

Ontario Exploration & Geoscience Symposium  
“Ontario: Explore and Discover”

December 11<sup>th</sup> & 12<sup>th</sup>, 2007  
Sudbury, Ontario

**Abstracts**



**Presentations Tuesday, December 11<sup>th</sup>**

Abstract Not Available	Sylvain Lacroix <sup>*1</sup> , Benoît Dubé <sup>2</sup> , Ministère des Ressources naturelles et de la Faune <sup>1</sup> , Geological Survey of Canada <sup>2</sup>	Targeting Copper in Abitibi: a collaborative geoscience program
Abstract Not Available	John Ayer, Ontario Geological Survey, Benoît Dubé, Geological Survey of Canada	Update on the Abitibi Targeted Geoscience Initiative in Ontario including new geochronological insights on the stratigraphy and mineral potential of the Detour and Burnt bush belts
Abstract Not Available	Jan M. Peter <sup>*1</sup> , Daniel Layton-Matthews <sup>2</sup> , J. Bruce Gammell <sup>3</sup> , Mark D. Hannington <sup>4</sup> , Geological Survey of Canada <sup>1</sup> , Queen's University <sup>2</sup> , University Tasmania <sup>3</sup> , University of Ottawa <sup>4</sup>	Geochemistry of sulphidic and graphitic argillites of the Kidd-Munro Assemblage: preliminary results aimed at developing a vectoring tool for concealed base-metal sulphides in the Kidd Creek area
Page 2	B. Berger <sup>*1</sup> , J. Ayer <sup>1</sup> , V. McNicoll <sup>2</sup> , W. Bleeker <sup>2</sup> , Ontario Geological Survey <sup>1</sup> , Geological Survey of Canada <sup>2</sup>	Stratigraphy and Metallogeny of the Kidd-Munro assemblage: New evidence from east of the Kidd Creek volcanogenic deposit
Page 4	P. Keating <sup>*1</sup> , Michel Houle <sup>2</sup> , R. Dumont <sup>1</sup> , B. Dubé <sup>1</sup> , Geological Survey of Canada <sup>1</sup> , Ontario Geological Survey <sup>2</sup> ,	Results from a recent magnetic and electromagnetic survey in the Bartlett Dome area
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Page 20	Dave King, FNX Mining Company Inc.	Podolsky 2000 deposit
Page 15	Gary Nash, Liberty Mines Inc.	The Shaw Dome Nickel Belt
Page 9	Laura Lee Duffett, Tres-Or Resources Ltd.	Discovering the Temagami - Timiskaming Diamond Treasures
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Page 6	Mark Puumala, Ontario Geological Survey	Mineral Occurrences of the Far North
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Page 14	Sonia Prefontaine* and Sara Buse*, Ontario Geological Survey	Mineralization and alteration within the North Spirit Lake greenstone belt, Northwestern Ontario
Abstract Not Available	Kim Tyler, Canadian Arrow Mines Ltd.	The Canadian Arrow Kenbridge Project: Rediscovering Nickel in Under Explored Northwestern Ontario

**Presentations Wednesday, December 12<sup>th</sup>**

Abstract Not Available	Pam Sangster, Ontario Geological Survey	Outside the Box, Southern Ontario 2007
Abstract Not Available	Andrea Waldie, Association of Professional Geoscientists of Ontario	APGO and Professional Geoscience: Public Protection and Pride in Profession
Abstract Not Available	Mark Smyk, Ontario Geological Survey	"Northern Perspectives - Highlights and Insights" Exploration, Development and Mining in Northern Ontario
Abstract Not Available	Neil Pettigrew, East West Resource Corporation	The History of Marshall Lake
Page 2	Brian Atkinson, Ontario Geological Survey	NE Regional Activities
Abstract Not Available	Charles Page, Queenston Mining Inc.	Kirkland Lake Gold Camp Update
Abstract Not Available	Blaine Webster, JVX Ltd.	Geophysics of McFaulds Lake
Abstract Not Available	Al Shefsky, Pele Mountain Resources Inc.	Elliot Lake - A long-term secure and reliable source of uranium
Page 3	Peter Hollings, Lakehead University	Industry-university research partnerships: how they work and how you can benefit
Abstract Not Available	Brad Baker* & Paul Geddes*, Rainy River Resources Ltd.	Rainy River Project
Page 15	Matt Long, Premier Gold Mines Limited	Exploring the Red Lake Mine Trend and Beyond - Premier Gold Mines Limited
Abstract Not Available	Denis Villeneuve, Brett Resources Inc.	Atikokan's Hammond Reef – Reviving a Historic Mining Camp
Abstract Not Available	Howard Barrie, Terraquest Ltd.	XDS...Airborne VLF/EM Re-defined
Abstract Not Available	Richard Sutcliffe, URSA Major Minerals Incorporated	URSA Major's Shakespeare Project: An emerging nickel producer in the Sudbury area

## **Marathon High Grade Mineralization: Criteria for Hydrothermal vs. Magmatic Cu-PGE Mineralization**

**David Good and Phillip Walford, Marathon PGM Corp.**

The Marathon deposit is situated near the base of a large arcuate shaped series of gabbroic intrusions located along the eastern border of the Coldwell Complex, Ontario. Exploration at the Marathon deposit has occurred intermittently since the 1960's and was focused primarily on the Main mineralized zone. In 2004, the first of several high grade palladium and platinum rich lenses was discovered just south of the Main zone.

These high grade zones are now understood to be pod-shaped bodies contained within the W horizon which can be traced for up to 1 km along strike. Exploration of the W horizon continued in 2007 with the discovery of additional pods including one drill intersection grading 34 g/t Pd, 9.7 g/t Pt and 0.49% Cu over 10 m.

Several models for the genesis of mineralization at Marathon have been proposed and they all include to some extent magmatic and hydrothermal processes. Developing an understanding of the degree to which each process is responsible for the concentration of Cu and PGE has repercussions for the successful exploration and development of the deposit.

