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Ontario

Ontario Geological Survey
Open File Report 6275

Report of Activities, 2011 Resident Geologist Program

Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District

2012

ONTARIO GEOLOGICAL SURVEY

Open File Report 6275

Report of Activities, 2011
Resident Geologist Program

Kirkland Lake Regional Resident Geologist Report:
Kirkland Lake District

by

D.L. Guindon, G.P.B. Grabowski, N. Sabiri, A.C. Wilson and R.L. Debicki

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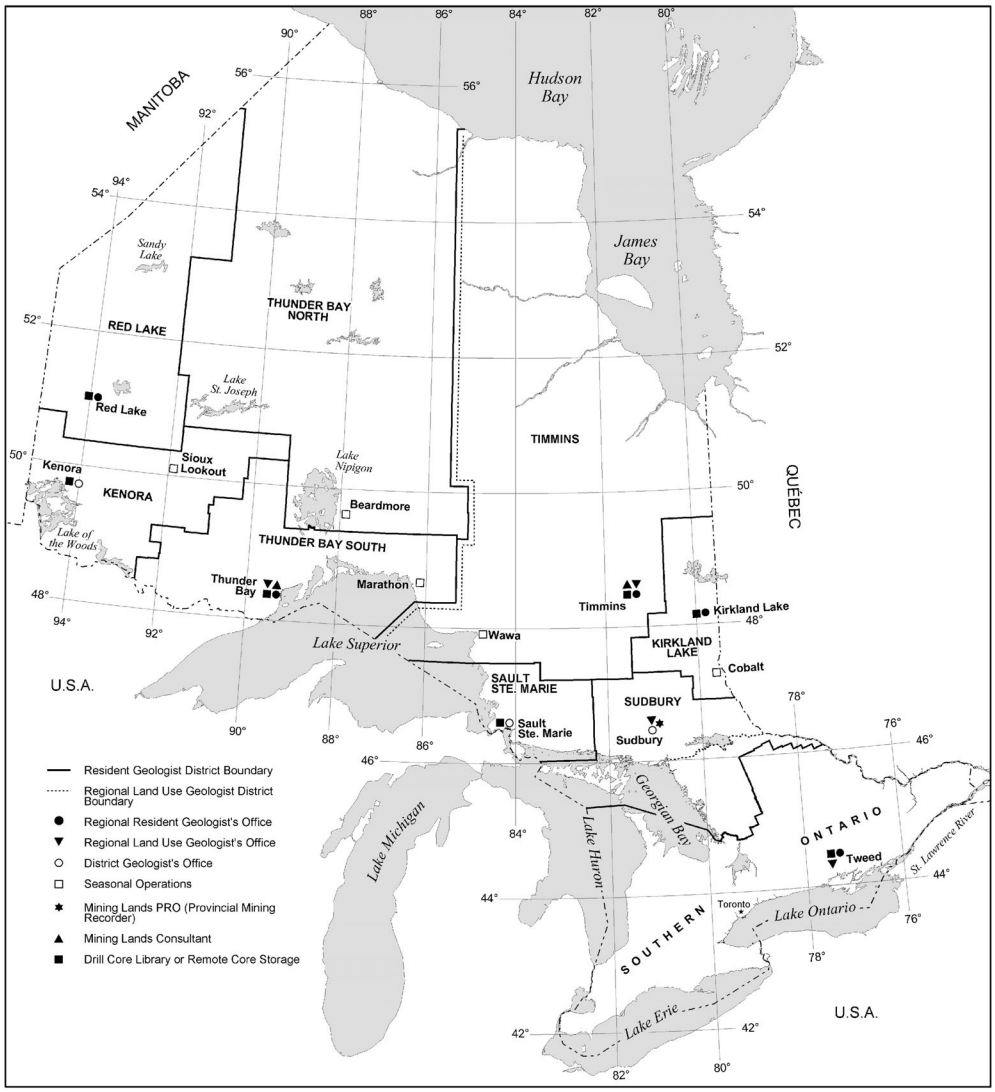

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Ontario

Ontario Geological Survey
Regional Resident Geologist Program

Kirkland Lake Regional Resident Geologist (Kirkland Lake District)—2011

by

D.L. Guindon, G.P.B. Grabowski and N. Sabiri
Contributing authors R.L. Debicki and A.C. Wilson

2012

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INTRODUCTION

The average price of gold in 2011 was up by 28% to US$1571.52 per ounce (www.kitco.com), with the price peaking in late August at $1877.50 per ounce. Exploration activities in the Kirkland Lake Resident Geologist District continued at near historic high levels.

Within the District, gold was produced from Brigus Gold Corp.'s Black Fox Mine, Kirkland Lake Gold Inc.'s Macassa Mine, St Andrew Goldfields Ltd.'s Hislop Mine, Holloway Mine and Holt Mine (Figure 1, Table 2 and Table 9). The total production of gold in 2011 was 223 013 ounces, or 6 936 480 g, an increase of 19% from the same period in 2010. Extender Minerals of Canada Ltd. operated an underground barite mining operation in North Williams Township.

Overall, there were at least 172 active exploration projects in the Kirkland Lake Resident Geologist District in 2011 (Tables 3 and 4, Figure 2).

New or updated National Instrument 43-101 (NI 43-101) resource estimates were released by Bear Lake Gold Ltd. (Bear Lake and Cheminis zones, Larder Lake project), Brigus Gold Corporation (Contact and 147 zones, Black Fox Complex), Kirkland Lake Gold Inc. (Macassa Mine), Lake Shore Gold Corp. (Fenn–Gib property), Moneta Porcupine Mines Inc. (55, Southwest and Windjammer South zones), Northgate Minerals Corporation (Young–Davidson West gold mine), Queenston Mining Inc. (Amalgamated Kirkland (AK), Bidgood, Upper Beaver and Upper Canada deposits), St Andrew Goldfields Ltd. (Hislop, Holloway, Holt and Taylor), Sheltered Oak Resources Inc. (Kerrs property) and Temex Resources Corp. (Juby gold * RZ JDQG DVVRFLDWHG. These estimates represent more WKDQ24.3 million ounces of gold in all resource categories.

In 2011, 275 assessment work and donation reports were incorporated into the Kirkland Lake Assessment File system, an increase of about 23% over that added in 2010 (Table 3). These reports, approved for assessment credits, represent $27 780 764 in exploration expenditures and are an increase of 44% from 2010 (Table 1). Eighteen publications were added to the Kirkland Lake Resident Geologist District library and entered into the publications database (Table 6).

Table 7 lists mineral deposits not being mined in the Kirkland Lake Regional Resident Geologist District in 2011.

MINING ACTIVITY – PRECIOUS METALS

Brigus Gold Corporation – Black Fox Mine

Apollo Gold Corp. and Linear Gold Corp. merged to form Brigus Gold Corp. in June 2010. Ore mining from the open pit at the Black Fox project in Hislop Township began in March 2009 and milling operations commenced in April 2009. Ore is trucked to the company's mill, in Stock Township, for processing, 26 km west of the mine.

Development of the underground mine commenced during 2010 and ore production from underground commenced March 23, 2011.

In 2011, approximately 55 756 ounces (1 734 205 g) of gold were produced from 682 758 t of ore at an average grade of 2.54 g/t. The average grade from underground was 3.82 g/t gold and 2.56 g/t gold for the open pit. The average cost per ounce was $947.

As of October 31, 2010, indicated resources at Black Fox, including reserves, were estimated at 1 031 400 ounces of gold within 5.7 million tonnes of ore at an average gold grade of 5.7 g/t, and additional inferred resources were estimated at 77 500 ounces of gold within 0.8 million tonnes of ore at 3.1 g/t. An initial mill expansion was announced in June 2011 to raise capacity to 2200 tonnes per day (tpd). Production is expected to increase until it reaches 100 000 ounces of gold annually. The estimated capital expenditures related to underground development and equipment for 2011 is $37 million.

The average grade from the open pit is expected to increase in 2012, because higher grade ore is deeper. The average cost per ounce is expected to drop to about $700 by the end of 2012. Underground exploration is expected to start in the second quarter and is intended to expand and extend resources along strike and down dip. (Brigus Gold Corp., press releases, March 28, June 7, October 13, November 14 and December 12, 2011, and February 21, 2012; Management Discussion and Analysis (MD&A), filed November 14, 2011, with SEDAR®, see SEDAR Home Page, 27p.; Technical Report, filed January 6, 2011, with SEDAR®, see SEDAR Home Page, 243p.)

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 2011, the company produced 81 860 ounces of gold from 207 322 tons of ore, with an average grade of 0.388 ounce per ton gold. The company's fiscal year end is April 30. Production for the first half of fiscal year 2012 was 49 538 ounces of gold from 127 554 tons of ore.

At the end of December 2010, reserves on the property stood at 1 187 000 tons grading 0.45 ounce per ton gold (proven) and 1 460 000 tons grading 0.64 ounce per ton gold (probable). Resources stood at 992 000 tons grading 0.39 ounce per ton gold (measured), 1 768 000 tons grading 0.53 ounce per ton gold (indicated) and 1 740 000 tons grading 0.60 ounce per ton gold (inferred). Total gold reserves in all categories amounted to 3 835 000 ounces.

For fiscal 2012, plans are to continue to focus exploration efforts on underground drilling and drifting, delineation of the South Mine Complex (SMC) and maintain reserves and resources in the Main Mine. Fifteen drills are active on the property.

The company is actively working to increase production W1600 tons per day by November 2012 with the objective RI producing at a rate of 180 000 to 200 000 ounces of gold per year in fiscal 2013. As part of the purchase agreement with Kinross Gold Corporation, production at the mine was subject to a 4% net smelter royalty capped at $15 million. The royalty agreement obligation was fulfilled in the fall of 2011. At the end of November, the company had 832 employees. A total of 275 employees are expected to be added in fiscal 2012 (Kirkland Lake Gold Inc., press releases, April 5, November 9, December 8, 2011; MD&A, filed June 6, 2011, 24p., October 5, 2011, 21p., and December 8, 2011, 23p., with SEDAR®, see SEDAR Home Page; Technical Report, filed May 18, 2011, with SEDAR®, see SEDAR Home Page, 87p.)

St Andrew Goldfields Ltd. – Hislop Mine

St Andrew Goldfields Ltd. began mine development and preproduction activities at the Hislop Mine in February 2010. Production began during the third quarter of 2010. The ore is mined by open pit and trucked to the Holt mill in Holloway Township. Production for 2011 was 20 184 ounces from 432 087 t milled at a recovered grade of 1.45 g/t gold. Annual production for 2012 is expected to be 20 000 to 22 000 ounces at a total cash cost of $621 per ounce.

Eight diamond-drill holes totalling 3473 m were completed on the northern portion of the property. This drilling was designed to test the southward extension of the 147 and Contact zone structures of Brigus Gold Corporation on St Andrew Goldfield Ltd.'s ground. Diamond-drill hole H11-002 intersected 11.95 g/t gold over 1.1 m and diamond-drill hole H11-004 intersected 16.68 g/t gold over 1.0 m.

At year end, estimated mineral resources total 37 000 t of measured resources at an average grade of 1.43 g/t gold, 5 686 000 t of indicated mineral resources at an average grade of 1.95 g/t gold and 5 338 000 t of inferred mineral resources at an average grade of 1.80 g/t gold. Proven mineral reserves are estimated at 37 000 t grading 1.43 g/t gold and probable mineral reserves are estimated at 1 498 000 t grading 1.89 g/t gold. The mine is expected to contribute about 20% of the annual production for 2012. (St Andrew Goldfields Ltd., press releases January 12, February 1 and 16, 2012; MD&A, filed November 11, 2011, with SEDAR®, see SEDAR Home Page, 37p.; C. Todd, St Andrew Goldfields Ltd., personal communications, 2012.)

St Andrew Goldfields Ltd. – Holloway Mine

St Andrew Goldfields Ltd. operates the Holloway Mine in Holloway Township. Mining commenced at the Holloway Mine in October 2009. Production for 2011 amounted to 21 462 ounces of gold from 204 258 t of ore processed at a recovered grade of 3.27 g/t gold. This was substantially lower than in 2010.

A decision was made in 2010 to advance its exploration efforts at the Smoke Deep zone by driving a 1250 m ramp from the Lightning zone. Production commenced in October 2011. Mining rates and ore grades are expected to increase. The exploration drift will be completed in the second quarter and will allow for exploration drilling down-dip and further to the east.

The Blacktop East zone is located immediately east of the Blacktop zone. Previously, limited diamond drilling had returned intersections of up to 11.62 g/t gold over 14.4 m. In 2011, 7 diamond-drill holes totalling 3478 m were completed. Intersection included 6.20 g/t gold over 12.7 m. The Deep Thunder zone is located about 1 km east of the Blacktop zone. The geology and structure is similar to the Lightning zone. Thirty diamond-drill holes totalling 17 783 m were completed in 2011. Recent intersections include 6.85 g/t gold over 5.8 m.

At year end, estimated mineral resources total 396 000 t of measured resources at an average grade of 4.53 g/t gold, 352 000 t of indicated mineral resources at an average grade of 4.60 g/t gold and 3 024 000 t of inferred mineral resources at an average grade of 5.10 g/t gold. Proven mineral reserves are estimated at 153 000 t grading 4.26 g/t gold and probable mineral reserves are estimated at 70 000 t grading 4.35 g/t gold. (St Andrew Goldfields Ltd., press releases September 19, 2011, January 12 and February 16, 2012; MD&A, filed November 11, 2011, with SEDAR®, see SEDAR Home Page, 37p.)

St Andrew Goldfields Ltd. – Holt Mine

St Andrew Goldfields Ltd. operates the Holloway Mine and, in 2010, began preparing the Holt Mine for production and accelerated its exploration programs. Mining commenced at the Holt Mine in April 2011. Production for 2011 amounted to 32 376 ounces of gold from 232 330 t of ore processed at a recovered grade of 4.33 g/t gold.

Production came from Zone 4 on both the 925 and 1075 levels. Development of the zone continues. Production rate is expected to increase to 1000 tpd by the end of the first quarter. About 50% of the 2012 production is expected to come from the Holt Mine.

The Ghost zone lies on the Ghost fault about 1 km east of the mine workings. Limited historical drilling returned values of up to 11.2 g/t gold over 4.0 m. Gold mineralization is associated with silicified and albitized mafic volcanic rocks with less than 5% disseminated pyrite. In 2011, 16 diamond-drill holes totally 8679 m were completed. Assay results include 10.60 g/t gold over 8.1 m.

At year end, estimated mineral resources total 2 981 000 t of measured resources at an average grade of 5.45 g/t gold, 2 801 000 t of indicated mineral resources at an average grade of 6.29 g/t gold and 4 836 000 t of inferred mineral resources at an average grade of 5.75 g/t gold. Proven mineral reserves are estimated at 860 000 t grading

4.92 g/t gold and probable mineral reserves are estimated at 1 548 000 t grading 5.61 g/t gold. (St Andrew Goldfields Ltd., press releases September 19, 2011, January 12 and January 16, 2012; MD&A, filed November 11, 2011, with SEDAR®, see SEDAR Home Page, 37p.; C. Todd, St Andrew Goldfields Ltd., personal communications, 2012.)

MINING ACTIVITY – INDUSTRIAL MINERALS

Extender Minerals of Canada Ltd. – Barite

Extender Minerals of Canada Ltd. produced approximately 2000 t barite ($BaSO_4$) in 2011. 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% $BaSO_4$. Exploration conducted at the site during 2011 has extended the mines life for another year. Development work continued on the Langmuir Township barite property, with production expected to start with the closure of North Williams. About 10 people were employed during 2011. (R. Hill, Extender Minerals of Canada Ltd., personal communication, 2012.)

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 2009. The resource estimate listed 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 0.10 ounce per ton gold.

During 2011, 17 diamond-drill holes totalling 16 921 feet were completed on the McGarry project. Pre-production projects were completed or are well underway and production is anticipated for early 2012 with a production rate of about 25 000 ounces of gold per year. Initial mining will take place on the 2250 level, including the 325N, the 260N, and the 400N zones. Definition drilling in the 325N zone returned numerous high-grade intersections with visible gold in the core and on mine faces. The mine began hoisting and stock piling ore in December. Metallurgical testing of the ore is being done at several nearby custom mills. An announcement will be made following the signing of a custom milling project. The project had 65 employees at the end of December. (Armistice Resources Corp., press releases, November 24, 2011, and January 5 and 25, 2012 ; MD&A, filed December 14, 2011, with SEDAR®, see SEDAR Home Page, 20p.)

AuRico Gold Inc. – Young–Davidson Project

In July 2010, Northgate Minerals Corp. announced that diamond-drill hole YD10-198 intersected 3.46 g/t gold over 79.5 m. This intercept was postulated to be the faulted offset extension to the orebody. In September, the company announced a new NI 43-101 resource estimate for the Young–Davidson (YD) West zone. The zone had an indicated mineral resource of 4.5 million tonnes grading 3.72 g/t gold and an inferred mineral resource of 0.5 million tonnes grading 3.22 g/t gold.

During the year, 20 surface diamond-drill holes totalling 23 354 m and 4 underground diamond-drill holes totalling 1720 m were completed.

On October 26, 2011, AuRico Gold acquired all the issued and outstanding shares of Northgate Minerals Corporation in consideration of 36.5% of an AuRico common share for each Northgate common share.

Preproduction development commenced in November with the initial open pit blast. The first gold pour is expected to take place in March 2012. Mine construction is on schedule. Preproduction development is expected to average 25 000 tonnes per day ore and waste until plant commissioning. Deepening of the main ramp, sinking of the MCM shaft and construction of the headframe on the Northgate production shaft are proceeding on schedule. All underground equipment required for 2012 has been ordered. The mill has been enclosed, and mechanical and

electrical installations are proceeding on schedule. The 54 km 115 kV power line was expected to be energized by year end. The tailings impoundment area was expected to be completed by year end.

A 40 000 m diamond-drilling program is proposed for 2012 and will focus on the development of the Young–Davidson West deposit as well as 6 other targets. (Northgate Minerals Corp., press release, September 15; AuRico Gold Inc., press releases, October 26, November 18, 2011, and January 9, 2012.)

Kirkland Lake Gold Inc. and Queenston Mining Inc. – South Claims JV

In August 2010, Kirkland Lake Gold Inc. and Queenston Mining Inc. announced a one-year joint venture agreement whereby Queenston would add 7 claims from its Amalgamated Kirkland property and 8 claims from its Kirkland Hudson property. Kirkland Lake Gold Inc. would expend $400 000 by driving a drift from the 5300-foot level of the Macassa Mine southeastward onto the property and establish a drilling station. Afterwards, the project would become part of the South Claims Joint Venture.

An updated resource estimate for the South Claims joint venture was completed January 1, 2011. Outlined was an indicated resource of 101 000 tons grading 1.41 ounce per ton gold and an inferred resource of 113 000 tons grading 1.35 ounce per ton gold.

The results of 3 underground diamond-drill holes totalling 5930 feet were released in September. The holes were drilled from the east end of the South Boundary drift. Diamond-drill hole 53-1823 intersected the New South zone with an intercept of 0.44 ounce per ton gold over 25.1 feet true width and the New Footwall zone with an intercept of 3.18 ounce per ton gold over 1.3 feet. (Kirkland Lake Gold Inc. and Queenston Mining Inc., press release, September 7, 2011; Kirkland Lake Gold Inc., Technical Report, filed May 18, 2011, with SEDAR®, see SEDAR Home Page, 87p.)

EXPLORATION ACTIVITY

Abitibi Mining Corp. – Tannahill Gold Property

Abitibi Mining Corp. completed a five-hole (4098 m) diamond-drill program on its Tannahill gold property in Tannahill Township. All five drill holes intersected strongly fractured zones with alteration, silica flooding and sulphide mineralization, with better grade mineralization intercepted at depth. The best intersection assayed 1.36 g/t gold over 4.15 m, including 2.37 g/t gold over 2.0 m in hole AMT-11-01. (Abitibi Mining Corp., press release, June 2, 2011.)

Adroit Resources Inc. – Red Vein

Adroit Resources Inc. completed a 12-hole (4061 m) program on its Red Vein property in Kelvin Township. Drill hole GL0004 intersected 185 m of massive sulphide mineralization. A deep induced polarization (IP) survey was completed on 8.1 km of lines on the Little Pigeon Lake portion of the property. A sampling and mapping program was also completed, with selected grab samples assaying up to 10.4% copper. (Adroit Resources Inc., press releases, March 3 and May 30, 2011)

Bear Lake Gold Ltd. – Larder Lake

In April 2011 Bear Lake Gold Ltd. announced an initial National Instrument 43-101 compliant, independent mineral resource estimate at the Bear Lake zone and an updated NI 43-101 compliant, mineral resource estimate for the Cheminis zone at its Larder Lake Project in McVittie Township. The Bear Lake zone contains an inferred mineral resource of 3 750 000 t grading 5.67 g/t gold (683 300 ounces). The estimate was based on the availability of core from 88 surface drill holes, which were re-sampled in order to confirm the validity of the data. The Cheminis zone has indicated resources of 335 000 t at 4.07 g/t gold (43 800 ounces) and inferred resources of 1 391 000 t at 5.22 g/t gold (233 400 ounces). The estimate was based on the availability of cores from 791 historic surface and underground drill holes, which were re-sampled in order to confirm the validity of the historic data.

In 2011, a 15 000 m drilling program was conducted to improve mineral resources on the Bear Lake and Cheminis gold zones. Approximately 8000 m of drilling was planned to test the extension and better define the Cheminis mineral resource. In addition, 5000 m of drilling investigated extensions of the Bear Lake mineral resource. Another 2000 m of drilling was planned in the Fernland area. By year end, more than 4000 m were completed. Significant intercepts were 5.6 g/t gold over 2.6 m in hole 93W. (Bear Lake Gold Ltd., press releases, June 29 and November 3, 2011.)

Brigus Gold Corp. – 147 and Contact Zones

Brigus Gold Corp. announced an initial National Instrument 43-101 compliant, independent mineral resource estimate for the 147 and Contact zones on the Black Fox Complex. Resources at the 147 zone include 43 820 ounces of gold (indicated) and 351 910 ounces of gold (inferred). The 147 zone mineral resource estimate is based on 86 drill holes. Significant drilling results from the 147 zone include 7.98 g/t gold over 23.00 m in hole GF11-152, 20.99 g/t gold over 25.00 m in hole GF11-176 and 7.78 g/t gold over 22.10 m in hole GF11-284. Resources at the Contact zone include 79 890 ounces of gold (indicated) and 107 510 ounces of gold (inferred). The Contact zone resource is based on 169 drill holes. Significant drilling results from this zone include 10.82 g/t gold over 20.4 m in hole GF11-174, 3.26 g/t gold over 26.5 m in hole GF11-179, 3.54 g/t gold over 11.32 m in hole GF11-238 and 20.55 g/t gold over 2.30 m in hole GF11-238. (Brigus Gold Corp. press releases April 27, May 16, September 7 and December 15, 2011.)

