central zone) will be treated separately for mining purposes.

The Upper Ore Zone, which is up to one hundred metres thick, is divided into three stratigraphic horizons. These contain extensive zones of layered mineralization separated by variable thicknesses of argillite and hornfels. The lowest horizon consists of disseminated scheelite in limestone breccia, conglomerate beds up to 1 metre thick, and skarn beds up to 25 centimetres thick. The upper two lenses consist of 25-centimetre thick layers of scheelite-bearing pyroxene skarn, interlayered with barren hornfels or low-grade cherty skarn.

**Production and Development Plans**

The plan is to develop an underground mine using conventional long hole, as well as cut and fill mining methods. Mining is envisioned to be at a rate of 2,000 tonnes per day (NATC Technical Report April 3 2009).

**Reserves**

The NI 43-101-compliant resource estimate of April 18, 2007, contains indicated resources of 33,029,000 tonnes at an average grade of 0.88% WO3, and inferred resources of 11,857,000 tonnes with an average grade of 0.78% WO3. This is the most recent resource estimate as at mid-2016.
References


NORMIN.DB (www.nwtgeoscience.ca) 105HNE0001

NTGS Assessment Reports 017468, 017467, 019045, 019625, 061461


History

The area was first staked for uranium, thorium, and Rare Earth Elements (REE) as the ODIN claims in 1970, but the claims were allowed to lapse. Between 1971 and 1978, the Geological Survey of Canada conducted airborne radiometric surveys and mapped the Blatchford Lake Intrusive Complex and the Thor Lake Syenite.

Highwood Resources Limited discovered a number of REE mineral showings and staked the THOR claims, north of the original site, in 1976. At this time niobium was discovered. Between 1977 and 1979, Highwood undertook prospecting, mapping, trenching, sampling, radiometric surveying, and 1,562 metres of diamond drilling in the S and T-Zones.

In spring 1980, the claims were optioned to Placer Development Limited, who drilled 2,000 metres, mainly in the Lake Zone. Placer optioned the property on the basis of the tantalum associated with the niobium. They did not exercise their option on the property when the tantalum market went into a downturn in the early 1980’s.

During 1983, Highwood Resources found beryllium and yttrium on the property, and these metals, along with other rare earth elements, were the focus of the company’s continued exploration efforts.

Highwood completed a 500-metre decline into the T-Zone of the Thor Lake deposit in 1985 and took a 90-tonne bulk sample for analysis, to test metallurgy, and metal content of the deposit. The underground development was completed in late 1985, however in 1986, a further 680 tonnes of mineralized rock from underground was analyzed.

In 1986, an agreement was reached with Hecla Mining Company to fund on-going research and exploration of the
deposit (MIR 1986-1987). In 1988 and 1989, Hecla Mining Company spent US $2.5 million on a feasibility study of the deposit. Twenty holes, totaling 3,520 metres, were drilled in early 1988. Two years later, in 1990, Hecla decided not to pursue the joint venture.

In 1996, Highwood Resources (then 35% owned by Royal Oak Mines Incorporated) announced that they would re-apply for permits required to move the remaining bulk sample from the property for further metallurgical testing. During 1997 and 1998, Highwood applied for permits to allow the extraction of a 100,000-tonne sample from Thor Lake. The permitting process proved to be a difficult one. The bankruptcy of Royal Oak Mines Incorporated in early 1999 further delayed the process. In August 1999, Dynatec announced that it had purchased Royal Oak’s 35% interest in Highwood Resources (Dynatec press release Aug. 1999).

In March 2000, Highwood announced the formation of a new company, Rare Metal Alloys Incorporated, to further develop the Thor Lake deposit. The company embarked on a pre-feasibility study of the deposit (Highwood press release Mar. 2000). In December 2002, Highwood Resources delisted and transferred all of its gold, beryllium, and tantalum assets to Beta Minerals Inc., a newly formed mineral exploration company.

In 2001, Navigator Exploration Corporation entered into an agreement with Beta Minerals to earn 51% of the Lake Zone. The focus of that work was mainly on metallurgy and did not result in achieving an acceptable tantalum concentrate, and the property was dropped in 2004.

Avalon initiated a re-evaluation of the economic potential of the Thor Lake property, in June 2005, focusing primarily on the rare earth elements. Heavy rare earth elements (with the exception of yttrium) had not been systematically analyzed during previous work programs. Initial assay results from a suite of samples collected in June, 2005, established that there were high levels of heavy rare earth enrichment over broad intervals in the Lake Zone, and extremely high levels in select grab samples from the R-Zone.

Additional re-sampling of historical drill core was carried out in September, 2005, with seven holes from the Lake Zone being completely re-sampled and assayed for the full suite of rare earths. This work was designed to begin to map out internal zonation patterns and was accompanied by detailed mineralogical studies. The results confirmed the presence of elevated REE values throughout the Lake Zone along with local zones of enrichment. One hole (numbered 80-9) averaged 0.98% TREO over its full 149.5-metre length and included a 22-metre interval averaging 3.22% TREO. Mineralogical studies indicated the chemical zonation is related to a mineralogical zonation; the higher grade zones tend to contain relatively high proportions of fergusonite. This work was followed by detailed mineralogical studies on samples from both the Lake Zone and North T deposits.

In 2006, Avalon contracted Wardrop Engineering to carry out a scoping study to model potential development scenarios for the Lake Zone REE deposit, and help in the design of a definition drilling program to define indicated resources in the higher grade portions of the deposit. This work involved estimation of inferred resources in the Lake Zone from existing drilling information supplemented by the recent analytical work.

As part of the same mandate, an audit of historical resources and reserves reported for the North T deposit was completed; this became a new resource estimate when it was discovered that there was a significant zone of yttrium + HREE mineralization that had not been included in the previously reported beryllium-based resource estimates. It was subsequently decided to include the North T deposit as part of the REE development scenario in the scoping study.

Avalon carried out an in-fill drilling program (16 holes totaling 2,551 metres) on the Lake Zone in 2007 to define the higher grade REE sub-zones and used the resultant data to prepare a new indicated resource estimate. The following year, another 69 holes, totaling 14,129 metres tested the Lake Zone. An interim resource estimate of the Basal Zone (a sub-zone near the base of the Lake Zone) was prepared using this data. Detailed mineralogical and metallurgical testwork was also undertaken. An updated resource estimate for the Lake Zone was released in 2009, with the Lake Zone divided into a Basal and an Upper Zone. The Basal Zone is enriched in Heavy Rare Earth Elements. A pre-feasibility study was completed in 2010.

Avalon Ventures changed its name to Avalon Rare Metals Inc. in February 2009. Avalon completed a feasibility study in April 2013. In late November, the project received ministerial approval for its Report of Environmental Assessment. The company subsequently applied for water licenses and a Land
Use Permit for mine development and operation. Avalon has negotiated several agreements with local Aboriginal groups however the process is not complete. A 10-year toll-refining and strategic partnership with Solvay was announced in March 2014; less than two years later the agreement was terminated however the companies are open to renegotiating a contract in the future. In 2015 minor site work was completed and metallurgical work focused on zirconium. Avalon Rare Metals Inc. changed its name to Avalon Advanced Materials Inc. in February 2016.

Bedrock and Mineral Deposit Geology

The Thor Lake deposit lies in the Proterozoic-aged Blatchford Lake Plutonic complex. This complex intrudes Archean Yellowknife Supergroup rocks. The Blatchford Lake complex is approximately 23 kilometres in diameter. The rocks that make up the complex range from gabbros in the west, syenites in the central portion, and granites in the east, along the Hearne Channel of Great Slave Lake.

Rare element concentrations are higher in the syenite core of the extensive Hearne Lake Granite. Concentrations of niobium, tantalum, zirconium, gallium, beryllium, yttrium, thorium, and uranium have been identified in two areas. These areas are found in the altered, brecciated, syenitic cores of the plutonic complex, centred in, or about, Thor Lake itself.

The Lake Zone is defined by an albite potassium feldspar metasomatized breccia that includes a mafic-rich brecciated core zone. The alteration is more pronounced in the mafic-rich section where brecciation is less intense.

The T Zone trends north-northwest from the Lake Zone and extends for about one kilometre. It locally straddles the contact of the Grace Lake Granite and Thor Lake Syenite and offsets it. Four concentric zones comprising numerous lithologies define the T Zone; light and heavy rare earth elements are found within different zones (MIR 1988-1989).

One genetic model proposed for the Thor Lake deposits, envisages a late stage generation of a volatile-rich phase of plutonism, as a result of crystallization of the Blatchford Lake Complex. An abrupt release of this volatile-rich phase may have resulted in the observed brecciated zones that make up the mineralized sections of the complex. The distribution of rocks in the general area appears to be the result of vertical movement along east-northeast trending faults (Highwood water license application Nov. 1998). Mineralization is developed in the core of the Thor Lake syenite, which is a 30 square kilometre oval in the centre of the Grace Lake Granite.

Another model was proposed to explain the two subhorizontal tabular layers of rare metal mineralization that is found within the deposit. This involves the injection of separate pulses of magma, the upper zone rich in zircon and the lower rich in eudialyte. Later alteration of these minerals by hydrothermal fluids, during multiple metasomatic events, further enriched the primary layers in REEs (Sheard, et al. 2012).

Production and Development Plans

Avalon Advanced Materials is reviewing all aspects of the project, including the market potential of the beryllium and zircon resource and the economic potential of the heavy rare earth elements. Several million dollars are required to operate a test pilot plant to fine tune processing of the ore. A bulk sample has been recovered and is available for this test. Avalon is working to find the finances required to bring Nechalacho into production.

The 2013 feasibility study proposed an underground mine with a mine-life of at least 20 years operating at a rate of 2,000 tonnes per day.

Significant Results

As at April 17 2013, the proven reserves of the Basal Zone are 3,682,347 tonnes with an average grade of 1.73% TREO (Total Rare Earth Oxides), inclusive of 0.47% HREO (Heavy Rare Earth Oxides). The probable reserve stood at 10,917,653 tonnes at 1.69% TREO (and 0.45% HREO). Following common industry practice, TREO is inclusive of HREO. The reserves were calculated using a $345 per tonne NMR (Net Metal Return).

In 1998 the property resource for the Lake Zone stood at 65 million tonnes at an average grade of 0.03% Ta2O5, 0.4% Nb2O5, 1.7% combined REE, and 3.5% ZrO, and the T Zone resource totaled 1.7 million tonnes with an average grade of 0.85% BeO. These resources were defined by drilling and underground development of the T Zone, but are not NI 43-101 compliant (Highwood water license application Nov. 1998).
References


Dynatec press release, ‘Dynatec to become Major Shareholder in Highwood Resources Ltd.;’ August 16, 1999


Highwood Resources Ltd. press release, ‘Rare Metal Alloys Inc. Established to Commercialize NWT Beryllium Deposit’, March 27, 2000


NORMIN.DB (www.nwtgeoscience.ca) 085ISE0006


Robin Hopkins (V.P. Navigator Exploration), personal communication, Sept. 2003


Trueman, D.L., Pederson J.C., de St. Jorre, L, and Smith D.G.W., (1998), The Thor Lake, NWT Rare Metal Deposit, attachment 7 to responses to Highwood Resources application for a water license for bulk sample extraction, November, 1998

www.avalonraremetals.com Nechalacho Rare Earth Elements Project information sheet as at June 3, 2015

RAYROCK MINE
Crown Land
URANIUM
Quartz/Breccia Stockwork

FOR MINERAL TENURE INFO, CONTACT:
Government of Canada, Aboriginal Affairs and Northern Development Canada (AANDC), Resources and Land Management Division
Rebecca Leighfield
NWT Region (Federal Resources and Land Management) Mining Recorder
Resources and Land Management
NWT Region, Northern Affairs Program
Aboriginal Affairs and Northern Development Canada
1st Floor, Gallery Building
Yellowknife, NT X1A 2R3
PHONE: (867) 669-2449
FAX: (867) 669-2702
EMAIL: Rebecca.Leighfield@aandc-aadnc.gc.ca

LOCATION:
150 kilometres northwest of Yellowknife

NTS AREA:
085N/07

LATITUDE/LONGITUDE:
63.4528°N 116.5389°W

HISTORIC PRODUCTION:
1955 - 1959: 80,041 tonnes @ 0.3% U3O8 207,758 kg U3O8

RESOURCE ESTIMATION:
unknown

ACCESS:
Float or ski equipped aircraft from Yellowknife

PROJECT STATUS:

History

The property was staked in 1948 by A.W. Giauque and Associates as the Rob Group, restaked in 1950 as the M.M. Group, and in December 1951, as the Beta claims. In 1953 the area was explored with geiger surveys and trenching by Lodge Uranium Mines and American Yellowknife Mines Ltd. The latter company became the sole owner and changed its name to Rayrock Mines Ltd.

In 1954, over 3,000 metres of diamond drilling was performed. In 1955, a 300 metre long adit was developed, and a 115 metre internal shaft was sunk. In 1958 this shaft was deepened another 125 metres. Both cut and fill and open stoping mining methods were employed. A 136 tonne per day mill was installed at the property. Underground development took place on eight levels, and the Number 6 zone was explored along 670 metres of strike. Uranium production began in June 1957. No mineralization of economic significance was found below the 150-metre level and mining ceased in July 1959.

The area surrounding the old mine site was re-staked in 1995, and GMD Resources entered into an agreement to acquire 100% ownership of the property, subject to certain conditions, including performing exploration work on the property. The last reported exploration work on the property was in 1996. The focus of this work was the exploration of the area for Olympic Dam style deposits similar to those found at the nearby NICO and Sue-Dianne deposits. No new resources were found on the property (AR 083776).


The surface and subsurface rights are federally-managed by Aboriginal Affairs and Northern Development.

Bedrock and Mineral Deposit Geology

The deposit is within the Bear Geological Province, specifically the Great Bear Magmatic Zone. Mineralization is confined to stockworks, and breccia fillings, which are associated with the regional Wopmay fault. The deposit is hosted by a large quartz vein, within a large intrusive body. A significant alteration zone, composed of fine-grained siliceous rock
(possibly silicified granite) with variable amounts of sulphides, hematite, and epidote, surrounds the main mineralized zone for a distance of 1.5 to 10 metres. Pitchblende was the main uranium mineral present.

A total of 80,041 tonnes of ore were mined and milled at a grade of 0.3% U3O8 producing 207,758 kilograms of U3O8 during the brief operating period of the mine. Several small showings of cobalt, nickel, copper, bismuth, and gold have been located in the vicinity of the Ray Rock Mine. Other historic showings on the property, including the Sun Main and Sun East uranium showings, were the focus of limited underground exploration work in the early 1950’s. A small low-grade resource of uranium of approximately 8,165 tonnes at a grade of 0.2% U3O8 may be present on the property.

References


NORMIN.DB (www.nwtgeoscience.ca) 085NSE0025, 085NSE001

NTGS Assessment Report 083776

Silke, Ryan (2009), The Operational History of Mines in the Northwest Territories, Canada An Historical Research Project; Yellowknife, Canada, 511 p.; 1CD-ROM
DIAMOND PROPERTIES

Two producing diamond mines, one mine commencing production, one mine in care and maintenance, and fourteen diamond exploration properties that host diamondiferous kimberlite are presented in this section. This is only a portion of the prospective diamond exploration projects in the NWT. Over the past couple of years there has been resurgence in grass-roots stage exploration work for diamonds with many companies picking up ground that had been previously held and for which mineral tenure had lapsed. Exploration techniques continue to become more refined and the use of more technically advanced methods continues to be used in the search for diamonds.

As of mid-2016 there are two producing diamond mines in the Northwest Territories and a third in the commissioning stage; all lie within the Slave Geological Province. Ekati Mine, and Diavik Diamond Mine lie in the vicinity of Lac De Gras, while Gahcho Kué Mine is located at Kennady Lake. Gahcho Kue began ramping up production in June 2016.

Snap Lake Mine was in production from 2008 until 2015. The mine is currently in a state of extended care and maintenance. Resources remain and in July 2016 the owners announced that they were interested in selling the mine.

Diamonds were first discovered in the Northwest Territories in 1970 when kimberlite was mapped on Somerset Island (now Nunavut). Diapros Canada Ltd. and Cominco Ltd. discovered at least nineteen kimberlites on Somerset Island during 1973 and 1974. In 1977, a diatreme breccia pipe and five satellite pipes were mapped in the Mackenzie Mountains (AR 080826). From 1982 to 1990, geologist Charles Fipke and the company he founded, Dia Met Minerals, in conjunction with Stuart Blusson, traced kimberlite indicator minerals from the Mackenzie Mountains to their source in the Lac De Gras area. A new era of diamond exploration and mining ensued.

From 1992 through 1994, the largest staking rush in Canadian history took place in the Lac De Gras region. A total of 118,126 square kilometres of ground was staked in the Northwest Territories by the end of 1993 (Exploration Overview 1993). Numerous companies began the systematic search for diamonds, and to date, this has resulted in the discovery of over 300 kimberlite bodies, over 80 of which have been reported to be diamond-bearing.

The kimberlite bodies found in the Northwest Territories have been found in clusters with distinct age ranges that range from close to 540 million years old (on the Gahcho Kué property) to around 47 million years old (Ekati property). The rocks surrounding the kimberlites in the Slave Structural Province are commonly 2.6 billion years old. Some of the kimberlites found at both the Ekati and Diavik mines have contained preserved tree trunks from the forest, which covered the area during the kimberlite emplacement. Other kimberlites in the area are reported to have remnants of Phanerozoic rocks, which is the only evidence of this age of rock remaining in the Slave Province.