Criteria for distinguishing hydrothermal from magmatic PGE concentration are examined through examples of hydrothermal mineralization found at the Geordie Lake Gabbro located in the centre of the Coldwell complex and the High Grade zone within the Lac des Isle deposit. Petrographic features including silicate and sulphide mineralogy and the relative degree of alteration are discussed with reference to element-element trends for trace element and platinum group element geochemistry. When applied to the Marathon deposit, the criteria are more consistent with a magmatic model despite evidence of hydrothermal migration at the microscopic scale and extreme concentration of Pd and Pt with respect to copper.

Good D.J. & Crocket J.H. (1994), Origin of albite pods in the Geordie Lake gabbro, Port Coldwell Alkaline Complex, northwestern Ontario: Evidence for late-stage hydrothermal Cu-Pd mineralization: *Canadian Mineralogist*, v32, p 681-701

J.G. Hinchey, K.H. Hattori, & M.J. Lavigne (2005), Geology, Petrology, and Controls on PGE Mineralization of the Southern Roby and Twilight Zones, Lac des Iles Mine, Canada, *Economic Geology*, v. 100, pp. 43–61

J.G. Hinchey & K.H. Hattori (2005), Magmatic mineralization and hydrothermal enrichment of the High Grade Zone at the Lac des Iles palladium mine, northern Ontario, Canada, *Mineralium Deposita* (2005) 40: 13–23

## **Exploration Highlights of Northeastern Ontario**

**Brian Atkinson**, Regional Resident Geologist, Timmins Region

The mining industry is so good, metal dealers are devising ever more creative ways to attract scrap metals of all types to fill their recycled metal needs. Bill boards and radio commercials for your scrap metal are now vying for air time and advertising space in the ever changing consumer marketing game. The world has finally realized that metal mines have a finite life. The world consumption of metals is ever growing as an increasingly affluent population aspires to the modern consumer life style. And therein lies opportunity that is being abundantly realized by the explorers and miners of northeastern Ontario. Always a region of great metal endowment, the northeast continues to demonstrate its metal wealth with an envious showcase of new mines, enticing developments and exploration promise. Highlights of the discovery and development boom will be showcased with select examples from across the region.

## **Stratigraphy and metallogeny of the Kidd-Munro assemblage; New evidence from east of the Kidd Creek VMS deposit**

**Ben Berger, John Ayer (OGS), Vicki McNicoll and Wouter Bleeker (GSC)**

The TGI3 Kidd-Munro project is designed to examine the stratigraphy, structure, geochemistry and metallogeny of the Kidd-Munro assemblage (2719-2711 Ma), host to the giant Kidd Creek base metal deposit, located 35 km NE of Timmins. New mapping in Prosser Township, shows that the high silica rhyolites hosting the deposit and the hanging wall mafic metavolcanic rocks at the Kidd Creek Mine extend over 10 km to the NE, but that the underlying ultramafic volcanic rocks are either absent or have been removed by faulting. Instead, here intermediate and mafic fragmental metavolcanic rocks commonly underlie the high silica rhyolites and associated basalts. New geochemical analyses show that the high silica rhyolites and hanging wall mafic metavolcanic rocks in Prosser are tholeiitic and the underlying intermediate and mafic metavolcanic rocks are calc-alkalic. Geochemistry and petrography show that VMS-related hydrothermal alteration has affected both the high silica rhyolites and the calc-alkalic rocks; however, copper and zinc mineralization appears to be more abundant in the calc-alkalic rocks.

Four new U/Pb zircon age dates were obtained to better constrain the Kidd-Munro assemblage and to help define the bounding assemblages to the north and south. A sample of calc-alkalic dacite underlying previously dated high silica rhyolites ( $2716 \pm 0.5$  Ma) in Prosser Township returned an age of  $2728 \pm 1.7$  Ma, correlative with the Deloro assemblage. In addition, a sample of felsic tuff from central Lucas Township, approximately 20 km northeast of the Kidd Creek mine, returned an age of  $2722 \pm 1.7$  Ma and confirms these rocks are correlated with the Stoughton-Roquemaure assemblage. These dates suggest the north boundary of the Kidd-Munro assemblage

needs revision and is more structurally and stratigraphically complicated than was originally interpreted.

In the eastern part of the assemblage, a sample of high silica rhyolite that hosts the Montclerg gold occurrence in Clergue Township returned an age of  $2714 \pm 0.8$  Ma and confirms the eastward extension of the Kidd-Munro assemblage. In the northern part of the assemblage, a felsic tuff in Walker Township returned an imprecise age of  $2700 \pm 5$  Ma providing evidence that a younger assemblage (Blake River or Tisdale) bounds the Kidd-Munro in this part of Ontario and thus confirming the complicated nature of its northern boundary.

OGS – Ontario Geological Survey

GSC – Geological Survey of Canada

### **Industry-university research partnerships: how they work and how you can benefit.**

**Pete Hollings, Department of Geology, Lakehead University, Thunder Bay, ON**  
[Peter.Hollings@lakeheadu.ca](mailto:Peter.Hollings@lakeheadu.ca)

The recent growth in mining and exploration in Canada is leading to an increased demand for geologists. Universities play a critical role in training these geoscientists to meet this growing need. Partnerships between industry and universities offer one way to enhance this training and benefit both parties.

Collaborations between industry and academia can take a number of forms, including: one-to-one research projects, multi-partner projects and supporting undergraduate or graduate thesis research. For many of these collaborative models there is also the possibility of applying for matching funds from a wide variety of provincial and federal bodies. This presentation will discuss the different research models and funding mechanisms using case studies from the Department of Geology at Lakehead University.

Advantages to industry from collaborating with universities include: access to analytical methods not widely utilized by exploration companies, an enhanced understanding of the exploration target or ore deposit through detailed research that cannot be undertaken within the scope of normal industry activities and, perhaps most importantly, access to the expertise of the researchers and their students. However, potential collaborators need to be aware of some possible limitations of university-based research. These include a potentially slower turn around, as Masters projects will often take two years to complete and the fact that researchers will want to publish the results of their work.