Castle Silver Mines Inc. – Castle Silver Mine Property

Castle Silver Mines Inc. is a wholly-owned subsidiary of Gold Bullion Development Corp., created for the purpose of taking over the silver assets and exploration activities at the Castle Silver Mine in Haultain Township. Gold Bullion carried out a 12-hole (6842 m) diamond-drilling program that successfully identified multiple new vein structures, the most significant being a silver-cobalt vein in hole CA11-08 with a weighted average of 6476 g/t silver over 3.09 m. Five holes crossed the complete stratigraphic section of the shallow-dipping Nipissing diabase, considered to be the primary feature controlling the emplacement of silver deposits. (Gold Bullion Development Corp. press releases August 25 and November 16, 2011.)

Constantine Metal Resources Ltd. – Munro-Croesus

Constantine Metal Resources Ltd. diamond drilled 7280 m on the Munro–Croesus property in Munro Township. A total of 38 short holes (average length of 36 m) tested shallow targets in both the hanging wall and footwall to the main Croesus vein. Significant intercepts were 18.79 g/t gold over 4.10 m in hole MC11-C38 and 18.03 g/t gold over 1.24 m in hole MC11-20. Nine holes drilled on the nearby Four Corners property tested 2 separate target areas referred to as the Canamax zone and the Perry Pond prospect, located 1.2 km east of the Munro Croesus property. The best intersection was 3.97 g/t gold over 0.95 m in hole CMX11-03A. (Constantine Metal Resources Ltd., press release, September 20, 2011.)

Creso Exploration Inc. – Downey Property

Creso Exploration Inc. conducted a surface exploration program, consisting of stripping, washing and sampling, on the Downey property in Asquith Township. Thirty rock-chip samples were collected, with 23 samples taken on the main showing averaging 15.65 g/t gold. The highest single sample assayed 266.00 g/t gold and a second sample assayed 73.60 g/t gold. The area is underlain by a sequence of felsic volcanic rocks with minor pillowed mafic flows crosscut by a northwest-trending diabase dike. The highest gold grades are developed within shear zones and quartz veins. (Creso Exploration Inc., press release, May 27, 2011.)

Creso Exploration Inc. – Duggan and North Duggan Properties

Creso Exploration Inc. completed 3 diamond-drill holes (564 m) on the Duggan property and 2 holes (1489 m) on the Duggan North property in Knight Township. The North Duggan property is a joint venture with Temex Resources Corp. Significant intercepts on the Duggan property were 28.9 m grading 1.25 g/t gold including 0.5 m of

38.0 g/t gold in hole DUG11-19. On the North Duggan property, the best intersection in hole DUG10-14 was 2.0 m of 2.82 g/t gold. (Creso Exploration Inc., press release, June 8, 2011.)

Creso Exploration Inc. – Mann Property

Creso Exploration Inc. completed 5 diamond-drill holes (775 m) on the Mann property in Milner Township. Historically, the property produced 178 000 ounces of silver from some 8000 tons of ore at an average grade of over 21 ounces per ton (720.3 g/t) of silver. The drill program was designed to confirm historical results of hole #67-60, which reported 520 ounces per ton silver over a width of 0.88 m at a depth of 12 m from surface, and test the extension of the D zone both laterally and at depths below 39 m, where values of 6309 ounces per ton silver over 0.61 m were reported at the end of an inclined ramp. Significant intercepts were 978.5 g/t silver over 5.15 m, including 5130 g/t silver over 0.65 m from hole MN11-03, 400 g/t silver over 1.0 m from hole MN11-04 and 39 g/t over 1.5 m from hole MN 11-05. Channel samples taken from a mechanically stripped and washed area returned values up to 36 g/t silver over 1.06 m. (Creso Exploration Inc., press releases, December 14, 2011, and January 18, 2012.)

Creso Exploration Inc. – Minto Property

Creso Exploration Inc. completed 3 diamond-drill holes (781 m) on the Minto property in Tyrrell Township. Significant intercepts were 192 m grading 1.01 g/t gold including 42.7 m of 3.94 g/t gold in hole MC11-11 and 8.4 m of 0.24 g/t gold in hole MC11-12. The mineralization appears to occur within a breccia pipe that generally plunges to the south-southeast at about 79°. (Creso Exploration Inc., press release, May 11, 2011.)

Creso Exploration Inc. – Tyranite Property

Creso Exploration Inc. completed 3 diamond-drill holes (1698 m) on the Tyranite property in Knight and Tyrrell townships. The best and deepest intercept from this drill program had 5.22 g/t gold over 11.8 m in hole TY11-02, including 10.61 g/t gold over 4 m. (Creso Exploration Inc., press release, May 11, 2011.)

Geomark Exploration Ltd. – Carr–Wilkie Property

Geomark Exploration Ltd. completed 3 diamond-drill holes (1687 m) on the Carr–Wilkie property in Carr and Wilkie townships. The drill holes tested both new geological and geophysical targets and extensions of the historic Carlo gold showing. The best intersections from this drill program were 1.3 g/t gold over 10.78 m, 2.2 g/t gold over 3.23 m and 7.4 g/t gold over 0.4 m in hole CW19-11. (Geomark Exploration Ltd., press release, June 28, 2011.)

Goldeye Explorations Ltd. – Tyrrell Township Property

Goldeye Explorations Ltd. completed 12 holes (3608 m) on its Tyrrell Township properties in 2011. Hole G-11-68 intersected 3 separate new zones of gold mineralization: 33.2 g/t gold over 1.0 m; 2.01 g/t gold over 1.0 m and 3.17 g/t gold over 2.6 m. The gold occurs in brecciated pillowed to massive mafic volcanics, which have been extensively sericitized and silicified. The visible mineralization consists of fine pyrite in a siliceous grey matrix surrounding the angular fragments, with minor quartz veins. (Goldeye Explorations Ltd., press release, September 14, 2011.)

Lake Shore Gold Corp. – Fenn–Gib Property

Lake Shore Gold Corp. released initial National Instrument 43-101 resources for the Fenn–Gib property in Guibord Township. Indicated mineral resources are 40 800 000 t grading 0.99 g/t gold (1 300 000 ounces) and inferred mineral resources are 24 500 000 t grading 0.95 g/t gold (750 000 ounces). The resource estimate was completed using a database containing 319 holes totalling 86 017 m which were drilled mainly between 1986 and 1999.

A four-hole (1899 m) drilling program was also carried out. The drilling consisted of 3 holes considered as “twins” to historic holes completed by past operators in the 1990s, as well as 1 hole into an untested gap located within the

central portion of the intrusive complex section and then extended 200 m north of previous nearby holes. Significant results include 1.31 g/t gold over 414 m, including 1.54 g/t gold over 264 m, and 2.40 g/t over 20 m, including 3.72 g/t gold over 9 m in hole FG-11-04. (Lake Shore Gold Corp. press releases, October 28 and November 17, 2011.)

Lounor Exploration Inc. – Harker

Lounor Exploration Inc. completed 5 diamond-drill holes in 2011. The Harker zone is within silicitized albitized mafic volcanic rocks with about 5% disseminated pyrite. To date, 95 diamond-drill holes have identified a mineralized zone at least 425 m in length and to a depth of 250 m. The zone is open along strike and to depth. Diamond-drill hole 85 intersected 5.92 g/t gold over 2.01 m. (Lounor Exploration Inc., press releases, May 31 and June 22, 2011.)

McLaren Resources Inc. – Blue Quartz

McLaren Resources Inc. completed a five-hole, (1690 m) diamond-drilling program on the Blue Quartz property in Beatty Township. Diamond-drill hole MBQ-11-09 intersected 13.95 g/t over 2 m. The results expanded the gold mineralization to depth and along strike, with the deepest hole intercepting 63 m of gold mineralization starting at a depth of 351 m down hole. (McLaren Resources Inc., press release, April 21, 2011.)

Metals Creek Resources Corp. – Tillex Copper

Metals Creek Resources Corp. completed a five-hole, 745 m diamond-drilling program on the Tillex copper property in Currie Township. Significant results from the program include 1.65% copper and 33.23 g/t silver over 85.48 m, including a higher grade intercept of 5.29% copper and 355 g/t silver over 5 m in hole TX11-008. All 5 holes were designed to increase drilling density and further define copper mineralization within the historic Tillex copper deposit. Mineralization consists of disseminated and stringer chalcopyrite within a mixed sequence of andesite, graphitic argillite, dacitic tuff and feldspar porphyry. (Metals Creek Resources Corp., press release, April 21, 2011.)

Mexivada Mining Corp. – Hislop Properties

Mexivada Mining Corp. completed a four-hole, 2105 m diamond drilling program on its Hislop Township properties adjacent to St Andrew Goldfields Ltd.'s Hislop Mine. The drilling intersected multiple zones of mineralization, and a newly discovered, quartz-veined syenite intrusive system. Assays in excess of 1 g/t gold were returned from preliminary samples. (Mexivada Mining Corp., press release, November 29, 2011.)

Mineral Mountain Resources Ltd. – Shining Tree Area Gold

Mineral Mountain Resources Ltd. conducted a combined 64-hole reverse circulation (RC) drilling program and a 292 shovel pit sampling program covering both the Main Block and Block A properties in Macmurchy Township. The program succeeded in identifying a north-south gold corridor located in the northern part of Block A that is up to 5 km long and ranging from 200 to 600 m wide. Subsequently, 16 diamond-drill holes (4328.5 m) were completed. Although no significant gold assays were recorded, a number of anomalous gold intersections up to 13 m wide were recorded with values ranging from 0.42 g/t to 0.97 g/t gold. To date, 11 734 m of drilling have been completed on the Cook zone, a mesothermal gold deposit located in the central part of Block A. Significant results include 3.16 g/t gold over 15 m (including 31.11 g/t gold over 1.05 m) in hole GH11-41; 2.96 g/t gold over 11.25 m (including 4.09 g/t gold over 5.3 m) in hole GH11-47 and 2.07 g/t gold over 16.5 m (including 5.69 g/t gold over 4.5 m) in hole GH11-65. (Mineral Mountain Resources, press releases, August 30, November 9, 2011, and January 18, 2012.)

Mistango River Resources Inc. – Omega Mine Property

Mistango River Resources Inc. completed 66 drill holes (17 352 m) on the Omega Mine property in McVittie Township. Significant results include 15.50 g/t gold over 6 m (including 45.57 g/t gold over 1 m) in hole OM-11-02;

3.13 g/t gold over 7.8 m (including 4.64 g/t gold over 4.8 m) in hole OM11-15; 2.66 g/t gold over 24 m (including 13.44 g/t gold over 4 m) in hole OM11-63.

Anticipated work for 2012 is to complete geophysics consisting of deep IP and magnetics on the Omega South West area and some limited drilling on the Lake claim. Drilling will continue on the Omega Mine area concentrating on the main mine area in order to complete a resource estimate. (Mistango River Resources Inc., press releases, January 5 and 23, 2012.)

Moneta Porcupines Mines Inc. – Golden Highway Project

In December 2011, Moneta Porcupine Mines Inc. released initial National Instrument 43-101 resources for the Windjammer South, Southwest and 55 zones in Michaud Township. Indicated mineral resources are 33 500 000 t grading 1.0 g/t gold (1 071 000 ounces) and inferred mineral resource of 47 800 000 t grading 1.35 g/t gold (2 069 000 ounces). The mineral resources were based on 313 diamond-drill holes over a 2 km strike length of the Golden Highway Project's 55, Southwest and Windjammer South gold zones and includes drilling from historical operators Lac Minerals (1994–1997) and Noranda Exploration (1983–1989). During the first 3 quarters of 2011, 20 090 m were drilled on various zones on the Golden Highway Project. (Moneta Porcupine Mines Inc., press releases, May 21 and December 1, 2011.)

Murgor Resources Inc. – Golden Arrow Gold Project

In 2011, Murgor Resources Inc. completed 43 drill holes (11 940 m) at the Golden Arrow gold property in Hislop Township. Significant results from the West zone discovery include 9.95 g/t gold over 7.0 m, 6.46 g/t gold over 6.0 m and 9.89 g/t gold over 1.5 m. The Main zone also returned intersections of high-grade mineralization including two 1 m intervals of 34.9 g/t gold and 20.0 g/t gold. The syenite-hosted gold mineralization at Golden Arrow consists of a stockwork of quartz veins and veinlets enclosed in a halo of pink to brick-red potassic alteration with 2 to 3% disseminated pyrite, associated with the northeast-trending Golden Arrow fault. (Murgor Resources Inc., press releases, November 3, 2011, and January 19, 2012.)

Northern Gold Mining Inc. – Garrison

In June 2011, Northern Gold Mining Inc. announced the results of an updated National Instrument 43-101 compliant resource estimate and a Preliminary Economic Assessment (PEA) for its Garrcon gold deposit in Garrison Township. Indicated mineral resources are 24 900 000 t grading 0.9 g/t gold (720 000 ounces) and inferred mineral resources are 18 600 000 t grading 0.7 g/t gold (430 000 ounces). The updated resource estimate includes assay data from an additional 47 drill holes completed in 2010 and 5 completed in January 2011.

The PEA concluded that the property merits the expenditure of additional funds to continue expanding, delineating, and developing the existing resource as well as the implementation of detailed metallurgical test work to confirm the concepts and assumptions used in the PEA.

In 2011, the company planned to complete 50 000 m of diamond drilling and by October 31, 30 280 m of drilling had been completed in 86 holes and 7 hole extensions. Step-out holes east of the resource footprint extend the known strike length of the deposit another 200 m, increasing the length of known mineralization to 1 km. Significant results in this area include 1.18 g/t gold over 54.0 m including 4.36 g/t gold over 13.3 m (including 35.96 g/t gold over 0.7 m). (Northern Gold Mining Inc., press releases, June 23, 2011, and January 26, 2012.)

Platinex Inc. – Shining Tree

In 2011, Platinex Inc. carried out a property-wide program of till and bedrock sampling, plus focused programs of stripping, channel sampling, ground magnetometer surveys, and diamond drilling on its Shining Tree area properties. Three holes (651 m) were drilled on the Herrick prospect in Churchill Township with a best result of 18.75 g/t gold over 0.5 m. Seven holes (1070 m) were drilled on the Caswell prospect in Macmurchy Township, with a best result of 12.55 g/t gold over 0.85 m. The till sampling program outlined a large gold dispersion train.

A total of 424 bedrock samples were collected, with the best assay of 29 g/t gold from a composite grab sample taken over a 2 m width. A National Instrument 43-101 technical report and resource estimate is expected to be prepared in early 2012. (Platinex Inc., press release, November 24, 2011.)

Queenston Mining Inc. – Amalgamated Kirkland

Queenston Mining Inc. announced an updated National Instrument 43-101 compliant, mineral resource estimate for the Amalgamated Kirkland (AK) property in Teck Township with an indicated mineral resource of 1 145 000 t grading 4.47 g/t gold (164 000 ounces) and an inferred mineral resource of 1 530 300 t grading 4.21 g/t gold (207 000 ounces). The mineral resource estimate incorporated 36 new surface diamond-drill holes (18 510 m) drilled by the company as well as historic holes (10 988 m) completed by previous operators. During the first 3 quarters of 2011, 20 holes totalling 12 541 m were drilled to test the AK deposit up-dip towards surface and below 600 m. (Queenston Mining Inc., press release, September 29, 2011, and Management Discussion & Analysis, November 10, 2011.)

Queenston Mining Inc. – Bidgood

Queenston Mining Inc. announced an updated National Instrument 43-101 compliant, independent mineral resource estimate for the Bidgood (South zone) and Boundary deposits in Lebel Township. Indicated mineral resources are 1 464 000 t grading 1.69 g/t gold (79 000 ounces) and inferred mineral resources of 318 202 t grading 2.02 g/t gold (21 000 ounces). The mineral resource estimate incorporated 114 new surface diamond-drill holes (14 402 m) drilled by the company as well as 23 historic holes (3632 m) completed by previous operators. During the first 3 quarters of 2011, 82 holes totalling 19 861 m were drilled. The drilling has identified new areas of mineralization within and outside the estimated mineral resource envelopes. Significant drill results include 38.81 g/t gold over 29.85 m (including 844.50 g/t gold over 0.65 m) in hole BG11-129 and 5.22 g/t gold over 11.75 m (including 34.97 g/t gold over 0.90 m) in hole BG11-139. (Queenston Mining Inc., press releases, January 13, February 14, June 9 and October 17, 2011.)

Queenston Mining Inc. – Rand Property

Queenston Mining Inc. drilled 15 holes totalling 17 050 m in 2010 and 2011 on the Rand property located on the southern part of Kirkland Lake. Significant drill results include 8.4 g/t gold over 2.6 m (including 14.6 g/t gold over 1.1 m and 44.5 g/t gold over 3.6 m) in hole KGR11-12 and 6.2 g/t gold over 7.0 m (including 20.0 g/t gold over 2.0 m) in hole KGR10-01. (Queenston Mining Inc., press release, December 01, 2011.)

Queenston Mining Inc. – Upper Beaver

In May 2011, Queenston Mining Inc. announced an updated NI 43-101 resource estimate on the Upper Beaver property in Gauthier Township, with an indicated mineral resource of 3 074 500 t grading 9.7 g/t gold (690 000 ounces) and 0.54% copper and an inferred mineral resource of 3 093 000 t grading 8.5 g/t gold (616 000 ounces) and 0.39% copper. An earlier 2008 resource estimate was based on 136 drill holes and wedges while the updated estimate includes an additional 134 drill holes and wedges, which has extended the deposit to depth and filled in gaps in the upper mineralized zones. An independent Preliminary Economic Assessment to build a stand alone mine and mill complex at Upper Beaver is in progress and will be completed in the first quarter of 2012. Application for permitting a shaft and an underground advanced exploration program at Upper Beaver has been submitted to the Ministry of Northern Development and Mines.

During the first 3 quarters of 2011, 56 holes totalling 28 816 m were drilled. Significant drill results include 26.5 g/t gold with 1.15% copper over 4.0 m in hole UB11-189, 11.50 g/t gold with 0.40% copper over 25.0 m in hole UB11-175W3 and 13.2 g/t gold with 1.1% copper over 13.5 m in hole UB11-174W3. (Queenston Mining Inc., press releases, April 7, October 15 and December 20, 2011.)

Queenston Mining Inc. – Upper Canada

In May 2011, Queenston Mining Inc. announced an initial NI 43-101 compliant mineral resource estimate on the Upper Canada property in Gauthier Township. Indicated and inferred mineral resources have been determined for near-surface mineralization to an average depth from surface of 125 m and mineralization below the potential pit shell that could be amenable to underground mining. The open pit mineral resources are 1 721 000 t grading 1.88 g/t gold (104 000 ounces) in the indicated category and 1 273 000 t grading 1.86 g/t gold (76 000 ounces) in the inferred category. The mineral resources amenable to underground mining are 238 000 t grading 4.25 g/t gold (33 000 ounces) in the indicated category and 3 622 000 t grading 4.78 g/t gold (557 000 ounces) in the inferred category. The mineral resource estimate incorporates 206 surface diamond-drill holes (66 364 m) completed from October 2009 to February 2011.

During the first 3 quarters of 2011, 152 holes totalling 60 598 m were drilled. Significant intersections include 3.09 g/t gold over 12.5 m (hole UC11-301) in the Upper L zone, 2.11 g/t gold over 23.8 m in the C zone (hole UC11-252W1), 29.11 g/t gold over 3.7 m in the Northland zone (UC11-357), 3.09 g/t gold over 7.8 m in the new Brock North zone (UC11-348), 16.61 g/t gold over 3.7 m in the new K zone (UC11-268). Drilling on the property tested deep targets as well as a shallow mineralization in the vicinity of the open-pit resources and began to test other areas for open-pit potential. (Queenston Mining Inc., press releases, May 4 and November 14, 2011.)

Sarissa Resources Inc. – Shining Tree Property

Sarissa Resources Inc. completed 2 holes at the Shining Tree gold property in Churchill Township. Drill hole SC-11-3 intersected 1.71 g/t gold over 1.12 m, 1.37 g/t gold over 0.46 m and 19.35 g/t silver over 2.26 m. Drill hole SC-11-4 intersected 0.92 g/t gold over 19.17 m and 12.1 g/t silver over 1.17 m. Gold- and silver-bearing zones were identified within foliated felsic to mafic metavolcanic sequences with varying amount of carbonatization, silicification and fine pyrite mineralization. (Sarissa Resources Inc., press release, November 28, 2011.)

Sheltered Oak Resources Corp. – Kerrs

In April 2011, Sheltered Oak Resources Corp. announced an updated NI 43-101 resource estimate on the Kerrs gold property in Kerrs Township. The inferred resource defined to date comprises 7 041 460 tonnes at an average grade of 1.71 g/t gold (386 467 ounces). The resource estimate incorporates 41 holes including 3 historical holes. In 2011, 24 holes (8702 m) were drilled. Significant results include 4.69 g/t gold over 5.5 m in hole K-11-45; 4.11 g/t gold over 4.92 m in hole K-11-46; 2.83 g/t gold over 4.40 m in hole K-11-48; 1.81 g/t gold over 17.2 m (including 2.54 g/t gold over 4.8 m and 3.73 g/t gold over 4.4 m) in hole K-11-49. The Kerrs gold deposit is stratabound occurring at the contact of a thick mafic pillow flow sequence overlying an ultramafic, magnetic-rich flow sequence. Gold mineralization occurs as pyritized quartz vein breccias enveloped by quartz fuchsite carbonate vein breccias and alteration envelopes varying up to 40 m thick. (Sheltered Oak Resources Corp., press releases, April 26, September 8, and October 26, 2011.)

Solid Gold Resources Corp. – Legacy Gold Property

Solid Gold Resources Corp. completed 28 holes on a Phase 1 program at the Legacy gold property in Lamplugh and Frecheville Townships. Four of the holes were drilled from the ice on Lake Abitibi. The best result was 20.7 g/t gold over 1.4 m in hole SG 11-28. Mineralization is associated with the North Branch of the Porcupine Fault at the contact of a magnetic intermediate intrusive (leucocratic diorite) with mafic to ultramafic volcanics. A number of discreet, silicified, carbonatized, narrow breccia zones were intersected.

On January 5, 2012, the Superior Court of Ontario ordered that Solid Gold may not conduct exploratory work on its Lake Abitibi property for a period of 120 days. During the 120-day period Solid Gold, Wahgoshig First Nation and the Crown have been ordered to enter into a “process of bona fide meaningful consultation and accommodation” regarding any future activity on the Lake Abitibi property. (Solid Gold Resources Corp., press releases, May 17, August 17, 2011, and January 5, 2012.)

St Andrew Goldfields Ltd. – Garrison Creek

St Andrew Goldfields Ltd. completed 19 holes (7137 m) on the Garrison Creek project in Garrison Township. The targeted rocks are situated within the Garrison fault zone, a northwest-striking structure that crosscuts other rock units and earlier regional structures. Significant results include 0.93 g/t gold over 46.1 m (including 7.92 g/t gold over 3.5 m) in hole GC10-18, 0.95 g/t gold over 33.6 m (including 19.40 g/t gold over 0.65 m) in hole GC10-21 and 0.68 g/t gold over 27.7 m in diamond-drill hole GC11-001. Along the Porcupine–Destor Deformation Zone (PDDZ), limited drilling has returned 3.20 g/t gold over 20 m, within a zone that returned 1.15 g/t gold over 89.5 m in drill hole GC10-020. The mineralization is hosted within strongly sheared and heavily altered ultramafic metavolcanic rocks that are crosscut by syenite dikes. (St Andrew Goldfields Ltd., press release, March 28, 2011.)

