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**Ontario Geological Survey  
Open File Report 6248**

**Report of Activities, 2009  
Resident Geologist Program**

**Kirkland Lake Regional  
Resident Geologist Report:  
Kirkland Lake District**

**2010**





ONTARIO GEOLOGICAL SURVEY

Open File Report 6248

Report of Activities, 2009  
Resident Geologist Program

Kirkland Lake Regional Resident Geologist Report:  
Kirkland Lake District

by

D.L. Guindon, G.P.B. Grabowski, A.C. Wilson and D.P. van Zeyl

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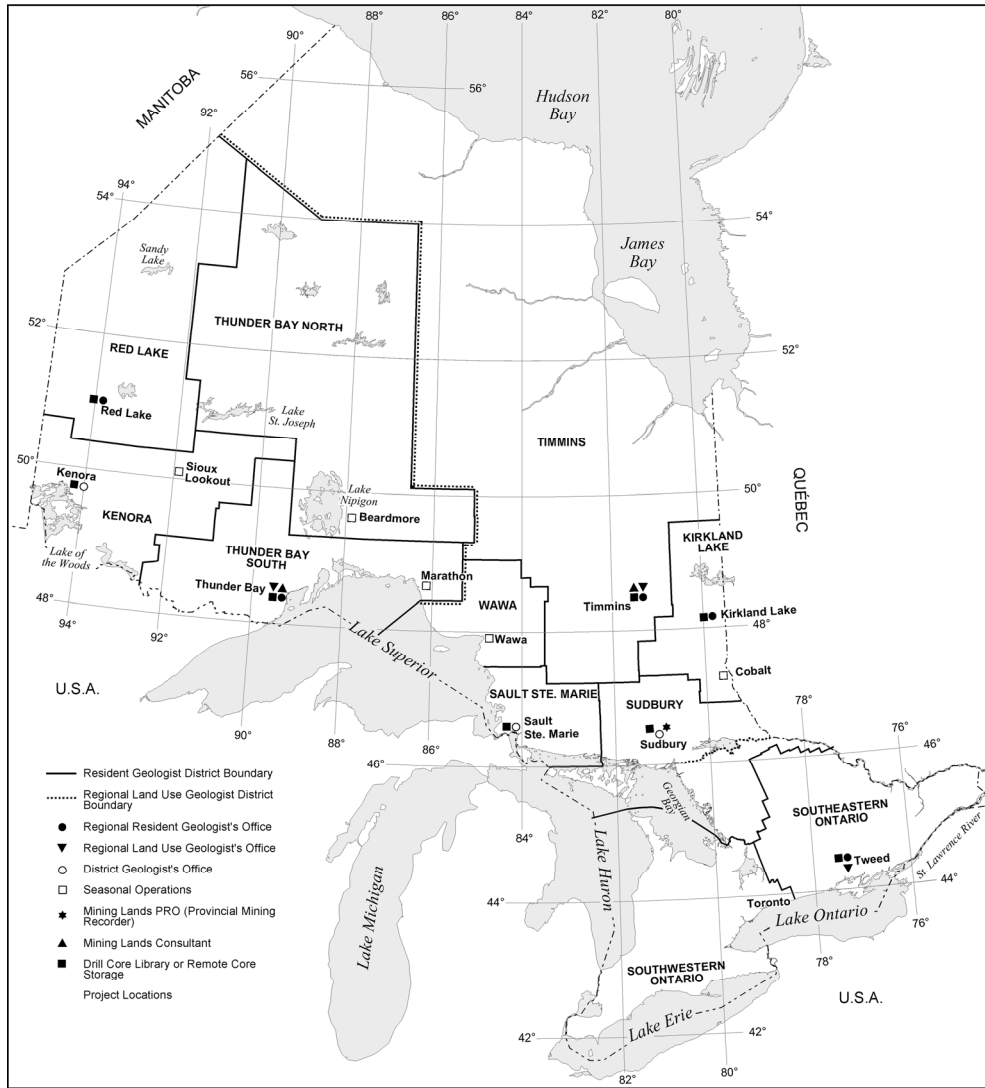
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**Ontario Geological Survey  
Regional Resident Geologist Program**

**Kirkland Lake Regional Resident Geologist  
(Kirkland Lake District)—2009**

**by**

**D.L. Guindon, G.P.B. Grabowski, A.C. Wilson and D.P. van Zeyl**

**2010**

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# Kirkland Lake Regional Resident Geologist—2009

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## INTRODUCTION

The average price of gold in 2009 was up by 11% to US\$972.35 per ounce ([www.kitco.com](http://www.kitco.com)) with the price peaking in early December at over \$1200 per ounce. Exploration activities in the Kirkland Lake Resident Geologist District continued at historic high levels. The interest in acquiring grass roots projects increased by the end of the year.

Within the District, gold was produced from Apollo Gold Corporation's Black Fox Mine, Kirkland Lake Gold Inc.'s Macassa Mine and St Andrew Goldfields Ltd.'s Holloway-Holt Mine (Figure 1, Table 2 and Table 9). The total production of gold in 2009 was 140 858 ounces or 4 381 174 g, an increase of 280% from the same period in 2008 (the Kirkland Lake Gold Inc.'s production data is for an 18 month period).

Extender Minerals of Canada Ltd. operated an underground barite mining operation in North Williams Township.

Overall, there were at least 104 active exploration projects in the Kirkland Lake Resident Geologist District (Tables 3 and 4, Figure 2).

New or updated National Instrument 43-101 (NI 43-101) resource estimates were released by Armistice Resources Corp. (McGarry project), Kirkland Lake Gold Inc. (South Mine Complex), Moneta Porcupine Mines Inc. (Windjammer South project), Northgate Minerals Corp. (Young Davidson Mine) and Queenston Mining Inc. (Anoki and McBean mines). These estimates represent more than 7.6 million ounces of gold in all resource categories.

In 2009, 343 assessment work reports were incorporated into the Kirkland Lake Assessment File system, about a 6% increase over 2008 (Table 3). These reports, approved for assessment credits, represent \$27 939 265 in exploration expenditures and are an increase of 66% from 2008. Eighty-four publications were added to the Kirkland Lake Resident Geologist District library and entered into the publications database.

Table 7 lists mineral deposits not being mined in the Kirkland Lake Regional Resident Geologist District in 2009.

## MINING ACTIVITY – PRECIOUS METALS

### Apollo Gold Corporation – Black Fox Mine

Apollo Gold Corporation commenced open pit mining at the Black Fox project, in Hislop Township, in March 2009. Ore was trucked to company's mill, in Stock Township, for processing, 26 km to the west. The mill was purchased from St Andrew Goldfields Ltd. in July 2008. It was upgraded and a new ball mill was installed. Through-put is expected to increase to 2000 t per day. The first gold pour took place at the end of May.

To the end of September, 52 961 ounces (1 647 271 g) of gold were produced from 524 800 t of ore at an average grade of 3.138 g/t. This includes 5531 ounces (172 033 g) of gold recovered from about 100 000 t of low-grade ore processed under contract at St Andrew Goldfields Ltd.'s Holt Mill in Holloway Township. Reserve and resource figures were last published in 2008.

Capital expenditures to the end of September 2009 were \$55 million including \$39 million for the upgrade of the mill, \$10 million for pre-stripping of the open pit, \$4 million for pond and road construction and \$1 million for the purchase of the Pike River property. The Pike River property is located to the southeast, between the Black Fox and Grey Fox properties.

In 2010, Apollo Gold Corporation plans to commence mining underground using the existing ramp. The production goal for 2010 is 100 000 ounces of gold. (*Apollo Gold Corporation*, Management Discussion & Analysis, May 15, August 17 and November 16, 2009, press releases, June 2, August 14, September 14, October 5, November 16 and December 30, 2009, January 28, 2010, [www.apollogold.com](http://www.apollogold.com).)

## **Kirkland Lake Gold Inc. – Kirkland Lake Properties**

Kirkland Lake Gold Inc. holds the mineral rights for the Macassa Mine and 4 other past-producing properties in the Kirkland Lake gold camp. In 2009, the company produced 48 012 ounces of gold from 132 684 tons of ore, with an average grade of 0.362 ounce per ton gold. The company's fiscal year end is April 30. Production for the first half of fiscal year 2010 was 21 047 ounces of gold from 71 498 tons of ore. At the end of April, reserves on the property stood at 1 137 000 tons grades 0.44 ounce per ton gold (proven) and 1 426 000 tons grading 0.63 ounce per ton gold (probable). Resources stood at 950 000 tons grading 0.39 ounce per ton gold (measured), 1 309 000 tons grading 0.39 ounce per ton gold (indicated) and 1 516 000 tons grading 0.59 ounce per ton gold (inferred).

The company continues to expand the gold reserve and resource estimates for its operations in Kirkland Lake, on both the historic Main Break and the South Mine Complex. The South Mine Complex (SMC) consists of 15 or more mineralized zones, 5 of which have been defined over strike lengths in excess of 1000 feet (305 m). Proven and probable reserves and measured and indicated resources have increased by 28% over the past year to 1.41 million tons at a grade of 0.71 ounce per ton gold.

The unexpected blockage of the paste-fill hole above Level 34 forced the idling of areas requiring paste fill. Operations were affected until early October. Emphasis was placed on improving the overall reliability of the mine over a quick return to production.

At the end of December, the company had 430 employees. (*Kirkland Lake Gold Inc.*, press releases, February 12, April 29, June 23, July 7, 15 and 21, August 18, September 15 and 29, November 5 and 24, and December 14, 2009, [www.klgold.com](http://www.klgold.com).)

## **St Andrew Goldfields Ltd. – Holloway-Holt Mine**

St Andrew Goldfields Ltd. completed a financing to provide the capital required to resume production. An agreement was reached with one of the royalty holders (Newmont Canada Limited) of the Holloway Mine to reduce the sliding scale royalty burden. Milling operations resumed in September with a custom milling contract to process low-grade ore from Apollo Gold Corporation's Black Fox Mine.

Mining commenced at the Holloway Mine in October. Production to the end of December amounted to 18 712 ounces of gold from 101 941 t of ore processed at a head grade of 6.57 g/t gold with a recovery rate of 86.9%. An additional 126 ounces of gold were recovered from clean-up work prior to restarting the mill. A 3000 m diamond-drilling program commenced in the fourth quarter to better understand the mineralization in the Smoke Deep Zone, located between the Lightning and Blacktop zones.

St Andrew Goldfields Ltd. applied to the Superior Court of Justice (Ontario) regarding the obligations under the royalty agreement covering the Holt property. The court upheld that St Andrew's obligation is limited to a flat rate of 0.013% net smelter return on production. Newmont Canada Limited has appealed the ruling.

At the end of 2009, the company had 140 employees. (*St Andrew Goldfields Ltd.*, press releases, July 24, September 9, November 3 and 13, 2009 and January 13, 2010, [www.standrewgoldfields.com](http://www.standrewgoldfields.com).)



## **Polymet Resources Inc. / Polymet Labs**

Polymet Resources Inc. experienced the same economic set backs experienced by the whole mining industry in 2009; as a result, there were no bulk samples processed. Its assay analytical work decreased significantly but began recovering in the autumn. Most of its clients are centered in the Kirkland Lake and Larder Lake areas. The company upgraded its infrastructure, purchased some new lab equipment and improved its quality control system. (G. Chitaroni, Polymet Resources Inc/Polymet Labs., personal communications, 2010).

## **SMC (Canada) Ltd. – McAlpine Mill**

SMC (Canada) Ltd., a subsidiary of Sabin Metal Corporation of East Hampton, NY, operates the McAlpine Mill in Cobalt. Sabin Metal Corporation offers a full precious metal refining service. The 200-ton per day plant is a gravity flotation circuit and recovers gold, silver and platinum group metals from slag, crucibles and refractory bricks from Sabin's other refineries. SMC (Canada) Ltd. offers custom milling services to the mining industry worldwide. It was a busy year processing slag. A small bulk sample was processed, for a client, to test the recovery of precious metals from slag. SMC (Canada) Ltd. employs 20 full time employees. Contacts for SMC (Canada) Ltd. are Dan Cleroux and Derek Croxall. (D. Cleroux, SMC (Canada) Ltd., personal communications, 2010).

## **MINING ACTIVITY – INDUSTRIAL MINERALS**

### **Extender Minerals of Canada Ltd. – Barite**

Extender Minerals of Canada Ltd. maintained annual production of approximately 6000 t barite (BaSO<sub>4</sub>) in 2009. The mine in North Williams Township provided all ore that was processed at the Powell Township mill. Mining at the North Williams operation is conducted via decline ramp. The ore at this mine is exceptionally pure, grading 99% BaSO<sub>4</sub>. Ore reserves at the North Williams Mine exceed 4 years and there are some reserves remaining at the Yarrow Mine in Yarrow Township west of Matachewan. Some development work was done on the Langmuir Township barite property. The company employs 13 people on a year-round basis and the work force generally increases in summer. (R. Hill, Extender Minerals of Canada Ltd., personal communication, 2010 [www.extenderminerals.com](http://www.extenderminerals.com).)

### **Kirkland Lake Rocks – Landscaping Stone**

Kirkland Lake Rocks has 6 licensed quarries in the district. In previous years, all the production was shipped to the USA. Due to the high Canadian dollar, the demand for the rock has dried up and there was no production during 2009. (R. Williams, personal communications, 2010.)

### **Miller Minerals, a Division of Miller Group Inc. – Lime and Limestone Production Facility, Haileybury**

Miller Minerals continued to increase the types of products and packaging sold from the Haileybury facility in 2009. Sales volumes of bulk limestone remained steady despite lengthy shut downs at the Xstrata Met Site in Timmins.

Agricultural limestone and limestone aggregates continue to increase over previous years. Enviro Lime, required for mine rehabilitation and environmental clean-up projects, was on the increase and looks promising for 2010. (T. Overton, Miller Minerals, personal communications, 2010, [www.millergroup.ca](http://www.millergroup.ca).)

### **A. Miron Topsoil Ltd. – Harley Township Quarry, Thornloe, Ontario**

A. Miron Topsoil Ltd., from Temiskaming Shores, Ontario, operated a limestone quarry in Harley Township. In 2009, the company produced about 4000 t of 7/8 stone, 3000 t of 5/8 crushed stone, 2000 t of blasted stone and 2000 t of miscellaneous stone. The company also produces patio stones, flagstone, decorative stone, river rock products, armour rock and pallets of limestone slabs for bricking houses. (A. Miron, personal communications, 2010.)

## ADVANCED EXPLORATION

### Armistice Resources Corp. – McGarry Project

Armistice Resources Corp. filed an NI 43-101 report on its McGarry Gold project in McGarry Township in April. An updated resource estimate lists indicated resources at 492 000 tons grading 0.23 ounce per ton gold and inferred resources at 172 000 tons grading 0.17 ounce per ton gold using a cut grade of 1.5 ounce per ton gold. An exploration diamond-drilling program commenced to define the potential between surface and the 1250 Level, continue detailed definition of gold zones on the 2250 and 2050 Levels and to test the geological package south of the workings. To the end of the year, 16 584 feet (5055 m) of diamond drilling was completed in 36 holes. This drilling includes 4099 feet (1249 m) in 7 holes from surface in the Mill Zone, located approximately 3000 feet (925 m) south of the current mine workings; 10 242 feet (3128 m) in 15 holes from surface on the potential upwards extension of the identified mineral resources between sections 175W and 450W of the shaft; and 2243 feet (692 m) in 14 underground holes from the west end of the 325 Drift on the 2250 Level. Preliminary results indicate that the 325 Zone is larger than expected. Drilling on the property's South Mill Zone area, about 2800 feet (864 m) due south of the McGarry Mine shaft, produced assay results of up to 0.41 ounces of gold per ton over 5.3 feet.

Armistice Resources Corp. signed a letter of intent with a group of private investors to provide the company with 1 year to complete due diligence and sign a definitive option agreement for the purchase of up to 100 percent of the ownership of the Kerr Mine workings and related mineral properties. The Kerr Mine lies east of the McGarry Gold project. (*Armistice Resources Corp.*, press releases, April 14, October 20, 2009, January 8 and 20, 2010. [www.armistice.ca](http://www.armistice.ca).)

### Kirkland Lake Gold Inc. and Queenston Mining Inc. – South Mine Complex JV

Kirkland Lake Gold Inc. and Queenston Mining Inc. announced the results of an NI 43-101 mineral resource calculation on the northern part of the South Claims joint venture, adjacent to the South Mine Complex (SMC) of the Macassa Mine in Kirkland Lake. The South Claims was purchased by Kirkland Lake Gold and Queenston in April of 2007 to cover the potential down-dip extension of the SMC. The results are an indicated mineral resource of 66 097 t grading 42.5 g/t gold and an inferred mineral resource of 113 179 t grading 42.5 g/t gold. The underground drilling program continued with the goal of expanding the existing high-grade mineral resource further east and to the south.

The HM Claim was purchased for \$300 000 and a 2% net smelter return (NSR) in 2009. The property lies east of the Macassa Mine and north of Queenston Mining Inc.'s Amalgamated Kirkland property. Five properties now compose the 50%-50% joint venture. A pilot hole and 3 wedge holes were completed by Queenston Mining Inc. from surface onto the HM Claim. Intersections include 1.36 ounce per ton over 5.0 feet in hole AK08-2W4, 0.25 ounce per ton over 41.1 feet in hole AK09-2W5 and 1.74 ounce per ton over 4.8 feet in hole AK09-2W6. The intersections occur on a level similar to the SMC (*Kirkland Lake Gold Inc. and Queenston Mining Inc.*, press releases, [www.klgold.com](http://www.klgold.com), [www.queenston.ca](http://www.queenston.ca).)

### Northgate Minerals Corporation – Young-Davidson Project

Northgate Minerals Corporation and the Matachewan First Nation signed an Impact Benefit Agreement for the Young-Davidson project. A pre-feasibility study was released in early July with a full feasibility study released in January 2010.

Surface exploration diamond drilling continued throughout the year. New zones were discovered.

A \$100 million financing was closed with the proceeds going to develop the property. During the fourth quarter, shaft dewatering and ramp development continued to facilitate the deepening of the existing Matachewan Consolidated Mine shaft. Major underground mobile equipment was ordered.

The feasibility study lists the average annual mine production at 180 000 ounces of gold at a net cash cost of \$351 per ounce. The mine will have a 15 year mine-life at a mill throughput of 6000 t per day. Initial capital cost is estimated to be \$339 million with a targeted production date of 2012. Production will initially be from an open pit and then from underground. Open pit reserves and resources are listed as probable mineral reserves of 4 939 000 t @ 1.66 g/t gold and inferred mineral resources of 15 000 t @ 1.74 g/t gold. Underground reserves and resources are listed as proven mineral reserves of 3 469 000 t @ 3.22 g/t gold, probable mineral reserves of 22 740 000 t @ 2.92 g/t gold, indicated mineral resources of 132 000 t @ 3.08 g/t gold and inferred mineral resources of 5 950 000 @ 3.4 g/t gold.

At the end of 2009 the company had 15 employees on the Young-Davidson site plus contractors. (*Northgate Minerals Corporation*, press releases, April 15, July 2 and 14, September 10 and 30, 2009 and January 18 and 25, 2010, [www.northgateminerals.com](http://www.northgateminerals.com).)

## **St Andrew Goldfields Ltd – Hislop Project**

St Andrew Goldfields Ltd. completed a diamond-drilling program concentrated along the margins of the mineralized zone of their Hislop project in Hislop Township. A total of 10 300 m of diamond drilling was completed in 91 holes and about 7000 m of historical core was sampled. This program confirmed the existence of several subparallel zones of near-surface mineralization.

The data was incorporated in a pre-feasibility study released in September. Probable mineral reserves are estimated at 1.9 million t grading 2.3 g/t gold. The announcement of a production decision was made in November. The mineralization will be mined by open pit and trucked to the Holt Mill in Holloway Township. The estimated capital cost to develop the mine is \$11 million. Annual production is expected to be 30 000 ounces per year at a total cash cost of \$621 per ounce. Production is expected to begin near the end of the first quarter of 2010. Additional resources have been identified beneath the existing pit (*St Andrew Goldfields Ltd.*, press releases, May 27, September 15 and November 13, 2009, [www.standrewgoldfields.com](http://www.standrewgoldfields.com).)

## **EXPLORATION ACTIVITY**

### **Alexandria Minerals Corporation – Matachewan**

In Cairo Township, Alexandria Minerals Corporation completed 1200 m drilling and a surface mapping and sampling program on its Matachewan property. The drilling intersected anomalous gold values up to 1.10 g/t gold over 1.15 m, hosted in quartz-pyrite veins and veinlets in hematized syenite and altered volcanic rocks. Of the 170 grab samples taken over 8 claims, 4 assayed between 0.89 g/t gold and 7.90 g/t gold, all occurring within syenite or at the contacts between syenite and volcanic rocks. This geology is similar to that at the adjacent Young-Davidson gold project of Northgate Minerals Corporation. (*Alexandria Minerals Corporation*, press releases, February 23 and October 8, 2009, [www.azx.ca](http://www.azx.ca).)

### **Apollo Gold Corp. – Grey Fox and Pike River Properties**

Apollo Gold Corporation completed a 53-hole, 9936 m drilling program in 2009 at the Grey Fox and Pike River properties, which are adjacent to its Black Fox gold mine. Highlights from the drilling program include a high grade intercept of 3.5 m grading 455 g/t gold as well as several separate 1 m intervals grading from 12 to 277 g/t gold. The results from the 2009 drilling program will lead to initial measured and indicated resources for Grey Fox by the second quarter 2010. (*Apollo Gold Corp.*, press releases June 11, July 22, August 19, October 16, November 2, November 19, December 18, 2009 and January 20, 2010, [www.apollogold.com](http://www.apollogold.com).)

### **Bear Lake Gold Ltd. – Larder Lake**

During 2009, 27 holes totalling 18 672 m were completed to investigate the Bear Lake gold zone. Inconsistencies regarding the reporting of exploration data on the drilling resulted in Scott Wilson Roscoe Postle Associates completing a technical investigation. The investigation resulted in the restating of previously reported intercepts.

The gold occurs within 2 types of mineralization, carbonate-type mineralization and flow-type mineralization. Although gold grades and intersection thicknesses vary greatly within the mineralized envelope, some outstanding gold values were intersected, such as those in hole NFX08-44 (13.3 g/t over 15.1 m), hole NFX07-11 (13.3 g/t over 6.0 m) and hole NFX08-35 (18.3 g/t over 4.8 m). In view of the restated exploration results, the company plans the recommencement of work toward a NI 43-101 compliant mineral resource estimate on the Bear Lake area. (*Bear Lake Gold Ltd.*, press release, November 3, 2009, [www.bearlakegold.com](http://www.bearlakegold.com).)

## **Benton Resources Corp. – Copper Hill Property, Block A**

In MacMurchy Township, Benton Resources Corp. acquired an option to earn up to 60% interest in Golden Harp Resources Inc.'s Block A of the Copper Hill property. This represents 351 of Golden Harp's 855 claim units covering several historic gold occurrences including the Cook Zone and the MC Zone. A 17-hole, 3300 m diamond-drilling program was conducted to test the Cook and MC zones as well as coincident induced polarisation (IP) chargeability and soil anomalies located west, east, and on strike to the MC Zone. The program also tested an IP target associated with the newly discovered gold-bearing Crocker Zone. A compilation of Phase 1 and Phase 2 results for holes GH09-01 to GH09-10 on the Cook Zone has identified a bulk tonnage gold target which includes intercepts of 1.69 g/t gold over 37.6 m from GH09-01, 2.05 g/t gold over 45.1 m from GH09-02, 1.36 g/t gold over 15 m from GH09-09 and 0.92 g/t gold over 27 m in GH09-10. A total of 20 grab samples were collected from the Crocker Zone over a strike length of 340 m with values ranging from 0.012 g/t gold to 9.65 g/t gold. The Crocker Zone, like the MC Zone, is hosted within pyrite-rich, green-carbonate altered ultramafic volcanic rocks. (*Benton Resources Corp.*, press releases June 4, June 18, June 25, July 7, September 9, October 1, November 20, 2009, and Management Discussion & Analysis, November 27, 2009, [www.bentonresources.ca](http://www.bentonresources.ca).)

## **Constantine Metal Resources Ltd. – Munro-Croesus**

Constantine Metal Resources Ltd. diamond drilled 3 holes totalling 843 m on the Munro-Croesus property in Munro Township. The program tested for mineralization below the old Croesus workings and to the south of a fault that cut off the mineralized zone. A diamond-drill hole in the footwall returned a best gold value in the 2009 footwall zone drilling of 2.9 g/t gold over 0.22 m. Two of the drill holes tested Croesus-type veins on the off-set south side of the Croesus fault and returned a best value of 3.4 g/t gold over 0.80 m. A 671 km VTEM time domain airborne survey at 75 m line spacing was completed over the Munro-Croesus project area. (*Constantine Metal Resources Ltd.*, press releases, April 9, 2009, and Management Discussion & Analysis, September 24, 2009, [www.constantinemetals.com](http://www.constantinemetals.com).)