## **Results from a recent magnetic and electromagnetic survey in the Shaw Dome and the Bartlett Dome areas**

*P. Keating<sup>1</sup>, M. Houlé<sup>2</sup>, R. Dumont<sup>1</sup> and B. Dubé<sup>1</sup>*

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<sup>2</sup> *Ontario Geological Survey*

A MEGATEM II time-domain electromagnetic (EM) and magnetic survey was flown by Fugro Airborne Surveys for the Geological Survey of Canada during the winter of 2006 over the Bartlett Dome area and parts of the Shaw Dome area. The objectives were to assist geological mapping, to identify new base metal exploration targets, and finally to increase and stimulate mining exploration in those areas. This survey is also part of a multi-year project of bedrock geological mapping conducted by the Ontario Geological Survey in the Bartlett Dome area which goals are to update the geological mapping south of Timmins, to clarify and characterise the major lithologic units, to better understand the stratigraphy of the Bartlett Dome and its correlation with the Shaw Dome, to evaluate the mineral potential of the area and to improve our understanding of the relationship of geophysical features to bedrock geology.

The study area was divided into three separate blocks: 1) the southern part of the Shaw Dome, 2) the western part of the Shaw Dome, and 3) the Bartlett Dome. Flight lines, spaced 200 m apart, were oriented perpendicular to the main geological trend within each block. Flight lines were flown in alternating directions. The mean terrain clearance of the aircraft was 120 m. Differential GPS navigation was used to obtain a uniform coverage. The system uses a fully digital three component receiver and the digital filters used in post-processing the data are designed to minimise anomaly distortion. The use of a strong dipole moment results in deep penetration.

Various products have been derived from the survey data. An EM anomaly map to directly identify conductors that may be exploration targets, a time-constant map which reflects the conductance of the conductors and an apparent conductivity map that contains conductivity information from the overburden and the bedrock. Maps of the residual total magnetic field and its second derivative were also produced. The second vertical derivative map is particularly helpful to improve geological mapping as it can map thin and weakly magnetic geological units. This MegaTEM<sup>II</sup> survey conducted in conjunctions with new geological mapping helps to better outline key lithological units, and generates a significant number of potential exploration targets for base and precious metals. Furthermore, increased of ground stacking in those areas, after the geophysical survey and the new nickel discovery by Golden Chalice Resources releases, demonstrates that new geosciences works initiated under the Targeted Geosciences Initiative III meet their expectations by stimulating mineral expenditures within the Abitibi greenstone belt.

## **Soil Gas Hydrocarbons: A Dual Purpose Exploration Geochemistry Able to Accurately Locate and Identify Buried Mineralization with High Confidence Due to a Signature Style of Interpretation.**

**Sutherland, Dale A.**

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Soil Gas Hydrocarbons (SGH) is an innovative deep-penetrating geochemistry developed in Ontario. This analysis is a selective extraction which releases organic compounds as hydrocarbons that are adsorbed on the surface of particles from soil, peat, humus, and lake-bottom sediment type samples. The samples collected in a grid or in transects, act as long-term collectors of organic compounds that migrate to the surface from buried mineralization. SGH has been researched and developed for over 10 years and analyzes for hydrocarbons in the C5-C17 range. These hydrocarbons are very robust to sampling, shipping, and handling procedures. Analysis of the sample extracts with Gas Chromatography-Mass Spectrometry provides a highly selective and sensitive method with detection limits in the trace parts-per-trillion (ppt) range for over 160 specific hydrocarbons.

Geochemical anomalies produced by these hydrocarbons over copper, nickel, gold, VMS, Uranium, SEDEX, and Polymetallic mineralizations as well as Kimberlite formations have been successfully shown by SGH in blind cases studies. The anomalies arise from oxidation-reduction (REDOX) cells that are believed to be formed from hydrocarbons released from the death-phase of bacteria that are associated with the deposit at depth. These hydrocarbons can migrate to the surface even through 500 metres of cover rock as seen with SGH case studies for Uranium.

SGH has the ability to vector to the vertical projection of a target as well as identify the type of buried target present by using forensically determined hydrocarbon signatures or templates.

This oral presentation will demonstrate how SGH data is reviewed and illustrate the high level of confidence that can be realized from a signature style of interpretation. New case studies, including those for Uranium, Gold and Kimberlite, will also be shown.

## **Far North Geological Mapping Initiative: New Insights into the Metallogeny of the Central and Eastern Uchi Domain and the Favourable-North Spirit Lakes Area**

**PUUMALA, Mark A.**, Ontario Geological Survey, Ministry of Northern Development and Mines, Suite B002, 435 James Street South, Thunder Bay, ON P7E 6S7

In 2005, the Ontario Geological Survey began the Far North Geological Mapping Initiative (FNGMI). The goal of this program is to obtain a better understanding of the geological history and mineral resource potential of the portions of Ontario that are located north of 51°N latitude. The Far North is a remote area that has a much smaller historical geological database than the southern portions of Ontario. Nevertheless, this

region does have a long history of mineral exploration that has resulted in the collection of much valuable information about the nature of economic mineralization. These data are currently being compiled to evaluate metallogenic patterns that can in turn be used to better understand the regional tectonic framework and economic mineral distribution.

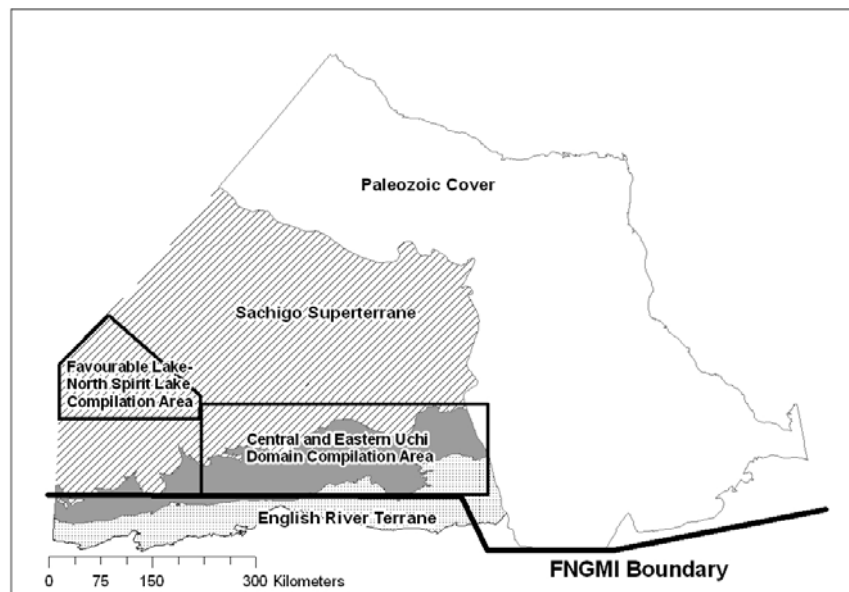


Figure 1. Map illustrating Far North Mineral Deposit Compilation study area.