Diamonds are formed deep within the earth’s mantle, within the diamond stability field of 130 to 170 kilometres in depth. They may later be transported to surface, commonly by kimberlite magma. A classic kimberlite pipe is comprised of a root zone of dykes and sills, a tapered diatreme zone, and a shallow crater facies that can occur at the paleo-surface. In recent years, non-classic geometries of kimberlite have been discovered; this further expands (and complicates) exploration potential.

Diamond exploration is active in the Slave Geological Province and the central Mackenzie Valley. Many kimberlites have been discovered and there are indications of more to be found. Diamondiferous kimberlites have been discovered in the Arctic Platform and in the Interior Platform. Future mines are in the making and the Northwest Territories is open for business.

References


Pell, J.A. (1997), ‘Kimberlites in the Slave Craton, Northwest Territories, Canada’ in Geoscience Canada Volume 24, Number 2, June 1997 page 77-90

Diamond Properties in the Northwest Territories

Legend
- Property
- Mine
- Non-producing Mine
- Community
- All-Weather Road
- - - Winter Road

Geological Provinces
- Arctic Platform
- Bear Province
- Churchill Province
- Cordilleran Orogen
- Interior Platform
- Slave Province

Geological Provinces provided by NWT Geoscience Office.
This map is for illustrative purposes only. Actual boundaries depicted may not be exactly as shown.
GNWT and the NWT Centre for Geomatics are not responsible for errors or discrepancies.
History

The Diavik mineral claims were staked in the latter part of 1991 and early 1992, on behalf of junior companies that included Aber Resources Limited, West Viking Exploration Limited, SouthernEra, Tenby, and Commonwealth Gold. West Viking Exploration later merged with Aber Resources. In June 1992, Aber Resources completed a joint venture agreement with Kennecott Canada Exploration to further explore the property. Between April 1992 and January 1994, 20,500 line-km of airborne geophysics was flown, 1,700 heavy mineral samples were taken, ground geophysics tested airborne anomalies, and 65 diamond drill holes totaling 6,630 metres were completed. Twenty-five kimberlites were discovered (AR 083262). In 1994 Aber Diamond Corporation (Aber) was formed.

During 1994, three diamondiferous pipes were drilled; A21, A154 South, and A154 North, and nine additional kimberlites were discovered (AR 083463). In 1995, a fourth diamond-bearing kimberlite pipe A418 was discovered. During the summer of 1996, a bulk sample of 5,900 tonnes of kimberlite was taken from A418 and A154 South kimberlite pipes. The bulk sample was then transported and processed in Yellowknife in early 1997, and yielded 21,000 carats of diamonds. Valuations were then completed and the decision to commence the permitting phase for development of the mine was made.

In 1996, Diavik Diamond Mines Inc. (a wholly owned subsidiary of Rio Tinto plc, which also owns Kennecott Canada Incorporated) was created to develop and manage the Diavik Diamonds Project. Three new kimberlite pipes were discovered that year, bringing the property total to forty-three (AR 083821).
During 1997, a 36,340 line-km airborne magnetic and EM survey was flown, 311 heavy mineral samples were processed, and thirty diamond drill holes totaling 2,700 metres were drilled (AR 084049).

Ground geophysical surveys were performed in 1998 and 1999, as well as diamond drilling (30 DDHs totaling 3,862 metres tested 23 separate targets) and sonic drilling. The 1998 exploration program resulted in the discovery of three kimberlites, one of which returned diamonds. A 295 kilogram sample from the A180 kimberlite contained 29 macrodiamonds and 163 microdiamonds (AR 084234).

During 1999 detailed ground geophysics was completed over 32 grids, 49 basal till samples were taken using a sonic drill and seven diamond drill holes totaling 600 metres tested geophysical anomalies. Another seven drill holes totaling 1,208 metres tested the A180 kimberlite. Two new kimberlites were discovered, bringing the property total to fifty-five kimberlite occurrences (AR 084277).

The regulatory permitting phase began with the submission of the project's environmental impact assessment report in April 1998, and continued through until September 2000. Onsite monitoring of environmental effects is on-going and will continue for the life of the mine and after production ends.

In September 2000, the final regulatory approval was granted by the issuance of a Class 1 water licence for the project. On December 19, 2000, Aber and Diavik Diamond Mines Inc. announced that they would proceed with the construction of the Diavik Mine, as all necessary agreements with federal, territorial, and aboriginal groups were completed.

Through 2001, the construction of the A154 dike, permanent accommodation, process plant, and all other related infrastructure took place. De-watering and pre-stripping of the A154 pit began in August 2002, and culminated with the exposure of the A154 kimberlite pipes in November 2002. The first Diavik diamonds were recovered in the following month and mine production began in January 2003. During 2004 Aber acquired 51% of Harry Winston Inc. and in 2006 became its sole owners.

In early 2005 construction on two underground declines commenced. By May 2007, just over 4.3 km of tunnel had been excavated and the A21 and A418 pipes had been reached. The decline to the A418 pipe branches off the main 1.9 km decline, and is a few hundred metres from the A154 pipes. A separate 1.2 km decline was tunneled (for evaluation purposes) to provide access to the A21 pipe. The A418 dike was completed in 2006, stripping followed and mining began in 2008. Aber changed its name to Harry Winston Diamond Corp. in 2007.

In 2006 the Wek’eezhii Land and Water Board (WLWB) assumed its full responsibilities and Diavik’s operations at Lac de Gras, previously under the Mackenzie Valley Land and Water Board, were transferred into the WLWB’s jurisdiction.

Underground production began in 2010 and completely replaced open pit mining in late 2012. Two mining methods are being used; two pipes (A154S and A418) use sub-level retreat, while the third pipe (A154N) uses blast hole stoping with a backfill of cemented rock-fill.

Harry Winston Diamond Corp. was renamed Dominion Diamond Corp. (DDCorp) in 2013. A21 was incorporated into the Diavik Diamond Mine mine plan in late 2014 (DDCorp News Release Nov. 26, 2014).

In 2014 Diavik extracted 2.1 million tonnes of ore and produced 7.2 million carats of diamonds. At the end of 2014, the underground mine team totaled 181 individuals, out of a workforce of 948.

The 2015 mine plan envisages a mine operating through until 2023. Three pipes are being mined in 2016, while the fourth (A21) is under development (the construction of a dyke around its perimeter to allow open pit mining is underway).

Diavik Diamond Mine reached a total production milestone of 100 million carats of diamonds in May 2016.

**Bedrock and Mineral Deposit Geology**

Granitic rocks predominantly underlie the mine area. These rocks have been intruded into slightly older metasedimentary rocks, originally deposited as sandstone and shale approximately 2.7 to 2.5 billion years ago.

These kimberlite pipes formed when kimberlitic magma was injected into the granitic and metasedimentary rocks, between 54 million and 58 million years ago.

The explosive nature of kimberlite reaching the earth’s surface caused large coniferous trees to be uprooted and incorporated into the pipes. Relatively fresh, often charred, (but not petrified) wood has been found in drill core from the Diavik property at depths of 400 metres.
A total of 64 kimberlite bodies had been found on the Diavik property by 2005, of which one-half were diamond-bearing, and the remainder were barren (Gannicott, 2005).

The Diavik diamond mine reserves are currently contained within four kimberlite pipes.

**Production and Development Plans**

Production in 2016 is from underground mining of the two A154 kimberlite pipes, as well as the A418 pipe.

As at December 31, 2015, the A21 pipe contains an estimated proven open pit reserve of 3.7 million tonnes with a grade of 2.7 carats of diamonds per tonne, which results in 10 million carats of contained diamonds. In order to mine A21, a dyke has to be built, the pit dewatered, and overburden stripped. A21 is slated to begin production in late 2018 (DDCorp News Release March 8, 2016).

**Exploration**

Most exploration efforts are currently focused on delineating known kimberlite bodies. In 2007, Diavik announced that a total of 68 kimberlites had been discovered on the Diavik claim block to date. By 2015 Dominion Diamond reported that the Diavik property hosted 67 non-economic kimberlites (DDCorp Technical Report, 2015). Dominion Diamond and North Arrow Minerals Inc. are joint venture partners on property that is contiguous with the Diavik property. DDCorp has plans to carry out a significant exploration program in 2016, including airborne geophysics and ground follow-up (North Arrow website, July 2016).

**Significant Results**

At the end of December 2015, the estimated total proven and probable mineral reserves for the A154S, A154N, A418, and A21 pipes was 18.7 million tonnes with an average grade of 2.8 carats of diamonds per tonne. In addition the pipes are estimated to contain an inferred resource of 1.8 million tonnes with a grade of 2.8 carats per tonne (DDCorp News Release March 8, 2016).

A 187.7 carat diamond, named both ‘The Diavik Foxfire’, and ‘Noiʔeh Kwe’ was mined in August 2015. The diamond was set to be sold at auction at the end of May 2016; as of July 19, 2016 there has not been an announcement made of the sale.

**References**

DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 5

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-4


NTGS Assessment Reports 083262, 083463, 083821, 084049, 084234, 084277


www.diavik.ca


www.riotinto.com

Wek’eexhii Land and Water Board Diavik Fact Book – February 2007
EKATI DIAMOND MINE
Dominion Diamond Corp.

TSX:
DDC, NYSE: DDC

CHIEF EXECUTIVE OFFICER:
Brendan Bell

CHIEF OPERATING OFFICER AND
PRESIDENT OF EKATI DIAMOND MINE:
Chantal Lavoie

OWNERSHIP:
88.9% Dominion Diamond Corp.; 11.1% private ownership (Stewart Blusson)

CORPORATE HEADQUARTERS:
Suite 1102
4920 52nd St
YELLOWKNIFE NT X1A 3T1

PHONE: (867) 669-6100
FAX: (867) 669-9293
EMAIL: ddc@ddcorp.ca
www.ddcorp.ca

LOCATION:
300 kilometres northeast of Yellowknife

NTS AREA:
76D/10

LATITUDE/LONGITUDE:
64.7264°N 110.5856°W

DEPOSIT TYPE:
Kimberlite pipe(s)

OPEN-PIT AND UNDERGROUND PROBABLE RESERVE:
Combined Core and Buffer Zones (includes Lynx pipe, excluding Jay): 26.6 million tonnes @ 1.2 carats of diamonds per tonne (as at Jan. 31, 2016)

JAY PIPE:
44.7 million tonnes at 1.8 ct/tonne (as at Mar. 31, 2016 and based on a 1.0 mm cut-off)

MINING METHOD:
Open pit and underground

ESTIMATED MINE LIFE:
production estimated to extend to 2033

ACCESS:
Gravel all-weather airstrip, winter road

PROJECT STATUS:
Producing mine.

History
From 1982 to 1990, geologists Stewart Blusson and Charles Fipke (and the company Fipke founded Dia Met Minerals), traced kimberlite indicator minerals from the Mackenzie Mountains back to their source in the Lac De Gras area. In 1991, BHP Minerals entered into a joint venture with Dia Met Minerals when diamonds were discovered in the vicinity of Lac De Gras at a small previously un-named lake, Point Lake (AR 083094, AR 083124, AR 083146, AR 083171). The Point Lake kimberlite pipe was the first of over 150 pipes (inclusive of 39 pipes in the adjacent Buffer Zone) discovered on the Ekati property between 1991 and 2013.

During 1992, the Koala pipe was discovered. Between June 1993 and May 1994, 11,512 line-km of airborne geophysics were flown and over 4000 heavy mineral samples were analyzed and 28 holes were drilled (AR 083519). In the following year at least 23 diamond drill holes totaling 5,039 metres were drilled, heavy mineral sampling continued, and detailed ground geophysics was completed over grids (AR 083707). Bulk sampling of the Koala, Fox, and Panda pipes took place, from 1993 to 1995. During this period BHP Diamonds initiated prefeasibility studies, and an environmental review was undertaken of the proposed mining project.

In 1997, BHP and Dia Met received final regulatory approval for the mine, and processing facilities; construction began in September of 1997. Commercial production from Ekati, Canada’s first diamond mine, began on October 14, 1998. Open pit mining commenced in August 1998 at the Panda Pit and continued through June 2003.

The initial Ekati Mine plan included five open pits: Panda, Koala, Fox, Leslie and Misery; however, Leslie Pit was put on hold due to economics. In 2000, three additional
pipes were identified as potentially profitable and an Environmental Assessment Report (EAR) was submitted for the Sable, Pigeon, and Beartooth pipes. The following year the Mackenzie Valley Environmental Impact Review Board (MVEIRB) recommended approval of the development.

Effective July 1, 2001 BHP Billiton Limited (BHP merged with Billiton) bought Dia Met Minerals’ 29% interest in the Ekati Diamond Mine, increasing its interest in the mine to 80% (BHP Billiton quarterly production report for the period ended March 31, 2002). This resulted in BHP Billiton reporting a (proportionally) large production increase when comparing production from earlier dates (e.g. diamond production in the third quarter of 2001 equaled 375,000 carats, whereas 932,000 carats were produced in the same period of 2002 – News Release 24 July 2003). Another reason for higher production in 2002 was that in December 2001 production commenced from the Misery Pipe, which reported a higher than expected grade.

Dominion Diamond Corporation and its wholly-owned subsidiary, Dominion Diamond Holdings Ltd. bought out BHP Billiton Canada’s share of the Ekati project and its related diamond assets in April, 2013. Two indirectly wholly-owned subsidiaries of Dominion Diamond Holdings, participate in the Ekati project joint ventures; Dominion Diamond Ekati Corporation focuses on the Core Zone, whereas Dominion Diamond Resources Corporation focuses on the Buffer Zone. For simplicity, Dominion Diamond will be used interchangeably for the parent and subsidiary companies in this summary. The Buffer Joint Venture is held 65.3% by Dominion Diamond and 34.7% by Archon Minerals Ltd. Dominion Diamond bought out Charles Fipke’s interest in Ekati in 2014.

The 2013 projected Ekati Mine operating life was to 2019 however that date has been revised based on a number of factors. The Jay pre-feasibility study was completed in January 2015, and Dominion Diamond Corp. reported positive feasibility study (FS) results in early July 2016. It is now estimated that the Jay pipe will commence production in 2021 (concurrently with Sable pipe production) and the mine-life will extend to the end of 2033. Jay Project permitting remains to be done. Approximately 1500 people work at the minesite.

A fire in the Ekati process plant on June 23, 2016 resulted in revised production forecasts for the year and the temporary layoff of 330 temporary and permanent contractors and employees (DDCorp News Release July 5, 2016).

**Bedrock and Mineral Deposit Geology**

The geology of the kimberlite pipes found on the minesite are reported to be Mesozoic to Cenozoic (commonly 45-75 million years) in age, and are enclosed in Archean age granites, granodiorite, and diorites of the Slave Geological Province. All outcropping supracrustal rocks are Archean metasediments, typical of the upper Yellowknife Supergroup. The kimberlite pipes are roughly carrot-shaped (circular in cross section), and for the most part are found under lakes or in low swampy areas.

Several dyke swarms have been identified in the mine area. These are mainly diabase in composition, and postdate the emplacement of the granitic/dioritic rocks.

**Production and Development Plans**

To date more than 156 kimberlites have been discovered on the claim block (from 2007 to 2014, no exploration for new kimberlite was carried out). The mine plan envisages mining about ten of these. Ekati Diamond Mine is both an open pit and underground diamond mine. Panda and Koala are being mined using underground methods, subsequent to initial open pit operation. Koala North began as a test underground mine.

**Panda Open Pit**

The Panda Pit was the first to be developed at the Ekati Diamond Mine and is also the first diamond-producing pit developed in Canada. Development work started in October 1997 and ore production began in August 1998. Open pit mining of Panda was completed in June 2003, and the remaining reserves are being mined using underground mining methods. Underground development work began in summer 2003, and initial ore production began in early 2005.

**Panda Underground**

The Panda Underground mine was the first underground diamond mine in Canada. It was approved in May 2004. The mine was a 2,600 tonnes per day sub-level retreat mine. Pre-production development was completed in 2005; underground production from the pipe began in June 2005. Full production started in February 2006 and mining was completed in 2010 (this pipe is fully depleted and the underground mine decommissioned for closure). Panda delivered approximately 4.6 million tonnes of ore and produced 4.7 million carats of diamonds over its production life.

**Misery Open Pit**

In late 2001, production began from the mine’s second open-pit operation, the Misery pipe. Production from Misery provided a small but consistent proportion of the mine’s total output, with the Panda pipe continuing to be the main source of production. Prior to Misery production, all diamonds from Ekati had been recovered from the Panda pipe.
The Misery pipe was named after Misery Point (Pointe de Misère) which is close to where it is located. The Point was named by a discouraged explorer at the end of the last century. The pipe lies about 30 kilometres from the main Ekati Diamond Mine camp. The pipe was discovered in 1995.

Several good-quality fancy yellow diamonds have been recovered from Misery production, including a 19-carat stone. Rough diamonds from the Misery pipe were mixed with Panda production and included in BHP Billiton Diamonds Inc.’s sales assortments starting in January 2002.


**Beartooth Open Pit**

The Beartooth open pit operation commenced in 2004 and was completed in 2008 (this pipe has been fully depleted); the open pit is being used for storage of underground mine-water and deposition of fine processed kimberlite.

**Pigeon**

Stripping of the open pit over the Pigeon pipe began in 2014. The Pigeon pipe contains an estimated probable reserve of 7.4 million tonnes with a grade of 0.5 carat diamonds per tonne (Jan. 31, 2015). Production is commencing in 2015.

**Fox Open Pit**

The Fox open pit mining operation commenced in 2005 and terminated in 2014.

**Fox Underground**

Fox underground is estimated to contain an indicated mineral resource of 35.2 million tonnes with a grade of 0.3 gram diamonds per tonne (Jan. 31, 2015).