## **Explor Resources Inc. – Eastford Lake**

Explor Resources Inc. completed 15 diamond-drill holes on the Eastford Lake property in Kerrs, Milligan and Warden townships. Three holes were wedged off of discovery Hole #7 in order to confirm the geophysical signature as determined by a *mise a la masse* down hole survey. The wedge holes intersected visible gold similar to that intersected in Hole # 7, with wedge hole 7C returning an assay of 142.26 g/t gold over 3.0 m. A further 7 drill holes were completed for a total of 3534.2 m to test the main vein of the Lynx Gold Zone. Visible gold was observed in 2 of the holes, with values of 7.674 g/t gold over 1.0 m in hole #07D and 7.562 g/t gold over 1.1 m in hole #19. (*Explor Resources Inc.*, press releases, February 9, February 25, May 8 and July 16, 2009 and Management Discussion & Analysis, December 23, 2009, [www.explorresources.com](http://www.explorresources.com).)

## **Explor Resources Inc. – PG 101**

Explor Resources Inc. completed 6 diamond-drill holes on the PG 101 property in Marriott Township. The drill program was designed to test the strike and dip of the mineralization previously encountered. Hole PG101-09-01 returned an intersection of 52.01 g/t gold over 3.0 m and also contained visible gold. (*Explor Resources Inc.*, press releases, March 24, May 6, July 20 and October 1, 2009, and Management Discussion & Analysis, December 23, 2009, [www.explorresources.com](http://www.explorresources.com).)

## Golden Chalice Resources Inc. – Abitibi East

Golden Chalice Resources Inc. completed a two-hole, 2039 m diamond-drilling program on the Abitibi East property's East Extension in Kerrs and Warden townships, testing a new gold-bearing zone that is on strike with Explor Resources Inc.'s Eastford Lake property. Intersections include 1.52 g/t gold over 0.5 m, 1.95 g/t gold over 0.7 m and 1.85 g/t gold over 0.8 m. The favourable belt of altered volcanic rocks appears to correlate with a magnetic geophysical signature that can be traced across a 1.5 km long grid and remains open along strike. An IP survey as a precursor to a second drilling program is planned for 2010. (*Golden Chalice Resources Inc.*, press release, November 23, 2009, and Management Discussion & Analysis, December 23, 2009, [www.goldenchaliceresources.com](http://www.goldenchaliceresources.com).)

## Golden Dawn Minerals Inc. – Link-Catharine

Golden Dawn Minerals Inc. intersected multiple intervals of gold mineralization on its Link-Catharine property in Catharine Township in the second phase of a seven-hole 1997 m diamond-drilling program. Mineralized zones were targeted primarily through magnetometer and VLF-EM surveys. Encouraging values, ranging from 0.63 g/t up to 17.45 g/t gold over 1.0 m and 13.00 g/t gold over 0.5 m, were encountered. A further 8 drill holes totalling 1350 m were drilled. Results are pending. (*Golden Dawn Minerals Inc.*, press releases, April 6 and July 27, 2009, [www.goldendawnminerals.com](http://www.goldendawnminerals.com).)

## Goldeye Explorations Ltd. – Tyrrell Township Property

Goldeye Explorations Ltd. completed 4103 m drilled in 9 holes on its Tyrrell Township property to further test the Big Dome high-grade zone and the South Hydro Creek targets. Highlights include 2 new potentially significant gold zones located by the current drilling program to date. Hole 41 intersected 5.0 g/t gold over 3.0 m in the West Target, and hole 42 intersected 6.12 g/t gold over 4.43 m in the East Extension target. The current drilling program has extended the area of the mineralized Big Dome and the subsidiary mineralized areas to a strike length of approximately 600 m. (*Goldeye Explorations Ltd.*, press release, January 16, 2010, and Management Discussion & Analysis, November 30, 2009, [www.goldeye.ca](http://www.goldeye.ca).)

## Lounor Exploration Inc. – Harker

Lounor Exploration Inc. optioned the Hurd property in Harker Township in 2008. Since that time, the company has diamond drilled 60 holes identifying a mineralized structure over a strike length of 600 m and to a depth of 150 m. Up to 3 mineralized zones have been intersected in holes. Significant intersections include hole No.31, 5.4 g/t gold over 1.0 m; hole No.33, 4.8 g/t gold over 0.7 m; hole No.42, 6.9 g/t gold over 0.25 m; hole No.54, 25.07 g/t gold over 0.77 m; and hole No.56, 12.3 g/t gold over 1.0 m. Plans for 2010 include conducting another phase of diamond drilling designed to test the high-grade section of the mineralized zone at 300 m vertical depth with several holes. (*Lounor Exploration Inc.*, press releases, January 23, February 27, and October 9, 2009, and Management Discussion & Analysis, November 30, 2009, [www.lounor.com](http://www.lounor.com).)

## Moneta Porcupine Mines Inc. – Golden Highway Project

Moneta Porcupine Mines Inc. completed 9 drill holes and 2 drill hole extensions totalling 4757 m on the Windjammer section of the Golden Highway project. All drill holes intersected gold values and the program has significantly expanded areas of potential mineralization requiring follow-up drilling. Assay results show multiple zones including 2.35 g/t gold over 6.10 m, with a high grade core of 13.40 g/t gold over 0.55 m on the Windjammer Central portion. Moneta acquired the remaining 50% ownership interest in the Michaud Joint Venture ground for \$1 million, and has terminated the Michaud JV with Acrex Ventures Ltd. The 2010 exploration program is budgeted at \$5.5 million with a minimum 30 000 m drilling program. (*Moneta Porcupine Mines Inc.*, press releases, May 21 and January 21, 2010, [www.monetaporcupine.com](http://www.monetaporcupine.com).)

## Northern Gold Mining Inc. – Garrison

Northern Gold Mining Inc. completed an option agreement with ValGold Resources Ltd. on the Garrison gold property in Garrison Township. Eleven diamond-drill holes totalling 2333 m were completed focusing on confirming high-grade gold mineralization at the Garrcon Zone in the North, Shaft, and South subzones. Visible gold was observed in 20 separate intervals in hole GAR-09-04 within the Shaft subzone. A broad intersection of the Garrcon Shaft “B” and “C” zones graded 1.38 g/t gold over 102.5 m, which included higher grade intersections of 12.33 g/t gold across 2.0 m, 19.59 g/t gold across 1.2 m, and 17.99 g/t gold across 0.7 m. (*Northern Gold Mining Inc.*, press releases, July 23 and 28, August 12 and 14, October 3 and 10, November 21, 2008 and January 25, 2010, [www.northerngold.ca](http://www.northerngold.ca).)

## Platinex Inc. – Herrick

Platinex Inc. completed a 26-hole, 1270 m diamond-drilling program on its Herrick prospect in Churchill Township. Significant results included hole HP09-27 intersected 2.63 g/t gold over 10.4 m, including a higher grade interval assaying 5.46 g/t gold over 2.7 m; hole HP09-21 intersected 6.84 g/t gold over 1.25 m; and hole HP09-29 intersected 8.52 g/t gold over 1.0 m. An 11 500 m drilling program is planned in 2010. (*Platinex Inc.*, press release, April 20, 2009, and Management Discussion & Analysis, November 24, 2009, [www.platinex.com](http://www.platinex.com).)

## Pro Minerals Inc. – Cairo

Pro Minerals Inc. completed an exploration program consisting of blasting and sampling on its property in Cairo Township. Quartz veining with up to 11.35% copper, 26.25 ounce per ton silver and 24.45% lead was encountered in 3 of 4 trenches. (*Pro Minerals Inc.*, press release, March 12, 2009, [www.prominerals.com](http://www.prominerals.com).)

## Queenston Mining Inc. – AK Zone

In 2009, Queenston Mining Inc. completed 4 directional wedge holes from pilot hole AK08-02 on the AK property in Teck Township. The most significant mineralization was encountered in wedges W3 and W4. Visible gold occurs in altered mafic syenite and porphyry containing quartz-carbonate veining with fine-grained pyrite and chalcopyrite. Hole AK08-02W3 intersected 13.7 g/t gold over 3.9 m, including a higher grade interval assaying 96.5 g/t gold over 0.5 m. Hole AK08-02W4 intersected 31.8 g/t gold over 2.3 m, including an interval assaying 59.4 g/t gold over 0.9 m. The mineralization was intersected at approximately 1700 m below surface and is interpreted to represent a portion of the South Mine Complex (SMC) currently being explored, developed and mined by Kirkland Lake Gold on the adjoining Macassa property located 300 m to the west. A second, deep diamond-drill rig was added to the property and, through 2010, the 2 rigs will target the SMC along the northern portion of the AK property as part of a 10 000 m program. Also in 2010, a drilling program is planned to both upgrade the AK historic resource to NI 43-101 status and begin deeper exploration below the deposit. (*Queenston Mining Inc.*, press releases, February 18 and April 30, 2009, and Management Discussion & Analysis, November 13, 2009, [www.queenston.ca](http://www.queenston.ca).)

## Queenston Mining Inc. – McBean and Anoki

Queenston Mining Inc. reported the results of an initial NI 43-101 mineral resource estimate at its McBean deposit and an NI 43-101 updated mineral resource at the neighbouring Anoki deposit, both located in Gauthier Township. At McBean, measured, indicated and inferred mineral resources have been determined in 4 primary lenses that have been the focus of a 105 hole (50 500 m) drilling program that began in 2008. At Anoki, located 600 m west of McBean, an update of the measured, indicated and inferred resources was completed for 9 lenses.

- McBean: Total measured plus indicated mineral resources of 706 000 t grading 4.64 g/t gold (capped) (105 700 oz.). The uncapped measured plus indicated sensitivity is 713 000 t grading 4.80 g/t gold (110 000 oz.). Total inferred mineral resources of 1 221 000 t grading 4.71 g/t gold (capped) (184 700 oz.). The uncapped inferred sensitivity is 1 267 000 t grading 6.74 g/t gold (274 300 oz.).

- Anoki: Total measured plus indicated mineral resources of 730 000 t grading 4.74 g/t gold (capped) (110 700 oz.). The uncapped measured plus indicated sensitivity is 742 000 t grading 4.74 g/t Au (113 000 oz.). Total inferred mineral resource of 337 000 t grading 4.80 g/t gold (capped) (52 100 oz.). The uncapped inferred sensitivity is 395 000 t grading 10.67 g/t gold (135 400 oz.).
- Combined Anoki and McBean: Total measured plus indicated resources of 1 436 000 t grading 4.69 g/t gold (capped) (216 400 oz.). The uncapped measured plus indicated sensitivity is 1 455 000 t grading 4.77 g/t gold (223 000 oz.). Total inferred mineral resource of 1 558 000 t grading 4.73 g/t gold (236 800 oz.). Total uncapped inferred sensitivity is 1 662 000 t grading 7.67 g/t gold (409 700 oz.).

Two drills continue to targeting both the McBean and Anoki deposits to depth below 600 m as part of a 2009-10, 20 000 m deep exploration program. (*Queenston Mining Inc.*, press releases, April 7, October 15 and December 16, 2009, and Management Discussion & Analysis, November 13, 2009, [www.queenston.ca](http://www.queenston.ca).)

## Queenston Mining Inc. – Upper Beaver

In 2008, Queenston Mining Inc. announced an NI 43-101 resources estimate on the Upper Beaver property in Gauthier Township, with an indicated mineral resource of 1 373 500 t grading 0.43% copper and 9.7 g/t gold and an inferred mineral resources of 1 061 300 t grading 0.39% copper and 8.5 g/t gold. During 2009, 11 holes and wedges totalling 15 440 m of drilling continued to test mineralization below 800 m. Highlights from the in-fill drilling include a shallow hole returning 15.8 g/t gold with 1% copper over 13.1 m, indicating that the deposit remains open towards surface above the resource. More significant is a deep hole that encountered 2 intervals assaying 23.8 g/t gold with 2.3% copper over 1.5 m and 20.3 g/t gold with 2.5% copper over 6 m at a vertical depth of 1100 m, confirming the high-grade deep potential of the deposit. Three drill rigs continue to operate on the property. One is completing the in-fill program within the NI 43-101 resource and 2 others are targeting the Porphyry Zones below the resource. (*Queenston Mining Inc.*, press releases, April 7, October 15 and December 16, 2009, and Management Discussion & Analysis, November 13, 2009, [www.queenston.ca](http://www.queenston.ca).)

## Queenston Mining Inc. – Upper Canada

Queenston Mining Inc. conducted a 4670 m, 16-hole, diamond-drilling program targeting the bulk-tonnage, open pit potential above the old mine workings at the Upper Canada Mine in Gauthier Township. Significant intersections include 1.55 g/t gold over 45.7 m (hole UC09-01), 1.54 g/t gold over 54.6 m (hole UC09-02), 0.57 g/t gold over 160.4 m (UC09-06), 1.65 g/t gold over 25 m (UC09-07), 0.42 g/t gold over 134.1 m (UC09-09), 0.57 g/t gold over 41.6 m (UC09-10b), 1.10 g/t gold over 33.5 m (UC09-11) and 2.04 g/t gold over 33.7 m (UC09-12). The mineralization consists of disseminated gold-pyrite in albite-sericite-quartz altered sedimentary, volcanic and intrusive rocks. In 2010, a 20 000 m program will be conducted to delineate the mineralization within the dimensions outlined as well as begin to extend the potential along strike and to depth. (*Queenston Mining Inc.*, press release, October 1, 2009, and Management Discussion & Analysis, November 13, 2009, [www.queenston.ca](http://www.queenston.ca).)

## Queenston Mining Inc. and Newstrike Resources Ltd. – Commodore Joint Venture

In February 2009, Queenston Mining Inc. and Newstrike Resources Ltd. formed a joint venture on the Commodore property (57 claims: 25 patented and 32 unpatented), in Lebel and Gauthier townships. Four holes, totalling 851 m, were completed targeting the HG Zone discovered by previous owners, Sudbury Contact Mines in 1995. The best interval reported was in hole COM-09-04, drilled 50 m west of the HG Zone, which assayed 4.5 g/t gold over 7.8 m, including a 5.0 m interval grading 6.3 g/t gold containing 14.9 g/t gold over 1.0 m. (*Queenston Mining Inc.*, press release, October 1, 2009, and Management Discussion & Analysis, November 13, 2009, [www.queenston.ca](http://www.queenston.ca).)

## Sarissa Resources Inc. – Shining Tree Property

Sarissa Resources Inc. completed 2 holes totalling 301 m at the at the O'Connor-Asquith gold property in Churchill Township. Anomalous gold and silver mineralization was encountered with a best assay of 9.26 g/t gold and

24.56 g/t silver over 2.06 m. A program consisting of stripping and blasting work on the historical large-scale, gold-bearing quartz stockwork vein systems and wall rocks found within the central area of the property returned values as high as 53.9 g/t gold. Further drilling to test for depth extensions is planned. (*Sarissa Resources Inc.*, press releases, June 23, October 10, 2009 and January 5, 2010, [www.sarissaresources.com](http://www.sarissaresources.com).)

## **Sheltered Oak Resources Corp. – Kerrs**

Sheltered Oak Resources Corp. completed 8 drill holes totalling 3545 m in Kerrs Township. Six were delineation holes drilled on the Kerrs trend and 2 holes were drilled on the Kidston-Dyment option. The highest results came from the middle vein of the replacement breccia zone. It shows gold enrichment in 4 of the holes with weighted average grades varying between 0.74 g/t gold and 3.32 g/t gold over true widths ranging from 4.05 to 4.5 m. The 2 reconnaissance holes drilled on the Kidston-Dyment option claim tested a prominent southeasterly trending magnetic-low target. The presence of a pyritized, silicified quartz feldspar porphyry containing anomalous gold values was confirmed, whereby drill hole K-09-23 returned 1.93 g/t gold from 235.5 to 237 m and 1.78 g/t gold from 300 to 301.5 m. (*Sheltered Oak Resources Corp.*, press release, January 20, 2010, [www.shelteredoak.com](http://www.shelteredoak.com).)

## **Temex Resources Corp. – Latchford Gold Project**

Temex Resources Corp. completed line cutting, IP survey, soil sampling and prospecting following-up on the discovery, in 2004, of gold mineralization (6222 g/t gold) within a calcite vein hosted in a block of rock. The prospecting program expanded the area of gold in bedrock mineralization with several significant individual gold values from grab samples ranging from 0.51 g/t up to 3.83 g/t, 4.53 g/t, 6.24 g/t, 9.14 g/t, 11.64 g/t, 12.91 g/t, 16.08 g/t, 49.75 g/t and 112.29 g/t gold. Gold mineralization is directly associated with gossanous fractures, up to several centimetres wide, cutting Proterozoic sediments interpreted to be near the unconformity with Archean rocks, and have associated anomalous copper, silver and iron oxide mineralization. The company plans to prioritize targets for diamond-drill testing in 2010. (*Temex Resources Corp.*, press releases, October 6 and December 10, 2009, and Management Discussion & Analysis, January 25, 2010, [www.temexcorp.com](http://www.temexcorp.com).)

## **Vault Minerals Inc. – Lebel**

In Lebel Township, Vault Minerals Inc. conducted a 3100 m diamond-drilling program, which has been designed to test the Boundary, Blue Vein, Contact and Bidgood Break West zones with 24 shallow drill holes. Results from 4 holes were received by year end. Intersections of 5.3 g/t gold over 5.8 m and 25.2 g/t gold over 0.8 m were returned from the Boundary Zone and 25.23 g/t gold over 0.75 m from the Robert Zone. Excavator trenching on the Blue Vein and Boundary zones was also completed. The program comprised 222 chip and channel samples taken along 47 sample lines that were spaced, on average, at 4 m intervals. Assays of up to 73.0 g/t gold over 1.0 m were returned from the Blue Vein Zone. Chip samples of up to 8.9 g/t gold over 3.2 m were returned from the Boundary Zone. (*Vault Minerals Inc.*, press releases, June 10, December 18, 2009, and January 25, 2010, [www.vaultminerals.com](http://www.vaultminerals.com).)

## **RESIDENT GEOLOGIST STAFF AND ACTIVITIES**

At year-end, staff at the Kirkland Lake Regional Resident Geologist Office included G. Grabowski, District Geologist, D. Guindon, Regional Resident Geologist, and D. van Zeyl, Acting District Support Geologist.

G. Grabowski was the Acting Regional Resident Geologist until March 31st. Mr. Grabowski gave a talk to the Northern Prospector's Association annual general meeting in February.

D. Guindon was Acting Regional Resident Geologist from April 1st through October 31st, before taking on the role of Regional Resident Geologist on November 1st. Mr. Guindon provided a talk to 3 Grade 7 classes at Kirkland Lake District Composite School in June.

D. Guindon and G. Grabowski gave talks on mining history and the Timiskaming rift valley at the International Plowing Match in Earlton in September.



M. Francoeur was District Support Geologist from January to March.

N. Harvey was Acting District Support Geologist from April to May. E. McKean was Acting District Support Geologist from July to August. In addition, E. Chamailard was an Ontario Experience student from May to August.

Mr. van Zeyl began as Acting District Support Geologist on September 14 and had processed about 130 assessment files by year-end. He has also been engaged in maintenance of the spatial and attribute components of the assessment file databases and produced a poster for the Northeast Resident Geologist Program, which was presented at Mineral Exploration Roundup 2010 in Vancouver.

## PROPERTY EXAMINATIONS

In 2009 a total of 23 properties were visited by Kirkland Lake District Office staff (Table 5 and Figure 3).

### Coppersand Copper Prospect

The Coppersand copper prospect was examined in July 2009 as part of an effort to examine a number of mineral occurrences in the Lake Temagami area. The Coppersand prospect is contained within 1 leased claim (T61491 – surface and mining rights) consisting of about 1 claim unit. It is located east of Ferguson Bay in Cynthia Township at NAD83 UTM Zone 17 571070E 5221100N. Access for the visit was from the lake shore at a campsite at 570925E 5220120N with the occurrence being about 1.2 km to the north. The Ferguson Trail is located to the east of the campsite and the meandering trail appears to pass close to the occurrence. On our visit in July 2009, the trail was well travelled in some areas and could not be found in others. Access described in older reports indicates road access was possible from the Red Squirrel Road that intersects Hwy 11 north of the village of Temagami.

The earliest exploration on the property is reported to be from the 1920s with some trenching. Following the 1950s, stripping, trenching, sampling and diamond-drilling programs identified copper mineralization associated with a flat carbonate vein exposed in a valley. At one time the owner considered starting a small open pit mine and creating a concentrate to be shipped out for refining. The vein lies at the contact of Gowganda Formation sedimentary rocks and overlying Nipissing Diabase sill. The diabase is coarse grained and granophyric. The Gowganda Formation sedimentary rocks are argillite, greywacke and conglomerate.

Historical assaying of the vein on surface and in drill core returned gold values to 0.20 ounce per ton, silver values to 6.25 ounce per ton, copper values to 22.5%, nickel values to 0.57% and cobalt values to 0.13%. Values are erratic due to the coarse nature of the mineralization. The vein exposed is about 2 m thick.

Historical diamond drilling, on 100 foot (30.48 m) centres, outlined mineralization over about 600 square feet (55 m<sup>2</sup>) with intersections varying from nil to 13 feet (4 m). Mineralization consists of chalcopyrite, malachite, pyrrhotite, and traces of pyrite and galena. Crude banding of the mineralization has been noted parallel to the base of the sill (Simony 1964, Kirkland Lake assessment file CO-0884). A vein sample with about 5% sulphide mineralization, collected during the recent examination, returned an assay of 1.4% copper and greater than 187 ppm Co.

The prospects geological location, at the contact of Nipissing Diabase and Gowganda Formation sedimentary rocks near the unconformity with older Archean volcanic rocks, is similar to Cobalt silver deposits, but it lacks the copper-nickel-iron arsenides associated with such deposits. Other than the presence of chalcopyrite occurring in the Lake Temagami area, the prospect shows no other similarities for the past-producing Copperfields Mine. The prospect, as defined by diamond drilling, is limited, flat lying, with its narrow thickness limiting its economic potential. Exploration in the area is further encumbered by land alienations.

### Dewy Bay Copper-Nickel Occurrence

Teck Resources Ltd. owns a number of leased claims on Temagami Island and along the Northeast Arm of Temagami Lake, including the past-producing Temagami copper mine on Temagami Island. Between 1956 and 1972, the mine produced more than 80 000 000 pounds of copper, 175 000 ounces of silver and 9000 ounces of gold. Included in the claim group is the Dewy Bay copper-nickel occurrence (MDI31L13NW00020) in Briggs Township on leased claims T31488, T31491, T31499 and T31561.

The property lies within the Temagami greenstone belt. The main rock types on the property consist of intermediate to felsic metavolcanic flows and pyroclastics and the Temagami Island Gabbro (TIG), a conformable sill-like intrusion. Bennett (1978) describes these intrusions as metadiorite sills and they are considered to have acted as a control for the high-grade copper ore bodies of the Temagami copper mine. The TIG is typically medium grained, medium to dark green to greyish green on fresh surfaces. Wave-washed surfaces on Lake Temagami are commonly bright green and pitted, making the rock easily distinguishable from mafic metavolcanics and most of the other mafic intrusive rocks of the area. The presence of scattered quartz “eyes”, bronze-coloured leucoxene, and pyrite is also characteristic. The fabric may range from massive to distinctly foliated and sheared.

The feature of the Temagami Island Gabbro that has received much attention is a pyritic zone along the footwall or southeast side of the sill. The pyrite zone appears to occur consistently with the base of the sill, although its thickness varies from a few centimetres to several tens of metres.

The Dewy Bay occurrence is one of numerous copper and nickel occurrences found on the southern contact of the TIG with felsic metavolcanic rocks. Diamond drilling on the property in 1951 returned 0.38% copper; 0.16% nickel over 4.3 m from a pyritic zone at the base of the Temagami Island Gabbro. Similar copper-nickel occurrences, including the O'Connor (MDI31M04SW00072) and the Diadem (MDI31M04SW00077), which lie about 10 km to the northeast in Strathcona Township, were discussed in the 1999 Report of Activities (Meyer et al. 2000). Anomalous platinum group element (PGE) values have been obtained from these properties.

Sampling on the Dewy Bay property by OGS staff returned significant copper (6609 ppm) and nickel (5632 ppm) values. No significant gold or PGE results were returned; however, a sample collected from a rock dump at the Temagami copper mine containing about 20% chalcopyrite in gabbro, returned 6.6041 g/t gold and 66.888 g/t palladium. The mine was reported to have PGE values associated with the TIG (F. Sharpley, former mine geologist, personal communication); however, no PGE assays could be found in the assessment files. As reported in a Recommendation for Exploration in the 1994 Report of Activities (Ireland and Basa 1995), the TIG should be explored along its length for PGE, as well as copper and nickel.