To date, geological data have been compiled for approximately 500 mineral occurrences located within the central and eastern portions of the Archean Uchi Domain (Stott and Rainsford, 2006), and in the Favourable-North Spirit Lakes area (Figure 1). The majority of the mineral occurrences in these areas are located within or immediately adjacent to supracrustal rocks of the Miminiska-Fort Hope, Pickle Lake, Lake St. Joseph, Meen-Dempster, Lang Lake, North Spirit Lake and Favourable Lake greenstone belts of Stott and Corfu (1991) and Thurston, Osmani and Stone (1991).

A wide variety of mineral deposit types have been identified in the study area, including: vein and replacement gold; polymetallic vein; mafic to ultramafic intrusion-hosted copper-nickel-platinum group elements (PGE); rare-element-bearing pegmatite; uranium-bearing pegmatite; volcanogenic massive sulphide (VMS) copper-zinc; intrusive porphyry-related copper-molybdenum-gold; and Algoma-type banded iron formation.

Based on the available information, the following chronology of metallogenic events is proposed for the central and eastern portions of the Uchi domain:

1. Mafic to ultramafic intrusion-hosted Cu-Ni-PGE mineralization occurred in rocks of the Pickle Crow assemblage (>2860 Ma) in the Pickle Lake and Miminiska-Fort Hope greenstone belts.

2. VMS-type mineralization occurred in felsic volcanic rocks of the Kaminiskag (former Woman) assemblage (2842-2836 Ma) in the Pickle Lake belt.
3. Later VMS-type mineralization occurred in association with volcanic rocks of the Confederation assemblage (2744-2730 Ma) in the Lang Lake, Meen–Dempster, and Pickle Lake greenstone belts, and with rocks of the St. Joseph assemblage (2724-2713 Ma) in the Meen–Dempster, Lake St. Joseph and Miminiska–Fort Hope greenstone belts.
4. Copper-nickel-PGE mineralization is associated with probable late-tectonic mafic intrusions located near the southern boundary of the Miminiska–Fort Hope greenstone belt, and in the Lang Lake and Meen–Dempster greenstone belt near the Bear Head fault zone. Although no definitive information is available to estimate the age of the mineralized intrusions, Stott (1996) indicates that the Kawashe gabbro, located near the Bear Head fault zone, is likely to have intruded at some point between 2744 Ma (maximum age of volcanism in adjacent Confederation assemblage) and 2722 Ma (age of crosscutting Kawashe Lake granitoid stock).
5. Porphyry copper-molybdenum-gold mineralization is associated with some felsic intrusions marginal to the greenstone belts, most notably in the Lang Lake and North Bamaji Lake areas. Although no definitive information is available to estimate the age of these occurrences, such mineralization typically postdates the constructive phase of greenstone belt development (Rogers et al. 1995).
6. Algoma-type banded iron formation deposition occurred throughout the volcanic and sedimentary depositional history of the central and eastern Uchi domain. However, the most significant deposits are typically found in the late (circa 2710 to 2700 Ma) sedimentary basins located near the southern domain boundary.
7. Structurally controlled gold and polymetallic mineralization is likely to have been associated with the collision between the Uchi domain and the Winnipeg River terrane (2720-2700 Ma: Percival et al. 2006). In the Pickle Lake greenstone belt, this event postdates volcanism in the Confederation assemblage (>2739 Ma) and predates the emplacement of the posttectonic Hooker–Burkoski stock (2697-2716 Ma: Young et al. 2006).
8. Rare-metal pegmatite mineralization occurs in association with peraluminous granite intrusions located in close proximity to major regional fault zones, with known examples near the North Caribou–Totogan lakes shear zone and the Lake St. Joseph fault zone. Breaks, Selway and Tindle (2003) indicate that these deposits are typically late-tectonic to posttectonic intrusions that postdate the peak of regional metamorphism.

A preliminary evaluation of mineral occurrence data for the North Spirit Lake and Favourable Lake greenstone belts suggests the following.

1. Early (circa 2896 Ma) localization of Algoma-type iron formation and ultramafic-hosted copper-nickel mineralization in the North Spirit Lake belt.
2. Lode gold, porphyry Mo-Cu-Au, polymetallic vein, and rare-metal and uranium-bearing pegmatite mineralization is believed to have occurred much later, most likely as a result of hydrothermal and magmatic activity along the Bear Head fault

zone during the collision between the North Caribou and Winnipeg River terranes (2720 to 2700 Ma).