St Andrew Goldfields Ltd. – Taylor

St Andrew Goldfields Ltd. drilled 39 holes (19 184 m) focused on further delineation of the West Porphyry zone in Taylor Township. Significant intersections include 5.85 g/t gold over 21.6 m (including 122.50 g/t gold over 0.5 m) in hole TA11-011, 12.22 g/t gold over 8.4 m (including 155.00 g/t gold over 0.5 m) in hole TA11-014, 43.10 g/t gold over 6.0 m (including 185.50 g/t gold over 0.5 m) in hole TA11-015, 39.79 g/t gold over 1.4 m in hole TA11-25A, 18.45 g/t gold over 2.0 m hole TA11-26 and 34.94 g/t gold over 5.8 m (including 117.00 g/t gold over 1.2 m). The company will compile all of the drilling data and prepare an updated mineral resource estimate for the West Porphyry zone. (St Andrew Goldfields Ltd., press releases, June 23 and September 12, 2011.)

Temex Resources Corp. – Gowganda Silver Project

In June 2011 Temex Resources Corp. announced a NI 43-101compliant resource estimate on silver contained in the tailings on its Gowganda silver project in Haultain and Nicol townships. The resource estimate for the tailings at a silver cut-off grade of 10.0 g/t is 1 940 000 t grading 47.5 g/t silver for 2 960 000 contained ounces of silver in an indicated category. The mineral resource estimate is based on 764 auger, drive pipe and sonic drill holes (3012 m) and 2039 assay values from drilling conducted by the previous operator in 1981, 1987 and 2000. A diamond-drill program was conducted to confirm and test for the extensions of several high-grade silver veins reported by the previous operator. Drill hole GS-11-04 tested the Millerett #7 and #8 area and intersected multiple high-grade sections of silver mineralization. The lowermost zone contained bonanza grades assaying 5510 g/t silver over 0.73 m including 10 267 g/t over 0.30 m defined by a higher density of calcite veins, some of which contained highly anomalous silver values and require further drill testing. The intersections are within zones of higher density calcite veining, highlighted by sections assaying 238 g/t silver over 2.75 m and 624 g/t silver over 0.62 m. (Temex Resources Corp., press releases, October 6 and December 10, 2011.)

Temex Resources Corp. – Juby Gold Project

In January 2012, Temex Resources Corp. announced an updated NI 43-101 resource estimate on the Juby Gold Project in Tyrrell Township, with an indicated mineral resource of 33 300 000 t grading 1.3 g/t gold (934 645 ounces) and an inferred mineral resource of 28 200 000 t grading 1.0 g/t gold (905 621 ounces). Prospecting has discovered several new surface gold zones 1.5 km southwest of the Juby Main zone and appears to represent an important parallel structural trend to the main Tyrrell Structural zone. Prospecting across the gold-in-soil anomalous trend has discovered several gold-in-bedrock occurrences over an area approximately 250 m long by 50 m wide with individual grab samples assaying 0.59 g/t gold up to 8.26 g/t gold. (Temex Resources Corp., press releases, November 24, 2011, and January 16, 2012)

Temex Resources Corp. – Latchford Gold Project

Temex Resources Corp. completed 12 holes (1340 m) on the Brett property, 2 holes (325 m) on the Rib Lake property and a soil geochemical survey of 864 soil samples collected on the Rib Lake property. The drill program intersected subanomalous to anomalous gold in drill holes. The best gold intersection was 85.47 g/t gold over 0.3 m in hole LG11-06, where specks of visible gold were noted in a calcite vein hosted in conglomerate. Anomalous base metals (copper, nickel, zinc) were also noted, with the best result being 0.77% nickel and 0.31% copper over 1 m in

hole RL11-02. The soil geochemical survey conducted on the Rib Lake property detected many samples anomalous in gold, silver, arsenic, cobalt, copper, nickel, lead and zinc. Further work in the form of prospecting, trenching and detailed geological and structural mapping is planned for 2012. (Temex Resources Corp., press release, June 27, 2011, and Kirkland Lake Resident Geologist office assessment file CO-3655.)

Transition Metals Corp. – Haultain

In 2011, Transition Metals Corp. completed line cutting, ground IP, and soil gas hydrocarbon surveys, geological mapping, trenching, channel sampling and drilled 21 holes (2100 m) on its Haultain property near Gowganda. The work resulted in the discovery of several new surface occurrences of gold mineralization associated with at least 3 polyphase syenite dike swarms that have been traced along strike at surface for approximately 1.5 km. Drilling on the property returned intersections including a 7.06 m interval grading 2.37 g/t gold. (Transition Metals Corp., press release, December 1, 2011.)

West Kirkland Mining Inc. – Kirkland Lake

During the first 3 quarters of 2011, West Kirkland Mining Inc. completed 67 holes totalling 15 751 m on its Kirkland Lake properties. The best results were on the Cunningham property in Holmes Township. Significant results include 16.15 g/t gold over 5.0 m, including 34.49 g/t gold over 2.2 m in hole KC1163; 7.85 g/t gold over 0.80 m in Hole KC1184; 20.10 g/t gold over 1.00 m in Hole KC1186; 1.25 g/t gold over 17.80 m in Hole KC1187 and 3.69 g/t gold over 2.00 m in Hole KC1194. West Kirkland plans to drill approximately 15 000 m of core on its Kirkland Lake properties in 2012. Focus areas will include the Cunningham, Sutton and Goldbanks properties. The Goldbanks target is 1.2 km west of by Kirkland Lake Gold's Macassa gold mine, # 3 shaft. The best intercept to date on that property is 11.8 g/t gold over 0.3 m. (West Kirkland Mining Inc., press releases, October 3, 2011, and January 16, 2012)

RESIDENT GEOLOGIST STAFF AND ACTIVITIES

During 2011, staff at the Kirkland Lake's Resident Geologist office consisted of D. Guindon, the Regional Resident Geologist, G. Grabowski, District Geologist, M. Greenfield (January to July) and N. Sabiri (August to December), Acting District Geological Assistant, and A. Moning and E. Dugdale, the Summer Experience students from June to August. Table 8 summarizes the activities of the Kirkland Lake Regional Resident Geologist Office in 2011.

D. Guindon conducted 1 mine site visit, participated in 2 field trips, updated 24 Mineral Deposit Inventory (MDI) records, attended the Northeastern Ontario Mines and Minerals Symposium in Timmins (NEOMMS) in April and the Geological Association of Canada (GAC) meeting in Ottawa in May. He also gave a talk at the Northeastern Prospectors Association Annual General Meeting.

G. Grabowski operated an office in Cobalt during the field season activities from May to November for a total of 12 days, performed 10 properties visits (Figure 3), participated in a total of 13 field trips (11 given, 2 taken) with a total of 106 participants for the field trips given. He also attended the NEOMMS in April, the GAC in May and the Ontario Exploration and Geoscience Symposium (OEGS) in November in Sudbury. He also acted as the Regional Resident Geologist from July 1 to October 7, 2011.

A total of 275 assessment work files have been processed in the Kirkland Lake Office. M. Greenfield processed a total of 162 files and N. Sabiri processed 113. N. Sabiri also attended 2 local field trips, the OEGS in November and the Aboriginal Information Day (AID) in December in Sudbury.

A. Moning and E. Dugdale completed a number of projects including organizing donated files, organizing air photos, reshelving rock samples and diamond-drill core, reorganizing rolled maps and assisting with field work.

PROPERTY EXAMINATIONS

In 2011 a total of 10 properties were visited by Kirkland Lake District Office staff (Table 5 and Figure 3).

Folly and Strike–LaCarte Gold Occurrences

The Folly gold occurrence (MDI41P11NE00057 – NAD83 Zone 17, 495722E 5277937N) (Ontario Geological Survey 2011) and the Strike–LaCarte gold occurrence (MDI41P11NE00061 – NAD83 Zone 17, 497580E 5277454N) are located along Highway 560 in western Tyrrell Township approximately 2 km apart (Figure 4).

In 1995, 2 insignificant outcrops south of Highway 560 were sampled and returned assays as high as 3.5 g/t gold (Folly occurrence). Further exploration, including geophysics, stripping, geological mapping, channel sampling and blasting, was completed. Assays up to 0.738 ounce per ton (25.3 g/t) gold were returned.

Mapping by Johns (2003) indicates that syenite outcrops in the area the of the Folly occurrence is part of the Hare Lake stock. The stock is elongated in a northwest direction, subparallel to the northwest-trending faults. Beakhouse (2011) classifies the Hare Lake stock as a late-tectonic intrusion, and along with other late-tectonic intrusions in the Abitibi Subprovince, often has a close spatial association with gold mineralization.

The outcrop at Folly is a pinkish weathering, green-coloured syenite with local disseminated pyrite (up to about 3%) associated with a northeast-trending quartz-carbonate vein and associated veinlets. Mechanical stripping by Strike Minerals and S.L. Swain failed to further expose bedrock in the vicinity of the occurrence. Sampling of nearby outcrops has returned only background gold values.

In 2001, the reconstruction of Highway 560 exposed several narrow quartz veins and led to the discovery of the Strike–LaCarte gold occurrence (Meyer et al. 2002). Exploration in the immediate area dates back to prior to 1939. Mapping in 1961 by Sunbeam Exploration Company, Ltd. suggests that the outcrops were not exposed at that time. Initial sampling in 2001 returned assays of 9.4 g/t gold. Between 2003 and 2004, Temex Resources Corp. completed detailed geological mapping and sampling that included the Strike–LaCarte gold occurrence. This mapping showed that west-northwest-trending felsic to intermediate metavolcanic rocks are cut by north-northwest-trending diabase and feldspar porphyry dikes. The dikes are subparallel to a north-northwest-trending fault. About 400 m to the west, another feldspar porphyry dike was mapped in a road cut. This dike has a northeast-trend that is subparallel to a fault that trends toward the Tyrranite Mine.

The samples collected by the author (D. Guindon) were of brecciated felsic to intermediate metavolcanic rocks with disseminated pyrite. Assays were less than 100 ppb gold. High gold samples collected by Temex tended to contain significant amounts of quartz as veins.

The band of metavolcanic rocks that host the Stike–LaCarte occurrence also host the Minto developed prospect, which has historical reserves. Structures controlling the mineralization within the metavolcanic and plutonic rocks to the west are poorly understood. Additional exploration will add to the knowledge base and, undoubtedly, discover more mineralization in the area.

Lucky Irish Lead-Zinc Prospect – Flavelle Township

The Lucky Irish lead-zinc prospect is located about 1.7 km south of Highway 66, about 6 km west of the Englehart River bridge, between the Highway 11 junction and Matachewan. A stripped outcrop of mineralization is located at NAD83 Zone 17 543109 E 5316141N (Figure 5). The property will be added to the Mineral Deposit Inventory (MDI) (Ontario Geological Survey 2011) in the near future. The property consists of over 40 claims totalling over 400 claim units in Flavelle and Gross townships.

Intermittent exploration has taken place in the area since 1919. The discovery was made by J. Rapski in June 2005, who, following up on strong anomalies discovered by a ground geophysical survey completed in 2001 by a previous claim holder, exposed the mineralized outcrop by mechanical stripping.

The Lucky Irish property is described by Berger (2006) and Cheriton (2008). The property is within the Abitibi Subprovince of the Superior Province. The host rocks are part of the Lower Tisdale Assemblage. Northeast-trending, north-facing mafic volcanic and metasedimentary rocks are located in the area of the prospect. These rocks are overlain by flat-lying coarse clastic sedimentary rocks of the Gowganda Formation of the Huronian

Supergroup. Zinc and lead mineralization is associated with magnetite-chert iron formation. Cheriton (2008) interprets the deposit type to be sedimentary exhalative (SedEx).

The property was visited in August 2010 by J. Rapski and G. Grabowski. A number of outcrops were examined and 5 mineralized samples were collected at 2 outcrops. Outcrop 1 is located at 543109 E 5316141N and outcrop 2 is located at 543322E 5316204N.

Sample	Outcrop	Ag (ppm)	Au (ppb)	Cu (%)	Pb (%)	Zn (%)
10321	1	<2	4	0.45	0.01	0.01
10322	1	31	22	0.27	>4.50	1.40
10323	1	13	3	1.16	4.31	1.50
10324	2	5	NA	0.01	0.24	0.02

Outcrop 1 is composed of brecciated chert with semi-massive interstitial sulphide. A fabric in the rock strikes at 280° and dips 70° to the north. Outcrop 2 is a brown iron mudstone and chert with a similar style of mineralization as in outcrop 1. Berger (2006) describes the unit as follows:

> *Metasedimentary rocks correlated with the Tisdale assemblage form discontinuous units ranging from 50 to over 200 m thick that extend from the east boundary of Otto Township to Flavelle Township. Laminated and thinly bedded magnetite-chert iron formation is dominant and is interbedded with wacke, argillite, graphitic argillite, and rare conglomerate. Felsic and intermediate metavolcanic rocks are interlayered with this unit in a few places. Sulphide facies iron formation occurs in south Cairo Township in association with wacke, chert, felsic and intermediate metavolcanic rocks and the author infers that these rocks are the continuation of the same stratigraphy in the west part of the map area.*
>
> *White to grey chert occurs as finely laminated beds up to 15 cm thick that are interbedded with black magnetite beds of similar thickness. These chemical metasedimentary rocks can be traced either on the ground or by geophysical airborne magnetic surveys (OGS 2000) from Otto to Flavelle townships. The geophysical surveys also show that the iron formation is contiguous with similar iron formation that formed the Adams iron ore deposit approximately 5 km east of the map area. Here, a felsic breccia immediately below the iron formation yielded a U-Pb zircon age date of 2710 ± 3.9 Ma, confirming a Tisdale assemblage correlation (Ayer et al. 2002). Fine-grained wacke and argillite are interbedded with the iron formation and locally form mappable units, as in north Otto and east Eby townships. Local preservation of such primary features as grain gradation and load casts suggest that these rocks were formed by turbidity currents. Graphitic and pyritic argillite occurs intermittently throughout the unit; however, economic sulphide mineralization has yet to be discovered with any of these rocks.*

The unit is easily traced on the airborne magnetic maps (Ontario Geological Survey 2000). Berger suggests the entire length of the unit is prospective for similar mineralization.

T. Mathieu – Hook Property

T. Mathieu holds 12 contiguous claims (107 units) in Best and Strathy townships. The property is located about 9 km northwest of Temagami. The claims can be reached from Highway 11 by following the Red Squirrel Road west for 9 km then a further 6 km south on the Snare Creek Road.

The property lies within the Archean Temagami greenstone belt (TGB) in the southern portion of the Abitibi greenstone belt (AGB). The main geological feature of the TGB area is a northeast-trending metavolcanic-metasedimentary belt, which averages about 13 km across and is about 29 km long. Two generalized volcanic cycles beginning with mafic flows and ending with intermediate to felsic pyroclastic rocks and sedimentary rocks can be recognized in the area. Banded chert-magnetite sulphide iron formation lies at the top of each cycle. A variety of metagabbros, metadiorites, and felsic porphyries intrude the metavolcanics. Archean rocks are unconformably overlain by relatively flat-lying sedimentary rocks of the Coleman Member of the Gowganda Formation of the Huronian Supergroup. An undulating sill of Paleoproterozoic Nipissing diabase intrudes Archean basement and Huronian sedimentary rocks, and is exposed as several eroded diabase arches and diabase basins. A northwest-trending olivine diabase dike (Sudbury dike swarm) and several swarms of narrower, later diabase dikes postdate the

Nipissing diabase and are the youngest rocks in the area (Bennett 1978; Fyon and Crockett 1986; Smyk, Born and Owsiacki 1997; Ayer et al. 2006).

The property is underlain by north-northeast-trending massive to pillowed mafic metavolcanic rocks and Nipissing diabase (Bennett 1978). A regional compilation map by the Ontario Geological Survey (Ayer et al. 2006) also shows the eastern portion of the claim group to be underlain by intermediate to felsic volcanic rocks.

No record of work was noted until Falconbridge Ltd. staked the property in the early 1990s after completing airborne electromagnetic and magnetic surveys over the Temagami area. Apparently, follow-up geological and ground geophysical surveys as well as stripping and trenching was carried out; however, this work was not filed for assessment credit. The evidence for this work can be seen on the ground by way of old trenches and lines. Seven drill holes (totalling 1898 m) were drilled between November 1994 and May 1995. No assays were released although several significant mineralization zones were intersected. Drill hole SY62-2 notably displayed 1% fractures filled with chalcopyrite over the first 83 m of core and trace chalcopyrite for approximately the next 8 m of core.

Temex Resources later staked the property as part of their Wilson Lake diamond project. In 2001, 2 lines of soil sampling (Mobile Metal Ion – MMI) did not indicate the presence of kimberlite; however, it was suggested that further exploration for base metals is warranted in the location of the Falconbridge trenches.

T. Mathieu staked the Hook property in the winter of 2008. Prospecting was carried out including locating and sampling old trenches (Photo 1). Anomalous base metal values were returned, with sample B08-1 assaying 18 300 ppm copper, 26.8 ppm silver, 258 ppm cobalt, 462 ppm lead and 937 ppm zinc. Falconbridge Ltd. drill-hole collars were also located and it was determined that UTM locations did not correspond to those shown on the drill logs. This was confirmed by Resident Geologist staff during a property visit.

In 2009 the property was optioned to Auger Resources Ltd, who completed ground geophysical surveys (magnetometer, Max Min HLEM and IP) followed by a nine-hole (1692 m) diamond-drilling program. The drilling intersected massive and pillowed mafic volcanics and felsic tuffs. Anomalous copper and zinc assay results were returned in several of the holes over narrow 1 m intervals.

Four areas of the property were visited by staff from the Kirkland Lake Resident Geologist office where Falconbridge, Auger and Mathieu carried out most of their ground exploration. Areas of trenching and channel sampling as well as drill-hole collars were seen. The dominant rock type seen was pillowed and massive mafic volcanic rocks (Photo 2). Sulphide mineralization was seen in numerous places and sampled. The sampling confirmed the elevated copper, lead and zinc values (4023 ppm copper, 934 ppm lead and 956 ppm zinc).

Five of the drill holes that Auger put down, ended in felsic tuffs. No exposures of this rock type were noted on surface; however, the location map provided with Falconbridge's 1995 drilling showed cut lines and outcrops. The rock types were not shown. Also of note on the property was a narrow band of cherty sulphide iron formation (exhalite?) along a contact between pillowed and massive basalt (Photo 3). Exhalites have been noted in the Noranda volcanogenic massive sulphide (VMS) camp between andesitic sequences or felsic-andesitic sequences. These marker horizons contain chert, sulphides, and other components, and have been used extensively and successfully for VMS exploration in the central camp (Mercier-Langevin et al. 2011). Following these marker horizons resulted in the discovery of the buried Amulet, Millenbach and Corbet VMS deposits up to 1.5 km down dip. Using this as a model, future exploration on the property should include identifying the rock types on Falconbridge's geology map, paying close attention to any occurrences of felsic volcanic rocks and/or alteration. Down-hole geophysical surveys should be attempted on the Auger drill holes especially those that ended in felsic volcanics.

Mathieu, T. – Owaissa Property

T. Mathieu holds 11 contiguous claims (88 units) in northeast Strathy Township and Best Township to the north. The property is located about 9 km northwest of Temagami. The Red Squirrel Road cuts through the claim group 1 km west of Highway 11.

The property lies within the Archean Temagami greenstone belt (TGB) in the southern portion of the Abitibi greenstone belt (AGB). The main geological feature of the TGB area is a northeast-trending metavolcanic-

metasedimentary belt that averages about 13 km across and about 29 km (18 miles) long. Two generalized volcanic cycles beginning with mafic flows and ending with intermediate to felsic pyroclastic rocks and sedimentary rocks are recognized in the area. Banded chert-magnetite sulphide iron formation lies at the top of each cycle. A variety of metagabbros, metadiorites, and felsic porphyries intrude the metavolcanics. Archean rocks are unconformably overlain by relatively flat-lying sedimentary rocks of the Coleman Member of the Gowganda Formation of the Huronian Supergroup. An undulating sill of Paleoproterozoic Nipissing diabase intrudes Archean basement and Huronian sedimentary rocks. A northwest-trending olivine diabase dike (Sudbury dike swarm) and several swarms of narrower, later diabase dikes postdate the Nipissing diabase and are the youngest rocks in the area (Bennett 1978; Fyon and Crockett 1986; Smyk et al. 1997; Ayer et al. 2006).

The property is underlain by a Nipissing diabase sill intruding granitic plutonic rocks (quartz monzonite, trondhjemite, and granodiorite). A northwest-trending olivine diabase dike cuts through the property as well. There are major structures trending north, northeast and northwest, which is common in the AGB. Sulphide minerals are concentrated in quartz-chalcopyrite-pyrite-pyrrhotite veins and sulphide-rich-impregnated zones, which occur within shear zones interpreted to belong to the Net-Vermilion Lakes deformation zone (Fyon and Cole 1989). Gold mineralization occurs in a variety of habits and rock types in and immediately adjacent to east and northeast-trending major zones of deformation (Fyon and Crockett 1986).

There is no record of work in the Kirkland Lake Resident Geologist office assessment files prior to 2006 when T. Mathieu staked the property. Several areas of sulphide mineralization contained in narrow quartz-calcite veins cutting Nipissing diabase were located while prospecting the claim group. Pyrite and chalcopyrite are the main sulphide minerals. Samples collected during prospecting programs between 2006 and 2009 returned values up to 21 g/t gold, 122 g/t silver, 19.7% copper and 1.4% cobalt.

In 2009 the property was optioned to Auger Resources Ltd., who completed ground geophysical surveys (magnetometer and IP) followed by a 10-hole (1508 m) diamond-drilling program. The drilling intersected several narrow quartz-carbonate sulphide veinlets in diabase and gabbro. Anomalous cobalt and copper values were returned.

The Mathieu showing is located just north of the Red Squirrel Road, 1.2 km west of Highway 11. Stripping and trenching has uncovered 5 northeast-trending sulphide-bearing veins cutting Nipissing diabase (Photo 4). Sampling by staff from the Kirkland Lake Resident Geologist office confirmed the elevated copper, gold and cobalt values (>14 400 ppm copper, >5000 ppb gold and >150 ppm cobalt).

The style of copper-gold sulphide mineralization associated with the Nipissing diabase (gabbro) at the Mathieu showing has been noted at several locations within the Kirkland Lake District. In the Elk Lake area, the Ethel copper, Merico–Ethel and Sauve properties host gold–bearing chalcopyrite in quartz-calcite veins in Nipissing diabase (Meyer et al. 2003). Temex Resources Corp.'s Latchford Gold Project began as a diamond exploration program; however, the discovery of a calcite boulder containing 6222 g/t gold, led to an extensive exploration program. Quartz-calcite-sulphide veins in Nipissing diabase were encountered in Gillie Limit Township, about 14 km north of the Mathieu showing (Guindon et al. 2011). Significant nickel-copper-precious metal mineralization is localized within vein sulphide mineralization at the Kanichee ultramafic-mafic layered intrusion (Good 1989) 6.5 km to the southwest.