## **Link-Catharine Property**

Golden Dawn Minerals Inc. held 5 claims (14 units) in the southwestern corner of Catharine Township under option from T.A. Link. The Link-Catharine property lies along and straddles the contact of the Round Lake Batholith and the Pacaud assemblage volcanic rocks, within the southeastern end of the Boston-Skead gold belt. A pattern of major complementary structures in the volcanic sequence, such as the Pacaud Fault, presents a favourable geologic corridor for gold mineralization lying within the Link-Catharine property. Gold is associated with pyrite and sheared, quartz-bearing, green carbonate alteration. The green carbonate zone is apparently associated with an east-trending structure, which intersects north-trending volcanic rocks. The volcanic rocks, consisting of interlayers of mafic and ultramafic rocks, top to the east and apparently dip to the east. Green carbonate is formed by the hydrothermal alteration of permeable ultramafic rocks.

Upon finding old pits and trenches, a gold showing on the property was “re-discovered” and staked by F. Marshall in 1993 and subsequently optioned to Sudbury Contact Mines Limited. The company completed 14 diamond-drill holes totalling 1723 m, with the best intersection being 7.1 g/t gold over 4 m. The claims were allowed to lapse and were subsequently staked by T.A. Link, who, between 1999 and 2003, conducted 3 small drill programs. Numerous 1.0 m to 0.4 m wide quartz veins and thin veinlets with associated pyrite and iron carbonate alteration zones were intersected. The better intersections were 6.00 g/t gold over 8.6 m and 1.91 g/t gold over 20.4 m. Other intersections averaged 0.91 to 2.34 g/t gold over widths ranging from 1.5 to 15.6 m. One 1.0 m interval, consisting of a quartz-vein-flooded zone with 10% fine to coarse pyrite, returned an assay value of 33.99 g/t gold.

Based on these results, Golden Dawn Minerals Inc. optioned the property in 2008. A ground magnetometer and VLF-EM survey was completed in 2008 to determine if geological signatures related to potential mineralization could be defined. Drilling was directed toward VLF conductors that reflect a rectilinear pattern of north- and east-trending lineaments, the intersections of which coincide with known gold occurrences. During 2008 and 2009, Golden Dawn conducted 3 drill programs totalling 2622 m. Values ranging from 0.63 g/t up to 17.45 g/t gold, were intersected. Multiple intersections of gold mineralization demonstrate the presence of gold within multiple zones in several conductors, within a belt that is north-trending. Based on the drilling results, mineralization on the Link-

Catharine property is associated with strongly altered ultramafic rocks, injected with numerous quartz-carbonate-albite veins and/or strongly albitized and silicified basalt with variable pyrite content. Gold is noted where quartz-albite veinlets contain clotted pyrite typically greater than 3%, as well as in silicified basalt and porphyritic dikes where clotted pyrite is present. Quartz-albite veins with tourmaline are associated with shears, often within the carbonate zones, and where clotted pyrite is present there appears to be a correlation between sulphide content and gold values. Pyrite also occurs as disseminated grains in the alteration envelopes bounding the quartz-albite veins.

Ultramafic rocks are exposed intermittently along the contact of the Round Lake Batholith from Boston Creek to Charlton, a distance of more than 50 km (Ayer and Trowell 2000). Much of the area is covered by thick glaciolacustrine deposits making up the northern edge of the Little Clay Belt farmland. Where cross-cutting structures intersect these ultramafic rocks, the potential for gold mineralization along this horizon is highly prospective.

## RECOMMENDATIONS FOR EXPLORATION

### Gold Deposits in the Blake River Assemblage

The Upper Blake River assemblage in Ontario has long been considered a prospective exploration target for volcanogenic massive sulphide deposits, similar to the Noranda camp of Quebec. A number of occurrences have been found but all, to date, are sub-economic. Substantial research has been completed recently on the Blake River as part of Phase 3 of the Geological Survey of Canada's Targeted Geoscience Initiative program (Abitibi project). With much of the work focussed on the Quebec side of the Blake River (Ross et al. 2007; Ross et al. 2008) limited work was completed on the geology of the Ontario side (Ross et al. 2009). The research in Ontario compared mapped volcanoclastic units to important volcanoclastic units in Quebec. Two areas of focus were Tannahill Township and the Labyrinth Lake area in Ossian Township. The results on the Ontario side suggest that the exposed volcanoclastic rocks, considered important as hydrothermal conduits for the creation of economic mineral deposits, do not have the lateral continuity, thickness and scarcity of interbedded coherent massive or pillowed flows as mapping suggested. Focussed exploration for favourable lithological units may disprove the suggestion of lower exploration potential within Ontario's Blake River assemblage.

The majority of the Upper Blake River assemblage is often considered too far away from the Larder Lake–Cadillac Fault Zone (or Break) or the Destor–Porcupine Fault Zone to host economic gold deposits. An exception may be the Romec-1 (Russian Kid) deposit located north of Labyrinth Lake, just across the Quebec border.

The deposit is hosted in a northeast-trending differentiated sill. The sill has several lithological facies including gabbro, diorite, quartz-diorite, granodiorite and tonalite. The mineralization is found within quartz-carbonate veining within subparallel shear zones. The orientation of the veins is 070 to 090 with 55° to 80° south dips. Veins are dislocated by up to 30 m by transverse faults. Mineralization in the veins is limited to 2 to 10% pyrite with occasional chalcopyrite and visible gold (Duplessis and Dupéré 2007).

A recent NI 43-101 technical report estimates mineral resources, using a 3 g/t gold cut-off as follows: measured mineral resource of 91 600 t @ 6.72 g/t gold, indicated mineral resource of 274 200 t @ 6.37 g/t gold and inferred of 955 200 t @ 10.37 g/t gold (Duplessis and Dupéré 2007).

The Romec-1 deposit has been plotted on Figure 4 (OGS–MERQ 1984). It appears to be on the projection of a fault that terminates on the Ontario–Quebec border. The Kirkland Lake Fault is a splay fault off the Larder Lake–Cadillac Fault Zone, trending northeast from the Kenogami Lake area, west of Kirkland Lake. East of Kirkland Lake, in Lebel Township, the fault trifurcates in the Victoria Lake area. The same faults are shown on the Abitibi compilation data set (Figure 5) (Ayer, Trowell and Josey 2004). The southern branch extends to the Romec-1 deposit area.

Figure 5 shows the area east of Kirkland Lake to the Quebec border, covering the majority of the Ontario portion of the Black River assemblage. Mineral occurrences are plotted as follows: Au ± base metals (yellow circles), base metals (orange circles), iron (black circles), kimberlite (purple diamonds) and diamonds (white diamonds). In the upper portion of the figure, there is an apparent spatial relationship of the mineral deposits and structure. The

majority of the mineral showings are classified as occurrences in the Ontario Geological Survey's Mineral Deposit Inventory Version 2 (MDI2), indicating that mineralization has not been identified in 3 dimensions with 3 different samples including drilling. Therefore, follow-up exploration along these structures, especially near north- to northwest-trending structures, may prove fruitful.

With the rise in gold prices over the past few years, smaller gold deposits, similar to Romec-1, are becoming targets for exploration. In the case of Romec-1, new mining technologies for extracting ore from very narrow views is being explored to increase the economics of the deposit. Focussed exploration along the northeast-trending structures is required.

## Gold Structures in the Kirkland Lake District

The relationship between major structures and gold deposits in the Abitibi greenstone belt has been well documented and studied over the last century. The 2 most prolific and well known "breaks" (also referred to as fault zones or deformation zones) are the Porcupine–Destor (PDFZ) and Larder Lake–Cadillac (LLCB). Trending in a general east direction for more than 450 km through the south-central portion of the Abitibi greenstone belt, these 2 "breaks" have accounted for more than 65% of the historical gold production in Canada or more than 140 million ounces (>4000 tonnes) worth about C\$160 billion (based on C\$1150 per ounce). Major mining camps include Timmins, Kirkland Lake, Larder Lake, and Matachewan in Ontario as well as Val d'Or, Malartic and Rouyn–Noranda in Quebec. Many gold occurrences are also associated with splay faults or structures that emanate in various directions from these breaks. The Pipestone, Munro, Arrow, Ghostmount and McKenna faults are some of the more important PDFZ splays, while the Kirkland Lake, Upper Canada and Benson Creek faults are associated with the LLCB.

A Recommendation for Exploration was published in the 2003 Report of Activities (Meyer et al. 2004) speculating on the location of the LLCB west of Matachewan based on published magnetic surveys. The parabolic nature of portions of these "breaks" and the gold occurrences associated with them were discussed. Similarly, using the structural data shown on 1:100 000 scale OGS compilation maps, the parabolic nature of portions of these "breaks" is also evident. The PDFZ illustrated on OGS Map P.3398 (Figure 6A; Ayer, Berger and Trowell 1999), exhibits this parabolic character from Beatty Township east to Garrison Township for a distance of about 30 km. The major faults and cross structures are highlighted on Figure 6B. Note the relationship of gold occurrences with the cross structures to the PDFZ.

The LLCB on OGS Map P.3425 (Figure 7A; Ayer and Trowell 2000) follows a similar shape from Lebel Township to McGarry Township for a distance of about 30 km. Superimposing the structures extracted from the PDFZ in Figure 6B onto the LLCB shows a remarkable similarity. For example, the Arrow Fault, a northeast-trending (070°) structure crossing the PDFZ, falls directly over the Upper Canada fault. The Upper Canada Mine on this fault produced more than 1 million ounces of gold and is being actively explored by Queenston Mining Inc. The Upper Beaver property, also being explored by Queenston, falls on the intersection of the "Munro Fault" with a northeast-trending structure that crosses the LLCB at Queenston's McBean Mine. Note also the number of gold showings on the cross faults as well.

The LLCB has been confidently traced as far west as Matachewan (Young Davidson and Matachewan Consolidated mines) where it becomes covered by Proterozoic Huronian Supergroup sedimentary rocks. Traditionally, from Matachewan, the break is considered to follow a southwest trace toward Midlothian Township, or farther south toward Shining Tree. The magnetic pattern suggests that there is a similar parabolic trace of the LLCB, which would bring the break in a northwest direction toward Hincks Township (Meyer et al. 2004). Superimposing the structures from Figure 6B on to OGS Map P.3527 (Figures 8A and 8B; Ayer et al. 2003) provides a similar pattern, when combined with magnetic data. Some minor "rubber sheeting" is required; however, the similarity is striking. There are more than 12 gold showings along this trend, the most important being the Ashley Mine in Bannockburn Township. The location of the "Arrow Fault" coincides with a structure in northern Bannockburn Township.

In October 2008, a high sensitivity airborne magnetic survey was released for the Burntbush area north of Lake Abitibi. The northern part of the Burntbush survey area hosts the westerly extension of the Casa Berardi tectonic zone, fault or break. A Recommendation for Exploration was published in the 2008 Report of Activities (Grabowski et al. 2009) highlighted the similar splay structures which could be seen in the magnetic pattern of the Burntbush

survey. The western portion of the Burntbush area, shown on Figure 9A, is taken from OGS Map P.3609 (Ayer et al. 2009a). Once again, the structures captured from the PDFZ from Figure 6B can be aligned with the Casa Berardi break through Blakelock and Tweed townships (Figure 9B). Outcrop is very sparse in the area and geological interpretation depends greatly on diamond-drill records and geophysical surveys. Consequently, mineral occurrences are based on drill-hole data. Exploration efforts in the Burntbush area, using intersecting structures based on those found within the PDFZ and LLCB, should be carried out within this relatively unexplored area.

## **OGS ACTIVITIES AND RESEARCH BY OTHERS**

### **Ontario Geological Survey Activities**

Two Ontario Geological Survey (OGS) projects were underway in 2009 in the Kirkland Lake Regional Resident Geologist District (Baker et al. 2009). Both studies took place in the Burntbush-Detour lakes area and are summarized below.

Being characterized by a till plain with outcrop limited to sporadic bedrock knobs and low hills, historically, the Detour-Burntbush lakes area has been an underexplored part of the Abitibi greenstone belt. However, Ayer, Trowell and Dubé (2009) discussed how the area is an important exploration target for base metal and gold deposits. They also described a newly released 1:100 000 geological map and corresponding GIS compilation (Ayer et al. 2009a, 2009b) and high-resolution aeromagnetic geophysical surveys (OGS 2009a, 2009b, 2009c) covering this area.

Gao and Kodors (2009) continued mapping and sampling of the thick and extensive surficial deposits overlying the bedrock in the Burntbush-Detour lakes area. This project will produce surficial geology maps and insight into the Quaternary history of the area. In order to assist mineral exploration efforts, these authors collected about 90 till samples in 2009, which are being processed for kimberlite indicator minerals, gold, silver and base metals. In addition, their 2009 field season delineated aggregate resources in eskers near the Detour gold mine.

The northeast Regional MDI Compilation Geologist began compiling data for the Maple Mountain sheet, which will be the next 1:100 000 scale compilation project for the area.

### **Geological Survey of Canada**

As part of Phase 3 of the Geological Survey of Canada's Targeted Geoscience Initiative (TGI) program, Ross et al. (2009) described and interpreted mafic to intermediate volcanoclastic rocks from the Tannahill Township and around Lake Labyrinth. The aim of their work was to contribute to a better understanding of the volcanic architecture and stratigraphy of the Blake River Group and to stimulate mineral exploration, particularly for volcanogenic massive sulphide deposits.

As part of Phase 1 of the Geological Survey of Canada's Targeted Geoscience Initiative and the Northern Ontario Mineral Development Agreement, McClenaghan, Gauvreau and Kjarsgaard (2009) compiled mineral chemistry data on kimberlite and on surficial sediment and kimberlite boulders from the Lake Temiskaming and Kirkland Lake kimberlite fields. These data were published previously in GSC Open Files, but this compilation contains the most up-to-date and correct versions of the mineral chemistry data. The database contains samples from 930 surface pits, backhoe pits, overburden drill holes and diamond-drill holes.

Snyder, Cary and Salisbury (2009) imaged the regional stratigraphy, major structures and lithology of the Porcupine-Destor Zone using a 10 km "Discover Abitibi" reflection seismic profile surveyed near Shillington.

### **University**

Dr. N. Banerjee (University of Western Ontario) and co-workers have been examining the remarkably well-preserved pillow basalt, breccias and hyaloclastites of the Blake River Group in Harker Township (Gilbert and Banerjee 2009; Anderson and Bebout 2009). Through such work, these researchers have gained insight into early-Earth ocean chemistry, seafloor chemical alteration processes, and microbial activity representing the evolving Archean biosphere.

B. Sejourne completed her thesis at the University of Ottawa on the petrology of Archean diamondiferous and nondiamondiferous lamprophyres in the Kirkland Lake and Cobalt areas (Sejourne 2009). Sejourne received field assistance with sample collection from Gary Grabowski.

Potter and Taylor (2009) of Carleton University used lead isotope data to describe 2 major episodes of hydrothermal fluid activity throughout the Cobalt Embayment and how the Brett gold occurrence near Latchford represents the effect of hydrothermal remobilization of Archean gold mineralization during these 2 episodes. These authors collected and analyzed samples from mineralized vein occurrences from the Cobalt camp, the Merico-Ethel property and the Brett occurrence, in addition to samples from outside the Kirkland Lake Resident Geologist District.

In a Special Volume of Precambrian Research on the Superior Craton, Wyman and Kerrich (2009) and Pearson and Daigneault (2009) described parts of the Kirkland Lake Resident Geologist District. Wyman and Kerrich, from the University of Sydney and the University of Saskatchewan, respectively, relate gold mineralization and emplacement of diamondiferous lamprophyres to the geodynamic evolution of the Abitibi greenstone belt. Pearson and Daigneault, from the University of Chicoutimi, explain the distribution of volcanogenic massive sulphide (VMS) mineralization in the southern Abitibi greenstone belt using a model of the Blake River Group representing a subaqueous megacaldera.

## LAND USE PLANNING ACTIVITIES

The northeast Regional Land Use Geologist, based in Timmins, coordinates input into land use planning activities in the Sault Ste. Marie, Timmins and Kirkland Lake Resident Geologist districts and the part of the Sudbury District north of the French River. Through the year, the position was staffed in an acting capacity by Ann Wilson, P.Geol. For the first 3 months of 2009, the northeast Regional Land Use Geologist also fulfilled the on-going duties of the northwest Regional Land Use Geologist while the recruitment process for a new staff member was in progress.

The objectives of the position are to:

- effectively represent mineral-related values in the context of competing interests for land use;
- optimize the land base available for mineral exploration and development; and
- raise awareness within the mineral sector of the implications of legislation and regulations other than the *Mining Act* on their activities.

Competing interests for land use vary from place to place across the province, but most have potential to restrict the availability of land, access to it, and the activities on it. In 2009, the northeast Regional Land Use Geologist dealt with a variety of land use planning issues.

## Crown Lands

The Ministry of Northern Development, Mines and Forestry engages with the Ministry of Natural Resources when Crown land use planning activities have the potential to impact Provincial mineral interests. These activities include Forest Management Planning, Far North Land Use Planning, Community-based Land Use Planning, and other initiatives related to Crown Land use.

Other Crown land use planning supported by the northeast Regional Land Use Geologist in 2009 included the review of Section 35 (*Mining Act*) Withdrawal and Reopening requests for the investigation and development of new waterpower sites, to secure aggregate deposits, and to support highway re-alignment projects. A total of 12 requests were reviewed and processed for northeastern Ontario, while 8 requests were reviewed and processed for northwestern Ontario.

## Municipal and Private Lands

The Ministry of Northern Development, Mines and Forestry supports municipal and private land use planning through the One Window Planning Service led by the Ministry of Municipal Affairs and Housing. When requested,

the northeast Regional Land Use Geologist provides input into reviews of draft Official Plans, and Official Plan Amendments, draft plans of subdivision and consent (severance) applications. In 2009, this One Window work included reviews of the Draft Official Plans for each of the townships of Brethour, Gauthier, Laird, McGarry, and Sables–Spanish River, as well as the Sudbury East Planning Board, Municipality of Wawa and the Town of Espanola. In addition, mineral values information in support of new or updated Official Plans was provided for 3 additional municipalities. One Official Plan Amendment was reviewed and early consultation information for 7 consent applications was supplied to the Ministry of Municipal Affairs and Housing.

The northeastern Regional Land Use Geologist also provided comments on Comprehensive Zoning By-law Amendments and a proposal to designate a specific lake in the City of Elliot Lake area as non-motorized; as well as background information on a proposal to develop further cottage lots in the Elliot Lake area, withdrawal of lands for the possible inclusion into a provincial park and a proposed withdrawal of lands related to Treaty Land Entitlement in the Chapleau area. Comments were also requested and supplied for several Environmental Assessments taking place in northeastern Ontario.

## REFERENCES

- Anderson, L.D. and Bebout, G.E. 2009. Geochemical investigation of hydrothermally altered mafic volcanic flows from the 2.7 Ga Abitibi greenstone belt, Ontario and Québec, Canada; Proceedings of the 22nd Annual Keck Research Symposium in Geology, April 2009, Franklin & Marshall College, Lancaster PA, p.113-119.
- Ayer, J.A. and Trowell, N.F. 2000. Geological compilation of the Kirkland Lake area, Abitibi Greenstone Belt; Ontario Geological Survey, Preliminary Map P.3425, scale 1:100 000.
- Ayer, J.A., Berger, B.R. and Trowell, N.F. 1999. Geological compilation of the Lake Abitibi area, Abitibi greenstone belt; Ontario Geological Survey, Preliminary Map P.3398, scale 1:100 000.
- Ayer, J.A., Trowell, N.F., Josey, S., Nevills, M. and Valade, L. 2003. Geological compilation of the Matachewan area, Abitibi greenstone belt; Ontario Geological Survey, Preliminary Map P.3527, scale 1:100 000.
- Ayer, J.A., Trowell, N.F. and Josey, S. 2004. Geological compilation of the Abitibi greenstone belt; Ontario Geological Survey, Miscellaneous Release—Data 143.
- Ayer, J.A., Trowell, N.F. and Dubé, B. 2009. A stratigraphic and metallogenic comparison of the Detour–Burntbush area with the southern Abitibi greenstone belt and its implications for exploration; Ontario Geological Survey, Open File Report 6240, p.3-1 to 3-7.
- Ayer, J.A., Chartrand, J.E., Duget, M., Rainsford, D.R.B. and Trowell, N.F. 2009a. Geological compilation of the Burntbush–Detour lakes area, Abitibi greenstone belt; Ontario Geological Survey, Preliminary Map P.3609, scale 1:100 000.
- Ayer, J.A., Chartrand, J.E., Duget, M., Rainsford, D.R.B. and Trowell, N.F. 2009b. GIS compilation of the Burntbush–Detour lakes area, Abitibi greenstone belt; Ontario Geological Survey, Miscellaneous Release—Data 245.
- Baker, C.L., Kelly, R.I., Ayer, J.A., Easton, R.M., Stott, G.M., Parker, J.R. and Brown, T. 2009. Summary of field work and other activities 2009; Ontario Geological Survey, Open File Report 6240.
- Bennett, G. 1978. Geology of the northeast Temagami area, District of Nipissing; Ontario Geological Survey, Report 163, 128p. Accompanied by Maps 2323 and 2324, scale 1 inch to 1/2 mile (1:31 680), and 1 chart.
- Duplessis, C. and Dupéré, M. 2007. Technical report: Resource modeling and estimation Rocmec 1 (Russian Kid ) Gold deposit Corporation Minière Rocmec Inc.; prepared for Corporation Minière Rocmec Inc., Systèmes Géostat International Inc. 108p.
- Gao, C. and Kodors, C. 2009. Update on surficial mapping and till sampling in the Detour Lake and Burntbush areas, northeastern Ontario; Ontario Geological Survey, Open File Report 6240, p.18-1 to 18-6.

- Gilbert, L.A. and Banerjee, N.R. 2009. Seafloor volcanic and hydrothermal processes preserved in the Abitibi greenstone belt of Ontario and Quebec, Canada; Proceedings of the 22nd Annual Keck Research Symposium in Geology, April 2009, Franklin & Marshall College, Lancaster PA, p.106-112.
- Grabowski, G.P.B., Guindon, D.L., Wilson, A.C. and Francoeur, M.C.M. 2009. Report of activities 2008, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District; Ontario Geological Survey, Open File 6236, 45p.
- Ireland, J.C. and Basa, E.M. 1995. Recommendations for exploration in the Cobalt District—Archean greenstone belts and/or inliers within the Temagami Land Caution area; *in* Summary of Field Work and Other Activities, Ontario Geological Survey, Miscellaneous Paper 164, p.64-67.
- McClenaghan, M.B., Gauvreau, D. and Kjarsgaard, B.A. 2009. Mineral chemistry database for kimberlite, surficial sediments and kimberlite boulders from the Lake Temiskaming and Kirkland Lake kimberlite fields, Ontario and Quebec; Geological Survey of Canada, Open File 5833.
- Meyer, G., Cosco, M., Grabowski, G.P.B., Guindon, D.L., Chaloux, E.C. and Charette, M. 2000. Report of activities 1999, Resident Geologist Program, Kirkland Lake Regional Resident Geologist report: Kirkland Lake–Sudbury Districts; Ontario Geological Survey, Open File Report 6007, 88p.
- Meyer, G., Grabowski, G.P.B., Guindon, D.L. and Chaloux, E. 2004. Report of activities 2003, Resident Geologist Program, Kirkland Lake Regional Resident Geologist report: Kirkland Lake and Sudbury Districts; Ontario Geological Survey, Open File Report 6131, 52p.
- Ontario Geological Survey 2009a. Ontario airborne geophysical surveys, magnetic data, grid and profile data (ASCII and Geosoft<sup>®</sup> formats) and vector data, Detour Lake area; Ontario Geological Survey, Geophysical Data Set 1062.
- Ontario Geological Survey 2009b. Airborne magnetic survey, Detour Lake area; Ontario Geological Survey, Maps 82 412 to 82 426, scale 1:20 000.
- Ontario Geological Survey 2009c. Ontario airborne geophysical surveys, magnetic data, grid and profile data (ASCII and Geosoft<sup>®</sup> formats) and vector data, Burntbush Lake area; Ontario Geological Survey, Geophysical Data Set 1063.
- Ontario Geological Survey & Ministère de l'Énergie et des Ressources, Québec. 1984. Lithostratigraphic map of the Abitibi subprovince; Ontario Geological Survey, Map 2482, scale 1: 500 000.
- Pearson, V. and Daigneault, R. 2009. An Archean megacaldera complex: The Blake River Group, Abitibi greenstone belt; *Precambrian Research*, v.168, p.66-82.
- Potter, E.G. and Taylor, R.P. 2009. The lead isotope composition of ore minerals from precious metal-bearing, polymetallic vein systems in the Cobalt Embayment, northeastern Ontario: Metallogenic implications; *Economic Geology*, v.104, p.869-879.
- Ross, P.-S., Goutier, J., Percival, J.A., Mercier-Langevin, P. and Dubé, B. 2008. New volcanological and geochemical observations from the Blake River Group, Abitibi Greenstone Belt, Ontario and Quebec: The D'Alembert tuff, the Stadacona unit, and surrounding lavas; Geological Survey of Canada, Current Research 2008-17, 24p.
- Ross, P.-S., Percival, J.A., Mercier-Langevin, P., Goutier, J., McNicholl, V.J. and Dubé, B. 2007. Intermediate to mafic volcanoclastic units in the peripheral Blake River Group, Abitibi Greenstone Belt, Quebec: origin and implications for volcanoclastic massive sulphide exploration; Geological Survey of Canada, Current research 2007-C3, 25p.
- Ross, P.-S., Goutier, J., Legault, M., Grunsky, E. and Dubé, B. 2009. New volcanological and geochemical observations from the Blake River Group, Abitibi Greenstone Belt, Ontario and Quebec: Tannahill Township and Lake Labyrinth area; Geological Survey of Canada, Current Research 2009-8, 23p.