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## Far North Geological Mapping Initiative: An Update on Airborne Geophysical Surveys

### S.W. Reford<sup>1</sup>

<sup>1</sup>Paterson, Grant & Watson Limited, 85 Richmond St. W., #903, Toronto, Ontario M5H 2C9

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Three airborne geophysical surveys fall under the umbrella of the Far North Geological Mapping Initiative, and were in various stages of completion in 2007. They are:

#### 1. North Spirit Lake

Survey Type: Fixed wing magnetic and time-domain electromagnetic

Contractor: Fugro Airborne Surveys, Ottawa, Ontario

Data Acquisition: November 4, 2006 to January 15, 2007

Volume: 10,239 line-km

Product Preparation: Completed

Publication: In progress

2. Whitefeather Forest  
Survey Type: Fixed wing magnetic and time-domain electromagnetic  
Contractor: Fugro Airborne Surveys, Ottawa, Ontario  
Data Acquisition: January 20, 2007 to January 22, 2007 and April 8, 2007 to June 13, 2007  
Volume: 18,071 line-km  
Product Preparation: In progress
3. Webequie  
Survey Type: Fixed wing magnetic gradiometer  
Contractor: Terraquest Ltd., Markham, Ontario  
Data Acquisition: Commenced November, 2007  
Volume: 27,887 line-km

The locations of the survey areas, and survey types, were selected based on the known geology and mineral potential of the region. The airborne geophysical surveys are complemented by new geological mapping campaigns on the ground, to maximize the relevance of both types of geoscience data. Consultations and geoscience gap analysis meetings with mineral industry representatives and First Nations communities assisted in area selection.



## **DISCOVERING THE TEMAGAMI-TIMISKAMING DIAMOND TREASURES**

**Presented by: Laura Lee Duffett, P.Geo., President and CEO, Tres-Or Resources Ltd.**

### **ABSTRACT**

#### **Discovering the Temagami-Timiskaming Diamond Treasures**

Tres-Or Resources Ltd. (TRS – TSX.V) is actively exploring for diamonds and precious and base metals in the Timiskaming area in northeastern Ontario and northwestern Quebec. Tres-Or has discovered the largest diamond-bearing kimberlite in Ontario the Lapointe Kimberlite discovery, which is +21 hectares in size. Lapointe yielded a 0.0665 carat clear white gem in the first drill hole and subsequent drilling yielded 440 diamonds, several classed as macro in size. A 50 tonne macro-diamond test is recommended for collection and processing. Tres-Or's Quebec properties in the Timiskaming area host 3 kimberlite pipes and 2 kimberlite bodies discovered by drilling. The Temagami diamond project, located south of the village of Temagami in Ontario hosts several indicator mineral dispersion trains including a diamond-in-till within the highest priority mineral train which is the focus of an aggressive exploration campaign. The Company's projects host excellent infrastructure- road, power and a qualified workforce all in close proximity. Tres-Or has signed a Memorandum of Understanding ("MOU") with the

Timiskaming First Nation. The MOU is part of the formal consultation process between the parties regarding the Company's mineral exploration activities within the Reserve lands and traditional territorial lands over which the Timiskaming First Nation have asserted Aboriginal title on both the Ontario and Quebec side of the border.

### ***Lapointe Kimberlite Discovery***

Tres-Or drilled the largest (+ 21 hectare) diamond-bearing kimberlite in Ontario in May 2005. The Lapointe Kimberlite is located near Elk Lake, on Tres-Or's Temagami North Expansion area project. The Lapointe claims and many other high priority anomalies were staked by Tres-Or based on the integration and interpretation of high resolution magnetic data provided by the 2004 Discover Abitibi Initiative (DAI) release of the Round Lake airborne survey. A detailed proprietary magnetic-electromagnetic survey was completed by Tres-Or over the target and revealed a coincident magnetic-electromagnetic signature. Till sampling down-ice of the magnetic anomaly yielded prolific indicator minerals. Subsequent microprobe analysis confirmed the diamond potential.

The Lapointe Kimberlite is a multiphase intrusion, with each phase representing a separate emplacement event, and each phase is capable of carrying a different concentration of diamond. A 0.0665 carat (+ 2.4 mm) clear white gem-quality diamond was recovered in the original discovery drill hole. To date, over 440 diamonds have been recovered since the completion of a 3,500-metre delineation drill program including 70 diamonds with dimensions greater than 0.5 mm in one dimension. The initial results continue to demonstrate each tested kimberlite phase is diamond bearing.

The indicator mineral chemistry from core samples is sharply distinct from, and more diamond-favourable than chemistry from other reported kimberlites within the New Liskeard field (to the south) and the Kirkland Lake field (to the north), with the single exception of the Stornaway (formally Contact Diamond) 95-2 pipe, which is also reported to carry 5 to 10% moderately Cr-rich sub-calcic (G10) pyrope garnets. A larger test sample is recommended to test for macro-diamond content to further define the economic potential of the Lapointe kimberlite pipe.

Caustic fusion tests of almost 4 tonnes of the Lapointe Kimberlite have returned results suggestive of a potentially low-grade but coarse size distribution. Such hints of a coarse size distribution warrant further examination due to the large size of the body and low mining costs in the area. A 50 tonne macro-diamond test is recommended for collection and processing. The primary goal of the 50-tonne test is to recover macro-diamonds to verify the coarse size distribution.

The recommended collection method is to use a large diameter RC rig and to drill 1 hole in the central part of the Lapointe Kimberlite. This single hole is designed to collect 50

tonnes or more of the kimberlite, depending on depth reached and casing/drill bit diameter.

Processing of the sample will use typical macro-diamond collection methods of crushing followed by dense media separation (DMS), x-ray separation, and grease table as back-up. Given the relatively small size of the sample, recovery is recommended to be extended down to a small bottom screen size. Due to small sample size, it is recommended to use a 40 mesh (0.425 mm) bottom size screen on all processing. The undersize will also be collected, and remain available for further analysis including caustic fusion of some aliquots, especially if some diamond breakage is suspected.

### **Memorandum of Understanding with the Timiskaming First Nation**

Tres-Or Resources and the Timiskaming First Nation (the “TFN”) signed a five (5) year Memorandum of Understanding (“MOU”) on September 25, 2007. The MOU is part of formal consultation process between the parties regarding the Company’s mineral exploration activities within the TFN Reserve lands and the traditional territorial lands over which the TFN has asserted Aboriginal title on both the Ontario and Quebec side of the border.

The parties have entered into agreements since 2003 regarding Tres-Or’s exploration activities to date. The purpose of this MOU is for the parties to renew their relationship consistent with the Haida, Taku River and Mikisew cases, whereby they agree to continue to work together on a cooperative basis in connection with TFN’s interests and Tres-Or’s further activities within the TFN lands. The relationship is based upon the following fundamental principles; trust, good faith, mutual respect and mutual benefit. Tres-Or recognizes and respects the Aboriginal and Treaty rights of the TFN.