The metals found in the veins have been remobilized by hydrothermal fluids related to the Nipissing diabase, similar to the process for the 600 million ounce silver deposits in the Cobalt–Gowganda area (Smyk and Watkinson 1990). Further exploration on this property should be focused on locating an underlying source for the metals.

RECOMMENDATIONS FOR EXPLORATION

Gold-Rich Volcanic Massive Sulphide (VMS) Deposits in Ontario

In May 2011, G. Grabowski, and D. Guindon had the opportunity to participate in a field trip looking at the Blake River Group of the Abitibi greenstone belt and its unique VMS and gold-rich VMS endowment in the Noranda area of northwestern Quebec (Mercier-Langevin et al. 2011). The Blake River Group extends about 60 km into Ontario but economic VMS and gold-rich VMS have yet to be discovered in Ontario.

On the Quebec side of the border, the Blake River Group hosts 6 world class gold-rich VMS deposits. Because of this rich endowment, the area has seen extensive research and detailed geological mapping. Significant research has been done through the funding program Plan Cuivre and the Targeted Geoscience Initiative Program (TGI-3) of the Ministère des Ressources naturelles et de la Faune (MRNF), and the Geological Survey of Canada (GSC).

In contrast, Blake River Group on the Ontario side of the border is much less well understood. Not surprisingly the lack of producing mines has not provided the impetus for detailed geological studies and the majority of the mapping on the Ontario side is over 30 years old.

In Ontario, the Blake River is subdivided into 2 assemblages, whereas in Quebec detailed mapping has defined 9 separate formations (Figure 6).

The 2 largest of Quebec gold-rich VMS deposits, the Horne and Quemont deposits, are located in the Noranda Formation. Four others are located in the Bousquet Formation. The Bouquet Formation has been thrust-faulted between the older Hébécourt Formation and Reneault-Dufresnoy Formation. Tracing the Hébécourt – Reneault-Dufresnoy contact northwest into Ontario, one sees that it approximately coincides with the contact between the Upper and Lower Blake River assemblages of Ontario (Figures 6 and 7) and this is proximal to the Porcupine–Destor Deformation Zone (PDDZ). The PDDZ is an important structure hosting major gold deposits in Ontario.

The age of the Bouquet Formation is 2699–2697 Ma, which is similar to recent dates of the central portion of the Upper Blake River Assemblage in Ontario (Ayer et al. 2005).

The Bousquet Formation and associated gold-rich VMS deposits are located about 2 km north of the Larder Lake–Cadillac Deformation Zone (LLCDZ). The LLCDZ is an important structure related to gold mineralization in both Ontario and Quebec.

The contact between the Upper and Lower Blake River assemblages and the proximity to the LLCDZ may be important. Therefore, the area in northern McGarry Township and southern Katrine and Ossian townships should be considered as an interesting location to look for gold-rich VMS deposits. Base metal VMS mineralization was discovered in this area in 1928. A dalmationite alteration pipe (similar to Noranda-style VMS deposit alteration) was explored by Noranda Exploration Company Ltd. in the 1970s and 1980s (Fraser 1973). The mineralization discovered was determined to be from the underlying feeder zone to a VMS deposit although it was assumed that any VMS mineralization would have been eroded.

The understanding of VMS deposits has progressed substantially over the last 40 years. Detailed geological mapping combined with geochemistry, geophysics and geochronology have helped better understand these deposits. Alteration halos surrounding VMS deposits (sodium depletion, potassium, magnesium and silica enrichment) extend tens to hundreds of metres from the deposit.

The top of the mineralization at the gold-rich LaRonde Penna Mine starts at 700 m and extends to a depth of over 3500 m. At that depth, there is no evidence that a world-class deposit lies below.

Most geophysical techniques are unable to penetrate to that level (3500 m). The aluminous alteration associated with the deposit is not typical of VMS deposits. Most VMS exploration diamond drilling in the Ontario portion of the Blake River was to depths less that 100 m.

The potential for finding a gold-rich VMS deposit in Ontario is significant. Therefore the following should be done:

- Geochronology, in order to compare with the assemblages in Quebec
- Detailed geological mapping
- Lithogeochemistry, to determine rock types and alteration
- Deep drilling including down-hole geophysical surveys.

The Kirkland Lake District has seen a resurgence of gold mining with properties such as AuRico Gold‘s Young–Davidson and Queenston Mining Inc.’s Upper Beaver finding mineralization at depth below old mines. The same could be done with VMS deposits.

OGS ACTIVITIES AND RESEARCH BY OTHERS

Ontario Geological Survey Activities

During 2011, one Ontario Geological Survey (OGS) project was completed in the Kirkland Lake Resident Geologist District. The project is described in the OGS Summary of Field Work and Other Activities 2011 (Easton et. al 2011). S. Préfontaine (2011) continued a project that focused on mapping Midlothian Township at a scale of 1:20 000. The project resulted in a simplified lithostructural and mineral deposit map of Midlothian Township as well as an alteration distribution map. Préfontaine noted that in addition to gold being the main commodity in Midlothian Township, other base metals exist and include zinc, copper, chromium, nickel and galena. The study concluded that there had been little to no exploration for nickel, copper and platinum group elements (PGE) in the area. According to the author, the presence of several sulphide minerals at the contact between the mafic to ultramafic bodies and the volcanic packages make them a potential target for nickel exploration.

University Studies

LAKEHEAD UNIVERSITY

A. Temelkovski examined the geochemistry of diamondiferous and nondiamondiferous lamprophyre xenoliths and their host lamprophyres from the Kirkland Lake area to investigate the nature of the Achaean mantle and compare the Kirkland Lake lamprophyres with those of the Wawa area.

UNIVERSITY OF WESTERN ONTARIO

A joint project led by R. Linnen, from the University of Western Ontario (UWO) and S. Lin from the University of Waterloo and funded by Aurico Gold Inc. is investigating the gold deposits at the Young–Davidson Mine in Matachewan. The project included the following studies:

- J. Zhang completed a postdoctoral thesis on structural study of the gold deposit and surrounding areas.
- R. Martin is studying the petrology and geochemistry of the alteration and gold mineralization. (MSc)
- N. Naderi is conducting a study on oxygen isotope and fluid inclusion geochemistry.
- J. Kanai started an investigation on possible gold remobilization during deformation of the Gowganda Formation.

Under the supervision of Dr. R. Banerjee from the UWO and Queenston Mining Inc., 3 students from the UWO conducted their project research in Kirkland Lake District.

- O. Greaves studied pathfinder elements and characteristics of fluids responsible for gold mineralization in the King Quartz Stockwork zone in Lebel Township (BSc)
- O. Greaves commenced a study on the geochemistry of the gold mineralization in diorite at the Bidgood deposit, Lebel Township (MSc)
- S. Griffin studied the albitite alteration and related gold mineralization at the Upper Canada property in Gauthier Township (BSc).
- S. Griffin commenced a study to determine a genetic relationship of gold-bearing veins at the Upper Beaver Project in Gauthier Township (MSc)
- T. Sredojevic competed a study of the albitite alteration and associated gold mineralization at the Upper Canada property, Kirkland Lake (MSc).

Discover Abitibi

LITHOGEOCHEMICAL STUDY, KIDD–MUNRO MEGATEM® AIRBORNE SURVEY AREAS

This lithogeochemical study, funded by Discover Abitibi, consists of the collection and the geochemical analysis of samples from the MegaTEM® (I and II) airborne survey area in the Abitibi greenstone belt and surrounding townships in order to test the graphitic argillite horizon for ore or potential ore presence. The objective of the study is to develop tools that will assist in identifying the most prospective areas for further exploration.

A total of 600 samples were collected: 67 from Kirkland Lake Core Library, 145 from Timmins Core Library and 388 from participating companies. The samples represented a total of 76 townships: 52 within the MegaTEM® areas, 9 from along the borders and 15 outside of the MegaTEM® areas. The samples were processed at the University of Ottawa and submitted to commercial laboratories for geochemical analysis.

MINERAL DEPOSIT COMPILATION GEOLOGISTS—PROVINCIAL ACTIVITIES

The Mineral Deposit Compilation geologists (MDCG) investigate and document mineral deposits and occurrences across the province. Through field visits, comprehensive literature research and personal research, they work with regional and district Resident Geologist Program staff to ensure that the Mineral Deposit Inventory (MDI) database is regularly updated. Regular updates are required to ensure that the Ministry of Northern Development and Mines is using the most up-to-date information in making land-use planning and policy decisions. A.C. Wilson is the northeastern Ontario MDCG. N.A. Bennett was the northwestern Ontario MDCG until mid 2011.

In December 2011, an updated version of the MDI was released. In addition to being made available through the MNDM web site, through *GeologyOntario* and OGS Earth, the entire digital data set is also on CD as "Mineral Deposit Inventory—2011". All three have search capabilities.

In mid 2011, a new administrative layer was incorporated into the MDI database. This change was implemented in order to maintain consistency with the administrative layer (townships and areas) used by the Mining Lands Section (Mineral Development and Lands Branch, MNDM). As a result, a significant number of pre-existing records were revised to include a new township or area name. Significant contributors to the database in 2011 included J. Bongfeldt (Kenora), D.L. Guindon (Kirkland Lake), A. McKee (Red Lake), A. Pace (Sault Ste Marie), N.A. Bennett (Thunder Bay North and South), R.M. Cundari (Thunder Bay North) and P. Bousquet (Timmins).

Total contributions to the MDI database in 2011 included 2267 updated records, 519 records deleted and 390 new records. A breakdown of the provincial records revised by office is provided in Table 10.

The MDI database is a dynamic compilation of over 19 000 records describing most of the known mineral occurrences in Ontario. It is an important reference tool for explorationists interested in exploring and acquiring mining properties in Ontario. When used in conjunction with other spatial databases generated by the Ontario Geological Survey, it provides additional tools for making mineral discoveries in Ontario.

LAND USE PLANNING ACTIVITIES

Land Use Planning Activities

The northeast Regional Land Use Geologist, based in Timmins, co-ordinates 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 that is north of the French River. This report includes information about activities in all of these districts.

From the beginning of 2011 until late September, when she left to take up a new job with the Ministry of Northern Development and Mines' Mineral Development and Lands Branch, the position was staffed by Dawn-Ann

Metsaranta, P.Geo. From that time until the end of the year, essential job duties were shared between Hugh Lockwood, P.Geo, northwest Regional Land Use Geologist, Debbie Laidlaw, P.Geo, southern Regional Land Use Geologist, and Ruth Debicki, P.Geo, Land Use Policy and Planning Coordinator, with support from other staff members in the Timmins Regional Office.

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.

The competing interests for land use vary from place to place across the province, but most have the potential to restrict the availability of land, access to it, and /or the activities on it. In 2011, the northeast Regional Land Use Geologist dealt with a variety of land use planning issues throughout the Northeast Region.

CROWN LANDS

The Ministry of Northern Development and Mines (MNDM) engages with the Ministry of Natural Resources (MNR) when Crown land use planning initiatives may affect provincial mineral interests. Such activities include Forest Management Planning, Far North Land Use Planning, and other work related to managing Crown land.

Forest Management Planning

The forest management planning process involves consideration of a wide range of values on forestry activities, including mineral values, and the relevance of legislation other than the *Crown Forest Sustainability Act*, including the *Mining Act*.

The northeast Regional Land Use Geologist provides input into the development of forest management plans, including

- the distribution of areas of high mineral potential, so that forestry planners are aware of areas where there may be pressures from the mineral sector for access for exploration;
- the locations of existing mining claims and leases, so that exploration workings such as grid lines are not inadvertently damaged or destroyed by forestry activities;
- information regarding current exploration and development activities in the area;
- the location of mining-related hazards, so that forestry workers are not put at risk; and
- the socio-economic impact of mineral exploration and mining in the forest management unit, so that its importance can be considered in the context of other sectors, such as tourism, that may be active within the forest management unit.

In 2011, there were no forest management units in the northeast region requiring input of this sort, because of the implementation of changes to the forest management planning process. In the past, forest management plans have been for five-year periods, with planning for each five-year term beginning 2 years before its implementation. Plan terms have recently been increased from 5 to 10 years, with 2 five-year phases, beginning with plans implemented in 2007.

The Regional Land Use Geologist assisted with forest management planning in 2011 by working with the Mining Lands Consultant to provide addresses for claimholders in several forest management units so that the claimholders could be contacted with regard to the annual work schedules in the areas of their claims.

Provincial Parks and Conservation Reserves

The Regional Land Use Geologist responded to requests from MNR to resume work on disentangling 2 of the Ontario's Living Legacy candidate protected areas that covered areas of pre-existing mining claims and leases.

Some claims in a site identified as F1506, near White Lake Provincial Park, had been allowed to lapse and work was done to help prepare them to be officially added to the park. In addition, work was done on a site identified as F175, in the Wolf Lake area northeast of Sudbury. The proposed solution was posted on the Environmental Registry on June 1 for a 47-day public review period. Environmental nongovernmental organizations are campaigning against adopting the proposed solution, and no decision about it has been announced to date.

Crown Land Use Atlas Harmonization Project

MNR has engaged members of the public to help it update the policies for Crown land in the Wawa District. This initiative is called the Crown Land Use Atlas Harmonization Project. It was begun in 2006, but revisited in 2011 after public opposition to policy proposals posted on the Environmental Registry as outcomes of the earlier work.

The northwest Regional Land Use Geologist attended meetings with the group and with MNR staff to provide input with regard to MNDM interests, and to highlight the potential effects that the proposed land use policies might have on mineral sector interests and activities in the area. She also worked to ensure that MNR had contact information for all holders of mining claims and leases in the area, so that the claimholders and leaseholders could be included in the public consultation process with regard to proposed new policies for activities on Crown land in the area.

Withdrawal Orders

The northeast Regional Land Use Geologist reviewed a number of Section 35 (*Mining Act*) requests for withdrawal orders in 2011. Some applications were for surface rights only; some were for mining rights only; and some were for both surface and mining rights. Such requests are made for a wide range of reasons, including

- developing waste disposal sites and sewage lagoons;
- selling Crown land for cottage lots;
- enabling land exchanges;
- supporting First Nation land claim / treaty entitlement negotiations;
- allowing hydroelectric and other infrastructure developments;
- facilitating Ministry of Transportation review of aggregate potential in support of highway maintenance; and
- assessing applications under Section 35.1 of the *Mining Act* for the withdrawal of Crown-owned mining rights in Northern Ontario, where the surface rights are privately held.

After review, 10 applications were recommended for approval; 1 was recommended for approval with conditions; and 2 were not recommended for withdrawal because of the presence of provincially significant mineral potential or the presence of mining claims or leases.

MUNICIPAL/PRIVATE LANDS

MNDM supports planning for municipal and private land by providing input into the Planning Service led by the Ministry of Municipal Affairs and Housing (MMAH). MNDM input includes

- supplying data with regard to mineral potential, mining claims and leases, exploration and mining activity and mining-related hazards to planning authorities, planning consultants and MMAH in support of the new municipal Official Plans, Official Plan Amendments, Zoning Bylaws, and Consents (lot severances);
- reviewing land use policies proposed in municipal planning documents and providing comments on those policies to MMAH “One-Window” planners for consolidation with feedback from other ministries; and
- supporting the development of municipal policies and guidelines, and working to enhance the availability of data to support wise planning decisions.

Municipal Planning

The Provincial Policy Statement (PPS), which guides municipal planning in Ontario, is issued under the provisions of the *Planning Act*. The PPS was last modified in 2005. A compulsory five-year review of the PPS was initiated in 2010 to ensure that it is up to date and meets current environmental standards, ensures human health and safety, and protects Ontario's cultural and natural heritage. The northeast Regional Land Use Geologist's assistance with the PPS review in 2011 included reviewing 10 existing Official Plans and commenting on how well they comply with the requirements of the Provincial Policy Statement. This work is helping to guide the revision of the Provincial Policy Statement.

In 2011, the northeast Regional Land Use Geologist provided direct support for municipal planning in her region by supplying background information in support of new Official Plans for the communities of Tarbutt and Tarbut Additional, Nairn and Hyman, Kirkland Lake, Greater Sudbury, Sault Saint Marie, Temagami, and Huron Shores; providing site-specific information with regard to mineral potential, mineral occurrences and mining-related hazards in a number of municipalities; and reviewing and commenting on the policies in 9 draft Official Plans, 1 Official Plan amendment, 16 Zoning Bylaw amendments, and 8 Consents. Note that Consents are only reviewed for areas such as unorganized territory where the province has not delegated the decision-making authority to a municipality.

In 2011, technical information on mining-related hazards was provided with regard to sites in Timiskaming, Timmins, and Kirkland Lake, with the assistance of MNDM's Mineral Development and Lands Branch. Such information is of particular importance where proposed municipal developments are in or close to areas where mining activity has gone on in the past and there is a risk that the proposed developments may put people or property at risk.

Exemptions from Mining Tax

Section 189 (1) of the *Mining Act* now allows for owners of patented mining rights to apply for exemption from paying mining tax on the land. Key factors that are considered when applications are reviewed are whether or not the lands are being used for mining-related purposes, and whether or not there would be third party interest in using the lands for mining related purposes (e.g., the surrounding lands are staked and being explored or the sites in question have provincially significant mineral potential). The northeast Regional Land Use Geologist reviewed approximately 30 such applications in 2011 and provided comments to MNDM's Mining Lands Section to be consolidated with other information for the Minister's consideration and decision.

FIRST NATIONS

The northeast Regional Land Use Geologist provides information in support of First Nation interests in land use planning in a number of different ways. In 2011, she provided feedback to 2 tribal councils with regard to their requests about land use planning on private and Crown land. She also provided input with regard to applications to have Aboriginal cultural heritage sites withdrawn from staking. It is anticipated that input will be provided in 2012 and beyond with regard to Far North land use planning initiatives in northeast Ontario.

OTHER

The northeast Regional Land Use Geologist also participated in other initiatives in 2011, as outlined below.

Class Environmental Assessments

Class environmental assessments (Class EAs) are documents that set out streamlined environmental assessment processes. They apply to routine projects that have predictable and manageable environmental effects. There are currently 10 Class EAs in effect in Ontario with regard to initiatives including the development of new infrastructure such as dams, transmission lines, pipelines, highway corridors, commuter rail stations and bus terminals, and sewer and water facilities; the establishment of new parks and conservation reserves; forest management plans; and Crown land dispositions.

The northeast Regional Land Use geologist provided input on mineral potential, known mineral occurrences, mining land tenure, and mining-related hazards for 10 Class EA initiatives in northeastern Ontario in 2011. The Class EA initiatives were related to projects including several new hydroelectric developments, a number of transmission line developments, and a proposal for a wind farm.

Data Committee

MNR and MMAH jointly host an interministerial committee that is working to identify and work to implement ways of making more data more readily available to support land use planning, and especially municipal planning, in Ontario. The northeast Regional Land Use Geologist was MNDM's representative on the committee until her departure, when the southern Regional Land Use Geologist became the MNDM representative on the committee.

Northern Ontario Heritage Fund Corporation Applications

The Northern Ontario Heritage Fund Corporation (NOHFC) was established as a Crown agency in 1988, with a mandate to promote and stimulate economic development by providing financial assistance to projects of merit across Northern Ontario. From time to time, NOHFC circulates applications to staff of MNDM for review and comment.

During 2011, the northeast Regional Land Use Geologist was asked to review and comment on 2 applications. One was for a major waterfront development in an area where there are historic tailings deposits. She recommended that the tailings be sampled for deleterious elements such as arsenic before they are disturbed by the proposed development. She also noted that Section 164(3) of the *Mining Act* prohibits any disturbance of a mining-related hazard without the prior approval of the Minister of Northern Development and Mines, if the site has been rehabilitated in accordance with the *Mining Act*. The other was for waterfront upgrades near a former mine site in another community to accommodate larger crowds at local events. There were no concerns with regard to the second application.

Northeast Ontario Mines and Minerals Symposium

The northeast Regional Land Use Geologist was a member of the planning committee for the 2011 Northeast Ontario Mines and Minerals Symposium, held in Timmins. She was in charge of registration, including ordering delegate bags, etc., and ensuring that all delegates' registrations were processed correctly.

Roads and Road Access

Although the Regional Land Use Geologist commonly receives requests from mineral sector clients with regard to using forestry roads in support of mineral exploration activities, she received 2 exceptional requests related to roads and road access in 2011.

One was an application to close a section of a private road because members of the public were using the road to trespass on private property. Given that the road is one means of accessing an area of mining lands and 2 developed prospects with reserves, the proposed closure was of concern to MNDM. A review of the situation coupled with a site inspection done by the Sault Ste. Marie District Geologist found, however, that there was an acceptable alternate route to the areas of mining lands and mineralization. This information was conveyed to the government representatives responsible for making a decision on the application to close the road.

The other was a request from a company working on upgrading Highway 66 in the Kirkland Lake area. The company wisely decided to find out if there were any mining-related hazards in the area of the upgrades that they should take into consideration. In fact, there were no hazards in the area.

REFERENCES

Ayer, J.A., Amelin, Y., Corfu, F., Kamo, S., Ketchum, J., Kwok, K. and Trowell, N. 2002. Evolution of the southern Abitibi greenstone belt based on U-Pb geochronology: autochthonous volcanic construction followed by plutonism, regional deformation and sedimentation; Precambrian Research v.115, p.63-95.

Ayer, J.A., Chartrand, J.E., Grabowski, G.P.B, Josey, S., Rainsford, D. and Trowell, N.F. 2006. Geological compilation of the Cobalt–Temagami area, Abitibi greenstone belt; Ontario Geological Survey, Preliminary Map P.3581, scale 1:100 000.

Ayer, J.A., Thurston, P.C., Bateman, R., Dubé, B., Gibson, H.L., Hamilton, M.A., Hathway, B.,Hocker, S.M., Houlé, M.G., Hudak, G., Ispolatov, V.O., Lafrance, B., Lesher, C.M., MacDonald, P.J., Péloquin, A.S., Piercey, S.J., Reed, L.E. and Thompson, P.H. 2005. Overview of results from the Greenstone Architecture Project: Discover Abitibi Initiative; Ontario Geological Survey, Open File Report 6154, 146p.

Ayer, J.A., Trowell, N.F. and Josey, S. 2004. Geological compilation of the Abitibi greenstone belt; Ontario Geological Survey, Miscellaneous Release—Data 143.

Beakhouse, G.P. 2011. The Abitibi Subprovince plutonic record: Tectonic and metallogenic implications; Ontario Geological Survey, Open File Report 6268, 161p.

Bennett, G. 1978. Geology of the northeast Temagami area, District of Nipissing; Ontario Geological Survey Report 163, 128p.

Berger, B.R. 2006. Geological synthesis along Highway 66 from Matachewan to Swastika; Ontario Geological Survey, Open File Report 6177, 125p.

Berger, B.R., Pigeon, L. and Leblanc, G. 2006. Precambrian geology, Highway 66 area, Swastika to Matachewan; Ontario Geological Survey, Map 2677, scale 1:50 000.

Cheriton, C.G. 2008. Lucky Irish property, Technical Report: Burt, Gross and Flavelle townships, Larder Lake Mining Division, Ontario, unpublished report, 30p. (AFRI file 20000005321).