Sejourne, B. 2009. Petrology of Archean diamondiferous and non-diamondiferous lamprophyres in the Kirkland Lake and Cobalt areas, Ontario; unpublished BSc thesis, University of Ottawa, Ottawa, Ontario, 35p.

Snyder, D.B., Cary, P. and Salisbury, M. 2009. 2D-3C high-resolution seismic data from the Abitibi greenstone belt, Canada; *Tectonophysics*, v.472, p.226-237.

Wyman, D. and Kerrich, R. 2009. Plume and arc magmatism in the Abitibi Subprovince: Implications for the origin of Archean continental lithospheric mantle; *Precambrian Research*, v.168, p.4-22.

**Table 1.** Claims recorded and assessment work filed in the Kirkland Lake Resident Geologist District in 2009.

Year	Cancelled (Claim Units)	Recorded (Claim Units)	Active (Claim Units)	Total (\$)
2009	8 736	5 126	39 636	27 939 265
2008	N/A	N/A	N/A	16 782 293
2007	N/A	N/A	N/A	15 606 666
2006	8 213	10 131	42 185	17 389 166
2005	12 989	5 830	40 500	8 575 417
2004	9 738	5 484	28 563	10 584 733
2003	6 963	6 249	28 983	4 895 030
2002	7 097	5 861	21 940	3 839 275
2001	4 308	6 229	20 712	2 888 711

*N.B., Claim data for years 2001 to 2004 and 2009 are for the Larder Lake Mining Division.*

**Table 2.** Mine production and reserves in the Kirkland Lake Regional Resident Geologist District in 2009.

Mine	Production to end of 2009		Production in 2009		Reserves at end of 2009	
	Tonnage @ Grade	Total Commodity	Tonnage @ Grade	Total Commodity	Tonnage	Grade
Black Fox <sup>1</sup>	1 791 085 tons @ 0.147 ounce per ton Au	262 887 ounces Au	524 800 t @ 3.138 g/t Au	52 961 ounces Au	N/A	N/A
Extender Minerals – North Williams	N/A	N/A	99% barite	6 000 t barite	More than 4 years	99% barite
Holloway-Holt <sup>2</sup>	226 338 tons @ 0.142 ounce per ton Au	32 244 ounces Au	101 914 t @ 0.284 ounce per ton Au	18 838 ounces Au	N/A	N/A
Kirkland Lake Gold Inc. <sup>3</sup>	927 981 tons @ 0.344 ounce per ton Au	318 892 ounces Au	204 182 tons @ 0.338 ounce per ton Au	69 059 ounces Au	<u>Macassa</u> (tons) Prv : 1 200 000 Prb : 1 303 000 Mea : 979 000 Ind : 1 471 000 Inf : 1 345 000	Ounce per ton Au 0.44 0.63 0.39 0.47 0.59

<sup>1</sup> Production commenced March 2009. Updated reserve figures not available.

<sup>2</sup> Production recommenced October 2009. Updated reserve figures not available.

<sup>3</sup> Production for May 1, 2008 to November 30, 2009. Reserve figures for April 30, 2009.

Abbreviations: Prv, proven; Prb, probable; Mea, measured; Ind, indicated; Inf, inferred.

**Table 3.** Assessment files received in the Kirkland Lake Regional Resident Geologist’s District in 2009.

<b>Abbreviations</b>	
AEM .....	Airborne electromagnetic survey
AM .....	Airborne magnetic survey
Beep .....	Beep mat survey
BENEF .....	Beneficiation
Bulk .....	Bulk sampling
DD .....	Diamond drilling
DGP .....	Down-hole geophysics
FLTEM .....	Fixed Loop Transient EM survey
Gc .....	Geochemical survey
GL .....	Geological survey
Gv .....	Gravity survey
HLEM .....	Horizontal loop electromagnetic survey
Ind .....	Industrial Mineral Study
IP .....	Induced polarization survey
KIM .....	Kimberlite Indicator Mineral
Lc .....	Line cutting
LiDAR .....	Airborne Light Detection and Ranging Survey
M .....	Ground magnetic survey
Micro .....	Microscope study
Other .....	Other study
OvD .....	Overburden drill hole(s)
PEM .....	Pulse electromagnetic survey
PGM .....	Platinum group metals
Pr .....	Prospecting
PW .....	Physical work
R .....	Resistivity survey
RC .....	Reverse-circulation drill hole(s)
rTr .....	Trenching
SA .....	Sampling (other than bulk)
sTr .....	Stripping
TDEM .....	Time domain electromagnetic survey
Ug .....	Underground work
VLEM .....	Vertical loop electromagnetic survey
VLF-EM .....	Very low frequency electromagnetic survey

<b>Township</b>	<b>Company Name “Property Name”</b>	<b>Year (#)*</b>	<b>Type of Work**</b>	<b>AFRO Number</b>	<b>RGP File Number</b>
Abbotsford, Adair	Cogitore Resources Inc. "Normetal West Project"	2007-2008	Lc, M, VLF-EM	2.39886	KL-6050
Alma, Cairo	Link, T.A. "Galer Lake Fault Prop."	2008	Gc, SA	2.39852	KL-6064
Alma, Holmes	Link, T.A. "Kincaid Fault Prop."	2007-2008	SA, sTr, Gc	2.39233, 2.42236	KL-6023, KL-6201
Argyle	Canadian Royalties Inc. "Ashley Lake Prospect"	2008	IP, Lc	2.40113	KL-6074
Argyle, Bannockburn, Hinks, Montrose	Mhakari Resources Inc.	2009 (1)	Pr, GL, SA	2.42385	KL-6220
Askin, Strathcona	Tres-Or Resources Ltd. "Temagami Diamond Project"	2007-2008	DD(2)(403m), SA, Gc	2.40379, 2.40260, 2.39186	CO-3472, CO-3401, CO-3376
Asquith	O'Connor, T.	2007-2008	SA, sTr	2.39821	CO-3396
Asquith, Churchill, MacMurchy	Skead Holdings Ltd. "Shining Tree Project"	2008-2009 (2)	AM, AEM	2.40170	CO-3443
Baden	Pro Minerals Inc. "Solano Prop."	2008	SA, sTr	2.39371	KL-6047
Banks, Speight, Van Nostrand, Whitson	Klondike Silver Corp. "Anvil Block"	2007	AM, AEM	2.40327	CO-3408
Banting	Amador Gold Corp.	2008	sTr	2.41541	CO-3479
Barber	Golden Chalice Resources Inc. "Barber / Cane-02"	2007-2008	M	2.35171, 2.40753	CO-3384, CO-3418
Barnet	St Andrew Goldfields Ltd. "Barnet-(Kiemicki Acquisition) Prop."	2006-2008	Pr, SA	2.39350	KL-6066
Beatty	Golden Valley Mines Ltd. "Salve Lake Prospect"	2009 (3)	M, IP, Lc	2.40975	KL-6143
Beatty	Russet Lake Resources Inc. "Blue Quartz Project"	2008	DD(4)(828m), SA	2.39749	KL-6098
Beatty	St Andrew Goldfields Ltd.	2009 (4)	IP, Lc	2.41715	KL-6159

Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Beatty, Munro	Big Red Diamond Corp.	2009 (5)	Lc, M	2.41105	KL-6207
Ben Nevis	Ashley Gold Mines Ltd. "Schubat Lake Grid"	2008	M, VLF-EM, Pr	2.42469, 2.41782	KL-6212, KL-6176
Ben Nevis, Katrine	Ashley Gold Mines Ltd. "Row Lake Project"	2007-2009 (6)	DD(5)(1661m), SA	2.40924	KL-6140
Ben Nevis, Katrine	Golden Chalice Resources Inc. "Row Lake Grid"	2007-2008	Lc, M, VLF-EM, IP, HLEM	2.39904, 2.40883, 2.40001	KL-6065, KL-6120, KL-6085
Ben Nevis, Tannahill	Sampo Resources Inc.	2008	DD(3)(526m), PEM, Lc, SA	2.40993, 2.41095	KL-6144, KL-6161
Benoit	O'Connor, T.A.	2009 (7)	SA	2.40919	KL-6137
Benoit, Maisonville	Northern Gold Mining Inc. "Wolf Lake & Villeneuve Prop."	2007-2009 (8)	Gc, Lc, SA, sTr	2.40733, 2.40623, 2.40000	KL-6090, KL-6091, KL-6099
Bernhardt, Lebel, Morrissette, Teck	Northern Gold Mining Inc. "Kirana Prop."	2008	AEM, Gc	2.42087, 2.40634	KL-6209, KL-6131
Bernhardt, Morrissette	Gold Diamet Resources Ltd.	2008	DD(7)(1736m), SA	2.39039, 2.40196	KL-6024, KL-6097
Best, Brigstocke, Gillies Limit	Temex Resources Corp. "Block A&B Project"	2008	AEM, AM	2.39110	CO-3381
Best, Strathy	Mathieu, T. "Owaissa Property"	2008-2009 (9)	Pr, SA	2.40309	CO-3402
Black	Carrie Arran Resources Ltd. "Black Creek Prop."	2008	DD(4)(816m), SA	2.40056	KL-6132
Blain, Marquis, Savard, Sharpe	Tres-Or Resources Ltd. & Arctic Star Diamond Corp.	2008-2009 (10)	Gc, AM	2.40473, 2.40769, 2.40715	KL-6106, KL-6111, KL-6118
Blain, Marquis, Savard, Sharpe	Tres-Or Resources Ltd. "Lapointe Kimberlite"	2005-2007	KIM	2.41496	KL-6169
Blakelock	Lake Shore Gold Corp.	2008	DD(7)(2825m), SA	2.42972	KL-6242
Bonis	Golden Chalice Resources Inc.	2006	M	2.39514, 2.39513	KL-6043, KL-6045
Bonis, Sargeant	6398651 Canada Inc. "Abitibi Prop."	2007-2008	Gc, SA	2.39936	KL-6114
Boston	6398651 Canada Inc. "Boston Prop."	2007-2008	Gc, SA	2.39383	KL-6067
Bowman, Currie	Metals Creek Resources Corp. "Currie Bowman Prop."	2008	DD(1)(161m), EM	2.40063, 2.40005	KL-6095, KL-6100
Bragg, Tweed	Lake Shore Gold Corp. "Blakelock Prop."	2007-2009 (11)	DD(13)(3144m), SA, OvD	2.40396, 2.39996	KL-6079, KL-6061
Brigstocke, Best, Cassels, Gillies Limit	Temex Resources Corp. "Latchford Gold Project"	2007-2009 (12)	Pr, SA	2.40549	CO-3423
Browning	RA Resources Ltd. "Annett- Tindale Grid 3 and Grid 4"	2008	EM, Lc	2.39799	CO-3412
Bryce	Dudgeon, C.H.	2007-2009 (13)	Pr, SA	2.40333, 2.40535, 2.40257	CO-3403, CO-3441, CO-3445
Bryce	MacCallum, R.	2009 (14)	M, VLF-EM	2.42126	CO-3469

## KIRKLAND LAKE DISTRICT—2009

Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Bryce, Nicol	Northstar Gold Corp. "Nicol and Bryce Blocks"	2009 (15)	TDEM, M, AEM	2.41540, 2.41584	CO-3478, CO-3486
Bryce, Robillard	Gondor, L. "Bryce Project"	2006-2008	sTr	2.39416	CO-3438
Burrows, Haultain, Kemp, Nicol	Norcanex Resources Inc. "Gogama Project"	2008	AM	2.39040	CO-3375
Burt	Insight Exploration Inc.	2009 (16)	IP	2.42187	KL-6188
Burt	Rapski, J.	2008	SA, sTr	2.39905	KL-6103
Cabot	Golden Valley Mines Ltd. "Jonsmith Prop."	2009 (17)	M, IP	2.42545	CO-3488
Cairo	Golden Valley Mines Ltd. "Plumber Prospect"	2007-2009 (18)	DD(4)(453m), SA	2.40797	KL-6124
Cairo	Pro Minerals Inc.	2009 (19)	IP, R	2.41544	KL-6197
Cairo	Rapski, J. "Morrison Lake Prop."	2008	SA, sTr	2.39482	KL-6034
Cane	Golden Chalice Resources Inc.	2008	AM	2.40788	CO-3417
Carr	St Andrew Goldfields Ltd. "Carr Prop."	2008-2009 (20)	M, SA, DD(6)(1790m)	2.39436, 2.42681	KL-6033, KL-6230
Casey	Tres-Or Resources Ltd.	2008	Pr	2.39826	CO-3397
Catharine	Amador Gold Corp. "Roger Grid Hunter Gold Prop."	2008	M, HLEM, Lc, VLF-EM	2.40852	KL-6119
Catharine	Apella Resources "Firecracker Prop."	2009 (21)	Lc, M	2.42116	KL-6224
Catharine	Lake Shore Gold Corp. "Shoebox Prop."	2009 (22)	Pr, SA	2.41844	KL-6162
Catharine	Salo, A.J.	2007-2008	SA, sTr, Pr	2.39366, 2.42562	KL-6035, KL-6227
Catharine, Marter	Golden Dawn Minerals Inc. "Link Catharine Prop."	2008-2009 (23)	Lc, M, VLF-EM	2.41441	KL-6152
Catharine, McElroy	Abitibi Mining Corp. "Campbell Prop."	2008	AM, AEM, Lc, VLF-EM	2.40750	KL-6109
Chamberlain, Dack	Ashley Gold Mines Ltd. "Hillview Gold Prop."	2008	Pr, M, VLF-EM	2.41777, 2.40042	KL-6178, KL-6086
Chambers	Laronde, D. "Kokoko Property"	2008	IP	2.39801	CO-3399
Chambers, Strathy	Aura Resources Corp. "O'Connor Property"	2008	IP	2.40104	CO-3415
Charters, Donovan, Leith	Amador Gold Corp. "Donovan Basin Property"	2008	M, HLEM, Pr	2.41065, 2.41115, 2.41333	CO-3433, CO-3440, CO-3452
Chesney Bay	Marion, E.J. "Bell - Jam Group"	2009 (24)	rTr, SA, Pr	2.42218	KL-6233
Chesney Bay, Galna, Kerrs	Sheltered Oak Resources Ltd. "Chesney Bay Project"	2009 (25)	AEM	2.40267	KL-6105
Churchill	Annett, R. "Churchill Township Property"	2007-2009 (26)	DD(3)(901m), SA	2.40323	CO-3429
Churchill	Creso Resources Inc.	2007-2008	DD(2)(804m), SA	2.38780	CO-3380
Churchill	Dirks, P.P, Dirks, P.J. & Hinzer, J.B. "Dirks/Dirks/Hinzer Project"	2008	sTr, SA	2.42207	CO-3489

Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Churchill	Golden Valley Mines Ltd. "Gosselin Discovery Property"	2008	Lc, M, VLF-EM	2.39218	CO-3379
Churchill	Platinex Inc. "Herrick Gold Deposit"	2009 (27)	DD(2)(220m), SA	2.41955	CO-3468
Churchill	Skead Holdings Ltd.	2008	SA, sTr	2.38652	CO-3374
Cleaver	Warford, V.W.A.	2008	Pr	2.41264, 2.41064	KL-6206, KL-6208
Cleaver, Hincks, McNeil, Robertson	Klondike Silver Corp. "Nickel South Block"	2007-2008	M, AEM, AM	2.41519, 2.39784, 2.39782	KL-6196, KL-6054, KL-6053
Coleman	CJP Exploration Inc. "Juno Mine Property"	2009 (28)	M	2.41168	CO-3458
Coleman	Traimer, H.	2008	sTr	2.39433, 2.41828	CO-3393, CO-3482
Connaught	Sedex Mining Corp. Ltd. "Elephant Head Prop."	2008	Pr, sTr	2.41922, 2.40873	CO-3487, CO-3430
Corkill	Amador Gold Corp. "Kell Mine Grid"	2007-2008	DD(18)(2270m), IP, Lc, SA	2.40334, 2.41119	CO-3406, CO-3460
Corkill	Golden Chalice Resources Inc. "Corkill-Lawson Property"	2007-2008	AEM, AM, IP, Lc	2.40414, 2.41522	CO-3459, CO-3465
Corkill, Haultain	Klondike Silver Corp. "Haultain Property"	2007-2008	Lc, M, VLF-EM, AM, AEM	2.41539, 2.40411, 2.40765	CO-3466, CO-3420, CO-3426
Coulson	Moon Energy Corp. "Fort Knox Gold Project"	2007-2008	DD(2)(622m), SA	2.39935	KL-6116
Coulson	Moon Energy Corp. "Matheson Project"	2007	DGP	2.41029	KL-6141
Coulson, Rayner Lake, Warden	Golden Chalice Resources Inc.	2006-2009 (29)	DD(27)(10 106m), SA	2.40225, 2.39792, 2.40766	KL-6107, KL-6051, KL-6123
Currie	Metals Creek Resources Corp. "Tillex Prop."	2008	DD(7)(1295m), SA	2.41806	KL-6229
Davidson, Sharpe, Smyth, Truax, Tudhope	Contact Diamond Corp. "Elk Lake Diamond Project"	2007-2008	Lc, M	2.39781, 2.39879	KL-6030, CO-3398
Dokis	Marion, E.J. "Malamute Prop."	2008	DD(2)(523ft)	2.39077	KL-6070
Donovan	Amador Gold Corp. "Thompson Property"	2008	M, VLF-EM	2.41060	CO-3436
Doon	Golden Chalice Resources Inc. "Doon Prop."	2008	Pr	2.41779	KL-6157
Doon, Midlothian	Golden Chalice Resources Inc. "Shillington West Prop."	2008	M, VLF-EM	2.39877, 2.39869, 2.40020	KL-6063, KL-6071, KL-6069
Eby, Otto	Doug Robinson Consulting "Reed Robinson Prop."	2008	Lc	2.40083	KL-6101
Elliott	Ashley Gold Mines Ltd. "Easy Target"	2008	M	2.39465	KL-6027
Elliott	Golden Chalice Resources Inc.	2008	AM	2.40764	KL-6115
Elliott	Tiger Gold Exploration Corp. "Elliott-3"	2008-2009 (30)	Lc, M, VLF-EM	2.37697, 2.41594	KL-6055, KL-6181

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Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Elliott, Tannahill	Abitibi Mining Corp.	2008	Pr, Lc, VLF-EM	2.42076, 2.41398	KL-6190, KL-6149
Farr	Golden Chalice Resources Inc. "Farr Property"	2008	M, VLF-EM	2.39349	CO-3378
Fawcett	Goldeye Explorations Ltd. "Grouse Lake Grid"	2007-2009 (31)	Lc, M, IP, VLF-EM, FLTEM	2.41349, 2.40216, 2.40217	CO-3400, CO-3446, CO-3407
Fawcett	Ursa Major Minerals Inc.	2007-2008	GL, SA	2.39795	CO-3394
Flavelle	Rapski, J. "Lucky Irish Prop."	2008	DD(2)(88m), SA	2.39441, 2.39495	KL-6031, KL-6094
Flavelle	Rapski, J. "South Zone"	2008	sTr, SA	2.40822	KL-6174
Flavelle	Rapski, J. "Boundary Claim"	2008	SA, sTr	2.39483	KL-6041
Frecheville, Iroquois Point, Lamplugh Rand	Tangeoh Gold Inc. "Abitibi Lake & Land"	2008	M, VLF-EM	2.42626	KL-6239
Garrison	St Andrew Goldfields Ltd. "Buffonta Campbell Prop."	2006	DD(1)(346m), SA	2.40034	KL-6072
Gauthier	Ashley Gold Mines Ltd. "Bidgood-1 Prop."	2008	M, VLF-EM	2.39238, 2.42483	KL-6021, KL-6217
Gauthier	Ashley Gold Mines Ltd. "Bidgood-2 Prop."	2008	M	2.39240	KL-6022
Gauthier	Golden Chalice Resources Ltd. "Northland Mine"	2008	Lc, M, VLF-EM, HLEM, IP	2.41354	KL-6150
Gauthier	Marion, E.J. "Northlander Group"	2008	DD(1)(101ft)	2.38282	KL-6060
Gauthier	Queenston Mining Inc. "McBean Project"	2008	SA, DD(58)(27 266m)	2.41947	KL-6194
Gauthier	Skead Holdings Ltd. "Dobie Prop."	2008	Lc, Gc	2.41873	KL-6155
Gauthier, Hearst, McElroy, Skead	MacGregor, R.A.	2007-2008	SA	2.38715	KL-6093
Gillies Limit	International Millennium Mining Corp.	2009 (32)	M, Pr	2.41924	CO-3467
Gillies Limit	Kon, A.D.	2009 (33)	M	2.41923	CO-3461
Gillies Limit	Outcrop Explorations Limited "Waldman Property"	2008	DD(9)(2534m), SA	2.39187	CO-3371
Gillies Limit	Watts, H.A.	2008	sTr, rTr	2.41004	CO-3442
Grenfell, Teck	Hinterland Metals Inc. "Teck Prop."	2006	DD(8)(1176m), SA	2.41265	KL-6139
Guibord	Belanger, J. & O'Connor, T.	2009 (34)	Pr, SA	2.41992	KL-6165
Guibord	St Andrew Goldfields Ltd. "PJV-Coniagas Prop."	2007-2008	SA, sTr	2.39277	KL-6029
Guibord	St Andrew Goldfields Ltd. "Moneta Hislop-Guibord Prop."	2009 (35)	DD(6)(1720m), SA	2.42950	KL-6238
Guibord, McCool, Michaud, Munro	Constantine Metal Resources Ltd. "Four Corners Prop."	2008-2009 (36)	AEM, AM	2.40244	KL-6092
Halliday, Midlothian	Goldteck Mines Ltd. "Stairs Prop."	1987	DD(6)(963m), M, R	63.5024	KL-6234

Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Harker	Lounor Explorations Inc. "Hurd Prop."	2008	DD(43)(4676m), SA	2.39700	KL-6088
Haultain	Amador Gold Corp. "Capitol Mine Grid"	2008	HLEM	2.41061	CO-3434
Hearst	Brigadier Gold Ltd. "M-Island Group"	2008	DD(2)(279m), SA	2.38769	KL-6019
Hearst	MacGregor, R.A.	2005-2008	Gc, SA, Pr	2.40248, 2.40253	KL-6082, KL-6083
Hearst, McElroy, McVittie, Skead	Skead Holdings Ltd.	2007-2009 (37)	SA	2.42253	KL-6221
Hearst, McVittie	Globex Mining Enterprises Inc. "Laguerre-Knutson Prop."	2004-2009 (38)	M, VLF-EM, IP, DD(3)(649m), SA	2.42424, 2.40652	KL-6211, KL-6135
Herbert, South Lorrain	Adroit Resources Inc. "Temagami East Property"	2008	Gc, SA	2.39447	CO-3372
Hincks, Zavitz	Claim Lake Nickel Inc.	2008	Pr, rTr, SA	2.39558	KL-6075
Hincks, Zavitz	Healy, D.R. "Hincks Project"	2008	Pr	2.41533	KL-6147
Hislop	St Andrew Goldfields Ltd. "Hislop Mine Prop."	2009 (39)	Lc, IP, DD(91)(10 337m), SA	2.41957, 2.41713, 2.41720	KL-6171, KL-6183, KL-6160
Hislop	St Andrew Goldfields Ltd. "Hislop Mine Exploration Project"	1994	DD(65)(5064ft), Ug, SA		KL-6237
Holloway	St Andrew Goldfields Ltd.	2009 (40)	DD(4)(2011m), SA	2.42348	KL-6202
Holloway	Tiger Gold Exploration Corp. "Newman-16 Block"	2008-2009 (41)	Lc, M, VLF-EM, GL	2.39529, 2.42243	KL-6077, KL-6204
Holmes	Cunningham, L.J.	2007-2009 (42)	DD(2)(646m), SA	2.41420	KL-6148
James	Ashley Gold Mines Ltd. "Silverstrike Grid"	2008	Lc, M, VLF-EM	2.41520	CO-3453
James, Mickle	Amador Gold Corp. "Silverstrike Prop."	2008	M, VLF-EM, Pr	2.40076, 2.41790	CO-3414, CO-3463
James, Truax, Tudhope	Temex Resources Corp. "Merico Ethel Prop."	2007-2008	DD(21)(4436m), Gv, SA	2.39362	CO-3373
Katrine	Crown Reserve Ltd. "Walsh West Prop."	2008-2009 (43)	M, VLF-EM	2.41784	KL-6158
Katrine	Golden Chalice Resources Inc. "North Row Target"	2007	AM	2.40401	KL-6112
Katrine	Sedex Mining Corp. "Kinabik Grid"	2007-2008	IP	2.42070	KL-6191
Katrine	Sedex Mining Corp. "Lucky Strike Prop."	2007-2008	HLEM, Lc, M, VLF-EM, IP	2.39460, 2.42075, 2.40655, 2.42068	KL-6026, KL-6193, KL-6076, KL-6195
Katrine	Tanqueray Resources Ltd. "Misema Lake Project"	2008	IP, Lc	2.40731	KL-6133
Kerrs, McCool, Milligan, Warden	Golden Chalice Resources Inc. "Abitibi East Prop."	2008	AM, AEM	2.40677	KL-6128
Kerrs, Rayner Lake	Sheltered Oak Resources Ltd. "Kerrs Claims Area"	2009 (44)	AM	2.41647	KL-6170
Kimberly, Shillington	Golden Chalice Resources Inc. "Shillington Targets 07-08"	2008	M	2.39502	CO-3385