The MOU does not purport to grant, transfer, alienate or create interests in any land. Nor is it intended to waive or derogate from the Aboriginal and treaty rights of the TFN. The parties recognize that any transactions regarding the TFN lands should only occur in accordance with established procedures and that the right to explore and develop these lands requires consultation with the TFN, who are represented by the Chief and Council of the TFN.

Chief Conrad Polson stated, “We look forward in commencing meaningful consultations with many other exploration companies active within the TFN lands. The TFN will be using the relationship built with Tres-Or as an example to actively pursue formal consultations with the Crown and addressing the requirement to consult with companies active within the TFN lands”.

The MOU is an agreement based on cooperation and education in the spirit of partnership.

### **Notre Dame du Nord, Quebec Project**

The Notre Dame du Nord, Quebec properties host 3 kimberlite pipes and 2 new kimberlite bodies discovered by drilling. Further evaluation of the Troika (NDN#1), NDN #2 and Guigues kimberlite pipes is planned, with the primary goal of locating nearby satellite pipes. The properties are located at the headwaters and east of Lake Timiskaming straddling the Ontario/Quebec border.

Drill testing of geophysical anomalies near the ND-63 kimberlite discovery area yielded a series of thin kimberlite dykes located 2.3 kilometres southwest of the Guigues kimberlite pipe. The series of kimberlite dykes appear to be on trend with the Guigues pipe, suggesting they were emplaced on a related emplacement trend. Detailed petrographic and geochemical analyses and further compilation work is recommended. Work is focused on prioritizing potential kimberlite pipe sources related to a series of geophysical anomalies in the ND-63 area and around the Guigues pipe.

Kimberlite indicator minerals (KIMs) comprising a single strong dispersion train in the southern part of the property appear to be constrained to a single drainage system suggesting the source is likely on the Tres-Or claims. Follow-up sampling, ground work and microprobe analyses are planned to better constrain a source for the indicator minerals from sampling programs in the region.

Further exploration of geophysical anomalies in the area of Tres-Or's ND-88 discovery hole which yielded a 62.5 metre kimberlite intersection between 86.9 and 149.4 metres in an angled drill hole (193 m total length) is recommended. Recent work by Tres-Or and the Geological Survey of Canada south of the ND-88 area suggests kimberlite boulders collected in gravel pits down-ice of this area are from an unknown kimberlite source.

Tres-Or completed a high resolution aeromagnetic (HRAM) survey over a prospective area in order to expand on its diamond exploration property activities along the Ontario border in northwestern Quebec. A total of 15,187 line-km at 125 m spaced flight lines and 60 m draped flight height above the ground was completed over the project area. Geophysical data interpretation and data integration has resulted in 20,270 hectares of new mineral claims staked in the Quebec Expansion project area.

In addition, follow-up mapping, prospecting and drilling of the gold and base metal project claims is underway. Tres-Or's proprietary airborne geophysical survey identified a previously untested conductor. The property was expanded to cover the extension of a buried volcanic belt of over 10 km in strike length which has yielded reported gold, copper and zinc showings in the past. Geophysical interpretation identified a significant 5 line conductor which is consistent with massive sulphides associated with the contact of a buried volcanic belt. Recent drilling returned 14.62 metres of 2.0% zinc including 3.39% zinc over 2.38 metres. Immediate follow-up drilling is recommended.

**Temagami Diamond Project**

Tres-Or's Temagami Diamond Project covers favorable structures believed to host diamond-bearing kimberlites. Over 10,500 line kilometers of proprietary airborne magnetic surveys and five detailed helicopter-borne magnetic and electromagnetic surveys have been completed. Interpretation of the data has outlined multiple geophysical targets, which fit the magnetic criteria for kimberlite intrusions.

Over 1,000 samples have been collected and processed for kimberlite indicator minerals (KIM). More than 6,500 Cr-pyrope garnets and significant counts of Mg-ilmenite, chrome diopside, chromite and kimberlitic olivine have been recovered. Analysis of the sampling has identified several indicator trains or sets of trains, which are believed to be associated with multiple kimberlite intrusives.

A diamond-in-till was recovered in samples collected a short distance down-ice of high-priority magnetic anomalies on the Tres-Or claims in an area with a well-defined indicator mineral train. The diamond was recovered in the 0.5 to 0.8mm (-20 to +35 mesh) size fraction and is a clear aggregate of twinned octahedral crystals. The proximal source is likely on Tres-Or's claims.

The Temagami property hosts positive indicator mineral results and high-priority magnetic anomalies indicative of kimberlite. The chemistry of the indicator minerals, including very sub-calcic G10 Cr-pyrope garnets, eclogitic garnets and Cr- and Mg-rich chromites that are compositionally similar to minerals included in diamonds suggests good potential for the discovery of diamond-bearing bodies within the project area.

**Mann Platinum/Palladium Project**

Tres-Or's Mann platinum/palladium project is located 46 km northeast of Timmins and hosts shallow platinum + palladium (Pt + Pd) mineralization within a clinopyroxenite unit. Recent drilling returned a weighted average of 762 ppb (Pt + Pd) over 1.93 metres, including 1.14 grams per tonne (Pt + Pd) over 0.5 metres. The Mann property lies within the Mann Intrusive Complex, a large under-explored ultramafic complex which also has the potential for Ni and other base metal deposits similar to the Alexo and Sothman deposits which occur between 32 km and 100km to the south. In light of recent significant discoveries related to magmatic sulphide segregation associated with ultramafic flows, Tres-Or has expanded the Mann project claims to the north and northeast to cover known copper and zinc mineralization along the south side of Lake Abitibi.

## **Superior Diamonds, Exploration Update.**

### **Abstract**

Superior Diamonds Inc. is a Canadian junior exploration company whose focus is exploring for diamonds on the Canadian Shield and for Uranium within the Thelon Basin. In addition, Superior will seek partners to help advance gold and base metal properties acquired as a by-product from Superior's diamond exploration programs.