Easton, R.M., Burnham, O.M., Berger, B.R., Beakhouse, G.P, Bajc, A.F., Parker, J.R., Kelly, R.I. and Debicki, E.J., eds. 2011. Summary of Field Work and Other Activities 2011, Ontario Geological Survey, Open File Report 6270.

Fraser, R.J. 1973. The geology, mineral alteration and mineralization of the Ossian–McGarry property, Larder Lake area, northeastern Ontario; unpublished BSc thesis, Queen's University, Kingston, Ontario, Canada, 62p.

Fyon, J.A. and Cole, S. 1989. Geology of part of the Temagami Greenstone Belt, including relationships between lithological, alteration, and structural features and precious-metal occurrences; *in* Summary of Field Work and Other Activities 1989, Ontario Geological Survey, Miscellaneous Paper 146, p.108-115

Fyon, A.J. and Crocket, J. H. 1986. Exploration potential for base and precious metal mineralization in part of Strathy Township, Temagami area; Ontario Geological Survey, Open File Report 5591, 46p.

Good, D.J. 1989. Platinum group element distribution in the Kanichee intrusion, District of Nipissing; Ontario Geological Survey, Open File Report 5705, 42p.

Guindon, D.L., Grabowski, G.P.B., Wilson, A.C., Metsaranta, D.-A. and Greenfield, M.J. 2011. Report of Activities 2010, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District; Ontario Geological Survey, Open File Report 6265, 49p.

Johns, G.W. 2003 Precambrian geology, Shining Tree area; Ontario Geological Survey, Preliminary Map P.3521, scale 1:50 000.

Mercier-Langevin, P., Goutier, J., Ross, P.-S., McNicoll, V., Monecke, T., Dion, C., Dubé, B., Thurston, P., Bécu, V., Gibson, H., Hannington, M., Galley, A. 2011. The Blake River Group of the Abitibi greentsone belt and its unique VMS and gold-rich VMS endowment; Geological Association of Canada – Mineralogical Association of Canada – Society of Economic Geologists – Society for Geology Applied to Mineral Deposits Joint Annual Meeting, Ottawa 2011, Guidebook to Field Trip 2B, 61p.

Meyer, G., Cosec, M., Grabowski, G.P.B., Guindon, D.L., Beauchamp, S. and Chaloux, E.C. 2003. Report of Activities 2002, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake and Sudbury Districts; Ontario Geological Survey, Open File Report 6114, 72p.

Meyer, G., Cosec, M., Grabowski, G.P.B., Guindon, D.L., Chaloux, E.C. and Stewart, J.M. 2002. Report of Activities 2001, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake and Sudbury Districts; Ontario Geological Survey, Open File Report 6083, 94p.

Ontario Geological Survey 2011. Mineral Deposit Inventory – 2011, Ontario Geological Survey.

Ontario Geological Survey 2000. Kirkland Lake airborne magnetic and electromagnetic survey; Ontario Geological Survey, Geophysical Data Set 1102.

Préfontaine, S. 2011. Geology and mineral potential of Midlothian Township, Halliday Dome, Abitibi greenstone belt; *in* Summary of Field Work and Other Activities 2011, Ontario Geological Survey, Open File Report 6270, p.4-1 to 4-12.

Smyk, M.C. and Watkinson, D.H., 1990. Sulphide remobilization in Archean volcano-sedimentary rocks and its significance in Proterozoic silver vein genesis, Cobalt, Ontario; Canadian Journal of Earth Sciences, v.27, p.1170- 1181.

Smyk, M.C., Born, P. and Owsiacki, L. 1997. Precambrian geology, Banting Township and the western part of Best Township; Ontario Geological Survey, Report 285, 53p.

Table 1. Claims recorded and assessment work filed in the Kirkland Lake Resident Geologist District in 2011.

Year	Cancelled (Claim Units)	Recorded (Claim Units)	Active (Claim Units)	Total ($)
2011	5 988	7 874	40 024	27 780 764
2010	10 497	7 538	38 306	19 246 271
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

N.B., Claim data for years 2002 to 2004, 2009 to 2011 is for the Larder Lake Mining Division.

Table 2. Mine production and reserves in the Kirkland Lake Regional Resident Geologist District in 2011.

Mine	Production to end of 2011		Production in 2011		Reserves at end of 2011	
	Tonnage @ Grade	Total Commodity	Tonnage @ Grade	Total Commodity	Tonnage	Grade
Brigus Gold – Black Fox[1]	3 339 566 tons @ 0.116 ounce per ton Au	386 072 ounces	752 612 t @ 2.54 g/t	55 756 ounces gold	(tonnes) Stockpile Prv : 352 068 Open Pit Prb : 3 159 800 Ind : 3 164 200 Inf : 667 100 Underground Ind : 2 504 800 Inf : 115 200	g/t Au 1.60 3.20 4.40 2.60 7.20 5.80
Extender Minerals – North Williams	N/A	N/A	99% barite	2500 t barite	More than 4 years	99% barite
St Andrew Goldfields – Hislop	1 195 964 tons @ 0.068 ounce per ton Au	81 522 ounces	432 087 t @ 1.45 g/t	20 184 ounces gold	Prv: 37 000 t Prb: 1 498 000 t Mea: 37 000 t Ind: 5 686 000 t Inf: 5 338 000 t	g/t gold 1.43 1.98 1.43 1.95 1.80
St Andrew Goldfields – Holloway	5 685 555 tons @ 0.159 ounce per ton Au	903 425 ounces	204 258 t @ 3.27 g/t	21 462 ounces gold	Prv: 153 000 t Prb: 70 000 t Mea: 396 000 t Ind: 352 000 t Inf: 3 024 000 t	g/t gold 4.26 4.35 4.53 4.60 5.10
St Andrew Goldfields – Holt[2]	8 435 099 tons @ 0.154 ounce per ton Au	1 300 130 ounces	232 330 t @ 4.33 g/t	32 376 ounces gold	Prv: 860 000 t Prb: 1 548 000 t Mea: 2 981 000 t Ind: 2 801 000 t Inf: 4 836 000 t	g/t gold 4.92 5.61 5.45 6.29 5.75
Kirkland Lake Gold Inc. – Macassa[3]	1 338 317 tons @ 0.355 ounce per ton Au	474 434 ounces	240 974 tons @ 0.387 ounce per ton	93 235 ounces gold	Prv: 1 187 000 tons Prb: 1 460 000 tons Mea: 992 000 tons Ind: 1 768 000 tons Inf: 1 740 000 tons	oz per ton gold 0.45 0.64 0.39 0.53 0.60

1. Reserve figures for October 2010.
2. Production for 2002 to November 1, 2011, and 2011 production November 1, 2010, to October 31, 2011. Reserve figures for July 2010.
3. 2007–2010 production for the 2 mines combined and not included in totals.

Table 3. Assessment files received in the Kirkland Lake Regional Resident Geologist's District in 2011. (Keyed to Figure 2.)

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARAD ..... Airborne radiometric 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

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Alma	Link, T. A. "Kincaid Fault property"	2010, 2011 (1)	Lc, M, VLF-EM, Gc, SA	2.49749, 2.47159	KL-6566, KL-6393
Alma, Cairo	Link, T.A. "Galer Lake Fault property"	2010, 2011 (2)	Gc, SA, sTr,	2.44605, 2.44610, 2.47200	KL-6394, KL-6396, KL-6409
Arnold	A4 Diamonds Inc. "Victoria North property"	2011 (3)	M, VLF-EM	2.48534	KL-6492
Asquith	Creso Resources Inc. "Downey Claims"	2009-2011 (4)	PW, sTr, SA	2.48604	CO-3621
Asquith, Churchill	Sarissa Resources Inc. "Asquith Township property"	2009-2010	DD(2)(301m), SA	2.46823	CO-3580
Asquith, Churchill, Connaught, Fawcett, Mirimichi	Creso Resources Inc. "Shining Tree property"	2010	DD(3)(1003m)	2.46755	CO-3588
Asquith, Churchill, Macmurchy	Platinex Inc. "Shining Tree property"	2009-2011 (5)	Gc, SA, Micro, DD(24)(1,049m)	2.47509 2.47131	CO-3608, CO-3614
Beatty	Golden Valley Mines Ltd. "Salve Lake prospect"	2010-2011 (6)	DD(2)(451m)	2.48013	KL-6491
Ben Nevis, Katrine	Ashley Gold Mines Ltd. "Row Lake property grid"	2010	Lc, IP	2.47396	KL-6407
Benoit	Skjonsby, K. E.	2011 (7)	SA, Lc, Pr	2.49871	KL-6558
Bernhardt	Golden Valley Mines Ltd "Blue Mountain prospect"	2010-2011 (8)	DD(7)(898m), SA	2.48991	KL-6545
Best, Strathy	Todd, M.A. "Hook property"	2009-2010	Pr, SA	2.48663	CO-3632
Bisley	Link, T.A. "Bisley property"	2010-2011 (9)	Gc	2.48119	KL-6476
Black	Rapski, J. "Hiskerr property"	2011 (10)	Lc, M, VLF-EM	2.48262	KL-6517
Black, Lee	Rockcliff Resources Inc. "Black Gold property"	2010-2011 (11)	Lc, IP, M	2.48104	KL-6467

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Blakelock, Bragg, Hoblitzell, Newman, Tweed	Lake Shore Gold Corp. "Blakelock Project"	2010-2011 (12)	DD(6)(1,747m), SA	2.47425	KL-6406
Blakelock, Hoblitzell, Noseworthy	Quebec Sturgeon River Mines Ltd. "H-N, Blakelock 1 Project"	1985-1989	GL, AM, AEM, IP, VLF-EM, M, DD(45)(7,759m), SA		KL-6445
Bowman, Hislop	Nebu Resources Inc. "Hwy 101 Project - North Block"	2010	IP, Lc, M	2.46824, 2.46474	KL-6380, KL-6392
Bradette	Tiger Gold Exploration Corp. "Bradette property"	2011 (13)	AEM, VLF-EM	2.48730	KL-6543
Bradette, Hurtubise, Noseworthy, Singer & Kenning	Nebu Resources Inc "Burntbush Project- North and South Blocks"	2009	AEM, M	2.48414	KL-6519
Bryce	Northstar Gold Corp. "Bryce Gold Project"	2009-2011 (14)	DGP, DD(43)(13,130m), SA, DD(18)(6,097m)	2.48128, 2.48234, 2.44794	CO-3616, CO-3619 CO-3587
Bucke	Kon, A.D. "Claim 4243946"	2011 (15)	Pr	2.49482	CO-3659
Burrows	Swain, S.L	2011 (16)	Pr	2.48854	CO-3629
Burrows, Kemp	Swain, S.L. "Jumping Moose property"	2010-2011 (17)	Pr, SA	2.48177	CO-3610
Burt	Breau Holdings Inc. "Bastarache property"	2010	DD(1)(100m), SA, Pr, rTr	2.46833	KL-6395
Burt	Insight Exploration Inc. "Burt property"	2011 (18)	Lc, IP	2.49039	KL-6541
Burt, Eby	West Kirkland Mining Inc. "Burteby Claims"	2010-2011 (19)	DD(1)(503m), SA	2.47427,	KL-6437
Cabot	Golden Valley Mines Ltd. "Claw Lake property"	2010-2011 (20)	Lc, IP, M	2.47688, 2.48412	CO-3598, CO-3620
Cabot	Golden Valley Mines Ltd. "Jonsmith property"	2010	Lc, IP, M	2.48526	CO-3623
Cabot, Churchill, Connaught, Kelvin, Miramichi	Slocan Minerals Corp. "Elephant Block"	2008	AEM, AM	2.44429	CO-3595
Cairo	Link, T.A. "Browning property"	2010	Lc, M, VLF-EM	2.44614	KL-6389
Cairo	Pro Minerals Inc. "Cairo Township Project"	2011 (21)	AEM, AVLF-EM, AM	2.48480	KL-6496
Cairo	West Kirkland Mining Inc. "Cairo property"	2010	M	2.46884	KL-6387
Cairo, Powell, Yarrow	Northgate Minerals Corp. "Young Davidson Project"	2007	M, IP	2.44376	KL-6388
Carr	6070205 Canada Inc. "Carr property"	2011 (22)	M, VLF-EM	2.48948	KL-6498
Catharine	Ashley Gold Mines Ltd. "Hunter Gold property"	2009-2011 (23)	DD(5)(1285m), SA, M, VLF-EM	2.47165, 2.49959	KL-6397, KL-6567
Catharine	Lake Shore Gold Corp. "The Shoe Box property"	2011 (24)	Pr, SA	2.48808	KL-6509

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Catharine	Les Entreprises Ogima Inc. "Propriété Fort Knox"	2010-2011 (25)	Lc, M	2.47191	KL-6399
Catharine	White Pine Resources Inc. "MZ property"	2010	DD (9) (1393 m), IP, VLF-EM, Lc	2.48410	KL-6497
Catharine, McElroy	Abitibi Mining Corp. "Campbell property"	2008	Lc, M, VLF-EM, HLEM	2.40041	KL-6391
Chambers	Laronde, D.D. "O'Connor property"	2011 (26)	Lc, M, VLF-EM	2.48630	CO-3633
Chambers, Cynthia	Pantheon Ventures Ltd. "KoKoKo Project"	2011 (27)	Lc, M, HLEM	2.47861, 2.48757	CO-3612, CO-3631
Churchill	Creso Resources Inc. "Gold Corona property"	2010-2011 (28)	GL, sTr, SA	2.47186	CO-3597
Churchill	Platinex Inc. "Shining Tree Project - Herrick Grid"	2010	IP, M, Lc	2.45528	CO-3582
Cleaver	Lary, N. G. "Cleaver property"	2011 (29)	SA	2.49265	KL-6530
Cleaver	Warford, V.W.A.	2011 (30)	Pr	2.49487	KL-6547
Clifford	Tiger Gold Exploration Corp. "SD-12 & Maple-8 Group"	2010-2011 (31)	Lc, sTr, SA	2.47627	KL-6447
Coleman	Traimer, H	2011 (32)	PW	2.49239	CO-3657
Cook	St Andrew Goldfields Ltd. "Claim 3001363"	2011 (33)	PW	2.48379	KL-6478
Coulson, Walker, Wilkie	6070205 Canada Inc. "Coulson and Walker property"	2011 (34)	Lc, M	2.48433, 2.48404	KL-6482, KL-6508
Dokis	Carreau, A.R. & Marion, E.J. "Malamute Option"	2010	GL, SA, sTr, rTr	2.47128	KL-6458
Donovan	Silver Shield Mining Corp. "Wilder property"	2008	DD(13)(1518m)	2.45137	CO-3584
Dunmore, Sheba	ARC Ranger Resources Ltd.	2009	sTr, rTr, PW, Pr, SA	2.47368	KL-6475
Eby	Marion, E.J. "ECM property"	2010-2011 (35)	Lc, M	2.48239	KL-6489
Eby	Robinson, D. "Eby West property"	2010-2011 (36)	Gc	2.48107	KL-6460
Eby	West Kirkland Mining Inc. "Kenogami Lake property"	2011 (37)	DD(1)(336m)	2.48266	KL-6486
Eby, Otto	7247915 Canada Inc. "South Break Group property"	2010-2011 (38)	Lc, M, Pr	2.48403	KL-6481
Eby, Otto	Reed, J. and Robinson, D. "Eby-Kirkland property"	2010-2011 (39)	Lc, M	2.47164	KL-6405
Elliott	Marion, E. J. ""OBC" Claim"	2009-2011 (40)	PW, sTr	2.49210	KL-6537
Elliott	Tiger Gold Exploration Corp. "Elliott - Six (Phase A)"	2010	Lc, M, VLF-EM	2.47105	KL-6400
Elliott, Harker	Tiger Gold Exploration Corp. "Claim 399"	2010-2011 (41)	sTr, SA	2.47839	KL-6469

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Fawcett	Goldeye Explorations Ltd. "Grouse Grid"	2010	IP	2.47176	CO-3594
Flavelle	Brigadier Gold Ltd. "Flavelle property"	2008-2010	DD(10)(1,681m), SA	2.46611	KL-6442
Flavelle	Rapski, J.P. "Lucky Irish property"	2009-2010	rTr, sTr, DD(3)(29m), SA	2.47207	KL-6457
Flavelle	West Kirkland Mining Inc. "Kirkland Lake Project"	2010	DD(1)(578m)	2.46557	KL-6381
Frecheville	2239228 Ontario Inc. "Cross Fault property"	2011 (42)	Lc, M	2.48014	KL-6466
Garrison	Moneta Porcupine Mines Inc. "Golden Highway Project-Windjammer East property"	2011 (43)	DD(1)(464 m)	2.49551	KL-6559
Garrison	St Andrew Goldfields Ltd. "Garrison Claims Project"	2010	Lc, IP	2.48850	KL-6510
Garrison	St. Andrew Goldfields Ltd. "Garrison Creek property"	2010	DD(30)(15,233 m)	2.49776	KL-6557
Gauthier	Queenston Mining Inc. "Anoki Project"	2009-2010	DD(21)(14,547 m), SA	2.48934	KL-6553
Gauthier	Queenston Mining Inc. "Gauthier Project"	2010-2011 (44)	DD(4)(3,186 m), SA, DGP	2.48741	KL-6523
Gauthier	Queenston Mining Inc. "Upper Canada Project"	2009-2011 (45)	DD(37)(11,022 m), DD(1)(300m), SA	2.48807, 2.47519	KL-6518, KL-6463
Gauthier, Lebel	Newstrike Resources Ltd., Queenston Mining Inc. "Commodore Project"	2009-2011 (46)	DD(48)(14,185m), SA, Lc, M, IP	2.48487	KL-6493
Gauthier, Lebel	Queenston Mining Inc. "Commodore property"	2010	M, Lc	2.48420	KL-6506
Gauthier, McVittie	Queenston Mining Inc. "Upper Beaver East property"	2011 (47)	DD(2)(1035m)	2.48173	KL-6495
Gillies Limit	International Millennium Mining Corp. "Houndchute property"	2011 (48)	M, VLF-EM	2.47518	CO-3606
Gillies Limit	Kon, A.D.	2009-2011 (49)	Pr, Lc	2.44405, 2.48781	CO-3585, CO-3624
Gillies Limit	Outcrop Explorations Ltd	2011 (50)	PW, sTr, Pr, SA	2.49215, 2.49680	CO-3641, CO-3652
Gillies Limit	Temex Resources Corp. "Latchford Gold Project"	2009-2011 (51)	GL, Gc, SA, DD(14)(1,665 m)	2.47343, 2.50041	CO-3593, CO-3655
Gillies Limits	Outcrop Explorations Ltd "Waldman property"	2010	sTr, SA, M, VLF-EM	2.48587	CO-3635
Grenfell	Mhakari Gold Corp. "Grenfell property"	2011 (52)	M, VLF-EM	2.48147, 2.48495	KL-6474, KL-6490
Grenfell	O'Connor, T.A.	2009-2011 (53)	SA, rTr, sTr	2.47730	KL-6446
Gross	West Kirkland Mining Inc. "Golden Valley property"	2011 (54)	DD(1)(366m)	2.47746	KL-6452
Guibord	1571925 Ontario Ltd.	2011 (55)	Gc	2.48497	KL-6479

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Guibord	2041663 Ontario Ltd. Vision Exploration "HWY 572 property"	2011 (56)	Lc, IP	2.48362	KL-6512
Guibord	Belanger, J.R. & O'Connor, T.A.	2010	Pr	2.47115	KL-6454
Guibord	Meunier, D. "Meunier property"	2011 (57)	M, VLF-EM	2.48021	KL-6461
Guibord	O'Connor, T.A.	2011 (58)	Lc, Gc, SA	2.48188	KL-6488
Guibord	Plato Gold Corp. "Silver Fox property"	2009-2010	DD(7)(3,192m), SA	2.46973	KL-6401
Guibord	Tandem Resources Ltd. "Homestake Option"	1998	DD(28)(4,996.4m)		KL-6411
Guibord, McCool, Michaud, Munro	Constantine Metal Resources Ltd. "Four Corners property"	2010-2011 (59)	GL, rTr, SA	2.47286	KL-6441
Haultain, Nicol	Transition Metals Corp. "Haultain property"	2010	GL, rTr, sTr, SA, DD(2)(166m)	2.47339	CO-3592
Hearst	Brigadier Gold Ltd. "M-Island property"	2008	DD(9)(1320.5m)	2.44105	KL-6384
Hearst	MacGregor, R.A.	2010	DD(1)(33m)	2.46796	KL-6450
Hearst	Skead Holdings Ltd.	2010	DD(1)(170m), SA	2.46914	KL-6438
Hearst, McVittie, Skead	Skead Holdings Ltd.	2009-2011 (60)	SA	2.47620	KL-6470
Hearst, Skead	MacGregor, R.A. "Larder Lake property"	2008-2010	SA	2.46841	KL-6383
Hearst, Skead	Skead Holdings Ltd.	2008-2009	SA	2.47984	KL-6471
Hislop	Caty, J.J., MacKenzie, C.D., and Ross, C.B. "Ross Mine"	1969	DD(11)(2,395m), SA		KL-6420
Hislop	Hollinger Consolidated Gold Mines Ltd. "Ross Mine"	1945, 1952, 1959	GL, DD(40)(4954m)		KL-6419, KL-6416 KL-6415
Hislop	Mexivada Mining Corp. "Guidoccio property"	2011 (61)	M, VLF-EM	2.49799	KL-6569
Hislop	Murgor Resources Inc. "Golden Arrow property"	2011 (62)	GL, sTr, Pr	2.49272, 2.49781	KL-6554, KL6572
Hislop	Pamorex Minerals Inc. "Ross Mine"	1988-1989	DD(16)(13,958m)		KL-6412
Hislop	Pamour Porcupine Mines "Ross Mine"	1976-1986	GL, OvD, SA, GL, DD(205)(11,281m), Ug, Other		KL-6413, KL-6414 KL-6417, KL-6421 KL-6422, KL-6423 KL-6424, KL-6425 KL-6426, KL-6427 KL-6428, KL-6429 KL-6430, KL-6431 KL-6432, KL-6433 KL-6434, KL-6435
Hislop	Ross, C.B. "Ross Mine"	1968	GL		KL-6418
Hislop	St Andrew Goldfields Ltd. "Hislop Claim # 3001502 property"	2011 (63)	IP	2.49318	KL-6532
Hislop	St Andrew Goldfields Ltd. "Claim 3011302"	2011 (64)	PW	2.48360	KL-6480