**Sable Open Pit**

The Sable pipe is approximately 16 km north-northeast of Ekati’s processing plant. The estimated indicated mineral resource at Sable is 15.4 million tonnes with a grade of 0.8 carat/tonne (August, 2015). This resource is included in the 2016 base case mine plan reserves. A positive preliminary economic assessment of the Sable pipe was reported in September 2015. A total of 1,210 carats of diamonds were recovered (using a 1mm cut-off) from 1,535 tonnes of kimberlite. Development is fully permitted. As of July 2016 Sable is set to begin production in 2020 and is slated to continue production through to 2025.

**Lynx**

The Lynx pipe lies beneath a small lake, three kilometres southwest of the Misery pit site. The pipe has an estimated probable reserve of 1.1 million tonnes with a grade of 0.9 carats per tonne (as at Jan. 31, 2015). Removing fish from the overlying lake is scheduled to commence during the summer of 2015. Lynx will be an open-pit operation.

**Koala North Underground**

Underground mining at the Ekati Diamond Mine commenced in January 2002, with the development of the Koala North Underground Project. It served as a test mine to determine what types of equipment, materials, and processes worked best in Arctic permafrost underground conditions when mining kimberlite. The Koala North underground trial mine was operated from 2003 to 2004; in 2010 commercial production began and mining continued into 2014 when the ore was depleted.

**Koala Open Pit**

In July 2001, pre-stripping started at the Koala Pit, and then ore production began in early 2003. Surface mining operations at Koala Pit were completed in April 2006. Mining activity occurred under the Koala Pit as the Koala Underground Project was developed.

**Koala Underground**

The Koala Underground mine was developed below the mined-out Koala open-pit surface mine. Koala Underground is designed as a 3,300 tonnes per day sublevel/incline cave mine. Ore processing began in December 2007. Full production began in mid-2009. Total production life is estimated at 11 years. The estimated probable mineral reserve for Koala underground stood at 4 million tonnes with a grade of 0.6 carat/tonne at Jan. 31, 2015.

**Jay**

Jay is a large kimberlite pipe below Lac du Sauvage. A positive feasibility study was completed in 2016 that resulted in a projected Internal Rate of Return of 15.6%. The estimated probable mineral reserve for Jay is 44.7 million tonnes with a grade of 1.8 carats per tonne (based on a greater than or equal to 1.0 mm diamond recovery cutoff). The plan is to build a dyke to isolate the pipe and to commence mining using open-pit methods; this would be followed by underground development. The Jay pipe is approximately 7 km
north northeast of the Misery Main pipe (DDCorp News Release July 6, 2016).

**Exploration**

There are over 156 kimberlite pipes on the property. Exploration programs are continuing in the “buffer zone”, and in the mine areas.

**Production**

Improvements were made to the small diamond recovery in the process plant in 2014. Diamonds greater than 1mm in size are recovered.

From start-up in 1999 through until January 31, 2015 Ekati processed 67,515,000 tonnes of kimberlite with an average grade of 0.87 carats per tonne to produce 58,835,000 carats of diamonds.

**Significant Results**

Total probable mineral reserves as of January 31, 2016 for Koala, Misery Main, Pigeon, Sable, Lynx and the stockpile (and excluding Jay) are estimated at a probable 26.6 million tonnes with an average grade of 1.2 carats per tonne (Dominion Diamond 2016 Annual Report).

**References**

Armstrong, J.P., and Lee, C.A., (2000), Kimberlite Indicator and Diamond Database (KIDD), EGS 2000-03, NWT Geology Division, DIAND, Yellowknife, NT, 1 CD

BHP Billiton Production Reports, Annual Reports, and News Releases.


DIAND NWT Geology Division Staff, (2001), ‘Mining’ in Exploration Overview 2000 Northwest Territories Part 1: Minerals, Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 4

DIAND NWT Geology Division Staff, (2000) ‘Mining’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 1


NORMIN.DB (www.nwtgeoscience.ca) 076DNE0020 – Fox, NORMIN.DB 076DNE0021 – Koala NORMIN.DB 076DNE0022 – Sable, NORMIN.DB 076DNE0023 – Panda NORMIN.DB 076DNE0024 – Misery

NTGS Assessment Reports 083094, 083124, 083146, 083171, 083313, 083519, 083707

Pell, J., (1995), Kimberlites and diamond exploration in the Central Slave Province, NWT; NTS areas 75 M,N; 76 C,D,E,F; 85 P, 86 A,H; EGS Open File 1995-01, NWT Geology Division, DIAND, Yellowknife, NWT, 1 compilation map with marginal notes


www.bhpbilliton.com

www.ddcorp.ca
GAHCHO KUÉ MINE (RAMPING UP PRODUCTION)
De Beers Canada Inc.

CEO DE BEERS GROUP CANADA:
Kim Truter

OWNERSHIP:
51% De Beers Canada Inc.
49% Mountain Province Diamonds Inc.

LOCAL ADDRESS:
Gahcho Kué Project, De Beers Canada
5120 49th Street #300
YELLOWKNIFE NT X1A 1P8

PHONE: (867) 766-7300
FAX: (867) 766-7347
www.debeerscanada.com

HEAD OF GAHCHO KUÉ PROJECT:
Allan Rodel

CORPORATE HEADQUARTERS:
Mountain Province Diamonds Inc.
Suite 2700
401 BAY STREET
TORONTO ON M5H 2Y4

PHONE: (416) 361-3562
FAX: (416) 603-8565
E-MAIL: info@mountainprovince.com

PRESIDENT:
Patrick Evans

LOCATION:
300 kilometres east northeast of Yellowknife

NTS AREA:
075N/6

LATITUDE/LONGITUDE:
63.4417°N, 109.1978°W (Tuzo Pipe)

DEPOSIT TYPE:
Kimberlite pipe(s)

RESOURCE ESTIMATION:
An indicated resource (inclusive of reserves) from three pipes (5034, Hearne and Tuzo) totals 33.8 Mt at 1.54 ct/t resulting in 52 million carats of diamonds; these grades have a cutoff size of 1.0 mm (reserve statement as at December 31, 2015).

ACCESS:
Airstrip; winter-road spur from Mackay Lake to Kennady Lake, off the diamond mine joint venture Tibbitt-Lac De Gras winter road

PROJECT STATUS:
Commissioning commenced in July 2016

History
The Kennady Lake project was originally known as the AK/CJ claims. The first pipe discovered on the property was the 5034 pipe, first intersected in January 1995. Macrodiamonds were recovered from samples taken in 1995 and a mini-bulk PQ core sampling program was carried out (AR 083753).

In March 1997, Monopros (now De Beers Canada Inc.) entered into a joint venture with the claim holders, Mountain Province Mining and Camphor Ventures, under which De Beers Canada assumed immediate operation of the project, with the option of earning up to a 60% interest, in stages. De Beers Canada can earn 30% after completion of a bulk sample, a further 25% on completion of a bankable feasibility study, and a further 5% once production commences.

In May 1997, the Tesla pipe was discovered on the property, followed by the Hearne and Tuzo pipes in August 1997. All four pipes are diamondiferous and therefore warrant special interest. During the winter of 1999, a 1,819 tonne bulk sample was taken from these four pipes, to provide a more reliable estimate of diamond grade and value. There were 2,482.7 carats recovered. Initial sampling indicated the Tesla pipe was low grade (0.4 carats/tonne).

During the 1999 field season exploration drilling resulted in the discovery of two new kimberlite bodies; one of these, located approximately nine kilometres northeast of Kennady Lake, was named Kelvin (see Kennady North Project Description). A number of kimberlite dykes were also
discovered during the 1999 drilling in MZ Lake, in the central part of the AK claims, approximately 20 kilometres northwest of Kennady Lake (press release March 10, 2000).

During 2000, De Beers concluded that further work was required prior to making a production decision. In the early part of 2001, the Hearne and 5034 pipes were bulk sampled; 751 carats of diamonds were recovered from 334 tonnes of kimberlite taken from the Hearne pipe, and 914 carats were recovered from 635 tonnes of kimberlite from the 5034 pipe. In 2001, one diamond was recovered from the Hearne pipe with a weight of 9.9 carats; it was valued at $60,000.

More bulk samples were collected in 2002 because of the presence of larger stones. At the 5034 pipe there was 1,215 carats recovered from 836 tonnes of kimberlite removed. The three largest diamonds weighed 7.0, 6.6 and 5.9 carats. The Hearne pipe bulk sample (665 tonnes of kimberlite contained 1,174 carats) resulted in the recovery of several large diamonds as well; the three largest weighed 8.7, 6.4 and 4.9 carats (Kjarsgaard, B. A. (ed.), (2003)). After sampling the Hearne and 5034 pipes, seven vertical HQ holes totaling 1,241 metres were drilled into the Tuzo pipe (Mountain Province Diamonds Technical Report, 16 June 2003).

In January 2004, De Beers initiated a preliminary assessment of the project that was completed in July 2005. Site work focused on geotechnical investigations to help with a mine design, waste and water management studies, and the upgrade of camp facilities. From January to August 2004, a total of 111 drill holes, (9,440 metres) were completed. In addition, environmental and technical baseline studies were conducted.

In July 2005, De Beers Canada Inc. announced a decision to advance the Gahcho Kué joint venture project. Funds were approved to cover environmental assessment and the permitting process, as well as consultation and stakeholder engagement and further mine geotechnical and resource delineation core drilling and large diameter sample drilling of the 5034 and Tuzo kimberlites.

De Beers Canada Inc. applied to the Mackenzie Valley Land and Water Board (MVLWB) for permits to construct and operate the Gahcho Kué Mine in November 2005. The following month the company’s application was referred by the MVLWB to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for Environmental Assessment.

In June 2006, the MVEIRB issued an order that the Gahcho Kué Project be subject to an Environmental Impact Review on the basis of significant public concern. De Beers responded by requesting the NWT Supreme Court review the decision. In April 2007, the NWT Supreme Court upheld the decision of the MVEIRB.

During the summer of 2007, a land-based large diameter core drilling program at the 5034 North Lobe recovered close to 60 tonnes of kimberlite. The program increased information about diamond size distribution and the continuity between the east and north lobe of 5034.

An environmental impact assessment report was filed with the MVEIRB in late 2010. The joint venture partners continued to firm up Tuzo resources with additional drilling at increasing depths over the next several years. Anglo American Plc, increased its ownership of De Beers to 85% in 2012; the remaining 15% stake is owned by the Government of the Republic of Botswana. The Gahcho Kué Mine received Ministerial approval in October 2013, and mine-site construction began in December. The Land Use Permit and Water Licence were issued in August 2014.

Pre-stripping began on land in the northern half of the 5034 pit in 2014; the majority of the granite waste was used for road, dyke and infrastructure pad construction. By March 2015, accommodations and offices had been constructed on-site and work was set to begin on construction of the processing plant. The mechanical completion of the primary crusher was complete in June 2016 and commissioning of the process plant had begun. As at June 20, 2016 Mountain Province Diamonds reported that Gahcho Kué had a permanent staff complement of 290 individuals.

**Bedrock and Mineral Deposit Geology**

The Gahcho Kué property is underlain by Archean-age rocks of the Slave Province. The predominant lithology on the property is granite. The kimberlites vary in shape and both hypabyssal, and tuffisitic kimberlites are present.

A magnetic diabase sill traverses the property (named the Dunn Sill) approximately 250 metres west of the 5034, and Tuzo pipes. Three holes totaling 442 metres were drilled into the sill, and narrow (up to 1.7 metres thick) kimberlite sheets and stringers were found intersecting the diabase. The Dunn Sill is approximately 50 metres wide and strikes northeast to north-northeast over a distance of approximately 850 metres (Mountain Province Diamonds Inc. Technical Report, 16 June 2003).
**Development**

The mine is scheduled to commence production in the third quarter of 2016. Mining will begin in the 5034 pit and production from this pipe is set to continue through until 2023. Development and production of the Hearne pipe is scheduled in 2017 through 2019, with completion of Hearne in 2020, when stripping of Tuzo will be started. Tuzo mining is set to commence following de-watering and to continue at a rate of three million tonnes per year until 2028.

The Gahcho Kué Mine is slated to produce 4.5 million carats of diamonds per year over a 13-year mine-life using open-pit mining.

Reserve Statement of individual pipes for comparison purposes (as at March 31, 2014):

<table>
<thead>
<tr>
<th>Pipe</th>
<th>Category</th>
<th>Tonnes (Millions)</th>
<th>Carats (Millions)</th>
<th>Grade (ct/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5034</td>
<td>Probable</td>
<td>13.4</td>
<td>23.2</td>
<td>1.74</td>
</tr>
<tr>
<td>Hearne</td>
<td>Probable</td>
<td>5.6</td>
<td>11.7</td>
<td>2.07</td>
</tr>
<tr>
<td>Tuzo</td>
<td>Probable</td>
<td>16.4</td>
<td>20.6</td>
<td>1.26</td>
</tr>
<tr>
<td>Total</td>
<td>Probable</td>
<td>35.4</td>
<td>55.5</td>
<td>1.57</td>
</tr>
</tbody>
</table>

Average grade: > 1.0mm

Anglo American Plc. re-estimated probable diamond reserves as at December 31, 2015; these totaled 33.8 million tonnes at a grade of 1.54 carats per tonne resulting in the production of 52.0 million carats of diamonds (Anglo American Plc. Annual Report 2015, p. 178 and Ore Reserves and Mineral Resources Report 2015, p.14).
References


DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 7-8

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-5, 2-7

DIAND NWT Geology Division Staff, (1998), ‘Slave Province-Diamond Activity’, in Exploration Overview 1997 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-6


Mountain Province news release, ‘De Beers/Monopros Discovers New Kimberlite Body on Mountain Province Mining’s AK– Claims’, March 10, 2000

Mountain Province news release, ‘De Beers/Monopros Reports Modeled Revenues and Grades For Mountain Province Mining’s 5034 Diamond Pipe’, December 14, 1999


NORMIN.DB (www.nwtgeoscience.ca) 075NSW0001 – Tesla, NORMIN.DB 075NSW0002 – Tuzo, NORMIN.DB 075NSW0003 – 5034, NORMIN.DB 075NSW0004 – Hearne NTGS Assessment Report 083753


www.angloamerican.com

www.debeerscanada.com

www.mountainprovince.com
AFRIDI LAKE
Crown Land

LOCATION:
320 kilometres northeast of Yellowknife, on the south shore of Afridi Lake

NTS AREA:
76 C/6

LATITUDE/LONGITUDE:
64.3313°N 109.3679°W

RESOURCE ESTIMATION:
To be determined

ACCESS:
Float or ski-equipped aircraft

ALIAS(ES):
DA Claims

PROJECT STATUS:
The property is open for staking

History

The DA claims were staked in February 1992 by Inukshuk Capital Corporation and later optioned to Intertech Minerals Corporation. Diamond exploration began in August 1992 with the collection of till samples. In 1993, a 2,342 line-km airborne geophysical survey was flown with a 200-metre line-spacing.

In 1994 Intertech Minerals contracted Canamera Geological to collect 141 till samples and perform ground magnetometer and EM surveys (AR 083301). Between April 1994 and March 1995, four high priority targets were defined (AR 083529).

In February 1996, Cypango Ventures acquired 51% of the property. The project area covered more than 100,000 acres of mineral claims and leases. During 1996, Cypango Ventures and Intertech Minerals had Canamera Geological collect 200 heavy mineral samples, perform surficial geological mapping, and five line-km of ground penetrating radar. Four holes totaling 800 metres tested four geophysical anomalies; three kimberlites were discovered in the northwestern part of the property (AR 083861).

Individual sample results for the three pipes are as follows:
- DA-1 511.3 kg - 46 diamonds (including 4 macros);
- DA-2 75.3kg - 8 diamonds (including 1 macro); and,
- DA-3 125.3 kg - 12 diamonds (including 3 macros)
  (Canamera, 1996).

In 1998, a 7,140 line-km airborne survey was flown with a 75-metre line spacing (AR 084066). In late 1998, Kennecott Canada Exploration Incorporated optioned the property. During 1999, ground geophysics (HLEM) was performed over 34 airborne geophysical anomalies and eleven holes were drilled in six targets. One kimberlite was discovered (Jordan pipe); a 205-kilogram sample was analyzed, and 4 diamonds (including 2 macros) were recovered (EO 1999, AR 084210).

In early 2002, ground magnetic surveys were conducted, as follow-up, over three small grids on the Afridi property (Afridi Technical Report, 2002 (Sedar web-site)). During the fall of 2002, five diamond drill holes totaling 549 metres tested five anomalies. One hole tested a prominent EM anomaly.

FOR STAKING INFORMATION, CONTACT:
Mining Recorder’s Office
PHONE: (867) 765-6724
FAX: (867) 669-2714
EMAIL: miners@gov.nt.ca

OWNERSHIP:
Available for staking.
Immediately to the west of a previously identified kimberlite; it intersected 60 metres of kimberlite.

International Samuel Exploration Corp. entered into an agreement to acquire a 25.4% interest in the Afridi Lake Property in early September 2002; Shear Minerals held a 58.2% interest beginning in 2002. New World Energy Corp. and Dasher Energy each held an 8.2% interest. Dasher Energy changed its name to Dasher Resources Corp. and then to Dasher Exploration Ltd. in 2003.

In 2004, efforts were aimed on terrain analysis around EM targets identified from detailed airborne geophysical data. Heavy mineral samples and quaternary mapping were conducted and four sampled targets produced kimberlite indicator minerals (AR 085033). Eighteen airborne EM targets were slated for ground geophysical surveying and possible subsequent drilling.