Superior presently has two advanced diamond exploration projects, Ville Marie and L'Espérance, both in the Province of Québec. Two kimberlites (rock commonly associated with diamonds) and kimberlite float has been already discovered in the Ville Marie project, along with several well defined kimberlite indicator mineral dispersal trains. Kimberlite targets associated with these dispersal trains are presently being evaluated and prioritized in anticipation of a drill program in the 2<sup>nd</sup> quarter of 2008. In L'Espérance, kimberlite float and several kimberlite indicator mineral dispersal trains have been discovered and drilling is planned for the first quarter in 2008.

During exploration for diamonds, Superior has identified excellent targets for gold and base metal. Superior is presently developing its Canopener (Northwestern Ontario) and Bachelor Lake (Québec) properties. Both these projects are gold exploration programs. Drilling on the Canopener Project is expected to commence in the first quarter of 2008. Superior has several other such projects that will be brought forward over time.

Superior is currently exploring for Uranium in the Thelon Basin of Nunavut. This project has excellent potential as the large property position includes extensions of structures, and structures aligned parallel to, the Kikavik-Sissons Uranium deposit. A first summer of prospecting and material sampling has been completed. Drilling of targets for this project should commence during the 3<sup>rd</sup> quarter of 2008.

## **Alteration and Mineralization of the North Spirit Lake Greenstone Belt, Northwestern Ontario Préfontaine, S. and Buse, S.**

The North Spirit Lake greenstone belt is located within the North Caribou Terrane in northwestern Ontario. During the 2007 field season, 1: 20 000 scale mapping was conducted as part of the Ontario Geological Survey's Far North Geological Mapping Initiative. Previously the belt was divided into several tectonostratigraphic assemblages based on mapping by Wood (1977, 1980, 1988) and limited U-Pb geochronological data (Corfu and Wood, 1986). New mapping has produced an updated assemblage map as well as new structural controls on the greenstone belt. 53 mineral occurrences have been reported throughout the belt that vary in style from gold to base metals and one rare earth element pegmatite occurrence. Previously, alteration within the belt was not well documented, and the new mapping has revealed interesting synvolcanic alteration, located dominantly within the southern portion of the belt.

The belt is made of three regional scale folds with synclines on the western and eastern sides of the belt and an anticline in the central portion of the belt. The belt is intruded by four synvolcanic intrusions, two of which (Bijou Point and Shrimp Lake) are associated with mineralization. The Bijou Point intrusion is situated on the southern shore of North Spirit Lake. This intrusion hosts gold, silver, arsenic and copper mineralization in veins and disseminated throughout the intrusive phases and the surrounding metavolcanic rocks. Alteration associated with the Bijou Point intrusion is represented by tourmaline veins and sericitization. The Shrimp Lake pluton is located in the southern portion of the belt at the stratigraphic top of the Hewitt assemblage and is associated with base metal mineralization. Alteration in this area consists of abundant aluminosilicate minerals such as cordierite and andalusite in metavolcanic and sedimentary rocks. To the north of this pluton, also in the Hewitt assemblage, there is extensive VMS alteration ranging from garnet-amphibole to amphibole alteration, dominantly in dacitic tuffs. The location of this VMS alteration is correlative with the anticline hinge, which is interpreted to be the main volcanic edifice for the assemblage. Alteration throughout the rest of the belt, specifically the northern section and the westernmost syncline, is limited to a synvolcanic seafloor alteration that changed the bulk composition of the rocks. Known mineralization is located almost exclusively on the eastern side of the belt in rocks within the Makataiamik and Hewitt assemblages.

#### References

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### **Exploring the Red Lake Mine Trend & Beyond – Premier Gold Mines Limited**

The Red Lake Mining District is world-renowned for high grade gold. Its mines have produced tens of millions of ounces of gold, making Red Lake one of the world's most prolific camps. Premier Gold Mines Limited, an exploration and mining development company with projects in Northwestern Ontario and Mexico, has embarked on a major exploration program with Red Lake Gold Mines Limited, an affiliate of Goldcorp Inc., on the Rahill-Bonanza Gold Project, strategically located in the heart of the Red Lake "Mine Trend."

The Rahill-Bonanza Gold Project is a 50-50 joint venture between Premier and Goldcorp. The Property package covers several kilometres of the favourable unconformity that marks the boundary between the Confederation assemblage rocks to the south and the Balmer assemblage rocks to the north. The Red Lake Gold Mines complex is located immediately east of the joint venture project while the Bruce Channel discovery (Gold Eagle Mines Ltd) is located immediately to the northwest.

The Bonanza gold deposit, located on the joint venture property, represents perhaps the most significant near-surface gold discovery in the Red Lake area in the last several decades. The discovery was made in late 2004 when drilling intersected a new gold horizon while exploring proximal to a high-grade “gold-in-soil” anomaly. Subsequent drilling has returned numerous high-grade intersections including 13.27 grams per tonne (g/t) gold across 19.0 metres (m) and 8.66 g/t gold across 22.0 m. To-date, mineralization at Bonanza has been traced over a minimum strike length of 500 metres and to depths up to 500 metres, where it remains open.

Beyond the Red Lake District, Premier has a signed joint venture agreement to explore the Santa Teresa property in the El Alamo District of Baja California, Mexico. More recently, Premier began exploration on the joint venture property in Geraldton, at the eastern end of the Beardmore-Geraldton Greenstone Belt. Both projects are very prospective and located in proven high-grade gold camps that have seen relatively little systematic exploration over the past several decades.

### The Canadian Arrow Kenbridge Project:

#### Rediscovering Nickel in Underexplored Northwestern Ontario

Canadian Arrow Mines Ltd. is an established company focused on exploring for, developing and bringing quality nickel sulphide properties into production. The Company's current flagship project is the Kenbridge Nickel Deposit located near Kenora, Ontario. Kenbridge is more specifically located on the western flank of the Atikwa-Lawrence plutonic-volcanic complex of the Wabigoon Subprovince of the Superior Province of the Canadian Shield. The Atikwa-Lawrence plutonic-volcanic terrain forms a circular complex about 70 km in diameter with the Atikwa batholith located at the centre. Nickel, copper, chromite and platinum group mineralization has been associated with gabbroic and tonalitic intrusions within an outer sequence of folded mafic to felsic volcanic rocks arranged roughly concentrically about the batholith. Canadian Arrow has acquired nine of these mineralized occurrences. There has been little nickel sulphide exploration done in the region since the 1960's.