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Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Knight	Delenardo, P.J. "Pigeon Lake Area"	2007-2008	Pr, PW, SA	2.42333	CO-3491
Knight, Raymond	Laurion Mineral Exploration Inc. "Raymond Block"	2008-2009 (45)	DD(1)(289m), SA, AM, AEM	2.40868, 2.40770	CO-3427, CO-3422
Knight, Tyrrell	Creso Resources Inc. "Duggan Prop."	2007-2008	DD(8)(3654m), SA	2.39881	CO-3409
Knox, Rickard	Golden Chalice Resources Inc. "Abitibi East Prop."	2008	AEM, AM	2.39699	KL-6052
Lawson	MacGregor, R.A.	2006-2008	SA	2.40467	CO-3405
Lebel	Marion, E.J. "Continental-Federal Extension Group"	2009 (46)	sTr	2.42304	KL-6205
Lebel	Northern Gold Mining Inc. "Tom O'Connor Prop."	2008-2009 (47)	SA	2.40598	KL-6129
Lebel	Vault Minerals Inc. "Lebel Gold Prop."	2008-2009 (48)	DD(8)(2424m), SA, sTr	2.41083	KL-6136
Lee	Tres-Or Resources Ltd. & Arctic Star Diamond Corp.	2008	AM	2.40716	KL-6110
Leith	Amador Gold Corp. "Hudson Bay Prop."	2008	Pr	2.41532	CO-3470
Leonard	Goldeye Explorations Ltd. "Fournier Lake Grid"	2008	Lc, M	2.38955	CO-3382
Leonard	SL Resources Inc.	2008	M, Lc	2.42281	CO-3483
Lorrain	International Millenium Mining Corp. "Cobalt Area Prop."	2008	Ge, Lc, SA	2.39341	CO-3377
Lundy	Contact Diamond Corp. "Lundy Diamond Project"	2007	Lc, M	2.40468	CO-3416
MacMurchy	Benton Resources Corp. "Golden Harp Block A Option"	2009 (49)	M, Lc	2.42178	CO-3480
MacMurchy	Canadian Prospecting Ventures Inc. "Triton Prop."	2009 (50)	M, VLF-EM	2.41341	CO-3439
MacMurchy	Creso Resources Inc.	2007-2008	DD(2)(933m), SA	2.38878	CO-3383
MacMurchy	Goldeye Explorations Ltd. "Thorn Lake Grid"	2008	Lc, M	2.40022	CO-3428
MacMurchy, Tyrrell	Golden Harp Resources Inc. "Copper Hill Project"	2007-2009 (51)	DD(8)(2248m), SA, Pr, IP, Lc, M, Micro	2.39771, 2.41599, 2.41149	CO-3391, CO-3490, CO-3435
Maisonville	Canadian Royalties Inc. "Bennett Gold Mine Prospect"	2008	IP, Lc, M	2.39732	KL-6046
Marriott	Explor Resources Inc. "PG 101 Prop."	2009 (52)	DD(2)(490m), SA	2.41601	KL-6192
McElroy	Ashley Gold Mines Ltd. "Campbell Central Prop."	2008	AM, M	2.40043, 2.41774	KL-6080, KL-6166
McElroy	Metherall, W. & Zabudsky, D. "Grassy Lake North Prop."	2008	SA, sTr	2.39939	KL-6073
McEvay	Gervais, L.N. "Northwest arm of Davis Lake"	1956	Other		KL-6078
McGarry	Ashley Gold Mines Ltd. "McGarry Prop."	2008	M, VLF-EM, Pr	2.41908, 2.41783	KL-6154, KL-6167
McGarry	Bear Lake Gold Ltd.	2009 (53)	Pr, SA	2.42633	KL-6240



Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
McGarry	Goldstake Explorations Inc. "Rose Showing & Instant Pond Zone"	2007-2008	DD(11)(2029m), sTr, SA, M, VLF- EM	2.42132, 2.42305, 2.41581	KL-6180, KL-6199
McGarry	Goldstake Explorations Inc. "Stump Pond - Junction Pond Area"	2008	SA	2.42395	KL-6215
McGarry	Salo, A.J.	2007-2008	Pr, SA	2.39730, 2.39950	KL-6039, KL-6059
McGarry	Salo, A.J. "Foxearth"	2008-2009 (54)	DD(1)(136.2m), SA, Pr	2.42489, 2.41352	KL-6228
McGarry, McVittie	NFX Gold Inc. "Larder Lake Project"	2008	AM	2.40481	KL-6096
McNeil, Robertson	Warrior Ventures Inc.	2005-2007	Gc, Gv, M, SA, sTr, Pr, LiDAR, DD(19)(1981m), Lc	2.34079, 2.40974, 2.42217	KL-6056, KL-6138, KL-6222
McQuibban	Lake Shore Gold Corp. "McQuibban Prop."	2007-2009 (55)	DD(2)(522m), SA	2.40329	KL-6087
McVittie	Ashley Gold Mines Ltd. "Monocle Lake Grid"	2008	M, VLF-EM, Pr	2.41781, 2.41907	KL-6179, KL-6189
McVittie	Fey, C.J.	2008-2009 (56)	Lc, Pr, SA	2.41323, 2.42032	KL-6151, KL-6187
McVittie	Lawrence, R.D.	2008-2009 (57)	Pr, SA	2.41087	KL-6142
McVittie	MacGregor, R.A.	2005-2009 (58)	Gc	2.40065	KL-6122
Michaud	Belanger, J. & O'Connor, T.	2009 (59)	Pr, SA	2.41991, 2.41993	KL-6163
Mickle	Amador Gold Corp. "Boland Lake Grid Silverclaim Project"	2008	EM, Lc	2.40221	CO-3411
Mickle	Amador Gold Corp. "Cotley Mine Grid"	2008	IP	2.39850	CO-3413
Mickle	Canadian Prospecting Ventures Inc. "Silverclaim Grid Extension"	2007-2008	HLEM, Lc, M, VLF-EM	2.41184	CO-3456
Mickle, Roadhouse	Fiset, T.	2007-2008	sTr	2.39161	CO-3390
Midlothian	Laurion Mineral Explorations Inc. "Midlothian Prop."	2008-2009 (60)	DD(3)(1086m), SA, AM, AEM	2.40774, 2.40869	KL-6121, KL-6127
Midlothian	Vincent, P.	2008	GL, Pr, SA	2.39496	KL-6062
Midlothian, Montrose	Explor Resources Inc.	2008	AEM, AM	2.39851	KL-6058
Milner	Klondike Silver Corp. "Milner Prop."	2007	IP, Lc, AM, AEM	2.40747, 2.40736, 2.40803	CO-3425, CO-3421, CO-3431
Milner	Salo, L.	2009 (61)	Pr, SA	2.41807	CO-3485
Milner	Swain, S.L.	2008	Pr, SA	2.39772	CO-3395
Morrisette	Gold Diamet Resources Ltd. "Morrisette-01"	2009 (62)	DD(1)(150m)	2.41670	KL-6153
Munro, Warden	Golden Chalice Resources Ltd. "Potterdoal Prop."	2009 (63)	GL	2.41822	KL-6185
Nicol	Swain, S.L.	2009 (64)	Pr, SA	2.41039	CO-3451
Nordica	Sedex Mining Corp. "Nordica Prop."	2008	GL, SA	2.41416	KL-6184

KIRKLAND LAKE DISTRICT—2009

Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
Noseworthy	ESO Uranium Corp. "Mikwam Gold Prop."	2008	AM, AEM	2.39066	KL-6025
Ossian	Abitibi Mining Corp. "Kerr North Prop."	2008	Lc, M, VLF-EM, HLEM, Pr	2.41583, 2.41776	KL-6173, KL-6172
Ossian	Belanger, R. "Ossian Prop."	2008-2009 (65)	Lc, IP	2.41383, 2.40069	KL-6175, KL-6130
Otto	Lingenfelter, B.S.	2007	Pr	2.41506	KL-6214
Pacaud	Balzer, K.	2009 (66)	AM	2.40398	KL-6108
Pacaud	Boston Creek Mines Ltd. "Boston Creek Props."	2006-2007	Bulk	2.40324	KL-6084
Pacaud	Services Mechaniques J.A.K. Inc. "Terry Zone Property"	2008	DD(2)(100m)	2.42724	KL-6241
Pense	Tres-Or Resources Ltd.	2008	Pr	2.40763	CO-3424
Playfair	Sedex Mining Corp.	2009 (67)	AM, VLF-EM	2.40290	KL-6104
Powell	Opawica Explorations Inc. "Matachewan Prop."	2007-2008	DD(22)(8139m), SA	2.39524	KL-6042
Powell	Pacific Comox Resources Ltd. "South Zone - Ryan Lake Prop."	2007	DD(15)(1642m), SA	2.41558	KL-6216
Rankin	Golden Chalice Resources Inc. "Rankin Prop."	2008	Pr	2.41536	CO-3457
Rayner Lake	Explor Resources Inc. "Eastford Lake Gold Prop."	2008-2009 (68)	DD(18)(9404m), SA	2.42405	KL-6219
Robillard	Dudgeon, C.H.	2007-2008	Pr, SA, Lc	2.40477, 2.40500	CO-3444, CO-3404
Savard	Amador Gold Corp. "Savard/Sharpe-14 Prop."	2008	DD(2)(306m), AM	2.39299, 2.40400	KL-6020, KL-6117
Savard, Sharpe	Tres-Or Resources Ltd.	2007-2008	DD(1)(276m)	2.40328	KL-6134
Several	Sylvanite Gold Mines Ltd. "Miscellaneous Property Files"				KL-2608
Sharpe	Tres-Or Resources Ltd. "Lapointe Kimberlite"	2009 (69)	RC(1)(260m), BENEF, M	2.42197, 2.41534	KL-6218, KL-6198
Shillington	Golden Chalice Resources Inc. "Shillington Target 04"	2008	M	2.39754	CO-3386
Shillington	Golden Chalice Resources Inc. "Shillington Target 05"	2008	M	2.39748	CO-3388
Shillington	Golden Chalice Resources Inc. "Shillington Target 06"	2008	M	2.39751	CO-3387
Shillington	Golden Chalice Resources Inc. "Shillington Target 09"	2008	M	2.39746	CO-3389
Skead	Harrington, M.S. "Harrington Claims"	2008	Pr, SA	2.41518	KL-6164
Skead	Kelnick Resources Ltd. "Skidoo Lake Project"	1996	DD(28)(5206m), SA		KL-6232
Skead	MacGregor, R.A.	2007-2009 (70)	SA, Gc	2.40926, 2.40252	KL-6145, KL-6081
South Lorrain	Gore, J.A. "South Lorrain Project"	2007-2009 (71)	Lc, M, VLF-EM, SA, sTr	2.41834, 2.38200	CO-3462, CO-3392
South Lorrain	Hanes, D. "Windy Lake Claims"	2009 (72)	rTr, SA	2.42114	CO-3475

Township	Company Name "Property Name"	Year (#)*	Type of Work**	AFRO Number	RGP File Number
St. Laurent	Eastmain Resources Inc. "St. Laurent Project"	2008	DD(3)(604m), SA	2.41705	KL-6186
Strathy	Amador Gold Corp. "AJAX Project"	2008	M, VLF-EM, HLEM, Lc	2.39236, 2.41023, 2.39237, 2.39234, 2.40772	CO-3448, CO-3447, CO-3449, CO-3450, CO-3419
Strathy	Mathieu, T. "Hook Prop."	2008	Pr, SA	2.41499	CO-3471
Strathy	Webster, B. "Webster Prop."	2001	GL, SA	2.21841	CO-3455
Tannahill	Skead Holdings Ltd. "Tannahill Prop."	2008	Gc, M	2.41874, 2.41487	KL-6156, KL-6177
Tannahill	Tiger Gold Exploration Corp. "DB-12 North Block"	2008-2009 (73)	Lc, M, VLF-EM, GL	2.39258, 2.39329, 2.42704	KL-6044, KL-6048, KL-6225
Tannahill	Tiger Gold Exploration Corp. "PA-12 South Block"	2008-2009 (74)	Lc, M, VLF-EM, GL	2.38855, 2.38692, 2.42519	KL-6032, KL-6068, KL-6210
Taylor	St Andrew Goldfields Ltd.	2009 (75)	Lc, IP	2.41820	KL-6182
Teck	Golden Valley Mines Ltd. "Shamrock Prospect"	2009 (76)	Lc, IP, M	2.41708	KL-6168
Teck	Golden Valley Mines Ltd. "Winnie Lake Prospect"	2005	DD(6)(632m), SA, TDEM	2.42139, 2.42283	KL-6200, KL-6203
Teck	Laing, D.L. "Kirana Group"	2009 (77)	Pr, PW, SA	2.42583	KL-6235
Teck	Link, T.A. "Amikougami Prop."	2007-2009 (78)	SA, sTr	2.40337	KL-6089
Teck	Marion, E.J. "Black Gold Mine Prop."	2007-2009 (79)	SA	2.40197	KL-6102
Teck	Queenston Mining Inc. "Amalgamated Kirkland Prop."	2008	DD(1)(619m), SA	2.42695	KL-6231
Teck	Vault Minerals Inc. "Goldbanks Prop."	2008	Lc, M, GL, Pr, SA	2.39454, 2.39789, 2.42264	KL-6040, KL-6049, KL-6223
Tweed	Blazecka, J.	2008	DD(1)(91ft), SA	2.40475	KL-6213
Tyrrell	Burda, D. "Tyrrell Grids 1&2"	2009 (80)	M, VLF-EM	2.42284	CO-3481
Tyrrell	Goldeye Explorations Ltd. "Athena Option & Minto Prop."	2007	GL, sTr, SA, Gc	2.41919	CO-3476
Tyrrell	Goldeye Explorations Ltd.	2007	DD(3)(334m), SA	2.42084	CO-3473
Tyrrell	MacCallum, R. "Owl Lake"	2008	SA, sTr	2.40052	CO-3410
Tyrrell	Strike Minerals Inc. "Porphyry Lake Prop."	2009 (81)	IP, Lc	2.40923	CO-3437
Tyrrell	Swain, S.L.	2008-2009 (82)	Pr, IP, Lc, SA, sTr	2.40870, 2.42119, 2.41848, 2.42230, 2.41030	CO-3432, CO-3474, CO-3477, CO-3484, CO-3454

KIRKLAND LAKE DISTRICT—2009

<b>Township</b>	<b>Company Name "Property Name"</b>	<b>Year (#)*</b>	<b>Type of Work**</b>	<b>AFRO Number</b>	<b>RGP File Number</b>
Van Nostrand	Klondike Silver Corp. "Anvil Prop."	2008	Pr	2.41778	CO-3464
Walker	1377753 Ontario Inc.	2009 (83)	Gv, M, VLF-EM	2.42127	KL-6226
Walker	International Kirkland Minerals Inc. "Cosby-Walker Prop."	2008	DD(5)(2113m), SA	2.39554	KL-6028
Warden	Golden Chalice Resources Inc.	2007-2009 (84)	DD(1)(407m), Gc, SA	2.40871, 2.39785	KL-6125, KL-6057
Yarrow	CJP Exploration Inc. "Matarrow Project"	2007-2009 (85)	DD(3)(1032m), SA	2.41530	KL-6146
Yarrow	Klondike Gold Corp. "Matarrow Prop."	2008	AM, AEM	2.40593, 2.40544	KL-6126, KL-6113
Yarrow	Temex Resources Corp. "Yarrow Prop."	2007-2008	DD(6)(1254m), SA	2.39308	KL-6018

\* (#) Number refers to work performed in 2009. See also Table 4 and Figure 2.

\*\* DD(6)(1254 m) = 6 diamond drill holes totalling 1254 m.

**Table 4.** Exploration activity in the Kirkland Lake Regional Resident Geologist District in 2009 (keyed to Figure 2).

<b>Abbreviations</b>	
AEM .....	Airborne electromagnetic survey
AM .....	Airborne magnetic survey
Beep .....	Beep mat survey
BENEF .....	Beneficiation
Bulk .....	Bulk sampling
DD .....	Diamond drilling
DGP .....	Down-hole geophysics
FLTEM .....	Fixed Loop Transient EM survey
Gc .....	Geochemical survey
GL .....	Geological survey
Gv .....	Gravity survey
HLEM .....	Horizontal loop electromagnetic survey
Ind .....	Industrial Mineral Study
IP .....	Induced polarization survey
KIM .....	Kimberlite Indicator Mineral
Lc .....	Line cutting
LiDAR .....	Airborne Light Detection and Ranging Survey
M .....	Ground magnetic survey
Other .....	Other study
OvD .....	Overburden drill hole(s)
PEM .....	Pulse electromagnetic survey
PGM .....	Platinum group metals
Pr .....	Prospecting
PW .....	Physical work
R .....	Resistivity survey
RC .....	Reverse-circulation drill hole(s)
rTr .....	Trenching
SA .....	Sampling (other than bulk)
sTr .....	Stripping
Ug .....	Underground work
VLEM .....	Vertical loop electromagnetic survey
VLF-EM .....	Very low frequency electromagnetic survey
VTEM .....	Versatile time domain electromagnetic survey

# <sup>1</sup>	Company/Individual (Occurrence Name or Property)	Township/Area	Exploration Activity*
1-85	See Table 3		
86	Alexandria Minerals Corporation (Matachewan)	Cairo	DD(1200 m), SA, GL
87	Apollo Gold Corporation (Grey Fox)	Beatty, Hislop	DD (53)(9936 m)
88	BacTech Mining Corporation. (Castle Mine tailings)	Haultain	OvD, SA
89	Bear Lake Gold Ltd. (Larder Lake)	McGarry, McVittie	DD(27)(18 762 m), SA
48	Benton Resources Corp. (Copper Hill, Block A)	MacMurchy	DD (17)(3300 m)
36	Constantine Metal Resources Ltd. (Munro-Croesus)	Munro	DD(3)(843 m), SA, VTEM
90	Diamond Exploration Inc. Cobalt)	Gillies Limit, Lorrain	Gc, SA
66	Explor Resources Ltd. (Eastford Lake)	Kerrs, Milligan, Rayner Lake	DD(22), SA
51	Explor Resources Ltd. (PG 101)	Marriott	DD(6), SA
91	Galahad Metals Inc. (Montrose)	Montrose	IP
92	GLR Resources Inc. (Kirkland West)	Eby	DD, IP
29	Golden Chalice Resources Inc. (Abitibi East)	Kerrs, Warden	DD(2)(2039 m), SA
23	Golden Dawn Minerals Inc. (Link-Catharine)	Catharine	DD(15)(3347 m), SA
93	Goldeye Explorations Ltd. (Hydro Creek)	Tyrrell	DD(9)(4103 m), SA
94	Lounor Exploration Inc. (Harker)	Harker	DD(17)
95	Moneta Porcupine Mines Ltd. (Golden Highway)	Michaud	DD(11)(4757 m), SA
96	Nebu Resources Inc. (Burntbush)	Hurtubise, Singer	AM, AEM
97	Northern Gold Mining Inc. (Garrison Gold)	Garrison	DD(11)(2333 m), SA
27	Platinex Inc. (Shining Tree)	Churchill	DD (26)(1270)
98	Plato Gold Corp. (Silver Fox)	Guibord	DD(4)(1525)
99	Queenston Mining Inc. (AK)	Teck	DD(4), SA
100	Queenston Mining Inc. (McBean)	Gauthier	DD(47)(23 000 m), SA
101	Queenston Mining Inc. (Upper Beaver)	Gauthier	DD(11)(15 440 m), SA
102	Queenston Mining Inc. (Upper Canada)	Gauthier	DD(16) SA
103	Queenston Mining Inc. – Newstrike Resources Ltd. (Commodore JV)	Lebel, Gauthier	DD(4)(851 m), SA

KIRKLAND LAKE DISTRICT—2009

# <sup>1</sup>	Company/Individual (Occurrence Name or Property)	Township/Area	Exploration Activity*
104	Sarissa Resources Inc. (Shining Tree)	Churchill	DD(2)(301 m), SA), sTr, rTr
44	Sheltered Oak Resources Corp. (Kerrs)	Kerrs	DD(8)(3545 m), SA
12	Temex Resources Corp. (Latchford Gold)	Gillies Limit	Lc, IP, Gc
47	Vault Minerals Inc. (Tom O'Connor)	Lebel	DD(24)(3100 m), sTr, SA

<sup>1</sup> Numbers keyed to Figure 2.

\*\* DD(6)(1254m) = 6 diamond drill holes totalling 1254 m.

**Table 5.** Property visits conducted by the Kirkland Lake Resident Geologist and staff in 2009 (see Figure 3)<sup>1</sup>.

Number (keyed to Figure 3)	Property/Occurrence	MDI Number	Township
1	Link Catharine	NEW	Catharine
2	Lake Shore tailings	N/A	Teck / Lebel
3	Adams Mine tailings	N/A	Boston
4	Castle Mine	MDI41P10NE00023	Haultain
5	Miron	MDI32D05NE00039	Tannahill
6	White	MDI32D05NE00002	Tannahill
7	Mann	MDI41P10SW00004	Milner
8	Dugas, A.	N/A	Brethour
9	Temagami Copper	MDI41I16NE00004	Phyllis
10	Coppersand	MDI41P01NE00007	Cynthia
11	Lahay	MDI41P01SE00019	Joan
12	NE Belfast	MDI41P01SE00022	Belfast
13	Rhyolites	N/A	Phyllis
14	Island 364	MDI41I16SE00033	Vogt
15	Niemetz C.J.	MDI41I16NE00009	Phyllis
16	Dewey Bay	MDI31L13NW00020	Briggs
17	Titanic	MDI31M04SW00098	Briggs
18	Cross Lake O'Brian	MDI31M05NE00038	Coleman
19	Cryderman	MDI32D05NW00172	Harker
20	Iris	MDI32D05NW00158	Harker
21	Camrose Gold and Metals Ltd.	MDI42A09SE00005	McCool
22	Kerr Tailings dam inspection	N/A	McGarry
23	Kerr Tailings dam water sampling	N/A	McGarry
24	Cabo	MDI31M05SE00170	Lorrain
25	Gossan	MDI31M05SE00171	Lorrain
26	Little Silver Vein	MDI31M05NE00067	Coleman
27	Nipissing 401 Parcel 1	MDI31M05NE00071	Coleman
28	Read Quarry	MDI31M12NW00006	Harley

<sup>1</sup>Described in "Property Examinations" section, this report.

NEW – MDI number to be created.

N/A – Does not meet the minimum requirements for an MDI.