Intertech Minerals Corporation changed its name to Mantle Minerals on April 25, 2002 and subsequently to Mantle Resources Inc. who became a joint venture partner in the Afridi property in August 2006. The joint venture carried out an airborne gravity survey in 2007. Targets were ranked, prioritized and ground checked. The following year 12 holes (1,741 m) tested 12 geophysical targets. Kimberlite was encountered in three holes in the vicinity of the previously identified DA kimberlites.

Mantle Resources Inc. changed its name to Canada Zinc Metals Corp. at the end of September 2008. As of June, 2009 Shear Diamonds Ltd. held a 58.2% interest in the property, whereas International Samuel held 25.4% and both New World Resource Corp. and Canada Zinc Metals Corp. held 8.2% each. International Samuel was not able to meet its share of expenses for the work that was done in 2008, so in 2009 an agreement was reached which resulted in Shear Diamonds’ holding a 78.6% interest in the property and International Samuel reducing its stake to 5%. The companies allowed the claims to lapse. There has been no assessment work filed on these pipes since 2006. The area is open for staking.

**Bedrock and Mineral Deposit Geology**

The property lies within the Slave Geological Province and is underlain primarily by metasediments and volcanics of the Yellowknife Supergroup. In the southern part of the property these are intruded by granitic plutons. All of these rock types are cross cut by Proterozoic diabase dykes. These dykes generally strike northwest, however, northeast and east-striking dykes are also present on the property. The DA 1-3 kimberlites are narrow (less than 20 metres wide) diamondiferous kimberlite dykes. The Jordan kimberlite displays characteristics of both volcaniclastic crater facies and hypabyssal facies.

**Significant Results**

There are five known kimberlites on the property (DA-1, DA-2, DA-3, DA-2SW and the Jordan kimberlites). Over 100 geophysical targets have been identified, some of which have been covered by ground geophysics and are drill-ready.

---

**References**

DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 7

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-4

NTGS Assessment Reports 083301, 083529, 083861, 084066, 084210, 084569, 085033


**BLUE ICE / VICTORIA ISLAND**

*Kimberlite-hosted*

**FOR STAKING INFORMATION, CONTACT:**
Mining Recorder’s Office

**PHONE:** (867) 765-6724  
**FAX:** (867) 669-2714  
**EMAIL:** miners@gov.nt.ca

**LOCATION:**
250 kilometres northwest of Cambridge Bay

**NTS AREA:**
77F/11, and 14

**LATITUDE/LONGITUDE:**
70.61°N 110.10°W

**SNOW GOOSE KIMBERLITE:**
70.542°N 110.14°W

**DEPOSIT TYPE:**
Kimberlite-hosted

**RESOURCE ESTIMATION:**
N/A

**ACCESS:**
Fixed Wing Aircraft

**PROJECT STATUS:**
Available for staking.

---

**History**

Monopros, the exploration division of De Beers, initially conducted diamond exploration on Victoria Island during the 1990's. Major General Resources Ltd. staked claims and undertook option agreements on certain areas of Victoria Island (with Monopros initially) in 1998. Following a corporate re-structuring of Major General, Diamonds North was formed in 2002. Since then regional till sampling, airborne and ground geophysical surveys, geological mapping, prospecting, trenching, and diamond drilling have been conducted. The property lies in both Northwest Territories and Nunavut.

Two of the kimberlites discovered in 1997 (namely Snow Goose and Jaeger) are located in the current NWT and are diamondiferous.

In 2003, Diamonds North partnered with Teck Cominco and the Snow Goose kimberlite was drilled (3 holes totaling 459 metres). A 934-kg core sample yielded 172 diamonds. The three largest stones had dimensions 1.08 x 0.83 x 0.69 mm, 1.05 x 0.97 x 0.5 mm and 1.28 x 0.57 x 0.32 mm. The Jaeger was also drilled (2 holes) and a 175 kg-sample of kimberlite yielded 109 microdiamonds. Of these diamonds, one failed to pass through the 0.425 mm mesh screen (AR 084650 and 084692). One hole tested a magnetic low southeast of Snow Goose and cut two metres of kimberlite; a 27.8-kg sample from this dyke, the Gosling showing, yielded eight diamonds (Diamonds North AIF, 2004).

During the 2005 exploration campaign, a total of 14 diamond drill holes (2136 metres) tested ten targets and 75 reverse circulation holes (1405 metres) were drilled to test 31 separate targets.

The 2005 exploration program also included more than 11,700 kilometres of airborne magnetic surveys over six new areas, additional ground magnetic surveys over 33 grids and gravity data over four grids, prospecting, and the collection of over 200 till samples in under-explored portions of the property (AR 085056).

Teck Cominco Limited dropped the Blue Ice option in 2006 and no significant work was carried out in following years.

At the end of 2009, Diamonds North still held the Blue Ice property. No exploration was carried out after that date,
and the Blue Ice exploration camp was demobilized in 2011. Diamonds North Resources Ltd. amalgamated with Uranium North, in February 2013, to form Adamera Minerals Corp.

**Bedrock and Mineral Deposit Geology**

The Archean age granitic basement on Victoria Island is overlain by Proterozoic age sediments with minor volcanics, which in turn are overlain by Palaeozoic age sediments. Several stratigraphic unconformities are mapped within the Proterozoic sedimentary sequence that is locally capped by mafic volcanics of late Proterozoic age.

Unconformably overlying the Proterozoic rocks are flat-lying Cambrian to Devonian age carbonate rocks. Cutting the sedimentary sequence are at least three mafic dyke sets with related sills of different ages, all apparently older than the Palaeozoic cover rocks, which usually conceal them. However, the dykes are quite evident in aeromagnetic surveys as linear highs, while the sills are evident as irregular, sinuous to concentric, magnetic highs mapping the upper edges of the sills. Isolated patches with chaotic patterns of magnetic highs and lows that occur in the area may reflect the late Proterozoic volcanic flows. Kimberlite dykes and pipes of probable Mesozoic age pierce the Palaeozoic sediments.

The kimberlite bodies on the Blue Ice property form northwest structural trends named the Galaxy, King Eider, and Apollo Structures; the Galaxy and King Eider trends have been traced for over 20 kilometres in strike length. The northwest portion of the Galaxy Structure is located in the NWT. The Galaxy Structure contains a series of sub-vertical parallel and en echelon kimberlite dykes and blows. The kimberlites discovered by Diamonds North along this structure are diamondiferous. Quaternary glacial till, typically less than 3 metres thick, overlies the bedrock.

**Exploration**

More advanced drilling on known kimberlite bodies is required. By the end of 2005, drilling along both the King Eider and Galaxy Structural trends had resulted in the discovery of a total of 33 separate kimberlites on the Blue Ice property.

**Significant Results**

During the 2004 exploration program, the King Eider kimberlite body (Nunavut Territory) returned a total of 434 diamonds weighing an estimated 1.32 carats from a 679.20-kilogram sample. The sample yielded 10 stones (1.09 carats in total) on or above the 0.85mm screen, including a single 0.74 carat diamond. The following year, Diamonds North collected 576.9 kilograms of drill core from King Eider, and submitted an additional 1697.5 kilograms of drill core, collected by the previous operator, Teck Cominco Limited, and a 1053.6 kilogram trench sample for analysis.

The 1697.5-kilogram kimberlite sample yielded a total of 0.54 carats of diamonds, of which, 14% were attributable to stones remaining on the 0.85mm screen or larger (0.075 carats). A 576.9 kilogram ¼ split portion of drill core was submitted to a different laboratory for microdiamond analysis. This sample returned a total diamond weight of 0.12 carats, with 0.077 carats of diamonds remaining on the 0.85mm screen. (The inconsistency in distribution of the coarse diamonds between these samples suggests diamond loss or extreme diamond content variability within the kimberlite.)

Nine stones which were > 0.85mm screen mesh-size were recovered from the 1053.6 kilogram trench sample.

**References**

NORMIN.DB (www.nwtgeoscience.ca) 077FNW0001, 077FNW0002, 077FNW0003

NTGS Assessment Reports 084180, 084650, 084692, 085056

www.adamera.com

History

Winspear Resources Ltd., Aber Resources Ltd., Amarado Resources Ltd. and Consolidated Newgate Resources Ltd. started work on the Camsell Lake project in 1993. A regional airborne magnetic and electromagnetic survey was flown, and sampling was performed along two major eskers in the southern portion of the property. The following year, a ground survey, basal till sampling and diamond drilling were completed. Indicator minerals were identified and an attempt was made to trace the trains towards their possible source. Four drill holes tested two geophysical anomalies, and three angled drill holes intersected the CL-25 kimberlite (AR 083457). A bulk sample weighing 350.4 kg was taken and processed and a total of 221 diamonds were recovered.

Over the next few years, exploration efforts focused on other Camsell Lake property kimberlites. However, in 1999 extensive basal till sampling was performed to help prioritise geophysical anomalies, and follow up on elevated indicator mineral counts outlined during previous programs. Detailed sampling of the CL-25 indicator mineral train tested the possibility of another source occurring beneath the train. Forty-nine samples were collected on grids established down-ice and in the vicinity of the CL-25 kimberlite (AR 084264).

Winspear Resources restructured in 1999 and exploration properties apart from the Camsell Lake property were transferred to Diamondex Resources Ltd. Apart from CL 25, and other kimberlites, the Camsell Lake property hosted the Snap Lake kimberlite (which became Snap Lake Mine). During 2000, extensive sampling was carried out and this resulted in indicator minerals, including a diamond being found in a till sample down-ice from CL 25 (AR 084354).

De Beers Canada Holdings Ltd. finalized the purchase of Winspear Diamonds Inc. in mid-November, 2000. There is no public record of work done on the property since then. The claim covering CL 25 was allowed to lapse and Michael Magrum staked the overlying property. DEMCo Ltd. (a subsidiary of Denendeh Investments Inc.) optioned the property in the latter part of 2012, however no work was completed and the property reverted to Mike Magrum (Trevor Teed, personal communication). Less than two years later Canterra Minerals Corporation (formerly Diamondex Resources Ltd.) staked claims surrounding this property.

Canterra Minerals optioned the property from Michael Magrum in mid-2016. The claim that hosts CL-25 is also host to the CL-174 kimberlite (Canterra News Release).
Bedrock and Mineral Deposit Geology
The CL 25 kimberlite is situated in the Camsell Lake area, approximately 30 kilometres east of Snap Lake Mine. The property is underlain by northeasterly striking volcanic and sedimentary rocks belonging to the Yellowknife Supergroup. These are intruded by granitic and gabbroic stocks, and sills. All of these rocks are locally intruded by north-northwesterly trending diabase dykes.

Significant Results
From two drill holes, drilled in 1994, a bulk sample weighing 350.4 kg was taken and processed. This resulted in the recovery of a total of 221 diamonds; nine were macro-diamonds (>0.5 mm) and 212 were micro-sized (<0.5 mm).

References
NTGS Assessment Reports 083457, 084264, 084354
NORMIN.DB (www.nwtgeoscience.ca) 075MNE0015
www.denendehinvestments.ca
History

Ashton Mining (Northwest Territories) Limited, in joint venture with Pure Gold Resources Incorporated and Tenajon Resources Corporation, began diamond exploration in 1993; 123 soil samples were collected.

In 1994, 19 holes totalling 3,108 metres were drilled to delineate and sample the Cross kimberlite pipe, and to test other anomalies. A narrow kimberlite was found in the southern part of the property, and till samples were processed, defining a further kimberlite indicator mineral train (AR 083521).

During 1995, ground and detailed helicopter-borne magnetic surveys were completed. A new pipe (Ursa) was found buried beneath one metre of overburden. Trenching was carried out and the pipe was sampled; 4 microdiamonds were recovered from a 150-kilogram sample (EO 1995). In 1996 the Orion kimberlite was discovered; processing lead to one macrodiamond, weighing 0.29 carats, being recovered from a 1,171-kilogram sample (EO 1996). During 1995 and 1996, 447 heavy mineral samples were collected and analyzed (AR 083857).

In 1997, numerous till samples were collected and detailed follow-up samples were taken in 1998 and 1999. In 2000, two diamond drill holes tested two magnetic anomalies but neither intersected kimberlite (EO 2000). Ashton Mining became a subsidiary of Rio Tinto in December 2000.

In January 2007, Stornoway Diamond Corporation amalgamated with Ashton Mining of Canada Inc. and acquired its properties. Two mining leases with expiry dates in 2024 cover the area of interest. As at July 15, 2016 they are held by Ashton Mining (Northwest Territories) Ltd. Minor work has been carried out since (no results of that work have been filed with the government).

Bedrock and Mineral Deposit Geology

The property lies within the Slave Geological Province and is underlain predominantly by paragneiss and migmatites. A narrow belt of metasediments and volcanics of the Yellowknife Supergroup, striking northeast, is present along the eastern property boundary and is intruded by granitic
plutons. All of these rock types are intersected by Proterozoic diabase dykes that are found to the east and to the south of the property, as well as to the west in the Winny Lake area (AR 083857). The Cross pipe is at least 1.8 hectares in size and contains both crater and diatreme facies kimberlite.

**Significant Results**

A 2.4-tonne sample from the Cross pipe yielded 7 diamonds over 1 mm in size. A 2-tonne sample from the Ursa pipe returned one macrodiamond, 0.6 mm in diameter (Ashton’s Dense Media Separation Process).

**References**


DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 5

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-3


www.stornowaydiamonds.com
DARNLEY BAY
Darnley Bay Resources Limited

DIAMONDS (NICKEL, COPPER AND PGES (SUDBURY TYPE))
Diamonds- Kimberlite Pipes

TSX-V:
DBL

PRESIDENT:
Jamie B. Levy

OWNERSHIP:
Darnley Bay Resources

CORPORATE HEADQUARTERS:
365 Bay Street, Ste. 400
TORONTO ON M5H 2V1

PHONE: (416) 567-2440
FAX: (416) 361-2519
EMAIL: dbr@darnleybay.com
www.darnleybay.com

LOCATION:
Project centered on Paulatuk, 885 kilometres north-northwest of Yellowknife on the coast of the Arctic Ocean.

NTS:
097 A,B,C,D

LATITUDE/LONGITUDE:
69.1667°N 124°W

ACCESS:
Airport in Paulatuk; float or ski-equipped aircraft locally

PROJECT STATUS:
Available for option.

History

Darnley Bay Resources Limited was formed in 1993 to explore and develop an area of geophysical significance in the Inuvialuit Settlement Region (ISR) of the Northwest Territories. Base metal exploration fortuitously resulted in the discovery of diamonds and the area is now host to both metallic and non-metallic mineral deposit interests.

The Darnley Bay gravity anomaly was first identified in a 1969 Geological Society of Canada (GSC) geophysical survey. The GSC conducted an aeromagnetic survey over the area in 1973, and two gravity profiles in 1991. A magnetic anomaly of similar aerial extent coincides with the gravity anomaly.

In 1994, prospecting permits covering the anomaly were issued to Darnley Bay Resources. The following year the company voluntarily relinquished the part of their prospecting permits inside the boundary of the proposed Tuktut Nogait National Park. Legislation creating the park passed through parliament in June 1998.

In 1997, Darnley Bay Resources flew a 15,900 line-km, more detailed, aeromagnetic survey (800/400 metre line spacing). Interpretation of this survey suggested that the anomaly could contain four distinct intrusive bodies and has a number of near-surface magnetic offshoots.

Five specific targets from the 1997 survey were identified for further work; Thrasher, Hornaday, Green, Billy and Ruben Zones. In early 1999, gravity, magnetic, and EM surveys were conducted over the Thrasher Zone. In 1999 and 2000, the exploration program included ground geophysics and geological mapping to define drill targets.

Falconbridge entered into a joint venture agreement with Darnley Bay Resources to explore for metallic minerals and a single drill hole (totaling 1,812 metres) tested the Thrasher Zone. It targeted the centre of a magnetic anomaly; no economic mineralization was encountered, nor was the source of the anomaly identified.

A geophysical interpretation targeting possible kimberlite pipes was completed in 1998. The interpretation identified 55 discrete anomalies with signatures similar in nature to the signatures of kimberlite pipes. During 1999, 115 till samples were collected from 22 of the 55 magnetic anomalies. They were found to contain indicator minerals and diamonds (AR 084260). In July 2000, Darnley Bay entered into an agreement with De Beers Canada Exploration Inc. to explore the diamond potential of the property.

During 2000, a 17,000 line-km aeromagnetic survey was flown, with 200-metre line spacing, northwest of the gravity anomaly in the Parry Peninsula. Thirty-nine more kimberlite targets were identified. Twelve targets were drilled and ten intersected kimberlite (AR 084367). Approximately ten tonnes of till and drill core samples, collected in 2000, were processed in 2001. As of April 2003, six of the kimberlites are known to be diamondiferous (Darnley Bay Annual Information Report – www.sedar.com).
In June 2003, Darnley Bay Resources entered into a diamond joint venture agreement with Carnarvon Capital Corp. and by the end of November, Diadem Resources Ltd. took over the rights and responsibilities associated with that agreement. Ground magnetic surveys were completed over 22 of the kimberlite targets; eight were interpreted to be high priority drill targets.

The Franklin Diamond joint venture project completed approximately 52,000 line-kilometres of airborne magnetic survey and collected 223 till samples for heavy mineral processing and optical examination for kimberlite indicator minerals. Till sampling was carried out in the vicinity of 21 high-priority airborne magnetic anomalies. During 2004, ground geophysics was carried out (AR 085361).

Many of the kimberlite indicator minerals analyzed in 2005 originated from diamond-bearing kimberlites (AR 085061). Thirteen high priority drill targets were identified. Diadem Resources endeavored to raise money, or partner with another company to drill test the remaining kimberlite targets.