The Kenbridge Deposit was extensively explored by Falconbridge in the 1950's that included 50,000 ft of diamond drilling, sinking a 2,000 ft shaft with 3,000 ft of lateral development on two levels, bulk sampling and metallurgical test work.. Since acquiring Kenbridge in 2006, Canadian Arrow has rapidly advanced towards completing an early production decision. The work includes completing an NI 43-101 compliant resource estimate, 20,000 metres of diamond drilling, geotechnical and environmental baseline studies.

In December 2006 Canadian Arrow Mines optioned the Denmark Lake nickel-copper property adjacent to the Company's Kenbridge Deposit. The new acquisition covers a number of historical nickel and gold showings including the Nielson Gauthier occurrence with a drill intersection of 0.78% Ni and 0.78% Cu over a 15m interval, and the Apex Ni-

Cu occurrence which hosts an historical resource of 237,600 tonnes of 1.03% Cu, 0.56% Ni (OGS - OFR 6127, 2004). In addition, the Denmark Lake property covers approximately 8.5 kilometres of strike extent along the major controlling structure for the Kenbridge Nickel Deposit mineralization.

In the fall of 2007 three more properties were acquired; the Glatz, Emmons and Prigg Nickel Copper Occurrences. All three are within a 3 km proximity of each other and about 35 km from Kenbridge. These occurrences are located on the eastern flank of the Atikwa batholith opposite to Kenbridge and Denmark Lake.

### **Latest geophysical innovation by GDD to explore for Uranium and Base Metals**

#### **New GDD full wave 8-32 channels IP Receiver**

The first commercial full wave IP receiver on the market. Can provide 3D IP surveys.

#### **New GDD 5000W- 2400V Induced Polarization Transmitter used in Master-Slave Dual Mode configuration enable to transmit up to 10,000W - 4800 Volts.**

GDD designed and field-tested a new 5000W-2400V IP transmitter. This configuration has provided field operators the additional voltage gap needed to send more power in resistive ground. For example, the use of the 10,000W-4800V systems allowed to increase by up to 10 times the current in the ground, thus, increasing the depth of investigation from 500m to 1000m to define the alteration zone associated to graphite and possibly uranium. Areva Resources and the biggest producer of uranium in Canada are among the customers who had resistivity surveys done in Northern Saskatchewan.

#### **GDD TRM supplies power for Pulse EM Surveys using GDD I.P. Transmitter**

The GDD TRM module is used to boost the power signal from a OEM signal generator to a large 1 to 16km loop for Pulse EM surveys. The GDD TRM uses the power of the GDD I.P. transmitter to energize the large loop up to 10A and soon 20A.

#### **Enhanced GDD MPP-EM2S+ Multi-Parameters Probe**

Several enhancements took place in 2007 to make it easier to use: new push buttons, software, caps, modifications to the circuit board, etc.

#### **Enhanced Beep Mat, model BM8+ with GPS**

Thanks to its increased memory and its new software, the BM8+ enables the storage of field survey with GPS coordinates. The BM8+ reading module records the magnetic susceptibility and the conductivity up to 10 times per second while the GPS position is recorded once per second. The latest GPS allow the stored compiled maps to be used directly in the field.

### **FNX'S 2000 DEPOSIT, PODOLSKY MINE, SUDBURY:**

## ADVANCED EXPLORATION TO PRODUCTION

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FNX Mining Company Inc.'s Podolsky Mine is located in Norman Township 32 km north-northeast of Sudbury along the North-east corner of the Sudbury Igneous Complex (SIC). Past production on the property totaled 5.7 million tons grading 0.33% Cu, 0.95% Ni, 0.034% Co from the historical Whistle Mine open pit. FNX acquired the property and began renewed exploration in 2002 and has since outlined two significant zones of Cu-Ni-PGE mineralization known as the North and 2000 deposits. The 2000 Deposit is hosted within the Whistle Offset Dyke, at a vertical depth of 1,500 to 2,500 ft from surface and immediately below the contact style Ni-Cu mineralization mined in the Whistle Open Pit. The deposit consists of a steeply-dipping mineralized envelope (1,000 ft vertical x 450 strike) hosted within meta-breccia, between the eastern contact of the northeast-striking Whistle Offset Dyke and a large gabbroic xenolith trapped within the Dyke. Sulphide mineralization, consisting dominantly of chalcopyrite, pentlandite, millerite and pyrrhotite, is hosted by veins, irregular accumulations, stringers, and disseminated and blebby patches.

An advanced exploration underground program was initiated in mid-2004. This program included the sinking of a 17 ft diameter shaft to 2,688 ft and the driving of a 1500 foot lateral access drift on the 2450 Level towards the 2000 Deposit. This drift and related workings will facilitate delineation underground drilling and bulk sampling for metallurgical test work.

The shaft was completed in August 2005. Shaft changeover and commissioning was completed in 2006 and the 2450 level reached the targeted high grade zone within the 2000 deposit in late August 2007. The initial cross-cut through the deposit intersected approximately 82 feet of massive sulphide and continued through an additional 90 feet of lower grade stringer to disseminated sulphide. Diamond drillhole assay results within the high grade core on the 2450 level returned up to 26.8% Cu, 1.5% Ni, 0.15 oz/ton Pt, 0.20 oz/ton Pd, 0.01 oz/ton Au over 80.0 feet. Infill diamond drilling was initiated in September 2007 and an updated resource estimate and initial reserve estimate for the lower portion of the deposit was released in November to support anticipated production

in 2008. Advanced exploration diamond drilling and simultaneous pre-production development are progressing concurrently, which will result in a shortened timeline from exploration to commercial production.