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Holloway	1571925 Ontario LTD. "Dunston & O'Connor Group"	2011 (65)	M, VLF-EM	2. 48572	KL-6500
Holloway	1571925 Ontario Ltd. "Holloway Grid"	2011 (66)	M, VLF-EM	2.48572	KL-6521
Holloway	O'Connor, T. A.	2009-2011 (67)	SA, Pr	2.48610	KL-6505
Holmes	Golden Valley Mines Ltd. "Island 27 Project"	2008	Micro	2.46854	KL-6403
Holmes	West Kirkland Mining Inc.	2010-2011 (68)	SA, DD(1)(320m)	2.49825, 2.49347	KL-6562 KL-6538
Holmes	West Kirkland Mining Inc. "Golden Valley Island 27 property"	2010	DD(3)(150m)	2.48631	KL-6507
Hudson	Walton, H.G. "Hudson Township Project"	2010	Lc, M	2.44738	CO-3613
James, Tudhope	Thorlit Exploration Ltd. "Elk Lake Area"	1963	Pr, GL		CO-3590
Katrine, Ossian	Ateba Resources Inc. "Walsh Katrine property"	2010-2011 (69)	sTr, DD(16)(3,300m), SA	2.46296, 2.48176	KL-6398 KL-6487
Kemp, Kelvin	Adroit Resources Inc. "Grassy Lake Grid One 2010"	2010-2011 (70)	IP, Lc, M, VLF-EM	2.48640	CO-3634
Kittson	Watts, H.A.	2010	Other	2.46444	CO-3578
Knight	Burda, D. "Claim 4247571"	2011 (71)	Gc	2.48044	CO-3604
Knight	Burda, D.F. "Knight Grid"	2011 (72)	Lc, M, VLF-EM	2.48684, 2.49442	CO-3626 CO-3648
Knight, Tyrrell	Creso Resources Inc. "Minto property"	2010	rTr, sTr, SA	2.47039	CO-3601
Lamplugh, Iroquois Point	Solid Gold Resources Corp. "Legacy property"	2010-2011 (73)	DD(3)(1,230m), DD(3)(1,089m), DD(18)(5,946m) SA	2.47862, 2.47224, 2.49056	KL-6459 KL-6440 KL-6546
Lawson	Claim Post Holdings Ltd.	2011 (74)	rTr, sTr	2.48488	CO-3628
Lawson	Sterling Strategies Inc.	2010	SA	2.47955	CO-3618
Lawson	Sterling Strategies Inc. "Silver Claims Group"	2010	sTr, SA	2.46926 2.46918	CO-3600 CO-3602
Lebel	Marion, E. J. "Continental - Federal Extension Group"	2011 (75)	SA	2.49297	KL-6531
Lebel	Northern Gold Mining Inc. "Doig Lake property"	2011 (76)	SA, GL	2.48959	KL-6504
Lebel	O'Connor, T. A.	2011 (77)	Pr, SA	2.48620	KL-6515
Lebel	Queenston Mining Inc. "Commodore property"	2009-2010	IP	2.48426	KL-6485
Lebel	Queenston Mining Inc. "Pawnee property"	2010	DD(16)(12,271m), SA	2.47305	KL-6402
Lorrain	Intervia Inc. "Proteus property"	2011 (78)	Lc, VLF-EM	2.48612	CO-3622

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Macmurchy	Mineral Mountain Resources Ltd. "Main Block property"	2010-2011 (79)	Gc, SA, Lc, DD(3)(1,453 m)	2.49687 2.49876 2.49277	CO-3653 CO-3658 CO-3643
Macmurchy	Mineral Mountain Resources Ltd. "North Foley Lake Area"	2010	IP, M	2.47714	CO-3596
Maisonville	Canadian Royalties Inc. "Bennett Gold Mine prospect"	2010	DD(2)(250m)	2.46807	KL-6444
Marriott, Stoughton	Harte Gold Corp. "Stoughton property"	2008	DD(10)(4200m), SA	2.44155	KL-6453
McCool	Lalonde, D. J. "McCool property"	2011 (80)	M	2.49203	KL-6529
McCool, Michaud	Lalonde, D. J. "McCool East property"	2011 (81)	Lc, M	2.49252	KL-6560
McElroy	Metherall, W. & Zabudsky, D. "Grassy Lake property"	2010	M	2.47080	KL-6386
McGarry	Armistice Resources Corp. "Patent HF33"	2011 (82)	DD(1)(1870 ft)	2.48839	KL-6522
McGarry	Salo, A. J.	2010-2011 (83)	SA, Pr, rTr	2.48653 2.48625, 2.49390, 2.47480	KL-6502 KL-6501 KL-6533 KL-6456
McGarry	Sampson, B.M. "N-V Town property"	2010	SA, Pr.	2.48518	KL-6520
McGarry	Skead Holdings Ltd. "Bear Lake - East property"	2011 (84)	M, VLF-EM	2.48728	KL-6516
McGarry, McVittie, Ossian	Goldstake Explorations Inc. "Clay property"	2009-2010	DD(14)(2,003m), SA	2.44764	KL-6443
McVittie	Bear Lake Gold Ltd &Odyssey Resources Ltd. "Swansea property"	2010	DD(19)(9,349m)	2.48371	KL-6513
McVittie	Fey, C.J. "Kirvit property"	2010-2011 (85)	PW, sTr, rTr, Pr	2.48272	KL-6484
McVittie	Lawrence, R.D. "Lawrence Claims"	2009-2011 (86)	Pr, SA, Micro	2.48943, 2.47733, 2.47057, 2.47385	KL-6524 KL-6451 KL-6410 KL-6408
McVittie	Queenston Mining Inc. "Upper Beaver East property"	2011 (87)	DD(4)(2,466m), DD(7)(4,125 m)	2.49018, 2.49337	KL-6535 KL-6555
McVittie	Skead Holdings Ltd.	2011 (88)	SA, Pr	2.49380	KL-6539
Melba	Raven Resources Inc "Melba property"	2011 (89)	SA, Gc	2.49250	KL-6540
Michaud	Moneta Porcupine Mines Inc. "Southwest Zone Area"	2010	DGP	2.47593	KL-6448
Michaud	O'Connor, T. A.	2011 (90)	M	2.49451, 2.49460	KL-6534 KL-6556
Mickle	Hermeston, P. M.	2011 (91)	Pr	2.49808	CO-3645
Mickle	Majortrans Oil & Mines Ltd. "Silver property"	1963	DD(52)(1,827m), GL, sTr, SA		CO-3589

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Mickle	Shynkorenko, E.	2010-2011 (92)	Pr, SA	2.47796	CO-3599
Mickle	Silver Shield Resources Inc. "Welsh Silver Mine Project"	2011 (93)	DD(10)(1,286 m)	2.49401	CO-3640
Midlothian	Explor Resources Inc "Montrose property"	2010	DD(6)(3,260 m)	2.49201	KL-6548
Midlothian	Lalonde, D. J. "Lalonde property"	2011 (94)	sTr, rTr	2.49143	KL-6550
Midlothian	MCD Exploration and Survey Ltd. "Elizabeth Lake Project"	2011 (95)	GL	2.48812	KL-6542
Milligan	Golden Chalice Resources Inc. "Abitibi East 2009-2010 Extension"	2010	Lc, M, VLF-EM, IP	2.46700	KL-6382
Milner	Salo, L.J. "Silver Leaf property"	2010	VLF-EM	2.46916	CO-3615
Milner	Swain, S.L.	2009-2010	Lc, Pr	2.46924	CO-3586
Montrose, Hincks	Touchdown Resources Inc. "Montrose Project"	2011 (96)	DD(5)(1,027m), SA	2.48608	KL-6525
Munro	2205730 Ontario Inc. "Claim 4254438"	2011 (97)	Lc, M	2.48205	KL-6472
Munro	Golden Valley Mines Ltd. "Munro prospect"	2007	Lc, M	2.49587	KL-6564
Munro	Millstream Mines Ltd. "Potter Mine Project"	2011 (98)	M	2.49169	KL-6536
Munro	True North Mineral Laboratories "Munro property"	2011 (99)	SA, Gc	2.48875	KL-6503
Munro	von Cardinal, T. "Claim 4210751"	2011 (100)	Lc, M	2.48026	KL-6465
Munro	Z-Gold Exploration Inc. "Munro Project"	2010-2011 (101)	Lc, M, VLF-EM	2.47304	KL-6436
Natal	Adroit Resources Inc. "Red Vein property"	2011 (102)	Lc, M,VLF-EM, IP	2.48638	CO-3630
Natal & Knight	Mineral Mountain Resources Ltd "Hydro Creek Project"	2010	M, Lc	2.49280	CO-3642
Nicol	Swain, S. L.	2011 (103)	Pr, SA	2.49283	CO-3636
Nicol	Swain, S.L. "Claim 4202096"	2010-2011 (104)	Pr	2.48007	CO-3605
North Williams	Annett, Roy ""	2011 (105)	sTr	2.49151	CO-3638
Ossian	Belanger, R. "Ossian property"	2011 (106)	Lc, IP	2.48334	KL-6483
Otto	2214098 Ontario Ltd. "Otto property"	2011 (107)	SA	2.48700	KL-6544
Pacaud	Balzer, K. "Pacaud Claim 4200189"	2011 (108)	Lc	2.47456	KL-6439
Pacaud	Boston Creek Mines Ltd.	2011 (109)	Pr, PW, sTr	2.49141	KL-6563

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Pacaud	Northstar Gold Corp. "Boston Creek Project"	2011 (110)	M	2.48916	KL-6526
Playfair	Mexivada Mining Corp. "Guidoccio Playfair property"	2011 (111)	M, VLF-EM	2.49797	KL-6568
Powell	Pacific Comox Resources Ltd.	2011 (112)	Pr, sTr	2.49327	KL-6570
Powell	Pacific Comox Resources Ltd. "Log Lake West Claims"	2010	Gc, Pr, sTr, SA	2.46206	KL-6390
Powell	Pacific Comox Resources Ltd. "Welsh Claims"	2011 (113)	PW	2.49572	KL-6561
Rayner Lake	Explor Resources Inc. "Eastford Lake Gold property"	2009/2010	DD(12)(8,098 m)	2.49596	KL-6565
Sharpe	Grabowski, R.J. "Grabowski property"	2010	Lc	2.49600	KL-6551
Skead	Giyani Gold Corp. "Skead property"	2010	Lc, IP, M	2.48590	KL-6514
Skead	Harrington, M.S. "Harrington Claims"	2010-2011 (114)	Pr, SA	2.47920	KL-6468
Skead	Skead Holdings Ltd.	2010-2011 (115)	SA	2.47932	KL-6473
Skead	Skead Holdings Ltd. "Skead property"	2011 (116)	Lc, M, VLF-EM	2.49016	KL-6528
South Lorrain	Gore, J. A. "4250873 property"	2011 (117)	M, VLF-EM	2.49603	CO-3649
South Lorrain	Gore, J.A. "Maidens Lake property"	2011 (118)	Lc, M	2.47340	CO-3607
South Lorrain	Hanes, D. & Plunkett, S. "Windy Lake Claims"	2011 (119)	SA, Pr	2.48709	CO-3625
South Lorrain	Maclachlan, J. M. “Windy Lake Claim Group Project”	2010	Gc, SA, PW	2.48325	CO-3637
South Lorrain	Mhakari Gold Corp. "South Cobalt Silver Project"	2011 (120)	Lc, M, VLF	2.48187	CO-3627
Steele	Hermeston, P.M "South Case Pegmatite Dike"	2010-2011 (121)	Pr, SA	2.49595	KL-6549
Steele	Hermeston, P.M. "North East Case Pegmatite Dike"	2010-2011 (122)	Pr, SA	2.47355	KL-6455
Stoughton	6070205 Canada Inc.	2010-2011 (123)	Pr, SA	2.47395	KL-6464
Stoughton	6070205 Canada Inc. "Stoughton Project"	2010-2011 (124)	AM	2.47394	KL-6449
Strathcona	Beairsto, M. W. "Strathcona property"	2010	Lc, M, VLF-EM	2.44197	CO-3617
Tannahill	Skead Holdings Ltd. "Tannahill property"	2011 (125)	Lc, M	2.48447	KL-6494
Taylor	St Andrew Goldfields Ltd.	2010	DD(12)(4,643 m)	2.48179	KL-6511
Teck	Golden Valley Mines Ltd. "Winnie Lake prospect"	2011 (126)	M	2.48988	KL-6527

Township	Company Name "Property Name"	Year*	Type of Work**	AFRO Number	RGO File Designation
Teck	Harrington, M.S. "Claim 4240596"	2010-2011 (127)	Pr, SA	2.47439	KL-6404
Teck	Kirkland Lake Gold Inc. "Macassa Mine property"	2009	Ug, SA DD(14)(6769m),	2.44906	KL-6477
Teck	Queenston Mining Inc. "Amalgamated Kirkland property"	2008-2011 (128)	DD(1)(2218m), DD(2)(4,000m), DD(13)(6,018 m, SA	2.47025 2.47954 2.49275	KL-6385 KL-6462 KL-6552
Teck	West Kirkland Mining Inc. "Teck property"	2011 (129)	M	2.49786	KL-6571
Tyrrell	Goldeye Explorations Ltd. "Athena Lake area"	2010	M	2.49644	CO-3651
Tyrrell	Goldeye Explorations Ltd. "Big Dome & Hydro Creek areas"	2010-2011 (130)	DD(14)(4,644 m), DD(12)(3,611 m)	2.49574, 2.49890	CO-3647 CO-3656
Tyrrell	Goldeye Explorations Ltd. "Big Dome property"	2009-2010	DD(9)(3,967 m), DD(7)(2,633 m)	2.49448, 2.49631	CO-3644 CO-3650
Tyrrell	Goldeye Explorations Ltd. "Goldeye Cigar Lake Claims & Lacarte Option"	2010	GL, SA, rTr, sTr	2.45972	CO-3583
Tyrrell	Goldeye Explorations Ltd. "Indian Lake Grid"	2010-2011 (131)	Lc, IP, M, VLF-EM	2.47764	CO-3609
Tyrrell	Goldeye Explorations Ltd. "Porphyry West Grid"	2011 (132)	Lc, M, VLF-EM	2.47338	CO-3591
Tyrrell	Temex Resources Corp. "Juby JV property"	2010-2011 (133)	IP	2.49155	CO-3639
Tyrrell	Temex Resources Corp. "Juby Project"	2010	Lc, M	2.47068 2.47071	CO-3603 CO-3611
Tyrrell	Threegold Resources Inc. "Mosher Lake property"	2011 (134)	Pr, GL	2.49625	CO-3654
Tyrrell	Threegold Resources Ltd. "Shining Tree property"	2011 (135)	AM, AEM	2.48880	CO-3646
Tyrrell	Young, T.A.	2010	GL, SA	2.46775	CO-3581
Van Hise	Nemcsok, M.S. "Alpine Silver Mine Project"	2010	Pr, PW, SA	2.46818	CO-3579
Walker	6070205 Canada Inc. "Walker property"	2011 (136)	M, IP	2.48949	KL-6499

* (#) Number refers to work performed in 2011. See also Table 4 and Figure 2.
** DD(8)(2196m) = 8 diamond-drill holes totalling 2196 m.

Table 4. Exploration activity in the Kirkland Lake Regional Resident Geologist District in 2011. (Keyed to Figure 2.)

Abbreviations

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

#	Company/Individual (Occurrence Name or Property)	Township/Area	Exploration Activity*
1-136	See Table 3		
137	Transition Metals Corp. (Bayly)	Bayly	Pr, SA
138	McLaren Resources Inc. (Blue Quartz)	Beatty	DD(5)(1690m), SA
11	Rockcliff Resources Inc. (Black Gold)	Black, Lee	sTr, SA, GL
139	Nebu Resources Inc. (Bowman-Hislop)	Bowman, McCann	DD
140	Geomark Exploration Ltd.	Carr, Wilkie	DD(3)(1687m), SA
141	Platinex Inc. (Herrick)	Churchill	DD(3)(651m), SA
142	Sarissa Resources Inc. (Shining Tree)	Churchill	DD
143	Metals Creek Resources Corp. (Tillex Copper)	Currie	DD(5)(745m), SA
144	Apella Resources Inc. (Game Changer)	Egan	Pr, SA
145	Northern Gold Mining Inc. (Garrison)	Garrison	DD(95)(30 280m, SA
146	St Andrew Goldfields Ltd. (Garrison Creek)	Garrison	DD(19)(17 137m), SA
47	Queenston Mining Inc. (Upper Beaver)	Gauthier	DD(56)(28 816m), SA
45	Queenston Mining Inc. (Upper Canada)	Gauthier	DD(152)(60 598m), SA
147	Lake Shore Gold Corp. (Fenn–Gib)	Guibord	DD(4)(1899m), SA
148	Lounor Exploration Inc.	Harker	DD(5), SA
149	Transition Metals Corp. (Haultain)	Haultain	DD(21)(2100m)
150	Castle Silver Mines Inc. (Castle Mine)	Haultain, Nicol	DD(12)(6842m), SA
151	Temex Resources Corp. (Gowganda Silver)	Haultain, Nicol	DD
152	Brigus Gold Corp. (147 and Contact zones)	Hislop	DD, SA
153	Mexivada Mining Corp.	Hislop	DD(4)(2105m), SA
62	Murgor Resources Inc. (Golden Arrow)	Hislop	DD(43)(11 940m), SA
154	Victory Gold Mines Inc. (Gold Pike)	Hislop	DD(9)(2286m), SA
155	Tri Origin Exploration Ltd. (North Abitibi)	Hoblitzell	sTr, SA
68	West Kirkland Mining Inc. (Cunningham)	Holmes	DD(67)(15 751m), SA
70	Adroit Resources Inc. (Red Vein)	Kelvin	DD(12)(4061m), SA
156	Sheltered Oak Resources Corp.	Kerrs	DD(24)(8702m), SA

#	Company/Individual (Occurrence Name or Property)	Township/Area	Exploration Activity*
157	Creso Resources Inc. (Duggan)	Knight, Tyrrell	DD(3)(564m), SA
158	Creso Resources Inc. (Tyranite)	Knight, Tyrrell	DD(3)(1698m), SA
159	Queenston Mining Inc. (Bidgood)	Lebel	DD(82)(19 861m), SA
79	Mineral Mountain Resources Ltd. (Main Block)	Macmurchy	OvD(64)
160	Platinex Inc. (Caswell)	Macmurchy	DD(7)(1070m), SA
161	Bear Lake Gold Ltd. (Larder Lake)	McVittie	DD, SA
162	Mistango River Resources Inc. (property)	McVittie	DD(66)(17 352m), SA
43	Moneta Porcupine Mines Inc. (Golden Highway)	Michaud	DD(20 000m), SA
163	Amador Gold Corp. (Silverclaim)	Mickle	DD
164	Viper Gold Ltd. (Campbell Lake)	Midlothian	Pr, SA
165	Creso Resources Inc. (Mann)	Milner	DD(5)(775m), sTr, SA
59	Constantine Metal Resources Ltd. (Munro–Croesus)	Munro	DD(47)(7280m), SA
166	Abitibi Mining Corp. (Tannahill Gold)	Tannahill	DD(5)(4098m), SA
167	St Andrew Goldfields Ltd. (Taylor)	Taylor	DD(39)(19 184m), SA
168	St Andrew Goldfields Ltd. (Taylor)	Taylor	DD(39)(19 184m)
128	Queenston Mining Inc. (Amalgamated Kirkland)	Teck	DD(20)(12 541m), SA
169	Queenston Mining Inc. (Rand)	Teck	DD(15)(17 050m), SA
170	West Kirkland Mining Inc. (Goldbanks)	Teck	DD
171	Creso Resources Inc. (Minto)	Tyrrell	DD(3)(781m), SA
172	Temex Resources Corp. (Juby)	Tyrrell	Pr, SA

*DD(8)(2196m) = 8 diamond-drill holes totalling 2196 m.

Table 5. Property visits conducted by the Kirkland Lake Resident Geologist and staff in 2011 (*see* Figure 3).

Number (keyed to Figure 3)	Property/Occurrence	MDI Number	Township
1	Owaissa[1]	New	Strathy
2	Hook[1]	New	Strathy
3	Garrcon	MDI32D12SW00004	Garrison
4	Jonpol	MDI32D12SW00044	Garrison
5	Jonpol South Zone	MDI32D12SW00051	Garrison
6	Kerr Tailings	N/A	McGarry
7	Omega	MDI32D04SE00017	McVittie
8	Matona	MDI41P11NE00014	Tyrrell
9	Milner Cu	New	Milner
10	Macassa Mine	MDI42A01SE00020	Teck

[1]Described in "Property Examinations" section, this report.
NEW – MDI number to be created.
N/A – Does not meet the minimum requirements for inclusion in the Mineral Deposit Inventory (MDI).

Table 6. Publications received in the Kirkland Lake Regional Resident Geologist Office in 2011.

Title and Year of Publication	Author	Type and Publication (our publication number)
Report of Activities, 2010 - Resident Geologist Program; Kirkland Lake Regional Resident Geologist Report: Sudbury District 2011	Cosec, M., Farrow, D.G., Alemany, R.M., Sangster, P.J., Debicki, R.L., Metsaranta, D.-A. and Wilson, A.C.	Ontario Geological Survey, Open File Report 6266, 44p. (106266)
Report of Activities, 2010 - Resident Geologist Program; Timmins Regional Resident Geologist Report: Timmins and Sault Ste. Marie Districts 2011	Atkinson, B.T., Bousquet, P., Pace, A., Burnett, S., Butorac, S., Draper, D.M., Metsaranta, D.-A. and Wilson, A.C.	Ontario Geological Survey, Open File Report 6264, 127p. (106264)
The Abitibi Subprovince plutonic record: Tectonic and metallogenic implications 2011	Beakhouse, G.P.	Ontario Geological Survey, Open File Report 6268, 161p. (106268)
Tholeiitic to calc-alkaline cyclic volcanism in the Roy Group, Chibougamau area, Abitibi Greenstone Belt-revised stratigraphy/implications for VMHS 2011	Bedard, J.H., Goulet, N., Harris, L.B., Houle, P., Leclerc, F., McNicoll, V.J., and Roy, P.	Canadian Journal of Earth Sciences, v.48, no3, p.661-694 (15302)
Report of Activities, 2010 - Resident Geologist Program; Red Lake Regional Resident Geologist Report: Red Lake and Kenora Districts 2011	Lichtblau, A.F., Ravnaas, C., Storey, C.C., Bongfeldt, J., McDonald, S., Lockwood, H.C., Bennett, N.A. and Jeffries, T.	Ontario Geological Survey, Open File Report 6261, 93p. (106261)
Report of Activities, 2010 - Resident Geologist Program; Thunder Bay South Regional Resident Geologist Report: Thunder Bay South District 2011	Scott, J.F., Campbell, D.A., Lockwood, H.C., Bennett, N.A., Brunelle, M.R. and Pelaia, R.	Ontario Geological Survey, Open File Report 6263, 60p. (106263)
Report of Activities, 2010 - Resident Geologist Program; Thunder Bay North Regional Resident Geologist Report: Thunder Bay North District 2011	Smyk, M.C., White, G.D., Lockwood, H.C. and Bennett, N.A.	Ontario Geological Survey, Open File Report 6262, 47p. (106262)
Results from the Targeted Geoscience Initiative III Kidd–Munro Project	Berger, B.R., Bleeker, W., Chapman, J.B., Gremmell, J.B., Layton-Matthews, D., van Breemen, O.	Ontario Geological Survey, Open File Report 6258, 142p. (106258)
Tungsten in Archaen banded iron formation of the former Sherman and Adams mines, Ontario: Possible mineralization processes 2011	Bowins, R. and Crocket, J.	Canadian Journal of Earth Sciences, Volume 48, No 1, p.11-23 (15301)
Report of Activities, 2010 - Resident Geologist Program; Southern Ontario Regional Resident Geologist Report: SE and SW Ontario Districts and Petroleum Resources 2011	Sangster, P.J., LeBaron, P.S., Laidlaw, D.A., Wilson, A.C., Carter, T.R. and Fortner, L.	Ontario Geological Survey, Open File Report 6267, 65p. (106267)
Basaltic to andesitic volcaniclastic rocks in the Blake River Group, Abitibi Greenstone Belt: 2. Origin, geochemistry, and geochronology 2011	Dube, B., Goutier, J., McNicoll, V., Mercier-Langevin, P., and Ross, P-S.	Canadian Journal of Earth Sciences, v.48, no.4, p.757-777 (15304)
Basaltic to andesitic volcaniclastic rocks in the Blake River Group, Abitibi Greenstone Belt: 1. Mode of emplacement in three areas 2011	Dube, B., Goutier, J., Mercier-Langevin, P., and Ross, P-S.	Canadian Journal of Earth Sciences, v.48, no.4, p.728-756 (15303)
Summary of field work and other activities 2011	Easton, R.M., Burnham, O.M., Berger, B.R., Beakhouse, G.P., Bajc, A.F., Parker, J.R., Kelly, R.I. and Debicki, E.J.	Ontario Geological Survey, Open File Report 6270, 161p. (106270)

Title and Year of Publication	Author	Type and Publication (our publication number)
Report of Activities, 2010 - Resident Geologist Program; Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District 2011	Guindon, D.L., Grabowski, G.P.B., Wilson, A.C., Metsaranta, D.-A. and Greenfield, M.J.	Ontario Geological Survey, Open File Report 6265, 49p. (106265)
Precambrian geology of the southeast Burntbush area 2011	Ordonez-Calderon, J.C.	Ontario Geological Survey, Preliminary Map P.3622, scale 1:20 000 (403622)
Geology and mineral potential of Midlothian Township, Halliday Dome, Abitibi greenstone belt 2011	Prefontaine, S.	*in* Summary of field work and other activities 2011, Ontario Geological Survey, Open File Report 6270, p.4-1 to 4-12. (106270)
The relationship of mineralization to volcanic stratigraphy, in the Kirkland Lake area, Ontario 1969	Ridler, R.H.	Unpublished Ph.D. Thesis, University of Wisconsin,Wisonsin, United States, 141p. (120137)
Paragenesis in the veins at the Ross Mine, Ramore, Ontario 1941	Scott, H.S.	Unpublished BSc Thesis, University of Toronto, Toronto, Ontario, Canada, 33p. (120135)

Table 7. Mineral deposits not being mined in the Kirkland Lake Regional Resident Geologist District in 2011.