In 2008 several targets were tested with ground magnetic surveys (AR 085357). The following year Diadem completed 327.7 line-km of ground magnetic surveys to refine 16 targets.

Four targets were tested by drilling five holes in August 2010; this resulted in the identification of three new kimberlites. Three microdiamonds were recovered from one of these pipes.

Diadem Resources reached a memorandum of understanding with Darnley Bay Resources in October 2011, whereby Diadem proposed the acquisition of Darnley Bay Resources 50% interest in the Franklin Diamond Project however Diadem was not successful in raising financing. In early 2013 Diadem ceased trading on the TSX Venture exchange and shares were transferred to the NEX board of the exchange; Diadem ceased trading in late 2013.

Bedrock and Mineral Deposit Geology

The property hosts the strongest isolated gravity anomaly in North America, in coincidence with a strong magnetic anomaly. The Darnley Bay anomaly is located in Paleozoic strata, adjacent to the Proterozoic Brock Inlier. There is no evidence at surface that the anomaly area is different from the remainder of the Phanerozoic cover (Jefferson et al., 1994). The source of the anomaly is interpreted to be a buried mafic-ultramafic intrusive, the host rock for all major nickel-copper and platinum group element (PGE) deposits, similar to those found in the Sudbury Basin of Ontario, Noril’sk in Russia, and the Bushveld complex in South Africa.

The kimberlite is spatially associated with the Franklin age (723Ma) Diabase Dyke Swarm cross-cutting the area. The kimberlites have varying magnetic signatures, consistent with known kimberlite fields elsewhere in the Canadian Shield.

Exploration

The diamond potential of the area is significant and requires further work. The base metal potential was further explored in 2013 when a 73 line-km magneto-telluric survey was completed. A conductive zone was identified and two additional claims were staked in 2014 (EO 2014).

Significant Results

Of eight pipes sampled in 2000, six contained diamonds. Two samples contained macrodiamonds: a 533.1 kg surface sample from the MT105 kimberlite yielded 65 diamonds, including two macrodiamonds; and a 168.5-kg sample from the MT107 kimberlite yielded one macrodiamond and one microdiamond (Darnley Bay Resources Technical Report, 2001).

References

DIAND NWT Geology Division Staff, (2000) ‘Metals Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 10

NTGS Assessment Reports 084260, 084367, 085061, 085357, 085361
www.darnleybay.com
DOYLE LAKE PROPERTIES

Kennady Diamonds Inc. (see Kennady North Project description for company details) and GGL Resources Corporation

OWNERSHIP:
various leases 100% Kennady Diamonds Inc. and others 100% GGL Resources Corporation

GGL RESOURCES CORPORATION
TSX-V:
GGL

PRESIDENT AND CEO:
Raymond A. Hrkac

CORPORATE HEADQUARTERS:
GGL Resources Corp.
c/o 1305 – 1090 West Georgia Street
VANCOUVER BC V6E 3V7

PHONE: (604) 688-0546
FAX: (604) 608-9887
EMAIL: info@gglresourcescorp.com
www.gglresourcescorp.com

KENNADY DIAMONDS
TSX-V:
KDI
www.kennadydiamonds.com

LOCATION:
280 kilometres northeast of Yellowknife

NTS AREA:
75N/05 and 75N/06

LATITUDE/LONGITUDE:
63.3696°N, 109.3469°W

DEPOSIT TYPE:
Kimberlite sill

RESOURCE ESTIMATION:
to be determined

ACCESS:
Float or ski equipped aircraft

PROJECT STATUS:
Kennady Diamonds intends to carry out exploration on the Doyle kimberlite in 2016. The GGL Resources Corp. leases are available for option.

History
Gerle Gold Limited staked and recorded the claims, which make up the Doyle Lake project, in January 1995. In May, Monopros became a joint venture partner in the project. Exploration commenced in 1996. Exploration programs have included surficial mapping and sampling, geophysical surveys (including 4,200 line-km of airborne magnetic and electromagnetic surveying), reverse circulation drilling and diamond drilling approximately 2,000 metres of reverse circulation drilling, and a similar metreage of diamond drilling (EO 1996, AR 083807).

In 1996, a diamondiferous kimberlite, named the Doyle sill, was drilled. No work was performed on the sill between 1996 and 2003 due to a property dispute.

During 1998, exploration on the property included drilling, indicator mineral sampling, and ground geophysics. Exploration continues to try to find the source of strong indicator mineral trains on the property. The Doyle Lake project is a joint venture between GGL Diamond Corporation and De Beers Canada Exploration Incorporated. De Beers Canada Exploration Incorporated assumed operatorship of the joint venture in June of 1999.

In early 2000, three holes were drilled on the property; two of these holes were under lakes, and the third was a land-based target; no kimberlite was intersected. Exploration on the property continued with a summer program of till sampling and
A GUIDE TO THE MINERAL DEPOSITS OF THE NORTHWEST TERRITORIES

geophysics; 12 ground geophysical surveys were carried out over selected targets (GGL press release July 2000).

In May 2003, a court decision confirmed GGL Diamond Corporation’s ownership of the Doyle Lake claims. The following year, a till sampling program was carried out, with encouraging results and a diamond drill program was initiated. Significant diamonds were recovered from drill core. A 38-kg sample from previously un-sampled drill core from 1996 returned 40 diamonds, including two macrodiamonds (News Release January 18, 2005).

In 2005, continued diamond drilling resulted in a 45-tonne bulk sample that graded 13.52 carats of diamonds per hundred tonnes. The largest diamond that was recovered weighed 1.25 carats while the largest gem-quality diamond weighed 0.83 carat.

GGL Diamond Corp. changed its name to GGL Resources Corp. in 2009. In 2013 Kennady Diamonds acquired nine leases from GGL Resources Corp. covering, and in the vicinity of, the Doyle and MZ kimberlites (and expanding Kennady Diamonds’ Kennady North project).

DeBeers Canada Inc. terminated their joint venture agreement with GGL Resources Corp. (begun in 1995) and returned four leases to the company in the vicinity of the Doyle kimberlite at the end of 2014. At the same time DeBeers acquired four leases that were part of the project.

During the fall of 2015 Kennady Diamonds drilled two geophysical anomalies along the strike of the Doyle kimberlite and cut approximately one-metre intercepts of kimberlite in both holes.

**Bedrock and Mineral Deposit Geology**

The Doyle Lake property lies within the Slave Geological Province. The northeast-striking Doyle kimberlite sill varies from less than 0.5 metre to approx. 5.5 metres in thickness (EO 1996). The down dip extension of the sill has been intersected at 190 metres on a horizontal plane and is open at depth. In 2005 drilling extended the known strike of the sill to two kilometres and drilling confirmed a down dip depth of 820 metres. The kimberlite was later cut at a depth of one kilometer and it is still open at depth. The average width is estimated to be two metres.

**Significant Results**

A total of 161 diamonds were recovered from an 84.6-kilogram sample from the Doyle kimberlite in 2003. A 45-tonne bulk sample taken in 2005 graded 13.52 carats of diamonds per hundred tonnes.

**Exploration**

Kennady Diamonds Inc., GGL Resources Corporation and DeBeers Canada Inc. continue to hold property in the Doyle Lake area. Kennady Diamonds planned to continue to drill along the Doyle sill in 2016.

---

**References**

*DIAND NWT Geology Division Staff, (2001), ‘Diamond Exploration’ in Exploration Overview 2000 Northwest Territories Part 1: Minerals, Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 8*

*DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 7*

*DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-4*

*DIAND NWT Geology Division Staff, (1998) ‘Slave Province-Diamond Activity’, in Exploration Overview 1997 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-4 *


*NORMIN.DB (www.nwtgeoscience.ca) 075NSW0007*

*NTGS Assessment Report 083807*


*www.gglresourcescorp.com*

*www.sedar.com GGL Resources Corp. MD&A October 30 2006, March 23 2015*

History

During late 1992, Dave Smith staked the area surrounding the Drybones Bay kimberlite, due to its bathymetric and magnetic signature, and for its visual appearance similar to that of kimberlite found elsewhere in the Northwest Territories. During April of 1993, ground geophysical surveys revealed similar signatures to other kimberlite occurrences (AR 083341). In January 1994, two drill holes tested the target. A total of 24 metres of kimberlite was intersected in one of the holes (AR 083428).

In July 1994, an option agreement was signed with Trade Wind Resources Limited to further explore the property. The following year, they performed 14 line-km of ground magnetic surveying and drilled nine holes totaling 1,547 metres. Nine macrodiamonds and eleven microdiamonds were recovered from 421 kilograms of core (AR 083627). During the summer and fall of 1996, twelve more drill holes totaling 3,994 metres were completed, each intersecting kimberlite. Sample processing of this core resulted in the recovery of 25 macrodiamonds. An estimate of 39.2 carats/100 tonnes was reported. There was subsequent sampling in 1996 and 1997, which resulted in a 10-tonne bulk sample of kimberlite.

In January 1998, Trade Wind Resources Limited terminated their option agreement on the Drybones property, and returned 100% ownership to Dave Smith.


In December 2001, and later in 2002, New Shoshoni Ventures optioned property in the Drybones Bay area from David Smith. A drill program commenced in mid-January, 2003. Four holes were drilled to test anomalies peripheral to the Drybones Bay kimberlite (New Shoshoni News Release, January 14, 2003). The Drybones 2 kimberlite (or DB2) was discovered in February 2003. It is located approximately 750 metres south-southwest of the Drybones Bay kimberlite. The kimberlite intersected in the holes is crater facies and is diamondiferous. One hole intersected 130 metres of kimberlite and ended in kimberlite.

New Shoshoni Ventures applied for permits to do further work on the Drybones kimberlite, however by 2007, the Company had written down the property due to their inability
to obtain the required work permits. New Shoshoni continued to hold an option on the property, through until 2012 when the Company decided to return the Drybones Bay Diamond property to David Smith. In May 2012 New Shoshoni Ventures Ltd. changed its name to Shoshoni Gold Ltd.

**Mud Lake Kimberlite**

Snowfield Development optioned 16 claims in the Drybones area (NTS area 85I/3 and 85I/4) in 2002. During July and August, a couple of detailed helicopter-borne EM geophysical surveys were flown over numerous specific targets. The Drybones Bay kimberlite was also surveyed at this time in order to use the data for comparative purposes during interpretation. A drill program was initiated at the end of November 2002 (Snowfield Dev. Corp. Annual Information Form, January 2003 – www.sedar.com).

Snowfield discovered the Mud Lake kimberlite in January 2003. The kimberlite is a shallow dipping, multiple-sheet-like structure. The thickness of the first layer intersected in drill holes is four to six metres. The kimberlite is less than a kilometre from Great Slave Lake and lies beneath approximately five metres of overburden (Snowfield Dev. News Release, July 21, 2003).

Snowfield drilled about 20 diamond drill holes on the Mud Lake kimberlite, beginning in September, 2003 in an attempt to delineate the kimberlite and take a bulk sample. Caustic fusion analysis proved the Mud Lake kimberlite to be diamondiferous.

In early spring, 2005, drilling located an area northwest of Mud Lake, for the extraction of a 500-tonne kimberlite bulk sample. In early 2006 Snowfield reported the processing of a 110-kg sample of remnant kimberlite core resulted in the recovery of one macrodiamond and four microdiamonds. During the Spring Snowfield, in partnership with Consolidated Gold-Win Ventures drilled 29 holes (2376 metres in total) further delineating the sill. Results of processing 121.7 kg of core from that program demonstrated the variability of the kimberlite. Three of ten samples contained diamonds; four macrodiamonds and forty microdiamonds were recovered.

Snowfield teamed up with DeBeers, who offered to process the sample at its Dense Media Separator facility in Grand Prairie, Alberta at no cost to Snowfield. The permitting process for the bulk sample program took in excess of 18 months. In early 2007 Snowfield began extraction of the bulk sample. Kimberlite was crushed and bagged on-site to prepare it for transport.

Snowfield delivered 100 tonnes of kimberlite to DeBeers sample separation plant in November 2007; 400 tonnes remained on-site for future transport and processing.

The concentrated sample (approximately 1560 kg) was split into two batches and then each sample was processed either at the Saskatchewan Research Council (SRC), or by DeBeers in South Africa. A 1,044 kg sample processed by SRC resulted in the recovery of seven macrodiamonds, the largest having dimensions of 5.0mmX3.5mmX1.04mm. DeBeers recovered four diamonds weighing 0.34 carats in total from a 518.8 kg sample.

Additional drilling (32 holes totaling 3,563m) southeast of the bulk sample site was completed in 2008 and a 154 kg sample from this resulted in the recovery of two macrodiamonds and 23 microdiamonds.

At the end of 2013, Snowfield Development ceased trading on the Alberta stock exchange.

**Bedrock and Mineral Deposit Geology**

The Drybones kimberlite is located within the Slave Geological Province and is hosted by tonalite and granodiorite of the Archean Defeat plutonic suite. The kimberlite has been dated circa 440 Ma. This diamondiferous kimberlite is the largest known in the NWT to date (approximately 900 metres by 400 metres - 22 hectares). Three phases have been described within the kimberlite; each is diamond bearing (Kretschmar, U. in Exploration Overview 1996).


The Mud Lake kimberlite is shallow-dipping and is comprised of multiple sheet-like layers with varying kimberlite thicknesses up to 10 meters wide. The known strike length is greater than 450 meters (Snowfield Development MD&A April 2013).

**Exploration**

Indicator mineral sampling northeast of Mud Lake has resulted in a strong indicator mineral train, that extends at least as far as Sipper Lake (one kilometer northeast of Mud Lake).

**Significant Results**

From 1995 to 1997, a total of 10 tonnes of kimberlite was processed from the Drybones Bay kimberlite. A total of 97
macrodiamonds (having a diameter of 0.5 mm or greater) were recovered; 71 of these diamonds had a diameter of 0.8 mm or greater (Dave Smith, pers. comm.). In January 1997, Trade Wind Resources Limited reported results from the bulk sample; as of that date, fifty-four macro-diamonds larger than 0.8 mm had been recovered (Exploration Overview 1997).

Two samples from the Drybones 2 kimberlite totaling a combined 250 kilograms contained 270 diamonds. Two of the largest diamonds measured .98mmX.75mmX.36mm and .87mmX.83mmX.14mm. Most of the diamonds are white and inclusion-free (New Shoshoni Ventures Annual Information Form, July 23, 2003 www.sedar.com).

Till sample results indicate that at least two further kimberlites are located north of the Mud Lake kimberlite (Snowfield Dev. Corp. News Release July 21, 2003).

References


NORMIN.DB (www.nwtgeoscience.ca) 085ISW0117

NTGS Assessment Reports 083341, 083428, 083627, 083884


www.sedar.com Shoshoni Gold MD&A June 28 2012


www.sedar.com Snowfield Development MD&A posted Nov. 7 2008

www.snowfield.com
### HOAM PROJECT

**Olivut Resources Ltd.**

**TSXV:** OLV

**OWNERSHIP:** 100%

**PRESIDENT AND CEO:** Leni Keough

**CORPORATE ADDRESS:**
P.O. Box 6690
HINTON, ALBERTA, T7V 1X8

**PHONE:** (780) 866-2226
**FAX:** (780) 866-3713
**EMAIL:** info@olivut.com

www.olivut.ca

| LOCATION: Claims are primarily dispersed over an area that extends from 5km to 65 km south of the community of Fort Simpson. |
| NTS AREA: 95H |
| LATITUDE/LONGITUDE: 61.6°N 121.3°W |
| DEPOSIT TYPE: Kimberlite pipes |
| RESOURCE ESTIMATION: To be determined |
| ACCESS: All-weather road to Fort Simpson, or Wrigley; float, or ski-equipped aircraft and helicopter |
| PROJECT STATUS: Available for option. |

### History

In the late 1970s DeBeers subsidiary, Diapros Canada Ltd. conducted regional stream sediment sampling, followed by till sampling in the area; this resulted in kimberlite indicator anomalies within till samples however, no kimberlite was found. In 1982 Chuck Fipke and Stu Blusson took 100 till samples in the area and followed up anomalies with more stream sediment sampling over the next couple of years. From 1984-1988 BP Resources Canada Ltd. carried out regional sampling in the Interior Plains south of Great Bear Lake all the way south to the NWT/Alberta border and from the edge of the Slave Structural Province over to the Mackenzie River. Numerous kimberlite indicator mineral anomalies were located east of the Mackenzie River and north of the Liard and Mackenzie Rivers. Between 1989 and 1991 BP Resources and Aur Resources jointly explored the area with airborne geophysics and till sampling. From 1992-1994 Aur Resources continued with exploration, but failed to find kimberlite. Jonpol Explorations Ltd. identified a highly prospective airborne magnetic anomaly in 1993, but failed to drill the target. Between 1994 and 1995 several other exploration programs were carried out by various companies including Major General Resources, SouthernEra Resources and Fortune Minerals however all of these failed to discover diamonds.

Olivut Resources commenced diamond exploration (till and stream sediment sampling) across the western part of the Interior Plain in 1993 and kimberlite indicator anomalies, with chemistry indicative of diamonds, were identified. An airborne magnetic survey was flown over some of the area in 1996 and several anomalies were identified west of the Liard River. Three of these anomalies were drilled and kimberlite was intersected in all holes (Pitman, 2014).

Olivut carried out an 11,379 line-km airborne magnetic survey in 2004; the interpretation of which lead to an application for 41 Prospecting Permits which were granted in 2005. The following year Olivut added 11 Prospecting Permits and an additional 33,119 line-km of airborne magnetics was completed. Twelve additional Prospecting Permits were issued in 2007 and 9,128 line-km of airborne geophysics was flown. Forty seven geophysical anomalies were identified from this work (AR 085422). The northern boundary of the permit areas...
was about 20 km south of the community of Deline, and the southern limit was about 15 km south of Fort Simpson.