**Table 6.** Publications received in the Kirkland Lake Regional Resident Geologist Office in 2009.

<b>Title and Year</b>	<b>Author</b>	<b>Type and Publication (our publication number)</b>
Geochemical investigation of hydrothermally altered mafic volcanic flows from the 2.7 Ga Abitibi greenstone belt, Ontario and Quebec, Canada 2009	Anderson, L.D. and Bebout, G.E.	Proceedings of the 22nd Annual Keck Symposium: 2009, p. 113-119. (15295)
Ontario Geological Survey - Precambrian Geology, Geological compilation of the Burntbush-Detour lakes area, Abitibi greenstone belt 2009	Ayer, J.A., Chartrand, J.E., Duguet, M., Rainsford, D.R.B., and Trowell, N.F.	Ontario Geological Survey, Preliminary Map P.3609, scale 1:100 000 (403609)
Project unit 95-024. A stratigraphic and metallogenic comparison of the Detour-Burntbush area with the southern Abitibi greenstone belt and its implications for exploration 2009	Ayer, J.A., Trowell, N.F. and Dubé, B.	Ontario Geological Survey, Open File Report 6240, p. 3-1 to 3-7. (106240)
Summary of Field Work and Other Activities 2008 2008	Baker, C.L., Debicki, E.J., Kelly, R.I., Ayer, J.A. and Stott, G.M.	Ontario Geological Survey, Open File Report 6226, 374p. (106226)
Summary of Field Work and Other Activities 2009 2009	Baker, C.L., Kelly, R.I., Ayer, J.A., Easton, R.M., Stott, G.M., Parker, J.R. and Brown, T.	Ontario Geological Survey, Open File Report 6240, 242p. (106240)
Ontario Geological Survey - Precambrian Geology, Coulson and Beatty Townships 2008	Berger, B.R.	Ontario Geological Survey, Preliminary Map P.3601, scale 1:20 000 (403601)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82380, scale 1:20 000 (482380)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82381, scale 1:20 000 (482381)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82382, scale 1:20 000 (482382)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82383; scale 1:20 000 (482383)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82384, scale 1:20 000 (482384)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82385, scale 1:20 000 (482385)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82386, scale 1:20 000 (482386)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82387, scale 1:20 000 (482387)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82388, scale 1:20 000 (482388)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82389, scale 1:20 000 (482389)

<b>Title and Year</b>	<b>Author</b>	<b>Type and Publication (our publication number)</b>
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82390, scale 1:20 000 (482390)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82391, scale 1:20 000 (482391)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82392, scale 1:20 000 (482392)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82393, scale 1:20 000 (482393)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82394, scale 1:20 000 (482394)
Residual Total Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82395, scale 1:20 000 (482395)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82396, scale 1:20 000 (482396)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82397, scale 1:20 000 (482397)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82398, scale 1:20 000 (482398)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82399, scale 1:20 000 (482399)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82400, scale 1:20 000 (482400)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82401, scale 1:20 000 (482401)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82402, scale 1:20 000 (482402)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82403, scale 1:20 000 (482403)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82404, scale 1:20 000 (482404)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82405, scale 1:20 000 (482405)



<b>Title and Year</b>	<b>Author</b>	<b>Type and Publication (our publication number)</b>
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82406, scale 1:20 000 (482406)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82407, scale 1:20 000 (482407)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82408, scale 1:20 000 (482408)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82409, scale 1:20 000 (482409)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82410, scale 1:20 000 (482410)
First Vertical Derivative of the Magnetic Field, Burntbush Area Aeromagnetic Survey 2008	Dumont, R.	Ontario Geological Survey, Map 82411, scale 1:20 000 (482411)
Project Unit 08-005. Update on surficial mapping and till sampling in the Detour Lake and Burntbush areas, northeastern Ontario. 2009	Gao, C. and Kodors, C.	Ontario Geological Survey, Open File Report 6240, p. 18-1 to 18-6. (106240)
Seafloor volcanic and hydrothermal processes preserved in the Abitibi greenstone belt of Ontario and Quebec, Canada 2009	Gilbert, L.A. and Banerjee, N.R.	Proceedings of 22nd Annual Keck Symposium: 2009, p. 106-112. (15294)
Mineral chemistry database for kimberlite, surficial sediments and kimberlite boulders from the Lake Timiskaming and Kirkland Lake kimberlite fields 2009	McClenaghan, M.B., Gauvreau, D. and Kjarsgaard, B.A.	Geological Survey of Canada, Open File 5833 (15300)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82427, scale 1:20 000. (482427)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82428, scale 1:20 000. (482428)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82429, scale 1:20 000. (482429)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82430, scale 1:20 000. (482430)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82431, scale 1:20 000. (482431)

Title and Year	Author	Type and Publication (our publication number)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82432, scale 1:20 000. (482432)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82433, scale 1:20 000. (482433)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82434, scale 1:20 000. (482434)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82435, scale 1:20 000. (482435)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82436, scale 1:20 000. (482436)
Airborne magnetic survey, Colour-Filled Contours of the Residual Magnetic Fields, Shining Tree Area 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82437, scale 1:20 000. (482437)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82438, scale 1:20 000. (482438)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82439, scale 1:20 000. (482439)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82440, scale 1:20 000. (482440)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82441, scale 1:20 000. (482441)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82442, scale 1:20 000. (482442)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82443, scale 1:20 000. (482443)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82444, scale 1:20 000. (482444)

Title and Year	Author	Type and Publication (our publication number)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82445, scale 1:20 000. (482445)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82446, scale 1:20 000. (482446)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82447, scale 1:20 000. (482447)
Airborne magnetic survey, Shaded colour image of the first vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82448, scale 1:20 000. (482448)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82449, scale 1:20 000 (482449)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82450, scale 1:20 000 (482450)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82451, scale 1:20 000 (482451)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82452, scale 1:20 000 (482452)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82453, scale 1:20 000 (482453)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82454, scale 1:20 000 (482454)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82455, scale 1:20 000 (482455)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82456, scale 1:20 000 (482456)

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Title and Year	Author	Type and Publication (our publication number)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82457, scale 1:20 000 (482457)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82458, scale 1:20 000 (482458)
Airborne magnetic survey, Shaded colour image of the second vertical derivative of the residual magnetic field and keating coefficients, Shining Tree 2009	Ontario Geological Survey	Ontario Geological Survey, Map 82459, scale 1:20 000 (482459)
An Archean megacaldera complex: The Blake River Group, Abitibi greenstone belt 2009	Pearson, V. and Daignealt, R.	Precambrian Research, Vol 168: p. 66-82. (15293)
The lead isotope composition of ore minerals from precious metal-bearing polymetallic vein systems in the Cobalt embayment, northern Ontario: metallogenetic implications 2009	Potter, E.G., Taylor, R.P.	Economic Geology, Vol 104: 869-879. (15290)
New volcanological and geochemical observations from the Blake River Group, Abitibi Greenstone Belt, Ontario and Quebec: The D'Alembert tuff, the Stadacona unit, and surrounding lavas 2009	Ross, P.-S., Goutier, J., Legault, M., Grunsky, E. and Dubé, B.	Geological Survey of Canada, Current Research, 2009-8, 23 p. (15298)
Volcanology and geochemistry of the Monsabrais area, Blake River Group, Abitibi Greenstone Belt, Quebec: implications for VMS exploration 2008	Ross, P.-S., Goutier, J., McNicoll, V.J. and Dubé, B.	Geological Survey of Canada, Current Research, 2008-1, 18 p. (15299)
New volcanological and geochemical observations from the Blake River Group, Abitibi Greenstone Belt, Quebec: the D'Alembert tuff, the Stadacona unit, and surrounding lavas 2008	Ross, P.-S., Goutier, J., Percival, J.A., Mercier-Langevin, P. and Dubé, B.	Geological Survey of Canada, Current Research, 2008-17, 27 p. (15297)
Intermediate to mafic volcanoclastic units in the peripheral Blake River Group, Abitibi Greenstone Belt, Quebec: origin and implications for volcanogenic massive sulphide exploration 2007	Ross, P.-S., Percival, J.A., Mercier-Langevin, P., Goutier, J., McNicoll, V.J. and Dubé, B.	Geological Survey of Canada, Current Research, 2007-C3, 25 p. (15296)
Petrology of Archean diamondiferous and non-diamondiferous lamprophyres in the Kirkland Lake and Cobalt areas, Ontario 2009	Sejourne, B.	Unpublished B.Sc. Thesis, University of Ottawa, Ottawa, Ontario, 35 p. (120131)
2D-3C high-resolution seismic data from the Abitibi Greenstone Belt, Canada 2009	Snyder, D.B., Cary, P. and Salisbury, M.	Tectonophysics, Vol 472: p. 226-237. (15291)
Plume and arc magnetism in the Abitibi subprovince: Implications for the origin of Archean continental lithospheric mantle 2009	Wyman, D. and Kerrich, R.	Precambrian Research, Vol 168: p. 4-22. (15292)

**Table 7.** Mineral deposits not being mined in the Kirkland Lake Regional Resident Geologist District in 2009.

<b>Abbreviations</b>					
AF .....	Assessment Files	MDIR.....	Mineral Deposit Inventory record		
AR.....	Annual Report	MLS.....	Mining Lands, Sudbury		
CAMH .....	<i>Canadian and American Mines Handbook</i>	MR.....	Mining Recorder		
CMH .....	<i>Canadian Mines Handbook</i>	NM.....	<i>The Northern Miner</i>		
GR.....	Geological Report	OFR.....	Open File Report		
MD&A.....	Management Discussion & Analysis	PC.....	Personal communication		
MDC .....	Mineral Deposit Circular [No.15-] [formerly Mineral Resources Circular, No.1-14]				

<b>Deposit Name (Township)</b>	<b>Commodity MDI No.</b>	<b>Tonnage-Grade Estimates and/or Dimensions</b>	<b>Ownership References</b>	<b>Reserve References*</b>	<b>Status</b>
180 East (Lebel)	Au 32D04SW00336	Historic indicated resource 326 587 t @ 4.1 g/t Au	Queenston Mining Inc. (CMH 2009-2010, p.475)	CMH 2009-2010, p.475	Inactive
Adams Mine (Boston, Lebel)	Fe 32D04SW00013	12 years open pit reserves at time of mine closure.	N/A	N/A	Inactive
Ajax (Strathy)	Cu, Ni, Au, Ag, PGE 31M04SW00022	Historic drill proven + indicated resource 2 062 505 tons of 0.412% Cu, 0.257% Ni	Northern Platinum Ltd. (55%) (CMH 2007-2008, p.427)	CMH 2005-2006, p. 341-342	Active
Amalgamated Kirkland (Teck)	Au 42A01NE00184	Historic inferred resource 2 639 338 t @ 4.5 g/t Au	Queenston Mining Inc. (CMH 2009-2010, p.475)	CMH 2009-2010, p.475	Active
Anoki (Gauthier)	Au 32D04SW00069	Measured + indicated Resource 730 000 t @ 4.74 g/t Au  Inferred Resource 337 000 t @ 4.80 g/t Au	Queenston Mining Inc. (CMH 2009-2010, p.475)	Queenston Mining Inc., press release, December 16, 2009	Active
Armistice (McGarry)	Au 32D04SE00013	Indicated Mineral Resource: 492 000 tons @ 0.23 ounce/ton Au  Inferred Mineral Resources: 172 000 tons @ 0.17 ounce/ton Au	Armistice Resources Ltd. (75%) – Sheldon-Larder Mines Limited (25%) (CMH 200-2010, p.66)	Armistice Resources Ltd., press release, April 14, 2009	Active
Barber Larder (McGarry)	Au 32D04SE00043	60 000 tons of 0.16 oz per ton Au	Bear Lake Gold Ltd. (CMH 2009-2010, p.92)	CMH 1990-1991, p.416-417	Active
Blue Quartz (Beatty)	Au 42A09SW00130	109 000 tons of 0.484 oz per ton Au	Thundermin Resources Ltd. (50%) (CMH 2007-2008, p.566)	NM, March 20, 1980	Inactive
Buffonta (Garrison)	Au 32D05NW00009	400 000 tons of 0.15 oz per ton Au	Gwen Resources Ltd. (60%) - AJ Perron Gold Corporation (40%) (CMH 1996-97, p.26)	CMH 1997-1998, p.221	Inactive
Cheminis (McVittie)	Au 32D04SE00019	Historic measured + indicated resource 1 619 082 tons @ 0.18 ounce/ ton Au  Inferred resource 924 275 t @ 0.19 ounce/ton Au	Bear Lake Gold Ltd. (CMH 2009-2010, p.92)	CMH 2007-2008, p.416-417	Active
Clenor (Strathy)	Au, Ag 31M04SW00088	24 000 tons of 0.21 oz per ton Au, 1.8 oz per ton Ag	Gwen Resources Ltd. (CMH 1997-98, p.220)	GR 163	Inactive

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<b>Deposit Name (Township)</b>	<b>Commodity MDI No.</b>	<b>Tonnage-Grade Estimates and/or Dimensions</b>	<b>Ownership References</b>	<b>Reserve References*</b>	<b>Status</b>
Commodore (Lebel)	Au 32D04SW00039	738 000 tons of 0.07 oz per ton Au inferred with a higher grade zone of 307 000 tons of 0.11 ounce Au per ton inferred	Newstrike Resources Ltd. (50%) Queenston Mining Inc. (50%) (press release February 10, 2009)	AF KL-4447	Active
Creek Zone (Hislop)	Au 42A08NW00142	Indicated Resource 483 500 t @ 6.61 g/t Au  Inferred Resource 367 700 t @ 5.90 g/t Au	Stroud Resources Ltd. (CMH 2009-2010, p.553)	Bear Lake Gold Ltd. (CMH 2009-2010, p.92)	Active
Diadem (Strathcona)	Cu, Ni 31M04SW00077	450 000 tons of 0.5% Cu, 0.1% Ni to 400 feet	Temex Resources Corp. (CMH 2007-2008, p.560-561)	MDIR N 0045	Inactive
Duggan Zone (Knight)	Au 41P11NE000023	1 114 000 tons of 0.07 ounce per ton Au	Creso Resources Inc. (PC)	George Cross Newsletter Ltd., No. 39, February 25, 1997	Active
Eastmaque (Teck)	Au 42A01NE00043	2 132 500 tons of tailings of 0.035 ounce per ton Au	Hecla Mining Company (Eastmaque to Equinox Resources Ltd. to Hecla in 1994) (CMH 2007-2008, p.292-293)	CMH 1991-1992, p.142	Inactive
Fenn-Gib (Guibord)	Au 42A09SE00054 42A09SE00187	1.95 million t of 5.13 g/t Au above 250 m level	Barrick Gold Corp. (CMH 2007-2008, p.87-91)	CMH 2000-2001, p.312	Inactive
Fort Knox (Fawcett, Ogilvie, North Williams)	Cu, Ni 41P11SE00074	Indicated Resource: 1 020 000 t @ 0.71% Ni, 0.36% Cu, 0.02% Co  Inferred Resource: 1 490 000 t @ 0.67% Ni, 0.36% Cu, 0.03% Co	URSA Major Minerals Incorporated (CMH 2009-2010, p.602-603)	CMH 2009-2010, p.602-603	Inactive
Garrison (Garrison)	Au 32D12SW00044	Indicated Mineral Resource: 253 100 t @ 7.77 g/t Au  Inferred Mineral Resource: 1 555 800 t @ 4.93 g/t	ValGold Resources Ltd. (CMH 2009-2010, p.605)	CMH 2009-2010, p.605	Active
Golden Harker (Harker, Holloway)	Au 32D05NW00159	500 000 tons of 0.16 ounce per ton Au	Golden Harker Explorations Limited (CMH 2009-2010, p.269)	NM, March 7, 1988	Active
Gordon Lake (Tyrrell)	Au 41P10NW00006	225 000 tons of 0.20 ounce per ton Au to 750 feet	Creso Resources Inc. (PC)	AF	Active
Iris (Harker)	Au, W 32D05NW00021	769 756 tons of 0.07 ounce per ton Au	The Alberta Gold Corporation (55%) – Perrex Resources Inc. (45%) (CMH 1995-96, p.289)	AF KL-3170	Inactive
Juby (Tyrrell)	Au 41P10SW00013	Indicated Mineral Resource 8 610 000 t @ 1.73 g/t Au  Inferred Mineral Resource 3 510 000 @ 1.65 g/t Au	Temex Resource Corp (CMH 2009-2010, p.565-566)	Temex Resource Corp. (press release February 16, 2005)	Inactive
LaCarte (Tyrrell)	Au 41P11NE00024	600 000 t @ 6 g/t Au	Goldeye Explorations Ltd. (CMH 2009-2010, p.275-276)	Goldeye Explorations Ltd., press release, November 05, 2002	Active

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
Leckie (Strathy)	Au 31M04SW00090	Indicated resource 348 240t @ 0.20 ounce per ton Au Inferred resource 57 237t @ 0.17 ounce per ton Au	Stroud Resources Ltd. (CMH 2009-2010, p.553)	CMH 2000-2001, p.372	Inactive
Ludgate (Michaud, Guibord, Garrison)	Au 42A08NE00159	462 000 tonnes of 5.91 g/t Au	St Andrew Goldfields Ltd. (50%) – Coniagas Resources Limited (40%) – Kinross Gold Corporation (10%) (Coniagas Resources Limited, MD&A, May 24, 2005)	NM, February 1, 1999, p.2.	Inactive
Martin-Bird (Hearst)	Au 32D04SE00143	558 000 tons of 0.114 ounce per ton Au	Barrick Gold Corporation (CMH 2007-2008, p.87-91)	AF KL-3752	Inactive
Matachewan & Young-Davidson (Cairo, Powell, Yarrow)	Au 41P15NE00014 41P15NE00017	<u>Open Pit</u> Probable Mineral Reserve: 4 939 000 t @ 1.66 g/t Au Inferred Mineral Resource: 15 000 t @ 1.74 g/t Au <u>Underground</u> Proven Mineral Reserve: 3 469 000 t @ 3.22 g/t Au Probable Mineral Reserve: 22 740 000 t @ 2.29 g/t Au Indicated Mineral Resource: 132 000 t @ 3.08 g/t Au Inferred Mineral Resource: 5 950 000 t @ 3.40 g/t Au	Northgate Minerals Corporation (CMH 2009-2010, p.427-428)	Northgate Minerals Corporation, PR July 14, 2009	Active
McBean (Gauthier)	Au 32D04SW00060	Measured + indicated Mineral Resource 706 000 t @ 4.64 g/t Inferred Mineral Resource 1 221 000 t @ 4.71 g/t	Queenston Mining Inc. (CMH 2009-2010, p.475)	Queenston Mining Inc., press release, December 16, 2009	Active
Omega (McVittie)	Au 32D04SE00017	720 854 tons of 0.16 ounce per ton Au	GLR Resources Inc. (CMH 2007-2008, p.256-257)	CMH 2007-2008, p.189	Inactive
Potter (Munro)	Cu, Zn, Ag, Au, Co 42A09SE00015	Indicated Mineral Resource: 3 028 767 t @ 1.45% Cu, 1.19% Zn, 389.7 ppm Co, 11.1 ppm Ag, 127.5 ppb Au Inferred Mineral Resources: 2 071 101 t @ 1.08% Cu, 1.05% Zn, 301.4 ppm Co, 8.7 ppm Ag, 81.7 ppb Au	Millstream Mines Ltd. (CMH 2009-2010, p.389)	Millstream Mines Ltd. Press Release, May 28, 2008	Inactive
Ramp Property (Beatty, Carr, Coulson, Wilkie)	Au 42A09SW00133	813 414 tons of 0.235 ounce per ton Au	Globex Mining Enterprises Inc. (CMH 2007-2008, p.254-256)	Globex Mining Enterprises Inc. web site 2002	Inactive
Ross (Hislop)	Au 42A08NW00005	1 055 000 tons of 0.125 ounce per ton Au	Preston Electrical and Mechanical Ltd. (sold by Giant Yellowknife Mines Limited in 1989, CMH 1990-91, p.188)	CMH 1989-1990, p.188	Inactive

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<b>Deposit Name (Township)</b>	<b>Commodity MDI No.</b>	<b>Tonnage-Grade Estimates and/or Dimensions</b>	<b>Ownership References</b>	<b>Reserve References*</b>	<b>Status</b>
Ryan Lake (Powell)	Cu, Mo 41P15NE00015	Indicated Mineral Resource: 5 969 917 t @ 0.34% Cu, 0.039% Mo, 0.09 g/t Au and 5.0 g/t Ag	Pacific Comox Resources Ltd. (CMH 2009-2010, p.443)	CMH 2009-2010, p.443	Inactive
Sherman Mine (Chambers, Strathcona, Strathy)	Fe 31M04SW00025	5 years open pit reserves at time of mine closure. Underground resources unknown.	N/A	Northern Daily News, March 7, 1989	Inactive
Southwest Zone (Michaud)	Au 42A08NE00038	3.2 million t @ 5.98 g/t Au	Moneta Porcupine Mines Inc. (CMH 2009-2010, p.395-396)	Moneta Porcupine Mines Inc., web site, February, 2007	Inative
Taylor (Taylor)	Au 42A10SE00066 42A10SE00065	Indicate Mineral Resource: 1 405 000 t @ 7.6 g/t Au Inferred Mineral Resource: 737 000 t @ 9.1 g/t Au	St Andrew Goldfields Ltd. (CMH 2009-2010, p.505)	CMH 2009-2010, p.505	Inactive
Teck Hughes (Teck)	Au 42A01NE00020	Measured + indicated resource 3 347 900 tons @ 0.32 ounce/t Au Inferred resources 58 900 tons @ 0.35 ounce/t Au	Kirkland Lake Gold Inc. (CMH 2009-2010, p.338)	CMH 2003-2004, p.270	Inactive
Temagami Copper (Phyllis)	Cu, Ni 41I16NE00004	770 000 tons of 1.04% Cu, 0.46% Ni	N/A	AF	Inactive
Tyrinite (Tyrrell, Knight)	Au 41P11NE00013	567 000 tons of 0.18 ounce per ton Au	Mill City International Inc. (50%) – Tyranex Gold Inc. (CMH 2003-2004, p.326)	NM 06/93	Inactive
Upper Beaver (Gauthier)	Au, Cu 32D04SW00068	Indicated Mineral Resource: 1 373 500 t @ 0.43% Cu, 9.7 g/t Au Inferred Mineral Resources: 1 061 300 t @ 0.39% Cu, 8.5 g/t Au	Queenston Mining Inc., (CMH 2009-2010, p.475)	Queenston Mining Inc., Press Release, September 22, 2008	Active
Upper Canada (Gauthier)	Au 32D04SW00057	Historic measured + indicated resource 1 899 000 t @ 6.9 g/t Au	Queenston Mining Inc. (CMH 2009-2010, p.475)	CMH 2009-2010, p.475	Active
Victoria Creek (Gauthier)	Au 32D04NW00043	4 958 000 t of 3.43 g/t Au	Sudbury Contact Mines Limited (CMH 2002-2003, p.398)	CMH 1998-1999, p.429	Inactive
Windjammer South (Michaud)	Au 42A08NE00158	Indicated Mineral Resource: 4 420 000 t @ 1.42 g/t Au Inferred Mineral Resource: 3 779 000 t @ 1.54 g/t Au	Moneta Porcupine Mines Inc. (CMH 2009-2010, p.395-396)	Moneta Porcupine Mines Inc., Press Release, March 11, 2009	Active

\*N.B., This table contains tonnage and grade estimates, referred to as “reserves” (indicated, possible, probable), which were determined at various times by methods largely unreported. It is not known if any or all of these estimates are in compliance with the reporting standards required by National Instrument 43-101.