Abbreviations

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

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
180 East (Lebel)	Au 32D04SW00336	Historic indicated resource 326 587 t @ 4.1 g/t Au	Queenston Mining Inc. (CMH 2010-2011, p.484)	Queenston Mining Inc., website, January 27, 2012	Inactive
55 Zone (Michaud)	Au 42A08NE00030	Indicated Mineral Resource – pit : 5 997 800 t @ 1.15 g/t Au Indicated Mineral Resource – out of pit: 56 300 t @ 2.65 g/t Au Inferred Mineral Resource – pit : 3 417 900 t @ 0.78 g/t Au Inferred Mineral Resource – out of pit: 139 100 t @ 2.83 g/t Au	Moneta Porcupine Mines Inc. (CMH 2011-2012, p.427)	Moneta Porcupine Mines Inc., press release December 1, 2011	Active
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	Prophecy Coal Corp. (55%) (CMH 2011-2012, P.513-514)	CMH 2005-2006, p. 341-342	Inactive
Amalgamated Kirkland (Teck)	Au 42A01NE00184	Indicated Mineral Resource : 1 145 000 t @ 4.70 g/t Au Inferred Mineral Resource : 1 530 000 t @ 4.21 g/t Au	Queenston Mining Inc. (CMH 2011-2012, p.521)	Queenston Mining Inc., press release, September 9, 2011	Active

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
Armistice (McGarry)	Au 32D04SE00013	Indicated Mineral Resource: 492 000 tons @ 0.23 oz per ton Au Inferred Mineral Resources: 172 000 tons @ 0.17 oz per ton Au	Armistice Resources Corp. (75%) – Jubilee Gold Inc. (25%) (CMH 2011-2012, p.72)	Armistice Resources Corp., 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 2011-2012, p.102)	CMH 1990-1991, p.416-417	Inactive
Bear Lake (McGarry)	Au 32D04SE00077	Inferred Mineral Resource : 3 750 000 t @ 5.67 g/t Au	Bear Lake Gold Ltd. (CMH 2011-2012, p.102)	Bear Lake Gold Ltd., press release, June 29, 2011	Active
Bidgood (Lebel)	Au 32D04SW00073	Indicated Mineral Resource - pit: 1 447 000 t @ 2.47 g/t Au Indicated Mineral Resource – U/G: 43 000 t @ 7.05 g/t Au Inferred Mineral Resource - pit: 246 000 t @ 2.88 g/t Au Inferred Mineral Resource – U/G: 136 000 t @ 7.52	Queenston Mining Inc. (CMH 2011-2012, p.521)	Queenston Mining Inc., press release, October 17, 2011	Active
Blue Quartz (Beatty)	Au 42A09SW00130	Historic (1962) 128 000 tons of 0.86 oz per ton Au	McLaren Resources Inc. (50%)-Red Mile Minerals Corp. (50%) (Red Mile Minerals Corp. press release September 22, 2011)	Red Mile Minerals Corp. NI 43-101 report, September 21, 2010	Active
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	Indicated Mineral Resource: 335 000 t @ 4.07 g/t Au Inferred Mineral Resource: 1 391 000 t @ 5.22 g/t Au	Bear Lake Gold Ltd. (CMH 2011-2012, p.102)	Bear Lake Gold Ltd., press release, June 29, 2011	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
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 oz Au per ton inferred	Newstrike Resources Ltd. (50%) Queenston Mining Inc. (50%)(CMH 2011-2012, p.448)	AF KL-4447	Active
Contact 147 Zone (Hislop)	Au New	Indicated Mineral Resource – pit: 543 300 t @ 2.505 g/t Au Indicated Mineral Resources – U/G: 323 800 t @ 6.991 g/t Au Inferred Mineral Resource – pit: 4 898 800 t @ 2.231 g/t Au Inferred Mineral Resources – U/G: 565 700 t @ 5.902 g/t Au	Brigus Gold Corp. (CMH 2011-2012, p.120-121)	Brigus Gold Corp., press release, December 15, 2011	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 2010-2011, p.565)	CMH 2010-2011, p. 565	Active

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
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 oz per ton Au	Creso Exploration Inc. (CMH 2011-2012, p.192)	George Cross Newsletter Ltd., No 39, February 25, 1997	Active
Eastmaque (Teck)	Au 42A01NE00043	2 132 500 tons of tailings of 0.035 oz 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	Indicated Mineral Resource – pit: 40.8 million t @ 0.99 g/t Au Inferred Mineral Resource – pit: 23.3 million t @ 0.90 g/t Au Inferred Mineral Resource – out of pit: 1.2 million t @ 1.90 g/t Au	Lake Shore Gold Corp., press release, August 22, 2011	Lake Shore Gold Corp., press release, November 17, 2011	Active
Fort Knox (Fawcett)	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 2011-2012, p.668-669)	URSA Major Minerals Incorporated, press release, February 2, 2006	Inactive
Garrcon (Garrison)	Au 32D12SW00051	Indicated Mineral Resources: 24 900 000 t @ 0.9 g/t Au Inferred Mineral Resource: 18 600 000 t @ 0.7 g/t Au	Northern Gold Mining Inc. (CMH 2011-2012, p.458)	Northern Gold Mining Inc. press release, September 23, 2010	Active
Golden Harker (Harker, Holloway)	Au 32D05NW00159	Historic resource (1988) 241 436 tons of 0.178 oz per ton Au	Jubilee Gold Inc. (CMH 2011-2012, p.353)	CMH 2010-2011, p. 329	Inactive
Iris (Harker)	Au, W 32D05NW00021	769 756 tons of 0.07 oz per ton Au	The Alberta Gold Corporation (55%) – Perrex Resources Inc. (45%) (CMH 1995-96, p.289)	AF KL-3170	Inactive
Jonpol (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	Northern Gold Mining Inc. (CMH 2011-2012, p.458)	Northern Gold Mining Inc. press release, October 21, 2009	Active
Juby (Tyrrell)	Au 41P10SW00013	Indicated Mineral Resource 22 341 850 t @ 1.30 g/t Au Inferred Mineral Resource 28 182 894 t @ 1.00 g/t Au	Temex Resource Corp (CMH 2010-2011, p.579)	Temex Resource Corp., press release, January 16, 2012	Active
Kerr-Addison (McGarry)	Au 32D04SE00011	Proven + Probable Reserves 771 000 tons @ 0.110 oz per ton Au (84 500 oz Au) Possible Reserves 1 299 000 tons @ 0.124 oz per ton Au (161 800 oz Au) Additional Mineral Inventory 3 051 000 tons @ 0.150 oz per ton Au 457 600 oz Au	Armistice Resources Corp. (option agreement with private owners) (CMH 2011-2012, p.72)	Armistice Resources Corp., December 23, 2010	Active

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
Kerrs (Kerrs)	Au New	Inferred Mineral Resource: 7 041 460 t @ 1.71 g/t Au	Sheltered Oak Resources Corp. (CMH 2011-2012, p.576)	Sheltered Oak Resources Corp., press release, April 26, 2011	Active
LaCarte (Tyrrell)	Au 41P11NE00024	600 000 t @ 6 g/t Au	Goldeye Explorations Ltd. (CMH 2010-2011, p.279)	Goldeye Explorations Ltd., press release, November 5, 2002	Active
Leckie (Strathy)	Au 31M04SW00090	Indicated resource 348 240 t @ 0.20 ounce per ton Au Inferred resource 57 237t @ 0.17 ounce per ton Au	Stroud Resources Ltd. (CMH 2010-2011, p.565)	CMH 2000-2001, p.372	Inactive
Ludgate (Michaud, Guibord, Garrison)	Au 42A08NE00159	462 000 t of 5.91 g/t Au	St Andrew Goldfields Ltd. (St Andrew Goldfields Ltd., website, January 27, 2012)	NM, February 1, 1999, p. 2.	Inactive
Martin–Bird (Hearst)	Au 32D04SE00143	558 000 tons of 0.114 oz per ton Au	Barrick Gold Corporation (CMH 2007-2008, p.87-91)	AF KL-3752	Inactive
Matachewan and Young–Davidson (Cairo, Powell, Yarrow)	Au 41P15NE00014 41P15NE00017	Open Pit Probable Mineral Reserve: 4 939 000 t @ 1.66 g/t Au Inferred Mineral Resource: 15 000 t @ 1.74 g/t Au Underground 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: 5 965 000 t @ 3.40 g/t Au YD West Indicated Mineral Resource: 4 488 000 t @ 3.72 g/t Au Inferred Mineral Resource: 508 000 t @ 3.22 g/t Au	AuRico Gold Inc. (AuRico Gold Inc., press release, October 26, 2011)	Northgate Minerals Corporation, press release, July 14, 2009, September 15, 2011	Active
Matona (Tyrrell)	Au 41P11NE00014	Historic: 27 000 t @ 13.2 g/t Au	Creso Exploration Inc. (CMH 2011-2012, p.192)	AF	Active
McBean-Anoki (Gauthier)	Au 32D04SW00060 32D04SW00069	Measured + Indicated Mineral Resource 1 436 000 t @ 4.69 g/t Au Inferred Mineral Resource 1 558 000 t @ 4.73 g/t Au	Queenston Mining Inc. (CMH 2010-2011, p.484)	Queenston Mining Inc., press release, December 16, 2009	Inactive
Mikwam (Noseworthy)		Indicated Mineral Resource 238 000 t @ 3.23 g/t Au Inferred Mineral Resource 879 000 t @ 2.42 g/t Au	ESO Uranium Corp. (CMH 2011-2012, p. 234)	ESO Uranium Corp., press release, September 27, 2010	Inactive
Minto (Tyrrell)	Au 41P10NW00006	225 000 tons of 0.20 oz per ton Au to 750 feet	Creso Exploration Inc. (CMH 2011-2012, p.192)	AF	Active

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
Omega (McVittie)	Au 32D04SE00017	720 854 tons of 0.16 oz per ton Au	Mistango River Resources Inc. (CMH 2011-2012, p.425)	CMH 2007-2008, p.189	Active
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 2010-2011, p.417)	CMH 2010-2011, p.417	Active
Ramp Property (Beatty, Carr, Coulson, Wilkie)	Au 42A09SW00133	813 414 tons of 0.235 oz 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 oz 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
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 2011-2012, p.481-482)	CMH 2011-2012, p.481-482	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	Indicated Mineral Resource – pit : 10 708 300 t @ 0.97 g/t Au Indicated Mineral Resource – out of pit: 556 200 t @ 3.41 g/t Au Inferred Mineral Resource – pit: 20 455 300 t @ 1.17 g/t Au Inferred Mineral Resource – out of pit: 6 980 800 t @ 3.43 g/t Au	Moneta Porcupine Mines Inc. (CMH 2011-2012, p.427)	Moneta Porcupine Mines Inc., press release, December 1, 2011	Active
Taylor (Taylor)	Au 42A10SE00066 42A10SE00065	Probable Mineral Reserve: 985 000 t @ 1.89 g/t Au Indicate Mineral Resource: 2 625 000 t @ 5.42 g/t Au Inferred Mineral Resource: 1 929 000 t @ 3.96 g/t Au	St Andrew Goldfields Ltd. (CMH 2010-2011, p.557-558)	St Andrew Goldfields Ltd., press release, February 16, 2012	Active
Teck Hughes (Teck)	Au 42A01NE00020	Measured + indicated resource 3 347 900 tons @ 0.32 oz per ton Au Inferred resources 58 900 tons @ 0.35 oz per ton Au	Kirkland Lake Gold Inc. (CMH 2011-2012, p.362)	CMH 2003-2004, p.270	Inactive
Temagami Copper (Phyllis)	Cu, Ni 41I16NE00004	Historic: 770 000 tons of 1.04% Cu, 0.46% Ni	N/A	AF	Inactive
Tyranite (Tyrrell, Knight)	Au 41P11NE00013	567 000 tons of 0.18 oz per ton Au	Creso Exploration Inc. (CMH 2011-2012, p.192)	NM 06/93	Active
Upper Beaver (Gauthier)	Au, Cu 32D04SW00068	Indicated Mineral Resource: 3 074 000 t @ 0.54%Cu 8.84 g/t Au Inferred Mineral Resources: 3 093 000 t @ 0.41% Cu, 7.15 g/t Au	Queenston Mining Inc., (CMH 2011-2012, p.521)	Queenston Mining Inc., press release, May 4, 2011	Active

Deposit Name (Township)	Commodity MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References*	Status
Upper Canada (Gauthier)	Au 32D04SW00057	Indicated Mineral Resource – Pit: 1 721 000 t @ 2.04 g/t Au Inferred Mineral Resource – Pit: 1 308 000 t @ 1.95 g/t Au Indicated Mineral Resource – U/G: 243 000 t @ 4.73 g/t Au Inferred Mineral Resource – U/G: 4 075 000 t @ 5.38 g/t Au	Queenston Mining Inc. (CMH 2011-2012, p.521)	CMH 2010-2011, p.484	Active
Victoria Creek (Gauthier)	Au 32D04NW00043	1 342 000 t @ 5.12 g/t	Queenston Mining Inc. (Queenston Mining Inc. website, January 27, 2012)	Queenston Mining Inc. website, January 27, 2012	Inactive
Windjammer South (Michaud)	Au 42A08NE00158	Indicated Mineral Resource – pit: 16 177 400 t @ 0.86 g/t Au Indicated Mineral Resource – out of pit: 36 200 t @ 3.06 g/t Au Inferred Mineral Resource – pit : 16 766 400 t @ 0.79 g/t Au Inferred Mineral Resource – out of pit: 76 900 t @ 2.72 g/t Au	Moneta Porcupine Mines Inc. (CMH 2011-2012, p.427)	Moneta Porcupine Mines Inc., press release December 1, 2011	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 2011.

Activity	Number
Office Visits	889
Telephone Inquiries	424
Properties Visited	10
Field Trips Attended	6
Field Trips Given	11
Talks Given	1
Assessment Files and Donations Processed	275
Titles Added to Library Database	18
Drill Holes Added to Drill Core Library	0
MDI Records Updated	24
MDI Records Deleted	0
MDI Records Added	0

Table 9. Gold production in the Kirkland Lake Resident Geologist District to the end of 2011.

Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
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	3,339,566	386,072	0.116	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***

Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
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	1,195,964	81,522	0.068	1990–91,93–95,99–2000,07,10
Holloway Mine*	Holloway	5,685,555	903,425	0.159	1993,95(preproduction), 96–06,11–
Holloway–Holt	Holloway	601,778	89,703	0.149	2007–2010
Holt*	Holloway	8,435,099	1,300,130	0.154	1988–2004,11–
Hudson–Rand	Teck	6,496	483	0.074	1922
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	1,338,317	474,434	0.355	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

Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
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***
Tyranite	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
Total including tailings		**149,367,104**	**42,583,205**	**0.285**	
Total excluding tailings		**145,074,470**	**42,380,806**	**0.292**	
Kirkland Lake Camp (West to East)					
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	1,338,317	474,434	0.355	
Teck Hughes	Teck	9,565,302	3,709,007	0.388	
Lake Shore	Teck	17,208,323	8,602,791	0.500	

Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
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	
Total		**55,299,936**	**24,551,339**	**0.444**	
Kirkland Lake Tailings					
Eastmaque (tailings)	Teck	1,051,744	28,740	0.027	
Macassa (Tailings)	Teck	3,240,890	173,659	0.054	
Total		**4,292,634**	**202,399**	**0.047**	
Gauthier Camp					
Bidgood	Lebel	586,367	160,184	0.2732	
McBean	Gauthier	557,621	45,900	0.0823	
Upper Beaver	Gauthier	580,562	140,709	0.2424	
Upper Canada	Gauthier	4,648,984	1,398,291	0.3008	
		6,373,534	**1,745,084**	**0.274**	
Virginiatown Camp					
Chesterville	McGarry	3,260,439	358,880	0.110	
Kerr	McGarry	40,336,512	10,457,441	0.259	
Total		**43,596,951**	**10,816,321**	**0.248**	
Holloway Camp					
Holloway Mine*	Holloway	5,685,555	903,425	0.159	
Holloway–Holt	Holloway	601,778	89,703	0.149	
Holt*	Holloway	8,435,099	1,300,130	0.154	
Total		**14,120,654**	**2,203,555**	**0.156**	
Hislop Camp					
Black Fox (Glimmer)*	Hislop	3,339,566	386,072	0.116	
Hislop Mine (Hislop East)*	Hislop	1,195,964	81,522	0.068	
Ross	Hislop	6,714,482	995,832	0.148	
Total		**11,250,012**	**1,463,426**	**0.130**	
Matachewan Camp					
Matachewan Consolidated	Powell	3,631,908	385,503	0.106	
Young–Davidson	Powell	6,218,272	585,690	0.094	
Total		**9,850,180**	**971,193**	**0.099**	
Shining Tree Camp					
Ronda	Macmurchy	24,592	2,727	0.111	
Tyranite	Tyrrell	223,810	31352	0.140	
Total		**248,402**	**34,079**	**0.140**	

* Producer in 2010
** Base metal producer
*** Intermittent production

Table 10. Mineral Deposit Inventory records revision in 2011.

Resident or District Office	Updates	Deletions	New
Kenora	175	2	99
Kirkland Lake	89		10
Red Lake	59		7
Sault Ste Marie	46	1	1
Southeastern Ontario	863	414	20
Southwestern Ontario	6	0	0
Sudbury	217	98	8
Thunder Bay North	214	1	66
Thunder Bay South	389	2	110
Timmins	209	1	69
Total	2267	519	390