Between 2006 and 2011 Olivut drilled 70 holes (totaling 8,565 metres) resulting in the discovery of 25 kimberlites (Pitman, 2014). Some of that work was filed as assessment work:

Olivut Resources filed assessment on 16 holes (totaling 1530 metres) drilled between 2007 and 2010; seven of the holes cut kimberlite. Hole DH303-01 tested anomaly 303, and cut 22.6 metres of overburden before intersecting 0.02-8.16 metre-wide kimberlite intervals interbedded with shale to 100.15 metres downhole. Hole DH 1309-01 and -02 (NAD 83 598059 E 6795204 N) cut multiple kimberlitic dykes from 0.08-10 metres in width. Hole 1310-02 NAD 83 595401 E 6783973 N) cut kimberlite from 39.13 – 58.41 metres downhole (AR 085526).

In September 2011, Olivut reported that they had discovered a total of 26 kimberlites on the HOAM property; four targets were tested by five holes in 2011 and three new kimberlites were intersected (Olivut Resources news release Sept. 2011).

During 2012 eleven holes, comprising 1,523 metres, tested eight targets and a new kimberlite was discovered. Kimberlite was cut from 32-120 metres and the hole ended in kimberlite (Olivut Resources news release Oct. 17, 2012). A 245-kilogram kimberlite core sample taken from this kimberlite was barren of diamonds (Olivut Resources news release Jan. 4, 2013). Further detailed airborne magnetic surveying was completed in September 2013 to assess moderate to high priority regional airborne anomalies; this identified seventeen targets worthy of follow-up.

During 2014 and early 2015 extensive analysis of geophysical data helped to define numerous new targets up ice from high interest kimberlite indicator mineral anomalies.

**Bedrock and Mineral Deposit Geology**

The project area lies within the Interior Platform geological province. Phanerozoic sedimentary rocks predominate in this sedimentary basin between the Cordillera to the west and the Canadian Shield to the east. The sedimentary cover overlies Precambrian basement and varies in thickness from a few hundred metres in the east to over two kilometres in the west. Quaternary deposits include till, and lacustrine sediments.

Historically, this area has been predominantly explored for oil and gas. The Norman Wells oil fields lie 150 km northwest of the HOAM project area (AR 085422).

The kimberlites that have been discovered have moderate to high magnetic signatures. However, these kimberlites do not have high-diamond-potential kimberlite indicator mineral chemistry. The source rock of these indicators (found in till samples) has still to be found (Pitman, 2014).

**Significant Results**

Microdiamond analyses of core samples from most of the kimberlites indicated the kimberlites were barren but six microdiamonds were recovered from core samples from three of the kimberlites (Pitman, 2014).

**References**

NTGS Assessment Reports 085422, 085526, 085678

Olivut Resources Ltd. News releases October 31, 2013; Dec.16, 2014


www.olivut.ca

www.sedar.ca
Kennady Diamonds Inc. was formed in 2012 to manage the land package (leases and claims) held by Mountain Province Diamonds Inc. north of the Gahcho Kué project. The property was known to host several kimberlite pipes, including the Kelvin, and Faraday. Those pipes were discovered in 2000, and 1999, respectively, by joint venture partners Mountain Province Diamonds Inc., DeBeers Canada Exploration Inc. and Camphor Ventures, following several years of diamond exploration.

The project property area is approximately 20 km long by 15 km wide.

Kennady Diamonds began drilling in 2012 and has carried out extensive drill programs since then. Drilling in 2013 and 2014 on the Kelvin target resulted in a 29.3-tonne sample of kimberlite that contained an average grade of 2.16 carats of diamonds per tonne of kimberlite. The drilling, guided by detailed geophysics, has allowed them to delineate the kimberlite pipes whose tube-like shape and shallow dip is unlike any pipes previously discovered in the Northwest Territories. Drilling in 2015 and 2016 on the Kelvin north lobe and Faraday pipes continued to explore the trend along strike and increased the certainty of data required for pipe evaluation.

Results from processing a 443-tonne bulk sample from the southeast lobe of the Kelvin pipe were reported in August 2015; the sample graded 2.02 carats per tonne. The largest diamond recovered from this sample weighed 4.22 carats.

A bulk sampling program in 2016 targeted the north lobe of the Kelvin kimberlite. This resulted in the recovery of 580 tonnes of kimberlite; results are pending. An earlier 2.7-tonne sample of the same lobe returned a sample grade of 2.74 carats per tonne of diamonds of commercial size.

A new kimberlite discovery within the Faraday cluster in 2016 brings the count to three (news release March 31).

During the first half of 2016 a dozen drill holes targeted the Hobbes kimberlite, located about 150 metres south of the Kelvin kimberlite. Kimberlite intercepts up to 11 metres in width were intersected.

Bulk sample results will be used for grade modeling and the first 43-101 mineral resource estimate (expected to be released in the second quarter of 2016).
Bedrock and Mineral Deposit Geology

The Kennady North project area is within the southeastern Slave geological province, just north of the Gahcho Kué project. The Kelvin pipe is located approximately eight km north of Gahcho Kué. Most of the kimberlite has intruded Archean metasediments and volcanic rocks and younger intrusive rocks. The kimberlite is believed to have been emplaced approximately 542 million years ago, during the Cambrian Period.

The Kelvin kimberlite pipe has been traced over at least 650 metres and has a tube-like structure. Its final dimensions are still being defined. The southern section varies from 30 to 40 metres in width and up to 100 metres in height and has a shallow dip; the width increases to 60 metres and the height increases to up to 200 metres in the north. The southern part of the pipe trends east-west, where it outcrops below Kelvin Lake and dips gently to the northwest; farther north, near the western edge of Kelvin Lake, the pipe bends and follows a northwest trend. The pipe can be divided into four phases, each with varying geological characteristics and diamond grade. In addition to the main pipe there is an 8-10 metre wide kimberlite sheet that is an offshoot from the main pipe.

Faraday 1 is a pipe-like, northwest-dipping kimberlite that has been traced over a strike length of 160 metres. The Faraday 2 kimberlite strikes northwest and has been traced over a distance of approximately 400 metres. It varies in width from 15 metres in the southeast to 150 metres in the northwest and is shaped like a plunging tube. The Faraday 3 kimberlite requires further work in order to evaluate the shape, extent and grade.

Exploration

Kennady Diamonds is continuing to drill along the Kelvin and Faraday corridor in an attempt to define the limits of the kimberlite and to identify a mineable resource.

Significant Results

Selected bulk sample results for the Kelvin kimberlite (north lobe and southeast lobe), Faraday 1 kimberlite and Faraday 2 kimberlite are listed below. A 580-tonne sample was taken from the Kelvin north lobe kimberlite in 2016 (April 25, 2016).

Kelvin kimberlite:
- 2.57 carats per tonne returned from 5.0 tonnes north lobe (Jan. 26, 2015)
- 2.02 carats per tonne returned from 443 tonnes southeast lobe (Aug. 26, 2015)

Faraday 1 kimberlite:
- 4.65 carats per tonne returned from 0.52 tonnes (Feb. 18, 2016)

Faraday 2 kimberlite:
- 3.04 carats per tonne returned from 6.4 tonnes (Feb. 16, 2016)
- 2.69 carats per tonne from 21.1 tonnes (July 25, 2016)

References


NORMIN.DB (www.nwtgeoscience.ca) 075NSW0006; 075NSW0005

NTGS Assessment Report 085741 (geophysics)


www.sedar.com Kennady Diamonds
**MUNN LAKE / MACKAY LAKE**  
Zimtu Capital Corp. and DG Resource Management  
**DIAMONDS**  
Kimberlite-hosted

**OWNERSHIP:**  
100% DG Resource Management and Zimtu Capital Corp.  
DG Resource Management (private company)  
www.dgrm.co  
Zimtu Capital Corp.  
TSXV: ZC

**PRESIDENT AND CEO:**  
David Hodge

**CORPORATE HEADQUARTERS:**  
Zimtu Capital Corp.  
Suite 1450 - 789 West Pender Street  
VANCOUVER, BC V6C 1H2

**PHONE:** (604) 681-1568  
**FAX:** (604) 681-8240  
**EMAIL:** dhodge@zimtu.com  
www.zimtu.com

**LOCATION:**  
200 kilometres northeast of Yellowknife

**NTS AREA:**  
75N/11, 12

**LATITUDE/LONGITUDE:**  
63.7083°N 109.8333°W

**RESOURCE ESTIMATION:**  
To be determined

**ACCESS:**  
Float or ski-equipped aircraft

**ALIAS(ES):**  
Mackay Lake/ Back Lake

**PROJECT STATUS:**  
Available for option.

**History**

From July 1992 through until July 1994, an extensive exploration program was carried out by SouthernEra Resources, Kennecott Canada, and Kalahari Resources. In 1994, SouthernEra Resources and Kalahari Resources had a 9,000 line-km Aerodat helicopter-borne geophysical survey flown over the Mackay Lake property. They collected six till samples down-ice from each of the sixty-four geophysical anomalies that had been identified from the airborne, and performed ground geophysics on fifteen targets. Three diamond drill holes tested anomalies (AR 083358).

In 1995, SouthernEra Resources, Kennecott Canada, and Kalahari Resources collected 2,500 till samples. Anomalous samples indicated five indicator mineral trains. Kimberlite fragments were found in the till from one of these trains. A number of sample concentrates also contained gold. Approximately 800 line-km of airborne geophysics was flown, and some follow-up ground geophysics completed. Two holes totaling 600 metres tested one target and one hole intersected two kimberlite dykes (EO 1995).

During 1996, the joint venture partners collected 1,800 till samples, had a 2,500 line-km airborne geophysical survey flown, performed ground geophysics, and drilled nine diamond drill holes totaling 1,100 metres. Four narrow kimberlite dykes, 0.2 to 2.0 metres in width, were intersected by drillholes (EO 1996, AR 083904). Due to the narrow widths intersected, none of the kimberlite was sent for analysis.

In 1997, 1700 till samples were collected. Five diamond drill holes intersected narrow kimberlite dykes. Seven diamonds were recovered from a 39.6 kilogram kimberlite sample. Kimberlite was found during till sampling; its source may be from nearby Munn Lake.

Work continued in the Back Lake project area as a joint venture between SouthernEra Resources (60.4%), Kalahari Resources Incorporated (26.82%), and Island-Arc Resources Corporation (12.78%). In 1998, 396 till samples were collected to try to define three weak indicator mineral trains (EO 1998).

Twenty diamond drill holes were completed in 1999, which helped to delineate the Munn Lake sill. The sill strikes northwest and has a shallow dip. It was traced over 1.3 kilometres and found to vary in thickness between 0.6 – 12 metres.

During 2000, in an attempt to intersect the down-dip extension of the NW Dyke at Snap Lake on the property, two deep holes were drilled. The Snap Lake dyke was intersected in several intervals between 1261m and 1316 m depth over a combined thickness of 4.55 m. It may be the northeast extension of the diamondiferous Snap Lake kimberlite dyke.

In July 2002, an airborne geophysical survey identified two high interest targets as possible kimberlite sources. In 2003, sixteen grids were established and surveyed; of 140 samples taken, 12 returned positive results. The North Margaret Lake indicator train is up to 300 metres wide and 7 kilometres long. Some samples returned up to 159 indicators. The south indicator train is up to 250 metres wide and 4 kilometres long. Four diamond drill holes were completed but no kimberlite was intersected.
SouthernEra performed 153.39 line-km of magnetic and HLEM surveys and took 176 till samples during 2004. Eight till samples returned Au values exceeding 100 ppb, one sample returned 48,390 ppb. A detailed soil geochemical sampling program was recommended (Naeher, 2004). Three holes, totaling 367.5 metres failed to intersect kimberlite.

During 2005 exploration consisted of 76.59 line-km of magnetic and HLEM surveys, the collection of 85 till samples, the processing of 726 mobile metal ion (MMI) samples and diamond drilling (one hole (110m)). The hole failed to intersect kimberlite. The following year ground magnetometer, HLEM and gravity surveys tested anomalies; six holes (totaling 798 m) tested the West Munn Indicator Train, Munn Lake Sill N-Extension and North Margaret Indictor train areas. No kimberlite was intersected. SouthernEra planned to follow-up on two indicator mineral trains in 2007.

At the end of 2007, Mwana Africa PLC acquired SouthernEra Diamonds and SouthernEra ceased to trade on the Toronto Stock Exchange. In 2009 Mwana Africa sold its Canadian exploration properties to Mantle Diamonds, a private exploration company. The claims were allowed to lapse and the property was restaked in the first half of 2014.

On July 25, 2014, Prima Diamond Corp. (Prima) optioned the Munn Lake Diamond Property from DG Resource Management Ltd. (a private company) and Zimtu Capital Corp. Prima did not receive venture exchange approval for the option agreement and during the three months ended January 31, 2016 Prima decided to drop the option. Prima Diamond Corp. changed its name to Voltaic Minerals Corp. in mid-April 2016. Zimtu Capital and a partner carried out till sampling in late August 2015 (Zimtu News Release). Results of the work were not released.

**Bedrock and Mineral Deposit Geology**

The property is within the Slave Structural Province and is underlain by metasediments and volcanics of the Yellowknife Supergroup. These rocks have been intruded by granite, granodiorite, hornblende diorite, and quartz diorite. A five kilometre wide NE-SW trending belt of injection gneiss lies between the granodiorite and the metasediments. Brecciated kimberlite and granite were intersected by drillholes. The kimberlite is steeply dipping and contains ultramafic fragments up to 3 cm in size. Hematite, chlorite and serpentine alteration are common (AR 083904).

**Significant Results**

In 1999, a 42-kilogram sample from the Munn Lake sill returned 2 macrodiamonds and 12 microdiamonds (EO 1999). In 2004 eight till samples returned Au values exceeding 100 ppb, one sample returned 48,390 ppb gold.

**References**


DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 8, 9

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-7

DIAND NWT Geology Division Staff, (1998) ‘Slave Province-Diamond Activity’ in Exploration Overview 1997 Northwest Territories, Department of Indian Affairs and Northern Development, Yellowknife, p. 2-6


NTGS Assessment Reports 083904, 083358, 084705, 084825


www.sedar.com Mwana Africa PLC Annual Report 2009


www.southernera.com
History

The claims were staked in late May and June of 1992 by Covello, Bryan and Associates. Adex Mining Corporation optioned the property and then entered into joint venture agreements. In 1992 and 1993, till samples were collected and 5,184 line-km of airborne geophysics was flown. In 1994, SouthernEra Resources, in a joint venture with Winspear Resources Limited and Adex Mining Incorporated, collected 200 till samples, had a 950 line-km detailed airborne geophysical survey flown, and performed ground magnetic and HLEM surveys. Fourteen holes were drilled totaling 3,500 metres to test anomalies; the Nicholas Bay kimberlite was found and three holes were drilled into it. Initial results from a 230-kilogram sample were four macrodiamonds and 176 microdiamonds (AR 083333). Seven additional holes were drilled into the kimberlite. The kimberlite core was split and one half (120 kg) was sent for analysis (AR 083701).

Diamondex Resources, in a joint venture with Shear Minerals, collected 75 till samples on the Aylmer West property in 2000. An attempt was made to define the indicator mineral train associated with the Nicholas Bay pipe (AR 084315). In late summer 2000, previously drilled core (1994) was re-logged and 127.7 kilograms of core, which had not previously been sampled, was sent for caustic fusion analysis. This resulted in the recovery of 1,174 microdiamonds and six macrodiamonds.

In May 2001, a new kimberlite, (the NIC 2 kimberlite) was discovered immediately east of the Nicholas Bay kimberlite. The NIC 2 kimberlite dyke is approximately 1.6 metres wide. The coincident magnetic and EM anomaly that led to its discovery has dimensions of 125 metres by 50 metres. A 4.85-kilogram sample from Nic 2 contained 2 macrodiamonds and 25 microdiamonds.

A limited number (eight in total) of till and beach sediment samples were taken in 2003 and geophysical anomalies were ground-truthed. Two samples contained indicator minerals (AR 084654).

In 2004, Shear Minerals completed ground geophysical programs and two drill programs on the Nicholas Bay property. Two targets were drill tested and no kimberlite was intersected.

At the end of 2009 Diamondex Resources Ltd. changed its name to Canterra Minerals Corp.; Shear Minerals changed its name to Shear Diamonds Ltd. at the end of 2010.

The claims overlapping the Nicholas Bay kimberlites were cancelled in November 2014; the area is available for staking as at July 15, 2016.
Bedrock and Mineral Deposit Geology

The area is within the Slave Structural Province and is underlain by metasediments of the Yellowknife Supergroup intruded by granitic plutons. Later diabase dykes crosscut the region. The Nicholas Bay kimberlite pipe has a complex shape. The pipe contains hypabyssal, olivine macrocrystic kimberlite, and brecciated kimberlite (20% to 40% granitic and metasedimentary fragments in a kimberlitic matrix) (AR 083701).

Significant Results

During the second phase of drilling in 1994, only 120 kilograms of core was analyzed; thirty-three microdiamonds were recovered. After further study of the core in 2000, an additional 127.7 kilograms of kimberlite core was analyzed and six macrodiamonds and 1,174 microdiamonds were recovered. The largest stone measured 0.68mmX0.64mmX0.56mm.