**Table 8.** Summary of activities of the Kirkland Lake Regional Resident Geologist Office in 2009.

<b>Activity</b>	<b>Number</b>
Office visits	1807
Telephone inquiries	776
Property visits	41
Field trips attended	2
Field trips given	7
Talks given	6
Assessment files and donations processed	343
Titles added to library database	84
MDI records updated	37
MDI records deleted	0
MDI records added	8

**Table 9.** Gold production in the Kirkland Lake Resident Geologist District to the end of 2009.

<b>Mine</b>	<b>Township</b>	<b>Tons Milled</b>	<b>Production (oz. Au)</b>	<b>Grade (oz./T)</b>	<b>Years of Production</b>
Aljo	Beatty	2,333	42	0.018	1940
American Eagle	Munro	60	40	0.667	1911
Argyll	Beatty	12,455	851	0.068	1918
Armistice	McGarry	8,282	1,035	0.125	1995, 97 (bulk samples)
Ashley	Bannockburn	157,076	50,123	0.319	1932-36
Barber Larder	McGarry	30,118	3,072	0.102	1988
Barry Hollinger	Pacuad	267,741	77,000	0.288	1918,25-36,44-46
Bidgood	Lebel	586,367	160,184	0.273	1934-51
Black Fox (Glimmer)*	Hislop	1,791,085	262,887	0.147	1997-2001,2009-
Blue Quartz	Beatty	500	81	0.162	1923,26,28,34
Bourkes	Benoit	1,298	277	0.213	1918,36-38
Buffonta	Garrison	117,013	12,139	0.104	1981,91-92
Canadian Arrow	Hislop	279,593	17,045	0.061	1980-83
Canamax (Matheson Project)	Holloway	38,675	5,391	0.139	1988
Cathroy Larder (Mirado)	McElroy	89,719	10,231	0.114	1941-44,47,57,87
Centre Hill**	Munro	327,007	422	0.001	1967-70
Cheminis	McVittie	179,013	17,530	0.098	1991-96
Chesterville	McGarry	3,260,439	358,880	0.110	1930-52
Croesus	Munro	5,333	14,859	2.786	1915-18,23,31-36
Eastmaque (tailings)	Teck	1,051,744	28,740	0.027	1988-91
Ethel Copper**	James	17,477	115	0.007	1962-67
Gateford (Swastika)	Teck	103,684	30,068	0.290	1910-47***
Golden Summit	Maisonville	737	57	0.077	1936-37,45
Gold Hill	Catharine	4,616	660	0.143	1927-28
Gold Pyramid	Guibord	175	36	0.206	1911
Goldpost	Hislop	9,403	2,913	0.310	1989
Hislop Mine (Hislop East)	Hislop	427,723	50,386	0.118	1990-91,93-95,99-2000,07
Holloway Mine	Holloway	5,460,399	881,963	0.162	1993,95(preproduction),96-06
Holloway-Holt*	Holloway	226,338	32,244	0.142	2007-
Holt-McDermott	Holloway	8,178,999	1,322,332	0.162	1988-2004
Hudson-Rand	Teck	6,496	483	0.074	1922

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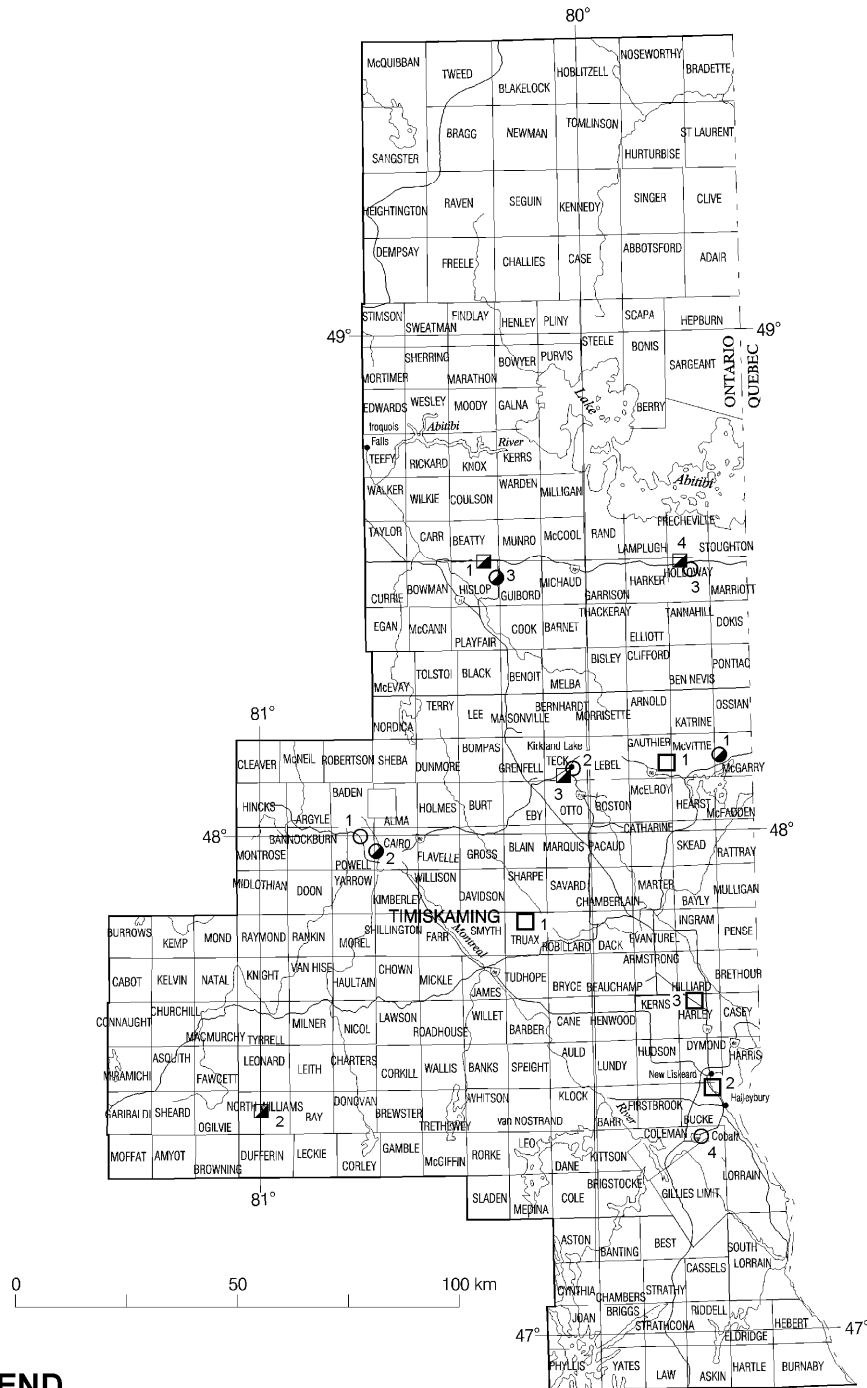
Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
Kerr	McGarry	40,336,512	10,457,441	0.259	1911,38-96
Kirkland Lake	Teck	3,140,283	1,172,955	0.374	1916-60
Kirkland Lake Gold*	Teck	927,981	318,892	0.344	2002-
Kirkland Townsite	Teck	4,230	1,921	0.454	1958-59
Laguerre	McVittie	40,514	7,568	0.187	1937-39
Lake Shore	Teck	17,208,323	8,602,791	0.500	1918-65,82-87,97-98
Macassa	Teck	7,877,532	3,525,389	0.448	1933-99
Macassa (Tailings)	Teck	3,240,890	173,659	0.054	1987-99,02
Matachewan Consolidated	Powell	3,631,908	385,503	0.106	1934-54,80-82
McBean	Gauthier	557,621	45,900	0.082	1984-86
Miller Independence	Pacaud	31	59	1.903	1918
Moffat-Hall	Lebel	16,388	4,780	0.292	1934-35
Morris Kirkland	Lebel	127,253	16,999	0.134	1936-38,40-42
New Telluride	Skead	104	62	0.596	1931-32
Newfield	Garrison	55,000	9,680	0.176	1996(bulk sample)
Omega	McVittie	1,615,081	214,098	0.133	1913,26-28,36-47
Queenston	Gauthier	1,054	177	0.168	1941
Ronda	MacMurchy	24,592	2,727	0.111	1939
Ross	Hislop	6,714,482	995,832	0.148	1936-89
Ryan Lake**	Powell	188,790	1,352	0.007	1948-57,62-64
Stairs	Midlothian	15,835	3,573	0.226	1965-66
Sylvanite	Teck	5,049,536	1,674,808	0.332	1927-61
Taylor	Taylor	9,889	1,357	0.137	2007(preproduction)
Teck Hughes	Teck	9,565,302	3,709,007	0.388	1917-68
Toburn	Teck	1,186,316	570,659	0.481	1917-53***
Tyrinite	Tyrrell	223,810	31,352	0.140	1939-42
Upper Beaver	Gauthier	580,562	140,709	0.242	1913-72***
Upper Canada	Gauthier	4,648,984	1,398,291	0.301	1938-71
White-Guyatt	Munro	50	10	0.200	1911
Wright Hargreaves	Teck	9,934,327	4,821,296	0.485	1921-65
Young Davidson	Powell	6,218,272	585,690	0.094	1934-57
<b>Total including tailings</b>		<b>145,783,350</b>	<b>42,216,623</b>	<b>0.290</b>	
<b>Total excluding tailings</b>		<b>141,490,716</b>	<b>42,014,224</b>	<b>0.297</b>	
<b>Kirkland Lake Camp (West to East)</b>					
Macassa	Teck	7,877,532	3,525,389	0.448	
Kirkland Lake	Teck	3,140,283	1,172,955	0.374	
Kirkland Lake Gold*	Teck	927,981	318,892	0.344	
Teck Hughes	Teck	9,565,302	3,709,007	0.388	
Lake Shore	Teck	17,208,323	8,602,791	0.500	
Wright Hargreaves	Teck	9,934,327	4,821,296	0.485	
Sylvanite	Teck	5,049,536	1,674,808	0.332	
Toburn	Teck	1,186,316	570,659	0.481	
<b>Total</b>		<b>54,889,600</b>	<b>24,395,797</b>	<b>0.444</b>	

<b>Mine</b>	<b>Township</b>	<b>Tons Milled</b>	<b>Production (oz. Au)</b>	<b>Grade (oz./T)</b>	<b>Years of Production</b>
<b>Kirkland Lake Tailings</b>					
Eastmaque (tailings)	Teck	1,051,744	28,740	0.027	
Macassa (Tailings)	Teck	3,240,890	173,659	0.054	
<b>Total</b>		<b>4,292,634</b>	<b>202,399</b>	<b>0.047</b>	
<b>Virginiatown Camp</b>					
Chesterville	McGarry	3,260,439	358,880	0.110	
Kerr	McGarry	40,336,512	10,457,441	0.259	
<b>Total</b>		<b>43,596,951</b>	<b>10,816,321</b>	<b>0.248</b>	
<b>Holloway Camp</b>					
Holloway Mine	Holloway	5,460,399	881,963	0.162	
Holloway-Holt*	Holloway	226,338	32,244	0.142	
Holt-McDermott	Holloway	8,178,999	1,322,332	0.162	
<b>Total</b>		<b>13,639,398</b>	<b>2,204,295</b>	<b>0.162</b>	
<b>Hislop Camp</b>					
Black Fox (Glimmer)*	Hislop	1,791,085	262,887	0.147	
Hislop Mine (Hislop East)	Hislop	427,723	50,386	0.118	
Ross	Hislop	6,714,482	995,832	0.148	
<b>Total</b>		<b>8,933,290</b>	<b>1,309,105</b>	<b>0.147</b>	
<b>Matachewan Camp</b>					
Matachewan Consolidated	Powell	3,631,908	385,503	0.106	
Young Davidson	Powell	6,218,272	585,690	0.094	
<b>Total</b>		<b>9,850,180</b>	<b>971,193</b>	<b>0.099</b>	
<b>Shining Tree Camp</b>					
Ronda	MacMurphy	24,592	2,727	0.111	
Tyrinite	Tyrrell	223,810	31352	0.140	
<b>Total</b>		<b>248,402</b>	<b>34,079</b>	<b>0.140</b>	

\* Producer in 2009

\*\* Base metal producer

\*\*\* Intermittent production



**LEGEND**

- Producing Mines**
  1. Apollo Gold Corporation - Black Fox Project (gold)
  2. Extender Minerals of Canada Ltd. - North Williams Mine (barite)
  3. Kirkland Lake Gold Inc. - Kirkland Lake Properties (gold)
  4. St Andrew Goldfields Ltd. - Holloway-Holt (gold)
- Quarries**
  1. Kirkland Lake Rocks - Various Quarries (crushed stone)
  2. Miller Minerals - Bucke Quarry (limestone)
  3. A. Miron Topsoil Ltd. - Harley Quarry (crushed stone)
- Mills**
  1. Extender Minerals of Canada Ltd. (barite)
  2. Kirkland Lake Gold Inc. (Gold)
  3. St Andrew Goldfields Ltd. (gold)
  4. SMC (Canada) Ltd. (recycled precious metals)
- Advanced Exploration Projects**
  1. Armistice Resources Corp. - Armistice Project (gold)
  2. Northgate Minerals Ltd. - Young Davidson Project (gold)
  3. St Andrew Goldfields Ltd. - Hislop (gold)

Figure 1. Mining and milling in the Kirkland Lake District in 2009.

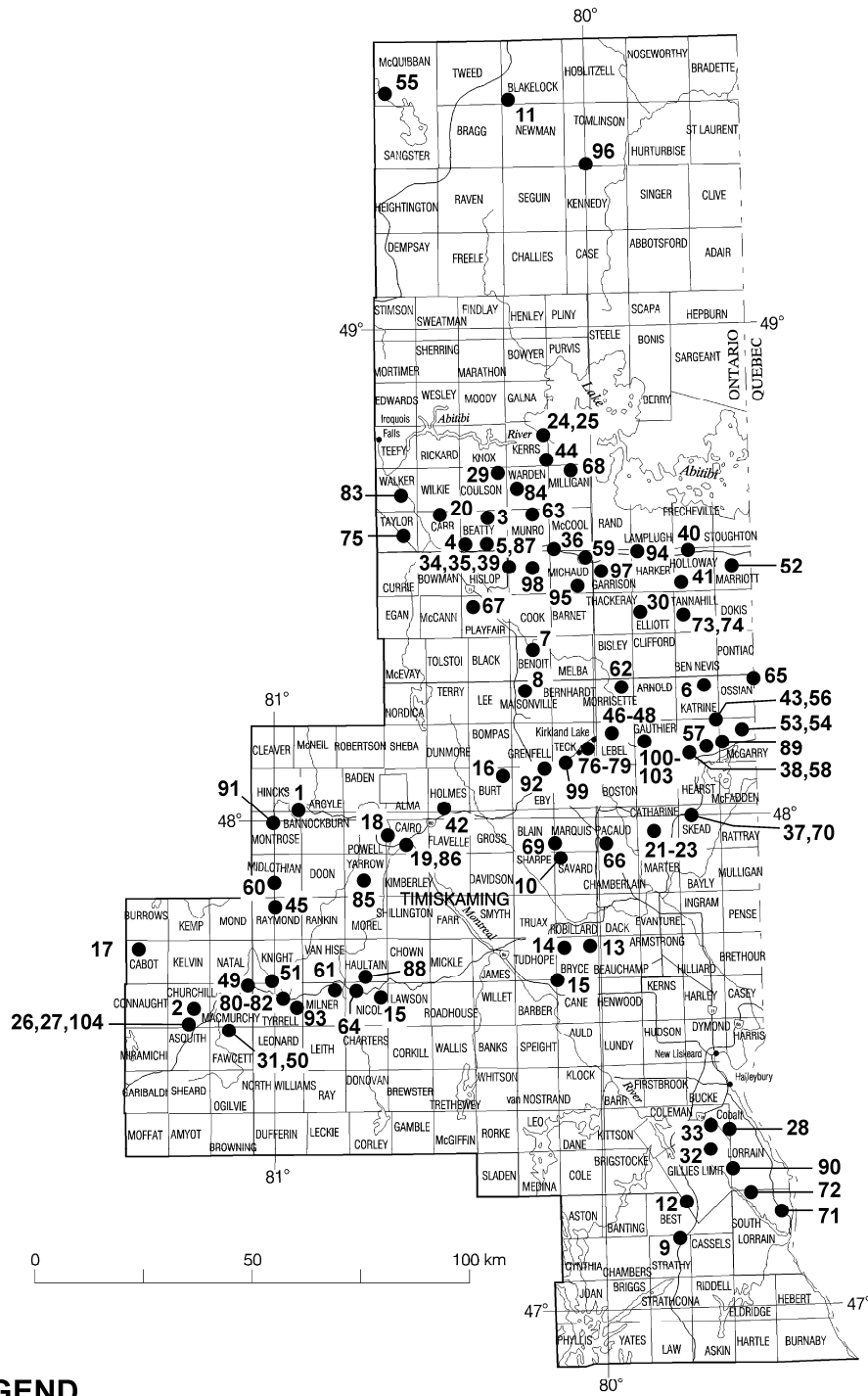


Figure 2. Active exploration properties in the Kirkland Lake District in 2009.

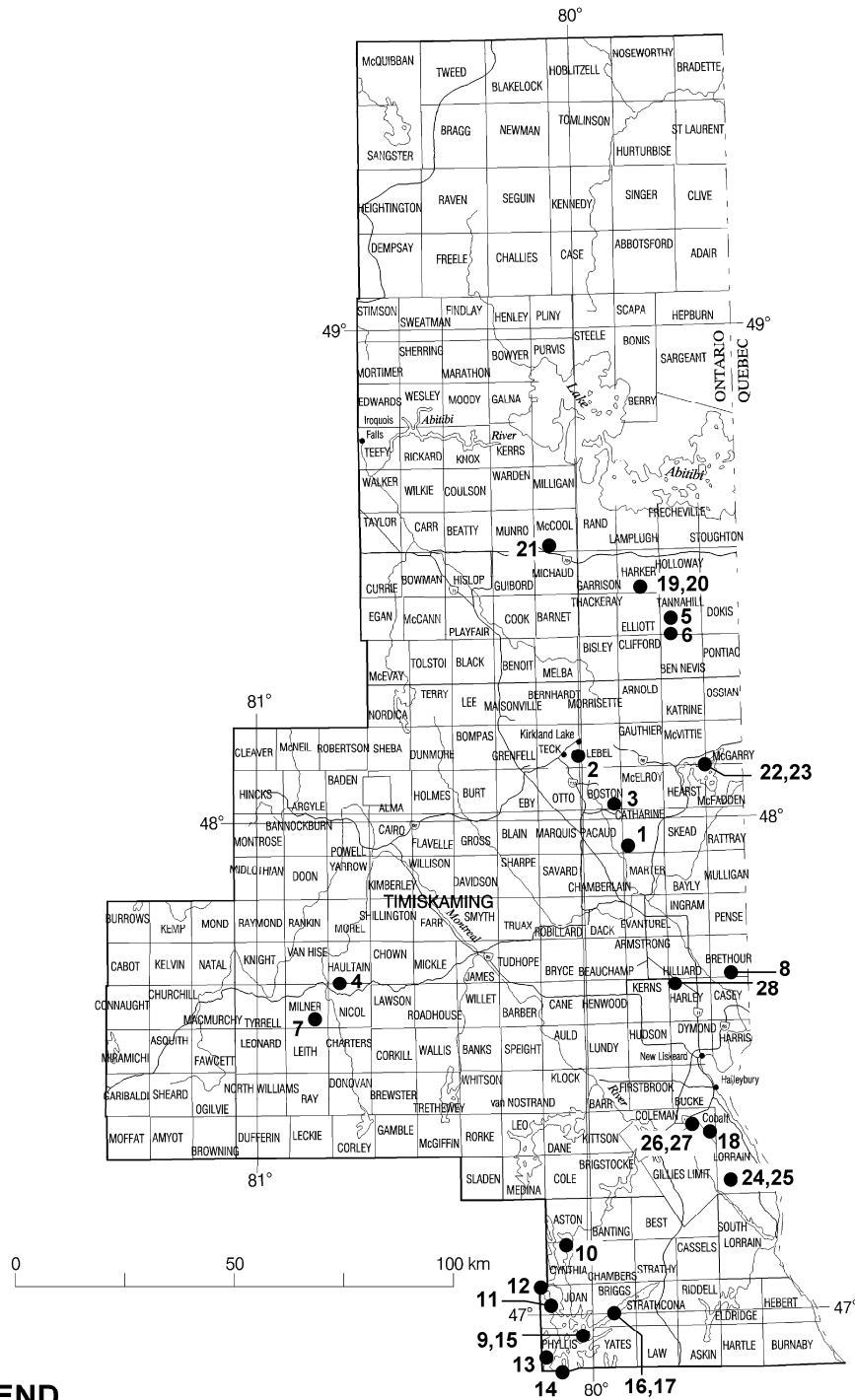
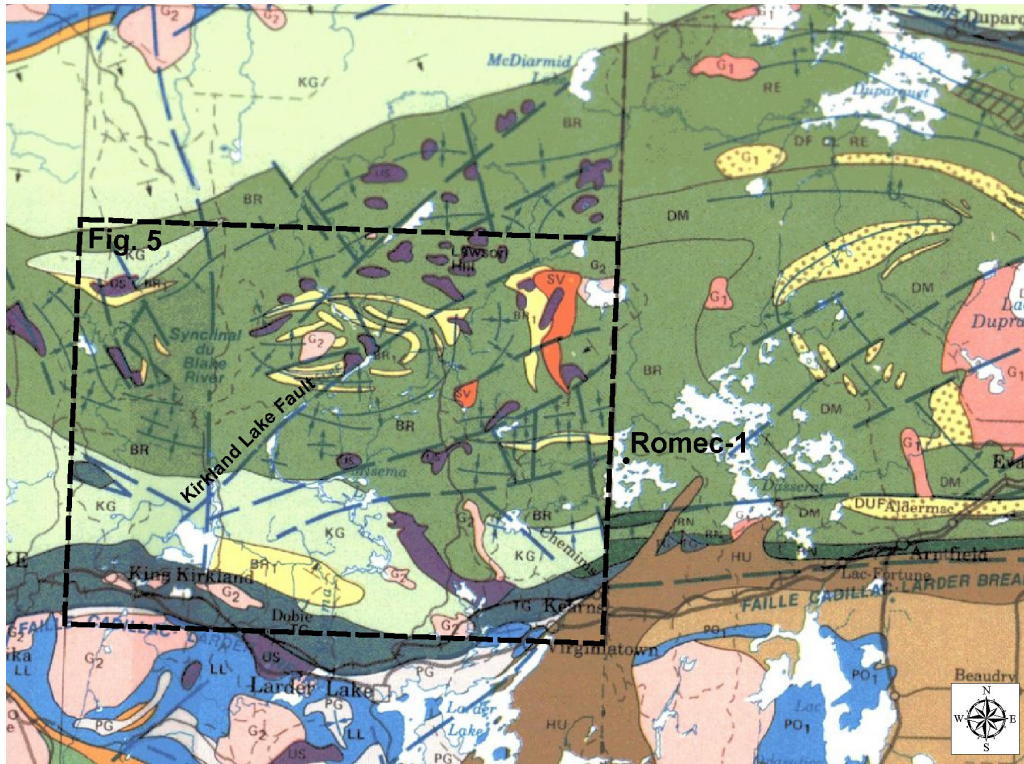
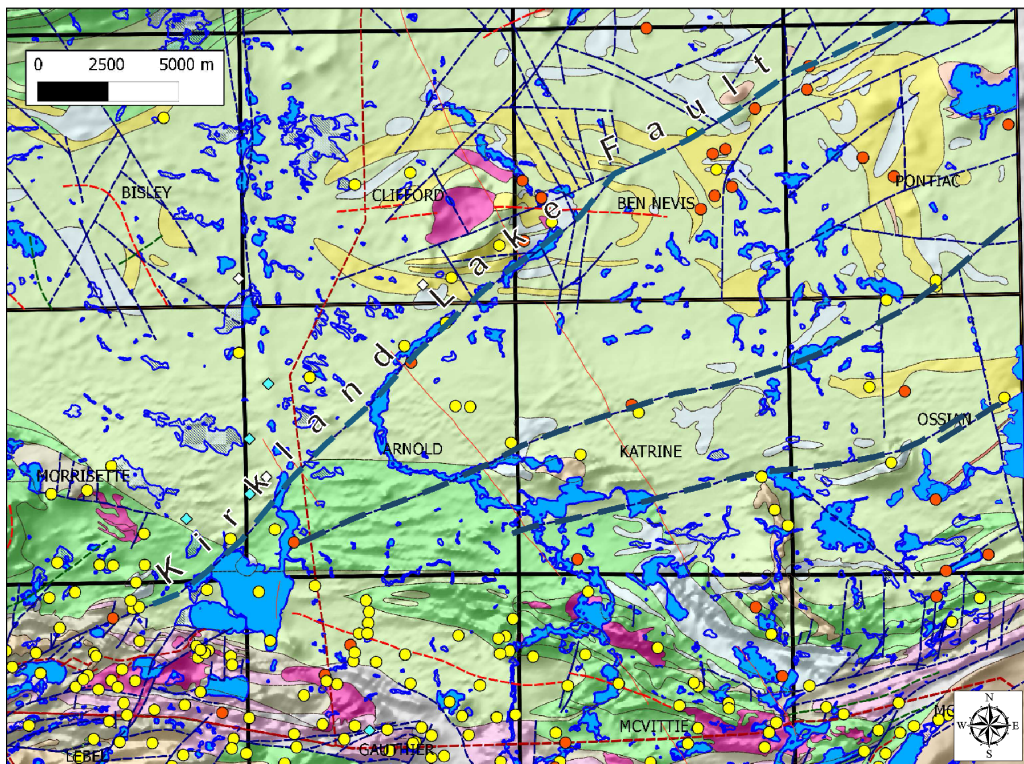