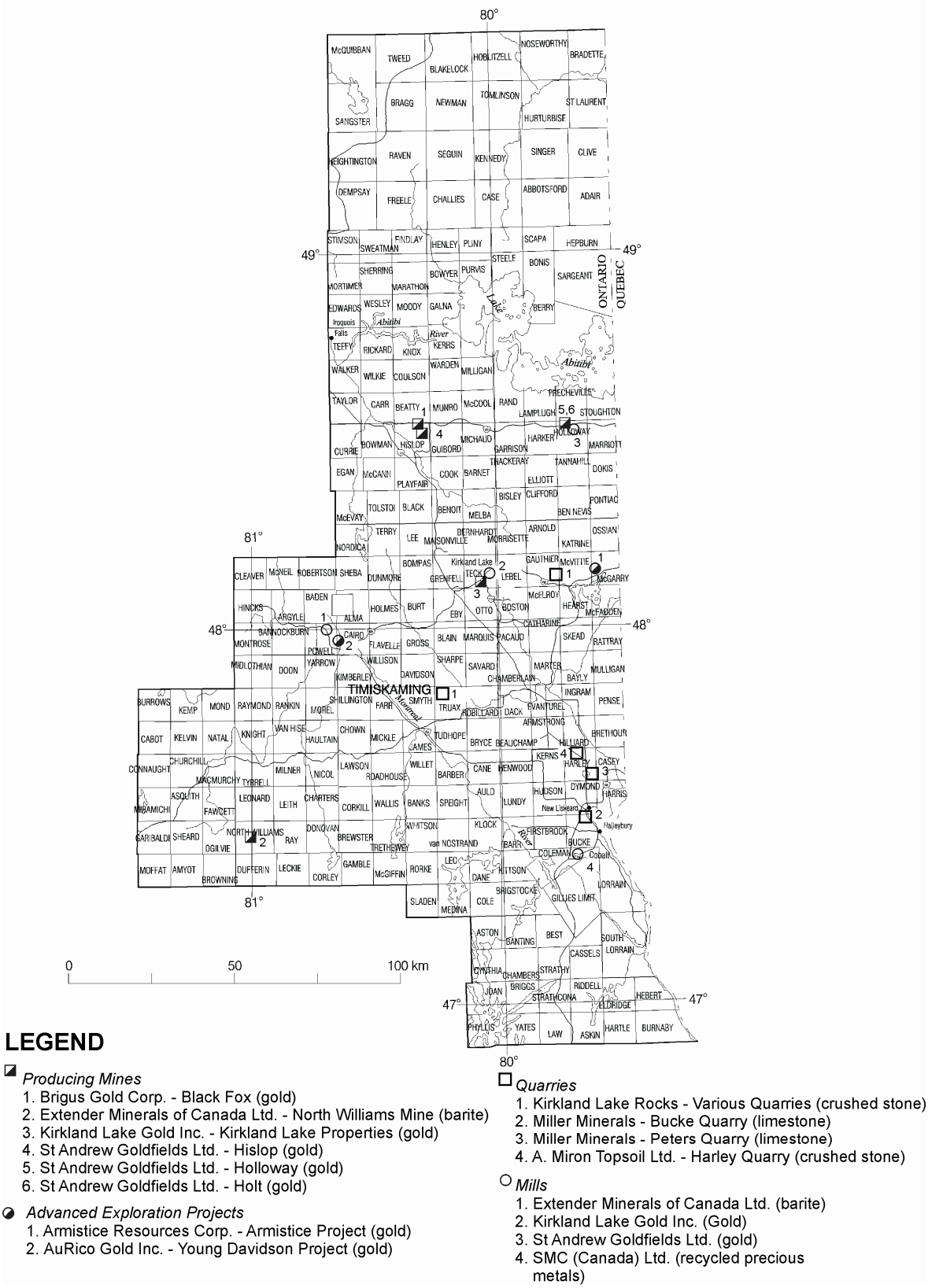
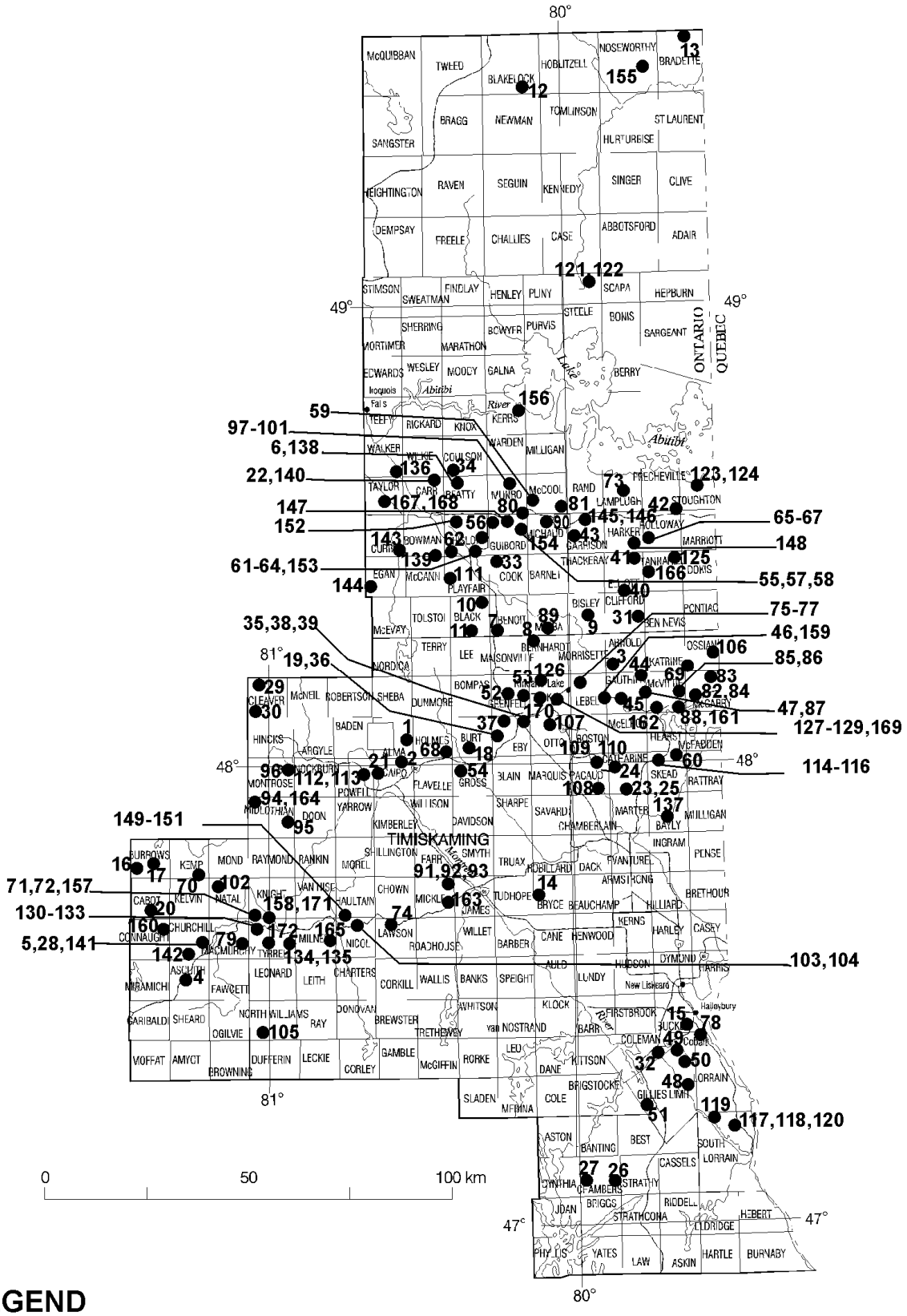


Figure 1. Mining and milling in the Kirkland Lake District in 2011.



LEGEND

● Active Exploration Projects 2011 - see Tables 3 and 4.

Figure 2. Active exploration properties in the Kirkland Lake District in 2011.

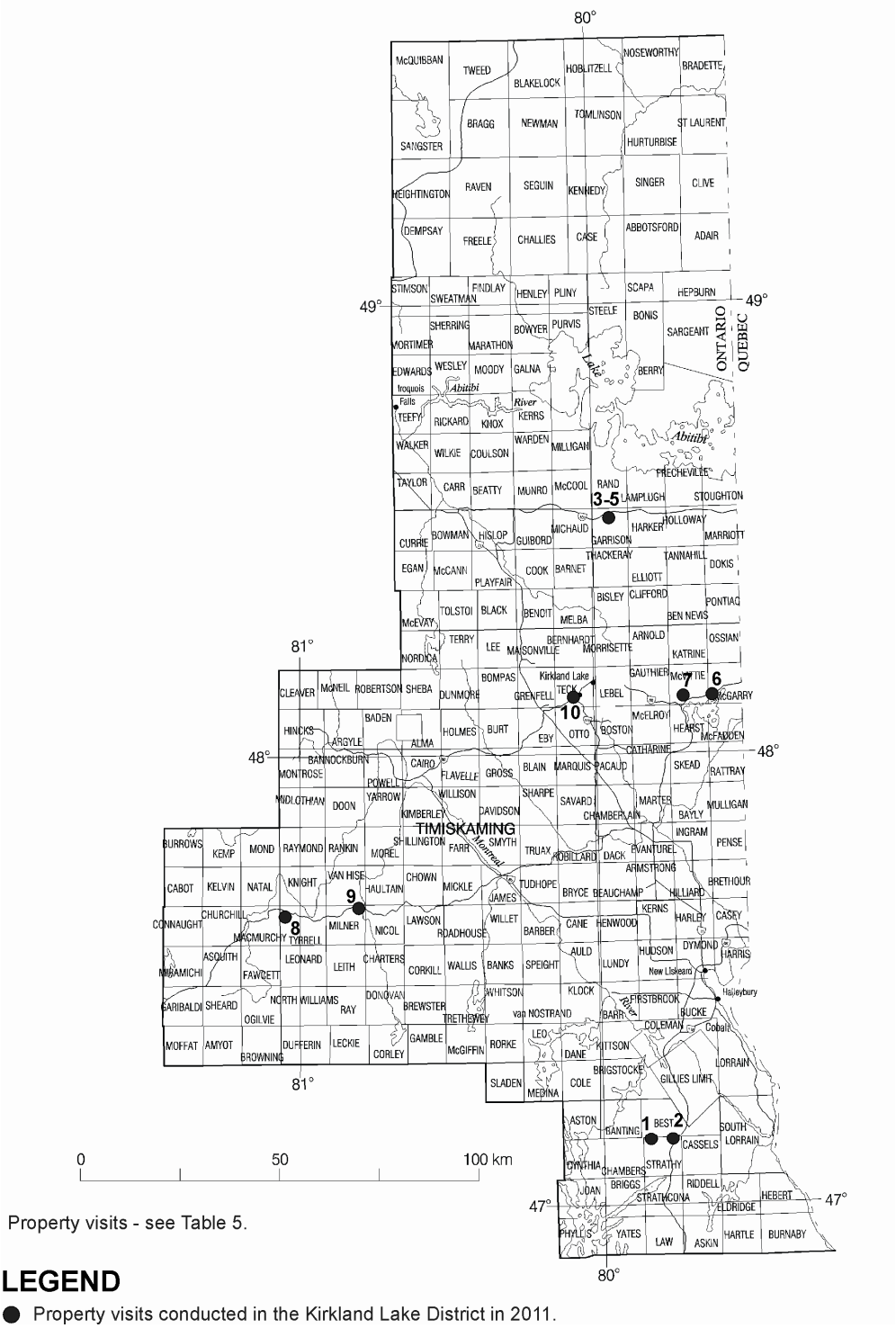


Figure 3. Property visits conducted in the Kirkland Lake District in 2011.

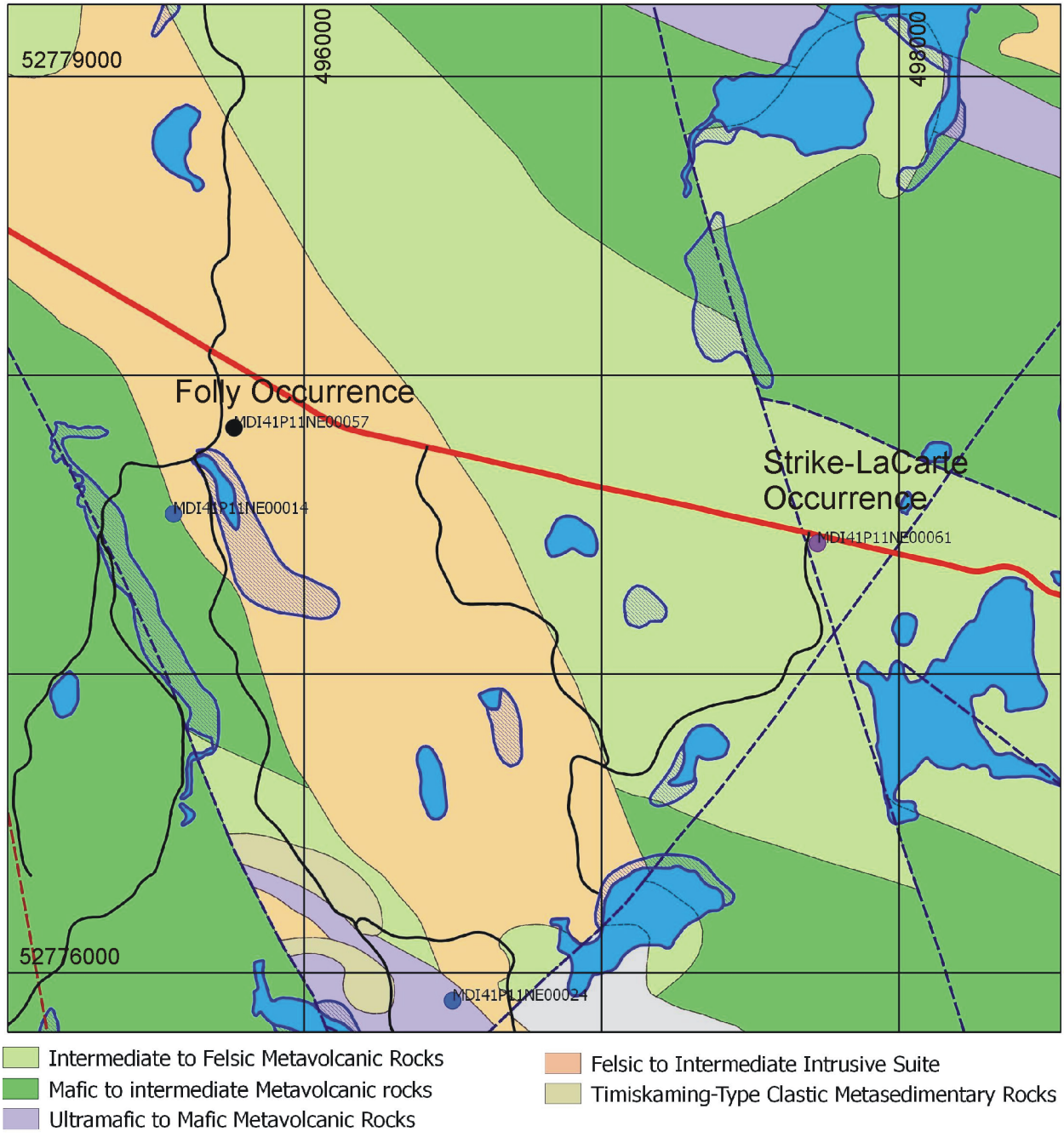


Figure 4. Geology of the Folly and Strike-LaCarte occurrences, Tyrrell Township (geology *after* Ayer, Trowell and Josey 2004).

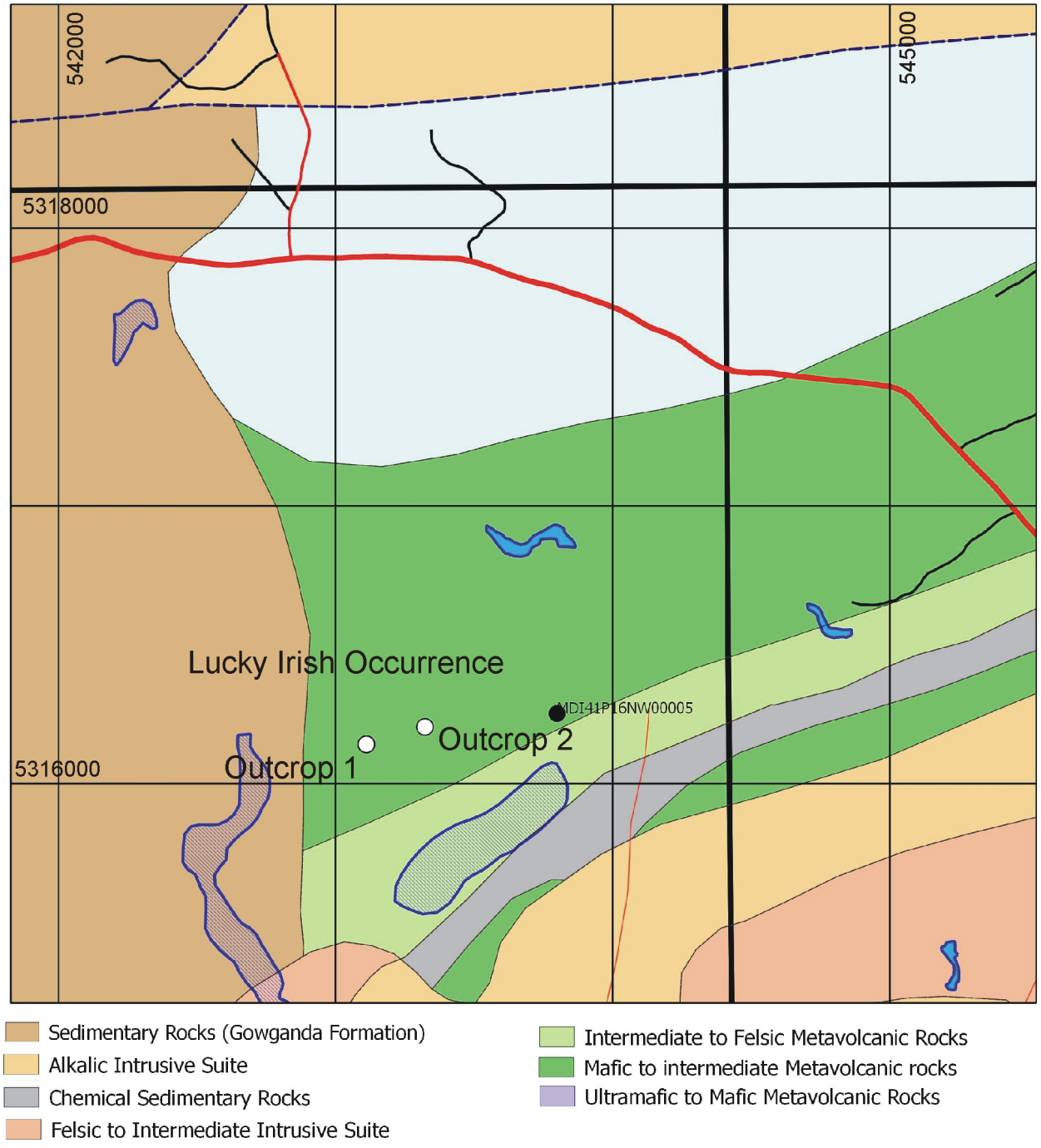


Figure 5. Geology of the Lucky Irish occurrence, Flavelle Township (geology *after* Ayer, Trowell and Josey 2004).

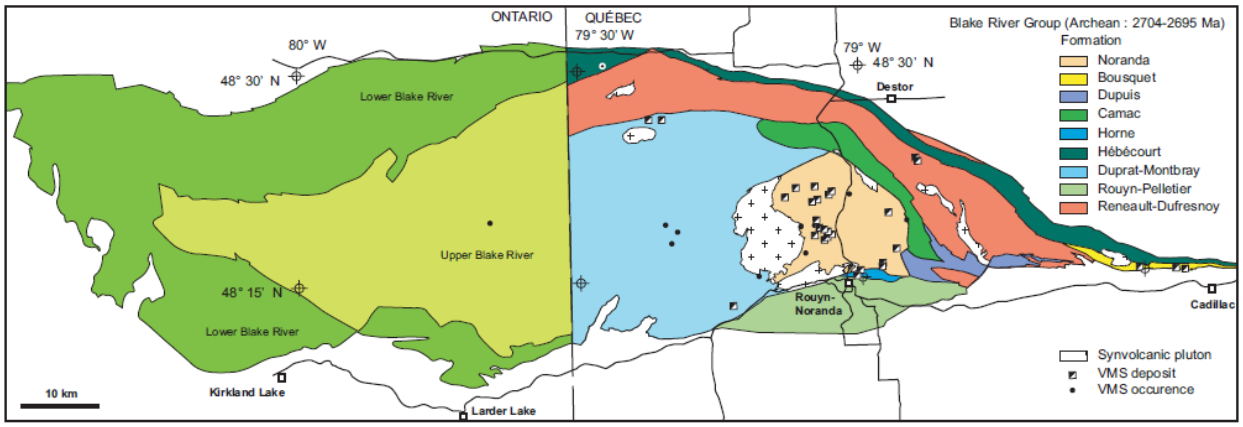


Figure 6. Subdivisions of the Blake River Group in Quebec and Ontario (*from* Mercier-Langevin et al. 2011).

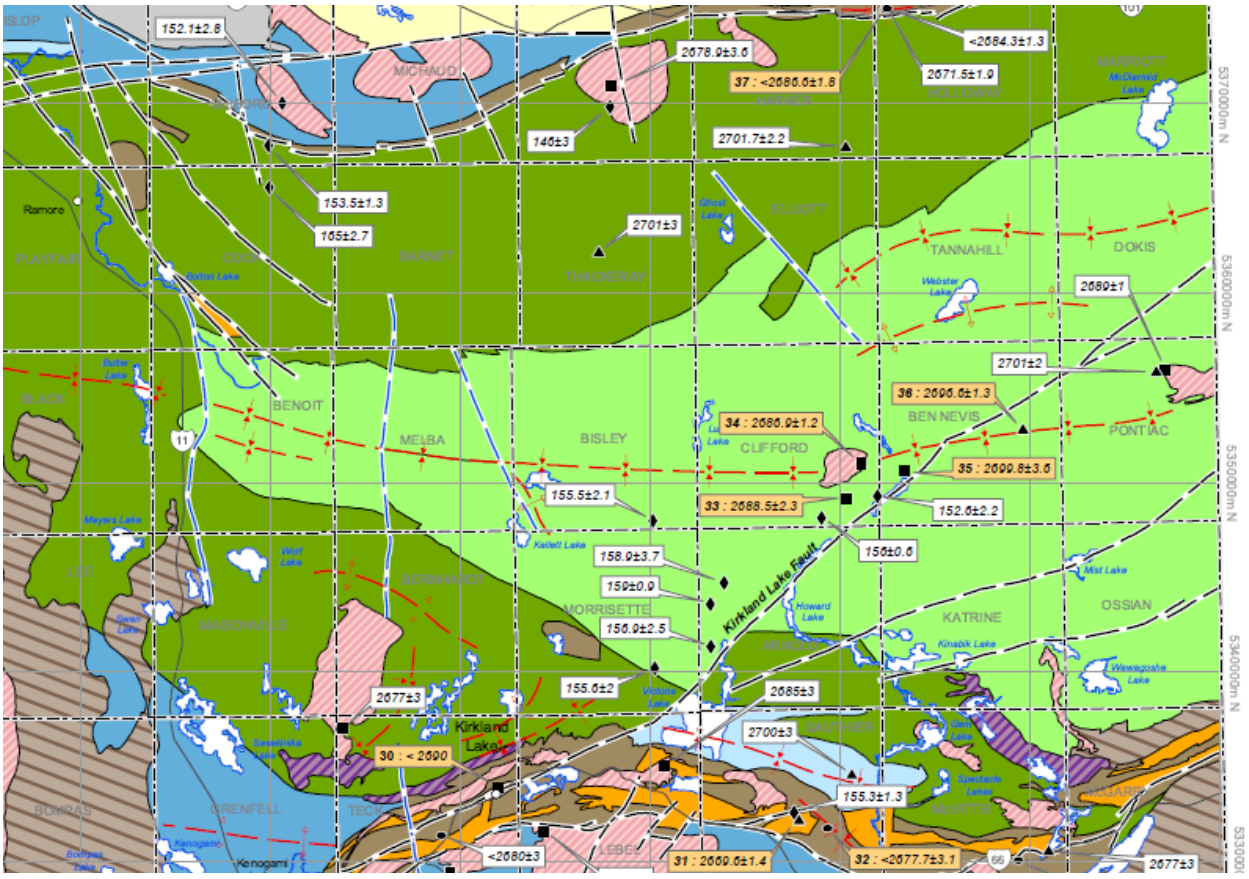


Figure 7. Blake River Group assemblages in Ontario (*from* Ayer et al. 2005).

Photo 1. Channel sample showing pyrite, pyrrhotite and chalcopyrite mineralization in basalt, T. Mathieu, Hook property, Strathy Township. UTM 586974E, 5221206N, NAD 83, Zone 17.

Photo 2. Pillowed basalt with pyrite and quartz-carbonate in selvages, T. Mathieu, Hook property, Strathy Township. UTM 587189E, 5221382N, NAD 83, Zone 17.

Photo 3. Cherty sulphide iron formation (exhalite?) along contact between pillow basalt (to the left of hammer) and massive coarser grained basalt (right), T. Mathieu, Hook property, Strathy Township. UTM 587189E, 5221382N, NAD 83, Zone 17.

Photo 4. Pyrite and chalcopyrite in quartz-carbonate vein cutting diabase on Mathieu showing, Owaissa property, Strathy Township. UTM 592360E, 5221873N, NAD 83, Zone 17.

Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
		LENGTH			
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
		AREA			
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
		VOLUME			
1 cm^3	0.061 023	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m^3
		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	**4.546 090**	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)	**31.103 476 8**	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	**0.453 592 37**	kg
1 kg	0.001 102 3	tons (short)	1 ton(short)	**907.184 74**	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	**0.907 184 74**	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	**1016.046 908 8**	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	**1.016 046 9**	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

	Multiplied by	
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 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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