References


NORMIN.DB (www.nwtgeoscience.ca) 076CSE0009

NTGS Assessment Reports 083701, 083333, 084315, 084569, 084654


www.sedar.com Shear Diamonds Ltd.
**ROUNDROCK**  
Stornoway Diamond Corp.  
**DIAMONDS**  
Kimberlite-hosted

Ashton Mining (Northwest Territories) Ltd.  
(a subsidiary of Stornoway Diamond Corp.)

**OWNERSHIP:**  
100% Stornoway Diamond Corporation  
Stornoway Diamond Corporation

**TSX:**  
SWY

**PRESIDENT:**  
Matt Manson

**V. P. EXPLORATION:**  
Robin Hopkins

**EXPLORATION OFFICE:**  
Stornoway Diamond Corporation  
118-980 West 1st Street  
NORTH VANCOUVER, BC V7P 3N4

**PHONE:**  
(604) 983-7750  
**FAX:**  
(604) 987-7107  
**EMAIL:**  
info@stornowaydiamonds.com or  
receptionnv@stornowaydiamonds.com

www.stornowaydiamonds.com

**LOCATION:**  
220 kilometres north of Yellowknife

**NTS AREA:**  
86A/6

**LATITUDE/LONGITUDE:**  
64.3310°N 113.374°W (Aquila kimberlite)

**RESOURCE ESTIMATION:**  
To be determined

**ACCESS:**  
Float or ski-equipped aircraft

**PROJECT STATUS:**  
Two claims were taken to mining lease in 2002.

---

**History**

The claims were recorded in December 1992. Between 1992 and 1994, Canamera Geological Limited performed exploration on the claims for Texas Star Resources Corporation in joint venture with Lytton Minerals. A 3,932 line-km airborne geophysical survey was flown and 644 heavy mineral samples were collected and analyzed (AR 083424). During 1995, exploration was carried out by Ashton Mining, in a joint venture with Lytton Minerals Limited and Pure Gold Resources Incorporated. The claims are registered to Star Resources Corporation. In 1995, one hundred and seventeen heavy mineral samples were taken and detailed geophysical surveys were performed. The kimberlitic source of the indicator minerals was narrowed down to south of Roundrock Lake (AR 083657).

In 1996, a 19.2 line-km ground magnetic survey was completed and the Aquila pipe was drilled. Five holes totaling 483 metres were drilled. The kimberlite was found to be diamondiferous; a 50 kilogram sample contained 9 microdiamonds and a 75 kilogram sample contained 7 microdiamonds and 3 macrodiamonds. A heavy mineral sampling program was also carried out (EO 1996, AR 083803).

In 1997, a 432 line-km airborne survey was flown and two diamond drill holes further tested the Aquila pipe. The pipe was found to be irregular in shape, in fact the kimberlite was found to be a set of steeply dipping subvertical dykes less than three metres in width and the total volume of kimberlite was small. Two other holes, drilled 500 metres and 1500 metres north of the Aquila pipe, intersected kimberlite dykes up to three metres thick; five other holes were barren. One hundred and eighty-nine heavy mineral samples were taken and analyzed, and several distinct indicator mineral trains were delineated around the Aquila kimberlite (AR 084017).

In 1998, the project was being operated by Ashton Minerals in joint venture with Lytton Minerals Limited, Pure Gold...
Minerals Incorporated, Paramount Ventures and Finance Incorporated, and Silverarrow Explorations Incorporated. Numerous detailed heavy mineral samples were taken (AR 084172).

During 1999, numerous heavy mineral samples were taken and anomalous samples defined mineral trains near the Aquila pipe that did not seem to originate from it (AR 084270).

During 2000, the Cygnus pipe was discovered. It is approximately 125 metres east of the Aquila kimberlite. Two holes intersected the kimberlite and an eighty-eight kilogram sample was sent for analysis, resulting in eight microdiamonds. A mini bulk sample was taken (EO 2000). A heavy mineral sampling program was also carried out (Ashton Minerals News Release). Ashton Mining became a subsidiary of Rio Tinto in December 2000.

During 2002, indicator mineral sampling was conducted and two claims were brought to lease (Ashton Mining of Canada 2002 Annual Report). Limited till sampling was carried out in subsequent years.

Stornoway Diamond Corp. acquired Ashton Mining of Canada Inc. in early 2007. Minor exploration work was carried out by Stornoway however no work has been filed with the government. As at July 15, 2016 Ashton Mining (Northwest Territories) Ltd. continues to hold the leases.

**Bedrock and Mineral Deposit Geology**

The claims lie within the Slave Structural Province and are underlain primarily by granitic plutons, which have intruded metasediments; diabase dykes crosscut all rock types.

The Aquila kimberlite is composed of a series of sub-vertical kimberlite dykes. Kimberlite dykes up to 1.5 metres in width splay off wider (up to 3-metre) intervals of kimberlite. A 20-28 metre thick granitic contact-breccia cap rock lies above the kimberlite.

The Cygnus kimberlite is approximately 20 metres wide and relatively flat-lying. Approximately 35 metres of granitic contact-breccia cap rock overlies the kimberlite, in addition to several metres of overburden. The kimberlite displays characteristics of both hypabyssal and diatreme facies and the cap rock contains kimberlite veinlets.

**Significant Results**

Nineteen diamonds were recovered from 134.2 kilograms of kimberlite; six of these are macrodiamonds (AR 083803).

---

**References**

Ashton Mining of Canada Annual Reports, News Releases
DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, NWT Geology Division, Yellowknife, p. 5
DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-3

NORMIN.DB (www.nwtgeoscience.ca) 086ASW0001, 086ASW0002
NTGS Assessment Reports 084017, 083803, 083657, 084172, 084270

www.sedar.com Ashton Mining of Canada Inc.
www.sedar.com Stornoway Diamond Corp.
SNAP LAKE
De Beers Canada Incorporated

DE BEERS CANADA
INCORPORATED SOUTH AFRICAN
EXCHANGE:
DBR

CEO DEBEERS CANADA:
Kim Truter

CHIEF OPERATING OFFICER:
Glen Koropchuk

OWNERSHIP:
100% De Beers Canada Inc.

REGIONAL OFFICE:
De Beers Canada Inc.
Suite 300 5120 49th Street
YELLOWKNIFE NT X1A 1P8

PHONE: (867) 766-7300
FAX: (867) 766-7347
www.angloamerican.com
www.debeerscanada.com

LOCATION:
220 kilometres northeast of Yellowknife

NTS AREA:
075 M/10

LATITUDE/LONGITUDE:
63.5925°N, 110.7281°W

DEPOSIT TYPE:
Kimberlite dyke

RESOURCE ESTIMATION:
Measured and Indicated resource of 4.1 Mt at 1.8 ct/t and an inferred resource of 16.6 Mt at 1.77 ct/t (*)

ESTIMATED TOTAL MINE LIFE:
20 years (under care and maintenance since December 2015)

MINING METHOD:
Underground

ACCESS:
Aircraft; winter road

PROJECT STATUS:
On Care and Maintenance. Available for purchase.

(*) Resource grades are as at December 31, 2015 and are estimated with a cut-off of 1.5 mm. Diamond Resources are in addition to Diamond Reserves (see below).

History

Antler Resources Limited first staked the Property in 1991. In 1992, a joint venture agreement between Winspear Resources Limited, Antler Resources Limited, and Aber Resources Limited was struck to explore the property. By the summer of 1993, kimberlite indicator minerals had been identified at several areas on the property, leading the partners to conclude a kimberlite body lay under Snap Lake; diamond drilling commenced (AR 083457).

A double-lobed kimberlite pipe was discovered on the property in 1995 (AR083638), and a gently dipping relatively thick kimberlite dyke was also found (AR 083801). In January 1997, Antler Resources Limited amalgamated with Winspear Resources Limited. Due to encouraging results from initial sampling (good diamond quality, size and quantity), a decision was made by the joint venture to proceed with bulk sampling and preliminary mine planning of the dyke (AR 084012). H. A. Simons undertook a preliminary scoping study on the NW kimberlite dyke in 1998. This study suggested that the kimberlite dyke could be mined successfully with a satisfactory rate of return to the partners.

During the 1998 spring season, a 200-tonne sample was taken; results from this sampling were favourable and a decision was made to commence with the extraction of a 20,000 tonne sample. A three-year, 20,000-tonne bulk sample project was planned and sampling commenced in winter 1999. Also in 1999, two holes totaling 623 metres were drilled on the southwest side of Snap Lake (these confirmed the presence of the Snap Lake kimberlite at this location), and two holes totaling 155 metres were drilled northwest of Snap Lake, those holes did not intersect kimberlite (AR 084264).
In March of 2000, exploration investment was expanded to include underground development of the dyke; an underground decline reached the dyke in August of 2000. Approximately 8,000 tonnes of kimberlite were bulk-sampled. During the summer, MRDI completed a mineral resource estimate and concluded that the NW Dyke comprised an indicated resource of 21.6 Mt at 1.9 carats/tonne and an inferred resource of 24 Mt at 1.9 carats/tonne. Winspear Resources Limited changed its name in May 2000 to Winspear Diamonds Incorporated. The following month, De Beers Canada Corporation put forward an offer to purchase Winspear Diamonds Incorporated and the sale was completed on August 25, 2000.


Pre-production development began in June 2004, following receipt of final regulatory approvals. Snap Lake Mine was De Beers’ first mine outside of Africa and Canada’s first fully underground diamond mine.

Beginning in June 2004, the underground mine was dewatered and the power and ventilation systems installed. Modifications to the bulk sample plant were completed and over 100 underground samples were taken for processing and analysis. A new water treatment plant was installed and tested.

Construction was in full swing throughout 2005 and 2006. Underground development proceeded and the construction of the conveyor tunnel and the four access points to the tunnel was finished in early fall 2006. Two sections of the conveyor decline were joined and the overall decline was finished in mid-November. A 1.5 km access system from the surface to the bottom of the mine was also completed. During the winter, excavation continued for the crusher room, the pump room for the main dewatering system, and on the conveyor drift.

Construction in 2007 focused on completing the underground crushing chamber, installing the underground crusher, and completing the installation of all buildings and systems. Commissioning of the main process plant began in the summer of 2007. The first diamonds were produced in August 2007. The mine commenced commercial production in mid-January 2008, however the official mine opening took place on July 25, 2008. When it opened and for several years following its opening Snap Lake Mine was projected to have a mine-life of 20 years.

Anglo American Plc, increased its ownership of De Beers to 85% in 2012; the remaining 15% stake is owned by the Government of the Republic of Botswana.

Kimberlite mining was challenged by the large volume of salty groundwater that entered the kimberlite through fractures. The water was difficult to manage due to water license specifications regarding water quality; in addition the water influx effected the stability of the underground support system. An amendment to the water license was applied for and finally granted in 2015. In 2014 forest fires also resulted in lower diamond production because the fresh-air intake was compromised by poor air quality.

In 2015 approximately 375 people were employed on-site at Snap Lake Mine (750 people working two-week rotations). The mine was placed into care and maintenance on December 4, 2015. An extended Care and Maintenance Plan was approved in June 2016 whereby the mine will be flooded.

**Bedrock and Mineral Deposit Geology**

The Snap Lake kimberlite is found on the northwest shore of Snap Lake and extends to the southeast under the lake. It is hosted within sediments and volcanics of the Yellowknife Supergroup. This kimberlite body is relatively flat-lying (dipping at approx. 15°NE) and is known as the NW dyke. The dyke has an average thickness of 2.7 metres, however, its total extent has not yet been defined. Two kimberlite pipes have been found close to the eastern boundary of the Camsell Lake property 34 kilometres east of Snap Lake; these are known as the CL 25 and CL 174 pipes.

**Development & Production Plans**

The ore is mined using a room and pillar method. Kimberlite is hauled underground to a crusher; crushed ore is then transported via a conveyor system from underground to the process plant on site. The initial plan was to use a tailings paste back-fill with approximately 55% of the tailings returned underground for disposal, however that has not been achieved and it is estimated that less than 30% of the tailings will be disposed of in this way.
**Production**

In 2015 Snap Lake produced 1.24 million carats of diamonds, an increase of 0.04 million carats over 2014.

**Reserves**

As at December 31, 2015, Snap Lake Mine contained probable diamond reserves of 5.7 million tonnes averaging 1.26 carats per tonne; in addition there were 4.1 million tonnes with an average grade of 1.78 carats per tonne in the indicated mineral resource category. There is also an inferred mineral resource of 16.6 million tonnes grading 1.76 carats of diamonds per tonne (Anglo American Plc. Annual Report 2015, p. 178).

**Prospective Kimberlite**

Canterra Minerals Corporation owns mining leases and claims (the King property) adjacent to, and primarily north of, leases held by DeBeers Snap Lake Mine. In 2001, a total of 9,472 metres were drilled in an attempt to intersect the Snap Lake kimberlite dyke at depth. Kimberlite intercepts (up to 1.61 metres wide) were intersected at vertical depths varying from 1169 to 1447 metres below surface. The kimberlite is macrocrystic and interpreted as being hypabyssal. It is hosted in a foliated (to locally massive) granodiorite. Narrow, typically 1-10 cm wide sub-parallel kimberlite dykelets are commonly found up to 70 m above the main kimberlite intersection; the frequency and abundance of these dykelets tend to increase closer to the main kimberlite (Diamondex Resources Limited Technical Report May 16, 2003). At the end of 2009 Diamondex Resources Ltd. changed its name to Canterra Minerals Corp.

**References**


DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 9

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-7


NORMIN.DB (www.nwtgeoscience.ca) 07SMNE0018

NTGS Assessment Report 083457, 083638, 083894, 084012


www.debeerscanada.com

www.debeersgroup.com news releases, production reports

www.mvlwb.ca

www.sedar.com Canterra Minerals Corp.
WO PROPERTY AND DO-27
Peregrine Exploration Limited

Peregrine Exploration Limited
(a wholly owned subsidiary of Peregrine Diamonds Ltd.)

TSX:
PGD

PRESIDENT AND CEO (PEREGRINE EXPLORATION LTD.):
Tom Peregoodoff

OWNERSHIP:
as of May 2014
Peregrine Diamonds Ltd. = 72.097%
Archon Minerals Limited = 17.569%
DHK Diamonds Inc. = 10.334%
(DHK is a corporation owned by three companies:
Dentonia Resources Ltd., Cosigo Resources Ltd., Kettle River Resources)

CORPORATE HEADQUARTERS:
654 – 999 Canada Place
VANCOUVER BC V6C 3E1

PHONE: (604) 408-8880
FAX: (604) 408-8881
EMAIL: info@pdiam.com
www.pdiam.com

DIAMONDS
Kimberlite Pipe

LOCATION:
300 kilometres northeast of Yellowknife, 23 km southeast of Diavik Diamond Mine

NTS AREA:
076C/05

LATITUDE/LONGITUDE:
64.1934°N 109.4904°W
(Do-27 Kimberlite 64.3244°N 109.8147°W)

RESOURCE ESTIMATE:
DO-27 (as at August 7, 2008 and July 15, 2014)
contains an indicated mineral resource of 19.5 million tonnes with an average grade of 0.94 carats per tonne

ACCESS:
Float or ski-equipped aircraft, seasonal ice road
(11 km east of the Tibbitt to Diavik Diamond Mine ice road)

PROJECT STATUS:
Available for option.

History
The DO-27 kimberlite was discovered in 1993 by Kennecott Canada Exploration Inc. (Kennecott) and partners, and returned extremely promising microdiamond results through core drilling. Kennecott moved directly to an underground bulk sampling program in 1994. This bulk sample was conducted via an underground drift into the northeastern portion of the DO-27 kimberlite. Due to geotechnical difficulties the main vent of the pipe was not sampled. An average grade of 0.36 carats per tonne was obtained and Kennecott converted their interest to a 1% Gross Overriding Royalty and departed the project.

BHP Billiton Inc. acquired a 39.4% interest in 2001, with an option to increase this interest to 54.475% by funding the completion of a 200-tonne bulk sample of DO-27. Three years later, BHP Billiton sold its interest in the DO-27 Project to Peregrine Diamonds Ltd. (Peregrine).

Peregrine completed six large diameter reverse circulation drill holes in the DO-27 Main Vent, during the early part of 2005, directly sampling the suspected higher-grade zone. This resulted in approximately 151 dry tonnes of kimberlite, which was subsequently processed at the Ekati™ Diamond Mine and returned an average grade of 0.98 carats per tonne (Peregrine June 14, 2005, news release). Three separate valuations on the diamonds recovered from the 2005 bulk sample were performed by BHP Billiton Diamonds Ltd., Rio Tinto Diamonds, and Aber Diamond Corp. and gave average values for the entire parcel of US$53 to US$67 per carat (Peregrine August 29, 2005 news release).

During the winter of 2006, Peregrine completed twelve large diameter RC drill holes, totaling 2,424 metres, and extracted 548 dry tonnes of kimberlite. This returned an average grade of 0.88 carats per tonne from the Main Vent and a grade of 0.85 carats per tonne from the northeastern portion of the kimberlite. A total of 8,855 diamonds were recovered using a 1 mm sieve-size cut-off. Of this total, 49 diamonds larger than 0.5 carat and 13 diamonds greater
than one carat were recovered. The five largest stones recovered were: 7.11, 3.91, 2.34, 2.11 and 1.83 carats (Peregrine September 5, 2006, news release).

An independent valuation report was prepared by WWW International Diamond Consultants Ltd. on the combined 2005 and 2006 diamond parcels, comprising 508.9 carats (from the Main Vent and the North East Lobe pyroclastic kimberlite); the average price of the parcel was US$52 per carat (Peregrine news release November 6, 2006).

A bulk sampling program was carried out on DO-27 in 2007 to increase the certainty regarding the presence of large diamonds. The bulk sample tonnage was obtained from 28 large diameter (24”-28”) drill holes completed to a maximum depth of 295 metres below surface.