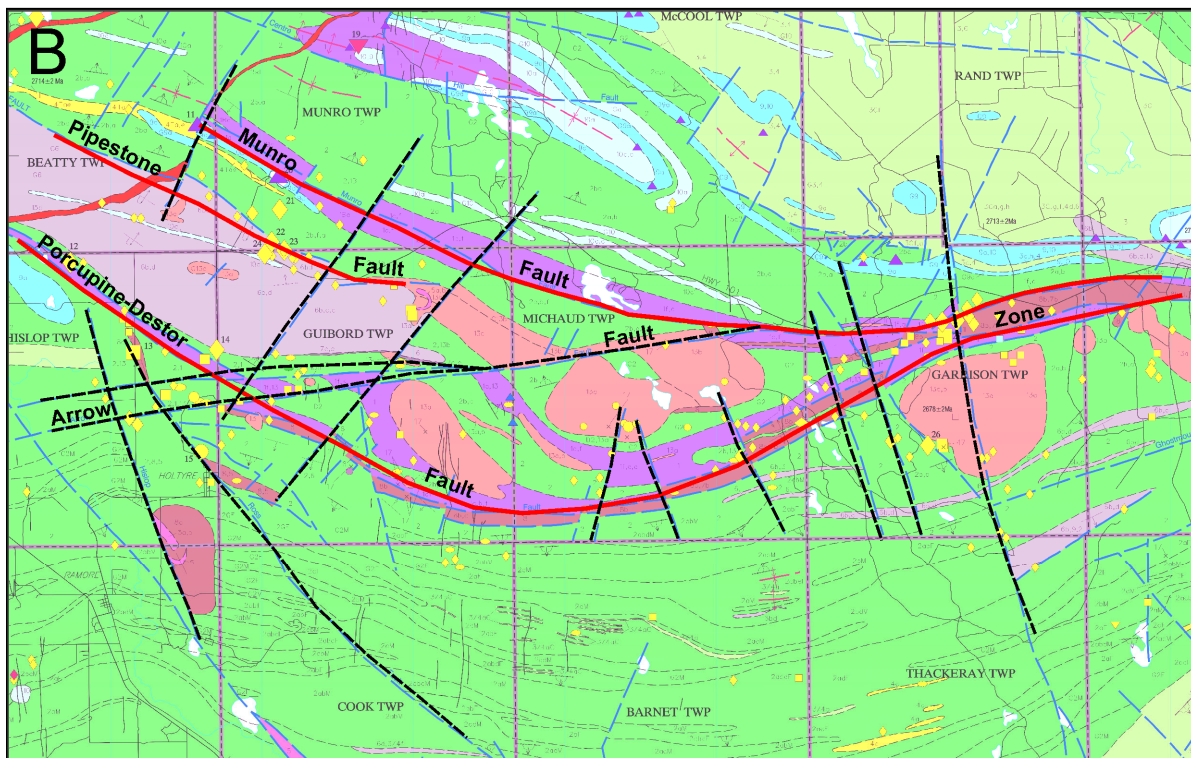
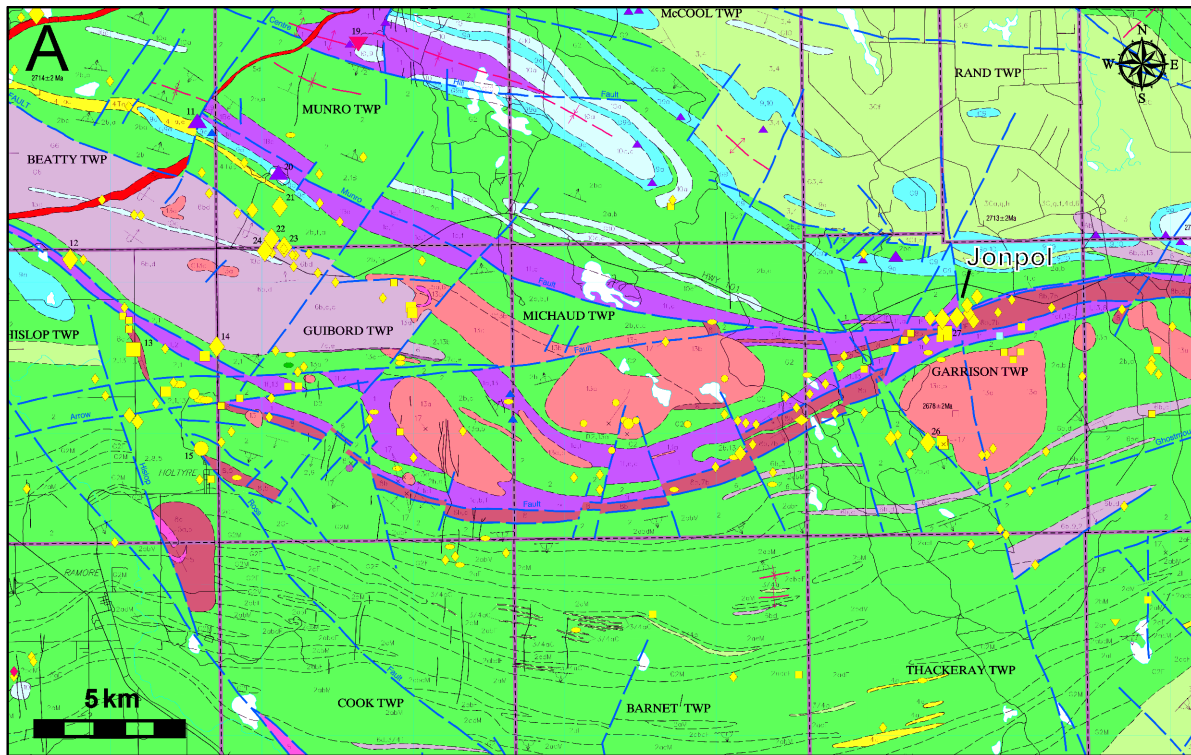
Figure 3. Property visits conducted in the Kirkland Lake District in 2009.



**Figure 4.** Location of the Romec-1 deposit, Quebec, within the Blake River assemblage (dark green) in relation to the northeast-trending faults. The dashed rectangle indicates the area of the map in Figure 5. After Map 2484 (OGS-MERQ 1984).

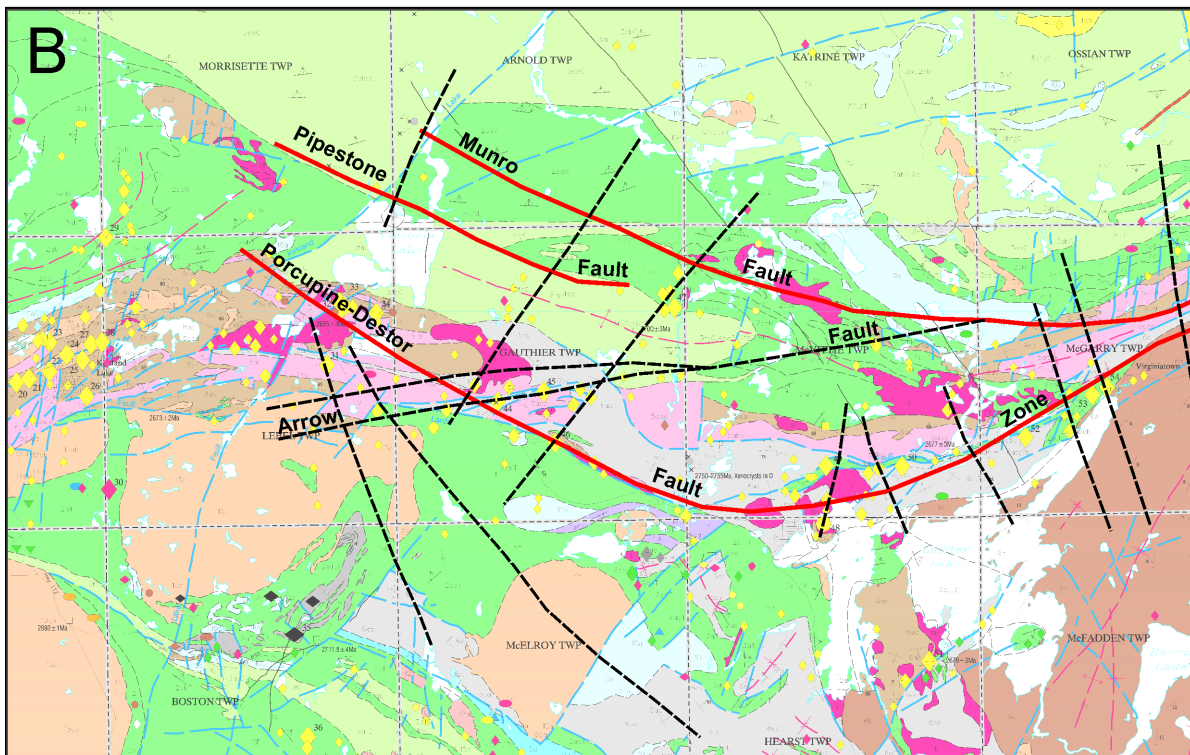
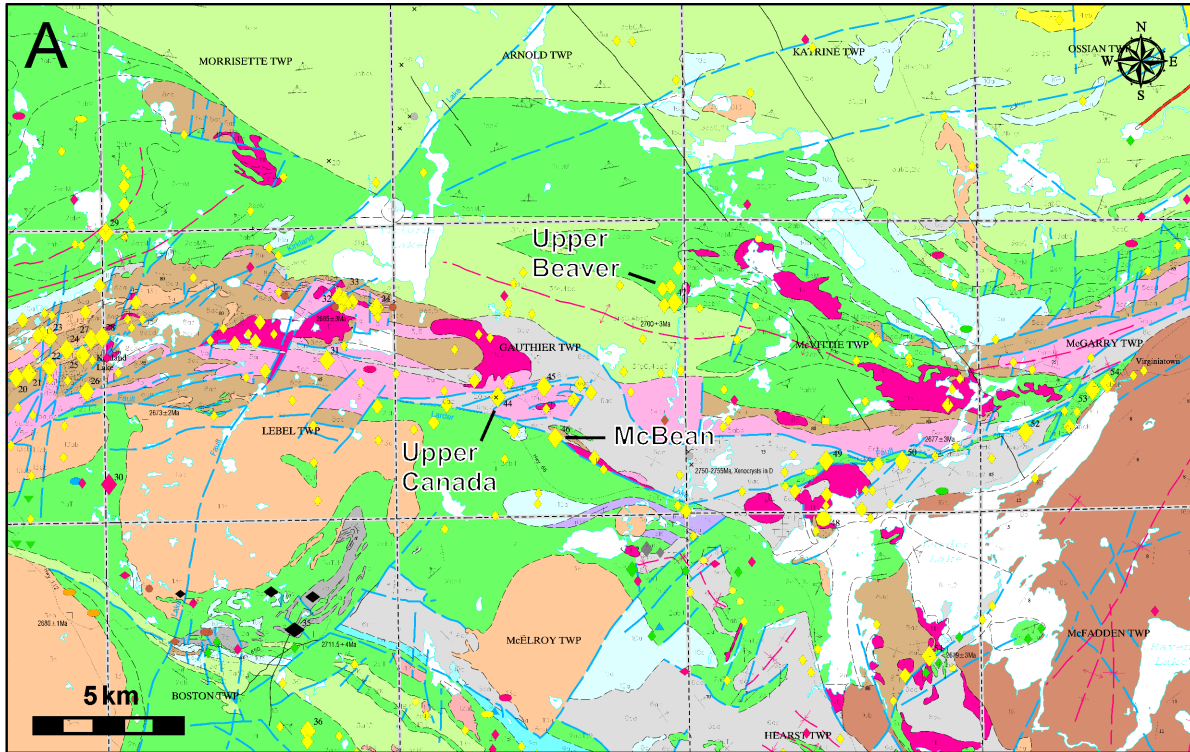


**Figure 5.** Mineral occurrences plotted on geology overlying airborne magnetics. Mineral occurrences are plotted as follows: Au ± base metals (yellow circles), base metals (orange circles), iron (black circles), kimberlite (purple diamonds) and diamonds (white diamonds). Data from MRD 143 (Ayer, Trowell and Josey 2004).



**Figure 6.** OGS Map P.3398 (after Ayer, Berger and Trowell 1999) showing major structures and gold occurrences south of the Lake Abitibi area (6A). PDFZ structures from 6A have been highlighted in 6B. Yellow point symbols represent gold occurrences.





**Figure 7.** OGS Map P.3425 (after Ayer and Trowell 2000) showing major structures and gold occurrences in the Kirkland Lake area (7A). PDFZ structures from Figure 6A have been superimposed in 7B. Yellow point symbols represent gold occurrences.

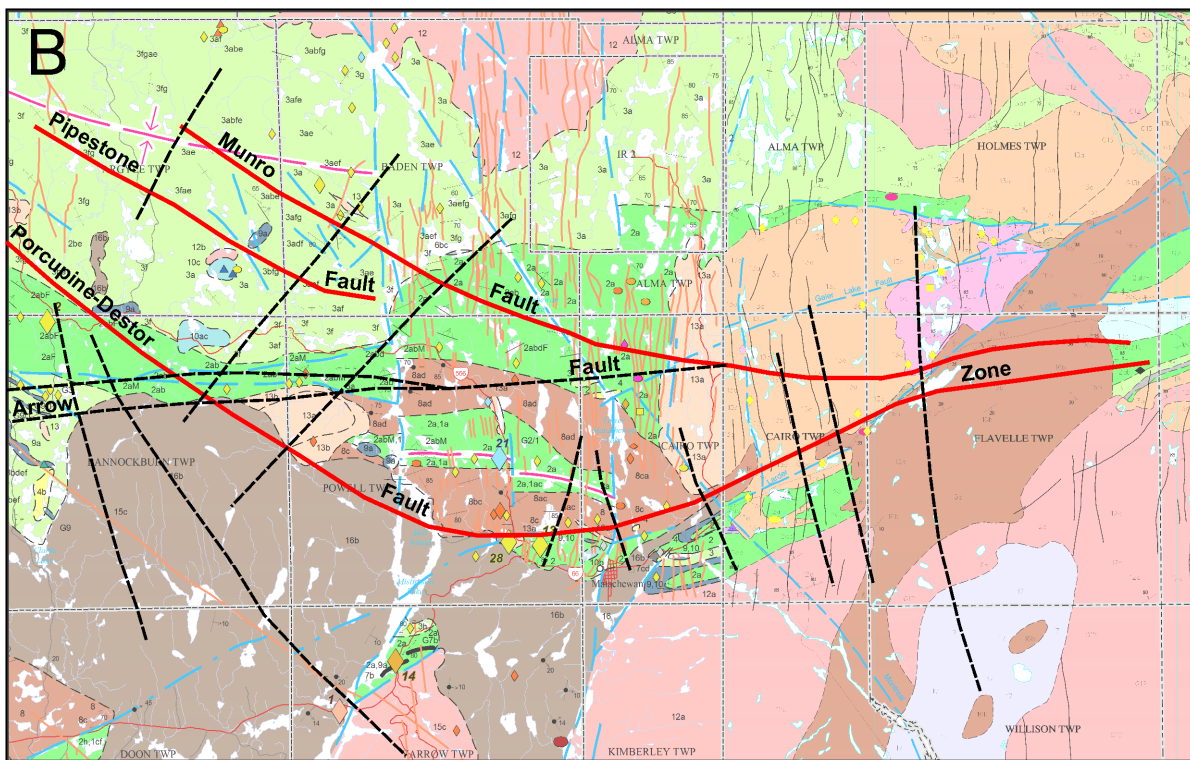
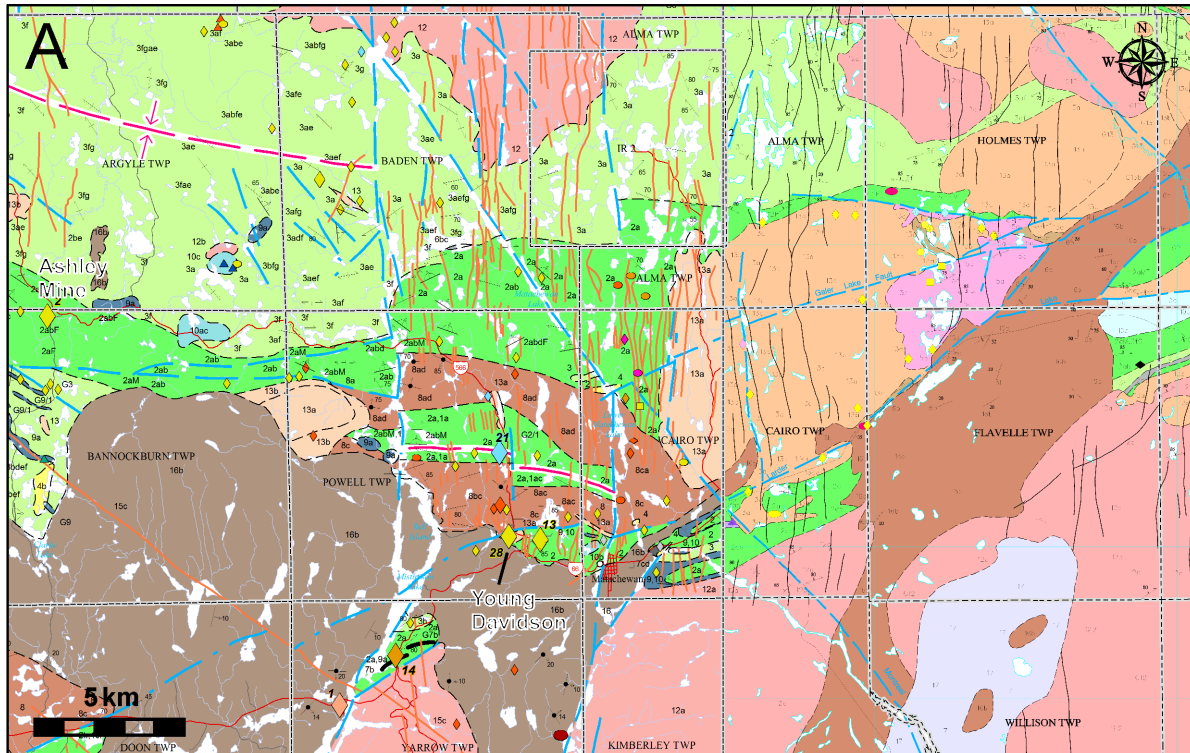


Figure 8. OGS Map P.3527 (after Ayer et al. 2003) showing major structures and gold occurrences in the Matachewan area (8A). PDFZ structures from Figure 6A have been superimposed in 8B. Yellow point symbols represent gold occurrences.

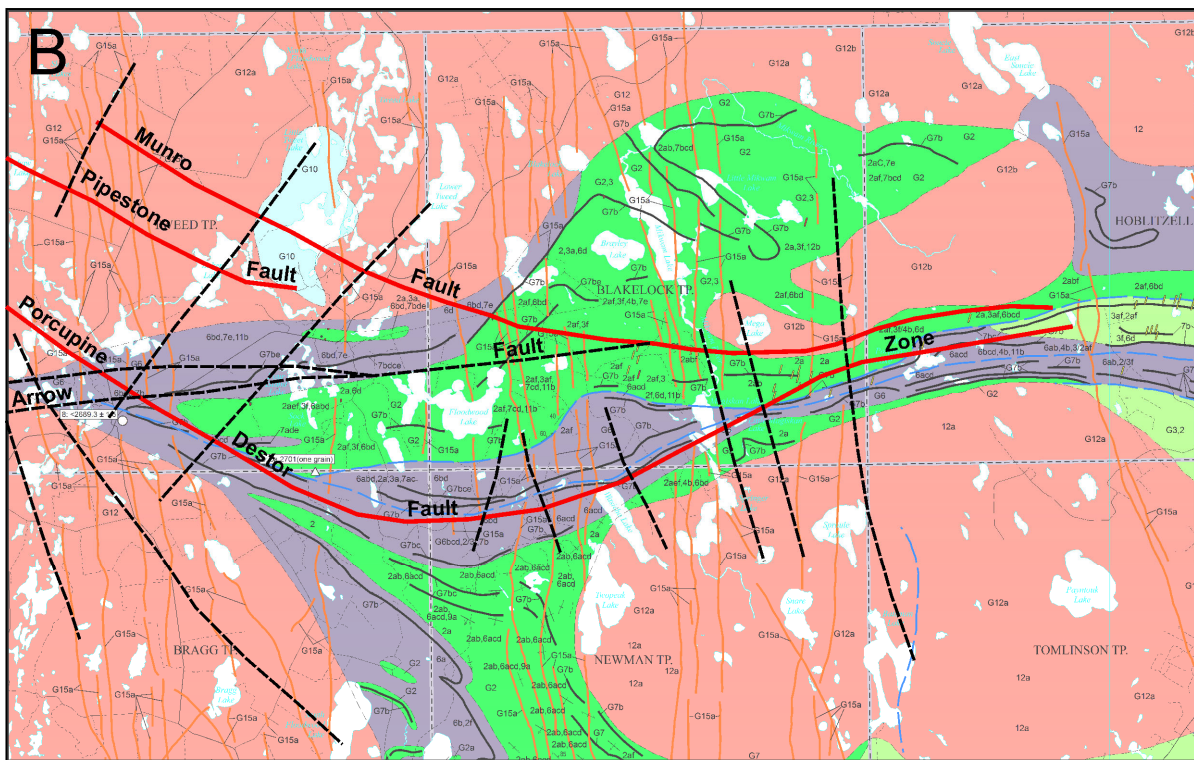
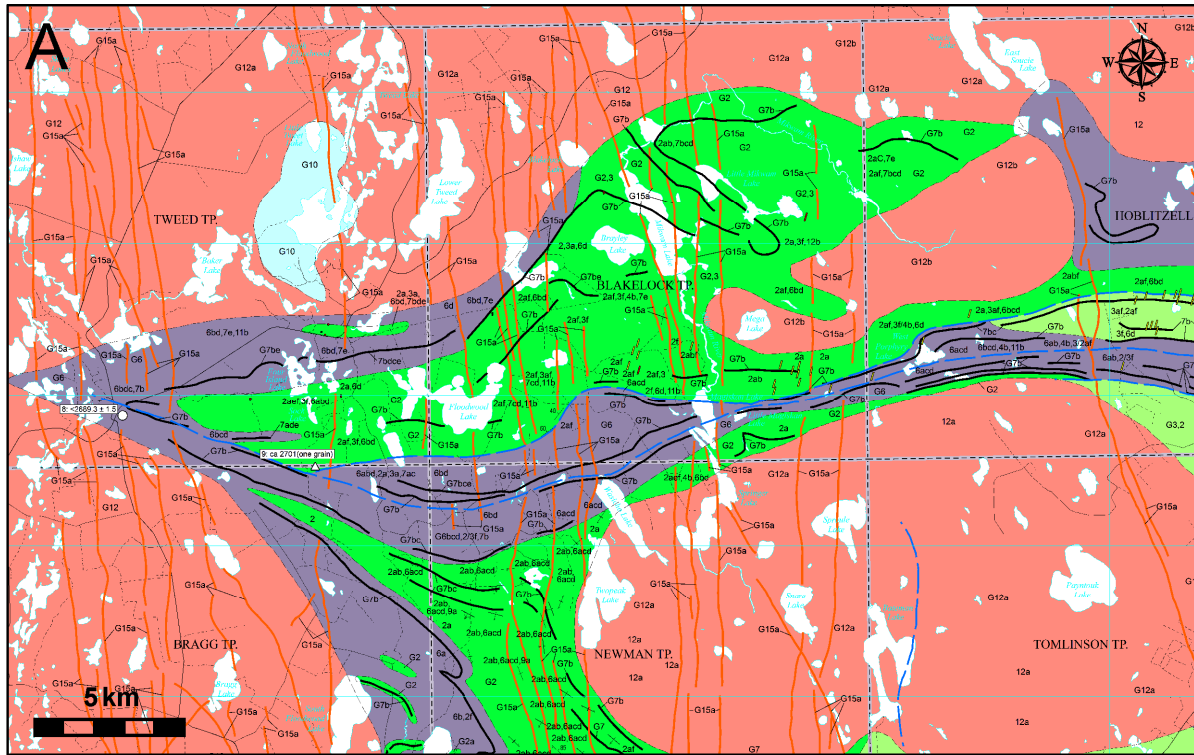


Figure 9. OGS Map P.3609 (after Ayer et al. 2009a) showing major structures and gold occurrences in the Burntbrush area (9A). PDFZ structures from Figure 6A have been superimposed in 9B.

# Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
<i>SI Unit</i>	<i>Multiplied by</i>	<i>Gives</i>	<i>Imperial Unit</i>	<i>Multiplied by</i>	<i>Gives</i>
LENGTH					
1 mm	0.039 37	inches	1 inch	<b>25.4</b>	mm
1 cm	0.393 70	inches	1 inch	<b>2.54</b>	cm
1 m	3.280 84	feet	1 foot	<b>0.304 8</b>	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	<b>1.609 344</b>	km
AREA					
1 cm <sup>2</sup>	0.155 0	square inches	1 square inch	<b>6.451 6</b>	cm <sup>2</sup>
1 m <sup>2</sup>	10.763 9	square feet	1 square foot	<b>0.092 903 04</b>	m <sup>2</sup>
1 km <sup>2</sup>	0.386 10	square miles	1 square mile	2.589 988	km <sup>2</sup>
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
VOLUME					
1 cm <sup>3</sup>	0.061 023	cubic inches	1 cubic inch	<b>16.387 064</b>	cm <sup>3</sup>
1 m <sup>3</sup>	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m <sup>3</sup>
1 m <sup>3</sup>	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m <sup>3</sup>
CAPACITY					
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	<b>4.546 090</b>	L
MASS					
1 g	0.035 273 962	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 747	ounces (troy)	1 ounce (troy)	<b>31.103 476 8</b>	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	<b>0.453 592 37</b>	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	<b>907.184 74</b>	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	<b>0.907 184 74</b>	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	<b>1016.046 908 8</b>	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	<b>1.016 046 90</b>	t
CONCENTRATION					
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

## OTHER USEFUL CONVERSION FACTORS

	<i>Multiplied by</i>	
1 ounce (troy) per ton (short)	31.103 477	grams per ton (short)
1 gram per ton (short)	0.032 151	ounces (troy) per ton (short)
1 ounce (troy) per ton (short)	20.0	pennyweights per ton (short)
1 pennyweight per ton (short)	0.05	ounces (troy) per ton (short)

*Note: Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries, published by the Mining Association of Canada in co-operation with the Coal Association of Canada.*



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