Ground magnetic surveys were carried out on specific targets in 2011 and 2012. In addition, in 2012, Peregrine drilled four holes, totaling 478.33 metres, to test three geophysical anomalies; two diamondiferous kimberlites, LD-2 and LD-3 were discovered.

Peregrine Diamonds transferred its Lac De Gras property holdings to Peregrine Exploration Ltd. (a wholly-owned subsidiary of Peregrine Diamonds) in March, 2015. The 2014 Technical Report shows nine kimberlites within the company’s lease block boundary.

**DO-18**

The 4.8-hectare DO-18 diamondiferous kimberlite is located approximately 700 m north of DO-27. In 1993, Kennecott drilled DO-18; 242 metres of core resulted in a microdiamond grade of 1.42 carats of diamonds per tonne. During the fall of 2005, Peregrine drilled eight holes, totaling 1,353 metres, to define the geology and test DO-18’s diamond content. In the fall of 2006, six diamond drill holes, totaling 1,770 metres, tested the pipe.

**Bedrock and Mineral Deposit Geology**

The WO Property, in the vicinity of Lac De Gras, lies within the Slave Geological Province, an Archean segment of the North American Craton, which is composed primarily of granites, gneisses, and supracrustal rocks. The property hosts several diamondiferous kimberlites, including the DO-27 and DO-18 pipes.

The nine-hectare DO-27 pipe has a steep western margin and a shallower eastern margin in the northeastern part of the pipe. The kimberlite complex comprises pyroclastic, magmatic and volcaniclastic units and an earlier hypabyssal sheet system (in contrast to the DO-18 kimberlite which contains mainly volcaniclastic units).

**Exploration**

An additional 6.5-8.5 million tonnes of kimberlite below the Indicated Resource is classified as a target for further exploration and DO-27 remains open at depth (Peregrine Diamonds 2014 Technical Report).

In 2015 the Northwest Territories Geological Survey conducted a surficial mapping and kimberlite indicator mineral study; approximately 50 small-diameter reverse circulation drill holes were scheduled to be completed on Peregrine’s mining leases.

**Significant Results**

The 2007 bulk sample, totaling 2,651 wet tonnes of kimberlite, resulted in an average modeled grade for the Main Lobe pyroclastic kimberlite of 0.89 carats per tonne. This Main Lobe PK lithology represents at least 80 percent of the DO-27 kimberlite complex. Eighteen percent of the 2007 diamond parcel, by weight, is composed of stones greater than 0.50 carat.

In total, 18,371 diamonds greater than approximately 1.1 millimeter, comprising 1,724.57 carats, with an average stone size of 0.094 carats per stone, were recovered from approximately 2,520 dry tonnes of kimberlite from all lithologies in the Main and Northeast Lobes of DO-27 in the 2007 bulk sample. Seven of the diamonds recovered in 2007 weighed at least 4.19 carats to a maximum of 9.45 carats; one fancy yellow 4.35 carat gem-quality diamond was recovered.

DO-27 (as at June 24, 2008) contains an indicated mineral resource of 19.5 million tonnes with an average grade of 0.94 carats per tonne (based on several assumptions including a conceptual mining shell using a diamond price of US$72/Carat; see Peregrine Diamonds Technical Report July 15 2014).

**References**

NORMIN.DB (www.nwtgeoscience.ca) 076CSW0010 DO-27; 076CSW0009 DO-18

NTGS Assessment Reports 083277, 085180, 085316

www.pdiam.com

YAMBA LAKE / TORRIE / TRICERATOPS

Arctic Star Exploration Corp.

TSXV: ADD

PRESIDENT: Patrick Power

V. P. EXPLORATION: Buddy Doyle

OWNERSHIP: 100%

CORPORATE HEADQUARTERS: Arctic Star Exploration Corp.
Ste. 1400 – 1111 West Georgia Street
VANCOUVER, BC V6E 4M3

PHONE: (604) 689-1799
FAX: (604) 689-8199
EMAIL: info@arcticstar.ca

www.arcticstar.ca

LOCATION:
Yamba Lake area, 350 kilometres northeast of Yellowknife, 31 km northwest of Ekati Diamond Mine

NTS AREA:
076E/3

LATITUDE/LONGITUDE:
65.025°N, 111.0222°W

RESOURCE ESTIMATION:
To be determined

ACCESS:
Float or ski-equipped aircraft

PROJECT STATUS:
Exploration is on-going. Available for option.

History

During 1993, Tanqueray Resources Limited, in joint venture with Mill City Gold Mining Corporation and Fibre-Klad Industries Limited, had a 3,370 line-km airborne geophysical survey flown, and collected and analyzed heavy mineral samples on the Yamba Lake property. In September 1993, an initial drill program intersected the Torrie, Sputnik, and Sue kimberlite pipes. These pipes were found to be diamondiferous (AR 083261).

In July 1994, De Beers entered into a joint venture agreement with Tanqueray Resources Limited, Mill City Mining Corporation, and Fibre-Klad Industries to explore and develop the property. Detailed work commenced on the three pipes and soon focused on the Torrie kimberlite. Two new pipes were also discovered in 1994 (AR 083482). The total number of diamonds recovered from a 24.5 tonne sample was 19 for a total of 0.635 carats (NM Aug. 1998). Monopros terminated the joint venture in March 1995, after disappointing results from the Torrie Pipe.

Cypango Ventures Limited entered into a joint venture on the property in June 1996. They took 350 heavy mineral samples as follow-up to previous sampling and performed 1:10,000 scale mapping; numerous indicator mineral trains were located. Further drilling in 1997 resulted in the discovery of the T-10 kimberlite. Initial sampling of T-10 resulted in the recovery of 62 microdiamonds, and six macrodiamonds from an 83.6-kilogram sample. Two HQ-sized holes tested the Torrie pipe; the estimated grade of the pipe stands at .039 carats per tonne (AR 084016). This joint venture agreement was also terminated.

A new joint venture was formed in August 1998 between Tanqueray Resources Limited, Mill City International Incorporated, Techsite Strategies (formerly Cypango Ventures Limited), and SouthernEra Resources Limited. Cypango Ventures Limited changed its name to Techsite Strategies Corp. in October 2000.
During 1998, one thousand till samples were collected and indicator minerals were found down-ice of the S-141 pipe (AR 084284).

SouthernEra re-drilled the T-10 kimberlite during the winter of 1999, and recovered two microdiamonds and 1 macro-diamond from 86.2 kilograms of material. Interpretation of this data suggested that the T-10 kimberlite was composed of several phases, which could account for the difference in diamond counts (SouthernEra press release July 1999). An 8,000 line-km high-resolution airborne magnetic and EM survey was flown over the property and 48 ground geophysical surveys were performed. Six targets were drilled.

Up until the year 2000, a total of six diamondiferous kimberlites were discovered on the property; Sputnik, Sue, Torrie, Eddie, Ptarmigan, and T-10. During 2000, an additional 49 till samples were collected, ground geophysics was carried out over 35 airborne geophysical anomalies, and seven targets were drilled. Kimberlite was intersected in one area (an approximately 30-centimetre wide intersection) and a second hole was drilled; small kimberlite dykes were intersected.

During 2001, ground geophysics was performed over 25 grids, 49 till samples were collected, and four geophysical anomalies were drilled. The drilling did not intersect kimberlite (Tanqueray Resources Annual Information Form, June 20, 2002).

Sixteen diamond drill holes were completed between April and August 2002; four holes tested the Sue pipe, one tested the Sputnik pipe, three holes tested the Eddie pipe, and eight tested airborne geophysical targets. A combined total of 716.9 kilograms of kimberlite from the Sue kimberlite yielded 214 diamonds (SouthernEra News Release Oct. 29, 2002). Seventeen stones were macrodiamonds. One macrodiamond and 36 microdiamonds were recovered from the Sputnik pipe.

During 2003, 29 airborne targets were evaluated with ground electromagnetic surveys. Four of these targets were drill tested and one kimberlite dyke was intersected. A total of 91 till samples were collected down ice of high-interest ground geophysical targets for recovery of kimberlite indicator minerals, yielding positive results.

In 2004, electromagnetic (HLEM) ground geophysical surveys were completed to test 16 kimberlite-like airborne targets. A diamond drill program tested six high interest ground geophysical targets and a new kimberlite body was discovered. The kimberlite dyke was less than one-metre wide (Tanqueray Resources Ltd. Annual Report 2004). A total of 119 till samples were collected to better define existing kimberlitic indicator mineral trains (AR 084890).

The following year, a 94.02 line-km ground geophysical survey (magnetic and HLEM) was completed. In addition 128 till samples were collected and processed.

In 2006, the exploration programs included the collection of 17 till samples, 156 line-km of magnetic and HLEM ground geophysical surveys, and the completion of four drill holes, totaling 523.7 metres. No kimberlite was intersected on the property.

As at January 4, 2007, SouthernEra Diamonds Inc. informed the partners that it had withdrawn from the project. The claims and leases were allowed to lapse.

In January, 2015, Arctic Star Exploration reported that it had acquired the property, which is host to at least six known kimberlites: namely Torrie, Vega, Sue, Sputnik, S-141 and Eddie. Arctic Star has named their project Triceratops.

**Bedrock and Mineral Deposit Geology**

The area is within the Archean-aged Slave Geological Province. The property is primarily underlain by granites. However metavolcanic and metasediments belonging to the Yellowknife Supergroup are also present. Proterozoic diabase and gabбро dykes crosscut the older rocks. Outcrop is limited due to glacial till cover. A number of mineral indicator trains are found on the property and several of these have led to the discovery of kimberlite. The Torrie pipe was extruded approximately 10 km east of Yamba Lake.

**Exploration**

Arctic Star plans to use heli-borne gravity surveying in conjunction with other modern diamond exploration techniques to generate new targets (MD&A Dec. 31, 2015).

**Significant Results**

Four macrodiamonds were extracted from a 1.6-kg sample taken from the new kimberlite body discovered in 2004 (AR 084890).

Re-assaying of several diamond drill holes from the T-10 kimberlite (1999 program) recovered 189 diamonds, including seven macrodiamonds.
References


DIAND NWT Geology Division Staff, (2000) ‘Diamond Exploration’ in Exploration Overview 1999 Northwest Territories and Nunavut, Department of Indian and Northern Affairs Canada, Yellowknife, p. 9

DIAND NWT Geology Division Staff, (1999) ‘Slave Province-Diamond Activity’ in Exploration Overview 1998 Northwest Territories, Department of Indian and Northern Affairs Canada, Yellowknife, p. 2-7


NORMIN.DB (www.nwtgeoscience.ca) 076ESW0006, 076ESW0007, 076ESE0007

NTGS Assessment Reports 083261, 083482, 084016, 084284, 084711, 084764, 084890, 085066


www.arcticstar.ca

www. sedar.com Arctic Star Exploration Corp. MD&A Dec. 31 2015 (posted April 28 2016)

www.sedar.com SouthernEra Diamonds Ltd.

www.sedar.com Tanqueray Annual Report 2004

www.southernera.com
ANNEX 1
Other Mineral Deposits of the Northwest Territories

There are numerous deposits described in "Canadian Mineral Deposits Not Being Mined in 1989" which are not described in this Guide; these are listed below:

- NWT 18 (O’Connor Lake) Pb-Zn
- NWT 19 (MacInnis Lake) U
- NWT 21 (Sachowia Lake) Ni-Cu-Bi
- NWT 22 (BBX) Cu-Ag
- NWT 24 (Susu Lake) Cu
- NWT 26 (Saucer Lake) Au
- NWT 45 (Best Bet) Li2O
- NWT 46 (Moose No.2 Dyke) Li2O
- NWT 47 (Buckham Lake) Li2O
- NWT 50 (Pancho) Li2O
- NWT 51 (ANN – Reid Lake) Li2O
- NWT 52 (JAKE) Li2O
- NWT 53 (PAINT) Li2O
- NWT 54 (AL Group) Au
- NWT 55 (Bullmoose Lake – TA) Au
- NWT 56 (DICK), WO3
- NWT 57 (HID) Li2O
- NWT 58 (Gilmour Lake) WO3
- NWT 59 (JUNE – JOON) Au
- NWT 60 (McDonald Dyke – MAC 1 – LITA 1-4) Li2O
- NWT 63 (Thor – Echo) Li2O
- NWT 64 (STORM – BEA & APR) WO3,Au
- NWT 66 (Hidden Lake Fl & KI) Li2O
- NWT 67 (Shorty 1 – GREG) Li2O
- NWT 68 (Thompson-Lundmark) Au*
- NWT 69 (Prelude Lake – Dike) BeO
- NWT 70 (Blaisdell Lake – Bill) BeO
- NWT 71 (VO – COTA) Li2O
- NWT 72 (Dome Lake – TT) Au
- NWT 75 (Mitchell Lake) Au
- NWT 79 (Lark) Zn-Cu-Pb
- NWT 81 (Rod) Au
- NWT 83 (Homer) Au-Ag-Cu-Pb-Zn
- NWT 84 (NITE) Li2O
- NWT 86 (TIN – STAR) Au*
- NWT 87 (Clan Lake) Au
- NWT 88 (Sun) U3O8
- NWT 91 (Cab) Bi
- NWT 94 (J.E.S. - Johnston Lake) Au
- NWT 95 (Storm) WO3
- NWT 98 (Bruce – Avis – Winter Lake) Au
- NWT 101 (Syn & Ven) Au
- NWT 102 (Norris Lake) Au
- NWT 106 (Lexindin) Au
- NWT 109 (Jingo – Dingo) Au
- NWT 111 (Norex) Ag*
- NWT 112 (Silver Bay) Ag*
- NWT 113 (Contact Lake) Ag*
- NWT 117 (Mariner) Cu
- NWT 118 (GW Group) Cu
- NWT 119 (El Bonanza) Ag*
- NWT 120 (Uranium Group) U, Cu*
- NWT 131 (Ram & Rod) Pb-Zn-Ag
- NWT 132 (Roy) Pb-Zn-Ag-Au
- NWT 133 (Lin & Pin) Cu
- NWT 137 (June Creek) Cu
- NWT 141 (PR) Cu
- * past producer

A number of past producers are not described in this Guide nor in the above mentioned publication; these include Burwash (Au), Eldorado (Ra, U, Ag), Outpost Islands (Au, Ag, Sn), Peg Tantalum (Ta) and Salmita (Au).

Information concerning showings and deposits is available from Government of the Northwest Territories, ITI Department, Northwest Territories Geological Survey, Yellowknife (www.nwtgeoscience.ca).

### ANNEX 2

*Other Mineral Deposits of the Northwest Territories*

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AANDC</td>
<td>Aboriginal Affairs and Northern Development Canada</td>
</tr>
<tr>
<td>DIAND</td>
<td>Department of Indian Affairs and Northern Development</td>
</tr>
<tr>
<td>GoMap</td>
<td>NTGS’s next generation geoportal - an advanced web-based Geographic Information System (GIS) application for viewing, querying, and downloading from our vast database of mineral occurrences, publications, exploration reports, and other references to geology and mineral exploration in the NWT. NT GoMap is designed to provide quick and easy access to our distributable spatial data. The URL is <a href="http://ntgomap.nwtgeoscience.ca/">http://ntgomap.nwtgeoscience.ca/</a></td>
</tr>
<tr>
<td>INAC</td>
<td>Indian and Northern Affairs Canada</td>
</tr>
<tr>
<td>ITI</td>
<td>Department of Industry, Tourism and Investment</td>
</tr>
<tr>
<td>NORMIN.DB</td>
<td>Replaced by GoMap <a href="http://ntgomap.nwtgeoscience.ca/">Northern Mineral Database. NORMIN.DB is a database created by INAC which stores geological information about mineral showings in the Northwest Territories. NORMIN is also a database of references to exploration in, and geology of, the Northwest Territories.</a></td>
</tr>
<tr>
<td>NTGO</td>
<td>Northwest Territories Geoscience Office (renamed NTGS)</td>
</tr>
<tr>
<td>NTGS</td>
<td>Northwest Territories Geological Survey Short Forms used in this publication (related to NTGS, <a href="http://www.nwtgeoscience.com">www.nwtgeoscience.com</a>)</td>
</tr>
<tr>
<td>AR</td>
<td>Assessment Report</td>
</tr>
<tr>
<td>EGS</td>
<td>Economic Geology Series</td>
</tr>
<tr>
<td>EO</td>
<td>Exploration Overview</td>
</tr>
<tr>
<td>MIR</td>
<td>Mineral Industry Report</td>
</tr>
</tbody>
</table>
ANNEX 3
Other Mineral Deposits of the Northwest Territories

MINERAL RESOURCES DIVISION
4th Floor Scotia Centre, YELLOWKNIFE
5102, 50th Ave.
YELLOWKNIFE, NT X1A 2L9

PHONE: (867) 767-9209
EMAIL: mining@gov.nt.ca
WEBSITE: www.nwtmining.com

MINING RECORDER'S OFFICE
1st Floor, Gallery Building, YELLOWKNIFE

PHONE: (867) 767-9210
E-MAIL: miners@gov.nt.ca

NORTHWEST TERRITORIES GEOLOGICAL SURVEY
4601-B, 52nd Avenue, YELLOWKNIFE

PHONE: (867) 767-9211
E-MAIL: ntgs@gov.nt.ca
WEBSITE: www.nwtgeoscience.ca

PETROLEUM RESOURCES DIVISION
1st Floor, Semmler Building, INUVIK

PHONE: (867) 777-7475
E-MAIL: petroleum@gov.nt.ca
WEBSITE: www.nwtpetroleum.com